

**RECORD OF DECISION**

**Portland Harbor Superfund Site**

**Portland, Oregon**



**U.S. Environmental Protection Agency Region 10**

**Seattle, Washington**

**January 2017**

## **PART 1: DECLARATION FOR THE RECORD OF DECISION**

### **SITE NAME AND LOCATION**

Portland Harbor Superfund Site

Portland, Multnomah County, Oregon

Superfund Site Identification Number: ORSFN1002155

### **STATEMENT OF BASIS AND PURPOSE**

This Record of Decision (ROD) presents the Selected Remedy for the in-river portion of the Portland Harbor Superfund Site (the Site) in Multnomah County, Oregon. The Selected Remedy was chosen in accordance with the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), and to the extent practicable, the National Contingency Plan (NCP). This decision is based on the Administrative Record file (Appendix V) for the Site. The State of Oregon concurs with the Selected Remedy.

### **ASSESSMENT OF THE SITE**

The response action selected in this ROD is necessary to protect public health or welfare or the environment from actual or threatened releases of hazardous substances into the environment and pollutants or contaminants which may present an imminent and substantial endangerment to the public health or welfare.

### **DESCRIPTION OF THE SELECTED REMEDY**

The Selected Remedy is a final action for the in-river portion of the Site from approximately river mile (RM) 1.9 to 11.8. It addresses unacceptable human health risks associated with consumption of resident fish and shellfish and exposure to in-river sediments, surface water, and groundwater. It also addresses ecological risks to wildlife that consume fish, shellfish, and other biota, as well as bottom-dwelling organisms (benthic invertebrates), fish, and wildlife from exposure to sediment, surface water, and groundwater.

The overall strategy for addressing contamination at the Site has included actions at various locations throughout the Site, including upland source control work conducted by the Oregon Department of Environmental Quality (DEQ) and other enforcement and cleanup actions within the Site at the following locations: Terminal 4 (RM 4.5 East), NW Natural (RM 6 West), Arkema (near RM 7 West), U.S. Moorings (near RM 6 West), Triangle Park (RM 5 East), Gasco (RM 6.5 West), River Mile 11E Project Area, McCormick and Baxter Superfund NPL Site (RM 7 East), Gould Superfund NPL Site (RM 5 West), and BP Arco Bulk Terminal (RM 4.5 West). Additional details regarding these cleanup actions are provided in ROD Section 2.3.

The Selected Remedy addresses all areas where contaminant concentrations exceed the cleanup levels through a combination of technologies, including capping, dredging/excavation, in-situ and ex-situ treatment, enhanced natural recovery (ENR), monitored natural recovery (MNR), and institutional controls (ICs). Certain contaminated river banks will be addressed using the same remedial technologies that will be used for the adjacent contaminated sediment, if it is



determined that those river banks should be remediated in conjunction with the sediment action. Caps can be constructed of layers of clean material and can be augmented with reactive amendments in areas with groundwater plumes and/or constructed as armoured caps in higher energy environments. ENR includes placement of clean material over low-level contaminated sediments, with reactive amendment such as activated carbon, as required, to reduce contaminant concentrations. MNR relies on natural processes such as burial of contaminated sediments by cleaner sediments from upstream. All areas with principal threat waste (PTW) will be addressed by active remediation, not MNR. Dredged material will be sent to off-site disposal facilities, either Resource Conservation and Recovery Act (RCRA) Subtitle D or C compliant, as appropriate.

In the Proposed Plan, EPA requested public comment on all of the proposed alternatives. As discussed in the Decision Summary, EPA received comments on all alternatives, including numerous comments that the Preferred Alternative in the Proposed Plan was not protective enough of human health and the environment. In response to this new information, EPA selected a different alternative that will more closely address the concerns raised through public comments.

The Selected Remedy will include a total constructed area of 394 acres of sediment and 23,305 lineal feet of river bank and will allow 1,774 acres of sediment to recover naturally. The construction will include 365.3 acres of capping and dredging contaminated sediment and 28.2 acres of ENR. Additionally, the 23,305 lineal feet of river bank are assumed to be either excavated or covered with an augmented reactive cap or an engineered cap using beach mix or vegetation. The Selected Remedy also requires compensatory mitigation for loss of habitat resulting from the cleanup, currently estimated at 60 acres.

The Selected Remedy includes dredging of approximately 215.2 acres of sediment to varying depths (3,017,000 cubic yards [cy]) and excavating approximately 123,000 cy of contaminated material from river banks. The need for, and extent of, ex-situ treatment will be based on the off-site disposal requirements and material testing during design and construction. For purposes of the FS, disposal locations and requirements were assumed and cost estimates were calculated based on those assumptions. If, during design, more proximate or cost-effective disposal facilities emerge, EPA would support use of these options to reduce the cost and environmental impact of the cleanup.

As part of the FS, observed current uses were assumed to continue in the river. As part of the public comment period, some parties identified that the potential future use(s) of a part of the river may be other than current uses or EPA's assumptions. To ensure that the correct reasonably anticipated future uses are used for the remedial design, these assumptions will be verified and will be altered, as appropriate. For example, eliminating the need for a more expensive dredge and armored cap remedy may be possible if a significant area is no longer to be used for marine terminal purposes.

The Selected Remedy is estimated to take 13 years to construct. As the cleanup is constructed, levels of contamination in fish tissue are expected to decline over time until levels of contamination in resident fish reach background anthropogenic levels.

The Selected Remedy includes short-term monitoring during construction and long-term monitoring of caps, dredge areas, and MNR areas after construction to evaluate long-term effectiveness and ensure the remedies function as designed.

ICs will be implemented to: (1) protect human health and the environment by limiting exposure to contamination left in place and (2) protect the long-term integrity of the engineered components of the Selected Remedy. An Institutional Control Implementation and Assurance Plan (ICIAP) will be developed during remedial design which will, at a minimum, set out the specifics of the ICs and measures that will be implemented and who will be responsible for implementing, enforcing, and monitoring each IC. Among others, three types of ICs that will be used are described further below:

- **Fish Advisories and Educational Outreach:** A fish advisory is currently in effect for the Lower Willamette River. Once construction is complete, the advisory will be updated to allow an increased consumption rate based on fish tissue concentrations. The advisory may be periodically updated until Remedial Action Objectives and cleanup levels are reached. The outreach program to communicate with the public regarding risks from consumption of contaminated fish may include: informational meetings, presentations, and workshops targeting affected community groups; development and distribution of informational materials such as brochures or maps; advisory notifications communicated through a variety of culturally appropriate outlets; installation and maintenance of advisory signs at known fishing locations; and coordination with sport or recreational fishing clubs and licensing locations.

**Waterway Use Restrictions or Regulated Navigation Areas (RNAs):** Where caps will be utilized to contain contamination in navigable areas of the river, waterway use restrictions may be implemented to ensure the integrity of the cap is maintained in perpetuity. These restrictions may preclude boat anchoring and keel dragging, the use of spuds to stabilize vessels, structure and utility maintenance and repair, and future maintenance dredging in areas containing caps. Notifications such as signs and buoys placed by the Oregon Marine Board may be used to warn vessels away from the area. Periodic inspections of RNA notifications will be needed to ensure they are functional and effective and will be evaluated in five-year reviews.

- **Land Use/Access Restrictions:** Land use or access restrictions will be implemented in nearshore areas and river banks to maintain the integrity of caps from current or future activities, such as construction and maintenance of structures. Where needed, coordination with Oregon's Department of State Lands (DSL) and adjacent landowners will be conducted to implement land use or access restrictions. Monitoring, including inspections, will be conducted to ensure that restrictions are functioning as intended.

Since the Selected Remedy will leave contamination in place above levels that allow unlimited use and unrestricted exposure, five-year reviews will be conducted as required by CERCLA. Other types of controls that likely will be used include coordinated permit reviews of in-river work (e.g., maintenance dredging, pile removal) that will be necessary to minimize recontamination to the Site.

Total estimated net present value costs (discounted at 7 percent) for the Selected Remedy are \$1,054,200,000. The total non-discounted capital costs are \$1,184,607,000 and periodic costs are \$524,028,000.

## **STATUTORY DETERMINATIONS**

The Selected Remedy is protective of human health and the environment, complies with federal and state requirements that are applicable or relevant and appropriate to the remedial actions (unless justified by a waiver), is cost effective, and uses permanent solutions and treatment technologies to the maximum extent practicable.

Although CERCLA § 121(b)(1), 42 U.S.C. § 9621(b)(1), expresses a preference for selection of remedial actions that use permanent solutions and treatment technologies to the maximum extent practicable, there are situations that may limit the use of treatment, including when treatment technologies are not technically feasible or when the extraordinary size or complexity of a site makes implementation of treatment technologies impracticable. The Selected Remedy will generate approximately 2,481,000 to 3,308,000 cy of contaminated sediments through dredging. The Selected Remedy will address all principal threat waste (PTW) by excavation and off-site disposal or, if left in place, with augmented reactive caps to provide in-situ treatment. Additionally, as necessary, dredged or excavated PTW will be treated prior to disposal if required by state or federal regulations. The Selected Remedy is estimated to provide ex-situ treatment of approximately 191,500 cy of contaminated sediment and river bank soil. In-situ treatment such as cap amendments will be applied over 133 acres. With these treatment actions, the preference for treatment requirement of the NCP has been met.

The Selected Remedy will result in hazardous substances, pollutants, or contaminants remaining on-site above levels that allow unlimited use and unrestricted exposure. Therefore, statutory reviews will be conducted every five years after the initiation of the remedial action to ensure the remedy continues to provide adequate protection of human health and the environment.


## **DATA CERTIFICATION CHECKLIST**

The following information is included in the Decision Summary section of this ROD. Additional information can be found in the Administrative Record file for this Site.

- Contaminants of Concern (COCs) and their respective concentrations are in Section 6, "Summary of Site Characteristics."
- Baseline risks for human health and the environment represented by the COCs are in Section 8, "Summary of Site Risks."

- Cleanup levels established for COCs and the basis for these levels are in Section 9, "Remedial Action Objectives."
- How source materials or highly toxic materials that are PTW are addressed is in Sections 6, "Summary of Site Characteristics", and 14, "Selected Remedy".
- Current and reasonably anticipated future use assumptions used in the baseline risk assessment and ROD are in Section 7, "Current and Potential Future Site and Resource Uses."
- Estimated capital, operation and maintenance (O&M) and total present value costs, discount rate, and the number of years over which the remedy cost estimates are projected in Section 14.3. "Summary of Estimated Remedy Costs."
- Key factors that led to selecting the remedy (i.e., how the Selected Remedy provides the best balance of tradeoffs with respect to the balancing and modifying criteria, highlighting criteria key to the decisions) are in Section 11, "Comparative Analysis of Alternatives." and Section 14, "Statutory Determinations."

**AUTHORIZING SIGNATURE:**

  
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Gina McCarthy  
Administrator  
U.S. Environmental Protection Agency

1/3/2017  
Date

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## LIST OF ACRONYMS

ADD	average daily dose
AOC	Administrative Settlement and Order on Consent
ARAR	applicable or relevant and appropriate requirements
AWQC	ambient water quality criteria
BA	Biological Assessment
BaP <sub>eq</sub>	benzo(a)pyrene equivalent
BEHP	bis-2(ethylhexyl) phthalate
BERA	baseline ecological risk assessment
BHHRA	baseline human health risk assessment
bml	below mud line
BMP	best management practice
BNSF	Burlington Northern Santa Fe Railway Company
C	carbon
CAA	Clean Air Act
CAG	Community Advisory Group
CDF	confined disposal facility
CERCLA	Comprehensive Environmental Response, Compensation and Liability Act
CFR	Code of Federal Regulations
CGF	Coarse-grained Flood Deposits
Chem Waste	Chemical Waste Management of the Northwest
CIP	Community Involvement Plan
cm	centimeter
COC	contaminant of concern
COPC	contaminant of potential concern
cPAH	carcinogenic polycyclic aromatic hydrocarbon
CRBG	Columbia River Basalt Group
CRD	Columbia River datum
CRITFC	Columbia River Inter-Tribal Fish Commission
CSM	conceptual site model
CSO	combined sewer overflow
CTE	central tendency
CWA	Clean Water Act
cy	cubic yard
DDD	dichlorodiphenyldichloroethane
DDE	dichlorodiphenyldichloroethene
DDT	dichlorodiphenyltrichloroethane
DDx	DDT+DDD+DDE
DEQ	Oregon Department of Environmental Quality
dioxins	polychlorinated dibenzo-p-dioxins
DMM	disposed material management
DSL	Oregon Department of State Lands
ECSI	Environmental Cleanup Site Information

EFH	Essential Fish Habitat
ENR	enhanced natural recovery
E.O.	Executive Order
eq	equivalent
EPA	United States Environmental Protection Agency
EPC	exposure point concentration
ESA	Endangered Species Act
ESD	Explanation of Significant Differences
FEMA	Federal Emergency Management Agency
FFA	Fill, Fine-grained Facies of Flood Deposits, and Recent Alluvium
FMD	future maintenance dredge
F Mod	Alternative F (Modified)
FS	feasibility study
ft	feet
g/day	grams per day
HEA	Habitat Equivalency Analysis
HEC-RAS	Hydrologic Engineering Center River Analysis System
HI	hazard index
HQ	hazard quotient
HST	hydrodynamic and sediment transport
HxCDF	1,2,3,7,8,9-hexachlorodibenzofuran
IC	institutional control
ICIAP	Institutional Controls Implementation and Assurance Plan
ISA	initial study area
LDR	land disposal restriction
LOE	line of evidence
LWG	Lower Willamette Group
MCL	maximum contaminant level
MCLG	maximum contaminant level goal
MCPP	2-(4-chloro-2-methylphenoxy)propanoic acid
mg/kg-day	milligrams per kilogram per day
MGP	manufactured gas production
MNR	monitored natural recovery
MOU	memorandum of understanding
NAPL	non-aqueous-phase liquid
NCP	National Contingency Plan
NHPA	National Historic Preservation Act
NMFS	National Marine Fisheries Service
NPDES	National Pollutant Discharge Elimination System
NPL	National Priorities List
NRWQC	National Recommended Water Quality Criteria
OAR	Oregon State Administrative Rules
ODFW	Oregon Department of Fish and Wildlife

OHA	Oregon Health Authority
OHSRA	Oregon Hazardous Substance Remedial Action
OSWER	Office of Solid Waste and Emergency Response
OU	operable unit
O&M	operation and maintenance
PAH	polycyclic aromatic hydrocarbon
PA/SI	preliminary assessment/site investigation
PCB	polychlorinated biphenyl
PCDD	polychlorinated dibenzo-p-dioxin
PCDD/F	polychlorinated dibenzo-p-dioxin/furan
PCDF	polychlorinated dibenzofuran
PCP	pentachlorophenol
PeCDD	pentachlorodibenzo-p-dioxin
PeCDF	pentachlorodibenzofuran
pg/L	pictogram per liter
ppm	parts per million
PRP	potentially responsible party
PTW	principal threat waste
RAL	remedial action level
RAO	remedial action objective
RCRA	Resource Conservation and Recovery Act
RfD	reference dose
RHV	Relative Habitat Value
RI	remedial investigation
RI/FS	remedial investigation and feasibility study
RM	river mile
RME	reasonable maximum exposure
RNA	regulated navigation area
ROD	Record of Decision
RSL	regional screening level
SDU	sediment decision unit
SDWA	Safe Drinking Water Act
SF	slope factor
Site	Portland Harbor Superfund Site
SLERA	screening-level ecological risk assessment
SMA	sediment management area
SPCC	Spill Prevention, Containment and Countermeasure Plan
SQV	sediment quality value
SVOC	semivolatile organic compound
SWAC	surface area weighted average concentration
TAG	technical assistance grant
TBC	to be considered
TBT	tributyltin

TCDD	2,3,7,8-tetrachlorodibenzo-p-dioxin
TCDF	tetrachlorodibenzofurans
TCT	Technical Coordinating Team
TEQ	toxic equivalent concentration
TMDL	total maximum daily load
TOC	total organic carbon
tribes	Native Americans
TRV	toxicity reference value
TSCA	Toxic Substance Control Act
TZW	transition zone water
t=0	time equals 0
UCL	upper confidence limit
USACE	U.S. Army Corps of Engineers
U.S.C.	U.S. Code
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey
VOC	volatile organic compound
WQS	water quality standard
µg/kg	microgram per kilogram
µg/L	microgram per liter
%	percent

## **PART 2: THE DECISION SUMMARY**

### **1. SITE NAME, LOCATION, AND BRIEF DESCRIPTION**

The Portland Harbor Superfund Site, as listed on the National Priorities List (NPL) (Superfund Site ID#: ORSFN1002155), includes an in-river and an upland portion. The Site was listed on the NPL in December 2000 mainly due to concerns about contamination in the sediments and the potential risks to human health and the environment from consuming the fish. This Record of Decision (ROD) describes the remedial alternatives that were considered and selects a final remedy for the in-river portion of the NPL site from approximately river mile 1.9 to 11.8, and does not include actions to address the upland portion. The terms Site, harbor-wide, and Site-wide used in this document in relation to the Selected Remedy generally refer only to the in-river portion of the NPL site being addressed in this ROD.

This ROD was developed by the Environmental Protection Agency (EPA), the lead agency for the in-river portion of the Site, in consultation with the Oregon Department of Environmental Quality (DEQ), the support agency. After listing the Site on the NPL in 2000, EPA entered into a 2001 Memorandum of Understanding (MOU) with the DEQ, six federally recognized Native American Tribes (tribes), two other federal agencies, and one other state agency.<sup>1</sup> Under the MOU, DEQ is the lead agency for addressing contamination in the upland portions of the Superfund Site, and EPA is the support agency. The MOU partners have all provided input in the development of the remedial investigation/feasibility study (RI/FS), which in large measure was conducted by a group of potentially responsible parties (PRPs) under an Administrative Settlement and Order on Consent (AOC). EPA conducted an extensive search for PRPs and, to date, has identified about 150 parties as potentially responsible for releases of hazardous substances to the river, so this is an enforcement/PRP-financed site.

The Selected Remedy addresses approximately a 10-mile reach of the lower Willamette River in Portland, Multnomah County, Oregon (Figure 1 in Appendix I), which is an urban and industrial section of the river north of, and downstream of, downtown Portland, Oregon. The Site covered by this ROD is approximately 2,190 acres and extends from river mile (RM) 1.9 (upriver end of the Port of Portland's Terminal 5) to RM 11.8 (near the Broadway Bridge).

While the harbor area is heavily industrialized, it is located within a region characterized by commercial, residential, recreational, and agricultural uses. Land use along the lower Willamette River in the harbor includes marine terminals, manufacturing, and other commercial operations, as well as public facilities, parks, and open spaces. In addition to industrial activities, the Willamette River and surrounding watershed historically offered access to abundant natural

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<sup>1</sup> Government parties that signed the MOU include: Oregon Department of Environmental Quality, the Confederated Tribes and Bands of the Yakama Nation, the Confederated Tribes of the Grand Ronde Community of Oregon, the Confederated Tribes of Siletz Indians, the Confederated Tribes of the Umatilla Indian Reservation, the Confederated Tribes of the Warm Springs Reservation of Oregon, the Nez Perce Tribe, the National Oceanic and Atmospheric Administration, the U.S. Department of the Interior (National Marine Fisheries Service and U.S. Fish and Wildlife Service), and the Oregon Department of Fish and Wildlife.

resources in the river and on land. Many of these resources are still present such as fish, marine mammals, waterfowl, land mammals, and native plants.

The Willamette River is also important to many tribes. Fish are among the resources most frequently utilized by the tribes in the Portland Basin and the Willamette Valley. Culturally significant species include salmonids, lamprey (eels), eulachon (smelt), and sturgeon. Native people also fished for a variety of other resident species, including mountain whitefish, chiselmouth, northern pikeminnow, peamouth, and suckers (Butler 2004; Saleeby 1983). The harvest of the Pacific lamprey was, and continues to be, important to many tribes. Native plants were and continue to be gathered for food and medicinal purposes as well. Tribes have reserved hunting, fishing (particularly salmon and sturgeon species) and certain gathering rights through Treaties with the United States. These activities provide food for Tribal families and cultural heritage knowledge and skills. Tribal uses of these resources continue today, but access to suitable patches of habitat continues to be both a challenge and an essential element of maintaining local Tribal cultural knowledge, practices and traditions.

Contamination in the Site reflects the historical industrial, marine, commercial, defense, and municipal practices for over 100 years in this active industrial, urban, and trade corridor. Contaminants continue to reach the river through erosion of contaminated soils and river banks, and through groundwater and stormwater discharges. Upstream sources within the broader Willamette River Basin contribute to contamination in sediment, surface water, and biota at the Site. The human health and ecological risk assessments concluded that contamination within the Site poses unacceptable risk to human health and the environment due to the presence of a variety of contaminants. There are 64 contaminants of concern (COCs) at the Site, with most of the human health and ecological dietary risks attributed to polychlorinated biphenyls (PCBs), polycyclic aromatic hydrocarbons (PAHs), polychlorinated dibenzo-*p*-dioxins and furans (dioxins and furans), and pesticides such as dichlorodiphenyltrichloroethane (DDT).

## **2. SITE HISTORY AND ENFORCEMENT ACTIVITIES**

This section provides background information on past activities that have led to the current contamination at the Site and federal and state investigations and cleanup actions conducted to date under the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) and other authorities.

### **2.1. Site History**

The Willamette River is the 19th largest river in the United States and is one of 14 American Heritage Rivers in the country. The Willamette River flows into the larger Columbia River, which eventually flows into the Pacific Ocean. Even though the Willamette is nearly 100 river miles from the Pacific, there are tidal influences within the Site and overall, it is a very large and dynamic river. During its 309-mile course, which ends at its confluence with the Columbia River, it drains 11.7 percent (%) of the area in the State of Oregon. In 1891, the Oregon State Legislature created the Port of Portland. Since the late 1800s, the Portland Harbor section of the lower Willamette River has been extensively modified to accommodate a vigorous shipping industry. Modifications include redirection and channelization of the main river, draining

seasonal and permanent wetlands in the lower floodplain, and relatively frequent dredging to maintain the navigation channel, access to docks, and wharf facilities. Constructed structures, such as wharfs, piers, floating docks, and pilings, are especially common in Portland Harbor where urbanization and industrialization are most prevalent. These structures largely accommodate or support shipping traffic within the river and stabilize the river banks for urban development. Riprap is the most common bank-stabilization method although upland bulkheads and rubble piles are also used. Seawalls help control periodic flooding as most of the original wetlands bordering the river in the Portland Harbor area have been filled.

Historically, contaminants from many facilities entered the river system from different activities including, but not limited to: ship building and repair; ship dismantling; wood treatment and lumber milling; storage of bulk fuels; manufactured gas production (MGP); chemical manufacturing and storage; metal recycling, production and fabrication; steel mills, smelters, and foundries; and electrical production and distribution. These activities have resulted in direct discharges from upland areas through storm water and waste water outfalls, releases and spills from commercial operations occurring over the water, municipal combined sewer overflows (CSOs), and indirect discharges through overland flow, bank erosion, groundwater, and other nonpoint sources. In addition, contaminants from off-site sources have reached the Site through surface water and sediment transport from upstream and through atmospheric deposition. Operations that continue today along the river banks include bulk fuel storage, barge building, ship repair, automobile scrapping, recycling, steel manufacturing, cement manufacturing, operation and repair of electrical transformers (including electrical substations), and many smaller industrial operations.

A federal navigation channel, with an authorized depth of -40 feet (ft) Columbia River datum<sup>2</sup> (CRD), extends from the confluence of the lower Willamette River with the Columbia River to RM 11.6. Container and other commercial vessels regularly transit the river. Certain parts of the river require periodic maintenance dredging to keep the navigation channel at its authorized depth. In addition, the Port of Portland and other private entities periodically perform maintenance dredging to support access to dock and wharf facilities. Dredging activity has greatly altered the physical and ecological environment of the river in Portland Harbor. The current navigation depth was authorized in 1962 and dredging work on the authorized 40-ft-deep channel from Portland and Vancouver to the Pacific was completed in 1976. In 1999, Congress authorized the Willamette River to be deepened to 43 ft; however, this has not yet occurred. Swan Island Lagoon was created in the 1930s when dredge spoils were used to fill in part of the channel and connect Swan Island to the mainland. The Willamette River channel, from the Broadway Bridge (RM 11.6) to the mouth (RM 0), varies in width from 600 to 1,900 ft. The U.S. Army Corps of Engineers (USACE) maintains the navigation channel.

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<sup>2</sup> CRD is used as the nautical chart datum for the lower Willamette River. CRD is a reference plane established by the USACE in 1912 by observing low water elevations at various points along the Columbia and Willamette rivers (USACE 1966). Consequently, CRD is not a fixed/level datum but slopes upward as one moves upstream. River users can obtain the depth on a chart and apply tide or river-level gauge readings, relative to CRD, to compute actual water depth. Low water values are used for navigation charting to provide conservative depth values in the event accurate tide data are not available to the river user.



Development of the river has resulted in major modifications to the ecological function of the lower Willamette River. However, a number of species of invertebrates, fish, birds, amphibians, and mammals, including some protected by the Endangered Species Act (ESA), use habitats that occur within and along the river. The river is also an important pathway for migration of anadromous fish such as salmon and lamprey. Various recreational fisheries, including salmon, bass, sturgeon, crayfish, and others, use the lower Willamette River. Resident fish in the Site include but are not limited to: smallmouth bass, brown bullhead, black crappie, and carp.

## **2.2. Previous Investigations**

Numerous investigations have been conducted of the Portland Harbor Site dating back to the 1920s; however, most studies were conducted from the late 1970s through the 1990s. Some investigations were conducted on a larger scale (e.g., several river miles) while others were conducted on a smaller scale (e.g., less than 1 river mile). Larger scale investigations typically were conducted by or for federal or state agencies, such as USACE, the U.S. Geological Survey (USGS), the Oregon Department of State Lands (DSL), the Oregon Department of Fish and Wildlife (ODFW), the DEQ Water Program, and EPA, to assess the river system. Smaller scale investigations typically were conducted by private parties for the purposes of maintenance dredging, construction and maintenance of in-river structures, or assessment of fate and transport of contamination from upland or in-river releases.

As part of EPA's RI/FS process, nearly 700 documents and data sets were obtained that address conditions in the lower Willamette River. This information was used to develop an initial understanding of the physical, chemical, and biological processes at the Site and to assist in the development of the conceptual site model (CSM).

EPA conducted a Preliminary Assessment and Site Investigation (PA/SI) in May 1998 (Roy F. Weston 1998). Sediment data collected during the PA/SI and previous investigations resulted in the NPL listing of the Site.

## **2.3. Enforcement Activities and Cleanup Actions Planned or Completed to Date by EPA**

On September 28, 2001, 10 PRPs that call themselves the Lower Willamette Group (LWG) entered into an AOC with EPA to conduct the RI/FS. Two AOC Amendments were also signed by these parties and EPA in 2003 and 2006.

The cleanup or control of the upland contamination that provides ongoing contaminant sources to the river is, and will be, conducted primarily under DEQ oversight using state authorities. DEQ and EPA updated the Portland Harbor Joint Source Control Strategy – Milestone Report (DEQ 2010), which describes how to identify, evaluate, and prioritize upland sources of contamination that are affecting or may affect the Willamette River in the Portland Harbor area. DEQ's source control activities are summarized in the Portland Harbor Upland Source Control Summary Report, updated in April 2016 (DEQ 2016). It is posted on DEQ's website: [www.deq.state.or.us/portlandharbor/](http://www.deq.state.or.us/portlandharbor/).

In addition to the RI/FS work conducted under an AOC with the LWG and the source control work conducted by DEQ, other enforcement and cleanup actions have occurred or were initiated at several areas within the Portland Harbor Superfund Site, and are summarized below.

- **Terminal 4 (RM 4.5 East):** The Port of Portland and EPA signed an AOC for a Removal Action in October 2003. The Port of Portland completed a Phase I Abatement Measure in 2008. Phase I consisted of dredging and off-site disposal of 12,819 cubic yards (cy) of contaminated sediment, capping contaminated sediment with an organoclay-sand mix cap in the back of Slip 3, and capping and stabilizing the bank along Wheeler Bay. The Port also conducted a 60% design of a confined disposal facility (CDF) in Slip 1.
- **NW Natural (RM 6 West):** NW Natural and EPA signed an AOC for a Removal Action in April 2004. The Removal Action was conducted at the Gasco Manufactured Gas Plant facility between August and October 2005. Approximately 15,300 cy of tar-like material and tar-like contaminated sediment were dredged from the river bank and nearshore area adjacent to the Gasco facility and disposed of off-site in a permitted disposal facility. An organoclay mat and sand cap was also installed over the dredged area.
- **Arkema (near RM 7 West):** Arkema Inc. and EPA signed an AOC for a Removal Action in June 2005. Arkema conducted some site characterization and preliminary design evaluations. However, the AOC was terminated in March 2016, and no cleanup actions have been taken to date.
- **U.S. Moorings (near RM 6 West):** EPA issued a Resource Conservation and Recovery Act (RCRA) 3013 order to the USACE for an upland source investigation in June 2007. USACE completed an RI/FS for upland sources and addressed an area where potentially erodible, contaminated soils were found.
- **Triangle Park (RM 5 East):** The University of Portland and EPA signed a Bona Fide Prospective Purchaser Agreement and an Order on Consent for an Upland Removal Action in December 2006 and an Amendment in April 2009. The four main components to the completed removal action included institutional controls (ICs), groundwater monitoring, excavation, and capping.
- **Gasco (RM 6.5 West):** NW Natural, Siltronic Corporation, and EPA signed an AOC for a Removal Action in September 2009. NW Natural and Siltronic are conducting site characterization and design evaluations for the area offshore of their two facilities. They have also agreed to perform further characterization, studies, analysis, and preliminary design for the final remedy at the Gasco Sediment site. The studies and other work under the agreement were incorporated into the Portland Harbor RI/FS. No cleanup actions have been conducted to date.
- **River Mile 11E Project Area:** Cargill, Inc., CBS Corporation, City of Portland, DIL Trust, Glacier Northwest, Inc., PacifiCorp, and EPA signed an AOC for a Supplemental RI/FS in April 2013. Site characterization work was conducted from 2013 to 2015, although no cleanup actions have been conducted to date.

- **McCormick and Baxter Superfund NPL Site (RM 7 East):** The selected remedy for this wood treatment facility addressed both in-river and upland portions of the site and was completed in September 2005. As part of this cleanup, a cap was placed on 23 acres of nearshore and submerged land adjacent to the facility. DEQ is the lead for operations and maintenance (O&M) at the site, and five-year reviews are conducted since waste is left in place. The most recent five-year review was conducted in 2016. Results indicated that the remedies for soil, sediment, and groundwater are functioning as intended and are protective of human health and the environment.
- **Gould Superfund NPL Site (RM 5 West):** A remedy addressing upland soils at this secondary lead smelter and battery disposal site was completed in September 2000 and the site was deleted from the NPL in 2002. Five-year reviews are conducted since waste is left in place. The next five-year review will be conducted in 2017.

EPA has also conducted an extensive search for PRPs and, to date, has identified about 150 parties as potentially responsible for releases of hazardous substances to the river. EPA has identified PRPs through general notice letters beginning in December 2000, and the most recent notices were sent in January 2014. All PRPs were notified of their opportunity to comment on the Proposed Plan.

### 3. TRIBAL COORDINATION AND CONSULTATION

Throughout the RI/FS process EPA engaged in government-to-government consultation and coordination with the MOU partner tribes and has encouraged and facilitated tribal involvement consistent with the Policy on Consultation and Coordination with Indian Tribes (May 2011). EPA also applied its Guidance for Discussing Tribal Treaty Rights (February 2016) in recognition that the Site impacts treaty-reserved or other fishing rights.<sup>3</sup> EPA's consultation and coordination included several methods of interaction with tribes, including coordination, pursuant to the MOU, through the Technical Coordinating Team (TCT), and conducting formal tribal consultations. Government-to-government consultations occurred in January and February of 2016 in anticipation of the Proposed Plan. Another round of consultations occurred in July 2016 during the public comment period. Finally, EPA included tribal communities living in the Portland area in its outreach efforts.

EPA considered numerous factors, such as tribal fish consumption rates and the effects of contamination at the Site on treaty-protected resources, to develop remedial alternatives for the Site. EPA recognizes that the MOU partner tribes have treaty-reserved or other fishing rights in areas impacted by the Site. Once implemented, the cleanup will improve fish habitat and help further the tribes' rights to fish.

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<sup>3</sup> EPA Policy on Consultation and Coordination with Indian Tribes, May 4, 2011. Incorporates the Executive Order 13175 "Consultation and Coordination with Indian Tribal Governments," November 2000 and Presidential Memorandum, November 5, 2009. See also EPA Policy on Consultation and Coordination with Indian Tribes: Guidance for Discussing Tribal Treaty Rights, February 22, 2016.

#### 4. COMMUNITY PARTICIPATION

This section summarizes the community involvement activities, including public meetings conducted by EPA during the RI/FS and the remedy selection process. EPA developed the initial community involvement plan in 2002 and has continually updated the plan to promote meaningful public engagement during all phases of the Superfund process for the Site. This plan was developed based on interviews with community members and stakeholders. Throughout the RI/FS, EPA has conducted many community involvement activities, such as:

- Holding public information sessions and participating in community advisory group meetings
- Holding quarterly stakeholder meetings to provide updates on Site activities
- Seeking input from community groups and natural resource agencies on sampling plans, the human health and ecological risk assessments, and other RI/FS documents
- Preparing and providing fact sheets to inform the community about Site progress
- Providing information about EPA's work at the Site at annual community festivals
- Providing regular updates at neighborhood meetings

EPA's outreach goal is to educate the community about the work being done at the Site and collaborate with stakeholders on how to successfully engage the public. In 2002 EPA developed a Community Involvement Plan (CIP) after interviewing community members and other stakeholders. The CIP has been updated throughout the RI/FS process. Since the Site was listed, EPA has used public information sessions, fact sheets, websites, one-on-one discussions, and participation in community events as ways to share information about the Site with the broader community. Furthermore, EPA has provided financial support to the Willamette Riverkeeper since 2001 via a technical assistance grant (TAG) which allows a community group to contract their own technical advisor to interpret and explain technical reports, site conditions and EPA's proposed cleanup proposals and decisions. The Willamette Riverkeeper has used this TAG to give support to the Portland Harbor Community Advisory Group (CAG) which provides a public forum for community members to learn about the Site and share community needs and concerns. Additionally, EPA established a listserv for the Site that now has over 3,000 subscribers as a method for sharing information and relevant events quickly and efficiently.

EPA made significant community outreach efforts leading up to the release of the Proposed Plan to get community input and to prepare people to participate in the public comment period. These efforts included producing and disseminating quality information such as community information cards, fact sheets, and videos; establishing information repositories at the Multnomah County Central Library, the St. Johns Library, and the Kenton Library where the public can review documents associated with the Site; maintaining current information on EPA's Portland Harbor website; providing valuable information via the EPA Portland Harbor listserv; sustaining strong partnerships with DEQ, the Oregon Health Authority (OHA), and the City of Portland to maximize community outreach efforts; attending and presenting at public forums and meetings; and organizing multiple community information sessions during January, February, and March of 2016. A detailed list of specific community involvement activities is available in EPA's current Portland Harbor Community Involvement Plan (accessible on EPA's website at

the following link:

[https://www3.epa.gov/region10/pdf/ph/sitewide/community\\_involvement\\_plan\\_june2016.pdf](https://www3.epa.gov/region10/pdf/ph/sitewide/community_involvement_plan_june2016.pdf)).

Additionally, EPA has engaged with many different groups over the years, including groups that represent or are concerned about communities with environmental justice concerns. EPA takes environmental justice seriously and has worked to understand environmental justice concerns in the Portland Harbor Site by using existing tools (such as EPA's Environmental Justice Screen tool and Community-Focused Exposure and Risk Screening Tool), applying the six principles of environmental justice that are outlined in Executive Order 12898 (Environmental Justice: Guidance Under the National Environmental Policy Act) and working with community groups. Some of the main groups that EPA has engaged with at the Site include Communities of Color, Native American Youth Association, Latino Network, Right 2 Dream Too, Right 2 Survive, Willamette Riverkeeper, the Slavic Immigrant Association, Ecumenical Ministries of Oregon, the Coalition of Black Men, the Oregon Environmental Justice Task Force, Oregon Tradeswomen, League of Women Voters, Verde, Portland Harbor Community Coalition, Sierra Club Portland, Occupy St. Johns, Audubon Society, Asian Pacific American Network of Oregon, Vietnamese Community of Oregon, Portland neighborhood associations, and schools. EPA will continue to work with these groups and other interested parties to make sure that future outreach efforts reach historically underrepresented communities.

The RI report (EPA 2016a), FS report (EPA 2016b), and Proposed Plan (EPA 2016c) for remediation of the Site were released to the public for comment on June 8, 2016 via the web site <http://go.usa.gov/3Wf2B>. These documents were also made available to the public in the Administrative Record file maintained at the following five locations: Multnomah County Central Library, St. Johns Library, Kenton Library, EPA Region 10 Oregon Operations Office, and EPA Region 10 Superfund Records Center. A notice of availability of the Administrative Record was published in the Oregonian (both print and online) on June 8, 2016. EPA also developed a community fact sheet summarizing the Proposed Plan and an acronym, glossary, and contaminant summary in English, Spanish, Vietnamese, Chinese, and Russian) to support public outreach.

A 60-day public comment period for the Proposed Plan and supporting documents was originally set for June 8, 2016 to August 8, 2016. EPA received multiple requests for an extension to the comment period; therefore, EPA extended it through September 6, 2016, providing 90 days for public comment. EPA accepted comments at public meetings, by mail, and also established a web mail box to accept emailed public comments.

During the public comment period for the Proposed Plan, EPA held four public meetings in June and July of 2016 (June 24, June 29, July 11, and July 20). These public meetings were well advertised via e-mail, posting on the Portland Harbor website, dissemination of media advisories, and directly posting EPA notices in The Oregonian, The Skanner, The Asian Reporter, El Hispanic News (translated into Spanish), KAHOH (translated into Russian) and the Phuong Đông Times (translated into Vietnamese). The meeting venues were widely spaced throughout the metro area (City of Portland Building, EXPO Center, University Place Conference Center, and the Ambridge Center). Two formal presentations of the Proposed Plan were given at each

meeting, followed by a question and answer period and an informal open house where the public could discuss the plan directly with EPA staff and ask questions one-on-one. At all public meetings, there were opportunities to provide both written and oral comments on the proposed plan for the record. Language interpreters were available in person at the June 24<sup>th</sup> meeting (Spanish, Russian, Vietnamese and Chinese) and at the July 20<sup>th</sup> meeting in the evening (Spanish, Russian and Arabic) and by telephone, if needed, at the June 29<sup>th</sup> and July 11<sup>th</sup> meetings. A community fact sheet as well as an acronym, glossary, contaminant summary, and a handout detailing how to give written or oral comments were available in English, Spanish, Vietnamese, Chinese and Russian at each public meeting.

A summary of comments received during the public comment period and EPA's responses are included in the Responsiveness Summary, Part 3 of the ROD.

## **5. SCOPE AND ROLE OF THE RESPONSE ACTION**

EPA's remedial strategy for the in-river portion of the Site is to address all contaminated media and complete exposure pathways that pose unacceptable risk to human health or the environment (see Summary of Site Risks in Section 8 of the ROD), including sediment, biota, surface water, groundwater, and river banks.

EPA's Selected Remedy utilizes a combination of technologies, including capping, dredging/excavation, in-situ and ex-situ treatment, enhanced natural recovery (ENR), monitored natural recovery (MNR), and institutional controls (ICs). Certain contaminated river banks will be addressed using the same remedial technologies that will be used for the adjacent contaminated sediment, if it is determined that those river banks should be remediated in conjunction with the sediment action. Although the Selected Remedy does not directly address surface water, EPA anticipates that taking action on sediment and river banks, in conjunction with control of upland sources conducted under DEQ authority, will reduce contaminant concentrations in all media, including fish tissue, groundwater, and surface water, to acceptable levels. In addition, remediation of the sediment in the Site will also reduce the ongoing source of contaminants to Multnomah Channel and the Columbia River. The in-river action in this ROD is a final remedial action. Remedial action objectives (RAOs) will be met through reduction of contaminant concentrations in all media, thereby significantly reducing human health and ecological risks at the Site to acceptable levels.

The cleanup or control of the upland contamination that provides ongoing contaminant sources to the river is, and will be, conducted primarily under DEQ oversight using state authorities. When these state actions are complete, they are expected to meet or be more stringent than CERCLA's remedial requirements. It is expected that controlling these upland sources will reduce or eliminate contamination in soil, groundwater, and surface water migrating to the in-river portion of the Site. EPA is relying on the Oregon DEQ to use its authorities to address these sources. It is expected that controlling these sources will reduce or eliminate contamination in soil, groundwater, storm water, and surface water that migrates to the Willamette River. Since the achievement of cleanup levels identified in the Selected Remedy relies in part upon timely and successful completion of these upland and upstream source area actions, EPA retains the

discretion to use its federal authorities to complete those actions. DEQ's source control activities are summarized in the Portland Harbor Upland Source Control Summary Report, updated in April 2016 (DEQ 2016).

The McCormick and Baxter Site (RM 7 East) is a separate Superfund site located within the Portland Harbor Site. A final CERCLA remedial action was completed at the McCormick and Baxter Site in 2005 and, therefore, is not included in this remedial action. Additionally, two areas of the Portland Harbor Site have had some early removal actions completed to address contaminated river banks and/or sediment under EPA authority. These actions have occurred at Gasco (2005) and Terminal 4 (2008) (see Section 2.3). Final actions for these areas will be addressed through the action selected in this ROD.

Implementation of the Selected Remedy is discussed in Section 14.2.11.

## **6. SUMMARY OF SITE CHARACTERISTICS**

The RI report (EPA 2016a), prepared by the LWG and modified by EPA, describes the nature and extent of contamination at the Site; RI results are summarized below. Baseline human health and ecological risk assessments were completed and are summarized in ROD Section 8. In 2012, the LWG prepared a draft FS for the Site pursuant to the AOC. EPA modified the LWG's 2012 FS and finalized the document in June 2016 (EPA 2016b). The FS is summarized in Section 10 of the ROD.

This section summarizes information obtained during the RI and other investigations conducted before or during the RI/FS. More detailed information is included in the RI report (EPA 2016a).

### **6.1. Conceptual Site Model**

The CSM is a tool used to communicate site conditions and support the decision making process for managing contaminated sites. The CSM briefly identifies key Site characteristics such as sources of contamination, contaminated media and exposure pathways for human and ecological receptors.

The human health CSM is presented on Figure 2 in Appendix I. Current and historical industrial activities and processes within the Site have led to chemical releases from either point or nonpoint sources, including discharges to the river from direct releases or via outfalls and groundwater within the Site as shown on Figures 3 and 4 in Appendix I. In addition, releases that occur upstream of the Site and atmospheric deposition from global, regional, and local emissions may also represent potential contaminant sources to the Site. Chemicals in sediment and water may be accumulated by organisms living in the water column or by benthic organisms in sediments. Fish and shellfish within the Site feeding on these organisms can accumulate chemicals in their tissues through dietary and direct exposure to sediment and water. Humans can be exposed to contamination through direct contact (ingestion or dermal absorption) with sediments or surface water or through consumption of fish and shellfish.

The CSM for ecological receptors is presented on Figure 5 in Appendix I. This figure illustrates how contaminants released from the primary sources of Site contamination are transported

throughout the environment to media such as sediment, surface water, tissue, and transition zone water (TZW or pore water). Risks to ecological receptors exposed to Site contaminants are assessed by evaluation of assessment endpoints and environmental media.

## **6.2. Site Overview and Physical Characteristics**

The Site covered by this ROD is approximately 2,190 acres and includes the downstream portion of the lower Willamette River (RM 1.9 to RM 11.8). Multnomah Channel is a distributary channel of the lower Willamette River that begins at RM 3.1 and flows northwest approximately 21 miles to its confluence with the Columbia River. Upstream flooding is largely controlled by numerous major tributary reservoirs and dams along both the Columbia River and the Willamette River. In the lower Willamette River, especially in the vicinity of Portland Harbor, the channel banks have been stabilized in several areas by the placement of riprap and construction of seawalls and bulkheads. These measures have created a much more stable channel in the lower Willamette River. Some river bank areas and adjacent parcels have been abandoned and allowed to revegetate, and beaches have formed along some modified shorelines. These extensive physical alterations have resulted in a river reach that bears little resemblance to its pre-industrialized character in terms of flow dynamics, capacity, sediment movement, ecological habitat, and human uses.

The Willamette River originates within Oregon in the Cascade Mountain Range and flows approximately 187 miles north to its confluence with the Columbia River. The lower reach of the Willamette River from RM 0 to approximately RM 26.5 is a wide, shallow, slow moving segment that is tidally influenced, with tidal reversals occurring during low flow periods as far upstream as RM 15. The lower reach has been extensively dredged to maintain a 40-ft deep navigation channel from RM 0 to 11.6.

Historically, the lower Willamette River that flows through the Site was shallow and meandered, but it has been redirected and channelized via filling and dredging. The federally maintained navigation channel from RM 0 to 11.6 extends nearly bank-to-bank in some areas (currently varies in width from 600 to 1,900 ft), doubles the natural depth of the river, and allows transit of large ships into the active harbor. Today, this section of the river is deeper and narrower, with higher banks that reduce flooding during high-flow events.

Tidal influences also impact the flow of the river, with tidal reversals occurring during low flow periods as far upstream as RM 15. Tidal fluctuations can result in short-term flow reversals (i.e., upstream flow) during low river stage combined with a large variation in tide levels, which can occur in late summer to early fall when ESA listed species are least likely to be present, and, therefore, when active remediation is generally conducted. Near the river, tidal action can greatly alter groundwater flow directions, rates, and water quality and can increase the rate of river bank erosion.

The upstream dams have dampened river flows during seasonal and storm events. The Columbia River also plays a role in the flow dynamics of the Willamette River. In spring, high flows in the Columbia River can increase the hydraulic head at the confluence, causing the Willamette River to be detained and reduce flows until water levels drop in both river systems.



### **6.2.1. Geographical and Topographical Information**

Land elevations in Portland Harbor vary from 0 to 300 ft, with buttes as high as 650 ft. Portland Harbor is located in a geological depression known as the Portland Basin, bordered to the west by the Tualatin Mountains (also known as the West Hills or Southwest Hills of Portland), which are a spur of the Northern Oregon Coast Range, and to the east by a 120-foot-high natural bluff that runs along the northeast border of the Site.

Most of the lowlands on either side of the Willamette River within Portland Harbor are located on a terrace with elevations that range between 30 and 50 ft above sea level, mostly composed of fill material. The lowlands extend for approximately 0.5 to 1 mile from the river before reaching the Tualatin Mountains to the west or the natural bluff that runs along the northeast border of the Site. These lowlands primarily constitute the upland portion of the Site.

### **6.2.2. Site Geology**

The Portland Basin is a bowl-like structure that is 40 miles long and 20 miles wide and bounded by folded and faulted uplands. The Tualatin Mountains define the western edge of the Portland Basin; groundwater and creeks and channels along the east face of the mountains flow into the Willamette River.

The basin has been filled with up to 1,400 ft of alluvial and glacio-fluvial flood deposits since the middle Miocene (approximately 12 million years ago). These sediments overlie older (Eocene and Miocene) rocks including the Columbia River Basalt Group (CRBG), Waverly Heights basalt, and older marine sediments. The older rocks are exposed where uplifting has occurred (e.g., RM 7, west side in the Doane Lake area) on the margins of the basin, including adjacent to the Site.

Because the Site is located at the edge of the basin, both the older rocks and overlying sediments are present near the surface and play a significant role in defining interactions between groundwater and the river. The geologic units in the vicinity of the Site are illustrated in RI Figure 3.1-1.

### **6.2.3. Site Hydrogeological Features**

The general groundwater flow systems of interest recognized along the Site, from uppermost to lowermost, include: Fill, Fine-grained Facies of Flood Deposits, and Recent Alluvium (FFA); Coarse-grained Flood Deposits and Upper Troutdale Formation (CGF); Lower Troutdale Formation/Sandy River Mudstone; and CRBG. A deeper, regional flow system also is present, but it is not considered to be important in understanding the interactions between upland groundwater and the river.

The FFA hydrogeologic unit is of primary importance in defining the interactions between upland groundwater and the river because: (1) the unit forms most of the river channel within the Site as well as the surrounding upland areas and, therefore, controls groundwater interactions with the river; and (2) most groundwater contaminant plumes in the upland areas occur within

this unit. The hydrogeologic units are presented in RI Figure 3.1-2. RI Figure 3.1-3 presents the generalized conceptual picture of groundwater flow through these flow systems.

The Willamette River is the focus of discharge for the three flow systems. The shallow flow system is the primary focus of most upland groundwater investigations by DEQ because most of the upland groundwater affected by contaminants is present within this system. It discharges to the shallow and nearshore areas where exposure to human and ecological receptors is most likely. The impact to sediments from the shallow and intermediate flow systems is the focus of the RI, except at locations where the CGF and CRBG appear to be impacted by contaminants and are connected to the river.

#### **6.2.4. Bathymetry and Sediment Characteristics**

Most of the Site covered by this ROD is from –30 to –50 ft CRD (RI Map 3.1-9) and is dominated by the authorized federal navigation channel, which runs from RM 0 (Columbia River) to RM 11.7 (Broadway Bridge) and extends nearly bank-to-bank from RM 4 to 6 and from RM 8 to 11.7. Elevations in the navigation channel are generally –40 to –50 ft CRD. Except along the western channel edge from RM 8 to 10 where extensive shoaling has occurred, these portions of the Site have very narrow and steeply sloped off-channel areas. Broader off-channel areas with shallow benches (–10 to –30 ft CRD) occur from RM 1 to 4 along the outside curve of the river, including across the head of Multnomah Channel, between RM 6 and 8, and at the head of Swan Island Lagoon. A number of off-channel areas, such as Swan Island Lagoon, Willbridge Terminal, Willamette Cove, Terminal 4, and International Slip, vary widely in depth as a function of their history and current land use as actively dredged berths. Finally, several deep areas in the harbor extend from –60 to –80 ft CRD. These historical borrow areas were dredged to create the adjacent uplands; the two most extensive are in the eastern portion of the channel from RM 4.3 to 5 and RM 9.2 to 10. RI Map 3.1-13 shows the long-term bathymetric changes in the lower Willamette River between 1888 and 2001, illustrating the large-scale deepened, diverted, and filled areas.

The primary factors controlling river flow dynamics, sediment deposition and erosion, and riverbed character appear to be the river cross-sectional area and navigation channel width. The upstream boundary of the Site to Willamette Falls is narrower, more confined by bedrock outcrops, and faster flowing than the Portland Harbor reach. The river widens as it enters the Site and becomes increasingly depositional, most notably in the western portion of the river, until RM 7. From approximately RM 5 to RM 7, the river and navigation channel narrow; this reach is dominated by higher energy environments with little deposition. From RM 5 to approximately RM 2 the river widens again and becomes depositional, particularly in the eastern portion. Downstream of the Site, the river narrows as it turns and converges with the Columbia River. Multnomah Channel exits at RM 3, reducing direct discharge to the Columbia River.

Sediments in some locations may be resuspended and transported downstream during periods of high flow and from anthropogenic disturbances, such as vessel operations in the harbor. The degree of sediment deposition and movement is controlled largely by river hydrodynamics and

the sediment texture (grain size and organic matter content). Suspended silt and clay sediments are typically transported farther than sandy sediments under all flow conditions.

Bathymetric changes from 2002 to 2009 show the greatest net sediment accumulations occur where the channel is wide and flow velocities are reduced. Some areas of natural scour and dredging are also evident. Sediments in the scour areas are predominantly sand and appear to be relatively stable during low-flow conditions, but are mobilized when flow velocities are high. Nearshore and off-channel areas, such as Port terminals, and portions of Swan Island Lagoon and Willamette Cove, exhibit deposition. In other areas, such as RM 9 to 11E, within Swan Island Lagoon and Willamette Cove, RM 6 to 7W, and RM 5 to 7E, little elevation change and/or small-scale scour was observed. Sediment scour in some nearshore locations is due to ship traffic (wakes and prop wash). These activities appear to mix surface and subsurface sediments.

RI investigations characterized the physical nature of bedded sediments and their potential for movement within and through the lower Willamette River due to natural or anthropogenic forces. Physical sediment data included grain size, specific gravity, total solids, and total organic carbon (TOC). The interval from 0-30 centimeters (cm) below mud line (bml), the portion of the sediment column that has the potential to be disturbed or transported under typical annual conditions, was used to define surface sediments. Below 30 cm, the subsurface core samples showed major discontinuities in sediment texture and were used to define subsurface breaks. The grain-size data in surface sediment samples were used to create contour maps of surface sediment in the Site (RI Maps 3.1-3 and 3.1-4).

The sediment samples from the confluence with the Columbia River to Willamette Falls at RM 26 exhibited a large variety of sediment types ranging from sandy gravels to mud (silt and clay combined). The majority of the sediments over this reach were sands or muddy sands, with more coarse-grained sediments in relatively high-energy areas upstream of the Site (RM 11 to 26).

Overall, the surface and shallow subsurface sediment textures were consistent throughout the Site, suggesting relatively stable current energy regimes. There was, however, a subtle but perceptible widespread shift from finer-grained surface sediments to a slightly coarser-grained subsurface layer (from 81–100% fines to 61–80% fines) across much of the Site at different times of the year. This may reflect seasonal or inter-annual winnowing of the finer sediments from the sediment bed during higher flow periods and the subsequent long-term burial of the slightly coarser residual sediments.

Three areas showed coarser surface sediments overlying finer material, including the head of Swan Island Lagoon, the McCormick and Baxter/Willamette Cove area, and the area outside the entrance to Multnomah Channel and extending into the channel. Anthropogenic placement of fill at the head of Swan Island Lagoon by 1975 and the sand cap cover placed in the river and beach at the McCormick and Baxter Creosoting Company site in 2005 appear to explain this pattern in Swan Island Lagoon and around McCormick and Baxter/Willamette Cove, respectively.

### **6.2.5. Areas of Archeological or Historical Importance**

A cultural resource analysis concluded that there are possible archeological artifacts and areas of historical importance at the Site, but no gravesites were noted. Most of these artifacts are expected to be Native American protected objects. If Native American cultural items or gravesites are identified during construction, an inventory of such items will be compiled and items will be returned to the tribes.

If removal of cairn, burial, human remains, funerary objects, or other sacred objects takes place, re-interment will occur under the supervision of the appropriate Indian tribe. Any proposed excavation by a professional archaeologist of a Native American cairn or burial will require written notification to the State Historic Preservation Officer and consultation with the appropriate Indian tribe.

### **6.3. Sources of Contamination**

Historical industrial practices and releases of contaminants dating back to the early 1900s contributed to the majority of the observed chemical distribution in sediments within the Site. Contaminants from upland areas have entered the river system as direct discharges through storm water and waste water outfalls; from releases and spills from commercial operations occurring over the water, such as commodity transloading; and indirectly through overland flow, bank erosion, groundwater, and other nonpoint sources. In addition, contaminants from regional sources have reached the Site through inputs to surface water and sediment from upstream and through atmospheric deposition.

Contaminated media in Portland Harbor reflect the industrial, marine, commercial, and municipal practices for over 100 years in this active industrial, urban, and trade corridor, as well as agricultural activities in the Willamette Basin. Historical sources responsible for the existing contamination include, but are not limited to: ship building, repair, and dismantling; wood treatment and lumber milling; storage of bulk fuels and MGP waste; chemical manufacturing and storage; metal recycling, production, and fabrication; steel mills, smelters, and foundries; electrical production and distribution; municipal combined sewer overflows; and stormwater from industrial, commercial, transportation, residential, and agricultural land uses. Operations that continue to exist today include: bulk fuel storage, barge building, ship repair, automobile scrapping, recycling, steel manufacturing, cement manufacturing, operation and repair of electrical transformers (including electrical substations), and many smaller industrial operations. Locations of both current and historical major industrial operations in Portland Harbor are presented on RI Map 3.2-10 and RI Maps 3.2-13 through 3.2-21. Upstream sources within the broader Willamette River Basin contribute to contamination in sediment, surface water, and biota.

Ongoing pathways of contaminants to the Site include soil, storm water, groundwater, and river banks. Contaminants also reach the river via direct discharge through conveyance systems, atmospheric deposition, and overwater activities.

### **6.3.1. Direct Discharge**

Direct discharge of contamination occurs through conveyance systems, including municipal or other publicly owned drainage systems, privately owned and managed drainage systems, and sanitary/combined sewer systems. Today, many of these discharges are permitted under the National Pollutant Discharge Elimination System (NPDES) authorized by the Clean Water Act (CWA). Permitted discharges under the NPDES program include industrial wastes, stormwater runoff, and CSOs.<sup>4</sup> A survey conducted by the City of Portland in 2002 identified approximately 300 outfalls that discharge into the Site. These outfalls include discharge of stormwater, combined sanitary sewage and stormwater, and/or industrial wastewaters transported via a collection system, although most of the latter two are now routed through the sanitary sewer and no longer discharge directly to the waterway.

Historically, waste and other materials were used as fill and placed in or near the river to create more space for operations. Additionally, waste disposal in upland pits, lagoons, or lakes also directly discharged to the river through pipes, ditches, and creeks. In addition to direct discharge, contaminated soil, stormwater, and groundwater from past and current spills and leaks of hazardous substances infiltrated into these conveyance systems and was transported by direct discharge systems. Treated industrial wastes sometimes discharged to municipal and non-municipal storm drain systems.

### **6.3.2. Overland Transport**

Contaminated surfaces in upland areas can carry erodible soils and particulates directly to the river via sheet flow stormwater runoff (i.e., not through a conveyance system). Overland transport was likely to have been more important historically, prior to the development of extensive stormwater conveyance systems within the Site. Specific historical information on overland runoff is lacking for most upland properties in the Site.

### **6.3.3. Groundwater**

Groundwater in the greater Portland Basin within the Site generally flows towards the lower Willamette River, although the direction varies locally depending on the nature of subsurface materials, hydrostratigraphy, and proximity to the river. Near the river, tidal action can greatly alter groundwater flow directions, rates, and water quality. Groundwater may be contaminated by waste disposal practices, product storage practices, spills and leaks from pipes, storage tanks, industrial equipment, and process operations. Contaminated groundwater may enter directly into the Site via discharge through sediments or bank seeps, or it may infiltrate into storm drains/pipes, ditches or creeks that discharge to the river. Contaminant migration may occur as non-aqueous phase liquids (NAPLs) or as dissolved phase transport. Groundwater plumes

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<sup>4</sup> CSO events are untreated discharges of combined stormwater and sanitary sewage from residential, commercial, and industrial sources that overflow from the sewer system into the river during heavy rainfall periods when the amount of stormwater and sewage exceeds the capacity of the collection system.

discharging or potentially discharging to the Site from upland areas is shown on Figure 6 in Appendix I.

#### **6.3.4. River Bank Erosion and Leaching**

Contaminated river bank soil, fill, or debris may release contaminants directly to the Site through bank erosion or leaching caused by groundwater and tidal action flux. Unprotected shoreline banks are susceptible to erosion by wind, river flows, wave action, tidal changes, and surface water runoff. Shoreline armoring and vegetation reduce bank erosion. Bank slope is also a factor since steeper banks are more susceptible to erosion.

#### **6.3.5. Atmospheric Deposition**

Contaminants are emitted to the air from point, mobile, biogenic, and area sources. Point sources include emissions from power plants, refineries, incinerators, stationary power sources, emission stacks, and liquid and petroleum storage tanks. Today, many point source air releases are permitted under the Clean Air Act (CAA). Mobile sources include emissions from motor vehicles and non-road equipment, such as railroads, marine vessels, and recreational off-road equipment. Biogenic sources include emissions from natural sources and area sources that are too small to be treated as point sources.

Contaminants emitted to the air may be transported over long distances, generally in the direction of the area's prevailing winds. They can be deposited from the atmosphere to land and water surfaces through wet deposition (precipitation) or dry deposition (as particles). Air pollutants can be deposited to water bodies through either direct or indirect deposition. Direct deposition occurs when contaminants are deposited onto the surface of a water body. Indirect deposition occurs when contaminants are first deposited on land and then transported to the water body via stormwater runoff.

#### **6.3.6. Overwater Activities**

Contaminants from overwater activities (e.g., sandblasting, painting, unloading, maintenance, repair, and operations) that may have dumped, sprayed, spilled, emitted or otherwise resulted in releases at or from riverside docks, wharfs, or piers; spills or releases from vessels (e.g., gray, bilge, or ballast water); and fueling station (e.g., barge to uplands) releases have the potential to impact the lower Willamette River.

#### **6.3.7. Upstream Watershed**

Upstream sources include, or have included, sewers, stormwater runoff, and direct discharge of industrial wastes; agricultural runoff; and aerial deposition of global or regional contaminants on the river water surface and drainage areas within the Willamette Valley.

#### **6.3.8. Summary of Known or Suspected Sources**

As part of the RI, summaries were prepared for 86 upland sites that were generally located within 0.5 mile of the river between RM 1.9 and 11.8 where DEQ-led investigations confirmed releases occurred; these sites are summarized on RI Table 4.2-2. The summaries are not an

exhaustive list of historic or current sources to the Site. DEQ's source control activities are summarized in the Portland Harbor Upland Source Control Summary Report, updated in April 2016 (DEQ 2016).

#### **6.4. Sampling Strategy**

Under the AOC, the LWG collected data for the RI during four major rounds of field investigations between 2001 and 2008 based on approved sampling plans to achieve data quality objectives. The field investigations began in 2001 and were conducted in the Initial Study Area (ISA), which was defined in the AOC Statement of Work and Programmatic Work Plan as RM 3 to RM 9. Round 2 sampling included RM 2 to RM 11. As the field studies progressed, the Site study area was expanded to RM 1.9 through RM 11.8, as well as a portion of the Multnomah Channel. Studies conducted by the LWG also included off-site areas downriver of the Site to the confluence with the Columbia River at RM 0, the Downtown reach from RM 11.8 to RM 16.6, and the upriver reach from RM 15.3 to RM 28.4. Figure 7 in Appendix I shows the areas of the river.

Surface and subsurface sediment, suspended sediment, surface water, stormwater, TZW/pore water, and biota/tissue samples were collected and analyzed, as summarized in RI Tables 2.3-2 through 2.3-10. More than 2,000 sediment, 200 surface water, and 300 TZW/pore water samples were collected. Biota samples included approximately 20 species, with hundreds of samples collected. The investigations were often timed around varying river stages, river flows, and storm events. In addition, groundwater and river bank sediment and soil samples were collected and analyzed by upland facilities under DEQ oversight. Additional data collected between 2008 and 2010 by two members of the LWG at the Arkema and Gasco facilities were also included in the final data set.

#### **6.5. Types of Contamination and Affected Media**

The primary contaminants detected at the Site and the affected media are summarized below. Additional details are included in the RI report (EPA 2016a).

##### **6.5.1. Contaminants of Concern**

The human health and ecological risk assessments concluded that contamination within the Site poses unacceptable risks to human health and the environment, with several contaminants of potential concern (COPCs). The risk assessments reduced the COPCs to a smaller number of COCs that contribute a significant amount of risk to the human and ecological receptors evaluated. COCs by media are listed in Tables 1 through 5 in Appendix II.

A subset of all COCs, called focused COCs, was developed in order to simplify analysis and evaluation of remedial alternatives for the Site. This subset was developed by evaluating co-location of all COCs, their toxicity, and significance in the risk assessments as well as other factors outlined in the RI. The focused COCs are described below, including their toxicity, mobility, and type of risks.

**PCBs** are human health and ecological COCs. They are manmade chemicals that were banned in the late 1970s. PCBs are mixtures of up to 209 compounds (or congeners). Some commercial PCB mixtures are known in the United States by an industrial trade name, Aroclor. Because they do not burn easily and are good insulating materials, PCBs were used widely as coolants and oils and in the manufacture of paints, caulking, and building material. PCBs are generally not mobile and stay in the environment for a long time. PCBs are classified as probable human carcinogens. Children exposed to PCBs may develop learning and behavioral problems later in life. PCBs are known to impact the human immune system and skin, especially in child receptors, and may cause cancer in people. Nursing infants can be exposed to PCBs in breast milk. PCBs also can bioaccumulate in fish, shellfish, and mammals. In birds and mammals, PCBs can cause adverse effects such as anemia and injuries to the liver, stomach, and thyroid gland. PCBs also can cause problems with the immune system, behavioral problems, and impaired reproduction.

**PAHs** are human health and ecological COCs. These chemicals are a major component of petroleum products or are formed during incomplete burning of coal, oil, gas, wood, or other substances. There are more than 100 different PAHs and they generally occur as complex mixtures. PAHs generally have limited mobility. PAHs are suspected human carcinogens with potential to cause lung, skin, and bladder cancers with occupational exposure. Animal studies show that certain PAHs affect the hematopoietic, immune, reproductive, and neurologic systems and cause developmental effects. They can cause inhibited reproduction, delayed emergence, sediment avoidance, and mortality. In fish, PAHs cause liver abnormalities and impairment of the immune system.

**Dioxins and furans** are human health and ecological COCs. They are byproducts of chemical manufacturing, combustion (either in natural or industrial settings), metal processing, and paper manufacturing. The dioxin compound (or congener) 2,3,7,8-tetrachlorodibenzo-p-dioxin (2,3,7,8-TCDD) is the most toxic form of dioxin and is a byproduct in the manufacture of herbicides such as “Agent Orange.” Dioxins and furans generally have limited mobility and stay in the environment for a long time. Toxic effects in humans include reproductive problems, problems in fetal development or early childhood, immune system damage, and cancer. Nursing infants can be exposed to dioxins and furans in breast milk. Dioxins and furans can bioaccumulate in fish, shellfish, and mammals. Animal effects include developmental and reproductive problems, hemorrhaging, and immune system problems.

**DDx**, which represents collectively DDT and its primary breakdown products dichlorodiphenyldichloroethane (DDD) and dichlorodiphenyldichloroethene (DDE), are human health and ecological COCs. DDT is a pesticide that was banned for use in the United States in 1972. It was used widely to control insects on crops and to control mosquitoes that spread malaria. These compounds have limited mobility. DDT is considered a possible human carcinogen. DDT and DDE are stored in the body’s fatty tissues. In pregnant women, DDT and DDE can be passed to the fetus. Nursing infants can be exposed to DDx in breast milk. Human exposure symptoms can include vomiting, tremors or shakiness, and seizures. Laboratory animal studies showed effects on the liver and reproduction. These compounds can accumulate in fish,



shellfish, and mammals, and can cause adverse reproductive effects such as eggshell thinning in birds.

### *Principal Threat Waste*

Principal threat waste (PTW) is defined as source material that includes or contains hazardous substances, pollutants, or contaminants that act as a reservoir for migration of contamination to groundwater, surface water, or air or that acts as a source for direct exposure. Further, principal threat wastes are those source materials considered to be highly toxic or highly mobile that generally cannot be reliably contained or would present a significant risk to human health or the environment should exposure occur.

PTW was identified based on a  $10^{-3}$  cancer risk (highly toxic) or NAPL within the sediment bed (source material) and on an evaluation of mobility of contaminants in the sediment. “Reliably contained” was not used in identifying PTW but rather was used to determine how to address it through cleanup and whether there are concentrations of PTW that could be reliably contained. The following criteria were utilized to identify PTW:

- **Source Material:** NAPL has been identified in subsurface sediment offshore of the Arkema and Gasco facilities (RM 6 through RM 7.5) as globules or blebs of product in surface and subsurface sediment. However, areas of NAPL have not been fully delineated. Figure 8 in Appendix I identifies the general locations where NAPL was observed. NAPL observed offshore of the Arkema facility contained chlorobenzene with dissolved DDT. NAPL observed at the Gasco facility contained PAHs and other aromatic hydrocarbons.
- **Highly Toxic:** The following COCs were found at concentrations exceeding a  $10^{-3}$  risk level at the Site based on consumption of fish, using the assumptions and methodology presented in the baseline human health risk assessment (BHHRA) summarized in Section 8.1 and on Table 6 in Appendix II:
  - PCBs
  - Carcinogenic PAHs (cPAHs)
  - DDx
  - 2,3,7,8-TCDD
  - 2,3,7,8-tetrachlorodibenzofuran (TCDF)
  - 1,2,3,7,8-pentachlorodibenzo-p-dioxin (PeCDD)
  - 2,3,4,7,8-pentachlorodibenzofuran (PeCDF)
  - 1,2,3,4,6,7,8-hexachlorodibenzofuran (HxCDF)
- **PTW That Cannot be Reliably Contained:** A capping model was utilized in the FS (Appendix D) to identify PTW that cannot be reliably contained by a cap. Representative Site conditions and capping options were modeled to determine the maximum concentration of COCs in PTW material that would not exceed ambient water quality criteria (AWQC) in the sediment cap pore water after a period of 100 years. This assumption was used in developing the remedial alternative cost estimates in the FS

(Appendix G). Chlorobenzene, dioxins/furans, DDX, naphthalene, PAHs, and PCBs were modeled. The results are summarized in Table 7 in Appendix II. The areas where the model showed that PTW would not be reliably contained are presented on Figure 8 in Appendix I.

Surface sediment areas exceeding one or more PTW highly toxic concentration levels are presented on FS Figure 3.2-3. The PTW evaluation included only surface sediment, which poses the greatest risk of exposure given Site-specific conditions.

### **6.5.2. Contaminated Media**

The environmental media contaminated by Site-related contaminants include surface sediment (0 to 30 cm bml), subsurface sediment (below 30 cm bml), suspended sediment, surface water, groundwater, biota, and river banks. The surface sediment sample interval (0 to 30 cm bml) is designed to capture that portion of the sediment column that has the potential to be disturbed or transported under typical annual conditions. River banks are defined as areas from top of bank down to the river that may be contaminated along the shoreline next to contaminated in-river shallow areas. Contamination in these media is summarized in the following sections. Additional details are included in the RI report (EPA 2016a).

## **6.6. Nature and Extent of Contamination**

### **6.6.1. Surface and Subsurface Sediment**

Surface and subsurface sediment concentrations are presented in RI Maps 5.2-2 through 5.2-45 and RI Appendix D1.1 figures and RI Appendix D1.2 maps. COC concentrations, for both surface and subsurface sediment, are summarized in Table 1 in Appendix II. Contamination in subsurface sediment was identified as deep as 17 ft bml in the navigation channel and 19 ft bml in the sediment future maintenance dredge areas. In the intermediate region, the maximum depth of contamination was estimated to be 34 ft bml but most contamination was less than 10 ft. In the shallow region, the maximum depth of contamination was estimated to be 33.5 ft bml. These river areas are discussed in Section 10.1.2. Based on contaminant distribution trends, some general patterns emerged among subsets of different contaminants that reflect fate and transport processes at the Site, as well as the relative importance of regional versus Site sources. These patterns are discussed below.

**Sediment contaminant concentrations were greatest in nearshore areas.** Concentrations of contaminants were generally higher in nearshore and offchannel areas such as slips, embayments, and shallow areas, and near some known or suspected sources, as compared to sediments in the navigation channel, Multnomah Channel, and downstream areas.

**Organic contaminant concentrations were greater in subsurface sediments.** Concentrations of organic contaminants tended to be higher in subsurface sediments than in surface sediments. Concentrations of total PCBs, total DDX, total PAHs, hexachlorobenzene, total chlordanes, aldrin and dieldrin, gamma-hexachlorocyclohexane (Lindane), lead, and tributyltin (TBT) were higher in subsurface than in surface sediments, indicating that historical inputs were likely greater than current inputs. Subsurface contamination was detected as deep as 34 ft. In contrast, arsenic,

copper, chromium, mercury, and zinc did not have large concentration ranges and generally showed similar levels in surface and subsurface sediments. Other exceptions included areas where higher surface sediment concentrations appeared to be associated with ongoing Site sources, low rates of sediment deposition, and physical sediment disturbance (e.g., from boat scour).

**Regional inputs exhibited uniform concentrations across the area.** Contaminants that may have been derived predominantly from regional or upstream inputs showed widespread surface sediment distributions without distinct, isolated areas of higher concentrations. Examples of this were arsenic, chromium, and mercury, which occurred at relatively low concentrations throughout the Site with no apparent strong concentration gradients.

**Areas of high concentrations were present throughout the Site and generally were located near likely upland sources.** A number of contaminants exhibited relatively high sediment concentrations in distinct areas offshore of known or likely sources. These areas were separated by large areas with relatively lower concentrations lacking obvious concentration gradients. Contaminants that exhibited this trend included total PCBs, 2,3,7,8-TCDD, bis(2-ethylhexyl) phthalate (BEHP), butylbenzyl phthalate, pentachlorophenol (PCP), hexachlorobenzene, total chlordanes, Lindane, copper, zinc, and TBT.

**Some contaminants had areas of high concentrations that were more common in the lower (downstream) half of the Site.** Total DDx and total PAHs exhibited elevated concentrations in some locations of the river.

**Concentrations of certain metals were correlated to sediment grain size.** A comparison of metals concentrations to the distributions of percent fines in the Site showed that where sediments were comprised of less than 40% fines, chromium and copper concentrations were relatively low (above RM 10, between RM 5 and 7, and in the Multnomah Channel; RI Map 3.1-3). A similar, but less pronounced, correspondence existed between sandy sediments and zinc concentrations.

**Multiple contaminants co-occurred.** In most areas of the Site, multiple COCs are comingled. At all of the highest surface sediment concentration areas, more than one contaminant is found. This degree of contaminant co-occurrence reflects the variety of sources to the in-river portion of the Site and the history of upland Site development, including wastewater and stormwater conveyance systems and industrial and commercial activities.

### **6.6.2. Suspended Sediment**

While approximately 82% of the suspended sediment load passes through the Site, sediment traps were used to measure the suspended sediment load that would deposit within the Site. The areas where the highest concentrations of COCs were detected in sediment trap samples corresponded with areas with high concentrations of COCs in surface sediments, indicating the effect of erosion and resuspension of bottom sediment, the presence of current sources, or both. Suspended sediment contaminants in the Site had higher contaminant concentrations than

samples collected upstream of the Site (RI Tables 5.3-2 through 5.3-7). Sediment trap locations are provided on RI Map 2.1-15.

### **6.6.3. Surface Water**

Concentrations of contaminants in more than 300 surface water samples varied spatially and with river flow (Table 2 in Appendix II). Surface water concentrations in the Site were generally higher than those entering the upstream boundary of the Site (at RM 16) under all flow conditions. The highest contaminant concentrations in surface water within the Site were found near known sources where concentrations in sediment were also highest, such as the areas adjacent to the Gasco and Arkema facilities (RM 6 through RM 7.5W). Surface water samples collected at the downstream end of the Site (RM 2 and Multnomah Channel) showed higher concentrations of PCBs, dioxin/furans, DDx, BEHP, chlordanes, and aldrin than concentrations of these contaminants entering the Site from upstream. This pattern indicates that contamination from the Site is being transported to the Columbia River.

Surface water sample locations are shown on RI Map 2.1-18.

### **6.6.4. Groundwater**

Groundwater is a source of contamination to the Site. As part of the groundwater pathway assessment conducted for the RI, TZW and pore water samples in surface and nearsurface sediments were collected offshore of nine upland areas in the Site. Table 3 in Appendix II summarizes the COCs detected in TZW and pore water samples. Based on these efforts, a current complete groundwater pathway with influence on TZW and sediment chemistry was confirmed at four areas, groundwater migration was found to have no significant influence at four other areas, and groundwater effects could not be determined at one area.

RI Maps 5.5-1 through 5.5-6 show the nature and extent of known contaminated groundwater plumes currently or potentially discharging to the river within the Site. Contaminants detected in groundwater included, but were not limited to, PAHs, pesticides, cyanide, metals, and chlorinated and aromatic VOCs. Cleanup of contaminated groundwater is being managed by DEQ under a MOU with EPA, as discussed in Section 1. Currently, DEQ has identified multiple areas with groundwater contamination (Figure 6 in Appendix I and Table 3 in Appendix II).

TZW samples evaluated for ecological exposure were limited to those collected no deeper than 38 cm bml, which includes the biologically active zone.

### **6.6.5. Biota**

The biota data set includes fish and invertebrate samples collected during RI Rounds 1, 2, and 3, as well as samples collected by other parties (RI Table 2.3-8). Eleven fish species, four benthic invertebrate species, epibenthic communities, and fish stomach contents were sampled. RI Table 5.6-1 provides a summary of analyses for each species and tissue type. RI Table 2.3-10 provides the number of fish and invertebrates in each sample composite. The COCs detected in fish tissue (fillet and whole body) are in Table 4 in Appendix II.

Contaminants were detected in a majority of fish and invertebrate species sampled throughout the Site. Contaminant concentrations varied within and between different species, and concentrations in fish tissue were generally greater than in invertebrates. Concentrations of bioaccumulative compounds, such as PCBs and DDX, were often found at greater concentrations in organisms higher up the food chain and correlated with areas of elevated concentrations in sediment. Biota samples from within the Site exhibited greater concentrations for most contaminants than background biota samples that were collected from the upriver reaches and above Willamette Falls. Areas of elevated concentrations of some contaminants were found in resident species, reflecting high concentrations in nearby surface sediment and biological uptake by species with small home ranges.

Selected PCB and DDX results for resident fish species (smallmouth bass, brown bullhead, black crappie, and carp), adult Chinook salmon, and sturgeon are briefly summarized in Table 8 in Appendix II. These contaminants were selected because they commonly bioaccumulate and these species were evaluated in the BHHRA. Full results for all contaminants are included in RI Table 5.6-1.

#### **6.6.6. River Banks**

River banks are defined as the area from the top of bank down to the river. River bank data were collected under DEQ-led investigations. Contaminants detected in river bank material at levels that pose a risk to human health, the environment, or for recontamination to any implemented remedy, are summarized below by RM on the east and west sides of the river. Properties with known contaminated river banks are shown in Figure 9 in Appendix I and river bank contaminants are summarized on Table 5 in Appendix II).

##### *East Side of Willamette River*

**RM 2:** Evraz Oregon Steel Mill (Environmental Cleanup Site Information [ECSI] Site ID 141<sup>5</sup>) – Contaminants present in the river bank include PCBs and metals (arsenic, cadmium, chromium, copper, lead, manganese, and zinc).

**RM 3.5:** Schnitzer Steel Industries (ECSI Site ID 2355) – Results of soil samples collected under the docks along the south shore of the International Slip indicate that contaminants are PCBs and dioxins.

**RM 5.5:** MarCom South (ECSI Site ID 2350) – Further investigation of the nature and extent of contamination in the bank was conducted in 2012. Contaminants are PAHs and metals (arsenic, cadmium, chromium, copper, zinc).

**RM 7:** Willamette Cove (ECSI Site ID 2363) – River bank contaminants are PCBs, dioxins/furans, metals (lead, mercury, nickel, and copper), and PAHs.

**RM 8.5:** Swan Island Shipyard (ECSI Site ID 271) – Recent sampling results for indicate that contaminants include metals (arsenic, cadmium, chromium, copper, lead, mercury, and zinc),

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<sup>5</sup> Site ID number is from DEQ's ECSI database.

PAHs, PCBs, and tributyltin. Contaminants in river bank soils in OU5 include metals (arsenic, copper, lead, and zinc), PAHs, and PCBs.

*West Side of Willamette River*

**RM 4:** Kinder Morgan Linnton Bulk Terminal (ECSI Site ID 1096) – Contaminants are petroleum constituents (benzene, toluene, ethylbenzene, xylenes, and PAHs) and metals (arsenic and lead).

**RM 6:** NW Natural/Gasco (ECSI Site ID 84) – Contamination associated with historical MGP waste are known to be located in the river bank. Contaminants include PAHs, gasolinerange hydrocarbons, diesel-range hydrocarbons, residual-range hydrocarbons, cyanide, and metals (zinc).

**RM 6 to RM 7:** Siltronic (ECSI Site ID 183) – Contamination associated with historical MGP waste is known to be present in the northern portion of the Siltronic river bank. River bank contaminants include PAHs, gasoline-range hydrocarbons, diesel-range hydrocarbons, residual-range hydrocarbon and cyanide and metals (zinc).

Burlington Northern Santa Fe Railway Company (BNSF) Railroad Bridge – Contamination associated with pesticide and herbicide releases from Rhone Poulenc and Arkema are known to be present in the river bank below and adjacent to the BNSF railroad bridge. River bank contaminants include dioxin/furans, metals (aluminum, antimony, arsenic, barium, beryllium, boron, cadmium, calcium, chromium, cobalt, copper, iron, lead, magnesium, manganese, mercury, molybdenum, nickel, potassium, selenium, silver, sodium, thallium, vanadium, zinc, insecticides (DDD, DDE, DDT, aldrin, alpha-hexachlorocyclohexane, alpha-chlordane, beta-BHC, cis-nonachlor, delta-BHC, dieldrin, endosulfan I, endosulfan II, endosulfan sulfate, endrin, endrin aldehyde, endrin ketone, gamma-BHC, gamma-chlordane heptachlor, heptachlor epoxide, hexachlorobutadiene, methoxychlor, mirex, oxychlordane, and transnonachlor), PCBs, semi-volatile organic compounds (SVOCs) (acenaphthylene, anthracene, benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(g,h,i)perylene, benzo(k)fluoranthene, benzoic acid, benzyl alcohol, BEHP, butylbenzylphthalate, chrysene, bibenzo(a,h)anthracene, dimethylphthalate, di-n-butylphthalate, fluoranthene, indeno(1,2,3-cd)pyrene, phenanthrene and pyrene) (AMEC 2011).

**RM 7 to RM 8:** Arkema (ECSI Site ID 398) – River bank contaminants include DDT, dioxin/furans, PCBs, and metals (chromium and lead).

GS Roofing (ECSI Site ID 117) – River bank contaminants include total petroleum hydrocarbons and metals (arsenic, chromium, mercury, nickel, selenium).

**RM 8:** Hampton Lumber and Glacier NW (ECSI Site ID 1239) – River bank contaminants include steel mill slag fill.

**RM 9:** Gunderson (ECSI Site ID 1155) – River bank contaminants include metals (lead, nickel, and zinc), and PCBs.

**RM 10: Sulzer Bingham Pumps (ECSI Site ID 1235)** – River bank contaminants include PCBs and metals (arsenic, copper, lead, manganese, and zinc).

### **6.6.7. RCRA Hazardous Waste in Media**

RCRA characteristic hazardous waste criteria and disposal requirements are discussed in Section 3.4.9.1 in the FS (EPA 2016b) and in Sections 14 and 15 below. Based on current information, two areas of the Site have listed hazardous waste commingled in the sediment, either under RCRA hazardous waste listings or under Oregon’s hazardous waste law, offshore of the Arkema and Siltronic/Gasco facilities.

## **6.7. Computer Models Used For Fate and Transport**

### **6.7.1. Hydrodynamic and Sediment Transport Models**

Numerical hydrodynamic and sediment transport (HST) models were conducted to complement the empirical observations and gain a further understanding of physical system dynamics. The models were used to predict the potential impact of extreme (flood) events on Site sediment stability, particularly the potential for buried contaminated sediments to be re-exposed, and to better understand the complex hydrodynamics (i.e., the movement of surface water) of the lower Willamette River system. The models were also used to predict the bed elevation changes (i.e., the areas and magnitude of erosion and deposition in the Site) that would result from five different high-flow scenarios. A range of high-flow simulations were run because bed response can be a function of long-term hydrographic conditions that exist leading up to a flood event. The development and results of the HST model are discussed in the RI report (EPA 2016a).

### **6.7.2. Mass Transfer Model**

The RI also evaluated contaminant mass inputs from external sources and internal mass transfer mechanisms for a subset of contaminants within the Site on a Site-wide basis. Mass transfer models for these contaminants are presented on RI Figures 10.2-2, 10.2-5, 10.2-8, 10.2-11a, 10.2-14, 10.2-17, 10.2-20, 10.2-29, 10.2-32, 10.2-35, and 10.2-38. With all surface water, sediment, and sediment trap sample results taken together, there is evidence that contaminants from the Site are migrating downstream, especially from erosional areas, to either the Columbia River or Multnomah Channel and that the mass flux of contaminants exiting the downstream end of the Site in surface water is greater than the flux entering the Site.

External sources include upstream loading (via surface water and sediment bedload), “lateral” external loading such as stormwater runoff permitted discharges (point-source, non-stormwater), upland groundwater (contaminant plume transport to the river), atmospheric deposition (to the river surface), direct upland soil and river bank erosion, otherwise uncontaminated groundwater advection through contaminated subsurface sediments (chemical partitioning from subsurface sediment to pore water and advection to the surface sediment interval), and overwater releases.

Internal transfer mechanisms involve the transport of contaminant mass from one medium to another, but do not add new contaminant mass. Internal fate and transport mechanisms include sediment resuspension, transport, and deposition; solid/aqueous-phase partitioning; abiotic/biotic

transformation and degradation; biological uptake and depuration; groundwater advection; and sediment pore water exchange (chemical partitioning from surface sediment to pore water and advection to surface water). The hydrophobic nature of most of the organic contaminants means that they tend to preferentially partition to particulate organic matter.

### **6.7.3. HST Model Utilization**

The HST model results were evaluated as part of the FS. The primary purpose of the model was to evaluate remedial alternatives, support FS-level cap armoring design, and evaluate the potential for erosion of buried sediment contamination. Based on EPA's evaluation and additional evaluations conducted by Portland State University and USACE, a number of shortcomings in the modeling approach were identified, as discussed in more detail in Appendix H of the FS.

An evaluation of predicted versus measured changes in sediment bed evaluation concluded that the Portland Harbor HST model tends to over predict deposition, particularly in areas where erosion is measured. As a result, the utility of the contaminant fate and transport model developed for the Site to evaluate MNR is limited. In the FS, outcomes greater than  $t=0$  were not quantitatively evaluated using the HST model because the results are not quantitatively accurate and absolute or relative comparisons among quantitatively inaccurate outcomes is not helpful. However, quantitative evaluations of empirical data (e.g., trends in sediment deposition and fish tissue), where available, were undertaken.

A key element of the long-predictions of reductions in contaminant concentrations associated with natural recovery processes is the deposition of cleaner material resulting in declines in sediment concentrations. To further evaluate the ability of the HST model to accurately predict sediment deposition and erosion, a comparison of predicted vs. measured changes in bathymetry was performed on a sediment decision unit (SDU) basis. SDUs are separate areas of the Site that generally include the highest focused COC concentrations over one river mile segment. SDUs are used to evaluate the Site.

The overall approach involved comparing measured changes in sediment bed elevation to predicted changes for each model grid cell. Each model grid cell represented approximately one acre. SDUs range between 50 and 100 acres in size.

Measured changes in bathymetry were calculated using the results of the five bathymetric surveys conducted within Portland Harbor between 2002 and 2009. Measured changes in bathymetry were compared to modeled changes for the same time period. Changes in bathymetry were compared relative to the average elevation for each model grid using the approximate time mid-point of the bathymetric surveys. Comparisons between measured and predicted changes in sediment bed elevation were performed on a fate and transport model grid cell basis.

The evaluation indicated that the model predicted deposition the majority of the time. Erosion was predicted only within SDUs at RM 5.5E, RM 6.5E, RM 11E, and RM 6. However, measured changes in bathymetry indicated that some erosion was observed within every SDU. In addition, the plots did not correlate well with predicted and measured changes in sediment bed elevation.



Only in SDUs RM 5.5E, RM 6.5E, RM 11E, and RM 6 did the model predict erosion when deposition was observed. Conversely, the model predicted deposition when erosion was observed in every SDU.

As a result of the uncertainty over the accuracy of model predictions, the model was not used for FS-level evaluations.

## **7. CURRENT AND POTENTIAL FUTURE SITE AND RESOURCE USE**

### **7.1. Current Land and River Use**

Land use along the lower Willamette River in the harbor includes marine terminals, manufacturing, and other commercial operations, as well as public facilities, parks, and open spaces. RI Maps 3.2-1 and 3.2-8 illustrate land use zoning within the lower Willamette River as well as waterfront land ownership. The State of Oregon DSL owns certain submerged and submersible lands underlying navigable and tidally influenced waters, certain adjacent upland owners also own some submerged lands in the Site. The ownership of submerged and submersible lands is complicated and has changed over time.

The majority of the shoreline in the Site is currently zoned for industrial land use and is designated as an “Industrial Sanctuary” on the City of Portland Comprehensive Plan Map. Commercial and industrial use of the Site is discussed in Section 2.1. The federal navigation channel and its uses are also discussed in Section 2.1. The navigation channel is shown on Figure 1 in Appendix I.

In addition to industrial use zoning, other zoning designations for smaller portions of the Site include: open space (e.g., Cathedral Park and Willamette Cove); general employment (mixed use allowed although primarily an industrial-use focus); and multi dwelling residential (e.g., University of Portland). Residential areas on the west side include the Linnton neighborhood in pockets west of St. Helens Road between RM 4.3 and 5W, and in the mixed use Pearl District neighborhood in the vicinity of RM 12W. Most of the residential land use on the east side is above the bluff, except for the St. Johns neighborhood, which extends closer to the river between RM 5.7 and 6.8E.

In the Oregon State Administrative Rules (OAR) 340-041-0340, Table 340A, the designated beneficial use of the lower Willamette River includes, but is not limited to, hunting, fishing, boating, and water contact recreation. Recreational activities may include water skiing, occasional swimming, and waterfront recreation. The lower Willamette River is an important subsistence fishery for tribes and many minority communities in the region. Fishing for salmon, sturgeon, and other species is conducted throughout the Site, both by boaters and from locations along the banks.

The lower Willamette River provides Native American ceremonial and subsistence fisheries for Pacific lamprey (particularly at Willamette Falls) and spring Chinook salmon. Other culturally significant species include eulachon (smelt), and sturgeon. Native peoples also fish for a variety of other resident species, including mountain whitefish (*Prosopium williamsoni*), chiselmouth (*Acrocheilus alutaceus*), northern pikeminnow (*Ptychocheilus oregonensis*), peamouth

(*Mylocheilus caurinus*), and suckers (*Catostomus* spp.). Of land mammals historically found in the Portland Basin, deer and elk were the most frequently utilized by Native people. Native plants were, and continue to be, gathered for food and medicinal purposes. Tribes have reserved hunting, fishing (particularly salmon and sturgeon species) and certain gathering rights through Treaties with the United States. These activities provide food for Tribal families and cultural heritage knowledge and skills. Tribal uses of these resources continue today, but access to suitable patches of habitat continues to be both a challenge and an essential element of maintaining local Tribal cultural knowledge, practices, and traditions.

In addition, transients have been observed camping at various locations within the Site. The observation of tents and makeshift dwellings during RI sampling events confirmed that transients were present along some river bank areas. Therefore, they are expected to intermittently utilize this area in the future. Transients may also be using the lower Willamette River as a source of drinking water and they have reported harvesting and consuming various fish species as well as crayfish, mussels, and clams.

## **7.2. Groundwater and Surface Water Use**

### **7.2.1. Groundwater Use**

Groundwater is a critical natural resource providing domestic, industrial, commercial, and agricultural water supply; recreational uses; base flow for rivers, lakes, streams, and wetlands; and supply or habitat for livestock, wildlife, fish, or other aquatic life. Under OAR 340-040-0020, all groundwater of the state shall be protected from pollution that could impair existing or potential beneficial uses for which the natural water quality of the groundwater is adequate. Among the beneficial uses of groundwater, domestic water supply is recognized as the use that would usually require the highest level of water quality. High quality groundwater shall be maintained for present and future uses.

### **7.2.2. Surface Water Use**

Under OAR 340-041-0340, Table 340A, the designated beneficial uses of the lower Willamette River include, but are not limited to, hunting, fishing, boating, and water contact recreation. The state has promulgated numeric and narrative water quality standards to protect all of the designated uses. Another designated beneficial use of the lower Willamette River includes private and public domestic water supply. There are no known current or anticipated future uses of this part of the lower Willamette River within Portland Harbor as a private or public domestic water supply. According to the City of Portland, the primary public domestic water source for the City is the Bull Run watershed, which is supplemented by a groundwater supply from the Columbia South Shore Well Field. Upstream of Portland Harbor, the City of Wilsonville uses the Willamette River as a domestic water source following treatment, and the City of Sherwood began using the Willamette River in 2013.

## **7.3. Cultural and Recreational Resources**

It is important to note that locations that are and were used for hunting, fishing, and gathering, are likely locations for archeological sites containing important cultural artifacts. There may be

multiple strata of artifacts at some locations reflecting different eras of usage. If removal of cairn, burial, human remains, funerary objects, or other sacred objects takes place, re-interment will occur under the supervision of the appropriate Indian tribe. Proposed excavation by a professional archaeologist of a Native American cairn or burial requires written notification to the State Historic Preservation Officer and consultation with the appropriate Indian tribe. If cultural resources on, or eligible for, the national register are present, it will be necessary to determine, in consultation with the appropriate State Historic Preservation Office, if there will be an adverse effect to the resource and, if so, how the effect may be minimized or mitigated. A professional archaeologist must conduct any archaeological investigations at a site.

#### **7.4. Natural Resources**

##### **7.4.1. Upland and Aquatic Habitat**

Portland Harbor provides habitat for invertebrates, fishes, birds, mammals, amphibians, reptiles, and aquatic plants. Each group makes a contribution to the ecological function of the river, with its relative importance depending on its niche, its abundance, and its interaction with the physical environment. The invertebrate community living in the sediments provide important food for fish and other species in the Site. The biologically active zone of the Site that supports benthic communities is in the “shallow” sediment (less than 38 cm deep) and is generally 10 to 20 cm deep, based on sediment profiling imaging data gathered during the RI (Stiplin Environmental Associates 2002). The fish species found in the harbor include numerous species of resident fish (smallmouth bass, brown bullhead, black crappie, and carp); the river also serves as an important pathway for migration of anadromous species such as salmon, lamprey, and sturgeon. The lower Willamette River has been designated by the National Marine Fisheries Service (NMFS) as critical habitat for several salmon species that migrate through the Site. Fish in the harbor provide an important food resource for aquatic mammals, birds like osprey and bald eagle, and some larger fish species like northern pikeminnow and smallmouth bass.

Migratory and resident birds use the harbor. Resident birds include, but are not limited to, the bald eagle, Canada goose, mallard, spotted sandpiper, and great blue heron. Mammals that inhabit the Site include beaver, muskrat, raccoon, river otters, and California sea lion. Portland Harbor provides limited habitat for amphibians and reptiles, and most of the native amphibians prefer undisturbed areas that offer seasonal wetlands with emergent plants and shallow waters. Most local reptile species prefer wet vegetated upland habitats.

Aquatic plant communities are used by wildlife for refuge, nesting and breeding habitat, and they also provide food for herbivores and play a role in the cycling of nutrients. Habitat constraints in Portland Harbor, including muddy water and overwater obstructions that prevent the sun from reaching the bottom plus extensive bank armoring, limit the development of dense submerged and emergent plant communities in the Site.

##### **7.4.2. Threatened and Endangered Species**

The presence, or potential presence, of threatened and/or endangered species was evaluated in FS Appendix L; Tables L3-1 and L3-2 summarize the listed species that have the potential to live

within the Site. The lower Willamette River has been designated by NMFS as critical habitat for Lower Columbia River Chinook salmon, Lower Columbia River steelhead, Upper Willamette River Chinook salmon, Upper Willamette River steelhead (70 Federal Register 52630), and is proposed critical habitat for Lower Columbia River Coho salmon (78 Federal Register 2726). The Site provides migration and rearing habitat, and both adult and juvenile salmonids are common in the lower Willamette River during various times of the year. Adults are present during their upriver spring migrations, whereas, juvenile salmonids can be found in the lower Willamette River yearround. The critical habitat designations identified above in the Federal Register indicate that freshwater rearing sites and migration corridors, such as provided by the Site, are essential to the conservation of the listed salmonid species.

### **7.5. Potential Future Land, River and Resource Use**

The potential future land use and resource use of the Site is expected to be the same as the current use but if land uses change, the remedy will be adjusted considering the new use.

## **8. SUMMARY OF SITE RISKS**

As part of the RI/FS, baseline human health and ecological risk assessments were conducted to estimate the current and future effects of contaminants in sediments (from human-use beaches and in-river sediment collected from less 30 cm depth between the bank and the navigation channel), surface water, groundwater seeps, and fish tissue on human health and the environment. A baseline risk assessment is an analysis of the potential adverse human health and ecological risk of releases of hazardous substances from a site in the absence of any actions or controls to mitigate such releases, under current and future land and resource uses. The baseline risk assessment includes a BHHRA and a baseline ecological risk assessment (BERA). They provide the basis for taking action and identify the COPCs and exposure pathways that the remedial action should address. The BHHRA and BERA are included in the RI report in Appendices F and G, respectively. This section of the ROD summarizes the results of the baseline risk assessments.

### **8.1. Human Health Risks**

The Site-specific BHHRA estimated cancer risks and noncancer health hazards from exposures to a set of chemicals in sediments (both beach and in-river), surface water, groundwater seeps, and fish tissue from samples collected at the Site.

A four-step process is used for assessing Site-related human health risks:

- **Hazard identification** uses the analytical data collected to identify the COPCs at the Site for each medium based on such factors as toxicity, frequency of occurrence, fate and transport of the contaminants in the environment, concentration, mobility, persistence, and bioaccumulation.
- **Exposure assessment** evaluates the different exposure pathways through which people might be exposed to contaminants based on media-specific contaminant concentrations, the frequency and duration of these exposures, and the pathways by which humans are

potentially exposed (e.g., consumption of contaminated fish and shellfish, dermal contact with contaminated sediment, and ingestion of, and dermal contact with, contaminated surface water or groundwater).

- **Toxicity assessment** determines the types of adverse health effects associated with chemical exposures and the relationship between magnitude of exposure (dose) and severity of adverse effects (response).
- **Risk characterization** summarizes and combines outputs of the exposure and toxicity assessments to provide a quantitative assessment of site-related cancer risks and noncancer hazards. The risk characterization also identifies contamination with concentrations that exceed acceptable levels, identified in the National Contingency Plan (NCP) and EPA guidance as an excess lifetime cancer risk greater than  $10^{-6}$  to  $10^{-4}$  (1 in 1,000,000 to 1 in 10,000) or a noncancer Hazard Index (HI) greater than 1. Contaminants at these concentrations are considered COCs and are typically those that will require remediation at a site. This section includes a discussion of the uncertainties associated with these risks.

#### 8.1.1. Hazard Identification

The BHHRA identified COPCs present in beach sediment, in-river sediment, surface water, groundwater seeps, fish, and shellfish within the Site. The data used in the BHHRA by medium are summarized below:

- **Beach sediment:** Composite beach sediment samples that were collected from designated human use areas within the Site.
- **In-river sediment:** In-river sediment (i.e., sediment not located on a beach) samples that were collected from the upper 30 cm of the sediment bed between the bank and the navigation channel.
- **Surface water:** Surface water data collected from the Site as well as Multnomah Channel.
- **Groundwater seep:** Data from Outfall 22B, which discharges in a potential human use area. However, samples collected from this outfall as part of a stormwater sampling event were excluded.
- **Fish tissue:** Composite samples, both whole body and fillet with skin (fillet without skin samples were analyzed for mercury only), of target resident fish species (smallmouth bass, brown bullhead, black crappie, and common carp). Composite samples of adult Chinook salmon (whole body, fillet with skin, and fillet without skin), adult lamprey (whole body only), and sturgeon (fillet without skin only) were also included in the evaluation of consumption by Tribal members.
- **Shellfish tissue:** Composite samples of crayfish and clam tissue, depurated and undepurated.

COPCs were selected for quantitative evaluation in the BHHRA by comparing the Site characterization and risk assessment analytical data to risk-based screening values. If the maximum detected concentration of a chemical exceeded its appropriate risk-based screening level or if a risk-based screening level was not available, the contaminant was selected as a COPC. The BHHRA estimated risks for all COPCs. Consistent with EPA risk assessment guidance (EPA 1989, 1991), the findings of the BHHRA were used to narrow the list of COPCs to a shorter list of COCs. COCs are those contaminants estimated to pose an unacceptable risk and, therefore, need to be addressed in the FS. BHHRA Table 7-1 shows chemicals potentially showing unacceptable risk by medium. COCs for both human health and ecological receptors are summarized on Tables 1 (sediment), 2 (surface water), 3 (pore water and TZW), 4 (fish tissue), and 5 (river bank soil) in Appendix II.

### **8.1.2. Exposure Assessment**

Consistent with EPA risk assessment guidance (EPA 1989, 1991), the BHHRA serves as a baseline and assumes no remediation or institutional controls to mitigate or remove hazardous substance releases. Cancer risks and noncancer HIs were calculated based on estimates of reasonable maximum exposures (RME) and central tendency exposures (CTE) to describe the magnitude and range of exposures that might be incurred by receptor groups under current and future conditions at the Site. The RME is defined as the highest exposure that is reasonably expected to occur at a site, whereas the CTE is intended to reflect central (more typical) estimates of exposure. The objective of providing both the RME and CTE exposure cases is to bound the risk estimates, although decisions are based on the RME, consistent with the NCP.

#### **8.1.2.1. Conceptual Site Model**

The CSM describes potential contaminant sources, transport mechanisms, potentially exposed populations, exposure pathways, and routes of exposure. The CSM is presented on Figure 2 in Appendix I.

#### **8.1.2.2. Identification of Potentially Exposed Populations**

Populations were identified that could be exposed to contaminants through a variety of activities consistent with current and potential future uses of the Site. These include people who work along and on the river; people who use the river for recreational purposes; professional divers engaged in routine inspections, maintenance, or repair activities; and people who may live along the shoreline for a limited time (2 years was assumed). Use of the river as a drinking source was also considered as a future use because it is a designated beneficial use for the river. Many people catch fish in the lower Willamette River for recreation and as a supplemental or primary food source. Shellfish are also collected and consumed by people. The river provides a ceremonial and subsistence fishery for some Tribal members, who typically consume more fish than the general public. Fish are an important food source as well as an integral part of the tribes' cultural, economic, and spiritual heritage.

As a result of all these activities, exposure to contaminants at the Site can occur through direct contact with contaminated beaches, sediment, and surface water through incidental or intentional

ingestion (for example, drinking water) or through skin contact with the contaminated sediment or water. Exposure to contaminants in groundwater can occur after it discharges into the river. Because of the persistent nature of many of the contaminants, they can bioaccumulate through the food chain, and the resulting concentrations in fish can be much higher relative to concentrations in water and sediment, and exposure can occur through consumption of fish and shellfish caught from the river. Finally, bioaccumulative contaminants can partition into breast milk; thus, infants can be exposed to these contaminants through breastfeeding. The specific populations and exposure pathways evaluated in the BHHRA were as follows:

- **Dockside workers:** Direct exposure via incidental ingestion and dermal contact with beach sediments.
- **In-river workers:** Direct exposures to in-river sediment.
- **Transients:** Direct exposure to beach sediment, surface water for bathing and drinking water scenarios, and groundwater seeps. This group includes the houseless population.
- **Recreational beach users:** Direct exposure to beach sediment and surface water while swimming.
- **Tribal fishers:** Direct exposure to beach or in-river sediments and consumption of migratory and resident fish.
- **Recreational and subsistence fishers:** Direct exposure to beach or in-river sediments and consumption of resident fish and shellfish.
- **Divers:** Direct exposure to in-river sediment and surface water.
- **Domestic water user:** Direct exposure to untreated surface water potentially used as a drinking water source in the future.
- **Infant consumption of human breast milk:** Exposure to certain persistent and bioaccumulative contaminants (PCBs, DDX, dioxins and furans, and polybrominated diphenyl ether) via nursing infants of dockside and in-river workers; divers; and recreational, subsistence, and Tribal fishers.

#### 8.1.2.3. Exposures and Exposure Point Concentrations

Exposures were evaluated on a Site-wide basis as well as on more localized spatial scales, as appropriate, for each exposure scenario. Exposure to beach sediment was assessed per beach, and exposure to groundwater seeps was assessed per seep. Exposure to in-river sediment, surface water, and fish and shellfish tissue was assessed on both localized and Site-wide scales. Except where specifically noted, the exposure assumptions used in the BHHRA were applied uniformly to all of the Site and may or may not be applicable at specific Site locations, depending on factors not specifically addressed in the BHHRA.

Exposure point concentrations (EPCs) were calculated to represent the average concentration contacted over the duration of the exposure. Consistent with EPA guidance, the 95% upper confidence limit (UCL) on the arithmetic mean was used to represent the average concentration.

The maximum reported concentration was used in instances where there were insufficient data to calculate a UCL or the calculated UCL was greater than the maximum reported value. EPC tables from the BHHRA are included in Appendix III.

#### 8.1.2.4. Estimation of Chemical Intakes

The amount of each chemical incorporated into the body is defined as the dose and is expressed in units of milligrams per kilogram per day (mg/kg-day). The dose is calculated differently when evaluating carcinogenic effects than when evaluating noncarcinogenic effects.

For non-occupational scenarios where exposures to children are considered likely, exposures to both adult and child were evaluated. Children often exhibit behavior such as outdoor play activities and greater hand-to-mouth contact, which can result in greater exposure than for a typical adult. In addition, children have a lower overall body weight relative to the predicted intake. As cancer risks are averaged over a lifetime, they are directly proportional to the exposure duration. Accordingly, a combined exposure from childhood through adult years was evaluated, where appropriate, to account for the increased relative exposure and susceptibility associated with childhood exposures.

In general, Superfund exposure assessments assess RME by using a combination of 90th or 95th percentile values for contact rate, exposure frequency, and duration, and 50th percentile values for other variables. CTE estimates are done using average or median values for all variables. Receptor exposures for RME and CTE scenarios are included in BHHRA Tables 3-21 through 3-25.

The fish consumption rates used in the risk assessment were developed by information gathered from published studies that evaluated the consumption habits of people in the Portland area, as well as consumption rates of the general public. Local recreational fishers generally prefer non-resident fish species such as spring Chinook salmon, steelhead trout, Coho salmon, shad, and white sturgeon. Immigrants from Eastern Europe and Asia, African-Americans, and Hispanics are most likely to eat resident fish from the lower Willamette River either as a supplemental or primary dietary source. The most commonly consumed resident species for these populations are smallmouth bass, brown bullhead, black crappie, carp, and catfish. Because different people consume different quantities of resident fish, three different consumption rates were evaluated to examine the range of exposures for non-Tribal fish consumption patterns. Tribal populations consume both resident and non-resident fish species.

A consumption rate of 17.5 grams per day (g/day) of resident fish (approximately two 8-ounce meals per month) was used to represent a CTE value for recreational fishers, and 49 g/day (approximately six and one-half 8-ounce meals per month) was selected as representing the higher-end consumption rate for this group. A rate of 142 g/day (nineteen 8-ounce meals per month) was used for “subsistence fishers,” a term used for people who consume fish as a substantial portion of their diet. Table 9 in Appendix II summarizes the RME and CTE assumptions for recreational and subsistence fishers. This higher consumption rate was used on a Site-wide basis and assumed consumption of all the types of resident fish (representative species were smallmouth bass, brown bulhead, black crappie, and carp).



Risks to recreational fishers were evaluated on both a Site-wide and localized river mile scale. Because contaminant concentrations in migratory fish are not all related to the Site, only consumption of “resident” fish was considered. The Site-wide evaluation assumed the same diet of resident species. The river mile evaluation used only the data for smallmouth bass, the only species with contaminant data on that smaller scale, to represent contaminant concentrations in all resident fish species.

Fish consumption by Tribal members was evaluated assuming an overall rate of 175 g/day (approximately twenty-three 8-ounce meals per month), also based on the Columbia River Inter-Tribal Fish Commission (CRITFC) 1994 survey. However, this rate is based on a multi-species diet that includes both resident and migratory fish (Table 10 in Appendix II). Data from the CRITFC survey indicate that approximately 50% of the reported consumption consists of salmon, lamprey, and sturgeon. The BHHRA evaluated risks due to consumption of fish for Tribal members assuming a mix of migratory and resident fish. In order to assess the risk associated with contamination within the Site, consumption of resident fish by Tribal consumers was evaluated assuming that 50% of their fish diet, or a rate of 87 g/day, was resident fish and the remainder of the diet was assumed to be migratory fish (salmon, lamprey, and sturgeon). Consistent with the range of Tribal practices, risks were evaluated assuming fillet-only consumption as well as using the entire fish in preparing meals.

Consumption rates for children for the recreational, subsistence, and Tribal exposure estimates were estimated to be 42% of the rates for adults based on the CRITFC 1994 survey and were used to estimate noncancer hazards, as children are generally more sensitive to the noncancer effect of exposure to contaminants.

### **8.1.3. Toxicity Assessment**

The toxicity assessment determines whether exposure to COCs may result in adverse health effects in humans and the relationship between the magnitude of exposure (dose) and incidence and/or severity of adverse effects (response). For risk assessment purposes, chemicals are generally separated into categories based on whether a chemical exhibits carcinogenic or noncarcinogenic health effects. As appropriate, a chemical may be evaluated separately for both effects. Noncancer effects are evaluated using a reference dose (RfD), which is the dose below which adverse health effects are not expected. Carcinogenic effects are assessed using the cancer slope factor (SF), which is typically expressed in units of mg/kg-day. The SF represents an upper bound estimate on the increased cancer risk. SFs are generally accompanied by a weight of evidence descriptor, which expresses the confidence as to whether a specific chemical is known or suspected to cause cancer in humans.

#### **8.1.3.1. Cancer Assessment**

Potential cancer effects are expressed as the probability that an individual will develop cancer over a lifetime based on the exposure assumptions described in Section 8.1.2. The cancer SF is a plausible upper bound estimate of carcinogenic potency used to calculate cancer risk from exposure to carcinogens by relating estimates of lifetime average chemical intake to the

incremental probability of an individual developing cancer over a lifetime. SFs for assessing oral and dermal exposure are presented in BHHRA Table 4-1 in Appendix III.

#### 8.1.3.2. Noncancer Assessment

Noncancer health effects were evaluated using RfDs. An RfD is an estimate of a daily oral exposure for a given duration to the human population (including susceptible subgroups) that is likely to be without an appreciable risk of adverse health effects over a lifetime. Chronic RfDs are specifically developed to be protective against long-term exposure to COCs. The RfDs utilized to assess noncancer effects are presented in BHHRA Table 4-2 in Appendix III.

#### 8.1.4. Risk Characterization

Risk characterization integrates the information from the exposure assessment and toxicity assessment, using a combination of qualitative and quantitative information. Risk characterization involves estimating the magnitude of the potential adverse health effects associated with the COCs. It also involves making judgments about the nature of the human health threat to the defined receptor populations. The risk characterization combines the results of the dose-response (toxicity assessment) and exposure assessment to calculate cancer risks and noncancer health hazards. In accordance with EPA's guidelines, this assessment assumes that the effects of all contaminants are additive through a specific pathway within an exposure scenario.

For carcinogens, risks are generally expressed as the incremental probability of an individual developing cancer over a lifetime as a result of exposure to the carcinogen. Excess lifetime cancer risk (a unitless probability of an individual's developing cancer) is calculated by multiplying the chronic daily intake averaged over 70 years (mg/kg-day) and the SF (per mg/kg-day).

These risks are probabilities that usually are expressed in scientific notation (e.g.,  $1 \times 10^{-6}$ ). An excess lifetime cancer risk of  $1 \times 10^{-6}$  indicates a probability that the RME individual has a 1 in 1,000,000 chance of developing cancer as a result of site-related exposure. This is referred to as an "excess lifetime cancer risk" because it would be in addition to the risks of cancer individuals face from other exposures. The upper-bound excess lifetime cancer risks derived in this assessment are compared to the risk range of  $10^{-4}$  to  $10^{-6}$  established in the NCP. EPA's goal of protection for cancer risk is  $10^{-6}$ , and risks greater than  $10^{-4}$  typically will require remedial action.

The potential for noncancer health effects is estimated by comparing the average daily dose (ADD) of a chemical for adult, adolescent, and child with the RfD for the specific route of exposure (e.g., oral). The ratio of the intake to reference dose (ADD/RfD) for an individual chemical is the hazard quotient (HQ). When an RfD is available for the chemical, these ratios are calculated for each chemical that elicits a noncancer health effect. Typically, chemical-specific HQs are summed to calculate an HI value for each exposure pathway. EPA's goal of protection for noncancer health effects is an HI equal to 1. When the HI exceeds 1, there may be a concern for health effects. This approach can result in a situation where HI values exceed 1 even though no chemical-specific HQs exceed 1 (i.e., adverse systemic health effects would be expected to

occur only if the receptor were exposed to several contaminants simultaneously). In this case, chemicals are segregated by similar effect on a target organ, and a separate HI value for each effect/target organ is calculated. If any of the separate HI values exceed 1, adverse, noncancer health effects are possible. It is important to note, however, that an HI exceeding 1 does not predict a specific disease.

#### 8.1.4.1. Risk Characterization Results

The risk characterization results are presented below by receptor and exposure scenario; full results are included in BHHRA Tables 5-87 through 5-111 in Appendix III.

##### *Dockside Workers*

Risks to dockside workers were estimated separately for each of the eight beaches designated as potential dockside worker use areas. The RME estimated cancer risks ranged from  $7 \times 10^{-7}$  to  $5 \times 10^{-5}$  at all beach areas and the RME HIs ranged from 0.005 to 0.01 for adults. For breast feeding infants estimated RME HIs ranged from 0.01 to 1.

##### *In-River Workers*

In-river sediment exposure by in-river workers was evaluated in half-mile increments along each side of the river. The estimated RME cancer risks ranged from  $9 \times 10^{-8}$  to  $2 \times 10^{-5}$  at all river mile segments and the RME HIs for adults ranged from 0.001 to 0.2 at all locations. The RME HIs for breast feeding infants ranged from 0.003 to 2 at RM 7W due to dioxins and furans.

##### *Transients*

Risks to transients were estimated separately for each beach designated as a potential transient use area as well as for the use of surface water as a source of drinking water and for bathing. Year-round exposure to surface water was evaluated for individual stations: Willamette Cove, Multnomah Channel, and for four transects grouped together to represent Site-wide exposure. The RME cancer risk estimates for beach sediment ranged from  $1 \times 10^{-7}$  to  $4 \times 10^{-7}$  for all locations and the RME HIs ranged from 0.04 to 0.1. Estimated RME cancer risks associated with surface water exposures ranged from  $6 \times 10^{-7}$  to  $9 \times 10^{-7}$ , and RME HIs ranged from 0.05 to 0.3. Estimated RME cancer risk associated with a groundwater seep at Outfall 22 was  $3 \times 10^{-9}$  and the RME HI was 0.006.

##### *Divers*

Commercial divers were evaluated for exposure to surface water and in-river sediment assuming the diver was wearing either a wet or a dry suit. In-river sediment exposure by divers was evaluated in half-mile exposure areas for each side of the river and on a Site-wide basis. Risks associated with exposure to surface water were evaluated for four individual transect stations and at single-point sampling stations grouped together in one-half mile increments per side of the river.

For divers wearing wet suits, the estimated RME cancer risks associated with exposure to in-river sediments ranged from  $9 \times 10^{-8}$  to  $3 \times 10^{-5}$  at all half-mile river segments and the HIs ranged

from 0.001 to 0.1. The RME HI for indirect exposure to breast feeding infants of adult divers ranged from 0.004 to 2 at RM 8.5W due to PCBs. The estimated RME cancer risks associated with exposure to surface water ranged from  $1 \times 10^{-8}$  to  $1 \times 10^{-5}$  for all half-mile river segments and the RME HIs ranged from 0.0001 to 0.003.

For divers wearing dry suits, the estimated RME cancer risk associated with exposure to in-river sediments ranged from  $3 \times 10^{-8}$  to  $1 \times 10^{-5}$  and HIs ranged from 0.0002 to 0.2. The RME HIs for indirect exposure to breast feeding infants of adult divers ranged from 0.001 to 0.3. Surface water estimated RME cancer risk ranged from  $1 \times 10^{-8}$  to  $2 \times 10^{-6}$  at all half-mile river segments and the RME HIs ranged from 0.0001 to 0.002 for adults.

#### *Recreational Beach Users*

Risks associated with exposure to beach sediment were evaluated separately for each beach designated as a potential recreational use area, and exposure to surface water was evaluated using data collected from three transect locations and three single-point locations at Cathedral Park, Willamette Cove, and Swan Island Lagoon. Estimated RME cancer risks associated with exposure to beach sediments ranged from  $2 \times 10^{-5}$  to  $5 \times 10^{-5}$  and RME HIs ranged from 0.1 to 0.4. Estimated RME cancer risks associated with surface water exposure ranged from  $6 \times 10^{-8}$  to  $7 \times 10^{-8}$  at all recreational beach areas. The RME HI for surface water was 0.001 at 3 locations. Indirect exposures to infants via breastfeeding were not evaluated.

#### *Recreational/Subsistence Fishers*

Recreational and subsistence fishers were evaluated assuming direct exposure to contaminants in sediment and via consumption of fish and shellfish. Exposures associated with beach sediment were assessed at individual beaches designated as potential transient or recreational use areas. In-river sediment exposures were evaluated on a one-half river mile basis per side of the river and as an averaged, Site-wide evaluation. Sediment exposures were further assessed as CTE and RME evaluations and assuming either a low- or a high-frequency rate of fishing.

Estimated RME cancer risks associated with beach sediments with both low- and high-frequency fishing to beach sediment ranged from  $4 \times 10^{-7}$  to  $6 \times 10^{-6}$  and RME HIs ranged from 0.01 to 0.05. Estimated RME cancer risks associated with in-river sediment with both low- and high-frequency fishing ranged from  $2 \times 10^{-7}$  to  $8 \times 10^{-5}$  and RME HIs ranged from 0.001 to 2 at RM 7W. The CTE HIs for in-river sediment ranged from 0.0001 to 0.01. For RME indirect exposure to infants breastfeeding, the estimated HIs ranged from 0.003 to 2 at RM 8.5W. The CTE indirect exposure to infants breastfeeding ranged from 0.0002 to 0.04 at RM 8.5W. Indirect exposure to contaminants in beach sediment via breastfeeding infants was not evaluated.

Consumption of resident fish species was evaluated on a river mile basis using smallmouth bass data as a surrogate for all fish consumed. Consumption of fish was also evaluated over the entire Site, assuming a diet consisting of equal proportions of common carp, brown bullhead, back crappie, and smallmouth bass. Consumption on a river mile basis was evaluated only for recreational fishers; consumption averaged over the entire Site was evaluated for both recreational and subsistence fishers. With the exception of RM 5, RME estimated cancer risks on

a river mile basis were all greater than  $1 \times 10^{-4}$ , ranging from  $9 \times 10^{-4}$  to  $1 \times 10^{-3}$ . River miles exhibiting the highest estimated RME risks are RM 2 ( $2 \times 10^{-4}$ ), RM 4 ( $3 \times 10^{-4}$ ), RM 7 ( $6 \times 10^{-4}$ ), Swan Island Lagoon ( $6 \times 10^{-4}$ ), RM 9 ( $2 \times 10^{-4}$ ), and RM 11 ( $1 \times 10^{-3}$ ). Site-wide RME risks for recreational and subsistence fishers were  $4 \times 10^{-3}$  and  $1 \times 10^{-2}$ , respectively. CTE cancer estimates ranged from  $3 \times 10^{-5}$  to  $4 \times 10^{-4}$ , with the highest levels at RM 7, Swan Island Lagoon, and RM 11. The Site-wide CTE estimate for recreational fishers was  $1 \times 10^{-3}$ . Risks are primarily due to PCBs.

For recreational fishers, the RME HIs ranged from 6 to 100 by river mile with the highest RME HIs at RM 4, RM 7, Swan Island Lagoon, and RM 11. Site-wide RME HIs for recreational and subsistence fishers were 300 and 1,000, respectively. The CTE HI estimates for recreational fishers ranged from 2 to 30, with a Site-wide HI of 100. Risks are primarily due to PCBs.

For infant indirect exposure via breastfeeding, the RME HIs ranged from 30 to 1,000 on a river mile basis, with a Site-wide HI of 4,000. River miles exhibiting the greatest RME HIs were: RM 2 (200), RM 4 (200), RM 7 (200), Swan Island Lagoon (600), and RM 11 (1,000). The CTE estimates ranged from 10 to 500 when assessed on a river mile scale and was 2,000 on a Site-wide basis. The RME HI for subsistence fishers was 10,000. The majority of the hazard estimate is attributable to PCBs.

#### *Subsistence Fishers*

For subsistence fishers, risks from consumption of clams and crayfish were evaluated. Estimated RME cancer risks associated with consumption of undepurated clams by subsistence fishers ranged from  $4 \times 10^{-5}$  to  $7 \times 10^{-4}$  with estimates greater than  $1 \times 10^{-4}$  at 10 of the 22 river mile sections evaluated. The estimated RME risk Site-wide is  $4 \times 10^{-4}$ . Carcinogenic PAHs pose the highest risks at RM 5W and 6W, while PCBs pose the highest risks in Swan Island Lagoon and RM 11. Carcinogenic PAHs and PCBs pose the highest risks on a Site-wide basis. Estimated CTE cancer risks ranged from  $6 \times 10^{-6}$  to  $1 \times 10^{-4}$ , with a Site-wide estimate of  $7 \times 10^{-5}$ . Risks based on depurated clams were estimated at RM 1E, 2W, 10W, 11E, and 12E, and none of the estimated CTE or RME cancer risks were greater than  $1 \times 10^{-4}$ .

The estimated RME HIs associated with consumption of undepurated clams by subsistence fishers ranged from 1 to 30 with estimates greater than 1 at 20 of the 22 river mile sections evaluated. The Site-wide RME HI was 9. The estimated CTE HIs ranged from 0.2 to 7, with a Site-wide CTE estimate of 2. Risks are primarily due to PCBs.

For indirect exposure to infants via breastfeeding, RME HIs ranged from 10 to 800 on a river mile basis, with a Site-wide RME estimate of 200. CTE HIs ranged from 2 to 200 with a Site-wide CTE estimate of 30. Risks are primarily due to PCBs.

For consumption of crayfish by subsistence fishers, the RME cancer estimates ranged from  $6 \times 10^{-6}$  to  $3 \times 10^{-4}$  and a Site-wide RME estimate of  $3 \times 10^{-4}$ . Risks are primarily due to PCBs. The highest estimates were at RM 7W and RM 11E. The estimated CTE cancer risks ranged from  $1 \times 10^{-6}$  to  $6 \times 10^{-5}$  with a Site-wide CTE estimate of  $6 \times 10^{-5}$ .

For consumption of crayfish by subsistence fishers, the estimated RME HIs ranged from 0.5 to 6 with a Site-wide RME estimate of 10. The estimates greater than 1 were at 7 of the 32 individual

stations, primarily due to PCBs. The CTE HI estimates ranged from 0.08 to 3 with a Site-wide CTE estimate of 2.

For indirect exposure to infants via breastfeeding, RME HIs ranged from 0.1 to 400 with a Site-wide RME estimate of 200, primarily due to PCBs. HIs greater than 1 were estimated at 23 of the 32 stations evaluated. The CTE HIs ranged from 0.001 to 70 with a Site-wide CTE estimate of 40.

A summary of risk results for recreational and subsistence fishers is shown on Table 11a in Appendix II.

### *Tribal Fishers*

Exposures to Tribal fishers were evaluated assuming direct contact with contaminants in sediment and via consumption of fish. Exposures associated with beach sediment were assessed at individual beaches, and in-river sediment exposures were evaluated on a one-half river mile basis per side of the river and as an averaged, Site-wide evaluation. Fish consumption was evaluated assuming a multi-species diet consisting of anadromous and resident fish species, and fishing was evaluated on a Site-wide basis.

The estimated RME cancer risks associated with direct contact to beach sediment ranged from  $2 \times 10^{-6}$  to  $2 \times 10^{-5}$  at all beaches evaluated. The RME cancer risk estimates for exposure to in-river sediment ranged from  $1 \times 10^{-6}$  to  $3 \times 10^{-4}$  with a Site-wide RME estimate of  $3 \times 10^{-5}$ . RME cancer risk associated with exposure to in-river sediment was greater than  $1 \times 10^{-4}$  at RM 6W and 7W due to cPAHs, arsenic, and dioxin/furans. The CTE cancer risks for beach and in-river sediment ranged from  $6 \times 10^{-8}$  to  $2 \times 10^{-6}$ .

The estimated RME HI risks ranged from 0.003 to 3 at all beach and in-river sediment exposure locations. The RME HI of 3 was due to in-river sediment exposure at RM 7W due to PCBs. The Site-wide RME HI was 0.4. The CTE HIs ranged from 0.0004 to 0.01.

For indirect exposure to infants via breastfeeding assuming maternal exposure to in-river sediment, the RME HIs ranged from 0.01 to 4 at RM 8.5W. The estimated RME HI is greater than 1 at RM 7W, 8.5, and 11E, with risk due entirely to PCBs. The CTE HIs ranged from 0.0006 to 0.1.

For Tribal consumption of fish fillets, the Site-wide RME cancer risk was  $1 \times 10^{-2}$  and for consumption of whole body fish was  $2 \times 10^{-2}$ , primarily due to PCBs. The CTE cancer risk estimate was not calculated.

For Tribal consumption of fish fillets, the Site-wide RME HI risk was 600 and for consumption of whole body fish was 800, primarily due to PCBs.

The RME HI associated with childhood consumption of whole body fish was 800 and was 600 assuming consumption of fillets only, with risk due almost entirely to PCBs. The CTE HIs were not calculated.

The RME HI associated with indirect exposure of Tribal infants via breastfeeding, assuming maternal consumption of whole body fish, was 9,000 and 8,000 assuming maternal fillet-only consumption, with risk due almost entirely to PCBs. The CTE HIs were not calculated.

A summary of risk results for Tribal fishers is shown on Table 11b in Appendix II.

#### *Domestic Water Use*

Use of surface water as a source of household water for drinking and other domestic uses was evaluated using data from five transect and 15 single point sampling locations as well as averaged over a Site-wide basis. The RME estimated cancer risk for combined child and adult exposures ranged from  $9 \times 10^{-6}$  to  $9 \times 10^{-4}$  at RM 6W. The CTE estimated cancer risks ranged from  $3 \times 10^{-6}$  to  $2 \times 10^{-5}$  with a Site-wide CTE estimate of  $3 \times 10^{-5}$ .

The estimated RME HIs based on childhood exposure ranged from 0.1 to 2. Results were equal to or greater than 1 at several sampling locations: W005 (1) at RM 4, W023 (1) at RM 11, W027 (2) near the mouth of Multnomah Channel, and W035 (2) in Swan Island Lagoon. In all instances, 2-(4-chloro-2-methylphenoxy) propanoic acid (MCPP) was the primary contributor to the estimated hazard. The estimated CTE HIs ranged from 0.05 to 0.8 with a Site-wide CTE estimate of 0.6.

#### *Summary*

Risks resulting from the consumption of fish or shellfish were generally orders of magnitude higher than risk resulting from direct contact with sediment, surface water, or seeps. For fish and shellfish consumption, the exposure scenario showing the greatest risk was to subsistence fishers and their breastfeeding infants. For direct contact with in-river sediment, the exposure scenario showing the greatest risk was to Tribal netfishers and their breastfeeding infants. PCBs were the primary contributor to risk from fish consumption harbor wide. When evaluated on a river mile scale, dioxins/furans were a secondary contributor to the overall risk and hazard estimates. PCBs were the primary contributors to the noncancer hazard to nursing infants, primarily because of the bioaccumulative properties of PCBs and the susceptibility of infants to the developmental effects associated with exposure to PCBs.

#### **8.1.5. Uncertainty Analysis for the BHHRA**

Uncertainty is inherent in the risk assessment process. The term “uncertainty” is often used in risk assessment to describe what are, in reality, two conceptually different terms: uncertainty and variability. Uncertainty can be described as the lack of a precise knowledge resulting in a fundamental data gap. Variability describes the natural heterogeneity of a population. Uncertainty can sometimes be reduced or eliminated through further measurements or study. By contrast, variability is inherent in what is being observed. Although variability can be better understood, it cannot be reduced through further measurement or study although it may be more precisely defined.

The risks and hazards presented are consistent with EPA’s stated goal of the RME representing the high end of the possible risk distribution, which is generally considered to be greater than the

90th percentile. However, these estimates are based on numerous and often conservative assumptions and, in the absence of definitive information, assumptions are used to ensure that actual Site risks are not underestimated. The cumulative effect of these assumptions can result in an analysis with an overall conservativeness greater than the individual components. Accordingly, it is important to note that the risks summarized here are based on numerous conservative assumptions in order to be protective of human health and to ensure that the risks are more likely to be overestimated than underestimated.

#### 8.1.5.1. Exposure Parameters for Fish and Shellfish Consumption Scenarios

Site-specific information regarding fish consumption is not available for Portland Harbor prior to its listing as a Superfund site. In the absence of Site-specific data, fish consumption data from several sources were considered and selected as being representative of the general population of the greater Portland area as well as that portion of the population that actively fishes the lower Willamette and utilizes fish from the river as a partial source of food.

The rates presented in the Continuing Survey of Food Intakes by Individuals described in Section 8.1.2.4 represent per capita consumption rates rather than true long-term averaged consumption rates. In addition, the large range between the percentile values is indicative of substantial variability in the underlying data. In addition to the consumption rates, uncertainty also exists with respect to the relative percentage of the diet obtained from the Site or within individual exposure areas versus other nearby sources of fish and the degree to which different methods of preparation and cooking may reduce concentrations of persistent lipophilic contaminants.

#### 8.1.5.2. Using the Maximum Concentration to Represent Exposure

In cases when there were fewer than five samples with a detected concentration for a given analyte for a given exposure area, the sample size was not sufficient to calculate a representative 95% UCL on the mean, so the maximum concentration detected was used as the exposure point concentration. Data sets with fewer than 10 samples generally provide poor estimates of the mean concentration, defined as a large difference between the sample mean and the 95% UCL. In general, the UCL approaches the true mean as more samples are included in the calculation of the exposure concentration.

Exposure point concentrations on a river mile scale used data from smallmouth bass to represent contaminant concentrations in all resident fish species, and consumption was assumed to consist primarily of just the fillet rather than other parts of the fish. However, an evaluation of the data collected from Portland Harbor indicated that PCB concentrations in whole body smallmouth bass were typically an order of magnitude greater than those measured in just the fillet. By contrast, in common carp and brown bullhead, the observed ratio of whole body-to-fillet PCB concentrations is less than noted in smallmouth bass, meaning that given the same overall PCB concentration in whole body fish, the PCB concentration in smallmouth bass fillet tissue would be less than for carp and bullhead. These differences are reflected in the exposure concentrations such that the use of fillet smallmouth bass data on a river mile scale resulted in a greater relative reduction of PCB concentration than would be seen if fillet data from common carp and brown bullhead were included. A diet that consists of some portion of carp and bullhead could result in



relatively greater intake of PCBs, and the associated risk and hazard would be correspondingly greater. In addition, at least some of the fishers in the Portland Harbor area consume more than just the fillet. Consumption of other portions of the fish in addition to the fillet can result in greater relative exposure to PCBs and other persistent bioaccumulative chemicals and, thus, greater relative risks.

#### 8.1.5.3. Regional Tissue Concentrations

PCBs and dioxins/furans have been detected in fish tissue collected in the Willamette and Columbia rivers, outside of the Site. In the Columbia River Basin Fish Contaminant Survey, the basin-wide average concentrations of total PCBs in resident fish ranged from 0.032 to 0.173 parts per million (ppm) for whole body samples and from 0.033 to 0.190 ppm for fillet with skin samples. In the middle Willamette River (RM 26.5 to 72), the average concentrations of total PCBs in resident fish ranged from 0.086 to 0.146 ppm for whole body samples and from 0.026 to 0.071 ppm for fillet with skin samples. The regional tissue concentrations may be associated with unacceptable risks from fish consumption, especially at higher consumption rates. However, these regional concentrations are lower than the concentrations detected in the Site where average concentrations ranged from 0.16 to 2.8 ppm in whole body samples and from 0.17 to 2.5 ppm in fillet with skin samples (for PCBs as total congeners). The fish species included in the studies were different than those collected within the Site, so the concentrations may not be directly comparable. Sources contributing to the PCBs and dioxins/furans detected in fish collected outside of the Site are unknown and may not be relevant to the Site.

## 8.2. Ecological Risks

This section summarizes the BERA for aquatic and aquatic-dependent species exposed to hazardous substances associated with the in-river Willamette River portion of the Site. The BERA defined the Willamette River as all areas lower in water surface elevation than the ordinary high water mark, including nearshore riparian zone areas not normally inundated by water.

The specific overall objectives of the BERA were:

- Identify the risks posed by chemical contaminants to aquatic and aquatic-dependent ecological receptors associated with the Site under baseline conditions.
- In the event that unacceptable ecological risks require remedial actions at the Site, provide information that risk managers can use to make remedial action decisions that are protective of ecological receptors.

The numerous aquatic and aquatic-dependent organisms that use the lower Willamette River can be divided into the following general groups: invertebrates, fishes, birds, mammals, amphibians, reptiles, and aquatic plants. All organisms present within the Site contribute to the ecological functioning of the river. Riverine invertebrates are predominantly benthic (i.e., living in or associated with river bottom substrates such as fine-grained sediment, gravel and cobble, plant roots, and large woody debris). The benthic invertebrate community within the lower Willamette

River is dominated by small benthic organisms, many of which feed on organic material imported from upstream areas.

The Willamette River is an important migration corridor for anadromous fishes, including Pacific lamprey and multiple salmon species, and provides habitat for approximately 50 resident fish species. Fish present in the river can be grouped into four major feeding guilds: omnivores/herbivores, invertivores, piscivores, and detritivores. Over 20 commonly occurring aquatic-dependent bird species use habitats and feed on aquatic species within the Site. The trophic representation of these birds is broad and includes herbivores, carnivores, and omnivores; sediment-probing invertivores and omnivores; and piscivores. Seven aquatic or semi-aquatic mammals use or may use the river within the Site, including herbivores, omnivores, and piscivores.

Procedures used in the BERA to evaluate the nature, severity, and areal extent of risks to ecological receptors in Portland Harbor were based on an iterative approach, beginning with a screening-level ecological risk assessment, followed by a more detailed and rigorous BERA. The BERA steps are listed below and described in the following sections:

- **Problem Formulation** includes identification of COPCs, exposure pathways, and known ecological effects of the contaminants; receptors and selection of assessment endpoints (environmental values to be protected) for further study and a CSM.
- **Exposure Assessment** includes characterization of exposure pathways and receptors; and measurement or estimation of exposure point concentrations.
- **Ecological Effects Assessment** includes literature reviews, field studies, and toxicity tests, linking contaminant concentrations to adverse effects on ecological receptors on a media-, receptor-, and chemical-specific basis.
- **Risk Characterization** includes measurement or estimation of both current and future adverse effects as well as the overall degree of confidence in the risk estimates.

### **8.2.1. Problem Formulation**

The BERA problem formulation consisted of the tasks described below.

#### *Identification of COPCs*

The final BERA number of COPCs is presented in Table 12 in Appendix II, including the number of contaminants in each medium with no screening-level or refined screen toxicity reference values (TRVs). Risks associated with these contaminants were evaluated if alternative methods were available to derive TRVs; otherwise, risks from these contaminants could not be quantified.

The groups of contaminants identified as BERA COPCs are summarized in Table 13 in Appendix II. Screening resulted in a combined 104 COPCs for benthic invertebrates across four media (sediment, invertebrate tissue, surface water, and TZW). A combined 74 fish COPCs were identified, based on summing the COPCs across all media and the dietary line of evidence

(LOE). Twenty-three COPCs were identified for birds through two LOEs, and 12 COPCs were identified for mammals based on one LOE. Finally, 64 COPCs were identified for amphibians and aquatic plants through two LOEs.

### *Exposure Pathways*

The BERA CSM is presented in Figure 5 in Appendix I. The routes of exposure are the means by which contaminants are transferred from a contaminated medium to an ecological receptor. The most significant pathways for Portland Harbor COPCs are:

- Aquatic plants: Root uptake; direct contact with sediment, surface water, and TZW
- Benthic invertebrates: Direct contact with sediment, surface water, and TZW; ingestion of sediment and food
- Fish: Direct contact with sediment, surface water, and TZW; ingestion of sediment and food
- Birds and mammals: Ingestion of soil, sediment, and food
- Amphibians: Direct contact with surface water and TZW; ingestion of sediment and food

### *Ecological Effects Characterization*

Ecological effects characterization resulted in the final list of TRVs and sediment quality values (SQVs) for the various environmental media and samples evaluated. TRVs and SQVs are contaminant concentrations in media, which, if not exceeded, describe contaminant concentrations considered to pose no or acceptable levels of ecological risk.

### *Receptors*

The primary selection criteria for ecological receptors were that: (1) they represent the feeding guilds (a group of species that share similar feeding strategies or diets) present at Portland Harbor; (2) the receptors use the same habitat as other similar species; (3) the receptors are susceptible to contaminants; and (4) they are ecologically, culturally, and/or economically significant. Using these criteria, 13 ecological receptors (see below) were selected for evaluation.

### *Assessment Endpoint Selection*

The BERA included development of the assessment endpoints, risk questions, measurement endpoints, and LOEs. For each assessment endpoint, risk questions and testable hypotheses were developed. The BERA evaluated 13 assessment endpoints; 12 of the 13 assessment endpoints took the form of “survival, growth, and reproduction of” a group of species that share a habitat, taxonomic category, or feeding guild. The 12 assessment endpoints with the form “survival, growth, and reproduction of” were:

- Aquatic plants (aquatic plant community including phytoplankton, periphyton, macrophyte species)

- Benthic macroinvertebrates<sup>6</sup> (benthic macroinvertebrate community)
- Bivalves (clams)
- Decapods (crayfish)
- Invertivorous fish (sculpin, peamouth, and juvenile Chinook salmon)<sup>7</sup>
- Omnivorous fish (largescale sucker, carp, and pre-brccding white sturgeon)
- Piscivorous fish (smallmouth bass and northern pikeminnow)
- Detritivorous fish (Pacific lambrey ammocoetes)
- Amphibians (frog and salamander species)
- Piscivorous birds (osprey, bald eagle)
- Omnivorous birds<sup>8</sup> (hooded merganser)
- Invertivorous birds (spotted sandpiper)
- Aquatic-dependent mammals (mink and river otter)

For the 13<sup>th</sup> assessment endpoint, detritivorous fish (Pacific lamprey ammocoetes), reproduction was not evaluated because the reproducing life stage of the lamprey was not present.

### **8.2.2. Ecological Exposure Assessment**

#### *Exposure Pathways and Receptors*

Exposure data were evaluated at the scale over which the receptors are likely to be exposed and, where pertinent, the variety of potentially contaminated prey the receptor may consume. For the least mobile receptors (benthic macroinvertebrates, sculpin, aquatic plants), exposure areas are no larger than the immediate area where samples were collected. For the most mobile receptors (white sturgeon, largescale sucker), the exposure areas encompass the entire Site. For moderately mobile receptors (e.g., smallmouth bass, mink) the Site is divided into several exposure areas, each 1 to 3 miles long.

#### *Exposure Concentrations*

For dietary risks to fish and wildlife, exposure estimates were determined for a diet consisting of multiple prey species. Exposure concentrations were based both on measured contaminant

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<sup>6</sup> Clams and crayfish are members of the benthic macroinvertebrate community, but were evaluated separately to provide a population level assessment.

<sup>7</sup> Juvenile Chinook salmon were evaluated at the organism level; all other invertivorous fish receptor species selected were evaluated at the population level.

<sup>8</sup> Belted kingfisher was evaluated in the uncertainty assessment, as previously agreed to by EPA and the LWG. The belted kingfisher ingests a considerable amount of fish, is present year-round, and consumes a variety of prey. Belted kingfisher was included in the uncertainty evaluation to confirm that the evaluations performed on bald eagle, osprey, and merganser are protective of the belted kingfisher.

concentrations and, for some LOEs (the tissue-residue LOE and the dietary LOE for shorebirds), on predicted values.

### **8.2.3. Ecological Effects Assessment**

#### *Effects of Contaminant Concentrations*

The effects assessment involved two general approaches. For most receptors, the COPCs effects were assessed by comparing contaminant concentrations in each medium with contaminant- and medium-specific TRVs or Site-specific SQVs. The lowest-observed-adverse-effect level TRVs were used for all receptors evaluated at the community or population level. No-observed-adverse-effect level TRVs were used for species listed as threatened under the ESA such as the juvenile Chinook salmon and Pacific lamprey ammocetes.

#### *Sediment Toxicity Tests*

The second effects assessment approach used sediment toxicity bioassays as a direct measure of the effects of sediment contaminant mixtures on the survival and biomass of benthic invertebrates in the laboratory. Two predictive models (the floating percentile model and logistic regression model) were used to develop Site-specific SQVs. The goals of both models were to predict benthic toxicity for locations with no measured toxicity data and to define Site-specific SQVs based on associations between measured sediment chemistry and measured sediment toxicity.

### **8.2.4. BERA Risk Characterization**

During risk characterization, information from the exposure assessment and ecological effects assessment are combined into descriptions of the likelihood of unacceptable ecological risk. The risk characterization included information on the contaminants posing potentially unacceptable risk, which receptors were at risk, the media and exposure pathways in which contaminants posing potentially unacceptable risks were found, the magnitude of the risks, and the location(s) of risks within the Site.

In addition to the quantitative calculations performed to estimate risks, the risk characterization also discusses the level of agreement among the multiple LOEs used to assess risks to the assessment endpoints, the relative strengths and weaknesses of each LOE, the ecological significance of identified risks, and the uncertainties associated with the risk assessment conclusions.

#### *Benthic Invertebrate Toxicity Tests*

Sediment toxicity tests evaluated adverse effects of Portland Harbor sediment on survival and biomass (a combined survival and growth endpoint) of larvae of the aquatic insect *Chironomus dilutus* and juveniles of the amphipod *Hyaella azteca*. The toxicity tests demonstrated that exposure of these animals to sediment from some Portland Harbor locations resulted in increased mortality and/or reduced biomass of these two species within 10 to 28 days — a direct measure of sediment toxicity to benthic invertebrates. A weight-of-evidence analysis identified 17 benthic areas of concern within the Site. Most samples and locations eliciting multiple instances of

moderate and severe toxicity tended to cluster in several areas, especially between RM 5.9 and 7.8 on the west side of the river. Other areas with “clusters” of benthic toxicity included:

- International Slip
- Between RM 3.7 and 4.2, west side of river
- Between RM 4.8 and 5.2, west side of river
- Willamette Cove
- Near the mouth of Swan Island Lagoon
- RM 8.7 to 8.8, west side of river

Combined, the above areas cover between 4 and 8% of the total surface area of sediment within the Site. Contaminants at elevated concentrations relative to SQVs in these areas are the most likely to pose risks to benthic invertebrates. SQVs are included in BERA Tables 6-8 and 6-10 through 6-15.

#### *Other Lines of Evidence*

Most risk characterizations were made using the HQ method. An HQ is calculated by dividing the exposure point concentration by the selected TRV. COPCs with an  $HQ \geq 1.0$  were identified as contaminants posing potentially unacceptable risk. The potential for unacceptable risk becomes increasingly large as the HQ value increases although the increase is not necessarily linear.

Table 14 in Appendix II tallies the COPCs (individual chemicals, sums, or totals) identified as posing potentially unacceptable risk for each assessment endpoint. In total, 93 CERCLA contaminants were identified as posing potentially unacceptable risk in the BERA based on  $HQ \geq 1.0$  for at least one receptor-LOE combination. Of these, 22 COPCs are only applicable to benthic invertebrates as predicted by the floating percentile model or logistic regression model. These models predicted the suite of contaminants, which combined correlate with observed patterns of toxicity to benthic organisms, rather than identifying specific contaminants that cause toxicity.

The maximum HQ and number of samples resulting in  $HQ \geq 1.0$  for each receptor-LOE COPC combination posing potentially unacceptable risk are as follows:

- Benthic invertebrates: Eighty-seven COPCs were identified via one or more of the sediment, tissue-residue, surface water, and TZW LOEs.
- Fish: Sixty-two COPCs were identified using the tissue-residue, dietary-dose, surface water, and TZW LOEs.
- Wildlife: Eleven COPCs were identified for birds using the dietary-dose and tissue-residue (egg) LOEs, and six COPCs were identified for mammals using the dietary-dose LOE.

- Amphibians: Thirty-five COPCs were identified using the surface water and TZW LOEs.
- Aquatic plants – Thirty-five COPCs were identified using the surface water and TZW LOEs.

Table 15 in Appendix II provides a summary of the contaminants posing potentially unacceptable risks by river mile in selected media (sediment, surface water, TZW, field clam and mussel tissue, smallmouth bass tissue, and sculpin tissue).

### **8.2.5. Ecologically Significant Contaminants of Concern**

Ecological significance can be defined as the importance of an adverse effect on population, community, or ecosystem responses. Factors contributing to ecological significance considered in the BERA included the nature and magnitude of effects, the spatial and temporal extent of effects, uncertainties in the exposure assessment, uncertainties in the effects characterization, and concordance of the various LOEs used to assess risk to communities or populations.

Contaminants of ecological significance were identified based on the following criteria:

1. Had relatively high HQs in one or more environmental media
2. Had potentially unacceptable ecological risks over extensive areas
3. Spatial extent of potentially unacceptable risk encompassed many other contaminants that posed a risk at only one or a few locations in the Site
4. Had potentially unacceptable risks to multiple ecological receptors
5. Multiple LOEs indicated potentially unacceptable risks
6. Known or has potential to biomagnify in food webs

Of the contaminants of ecological significance posing unacceptable risks, 4 primary contaminants (PCBs, PAHs, dioxins/furans, and DDX) and 16 other contaminants (BEHP, cadmium, chlordanes, copper, cyanide, dieldrin, ethylbenzene, lead, Lindane [ $\gamma$ -hexachlorocyclohexane], manganese, mercury, perchlorate, tributyltin, total petroleum hydrocarbons-diesel, vanadium, and zinc) were determined to pose risks ecologically high enough to be considered in the development of remedial actions. Table 16 in Appendix II lists contaminants posing unacceptable risk to receptor groups.

Contaminants posing potentially unacceptable risk at the end of the BERA that are not listed above will be compared with post-remedial action conditions to confirm that alternatives developed for the ecologically significant contaminants would also be protective of risks of lower ecological significance.

### **8.2.6. Risk Characterization Summary**

The primary conclusions of the BERA are:

- In total, 93 CERCLA contaminants posed ecological risk; 64 were categorized as contaminants of ecological significance that pose unacceptable risk. Of the 64, 4 primary

and 16 other contaminants posed risk significant enough to be considered in the development of remedial alternatives.

- Risks to benthic invertebrates were clustered in 17 benthic areas of concern.
- Sediment and TZW samples with the highest HQs for many contaminants also tended to be clustered in areas with the greatest benthic invertebrate toxicity.
- PAH and DDX compounds were the contaminants in sediment most commonly spatially associated with locations of unacceptable risk to the benthic community or populations.
- PCBs were associated with ecological risks to mammals and birds.
- The combined toxicity of dioxins/furans and dioxin-like PCBs posed the potential risk of reduced reproductive success in mink, river otter, spotted sandpiper, bald eagle, and osprey. The PCB toxic equivalent concentration (TEQ) fraction of the total TEQ was responsible for the majority of total TEQ exposure, but the total dioxin/furan TEQ fraction also exceeded its TRV in some locations of the Site.
- The area of sediments posing ecological risk was approximately 1,290 acres, or 69% of the Site based on the contaminants of ecological significance and benthic risk.

#### **8.2.7. BERA Assessment Uncertainties**

Uncertainty has four components: variation, model uncertainty, decision rule uncertainty, and true unknowns. Examples of these types of uncertainty are:

- Variation: A fish is exposed to a range of contaminant concentrations in water, not to a constant concentration of a contaminant.
- Model uncertainty: Use of a single species or several target ecological receptors within a feeding guild to represent all species within that guild introduces uncertainty because of the considerable amount of interspecies variability in sensitivity to a contaminant.
- Decision rule uncertainty: Use of standard EPA default values, such as assuming contaminants are 100% bioavailable, because defaults are used as single-point values throughout the BERA, despite having both variation and model uncertainty associated with them.
- True unknowns: For example, the effects of titanium in water on smallmouth bass survival, growth, and reproduction has never been studied and is unknown.

Consistent with the problem formulation methods, receptor-COPC pairs posing potentially unacceptable risk were identified using conservative methods and assumptions. Examples of conservatism include assumptions that contaminant concentrations are 100% bioavailable and assumptions that resulted in low baseline TRVs, which in the case of nutritionally essential metals such as copper, had to be adjusted upward because they were below nutritional requirements for some, but not all, fish species.



Not all uncertainties create a conservative bias. Some can lead to an underestimation of risk such as unavailability of exposure or effects data, thresholds that do not account for untested sensitive species, uncertainty whether multiple Site COPCs interact synergistically, and uncertainty whether metabolic processes increase the toxicity of accumulated contaminants in ways that are not observed in toxicity tests.

Unquantified ecological risks from contaminants without baseline TRVs are a source of uncertainty in the BERA that could lead to underestimating ecological risks within Portland Harbor because most other types of uncertainty are handled by making conservative assumptions.

### 8.3. Basis for Action

The response action selected in this ROD is necessary to protect public health or welfare or the environment from actual or threatened releases of hazardous substances to the environment and pollutants or contaminants which may present an imminent and substantial endangerment to the public health or welfare. A response action is necessary for the Site because:

- **Human health risk:** Risks resulting from exposure to beach and in-river sediment and the consumption of fish and/or shellfish exceed EPA's cancer risk range and HI assessment, as summarized in Section 8.1.4.1.
  - **Sediment:** Exposure to beach and/or in-river sediment results in elevated risks to several of the receptors evaluated.
  - **Biota:** Site-wide, consumption of fish and invertebrates by subsistence, recreational, and Tribal fishers significantly exceeded EPA's cancer risk range and HI target values.
  - **Surface Water:** Direct and indirect risks due to surface water contamination and the bioconcentration potential of numerous Site COCs impact Site receptors.
  - **Groundwater:** Direct and indirect risks due to contaminated groundwater entering the river result in exposure of Site receptors.
  - **River banks:** Contaminated river banks are likely to act as uncontrolled sources to the in-river portion of the Site.
- **Ecological risk:** Risks to ecological receptors exceed acceptable levels ( $HQs \geq 1.0$ ) in many areas of the Site, especially to benthic invertebrates and other sediment-associated receptors.
  - **Sediment:** Sediment and TZW samples with the highest HQs for many contaminants also tend to be clustered in areas with the greatest benthic invertebrate toxicity. PAH and DDx compounds are the contaminants in sediment that are most commonly spatially associated with locations of unacceptable risk to the benthic community or populations.

- **Biota:** PCBs are associated with ecological risks to mammals and birds. The combined toxicity of dioxins/furans and dioxin-like PCBs poses the potential risk of reduced reproductive success in mink, river otter, spotted sandpiper, bald eagle, and osprey. The PCB TEQ fraction of the total TEQ is responsible for the majority of total TEQ exposure, but the total dioxin/furan TEQ fraction also exceeds its TRV in some locations of the Site.
- **Surface water:** Direct exposure of in-river ecological receptors results in unacceptable risk. Natural recovery of surface water is unlikely within a reasonable timeframe.
- **Groundwater:** Risks associated with TZW and/or pore water represent the inflow of contaminated groundwater from upland sources entering the ecologically sensitive zone. Natural recovery of groundwater is unlikely within a reasonable timeframe.
- **River banks:** Contaminated river banks are likely to act as uncontrolled sources to the in-river portion of the Site. Natural recovery of river banks is unlikely within a reasonable timeframe.

## 9. REMEDIAL ACTION OBJECTIVES

RAOs consist of media-specific goals for protecting human health and the environment. RAOs have been developed for COCs in the environmental media of interest; exposure pathways, including exposure routes and receptors; and an acceptable contaminant concentration or range of concentrations for each exposure route. The nine RAOs developed to address the human health and ecological risks posed by the contamination at the Site are presented below.

### *Human Health RAOs*

- **RAO 1 – Sediment: Reduce cancer and non-cancer risks to people from incidental ingestion of and dermal contact with COCs in sediment and beaches to exposure levels that are acceptable for fishing, occupational, recreational, and ceremonial uses.** Reducing concentrations, exposure to, and the bioavailability of the COCs in nearshore sediment and beaches will reduce risk at the Site. Ongoing source control efforts and the use of institutional controls (such as signs and fences) will provide additional risk reduction.
- **RAO 2 – Biota: Reduce cancer and non-cancer risks to acceptable exposure levels (direct and indirect) for human consumption of COCs in fish and shellfish.** Reducing concentrations, exposure to, and the bioavailability of the COCs in sediment will subsequently reduce surface water and fish and shellfish tissue concentrations and will reduce risk at the Site. Ongoing source control efforts and the use of fish consumption advisories and education and outreach programs will provide additional risk reduction.
- **RAO 3 – Surface Water: Reduce cancer and non-cancer risks to people from direct contact (ingestion, inhalation, and dermal contact) with COCs in surface water to exposure levels that are acceptable for fishing, occupational, recreational, and**

**potential drinking water supply.** Reducing concentrations, exposure to, and the bioavailability of COCs in sediment will subsequently reduce surface water concentrations and will reduce risk at the Site. Ongoing source control efforts will provide additional risk reduction.

- **RAO 4 – Groundwater: Reduce migration of COCs in groundwater to sediment and surface water such that levels are acceptable in sediment and surface water for human exposure.** Reducing concentrations, exposure to, and the bioavailability of COCs in the pore water and groundwater flux to surface water and sediment will reduce risk at the Site. Ongoing source control efforts will provide additional risk reduction.

#### *Ecological RAOs*

- **RAO 5 – Sediment: Reduce risk to benthic organisms from ingestion of and direct contact with COCs in sediment to acceptable exposure levels.** Reducing concentrations, exposure to, and the bioavailability of the COCs in sediment will reduce risk at the Site. Ongoing source control efforts will provide additional risk reduction.
- **RAO 6 – Biota (Predators): Reduce risks to ecological receptors that consume COCs in prey to acceptable exposure levels.** Reducing concentrations, exposure to, and the bioavailability of the COCs in sediment will subsequently reduce surface water concentrations and in fish and shellfish and will reduce risk at the Site. Ongoing source control efforts will provide additional risk reduction.
- **RAO 7 – Surface Water: Reduce risks to ecological receptors from ingestion of and direct contact with COCs in surface water to acceptable exposure levels.** Reducing concentrations, exposure to, and the bioavailability of COCs in sediment will subsequently reduce surface water concentrations and will reduce risk at the Site. Ongoing source control efforts will provide additional risk reduction.
- **RAO 8 – Groundwater: Reduce migration of COCs in groundwater to sediment and surface water such that levels are acceptable in sediment and surface water for ecological exposure.** Reducing concentrations, exposure to, and the bioavailability of COCs in the pore water and in groundwater entering surface water will reduce risk at the Site. Ongoing source control efforts will provide additional risk reduction.

#### *Human Health and Ecological*

- **RAO 9 – River Banks: Reduce migration of COCs in river banks to sediment and surface water such that levels are acceptable in sediment and surface water for human health and ecological exposures.** Reducing concentrations, exposure to, and the bioavailability of the COCs in river banks will reduce risk and recontamination at the Site. Ongoing source control efforts will provide additional risk and recontamination reduction.

RAOs simultaneously address both current and future land and waterway uses since future land and waterway uses are not anticipated to change significantly from the current usage. Section 7

includes descriptions of land and river uses. Achieving the above RAOs relies on the remedial alternatives' ability to meet cleanup levels. Cleanup level development is discussed in Section 9.1, including risk-based cleanup levels, applicable or relevant and appropriate requirements (ARARs)-based cleanup levels, and cleanup levels based on background concentrations.

It is EPA's expectations that DEQ's actions to address upland source control will adequately address contaminated soils, surface water, and especially groundwater contamination migrating to the river consistent with CERCLA. Response actions will address contamination within the in-river portion of the Site and associated river banks. There are known sources of contamination in the upland areas and known sources in locations in the downtown reach of the river (approximately RM 12 to RM 16.6). EPA is relying on the Oregon DEQ to use its authorities to address these sources. It is expected that controlling these sources will reduce or eliminate contamination in soil, groundwater, storm water, and surface water that migrates to the Willamette River. Since the achievement of cleanup levels identified in the Selected Remedy relies in part upon timely and successful completion of these upland and upstream source area actions, EPA retains the discretion to use its federal authorities to complete those actions. The RAOs above relate to the action described in this ROD conducted under CERCLA, and meeting the above objectives is dependent on the source control actions being conducted by DEQ. In addition, an objective for addressing groundwater contamination, beyond its impact on sediment and surface water, is not included in this action as groundwater contamination is primarily due to the upland sources being addressed by the DEQ source control actions.

The remedial strategy for the Site is to address all contaminated media and complete exposure pathways that pose unacceptable risk within the river, including sediment, biota, surface water, groundwater, and river banks. The remedial strategy will primarily rely on addressing the contaminated sediments in Portland Harbor to significantly reduce potential human health and ecological risks at the Site and achieve all of the RAOs. Remediation of the sediment will reduce loading and resuspension of contamination to surface water which collectively will reduce fish and shellfish exposure to the contamination. Likewise, addressing areas with contaminated groundwater discharging to the river by dredging and capping will also reduce loading to surface water and reduce exposure to benthic and invertebrate organisms living in sediment. Remediation of the sediment within the Site will have a substantial positive impact downstream, including the Columbia River. Although reducing loading to the Columbia River is not a direct objective of this action, it is an expected ancillary result of achieving the RAOs presented above.

### **9.1. Cleanup Levels**

Cleanup levels are the long-term contaminant concentrations that need to be achieved by the remedial alternatives to meet RAOs. They must comply with ARARs (or the basis for a waiver must be provided) and result in residual risk levels that fully satisfy the CERCLA requirements for the protection of human health and the environment. COCs for the Site are identified in Table 17 in Appendix II. Site-specific cleanup levels were developed for each RAO for the following media: sediment (including beaches), river bank soil, surface water, and groundwater.

### **9.1.1. Human Health Risk-Based Cleanup Levels**

Human health risk-based cleanup levels were calculated assuming an RME based on direct contact with beach and in-river sediment (RAO 1). Human health risk-based cleanup levels were calculated for sediment to be protective of indirect exposures through consumption of fish and shellfish (RAO 2). Risk-based sediment cleanup levels for cancer effects were calculated based on an excess cancer risk of  $1 \times 10^{-6}$  (1 individual out of 1 million) and risk-based cleanup levels for non-cancer effects were calculated as concentrations that would result in an HQ of 1. Sediment concentrations needed to meet protective fish and shellfish tissue concentrations were estimated using a food-web model calibrated to predict COC concentrations in fish based on the concentration in sediment and surface water. Risk-based sediment cleanup levels protective of fish/shellfish consumption were not developed for arsenic, hexachlorobenzene, mercury, BEHP, pentachlorophenol, and polybrominated diphenyl ether because a relationship between fish and/or shellfish tissue and sediment concentrations could not be determined. Risk associated with these contaminants will be addressed by meeting cleanup levels for the other COCs and through ICs. The risk-based cleanup levels for RAOs 1 and 2 represent the lowest value in each medium (beach or in-river sediment) to be protective of all potential receptors. Cleanup levels that are based on risk are indicated in Table 17 in Appendix II.

#### **9.1.1.1. Human Health-Based Fish Tissue Targets**

Human health risk-based targets were calculated for fish/shellfish tissue based on the food-web model described above. These levels of chemicals in fish/shellfish tissue are not cleanup levels but will be monitored throughout the cleanup and will, at a minimum, be used to inform fish advisories. PCB targets are risk based and are likely lower than background tissue levels. These targets are included in Table 17 in Appendix II.

### **9.1.2. Ecological Risk-Based Cleanup Levels**

Ecological risk-based cleanup levels were developed for sediment, surface water, and groundwater/pore water to meet the objectives associated with RAOs 5 through 8. Risk-based cleanup levels were developed from medium- and contaminant-specific TRVs protective of ecological receptors evaluated in the BERA. Risk-based cleanup levels in sediment were selected from protective TRVs presented in the BERA and address ingestion and direct contact of benthic organisms with sediment (RAO 5). Cleanup levels based on consumption of prey (RAO 6) were calculated using the food-web model to predict acceptable COC concentrations in prey based on sediment and surface water concentrations. The lowest value for each COC was selected as the risk-based cleanup level for RAOs 5 and 6 to be protective of all species. COC-specific water concentrations from the BERA that are protective of ecological receptors were selected as risk-based cleanup levels for RAOs 7 and 8, with the exception of the manganese cleanup level for RAO 8. The RAO 8 cleanup level for manganese was developed subsequent to the BERA, and the methodology is described in Windward 2014. Cleanup levels that are based on risk are indicated in Table 17 in Appendix II.

### **9.1.3. Cleanup Levels Based on Applicable or Relevant and Appropriate Requirements**

CERCLA requires remedial actions to comply with all applicable or relevant and appropriate federal environmental or promulgated state environmental or facility siting laws, unless such standards are waived. CERCLA stipulates that a remedy that does not attain an ARAR can be selected if the remedy assures protection of human health and the environment and meets one of six waiver criteria described in CERCLA. EPA has no information to justify waiving any of the identified ARARs at this Site.

The substantive portions of the following key ARARs and To Be Considered (TBCs) were used in developing cleanup levels:

#### *ARARs*

- Federal National Recommended Water Quality Criteria (NRWQC)
- Oregon numeric water quality standards (WQS)
- Maximum contaminant levels (MCLs) and non-zero maximum contaminant level goals (MCLGs) established under authority of the Safe Drinking Water Act (SDWA) since the river is a drinking water source
- Oregon Hazardous Substance Remedial Action (OHSRA) rules that set standards for the degree of cleanup required and establish acceptable residual risk levels for humans at  $1 \times 10^{-6}$  for individual carcinogens,  $1 \times 10^{-5}$  for multiple carcinogens, and an HI of 1 for noncarcinogens.

#### *TBCs*

- EPA regional screening levels (RSLs) for tap water (EPA 2014) established at a  $10^{-6}$  risk level.

The cleanup levels for RAOs 3 and 4 are based on the lower of the Federal NRWQC (organism + water) and Oregon WQSs (organism + water), MCLs, and non-zero MCLGs. EPA RSL values were only selected as cleanup levels when a value was not available based on NRWQCs, Oregon WQSs, or MCLs for a specific contaminant. Two RSL-based numbers were identified: manganese and MCP. The cleanup levels for RAO 7 are based on the lower of the NRWQC (chronic aquatic life) and Oregon WQS (chronic aquatic life) only when risk-based values are not available or are greater than ARARs. ARARs-based numbers are used for TBT (RAO 7) and arsenic, chromium, and DDx (RAO 8). Cleanup levels that are based on ARARs are indicated in Table 17 in Appendix II.

### **9.1.4. Background Concentrations**

EPA evaluated sediment contaminant concentrations in locations that were not influenced by releases from the Site and were either naturally occurring or anthropogenic. If background concentrations are higher than the cleanup level, EPA defaults to the background concentration as a matter of policy. Background concentrations in sediment for the Site are provided in Section

2 in the FS (EPA 2016b). Data were insufficient to compute defensible background concentrations for other media. Cleanup levels for sediment and river bank soils that are based on background are indicated in Table 17 in Appendix II.

#### **9.1.5. Summary of Selected Cleanup Levels and Fish Tissue Targets**

The NCP identifies a  $10^{-6}$  cancer risk level or a noncancer HQ of 1 as the goal of protection for determining remediation goals for alternatives when ARARs are not available or are not sufficiently protective. As summarized above, the FS provides the basis for each cleanup level, including Site-specific risk, chemical-specific ARARs, and consideration of sediment background concentrations of COCs entering the Site from upstream. The risk-based cleanup levels were compared to the chemical-specific ARARs, and the lower of the two values was then compared to background. Where both the risk-based cleanup level and chemical-specific ARAR were less than the background concentration, the background concentration was selected as the cleanup level. Cleanup levels for RAO 9 (river bank soil) were selected as the lowest sediment cleanup level for each COC to ensure that sediment would not be re-contaminated. Table 17 in Appendix II presents the cleanup levels or targets for the affected media and whether the selected value is risk based, ARARs based, or background based.

The remedial design will include development of points of compliance for all affected media at the Site, including sediment, surface water, river bank soils, pore water, and groundwater. Points of compliance measurements developed in the design will include both spacial and temporal performance standards. Fish tissue targets will be used to update fish advisories, assess whether the Selected Remedy will achieve RAOs, make adjustments to best management practices (BMPs), and their uses will be further defined in the monitoring plans.

### **10. DEVELOPMENT AND DESCRIPTION OF ALTERNATIVES**

#### **10.1. Summary of Remedial Alternatives**

EPA developed nine remedial alternatives for the Site that addressed the RAOs, considered the requirements of CERCLA and the NCP, and considered the large, complex nature of the Site. Detailed information about the remedial alternatives is provided in the FS Report (EPA 2016b). CERCLA mandates that remedial actions must be protective of human health and the environment, be cost-effective, and use permanent solutions and alternative treatment technologies or resource recovery alternatives to the maximum extent practicable. Section 121(b)(1) also establishes a preference for remedial actions which employ, as a principal element, treatment to permanently and significantly reduce the volume, toxicity, or mobility of the hazardous substances, pollutants, and contaminants at a site. CERCLA § 121(d), 42 U.S.C. § 9621(d), further specifies that a remedial action must require a level or standard of control of the hazardous substances, pollutants, and contaminants, which at least attains ARARs under federal and state laws, unless a waiver can be justified pursuant to CERCLA § 121(d)(4), 42 U.S.C. § 9621(d)(4).

There are limited technologies available for addressing contaminated sediment. The technologies available include ICs, MNR, ENR, containment, sediment/soil treatment (in-situ and ex-situ),

sediment/soil removal, and disposal. Using these technologies, nine remedial alternatives were developed in the FS and labeled A through I. Alternative A is a No-Action alternative, while Alternatives B through I all use a combination of these technologies to varying degrees. In addition, Alternatives E through I were evaluated with two disposed material management (DMM) scenarios described in Section 10.1.1.4.

In developing the different alternatives, sediment management areas (SMAs) were identified as areas where containment or removal technologies were considered to immediately reduce risks upon implementation. The SMAs represent areas with contaminant concentrations in surface sediment where natural recovery is not occurring or is not likely to be effective in reducing concentrations of COCs within a reasonable time frame. Additionally, the presence of PTW and in-situ treatment areas for PTW were used to delineate SMAs (see the PTW description in Section 6.5.1).

The COCs used to define the SMA boundaries encompassed the majority of the spatial extent of contaminants posing the majority of the risks as identified in the baseline risk assessments (see Section 8). However, since it is difficult to design a range of alternatives for 64 COCs that have different distributions in various media throughout the Site, the FS alternatives were developed using COCs that were the most widespread and posed the greatest risk, called focused COCs.

The focused COCs are:

- PCBs
- Total PAHs
- DDX
- Dioxin/furans (1,2,3,7,8-PeCDD; 2,3,4,7,8-PeCDF; and 2,3,7,8-TCDD)

The SMA footprints for each alternative are defined by exceedences of remedial action levels (RALs) and the presence of PTW. RALs are contaminant-specific sediment concentrations of focused COCs used to identify areas where capping and/or dredging will be conducted in order to reduce risks more effectively than ENR or MNR. Each alternative has a different set of sediment RALs, based on Site-wide average concentrations. The highest RALs are in Alternative B and the lowest RALs are in Alternative H. RALs are a tool commonly used at sediment sites to develop remedial alternatives, delineating areas greater than the defined concentration threshold, and to evaluate different alternatives and whether they achieve sediment cleanup levels within a reasonable time frame. The use and application of RALs does not affect or alter the requirement to achieve cleanup levels.

The evaluation and analysis used to develop the RALs is discussed in Appendix D of the FS. The RALs were developed by considering the volume or acreage of material that would be addressed in order to achieve reductions of contaminant concentrations (and therefore risk) throughout the Site. The relationships between RAL concentrations and resulting site-wide spatially-area weighted average concentrations (SWACs) or “RAL curves” were developed by plotting acres remediated against the post remediation surface weighted average surface sediment concentration. RAL curves for each focused COC are presented in Figures 10 through 16 in Appendix I. Each point on the RAL curve corresponds to RALs for a specific alternative.



The COC-specific RALs decrease from Alternatives B through H; therefore, the areas that are capped and/or dredged increase in acres from Alternatives B through H. A summary of RALs for the focused COCs used to develop Alternatives B through H are presented in Table 18 in Appendix II. Alternative I is a combination of different RAL values plus PTW applied in specific areas of the Site. The RALs for Alternative I are presented in Table 19 in Appendix II.

Alternatives B through D include containment and removal inside the SMA footprints (sediment concentrations greater than the RALs), in-situ treatment in depositional areas where PTW is present, and removal of PTW that is NAPL or not reliably contained. Where PTW that is NAPL or not reliably contained cannot be fully removed, a significantly augmented reactive cap would be placed over the remaining material. Since Alternatives E through I address all PTW through capping and dredging, it is not necessary to include in-situ treatment in areas beyond the RAL footprints, although in-situ treatment is used as a component of caps and post-dredge residual management layers in some parts of the Site where PTW is located below feasible depths of dredging. SMAs for Alternative I are the combination of PTW areas and the RALs presented in Tables 18 and 19 in Appendix II and are shown on Figure 17 in Appendix I.

#### **10.1.1. Common Elements of the Alternatives**

The following components are included in each alternative, except for Alternative A, No-Action.

##### **10.1.1.1. Containment**

Containment or caps are designed to reduce unacceptable risk through: (1) physical isolation of the contaminated sediment or river bank soil to reduce exposure due to direct contact and to reduce the ability of burrowing organisms to move contaminants to the surface; (2) stabilization and erosion/scour protection to reduce re-suspension or erosion/scour of contaminated sediment and transport to other areas; and/or (3) chemical isolation of contaminated sediment and groundwater flux to reduce exposure from contaminants in the biologically active zone (pore water area) and contaminants transported through sediment into the water column.

Caps require monitoring and maintenance in perpetuity to ensure that the cap is performing successfully. They are generally constructed of granular material, such as fine-grained sediment, sand, or gravel, but can also include other materials with more complex designs. Five types of caps were identified for use in areas suitable for capping:

- **Engineered Caps:** These involve placing layers of materials, including but not limited to sand, coarse gravel, or clay of different thickness to isolate and prevent movement of contamination. The type of material for the layers and their thickness is dependent on the type of contaminants, their concentrations, and flow dynamics of the river. For cost estimation purposes, the FS assumed a 3-ft thick engineered cap. Final cap thickness is dependent on area-specific considerations that will be addressed in remedial design.
- **Armored Caps:** Certain areas in the river may require armoring (for example, placement of large rocks) on caps to reduce erosion, particularly during large storm events. For cost estimation purposes, the FS assumed 2-ft of sand and 1-ft of armor stone. Re-deposition of fine-grained material in capped and armored areas is anticipated to occur over time,

making the armored areas similar in surface grain size to non-armored areas. Over time, the re-colonized benthic community will likely be similar to the benthic community currently in the lower Willamette River.

Armored caps are also necessary in the shallow regions of the Site where wind and wake waves would erode the surface of an engineered cap. However, this region is also located within an area of the river that provides important habitat and placing large armor stone in this region would degrade the habitat and attract predators, which would require a large amount of mitigation. Adverse impacts on overall habitat existence and functions are important considerations during cap design and implementation. Under the CWA, avoiding or minimizing impacts to the aquatic environment from the cleanup action is a requirement. Therefore, it has been assumed that an engineered beach mix layer should be applied to the uppermost layer of all caps in areas where the minimum water depth above the cap will be < 20 feet, approximately. This beach mix layer will provide a material similar to the natural existing river bottom to minimize habitat impacts from the cleanup actions and help to stabilize the cap. The specifications for armoring material will be determined during remedial design based on: a Site-specific analysis of erosion potential; analysis of minimizing impacts to the aquatic environment; and consultation with the appropriate resource agencies regarding effects on critical habitat, if relevant.

- **Reactive Caps:** Chemical isolation of contaminated sediment by capping may require an additional reactive layer of amendments such as activated carbon or organoclay when it is predicted that flow of groundwater or pore water will release contamination through the cap. In these instances, the ability of the cap material and amendments to contain contaminants will determine the ability to prevent contaminant movement through the cap. If sediment classified as containing highly toxic PTW is located in an area designated for capping, then a reactive cap was assumed for that area. All areas, including river banks, with known discharges of contaminated groundwater are assumed to require an in-river reactive cap to reduce the contaminant movement and limit potential exposures. The type and quantity of reactive material utilized in reactive caps will be determined during remedial design based on cap modeling and other information.
- **Armored Reactive Cap:** Within certain areas in the river where reactive caps are needed, armoring to reduce erosion, particularly during large storm events may also be necessary. The armored reactive cap design concept was assumed for both shallow and intermediate regions.
- **Significantly Augmented Reactive Cap:** In areas where NAPL or PTW that cannot be reliably contained remains in the river either due to the depth of contamination or the presence of structures that preclude removal, organoclay reactive layers in conjunction with low permeable materials are assumed in the cap design. Organoclay has recently been used as an amendment in the capping of NAPL at the McCormick and Baxter site in the Willamette River within the Site. The use of low permeability materials in combination with a reactive layer is expected to further retard contaminant migration.

#### 10.1.1.2. In-Situ Treatment

In-situ treatment of sediment refers to chemical, physical, or biological techniques for reducing contaminant concentrations, toxicity, bioavailability, or mobility while leaving the contaminated sediment in place. Given the NCP's expectation for treatment of PTW, in-situ treatment technologies are considered for the PTW areas. In-situ treatment is also considered in areas where groundwater plumes impact pore water.

Treatment options considered include in-situ solidification/stabilization and sequestration, which may be used to address PTW underneath and around pilings, docks, berthing or mooring dolphins, and other structures servicing active wharfs or shore-based facilities that remain intact. Amendments to caps or residual layers such as activated carbon or organoclay mats increases the ability to absorb certain types of organics and metals. The effectiveness of these amendments is dependent on the initial COC concentrations and the mixture of COCs present. Amendments can be engineered to facilitate placement in aquatic environments.

In the federally-authorized navigation channel and future maintenance dredge (FMD) areas, in-situ treatment alone is not compatible with current or future uses since future maintenance dredging would remove any material placed; thus, in-situ treatment is not generally considered to be effective over the long term or implementable in these areas unless these materials are placed below the authorized dredge depth with an overdredge allowance/buffer zone. In-situ treatment is used in residual layers after dredging where PTW is left in place or where groundwater plumes may impact pore water. In intermediate, shallow and river bank regions of the Site where PTW is left in place, either in-situ treatment or amendments to caps and post-dredging residual layers will be implemented.

#### 10.1.1.3. Removal

Removal of contaminated sediment can be accomplished while submerged (dredging) or during low water levels or after water has been diverted or drained (dry excavation). For purposes of FS cost estimates, mechanical dredging and excavation from off-shore rigs was assumed for sediment and river bank soil removal. The most appropriate and effective method to remove sediment and river bank soils will be determined during remedial design. Dredged or excavated sediment/soil will be placed on a barge and transported to a staging or handling area for dewatering and pretreatment, treatment, or final disposal. Several modes of transportation may be used to move dredged or excavated sediment depending on the dredge location(s), volume of sediment, whether it needs pretreatment, and the final disposal location.

If contamination at concentrations greater than the RALs extends below the maximum dredge depth, a cap will be placed over the remaining contamination. Otherwise, a residual sand layer will be placed over the dredged area and within the prism and surrounding area that may have been impacted by dredge residuals to cover the exposed surface and isolate any dredge residuals and remaining contaminated sediment.

Several major considerations drive the design concept, cost estimates, and feasibility evaluation for the dredging included in the remedial alternatives for the FS, such as the following:

- **Mechanical Removal Equipment:** Environmental/closed buckets were assumed in the FS to be used to lessen releases to the water column. Articulated fixed-arm dredges would be the preferred dredging option due to the greater bucket control that can be achieved versus cable-operated dredges. This greater bucket control has proven to limit contaminant resuspension and release at other sediment sites. Articulated fixed-arm dredges were assumed to have a maximum arm reach of 50 ft and bucket sizes range from approximately 2 cy to 6 cy.
- **Productivity:** The duration of the dredging season was assumed to be 122 days based on an in-river fish work window established for the Willamette River of July 1 through October 31. This in-river work window accounts for fish migration patterns of threatened or endangered species and may be refined following discussions with the relevant technical experts from the natural resource agencies. Dredging and excavation operations were assumed to occur 24 hours/6 days per week.
- **Volume Estimates:** Limited data exist on the depth of contamination at the Site. Actual dredge depths will be based on data collected during remedial design and the RALs. A maximum dredge depth of 15-19 ft<sup>9</sup> was assumed in the intermediate and Nav/FMD Regions and in the shallow regions where PTW that is NAPL or not reliably contained is present since deeper dredge depths would require special design and side slope stabilization considerations. A maximum dredge depth of 5 ft in the rest of the shallow regions was assumed because contaminant concentrations greater than RALs in this area of the Site are generally less than 5 ft.
- **Potential Contaminant Release during Construction:** Release is the mechanism by which dredging operations result in transfer of contaminants from sediment pore water and sediment particles into the water column or air. Dredging BMPs, such as silt curtains or sheet pile walls, will be used to minimize releases to the water column. Monitoring of water quality parameters will be conducted to measure the effectiveness of these controls and to determine whether additional control measures may be required. The monitoring program will include surface water and air (where necessary).
- **Dredge Residuals:** Residuals are contaminated sediment remaining in or next to the dredged footprint. Managing dredge residuals through the placement of clean material soon after dredging is an important BMP for minimizing releases of contaminants, including resuspension. If contamination above the RALs extends below the maximum dredge depth, a cap will be placed over the residual contamination. Otherwise, a 12-inch sand layer was assumed to be placed, as needed, over all dredge areas to cover the exposed surface and isolate any dredge residuals and remaining contaminated sediment inventory. The placement of 12 inches of sand would eliminate the need for additional dredge passes

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<sup>9</sup> Based on available information, nine acres of the Site have contamination greater than cleanup levels at depths greater than 15 ft located in the navigation channel, FMD, and intermediate areas of the Site. Due to the very small volume that this creates and that an over-dredge of 3 to 5 feet would need to be made to place a cap in these areas due to current and future uses, these over-dredge depths were included in the dredge volume calculations.

and ensures that the leave surface is clean. In areas where PTW is present post dredging, 5% activated carbon was assumed to be mixed with the cap.

- **Buried Debris and Pilings:** Buried debris may impede removal of contaminated sediment and river bank materials at the Site, so they will be removed. Additionally, debris may impede appropriate application of caps. A standard clamshell bucket, grapple, or equivalent will be used for debris removal. Appropriate controls specifically designed for debris or structure removal will be used to minimize releases and dredge residuals.
- **Flood Rise Concerns:** A simple evaluation balancing the amount of sediment removed and the amount placed into the river was conducted in Appendix P of the FS. A Hydrologic Engineering Center River Analysis System (HEC-RAS) model will be run on the Selected Remedy to ensure that flood rise management complies with regulatory requirements throughout the Site. This model will be run on both smaller and larger scales in order to assess the flood-rise impacts of the cleanup.
- **Material Handling:** Dredged material was assumed to be loaded directly into barges and transported for dewatering, treatment, or further transport. River bank materials excavated from above the water line were assumed to be loaded directly into containers or barges for transport and treatment as needed.

#### 10.1.1.4. Disposed Material Management

Two options for disposal of dredged material were analyzed in the FS: (1) off-Site commercial landfills (RCRA Subtitle C and D) and (2) a CDF. Sediment dredged from the Site will require characterization to determine whether it should be classified as material containing hazardous waste under RCRA or state hazardous waste law.

- **Off-Site Commercial Landfills:** A RCRA Subtitle C facility that accepts hazardous waste was used in the FS evaluation and for costing purposes, such as Chemical Waste Management of the Northwest (Chem Waste) Landfill. A RCRA Subtitle D facility that accepts non-hazardous waste was used in the FS evaluation and for costing purposes, such as Roosevelt Regional Landfill.
- **On-Site CDF:** A CDF is an engineered structure, typically built on land adjacent to the water and extending into the waterbody (on the sediment bed) to store contaminated dredged material, isolating it from the surrounding environment. An in-river CDF may be constructed with sheet pile walls or other containment structures such as berms, either against the shore or as an island. Once an in-river CDF is filled, it would be capped, converting open water to dry land. CDFs have been proven to be a viable disposal option at other Superfund sediment sites. They can be a technically viable and cost effective means to dispose of contaminated sediment. In addition, a CDF is more efficiently integrated with dredging because transporting and offloading dredged material to a CDF causes fewer short-term impacts to the community and would be more cost-effective than transporting and offloading to an off-site landfill. The option to construct a CDF is dependent on the volume of dredged sediment. The CDF selected for FS evaluation and

costing purposes is the Terminal 4 CDF, with a capacity of approximately 670,000 cy of non-hazardous waste.

Using these two options, two disposal scenarios were developed that consider regulatory requirements governing disposal, sediment contaminant characteristics, and disposal capacity compared to volume of dredged sediment for each alternative. Under RCRA, dredged material that is handled consistent with the CWA Section 404 is exempt from hazardous waste characterization and management requirements, but if such dredged material is taken off-site for disposal, RCRA characterization would apply. The expected regulatory waste types that may be generated through dredging include waste that may contain RCRA characteristic hazardous wastes, RCRA- and state-listed hazardous wastes, and Toxic Substances Control Act (TSCA) waste. Additionally, dredged material that is not regulatory waste but has high concentrations or other characteristics requiring special disposal considerations will include “Waste or Media containing Waste that May Warrant Additional Management” and PTW. Information about each of these waste types and their special handling and disposal requirements are discussed in the FS.

- **DMM Scenario 1 - Confined Disposal Facility and Off-Site Disposal:** This scenario would allow the disposal of dredged material in a CDF and off site. This scenario was only applied to Alternatives E through I because the estimated dredged material volumes under these alternatives meet the minimum volume needed to justify construction of a CDF, which is approximately 670,000 cy. Waste meeting the CDF disposal requirements would be placed in the CDF. Waste that does not meet the CDF requirements would be disposed of at an off-site RCRA Subtitle C or D facility. Acceptance criteria for the sediment placed in the CDF include: no RCRA or state hazardous waste, no “Waste or Media containing Waste that May Warrant Additional Management”, no PTW that is highly mobile, no free oil, no debris or significant organic material, no contaminants that would leach out of the CDF, and other considerations such as the physical nature of the material, the nature of the chemical contaminants, and the quantity of material. More information on the CDF acceptance criteria is provided in the FS.
- **DMM Scenario 2 - Off-Site Disposal:** This scenario applies to all alternatives. All dredged material will be disposed of in an off-site landfill (RCRA Subtitle C or D facility). Non-hazardous dredged materials (as defined under RCRA) are eligible for direct landfill disposal at a RCRA Subtitle D facility if in compliance with the individual acceptance criteria of the receiving facility. Dredged material containing a hazardous waste is eligible for direct landfill disposal at a RCRA Subtitle C or D (if treated) facility, if the material is in compliance with the individual acceptance criteria of the receiving facility. The capacity of the Roosevelt Regional RCRA Subtitle D facility and the Chem Waste RCRA Subtitle C Landfill is essentially unlimited relative to the volume of sediment expected to be dredged from the Site.

For both DMM scenarios, land-based disposal typically requires dewatering, waste water treatment, and transport to the disposal site via land based or water based transportation. Material that may need to be treated is assumed to be treated at a nearshore upland facility that will be sited

and constructed in remedial design. To minimize the impact to surrounding communities, dredged material was assumed to be transported by barge to either the off-site facility or to the CDF. Currently, there is no existing transfer facility within the Site to facilitate off-site disposal.

#### 10.1.1.5. Ex-Situ Treatment

Ex-situ treatment would involve the application of chemical, physical or biological technologies to transform, destroy, or immobilize contaminants following removal of contaminated sediment. Depending on the contaminants, their concentrations, and the composition of the sediment, treatment of the sediment to reduce the toxicity, mobility, or volume of the contaminants before disposal may be warranted. Available disposal options and capacities may also affect the decision to treat some sediment. In general, treatment processes have the ability to reduce sediment contaminant concentrations, mobility, and/or toxicity by: (1) contaminant destruction or detoxification, (2) extraction of contaminants from sediment, (3) reduction of sediment volume, or (4) sediment solidification/stabilization. Regulatory requirements determine the need to treat some sediments (such as RCRA Land Disposal Restrictions [LDR]); therefore, treatment has been considered. Prior to disposal, an evaluation of dredged sediment containing any RCRA hazardous wastes, pesticide residue, or MGP waste subject to the 2004 dispute decision, will be conducted to determine the need for, and extent of, treatment appropriate for the off-site disposal requirements.

Low temperature thermal desorption and solidification/stabilization are ex-situ treatment options considered in the FS for the Site, although other treatment options were retained and may be considered during remedial design. Low temperature thermal desorption has been demonstrated at other sediment remediation sites, is effective for SVOCs and PAHs, but has limited effectiveness for PCBs. An acid scrubber was assumed to treat off-gas of thermally-treated material. Solidification/stabilization has been effectively used for Gasco wastes and effective at reducing the mobility of contaminants. Fine-grained sediment and high moisture content will increase treatment times and volumes. Commercial technologies are widely available for both on-site and off-site applications of these treatment options.

#### 10.1.1.6. Monitored Natural Recovery

Natural recovery uses ongoing, naturally occurring processes to contain, destroy, or reduce the bioavailability or toxicity of contaminants in sediment. These processes may include physical (sedimentation or dispersion), biological (biodegradation), and chemical (sorption and oxidation) mechanisms that act together to reduce the risks posed by contaminants. At this Site, it is expected that physical isolation through natural deposition of cleaner material coming in from upstream and dispersion and mixing are the primary mechanisms for natural recovery. Analysis of upstream suspended sediment data suggests incoming sediment COC concentrations are lower than sediment concentrations measured at the Site. Therefore, when the cleaner sediment is deposited on and mixed into the contaminated surface sediment within the Site, the overall contaminant concentration in the surface sediment is reduced, thus reducing the exposure to the contamination. The effectiveness of MNR will be dependent in large part on the surface sediment concentration and the concentration and rate of deposition and mixing of the cleaner

sediment. Several lines of evidence (LOE) were evaluated in Section 8 of Appendix D in the FS to determine the processes and areas where MNR would be effective. LOEs evaluated included deposition and erosion rates; consistency of depositional and erosional processes; sediment grain size; anthropogenic factors; the subsurface to surface sediment concentration ratio; and wind and wake-generated waves.

Natural recovery mechanisms (Magar et al 2009), including chemical transformation, reduction in contaminant mobility and bioavailability, physical isolation (or burial), and dispersion, will all be occurring to varying degrees throughout the Willamette River. Burial is a primary mechanism for natural recovery. Over time, cleaner sediment deposits on top of more contaminated sediment, lessening the contaminant exposures to organisms.

Deposition is well documented in areas of the Willamette River. A clear example of the depositional nature of areas of the harbor is the need for routine navigation dredging. Location-specific determinations of deposition can also be obtained from analyzing bathymetric surveys. A series of high resolution bathymetric surveys were conducted within the Site at five different times between 2002 and 2009 (Jan 2002, July/September 2002, May 2003, February 2004, and January 2009). These surveys were evaluated during the FS.

The draft FS also contained several other LOE for natural recovery, including grain size and modeling predictions. That analysis assessed natural recovery averaging over 1-mile long river reaches and indicated that natural recovery would be effective over most of the Site, except it was less certain in RMs 6-8, and may not occur in RM 11.8-11 and Swan Island Lagoon.

Fish tissue concentrations that were sampled over time were also evaluated to determine whether they can indicate MNR processes. An exact comparison between sample years is not possible because sampling and compositing schemes vary between years, but comparison of the 2012 data to the 2007 data (most similar in sampling protocol) is suggestive of declines in PCB concentrations in the system at some locations in the harbor. These declines likely resulted from natural recovery as well as source control efforts. The 2012 fish tissue data will serve as an excellent comparator in future evaluations of declines in PCB concentrations in fish tissue.

Combined, the information indicates that recovery is occurring in the system, likely through a combined effect of natural processes, source control efforts, and remedial actions to date.

MNR does not include active remedial measures. However, it does include monitoring to assess whether these natural processes continue to occur and the rate they may be reducing contaminant concentrations in surface sediment. Monitoring of the surface water, sediment, and fish tissue will be used to determine the progress of MNR to achieve RAOs and cleanup levels.

#### 10.1.1.7. Enhanced Natural Recovery

In areas where natural recovery is occurring, but not at a rate sufficient to reduce risks within an acceptable time frame, enhancement or acceleration of the recovery process by engineering means can be considered. ENR at this Site is accomplished by adding a thin-layer cover of clean sand over contaminated sediment to accelerate natural recovery. The acceleration can occur through several processes, including increased dilution of contaminant concentrations in



sediment from mixing, thereby decreasing the exposure of organisms to contaminants. Areas that are not erosional or are naturally recovering slowly are candidates for ENR. ENR with a thin-layer placement of sand is different than the caps used to isolate contaminants.

ENR will be accomplished through the placement of a sand layer, assumed in the FS to be 12 inches, which is expected to be sufficient to allow mixing with the underlying sediment bed, while also retaining a clean sand surface above the mixed layer. In areas where PTW is present, it is assumed that activated carbon will be added to the sand layer and would be monitored in perpetuity. This may be further defined during the remedial design if areas with PTW are addressed through ENR.

An analysis of data collected during the RI indicate that MNR may not be occurring in Swan Island Lagoon at a rate sufficient to reduce risks within an acceptable time frame. Water circulation is limited, which may limit the rate of sediment deposition and the entry of clean upriver sediment into this area. Since MNR is not considered a viable technology in this area, ENR was assumed for the area in Swan Island Lagoon that is outside the areas to be dredged or capped in order to meet the cleanup levels within an acceptable time frame. This limits the need to apply dredging and capping to larger areas of Swan Island Lagoon to meet cleanup levels in an acceptable time frame. Appendix D of the FS provides an analysis of the trade-offs between ENR and dredging/capping a larger area within Swan Island Lagoon.

#### 10.1.1.8. Institutional Controls

The objectives of ICs are to prevent exposure to contaminants on both a short-term and long-term basis until protective levels are achieved for all populations and to maintain the integrity of the engineered components of the remedy. ICs will include fish consumption advisories, educating the community by conducting an enhanced community outreach program, and limiting other river use activities during and after implementation of the remedy. ICs will also be used to protect caps in perpetuity by limiting one or more waterway and land use activities that may disturb or reduce the cap's ability to contain the contaminated sediment or groundwater. Other types of controls that likely will be used include coordinated permit reviews of in-river work (e.g., maintenance dredging, pile removal) and other government controls to minimize recontamination to the Site. More detail on the potential IC mechanisms is provided below.

- **Fish Advisories and Educational Outreach:** A fish advisory will be part of the CERCLA response. Once construction is completed, the advisory would be updated to allow an increased consumption rate based on fish tissue concentrations. The advisory may be periodically updated until RAOs and cleanup levels are reached. The outreach program may include: informational meetings, presentations, and workshops targeting affected community groups; development and distribution of informational materials such as brochures or maps; advisory notifications communicated through a variety of culturally appropriate outlets; installation and maintenance of advisory signs at known fishing locations; and coordination with sport or recreational fishing clubs and licensing locations.
- **Waterway Use Restrictions or Regulated Navigation Areas (RNAs):** Where caps will be utilized to contain contamination in navigable areas of the river, waterway use

restrictions will be necessary to ensure the integrity of the cap is maintained in perpetuity. These restrictions, depending on the Site-specific circumstances, may preclude boat anchoring and keel dragging, the use of spuds to stabilize vessels, structure and utility maintenance and repair, and future maintenance dredging in areas containing caps. Notifications such as signs and buoys may be used to warn vessels away from the area. RNAs have been successfully used in the past to protect remedial actions at the McCormick and Baxter cap and the Gasco interim action cap from vessel activities. Periodic inspections of waterway use restrictions will be needed to ensure they are functional and effective and will be evaluated in 5-year reviews.

- **Land Use/Access Restrictions:** Land use or access restrictions may also need to be implemented in nearshore areas and river banks to maintain the integrity of caps and/or mitigation areas from existing or future activities, such as construction and maintenance of structures. The Oregon DSL has control of state-owned submerged or submersible land that may be subjected to remedial action. Adjacent landowners also may control submerged land and river banks. Coordination with DSL and adjacent landowners would be needed to implement any land use or access restrictions. Monitoring, including inspections, will be needed to ensure that restrictions are functioning as intended and will be evaluated in statutory 5-year reviews.
- Additional IC mechanisms that can accomplish the IC objectives may be analyzed and implemented during remedial design and remedial action. IC mechanisms will be developed during remedial design.

#### 10.1.1.9. Monitoring

Monitoring is an integral component of all alternatives and will be conducted to evaluate short- and long-term effectiveness. The monitoring program will include analysis of sediment, river banks, surface water, pore water, fish tissue, and air (before, during, and after construction):

- New baseline sampling and monitoring will be conducted prior to implementation of remedial activities to establish current baseline conditions (pre-construction), to delineate construction areas, and to evaluate construction activities and the performance of the remedy. This will include a statistically valid collection (95% UCL) of data of both surface and subsurface sediment concentrations in and near where contamination was identified in the RI/FS and has come to be located for the purposes of applying ROD decision trees and proceeding with the design of active remediation throughout the harbor. Data will be collected consistent with EPA-approved RI/FS decision rules on data collection (e.g., treatment of a non-detect value) and will be evaluated on spatial and temporal scales appropriate for the RAOs.
- Short-term monitoring will be conducted during construction and post construction until remedial action performance goals and cleanup levels are met.
- Long-term monitoring will be conducted periodically after cleanup levels are met where waste is left in place to ensure the remedy is still protective of human health and the

environment. Statutory five-year reviews of the remedy will be conducted until unlimited use/unlimited exposure for the whole Site is achieved.

#### 10.1.1.10. ARARs

CERCLA requires remedial actions to comply with ARARs or waive them. The following are the key ARARs associated with the remedial alternatives presented below:

- Federal NRWQCs, if more stringent than a promulgated Oregon numeric water quality standard, are both cleanup levels for surface water and groundwater discharging to the river, and they are action-specific standards for minimizing discharges of contaminants during construction.
- Oregon WQs contain both promulgated numeric and narrative water quality standards that protect the designated uses of the river. Relevant numeric standards are cleanup levels for surface water and groundwater discharging to the river, and numeric and narrative water quality standards are action-specific standards for minimizing discharges of contaminants during construction.
- MCLs and non-zero MCLGs established under the authority of the SDWA as both cleanup levels for surface water and groundwater discharging to the river, and as action-specific standards for minimizing discharges of contaminants during construction.
- OHSRA set standards for the degree of cleanup required for hazardous substances by establishing acceptable risk levels for human health at  $1 \times 10^{-6}$  for individual carcinogens,  $1 \times 10^{-5}$  for multiple carcinogens, and an HI of 1 for noncarcinogens.
- Federal and state solid and hazardous waste regulations such as the RCRA, including LDRs, and TSCA set handling, characterizing, treating, and disposing of dredged sediment off-site.
- The ESA, because threatened or endangered species migrate through and use the Site and the Site contains designated critical habitat for such species, requires reasonable and prudent measures to minimize adverse effects on the species and critical habitat from implementation of the remedy, including the time of year and duration in-river work can be conducted.
- Section 404 of the CWA, because all of the action alternatives result in the discharge of dredged or fill material to waters of the US to some degree, requires the remedy to avoid or minimize impacts to the aquatic environment and to mitigate unavoidable impacts.
- Section 401 of the CWA, because each action alternative will result in the discharge of pollutants to waters of the US to some degree, requires reasonable assurances that the activity will be conducted in a manner which will not violate applicable water quality standards by the imposition of any effluent limitations, other limitations, and monitoring requirements.

- Section 10 of the Rivers and Harbors Act, because creation of any obstruction not affirmatively authorized by Congress to the navigable capacity of any waters of the United States is prohibited, requires that no obstruction to navigation can be created by any of the alternatives.
- Federal Emergency Management Agency (FEMA) floodplain regulations prohibit encroachments that would result in any increase in flood levels during occurrence of base flood discharge and require measures to reduce the risk of flood loss, minimize the impact of floods, and restore and preserve the natural and beneficial values of floodplains.

#### 10.1.1.11. Costs

Cost estimates were developed in the FS for each remedial action alternative based on the RI data to define the scope of each alternative. The types of costs estimated include the following: (1) capital costs, including both direct and indirect costs; (2) annual O&M costs; and (3) net present value of capital and O&M costs (40 Code of Federal Regulations (CFR) 300.430 (e)(9)(iii)(G)). A discount rate of 7% was used in the present value calculations, consistent with EPA guidance. Remedial action alternative cost estimates for the detailed analysis are intended to provide a measure of total resource costs over time (“life cycle costs”) associated with any given alternative. Cost estimates for detailed analysis of alternatives were developed with expected accuracy ranges of -30 to +50% of actual cost, as identified in the NCP. Detailed costs estimates are included in the FS.

#### 10.1.2. Application of Technologies by River Region

The majority of the alternatives developed combine all the technologies described above. Determining the appropriate technology to assign to a specific area of the river is dependent on a number of area-specific characteristics and environmental conditions. These factors include contaminant concentrations, current and reasonably anticipated future land and waterway use, areas of erosion/deposition, sediment bed slope, infrastructure such as docks and piers, and physical sediment characteristics. In areas to be dredged or capped, a technology assignment process (FS Figures 3.8-1-b and 3.8.1-c) identifies either capping or dredging for each area. After identifying appropriate cap or dredge technologies through this process, further modifications may be necessary during design to ensure the final constructed remedy is appropriate for the actual Site conditions. The technology assignment is also based on the river regions shown in Figure 18 in Appendix I and explained in more detail in FS Figures 3.8-1a-d decision trees. The primary difference between the alternatives is the size of the SMA footprints shown on Figures 19a-h in Appendix I. Based on the CSM, areas with levels of contamination greater than the RALs where MNR would not be effective in reducing contaminant levels and ultimately risks, were assigned dredging or capping. The summary of the areas of each assigned technology in the FS is presented in Table 20 in Appendix II. MNR will be applied to areas of low-level contamination.

## 10.2. Remedial Alternatives

EPA developed nine remedial alternatives for the Site that address the RAOs, consider the requirements of CERCLA and the NCP, and consider the large, complex nature of the Site. The remedial alternatives were assembled by combining the retained remedial technologies described above.

Remedial alternatives include the No Action alternative (designated as Alternative A), as required by the NCP, and eight remedial alternatives (designated as Alternatives B through I) that apply the same suite of remedial technologies to varying degrees based on Site-specific characteristics. A summary of the Alternatives is presented below. It should be noted that dredged areas increase in acreage from Alternatives B through H. A summary of RALs for the focused COCs used to develop Alternatives B through H are presented in Table 18 in Appendix II. Alternative I uses a combination of different RAL values and PTW applied in specific areas of the Site. The RALs for Alternative I are presented in Table 19 in Appendix II. Table 20 in Appendix II summarizes the number of acres assigned to each technology.

Alternatives A through G were the first set of Alternatives developed in drafting the FS. However, following Tribal consultations and meetings with the CAG, EPA developed Alternative H, which reaches cleanup levels at the end of construction by capping/dredging the entire Site. Additionally, as EPA was evaluating the alternatives, EPA determined that none of the Alternatives achieved a consistent level of risk reduction throughout the Site after construction. In order to achieve consistent risk reduction throughout the Site, EPA developed Alternative I which uses a different combination of the technologies used in Alternatives B through F while ensuring that all PTW is addressed. Alternative C was screened out because it was so similar to Alternative B. When constructed, the difference between Alternatives B and C was negligible. Alternative H was also screened out due to implementability and cost considerations.

Detailed information about the remedial alternatives is provided in the FS Report and in FS Table 4.3-1.

### 10.2.1. Alternative A: No Action

Capital Costs:	\$0
Periodic Costs:	\$0
Present Value:	\$0
Construction Duration:	0 years

The Superfund program requires that the No Action alternative be considered as a baseline for comparison with the other alternatives. The No Action alternative would not include any remedial measures beyond the early actions implemented at the Gasco and Terminal 4 sites in 2005 and 2008, respectively. OHA may continue to implement the fish consumption advisories already in place under state legal authorities, but it is not part of the CERCLA response. The No Action Alternative does not include implementation of any new ICs or monitoring as a part of a CERCLA action for the Site.

### 10.2.2. Alternative B

Capital Costs:	\$352,097,000
Periodic Costs <sup>10</sup> :	\$290,324,000
Present Value:	
With DMM Scenario 2:	\$451,460,000
Construction Duration:	4 years

Alternative B uses the RALs presented in Table 18 in Appendix II to develop the combination of remedial technologies applied at the Site. This alternative would only support DMM Scenario 2 – off-site disposal, since this alternative would not generate enough dredged material to justify constructing a CDF.

Alternative B would have a total constructed area of 201 acres of sediment and 9,633 lineal ft of river bank, would allow 1,966 acres of sediment to naturally recover, and would not address 20,416 lineal ft of known contaminated river bank.

This alternative would include capping and dredging 95.0 acres of contaminated sediment, 99.8 acres of ENR and 6.7 acres of in-situ treatment. Additionally, 9,633 lineal ft of river bank would be assumed to be appropriately sloped and covered with either a significantly augmented reactive cap or an engineered cap using beach mix or vegetation.

#### *Site Wide*

- Dredging (different depths): 72.2 acres - 494,000 to 659,000 cy of sediment
- Excavation: 51,000 cy of soil
- Capping area: 22.8 acres
- Ex-situ treatment: 156,000 to 208,000 cy of sediment and 9,500 cy of soil
- In-situ treatment: 6.7 acres
- ENR: 99.8 acres
- MNR: 1,966 acres

The design concept for Alternative B is shown on Figure 20 in Appendix I.

Construction Duration: This alternative would take an estimated 4 years of construction, with no additional time required to complete dredged material processing (i.e., dewatering and sampling for disposal parameters). The estimated schedule would be as follows:

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<sup>10</sup> Periodic costs include Operation and Maintenance (O&M) costs and 5-year review costs over 30 years.

- Year 0<sup>11</sup>: Establish initial conditions
- Year 0<sup>12</sup>: Construction of on-site material handling/treatment facility (if applicable)
- Year 0<sup>13</sup>: Start-up activities and mobilization, including pre-design investigations
- Years 1 and 2: In-river construction
- Year 3: Demobilization and mitigation

Disposal: Under Alternative B, an estimated volume of 494,000 to 659,000 cy of dredged material would be managed under DMM Scenario 2.

ICs and monitoring as described in Section 10.1.1, Common Elements of the Alternatives, would be implemented under this alternative. The key ARARs associated with this alternative are also discussed in Common Elements of the Alternatives.

### **10.2.3. Alternative C**

Capital Costs:	\$400,933,000
Periodic Costs:	\$317,464,000
Present Value:	
With DMM Scenario 2:	\$496,760,000
Construction Duration:	5 years

This alternative was screened out since it was essentially the same constructed alternative as Alternative B.

Alternative C uses the RALs presented in Table 18 in Appendix II to develop the combination of remedial technologies applied at the Site. This alternative would only support DMM Scenario 2 – off-site disposal, since this alternative would not generate enough dredged material to justify constructing a CDF.

Alternative C would have a total constructed area of 219 acres of sediment and 11,047 lineal ft of river bank, would allow 1,948 acres of sediment to naturally recover, and would not address 19,002 lineal ft of known contaminated river bank.

This alternative would include capping and dredging 116.8 acres of contaminated sediment, 97.4 acres of ENR and 5.0 acres of in-situ treatment. Additionally, 11,047 lineal ft of river bank would be assumed to be appropriately sloped and covered with either a significantly augmented reactive cap or an engineered cap using beach mix or vegetation.

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<sup>11</sup> Monitoring (sampling) of sediment, water, biota, groundwater, and pore water will need to be the first phase, and it will encompass the entire Site to establish a baseline and delineate the SMAs for construction. It is expected that this phase will take 3 to 5 years.

<sup>12</sup> If a location for an on-site material handling/treatment facility is determined, construction of the facility would occur prior to construction activities.

<sup>13</sup> Year 0 is the first year of construction.

*Site Wide*

- Dredging (different depths): 86.6 acres - 592,000 to 790,000 cy of sediment
- Excavation: 58,000 cy of soil
- Capping area: 30.2 acres
- Ex-situ treatment: 156,000 to 208,000 cy of sediment and 9,500 cy of soil
- In-situ treatment: 5.0 acres
- ENR: 97.4 acres
- MNR: 1,948 acres

The design concept for Alternative C is shown on Figure 21 in Appendix I.

Construction Duration: This alternative would take an estimated 5 years of construction, with no additional time required to complete dredged material processing (i.e., dewatering and sampling for disposal parameters). The estimated schedule would be as follows:

- Year 0: Establish initial conditions
- Year 0: Construction of on-site material handling/treatment facility (if applicable)
- Year 0: Start-up activities and mobilization including pre-design investigations
- Years 1 through 3: In-river construction
- Year 4: Demobilization and mitigation

Disposal: Under Alternative C, an estimated volume of 592,000 to 790,000 cy of dredged material would be managed under DMM Scenario 2.

ICs and monitoring as described in Section 10.1.1, Common Elements of the Alternatives, would be implemented under this alternative. The key ARARs associated with this alternative are also discussed in Common Elements of the Alternatives.

**10.2.4. Alternative D**

Capital Costs:	\$556,004,000
Periodic Costs:	\$397,028,000
Present Value:	
With DMM Scenario 2:	\$653,700,000
Construction Duration:	6 years

Alternative D uses the RALs presented in Table 18 in Appendix II to develop the combination of remedial technologies applied at the Site. This alternative only supports DMM Scenario 2 – off-site disposal, since this alternative would not generate enough dredged material to justify constructing a CDF.



Alternative D would have a total constructed area of 267 acres of sediment and 13,887 lineal ft of river bank, would allow 1,900 acres of sediment to naturally recover, and would not address 16,161 lineal ft of known contaminated river bank.

This alternative would include capping and dredging 176.9 acres of contaminated sediment, 87.0 acres of ENR, and 3.2 acres of in-situ treatment. Additionally, 13,887 lineal ft of river bank would be assumed to be appropriately sloped and covered with either a significantly augmented reactive cap or an engineered cap using beach mix or vegetation.

#### *Site Wide*

- Dredging (different depths): 132.1 acres - 950,000 to 1,266,000 cy of sediment
- Excavation: 73,000 cy of soil
- Capping: area: 44.8 acres
- Ex-situ treatment: 156,000-208,000 cy of sediment and 9,500 cy of soil
- In-situ treatment: 3.2 acres
- ENR: 87.0 acres
- MNR: 1,900 acres

The design concept for Alternative D is shown on Figure 22 in Appendix I.

Construction Duration: Alternative D would take an estimated 6 years of construction, with no additional time required to complete dredged material processing (i.e., dewatering and sampling for disposal parameters). The estimated schedule would be as follows:

- Year 0: Establish initial conditions
- Year 0: Construction of on-site material handling/treatment facility (if applicable)
- Year 0: Start-up activities and mobilization, including pre-design activities
- Years 1 through 4: In-river construction
- Year 5: Demobilization and mitigation

Disposal: Under Alternative D, an estimated volume of 950,000 to 1,266,000 cy of dredged material would be managed under DMM Scenario 2.

ICs and monitoring as described in Section 10.1.1, Common Elements of the Alternatives, would be implemented under this alternative. The key ARARs associated with this alternative are also discussed in Common Elements of the Alternatives.

#### **10.2.5. Alternative E**

DMM Scenario 1:

Capital Costs: \$748,071,000

Periodic Costs:	\$412,332,000
Present Value:	\$804,120,000
DMM Scenario 2:	
Capital Costs:	\$827,465,000
Periodic Costs:	\$412,332,000
Present Value:	\$869,530,000
Construction Duration:	7 years

Alternative E uses the RALs presented in Table 18 in Appendix II to develop the combination of remedial technologies applied at the Site. This alternative would support DMM Scenario 1 – off-site disposal and CDF and DMM Scenario 2 – off-site disposal. This alternative would generate enough dredged material to justify constructing a CDF.

Alternative E would have a total constructed area of 329 acres of sediment and 18,231 lineal ft of river bank, would allow 1,838 acres of sediment to naturally recover, and would not address 11,817 lineal ft of known contaminated river bank.

This alternative would include capping and dredging 269.3 acres of contaminated sediment and 59.8 acres of ENR. Additionally, 18,231 lineal ft of river bank would be assumed to be appropriately sloped and covered with either a significantly augmented reactive cap or an engineered cap using beach mix or vegetation.

#### *Site Wide*

- Dredging (varying depths): 203.7 acres -1,653,000 to 2, 204,000 cy of sediment
- Excavation: 96,000 cy of soil
- Capping: area: 65.6 acres
- Ex-situ treatment: 156,000 to 208,000 cy of sediment and 9,500 cy of soil
- In-situ treatment: 0 acres
- ENR: 59.8 acres
- MNR: 1,838 acres

The design concept for Alternative E is shown on Figure 23 in Appendix I.

Construction Duration: Alternative E would take an estimated 7 years of construction, with no additional time required to complete processing of dredged material (i.e., dewatering and sampling for disposal parameters). The estimated schedule would be as follows:

- Year 0: Establish initial conditions
- Year 0: Construction of on-site material handling/treatment facility (if applicable)
- Year 0: Start-up activities and mobilization, including pre-design investigation
- Years 1 through 5: In-river construction

- Year 6: Demobilization and mitigation

Disposal: The material removed from the Site under Alternative E would be managed in one of two disposal scenarios:

- DMM Scenario 1:
  - 670,000 cy to the onsite CDF
  - 983,000 to 1,534,000 cy to off-site disposal facilities in compliance with the off-site rule
- DMM Scenario 2:
  - 1,653,000 to 2,204,000 cy to off-site disposal facilities in compliance with the off-site rule

ICs and monitoring as described in Section 10.1.1, Common Elements of the Alternatives, would be implemented under this alternative. The key ARARs associated with this alternative are also discussed in Common Elements of the Alternatives.

**10.2.6. Alternative F**

DMM Scenario 1:

Capital Costs:	\$1,550,014,000
Periodic Costs:	\$549,512,000
Present Value:	\$1,316,560,000

DMM Scenario 2:

Capital Costs:	\$1,629,407,000
Periodic Costs:	\$549,512,000
Present Value:	\$1,371,170,000

Construction Duration: 13 years

Alternative F uses the RALs presented in Table 18 in Appendix II to develop the combination of remedial technologies applied at the Site. This alternative would support DMM Scenario 1 – off-site disposal and CDF and DMM Scenario 2 – off-site disposal. This alternative would generate enough dredged material to justify constructing a CDF.

Alternative F would have a total constructed area of 533 acres of sediment and 23,305 lineal ft of river bank, would allow 1,634 acres of sediment to naturally recover, and would not address 6,477 lineal ft of known contaminated river bank.

This alternative would include capping and dredging 505.3 acres of contaminated sediment and 28.2 acres of ENR. Additionally, 23,305 lineal ft of river bank would be assumed to be appropriately sloped and covered with either a significantly augmented reactive cap or an engineered cap using beach mix or vegetation.

### *Site Wide*

- Dredging (varying depths): 387.4 acres - 3,825,000 to 5,100,000 cy of sediment
- Excavation: 123,000 cy of soil
- Capping area: 117.8 acres
- Ex-situ treatment: 156,000 to 208,000 cy of sediment and 9,500 cy soil of soil
- In-situ treatment: 0 acres
- ENR: 28.2 acres
- MNR: 1,634 acres

The design concept for Alternative F is shown on Figure 24 in Appendix I.

Construction Duration: Alternative F would take an estimated 13 years of construction, with no additional time required to complete processing of dredged material (i.e., dewatering and sampling for disposal parameters). The estimated schedule would be as follows:

- Year 0: Establish initial conditions
- Year 0: Construction of on-site material handling/treatment facility (if applicable)
- Year 0: Start-up activities and mobilization, including pre-design investigations
- Years 1 through 11: In-river construction
- Year 12: Demobilization and mitigation

Disposal: The material removed from the Site under Alternative F would be managed in one of two disposal scenarios:

- DMM Scenario 1:
  - 670,000 cy to the onsite CDF
  - 3,155,000 to 4,430,000 cy to off-site disposal facilities in compliance with the off-site rule
- DMM Scenario 2:
  - 3,825,000 to 5,100,000 cy to off-site disposal facilities in compliance with the off-site rule

ICs and monitoring as described in Section 10.1.1, Common Elements of the Alternatives, would be implemented under this alternative. The key ARARs associated with this alternative are also provided in Common Elements of the Alternatives.

### 10.2.7. Alternative G

#### DMM1 Scenario:

Capital Costs:	\$2,421,152,000
Periodic Costs:	\$708,114,000
Present Value:	\$1,731,110,000

#### DMM Scenario 2:

Capital Costs:	\$2,500,545,000
Periodic Costs:	\$708,114,000
Present Value:	\$1,777,320,000

Construction Duration: 19 years

Alternative G uses the RALs presented in Table 18 in Appendix II to develop the combination of remedial technologies applied at the Site. This alternative would support DMM Scenario 1 – off-site disposal and CDF and DMM Scenario 2 – off-site disposal. This alternative would generate enough dredged material to justify constructing a CDF.

Alternative G would have a total constructed area of 776 acres of sediment and 26,362 lineal ft of river bank, would allow 1,391 acres of sediment to naturally recover, and would not address 3,686 lineal ft of known contaminated river bank.

This alternative would include capping and dredging 756.4 acres of contaminated sediment and 19.5 acres of ENR. Additionally, 26,362 lineal ft of river bank would be assumed to be appropriately sloped and covered with either a significantly augmented reactive cap or an engineered cap using beach mix or vegetation.

#### *Site Wide*

- Dredging (various depths): 571.7 acres - 6,221,000 to 8,294,000 cy of sediment
- Excavating: 139,000 cy of soil
- Capping area: 184.7 acres
- Ex-situ treatment: 156,000 to 208,000 cy of sediment and 9,500 cy of soil
- In-situ treatment: 0 acres
- ENR: 19.5 acres
- MNR: 1,391 acres

The design concept for Alternative G is shown on Figure 25 in Appendix I.

Construction Duration: Alternative G would take an estimated 19 years of construction, with no additional time required to complete processing of dredged material (i.e., dewatering and sampling for disposal parameters). The estimated schedule would be as follows:

- Year 0: Establish initial conditions
- Year 0: Construction of on-site material handling/treatment facility (if applicable)
- Year 0: Start-up activities and mobilization, including pre-design investigation
- Years 1 through 17: In-river construction
- Year 18: Demobilization and mitigation

Disposal: The material removed from the Site under Alternative G would be managed in one of two disposal scenarios:

- DMM Scenario 1:
  - 670,000 cy to the onsite CDF
    - 5,551,000 to 7,624,000 cy to off-site disposal facilities in compliance with the off-site rule
- DMM Scenario 2:
  - 6,221,000 to 8,294,000 cy to off-site disposal facilities in compliance with the off-site rule

ICs and monitoring as described in Section 10.1.1, Common Elements of the Alternatives, would be implemented under this alternative. The key ARARs associated with this alternative are also provided in Common Elements of the Alternatives.

**10.2.8. Alternative H**

DMM Scenario 1:

Capital Costs:	\$8,869,180,000
Periodic Costs:	\$1,284,174,000
Present Value:	\$9,445,540,000

DMM Scenario 2:

Capital Costs:	\$8,948,573,000
Periodic Costs:	\$1,284,174,000
Present Value:	\$9,524,940,000

Construction Duration: 62 years

Alternative H was screened out due to implementability and cost considerations. Given the extensive degree of capping and dredging associated with Alternative H, the volume of material to be handled, and the expected construction duration (62 years), which would include impacts to the community and disruption and potential releases to the environment for that period of time, Alternative H is considered less implementable than the other alternatives. Alternative H also would have a cost approximately 5 times higher than the next closest alternative (Alternative G).

Alternative H uses the RALs presented in Table 18 in Appendix II to develop the combination of remedial technologies applied at the Site. The RALs for this alternative are based on the cleanup

levels for the focused COCs. It is the most aggressive of all the alternatives since it would remove the most volume of contaminated material from the Site and would not include/rely on MNR to achieve sediment cleanup levels. Sediment cleanup levels would be achieved at the end of construction. This alternative would support DMM Scenario 1 – off-site disposal and CDF and DMM Scenario 2 – off-site disposal because it would generate enough dredged material to justify constructing a CDF.

Alternative H would have a total constructed area of 2,167 acres of sediment and 30,048 lineal ft of river bank. All contaminated areas would be addressed through dredging and capping. MNR would not be a component of this alternative.

This alternative would include capping and dredging 2,167.2 acres of contaminated sediment. Additionally, 30,048 lineal ft of river bank would be assumed to be appropriately sloped and covered with either a significantly augmented reactive cap or an engineered cap using beach mix or vegetation.

#### *Site Wide*

- Dredging (various depths): 1,631.9 acres - 25,115,000 to 33,487,000 cy of sediment
- Excavating: 158,000 cy of soil
- Capping area: 535.3 acres
- Ex-situ treatment: 156,000 to 208,000 cy of sediment and 9,500 cy of soil
- In-situ treatment: 0 acres
- MNR: 0 acres
- ENR: 0 acres

The design concept for Alternative H is shown on Figure 26 in Appendix I.

Construction Duration: Alternative H would take an estimated 62 years of construction, with no additional time required to complete processing of dredged material (i.e., dewatering and sampling for disposal parameters). The estimated schedule would be as follows:

- Year 0: Establish initial conditions
- Year 0: Construction of on-site material handling/treatment facility (if applicable)
- Year 0: Start-up activities and mobilization, including pre-design investigation
- Years 1 through 60: In-river construction
- Year 61: Demobilization and mitigation

Disposal: The material removed from the Site under Alternative H would be managed in one of two disposal scenarios:

- DMM Scenario 1:
  - 670,000 cy to the onsite CDF
  - 24,445,000 to 32,817,000 cy to off-site disposal facilities in compliance with the off-site rule
- DMM Scenario 2:
  - 25,115,000 to 33,487,000 cy to off-site disposal facilities in compliance with the off-site rule

ICs and monitoring as described in Section 10.1.1, Common Elements of the Alternatives, would be implemented under this alternative. However, ICs for fish consumption and monitoring of fish tissue may only be needed in the short-term given that cleanup levels in sediment would be met at the time of construction. ICs and monitoring in the long-term would still be needed for any areas capped, since that material would remain in place in perpetuity. The key ARARs associated with this alternative are also provided in Common Elements of the Alternatives.

### **10.2.9. Alternative I**

DMM Scenario 1:

Capital Costs:	\$671,966,000
Periodic Costs:	\$421,940,000
Present Value:	\$745,890,000

DMM Scenario 2:

Capital Costs:	\$751,359,000
Periodic Costs:	\$421,940,000
Present Value:	\$811,290,000

Construction Duration: 7 years

Alternative I was developed as a result of the FS evaluation process of Alternatives B through G in the drafting of the FS. Alternative I is a modification of Alternative E, which would allow a more consistent level of risk reduction in all areas of the Site. Alternative I uses the RALs presented in Table 19 in Appendix II to develop the combination of remedial technologies applied at the Site. This alternative would support DMM Scenario 1 – off-site disposal and CDF and DMM Scenario 2 – off-site disposal. This alternative would generate enough dredged material to justify constructing a CDF.

Alternative I would have a total constructed area of 291 acres of sediment and 19,472 lineal ft of river bank, would allow 1,876 acres of sediment to naturally recover, and would not address 10,577 lineal ft of known contaminated river bank.

This alternative would include capping and dredging 231.2 acres of contaminated sediment and 59.8 acres of ENR. Additionally, 19,472 lineal ft of river bank would be assumed to be appropriately sloped and covered with either a significantly augmented reactive cap or an engineered cap using beach mix or vegetation.



### *Site Wide*

- Dredging: (various depths): 167.1 acres - 1,414,000 to 1,885,000 cy of sediment
- Excavating: 103,000 cy of soil
- Capping area: 64.1 acres
- Ex-situ treatment: 156,000 to 208,000 cy of sediment and 9,500 cy of soil
- In-situ treatment: 0 acres
- ENR: 59.8 acres
- MNR: 1,876 acres

The design concept for Alternative I is shown on Figure 27 in Appendix I.

Construction Duration: Alternative I would take an estimated 7 years of construction, with no additional time required to complete processing of dredged material (i.e., dewatering and sampling for disposal parameters). The estimated schedule would be as follows:

- Year 0: Establish initial conditions
- Year 0: Construction of on-site material handling/treatment facility (if applicable)
- Year 0: Start-up activities and mobilization
- Years 1 through 5: In-river construction
- Year 6: Demobilization and mitigation

Disposal: The material removed from the Site under Alternative I would be managed in one of two disposal scenarios:

- DMM Scenario 1:
  - 670,000 cy to the onsite CDF
  - 744,000 to 1,215,000 cy to off-site disposal facilities in compliance with the off-site rule
- DMM Scenario 2:
  - 1,414,000 to 1,885,000 cy to off-site disposal facilities in compliance with the off-site rule

ICs and monitoring as described in Section 10.1.1, Common Elements of the Alternatives, would be implemented under this alternative. The key ARARs associated with this alternative are also provided in Common Elements of the Alternatives.

## 11. SIGNIFICANT CHANGES TO THE SELECTED REMEDY

During the public comment period on the Proposed Plan, EPA received extensive comments from community groups, neighborhood associations, environmental organizations, tribes, and individuals stating that the Preferred Alternative (Alternative I) in the Proposed Plan was not protective enough of human health and the environment and relied too heavily on MNR. There was also significant concern about, and objection to, the use of an on-site CDF for disposal. Additionally, the sponsor of a CDF in Terminal 4 withdrew its support for that project during the public comment period. Public comments also expressed a lack of support for using different RAL contamination concentrations for the same contaminant to trigger capping or dredging in different areas of the Site. Many commenters asked that more flexibility be included in the decision trees and sought more clarity about how the remedy would be implemented after gathering additional data to support design.

Consistent with EPA ROD guidance, EPA as the lead agency, "...has the discretion to make changes to the Preferred Alternative identified in the Proposed Plan based either on new information received from the public or support agency or on information generated by the lead agency itself during the remedial process."<sup>14</sup> Therefore, in response to the new information that EPA received during the public comment period, EPA has chosen Alternative F (Modified) (F Mod) including DMM Scenario 2, as the Selected Remedy. EPA has determined that Alternative F Mod will more closely address the concerns raised through public comment about disposal in an on-site CDF, the degree of contaminant reduction achieved by the Proposed Plan Alternative (Alternative I), the use of different RALs for the same contaminant in different locations of the Site with similar characteristics (shallow, intermediate depths), and the request for more flexibility in implementing the Selected Remedy. This section briefly describes the changes. A full description of the Selected Remedy is provided in Section 14, Selected Remedy, and full evaluation details and information for Alternative F Mod are included in Appendix IV. Responses to public comments are included in Part 3, Responsiveness Summary.

Alternative F Mod, now the Selected Remedy, includes using the RALs from Alternative F for all areas of the Site, including FMD areas, outside of the navigation channel to determine where dredging or capping should occur. Within the navigation channel, Alternative F Mod uses Alternative B RALs and all PTW is excavated or dredged 2-3 feet below the authorized dredge depth as an overdredge allowance/buffer zone. If RALs are not achieved or if PTW is found below the feasible depth of dredging or excavation, as determined by EPA, dredging to accommodate a cap and 2-3-foot overdredge allowance will occur. Disposal of dredged materials will be under DMM Scenario 2, or off-site disposal. A revised decision tree has been developed for the Selected Remedy that provides more clarity in how design data will influence design and construction (Figure 28 in Appendix I). The revised decision tree enables caps to be used in dredge areas if RALs are not achieved or if PTW remains based on area-specific analysis. More

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<sup>14</sup> See A Guide to Preparing Superfund Proposed Plans, Records of Decision, and other Remedy Selection Decision Documents, July 1999.

detail of these changes is provided in Section 14, Selected Remedy. The Selected Remedy is expected to cost about \$1.05 billion and will achieve the following at the end of construction:

- Remove or contain more of the persistent contaminants from the food chain than Alternative I (3,017,000 cy compared to 1,750,000 cy of sediment) and will achieve greater risk reduction at the end of construction, allowing people (other than women who are or may breastfeed) to safely eat more fish, sooner.
- Reduce, relative to Alternative I, the potential for direct contact with contaminants by users of the river (fishers, divers, swimmers, boaters, homeless population, etc.).
- Reduce risks to the environment, including wildlife and aquatic receptors (both resident and migratory fish, birds, benthic organisms, and threatened and/or endangered species). The HQ at the end of construction is estimated to be below 1 except for BEHP, which is expected to be about 3, close to an acceptable risk level of 1.
- Reduce the contaminant load to the Columbia River and Multnomah Channel by removing or isolating 120 more acres of contaminated surface sediments than Alternative I, which is a 50% increase.
- Increase long-term permanence of the remedy through dredging or capping more of the contamination, which could otherwise pose recontamination potential.

Additional changes to the Selected Remedy are detailed below:

- The Selected Remedy will use consistent RALs to define areas for dredging or capping across the Site outside of the navigation channel, whereas Alternative I used different RALs for various areas of the Site (see Tables 19 and 21 in Appendix II). Using consistent RALs in all areas of the Site outside the navigation channel will eliminate any ambiguity or uncertainty regarding which RALs are applicable and will provide a consistent cleanup approach for all COCs in the river.
- In response to comments on the Proposed Plan, EPA has revised, simplified, and clarified the decision tree (Figure 28 in Appendix I) to show how design data will be incorporated into remedial design decisions. In addition, the decision tree is accompanied by specific design requirements, presented in Section 14.2.9.
- The Selected Remedy will address contamination in the navigation channel in the same way it is described in Alternative B in the FS. This is also the preferred alternative for the navigation channel that EPA identified in the Proposed Plan. This decision for the navigation channel is appropriate because the risk exposures and physical conditions in the channel are different from the rest of the Site. Current data indicate that contaminant concentrations in the navigation channel are lower than in shallow and intermediate areas of the river. In the area where dredging will occur within the navigation channel (RM6Nav SDU), there is little disturbance of the sediments by erosive forces. In addition, the potential for ecological exposure to contaminants in the channel is limited since the depth of the channel is greater than 30 ft and most fish species generally reside and feed

in the near shore areas of the Site. Further, the potential for direct human exposure to the contaminants in the navigation channel is limited due to the depth of the water.

- The Selected Remedy will address all PTW, including PTW present in the navigation channel.
- If NAPL or PTW that is not reliably contained is identified in any of the remediation areas under the Selected Remedy, it will be addressed as specified in Section 14.2. The specific technology to be applied will depend on the area of the river and application of the decision tree (Figure 28 in Appendix I).
- The Selected Remedy changes fish/shellfish tissue cleanup levels to fish/shellfish tissue targets only. EPA proposed tissue PRGs in the Proposed Plan because people consume fish and shellfish tissue; therefore, tissue concentrations are the best and most direct measure of risk to resident fish and shellfish consumers from those COCs. However, fish and shellfish derive their COC concentrations from both sediments and surface water in proportions that at this time can only be approximated and estimates of the degree to which this CERCLA action will reduce fish and shellfish tissue concentrations are highly uncertain. Therefore, EPA decided to identify target fish and shellfish tissue concentrations rather than cleanup levels. These targets will be used to assess remedy implementation, such as, to inform fish advisories and evaluate progress toward achieving RAOs. It's important to note that, for PCBs, the tissue targets are risk-based because there is not enough information to represent background fish tissue concentrations. During design and construction, fish tissue data will be gathered which may enable background fish tissue concentrations to be developed.

## **12. SUMMARY OF COMPARATIVE ANALYSIS OF ALTERNATIVES**

CERCLA § 121(b)(1), 42 U.S.C. § 9621(b)(1), mandates that remedial actions must be protective of human health and the environment, be cost-effective, and use permanent solutions and alternative treatment technologies or resource recovery alternatives to the maximum extent practicable. Section 121(b)(1) also establishes a preference for remedial actions that employ, as a principal element, treatment to permanently and significantly reduce the volume, toxicity, or mobility of the hazardous substances, pollutants, and contaminants at a site. CERCLA § 121(d), 42 U.S.C. § 9621(d), further specifies that a remedial action must require a level or standard of control of the hazardous substances, pollutants, and contaminants, which at least attains ARARs under federal and state laws, unless a waiver can be justified pursuant to CERCLA § 121(d)(4), 42 U.S.C. § 9621(d)(4).

In selecting a remedy, EPA considered the factors set out in CERCLA §121, 42 U.S.C. §9621, by conducting a detailed analysis of the viable remedial response measures pursuant to the NCP, 40 CFR §300.430(e)(9).

In this section, Alternatives A through I, including Alternative F Mod, were evaluated in individual and comparative analysis after alternative screening. Alternative C was not carried forward since it was so similar to Alternative B. Alternative H was also not carried forward since

the cost, duration, and impact of implementing this remedy were extremely high and not proportional to added risk reductions. Supporting details for Alternative F Mod are included in Appendix IV. It is important to note that specific values such as residual risk and surface water results updated in Appendix IV and presented in the ROD are not directly comparable with those found in the FS. This is the result of two revisions. First, the immediate time equals 0 ( $t=0$ ) pollutant removal effectiveness of ENR was assumed to be zero in the FS, but was increased to 97.5% in the ROD. The rationale for this revision is explained in Attachment A in Appendix IV. Second, SWACs were computed differently between the ROD and the FS. In the FS, the SWAC values were based on the 95% UCL of the mean, and the mean was the simple average SWACs of the 27 subareas delineated in the statistical analysis presented in Appendix I of the FS. In the ROD, the SWACs are based on the simple average concentrations of each pixel over the entire Site-wide area.

A detailed quantitative summary for each alternative is presented in Table 22 in Appendix II. A qualitative summary is presented in Table 23 in Appendix II where achievement of the threshold criteria is depicted graphically and relative performance of the balancing criteria is ranked from the least to the best.

The analysis includes an evaluation of each alternative, including attainment of the RAOs, using relevant exposure scales (Site-wide and smaller spatial scales) for receptors covered by each RAO consistent with the assumptions used in the baseline risk assessments. SDUs were developed as a tool to evaluate the expected effectiveness of the alternatives at a number of the most heavily contaminated areas throughout the Site. Fourteen individual regions of the river within the Site were designated as SDUs, generally identified as areas with the highest focused COC concentrations over one river mile segment where multiple contaminants and/or benthic risk were identified. One river mile is consistent with the assumed exposure area of a recreational fisher and corresponds with the home range of various ecological receptors evaluated at the Site. Locations of the SDUs and the predominant contaminants associated with each SDU are shown on Figure 29 in Appendix I and in Table 24 in Appendix II. The effectiveness of each remedial alternative is evaluated in part by comparing each alternative's post-construction SWAC to the cleanup levels for each RAO in the SDUs. This comparison provides an assessment of how the different alternatives reduce sediment contaminant concentrations, which can then be used to assess reductions in direct contact risk and to calculate reductions in contaminant concentrations in fish and shellfish tissue. Risks to people and wildlife from eating contaminated fish and shellfish can then be evaluated for each alternative at the end of construction. Consumption of contaminated fish and shellfish is a significant exposure pathway for people and wildlife; thus, it is important to understand the relative improvements that each alternative achieves at the end of construction.

This section provides the relative performance of each alternative against the nine criteria, noting how each compares to the other alternatives under consideration.

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**Threshold Criteria** - *The first two criteria are known as "threshold criteria" because they are the minimum requirements that each response measure must meet to be eligible for selection as a remedy.*

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### **12.1. Overall Protection of Human Health and the Environment**

*Overall protection of human health and the environment addresses whether each alternative provides adequate protection of human health and the environment and describes how risks posed through each exposure pathway are eliminated, reduced, or controlled, through treatment, engineering controls, and/or institutional controls.*

Alternative A would not be protective of human health and the environment and contaminated sediments in the Site would continue to impact surface sediments, surface water, and biota and would pose unacceptable risks to human health and the environment for the foreseeable future. Because no action would be taken, Alternative A would result in minimal reductions in COC concentrations and related residual risks. Natural recovery processes would result in reduction in the COC concentrations over time in some areas of the Site but would be unlikely to achieve all cleanup levels for COCs or meet all RAOs in a reasonable time frame. In areas of the Site with the highest contaminant concentrations, natural recovery would be ineffective in achieving cleanup levels in a reasonable time frame. Because Alternative A is not protective, it is not carried forward in the comparative analysis of the alternatives.

All remaining alternatives are expected to be protective of human health by eliminating, reducing, or controlling risks from direct contact or ingestion of contaminated media and fish/shellfish through dredging, capping, treatment of contaminated groundwater and PTW, ENR, MNR and ICs. The more contaminated sediment removed through dredging would be more permanent, thus more protective. Likewise, the more contamination (sediment and groundwater) that is contained by caps would be more protective than reliance on MNR and ICs; however, perpetual cap maintenance would be required to ensure total protectiveness. Thus, comparatively the most permanent alternatives in decreasing order are: G, F, F Mod, E, I, D, then B. Alternatives that included disposal in a CDF would also depend on perpetual CDF maintenance to ensure total protectiveness while disposal off-site in an engineered landfill would be more permanent.

As described in the NCP, ICs supplement engineering controls, as appropriate, to prevent or limit exposures and should not substitute for active response measures or be the sole remedy unless the active measures are determined not to be practicable. Generally, alternatives with greater long term effectiveness are less likely to rely on ICs to achieve protectiveness. Institutional controls are a necessary supplement when waste is left in place above levels that allow for unlimited use/unlimited exposures, as in the alternatives that were evaluated. As stated before, institutional controls, such as fish advisories or proprietary restrictions, should not substitute for more active response measures that reduce, minimize or eliminate contamination unless such

measures are not practicable. Institutional controls can supplement engineering measures to achieve protectiveness. Fish advisories have been shown to achieve less than 100% compliance, so the less a given alternative relies on fish advisories, the greater likelihood it is to achieve protectiveness. Reliance on fish advisories would be greatest with Alternative B and would decrease through Alternatives D, I, E, F Mod, F, and G. Additionally, Alternatives I, E, F Mod, F, and G, in order with less reliance on MNR, would be expected to be protective of the environment and ecological receptors by eliminating, reducing, or controlling risks from direct contact or ingestion of contaminated media and fish/shellfish through dredging, capping, treatment of contaminated groundwater and PTW, ENR, and MNR. Alternatives B and D may not be protective of the environment because of the increased time frame needed to achieve cleanup levels through MNR and the greater time for exposure to contamination. Additionally, although informational ICs can be used to protect people, these ICs would not provide protection for ecological receptors during this time period.

During the FS, the level of risk reduction at the end of construction was calculated based on the contaminant reductions achieved through capping and dredging areas only and did not include any benefit from areas that received ENR. This produced a conservative assessment of the benefits of each of the alternatives. After receiving public comments and performing additional analysis, the level of risk reduction was also calculated with the best possible outcome of ENR included. Results for both can be found in Table 22 in Appendix II and Table 4.3-1 in Appendix IV, respectively.

A summary of alternative performance relative to interim targets to determine overall protectiveness is presented in Table 22 in Appendix II. In general, alternatives that rely more on capping and dredging result in more risk reduction and are more likely to achieve or get closer to the interim targets than less aggressive actions.

## **12.2. Compliance with Applicable or Relevant and Appropriate Requirements**

*Section 121 (d) of CERCLA and NCP §300.430(f)(1)(ii)(B) require that remedial actions at CERCLA sites at least attain legally applicable or relevant and appropriate federal and state requirements, standards, criteria, and limitations which are collectively referred to as "ARARs," unless such ARARs are waived under CERCLA Section 121(d)(4).*

*Applicable requirements are those cleanup standards, standards of control, and other substantive requirements, criteria, or limitations promulgated under federal environmental or state environmental or facility siting laws that specifically address a hazardous substance, pollutant, contaminant, remedial action, location, or other circumstance found at a CERCLA site. Only those state standards identified by a state in a timely manner and that are more stringent than Federal requirements may be applicable.*

*Relevant and appropriate requirements are those cleanup standards, standards of control, and other substantive requirements, criteria, or limitations promulgated under federal environmental or state environmental or facility siting laws that, while not "applicable" to a hazardous substance, pollutant, contaminant, remedial action, location, or other circumstance at a CERCLA site address problems or situations sufficiently similar to those encountered at the*

*CERCLA site that their use is well-suited to the particular site. Only those state standards that are identified in a timely manner and are more stringent than Federal requirements may be relevant and appropriate.*

*Compliance with ARARs addresses whether a remedy will meet all of the applicable or relevant and appropriate requirements of other federal and state environmental statutes or provides a basis for invoking a waiver.*

Alternatives B through I, including Alternative F Mod, had common ARARs associated with the construction of the alternative since they all utilize essentially the same remedial technologies with varying degrees of area and scope. All alternatives would attain the action-specific and location-specific ARARs. Alternative B would not achieve chemical-specific numeric human health and aquatic life water quality criteria and drinking water ARARs in a reasonable time frame but would attain the action-specific and location-specific ARARs. Therefore, Alternative B, since it will not achieve human health or aquatic health water quality criteria, may not be protective of human health and the environment.

For all alternatives, the ability to meet surface water quality ARARs for some COCs will be limited to the extent that all sources of surface water contamination can be addressed. It is expected that MNR in conjunction with ICs and source control, including control of upland sources, would be necessary to achieve surface water RAOs.

A complete list of ARARs can be found in Tables 25a-c in Appendix II.

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***Primary Balancing Criteria*** – *The next five criteria, criteria 3 through 7, are known as "primary balancing criteria". These criteria involve the assessment of factors between response measures so that the best option will be chosen, given site-specific data and conditions.*

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### **12.3. Long-Term Effectiveness and Permanence**

*Long-term effectiveness and permanence refers to expected residual risk and the ability of a remedy to maintain reliable protection of human health and the environment over time, once clean-up levels have been met. This criterion includes the consideration of residual risk that will remain on-site following remediation and the adequacy and reliability of controls.*

The technologies used in Alternatives B through I, including Alternative F Mod, are the same but vary in degree of use. Alternatives that remove more contamination through dredging provide the most permanence, followed by those that effectively isolate it through engineered caps. Dredged contaminated sediment is permanently removed from the river, and capped sediment is securely segregated from contact with receptors. Off-site treatment and land-based disposal facilities are in operation and have proven to be reliable technologies. Dredging, excavating, capping, in-situ treatment, and thin layer covers are reliable and proven technologies as long as they are designed for the appropriate environmental and anthropogenic conditions.



Since the contamination within the SMAs (SMAs are areas of high contaminant concentration defined by the RAL and increase in size as the RAL number goes down) would be either capped or removed, the overall concentrations of contaminated sediment and soil left in place that could re-suspend into the surface water and move within the Site would be greatest with Alternative B and would decrease with the increasing SMA footprint of each alternative. Thus, as the size of the SMA footprint increases, there would be less reliance on MNR processes to achieve RAOs and less potential for recontamination of capped/dredged areas. The time needed to achieve the RAOs for each alternative is uncertain but would likely occur more quickly in areas of deposition and alternatives with more aggressive cleanup and less reliance on MNR. Alternatives that rely more on MNR will take longer to achieve RAOs.

All alternatives will require O&M activities, and long-term monitoring to ensure, among other things, that: cleanup levels were achieved and maintained; fish tissue concentrations were reduced; and reliability of caps were maintained. O&M activities, long-term monitoring, and five-year reviews would continue in perpetuity. Alternatives with a greater acreage of caps would require more monitoring and maintenance to ensure the contaminated sediment is adequately contained. Since Alternative B has the smallest acreage of caps, it would require the least amount of monitoring and maintenance of caps, whereas Alternative G would require the greatest amount. Alternatives E, F, G, and I also would present the option of an on-Site CDF. Should a CDF be constructed and used as a repository for contaminated sediment from the Site, additional monitoring and maintenance requirements would be needed in perpetuity to ensure the material is reliably contained.

Alternatives that rely more on removal of contamination from the waterway through dredging rely less on institutional controls. The amount of area requiring river and land use restrictions is directly proportional to the acreage capped, which would be the least for Alternative B and the greatest for Alternative G. Land use restrictions have been used at many sediment sites and can be effective as long as they are administered by entities that possess the legal authority, capability, and willingness to implement and monitor the control. However, these restrictions may be difficult to implement in the navigation channel and other areas of this heavily used river. Fish consumption advisories would be required under each alternative until RAOs for fish consumption are achieved.

#### **12.4. Reduction of Toxicity, Mobility, or Volume of Contaminants Through Treatment**

*Reduction of toxicity, mobility, or volume through treatment refers to the anticipated performance of the treatment technologies that may be included as part of a remedy.*

This criterion addresses the statutory preference for selecting remedial actions that employ treatment technologies that permanently and/or significantly reduce the toxicity, mobility, or volume of hazardous substances as their principal element.

All retained alternatives include in-situ and ex-situ treatment technologies. PTW and groundwater contamination is addressed through treatment to varying degrees in all alternatives and, as a result, the preference for treatment as a principal element of the remedial action is achieved to varying degrees for all alternatives. In-situ treatment, as discussed in more detail in

the Selected Remedy section, includes adding organoclay, carbon, or other amendments to caps, which will contain or mitigate migration of contaminants to the water column.

As the construction acreage increases, the reduction in toxicity, mobility, or volume of contaminants within the Site would increase. Reduction in the mobility or volume of contaminants in groundwater entering the river would be through the use of reactive caps where the reactive layer would isolate the contaminants as the groundwater fluxes through the cap. Likewise, reactive caps would be used to reduce the mobility of PTW contained in place. Ex-situ treatment of some sediment and soil removed from the Site would result in additional reduction of toxicity, mobility, and volume of contaminants in sediment and soil.

Since the reduction of toxicity, mobility, or volume would generally increase in direct proportion to the construction acreage, Alternative B would provide the least reduction and Alternative G would provide the most reduction. All PTW at the Site would be addressed through dredging or capping by Alternatives E, F Mod, F, G, and I. Reduction in the mobility of contamination would be through removal and containment in a permitted landfill or CDF or sequestration under in-situ caps; however, there would be no reduction of toxicity or volume through permanent or irreversible treatment.

The need for, and type of, ex-situ treatment of excavated river bank or sediment that meets the definition of listed or characteristic hazardous waste under RCRA or Oregon's hazardous waste and materials regulations would be determined by the action-specific ARARs, such as LDRs, if applicable. Some MGP waste at the Site is also subject to a formal 2004 dispute decision<sup>15</sup> and would require treatment in order to protect workers, ensure the waste is handled appropriately, and that proper equipment decontamination occurs.

### **12.5. Short-Term Effectiveness**

*Short-term effectiveness addresses the period of time needed to implement the remedy and any adverse impacts that may be posed to the community, workers, and the environment during construction and operation of the remedy until cleanup levels are achieved.*

Short-term effectiveness was evaluated on a semi-quantitative basis, taking into account the duration of the construction period for each alternative, the use of BMPs to reduce implementation risk, the risk levels anticipated post-construction, and uncertainty associated with MNR achieving cleanup levels.

During construction, impacts to the community, businesses, workers, and the environment would occur for at least 4 months per year (when threatened and endangered species are not migrating through the area) for the duration of the construction project for every retained alternative. Since Alternative B has the shortest estimated construction duration (4 years), implementation of Alternative B would have the least impact to the community, workers, and the environment. As the construction duration increases with the increasing SMA footprint of each alternative,

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<sup>15</sup> In the Matter of Portland Harbor Superfund Site Gasco Facility, Portland, Oregon, Administrative Order on Consent for Removal Action, Opalski, December 17, 2004.

impacts would also increase. Alternative G would have the longest construction duration (19 years) and, thus, would have the most impact to the community, workers, and the environment.

Short-term impacts to Site workers would be controlled through use of construction BMPs and health and safety plans. Measures, such as air monitoring on-Site and at the Site boundary, and engineering controls would be implemented to control the potential for exposure. Workers would be required to wear appropriate levels of protection to avoid exposure during excavation and treatment activities. Appropriate precautions and controls would be used to prevent incidental and accidental discharges of toxic materials from entering the water column as a result of in-river work. The application of emissions reduction strategies during implementation can reduce short-term impacts posed to the environment and promote technologies and practices that are sustainable according to the EPA Region 10 Clean and Green Policy and the Superfund Green Remediation Strategy (EPA 2010). Elevated fish tissue concentrations from construction activities would also be dependent on the construction duration and would be shortest for Alternative B and longest for Alternative G. Fish consumption advisories would be required under CERCLA for each alternative but relaxed with progress towards achieving fish consumption targets.

Post-construction, environmental impacts would continue until RAOs are achieved. The time needed for MNR to achieve the RAOs for each alternative is uncertain but would likely occur more quickly as a result of alternatives with larger remedial footprints. Alternative B leaves the most contaminated sediment in-river. It relies more on MNR to achieve cleanup levels and it is unlikely that RAOs could be achieved. As the footprint of capping and dredging increases in each alternative, MNR is relied on less to achieve RAOs. Additionally, the less the alternative relies on MNR, the more certainty there is that cleanup levels will be achieved. Alternative G would achieve all environmental RAOs, so there would be no post-construction impacts to the environment. Human health impacts would include elevated contaminant concentrations in fish and shellfish until RAOs are achieved. Fish consumption advisories would be implemented to control human exposure during this time frame.

Each alternative was evaluated to compare the estimated risks remaining at the end of cleanup construction, as well as when cleanup levels are achieved. The risk remaining once the cleanup level is achieved is called residual risk. Table 22 in Appendix II provides the calculated risks at the end of construction for each alternative. Alternatives with smaller cap/dredge footprints have higher risks post construction to human health and the environment, address less groundwater contamination, and include fewer contaminated river banks. Alternatives that have smaller cap/dredge footprints and rely more on MNR have more uncertainty that cleanup levels would be met.

Consuming contaminated fish poses the greatest risk to people at the Site. The background cancer risk at the Site is  $1 \times 10^{-6}$ . At the end of construction, Alternative F Mod has a residual cancer risk for consuming fish/shellfish of  $1.5 \times 10^{-4}$  and non-cancer HI risk of 15 for all populations except women who are or may breastfeed. The residual cancer risk ranges from  $8.9 \times 10^{-5}$  (Alternative G) to  $2.3 \times 10^{-4}$  (Alternative B) for all except the most sensitive populations. The residual noncancer risk ranges from 9 (Alternative G) to 25 (Alternative B) for

all populations except women who are or may breastfeed. Alternative F has residual cancer risk of  $1.2 \times 10^{-4}$  and noncancer risk of 13.

Risks to benthic communities from exposure to contaminated sediment are 48% addressed with Alternative B, 64% with Alternative D, 73% with Alternative E, 87% with Alternative F, 72% with Alternative F Mod, 93% with Alternative G, and 64% with Alternative I. Additionally, only Alternatives F, F Mod, and G address all risks to wildlife from consuming prey contaminated with PCBs.

In the river bank areas, the magnitude of residual risk is uncertain because it is likely that not all contaminated river bank material would be addressed by any CERCLA alternative but could be addressed by the state source control work. Post-construction, the area of contaminated river bank would decrease with the increasing SMA footprint for each alternative in the following order: Alternative B, D, E, I, F Mod and F (same amount addressed), then G.

## **12.6. Implementability**

*Implementability addresses the technical and administrative feasibility of a remedy from design through construction and operation. Factors such as availability of services and materials, administrative feasibility, and coordination with other governmental entities are also considered.*

The construction activities required for the implementation of all retained alternatives would be technically feasible and have been implemented at many Superfund sites around the country. Materials, services, and equipment necessary for construction are readily commercially available. Disposal facilities are also readily available and have adequate capacity for the volumes of material to be removed.

In general, the potential for technical problems and schedule delays increases in direct proportion to the duration and amount of active remediation. As the construction acreage of the alternative increases, the construction period, required administrative coordination, and the potential for technical problems leading to schedule delays would increase. The implementation logistics also would increase in difficulty as more construction acreage is added in each alternative.

Conversely, alternatives with the smallest construction acreage would have a greater potential to need additional actions if monitoring data indicate inadequate performance in achieving all cleanup objectives. The risk of monitoring failing to detect a release of COCs to the environment in areas where waste has been left in place (caps, ENR, or MNR areas) increases as the footprint of capped areas increases.

Installation of an on-site treatment, storage, and transfer facility would require cooperation from the landowner and coordination with local authorities for the construction of utilities within existing rights-of-way.

## **12.7. Cost**

*Costs include estimated capital, long-term O&M, and present value costs.*

The cost of each alternative increases as the degree of construction increases. The estimated present value costs for the alternatives (under DMM Scenario 2) range from \$451 million for

Alternative B to \$1.77 billion for Alternative G. Cost summaries can be found in Table 26 in Appendix II.

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***Modifying Criteria** – The final criteria 8 and 9 are known as "modifying criteria." Community and support agency acceptance are factors that are assessed by reviewing comments received during the public comment period.*

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## **12.8. State and Tribal Acceptance**

*Indicates whether based on its review of the RI/FS reports and the Proposed Plan, the state and affected tribes support, oppose, and/or have identified any reservations with the selected response measure.*

DEQ, as the support agency, was actively involved in developing the FS and the remedial alternatives. The State of Oregon's concurrence letter is included as Appendix V.

The State of Oregon also provided comments to EPA on the Preferred Alternative. In addition to other issues, the state highlighted their concern that the remedy did not include enough flexibility for remedy implementation. They asked for more clarity about the river bank cleanup, that a broader area be cleaned up for benthic risks, and that EPA consider changes to the FS cost estimates.

EPA has extensively engaged with the six federally recognized tribes before the Site was listed on the NPL and throughout the development of the RI/FS.

The Columbia River is an important natural resource for the tribes and EPA has received comments from the tribes requesting that the effects of Portland Harbor contamination to the Columbia River be considered when evaluating cleanup alternatives at the Site. The primary objective of the ROD is to address the contaminated sediment in Portland Harbor, significantly reducing sediment concentrations and potential human health and ecological risks at the Site. Although reducing loading to the Columbia River is not a specific objective of the Selected Remedy, it is an expected outcome of achieving the RAOs presented in Section 9 of the ROD. During construction, monitoring will be conducted to determine, in part, whether additional BMPs are needed to minimize downstream transport of contamination.

Additionally, consultation was offered to all six tribes prior to and during the public comment period. In January and February 2016, consultations were held with the Confederated Tribes of the Umatilla, Warm Springs, Grand Ronde, Siletz, as well as the Nez Perce Tribe and the Confederated Tribes and Bands of the Yakama Nation. Consultation with the Warm Springs was cancelled by the Tribe due to scheduling conflicts. In July, another round of consultations was held with the Confederated Tribes of the Grand Ronde, Umatilla, and the Yakama Nation. The Yakama Nation consultation was held with the EPA Administrator in Washington D.C. In consultation and in written comments, the tribes all expressed concerns with the Proposed Plan Preferred Alternative. They expressed concerns about the extent that the Preferred Alternative

relied on MNR and expressed uncertainty that the cleanup would be protective of Tribal Treaty rights. The tribes stated that they did not believe the Proposed Plan Preferred Alternative was sufficient to address contamination at the Site and they specifically asked that EPA consider impacts to fish and plants of cultural and historical significance to the tribes, including the pacific lamprey.

## **12.9. Community Acceptance**

*Summarizes the public's general response to the response measures described in the Proposed Plan and the RI/FS reports. This assessment includes determining which of the response measures the community supports, opposes, and/or has reservations about.*

EPA has actively engaged with the community on a regular basis since the NPL listing of the Site in December of 2000. These efforts included producing and disseminating quality information such as community information cards, fact sheets, and videos; establishing information repositories at the Multnomah County Central Library, the St. Johns Library, and the Kenton Library where the public can review documents associated with the Site; maintaining current information on EPA's Portland Harbor website; providing valuable information via the EPA Portland Harbor listserv; sustaining strong partnerships with DEQ, OHA, and the City of Portland to maximize community outreach efforts; attending and presenting at public forums and meetings; engaging with many different groups, including groups that represent or are concerned about communities with environmental justice concerns; and organizing multiple community information sessions during January, February, and March of 2016. During the public comment period for the Proposed Plan, EPA went well beyond the typical rollout of a proposed plan by holding four public meetings in June and July of 2016 (June 24, June 29, July 11, and July 20), as detailed in Section 4 (Community Participation). A detailed list of specific community involvement activities is available in EPA's current Portland Harbor Community Involvement Plan (accessible on EPA's website).

Through the public comment period, EPA received letters from more than 5,300 different commenters. These comment letters were analyzed to extract specific comments and categorized by topic.

Of the general public comments received, approximately 88% expressed concern that the Preferred Alternative (Alternative I) did not go far enough to address contamination at the Site. Commenters were concerned that more than 85% of the area of the Site would receive no active remedy, but would rely on MNR to achieve cleanup goals. Commenters asked that EPA take more aggressive action to cleanup the Site and rely less on natural recovery. Additionally, there was substantial disapproval of building a CDF at the Site for waste disposal. Some public comments raised concerns about impacts on local businesses and jobs due to the cost of the cleanup and disruption of navigation. Public comments from businesses and commenters identified as PRPs were generally not in favor of the Preferred Alternative due to the extent of cleanup and cost and the perspective that MNR should be relied on more. PRP commenters in general did not agree that there is as much risk at the Site as the risk assessments determined. Such commenters also expressed a lack of support for using different RAL contamination

concentrations for the same contaminant to trigger capping or dredging. Many such commenters asked that more flexibility be included in the decision trees and sought more clarity about how the remedy would be implemented after gathering additional data to support design. Numerous comments were also received regarding environmental justice and public participation concerns. EPA has addressed these comments in Part 3, the Responsiveness Summary.

#### **12.10. Summary of Comparative Analysis**

A summary of the comparative analysis of the retained alternatives is presented below; the benefits and limitations of the alternatives relative to one another are described. Table 22 in Appendix II provides a summary of the comparative analysis of the alternatives and Table 23 in Appendix II is a simple graphic of comparative ratings of the alternatives.

All alternatives would rely equally on the adequacy of DEQ's source control to achieve cleanup levels and RAOs and to prevent recontamination of the Site. Addressing river banks would also help prevent recontamination of the Site after in-river response actions are completed.

Alternatives E, F Mod, F, G, and I would meet the threshold criteria of Overall Protection of Human Health and the Environment and Compliance with ARARs. Alternative D may meet the threshold criteria but there is more uncertainty with this alternative and its ability to achieve ARARs. Alternative A is not protective and Alternative B would not achieve all chemical-specific ARARs and may also not be protective. Therefore, since Alternatives A and B would not meet the threshold criteria, they will not be discussed further.

Alternatives E, F Mod, F, G, and I would address all PTW at the Site through capping or dredging and would achieve the preference for treatment when applicable. Alternative D would not address all PTW at the Site.

Alternatives F Mod, F, and G would achieve the greatest risk reduction and their estimated cancer risks at the end of construction are approximately one-quarter to half of those for Alternatives E and I. All remaining alternatives would control the major sources of sediment contamination by sequestering higher contaminant concentrations under engineered caps or by removing the material and containing it in a disposal facility, which would be maintained in perpetuity. The alternatives that have larger capping or dredging footprints provide more certainty that cleanup levels will be achieved and that no additional actions will be required but do result in more impacts to the community and workers implementing the remedy. Alternatives E and I, with a construction duration of 4 months per year (construction fish "windows") for 7 years, would have fewer impacts from construction to the community, workers implementing the remedy, and the environment compared to Alternative F (13 years), Alternative F Mod (13 years), and Alternative G (19 years). Although Alternative G has the largest cleanup footprint, it also has the longest construction time period and thus, increased impacts to the community and workers, and it is not certain that cleanup levels would be achieved more quickly with this alternative than Alternatives F or F Mod. Alternatives F Mod, F, and G would have greater impacts to the environment than Alternatives E and I due to the increased construction footprints and time needed for construction (2 to 3 times longer to implement). Alternatives F, F Mod, and G achieve most of the interim targets at the end of construction compared to other alternatives.

Alternatives F, F Mod, and G are more reliable in achieving cleanup levels and RAOs in a reasonable time frame because they rely less on natural processes.

Estimating the number of fish meals that can be safely eaten at the end of construction is not a precise calculation but rather is a prediction that has some degree of uncertainty. However, such calculations are useful to allow comparison of the outcomes of the different alternatives. Fish advisories will be required for all alternatives and will be needed under CERCLA until RAOs for fish consumption are met. For Alternative D, at the end of construction in 6 years, adults could safely consume about 11 fish meals per year. For Alternative E and after 7 years of construction, approximately 13 fish meals per year would be safe. Alternative F would allow 19 fish meals per year after 13 years of construction, Alternative F Mod allows 16 fish meals per year, and Alternative G would allow 26 fish meals per year after 19 years of construction. Alternative I, after 7 years of construction, would allow 13 fish meals per year. It is expected that RAOs for fish consumption would be reached more quickly with the more aggressive alternatives although the time for construction does need to be included in the total time to meet these goals. Since concentrations of contamination post-construction left to MNR would be greater for Alternative D, it is expected that a longer period of recovery would be necessary to meet cleanup levels and RAOs and thus fish advisories would be necessary for a longer period of time. After construction of Alternative F Mod, the number of fish meals per year that are safe to eat is almost 20% more than that of Alternatives E and I. Although Alternatives F and F Mod require an additional 6 years of construction than Alternatives E and I, it is expected that the aggressive actions of Alternatives F and F Mod would achieve fish consumption RAOs more quickly than Alternatives E and I. Alternative G provides about 40% and 37%, respectively, more fish meals per year than Alternatives F Mod and F, but would also require 6 more years of cleanup construction.

Fish advisories would be further informed by fish sampling conducted during and after construction. Alternatives that remove COCs from the system provide greater assurance that cleanup levels will be achieved and that more fish can be safely consumed. After cleanup levels are achieved at the Site, OHA may still impose an advisory based on broader watershed risks. Because the COC contaminants can pose risks even when the concentrations in the environment appear to be quite low, it is critically important to remove these persistent pollutants from the environment so they are no longer available to receptors and are removed from the food chain.

Engineered caps on river banks and sediment would be effective in limiting the long-term exposure to COCs in the Site sediment and soil, provided they are properly designed and the integrity of the caps is maintained. Therefore, monitoring and maintenance of the caps would be required in perpetuity. Caps also require river use restrictions and, where appropriate, armoring to prevent cap erosion, which may require mitigation. Steep slope angles for certain river bank caps may also require mitigation. Alternatives E and I have approximately the same RNA capped area (81 acres). Alternative D has less capped area (56 acres) but does not reliably contain all PTW remaining in the river. Compared to Alternatives E and I, Alternative F and F Mod have almost twice the capped area (150 acres), and Alternative G has more than 2.5 times the capped area (231 acres). As the area to be capped increases, more long-term monitoring, maintenance, and river use restrictions would be required.



All the alternatives would achieve reduction of toxicity, mobility, or volume through treatment by using in-situ and ex-situ treatment technologies that have been demonstrated to be effective at Superfund sites around the country. In all alternatives, it is estimated that approximately 191,000 cy of removed sediment and soil would be treated ex-situ at the off-Site disposal facility using low temperature thermal desorption or cement solidification/ stabilization. In-situ treatment would be applied to areas where PTW that cannot be reliably contained or NAPL is left in place or where residual groundwater plumes may discharge to the river. In-situ treatment would be applied to areas of the Site through the addition of reactive components to caps and residual layers, with increasing acres as follows: Alternatives D (108 acres), Alternative E (109 acres), Alternative I (113 acres), Alternative F Mod (133 acres), Alternative F (145 acres), and Alternative G (184 acres). Alternatives E, F Mod, F, G, and I would ensure that the preference for treatment is achieved for all PTW.

The majority of the currently identified groundwater plumes are expected to be controlled by DEQ's upland source control actions and the remedial alternatives will only need to address the portion of the plumes that extend into the river or that continue to discharge contaminants to the river. Since the extent that these plumes impact the biologically-active zone in sediment (pore water) or surface water is not currently known, these areas will need to be refined during remedial design and, at that point, it will be determined which residual groundwater plumes will need to be addressed in the river through engineered caps. The alternatives would address an increasing percentage of the contaminated groundwater area as currently delineated in the following order: Alternative D (23%), Alternative E (32%), Alternative I (33%), Alternative F Mod (39%), Alternative F (46%), and Alternative G (62%).

Informational ICs can be used to protect people but these ICs would not provide protection for ecological receptors. Therefore, it is ideal to address, to the maximum extent possible, all ecological risks at construction completion. While none of the alternatives would address all ecological risks, Alternative G would address the most ecological risks at the completion of construction, although it would impact their habitat for the longest period of time during construction (19 years) and would take the longest time for benthic populations to recover due to the large area of habitat impacted (776 acres). Alternatives D, E, F, F Mod, G, and I would address more than 50% of the benthic risk area, which would be sufficient to ensure risks would not occur to the benthic population as a whole. Although the benthic community will be disrupted by construction activities, past experience has shown rapid recolonization of disturbed areas after construction is completed. Alternative F would disrupt 533 acres, Alternative F Mod 394 acres, Alternative E 329 acres, Alternative I 291 acres, and Alternative D 267 acres.

Removing contaminated sediment and river bank soil from the river has long-term benefits for the Site, but there are also impacts to the environment and community associated with transporting the removed material to a disposal facility. By removing approximately 4,585,000 cy and 7,397,000 cy of contaminated material from the system, Alternatives F and G would present the greatest impact to the community but they would also achieve higher post-construction risk reduction compared with current risks of contaminated sediment. Alternative F Mod removes approximately 3,017,000 cy of contaminated sediment from the system and

achieves similar risk reduction to Alternative F. Alternatives E and I would have similar removed material volumes (approximately 2,024,000 cy and 1,752,000 cy, respectively) and only achieves half the cancer risk reduction as Alternatives F and F Mod. Implementing Alternative G would impose the greatest impacts to the environment and community and would have much greater costs (2 times more than Alternatives E and I). Depending on the form of transportation used for the removed material, these impacts would include increased barge traffic on the river, which would impact commercial and recreational use of the river, increased traffic on the roads in the community if trucking is used, and increased traffic on the rail lines if rail is used. There would also be increased environmental impacts, such as potential spills, benthic disruption, and sediment disturbance from wake waves and prop wash, associated with transporting such large volumes of material.

Treatment and disposal of approximately 206,300 cy of contaminated sediment and soil are assumed to be at a Subtitle C landfill for all alternatives and DMM scenarios. This material would be barged to an off-Site trans-loading facility and trucked to the landfill because it would not meet the criteria for disposal in a Subtitle D landfill or a CDF.

Alternatives F, F Mod, and G contaminant concentrations would be within 3 to 4 times the surface water cleanup levels; all other alternatives are higher. It is expected that MNR in conjunction with ICs and source control, including control of upriver sources, would be necessary to achieve surface water RAOs. The ability to meet surface water quality cleanup levels for ARARs for these COCs will be limited to the extent that all sources of surface water contamination can be addressed.

Natural recovery of contaminated sediment is expected to occur as cleaner upriver sediments deposit on surface sediment in the Site during low-flow periods and mix and disperse downstream during higher flow periods. The surface sediment concentrations need to be low enough and upland and in-river sources of contamination need to be reduced enough such that these natural processes would be able to reduce contaminant concentrations to the cleanup levels in a reasonable time frame. As the footprint for MNR decreases, the area of disturbance of the aquatic environment due to construction would increase, the longer these disturbances would occur, and alternative costs increase. Alternatives D, E, and I would have about the same MNR footprint (87%, 84%, and 86% of the Site, respectively) while Alternatives F, F Mod, and G have MNR footprints of 75%, 81%, and 64%, respectively, or approximately 10%, 5%, and 20% smaller MNR footprints, respectively. The Site-wide post-construction surface sediment PCB concentrations (the contaminant that poses the greatest risk) are reduced by 62% for Alternative D, 67% for Alternatives E and I, 77% for Alternative F, 72% for Alternative F Mod, and 83% with Alternative G relative to baseline (pre-cleanup) concentrations.

MNR is not currently considered to be effective within Swan Island Lagoon because water circulation is limited, and, as a result, it may not receive sufficient cleaner sediment from upstream to allow natural recovery to occur in areas with lower contaminant concentrations. For this reason, ENR, which involves placing a sand layer on the contaminated sediment, would be used to further reduce contaminant concentrations in these areas. For this process to be effective, a sufficient amount of capping/dredging in areas with higher contaminant concentrations would

be needed in Swan Island Lagoon. As the capping and dredging areas for each alternative increase, the certainty that ENR would achieve cleanup levels also increases. Alternative D has the largest ENR footprint (87 acres or 74% of the area within Swan Island Lagoon); Alternatives E and I have the same ENR footprint (59.8 acres or 51%) while Alternatives F, F Mod, and G have the smallest ENR footprints (28.2 acres [24%], 28.2 acres [24%], and 19.5 acres [16%], respectively).

The cost of the alternatives increases as the area requiring active cleanup increases. Therefore, the present value costs of the alternatives range from lowest to highest: Alternatives D (\$653,700,000), I (\$811,290,000), E (\$869,530,000), F Mod (\$1,054,200,000), F (\$1,371,170,000), and G (\$1,777,320,000).

### **13. PRINCIPAL THREAT WASTES**

The NCP establishes an expectation that EPA will use treatment to address the principal threats posed by a site wherever practicable (NCP §300.430(a)(1)(iii)(A)). PTWs are source materials that include or contain hazardous substances, pollutants or contaminants that act as a reservoir of contaminants that can migrate to groundwater, surface water, or air, or act as a source for direct exposure. Contaminated groundwater generally is not considered to be a source material; however, NAPLs in groundwater may be viewed as source material. Principal threat wastes are those source materials considered to be highly toxic or highly mobile that generally cannot be reliably contained or would present a significant risk to human health or the environment should exposure occur. Low-level threat wastes are those wastes that generally can be reliably contained and present only a low risk in the event of exposure. The identification of principal and low level threats is made on a site-specific basis to help streamline and focus waste management options by categorizing the suitability of the waste for treatment or containment.

PTW was identified at the Site based on one or more of the following considerations: a  $10^{-3}$  (1 in 1,000) cancer risk from concentrations in sediment, existence of source material such as NAPL within the sediment bed, or an evaluation of mobility of contaminants in the sediment.

Alternatives that considered treatment of PTW were developed in the FS and described in Section 10.2. Each alternative uses treatment (in-situ and/or ex-situ) to address PTW; however, not all of the alternatives address all of the PTW with treatment. Alternatives E, F Mod, F, G, and I would address all PTW, while Alternative D would address 57%.

PTW is also described in Sections 6.5.1 and 10.1.1 of the ROD.

### **14. SELECTED REMEDY**

Based on consideration of the requirements of CERCLA, the detailed analysis of the remedial alternatives, and public comments, EPA has selected Alternative F with Modifications (Alternative F Modified or F Mod) as the Selected Remedy with offsite disposal of all excavated waste materials. Alternative F Mod, now the Selected Remedy, includes using the RALs from Alternative F for all areas of the Site, including the FMD areas, outside of the navigation channel to determine where dredging or capping should occur. Within the navigation channel, Alternative F Mod uses Alternative B RALs and all PTW is excavated or dredged 2 to 3 feet below the

authorized dredge depth as an overdredge allowance/buffer zone. If RALs are not achieved or if PTW is found below the feasible depth of dredging or excavation, as determined by EPA, dredging to accommodate a cap and 2-3-foot overdredge allowance will occur. If RALs are not achieved or if PTW remains after dredging occurs in areas outside the navigation channel, a cap will be constructed according to approved designs to support river uses in those locations. Disposal of dredged materials will be under DMM Scenario 2, or off-site disposal. A revised decision tree has been developed for the Selected Remedy, which provides more information about how design data will influence design and construction and future maintenance dredging areas (Figure 28 in Appendix I). RALs for the Selected Remedy are shown in Table 21 in Appendix II and cleanup levels and fish tissue targets for the Selected Remedy are included in Table 17 in Appendix II. This section provides EPA's rationale for the Selected Remedy and a description of its anticipated scope, how the remedy will be implemented, and its expected outcomes. Details about the number of acres addressed through cleanup, volume of contaminated material dredged, and other information for Alternative F Mod are included in Appendix IV.

#### **14.1. Summary of Rationale for the Selected Remedy**

The Selected Remedy is protective of human health and the environment, complies with ARARs, and provides the best balance of tradeoffs among the balancing criteria, including addressing many of the Tribal community's concerns as well as community concerns raised through public comments. It reduces risks within a reasonable time frame, is practicable, provides for long-term reliability of the remedy, and minimizes reliance on institutional controls. It will achieve substantial risk reduction by dredging and capping areas with the most contaminated sediments, reduce remaining risks to the extent practicable through ENR and MNR, and manage remaining risks to human health through institutional controls. The Selected Remedy also relies less on MNR than most other alternatives, which will result in achieving cleanup levels more quickly.

The Selected Remedy is more permanent in the long term because it addresses more contamination in all areas of the river outside the navigation channel and relies less on MNR than Alternatives D, E, and I. The Selected Remedy presents greater short-term impacts to the community and habitat than Alternatives D, E, and I but achieves higher post-construction risk reduction for both humans and ecological receptors compared with current risks from contaminated media. The Selected Remedy ensures that the preference for treatment is achieved for all PTW and significantly protects the river from impacts from contaminated groundwater plumes discharging into the Site. The Selected Remedy addresses less contamination in the navigation channel than Alternative F from the FS and there is less dredging/excavation (approximately 1,568,000 fewer cy) compared to Alternative F and with less impacts to the river and local community. Although Alternative G relies the least on MNR, the additional cost for this alternative is not commensurate with the additional risk reduction and increased certainty.

The Selected Remedy addresses 79% of RAO 2 (fish/shellfish consumption) risk with active and more permanent cleanup components in relation to its cost. Construction time for the Selected Remedy is currently estimated to be 13 years, consistent with Alternative F, but may likely require less time since less material in the navigation channel will be dredged as compared to Alternative F. Disposal of all excavated or dredged material will occur off-site and not in an on-

site CDF. Reliance on existing, permitted facilities for disposal increases the implementability of the remedy and also may reduce estimated construction time.

After cleanup construction, the Selected Remedy provides full protection for recreational users of the river as well as all wildlife that live and consume prey within the Site. After cleanup construction, adults (other than women who are or may breastfeed) can safely consume approximately 16 resident fish per year, which is much more than is currently advised. The Selected Remedy uses consistent RALs to define the areas for dredging and capping across the Site, removing uncertainty over the application of different RALs for the same contaminants at different areas of the Site. The modifications to the RALs for the navigation channel are appropriate because the risk exposures and physical conditions in the channel are different from the rest of the Site. Exposure to contaminants in the channel is limited since the depth of the channel is greater than 30 ft and based on information gathered during the RI, the understanding is that most of the fish species feed in the near-shore areas of the Site.

#### **14.2. Description of the Selected Remedy**

The Selected Remedy addresses all areas where contaminant concentrations exceed the cleanup levels through a combination of dredging, capping, ENR, MNR, and ICs. Cleanup levels were selected after evaluating concentrations protective of human health or the environment from the risk assessment, ARARs, and background values. For each contaminant and in all media, the lowest number was selected unless the background value (where we have them) was higher, in which case the background value was selected. Table 17 in Appendix II provides the cleanup levels and tissue targets as well as the basis for the number. In general, sediment cleanup levels are based on levels protective of fish and shellfish consumption, which are also protective for benthic risks. The invertebrate community living in the sediments provides important food for fish and other species in the Site. The biologically active zone of the Site that supports benthic communities is in the “shallow” sediment (less than 38 cm deep) and is generally 10 to 20 cm deep, based on sediment profiling imaging data. Therefore, surface water and groundwater cleanup levels are primarily based on ARARs that are protective of designated uses of the river and groundwater. In addition, both groundwater and surface water are potential drinking water resources and discharges of contaminants to the river from groundwater and pore water represent one continuous pathway. Therefore, application of MCLs and RSLs (if a contaminant has no MCL) is relevant and appropriate as cleanup levels. Addressing areas with contaminated groundwater by dredging and capping will also reduce loading to surface water and reduce exposure to benthic and invertebrate organisms living in sediment. The cleanup levels for the Site are expected to reduce unacceptable risk within the river by setting standards for sediment, biota, surface water, groundwater, and river banks. Remediation of the sediment will reduce loading and resuspension of contamination to surface water, which collectively will reduce fish and shellfish exposure to the contamination.

SMA for the Selected Remedy are shown in Figure 30 in Appendix I. Areas to be capped or dredged will be defined by RALs for the Selected Remedy (Table 21 in Appendix II). RALs are contaminant-specific sediment concentrations of focused COCs used to define areas for more active cleanup and will reduce contaminant concentrations and risks more effectively than ENR

or MNR from current Site-wide average concentrations. Technology assignments and the approximate areas that will be remediated through dredging, capping, ENR, and areas where COC concentrations will be reduced through MNR are discussed below and shown on Figures 31a-e in Appendix I. The Selected Remedy will include a total constructed area of 394 acres of sediment and 23,305 lineal feet of river bank, and will allow 1,774 acres of sediment to naturally recover. Supporting analysis and information for the Selected Remedy are included in Appendix IV. River bank areas not remediated concurrent with adjacent sediment dredging/capping will remain under state purview for assessment and potential future action as needed to prevent recontamination of the remedy at this time. DEQ may also undertake action at some river banks that are the subject of this ROD to expedite source control of contaminated upland areas, as necessary. Those actions will be consistent with the Selected Remedy and meet CERCLA requirements.

The Selected Remedy includes 365.4 acres of capping and dredging contaminated sediment and 28.2 acres of ENR. Of that, approximately 215.2 acres of sediment will be dredged to varying depths. Additionally, 23,305 lineal feet of river bank are assumed to be excavated and covered with either an augmented reactive cap or an engineered cap using beach mix or vegetation after excavating approximately 123,000 cy of contaminated material from river banks. The dredged material removed from the Site will be managed under DMM scenario 2, with approximately 3,017,000 cy of contaminated sediment and 123,000 cy of soil sent to off-site disposal facilities. Material testing will be used to determine the appropriate disposal facility, Subtitle D or C. Ex-situ treatment is assumed for approximately 191,500 cy of sediment and river bank soil prior to disposal and is based on complying with federal and state regulations and the 2004 dispute decision on MGP waste. The need for, and extent of, ex-situ treatment will be based on the off-site disposal requirements and material testing during design and construction. It is assumed that all other dredged material will not require treatment prior to disposal. All material quantities that will be addressed by the Selected Remedy are summarized in Table 27 in Appendix II.

Under the Selected Remedy, 60 acres of compensatory mitigation is estimated, based on armored capping acreage, which includes 2 acres of armored caps to be placed on river banks and 58 acres of armored caps to be placed on sediment in the shallow area, defined as above -15 feet CRD per the NMFS' definition of shallow water. Where the remedial action adversely impacts habitat, the cap will be designed to minimize the impacts and restore the surface for habitat function, but if loss of habitat occurs, compensatory mitigation will be undertaken. The details of any necessary compensatory mitigation will be developed during remedial design. Compensatory mitigation likely will entail the restoration, establishment, enhancement, and/or preservation of wetlands, streams, or other aquatic resources conducted specifically for the purpose of offsetting authorized impacts on-Site wherever possible. If mitigation banks, as defined in the 404(b)(1) Guidelines, are permitted and approved by the USACE and State of Oregon within the Site or appropriate service area, buying credits in such a bank may be acceptable if approved by EPA.

The various river areas and their remedy components are discussed in detail below. The final technology assignment will be identified in the remedial design, after collection of additional

sampling data in all areas and segments of the river. The technology assignment will be identified as indicated in the decision tree in Figure 28 in Appendix I.

The Selected Remedy for the in-river portion of the Portland Harbor Site covers a large area and comments raised during the public comment period sought clarity about how the remedy would be implemented using the decision trees and how it would be phased for purposes of remedial design and/or construction. Further information is presented below on both of those issues.

#### *Post-ROD Data Gathering and Other Information Verification*

For purposes of the FS, several assumptions were made about what the Selected Remedy would look like in the river after applying the decision tree based on existing data. Post-ROD sampling will be conducted to support remedial design and to refine the CSM. This updated information will be used for design/construction. Post-ROD sampling will include, in addition to other relevant data, surface and subsurface sediment contaminant concentrations, surface water, sediment pore water and groundwater data, bathymetry, flood-rise modeling, fish/shellfish tissue, and NAPL delineation.

In addition, reasonably anticipated future navigation and land use information and other data will be collected at a much greater level of detail than information collected as part of the RI to support the Remedial Design. As part of the FS, observed current uses were assumed to continue in the river. During the public comment period, some parties identified that the potential future use(s) of a part of the river may be other than current uses or EPA's assumptions. To ensure that the correct reasonably anticipated future uses are used for the remedial design, these assumptions will be verified and will be altered, as appropriate. For example, eliminating the need for a more expensive dredge and armored cap remedy if a significant area will no longer to be used for marine terminal purposes.

This updated information will inform the implementation of the Selected Remedy decision tree. When applying the decision tree logic with newly gathered information, the design and constructed remedy will reflect the newer information. For example, areas exceeding the RALs will be identified for capping and dredging based on new data, which is likely to create different SMA footprints from what was assumed in the FS. In areas to be dredged or capped, a technology assignment process (FS Figures 3.8-1-b and 3.8.1-c) identifies either capping or dredging for each area. After identifying appropriate cap or dredge technologies through this process, further modifications may be necessary during design to ensure the final constructed remedy is appropriate for actual Site conditions.

It is EPA's expectation that the majority of the currently identified groundwater plumes will be addressed by DEQ's upland source control actions and the Selected Remedy will only need to address the portion of the plumes that extend into the river or that continue to discharge contaminants to the river above cleanup levels. Since the full extent that these plumes impact the biologically-active zone in sediment (pore water) or surface water is not currently known, these areas will need to be refined during remedial design and, at that point, it will be determined which residual groundwater plumes will need to be addressed in the river with engineered caps. It is further expected that design of in-river remedies (such as cap design) will consider how

effectively the upland source control measures are addressing the groundwater contaminant loading to the river.

For purposes of the FS, disposal locations and requirements were assumed and cost estimates were calculated based on those assumptions. If during design more proximate or cost-effective disposal facilities emerge, EPA would support use of these options to reduce the cost and environmental impact of the cleanup.

#### *Construction Time Frame*

The Selected Remedy components are shown on Figures 31a-e in Appendix I, including technology assignments. The in-river construction duration for this alternative is estimated to be 13 years. The following construction schedule time frames are estimated:

- Year 0: Construction of on-site material handling/treatment facility (if applicable)
- Year 0: Start-up activities and mobilization
- Years 1 through 11: Construct alternative
- Year 12: Demobilization

The remedy may change somewhat as a result of the remedial design and construction processes. Changes to the Selected Remedy described in this ROD will be documented using a technical memorandum in the Administrative Record, an Explanation of Significant Differences (ESD), or ROD amendment.

#### **14.2.1. Navigation Channel**

The Selected Remedy in the federally-authorized navigation channel includes dredging to avoid constructing a remedy (cap or residual layer) within the authorized dredge depth. Contaminated sediment will be dredged to the depth of the Alternative B RAL concentrations or PTW concentrations shown in Table 21 in Appendix II, whichever is lower. Where RALs are achieved through dredging, placement of a residual layer will occur as soon as is practicable following dredging within the prism and surrounding area that may have been impacted by dredge residuals. If RALs are not achieved or PTW is present below the feasible depth limit of the excavation technology, as approved by EPA, a cap is assumed to be placed after dredging, as described in Section 14.2.9, Design Requirements, and per the decision tree in Figure 28 in Appendix I. Navigation and maintenance dredge depth requirements will need to be considered during design and implementation of the Selected Remedy such that the final constructed elevation is below the authorized depth of the navigation channel including an overdredge allowance/buffer zone. Implementing the Selected Remedy in the navigation channel will also need to consider and be coordinated with cleanup conducted in the rest of the Site to minimize recontamination. This cleanup may occur at the same time or later than the other cleanup actions.

#### **14.2.2. Future Maintenance Dredge (FMD) Areas**

FMD areas are those locations in the river that are periodically dredged to allow continued marine activity such as vessel activity, shipping, docking, etc. Contaminated sediment will be dredged to the depth of the Site-wide RAL concentrations shown in Table 21 in Appendix II or



to a depth required to allow placement of a cap or backfill sufficient to be effective over the long term. Where RALs are achieved through dredging, placement of a residual layer will occur as soon as is practicable following dredging within the prism and surrounding area that may have been impacted by dredge residuals. NAPL or PTW that cannot be reliably contained will be dredged unless it is present below the feasible depth limit of excavation technology, in which case it will be capped as described in Section 14.2.9, Design Requirements, and as approved by EPA. A reactive residual layer (sand plus activated carbon) is assumed after dredging if PTW that can be contained lies below the feasible limits of excavation, as described in Section 14.2.9, Design Requirements. Maintenance dredge depth requirements will need to be considered during design and implementation of the Selected Remedy such that the final constructed elevation is below the maintained depth, including an overdredge allowance or buffer zone.

### **14.2.3. Intermediate Region**

The intermediate region is defined as outside the horizontal limits of the navigation channel and FMD areas to the riverbed elevation of approximately -2 ft CRD. In this region, avoiding or minimizing impacts to the aquatic environment and floodway need to be considered and evaluated to meet CWA (Section 404) and federal floodway requirements as well as climate change impacts. In the intermediate region, contaminated sediment will be dredged to the depth required to achieve RALs (see Table 21 in Appendix II) and remove PTW, or to a depth required to allow placement of cap or backfill material sufficient to be effective over the long term as described in the Section 14.2.9, Design Requirements. The elevation of the top of the cap will be no higher than the pre-design elevation to avoid impacts to the floodway. EPA estimates the dredging depth required to accommodate a cap will generally be 5 feet. The final depth will be determined in remedial design. Where RAL concentrations are achieved through dredging, placement of a residual layer will occur as soon as is practicable following dredging within the prism and surrounding area that may have been impacted by dredge residuals. In the intermediate regions, residual layers will consist of sand (amended with activated carbon if determined to be appropriate) to prevent the transport and release of contaminants from dredge residuals. NAPL or PTW that cannot be reliably contained will be dredged unless it is present below the feasible depth limit of excavation technology, in which case it will be capped as described in Section 14.2.9, Design Requirements, and as approved by EPA. During design and construction, the final elevation of capped and dredged areas will be considered such that the leave surface of the constructed remedy is appropriate for the post-construction use of each specific area. Under any scenario, the elevation of the top of the cap or residual layer will be no higher than the pre-design elevation to avoid loss of submerged aquatic habitat, preserve slope stability, and negate adverse impacts to the floodway. If appropriate to protect sensitive species, a habitat layer will be incorporated into the constructed remedy.

### **14.2.4. Shallow Region**

The shallow region is defined as shoreward of the riverbed elevation of approximately -2 ft CRD. In this region, avoiding or minimizing impacts to the aquatic environment and floodway need to be considered and evaluated to meet CWA (Section 404) and federal floodway requirements as well as climate change impacts. Contaminated sediment in this area will be

dredged to the depth required to remove all NAPL or PTW that cannot be reliably contained (see Table 21 in Appendix II), unless it is present below the feasible depth limit of excavation technology, in which case it will be capped as described in Section 14.2.9, Design Requirements, and as approved by EPA in accordance with the decision tree shown in Figure 28 in Appendix I. Where PTW is not present but the depth of excavation to achieve RAL concentrations is greater than 5 feet, the area will be dredged to 5 feet with placement of a cap and backfilled to grade (capped per design requirements in Section 14.2.9, Design Requirements). Under any scenario, the elevation of the top of the cap or residual layer will be no higher than the pre-design elevation to avoid loss of submerged aquatic habitat, preserve slope stability, and negate adverse impacts to the floodway. In the shallow regions, a habitat layer such as beach mix will be used for the final layer of clean cover in both residual management areas and capped areas to bring the surface back to the original (pre-dredge) elevation and in order to maintain the natural habitat.

#### **14.2.5. River Bank Region**

River banks are defined as areas from top of bank down to the river that may be contaminated along the shoreline next to contaminated in-river shallow areas. Remediation of contaminated river banks is included in the Selected Remedy where it is determined that it should be conducted in conjunction with the in-river actions and to protect the remedy (Figure 9 in Appendix I and Table 21 in Appendix II). Other river banks may be included in the remedial action if contamination contiguous with contaminated river sediment is found during remedial design sampling. Engineered caps or vegetation with beach mix will be placed as the final cover based on area-specific designs, which will account for appropriate slope according to the programmatic or site specific Biological Opinion, as appropriate. NAPL or PTW that cannot be reliably contained, if present, will be fully excavated and not capped unless it is present below the depth limit of excavation technology, as approved by EPA. In those locations, a significantly augmented cap will be constructed below the habitat layer, as described in Section 14.2.9, Design Requirements. The State may also undertake actions at some river banks that are the subject of this ROD, to expedite source control of contaminated upland areas, as necessary. Those actions will be consistent with the Selected Remedy and meet CERCLA requirements.

#### **14.2.6. Institutional Controls**

The ICs used at the Site must: (1) prevent or minimize exposure by humans, wildlife, and aquatic receptors to contaminated sediment and groundwater contained by an engineered cap or other cover at the Site or left in the subsurface; (2) prevent or minimize human, wildlife, and aquatic exposure to contaminated fish and shellfish and to contaminated sediment and groundwater during construction of the Selected Remedy; and (3) maintain the integrity of the engineered components of the Selected Remedy. The ICs implemented to reduce human exposure to contaminated fish will include, but may not be limited to, fish consumption advisories and educating the community by conducting an enhanced community outreach program on a short-term and long-term basis until RAOs are achieved. The ICs used to prevent or minimize human exposure to contaminated fish, groundwater, sediment, and surface water may also include limiting land and waterway uses or activities on a short-term basis during implementation of the remedy and on a long-term basis after implementation of the remedy until RAOs are achieved.

The ICs used to protect caps or other covers and otherwise prevent recontamination in perpetuity include, but may not be limited to, limiting waterway and land use activities that may disturb or reduce the cap's or cover's ability to contain the contaminated sediment or groundwater. Other types of controls that likely will be used for caps or areas with known subsurface contamination include coordinated permit reviews of in-river work (e.g., maintenance dredging, pile removal) and other government controls to minimize recontamination to the Site. An ICIAP will be developed during remedial design which will, at a minimum, set out the specifics of the ICs and measures that will be implemented and who is responsible for implementing, enforcing, and monitoring each IC. Among others, three types of ICs that will be used are described further below:

- **Fish Advisories and Educational Outreach:** Fish advisories and educational outreach will be necessary at the Site since unlimited fish consumption is not possible. Once construction is completed, the CERCLA cleanup-related advisory may be updated to adjust consumption rates based on fish tissue concentrations. Fish advisories will distinguish between anadromous species (e.g., spring Chinook, steelhead, coho, shad, and lamprey) and resident species (e.g., smallmouth bass, brown bullhead, black crappie, and carp). Anadromous species likely have lower contaminant levels and are targeted by a wider and more diverse group of anglers. Resident fish generally have higher levels of contamination because their range is within Portland Harbor, and these types of fish are more targeted by, and more likely to be eaten by, local residents. The advisory is expected to be periodically updated until RAOs and cleanup levels are reached. The outreach program may include: informational meetings, presentations, and workshops targeting affected community groups; development and distribution of informational materials such as brochures or maps; advisory notifications communicated through a variety of culturally appropriate outlets; installation and maintenance of advisory signs at known fishing locations; and coordination with sport or recreational fishing clubs and licensing locations.
- **Waterway Use Restrictions or Regulated Navigation Areas:** Where caps will be utilized to contain contamination in navigable areas of the river, waterway use restrictions or RNAs will be necessary to ensure that the integrity of the cap is maintained in perpetuity. These restrictions may preclude boat anchoring and keel dragging, the use of spuds to stabilize vessels, structure and utility maintenance and repair, and future maintenance activities in areas containing caps. Notifications such as signs and buoys coordinated with the appropriate federal and/or state authorities (e.g., Oregon Marine Board and U.S. Coast Guard) may be used to warn vessels away from the area. Periodic inspections of RNA notifications will be needed to ensure they are functional and effective and will be evaluated in five-year reviews.
- **Land Use/Access Restrictions:** Land use or access restrictions will be needed in nearshore areas and river banks to maintain the integrity of caps from existing or future activities, such as construction and maintenance of structures and also to protect habitat areas, including compensatory mitigation projects, put in place as a part of the cleanup.

Temporary access restrictions may also be needed in river bank, beach, and in-river areas accessible by people to accomplish the cleanup. DSL has control of state-owned submerged or submersible land that may be subjected to remedial action. Adjacent landowners also may control submerged land and river banks. Coordination with DSL and adjacent landowners will be needed to implement land use or access restrictions. Monitoring, including inspections, will be needed to ensure that restrictions are functioning as intended and will be evaluated in statutory five-year reviews.

Additional IC mechanisms may be developed during remedial design and remedial action to assure all IC objectives are met and the remedy is protective. Other types of controls that likely will be used include coordinated permit reviews of in-river work (e.g., maintenance dredging, pile removal) that will be necessary to minimize recontamination to the Site. It is also possible other ICs may be developed and implemented post-construction completion.

#### **14.2.7. Monitoring Requirements**

Monitoring is a crucial part of EPA's cleanup plan. Monitoring will be conducted to evaluate short- and long-term effectiveness of the remedy and compliance with ARARs before, during, and after construction. Monitoring requirements during construction and post construction (e.g., number and location of samples and analytical parameters) will be fully developed in the remedial design. Analytical parameters will include the Site COCs for all media and other parameters deemed necessary for each phase of the project in order to comply with ARARs and determine when cleanup levels are achieved. Long-term monitoring of the remedy will be defined in future long-term monitoring plans to assess the ability of the remedy to achieve RAOs, cleanup levels, and reduce the contaminant load to the Columbia River and Multnomah Channel, and to provide information for O&M activities, and for use in five-year reviews.

##### *Baseline and Remedial Design Data Collection*

Significant remedial design sampling to determine existing baseline levels of contamination and to design the cleanup will be conducted before construction begins. Baseline sampling will be done to identify existing conditions at the Site and will include a statistically valid data set for sediment, river banks, surface water, groundwater, pore water, and fish tissue samples. This will include a statistically valid number of samples and use of the 95% UCL for both surface and subsurface sediment concentrations in and near where contamination was identified in the RI/FS to determine SWAC(s) and for the purposes of applying the decision tree, as well as in proceeding with the design of active remediation throughout the Site. Data will be collected consistent with EPA-approved RI/FS decision rules on data collection (e.g., treatment of a non-detect value) and will be evaluated on spatial and temporal scales appropriate for the RAOs. Baseline sampling will also be conducted in areas upstream and downstream of the Site. The RAO 8 cleanup levels are focused on reducing the migration of COCs in groundwater to sediment and surface water. As a result, the groundwater source control measures should be designed to prevent all surface water and groundwater COCs from discharging in exceedance of the cleanup levels, and carbon (C) 10–C12 aliphatic hydrocarbons from discharging to the Willamette River at concentrations exceeding 2.6 µg/L. Pre-design characterization activities

should, therefore, include characterization of C10–C12 aliphatic hydrocarbons using the best available detection limits possible.

#### *Monitoring During Construction*

During active remediation activities (e.g., dredging, capping, placement of clean sediment for ENR), monitoring will be conducted in the construction area, as appropriate. The cleanup activities performed in the river will need to comply with water quality standards near where the activity is taking place. Air samples may be collected to ensure contaminants do not exceed worker health-based concentration levels in air. If contaminant levels exceed water or air quality standards, the work will be modified and/or additional controls will be taken, as needed. In addition, collection of sediment, surface water, pore water, and fish tissue samples will be conducted regularly during the construction period to evaluate construction impacts and to update BMPs and ICs as needed.

#### *Long-term Monitoring*

Following construction, long-term monitoring will be conducted. The long-term monitoring program will include sediment, river banks, surface water, groundwater, pore water, and fish tissue samples from upstream, within, and downstream of the Site. Fish tagging may be conducted to better understand home ranges of particular resident species, such as small mouth bass, to appropriately assess the progress of cleanup by SMA. Passive samplers may also be used to supplement fish tissue data as a surrogate for fish tissue. Data on contaminant levels will be used for multiple purposes, to determine if natural recovery is occurring as expected or if any additional actions are required to achieve the cleanup goals within the planned timeline; track if fish tissue concentrations are decreasing; and monitor if the caps are effectively containing the contaminated sediment and/or groundwater. Data on contaminant levels in fish tissue will also help inform when and how the fish consumption advisory or other restrictions could be relaxed.

Long-term monitoring will also include regular inspections of the entire remedy, including sediment caps, to ensure they: are effectively containing migration of COCs from reaching the biologically active area of sediment, including pore water, and the water column in the river; are in the proper place; have the required thickness and type of capping material; are achieving cleanup levels; and are otherwise functioning as intended. Benthic toxicity testing may be utilized where all other cleanup levels are met, should benthic cleanup levels not be achieved in a reasonable time frame. Long-term monitoring of compensatory mitigation projects will be necessary to ensure they are providing the habitat functions and services they are designed to provide. Inspections may also be required after natural events such as earthquakes or floods, and manmade events such as boat collisions or violations of land use restrictions (e.g., vessel grounding, anchoring in an RNA area). Long-term monitoring and maintenance of the caps will be required in perpetuity.

#### **14.2.8. Five-Year Reviews**

Since the Selected Remedy will leave contamination in place above levels that allow unlimited use and unrestricted exposure, as required by CERCLA, a statutory review will be conducted

within five years after initiation of the remedial action to ensure that the remedy is, or will be, protective of human health and the environment. Five-year reviews are expected to be conducted in perpetuity.

#### **14.2.9. Design Requirements**

##### **14.2.9.1. Capping**

**General Capping Requirements:** All caps will be of sufficient thickness to prevent exposure and will be constructed of materials adequate to contain contamination remaining beneath the cap. Additionally, all caps will be constructed with sufficient armor material to remain in place when subject to erosive forces resulting from wind and vessel generated waves, current, or propeller wash while minimizing adverse effects on the in-river and riparian habitat, including the loss of shallow water habitat.

In habitat areas, currently defined by NMFS as those areas above -15 ft CRD, post-remedy surfaces will be maintained at their current depth and backfilled or capped with suitable habitat materials. As part of the remedial design, EPA, in coordination with natural resource agencies and tribes, will determine what areas are considered in-river habitat areas and on the river bank for the purpose of complying with ESA and Section 404 of the CWA. EPA will also determine what elevations and what substrate materials will be required for caps, ENR, or placement of backfill materials in any identified habitat area to minimize adverse impacts to the aquatic environment while also ensuring that the material will remain in place.

Cap construction will consider the ability of the sediment bed to support the cap during placement. Caps will also be designed to withstand more frequent floods with higher peak flows more common with climate change. Caps will also factor in appropriate earthquake design elements for contingency level events. If caps are required within the navigation channel and future maintenance dredge areas, work will be coordinated with USACE to ensure that the cap is compatible with current and anticipated waterway use. Any proposed capping in the navigation channel and future maintenance dredge areas will consider the current and authorized channel depth, the potential for an increase to the currently authorized channel depth, future navigation and maintenance dredging, and an appropriate buffer depth to ensure the integrity of the cap.

Cap design will also consider the following design elements:

- **PTW (NAPL/Not Reliably Contained) – Significantly Augmented Cap:** Cap design will include organoclay, other reactive material, and/or low permeability material, as necessary, to provide a sufficient chemical isolation layer to reliably contain underlying contamination (i.e., to pore water cleanup values).
- **PTW (Highly Toxic) – Reactive Cap:** Cap design may require the use of activated carbon and/or other reactive material, as necessary, to meet RAOs.
- **Areas of Groundwater Contamination and/or Pore Water Exceedance - Reactive Cap:** Cap design will require the use of activated carbon, other reactive material, and/or

low permeability materials, as necessary, to prevent contaminant migration through the cap, accounting for the degrees of upland source control.

- **Structures:** Caps placed below or adjacent to structures will consider the logistics of placing capping material below structures and any physical constraints adjacent to the structure including sediment bed slope, current and future navigation uses, and propeller wash. Minor structures, such as outfalls, will be moved to accommodate dredging and capping when necessary.
- **Debris:** Cap design will consider the presence or absence of debris. Any debris that hinders expected cap performance will be removed prior to cap placement unless it can be demonstrated that the debris is infeasible to remove.
- **Slope:** Cap design will consider the slope of the sediment bed. Sediment caps will be designed to remain in place. This may require removal of material to lessen the slope angle or incorporation of buttresses at the base of the slope to maintain stability and promote establishing habitats.
- **Flood Rise and Navigation:** Caps will be designed to avoid adverse impacts to the floodway, consistent with the Executive Orders for Floodplain Management (Executive Orders 11988 and 13690) and FEMA regulations. Additionally, caps will be designed to avoid adverse impacts to current and future navigation based on expected cap thickness, authorized channel depth, and appropriate buffer. This may limit cap construction in some locations or require removal of contaminated sediment prior to cap placement.
- **Land and In-River Use:** Caps will need to be designed consistent with anticipated uses so that the cap is not destroyed or damaged by those uses.
- Additional requirements may be determined during remedial design and in coordination with NMFS and U.S. Fish and Wildlife Service (USFWS) to comply with ARARs.

#### 14.2.9.2. Dredging

**General Dredging Requirements:** Dredging designs will consider the lateral and vertical extent of contamination. The lateral extent of contamination will be based on the SMAs (RALs and PTW; see Section 14.2.7, Monitoring Requirements). The vertical extent of contamination will be based on the decision tree in Figure 28 in Appendix I. Dredging design will also consider the following elements:

- **Residual Management:** Residual management layers will be placed as soon as is practicable following dredging within the prism and surrounding area and are assumed to be 12 inches in thickness. In the navigation channel and FMD and intermediate regions, residual layers will consist of sand (amended with activated carbon, as necessary) to prevent exposure to residuals above cleanup levels. In the shallow region, residual management will consist of capping or backfilling to grade to prevent exposure above cleanup levels and to minimize adverse effects on in-river and riparian habitat, including the loss of shallow water habitat.

- **Structures:** Structures may be removed to access contaminated media unless it can be demonstrated that the structure is permanent (e.g., not floating or movable), functional (e.g. not beyond its design life and/or in disrepair), or needed for current or future property and waterway use. Minor structures, such as outfalls, will be moved to accommodate dredging and capping when necessary.
- **Debris:** Dredging design will consider the presence or absence of debris. Any debris that limits access to contaminated media or reduces short-term effectiveness during dredging must be removed prior to dredging unless it can be demonstrated that the debris is technically infeasible to remove.
- **Water Quality Controls:** Water quality controls, including silt curtains and/or rigid containment (e.g., sheet pile wall enclosures) may be required to minimize releases to the water column associated with the presence of contaminated sediments, NAPL, debris, and other chemical or physical conditions to comply with water quality standards. Additional requirements may be determined during remedial design and in coordination with NMFS and USFWS to comply with ARARs.
- **Disposal:** All dredged or excavated materials will be tested to determine whether treatment is necessary prior to disposal and to determine appropriate disposal locations. Treatment will be required per regulations, requirements of the disposal facility, or whether the waste material is subject to the 2004 MGP dispute decision. Appropriate disposal locations will be based on waste characterization and ARARs.
- Where dredging has been completed in accordance with the RALs, additional dredging may be necessary to accommodate reactive caps, which would be required to meet cleanup goals in pore water.

#### 14.2.9.3. In-Situ Treatment

**In-Situ Treatment Requirements:** In-situ treatment will be accomplished through the placement of a reactive layer of activated carbon in powdered or granular form. Placement may be through broadcast placement of sand mixed with activated carbon or use of a commercial product such as AquaGate +PAC (or equivalent). The concentration of the placed activated carbon will be determined during remedial design but must limit bioavailability sufficiently to meet the RAOs and cleanup levels for the Site and minimize the potential for adverse impacts to the benthic community and other aquatic organisms.

#### 14.2.9.4. Enhanced Natural Recovery

**Enhanced Natural Recovery Requirements:** Enhanced natural recovery will be accomplished through the placement of sufficient material, assumed to be 12 inches of sand or other appropriate benthic substrate, to meet the RAOs and cleanup levels established for the Site over time. Timing of the placement of ENR materials may be adjusted or sequenced to avoid undue acute impacts to the benthic environment. Where empirical data indicates that MNR may be sufficient to meet clean up goals in a reasonable time frame, MNR will be considered in lieu of an ENR technology assignment, such as in Swan Island lagoon.



#### 14.2.9.5. River Banks

**General River Bank Requirements:** In an SMA, contaminated river banks will be remediated through this cleanup where they are contiguous with in-river contamination or where they pose a risk of recontamination to the Selected Remedy. These cleanups will be conducted in a manner that is compatible with the Selected Remedy and minimizes adverse impacts to riparian habitat including minimizing slope angle and the use of hardened banks to prevent erosion. The state may also undertake some response action for river banks that are the subject of this ROD, to expedite source control of contaminated upland areas, as necessary. Those actions will be consistent with the Selected Remedy and meet CERCLA requirements.

#### 14.2.10. Performance Standards

Performance standards related to implementation of the Selected Remedy will be fully developed during the remedial design and will be based on environmental media (e.g. sediment, groundwater, surface water, etc.) and scientific criteria. The performance standards will be incorporated into all relevant remedial design documents. The standards will promote accountability and ensure that the remedy meets the RAOs, Site-specific ARARs, and cleanup levels. Fish and shellfish tissue values will be used as a qualitative performance standard metric, as well as to update CERCLA related advisories. Likewise, contaminant loading to the Multnomah Channel and Columbia River will be evaluated generally to ensure decreasing trends over time and that any elevated levels during construction are mitigated to the extent practicable. Compensatory mitigation projects, should they be needed, will include performance standards such as native plant coverage, invasive species limits, and target species presence (vs. absence).

#### 14.2.11. Remedy Implementation

Due to the size of the Site and the breadth of contamination, implementation of the Selected Remedy may need to be conducted in phases and/or work sequenced. To implement the remedy, EPA will consider, at a minimum, source control actions, recontamination potential, scope (size) of the actions across the Site, impacts to the river users and the community, seasonal weather impacts, fish windows, and implementation approaches the parties that agree to perform the cleanup may suggest.

While such decisions have not yet been made, EPA may manage the Portland Harbor cleanup by dividing the Site into smaller work areas for purposes of design and construction activities based on factors such as prioritization of significant source areas, logistics, efficiency, or other factors. Sequencing of cleanup may consider factors such as potential impacts of upstream work on downstream areas, including but not limited to, the potential for resuspension of contaminants during construction, nature and extent of contamination, and integration of the cleanup actions into the overall Site remedy.

#### 14.2.12. Use of Green Remediation Practices

To the extent practicable, the remedial action should be carried out consistent with EPA Region 10's Clean and Green policy (EPA 2009) and the Superfund Green Remediation Strategy (EPA 2010), including the following practices:

- Use renewable energy and energy conservation and efficiency approaches, including Energy Star equipment.
- Use cleaner fuels such as low-sulfur fuel or biodiesel, diesel emissions controls and retrofits, and emission reduction strategies.
- Use water conservation and efficiency approaches including Water Sense products.
- Use reused or recycled materials within regulatory requirements.
- Minimize transportation of materials and use rail rather than truck transport to the extent practicable.

### **14.3. Summary of Estimated Selected Remedy Costs**

Total present value costs estimated for the Selected Remedy are \$1,054,200,000. The total capital cost is \$1,184,607,000 and the total periodic costs are \$524,028,000. Detailed costs associated with implementing the Selected Remedy are presented in Table 28 in Appendix II. The information in this cost estimate summary is based on the best available information regarding the anticipated scope of the Selected Remedy. Changes in the cost elements are likely to occur as a result of new information and data collected during the engineering design of the Selected Remedy. Major changes may be documented in the form of a memorandum in the Administrative Record file, an ESD, or a ROD amendment. The cost estimate is an order-of-magnitude engineering estimate that is expected to be within +50 to -30% of the actual project cost.

### **14.4. Expected Outcomes of Selected Remedy**

The intent of the Selected Remedy is to be protective of human health and the environment by reducing risks from the following: fish and shellfish consumption, direct contact with sediment and surface water, ingestion of sediment and surface water, groundwater, prey, and resuspension of contaminated sediment that act as an ongoing source of contamination. The Selected Remedy will actively address contaminated sediment and groundwater within the Site, thereby reducing exposure to contaminant concentrations in other media such as surface water and fish tissue, which will significantly reduce human health and ecological risks at the Site to acceptable levels. Remediation of the sediment in the Site will also reduce migration of contaminants to Multnomah Channel and the Columbia River. Addressing areas with contaminated groundwater by dredging and capping will also reduce loading to surface water and reduce exposure to benthic invertebrate organisms living in sediment. Remediation of contaminated river banks is included in the Selected Remedy where it is determined that it should be conducted in conjunction with the in-river actions, thereby eliminating additional sources of contamination that impact river sediment and water quality.

The Selected Remedy includes response actions to address contamination within the in-river portion of the Site and associated river banks. There are known sources of contamination in the upland areas of the Site and known sources in locations in the downtown reach of the river (approximately RM 12 to RM 16.6). EPA is relying on the Oregon DEQ to use its authorities to address these sources. It is expected that controlling these sources will reduce or eliminate contamination in soil, groundwater, storm water, and surface water that migrates to the

Willamette River. Since the achievement of cleanup levels identified in the Selected Remedy relies in part upon timely and successful completion of these upland and upstream source area actions, EPA retains the discretion to use its federal authorities to complete those actions.

Implementation of the Selected Remedy will result in improvements in the overall river habitat, with positive impacts on all species that use the river, including freshwater rearing sites and migration corridors that are essential to the conservation of the listed salmonid species and species that have a role in Tribal lifestyles.

The goal of this CERCLA cleanup action is to reduce in-river contamination, including river banks, to levels needed to achieve all cleanup levels (Table 17 in Appendix II) and ARARs Tables 25a-c in Appendix II. The Selected Remedy will attain ARARs, although some ARARs may not be achieved for a longer period of time. The Selected Remedy is consistent with current and reasonably anticipated future uses of the river. Institutional controls that limit resident fish and shellfish consumption will have to remain in effect to ensure protectiveness for the foreseeable future but will be relaxed over time as cleanup is completed. ICs that protect engineered components of the remedy that contain contamination in place will be required in perpetuity.

A final CERCLA remedial action was completed at the McCormick and Baxter Site (RM 7 east) in 2005 and, therefore, the area within the river addressed by that ROD is not included in the Selected Remedy.

The Selected Remedy will also be consistent with the reasonably anticipated future river uses by recreationalists, Tribal users, subsistence fishers, and industry. Additionally, the Selected Remedy is consistent with the federally-authorized navigation channel, by limiting cap placement within the navigation channel and areas where maintenance dredging may occur and considering the presence of permanent structures.

The Selected Remedy will include an estimated total constructed area of 394 acres of sediment and approximately 23,300 lineal feet (or 20% of river banks) and will allow 1,774 acres of sediment to naturally recover. The sediment removed from the Site, 3,017,000 cy, will be sent to off-site disposal facilities after testing to determine the appropriate disposal facility.

Approximately 123,000 cy of contaminated material from river banks will be excavated for off-site disposal.

The active remedy components of the Selected Remedy are expected to take approximately 13 years to implement after completion of the remedial designs. As in-river work will be limited to about 4 months a year due to restrictions to protect migratory species, construction work will proceed incrementally and may take approximately 13 years to complete once it begins unless construction is allowed to occur outside this construction window, as approved by the resource agencies, which could shorten the timeframe. It is expected that certain areas of the in-river work will be completed prior to other areas and will be sequenced based on a number of factors mentioned in Section 14.2.11. During and after remediation, current and anticipated future land and waterway uses, including industrial, residential, commercial and recreational uses, are

expected to be able to continue, subject to the institutional controls and so long as sources of contamination are controlled or eliminated.

Long-term monitoring of the Selected Remedy will be conducted to ensure MNR occurs and cleanup levels and RAOs are achieved. Long-term monitoring will also be conducted to evaluate the integrity of caps and overall protectiveness of the remedy. Any identified deficiencies in the caps will be addressed in an expeditious fashion in accordance with an O&M plan, to be developed during remedial design to ensure the continued protectiveness of the Selected Remedy.

EPA expects that, once the Selected Remedy (dredging, capping, ICs, ENR, and MNR) has been implemented and long-term monitoring shows COC concentrations have reached a steady state, COC concentrations will either be at cleanup levels for sediment, surface water, and groundwater, or will represent practicable limitations in implementation of source control and active remediation. Data collection and analysis during long-term monitoring, compiled and analyzed in five-year reviews, is intended to test this expectation.

However, if EPA determines that additional remedial action is appropriate for the in-river portion of the Site, EPA will select such action in a ROD Amendment or ESD. If EPA determines that further upland or upriver source control is appropriate, EPA or DEQ will address such sources with source control response action decisions separate from this ROD. If EPA determines that no additional practicable actions can be implemented under CERCLA to meet ARARs or cleanup levels, EPA may issue a ROD Amendment or ESD providing the basis for a technical impracticability waiver for specified sediment and/or surface water quality- or groundwater-based ARARs under CERCLA.

Implementation of the Selected Remedy will substantially improve the quality of sediments and surface water in Portland Harbor, reduce COC concentrations in waterway organisms, reduce contaminant loading to the Columbia River and Multnomah Channel, and result in a reduction in fish consumption risk.

The Portland Harbor Superfund cleanup addresses the lowest 10 miles of the Willamette River, which drains about 408 square miles of land in Portland, Oregon. This is a small part of the 187-mile long river which in its entirety drains 11,460 square miles or 12% of the State of Oregon. Although sediment cleanup and related source control efforts will greatly improve water quality in the Site and downstream areas, other efforts in addition to, or coordinated with, Superfund authorities can improve the overall environment of the watershed. By coordinating work between multiple programs, these other efforts will complement the work conducted within the Site.

Generally, under CERCLA, cleanup levels are not set at concentrations below natural background levels. Similarly, for anthropogenic contaminant concentrations, EPA generally does not establish cleanup levels at Superfund sites below anthropogenic background concentrations. As background contaminant concentrations contributing to Portland Harbor exceed risk-based numbers, the Selected Remedy uses these background concentrations to establish cleanup levels. Because the larger watershed contamination is beyond the scope of the Selected Remedy, EPA and the state will coordinate actions under other authorities within the larger watershed that focus

on reducing contaminant loading to the watershed as well as improving overall environmental conditions.

One component of this strategy includes an effort to identify sources of contamination within the broader watershed. EPA and the state are committed to compiling existing watershed contamination data, identifying data gaps, evaluating the efficacy of existing efforts, and identifying new strategies to reduce contaminant loading in the watershed. These efforts will use all appropriate regulatory authorities, including the CWA and federal and state authorities, and will be conducted in collaboration between EPA, the state, local government, the tribes, and other interested entities, and will build on other current and planned efforts throughout the Willamette and Columbia River watersheds. Current efforts led by the state, municipal agencies, local organizations, and other federal entities include, but are not limited to, infrastructure improvements, habitat restoration, recent promulgation of human health water quality criteria based on an increased fish consumption rate, total maximum daily load (TMDL) development and implementation, geographical NPDES permit requirements, toxics reduction strategies, monitoring, CSO abatement, pesticides education and collection, and comprehensive upland source control efforts. In addition, Superfund site assessment and sampling efforts to review additional areas beyond the boundaries of the existing Site may be used to identify additional actions to be taken under Superfund or state law.

## **15. STATUTORY DETERMINATIONS**

CERCLA §121(b)(1) and (d) require selection of a remedy or remedies that are protective of human health and the environment, comply with ARARs (unless a statutory waiver is justified), are cost-effective, and use permanent solutions and alternative treatment technologies to the maximum extent practicable. In addition, CERCLA includes a preference for remedies that employ treatment that permanently and significantly reduces the volume, toxicity, or mobility of hazardous substances, pollutants, or contaminants as a principal element.

EPA has determined that the Selected Remedy meets these statutory requirements. As required by the NCP §300.430(f)(5)(ii), below is a description of how these statutory requirements are met.

### **15.1. Protection of Human Health and the Environment**

The Selected Remedy will address the unacceptable risks to human health and the environment through capping, dredging, and ENR of an estimated 394 acres of contaminated sediments and approximately 23,300 lineal feet of contaminated river banks. An additional 1,774 acres will be addressed with MNR to further reduce post-construction risks. ICs will also be required as part of the remedy. While areas of the river will take less time to construct, it is expected that the overall construction duration for the Selected Remedy is estimated to be 13 years, with no additional time required to complete dredged material processing. Resuspension/release during construction activities will be addressed through operational BMPs and engineered control measures, where necessary. Institutional controls to restrict land uses, such as Waterway Use Restrictions, RNAs, or environmental easements and equitable servitudes, will be implemented to protect the integrity of the caps and ensure residual risks are contained within the capped

areas. Additionally, coordination with federal and state regulatory authorities on future permitting actions in the river that may affect caps or other covers, or releases of subsurface contamination will likely be needed.

The Selected Remedy is expected to be protective of human health and the environment once cleanup levels are achieved. Cleanup levels will be achieved through implementation of a combination of dredging, capping, ENR, and MNR. Although a period of time is required to achieve all cleanup levels, significant risk reduction will be achieved the end of construction. At the end of construction, cleanup levels protective of wildlife that consume prey will be achieved, and people will be protected from risks associated with playing on beaches and swimming in the river. Short-term and long-term protection of human health from eating contaminated fish will be achieved through a combination of sediment remediation, fish consumption advisories, and other ICs. After active cleanup, MNR is projected to achieve cleanup levels within a reasonable time frame. Since a model was not capable of predicting accurately how long MNR would take, monitoring will be necessary to determine whether natural recovery is occurring at a rate sufficient to meet cleanup levels in a reasonable time frame. Based on criteria developed in the MNR monitoring plan, additional actions may be necessary if it is determined that MNR will not achieve cleanup levels. Those additional actions will be documented in a future decision document.

After the remedy has been constructed, adults will be able to eat 16 fish meals per year after cleanup. When cleanup levels are achieved, adults will be able to eat 27 fish meals per year (based on a  $1 \times 10^{-5}$  risk) and children (based on HI of 1) will be able to eat 30 fish meals per year. Current fish advisories instruct people to avoid or limit eating bass, carp, and catfish. For some contaminants like PCBs, background anthropogenic levels exceed levels that would be protective of unlimited consumption of resident fish. Therefore, people will need to restrict their consumption of resident fish even after the Superfund cleanup levels have been achieved since Superfund, as a matter of policy, does not address contamination below these background levels. A discussion of how the Selected Remedy performs is presented below by RAO.

During implementation of the Selected Remedy, construction is not expected to pose unacceptable short-term risks or cross-media impacts. As mentioned previously, monitoring during construction will be conducted to assess these impacts and make adjustments as needed.

#### **15.1.1. Human Health RAOs**

Post-construction risk numbers are provided in Table 22 in Appendix II and are summarized below:

##### *RAO 1: Sediment*

Immediately after construction of the Selected Remedy, people will be safe when coming into contact with sediments because the carcinogenic risks are estimated to be no higher than  $1.0 \times 10^{-5}$ , which is within EPA's range of acceptable risk. Additional risk reduction will be achieved over time through MNR, with a long-term objective of achieving  $1 \times 10^{-6}$  risk or background.

### *RAO 2: Biota*

Within a few years after construction of the remedy, carcinogenic risks from eating contaminated fish (on a Site-wide scale) will be  $1.5 \times 10^{-4}$ , which is within EPA's acceptable risk range but is not in compliance with Oregon law (cited in Section 15.2.1 below) regarding risk reduction to be no greater than  $1 \times 10^{-5}$  cancer risk. Non-cancer risk after cleanup is expected to be 15 for the child receptor. In addition, within a few years of construction, it is estimated that adults (other than women who are or plan to breastfeed) will be able to eat about 16 fish meals per year based on a Site-wide scale. Prior to cleanup, current fish advisories suggest people should avoid eating bass, carp, and catfish. Once cleanup levels are achieved, adults will be able to safely eat about 27 fish meals per year (other than the sensitive population cited earlier), which is based on anthropogenic background risk for PCBs.

Under the Selected Remedy, fish consumption advisories will be required as part of the Superfund action until such time as RAO 2 is achieved. Outreach more fully described in Section 14.2.6 will be conducted to educate the public about the fish consumption advisories. Informational materials will be needed and evaluated to determine advisory effectiveness. Due to the presence of contaminants upstream of the Site and within the Willamette River watershed, it is unlikely that fish advisories would ever be removed.

### *RAO 3: Surface Water*

After construction of the Selected Remedy, it is estimated that all surface water COC concentrations will be reduced to 10 times the cleanup levels. Over time, it is expected that cleanup levels (both risk-based and ARAR-based surface water levels) will be achieved through a combination of in-river cleanup combined with source control actions within the site as well as actions taken to address toxics within the watershed.

### *RAO 4: Groundwater*

The Selected Remedy will address 39% of the river bottom impacted by groundwater plumes through construction; the remainder of the contaminated groundwater will be dependent on the adequacy of source control actions.

## **15.1.2. Ecological RAOs**

### *RAO 5: Sediment*

At the end of cleanup construction, the Selected Remedy will address 72% of the area based on 10 times unacceptable benthic risks. The remainder of the benthic risk areas will be left to MNR and evaluated in five-year reviews.

### *RAO 6: Biota*

Immediately after construction of the Selected Remedy, it is estimated that wildlife will be able to safely consume prey from within the Site since all non-cancer risks on a Site-wide scale will be addressed. It is estimated that BEHP will be at an HQ of 5 on an RM scale and 3 on an SDU scale, very close to the target of 1 and well within potential calculation variances.

### *RAO 7: Surface Water*

All surface water cleanup levels for this RAO will be achieved through cleanup construction, other than BEHP, cPAHs, and TBT because there is insufficient surface water data to evaluate the effectiveness of the Selected Remedy for these contaminants. It is expected that MNR in conjunction with ICs and source control, including control of upriver sources, would be necessary to achieve these surface water cleanup levels over time. Ethylbenzene is expected to be addressed through RAO 8 and implementation of source control measures.

### *RAO 8: Groundwater*

The Selected Remedy will address 39% of the river bottom impacted by groundwater plumes through construction; the remainder of the contaminated groundwater discharging to the river will be dependent on the adequacy of the source control and will be evaluated in five-year reviews.

## **15.1.3. Human Health and Ecological RAO**

### *RAO 9: River Banks*

The Selected Remedy will address direct contact risks, contaminant loading, as well as risk of re-contaminating sediments in 78% of the contaminated river bank through construction. The remaining areas are expected to be addressed through other cleanup actions because natural recovery will not work for upland river bank areas.

## **15.2. Compliance with ARARs**

CERCLA §121(d) and NCP §300.430(f)(1)(ii)(B) require that remedial actions at CERCLA sites at least attain legally applicable or relevant and appropriate Federal and State requirements, standards, criteria, and limitations which are collectively referred to as "ARARs," unless such ARARs are waived under CERCLA §121(d)(4). Applicable requirements are those cleanup standards, standards of control, and other substantive requirements, criteria, or limitations promulgated under Federal environmental or State environmental or facility siting laws that specifically address a hazardous substance, pollutant, contaminant, remedial action, location, or other circumstance found at a CERCLA site. Relevant and appropriate requirements are those cleanup standards, standards of control, and other substantive requirements, criteria, or limitations promulgated under Federal environmental or State environmental or facility siting laws that, while not "applicable" to a hazardous substance, pollutant, contaminant, remedial action, location, or other circumstance at a CERCLA site, address problems or situations sufficiently similar to those encountered at the CERCLA site that their use is well-suited to the particular site.

ARARs for the Selected Remedy are shown in Tables 25a-c in Appendix II. The objective of the Selected Remedy is to meet ARARs throughout the Site.

Chemical-specific ARARs will be achieved over time through implementation of a combination of dredging, capping, ENR, and MNR. Because the Selected Remedy relies less on MNR than most other alternatives, it is expected to achieve standards more quickly. Location-specific and



action-specific ARARs will be achieved by meeting all of the substantive requirements during design, construction, implementation, and monitoring of the Selected Remedy.

#### **15.2.1. Compliance with Chemical-Specific ARARs**

For COCs identified in surface water and groundwater, Oregon's numeric toxics water quality standards (Tables 30 and 40) are applicable requirements as cleanup standards if more stringent than Clean Water Act 304(a) recommended criterion, otherwise the relevant and appropriate 304(a) criteria are the cleanup standard. Additionally, non-zero MCLGs or MCLs associated with COCs identified for surface water and groundwater are relevant and appropriate cleanup standards. Because there are no MCLs for manganese and MCPP, EPA RSLs for groundwater for those COCs are the cleanup levels shown in Table 17 in Appendix II.

Under the Selected Remedy, exceedances of water quality criteria for protection of human health will continue for PCBs, cPAHs, and 2,3,7,8-TCDD eq at the completion of construction. There is insufficient surface water data to evaluate the effectiveness of the Selected Remedy to meet the aquatic life water quality criteria for BEHP, cPAHs, and TBT at this time. It is expected that cleanup levels will be achieved for these chemicals after a period of time and after sources are reduced. The ethylbenzene standard for contaminated groundwater is expected to be achieved through implementation of source control measures and river bank work.

Implementation of the sediment remediation in combination with upland and upriver source control remedies under State-lead authority will improve surface water quality to an unknown degree. If appropriate, a waiver of surface water quality ARARs will be considered only after the improvement from these combined actions is assessed based on long-term water quality monitoring. Long-term monitoring and maintenance of engineering controls, monitoring of pore water, and surface water will assist in confirming the ability of the Selected Remedy to achieve chemical-specific ARARs. If long-term monitoring indicates that surface water quality ARARs cannot be met, EPA will review the data and consider whether additional technically practicable response action would further reduce contaminant concentrations in surface water. If EPA determines that additional remedial action is appropriate for the in-river portion of the Site, EPA will select such action in a ROD Amendment or ESD. If EPA or the State determine that further source control is appropriate, EPA or the State will address such sources with source control response action decisions separate from this ROD. If EPA determines that no additional response actions can be implemented to meet ARARs, EPA may issue a ROD Amendment or ESD providing the basis for a technical impracticability waiver for water-quality based ARARs under §121(d)(4)(C) of CERCLA.

Contaminated groundwater will be addressed through the use of on-site treatment. During design, the areas requiring reactive caps will be identified and after cleanup construction, it is expected that contaminated groundwater that enters the Site will be addressed through upland source control and the actions identified in this ROD.

Oregon's carcinogen and noncarcinogen risk standards for degree of cleanup for hazardous substances [OAR 340-122 -0040(2)(a) and (c), 0115(2-4)] are applicable standards for the final Selected Remedy to achieve. Under the Selected Remedy, Oregon's risk standards will not be

achieved at the completion of construction, but are projected to be achieved, over time through MNR, ICs, and monitoring.

During implementation of the Selected Remedy potential short-term exceedances of some water quality criteria are possible. Under state law, OAR 340-041-004, short-term degradation is allowable if the benefits of the lowered water quality outweigh the environmental costs of the reduced water quality as determined through an analysis of the specific water quality impacts and the development of a water quality monitoring plan during design. The water quality monitoring plan will specify the BMPs and other conditions and restrictions on the dredging and capping activity necessary to ensure that the activity will be conducted in a manner which will comply with state water quality standards and meet other ARAR-based surface water cleanup standards (also see CWA in Section 14.2.3, Action-Specific ARARs).

### **15.2.2. Compliance with Location-Specific ARARs**

Location-specific ARARs for the Selected Remedy will be evaluated and addressed during design and implementation of the remedy. Key location-specific ARARs are highlighted below.

#### *Endangered Species Act and Essential Fish Habitat*

ESA requires that the remedial action may not jeopardize the continued existence of endangered or threatened species or result in the adverse modification of species' critical habitat. Agencies are to avoid jeopardy or take appropriate mitigation measures to avoid jeopardy. The Magnuson-Stevens Fishery Conservation and Management Act provides for the designation of Essential Fish Habitat (EFH) for waters and substrate necessary for commercially fished species to spawn, breed, feed, or grow to maturity. Actions that may adversely affect EFH need to be coordinated with NMFS. The Selected Remedy will meet the substantive requirements of these ARARs during design, construction, and long-term monitoring. Listed species are found at the Site, and critical habitat for listed salmonids and EFH has been designated within the Site.

For the Selected Remedy, compliance with ESA and EFH requirements will be met through preparation of a programmatic and Site-specific Biological Assessment (BA). Some locations along the river, such as at Gasco and Arkema, may be evaluated separately, but most of the work within the river will fall under the programmatic assessment. The BAs will evaluate the effects to species found at the Site listed as threatened or endangered under ESA and impacts to those species' designated critical habitat and EFH from the proposed remedial activities. Such impacts will be mitigated and reduced as more remedial design information is obtained. The BA will determine whether the proposed combination of technologies and ancillary activities used to clean up the contaminated sediment and river banks may adversely affect listed species. The BA will also contain the BMPs and other mitigation measures to minimize the impacts to the species and critical habitat and EFH during construction of the remedy as well as mitigation that may be necessary to compensate for impacts to critical habitat. Long-term monitoring of the compensatory mitigation to assure it is functioning as designed will be required. A preliminary programmatic BA was developed as part of the FS and Proposed Plan, and coordination with NMFS and USFWS has begun. As remedial design progresses the BA will be supplemented to address specific issues unique to remedy implementation at a particular area within the Site. If

remedial activities may result in any take, a take permit will be requested from the Services. Additionally, all in-river construction will be coordinated with Services around fish windows where necessary.

Survival Guidelines found at OAR 635-100-0135 are rules regarding actions that affect species listed under Oregon's Threatened or Endangered Wildlife Species law. The substantive survival guidelines will be incorporated into the remedial design and implementation of the Selected Remedy.

#### *Federal Emergency Management Act*

Although not legislated law, federally approved projects need to comply with Executive Orders 11988 (Management of Floodplain), as amended by Executive Orders (E.O.) 13690 and 11990 (Protection of Wetlands). The FEMA regulations in 44 CFR Part 9 set forth the responsibilities to implement and enforce E.O. 11988, as amended by 13690 and 11990. Likewise, FEMA regulations found at 44 CFR 60.3(d)(2) and (3) prohibit encroachments that would result in any increase in flood levels during occurrence of base flood discharge. A simple analysis was conducted during the FS (see FS Appendix P) to provide a cursory assessment of the potential for the remedy on a Site-wide and smaller SDU scale to affect flood rise. A HEC-RAS hydrodynamic model will be run to support the Selected Remedy on an SMA-scale and Site-wide scale during remedial design to verify that the remedy will not result in adverse impacts to the floodway. The substantive requirements of this ARAR will be met during design and implementation of the Selected Remedy.

A more detailed evaluation of floodway impacts will be conducted, which will include consideration of the following:

- Minimize the use of remedial process options that result in a net increase of fill material placed within the river and adjoining flood plain.
- Perform detailed modeling to demonstrate that the Selected Remedy does not result in unacceptable flood rise.
- The use of natural features and nature-based approaches in the implementation of the Selected Remedy.
- Placement of structures (such as an on-site transload facility) at a higher vertical elevation to address current and future flood risks.
- The floodplain and corresponding elevations will be determined using these approaches:
  - Flood Rise: The Site-wide and SMA specific evaluations of flood rise will need to consider 500-year flood elevation and freeboard and be based on the best-available, actionable hydrologic and hydraulic data and methods that integrate current and future changes in flooding based on climate science.
  - Channel Depth: The Willamette River currently has an authorized channel depth of -40 ft CRD. Prior to listing of the Portland Harbor Superfund Site on the NPL, the

USACE proposed deepening the federally maintained navigation channel to -43 ft CRD. Deepening the navigation channel may mitigate the effects of cap and thick layer sand cover placement on flood rise associated with the sediment cleanup near the channel.

- **Climate Change:** In general, climate change is expected to result in increased winter flow, decreased summer flow, lower snow packs and earlier peak within the Willamette River. In addition, because of a lower snow pack and more frequent fall and winter rain events, more high flow events are expected but of less magnitude than the large flood events observed in the 1900s. Uncertainties associated with potential climate change will be incorporated into the flood rise evaluation and cap design elements.

#### *Native American Protected Objects and Graves Protection Preparation*

During the RI, a cultural resource analysis concluded that there are possible Native American archeological artifacts at the Site, but no gravesites were noted. The Selected Remedy will meet the substantive requirements of this ARAR during implementation of the remedy in coordination and consultation with the relevant tribes. If Native American cultural items or gravesites are present on a property, an inventory of such items will be compiled and items will be returned to the tribes.

If removal of cairn, burial, human remains, funerary objects, or other sacred objects takes place, re-interment will occur under the supervision of the appropriate Indian tribe. Any proposed excavation by a professional archaeologist of a Native American cairn or burial will require written notification to the State Historic Preservation Officer and consultation with the appropriate Indian tribe.

#### *National Historic Preservation Act (NHPA) and Archaeological Objects and Sites*

There are no known historic properties, structures, or objects included in or eligible for the National Register of Historic Places within the Site where action will be taken under the Selected Remedy. The substantive requirements of this ARAR will be met during design and implementation of the Selected Remedy if NHPA eligible properties or structures are discovered. Given that NHPA includes artifacts, records, and material remains related to a property also, if cultural resources or other archeological objects on, or eligible for, the national register or under state law are present, it will be necessary to determine, in consultation with the appropriate State Historic Preservation Office, if NHPA requirements may apply along with other requirements of the Oregon Archaeological Objects and Sites laws.

### **15.2.3 Compliance with Action-Specific ARARs**

Action-specific ARARs for the Selected Remedy will be addressed during design, implementation, and, if relevant, long-term monitoring.

## *CWA and Oregon WQS*

CWA § 404's implementing regulations known as the §404(b)(1) Guidelines, restrict the discharge of dredged or fill material if there is a practicable alternative to the proposed discharge which would have less adverse impact on the aquatic environment, so long as the alternative does not have other significant adverse environmental consequences (40 CFR 230.10(a)). The 404(b)(1) Guidelines include the factual determinations that need to be made on short-term and long-term effects of a proposed discharge of dredged or fill material on the physical, chemical, and biological components of the aquatic environment (40 CFR 230.11) in light of Subparts C through F of the guidelines and the findings of compliance on the restrictions (40 CFR 230.12). At this Site, compliance with the Guidelines and the analysis of the physical, chemical, and biological impacts to the aquatic environment is documented in a 404(b)(1) evaluation (FS Appendix L). Based on the 404(b)(1) evaluation, public comments, and in consideration of all of the design and operational requirements specified in this ROD, EPA finds that the Selected Remedy complies with the requirements of the 404(b)(1) Guidelines and is the least environmentally damaging practicable alternative that meets the project purpose and need. There are no practicable alternatives that avoid waters of the United States due to the location of the contaminated sediments. The Selected Remedy results in significantly less adverse impacts than the Preferred Alternative in the Proposed Plan because an on-site CDF will not be used to dispose of dredged material, therefore, 14 acres of aquatic environment will not be filled.

In many areas, remediated shallow areas would be backfilled to existing elevations and/or beach mix would be used to provide appropriate substrate. This would minimize impacts on aquatic resources and reduce or eliminate mitigation requirements. It was determined that only armored caps within shallow water areas and on river banks as well as river bank slopes will likely result in unavoidable impacts that will require compensatory mitigation resulting from implementation of the Selected Remedy. However, coordination with NMFS and USFWS will be done during remedy design and implementation to identify any further loss and mitigation requirements.

Avoidance and minimization measures and BMPs will be implemented throughout the remedial activities. In addition, avoidance and minimization measures would be implemented on Site to restore substrate, slope, and natural cover to the extent possible to maintain habitats and functions that would be altered during implementation. Compensatory mitigation would be required to replace lost habitats and functions such that there would be "no net loss" of aquatic resource functions.

The Selected Remedy will meet all of the substantive requirements of this ARAR during design, construction, and long-term monitoring. Controls required for construction activities to minimize the impacts include, but are not limited to:

- Water quality monitoring and substantive requirements of a contingency response plan to provide the necessary ARAR compliance documentation
- Changes in production rates
- Modification of work schedules
- Perform work during low river flows

- Use of surface booms or oil absorbent pads
- Decontamination of construction equipment prior to in-river use
- Prevent barge grounding
- Prevent incidental release of dredged or capping and residual management material during transloading
- Use of appropriate BMPs during transloading activities
- Storm water management at transloading facilities
- Appropriate location of staging of demolition and construction materials
- Meet substantive requirements of a Spill Prevention, Containment and Countermeasure (SPCC) Plan to provide the necessary ARAR compliance documentation
- Fish capture and removal inside work isolation areas
- Control and monitoring of dewatering activities and material
- Residual layer placement as soon as possible
- Use of physical barriers
- Placement of material from lower to higher elevations
- Monitoring for accurate placement of material
- Use of clean capping and residual management material
- Beach mix includes materials less than 2.5 inches
- Incorporation of vegetation on river bank caps, where possible

The Selected Remedy will be designed to avoid or minimize adverse impacts to aquatic resources and waters of the United States. Compensatory mitigation is considered only after other appropriate and practical options have been considered to avoid, minimize, or otherwise rectify unavoidable, adverse impacts on the aquatic environment, including impacts on aquatic species. It is assumed that 60 acres would require mitigation under the Selected Remedy. This compensatory mitigation entails the restoration, establishment, enhancement, and/or preservation of wetlands, streams, or other aquatic resources conducted specifically for the purpose of offsetting authorized impacts to these resources, on-Site wherever possible. A compensatory mitigation framework will be developed in coordination with NMFS and USFWS, which may use a Habitat Equivalency Analysis (HEA) method, Relative Habitat Value (RHV) scoring approach, or other approach to determine final compensatory mitigation acreages.

Additionally, ORS 196.825(5) and applicable substantive mitigation rules at OAR 141-085-510, 141-085-680, 141-085-0685, 141-085-0690, 141-085-0710, 141-085-715 require mitigation for expected adverse effects of removal and fill activities, thus substantive compliance with those requirements will be incorporated into the compensatory mitigation framework.

The substantive requirements of the CWA §401 and Oregon's Water Quality Law are also triggered due to the discharges of pollutants to surface water from dredging, capping, pulling pilings or other structure or debris removal activities required to implement the Selected Remedy. Both CWA §401 and Oregon's Water Quality Law require that any activity during the implementation of the remedial action that may result in a discharge to waters of the State requires reasonable assurance that water quality standards will be complied with and requires conditions and other requirements deemed necessary to be placed on the discharge.

During dredging, capping, pulling pilings, removal of structures or debris, and/or residual management material, potential short-term exceedances of some water quality criteria are likely. However, through the application of BMPs and engineering control measures water quality criteria are expected to be met in accordance with §401 and Oregon's Water Quality Law. Pertinent water quality-specific information will be considered during design and a water quality monitoring plan will be developed to document requirements to comply with these ARARs. Monitoring will be used to set conditions for the following activities (but not limited to) dredging speeds and techniques, establishing a point of compliance for water quality criteria, type and frequency of monitoring samples, and engineering controls. Monitoring will primarily seek to minimize sediment resuspension and dissolved chemical dispersion during dredging and capping activities, storm water management and treatment, and identify relevant, erosion control measures.

Additionally, §301 of the CWA prohibits a discharge of pollutants from a point source to waters of the U.S. unless such discharge is in compliance with §302, 306, 307, 318, 402, and/or 404 of the CWA, 33 U.S.C. §1311. Section 402 of the CWA, 33 U.S.C. §1342, provides substantive regulations regarding permitting point source discharges in compliance with the Act. CWA §301(b) requires all point sources to meet technology-based requirements. In addition, point sources must meet any water quality based effluent limit that is more stringent than the technology-based requirements, 33 U.S.C. § 1311(b). Where a waterbody is impaired for a specific pollutant and a TMDL has not been developed by the State and approved by EPA, a point source must meet water quality standards at the point of the discharge. §404 applies to return flows from all activities covered by that authority, such as return flow from barges or a transloading facility storing or transporting dredged material; however, excavation of river banks, if occurring from the uplands and not as a dredging activity and if more than one acre is disturbed cumulatively during any construction season, may invoke the need to, at a minimum, comply the substantive BMPs and other erosion control requirements of Oregon's construction stormwater NPDES general permit to control discharges of pollutants from such excavation and remediation activities. Likewise, an on-site transloading facility will need to apply relevant industrial stormwater controls. No other point source discharge is anticipated to be created by the Selected Remedy.

### *Rivers and Harbors Act*

The Rivers and Harbors Act is an applicable requirement and will guide development of institutional controls as well as construction of remedial actions in the navigation channel, to include placement of pilings or discharge of dredged material that may impair the flow or circulation of waters or reach of such waters. In general remedial actions taken or constructed in the navigation channel cannot interfere permanently with navigational capacity of the river. Contaminated sediments located in the navigation channel are assumed to be dredged and then a residuals management layer will be placed in the dredged area. The Willamette River currently has an authorized channel depth of -40 ft CRD. Prior to listing of the Portland Harbor Superfund Site on the NPL, the USACE proposed deepening the federally maintained navigation channel to -43 ft CRD.

Contamination at depths greater than the authorized depth of the navigation channel may be capped and those caps will be constructed below the authorized depth of dredging so as not to interfere with future dredging as well as to provide an overdredge allowance or buffer zone, as necessary, to protect the remedy from future dredge activities.

### *RCRA*

The substantive requirements of the RCRA ARAR will be met during design and implementation of the Selected Remedy. Analytical testing results of dredged material will be used for waste characterization and determinations of appropriate disposal. Data collected during remedial design will initially be used to inform the appropriate disposal site. A Materials Management Plan will provide the necessary ARAR compliance documentation. The Materials Management Plan will define record keeping requirements to document that RCRA substantive requirements are met, container requirements, storage requirements consistent with RCRA to be implemented during construction and operation of the waste handling facilities.

All dredged materials and contaminated river bank materials removed from the Site under the Selected Remedy will be managed under DMM Scenario 2 (off-site disposal facilities), with approximately 3,017,000 cy of contaminated sediment and 123,000 cy of soil sent to off-site disposal facilities. Ex-situ treatment is assumed for approximately 191,500 cy sediment and river bank soil. Treatment is assumed to be either low temperature thermal desorption or solidification/stabilization prior to disposal in a Subtitle C landfill. Dredged/excavated material will be tested to determine the appropriate disposal option and/or the need for treatment prior to disposal.

### *Oregon Hazardous Waste and Hazardous Materials*

OAR 340-093-0210 and 0220, State of Oregon solid waste general provisions regarding storage and collection of solid waste and transportation related requirements for trucks servicing a solid waste collection facility. Applicable requirements to operation of an on-site transloading facility for dredged materials slated for off-site disposal. The substantive requirements of this ARAR will be met during design and implementation of the Selected Remedy. State-listed hazardous waste has been identified offshore within SDU 7W. Hazardous waste generated during remedial actions may be treated and temporarily stored at transload facilities pending final transport and disposition. A Materials Management Plan will be developed as part of the design addressing how State treatment and storage regulations will be complied with during the construction and operation of the transload facilities. Under the Selected Remedy, it is assumed that 901,000 cy of dredged sediment (excluding sediment dredged from SDU 6W) may be managed as state-listed waste for disposal in a Subtitle D landfill without treatment.

### *Toxic Substances Control Act*

The substantive requirements of this ARAR will be met during design and implementation of the Selected Remedy. There are currently no sediment sample results that exceeded the TSCA threshold, so it is anticipated that very little, if any, waste will be generated that will require compliance with this ARAR. Any TSCA waste containing greater than 50 mg/kg of PCBs



generated as a result of remedial actions in the Site will meet requirements during transport and off-site disposal. The Chemical Waste Management Facility in Arlington, Oregon, is permitted to accept TSCA waste (RCRA and TSCA EPA ID Permit ORD089452353). The preparation of a Materials Management Plan during design and utilized during implementation will address proper handling and disposition of any TSCA waste generated during remedial actions.

#### *General Emissions Standards and Fugitive Emission Requirements*

The substantive requirements of these ARARs will be met during design and implementation of the Selected Remedy. Reasonable precaution to control fugitive emission of air contaminants will be taken in accordance with OAR 340-226. Emission of airborne particulate matter will be controlled to address OAR 340-208. Dust suppression will be maintained to eliminate air contaminant migration during remedial action in compliance with these ARARs. Air monitoring will be required to ensure that contaminants that volatilize will not exceed acceptable health based concentrations and adversely affect local communities and workers.

#### *Marine Mammal Protection Act*

The substantive requirements of this ARAR will be met during design and implementation of the Selected Remedy. The selected remedial actions will be carried out in a manner to avoid adversely affecting marine mammals (such as the Steller sea lion).

#### *Migratory Bird Treaty Act (MBTA)*

The substantive requirements of this ARAR will be met during design and implementation of the Selected Remedy. The selected remedial actions will be carried out in a manner to avoid adversely affecting migratory bird species, including individual birds or their nests (such as the Bald Eagle).

#### *Fish and Wildlife Coordination Act*

The substantive requirements of this ARAR will be met during design and implementation of the Selected Remedy. This statute and implementing regulations require coordination with federal and state agencies to ensure that any modification of any stream or other water body affected by any action authorized or funded by the federal agency provides adequate protection of fish and wildlife resources. Compliance with this ARAR will be met through the coordination with NMFS, USFWS, and ODFW on ESA, §404, and EFH compliance described above.

### **15.3. Cost Effectiveness**

The Selected Remedy represents a reasonable value in reducing risks at the Site and providing certainty that cleanup levels will be achieved for the costs to be incurred. In making this determination, the following definition was used: “A remedy shall be cost-effective if its costs are proportional to its overall effectiveness.” (40 CFR 300.430(f)(1)(ii)(D)). This determination was made evaluating three of the five balancing criteria in combination (long-term effectiveness and permanence; reduction in toxicity, mobility, and volume through treatment; and short-term effectiveness). Overall effectiveness is then compared to determine cost-effectiveness. The relationship of the overall effectiveness of the Selected Remedy was determined to be

proportional to its costs and hence the Selected Remedy represents a reasonable value for the money to be spent.)<sup>16</sup> The cost effectiveness summary of the remedy alternatives is presented in Table 29 in Appendix II.

It is important to note that more than one cleanup alternative can be cost-effective and the Superfund statute and implementing regulations do not mandate the selection of the most cost-effective cleanup alternative. In selecting among alternatives, EPA compared cost to overall effectiveness of each alternative individually and in relation to one another. Cost-effectiveness is concerned with the reasonableness of the relationship between the effectiveness afforded by each alternative and its costs compared to other available options.

As Alternative A (No Action) is not protective, it was not considered in the cost effectiveness evaluation. It is, however, included in Table 29 for reference. Alternative B is unable to achieve all chemical-specific ARARs, which is a threshold criterion. Although Alternatives B and D cost less and take less time to construct than the Selected Remedy, they do not address (treat or reliably contain) significant volumes of PTW and, therefore, are not considered cost effective relative to the other alternatives. All the other alternatives address the PTW either through treatment or containment and the remaining alternatives (I, E, F Mod, F, and G) progressively remove more contamination from the environment. However, Alternatives F and G, due to their larger footprints/volumes for capping, dredging, and ENR, will be, from a short-term effectiveness perspective, more disruptive to the habitat and the community with only relatively minor gains in risk reduction at significantly greater costs relative to Alternatives I, E, and F Mod. Therefore, EPA does not consider Alternatives F or G to be cost effective. EPA finds that Alternatives I, E, and F Mod to be cost-effective and reasonable given the relationship between the effectiveness afforded by each alternative and their costs compared to other options.

#### **15.4. Use of Permanent Solutions and Alternative Treatment Technologies**

EPA has determined that the Selected Remedy represents the maximum extent to which permanent solutions and treatment technologies can be utilized in a practicable manner at the Site. Of those alternatives that are protective of human health and the environment and comply with ARARs, EPA has determined that the Selected Remedy provides the best balance of trade-offs in terms of the five balancing criteria, while also considering the statutory preference for treatment as a principal element and State, tribe, and community acceptance.

The Selected Remedy permanently removes approximately 3,017,000 cy of contaminated sediment and 123,000 cy of contaminated river bank soil from the river system. Approximately 394 acres of river bottom and 23,300 lineal feet of river bank will be addressed through dredging or excavating contamination. Residuals from dredging and contaminated areas subject to ENR (approximately 28.2 acres) will be managed with a thin layer sand cover. Different caps

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<sup>16</sup> It is important to note that cost effectiveness is not determined merely by plotting estimated costs of remedy alternatives against expected risk reduction. Rather as shown in Table 29 in Appendix II, a more robust assessment of three elements of overall effectiveness compared to overall costs is required. EPA has seen variations of such “knee of the curve” presentations and does not find these appropriate to evaluate cost effectiveness as they are not consistent with the NCP or EPA guidance.

(designed and constructed for appropriate contaminant containment) will be placed over approximately 176 acres of the Site.

The Selected Remedy will utilize a variety of cap configurations to contain contamination that remains in place. Where necessary, caps will be augmented with reactive and/or low permeability materials such as organoclay or activated carbon to provide a chemical isolation layer to reliably contain or treat wastes in place. In addition, routine monitoring of the caps (e.g., pore water and cleanup level monitoring) will be required to ensure their designed structure and function are maintained. After construction, and in combination with fish advisories and ICs, the remediated areas will no longer pose unacceptable risks to humans and the environment. Over time, cleanup levels will be achieved through MNR and there will be less reliance on ICs. Therefore, the Selected Remedy will provide adequate long-term control of risks to human health and the environment through eliminating and/or preventing exposure to the contaminated sediment and preventing movement of contaminated sediment.

The Selected Remedy is protective with respect to short-term risks. During construction, BMPs will be implemented to mitigate releases during cleanup and monitoring will be done in part to determine whether the BMPs are adequate or whether additional actions need to be taken.

Contaminated sediment that is to be dredged will be tested to determine the appropriate disposal location. If necessary, sediment will be dewatered and treated prior to disposal to ensure that contaminants are stabilized. Disposal in a regulated facility will ensure protection of human health and the environment since the wastes will be managed according to appropriate controls and regulations. Disposal in an off-Site facility is expected to be preferable to the community since most of the comments received during public comment rejected the on-Site CDF, as proposed in the Proposed Plan.

The Selected Remedy utilizes construction technologies (dredging, capping, ENR, MNR and ICs) that have been used at other sediment cleanup Sites across the country, as well as within Region 10, and it is, therefore, implementable. It is expected that the cleanup will occur over 13 years and although there will be impacts during construction in locations adjacent to the cleanup, these impacts are not expected to disrupt activities in a significant way. Based on experience from doing similar cleanup at other sites, arrangements can be made so that business, recreation, and other uses can continue during cleanup.

During tribal consultations, EPA learned that the tribes did not support the Proposed Plan alternative. Comments and input received during Tribal consultations reflected their concern about how much the Preferred Alternative in the Proposed Plan relied on MNR and they asked for more aggressive action to reduce risks at the Site with more permanent remedies. A significant number of comments received from the public during the public comment period mirrored the tribe's concerns. Since the Selected Remedy relies much less on MNR, it is expected that the tribes and public will be more supportive of this action.

### **15.5. Preference for Treatment as a Principal Element**

Although CERCLA §121(b) expresses a preference for selection of remedial actions that use permanent solutions and treatment technologies to the maximum extent practicable, there are situations that may limit the use of treatment, including when treatment technologies are not technically feasible or when the extraordinary size or complexity of a site makes implementation of treatment technologies impracticable. The Selected Remedy satisfies the statutory preference for treatment as a principal element of the remedy because treatment layers will be used in caps where necessary to adequately contain PTW. Additionally, excavated materials will be tested and treated prior to disposal as discussed in Section 14.2.9.2. Not all materials within the in-river portion of the Site will be treated because there is no cost-effective means of treating the large quantity of contamination present and it would not add any additional risk reduction for the Site. The NCP establishes the expectation that treatment will be used to address the principal threats posed by a site whenever practicable (40 CFR 300.430[a] [1] [iii] [A]). In general, principal threat wastes are those source materials considered to be highly toxic or highly mobile that generally cannot be contained in a reliable manner, or will present a significant risk to human health or the environment should exposure occur. As discussed in Section 14, EPA has selected a remedy that will address all of the PTW through dredging and/or capping including the application of in-situ treatment amendments such as activated carbon where appropriate. In locations where NAPL or PTW that cannot be reliably contained will not be removed, significantly augmented caps will be placed. These caps will be designed to treat or sequester the NAPL or PTW, thereby reducing human health and ecological risk exposures to these source materials to acceptable levels.

### **15.6. Five-Year Review Requirements**

Since the Selected Remedy will leave contamination in place above levels that allow unlimited use and unrestricted exposure, as required by CERCLA, a statutory review will be conducted within five years after initiation of the remedial action to ensure that the remedy is, or will be, protective of human health and the environment. Five-year reviews are expected to be required as long as waste is left in place at the Site.

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## 17. GLOSSARY

**Administrative Settlement and Order On Consent:** Legal vehicle to assure cleanup moves forward at a contaminated site. It typically contains stipulated penalties for non-performance by the liable entity and cannot be terminated unilaterally.

**Advection:** The transfer of heat or matter by the flow of a fluid, especially horizontally in the atmosphere or the sea.

**Anadromous fish:** Born in fresh water, spends most of its life in the sea and returns to fresh water to spawn. Salmon, smelt, shad, striped bass, and sturgeon are common examples.

**Anaerobic:** Relating to, involving, or requiring an absence of free oxygen.

**Applicable or Relevant and Appropriate Requirements (ARARs):** Applicable requirements are those cleanup standards, standards of control, and other substantive requirements, criteria, or limitations promulgated under Federal environmental or State environmental or facility siting laws that specifically address a hazardous substance, pollutant, contaminant, remedial action, location, or other circumstance found at a CERCLA site. Only those State standards that are identified by a state in a timely manner and that are more stringent than Federal requirements may be applicable. Relevant and appropriate requirements are those cleanup standards, standards of control, and other substantive requirements, criteria, or limitations promulgated under Federal environmental or State environmental or facility siting laws that, while not "applicable" to a hazardous substance, pollutant, contaminant, remedial action, location, or other circumstance at a CERCLA site address problems or situations sufficiently similar to those encountered at the CERCLA site that their use is well suited to the particular site. Only those State standards that are identified in a timely manner and are more stringent than Federal requirements may be relevant and appropriate.

**Aquablok™:** AquaBlok® is a patented, composite-aggregate technology resembling small stones and typically comprised of a dense aggregate (sand/gravel) core, clay or clay-sized materials, and polymers and commonly used in capping sediments.

**Armoring:** The practice of using material such as gravel or rocks to protect riverbanks or caps from erosion.

**Atmospheric deposition:** Gases and particulates released to the atmosphere from combustion sources such as motor vehicle emissions, slash burning (cutting and burning of plants), and industrial sources, contain nitrogen, sulphur, and metal compounds, which eventually settle to the ground as dust or fall to the earth in rain and snow.

**Background concentration:** The concentration of a substance in an environmental media (air, water or soil) that occurs naturally or is not the result of human activities.

**Bathymetry/bathymetric:** Study of underwater depth of lake or ocean floors. In other words, bathymetry is the underwater equivalent to topography.

**Beach mix:** A mix of sand, gravel and inorganic material used for anchoring caps to prevent erosion. This material mimicks previous habitat material.

**Bedload transport:** The particles in a flowing fluid (usually water) that are transported along the river bed.

**Benthic organisms/invertebrates:** Organisms that live in and on the bottom of the river floor. These organisms are known as benthos. Benthos include worms, clams, crabs, lobsters, sponges, and other tiny organisms that live in the bottom sediments.

**Best Management Practices (BMPs):** Methods determined to be the most effective, practical means of preventing or reducing pollution from nonpoint sources.

**Bioaccumulation:** The process through which the concentration of a chemical in an organism is greater than the concentration of the chemical in an ambient medium (usually water).

**Biological uptake:** The transfer of substances from the environment to plants, animals, and humans.

**Bioavailability:** A subcategory of absorption (one substance taken up by another) and is the fraction of an administered dose that reaches the blood circulation system, one of the principal pharmacokinetic properties of drugs. By definition, when a medication is administered intravenously, its bioavailability is 100%.

**Biodegradation:** The process by which organic substances are decomposed by micro-organisms (mainly aerobic bacteria) into simpler substances such as carbon dioxide, water and ammonia.

**Biota:** The animal and plant life of a particular region, habitat, or geological period.

**Bioturbation:** The disturbance of sedimentary deposits by living organisms.

**Cap amendments:** Material such as organoclay or activated carbon, added to caps to enhance performance in isolating and containing contaminants.

**Capital costs:** Expenditures required to construct each alternative, include all labor, equipment, and material costs associated with activities such as mobilization/demobilization; monitoring; site work; installation of dredging, containment, or treatment systems; and disposal.

**Carcinogens:** Any substance that can cause cancer.

**Cleanup:** Actions taken to address a release or threatened release of hazardous substances or pollutants and contaminants that may affect public health or the environment. Agencies often use the term broadly to describe various response actions or phases of remedial activities, such as an RI/FS. "Cleanup" is sometimes used interchangeably with the terms "remedial action," "remediation," "removal action," "response action" or "corrective action."

**Cleanup Level:** Residual concentration of a hazardous substance determined to be protective of public health, safety and welfare, and the environment under specified exposure conditions.

**Community Advisory Group (CAG):** A committee, task force or board of stakeholders affected by a Superfund or other hazardous waste site. A CAG provides a way for representatives of diverse community interests to present and discuss needs and concerns related to the site and the site cleanup process. CAGs are a community initiative and responsibility. They function independently of EPA.



**Community Involvement Plan (CIP):** A formal plan of communication and public participation activities developed by the EPA to ensure opportunities for community members to learn more about Superfund site activities and provide input to inform site decision-making. The plan is the result of information collected through community meetings and interviews and a review of site-related documents.

**Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA):** This law, enacted by Congress on December 11, 1980, created the Superfund program. Specifically, CERCLA: (1) established prohibitions and requirements concerning the assessment, investigation, and remediation of hazardous waste sites; (2) provided for liability of persons responsible for releases of hazardous waste at these sites; and (3) established a trust fund to provide for cleanup when no responsible party could be identified. CERCLA was amended by the Superfund Amendments and Reauthorization Act of 1986.

**Conceptual Site Model:** A written description and illustration of predicted relationships between receptors (both human and ecological) and the hazardous substances they may be exposed to.

**Contaminant of concern (COC):** Contaminants that pose an unacceptable risks to human health and the environment, as identified in the risk assessments.

**Contaminant of potential concern (COPC):** Contaminants identified in risk assessments that could cause risk.

**Desorption:** A phenomenon whereby a substance is released from or through a surface.

**Diffusion:** The process by which molecules intermingle as a result of their kinetic energy of random motion.

**Dioxin/furan:** By-products of chemical manufacturing, combustion (either in natural or industrial settings), metal processing and paper manufacturing that are highly persistent in the environment and toxic.

**Dredge residual:** Material that is left behind from dredging activities. This can occur from resuspension or from remaining contamination.

**Dynamic Equilibrium:** When contaminant concentrations in the sediment reach a steady state after remediation is conducted.

**Ecological Risk Assessment:** The process for evaluating how likely it is that the environment may be impacted because of exposure to one or more environmental stressors such as contaminants and hazardous substances.

**Ebullition:** The action of bubbling or boiling.

**Endangered Species Act (ESA):** Federal statute enacted in 1973 to conserve species and ecosystems. Species facing possible extinction are listed as “threatened” or “endangered” or as “candidate” species for such listings. Following such a listing, recovery and conservation plans are put in place to protect the species and its habitat.

**Enhanced Natural Recovery (ENR):** Accelerating the natural recovery process by adding a thin-layer cover of clean sand over contaminated sediment.

**Environment:** The sum of all external conditions affecting the life, development and survival of an organism.

**Environmental Protection Agency (EPA):** Federal agency whose mission is to protect human health and safeguard the environment.

**Environmental media:** Sediment, groundwater, surface water, and river banks.

**Erosion:** The action of surface processes (such as water flow or wind) that remove soil, rock, or dissolved material from one location on the Earth's crust, then transport it away to another location.

**Exposure pathway/route:** Means by which hazardous substances move through the environment from a source to a point of contact with people or animals.

**Ex-situ treatment:** The chemical, physical, biological, thermal, or electrical processes that remove, degrade, chemically modify, or stabilize contaminants after being removed from environmental media.

**Fate and Transport:** Natural transport of chemicals in ground water, surface water, soil, and atmosphere.

**Feasibility Study (FS):** An assessment of cleanup alternatives. A feasibility study, or FS, is conducted if the risk assessment performed during a remedial investigation establishes the presence of unacceptable risks. During an FS, EPA screens and evaluates alternatives to clean up a site based on nine evaluative criteria, including effectiveness, cost and community acceptance.

**Five-year review:** Pursuant to CERCLA a five-year review is required if the remedial action results in hazardous substances, pollutants or contaminants remaining at the site above levels that allow for unlimited use and unrestricted exposure. This review evaluates whether such a remedy is protective of human health and the environment and is required no less often than every five years after the start of the cleanup.

**Focused COC:** A subset of the Site COCs with concentrations of the most widespread contaminants and those that pose the greatest risks. The focused COCs are used only for the development of SMAs and to develop RALs.

**Future Maintenance Dredge (FMD):** Areas near and around docks based on information regarding vessel activity, dock configuration, and future site uses where maintenance dredging is likely to occur. FMD locations were developed from estimates of likely future navigation depth requirements and potential future maintenance dredging depths near and around docks.

**Hazard Index (HI):** An estimate of the potential total non-cancer effects, derived by summing the HQ values.

**Hazard Quotient (HQ):** The ratio of the potential exposure to a substance and the level at which no adverse effects are expected. If the Hazard Quotient is calculated to be less than 1, then no adverse health effects are expected as a result of exposure.

**Hazardous Waste:** Solid wastes that possess at least one of four characteristics (ignitability, corrosivity, reactivity or toxicity), appear on special EPA lists, or are defined as hazardous by Oregon rules and statutes.

**Human Health Risk Assessment:** The process to estimate the nature and probability of adverse health effects in humans who may be exposed to chemicals in contaminated environmental media, now or in the future.

**In-situ treatment:** The chemical, physical, biological, thermal or electrical processes that remove, degrade, chemically modify or stabilize contaminants in place without any removal from environmental media.

**Institutional Control (IC):** Non-engineered instruments, such as administrative and legal controls, that help minimize the potential for human exposure to contamination and/or protect the integrity of the remedy. Although it is EPA's expectation that treatment or engineering controls will be used to address principal threat wastes and that groundwater will be returned to its beneficial use whenever practicable, ICs play an important role in site remedies because they reduce exposure to contamination by limiting land or resource use and guide human behavior at a site.

**In-river:** The proposed action will address contaminated sediment, river banks, groundwater, and surface water in a portion of the Portland Harbor Superfund Site. The upland portion will be addressed by DEQ.

**Migratory fish:** Fish that move from one part of a water body to another on a regular basis. Examples include spring Chinook salmon, lamprey, shad, and steelhead trout.

**Monitored Natural Recovery (MNR):** A risk reduction approach for contaminated sediment that uses ongoing, naturally occurring processes to contain, destroy, or reduce the bioavailability or toxicity of contaminants in sediment.

**Multnomah Channel:** The Multnomah Channel is a 21.5-mile (34.6 km) distributary of the Willamette River. It diverges from the main stem a few miles upstream of the main stem's confluence (RM 2.8) with the Columbia River in Multnomah County.

**Navigational Channel (NAV):** The area within the Site that is federally authorized. The US Army Corps of Engineers maintains the channel.

**National Contingency Plan (NCP):** The National Oil and Hazardous Substances Pollution Contingency Plan, commonly known as the National Contingency Plan, is the federal government's blueprint for responding to both oil spills and hazardous substance releases.

**National Priorities List (NPL):** EPA's list of the most serious uncontrolled or abandoned hazardous waste sites identified for possible long-term cleanup under Superfund. The list is

based primarily on the score a site receives from the Hazard Ranking System. EPA is required to update the NPL at least once a year.

**Nearshore:** Relating to or denoting the region of the river or riverbed relatively close to the shoreline

**Non aqueous phase liquid (NAPL):** Material that is not soluble in water.

**Non-carcinogen:** Hazardous substances with adverse health effects other than cancer on humans.

**Oregon Department of Environmental Quality (DEQ):** State agency whose job is to protect the quality of Oregon's Environment. DEQ is responsible for protecting and enhancing Oregon's water and air quality, for cleaning up spills and releases of hazardous materials, and for managing the proper disposal of hazardous and solid wastes.

**Organic contaminants:** Carbon-based chemicals, such as solvents and pesticides, which can get into water through runoff from facility discharge.

**Oxidation:** The loss of electrons or an increase in oxidation state by a molecule, atom, or ion.

**PCDD/F:** Polychlorinated dibenzodioxins and furans.

**Porewater:** The water occupying the spaces between sediment particles.

**Potentially Responsible Party (PRP):** An individual, company, government agency or other entity (such as owners, operators, transporters or generators of hazardous waste) potentially responsible for, or contributing to, contamination at a Superfund site. Whenever possible, the EPA requires a PRP, through administrative and legal actions, to clean up hazardous waste sites it has contaminated.

**Preliminary Assessment (PA):** An assessment of information about a site and its surrounding area. A preliminary assessment determines whether a site poses little or no threat to human health and the environment or if it does pose a threat, whether the threat requires further investigation.

**Preliminary Remediation Goal (PRG):** Used to develop the long-term contaminant concentration levels needed to be achieved to meet remedial action objectives by the remedial alternatives.

**Proposed Plan:** A plan for a site's cleanup that is available to the public for review and comment.

**Periodic costs:** These costs include activities that occur only once every few years (such as five-year reviews and equipment replacement) and site maintenance and monitoring.

**Present value costs:** The present value cost represents the amount of money that, if invested in the initial year of the remedial action at a given discount rate, would provide the funds required to make future payments to cover all costs associated with the remedial action over its planned life. The present value was calculated based on a 7% real discount rate as recommended in A

*Guide to Developing and Documenting Cost Estimates during the Feasibility Study* (EPA 2000). Per guidance, inflation and depreciation are not considered in preparing the present value costs.

**Propwash:** The disturbed mass of air or water pushed aft by the propeller of an aircraft or propeller-driven watercraft.

**Public comment period:** A formal opportunity for community members and the public to review and contribute written comments on various EPA documents or actions.

**Public meeting:** Formal public sessions characterized by a presentation followed by a question-and-answer session. Formal public meetings may involve the use of a court reporter and the issuance of transcripts. Formal public meetings are required only for the Proposed Plan and ROD amendments at a site.

**Remedial Action Level (RAL):** RALs are a range of contaminant concentrations that are less than the current site-wide surface weighted average concentrations (SWACs) and greater than the PRGs or cleanup levels. At this Site, RALs are contaminant-specific sediment concentrations used to identify areas where capping and/or dredging will be assigned, and thus are the basis of the SMA boundaries or footprints.

**Remedial Action Objective (RAO):** Media-specific goals that remedial alternatives/remedy need to achieve for protecting human health and the environment.

**Resource Conservation and Recovery Act (RCRA):** Enacted in 1976, is the principal federal law in the United States governing the disposal of solid waste and hazardous waste.

*Subtitle C facility:* Landfills which are authorized under RCRA to accept hazardous waste for disposal.

*Subtitle D facility:* Municipal solid waste landfills and other solid waste disposal facilities.

**Record of Decision (ROD):** The document issued by EPA that documents site investigations, evaluation of human health and ecological risks, and evaluation of remedial alternatives. It describes the Selected Remedy to clean up a Superfund site.

**Release:** Any spilling, leaking, pumping, pouring, emitting, emptying, discharging, injecting, escaping, leaching, dumping or disposing into the environment, including the abandonment or discarding of barrels, containers and other closed receptacles containing any hazardous substance, or any threat thereof, but excluding exposures within a workplace, emissions from the engine exhaust, nuclear material and the normal application of fertilizer.

**Remedial Alternative:** An action considered in the FS intended to reduce or eliminate unacceptable risks to human health and the environment at a site. The FS considers a range of remedial alternatives.

**Remedial Action:** The long term cleanup that can involve removal, containment or treatment of hazardous substances, pollutants or contaminants from land, water and air to protect human health and the environment. These actions are selected in RODs. Also see cleanup.

**Remedial Investigation (RI):** The first of the two-part site study known as a remedial investigation/feasibility study (RI/FS). The RI involves collecting and analyzing information about a site to determine the nature and extent of contamination.

**Removal Action:** Short-term immediate or emergency action that addresses releases of hazardous substances that require expedited responses. It may take place at any point in the site response process, and may include source control measures, removal of highly contaminated material, and/or posting warning signs or constructing fences around a contaminated site. These actions are identified in Removal Action Memos.

**Resident fish:** Fish species that complete their entire life cycle in the Site. Examples include small mouth bass, sculpin, and catfish.

**Residual layer:** Layer of material, generally sand, used to cover sediments disturbed by dredging or contaminated sediments left behind.

**Responsiveness Summary:** A component of the ROD that summarizes information about the comments and views of the public and support agency regarding both the remedial alternatives and general concerns about the site submitted during the public comment period. It also documents in the record how public comments were integrated into the decision-making process.

**Resuspension:** The renewed suspension of sediment, such as stirring up settled mud at the bottom of a body of water.

**Risk:** Probability that a hazardous substance, when released into the environment, will cause adverse effects in exposed humans or ecological receptors.

**Risk Assessment:** The process of evaluating whether a hazardous substance poses a potential threat to human health and the environment, either now or in the future.

**Scour:** The removal of bottom sediment by surface water movement/forces.

**Sediment:** Soils, sand, organic matter or minerals that accumulate on the bottom of a water body or an at some point in time are submerged.

*Surface sediment:* The top 30 cm of sediment.

*Subsurface sediment:* Sediment below surface sediment.

**Suspended Sediment:** Solid particles transported in a fluid media.

**Sediment Management Areas (SMAs):** Areas delineated by RALs where containment or removal technologies will be considered to immediately reduce risks upon implementation.

**Sediment Decision Units (SDUs):** A tool to evaluate the expected effectiveness of the alternatives throughout the site. Generally identified as areas with the highest focused COC concentrations over one river mile segment.

**Site Assessment:** Process to evaluate potential or confirmed releases of hazardous substances that may pose a threat to human health or the environment. Criteria established under the Hazard

Ranking System guide the process, which EPA, state, tribal or other federal agency environmental programs carry out.

**Solidification/stabilization:** To make into a solid, or to immobilize in a stable hard mass.

**Sorption:** A physical and chemical process by which one substance becomes attached to another.

**Source control:** Actions that prevent or reduce migration of contamination to environmental media, through removal, containment or treatment.

**Source material:** Material that includes or contains hazardous substances, pollutants, or contaminants that acts as a reservoir for migration of contamination to groundwater, surface water, sediment, or air or that acts as a source for direct exposure.

**Subsistence Fishers:** People who obtain a significant portion of their dietary protein from eating self-caught fish of various species.

**Superfund:** The program operated under the legislative authority of CERCLA that funds and carries out EPA solid waste emergency and long-term removal and remedial activities. These activities include establishing the National Priorities List, investigating sites for inclusion on the list, determining their priority, and conducting and/or supervising cleanup and other remedial actions. Superfund is the common name for CERCLA. People often use the term as an adjective for hazardous waste sites and the investigation and cleanup process directed by the EPA.

**Surface Weighted Average Concentrations (SWACs):** The concentration of a contaminant in sediment calculated as an average over a specified surface area.

**Thermal desorption:** An environmental remediation technology that utilizes heat to increase the volatility of contaminants such that they can be removed (separated) from the solid matrix (typically soil, sludge, or filter cake). Thermal desorption is not incineration.

**Transload Facility:** The facility where contaminated sediment is transferred from a barge to a land based transportation method, such as trucks or rail.

**Transition Zone Water (TZW):** The zone where surface water and groundwater mix.

**Uplands:** The portion of the Portland Harbor Superfund Site that includes the sources of contamination to the river, such as upland facilities. The upland portion is being addressed by DEQ.

**Volatilization:** Process where a liquid or solid is converted to a vapor.

**Willamette River:** The 187-mile long waterway in northwest Oregon that flows northward between the coast and the Cascade Mountains.

**APPENDIX I**  
**FIGURES**

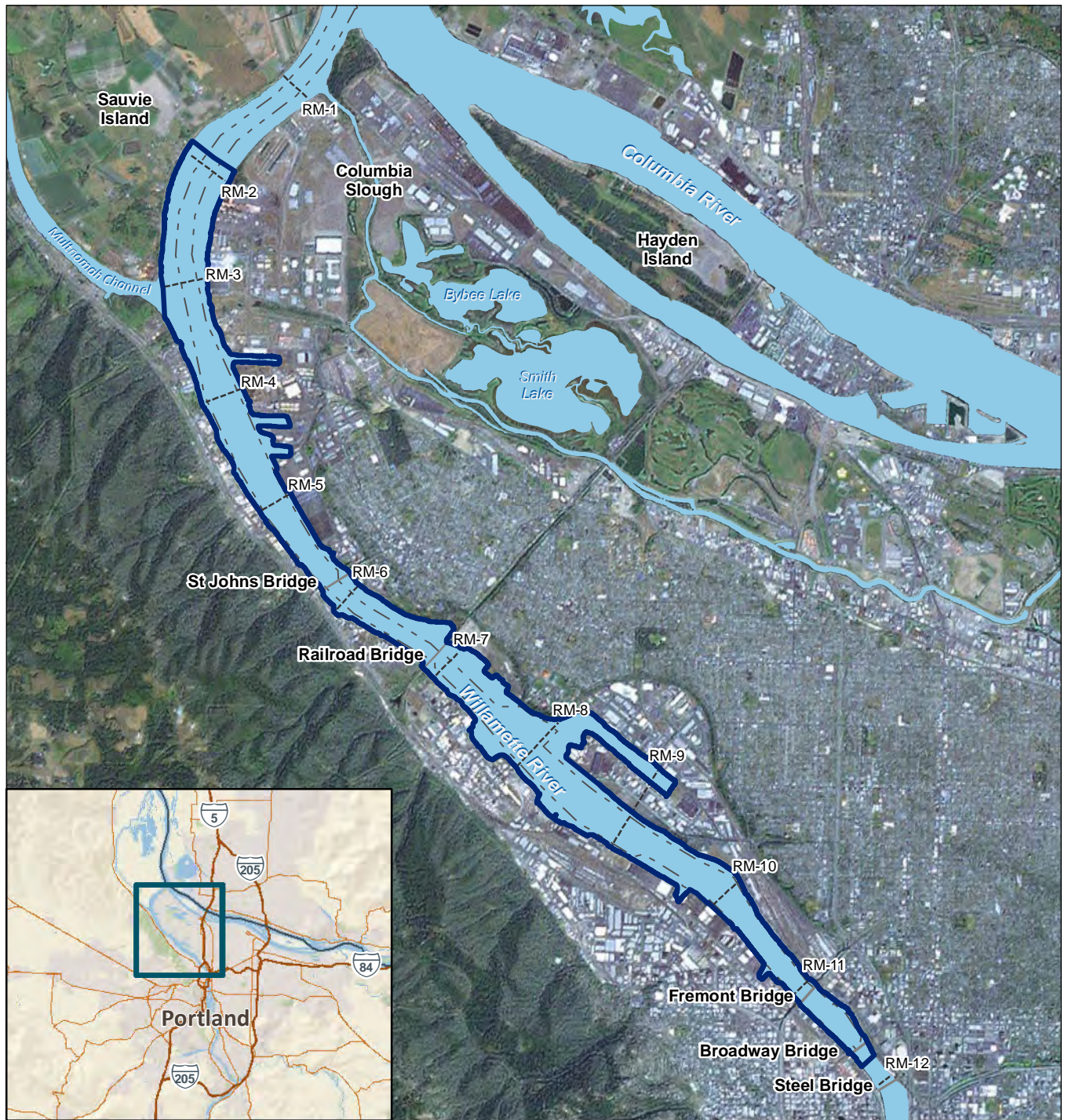


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

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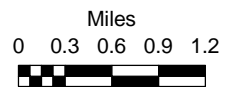
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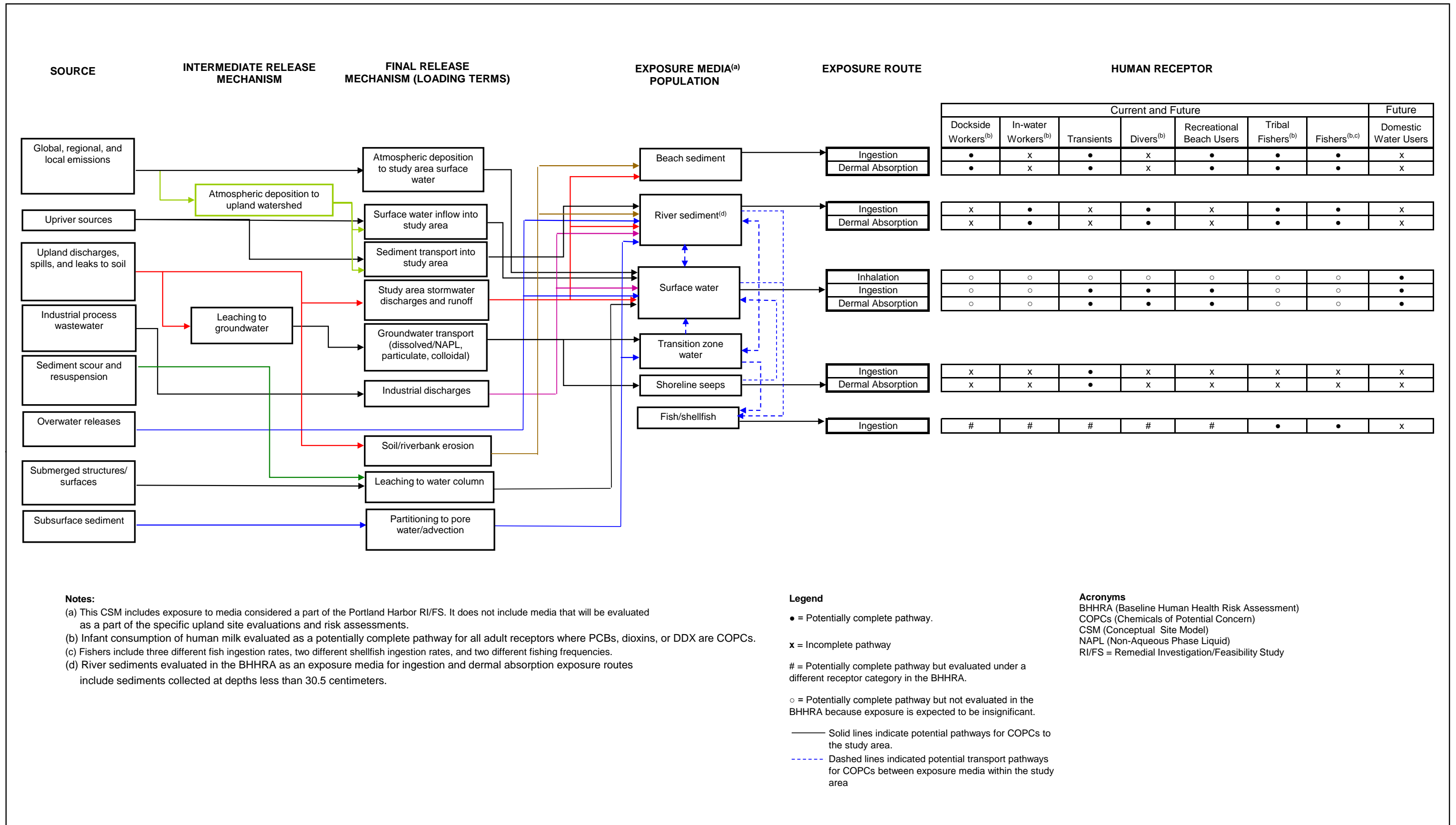
**LEGEND**

-  Portland Harbor Study Area
-  River miles
-  Navigation Channel



**Figure 1. Site Area**

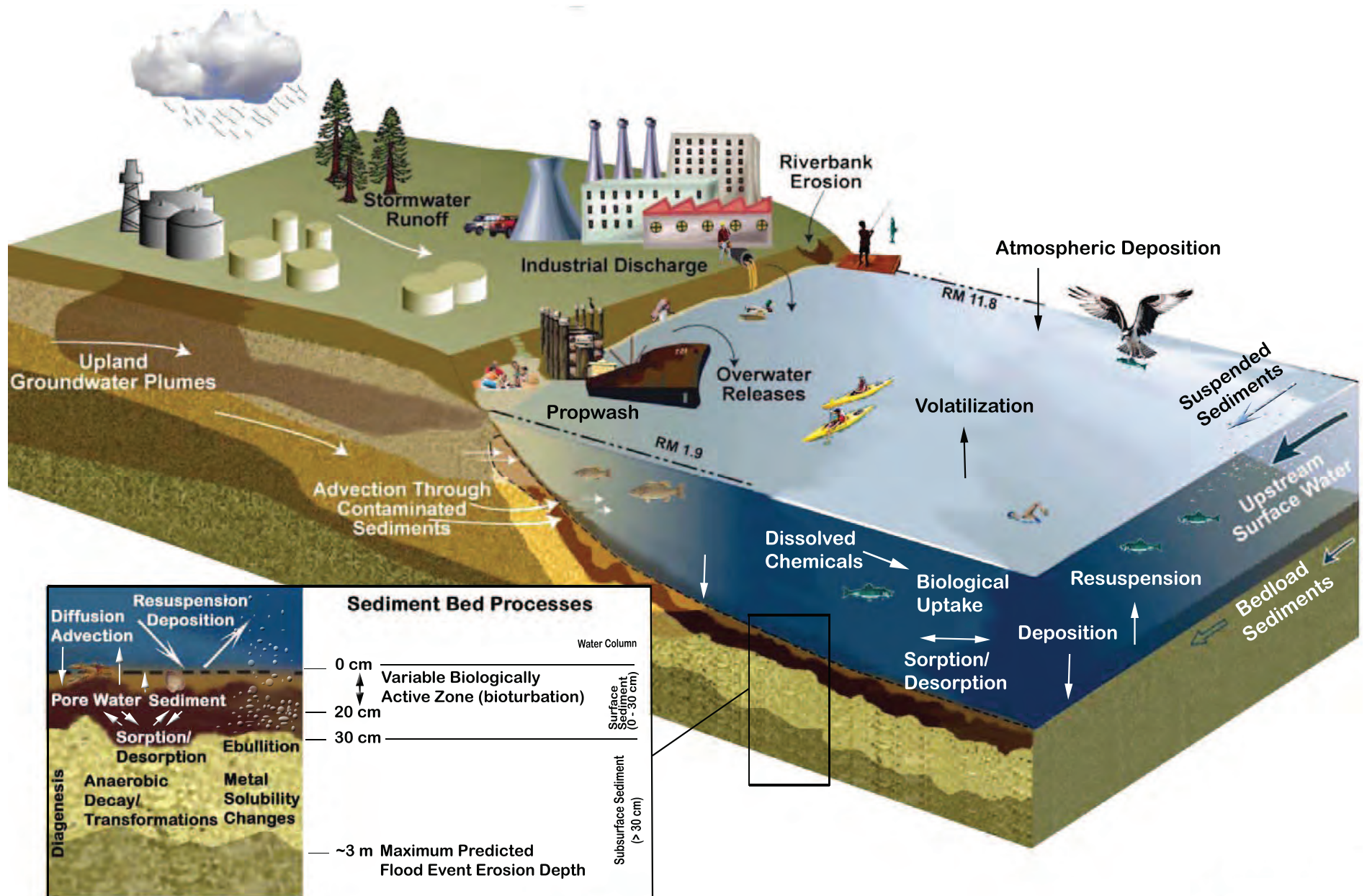
*Portland Harbor Superfund Site*



**Figure 2. Human Health Risk Assessment Conceptual Site Model**

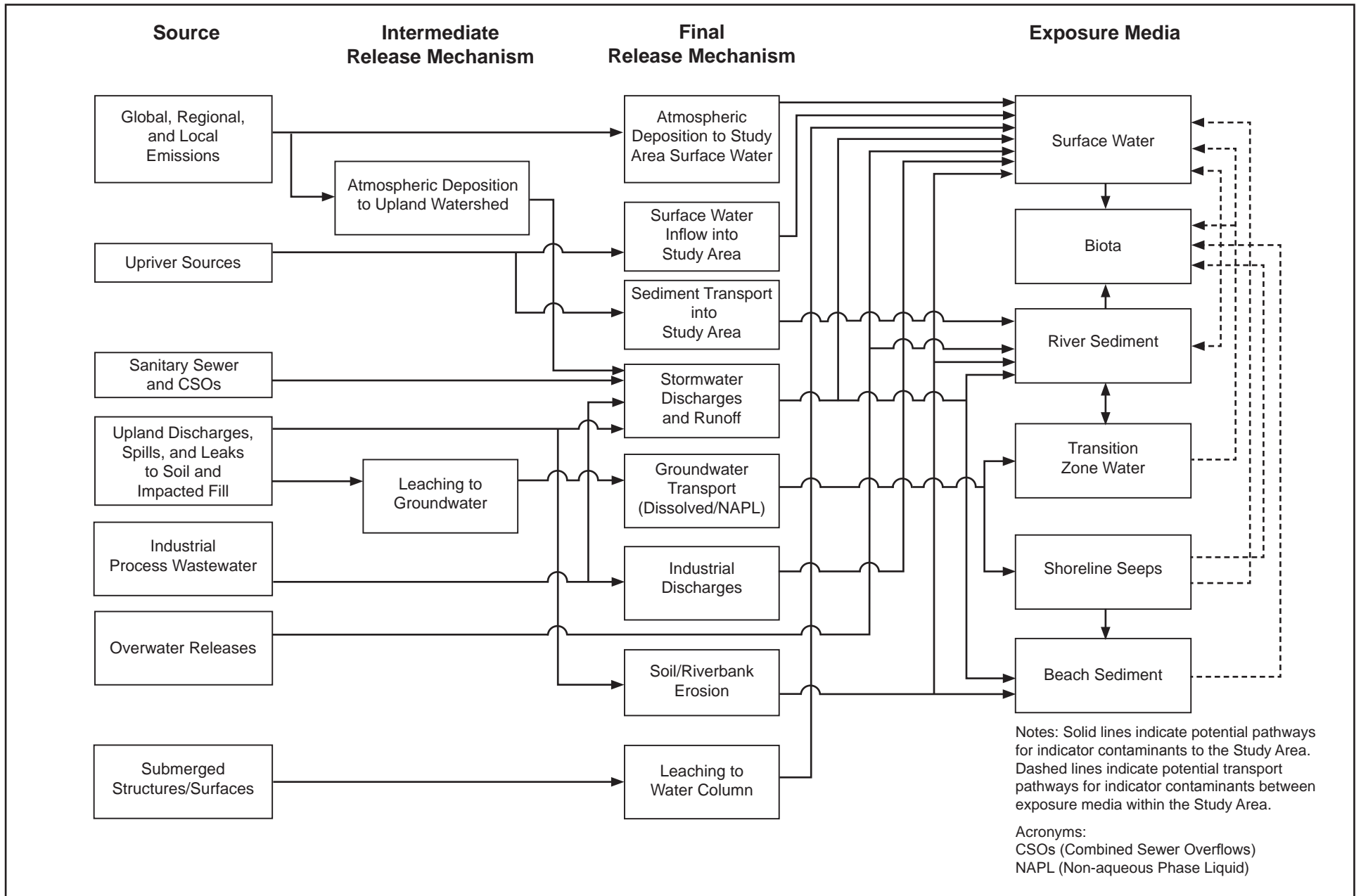
*Portland Harbor Superfund Site*





**Figure 3. Major Elements of the Portland Harbor CSM**

*Portland Harbor Superfund Site*



**Figure 4. Physical Conceptual Site Model**

*Portland Harbor Superfund Site*

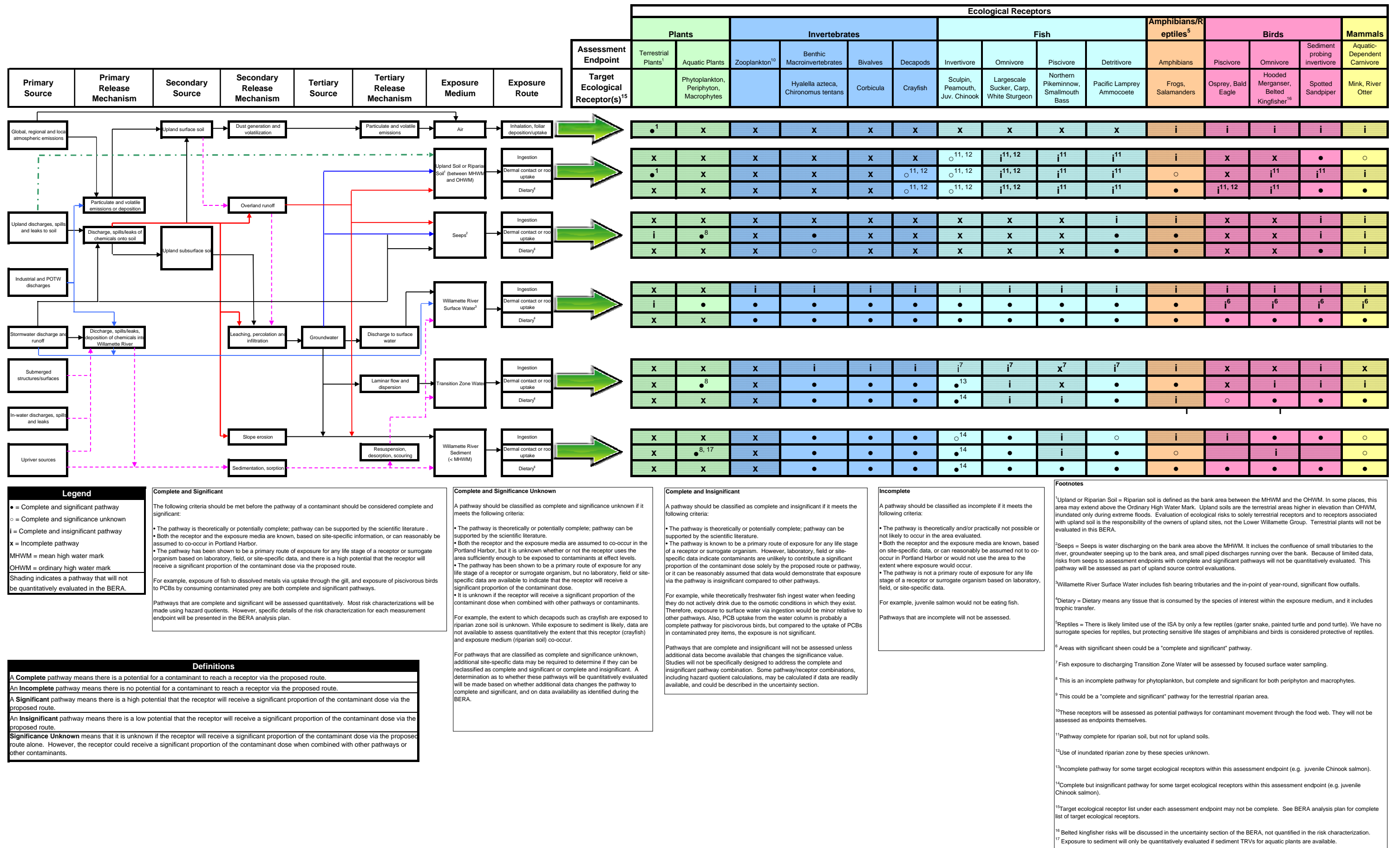
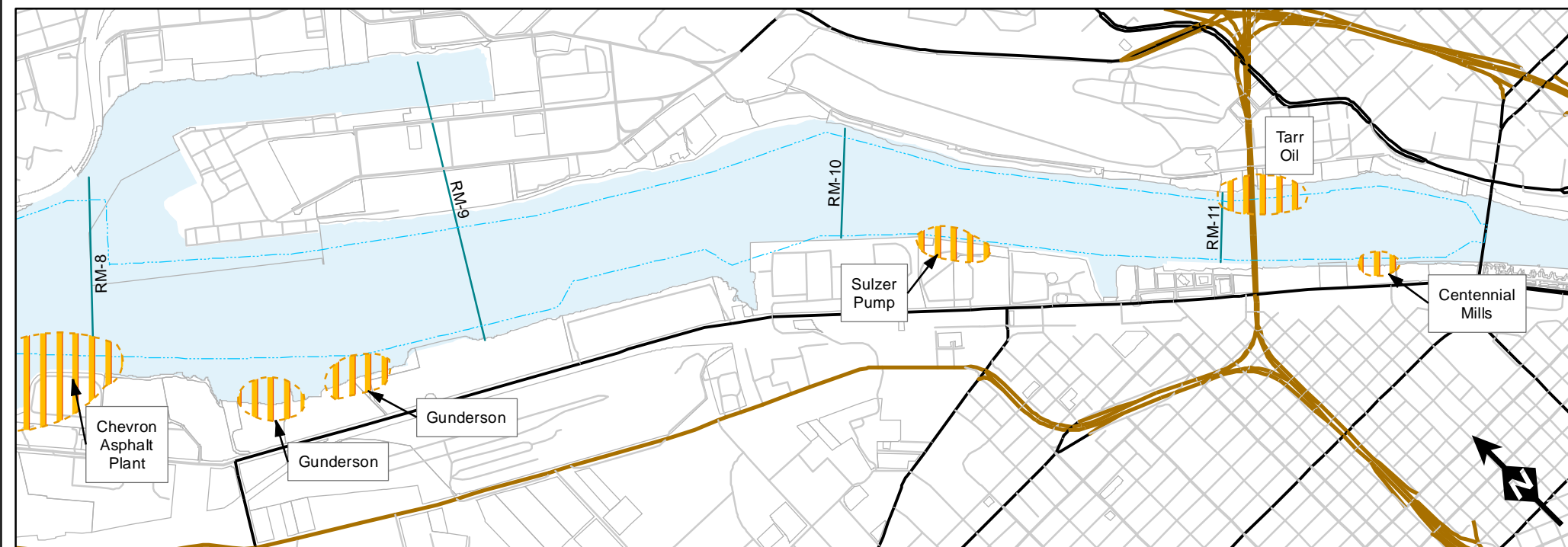
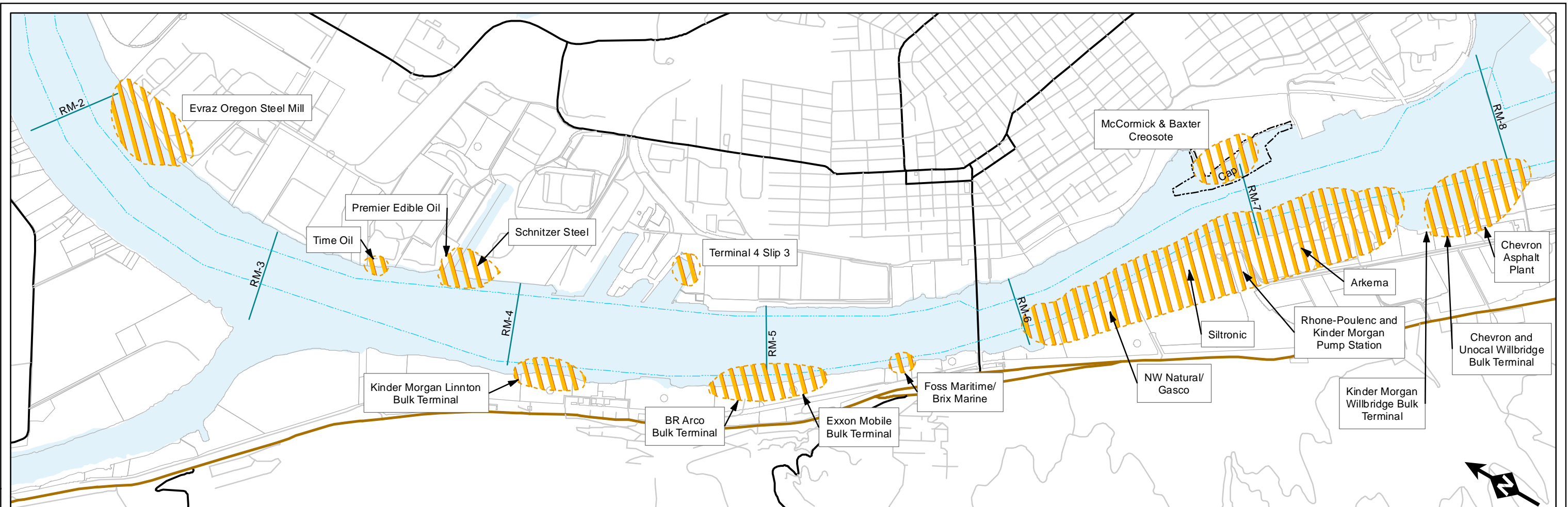


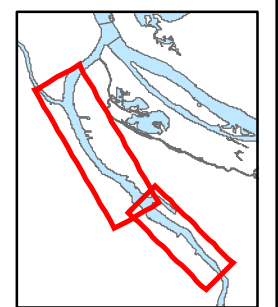
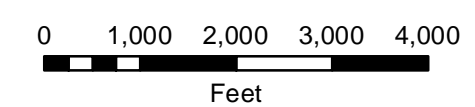
Figure 5. Baseline Ecological Risk Assessment (BERA) Conceptual Site Model for the Portland Harbor Superfund Site





**Legend**

- Navigation Channel
- Approximate Location of Groundwater Plume



**Figure 6. Portland Harbor Study Area Groundwater Plume Map**

*Portland Harbor Superfund Site*



P:\Projects\B0101\_Portland\_Harbor\SubTasks\B0101\_86\_Sect1\_2\Production\_MXD\Final\_RI\_2015\Map\_1\_0\_1\_Site\_Vicinity\_v10.mxd 5/11/2015 3:13:11 PM

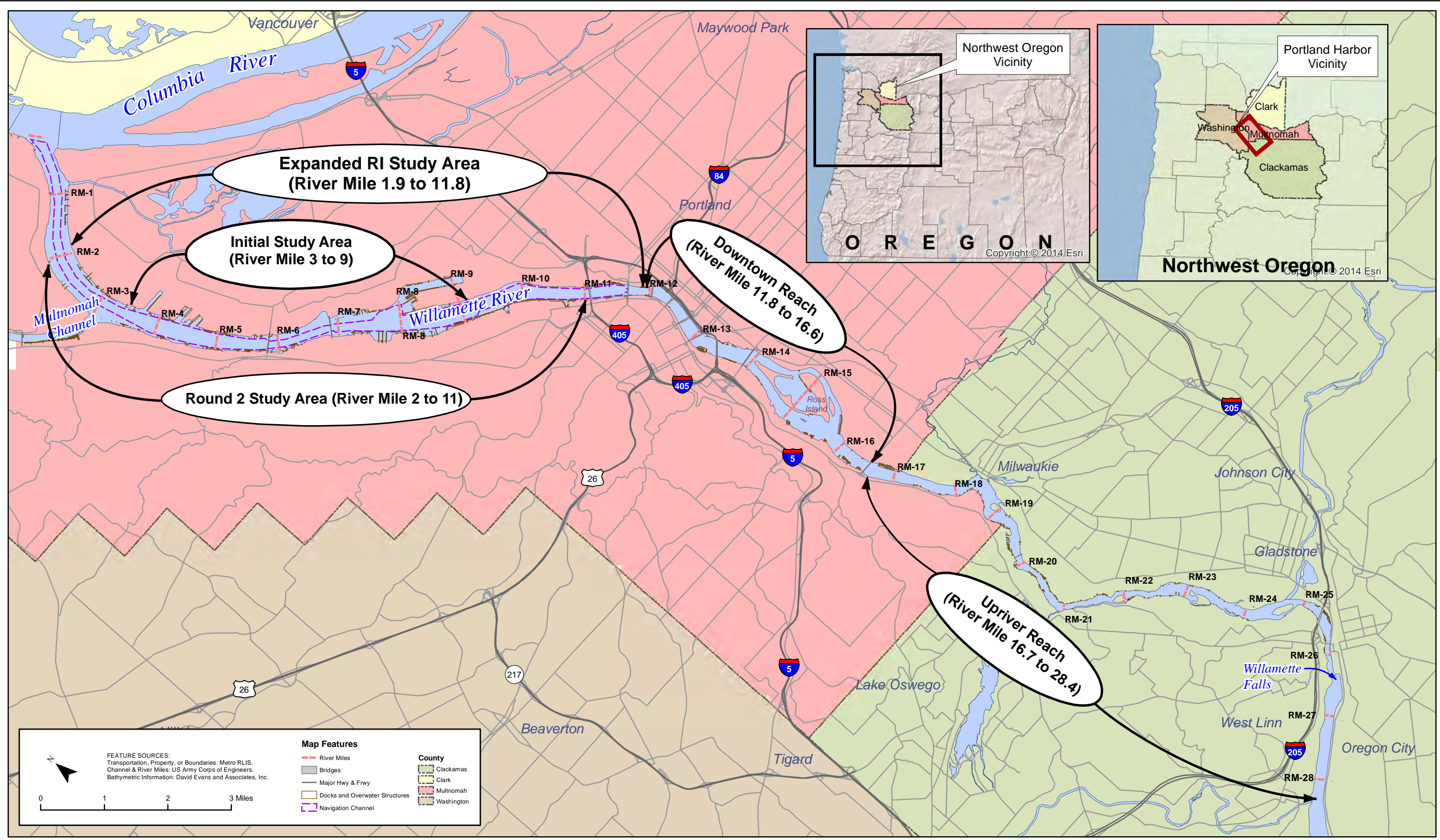
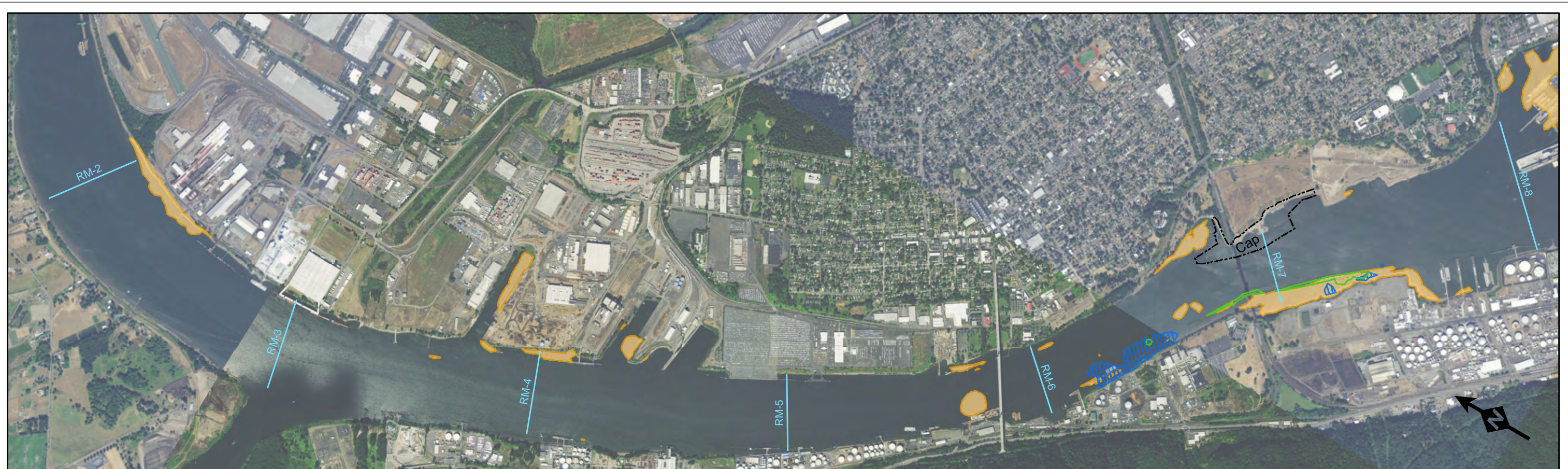





Figure 7. Portland Harbor Study Area and Vicinity

Portland Harbor Superfund Site

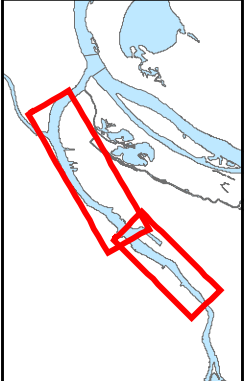




**Legend**

-  PTW - Source Material (NAPL)
-  PTW - Not Reliably Contained
-  PTW - Highly Toxic

0 1,000 2,000 3,000 4,000  
Feet

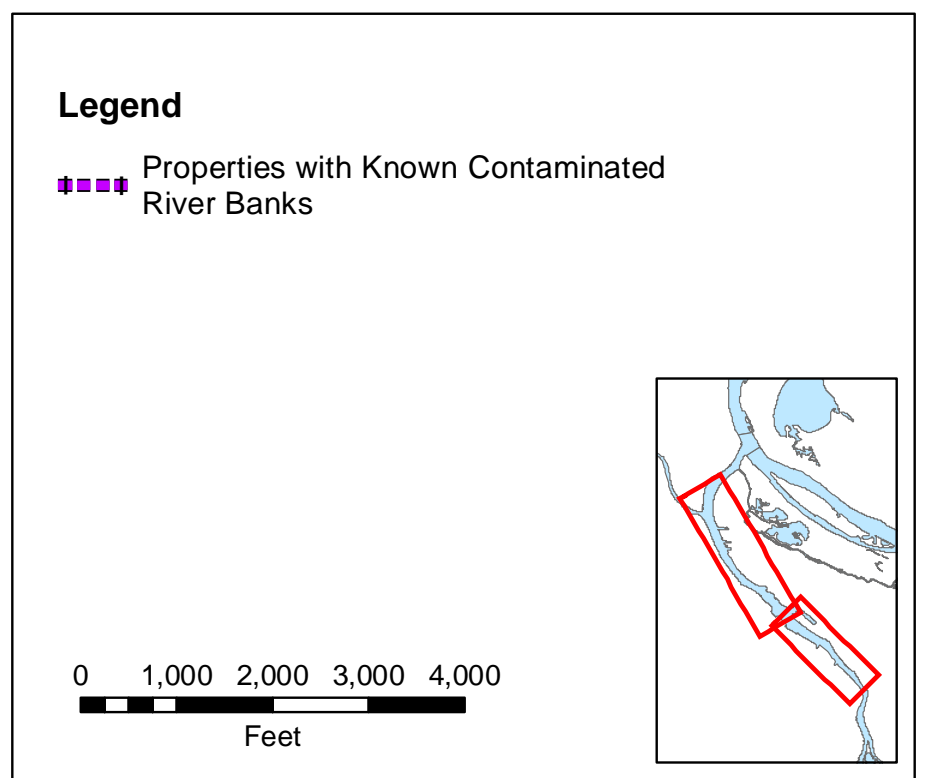
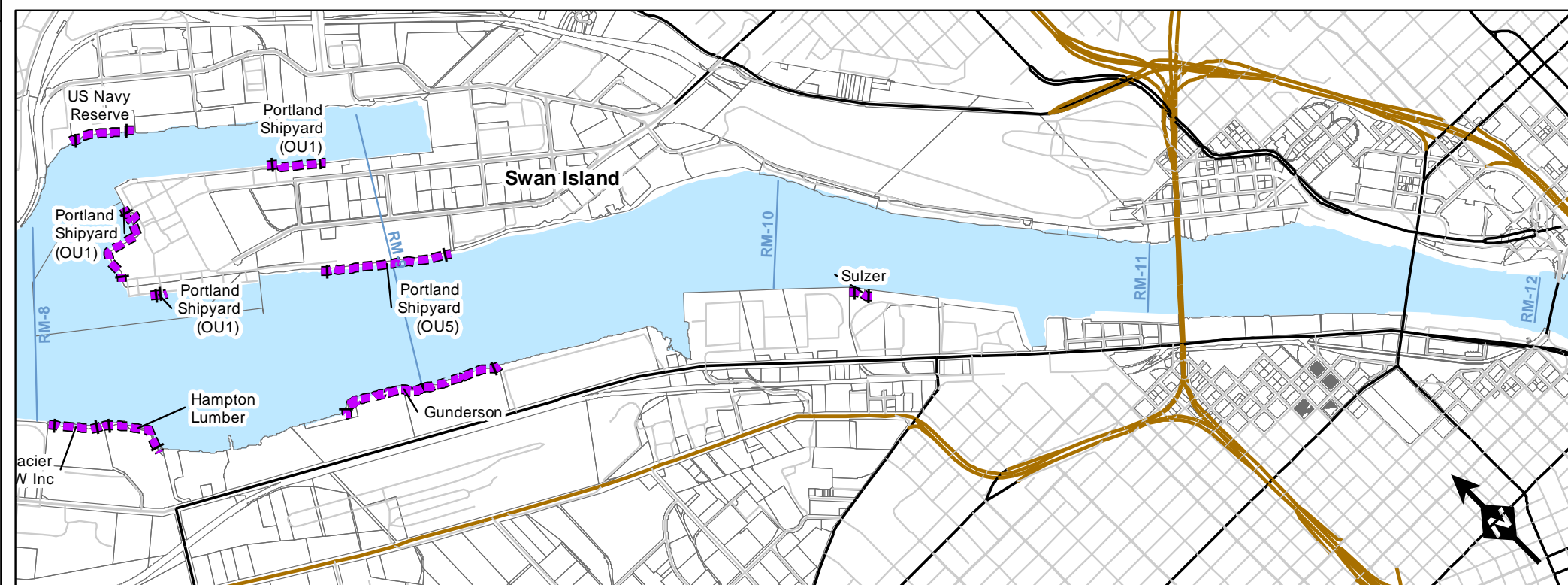
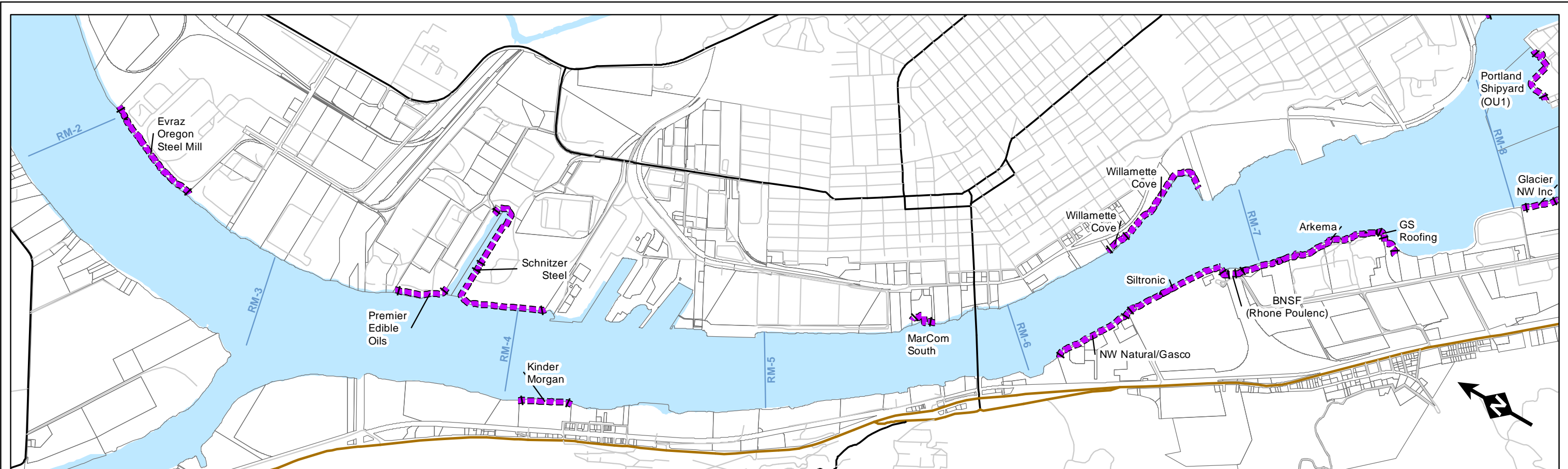


Source Credits: Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

**Figure 8. Principal Threat Waste**

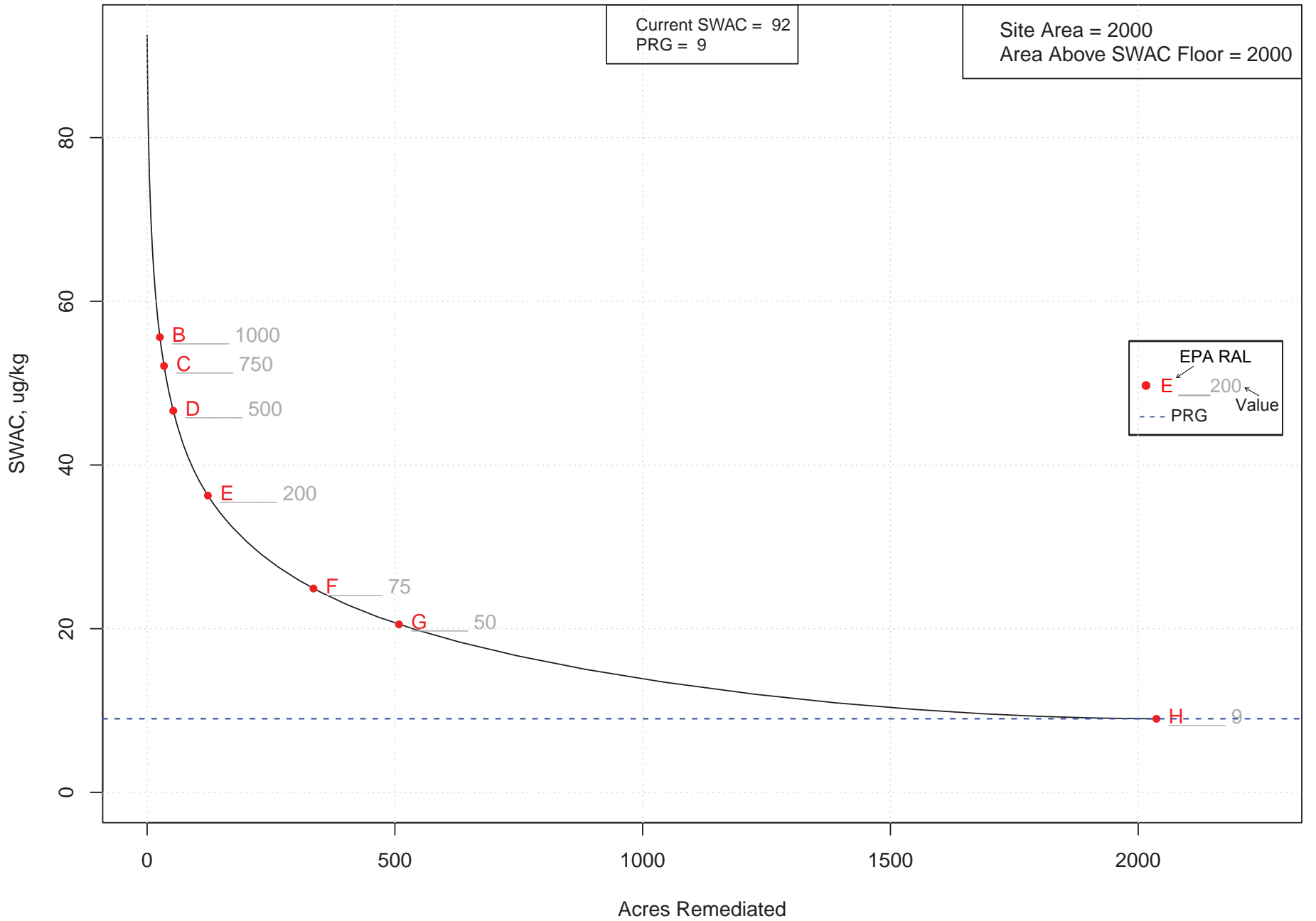
*Portland Harbor Superfund Site*



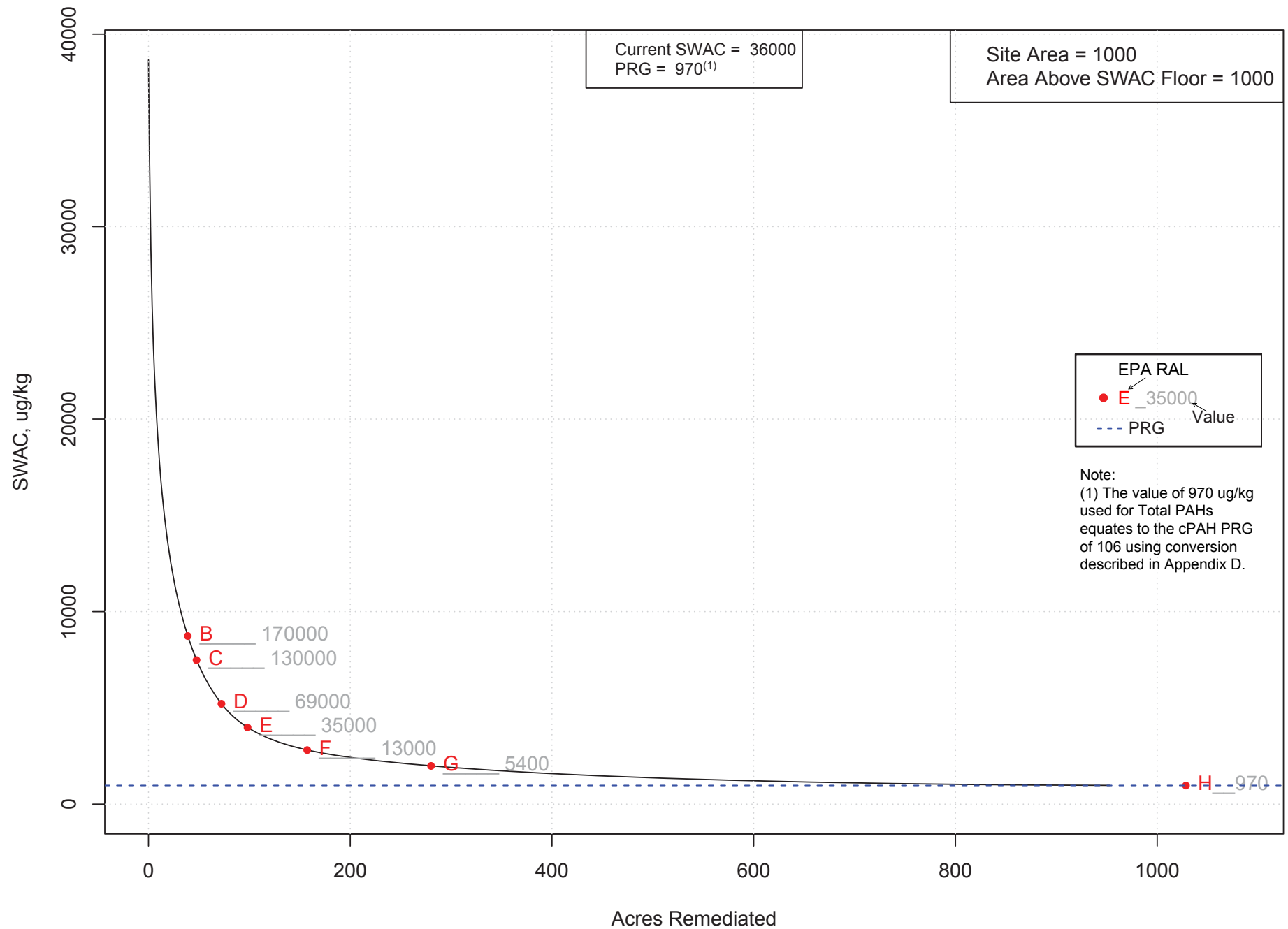


**Figure 9. River Bank Areas**

*Portland Harbor Superfund Site*

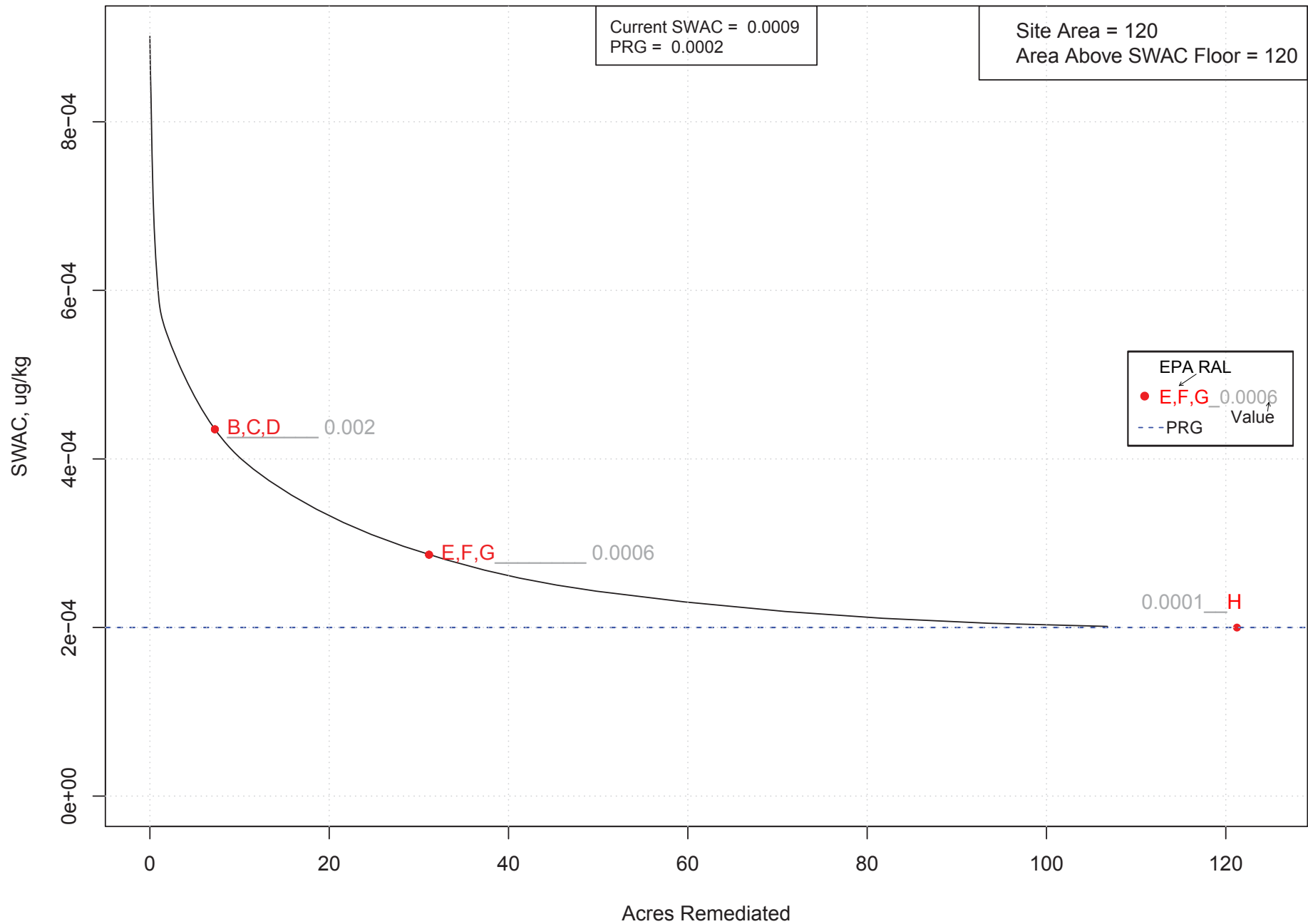


**Figure 10. PCBs Site-wide RAL Curve**  
*Portland Harbor Superfund Site*

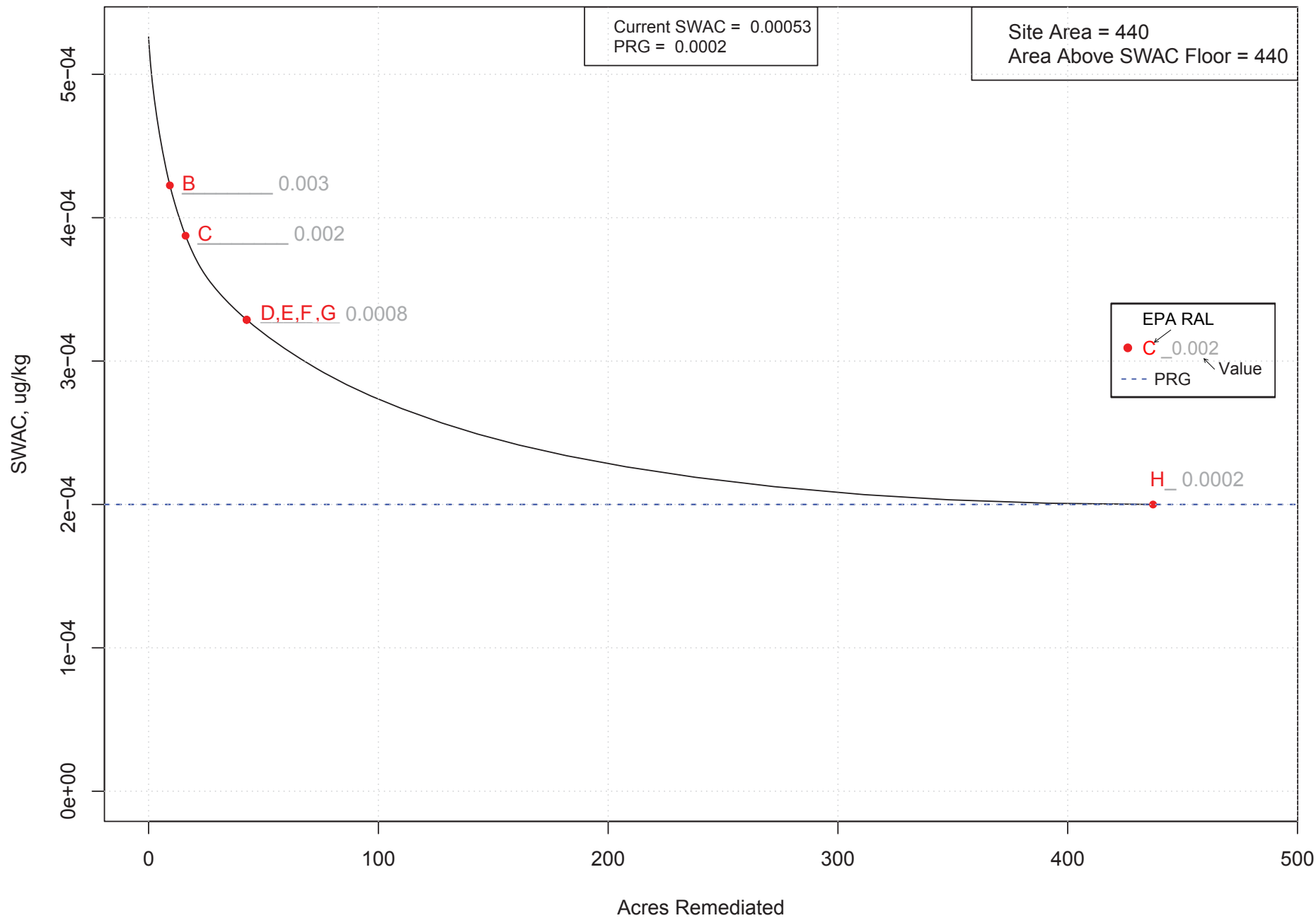


**Figure 11. Total PAH RAL Curve**

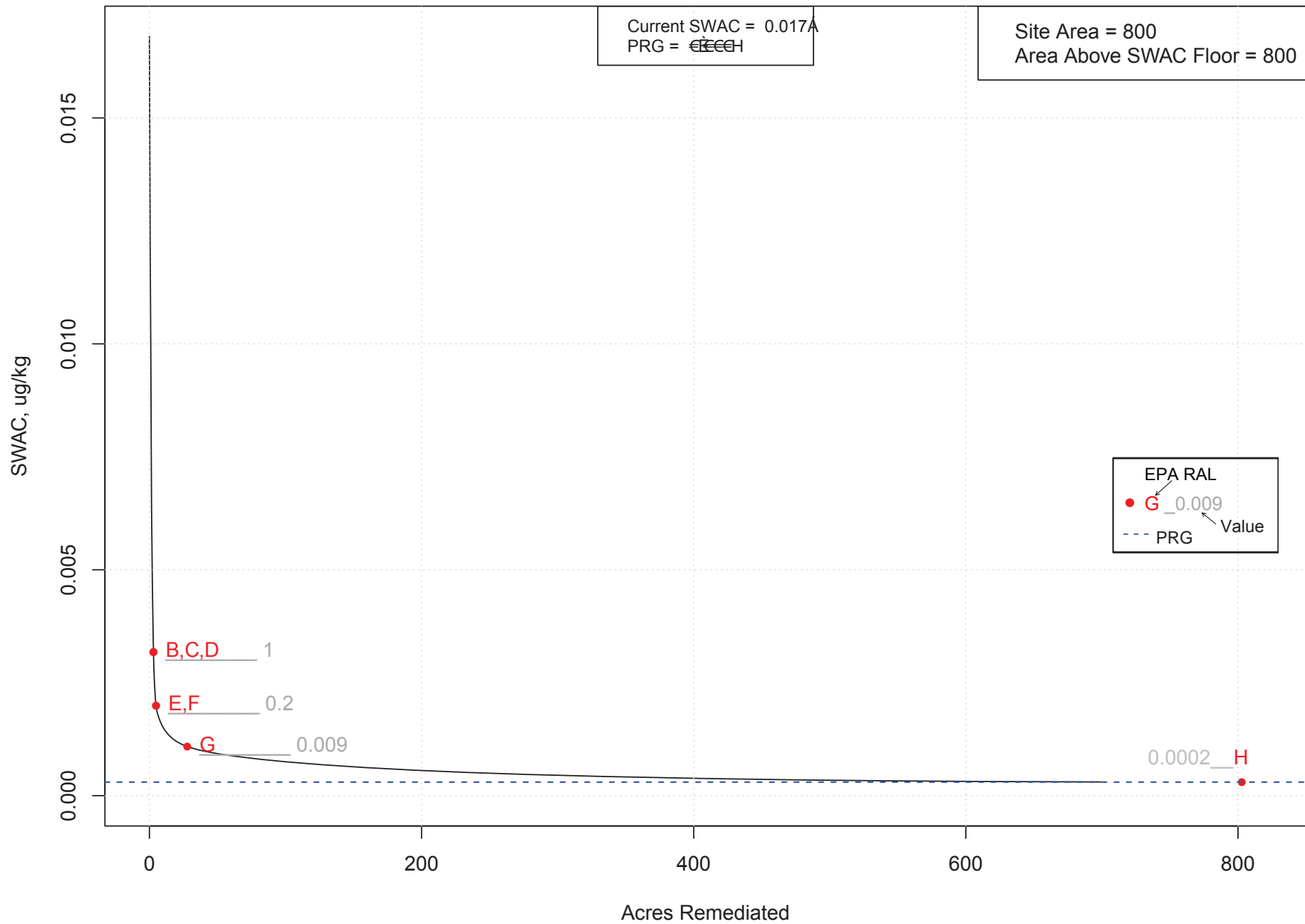
*Portland Harbor Superfund Site*



**Figure 12. 2,3,7,8-TCDD Site-wide RAL Curve**  
*Portland Harbor Superfund Site*

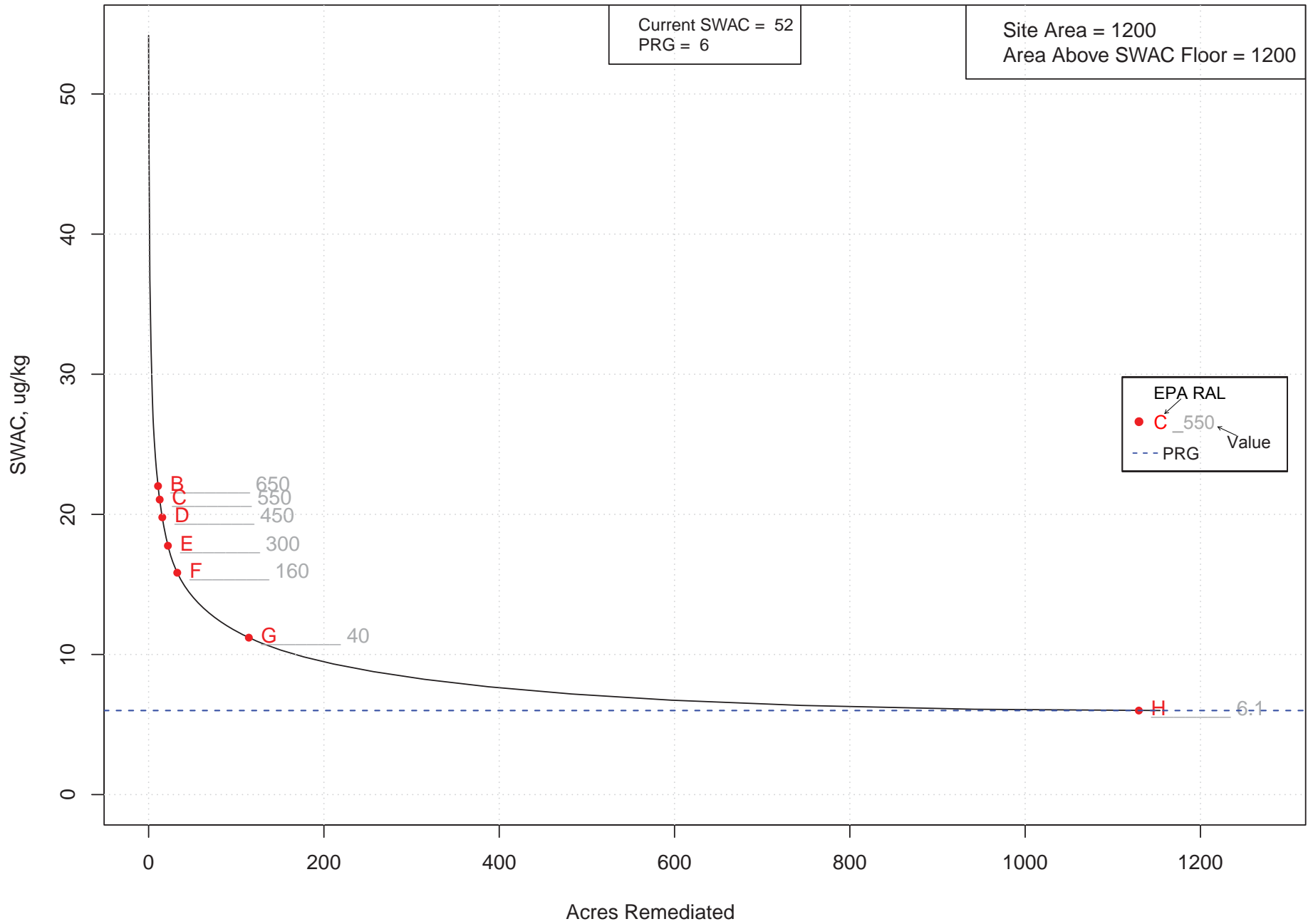


**Figure 13. 1,2,3,7,8-PeCDD Site-wide RAL Curve**  
Portland Harbor Superfund Site

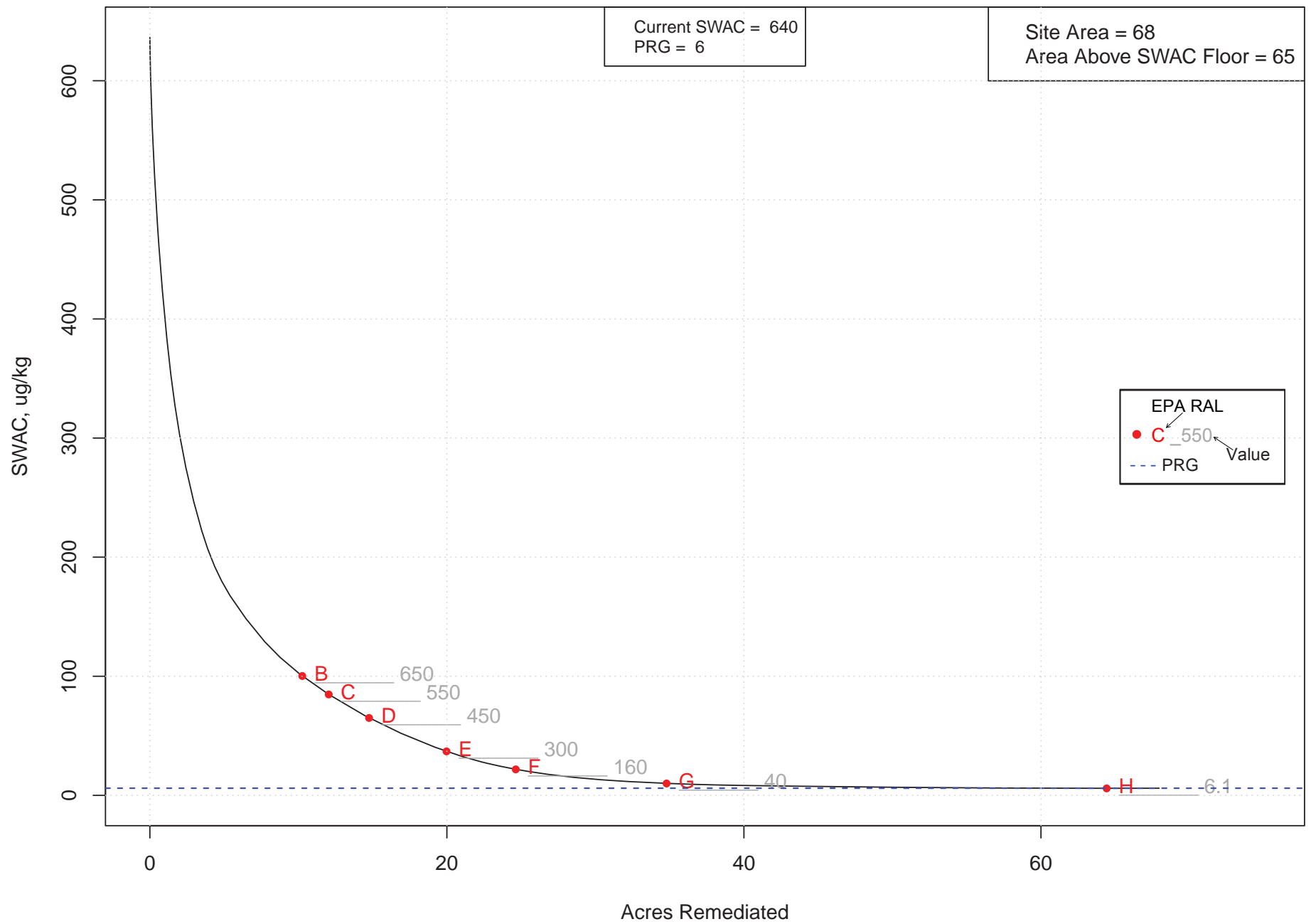


**Figure 14. 2,3,4,7,8-PeCDF Site-wide RAL Curve**  
Portland Harbor Superfund Site

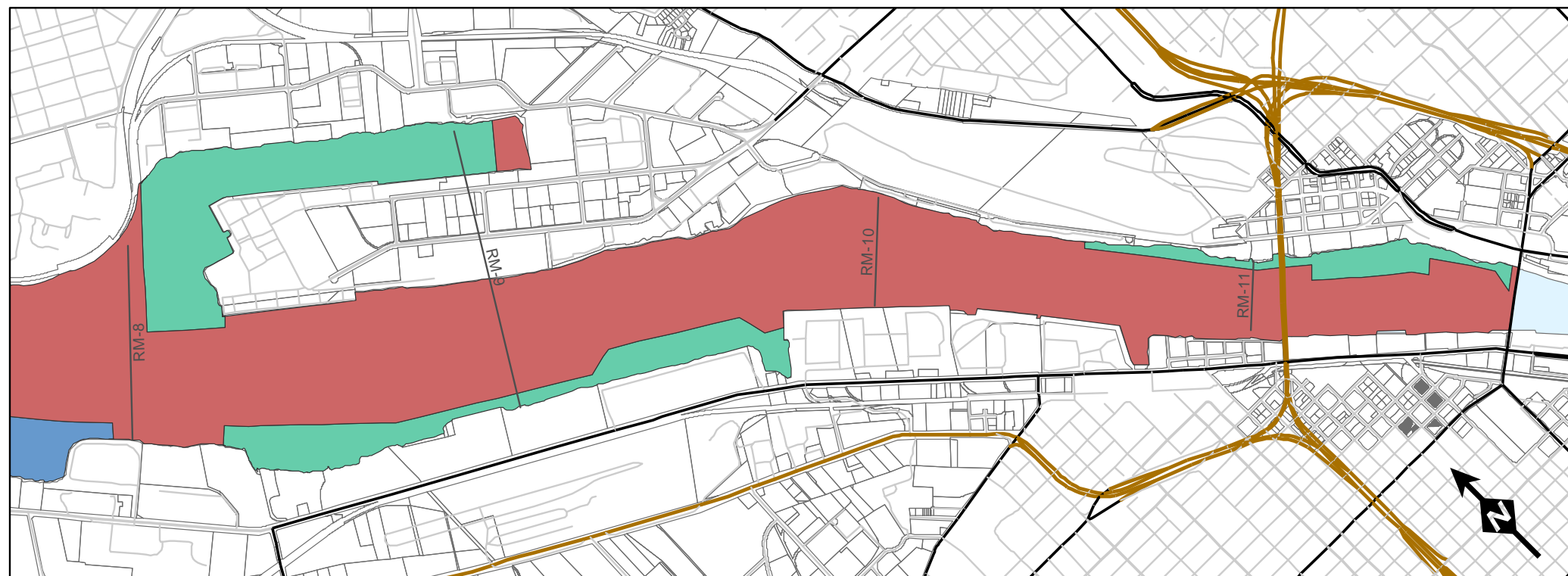




**Figure 15. DDx Site-wide RAL Curve**  
Portland Harbor Superfund Site



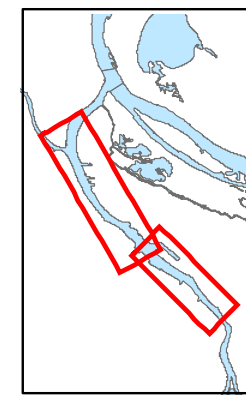
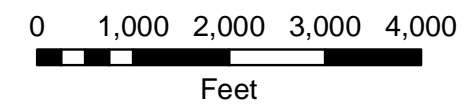
**Figure 16. DDx RAL Curve for RM 6.6 to RM 7.8 West**  
Portland Harbor Superfund Site



**Legend**

**RALs Applied**

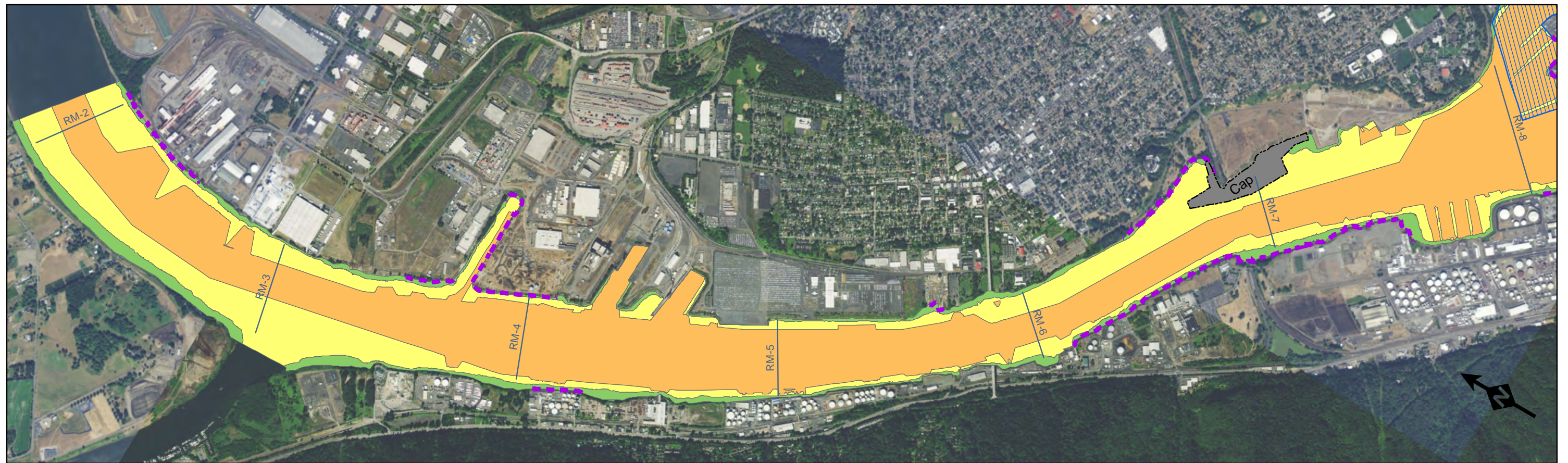
- PTW
- Alternative B + PTW
- Alternative D
- Alternative E
- Alternative F



**Figure 17. RALs Applied to Various Areas of the Site for Alternative I SMAs**

*Portland Harbor Superfund Site*





**Legend**

■ McCormick and Baxter Cap

▨ Swan Island Lagoon

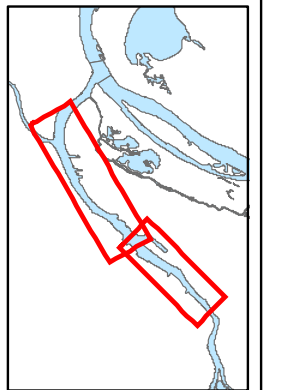
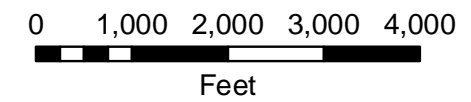
**Site Regions**

■ Shallow

■ Intermediate

■ Nav-FMD

--- Known Contaminated Riverbank

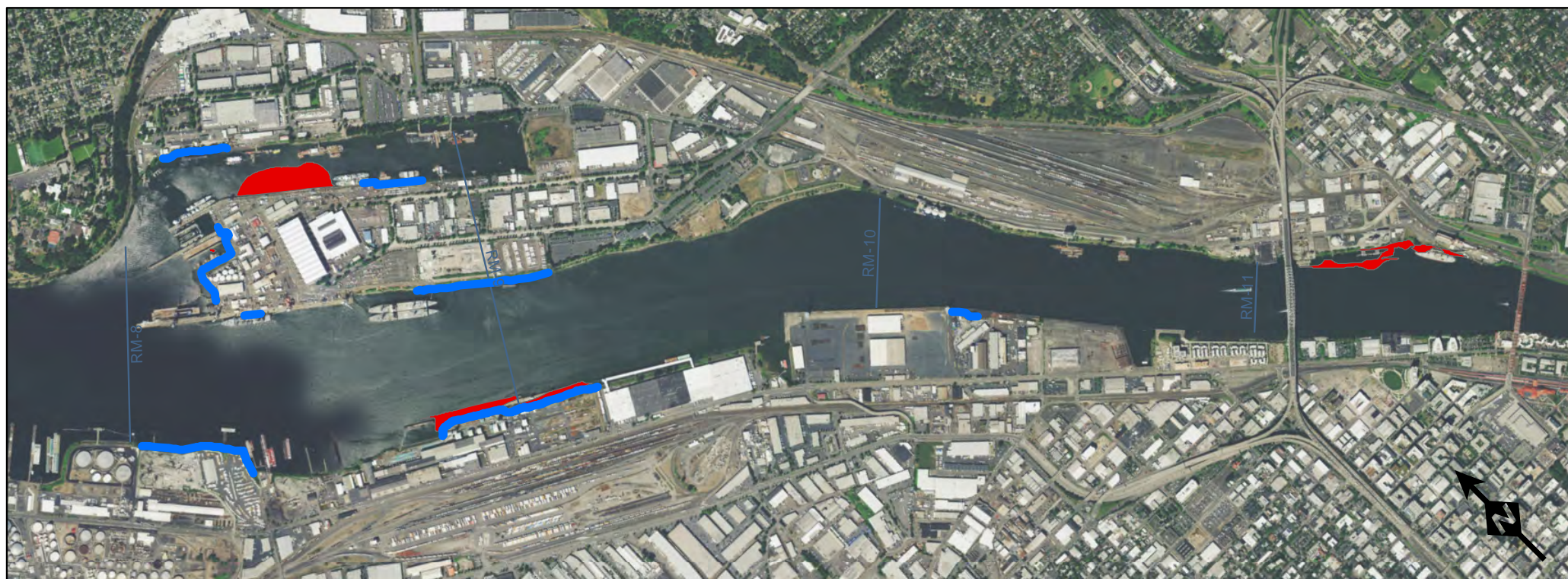
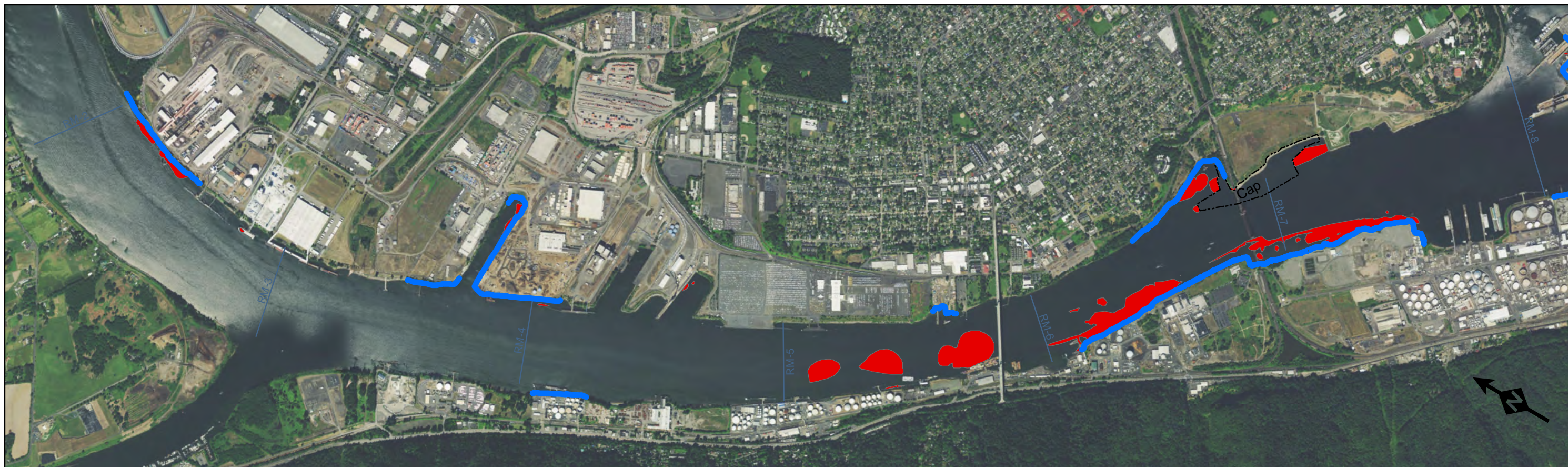


Source Credits: Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community



**Figure 18. Portland Harbor Site Regions**

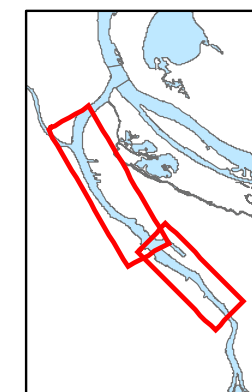
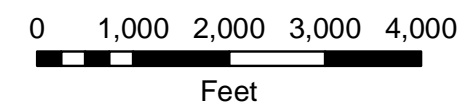
*Portland Harbor Superfund Site*





**Legend**

-  Site with Known Contaminated Riverbank
-  SMA Alternative B

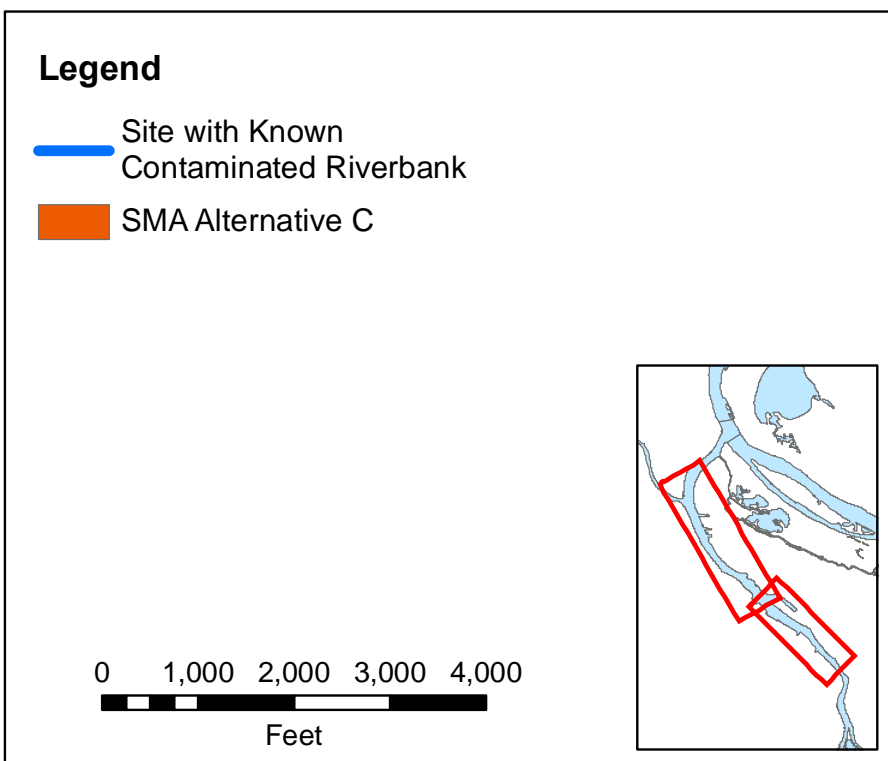
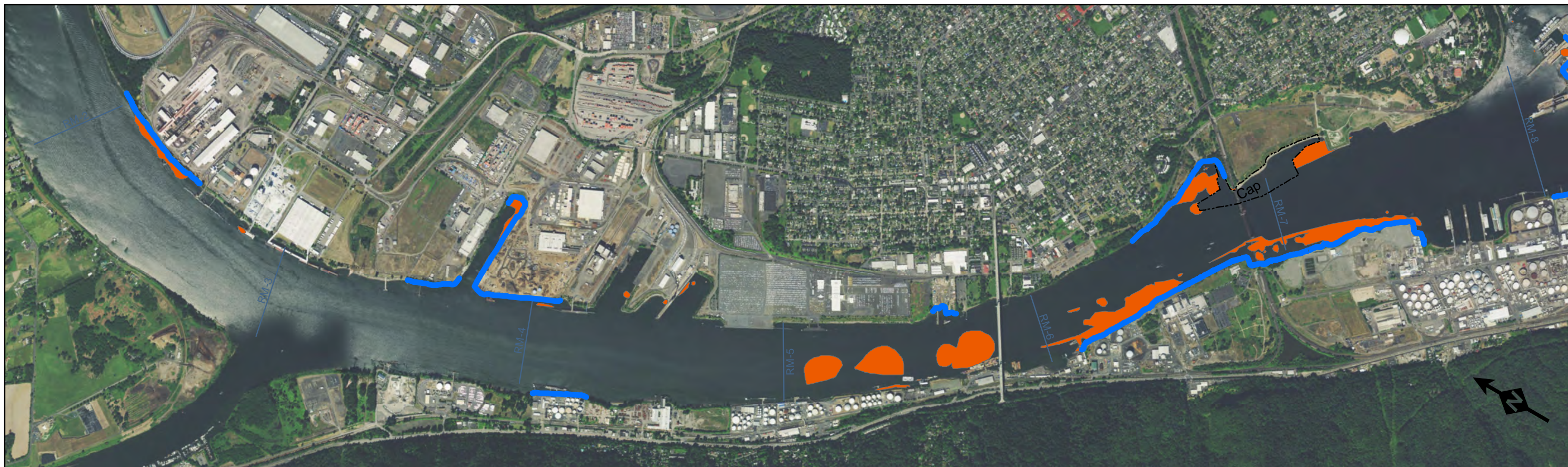


Source Credits: Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community

**Figure 19a. Sediment Management Areas, Alternative B**

*Portland Harbor Superfund Site*



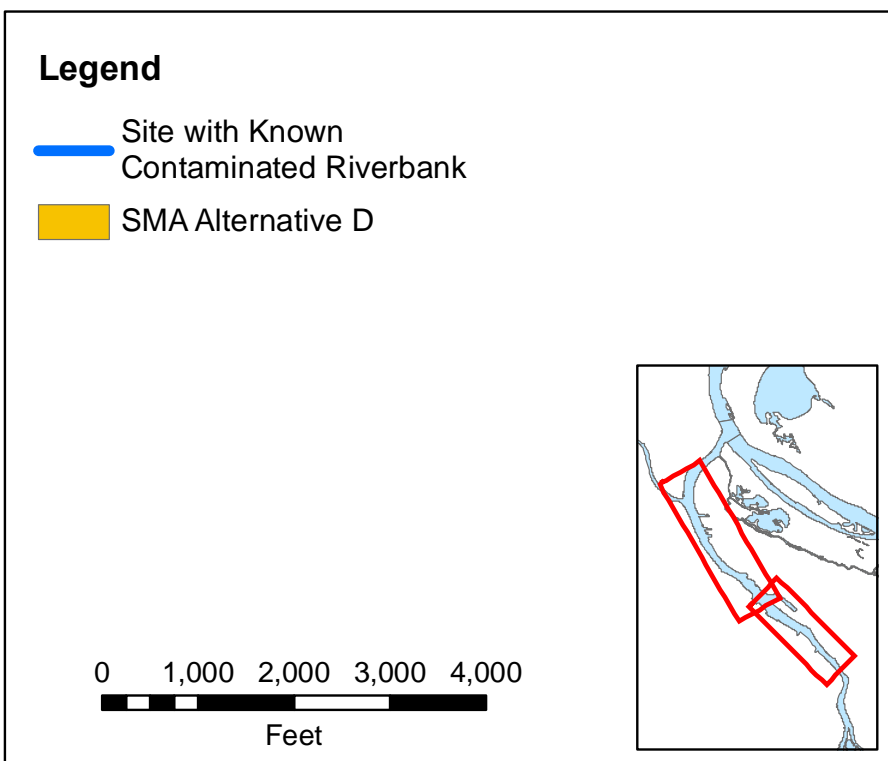


Source Credits: Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community

**Figure 19b. Sediment Management Areas, Alternative C**

*Portland Harbor Superfund Site*



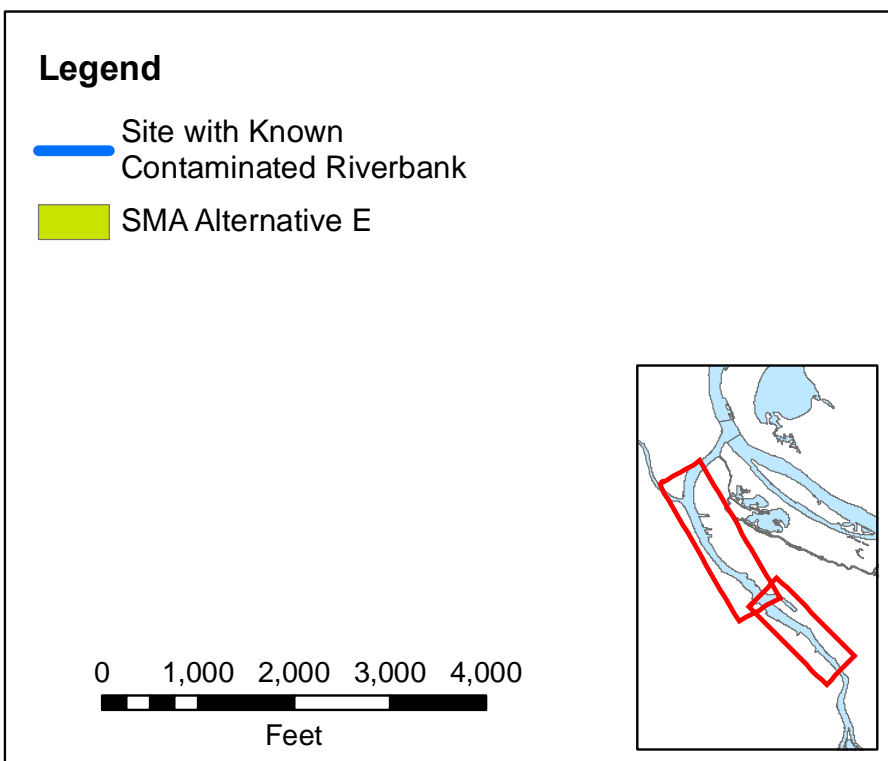
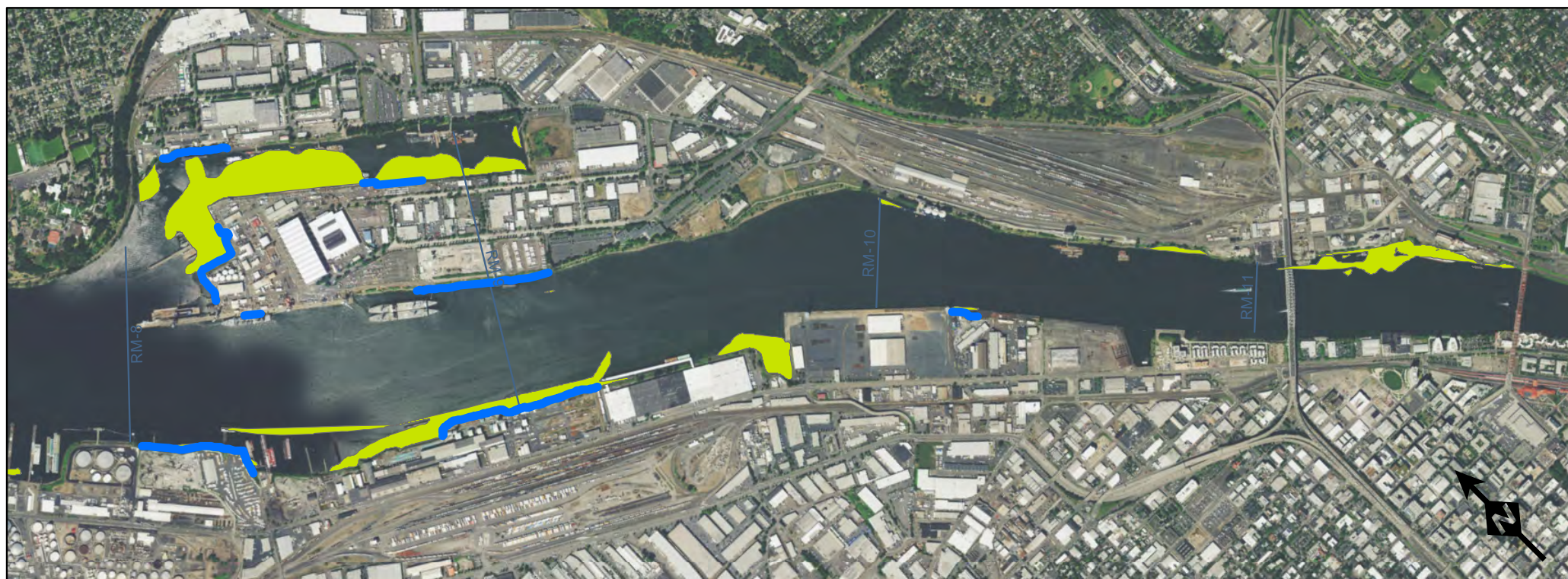


Source Credits: Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community

**Figure 19c. Sediment Management Areas, Alternative D**

*Portland Harbor Superfund Site*





Source Credits: Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community



**Figure 19d. Sediment Management Areas, Alternative E**

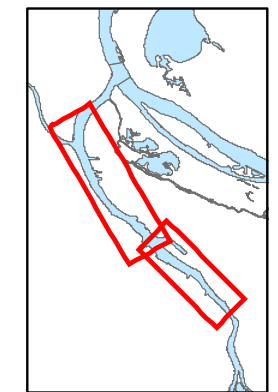
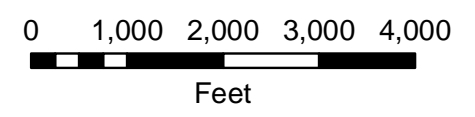
*Portland Harbor Superfund Site*





**Legend**

-  Site with Known Contaminated Riverbank
-  SMA Alternative F



Source Credits: Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community



**Figure 19e. Sediment Management Areas, Alternative F**

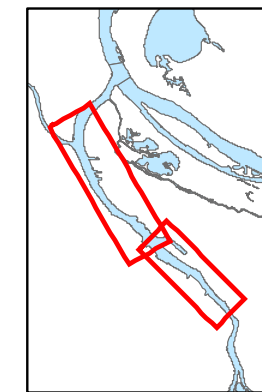
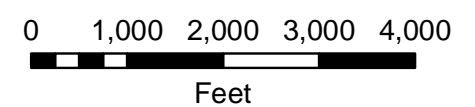
*Portland Harbor Superfund Site*





**Legend**

-  Site with Known Contaminated Riverbank
-  SMA Alternative G

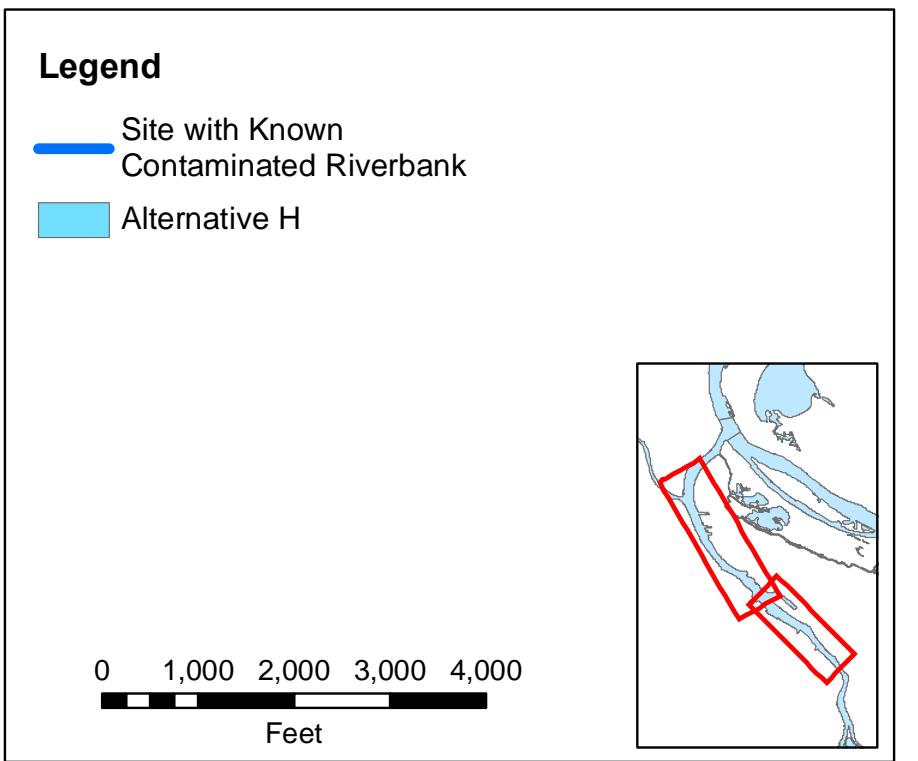


Source Credits: Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community

**Figure 19f. Sediment Management Areas, Alternative G**

*Portland Harbor Superfund Site*



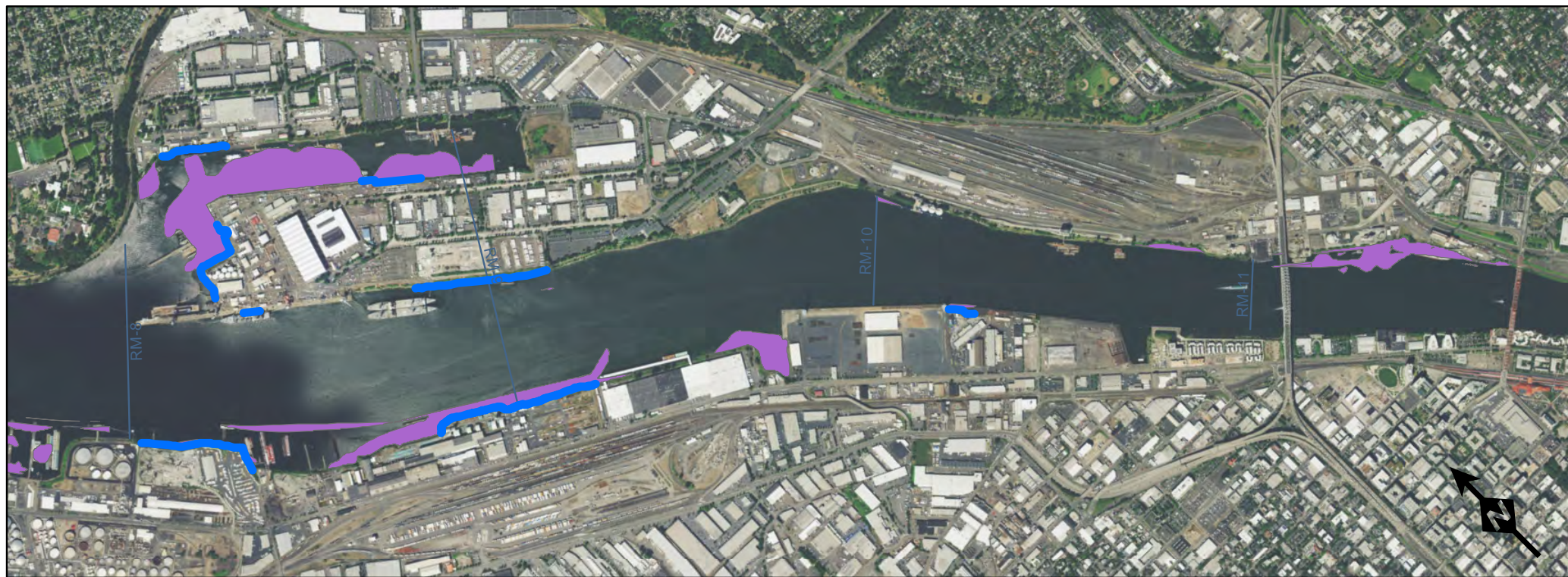
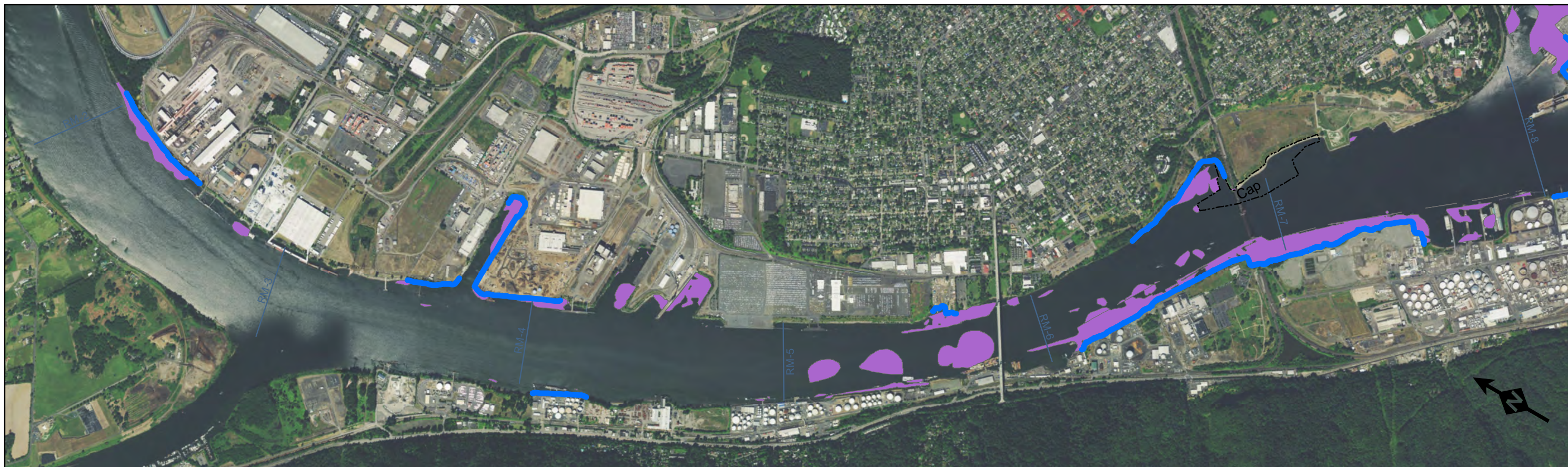


Source Credits: Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community

**Figure 19g. Sediment Management Areas, Alternative H**

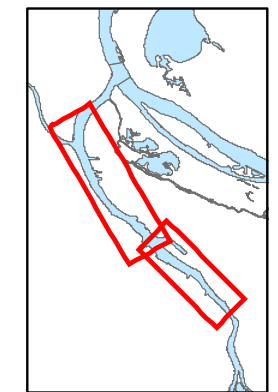
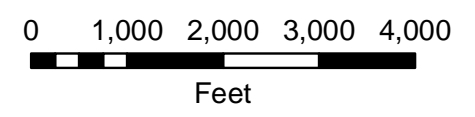
*Portland Harbor Superfund Site*





**Legend**

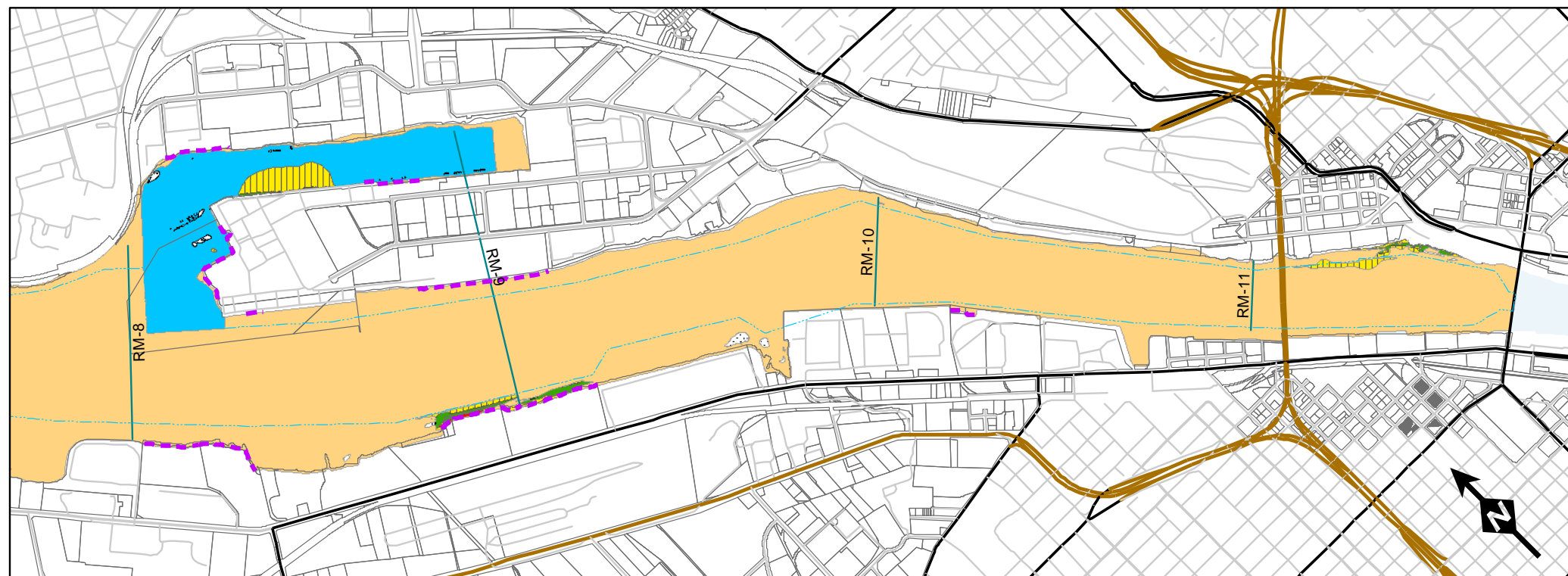
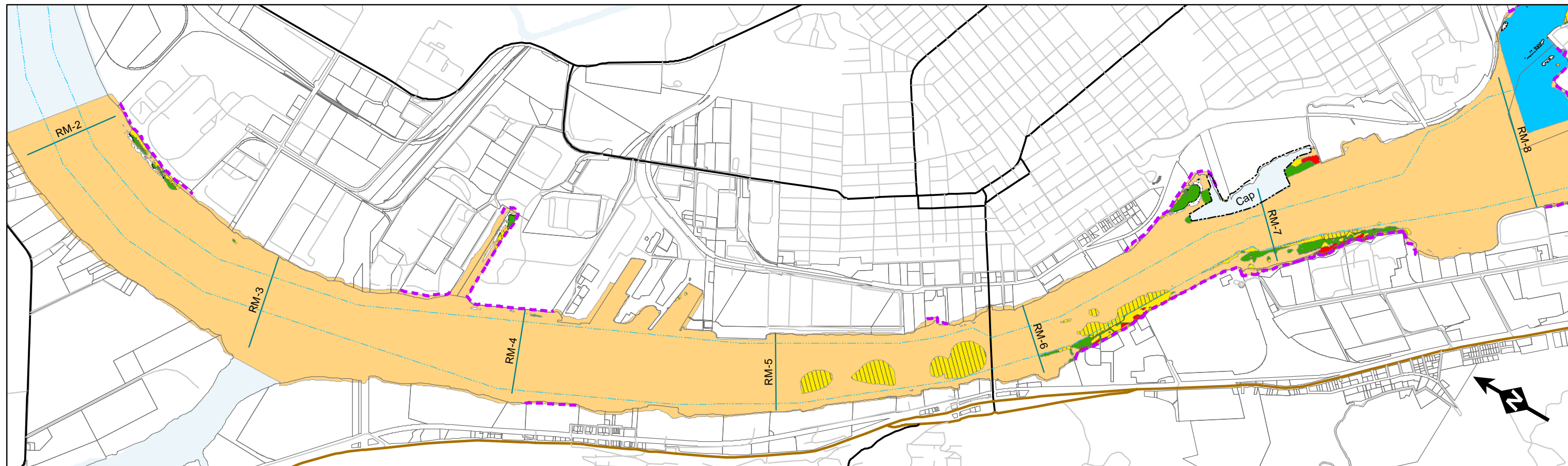
- Site with Known Contaminated Riverbank
- Alternative I



Source Credits: Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community

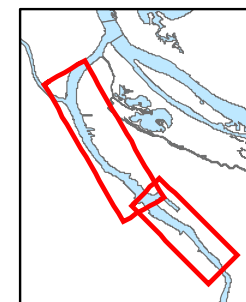
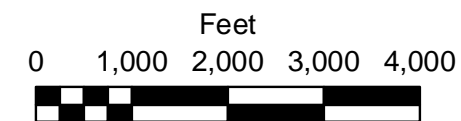
**Figure 19h. Sediment Management Areas, Alternative I**  
*Portland Harbor Superfund Site*





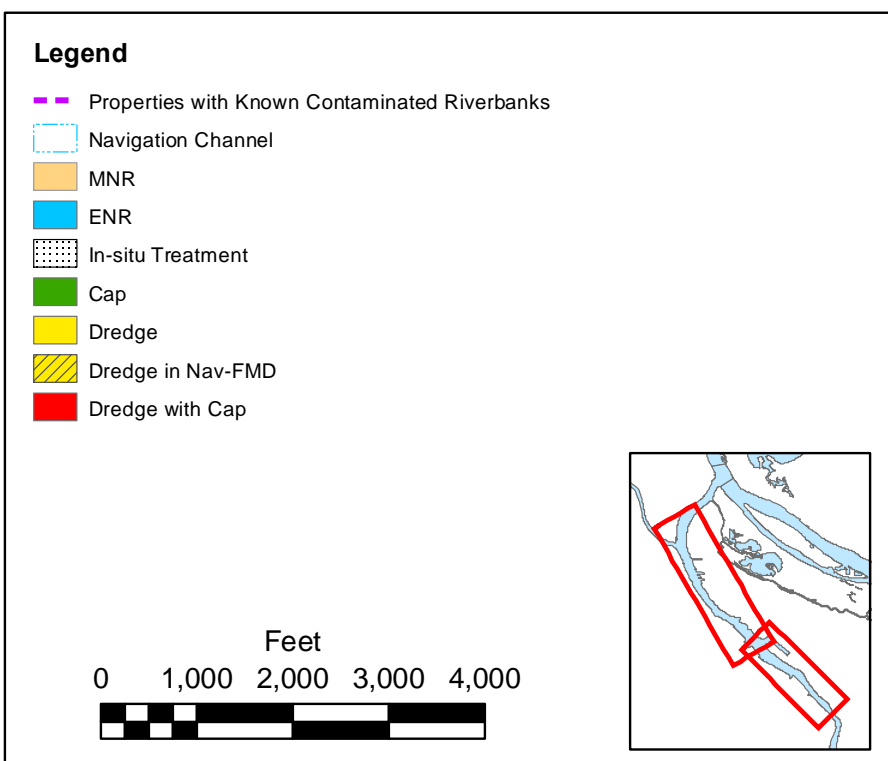
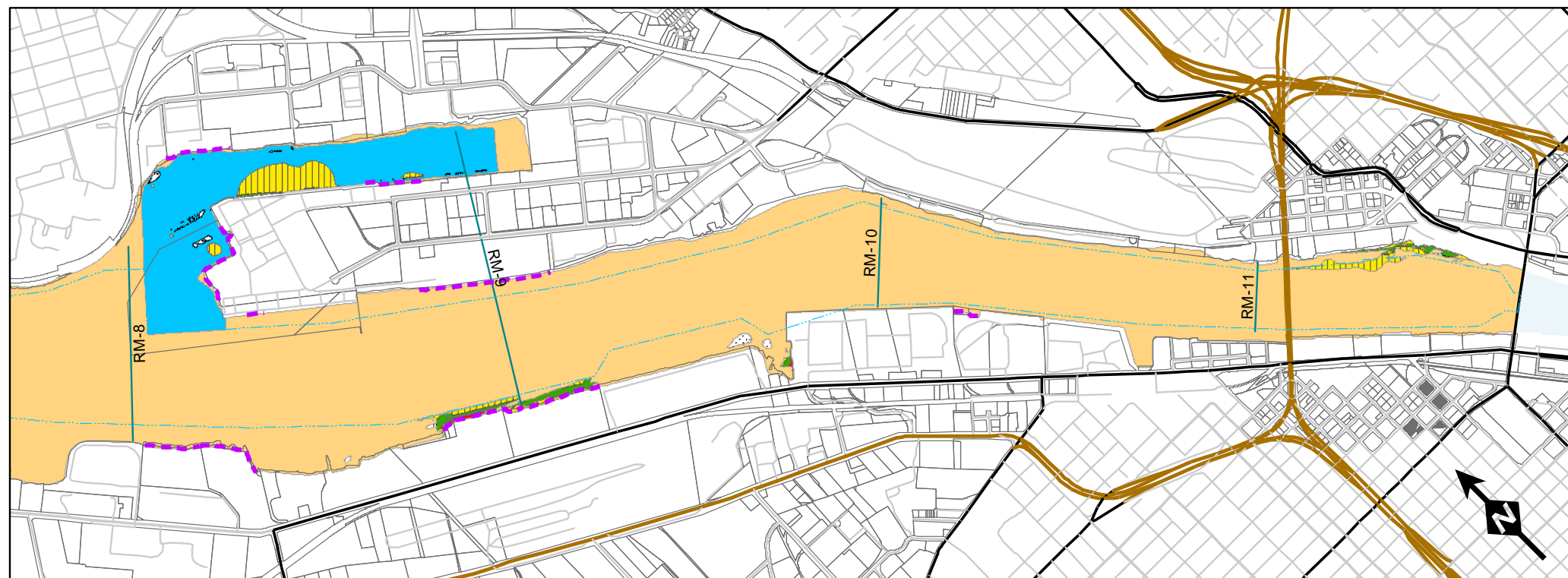
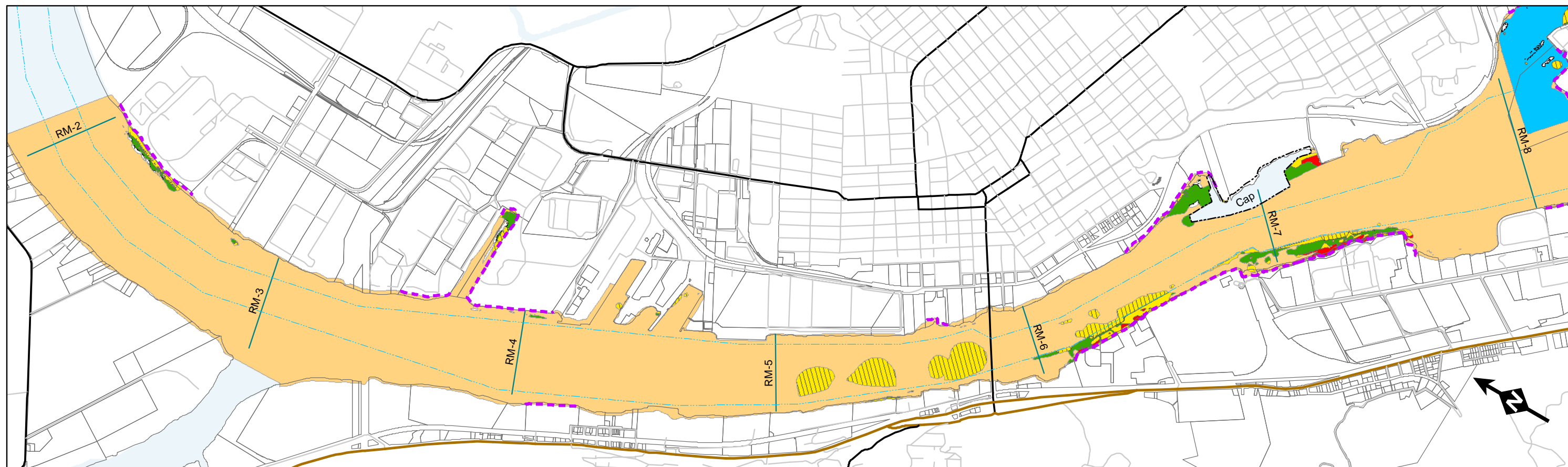
**Legend**

- - - Properties with Known Contaminated Riverbanks
- Navigation Channel
- MNR
- ENR
- In-situ Treatment
- Cap
- Dredge
- Dredge in Nav-FMD
- Dredge with Cap



**Figure 20. Technology Assignments, Alternative B, Site-Wide**

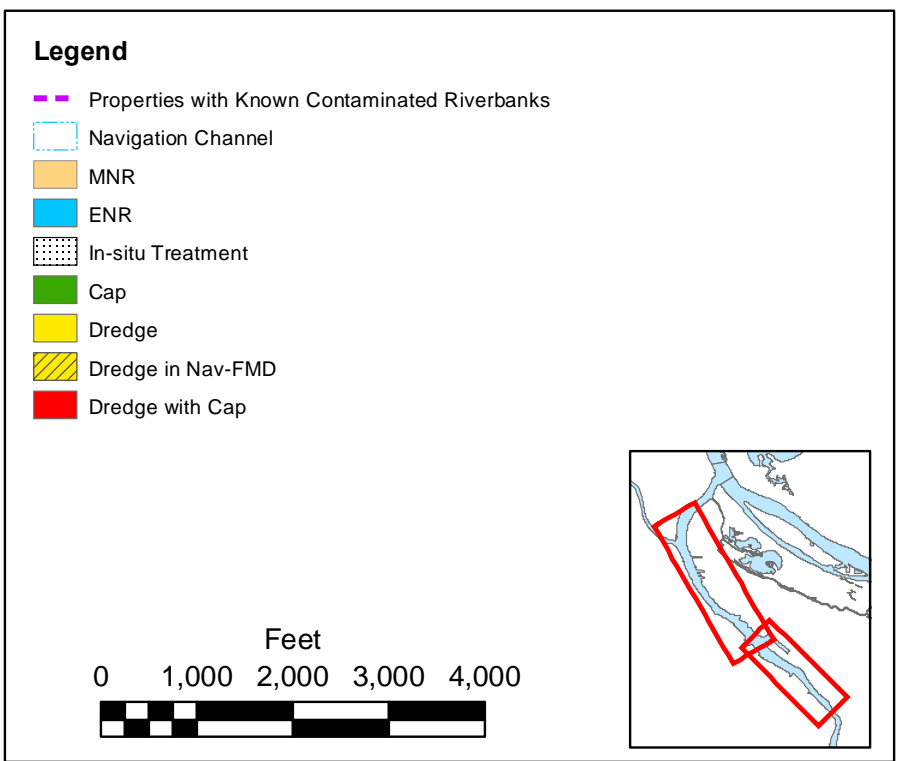
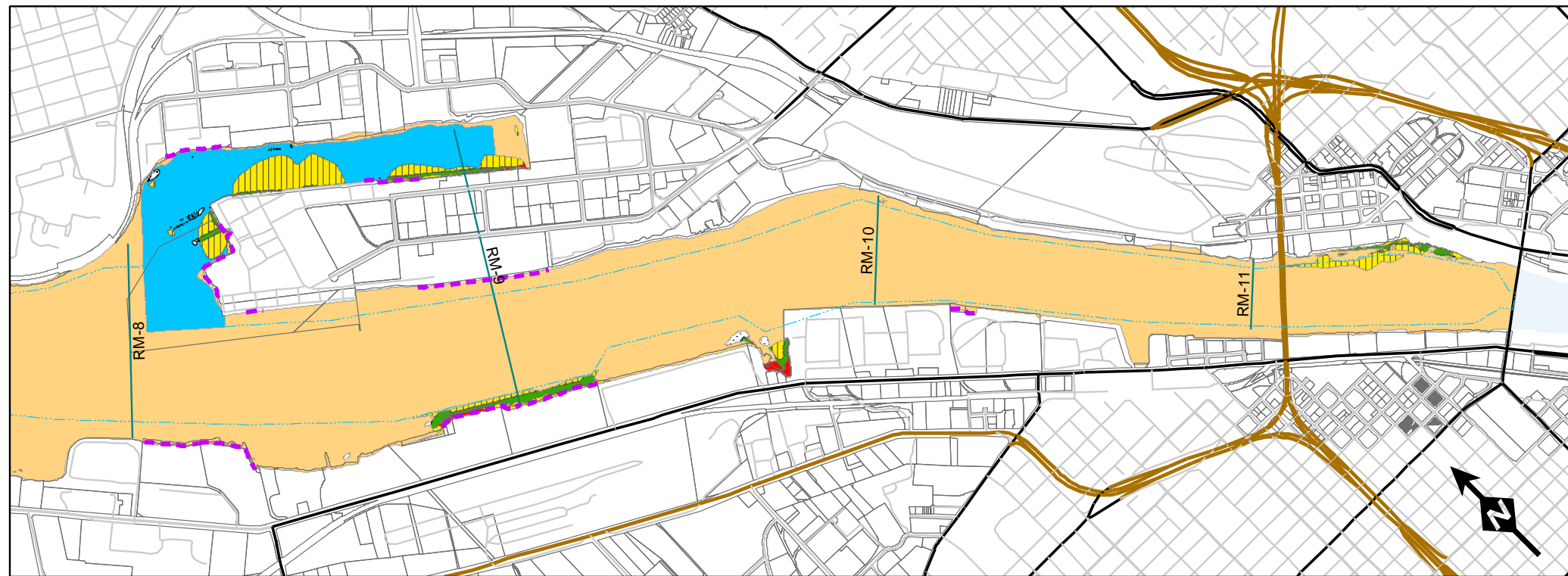
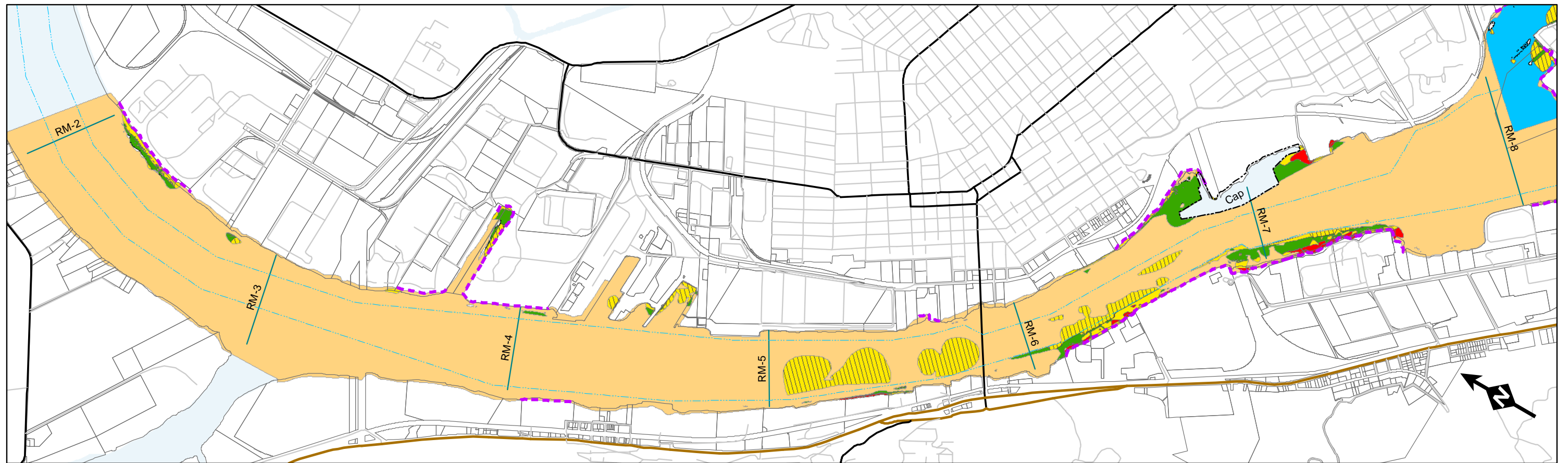
*Portland Harbor Superfund Site*



**Figure 21. Technology Assignments, Alternative C, Site-Wide**

*Portland Harbor Superfund Site*

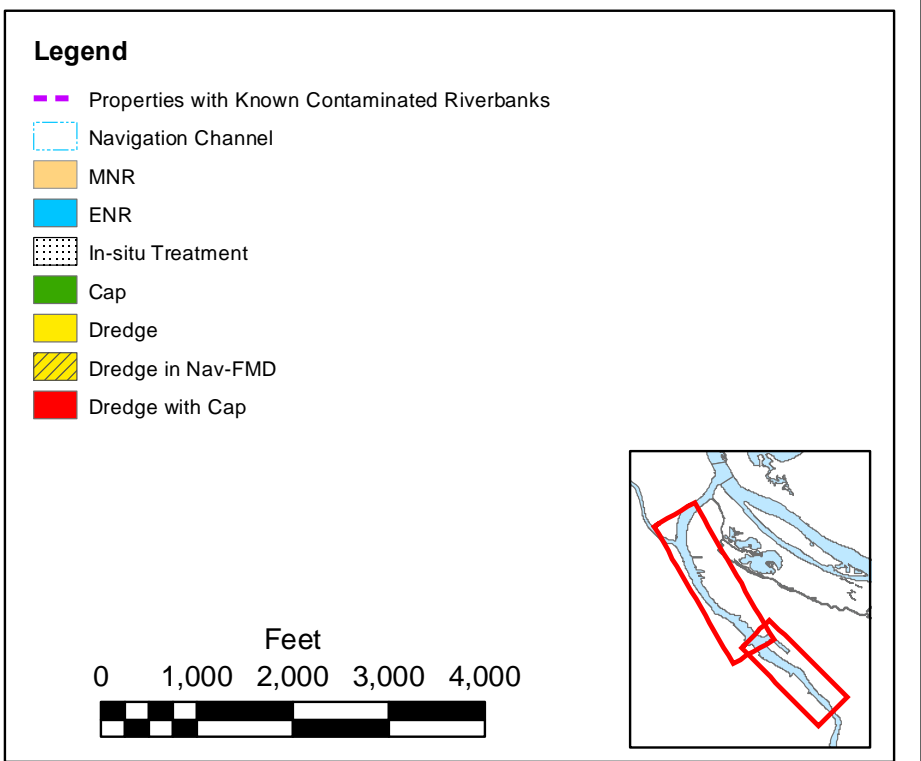
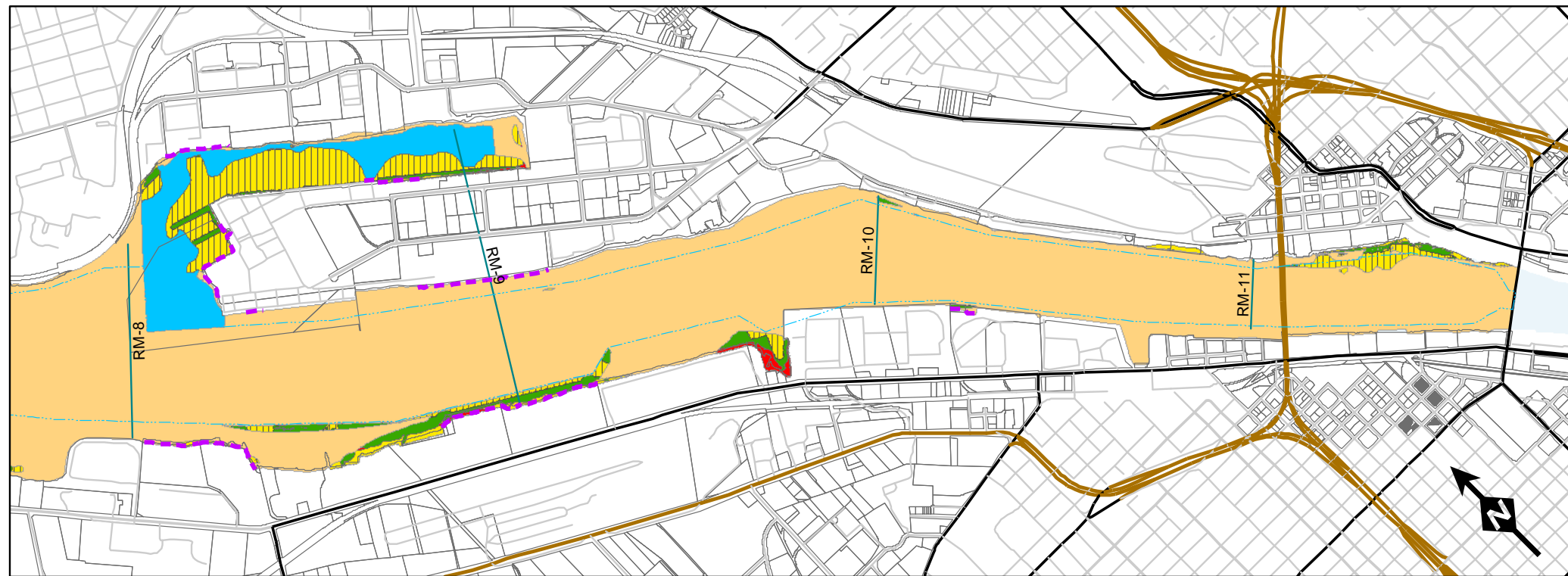
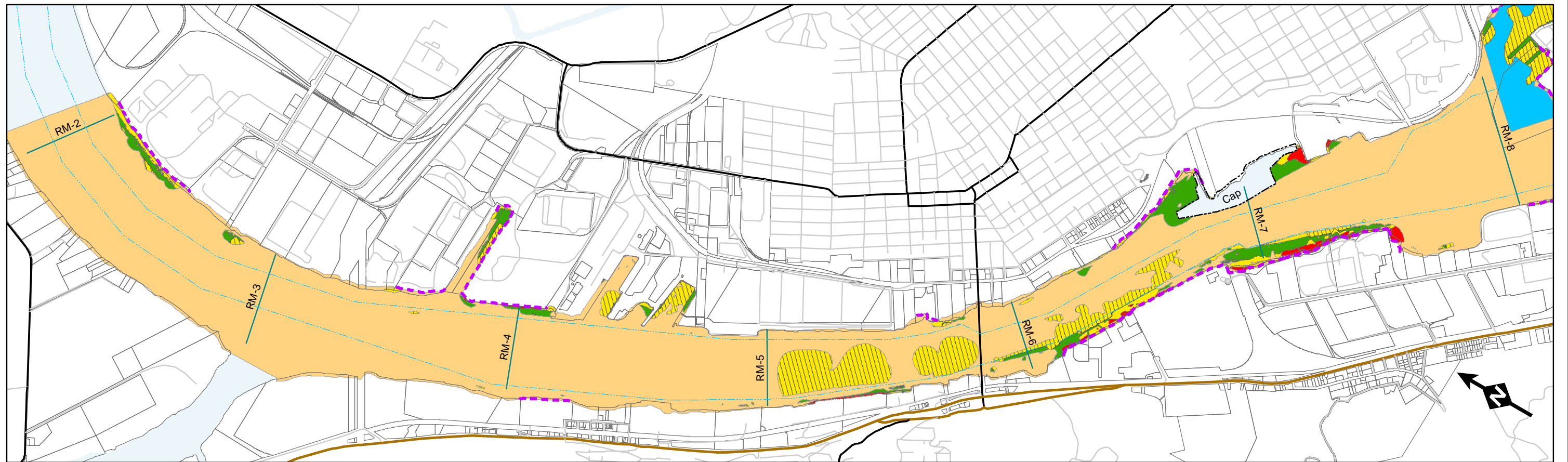




**Figure 22. Technology Assignments, Alternative D, Site-Wide**

*Portland Harbor Superfund Site*

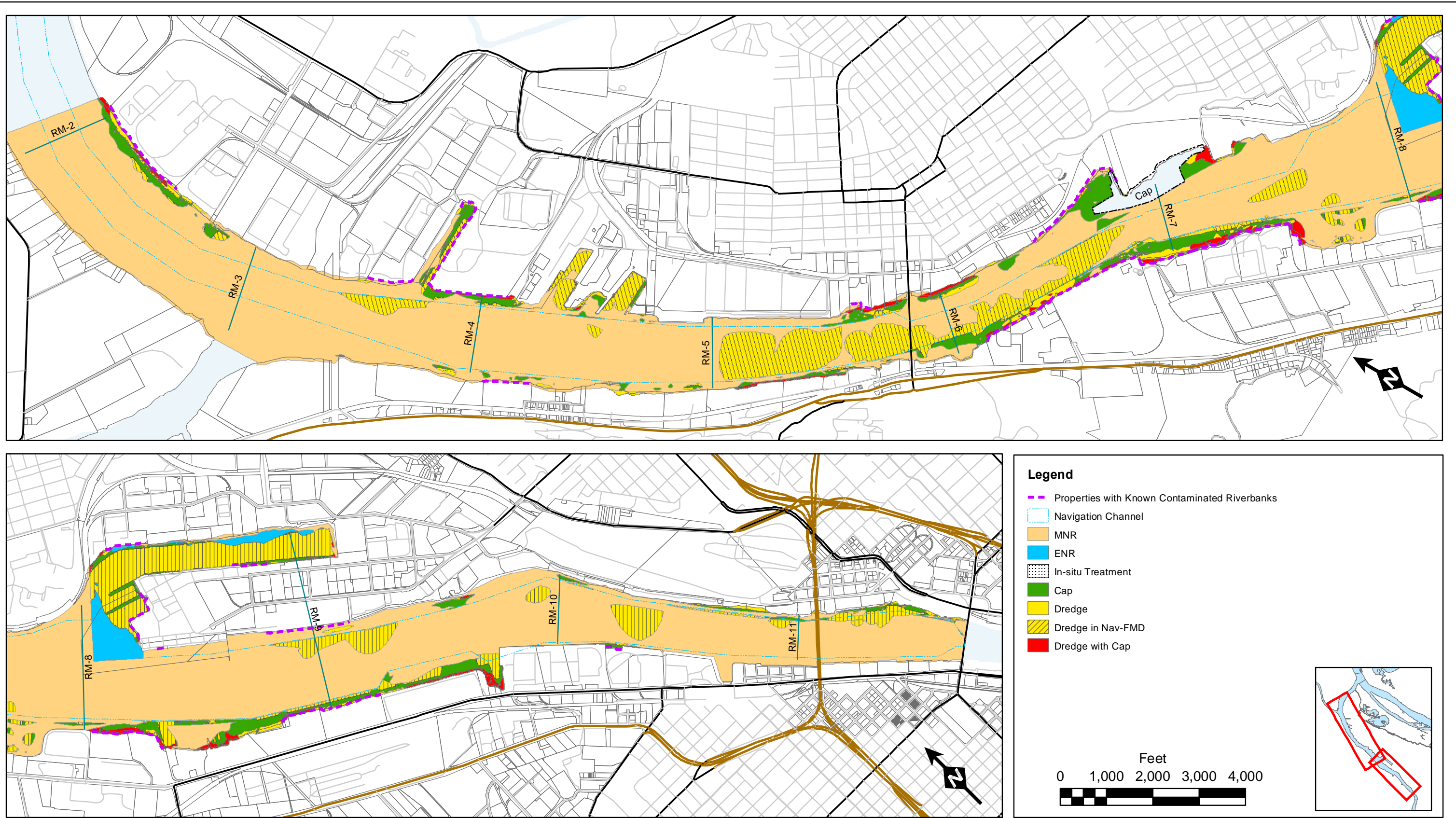




**Figure 23. Technology Assignments, Alternative E, Site-Wide**

*Portland Harbor Superfund Site*

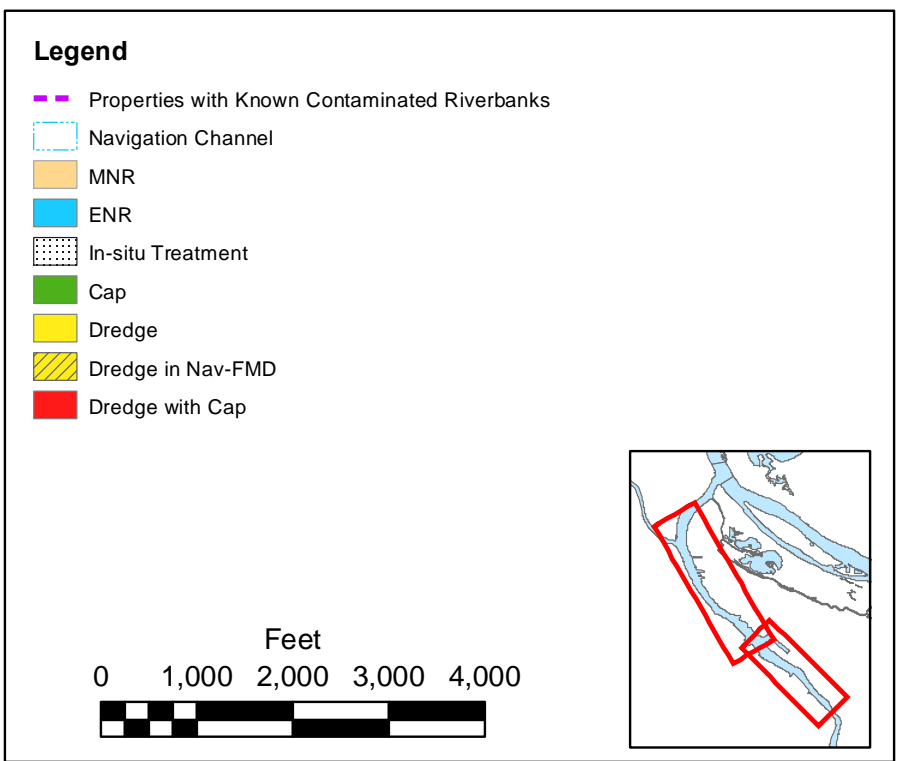
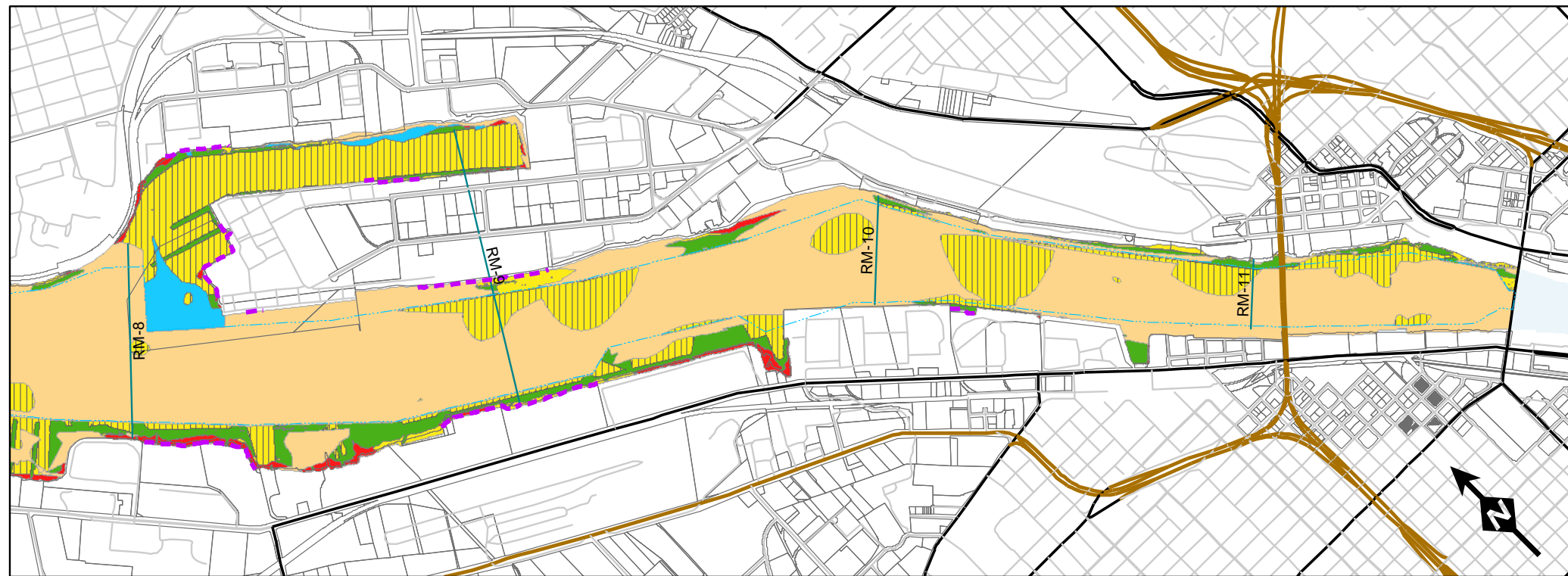
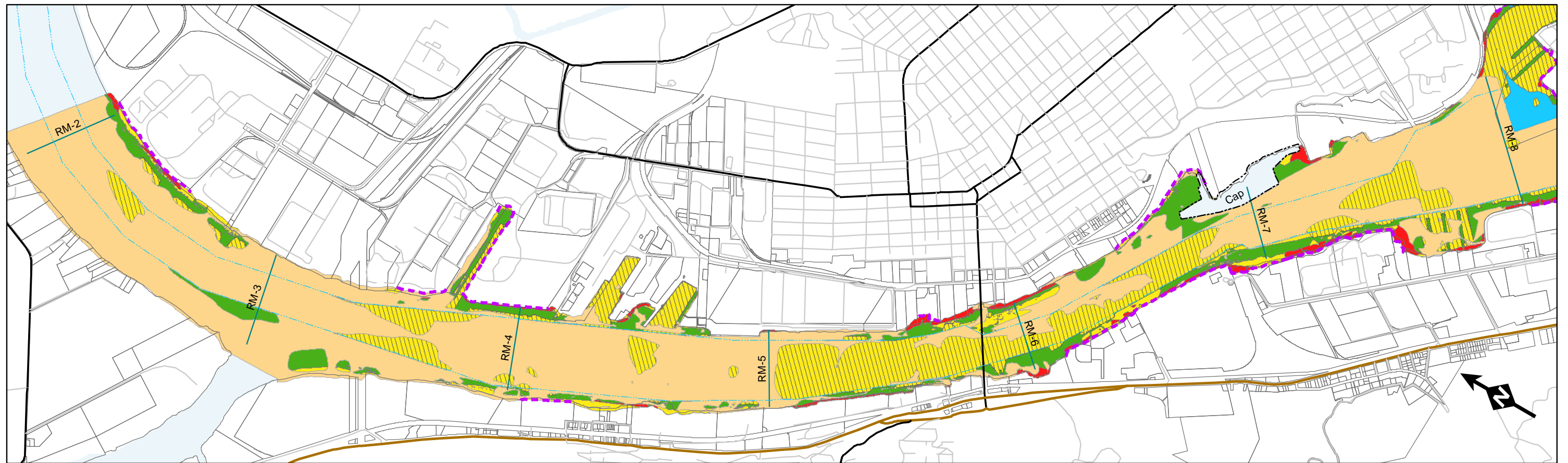




**Figure 24. Technology Assignments, Alternative F, Site-Wide**

*Portland Harbor Superfund Site*

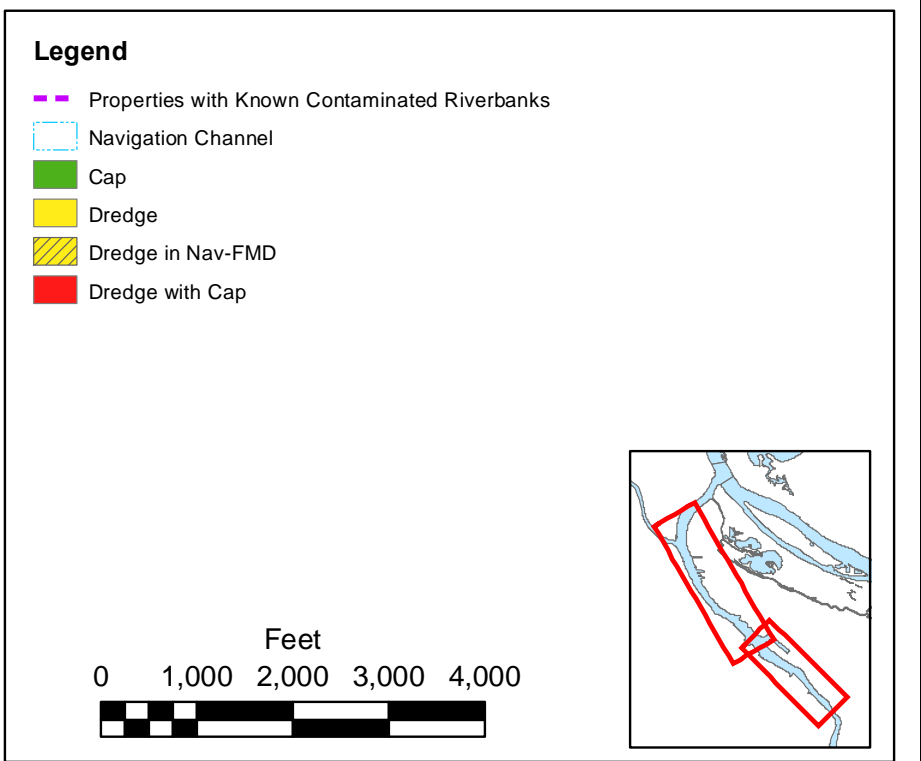
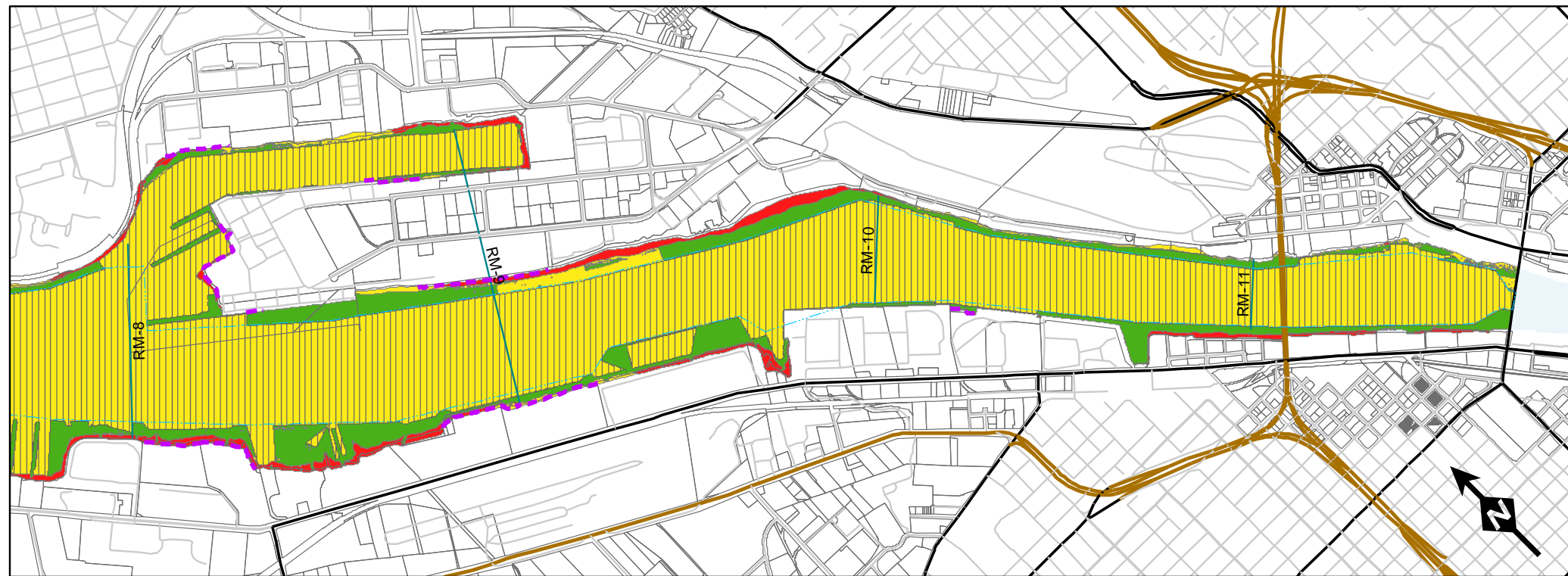
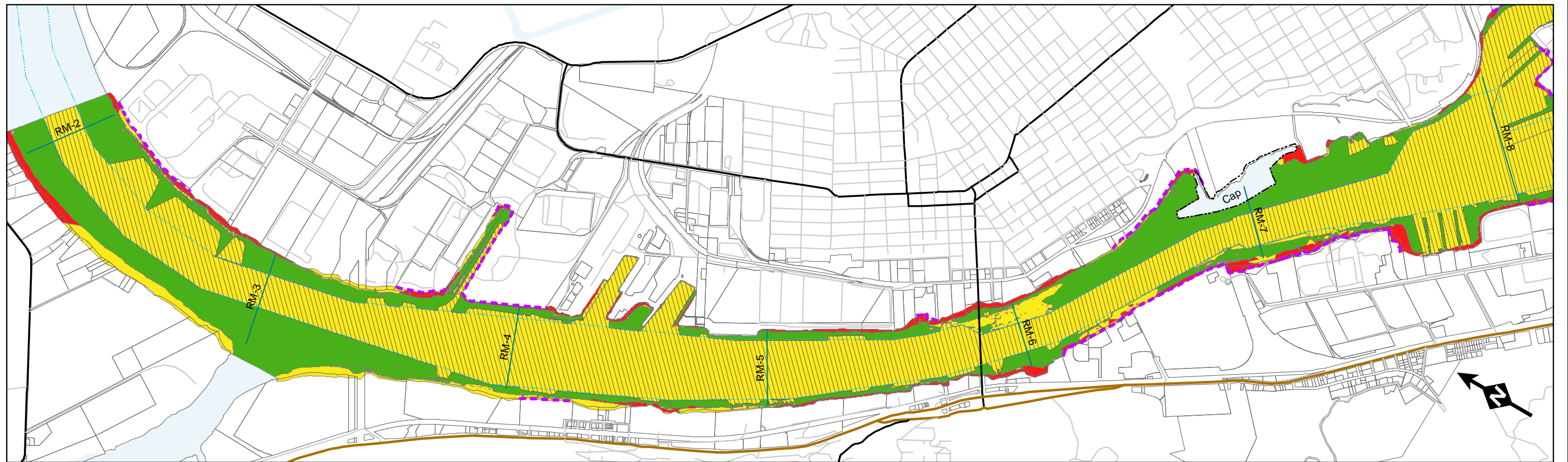




**Figure 25. Technology Assignments, Alternative G, Site-Wide**

*Portland Harbor Superfund Site*





**Figure 26. Technology Assignments, Alternative H, Site-Wide**

*Portland Harbor Superfund Site*



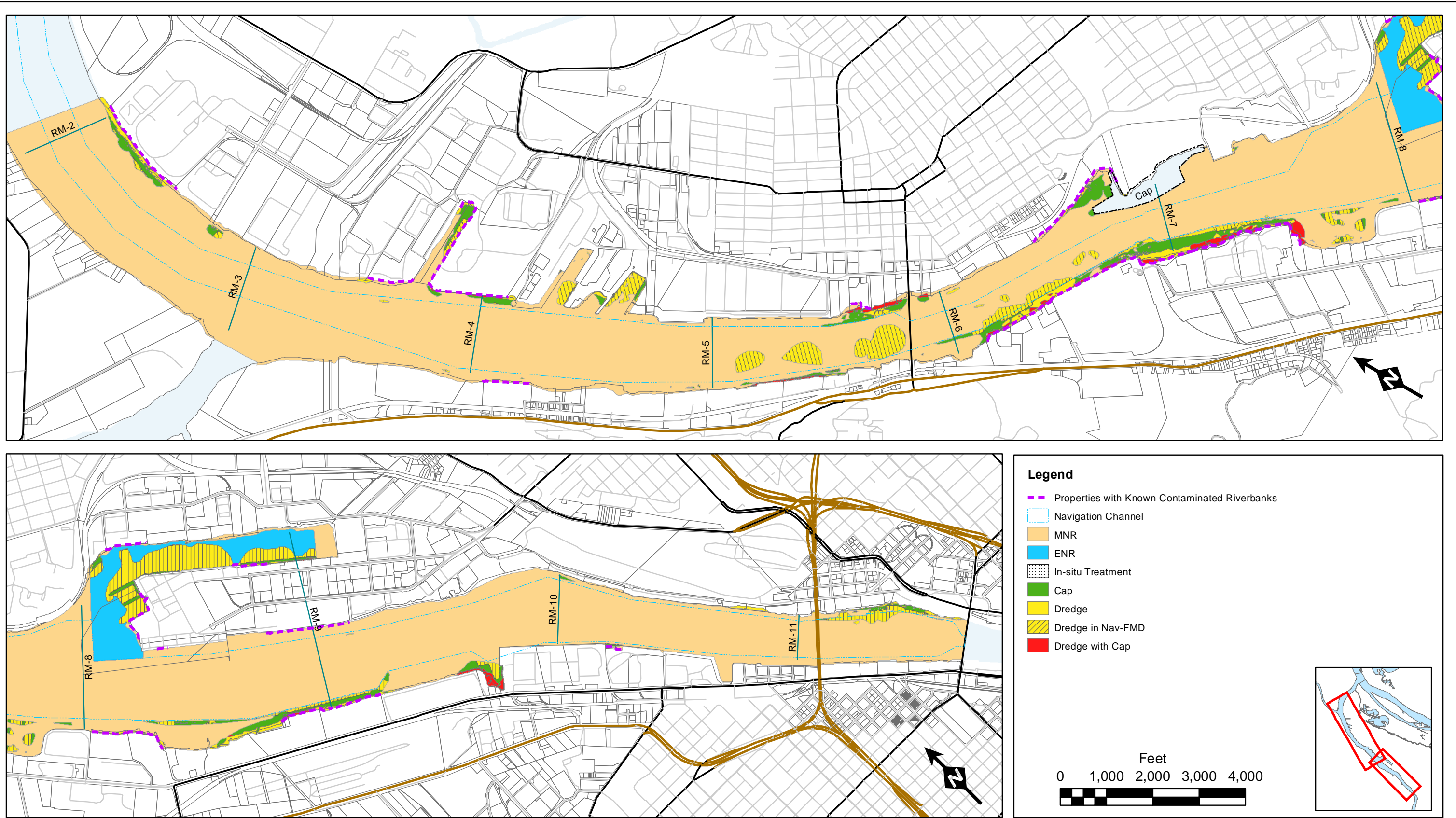
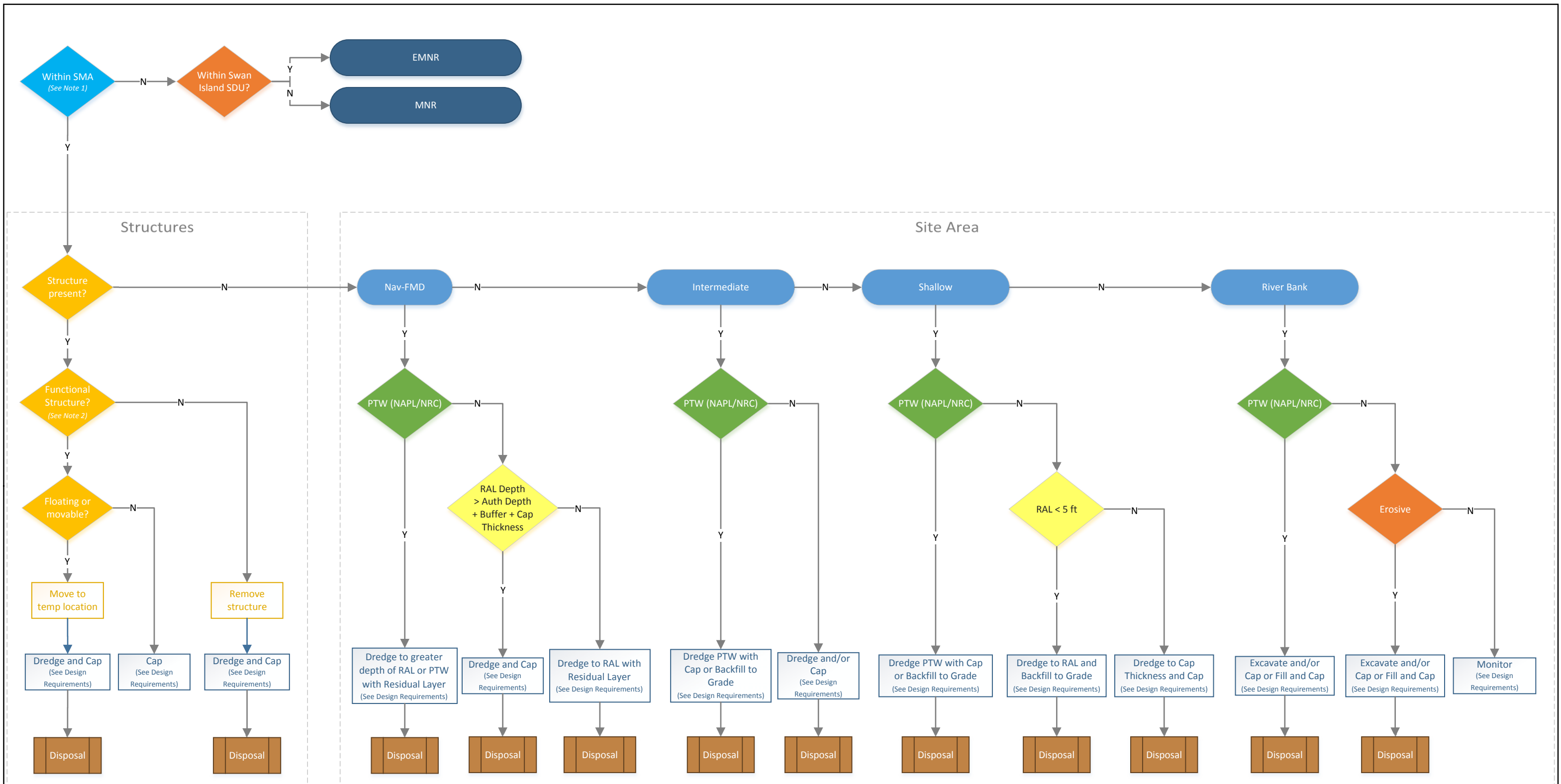


Figure 27. Technology Assignments, Alternative I, Site-Wide

Portland Harbor Superfund Site





**Notes:**  
 (1) Contamination is defined in three dimensions.  
 (2) Currently operating or used to stabilize bank. Service life > 50 yrs.

**Figure 28. Technology Application Decision Tree**  
 Portland Harbor Superfund Site

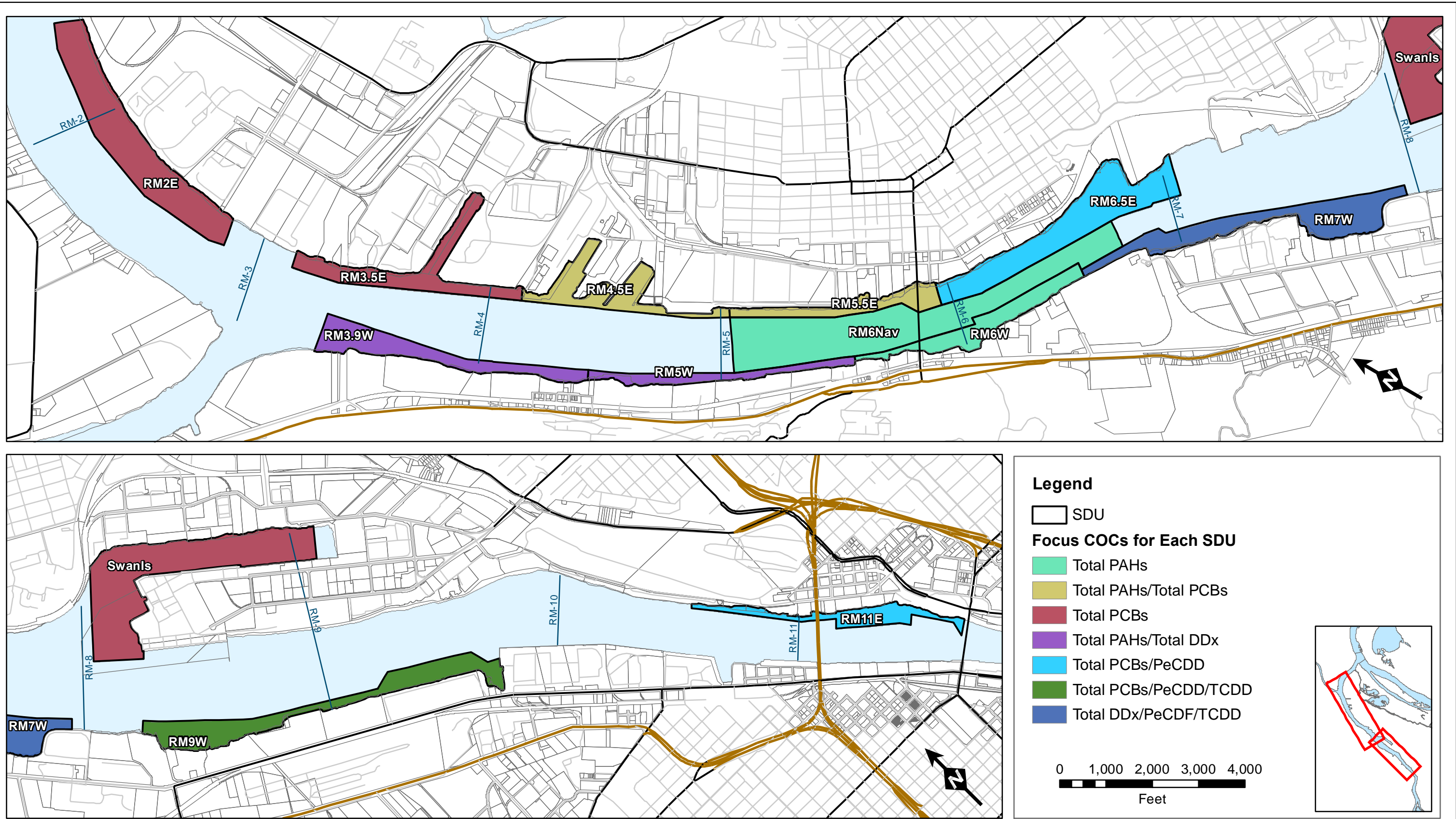
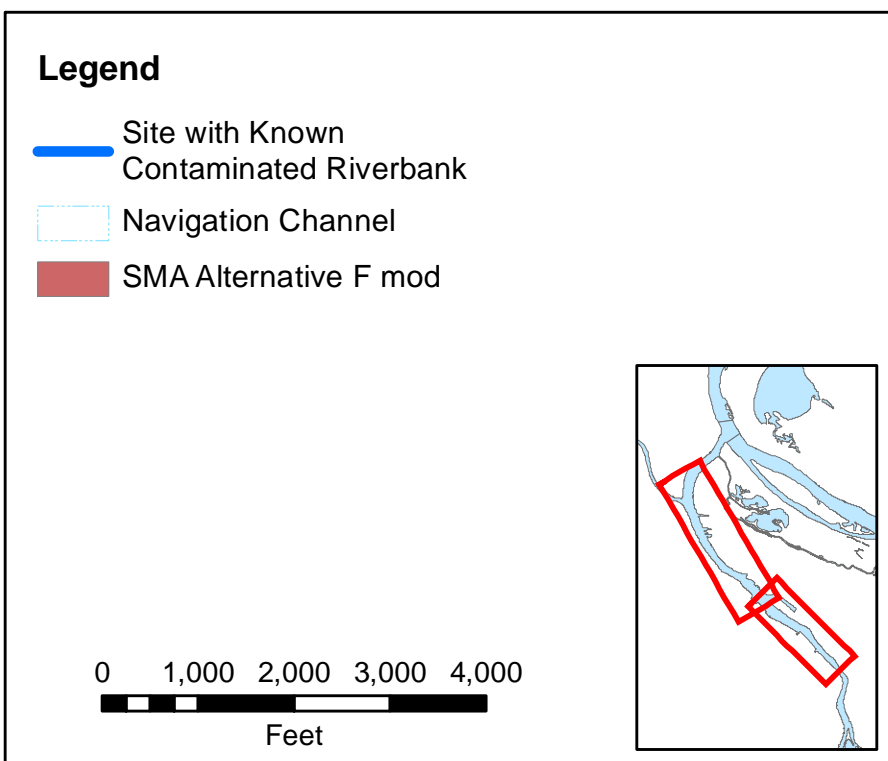
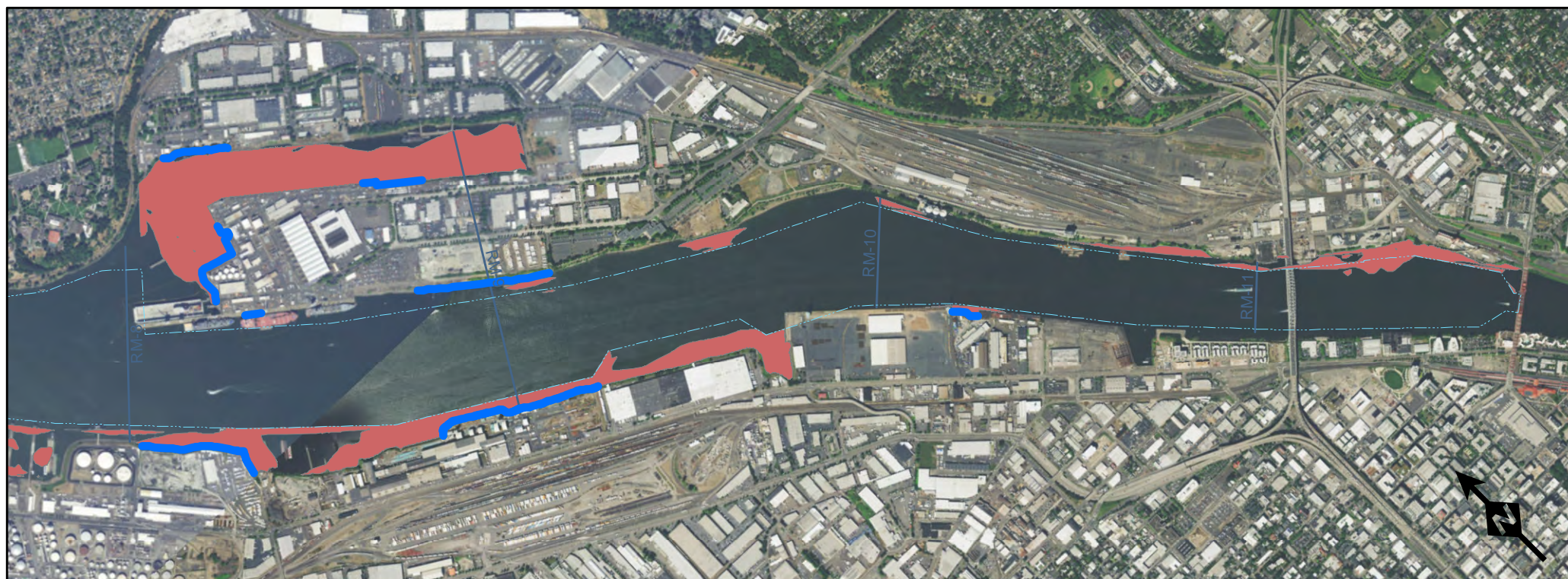
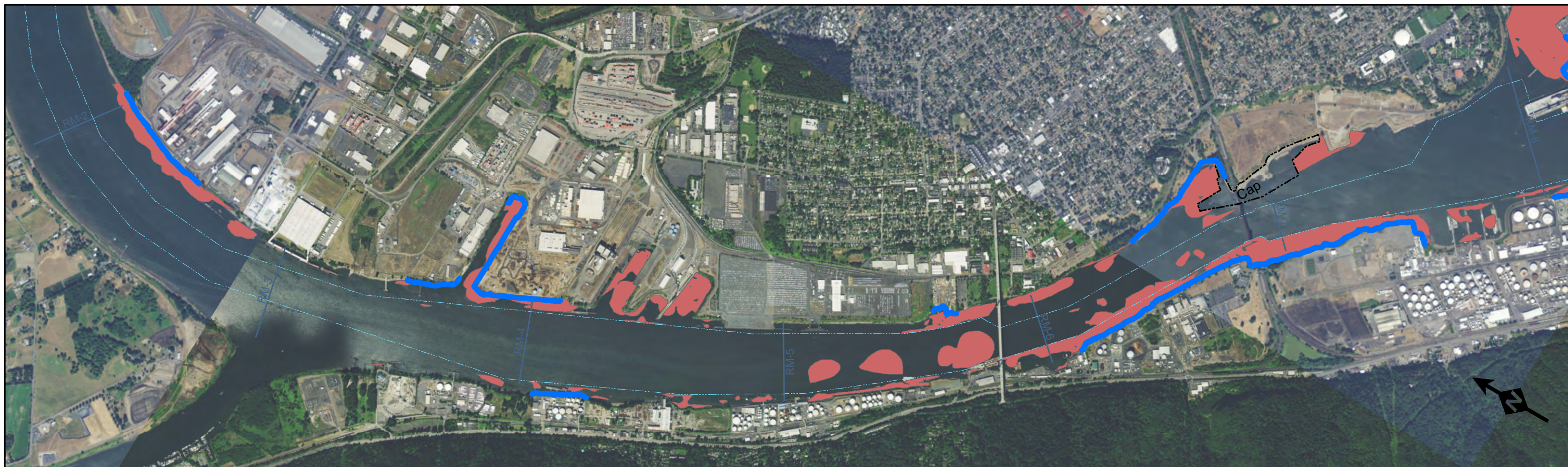


Figure 29. Sediment Decision Units and Focus COCs

Portland Harbor Superfund Site





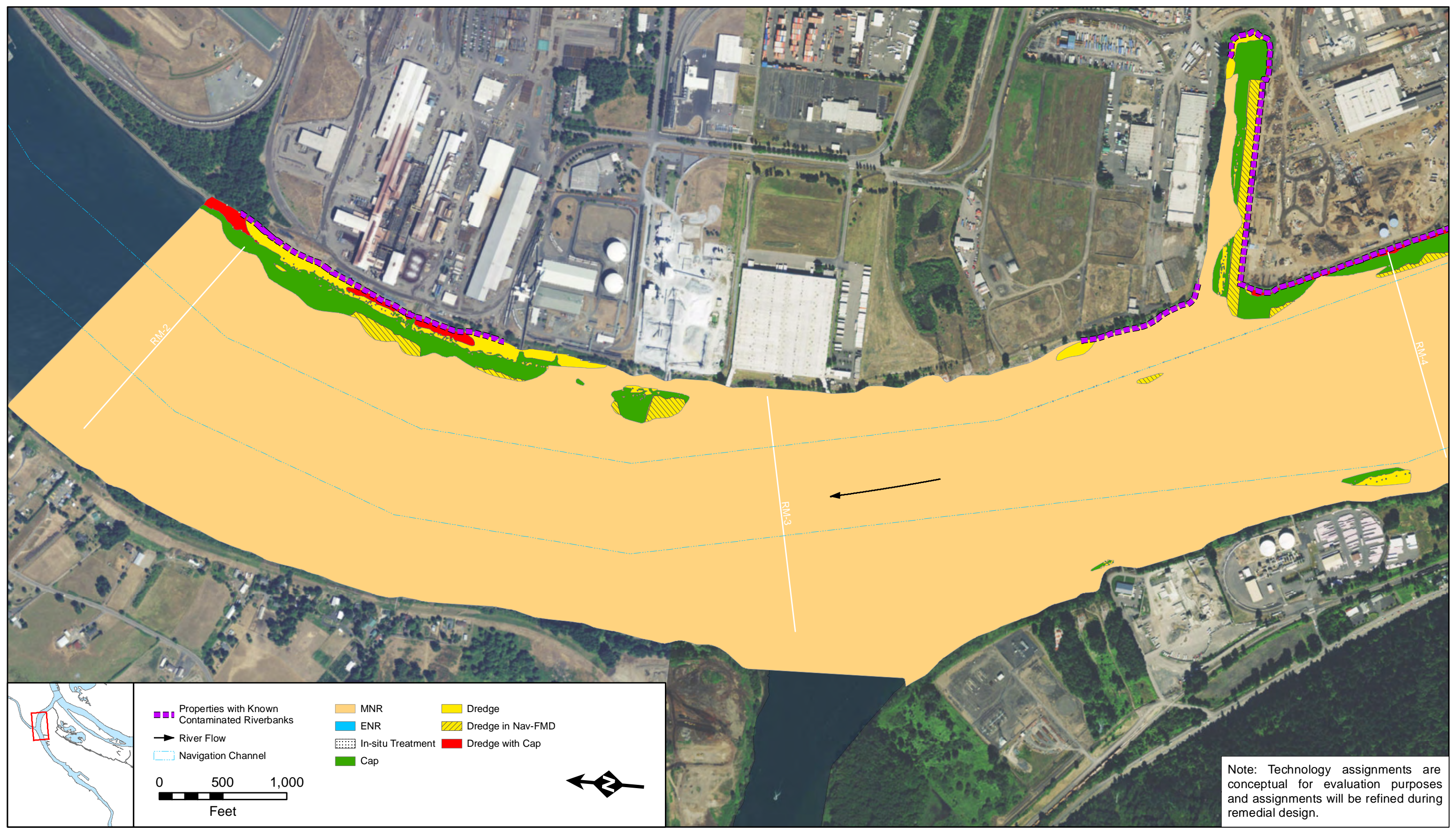
Source Credits: Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community

**Figure 30. Sediment Management Areas, Selected Remedy**

*Portland Harbor Superfund Site*



Path: E:\Projects\Portland Harbor\GIS\MapDocuments\Record of Decision\Fig. Technology Assignments-by-Alt-RM.mxd, Created by: MLE



Properties with Known Contaminated Riverbanks	MNR	Dredge
River Flow	ENR	Dredge in Nav-FMD
Navigation Channel	In-situ Treatment	Dredge with Cap
	Cap	

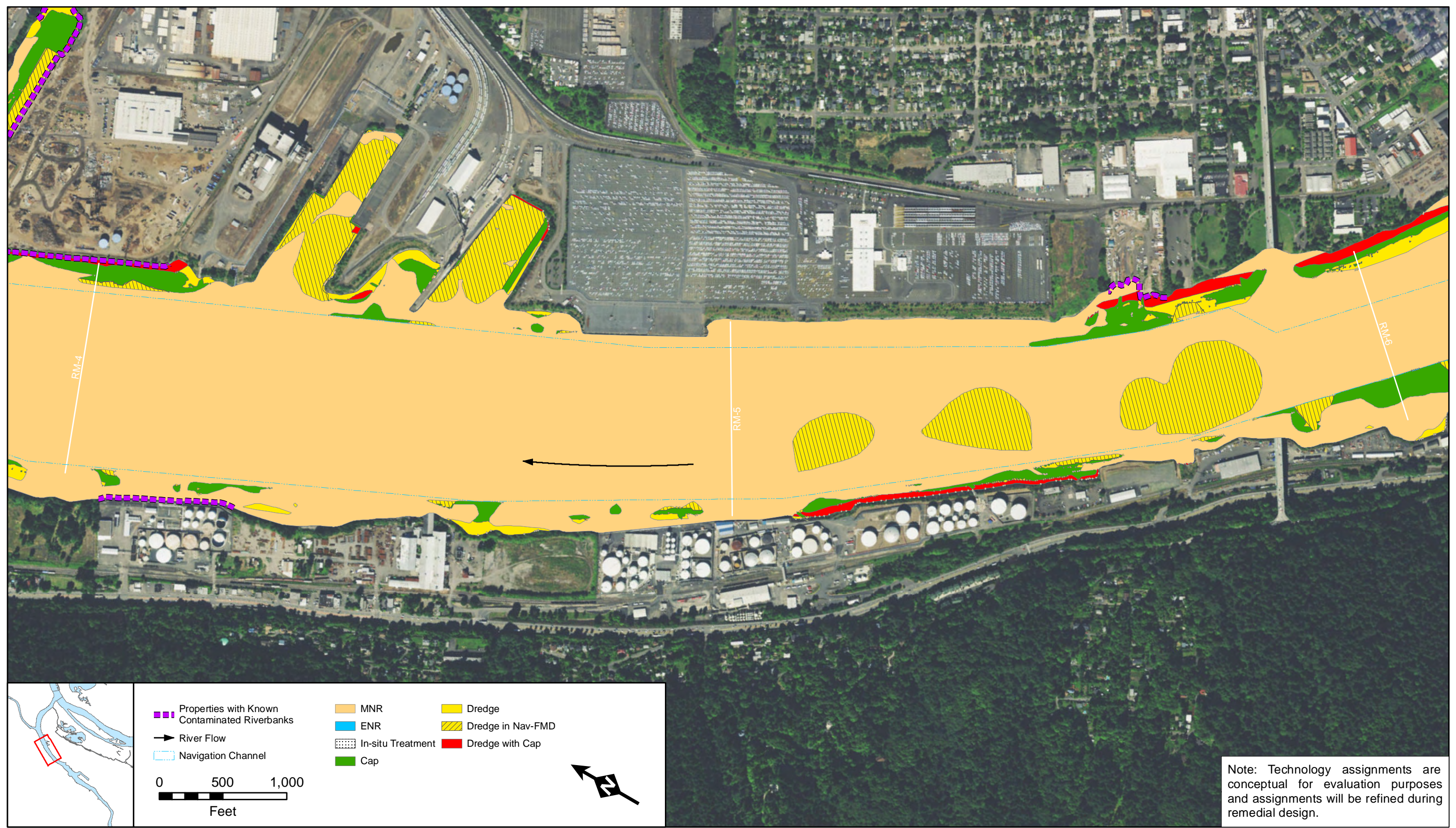
0 500 1,000  
Feet

Note: Technology assignments are conceptual for evaluation purposes and assignments will be refined during remedial design.

**Figure 31a. Technology Assignments, Selected Remedy**  
**River Mile 1.9 to 4**  
 Portland Harbor Superfund Site



Path: E:\Projects\Portland Harbor\GIS\MapDocuments\Record of Decision\Fig. Technology Assignments-by-Alt-RM.mxd, Created by: MLE

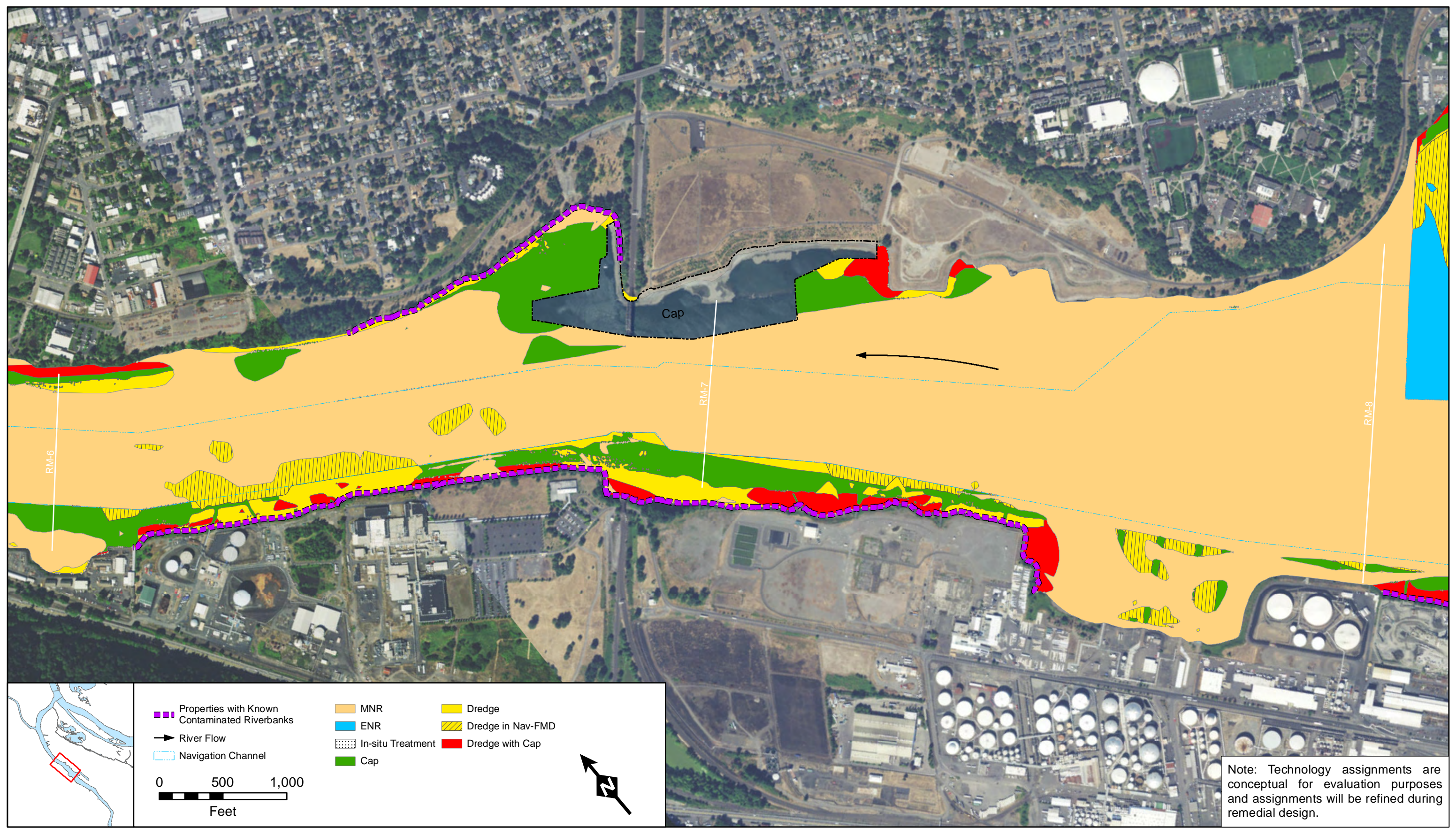


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**Figure 31b. Technology Assignments, Selected Remedy**  
**River Mile 4 to 6**  
*Portland Harbor Superfund Site*



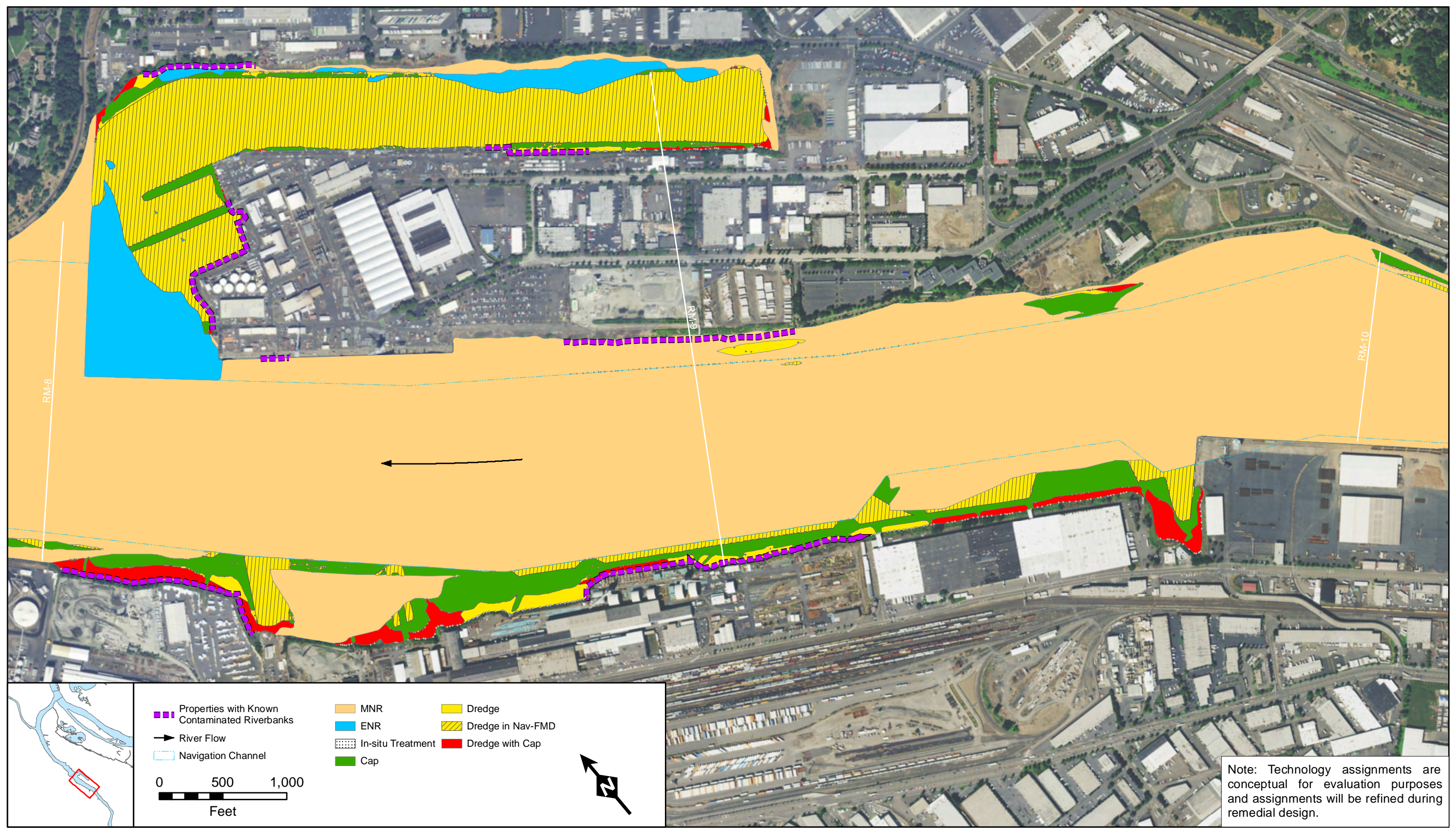
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**Figure 31c. Technology Assignments, Selected Remedy**  
**River Mile 6 to 8**  
 Portland Harbor Superfund Site



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Properties with Known Contaminated Riverbanks	MNR	Dredge
River Flow	ENR	Dredge in Nav-FMD
Navigation Channel	In-situ Treatment	Dredge with Cap
	Cap	

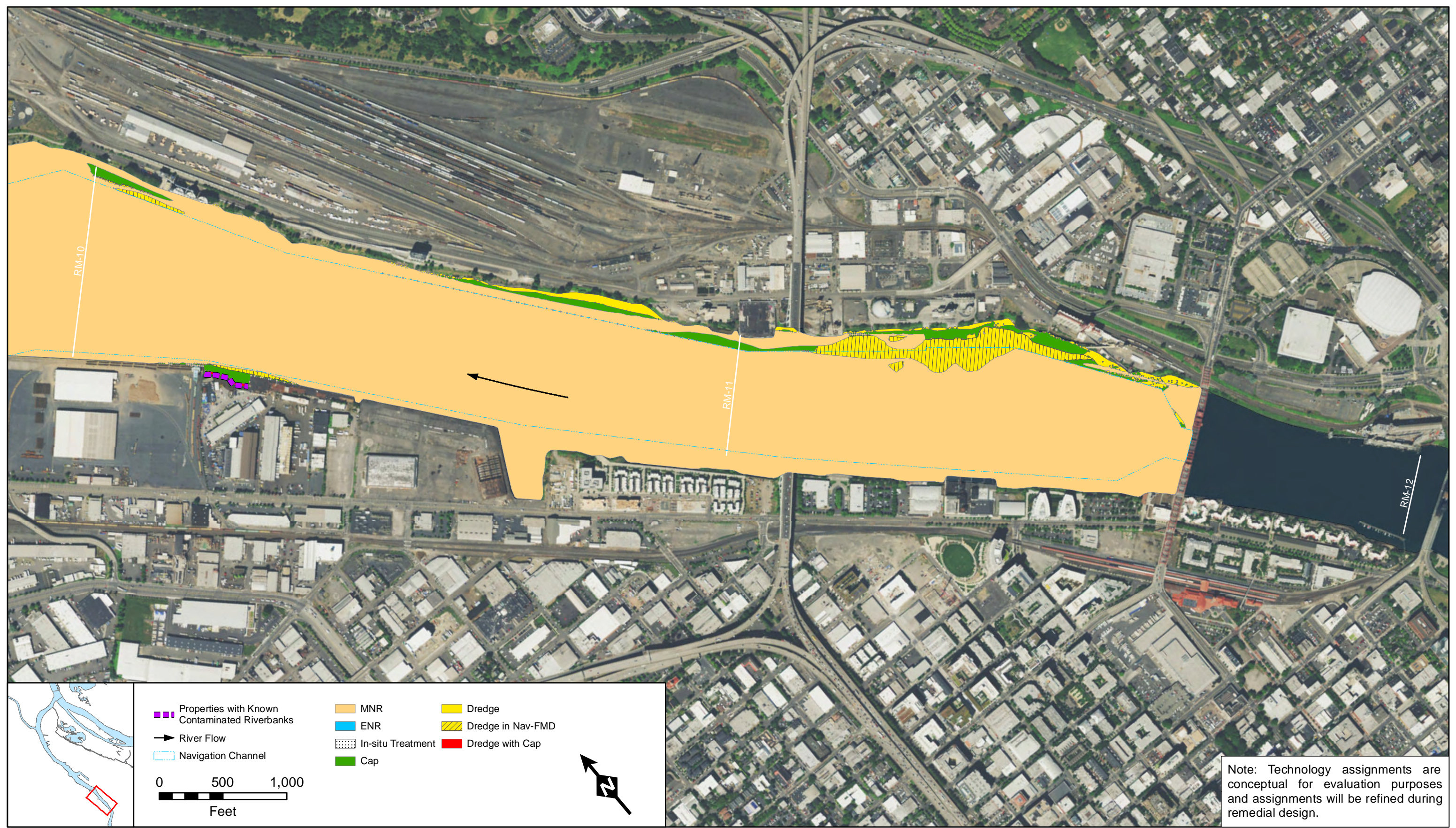
0 500 1,000  
Feet

Note: Technology assignments are conceptual for evaluation purposes and assignments will be refined during remedial design.

**Figure 31d. Technology Assignments, Selected Remedy**  
**River Mile 8 to 10**  
*Portland Harbor Superfund Site*



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**Figure 31e. Technology Assignments, Selected Remedy**  
**River Mile 10 to 12**  
 Portland Harbor Superfund Site



**APPENDIX II**  
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**Table 1. Summary of Contaminants of Concern in Sediment**

Contaminant	Units	Surface				Subsurface			
		Frequency of Detection	Min-Max	Mean	Median	Frequency of Detection	Min-Max	Mean	Median
Aldrin	µg/kg	254/1081	0.00333 - 691	5	0.5	127/1102	0.11 - 1,340	24	0.85
Arsenic	mg/kg	1348/1473	0.7 - 132	5	3.7	1429/1492	0.5 - 51	4	3.6
BEHP	µg/kg	884/1438	7 - 440,000	1,061	150	595/1496	2.4 - 18,000	355	95
Cadmium	mg/kg	1332/1460	0.0156 - 10	0.41	0.25	1377/1469	0.011 - 44	0.42	0.27
Chlordanes	µg/kg	723/1103	0.063 - 669	6	1.2	607/1103	0.11 - 2300	21	2.1
Copper	mg/kg	1457/1461	6.19 - 2,830	58	38.7	1481/1481	9.42 - 3,290	56	36
DDD	µg/kg	982/1179	0.051 - 11,000	43	2.3	969/1298	0.087 - 690,000	2483	4.5
DDE	µg/kg	964/1176	0.052 - 2,240	16	15.97	846/1298	0.054 - 24,000	81	3.9
DDT	µg/kg	801/1165	0.0613 - 81,000	259	2.19	755/1275	0.069 - 3,500,000	5,201	3.5
<b>DDx</b>	µg/kg	1072/1179	0.13 - 85,000	267	8.3	1065/1294	0.18 - 3,600,000	4,756	14
Dieldrin	µg/kg	238/1121	0.00834 - 356	3	0.28	72/1134	0.038 - 100	4	0.43
gamma-BHC	µg/kg	198/1126	0.0031 - 430	4	1.2	114/1145	0.052 - 172	5	1.29
Hexachlorobenzene	µg/kg	7/50	0.28 - 3	1	0.66	210/1270	0.066 - 14,000	78	0.94
HxCDF	µg/kg	201/222	0.000043 - 66	0.347	0.00127	183/250	0.000014 - 41	0.374	0.0023
Lead	mg/kg	1469/1484	1.1 - 13,400	49	15.8	1528/1536	1.54 - 3330	47	20
Mercury	mg/kg	1331/1452	0.005 - 65	0.144	0.068	1316/1395	0.004 - 17	0.192	0.089
<b>PAHs, total</b>	µg/kg	1559/1580	6.3 - 7,300,000	26,006	1,200	1553/1620	3.3 - 53,000,000	234,036	1,400
<b>cPAHs (BaP eq)</b>	µg/kg	1533/1580	0.42 - 450,000	2,477	130	1485/1620	0.26 - 1,300,000	9,163	140
<b>PeCDD</b>	µg/kg	131/222	0.00002 - 0.021	0.001	0.000219	128/251	0.000018 - 0.058	0.002	0.00035
<b>PeCDF</b>	µg/kg	175/222	0.000026 - 9	0.058	0.000551	168/251	0.000024 - 11	0.125	0.00069
<b>TCDD</b>	µg/kg	46/222	0.00004 - 0.111	0.003	0.00035	74/251	0.000045 - 0.084	0.003	0.00048
TCDF	µg/kg	139/222	0.000058 - 14	0.11	0.00088	125/250	0.000095 - 15	0.207	0.00164

**Table 1. Summary of Contaminants of Concern in Sediment**

Contaminant	Units	Surface				Subsurface			
		Frequency of Detection	Min-Max	Mean	Median	Frequency of Detection	Min-Max	Mean	Median
<b>PCBs (Aroclors)</b>	µg/kg	725/984	6.2 - 6,000	162	40	744/1294	3.8 - 26,000	311	83
<b>PCBs (congeners)</b>	µg/kg	244/244	1.7 - 35,000	467	36	149/153	0.4 - 37,000	705	100
Tributyltin	µg/kg	321/342	0.45 - 47,000	480	22	213/397	0.32 - 90,000	1,469	29
Zinc	mg/kg	1490/1490	3.68 - 4,220	153	106	1521/1521	24 - 9,000	148	105

Focused contaminants of concern are shown in **bold**.

Abbreviations:

BEHP - bis(2-ethylhexyl)phthalate

BaP eq - benzo(a)pyrene equivalent

cPAH - carcinogenic polycyclic aromatic hydrocarbon

DDD - dichlorodiphenyldichloroethane

DDE - dichlorodiphenyldichloroethene

DDT - dichlorodiphenyltrichloroethane

DDx - DDD + DDE + DDT

HxCDF - 1,2,3,7,8,9-hexachlorodibenzofuran

max - maximum

mg/kg - milligram per kilogram

min - minimum

PAH - polycyclic aromatic hydrocarbon

PCB - polychlorinated biphenyl

PeCDD - pentachlorodibenzo-p-dioxin

PeCDF - pentachlorodibenzofuran

TCDD - 2,3,7,8-tetrachlorodibenzo-p-dioxin

TCDF - tetrachlorodibenzofurans

µg/kg - microgram per kilogram

**Table 2. Summary of Contaminants of Concern in Surface Water**

Contaminant	Units	Frequency of Detection	Minimum	Maximum	Mean	Median
Aldrin	µg/L	124/268	0.0000001	0.005	0.00004	0.000001
Arsenic	µg/L	295/346	0.18	0.75	0.39	0.39
BEHP	µg/L	37/226	0.004	64	4.09	1.00
Benzo(a)anthracene	µg/L	132/335	0.00003	0.27	0.006	0.0005
Benzo(a)pyrene	µg/L	107/335	0.00002	0.19	0.005	0.0005
Benzo(b)fluoranthene	µg/L	128/335	0.00002	0.13	0.004	0.0004
Benzo(k)fluoranthene	µg/L	13/179	0.0017	0.13	0.032	0.007
Chlordanes	µg/L	166/268	0.0000001	0.002	0.0001	0.00002
Chromium	µg/L	164/346	0.1	1.92	0.53	0.38
Copper	µg/L	344/346	0.37	3.68	1.02	0.87
DDD	µg/L	177/268	0.000001	0.003	0.0002	0.00004
DDE	µg/L	180/268	0.000003	0.001	0.00007	0.00004
DDT	µg/L	183/268	0.000001	0.02	0.0004	0.00003
<b>DDx</b>	µg/L	200/268	0.000008	0.02	0.0006	0.0001
<b>Dioxin/Furan (TCDD eq)</b>	µg/L	147/149	0.000000003	0.0000009	0.0000006	0.0000002
Ethylbenzene	µg/L	8/23	0.55	11.4	3.09	1.65
Hexachlorobenzene	µg/L	165/353	0.000001	0.007	0.0001	0.00002
MCPP	µg/L	7/164	7.3	34	15	13
Naphthalene	µg/L	55/358	0.001	605	44	0.02
<b>PAHs</b>	µg/L	262/335	0.0001	7.4	0.07	0.01
<b>PAHs (BaP eq)</b>	µg/L	193/335	0.0000001	0.27	0.005	0.0002
<b>PCBs</b>	µg/L	735/876	0.000007	0.02	0.001	0.0002
Pentachlorophenol	µg/L	0/178	ND	ND	ND	ND
<b>PeCDD</b>	µg/L	65/149	0.00000002	0.0000005	0.0000002	0.0000001
<b>PeCDF</b>	µg/L	51/149	0.00000002	0.0000003	0.0000003	0.0000001
<b>TCDD</b>	µg/L	7/149	0.000000005	0.0000003	0.0000004	0.0000001
<b>TCDD TEQ</b>	µg/L	237/240	0.0000000004	0.0000009	0.0000004	0.00000006
Tributyltin	µg/L	11/167	0.001	0.004	0.002	0.001
Zinc	µg/L	208/346	0.9	58	3.68	2.74

Focused contaminants of concern are shown in **bold**.

Abbreviations:

BEHP - bis(2-ethylhexyl)phthalate

BaP eq - benzo(a)pyrene equivalent

cPAH - carcinogenic polycyclic aromatic hydrocarbon

DDD - dichlorodiphenyldichloroethane

## Table 2. Summary of Contaminants of Concern in Surface Water

### Abbreviations (continued)

DDE - dichlorodiphenyldichloroethene

DDT - dichlorodiphenyltrichloroethane

DDx - DDD + DDE + DDT

MCPP - 2-(4-chloro-2-methylphenoxy)propanoic acid

PAH - polycyclic aromatic hydrocarbon

PCB - polychlorinated biphenyl

PeCDD - pentachlorodibenzo-p-dioxin

PeCDF - pentachlorodibenzofuran

TCDD - 2,3,7,8-tetrachlorodibenzo-p-dioxin

TEQ - toxic equivalent concentration

µg/L - microgram per liter



**Table 3. Summary of Contaminants of Concern in Pore Water and Transition Zone Water**

Contaminant	Units	Frequency of Detection	Minimum	Maximum	Mean	Median
Acenaphthene	µg/L	160/170	0.0031	680	41	3.1
Anthracene	µg/L	129/170	0.0027	257	7.2	0.14
Arsenic	µg/L	202/237	0.30	77	12	8
Benzene	µg/L	166/316	0.14	8,200	537	4.6
Benzo(a)anthracene	µg/L	80/170	0.0035	147	5.6	0.14
Benzo(a)pyrene	µg/L	70/170	0.0025	144	7.1	0.14
Benzo(b)fluoranthene	µg/L	59/170	0.0042	126	7.3	0.21
Benzo(g,h,i)perylene	µg/L	69/170	0.0041	54	4.5	0.13
Benzo(k)fluoranthene	µg/L	50/170	0.004	30	2.6	0.25
Cadmium	µg/L	119/188	0.004	36	0.48	0.099
Chlorobenzene	µg/L	66/312	0.15	30,000	856	2.1
Chromium	µg/L	147/228	0.2	147	13	4.1
Chrysene	µg/L	82/170	0.0033	174	6.3	0.11
Copper	µg/L	88/210	0.03	182	19	8.3
Cyanide	mg/L	52/61	0.004	23	1.03	0.18
1,1-DCE	µg/L	38/312	0.18	283	29	3.2
cis-1,2-DCE	µg/L	109/275	0.12	574,000	7,185	8.5
2,4-Dichlorophenoxyacetic acid	µg/L	10/18	0.12	0.97	0.32	0.18
DDD	µg/L	18/31	0.029	2.5	0.64	0.18
DDE	µg/L	10/31	0.0039	0.24	0.09	0.07
DDT	µg/L	14/31	0.0075	3.2	0.79	0.75
<b>DDx</b>	µg/L	22/31	0.0075	5.7	1.1	0.17
Dibenzo(a,h)anthracene	µg/L	50/170	0.0024	11.7	0.89	0.07
Ethylbenzene	µg/L	116/316	0.09	905	104	5.3
Fluoranthene	µg/L	116/170	0.0055	407	16.1	0.87
Fluorene	µg/L	135/170	0.0075	304	15.3	1.90
Indeno(1,2,3-cd)pyrene	µg/L	68/170	0.0037	53	4.0	0.11
Lead	µg/L	116/237	0.01	166	13.8	4.7
Manganese	µg/L	279/279	23	66,200	4,503	2,710
2-Methylnaphthalene	µg/L	49/157	0.0078	1,260	138	0.94
Naphthalene	µg/L	183/369	0.048	19,700	2,342	15
<b>PAHs</b>	µg/L	165/170	0.0025	21,000	1,470	8.1
<b>cPAHs (BaP eq)</b>	µg/L	104/170	0.0000033	188	6.3	0.06
PCE	µg/L	23/312	0.14	12,000	596	1.7
Pentachlorophenol	µg/L	0/11	ND	ND	ND	ND
<b>PeCDD</b>	µg/L	0/6	ND	ND	ND	ND
<b>PeCDF</b>	µg/L	1/6	0.0000013	0.0000013	0.0000013	0.0000013
Perchlorate	µg/L	21/42	105	210,000	61,002	49,900
Phenanthrene	µg/L	125/170	0.012	1,510	50	3.1

**Table 3. Summary of Contaminants of Concern in Pore Water and Transition Zone Water**

Contaminant	Units	Frequency of Detection	Minimum	Maximum	Mean	Median
Pyrene	µg/L	121/170	0.012	409	17	0.87
Silvex	µg/L	4/18	0.76	22	7.0	2.6
<b>TCDD</b>	µg/L	0/6	ND	ND	ND	ND
TCE	µg/L	73/312	0.14	585,000	9,788	1.9
Toluene	µg/L	168/316	0.2	821	26	1.7
TPH-Diesel	µg/L	93/135	26	28,800	1,522	600
Vanadium	µg/L	9/24	11.6	379	91	40
Vinyl chloride	µg/L	130/312	0.06	28,900	421	2.5
Xylene	µg/L	144/316	0.11	1,430	86	2.6
Zinc	µg/L	144/237	0.95	983	64	17

Focused contaminants of concern are shown in **bold**.

Abbreviations:

- BaP eq - benzo(a)pyrene equivalent
- cPAH - carcinogenic polycyclic aromatic hydrocarbon
- DCE - dichloroethene
- DDD - dichlorodiphenyldichloroethane
- DDE - dichlorodiphenyldichloroethene
- DDT - dichlorodiphenyltrichloroethane
- DDx - DDD + DDE + DDT
- PAH - polycyclic aromatic hydrocarbon
- PCB - polychlorinated biphenyl
- PCE - tetrachloroethene
- PeCDD - pentachlorodibenzo-p-dioxin
- PeCDF - pentachlorodibenzofuran
- TCDD - 2,3,7,8-tetrachlorodibenzo-p-dioxin
- TPH - total petroleum hydrocarbon
- µg/L - microgram per liter

Table 4. Summary of Contaminants of Concern in Fish Tissue

Contaminant	Units	Fillet						Whole Body			
		Frequency of Detection	Minimum	Maximum	Min - Max	Mean	Median	Frequency of Detection	Min - Max	Mean	Median
Aldrin	µg/kg	15/53	0.005	0.119	0.005 - 0.119	0.05335	0.0541	47/141	0.00532 - 0.163	2.19	0.5
Arsenic	mg/kg	53/53	0.02	0.538	0.02 - 0.538	0.156962264	0.16	141/141	0.034 - 1.06	0.254618897	0.22
BEHP	µg/kg	4/33	69	130	69 - 130	96.5	98	20/124	44 - 87,000	8487	220
Cadmium	mg/kg	21/53	0.001	0.009	0.001 - 0.009	0.002952381	0.002	116/141	0.002 - 0.108	0.015750889	0.0093
Chlordanes	µg/kg	40/53	0.915	11.8	0.915 - 11.8	3.787125	1.765	97/141	0.59 - 67	9.42	9.13
Copper	mg/kg	53/53	0.127	1.12	0.127 - 1.12	0.360792453	0.335	141/141	0.365 - 7.16	1.09	0.9525
DDE	µg/kg	53/53	4.98	253	4.98 - 253	38.89641509	15	134/141	7 - 657	93	75
<b>DDx</b>	µg/kg	53/53	6.41	494	6.4 - 494	64.51132075	26	141/141	12.7 - 3,060	166.1120567	99.6
Dieldrin	µg/kg	33/53	0.183	3.3	0.183 - 3.3	0.936909091	0.436	78/141	0.23 - 24	3.106544304	2.11
Hexachlorobenzene	µg/kg	32/53	0.24	140	0.240 - 140	5.5	0.49	68/141	0.62 - 8.1	2.15	1.8
1,2,3,4,7,8-HxCDF	µg/kg	30/32	0.000013	0.00588	0.000013 - 0.00588	0.00062	0.00008	98/102	0.000051 - 0.0771	0.00187	0.00029
Mercury	mg/kg	53/53	0.035	0.349	0.035 - 0.349	0.13	0.096	141/141	0.01014 - 0.494	0.065	0.047
<b>cPAHs (BaP eq)</b>	µg/kg	10/38	0.00799	3.38	0.00799 - 3.38	0.79	0.04	24/127	0.0020 - 1.64	0.36	0.11895
PBDEs	µg/kg	26/32	8.28	82.3	8.28 - 82.3	27.5	11.2	No whole body results			
<b>PCBs</b>	µg/kg	53/53	19.6	19700	19.6 - 19700	650.9283019	96.2	141/141	30 - 25,100	842	301
<b>1,2,3,7,8-PeCDD</b>	µg/kg	31/32	0.0000615	0.00186	0.0000615 - 0.00186	0.00043	0.00017	96/102	0.000091 - 0.0128	0.00093	0.00069
<b>2,3,4,7,8-PeCDF</b>	µg/kg	30/32	0.000079	0.0188	0.000079 - 0.0188	0.00111	0.00029	100/102	0.000169 - 0.108	0.00273	0.00077
Pentachlorophenol	µg/kg	0/33	NA	NA	ND	ND	ND	1/123	400	NA	NA
<b>2,3,7,8-TCDD</b>	µg/kg	32/32	0.000055	0.000877	0.000055 - 0.000877	0.00023	0.00011	92/102	0.000119 - 0.00172	0.00048	0.00042
<b>2,3,7,8-TCDF</b>	µg/kg	32/32	0.000055	0.0174	0.000055 - 0.0174	0.00023	0.00011	102/102	0.000312 - 0.123	0.00517	0.00197
Tributyltin	µg/kg	12/27	0.48	11	0.48 - 7	3.84	3.75	29/62	0.61 - 8.6	3.1	2.5

Focused contaminants of concern are shown in **bold**.

Abbreviations:

- BEHP - bis(2-ethylhexyl)phthalate
- BaP eq - benzo(a)pyrene equivalent
- cPAH - carcinogenic polycyclic aromatic hydrocarbon
- DDE - dichlorodiphenyldichloroethene
- DDx - DDD + DDE + DDT
- HxCDF - 1,2,3,7,8,9-hexachlorodibenzofuran
- max - maximum
- mg/kg - milligram per kilogram
- min - minimum
- PBDE - polybrominated diphenyl ether
- PCB - polychlorinated biphenyl
- PeCDD - pentachlorodibenzo-p-dioxin
- PeCDF - pentachlorodibenzofuran
- TCDD - 2,3,7,8-tetrachlorodibenzo-p-dioxin
- TCDF - tetrachlorodibenzofurans
- µg/kg - microgram per kilogram

**Table 5. Summary of Contaminants of Concern in River Bank Soil**

Contaminant	Units	Surface				Subsurface			
		Frequency of Detection	Min - Max	Mean	Median	Frequency of Detection	Min - Max	Mean	Median
Arsenic	mg/kg	66/66	1.5 - 70	14	5.7	133/159	1.04 - 143	7.9	4.7
BEHP	µg/kg	22/26	25.5 - 27,100	2,976	389	10/18	72 - 4,610	1,017	724
Cadmium	mg/kg	25/42	0.06 - 1.4	0.24	0.15	81/125	0.051 - 26	1.3	0.3
Copper	mg/kg	52/52	10 - 13,300	589	33	155/155	9.9 - 3,340	142	28
DDD	µg/kg	0/7	ND - ND	ND	ND	2/26	100 - 150	125	125
DDT	µg/kg	2/7	0.23 - 0.52	0.37	0.37	3/26	5.6 - 16	9.8	7.8
Hexachlorobenzene	µg/kg	1/4	22 - 22	22	22	0/26	ND - ND	ND	ND
Lead	mg/kg	72/72	3.6 - 4,160	469	40	157/159	2 - 2,950	164	16
Mercury	mg/kg	32/43	0.013 - 19	1.64	0.19	69/113	0.006 - 10.6	0.54	0.10
<b>PAHs</b>	µg/kg	25/25	25 - 6,150	889	420	20/26	110 - 600,000	92,061	5,500
<b>PCBs</b>	µg/kg	7/13	9.8 - 154	46	25	27/35	6 - 1,020	336	156
<b>2,3,7,8-TCDD</b>	µg/kg	4/4	0.0006 - 0.0022	0.00148	0.00156	No results			
Tributyltin	µg/kg	13/38	3 - 240	40.00	10.5	8/20	0.97 - 16	6.0	2.9
Zinc	mg/kg	72/72	42 - 9,470	1,057	111	162/162	15 - 9,000	329	83

Focused contaminants of concern are shown in **bold**.

Abbreviations:

BEHP - bis(2-ethylhexyl)phthalate

DDD - dichlorodiphenyldichloroethane

DDE - dichlorodiphenyldichloroethene

DDT - dichlorodiphenyltrichloroethane

DDx - DDD + DDE + DDT

max - maximum

mg/kg - milligram per kilogram

min - minimum

PAH - polycyclic aromatic hydrocarbon

PCB - polychlorinated biphenyl

TCDD - 2,3,7,8-tetrachlorodibenzo-p-dioxin

µg/kg - microgram per kilogram



**Table 6. Concentrations of PTW Defined as “Highly Toxic”**

<b>Contaminant</b>	<b>Highly Toxic PTW Threshold (µg/kg) (10<sup>-3</sup> risk)</b>
PCBs	200
2,3,7,8-TCDD	0.01
2,3,7,8-TCDF	0.6
1,2,3,7,8-PeCDD	0.01
2,3,4,7,8-PeCDF	0.2
1,2,3,4,6,7,8-HxCDF	0.04
DDx	7,050
cPAHs (BaP eq)	106,000

Abbreviations:

cPAH (BaP eq) – carcinogenic PAHs (benzo(a)pyrene equivalent)

DDx – dichlorodiphenyldichloroethane + dichlorodiphenyldichloroethene +  
dichlorodiphenyltrichloroethane

HxCDF – hexachlorodibenzofuran

PAH – polycyclic aromatic hydrocarbon

PCB – polychlorinated biphenyl

PeCDD – pentachlorodibenzo-p-dioxin

PeCDF – pentachlorodibenzofuran

PTW – principal threat waste

TCDD – tetrachlorodibenzo-p-dioxin

TCDF – tetrachlorodibenzofuran

µg/kg – microgram per kilogram

**Table 7. Concentrations of PTW Defined as “Reliably Contained”**

<b>Contaminant</b>	<b>PTW Contaminants Reliably Contained</b>
Dioxins/furans	At all concentrations measured at the Site
PAHs	At all concentrations measured at the Site
Chlorobenzene	At concentrations <320 µg/kg
DDx	At all concentrations measured at the Site
Naphthalene	At concentrations <140,000 µg/kg
PCBs	At all concentrations measured at the Site

Abbreviations:

DDx – dichlorodiphenyldichloroethane + dichlorodiphenyldichloroethene +  
dichlorodiphenyltrichloroethane

PAH – polycyclic aromatic hydrocarbon

PCB – polychlorinated biphenyl

PTW – principal threat waste

µg/kg – microgram per kilogram

< – less than

**Table 8. Selected PCB and DDx Results for Fish Tissue**

<b>Fish Type</b>	<b>Number / Type of Sample</b>	<b>PCB Range (µg/kg)</b>	<b>DDx Range (µg/kg)</b>	<b>RM</b>
Smallmouth Bass	55 / Body without fillet	264 J to 8,160 J	43.1 J to 1,840	PCB: RM 11 to 12 DDx: RM 6 to 7
Brown Bullhead	6 / Whole body	83.3 J to 1,950 J	37.5 J to 141 J	RM 6 and 9
Black Crappie	4 / Whole body	103 J to 301 J	59.2 J to 99.6 J	RM 6 and 9
Carp	15 / Whole body	343 J to 25,100 J	73.3 J to 615 J	RM 4 to 8
Chinook Salmon	15 / Whole body	30 J to 277 J	16.9 J to 284	PCB: RM 3 and 4 DDx: RM 6 and 7
Sturgeon	5 / Skin-off fillets	84.7 to 964	38 J to 125 J	RM 6 and 7

Abbreviations:

DDx – total of dichlorodiphenyldichloroethane (DDD) + dichlorodiphenyldichloroethene (DDE) + dichlorodiphenyltrichloroethane (DDT)

J – estimated value

PCB – polychlorinated biphenyl

RM – river mile

µg/kg – microgram per kilogram

**Table 9. Fish Consumption Rates – Subsistence and Recreational Fishers**

<b>Receptor/Consumption</b>	<b>Subsistence Fisher RME</b>	<b>Recreational Fisher RME</b>	<b>Recreational Fisher CTE</b>
Adult	142 g/day	49 g/day	17.5 g/day
Child	60 g/day	20 g/day	7 g/day
Meals: Adult (8 ounces) Child (3 ounces)	19 meals/month	6.5 meals/month	2 meals/month

Abbreviations:

CTE – central tendency exposure

g – gram

RME – reasonable maximum exposure

**Table 10. Percentage of Types of Fish for Tribal Fishers Consumption**

<b>Species</b>	<b>Grams per day<sup>1</sup></b>	<b>Percent of diet</b>
Salmon	67	38.4
Lamprey	12.3	7.0
Sturgeon	8.6	4.9
Smelt	12.5	7.2
Whitefish	23.2	13.3
Trout	25.1	14.3
Walleye	9.9	5.7
Northern Pikeminnow	3.7	2.1
Sucker	7.3	4.2
Shad	5.2	3.0
<b>Total Consumption Rate</b>	<b>175</b>	<b>100</b>

(1) Rates are based on the weighted mean data in Table 18 of CRITFC 1994.



**Table 11a. BHHRA Results – Recreational and Subsistence Fishers**

Non-Cancer Hazard				Cancer Risk	
Recreational Fishers		Subsistence Fishers		Recreational Fishers	Subsistence Fishers
Child	Nursing Infant	Child	Nursing Infant	All Ages	All Ages
300	4,000	1,000	10,000	$4 \times 10^{-3}$	$1 \times 10^{-2}$

**Table 11b. BHHRA Results – Tribal Fishers (Fillet and Whole Body)**

Non-Cancer Hazard				Cancer Risk	
Fillet Only		Whole Body		Fillet Only	Whole Body
Child	Nursing Infant	Child	Nursing Infant	All Ages	All Ages
600	8,000	800	9,000	$2 \times 10^{-2}$	$1 \times 10^{-2}$

Abbreviations:

BHHRA – Baseline Human Health Risk Assessment

**Table 12. Number of COPCs Evaluated in the BERA**

<b>Medium or Diet</b>	<b>No. of COPCs</b>	<b>No. of Chemicals without Screening-Level TRVs</b>
Sediment	67	106
Invertebrate tissue	18	23
Fish tissue	16	8
Fish dietary dose	9	11
Bird dietary dose	23	19
Mammal dietary dose	12	11
Bird egg tissue	5	0
Surface water	14	19
TZW	58	14

**Notes:**

- BERA - baseline ecological risk assessment
- COPC - contaminant of potential concern
- TRV - toxicity reference value
- TZW - transition zone water

**Table 13. COPCs Forwarded to the BERA after Screening**

<b>Receptor Group</b>	<b>Media Evaluated</b>	<b>Number of COPCs</b>	<b>COPCs</b>
Benthic invertebrates, bivalves, decapods	Surface water, TZW, sediment, tissue	104	20 metals, 2 butyltins, 21 individual PAHs or PAH sums, 4 phthalates, 12 SVOCs, 6 phenols, 16 pesticide or pesticide sums, total PCBs, 2,3,7,8-TCDD (dioxin), 16 VOCs, 3 total TPH fractions, cyanide, perchlorate
Fish	Surface water, TZW, sediment, diet, tissue	74	19 metals, 4 butyltins, 17 individual PAHs or PAH sums, BEHP, 3 SVOCs, total PCBs, dioxin TEQ, total TEQ, 7 pesticide or pesticide sums, 18 VOCs, cyanide, perchlorate
Birds and mammals	Diet (birds and mammals), bird eggs	23 (birds) 12 (mammals)	11 metals, 3 individual PAHs or PAH sums, 2 phthalates, total PCBs, dioxin TEQ, PCB TEQ, total TEQ, 3 pesticide or pesticide sums
Aquatic plants, amphibians	Surface water, TZW	64	15 metals, monobutyltin, 16 individual PAHs, BEHP, 3 SVOCs, total PCBs, 6 pesticide or pesticide sums, 18 VOCs, gasoline-range hydrocarbons, cyanide, perchlorate

**Notes:**

- BEHP - bis(2-ethylhexyl) phthalate
- BERA - baseline ecological risk assessment
- COPC - contaminant of potential concern
- PAH - polycyclic aromatic hydrocarbon
- PCB - polychlorinated biphenyl
- SVOC - semivolatile organic compound
- TCDD - tetrachlorodibenzo-p-dioxin
- TEQ - toxic equivalent
- TPH - total petroleum hydrocarbons
- TZW - transition zone water
- VOC - volatile organic compound

**Table 14. COPCs with HQ  $\geq$  1.0 Organized by Assessment Endpoint and Line of Evidence for the Portland Harbor BERA**

Line of Evidence	COPCs with HQ $\geq$ 1.0
<b>Assessment Endpoint:<sup>a</sup> Benthic Invertebrate Survival, Growth, and Reproduction</b>	
<b>Macroinvertebrates (e.g., amphipods, isopods, bivalves, gastropods, oligochaetes, insects, decapods)</b>	
Survival and biomass of <i>Chironomus dilutus</i> and <i>Hyalella azteca</i> exposed to site sediments compared with reference area sediments	Responses based on chemical mixtures; no individual COPCs identified
Concentrations in site sediment compared with effect levels derived from FPM and LRM models (i.e., SQVs) predicting reduced survival or biomass based on Portland Harbor surface sediment concentrations and toxicity reported for both <i>Hyalella</i> and <i>Chironomus</i> endpoints	6 metals, TBT, 19 individual PAHs or group sums, dibutyl phthalate, 3 SVOCs, 2 phenolic compounds, PCBs, 15 individual pesticides or group sums, diesel-range hydrocarbons
Concentrations in site sediment compared with national consensus-based SQGs (PECs and related quotients), and effects-based SQGs (PELs, and related quotients)	8 metals, 14 individual PAHs or group sums, 2 PCBs, 9 individual pesticides or group sums
Concentrations in site sediment compared with TPH SQGs	Diesel-, gasoline-, residual-range hydrocarbons
Concentrations in surface water compared with state WQS, national AWQC, or effects-based values derived from the literature that are protective of benthic macroinvertebrate survival, growth, and reproduction	Zinc, benzo(a)anthracene, benzo(a)pyrene, naphthalene, BEHP, total DDx, <sup>b</sup> ethylbenzene, trichlorethene
Concentrations in shallow TZW compared with state WQS, national AWQC, or effects-based values derived from the literature that are protective of benthic macroinvertebrate survival, growth, and reproduction	14 metals, 16 individual PAHs, 3 SVOCs, the pesticides 4,4'-DDT <sup>b</sup> and total DDx, <sup>b</sup> 16 VOCs, gasoline-range hydrocarbons, cyanide and perchlorate
Empirical (field-collected) whole-body concentrations of epibenthic organisms compared with tissue TRVs	None
Steady-state estimates of laboratory-exposed whole-body concentrations in <i>Lumbriculus</i> compared with tissue TRVs	Arsenic, copper, zinc, TBT, PCBs, total DDx
Predicted (BSAF) whole-body concentrations of <i>Lumbriculus</i> compared with tissue TRVs	TBT, PCBs, total DDX



**Table 14. COPCs with HQ ≥ 1.0 Organized by Assessment Endpoint and Line of Evidence for the Portland Harbor BERA**

Line of Evidence	COPCs with HQ ≥ 1.0
<b>Bivalves (clams, mussels)</b>	
Empirical (field-collected) whole-body concentrations in <i>Corbicula fluminea</i> and freshwater mussels compared with tissue TRVs	Copper, zinc, TBT, PCBs
Steady-state estimates of laboratory-exposed whole-body concentrations in <i>Corbicula fluminea</i> compared with tissue TRVs	TBT, BEHP, total DDx
Predicted (BSAF) whole-body concentrations in <i>Corbicula fluminea</i> compared with tissue TRVs	Total PCBs, total DDx
<i>Corbicula fluminea</i> survival compared with control data from bioaccumulation tests	Responses based on chemical mixtures; no individual COPCs identified
Survival and biomass of <i>Chironomus dilutus</i> and <i>Hyalella azteca</i> exposed to site sediments, compared with reference sediments	Responses based on chemical mixtures; no individual COPCs identified
Concentrations in surface water compared with state WQS, national AWQC, or effects-based values derived from the literature that are protective of benthic macroinvertebrate survival, growth, and reproduction	Zinc, benzo(a)anthracene, benzo(a)pyrene, naphthalene, BEHP, total DDx, <sup>b</sup> ethylbenzene, trichlorethene
Concentrations in shallow TZW compared with state WQS, national AWQC, or effects-based values derived from the literature that are protective of benthic macroinvertebrate survival, growth, and reproduction	14 metals, 16 individual PAHs, 3 SVOCs, the pesticides 4,4'-DDT <sup>b</sup> and total DDx, <sup>b</sup> 16 VOCs, gasoline-range hydrocarbons, cyanide and perchlorate
Concentrations in site sediment compared with national consensus-based SQGs (PECs and related quotients) and effects-based SQGs (PELs and related quotients)	8 metals, 14 individual PAHs or group sums, 2 PCBs, 9 individual pesticides or group sums
Concentrations in site sediment compared with TPH SQGs	Diesel-, gasoline-, residual-range hydrocarbons
<b>Decapods (crayfish)<sup>c</sup></b>	
Empirical whole-body concentrations in crayfish compared with tissue TRVs	Copper
Predicted (BSAF or FWM) whole-body concentrations in crayfish compared with tissue TRVs	Total PCBs, total DDx

**Table 14. COPCs with HQ  $\geq$  1.0 Organized by Assessment Endpoint and Line of Evidence for the Portland Harbor BERA**

Line of Evidence	COPCs with HQ $\geq$ 1.0
Concentrations in site sediment compared with national consensus-based SQGs (PECs and related quotients) and effects-based SQGs (PELs and related quotients)	8 metals, 14 individual PAHs or group sums, 2 PCBs, 9 individual pesticides or group sums
Concentrations in site sediment compared with TPH SQGs	Diesel-, gasoline-, residual-range hydrocarbons
Concentrations in surface water compared with state WQS, national AWQC, or effects-based values derived from the literature that are protective of benthic macroinvertebrate survival, growth, and reproduction	Zinc, benzo(a)anthracene, benzo(a)pyrene, naphthalene, BEHP, total DDx, <sup>b</sup> ethylbenzene, trichlorethene
Concentrations in shallow TZW compared with state WQS, national AWQC, or effects-based values derived from the literature that are protective of benthic macroinvertebrate survival, growth, and reproduction	14 metals, 16 individual PAHs, 3 SVOCs, the pesticides 4,4'-DDT <sup>b</sup> and total DDx, <sup>b</sup> 16 VOCs, gasoline-range hydrocarbons, cyanide and perchlorate
<b>Assessment Endpoint:<sup>a</sup> Fish Survival, Growth, and Reproduction</b>	
<b>Omnivorous Fish (white sturgeon, largescale sucker<sup>d</sup>)</b>	
Empirical whole-body concentrations compared with tissue TRVs	Total PCBs
Dietary dose (including incidental sediment ingestion) compared with dietary TRVs	Copper
Concentrations in surface water compared with state WQS, national AWQC, <sup>b</sup> or effects-based values derived from the literature that are protective of fish survival, growth, and reproduction	No COPCs had HQs $\geq$ 1.0 <sup>e</sup>
Correlation of lesion prevalence with areas of contamination and/or comparison to lesion-based TRVs (if relevant to receptor species) <sup>f</sup>	Inconclusive for PAHs
<b>Invertivorous Fish (juvenile Chinook salmon,<sup>g</sup> peamouth, sculpin)</b>	
Empirical whole-body concentrations compared with tissue TRVs	Copper, lead, total PCBs, total DDx, BEHP
Predicted (BSAF or FWM) whole-body concentration compared with tissue TRVs (sculpin only)	Total PCBs, total DDx

**Table 14. COPCs with HQ  $\geq$  1.0 Organized by Assessment Endpoint and Line of Evidence for the Portland Harbor BERA**

Line of Evidence	COPCs with HQ $\geq$ 1.0
Dietary dose (including incidental sediment ingestion) compared with dietary TRVs	Cadmium, copper, TBT
Concentrations in surface water compared with state WQS, national AWQC or effects-based TRVs reported in the literature	Zinc, benzo(a)anthracene, benzo(a)pyrene, naphthalene, BEHP, total DDx <sup>b</sup> , trichlorethene
Concentrations in shallow TZW compared with state WQS, national AWQC or effects-based TRVs reported in the literature (sculpin only)	14 metals, 16 PAHs, 3 SVOCs, the pesticides 4,4'-DDT <sup>b</sup> and total DDx <sup>b</sup> , 16 VOCs, gasoline-range hydrocarbons, cyanide and perchlorate
<b>Piscivorous Fish (northern pikeminnow, smallmouth bass)</b>	
Empirical whole-body concentrations compared with tissue TRVs	Antimony, lead, total PCBs, total DDx, BEHP
Predicted (BSAF or FWM) whole-body concentrations compared with tissue TRVs (smallmouth bass only)	This LOE was not evaluated because empirical tissue data were available from all exposure areas.
Concentrations in surface water compared with reported state WQS, national AWQC, <sup>b</sup> or effects-based TRVs reported in the literature	Zinc, benzo(a)anthracene, benzo(a)pyrene, naphthalene, BEHP
Dietary dose (including incidental sediment ingestion) compared with dietary TRVs	Copper
<b>Detritivorous Fish (Pacific lamprey ammocoete<sup>a</sup>)</b>	
Empirical whole-body concentration compared with tissue TRV	Copper
Concentrations in surface water compared with state WQS, national AWQC, or literature-based values that are protective of early life stages.	No COPCs had HQs $\geq$ 1.0 <sup>c</sup>
Concentration in shallow TZW compared with state WQS, national AWQC, or effects-based values reported in the literature that are protective of early life stages <sup>h</sup>	14 metals, 16 PAHs, 3 SVOCs, the pesticides 4,4'-DDT <sup>b</sup> and total DDx <sup>b</sup> , 16 VOCs, gasoline-range hydrocarbons, cyanide and perchlorate
<b>Assessment Endpoint:<sup>a</sup> Bird Survival, Growth, and Reproduction</b>	
<b>Invertivorous Birds (spotted sandpiper)</b>	
Dietary dose (including incidental sediment ingestion) compared with dietary TRV	Copper, benzo(a)pyrene, dibutyl phthalate, total PCBs, PCB TEQ, total dioxin/furan TEQ, total TEQ, sum DDE, total DDx, aldrin

**Table 14. COPCs with HQ ≥ 1.0 Organized by Assessment Endpoint and Line of Evidence for the Portland Harbor BERA**

Line of Evidence	COPCs with HQ ≥ 1.0
<b>Omnivorous Birds (hooded merganser)</b>	
Dietary dose (including incidental sediment ingestion) compared with dietary TRV	Total PCBs
<b>Piscivorous Birds (osprey, bald eagle)</b>	
Dietary-based approach incorporating food chain transfer of contaminants from appropriate fish species (assuming all exposure comes from prey fish) and incidental sediment ingestion	Lead, total PCBs
Measured concentrations in osprey eggs compared with egg- or embryo-based TRVs for DDT and metabolites, PCBs, and dioxin-like compounds	Total PCBs, PCB TEQ, total dioxin/furan TEQ, total TEQ
<b>Assessment Endpoint:<sup>a</sup> Mammal Survival, Growth, and Reproduction</b>	
<b>Aquatic-Dependent Mammals (mink, river otter)</b>	
Dietary dose compared with dietary TRVs	Aluminum, lead, total PCBs, PCB TEQ, total dioxin/furan TEQ, total TEQ
<b>Assessment Endpoint:<sup>a</sup> Amphibian Survival, Growth, and Reproduction (frogs, salamanders)</b>	
Concentrations in surface water compared with state WQS, national AWQC, or effects-based values reported in the literature that are protective of sensitive life stages	Zinc, benzo(a)anthracene, benzo(a)pyrene, naphthalene, BEHP, total DDx <sup>b</sup>
Concentrations in shallow TZW compared with state WQS, national AWQC, or effects-based values reported in the literature that are protective of sensitive life stages	11 metals, 8 PAHs, the SVOC 1,2-dichlorobenzene, the pesticides 4,4'-DDT <sup>b</sup> and total DDx <sup>b</sup> , 8 VOCs, gasoline-range hydrocarbons, and the conventionals cyanide and perchlorate
<b>Assessment Endpoint:<sup>a</sup> Aquatic Plant Survival, Growth, and Reproduction (phytoplankton, periphyton, macrophytes)</b>	
Concentrations in surface water compared with state WQS, national AWQC, or effects-based values derived from the literature that are protective of sensitive life stages (e.g., germination, emergence, early life stage growth)	Zinc, benzo(a)anthracene, benzo(a)pyrene, naphthalene, BEHP, total DDx <sup>b</sup>



**Table 14. COPCs with HQ ≥ 1.0 Organized by Assessment Endpoint and Line of Evidence for the Portland Harbor BERA**

Line of Evidence	COPCs with HQ ≥ 1.0	
Concentrations in shallow TZW compared with state WQS, national AWQC, or effects-based values derived from the literature that are protective of sensitive life stages (e.g., germination, emergence, early life stage growth)	11 metals, 8 PAHs, the SVOC 1,2-dichlorobenzene, the pesticides 4,4'-DDT <sup>b</sup> and total DDx, <sup>b</sup> 8 VOCs, gasoline-range hydrocarbons, and the conventionals cyanide and perchlorate	
<p><sup>a</sup> The assessment endpoints for all receptors are based on protection and maintenance of their populations and the communities in which they live, except that the health of threatened or endangered species is to be protected at the level of the individual organism. Per the SOW and the problem formulation (Attachment 2), and as stated in the Programmatic Work Plan (Integral et al. 2004b), the assessment endpoints were expressed as the survival, growth, and reproduction of each receptor group.</p> <p><sup>b</sup> Risk estimates for total PCBs, 4,4'-DDT, and total DDx for the surface water and TZW LOEs are based on the alternative total PCB and 4,4'-DDT TRVs for the protection of directly exposed aquatic organisms, rather than the selected AWQC based TRVs. Additional exceedances occur using the AWQC-based TRVs and HQs, as presented in Table 11-3. The alternative TRVs are considered more appropriate for evaluating direct exposure of aquatic organisms because the national AWQC are based on protection of dietary risks to mammals and birds.</p> <p><sup>c</sup> Although these LOEs are components of the benthic invertebrate community, the bivalve population and decapod population assessment endpoints are presented separately in this table. Evaluation of sediment toxicity to <i>Chironomus</i> and <i>Hyalella</i> and comparison of surface water and shallow TZW concentrations to TRVs were each conducted and presented only once as part of the benthic invertebrate community assessment. Similarly, comparison of sediment concentrations to published SQGs also occurred and was presented only once as part of the benthic community assessment.</p> <p><sup>d</sup> Carp is not an ROC for the BERA but whole-body carp tissue was analyzed for dioxin-like chemicals, including PCB congeners; for these chemicals, carp is a surrogate for other omnivorous fish species.</p> <p><sup>e</sup> The site-wide total DDx surface water HQ was &gt; 1.0 based on the selected AWQC-based TRV but not the alternative TRV.</p> <p><sup>f</sup> Lesion prevalence is not a primary LOE in the BERA, inasmuch as it does not directly address any BERA assessment endpoint. Because effects on survival, growth, or reproduction cannot be quantified from the lesion LOE, no quantitative risk management recommendations can be derived from the lesion LOE.</p> <p><sup>g</sup> Juvenile Chinook salmon and Pacific lamprey ammocoetes were evaluated at the organism level because they have special status are (juvenile Chinook is federally threatened and Pacific lamprey is an Oregon state sensitive species of special concern to Tribes); effect thresholds based on reproduction are used as a surrogate for growth in juvenile Chinook salmon and Pacific lamprey ammocoetes.</p> <p><sup>h</sup> The TZW exposure pathway for fish receptors is considered complete and significant for only sculpin and lamprey ammocoetes. The ecological CSM shows a complete TZW exposure pathway for sucker, carp, and sturgeon but categorizes the pathway as insignificant.</p>		
<p>AWQC – ambient water quality criteria BEHP – bis(2-ethylhexyl) phthalate BERA – baseline ecological risk assessment BSAF – biota-sediment accumulation factor CERCLA – Comprehensive Environmental Response, Compensation, and Liability Act COPC – contaminant of potential concern CSM – conceptual site model DDD – dichlorodiphenyldichloroethane DDE – dichlorodiphenyldichloroethylene DDT – dichlorodiphenyltrichloroethane EPA – US Environmental Protection Agency</p>	<p>FWM – food web model HQ – hazard quotient LOE – line of evidence PAH – polycyclic aromatic hydrocarbon PCB – polychlorinated biphenyl PEC – probable effects concentration PEL – probable effects level ROC – receptor of concern SOW – scope of work SQG – sediment quality guideline SQV – sediment quality value</p>	<p>SVOC – semivolatile organic compound TBT – tributyltin TEQ – toxic equivalent total DDx – sum of all six DDT isomers (2,4'-DDD, 4,4'-DDD, 2,4'-DDE, 4,4'-DDE, 2,4'-DDT, and 4,4'-DDT) TPH – total petroleum hydrocarbons TRV – toxicity reference value TZW – transition zone water VOC – volatile organic compound WQS – water quality standards</p>

**Table 15. Contaminants Posing Potentially Unacceptable Risks by River Mile in Selected Media**

River Mile	Sample Type	Contaminants Posing Potentially Unacceptable Risk (Maximum HQ or EF within River Mile)
1.9 – 2.99	Sediment <sup>a</sup>	<p><b>Metals (3):</b> chromium (2.5<sup>c</sup>), lead (1.2), zinc (2.6)</p> <p><b>PAHs (14):</b> 2-methylnaphthalene (2.7), acenaphthene (130), acenaphthylene (8.6), anthracene (57), benzo(a)anthracene (26), benzo(a)pyrene (10), chrysene (13), dibenzo(a,h)anthracene (5.7), fluoranthene (13), fluorene (69), naphthalene (1.8), phenanthrene (170), pyrene (45), total PAHs (11)</p> <p><b>PCBs (2):</b> total PCBs (6.9), Aroclor 1254 (1.5)</p> <p><b>Pesticides (6):</b> sum DDD (3.7), sum DDE (1.3), sum DDT (5.5), dieldrin (1.4), total chlordanes (2.0), <math>\gamma</math>-HCH (Lindane) (7.2)</p> <p><b>Petroleum hydrocarbons (2):</b> diesel-range hydrocarbons (29), residual-range hydrocarbons (1.5)</p>
	Surface water <sup>b</sup>	4,4'-DDT (1.9, 0.17), total DDx (20, 1.8)
	TZW	No TZW samples collected within this river reach
	Bivalves <sup>d</sup>	Copper (1.4), zinc (1.7)
	Smallmouth bass	Total PCBs (1.5)
	Sculpin	Total PCBs (3.7)
	3.0 – 3.99	Sediment <sup>a</sup>
Surface water <sup>b</sup>		Total PCBs (1.1, 0.078), 4,4'-DDT (1.9, 0.17), total DDx (3.2, 0.29), BEHP (2.3)
TZW		No TZW samples collected within this river reach
Bivalves <sup>d</sup>		Copper (1.4), zinc (2.0)
Smallmouth bass <sup>e</sup>		BEHP (54), total PCBs (1.6)
Sculpin		None

**Table 15. Contaminants Posing Potentially Unacceptable Risks by River Mile in Selected Media**

River Mile	Sample Type	Contaminants Posing Potentially Unacceptable Risk (Maximum HQ or EF within River Mile)
4.0 – 4.99	Sediment <sup>a</sup>	<p><b>Metals (7):</b> cadmium (2.9), chromium (2.6), copper (1.4), lead (21), mercury (1.5), nickel (2.2), zinc (6.5)</p> <p><b>PAHs (14):</b> 2-methylnaphthalene (4.7), acenaphthene (120), acenaphthylene (3.5), anthracene (36), benzo(a)anthracene (110), benzo(a)pyrene (61), chrysene (51), dibenzo(a,h)anthracene (48), fluoranthene (29), fluorene (24), naphthalene (4.3), phenanthrene (62), pyrene (85), total PAHs (21)</p> <p><b>PCBs (1):</b> total PCBs (6.1)</p> <p><b>Pesticides (5):</b> sum DDD (6.8), sum DDE (1.8), sum DDT (32), <math>\gamma</math>-HCH (Lindane) (1.8), chlordane (cis and trans) (2.9)</p> <p><b>Petroleum hydrocarbons (3):</b> gasoline-range hydrocarbons (1.4), diesel-range hydrocarbons (8.3), residual-range hydrocarbons (2.0)</p>
	Surface water <sup>b</sup>	4,4'-DDT (2.5, 0.23), total DDx (3.9, 0.35)
	TZW	<p><b>Metals (6):</b> barium (88), beryllium (1.8), cadmium (1.6), iron (91), manganese (72), zinc (14)</p> <p><b>PAHs (4):</b> benzo(a)anthracene (5.6), benzo(a)pyrene (25), benzo(g,h,i)perylene (1.1), indeno(1,2,3-cd)pyrene (1.2)</p> <p><b>Petroleum hydrocarbons (1):</b> aliphatic hydrocarbons C10 – C12 (32)</p>
	Bivalves <sup>d</sup>	Copper (1.4), zinc (1.6)
	Smallmouth bass <sup>c</sup>	Total PCBs (1.6)
	Sculpin	BEHP (5.9)
	5.0 – 5.99	Sediment <sup>a</sup>
Surface water <sup>b</sup>		4,4'-DDD (1.1, 0.10), 4,4'-DDT (3.3, 0.30), total DDx (4.4, 0.40)
TZW		<b>Metals (5):</b> barium (77), cadmium (1.1), iron (110), lead (3.0), manganese (150)

**Table 15. Contaminants Posing Potentially Unacceptable Risks by River Mile in Selected Media**

River Mile	Sample Type	Contaminants Posing Potentially Unacceptable Risk (Maximum HQ or EF within River Mile)
6.0 – 6.99	Bivalves <sup>d</sup>	<b>PAHs (4):</b> benzo(a)anthracene (8.5), benzo(a)pyrene (15), fluorene (1.5), phenanthrene (2.4)
		<b>Petroleum hydrocarbons (2):</b> aliphatic hydrocarbons C4 – C6 (1.1), aliphatic hydrocarbons C10 – C12 (85)
		Copper (1.5), zinc (1.3)
	Smallmouth bass	None
	Sculpin	Copper (1.1)
	Sediment <sup>a</sup>	<b>Metals (7):</b> arsenic (3.2), chromium (2.2), copper (4.1), lead (150), mercury (130), nickel (5.6), zinc (3.5)
		<b>PAHs (14):</b> 2-methylnaphthalene (260), acenaphthene (2,000), acenaphthylene (94), anthracene (650), benzo(a)anthracene (310), benzo(a)pyrene (200), chrysene (160), dibenzo(a,h)anthracene (110), fluoranthene (160), fluorene (760), naphthalene (260), phenanthrene (780), pyrene (510), total PAHs (110)
Surface water <sup>b</sup>	<b>PCBs (2):</b> Aroclor 1254 (1.1), total PCBs (12)	
	<b>Pesticides (8):</b> sum DDD (160), sum DDE (130), sum DDT (100), total DDx (3.0), dieldrin (1.7),-γ-HCH (Lindane) (16), heptachlor epoxide (5.1), total chlordane (28)	
	<b>Petroleum hydrocarbons (3):</b> gasoline-range hydrocarbons (21), diesel-range hydrocarbons (220), residual-range hydrocarbons (14)	
TZW	Benzo(a)anthracene (10), benzo(a)pyrene (14), naphthalene (50), BEHP <sup>e</sup> (1.2), total PCBs (1.2, 0.089), 4,4'-DDT (2.9, 0.26), Total DDx (7.7, 0.70), ethylbenzene (1.6), trichloroethene (4.1)	
	<b>Metals (11):</b> barium (170), beryllium (1.7), cadmium (5.8), cobalt (16), copper (1.3), iron (180), lead (2.8), magnesium (2.2), manganese (130), nickel (1.2), vanadium (19)	
		<b>PAHs (16):</b> 2-methylnaphthalene (40), acenaphthene (17), anthracene (87), benzo(a)anthracene (1,200), benzo(a)pyrene (2,700), benzo(b)fluoranthene (49), benzo(k)fluoranthene (14), benzo(g,h,i)perylene (66), chrysene (17), dibenzo(a,h)anthracene (13), fluoranthene (17), fluorene (28), indeno(1,2,3-cd)pyrene (61), naphthalene (1,100), phenanthrene (57), pyrene (15)
		<b>SVOCs (3):</b> dibenzofuran (2.2), 1,2-dichlorobenzene (46), 1,4-dichlorobenzene (16)
		<b>VOCs (14):</b> 1,1-dichloroethene (1.6), 1,2,4-trimethylbenzene (9.6), 1,3,5-trimethylbenzene (3.0), benzene (30), carbon disulfide (870), chlorobenzene (3.3), cis-1,2-dichloroethene (110), ethylbenzene (57), isopropylbenzene (2.0), m,p-xylene (4.4), o-xylene (12), total xylenes (34), toluene (18), trichloroethene (1,900)

**Table 15. Contaminants Posing Potentially Unacceptable Risks by River Mile in Selected Media**

River Mile	Sample Type	Contaminants Posing Potentially Unacceptable Risk (Maximum HQ or EF within River Mile)
7.0 – 7.99	Bivalves <sup>d</sup>	<b>Petroleum hydrocarbons (4):</b> aliphatic hydrocarbons C4 – C6 (7.3), aliphatic hydrocarbons C6 – C8 (4.3), Aliphatic hydrocarbons C10 – C12 (540), aromatic hydrocarbons C8 – C10 (2.7)
		<b>Conventionals (1):</b> cyanide (4,400)
		<b>Pesticides (1):</b> total DDx (210, 19) <sup>f</sup>
		Copper (1.5), zinc (1.6), total PCBs (2.0)
	Smallmouth bass <sup>c</sup>	Total PCBs (2.2), total DDx (2.3)
	Sculpin	Total PCBs (2.6)
	Sediment <sup>a</sup>	<b>Metals (6):</b> arsenic (4.4), chromium (3.0), copper (4.2), lead (14), nickel (5.0), zinc (8.4)
		<b>PAHs (12):</b> acenaphthene (2.4), acenaphthylene (11), anthracene (4.5), benzo(a)anthracene (42), benzo(a)pyrene (15), chrysene (22), dibenzo(a,h)anthracene (29), fluoranthene (7.6), fluorene (5.0), phenanthrene (9.5), pyrene (15), total PAHs (6.6)
		<b>PCBs (1):</b> total PCBs (2.8)
		<b>Pesticides (8):</b> sum DDD (360), sum DDE (190), sum DDT (2,700), total DDx (28), dieldrin (1.9), γ-HCH (Lindane) (310), heptachlor epoxide (6.2), total chlordane (75)
8.0 – 8.99	Surface water <sup>b</sup>	<b>Petroleum hydrocarbons (1):</b> diesel-range hydrocarbons (5.5)
		4,4'-DDT (3.9, 0.35), total DDx (9.8, 0.89)
	TZW	<b>Metals (9):</b> barium (1,100), beryllium (2.0), cadmium (2.6), iron (250), magnesium (7.0), manganese (550), nickel (1.6), potassium (3.7), sodium (55)
		<b>PAHs (1):</b> naphthalene (2.2)
		<b>Pesticides (2):</b> 4,4'-DDT (1,800, 160) <sup>f</sup> , total DDx (3,100, 280) <sup>f</sup>
		<b>VOCs (2):</b> chlorobenzene (190), chloroform (21)
		<b>Petroleum hydrocarbons (1):</b> aliphatic hydrocarbons C10 – C12 (3.8)
		<b>Conventionals (1):</b> perchlorate (19)
	Bivalves <sup>d</sup>	Copper (1.3), zinc (1.7)
	Smallmouth bass <sup>c</sup>	Total PCBs (2.2), total DDx (2.3)
Sculpin	Total DDx (4.9)	
Sediment <sup>a</sup>	<b>Metals (8):</b> arsenic (2.0), cadmium (1.5), chromium (8.6), copper (5.2), lead (10), mercury (4.1), nickel (4.3), zinc (4.3)	



**Table 15. Contaminants Posing Potentially Unacceptable Risks by River Mile in Selected Media**

River Mile	Sample Type	Contaminants Posing Potentially Unacceptable Risk (Maximum HQ or EF within River Mile)
		<p><b>PAHs (12):</b> 2-Methylnaphthalene (1.8), acenaphthene (9.1), acenaphthylene (1.5), anthracene (3.6), benzo(a)anthracene (3.1), benzo(a)pyrene (1.7), chrysene (1.5), dibenzo(a,h)anthracene (1.6), fluoranthene (1.3), fluorene (5.3), phenanthrene (4.2), pyrene (3.3)</p> <p><b>PCBs (2):</b> Aroclor 1254 (1.1), total PCBs (110)</p> <p><b>Pesticides (8):</b> sum DDD (160), sum DDE (370), sum DDT (14), total DDx (6.9), dieldrin (53), <math>\gamma</math>-HCH (Lindane) (5.0), heptachlor epoxide (1.7), total chlordane (74)</p> <p><b>Petroleum hydrocarbons (3):</b> gasoline-range hydrocarbons (8.2), diesel-range hydrocarbons (93), residual-range hydrocarbons (15)</p>
	Surface water <sup>b</sup>	4,4'-DDT (2.9, 0.26), total DDx (4.3, 0.39)
	TZW	<p><b>Metals (3):</b> barium (68), iron (91), manganese (43)</p> <p><b>VOCs (1):</b> chloroethane (3.4)</p>
	Bivalves <sup>d</sup>	Copper (1.2), zinc (1.9)
	Smallmouth bass <sup>c</sup>	Total PCBs (1.0)
	Sculpin	None
Swan Island Lagoon <sup>e</sup>	Sediment <sup>a</sup>	<p><b>Metals (8):</b> arsenic (1.0), cadmium (13), chromium (1.6), copper (7.2), lead (10), mercury (1.8), nickel (17), zinc (9)</p> <p><b>PAHs (13):</b> 2-methylnaphthalene (1.5), acenaphthene (3.4), acenaphthylene (3.9), anthracene (5.6), benzo(a)anthracene (14), benzo(a)pyrene (3.3), chrysene (13), dibenzo(a,h)anthracene (4.9), fluoranthene (17), fluorene (2.5), phenanthrene (22), pyrene (34), total PAHs (4.8)</p> <p><b>PCBs (2):</b> Aroclor 1254 (3.2), total PCBs (9.0)</p> <p><b>Pesticides (6):</b> sum DDD (8.4), sum DDE (3.1), sum DDT (29), dieldrin (3.3), <math>\gamma</math>-HCH (Lindane) (7.9), total chlordane (21)</p> <p><b>Petroleum hydrocarbons (2):</b> diesel-range hydrocarbons (25), residual-range hydrocarbons (1.4)</p>
	Surface water	None
	TZW	No TZW samples collected within Swan Island Lagoon
	Bivalves <sup>d</sup>	Copper (1.8), zinc (2.2), TBT (3.5)
	Smallmouth bass	Total PCBs (5.3)
	Sculpin	BEHP (18)
9.0 – 9.99	Sediment <sup>a</sup>	<p><b>Metals (4):</b> Copper (2.7), lead (1.9), nickel (1.2), zinc (2.4)</p> <p><b>PAHs (10):</b> acenaphthene (7.1), anthracene (3.6), benzo(a)anthracene (4.2), benzo(a)pyrene (1.1), chrysene (1.7), fluoranthene (2.7), fluorene (6.7),</p>

**Table 15. Contaminants Posing Potentially Unacceptable Risks by River Mile in Selected Media**

River Mile	Sample Type	Contaminants Posing Potentially Unacceptable Risk (Maximum HQ or EF within River Mile)	
10.0 – 10.99	Sediment <sup>a</sup>	phenanthrene (11), pyrene (5.5), total PAHs (1.1) <b>PCBs (2):</b> Aroclor 1254 (4.9), total PCBs (9.0) <b>Pesticides (5):</b> sum DDD (6), sum DDE (3.1), sum DDT (4), $\gamma$ -HCH (Lindane) (5.3), total chlordane (1.4) <b>Petroleum hydrocarbons (3):</b> gasoline-range hydrocarbons (1.8), diesel-range hydrocarbons (5.1), residual-range hydrocarbons (2.1)	
		Surface water <sup>b</sup>	Zinc (1.1), 4,4'-DDT (4.7, 0.43), total DDx (5.9, 0.54)
		TZW	No TZW samples collected within this river reach
		Bivalves <sup>d</sup>	Copper (1.2), zinc (1.6)
		Smallmouth bass <sup>c</sup>	Antimony (5.4), Lead (280), BEHP (1.8), total PCBs (1.0)
		Sculpin	None
		Surface water <sup>b</sup>	None
		TZW	No TZW samples collected within this river reach
		Bivalves <sup>d</sup>	Zinc (1.1)
		Smallmouth bass <sup>c</sup>	Antimony (5.4), Lead (280), BEHP (1.8), total PCBs (7.1)
11.0 – 11.8	Sediment <sup>a</sup>	<b>Metals (6):</b> arsenic (2.5), copper (2.1), lead (2.6), mercury (2.2), nickel (1.2), zinc (2.4) <b>PAHs (7):</b> acenaphthene (4.7), benzo(a)anthracene (1.6), benzo(a)pyrene (1.2), dibenzo(a,h)anthracene (1.7), fluorene (2.8), phenanthrene (1.9), pyrene (2.1) <b>PCBs (2):</b> Aroclor 1254 (1.4), total PCBs (3.4) <b>Pesticides (5):</b> sum DDD (1.6), sum DDT (2.7), $\gamma$ -HCH (Lindane) (6.9), heptachlor epoxide (1.1), total chlordane (2.0) <b>Petroleum hydrocarbons (2):</b> gasoline-range hydrocarbons (1.1), diesel-range hydrocarbons (3.2)	
		Surface water <sup>b</sup>	None
		TZW	No TZW samples collected within this river reach
		Bivalves <sup>d</sup>	Zinc (1.1)
		Smallmouth bass <sup>c</sup>	Antimony (5.4), Lead (280), BEHP (1.8), total PCBs (7.1)
		Sculpin	Copper (2.3)
		Surface water <sup>b</sup>	None
		TZW	No TZW samples collected within this river reach
		Bivalves <sup>d</sup>	Zinc (1.1)
		Smallmouth bass <sup>c</sup>	Antimony (5.4), Lead (280), BEHP (1.8), total PCBs (7.1)
11.0 – 11.8	Sediment <sup>a</sup>	<b>Metals (4):</b> chromium (2.1), copper (19), lead (5.1), nickel (2.0) <b>PAHs (6):</b> 2-methylnaphthalene (2.2), acenaphthene (1.8), anthracene (1.1), fluorene (1.6), phenanthrene (2.9), pyrene (1.1) <b>PCBs (2):</b> Aroclor 1254 (3.8), total PCBs (22) <b>Pesticides (4):</b> sum DDD (10), sum DDT (80), $\gamma$ -HCH (Lindane) (3.8), total chlordane (21) <b>Petroleum hydrocarbons (2):</b> diesel-range hydrocarbons (1.7), residual-range hydrocarbons (1.3)	
		Surface water <sup>b</sup>	None
		TZW	No TZW samples collected within this river reach
		Bivalves <sup>d</sup>	Zinc (1.1)
		Smallmouth bass <sup>c</sup>	Antimony (5.4), Lead (280), BEHP (1.8), total PCBs (7.1)
		Sculpin	Copper (2.3)
		Surface water <sup>b</sup>	None
		TZW	No TZW samples collected within this river reach
		Bivalves <sup>d</sup>	Zinc (1.1)
		Smallmouth bass <sup>c</sup>	Antimony (5.4), Lead (280), BEHP (1.8), total PCBs (7.1)

**Table 15. Contaminants Posing Potentially Unacceptable Risks by River Mile in Selected Media**

River Mile	Sample Type	Contaminants Posing Potentially Unacceptable Risk (Maximum HQ or EF within River Mile)
	Surface water <sup>b</sup>	None
	TZW	No TZW samples collected within this river reach
	Bivalves <sup>d</sup>	Zinc (1.1)
	Smallmouth bass <sup>e</sup>	BEHP (1.8), total PCBs (7.1)
	Sculpin	Copper (1.7), total PCBs (9.4)

- <sup>a</sup> Sediment EFs are based on exceedances of PECs and PELs for metals, PAHs, PCBs, and pesticides, and based on sediment TRVs for petroleum hydrocarbons. All site-wide and bioassay samples were included in the assessment of sediment.
- <sup>b</sup> Two water TRVs exist for PCBs and DDxs in surface water. Max HQs based on AWQC are listed before max HQs based on the alternative TRV. See discussion in BERA Section 6.5.4 for the rationale for having two TRVs.
- <sup>c</sup> Value in parenthesis is the maximum hazard quotient for each contaminant within each RM segment of the Study Area.
- <sup>d</sup> Field collected clams and mussels.
- <sup>e</sup> Smallmouth bass tissue samples in the BERA dataset were often assigned as being collected from a RM range that does not fit with the RM ranges presented in this table. When a smallmouth bass tissue sample was available for a RM range that crosses over two RM ranges as defined in this table (e.g., a bass sample obtained from RM 6.5 to RM 7.5, which does not strictly correspond to RM 6 to RM 6.99 or RM 7 to RM 7.99 in this table), then the applicable tissue concentrations and resulting HQs are included in both RM ranges in this table (i.e. the sample/HQ is included in both RM 6 to RM 6.99 and RM 7 to RM 7.99).
- <sup>f</sup> Two water TRVs exist for 4,4'-DDT and total DDx in TZW. Max HQs based on AWQC are listed before max HQs based on the alternative TRV. See discussion in BERA Section 6.6.4 for the rationale for having two TRVs.
- <sup>g</sup> Sediment, surface water, bivalve (field clam/mussel) tissue, smallmouth bass tissue, and sculpin tissue samples collected in Swan Island Lagoon were not included in the other 1-mile RM ranges presented in this table. No TZW samples were collected in Swan Island Lagoon.

BEHP – bis(2-ethylhexyl) phthalate	PEC – probable effects concentration
COPC – chemical of potential concern	PEL – probable effects level
DDD – dichlorodiphenyldichloroethane	RM – river mile
DDE – dichlorodiphenyldichloroethylene	SVOC – semivolatle organic compound
DDT – dichlorodiphenyltrichloroethane	TBT – tributyltin
EF – exceedance factor	total DDx – sum of all six DDT isomers (2,4'-DDD, 4,4'-DDD, 2,4'-DDE, 4,4'-DDE, 2,4'-DDT and 4,4'-DDT)
HCH – hexachlorocyclohexane	TRV – toxicity reference value
HQ – hazard quotient	TZW – transition zone water
PAH – polycyclic aromatic hydrocarbon	VOC – volatile organic compound
PCB – polychlorinated biphenyl	

**Table 16. Contaminants Posing Potentially Unacceptable Risk Organized by Receptor Group**

COPC <sup>a</sup>	Benthic Invertebrates <sup>b</sup>	Fish	Birds	Mammals	Amphibians	Aquatic Plants
<b>Metals</b>						
Aluminum				X		
Antimony		X				
Arsenic	X					
Barium	X	X			X	X
Beryllium	X	X				
Cadmium	X	X			X	X
Cobalt	X	X				
Copper	X	X	X		X	X
Iron	X	X			X	X
Lead	X	X	X	X	X	X
Magnesium	X	X			X	X
Manganese	X	X			X	X
Mercury		X				
Nickel	X	X			X	X
Potassium	X	X			X	X
Sodium	X	X			X	X
Vanadium	X	X				
Zinc	X	X			X	X
<b>Butyltins</b>						
TBT	X	X				
<b>PAHs</b>						
2-Methylnaphthalene	X	X			X	X
Acenaphthene	X	X			X	X
Anthracene	X	X			X	X
Benzo(a)anthracene	X	X			X	X
Benzo(a)pyrene	X	X	X		X	X
Benzo(b)fluoranthene	X	X				
Benzo(g,h,i)perylene	X	X				
Benzo(k)fluoranthene	X	X				
Chrysene	X	X				
Dibenzo(a,h)anthracene	X	X				
Fluoranthene	X	X				
Fluorene	X	X			X	X

**Table 16. Contaminants Posing Potentially Unacceptable Risk Organized by Receptor Group**

COPC <sup>a</sup>	Benthic Invertebrates <sup>b</sup>	Fish	Birds	Mammals	Amphibians	Aquatic Plants
Indeno(1,2,3-cd) pyrene	X	X				
Naphthalene	X	X			X	X
Phenanthrene	X	X			X	X
Pyrene	X	X				
<b>Phthalates</b>						
BEHP	X	X			X	X
Dibutyl phthalate			X			
<b>SVOCS</b>						
1,2-Dichlorobenzene	X	X			X	X
1,4-Dichlorobenzene	X	X				
Dibenzofuran	X	X				
<b>PCBs</b>						
Total PCBs	X	X	X	X		
PCB TEQ			X	X		
<b>Dioxins/Furans</b>						
Dioxins/furan TEQ			X	X		
Total TEQ			X	X		
<b>VOCs</b>						
1,1-Dichloroethene	X	X				
1,2,4-Trimethylbenzene	X	X			X	X
1,3,5-Trimethylbenzene	X	X				
Benzene	X	X				
Carbon disulfide	X	X			X	X
Chlorobenzene	X	X			X	X
Chloroethane	X	X			X	X
Chloroform	X	X			X	X
cis-1,2-Dichloroethene	X	X				
Ethylbenzene	X	X			X	X
Isopropylbenzene	X	X			X	X
Toluene	X	X			X	X
Trichloroethene	X	X				
m,p-Xylene	X	X				
o-Xylene	X	X				
Total xylenes	X	X				



**Table 16. Contaminants Posing Potentially Unacceptable Risk Organized by Receptor Group**

COPC <sup>a</sup>	Benthic Invertebrates <sup>b</sup>	Fish	Birds	Mammals	Amphibians	Aquatic Plants
<b>Pesticides</b>						
Aldrin			X			
4,4'-DDD	X					
sum DDE			X			
4,4'-DDT	X	X			X	X
Total DDx	X	X	X		X	X
<b>Petroleum Hydrocarbons</b>						
Diesel-range hydrocarbons	X					
Gasoline-range aliphatic hydrocarbons C4 – C6	X	X			X	X
Gasoline-range aliphatic hydrocarbons C6 – C8	X	X				
Gasoline-range aliphatic hydrocarbons C10 – C12	X	X			X	X
Gasoline-range aromatic hydrocarbons C8 – C10	X	X				
<b>Other Chemicals</b>						
Cyanide	X	X			X	X
Perchlorate	X	X			X	X

<sup>a</sup> Several additional contaminants may also contribute to potentially unacceptable risk. These contaminants include ammonia and sulfide.

<sup>b</sup> In addition to ammonia and sulfide, the 22 COPCs identified solely as a result of predicted toxicity to benthic invertebrates (i.e., FPM and LRM results), the 5 chemicals with concentrations that exceeded only the PEC and/or PEL (i.e., not a COPC for any other benthic LOE), and residual-range hydrocarbons that exceeded only the TPH SQG are not included in this table.

BEHP – bis(2-ethylhexyl) phthalate	PAH – polycyclic aromatic hydrocarbon
COPC – chemical of potential concern	PCB – polychlorinated biphenyl
DDD – dichlorodiphenyldichloroethane	PEL – probable effects level
DDE – dichlorodiphenyldichloroethylene	SQG – sediment quality guideline
DDT – dichlorodiphenyltrichloroethane	TBT – tributyltin
FPM – floating percentile model	TEQ – toxic equivalent
HCH – hexachlorocyclohexane	TPH – total petroleum hydrocarbons
LOE – line of evidence	total DDx – sum of all six DDT isomers (2,4'-DDD, 4,4'-DDD, 2,4'-DDE, 4,4'-DDE, 2,4'-DDT, and 4,4'-DDT)
LRM – logistic regression model	

**Table 17. Summary of Cleanup Levels or Targets by Media**

Contaminant	Surface Water (1)			Groundwater (2)			River Bank Soil/Sediment (3)			Fish Tissue (4)		
	Unit	Conc.	Basis	Unit	Conc.	Basis	Unit	Conc.	Basis	Unit	Conc.	Basis
Aldrin	µg/L	0.00000077	A				µg/kg	2	R	µg/kg	0.06	R
Arsenic	µg/L	0.018	A	µg/L	0.018	A	mg/kg	3	B	mg/kg	0.001	R
Benzene				µg/L	0.44	A						
BEHP	µg/L	0.2	A				µg/kg	135	R	µg/kg	72	R
Cadmium				µg/L	0.091	A/R(5)	mg/kg	0.51	R			
Chlordanes	µg/L	0.000081	A				µg/kg	1.4	R	µg/kg	3	R
Chlorobenzene				µg/L	64	R						
Chromium	µg/L	100	A	µg/L	11	A						
Copper	µg/L	2.74	A	µg/L	2.74	A/R	mg/kg	359	R			
Cyanide				µg/L	4	A						
DDx	µg/L	0.01	R	µg/L	0.001	A	µg/kg	6.1	R	µg/kg	3	R
DDD	µg/L	0.000031	A	µg/L	0.000031	A	µg/kg	114	R			
DDE	µg/L	0.000018	A	µg/L	0.000018	A	µg/kg	226	R			
DDT	µg/L	0.000022	A	µg/L	0.000022	A	µg/kg	246	R			
1,1-Dichloroethene				µg/L	7	A						
cis-1,2-Dichloroethene				µg/L	9.9	A						
Dieldrin							µg/kg	0.07	R	µg/kg	0.06	R
2,4-Dichlorophenoxyacetic acid				µg/L	70	A						
Ethylbenzene	µg/L	7.3	R	µg/L	7.3	R						
Hexachlorobenzene	µg/L	0.000029	A				µg/kg			µg/kg	0.6	R
Lindane							µg/kg	5	R			
Lead				µg/L	0.54	A/R	mg/kg	196	R			
Manganese				µg/L	430	R						
MCPP	µg/L	16	R									
Mercury							mg/kg	0.085	R	mg/kg	0.031	A
Pentachlorophenol	µg/L	0.03	A	µg/L	0.03	A				µg/kg	2.5	R
Perchlorate				µg/L	15	A						
PBDEs										µg/kg	26	R
PCBs	µg/L	0.0000064	A	µg/L	0.014	A/R	µg/kg	9	B	µg/kg	0.25 (6)	R
PAHs							µg/kg	23000				
cPAHs (BaP eq)	µg/L	0.00012	A	µg/L	0.00012	A	µg/kg	12 (7)	B	µg/kg	7.1	R
Acenaphthene				µg/L	23	R						
Acenaphthylene												
Anthracene				µg/L	0.73	R						
Benzo(a)anthracene	µg/L	0.0012	A	µg/L	0.0012	A						
Benzo(a)pyrene	µg/L	0.00012	A	µg/L	0.00012	A						
Benzo(b)fluoranthene	µg/L	0.0012	A	µg/L	0.0012	A						
Benzo(g,h,i)perylene												
Benzo(k)fluoranthene	µg/L	0.0013	A	µg/L	0.0013	A						
Chrysene	µg/L	0.0013	A	µg/L	0.0013	A						
Dibenz(a,h)anthracene	µg/L	0.00012	A	µg/L	0.00012	A						
Fluoranthene												
Fluorene												
Indeno(1,2,3-c,d)pyrene	µg/L	0.0012	A	µg/L	0.0012	A						
2-Methylnaphthalene												
Naphthalene	µg/L	12	R									
Phenanthrene												
Pyrene												
Dioxins/Furans (2,3,7,8-TCDD eq)	µg/L	0.0000000005	A									
1,2,3,4,7,8-HxCDF							µg/kg	0.0004	B	µg/kg	0.00008	R
1,2,3,7,8-PeCDD							µg/kg	0.0002	B	µg/kg	0.000008	R
2,3,4,7,8-PeCDF							µg/kg	0.0003	B	µg/kg	0.00003	R
2,3,7,8-TCDF							µg/kg	0.00040658	R	µg/kg	0.00008	R
2,3,7,8-TCDD							µg/kg	0.0002	B	µg/kg	0.000008	R
Tetrachloroethene				µg/L	0.24	A						
Toluene				µg/L	9.8	R						
TPH-Diesel							mg/kg	91	R			
TPH-Diesel (C10-C12 Aliphatic)				µg/L	2.6	R						
Tributyltin	µg/L	0.063	A				µg/kg	3080	R			
Trichloroethene				µg/L	0.6	A						
2,4,5-Trichlorophenol				µg/L	50	A						
Vanadium				µg/L	20	R						
Vinyl Chloride				µg/L	0.022	A						
Xylenes				µg/L	13	R						
Zinc	µg/L	36.5	R	µg/L	36.5	R	mg/kg	459	R			

Notes:

- (1) Surface Water Cleanup Levels - RAOs 3 and 7
- (2) Groundwater Cleanup Levels - RAOs 4 and 8
- (3) Sediment Cleanup Levels - RAOs 1 and 5
- (4) Fish Tissue Targets - RAOs 2 and 6
- (5) A/R indicates that the ARARs-based number and the risk-based number are the same.
- (6) The tissue target is a risk-based number and does not represent background levels. Additional data will be collected to determine background fish tissue concentrations for PCBs during design and construction of the Selected Remedy.
- (7) The cleanup level for cPAHs of 12 µg/kg is based on direct contact with sediment and is applicable to nearshore sediment. The cleanup level applicable to sediments in the navigation channel is 3,950 µg/kg and is based on human consumption of clams.

Abbreviations:

- A- ARAR-based number
- ARAR - applicable or relevant and appropriate requirement
- B - Background-based number
- BEHP - bis(2-ethylhexyl)phthalate
- BaP eq - benzo(a)pyrene equivalent
- C - carbon

**Table 17. Summary of Cleanup Levels or Targets by Media**

Abbreviations (continued):

Conc - concentration

cPAH - carcinogenic polycyclic aromatic hydrocarbon

DDD - dichlorodiphenyldichloroethane

DDE - dichlorodiphenyldichloroethene

DDT - dichlorodiphenyltrichloroethane

DDx - DDD + DDE + DDT

HxCDF - 1,2,3,7,8,9-hexachlorodibenzofuran

MCPP - 2-(4-chloro-2-methylphenoxy)propanoic acid

mg/kg - milligram per kilogram

PAH - polycyclic aromatic hydrocarbon

PBDE - polybrominated diphenyl ether

PCB - polychlorinated biphenyl

PeCDD - pentachlorodibenzo-p-dioxin

PeCDF - pentachlorodibenzofuran

R - risk-based number

RAO - remedial action objective

TCDD - 2,3,7,8-tetrachlorodibenzo-p-dioxin

TCDF - tetrachlorodibenzofurans

TPH - total petroleum hydrocarbons

µg/kg - microgram per kilogram

µg/L - microgram per liter

**Table 18. Summary of RALs for Focused COCs**

Focused COC	RAL (µg/kg)						
	Alt B	Alt C	Alt D	Alt E	Alt F	Alt G	Alt H
PCBs	1,000	750	500	200	75	50	9
Total PAHs	170,000	130,000	69,000	35,000	13,000	5,400	970
2,3,7,8-TCDD	0.002	0.002	0.002	6E-04	6E-04	6E-04	0.0001
1,2,3,7,8-PeCDD	0.003	0.002	8E-04	8E-04	8E-04	8E-04	0.0001
2,3,4,7,8-PeCDF	1	1	1	0.2	0.2	0.009	0.0002
DDx	650	550	450	300	160	40	6.1

Abbreviations:

Alt – Alternative

COC – Contaminant of concern

DDx – dichlorodiphenyldichloroethane + dichlorodiphenyldichloroethene + dichlorodiphenyltrichloroethane

RAL – remedial action level

PAH – polycyclic aromatic hydrocarbon

PCB – polychlorinated biphenyl

PeCDD – pentachlorodibenzo-p-dioxin

PeCDF – pentachlorodibenzofuran

TCDD – tetrachlorodibenzo-p-dioxin

µg/kg – microgram per kilogram

**Table 19. RALs for Focused COCs – Alternative I**

Focused COC	RAL (µg/kg)				
	PTW	Alt B + PTW	Alt D	Alt E	Alt F
PCBs	200	200	500	200	75
Total PAHs	870,000	170,000	69,000	35,000	13,000
2,3,7,8-TCDD	0.01	0.002	0.002	0.0006	0.0006
1,2,3,7,8-PeCDD	0.01	0.003	0.0008	0.0008	0.0008
2,3,4,7,8-PeCDF	0.2	0.2	1	0.2	0.2
DDx	7,050	650	450	300	160

Abbreviations:

Alt – Alternative

COC – Contaminant of concern

DDx – dichlorodiphenyldichloroethane + dichlorodiphenyldichloroethene + dichlorodiphenyltrichloroethane

RAL – remedial action level

PAH – polycyclic aromatic hydrocarbon

PCB – polychlorinated biphenyl

PeCDD – pentachlorodibenzo-p-dioxin

PeCDF – pentachlorodibenzofuran

PTW – principal threat waste

TCDD – tetrachlorodibenzo-p-dioxin

µg/kg – microgram per kilogram



**Table 20. Summary of Acres Assigned to Each Technology**

Alternative	Technology						
	Cap	Dredge	Dredge/Cap	River Bank Excavation/Cap	In-Situ Treatment <sup>1</sup>	ENR	MNR
	(acres)	(acres)	(acres)	(lineal ft)	(acres)	(acres)	(acres)
B	22.8	66.6	5.5	9,633	6.7	99.8	1,966
C	30.2	80.2	6.4	11,047	5.0	97.4	1,948
D	44.8	121.1	10.9	13,887	3.2	87.0	1,900
E	65.6	188.3	15.3	18,231	0	59.8	1,838
F Modified	117.8	215.2	32.3	23,305	0	28.2	1,774
F	117.8	355.1	32.3	23,305	0	28.2	1,634
G	184.7	525.0	46.7	26,362	0	19.5	1,391
H	535.3	1,525.5	106.4	30,048	0	0	0
I	64.1	150.2	16.9	19,472	0	59.8	1,876

Note 1 – In-situ treatment quantity includes only those PTW areas outside of sediment management areas (SMAs) utilizing broadcast activated carbon. In-situ treatment within the SMAs is captured in cap and dredge/cap quantities.

Abbreviations:

ENR – engineered natural recovery

ft – feet

MNR – monitored natural recovery

**Table 21. Sediment RALs and PTW Thresholds for Selected Remedy**

Contaminants	Site Wide RALs <sup>(1)</sup>	PTW Thresholds <sup>(2)</sup>	Navigation Channel RALs
<b>Focused COCs</b>			
PCBs	75	200	1,000
Total PAHs <sup>(4)</sup>	13,000	NA	170,000
2,3,7,8-TCDD	0.0006	0.01	0.002
1,2,3,7,8-PeCDD	0.0008	0.01	0.003
2,3,4,7,8-PeCDF	0.2	0.2	1
DDx	160	7,050	650
<b>Additional Contaminants</b>			
2,3,7,8-TCDF	NA	0.6	NA
1,2,3,4,6,7,8-HxCDF	NA	0.04	NA
cPAHs (BaP Eq)	NA	106,000	NA
Chlorobenzene	NA	>320	NA
Naphthalene	NA	>140,000	NA

Notes:

1 – Site wide includes all areas of the Site except the navigation channel. FMD areas are subject to these RALs.

2 – PTW thresholds are based on highly toxic PTW values ( $10^{-3}$  risk) except chlorobenzene and naphthalene, which are threshold values for not reliably contained PTW.

Abbreviations:

BaP Eq – benzo(a)pyrene equivalent

cPAH –carcinogenic polycyclic aromatic hydrocarbon

COC – Contaminant of concern

DDx – dichlorodiphenyldichloroethane + dichlorodiphenyldichloroethene + dichlorodiphenyltrichloroethane

FMD – future maintenance dredge

HxCDF - hexachlorodibenzofuran

NA – not applicable

PAH – polycyclic aromatic hydrocarbon

PCB – polychlorinated biphenyl

PeCDD – pentachlorodibenzo-p-dioxin

PeCDF – pentachlorodibenzofuran

PTW – principal threat waste

RAL – remedial action level

TCDD – tetrachlorodibenzo-p-dioxin

TCDF – tetrachlorodibenzofuran

µg/kg – microgram per kilogram

> – greater than

Table 22. Detailed Comparative Analysis of Remedial Alternatives

Expected Outcomes at Construction Completion	Alternative A	Alternative B	Alternative D	Alternative E	Alternative F Mod	Alternative F	Alternative G	Alternative I
<b>Summary of Alternative</b>	NO ACTION	Cap, dredge, in-situ treatment and enhanced natural recovery (ENR) of:  201 acres of sediments 9,633 lineal feet (lf) of river bank	Cap, dredge, in-situ treatment and ENR of:  267 acres of sediments 13,887 lf of river bank	Cap, dredge, and ENR of:  329 acres of sediment 18,231 lf of river bank	Cap, dredge, and ENR of:  394 acres of sediment 23,305 lf of river bank	Cap, dredge, and ENR of:  533 acres of sediments 23,305 lf of river bank	Cap, dredge, and ENR of:  776 acres of sediments 26,362 lf of river bank	Cap, dredging, and ENR of:  291 acres of sediments 19,472 lf of river bank
<b>Overall Protectiveness</b>								
<b>Risk at Construction Completion (Interim Target [IT])</b>  <b>Site Wide Human Health (HH): Remedial Action Objective (RAO) 1<sup>1</sup>: IT: 1x10<sup>-5</sup></b> <b>RAO 2: IT for cancer risk: 1x10<sup>-4</sup></b> <b>RAO 2: IT for non-cancer risk in child: Hazard Index (HI) = 10</b> <b>RAO 2: IT for non-cancer risk in infant: Hazard Index (HI) = 1,320</b> <b>RAO 3: IT: 10 times cleanup level</b> <b>RAO 4: IT: not calculated</b>  <b>Site Wide Ecological (Eco):</b> <b>RAO 5<sup>2</sup>: IT: address 50 percent (%) of benthic risk area</b> <b>RAO 6: IT: Hazard Quotient (HQ) 10</b> <b>RAO 7: IT: not calculated</b> <b>RAO 8: IT: not calculated</b>  <b>Source Control</b> <b>RAO 9: IT: not calculated</b>	No risk reduction	May Not Be Protective  Site Wide HH: RAO 1: 4.8x10 <sup>-5</sup> RAO 2: 2.3x10 <sup>-4</sup> RAO 2: (Child HI): 25 RAO 2: (Infant HI): 417 RAO 3: Does not achieve ITs RAO 4: 16% addressed  Site Wide Eco: RAO 5 <sup>2</sup> : 48% addressed RAO 6: Maximum HQ (BEHP) = 19 RAO 7: Not calculated RAO 8: 16% addressed  RAO 9: 32% addressed	May Not Be Protective  Site Wide HH: RAO 1: 2.2x10 <sup>-5</sup> RAO 2: 2.0x10 <sup>-4</sup> RAO 2: (Child HI): 21 RAO 2: (Infant HI): 358 RAO 3: Does not achieve ITs RAO 4: 23% addressed  Site Wide Eco: RAO 5 <sup>2</sup> : 64% addressed RAO 6: Maximum HQ (BEHP) = 17 RAO 7: Not calculated RAO 8: 23% addressed  RAO 9: 46% addressed	Protective  Site Wide HH: RAO 1: 1.5x10 <sup>-5</sup> RAO 2: 1.7x10 <sup>-4</sup> RAO 2: (Child HI): 18 RAO 2: (Infant HI): 305 RAO 3: Does not achieve ITs RAO 4: 32% addressed  Site Wide Eco: RAO 5 <sup>2</sup> : 73% addressed RAO 6: Maximum HQ (BEHP) = 15 RAO 7: Not calculated RAO 8: 32% addressed  RAO 9: 61% addressed	Protective  Site Wide HH: RAO 1: 1.0x10 <sup>-5</sup> RAO 2: 1.5x10 <sup>-4</sup> RAO 2: (Child HI): 15 RAO 2: (Infant HI): 259 RAO 3: Achieves ITs RAO 4: 39% addressed  Site-Wide Eco: RAO 5 <sup>2</sup> : 72% addressed RAO 6: Maximum HQ (BEHP) = 5 RAO 7: Not calculated RAO 8: 39% addressed  RAO 9: 78% addressed	Protective  Site Wide HH: RAO 1: 1.0x10 <sup>-5</sup> RAO 2: 1.2x10 <sup>-4</sup> RAO 2: (Child HI): 13 RAO 2: (Infant HI): 213 RAO 3: Achieves ITs RAO 4: 46% addressed  Site Wide Eco: RAO 5 <sup>2</sup> : 87% addressed RAO 6: Maximum HQ (BEHP) = 5 RAO 7: Not calculated RAO 8: 46% addressed  RAO 9: 78% addressed	Protective  Site Wide HH: RAO 1: 7.2x10 <sup>-6</sup> RAO 2: 8.9x10 <sup>-5</sup> RAO 2: (Child HI): 9 RAO 2: (Infant HI): 157 RAO 3: Achieves ITs RAO 4: 62% addressed  Site Wide Eco: RAO 5 <sup>2</sup> : 93% addressed RAO 6: Maximum HQ (BEHP) = 53 RAO 7: Not calculated RAO 8: 62% addressed  RAO 9: 88% addressed	Protective  Site Wide HH: RAO 1: 1.8x10 <sup>-5</sup> RAO 2: 1.7x10 <sup>-4</sup> RAO 2: (Child HI): 18 RAO 2: (Infant HI): 307 RAO 3: Does not achieve ITs RAO 4: 33% addressed  Site Wide Eco: RAO 5 <sup>2</sup> : 64% addressed RAO 6: Maximum HQ (BEHP) = 19 RAO 7: Not calculated RAO 8: 33% addressed  RAO 9: 65% addressed
<b>Allowable Fish Meals/Year (yr) at Construction Completion<sup>3</sup> (RAO 2)</b>	Current allowance based on Oregon Health Authority (OHA) advisories (4 fish meals/yr [1 x 10 <sup>-5</sup> ]; 3 fish meals [child HI 71]; 0.2 fish meal [breastfeeding infant HI of 1,123])	10 fish meals/yr (1 x 10 <sup>-5</sup> risk) 9 fish meals/yr (child) 0.5 fish meal/yr (breastfeeding infant)	11 fish meals/yr (1 x 10 <sup>-5</sup> risk) 10 fish meals/yr (child) 0.6 fish meal/yr (breastfeeding infant)	13 fish meals/yr (1 x 10 <sup>-5</sup> risk) 12 fish meals/yr (child) 0.7 fish meal/yr (breastfeeding infant)	16 fish meals/yr (1 x 10 <sup>-5</sup> risk) 14 fish meals/yr (child) 1 fish meal/yr (breastfeeding infant)	19 fish meals/yr (1 x 10 <sup>-5</sup> risk) 18 fish meals/yr (child) 1 fish meal/yr (breastfeeding infant)	26 fish meals/yr (1 x 10 <sup>-5</sup> risk) 24 fish meals/yr (child) 2 fish meal/yr (breastfeeding infant)	13 fish meals/yr (1 x 10 <sup>-5</sup> risk) 12 fish meals/yr (child) 0.7 fish meal/yr (breastfeeding infant)
<b>Direct Contact Surface Water (RAO 3) (IT: 10 times cleanup level)</b>	Exceedances of surface water cleanup levels continue	ITs are not achieved for polychlorinated biphenyls (PCBs) and tetrachlorodibenzo-p-dioxin (TCDD) toxic equivalent concentration (TEQ)	ITs are not achieved for PCBs and TCDD TEQ	ITs are not achieved for PCBs	ITs achieved	ITs achieved	ITs achieved	ITs are not achieved for PCBs
<b>Groundwater Plumes Addressed (%) (RAO 4)</b>	0% - continued migration to sediment and surface water	16% addressed	23% addressed	32% addressed	39% addressed	46% addressed	62% addressed	33% addressed

Table 22. Detailed Comparative Analysis of Remedial Alternatives

Expected Outcomes at Construction Completion	Alternative A	Alternative B	Alternative D	Alternative E	Alternative F Mod	Alternative F	Alternative G	Alternative I
<b>Summary of Alternative</b>	NO ACTION	Cap, dredge, in-situ treatment and enhanced natural recovery (ENR) of:  201 acres of sediments 9,633 lineal feet (lf) of river bank	Cap, dredge, in-situ treatment and ENR of:  267 acres of sediments 13,887 lf of river bank	Cap, dredge, and ENR of:  329 acres of sediment 18,231 lf of river bank	Cap, dredge, and ENR of:  394 acres of sediment 23,305 lf of river bank	Cap, dredge, and ENR of:  533 acres of sediments 23,305 lf of river bank	Cap, dredge, and ENR of:  776 acres of sediments 26,362 lf of river bank	Cap, dredging, and ENR of:  291 acres of sediments 19,472 lf of river bank
<b>River Banks Addressed (%) (RAO 9)</b>	0% - continued migration from river banks to sediment/surface water.	32% of river banks addressed	46% of river banks addressed	61% river banks addressed	78% river banks addressed	78% river banks addressed	88% river banks addressed	65% river banks addressed
<b>Benthic Areas Addressed (%) (RAO 5)<sup>2</sup> (IT: 50 % addressed)</b>	0% - No reduction in benthic risk	48% of benthic areas addressed	64% of benthic areas addressed	73% of benthic areas addressed	72% of benthic areas addressed	87% of benthic areas addressed	93% of benthic areas addressed	64% of benthic areas addressed
<b>Consumption of Prey (RAO 6) (IT: Eco HQ=10)</b>	No reduction in HQ.	Does not achieve IT  River mile (RM) scale: Maximum HQ = 19 (BEHP)  Sediment decision unit (SDU) scale: Maximum HQ=7 (BEHP)	Does not achieve IT  RM scale: Maximum HQ = 17 (BEHP)  SDU scale: Maximum HQ=5 (BEHP)	Does not achieve IT  RM scale: Maximum HQ = 15 (BEHP)  SDU scale: Maximum HQ=4 (BEHP)	Achieves IT for RM and SDU scale  RM Scale: Maximum HQ = 5 (BEHP)  SDU Scale: Maximum HQ = 3 (BEHP)	Achieves IT for RM and SDU scale  RM Scale: Maximum HQ = 5 (BEHP)  SDU Scale: Maximum HQ = 3 (BEHP)	Achieves IT for RM and SDU scale  RM Scale: Maximum HQ = 3 (BEHP)  SDU Scale: Maximum HQ = 1 (BEHP)	Does not achieve IT  RM scale: Maximum HQ = 19 (BEHP)  SDU scale: Maximum HQ=3 (BEHP)
<b>Direct Contact Surface Water (RAO 7)</b>	Exceedances of surface water cleanup levels would continue.	Not quantifiable. Time to achieve cleanup levels through monitored natural recovery (MNR) uncertain.	Same as Alternative B.	Same as Alternative B.	Same as Alternative B.	Same as Alternative B.	Same as Alternative B.	Same as Alternative B.
<b>COMPLIANCE WITH APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENTS (ARARs)</b>								
<b>Chemical-specific ARARs</b>	Would not meet water quality criteria (WQCs) and maximum contaminant levels (MCLs).	Would not be achieved	Complies	Complies	Complies	Complies	Complies	Complies
<b>Location-specific ARARs</b>	No location-specific ARARs	Complies. Addressed during design and implementation	Same as Alternative B.	Same as Alternative B.	Same as Alternative B.	Same as Alternative B.	Same as Alternative B.	Same as Alternative B.
<b>Action-specific ARARs</b>	No action-specific ARARs	Complies. Addressed during design and implementation.  15 acres of mitigation	Same as Alternative B.  25 acres of mitigation	Same as Alternative B.  35 acres of mitigation	Same as Alternative B.  60 acres of mitigation	Same as Alternative B.  60 acres of mitigation	Same as Alternative B.  86 acres of mitigation	Same as Alternative B.  34 acres of mitigation
<b>LONG-TERM EFFECTIVENESS AND PERMANENCE</b>								

Table 22. Detailed Comparative Analysis of Remedial Alternatives

Expected Outcomes at Construction Completion	Alternative A	Alternative B	Alternative D	Alternative E	Alternative F Mod	Alternative F	Alternative G	Alternative I
<b>Summary of Alternative</b>	NO ACTION	Cap, dredge, in-situ treatment and enhanced natural recovery (ENR) of:  201 acres of sediments 9,633 lineal feet (lf) of river bank	Cap, dredge, in-situ treatment and ENR of:  267 acres of sediments 13,887 lf of river bank	Cap, dredge, and ENR of:  329 acres of sediment 18,231 lf of river bank	Cap, dredge, and ENR of:  394 acres of sediment 23,305 lf of river bank	Cap, dredge, and ENR of:  533 acres of sediments 23,305 lf of river bank	Cap, dredge, and ENR of:  776 acres of sediments 26,362 lf of river bank	Cap, dredging, and ENR of:  291 acres of sediments 19,472 lf of river bank
<b>Magnitude of Residual Risk (Post Construction [PC] Risk)</b>  <b>RAO 1</b>	Existing risk remains. Ability for natural recovery unlikely since in-river sources remain.	<u>Sediment:</u> Post Construction risk: 4.8x10 <sup>-5</sup>	<u>Sediment:</u> Post Construction risk: 2.2x10 <sup>-5</sup>	<u>Sediment:</u> Post Construction risk: 1.5x10 <sup>-5</sup>	<u>Sediment:</u> Post Construction risk: 1.0x10 <sup>-5</sup>	<u>Sediment:</u> Post Construction risk: 1.0x10 <sup>-5</sup>	<u>Sediment:</u> Post Construction risk: 7.2x10 <sup>-6</sup>	<u>Sediment:</u> Post Construction risk: 1.8x10 <sup>-5</sup>
<b>RAO 2 (Allowable Fish Meals at Construction Completion)</b>	Existing risk remains. Ability for natural recovery unlikely since in-river sources remain. OHA fish advisories would continue.	(see fish meal information under Overall Protectiveness)						
<b>RAO 3 - Direct Contact Surface Water (Risk at Construction Completion vs. Risk at Cleanup Level for each Contaminant of Concern [COC])</b>	Existing risk remains. Ability for natural recovery unlikely since in-river sources remain.	PCBs – 16 times > cleanup levels  TCDD TEQ – 13 times > cleanup level Carcinogenic polycyclic aromatic hydrocarbon (cPAH) – 2 times cleanup level	PCBs – 13 times > cleanup levels  TCDD TEQ – 11 times > cleanup levels	PCBs – 12 times > cleanup levels  TCDD TEQ – 8 times > cleanup levels	PCBs – 10 times > cleanup levels  TCDD TEQ – 7 times > cleanup levels	PCBs – 8 times > cleanup levels  TCDD TEQ – 7 times > cleanup levels	PCBs – 6 times > cleanup levels  TCDD TEQ – 5 times > cleanup levels	PCBs – 12 times > cleanup levels  TCDD TEQ – 9 times > cleanup level cPAH – 2 times cleanup level
<b>RAO 4 Migration Groundwater to Sediment/Surface Water (Contaminated Groundwater Plumes not Addressed)</b>	Existing risk remains. Ability for natural recovery unlikely since in-river sources remain.	84% not addressed.  The magnitude residual risk is uncertain because it is likely that not all contaminated pore water will be addressed.	77% not addressed.  Same as Alternative B	68% not addressed.  Same as Alternative B	61% not addressed  Same as Alternative B	54% not addressed.  Same as Alternative B	38% not addressed.  Same as Alternative B	67% not addressed.  Same as Alternative B
<b>RAO 5<sup>2</sup> Benthic Organisms (Benthic Areas not Addressed)</b>	Existing risk remains. Ability for natural recovery unlikely since in-river sources remain.	52% not addressed.  Degree of recovery is uncertain because it is likely that an insufficient amount of the benthic risk areas will be addressed.	36% not addressed.  Same as Alternative B	27% not addressed.  Same as Alternative B	28 % not addressed  Same as Alternative B	13% not addressed.  Same as Alternative B	7% not addressed.  Same as Alternative B	36% not addressed.  Same as Alternative B



Table 22. Detailed Comparative Analysis of Remedial Alternatives

Expected Outcomes at Construction Completion	Alternative A	Alternative B	Alternative D	Alternative E	Alternative F Mod	Alternative F	Alternative G	Alternative I
<b>Summary of Alternative</b>	NO ACTION	Cap, dredge, in-situ treatment and enhanced natural recovery (ENR) of:  201 acres of sediments 9,633 lineal feet (lf) of river bank	Cap, dredge, in-situ treatment and ENR of:  267 acres of sediments 13,887 lf of river bank	Cap, dredge, and ENR of:  329 acres of sediment 18,231 lf of river bank	Cap, dredge, and ENR of:  394 acres of sediment 23,305 lf of river bank	Cap, dredge, and ENR of:  533 acres of sediments 23,305 lf of river bank	Cap, dredge, and ENR of:  776 acres of sediments 26,362 lf of river bank	Cap, dredging, and ENR of:  291 acres of sediments 19,472 lf of river bank
<b>RAO 6 Consumption of Prey</b>	Existing risk remains. Ability for natural recovery unlikely since in-river sources remain.	Maximum HQ is greater than 1 for the following COCs:  <u>RM scale:</u> BEHP – 19 times PCBs – 5 times TCDF – 6 times PeCDF – 4 times HxCDF – 3 times  <u>SDU scale:</u> BEHP – 7 times PCBs – 4 times TCDF – 3 times PeCDF – 2 times HxCDF – 2 times	Maximum HQ is greater than 1 for the following COCs:  <u>RM scale:</u> BEHP – 17 times PCBs – 3 times TCDF – 4 times PeCDF – 3 times HxCDF – 2 times  <u>SDU scale:</u> BEHP – 5 times PCBs – 2 times TCDF – 3 times PeCDF – 2 times	Maximum HQ is greater than 1 for the following COCs:  <u>RM scale:</u> BEHP – 15 times PCBs – 2 times TCDF – 1.4 times  <u>SDU scale:</u> BEHP – 4 times	Maximum HQ is greater than 1 for the following COCs:  <u>RM scale:</u> BEHP – 5 times  <u>SDU scale:</u> BEHP – 3 times	Maximum HQ is greater than 1 for the following COCs:  <u>RM scale:</u> BEHP – 5 times  <u>SDU scale:</u> BEHP – 3 times	Maximum HQ is greater than 1 for the following COCs:  <u>RM scale:</u> BEHP – 3 times	Maximum HQ is greater than 1 for the following COCs:  <u>RM scale:</u> BEHP – 19 times PCBs – 2 times  <u>SDU scale:</u> BEHP – 4 times
<b>RAO 7 Direct Contact Surface Water</b>	Existing risk remains. Ability for natural recovery unlikely since in-river sources remain.	Not quantifiable.  Time to achieve protectiveness through MNR uncertain.	Same as Alternative B.	Same as Alternative B.	Same as Alternative B.	Same as Alternative B.	Same as Alternative B.	Same as Alternative B.
<b>RAO 8 Migration Groundwater to Sediment/Surface Water (Groundwater Plumes not Addressed)</b>	Existing risk remains. Ability for natural recovery unlikely since in-river sources remain.	84% not addressed  The magnitude residual risk is uncertain because it is likely that not all contaminated pore water will be addressed.	77% not addressed  Same as Alternative B	68% not addressed  Same as Alternative B	61% not addressed  Same as Alternative B	54% not addressed  Same as Alternative B	38% not addressed  Same as Alternative B	67% not addressed  Same as alternative B
<b>RAO 9 Migration River Banks (Contaminated River Banks not Addressed)</b>	Existing risk remains.	68% not addressed  The magnitude residual risk is uncertain because it is likely that not all contaminated river banks will be addressed with this alternative.	54% not addressed  Same as Alternative B	39% not addressed  Same as Alternative B	22% not addressed  Same as Alternative B	22% not addressed  Same as Alternative B	12% not addressed  Same as Alternative B	35% not addressed  Same as Alternative B

**Table 22. Detailed Comparative Analysis of Remedial Alternatives**

Expected Outcomes at Construction Completion	Alternative A	Alternative B	Alternative D	Alternative E	Alternative F Mod	Alternative F	Alternative G	Alternative I
<b>Summary of Alternative</b>	NO ACTION	Cap, dredge, in-situ treatment and enhanced natural recovery (ENR) of:  201 acres of sediments 9,633 lineal feet (lf) of river bank	Cap, dredge, in-situ treatment and ENR of:  267 acres of sediments 13,887 lf of river bank	Cap, dredge, and ENR of:  329 acres of sediment 18,231 lf of river bank	Cap, dredge, and ENR of:  394 acres of sediment 23,305 lf of river bank	Cap, dredge, and ENR of:  533 acres of sediments 23,305 lf of river bank	Cap, dredge, and ENR of:  776 acres of sediments 26,362 lf of river bank	Cap, dredging, and ENR of:  291 acres of sediments 19,472 lf of river bank
<b>Adequacy and Reliability of Controls</b>	No engineering controls  OHA fish advisories may not prevent human exposure.	Technologies are proven and reliable  Operation and maintenance (O&M) of caps Long-term monitoring Periodic inspections and sampling of media and fish  ICs: Same as Alternative B  Institutional Controls (ICs): - Fish advisories - Land-use restrictions - regulated navigation areas (RNAs) to protect caps  RNA Areas Capped: 28.3 acres MNR Area: 1,966 acres	Technologies are proven and reliable  O&M of caps Long-term monitoring Periodic inspections and sampling of media and fish  ICs: Same as Alternative B  RNA Areas Capped: 55.8 acres MNR Area: 1,900 acres	Technologies are proven and reliable  O&M of caps Long-term monitoring Periodic inspections and sampling of media and fish  ICs: Same as Alternative B  RNA Areas Capped: 81.0 acres MNR Area: 1,838 acres	Technologies are proven and reliable  O&M of caps Long-term monitoring Periodic inspections and sampling of media and fish  ICs: Same as Alternative B  RNA Areas Capped: 150.2 acres MNR Area: 1,774 acres	Technologies are proven and reliable  O&M of caps Long-term monitoring Periodic inspections and sampling of media and fish  ICs: Same as Alternative B  RNA Areas Capped: 150.2 acres MNR Area: 1,634 acres	Technologies are proven and reliable  O&M of caps Long-term monitoring Periodic inspections and sampling of media and fish  ICs: Same as Alternative B  RNA Areas Capped: 231.4 acres MNR Area: 1,391 acres	Technologies are proven and reliable  O&M of caps Long-term monitoring Periodic inspections and sampling of media and fish  ICs: Same as Alternative B  RNA Areas Capped: 81.0 acres MNR Area: 1,876 acres
<b>REDUCTION OF TOXICITY, MOBILITY OR VOLUME THROUGH TREATMENT</b>								
<b>Treatment Process Used</b>	None	Activated carbon Organophilic clay Solidification/stabilization Thermal desorption	Same as Alternative B.	Same as Alternative B.	Same as Alternative B.	Same as Alternative B.	Same as Alternative B.	Same as Alternative B.
<b>Amount Destroyed or Treated</b>  *In-situ treatment includes areas within and outside of sediment management areas (SMAs).	None	In-situ treatment*: 70 acres  Ex-situ treatment: 191,573 cubic yards (cy)	In-situ treatment*: 108 acres  Ex-situ treatment: 191,573 cy	In-situ treatment*: 109 acres  Ex-situ treatment: 191,573 cy	In-situ treatment*: 133 acres  Ex-situ treatment: 191,573 cy	In-situ treatment*: 145 acres  Ex-situ treatment: 191,573 cy	In-situ treatment*: 184 acres  Ex-situ treatment: 191,573 cy	In-situ treatment*: 113 acres  Ex-situ treatment: 191,573 cy
<b>Reduction in Toxicity, Mobility, or Volume</b>	None	<ul style="list-style-type: none"> <li>Broadcast activated carbon (AC): 6.7 acres</li> <li>Reactive Caps: 23 acres</li> <li>Reactive residual layer: 36 acres</li> <li>Significantly augmented reactive cap: 3.8 acres</li> </ul>	<ul style="list-style-type: none"> <li>Broadcast AC: 3.2 acres</li> <li>Reactive Caps: 40 acres</li> <li>Reactive residual layer: 61 acres</li> <li>Significantly augmented reactive cap: 3.8 acres</li> </ul>	<ul style="list-style-type: none"> <li>Broadcast AC: 0 acres</li> <li>Reactive Caps: 60 acres</li> <li>Reactive residual layer: 45 acres</li> <li>Significantly augmented reactive cap: 3.8 acres</li> </ul>	<ul style="list-style-type: none"> <li>Broadcast AC: 0 acres</li> <li>Reactive Caps: 83 acres</li> <li>Reactive residual layer: 46 acres</li> <li>Significantly augmented reactive cap: 3.8 acres</li> </ul>	<ul style="list-style-type: none"> <li>Broadcast AC: 0 acres</li> <li>Reactive Caps: 83 acres</li> <li>Reactive residual layer: 58 acres</li> <li>Significantly augmented reactive cap: 3.8 acres</li> </ul>	<ul style="list-style-type: none"> <li>Broadcast AC: 0 acres</li> <li>Reactive caps: 101 acres</li> <li>Reactive residual layer: 80 acres</li> <li>Significantly augmented reactive cap: 3.8 acres</li> </ul>	<ul style="list-style-type: none"> <li>Broadcast AC: 0 acres</li> <li>Reactive Caps: 64 acres</li> <li>Reactive residual layer: 46 acres</li> <li>Significantly augmented reactive cap: 3.8 acres</li> </ul>

Table 22. Detailed Comparative Analysis of Remedial Alternatives

Expected Outcomes at Construction Completion	Alternative A	Alternative B	Alternative D	Alternative E	Alternative F Mod	Alternative F	Alternative G	Alternative I
<b>Summary of Alternative</b>	NO ACTION	Cap, dredge, in-situ treatment and enhanced natural recovery (ENR) of:  201 acres of sediments 9,633 lineal feet (lf) of river bank	Cap, dredge, in-situ treatment and ENR of:  267 acres of sediments 13,887 lf of river bank	Cap, dredge, and ENR of:  329 acres of sediment 18,231 lf of river bank	Cap, dredge, and ENR of:  394 acres of sediment 23,305 lf of river bank	Cap, dredge, and ENR of:  533 acres of sediments 23,305 lf of river bank	Cap, dredge, and ENR of:  776 acres of sediments 26,362 lf of river bank	Cap, dredging, and ENR of:  291 acres of sediments 19,472 lf of river bank
<b>Irreversible Treatment</b>	None	<u>Permanent and Irreversible Treatment</u> Activated carbon Low-temperature thermal desorption  <u>Solidification/stabilization</u> forms stable solids that are non-hazardous or less-hazardous than the original materials	Same as Alternative B	Same as Alternative B	Same as Alternative B	Same as Alternative B	Same as Alternative B	Same as Alternative B
<b>Type and Quantity of Residuals Remaining after Treatment</b>	Contaminated sediment and soil remains.	Principal threat waste (PTW) addressed: 37 % PTW remaining: 63%	PTW addressed: 57 % PTW remaining: 43 %	PTW addressed: 100% PTW remaining: 0%	PTW addressed: 100% PTW remaining: 0%	PTW addressed: 100% PTW remaining: 0%	PTW addressed: 100% PTW remaining: 0%	PTW addressed: 100% PTW remaining: 0%
<b>SHORT-TERM EFFECTIVENESS</b>								
<b>Community Protection</b>	Continued risks to community from no action.  OHA fish advisories would continue.	Community Impacts: 4 months per year for 4 years. <ul style="list-style-type: none"> <li>• Temporary noise, light, odors, air quality impacts.</li> <li>• Disruptions to river use</li> <li>• potential for waterborne accidents during construction</li> </ul> Addressed with health and safety (H&S) plans and use of best management practices (BMPs).  Fish consumption advisories would continue until RAO achieved.	Community Impacts: 4 months per year for 6 years.  Same as Alternative B	Community Impacts: 4 months per year for 7 years.  Same as Alternative B	Community Impacts: 4 month per year for 13 years.  Same as Alternative B	Community Impacts: 4 months per year for 13 years.  Same as Alternative B	Community Impacts: 4 months per year for 19 years.  Same as Alternative B	Community Impacts for 4 months per year for 7 years.  Same as Alternative E

**Table 22. Detailed Comparative Analysis of Remedial Alternatives**

Expected Outcomes at Construction Completion	Alternative A	Alternative B	Alternative D	Alternative E	Alternative F Mod	Alternative F	Alternative G	Alternative I
<b>Summary of Alternative</b>	NO ACTION	Cap, dredge, in-situ treatment and enhanced natural recovery (ENR) of:  201 acres of sediments 9,633 lineal feet (lf) of river bank	Cap, dredge, in-situ treatment and ENR of:  267 acres of sediments 13,887 lf of river bank	Cap, dredge, and ENR of:  329 acres of sediment 18,231 lf of river bank	Cap, dredge, and ENR of:  394 acres of sediment 23,305 lf of river bank	Cap, dredge, and ENR of:  533 acres of sediments 23,305 lf of river bank	Cap, dredge, and ENR of:  776 acres of sediments 26,362 lf of river bank	Cap, dredging, and ENR of:  291 acres of sediments 19,472 lf of river bank
<b>Worker Protection</b>	No risk to workers	Risks to workers for 4-5 months per year for 4 years. <ul style="list-style-type: none"> <li>Physical hazards during construction.</li> <li>Increased accident risks from heavy equipment, transport of materials, and increased vessel traffic.</li> </ul> Addressed with H&S Plans and BMPs.	Risks to worker for 4-5 months per year for 6 years.  Same as Alternative B	Risks to workers for 4-5 months per year for 7 years.  Same as Alternative B	Risks to workers for 4-5 months per year for 13 years.  Same as Alternative B	Risks to workers for 4-5 months per year for 13 years.  Same as Alternative B	Risks to workers for 4-5 months per year for 19 years.  Same as Alternative B	Same as Alternative E.
<b>Environmental Impacts (Impacts of Construction Activities)</b>	Continued impact from existing conditions.	Impact time frame: 4 months per year for 4 years. <ul style="list-style-type: none"> <li>Temporary loss of benthos and habitat, increased emissions from construction and transportation equipment.</li> <li>Exposure to contamination greater than PRGs during MNR period</li> </ul> Addressed with BMPs, engineering control measures, emissions control strategies.	Impact time frame: 4 months per year for 6 years.  Same as Alternative B	Impact time frame: 4 months per year for 7 years.  Same as Alternative B	Impact time frame: 4 months per year for 13 years.  Same as Alternative B	Impact time frame: 4 months per year for 13 years.  Same as Alternative B	Impact time frame: 4 months per year for 19 years.  Same as Alternative B	Same as Alternative E.
<b>Time Until Action is Complete</b>	Not applicable.	Construction time: 4 years  Estimated time to achieve RAOs is uncertain, but unlikely to occur in a reasonable timeframe.	Construction time: 6 years  Same as Alternative B	Construction time: 7 years  Same as Alternative B	Construction time: 13 years  Same as Alternative B	Construction time: 13 years  Same as Alternative B	Construction time: 19 years  Same as Alternative B	Construction time: 7 years  Same as Alternative B
<b>IMPLEMENTABILITY</b>								

**Table 22. Detailed Comparative Analysis of Remedial Alternatives**

Expected Outcomes at Construction Completion	Alternative A	Alternative B	Alternative D	Alternative E	Alternative F Mod	Alternative F	Alternative G	Alternative I
<b>Summary of Alternative</b>	NO ACTION	Cap, dredge, in-situ treatment and enhanced natural recovery (ENR) of:  201 acres of sediments 9,633 lineal feet (lf) of river bank	Cap, dredge, in-situ treatment and ENR of:  267 acres of sediments 13,887 lf of river bank	Cap, dredge, and ENR of:  329 acres of sediment 18,231 lf of river bank	Cap, dredge, and ENR of:  394 acres of sediment 23,305 lf of river bank	Cap, dredge, and ENR of:  533 acres of sediments 23,305 lf of river bank	Cap, dredge, and ENR of:  776 acres of sediments 26,362 lf of river bank	Cap, dredging, and ENR of:  291 acres of sediments 19,472 lf of river bank
<b>Ability to Construct and Operate</b>	No construction or operation	Technologies successfully implemented at other Superfund sites.  Material handling: 627,652 cy of sediment/soil 495,931 cy of fill	Same as Alternative B, except:  Material handling: 1,181,238 cy of sediment/soil 727,154 cy of fill	Same as Alternative B, except:  Material handling: 2,024,222 cy of sediment/soil 957,630 cy of fill	Same as Alternative B, except:  Material handling: 3,017,189 cy of sediment/soil 1,339,587 cy of fill	Same as Alternative B, except:  Material handling: 4,585,401 cy of sediment/soil 1,565,247 cy of fill	Same as Alternative B, except:  Material handling: 7,396,598 cy of sediment/soil 2,257,357 cy of fill	Same as Alternative B, except:  Material handling: 1,752,374 cy of sediment/soil 900,271 cy of fill,000 cy of fill
<b>Ease of Doing More Action, if Needed</b>	May require ROD amendment in the future.	Easy	Easy	Easy	Easy	Easy	Easy	Easy
<b>Ability to Monitor Effectiveness</b>	No monitoring required.  Ongoing exposure and risks would continue	Monitoring of:  RNAs: 28 acres of caps Capped areas (includes river banks): 39 acres MNR: 1,966 acres ICs: Fish Advisories COCs: fish tissue, surface water, pore water, sediment	Monitoring of:  RNAs: 56 acres of caps Capped areas (includes river banks): 71 acres MNR: 1,900 acres ICs: Fish Advisories COCs: fish tissue, surface water, pore water, sediment	Monitoring of:  RNAs: 81 acres of caps Capped areas (includes river banks): 101 acres MNR: 1,838 acres ICs: Fish Advisories COCs: fish tissue, surface water, pore water, sediment	Monitoring of:  RNAs: 150 acres of caps Capped areas (includes river banks): 176 acres MNR: 1,774 acres ICs: Fish Advisories COCs: fish tissue, surface water, pore water, sediment	Monitoring of:  RNAs: 150 acres of caps Capped areas (includes river banks): 176 acres MNR: 1,634 acres ICs: Fish Advisories COCs: fish tissue, surface water, pore water, sediment	Monitoring of:  RNAs: 231 acres of caps Capped areas (includes river banks): 260 acres MNR: 1,391 acres ICs: Fish Advisories COCs: fish tissue, surface water, pore water, sediment	Monitoring of:  RNAs: 81 acres of caps Capped areas (includes river banks): 102 acres MNR: 1,876 acres ICs: Fish Advisories COCs: fish tissue, surface water, pore water, sediment
<b>Ability to Obtain Approvals and Coordinate with Other Agencies</b>	No approvals necessary.	Approvals and coordination with other agencies possible.  Waste left in 2,088 acres of the Site.	Approvals and coordination with other agencies possible.  Waste left in 2,032 acres of the Site.	Approvals and coordination with other agencies possible.  Waste left in 1,964 acres of the Site.	Approvals and coordination with other agencies possible.  Waste left in 1,920 acres of the Site.	Approvals and coordination with other agencies possible.  Waste left in 1,780 acres of the Site.	Approvals and coordination with other agencies possible.  Waste left in 1,596 acres of the Site.	Approvals and coordination with other agencies possible.  Waste left in 2,000 acres of the Site.
<b>COST</b>								
<b>Capital Cost</b>	\$0	\$352,097,000	\$556,004,000	\$827,465,000	\$1,184,607,000	\$1,629,407,000	\$2,500,545,000	\$751,359,000
<b>Periodic Cost</b>	\$0	\$290,324,000	\$397,028,000	\$412,332,000	\$524,028,000	\$549,512,000	\$708,114,000	\$421,940,000
<b>Present Value Cost</b>	\$0	\$451,460,000	\$653,700,000	\$869,530,000	\$1,054,200,000	\$1,371,170,000	\$1,777,320,000	\$811,290,000



**Table 22. Detailed Comparative Analysis of Remedial Alternatives**

**Acronyms:**

AC – activated carbon  
COC – contaminant of concern  
DDE – dichlorodiphenyldichloroethane  
ENR – enhanced natural recovery  
HH – human health  
MCL – maximum contaminant limit  
PeCDF – pentachlorodibenzofuran  
RNA – regulated navigation area  
SMA – sediment management area  
yr – year

ARAR – applicable or relevant and appropriate  
cPAH – carcinogenic polycyclic aromatic hydrocarbon  
DDT – dichlorodiphenyltrichloroethane  
HQ – Hazard Quotient  
IC- institutional control  
MNR – monitored natural recovery  
PCB – polychlorinated biphenyl  
RAO – remedial action objective  
TCDD – tetrachlorodibenzo-p-dioxin  
% – percent

BEHP – bis(2-ethyl-hexyl)phthalate  
cy – cubic yard  
DMM - disposed material management  
H&S – health and safety  
IT – interim target  
O&M – operation and maintenance  
PC – post construction  
RM – river mile  
TCDF – tetrachlorodibenzofuran

BMP – best management practice  
DDD – Dichlorodiphenyldichloroethane  
eco – ecological  
HxCDF - hexachlorodibenzofuran  
lf – lineal feet  
OHA – Oregon Health Authority  
PTW – principal threat waste  
SDU – sediment decision unit  
TEQ – toxic equivalent concentration

**Notes:**

1 – Residual risk estimates are based on direct contact exposure to shallow sediments. There is insufficient data to estimate post construction risks based on exposure to beach sediments.

2 – Percentage is based on percentage of the Site that exceeds 10 times the benthic cleanup level.

3 – Allowable fish meals at completion represents the number of fish meals associated with a post-construction carcinogenic risk of  $1 \times 10^{-5}$  and an adult consumption rate based on a 142 g/day fish consumption rate and an 8 ounce fish meal. The child consumption rate based on a 60 g/day fish consumption rate and a 3.5 ounce fish meal.

**Table 23. Summary of Comparative Analysis for Remedial Alternatives**

Remedial Alternative	Description <sup>(1)</sup>	Threshold Criteria		Balancing Criteria				
		Overall Protection of Human Health and the Environment	Compliance with ARARs	Long-Term Effectiveness and Permanence	Reduction of Toxicity, Mobility, or Volume through Treatment	Short-Term Effectiveness	Implementability	Present Value Cost (Dollars)
A	No Action/No Further Action	—	—	NA	NA	NA	NA	NA
B	Dredge/Cap 95 acres; ENR 100 acres MNR 1,966 acres; In-situ 7 acres Ex-situ 191,573 cy; Disposal 627,652 cy	—	—	○	○	◐	●	\$
D	Dredge/Cap 177 acres; ENR 87 acres MNR 1,900 acres; In-situ 3 acres Ex-situ 191,573 cy; Disposal 1,181,238 cy	+	+	◑	◑	◑	◑	\$
E	Dredge/Cap 269 acres; ENR 60 acres MNR 1,838 acres; Ex-situ 191,573cy; Disposal 2,024,222 cy	+	+	◑	◑	◑	◑	\$\$
F Mod	Dredge/Cap 365 acres; ENR 28 acres MNR 1,774 acres; Ex-situ 191,573 cy; Disposal 3,017,189 cy	+	+	◑	◑	◑	◑	\$\$\$
F	Dredge/Cap 505 acres; ENR 28 acres MNR 1,634 acres; Ex-situ 191,573 cy; Disposal 4,585,401 cy	+	+	◑	◑	◑	◑	\$\$\$
G	Dredge/Cap 756 acres; ENR 19 acres MNR 1,391 acres; Ex-situ 191,573 cy; Disposal 7,396,598 cy	+	+	●	●	○	○	\$\$\$\$
I	Dredge/Cap 231 acres; ENR 60 acres MNR 1,876 acres; Ex-situ 191,573 cy; Disposal 1,752,374 cy	+	+	◑	◑	◑	◑	\$\$

**Table 23. Summary of Comparative Analysis for Remedial Alternatives**

**Legend for Qualitative Ratings System:**

Threshold Criteria	Balancing Criteria (Relative Performance of Criterion)	Balancing Criteria - Cost (Present Value Cost in Dollars)
- Unacceptable		
+ Acceptable	○ Least	\$ \$500M through \$750M
	◐ Low	\$\$ \$750M through \$1,000M
	◑ Moderate	\$\$\$ \$1,000M through \$1,500M
	◒ Better	\$\$\$\$ Greater than \$1,500M
	● Best	

**Note:**

(1) Disposal volume consists of total volume dredged (average of high and low volumes with overdredge) plus the river bank volume excavated

**Table 24. Description of Sediment Decision Units**

<b>SDU ID</b>	<b>Location</b>	<b>Description</b>	<b>Length (mile)</b>	<b>Acres</b>	<b>Focused COCs</b>
RM2E	RM 1.6–2.8 East	Evraz Oregon Steel Mill	1.3	102.8	PCBs
RM3.5E	RM 3.1-4.1 East	Schnitzer	1	51.3	PCBs
RM4.5E	RM 4.2-5.0 East	Terminal 4	0.9	43.3	PAHs/PCBs
RM5.5E	RM 5.0-6.0 East	Mar Com	0.9	30	PAHs/PCBs
RM6.5E	RM 6.0-7.0 East	Willamette Cove	1.1	89.2	PCBs/PeCDD
Swan Is.	RM 8.1-8.9	Swan Island Lagoon	1.1	117	PCBs
RM11E	RM 10.6-11.6 East	River Mile 11 East	1.1	28.8	PCBs/PeCDD
RM3.9W	Benthic Risk Area	Kinder Morgan	1.1	49.3	PAHs/DDx
RM5W	Benthic Risk Area	Nustar	1.1	24.6	PAHs/DDx
RM6W	RM 5.6-6.5 West	Gasco	1	38.1	PAHs
RM7W	RM 6.6-7.8 West	Arkema	1.4	68.3	DDx/PeCDF/TCDD
RM9W	RM 8.3-9.7 West	Shaver to Fireboat Cove	1.5	67.9	PCBs/PeCDD/TCDD
RM6Nav	RM 5.1-6.5 Nav	Navigation Channel	1.7	147	PAHs
No SDU	RM 1.9-11.8	Any area not included in the other SDUs	9.9	1,309.4	Not defined by specific COCs

Abbreviations:

COC – Contaminant of concern

DDx – dichlorodiphenyldichloroethane + dichlorodiphenyldichloroethene + dichlorodiphenyltrichloroethane

E – east

Is. – Island

Nav – navigation

PAH – polycyclic aromatic hydrocarbon

PCB – polychlorinated biphenyl

PeCDD – pentachlorodibenzo-p-dioxin

PeCDF – pentachlorodibenzofuran

RM – river mile

SDU – sediment decision unit

TCDD – tetrachlorodibenzo-p-diox

W – west

Table 25a. Chemical-Specific ARARs for Remedial Action at the Portland Harbor Superfund Site

Medium	Regulation/Citation	Criterion/Standard	Comments
Protection of surface water	Clean Water Act, 33 USC 1313 and 1314 (Sections 303 and 304). Most recent 304(a) list of recommended water quality criteria, as updated up to issuance of the ROD	Under CWA Section 304(a), EPA develops recommended water quality criteria for water quality programs established by states. Two kinds of water quality criteria are developed: one for protection of human health, and one for protection of aquatic life. CWA §303 requires States to develop water quality standards based on Federal water quality criteria to protect existing and attainable use or uses (e.g., recreation, public water supply) of the receiving waters.	The most recent 304(a) recommended water quality criteria are: (1) <b>Relevant and Appropriate</b> for cleanup standards for surface water and contaminated groundwater discharging to surface water if more stringent than promulgated state criteria; (2) <b>Relevant and Appropriate</b> as criterion to apply to limit short-term impacts from dredging and capping if more stringent than promulgated state criteria; and (3) <b>Relevant and Appropriate</b> as criterion to apply to point source discharges that may occur in implementing the remedy if more stringent than promulgated state criteria.
Protection of potential drinking water sources	Safe Drinking Water Act, 42 USC 300f, 40 CFR Part 141, Subpart O, App. A. 40 CFR Part 143	Establishes Maximum Contaminant Level Goals (MCLGs) and Maximum Contaminant Levels (MCLs) to protect human health from contaminants in drinking water.	<b>Relevant and Appropriate</b> as cleanup standards for groundwater and surface water at the Site, which are potential drinking water sources.
Protection of potential drinking water sources	EPA Regional Screening Level (RSL) for Groundwater. Office of Superfund Remediation and Technology Innovation, Assessment and Remediation Division. November 2015.	Establishes acceptable risk levels for individual contaminants to protect the human health drinking water use at the 1x10 <sup>-6</sup> level for individual carcinogens or hazard quotient (HQ) of 1. They are risk-based concentrations derived from standardized equations combining exposure information assumptions with EPA toxicity data.	<b>To Be Considered</b> criteria for cleanup standards for groundwater and surface water at the Site only for contaminants of concern for which there are no MCLGs or MCLs established because the groundwater and surface water are potential drinking water sources.
Measure of protectiveness of human health and the environment in all media	Oregon Environmental Cleanup Law ORS 465.315(b)(A). Oregon Hazardous Substance Remedial Action Rules OAR 340-122-0040(2)(a) and (c), 0115(2-4).	Sets standards for degree of cleanup required for hazardous substances. Establishes acceptable risk levels for human health at 1x10 <sup>-6</sup> for individual carcinogens, 1x10 <sup>-5</sup> for multiple carcinogens, and Hazard Index of 1 for noncarcinogens.	<b>Applicable</b> standards for the final selected remedy to achieve these human health carcinogen and noncarcinogen risk levels by implementation of dredging, capping, enhanced natural recovery, monitored natural recovery, off-site disposal, implementation of institutional controls and other response actions set forth in the ROD.
Protection of surface water	Water Pollution Control Act ORS 468B.048. State-wide Numeric water quality criteria set forth in OAR Part 340, Division 41, including, Toxic Substances criterion at OAR Part 340-41-0033 (Tables 30 and 40), and Designated Uses for the Willamette Basin and Numeric Water Quality Criteria specified for the Willamette Basin at OAR 340-041-340 and 340-041-0345	DEQ is authorized to administer and enforce CWA program in Oregon. The state has promulgated numeric water criteria, state-wide and specific Willamette Basin criteria, to protect Willamette Basin designated beneficial uses.	Oregon's numeric toxics water quality standards (Tables 30 and 40) are <b>Applicable</b> requirements as cleanup standards for surface water to the extent they are more stringent than Clean Water Act 304(a) recommended criterion. State promulgated numeric water quality criteria are <b>Applicable</b> standards for controls on discharges of pollutants to state waters that may violate such criteria during the implementation of remedial actions, such as setting limits on short-term impacts from dredging and capping, and limits on point source discharges that may occur in implementing the remedy. Oregon's promulgated numeric water quality criteria are <b>Relevant and Appropriate</b> as cleanup standards for contaminated groundwater discharging to surface water.



Table 25b. Action-Specific ARARs for Remedial Action at the Portland Harbor Superfund Site

Action	Regulation/Citation	Criterion/Standard	Comments
Actions that discharge dredged or fill material into navigable waters	Clean Water Act, Section 404, 33 USC 1344 and Section 404(b)(1) Guidelines, 40 CFR Part 230 (Guidelines for Specification of Disposal Sites for Dredged or Fill Material)	CWA §404 regulates the discharge of dredged or fill material into waters of the U.S., including return flows from such activity. This program is implemented through regulations set forth in the 404(b)(1) guidelines, 40 CFR Part 230. The guidelines specify: the restrictions on discharge (40 CFR 230.10); the factual determinations that need to be made on short-term and long-term effects of a proposed discharge of dredged or fill material on the physical, chemical, and biological components of the aquatic environment (40 CFR 230.11) in light of Subparts C through F of the guidelines; and the findings of compliance on the restrictions (40 CFR 230.12). Subpart J of the guidelines provide the standards and criteria for the use of all types of compensatory mitigation when the response action will result in unavoidable impacts to the aquatic environment.	<b>Applicable</b> criteria and guidelines for evaluating impacts to the aquatic environment from dredging contaminated sediment, placement of capping material and enhanced monitored natural recovery material, and in-situ treatment of sediments that will occur in implementing the remedy. Through an initial Section 404 analysis with RI/FS information, it was determined that the remedy can be implemented in compliance with Section 404 requirements. However, more detailed remedial design information will be required to fully assess impacts and specify all of the requirements and controls that will need to be placed on dredging and placement of capping or other materials in the river, including return flows, and riverbank remediation, to minimize or avoid the impacts. Also through the 404 analysis in remedial design, exact amounts of compensatory mitigation for unavoidable loss of aquatic habitat will be determined and mitigation plans developed.
Actions that discharge pollutants to waters of U.S.	Clean Water Act, Section 402, 33 USC 1342	Regulates discharges of pollutants from point sources to waters of the U.S., and requires compliance with the standards, limitations and regulations promulgated per Sections 301, 304, 306, 307, 308 of the CWA. CWA §301(b) requires all direct dischargers to meet technology-based requirements. These requirements include, for conventional pollutants, application of the best conventional pollutant control technology (BCT), and for toxic and nonconventional pollutants, the best available technology economically achievable (BAT). Where effluent guidelines for a specific type of discharge do not exist, BCT/BAT technology-based treatment requirements are determined on a case-by-case basis using best professional judgment (BPJ). Once the BPJ determination is made, the numerical effluent discharge limits are derived by applying the levels of performance of a treatment technology to the wastewater discharge.	<b>Relevant and Appropriate</b> to remedial activities that result in a point source discharge of pollutants to the river if more stringent than state promulgated point source requirements.
Actions that discharge pollutants to waters of U.S.	Clean Water Act, 33 USC 1341, (Section 401), 40 CFR Section, 121.2(a)(3), (4) and (5) Also see OAR 340-048-0015 "When Certification Required" pursuant to Oregon state law.	Any federally authorized activity which may result in any discharge into navigable waters requires reasonable assurances that the activity will be conducted in a manner which will not violate applicable water quality standards by the imposition of any effluent limitations, other limitations, and monitoring requirements necessary to assure the discharge will comply with applicable provisions of sections 1311, 1312, 1313, 1316, and 1317 of the Clean Water Act. Oregon administrative rule OAR 340-048-0015, Provides that federally-approved activities that may result in a discharge to waters of the State requires evaluation whether an activity may proceed and meet water quality standards with conditions, which if met, will ensure that water quality standards are met.	<b>Relevant and Appropriate</b> CWA 401 requirement, if more stringent than state implementation regulations, that in-water response actions that result in a discharge of pollutants comply with water quality standards through the placement of water quality-based conditions and other requirements on the discharge deemed necessary. The <b>applicable</b> state regulations require reasonable assurance that any discharge to state waters will comply with state water quality standards. Actions to implement the remedial action that may result in discharges to state waters include, but may not be limited to, dredging, capping, placement of material for enhanced natural recovery, riverbank remediation, return flows or de-watering sediments. Conditions and other requirements deemed necessary so that state water quality standards are not violated will be placed on any such discharge.
Actions resulting in discharges to waters of the State of Oregon, including removal and fill activities	ORS 468B.025 and State water quality standards established by rule: OAR 340-041-0002 through 0059, and Willamette Basin Designated Uses and Basin-specific water quality standards at OAR 340-041-340 and OAR 340-041-345.	ORS 468B.025 prohibits pollution of any waters of the state and prohibits the discharge of any wastes into state waters if the discharge reduces the quality of the water below state water quality standards. By rule, the State establishes standards of quality and purity for the waters of the state	All state-wide and Willamette Basin-specific water quality standards, including numeric, narrative, and designated uses, are <b>Applicable</b> requirements for any discharges to surface water from point sources and remedial activities that may result in discharges to waters of the state, such as, dredge and fill, capping, placement of material for enhanced natural recovery, riverbank remediation, and return flows or de-watering sediments. State-wide and Willamette Basin-specific water quality standards are <b>Relevant and Appropriate</b> to measuring effectiveness of controls on contaminated groundwater discharging to surface water.
Actions resulting in discharges from removal and fill activities	ORS 196.825(5) -Statutory requirement to mitigate for expected adverse effects of removal and fill activities. Applicable substantive mitigation rules are: OAR 141-085-510, 141-085-680, 141-085 0685, 141-085-0690, 141-085-0710, 141-085-715.	State substantive requirements for mitigation for the reasonably expected adverse effects of removal or fill in a project development in waters of the state, including in designated Essential Indigenous Anadromous Salmonid Habitat.	<b>Applicable</b> compensatory mitigation standards and requirements for reasonably expected adverse effects, if any, from dredging, capping, placement of material for enhanced natural recovery, and riverbank remediation. The Site includes Essential Indigenous Anadromous Salmonid Habitat and the specifically-listed state regulations contain specific habitat mitigation standards not found in CWA Section 404 regulations for reasonably expected adverse effects of the dredging, capping and other remedial action activities, which will be incorporated into compensatory mitigation plans developed during remedial design.

Table 25b. Action-Specific ARARs for Remedial Action at the Portland Harbor Superfund Site

Action	Regulation/Citation	Criterion/Standard	Comments
Actions in federal navigation channels	River and Harbors Act of 1899, Section 10, 33 USC Section 403 and implementing regulations at 33 CFR Sections 322(e), 323.3, 323.4(b)-(c) and 329	The creation of any obstruction not affirmatively authorized by Congress, to the navigable capacity of any of the waters of the United States is prohibited; and it shall not be lawful to build or commence the building of any wharf, pier, dolphin, boom, weir, breakwater, bulkhead, jetty, or other structures in any port, roadstead, haven, harbor, canal, navigable river, or other water of the United States, outside established harbor lines. 33 CFR 322(e) addresses placing of aids to navigation in navigable waters is under the purview of Section 10, and must meet requirements of the U.S. Coast Guard (33 CFR 330.5(a)(1)). 33 CFR Section 323.4(b) and (c) provide if any discharge of dredged or fill material contains any toxic pollutant listed under section 307 of the CWA such discharge shall require compliance with Section 404 of the CWA. Placement of pilings, or discharge of dredged material that where the flow or circulation of waters of the United States may be impaired or the reach of such waters reduced must comply with Section 10. 33 CFR 329.4 defines the terms "navigable water of the United States" for purposes of the USACE regulations, including those addressing the discharge of dredged or fill material.	<b>Applicable</b> requirement for how remedial actions are taken or constructed in the navigation channel so as not to create an obstruction to the navigable capacity. <b>Applicable</b> to the use of aids to navigation as institutional controls for maintaining the integrity of the selected remedy. <b>Applicable</b> to the placement of pilings or discharge of dredged material that may impair the flow or circulation of waters or reach of waters of the United States.
Actions generating pesticide residue	Hazardous Waste and Hazardous Materials II. Identification and Listing of Hazardous Waste OAR 340-101-0033(6) and (7); OAR 340-100-0010(j); and OAR 340-109-0010(3) and (4)	State regulations that identify and define pesticide residue as a state hazardous waste, but which are not subject to land disposal restrictions.	<b>Applicable</b> regulations for characterizing dredged material as a state hazardous waste for off-site disposal.
Actions handling PCB remediation wastes and PCB containing material	Toxic Substances Control Act, 15 USC §2601 et seq., 40 CFR Part 761, Subpart D and OAR 340-110-0065 (1) and (2)	TSCA Subpart D regulates storage and disposal of PCB wastes and establishes requirements for handling, storage, and disposal of PCB-containing materials, including PCB remediation wastes, and sets performance standards for disposal technologies for materials/wastes with concentrations in excess of 50 milligrams per kilogram (mg/kg). Establishes decontamination standards for PCB contaminated debris. Oregon PCB storage for disposal regulations require the owners or operators of any facility using containers described in CFR 761.65(c)(7)(i) prepare and implement a Spill Prevention Control and Countermeasure (SPCC) plan as described in 40 CFR Part 112. In complying with 40 CFR Part 112, the owner or operator shall read "oil(s)" as "PCB(s)" whenever it appears. Because the remedy requires removal of sediment to specific depths and the maximum PCB concentrations detected in areas of the river to be dredged do not exceed 50 mg/kg, no substantive requirements triggered. If additional testing during remedial design identifies sediments at concentrations of 50 mg/kg PCBs, TSCA regulations may be applicable for managing dredged material for off-site disposal and listed here: 40 CFR 761.1(b)(5), 40 CFR 761.3, 40 CFR 761.50(a) and (b)3, 40 CFR 761.61(a)(5) and (b), 40 CFR 761.65(c)(9)(i)-(iii), and 40 CFR 761(c).	TSCA decontamination and disposal requirements are <b>Applicable</b> to the disposal of contaminated dredged material, debris, or surface water with PCB contamination if dredged sediment is found to contain 50 mg/kg in concentration. Based on current data, PCB concentrations in dredged sediment at or above 50 mg/kg are not expected, but if found, the cleanup will comport with this standard. Certain types of debris that may be encountered and which appears to be PCB equipment or potentially from a PCB Containing source, will require sampling and analysis compliant with TSCA to determine if it is PCB remediation waste and needs to be disposed as such.
Risk-based limits protective of human health for air emissions associated with soil or sediment removal	Clean Air Act, 40 CFR Parts 50 and 52	Places restrictions on air emissions from stationary and mobile sources that creates threats to human health as defined in the regulations and which may be generated from equipment used to construct the remedy.	These regulations are <b>Relevant and Appropriate</b> to evaluating how emissions may be minimized or reduced during construction of the remedy.
Actions generating air emissions	Oregon Air Pollution Control ORS 468A et seq., General Emissions Standards OAR 340-226	DEQ is authorized to administer and enforce Clean Air program in Oregon. Rules provide general emission standards for fugitive emissions of air contaminants and require highest and best practicable treatment or control of such emissions.	<b>Applicable</b> to remedial actions taking place on-site on upland properties. Could apply to earth-moving equipment, dust from vehicle traffic, and mobile-source exhaust, among other things.

Table 25b. Action-Specific ARARs for Remedial Action at the Portland Harbor Superfund Site

Action	Regulation/Citation	Criterion/Standard	Comments
Actions that involve handling of dredged sediment or riverbank soils containing asbestos	National Emission Standards for Asbestos, 40 CFR 61.150(a)(1)(i) - (v)	40 CFR 61.150(a) requires that there be no visible emissions to the outside air during collection, processing, packaging, or transporting of any asbestos-containing waste material. Subsections (a)(1)(i) and (ii) require that asbestos-containing waste material be adequately kept wet and provide how to keep such wet so as not to discharge any visible emissions to the outside air. Subsection (a)(1)(iii) requires that after wetting, seal all asbestos-containing waste material in leak-tight containers while wet; or, for materials that will not fit into containers without additional breaking, put materials into leak-tight wrapping. Subsections (a)(1)(iv) and (v) require: Label the containers or wrapped materials specified in paragraph (a)(1)(iii) of this section using warning labels specified by Occupational Safety and Health Standards of the Department of Labor, Occupational Safety and Health Administration (OSHA) under 29 CFR 1910.1001(j)(4) or 1926.1101(k)(8). The labels shall be printed in letters of sufficient size and contrast so as to be readily visible and legible. For asbestos-containing waste material to be transported off the facility site, label containers or wrapped materials with the name of the waste generator and the location at which the waste was generated.	<b>Relevant and Appropriate</b> as standards for handling dredged sediment or riverbank soils containing asbestos that is going to on-site or off-site disposal facilities. Friable asbestos may be encountered during remediation in riverbanks and in the river where landfilling or disposal of friable asbestos occurred at industrial operations using such material, such as, chemical manufacturers and ship building and dismantling operations, and where encountered the cleanup will comport with this standard.
Actions that involve off-site disposal of dredged sediment or riverbank soils containing asbestos	National Emission Standards for Asbestos, 40 CFR 61.150(b)(1) and (2) and (c)	40 CFR 61.150(b)(1) and (2) require: All asbestos-containing waste material shall be deposited as soon as is practical by the waste generator at a waste disposal site operated in accordance with the provisions of § 61.154, or an EPA-approved site that converts RACM and asbestos-containing waste material into nonasbestos (asbestos-free) material according to the provisions of § 61.155. Subsection (c) requires: Mark vehicles used to transport asbestos-containing waste material during the loading and unloading of waste so that the signs are visible. The markings must conform to the requirements of §§ 61.149(d)(1) (i), (ii), and (iii).	<b>Applicable</b> to offsite transportation, treatment and disposal of asbestos-containing waste material segregated from contaminated environmental media such as sediment and soil that is generated during dredging or excavation of sediment and riverbank soils.
Actions on the riverbanks that expose and manage on-site soils containing asbestos	National Emission Standards for Asbestos, 40 CFR 61.151(a)(2) and (3), 40 CFR 61.151(b)(1)(i) through (iii) and 40 CFR 61.151(b)(2)	40 CFR 61.151(a)(2) requires: Cover the asbestos-containing waste material with at least 15 centimeters (6 inches) of compacted nonasbestos-containing material, and grow and maintain a cover of vegetation on the area adequate to prevent exposure of the asbestos-containing waste material. In desert areas where vegetation would be difficult to maintain, at least 8 additional centimeters (3 inches) of well-graded, nonasbestos crushed rock may be placed on top of the final cover instead of vegetation and maintained to prevent emissions. 40 CFR 61.151(b)(3) requires: Cover the asbestos-containing waste material with at least 60 centimeters (2 feet) of compacted nonasbestos-containing material, and maintain it to prevent exposure of the asbestos-containing waste. 40 CFR 61.151(b)(1)(i) through (iii) requires: (1) Display warning signs at all entrances and at intervals of 100 m (328 ft) or less along the property line of the site or along the perimeter of the sections of the site where asbestos-containing waste material was deposited. The warning signs must: (i) Be posted in such a manner and location that a person can easily read the legend; and (ii) Conform to the requirements for 51 cm x 36 cm (20" x 14") upright format signs specified in 29 CFR 1910.145(d)(4) and this paragraph; and (iii) Display the following legend in the lower panel with letter sizes and styles of a visibility at least equal to those specified in this paragraph. Spacing between any two lines must be at least equal to the height of the upper of the two lines.  40 CFR 61.151(b)(2) requires: Fence the perimeter of the site in a manner adequate to deter access by the general public.	<b>Applicable</b> to exposed asbestos-containing waste material and soils managed in situ on riverbanks during remediation or taken off-site for disposal.
Actions generating air emissions	Fugitive Emission Requirements OAR 340-208-0205, 0208, and 0209	State regulations that prohibit any person from openly accumulating asbestos material or asbestos-containing material and sets disposal requirements for Friable Asbestos and Nonfriable Asbestos	<b>Applicable</b> to remedial actions that may encounter friable or nonfriable asbestos material or asbestos-containing material and the off-site disposal of such.

Table 25b. Action-Specific ARARs for Remedial Action at the Portland Harbor Superfund Site

Action	Regulation/Citation	Criterion/Standard	Comments
Actions that may alter waterbodies and that may effect fish and wildlife	Fish and Wildlife Coordination Act. 16 USC 662 and 663, 50 CFR 6.302(g)	Requires federal agencies to consider effects on fish and wildlife from projects that may alter a body of water and mitigate or compensate for project-related losses, which includes discharges of pollutants to water bodies.	<b>Applicable</b> to determining impacts and appropriate mitigation, if necessary, for effects on fish and wildlife from filling activities or discharges from point sources.
Actions that may affect ESA listed and State protected fish and wildlife species	ODFW Fish Management Plans for the Willamette River. OAR 635, div 500	Provides basis for in-water work (dredging and filling) windows in the Willamette River.	<b>Applicable</b> to placing restrictions on when dredging and filling can occur in the Willamette River due to presence of ESA listed and state protected species at the site.
Actions that may affect marine mammals	Marine Mammal Protection Act. 16 USC §1361 et seq. 50 CFR 216	Imposes restrictions on the taking, possession, transportation, selling, offering for sale, and importing of marine mammals.	<b>Applicable</b> to response actions that could harm marine mammals in the Willamette River and may require best management practices be used for observing and avoiding contact with such species during construction of the remedy.
Actions that may affect migratory birds	Migratory Bird Treaty Act. 16 USC §703 50 CFR §10.12	Makes it unlawful to take any migratory bird. "Take" is defined as pursuing, hunting, wounding, killing, capturing, trapping and collecting.	<b>Applicable</b> to response actions that could harm migratory birds using the Willamette River and may require use of best management practices for observing and avoiding contact with such species during construction of the remedy.
On-site actions that involve generating, handling and disposal of hazardous waste	OAR 340-100-0001(3) and OAR 340-100-0002(1)	Oregon has adopted and incorporates by reference the federal RCRA hazardous waste management program. Oregon adopted the federal Hazardous Waste Identification Rule that provides for an exclusion for dredged materials subject to the requirements of a permit under the Clean Water Act or the Marine Protection, Research, and Sanctuaries Act from RCRA Subtitle C.	Oregon's hazardous waste and materials regulations are <b>Applicable</b> to the generation, storage, handling, treatment and disposal of hazardous waste on-site and slated for off-site disposal. Oregon's hazardous waste identification rule exempts handling and on-site management of dredged materials subject to the requirements of a permit under the Clean Water Act or Marine Protection, Research, and Sanctuaries Act. However, any dredged material that will be disposed of in an off-site disposal facility must comply with these standards.
Actions generating solid wastes or hazardous wastes for off-site disposal	Solid waste defined in 40 CFR 261.2. Determining if solid waste is hazardous per 40 CFR § 262.11(a-c) and OAR 340-102-0011 - Hazardous Waste Determination	Must determine if solid waste (residue as defined in OAR 340-100-0010) is a hazardous waste using the following method: <ul style="list-style-type: none"> <li>• Should first determine if waste is excluded from regulation under 40 CFR261.4; and</li> <li>• Must then determine if waste is listed as a hazardous waste under subpart D 40 CFR part 261 or whether the waste is (characteristic waste) identified in subpart C of 40 CFR part 261 by either: <ul style="list-style-type: none"> <li>(1) Testing the waste according to the methods set forth in subpart C of 40 CFR part 261, or according to an equivalent method approved by the Administrator under 40 CFR §260.21; or</li> <li>(2) Applying knowledge of the hazard characteristic of the waste in light of the materials or the processes used. Additionally, Oregon has promulgated its own hazardous waste determination regulation: "(1) The provisions of this rule replace the requirements of 40 C.F.R. Sec. 262.11.</li> </ul> </li> </ul> (2) A person who generates a residue as defined in OAR 340-100-0010 must determine if that residue is a hazardous waste using the following method: (a) Persons should first determine if the waste is excluded from regulation under 40 C.F.R. Sec. 261.4 or OAR 340-101-0004; (b) Persons must then determine if the waste is listed as a hazardous waste in Subpart D of 40 C.F.R. Part 261; (c) Persons must then determine if the waste is listed under the following listings: NOTE: Even if the waste is listed, the person still has an opportunity under OAR 340-100-0022 to demonstrate to the Commission that the waste from their particular facility or operation is not a hazardous waste. (d) Regardless of whether a hazardous waste is listed through application of subsections (2)(b) or (2)(c) of this rule, persons must also determine whether the waste is hazardous under Subpart C of 40 C.F.R. Part 261 by either: (A) Testing the waste according to the methods set forth in Subpart C of 40 C.F.R. Part 261, or according to an equivalent method the Department approves under OAR 340-100-0021, or NOTE: In most instances, the Department will not consider approving a test method until the EPA approves it. (B) Applying knowledge of the hazard characteristic of the waste in light of the materials or the processes used."	Hazardous waste characterization and determination is <b>Applicable</b> for off-site disposal.
Actions generating dredged material hazardous waste	40 CFR § 261.4(g)	Dredged material that is subject to the requirements of Section 404 of the CWA is not a hazardous waste for purposes of regulation under RCRA.	The exemption is <b>Applicable</b> to the dredging, in-situ treatment, handling, storage or other on-site activities of dredged materials that are being managed in accordance with Section 404 analysis and approvals.

Table 25b. Action-Specific ARARs for Remedial Action at the Portland Harbor Superfund Site

Action	Regulation/Citation	Criterion/Standard	Comments
Actions generating RCRA hazardous waste that will be disposed of in a permitted off-site disposal facility	40 CFR § 264.13(a)(1)	Must obtain a detailed chemical and physical analysis on a representative sample of the waste(s), which at a minimum contains all the information that must be known to treat, store, or dispose of the waste in accordance with pertinent sections of 40 CFR 264 and 268.	This requirement is <b>Applicable</b> to characterizing dredged materials for off-site disposal.
Actions generating RCRA hazardous waste	40 CFR § 268.7(a)(1)	Must determine if the hazardous waste has to be treated before land disposed. This is done by determining if the waste meets the treatment standards in 40 CFR 268.40, 268.45, or 268.49 by testing in accordance with prescribed methods or use of generator knowledge of waste. This determination can be made concurrently with the hazardous waste determination required in 40 CFR 262.11. Must comply with the special requirements of 40 CFR § 268.9 in addition to any applicable requirements in 40 CFR § 268.7.	This requirement is <b>Applicable</b> to characterizing and treating dredged materials slated for off-site disposal.
Actions generating RCRA hazardous waste	40 CFR § 268.9(a)	Must determine each EPA Hazardous Waste Number (waste code) applicable to the waste in order to determine the applicable treatment standards under 40 CFR 268 et seq. This determination may be made concurrently with the hazardous waste determination required in Sec. 262.11 of this chapter. Must determine the underlying hazardous constituents [as defined in 40 CFR 268.2(i)] in the characteristic waste.	This requirement is <b>Applicable</b> to characterizing and treating dredged materials slated for off-site disposal.
Actions generating industrial wastewater	40 CFR § 261.4(a)(2)	Industrial wastewater discharges that are point source discharges subject to regulation under section 402 of the CWA, as amended, are not solid wastes for the purpose of hazardous waste management. [Comment: This exclusion applies only to the actual point source discharge. It does not exclude industrial wastewaters while they are being collected, stored or treated before discharge, nor does it exclude sludges that are generated by industrial wastewater treatment.]	This requirement is <b>Applicable</b> to wastewater generated by the remedy that will be discharged from a point source in accordance with Section 402 of the CWA.
Actions requiring temporary storage of hazardous waste	OAR 340-102-0034 40 CFR § 262.34(a); 40 CFR §262.34(a)(1)(i); 40 CFR § 262.34(a)(2) and (3) 40 CFR § 262.34(c)(1)	A generator may accumulate hazardous waste at the facility provided that (accumulation of RCRA hazardous waste on site as defined in 40 CFR §260.10) :  <ul style="list-style-type: none"> <li>• waste is placed in containers that comply with 40 CFR 265.171–173; and</li> <li>• the date upon which accumulation begins is clearly marked and visible for inspection on each container;</li> <li>• container is marked with the words “hazardous waste”; or</li> <li>• container may be marked with other words that identify the contents if accumulation of 55 gal. or less of RCRA hazardous waste or one quart of acutely hazardous waste listed in §261.33(e) at or near any point of generation</li> </ul> <p style="text-align: right;">Oregon</p> <p>hazardous waste regulations further require:  (1) In addition to the requirements of 40 CFR 262.34, a generator may accumulate hazardous waste on-site for 90 days or less without a permit provided that, if storing in excess of 100 containers, the waste is placed in a storage unit that meets the Accumulation requirements of 40 CFR 264.175 and  (2) A generator shall comply with provisions found in 40 CFR, Part 262 and each applicable requirement of 40 CFR 262.34(a), (b), (c), (d), (e), and (f).</p>	The substantive requirements are <b>Applicable</b> to temporary storage of hazardous waste at an on-site transloading facility, but no permit will be required.
Actions resulting in the storage of solid waste	OAR 340-093-0210 and 0220	State of Oregon solid waste general provisions regarding storage and collection of solid waste and transportation related requirements for trucks servicing a solid waste collection facility.	Applicable requirements to operation of an on-site transloading facility for dredged materials slated for off-site disposal.
Actions resulting in the storage of solid waste	OAR 340-095-0010, 0020, 0030, 0050(1) & (2), 0070(2)	State of Oregon solid waste regulations for solid waste land disposal sites other than municipal solid waste landfills. Specifically, regulations related to the location siting, operating criteria, design criteria, groundwater monitoring and closure requirements for a non-municipal solid waste landfill.	<b>Applicable</b> requirements to the siting, design, operation and closure of an on-site transloading facility for dredged material slated for off-site disposal.



Table 25b. Action-Specific ARARs for Remedial Action at the Portland Harbor Superfund Site

Action	Regulation/Citation	Criterion/Standard	Comments
Actions transporting hazardous materials	49 CFR 171.1(b)	Any person who, under contract with a department or agency of the federal government, transports "in commerce," or causes to be transported or shipped, a hazardous material shall be subject to and must comply with all applicable provisions of the HMTA and HMR at 49 CFR 171 - 180 related to marking, labeling, placarding, packaging, emergency response, etc.	<b>Applicable</b> to transportation of hazardous materials.
Actions that involve storage and treatment of hazardous waste at the transloading facility	40 CFR Part 264, Subparts B, C, F, G, I, J, K, L, M, AA, BB, CC, and DD	These regulations provide standards for location, design, operation, and closure of units in which treatment of hazardous waste may occur at the transloading facility. These regulations also provide requirements for use and management of containers, tank systems, surface impoundments, waste piles, and land treatment units one or more of which may be used for the storage and treatment of hazardous waste at the transloading facility. Subparts AA, BB, and CC provide air emission standards for process vents, equipment leaks, and tanks, surface impoundments and containers may be used at the transloading facility.	The listed requirements of Part 264 are <b>Applicable</b> to the siting, design, operation, and closure of any containers, tank systems, surface impoundments, waste piles or land treatment areas used for the storage (over 90 days) and/or treatment of hazardous waste on-site prior to disposal off-site. The specific storage system and treatment methods that may be employed at the on-site transloading facility will be determined during remedial design.

**Table 25c. Location-Specific ARARs for Remedial Action at the Portland Harbor Superfund Site**

Location	Regulation/Citation	Criterion/Standard	Comments
Presence of archaeologically or historically sensitive area	Native American Graves Protection and Reparation Act, 25 USC 3001-3013, 43 CFR 10	Requires Federal agencies and museums which have possession of or control over Native American cultural items (including human remains, associated and unassociated funerary items, sacred objects and objects of cultural patrimony) to compile an inventory of such items. Prescribes when such Federal agencies and museums must return Native American cultural items. "Museums" are defined as any institution or State or local government agency that receives Federal funds and has possession of, or control over, Native American cultural items.	If Native American cultural items are present on property belonging to the Oregon Division of State Lands (DSL) that is a part of the response action area, this requirement is <b>Applicable</b> . If Native American cultural items are collected by an entity which is either a federal agency or museum, then the requirements of the law are <b>Applicable</b> .
Presence of archaeologically or historically sensitive area	Indian Graves and Protected Objects ORS 97.740-760	Prohibits willful removal of cairn, burial, human remains, funerary object, sacred object or object of cultural patrimony. Provides for re-interment of human remains or funerary objects under the supervision of the appropriate Indian tribe. Proposed excavation by a professional archaeologist of a native Indian cairn or burial requires written notification to the State Historic Preservation Officer and prior written consent of the appropriate Indian tribe. Prohibits persons from excavating, injuring, destroying or damaging archaeological sites or objects on public or private lands unless authorized.	<b>Relevant and Appropriate</b> if archaeological material is encountered.
Presence of archaeologically or historically sensitive area	Archaeological Objects and Sites ORS 358.905- 955 ORS 390.235	Imposes conditions for excavation or removal of archaeological or historical materials.	<b>Relevant and appropriate</b> if archaeological material encountered.
Presence of archaeologically or historically sensitive area	National Historic Preservation Act. 16 USC 470 et seq. 36 CFR Part 800	Requires the identification of historic properties potentially affected by the agency undertaking, and assessment of the effects on the historic property and seek ways to avoid, minimize or mitigate such effects. Historic property is any district, site, building, structure, or object included in or eligible for the National Register of Historic Places, including artifacts, records, and material remains related to such a property.	<b>Applicable</b> if historic properties are potentially affected by remedial activities.
Presence of archaeologically or historically sensitive area	Archaeological and Historic Preservation Act. 16 USC 469a-1	Provides for the preservation of historical and archaeological data that may be irreparably lost as a result of a federally-approved project and mandates only preservation of the data.	<b>Applicable</b> if historical and archaeological data may be irreparably lost by implementation of the remedial activities.
Presence of floodplain as designated on FEMA Flood Insurance map	44 CFR 60.3(d)(2) and (3)	Prohibits encroachments that would result in any increase in flood levels during occurrence of base flood discharge.	FEMA flood rise requirements are considered <b>Relevant and Appropriate</b> requirements for remedial actions that involve capping or other placement of material in the river or on riverbanks that may increase flood levels.

**Table 25c. Location-Specific ARARs for Remedial Action at the Portland Harbor Superfund Site**

Location	Regulation/Citation	Criterion/Standard	Comments
Presence of floodplain as designated on map	Federal Emergency Management Act regulations at 44 CFR 9 (which sets forth the policy, procedure and responsibilities to implement and enforce Executive Orders 11988 (Management of Floodplain) <b>To Be Considered</b> , as amended by E.O. 13690 and 11990 (Protection of Wetlands) <b>To Be Considered</b>	44 CFR 9 (Requirements for Flood Plain Management Regulations Areas) Requires measures to reduce the risk of flood loss, minimize impact of floods, and restore and preserve the natural and beneficial values of floodplains. The Executive Orders 11988 as amended by 13690 direct federal agencies to evaluate the potential effects of action that may be taken in a floodplain and to avoid, to the extent possible, long-term and short-term adverse effects associated with the occupancy and modification of floodplains, and to avoid direct or indirect support of floodplain development wherever there is a practicable alternative. Executive Order 11990 directs that activities conducted by federal agencies avoid, to the extent possible, long-term and short-term adverse effects associated with the modification or destruction of wetlands and to avoid direct or indirect support of new construction in wetlands when there are practicable alternatives.	The substantive identified FEMA regulations are <b>Relevant and Appropriate</b> for assessing impacts, if any, to the floodplain and flood storage from the response action and developing compensatory mitigation that is beneficial to floodplain values. Substantive portions of the Executive Order are <b>To-Be-Considered</b> .
Presence of wetlands	Executive Order for Wetlands Protection. Executive Order 11990 (1977) <b>To Be Considered</b>	Requires measures to avoid adversely impacting wetlands whenever possible, minimize wetland destruction, and preserve the value of wetlands.	<b>To Be Considered</b> guidelines in assessing impacts to wetlands, if any, from the response action and for developing appropriate compensatory mitigation for the project.
Presence of state-listed threatened or endangered wildlife species	Protection and Conservation Programs ORS. 496.171 to 496.182. Survival Guidelines OAR 635-100-0135	Survival Guidelines are rules for state agency actions affecting species listed under Oregon's Threatened or Endangered Wildlife Species law.	Substantive requirements of Survival Guidelines are <b>Relevant and Appropriate</b> to remedial activities affecting state-listed species.
Presence of essential fish habitat	Magnuson-Stevens Fishery Conservation and Management Act. 50 CFR Part.600.920	Requires federal agencies consult with NMFS on actions that may adversely affect Essential Fish Habitat (EFH), defined as "those waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity."	<b>Applicable</b> because the National Marine Fisheries Service has designated the Lower Willamette River as EFH. EPA evaluated effects to EFH from the proposed remedial action in a biological assessment.
Presence of federally endangered or threatened species	Endangered Species Act. 16 USC 1536 (a)(2), Listing of endangered or threatened species per 50 CFR 17.11 and 17.12 or designation of critical habitat of such species listed in 50 CFR 17.95	Actions authorized, funded, or carried out by federal agencies may not jeopardize the continued existence of endangered or threatened species or result in the adverse modification of species' critical habitat. Agencies are to avoid jeopardy or take appropriate mitigation measures to avoid jeopardy.	<b>Applicable</b> to remedial actions that may impact endangered or threatened species or critical habitat that are present at the site. Listed species are found at the Site, and critical habitat for listed salmonids has been designated within the site. Coordination will occur with the National Marine Fisheries Service and US Fish and Wildlife Service regarding actions to be taken, their impacts on listed species, and measures that will be taken to reduce, minimize, or avoid such impacts so as not to jeopardize the continued existence or adversely modify critical habitat. If take cannot be avoided, take permission from the Services will be obtained. EPA evaluated effects to listed and threatened species and critical habitat from the proposed remedial action in a preliminary biological assessment. As further details are developed in remedial design, the biological assessment will be supplemented.

**Table 26. Summary of Remedial Alternative Costs**

<b>Alternative</b>	<b>Disposal Scenario</b>	<b>Capital Cost</b>	<b>Periodic Cost</b>	<b>Present Value Cost</b>	<b>Construction Duration</b>
A	NA	\$0	\$0	\$0	0
B	DMM 2	\$352,097,000	\$290,324,000	\$451,460,000	4 years
C	DMM 2	\$400,933,000	\$317,464,000	\$496,760,000	5 years
D	DMM 2	\$556,004,000	\$397,028,000	\$653,700,000	6 years
E	DMM 1	\$748,071,000	\$412,332,000	\$804,120,000	7 years
E	DMM 2	\$827,465,000	\$412,332,000	\$869,530,000	7 years
F Modified	DMM 2	\$1,184,607,000	\$524,028,000	\$1,054,200,000	13 years
F	DMM 1	\$1,550,014,000	\$549,512,000	\$1,316,560,000	13 years
F	DMM 2	\$1,629,407,000	\$549,512,000	\$1,371,170,000	13 years
G	DMM 1	\$2,421,152,000	\$708,114,000	\$1,731,110,000	19 years
G	DMM 2	\$2,500,545,000	\$708,114,000	\$1,777,320,000	19 years
H	DMM 1	\$8,869,180,000	\$1,284,174,000	\$9,445,540,000	62 years
H	DMM 2	\$8,948,573,000	\$1,294,174,000	\$9,524,940,000	62 years
I	DMM 1	\$672,966,000	\$421,940,000	\$745,890,000	7 years
I	DMM 2	\$751,359,000	\$421,940,000	\$811,290,000	7 years

Abbreviations:

DMM - disposed material management

NA – not applicable

**Table 27. Summary of Selected Remedy Quantities**

<b>Quantity Description</b>	<b>Quantity</b>	<b>Unit</b>
Constructed Area of In-Water Contaminated Sediment	394	acres
Length of River Bank to be Excavated and Covered (Augmented Reactive Cap or Engineered Cap)	23,305	Lineal Feet
Natural Recovery Area	1,774	acres
Capping and Dredging Area of In-Water Contaminated Sediment	365	acres
Enhanced Natural Recovery Area	28.2	acres
Volume of Contaminated Material Excavated from River Banks	122,827	CY
Volume of Sediment Material for Ex Situ Treatment	156,103 to 208,138	CY
Volume of River Bank Material for Ex Situ Treatment	9,456	CY

Abbreviations:  
CY – cubic yard



Table 28. Cost Estimate Summary for the Selected Remedy

<b>INSTITUTIONAL CONTROLS CAPITAL COSTS: (Assumed to be Incurred During Years 0 through 12)</b>				
<b>DESCRIPTION</b>	<b>QTY</b>	<b>UNIT(S)</b>	<b>UNIT COST</b>	<b>TOTAL COST</b>
Initial Establishment of Institutional Controls	1	LS	\$3,716,324	\$3,716,324
<b>SUBTOTAL</b>				<b>\$3,716,324</b>
Contingency (Scope and Bid)	15%			\$557,449
<b>SUBTOTAL</b>				<b>\$4,273,773</b>
Project Management	2%			\$85,475
Remedial Design	2%			\$85,475
Construction Management	3%			\$128,213
<b>TOTAL</b>				<b>\$4,572,936</b>
<b>TOTAL CAPITAL COST</b>				<b>\$4,573,000</b>
<b>MONITORED NATURAL RECOVERY CAPITAL COSTS: (Assumed to be Incurred During Year 0)</b>				
<b>DESCRIPTION</b>	<b>QTY</b>	<b>UNIT(S)</b>	<b>UNIT COST</b>	<b>TOTAL</b>
Monitored Natural Recovery (MNR) for MNR/Enhanced Natural Recovery (ENR) and Broadcast GAC Areas	1,802	AC	\$3,686	\$6,642,761
<b>SUBTOTAL</b>				<b>\$6,642,761</b>
Contingency (Scope and Bid)	20%			\$1,328,552
<b>SUBTOTAL</b>				<b>\$7,971,313</b>
Project Management	5%			\$398,566
Remedial Design	8%			\$637,705
Construction Management	6%			\$478,279
<b>TOTAL</b>				<b>\$9,485,863</b>
<b>TOTAL CAPITAL COST</b>				<b>\$9,486,000</b>
<b>TECHNOLOGY ASSIGNMENTS MEASURES CAPITAL CONSTRUCTION COSTS: (Assumed to be Incurred During Years 0 through 12)</b>				
<b>DESCRIPTION</b>	<b>QTY</b>	<b>UNIT(S)</b>	<b>UNIT COST</b>	<b>TOTAL</b>
Mobilization / Demobilization	1	LS	\$14,357,000	\$14,357,000
Transload Facility Development	1	LS	\$15,651,213	\$15,651,213
Debris Removal and Disposal	394	AC	\$13,107	\$5,164,162
Obstruction Removal and Relocation	1	LS	\$20,718,583	\$20,718,583
Erosion/Residual Control Measures	1	LS	\$27,166,335	\$27,166,335
Dredging of Contaminated Sediments (Open Water)	2,771,122	CY	\$24.53	\$67,975,623
Dredging of Contaminated Sediments (Confined)	123,241	CY	\$31.10	\$3,832,795
Excavation of Riverbanks	122,827	CY	\$5.19	\$637,472
Dewatering and Water Treatment for Dredging Operations	1	LS	\$12,775,272	\$12,775,272
Subtitle C/TSCA Disposal (Handling, Transportation, Treatment of Select PTW Materials, and Disposal)	358,891	TON	\$191	\$68,536,125
Subtitle D Disposal (Handling, Transportation, and Disposal)	4,596,885	TON	\$111	\$509,132,912
Mitigation	60	AC	\$1,070,827	\$64,249,620
Sand Placement for Technology Assignments	914,382	CY	\$33.77	\$30,880,134
Beach Mix Placement for Technology Assignments	69,511	CY	\$72.97	\$5,071,941
Armor Placement for Technology Assignments	151,909	CY	\$71.97	\$10,932,677
Reactive/PAC Placement for Technology Assignments	1	LS	\$53,081,326	\$53,081,326
Geofabric for Riverbanks	25.5	AC	\$14,311	\$364,936
Organoclay Mat Placement for Technology Assignments	174,300	SF	\$6.39	\$1,113,777
<b>SUBTOTAL</b>				<b>\$911,641,903</b>
Contingency (Scope and Bid)	20%			\$182,328,381
<b>SUBTOTAL</b>				<b>\$1,093,970,284</b>
Project Management	2%			\$21,879,406
Remedial Design	2%			\$21,879,406
Construction Management	3%			\$32,819,109
<b>TOTAL</b>				<b>\$1,170,548,205</b>
<b>TOTAL CAPITAL COST</b>				<b>\$1,170,548,000</b>

Table 28. Cost Estimate Summary for the Selected Remedy

<b>SITE-WIDE MONITORING AND MONITORED NATURAL RECOVERY PERIODIC COSTS: (Assumed to be Incurred at Years 2, 4, 6, 8, 10, 14, 18, 22, 26, &amp; 30)</b>					
<b>DESCRIPTION</b>	<b>QTY</b>	<b>UNIT(S)</b>	<b>UNIT COST</b>	<b>TOTAL</b>	
Monitored Natural Recovery (MNR) for MNR/Enhanced Natural Recovery (ENR) and Broadcast GAC Areas	1,802	AC	\$3,686	\$6,642,761	
Site-Wide Monitoring	1	LS	\$957,659	\$957,659	
Cap Area Monitoring and Reactive Layer Monitoring	1	LS	\$29,362,262	\$29,362,262	
<b>SUBTOTAL</b>				<b>\$36,962,682</b>	
Contingency (Scope and Bid)	20%			\$7,392,536	
<b>SUBTOTAL</b>				<b>\$44,355,218</b>	
Project Management	2%			\$887,104	
Technical Support	5%			\$2,217,761	
<b>TOTAL</b>				<b>\$47,460,083</b>	
<b>TOTAL PERIODIC COST</b>				<b>\$47,460,000</b>	
<b>LONG TERM OPERATIONS AND MAINTENANCE PERIODIC COSTS: (Assumed to be Incurred at Years 5, 10, 15, 20, 25, &amp; 30)</b>					
<b>DESCRIPTION</b>	<b>QTY</b>	<b>UNIT(S)</b>	<b>UNIT COST</b>	<b>TOTAL</b>	
Long-Term Maintenance for Capping, ENR, and In Situ Treatment	1	LS	\$5,153,976	\$5,153,976	
<b>SUBTOTAL</b>				<b>\$5,153,976</b>	
Contingency (Scope and Bid)	20%			\$1,030,795	
<b>SUBTOTAL</b>				<b>\$6,184,771</b>	
Project Management	5%			\$309,239	
Technical Support	10%			\$618,477	
<b>TOTAL</b>				<b>\$7,112,487</b>	
<b>TOTAL PERIODIC COST</b>				<b>\$7,112,000</b>	
<b>INSTITUTIONAL CONTROLS PERIODIC COSTS: (Assumed to be Incurred at Years 5, 10, 15, 20, 25, &amp; 30)</b>					
<b>DESCRIPTION</b>	<b>QTY</b>	<b>UNIT(S)</b>	<b>UNIT COST</b>	<b>TOTAL</b>	
Evaluating and Updating Institutional Controls	1	LS	\$646,624	\$646,624	
<b>SUBTOTAL</b>				<b>\$646,624</b>	
Contingency (Scope and Bid)	10%			\$64,662	
<b>SUBTOTAL</b>				<b>\$711,286</b>	
Project Management	5%			\$35,564	
Technical Support	10%			\$71,129	
<b>TOTAL</b>				<b>\$817,979</b>	
<b>TOTAL PERIODIC COST</b>				<b>\$818,000</b>	
<b>5-YEAR SITE REVIEW PERIODIC COSTS: (Assumed to be Incurred at Years 5, 10, 15, 20, 25, &amp; 30)</b>					
<b>DESCRIPTION</b>	<b>QTY</b>	<b>UNIT(S)</b>	<b>UNIT COST</b>	<b>TOTAL</b>	
5-Year Site Review	1	LS	\$243,687	\$243,687	
<b>SUBTOTAL</b>				<b>\$243,687</b>	
Contingency (Scope and Bid)	10%			\$24,369	
<b>SUBTOTAL</b>				<b>\$268,056</b>	
Project Management	5%			\$13,403	
Technical Support	10%			\$26,806	
<b>TOTAL</b>				<b>\$308,265</b>	
<b>TOTAL PERIODIC COST</b>				<b>\$308,000</b>	
<b>Summary of Present Value Analysis</b>					
<b>Year<sup>1</sup></b>	<b>Capital Costs</b>	<b>Periodic Costs</b>	<b>Total Annual Expenditure<sup>2</sup></b>	<b>Discount Factor (7.0%)</b>	<b>Present Value<sup>3</sup></b>
0	\$99,879,923	\$0	\$99,879,923	1.0000	\$99,879,923
1	\$90,393,923	\$0	\$90,393,923	0.9346	\$84,482,160
2	\$90,393,923	\$47,460,000	\$137,853,923	0.8734	\$120,401,616
3	\$90,393,923	\$0	\$90,393,923	0.8163	\$73,788,559
4	\$90,393,923	\$47,460,000	\$137,853,923	0.7629	\$105,168,758

**Table 28. Cost Estimate Summary for the Selected Remedy**

5	\$90,393,923	\$8,238,000	\$98,631,923	0.7130	\$70,324,561
6	\$90,393,923	\$47,460,000	\$137,853,923	0.6663	\$91,852,069
7	\$90,393,923	\$0	\$90,393,923	0.6227	\$56,288,296
8	\$90,393,923	\$47,460,000	\$137,853,923	0.5820	\$80,230,983
9	\$90,393,923	\$0	\$90,393,923	0.5439	\$49,165,255
10	\$90,393,923	\$55,698,000	\$146,091,923	0.5083	\$74,258,524
11	\$90,393,923	\$0	\$90,393,923	0.4751	\$42,946,153
12	\$90,393,923	\$0	\$90,393,923	0.4440	\$40,134,902
13	\$0	\$0	\$0	0.4150	\$0
14	\$0	\$47,460,000	\$47,460,000	0.3878	\$18,404,988
15	\$0	\$8,238,000	\$8,238,000	0.3624	\$2,985,451
16	\$0	\$0	\$0	0.3387	\$0
17	\$0	\$0	\$0	0.3166	\$0
18	\$0	\$47,460,000	\$47,460,000	0.2959	\$14,043,414
19	\$0	\$0	\$0	0.2765	\$0
20	\$0	\$8,238,000	\$8,238,000	0.2584	\$2,128,699
21	\$0	\$0	\$0	0.2415	\$0
22	\$0	\$47,460,000	\$47,460,000	0.2257	\$10,711,722
23	\$0	\$0	\$0	0.2109	\$0
24	\$0	\$0	\$0	0.1971	\$0
25	\$0	\$8,238,000	\$8,238,000	0.1842	\$1,517,440
26	\$0	\$47,460,000	\$47,460,000	0.1722	\$8,172,612
27	\$0	\$0	\$0	0.1609	\$0
28	\$0	\$0	\$0	0.1504	\$0
29	\$0	\$0	\$0	0.1406	\$0
30	\$0	\$55,698,000	\$55,698,000	0.1314	\$7,318,717
<b>TOTALS:</b>	<b>\$1,184,607,000</b>	<b>\$524,028,000</b>	<b>\$1,708,635,000</b>		<b>\$1,054,204,802</b>
<b>TOTAL PRESENT VALUE OF SELECTED REMEDY <sup>4</sup></b>					<b>\$1,054,200,000</b>

**Notes:**

<sup>1</sup> The Selected Remedy is expected to require cost expenditures for perpetuity since some contamination addressed by the remedy within the sediment bed and associated riverbank soils would remain in-place that do not allow for unrestricted use or unlimited exposure to human or ecological receptors. However, the period of analysis was assumed to be 30 yrs beyond the start of construction in Year 0.

<sup>2</sup> Total annual expenditure is the total cost per year with no discounting.

<sup>3</sup> Present value cost by year is the total annual expenditure discounted by a factor for that year representing the 7.0% real discount rate recommended by "A Guide to Developing and Documenting Cost Estimates During the Feasibility Study", EPA 2000.

<sup>4</sup> Total present value is rounded to the nearest \$10,000. Inflation and depreciation are excluded from the present value cost.

Costs presented for the selected remedy are expected to have an accuracy between -30% to +50% of actual costs, based on the scope presented.

Percentages used for contingency and professional/technical services costs are based on guidance from Section 5.0 of "A Guide to Developing and Documenting Cost Estimates During the Feasibility Study", EPA 2000. Modifications to the percentages applied for contingency and professional/technical services are documented in Appendix IV.

**Abbreviations:**

AC	Acre
CY	Cubic Yard
LS	Lump Sum
QTY	Quantity
SF	Square Foot
TON	Ton

**Table 29. Summary of Cost Effectiveness**

Alternative (check box if cost-effective) <sup>1</sup>	Present Value Cost	Incremental Cost <sup>2</sup>	Long-Term Effectiveness and Permanence	Reduction of Toxicity, Mobility and Volume Through Treatment	Short-Term Effectiveness
<b>Alternative A</b> <input type="checkbox"/> No Action	\$0	-----	<ul style="list-style-type: none"> <li>Existing risk remains. Ability for natural recovery unlikely since in-river sources remain.</li> <li>OHA fish advisories may not prevent human exposure.</li> </ul>	<ul style="list-style-type: none"> <li>No reduction of toxicity, mobility and volume through treatment.</li> </ul>	<ul style="list-style-type: none"> <li>No short-term risk to workers</li> <li>No short-term risk to community</li> <li>No short-term impact on environment</li> </ul>
<b>Alternative B</b> <input type="checkbox"/> Cap, dredge, in-situ treatment and ENR of: 201 acres of sediments 9,633 lf of river bank	\$451,460,000	+\$451,460,000	<ul style="list-style-type: none"> <li>Magnitude of residual risk remaining:                             <ul style="list-style-type: none"> <li>Site Wide HH:                                     <ul style="list-style-type: none"> <li>RAO 1<sup>3</sup>: 4.8x10<sup>-5</sup></li> <li>RAO 2<sup>4</sup>: 10 fish meals/yr (based on 1 x 10<sup>-5</sup> cancer risk), 9 fish meals/yr for child (based on noncancer HI of 25), and 0.5 fish meal/yr for breastfeeding infant (based on noncancer HI of 417)</li> <li>RAO 3: PCBs – 16 times &gt; cleanup levels. TCDD TEQ – 13 times &gt; cleanup level. cPAHs – 2 times &gt; cleanup levels.</li> <li>RAO 4: 84% not addressed. The magnitude residual risk is uncertain because it is likely that not all contaminated pore water will be addressed.</li> </ul> </li> <li>Site Wide Eco:                                     <ul style="list-style-type: none"> <li>RAO 5<sup>5</sup>: 52% not addressed. Degree of recovery is uncertain because it is likely that an insufficient amount of the benthic risk areas will be addressed.</li> <li>RAO 6: Maximum HQ is greater than 1 for the following COCs:   <ul style="list-style-type: none"> <li>RM scale:   <ul style="list-style-type: none"> <li>BEHP – 19 times</li> <li>PCBs – 5 times</li> <li>TCDF – 6 times</li> <li>PeCDF – 4 times</li> <li>HxCDF – 3 times</li> </ul> </li> <li>SDU scale:   <ul style="list-style-type: none"> <li>BEHP – 7 times</li> <li>PCBs – 4 times</li> <li>TCDF – 3 times</li> <li>PeCDF – 2 times</li> <li>HxCDF – 2 times</li> </ul> </li> </ul> </li> </ul> </li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>Permanent and irreversible treatment processes:                             <ul style="list-style-type: none"> <li>Activated carbon</li> <li>Low-temperature thermal desorption</li> <li>Solidification/stabilization forms stable solids that are non-hazardous or less-hazardous than the original materials</li> </ul> </li> <li>In-situ of treatment<sup>6</sup> of 70 acres and ex-situ treatment of 191,573 cy</li> <li>Reduction of toxicity, mobility and volume:                             <ul style="list-style-type: none"> <li>Broadcast activated carbon (AC): 6.7 acres</li> <li>Reactive Caps: 23 acres</li> <li>Reactive residual layer: 36 acres</li> <li>Significantly augmented reactive cap: 3.8 acres</li> </ul> </li> <li>63% of PTW not addressed through treatment.</li> </ul>	<ul style="list-style-type: none"> <li>4 years to implement</li> <li>Short-term risks to workers and the community and short-term impacts on the environment are primarily associated with the handling and management of dredge materials (627,652 cy). Short-term impacts can be addressed with H&amp;S Plans, BMPs, engineering control measures, and emissions control strategies. Additionally, fish consumption advisories would continue until RAOs are achieved.</li> <li>Estimated time to achieve RAOs is uncertain, but unlikely to occur in a reasonable timeframe.</li> </ul>

Table 29. Summary of Cost Effectiveness

Alternative (check box if cost-effective) <sup>1</sup>	Present Value Cost	Incremental Cost <sup>2</sup>	Long-Term Effectiveness and Permanence	Reduction of Toxicity, Mobility and Volume Through Treatment	Short-Term Effectiveness
			<ul style="list-style-type: none"> <li>○ RAO 7: Time to achieve protectiveness through MNR uncertain.</li> <li>○ RAO 8: 84% not addressed. The magnitude residual risk is uncertain because it is likely that not all contaminated pore water will be addressed.</li> <li>○ RAO 9: 68% not addressed. The magnitude residual risk is uncertain because it is likely that not all contaminated river banks will be addressed with this alternative.</li> <li>● Adequacy and reliability of controls:               <ul style="list-style-type: none"> <li>○ Dependent on the O&amp;M of remedy components, especially capped areas (28.3 acres)</li> <li>○ MNR is relied on to control 1,966 acres of contaminated sediment outside the RAL footprint</li> <li>○ The following proven and reliable technologies are used to protect the remedy installed: long-term monitoring, periodic inspections, sampling of media and fish, and ICs such as fish advisories, land-use restrictions and RNAs to protect caps</li> </ul> </li> </ul>		
<b>Alternative D</b> <input type="checkbox"/> Cap, dredge, in-situ treatment and ENR of: 267 acres of sediments 13,887 lf of river bank	\$653,700,000	+\$202,240,000	<ul style="list-style-type: none"> <li>● Magnitude of residual risk remaining:               <ul style="list-style-type: none"> <li>○ RAO 1<sup>3</sup>: 2.2x10<sup>-5</sup></li> <li>○ RAO 2<sup>4</sup>: 11 fish meals/yr (based on 1 x 10<sup>-5</sup> cancer risk), 10 fish meals/yr for child (based on noncancer HI of 21), and 0.6 fish meal/yr for breastfeeding infant (based on noncancer HI of 358)</li> <li>○ RAO 3: PCBs – 13 times &gt; cleanup levels. TCDD TEQ – 11 times &gt; cleanup level.</li> <li>○ RAO 4: 77% not addressed.</li> <li>○ RAO 5<sup>5</sup>: 36% not addressed. Degree of recovery is uncertain because it is likely that an insufficient amount of the benthic risk areas will be addressed.</li> <li>○ RAO 6: Maximum HQ is greater than 1 for the following COCs:</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>● Same permanent and irreversible treatment processes.</li> <li>● In-situ of treatment<sup>6</sup> of 108 acres and no additional ex-situ treatment.</li> <li>● Reduction of toxicity, mobility and volume:               <ul style="list-style-type: none"> <li>○ Broadcast activated carbon (AC): 3.2 acres</li> <li>○ Reactive Caps: 40 acres</li> <li>○ Reactive residual layer: 61 acres</li> <li>○ No additional significantly augmented reactive capping</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>● 6 years to implement</li> <li>● Incremental increase in short-term risks to workers and community, and impact on environment based primarily on incremental increase in dredge volume (additional 553,586 cy of material).</li> <li>● Estimated time to achieve RAOs is uncertain, but unlikely to occur in a reasonable timeframe.</li> </ul>



Table 29. Summary of Cost Effectiveness

Alternative (check box if cost-effective) <sup>1</sup>	Present Value Cost	Incremental Cost <sup>2</sup>	Long-Term Effectiveness and Permanence	Reduction of Toxicity, Mobility and Volume Through Treatment	Short-Term Effectiveness
			<p>RM scale:</p> <ul style="list-style-type: none"> <li>▪ BEHP – 17 times</li> <li>▪ PCBs – 3 times</li> <li>▪ TCDF – 4 times</li> <li>▪ PeCDF – 3 times</li> <li>▪ HxCDF – 2 times</li> </ul> <p>SDU scale:</p> <ul style="list-style-type: none"> <li>▪ BEHP – 5 times</li> <li>▪ PCBs – 2 times</li> <li>▪ TCDF – 3 times</li> <li>▪ PeCDF – 2 times</li> </ul> <ul style="list-style-type: none"> <li>○ RAO 7: Time to achieve protectiveness through MNR uncertain.</li> <li>○ RAO 8: 77% not addressed. The magnitude residual risk is uncertain because it is likely that not all contaminated pore water will be addressed.</li> <li>○ RAO 9: 54% not addressed. The magnitude residual risk is uncertain because it is likely that not all contaminated river banks will be addressed with this alternative.</li> </ul> <ul style="list-style-type: none"> <li>• Adequacy and reliability of controls is dependent on the same proven and reliable technologies; however, there is an incremental increase in capped areas (additional 27.5 acres) and an incremental decrease in MNR (less 66 acres).</li> </ul>	<ul style="list-style-type: none"> <li>• 43% of PTW not addressed through treatment.</li> </ul>	
<p><b>Alternative I</b> <input checked="" type="checkbox"/></p> <p>Cap, dredge, and ENR of: 291 acres of sediments 19,472 lf of river bank</p>	<p>\$811,290,000</p>	<p>+\$157,590,000</p>	<ul style="list-style-type: none"> <li>• Magnitude of residual risk remaining:               <ul style="list-style-type: none"> <li>○ RAO 1<sup>3</sup>: 1.8x10<sup>-5</sup></li> <li>○ RAO 2<sup>4</sup>: 13 fish meals/yr (based on 1 x 10<sup>-5</sup> cancer risk), 12 fish meals/yr for child (based on noncancer HI of 18), and 0.7 fish meal/yr for breastfeeding infant (based on noncancer HI of 307)</li> <li>○ RAO 3: PCBs – 12 times &gt; cleanup levels. TCDD TEQ – 9 times &gt; cleanup level. cPAHs – 2 times &gt; cleanup levels.</li> <li>○ RAO 4: 67% not addressed.</li> <li>○ RAO 5<sup>5</sup>: 36% not addressed. Degree of recovery is uncertain because it is likely</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>• Same permanent and irreversible treatment processes.</li> <li>• In-situ of treatment<sup>6</sup> of 113 acres and no additional ex-situ treatment.</li> <li>• Reduction of toxicity, mobility and volume:               <ul style="list-style-type: none"> <li>○ Broadcast activated carbon (AC): 0 acres</li> <li>○ Reactive Caps: 64 acres</li> <li>○ Reactive residual layer: 46 acres</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>• 7 years to implement</li> <li>• Incremental increase in short-term risks to workers and community, and impact on environment based primarily on incremental increase in dredge volume (additional 571,136 cy of material).</li> <li>• Estimated time to achieve RAOs is uncertain, but unlikely to occur in a reasonable timeframe.</li> </ul>

Table 29. Summary of Cost Effectiveness

Alternative (check box if cost-effective) <sup>1</sup>	Present Value Cost	Incremental Cost <sup>2</sup>	Long-Term Effectiveness and Permanence	Reduction of Toxicity, Mobility and Volume Through Treatment	Short-Term Effectiveness
			<p>that an insufficient amount of the benthic risk areas will be addressed.</p> <ul style="list-style-type: none"> <li>○ RAO 6: Maximum HQ is greater than 1 for the following COCs: RM scale: <ul style="list-style-type: none"> <li>▪ BEHP – 19 times</li> <li>▪ PCBs – 2 times</li> </ul> SDU scale: <ul style="list-style-type: none"> <li>▪ BEHP – 4 times</li> </ul> </li> <li>○ RAO 7: Time to achieve protectiveness through MNR uncertain.</li> <li>○ RAO 8: 67% not addressed. The magnitude residual risk is uncertain because it is likely that not all contaminated pore water will be addressed.</li> <li>○ RAO 9: 35% not addressed. The magnitude residual risk is uncertain because it is likely that not all contaminated river banks will be addressed with this alternative.</li> </ul> <ul style="list-style-type: none"> <li>• Adequacy and reliability of controls is dependent on the same proven and reliable technologies; however, there is an incremental increase in capped areas (additional 25.2 acres) and an incremental decrease in MNR (less 24 acres).</li> </ul>	<ul style="list-style-type: none"> <li>○ No additional significantly augmented reactive capping</li> <li>• All PTW addressed through treatment.</li> </ul>	
<p><b>Alternative E</b> <input checked="" type="checkbox"/></p> <p>Cap, dredge, and ENR of: 329 acres of sediment 18,231 lf of river bank</p>	<p>\$869,530,000</p>	<p>+\$58,240,000</p>	<ul style="list-style-type: none"> <li>• Magnitude of residual risk remaining: <ul style="list-style-type: none"> <li>○ RAO 1<sup>3</sup>: 1.5x10<sup>-5</sup></li> <li>○ RAO 2<sup>4</sup>: 13 fish meals/yr (based on 1 x 10<sup>-5</sup> cancer risk), 12 fish meals/yr for child (based on noncancer HI of 18), and 0.7 fish meal/yr for breastfeeding infant (based on noncancer HI of 305)</li> <li>○ RAO 3: PCBs – 12 times &gt; cleanup levels. TCDD TEQ – 8 times &gt; cleanup level.</li> <li>○ RAO 4: 68% not addressed.</li> <li>○ RAO 5<sup>5</sup>: 27% not addressed. Degree of recovery is uncertain because it is likely that an insufficient amount of the benthic risk areas will be addressed.</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>• Same permanent and irreversible treatment processes.</li> <li>• In-situ of treatment<sup>6</sup> of 109 acres and no additional ex-situ treatment.</li> <li>• Reduction of toxicity, mobility and volume: <ul style="list-style-type: none"> <li>○ Broadcast activated carbon (AC): no additional acres</li> <li>○ Reactive Caps: 60 acres</li> <li>○ Reactive residual layer: 45 acres</li> <li>○ No additional significantly augmented reactive capping</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>• 7 years to implement</li> <li>• Incremental increase in short-term risks to workers and community, and impact on environment based primarily on incremental increase in dredge volume (additional 271,848 cy of material).</li> <li>• Estimated time to achieve RAOs is uncertain, but unlikely to occur in a reasonable timeframe.</li> </ul>

Table 29. Summary of Cost Effectiveness

Alternative (check box if cost-effective) <sup>1</sup>	Present Value Cost	Incremental Cost <sup>2</sup>	Long-Term Effectiveness and Permanence	Reduction of Toxicity, Mobility and Volume Through Treatment	Short-Term Effectiveness
			<ul style="list-style-type: none"> <li>○ RAO 6: Maximum HQ is greater than 1 for the following COCs: RM scale:               <ul style="list-style-type: none"> <li>▪ BEHP – 15 times</li> <li>▪ PCBs – 2 times</li> </ul>               SDU scale:               <ul style="list-style-type: none"> <li>▪ BEHP – 4 times</li> </ul> </li> <li>○ RAO 7: Time to achieve protectiveness through MNR uncertain.</li> <li>○ RAO 8: 68% not addressed. The magnitude residual risk is uncertain because it is likely that not all contaminated pore water will be addressed.</li> <li>○ RAO 9: 39% not addressed. The magnitude residual risk is uncertain because it is likely that not all contaminated river banks will be addressed with this alternative.</li> <li>● Adequacy and reliability of controls is dependent on the same proven and reliable technologies with no additional capped areas; however, there is an incremental decrease in MNR areas (less 38 acres).</li> </ul>	<ul style="list-style-type: none"> <li>● All PTW addressed through treatment.</li> </ul>	
<p><b>Alternative F Mod</b> <input checked="" type="checkbox"/></p> <p>Cap, dredge, and ENR of: 394 acres of sediment 23,305 lf of river bank</p>	\$1,054,200,000	+\$184,670,000	<ul style="list-style-type: none"> <li>● Magnitude of residual risk remaining:               <ul style="list-style-type: none"> <li>○ RAO 1<sup>3</sup>: 1.0x10<sup>-5</sup></li> <li>○ RAO 2<sup>4</sup>: 16 fish meals/yr (based on 1 x 10<sup>-5</sup> cancer risk), 14 fish meals/yr for child (based on noncancer HI of 15), and 1 fish meal/yr for breastfeeding infant (based on noncancer HI of 259)</li> <li>○ RAO 3: PCBs – 10 times &gt; cleanup levels. TCDD TEQ – 7 times &gt; cleanup level.</li> <li>○ RAO 4: 61% not addressed.</li> <li>○ RAO 5<sup>5</sup>: 28% not addressed. Degree of recovery is uncertain because it is likely that an insufficient amount of the benthic risk areas will be addressed.</li> <li>○ RAO 6: Maximum HQ is greater than 1 for the following COCs: RM scale:                   <ul style="list-style-type: none"> <li>▪ BEHP – 5 times</li> </ul> </li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>● Same permanent and irreversible treatment processes.</li> <li>● In-situ of treatment<sup>6</sup> of 133 acres and no additional ex-situ treatment.</li> <li>● Reduction of toxicity, mobility and volume:               <ul style="list-style-type: none"> <li>○ Broadcast activated carbon (AC): no additional acres</li> <li>○ Reactive Caps: 83 acres</li> <li>○ Reactive residual layer: 46 acres</li> <li>○ No additional significantly augmented reactive capping</li> </ul> </li> <li>● All PTW addressed through treatment.</li> </ul>	<ul style="list-style-type: none"> <li>● 13 years to implement</li> <li>● Incremental increase in short-term risks to workers and community, and impact on environment based primarily on incremental increase in dredge volume (additional 992,967 cy of material).</li> <li>● Estimated time to achieve RAOs is uncertain, but unlikely to occur in a reasonable timeframe.</li> </ul>

Table 29. Summary of Cost Effectiveness

Alternative (check box if cost-effective) <sup>1</sup>	Present Value Cost	Incremental Cost <sup>2</sup>	Long-Term Effectiveness and Permanence	Reduction of Toxicity, Mobility and Volume Through Treatment	Short-Term Effectiveness
			<p>SDU scale:</p> <ul style="list-style-type: none"> <li>▪ BEHP – 3 times</li> <li>○ RAO 7: Time to achieve protectiveness through MNR uncertain.</li> <li>○ RAO 8: 61% not addressed. The magnitude residual risk is uncertain because it is likely that not all contaminated pore water will be addressed.</li> <li>○ RAO 9: 22% not addressed. The magnitude residual risk is uncertain because it is likely that not all contaminated river banks will be addressed with this alternative.</li> </ul> <ul style="list-style-type: none"> <li>• Adequacy and reliability of controls is dependent on the same proven and reliable technologies; however, there is an incremental increase in capped areas (additional 69.2 acres) and an incremental decrease in MNR (less 64 acres).</li> </ul>		
<p><b>Alternative F</b>      <input type="checkbox"/></p> <p>Cap, dredge, and ENR of: 533 acres of sediments 23,305 lf of river bank</p>	<p>\$1,371,170,000</p>	<p>\$316,970,000</p>	<ul style="list-style-type: none"> <li>• Magnitude of residual risk remaining:               <ul style="list-style-type: none"> <li>○ RAO 1<sup>3</sup>: 1.0x10<sup>-5</sup></li> <li>○ RAO 2<sup>4</sup>: 19 fish meals/yr (based on 1 x 10<sup>-5</sup> cancer risk), 18 fish meals/yr for child (based on noncancer HI of 13), and 1 fish meal/yr for breastfeeding infant (based on noncancer HI of 213)</li> <li>○ RAO 3: PCBs – 8 times &gt; cleanup levels. TCDD TEQ – 7 times &gt; cleanup level.</li> <li>○ RAO 4: 54% not addressed.</li> <li>○ RAO 5<sup>5</sup>: 13% not addressed. Degree of recovery is uncertain because it is likely that an insufficient amount of the benthic risk areas will be addressed.</li> <li>○ RAO 6: Maximum HQ is greater than 1 for the following COCs:                   <ul style="list-style-type: none"> <li>RM scale:                       <ul style="list-style-type: none"> <li>▪ BEHP – 5 times</li> </ul> </li> <li>SDU scale:                       <ul style="list-style-type: none"> <li>▪ BEHP – 3 times</li> </ul> </li> </ul> </li> <li>○ RAO 7: Time to achieve protectiveness through MNR uncertain.</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>• Same permanent and irreversible treatment processes.</li> <li>• In-situ of treatment<sup>6</sup> of 145 acres and no additional ex-situ treatment.</li> <li>• Reduction of toxicity, mobility and volume:               <ul style="list-style-type: none"> <li>○ Broadcast activated carbon (AC): no additional acres</li> <li>○ Reactive Caps: 83 acres</li> <li>○ Reactive residual layer: 58 acres</li> <li>○ No additional significantly augmented reactive capping</li> </ul> </li> <li>• All PTW addressed through treatment.</li> </ul>	<ul style="list-style-type: none"> <li>• 13 years to implement</li> <li>• Incremental increase in short-term risks to workers and community, and impact on environment based primarily on incremental increase in dredge volume (additional 1,568,212 cy of material).</li> <li>• Estimated time to achieve RAOs is uncertain, but unlikely to occur in a reasonable timeframe.</li> </ul>

Table 29. Summary of Cost Effectiveness

Alternative (check box if cost-effective) <sup>1</sup>	Present Value Cost	Incremental Cost <sup>2</sup>	Long-Term Effectiveness and Permanence	Reduction of Toxicity, Mobility and Volume Through Treatment	Short-Term Effectiveness
			<ul style="list-style-type: none"> <li>○ RAO 8: 54% not addressed. The magnitude residual risk is uncertain because it is likely that not all contaminated pore water will be addressed.</li> <li>○ RAO 9: 22% not addressed. The magnitude residual risk is uncertain because it is likely that not all contaminated river banks will be addressed with this alternative.</li> <li>● Adequacy and reliability of controls is dependent on the same proven and reliable technologies with no additional capped areas; however, there is an incremental decrease in MNR areas (less 140 acres).</li> </ul>		
<p><b>Alternative G</b> <input type="checkbox"/></p> <p>Cap, dredge, and ENR of: 776 acres of sediments 26,362 lf of river bank</p>	<p>\$1,777,320,000</p>	<p>\$406,150,000</p>	<ul style="list-style-type: none"> <li>● Magnitude of residual risk remaining:               <ul style="list-style-type: none"> <li>○ RAO 1<sup>3</sup>: 7.2x10<sup>-6</sup></li> <li>○ RAO 2<sup>4</sup>: 26 fish meals/yr (based on 1 x 10<sup>-5</sup> cancer risk), 24 fish meals/yr for child (based on noncancer HI of 9), and 2 fish meals/yr for breastfeeding infant (based on noncancer HI of 157)</li> <li>○ RAO 3: PCBs – 6 times &gt; cleanup levels. TCDD TEQ – 5 times &gt; cleanup level.</li> <li>○ RAO 4: 38% not addressed.</li> <li>○ RAO 5<sup>5</sup>: 7% not addressed. Degree of recovery is uncertain because it is likely that an insufficient amount of the benthic risk areas will be addressed.</li> <li>○ RAO 6: Maximum HQ is greater than 1 for the following COCs: RM scale:                   <ul style="list-style-type: none"> <li>▪ BEHP – 3 times</li> </ul> </li> <li>○ RAO 7: Time to achieve protectiveness through MNR uncertain.</li> <li>○ RAO 8: 38% not addressed. The magnitude residual risk is uncertain because it is likely that not all contaminated pore water will be addressed.</li> <li>○ RAO 9: 12% not addressed. The magnitude residual risk is uncertain</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>● Same permanent and irreversible treatment processes.</li> <li>● In-situ of treatment<sup>6</sup> of 184 acres and no additional ex-situ treatment.</li> <li>● Reduction of toxicity, mobility and volume:               <ul style="list-style-type: none"> <li>○ Broadcast activated carbon (AC): no additional acres</li> <li>○ Reactive Caps: 101 acres</li> <li>○ Reactive residual layer: 80 acres</li> <li>○ No additional significantly augmented reactive capping</li> </ul> </li> <li>● All PTW addressed through treatment.</li> </ul>	<ul style="list-style-type: none"> <li>● 19 years to implement</li> <li>● Incremental increase in short-term risks to workers and community, and impact on environment based primarily on incremental increase in dredge volume (additional 2,811,197 of material).</li> <li>● Estimated time to achieve RAOs is uncertain, but unlikely to occur in a reasonable timeframe.</li> </ul>



**Table 29. Summary of Cost Effectiveness**

Alternative (check box if cost-effective) <sup>1</sup>	Present Value Cost	Incremental Cost <sup>2</sup>	Long-Term Effectiveness and Permanence	Reduction of Toxicity, Mobility and Volume Through Treatment	Short-Term Effectiveness
			because it is likely that not all contaminated river banks will be addressed with this alternative. <ul style="list-style-type: none"> <li>Adequacy and reliability of controls is dependent on the same proven and reliable technologies; however, there is an incremental increase in capped areas (additional 81.2 acres) and an incremental decrease in MNR (less 243 acres).</li> </ul>		
<p><b>COST-EFFECTIVENESS SUMMARY:</b></p> <ul style="list-style-type: none"> <li>Alternatives A, B, D, F, and G are not considered to be cost-effective.</li> <li>Alternatives I, E, and F Mod are considered to cost-effective as defined in 40 CFR 300.430(f)(1)(ii)(D).</li> </ul>					

If – linear feet  
 cy – cubic yards  
 HI – hazard index  
 PTW – principal threat waste  
 ENR – enhanced natural recovery  
 H&S – health and safety  
 BMPs – best management practices  
 TCDD – Tetrachlorodibenzo-p-dioxin  
 TEQ – Toxic Equivalent Concentration  
 cPAH – Carcinogenic polycycli29c aromatic hydrocarbons

SMA – sediment management areas  
 RM – river mile  
 PC – post construction  
 TCDF – Tetrachlorodibenzofuran  
 PeCDF – Pentachlorodibenzofuran  
 HxCDF – Hexachlorodibenzofuran  
 MNR – monitored natural recovery  
 O&M – operation and maintenance  
 ICs – Institutional Controls  
 RNAs – regulated navigation areas

**Notes:**

- 1 – The alternatives are presented in order of increasing present value cost.
- 2 – Incremental cost is the difference in present value cost from the previous alternative.
- 3 – Residual risk estimates are based on direct contact exposure to shallow sediments. There is insufficient data to estimate post construction risks based on exposure to beach sediments.
- 4 – Allowable fish meals at completion represents the number of fish meals associated with a post-construction carcinogenic risk of  $1 \times 10^{-5}$  and an adult consumption rate based on a 142 g/day fish consumption rate and an 8 ounce fish meal. The child consumption rate based on a 60 g/day fish consumption rate and a 3.5 ounce fish meal.
- 5 – Percentage is based on percentage of the Site that exceeds 10 times the benthic cleanup level.
- 6 – In-situ treatment includes areas within and outside of SMAs.

**APPENDIX III**

**RELEVANT TABLES FROM THE PORTLAND HARBOR BASELINE  
HUMAN HEALTH RISK ASSESSMENT – FINAL (MARCH 28, 2013)**

**Appendix III Relevant Tables from the Portland Harbor Baseline Human Health Risk Assessment – Final (March 28, 2013)**

III-1 Exposure Point Concentrations

III-2 Toxicity Assessment

III-3 Risk Characterization

## **III-1 Exposure Point Concentrations**

III-1.1 Occurrence and Distribution Tables

III-1.2 Exposure Point Concentration Tables

### **III-1.1 Occurrence and Distribution Tables**

Table 2-9	Occurrence, Distribution, and Selection of Chemicals of Potential Concern - Industrial Use Beach Sediment
Table 2-10	Occurrence, Distribution, and Selection of Chemicals of Potential Concern - Sediment at Beaches Used for Recreation, by Transients, and/or by Fishers
Table 2-11	Occurrence, Distribution, and Selection of Chemicals of Potential Concern - In-water Sediment
Table 2-13	Occurrence, Distribution, and Selection of Chemicals of Potential Concern - Surface Water, Direct Contact With Divers
Table 2-14	Occurrence, Distribution, and Selection of Chemicals of Potential Concern - Surface Water, Direct Contact With Transients or Beach Users
Table 2-15	Occurrence, Distribution, and Selection of Chemicals of Potential Concern - Groundwater Seep
Table 2-16	Occurrence, Distribution, and Selection of Chemicals of Potential Concern - Surface Water as a Potential Future Domestic Water Source



**Table 2-9**  
**Occurrence, Distribution, and Selection of Chemicals of Potential Concern - Industrial Use Beach Sediment**

Scenario Timeframe: Current/Future
Medium: Sediment
Exposure Medium: Beach Sediment, Industrial Use

Exposure Point	CAS Number	Chemical <sup>a</sup>	Notes	Units	Minimum Detected Concentration	Maximum Detected Concentration	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits <sup>b</sup>	Concentration Used for Screening <sup>c</sup>	Screening Toxicity Value	COPC Flag (Y/N)	Rationale for Selection or Deletion	
Study Area-wide Industrial Use Beaches	7429-90-5	<b>Aluminum</b>		mg/kg	9.2E+03	1.9E+04	LWG0108B032SDS015C00	100%	NA - NA	9.9E+04	nc	N	Maximum detected value does not exceed screening value.	
	7440-36-0	<b>Antimony</b>		mg/kg	2.0E-01	3.3E-01	LW2-B004	25%	9.0E-02 - 1.2E-01	4.1E+01	nc	N	Maximum detected value does not exceed screening value.	
	7440-38-2	<b>Arsenic</b>		mg/kg	1.7E+00	2.7E+00	LW2-B004	100%	NA - NA	1.6E+00	ca	Y	Maximum detected value exceeds screening value.	
	7440-43-9	<b>Cadmium</b>		mg/kg	3.0E-02	7.3E-01	LW2-B004	100%	NA - NA	8.0E+01	nc	N	Maximum detected value does not exceed screening value.	
	7440-47-3	<b>Chromium</b>	d	mg/kg	1.3E+01	8.4E+01	LW2-B004	100%	NA - NA	1.5E+05	nc	N	Maximum detected value does not exceed screening value.	
	7440-50-8	<b>Copper</b>		mg/kg	1.2E+01	2.8E+01	LW2-B004	100%	NA - NA	4.1E+03	nc	N	Maximum detected value does not exceed screening value.	
	7439-92-1	<b>Lead</b>	e	mg/kg	5.1E+00	5.0E+01	LWG0106B025SDS015C00	100%	NA - NA	8.0E+02	nc	N	Maximum detected value does not exceed screening value.	
	7439-97-6	<b>Mercury</b>		mg/kg	8.0E-03	4.0E-02	LW2-B004	38%	4.0E-02 - 6.0E-02	3.4E+00	nc	N	Maximum detected value does not exceed screening value.	
	7440-02-0	<b>Nickel</b>		mg/kg	1.4E+01	6.9E+01	LWG0106B025SDS015C00	100%	NA - NA	2.0E+03	nc	N	Maximum detected value does not exceed screening value.	
	7440-22-4	<b>Silver</b>		mg/kg	2.5E-02	1.4E-01	LW2-B004	38%	2.0E-02 - 3.0E-02	5.1E+02	nc	N	Maximum detected value does not exceed screening value.	
	7440-66-6	<b>Zinc</b>		mg/kg	6.4E+01	2.5E+02	LW2-B004	100%	NA - NA	3.1E+04	nc	N	Maximum detected value does not exceed screening value.	
			<b>Polynuclear Aromatic Hydrocarbons</b>											
		91-57-6	<b>2-Methylnaphthalene</b>		ug/kg	5.1E-01	2.2E+03	LWG0106B025SDS015C00	50%	1.9E+01 - 2.0E+01	4.1E+05	nc	N	Maximum detected value does not exceed screening value.
		83-32-9	<b>Acenaphthene</b>		ug/kg	2.4E-01	3.6E+03	LWG0106B025SDS015C00	38%	2.0E-01 - 2.0E+01	3.3E+06	nc	N	Maximum detected value does not exceed screening value.
		208-96-8	<b>Acenaphthylene</b>	f	ug/kg	7.5E-01	5.0E+03	LWG0106B025SDS015C00	63%	1.9E+01 - 2.0E+01	3.3E+06	nc	N	Maximum detected value does not exceed screening value.
		120-12-7	<b>Anthracene</b>		ug/kg	6.3E-01	8.0E+03	LWG0106B025SDS015C00	63%	1.9E+01 - 2.0E+01	1.7E+07	nc	N	Maximum detected value does not exceed screening value.
		56-55-3	<b>Benzo(a)anthracene</b>		ug/kg	1.8E+00	2.9E+04	LWG0106B025SDS015C00	100%	NA - NA	2.1E+03	ca	Y	Maximum detected value exceeds screening value.
		50-32-8	<b>Benzo(a)pyrene</b>		ug/kg	1.3E+00	4.1E+04	LWG0106B025SDS015C00	100%	NA - NA	2.1E+02	ca	Y	Maximum detected value exceeds screening value.
		205-99-2	<b>Benzo(b)fluoranthene</b>		ug/kg	3.1E+00	3.1E+04	LWG0106B025SDS015C00	100%	NA - NA	2.1E+03	ca	Y	Maximum detected value exceeds screening value.
		191-24-2	<b>Benzo(g,h,i)perylene</b>	g	ug/kg	1.6E+00	3.6E+04	LWG0106B025SDS015C00	100%	NA - NA	1.7E+06	nc	N	Maximum detected value does not exceed screening value.
		207-08-9	<b>Benzo(k)fluoranthene</b>		ug/kg	1.1E+00	2.4E+04	LWG0106B025SDS015C00	100%	NA - NA	2.1E+04	ca	Y	Maximum detected value exceeds screening value.
		218-01-9	<b>Chrysene</b>		ug/kg	1.6E+00	3.8E+04	LWG0106B025SDS015C00	100%	NA - NA	2.1E+05	ca	N	Maximum detected value does not exceed screening value.
		53-70-3	<b>Dibenzo(a,h)anthracene</b>		ug/kg	1.5E+00	9.5E+03	LWG0106B025SDS015C00	63%	3.1E-01 - 4.0E+00	2.1E+02	ca	Y	Maximum detected value exceeds screening value.
		206-44-0	<b>Fluoranthene</b>		ug/kg	3.6E+00	6.8E+04	LWG0106B025SDS015C00	75%	1.9E+01 - 2.0E+01	2.2E+06	nc	N	Maximum detected value does not exceed screening value.
		86-73-7	<b>Fluorene</b>		ug/kg	3.3E-01	3.6E+03	LWG0106B025SDS015C00	38%	2.4E-01 - 2.0E+01	2.2E+06	nc	N	Maximum detected value does not exceed screening value.
		193-39-5	<b>Indeno(1,2,3-cd)pyrene</b>		ug/kg	1.2E+00	3.1E+04	LWG0106B025SDS015C00	100%	NA - NA	2.1E+03	ca	Y	Maximum detected value exceeds screening value.
		91-20-3	<b>Naphthalene</b>		ug/kg	5.6E+00	7.0E+03	LWG0106B025SDS015C00	38%	1.3E+00 - 2.0E+01	1.8E+04	ca	N	Maximum detected value does not exceed screening value.
		85-01-8	<b>Phenanthrene</b>	g	ug/kg	1.7E+00	4.7E+04	LWG0106B025SDS015C00	63%	1.9E+01 - 2.0E+01	1.7E+06	nc	N	Maximum detected value does not exceed screening value.
		129-00-0	<b>Pyrene</b>		ug/kg	4.3E+00	8.0E+04	LWG0106B025SDS015C00	75%	1.9E+01 - 2.0E+01	1.7E+06	nc	N	Maximum detected value does not exceed screening value.
			<b>Phthalates</b>											
		117-81-7	<b>Bis(2-ethylhexyl) phthalate</b>		ug/kg	2.0E+01	5.0E+01	LWG0105B019SDS015C00	50%	5.6E+00 - 9.8E+01	1.2E+05	ca	N	Maximum detected value does not exceed screening value.
		84-74-2	<b>Dibutyl phthalate</b>		ug/kg	3.5E+00	1.4E+01	LW2-B004	25%	3.1E+00 - 9.8E+01	6.2E+06	nc	N	Maximum detected value does not exceed screening value.
			<b>SVOCs</b>											
		86-74-8	<b>Carbazole</b>	h	ug/kg	1.8E+00	2.8E+03	LWG0106B025SDS015C00	50%	1.6E+00 - 4.0E+00	2.2E+06	nc	N	Maximum detected value does not exceed screening value.
		132-64-9	<b>Dibenzofuran</b>		ug/kg	3.1E-01	5.6E+02	LWG0106B025SDS015C00	50%	2.1E-01 - 4.0E+00	1.0E+05	nc	N	Maximum detected value does not exceed screening value.
			<b>Polychlorinated Biphenyls</b>											
			<b>Total PCB Aroclors</b>	i	ug/kg	1.7E+01	1.6E+03	LW2-B004	63%	3.8E+00 - 3.9E+00	7.4E+02	ca	Y	Maximum detected value exceeds screening value.
			<b>Dioxin/Furan</b>											
			<b>Total PCB TEQ</b>	j	pg/g	3.8E+00	3.1E+01	LW2-B004	100%	NA - NA	1.8E+01	ca	Y	Maximum detected value exceeds screening value.
			<b>Total Dioxin TEQ</b>	j	pg/g	1.7E-01	9.5E-01	LW2-B004	100%	NA - NA	1.8E+01	ca	N	Maximum detected value does not exceed screening value.
		<b>Pesticides</b>												
	319-84-6	<b>alpha-Hexachlorocyclohexane</b>		ug/kg	4.8E-01	4.8E-01	LW2-B004	13%	3.1E-02 - 3.9E+00	2.7E+02	ca	N	Maximum detected value does not exceed screening value.	
	319-85-7	<b>beta-Hexachlorocyclohexane</b>		ug/kg	1.1E+00	1.3E+00	LW2-B006	25%	3.3E-02 - 4.2E+01	9.6E+02	ca	N	Maximum detected value does not exceed screening value.	

**Table 2-9**  
**Occurrence, Distribution, and Selection of Chemicals of Potential Concern - Industrial Use Beach Sediment**

Scenario Timeframe: Current/Future
Medium: Sediment
Exposure Medium: Beach Sediment, Industrial Use

Exposure Point	CAS Number	Chemical <sup>a</sup>	Notes	Units	Minimum Detected Concentration	Maximum Detected Concentration	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits <sup>b</sup>	Concentration Used for Screening <sup>c</sup>	Screening Toxicity Value	COPC Flag (Y/N)	Rationale for Selection or Deletion
		Total DDD	k	ug/kg	1.1E+00	1.5E+00	LW2-B004	38%	4.5E-02 - 9.0E+00	7.2E+03	ca	N	Maximum detected value does not exceed screening value.
		Total DDT	l	ug/kg	3.3E-01	6.7E+00	LWG0106B029SDS015C00	50%	3.9E-01 - 1.2E+01	7.0E+03	ca	N	Maximum detected value does not exceed screening value.

**Notes:**

- a Chemicals listed include analytes detected in human health beach sediment samples from beaches designated as having potential for industrial use.
- b For chemical mixtures, the range of detection limits listed is the maximum and minimum detection limit for individual isomers or congeners within the mixture.
- c Screening concentrations and toxicity classifications are from EPA RSLs for industrial soil (Nov 2010) unless otherwise noted. RSLs for noncarcinogenic chemicals are divided by 10.
- d EPA RSL for trivalent chromium used for chromium screening concentration.
- e EPA RSL for lead not divided by 10 for screening.
- f EPA RSL for acenaphthene used as surrogate.
- g EPA RSL for pyrene used as surrogate.
- h EPA RSL for fluorene used as surrogate.
- i EPA RSL for PCBs as Aroclor 1254 used for screening concentration.
- j EPA RSL for 2,3,7,8-TCDD (Dioxin) used for screening concentration. Detection limits listed are for individual congeners/isomers before TEQ adjustment.
- k EPA RSL for DDD used for total DDD screening concentration.
- l EPA RSL for DDT used for total DDT screening concentration.

**Abbreviations:**

- ca = Carcinogen.
- CAS = Chemical Abstract Services number.
- COPC = Chemical of potential concern.
- EPA = U.S. Environmental Protection Agency.
- max = Ceiling limit recommended for screening value.
- mg/kg = Milligrams per kilogram.
- N = No.
- NA = Not applicable. Chemical detected at 100% frequency.
- nc = Noncarcinogen.
- RSL = Regional screening level.
- SVOC = Semivolatile organic compound.
- TEQ = Toxicity equivalent.
- Y = Yes.

**Table 2-10**  
Occurrence, Distribution, and Selection of Chemicals of Potential Concern - Sediment at Beaches Used for Recreation, by Transients, and/or by Fishers

Scenario Timeframe: Current/Future  
Medium: Sediment  
Exposure Medium: Beach Sediment, Recreation, Transients, and/or Fishers Use

Exposure Point	CAS Number	Chemical <sup>a</sup>	Units	Minimum Detected Concentration	Maximum Detected Concentration	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits <sup>b</sup>	Concentration Used for Screening <sup>c</sup>	Screening Toxicity Value	COPC Flag (Y/N)	Rationale for Selection or Deletion	
Study Area wide Residential Use Beaches	7429-90-5	<b>Aluminum</b>	mg/kg	1.0E+04	2.2E+04	LWG0103B031SDS015C00	100%	NA - NA	7.7E+03	nc	Y	Maximum detected value exceeds screening value.	
	7440-36-0	<b>Antimony</b>	mg/kg	2.0E-01	1.3E+01	LWG0104B024SDS015C00	35%	1.1E-01 - 1.8E-01	3.1E+00	nc	Y	Maximum detected value exceeds screening value.	
	7440-38-2	<b>Arsenic</b>	mg/kg	7.0E-01	9.9E+00	LWG0106B030SDS015C00	100%	NA - NA	3.9E-01	ca	Y	Maximum detected value exceeds screening value.	
	7440-43-9	<b>Cadmium</b>	mg/kg	3.0E-02	2.3E-01	LWG0106B022SDS015C00	100%	NA - NA	7.0E+00	nc	N	Maximum detected value does not exceed screening value.	
	7440-47-3	<b>Chromium</b>	d mg/kg	1.3E+01	7.7E+01	LWG0106B030SDS015C00	100%	NA - NA	1.2E+04	nc	N	Maximum detected value does not exceed screening value.	
	7440-50-8	<b>Copper</b>	mg/kg	1.4E+01	6.1E+02	LWG0106B030SDS015C00	100%	NA - NA	3.1E+02	nc	Y	Maximum detected value exceeds screening value.	
	7439-92-1	<b>Lead</b>	e mg/kg	4.7E+00	6.2E+01	LWG0105B018SDS015C00	100%	NA - NA	4.0E+02	nc	N	Maximum detected value does not exceed screening value.	
	7439-97-6	<b>Mercury</b>	mg/kg	1.9E-02	1.8E-01	LWG0106B026SDS015C00	20%	4.0E-02 - 6.0E-02	5.6E-01	nc	N	Maximum detected value does not exceed screening value.	
	7440-02-0	<b>Nickel</b>	mg/kg	1.4E+01	4.1E+01	LWG0106B030SDS015C00	100%	NA - NA	1.5E+02	nc	N	Maximum detected value does not exceed screening value.	
	7782-49-2	<b>Selenium</b>	mg/kg	5.0E-02	6.0E-02	LW2-B005	10%	4.0E-02 - 3.0E-01	3.9E+01	nc	N	Maximum detected value does not exceed screening value.	
	7440-22-4	<b>Silver</b>	mg/kg	2.0E-02	2.0E-01	LWG0106B030SDS015C00	30%	2.0E-02 - 3.0E-02	3.9E+01	nc	N	Maximum detected value does not exceed screening value.	
	7440-66-6	<b>Zinc</b>	mg/kg	5.5E+01	1.4E+02	LWG0106B022SDS015C00	100%	NA - NA	2.3E+03	nc	N	Maximum detected value does not exceed screening value.	
			<b>Polynuclear Aromatic Hydrocarbons</b>										
		91-57-6	<b>2-Methylnaphthalene</b>	ug/kg	8.6E-01	8.3E+00	LW2-B003	15%	1.9E+01 - 2.0E+01	3.1E+04	nc	N	Maximum detected value does not exceed screening value.
		83-32-9	<b>Acenaphthene</b>	ug/kg	2.3E+00	3.2E+01	LW2-B003	10%	2.1E-01 - 2.0E+01	3.4E+05	nc	N	Maximum detected value does not exceed screening value.
		208-96-8	<b>Acenaphthylene</b>	f ug/kg	1.8E+00	5.1E+01	LWG0104B024SDS015C00	20%	1.9E+01 - 2.0E+01	3.4E+05	nc	N	Maximum detected value does not exceed screening value.
		120-12-7	<b>Anthracene</b>	ug/kg	1.4E+00	4.6E+01	LWG0104B024SDS015C00	20%	1.9E+01 - 2.0E+01	1.7E+06	nc	N	Maximum detected value does not exceed screening value.
		56-55-3	<b>Benzo(a)anthracene</b>	ug/kg	4.8E+00	2.1E+02	LW2-B003	95%	1.9E+00 - 1.9E+00	1.5E+02	ca	Y	Maximum detected value exceeds screening value.
		50-32-8	<b>Benzo(a)pyrene</b>	ug/kg	4.4E+00	3.6E+02	LW2-B003, LWG0104B024SDS015C00	95%	1.9E+00 - 1.9E+00	1.5E+01	ca	Y	Maximum detected value exceeds screening value.
		205-99-2	<b>Benzo(b)fluoranthene</b>	ug/kg	2.1E+00	3.1E+02	LW2-B003	100%	NA - NA	1.5E+02	ca	Y	Maximum detected value exceeds screening value.
		191-24-2	<b>Benzo(g,h,i)perylene</b>	g ug/kg	1.9E+00	3.1E+02	LW2-B003	100%	NA - NA	1.7E+05	nc	N	Maximum detected value does not exceed screening value.
		207-08-9	<b>Benzo(k)fluoranthene</b>	ug/kg	2.7E+00	2.7E+02	LWG0104B024SDS015C00	100%	NA - NA	1.5E+03	ca	N	Maximum detected value does not exceed screening value.
		218-01-9	<b>Chrysene</b>	ug/kg	3.6E+00	3.1E+02	LWG0104B024SDS015C00	100%	NA - NA	1.5E+04	ca	N	Maximum detected value does not exceed screening value.
		53-70-3	<b>Dibenzo(a,h)anthracene</b>	ug/kg	2.2E+00	3.3E+01	LW2-B003	50%	1.9E+00 - 9.5E+00	1.5E+01	ca	Y	Maximum detected value exceeds screening value.
		206-44-0	<b>Fluoranthene</b>	ug/kg	7.3E+00	5.2E+02	LWG0104B024SDS015C00	70%	1.9E+01 - 1.9E+01	2.3E+05	nc	N	Maximum detected value does not exceed screening value.
		86-73-7	<b>Fluorene</b>	ug/kg	4.0E-01	6.5E+00	LW2-B003	15%	1.9E+01 - 2.0E+01	2.3E+05	nc	N	Maximum detected value does not exceed screening value.
		193-39-5	<b>Indeno(1,2,3-cd)pyrene</b>	ug/kg	4.4E+00	2.8E+02	LW2-B003	95%	1.9E+00 - 1.9E+00	1.5E+02	ca	Y	Maximum detected value exceeds screening value.
		91-20-3	<b>Naphthalene</b>	g ug/kg	1.1E+01	4.1E+01	LWG0106B022SDS015C00	20%	1.9E+00 - 2.0E+01	3.6E+03	ca	N	Maximum detected value does not exceed screening value.
		85-01-8	<b>Phenanthrene</b>	g ug/kg	1.7E+00	3.2E+02	LWG0104B024SDS015C00	55%	1.9E+01 - 2.0E+01	1.7E+05	nc	N	Maximum detected value does not exceed screening value.
		129-00-0	<b>Pyrene</b>	ug/kg	1.2E+01	7.0E+02	LWG0104B024SDS015C00	70%	1.9E+01 - 2.0E+01	1.7E+05	nc	N	Maximum detected value does not exceed screening value.
			<b>Phthalates</b>										
		117-81-7	<b>Bis(2-ethylhexyl) phthalate</b>	ug/kg	2.1E+01	2.3E+02	LWG0105B018SDS015C00	75%	8.2E+00 - 1.9E+01	3.5E+04	ca	N	Maximum detected value does not exceed screening value.
		84-74-2	<b>Dibutyl phthalate</b>	ug/kg	3.9E+00	1.9E+02	LWG0106B030SDS015C00	45%	3.2E+00 - 2.0E+01	6.1E+05	nc	N	Maximum detected value does not exceed screening value.
		84-66-2	<b>Diethyl phthalate</b>	ug/kg	4.8E+01	4.8E+01	LWG0106B030SDS015C00	5%	4.3E+00 - 2.0E+01	4.9E+06	nc	N	Maximum detected value does not exceed screening value.
			<b>SVOCs</b>										
		86-74-8	<b>Carbazole</b>	h ug/kg	2.6E+00	1.6E+01	LWG0104B024SDS015C00	25%	1.6E+00 - 9.5E+00	2.3E+05	nc	N	Maximum detected value does not exceed screening value.
		132-64-9	<b>Dibenzofuran</b>	ug/kg	7.9E-01	1.1E+01	LWG0106B022SDS015C00	25%	2.3E-01 - 9.5E+00	7.8E+03	nc	N	Maximum detected value does not exceed screening value.
		118-74-1	<b>Hexachlorobenzene</b>	ug/kg	6.6E-01	6.6E-01	LWG0107B024SDS015C00	5%	1.9E-01 - 2.9E+00	3.0E+02	ca	N	Maximum detected value does not exceed screening value.
			<b>Phenols</b>										
		106-44-5	<b>4-Methylphenol</b>	ug/kg	9.5E+00	9.5E+00	LW2-B003	5%	3.6E+00 - 2.0E+01	3.1E+04	nc	N	Maximum detected value does not exceed screening value.
		87-86-5	<b>Pentachlorophenol</b>	ug/kg	2.2E+01	2.2E+01	LWG0107B023SDS015C00	5%	4.8E-01 - 4.8E+01	8.9E+02	ca	N	Maximum detected value does not exceed screening value.
			<b>Polychlorinated Biphenyls</b>										
		<b>Total PCB Aroclors</b>	i ug/kg	6.5E+00	8.2E+01	LWG0104B024SDS015C00	50%	1.6E+00 - 4.6E+01	2.2E+02	ca	N	Maximum detected value does not exceed screening value.	
		<b>Dioxin/Furan</b>											
		<b>Total Dioxin TEQ</b>	j pg/g	3.5E-02	8.8E-02	LW2-B005	100%	NA - NA	4.5E+00	ca	N	Maximum detected value does not exceed screening value.	

**Table 2-10**  
**Occurrence, Distribution, and Selection of Chemicals of Potential Concern - Sediment at Beaches Used for Recreation, by Transients, and/or by Fishers**

Scenario Timeframe: Current/Future
Medium: Sediment
Exposure Medium: Beach Sediment, Recreation, Transients, and/or Fishers Use

Exposure Point	CAS Number	Chemical <sup>a</sup>	Units	Minimum Detected Concentration	Maximum Detected Concentration	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits <sup>b</sup>	Concentration Used for Screening <sup>c</sup>	Screening Toxicity Value	COPC Flag (Y/N)	Rationale for Selection or Deletion
	319-85-7	<b>Pesticides</b>										
	53494-70-5	beta-Hexachlorocyclohexane	ug/kg	3.5E+00	5.1E+00	LW2-B005	10%	3.4E-02 - 4.9E+00	2.7E+02	ca	N	Maximum detected value does not exceed screening value.
		Endrin ketone	k ug/kg	4.6E-01	4.6E-01	LW2-B003	5%	2.8E-02 - 1.1E+00	1.8E+03	nc	N	Maximum detected value does not exceed screening value.
		Total Chlordanes	l ug/kg	5.9E+00	5.9E+00	LWG0109B027SDS015C	5%	3.2E-02 - 4.1E+00	1.6E+03	ca	N	Maximum detected value does not exceed screening value.
		Total DDD	m ug/kg	1.0E+00	1.3E+02	LWG0107B024SDS015C00	35%	3.8E-01 - 7.3E-01	2.0E+03	ca	N	Maximum detected value does not exceed screening value.
		Total DDE	n ug/kg	1.6E-01	1.0E+02	LWG0107B024SDS015C00	25%	3.8E-01 - 4.6E+00	1.4E+03	ca	N	Maximum detected value does not exceed screening value.
		Total DDT	o ug/kg	9.2E-01	1.4E+02	LWG0107B024SDS015C00	30%	3.8E-01 - 2.6E+00	1.7E+03	ca	N	Maximum detected value does not exceed screening value.

**Notes:**

- a Chemicals listed include analytes detected in human health beach sediment samples from beaches designated as having potential for residential/recreational use.
- b For chemical mixtures, the range of detection limits listed is the maximum and minimum detection limit for individual isomers or congeners within the mixture.
- c Screening concentrations and toxicity classifications are from EPA RSLs for residential soil (Nov 2010) unless otherwise noted. RSLs for noncarcinogenic chemicals are divided by 10.
- d EPA RSL for trivalent chromium used for chromium screening concentration.
- e EPA RSL for lead not divided by 10 for screening.
- f EPA RSL for acenaphthene used as surrogate.
- g EPA RSL for pyrene used as surrogate.
- h EPA RSL for fluorene used as surrogate.
- i EPA RSL for PCBs as Aroclor 1254 used for screening value.
- j EPA RSL for 2,3,7,8-TCDD (Dioxin) used for screening value. Detection limits listed are for individual dioxin/furans before TEQ adjustment.
- k EPA RSL for endrin used as surrogate.
- l EPA RSL for chlordane used for total chlordane screening value.
- m EPA RSL for DDD used for total DDD screening value.
- n EPA RSL for DDE used for total DDE screening value.
- o EPA RSL for DDT used for total DDT screening value.

**Abbreviations:**

- ca = Carcinogen.
- CAS = Chemical Abstract Services number.
- COPC = Chemical of potential concern.
- EPA = U.S. Environmental Protection Agency.
- max = Ceiling limit recommended for screening value.
- mg/kg = Milligrams per kilogram.
- N = No.
- NA = Not applicable. Chemical detected at 100% frequency.
- nc = Noncarcinogen.
- RSL = Regional screening level.
- SVOC = Semivolatile organic compound.
- TEQ = Toxicity equivalent.
- Y = Yes.

**Table 2-11**  
**Occurrence, Distribution, and Selection of Chemicals of Potential Concern - In-water Sediment**

Scenario Timeframe: Current/Future  
Medium: Sediment  
Exposure Medium: In-water Sediment

Exposure Point	CAS Number	Chemical <sup>a</sup>	Units	Minimum Detected Concentration	Maximum Detected Concentration	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits <sup>b</sup>	Concentration Used for Screening <sup>c</sup>	Screening Toxicity Value	COPC Flag (Y/N)	Rationale for Selection or Deletion	
Study Area-wide		<b>Metals</b>											
	7429-90-5	Aluminum	mg/kg	1.6E+03	4.6E+04	WR-WSI98SD139	100%	NA - NA	9.9E+04	nc	N	Maximum detected value does not exceed screening value.	
	7440-36-0	Antimony	mg/kg	4.0E-02	3.2E+01	WLCOFJ0222B04	75%	3.0E-02 - 8.0E+00	4.1E+01	nc	N	Maximum detected value does not exceed screening value.	
	7440-38-2	Arsenic	mg/kg	9.7E-01	7.6E+01	WLCOFJ024803	89%	3.0E+00 - 1.0E+01	1.6E+00	ca	Y	Maximum detected value exceeds screening value.	
	7440-39-3	Barium	mg/kg	6.7E+01	6.0E+03	CP-09-A-PG	100%	NA - NA	1.9E+04	nc	N	Maximum detected value does not exceed screening value.	
	7440-41-7	Beryllium	mg/kg	2.2E-01	9.0E-01	WR-WSI98SD075	100%	NA - NA	2.0E+02	nc	N	Maximum detected value does not exceed screening value.	
	7440-43-9	Cadmium	mg/kg	1.6E-02	4.6E+01	WLCOFJ02M0301	92%	1.6E-03 - 1.1E+00	8.0E+01	nc	N	Maximum detected value does not exceed screening value.	
	7440-47-3	Chromium	mg/kg	4.1E+00	7.7E+02	WLCOFJ0219A01	100%	2.8E+01 - 4.5E+01	1.5E+05	nc	N	Maximum detected value does not exceed screening value.	
	18540-29-9	Chromium hexavalent	mg/kg	2.0E-01	2.1E+00	LW2-GBT012	45%	1.0E-01 - 6.0E-01	5.6E+00	ca	N	Maximum detected value does not exceed screening value.	
	7440-48-4	Cobalt	mg/kg	1.1E+01	2.4E+01	WR-WSI98SD075	100%	NA - NA	3.0E+01	nc	N	Maximum detected value does not exceed screening value.	
	7440-50-8	Copper	mg/kg	4.4E+00	2.8E+03	LW3-UG01	100%	NA - NA	4.1E+03	nc	N	Maximum detected value does not exceed screening value.	
	7439-89-6	Iron	mg/kg	2.9E+04	6.5E+04	WR-WSI98SD075	100%	NA - NA	7.2E+04	nc	N	Maximum detected value does not exceed screening value.	
	7439-92-1	Lead	mg/kg	2.2E+00	1.3E+04	LW3-GWC1	100%	5.3E+00 - 1.0E+01	8.0E+02	nc	Y	Maximum detected value exceeds screening value.	
	7439-96-5	Manganese	mg/kg	2.4E+02	2.1E+03	KM-08-A-PG, LWP1-ARC03B	100%	NA - NA	2.3E+03	nc	N	Maximum detected value does not exceed screening value.	
	7439-97-6	Mercury	mg/kg	6.5E-03	6.5E+01	LW3-GWC1	95%	8.0E-03 - 1.0E-01	3.4E+00	nc	Y	Maximum detected value exceeds screening value.	
	7440-02-0	Nickel	mg/kg	4.8E+00	5.9E+02	PSYSEA98PSY27	99%	1.5E+01 - 3.0E+01	2.0E+03	nc	N	Maximum detected value does not exceed screening value.	
	7782-49-2	Selenium	mg/kg	3.0E-02	2.0E+01	WR-WSI98SD139	46%	3.0E-02 - 6.0E+00	5.1E+02	nc	N	Maximum detected value does not exceed screening value.	
	7440-22-4	Silver	mg/kg	1.4E-02	1.5E+01	WLCOFJ02S0202	97%	2.8E-02 - 1.0E+00	5.1E+02	nc	N	Maximum detected value does not exceed screening value.	
	7440-28-0	Thallium	mg/kg	2.6E-02	2.7E+01	WR-WSI98SD043	85%	5.1E-02 - 1.0E+01	NA	--	Y	Screening value not available.	
	7440-31-5	Tin	mg/kg	8.9E-01	5.4E+00	WRD&M98DMJ	100%	NA - NA	6.1E+04	nc	N	Maximum detected value does not exceed screening value.	
	7440-32-6	Titanium	mg/kg	1.3E+03	3.5E+03	WRD&M98DMJ	100%	NA - NA	NA	--	Y	Screening value not available.	
	7440-62-2	Vanadium	mg/kg	6.9E+01	1.5E+02	WR-WSI98SD075	100%	NA - NA	7.2E+00	nc	Y	Maximum detected value exceeds screening value.	
	7440-66-6	Zinc	mg/kg	9.7E+00	2.9E+03	WLCOFJ02M0301	100%	NA - NA	3.1E+04	nc	N	Maximum detected value does not exceed screening value.	
			<b>Butyltins</b>										
	78763-54-9	Butyltin ion	g	ug/kg	9.3E-02	7.4E+02	WR-WSI98SD012	72%	4.2E-02 - 6.9E+00	1.8E+04	nc	N	Maximum detected value does not exceed screening value.
	683-18-1	Dibutyltin dichloride	g	ug/kg	1.7E+01	3.4E+01	LWG0103R004SDS015C10,	100%	NA - NA	1.8E+04	nc	N	Maximum detected value does not exceed screening value.
	14488-53-0	Dibutyltin ion	g	ug/kg	1.4E-01	2.7E+03	LW2-G421	76%	4.0E-02 - 3.3E+01	1.8E+04	nc	N	Maximum detected value does not exceed screening value.
	1118-46-3	Monobutyltin trichloride	g	ug/kg	8.2E+00	2.8E+01	LWG0103R004SDS015C10	75%	NA - NA	1.8E+04	nc	N	Maximum detected value does not exceed screening value.
	1461-25-2	Tetrabutyltin	g	ug/kg	2.7E-01	1.0E+03	LW2-G421	32%	8.1E-02 - 6.0E+00	1.8E+04	nc	N	Maximum detected value does not exceed screening value.
	1461-22-9	Tributyltin chloride	g	ug/kg	2.5E+01	6.4E+01	LWG0103R005SDS015C00	100%	NA - NA	1.8E+04	nc	N	Maximum detected value does not exceed screening value.
	36643-28-4	Tributyltin ion	g	ug/kg	4.5E-01	4.7E+04	WR-WSI98SD012	94%	7.9E-02 - 5.8E+00	1.8E+04	nc	Y	Maximum detected value exceeds screening value.
			<b>Polynuclear Aromatic Hydrocarbons</b>										
	2245-38-7	1,6,7-Trimethylnaphthalene	h	ug/kg	2.4E-01	2.2E+02	WLCT4C04UP14	93%	5.0E+00 - 5.0E+00	1.8E+04	ca	N	Maximum detected value does not exceed screening value.
	90-12-0	1-Methylnaphthalene		ug/kg	2.4E-01	9.0E+02	LW3-G609	98%	5.0E+00 - 5.0E+00	9.9E+04	ca	N	Maximum detected value does not exceed screening value.
	832-69-9	1-Methylphenanthrene	i	ug/kg	3.8E-01	1.8E+03	WLCT4C04UP13	98%	5.0E+00 - 5.0E+00	1.7E+06	nc	N	Maximum detected value does not exceed screening value.
	581-42-0	2,6-Dimethylnaphthalene	h	ug/kg	2.0E-01	2.5E+02	WLCT4C04UP13	95%	5.0E+00 - 5.0E+00	1.8E+04	ca	N	Maximum detected value does not exceed screening value.
	91-57-6	2-Methylnaphthalene		ug/kg	3.7E-01	5.3E+04	GS-04-A-PG-2	82%	4.9E-01 - 1.6E+02	4.1E+05	nc	N	Maximum detected value does not exceed screening value.
	83-32-9	Acenaphthene		ug/kg	2.2E-01	1.8E+05	WLCGSD01AN0103	88%	2.3E-01 - 2.2E+02	3.3E+06	nc	N	Maximum detected value does not exceed screening value.
	208-96-8	Acenaphthylene		ug/kg	3.4E-01	1.2E+04	GS-04-A-PG-2, LW3-C662	81%	3.2E-01 - 1.6E+02	3.3E+06	nc	N	Maximum detected value does not exceed screening value.
	120-12-7	Anthracene		ug/kg	3.5E-01	1.6E+05	WLCGSD01AN0103	92%	3.3E-01 - 2.2E+02	1.7E+07	nc	N	Maximum detected value does not exceed screening value.
	56-55-3	Benzo(a)anthracene		ug/kg	5.0E-01	1.2E+05	WLCGSD01AN0103	97%	1.2E+00 - 2.2E+02	2.1E+03	ca	Y	Maximum detected value exceeds screening value.
	50-32-8	Benzo(a)pyrene		ug/kg	8.6E-01	1.6E+05	GS-04-A-PG-2	97%	3.3E-01 - 2.2E+02	2.1E+02	ca	Y	Maximum detected value exceeds screening value.
	205-99-2	Benzo(b)fluoranthene		ug/kg	1.1E+00	1.3E+05	LW2-C273, LW2-C301, LW2-G283	99%	7.2E-01 - 2.0E+01	2.1E+03	ca	Y	Maximum detected value exceeds screening value.
	192-97-2	Benzo(e)pyrene	i	ug/kg	1.6E+00	3.2E+04	WLCT4C04UP13	100%	NA - NA	1.7E+06	nc	N	Maximum detected value does not exceed screening value.
	191-24-2	Benzo(g,h,i)perylene	i	ug/kg	5.6E-01	1.3E+05	GS-04-A-PG-2, WLCGSG04RAA17	95%	7.5E-01 - 2.2E+02	1.7E+06	nc	N	Maximum detected value does not exceed screening value.
	207-08-9	Benzo(k)fluoranthene		ug/kg	7.7E-01	8.9E+04	GS-04-A-PG-2	98%	5.0E-01 - 2.0E+01	2.1E+04	ca	Y	Maximum detected value exceeds screening value.
	218-01-9	Chrysene		ug/kg	2.0E+00	1.4E+05	WLCGSD01AN0103	98%	6.2E-01 - 2.2E+02	2.1E+05	ca	N	Maximum detected value does not exceed screening value.
	53-70-3	Dibenzo(a,h)anthracene		ug/kg	2.2E-01	1.5E+04	GS-04-A-PG-2, LW2-C301	86%	3.8E-01 - 2.2E+02	2.1E+02	ca	Y	Maximum detected value exceeds screening value.
	132-65-0	Dibenzothiophene	k	ug/kg	5.3E-01	1.1E+04	LW3-G609	97%	2.1E-01 - 4.1E-01	2.2E+06	nc	N	Maximum detected value does not exceed screening value.
	206-44-0	Fluoranthene		ug/kg	1.1E+00	3.5E+05	GS-04-A-PG-2	99%	1.6E+00 - 1.3E+02	2.2E+06	nc	N	Maximum detected value does not exceed screening value.
	86-73-7	Fluorene		ug/kg	3.2E-01	1.1E+05	WLCGSD01AN0103	88%	2.6E-01 - 2.2E+02	2.2E+06	nc	N	Maximum detected value does not exceed screening value.
	193-39-5	Indeno(1,2,3-cd)pyrene		ug/kg	9.0E-01	1.3E+05	GS-04-A-PG-2	95%	3.6E-01 - 2.2E+02	2.1E+03	ca	Y	Maximum detected value exceeds screening value.
	91-20-3	Naphthalene		ug/kg	2.7E-01	1.0E+05	WLCGSD01AN0102	71%	4.3E-01 - 1.6E+02	1.8E+04	ca	Y	Maximum detected value exceeds screening value.



**Table 2-11**  
**Occurrence, Distribution, and Selection of Chemicals of Potential Concern - In-water Sediment**

Scenario Timeframe: Current/Future
Medium: Sediment
Exposure Medium: In-water Sediment

Exposure Point	CAS Number	Chemical <sup>a</sup>	Units	Minimum Detected Concentration	Maximum Detected Concentration	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits <sup>b</sup>	Concentration Used for Screening <sup>c</sup>	Screening Toxicity Value	COPC Flag (Y/N)	Rationale for Selection or Deletion
	85-01-8	Phenanthrene	i ug/kg	5.3E-01	4.0E+05	LW2-G301, WLCGSD01AN0103	98%	1.6E+00 - 2.2E+02	1.7E+06	nc	N	Maximum detected value does not exceed screening value.
	198-55-0	Perylene	i ug/kg	9.5E-01	1.3E+04	WLCT4C04UP13	100%	NA - NA	1.7E+06	nc	N	Maximum detected value does not exceed screening value.
	129-00-0	Pyrene	ug/kg	2.8E+00	4.5E+05	GS-04-A-PG-2	100%	5.4E-01 - 2.0E+01	1.7E+06	nc	N	Maximum detected value does not exceed screening value.
		<b>Phthalates</b>										Maximum detected value exceeds screening value.
	117-81-7	Bis(2-ethylhexyl) phthalate	ug/kg	7.0E+00	4.4E+05	LW2-G367	61%	2.3E+00 - 1.9E+04	1.2E+05	ca	Y	Maximum detected value exceeds screening value.
	85-68-7	Butylbenzyl phthalate	ug/kg	2.2E+00	2.8E+03	LW2-G111	33%	1.9E+00 - 2.2E+03	9.1E+05	ca	N	Maximum detected value does not exceed screening value.
	84-74-2	Dibutyl phthalate	ug/kg	3.7E+00	3.8E+03	WLCOFJ02M0301	32%	3.3E+00 - 1.8E+03	6.2E+06	nc	N	Maximum detected value does not exceed screening value.
	84-66-2	Diethyl phthalate	ug/kg	2.0E+00	3.7E+02	LW2-G093	7%	1.3E+00 - 2.2E+03	4.9E+07	nc	N	Maximum detected value does not exceed screening value.
	131-11-3	Dimethyl phthalate	l ug/kg	1.4E+00	1.7E+02	PSYSEA98PSY03	5%	1.0E+00 - 2.2E+03	4.9E+07	nc	N	Maximum detected value does not exceed screening value.
	117-84-0	Di-n-octyl phthalate	l ug/kg	3.4E+00	1.5E+04	WLCOFH02M101	10%	1.5E+00 - 1.6E+03	4.9E+07	nc	N	Maximum detected value does not exceed screening value.
		<b>SVOCs</b>										Maximum detected value exceeds screening value.
	120-82-1	1,2,4-Trichlorobenzene	ug/kg	3.1E+00	3.1E+02	LW2-G355	2%	4.4E-01 - 2.2E+03	9.9E+04	ca	N	Maximum detected value does not exceed screening value.
	95-50-1	1,2-Dichlorobenzene	ug/kg	1.6E-01	6.1E+02	LW2-GBT017	2%	9.2E-02 - 2.2E+03	9.8E+05	nc	N	Maximum detected value does not exceed screening value.
	541-73-1	1,3-Dichlorobenzene	m ug/kg	3.6E+00	9.8E+01	RP-03-C-PG	0.4%	1.4E-01 - 2.2E+03	9.8E+05	nc	N	Maximum detected value does not exceed screening value.
	106-46-7	1,4-Dichlorobenzene	ug/kg	8.8E-01	7.3E+02	LW2-G505	2%	1.4E-01 - 2.2E+03	1.2E+04	ca	N	Maximum detected value does not exceed screening value.
	99-09-2	3-Nitroaniline	n ug/kg	4.8E+02	4.8E+02	WLCOFH02M103	0.1%	2.5E+00 - 2.2E+03	6.0E+05	nc	N	Maximum detected value does not exceed screening value.
	106-47-8	4-Chloroaniline	ug/kg	1.0E+01	1.3E+01	LW3-C757, LW3-G743	0.2%	1.9E+00 - 2.2E+03	8.6E+03	ca	N	Maximum detected value does not exceed screening value.
	100-01-6	4-Nitroaniline	ug/kg	3.9E+01	9.6E+01	LW2-G099	0.2%	1.8E+00 - 2.2E+03	8.6E+04	ca	N	Maximum detected value does not exceed screening value.
	62-53-3	Aniline	ug/kg	9.5E+00	6.7E+02	LW2-G401	1%	1.5E+00 - 2.2E+03	3.0E+05	ca	N	Maximum detected value does not exceed screening value.
	65-85-0	Benzoic acid	ug/kg	9.9E+01	4.1E+03	WLCOFH02M106	5%	5.2E+01 - 5.3E+04	2.5E+08	nc	N	Maximum detected value does not exceed screening value.
	100-51-6	Benzyl alcohol	ug/kg	2.3E+00	2.4E+02	WLCOFJ0252A05	10%	2.1E+00 - 2.2E+03	6.2E+06	nc	N	Maximum detected value does not exceed screening value.
	111-44-4	Bis(2-chloroethyl) ether	ug/kg	4.4E+00	1.4E+01	LW2-G232, LW2-G375	0.3%	1.9E+00 - 2.2E+03	1.0E+03	ca	N	Maximum detected value does not exceed screening value.
	86-74-8	Carbazole	k ug/kg	1.6E+00	3.0E+04	LW2-C299, LW2-G264	62%	1.3E+00 - 2.2E+03	2.2E+06	nc	N	Maximum detected value does not exceed screening value.
	132-64-9	Dibenzofuran	ug/kg	2.5E-01	7.8E+03	LW2-G294	78%	2.2E-01 - 2.2E+03	1.0E+05	nc	N	Maximum detected value does not exceed screening value.
	92-52-4	Diphenyl	ug/kg	4.4E-01	4.5E+02	WLCASF97S021	88%	4.9E+00 - 5.1E+00	5.1E+06	nc	N	Maximum detected value does not exceed screening value.
	118-74-1	Hexachlorobenzene	ug/kg	1.2E-02	3.4E+02	LW2-G355	34%	1.7E-02 - 1.2E+03	1.1E+03	ca	N	Maximum detected value does not exceed screening value.
	87-68-3	Hexachlorobutadiene	ug/kg	6.5E-02	2.3E+02	WR-WSI98SD092	6%	1.8E-03 - 2.0E+02	2.2E+04	ca	N	Maximum detected value does not exceed screening value.
	67-72-1	Hexachloroethane	ug/kg	2.5E-01	1.5E+03	LW2-G355	11%	4.9E-02 - 4.8E+02	1.2E+05	ca	N	Maximum detected value does not exceed screening value.
	86-30-6	N-Nitrosodiphenylamine	ug/kg	2.0E+00	6.1E+01	CP-09-A-PG	1%	1.6E+00 - 2.2E+03	3.5E+05	ca	N	Maximum detected value does not exceed screening value.
		<b>Phenols</b>										Maximum detected value exceeds screening value.
	4901-51-3	2,3,4,5-Tetrachlorophenol	o ug/kg	6.2E-01	1.8E+02	LW2-G355	2%	2.5E-01 - 1.6E+03	1.8E+06	nc	N	Maximum detected value does not exceed screening value.
	25167-83-3_3	2,3,4,6,2,3,5,6-Tetrachlorophenol coelution	o ug/kg	1.0E+00	4.9E+01	LW2-G355	2%	4.4E-01 - 3.7E+02	1.8E+06	nc	N	Maximum detected value does not exceed screening value.
	935-95-5	2,3,5,6-Tetrachlorophenol	o ug/kg	3.8E-01	2.8E+01	WLCOFJ024806	3%	2.0E-01 - 2.2E+03	1.8E+06	nc	N	Maximum detected value does not exceed screening value.
	95-95-4	2,4,5-Trichlorophenol	ug/kg	7.8E-01	4.8E+01	LW2-G302	1%	3.6E-01 - 2.2E+03	6.2E+06	nc	N	Maximum detected value does not exceed screening value.
	88-06-2	2,4,6-Trichlorophenol	ug/kg	2.4E-01	2.2E+02	CP-07-D-PG	3%	1.3E-01 - 2.2E+03	1.6E+05	ca	N	Maximum detected value does not exceed screening value.
	120-83-2	2,4-Dichlorophenol	ug/kg	4.7E+00	1.2E+02	LW2-G332	1%	1.0E+00 - 2.2E+03	1.8E+05	nc	N	Maximum detected value does not exceed screening value.
	105-67-9	2,4-Dimethylphenol	ug/kg	1.8E+01	3.0E+02	LWG0109R002SDS015C00	0.3%	5.5E+00 - 2.2E+03	1.2E+06	nc	N	Maximum detected value does not exceed screening value.
	95-57-8	2-Chlorophenol	ug/kg	9.8E+00	5.4E+01	LW2-G334	0.2%	2.0E+00 - 2.2E+03	5.1E+05	nc	N	Maximum detected value does not exceed screening value.
	95-48-7	2-Methylphenol	ug/kg	6.9E+01	2.9E+02	LW2-G415	0.3%	1.5E+00 - 2.2E+03	3.1E+06	nc	N	Maximum detected value does not exceed screening value.
	59-50-7	4-Chloro-3-methylphenol	ug/kg	2.4E+00	3.1E+02	WLCOFH021805	1%	1.4E+00 - 2.2E+03	6.2E+06	nc	N	Maximum detected value does not exceed screening value.
	106-44-5	4-Methylphenol	ug/kg	2.0E+00	1.4E+03	WR-WSI98SD139	48%	1.5E+00 - 4.3E+03	3.1E+05	nc	N	Maximum detected value does not exceed screening value.
	87-86-5	Pentachlorophenol	ug/kg	5.0E-01	8.4E+03	WLCOFJ0252C01	21%	1.7E-01 - 2.2E+03	2.7E+03	ca	Y	Maximum detected value exceeds screening value.
	108-95-2	Phenol	ug/kg	2.8E+00	6.8E+02	LW2-G092	28%	2.0E+00 - 2.2E+03	1.8E+07	nc	N	Maximum detected value does not exceed screening value.
		<b>Polychlorinated Biphenyls</b>										Maximum detected value exceeds screening value.
	11097-69-1	Total PCB Aroclors	p ug/kg	5.1E+00	3.1E+04	LW2-G453	80%	1.3E+00 - 1.0E+03	7.4E+02	ca	Y	Maximum detected value exceeds screening value.
	11097-69-1	Total PCB Congeners	p pg/g	1.8E+03	3.5E+07	LW2-G453	100%	3.9E-03 - 2.0E-02	7.4E+05	ca	Y	Maximum detected value exceeds screening value.
		<b>Dioxin/Furan</b>										Maximum detected value exceeds screening value.
	1746-01-6	Total Dioxin TEQ	q pg/g	2.9E-02	1.4E+04	LWG0107R006SDS015C00	100%	NA - NA	1.8E+01	ca	Y	Maximum detected value exceeds screening value.
	1746-01-6	Total PCB TEQ	q pg/g	5.2E-02	2.4E+02	LW2-G453	100%	NA - NA	1.8E+01	ca	Y	Maximum detected value exceeds screening value.
		<b>Pesticides</b>										Maximum detected value exceeds screening value.
	309-00-2	Aldrin	ug/kg	3.3E-03	6.9E+02	LW2-G355	24%	1.6E-02 - 9.9E+01	1.0E+02	ca	Y	Maximum detected value exceeds screening value.
	319-84-6	alpha-Hexachlorocyclohexane	ug/kg	2.4E-03	1.0E+01	LW2-G453	20%	1.4E-03 - 9.9E+01	2.7E+02	ca	N	Maximum detected value does not exceed screening value.
	319-85-7	beta-Hexachlorocyclohexane	ug/kg	1.4E-03	2.0E+01	LW2-G274	42%	1.1E-03 - 9.9E+01	9.6E+02	ca	N	Maximum detected value does not exceed screening value.
	319-86-8	delta-Hexachlorocyclohexane	f ug/kg	1.8E-03	5.3E+00	WLCOFJ0222B04	15%	9.8E-04 - 9.9E+01	NA	--	Y	Screening value not available.

**Table 2-11**  
**Occurrence, Distribution, and Selection of Chemicals of Potential Concern - In-water Sediment**

Scenario Timeframe: Current/Future  
Medium: Sediment  
Exposure Medium: In-water Sediment

Exposure Point	CAS Number	Chemical <sup>a</sup>	Units	Minimum Detected Concentration	Maximum Detected Concentration	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits <sup>b</sup>	Concentration Used for Screening <sup>c</sup>	Screening Toxicity Value	COPC Flag (Y/N)	Rationale for Selection or Deletion
	60-57-1	Dieldrin	r	ug/kg	8.3E-03	LW2-G453	21%	3.0E-02 - 2.7E+02	1.1E+02	ca	Y	Maximum detected value exceeds screening value.
	72-20-8	Endrin	r	ug/kg	2.0E-03	AP-04-C-PG, LW2-C295	8%	1.3E-02 - 2.0E+02	1.8E+04	nc	N	Maximum detected value does not exceed screening value.
	7421-93-4	Endrin aldehyde	r	ug/kg	1.1E-01	LW3-G609	4%	4.2E-02 - 2.0E+02	1.8E+04	nc	N	Maximum detected value does not exceed screening value.
	53494-70-5	Endrin ketone	r	ug/kg	5.5E-03	LW2-G453	18%	2.1E-03 - 2.0E+02	1.8E+04	nc	N	Maximum detected value does not exceed screening value.
	58-89-9	gamma-Hexachlorocyclohexane	r	ug/kg	3.1E-03	LWG0107R006SDS015C00	18%	4.7E-03 - 9.9E+01	2.1E+03	ca	N	Maximum detected value does not exceed screening value.
	76-44-8	Heptachlor	r	ug/kg	2.6E-03	PSYSEA98PSY01	7%	1.4E-03 - 9.9E+01	3.8E+02	ca	N	Maximum detected value does not exceed screening value.
	1024-57-3	Heptachlor epoxide	r	ug/kg	1.6E-03	AP-04-C-PG	9%	1.9E-03 - 9.9E+01	1.9E+02	ca	N	Maximum detected value does not exceed screening value.
	72-43-5	Methoxychlor	r	ug/kg	4.8E-02	LW2-G333	13%	2.3E-02 - 9.9E+02	3.1E+05	nc	N	Maximum detected value does not exceed screening value.
	2385-85-5	Mirex	r	ug/kg	9.5E-02	LW2-C525	4%	3.4E-02 - 1.3E+02	9.6E+01	ca	N	Maximum detected value does not exceed screening value.
	12789-03-6	Total Chlordanes	s	ug/kg	6.3E-02	LW2-G355	67%	4.1E-02 - 2.3E+02	6.5E+03	ca	N	Maximum detected value does not exceed screening value.
	72-54-8	Total DDDs	t	ug/kg	6.7E-02	LW2-G360	86%	5.3E-02 - 1.3E+02	7.2E+03	ca	N	Maximum detected value does not exceed screening value.
	72-55-9	Total DDEs	u	ug/kg	1.1E-01	LW2-G453	82%	4.5E-02 - 1.3E+02	5.1E+03	ca	N	Maximum detected value does not exceed screening value.
	50-29-3	Total DDTs	v	ug/kg	4.4E-02	LWP-TZSAP04B	78%	5.6E-02 - 4.1E+01	7.0E+03	ca	Y	Maximum detected value exceeds screening value.
	115-29-7	Total Endosulfans	w	ug/kg	2.7E-02	WR-WSI98SD0920000CC	27%	4.5E-02 - 2.0E+02	3.7E+05	nc	N	Maximum detected value does not exceed screening value.
		<b>Herbicides</b>										Maximum detected value exceeds screening value.
	93-76-5	2,4,5-T	r	ug/kg	1.6E+01	WLCOFJ02M0201	1%	1.1E-01 - 1.1E+02	6.2E+05	nc	N	Maximum detected value does not exceed screening value.
	94-75-7	2,4-D	r	ug/kg	9.0E+00	LW2-G334	6%	7.5E-02 - 1.3E+02	7.7E+05	nc	N	Maximum detected value does not exceed screening value.
	94-82-6	2,4-DB	r	ug/kg	1.3E+01	LW2-G334	4%	1.1E-01 - 2.7E+02	4.9E+05	nc	N	Maximum detected value does not exceed screening value.
	120-36-5	Dichloroprop	x	ug/kg	9.4E+00	RP-07-B-PG	1%	1.2E-01 - 1.3E+02	7.7E+05	nc	N	Maximum detected value does not exceed screening value.
	94-74-6	MCPA	x	ug/kg	4.1E+00	LW2-G334	1%	1.6E-01 - 6.7E+04	3.1E+04	nc	N	Maximum detected value does not exceed screening value.
	93-65-2	MCPP	x	ug/kg	1.9E+02	WLCDDR05PG058	1%	1.2E-01 - 9.1E+04	6.2E+04	nc	N	Maximum detected value does not exceed screening value.
	93-72-1	Silvex	x	ug/kg	5.4E+00	RP-03-C-PG	1%	1.1E-01 - 4.4E+01	4.9E+05	nc	N	Maximum detected value does not exceed screening value.
		<b>VOCs</b>										Maximum detected value exceeds screening value.
	630-20-6	1,1,1,2-Tetrachloroethane	r	ug/kg	2.9E-01	LW2-GBT018	0.5%	3.8E-02 - 5.0E+01	9.3E+03	ca	N	Maximum detected value does not exceed screening value.
	75-34-3	1,1-Dichloroethane	r	ug/kg	2.5E-01	CP-07-A-PG, CP-07-D-PG, LW2-	1%	7.0E-02 - 5.0E+01	1.7E+04	ca	N	Maximum detected value does not exceed screening value.
	96-18-4	1,2,3-Trichloropropane	r	ug/kg	5.0E-01	WLCDDR05PG042	1%	1.4E-01 - 2.5E+02	9.5E+01	ca	N	Maximum detected value does not exceed screening value.
	95-50-1	1,2-Dichlorobenzene	r	ug/kg	1.6E-01	LW2-GBT017	2%	9.2E-02 - 2.2E+03	9.8E+05	nc	N	Maximum detected value does not exceed screening value.
	107-06-2	1,2-Dichloroethane	r	ug/kg	1.1E-01	LW2-G263	1%	3.8E-02 - 5.0E+01	2.2E+03	ca	N	Maximum detected value does not exceed screening value.
	67-64-1	Acetone	r	ug/kg	3.4E+00	LW2-GBT003	10%	2.0E+00 - 2.5E+02	6.3E+07	nc	N	Maximum detected value does not exceed screening value.
	71-43-2	Benzene	r	ug/kg	7.2E+02	LWP1-AP04D	17%	1.0E-02 - 5.0E+01	5.4E+03	ca	N	Maximum detected value does not exceed screening value.
	75-15-0	Carbon disulfide	r	ug/kg	1.1E-01	LW2-G092	9%	9.3E-02 - 2.5E+01	3.7E+05	nc	N	Maximum detected value does not exceed screening value.
	108-90-7	Chlorobenzene	r	ug/kg	1.4E-01	LWP1-AP04D	16%	7.2E-02 - 5.0E+01	1.4E+05	nc	N	Maximum detected value does not exceed screening value.
	75-00-3	Chloroethane	r	ug/kg	7.7E+00	GN-05-A-PG	1%	2.8E-01 - 5.0E+02	6.1E+06	nc	N	Maximum detected value does not exceed screening value.
	67-66-3	Chloroform	r	ug/kg	8.7E-02	CP-07-D-PG	6%	6.8E-02 - 5.0E+01	1.5E+03	ca	N	Maximum detected value does not exceed screening value.
	156-59-2	cis-1,2-Dichloroethene	r	ug/kg	2.1E-01	RP-03-C-PG, AP-03-A-TR	3%	7.6E-02 - 2.0E+00	2.0E+05	nc	N	Maximum detected value does not exceed screening value.
	75-71-8	Dichlorodifluoromethane	r	ug/kg	2.0E-01	LW2-GBT004	17%	8.2E-02 - 5.0E+02	7.8E+04	nc	N	Maximum detected value does not exceed screening value.
	100-41-4	Ethylbenzene	r	ug/kg	7.0E-02	GS-04-A-PG-2	13%	9.0E-03 - 5.0E+01	2.7E+04	ca	N	Maximum detected value does not exceed screening value.
	98-82-8	Isopropylbenzene	r	ug/kg	7.3E-02	GS-04-A-PG-2	15%	5.4E-02 - 1.0E+02	1.1E+06	nc	N	Maximum detected value does not exceed screening value.
	108-10-1	Methyl isobutyl ketone	r	ug/kg	3.3E-01	EM-03-A-PG	0.5%	3.0E-01 - 2.5E+02	5.3E+06	nc	N	Maximum detected value does not exceed screening value.
	591-78-6	Methyl n-butyl ketone	r	ug/kg	1.8E+00	GN-02-E-PG	0.5%	7.8E-01 - 2.5E+02	1.4E+05	nc	N	Maximum detected value does not exceed screening value.
	1634-04-4	Methyl tert-butyl ether	r	ug/kg	7.0E-02	LW2-G061, R2-AR-02-TR	4%	4.8E-02 - 2.9E-01	2.2E+05	ca	N	Maximum detected value does not exceed screening value.
	75-09-2	Methylene chloride	r	ug/kg	8.8E-01	LW2-GBT004	1%	4.0E-01 - 2.5E+02	5.3E+04	ca	N	Maximum detected value does not exceed screening value.
	78-93-3	Methylethyl ketone	r	ug/kg	2.1E+00	LW2-G360	18%	1.0E+01 - 1.3E+03	2.0E+07	nc	N	Maximum detected value does not exceed screening value.
	100-42-5	Styrene	r	ug/kg	1.1E+00	LW2-G283	0.5%	9.0E-02 - 5.0E+01	3.6E+06	nc	N	Maximum detected value does not exceed screening value.
	127-18-4	Tetrachloroethene	r	ug/kg	2.2E-01	CP-07-A-PG	1%	1.1E-01 - 5.0E+01	2.6E+03	ca	N	Maximum detected value does not exceed screening value.
	108-88-3	Toluene	r	ug/kg	3.0E-02	GS-04-A-PG-2	4%	2.0E-02 - 5.0E+01	4.5E+06	nc	N	Maximum detected value does not exceed screening value.
	156-60-5	trans-1,2-Dichloroethene	r	ug/kg	4.8E-01	RP-03-C-PG	0.5%	8.2E-02 - 2.5E+01	6.9E+04	nc	N	Maximum detected value does not exceed screening value.
	79-01-6	Trichloroethene	y	ug/kg	1.1E-01	LW2-G200, WLCSLH01GP63	2%	7.6E-02 - 5.0E+01	1.4E+04	ca	N	Maximum detected value does not exceed screening value.
	75-01-4	Vinyl chloride	y	ug/kg	3.4E-01	GS-07-D-PG, AP-03-A-TR	0.5%	1.1E-01 - 5.0E+02	1.7E+03	ca	N	Maximum detected value does not exceed screening value.
	1330-20-7	Total Xylenes	y	ug/kg	9.0E-02	LWG2-PG-GS4A-2	16%	2.0E-02 - 1.1E+00	2.7E+05	nc	N	Maximum detected value does not exceed screening value.
		<b>Petroleum</b>										Maximum detected value exceeds screening value.
	DRH	Diesel Range Hydrocarbons	z	mg/kg	3.1E+00	LW2-G294	97%	4.3E+00 - 2.3E+01	7.0E+04	nc	N	Maximum detected value does not exceed screening value.
	GRH	Gasoline Range Hydrocarbons	aa	mg/kg	1.5E+00	GS-04-A-PG-2, LW2-C302	14%	8.2E-01 - 1.4E+01	2.2E+04	nc	N	Maximum detected value does not exceed screening value.

**Table 2-11**  
**Occurrence, Distribution, and Selection of Chemicals of Potential Concern - In-water Sediment**

Scenario Timeframe: Current/Future
Medium: Sediment
Exposure Medium: In-water Sediment

Exposure Point	CAS Number	Chemical <sup>a</sup>		Units	Minimum Detected Concentration	Maximum Detected Concentration	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits <sup>b</sup>	Concentration Used for Screening <sup>c</sup>	Screening Toxicity Value	COPC Flag (Y/N)	Rationale for Selection or Deletion
	68782-97-8	Lube Oil	ab	mg/kg	8.0E+00	9.4E+03	WLCOFJ02M0301	98%	1.0E+00 - 3.2E+00	1.0E+05	nc	N	Maximum detected value does not exceed screening value.
	M09800000	Motor oil	ab	mg/kg	1.1E+02	1.3E+02	WLCMRI02CS004	100%	NA - NA	1.0E+05	nc	N	Maximum detected value does not exceed screening value.
	RRH	Residual Range Hydrocarbons	ab	mg/kg	7.7E+00	1.8E+04	LW2-G453	96%	2.5E+01 - 2.9E+02	1.0E+05	nc	N	Maximum detected value does not exceed screening value.
		<b>Conventionals</b>											
	57-12-5	Cyanide		mg/kg	1.4E-01	7.3E+00	GS-04-A-PG-2	100%	NA - NA	2.0E+03	nc	N	Maximum detected value does not exceed screening value.
	14797-73-0	Perchlorate		ug/kg	9.6E+04	2.7E+05	LWP1-CP07B	23%	2.2E+01 - 2.6E+01	7.2E+04	nc	Y	Maximum detected value exceeds screening value.

**Notes:**

- a Chemical list includes analytes detected in human health in-water sediment samples.
- b For chemical mixtures, the range of detection limits listed is the maximum and minimum detection limit for individual isomers or congeners within the mixture.
- c Screening concentrations and toxicity classifications are from EPA RSLs for industrial soil (Nov 2010) unless otherwise noted. RSLs for noncarcinogenic chemicals are divided by 10.
- d EPA RSL for chromium III used for chromium screening concentration.
- e EPA RSL for lead not divided by 10 for screening.
- f A screening value was not available and a surrogate chemical could not be identified. Analyte is discussed qualitatively in text.
- g EPA RSL for tributyltin oxide (TBTO) used as surrogate.
- h EPA RSL for naphthalene used as surrogate.
- i EPA RSL for pyrene used as surrogate.
- j EPA RSL for acenaphthene used as surrogate.
- k EPA RSL for fluorene used as surrogate.
- l EPA RSL for diethyl phthalate used as surrogate.
- m EPA RSL for 1,2-dichlorobenzene used as surrogate.
- n EPA RSL for 2-nitroaniline used as a surrogate.
- o EPA RSL for 2,3,4,6-tetrachlorophenol used as surrogate.
- p EPA RSL for PCBs as Aroclor 1254 used for screening concentration.
- q EPA RSL for 2,3,7,8-TCDD (Dioxin) used for screening concentration. Detection limits listed are for individual congeners/isomers before TEQ adjustment.
- r EPA RSL for endrin used as surrogate.
- s EPA RSL for technical chlordane used for total chlordane.
- t EPA RSL for DDD used for total DDD.
- u EPA RSL for p,p'-DDE used for total DDE.
- v EPA RSL for DDT used for total DDT.
- w EPA RSL for endosulfan used for total endosulfan.
- x EPA RSL for 2,4-D used as surrogate.
- y The trichloroethene screening level was calculated consistent with the 2008 EPA Region 10 recommendations (EPA 2008a).
- z DEQ risk-based concentration (RBC) for occupational surface soil exposure to generic diesel (DEQ 2003) used for screening concentration.
- aa DEQ risk-based concentration (RBC) for occupational surface soil exposure to generic gasoline (DEQ 2003) used for screening concentration.
- ab DEQ risk-based concentration (RBC) for occupational surface soil exposure to generic oil (DEQ 2003) used for screening concentration.

**Abbreviations:**

- |   |  |
|---|--|
| ca= Carcinogen.   | ne = Noncarcinogen.  |
| CAS = Chemical Abstract Services number.                  | RBC = Risk-based concentration.                                      |
| COPC = Chemical of potential concern.                     | sat = Soil saturation concentration recommended for screening value. |
| DEQ = Oregon Department of Environmental Quality.         | RSL = Regional Screening Level.                                      |
| EPA = U.S. Environmental Protection Agency.               | SVOC = Semivolatile organic compound.                                |
| max = Ceiling limit recommended for screening value.      | TEQ = Toxicity equivalent.   |
| mg/kg = Milligrams per kilogram.                          | Y = Yes.   |
| N = No.   |  |
| NA = Not applicable. Chemical detected at 100% frequency. |  |

Table 2-13  
Occurrence, Distribution and Selection of Chemicals of Potential Concern - Surface Water, Direct Contact With Divers

Scenario Timeframe: Current/Future
Medium: Water
Exposure Medium: Surface Water, Direct Contact With Divers

Exposure Point	Chemical <sup>a</sup>	Notes	Units	Minimum Detected Concentration	Maximum Detected Concentration	Location of Maximum Concentration	Date of Maximum Concentration	Detection Frequency	Range of Detection Limits <sup>b</sup>	Concentration Used for Screening <sup>c</sup>	Screening Toxicity Value	COPC Flag (Y/N)	Rationale for Selection or Deletion	
Study Area-wide	<b>Metals</b>													
	Aluminum		ug/l	1.5E+00	1.9E+03	W023	1/20/2006	84%	9.0E-01 - 5.0E+00	3.7E+03	nc	N	Maximum detected values does not exceed screening value.	
	Antimony		ug/l	1.5E-02	1.3E-01	W001	7/5/2005	50%	2.0E-02 - 7.0E-02	1.5E+00	nc	N	Maximum detected values does not exceed screening value.	
	Arsenic		ug/l	2.0E-01	7.5E-01	W001	7/5/2005	91%	3.8E-01 - 5.1E-01	4.5E-02	ca	Y	Maximum detected value exceeds screening value.	
	Cadmium		ug/l	8.0E-03	5.0E-02	W004	3/17/2005	24%	2.0E-03 - 7.0E-02	1.8E+00	nc	N	Maximum detected values does not exceed screening value.	
	Chromium	d	ug/l	1.0E-01	1.7E+00	W036	1/1/2007	55%	1.1E-01 - 5.7E-01	5.5E+03	nc	N	Maximum detected values does not exceed screening value.	
	Chromium hexavalent		ug/l	5.0E-01	9.0E-01	W011	11/1/2006	23%	6.0E-01 - 2.0E+01	4.3E-02	ca	Y	Maximum detected value exceeds screening value.	
	Copper		ug/l	3.7E-01	3.7E+00	W023	1/20/2006	99%	4.4E-01 - 5.4E-01	1.5E+02	nc	N	Maximum detected values does not exceed screening value.	
	Lead	e	ug/l	8.0E-03	1.8E+00	W008	7/8/2005	86%	8.0E-03 - 5.1E-02	1.5E+01	NA	N	Maximum detected values does not exceed screening value.	
	Mercury		ug/l	1.3E-02	2.5E-02	W031	11/1/2006	3%	2.0E-02 - 8.0E-02	5.7E-02	nc	N	Maximum detected values does not exceed screening value.	
	Nickel		ug/l	1.5E-01	1.9E+00	W033	1/1/2007	86%	2.0E-01 - 9.9E-01	7.3E+01	nc	N	Maximum detected values does not exceed screening value.	
	Selenium		ug/l	1.0E-01	1.0E+00	W002	3/4/2005	58%	1.0E-01 - 6.0E-01	1.8E+01	nc	N	Maximum detected values does not exceed screening value.	
	Silver		ug/l	6.8E-03	6.1E-02	W002	7/5/2005	2%	3.0E-03 - 5.2E-02	1.8E+01	nc	N	Maximum detected values does not exceed screening value.	
	Thallium	f	ug/l	4.0E-03	3.2E-02	W015	11/29/2004	16%	4.0E-03 - 4.0E-03	2.0E+00	NL	N	Maximum detected values does not exceed screening value.	
	Zinc		ug/l	9.0E-01	5.8E+01	W022	12/2/2004	74%	6.0E-01 - 6.0E+00	1.1E+03	nc	N	Maximum detected values does not exceed screening value.	
	<b>Butyltins</b>													
	Butyltin ion	g	ug/l	1.5E-03	3.0E-02	W023	1/1/2007	11%	1.7E-03 - 4.0E-02	1.1E+00	nc	N	Maximum detected values does not exceed screening value.	
	Dibutyltin ion	g	ug/l	6.1E-04	7.3E-03	W009	12/1/2004	14%	5.5E-04 - 2.5E-02	1.1E+00	nc	N	Maximum detected values does not exceed screening value.	
	Tributyltin ion	g	ug/l	6.5E-04	2.8E-03	W035	1/1/2007	9%	6.0E-04 - 1.4E-02	1.1E+00	nc	N	Maximum detected values does not exceed screening value.	
	<b>Polynuclear Aromatic Hydrocarbons</b>													
	2-Methylnaphthalene		ug/l	1.2E-03	3.2E-01	W031	1/1/2007	30%	2.7E-03 - 3.4E-02	1.5E+01	nc	N	Maximum detected values does not exceed screening value.	
	Acenaphthene		ug/l	2.1E-04	2.1E-01	W012	7/15/2005	33%	2.0E-03 - 1.6E-02	2.2E+02	nc	N	Maximum detected values does not exceed screening value.	
	Acenaphthylene	h	ug/l	2.8E-04	4.3E-02	W012	7/15/2005	32%	2.1E-04 - 2.7E-02	2.2E+02	nc	N	Maximum detected values does not exceed screening value.	
	Anthracene		ug/l	2.9E-04	2.4E-01	W031	1/1/2007	22%	1.6E-04 - 1.5E-02	1.1E+03	nc	N	Maximum detected values does not exceed screening value.	
	Benzo(a)anthracene		ug/l	5.2E-05	1.4E-01	W031	1/1/2007	37%	3.4E-04 - 8.4E-03	2.9E-02	ca	Y	Maximum detected value exceeds screening value.	
	Benzo(a)pyrene		ug/l	1.8E-05	1.5E-01	W012	7/15/2005	33%	6.1E-04 - 8.6E-03	2.9E-03	ca	Y	Maximum detected value exceeds screening value.	
	Benzo(b)fluoranthene		ug/l	2.4E-05	1.1E-01	W012	7/15/2005	34%	2.0E-03 - 9.2E-03	2.9E-02	ca	Y	Maximum detected value exceeds screening value.	
	Benzo(g,h,i)perylene	i	ug/l	7.5E-05	1.4E-01	W012	7/15/2005	30%	3.3E-04 - 1.5E-02	1.1E+02	nc	N	Maximum detected values does not exceed screening value.	
	Benzo(k)fluoranthene		ug/l	1.6E-05	1.0E-01	W012	7/15/2005	34%	1.4E-03 - 1.1E-02	2.9E-01	ca	N	Maximum detected values does not exceed screening value.	
	Chrysene		ug/l	9.5E-05	1.9E-01	W012	7/15/2005	47%	1.3E-03 - 1.1E-02	2.9E+00	ca	N	Maximum detected values does not exceed screening value.	
	Dibenzo(a,h)anthracene		ug/l	2.6E-05	1.4E-02	W031	1/1/2007	15%	4.3E-05 - 7.2E-03	2.9E-03	ca	Y	Maximum detected value exceeds screening value.	
	Fluoranthene		ug/l	5.1E-04	4.1E-01	W031	1/1/2007	59%	2.4E-03 - 1.9E-02	1.5E+02	nc	N	Maximum detected values does not exceed screening value.	
	Fluorene		ug/l	3.7E-04	1.6E-01	W031	1/1/2007	33%	2.6E-03 - 1.1E-02	1.5E+02	nc	N	Maximum detected values does not exceed screening value.	
	Indeno(1,2,3-cd)pyrene		ug/l	1.6E-04	1.1E-01	W012	7/15/2005	29%	1.5E-04 - 8.4E-03	2.9E-02	ca	Y	Maximum detected value exceeds screening value.	
	Naphthalene		ug/l	7.4E-04	7.7E-01	W012	12/2/2004	13%	3.2E-03 - 9.9E-02	1.4E-01	ca	Y	Maximum detected value exceeds screening value.	
	Phenanthrene	i	ug/l	7.9E-04	1.1E+00	W031	1/1/2007	32%	2.2E-03 - 1.7E-02	1.1E+02	nc	N	Maximum detected values does not exceed screening value.	
	Pyrene		ug/l	4.3E-04	6.5E-01	W031	1/1/2007	62%	1.5E-03 - 2.8E-02	1.1E+02	nc	N	Maximum detected values does not exceed screening value.	
	<b>Phthalates</b>													
	Bis(2-ethylhexyl) phthalate		ug/l	7.8E-03	3.6E+00	W005	11/1/2006	15%	4.3E-03 - 4.1E+00	4.8E+00	ca	N	Maximum detected values does not exceed screening value.	
	Butylbenzyl phthalate		ug/l	8.9E-04	1.2E-01	W025	9/1/2006	20%	5.1E-04 - 7.3E-02	3.5E+01	ca	N	Maximum detected values does not exceed screening value.	
	Dibutyl phthalate		ug/l	1.5E-03	1.5E-01	W029	1/1/2007	6%	9.8E-04 - 3.0E-01	3.7E+02	nc	N	Maximum detected values does not exceed screening value.	

Table 2-13  
Occurrence, Distribution and Selection of Chemicals of Potential Concern - Surface Water, Direct Contact With Divers

Scenario Timeframe: Current/Future  
Medium: Water  
Exposure Medium: Surface Water, Direct Contact With Divers

Exposure Point	Chemical <sup>a</sup>	Notes	Units	Minimum Detected Concentration	Maximum Detected Concentration	Location of Maximum Concentration	Date of Maximum Concentration	Detection Frequency	Range of Detection Limits <sup>b</sup>	Concentration Used for Screening <sup>c</sup>	Screening Toxicity Value	COPC Flag (Y/N)	Rationale for Selection or Deletion
	Diethyl phthalate		ug/l	1.2E-03	1.7E-01	W005	11/1/2006	15%	6.7E-04 - 1.4E-01	2.9E+03	nc	N	Maximum detected values does not exceed screening value.
	Dimethyl phthalate	j	ug/l	4.8E-03	4.8E-03	W015	11/30/2004	1%	2.6E-04 - 1.5E-02	3.7E+04	nc	N	Maximum detected values does not exceed screening value.
	Di-n-octyl phthalate	k	ug/l	1.4E-04	1.7E-02	W034	1/1/2007	2%	1.1E-04 - 3.6E-02	2.9E+03	nc	N	Maximum detected values does not exceed screening value.
	<b>Phenols</b>												
	4-Chloro-3-methylphenol		ug/l	2.3E-02	6.5E-01	W003	3/4/2005	8%	2.9E-02 - 6.8E-01	3.7E+02	nc	N	Maximum detected values does not exceed screening value.
	Phenol		ug/l	1.6E-02	2.0E-01	W033	1/1/2007	9%	2.0E-02 - 3.3E-01	1.1E+03	nc	N	Maximum detected values does not exceed screening value.
	<b>Polychlorinated Biphenyls</b>												
	Total PCB Congeners	l	pg/l	1.1E+02	1.2E+04	W013-1	3/1/2005	100%	NA - NA	3.4E+04	ca	N	Maximum detected values does not exceed screening value.
	<b>Dioxin/Furan</b>												
	Total Dioxin/Furan TEQ	m	pg/l	3.1E-02	5.0E-01	W015	11/30/2004	100%	NA - NA	5.2E-01	ca	N	Maximum detected values does not exceed screening value.
	Total PCB TEQ	m	pg/l	1.6E-03	8.5E-02	W005	9/1/2006	100%	NA - NA	5.2E-01	ca	N	Maximum detected values does not exceed screening value.
	<b>Pesticides</b>												
	Aldrin		ug/l	3.0E-07	4.1E-03	W030	1/1/2007	41%	3.4E-07 - 1.8E-03	4.0E-03	ca	Y	Maximum detected value exceeds screening value.
	alpha-Hexachlorocyclohexane		ug/l	3.8E-06	2.0E-04	W026	11/1/2006	47%	6.0E-05 - 5.4E-04	1.1E-02	ca	N	Maximum detected values does not exceed screening value.
	beta-Hexachlorocyclohexane		ug/l	1.7E-06	3.6E-04	W026	1/1/2007	37%	3.5E-06 - 1.9E-03	3.7E-02	ca	N	Maximum detected values does not exceed screening value.
	delta-Hexachlorocyclohexane	n	ug/l	6.3E-07	1.7E-03	W013-1	11/8/2004	22%	4.2E-07 - 9.8E-04	NL	NL	Y	Analyte detected and no screening value or surrogate exists.
	Dieldrin		ug/l	1.7E-05	7.0E-04	W028	1/1/2007	45%	4.0E-04 - 5.4E-04	4.2E-03	ca	N	Maximum detected values does not exceed screening value.
	Endrin		ug/l	1.7E-07	1.7E-04	W038	11/1/2006	13%	4.6E-07 - 7.4E-04	1.1E+00	nc	N	Maximum detected values does not exceed screening value.
	Endrin aldehyde	o	ug/l	2.1E-04	9.1E-04	W036	1/1/2007	4%	1.4E-07 - 5.4E-04	1.1E+00	nc	N	Maximum detected values does not exceed screening value.
	Endrin ketone	o	ug/l	3.4E-07	2.0E-04	W036	11/1/2006	30%	4.0E-07 - 5.4E-04	1.1E+00	nc	N	Maximum detected values does not exceed screening value.
	gamma-Hexachlorocyclohexane		ug/l	7.2E-06	1.1E-03	W026	1/1/2007	49%	1.2E-04 - 5.6E-04	6.1E-02	ca	N	Maximum detected values does not exceed screening value.
	Heptachlor		ug/l	1.3E-07	1.6E-03	W030	1/1/2007	15%	6.9E-08 - 2.2E-03	1.5E-02	ca	N	Maximum detected values does not exceed screening value.
	Heptachlor epoxide		ug/l	2.1E-06	7.1E-05	W037	1/1/2007	42%	6.8E-06 - 5.4E-04	7.4E-03	ca	N	Maximum detected values does not exceed screening value.
	Methoxychlor		ug/l	9.2E-07	1.1E-02	W013-2	11/9/2004	27%	1.3E-06 - 1.6E-03	1.8E+01	nc	N	Maximum detected values does not exceed screening value.
	Total Chlordanes		ug/l	1.4E-05	2.9E-03	W002	7/5/2005	47%	4.7E-04 - 1.9E-03	1.9E-01	ca	N	Maximum detected values does not exceed screening value.
	Total DDD	p	ug/l	1.5E-05	5.2E-03	W015	11/30/2004	47%	4.7E-04 - 1.4E-03	2.8E-01	ca	N	Maximum detected values does not exceed screening value.
	Total DDE	q	ug/l	1.7E-05	7.5E-04	W016-1	7/18/2005	49%	2.6E-04 - 7.8E-04	2.0E-01	ca	N	Maximum detected values does not exceed screening value.
	Total DDT	r	ug/l	1.6E-06	1.9E-02	W001	3/4/2005	53%	4.1E-04 - 1.1E-03	2.0E-01	ca	N	Maximum detected values does not exceed screening value.
	Total Endosulfan		ug/l	1.5E-05	1.2E-03	W013-1	11/8/2004	50%	3.1E-04 - 5.4E-04	2.2E+01	nc	N	Maximum detected values does not exceed screening value.
	<b>SVOCs</b>												
	1,4-Dichlorobenzene		ug/l	1.9E-02	1.9E-02	W022	12/2/2004	1%	1.4E-02 - 1.5E-02	4.3E-01	ca	N	Maximum detected values does not exceed screening value.
	4-Chloroaniline		ug/l	1.3E-02	1.3E-02	W023	1/1/2007	1%	1.8E-02 - 2.0E-02	3.4E-01	ca	N	Maximum detected values does not exceed screening value.
	Aniline		ug/l	1.2E+00	1.2E+00	W035	1/1/2007	1%	2.5E-01 - 1.2E+00	1.2E+01	ca	N	Maximum detected values does not exceed screening value.
	Benzoic acid		ug/l	1.2E+00	2.2E+00	W017	12/1/2004	9%	1.8E+00 - 2.1E+00	1.5E+04	nc	N	Maximum detected values does not exceed screening value.
	Carbazole	s	ug/l	2.4E-02	8.3E-02	W031	1/1/2007	3%	1.3E-02 - 1.5E-02	1.5E+02	nc	N	Maximum detected values does not exceed screening value.
	Dibenzofuran		ug/l	2.5E-02	2.5E-02	W031	1/1/2007	1%	5.7E-03 - 2.9E-02	3.7E+00	nc	N	Maximum detected values does not exceed screening value.
	Hexachlorobenzene		ug/l	1.3E-05	7.0E-03	W022	3/16/2005	37%	3.1E-04 - 1.6E-02	4.2E-02	ca	N	Maximum detected values does not exceed screening value.
	Hexachlorobutadiene		ug/l	1.1E-07	2.6E-03	W017	12/1/2004	23%	2.3E-07 - 2.2E-02	8.6E-01	ca	N	Maximum detected values does not exceed screening value.
	Isophorone		ug/l	7.1E-03	1.8E-02	W017	12/1/2004	3%	8.5E-03 - 9.5E-03	7.1E+01	ca	N	Maximum detected values does not exceed screening value.
	<b>Herbicides</b>												
	2,4-D		ug/l	4.7E-02	1.6E-01	W035	1/1/2007	4%	3.4E-02 - 2.1E-01	3.7E+01	nc	N	Maximum detected values does not exceed screening value.
	2,4-DB		ug/l	1.4E-01	2.1E-01	W025	9/1/2006	2%	4.0E-02 - 4.1E-01	2.9E+01	nc	N	Maximum detected values does not exceed screening value.
	Dalapon		ug/l	2.3E-01	2.6E-01	W036	1/1/2007	2%	1.8E-01 - 6.7E-01	1.1E+02	nc	N	Maximum detected values does not exceed screening value.
	MCPP		ug/l	5.2E+00	1.9E+01	W035	1/1/2007	4%	6.0E+00 - 1.2E+02	3.7E+00	nc	Y	Maximum detected value exceeds screening value.



**Table 2-13**  
**Occurrence, Distribution and Selection of Chemicals of Potential Concern - Surface Water, Direct Contact With Divers**

Scenario Timeframe: Current/Future
Medium: Water
Exposure Medium: Surface Water, Direct Contact With Divers

Exposure Point	Chemical <sup>a</sup>	Notes	Units	Minimum Detected Concentration	Maximum Detected Concentration	Location of Maximum Concentration	Date of Maximum Concentration	Detection Frequency	Range of Detection Limits <sup>b</sup>	Concentration Used for Screening <sup>c</sup>	Screening Toxicity Value	COPC Flag (Y/N)	Rationale for Selection or Deletion
	<b>Conventional</b> Perchlorate		ug/l	3.0E-01	1.6E+01	W016-2	11/30/2004	46%	- 2.0E-01 - 1.0E+00	2.6E+00	nc	Y	Maximum detected value exceeds screening value.

**Notes:** a Chemical list includes analytes detected in surface water samples determined to represent human health exposure to a diver from direct contact. Integrated samples have been averaged prior to screening. Benzo(j+k)fluoranthene is assumed to be entirely benzo(k)fluoranthene.

b For chemical mixtures, the range of detection limits listed is the maximum and minimum detection limit for individual isomers or congeners within the mixture.

c Screening concentrations and toxicity classifications are from EPA RSLs for tapwater (Nov 2010) unless otherwise noted. SLs for noncarcinogenic chemicals are divided by 10.

d EPA RSL for trivalent chromium used for chromium screening concentration.

e EPA action level for drinking water used for lead (May 2005). Screening level not divided by 10 for screening.

f EPA RSL was not available and a surrogate chemical could not be identified. Thallium MCL (May 2009) used as screening level.

g EPA RSL for tributyltin oxide (TBTO) used as surrogate.

h EPA RSL for acenaphthene used as surrogate.

i EPA RSL for pyrene used as surrogate.

j EPA Region 6 SL for tapwater (8 March 2008) used for Dimethyl phthalate.

k EPA RSL for diethyl phthalate used as surrogate.

l EPA RSL for PCBs as Aroclor 1254 used for screening concentration.

m EPA RSL for 2,3,7,8-TCDD (Dioxin) used for screening concentration.

n A screening value was not available and a surrogate chemical could not be identified. Analyte is discussed qualitatively in text.

o EPA RSL for endrin used as surrogate.

p EPA RSL for DDD used for total DDD.

q EPA RSL for p,p'-DDE used for total DDE.

r EPA RSL for DDT used for total DDT.

s EPA RSL for fluorene used as surrogate.

**Abbreviations:** ca = Carcinogen.

COPC = Chemical of potential concern.

EPA = U.S. Environmental Protection Agency.

MCL = Maximum Contaminant Level.

N = No.

NA = Not applicable. Chemical detected at 100% frequency, or screening value does not exist for given chemical.

nc = Noncarcinogen.

NL = Not listed.

pg/l = Picograms per liter.

RSL = Regional screening level.

SVOCs = Semivolatile organic compounds.

TEQ = Toxicity equivalent.

ug/l = Micrograms per liter.

Y = Yes.

**Table 2-14**  
Occurrence, Distribution, and Selection of Chemicals of Potential Concern - Surface Water, Direct Contact With Transients or Beach Users

Scenario Timeframe: Current/Future  
Medium: Water  
Exposure Medium: Surface Water, Direct Contact With Transients or Beach Users

Exposure Point	Chemical <sup>a</sup>	Notes	Units	Minimum Detected Concentration	Maximum Detected Concentration	Location of Maximum Concentration	Date of Maximum Concentration	Detection Frequency	Range of Detection Limits <sup>b</sup>	Concentration Used for Screening <sup>c</sup>	Screening Toxicity Value	COPC Flag (Y/N)	Rationale for Selection or Deletion
Study Area-wide	<b>Metals</b>												
	Aluminum		ug/l	1.5E+00	1.9E+03	W023	Jan-06	83%	2.0E+00 - 5.0E+00	3.7E+03	nc	N	Maximum detected values does not exceed screening value.
	Antimony		ug/l	1.7E-02	6.3E-02	W025	Sep-06	55%	2.0E-02 - 5.0E-02	1.5E+00	nc	N	Maximum detected values does not exceed screening value.
	Arsenic		ug/l	2.0E-01	6.0E-01	W025	Sep-06	87%	3.8E-01 - 5.1E-01	4.5E-02	ca	Y	Maximum detected value exceeds screening value.
	Cadmium		ug/l	2.0E-02	3.0E-02	W005, W011, W014, W020, W023	Jul-05, Mar-05/ Jul-05, Dec-04, Dec-04/ Jul-05, Jul-05	16%	2.0E-03 - 5.1E-02	1.8E+00	nc	N	Maximum detected values does not exceed screening value.
	Chromium	d	ug/l	1.2E-01	1.6E+00	W023	Jan-06	58%	1.4E-01 - 4.3E-01	5.5E+03	nc	N	Maximum detected values does not exceed screening value.
	Chromium hexavalent		ug/l	9.0E-01	9.0E-01	W011	Nov-06	33%	6.0E-01 - 2.0E+01	4.3E-02	ca	Y	Maximum detected value exceeds screening value.
	Copper		ug/l	4.5E-01	3.7E+00	W023	Jan-06	100%	NA - NA	1.5E+02	nc	N	Maximum detected values does not exceed screening value.
	Lead	e	ug/l	8.0E-03	8.6E-01	W023	Jan-06	90%	8.0E-03 - 4.6E-02	1.5E+01	NA	N	Maximum detected values does not exceed screening value.
	Mercury		ug/l	1.3E-02	2.3E-02	W023	Nov-06	10%	2.0E-02 - 8.0E-02	5.7E-02	nc	N	Maximum detected value does not exceed screening value.
	Nickel		ug/l	4.0E-01	1.9E+00	W023	Jan-06	87%	2.0E-01 - 9.6E-01	7.3E+01	nc	N	Maximum detected value does not exceed screening value.
	Selenium		ug/l	1.0E-01	7.0E-01	W023	Mar-05	56%	1.0E-01 - 4.0E-01	1.8E+01	nc	N	Maximum detected value does not exceed screening value.
	Silver		ug/l	8.8E-03	2.5E-02	W005	Nov-04	3%	3.0E-03 - 5.2E-02	1.8E+01	nc	N	Maximum detected value does not exceed screening value.
	Thallium	f	ug/l	2.5E-02	2.5E-02	W005	Nov-04	13%	4.0E-03 - 4.0E-03	2.0E+00	NL	N	Maximum detected value does not exceed screening value.
	Zinc		ug/l	1.4E+00	6.4E+00	W023	Jan-06	69%	7.7E-01 - 4.1E+00	1.1E+03	nc	N	Maximum detected value does not exceed screening value.
	<b>Butyltins</b>												
	Butyltin ion	g	ug/l	1.5E-03	3.0E-02	W023	Jan-07	16%	1.7E-03 - 3.8E-02	1.1E+00	nc	N	Maximum detected value does not exceed screening value.
	Dibutyltin ion	g	ug/l	7.8E-04	1.0E-03	W020, W023	Jul-05, Mar-05	13%	5.5E-04 - 2.5E-02	1.1E+00	nc	N	Maximum detected value does not exceed screening value.
	Tributyltin ion	g	ug/l	6.5E-04	6.5E-04	W011	Nov-06	3%	6.0E-04 - 1.4E-02	1.1E+00	nc	N	Maximum detected value does not exceed screening value.
	<b>Polynuclear Aromatic Hydrocarbons</b>												
	2-Methylnaphthalene		ug/l	1.2E-03	2.4E-02	W023	Mar-05	41%	2.7E-03 - 1.1E-02	1.5E+01	nc	N	Maximum detected value does not exceed screening value.
	Acenaphthene		ug/l	2.1E-04	6.0E-03	W005	Jan-06	46%	2.0E-03 - 8.0E-03	2.2E+02	nc	N	Maximum detected value does not exceed screening value.
	Acenaphthylene	h	ug/l	2.8E-04	9.1E-03	W023	Nov-04	34%	2.2E-04 - 8.5E-03	2.2E+02	nc	N	Maximum detected value does not exceed screening value.
	Anthracene		ug/l	3.5E-04	2.0E-03	W011	Jul-05	20%	1.6E-04 - 7.8E-03	1.1E+03	nc	N	Maximum detected value does not exceed screening value.
	Benzo(a)anthracene		ug/l	5.2E-05	1.0E-02	W011, W023	Nov-04, Nov-04	50%	2.1E-03 - 7.8E-03	2.9E-02	ca	N	Maximum detected value does not exceed screening value.
	Benzo(a)pyrene		ug/l	2.6E-05	2.1E-03	W005	Sep-06	45%	1.6E-03 - 8.6E-03	2.9E-03	ca	N	Maximum detected value does not exceed screening value.
	Benzo(b)fluoranthene		ug/l	2.4E-05	2.1E-03	W005	Jan-06	46%	2.0E-03 - 9.2E-03	2.9E-02	ca	N	Maximum detected value does not exceed screening value.
	Benzo(g,h,i)perylene	i	ug/l	7.5E-05	1.0E-02	W023M	Mar-07	45%	3.3E-04 - 1.5E-02	1.1E+02	nc	N	Maximum detected value does not exceed screening value.
	Benzo(k)fluoranthene		ug/l	1.6E-05	6.7E-03	W011	Nov-04	48%	1.4E-03 - 1.1E-02	2.9E-01	ca	N	Maximum detected value does not exceed screening value.
	Chrysene		ug/l	9.5E-05	7.7E-03	W011	Nov-04	52%	1.3E-03 - 1.1E-02	2.9E+00	ca	N	Maximum detected value does not exceed screening value.
	Dibenzo(a,h)anthracene		ug/l	2.6E-05	4.5E-04	W023	Nov-06	18%	4.3E-05 - 7.2E-03	2.9E-03	ca	N	Maximum detected value does not exceed screening value.
	Fluoranthene		ug/l	5.1E-04	2.0E-02	W020	Jul-05	70%	2.4E-03 - 9.6E-03	1.5E+02	nc	N	Maximum detected value does not exceed screening value.
	Fluorene		ug/l	3.7E-04	3.9E-03	W005	Jan-06	46%	2.6E-03 - 1.1E-02	1.5E+02	nc	N	Maximum detected value does not exceed screening value.
	Indeno(1,2,3-cd)pyrene		ug/l	1.6E-04	8.6E-03	W023M	Mar-07	36%	1.5E-04 - 8.4E-03	2.9E-02	ca	N	Maximum detected value does not exceed screening value.
	Naphthalene		ug/l	1.0E-03	3.5E-02	W023	Mar-05	11%	3.6E-03 - 9.1E-02	1.4E-01	ca	N	Maximum detected value does not exceed screening value.
	Phenanthrene	i	ug/l	7.9E-04	7.3E-03	W020	Jul-05	45%	2.2E-03 - 1.3E-02	1.1E+02	nc	N	Maximum detected value does not exceed screening value.
	Pyrene		ug/l	4.3E-04	1.5E-02	W005	Sep-06	68%	2.3E-03 - 9.4E-03	1.1E+02	nc	N	Maximum detected value does not exceed screening value.
	<b>Phthalates</b>												
	Bis(2-ethylhexyl) phthalate		ug/l	9.1E-03	3.6E+00	W005	Nov-06	28%	4.3E-03 - 4.0E+00	4.8E+00	ca	N	Maximum detected value does not exceed screening value.
	Butylbenzyl phthalate		ug/l	1.2E-03	1.2E-01	W025	Sep-06	25%	6.4E-04 - 6.7E-02	3.5E+01	ca	N	Maximum detected value does not exceed screening value.
	Dibutyl phthalate		ug/l	1.5E-03	2.0E-03	W011	Jul-05	8%	1.0E-03 - 2.2E-01	3.7E+02	nc	N	Maximum detected value does not exceed screening value.
	Diethyl phthalate		ug/l	2.1E-03	1.7E-01	W005	Nov-06	20%	6.7E-04 - 1.4E-01	2.9E+03	nc	N	Maximum detected value does not exceed screening value.
	Di-n-octyl phthalate	j	ug/l	7.1E-03	7.1E-03	W023	Nov-06	3%	1.1E-04 - 3.6E-02	2.9E+03	nc	N	Maximum detected value does not exceed screening value.
	<b>Phenols</b>												
	4-Chloro-3-methylphenol		ug/l	2.3E-02	7.5E-02	W020	Jul-05	10%	2.9E-02 - 1.5E-01	3.7E+02	nc	N	Maximum detected value does not exceed screening value.
Phenol		ug/l	1.6E-02	6.7E-02	W023	Jul-05	16%	2.0E-02 - 3.3E-02	1.1E+03	nc	N	Maximum detected value does not exceed screening value.	
<b>Polychlorinated Biphenyls</b>													
Total PCB Congeners	k	pg/l	1.1E+02	8.1E+02	W011	Sep-06	100%	NA - NA	3.4E+04	ca	N	Maximum detected value does not exceed screening value.	
<b>Dioxin/Furan</b>													
Total Dioxin/Furan TEQ	l	pg/l	3.1E-02	3.3E-01	W005	Jul-05	100%	NA - NA	5.2E-01	ca	N	Maximum detected value does not exceed screening value.	
Total PCB TEQ	l	pg/l	1.6E-03	8.5E-02	W005	Sep-06	100%	NA - NA	5.2E-01	ca	N	Maximum detected value does not exceed screening value.	
<b>Pesticides</b>													
Aldrin		ug/l	3.0E-07	4.7E-06	W005	Sep-06	77%	3.4E-07 - 5.1E-04	4.0E-03	ca	N	Maximum detected value does not exceed screening value.	
alpha-Hexachlorocyclohexane		ug/l	8.5E-06	8.2E-05	W023	Jul-05	83%	4.8E-04 - 5.1E-04	1.1E-02	ca	N	Maximum detected value does not exceed screening value.	
beta-Hexachlorocyclohexane		ug/l	1.7E-06	9.4E-06	W023	Jul-05	67%	3.5E-06 - 5.1E-04	3.7E-02	ca	N	Maximum detected value does not exceed screening value.	

**Table 2-14**  
Occurrence, Distribution, and Selection of Chemicals of Potential Concern - Surface Water, Direct Contact With Transients or Beach Users

Scenario Timeframe: Current/Future  
Medium: Water  
Exposure Medium: Surface Water, Direct Contact With Transients or Beach Users

Exposure Point	Chemical <sup>a</sup>	Notes	Units	Minimum Detected Concentration	Maximum Detected Concentration	Location of Maximum Concentration	Date of Maximum Concentration	Detection Frequency	Range of Detection Limits <sup>b</sup>	Concentration Used for Screening <sup>c</sup>	Screening Toxicity Value	COPC Flag (Y/N)	Rationale for Selection or Deletion
	delta-Hexachlorocyclohexane	m	ug/l	7.7E-07	8.1E-04	W014	Dec-04	43%	4.2E-07 - 5.1E-04	NL	NL	Y	Analyte detected and no screening value or surrogate exists.
	Dieldrin		ug/l	1.7E-05	3.8E-04	W005	Jan-06	83%	4.8E-04 - 5.1E-04	4.2E-03	ca	N	Maximum detected value does not exceed screening value.
	Endrin		ug/l	1.7E-07	2.1E-06	W023	Nov-06	30%	4.6E-07 - 5.1E-04	1.1E+00	nc	N	Maximum detected value does not exceed screening value.
	Endrin ketone	n	ug/l	3.4E-07	3.6E-06	W005	Jan-06	57%	4.0E-07 - 5.1E-04	1.1E+00	nc	N	Maximum detected value does not exceed screening value.
	gamma-Hexachlorocyclohexane		ug/l	8.6E-06	3.5E-05	W005	Sep-06	83%	4.8E-04 - 5.1E-04	6.1E-02	ca	N	Maximum detected value does not exceed screening value.
	Heptachlor		ug/l	1.3E-07	7.5E-07	W005	Nov-06	23%	9.5E-08 - 5.1E-04	1.5E-02	ca	N	Maximum detected value does not exceed screening value.
	Heptachlor epoxide		ug/l	2.1E-06	2.5E-05	W023	Jan-06	83%	4.8E-04 - 5.1E-04	7.4E-03	ca	N	Maximum detected value does not exceed screening value.
	Methoxychlor		ug/l	9.2E-07	1.5E-05	W023	Sep-06	60%	1.5E-06 - 5.1E-04	1.8E+01	nc	N	Maximum detected value does not exceed screening value.
	Total Chlordanes		ug/l	1.4E-05	9.2E-05	W005	Jan-07	83%	4.8E-04 - 5.1E-04	1.9E-01	ca	N	Maximum detected value does not exceed screening value.
	Total DDD	o	ug/l	1.5E-05	3.0E-04	W005	Sep-06	83%	4.8E-04 - 5.1E-04	2.8E-01	ca	N	Maximum detected value does not exceed screening value.
	Total DDE	p	ug/l	1.7E-05	2.0E-04	W005	Jan-06	83%	4.8E-04 - 5.1E-04	2.0E-01	ca	N	Maximum detected value does not exceed screening value.
	Total DDT	q	ug/l	3.8E-06	3.4E-04	W023	Jan-06	83%	4.8E-04 - 5.1E-04	2.0E-01	ca	N	Maximum detected value does not exceed screening value.
	Total Endosulfan		ug/l	6.1E-05	6.1E-04	W005	Jan-06	83%	4.8E-04 - 5.1E-04	2.2E+01	nc	N	Maximum detected value does not exceed screening value.
	<b>SVOCs</b>												
	4-Chloroaniline		ug/l	1.3E-02	1.3E-02	W023	Jan-07	3%	1.8E-02 - 2.0E-02	3.4E-01	ca	N	Maximum detected value does not exceed screening value.
	Benzoic acid		ug/l	1.2E+00	1.3E+00	W025	Jan-07	10%	1.8E+00 - 2.0E+00	1.5E+04	nc	N	Maximum detected value does not exceed screening value.
	Hexachlorobenzene		ug/l	1.6E-05	7.3E-05	W023	Mar-05	45%	4.8E-04 - 1.6E-02	4.2E-02	ca	N	Maximum detected value does not exceed screening value.
	Hexachlorobutadiene		ug/l	5.7E-07	4.1E-06	W025	Sep-06	29%	2.3E-07 - 2.2E-02	8.6E-01	ca	N	Maximum detected value does not exceed screening value.
	Isophorone		ug/l	7.1E-03	1.3E-02	W023M	Mar-07	6%	8.5E-03 - 9.5E-03	7.1E+01	ca	N	Maximum detected value does not exceed screening value.
	<b>Herbicides</b>												
	2,4-D		ug/l	5.2E-02	1.4E-01	W005	Nov-04	6%	3.4E-02 - 5.9E-02	3.7E+01	nc	N	Maximum detected value does not exceed screening value.
	2,4-DB		ug/l	1.4E-01	2.1E-01	W025	Sep-06	7%	4.1E-02 - 4.0E-01	2.9E+01	nc	N	Maximum detected value does not exceed screening value.
	MCPP		ug/l	8.0E+00	9.1E+00	W005	Sep-06	7%	6.0E+00 - 1.1E+02	3.7E+00	nc	Y	Maximum detected value exceeds screening value.

- Notes:** a Chemical list includes analytes detected in surface water samples determined to represent human health exposure from direct contact. Integrated samples have been averaged prior to screening. Benzo(j+k)fluoranthene is assumed to be entirely benzo(k)fluoranthene.  
b For chemical mixtures, the range of detection limits listed is the maximum and minimum detection limit for individual isomers or congeners within the mixture.  
c Screening concentrations and toxicity classifications are from EPA RSLs for tapwater (Nov 2010) unless otherwise noted. SLs for noncarcinogenic chemicals are divided by 10.  
d EPA RSL for trivalent chromium used for chromium screening concentration.  
e EPA MCL for tapwater used for lead. Screening level not divided by 10 for screening.  
f Regional screening value was not available and a surrogate chemical could not be identified. Thallium MCL used as screening level.  
g EPA RSL for tributyltin oxide (TBTO) used as surrogate.  
h EPA RSL for acenaphthene used as surrogate.  
i EPA RSL for pyrene used as surrogate.  
j EPA RSL for diethyl phthalate used as surrogate.  
k EPA RSL for PCBs as Aroclor 1254 used for screening concentration.  
l EPA RSL for 2,3,7,8-TCDD (Dioxin) used for screening concentration.  
m A screening value was not available and a surrogate chemical could not be identified. Analyte is discussed qualitatively in text.  
n EPA RSL for endrin used as surrogate.  
o EPA RSL for DDD used for total DDD.  
p EPA RSL for p,p'-DDE used for total DDE.  
q EPA RSL for DDT used for total DDT.

- Abbreviations:** ca = Carcinogen.  
CAS = Chemical Abstract Services.  
COPC = Chemical of potential concern.  
EPA = U.S. Environmental Protection Agency.  
MCL = Maximum Contaminant Level. National Primary Drinking Water Regulations. EPA 2010.  
N = No.  
NA = Not applicable. Chemical detected at 100% frequency, or screening value does not exist for given chemical.  
nc = Noncarcinogen.  
NL = Not listed.  
pg/l = Picograms per liter.  
RSL = Regional screening level.  
SVOC = Semivolatile organic compound.  
TEQ = Toxicity equivalent.  
ug/l = Micrograms per liter.  
Y = Yes.

**Table 2-15**  
**Occurrence, Distribution, and Selection of Chemicals of Potential Concern - Groundwater Seep**

Scenario Timeframe:	Current/Future
Medium:	Groundwater
Exposure Medium:	Groundwater Seep <sup>a</sup>

Exposure Point	CAS Number	Chemical <sup>b</sup>	Notes	Units	Minimum Detected Concentration	Maximum Detected Concentration	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening <sup>c</sup>	Screening Toxicity Value <sup>c</sup> (nc/ca)	COPC Flag (Y/N)	Rationale for Selection or Deletion
Outfall 22B	<b>Metals</b>												
	7429-90-5	Aluminum		ug/l	1.7E+02	1.7E+02	Outfall 22B	100%	NA - NA	3.7E+03	nc	N	Maximum detected value does not exceed screening value.
	7440-36-0	Antimony		ug/l	1.0E+00	1.0E+00	Outfall 22B	100%	NA - NA	1.5E+00	nc	N	Maximum detected value does not exceed screening value.
	7440-38-2	Arsenic		ug/l	5.5E+00	8.1E+00	Outfall 22B	100%	NA - NA	4.5E-02	ca	Y	Maximum detected value exceeds screening value.
	7440-39-3	Barium		ug/l	4.5E+01	4.5E+01	Outfall 22B	100%	NA - NA	7.3E+02	nc	N	Maximum detected value does not exceed screening value.
	7440-42-8	Boron		ug/l	1.4E+03	1.4E+03	Outfall 22B	100%	NA - NA	7.3E+02	nc	Y	Maximum detected value exceeds screening value.
	7440-43-9	Cadmium		ug/l	1.2E-01	1.2E-01	Outfall 22B	33%	1.4E-01 - 1.4E-01	1.8E+00	nc	N	Maximum detected value does not exceed screening value.
	7440-47-3	Chromium	d	ug/l	1.2E+00	1.2E+00	Outfall 22B	33%	7.2E-01 - 1.3E+00	5.5E+03	nc	N	Maximum detected value does not exceed screening value.
	7440-50-8	Copper		ug/l	2.1E+00	1.2E+01	Outfall 22B	67%	7.9E-01 - 7.9E-01	1.5E+02	nc	N	Maximum detected value does not exceed screening value.
	7439-89-6	Iron		ug/l	1.6E+04	1.6E+04	Outfall 22B	100%	NA - NA	2.6E+03	nc	Y	Maximum detected value exceeds screening value.
	7439-92-1	Lead	e	ug/l	3.0E+00	5.1E+00	Outfall 22B	67%	2.2E-01 - 2.2E-01	1.5E+01	nc	N	Maximum detected value does not exceed screening value.
	7439-96-5	Manganese		ug/l	2.4E+03	2.4E+03	Outfall 22B	100%	NA - NA	8.8E+01	nc	Y	Maximum detected value exceeds screening value.
	7439-97-6	Mercury		ug/l	6.3E-03	6.3E-03	Outfall 22B	33%	1.1E-03 - 1.3E-01	5.7E-02	nc	N	Maximum detected value does not exceed screening value.
	7439-98-7	Molybdenum		ug/l	6.9E+02	6.9E+02	Outfall 22B	100%	NA - NA	1.8E+01	nc	Y	Maximum detected value exceeds screening value.
	7440-02-0	Nickel		ug/l	2.2E+00	2.6E+00	Outfall 22B	100%	NA - NA	7.3E+01	nc	N	Maximum detected value does not exceed screening value.
	7440-62-2	Vanadium		ug/l	2.3E+00	8.9E+00	Outfall 22B	100%	NA - NA	2.6E-01	nc	Y	Maximum detected value exceeds screening value.
	7440-66-6	Zinc		ug/l	2.3E+00	2.5E+01	Outfall 22B	100%	NA - NA	1.1E+03	nc	N	Maximum detected value does not exceed screening value.
	<b>Polynuclear Aromatic Hydrocarbons</b>												
	91-57-6	2-Methylnaphthalene		ug/l	2.4E-01	2.4E-01	Outfall 22B	50%	3.0E+00 - 3.0E+00	1.5E+01	nc	N	Maximum detected value does not exceed screening value.
	83-32-9	Acenaphthene		ug/l	2.3E-01	3.5E-01	Outfall 22B	100%	NA - NA	2.2E+02	nc	N	Maximum detected value does not exceed screening value.
	206-44-0	Fluoranthene		ug/l	1.3E-01	1.3E-01	Outfall 22B	50%	1.5E-01 - 1.5E-01	1.5E+02	nc	N	Maximum detected value does not exceed screening value.
	91-20-3	Naphthalene		ug/l	1.3E-01	1.3E-01	Outfall 22B	50%	9.9E-02 - 9.9E-02	1.4E-01	ca	N	Maximum detected value does not exceed screening value.
	85-01-8	Phenanthrene	f	ug/l	1.4E-01	1.8E-01	Outfall 22B	100%	NA - NA	1.1E+02	nc	N	Maximum detected value does not exceed screening value.
	129-00-0	Pyrene		ug/l	1.0E-01	1.0E-01	Outfall 22B	50%	1.5E-01 - 1.5E-01	1.1E+02	nc	N	Maximum detected value does not exceed screening value.
	<b>SVOCs</b>												
	95-50-1	1,2-Dichlorobenzene		ug/l	7.7E-01	8.6E-01	Outfall 22B	100%	NA - NA	3.7E+01	nc	N	Maximum detected value does not exceed screening value.
	106-46-7	1,4-Dichlorobenzene		ug/l	9.6E-01	1.2E+00	Outfall 22B	100%	NA - NA	4.3E-01	ca	Y	Maximum detected value exceeds screening value.
	<b>Phenols</b>												
	95-95-4	2,4,5-Trichlorophenol		ug/l	5.6E-01	5.6E-01	Outfall 22B	50%	5.0E+00 - 5.0E+00	3.7E+02	nc	N	Maximum detected value does not exceed screening value.
	88-06-2	2,4,6-Trichlorophenol		ug/l	4.5E-01	4.5E-01	Outfall 22B	50%	5.0E+00 - 5.0E+00	6.1E+00	ca	N	Maximum detected value does not exceed screening value.
	120-83-2	2,4-Dichlorophenol		ug/l	1.1E+01	1.6E+01	Outfall 22B	100%	NA - NA	1.1E+01	nc	Y	Maximum detected value exceeds screening value.
	105-67-9	2,4-Dimethylphenol		ug/l	1.4E+00	1.4E+00	Outfall 22B	50%	1.0E+01 - 1.0E+01	7.3E+01	nc	N	Maximum detected value does not exceed screening value.
	95-57-8	2-Chlorophenol		ug/l	1.2E+00	1.2E+00	Outfall 22B	50%	5.0E+00 - 5.0E+00	1.8E+01	nc	N	Maximum detected value does not exceed screening value.
	95-48-7	2-Methylphenol		ug/l	5.2E+00	5.2E+00	Outfall 22B	50%	2.4E-01 - 2.4E-01	1.8E+02	nc	N	Maximum detected value does not exceed screening value.
	100-02-7	4-Nitrophenol	g	ug/l	5.7E-01	5.7E-01	Outfall 22B	50%	1.0E+01 - 1.0E+01	1.2E-01	ca	Y	Maximum detected value exceeds screening value.
	87-86-5	Pentachlorophenol		ug/l	1.6E-01	1.6E-01	Outfall 22B	50%	5.0E+00 - 5.0E+00	1.7E-01	ca	N	Maximum detected value does not exceed screening value.
	<b>Dioxin/Furans</b>												
		Dioxin TEQ	h	ug/l	4.2E-08	4.2E-08	Outfall 22B	50%	1.1E-08 - 1.1E-08	5.2E-07	ca	N	Maximum detected value does not exceed screening value.
	<b>Pesticides</b>												
	309-00-2	Aldrin		ug/l	4.1E-03	4.1E-03	Outfall 22B	50%	5.0E-02 - 5.0E-02	4.0E-03	ca	Y	Maximum detected value exceeds screening value.
1024-57-3	Heptachlor epoxide		ug/l	7.1E-03	7.1E-03	Outfall 22B	50%	5.0E-02 - 5.0E-02	7.4E-03	ca	N	Maximum detected value does not exceed screening value.	
	Total DDE	i	ug/l	9.0E-03	9.0E-03	Outfall 22B	50%	5.0E-02 - 5.0E-02	2.0E-01	ca	N	Maximum detected value does not exceed screening value.	

**Table 2-15**  
**Occurrence, Distribution, and Selection of Chemicals of Potential Concern - Groundwater Seep**

Scenario Timeframe:	Current/Future
Medium:	Groundwater
Exposure Medium:	Groundwater Seep <sup>a</sup>

Exposure Point	CAS Number	Chemical <sup>b</sup>	Notes	Units	Minimum Detected Concentration	Maximum Detected Concentration	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening <sup>c</sup>	Screening Toxicity Value <sup>e</sup> (nc/ca)	COPC Flag (Y/N)	Rationale for Selection or Deletion
		<b>Herbicides</b>											
	93-76-5	2,4,5-T		ug/l	3.1E-01	3.1E-01	Outfall 22B	50%	1.4E+00 - 1.4E+00	3.7E+01	nc	N	Maximum detected value exceeds screening value.
	94-75-7	2,4-D		ug/l	5.9E-01	5.9E-01	Outfall 22B	50%	1.3E+00 - 1.3E+00	3.7E+01	nc	N	Maximum detected value does not exceed screening value.
	94-82-6	2,4-DB		ug/l	4.3E-01	4.3E-01	Outfall 22B	50%	1.9E+00 - 1.9E+00	2.9E+01	nc	N	Maximum detected value does not exceed screening value.
	1918-00-9	Dicamba		ug/l	1.5E+00	1.5E+00	Outfall 22B	50%	4.8E-02 - 4.8E-02	1.1E+02	nc	N	Maximum detected value does not exceed screening value.
	94-74-6	MCPA		ug/l	1.6E-01	1.6E-01	Outfall 22B	50%	1.3E+02 - 1.3E+02	1.8E+00	nc	N	Maximum detected value does not exceed screening value.
	93-65-2	MCPP		ug/l	6.9E-01	6.9E-01	Outfall 22B	50%	1.1E+02 - 1.1E+02	3.7E+00	nc	N	Maximum detected value does not exceed screening value.
		<b>VOCs</b>											
	67-64-1	Acetone		ug/l	3.0E+00	3.0E+00	Outfall 22B	50%	2.5E+00 - 2.5E+00	2.2E+03	nc	N	Maximum detected value exceeds screening value.
	71-43-2	Benzene		ug/l	1.9E-01	1.9E-01	Outfall 22B	50%	5.0E-01 - 5.0E-01	4.1E-01	ca	N	Maximum detected value does not exceed screening value.
	108-90-7	Chlorobenzene		ug/l	8.4E+00	9.2E+00	Outfall 22B	100%	NA - NA	9.1E+00	nc	Y	Maximum detected value exceeds screening value.
	75-09-2	Methylene chloride		ug/l	5.3E-01	5.3E-01	Outfall 22B	50%	4.5E-01 - 4.5E-01	4.8E+00	ca	N	Maximum detected value does not exceed screening value.
	127-18-4	Tetrachloroethene		ug/l	6.4E-01	6.4E-01	Outfall 22B	50%	5.0E-01 - 5.0E-01	1.1E-01	ca	Y	Maximum detected value exceeds screening value.
	79-01-6	Trichloroethene	j	ug/l	3.4E-01	3.4E-01	Outfall 22B	50%	5.0E-01 - 5.0E-01	2.8E-02	ca	Y	Maximum detected value exceeds screening value.

**Notes:**

- a Groundwater seep data represent groundwater that has seeped into holes of the outfall pipe at the given location.
- b Chemical list includes analytes detected in Outfall 22B samples in the site characterization and risk assessment (SCRA) dataset from the past 10 years that were not from stormwater sampling events.
- c Screening concentrations and toxicity classifications are from EPA RSLs for tap water (Nov 2010). SLs for noncarcinogenic chemicals are divided by 10.
- d EPA RSL for chromium III used as a surrogate for chromium.
- e EPA Region 6 SL for tap water used for lead. SL not divided by 10 for screening.
- f EPA RSL for pyrene used as surrogate.
- g EPA RSL for nitrobenzene used as surrogate.
- h EPA RSL for 2,3,7,8-TCDD (dioxin) used for screening concentration. Range of detection limits listed is for individual dioxin/furan isomers before TEQ adjustment.
- i EPA RSL for DDE used for total DDE. Range of detection limits listed is for individual DDE isomers.
- j The trichloroethene screening level was calculated consistent with the 2008 EPA Region 10 recommendations (EPA 2008a).

**Abbreviations:**

- ca = Carcinogen.
- CAS = Chemical Abstract Services.
- COPC = Chemical of potential concern.
- DEQ = Oregon Department of Environmental Quality.
- EPA = U.S. Environmental Protection Agency.
- N = No.
- NA = Not applicable. Chemical detected at 100% frequency.
- nc = Noncarcinogen.
- RBC = Risk-based concentration.
- RSL = Regional screening level.
- SVOC = Semivolatile organic compound.
- TEQ = Toxicity equivalent.
- ug/l = Micrograms per liter.
- VOC = Volatile organic compound.
- Y = Yes.

Table 2-16  
Occurrence, Distribution, and Selection of Chemicals of Potential Concern - Surface Water as a Potential Future Domestic Water Source

Scenario Timeframe: Potential Future
Medium: Water
Exposure Medium: Surface Water, Domestic Water Source

Exposure Point	Chemical <sup>a</sup>	Notes	Units	Minimum Detected Concentration	Maximum Detected Concentration	Location of Maximum Concentration	Date of Maximum Concentration	Detection Frequency	Range of Detection Limits <sup>b</sup>	EPA Tapwater SL <sup>c</sup>	MCL <sup>d</sup>	Screening Toxicity Value	COPC Flag (Y/N)	Rationale for Selection or Deletion	
Study Area-wide	<b>Metals</b>														
	Aluminum		ug/l	1.5E+00	1.9E+03	W023	Jan-06	9.1E-01	2.0E+00 - 5.0E+00	3.7E+03	NA	nc	N	Maximum detected values does not exceed screening value.	
	Antimony		ug/l	1.5E-02	6.3E-02	W025	Sep-06	4.5E-01	2.0E-02 - 5.0E-02	1.5E+00	6	nc	N	Maximum detected values does not exceed screening value.	
	Arsenic		ug/l	2.0E-01	6.0E-01	W025	Sep-06	8.4E-01	3.8E-01 - 5.1E-01	4.5E-02	10	ca	Y	Maximum detected value exceeds screening value.	
	Cadmium		ug/l	1.5E-02	3.0E-02	W032	Jan-07	1.4E-01	2.0E-03 - 5.1E-02	1.8E+00	5	nc	N	Maximum detected values does not exceed screening value.	
	Chromium	e	ug/l	1.0E-01	1.7E+00	W036	Jan-07	4.8E-01	1.3E-01 - 5.7E-01	5.5E+03	100	nc	N	Maximum detected values does not exceed screening value.	
	Chromium hexavalent		ug/l	5.0E-01	9.0E-01	W011	Nov-06	4.3E-01	6.0E-01 - 2.0E+01	4.3E-02	NA	ca	Y	Maximum detected value exceeds screening value.	
	Copper		ug/l	4.5E-01	3.7E+00	W023	Jan-06	1.0E+00	0.0E+00 - 0.0E+00	1.5E+02	1300	nc	N	Maximum detected values does not exceed screening value.	
	Lead		ug/l	8.0E-03	8.6E-01	W023	Jan-06	8.3E-01	8.0E-03 - 5.1E-02	NL	15	NA	N	Maximum detected values does not exceed screening value.	
	Mercury		ug/l	1.3E-02	2.5E-02	W031	Nov-06	7.0E-02	2.0E-02 - 8.0E-02	5.7E-02	2	nc	N	Maximum detected values does not exceed screening value.	
	Nickel		ug/l	1.5E-01	1.9E+00	W033	Jan-07	8.8E-01	2.0E-01 - 9.6E-01	7.3E+01	NA	nc	N	Maximum detected values does not exceed screening value.	
	Selenium		ug/l	1.0E-01	7.0E-01	W023	Mar-05	4.9E-01	1.0E-01 - 4.0E-01	1.8E+01	50	nc	N	Maximum detected values does not exceed screening value.	
	Silver		ug/l	6.8E-03	2.5E-02	W005	Nov-04	2.3E-02	3.0E-03 - 5.2E-02	1.8E+01	NA	nc	N	Maximum detected values does not exceed screening value.	
	Thallium		ug/l	2.5E-02	2.5E-02	W005	Nov-04	8.3E-02	4.0E-03 - 4.0E-03	NL	2	nc	N	Maximum detected values does not exceed screening value.	
	Zinc		ug/l	1.4E+00	6.4E+00	W023	Jan-06	5.5E-01	6.0E-01 - 6.0E+00	1.1E+03	NA	nc	N	Maximum detected values does not exceed screening value.	
	<b>Butyltins</b>														
	Butyltin ion	f	ug/l	1.5E-03	3.0E-02	W023	Jan-07	1.3E-01	1.7E-03 - 3.8E-02	1.1E+00	NA	nc	N	Maximum detected values does not exceed screening value.	
	Dibutyltin ion	f	ug/l	6.1E-04	4.3E-03	W038	Nov-06	1.4E-01	5.5E-04 - 2.5E-02	1.1E+00	NA	nc	N	Maximum detected values does not exceed screening value.	
	Tributyltin ion	f	ug/l	6.5E-04	2.8E-03	W035	Jan-07	6.3E-02	6.0E-04 - 1.4E-02	1.1E+00	NA	nc	N	Maximum detected values does not exceed screening value.	
	<b>Polynuclear Aromatic Hydrocarbons</b>														
	2-Methylnaphthalene		ug/l	1.2E-03	3.2E-01	W031	Jan-07	3.2E-01	2.7E-03 - 1.2E-02	1.5E+01	NA	nc	N	Maximum detected values does not exceed screening value.	
	Acenaphthene		ug/l	2.1E-04	1.1E-01	W031	Jan-07	3.7E-01	2.0E-03 - 8.0E-03	2.2E+02	NA	nc	N	Maximum detected values does not exceed screening value.	
	Acenaphthylene	g	ug/l	2.6E-04	1.9E-02	W031	Jan-07	2.9E-01	2.1E-04 - 8.8E-03	2.2E+02	NA	nc	N	Maximum detected values does not exceed screening value.	
	Anthracene		ug/l	3.5E-04	2.4E-01	W031	Jan-07	1.6E-01	1.6E-04 - 7.8E-03	1.1E+03	NA	nc	N	Maximum detected values does not exceed screening value.	
	Benzo(a)anthracene	h	ug/l	5.2E-05	1.4E-01	W031	Jan-07	4.1E-01	3.4E-04 - 7.8E-03	2.9E-02	0.200	ca	Y	Maximum detected value exceeds screening value.	
	Benzo(a)pyrene	h	ug/l	2.6E-05	9.7E-02	W031	Jan-07	3.6E-01	6.1E-04 - 8.6E-03	2.9E-03	0.200	ca	Y	Maximum detected value exceeds screening value.	
	Benzo(b)fluoranthene	h	ug/l	2.4E-05	6.7E-02	W031	Jan-07	3.8E-01	2.0E-03 - 9.2E-03	2.9E-02	0.200	ca	Y	Maximum detected value exceeds screening value.	
	Benzo(g,h,i)perylene	i	ug/l	7.5E-05	7.2E-02	W031	Jan-07	3.6E-01	3.3E-04 - 1.5E-02	1.1E+02	NA	nc	N	Maximum detected values does not exceed screening value.	
	Benzo(k)fluoranthene	h	ug/l	1.6E-05	6.8E-02	W031	Jan-07	3.9E-01	1.4E-03 - 1.1E-02	2.9E-01	0.200	ca	N	Maximum detected values does not exceed screening value.	
	Chrysene	h	ug/l	9.5E-05	1.9E-01	W031	Jan-07	4.4E-01	1.3E-03 - 1.1E-02	2.9E+00	0.200	ca	N	Maximum detected values does not exceed screening value.	
	Dibenzo(a,h)anthracene	h	ug/l	2.6E-05	1.4E-02	W031	Jan-07	1.8E-01	4.3E-05 - 7.2E-03	2.9E-03	0.200	ca	Y	Maximum detected value exceeds screening value.	
	Fluoranthene		ug/l	5.1E-04	4.1E-01	W031	Jan-07	6.2E-01	2.4E-03 - 9.6E-03	1.5E+02	NA	nc	N	Maximum detected values does not exceed screening value.	
	Fluorene		ug/l	3.7E-04	1.6E-01	W031	Jan-07	3.7E-01	2.6E-03 - 1.1E-02	1.5E+02	NA	nc	N	Maximum detected values does not exceed screening value.	
	Indeno(1,2,3-cd)pyrene	h	ug/l	1.6E-04	6.2E-02	W031	Jan-07	3.0E-01	1.5E-04 - 8.4E-03	2.9E-02	0.200	ca	Y	Maximum detected value exceeds screening value.	
	Naphthalene		ug/l	1.0E-03	8.3E-02	W036	Jan-07	1.0E-01	3.6E-03 - 9.3E-02	1.4E-01	NA	ca	N	Maximum detected values does not exceed screening value.	
	Phenanthrene	i	ug/l	7.9E-04	1.1E+00	W031	Jan-07	3.9E-01	2.2E-03 - 1.7E-02	1.1E+02	NA	nc	N	Maximum detected values does not exceed screening value.	
	Pyrene		ug/l	4.3E-04	6.5E-01	W031	Jan-07	6.0E-01	1.5E-03 - 9.4E-03	1.1E+02	NA	nc	N	Maximum detected values does not exceed screening value.	
	<b>Phthalates</b>														
	Bis(2-ethylhexyl) phthalate		ug/l	9.1E-03	3.6E+00	W005	Nov-06	2.3E-01	4.3E-03 - 4.0E+00	4.8E+00	6	ca	N	Maximum detected values does not exceed screening value.	
	Butylbenzyl phthalate		ug/l	1.2E-03	1.2E-01	W025	Sep-06	3.2E-01	6.4E-04 - 7.3E-02	3.5E+01	NA	ca	N	Maximum detected values does not exceed screening value.	
	Dibutyl phthalate		ug/l	1.5E-03	1.5E-01	W029	Jan-07	6.8E-02	1.0E-03 - 3.0E-01	3.7E+02	NA	nc	N	Maximum detected values does not exceed screening value.	
	Diethyl phthalate		ug/l	2.1E-03	1.7E-01	W005	Nov-06	2.3E-01	6.7E-04 - 1.4E-01	2.9E+03	NA	nc	N	Maximum detected values does not exceed screening value.	
	Di-n-octyl phthalate	j	ug/l	7.1E-03	1.7E-02	W034	Jan-07	2.7E-02	1.1E-04 - 3.6E-02	2.9E+03	NA	nc	N	Maximum detected values does not exceed screening value.	
	<b>Phenols</b>														
	4-Chloro-3-methylphenol		ug/l	2.3E-02	7.5E-02	W020	Jul-05	4.7E-02	2.9E-02 - 1.5E-01	3.7E+02	NA	nc	N	Maximum detected values does not exceed screening value.	
	Phenol		ug/l	1.6E-02	2.0E-01	W033	Jan-07	1.3E-01	2.0E-02 - 3.3E-02	1.1E+03	NA	nc	N	Maximum detected values does not exceed screening value.	
	<b>Polychlorinated Biphenyls</b>														
	Total PCB Congeners	k	pg/l	1.1E+02	1.5E+03	W030	Nov-06	1.0E+00	NA - NA	3.4E+04	500000	ca	N	Maximum detected values does not exceed screening value.	
	<b>Dioxin/Furan</b>														
	Total Dioxin/Furan TEQ	l	pg/l	3.1E-02	3.3E-01	W005	Jul-05	1.0E+00	NA - NA	5.2E-01	30	ca	N	Maximum detected values does not exceed screening value.	
	Total PCB TEQ	l	pg/l	1.6E-03	8.5E-02	W005	Sep-06	1.0E+00	NA - NA	5.2E-01	30	ca	N	Maximum detected values does not exceed screening value.	
	<b>Pesticides</b>														
	Aldrin		ug/l	3.0E-07	4.1E-03	W030	Jan-07	5.7E-01	3.4E-07 - 1.8E-03	4.0E-03	NA	ca	Y	Maximum detected value exceeds screening value.	
	alpha-Hexachlorocyclohexane		ug/l	8.5E-06	2.0E-04	W026	Nov-06	6.8E-01	6.0E-05 - 5.1E-04	1.1E-02	NA	ca	N	Maximum detected values does not exceed screening value.	
	beta-Hexachlorocyclohexane		ug/l	1.7E-06	3.6E-04	W026	Jan-07	4.8E-01	3.5E-06 - 1.9E-03	3.7E-02	NA	ca	N	Maximum detected values does not exceed screening value.	
	delta-Hexachlorocyclohexane	m	ug/l	6.3E-07	8.1E-04	W014	Dec-04	2.9E-01	4.2E-07 - 9.8E-04	NL	NL	NL	Y	Analyte detected and no screening value or surrogate exists.	



Table 2-16  
Occurrence, Distribution, and Selection of Chemicals of Potential Concern - Surface Water as a Potential Future Domestic Water Source

Scenario Timeframe: Potential Future  
Medium: Water  
Exposure Medium: Surface Water, Domestic Water Source

Exposure Point	Chemical <sup>a</sup>	Notes	Units	Minimum Detected Concentration	Maximum Detected Concentration	Location of Maximum Concentration	Date of Maximum Concentration	Detection Frequency	Range of Detection Limits <sup>b</sup>	EPA Tapwater SL <sup>c</sup>	MCL <sup>d</sup>	Screening Toxicity Value	COPC Flag (Y/N)	Rationale for Selection or Deletion
	Dieldrin		ug/l	1.7E-05	7.0E-04	W028, W036	Jan-07	6.3E-01	4.0E-04 - 5.1E-04	4.2E-03	NA	ca	N	Maximum detected values does not exceed screening value.
	Endrin		ug/l	1.7E-07	1.7E-04	W038	Nov-06	1.4E-01	4.6E-07 - 7.4E-04	1.1E+00	2.00	nc	N	Maximum detected values does not exceed screening value.
	Endrin aldehyde	n	ug/l	2.1E-04	9.1E-04	W036	Jan-07	6.6E-02	2.9E-07 - 5.1E-04	1.1E+00	NA	nc	N	Maximum detected values does not exceed screening value.
	Endrin ketone	n	ug/l	3.4E-07	2.0E-04	W036	Nov-06	3.5E-01	4.0E-07 - 5.1E-04	1.1E+00	NA	nc	N	Maximum detected values does not exceed screening value.
	gamma-Hexachlorocyclohexane		ug/l	8.6E-06	1.1E-03	W026	Jan-07	7.0E-01	1.2E-04 - 5.6E-04	6.1E-02	0.200	ca	N	Maximum detected values does not exceed screening value.
	Heptachlor		ug/l	1.3E-07	1.6E-03	W030	Jan-07	2.1E-01	9.5E-08 - 2.2E-03	1.5E-02	0.400	ca	N	Maximum detected values does not exceed screening value.
	Heptachlor epoxide		ug/l	2.1E-06	7.1E-05	W037	Jan-07	5.7E-01	6.8E-06 - 5.1E-04	7.4E-03	0.200	ca	N	Maximum detected values does not exceed screening value.
	Methoxychlor		ug/l	9.2E-07	2.1E-04	W036	Jan-07	3.8E-01	1.5E-06 - 1.6E-03	1.8E+01	40	nc	N	Maximum detected values does not exceed screening value.
	Total Chlordanes		ug/l	1.4E-05	1.5E-03	W036	Nov-06	6.5E-01	4.8E-04 - 1.9E-03	1.9E-01	2	ca	N	Maximum detected values does not exceed screening value.
	Total DDD	o	ug/l	1.5E-05	8.5E-04	W029	Jan-07	6.5E-01	4.8E-04 - 1.4E-03	2.8E-01	NA	ca	N	Maximum detected values does not exceed screening value.
	Total DDE	p	ug/l	1.7E-05	4.8E-04	W037	Jan-07	7.0E-01	2.6E-04 - 7.8E-04	2.0E-01	NA	ca	N	Maximum detected values does not exceed screening value.
	Total DDT	q	ug/l	3.8E-06	2.8E-03	W030	Nov-06	7.5E-01	4.1E-04 - 1.1E-03	2.0E-01	NA	ca	N	Maximum detected values does not exceed screening value.
	Total Endosulfan		ug/l	6.1E-05	7.2E-04	W026	Nov-06	7.0E-01	3.1E-04 - 5.1E-04	2.2E+01	NA	nc	N	Maximum detected values does not exceed screening value.
	<b>SVOCs</b>													
	4-Chloroaniline		ug/l	1.3E-02	1.3E-02	W023	Jan-07	1.6E-02	1.8E-02 - 2.0E-02	3.4E-01	NA	ca	N	Maximum detected values does not exceed screening value.
	Aniline		ug/l	1.2E+00	1.2E+00	W035	Jan-07	1.6E-02	2.5E-01 - 1.2E+00	1.2E+01	NA	ca	N	Maximum detected values does not exceed screening value.
	Benzoic acid		ug/l	1.2E+00	2.1E+00	W026	Nov-06	9.4E-02	1.8E+00 - 2.0E+00	1.5E+04	NA	nc	N	Maximum detected values does not exceed screening value.
	Carbazole	r	ug/l	8.3E-02	8.3E-02	W031	Jan-07	1.6E-02	1.3E-02 - 1.5E-02	1.5E+02	NA	nc	N	Maximum detected values does not exceed screening value.
	Dibenzofuran		ug/l	2.5E-02	2.5E-02	W031	Jan-07	1.6E-02	5.7E-03 - 2.9E-02	3.7E+00	NA	nc	N	Maximum detected values does not exceed screening value.
	Hexachlorobenzene		ug/l	1.3E-05	4.1E-03	W036	Jan-07	4.3E-01	3.1E-04 - 1.6E-02	4.2E-02	1	ca	N	Maximum detected values does not exceed screening value.
	Hexachlorobutadiene		ug/l	5.7E-07	3.6E-05	W034	Nov-06	1.8E-01	2.3E-07 - 2.2E-02	8.6E-01	NA	ca	N	Maximum detected values does not exceed screening value.
	Isophorone		ug/l	7.1E-03	1.3E-02	W023M	Mar-07	6.3E-02	8.5E-03 - 9.5E-03	7.1E+01	NA	ca	N	Maximum detected values does not exceed screening value.
	<b>Herbicides</b>													
	2,4-D		ug/l	4.7E-02	1.6E-01	W035	Jan-07	7.8E-02	3.4E-02 - 1.7E-01	3.7E+01	70	nc	N	Maximum detected values does not exceed screening value.
	2,4-DB		ug/l	1.4E-01	2.1E-01	W025	Sep-06	3.3E-02	4.0E-02 - 4.1E-01	2.9E+01	NA	nc	N	Maximum detected values does not exceed screening value.
	Dalapon		ug/l	2.6E-01	2.6E-01	W036	Jan-07	1.6E-02	1.8E-01 - 6.7E-01	1.1E+02	200	nc	N	Maximum detected values does not exceed screening value.
	MCPP		ug/l	5.2E+00	1.9E+01	W035	Jan-07	9.8E-02	6.0E+00 - 1.1E+02	3.7E+00	NA	nc	Y	Maximum detected value exceeds screening value.
	<b>Conventionals</b>													
	Perchlorate		ug/l	3.0E-01	3.0E-01	W033	Nov-06	1.4E-01	2.0E-01 - 7.0E-01	2.6E+00	NA	nc	N	Maximum detected values does not exceed screening value.

- Notes:** a Chemical list includes analytes detected in surface water samples determined to represent potential future human health exposure from surface water as a drinking water source. Data set includes all vertically integrated and combined transect samples within the study area. Integrated samples have been averaged prior to screening. Benzo(j+k)fluoranthene is assumed to be entirely benzo(k)fluoranthene.  
b For chemical mixtures, the range of detection limits listed is the maximum and minimum detection limit for individual isomers or congeners within the mixture.  
c Screening concentrations and toxicity classifications are from EPA RSLs for tap water (Nov2010) unless otherwise noted. RSLs for noncarcinogenic chemicals are divided by 10.  
d Maximum Contaminant Levels used as screening concentrations are from EPA 816-F-09-004, May 2009. Retrieved online 15 October 2010.  
e EPA RSL listed is for trivalent chromium; MCL listed is for total chromium.  
f EPA RSL for tributyltin oxide (TBTO) used as surrogate.  
g EPA RSL for acenaphthene used as surrogate.  
h Benzo(a)pyrene MCL used for screening of all carcinogenic PAHs  
i EPA RSL for pyrene used as surrogate.  
j EPA RSL for diethyl phthalate used as surrogate.  
k EPA RSL for PCBs as Aroclor 1254 used for screening concentration.  
l EPA RSL for 2,3,7,8-TCDD (dioxin) used for screening concentration.  
m A screening value was not available and a surrogate chemical could not be identified. Analyte is discussed qualitatively in text.  
n EPA RSL for endrin used as surrogate.  
o EPA RSL for DDD used for total DDD.  
p EPA RSL for p,p'-DDE used for total DDE.  
q EPA RSL for DDT used for total DDT.  
r EPA RSL for fluorene used as surrogate.

**Abbreviations:** ca = Carcinogen.  
CAS = Chemical Abstract Services.  
COPC = Chemical of potential concern.  
EPA = U.S. Environmental Protection Agency.  
MCL = Maximum Contaminant Level.  
N = No.  
NA = Not applicable. Chemical detected at 100% frequency, or screening value does not exist for given chemical.  
nc = Noncarcinogen.

NL = Not listed.  
pg/l = Picograms per liter.  
RSL = Regional screening level.  
SVOC = Semivolatile organic compound.  
TEQ = Toxicity equivalent.  
ug/l = Micrograms per liter.  
Y = Yes.  
PAH = Polynuclear aromatic hydrocarbons

### III-1.2 Exposure Point Concentration Tables

Table 3-2	Exposure Point Concentration Summary - Beach Sediment, Industrial-Land Use
Table 3-3	Exposure Point Concentration Summary - Beach Sediment, Transients, Recreational Users, and Bank Fishers
Table 3-4	Exposure Point Concentration Summary - In-water Sediment
Table 3-6	Exposure Point Concentration Summary - Surface Water, Transients Use
Table 3-7	Exposure Point Concentration Summary - Surface Water, Recreational Use
Table 3-8	Exposure Point Concentration Summary - Surface Water, Diver Use
Table 3-9	Exposure Point Concentration Summary - Surface Water, Residential Use as a Domestic Water Source
Table 3-10	Exposure Point Concentration Summary - Groundwater Seep
Table 3-11	Exposure Point Concentration Summary - Resident Fish Species, By River Mile
Table 3-12	Exposure Point Concentration Summary - Resident Fish Species, Study Area-Wide
Table 3-13	Exposure Point Concentration Summary - Pacific Lamprey Tissue
Table 3-14	Exposure Point Concentration Summary - Sturgeon Tissue
Table 3-15	Exposure Point Concentration Summary - Adult Chinook Tissue
Table 3-16	Exposure Point Concentration Summary - Multi-Species Diet, Study Area-Wide
Table 3-17	Exposure Point Concentration Summary - Crayfish, by Station
Table 3-18	Exposure Point Concentration Summary - Crayfish, Study Area-Wide
Table 3-19	Exposure Point Concentration Summary - Clam, by River Mile
Table 3-20	Exposure Point Concentration Summary - Clam, Study Area-Wide
Table F3-1	Exposure Point Concentration Summary for PBDEs - In-water Sediment
Table F3-2	Exposure Point Concentration Summary for PBDEs - Resident Fish Species, by River Mile
Table F3-3	Exposure Point Concentration Summary for PBDEs - Clam, by River Mile
Table F3-4	Exposure Point Concentration Summary for PBDEs - Clam, Study Area-Wide

**TABLE 3-2**  
**Exposure Point Concentration Summary - Beach Sediment, Industrial-Land Use**

Scenario Timeframe: Current/Future
Medium: Sediment
Exposure Medium: Beach Sediment, Industrial Use

Exposure Point	Chemical of Potential Concern	Units	Non-Detects	Total Samples <sup>a</sup>	Arithmetic Mean	Maximum Detected Concentration	95% UCL			Exposure Point Concentration <sup>b</sup>	
							Distribution	95% UCL Method	Value	Mean	95% UCL/Max
05B019	<b>Metals</b>										
	Arsenic	mg/kg	0	1	2.6E+00	2.6E+00		Fewer than 5 detects <sup>c</sup>		2.6E+00	2.6E+00
	<b>Polynuclear Aromatic Hydrocarbons</b>										
	Benzo(a)anthracene	ug/kg	0	1	6.4E+00	6.4E+00				6.4E+00	6.4E+00
	Benzo(a)pyrene	ug/kg	0	1	4.2E+00	4.2E+00				4.2E+00	4.2E+00
	Benzo(b)fluoranthene	ug/kg	0	1	7.3E+00	7.3E+00				7.3E+00	7.3E+00
	Benzo(k)fluoranthene	ug/kg	0	1	7.5E+00	7.5E+00				7.5E+00	7.5E+00
	Dibenzo(a,h)anthracene	ug/kg	1	1	ND	ND				ND	ND
	Indeno(1,2,3-cd)pyrene	ug/kg	0	1	5.2E+00	5.2E+00				5.2E+00	5.2E+00
	<b>Polychlorinated Biphenyls</b>										
Total Aroclors	ug/kg	1	1	ND	ND				ND	ND	
<b>Dioxin/Furans</b>											
Total PCB TEQ	pg/g	NA	NA	NA	NA				NA	NA	
06B025	<b>Metals</b>										
	Arsenic	mg/kg	0	1	2.3E+00	2.3E+00		Fewer than 5 detects		2.3E+00	2.3E+00
	<b>Polynuclear Aromatic Hydrocarbons</b>										
	Benzo(a)anthracene	ug/kg	0	1	2.9E+04	2.9E+04				2.9E+04	2.9E+04
	Benzo(a)pyrene	ug/kg	0	1	4.1E+04	4.1E+04				4.1E+04	4.1E+04
	Benzo(b)fluoranthene	ug/kg	0	1	3.1E+04	3.1E+04				3.1E+04	3.1E+04
	Benzo(k)fluoranthene	ug/kg	0	1	2.4E+04	2.4E+04				2.4E+04	2.4E+04
	Dibenzo(a,h)anthracene	ug/kg	0	1	9.5E+03	9.5E+03				9.5E+03	9.5E+03
	Indeno(1,2,3-cd)pyrene	ug/kg	0	1	3.1E+04	3.1E+04				3.1E+04	3.1E+04
	<b>Polychlorinated Biphenyls</b>										
Total Aroclors	ug/kg	0	1	4.3E+01	4.3E+01				4.3E+01	4.3E+01	
<b>Dioxin/Furans</b>											
Total PCB TEQ	pg/g	NA	NA	NA	NA				NA	NA	
06B029	<b>Metals</b>										
	Arsenic	mg/kg	0	1	1.7E+00	1.7E+00		Fewer than 5 detects		1.7E+00	1.7E+00
	<b>Polynuclear Aromatic Hydrocarbons</b>										
	Benzo(a)anthracene	ug/kg	0	1	1.4E+02	1.4E+02				1.4E+02	1.4E+02
	Benzo(a)pyrene	ug/kg	0	1	3.2E+02	3.2E+02				3.2E+02	3.2E+02
	Benzo(b)fluoranthene	ug/kg	0	1	2.5E+02	2.5E+02				2.5E+02	2.5E+02
	Benzo(k)fluoranthene	ug/kg	0	1	2.2E+02	2.2E+02				2.2E+02	2.2E+02
	Dibenzo(a,h)anthracene	ug/kg	0	1	5.9E+01	5.9E+01				5.9E+01	5.9E+01
Indeno(1,2,3-cd)pyrene	ug/kg	0	1	2.6E+02	2.6E+02				2.6E+02	2.6E+02	

TABLE 3-2  
Exposure Point Concentration Summary - Beach Sediment, Industrial-Land Use

Scenario Timeframe: Current/Future
Medium: Sediment
Exposure Medium: Beach Sediment, Industrial Use

Exposure Point	Chemical of Potential Concern	Units	Non-Detects	Total Samples <sup>a</sup>	Arithmetic Mean	Maximum Detected Concentration	95% UCL			Exposure Point Concentration <sup>b</sup>	
							Distribution	95% UCL Method	Value	Mean	95% UCL/Max
	<b>Polychlorinated Biphenyls</b>										
	Total Aroclors	ug/kg	1	1	ND	ND				ND	ND
	<b>Dioxin/Furans</b>										
	Total PCB TEQ	pg/g	NA	NA	NA	NA				NA	NA
07B022	<b>Metals</b>							Fewer than 5 detects			
	Arsenic	mg/kg	0	1	2.0E+00	2.0E+00				2.0E+00	2.0E+00
	<b>Polynuclear Aromatic Hydrocarbons</b>										
	Benzo(a)anthracene	ug/kg	0	1	7.5E+00	7.5E+00				7.5E+00	7.5E+00
	Benzo(a)pyrene	ug/kg	0	1	7.1E+00	7.1E+00				7.1E+00	7.1E+00
	Benzo(b)fluoranthene	ug/kg	0	1	6.3E+00	6.3E+00				6.3E+00	6.3E+00
	Benzo(k)fluoranthene	ug/kg	0	1	7.1E+00	7.1E+00				7.1E+00	7.1E+00
	Dibenzo(a,h)anthracene	ug/kg	1	1	ND	ND				ND	ND
	Indeno(1,2,3-cd)pyrene	ug/kg	0	1	6.3E+00	6.3E+00				6.3E+00	6.3E+00
	<b>Polychlorinated Biphenyls</b>										
	Total Aroclors	ug/kg	1	1	ND	ND				ND	ND
	<b>Dioxin/Furans</b>										
	Total PCB TEQ	pg/g	NA	NA	NA	NA				NA	NA
08B032	<b>Metals</b>							Fewer than 5 detects			
	Arsenic	mg/kg	0	1	2.2E+00	2.2E+00				2.2E+00	2.2E+00
	<b>Polynuclear Aromatic Hydrocarbons</b>										
	Benzo(a)anthracene	ug/kg	0	1	1.3E+01	1.3E+01				1.3E+01	1.3E+01
	Benzo(a)pyrene	ug/kg	0	1	1.6E+01	1.6E+01				1.6E+01	1.6E+01
	Benzo(b)fluoranthene	ug/kg	0	1	1.4E+01	1.4E+01				1.4E+01	1.4E+01
	Benzo(k)fluoranthene	ug/kg	0	1	1.0E+01	1.0E+01				1.0E+01	1.0E+01
	Dibenzo(a,h)anthracene	ug/kg	0	1	1.9E+00	1.9E+00				1.9E+00	1.9E+00
	Indeno(1,2,3-cd)pyrene	ug/kg	0	1	1.3E+01	1.3E+01				1.3E+01	1.3E+01
	<b>Polychlorinated Biphenyls</b>										
	Total Aroclors	ug/kg	0	1	1.9E+01	1.9E+01				1.9E+01	1.9E+01
	<b>Dioxin/Furans</b>										
	Total PCB TEQ	pg/g	NA	NA	NA	NA				NA	NA
B002	<b>Metals</b>							Fewer than 5 detects			
	Arsenic	mg/kg	0	1	2.4E+00	2.4E+00				2.4E+00	2.4E+00

TABLE 3-2  
Exposure Point Concentration Summary - Beach Sediment, Industrial-Land Use

Scenario Timeframe: Current/Future
Medium: Sediment
Exposure Medium: Beach Sediment, Industrial Use

Exposure Point	Chemical of Potential Concern	Units	Non-Detects	Total Samples <sup>a</sup>	Arithmetic Mean	Maximum Detected Concentration	95% UCL			Exposure Point Concentration <sup>b</sup>	
							Distribution	95% UCL Method	Value	Mean	95% UCL/Max
	<b>Polynuclear Aromatic Hydrocarbons</b>										
	Benzo(a)anthracene	ug/kg	0	1	3.8E+00	3.8E+00				3.8E+00	3.8E+00
	Benzo(a)pyrene	ug/kg	0	1	6.6E+00	6.6E+00				6.6E+00	6.6E+00
	Benzo(b)fluoranthene	ug/kg	0	1	7.4E+00	7.4E+00				7.4E+00	7.4E+00
	Benzo(k)fluoranthene	ug/kg	0	1	2.2E+00	2.2E+00				2.2E+00	2.2E+00
	Dibenzo(a,h)anthracene	ug/kg	0	1	1.5E+00	1.5E+00				1.5E+00	1.5E+00
	Indeno(1,2,3-cd)pyrene	ug/kg	0	1	6.4E+00	6.4E+00				6.4E+00	6.4E+00
	<b>Polychlorinated Biphenyls</b>										
	Total Aroclors	ug/kg	0	1	1.7E+02	1.7E+02				1.7E+02	1.7E+02
	<b>Dioxin/Furans</b>										
	Total PCB TEQ	pg/g	0	1	3.8E+00	3.8E+00				3.8E+00	3.8E+00
B004	<b>Metals</b>							Fewer than 5 detects			
	Arsenic	mg/kg	0	1	2.7E+00	2.7E+00				2.7E+00	2.7E+00
	<b>Polynuclear Aromatic Hydrocarbons</b>										
	Benzo(a)anthracene	ug/kg	0	1	4.3E+01	4.3E+01				4.3E+01	4.3E+01
	Benzo(a)pyrene	ug/kg	0	1	8.2E+01	8.2E+01				8.2E+01	8.2E+01
	Benzo(b)fluoranthene	ug/kg	0	1	9.9E+01	9.9E+01				9.9E+01	9.9E+01
	Benzo(k)fluoranthene	ug/kg	0	1	3.1E+01	3.1E+01				3.1E+01	3.1E+01
	Dibenzo(a,h)anthracene	ug/kg	0	1	1.3E+01	1.3E+01				1.3E+01	1.3E+01
	Indeno(1,2,3-cd)pyrene	ug/kg	0	1	9.8E+01	9.8E+01				9.8E+01	9.8E+01
	<b>Polychlorinated Biphenyls</b>										
	Total Aroclors	ug/kg	0	1	1.6E+03	1.6E+03				1.6E+03	1.6E+03
	<b>Dioxin/Furans</b>										
	Total PCB TEQ	pg/g	0	1	3.1E+01	3.1E+01				3.1E+01	3.1E+01
B006	<b>Metals</b>							Fewer than 5 detects			
	Arsenic	mg/kg	0	1	2.5E+00	2.5E+00				2.5E+00	2.5E+00
	<b>Polynuclear Aromatic Hydrocarbons</b>										
	Benzo(a)anthracene	ug/kg	0	1	1.8E+00	1.8E+00				1.8E+00	1.8E+00
	Benzo(a)pyrene	ug/kg	0	1	1.3E+00	1.3E+00				1.3E+00	1.3E+00
	Benzo(b)fluoranthene	ug/kg	0	1	3.1E+00	3.1E+00				3.1E+00	3.1E+00
	Benzo(k)fluoranthene	ug/kg	0	1	1.1E+00	1.1E+00				1.1E+00	1.1E+00
	Dibenzo(a,h)anthracene	ug/kg	1	1	ND	ND				ND	ND
	Indeno(1,2,3-cd)pyrene	ug/kg	0	1	1.2E+00	1.2E+00				1.2E+00	1.2E+00

**TABLE 3-2**  
**Exposure Point Concentration Summary - Beach Sediment, Industrial-Land Use**

Scenario Timeframe: Current/Future
Medium: Sediment
Exposure Medium: Beach Sediment, Industrial Use

Exposure Point	Chemical of Potential Concern	Units	Non-Detects	Total Samples <sup>a</sup>	Arithmetic Mean	Maximum Detected Concentration	95% UCL			Exposure Point Concentration <sup>b</sup>	
							Distribution	95% UCL Method	Value	Mean	95% UCL/Max
	<b>Polychlorinated Biphenyls</b>										
	Total Aroclors	ug/kg	0	1	1.7E+01	1.7E+01				1.7E+01	1.7E+01
	<b>Dioxin/Furans</b>										
	Total PCB TEQ	pg/g	NA	NA	NA	NA				NA	NA

**Notes:**

- a Total number of samples includes number of samples in dataset, regardless of detection status. No non-detects exceeded the maximum detected concentration.
- b Mean exposure point concentrations were used for Central Tendency (CT) exposure and 95% UCL/Max exposure point concentrations were used for Reasonable Maximum Exposure (RME) in the BHHRA.
- c 95% UCL not calculated for analytes with fewer than five detects.

**Abbreviations:**

- 95% UCL = 95% Upper confidence limit.
- mg/kg = Milligrams per kilogram.
- NA = Not available. Chemical not analyzed or had rejected result for given exposure area.
- ND = Not detected.
- PCB = Polychlorinated biphenyls.
- pg/g = Picograms per gram.
- TEQ = Toxic equivalence quotient.
- ug/kg = Micrograms per kilogram.



**TABLE 3-3.**  
**Exposure Point Concentration Summary - Beach Sediment, Transients, Recreational Users, and Bank Fishers**

Scenario Timeframe: Current/Future
Medium: Sediment
Exposure Medium: Beach Sediment, Use by Transients, Recreational Users, and Bank Fishers

Exposure Point	Chemical of Potential Concern	Units	Non-Detects	Total Samples <sup>a</sup>	Arithmetic Mean	Maximum Detected Concentration	95% UCL			Exposure Point Concentration <sup>b</sup>	
							Distribution	95% UCL Method	Value	Mean	95% UCL/Max
03B030	<b>Metals</b>							Fewer than 5 detects <sup>c</sup>			
	Aluminum	mg/kg	0	1	1.2E+04	1.2E+04			1.2E+04	1.2E+04	
	Antimony	mg/kg	NA	NA	NA	NA			NA	NA	
	Arsenic	mg/kg	0	1	1.9E+00	1.9E+00			1.9E+00	1.9E+00	
	Copper	mg/kg	0	1	1.4E+01	1.4E+01			1.4E+01	1.4E+01	
	<b>Polynuclear Aromatic Hydrocarbons</b>										
	Benzo(a)anthracene	ug/kg	0	1	6.2E+00	6.2E+00			6.2E+00	6.2E+00	
	Benzo(a)pyrene	ug/kg	0	1	7.9E+00	7.9E+00			7.9E+00	7.9E+00	
	Benzo(b)fluoranthene	ug/kg	0	1	1.0E+01	1.0E+01			1.0E+01	1.0E+01	
	Dibenzo(a,h)anthracene	ug/kg	1	1	ND	ND			ND	ND	
Indeno(1,2,3-cd)pyrene	ug/kg	0	1	1.6E+01	1.6E+01		1.6E+01	1.6E+01			
03B031	<b>Metals</b>							Fewer than 5 detects			
	Aluminum	mg/kg	0	1	2.2E+04	2.2E+04			2.2E+04	2.2E+04	
	Antimony	mg/kg	NA	NA	NA	NA			NA	NA	
	Arsenic	mg/kg	0	1	3.2E+00	3.2E+00			3.2E+00	3.2E+00	
	Copper	mg/kg	0	1	2.3E+01	2.3E+01			2.3E+01	2.3E+01	
	<b>Polynuclear Aromatic Hydrocarbons</b>										
	Benzo(a)anthracene	ug/kg	0	1	3.8E+01	3.8E+01			3.8E+01	3.8E+01	
	Benzo(a)pyrene	ug/kg	0	1	5.3E+01	5.3E+01			5.3E+01	5.3E+01	
	Benzo(b)fluoranthene	ug/kg	0	1	3.5E+01	3.5E+01			3.5E+01	3.5E+01	
	Dibenzo(a,h)anthracene	ug/kg	0	1	1.2E+01	1.2E+01			1.2E+01	1.2E+01	
Indeno(1,2,3-cd)pyrene	ug/kg	0	1	4.7E+01	4.7E+01		4.7E+01	4.7E+01			
03B033	<b>Metals</b>							Fewer than 5 detects			
	Aluminum	mg/kg	0	1	1.4E+04	1.4E+04			1.4E+04	1.4E+04	
	Antimony	mg/kg	NA	NA	NA	NA			NA	NA	
	Arsenic	mg/kg	0	1	4.0E+00	4.0E+00			4.0E+00	4.0E+00	
	Copper	mg/kg	0	1	1.6E+01	1.6E+01			1.6E+01	1.6E+01	
	<b>Polynuclear Aromatic Hydrocarbons</b>										
	Benzo(a)anthracene	ug/kg	0	1	5.2E+00	5.2E+00			5.2E+00	5.2E+00	
	Benzo(a)pyrene	ug/kg	0	1	5.2E+00	5.2E+00			5.2E+00	5.2E+00	
	Benzo(b)fluoranthene	ug/kg	0	1	5.2E+00	5.2E+00			5.2E+00	5.2E+00	
	Dibenzo(a,h)anthracene	ug/kg	1	1	ND	ND			ND	ND	
Indeno(1,2,3-cd)pyrene	ug/kg	0	1	6.4E+00	6.4E+00		6.4E+00	6.4E+00			

**TABLE 3-3.**  
**Exposure Point Concentration Summary - Beach Sediment, Transients, Recreational Users, and Bank Fishers**

Scenario Timeframe: Current/Future
Medium: Sediment
Exposure Medium: Beach Sediment, Use by Transients, Recreational Users, and Bank Fishers

Exposure Point	Chemical of Potential Concern	Units	Non-Detects	Total Samples <sup>a</sup>	Arithmetic Mean	Maximum Detected Concentration	95% UCL			Exposure Point Concentration <sup>b</sup>	
							Distribution	95% UCL Method	Value	Mean	95% UCL/Max
04B023	<b>Metals</b>							Fewer than 5 detects			
	Aluminum	mg/kg	0	1	1.2E+04	1.2E+04			1.2E+04	1.2E+04	
	Antimony	mg/kg	0	1	3.0E-01	3.0E-01			3.0E-01	3.0E-01	
	Arsenic	mg/kg	0	1	2.7E+00	2.7E+00			2.7E+00	2.7E+00	
	Copper	mg/kg	0	1	3.3E+01	3.3E+01			3.3E+01	3.3E+01	
	<b>Polynuclear Aromatic Hydrocarbons</b>										
	Benzo(a)anthracene	ug/kg	0	1	2.6E+01	2.6E+01			2.6E+01	2.6E+01	
	Benzo(a)pyrene	ug/kg	0	1	4.2E+01	4.2E+01			4.2E+01	4.2E+01	
	Benzo(b)fluoranthene	ug/kg	0	1	3.3E+01	3.3E+01			3.3E+01	3.3E+01	
	Dibenzo(a,h)anthracene	ug/kg	0	1	1.4E+01	1.4E+01			1.4E+01	1.4E+01	
Indeno(1,2,3-cd)pyrene	ug/kg	0	1	3.8E+01	3.8E+01		3.8E+01	3.8E+01			
04B024	<b>Metals</b>							Fewer than 5 detects			
	Aluminum	mg/kg	0	1	2.1E+04	2.1E+04			2.1E+04	2.1E+04	
	Antimony	mg/kg	0	1	1.3E+01	1.3E+01			1.3E+01	1.3E+01	
	Arsenic	mg/kg	0	1	4.7E+00	4.7E+00			4.7E+00	4.7E+00	
	Copper	mg/kg	0	1	1.9E+02	1.9E+02			1.9E+02	1.9E+02	
	<b>Polynuclear Aromatic Hydrocarbons</b>										
	Benzo(a)anthracene	ug/kg	0	1	1.8E+02	1.8E+02			1.8E+02	1.8E+02	
	Benzo(a)pyrene	ug/kg	0	1	3.6E+02	3.6E+02			3.6E+02	3.6E+02	
	Benzo(b)fluoranthene	ug/kg	0	1	3.0E+02	3.0E+02			3.0E+02	3.0E+02	
	Dibenzo(a,h)anthracene	ug/kg	0	1	2.3E+01	2.3E+01			2.3E+01	2.3E+01	
Indeno(1,2,3-cd)pyrene	ug/kg	0	1	2.2E+02	2.2E+02		2.2E+02	2.2E+02			
05B018	<b>Metals</b>							Fewer than 5 detects			
	Aluminum	mg/kg	0	1	1.9E+04	1.9E+04			1.9E+04	1.9E+04	
	Antimony	mg/kg	0	1	2.0E-01	2.0E-01			2.0E-01	2.0E-01	
	Arsenic	mg/kg	0	1	2.4E+00	2.4E+00			2.4E+00	2.4E+00	
	Copper	mg/kg	0	1	1.1E+02	1.1E+02			1.1E+02	1.1E+02	
	<b>Polynuclear Aromatic Hydrocarbons</b>										
	Benzo(a)anthracene	ug/kg	0	1	7.2E+01	7.2E+01			7.2E+01	7.2E+01	
	Benzo(a)pyrene	ug/kg	0	1	8.6E+01	8.6E+01			8.6E+01	8.6E+01	
	Benzo(b)fluoranthene	ug/kg	0	1	1.0E+02	1.0E+02			1.0E+02	1.0E+02	
	Dibenzo(a,h)anthracene	ug/kg	0	1	2.6E+01	2.6E+01			2.6E+01	2.6E+01	
Indeno(1,2,3-cd)pyrene	ug/kg	0	1	3.9E+01	3.9E+01		3.9E+01	3.9E+01			

**TABLE 3-3.**  
**Exposure Point Concentration Summary - Beach Sediment, Transients, Recreational Users, and Bank Fishers**

Scenario Timeframe: Current/Future
Medium: Sediment
Exposure Medium: Beach Sediment, Use by Transients, Recreational Users, and Bank Fishers

Exposure Point	Chemical of Potential Concern	Units	Non-Detects	Total Samples <sup>a</sup>	Arithmetic Mean	Maximum Detected Concentration	95% UCL			Exposure Point Concentration <sup>b</sup>	
							Distribution	95% UCL Method	Value	Mean	95% UCL/Max
06B022	<b>Metals</b>							Fewer than 5 detects			
	Aluminum	mg/kg	0	1	1.5E+04	1.5E+04			1.5E+04	1.5E+04	
	Antimony	mg/kg	0	1	3.0E-01	3.0E-01			3.0E-01	3.0E-01	
	Arsenic	mg/kg	0	1	2.6E+00	2.6E+00			2.6E+00	2.6E+00	
	Copper	mg/kg	0	1	4.3E+01	4.3E+01			4.3E+01	4.3E+01	
	<b>Polynuclear Aromatic Hydrocarbons</b>										
	Benzo(a)anthracene	ug/kg	0	1	4.8E+00	4.8E+00			4.8E+00	4.8E+00	
	Benzo(a)pyrene	ug/kg	0	1	4.4E+00	4.4E+00			4.4E+00	4.4E+00	
	Benzo(b)fluoranthene	ug/kg	0	1	5.6E+00	5.6E+00			5.6E+00	5.6E+00	
	Dibenzo(a,h)anthracene	ug/kg	1	1	ND	ND			ND	ND	
Indeno(1,2,3-cd)pyrene	ug/kg	0	1	4.8E+00	4.8E+00		4.8E+00	4.8E+00			
06B026	<b>Metals</b>							Fewer than 5 detects			
	Aluminum	mg/kg	0	1	1.2E+04	1.2E+04			1.2E+04	1.2E+04	
	Antimony	mg/kg	0	1	8.0E-01	8.0E-01			8.0E-01	8.0E-01	
	Arsenic	mg/kg	0	1	1.7E+00	1.7E+00			1.7E+00	1.7E+00	
	Copper	mg/kg	0	1	2.0E+01	2.0E+01			2.0E+01	2.0E+01	
	<b>Polynuclear Aromatic Hydrocarbons</b>										
	Benzo(a)anthracene	ug/kg	0	1	7.9E+00	7.9E+00			7.9E+00	7.9E+00	
	Benzo(a)pyrene	ug/kg	0	1	6.4E+00	6.4E+00			6.4E+00	6.4E+00	
	Benzo(b)fluoranthene	ug/kg	0	1	1.0E+01	1.0E+01			1.0E+01	1.0E+01	
	Dibenzo(a,h)anthracene	ug/kg	1	1	ND	ND			ND	ND	
Indeno(1,2,3-cd)pyrene	ug/kg	0	1	1.1E+01	1.1E+01		1.1E+01	1.1E+01			
06B030	<b>Metals</b>							Fewer than 5 detects			
	Aluminum	mg/kg	0	1	1.8E+04	1.8E+04			1.8E+04	1.8E+04	
	Antimony	mg/kg	NA	NA	NA	NA			NA	NA	
	Arsenic	mg/kg	0	1	9.9E+00	9.9E+00			9.9E+00	9.9E+00	
	Copper	mg/kg	0	1	6.1E+02	6.1E+02			6.1E+02	6.1E+02	
	<b>Polynuclear Aromatic Hydrocarbons</b>										
	Benzo(a)anthracene	ug/kg	0	1	4.5E+01	4.5E+01			4.5E+01	4.5E+01	
	Benzo(a)pyrene	ug/kg	0	1	6.6E+01	6.6E+01			6.6E+01	6.6E+01	
	Benzo(b)fluoranthene	ug/kg	0	1	8.1E+01	8.1E+01			8.1E+01	8.1E+01	
	Dibenzo(a,h)anthracene	ug/kg	0	1	5.0E+00	5.0E+00			5.0E+00	5.0E+00	
Indeno(1,2,3-cd)pyrene	ug/kg	0	1	4.7E+01	4.7E+01		4.7E+01	4.7E+01			

**TABLE 3-3.**  
**Exposure Point Concentration Summary - Beach Sediment, Transients, Recreational Users, and Bank Fishers**

Scenario Timeframe: Current/Future
Medium: Sediment
Exposure Medium: Beach Sediment, Use by Transients, Recreational Users, and Bank Fishers

Exposure Point	Chemical of Potential Concern	Units	Non-Detects	Total Samples <sup>a</sup>	Arithmetic Mean	Maximum Detected Concentration	95% UCL			Exposure Point Concentration <sup>b</sup>	
							Distribution	95% UCL Method	Value	Mean	95% UCL/Max
07B023	<b>Metals</b>							Fewer than 5 detects			
	Aluminum	mg/kg	0	1	1.0E+04	1.0E+04			1.0E+04	1.0E+04	
	Antimony	mg/kg	0	1	3.0E-01	3.0E-01			3.0E-01	3.0E-01	
	Arsenic	mg/kg	0	1	7.0E-01	7.0E-01			7.0E-01	7.0E-01	
	Copper	mg/kg	0	1	7.0E+01	7.0E+01			7.0E+01	7.0E+01	
	<b>Polynuclear Aromatic Hydrocarbons</b>										
	Benzo(a)anthracene	ug/kg	0	1	1.4E+01	1.4E+01			1.4E+01	1.4E+01	
	Benzo(a)pyrene	ug/kg	0	1	1.5E+01	1.5E+01			1.5E+01	1.5E+01	
	Benzo(b)fluoranthene	ug/kg	0	1	1.2E+01	1.2E+01			1.2E+01	1.2E+01	
	Dibenzo(a,h)anthracene	ug/kg	0	1	2.5E+00	2.5E+00			2.5E+00	2.5E+00	
Indeno(1,2,3-cd)pyrene	ug/kg	0	1	1.3E+01	1.3E+01		1.3E+01	1.3E+01			
07B024	<b>Metals</b>							Fewer than 5 detects			
	Aluminum	mg/kg	0	1	1.5E+04	1.5E+04			1.5E+04	1.5E+04	
	Antimony	mg/kg	NA	NA	NA	NA			NA	NA	
	Arsenic	mg/kg	0	1	1.6E+00	1.6E+00			1.6E+00	1.6E+00	
	Copper	mg/kg	0	1	2.1E+01	2.1E+01			2.1E+01	2.1E+01	
	<b>Polynuclear Aromatic Hydrocarbons</b>										
	Benzo(a)anthracene	ug/kg	0	1	4.5E+01	4.5E+01			4.5E+01	4.5E+01	
	Benzo(a)pyrene	ug/kg	0	1	5.3E+01	5.3E+01			5.3E+01	5.3E+01	
	Benzo(b)fluoranthene	ug/kg	0	1	6.2E+01	6.2E+01			6.2E+01	6.2E+01	
	Dibenzo(a,h)anthracene	ug/kg	1	1	ND	ND			ND	ND	
Indeno(1,2,3-cd)pyrene	ug/kg	0	1	2.3E+01	2.3E+01		2.3E+01	2.3E+01			
09B024	<b>Metals</b>							Fewer than 5 detects			
	Aluminum	mg/kg	0	1	1.5E+04	1.5E+04			1.5E+04	1.5E+04	
	Antimony	mg/kg	NA	NA	NA	NA			NA	NA	
	Arsenic	mg/kg	0	1	1.1E+00	1.1E+00			1.1E+00	1.1E+00	
	Copper	mg/kg	0	1	1.8E+01	1.8E+01			1.8E+01	1.8E+01	
	<b>Polynuclear Aromatic Hydrocarbons</b>										
	Benzo(a)anthracene	ug/kg	0	1	1.8E+01	1.8E+01			1.8E+01	1.8E+01	
	Benzo(a)pyrene	ug/kg	0	1	1.4E+01	1.4E+01			1.4E+01	1.4E+01	
	Benzo(b)fluoranthene	ug/kg	0	1	9.7E+00	9.7E+00			9.7E+00	9.7E+00	
	Dibenzo(a,h)anthracene	ug/kg	0	1	2.5E+00	2.5E+00			2.5E+00	2.5E+00	
Indeno(1,2,3-cd)pyrene	ug/kg	0	1	8.7E+00	8.7E+00		8.7E+00	8.7E+00			

**TABLE 3-3.**  
**Exposure Point Concentration Summary - Beach Sediment, Transients, Recreational Users, and Bank Fishers**

Scenario Timeframe: Current/Future
Medium: Sediment
Exposure Medium: Beach Sediment, Use by Transients, Recreational Users, and Bank Fishers

Exposure Point	Chemical of Potential Concern	Units	Non-Detects	Total Samples <sup>a</sup>	Arithmetic Mean	Maximum Detected Concentration	95% UCL			Exposure Point Concentration <sup>b</sup>	
							Distribution	95% UCL Method	Value	Mean	95% UCL/Max
09B026	<b>Metals</b>							Fewer than 5 detects			
	Aluminum	mg/kg	0	1	1.1E+04	1.1E+04			1.1E+04	1.1E+04	
	Antimony	mg/kg	NA	NA	NA	NA			NA	NA	
	Arsenic	mg/kg	0	1	2.4E+00	2.4E+00			2.4E+00	2.4E+00	
	Copper	mg/kg	0	1	1.8E+01	1.8E+01			1.8E+01	1.8E+01	
	<b>Polynuclear Aromatic Hydrocarbons</b>										
	Benzo(a)anthracene	ug/kg	1	1	ND	ND			ND	ND	
	Benzo(a)pyrene	ug/kg	1	1	ND	ND			ND	ND	
	Benzo(b)fluoranthene	ug/kg	0	1	2.1E+00	2.1E+00			2.1E+00	2.1E+00	
	Dibenzo(a,h)anthracene	ug/kg	1	1	ND	ND			ND	ND	
Indeno(1,2,3-cd)pyrene	ug/kg	1	1	ND	ND		ND	ND			
09B027	<b>Metals</b>							Fewer than 5 detects			
	Aluminum	mg/kg	0	3	1.8E+04	2.0E+04			1.8E+04	2.0E+04	
	Antimony	mg/kg	0	1	2.0E-01	2.0E-01			2.0E-01	2.0E-01	
	Arsenic	mg/kg	0	3	1.3E+00	1.4E+00			1.3E+00	1.4E+00	
	Copper	mg/kg	0	3	2.3E+01	2.4E+01			2.3E+01	2.4E+01	
	<b>Polynuclear Aromatic Hydrocarbons</b>										
	Benzo(a)anthracene	ug/kg	0	3	7.7E+00	9.8E+00			7.7E+00	9.8E+00	
	Benzo(a)pyrene	ug/kg	0	3	7.0E+00	9.0E+00			7.0E+00	9.0E+00	
	Benzo(b)fluoranthene	ug/kg	0	3	8.8E+00	1.0E+01			8.8E+00	1.0E+01	
	Dibenzo(a,h)anthracene	ug/kg	3	3	ND	ND			ND	ND	
Indeno(1,2,3-cd)pyrene	ug/kg	0	3	5.6E+00	6.6E+00		5.6E+00	6.6E+00			
09B028	<b>Metals</b>							Fewer than 5 detects			
	Aluminum	mg/kg	0	1	1.6E+04	1.6E+04			1.6E+04	1.6E+04	
	Antimony	mg/kg	NA	NA	NA	NA			NA	NA	
	Arsenic	mg/kg	0	1	1.3E+00	1.3E+00			1.3E+00	1.3E+00	
	Copper	mg/kg	0	1	1.9E+01	1.9E+01			1.9E+01	1.9E+01	
	<b>Polynuclear Aromatic Hydrocarbons</b>										
	Benzo(a)anthracene	ug/kg	0	1	5.3E+00	5.3E+00			5.3E+00	5.3E+00	
	Benzo(a)pyrene	ug/kg	0	1	4.6E+00	4.6E+00			4.6E+00	4.6E+00	
	Benzo(b)fluoranthene	ug/kg	0	1	5.0E+00	5.0E+00			5.0E+00	5.0E+00	
	Dibenzo(a,h)anthracene	ug/kg	1	1	ND	ND			ND	ND	
Indeno(1,2,3-cd)pyrene	ug/kg	0	1	4.6E+00	4.6E+00		4.6E+00	4.6E+00			

**TABLE 3-3.**  
**Exposure Point Concentration Summary - Beach Sediment, Transients, Recreational Users, and Bank Fishers**

Scenario Timeframe: Current/Future
Medium: Sediment
Exposure Medium: Beach Sediment, Use by Transients, Recreational Users, and Bank Fishers

Exposure Point	Chemical of Potential Concern	Units	Non-Detects	Total Samples <sup>a</sup>	Arithmetic Mean	Maximum Detected Concentration	95% UCL			Exposure Point Concentration <sup>b</sup>	
							Distribution	95% UCL Method	Value	Mean	95% UCL/Max
B001	<b>Metals</b>							Fewer than 5 detects			
	Aluminum	mg/kg	0	1	1.6E+04	1.6E+04			1.6E+04	1.6E+04	
	Antimony	mg/kg	1	1	ND	ND			ND	ND	
	Arsenic	mg/kg	0	1	2.3E+00	2.3E+00			2.3E+00	2.3E+00	
	Copper	mg/kg	0	1	1.9E+01	1.9E+01			1.9E+01	1.9E+01	
	<b>Polynuclear Aromatic Hydrocarbons</b>										
	Benzo(a)anthracene	ug/kg	0	1	6.5E+00	6.5E+00			6.5E+00	6.5E+00	
	Benzo(a)pyrene	ug/kg	0	1	1.4E+01	1.4E+01			1.4E+01	1.4E+01	
	Benzo(b)fluoranthene	ug/kg	0	1	1.2E+01	1.2E+01			1.2E+01	1.2E+01	
	Dibenzo(a,h)anthracene	ug/kg	0	1	2.2E+00	2.2E+00			2.2E+00	2.2E+00	
Indeno(1,2,3-cd)pyrene	ug/kg	0	1	9.7E+00	9.7E+00		9.7E+00	9.7E+00			
B003	<b>Metals</b>							Fewer than 5 detects			
	Aluminum	mg/kg	0	1	1.9E+04	1.9E+04			1.9E+04	1.9E+04	
	Antimony	mg/kg	1	1	ND	ND			ND	ND	
	Arsenic	mg/kg	0	1	2.5E+00	2.5E+00			2.5E+00	2.5E+00	
	Copper	mg/kg	0	1	2.0E+01	2.0E+01			2.0E+01	2.0E+01	
	<b>Polynuclear Aromatic Hydrocarbons</b>										
	Benzo(a)anthracene	ug/kg	0	1	2.1E+02	2.1E+02			2.1E+02	2.1E+02	
	Benzo(a)pyrene	ug/kg	0	1	3.6E+02	3.6E+02			3.6E+02	3.6E+02	
	Benzo(b)fluoranthene	ug/kg	0	1	3.1E+02	3.1E+02			3.1E+02	3.1E+02	
	Dibenzo(a,h)anthracene	ug/kg	0	1	3.3E+01	3.3E+01			3.3E+01	3.3E+01	
Indeno(1,2,3-cd)pyrene	ug/kg	0	1	2.8E+02	2.8E+02		2.8E+02	2.8E+02			
B005	<b>Metals</b>							Fewer than 5 detects			
	Aluminum	mg/kg	0	1	1.5E+04	1.5E+04			1.5E+04	1.5E+04	
	Antimony	mg/kg	1	1	ND	ND			ND	ND	
	Arsenic	mg/kg	0	1	3.3E+00	3.3E+00			3.3E+00	3.3E+00	
	Copper	mg/kg	0	1	1.4E+01	1.4E+01			1.4E+01	1.4E+01	
	<b>Polynuclear Aromatic Hydrocarbons</b>										
	Benzo(a)anthracene	ug/kg	0	1	7.7E+01	7.7E+01			7.7E+01	7.7E+01	
	Benzo(a)pyrene	ug/kg	0	1	1.5E+02	1.5E+02			1.5E+02	1.5E+02	
Benzo(b)fluoranthene	ug/kg	0	1	1.2E+02	1.2E+02		1.2E+02	1.2E+02			



**TABLE 3-3.**  
**Exposure Point Concentration Summary - Beach Sediment, Transients, Recreational Users, and Bank Fishers**

Scenario Timeframe: Current/Future
Medium: Sediment
Exposure Medium: Beach Sediment, Use by Transients, Recreational Users, and Bank Fishers

Exposure Point	Chemical of Potential Concern	Units	Non-Detects	Total Samples <sup>a</sup>	Arithmetic Mean	Maximum Detected Concentration	95% UCL			Exposure Point Concentration <sup>b</sup>	
							Distribution	95% UCL Method	Value	Mean	95% UCL/Max
	Dibenzo(a,h)anthracene	ug/kg	0	1	1.5E+01	1.5E+01				1.5E+01	1.5E+01
	Indeno(1,2,3-cd)pyrene	ug/kg	0	1	1.3E+02	1.3E+02				1.3E+02	1.3E+02

**Notes:**

- a Total number of samples includes number of samples in dataset, regardless of detection status. No non-detects exceeded the maximum detected concentration.
- b Mean exposure point concentrations were used for Central Tendency (CT) exposure and 95% UCL/Max exposure point concentrations were used for Reasonable Maximum Exposure (RME) in the BHHRA.
- c 95% UCL not calculated for analytes with fewer than five detects.

**Abbreviations:**

- 95% UCL = 95% Upper confidence limit.
- mg/kg = Milligrams per kilogram.
- NA = Not available. Chemical not analyzed or had rejected result for given exposure area.
- ND = Not detected.
- ug/kg = Micrograms per kilogram.

TABLE 3-4.  
Exposure Point Concentration Summary - In-water Sediment

Scenario Timeframe: Current/Future
Medium: Sediment
Exposure Medium: In-Water Sediment

Exposure Point <sup>a</sup>	Chemical of Potential Concern	Units	Total Samples	Total Non-Detects <sup>b</sup>	Non-Detects greater than Maximum Detected Concentration <sup>c</sup>	Arithmetic Mean <sup>d</sup>	Maximum Detected Concentration	95% UCL			Exposure Point Concentration <sup>e</sup>		
								Distribution	95% UCL Method	Value	Mean	95% UCL/Max	
RM 1 West	<b>Metals</b>												
	Arsenic	mg/kg	5	0	0	4.2E+00	5.3E+00	normal	95% Student's t-UCL	5.5E+00	4.2E+00	5.3E+00	
	Lead	mg/kg	5	0	0	1.4E+01	1.6E+01	non-parametric	95% Student's t-UCL	1.7E+01	1.4E+01	1.6E+01	
	Mercury	mg/kg	5	0	0	6.1E-02	7.6E-02	normal	95% Student's t-UCL	7.5E-02	6.1E-02	7.5E-02	
	Vanadium	mg/kg	NA	NA	NA	NA	NA	--	--	--	NA	NA	
	<b>Butyltins</b>												
	Tributyltin ion	ug/kg	1	0	0	8.4E-01	8.4E-01	--	Fewer than 5 detects <sup>f</sup>	--	8.4E-01	8.4E-01	
	<b>Polynuclear Aromatic Hydrocarbons</b>												
	Benzo(a)anthracene	ug/kg	5	0	0	5.0E+01	1.5E+02	lognormal	95% H-UCL	3.5E+02	5.0E+01	1.5E+02	
	Benzo(a)pyrene	ug/kg	5	0	0	7.4E+01	2.4E+02	lognormal	95% H-UCL	6.6E+02	7.4E+01	2.4E+02	
	Benzo(b)fluoranthene	ug/kg	5	0	0	7.4E+01	2.3E+02	non-parametric	95% Chebyshev (Mean, Sd) UCL	2.4E+02	7.4E+01	2.3E+02	
	Benzo(k)fluoranthene	ug/kg	5	0	0	3.0E+01	7.7E+01	gamma	95% Approximate Gamma UCL	7.7E+01	3.0E+01	7.7E+01	
	Dibenzo(a,h)anthracene	ug/kg	5	0	0	9.4E+00	3.2E+01	lognormal	95% Chebyshev (MVUE) UCL	2.4E+01	9.4E+00	2.4E+01	
	Indeno(1,2,3-cd)pyrene	ug/kg	5	0	0	5.8E+01	2.0E+02	non-parametric	99% Chebyshev (Mean, Sd) UCL	4.1E+02	5.8E+01	2.0E+02	
	Naphthalene	ug/kg	5	0	0	1.3E+01	3.1E+01	gamma	95% Approximate Gamma UCL	2.9E+01	1.3E+01	2.9E+01	
	<b>Phthalates</b>												
	Bis(2-ethylhexyl) phthalate	ug/kg	5	4	0	1.9E+01	4.4E+01	--	Fewer than 5 detects	--	1.9E+01	4.4E+01	
	<b>Phenols</b>												
	Pentachlorophenol	ug/kg	5	1	0	7.2E-01	1.2E+00	--	Fewer than 5 detects	--	7.2E-01	1.2E+00	
	<b>Polychlorinated Biphenyls</b>												
	Total Aroclors	ug/kg	5	1	0	1.1E+01	1.7E+01	--	Fewer than 5 detects	--	1.1E+01	1.7E+01	
	Total PCB Congeners	pg/g	1	0	0	7.1E+03	7.1E+03	--	Fewer than 5 detects	--	7.1E+03	7.1E+03	
	Total PCBs, Adjusted <sup>g</sup>	pg/g	1	0	0	6.6E+03	6.6E+03	--	Fewer than 5 detects	--	6.6E+03	6.6E+03	
	<b>Dioxin/Furans</b>												
	Total Dioxin/Furan TEQ	pg/g	5	0	0	7.6E-01	2.7E+00	--	Fewer than 5 detects	--	7.6E-01	2.7E+00	
	Total PCB TEQ	pg/g	1	0	0	3.2E-01	3.2E-01	gamma	95% Approximate Gamma UCL	3.7E+00	3.2E-01	3.2E-01	
<b>Pesticides</b>													
Aldrin	ug/kg	5	4	0	1.7E-01	3.7E-01	--	Fewer than 5 detects	--	1.7E-01	3.7E-01		
Dieldrin	ug/kg	5	5	ND	ND	ND	--	Fewer than 5 detects	--	ND	ND		
Total DDT	ug/kg	5	0	0	2.5E+00	5.9E+00	normal	95% Student's t-UCL	4.6E+00	2.5E+00	4.6E+00		
<b>Conventionals</b>													
Perchlorate	ug/kg	NA	NA	NA	NA	NA	--	--	--	NA	NA		
RM 1 East	<b>Metals</b>												
	Arsenic	mg/kg	5	0	0	4.1E+00	6.4E+00	normal	95% Student's t-UCL	5.7E+00	4.1E+00	5.7E+00	
	Lead	mg/kg	5	0	0	1.1E+01	2.8E+01	normal	95% Student's t-UCL	2.0E+01	1.1E+01	2.0E+01	
	Mercury	mg/kg	5	0	0	1.4E+00	7.1E+00	non-parametric	95% Hall's Bootstrap UCL	2.0E+03	1.4E+00	7.1E+00	
	Vanadium	mg/kg	NA	NA	NA	NA	NA	--	--	--	NA	NA	
	<b>Butyltins</b>												
	Tributyltin ion	ug/kg	2	0	0	1.1E+00	1.2E+00	--	Fewer than 5 detects	--	1.1E+00	1.2E+00	
<b>Polynuclear Aromatic Hydrocarbons</b>													
Benzo(a)anthracene	ug/kg	5	0	0	3.1E+01	5.6E+01	normal	95% Student's t-UCL	5.3E+01	3.1E+01	5.3E+01		
Benzo(a)pyrene	ug/kg	5	0	0	4.6E+01	8.4E+01	normal	95% Student's t-UCL	8.1E+01	4.6E+01	8.1E+01		

TABLE 3-4.  
Exposure Point Concentration Summary - In-water Sediment

Scenario Timeframe: Current/Future
Medium: Sediment
Exposure Medium: In-Water Sediment

Exposure Point <sup>a</sup>	Chemical of Potential Concern	Units	Total Samples	Total Non-Detects <sup>b</sup>	Non-Detects greater than Maximum Detected Concentration <sup>c</sup>	Arithmetic Mean <sup>d</sup>	Maximum Detected Concentration	95% UCL			Exposure Point Concentration <sup>e</sup>	
								Distribution	95% UCL Method	Value	Mean	95% UCL/Max
	Benzo(b)fluoranthene	ug/kg	5	0	0	4.2E+01	6.9E+01	normal	95% Student's t-UCL	7.0E+01	4.2E+01	6.9E+01
	Benzo(k)fluoranthene	ug/kg	5	0	0	2.7E+01	5.1E+01	normal	95% Student's t-UCL	4.8E+01	2.7E+01	4.8E+01
	Dibenzo(a,h)anthracene	ug/kg	5	0	0	5.5E+00	9.1E+00	normal	95% Student's t-UCL	9.1E+00	5.5E+00	9.1E+00
	Indeno(1,2,3-cd)pyrene	ug/kg	5	0	0	3.3E+01	6.2E+01	normal	95% Student's t-UCL	5.6E+01	3.3E+01	5.6E+01
	Naphthalene	ug/kg	5	2	0	8.3E+00	2.3E+01	--	Fewer than 5 detects	--	8.3E+00	2.3E+01
	<b>Phthalates</b>											
	Bis(2-ethylhexyl) phthalate	ug/kg	5	2	1	4.0E+01	7.1E+01	--	Fewer than 5 detects	--	4.0E+01	7.1E+01
	<b>Phenols</b>											
	Pentachlorophenol	ug/kg	5	2	0	7.6E-01	2.5E+00	--	Fewer than 5 detects	--	7.6E-01	2.5E+00
	<b>Polychlorinated Biphenyls</b>											
	Total Aroclors	ug/kg	5	4	0	1.0E+02	5.1E+02	--	Fewer than 5 detects	--	1.0E+02	5.1E+02
	Total PCB Congeners	pg/g	2	0	0	2.8E+03	3.7E+03	--	Fewer than 5 detects	--	2.8E+03	3.7E+03
	Total PCBs, Adjusted	pg/g	2	0	0	2.6E+03	3.5E+03	--	Fewer than 5 detects	--	2.6E+03	3.5E+03
	<b>Dioxin/Furan</b>											
	Total Dioxin/Furan TEQ	pg/g	5	0	0	4.7E-01	9.4E-01	normal	95% Student's t-UCL	7.5E-01	4.7E-01	7.5E-01
	Total PCB TEQ	pg/g	2	0	0	2.7E-01	2.7E-01	--	Fewer than 5 detects	--	2.7E-01	2.7E-01
	<b>Pesticides</b>											
	Aldrin	ug/kg	5	5	ND	ND	ND	--	Fewer than 5 detects	--	ND	ND
	Dieldrin	ug/kg	5	5	ND	ND	ND	--	Fewer than 5 detects	--	ND	ND
	Total DDT	ug/kg	5	0	0	1.8E+00	5.6E+00	normal	95% Student's t-UCL	4.0E+00	1.8E+00	4.0E+00
	<b>Conventionals</b>											
	Perchlorate	ug/kg	NA	NA	NA	NA	NA	--	--	--	NA	NA
RM 1.5 West	<b>Metals</b>											
	Arsenic	mg/kg	2	0	0	3.6E+00	4.4E+00	--	Fewer than 5 detects	--	3.6E+00	4.4E+00
	Lead	mg/kg	2	0	0	1.1E+01	1.5E+01	--	Fewer than 5 detects	--	1.1E+01	1.5E+01
	Mercury	mg/kg	2	0	0	5.1E-02	6.8E-02	--	Fewer than 5 detects	--	5.1E-02	6.8E-02
	Vanadium	mg/kg	NA	NA	NA	NA	NA	--	--	--	NA	NA
	<b>Butyltins</b>											
	Tributyltin ion	ug/kg	NA	NA	NA	NA	NA	--	--	--	NA	NA
	<b>Polynuclear Aromatic Hydrocarbons</b>											
	Benzo(a)anthracene	ug/kg	2	0	0	1.9E+01	3.3E+01	--	Fewer than 5 detects	--	1.9E+01	3.3E+01
	Benzo(a)pyrene	ug/kg	2	0	0	2.7E+01	4.8E+01	--	Fewer than 5 detects	--	2.7E+01	4.8E+01
	Benzo(b)fluoranthene	ug/kg	2	0	0	2.3E+01	4.1E+01	--	Fewer than 5 detects	--	2.3E+01	4.1E+01
	Benzo(k)fluoranthene	ug/kg	2	0	0	1.9E+01	3.4E+01	--	Fewer than 5 detects	--	1.9E+01	3.4E+01
	Dibenzo(a,h)anthracene	ug/kg	2	0	0	3.3E+00	5.9E+00	--	Fewer than 5 detects	--	3.3E+00	5.9E+00
	Indeno(1,2,3-cd)pyrene	ug/kg	2	0	0	2.1E+01	3.7E+01	--	Fewer than 5 detects	--	2.1E+01	3.7E+01
	Naphthalene	ug/kg	2	1	0	5.3E+00	9.6E+00	--	Fewer than 5 detects	--	5.3E+00	9.6E+00
	<b>Phthalates</b>											
	Bis(2-ethylhexyl) phthalate	ug/kg	2	2	ND	ND	ND	--	Fewer than 5 detects	--	ND	ND
	<b>Phenols</b>											
	Pentachlorophenol	ug/kg	2	1	0	8.1E-01	1.5E+00	--	Fewer than 5 detects	--	8.1E-01	1.5E+00
	<b>Polychlorinated Biphenyls</b>											
	Total Aroclors	ug/kg	2	1	0	1.2E+01	2.2E+01	--	Fewer than 5 detects	--	1.2E+01	2.2E+01
	Total PCB Congeners	pg/g	NA	NA	NA	NA	NA	--	--	--	NA	NA
	Total PCBs, Adjusted	pg/g	NA	NA	NA	NA	NA	--	--	--	NA	NA

TABLE 3-4.  
Exposure Point Concentration Summary - In-water Sediment

Scenario Timeframe: Current/Future
Medium: Sediment
Exposure Medium: In-Water Sediment

Exposure Point <sup>a</sup>	Chemical of Potential Concern	Units	Total Samples	Total Non-Detects <sup>b</sup>	Non-Detects greater than Maximum Detected Concentration <sup>c</sup>	Arithmetic Mean <sup>d</sup>	Maximum Detected Concentration	95% UCL			Exposure Point Concentration <sup>e</sup>	
								Distribution	95% UCL Method	Value	Mean	95% UCL/Max
	<b>Dioxin/Furan</b>											
	Total Dioxin/Furan TEQ	pg/g	2	0	0	8.5E-02	9.4E-02	--	Fewer than 5 detects	--	8.5E-02	9.4E-02
	Total PCB TEQ	pg/g	NA	NA	NA	NA	NA	--	--	--	NA	NA
	<b>Pesticides</b>											
	Aldrin	ug/kg	2	2	ND	ND	ND	--	Fewer than 5 detects	--	ND	ND
	Dieldrin	ug/kg	2	2	ND	ND	ND	--	Fewer than 5 detects	--	ND	ND
	Total DDT	ug/kg	2	1	0	7.9E-01	1.1E+00	--	Fewer than 5 detects	--	7.9E-01	1.1E+00
	<b>Conventionals</b>											
	Perchlorate	ug/kg	NA	NA	NA	NA	NA	--	--	--	NA	NA
RM 1.5 East	<b>Metals</b>											
	Arsenic	mg/kg	4	0	0	4.4E+00	5.4E+00	--	Fewer than 5 detects	--	4.4E+00	5.4E+00
	Lead	mg/kg	4	0	0	1.1E+01	1.3E+01	--	Fewer than 5 detects	--	1.1E+01	1.3E+01
	Mercury	mg/kg	4	0	0	6.4E-02	1.3E-01	--	Fewer than 5 detects	--	6.4E-02	1.3E-01
	Vanadium	mg/kg	NA	NA	NA	NA	NA	--	--	--	NA	NA
	<b>Butyltins</b>											
	Tributyltin ion	ug/kg	1	0	0	3.7E-01	3.7E-01	--	Fewer than 5 detects	--	3.7E-01	3.7E-01
	<b>Polynuclear Aromatic Hydrocarbons</b>											
	Benzo(a)anthracene	ug/kg	4	0	0	2.5E+02	9.4E+02	--	Fewer than 5 detects	--	2.5E+02	9.4E+02
	Benzo(a)pyrene	ug/kg	4	0	0	3.7E+02	1.4E+03	--	Fewer than 5 detects	--	3.7E+02	1.4E+03
	Benzo(b)fluoranthene	ug/kg	4	0	0	2.2E+02	8.2E+02	--	Fewer than 5 detects	--	2.2E+02	8.2E+02
	Benzo(k)fluoranthene	ug/kg	4	0	0	2.2E+02	8.2E+02	--	Fewer than 5 detects	--	2.2E+02	8.2E+02
	Dibenzo(a,h)anthracene	ug/kg	4	0	0	3.7E+01	1.4E+02	--	Fewer than 5 detects	--	3.7E+01	1.4E+02
	Indeno(1,2,3-cd)pyrene	ug/kg	4	0	0	2.6E+02	1.0E+03	--	Fewer than 5 detects	--	2.6E+02	1.0E+03
	Naphthalene	ug/kg	4	1	0	9.8E+01	3.7E+02	--	Fewer than 5 detects	--	9.8E+01	3.7E+02
	<b>Phthalates</b>											
	Bis(2-ethylhexyl) phthalate	ug/kg	4	1	0	7.1E+01	1.7E+02	--	Fewer than 5 detects	--	7.1E+01	1.7E+02
	<b>Phenols</b>											
	Pentachlorophenol	ug/kg	4	2	0	1.6E+00	4.1E+00	--	Fewer than 5 detects	--	1.6E+00	4.1E+00
	<b>Polychlorinated Biphenyls</b>											
	Total Aroclors	ug/kg	4	1	0	2.2E+01	4.1E+01	--	Fewer than 5 detects	--	2.2E+01	4.1E+01
	Total PCB Congeners	pg/g	1	0	0	3.5E+03	3.5E+03	--	Fewer than 5 detects	--	3.5E+03	3.5E+03
	Total PCBs, Adjusted	pg/g	1	0	0	3.2E+03	3.2E+03	--	Fewer than 5 detects	--	3.2E+03	3.2E+03
	<b>Dioxin/Furan</b>											
	Total Dioxin/Furan TEQ	pg/g	4	0	0	5.7E-01	1.8E+00	--	Fewer than 5 detects	--	5.7E-01	1.8E+00
	Total PCB TEQ	pg/g	1	0	0	1.1E-01	1.1E-01	--	Fewer than 5 detects	--	1.1E-01	1.1E-01
	<b>Pesticides</b>											
	Aldrin	ug/kg	4	4	ND	ND	ND	--	Fewer than 5 detects	--	ND	ND
	Dieldrin	ug/kg	4	3	3	6.9E-02	6.9E-02	--	Fewer than 5 detects	--	6.9E-02	6.9E-02
	Total DDT	ug/kg	4	1	0	6.8E+00	2.2E+01	--	Fewer than 5 detects	--	6.8E+00	2.2E+01
	<b>Conventionals</b>											
	Perchlorate	ug/kg	NA	NA	NA	NA	NA	--	--	--	NA	NA

TABLE 3-4.  
Exposure Point Concentration Summary - In-water Sediment

Scenario Timeframe: Current/Future
Medium: Sediment
Exposure Medium: In-Water Sediment

Exposure Point <sup>a</sup>	Chemical of Potential Concern	Units	Total Samples	Total Non-Detects <sup>b</sup>	Non-Detects greater than Maximum Detected Concentration <sup>c</sup>	Arithmetic Mean <sup>d</sup>	Maximum Detected Concentration	95% UCL			Exposure Point Concentration <sup>e</sup>		
								Distribution	95% UCL Method	Value	Mean	95% UCL/Max	
RM 2 West	<b>Metals</b>												
	Arsenic	mg/kg	8	0	0	3.4E+00	4.3E+00	normal	95% Student's t-UCL	3.8E+00	3.4E+00	3.8E+00	
	Lead	mg/kg	8	0	0	1.1E+01	1.5E+01	normal	95% Student's t-UCL	1.4E+01	1.1E+01	1.4E+01	
	Mercury	mg/kg	8	0	0	6.2E-02	8.7E-02	normal	95% Student's t-UCL	7.8E-02	6.2E-02	7.8E-02	
	Vanadium	mg/kg	NA	NA	NA	NA	NA	--	--	--	NA	NA	
	<b>Butyltins</b>												
	Tributyltin ion	ug/kg	1	0	0	2.1E+00	2.1E+00	--	Fewer than 5 detects	--	2.1E+00	2.1E+00	
	<b>Polynuclear Aromatic Hydrocarbons</b>												
	Benzo(a)anthracene	ug/kg	8	0	0	3.1E+01	9.0E+01	gamma	95% Approximate Gamma UCL	5.5E+01	3.1E+01	5.5E+01	
	Benzo(a)pyrene	ug/kg	8	0	0	5.5E+01	1.7E+02	gamma	95% Approximate Gamma UCL	9.8E+01	5.5E+01	9.8E+01	
	Benzo(b)fluoranthene	ug/kg	8	0	0	5.6E+01	1.6E+02	gamma	95% Approximate Gamma UCL	9.8E+01	5.6E+01	9.8E+01	
	Benzo(k)fluoranthene	ug/kg	8	0	0	1.8E+01	5.3E+01	gamma	95% Approximate Gamma UCL	3.2E+01	1.8E+01	3.2E+01	
	Dibenzo(a,h)anthracene	ug/kg	8	0	0	6.1E+00	1.6E+01	gamma	95% Approximate Gamma UCL	1.0E+01	6.1E+00	1.0E+01	
	Indeno(1,2,3-cd)pyrene	ug/kg	8	0	0	4.6E+01	1.3E+02	gamma	95% Approximate Gamma UCL	8.1E+01	4.6E+01	8.1E+01	
	Naphthalene	ug/kg	8	2	0	7.2E+00	1.2E+01	normal	95% KM (t) UCL	1.0E+01	7.2E+00	1.0E+01	
	<b>Phthalates</b>												
	Bis(2-ethylhexyl) phthalate	ug/kg	8	3	0	3.3E+01	6.8E+01	normal	95% KM (t) UCL	4.8E+01	3.3E+01	4.8E+01	
	<b>Phenols</b>												
	Pentachlorophenol	ug/kg	8	8	ND	ND	ND	--	Fewer than 5 detects	--	ND	ND	
	<b>Polychlorinated Biphenyls</b>												
	Total Aroclors	ug/kg	8	2	0	1.3E+01	2.3E+01	normal	95% KM (t) UCL	1.8E+01	1.3E+01	1.8E+01	
	Total PCB Congeners	pg/g	2	0	0	7.8E+03	1.2E+04	--	Fewer than 5 detects	--	7.8E+03	1.2E+04	
	Total PCBs, Adjusted	pg/g	2	0	0	7.3E+03	1.1E+04	--	Fewer than 5 detects	--	7.3E+03	1.1E+04	
<b>Dioxin/Furan</b>													
Total Dioxin/Furan TEQ	pg/g	3	0	0	8.2E-01	2.2E+00	--	Fewer than 5 detects	--	8.2E-01	2.2E+00		
Total PCB TEQ	pg/g	2	0	0	2.5E-01	3.5E-01	--	Fewer than 5 detects	--	2.5E-01	3.5E-01		
<b>Pesticides</b>													
Aldrin	ug/kg	5	4	0	9.1E-02	3.6E-01	--	Fewer than 5 detects	--	9.1E-02	3.6E-01		
Dieldrin	ug/kg	8	4	0	1.1E-01	2.7E-01	--	Fewer than 5 detects	--	1.1E-01	2.7E-01		
Total DDT	ug/kg	8	0	0	1.4E+00	4.3E+00	gamma	95% Approximate Gamma UCL	3.2E+00	1.4E+00	3.2E+00		
<b>Conventionals</b>													
Perchlorate	ug/kg	NA	NA	NA	NA	NA	--	--	--	NA	NA		
RM 2 East	<b>Metals</b>												
	Arsenic	mg/kg	34	0	0	4.1E+00	5.8E+00	normal	95% Student's t-UCL	4.3E+00	4.1E+00	4.3E+00	
	Lead	mg/kg	34	0	0	2.6E+01	1.1E+02	non-parametric	95% Chebyshev (Mean, Sd) UCL	4.3E+01	2.6E+01	4.3E+01	
	Mercury	mg/kg	34	2	0	8.2E-02	1.5E-01	normal	95% KM (t) UCL	9.1E-02	8.2E-02	9.1E-02	
	Vanadium	mg/kg	NA	NA	NA	NA	NA	--	--	--	NA	NA	
	<b>Butyltins</b>												
	Tributyltin ion	ug/kg	2	1	0	2.7E+00	3.7E+00	--	Fewer than 5 detects	--	2.7E+00	3.7E+00	
	<b>Polynuclear Aromatic Hydrocarbons</b>												
Benzo(a)anthracene	ug/kg	34	0	0	5.8E+01	2.0E+02	non-parametric	95% Chebyshev (Mean, Sd) UCL	9.7E+01	5.8E+01	9.7E+01		
Benzo(a)pyrene	ug/kg	34	0	0	8.6E+01	4.1E+02	lognormal	95% H-UCL	1.2E+02	8.6E+01	1.2E+02		

TABLE 3-4.  
Exposure Point Concentration Summary - In-water Sediment

Scenario Timeframe: Current/Future
Medium: Sediment
Exposure Medium: In-Water Sediment

Exposure Point <sup>a</sup>	Chemical of Potential Concern	Units	Total Samples	Total Non-Detects <sup>b</sup>	Non-Detects greater than Maximum Detected Concentration <sup>c</sup>	Arithmetic Mean <sup>d</sup>	Maximum Detected Concentration	95% UCL			Exposure Point Concentration <sup>e</sup>		
								Distribution	95% UCL Method	Value	Mean	95% UCL/Max	
	Benzo(b)fluoranthene	ug/kg	34	0	0	9.4E+01	4.2E+02	lognormal	95% H-UCL	1.3E+02	9.4E+01	1.3E+02	
	Benzo(k)fluoranthene	ug/kg	34	0	0	4.1E+01	1.8E+02	non-parametric	95% Chebyshev (Mean, Sd) UCL	7.7E+01	4.1E+01	7.7E+01	
	Dibenzo(a,h)anthracene	ug/kg	34	0	0	1.3E+01	6.0E+01	non-parametric	95% Chebyshev (Mean, Sd) UCL	2.4E+01	1.3E+01	2.4E+01	
	Indeno(1,2,3-cd)pyrene	ug/kg	34	0	0	7.5E+01	4.0E+02	lognormal	95% H-UCL	1.1E+02	7.5E+01	1.1E+02	
	Naphthalene	ug/kg	34	10	0	1.4E+01	8.7E+01	non-parametric	95% KM (BCA) UCL	2.1E+01	1.4E+01	2.1E+01	
	<b>Phthalates</b>												
	Bis(2-ethylhexyl) phthalate	ug/kg	34	10	0	9.9E+01	2.7E+02	normal	95% KM (t) UCL	1.2E+02	9.9E+01	1.2E+02	
	<b>Phenols</b>												
	Pentachlorophenol	ug/kg	20	18	14	5.3E-01	2.2E+00	--	Fewer than 5 detects	--	5.3E-01	2.2E+00	
	<b>Polychlorinated Biphenyls</b>												
	Total Aroclors	ug/kg	34	1	0	4.3E+02	1.9E+03	non-parametric	99% KM (Chebyshev) UCL	1.5E+03	4.3E+02	1.5E+03	
	Total PCB Congeners	pg/g	17	0	0	8.6E+05	9.8E+06	non-parametric	99% KM (Chebyshev) UCL	6.6E+06	8.6E+05	6.6E+06	
	Total PCBs, Adjusted	pg/g	17	0	0	8.2E+05	9.4E+06	non-parametric	99% KM (Chebyshev) UCL	6.3E+06	8.2E+05	6.3E+06	
	<b>Dioxin/Furan</b>												
	Total Dioxin/Furan TEQ	pg/g	8	0	0	1.2E+00	5.6E+00	gamma	95% KM (Chebyshev) UCL	4.0E+00	1.2E+00	4.0E+00	
	Total PCB TEQ	pg/g	17	0	0	1.3E+01	1.2E+02	non-parametric	99% KM (Chebyshev) UCL	8.5E+01	1.3E+01	8.5E+01	
	<b>Pesticides</b>												
	Aldrin	ug/kg	21	14	2	4.7E-01	2.6E+00	normal	95% KM (t) UCL	7.0E-01	4.7E-01	7.0E-01	
	Dieldrin	ug/kg	34	18	2	6.0E-01	9.3E+00	lognormal	95% KM (BCA) UCL	1.2E+00	6.0E-01	1.2E+00	
	Total DDT	ug/kg	34	4	1	2.6E+00	8.3E+00	gamma	95% KM (Chebyshev) UCL	4.2E+00	2.6E+00	4.2E+00	
<b>Conventionals</b>													
Perchlorate	ug/kg	NA	NA	NA	NA	NA	--	--	--	NA	NA		
RM 2.5 West	<b>Metals</b>												
	Arsenic	mg/kg	10	0	0	4.0E+00	6.5E+00	normal	95% Student's t-UCL	4.7E+00	4.0E+00	4.7E+00	
	Lead	mg/kg	10	0	0	1.3E+01	3.0E+01	normal	95% Student's t-UCL	1.7E+01	1.3E+01	1.7E+01	
	Mercury	mg/kg	10	0	0	5.5E-02	1.4E-01	gamma	95% Approximate Gamma UCL	9.1E-02	5.5E-02	9.1E-02	
	Vanadium	mg/kg	NA	NA	NA	NA	NA	--	--	--	NA	NA	
	<b>Butyltins</b>												
	Tributyltin ion	ug/kg	1	0	0	2.3E+00	2.3E+00	--	Fewer than 5 detects	--	2.3E+00	2.3E+00	
	<b>Polynuclear Aromatic Hydrocarbons</b>												
	Benzo(a)anthracene	ug/kg	10	0	0	2.1E+02	5.5E+02	normal	95% Student's t-UCL	3.1E+02	2.1E+02	3.1E+02	
	Benzo(a)pyrene	ug/kg	10	0	0	3.7E+02	9.7E+02	normal	95% Student's t-UCL	5.5E+02	3.7E+02	5.5E+02	
	Benzo(b)fluoranthene	ug/kg	10	0	0	2.8E+02	6.0E+02	normal	95% Student's t-UCL	4.0E+02	2.8E+02	4.0E+02	
	Benzo(k)fluoranthene	ug/kg	10	0	0	1.2E+02	4.3E+02	gamma	95% Approximate Gamma UCL	2.5E+02	1.2E+02	2.5E+02	
	Dibenzo(a,h)anthracene	ug/kg	10	0	0	4.1E+01	1.3E+02	normal	95% Student's t-UCL	6.4E+01	4.1E+01	6.4E+01	
	Indeno(1,2,3-cd)pyrene	ug/kg	10	0	0	3.1E+02	9.0E+02	normal	95% Student's t-UCL	4.7E+02	3.1E+02	4.7E+02	
	Naphthalene	ug/kg	10	3	0	4.1E+01	1.6E+02	approx. gamma	95% KM (BCA) UCL	7.6E+01	4.1E+01	7.6E+01	
	<b>Phthalates</b>												
	Bis(2-ethylhexyl) phthalate	ug/kg	10	7	2	1.5E+01	4.3E+01	--	Fewer than 5 detects	--	1.5E+01	4.3E+01	
	<b>Phenols</b>												
	Pentachlorophenol	ug/kg	7	5	3	4.5E-01	1.2E+00	--	Fewer than 5 detects	--	4.5E-01	1.2E+00	
	<b>Polychlorinated Biphenyls</b>												
	Total Aroclors	ug/kg	10	5	0	1.1E+01	4.7E+01	normal	95% KM (t) UCL	2.1E+01	1.1E+01	2.1E+01	
	Total PCB Congeners	pg/g	1	0	0	7.3E+03	7.3E+03	--	Fewer than 5 detects	--	7.3E+03	7.3E+03	
	Total PCBs, Adjusted	pg/g	1	0	0	6.9E+03	6.9E+03	--	Fewer than 5 detects	--	6.9E+03	6.9E+03	



TABLE 3-4.  
Exposure Point Concentration Summary - In-water Sediment

Scenario Timeframe: Current/Future
Medium: Sediment
Exposure Medium: In-Water Sediment

Exposure Point <sup>a</sup>	Chemical of Potential Concern	Units	Total Samples	Total Non-Detects <sup>b</sup>	Non-Detects greater than Maximum Detected Concentration <sup>c</sup>	Arithmetic Mean <sup>d</sup>	Maximum Detected Concentration	95% UCL			Exposure Point Concentration <sup>e</sup>	
								Distribution	95% UCL Method	Value	Mean	95% UCL/Max
	<b>Dioxin/Furan</b>											
	Total Dioxin/Furan TEQ	pg/g	2	0	0	2.7E-01	4.1E-01	--	Fewer than 5 detects	--	2.7E-01	4.1E-01
	Total PCB TEQ	pg/g	1	0	0	2.1E-01	2.1E-01	--	Fewer than 5 detects	--	2.1E-01	2.1E-01
	<b>Pesticides</b>											
	Aldrin	ug/kg	7	3	1	9.3E-02	2.6E-01	--	Fewer than 5 detects	--	9.3E-02	2.6E-01
	Dieldrin	ug/kg	10	4	1	1.4E-01	3.5E-01	normal	95% KM (t) UCL	2.2E-01	1.4E-01	2.2E-01
	Total DDT	ug/kg	10	0	0	1.4E+00	5.3E+00	lognormal	95% H-UCL	3.4E+00	1.4E+00	3.4E+00
<b>Conventionals</b>												
Perchlorate	ug/kg	NA	NA	NA	NA	NA	--	--	--	NA	NA	NA
RM 2.5 East	<b>Metals</b>											
	Arsenic	mg/kg	19	0	0	4.2E+00	1.0E+01	non-parametric	95% Student's t-UCL	4.8E+00	4.2E+00	4.8E+00
	Lead	mg/kg	19	0	0	1.4E+01	3.4E+01	non-parametric	95% Chebyshev (Mean, Sd) UCL	2.0E+01	1.4E+01	2.0E+01
	Mercury	mg/kg	19	0	0	6.8E-02	2.5E-01	gamma	95% Approximate Gamma UCL	9.1E-02	6.8E-02	9.1E-02
	Vanadium	mg/kg	NA	NA	NA	NA	NA	--	--	--	NA	NA
	<b>Butyltins</b>											
	Tributyltin ion	ug/kg	NA	NA	NA	NA	NA	--	--	--	NA	NA
	<b>Polynuclear Aromatic Hydrocarbons</b>											
	Benzo(a)anthracene	ug/kg	19	0	0	5.8E+02	1.0E+04	non-parametric	99% Chebyshev (Mean, Sd) UCL	5.8E+03	5.8E+02	5.8E+03
	Benzo(a)pyrene	ug/kg	19	0	0	4.8E+02	7.8E+03	non-parametric	99% Chebyshev (Mean, Sd) UCL	4.5E+03	4.8E+02	4.5E+03
	Benzo(b)fluoranthene	ug/kg	19	0	0	4.4E+02	6.7E+03	non-parametric	99% Chebyshev (Mean, Sd) UCL	3.9E+03	4.4E+02	3.9E+03
	Benzo(k)fluoranthene	ug/kg	19	0	0	1.4E+02	2.1E+03	non-parametric	99% Chebyshev (Mean, Sd) UCL	1.2E+03	1.4E+02	1.2E+03
	Dibenzo(a,h)anthracene	ug/kg	19	0	0	4.9E+01	7.7E+02	non-parametric	99% Chebyshev (Mean, Sd) UCL	4.5E+02	4.9E+01	4.5E+02
	Indeno(1,2,3-cd)pyrene	ug/kg	19	0	0	2.8E+02	4.4E+03	non-parametric	99% Chebyshev (Mean, Sd) UCL	2.6E+03	2.8E+02	2.6E+03
	Naphthalene	ug/kg	19	7	0	5.1E+01	6.9E+02	lognormal	97.5% KM (Chebyshev) UCL	2.8E+02	5.1E+01	2.8E+02
	<b>Phthalates</b>											
	Bis(2-ethylhexyl) phthalate	ug/kg	19	8	0	7.8E+01	2.1E+02	normal	95% KM (t) UCL	1.1E+02	7.8E+01	1.1E+02
	<b>Phenols</b>											
	Pentachlorophenol	ug/kg	19	18	0	4.3E+00	5.7E+01	--	Fewer than 5 detects	--	4.3E+00	5.7E+01
	<b>Polychlorinated Biphenyls</b>											
	Total Aroclors	ug/kg	19	2	0	5.6E+01	1.7E+02	gamma	95% KM (BCA) UCL	7.7E+01	5.6E+01	7.7E+01
	Total PCB Congeners	pg/g	7	0	0	6.6E+04	2.0E+05	gamma	95% KM (Chebyshev) UCL	1.8E+05	6.6E+04	1.8E+05
	Total PCBs, Adjusted	pg/g	7	0	0	6.3E+04	1.9E+05	gamma	95% KM (Chebyshev) UCL	1.7E+05	6.3E+04	1.7E+05
	<b>Dioxin/Furan</b>											
	Total Dioxin/Furan TEQ	pg/g	2	0	0	6.6E-01	1.1E+00	--	Fewer than 5 detects	--	6.6E-01	1.1E+00
	Total PCB TEQ	pg/g	7	0	0	1.3E+00	3.8E+00	gamma	95% KM (Chebyshev) UCL	3.3E+00	1.3E+00	3.3E+00
	<b>Pesticides</b>											
	Aldrin	ug/kg	18	9	1	5.1E-01	1.3E+00	normal	95% KM (t) UCL	7.5E-01	5.1E-01	7.5E-01
	Dieldrin	ug/kg	19	13	2	1.7E-01	5.3E-01	normal	95% KM (t) UCL	3.3E-01	1.7E-01	3.3E-01
	Total DDT	ug/kg	19	4	1	2.4E+00	2.6E+01	lognormal	97.5% KM (Chebyshev) UCL	1.1E+01	2.4E+00	1.1E+01
	<b>Conventionals</b>											
	Perchlorate	ug/kg	NA	NA	NA	NA	NA	--	--	--	NA	NA

TABLE 3-4.  
Exposure Point Concentration Summary - In-water Sediment

Scenario Timeframe: Current/Future
Medium: Sediment
Exposure Medium: In-Water Sediment

Exposure Point <sup>a</sup>	Chemical of Potential Concern	Units	Total Samples	Total Non-Detects <sup>b</sup>	Non-Detects greater than Maximum Detected Concentration <sup>c</sup>	Arithmetic Mean <sup>d</sup>	Maximum Detected Concentration	95% UCL			Exposure Point Concentration <sup>e</sup>		
								Distribution	95% UCL Method	Value	Mean	95% UCL/Max	
RM 2.5 MC	<b>Metals</b>												
	Arsenic	mg/kg	7	0	0	4.3E+00	5.2E+00	normal	95% Student's t-UCL	4.8E+00	4.3E+00	4.8E+00	
	Lead	mg/kg	7	0	0	1.3E+01	2.2E+01	normal	95% Student's t-UCL	1.7E+01	1.3E+01	1.7E+01	
	Mercury	mg/kg	7	0	0	7.9E-02	1.8E-01	normal	95% Student's t-UCL	1.3E-01	7.9E-02	1.3E-01	
	Vanadium	mg/kg	NA	NA	NA	NA	NA	--	--	--	NA	NA	
	<b>Butyltins</b>												
	Tributyltin ion	ug/kg	NA	NA	NA	NA	NA	--	--	--	NA	NA	
	<b>Polynuclear Aromatic Hydrocarbons</b>												
	Benzo(a)anthracene	ug/kg	7	0	0	2.1E+02	4.2E+02	normal	95% Student's t-UCL	3.1E+02	2.1E+02	3.1E+02	
	Benzo(a)pyrene	ug/kg	7	0	0	3.4E+02	6.9E+02	normal	95% Student's t-UCL	4.9E+02	3.4E+02	4.9E+02	
	Benzo(b)fluoranthene	ug/kg	7	0	0	3.1E+02	6.4E+02	normal	95% Student's t-UCL	4.5E+02	3.1E+02	4.5E+02	
	Benzo(k)fluoranthene	ug/kg	7	0	0	1.0E+02	2.1E+02	normal	95% Student's t-UCL	1.4E+02	1.0E+02	1.4E+02	
	Dibenzo(a,h)anthracene	ug/kg	7	0	0	3.4E+01	6.0E+01	normal	95% Student's t-UCL	4.7E+01	3.4E+01	4.7E+01	
	Indeno(1,2,3-cd)pyrene	ug/kg	7	0	0	2.6E+02	5.4E+02	normal	95% Student's t-UCL	3.8E+02	2.6E+02	3.8E+02	
	Naphthalene	ug/kg	7	0	0	5.9E+01	1.4E+02	normal	95% Student's t-UCL	9.9E+01	5.9E+01	9.9E+01	
	<b>Phthalates</b>												
	Bis(2-ethylhexyl) phthalate	ug/kg	7	1	0	5.8E+01	1.4E+02	normal	95% KM (t) UCL	9.3E+01	5.8E+01	9.3E+01	
	<b>Phenols</b>												
	Pentachlorophenol	ug/kg	5	3	2	5.5E-01	1.6E+00	--	Fewer than 5 detects	--	5.5E-01	1.6E+00	
	<b>Polychlorinated Biphenyls</b>												
	Total Aroclors	ug/kg	7	1	0	2.5E+01	5.9E+01	normal	95% KM (t) UCL	3.9E+01	2.5E+01	3.9E+01	
	Total PCB Congeners	pg/g	NA	NA	NA	NA	NA	--	--	--	NA	NA	
	Total PCBs, Adjusted	pg/g	NA	NA	NA	NA	NA	--	--	--	NA	NA	
<b>Dioxin/Furan</b>													
Total Dioxin/Furan TEQ	pg/g	NA	NA	NA	NA	NA	--	--	--	NA	NA		
Total PCB TEQ	pg/g	NA	NA	NA	NA	NA	--	--	--	NA	NA		
<b>Pesticides</b>													
Aldrin	ug/kg	7	5	0	2.0E-01	6.5E-01	--	Fewer than 5 detects	--	2.0E-01	6.5E-01		
Dieldrin	ug/kg	7	4	0	3.1E-01	9.7E-01	--	Fewer than 5 detects	--	3.1E-01	9.7E-01		
Total DDT	ug/kg	7	1	0	3.7E+00	1.3E+01	gamma	95% KM (Chebyshev) UCL	1.1E+01	3.7E+00	1.1E+01		
<b>Conventionals</b>													
Perchlorate	ug/kg	NA	NA	NA	NA	NA	--	--	--	NA	NA		
RM 3 West	<b>Metals</b>												
	Arsenic	mg/kg	15	0	0	3.7E+00	6.0E+00	normal	95% Student's-t UCL	4.1E+00	3.7E+00	4.1E+00	
	Lead	mg/kg	15	0	0	1.2E+01	1.9E+01	normal	95% Student's-t UCL	1.4E+01	1.2E+01	1.4E+01	
	Mercury	mg/kg	14	2	0	8.0E-02	1.9E-01	normal	95% KM (t) UCL	1.1E-01	8.0E-02	1.1E-01	
	Vanadium	mg/kg	3	0	0	8.6E+01	9.3E+01	--	Fewer than 5 detects	--	8.6E+01	9.3E+01	
	<b>Butyltins</b>												
	Tributyltin ion	ug/kg	2	0	0	1.0E+01	1.8E+01	--	Fewer than 5 detects	--	1.0E+01	1.8E+01	
	<b>Polynuclear Aromatic Hydrocarbons</b>												
Benzo(a)anthracene	ug/kg	15	0	0	2.9E+02	9.4E+02	gamma	95% Approximate Gamma UCL	4.7E+02	2.9E+02	4.7E+02		
Benzo(a)pyrene	ug/kg	15	0	0	4.6E+02	1.2E+03	gamma	95% Approximate Gamma UCL	7.1E+02	4.6E+02	7.1E+02		

TABLE 3-4.  
Exposure Point Concentration Summary - In-water Sediment

Scenario Timeframe: Current/Future
Medium: Sediment
Exposure Medium: In-Water Sediment

Exposure Point <sup>a</sup>	Chemical of Potential Concern	Units	Total Samples	Total Non-Detects <sup>b</sup>	Non-Detects greater than Maximum Detected Concentration <sup>c</sup>	Arithmetic Mean <sup>d</sup>	Maximum Detected Concentration	95% UCL			Exposure Point Concentration <sup>e</sup>	
								Distribution	95% UCL Method	Value	Mean	95% UCL/Max
	Benzo(b)fluoranthene	ug/kg	15	0	0	4.0E+02	1.1E+03	gamma	95% Approximate Gamma UCL	6.0E+02	4.0E+02	6.0E+02
	Benzo(k)fluoranthene	ug/kg	15	0	0	2.3E+02	7.6E+02	gamma	95% Approximate Gamma UCL	4.0E+02	2.3E+02	4.0E+02
	Dibenzo(a,h)anthracene	ug/kg	15	0	0	5.3E+01	1.5E+02	gamma	95% Approximate Gamma UCL	8.2E+01	5.3E+01	8.2E+01
	Indeno(1,2,3-cd)pyrene	ug/kg	15	0	0	3.3E+02	1.1E+03	gamma	95% Approximate Gamma UCL	4.8E+02	3.3E+02	4.8E+02
	Naphthalene	ug/kg	15	1	0	9.8E+01	3.6E+02	gamma	95% KM (Chebyshev) UCL	2.2E+02	9.8E+01	2.2E+02
	<b>Phthalates</b>											
	Bis(2-ethylhexyl) phthalate	ug/kg	15	9	0	4.0E+01	1.5E+02	normal	95% KM (t) UCL	5.8E+01	4.0E+01	5.8E+01
	<b>Phenols</b>											
	Pentachlorophenol	ug/kg	15	14	0	1.6E+01	1.1E+02	--	Fewer than 5 detects	--	1.6E+01	1.1E+02
	<b>Polychlorinated Biphenyls</b>											
	Total Aroclors	ug/kg	13	7	1	1.1E+01	3.0E+01	normal	95% KM (t) UCL	1.8E+01	1.1E+01	1.8E+01
	Total PCB Congeners	pg/g	2	0	0	1.6E+04	1.6E+04	--	Fewer than 5 detects	--	1.6E+04	1.6E+04
	Total PCBs, Adjusted	pg/g	2	0	0	1.5E+04	1.5E+04	--	Fewer than 5 detects	--	1.5E+04	1.5E+04
	<b>Dioxin/Furan</b>											
	Total Dioxin/Furan TEQ	pg/g	5	0	0	6.1E-01	1.7E+00	lognormal	95% KM (Chebyshev) UCL	1.8E+00	6.1E-01	1.7E+00
	Total PCB TEQ	pg/g	2	0	0	4.1E-01	4.4E-01	--	Fewer than 5 detects	--	4.1E-01	4.4E-01
	<b>Pesticides</b>											
	Aldrin	ug/kg	11	5	1	3.5E-01	1.1E+00	normal	95% KM (t) UCL	5.2E-01	3.5E-01	5.2E-01
	Dieldrin	ug/kg	13	10	2	2.0E-01	1.3E+00	--	Fewer than 5 detects	--	2.0E-01	1.3E+00
	Total DDT	ug/kg	13	1	0	2.8E+01	2.3E+02	non-parametric	99% KM (Chebyshev) UCL	2.1E+02	2.8E+01	2.1E+02
	<b>Conventionals</b>											
	Perchlorate	ug/kg	NA	NA	NA	NA	NA	--	--	--	NA	NA
RM 3 East	<b>Metals</b>											
	Arsenic	mg/kg	24	2	0	4.1E+00	9.7E+00	non-parametric	95% KM (Chebyshev) UCL	5.5E+00	4.1E+00	5.5E+00
	Lead	mg/kg	24	0	0	1.2E+01	1.6E+01	non-parametric	95% Student's-t UCL	1.3E+01	1.2E+01	1.3E+01
	Mercury	mg/kg	24	6	0	5.6E-02	2.5E-01	gamma	95% KM (Percentile Bootstrap) UCL	7.5E-02	5.6E-02	7.5E-02
	Vanadium	mg/kg	4	0	0	8.8E+01	1.1E+02	--	Fewer than 5 detects	--	8.8E+01	1.1E+02
	<b>Butyltins</b>											
	Tributyltin ion	ug/kg	2	1	0	8.3E+00	1.6E+01	--	Fewer than 5 detects	--	8.3E+00	1.6E+01
	<b>Polynuclear Aromatic Hydrocarbons</b>											
	Benzo(a)anthracene	ug/kg	24	1	0	7.7E+01	3.7E+02	gamma	95% KM (Chebyshev) UCL	1.4E+02	7.7E+01	1.4E+02
	Benzo(a)pyrene	ug/kg	24	1	0	8.4E+01	2.7E+02	approx. gamma	95% KM (Chebyshev) UCL	1.4E+02	8.4E+01	1.4E+02
	Benzo(b)fluoranthene	ug/kg	24	1	0	9.9E+01	3.1E+02	approx. gamma	95% KM (Chebyshev) UCL	1.6E+02	9.9E+01	1.6E+02
	Benzo(k)fluoranthene	ug/kg	24	1	0	6.0E+01	2.5E+02	gamma	95% KM (Chebyshev) UCL	1.1E+02	6.0E+01	1.1E+02
	Dibenzo(a,h)anthracene	ug/kg	24	3	0	1.4E+01	3.0E+01	normal	95% KM (t) UCL	1.7E+01	1.4E+01	1.7E+01
	Indeno(1,2,3-cd)pyrene	ug/kg	24	1	0	6.7E+01	1.7E+02	normal	95% KM (t) UCL	8.3E+01	6.7E+01	8.3E+01
	Naphthalene	ug/kg	24	12	2	1.3E+01	2.9E+01	normal	95% KM (t) UCL	1.7E+01	1.3E+01	1.7E+01
	<b>Phthalates</b>											
	Bis(2-ethylhexyl) phthalate	ug/kg	24	11	0	6.5E+01	3.2E+02	gamma	95% KM (t) UCL	8.8E+01	6.5E+01	8.8E+01
	<b>Phenols</b>											
	Pentachlorophenol	ug/kg	13	10	11	1.9E+00	4.6E+00	--	Fewer than 5 detects	--	1.9E+00	4.6E+00
	<b>Polychlorinated Biphenyls</b>											
	Total Aroclors	ug/kg	21	4	1	1.9E+01	3.4E+01	normal	95% KM (t) UCL	2.3E+01	1.9E+01	2.3E+01
	Total PCB Congeners	pg/g	2	0	0	5.6E+03	9.0E+03	--	Fewer than 5 detects	--	5.6E+03	9.0E+03
	Total PCBs, Adjusted	pg/g	2	0	0	5.3E+03	8.6E+03	--	Fewer than 5 detects	--	5.3E+03	8.6E+03

TABLE 3-4.  
Exposure Point Concentration Summary - In-water Sediment

Scenario Timeframe: Current/Future
Medium: Sediment
Exposure Medium: In-Water Sediment

Exposure Point <sup>a</sup>	Chemical of Potential Concern	Units	Total Samples	Total Non-Detects <sup>b</sup>	Non-Detects greater than Maximum Detected Concentration <sup>c</sup>	Arithmetic Mean <sup>d</sup>	Maximum Detected Concentration	95% UCL			Exposure Point Concentration <sup>e</sup>	
								Distribution	95% UCL Method	Value	Mean	95% UCL/Max
	<b>Dioxin/Furan</b>											
	Total Dioxin/Furan TEQ	pg/g	6	0	0	2.9E+00	7.5E+00	normal	95% KM (t) UCL	5.4E+00	2.9E+00	5.4E+00
	Total PCB TEQ	pg/g	2	0	0	7.7E-02	1.0E-01	--	Fewer than 5 detects	--	7.7E-02	1.0E-01
	<b>Pesticides</b>											
	Aldrin	ug/kg	18	11	0	2.9E-01	1.3E+00	normal	95% KM (t) UCL	4.0E-01	2.9E-01	4.0E-01
	Dieldrin	ug/kg	20	17	7	5.7E-02	2.0E-01	--	Fewer than 5 detects	--	5.7E-02	2.0E-01
	Total DDT	ug/kg	20	5	0	1.6E+00	9.9E+00	gamma	95% KM (Chebyshev) UCL	3.8E+00	1.6E+00	3.8E+00
<b>Conventionals</b>												
Perchlorate	ug/kg	NA	NA	NA	NA	NA	--	--	--	NA	NA	NA
RM 3.5 West	<b>Metals</b>											
	Arsenic	mg/kg	16	1	0	5.8E+00	1.7E+01	non-parametric	95% KM (Chebyshev) UCL	1.0E+01	5.8E+00	1.0E+01
	Lead	mg/kg	16	0	0	1.5E+01	2.6E+01	non-parametric	95% Student's-t UCL	1.6E+01	1.5E+01	1.6E+01
	Mercury	mg/kg	16	1	0	7.1E-02	2.2E-01	non-parametric	95% KM (Chebyshev) UCL	1.2E-01	7.1E-02	1.2E-01
	Vanadium	mg/kg	2	0	0	9.9E+01	1.0E+02	--	Fewer than 5 detects	--	9.9E+01	1.0E+02
	<b>Butyltins</b>											
	Tributyltin ion	ug/kg	1	0	0	8.1E+01	8.1E+01	--	Fewer than 5 detects	--	8.1E+01	8.1E+01
	<b>Polynuclear Aromatic Hydrocarbons</b>											
	Benzo(a)anthracene	ug/kg	16	0	0	2.6E+02	2.5E+03	non-parametric	99% Chebyshev (Mean, Sd) UCL	1.8E+03	2.6E+02	1.8E+03
	Benzo(a)pyrene	ug/kg	16	0	0	3.9E+02	3.6E+03	non-parametric	99% Chebyshev (Mean, Sd) UCL	2.6E+03	3.9E+02	2.6E+03
	Benzo(b)fluoranthene	ug/kg	16	0	0	3.5E+02	3.2E+03	non-parametric	99% Chebyshev (Mean, Sd) UCL	2.3E+03	3.5E+02	2.3E+03
	Benzo(k)fluoranthene	ug/kg	16	0	0	1.4E+02	1.1E+03	non-parametric	99% Chebyshev (Mean, Sd) UCL	8.0E+02	1.4E+02	8.0E+02
	Dibenzo(a,h)anthracene	ug/kg	16	0	0	4.3E+01	3.3E+02	approx. gamma	95% Approximate Gamma UCL	7.5E+01	4.3E+01	7.5E+01
	Indeno(1,2,3-cd)pyrene	ug/kg	16	0	0	3.2E+02	2.9E+03	non-parametric	99% Chebyshev (Mean, Sd) UCL	2.1E+03	3.2E+02	2.1E+03
	Naphthalene	ug/kg	16	1	0	1.3E+02	9.8E+02	lognormal	97.5% KM (Chebyshev) UCL	5.2E+02	1.3E+02	5.2E+02
	<b>Phthalates</b>											
	Bis(2-ethylhexyl) phthalate	ug/kg	16	11	2	4.6E+01	1.1E+02	normal	95% KM (t) UCL	8.2E+01	4.6E+01	8.2E+01
	<b>Phenols</b>											
	Pentachlorophenol	ug/kg	13	11	3	2.5E+00	1.5E+01	non-parametric	95% KM (BCA) UCL	1.5E+01	2.5E+00	1.5E+01
	<b>Polychlorinated Biphenyls</b>											
	Total Aroclors	ug/kg	15	1	1	2.3E+01	3.8E+01	normal	95% Student's-t UCL	2.7E+01	2.3E+01	2.7E+01
	Total PCB Congeners	pg/g	2	0	0	1.9E+04	3.0E+04	--	Fewer than 5 detects	--	1.9E+04	3.0E+04
	Total PCBs, Adjusted	pg/g	2	0	0	1.8E+04	2.8E+04	--	Fewer than 5 detects	--	1.8E+04	2.8E+04
	<b>Dioxin/Furan</b>											
	Total Dioxin/Furan TEQ	pg/g	2	0	0	9.1E-01	1.6E+00	--	Fewer than 5 detects	--	9.1E-01	1.6E+00
	Total PCB TEQ	pg/g	2	0	0	5.1E-01	7.7E-01	--	Fewer than 5 detects	--	5.1E-01	7.7E-01
	<b>Pesticides</b>											
Aldrin	ug/kg	15	10	0	2.7E-01	1.1E+00	normal	95% KM (t) UCL	4.9E-01	2.7E-01	4.9E-01	
Dieldrin	ug/kg	15	8	4	1.3E-01	2.5E-01	normal	95% KM (t) UCL	1.8E-01	1.3E-01	1.8E-01	
Total DDT	ug/kg	15	1	0	5.8E+00	3.0E+01	lognormal	97.5% KM (Chebyshev) UCL	2.1E+01	5.8E+00	2.1E+01	
<b>Conventionals</b>												
Perchlorate	ug/kg	NA	NA	NA	NA	NA	--	--	--	NA	NA	NA

TABLE 3-4.  
Exposure Point Concentration Summary - In-water Sediment

Scenario Timeframe: Current/Future
Medium: Sediment
Exposure Medium: In-Water Sediment

Exposure Point <sup>a</sup>	Chemical of Potential Concern	Units	Total Samples	Total Non-Detects <sup>b</sup>	Non-Detects greater than Maximum Detected Concentration <sup>c</sup>	Arithmetic Mean <sup>d</sup>	Maximum Detected Concentration	95% UCL			Exposure Point Concentration <sup>e</sup>		
								Distribution	95% UCL Method	Value	Mean	95% UCL/Max	
RM 3.5 East	<b>Metals</b>												
	Arsenic	mg/kg	39	4	0	3.7E+00	9.2E+00	lognormal	95% KM (Chebyshev) UCL	4.8E+00	3.7E+00	4.8E+00	
	Lead	mg/kg	39	1	0	2.7E+01	2.0E+02	non-parametric	95% KM (Chebyshev) UCL	5.2E+01	2.7E+01	5.2E+01	
	Mercury	mg/kg	39	1	0	7.9E-02	3.4E-01	lognormal	95% KM (Chebyshev) UCL	1.3E-01	7.9E-02	1.3E-01	
	Vanadium	mg/kg	5	0	0	9.9E+01	1.1E+02	normal	95% Student's-t UCL	1.1E+02	9.9E+01	1.1E+02	
	<b>Butyltins</b>												
	Tributyltin ion	ug/kg	27	1	0	1.8E+03	4.7E+04	non-parametric	99% KM (Chebyshev) UCL	1.9E+04	1.8E+03	1.9E+04	
	<b>Polynuclear Aromatic Hydrocarbons</b>												
	Benzo(a)anthracene	ug/kg	40	0	0	2.9E+02	6.0E+03	lognormal	97.5% KM (Chebyshev) UCL	1.2E+03	2.9E+02	1.2E+03	
	Benzo(a)pyrene	ug/kg	40	0	0	2.5E+02	3.8E+03	lognormal	97.5% KM (Chebyshev) UCL	8.7E+02	2.5E+02	8.7E+02	
	Benzo(b)fluoranthene	ug/kg	40	0	0	3.5E+02	5.9E+03	lognormal	97.5% KM (Chebyshev) UCL	1.3E+03	3.5E+02	1.3E+03	
	Benzo(k)fluoranthene	ug/kg	40	0	0	1.7E+02	3.4E+03	lognormal	97.5% KM (Chebyshev) UCL	7.1E+02	1.7E+02	7.1E+02	
	Dibenzo(a,h)anthracene	ug/kg	40	1	0	4.1E+01	4.1E+02	lognormal	97.5% KM (Chebyshev) UCL	1.3E+02	4.1E+01	1.3E+02	
	Indeno(1,2,3-cd)pyrene	ug/kg	40	0	0	1.5E+02	1.1E+03	lognormal	95% KM (Chebyshev) UCL	3.3E+02	1.5E+02	3.3E+02	
	Naphthalene	ug/kg	40	17	1	1.4E+01	6.4E+01	gamma	95% KM (t) UCL	1.8E+01	1.4E+01	1.8E+01	
	<b>Phthalates</b>												
	Bis(2-ethylhexyl) phthalate	ug/kg	39	14	0	1.3E+03	1.7E+04	non-parametric	99% KM (Chebyshev) UCL	6.9E+03	1.3E+03	6.9E+03	
	<b>Phenols</b>												
	Pentachlorophenol	ug/kg	33	26	6	2.0E+00	1.3E+01	lognormal	95% KM (t) UCL	2.5E+00	2.0E+00	2.5E+00	
	<b>Polychlorinated Biphenyls</b>												
	Total Aroclors	ug/kg	35	5	0	3.8E+02	3.5E+03	non-parametric	99% KM (Chebyshev) UCL	1.7E+03	3.8E+02	1.7E+03	
	Total PCB Congeners	pg/g	13	0	0	7.7E+05	3.5E+06	non-parametric	99% KM (Chebyshev) UCL	4.4E+06	7.7E+05	3.5E+06	
	Total PCBs, Adjusted	pg/g	13	0	0	7.0E+05	3.2E+06	non-parametric	99% KM (Chebyshev) UCL	4.0E+06	7.0E+05	3.2E+06	
	<b>Dioxin/Furan</b>												
	Total Dioxin/Furan TEQ	pg/g	10	0	0	3.3E+00	1.9E+01	gamma	95% KM (Chebyshev) UCL	1.1E+01	3.3E+00	1.1E+01	
	Total PCB TEQ	pg/g	13	0	0	1.7E+01	1.2E+02	non-parametric	99% KM (Chebyshev) UCL	1.1E+02	1.7E+01	1.1E+02	
	<b>Pesticides</b>												
Aldrin	ug/kg	34	13	1	3.7E-01	1.7E+00	gamma	95% KM (BCA) UCL	5.0E-01	3.7E-01	5.0E-01		
Dieldrin	ug/kg	37	29	2	1.3E-01	1.2E+00	approx. gamma	95% KM (t) UCL	1.5E-01	1.3E-01	1.5E-01		
Total DDT	ug/kg	37	4	0	6.2E+00	6.7E+01	lognormal	99% KM (Chebyshev) UCL	2.7E+01	6.2E+00	2.7E+01		
<b>Conventionals</b>													
Perchlorate	ug/kg	NA	NA	NA	NA	NA	--	--	--	NA	NA		
RM 4 West	<b>Metals</b>												
	Arsenic	mg/kg	32	6	0	3.4E+00	8.8E+00	non-parametric	95% KM (Chebyshev) UCL	4.4E+00	3.4E+00	4.4E+00	
	Lead	mg/kg	32	0	0	1.5E+01	3.9E+01	lognormal	95% KM (Chebyshev) UCL	2.0E+01	1.5E+01	2.0E+01	
	Mercury	mg/kg	32	0	0	8.2E-02	4.4E-01	non-parametric	95% KM (Chebyshev) UCL	1.4E-01	8.2E-02	1.4E-01	
	Vanadium	mg/kg	6	0	0	1.0E+02	1.1E+02	normal	95% Student's-t UCL	1.1E+02	1.0E+02	1.1E+02	
	<b>Butyltins</b>												
	Tributyltin ion	ug/kg	2	0	0	6.1E+00	8.2E+00	--	Fewer than 5 detects	--	6.1E+00	8.2E+00	
	<b>Polynuclear Aromatic Hydrocarbons</b>												
Benzo(a)anthracene	ug/kg	33	0	0	2.5E+02	1.6E+03	non-parametric	99% Chebyshev (Mean, Sd) UCL	9.0E+02	2.5E+02	9.0E+02		
Benzo(a)pyrene	ug/kg	33	0	0	4.0E+02	2.5E+03	approx. gamma	95% Approximate Gamma UCL	5.8E+02	4.0E+02	5.8E+02		

TABLE 3-4.  
Exposure Point Concentration Summary - In-water Sediment

Scenario Timeframe: Current/Future
Medium: Sediment
Exposure Medium: In-Water Sediment

Exposure Point <sup>a</sup>	Chemical of Potential Concern	Units	Total Samples	Total Non-Detects <sup>b</sup>	Non-Detects greater than Maximum Detected Concentration <sup>c</sup>	Arithmetic Mean <sup>d</sup>	Maximum Detected Concentration	95% UCL			Exposure Point Concentration <sup>e</sup>	
								Distribution	95% UCL Method	Value	Mean	95% UCL/Max
	Benzo(b)fluoranthene	ug/kg	33	0	0	3.6E+02	2.3E+03	gamma	95% Approximate Gamma UCL	5.2E+02	3.6E+02	5.2E+02
	Benzo(k)fluoranthene	ug/kg	28	1	0	1.3E+02	1.2E+03	lognormal	95% KM (Chebyshev) UCL	3.2E+02	1.3E+02	3.2E+02
	Dibenzo(a,h)anthracene	ug/kg	33	4	0	4.4E+01	2.5E+02	gamma	95% KM (Chebyshev) UCL	8.9E+01	4.4E+01	8.9E+01
	Indeno(1,2,3-cd)pyrene	ug/kg	33	0	0	3.2E+02	2.3E+03	approx. gamma	95% Approximate Gamma UCL	4.6E+02	3.2E+02	4.6E+02
	Naphthalene	ug/kg	33	4	0	7.7E+01	4.6E+02	lognormal	97.5% KM (Chebyshev) UCL	1.9E+02	7.7E+01	1.9E+02
	<b>Phthalates</b>											
	Bis(2-ethylhexyl) phthalate	ug/kg	32	23	4	4.2E+01	1.2E+02	normal	95% KM (t) UCL	7.1E+01	4.2E+01	7.1E+01
	<b>Phenols</b>											
	Pentachlorophenol	ug/kg	25	19	7	4.5E+00	2.9E+01	normal	95% KM (t) UCL	6.7E+00	4.5E+00	6.7E+00
	<b>Polychlorinated Biphenyls</b>											
	Total Aroclors	ug/kg	20	3	0	2.1E+01	5.0E+01	normal	95% KM (t) UCL	2.6E+01	2.1E+01	2.6E+01
	Total PCB Congeners	pg/g	2	0	0	1.9E+04	2.6E+04	--	Fewer than 5 detects	--	1.9E+04	2.6E+04
	Total PCBs, Adjusted	pg/g	2	0	0	1.8E+04	2.5E+04	--	Fewer than 5 detects	--	1.8E+04	2.5E+04
	<b>Dioxin/Furan</b>											
	Total Dioxin/Furan TEQ	pg/g	4	0	0	1.6E+00	3.3E+00	--	Fewer than 5 detects	--	1.6E+00	3.3E+00
	Total PCB TEQ	pg/g	2	0	0	4.7E-01	6.5E-01	--	Fewer than 5 detects	--	4.7E-01	6.5E-01
	<b>Pesticides</b>											
	Aldrin	ug/kg	25	18	0	3.9E-01	1.4E+00	gamma	95% KM (t) UCL	4.9E-01	3.9E-01	4.9E-01
	Dieldrin	ug/kg	25	23	12	7.1E-02	2.8E-01	--	Fewer than 5 detects	--	7.1E-02	2.8E-01
	Total DDT	ug/kg	25	7	0	1.9E+01	1.5E+02	approx. gamma	95% KM (Chebyshev) UCL	5.6E+01	1.9E+01	5.6E+01
	<b>Conventionals</b>											
	Perchlorate	ug/kg	NA	NA	NA	NA	NA	--	--	--	NA	NA
RM 4 East	<b>Metals</b>											
	Arsenic	mg/kg	48	3	0	4.2E+00	1.6E+01	lognormal	95% KM (Chebyshev) UCL	5.6E+00	4.2E+00	5.6E+00
	Lead	mg/kg	48	0	0	8.0E+01	2.0E+03	non-parametric	95% KM (Chebyshev) UCL	2.5E+02	8.0E+01	2.5E+02
	Mercury	mg/kg	48	5	0	6.6E-02	2.8E-01	non-parametric	95% KM (Chebyshev) UCL	9.6E-02	6.6E-02	9.6E-02
	Vanadium	mg/kg	5	0	0	1.1E+02	1.1E+02	normal	95% Student's-t UCL	1.1E+02	1.1E+02	1.1E+02
	<b>Butyltins</b>											
	Tributyltin ion	ug/kg	9	0	0	2.6E+01	5.9E+01	normal	95% KM (t) UCL	3.6E+01	2.6E+01	3.6E+01
	<b>Polynuclear Aromatic Hydrocarbons</b>											
	Benzo(a)anthracene	ug/kg	48	0	0	6.3E+02	4.3E+03	lognormal	97.5% KM (Chebyshev) UCL	1.6E+03	6.3E+02	1.6E+03
	Benzo(a)pyrene	ug/kg	48	0	0	8.8E+02	6.3E+03	lognormal	97.5% KM (Chebyshev) UCL	2.2E+03	8.8E+02	2.2E+03
	Benzo(b)fluoranthene	ug/kg	48	0	0	9.0E+02	6.2E+03	lognormal	97.5% KM (Chebyshev) UCL	2.3E+03	9.0E+02	2.3E+03
	Benzo(k)fluoranthene	ug/kg	43	0	0	7.1E+02	4.9E+03	lognormal	97.5% KM (Chebyshev) UCL	1.8E+03	7.1E+02	1.8E+03
	Dibenzo(a,h)anthracene	ug/kg	48	3	0	1.4E+02	1.1E+03	lognormal	97.5% KM (Chebyshev) UCL	3.7E+02	1.4E+02	3.7E+02
	Indeno(1,2,3-cd)pyrene	ug/kg	48	1	0	6.4E+02	4.8E+03	lognormal	97.5% KM (Chebyshev) UCL	1.7E+03	6.4E+02	1.7E+03
	Naphthalene	ug/kg	48	8	0	3.9E+01	3.6E+02	gamma	95% KM (Chebyshev) UCL	7.4E+01	3.9E+01	7.4E+01
	<b>Phthalates</b>											
	Bis(2-ethylhexyl) phthalate	ug/kg	49	20	1	9.1E+02	1.4E+04	lognormal	97.5% KM (Chebyshev) UCL	3.3E+03	9.1E+02	3.3E+03
	<b>Phenols</b>											
	Pentachlorophenol	ug/kg	22	13	0	4.5E+02	8.4E+03	non-parametric	99% KM (Chebyshev) UCL	4.3E+03	4.5E+02	4.3E+03
	<b>Polychlorinated Biphenyls</b>											
	Total Aroclors	ug/kg	40	5	0	1.5E+02	1.7E+03	non-parametric	95% KM (Chebyshev) UCL	3.6E+02	1.5E+02	3.6E+02
	Total PCB Congeners	pg/g	5	0	0	2.2E+05	7.0E+05	normal	95% KM (t) UCL	4.9E+05	2.2E+05	4.9E+05
	Total PCBs, Adjusted	pg/g	5	0	0	2.1E+05	6.8E+05	normal	95% KM (t) UCL	4.8E+05	2.1E+05	4.8E+05



TABLE 3-4.  
Exposure Point Concentration Summary - In-water Sediment

Scenario Timeframe: Current/Future
Medium: Sediment
Exposure Medium: In-Water Sediment

Exposure Point <sup>a</sup>	Chemical of Potential Concern	Units	Total Samples	Total Non-Detects <sup>b</sup>	Non-Detects greater than Maximum Detected Concentration <sup>c</sup>	Arithmetic Mean <sup>d</sup>	Maximum Detected Concentration	95% UCL			Exposure Point Concentration <sup>e</sup>	
								Distribution	95% UCL Method	Value	Mean	95% UCL/Max
	<b>Dioxin/Furan</b>											
	Total Dioxin/Furan TEQ	pg/g	6	0	0	4.1E+00	1.0E+01	normal	95% KM (t) UCL	6.9E+00	4.1E+00	6.9E+00
	Total PCB TEQ	pg/g	5	0	0	1.9E+00	3.4E+00	normal	95% KM (t) UCL	3.4E+00	1.9E+00	3.4E+00
	<b>Pesticides</b>											
	Aldrin	ug/kg	17	12	2	4.7E-01	3.2E+00	gamma	95% KM (t) UCL	7.9E-01	4.7E-01	7.9E-01
	Dieldrin	ug/kg	17	14	12	8.9E-02	1.6E-01	--	Fewer than 5 detects	--	8.9E-02	1.6E-01
	Total DDT	ug/kg	44	11	0	5.4E+00	6.9E+01	lognormal	95% KM (Chebyshev) UCL	1.2E+01	5.4E+00	1.2E+01
<b>Conventionals</b>												
Perchlorate	ug/kg	NA	NA	NA	NA	NA	--	--	--	NA	NA	NA
RM 4.5 West	<b>Metals</b>											
	Arsenic	mg/kg	41	4	0	3.6E+00	1.3E+01	non-parametric	95% KM (Chebyshev) UCL	4.9E+00	3.6E+00	4.9E+00
	Lead	mg/kg	41	0	0	2.8E+01	3.3E+02	non-parametric	95% KM (Chebyshev) UCL	6.3E+01	2.8E+01	6.3E+01
	Mercury	mg/kg	38	2	0	8.6E-02	7.4E-01	non-parametric	95% KM (Chebyshev) UCL	1.7E-01	8.6E-02	1.7E-01
	Vanadium	mg/kg	6	0	0	1.1E+02	1.1E+02	normal	95% Student's-t UCL	1.1E+02	1.1E+02	1.1E+02
	<b>Butyltins</b>											
	Tributyltin ion	ug/kg	4	0	0	7.5E+00	1.4E+01	--	Fewer than 5 detects	--	7.5E+00	1.4E+01
	<b>Polynuclear Aromatic Hydrocarbons</b>											
	Benzo(a)anthracene	ug/kg	42	0	0	5.5E+02	5.1E+03	non-parametric	97.5% KM (Chebyshev) UCL	1.6E+03	5.5E+02	1.6E+03
	Benzo(a)pyrene	ug/kg	42	0	0	7.6E+02	7.5E+03	non-parametric	97.5% KM (Chebyshev) UCL	2.2E+03	7.6E+02	2.2E+03
	Benzo(b)fluoranthene	ug/kg	42	0	0	6.6E+02	6.5E+03	non-parametric	95% KM (Chebyshev) UCL	1.5E+03	6.6E+02	1.5E+03
	Benzo(k)fluoranthene	ug/kg	42	0	0	2.9E+02	2.3E+03	non-parametric	95% KM (Chebyshev) UCL	6.2E+02	2.9E+02	6.2E+02
	Dibenzo(a,h)anthracene	ug/kg	42	2	0	8.5E+01	5.9E+02	non-parametric	97.5% KM (Chebyshev) UCL	2.3E+02	8.5E+01	2.3E+02
	Indeno(1,2,3-cd)pyrene	ug/kg	42	0	0	5.9E+02	5.9E+03	non-parametric	97.5% KM (Chebyshev) UCL	1.7E+03	5.9E+02	1.7E+03
	Naphthalene	ug/kg	42	7	0	1.6E+02	1.4E+03	non-parametric	95% KM (Chebyshev) UCL	3.9E+02	1.6E+02	3.9E+02
	<b>Phthalates</b>											
	Bis(2-ethylhexyl) phthalate	ug/kg	38	27	0	5.0E+01	2.3E+02	non-parametric	95% KM (t) UCL	7.0E+01	5.0E+01	7.0E+01
	<b>Phenols</b>											
	Pentachlorophenol	ug/kg	31	26	7	1.7E+00	8.8E+00	normal	95% KM (t) UCL	2.3E+00	1.7E+00	2.3E+00
	<b>Polychlorinated Biphenyls</b>											
	Total Aroclors	ug/kg	24	9	0	2.5E+01	1.3E+02	approx. gamma	95% KM (Percentile Bootstrap) UCL	3.8E+01	2.5E+01	3.8E+01
	Total PCB Congeners	pg/g	5	0	0	8.5E+04	1.6E+05	normal	95% KM (t) UCL	1.5E+05	8.5E+04	1.5E+05
	Total PCBs, Adjusted	pg/g	5	0	0	7.9E+04	1.6E+05	normal	95% KM (t) UCL	1.4E+05	7.9E+04	1.4E+05
	<b>Dioxin/Furan</b>											
	Total Dioxin/Furan TEQ	pg/g	4	0	0	2.6E+00	6.8E+00	--	Fewer than 5 detects	--	2.6E+00	6.8E+00
	Total PCB TEQ	pg/g	5	0	0	1.4E+00	3.3E+00	normal	95% KM (t) UCL	2.5E+00	1.4E+00	2.5E+00
	<b>Pesticides</b>											
Aldrin	ug/kg	23	19	0	1.7E-01	1.2E+00	--	Fewer than 5 detects	--	1.7E-01	1.2E+00	
Dieldrin	ug/kg	23	13	6	1.3E-01	3.9E-01	normal	95% KM (t) UCL	1.8E-01	1.3E-01	1.8E-01	
Total DDT	ug/kg	23	6	0	4.5E+00	5.0E+01	lognormal	99% KM (Chebyshev) UCL	2.7E+01	4.5E+00	2.7E+01	
<b>Conventionals</b>												
Perchlorate	ug/kg	NA	NA	NA	NA	NA	--	--	--	NA	NA	NA

TABLE 3-4.  
Exposure Point Concentration Summary - In-water Sediment

Scenario Timeframe: Current/Future
Medium: Sediment
Exposure Medium: In-Water Sediment

Exposure Point <sup>a</sup>	Chemical of Potential Concern	Units	Total Samples	Total Non-Detects <sup>b</sup>	Non-Detects greater than Maximum Detected Concentration <sup>c</sup>	Arithmetic Mean <sup>d</sup>	Maximum Detected Concentration	95% UCL			Exposure Point Concentration <sup>e</sup>			
								Distribution	95% UCL Method	Value	Mean	95% UCL/Max		
RM 4.5 East	<b>Metals</b>													
	Arsenic	mg/kg	25	5	0	4.0E+00	1.2E+01	gamma	95% KM (BCA) UCL	4.9E+00	4.0E+00	4.9E+00		
	Lead	mg/kg	25	0	0	1.6E+02	1.7E+03	lognormal	95% Chebyshev (MVUE) UCL	3.5E+02	1.6E+02	3.5E+02		
	Mercury	mg/kg	25	0	0	6.3E-02	1.2E-01	normal	95% Student's-t UCL	7.3E-02	6.3E-02	7.3E-02		
	Vanadium	mg/kg	6	0	0	1.0E+02	1.1E+02	normal	95% Student's-t UCL	1.1E+02	1.0E+02	1.1E+02		
	<b>Butyltins</b>													
	Tributyltin ion	ug/kg	2	0	0	4.1E+01	7.2E+01	--	Fewer than 5 detects	--	4.1E+01	7.2E+01		
	<b>Polynuclear Aromatic Hydrocarbons</b>													
	Benzo(a)anthracene	ug/kg	25	0	0	3.3E+03	4.1E+04	lognormal	97.5% Chebyshev (MVUE) UCL	2.0E+04	3.3E+03	2.0E+04		
	Benzo(a)pyrene	ug/kg	25	0	0	4.3E+03	4.8E+04	approx. gamma	95% Adjusted Gamma UCL	8.7E+03	4.3E+03	8.7E+03		
	Benzo(b)fluoranthene	ug/kg	25	0	0	3.8E+03	4.4E+04	gamma	95% Adjusted Gamma UCL	7.5E+03	3.8E+03	7.5E+03		
	Benzo(k)fluoranthene	ug/kg	25	0	0	3.4E+03	4.2E+04	approx. gamma	95% Adjusted Gamma UCL	6.9E+03	3.4E+03	6.9E+03		
	Dibenzo(a,h)anthracene	ug/kg	25	0	0	7.1E+02	6.5E+03	gamma	95% Adjusted Gamma UCL	1.4E+03	7.1E+02	1.4E+03		
	Indeno(1,2,3-cd)pyrene	ug/kg	25	0	0	3.0E+03	3.1E+04	gamma	95% Adjusted Gamma UCL	6.1E+03	3.0E+03	6.1E+03		
	Naphthalene	ug/kg	25	3	0	1.5E+02	1.7E+03	gamma	95% KM (Chebyshev) UCL	4.4E+02	1.5E+02	4.4E+02		
	<b>Phthalates</b>													
	Bis(2-ethylhexyl) phthalate	ug/kg	25	16	0	8.3E+01	5.2E+02	lognormal	95% KM (t) UCL	1.2E+02	8.3E+01	1.2E+02		
	<b>Phenols</b>													
	Pentachlorophenol	ug/kg	2	1	7	1.8E+00	3.2E+00	--	Fewer than 5 detects	--	1.8E+00	3.2E+00		
	<b>Polychlorinated Biphenyls</b>													
	Total Aroclors	ug/kg	20	5	1	3.5E+01	8.4E+01	normal	95% KM (t) UCL	4.4E+01	3.5E+01	4.4E+01		
	Total PCB Congeners	pg/g	2	0	0	1.3E+04	1.3E+04	--	Fewer than 5 detects	--	1.3E+04	1.3E+04		
	Total PCBs, Adjusted	pg/g	2	0	0	1.2E+04	1.2E+04	--	Fewer than 5 detects	--	1.2E+04	1.2E+04		
	<b>Dioxin/Furan</b>													
	Total Dioxin/Furan TEQ	pg/g	1	0	0	2.8E-01	2.8E-01	--	Fewer than 5 detects	--	2.8E-01	2.8E-01		
	Total PCB TEQ	pg/g	2	0	0	3.2E-01	3.4E-01	--	Fewer than 5 detects	--	3.2E-01	3.4E-01		
	<b>Pesticides</b>													
Aldrin	ug/kg	4	2	2	1.1E-01	1.5E-01	--	Fewer than 5 detects	--	1.1E-01	1.5E-01			
Dieldrin	ug/kg	4	3	2	5.8E-02	8.4E-02	--	Fewer than 5 detects	--	5.8E-02	8.4E-02			
Total DDT	ug/kg	20	7	0	4.9E+00	3.1E+01	gamma	95% KM (BCA) UCL	8.7E+00	4.9E+00	8.7E+00			
<b>Conventionals</b>														
Perchlorate	ug/kg	NA	NA	NA	NA	NA	--	--	--	NA	NA			
RM 5 West	<b>Metals</b>													
	Arsenic	mg/kg	27	7	0	3.2E+00	6.1E+00	normal	95% KM (t) UCL	3.8E+00	3.2E+00	3.8E+00		
	Lead	mg/kg	27	0	0	1.2E+01	1.6E+01	non-parametric	95% KM (Chebyshev) UCL	1.5E+01	1.2E+01	1.5E+01		
	Mercury	mg/kg	27	0	0	5.2E-02	1.4E-01	approx. gamma	95% KM (BCA) UCL	6.0E-02	5.2E-02	6.0E-02		
	Vanadium	mg/kg	8	0	0	9.8E+01	1.1E+02	normal	95% Student's-t UCL	1.0E+02	9.8E+01	1.0E+02		
	<b>Butyltins</b>													
	Tributyltin ion	ug/kg	2	0	0	1.8E+01	2.1E+01	--	Fewer than 5 detects	--	1.8E+01	2.1E+01		
	<b>Polynuclear Aromatic Hydrocarbons</b>													
Benzo(a)anthracene	ug/kg	40	0	0	5.9E+02	1.0E+04	non-parametric	99% Chebyshev (Mean, Sd) UCL	3.4E+03	5.9E+02	3.4E+03			
Benzo(a)pyrene	ug/kg	40	0	0	7.9E+02	1.3E+04	non-parametric	99% Chebyshev (Mean, Sd) UCL	4.5E+03	7.9E+02	4.5E+03			

TABLE 3-4.  
Exposure Point Concentration Summary - In-water Sediment

Scenario Timeframe: Current/Future
Medium: Sediment
Exposure Medium: In-Water Sediment

Exposure Point <sup>a</sup>	Chemical of Potential Concern	Units	Total Samples	Total Non-Detects <sup>b</sup>	Non-Detects greater than Maximum Detected Concentration <sup>c</sup>	Arithmetic Mean <sup>d</sup>	Maximum Detected Concentration	95% UCL			Exposure Point Concentration <sup>e</sup>	
								Distribution	95% UCL Method	Value	Mean	95% UCL/Max
	Benzo(b)fluoranthene	ug/kg	40	0	0	5.7E+02	7.5E+03	non-parametric	99% Chebyshev (Mean, Sd) UCL	3.0E+03	5.7E+02	3.0E+03
	Benzo(k)fluoranthene	ug/kg	40	0	0	4.1E+02	8.3E+03	lognormal	95% H-UCL	5.7E+02	4.1E+02	5.7E+02
	Dibenzo(a,h)anthracene	ug/kg	40	2	0	8.2E+01	1.2E+03	non-parametric	95% KM (Chebyshev) UCL	2.3E+02	8.2E+01	2.3E+02
	Indeno(1,2,3-cd)pyrene	ug/kg	40	0	0	5.9E+02	9.3E+03	non-parametric	99% Chebyshev (Mean, Sd) UCL	3.3E+03	5.9E+02	3.3E+03
	Naphthalene	ug/kg	40	4	0	1.4E+02	2.5E+03	non-parametric	95% KM (Chebyshev) UCL	4.2E+02	1.4E+02	4.2E+02
	<b>Phthalates</b>											
	Bis(2-ethylhexyl) phthalate	ug/kg	27	11	0	7.1E+01	2.5E+02	gamma	95% KM (t) UCL	9.1E+01	7.1E+01	9.1E+01
	<b>Phenols</b>											
	Pentachlorophenol	ug/kg	27	23	0	2.1E+01	1.4E+02	gamma	95% KM (t) UCL	1.8E+01	2.1E+01	1.8E+01
	<b>Polychlorinated Biphenyls</b>											
	Total Aroclors	ug/kg	15	5	0	1.7E+01	5.1E+01	gamma	95% KM (Percentile Bootstrap) UCL	2.5E+01	1.7E+01	2.5E+01
	Total PCB Congeners	pg/g	2	0	0	8.0E+04	9.6E+04	--	Fewer than 5 detects	--	8.0E+04	9.6E+04
	Total PCBs, Adjusted	pg/g	2	0	0	7.8E+04	9.2E+04	--	Fewer than 5 detects	--	7.8E+04	9.2E+04
	<b>Dioxin/Furan</b>											
	Total Dioxin/Furan TEQ	pg/g	2	0	0	3.5E+00	5.4E+00	--	Fewer than 5 detects	--	3.5E+00	5.4E+00
	Total PCB TEQ	pg/g	2	0	0	1.2E+00	2.1E+00	--	Fewer than 5 detects	--	1.2E+00	2.1E+00
	<b>Pesticides</b>											
	Aldrin	ug/kg	12	8	0	4.4E-01	1.9E+00	--	Fewer than 5 detects	--	4.4E-01	1.9E+00
	Dieldrin	ug/kg	15	11	2	1.5E-01	7.8E-01	--	Fewer than 5 detects	--	1.5E-01	7.8E-01
	Total DDT	ug/kg	16	1	0	1.2E+01	1.2E+02	lognormal	99% KM (Chebyshev) UCL	8.2E+01	1.2E+01	8.2E+01
	<b>Conventionals</b>											
	Perchlorate	ug/kg	NA	NA	NA	NA	NA	--	--	--	NA	NA
RM 5 East	<b>Metals</b>											
	Arsenic	mg/kg	22	2	0	3.2E+00	6.0E+00	normal	95% KM (t) UCL	3.7E+00	3.2E+00	3.7E+00
	Lead	mg/kg	22	0	0	1.4E+01	3.9E+01	approx. gamma	95% Approximate Gamma UCL	1.7E+01	1.4E+01	1.7E+01
	Mercury	mg/kg	22	1	0	6.8E-02	2.0E-01	gamma	95% KM (BCA) UCL	8.6E-02	6.8E-02	8.6E-02
	Vanadium	mg/kg	3	0	0	1.0E+02	1.1E+02	--	Fewer than 5 detects	--	1.0E+02	1.1E+02
	<b>Butyltins</b>											
	Tributyltin ion	ug/kg	4	0	0	5.7E+01	1.2E+02	--	Fewer than 5 detects	--	5.7E+01	1.2E+02
	<b>Polynuclear Aromatic Hydrocarbons</b>											
	Benzo(a)anthracene	ug/kg	22	0	0	2.1E+02	9.9E+02	gamma	95% Approximate Gamma UCL	3.3E+02	2.1E+02	3.3E+02
	Benzo(a)pyrene	ug/kg	22	0	0	3.0E+02	1.9E+03	approx. gamma	95% Approximate Gamma UCL	4.7E+02	3.0E+02	4.7E+02
	Benzo(b)fluoranthene	ug/kg	22	0	0	3.2E+02	1.6E+03	lognormal	95% Chebyshev (MVUE) UCL	6.7E+02	3.2E+02	6.7E+02
	Benzo(k)fluoranthene	ug/kg	17	0	0	1.5E+02	5.3E+02	gamma	95% KM (Chebyshev) UCL	3.0E+02	1.5E+02	3.0E+02
	Dibenzo(a,h)anthracene	ug/kg	22	1	0	4.3E+01	2.0E+02	gamma	95% KM (Chebyshev) UCL	9.1E+01	4.3E+01	9.1E+01
	Indeno(1,2,3-cd)pyrene	ug/kg	22	0	0	2.4E+02	1.6E+03	lognormal	95% Chebyshev (MVUE) UCL	4.8E+02	2.4E+02	4.8E+02
	Naphthalene	ug/kg	22	4	0	5.5E+01	3.6E+02	gamma	95% KM (Chebyshev) UCL	1.3E+02	5.5E+01	1.3E+02
	<b>Phthalates</b>											
	Bis(2-ethylhexyl) phthalate	ug/kg	22	12	0	8.5E+01	3.9E+02	gamma	95% KM (t) UCL	1.3E+02	8.5E+01	1.3E+02
	<b>Phenols</b>											
	Pentachlorophenol	ug/kg	19	14	3	6.5E+00	4.7E+01	lognormal	95% KM (BCA) UCL	1.3E+01	6.5E+00	1.3E+01
	<b>Polychlorinated Biphenyls</b>											
	Total Aroclors	ug/kg	15	3	0	2.0E+01	4.5E+01	normal	95% KM (t) UCL	2.5E+01	2.0E+01	2.5E+01
	Total PCB Congeners	pg/g	NA	NA	NA	NA	NA	--	--	--	NA	NA
	Total PCBs, Adjusted	pg/g	NA	NA	NA	NA	NA	--	--	--	NA	NA

TABLE 3-4.  
Exposure Point Concentration Summary - In-water Sediment

Scenario Timeframe: Current/Future
Medium: Sediment
Exposure Medium: In-Water Sediment

Exposure Point <sup>a</sup>	Chemical of Potential Concern	Units	Total Samples	Total Non-Detects <sup>b</sup>	Non-Detects greater than Maximum Detected Concentration <sup>c</sup>	Arithmetic Mean <sup>d</sup>	Maximum Detected Concentration	95% UCL			Exposure Point Concentration <sup>e</sup>	
								Distribution	95% UCL Method	Value	Mean	95% UCL/Max
	<b>Dioxin/Furan</b>											
	Total Dioxin/Furan TEQ	pg/g	NA	NA	NA	NA	NA	--	--	--	NA	NA
	Total PCB TEQ	pg/g	NA	NA	NA	NA	NA	--	--	--	NA	NA
	<b>Pesticides</b>											
	Aldrin	ug/kg	20	18	6	1.9E-01	8.0E-01	--	Fewer than 5 detects	--	1.9E-01	8.0E-01
	Dieldrin	ug/kg	20	17	7	1.9E-01	7.9E-01	--	Fewer than 5 detects	--	1.9E-01	7.9E-01
	Total DDT	ug/kg	20	10	0	1.4E+00	6.5E+00	gamma	95% KM (t) UCL	1.9E+00	1.4E+00	1.9E+00
	<b>Conventionals</b>											
	Perchlorate	ug/kg	NA	NA	NA	NA	NA	--	--	--	NA	NA
RM 5.5 West	<b>Metals</b>											
	Arsenic	mg/kg	29	4	0	4.3E+00	1.3E+01	non-parametric	95% KM (Chebyshev) UCL	6.1E+00	4.3E+00	6.1E+00
	Lead	mg/kg	29	0	0	2.0E+01	3.7E+01	normal	95% KM (t) UCL	2.3E+01	2.0E+01	2.3E+01
	Mercury	mg/kg	29	1	0	6.8E-02	1.7E-01	normal	95% KM (t) UCL	8.0E-02	6.8E-02	8.0E-02
	Vanadium	mg/kg	3	0	0	9.2E+01	1.1E+02	--	Fewer than 5 detects	--	9.2E+01	1.1E+02
	<b>Butyltins</b>											
	Tributyltin ion	ug/kg	17	1	0	1.7E+01	9.1E+01	gamma	95% KM (Chebyshev) UCL	4.3E+01	1.7E+01	4.3E+01
	<b>Polynuclear Aromatic Hydrocarbons</b>											
	Benzo(a)anthracene	ug/kg	31	0	0	1.3E+03	1.7E+04	lognormal	95% H-UCL	3.0E+03	1.3E+03	3.0E+03
	Benzo(a)pyrene	ug/kg	31	0	0	1.9E+03	2.3E+04	lognormal	95% H-UCL	4.3E+03	1.9E+03	4.3E+03
	Benzo(b)fluoranthene	ug/kg	31	0	0	1.5E+03	2.0E+04	lognormal	95% H-UCL	3.1E+03	1.5E+03	3.1E+03
	Benzo(k)fluoranthene	ug/kg	31	0	0	7.5E+02	6.0E+03	lognormal	95% Chebyshev (MVUE) UCL	2.0E+03	7.5E+02	2.0E+03
	Dibenzo(a,h)anthracene	ug/kg	31	0	0	1.7E+02	1.5E+03	lognormal	95% H-UCL	3.5E+02	1.7E+02	3.5E+02
	Indeno(1,2,3-cd)pyrene	ug/kg	31	0	0	1.5E+03	1.7E+04	lognormal	95% Chebyshev (MVUE) UCL	3.5E+03	1.5E+03	3.5E+03
	Naphthalene	ug/kg	31	4	0	1.2E+02	9.4E+02	lognormal	97.5% KM (Chebyshev) UCL	3.3E+02	1.2E+02	3.3E+02
	<b>Phthalates</b>											
	Bis(2-ethylhexyl) phthalate	ug/kg	29	19	0	7.4E+01	2.1E+02	non-parametric	95% KM (BCA) UCL	1.8E+01	7.4E+01	1.8E+01
	<b>Phenols</b>											
	Pentachlorophenol	ug/kg	29	21	0	1.2E+01	1.4E+02	non-parametric	95% KM (BCA) UCL	1.8E+01	1.2E+01	1.8E+01
	<b>Polychlorinated Biphenyls</b>											
	Total Aroclors	ug/kg	29	12	0	3.2E+01	2.4E+02	gamma	95% KM (BCA) UCL	5.1E+01	3.2E+01	5.1E+01
	Total PCB Congeners	pg/g	4	0	0	1.8E+04	3.2E+04	--	Fewer than 5 detects	--	1.8E+04	3.2E+04
	Total PCBs, Adjusted	pg/g	4	0	0	1.7E+04	2.9E+04	--	Fewer than 5 detects	--	1.7E+04	2.9E+04
	<b>Dioxin/Furan</b>											
	Total Dioxin/Furan TEQ	pg/g	4	0	0	1.5E+00	2.3E+00	--	Fewer than 5 detects	--	1.5E+00	2.3E+00
	Total PCB TEQ	pg/g	4	0	0	5.8E-01	1.1E+00	--	Fewer than 5 detects	--	5.8E-01	1.1E+00
	<b>Pesticides</b>											
	Aldrin	ug/kg	26	21	0	4.2E-01	4.7E+00	normal	95% KM (t) UCL	6.7E-01	4.2E-01	6.7E-01
	Dieldrin	ug/kg	28	21	4	3.1E-01	1.5E+00	gamma	95% KM (t) UCL	4.1E-01	3.1E-01	4.1E-01
	Total DDT	ug/kg	28	1	0	1.9E+01	2.8E+02	approx. gamma	95% KM (Chebyshev) UCL	6.2E+01	1.9E+01	6.2E+01
	<b>Conventionals</b>											
	Perchlorate	ug/kg	NA	NA	NA	NA	NA	--	--	--	NA	NA

TABLE 3-4.  
Exposure Point Concentration Summary - In-water Sediment

Scenario Timeframe: Current/Future
Medium: Sediment
Exposure Medium: In-Water Sediment

Exposure Point <sup>a</sup>	Chemical of Potential Concern	Units	Total Samples	Total Non-Detects <sup>b</sup>	Non-Detects greater than Maximum Detected Concentration <sup>c</sup>	Arithmetic Mean <sup>d</sup>	Maximum Detected Concentration	95% UCL			Exposure Point Concentration <sup>e</sup>		
								Distribution	95% UCL Method	Value	Mean	95% UCL/Max	
RM 5.5 East	<b>Metals</b>												
	Arsenic	mg/kg	47	3	0	5.8E+00	2.2E+01	non-parametric	95% KM (Chebyshev) UCL	8.9E+00	5.8E+00	8.9E+00	
	Lead	mg/kg	47	0	0	6.0E+01	3.3E+02	lognormal	95% H-UCL	7.9E+01	6.0E+01	7.9E+01	
	Mercury	mg/kg	47	1	0	2.3E-01	4.8E+00	non-parametric	95% KM (Chebyshev) UCL	6.7E-01	2.3E-01	6.7E-01	
	Vanadium	mg/kg	3	0	0	8.5E+01	9.1E+01	--	Fewer than 5 detects	--	8.5E+01	9.1E+01	
	<b>Butyltins</b>												
	Tributyltin ion	ug/kg	19	0	0	1.7E+02	4.8E+02	gamma	95% KM (Chebyshev) UCL	3.2E+02	1.7E+02	3.2E+02	
	<b>Polynuclear Aromatic Hydrocarbons</b>												
	Benzo(a)anthracene	ug/kg	47	0	0	4.6E+02	2.6E+03	gamma	95% Approximate Gamma UCL	5.7E+02	4.6E+02	5.7E+02	
	Benzo(a)pyrene	ug/kg	47	0	0	5.6E+02	2.5E+03	gamma	95% Approximate Gamma UCL	7.0E+02	5.6E+02	7.0E+02	
	Benzo(b)fluoranthene	ug/kg	47	0	0	6.8E+02	4.1E+03	gamma	95% Approximate Gamma UCL	8.4E+02	6.8E+02	8.4E+02	
	Benzo(k)fluoranthene	ug/kg	33	0	0	2.6E+02	1.1E+03	gamma	95% KM (Chebyshev) UCL	4.4E+02	2.6E+02	4.4E+02	
	Dibenzo(a,h)anthracene	ug/kg	47	1	0	8.8E+01	4.6E+02	gamma	95% KM (Chebyshev) UCL	1.4E+02	8.8E+01	1.4E+02	
	Indeno(1,2,3-cd)pyrene	ug/kg	47	0	0	4.3E+02	2.1E+03	gamma	95% Approximate Gamma UCL	5.3E+02	4.3E+02	5.3E+02	
	Naphthalene	ug/kg	47	3	0	1.3E+02	2.3E+03	lognormal	95% KM (Chebyshev) UCL	3.5E+02	1.3E+02	3.5E+02	
	<b>Phthalates</b>												
	Bis(2-ethylhexyl) phthalate	ug/kg	47	13	0	2.6E+02	1.5E+03	gamma	95% KM (Percentile Bootstrap) UCL	3.3E+02	2.6E+02	3.3E+02	
	<b>Phenols</b>												
	Pentachlorophenol	ug/kg	39	18	8	1.3E+01	8.8E+01	gamma	95% KM (t) UCL	1.8E+01	1.3E+01	1.8E+01	
	<b>Polychlorinated Biphenyls</b>												
	Total Aroclors	ug/kg	31	1	0	1.1E+02	4.1E+02	lognormal	95% KM (Chebyshev) UCL	1.8E+02	1.1E+02	1.8E+02	
	Total PCB Congeners	pg/g	8	0	0	8.1E+04	2.5E+05	gamma	95% KM (Chebyshev) UCL	2.2E+05	8.1E+04	2.2E+05	
	Total PCBs, Adjusted	pg/g	8	0	0	7.7E+04	2.4E+05	gamma	95% KM (Chebyshev) UCL	2.1E+05	7.7E+04	2.1E+05	
	<b>Dioxin/Furan</b>												
	Total Dioxin/Furan TEQ	pg/g	5	0	0	4.4E+00	1.1E+01	normal	95% KM (t) UCL	8.9E+00	4.4E+00	8.9E+00	
	Total PCB TEQ	pg/g	8	0	0	2.0E+00	7.4E+00	gamma	95% KM (Chebyshev) UCL	5.8E+00	2.0E+00	5.8E+00	
	<b>Pesticides</b>												
Aldrin	ug/kg	44	35	1	4.1E-01	2.6E+00	normal	95% KM (t) UCL	4.0E-01	4.1E-01	4.0E-01		
Dieldrin	ug/kg	44	36	2	4.7E-01	5.3E+00	gamma	95% KM (t) UCL	6.0E-01	4.7E-01	6.0E-01		
Total DDT	ug/kg	45	10	0	8.2E+00	9.3E+01	lognormal	95% KM (Chebyshev) UCL	2.0E+01	8.2E+00	2.0E+01		
<b>Conventionals</b>													
Perchlorate	ug/kg	NA	NA	NA	NA	NA	--	--	--	NA	NA		
RM 6 West	<b>Metals</b>												
	Arsenic	mg/kg	45	7	2	3.7E+00	8.1E+00	gamma	95% KM (BCA) UCL	4.1E+00	3.7E+00	4.1E+00	
	Lead	mg/kg	45	0	0	4.3E+01	6.8E+02	non-parametric	95% KM (Chebyshev) UCL	1.1E+02	4.3E+01	1.1E+02	
	Mercury	mg/kg	38	2	0	1.1E-01	4.3E-01	approx. gamma	95% KM (BCA) UCL	1.4E-01	1.1E-01	1.4E-01	
	Vanadium	mg/kg	6	0	0	1.2E+02	1.4E+02	normal	95% Student's-t UCL	1.3E+02	1.2E+02	1.3E+02	
	<b>Butyltins</b>												
	Tributyltin ion	ug/kg	8	0	0	1.3E+01	3.3E+01	normal	95% KM (t) UCL	2.0E+01	1.3E+01	2.0E+01	
	<b>Polynuclear Aromatic Hydrocarbons</b>												
Benzo(a)anthracene	ug/kg	44	0	0	2.5E+04	1.2E+05	gamma	95% KM (Chebyshev) UCL	4.8E+04	2.5E+04	4.8E+04		
Benzo(a)pyrene	ug/kg	44	0	0	3.1E+04	1.6E+05	gamma	95% KM (Chebyshev) UCL	5.8E+04	3.1E+04	5.8E+04		

TABLE 3-4.  
Exposure Point Concentration Summary - In-water Sediment

Scenario Timeframe: Current/Future
Medium: Sediment
Exposure Medium: In-Water Sediment

Exposure Point <sup>a</sup>	Chemical of Potential Concern	Units	Total Samples	Total Non-Detects <sup>b</sup>	Non-Detects greater than Maximum Detected Concentration <sup>c</sup>	Arithmetic Mean <sup>d</sup>	Maximum Detected Concentration	95% UCL			Exposure Point Concentration <sup>e</sup>	
								Distribution	95% UCL Method	Value	Mean	95% UCL/Max
	Benzo(b)fluoranthene	ug/kg	44	0	0	2.2E+04	1.3E+05	gamma	95% KM (Chebyshev) UCL	4.3E+04	2.2E+04	4.3E+04
	Benzo(k)fluoranthene	ug/kg	44	0	0	1.4E+04	8.9E+04	gamma	95% KM (Chebyshev) UCL	2.7E+04	1.4E+04	2.7E+04
	Dibenzo(a,h)anthracene	ug/kg	44	0	0	2.9E+03	1.5E+04	gamma	95% KM (Chebyshev) UCL	5.4E+03	2.9E+03	5.4E+03
	Indeno(1,2,3-cd)pyrene	ug/kg	44	0	0	2.1E+04	1.3E+05	gamma	95% KM (Chebyshev) UCL	4.0E+04	2.1E+04	4.0E+04
	Naphthalene	ug/kg	44	0	0	1.1E+04	1.0E+05	lognormal	99% KM (Chebyshev) UCL	4.4E+04	1.1E+04	4.4E+04
	<b>Phthalates</b>											
	Bis(2-ethylhexyl) phthalate	ug/kg	38	27	0	2.2E+02	3.2E+03	non-parametric	95% KM (BCA) UCL	3.8E+02	2.2E+02	3.8E+02
	<b>Phenols</b>											
	Pentachlorophenol	ug/kg	36	23	2	2.2E+01	2.9E+02	lognormal	95% KM (BCA) UCL	3.5E+01	2.2E+01	3.5E+01
	<b>Polychlorinated Biphenyls</b>											
	Total Aroclors	ug/kg	28	13	0	4.3E+01	2.1E+02	gamma	95% KM (t) UCL	6.1E+01	4.3E+01	6.1E+01
	Total PCB Congeners	pg/g	3	0	0	8.6E+04	1.9E+05	--	Fewer than 5 detects	--	8.6E+04	1.9E+05
	Total PCBs, Adjusted	pg/g	3	0	0	8.2E+04	1.8E+05	--	Fewer than 5 detects	--	8.2E+04	1.8E+05
	<b>Dioxin/Furan</b>											
	Total Dioxin/Furan TEQ	pg/g	1	0	0	1.5E+00	1.5E+00	--	Fewer than 5 detects	--	1.5E+00	1.5E+00
	Total PCB TEQ	pg/g	3	0	0	1.4E+00	2.8E+00	--	Fewer than 5 detects	--	1.4E+00	2.8E+00
	<b>Pesticides</b>											
	Aldrin	ug/kg	23	16	0	1.2E+00	7.9E+00	normal	95% KM (t) UCL	2.3E+00	1.2E+00	2.3E+00
	Dieldrin	ug/kg	27	20	0	1.1E+00	1.1E+01	gamma	95% KM (t) UCL	1.8E+00	1.1E+00	1.8E+00
	Total DDT	ug/kg	27	0	0	3.6E+01	2.3E+02	approx. gamma	95% KM (Chebyshev) UCL	8.1E+01	3.6E+01	8.1E+01
	<b>Conventionals</b>											
	Perchlorate	ug/kg	NA	NA	NA	NA	NA	--	--	--	NA	NA
RM 6 East	<b>Metals</b>											
	Arsenic	mg/kg	22	0	0	3.7E+00	1.0E+01	gamma	95% Approximate Gamma UCL	4.4E+00	3.7E+00	4.4E+00
	Lead	mg/kg	22	0	0	1.9E+01	3.6E+01	approx. gamma	95% Approximate Gamma UCL	2.3E+01	1.9E+01	2.3E+01
	Mercury	mg/kg	22	0	0	2.9E-01	9.2E-01	gamma	95% Approximate Gamma UCL	4.0E-01	2.9E-01	4.0E-01
	Vanadium	mg/kg	2	0	0	9.1E+01	9.8E+01	--	Fewer than 5 detects	--	9.1E+01	9.8E+01
	<b>Butyltins</b>											
	Tributyltin ion	ug/kg	2	0	0	1.8E+02	3.5E+02	--	Fewer than 5 detects	--	1.8E+02	3.5E+02
	<b>Polynuclear Aromatic Hydrocarbons</b>											
	Benzo(a)anthracene	ug/kg	22	0	0	5.3E+02	6.5E+03	lognormal	95% Chebyshev (MVUE) UCL	1.3E+03	5.3E+02	1.3E+03
	Benzo(a)pyrene	ug/kg	22	0	0	7.5E+02	9.5E+03	lognormal	95% Chebyshev (MVUE) UCL	1.9E+03	7.5E+02	1.9E+03
	Benzo(b)fluoranthene	ug/kg	22	1	0	7.3E+02	9.1E+03	non-parametric	97.5% KM (Chebyshev) UCL	3.3E+03	7.3E+02	3.3E+03
	Benzo(k)fluoranthene	ug/kg	16	0	0	4.6E+02	5.4E+03	lognormal	97.5% KM (Chebyshev) UCL	2.5E+03	4.6E+02	2.5E+03
	Dibenzo(a,h)anthracene	ug/kg	22	1	0	9.6E+01	8.8E+02	approx. gamma	95% KM (Chebyshev) UCL	2.7E+02	9.6E+01	2.7E+02
	Indeno(1,2,3-cd)pyrene	ug/kg	22	0	0	4.2E+02	4.1E+03	lognormal	95% Chebyshev (MVUE) UCL	1.1E+03	4.2E+02	1.1E+03
	Naphthalene	ug/kg	22	2	0	2.5E+02	3.0E+03	approx. gamma	95% KM (Chebyshev) UCL	8.4E+02	2.5E+02	8.4E+02
	<b>Phthalates</b>											
	Bis(2-ethylhexyl) phthalate	ug/kg	22	14	0	8.2E+01	5.9E+02	gamma	95% KM (t) UCL	1.4E+02	8.2E+01	1.4E+02
	<b>Phenols</b>											
	Pentachlorophenol	ug/kg	19	15	3	7.7E+00	4.4E+01	--	Fewer than 5 detects	--	7.7E+00	4.4E+01
	<b>Polychlorinated Biphenyls</b>											
	Total Aroclors	ug/kg	13	0	0	7.7E+01	2.4E+02	gamma	95% KM (Chebyshev) UCL	1.8E+02	7.7E+01	1.8E+02
	Total PCB Congeners	pg/g	3	0	0	4.1E+04	1.1E+05	--	Fewer than 5 detects	--	4.1E+04	1.1E+05
	Total PCBs, Adjusted	pg/g	3	0	0	3.8E+04	1.0E+05	--	Fewer than 5 detects	--	3.8E+04	1.0E+05



TABLE 3-4.  
Exposure Point Concentration Summary - In-water Sediment

Scenario Timeframe: Current/Future
Medium: Sediment
Exposure Medium: In-Water Sediment

Exposure Point <sup>a</sup>	Chemical of Potential Concern	Units	Total Samples	Total Non-Detects <sup>b</sup>	Non-Detects greater than Maximum Detected Concentration <sup>c</sup>	Arithmetic Mean <sup>d</sup>	Maximum Detected Concentration	95% UCL			Exposure Point Concentration <sup>e</sup>	
								Distribution	95% UCL Method	Value	Mean	95% UCL/Max
	<b>Dioxin/Furan</b>											
	Total Dioxin/Furan TEQ	pg/g	2	0	0	3.2E+00	4.1E+00	--	Fewer than 5 detects	--	3.2E+00	4.1E+00
	Total PCB TEQ	pg/g	3	0	0	1.2E+00	3.4E+00	--	Fewer than 5 detects	--	1.2E+00	3.4E+00
	<b>Pesticides</b>											
	Aldrin	ug/kg	18	13	0	4.1E-01	1.7E+00	normal	95% KM (t) UCL	6.4E-01	4.1E-01	6.4E-01
	Dieldrin	ug/kg	16	15	11	4.4E-02	1.0E-01	--	Fewer than 5 detects	--	4.4E-02	1.0E-01
	Total DDT	ug/kg	19	5	0	2.9E+00	1.3E+01	gamma	95% KM (Percentile Bootstrap) UCL	4.2E+00	2.9E+00	4.2E+00
	<b>Conventionals</b>											
	Perchlorate	ug/kg	NA	NA	NA	NA	NA	--	--	--	NA	NA
RM 6.5 West	<b>Metals</b>											
RM 6.5 West	Arsenic	mg/kg	48	7	0	7.4E+00	5.4E+01	non-parametric	95% KM (Chebyshev) UCL	1.4E+01	7.4E+00	1.4E+01
	Lead	mg/kg	48	0	0	4.0E+01	2.7E+02	non-parametric	95% KM (Chebyshev) UCL	7.3E+01	4.0E+01	7.3E+01
	Mercury	mg/kg	48	2	0	1.1E-01	7.2E-01	lognormal	95% KM (Chebyshev) UCL	2.0E-01	1.1E-01	2.0E-01
	Vanadium	mg/kg	7	0	0	1.2E+02	1.5E+02	normal	95% Student's-t UCL	1.4E+02	1.2E+02	1.4E+02
	<b>Butyltins</b>											
	Tributyltin ion	ug/kg	5	0	0	2.6E+01	5.4E+01	normal	95% KM (t) UCL	4.6E+01	2.6E+01	4.6E+01
	<b>Polynuclear Aromatic Hydrocarbons</b>											
	Benzo(a)anthracene	ug/kg	49	0	0	7.4E+02	7.1E+03	gamma	95% Approximate Gamma UCL	1.0E+03	7.4E+02	1.0E+03
	Benzo(a)pyrene	ug/kg	49	0	0	9.1E+02	8.2E+03	gamma	95% Approximate Gamma UCL	1.2E+03	9.1E+02	1.2E+03
	Benzo(b)fluoranthene	ug/kg	49	0	0	1.0E+03	1.3E+04	approx. gamma	95% Approximate Gamma UCL	1.4E+03	1.0E+03	1.4E+03
	Benzo(k)fluoranthene	ug/kg	41	0	0	4.0E+02	1.4E+03	gamma	95% KM (Chebyshev) UCL	6.6E+02	4.0E+02	6.6E+02
	Dibenzo(a,h)anthracene	ug/kg	49	1	0	1.7E+02	2.9E+03	approx. gamma	95% KM (Chebyshev) UCL	4.2E+02	1.7E+02	4.2E+02
	Indeno(1,2,3-cd)pyrene	ug/kg	49	0	0	6.2E+02	5.1E+03	gamma	95% Approximate Gamma UCL	8.3E+02	6.2E+02	8.3E+02
	Naphthalene	ug/kg	49	5	0	1.1E+02	6.9E+02	approx. gamma	95% KM (BCA) UCL	1.4E+02	1.1E+02	1.4E+02
	<b>Phthalates</b>											
	Bis(2-ethylhexyl) phthalate	ug/kg	48	29	0	8.1E+01	7.0E+02	gamma	95% KM (t) UCL	1.1E+02	8.1E+01	1.1E+02
	<b>Phenols</b>											
	Pentachlorophenol	ug/kg	36	29	12	1.6E+00	9.7E+00	normal	95% KM (t) UCL	2.4E+00	1.6E+00	2.4E+00
	<b>Polychlorinated Biphenyls</b>											
	Total Aroclors	ug/kg	32	13	2	6.4E+01	3.3E+02	gamma	95% KM (BCA) UCL	9.1E+01	6.4E+01	9.1E+01
	Total PCB Congeners	pg/g	6	0	0	1.9E+05	4.8E+05	normal	95% KM (t) UCL	3.3E+05	1.9E+05	3.3E+05
	Total PCBs, Adjusted	pg/g	6	0	0	1.8E+05	4.7E+05	normal	95% KM (t) UCL	3.2E+05	1.8E+05	3.2E+05
	<b>Dioxin/Furan</b>											
	Total Dioxin/Furan TEQ	pg/g	24	0	0	2.1E+01	2.2E+02	lognormal	99% KM (Chebyshev) UCL	1.1E+02	2.1E+01	1.1E+02
	Total PCB TEQ	pg/g	6	0	0	1.8E+00	3.6E+00	normal	95% KM (t) UCL	3.0E+00	1.8E+00	3.0E+00
	<b>Pesticides</b>											
	Aldrin	ug/kg	45	33	3	1.7E+00	2.6E+01	gamma	95% KM (t) UCL	2.5E+00	1.7E+00	2.5E+00
	Dieldrin	ug/kg	46	39	5	5.4E-01	3.9E+00	normal	95% KM (t) UCL	5.9E-01	5.4E-01	5.9E-01
	Total DDT	ug/kg	46	1	0	9.2E+01	4.9E+02	gamma	95% KM (Chebyshev) UCL	1.7E+02	9.2E+01	1.7E+02
	<b>Conventionals</b>											
	Perchlorate	ug/kg	NA	NA	NA	NA	NA	--	--	--	NA	NA

TABLE 3-4.  
Exposure Point Concentration Summary - In-water Sediment

Scenario Timeframe: Current/Future
Medium: Sediment
Exposure Medium: In-Water Sediment

Exposure Point <sup>a</sup>	Chemical of Potential Concern	Units	Total Samples	Total Non-Detects <sup>b</sup>	Non-Detects greater than Maximum Detected Concentration <sup>c</sup>	Arithmetic Mean <sup>d</sup>	Maximum Detected Concentration	95% UCL			Exposure Point Concentration <sup>e</sup>		
								Distribution	95% UCL Method	Value	Mean	95% UCL/Max	
RM 6.5 East	<b>Metals</b>												
	Arsenic	mg/kg	37	3	0	4.2E+00	1.6E+01	non-parametric	95% KM (Chebyshev) UCL	5.8E+00	4.2E+00	5.8E+00	
	Lead	mg/kg	33	0	0	4.3E+02	1.3E+04	non-parametric	97.5% KM (Chebyshev) UCL	3.0E+03	4.3E+02	3.0E+03	
	Mercury	mg/kg	33	1	0	2.2E+00	6.5E+01	non-parametric	97.5% KM (Chebyshev) UCL	1.4E+01	2.2E+00	1.4E+01	
	Vanadium	mg/kg	3	0	0	1.0E+02	1.1E+02	--	Fewer than 5 detects	--	1.0E+02	1.1E+02	
	<b>Butyltins</b>												
	Tributyltin ion	ug/kg	12	1	0	4.3E+01	1.8E+02	gamma	95% KM (Chebyshev) UCL	1.1E+02	4.3E+01	1.1E+02	
	<b>Polynuclear Aromatic Hydrocarbons</b>												
	Benzo(a)anthracene	ug/kg	39	1	0	1.1E+02	1.1E+03	approx. gamma	95% KM (Chebyshev) UCL	2.3E+02	1.1E+02	2.3E+02	
	Benzo(a)pyrene	ug/kg	39	1	0	8.6E+01	4.4E+02	gamma	95% KM (Chebyshev) UCL	1.5E+02	8.6E+01	1.5E+02	
	Benzo(b)fluoranthene	ug/kg	39	1	0	1.1E+02	5.3E+02	lognormal	97.5% KM (Chebyshev) UCL	2.3E+02	1.1E+02	2.3E+02	
	Benzo(k)fluoranthene	ug/kg	39	2	0	6.1E+01	3.9E+02	lognormal	97.5% KM (Chebyshev) UCL	1.5E+02	6.1E+01	1.5E+02	
	Dibenzo(a,h)anthracene	ug/kg	39	6	0	1.5E+01	7.1E+01	gamma	95% KM (BCA) UCL	1.9E+01	1.5E+01	1.9E+01	
	Indeno(1,2,3-cd)pyrene	ug/kg	39	3	0	5.9E+01	3.0E+02	gamma	95% KM (Chebyshev) UCL	1.0E+02	5.9E+01	1.0E+02	
	Naphthalene	ug/kg	39	6	0	6.5E+01	3.5E+02	gamma	95% KM (Chebyshev) UCL	1.2E+02	6.5E+01	1.2E+02	
	<b>Phthalates</b>												
	Bis(2-ethylhexyl) phthalate	ug/kg	33	16	0	9.3E+01	6.1E+02	gamma	95% KM (t) UCL	1.2E+02	9.3E+01	1.2E+02	
	<b>Phenols</b>												
	Pentachlorophenol	ug/kg	26	14	10	3.9E+00	1.4E+01	normal	95% KM (t) UCL	4.9E+00	3.9E+00	4.9E+00	
	<b>Polychlorinated Biphenyls</b>												
	Total Aroclors	ug/kg	30	9	0	2.0E+02	3.3E+03	lognormal	99% KM (Chebyshev) UCL	1.3E+03	2.0E+02	1.3E+03	
	Total PCB Congeners	pg/g	22	0	0	3.9E+05	5.9E+06	lognormal	99% KM (Chebyshev) UCL	3.1E+06	3.9E+05	3.1E+06	
	Total PCBs, Adjusted	pg/g	22	0	0	3.8E+05	5.8E+06	lognormal	99% KM (Chebyshev) UCL	3.0E+06	3.8E+05	3.0E+06	
	<b>Dioxin/Furan</b>												
	Total Dioxin/Furan TEQ	pg/g	12	0	0	2.0E+01	8.9E+01	lognormal	99% KM (Chebyshev) UCL	1.0E+02	2.0E+01	8.9E+01	
	Total PCB TEQ	pg/g	22	0	0	3.0E+00	3.4E+01	non-parametric	99% KM (Chebyshev) UCL	1.3E+01	3.0E+00	1.3E+01	
<b>Pesticides</b>													
Aldrin	ug/kg	28	25	4	7.6E-02	2.9E-01	--	Fewer than 5 detects	--	7.6E-02	2.9E-01		
Dieldrin	ug/kg	28	23	2	1.5E-01	9.7E-01	non-parametric	95% KM (t) UCL	2.0E-01	1.5E-01	2.0E-01		
Total DDT	ug/kg	28	5	0	1.5E+01	3.2E+02	non-parametric	99% KM (Chebyshev) UCL	1.3E+02	1.5E+01	1.3E+02		
<b>Conventionals</b>													
Perchlorate	ug/kg	NA	NA	NA	NA	NA	--	--	--	NA	NA		
RM 7 West	<b>Metals</b>												
	Arsenic	mg/kg	41	8	0	4.2E+00	8.4E+00	non-parametric	95% KM (Chebyshev) UCL	5.3E+00	4.2E+00	5.3E+00	
	Lead	mg/kg	41	0	0	6.9E+01	1.3E+03	non-parametric	95% KM (Chebyshev) UCL	2.1E+02	6.9E+01	2.1E+02	
	Mercury	mg/kg	41	1	0	8.1E-02	3.1E-01	non-parametric	95% KM (Chebyshev) UCL	1.1E-01	8.1E-02	1.1E-01	
	Vanadium	mg/kg	8	0	0	1.0E+02	1.1E+02	normal	95% Student's-t UCL	1.0E+02	1.0E+02	1.0E+02	
	<b>Butyltins</b>												
	Tributyltin ion	ug/kg	2	0	0	6.0E+00	6.4E+00	--	Fewer than 5 detects	--	6.0E+00	6.4E+00	
	<b>Polynuclear Aromatic Hydrocarbons</b>												
Benzo(a)anthracene	ug/kg	42	0	0	5.6E+02	1.6E+04	non-parametric	95% KM (Chebyshev) UCL	2.2E+03	5.6E+02	2.2E+03		
Benzo(a)pyrene	ug/kg	42	0	0	4.7E+02	1.2E+04	non-parametric	95% KM (Chebyshev) UCL	1.7E+03	4.7E+02	1.7E+03		

TABLE 3-4.  
Exposure Point Concentration Summary - In-water Sediment

Scenario Timeframe: Current/Future
Medium: Sediment
Exposure Medium: In-Water Sediment

Exposure Point <sup>a</sup>	Chemical of Potential Concern	Units	Total Samples	Total Non-Detects <sup>b</sup>	Non-Detects greater than Maximum Detected Concentration <sup>c</sup>	Arithmetic Mean <sup>d</sup>	Maximum Detected Concentration	95% UCL			Exposure Point Concentration <sup>e</sup>	
								Distribution	95% UCL Method	Value	Mean	95% UCL/Max
	Benzo(b)fluoranthene	ug/kg	42	0	0	1.1E+03	3.3E+04	non-parametric	95% KM (Chebyshev) UCL	4.5E+03	1.1E+03	4.5E+03
	Benzo(k)fluoranthene	ug/kg	42	0	0	3.9E+02	1.0E+04	non-parametric	95% KM (Chebyshev) UCL	1.4E+03	3.9E+02	1.4E+03
	Dibenzo(a,h)anthracene	ug/kg	42	7	0	1.3E+02	3.9E+03	non-parametric	97.5% KM (Chebyshev) UCL	7.1E+02	1.3E+02	7.1E+02
	Indeno(1,2,3-cd)pyrene	ug/kg	42	0	0	3.7E+02	9.9E+03	non-parametric	95% KM (Chebyshev) UCL	1.4E+03	3.7E+02	1.4E+03
	Naphthalene	ug/kg	46	24	0	8.8E+00	4.0E+01	normal	95% KM (t) UCL	1.1E+01	8.8E+00	1.1E+01
	<b>Phthalates</b>											
	Bis(2-ethylhexyl) phthalate	ug/kg	41	11	0	2.1E+02	8.3E+02	lognormal	95% KM (BCA) UCL	2.7E+02	2.1E+02	2.7E+02
	<b>Phenols</b>											
	Pentachlorophenol	ug/kg	41	32	0	2.7E+01	3.2E+02	lognormal	95% KM (BCA) UCL	4.4E+01	2.7E+01	4.4E+01
	<b>Polychlorinated Biphenyls</b>											
	Total Aroclors	ug/kg	28	15	6	7.1E+01	3.3E+02	gamma	95% KM (t) UCL	9.3E+01	7.1E+01	9.3E+01
	Total PCB Congeners	pg/g	7	0	0	2.7E+05	9.7E+05	gamma	95% KM (Chebyshev) UCL	8.4E+05	2.7E+05	8.4E+05
	Total PCBs, Adjusted	pg/g	7	0	0	2.6E+05	9.2E+05	gamma	95% KM (Chebyshev) UCL	8.0E+05	2.6E+05	8.0E+05
	<b>Dioxin/Furan</b>											
	Total Dioxin/Furan TEQ	pg/g	9	0	0	1.7E+03	1.4E+04	lognormal	99% KM (Chebyshev) UCL	1.7E+04	1.7E+03	1.4E+04
	Total PCB TEQ	pg/g	7	0	0	7.7E+00	3.3E+01	approx. gamma	95% KM (Chebyshev) UCL	2.7E+01	7.7E+00	2.7E+01
	<b>Pesticides</b>											
	Aldrin	ug/kg	41	27	0	2.7E+01	6.9E+02	lognormal	99% KM (Chebyshev) UCL	1.9E+02	2.7E+01	1.9E+02
	Dieldrin	ug/kg	41	34	10	1.3E+00	1.3E+01	gamma	95% KM (t) UCL	2.0E+00	1.3E+00	2.0E+00
	Total DDT	ug/kg	45	0	0	2.3E+03	2.3E+04	lognormal	97.5% KM (Chebyshev) UCL	6.3E+03	2.3E+03	6.3E+03
	<b>Conventionals</b>											
	Perchlorate	ug/kg	13	10	0	4.9E+04	2.7E+05	--	Fewer than 5 detects	--	4.9E+04	2.7E+05
RM 7 East	<b>Metals</b>											
	Arsenic	mg/kg	40	8	0	1.0E+01	7.6E+01	non-parametric	95% KM (BCA) UCL	1.5E+01	1.0E+01	1.5E+01
	Lead	mg/kg	32	2	0	3.6E+01	5.2E+02	non-parametric	95% KM (Chebyshev) UCL	1.1E+02	3.6E+01	1.1E+02
	Mercury	mg/kg	32	4	0	5.8E-02	1.5E-01	normal	95% KM (t) UCL	6.8E-02	5.8E-02	6.8E-02
	Vanadium	mg/kg	8	0	0	1.1E+02	1.1E+02	normal	95% Student's-t UCL	1.1E+02	1.1E+02	1.1E+02
	<b>Butyltins</b>											
	Tributyltin ion	ug/kg	12	0	0	2.6E+02	1.6E+03	lognormal	97.5% KM (Chebyshev) UCL	1.0E+03	2.6E+02	1.0E+03
	<b>Polynuclear Aromatic Hydrocarbons</b>											
	Benzo(a)anthracene	ug/kg	40	6	0	1.2E+02	2.7E+03	lognormal	95% KM (Chebyshev) UCL	4.2E+02	1.2E+02	4.2E+02
	Benzo(a)pyrene	ug/kg	40	6	0	1.6E+02	3.9E+03	non-parametric	95% KM (Chebyshev) UCL	5.8E+02	1.6E+02	5.8E+02
	Benzo(b)fluoranthene	ug/kg	40	5	0	2.1E+02	4.1E+03	non-parametric	95% KM (Chebyshev) UCL	6.7E+02	2.1E+02	6.7E+02
	Benzo(k)fluoranthene	ug/kg	35	8	0	1.1E+02	3.0E+03	non-parametric	97.5% KM (Chebyshev) UCL	6.5E+02	1.1E+02	6.5E+02
	Dibenzo(a,h)anthracene	ug/kg	40	18	0	4.3E+01	8.6E+02	lognormal	97.5% KM (Chebyshev) UCL	1.9E+02	4.3E+01	1.9E+02
	Indeno(1,2,3-cd)pyrene	ug/kg	40	11	0	1.1E+02	2.6E+03	non-parametric	95% KM (Chebyshev) UCL	3.9E+02	1.1E+02	3.9E+02
	Naphthalene	ug/kg	40	14	0	2.2E+01	1.6E+02	lognormal	95% KM (Chebyshev) UCL	4.5E+01	2.2E+01	4.5E+01
	<b>Phthalates</b>											
	Bis(2-ethylhexyl) phthalate	ug/kg	32	12	0	3.0E+02	5.2E+03	lognormal	97.5% KM (Chebyshev) UCL	1.3E+03	3.0E+02	1.3E+03
	<b>Phenols</b>											
	Pentachlorophenol	ug/kg	38	29	0	7.7E+01	8.0E+02	gamma	95% KM (t) UCL	1.2E+02	7.7E+01	1.2E+02
	<b>Polychlorinated Biphenyls</b>											
	Total Aroclors	ug/kg	19	4	0	4.2E+01	2.7E+02	lognormal	95% KM (BCA) UCL	7.0E+01	4.2E+01	7.0E+01
	Total PCB Congeners	pg/g	9	0	0	2.1E+04	5.0E+04	normal	95% KM (t) UCL	3.0E+04	2.1E+04	3.0E+04
	Total PCBs, Adjusted	pg/g	9	0	0	2.0E+04	4.7E+04	normal	95% KM (t) UCL	2.8E+04	2.0E+04	2.8E+04

TABLE 3-4.  
Exposure Point Concentration Summary - In-water Sediment

Scenario Timeframe: Current/Future
Medium: Sediment
Exposure Medium: In-Water Sediment

Exposure Point <sup>a</sup>	Chemical of Potential Concern	Units	Total Samples	Total Non-Detects <sup>b</sup>	Non-Detects greater than Maximum Detected Concentration <sup>c</sup>	Arithmetic Mean <sup>d</sup>	Maximum Detected Concentration	95% UCL			Exposure Point Concentration <sup>e</sup>	
								Distribution	95% UCL Method	Value	Mean	95% UCL/Max
	<b>Dioxin/Furan</b>											
	Total Dioxin/Furan TEQ	pg/g	3	0	0	1.7E+01	4.0E+01	--	Fewer than 5 detects	--	1.7E+01	4.0E+01
	Total PCB TEQ	pg/g	9	0	0	5.5E-01	1.2E+00	normal	95% KM (t) UCL	7.4E-01	5.5E-01	7.4E-01
	<b>Pesticides</b>											
	Aldrin	ug/kg	23	19	6	1.3E-01	4.6E-01	--	Fewer than 5 detects	--	1.3E-01	4.6E-01
	Dieldrin	ug/kg	23	18	7	8.2E-02	3.5E-01	normal	95% KM (t) UCL	1.2E-01	8.2E-02	1.2E-01
	Total DDT	ug/kg	23	8	0	3.6E+00	2.7E+01	lognormal	97.5% KM (Chebyshev) UCL	1.3E+01	3.6E+00	1.3E+01
<b>Conventionals</b>												
Perchlorate	ug/kg	NA	NA	NA	NA	NA	--	--	--	NA	NA	
RM 7.5 West	<b>Metals</b>											
	Arsenic	mg/kg	39	10	4	3.2E+00	5.4E+00	normal	95% KM (t) UCL	3.7E+00	3.2E+00	3.7E+00
	Lead	mg/kg	39	0	0	1.7E+01	7.2E+01	non-parametric	95% KM (Chebyshev) UCL	2.4E+01	1.7E+01	2.4E+01
	Mercury	mg/kg	39	1	0	7.7E-02	4.6E-01	non-parametric	95% KM (Chebyshev) UCL	1.3E-01	7.7E-02	1.3E-01
	Vanadium	mg/kg	10	0	0	9.5E+01	1.1E+02	non-parametric	95% Student's-t UCL	1.0E+02	9.5E+01	1.0E+02
	<b>Butyltins</b>											
	Tributyltin ion	ug/kg	4	2	0	5.4E+00	9.7E+00	--	Fewer than 5 detects	--	5.4E+00	9.7E+00
	<b>Polynuclear Aromatic Hydrocarbons</b>											
	Benzo(a)anthracene	ug/kg	51	1	0	1.5E+02	3.4E+03	non-parametric	95% KM (Chebyshev) UCL	4.3E+02	1.5E+02	4.3E+02
	Benzo(a)pyrene	ug/kg	51	2	0	1.3E+02	2.5E+03	lognormal	95% KM (Chebyshev) UCL	3.4E+02	1.3E+02	3.4E+02
	Benzo(b)fluoranthene	ug/kg	51	1	0	1.7E+02	3.4E+03	lognormal	95% KM (Chebyshev) UCL	4.6E+02	1.7E+02	4.6E+02
	Benzo(k)fluoranthene	ug/kg	44	1	0	6.1E+01	6.9E+02	non-parametric	95% KM (Chebyshev) UCL	1.3E+02	6.1E+01	1.3E+02
	Dibenzo(a,h)anthracene	ug/kg	51	15	0	2.0E+01	3.5E+02	lognormal	95% KM (Chebyshev) UCL	5.0E+01	2.0E+01	5.0E+01
	Indeno(1,2,3-cd)pyrene	ug/kg	51	2	0	8.4E+01	1.1E+03	non-parametric	95% KM (Chebyshev) UCL	1.9E+02	8.4E+01	1.9E+02
	Naphthalene	ug/kg	51	18	0	2.5E+01	1.5E+02	lognormal	95% KM (BCA) UCL	3.3E+01	2.5E+01	3.3E+01
	<b>Phthalates</b>											
	Bis(2-ethylhexyl) phthalate	ug/kg	39	12	0	1.4E+02	6.2E+02	gamma	95% KM (Percentile Bootstrap) UCL	1.8E+02	1.4E+02	1.8E+02
	<b>Phenols</b>											
	Pentachlorophenol	ug/kg	21	14	17	1.5E+00	8.2E+00	gamma	95% KM (t) UCL	2.1E+00	1.5E+00	2.1E+00
	<b>Polychlorinated Biphenyls</b>											
	Total Aroclors	ug/kg	21	5	1	8.6E+01	7.7E+02	approx. gamma	95% KM (Chebyshev) UCL	2.5E+02	8.6E+01	2.5E+02
	Total PCB Congeners	pg/g	9	0	0	2.6E+04	6.0E+04	normal	95% KM (t) UCL	3.6E+04	2.6E+04	3.6E+04
	Total PCBs, Adjusted	pg/g	9	0	0	2.4E+04	5.7E+04	normal	95% KM (t) UCL	3.4E+04	2.4E+04	3.4E+04
	<b>Dioxin/Furan</b>											
	Total Dioxin/Furan TEQ	pg/g	8	0	0	9.3E-01	3.5E+00	gamma	95% KM (Chebyshev) UCL	2.6E+00	9.3E-01	2.6E+00
	Total PCB TEQ	pg/g	9	0	0	6.6E-01	1.6E+00	normal	95% KM (t) UCL	9.2E-01	6.6E-01	9.2E-01
	<b>Pesticides</b>											
	Aldrin	ug/kg	28	23	9	1.8E-01	9.7E-01	normal	95% KM (t) UCL	2.9E-01	1.8E-01	2.9E-01
	Dieldrin	ug/kg	28	24	9	1.8E-01	7.7E-01	--	Fewer than 5 detects	--	1.8E-01	7.7E-01
	Total DDT	ug/kg	28	8	0	2.1E+01	2.7E+02	lognormal	99% KM (Chebyshev) UCL	1.3E+02	2.1E+01	1.3E+02
	<b>Conventionals</b>											
	Perchlorate	ug/kg	NA	NA	NA	NA	NA	--	--	--	NA	NA

TABLE 3-4.  
Exposure Point Concentration Summary - In-water Sediment

Scenario Timeframe: Current/Future
Medium: Sediment
Exposure Medium: In-Water Sediment

Exposure Point <sup>a</sup>	Chemical of Potential Concern	Units	Total Samples	Total Non-Detects <sup>b</sup>	Non-Detects greater than Maximum Detected Concentration <sup>c</sup>	Arithmetic Mean <sup>d</sup>	Maximum Detected Concentration	95% UCL			Exposure Point Concentration <sup>e</sup>		
								Distribution	95% UCL Method	Value	Mean	95% UCL/Max	
RM 7.5 East	<b>Metals</b>												
	Arsenic	mg/kg	15	7	0	3.3E+00	5.3E+00	normal	95% KM (t) UCL	4.2E+00	3.3E+00	4.2E+00	
	Lead	mg/kg	15	0	0	1.3E+01	2.3E+01	gamma	95% Approximate Gamma UCL	1.5E+01	1.3E+01	1.5E+01	
	Mercury	mg/kg	15	0	0	7.6E-02	2.6E-01	non-parametric	95% Student's-t UCL	1.0E-01	7.6E-02	1.0E-01	
	Vanadium	mg/kg	7	0	0	1.1E+02	1.1E+02	normal	95% Student's-t UCL	1.1E+02	1.1E+02	1.1E+02	
	<b>Butyltins</b>												
	Tributyltin ion	ug/kg	10	0	0	1.6E+02	3.1E+02	normal	95% KM (t) UCL	2.3E+02	1.6E+02	2.3E+02	
	<b>Polynuclear Aromatic Hydrocarbons</b>												
	Benzo(a)anthracene	ug/kg	15	4	0	2.6E+01	1.2E+02	approx. gamma	95% KM (Percentile Bootstrap) UCL	4.0E+01	2.6E+01	4.0E+01	
	Benzo(a)pyrene	ug/kg	15	3	0	2.6E+01	8.2E+01	gamma	95% KM (BCA) UCL	3.5E+01	2.6E+01	3.5E+01	
	Benzo(b)fluoranthene	ug/kg	15	3	0	3.2E+01	1.0E+02	non-parametric	95% KM (BCA) UCL	4.4E+01	3.2E+01	4.4E+01	
	Benzo(k)fluoranthene	ug/kg	15	4	0	2.0E+01	1.0E+02	approx. gamma	95% KM (Percentile Bootstrap) UCL	3.1E+01	2.0E+01	3.1E+01	
	Dibenzo(a,h)anthracene	ug/kg	15	6	0	9.2E+00	3.0E+01	gamma	95% KM (BCA) UCL	1.1E+01	9.2E+00	1.1E+01	
	Indeno(1,2,3-cd)pyrene	ug/kg	15	6	0	1.8E+01	4.2E+01	normal	95% KM (t) UCL	2.4E+01	1.8E+01	2.4E+01	
	Naphthalene	ug/kg	15	11	8	6.1E+00	1.1E+01	--	Fewer than 5 detects	--	6.1E+00	1.1E+01	
	<b>Phthalates</b>												
	Bis(2-ethylhexyl) phthalate	ug/kg	15	4	0	6.1E+02	7.3E+03	non-parametric	97.5% KM (Chebyshev) UCL	3.7E+03	6.1E+02	3.7E+03	
	<b>Phenols</b>												
	Pentachlorophenol	ug/kg	14	14	ND	ND	ND	--	Fewer than 5 detects	--	ND	ND	
	<b>Polychlorinated Biphenyls</b>												
	Total Aroclors	ug/kg	12	6	0	3.2E+01	8.7E+01	normal	95% KM (t) UCL	4.5E+01	3.2E+01	4.5E+01	
	Total PCB Congeners	pg/g	NA	NA	NA	NA	NA	--	--	--	NA	NA	
	Total PCBs, Adjusted	pg/g	NA	NA	NA	NA	NA	--	--	--	NA	NA	
	<b>Dioxin/Furan</b>												
	Total Dioxin/Furan TEQ	pg/g	NA	NA	NA	NA	NA	--	--	--	NA	NA	
	Total PCB TEQ	pg/g	NA	NA	NA	NA	NA	--	--	--	NA	NA	
	<b>Pesticides</b>												
Aldrin	ug/kg	7	7	ND	ND	ND	--	Fewer than 5 detects	--	ND	ND		
Dieldrin	ug/kg	7	5	1	1.5E-01	3.4E-01	--	Fewer than 5 detects	--	1.5E-01	3.4E-01		
Total DDT	ug/kg	7	3	0	1.1E+00	3.3E+00	--	Fewer than 5 detects	--	1.1E+00	3.3E+00		
<b>Conventionals</b>													
Perchlorate	ug/kg	NA	NA	NA	NA	NA	--	--	--	NA	NA		
RM 8 West	<b>Metals</b>												
	Arsenic	mg/kg	24	4	0	4.1E+00	2.3E+01	non-parametric	95% KM (Chebyshev) UCL	8.0E+00	4.1E+00	8.0E+00	
	Lead	mg/kg	24	0	0	5.0E+01	3.5E+02	non-parametric	95% KM (Chebyshev) UCL	1.2E+02	5.0E+01	1.2E+02	
	Mercury	mg/kg	24	2	0	1.7E-01	8.0E-01	approx. gamma	95% KM (Chebyshev) UCL	3.3E-01	1.7E-01	3.3E-01	
	Vanadium	mg/kg	4	0	0	9.5E+01	1.0E+02	--	Fewer than 5 detects	--	9.5E+01	1.0E+02	
	<b>Butyltins</b>												
	Tributyltin ion	ug/kg	9	3	0	1.3E+01	5.5E+01	normal	95% KM (t) UCL	2.5E+01	1.3E+01	2.5E+01	
	<b>Polynuclear Aromatic Hydrocarbons</b>												
Benzo(a)anthracene	ug/kg	26	0	0	1.8E+02	1.2E+03	lognormal	97.5% KM (Chebyshev) UCL	5.5E+02	1.8E+02	5.5E+02		
Benzo(a)pyrene	ug/kg	26	0	0	1.7E+02	9.1E+02	lognormal	97.5% KM (Chebyshev) UCL	4.9E+02	1.7E+02	4.9E+02		

TABLE 3-4.  
Exposure Point Concentration Summary - In-water Sediment

Scenario Timeframe: Current/Future
Medium: Sediment
Exposure Medium: In-Water Sediment

Exposure Point <sup>a</sup>	Chemical of Potential Concern	Units	Total Samples	Total Non-Detects <sup>b</sup>	Non-Detects greater than Maximum Detected Concentration <sup>c</sup>	Arithmetic Mean <sup>d</sup>	Maximum Detected Concentration	95% UCL			Exposure Point Concentration <sup>e</sup>	
								Distribution	95% UCL Method	Value	Mean	95% UCL/Max
	Benzo(b)fluoranthene	ug/kg	26	0	0	2.3E+02	1.5E+03	lognormal	97.5% KM (Chebyshev) UCL	6.9E+02	2.3E+02	6.9E+02
	Benzo(k)fluoranthene	ug/kg	20	0	0	5.0E+01	3.1E+02	approx. gamma	95% KM (Chebyshev) UCL	1.2E+02	5.0E+01	1.2E+02
	Dibenzo(a,h)anthracene	ug/kg	26	8	0	3.1E+01	2.2E+02	lognormal	99% KM (Chebyshev) UCL	1.4E+02	3.1E+01	1.4E+02
	Indeno(1,2,3-cd)pyrene	ug/kg	26	1	0	1.1E+02	6.2E+02	lognormal	97.5% KM (Chebyshev) UCL	3.2E+02	1.1E+02	3.2E+02
	Naphthalene	ug/kg	26	10	0	5.1E+01	2.7E+02	gamma	95% KM (BCA) UCL	8.1E+01	5.1E+01	8.1E+01
	<b>Phthalates</b>											
	Bis(2-ethylhexyl) phthalate	ug/kg	24	5	0	6.0E+02	4.4E+03	lognormal	99% KM (Chebyshev) UCL	3.0E+03	6.0E+02	3.0E+03
	<b>Phenols</b>											
	Pentachlorophenol	ug/kg	15	11	9	3.1E+00	1.5E+01	--	Fewer than 5 detects	--	3.1E+00	1.5E+01
	<b>Polychlorinated Biphenyls</b>											
	Total Aroclors	ug/kg	13	1	0	1.2E+02	6.2E+02	lognormal	97.5% KM (Chebyshev) UCL	4.0E+02	1.2E+02	4.0E+02
	Total PCB Congeners	pg/g	3	0	0	8.3E+04	1.2E+05	--	Fewer than 5 detects	--	8.3E+04	1.2E+05
	Total PCBs, Adjusted	pg/g	3	0	0	7.6E+04	1.0E+05	--	Fewer than 5 detects	--	7.6E+04	1.0E+05
	<b>Dioxin/Furan</b>											
	Total Dioxin/Furan TEQ	pg/g	2	0	0	2.6E-01	4.3E-01	--	Fewer than 5 detects	--	2.6E-01	4.3E-01
	Total PCB TEQ	pg/g	3	0	0	3.6E+00	6.1E+00	--	Fewer than 5 detects	--	3.6E+00	6.1E+00
	<b>Pesticides</b>											
	Aldrin	ug/kg	19	17	12	4.0E-02	1.2E-01	--	Fewer than 5 detects	--	4.0E-02	1.2E-01
	Dieldrin	ug/kg	19	12	0	2.0E+00	2.8E+01	gamma	95% KM (t) UCL	4.6E+00	2.0E+00	4.6E+00
	Total DDT	ug/kg	19	5	0	6.5E+00	6.3E+01	gamma	95% KM (Chebyshev) UCL	2.1E+01	6.5E+00	2.1E+01
	<b>Conventionals</b>											
	Perchlorate	ug/kg	NA	NA	NA	NA	NA	--	--	--	NA	NA
RM 8 East	<b>Metals</b>											
	Arsenic	mg/kg	37	4	0	6.2E+00	1.7E+01	non-parametric	95% KM (Chebyshev) UCL	9.1E+00	6.2E+00	9.1E+00
	Lead	mg/kg	37	0	0	2.8E+01	1.1E+02	non-parametric	95% KM (Chebyshev) UCL	4.6E+01	2.8E+01	4.6E+01
	Mercury	mg/kg	37	3	0	1.2E-01	8.6E-01	non-parametric	95% KM (Chebyshev) UCL	2.2E-01	1.2E-01	2.2E-01
	Vanadium	mg/kg	6	0	0	1.1E+02	1.1E+02	normal	95% Student's-t UCL	1.1E+02	1.1E+02	1.1E+02
	<b>Butyltins</b>											
	Tributyltin ion	ug/kg	13	0	0	2.4E+03	9.3E+03	gamma	95% KM (Chebyshev) UCL	5.8E+03	2.4E+03	5.8E+03
	<b>Polynuclear Aromatic Hydrocarbons</b>											
	Benzo(a)anthracene	ug/kg	36	1	0	1.7E+02	1.5E+03	non-parametric	97.5% KM (Chebyshev) UCL	5.0E+02	1.7E+02	5.0E+02
	Benzo(a)pyrene	ug/kg	36	1	0	1.7E+02	1.6E+03	non-parametric	97.5% KM (Chebyshev) UCL	5.3E+02	1.7E+02	5.3E+02
	Benzo(b)fluoranthene	ug/kg	36	1	0	2.0E+02	1.4E+03	non-parametric	97.5% KM (Chebyshev) UCL	5.5E+02	2.0E+02	5.5E+02
	Benzo(k)fluoranthene	ug/kg	35	1	0	1.3E+02	1.1E+03	lognormal	97.5% KM (Chebyshev) UCL	3.7E+02	1.3E+02	3.7E+02
	Dibenzo(a,h)anthracene	ug/kg	36	14	0	2.6E+01	2.4E+02	gamma	95% KM (BCA) UCL	4.0E+01	2.6E+01	4.0E+01
	Indeno(1,2,3-cd)pyrene	ug/kg	36	1	0	1.2E+02	1.1E+03	non-parametric	97.5% KM (Chebyshev) UCL	3.7E+02	1.2E+02	3.7E+02
	Naphthalene	ug/kg	36	19	0	1.6E+01	6.4E+01	gamma	95% KM (t) UCL	2.2E+01	1.6E+01	2.2E+01
	<b>Phthalates</b>											
	Bis(2-ethylhexyl) phthalate	ug/kg	35	0	0	7.7E+02	3.1E+03	lognormal	95% KM (Chebyshev) UCL	1.3E+03	7.7E+02	1.3E+03
	<b>Phenols</b>											
	Pentachlorophenol	ug/kg	15	10	19	1.3E+01	8.5E+01	normal	95% KM (t) UCL	2.7E+01	1.3E+01	2.7E+01
	<b>Polychlorinated Biphenyls</b>											
	Total Aroclors	ug/kg	32	11	0	1.7E+02	1.6E+03	lognormal	97.5% KM (Chebyshev) UCL	5.8E+02	1.7E+02	5.8E+02
	Total PCB Congeners	pg/g	4	0	0	2.4E+05	7.3E+05	--	Fewer than 5 detects	--	2.4E+05	7.3E+05
	Total PCBs, Adjusted	pg/g	4	0	0	2.2E+05	6.7E+05	--	Fewer than 5 detects	--	2.2E+05	6.7E+05



TABLE 3-4.  
Exposure Point Concentration Summary - In-water Sediment

Scenario Timeframe: Current/Future
Medium: Sediment
Exposure Medium: In-Water Sediment

Exposure Point <sup>a</sup>	Chemical of Potential Concern	Units	Total Samples	Total Non-Detects <sup>b</sup>	Non-Detects greater than Maximum Detected Concentration <sup>c</sup>	Arithmetic Mean <sup>d</sup>	Maximum Detected Concentration	95% UCL			Exposure Point Concentration <sup>e</sup>	
								Distribution	95% UCL Method	Value	Mean	95% UCL/Max
	<b>Dioxin/Furan</b>											
	Total Dioxin/Furan TEQ	pg/g	3	0	0	9.3E-01	2.1E+00	--	Fewer than 5 detects	--	9.3E-01	2.1E+00
	Total PCB TEQ	pg/g	4	0	0	5.8E+00	1.7E+01	--	Fewer than 5 detects	--	5.8E+00	1.7E+01
	<b>Pesticides</b>											
	Aldrin	ug/kg	17	14	4	1.1E-01	4.4E-01	--	Fewer than 5 detects	--	1.1E-01	4.4E-01
	Dieldrin	ug/kg	17	12	0	7.9E-01	1.0E+01	lognormal	97.5% KM (Chebyshev) UCL	4.7E+00	7.9E-01	4.7E+00
	Total DDT	ug/kg	17	6	0	1.1E+01	1.4E+02	non-parametric	99% KM (Chebyshev) UCL	9.4E+01	1.1E+01	9.4E+01
<b>Conventionals</b>												
Perchlorate	ug/kg	NA	NA	NA	NA	NA	--	--	--	NA	NA	
RM 8 SIL	<b>Metals</b>											
	Arsenic	mg/kg	85	6	0	5.4E+00	1.6E+01	gamma	95% KM (BCA) UCL	5.9E+00	5.4E+00	5.9E+00
	Lead	mg/kg	85	0	0	4.6E+01	9.4E+02	non-parametric	95% KM (BCA) UCL	7.0E+01	4.6E+01	7.0E+01
	Mercury	mg/kg	84	10	0	1.2E-01	7.7E-01	non-parametric	95% KM (BCA) UCL	1.4E-01	1.2E-01	1.4E-01
	Vanadium	mg/kg	6	0	0	1.1E+02	1.2E+02	normal	95% Student's-t UCL	1.2E+02	1.1E+02	1.2E+02
	<b>Butyltins</b>											
	Tributyltin ion	ug/kg	24	0	0	2.2E+03	4.6E+04	non-parametric	99% KM (Chebyshev) UCL	2.1E+04	2.2E+03	2.1E+04
	<b>Polynuclear Aromatic Hydrocarbons</b>											
	Benzo(a)anthracene	ug/kg	86	8	0	2.4E+02	5.6E+03	lognormal	95% KM (Chebyshev) UCL	5.4E+02	2.4E+02	5.4E+02
	Benzo(a)pyrene	ug/kg	86	12	0	2.0E+02	2.6E+03	non-parametric	95% KM (Chebyshev) UCL	3.6E+02	2.0E+02	3.6E+02
	Benzo(b)fluoranthene	ug/kg	86	5	0	3.8E+02	4.5E+03	lognormal	95% KM (Chebyshev) UCL	7.0E+02	3.8E+02	7.0E+02
	Benzo(k)fluoranthene	ug/kg	61	0	0	2.1E+02	1.5E+03	gamma	95% KM (Chebyshev) UCL	3.5E+02	2.1E+02	3.5E+02
	Dibenzo(a,h)anthracene	ug/kg	86	31	0	3.6E+01	6.7E+02	lognormal	95% KM (Chebyshev) UCL	7.1E+01	3.6E+01	7.1E+01
	Indeno(1,2,3-cd)pyrene	ug/kg	86	12	0	1.2E+02	1.1E+03	approx. gamma	95% KM (Chebyshev) UCL	2.1E+02	1.2E+02	2.1E+02
	Naphthalene	ug/kg	86	28	0	2.5E+01	2.3E+02	lognormal	95% KM (BCA) UCL	3.0E+01	2.5E+01	3.0E+01
	<b>Phthalates</b>											
	Bis(2-ethylhexyl) phthalate	ug/kg	84	9	0	8.1E+03	4.4E+05	lognormal	97.5% KM (Chebyshev) UCL	4.1E+04	8.1E+03	4.1E+04
	<b>Phenols</b>											
	Pentachlorophenol	ug/kg	81	58	1	3.9E+01	2.5E+02	gamma	95% KM (t) UCL	3.3E+01	3.9E+01	3.3E+01
	<b>Polychlorinated Biphenyls</b>											
	Total Aroclors	ug/kg	64	6	0	2.8E+02	2.5E+03	approx. gamma	95% KM (Chebyshev) UCL	5.3E+02	2.8E+02	5.3E+02
	Total PCB Congeners	pg/g	15	0	0	1.0E+06	1.3E+07	lognormal	99% KM (Chebyshev) UCL	9.2E+06	1.0E+06	9.2E+06
	Total PCBs, Adjusted	pg/g	15	0	0	1.0E+06	1.2E+07	lognormal	99% KM (Chebyshev) UCL	9.0E+06	1.0E+06	9.0E+06
	<b>Dioxin/Furan</b>											
	Total Dioxin/Furan TEQ	pg/g	9	0	0	6.3E+00	4.0E+01	non-parametric	97.5% KM (Chebyshev) UCL	3.3E+01	6.3E+00	3.3E+01
	Total PCB TEQ	pg/g	15	0	0	1.2E+01	1.2E+02	lognormal	99% KM (Chebyshev) UCL	8.8E+01	1.2E+01	8.8E+01
	<b>Pesticides</b>											
Aldrin	ug/kg	59	54	2	6.2E-01	6.0E+00	gamma	95% KM (t) UCL	3.6E-01	6.2E-01	3.6E-01	
Dieldrin	ug/kg	59	52	0	1.4E+00	2.2E+01	gamma	95% KM (t) UCL	1.4E+00	1.4E+00	1.4E+00	
Total DDT	ug/kg	59	31	0	5.2E+00	7.9E+01	lognormal	95% KM (Chebyshev) UCL	1.2E+01	5.2E+00	1.2E+01	
<b>Conventionals</b>												
Perchlorate	ug/kg	NA	NA	NA	NA	NA	--	--	--	NA	NA	

TABLE 3-4.  
Exposure Point Concentration Summary - In-water Sediment

Scenario Timeframe: Current/Future
Medium: Sediment
Exposure Medium: In-Water Sediment

Exposure Point <sup>a</sup>	Chemical of Potential Concern	Units	Total Samples	Total Non-Detects <sup>b</sup>	Non-Detects greater than Maximum Detected Concentration <sup>c</sup>	Arithmetic Mean <sup>d</sup>	Maximum Detected Concentration	95% UCL			Exposure Point Concentration <sup>e</sup>		
								Distribution	95% UCL Method	Value	Mean	95% UCL/Max	
RM 8.5 West	<b>Metals</b>												
	Arsenic	mg/kg	32	3	0	6.7E+00	3.4E+01	non-parametric	95% KM (Chebyshev) UCL	1.2E+01	6.7E+00	1.2E+01	
	Lead	mg/kg	32	0	0	1.1E+02	9.6E+02	non-parametric	97.5% KM (Chebyshev) UCL	3.1E+02	1.1E+02	3.1E+02	
	Mercury	mg/kg	32	1	0	2.0E-01	2.0E+00	non-parametric	95% KM (Chebyshev) UCL	4.7E-01	2.0E-01	4.7E-01	
	Vanadium	mg/kg	3	0	0	1.0E+02	1.1E+02	--	Fewer than 5 detects	--	1.0E+02	1.1E+02	
	<b>Butyltins</b>												
	Tributyltin ion	ug/kg	18	1	0	1.3E+01	3.0E+01	normal	95% KM (t) UCL	1.7E+01	1.3E+01	1.7E+01	
	<b>Polynuclear Aromatic Hydrocarbons</b>												
	Benzo(a)anthracene	ug/kg	32	3	0	9.4E+01	4.1E+02	lognormal	95% KM (Chebyshev) UCL	1.8E+02	9.4E+01	1.8E+02	
	Benzo(a)pyrene	ug/kg	32	5	0	9.1E+01	5.0E+02	lognormal	97.5% KM (Chebyshev) UCL	2.2E+02	9.1E+01	2.2E+02	
	Benzo(b)fluoranthene	ug/kg	32	4	0	1.3E+02	6.0E+02	approx. gamma	95% KM (BCA) UCL	1.8E+02	1.3E+02	1.8E+02	
	Benzo(k)fluoranthene	ug/kg	23	0	0	5.5E+01	2.6E+02	gamma	95% KM (Chebyshev) UCL	1.1E+02	5.5E+01	1.1E+02	
	Dibenzo(a,h)anthracene	ug/kg	32	13	0	1.1E+01	7.1E+01	gamma	95% KM (BCA) UCL	1.7E+01	1.1E+01	1.7E+01	
	Indeno(1,2,3-cd)pyrene	ug/kg	32	7	0	5.2E+01	3.2E+02	approx. gamma	95% KM (BCA) UCL	7.6E+01	5.2E+01	7.6E+01	
	Naphthalene	ug/kg	32	13	0	2.4E+01	1.5E+02	non-parametric	95% KM (t) UCL	3.7E+01	2.4E+01	3.7E+01	
	<b>Phthalates</b>												
	Bis(2-ethylhexyl) phthalate	ug/kg	32	4	0	6.3E+02	4.5E+03	lognormal	97.5% KM (Chebyshev) UCL	1.7E+03	6.3E+02	1.7E+03	
	<b>Phenols</b>												
	Pentachlorophenol	ug/kg	27	18	5	2.8E+00	1.8E+01	lognormal	95% KM (t) UCL	3.9E+00	2.8E+00	3.9E+00	
	<b>Polychlorinated Biphenyls</b>												
	Total Aroclors	ug/kg	27	0	0	1.4E+03	3.1E+04	non-parametric	97.5% KM (Chebyshev) UCL	8.5E+03	1.4E+03	8.5E+03	
	Total PCB Congeners	pg/g	8	0	0	4.7E+06	3.5E+07	non-parametric	99% KM (Chebyshev) UCL	4.8E+07	4.7E+06	3.5E+07	
	Total PCBs, Adjusted	pg/g	8	0	0	4.5E+06	3.4E+07	non-parametric	99% KM (Chebyshev) UCL	4.7E+07	4.5E+06	3.4E+07	
<b>Dioxin/Furan</b>													
Total Dioxin/Furan TEQ	pg/g	5	0	0	5.0E+00	1.8E+01	gamma	95% KM (Chebyshev) UCL	2.0E+01	5.0E+00	1.8E+01		
Total PCB TEQ	pg/g	8	0	0	3.3E+01	2.4E+02	non-parametric	99% KM (Chebyshev) UCL	3.3E+02	3.3E+01	2.4E+02		
<b>Pesticides</b>													
Aldrin	ug/kg	27	8	0	1.1E+01	1.3E+02	gamma	95% KM (Chebyshev) UCL	3.2E+01	1.1E+01	3.2E+01		
Dieldrin	ug/kg	27	20	0	1.5E+01	3.6E+02	gamma	95% KM (t) UCL	3.9E+01	1.5E+01	3.9E+01		
Total DDT	ug/kg	27	12	0	6.0E+00	6.7E+01	lognormal	97.5% KM (Chebyshev) UCL	2.2E+01	6.0E+00	2.2E+01		
<b>Conventionals</b>													
RM 8.5 West	Perchlorate	ug/kg	NA	NA	NA	NA	NA	--	--	--	NA	NA	
RM 8.5 East	<b>Metals</b>												
	Arsenic	mg/kg	13	2	0	4.7E+00	1.5E+01	non-parametric	95% KM (Chebyshev) UCL	9.0E+00	4.7E+00	9.0E+00	
	Lead	mg/kg	13	0	0	2.1E+01	5.5E+01	non-parametric	95% Student's-t UCL	2.8E+01	2.1E+01	2.8E+01	
	Mercury	mg/kg	13	0	0	1.2E-01	5.4E-01	approx. gamma	95% Approximate Gamma UCL	1.8E-01	1.2E-01	1.8E-01	
	Vanadium	mg/kg	2	0	0	1.0E+02	1.1E+02	--	Fewer than 5 detects	--	1.0E+02	1.1E+02	
	<b>Butyltins</b>												
	Tributyltin ion	ug/kg	4	0	0	2.3E+01	3.1E+01	--	Fewer than 5 detects	--	2.3E+01	3.1E+01	
	<b>Polynuclear Aromatic Hydrocarbons</b>												
Benzo(a)anthracene	ug/kg	13	1	0	4.1E+01	1.8E+02	gamma	95% KM (Chebyshev) UCL	9.7E+01	4.1E+01	9.7E+01		
Benzo(a)pyrene	ug/kg	13	1	0	4.6E+01	1.8E+02	gamma	95% KM (Chebyshev) UCL	1.0E+02	4.6E+01	1.0E+02		

TABLE 3-4.  
Exposure Point Concentration Summary - In-water Sediment

Scenario Timeframe: Current/Future
Medium: Sediment
Exposure Medium: In-Water Sediment

Exposure Point <sup>a</sup>	Chemical of Potential Concern	Units	Total Samples	Total Non-Detects <sup>b</sup>	Non-Detects greater than Maximum Detected Concentration <sup>c</sup>	Arithmetic Mean <sup>d</sup>	Maximum Detected Concentration	95% UCL			Exposure Point Concentration <sup>e</sup>	
								Distribution	95% UCL Method	Value	Mean	95% UCL/Max
	Benzo(b)fluoranthene	ug/kg	13	0	0	7.1E+01	3.5E+02	lognormal	95% H-UCL	1.4E+02	7.1E+01	1.4E+02
	Benzo(k)fluoranthene	ug/kg	13	1	0	3.6E+01	2.0E+02	approx. gamma	95% KM (Chebyshev) UCL	9.8E+01	3.6E+01	9.8E+01
	Dibenzo(a,h)anthracene	ug/kg	13	4	1	8.3E+00	2.2E+01	normal	95% KM (t) UCL	1.2E+01	8.3E+00	1.2E+01
	Indeno(1,2,3-cd)pyrene	ug/kg	13	1	0	3.9E+01	1.3E+02	gamma	95% KM (Chebyshev) UCL	8.0E+01	3.9E+01	8.0E+01
	Naphthalene	ug/kg	13	9	0	2.0E+01	1.5E+02	--	Fewer than 5 detects	--	2.0E+01	1.5E+02
	<b>Phthalates</b>											
	Bis(2-ethylhexyl) phthalate	ug/kg	13	5	0	4.5E+02	2.4E+03	gamma	95% KM (BCA) UCL	9.2E+02	4.5E+02	9.2E+02
	<b>Phenols</b>											
	Pentachlorophenol	ug/kg	13	13	ND	ND	ND	--	Fewer than 5 detects	--	ND	ND
	<b>Polychlorinated Biphenyls</b>											
	Total Aroclors	ug/kg	12	3	0	4.6E+01	1.5E+02	lognormal	95% KM (BCA) UCL	7.2E+01	4.6E+01	7.2E+01
	Total PCB Congeners	pg/g	4	0	0	2.9E+04	4.6E+04	--	Fewer than 5 detects	--	2.9E+04	4.6E+04
	Total PCBs, Adjusted	pg/g	4	0	0	2.8E+04	4.5E+04	--	Fewer than 5 detects	--	2.8E+04	4.5E+04
	<b>Dioxin/Furan</b>											
	Total Dioxin/Furan TEQ	pg/g	2	0	0	6.3E-01	9.4E-01	--	Fewer than 5 detects	--	6.3E-01	9.4E-01
	Total PCB TEQ	pg/g	4	0	0	4.2E-01	5.9E-01	--	Fewer than 5 detects	--	4.2E-01	5.9E-01
	<b>Pesticides</b>											
	Aldrin	ug/kg	10	8	7	3.2E-02	4.1E-02	--	Fewer than 5 detects	--	3.2E-02	4.1E-02
	Dieldrin	ug/kg	10	7	2	1.3E-01	4.4E-01	--	Fewer than 5 detects	--	1.3E-01	4.4E-01
	Total DDT	ug/kg	10	1	0	1.5E+00	4.0E+00	normal	95% KM (t) UCL	2.3E+00	1.5E+00	2.3E+00
	<b>Conventionals</b>											
	Perchlorate	ug/kg	NA	NA	NA	NA	NA	--	--	--	NA	NA
RM 9 West	<b>Metals</b>											
	Arsenic	mg/kg	17	2	0	4.2E+00	9.8E+00	approx. gamma	95% KM (BCA) UCL	5.0E+00	4.2E+00	5.0E+00
	Lead	mg/kg	17	0	0	4.2E+01	1.8E+02	non-parametric	95% Chebyshev (Mean, Sd) UCL	9.7E+01	4.2E+01	9.7E+01
	Mercury	mg/kg	17	0	0	1.2E-01	4.1E-01	non-parametric	95% Chebyshev (Mean, Sd) UCL	2.3E-01	1.2E-01	2.3E-01
	Vanadium	mg/kg	2	0	0	1.1E+02	1.1E+02	--	Fewer than 5 detects	--	1.1E+02	1.1E+02
	<b>Butyltins</b>											
	Tributyltin ion	ug/kg	9	1	0	9.9E+00	3.1E+01	normal	95% KM (t) UCL	1.7E+01	9.9E+00	1.7E+01
	<b>Polynuclear Aromatic Hydrocarbons</b>											
	Benzo(a)anthracene	ug/kg	17	0	0	1.5E+02	1.6E+03	approx. gamma	95% Approximate Gamma UCL	3.2E+02	1.5E+02	3.2E+02
	Benzo(a)pyrene	ug/kg	17	0	0	1.0E+02	7.9E+02	gamma	95% Approximate Gamma UCL	1.9E+02	1.0E+02	1.9E+02
	Benzo(b)fluoranthene	ug/kg	17	0	0	1.6E+02	1.0E+03	gamma	95% Approximate Gamma UCL	3.0E+02	1.6E+02	3.0E+02
	Benzo(k)fluoranthene	ug/kg	17	0	0	6.2E+01	4.0E+02	gamma	95% Approximate Gamma UCL	1.1E+02	6.2E+01	1.1E+02
	Dibenzo(a,h)anthracene	ug/kg	17	1	0	1.8E+01	1.1E+02	gamma	95% KM (Chebyshev) UCL	4.8E+01	1.8E+01	4.8E+01
	Indeno(1,2,3-cd)pyrene	ug/kg	17	0	0	6.7E+01	3.9E+02	gamma	95% Approximate Gamma UCL	1.2E+02	6.7E+01	1.2E+02
	Naphthalene	ug/kg	17	7	0	1.7E+01	6.7E+01	normal	95% KM (t) UCL	2.5E+01	1.7E+01	2.5E+01
	<b>Phthalates</b>											
	Bis(2-ethylhexyl) phthalate	ug/kg	17	5	0	1.7E+02	9.8E+02	gamma	95% KM (Chebyshev) UCL	4.4E+02	1.7E+02	4.4E+02
	<b>Phenols</b>											
	Pentachlorophenol	ug/kg	15	13	2	4.7E+00	4.5E+01	--	Fewer than 5 detects	--	4.7E+00	4.5E+01
	<b>Polychlorinated Biphenyls</b>											
	Total Aroclors	ug/kg	16	0	0	4.5E+02	2.5E+03	non-parametric	99% KM (Chebyshev) UCL	2.3E+03	4.5E+02	2.3E+03
	Total PCB Congeners	pg/g	6	0	0	8.9E+05	2.5E+06	normal	95% KM (t) UCL	1.8E+06	8.9E+05	1.8E+06
	Total PCBs, Adjusted	pg/g	6	0	0	8.4E+05	2.4E+06	normal	95% KM (t) UCL	1.7E+06	8.4E+05	1.7E+06

TABLE 3-4.  
Exposure Point Concentration Summary - In-water Sediment

Scenario Timeframe: Current/Future
Medium: Sediment
Exposure Medium: In-Water Sediment

Exposure Point <sup>a</sup>	Chemical of Potential Concern	Units	Total Samples	Total Non-Detects <sup>b</sup>	Non-Detects greater than Maximum Detected Concentration <sup>c</sup>	Arithmetic Mean <sup>d</sup>	Maximum Detected Concentration	95% UCL			Exposure Point Concentration <sup>e</sup>	
								Distribution	95% UCL Method	Value	Mean	95% UCL/Max
	<b>Dioxin/Furan</b>											
	Total Dioxin/Furan TEQ	pg/g	2	0	0	3.9E+00	6.0E+00	--	Fewer than 5 detects	--	3.9E+00	6.0E+00
	Total PCB TEQ	pg/g	6	0	0	1.6E+01	4.8E+01	normal	95% KM (t) UCL	3.2E+01	1.6E+01	3.2E+01
	<b>Pesticides</b>											
	Aldrin	ug/kg	16	13	1	2.2E-01	1.4E+00	--	Fewer than 5 detects	--	2.2E-01	1.4E+00
	Dieldrin	ug/kg	16	12	1	2.0E-01	6.3E-01	--	Fewer than 5 detects	--	2.0E-01	6.3E-01
	Total DDT	ug/kg	16	2	0	4.4E+00	1.9E+01	gamma	95% KM (Chebyshev) UCL	9.9E+00	4.4E+00	9.9E+00
<b>Conventionals</b>												
Perchlorate	ug/kg	NA	NA	NA	NA	NA	--	--	--	NA	NA	
RM 9 East	<b>Metals</b>											
Arsenic	mg/kg	16	0	0	3.8E+00	1.2E+01	non-parametric	95% Student's-t UCL	4.8E+00	3.8E+00	4.8E+00	
Lead	mg/kg	16	0	0	2.6E+01	8.7E+01	approx. gamma	95% Approximate Gamma UCL	3.5E+01	2.6E+01	3.5E+01	
Mercury	mg/kg	16	0	0	5.0E-02	9.1E-02	normal	95% Student's-t UCL	6.1E-02	5.0E-02	6.1E-02	
Vanadium	mg/kg	NA	NA	NA	NA	NA	--	--	--	NA	NA	
<b>Butyltins</b>												
Tributyltin ion	ug/kg	NA	NA	NA	NA	NA	--	--	--	NA	NA	
<b>Polynuclear Aromatic Hydrocarbons</b>												
Benzo(a)anthracene	ug/kg	16	4	1	1.0E+01	2.2E+01	normal	95% KM (t) UCL	1.4E+01	1.0E+01	1.4E+01	
Benzo(a)pyrene	ug/kg	16	4	1	1.3E+01	3.5E+01	normal	95% KM (t) UCL	1.7E+01	1.3E+01	1.7E+01	
Benzo(b)fluoranthene	ug/kg	16	3	1	1.8E+01	3.9E+01	normal	95% KM (t) UCL	2.4E+01	1.8E+01	2.4E+01	
Benzo(k)fluoranthene	ug/kg	9	0	0	8.3E+00	1.3E+01	normal	95% Student's-t UCL	1.1E+01	8.3E+00	1.1E+01	
Dibenzo(a,h)anthracene	ug/kg	16	7	2	2.1E+00	4.8E+00	normal	95% KM (t) UCL	2.9E+00	2.1E+00	2.9E+00	
Indeno(1,2,3-cd)pyrene	ug/kg	16	4	1	1.1E+01	2.6E+01	normal	95% KM (t) UCL	1.4E+01	1.1E+01	1.4E+01	
Naphthalene	ug/kg	16	12	2	2.7E+00	8.9E+00	--	Fewer than 5 detects	--	2.7E+00	8.9E+00	
<b>Phthalates</b>												
Bis(2-ethylhexyl) phthalate	ug/kg	16	1	0	3.6E+02	4.2E+03	non-parametric	97.5% KM (Chebyshev) UCL	2.0E+03	3.6E+02	2.0E+03	
<b>Phenols</b>												
Pentachlorophenol	ug/kg	16	16	ND	ND	ND	--	Fewer than 5 detects	--	ND	ND	
<b>Polychlorinated Biphenyls</b>												
Total Aroclors	ug/kg	9	0	0	5.2E+01	2.0E+02	lognormal	95% H-UCL	1.0E+02	5.2E+01	1.0E+02	
Total PCB Congeners	pg/g	2	0	0	6.4E+04	1.1E+05	--	Fewer than 5 detects	--	6.4E+04	1.1E+05	
Total PCBs, Adjusted	pg/g	2	0	0	6.2E+04	1.0E+05	--	Fewer than 5 detects	--	6.2E+04	1.0E+05	
<b>Dioxin/Furan</b>												
Total Dioxin/Furan TEQ	pg/g	1	0	0	2.2E-01	2.2E-01	--	Fewer than 5 detects	--	2.2E-01	2.2E-01	
Total PCB TEQ	pg/g	2	0	0	6.3E-01	6.3E-01	--	Fewer than 5 detects	--	6.3E-01	6.3E-01	
<b>Pesticides</b>												
Aldrin	ug/kg	16	16	ND	ND	ND	--	Fewer than 5 detects	--	ND	ND	
Dieldrin	ug/kg	16	15	9	8.8E-02	2.6E-01	--	Fewer than 5 detects	--	8.8E-02	2.6E-01	
Total DDT	ug/kg	16	8	0	1.4E+00	4.6E+00	normal	95% KM (t) UCL	1.9E+00	1.4E+00	1.9E+00	
<b>Conventionals</b>												
Perchlorate	ug/kg	NA	NA	NA	NA	NA	--	--	--	NA	NA	

TABLE 3-4.  
Exposure Point Concentration Summary - In-water Sediment

Scenario Timeframe: Current/Future
Medium: Sediment
Exposure Medium: In-Water Sediment

Exposure Point <sup>a</sup>	Chemical of Potential Concern	Units	Total Samples	Total Non-Detects <sup>b</sup>	Non-Detects greater than Maximum Detected Concentration <sup>c</sup>	Arithmetic Mean <sup>d</sup>	Maximum Detected Concentration	95% UCL			Exposure Point Concentration <sup>e</sup>		
								Distribution	95% UCL Method	Value	Mean	95% UCL/Max	
RM 9.5 West	<b>Metals</b>												
	Arsenic	mg/kg	12	0	0	3.8E+00	7.8E+00	approx. gamma	95% Approximate Gamma UCL	4.5E+00	3.8E+00	4.5E+00	
	Lead	mg/kg	12	0	0	2.6E+01	7.2E+01	gamma	95% Approximate Gamma UCL	3.7E+01	2.6E+01	3.7E+01	
	Mercury	mg/kg	12	1	0	6.2E-02	1.2E-01	normal	95% KM (t) UCL	7.5E-02	6.2E-02	7.5E-02	
	Vanadium	mg/kg	NA	NA	NA	NA	NA	--	--	--	NA	NA	
	<b>Butyltins</b>												
	Tributyltin ion	ug/kg	1	0	0	1.0E+01	1.0E+01	--	Fewer than 5 detects	--	1.0E+01	1.0E+01	
	<b>Polynuclear Aromatic Hydrocarbons</b>												
	Benzo(a)anthracene	ug/kg	12	0	0	1.2E+02	5.7E+02	gamma	95% Approximate Gamma UCL	2.6E+02	1.2E+02	2.6E+02	
	Benzo(a)pyrene	ug/kg	12	0	0	1.7E+02	8.4E+02	gamma	95% Approximate Gamma UCL	3.6E+02	1.7E+02	3.6E+02	
	Benzo(b)fluoranthene	ug/kg	12	0	0	2.3E+02	1.3E+03	approx. gamma	95% Approximate Gamma UCL	5.3E+02	2.3E+02	5.3E+02	
	Benzo(k)fluoranthene	ug/kg	12	0	0	1.0E+02	4.7E+02	approx. gamma	95% Approximate Gamma UCL	2.4E+02	1.0E+02	2.4E+02	
	Dibenzo(a,h)anthracene	ug/kg	12	0	0	3.2E+01	1.3E+02	lognormal	99% Chebyshev (MVUE) UCL	1.7E+02	3.2E+01	1.3E+02	
	Indeno(1,2,3-cd)pyrene	ug/kg	12	0	0	1.4E+02	6.8E+02	gamma	95% Approximate Gamma UCL	3.0E+02	1.4E+02	3.0E+02	
	Naphthalene	ug/kg	12	5	0	4.1E+01	3.5E+02	non-parametric	97.5% KM (Chebyshev) UCL	2.2E+02	4.1E+01	2.2E+02	
	<b>Phthalates</b>												
	Bis(2-ethylhexyl) phthalate	ug/kg	12	1	0	8.6E+02	3.9E+03	approx. gamma	95% KM (Chebyshev) UCL	2.4E+03	8.6E+02	2.4E+03	
	<b>Phenols</b>												
	Pentachlorophenol	ug/kg	12	10	0	1.1E+01	9.8E+01	--	Fewer than 5 detects	--	1.1E+01	9.8E+01	
	<b>Polychlorinated Biphenyls</b>												
	Total Aroclors	ug/kg	12	0	0	2.1E+02	6.4E+02	normal	95% Student's-t UCL	3.0E+02	2.1E+02	3.0E+02	
	Total PCB Congeners	pg/g	6	0	0	3.5E+05	6.0E+05	normal	95% KM (t) UCL	5.0E+05	3.5E+05	5.0E+05	
	Total PCBs, Adjusted	pg/g	6	0	0	3.5E+05	5.9E+05	normal	95% KM (t) UCL	4.9E+05	3.5E+05	4.9E+05	
	<b>Dioxin/Furan</b>												
	Total Dioxin/Furan TEQ	pg/g	3	0	0	8.6E+00	1.7E+01	--	Fewer than 5 detects	--	8.6E+00	1.7E+01	
	Total PCB TEQ	pg/g	6	0	0	3.6E+00	6.8E+00	gamma	95% KM (BCA) UCL	4.8E+00	3.6E+00	4.8E+00	
	<b>Pesticides</b>												
Aldrin	ug/kg	12	9	1	5.8E-01	2.8E+00	--	Fewer than 5 detects	--	5.8E-01	2.8E+00		
Dieldrin	ug/kg	12	9	0	6.1E-01	4.9E+00	--	Fewer than 5 detects	--	6.1E-01	4.9E+00		
Total DDT	ug/kg	12	2	1	3.1E+00	9.2E+00	normal	95% KM (t) UCL	4.5E+00	3.1E+00	4.5E+00		
<b>Conventionals</b>													
Perchlorate	ug/kg	NA	NA	NA	NA	NA	--	--	--	NA	NA		
RM 9.5 East	<b>Metals</b>												
	Arsenic	mg/kg	20	0	0	3.3E+00	6.4E+00	non-parametric	95% Student's-t UCL	3.7E+00	3.3E+00	3.7E+00	
	Lead	mg/kg	20	0	0	1.6E+01	5.5E+01	non-parametric	95% Student's-t UCL	2.0E+01	1.6E+01	2.0E+01	
	Mercury	mg/kg	20	2	0	6.3E-02	3.1E-01	non-parametric	95% KM (Chebyshev) UCL	1.2E-01	6.3E-02	1.2E-01	
	Vanadium	mg/kg	NA	NA	NA	NA	NA	--	--	--	NA	NA	
	<b>Butyltins</b>												
	Tributyltin ion	ug/kg	2	0	0	2.6E+00	3.6E+00	--	Fewer than 5 detects	--	2.6E+00	3.6E+00	
	<b>Polynuclear Aromatic Hydrocarbons</b>												
Benzo(a)anthracene	ug/kg	20	0	0	2.2E+01	8.4E+01	approx. gamma	95% Approximate Gamma UCL	3.0E+01	2.2E+01	3.0E+01		
Benzo(a)pyrene	ug/kg	20	0	0	2.5E+01	1.1E+02	lognormal	95% H-UCL	3.4E+01	2.5E+01	3.4E+01		

TABLE 3-4.  
Exposure Point Concentration Summary - In-water Sediment

Scenario Timeframe: Current/Future
Medium: Sediment
Exposure Medium: In-Water Sediment

Exposure Point <sup>a</sup>	Chemical of Potential Concern	Units	Total Samples	Total Non-Detects <sup>b</sup>	Non-Detects greater than Maximum Detected Concentration <sup>c</sup>	Arithmetic Mean <sup>d</sup>	Maximum Detected Concentration	95% UCL			Exposure Point Concentration <sup>e</sup>	
								Distribution	95% UCL Method	Value	Mean	95% UCL/Max
	Benzo(b)fluoranthene	ug/kg	20	0	0	2.9E+01	1.1E+02	approx. gamma	95% Approximate Gamma UCL	4.0E+01	2.9E+01	4.0E+01
	Benzo(k)fluoranthene	ug/kg	20	0	0	1.7E+01	7.9E+01	gamma	95% Approximate Gamma UCL	2.4E+01	1.7E+01	2.4E+01
	Dibenzo(a,h)anthracene	ug/kg	20	3	0	4.4E+00	2.2E+01	non-parametric	95% KM (Chebyshev) UCL	9.2E+00	4.4E+00	9.2E+00
	Indeno(1,2,3-cd)pyrene	ug/kg	20	0	0	2.0E+01	1.0E+02	lognormal	95% H-UCL	2.7E+01	2.0E+01	2.7E+01
	Naphthalene	ug/kg	20	14	1	3.4E+00	1.2E+01	normal	95% KM (t) UCL	4.8E+00	3.4E+00	4.8E+00
	<b>Phthalates</b>											
	Bis(2-ethylhexyl) phthalate	ug/kg	20	3	0	1.6E+02	9.2E+02	approx. gamma	95% KM (BCA) UCL	2.6E+02	1.6E+02	2.6E+02
	<b>Phenols</b>											
	Pentachlorophenol	ug/kg	13	9	7	1.1E+00	3.4E+00	--	Fewer than 5 detects	--	1.1E+00	3.4E+00
	<b>Polychlorinated Biphenyls</b>											
	Total Aroclors	ug/kg	20	3	0	4.0E+01	1.4E+02	gamma	95% KM (BCA) UCL	5.6E+01	4.0E+01	5.6E+01
	Total PCB Congeners	pg/g	4	0	0	1.0E+04	1.3E+04	--	Fewer than 5 detects	--	1.0E+04	1.3E+04
	Total PCBs, Adjusted	pg/g	4	0	0	9.6E+03	1.2E+04	--	Fewer than 5 detects	--	9.6E+03	1.2E+04
	<b>Dioxin/Furan</b>											
	Total Dioxin/Furan TEQ	pg/g	2	0	0	8.9E-01	1.1E+00	--	Fewer than 5 detects	--	8.9E-01	1.1E+00
	Total PCB TEQ	pg/g	4	0	0	2.6E-01	3.3E-01	--	Fewer than 5 detects	--	2.6E-01	3.3E-01
	<b>Pesticides</b>											
	Aldrin	ug/kg	20	18	2	9.1E-02	4.7E-01	--	Fewer than 5 detects	--	9.1E-02	4.7E-01
	Dieldrin	ug/kg	20	19	18	3.0E-02	4.3E-02	--	Fewer than 5 detects	--	3.0E-02	4.3E-02
	Total DDT	ug/kg	20	5	3	1.1E+00	2.8E+00	normal	95% KM (t) UCL	1.6E+00	1.1E+00	1.6E+00
	<b>Conventionals</b>											
	Perchlorate	ug/kg	NA	NA	NA	NA	NA	--	--	--	NA	NA
RM 10 West	<b>Metals</b>											
	Arsenic	mg/kg	9	0	0	1.0E+01	4.3E+01	non-parametric	95% Chebyshev (Mean, Sd) UCL	2.9E+01	1.0E+01	2.9E+01
	Lead	mg/kg	9	0	0	6.6E+01	2.3E+02	gamma	95% Approximate Gamma UCL	1.3E+02	6.6E+01	1.3E+02
	Mercury	mg/kg	9	0	0	9.0E-02	1.4E-01	normal	95% Student's-t UCL	1.1E-01	9.0E-02	1.1E-01
	Vanadium	mg/kg	NA	NA	NA	NA	NA	--	--	--	NA	NA
	<b>Butyltins</b>											
	Tributyltin ion	ug/kg	3	0	0	2.4E+00	3.4E+00	--	Fewer than 5 detects	--	2.4E+00	3.4E+00
	<b>Polynuclear Aromatic Hydrocarbons</b>											
	Benzo(a)anthracene	ug/kg	9	0	0	1.4E+02	6.2E+02	gamma	95% Approximate Gamma UCL	3.2E+02	1.4E+02	3.2E+02
	Benzo(a)pyrene	ug/kg	9	0	0	1.5E+02	8.1E+02	lognormal	95% Chebyshev (MVUE) UCL	3.4E+02	1.5E+02	3.4E+02
	Benzo(b)fluoranthene	ug/kg	9	0	0	1.9E+02	9.1E+02	lognormal	95% Chebyshev (MVUE) UCL	4.3E+02	1.9E+02	4.3E+02
	Benzo(k)fluoranthene	ug/kg	9	0	0	7.9E+01	3.7E+02	gamma	95% Approximate Gamma UCL	1.8E+02	7.9E+01	1.8E+02
	Dibenzo(a,h)anthracene	ug/kg	9	0	0	3.5E+01	2.3E+02	lognormal	95% Chebyshev (MVUE) UCL	7.5E+01	3.5E+01	7.5E+01
	Indeno(1,2,3-cd)pyrene	ug/kg	9	0	0	1.4E+02	8.2E+02	lognormal	95% Chebyshev (MVUE) UCL	3.0E+02	1.4E+02	3.0E+02
	Naphthalene	ug/kg	9	2	0	2.0E+01	7.8E+01	approx. gamma	95% KM (Chebyshev) UCL	5.9E+01	2.0E+01	5.9E+01
	<b>Phthalates</b>											
	Bis(2-ethylhexyl) phthalate	ug/kg	9	4	0	1.2E+02	2.7E+02	normal	95% KM (t) UCL	1.8E+02	1.2E+02	1.8E+02
	<b>Phenols</b>											
	Pentachlorophenol	ug/kg	8	4	1	3.0E+00	7.5E+00	--	Fewer than 5 detects	--	3.0E+00	7.5E+00
	<b>Polychlorinated Biphenyls</b>											
	Total Aroclors	ug/kg	9	0	0	1.8E+02	9.3E+02	gamma	95% Approximate Gamma UCL	4.4E+02	1.8E+02	4.4E+02
	Total PCB Congeners	pg/g	4	0	0	1.3E+05	3.4E+05	--	Fewer than 5 detects	--	1.3E+05	3.4E+05
	Total PCBs, Adjusted	pg/g	4	0	0	1.3E+05	3.3E+05	--	Fewer than 5 detects	--	1.3E+05	3.3E+05



TABLE 3-4.  
Exposure Point Concentration Summary - In-water Sediment

Scenario Timeframe: Current/Future
Medium: Sediment
Exposure Medium: In-Water Sediment

Exposure Point <sup>a</sup>	Chemical of Potential Concern	Units	Total Samples	Total Non-Detects <sup>b</sup>	Non-Detects greater than Maximum Detected Concentration <sup>c</sup>	Arithmetic Mean <sup>d</sup>	Maximum Detected Concentration	95% UCL			Exposure Point Concentration <sup>e</sup>	
								Distribution	95% UCL Method	Value	Mean	95% UCL/Max
	<b>Dioxin/Furan</b>											
	Total Dioxin/Furan TEQ	pg/g	3	0	0	5.1E+00	9.9E+00	--	Fewer than 5 detects	--	5.1E+00	9.9E+00
	Total PCB TEQ	pg/g	4	0	0	1.8E+00	3.0E+00	--	Fewer than 5 detects	--	1.8E+00	3.0E+00
	<b>Pesticides</b>											
	Aldrin	ug/kg	9	8	2	1.5E-01	5.0E-01	--	Fewer than 5 detects	--	1.5E-01	5.0E-01
	Dieldrin	ug/kg	9	9	ND	ND	ND	--	Fewer than 5 detects	--	ND	ND
	Total DDT	ug/kg	9	2	0	4.7E+00	9.3E+00	normal	95% KM (t) UCL	6.7E+00	4.7E+00	6.7E+00
	<b>Conventionals</b>											
	Perchlorate	ug/kg	NA	NA	NA	NA	NA	--	--	--	NA	NA
RM 10 East	<b>Metals</b>											
	Arsenic	mg/kg	9	0	0	3.0E+00	3.9E+00	non-parametric	95% Student's-t UCL	3.5E+00	3.0E+00	3.5E+00
	Lead	mg/kg	9	0	0	1.8E+01	3.0E+01	normal	95% Student's-t UCL	2.1E+01	1.8E+01	2.1E+01
	Mercury	mg/kg	9	0	0	6.8E-02	1.4E-01	normal	95% Student's-t UCL	9.0E-02	6.8E-02	9.0E-02
	Vanadium	mg/kg	NA	NA	NA	NA	NA	--	--	--	NA	NA
	<b>Butyltins</b>											
	Tributyltin ion	ug/kg	1	1	ND	ND	ND	--	Fewer than 5 detects	--	ND	ND
	<b>Polynuclear Aromatic Hydrocarbons</b>											
	Benzo(a)anthracene	ug/kg	9	0	0	1.2E+02	4.5E+02	gamma	95% Approximate Gamma UCL	2.7E+02	1.2E+02	2.7E+02
	Benzo(a)pyrene	ug/kg	9	0	0	1.4E+02	6.1E+02	gamma	95% Approximate Gamma UCL	3.5E+02	1.4E+02	3.5E+02
	Benzo(b)fluoranthene	ug/kg	9	0	0	1.7E+02	6.5E+02	gamma	95% Approximate Gamma UCL	4.0E+02	1.7E+02	4.0E+02
	Benzo(k)fluoranthene	ug/kg	9	0	0	6.3E+01	2.0E+02	normal	95% Student's-t UCL	1.0E+02	6.3E+01	1.0E+02
	Dibenzo(a,h)anthracene	ug/kg	9	0	0	2.3E+01	8.5E+01	gamma	95% Approximate Gamma UCL	5.2E+01	2.3E+01	5.2E+01
	Indeno(1,2,3-cd)pyrene	ug/kg	9	0	0	1.2E+02	4.8E+02	gamma	95% Approximate Gamma UCL	2.8E+02	1.2E+02	2.8E+02
	Naphthalene	ug/kg	9	3	0	1.2E+01	4.5E+01	gamma	95% KM (Percentile Bootstrap) UCL	2.2E+01	1.2E+01	2.2E+01
	<b>Phthalates</b>											
	Bis(2-ethylhexyl) phthalate	ug/kg	9	2	1	1.3E+02	3.4E+02	gamma	95% KM (BCA) UCL	1.9E+02	1.3E+02	1.9E+02
	<b>Phenols</b>											
	Pentachlorophenol	ug/kg	3	1	6	2.6E+00	3.3E+00	--	Fewer than 5 detects	--	2.6E+00	3.3E+00
	<b>Polychlorinated Biphenyls</b>											
	Total Aroclors	ug/kg	9	0	0	3.4E+01	8.6E+01	normal	95% Student's-t UCL	4.8E+01	3.4E+01	4.8E+01
	Total PCB Congeners	pg/g	4	0	0	3.0E+04	3.8E+04	--	Fewer than 5 detects	--	3.0E+04	3.8E+04
	Total PCBs, Adjusted	pg/g	4	0	0	2.8E+04	3.7E+04	--	Fewer than 5 detects	--	2.8E+04	3.7E+04
	<b>Dioxin/Furan</b>											
	Total Dioxin/Furan TEQ	pg/g	1	0	0	5.4E-01	5.4E-01	--	Fewer than 5 detects	--	5.4E-01	5.4E-01
	Total PCB TEQ	pg/g	4	0	0	6.9E-01	8.0E-01	--	Fewer than 5 detects	--	6.9E-01	8.0E-01
	<b>Pesticides</b>											
	Aldrin	ug/kg	9	8	5	4.0E-02	8.3E-02	--	Fewer than 5 detects	--	4.0E-02	8.3E-02
	Dieldrin	ug/kg	9	8	5	4.7E-02	9.4E-02	--	Fewer than 5 detects	--	4.7E-02	9.4E-02
	Total DDT	ug/kg	9	5	4	5.3E-01	7.7E-01	--	Fewer than 5 detects	--	5.3E-01	7.7E-01
	<b>Conventionals</b>											
	Perchlorate	ug/kg	NA	NA	NA	NA	NA	--	--	--	NA	NA

TABLE 3-4.  
Exposure Point Concentration Summary - In-water Sediment

Scenario Timeframe: Current/Future
Medium: Sediment
Exposure Medium: In-Water Sediment

Exposure Point <sup>a</sup>	Chemical of Potential Concern	Units	Total Samples	Total Non-Detects <sup>b</sup>	Non-Detects greater than Maximum Detected Concentration <sup>c</sup>	Arithmetic Mean <sup>d</sup>	Maximum Detected Concentration	95% UCL			Exposure Point Concentration <sup>e</sup>		
								Distribution	95% UCL Method	Value	Mean	95% UCL/Max	
RM 10.5 West	<b>Metals</b>												
	Arsenic	mg/kg	11	0	0	4.0E+00	7.7E+00	non-parametric	95% Student's-t UCL	4.7E+00	4.0E+00	4.7E+00	
	Lead	mg/kg	11	0	0	1.3E+01	1.8E+01	normal	95% Student's-t UCL	1.4E+01	1.3E+01	1.4E+01	
	Mercury	mg/kg	11	0	0	6.9E-02	9.9E-02	normal	95% Student's-t UCL	7.7E-02	6.9E-02	7.7E-02	
	Vanadium	mg/kg	NA	NA	NA	NA	NA	--	--	--	NA	NA	
	<b>Butyltins</b>												
	Tributyltin ion	ug/kg	NA	NA	NA	NA	NA	--	--	--	NA	NA	
	<b>Polynuclear Aromatic Hydrocarbons</b>												
	Benzo(a)anthracene	ug/kg	11	0	0	2.8E+01	1.3E+02	lognormal	95% Chebyshev (MVUE) UCL	6.1E+01	2.8E+01	6.1E+01	
	Benzo(a)pyrene	ug/kg	11	0	0	2.6E+01	1.1E+02	gamma	95% Approximate Gamma UCL	4.8E+01	2.6E+01	4.8E+01	
	Benzo(b)fluoranthene	ug/kg	11	0	0	3.5E+01	1.5E+02	gamma	95% Approximate Gamma UCL	6.8E+01	3.5E+01	6.8E+01	
	Benzo(k)fluoranthene	ug/kg	11	0	0	1.3E+01	4.2E+01	approx. gamma	95% Approximate Gamma UCL	2.0E+01	1.3E+01	2.0E+01	
	Dibenzo(a,h)anthracene	ug/kg	11	0	0	4.4E+00	2.0E+01	gamma	95% Approximate Gamma UCL	7.9E+00	4.4E+00	7.9E+00	
	Indeno(1,2,3-cd)pyrene	ug/kg	11	0	0	2.2E+01	9.3E+01	gamma	95% Approximate Gamma UCL	3.7E+01	2.2E+01	3.7E+01	
	Naphthalene	ug/kg	11	7	0	2.7E+01	2.6E+02	--	Fewer than 5 detects	--	2.7E+01	2.6E+02	
	<b>Phthalates</b>												
	Bis(2-ethylhexyl) phthalate	ug/kg	11	4	0	1.4E+02	5.9E+02	non-parametric	95% KM (BCA) UCL	2.5E+02	1.4E+02	2.5E+02	
	<b>Phenols</b>												
	Pentachlorophenol	ug/kg	11	7	0	8.6E+00	3.8E+01	--	Fewer than 5 detects	--	8.6E+00	3.8E+01	
	<b>Polychlorinated Biphenyls</b>												
	Total Aroclors	ug/kg	11	0	0	3.2E+01	5.6E+01	normal	95% Student's-t UCL	3.9E+01	3.2E+01	3.9E+01	
	Total PCB Congeners	pg/g	1	0	0	3.1E+04	3.1E+04	--	Fewer than 5 detects	--	3.1E+04	3.1E+04	
	Total PCBs, Adjusted	pg/g	1	0	0	2.9E+04	2.9E+04	--	Fewer than 5 detects	--	2.9E+04	2.9E+04	
<b>Dioxin/Furan</b>													
Total Dioxin/Furan TEQ	pg/g	NA	NA	NA	NA	NA	--	--	--	NA	NA		
Total PCB TEQ	pg/g	1	0	0	6.9E-01	6.9E-01	--	Fewer than 5 detects	--	6.9E-01	6.9E-01		
<b>Pesticides</b>													
Aldrin	ug/kg	11	10	1	2.0E-01	9.3E-01	--	Fewer than 5 detects	--	2.0E-01	9.3E-01		
Dieldrin	ug/kg	11	11	ND	ND	ND	--	Fewer than 5 detects	--	ND	ND		
Total DDT	ug/kg	11	3	0	1.7E+00	6.0E+00	normal	95% KM (t) UCL	2.7E+00	1.7E+00	2.7E+00		
<b>Conventionals</b>													
Perchlorate	ug/kg	NA	NA	NA	NA	NA	--	--	--	NA	NA		
RM 10.5 East	<b>Metals</b>												
	Arsenic	mg/kg	6	0	0	3.1E+00	3.4E+00	normal	95% Student's-t UCL	3.3E+00	3.1E+00	3.3E+00	
	Lead	mg/kg	6	0	0	1.2E+01	1.5E+01	normal	95% Student's-t UCL	1.4E+01	1.2E+01	1.4E+01	
	Mercury	mg/kg	6	0	0	6.1E-02	8.0E-02	normal	95% Student's-t UCL	7.4E-02	6.1E-02	7.4E-02	
	Vanadium	mg/kg	NA	NA	NA	NA	NA	--	--	--	NA	NA	
	<b>Butyltins</b>												
	Tributyltin ion	ug/kg	NA	NA	NA	NA	NA	--	--	--	NA	NA	
	<b>Polynuclear Aromatic Hydrocarbons</b>												
Benzo(a)anthracene	ug/kg	6	0	0	3.9E+01	1.3E+02	gamma	95% Approximate Gamma UCL	1.0E+02	3.9E+01	1.0E+02		
Benzo(a)pyrene	ug/kg	6	0	0	3.4E+01	8.9E+01	gamma	95% Approximate Gamma UCL	7.1E+01	3.4E+01	7.1E+01		

TABLE 3-4.  
Exposure Point Concentration Summary - In-water Sediment

Scenario Timeframe: Current/Future
Medium: Sediment
Exposure Medium: In-Water Sediment

Exposure Point <sup>a</sup>	Chemical of Potential Concern	Units	Total Samples	Total Non-Detects <sup>b</sup>	Non-Detects greater than Maximum Detected Concentration <sup>c</sup>	Arithmetic Mean <sup>d</sup>	Maximum Detected Concentration	95% UCL			Exposure Point Concentration <sup>e</sup>	
								Distribution	95% UCL Method	Value	Mean	95% UCL/Max
	Benzo(b)fluoranthene	ug/kg	6	0	0	5.0E+01	1.4E+02	gamma	95% Approximate Gamma UCL	1.1E+02	5.0E+01	1.1E+02
	Benzo(k)fluoranthene	ug/kg	6	0	0	2.5E+01	8.6E+01	gamma	95% Approximate Gamma UCL	7.2E+01	2.5E+01	7.2E+01
	Dibenzo(a,h)anthracene	ug/kg	6	0	0	5.5E+00	1.4E+01	normal	95% Student's-t UCL	9.2E+00	5.5E+00	9.2E+00
	Indeno(1,2,3-cd)pyrene	ug/kg	6	0	0	2.7E+01	7.2E+01	normal	95% Student's-t UCL	4.7E+01	2.7E+01	4.7E+01
	Naphthalene	ug/kg	6	5	4	3.5E+00	5.2E+00	--	Fewer than 5 detects	--	3.5E+00	5.2E+00
	<b>Phthalates</b>											
	Bis(2-ethylhexyl) phthalate	ug/kg	6	5	1	4.6E+01	1.1E+02	--	Fewer than 5 detects	--	4.6E+01	1.1E+02
	<b>Phenols</b>											
	Pentachlorophenol	ug/kg	6	5	0	3.2E+00	1.1E+01	--	Fewer than 5 detects	--	3.2E+00	1.1E+01
	<b>Polychlorinated Biphenyls</b>											
	Total Aroclors	ug/kg	6	0	0	5.2E+01	2.0E+02	gamma	95% Approximate Gamma UCL	1.5E+02	5.2E+01	1.5E+02
	Total PCB Congeners	pg/g	2	0	0	2.9E+04	4.2E+04	--	Fewer than 5 detects	--	2.9E+04	4.2E+04
	Total PCBs, Adjusted	pg/g	2	0	0	2.8E+04	4.1E+04	--	Fewer than 5 detects	--	2.8E+04	4.1E+04
	<b>Dioxin/Furan</b>											
	Total Dioxin/Furan TEQ	pg/g	NA	NA	NA	NA	NA	--	--	--	NA	NA
	Total PCB TEQ	pg/g	2	0	0	3.5E-01	3.9E-01	--	Fewer than 5 detects	--	3.5E-01	3.9E-01
	<b>Pesticides</b>											
	Aldrin	ug/kg	6	6	ND	ND	ND	--	Fewer than 5 detects	--	ND	ND
	Dieldrin	ug/kg	6	6	ND	ND	ND	--	Fewer than 5 detects	--	ND	ND
	Total DDT	ug/kg	6	1	0	2.8E+00	1.3E+01	gamma	95% KM (Chebyshev) UCL	1.2E+01	2.8E+00	1.2E+01
	<b>Conventionals</b>											
	Perchlorate	ug/kg	NA	NA	NA	NA	NA	--	--	--	NA	NA
RM 11 West	<b>Metals</b>											
	Arsenic	mg/kg	7	0	0	3.4E+00	4.0E+00	normal	95% Student's-t UCL	3.6E+00	3.4E+00	3.6E+00
	Lead	mg/kg	7	0	0	1.4E+01	1.9E+01	normal	95% Student's-t UCL	1.6E+01	1.4E+01	1.6E+01
	Mercury	mg/kg	7	0	0	5.6E-02	8.7E-02	normal	95% Student's-t UCL	6.9E-02	5.6E-02	6.9E-02
	Vanadium	mg/kg	NA	NA	NA	NA	NA	--	--	--	NA	NA
	<b>Butyltins</b>											
	Tributyltin ion	ug/kg	NA	NA	NA	NA	NA	--	--	--	NA	NA
	<b>Polynuclear Aromatic Hydrocarbons</b>											
	Benzo(a)anthracene	ug/kg	7	0	0	6.2E+01	3.0E+02	gamma	95% Approximate Gamma UCL	2.0E+02	6.2E+01	2.0E+02
	Benzo(a)pyrene	ug/kg	7	0	0	6.6E+01	3.3E+02	approx. gamma	95% Approximate Gamma UCL	2.2E+02	6.6E+01	2.2E+02
	Benzo(b)fluoranthene	ug/kg	7	0	0	4.0E+01	1.4E+02	gamma	95% Approximate Gamma UCL	1.0E+02	4.0E+01	1.0E+02
	Benzo(k)fluoranthene	ug/kg	7	0	0	3.7E+01	1.7E+02	approx. gamma	95% Approximate Gamma UCL	1.1E+02	3.7E+01	1.1E+02
	Dibenzo(a,h)anthracene	ug/kg	7	0	0	8.8E+00	4.1E+01	gamma	95% Approximate Gamma UCL	2.7E+01	8.8E+00	2.7E+01
	Indeno(1,2,3-cd)pyrene	ug/kg	7	0	0	4.0E+01	1.8E+02	gamma	95% Approximate Gamma UCL	1.2E+02	4.0E+01	1.2E+02
	Naphthalene	ug/kg	7	5	0	5.4E+01	3.2E+02	--	Fewer than 5 detects	--	5.4E+01	3.2E+02
	<b>Phthalates</b>											
	Bis(2-ethylhexyl) phthalate	ug/kg	7	0	0	3.7E+02	1.1E+03	approx. gamma	95% Approximate Gamma UCL	1.0E+03	3.7E+02	1.0E+03
	<b>Phenols</b>											
	Pentachlorophenol	ug/kg	6	5	1	9.8E-01	3.1E+00	--	Fewer than 5 detects	--	9.8E-01	3.1E+00
	<b>Polychlorinated Biphenyls</b>											
	Total Aroclors	ug/kg	7	0	0	2.8E+01	4.1E+01	normal	95% Student's-t UCL	3.5E+01	2.8E+01	3.5E+01
	Total PCB Congeners	pg/g	NA	NA	NA	NA	NA	--	--	--	NA	NA
	Total PCBs, Adjusted	pg/g	NA	NA	NA	NA	NA	--	--	--	NA	NA

TABLE 3-4.  
Exposure Point Concentration Summary - In-water Sediment

Scenario Timeframe: Current/Future
Medium: Sediment
Exposure Medium: In-Water Sediment

Exposure Point <sup>a</sup>	Chemical of Potential Concern	Units	Total Samples	Total Non-Detects <sup>b</sup>	Non-Detects greater than Maximum Detected Concentration <sup>c</sup>	Arithmetic Mean <sup>d</sup>	Maximum Detected Concentration	95% UCL			Exposure Point Concentration <sup>e</sup>	
								Distribution	95% UCL Method	Value	Mean	95% UCL/Max
	<b>Dioxin/Furan</b>											
	Total Dioxin/Furan TEQ	pg/g	NA	NA	NA	NA	NA	--	--	--	NA	NA
	Total PCB TEQ	pg/g	NA	NA	NA	NA	NA	--	--	--	NA	NA
	<b>Pesticides</b>											
	Aldrin	ug/kg	7	7	ND	ND	ND	--	Fewer than 5 detects	--	ND	ND
	Dieldrin	ug/kg	7	6	0	5.7E-01	2.5E+00	--	Fewer than 5 detects	--	5.7E-01	2.5E+00
	Total DDT	ug/kg	7	3	0	1.3E+00	2.1E+00	--	Fewer than 5 detects	--	1.3E+00	2.1E+00
	<b>Conventionals</b>											
	Perchlorate	ug/kg	NA	NA	NA	NA	NA	--	--	--	NA	NA
RM 11 East	<b>Metals</b>											
	Arsenic	mg/kg	5	0	0	2.7E+00	3.3E+00	normal	95% Student's-t UCL	3.2E+00	2.7E+00	3.2E+00
	Lead	mg/kg	5	0	0	7.2E+01	1.8E+02	normal	95% Student's-t UCL	1.4E+02	7.2E+01	1.4E+02
	Mercury	mg/kg	5	0	0	7.0E-02	1.3E-01	normal	95% Student's-t UCL	1.1E-01	7.0E-02	1.1E-01
	Vanadium	mg/kg	NA	NA	NA	NA	NA	--	--	--	NA	NA
	<b>Butyltins</b>											
	Tributyltin ion	ug/kg	2	0	0	4.0E+00	5.8E+00	--	Fewer than 5 detects	--	4.0E+00	5.8E+00
	<b>Polynuclear Aromatic Hydrocarbons</b>											
	Benzo(a)anthracene	ug/kg	5	0	0	8.3E+01	2.2E+02	normal	95% Student's-t UCL	1.6E+02	8.3E+01	1.6E+02
	Benzo(a)pyrene	ug/kg	5	0	0	5.5E+01	1.2E+02	lognormal	95% H-UCL	1.2E+02	5.5E+01	1.2E+02
	Benzo(b)fluoranthene	ug/kg	5	0	0	1.3E+02	3.4E+02	normal	95% Student's-t UCL	2.5E+02	1.3E+02	2.5E+02
	Benzo(k)fluoranthene	ug/kg	4	0	0	3.7E+01	9.4E+01	--	Fewer than 5 detects	--	3.7E+01	9.4E+01
	Dibenzo(a,h)anthracene	ug/kg	5	0	0	1.2E+01	2.2E+01	normal	95% Student's-t UCL	2.0E+01	1.2E+01	2.0E+01
	Indeno(1,2,3-cd)pyrene	ug/kg	5	0	0	3.8E+01	6.4E+01	normal	95% Student's-t UCL	5.3E+01	3.8E+01	5.3E+01
	Naphthalene	ug/kg	5	1	0	1.2E+01	3.0E+01	--	Fewer than 5 detects	--	1.2E+01	3.0E+01
	<b>Phthalates</b>											
	Bis(2-ethylhexyl) phthalate	ug/kg	5	2	2	9.4E+01	1.4E+02	--	Fewer than 5 detects	--	9.4E+01	1.4E+02
	<b>Phenols</b>											
	Pentachlorophenol	ug/kg	5	2	0	2.7E+00	8.7E+00	--	Fewer than 5 detects	--	2.7E+00	8.7E+00
	<b>Polychlorinated Biphenyls</b>											
	Total Aroclors	ug/kg	5	0	0	1.1E+03	3.8E+03	gamma	95% Approximate Gamma UCL	6.3E+03	1.1E+03	3.8E+03
	Total PCB Congeners	pg/g	4	0	0	2.4E+06	6.6E+06	--	Fewer than 5 detects	--	2.4E+06	6.6E+06
	Total PCBs, Adjusted	pg/g	4	0	0	2.3E+06	6.5E+06	--	Fewer than 5 detects	--	2.3E+06	6.5E+06
	<b>Dioxin/Furan</b>											
	Total Dioxin/Furan TEQ	pg/g	2	0	0	2.0E+00	3.0E+00	--	Fewer than 5 detects	--	2.0E+00	3.0E+00
	Total PCB TEQ	pg/g	4	0	0	1.2E+01	3.1E+01	--	Fewer than 5 detects	--	1.2E+01	3.1E+01
	<b>Pesticides</b>											
	Aldrin	ug/kg	5	5	ND	ND	ND	--	Fewer than 5 detects	--	ND	ND
	Dieldrin	ug/kg	5	5	ND	ND	ND	--	Fewer than 5 detects	--	ND	ND
	Total DDT	ug/kg	5	1	0	9.9E+01	3.8E+02	--	Fewer than 5 detects	--	9.9E+01	3.8E+02
	<b>Conventionals</b>											
	Perchlorate	ug/kg	NA	NA	NA	NA	NA	--	--	--	NA	NA

TABLE 3-4.  
Exposure Point Concentration Summary - In-water Sediment

Scenario Timeframe: Current/Future
Medium: Sediment
Exposure Medium: In-Water Sediment

Exposure Point <sup>a</sup>	Chemical of Potential Concern	Units	Total Samples	Total Non-Detects <sup>b</sup>	Non-Detects greater than Maximum Detected Concentration <sup>c</sup>	Arithmetic Mean <sup>d</sup>	Maximum Detected Concentration	95% UCL			Exposure Point Concentration <sup>e</sup>		
								Distribution	95% UCL Method	Value	Mean	95% UCL/Max	
RM 11.5 West	<b>Metals</b>												
	Arsenic	mg/kg	4	0	0	3.0E+00	3.5E+00	--	Fewer than 5 detects	--	3.0E+00	3.5E+00	
	Lead	mg/kg	4	0	0	1.0E+01	1.2E+01	--	Fewer than 5 detects	--	1.0E+01	1.2E+01	
	Mercury	mg/kg	4	1	1	3.0E-02	3.1E-02	--	Fewer than 5 detects	--	3.0E-02	3.1E-02	
	Vanadium	mg/kg	NA	NA	NA	NA	NA	--	--	--	NA	NA	
	<b>Butyltins</b>												
	Tributyltin ion	ug/kg	1	1	ND	ND	ND	--	Fewer than 5 detects	--	ND	ND	
	<b>Polynuclear Aromatic Hydrocarbons</b>												
	Benzo(a)anthracene	ug/kg	4	0	0	9.5E+00	1.6E+01	--	Fewer than 5 detects	--	9.5E+00	1.6E+01	
	Benzo(a)pyrene	ug/kg	4	0	0	1.1E+01	1.8E+01	--	Fewer than 5 detects	--	1.1E+01	1.8E+01	
	Benzo(b)fluoranthene	ug/kg	4	1	0	9.7E+00	1.7E+01	--	Fewer than 5 detects	--	9.7E+00	1.7E+01	
	Benzo(k)fluoranthene	ug/kg	4	1	0	6.4E+00	1.4E+01	--	Fewer than 5 detects	--	6.4E+00	1.4E+01	
	Dibenzo(a,h)anthracene	ug/kg	4	2	0	1.2E+00	2.9E+00	--	Fewer than 5 detects	--	1.2E+00	2.9E+00	
	Indeno(1,2,3-cd)pyrene	ug/kg	4	0	0	7.4E+00	1.4E+01	--	Fewer than 5 detects	--	7.4E+00	1.4E+01	
	Naphthalene	ug/kg	4	2	0	3.3E+00	6.4E+00	--	Fewer than 5 detects	--	3.3E+00	6.4E+00	
	<b>Phthalates</b>												
	Bis(2-ethylhexyl) phthalate	ug/kg	4	1	0	1.8E+02	5.2E+02	--	Fewer than 5 detects	--	1.8E+02	5.2E+02	
	<b>Phenols</b>												
	Pentachlorophenol	ug/kg	4	4	ND	ND	ND	--	Fewer than 5 detects	--	ND	ND	
	<b>Polychlorinated Biphenyls</b>												
	Total Aroclors	ug/kg	4	1	0	1.2E+01	2.4E+01	--	Fewer than 5 detects	--	1.2E+01	2.4E+01	
	Total PCB Congeners	pg/g	1	0	0	6.3E+04	6.3E+04	--	Fewer than 5 detects	--	6.3E+04	6.3E+04	
	Total PCBs, Adjusted	pg/g	1	0	0	6.2E+04	6.2E+04	--	Fewer than 5 detects	--	6.2E+04	6.2E+04	
	<b>Dioxin/Furan</b>												
	Total Dioxin/Furan TEQ	pg/g	1	0	0	1.8E-01	1.8E-01	--	Fewer than 5 detects	--	1.8E-01	1.8E-01	
	Total PCB TEQ	pg/g	1	0	0	2.9E-01	2.9E-01	--	Fewer than 5 detects	--	2.9E-01	2.9E-01	
	<b>Pesticides</b>												
Aldrin	ug/kg	4	4	ND	ND	ND	--	Fewer than 5 detects	--	ND	ND		
Dieldrin	ug/kg	4	3	3	9.0E-02	9.0E-02	--	Fewer than 5 detects	--	9.0E-02	9.0E-02		
Total DDT	ug/kg	4	1	0	9.8E-01	1.9E+00	--	Fewer than 5 detects	--	9.8E-01	1.9E+00		
<b>Conventionals</b>													
Perchlorate	ug/kg	NA	NA	NA	NA	NA	--	--	--	NA	NA		
RM 12 West	<b>Metals</b>												
	Arsenic	mg/kg	8	0	0	3.2E+00	4.9E+00	normal	95% Student's-t UCL	3.9E+00	3.2E+00	3.9E+00	
	Lead	mg/kg	8	0	0	3.7E+01	8.6E+01	normal	95% Student's-t UCL	5.5E+01	3.7E+01	5.5E+01	
	Mercury	mg/kg	8	0	0	2.9E-01	1.3E+00	gamma	95% Approximate Gamma UCL	7.4E-01	2.9E-01	7.4E-01	
	Vanadium	mg/kg	NA	NA	NA	NA	NA	--	--	--	NA	NA	
	<b>Butyltins</b>												
	Tributyltin ion	ug/kg	1	1	ND	ND	ND	--	Fewer than 5 detects	--	ND	ND	
	<b>Polynuclear Aromatic Hydrocarbons</b>												
Benzo(a)anthracene	ug/kg	8	0	0	2.6E+02	1.7E+03	lognormal	99% Chebyshev (MVUE) UCL	1.1E+03	2.6E+02	1.1E+03		
Benzo(a)pyrene	ug/kg	8	0	0	4.1E+02	2.8E+03	lognormal	99% Chebyshev (MVUE) UCL	1.8E+03	4.1E+02	1.8E+03		

TABLE 3-4.  
Exposure Point Concentration Summary - In-water Sediment

Scenario Timeframe: Current/Future
Medium: Sediment
Exposure Medium: In-Water Sediment

Exposure Point <sup>a</sup>	Chemical of Potential Concern	Units	Total Samples	Total Non-Detects <sup>b</sup>	Non-Detects greater than Maximum Detected Concentration <sup>c</sup>	Arithmetic Mean <sup>d</sup>	Maximum Detected Concentration	95% UCL			Exposure Point Concentration <sup>e</sup>	
								Distribution	95% UCL Method	Value	Mean	95% UCL/Max
	Benzo(b)fluoranthene	ug/kg	8	0	0	3.5E+02	2.4E+03	lognormal	99% Chebyshev (MVUE) UCL	1.4E+03	3.5E+02	1.4E+03
	Benzo(k)fluoranthene	ug/kg	8	0	0	1.2E+02	6.7E+02	gamma	95% Adjusted Gamma UCL	5.9E+02	1.2E+02	5.9E+02
	Dibenzo(a,h)anthracene	ug/kg	8	2	0	3.2E+01	2.1E+02	lognormal	99% KM (Chebyshev) UCL	2.9E+02	3.2E+01	2.1E+02
	Indeno(1,2,3-cd)pyrene	ug/kg	8	0	0	3.4E+02	2.3E+03	lognormal	99% Chebyshev (MVUE) UCL	1.5E+03	3.4E+02	1.5E+03
	Naphthalene	ug/kg	8	1	0	4.5E+01	2.0E+02	gamma	95% KM (Chebyshev) UCL	1.5E+02	4.5E+01	1.5E+02
	<b>Phthalates</b>											
	Bis(2-ethylhexyl) phthalate	ug/kg	8	4	2	8.0E+01	1.9E+02	--	Fewer than 5 detects	--	8.0E+01	1.9E+02
	<b>Phenols</b>											
	Pentachlorophenol	ug/kg	8	6	0	3.4E+00	2.0E+01	--	Fewer than 5 detects	--	3.4E+00	2.0E+01
	<b>Polychlorinated Biphenyls</b>											
	Total Aroclors	ug/kg	8	1	0	7.0E+01	2.0E+02	normal	95% KM (t) UCL	1.2E+02	7.0E+01	1.2E+02
	Total PCB Congeners	pg/g	1	0	0	7.4E+03	7.4E+03	--	Fewer than 5 detects	--	7.4E+03	7.4E+03
	Total PCBs, Adjusted	pg/g	1	0	0	6.9E+03	6.9E+03	--	Fewer than 5 detects	--	6.9E+03	6.9E+03
	<b>Dioxin/Furan</b>											
	Total Dioxin/Furan TEQ	pg/g	1	0	0	1.7E-01	1.7E-01	--	Fewer than 5 detects	--	1.7E-01	1.7E-01
	Total PCB TEQ	pg/g	1	0	0	4.5E-01	4.5E-01	--	Fewer than 5 detects	--	4.5E-01	4.5E-01
	<b>Pesticides</b>											
	Aldrin	ug/kg	8	4	0	3.2E-01	7.0E-01	--	Fewer than 5 detects	--	3.2E-01	7.0E-01
	Dieldrin	ug/kg	8	8	ND	ND	ND	--	Fewer than 5 detects	--	ND	ND
	Total DDT	ug/kg	8	1	0	5.9E+00	1.7E+01	normal	95% KM (t) UCL	9.5E+00	5.9E+00	9.5E+00
	<b>Conventionals</b>											
	Perchlorate	ug/kg	NA	NA	NA	NA	NA	--	--	--	NA	NA
RM 12 East	<b>Metals</b>											
	Arsenic	mg/kg	2	0	0	2.3E+00	2.6E+00	--	Fewer than 5 detects	--	2.3E+00	2.6E+00
	Lead	mg/kg	2	0	0	7.8E+01	9.0E+01	--	Fewer than 5 detects	--	7.8E+01	9.0E+01
	Mercury	mg/kg	2	0	0	4.5E-02	6.5E-02	--	Fewer than 5 detects	--	4.5E-02	6.5E-02
	Vanadium	mg/kg	NA	NA	NA	NA	NA	--	--	--	NA	NA
	<b>Butyltins</b>											
	Tributyltin ion	ug/kg	2	0	0	4.0E+00	4.8E+00	--	Fewer than 5 detects	--	4.0E+00	4.8E+00
	<b>Polynuclear Aromatic Hydrocarbons</b>											
	Benzo(a)anthracene	ug/kg	2	0	0	1.8E+01	1.8E+01	--	Fewer than 5 detects	--	1.8E+01	1.8E+01
	Benzo(a)pyrene	ug/kg	2	0	0	1.9E+01	1.9E+01	--	Fewer than 5 detects	--	1.9E+01	1.9E+01
	Benzo(b)fluoranthene	ug/kg	2	0	0	2.7E+01	2.7E+01	--	Fewer than 5 detects	--	2.7E+01	2.7E+01
	Benzo(k)fluoranthene	ug/kg	2	0	0	7.8E+00	8.4E+00	--	Fewer than 5 detects	--	7.8E+00	8.4E+00
	Dibenzo(a,h)anthracene	ug/kg	2	0	0	4.0E+00	4.5E+00	--	Fewer than 5 detects	--	4.0E+00	4.5E+00
	Indeno(1,2,3-cd)pyrene	ug/kg	2	0	0	1.6E+01	1.7E+01	--	Fewer than 5 detects	--	1.6E+01	1.7E+01
	Naphthalene	ug/kg	2	0	0	2.6E+01	4.2E+01	--	Fewer than 5 detects	--	2.6E+01	4.2E+01
	<b>Phthalates</b>											
	Bis(2-ethylhexyl) phthalate	ug/kg	2	0	0	9.2E+03	1.8E+04	--	Fewer than 5 detects	--	9.2E+03	1.8E+04
	<b>Phenols</b>											
	Pentachlorophenol	ug/kg	2	1	0	1.7E+00	3.2E+00	--	Fewer than 5 detects	--	1.7E+00	3.2E+00
	<b>Polychlorinated Biphenyls</b>											
	Total Aroclors	ug/kg	2	0	0	1.6E+02	1.8E+02	--	Fewer than 5 detects	--	1.6E+02	1.8E+02
	Total PCB Congeners	pg/g	2	0	0	7.6E+05	9.1E+05	--	Fewer than 5 detects	--	7.6E+05	9.1E+05
	Total PCBs, Adjusted	pg/g	2	0	0	7.5E+05	9.0E+05	--	Fewer than 5 detects	--	7.5E+05	9.0E+05



TABLE 3-4.  
Exposure Point Concentration Summary - In-water Sediment

Scenario Timeframe: Current/Future
Medium: Sediment
Exposure Medium: In-Water Sediment

Exposure Point <sup>a</sup>	Chemical of Potential Concern	Units	Total Samples	Total Non-Detects <sup>b</sup>	Non-Detects greater than Maximum Detected Concentration <sup>c</sup>	Arithmetic Mean <sup>d</sup>	Maximum Detected Concentration	95% UCL			Exposure Point Concentration <sup>e</sup>	
								Distribution	95% UCL Method	Value	Mean	95% UCL/Max
	<b>Dioxin/Furan</b>											
	Total Dioxin/Furan TEQ	pg/g	2	0	0	1.7E+00	1.7E+00	--	Fewer than 5 detects	--	1.7E+00	1.7E+00
	Total PCB TEQ	pg/g	2	0	0	3.9E+00	4.6E+00	--	Fewer than 5 detects	--	3.9E+00	4.6E+00
	<b>Pesticides</b>											
	Aldrin	ug/kg	2	2	ND	ND	ND	--	Fewer than 5 detects	--	ND	ND
	Dieldrin	ug/kg	2	2	ND	ND	ND	--	Fewer than 5 detects	--	ND	ND
	Total DDT	ug/kg	2	1	1	9.4E+00	9.4E+00	--	Fewer than 5 detects	--	9.4E+00	9.4E+00
	<b>Conventionals</b>											
	Perchlorate	ug/kg	NA	NA	NA	NA	NA	--	--	--	NA	NA
Study Area-wide <sup>h</sup>	<b>Metals</b>											
	Arsenic	mg/kg	1027	112	0	4.7E+00	7.6E+01	non-parametric	95% KM (BCA) UCL	5.0E+00	4.7E+00	5.0E+00
	Lead	mg/kg	1015	3	0	5.2E+01	1.3E+04	non-parametric	95% KM (BCA) UCL	8.1E+01	5.2E+01	8.1E+01
	Mercury	mg/kg	1003	53	0	1.7E-01	6.5E+01	non-parametric	95% KM (BCA) UCL	3.0E-01	1.7E-01	3.0E-01
	Vanadium	mg/kg	128	0	0	1.0E+02	1.5E+02	non-parametric	95% Student's-t UCL	1.0E+02	1.0E+02	1.0E+02
	<b>Butyltins</b>											
	Tributyltin ion	ug/kg	236	13	0	6.1E+02	4.7E+04	non-parametric	97.5% KM (Chebyshev) UCL	2.4E+03	6.1E+02	2.4E+03
	<b>Polynuclear Aromatic Hydrocarbons</b>											
	Benzo(a)anthracene	ug/kg	1062	30	0	1.4E+03	1.2E+05	non-parametric	97.5% KM (Chebyshev) UCL	3.1E+03	1.4E+03	3.1E+03
	Benzo(a)pyrene	ug/kg	1062	36	0	1.8E+03	1.6E+05	non-parametric	97.5% KM (Chebyshev) UCL	3.7E+03	1.8E+03	3.7E+03
	Benzo(b)fluoranthene	ug/kg	1062	25	0	1.4E+03	1.3E+05	non-parametric	97.5% KM (Chebyshev) UCL	2.9E+03	1.4E+03	2.9E+03
	Benzo(k)fluoranthene	ug/kg	958	19	0	9.3E+02	8.9E+04	non-parametric	97.5% KM (Chebyshev) UCL	2.0E+03	9.3E+02	2.0E+03
	Dibenzo(a,h)anthracene	ug/kg	1062	152	0	1.9E+02	1.5E+04	non-parametric	97.5% KM (Chebyshev) UCL	3.8E+02	1.9E+02	3.8E+02
	Indeno(1,2,3-cd)pyrene	ug/kg	1062	50	0	1.2E+03	1.3E+05	non-parametric	97.5% KM (Chebyshev) UCL	2.6E+03	1.2E+03	2.6E+03
	Naphthalene	ug/kg	1066	311	0	5.0E+02	1.0E+05	non-parametric	97.5% KM (Chebyshev) UCL	1.5E+03	5.0E+02	1.5E+03
	<b>Phthalates</b>											
	Bis(2-ethylhexyl) phthalate	ug/kg	1003	389	0	9.6E+02	4.4E+05	non-parametric	95% KM (Chebyshev) UCL	2.9E+03	9.6E+02	2.9E+03
	<b>Phenols</b>											
	Pentachlorophenol	ug/kg	964	762	0	3.2E+01	8.4E+03	non-parametric	95% KM (Chebyshev) UCL	5.6E+01	3.2E+01	5.6E+01
	<b>Polychlorinated Biphenyls</b>											
	Total Aroclors	ug/kg	785	159	0	1.9E+02	3.1E+04	non-parametric	95% KM (Chebyshev) UCL	3.6E+02	1.9E+02	3.6E+02
	Total PCB Congeners	pg/g	200	0	0	5.6E+05	3.5E+07	non-parametric	97.5% KM (Chebyshev) UCL	1.8E+06	5.6E+05	1.8E+06
	Total PCBs, Adjusted	pg/g	200	0	0	5.4E+05	3.4E+07	non-parametric	97.5% KM (Chebyshev) UCL	1.8E+06	5.4E+05	1.8E+06
	<b>Dioxin/Furan</b>											
	Total Dioxin/Furan TEQ	pg/g	158	0	0	1.0E+02	1.4E+04	non-parametric	97.5% KM (Chebyshev) UCL	6.6E+02	1.0E+02	6.6E+02
	Total PCB TEQ	pg/g	200	0	0	6.6E+00	2.4E+02	non-parametric	97.5% KM (Chebyshev) UCL	1.7E+01	6.6E+00	1.7E+01
	<b>Pesticides</b>											
	Aldrin	ug/kg	757	567	0	2.4E+00	6.9E+02	non-parametric	95% KM (Chebyshev) UCL	5.8E+00	2.4E+00	5.8E+00
	Dieldrin	ug/kg	792	623	0	2.1E+00	3.6E+02	non-parametric	95% KM (Chebyshev) UCL	2.8E+00	2.1E+00	2.8E+00
	Total DDT	ug/kg	844	189	0	1.4E+02	2.3E+04	non-parametric	97.5% KM (Chebyshev) UCL	3.7E+02	1.4E+02	3.7E+02

**TABLE 3-4.**  
**Exposure Point Concentration Summary - In-water Sediment**

Scenario Timeframe: Current/Future
Medium: Sediment
Exposure Medium: In-Water Sediment

Exposure Point <sup>a</sup>	Chemical of Potential Concern	Units	Total Samples	Total Non-Detects <sup>b</sup>	Non-Detects greater than Maximum Detected Concentration <sup>c</sup>	Arithmetic Mean <sup>d</sup>	Maximum Detected Concentration	95% UCL			Exposure Point Concentration <sup>e</sup>	
								Distribution	95% UCL Method	Value	Mean	95% UCL/Max
	<b>Conventional</b> Perchlorate	ug/kg	13	10	0	4.9E+04	2.7E+05	--	Fewer than 5 detects	--	4.9E+04	2.7E+05

**Notes:**

- a Exposure points for in-water sediment are per half river mile, per side of river. No samples within the human health data set were taken at exposure area of RM 11.5 East, and therefore it is not listed in the table. In-water sediment data set for human health includes in-water sediment samples taken from less than 30.5 centimeters in depth and outside of the navigation channel.
- b Total number of non-detects in the dataset.
- c Number of non-detects with detection limit exceeding the maximum detected concentration for the given exposure area. These non-detects were removed from the dataset prior to calculation of EPCs.
- d Non-detects less than the maximum detected concentration for a given exposure area are included in the arithmetic mean at half the detection limit.
- e Mean exposure point concentrations were used for Central Tendency (CT) exposure and 95% UCL/Max exposure point concentrations were used for Reasonable Maximum Exposure (RME) in the BHHRA.
- f 95% UCL not calculated for analytes with fewer than five detects.
- g "Total PCBs, Adjusted" equals "Total PCB Congeners" minus the sum of total dioxin-like PCBs concentrations.
- h Study Area-wide data set includes samples from RM 1.9 - 11.8 outside of the navigation channel and excluding Multnomah Channel.

**Abbreviations:**

- = Not Applicable. A 95% UCL could not be computed for the given data set.
- 95% UCL = 95% Upper confidence limit on the mean.
- DDT = Dichlorodiphenyltrichloroethane.
- MC = Multnomah Channel.
- mg/kg = Milligrams per kilogram.
- NA = Not available. Chemical not analyzed or had rejected result for given exposure area.
- ND = Not detected. Chemical not detected in given exposure area.
- PCB = Polychlorinated Biphenyls.
- pg/g = Picograms per gram.
- RM = River mile.
- SIL = Swan Island Lagoon.
- TEQ = Toxic equivalents.
- ug/kg = Micrograms per kilogram.

Table 3-5  
Summary of Samples Used in the Calculation of Exposure Point Concentrations For Surface Water Scenarios

Sample Location Name	River Mile	Sample Event	Sample Date	Sample ID	Exposure Scenario			
					Diver, Direct Contact <sup>a</sup>	Transients, Direct Contact <sup>b</sup>	Recreational Beach Users, Direct Contact <sup>c</sup>	Surface Water for Potential Future Domestic Use <sup>d</sup>
<b>Transect Stations</b>								
W005	3.9	Round 3 surface water	September 2006, Low Flow	LW3-W2005-WS-Int <sup>e</sup>	Y	Y	--	Y
		Round 3 surface water	November 2006, Stormwater Influenced	LW3-W2005-WSXAD-Comb-Int <sup>f</sup>	Y	Y	--	Y
		Round 3 surface water	January or February 2007, High Flow	LW3-W3005-WS-Int	Y	Y	--	Y
		Round 3 surface water	January or February 2007, High Flow	LW3-W3005-WSXAD-Comb-Int	Y	Y	--	Y
		Round 3 surface water	January 2006, High Flow	LW3-W4005-WS-Int	Y	Y	--	Y
		Round 3 surface water	January 2006, High Flow	LW3-W4005-WSXAD-Comb-Int	Y	Y	--	Y
		Round 2a surface water event 1	November 2004, Low Flow	LW3-W1005	Y	Y	--	Y
		Round 2a surface water event 1	November 2004, Low Flow	LW3-W1005-WSXAD-Combo	Y	Y	--	Y
W011	6.3	Round 2a surface water event 2	March 2005, Low Flow	LW2-W005	Y	Y	--	Y
		Round 2a surface water event 2	March 2005, Low Flow	LW2-W005-WSXAD-Combo	Y	Y	--	Y
		Round 2a surface water event 2	March 2005, Low Flow	LW2-W2005	Y	Y	--	Y
		Round 2a surface water event 2	March 2005, Low Flow	LW2-W2005-WSXAD-Combo	Y	Y	--	Y
		Round 2a surface water event 3	July 2005, Low Flow	LW2-W3005	Y	Y	Y	Y
		Round 2a surface water event 3	July 2005, Low Flow	LW2-W3005-WSXAD-Combo	Y	Y	Y	Y
		Round 3 surface water	September 2006, Low Flow	LW3-W2011-WS-Int	Y	Y	--	Y
		Round 3 surface water	September 2006, Low Flow	LW3-W2011-WSXAD-Comb-Int	Y	Y	--	Y
W023	11	Round 3 surface water	November 2006, Stormwater Influenced	LW3-W3011-WS-Int	Y	Y	--	Y
		Round 3 surface water	November 2006, Stormwater Influenced	LW3-W3011-WSXAD-Comb-Int	Y	Y	--	Y
		Round 3 surface water	January or February 2007, High Flow	LW3-W4011-WS-Int	Y	Y	--	Y
		Round 3 surface water	January or February 2007, High Flow	LW3-W4011-WSXAD-Comb-Int	Y	Y	--	Y
		Round 2a surface water event 1	November 2004, Low Flow	LW2-W011	Y	Y	--	Y
		Round 2a surface water event 1	November 2004, Low Flow	LW2-W011-WSXAD-Combo	Y	Y	--	Y
		Round 2a surface water event 2	March 2005, Low Flow	LW2-W2011-WSXAD-Combo	Y	Y	--	Y
		Round 2a surface water event 2	March 2005, Low Flow	LW2-W2011B	Y	Y	--	Y
W023	11	Round 2a surface water event 3	July 2005, Low Flow	LW2-W3011	Y	Y	Y	Y
		Round 2a surface water event 3	July 2005, Low Flow	LW2-W3011-WSXAD-Combo	Y	Y	Y	Y
		Round 3 surface water	September 2006, Low Flow	LW3-W2023-WS-Int	Y	Y	--	Y
		Round 3 surface water	September 2006, Low Flow	LW3-W2023-WSXAD-Comb-Int	Y	Y	--	Y
		Round 3 surface water	November 2006, Stormwater Influenced	LW3-W3023-WS-Int	Y	Y	--	Y
		Round 3 surface water	November 2006, Stormwater Influenced	LW3-W3023-WSXAD-Comb-Int	Y	Y	--	Y
		Round 3 surface water	January or February 2007, High Flow	LW3-W4023-WS-Int	Y	Y	--	Y
		Round 3 surface water	January or February 2007, High Flow	LW3-W4023-WSXAD-Comb-Int	Y	Y	--	Y
W023	11	Round 3 surface water	January 2006, High Flow	LW3-W1023-WSXAD-Combo	Y	Y	--	Y
		Round 3 surface water	January 2006, High Flow	LW3-W1023-1	Y	Y	--	Y
		Round 3 surface water	January 2006, High Flow	LW3-W1023-2	Y	Y	--	Y
		Round 2a surface water event 1	November 2004, Low Flow	LW2-W023	Y	Y	--	Y
		Round 2a surface water event 1	November 2004, Low Flow	LW2-W023-WSXAD-Combo	Y	Y	--	Y
		Round 2a surface water event 2	March 2005, Low Flow	LW2-W2023	Y	Y	--	Y
		Round 2a surface water event 2	March 2005, Low Flow	LW2-W2023-WSXAD-Combo	Y	Y	--	Y
		Round 2a surface water event 3	July 2005, Low Flow	LW2-W3023	Y	Y	Y	Y
Round 2a surface water event 3	July 2005, Low Flow	LW2-W3023-WSXAD-Combo	Y	Y	Y	Y		

Table 3-5  
Summary of Samples Used in the Calculation of Exposure Point Concentrations For Surface Water Scenarios

Sample Location Name	River Mile	Sample Event	Sample Date	Sample ID	Exposure Scenario			
					Diver, Direct Contact <sup>a</sup>	Transients, Direct Contact <sup>b</sup>	Recreational Beach Users, Direct Contact <sup>c</sup>	Surface Water for Potential Future Domestic Use <sup>d</sup>
W025	2	Round 3 surface water	September 2006, Low Flow	LW3-W2025-WS-Int	Y	Y	--	Y
		Round 3 surface water	November 2006, Stormwater Influenced	LW3-W2025-WSXAD-Comb-Int	Y	Y	--	Y
		Round 3 surface water	November 2006, Stormwater Influenced	LW3-W3025-WS-Int	Y	Y	--	Y
		Round 3 surface water	January or February 2007, High Flow	LW3-W3025-WSXAD-Comb-Int	Y	Y	--	Y
		Round 3 surface water	January or February 2007, High Flow	LW3-W4025-WS-Int	Y	Y	--	Y
W027	2.9 MC	Round 3 surface water	September 2006, Low Flow	LW3-W4025-WSXAD-Comb-Int	Y	Y	--	Y
		Round 3 surface water	September 2006, Low Flow	LW3-W2027-WS-Int	Y	Y	--	--
		Round 3 surface water	November 2006, Stormwater Influenced	LW3-W2027-WSXAD-Comb-Int	Y	Y	--	--
		Round 3 surface water	November 2006, Stormwater Influenced	LW3-W3027-WS-Int	Y	Y	--	--
		Round 3 surface water	January or February 2007, High Flow	LW3-W3027-WSXAD-Comb-Int	Y	Y	--	--
W024	16	Round 3 surface water	January 2006, High Flow	LW3-W4027-WS-Int	Y	Y	--	--
		Round 3 surface water	January 2006, High Flow	LW3-W4027-WSXAD-Comb-Int	Y	Y	--	--
		Round 3 surface water	January 2006, High Flow	LW3-W1024	--	--	--	--
				LW3-W1024-WSXAD-Combo	--	--	--	--
<b>Single-Point Stations</b>								
W001	2 E	Round 2a surface water event 1	November 2004, Low Flow	LW2-W001	Y	--	--	--
		Round 2a surface water event 2	March 2005, Low Flow	LW2-W2001	Y	--	--	--
		Round 2a surface water event 3	July 2005, Low Flow	LW2-W3001	Y	--	--	--
W002	2.2 W	Round 2a surface water event 1	November 2004, Low Flow	LW2-W002	Y	--	--	--
		Round 2a surface water event 2	March 2005, Low Flow	LW2-W2002-1	Y	--	--	--
		Round 2a surface water event 2	March 2005, Low Flow	LW2-W2002-2	Y	--	--	--
		Round 2a surface water event 3	July 2005, Low Flow	LW2-W3002-1	Y	--	--	--
W003	3 W	Round 2a surface water event 3	July 2005, Low Flow	LW2-W3002-2	Y	--	--	--
		Round 2a surface water event 1	November 2004, Low Flow	LW2-W003	Y	--	--	--
		Round 2a surface water event 2	March 2005, Low Flow	LW2-W2003	Y	--	--	--
W004	3.7 E	Round 2a surface water event 3	July 2005, Low Flow	LW2-W3003	Y	--	--	--
		Round 2a surface water event 1	November 2004, Low Flow	LW2-W004	Y	--	--	--
		Round 2a surface water event 2	March 2005, Low Flow	LW2-W2004-1	Y	--	--	--
W006	4 W	Round 2a surface water event 2	March 2005, Low Flow	LW2-W2004-2	Y	--	--	--
		Round 2a surface water event 3	July 2005, Low Flow	LW2-W3004	Y	--	--	--
		Round 2a surface water event 1	November 2004, Low Flow	LW2-W006	Y	--	--	--
W007	4.4 E	Round 2a surface water event 2	March 2005, Low Flow	LW2-W2006	Y	--	--	--
		Round 2a surface water event 3	July 2005, Low Flow	LW2-W3006	Y	--	--	--
		Round 2a surface water event 1	November 2004, Low Flow	LW2-W007	Y	--	--	--
W008	4.6 E	Round 2a surface water event 2	March 2005, Low Flow	LW2-W2007	Y	--	--	--
		Round 2a surface water event 3	July 2005, Low Flow	LW2-W3007	Y	--	--	--
		Round 2a surface water event 1	November 2004, Low Flow	LW2-W008	Y	--	--	--
W009	5.6 W	Round 2a surface water event 2	March 2005, Low Flow	LW2-W2008	Y	--	--	--
		Round 2a surface water event 3	July 2005, Low Flow	LW2-W3008	Y	--	--	--
		Round 2a surface water event 1	November 2004, Low Flow	LW2-W009	Y	--	--	--
W009	5.6 W	Round 2a surface water event 2	March 2005, Low Flow	LW2-W2009	Y	--	--	--
		Round 2a surface water event 3	July 2005, Low Flow	LW2-W3009	Y	--	--	--

Table 3-5  
Summary of Samples Used in the Calculation of Exposure Point Concentrations For Surface Water Scenarios

Sample Location Name	River Mile	Sample Event	Sample Date	Sample ID	Exposure Scenario			
					Diver, Direct Contact <sup>a</sup>	Transients, Direct Contact <sup>b</sup>	Recreational Beach Users, Direct Contact <sup>c</sup>	Surface Water for Potential Future Domestic Use <sup>d</sup>
W010 Cathedral Park	5.7 E	Round 2a surface water event 1	November 2004, Low Flow	LW2-W010	Y	--	--	Y
		Round 2a surface water event 2	March 2005, Low Flow	LW2-W2010	Y	--	--	Y
		Round 2a surface water event 3	July 2005, Low Flow	LW2-W3010	Y	--	Y	Y
W012	6.3 W	Round 2a surface water event 1	November 2004, Low Flow	LW2-W012	Y	--	--	--
		Round 2a surface water event 2	March 2005, Low Flow	LW2-W2012	Y	--	--	--
		Round 2a surface water event 3	July 2005, Low Flow	LW2-W3012	Y	--	--	--
W013	6.7 E	Round 2a surface water event 1	November 2004, Low Flow	LW2-W013-1	Y	--	--	--
				LW2-W013-1-WSXAD-Combo	Y	--	--	--
				LW2-W013-2	Y	--	--	--
		Round 2a surface water event 2	March 2005, Low Flow	LW2-W013-2-WSXAD-Combo	Y	--	--	--
				LW2-W2013-1	Y	--	--	--
				LW2-W2013-1-WSXAD-Combo	Y	--	--	--
		Round 2a surface water event 3	July 2005, Low Flow	LW2-W2013-2	Y	--	--	--
				LW2-W2013-2-WSXAD-Combo	Y	--	--	--
				LW2-W3013-1	Y	--	--	--
W014 Willamette Cove	6.7 E	Round 2a surface water event 1	November 2004, Low Flow	LW2-W014	Y	Y	--	Y
		Round 2a surface water event 2	March 2005, Low Flow	LW2-W2014	Y	Y	--	Y
		Round 2a surface water event 3	July 2005, Low Flow	LW2-W3014	Y	Y	Y	Y
W015	6.9 W	Round 2a surface water event 1	November 2004, Low Flow	LW2-W015	Y	--	--	--
				LW2-W015-WSXAD-Combo	Y	--	--	--
		Round 2a surface water event 2	March 2005, Low Flow	LW2-W2015	Y	--	--	--
				LW2-W2015-WSXAD-Combo	Y	--	--	--
Round 2a surface water event 3	July 2005, Low Flow	LW2-W3015	Y	--	--	--		
		LW2-W3015-WSXAD-Combo	Y	--	--	--		
W016	7.2 W	Round 2a surface water event 1	November 2004, Low Flow	LW2-W016-1	Y	--	--	--
				LW2-W016-WSXAD-Combo	Y	--	--	--
				LW2-W016-2	Y	--	--	--
		Round 2a surface water event 2	March 2005, Low Flow	LW2-W2016-1	Y	--	--	--
				LW2-W2016-WSXAD-Combo	Y	--	--	--
				LW2-W2016-2	Y	--	--	--
		Round 2a surface water event 3	July 2005, Low Flow	LW2-W3016-1	Y	--	--	--
				LW2-W3016-WSXAD-Combo	Y	--	--	--
W017	7.5 W	Round 2a surface water event 1	November 2004, Low Flow	LW2-W017	Y	--	--	--
		Round 2a surface water event 2	March 2005, Low Flow	LW2-W2017	Y	--	--	--
W018 SIL	8.3 SIL	Round 2a surface water event 1	November 2004, Low Flow	LW2-W018	Y	--	--	--
		Round 2a surface water event 2	March 2005, Low Flow	LW2-W2018	Y	--	--	--
		Round 2a surface water event 3	July 2005, Low Flow	LW2-W3018	Y	--	--	--
				LW2-W3018-WSXAD-Combo	Y	--	--	--

Table 3-5  
Summary of Samples Used in the Calculation of Exposure Point Concentrations For Surface Water Scenarios

Sample Location Name	River Mile	Sample Event	Sample Date	Sample ID	Exposure Scenario			
					Diver, Direct Contact <sup>a</sup>	Transients, Direct Contact <sup>b</sup>	Recreational Beach Users, Direct Contact <sup>c</sup>	Surface Water for Potential Future Domestic Use <sup>d</sup>
W019	8.6 W	Round 2a surface water event 1	November 2004, Low Flow	LW2-W019	Y	--	--	--
		Round 2a surface water event 2	March 2005, Low Flow	LW2-W2019	Y	--	--	--
		Round 2a surface water event 3	July 2005, Low Flow	LW2-W3019	Y	--	--	--
W020 SIL	9.1 SIL	Round 2a surface water event 1	November 2004, Low Flow	LW2-W020	Y	--	--	Y
		Round 2a surface water event 2	March 2005, Low Flow	LW2-W2020	Y	--	--	Y
		Round 2a surface water event 3	July 2005, Low Flow	LW2-W3020	Y	--	Y	Y
W021 SIL	8.7 SIL	Round 2a surface water event 1	November 2004, Low Flow	LW2-W021	Y	--	--	--
		Round 2a surface water event 2	March 2005, Low Flow	LW2-W2021	Y	--	--	--
		Round 2a surface water event 3	July 2005, Low Flow	LW2-W3021	Y	--	--	--
W022	9.7 W	Round 2a surface water event 1	November 2004, Low Flow	LW2-W022	Y	--	--	--
		Round 2a surface water event 2	March 2005, Low Flow	LW2-W2022	Y	--	--	--
		Round 2a surface water event 3	July 2005, Low Flow	LW2-W3022	Y	--	--	--
W026	2.1 E	Round 3 surface water	November 2006, Stormwater Influenced	LW3-W3026-WS-Int	Y	--	--	Y
		Round 3 surface water	January or February 2007, High Flow	LW3-W3026-WSXAD-Comb-Int	Y	--	--	Y
		Round 3 surface water	January or February 2007, High Flow	LW3-W4026-WS-Int	Y	--	--	Y
W028	3.6 E	Round 3 surface water	November 2006, Stormwater Influenced	LW3-W3028-WS-Int	Y	--	--	Y
		Round 3 surface water	January or February 2007, High Flow	LW3-W3028-WSXAD-Comb-Int	Y	--	--	Y
		Round 3 surface water	January or February 2007, High Flow	LW3-W4028-WS-Int	Y	--	--	Y
W029	4.4 W	Round 3 surface water	November 2006, Stormwater Influenced	LW3-W3029-WS-Int	Y	--	--	Y
		Round 3 surface water	January or February 2007, High Flow	LW3-W3029-WSXAD-Comb-Int	Y	--	--	Y
		Round 3 surface water	January or February 2007, High Flow	LW3-W4029-WS-Int	Y	--	--	Y
W030	5.5 E	Round 3 surface water	November 2006, Stormwater Influenced	LW3-W3030-WS-Int	Y	--	--	Y
		Round 3 surface water	January or February 2007, High Flow	LW3-W3030-WSXAD-Comb-Int	Y	--	--	Y
		Round 3 surface water	January or February 2007, High Flow	LW3-W4030-WS-Int	Y	--	--	Y
W031	6.1 W	Round 3 surface water	November 2006, Stormwater Influenced	LW3-W3031-WS-Int	Y	--	--	Y
		Round 3 surface water	January or February 2007, High Flow	LW3-W3031-WSXAD-Comb-Int	Y	--	--	Y
		Round 3 surface water	January or February 2007, High Flow	LW3-W4031-WS-Int	Y	--	--	Y
W032	6.7 E	Round 3 surface water	November 2006, Stormwater Influenced	LW3-W3032-WS-Int	Y	--	--	Y
		Round 3 surface water	January or February 2007, High Flow	LW3-W3032-WSXAD-Comb-Int	Y	--	--	Y
		Round 3 surface water	January or February 2007, High Flow	LW3-W4032-WS-Int	Y	--	--	Y
W033	7.0 W	Round 3 surface water	November 2006, Stormwater Influenced	LW3-W3033-WS-Int	Y	--	--	Y
		Round 3 surface water	January or February 2007, High Flow	LW3-W3033-2-WS-Int	Y	--	--	Y
		Round 3 surface water	January or February 2007, High Flow	LW3-W3033-2-WSXAD-Comb-Int	Y	--	--	Y
W033	7.0 W	Round 3 surface water	November 2006, Stormwater Influenced	LW3-W3033-2-WSXAD-Comb-Int	Y	--	--	Y
		Round 3 surface water	January or February 2007, High Flow	LW3-W3033-2-WSXAD-Comb-Int	Y	--	--	Y
		Round 3 surface water	January or February 2007, High Flow	LW3-W4033-WS-Int	Y	--	--	Y
W033	7.0 W	Round 3 surface water	November 2006, Stormwater Influenced	LW3-W4033-2-WS-Int	Y	--	--	Y
		Round 3 surface water	January or February 2007, High Flow	LW3-W4033-2-WS-Int	Y	--	--	Y
		Round 3 surface water	January or February 2007, High Flow	LW3-W4033-WSXAD-Comb-Int	Y	--	--	Y



**Table 3-5**  
**Summary of Samples Used in the Calculation of Exposure Point Concentrations For Surface Water Scenarios**

Sample Location Name	River Mile	Sample Event	Sample Date	Sample ID	Exposure Scenario			
					Diver, Direct Contact <sup>a</sup>	Transients, Direct Contact <sup>b</sup>	Recreational Beach Users, Direct Contact <sup>c</sup>	Surface Water for Potential Future Domestic Use <sup>d</sup>
W034	7.5 W	Round 3 surface water	November 2006, Stormwater Influenced	LW3-W3034-WS-Int	Y	--	--	Y
		Round 3 surface water	January or February 2007, High Flow	LW3-W3034-WSXAD-Comb-Int	Y	--	--	Y
		Round 3 surface water	January or February 2007, High Flow	LW3-W4034-WS-Int	Y	--	--	Y
		Round 3 surface water	January or February 2007, High Flow	LW3-W4034-WSXAD-Comb-Int	Y	--	--	Y
W035 SIL	8.5 SIL	Round 3 surface water	November 2006, Stormwater Influenced	LW3-W3035-WS-Int	Y	--	--	Y
		Round 3 surface water	January or February 2007, High Flow	LW3-W3035-WSXAD-Comb-Int	Y	--	--	Y
		Round 3 surface water	January or February 2007, High Flow	LW3-W4035-WS-Int	Y	--	--	Y
		Round 3 surface water	January or February 2007, High Flow	LW3-W4035-WSXAD-Comb-Int	Y	--	--	Y
W036	8.6 W	Round 3 surface water	November 2006, Stormwater Influenced	LW3-W3036-WS-Int	Y	--	--	Y
		Round 3 surface water	January or February 2007, High Flow	LW3-W3036-2-WS-Int	Y	--	--	Y
		Round 3 surface water	January or February 2007, High Flow	LW3-W3036-WSXAD-Comb-Int	Y	--	--	Y
		Round 3 surface water	January or February 2007, High Flow	LW3-W4036-WS-Int	Y	--	--	Y
W037	9.6 W	Round 3 surface water	November 2006, Stormwater Influenced	LW3-W3037-WS-Int	Y	--	--	Y
		Round 3 surface water	January or February 2007, High Flow	LW3-W3037-WSXAD-Comb-Int	Y	--	--	Y
		Round 3 surface water	January or February 2007, High Flow	LW3-W4037-WS-Int	Y	--	--	Y
		Round 3 surface water	January or February 2007, High Flow	LW3-W4037-WSXAD-Comb-Int	Y	--	--	Y
W038	9.9 E	Round 3 surface water	November 2006, Stormwater Influenced	LW3-W3038-WS-Int	Y	--	--	Y
		Round 3 surface water	January or February 2007, High Flow	LW3-W3038-WSXAD-Comb-Int	Y	--	--	Y
		Round 3 surface water	January or February 2007, High Flow	LW3-W4038-WS-Int	Y	--	--	Y
		Round 3 surface water	January or February 2007, High Flow	LW3-W4038-WSXAD-Comb-Int	Y	--	--	Y

**Notes:**

- a The surface water exposure dataset for direct contact to divers includes samples from all transects and all single point stations within the study area. In addition, EPCs were calculated for Multnomah Channel.
- b The surface water exposure dataset for direct contact to transients includes year-round samples from transects and single point stations within the study area where transients exposure may occur. In addition, EPCs were calculated for Multnomah Channel.
- c The surface water exposure dataset for direct contact to recreational beach users includes samples from summer sampling events at single point stations within the study area where recreational beach exposure may occur. In addition, study area wide EPCs were calculated using summer samples from all transect stations within the study area.
- d The surface water exposure dataset for the scenario describing the potential future domestic use of untreated surface water includes all vertically integrated and combined transect samples within the study area.
- e "Int" indicates sample results with this sample ID were combined to represent an integrated concentration before EPC calculations. Either results from a near-bottom and near-surface sample pair were combined, or results from vertically integrated samples collected from the east, west, and middle sections of the river were combined, according to the rules discussed in Section 2 of the BHHRA.
- f "Comb" or "Combo" is included in sample IDs for samples collected with an XAD-2 Infiltrax™ 300 system, indicating both column and filter results were combined before EPC calculations, according to the rules discussed in Section 2 of the BHHRA.

**Abbreviations:**

- = Not applicable. Sample was not used for EPC calculations for the given exposure scenario.
- BHHRA = Baseline human health risk assessment.
- Comb or Combo = Combined column and filter results (for XAD samples only). See footnote f.
- E = East.
- EPC = Exposure point concentration.
- Int = Integrated sample results (calculated). See footnote e.
- MC = Multnomah Channel.
- SIL = Swan Island Lagoon.
- W = West.
- Y = sample was used for EPC calculations for the given receptor.

**TABLE 3-6.**  
**Exposure Point Concentration Summary - Surface Water, Transients Use**

Scenario Timeframe: Current/Future
Medium: Water
Exposure Medium: Surface Water, Transients Use

Exposure Point	Chemical of Potential Concern	Units	Total Samples	Total Non-Detects <sup>a</sup>	Non-Detects greater than Maximum Detected Concentration <sup>b</sup>	Arithmetic Mean <sup>c</sup>	Maximum Detected Concentration	95% UCL			Exposure Point Concentration <sup>d</sup>		
								Distribution	95% UCL Method	Value	Mean	95% UCL/Max	
Willamette Cove W014	<b>Metals</b>												
	Arsenic, total	ug/l	3	0	0	4.4E-01	5.2E-01		Fewer than 5 detects <sup>e</sup>		4.4E-01	5.2E-01	
	Arsenic, dissolved	ug/l	3	0	0	3.9E-01	4.6E-01				3.9E-01	4.6E-01	
	Chromium, hexavalent	--	NA	NA	NA	NA	NA				NA	NA	
Transect, RM 3.9 W005	<b>Herbicides</b>												
	MCPP	ug/l	3	3	0	ND	ND				ND	ND	
	<b>Metals</b>												
	Arsenic, total	ug/l	7	0	0	4.6E-01	5.5E-01	normal	95% Student's-t UCL	5.2E-01	4.6E-01	5.2E-01	
Transect, RM 6.3 W011	Arsenic, dissolved	ug/l	7	1	0	3.0E-01	4.8E-01	normal	95% KM (t) UCL	3.9E-01	3.0E-01	3.9E-01	
	Chromium, hexavalent	--	NA	NA	NA	NA	NA				NA	NA	
	<b>Herbicides</b>												
	MCPP	ug/l	6	5	2	4.7E+00	9.1E+00	--	Fewer than 5 detects	--	4.7E+00	9.1E+00	
Transect, RM 11 W023	<b>Metals</b>												
	Arsenic, total	ug/l	6	1	0	3.9E-01	5.0E-01	normal	95% KM (t) UCL	4.7E-01	3.9E-01	4.7E-01	
	Arsenic, dissolved	ug/l	6	2	0	3.0E-01	4.5E-01	--	Fewer than 5 detects	--	3.0E-01	4.5E-01	
	Chromium, hexavalent	ug/l	2	1	1	6.0E-01	9.0E-01	--	Fewer than 5 detects	--	6.0E-01	9.0E-01	
Transect, RM 2 W025	<b>Herbicides</b>												
	MCPP	ug/l	6	6	0	ND	ND	--	Fewer than 5 detects	--	ND	ND	
	<b>Metals</b>												
	Arsenic, total	ug/l	9	1	0	4.0E-01	5.4E-01	normal	95% KM (t) UCL	4.7E-01	4.0E-01	4.7E-01	
Transect, RM 11 W023	Arsenic, dissolved	ug/l	9	1	0	2.8E-01	4.3E-01	non-parametric	95% KM (Chebyshev) UCL	4.4E-01	2.8E-01	4.3E-01	
	Chromium, hexavalent	--	NA	NA	NA	NA	NA				NA	NA	
	<b>Herbicides</b>												
	MCPP	ug/l	7	6	2	4.2E+00	8.0E+00	--	Fewer than 5 detects	--	4.2E+00	8.0E+00	
Transect, RM 2 W025	<b>Metals</b>												
	Arsenic, total	ug/l	4	1	0	3.5E-01	6.0E-01		Fewer than 5 detects		3.5E-01	6.0E-01	
	Arsenic, dissolved	ug/l	4	1	0	3.0E-01	5.7E-01				3.0E-01	5.7E-01	
	Chromium, hexavalent	--	NA	NA	NA	NA	NA				NA	NA	
Transect, RM 2 W025	<b>Herbicides</b>												
	MCPP	ug/l	4	4	0	ND	ND				ND	ND	

TABLE 3-6.  
Exposure Point Concentration Summary - Surface Water, Transients Use

Scenario Timeframe: Current/Future
Medium: Water
Exposure Medium: Surface Water, Transients Use

Exposure Point	Chemical of Potential Concern	Units	Total Samples	Total Non-Detects <sup>a</sup>	Non-Detects greater than Maximum Detected Concentration <sup>b</sup>	Arithmetic Mean <sup>c</sup>	Maximum Detected Concentration	95% UCL			Exposure Point Concentration <sup>d</sup>		
								Distribution	95% UCL Method	Value	Mean	95% UCL/Max	
Transect, MC W027	<b>Metals</b>								Fewer than 5 detects				
	Arsenic, total	ug/l	3	0	0	4.4E-01	5.0E-01				4.4E-01	5.0E-01	
	Arsenic, dissolved	ug/l	3	1	0	3.1E-01	4.8E-01				3.1E-01	4.8E-01	
	Chromium, hexavalent	--	NA	NA	NA	NA	NA				NA	NA	
Study Area-Wide <sup>f</sup> Transects	<b>Herbicides</b>												
	MCP	ug/l	3	2	0	6.3E+00	1.3E+01				6.3E+00	1.3E+01	
	<b>Metals</b>												
	Arsenic, total	ug/l	26	3	0	4.0E-01	6.0E-01	normal	95% KM (t) UCL	4.5E-01	4.0E-01	4.5E-01	
Arsenic, dissolved	ug/l	26	5	0	2.9E-01	5.7E-01	non-parametric	95% KM (Chebyshev) UCL	4.0E-01	2.9E-01	4.0E-01		
Chromium, hexavalent	ug/l	2	1	1	6.0E-01	9.0E-01	--	Fewer than 5 detects	--	6.0E-01	9.0E-01		
<b>Herbicides</b>													
MCP	ug/l	23	21	8	4.0E+00	9.1E+00	--	Fewer than 5 detects	--	4.0E+00	9.1E+00		

Notes:

- a Total number of non-detects in the dataset.
- b Number of non-detects with detection limit exceeding the maximum detected concentration for a given exposure area. These non-detects were removed from the dataset prior to calculation of EPCs.
- c Non-detects less than the maximum detected concentration for a given exposure area are included in the arithmetic mean at half the detection limit.
- d Mean exposure point concentrations were used for Central Tendency (CT) exposure and 95% UCL/Max exposure point concentrations were used for Reasonable Maximum Exposure (RME) in the BHHRA.
- e 95% UCL not calculated for analytes with fewer than five detects.
- f Study Area-wide data set for transient exposure includes year-round transect samples from the following stations: W005, W011, W023, and W025.

Abbreviations:

- = Not applicable. A 95% UCL could not be computed for the given data set.
- 95% UCL = 95% Upper confidence limit.
- MC = Multnomah Channel.
- MCP = 2-(2-Methyl-4-chlorophenoxy)propionic acid.
- NA = Not available. Chemical not analyzed or had rejected result for given exposure area.
- ND = Not detected. Chemical not detected in given exposure area.
- ug/l = Micrograms per liter.



**TABLE 3-8.**  
**Exposure Point Concentration Summary - Surface Water, Diver Use**

Scenario Timeframe: Current/Future
Medium: Water
Exposure Medium: Surface Water, Divers

Exposure Point <sup>a</sup>	Chemical of Potential Concern	Units	Total Samples	Total Non-Detects <sup>b</sup>	Non-Detects greater than Maximum Detected Concentration <sup>c</sup>	Arithmetic Mean <sup>d</sup>	Maximum Detected Concentration	95% UCL			Exposure Point Concentration <sup>e</sup>	
								Distribution	95% UCL Method	Value	Mean	95% UCL/Max
<b>Single Point Samples</b>												
RM 2.0 E	<b>Metals</b>											
	Arsenic, total	ug/l	5	0	0	4.6E-01	7.5E-01	normal	95% Student's-t UCL	6.2E-01	4.6E-01	6.2E-01
	Arsenic, dissolved	ug/l	5	1	0	3.5E-01	6.4E-01	--	Fewer than 5 detects <sup>f</sup>	--	3.5E-01	6.4E-01
	<b>Polynuclear Aromatic Hydrocarbons</b>											
	Benzo(a)anthracene	ug/l	5	5	ND	ND	ND	--	Fewer than 5 detects	--	ND	ND
	Benzo(a)pyrene	ug/l	5	5	ND	ND	ND	--	Fewer than 5 detects	--	ND	ND
	Benzo(b)fluoranthene	ug/l	5	5	ND	ND	ND	--	Fewer than 5 detects	--	ND	ND
	Dibenzo(a,h)anthracene	ug/l	5	5	ND	ND	ND	--	Fewer than 5 detects	--	ND	ND
	Indeno(1,2,3-cd)pyrene	ug/l	5	5	ND	ND	ND	--	Fewer than 5 detects	--	ND	ND
	Naphthalene	ug/l	5	4	3	4.1E-03	6.5E-03	--	Fewer than 5 detects	--	4.1E-03	6.5E-03
	<b>Pesticides</b>											
	Aldrin	ug/l	5	5	ND	ND	ND	--	Fewer than 5 detects	--	ND	ND
	<b>Herbicides</b>											
MCP	ug/l	5	4	4	5.2E+00	5.2E+00	--	Fewer than 5 detects	--	5.2E+00	5.2E+00	
<b>Conventionals</b>												
Perchlorate	NA	NA	NA	NA	NA	NA	--	--	--	NA	NA	
RM 2.0 W	<b>Metals</b>											
	Arsenic, total	ug/l	5	0	0	5.6E-01	7.1E-01	normal	95% Student's-t UCL	6.9E-01	5.6E-01	6.9E-01
	Arsenic, dissolved	ug/l	5	0	0	5.0E-01	6.2E-01	normal	95% Student's-t UCL	6.3E-01	5.0E-01	6.2E-01
	<b>Polynuclear Aromatic Hydrocarbons</b>											
	Benzo(a)anthracene	ug/l	5	5	ND	ND	ND	--	Fewer than 5 detects	--	ND	ND
	Benzo(a)pyrene	ug/l	5	5	ND	ND	ND	--	Fewer than 5 detects	--	ND	ND
	Benzo(b)fluoranthene	ug/l	5	5	ND	ND	ND	--	Fewer than 5 detects	--	ND	ND
	Dibenzo(a,h)anthracene	ug/l	5	5	ND	ND	ND	--	Fewer than 5 detects	--	ND	ND
	Indeno(1,2,3-cd)pyrene	ug/l	5	5	ND	ND	ND	--	Fewer than 5 detects	--	ND	ND
	Naphthalene	ug/l	5	5	ND	ND	ND	--	Fewer than 5 detects	--	ND	ND
	<b>Pesticides</b>											
	Aldrin	ug/l	3	3	ND	ND	ND	--	Fewer than 5 detects	--	ND	ND
	<b>Herbicides</b>											
MCP	ug/l	5	5	ND	ND	ND	--	Fewer than 5 detects	--	ND	ND	
<b>Conventionals</b>												
Perchlorate	NA	NA	NA	NA	NA	NA	--	--	--	NA	NA	
RM 3.0 W	<b>Metals</b>											
	Arsenic, total	ug/l	3	0	0	4.3E-01	4.9E-01	--	Fewer than 5 detects	--	4.3E-01	4.9E-01
Arsenic, dissolved	ug/l	3	0	0	3.5E-01	4.1E-01	--	Fewer than 5 detects	--	3.5E-01	4.1E-01	

**TABLE 3-8.**  
**Exposure Point Concentration Summary - Surface Water, Diver Use**

Scenario Timeframe: Current/Future
Medium: Water
Exposure Medium: Surface Water, Divers

Exposure Point <sup>a</sup>	Chemical of Potential Concern	Units	Total Samples	Total Non-Detects <sup>b</sup>	Non-Detects greater than Maximum Detected Concentration <sup>c</sup>	Arithmetic Mean <sup>d</sup>	Maximum Detected Concentration	95% UCL			Exposure Point Concentration <sup>e</sup>	
								Distribution	95% UCL Method	Value	Mean	95% UCL/Max
	<b>Polynuclear Aromatic Hydrocarbons</b>											
	Benzo(a)anthracene	ug/l	3	2	2	3.0E-03	3.0E-03				3.0E-03	3.0E-03
	Benzo(a)pyrene	ug/l	3	2	2	2.7E-03	2.7E-03				2.7E-03	2.7E-03
	Benzo(b)fluoranthene	ug/l	3	2	2	2.8E-03	2.8E-03				2.8E-03	2.8E-03
	Dibenzo(a,h)anthracene	ug/l	3	3	ND	ND	ND				ND	ND
	Indeno(1,2,3-cd)pyrene	ug/l	3	3	ND	ND	ND				ND	ND
	Naphthalene	ug/l	3	3	ND	ND	ND				ND	ND
	<b>Pesticides</b>											
	Aldrin	ug/l	3	3	ND	ND	ND				ND	ND
	<b>Herbicides</b>											
	MCP	ug/l	3	3	ND	ND	ND				ND	ND
	<b>Conventionals</b>											
	Perchlorate	NA	NA	NA	NA	NA	NA	--	--	--	NA	NA
RM 3.5 E	<b>Metals</b>											
	Arsenic, total	ug/l	5	0	0	4.3E-01	4.9E-01	normal	95% Student's-t UCL	5.0E-01	4.3E-01	4.9E-01
	Arsenic, dissolved	ug/l	5	1	0	3.1E-01	4.1E-01	--	Fewer than 5 detects	--	3.1E-01	4.1E-01
	<b>Polynuclear Aromatic Hydrocarbons</b>											
	Benzo(a)anthracene	ug/l	5	4	0	4.6E-03	1.2E-02	--	Fewer than 5 detects	--	4.6E-03	1.2E-02
	Benzo(a)pyrene	ug/l	5	5	ND	ND	ND	--	Fewer than 5 detects	--	ND	ND
	Benzo(b)fluoranthene	ug/l	5	4	2	4.6E-03	9.0E-03	--	Fewer than 5 detects	--	4.6E-03	9.0E-03
	Dibenzo(a,h)anthracene	ug/l	5	5	ND	ND	ND	--	Fewer than 5 detects	--	ND	ND
	Indeno(1,2,3-cd)pyrene	ug/l	5	4	3	3.3E-03	5.5E-03	--	Fewer than 5 detects	--	3.3E-03	5.5E-03
	Naphthalene	ug/l	5	5	ND	ND	ND	--	Fewer than 5 detects	--	ND	ND
	<b>Pesticides</b>											
	Aldrin	ug/l	6	6	ND	ND	ND	--	Fewer than 5 detects	--	ND	ND
	<b>Herbicides</b>											
	MCP	ug/l	5	5	ND	ND	ND	--	Fewer than 5 detects	--	ND	ND
	<b>Conventionals</b>											
	Perchlorate	NA	NA	NA	NA	NA	NA	--	--	--	NA	NA
RM 4.0 E	<b>Metals</b>											
	Arsenic, total	ug/l	3	0	0	4.4E-01	4.8E-01	--	Fewer than 5 detects	--	4.4E-01	4.8E-01
	Arsenic, dissolved	ug/l	3	0	0	3.7E-01	4.2E-01				3.7E-01	4.2E-01
	<b>Polynuclear Aromatic Hydrocarbons</b>											
	Benzo(a)anthracene	ug/l	3	2	0	3.6E-03	6.5E-03				3.6E-03	6.5E-03
	Benzo(a)pyrene	ug/l	3	2	0	2.4E-03	4.0E-03				2.4E-03	4.0E-03
	Benzo(b)fluoranthene	ug/l	3	2	0	2.6E-03	4.0E-03				2.6E-03	4.0E-03
	Dibenzo(a,h)anthracene	ug/l	3	3	ND	ND	ND				ND	ND



**TABLE 3-8.**  
**Exposure Point Concentration Summary - Surface Water, Diver Use**

Scenario Timeframe: Current/Future
Medium: Water
Exposure Medium: Surface Water, Divers

Exposure Point <sup>a</sup>	Chemical of Potential Concern	Units	Total Samples	Total Non-Detects <sup>b</sup>	Non-Detects greater than Maximum Detected Concentration <sup>c</sup>	Arithmetic Mean <sup>d</sup>	Maximum Detected Concentration	95% UCL			Exposure Point Concentration <sup>e</sup>	
								Distribution	95% UCL Method	Value	Mean	95% UCL/Max
	Indeno(1,2,3-cd)pyrene	ug/l	3	3	ND	ND	ND				ND	ND
	Naphthalene	ug/l	3	3	ND	ND	ND				ND	ND
	<b>Pesticides</b>											
	Aldrin	ug/l	3	3	ND	ND	ND				ND	ND
	<b>Herbicides</b>											
	MCPP	ug/l	3	3	ND	ND	ND				ND	ND
	<b>Conventionals</b>											
	Perchlorate	NA	NA	NA	NA	NA	NA	--	--	--	NA	NA
RM 4.0 W	<b>Metals</b>											
	Arsenic, total	ug/l	5	1	0	3.7E-01	4.9E-01	--	Fewer than 5 detects	--	3.7E-01	4.9E-01
	Arsenic, dissolved	ug/l	5	1	0	3.0E-01	4.2E-01				3.0E-01	4.2E-01
	<b>Polynuclear Aromatic Hydrocarbons</b>											
	Benzo(a)anthracene	ug/l	5	4	2	3.4E-03	5.9E-03				3.4E-03	5.9E-03
	Benzo(a)pyrene	ug/l	5	5	ND	ND	ND				ND	ND
	Benzo(b)fluoranthene	ug/l	5	5	ND	ND	ND				ND	ND
	Dibenzo(a,h)anthracene	ug/l	5	5	ND	ND	ND				ND	ND
	Indeno(1,2,3-cd)pyrene	ug/l	5	5	ND	ND	ND				ND	ND
	Naphthalene	ug/l	5	5	ND	ND	ND				ND	ND
	<b>Pesticides</b>											
	Aldrin	ug/l	5	5	ND	ND	ND				ND	ND
	<b>Herbicides</b>											
	MCPP	ug/l	5	5	ND	ND	ND				ND	ND
	<b>Conventionals</b>											
	Perchlorate	NA	NA	NA	NA	NA	NA	--	--	--	NA	NA
RM 4.5 E	<b>Metals</b>											
	Arsenic, total	ug/l	3	0	0	4.3E-01	4.8E-01	--	Fewer than 5 detects	--	4.3E-01	4.8E-01
	Arsenic, dissolved	ug/l	3	0	0	3.8E-01	4.3E-01				3.8E-01	4.3E-01
	<b>Polynuclear Aromatic Hydrocarbons</b>											
	Benzo(a)anthracene	ug/l	3	1	0	4.8E-03	7.8E-03				4.8E-03	7.8E-03
	Benzo(a)pyrene	ug/l	3	1	0	4.1E-03	7.5E-03				4.1E-03	7.5E-03
	Benzo(b)fluoranthene	ug/l	3	1	0	4.7E-03	8.0E-03				4.7E-03	8.0E-03
	Dibenzo(a,h)anthracene	ug/l	3	2	0	2.6E-03	4.4E-03				2.6E-03	4.4E-03
	Indeno(1,2,3-cd)pyrene	ug/l	3	2	0	3.3E-03	5.7E-03				3.3E-03	5.7E-03
	Naphthalene	ug/l	3	3	ND	ND	ND				ND	ND
	<b>Pesticides</b>											
	Aldrin	ug/l	3	3	ND	ND	ND				ND	ND

**TABLE 3-8.**  
**Exposure Point Concentration Summary - Surface Water, Diver Use**

Scenario Timeframe: Current/Future
Medium: Water
Exposure Medium: Surface Water, Divers

Exposure Point <sup>a</sup>	Chemical of Potential Concern	Units	Total Samples	Total Non-Detects <sup>b</sup>	Non-Detects greater than Maximum Detected Concentration <sup>c</sup>	Arithmetic Mean <sup>d</sup>	Maximum Detected Concentration	95% UCL			Exposure Point Concentration <sup>e</sup>	
								Distribution	95% UCL Method	Value	Mean	95% UCL/Max
	<b>Herbicides</b> MCP	ug/l	3	3	ND	ND	ND				ND	ND
	<b>Conventionals</b> Perchlorate	NA	NA	NA	NA	NA	NA	--	--	--	NA	NA
RM 5.5 E	<b>Metals</b> Arsenic, total	ug/l	5	0	0	4.2E-01	5.4E-01	normal	95% Student's-t UCL	5.0E-01	4.2E-01	5.0E-01
	Arsenic, dissolved	ug/l	5	1	0	3.1E-01	4.6E-01	--	Fewer than 5 detects	--	3.1E-01	4.6E-01
	<b>Polynuclear Aromatic Hydrocarbons</b> Benzo(a)anthracene	ug/l	5	5	ND	ND	ND	--	Fewer than 5 detects	--	ND	ND
	Benzo(a)pyrene	ug/l	5	5	ND	ND	ND	--	Fewer than 5 detects	--	ND	ND
	Benzo(b)fluoranthene	ug/l	5	5	ND	ND	ND	--	Fewer than 5 detects	--	ND	ND
	Dibenzo(a,h)anthracene	ug/l	5	5	ND	ND	ND	--	Fewer than 5 detects	--	ND	ND
	Indeno(1,2,3-cd)pyrene	ug/l	5	5	ND	ND	ND	--	Fewer than 5 detects	--	ND	ND
	Naphthalene	ug/l	5	5	ND	ND	ND	--	Fewer than 5 detects	--	ND	ND
	<b>Pesticides</b> Aldrin	ug/l	5	4	0	9.8E-04	4.1E-03	--	Fewer than 5 detects	--	9.8E-04	4.1E-03
	<b>Herbicides</b> MCP	ug/l	5	5	ND	ND	ND	--	Fewer than 5 detects	--	ND	ND
	<b>Conventionals</b> Perchlorate	NA	NA	NA	NA	NA	NA	--	--	--	NA	NA
RM 5.5 W	<b>Metals</b> Arsenic, total	ug/l	3	0	0	4.3E-01	5.0E-01	--	Fewer than 5 detects	--	4.3E-01	5.0E-01
	Arsenic, dissolved	ug/l	3	0	0	3.7E-01	4.2E-01	--	Fewer than 5 detects	--	3.7E-01	4.2E-01
	<b>Polynuclear Aromatic Hydrocarbons</b> Benzo(a)anthracene	ug/l	3	2	0	2.8E-03	4.3E-03	--	Fewer than 5 detects	--	2.8E-03	4.3E-03
	Benzo(a)pyrene	ug/l	3	3	ND	ND	ND	--	Fewer than 5 detects	--	ND	ND
	Benzo(b)fluoranthene	ug/l	3	3	ND	ND	ND	--	Fewer than 5 detects	--	ND	ND
	Dibenzo(a,h)anthracene	ug/l	3	3	ND	ND	ND	--	Fewer than 5 detects	--	ND	ND
	Indeno(1,2,3-cd)pyrene	ug/l	3	3	ND	ND	ND	--	Fewer than 5 detects	--	ND	ND
	Naphthalene	ug/l	3	3	ND	ND	ND	--	Fewer than 5 detects	--	ND	ND
	<b>Pesticides</b> Aldrin	ug/l	3	3	ND	ND	ND	--	Fewer than 5 detects	--	ND	ND
	<b>Herbicides</b> MCP	ug/l	3	3	ND	ND	ND	--	Fewer than 5 detects	--	ND	ND
	<b>Conventionals</b> Perchlorate	NA	NA	NA	NA	NA	NA	--	--	--	NA	NA

**TABLE 3-8.**  
**Exposure Point Concentration Summary - Surface Water, Diver Use**

Scenario Timeframe: Current/Future
Medium: Water
Exposure Medium: Surface Water, Divers

Exposure Point <sup>a</sup>	Chemical of Potential Concern	Units	Total Samples	Total Non-Detects <sup>b</sup>	Non-Detects greater than Maximum Detected Concentration <sup>c</sup>	Arithmetic Mean <sup>d</sup>	Maximum Detected Concentration	95% UCL			Exposure Point Concentration <sup>e</sup>		
								Distribution	95% UCL Method	Value	Mean	95% UCL/Max	
RM 6.0 W	<b>Metals</b>												
	Arsenic, total	ug/l	5	0	0	4.4E-01	5.6E-01	normal	95% Student's-t UCL	5.2E-01	4.4E-01	5.2E-01	
	Arsenic, dissolved	ug/l	5	1	0	3.2E-01	4.7E-01	--	Fewer than 5 detects	--	3.2E-01	4.7E-01	
	<b>Polynuclear Aromatic Hydrocarbons</b>												
	Benzo(a)anthracene	ug/l	5	2	0	5.5E-02	1.4E-01	--	Fewer than 5 detects	--	5.5E-02	1.4E-01	
	Benzo(a)pyrene	ug/l	5	2	0	5.5E-02	1.5E-01	--	Fewer than 5 detects	--	5.5E-02	1.5E-01	
	Benzo(b)fluoranthene	ug/l	5	2	0	4.1E-02	1.1E-01	--	Fewer than 5 detects	--	4.1E-02	1.1E-01	
	Dibenzo(a,h)anthracene	ug/l	5	3	0	6.3E-03	1.4E-02	--	Fewer than 5 detects	--	6.3E-03	1.4E-02	
	Indeno(1,2,3-cd)pyrene	ug/l	5	1	0	4.1E-02	1.1E-01	--	Fewer than 5 detects	--	4.1E-02	1.1E-01	
	Naphthalene	ug/l	5	1	0	1.9E-01	7.7E-01	--	Fewer than 5 detects	--	1.9E-01	7.7E-01	
	<b>Pesticides</b>												
	Aldrin	ug/l	5	3	3	1.6E-06	2.1E-06	--	Fewer than 5 detects	--	1.6E-06	2.1E-06	
	<b>Herbicides</b>												
MCPP	ug/l	5	5	ND	ND	ND	--	Fewer than 5 detects	--	ND	ND		
<b>Conventionals</b>													
Perchlorate	NA	NA	NA	NA	NA	NA	--	--	--	NA	NA		
RM 6.5 E	<b>Metals</b>												
	Arsenic, total	ug/l	10	0	0	3.9E-01	5.2E-01	normal	95% KM (t) UCL	4.2E-01	3.9E-01	4.2E-01	
	Arsenic, dissolved	ug/l	10	0	0	3.3E-01	4.6E-01	normal	95% KM (t) UCL	3.7E-01	3.3E-01	3.7E-01	
	<b>Polynuclear Aromatic Hydrocarbons</b>												
	Benzo(a)anthracene	ug/l	17	10	7	8.0E-04	2.8E-03	gamma	95% KM (t) UCL	1.2E-03	8.0E-04	1.2E-03	
	Benzo(a)pyrene	ug/l	17	9	7	6.3E-04	2.4E-03	gamma	95% KM (t) UCL	9.4E-04	6.3E-04	9.4E-04	
	Benzo(b)fluoranthene	ug/l	17	10	10	5.1E-04	1.1E-03	normal	95% KM (t) UCL	7.2E-04	5.1E-04	7.2E-04	
	Dibenzo(a,h)anthracene	ug/l	17	15	10	1.6E-04	8.8E-04	--	Fewer than 5 detects	--	1.6E-04	8.8E-04	
	Indeno(1,2,3-cd)pyrene	ug/l	17	11	11	3.5E-04	6.3E-04	normal	95% KM (t) UCL	4.5E-04	3.5E-04	4.5E-04	
	Naphthalene	ug/l	17	13	3	6.5E-03	1.7E-02	--	Fewer than 5 detects	--	6.5E-03	1.7E-02	
	<b>Pesticides</b>												
	Aldrin	ug/l	12	5	5	1.6E-06	2.4E-06	normal	95% KM (t) UCL	2.1E-06	1.6E-06	2.1E-06	
	<b>Herbicides</b>												
MCPP	ug/l	10	10	ND	ND	ND	--	Fewer than 5 detects	--	ND	ND		
<b>Conventionals</b>													
Perchlorate	NA	NA	NA	NA	NA	NA	--	--	--	NA	NA		
RM 6.5 W	<b>Metals</b>												
	Arsenic, total	ug/l	3	0	0	4.5E-01	5.2E-01	--	Fewer than 5 detects	--	4.5E-01	5.2E-01	
Arsenic, dissolved	ug/l	3	0	0	3.9E-01	4.5E-01	--	Fewer than 5 detects	--	3.9E-01	4.5E-01		

**TABLE 3-8.**  
**Exposure Point Concentration Summary - Surface Water, Diver Use**

Scenario Timeframe: Current/Future
Medium: Water
Exposure Medium: Surface Water, Divers

Exposure Point <sup>a</sup>	Chemical of Potential Concern	Units	Total Samples	Total Non-Detects <sup>b</sup>	Non-Detects greater than Maximum Detected Concentration <sup>c</sup>	Arithmetic Mean <sup>d</sup>	Maximum Detected Concentration	95% UCL			Exposure Point Concentration <sup>e</sup>		
								Distribution	95% UCL Method	Value	Mean	95% UCL/Max	
	<b>Polynuclear Aromatic Hydrocarbons</b>												
	Benzo(a)anthracene	ug/l	6	3	0	2.9E-03	6.1E-03				2.9E-03	6.1E-03	
	Benzo(a)pyrene	ug/l	6	3	0	2.7E-03	6.6E-03				2.7E-03	6.6E-03	
	Benzo(b)fluoranthene	ug/l	6	3	0	3.0E-03	6.8E-03				3.0E-03	6.8E-03	
	Dibenzo(a,h)anthracene	ug/l	6	4	3	5.0E-04	8.7E-04				5.0E-04	8.7E-04	
	Indeno(1,2,3-cd)pyrene	ug/l	6	2	0	3.2E-03	6.1E-03				3.2E-03	6.1E-03	
	Naphthalene	ug/l	6	3	0	1.2E-02	2.9E-02				1.2E-02	2.9E-02	
	<b>Pesticides</b>												
	Aldrin	ug/l	3	0	0	6.9E-06	1.6E-05				6.9E-06	1.6E-05	
	<b>Herbicides</b>												
	MCPP	ug/l	3	3	ND	ND	ND				ND	ND	
	<b>Conventionals</b>												
	Perchlorate	NA	NA	NA	NA	NA	NA	--	--	--	NA	NA	
RM 7.0 W	<b>Metals</b>												
	Arsenic, total	ug/l	8	2	0	3.5E-01	5.0E-01	normal	95% KM (t) UCL	4.5E-01	3.5E-01	4.5E-01	
	Arsenic, dissolved	ug/l	8	2	0	3.0E-01	4.5E-01	normal	95% KM (t) UCL	4.0E-01	3.0E-01	4.0E-01	
	<b>Polynuclear Aromatic Hydrocarbons</b>												
	Benzo(a)anthracene	ug/l	13	6	2	2.2E-03	7.0E-03	normal	95% KM (t) UCL	3.4E-03	2.2E-03	3.4E-03	
	Benzo(a)pyrene	ug/l	13	6	2	2.0E-03	6.6E-03	gamma	95% KM (BCA) UCL	2.9E-03	2.0E-03	2.9E-03	
	Benzo(b)fluoranthene	ug/l	12	6	2	1.9E-03	4.9E-03	gamma	95% KM (BCA) UCL	2.4E-03	1.9E-03	2.4E-03	
	Dibenzo(a,h)anthracene	ug/l	12	8	6	2.7E-04	5.4E-04	--	Fewer than 5 detects	--	2.7E-04	5.4E-04	
	Indeno(1,2,3-cd)pyrene	ug/l	12	6	6	1.1E-03	2.8E-03	gamma	95% KM (Chebyshev) UCL	3.0E-03	1.1E-03	2.8E-03	
	Naphthalene	ug/l	13	12	12	7.4E-04	7.4E-04	--	Fewer than 5 detects	--	7.4E-04	7.4E-04	
	<b>Pesticides</b>												
	Aldrin	ug/l	6	0	0	2.3E-06	4.0E-06	normal	95% KM (t) UCL	3.3E-06	2.3E-06	3.3E-06	
	<b>Herbicides</b>												
	MCPP	ug/l	7	6	5	4.6E+00	6.2E+00	--	Fewer than 5 detects	--	4.6E+00	6.2E+00	
	<b>Conventionals</b>												
	Perchlorate	ug/l	9	3	0	2.7E+00	1.6E+01	gamma	95% KM (BCA) UCL	7.0E+00	2.7E+00	7.0E+00	
RM 7.5 W	<b>Metals</b>												
	Arsenic, total	ug/l	5	0	0	4.8E-01	5.6E-01	normal	95% Student's-t UCL	5.4E-01	4.8E-01	5.4E-01	
	Arsenic, dissolved	ug/l	5	0	0	3.6E-01	4.7E-01	normal	95% Student's-t UCL	4.3E-01	3.6E-01	4.3E-01	
	<b>Polynuclear Aromatic Hydrocarbons</b>												
	Benzo(a)anthracene	ug/l	5	5	ND	ND	ND	--	Fewer than 5 detects	--	ND	ND	
	Benzo(a)pyrene	ug/l	5	5	ND	ND	ND	--	Fewer than 5 detects	--	ND	ND	
	Benzo(b)fluoranthene	ug/l	5	5	ND	ND	ND	--	Fewer than 5 detects	--	ND	ND	

**TABLE 3-8.**  
**Exposure Point Concentration Summary - Surface Water, Diver Use**

Scenario Timeframe: Current/Future
Medium: Water
Exposure Medium: Surface Water, Divers

Exposure Point <sup>a</sup>	Chemical of Potential Concern	Units	Total Samples	Total Non-Detects <sup>b</sup>	Non-Detects greater than Maximum Detected Concentration <sup>c</sup>	Arithmetic Mean <sup>d</sup>	Maximum Detected Concentration	95% UCL			Exposure Point Concentration <sup>e</sup>	
								Distribution	95% UCL Method	Value	Mean	95% UCL/Max
	Dibenzo(a,h)anthracene	ug/l	5	5	ND	ND	ND	--	Fewer than 5 detects	--	ND	ND
	Indeno(1,2,3-cd)pyrene	ug/l	5	5	ND	ND	ND	--	Fewer than 5 detects	--	ND	ND
	Naphthalene	ug/l	5	5	ND	ND	ND	--	Fewer than 5 detects	--	ND	ND
	<b>Pesticides</b>											
	Aldrin	ug/l	5	4	4	8.7E-07	8.7E-07	--	Fewer than 5 detects	--	8.7E-07	8.7E-07
	<b>Herbicides</b>											
	MCCP	ug/l	5	5	ND	ND	ND	--	Fewer than 5 detects	--	ND	ND
<b>Conventionals</b>												
Perchlorate	NA	NA	NA	NA	NA	NA	--	--	--	NA	NA	
SIL	<b>Metals</b>											
	Arsenic, total	ug/l	11	0	0	4.1E-01	4.8E-01	normal	95% KM (t) UCL	4.4E-01	4.1E-01	4.4E-01
	Arsenic, dissolved	ug/l	11	1	0	3.3E-01	4.4E-01	normal	95% KM (t) UCL	3.8E-01	3.3E-01	3.8E-01
	<b>Polynuclear Aromatic Hydrocarbons</b>											
	Benzo(a)anthracene	ug/l	16	10	0	2.6E-03	1.1E-02	gamma	95% KM (t) UCL	2.9E-03	2.6E-03	2.9E-03
	Benzo(a)pyrene	ug/l	16	12	3	1.5E-03	4.8E-03	--	Fewer than 5 detects	--	1.5E-03	4.8E-03
	Benzo(b)fluoranthene	ug/l	16	11	10	1.5E-03	3.8E-03	normal	95% KM (t) UCL	2.6E-03	1.5E-03	2.6E-03
	Dibenzo(a,h)anthracene	ug/l	16	13	11	3.1E-04	7.8E-04	--	Fewer than 5 detects	--	3.1E-04	7.8E-04
	Indeno(1,2,3-cd)pyrene	ug/l	16	11	10	1.1E-03	2.9E-03	normal	95% KM (t) UCL	1.9E-03	1.1E-03	1.9E-03
	Naphthalene	ug/l	16	15	7	3.5E-03	6.9E-03	--	Fewer than 5 detects	--	3.5E-03	6.9E-03
	<b>Pesticides</b>											
	Aldrin	ug/l	12	7	7	2.2E-06	4.9E-06	normal	95% KM (t) UCL	4.0E-06	2.2E-06	4.0E-06
	<b>Herbicides</b>											
	MCCP	ug/l	11	10	4	7.2E+00	1.9E+01	--	Fewer than 5 detects	--	7.2E+00	1.9E+01
<b>Conventionals</b>												
Perchlorate	NA	NA	NA	NA	NA	NA	--	--	--	NA	NA	
RM 8.5 W	<b>Metals</b>											
	Arsenic, total	ug/l	5	0	0	4.3E-01	5.4E-01	normal	95% Student's-t UCL	5.0E-01	4.3E-01	5.0E-01
	Arsenic, dissolved	ug/l	5	1	0	3.1E-01	4.6E-01	--	Fewer than 5 detects	--	3.1E-01	4.6E-01
	<b>Polynuclear Aromatic Hydrocarbons</b>											
	Benzo(a)anthracene	ug/l	5	5	ND	ND	ND	--	Fewer than 5 detects	--	ND	ND
	Benzo(a)pyrene	ug/l	5	5	ND	ND	ND	--	Fewer than 5 detects	--	ND	ND
	Benzo(b)fluoranthene	ug/l	5	5	ND	ND	ND	--	Fewer than 5 detects	--	ND	ND
	Dibenzo(a,h)anthracene	ug/l	5	5	ND	ND	ND	--	Fewer than 5 detects	--	ND	ND
	Indeno(1,2,3-cd)pyrene	ug/l	5	4	1	2.9E-03	5.1E-03	--	Fewer than 5 detects	--	2.9E-03	5.1E-03
Naphthalene	ug/l	5	4	0	2.1E-02	8.3E-02	--	Fewer than 5 detects	--	2.1E-02	8.3E-02	

**TABLE 3-8.**  
**Exposure Point Concentration Summary - Surface Water, Diver Use**

Scenario Timeframe: Current/Future
Medium: Water
Exposure Medium: Surface Water, Divers

Exposure Point <sup>a</sup>	Chemical of Potential Concern	Units	Total Samples	Total Non-Detects <sup>b</sup>	Non-Detects greater than Maximum Detected Concentration <sup>c</sup>	Arithmetic Mean <sup>d</sup>	Maximum Detected Concentration	95% UCL			Exposure Point Concentration <sup>e</sup>	
								Distribution	95% UCL Method	Value	Mean	95% UCL/Max
	<b>Pesticides</b> Aldrin	ug/l	6	6	ND	ND	ND	--	Fewer than 5 detects	--	ND	ND
	<b>Herbicides</b> MCPP	ug/l	5	5	ND	ND	ND	--	Fewer than 5 detects	--	ND	ND
	<b>Conventionals</b> Perchlorate	NA	NA	NA	NA	NA	NA	--	--	--	NA	NA
RM 9.5 E	<b>Metals</b> Arsenic, total	ug/l	2	0	0	4.1E-01	5.2E-01	--	Fewer than 5 detects	--	4.1E-01	5.2E-01
	Arsenic, dissolved	ug/l	2	0	0	2.8E-01	3.6E-01				2.8E-01	3.6E-01
	<b>Polynuclear Aromatic Hydrocarbons</b> Benzo(a)anthracene	ug/l	2	2	ND	ND	ND				ND	ND
	Benzo(a)pyrene	ug/l	2	2	ND	ND	ND				ND	ND
	Benzo(b)fluoranthene	ug/l	2	2	ND	ND	ND				ND	ND
	Dibenzo(a,h)anthracene	ug/l	2	2	ND	ND	ND				ND	ND
	Indeno(1,2,3-cd)pyrene	ug/l	2	2	ND	ND	ND				ND	ND
	Naphthalene	ug/l	2	1	0	1.3E-02	2.0E-02				1.3E-02	2.0E-02
	<b>Pesticides</b> Aldrin	ug/l	2	2	ND	ND	ND				ND	ND
	<b>Herbicides</b> MCPP	ug/l	2	2	ND	ND	ND				ND	ND
	<b>Conventionals</b> Perchlorate	NA	NA	NA	NA	NA	NA	--	--	--	NA	NA
RM 9.5 W	<b>Metals</b> Arsenic, total	ug/l	5	0	0	4.9E-01	6.7E-01	normal	95% Student's-t UCL	6.1E-01	4.9E-01	6.1E-01
	Arsenic, dissolved	ug/l	5	0	0	3.7E-01	4.9E-01	normal	95% Student's-t UCL	4.8E-01	3.7E-01	4.8E-01
	<b>Polynuclear Aromatic Hydrocarbons</b> Benzo(a)anthracene	ug/l	5	5	ND	ND	ND	--	Fewer than 5 detects	--	ND	ND
	Benzo(a)pyrene	ug/l	5	5	ND	ND	ND	--	Fewer than 5 detects	--	ND	ND
	Benzo(b)fluoranthene	ug/l	5	5	ND	ND	ND	--	Fewer than 5 detects	--	ND	ND
	Dibenzo(a,h)anthracene	ug/l	5	4	0	3.5E-03	7.2E-03	--	Fewer than 5 detects	--	3.5E-03	7.2E-03
	Indeno(1,2,3-cd)pyrene	ug/l	5	5	ND	ND	ND	--	Fewer than 5 detects	--	ND	ND
	Naphthalene	ug/l	5	5	ND	ND	ND	--	Fewer than 5 detects	--	ND	ND
	<b>Pesticides</b> Aldrin	ug/l	5	5	ND	ND	ND	--	Fewer than 5 detects	--	ND	ND
	<b>Herbicides</b> MCPP	ug/l	5	5	ND	ND	ND	--	Fewer than 5 detects	--	ND	ND





**TABLE 3-8.**  
**Exposure Point Concentration Summary - Surface Water, Diver Use**

Scenario Timeframe: Current/Future
Medium: Water
Exposure Medium: Surface Water, Divers

Exposure Point <sup>a</sup>	Chemical of Potential Concern	Units	Total Samples	Total Non-Detects <sup>b</sup>	Non-Detects greater than Maximum Detected Concentration <sup>c</sup>	Arithmetic Mean <sup>d</sup>	Maximum Detected Concentration	95% UCL			Exposure Point Concentration <sup>e</sup>	
								Distribution	95% UCL Method	Value	Mean	95% UCL/Max
Transect W005, RM 3.9	<b>Metals</b>											
	Arsenic, total	ug/l	7	0	0	4.6E-01	5.5E-01	normal	95% KM (t) UCL	5.2E-01	4.6E-01	5.2E-01
	Arsenic, dissolved	ug/l	7	1	0	3.0E-01	4.8E-01	normal	95% KM (t) UCL	3.9E-01	3.0E-01	3.9E-01
	<b>Polynuclear Aromatic Hydrocarbons</b>											
	Benzo(a)anthracene	ug/l	14	6	6	1.1E-03	2.4E-03	normal	95% KM (t) UCL	1.6E-03	1.1E-03	1.6E-03
	Benzo(a)pyrene	ug/l	14	7	6	9.8E-04	2.1E-03	normal	95% KM (t) UCL	1.4E-03	9.8E-04	1.4E-03
	Benzo(b)fluoranthene	ug/l	14	6	6	1.1E-03	2.1E-03	normal	95% KM (t) UCL	1.5E-03	1.1E-03	1.5E-03
	Dibenzo(a,h)anthracene	ug/l	14	9	8	1.3E-04	3.3E-04	normal	95% KM (t) UCL	2.2E-04	1.3E-04	2.2E-04
	Indeno(1,2,3-cd)pyrene	ug/l	14	8	7	6.7E-04	1.5E-03	normal	95% KM (t) UCL	9.8E-04	6.7E-04	9.8E-04
	Naphthalene	ug/l	14	12	3	7.7E-03	2.4E-02	--	Fewer than 5 detects	--	7.7E-03	2.4E-02
	<b>Pesticides</b>											
	Aldrin	ug/l	7	0	0	2.7E-06	4.7E-06	normal	95% KM (t) UCL	3.8E-06	2.7E-06	3.8E-06
	<b>Herbicides</b>											
MCPP	ug/l	6	5	2	4.7E+00	9.1E+00	--	Fewer than 5 detects	--	4.7E+00	9.1E+00	
<b>Conventionals</b>												
Perchlorate	NA	NA	NA	NA	NA	NA	--	--	--	NA	NA	
Transect W011, RM 6.3	<b>Metals</b>											
	Arsenic, total	ug/l	6	1	0	3.9E-01	5.0E-01	normal	95% KM (t) UCL	4.7E-01	3.9E-01	4.7E-01
	Arsenic, dissolved	ug/l	6	2	0	3.0E-01	4.5E-01	--	Fewer than 5 detects	--	3.0E-01	4.5E-01
	<b>Polynuclear Aromatic Hydrocarbons</b>											
	Benzo(a)anthracene	ug/l	12	5	0	2.5E-03	1.0E-02	gamma	95% KM (BCA) UCL	3.1E-03	2.5E-03	3.1E-03
	Benzo(a)pyrene	ug/l	12	6	6	8.5E-04	1.8E-03	normal	95% KM (t) UCL	1.4E-03	8.5E-04	1.4E-03
	Benzo(b)fluoranthene	ug/l	12	6	6	8.0E-04	1.5E-03	normal	95% KM (t) UCL	1.2E-03	8.0E-04	1.2E-03
	Dibenzo(a,h)anthracene	ug/l	12	10	8	1.0E-04	2.1E-04	--	Fewer than 5 detects	--	1.0E-04	2.1E-04
	Indeno(1,2,3-cd)pyrene	ug/l	12	7	7	6.5E-04	1.3E-03	normal	95% KM (t) UCL	1.1E-03	6.5E-04	1.1E-03
	Naphthalene	ug/l	12	10	5	6.0E-03	1.5E-02	--	Fewer than 5 detects	--	6.0E-03	1.5E-02
	<b>Pesticides</b>											
	Aldrin	ug/l	6	1	0	2.3E-06	4.4E-06	normal	95% KM (t) UCL	3.4E-06	2.3E-06	3.4E-06
	<b>Herbicides</b>											
MCPP	ug/l	6	6	ND	ND	ND	--	Fewer than 5 detects	--	ND	ND	
<b>Conventionals</b>												
Perchlorate	ug/l	3	3	ND	ND	ND	--	Fewer than 5 detects	--	ND	ND	
Transect W023, RM 11	<b>Metals</b>											
	Arsenic, total	ug/l	9	1	0	4.0E-01	5.4E-01	normal	95% KM (t) UCL	4.7E-01	4.0E-01	4.7E-01
Arsenic, dissolved	ug/l	9	1	0	2.8E-01	4.3E-01	non-parametric	95% KM (Chebyshev) UCL	4.4E-01	2.8E-01	4.3E-01	

**TABLE 3-8.**  
**Exposure Point Concentration Summary - Surface Water, Diver Use**

Scenario Timeframe: Current/Future
Medium: Water
Exposure Medium: Surface Water, Divers

Exposure Point <sup>a</sup>	Chemical of Potential Concern	Units	Total Samples	Total Non-Detects <sup>b</sup>	Non-Detects greater than Maximum Detected Concentration <sup>c</sup>	Arithmetic Mean <sup>d</sup>	Maximum Detected Concentration	95% UCL			Exposure Point Concentration <sup>e</sup>	
								Distribution	95% UCL Method	Value	Mean	95% UCL/Max
	<b>Polynuclear Aromatic Hydrocarbons</b>											
	Benzo(a)anthracene	ug/l	17	8	0	2.0E-03	1.0E-02	non-parametric	97.5% KM (Chebyshev) UCL	4.5E-03	2.0E-03	4.5E-03
	Benzo(a)pyrene	ug/l	17	9	9	2.8E-04	6.3E-04	normal	95% KM (t) UCL	4.1E-04	2.8E-04	4.1E-04
	Benzo(b)fluoranthene	ug/l	17	9	9	3.6E-04	8.2E-04	normal	95% KM (t) UCL	5.2E-04	3.6E-04	5.2E-04
	Dibenzo(a,h)anthracene	ug/l	17	15	10	1.3E-04	4.5E-04	--	Fewer than 5 detects	--	1.3E-04	4.5E-04
	Indeno(1,2,3-cd)pyrene	ug/l	17	10	0	1.8E-03	8.6E-03	non-parametric	95% KM (BCA) UCL	1.7E-03	1.8E-03	1.7E-03
	Naphthalene	ug/l	17	15	2	9.0E-03	3.5E-02	--	Fewer than 5 detects	--	9.0E-03	3.5E-02
	<b>Pesticides</b>											
	Aldrin	ug/l	8	1	0	2.0E-06	3.9E-06	normal	95% KM (t) UCL	2.8E-06	2.0E-06	2.8E-06
	<b>Herbicides</b>											
	MCPP	ug/l	7	6	2	4.2E+00	8.0E+00	--	Fewer than 5 detects	--	4.2E+00	8.0E+00
	<b>Conventionals</b>											
	Perchlorate	NA	NA	NA	NA	NA	NA	--	--	--	NA	NA

**Notes:**

- a Exposure areas for divers are ½ - mile reaches per side of river throughout the study area, where single point samples from RM 2.0 - 2.4 are in exposure area 2.0, samples from RM 2.5 - 2.9 are in exposure area 2.5, etc. Each transect sample represents its own exposure area, and is listed individually. River mile segments not listed indicate there are no human health surface water samples from that river reach. Swan Island Lagoon and Multnomah Channel are their own exposure areas.
- b Total number of non-detects in the dataset.
- c Number of non-detects with detection limit exceeding the maximum detected concentration for a given exposure area. These non-detects were removed from the dataset prior to calculation of EPCs.
- d Non-detects less than the maximum detected concentration for a given exposure area are included in the arithmetic mean at half the detection limit.
- e Mean exposure point concentrations were used for Central Tendency (CT) exposure and 95% UCL/Max exposure point concentrations were used for Reasonable Maximum Exposure (RME) in the BHHRA.
- f 95% UCL not calculated for analytes with fewer than five detects.

**Abbreviations:**

- = Not applicable. A 95% UCL could not be computed for the given data set.
- 95% UCL = 95% Upper confidence limit on the mean.
- MCPP = 2-(2-Methyl-4-chlorophenoxy)propionic acid.
- NA = Not available. Chemical not analyzed or had rejected result for given exposure area.
- ND = Not detected. Chemical not detected in given exposure area.
- RM = River mile.
- SIL = Swan Island Lagoon.
- ug/l = Micrograms per liter.
- MC = Multnomah Channel.

TABLE 3-9.  
Exposure Point Concentration Summary - Surface Water, Residential Use as a Domestic Water Source

Scenario Timeframe: Potential Future  
Medium: Water  
Exposure Medium: Surface Water, Domestic Water Source

Exposure Point	Chemical of Potential Concern	Units	Total Samples	Total Non-Detects <sup>a</sup>	Non-Detects greater than Maximum Detected Concentration <sup>b</sup>	Arithmetic Mean <sup>c</sup>	Maximum Detected Concentration	95% UCL			Exposure Point Concentration <sup>d</sup>	
								Distribution	95% UCL Method	Value	Mean	95% UCL/Max
<b>Transects</b>												
Transect, RM 2 W025	<b>Metals</b>											
	Arsenic, total	ug/l	4	1	0	3.5E-01	6.0E-01		Fewer than 5 detects <sup>e</sup>		3.5E-01	6.0E-01
	Arsenic, dissolved	ug/l	4	1	0	3.0E-01	5.7E-01		Fewer than 5 detects		3.0E-01	5.7E-01
	Chromium hexavalent	ug/l	NA	NA	NA	NA	NA				NA	NA
	<b>Polynuclear Aromatic Hydrocarbons</b>	ug/l										
	Benzo(a)anthracene	ug/l	8	4	3	2.1E-03	6.2E-04		Fewer than 5 detects		2.1E-03	6.2E-04
	Benzo(a)pyrene	ug/l	8	4	3	2.3E-03	5.1E-04		Fewer than 5 detects		2.3E-03	5.1E-04
	Benzo(b)fluoranthene	ug/l	8	4	3	2.5E-03	6.2E-04		Fewer than 5 detects		2.5E-03	6.2E-04
	Dibenzo(a,h)anthracene	ug/l	8	7	5	2.0E-03	1.5E-04		Fewer than 5 detects		2.0E-03	1.5E-04
	Indeno(1,2,3-cd)pyrene	ug/l	8	6	4	1.8E-03	1.9E-04		Fewer than 5 detects		1.8E-03	1.9E-04
	<b>Pesticides</b>	ug/l										
	Aldrin	ug/l	4	0	0	2.6E-06	4.0E-06		Fewer than 5 detects		2.6E-06	4.0E-06
<b>Herbicides</b>	ug/l											
MCP	ug/l	4	4	0	ND	ND		Fewer than 5 detects		ND	ND	
Transect, RM 3.9 W005	<b>Metals</b>											
	Arsenic, total	ug/l	7	0	0	4.6E-01	5.5E-01	normal	95% Student's t-UCL	5.2E-01	4.6E-01	5.2E-01
	Arsenic, dissolved	ug/l	7	1	0	3.0E-01	4.8E-01	normal	95% KM (t) UCL	3.9E-01	3.0E-01	3.9E-01
	Chromium hexavalent	ug/l	NA	NA	NA	NA	NA		Fewer than 5 detects		NA	NA
	<b>Polynuclear Aromatic Hydrocarbons</b>	ug/l										
	Benzo(a)anthracene	ug/l	14	6	6	1.9E-03	2.4E-03	normal	95% Student's-t UCL	0.00161	1.9E-03	1.6E-03
	Benzo(a)pyrene	ug/l	14	7	6	1.7E-03	2.1E-03	normal	95% KM (t) UCL	0.00138	1.7E-03	1.4E-03
	Benzo(b)fluoranthene	ug/l	14	6	6	1.9E-03	2.1E-03	normal	95% Student's-t UCL	0.00146	1.9E-03	1.5E-03
	Dibenzo(a,h)anthracene	ug/l	14	9	8	1.2E-03	3.3E-04	normal	95% KM (t) UCL	0.0002182	1.2E-03	2.2E-04
	Indeno(1,2,3-cd)pyrene	ug/l	14	8	7	1.5E-03	1.5E-03	normal	95% KM (t) UCL	0.0009765	1.5E-03	9.8E-04
	<b>Pesticides</b>	ug/l										
	Aldrin	ug/l	7	0	0	2.7E-06	4.7E-06	normal	95% Student's t-UCL	3.8E-06	2.7E-06	3.8E-06
<b>Herbicides</b>	ug/l											
MCP	ug/l	6	5	2	5.9E+00	9.1E+00		Fewer than 5 detects		5.9E+00	9.1E+00	
Cathedral Park, RM 5.7 W010	<b>Metals</b>											
	Arsenic, total	ug/l	3	0	0	4.5E-01	5.4E-01		Fewer than 5 detects		4.5E-01	5.4E-01
	Arsenic, dissolved	ug/l	3	0	0	3.8E-01	4.6E-01		Fewer than 5 detects		3.8E-01	4.6E-01
	Chromium hexavalent	ug/l	NA	NA	NA	NA	NA				NA	NA
	<b>Polynuclear Aromatic Hydrocarbons</b>	ug/l										
	Benzo(a)anthracene	ug/l	3	3	0	ND	ND		Fewer than 5 detects		ND	ND
	Benzo(a)pyrene	ug/l	3	3	0	ND	ND		Fewer than 5 detects		ND	ND
	Benzo(b)fluoranthene	ug/l	3	3	0	ND	ND		Fewer than 5 detects		ND	ND
	Dibenzo(a,h)anthracene	ug/l	3	3	0	ND	ND		Fewer than 5 detects		ND	ND
	Indeno(1,2,3-cd)pyrene	ug/l	3	3	0	ND	ND		Fewer than 5 detects		ND	ND
	<b>Pesticides</b>	ug/l										
	Aldrin	ug/l	3	3	0	ND	ND		Fewer than 5 detects		ND	ND
<b>Herbicides</b>	ug/l											
MCP	ug/l	3	3	0	ND	ND		Fewer than 5 detects		ND	ND	

TABLE 3-9.  
Exposure Point Concentration Summary - Surface Water, Residential Use as a Domestic Water Source

Scenario Timeframe: Potential Future  
Medium: Water  
Exposure Medium: Surface Water, Domestic Water Source

Exposure Point	Chemical of Potential Concern	Units	Total Samples	Total Non-Detects <sup>a</sup>	Non-Detects greater than Maximum Detected Concentration <sup>b</sup>	Arithmetic Mean <sup>c</sup>	Maximum Detected Concentration	95% UCL			Exposure Point Concentration <sup>d</sup>	
								Distribution	95% UCL Method	Value	Mean	95% UCL/Max
Transect, RM 6.3 W011	<b>Metals</b>											
	Arsenic, total	ug/l	6	1	0	3.9E-01	5.0E-01	normal	95% KM (t) UCL	4.7E-01	3.9E-01	4.7E-01
	Arsenic, dissolved	ug/l	6	2	0	3.0E-01	4.5E-01		Fewer than 5 detects		3.0E-01	4.5E-01
	Chromium hexavalent	ug/l	1	1	0	ND	ND		Fewer than 5 detects		ND	ND
	<b>Polynuclear Aromatic Hydrocarbons</b>	ug/l										
	Benzo(a)anthracene	ug/l	12	5	0	2.5E-03	1.0E-02	gamma	95% KM (BCA) UCL	3.0E-03	2.5E-03	3.0E-03
	Benzo(a)pyrene	ug/l	12	6	6	2.0E-03	1.8E-03	normal	95% Student's-t UCL	0.00136	2.0E-03	1.4E-03
	Benzo(b)fluoranthene	ug/l	12	6	6	2.2E-03	1.5E-03	normal	95% Student's-t UCL	0.00115	2.2E-03	1.2E-03
	Dibenzo(a,h)anthracene	ug/l	12	10	8	1.6E-03	2.1E-04		Fewer than 5 detects		1.6E-03	2.1E-04
	Indeno(1,2,3-cd)pyrene	ug/l	12	7	7	1.9E-03	1.3E-03	normal	95% Student's-t UCL	0.00107	1.9E-03	1.1E-03
	<b>Pesticides</b>	ug/l										
	Aldrin	ug/l	6	1	0	2.3E-06	4.4E-06	normal	95% KM (t) UCL	3.4E-06	2.3E-06	3.4E-06
	<b>Herbicides</b>	ug/l										
MCP	ug/l	6	6	6	0	ND		Fewer than 5 detects		ND	ND	
Willamette Cove, RM 6.9 W014	<b>Metals</b>											
	Arsenic, total	ug/l	3	0	0	4.4E-01	5.2E-01		Fewer than 5 detects		4.4E-01	5.2E-01
	Arsenic, dissolved	ug/l	3	0	0	3.9E-01	4.6E-01		Fewer than 5 detects		3.9E-01	4.6E-01
	Chromium hexavalent	ug/l	NA	NA	NA	NA	NA				NA	NA
	<b>Polynuclear Aromatic Hydrocarbons</b>	ug/l										
	Benzo(a)anthracene	ug/l	3	3	0	ND	ND		Fewer than 5 detects		ND	ND
	Benzo(a)pyrene	ug/l	3	3	0	ND	ND		Fewer than 5 detects		ND	ND
	Benzo(b)fluoranthene	ug/l	3	3	0	ND	ND		Fewer than 5 detects		ND	ND
	Dibenzo(a,h)anthracene	ug/l	3	3	0	ND	ND		Fewer than 5 detects		ND	ND
	Indeno(1,2,3-cd)pyrene	ug/l	3	3	0	ND	ND		Fewer than 5 detects		ND	ND
	<b>Pesticides</b>	ug/l										
	Aldrin	ug/l	3	3	0	ND	ND		Fewer than 5 detects		ND	ND
	<b>Herbicides</b>	ug/l										
MCP	ug/l	3	3	3	0	ND		Fewer than 5 detects		ND	ND	
Swan Island Lagoon, RM 9.1 W020	<b>Metals</b>											
	Arsenic, total	ug/l	3	0	0	4.2E-01	4.7E-01		Fewer than 5 detects		4.2E-01	4.7E-01
	Arsenic, dissolved	ug/l	3	0	0	3.7E-01	4.4E-01		Fewer than 5 detects		3.7E-01	4.4E-01
	Chromium hexavalent	ug/l	NA	NA	NA	NA	NA				NA	NA
	<b>Polynuclear Aromatic Hydrocarbons</b>	ug/l										
	Benzo(a)anthracene	ug/l	3	3	0	ND	ND		Fewer than 5 detects		ND	ND
	Benzo(a)pyrene	ug/l	3	3	0	ND	ND		Fewer than 5 detects		ND	ND
	Benzo(b)fluoranthene	ug/l	3	3	0	ND	ND		Fewer than 5 detects		ND	ND
	Dibenzo(a,h)anthracene	ug/l	3	3	0	ND	ND		Fewer than 5 detects		ND	ND
	Indeno(1,2,3-cd)pyrene	ug/l	3	3	0	ND	ND		Fewer than 5 detects		ND	ND
	<b>Pesticides</b>	ug/l										
	Aldrin	ug/l	3	3	0	ND	ND		Fewer than 5 detects		ND	ND
	<b>Herbicides</b>	ug/l										
MCP	ug/l	3	3	3	0	ND		Fewer than 5 detects		ND	ND	

TABLE 3-9.  
Exposure Point Concentration Summary - Surface Water, Residential Use as a Domestic Water Source

Scenario Timeframe: Potential Future  
Medium: Water  
Exposure Medium: Surface Water, Domestic Water Source

Exposure Point	Chemical of Potential Concern	Units	Total Samples	Total Non-Detects <sup>a</sup>	Non-Detects greater than Maximum Detected Concentration <sup>b</sup>	Arithmetic Mean <sup>c</sup>	Maximum Detected Concentration	95% UCL			Exposure Point Concentration <sup>d</sup>	
								Distribution	95% UCL Method	Value	Mean	95% UCL/Max
Transect, RM 11 W023	<b>Metals</b>											
	Arsenic, total	ug/l	9	1	0	4.0E-01	5.4E-01	normal	95% KM (t) UCL	4.8E-01	4.0E-01	3.7E-01
	Arsenic, dissolved	ug/l	9	1	0	2.8E-01	4.3E-01	normal	95% KM (t) UCL	3.7E-01	2.8E-01	4.3E-01
	Chromium hexavalent	ug/l	NA	NA	NA	NA	NA				NA	NA
	<b>Polynuclear Aromatic Hydrocarbons</b>	ug/l										
	Benzo(a)anthracene	ug/l	17	8	0	2.0E-03	1.0E-02	lognormal	99% KM (Chebyshev) UCL	7.6E-03	2.0E-03	3.0E-03
	Benzo(a)pyrene	ug/l	17	9	8	1.6E-03	6.3E-04	normal	95% Student's-t UCL	0.0004346	1.6E-03	6.3E-04
	Benzo(b)fluoranthene	ug/l	17	9	8	1.8E-03	8.2E-04	normal	95% Student's-t UCL	0.0005526	1.8E-03	5.5E-04
	Dibenzo(a,h)anthracene	ug/l	17	15	8	1.4E-03	4.5E-04		Fewer than 5 detects		1.4E-03	4.5E-04
	Indeno(1,2,3-cd)pyrene	ug/l	17	10	0	1.8E-03	8.6E-03	normal	95% KM (t) UCL	2.5E-04	1.8E-03	2.5E-04
	<b>Pesticides</b>	ug/l										
	Aldrin	ug/l	8	1	0	2.0E-06	3.9E-06	normal	95% KM (t) UCL	2.9E-06	2.0E-06	2.9E-06
	<b>Herbicides</b>	ug/l										
MCPP	ug/l	7	6	2	5.6E+00	8.0E+00		Fewer than 5 detects		5.6E+00	8.0E+00	
<b>Single-Point Stations</b>												
RM 2.1 W026	<b>Metals</b>											
	Arsenic, total	ug/l	2	0	0	3.9E-01	4.7E-01		Fewer than 5 detects		3.9E-01	4.7E-01
	Arsenic, dissolved	ug/l	2	1	1	2.3E-01	2.5E-01		Fewer than 5 detects		2.3E-01	2.5E-01
	Chromium hexavalent	ug/l	NA	NA	NA	NA	NA				NA	NA
	<b>Polynuclear Aromatic Hydrocarbons</b>	ug/l										
	Benzo(a)anthracene	ug/l	2	2	0	ND	ND		Fewer than 5 detects		ND	ND
	Benzo(a)pyrene	ug/l	2	2	0	ND	ND		Fewer than 5 detects		ND	ND
	Benzo(b)fluoranthene	ug/l	2	2	0	ND	ND		Fewer than 5 detects		ND	ND
	Dibenzo(a,h)anthracene	ug/l	2	2	0	ND	ND		Fewer than 5 detects		ND	ND
	Indeno(1,2,3-cd)pyrene	ug/l	2	2	0	ND	ND		Fewer than 5 detects		ND	ND
	<b>Pesticides</b>	ug/l										
	Aldrin	ug/l	2	2	0	ND	ND		Fewer than 5 detects		ND	ND
	<b>Herbicides</b>	ug/l										
MCPP	ug/l	2	1	1	4.2E+00	5.2E+00		Fewer than 5 detects		4.2E+00	5.2E+00	
RM 2.9 (Multnomah Channel) W027	<b>Metals</b>											
	Arsenic, total	ug/l	3	0	0	4.4E-01	5.0E-01		Fewer than 5 detects		4.4E-01	5.0E-01
	Arsenic, dissolved	ug/l	3	1	0	3.1E-01	4.8E-01		Fewer than 5 detects		3.1E-01	4.8E-01
	Chromium hexavalent	ug/l	NA	NA	NA	NA	NA				NA	NA
	<b>Polynuclear Aromatic Hydrocarbons</b>	ug/l										
	Benzo(a)anthracene	ug/l	6	2	2	2.8E-03	5.9E-03		Fewer than 5 detects		2.8E-03	5.9E-03
	Benzo(a)pyrene	ug/l	6	3	3	2.5E-03	1.7E-03		Fewer than 5 detects		2.5E-03	1.7E-03
	Benzo(b)fluoranthene	ug/l	6	2	2	3.4E-03	8.3E-03		Fewer than 5 detects		3.4E-03	8.3E-03
	Dibenzo(a,h)anthracene	ug/l	6	4	2	2.4E-03	5.6E-03		Fewer than 5 detects		2.4E-03	5.6E-03
	Indeno(1,2,3-cd)pyrene	ug/l	6	4	4	2.1E-03	1.2E-03		Fewer than 5 detects		2.1E-03	1.2E-03
	<b>Pesticides</b>	ug/l										
	Aldrin	ug/l	3	0	0	4.3E-06	4.5E-06		Fewer than 5 detects		4.3E-06	4.5E-06
	<b>Herbicides</b>	ug/l										
MCPP	ug/l	3	2	0	6.3E+00	1.3E+01		Fewer than 5 detects		6.3E+00	1.3E+01	



TABLE 3-9.  
Exposure Point Concentration Summary - Surface Water, Residential Use as a Domestic Water Source

Scenario Timeframe: Potential Future  
Medium: Water  
Exposure Medium: Surface Water, Domestic Water Source

Exposure Point	Chemical of Potential Concern	Units	Total Samples	Total Non-Detects <sup>a</sup>	Non-Detects greater than Maximum Detected Concentration <sup>b</sup>	Arithmetic Mean <sup>c</sup>	Maximum Detected Concentration	95% UCL			Exposure Point Concentration <sup>d</sup>		
								Distribution	95% UCL Method	Value	Mean	95% UCL/Max	
RM 3.6 W028	<b>Metals</b>												
	Arsenic, total	ug/l	2	0	0	3.9E-01	4.6E-01		Fewer than 5 detects		3.9E-01	4.6E-01	
	Arsenic, dissolved	ug/l	2	1	1	2.0E-01	2.1E-01		Fewer than 5 detects		2.0E-01	2.1E-01	
	Chromium hexavalent	ug/l	NA	NA	NA	NA	NA				NA	NA	
	<b>Polynuclear Aromatic Hydrocarbons</b>	ug/l											
	Benzo(a)anthracene	ug/l	2	2	0	ND	ND		Fewer than 5 detects		ND	ND	
	Benzo(a)pyrene	ug/l	2	2	0	ND	ND		Fewer than 5 detects		ND	ND	
	Benzo(b)fluoranthene	ug/l	2	2	0	ND	ND		Fewer than 5 detects		ND	ND	
	Dibenzo(a,h)anthracene	ug/l	2	2	0	ND	ND		Fewer than 5 detects		ND	ND	
	Indeno(1,2,3-cd)pyrene	ug/l	2	2	0	ND	ND		Fewer than 5 detects		ND	ND	
	<b>Pesticides</b>	ug/l											
	Aldrin	ug/l	2	2	2	0	ND	ND		Fewer than 5 detects		ND	ND
	<b>Herbicides</b>	ug/l											
MCP	ug/l	2	2	2	0	ND	ND		Fewer than 5 detects		ND	ND	
RM 4.4 W029	<b>Metals</b>												
	Arsenic, total	ug/l	2	1	1	2.8E-01	3.2E-01		Fewer than 5 detects		2.8E-01	3.2E-01	
	Arsenic, dissolved	ug/l	2	1	1	2.1E-01	2.1E-01		Fewer than 5 detects		2.1E-01	2.1E-01	
	Chromium hexavalent	ug/l	NA	NA	NA	NA	NA				NA	NA	
	<b>Polynuclear Aromatic Hydrocarbons</b>	ug/l											
	Benzo(a)anthracene	ug/l	2	2	0	ND	ND		Fewer than 5 detects		ND	ND	
	Benzo(a)pyrene	ug/l	2	2	0	ND	ND		Fewer than 5 detects		ND	ND	
	Benzo(b)fluoranthene	ug/l	2	2	0	ND	ND		Fewer than 5 detects		ND	ND	
	Dibenzo(a,h)anthracene	ug/l	2	2	0	ND	ND		Fewer than 5 detects		ND	ND	
	Indeno(1,2,3-cd)pyrene	ug/l	2	2	0	ND	ND		Fewer than 5 detects		ND	ND	
	<b>Pesticides</b>	ug/l											
	Aldrin	ug/l	2	2	2	0	ND	ND		Fewer than 5 detects		ND	ND
	<b>Herbicides</b>	ug/l											
MCP	ug/l	2	2	2	0	ND	ND		Fewer than 5 detects		ND	ND	
RM 5.5 W030	<b>Metals</b>												
	Arsenic, total	ug/l	2	0	0	3.8E-01	4.4E-01		Fewer than 5 detects		3.8E-01	4.4E-01	
	Arsenic, dissolved	ug/l	2	1	1	2.0E-01	2.0E-01		Fewer than 5 detects		2.0E-01	2.0E-01	
	Chromium hexavalent	ug/l	NA	NA	NA	NA	NA				NA	NA	
	<b>Polynuclear Aromatic Hydrocarbons</b>	ug/l											
	Benzo(a)anthracene	ug/l	2	2	0	ND	ND		Fewer than 5 detects		ND	ND	
	Benzo(a)pyrene	ug/l	2	2	0	ND	ND		Fewer than 5 detects		ND	ND	
	Benzo(b)fluoranthene	ug/l	2	2	0	ND	ND		Fewer than 5 detects		ND	ND	
	Dibenzo(a,h)anthracene	ug/l	2	2	0	ND	ND		Fewer than 5 detects		ND	ND	
	Indeno(1,2,3-cd)pyrene	ug/l	2	2	0	ND	ND		Fewer than 5 detects		ND	ND	
	<b>Pesticides</b>	ug/l											
	Aldrin	ug/l	2	1	0	2.1E-03	4.1E-03		Fewer than 5 detects		2.1E-03	4.1E-03	
	<b>Herbicides</b>	ug/l											
MCP	ug/l	2	2	2	0	ND	ND		Fewer than 5 detects		ND	ND	

TABLE 3-9.  
Exposure Point Concentration Summary - Surface Water, Residential Use as a Domestic Water Source

Scenario Timeframe: Potential Future  
Medium: Water  
Exposure Medium: Surface Water, Domestic Water Source

Exposure Point	Chemical of Potential Concern	Units	Total Samples	Total Non-Detects <sup>a</sup>	Non-Detects greater than Maximum Detected Concentration <sup>b</sup>	Arithmetic Mean <sup>c</sup>	Maximum Detected Concentration	95% UCL			Exposure Point Concentration <sup>d</sup>	
								Distribution	95% UCL Method	Value	Mean	95% UCL/Max
RM 6.1 W031	<b>Metals</b>											
	Arsenic, total	ug/l	2	0	0	4.3E-01	4.5E-01		Fewer than 5 detects		4.3E-01	4.5E-01
	Arsenic, dissolved	ug/l	2	1	1	2.3E-01	2.6E-01		Fewer than 5 detects		2.3E-01	2.6E-01
	Chromium hexavalent	ug/l	NA	NA	NA	NA	NA				NA	NA
	<b>Polynuclear Aromatic Hydrocarbons</b>	ug/l										
	Benzo(a)anthracene	ug/l	2	1	0	7.0E-02	1.4E-01		Fewer than 5 detects		7.0E-02	1.4E-01
	Benzo(a)pyrene	ug/l	2	1	0	5.1E-02	9.7E-02		Fewer than 5 detects		5.1E-02	9.7E-02
	Benzo(b)fluoranthene	ug/l	2	1	0	3.6E-02	6.7E-02		Fewer than 5 detects		3.6E-02	6.7E-02
	Dibenzo(a,h)anthracene	ug/l	2	1	0	8.7E-03	1.4E-02		Fewer than 5 detects		8.7E-03	1.4E-02
	Indeno(1,2,3-cd)pyrene	ug/l	2	1	0	3.2E-02	6.2E-02		Fewer than 5 detects		3.2E-02	6.2E-02
	<b>Pesticides</b>	ug/l										
	Aldrin	ug/l	2	0	1	1.6E-06	2.1E-06		Fewer than 5 detects		1.6E-06	2.1E-06
	<b>Herbicides</b>	ug/l										
MCP	ug/l	2	2	0	ND	ND		Fewer than 5 detects		ND	ND	
RM 6.7 W032	<b>Metals</b>											
	Arsenic, total	ug/l	2	0	0	3.3E-01	3.4E-01		Fewer than 5 detects		3.3E-01	3.4E-01
	Arsenic, dissolved	ug/l	2	0	0	3.1E-01	3.9E-01		Fewer than 5 detects		3.1E-01	3.9E-01
	Chromium hexavalent	ug/l	NA	NA	NA	NA	NA				NA	NA
	<b>Polynuclear Aromatic Hydrocarbons</b>	ug/l										
	Benzo(a)anthracene	ug/l	4	3	3	1.8E-03	3.2E-04		Fewer than 5 detects		1.8E-03	3.2E-04
	Benzo(a)pyrene	ug/l	4	2	2	2.0E-03	3.3E-04		Fewer than 5 detects		2.0E-03	3.3E-04
	Benzo(b)fluoranthene	ug/l	4	2	2	2.2E-03	4.9E-04		Fewer than 5 detects		2.2E-03	4.9E-04
	Dibenzo(a,h)anthracene	ug/l	4	2	2	1.8E-03	8.8E-04		Fewer than 5 detects		1.8E-03	8.8E-04
	Indeno(1,2,3-cd)pyrene	ug/l	4	3	3	1.6E-03	2.6E-04		Fewer than 5 detects		1.6E-03	2.6E-04
	<b>Pesticides</b>	ug/l										
	Aldrin	ug/l	2	0	0	2.3E-06	2.4E-06		Fewer than 5 detects		2.3E-06	2.4E-06
	<b>Herbicides</b>	ug/l										
MCP	ug/l	2	2	0	ND	ND		Fewer than 5 detects		ND	ND	
RM 7.0 W033	<b>Metals</b>											
	Arsenic, total	ug/l	4	2	2	2.8E-01	3.4E-01		Fewer than 5 detects		2.8E-01	3.4E-01
	Arsenic, dissolved	ug/l	4	2	2	2.3E-01	2.6E-01		Fewer than 5 detects		2.3E-01	2.6E-01
	Chromium hexavalent	ug/l	4	2	0	5.0E-01	8.5E-01		Fewer than 5 detects		5.0E-01	8.5E-01
	<b>Polynuclear Aromatic Hydrocarbons</b>	ug/l										
	Benzo(a)anthracene	ug/l	7	3	3	3.1E-03	7.0E-03		Fewer than 5 detects		3.1E-03	7.0E-03
	Benzo(a)pyrene	ug/l	7	3	3	3.4E-03	6.6E-03		Fewer than 5 detects		3.4E-03	6.6E-03
	Benzo(b)fluoranthene	ug/l	7	4	4	3.1E-03	2.0E-03		Fewer than 5 detects		3.1E-03	2.0E-03
	Dibenzo(a,h)anthracene	ug/l	7	5	4	2.2E-03	4.6E-04		Fewer than 5 detects		2.2E-03	4.6E-04
	Indeno(1,2,3-cd)pyrene	ug/l	7	4	4	2.2E-03	1.5E-03		Fewer than 5 detects		2.2E-03	1.5E-03
	<b>Pesticides</b>	ug/l										
	Aldrin	ug/l	3	0	0	3.5E-06	4.0E-06		Fewer than 5 detects		3.5E-06	4.0E-06
	<b>Herbicides</b>	ug/l										
MCP	ug/l	4	3	3	4.2E+00	6.2E+00		Fewer than 5 detects		4.2E+00	6.2E+00	

TABLE 3-9.  
Exposure Point Concentration Summary - Surface Water, Residential Use as a Domestic Water Source

Scenario Timeframe: Potential Future  
Medium: Water  
Exposure Medium: Surface Water, Domestic Water Source

Exposure Point	Chemical of Potential Concern	Units	Total Samples	Total Non-Detects <sup>a</sup>	Non-Detects greater than Maximum Detected Concentration <sup>b</sup>	Arithmetic Mean <sup>c</sup>	Maximum Detected Concentration	95% UCL			Exposure Point Concentration <sup>d</sup>	
								Distribution	95% UCL Method	Value	Mean	95% UCL/Max
RM 7.5 W034	<b>Metals</b>											
	Arsenic, total	ug/l	2	0	0	4.7E-01	4.9E-01		Fewer than 5 detects		4.7E-01	4.9E-01
	Arsenic, dissolved	ug/l	2	0	0	3.1E-01	3.1E-01		Fewer than 5 detects		3.1E-01	3.1E-01
	Chromium hexavalent	ug/l	NA	NA	NA	NA	NA				NA	NA
	<b>Polynuclear Aromatic Hydrocarbons</b>	ug/l										
	Benzo(a)anthracene	ug/l	2	2	0	ND	ND		Fewer than 5 detects		ND	ND
	Benzo(a)pyrene	ug/l	2	2	0	ND	ND		Fewer than 5 detects		ND	ND
	Benzo(b)fluoranthene	ug/l	2	2	0	ND	ND		Fewer than 5 detects		ND	ND
	Dibenzo(a,h)anthracene	ug/l	2	2	0	ND	ND		Fewer than 5 detects		ND	ND
	Indeno(1,2,3-cd)pyrene	ug/l	2	2	0	ND	ND		Fewer than 5 detects		ND	ND
	<b>Pesticides</b>	ug/l										
	Aldrin	ug/l	2	1	1	1.3E-06	8.7E-07		Fewer than 5 detects		1.3E-06	8.7E-07
<b>Herbicides</b>	ug/l											
MCPP	ug/l	2	2	0	ND	ND		Fewer than 5 detects		ND	ND	
RM 8.5 W035	<b>Metals</b>											
	Arsenic, total	ug/l	2	0	0	4.1E-01	4.6E-01		Fewer than 5 detects		4.1E-01	4.6E-01
	Arsenic, dissolved	ug/l	2	1	1	2.5E-01	2.9E-01		Fewer than 5 detects		2.5E-01	2.9E-01
	Chromium hexavalent	ug/l	NA	NA	NA	NA	NA				NA	NA
	<b>Polynuclear Aromatic Hydrocarbons</b>	ug/l										
	Benzo(a)anthracene	ug/l	4	1	0	5.0E-03	1.1E-02		Fewer than 5 detects		5.0E-03	1.1E-02
	Benzo(a)pyrene	ug/l	4	3	2	3.4E-03	4.8E-03		Fewer than 5 detects		3.4E-03	4.8E-03
	Benzo(b)fluoranthene	ug/l	4	2	2	3.5E-03	3.8E-03		Fewer than 5 detects		3.5E-03	3.8E-03
	Dibenzo(a,h)anthracene	ug/l	4	3	2	2.1E-03	7.8E-04		Fewer than 5 detects		2.1E-03	7.8E-04
	Indeno(1,2,3-cd)pyrene	ug/l	4	2	2	2.5E-03	2.9E-03		Fewer than 5 detects		2.5E-03	2.9E-03
	<b>Pesticides</b>	ug/l										
	Aldrin	ug/l	2	0	0	4.1E-06	4.9E-06		Fewer than 5 detects		4.1E-06	4.9E-06
<b>Herbicides</b>	ug/l											
MCPP	ug/l	2	1	0	1.1E+01	1.9E+01		Fewer than 5 detects		1.1E+01	1.9E+01	
RM 8.6 W036	<b>Metals</b>											
	Arsenic, total	ug/l	2	0	0	4.1E-01	4.5E-01		Fewer than 5 detects		4.1E-01	4.5E-01
	Arsenic, dissolved	ug/l	2	1	1	2.0E-01	2.0E-01		Fewer than 5 detects		2.0E-01	2.0E-01
	Chromium hexavalent	ug/l	NA	NA	NA	NA	NA				NA	NA
	<b>Polynuclear Aromatic Hydrocarbons</b>	ug/l										
	Benzo(a)anthracene	ug/l	2	2	0	ND	ND		Fewer than 5 detects		ND	ND
	Benzo(a)pyrene	ug/l	2	2	0	ND	ND		Fewer than 5 detects		ND	ND
	Benzo(b)fluoranthene	ug/l	2	2	0	ND	ND		Fewer than 5 detects		ND	ND
	Dibenzo(a,h)anthracene	ug/l	2	2	0	ND	ND		Fewer than 5 detects		ND	ND
	Indeno(1,2,3-cd)pyrene	ug/l	2	1	1	4.2E-03	5.1E-03		Fewer than 5 detects		4.2E-03	5.1E-03
	<b>Pesticides</b>	ug/l										
	Aldrin	ug/l	3	3	0	ND	ND		Fewer than 5 detects		ND	ND
<b>Herbicides</b>	ug/l											
MCPP	ug/l	2	2	0	ND	ND		Fewer than 5 detects		ND	ND	

TABLE 3-9.  
Exposure Point Concentration Summary - Surface Water, Residential Use as a Domestic Water Source

Scenario Timeframe: Potential Future  
Medium: Water  
Exposure Medium: Surface Water, Domestic Water Source

Exposure Point	Chemical of Potential Concern	Units	Total Samples	Total Non-Detects <sup>a</sup>	Non-Detects greater than Maximum Detected Concentration <sup>b</sup>	Arithmetic Mean <sup>c</sup>	Maximum Detected Concentration	95% UCL			Exposure Point Concentration <sup>d</sup>	
								Distribution	95% UCL Method	Value	Mean	95% UCL/Max
RM 9.6 W037	<b>Metals</b>											
	Arsenic, total	ug/l	2	0	0	4.1E-01	4.8E-01		Fewer than 5 detects		4.1E-01	4.8E-01
	Arsenic, dissolved	ug/l	2	0	0	2.6E-01	3.1E-01		Fewer than 5 detects		2.6E-01	3.1E-01
	Chromium hexavalent	ug/l	NA	NA	NA	NA	NA				NA	NA
	<b>Polynuclear Aromatic Hydrocarbons</b>	ug/l										
	Benzo(a)anthracene	ug/l	2	2	0	ND	ND		Fewer than 5 detects		ND	ND
	Benzo(a)pyrene	ug/l	2	2	0	ND	ND		Fewer than 5 detects		ND	ND
	Benzo(b)fluoranthene	ug/l	2	2	0	ND	ND		Fewer than 5 detects		ND	ND
	Dibenzo(a,h)anthracene	ug/l	2	2	0	ND	ND		Fewer than 5 detects		ND	ND
	Indeno(1,2,3-cd)pyrene	ug/l	2	2	0	ND	ND		Fewer than 5 detects		ND	ND
	<b>Pesticides</b>	ug/l										
	Aldrin	ug/l	2	2	0	ND	ND		Fewer than 5 detects		ND	ND
	<b>Herbicides</b>	ug/l										
MCP	ug/l	2	2	0	ND	ND		Fewer than 5 detects		ND	ND	
RM 9.9 W038	<b>Metals</b>											
	Arsenic, total	ug/l	2	0	0	4.1E-01	5.2E-01		Fewer than 5 detects		4.1E-01	5.2E-01
	Arsenic, dissolved	ug/l	2	0	0	2.8E-01	3.6E-01		Fewer than 5 detects		2.8E-01	3.6E-01
	Chromium hexavalent	ug/l	NA	NA	NA	NA	NA				NA	NA
	<b>Polynuclear Aromatic Hydrocarbons</b>	ug/l										
	Benzo(a)anthracene	ug/l	2	2	0	ND	ND		Fewer than 5 detects		ND	ND
	Benzo(a)pyrene	ug/l	2	2	0	ND	ND		Fewer than 5 detects		ND	ND
	Benzo(b)fluoranthene	ug/l	2	2	0	ND	ND		Fewer than 5 detects		ND	ND
	Dibenzo(a,h)anthracene	ug/l	2	2	0	ND	ND		Fewer than 5 detects		ND	ND
	Indeno(1,2,3-cd)pyrene	ug/l	2	2	0	ND	ND		Fewer than 5 detects		ND	ND
	<b>Pesticides</b>	ug/l										
	Aldrin	ug/l	2	2	0	ND	ND		Fewer than 5 detects		ND	ND
	<b>Herbicides</b>	ug/l										
MCP	ug/l	2	2	0	ND	ND		Fewer than 5 detects		ND	ND	
Study Area-wide	<b>Metals</b>											
	Arsenic, total	ug/l	64	6	0	4.0E-01	6.0E-01	normal	95% KM (t) UCL	4.3E-01	4.0E-01	4.3E-01
	Arsenic, dissolved	ug/l	64	15	NA	2.8E-01	5.7E-01	nonparametric	95% KM (BCA) UCL	3.2E-01	2.8E-01	3.2E-01
	Chromium hexavalent	ug/l	7	3	1	9.0E-01	9.0E-01	5.3E-01	Fewer than 5 detects		9.0E-01	9.0E-01
	<b>Polynuclear Aromatic Hydrocarbons</b>	ug/l										
	Benzo(a)anthracene	ug/l	99	58	0	4.0E-03	1.4E-01	nonparametric	95% KM (Chebyshev) UCL	9.1E-03	4.0E-03	9.1E-03
	Benzo(a)pyrene	ug/l	99	63	0	3.4E-03	9.7E-02	lognormal	95% KM (Chebyshev) UCL	6.5E-03	3.4E-03	6.5E-03
	Benzo(b)fluoranthene	ug/l	99	61	0	3.4E-03	6.7E-02	nonparametric	95% KM (BCA) UCL	3.0E-03	3.4E-03	3.0E-03
	Dibenzo(a,h)anthracene	ug/l	99	81	0	2.1E-03	1.4E-02	lognormal	95% KM (BCA) UCL	6.7E-04	2.1E-03	6.7E-04
	Indeno(1,2,3-cd)pyrene	ug/l	99	69	0	2.8E-03	6.2E-02	nonparametric	95% KM (BCA) UCL	2.6E-03	2.8E-03	2.6E-03
	<b>Pesticides</b>	ug/l										
	Aldrin	ug/l	64	27	0	1.6E-04	4.1E-03	nonparametric	95% KM (Chebyshev) UCL	3.6E-04	1.6E-04	3.6E-04

**TABLE 3-9.**  
**Exposure Point Concentration Summary - Surface Water, Residential Use as a Domestic Water Source**

Scenario Timeframe: Potential Future
Medium: Water
Exposure Medium: Surface Water, Domestic Water Source

Exposure Point	Chemical of Potential Concern	Units	Total Samples	Total Non-Detects <sup>a</sup>	Non-Detects greater than Maximum Detected Concentration <sup>b</sup>	Arithmetic Mean <sup>c</sup>	Maximum Detected Concentration	95% UCL			Exposure Point Concentration <sup>d</sup>	
								Distribution	95% UCL Method	Value	Mean	95% UCL/Max
	<b>Herbicides</b> MCP	ug/l ug/l	61	55	6	7.7E+00	1.9E+01	normal	95% KM (t) UCL	6.4E+00	7.7E+00	6.4E+00

**Notes:**

- a Total number of non-detects in the dataset.
- b Number of non-detects with detection limit exceeding the maximum detected concentration for the given exposure area. These non-detects were removed from the dataset prior to calculation of EPCs.
- c Non-detects less than the maximum detected concentration for a given exposure area are included in the arithmetic mean at half the detection limit.
- d Mean exposure point concentrations were used for Central Tendency (CT) exposure and 95% UCL/Max exposure point concentrations were used for Reasonable Maximum Exposure (RME) in the BHHRA.
- e 95% UCL not calculated for analytes with fewer than five detects.
- f Study Area-wide data set includes samples from all individual exposure points within the Study Area.

**Abbreviations:**

- = Not Applicable. A 95% UCL could not be computed for the given data set.
- 95% UCL = 95% Upper confidence limit on the mean.
- MCP = 2-(2-Methyl-4-chlorophenoxy)propionic acid.
- ND = Not detected. Chemical not detected in given exposure area.
- ug/l = Micrograms per liter.

**TABLE 3-10**  
**Exposure Point Concentration Summary - Groundwater Seep**

Scenario Timeframe: Current/Future
Medium: Groundwater
Exposure Medium: Groundwater Seep

Exposure Point	Chemical of Potential Concern <sup>a</sup>	Units	Total Samples	Total Non-Detects <sup>b</sup>	Non-Detects greater than Maximum Detected Concentration <sup>c</sup>	Arithmetic Mean	Maximum Detected Concentration	95% UCL			Exposure Point Concentration <sup>d</sup>	
								Distribution	95% UCL Method	Value	Mean	95% UCL/Max
Outfall 22B	<b>Metals</b>											
	Arsenic, total	ug/l	2	0	0	6.9E+00	8.1E+00		Fewer than 5 detects <sup>e</sup>		6.9E+00	8.1E+00
	Arsenic, dissolved	ug/l	1	0	0	5.5E+00	5.5E+00			5.5E+00	5.5E+00	
	Boron	ug/l	1	0	0	1.4E+03	1.4E+03			1.4E+03	1.4E+03	
	Iron	ug/l	1	0	0	1.6E+04	1.6E+04			1.6E+04	1.6E+04	
	Manganese	ug/l	1	0	0	2.4E+03	2.4E+03			2.4E+03	2.4E+03	
	Molybdenum	ug/l	1	0	0	6.9E+02	2.4E+03			6.9E+02	2.4E+03	
	Vanadium, total	ug/l	2	0	0	7.5E+00	8.9E+00			7.5E+00	8.9E+00	
	Vanadium, dissolved	ug/l	1	0	0	2.3E+00	2.3E+00			2.3E+00	2.3E+00	
	<b>SVOCs</b>											
	1,4-Dichlorobenzene	ug/l	2	0	0	1.1E+00	1.2E+00			1.1E+00	1.2E+00	
	<b>Phenols</b>											
	2,4-Dichlorophenol	ug/l	2	0	0	1.3E+01	1.6E+01			1.3E+01	1.6E+01	
	4-Nitrophenol	ug/l	2	1	1	5.7E-01	5.7E-01			5.7E-01	5.7E-01	
	<b>Pesticides</b>											
	Aldrin	ug/l	2	1	1	4.1E-03	4.1E-03			4.1E-03	4.1E-03	
<b>VOCs</b>												
Chlorobenzene	ug/l	2	0	0	8.8E+00	9.2E+00		8.8E+00	9.2E+00			
Tetrachloroethene	ug/l	2	1	0	4.5E-01	6.4E-01		4.5E-01	6.4E-01			
Trichloroethene	ug/l	2	1	1	3.4E-01	3.4E-01		3.4E-01	3.4E-01			

**Notes:**

- a When available, both total and dissolved fractions of each metal are provided. The total fraction is quoted if no further definition is provided.
- b Total number of non-detects in the dataset.
- c Number of non-detects with detection limit exceeding the maximum detected concentration for the given exposure area. These non-detects were removed from the dataset prior to calculation of EPCs.
- d Mean exposure point concentrations were used for Central Tendency (CT) exposure and 95% UCL/Max exposure point concentrations were used for Reasonable Maximum Exposure (RME) in the BHHRA.
- e 95% UCLs not calculated for analytes with fewer than 5 detects.

**Abbreviations:**

- 95% UCL = 95% Upper confidence limit on the mean.
- SVOCs = Semi-volatile organic compounds.
- ug/l = Micrograms per liter.
- VOCs = Volatile organic compounds.



TABLE 3-11  
Exposure Point Concentration Summary - Resident Fish Species, By River Mile

Scenario Timeframe: Current/Future
Medium: Fish Tissue
Exposure Medium: Smallmouth Bass

Exposure Point <sup>a</sup>	Tissue Type	Chemical of Potential Concern <sup>b</sup>	Units	Total Samples	Total Non-Detects <sup>c</sup>	Non-Detects greater than Maximum Detected Concentration <sup>d</sup>	Arithmetic Mean <sup>e</sup>	Maximum Detected Concentration	95% UCL			Exposure Point Concentration <sup>f</sup>		
									Distribution	95% UCL Method	Value			
RM 2	F	<b>Metals</b>								Fewer than 5 detects <sup>g</sup>				
		Aluminum	mg/kg	1	0	0	1.6E+00	1.6E+00			1.6E+00			
		Antimony	mg/kg	1	1	ND	ND	ND			ND			
		Arsenic, inorganic	mg/kg	1	0	0	3.4E-02	3.4E-02			3.4E-02			
		Cadmium	mg/kg	1	1	ND	ND	ND			ND			
		Chromium	mg/kg	1	0	0	2.0E-01	2.0E-01			2.0E-01			
		Copper	mg/kg	1	0	0	3.8E-01	3.8E-01			3.8E-01			
		Lead	mg/kg	1	0	0	1.1E-02	1.1E-02			1.1E-02			
		Manganese	mg/kg	1	0	0	5.0E-01	5.0E-01			5.0E-01			
		Mercury	mg/kg	1	0	0	6.3E-02	6.3E-02			6.3E-02			
		Nickel	mg/kg	1	0	0	1.3E-01	1.3E-01			1.3E-01			
		Selenium	mg/kg	1	1	ND	ND	ND			ND			
		Silver	mg/kg	1	0	0	2.0E-03	2.0E-03			2.0E-03			
		Thallium	mg/kg	1	0	0	6.8E-03	6.8E-03			6.8E-03			
		Zinc	mg/kg	1	0	0	7.8E+00	7.8E+00			7.8E+00			
		<b>Butyltins</b>												
		Dibutyltin ion	ug/kg	1	0	0	2.9E-01	2.9E-01			2.9E-01			
		Tributyltin ion	ug/kg	1	1	ND	ND	ND			ND			
		<b>Polynuclear Aromatic Hydrocarbons</b>												
		1-Methylnaphthalene	ug/kg	1	0	0	1.2E+00	1.2E+00			1.2E+00			
		2-Methylnaphthalene	ug/kg	1	0	0	1.3E+00	1.3E+00			1.3E+00			
		Acenaphthene	ug/kg	1	1	ND	ND	ND			ND			
		Acenaphthylene	ug/kg	1	0	0	2.6E-01	2.6E-01			2.6E-01			
		Anthracene	ug/kg	1	0	0	5.8E-01	5.8E-01			5.8E-01			
		Benzo(a)anthracene	ug/kg	1	1	ND	ND	ND			ND			
		Benzo(a)pyrene	ug/kg	1	1	ND	ND	ND			ND			
		Benzo(b)fluoranthene	ug/kg	1	1	ND	ND	ND			ND			
		Benzo(g,h,i)perylene	ug/kg	1	1	ND	ND	ND			ND			
		Benzo(k)fluoranthene	ug/kg	1	1	ND	ND	ND			ND			
		Chrysene	ug/kg	1	1	ND	ND	ND			ND			
		Dibenzo(a,h)anthracene	ug/kg	1	1	ND	ND	ND			ND			
		Dibenzothiophene	ug/kg	1	0	0	2.6E-01	2.6E-01			2.6E-01			
		Fluoranthene	ug/kg	1	0	0	1.5E+00	1.5E+00			1.5E+00			
		Fluorene	ug/kg	1	1	ND	ND	ND			ND			
		Indeno(1,2,3-cd)pyrene	ug/kg	1	1	ND	ND	ND			ND			
		Naphthalene	ug/kg	1	0	0	7.9E-01	7.9E-01			7.9E-01			
		Phenanthrene	ug/kg	1	1	ND	ND	ND			ND			
		Pyrene	ug/kg	1	1	ND	ND	ND			ND			
		<b>Phthalates</b>												
		Bis(2-ethylhexyl) phthalate	ug/kg	1	1	ND	ND	ND			ND			
		Dibutyl phthalate	ug/kg	1	1	ND	ND	ND			ND			
		Diethyl phthalate	ug/kg	1	1	ND	ND	ND			ND			

TABLE 3-11  
Exposure Point Concentration Summary - Resident Fish Species, By River Mile

Scenario Timeframe: Current/Future  
Medium: Fish Tissue  
Exposure Medium: Smallmouth Bass

Exposure Point <sup>a</sup>	Tissue Type	Chemical of Potential Concern <sup>b</sup>	Units	Total Samples	Total Non-Detects <sup>c</sup>	Non-Detects greater than Maximum Detected Concentration <sup>d</sup>	Arithmetic Mean <sup>e</sup>	Maximum Detected Concentration	95% UCL			Exposure Point Concentration <sup>f</sup>
									Distribution	95% UCL Method	Value	
		<b>Semi-Volatile Organic Compounds</b>										
		Benzyl alcohol	ug/kg	1	1	ND	ND	ND				ND
		Hexachlorobenzene	ug/kg	1	0	0	3.4E-01	3.4E-01				3.4E-01
		Hexachlorobutadiene	ug/kg	1	1	ND	ND	ND				ND
		<b>Phenols</b>										
		4-Nitrophenol	ug/kg	1	1	ND	ND	ND				ND
		<b>Polychlorinated Biphenyls</b>										
		Total Aroclors	ug/kg	NA	NA	NA	NA	NA				NA
		Total PCB Congeners	pg/g	1	0	0	2.0E+05	2.0E+05				2.0E+05
		Total PCBs, Adjusted <sup>b</sup>	pg/g	1	0	0	1.8E+05	1.8E+05				1.8E+05
		<b>Dioxin/Furans</b>										
		Total Dioxin/Furan TEQ	pg/g	1	0	0	2.2E-01	2.2E-01				2.2E-01
		Total PCB TEQ	pg/g	1	0	0	1.8E+00	1.8E+00				1.8E+00
		<b>Pesticides</b>										
		Aldrin	ug/kg	1	0	0	6.9E-03	6.9E-03				6.9E-03
		alpha-Hexachlorocyclohexane	ug/kg	1	0	0	5.2E-03	5.2E-03				5.2E-03
		beta-Hexachlorocyclohexane	ug/kg	1	1	ND	ND	ND				ND
		Dieldrin	ug/kg	1	0	0	4.2E-01	4.2E-01				4.2E-01
		Endrin	ug/kg	1	0	0	7.1E-03	7.1E-03				7.1E-03
		Endrin aldehyde	ug/kg	1	1	ND	ND	ND				ND
		Endrin ketone	ug/kg	1	1	ND	ND	ND				ND
		gamma-Hexachlorocyclohexane	ug/kg	1	1	ND	ND	ND				ND
		Heptachlor	ug/kg	1	1	ND	ND	ND				ND
		Heptachlor epoxide	ug/kg	1	0	0	2.7E-02	2.7E-02				2.7E-02
		Total Chlordanes	ug/kg	1	0	0	1.5E+00	1.5E+00				1.5E+00
		Total DDD	ug/kg	1	0	0	2.9E+00	2.9E+00				2.9E+00
		Total DDE	ug/kg	1	0	0	1.1E+01	1.1E+01				1.1E+01
		Total DDT	ug/kg	1	0	0	7.2E-01	7.2E-01				7.2E-01
		Total Endosulfan	ug/kg	1	0	0	1.1E-01	1.1E-01				1.1E-01
RM 3	F	<b>Metals</b>										
		Aluminum	mg/kg	3	0	0	1.8E+00	3.4E+00		Fewer than 5 detects		3.4E+00
		Antimony	mg/kg	3	3	ND	ND	ND				ND
		Arsenic, inorganic	mg/kg	3	0	0	2.8E-02	2.9E-02				2.9E-02
		Cadmium	mg/kg	3	3	ND	ND	ND				ND
		Chromium	mg/kg	3	3	ND	ND	ND				ND
		Copper	mg/kg	3	0	0	5.3E-01	9.4E-01				9.4E-01
		Lead	mg/kg	3	1	0	1.9E-01	5.2E-01				5.2E-01
		Manganese	mg/kg	3	0	0	2.9E-01	4.1E-01				4.1E-01
		Mercury	mg/kg	3	0	0	1.6E-01	1.8E-01				1.8E-01
		Nickel	mg/kg	3	0	0	7.7E-02	1.2E-01				1.2E-01
		Selenium	mg/kg	3	3	ND	ND	ND				ND
		Silver	mg/kg	3	3	ND	ND	ND				ND
		Thallium	mg/kg	3	0	0	7.9E-03	1.0E-02				1.0E-02
		Zinc	mg/kg	3	0	0	8.7E+00	9.0E+00				9.0E+00
		<b>Butyltins</b>										
		Dibutyltin ion	ug/kg	2	0	0	4.1E-01	4.1E-01				4.1E-01
		Tributyltin ion	ug/kg	2	1	0	3.8E-01	5.8E-01				5.8E-01

TABLE 3-11  
Exposure Point Concentration Summary - Resident Fish Species, By River Mile

Scenario Timeframe: Current/Future
Medium: Fish Tissue
Exposure Medium: Smallmouth Bass

Exposure Point <sup>a</sup>	Tissue Type	Chemical of Potential Concern <sup>b</sup>	Units	Total Samples	Total Non-Detects <sup>c</sup>	Non-Detects greater than Maximum Detected Concentration <sup>d</sup>	Arithmetic Mean <sup>e</sup>	Maximum Detected Concentration	95% UCL			Exposure Point Concentration <sup>f</sup>
									Distribution	95% UCL Method	Value	
		<b>Polynuclear Aromatic Hydrocarbons</b>										
		1-Methylnaphthalene	ug/kg	2	0	0	2.0E+00	2.4E+00				2.4E+00
		2-Methylnaphthalene	ug/kg	2	0	0	2.3E+00	2.9E+00				2.9E+00
		Acenaphthene	ug/kg	2	2	ND	ND	ND				ND
		Acenaphthylene	ug/kg	2	1	0	9.7E-02	1.6E-01				1.6E-01
		Anthracene	ug/kg	2	1	0	4.1E-01	6.8E-01				6.8E-01
		Benzo(a)anthracene	ug/kg	2	1	0	4.6E-01	8.8E-01				8.8E-01
		Benzo(a)pyrene	ug/kg	2	2	ND	ND	ND				ND
		Benzo(b)fluoranthene	ug/kg	2	2	ND	ND	ND				ND
		Benzo(g,h,i)perylene	ug/kg	2	2	ND	ND	ND				ND
		Benzo(k)fluoranthene	ug/kg	2	2	ND	ND	ND				ND
		Chrysene	ug/kg	2	1	0	3.1E+00	6.2E+00				6.2E+00
		Dibenzo(a,h)anthracene	ug/kg	2	2	ND	ND	ND				ND
		Dibenzothiophene	ug/kg	2	0	0	2.7E-01	4.0E-01				4.0E-01
		Fluoranthene	ug/kg	2	1	0	3.0E+00	5.5E+00				5.5E+00
		Fluorene	ug/kg	2	2	ND	ND	ND				ND
		Indeno(1,2,3-cd)pyrene	ug/kg	2	2	ND	ND	ND				ND
		Naphthalene	ug/kg	2	0	0	8.5E-01	9.5E-01				9.5E-01
		Phenanthrene	ug/kg	2	1	0	1.7E+00	2.7E+00				2.7E+00
		Pyrene	ug/kg	2	1	0	2.2E+00	4.2E+00				4.2E+00
		<b>Phthalates</b>										
		Bis(2-ethylhexyl) phthalate	ug/kg	2	2	ND	ND	ND				ND
		Dibutyl phthalate	ug/kg	2	2	ND	ND	ND				ND
		Diethyl phthalate	ug/kg	2	2	ND	ND	ND				ND
		<b>Semi-Volatile Organic Compounds</b>										
		Benzyl alcohol	ug/kg	2	2	ND	ND	ND				ND
		Hexachlorobenzene	ug/kg	3	1	1	3.7E-01	4.3E-01				4.3E-01
		Hexachlorobutadiene	ug/kg	3	1	1	1.4E-02	2.2E-02				2.2E-02
		<b>Phenols</b>										
		4-Nitrophenol	ug/kg	2	2	ND	ND	ND				ND
		<b>Polychlorinated Biphenyls</b>										
		Total Aroclors	ug/kg	1	0	0	6.0E+01	6.0E+01				6.0E+01
		Total PCB Congeners	pg/g	2	0	0	3.4E+04	4.1E+04				4.1E+04
		Total PCBs, Adjusted	pg/g	2	0	0	3.1E+04	3.8E+04				3.8E+04
		<b>Dioxin/Furans</b>										
		Total Dioxin/Furan TEQ	pg/g	2	0	0	2.2E-01	2.6E-01				2.6E-01
		Total PCB TEQ	pg/g	2	0	0	3.7E-01	4.9E-01				4.9E-01
		<b>Pesticides</b>										
		Aldrin	ug/kg	3	2	2	5.2E-03	5.2E-03				5.2E-03
		alpha-Hexachlorocyclohexane	ug/kg	3	2	1	3.2E-03	4.3E-03				4.3E-03
		beta-Hexachlorocyclohexane	ug/kg	3	2	0	1.5E+00	4.5E+00				4.5E+00
		Dieldrin	ug/kg	3	0	0	1.4E+00	3.3E+00				3.3E+00

TABLE 3-11  
Exposure Point Concentration Summary - Resident Fish Species, By River Mile

Scenario Timeframe: Current/Future  
Medium: Fish Tissue  
Exposure Medium: Smallmouth Bass

Exposure Point <sup>a</sup>	Tissue Type	Chemical of Potential Concern <sup>b</sup>	Units	Total Samples	Total Non-Detects <sup>c</sup>	Non-Detects greater than Maximum Detected Concentration <sup>d</sup>	Arithmetic Mean <sup>e</sup>	Maximum Detected Concentration	95% UCL			Exposure Point Concentration <sup>f</sup>
									Distribution	95% UCL Method	Value	
		Endrin	ug/kg	3	3	ND	ND	ND				ND
		Endrin aldehyde	ug/kg	3	2	0	6.7E-01	2.0E+00				2.0E+00
		Endrin ketone	ug/kg	3	3	ND	ND	ND				ND
		gamma-Hexachlorocyclohexane	ug/kg	3	3	ND	ND	ND				ND
		Heptachlor	ug/kg	3	3	ND	ND	ND				ND
		Heptachlor epoxide	ug/kg	3	1	1	2.2E-02	2.4E-02				2.4E-02
		Total Chlordanes	ug/kg	3	0	0	3.6E+00	7.8E+00				7.8E+00
		Total DDD	ug/kg	3	0	0	3.5E+00	4.7E+00				4.7E+00
		Total DDE	ug/kg	3	0	0	1.5E+01	2.6E+01				2.6E+01
		Total DDT	ug/kg	3	0	0	5.0E+00	1.3E+01				1.3E+01
		Total Endosulfan	ug/kg	3	3	ND	ND	ND				ND
RM 4	F	<b>Metals</b>								Fewer than 5 detects		
		Aluminum	mg/kg	2	0	0	1.1E+00	1.4E+00				1.4E+00
		Antimony	mg/kg	2	2	ND	ND	ND				ND
		Arsenic, inorganic	mg/kg	2	0	0	1.9E-02	2.2E-02				2.2E-02
		Cadmium	mg/kg	2	2	ND	ND	ND				ND
		Chromium	mg/kg	2	2	ND	ND	ND				ND
		Copper	mg/kg	2	0	0	3.1E-01	3.3E-01				3.3E-01
		Lead	mg/kg	2	0	0	5.1E-02	5.6E-02				5.6E-02
		Manganese	mg/kg	2	0	0	4.5E-01	5.3E-01				5.3E-01
		Mercury	mg/kg	2	0	0	2.0E-01	2.4E-01				2.4E-01
		Nickel	mg/kg	2	0	0	6.4E-02	7.1E-02				7.1E-02
		Selenium	mg/kg	2	2	ND	ND	ND				ND
		Silver	mg/kg	2	2	ND	ND	ND				ND
		Thallium	mg/kg	2	0	0	4.1E-03	4.4E-03				4.4E-03
		Zinc	mg/kg	2	0	0	8.6E+00	8.6E+00				8.6E+00
		<b>Butyltins</b>										
		Dibutyltin ion	ug/kg	2	0	0	5.5E-01	7.2E-01				7.2E-01
		Tributyltin ion	ug/kg	2	1	0	5.5E-01	9.2E-01				9.2E-01
		<b>Polynuclear Aromatic Hydrocarbons</b>										
		1-Methylnaphthalene	ug/kg	2	0	0	5.4E-01	5.9E-01				5.9E-01
		2-Methylnaphthalene	ug/kg	2	0	0	7.3E-01	8.2E-01				8.2E-01
		Acenaphthene	ug/kg	2	2	ND	ND	ND				ND
		Acenaphthylene	ug/kg	2	0	0	2.8E-01	2.9E-01				2.9E-01
		Anthracene	ug/kg	2	0	0	5.5E-01	6.3E-01				6.3E-01
		Benzo(a)anthracene	ug/kg	2	0	0	2.5E-01	3.6E-01				3.6E-01
		Benzo(a)pyrene	ug/kg	2	1	0	1.4E-01	2.3E-01				2.3E-01
		Benzo(b)fluoranthene	ug/kg	2	1	0	5.2E-01	1.0E+00				1.0E+00
		Benzo(g,h,i)perylene	ug/kg	2	1	0	1.9E-01	3.4E-01				3.4E-01
		Benzo(k)fluoranthene	ug/kg	2	1	0	2.0E-01	3.7E-01				3.7E-01
		Chrysene	ug/kg	2	0	0	4.1E-01	6.1E-01				6.1E-01
		Dibenzo(a,h)anthracene	ug/kg	2	1	0	9.0E-02	1.5E-01				1.5E-01
		Dibenzothiophene	ug/kg	2	0	0	4.5E-01	5.9E-01				5.9E-01
		Fluoranthene	ug/kg	2	0	0	2.2E+00	2.5E+00				2.5E+00
		Fluorene	ug/kg	2	2	ND	ND	ND				ND
		Indeno(1,2,3-cd)pyrene	ug/kg	2	1	0	1.9E-01	3.5E-01				3.5E-01
		Naphthalene	ug/kg	2	0	0	1.1E+00	1.2E+00				1.2E+00
		Phenanthrene	ug/kg	2	1	0	2.8E+00	4.3E+00				4.3E+00
		Pyrene	ug/kg	2	2	ND	ND	ND				ND

TABLE 3-11  
Exposure Point Concentration Summary - Resident Fish Species, By River Mile

Scenario Timeframe: Current/Future  
Medium: Fish Tissue  
Exposure Medium: Smallmouth Bass

Exposure Point <sup>a</sup>	Tissue Type	Chemical of Potential Concern <sup>b</sup>	Units	Total Samples	Total Non-Detects <sup>c</sup>	Non-Detects greater than Maximum Detected Concentration <sup>d</sup>	Arithmetic Mean <sup>e</sup>	Maximum Detected Concentration	95% UCL			Exposure Point Concentration <sup>f</sup>	
									Distribution	95% UCL Method	Value		
		<b>Phthalates</b>											
		Bis(2-ethylhexyl) phthalate	ug/kg	2	2	ND	ND	ND				ND	
		Dibutyl phthalate	ug/kg	2	1	0	3.1E+01	4.3E+01				4.3E+01	
		Diethyl phthalate	ug/kg	2	1	0	1.1E+01	1.7E+01				1.7E+01	
		<b>Semi-Volatile Organic Compounds</b>											
		Benzyl alcohol	ug/kg	2	0	0	2.4E+01	2.4E+01				2.4E+01	
		Hexachlorobenzene	ug/kg	2	0	0	4.4E-01	4.6E-01				4.6E-01	
		Hexachlorobutadiene	ug/kg	2	1	0	9.7E-03	1.3E-02				1.3E-02	
		<b>Phenols</b>											
		4-Nitrophenol	ug/kg	2	1	0	9.0E+00	1.3E+01				1.3E+01	
		<b>Polychlorinated Biphenyls</b>											
		Total Aroclors	ug/kg	NA	NA	NA	NA	NA				NA	
		Total PCB Congeners	pg/g	2	0	0	1.4E+05	2.4E+05				2.4E+05	
		Total PCBs, Adjusted	pg/g	2	0	0	1.3E+05	2.2E+05				2.2E+05	
		<b>Dioxin/Furans</b>											
		Total Dioxin/Furan TEQ	pg/g	2	0	0	3.5E-01	3.6E-01				3.6E-01	
		Total PCB TEQ	pg/g	2	0	0	8.0E-01	1.3E+00				1.3E+00	
		<b>Pesticides</b>											
		Aldrin	ug/kg	2	1	0	3.7E-03	5.8E-03				5.8E-03	
		alpha-Hexachlorocyclohexane	ug/kg	2	1	0	2.9E-03	3.9E-03				3.9E-03	
		beta-Hexachlorocyclohexane	ug/kg	2	1	0	2.0E-03	2.8E-03				2.8E-03	
		Dieldrin	ug/kg	2	0	0	3.8E-01	3.8E-01				3.8E-01	
		Endrin	ug/kg	2	2	ND	ND	ND				ND	
		Endrin aldehyde	ug/kg	2	2	ND	ND	ND				ND	
		Endrin ketone	ug/kg	2	2	ND	ND	ND				ND	
		gamma-Hexachlorocyclohexane	ug/kg	2	2	ND	ND	ND				ND	
		Heptachlor	ug/kg	2	2	ND	ND	ND				ND	
		Heptachlor epoxide	ug/kg	2	0	0	2.0E-02	2.2E-02				2.2E-02	
		Total Chlordanes	ug/kg	2	0	0	2.1E+00	2.3E+00				2.3E+00	
		Total DDD	ug/kg	2	0	0	3.8E+00	4.4E+00				4.4E+00	
		Total DDE	ug/kg	2	0	0	1.1E+01	1.2E+01				1.2E+01	
		Total DDT	ug/kg	2	0	0	1.6E+00	2.0E+00				2.0E+00	
Total Endosulfan	ug/kg	2	1	1	9.2E-02	9.2E-02				9.2E-02			
RM 5	F	<b>Metals</b>											
		Aluminum	mg/kg	2	0	0	2.8E+00	3.8E+00		Fewer than 5 detects		3.8E+00	
		Antimony	mg/kg	2	2	ND	ND	ND				ND	
		Arsenic, inorganic	mg/kg	2	0	0	2.0E-02	2.0E-02				2.0E-02	
		Cadmium	mg/kg	2	2	ND	ND	ND				ND	
		Chromium	mg/kg	2	2	ND	ND	ND				ND	
		Copper	mg/kg	2	0	0	7.2E-01	1.1E+00				1.1E+00	
		Lead	mg/kg	2	0	0	1.7E-02	2.2E-02				2.2E-02	
		Manganese	mg/kg	2	0	0	2.3E-01	3.9E-01				3.9E-01	
		Mercury	mg/kg	2	0	0	1.5E-01	2.1E-01				2.1E-01	
		Nickel	mg/kg	2	0	0	1.4E-01	2.2E-01				2.2E-01	
		Selenium	mg/kg	2	2	ND	ND	ND				ND	
		Silver	mg/kg	2	2	ND	ND	ND				ND	
		Thallium	mg/kg	2	0	0	3.4E-03	3.5E-03				3.5E-03	
		Zinc	mg/kg	2	0	0	9.5E+00	1.1E+01				1.1E+01	

TABLE 3-11  
Exposure Point Concentration Summary - Resident Fish Species, By River Mile

Scenario Timeframe: Current/Future  
Medium: Fish Tissue  
Exposure Medium: Smallmouth Bass

Exposure Point <sup>a</sup>	Tissue Type	Chemical of Potential Concern <sup>b</sup>	Units	Total Samples	Total Non-Detects <sup>c</sup>	Non-Detects greater than Maximum Detected Concentration <sup>d</sup>	Arithmetic Mean <sup>e</sup>	Maximum Detected Concentration	95% UCL			Exposure Point Concentration <sup>f</sup>
									Distribution	95% UCL Method	Value	
		<b>Butyltins</b>										
		Dibutyltin ion	ug/kg	1	0	0	7.7E-01	7.7E-01				7.7E-01
		Tributyltin ion	ug/kg	1	1	ND	ND	ND				ND
		<b>Polynuclear Aromatic Hydrocarbons</b>										
		1-Methylnaphthalene	ug/kg	1	0	0	5.4E-01	5.4E-01				5.4E-01
		2-Methylnaphthalene	ug/kg	1	0	0	9.1E-01	9.1E-01				9.1E-01
		Acenaphthene	ug/kg	1	1	ND	ND	ND				ND
		Acenaphthylene	ug/kg	1	0	0	1.4E+00	1.4E+00				1.4E+00
		Anthracene	ug/kg	1	0	0	2.0E+00	2.0E+00				2.0E+00
		Benzo(a)anthracene	ug/kg	1	0	0	1.9E+00	1.9E+00				1.9E+00
		Benzo(a)pyrene	ug/kg	1	0	0	2.2E+00	2.2E+00				2.2E+00
		Benzo(b)fluoranthene	ug/kg	1	0	0	1.4E+00	1.4E+00				1.4E+00
		Benzo(g,h,i)perylene	ug/kg	1	0	0	2.0E+00	2.0E+00				2.0E+00
		Benzo(k)fluoranthene	ug/kg	1	0	0	1.2E+00	1.2E+00				1.2E+00
		Chrysene	ug/kg	1	0	0	2.3E+00	2.3E+00				2.3E+00
		Dibenzo(a,h)anthracene	ug/kg	1	0	0	1.8E-01	1.8E-01				1.8E-01
		Dibenzothiophene	ug/kg	1	0	0	1.5E+00	1.5E+00				1.5E+00
		Fluoranthene	ug/kg	1	0	0	8.0E+00	8.0E+00				8.0E+00
		Fluorene	ug/kg	1	0	0	1.8E+00	1.8E+00				1.8E+00
		Indeno(1,2,3-cd)pyrene	ug/kg	1	0	0	1.7E+00	1.7E+00				1.7E+00
		Naphthalene	ug/kg	1	0	0	2.9E+00	2.9E+00				2.9E+00
		Phenanthrene	ug/kg	1	0	0	1.2E+01	1.2E+01				1.2E+01
		Pyrene	ug/kg	1	0	0	8.6E+00	8.6E+00				8.6E+00
		<b>Phthalates</b>										
		Bis(2-ethylhexyl) phthalate	ug/kg	1	1	ND	ND	ND				ND
		Dibutyl phthalate	ug/kg	1	1	ND	ND	ND				ND
		Diethyl phthalate	ug/kg	1	1	ND	ND	ND				ND
		<b>Semi-Volatile Organic Compounds</b>										
		Benzyl alcohol	ug/kg	1	0	0	2.3E+01	2.3E+01				2.3E+01
		Hexachlorobenzene	ug/kg	2	1	1	3.9E-01	3.9E-01				3.9E-01
		Hexachlorobutadiene	ug/kg	2	2	ND	ND	ND				ND
		<b>Phenols</b>										
		4-Nitrophenol	ug/kg	1	1	ND	ND	ND				ND
		<b>Polychlorinated Biphenyls</b>										
		Total Aroclors	ug/kg	1	0	0	4.6E+01	4.6E+01				4.6E+01
		Total PCB Congeners	pg/g	1	0	0	3.4E+04	3.4E+04				3.4E+04
		Total PCBs, Adjusted	pg/g	1	0	0	3.1E+04	3.1E+04				3.1E+04
		<b>Dioxin/Furans</b>										
		Total Dioxin/Furan TEQ	pg/g	1	0	0	2.5E-01	2.5E-01				2.5E-01
		Total PCB TEQ	pg/g	1	0	0	3.2E-01	3.2E-01				3.2E-01



TABLE 3-11  
Exposure Point Concentration Summary - Resident Fish Species, By River Mile

Scenario Timeframe: Current/Future
Medium: Fish Tissue
Exposure Medium: Smallmouth Bass

Exposure Point <sup>a</sup>	Tissue Type	Chemical of Potential Concern <sup>b</sup>	Units	Total Samples	Total Non-Detects <sup>c</sup>	Non-Detects greater than Maximum Detected Concentration <sup>d</sup>	Arithmetic Mean <sup>e</sup>	Maximum Detected Concentration	95% UCL			Exposure Point Concentration <sup>f</sup>
									Distribution	95% UCL Method	Value	
		<b>Pesticides</b>										
		Aldrin	ug/kg	2	2	ND	ND	ND				ND
		alpha-Hexachlorocyclohexane	ug/kg	2	2	ND	ND	ND				ND
		beta-Hexachlorocyclohexane	ug/kg	2	2	ND	ND	ND				ND
		Dieldrin	ug/kg	2	1	1	3.7E-01	3.7E-01				3.7E-01
		Endrin	ug/kg	2	2	ND	ND	ND				ND
		Endrin aldehyde	ug/kg	2	1	0	7.5E-01	1.5E+00				1.5E+00
		Endrin ketone	ug/kg	2	2	ND	ND	ND				ND
		gamma-Hexachlorocyclohexane	ug/kg	2	1	1	9.0E-03	9.0E-03				9.0E-03
		Heptachlor	ug/kg	2	2	ND	ND	ND				ND
		Heptachlor epoxide	ug/kg	2	1	1	2.0E-02	2.0E-02				2.0E-02
		Total Chlordanes	ug/kg	2	1	1	1.7E+00	1.7E+00				1.7E+00
		Total DDD	ug/kg	2	0	0	4.4E+00	4.8E+00				4.8E+00
		Total DDE	ug/kg	2	0	0	1.2E+01	1.5E+01				1.5E+01
		Total DDT	ug/kg	2	0	0	6.1E+00	9.5E+00				9.5E+00
		Total Endosulfan	ug/kg	2	1	1	1.1E-01	1.1E-01				1.1E-01
RM 6	F	<b>Metals</b>								Fewer than 5 detects		
		Aluminum	mg/kg	3	0	0	3.1E+00	7.2E+00				7.2E+00
		Antimony	mg/kg	3	3	ND	ND	ND				ND
		Arsenic, inorganic	mg/kg	3	0	0	1.8E-02	2.0E-02				2.0E-02
		Cadmium	mg/kg	3	2	2	1.0E-03	1.0E-03				1.0E-03
		Chromium	mg/kg	3	3	ND	ND	ND				ND
		Copper	mg/kg	3	0	0	3.3E-01	3.8E-01				3.8E-01
		Lead	mg/kg	3	1	0	2.3E-02	4.3E-02				4.3E-02
		Manganese	mg/kg	3	0	0	3.2E-01	5.0E-01				5.0E-01
		Mercury	mg/kg	3	0	0	1.1E-01	1.5E-01				1.5E-01
		Nickel	mg/kg	3	0	0	3.4E-02	5.6E-02				5.6E-02
		Selenium	mg/kg	3	3	ND	ND	ND				ND
		Silver	mg/kg	3	3	ND	ND	ND				ND
		Thallium	mg/kg	3	0	0	3.4E-03	3.9E-03				3.9E-03
		Zinc	mg/kg	3	0	0	8.9E+00	9.6E+00				9.6E+00
		<b>Butyltins</b>										
		Dibutyltin ion	ug/kg	2	0	0	7.3E-01	9.2E-01				9.2E-01
		Tributyltin ion	ug/kg	2	1	0	4.6E-01	7.4E-01				7.4E-01
		<b>Polynuclear Aromatic Hydrocarbons</b>										
		1-Methylnaphthalene	ug/kg	2	0	0	8.0E-01	1.2E+00				1.2E+00
		2-Methylnaphthalene	ug/kg	2	0	0	9.6E-01	1.4E+00				1.4E+00
		Acenaphthene	ug/kg	2	1	0	3.0E+00	5.4E+00				5.4E+00
		Acenaphthylene	ug/kg	2	0	0	2.9E-01	4.0E-01				4.0E-01
		Anthracene	ug/kg	2	1	0	6.9E-01	1.2E+00				1.2E+00
		Benzo(a)anthracene	ug/kg	2	1	0	1.2E-01	2.0E-01				2.0E-01
		Benzo(a)pyrene	ug/kg	2	1	0	6.6E-02	9.1E-02				9.1E-02
		Benzo(b)fluoranthene	ug/kg	2	1	0	9.3E-02	1.5E-01				1.5E-01
		Benzo(g,h,i)perylene	ug/kg	2	1	0	6.0E-02	8.4E-02				8.4E-02
		Benzo(k)fluoranthene	ug/kg	2	1	0	6.2E-02	9.6E-02				9.6E-02
		Chrysene	ug/kg	2	0	0	2.0E-01	3.0E-01				3.0E-01
		Dibenzo(a,h)anthracene	ug/kg	2	2	ND	ND	ND				ND
		Dibenzothiophene	ug/kg	2	0	0	1.0E+00	1.7E+00				1.7E+00

TABLE 3-11  
Exposure Point Concentration Summary - Resident Fish Species, By River Mile

Scenario Timeframe: Current/Future  
Medium: Fish Tissue  
Exposure Medium: Smallmouth Bass

Exposure Point <sup>a</sup>	Tissue Type	Chemical of Potential Concern <sup>b</sup>	Units	Total Samples	Total Non-Detects <sup>c</sup>	Non-Detects greater than Maximum Detected Concentration <sup>d</sup>	Arithmetic Mean <sup>e</sup>	Maximum Detected Concentration	95% UCL			Exposure Point Concentration <sup>f</sup>
									Distribution	95% UCL Method	Value	
		Fluoranthene	ug/kg	2	1	0	1.0E+00	1.4E+00				1.4E+00
		Fluorene	ug/kg	2	1	0	1.6E+00	2.8E+00				2.8E+00
		Indeno(1,2,3-cd)pyrene	ug/kg	2	0	0	8.0E-02	8.0E-02				8.0E-02
		Naphthalene	ug/kg	2	0	0	1.8E+00	2.7E+00				2.7E+00
		Phenanthrene	ug/kg	2	1	0	4.0E+00	7.0E+00				7.0E+00
		Pyrene	ug/kg	2	2	ND	ND	ND				ND
		<b>Phthalates</b>										
		Bis(2-ethylhexyl) phthalate	ug/kg	2	1	0	6.3E+01	9.3E+01				9.3E+01
		Dibutyl phthalate	ug/kg	2	2	ND	ND	ND				ND
		Diethyl phthalate	ug/kg	2	2	ND	ND	ND				ND
		<b>Semi-Volatile Organic Compounds</b>										
		Benzyl alcohol	ug/kg	2	2	ND	ND	ND				ND
		Hexachlorobenzene	ug/kg	3	1	1	3.0E-01	3.6E-01				3.6E-01
		Hexachlorobutadiene	ug/kg	3	3	ND	ND	ND				ND
		<b>Phenols</b>										
		4-Nitrophenol	ug/kg	2	2	ND	ND	ND				ND
		<b>Polychlorinated Biphenyls</b>										
		Total Aroclors	ug/kg	1	0	0	3.9E+01	3.9E+01				3.9E+01
		Total PCB Congeners	pg/g	2	0	0	5.6E+04	8.2E+04				8.2E+04
		Total PCBs, Adjusted	pg/g	2	0	0	5.2E+04	7.8E+04				7.8E+04
		<b>Dioxin/Furans</b>										
		Total Dioxin/Furan TEQ	pg/g	2	0	0	2.9E-01	3.5E-01				3.5E-01
		Total PCB TEQ	pg/g	2	0	0	3.3E-01	3.9E-01				3.9E-01
		<b>Pesticides</b>										
		Aldrin	ug/kg	3	3	ND	ND	ND				ND
		alpha-Hexachlorocyclohexane	ug/kg	3	3	ND	ND	ND				ND
		beta-Hexachlorocyclohexane	ug/kg	3	3	ND	ND	ND				ND
		Dieldrin	ug/kg	3	1	1	2.8E-01	3.6E-01				3.6E-01
		Endrin	ug/kg	3	2	1	2.3E-03	3.0E-03				3.0E-03
		Endrin aldehyde	ug/kg	3	3	ND	ND	ND				ND
		Endrin ketone	ug/kg	3	3	ND	ND	ND				ND
		gamma-Hexachlorocyclohexane	ug/kg	3	2	2	4.0E-03	4.0E-03				4.0E-03
		Heptachlor	ug/kg	3	3	ND	ND	ND				ND
		Heptachlor epoxide	ug/kg	3	1	1	1.4E-02	1.8E-02				1.8E-02
		Total Chlordanes	ug/kg	3	0	0	2.3E+00	4.5E+00				4.5E+00
		Total DDD	ug/kg	3	0	0	5.7E+00	8.5E+00				8.5E+00
		Total DDE	ug/kg	3	0	0	9.6E+00	1.3E+01				1.3E+01
		Total DDT	ug/kg	3	0	0	4.1E+00	7.6E+00				7.6E+00
		Total Endosulfan	ug/kg	3	2	1	6.4E-02	8.5E-02				8.5E-02
RM 7	F	<b>Metals</b>										
		Aluminum	mg/kg	2	0	0	1.2E+00	1.3E+00		Fewer than 5 detects		1.3E+00
		Antimony	mg/kg	2	2	ND	ND	ND				ND
		Arsenic, inorganic	mg/kg	2	0	0	1.8E-02	1.9E-02				1.9E-02
		Cadmium	mg/kg	2	2	ND	ND	ND				ND
		Chromium	mg/kg	2	2	ND	ND	ND				ND
		Copper	mg/kg	2	0	0	4.0E-01	4.9E-01				4.9E-01
		Lead	mg/kg	2	0	0	9.5E-03	1.0E-02				1.0E-02

TABLE 3-11  
Exposure Point Concentration Summary - Resident Fish Species, By River Mile

Scenario Timeframe: Current/Future
Medium: Fish Tissue
Exposure Medium: Smallmouth Bass

Exposure Point <sup>a</sup>	Tissue Type	Chemical of Potential Concern <sup>b</sup>	Units	Total Samples	Total Non-Detects <sup>c</sup>	Non-Detects greater than Maximum Detected Concentration <sup>d</sup>	Arithmetic Mean <sup>e</sup>	Maximum Detected Concentration	95% UCL			Exposure Point Concentration <sup>f</sup>
									Distribution	95% UCL Method	Value	
		Manganese	mg/kg	2	0	0	4.2E-01	5.5E-01				5.5E-01
		Mercury	mg/kg	2	0	0	2.2E-01	2.5E-01				2.5E-01
		Nickel	mg/kg	2	0	0	4.6E-02	5.8E-02				5.8E-02
		Selenium	mg/kg	2	2	ND	ND	ND				ND
		Silver	mg/kg	2	2	ND	ND	ND				ND
		Thallium	mg/kg	2	0	0	3.3E-03	3.4E-03				3.4E-03
		Zinc	mg/kg	2	0	0	8.6E+00	9.3E+00				9.3E+00
		<b>Butyltins</b>										
		Dibutyltin ion	ug/kg	2	1	0	4.8E-01	8.8E-01				8.8E-01
		Tributyltin ion	ug/kg	2	1	0	3.3E-01	4.8E-01				4.8E-01
		<b>Polynuclear Aromatic Hydrocarbons</b>										
		1-Methylnaphthalene	ug/kg	4	0	0	4.9E-01	6.6E-01				6.6E-01
		2-Methylnaphthalene	ug/kg	2	1	0	5.0E-01	7.7E-01				7.7E-01
		Acenaphthene	ug/kg	2	1	0	1.5E+00	2.6E+00				2.6E+00
		Acenaphthylene	ug/kg	2	1	0	1.6E-01	2.9E-01				2.9E-01
		Anthracene	ug/kg	2	1	0	4.7E-01	8.2E-01				8.2E-01
		Benzo(a)anthracene	ug/kg	2	1	0	1.1E-01	1.9E-01				1.9E-01
		Benzo(a)pyrene	ug/kg	2	2	ND	ND	ND				ND
		Benzo(b)fluoranthene	ug/kg	2	1	0	8.3E-02	1.3E-01				1.3E-01
		Benzo(g,h,i)perylene	ug/kg	2	1	0	6.5E-02	9.3E-02				9.3E-02
		Benzo(k)fluoranthene	ug/kg	2	1	0	6.4E-02	1.0E-01				1.0E-01
		Chrysene	ug/kg	2	1	0	1.5E-01	2.7E-01				2.7E-01
		Dibenzo(a,h)anthracene	ug/kg	2	2	ND	ND	ND				ND
		Dibenzothiophene	ug/kg	2	1	0	5.2E-01	1.0E+00				1.0E+00
		Fluoranthene	ug/kg	2	1	0	9.5E-01	1.6E+00				1.6E+00
		Fluorene	ug/kg	2	1	0	9.5E-01	1.6E+00				1.6E+00
		Indeno(1,2,3-cd)pyrene	ug/kg	2	1	0	7.1E-02	1.1E-01				1.1E-01
		Naphthalene	ug/kg	2	0	0	1.1E+00	1.4E+00				1.4E+00
		Phenanthrene	ug/kg	2	1	0	2.7E+00	5.2E+00				5.2E+00
		Pyrene	ug/kg	2	2	ND	ND	ND				ND
		<b>Phthalates</b>										
		Bis(2-ethylhexyl) phthalate	ug/kg	2	2	ND	ND	ND				ND
		Dibutyl phthalate	ug/kg	2	2	ND	ND	ND				ND
		Diethyl phthalate	ug/kg	2	2	ND	ND	ND				ND
		<b>Semi-Volatile Organic Compounds</b>										
		Benzyl alcohol	ug/kg	2	0	0	2.9E+01	2.9E+01				2.9E+01
		Hexachlorobenzene	ug/kg	2	0	0	6.0E-01	8.8E-01				8.8E-01
		Hexachlorobutadiene	ug/kg	2	1	0	8.5E-02	1.7E-01				1.7E-01
		<b>Phenols</b>										
		4-Nitrophenol	ug/kg	2	2	ND	ND	ND				ND

TABLE 3-11  
Exposure Point Concentration Summary - Resident Fish Species, By River Mile

Scenario Timeframe: Current/Future
Medium: Fish Tissue
Exposure Medium: Smallmouth Bass

Exposure Point <sup>a</sup>	Tissue Type	Chemical of Potential Concern <sup>b</sup>	Units	Total Samples	Total Non-Detects <sup>c</sup>	Non-Detects greater than Maximum Detected Concentration <sup>d</sup>	Arithmetic Mean <sup>e</sup>	Maximum Detected Concentration	95% UCL			Exposure Point Concentration <sup>f</sup>
									Distribution	95% UCL Method	Value	
		<b>Polychlorinated Biphenyls</b>										
		Total Aroclors	ug/kg	NA	NA	NA	NA	NA				NA
		Total PCB Congeners	pg/g	2	0	0	1.4E+05	2.1E+05				2.1E+05
		Total PCBs, Adjusted	pg/g	2	0	0	1.3E+05	2.0E+05				2.0E+05
		<b>Dioxin/Furans</b>										
		Total Dioxin/Furan TEQ	pg/g	2	0	0	5.5E+00	8.7E+00				8.7E+00
		Total PCB TEQ	pg/g	2	0	0	6.2E-01	7.0E-01				7.0E-01
		<b>Pesticides</b>										
		Aldrin	ug/kg	2	2	ND	ND	ND				ND
		alpha-Hexachlorocyclohexane	ug/kg	2	2	ND	ND	ND				ND
		beta-Hexachlorocyclohexane	ug/kg	2	1	1	5.0E-03	5.0E-03				5.0E-03
		Dieldrin	ug/kg	2	0	0	2.9E-01	3.1E-01				3.1E-01
		Endrin	ug/kg	2	1	0	2.8E-03	4.0E-03				4.0E-03
		Endrin aldehyde	ug/kg	2	2	ND	ND	ND				ND
		Endrin ketone	ug/kg	2	2	ND	ND	ND				ND
		gamma-Hexachlorocyclohexane	ug/kg	2	2	ND	ND	ND				ND
		Heptachlor	ug/kg	2	2	ND	ND	ND				ND
		Heptachlor epoxide	ug/kg	2	1	0	1.0E-02	1.4E-02				1.4E-02
		Total Chlordanes	ug/kg	2	0	0	1.5E+00	1.5E+00				1.5E+00
		Total DDD	ug/kg	2	0	0	3.2E+01	6.3E+01				6.3E+01
		Total DDE	ug/kg	2	0	0	3.4E+01	5.9E+01				5.9E+01
		Total DDT	ug/kg	2	0	0	3.0E+01	5.9E+01				5.9E+01
		Total Endosulfan	ug/kg	2	2	ND	ND	ND				ND
RM 8	F	<b>Metals</b>								Fewer than 5 detects		
		Aluminum	mg/kg	3	0	0	2.3E+00	3.5E+00				3.5E+00
		Antimony	mg/kg	3	3	ND	ND	ND				ND
		Arsenic, inorganic	mg/kg	3	0	0	1.7E-02	1.8E-02				1.8E-02
		Cadmium	mg/kg	3	2	2	1.0E-03	1.0E-03				1.0E-03
		Chromium	mg/kg	3	3	ND	ND	ND				ND
		Copper	mg/kg	3	0	0	3.0E-01	3.6E-01				3.6E-01
		Lead	mg/kg	3	1	0	5.3E-03	7.0E-03				7.0E-03
		Manganese	mg/kg	3	0	0	2.7E-01	3.8E-01				3.8E-01
		Mercury	mg/kg	3	0	0	9.0E-02	1.1E-01				1.1E-01
		Nickel	mg/kg	3	0	0	3.7E-02	6.4E-02				6.4E-02
		Selenium	mg/kg	3	3	ND	ND	ND				ND
		Silver	mg/kg	3	3	ND	ND	ND				ND
		Thallium	mg/kg	3	0	0	3.0E-03	3.9E-03				3.9E-03
		Zinc	mg/kg	3	0	0	8.8E+00	9.2E+00				9.2E+00
		<b>Butyltins</b>										
		Dibutyltin ion	ug/kg	2	1	0	2.9E-01	5.0E-01				5.0E-01
		Tributyltin ion	ug/kg	2	2	ND	ND	ND				ND
		<b>Polynuclear Aromatic Hydrocarbons</b>										
		1-Methylnaphthalene	ug/kg	2	1	0	5.8E-01	1.0E+00				1.0E+00
		2-Methylnaphthalene	ug/kg	2	0	0	1.2E+00	1.8E+00				1.8E+00
		Acenaphthene	ug/kg	2	2	ND	ND	ND				ND
		Acenaphthylene	ug/kg	2	1	0	1.3E+00	2.5E+00				2.5E+00

TABLE 3-11  
Exposure Point Concentration Summary - Resident Fish Species, By River Mile

Scenario Timeframe: Current/Future  
Medium: Fish Tissue  
Exposure Medium: Smallmouth Bass

Exposure Point <sup>a</sup>	Tissue Type	Chemical of Potential Concern <sup>b</sup>	Units	Total Samples	Total Non-Detects <sup>c</sup>	Non-Detects greater than Maximum Detected Concentration <sup>d</sup>	Arithmetic Mean <sup>e</sup>	Maximum Detected Concentration	95% UCL			Exposure Point Concentration <sup>f</sup>
									Distribution	95% UCL Method	Value	
		Anthracene	ug/kg	2	1	0	1.9E+00	3.6E+00				3.6E+00
		Benzo(a)anthracene	ug/kg	2	1	0	1.3E+00	2.6E+00				2.6E+00
		Benzo(a)pyrene	ug/kg	2	1	0	1.3E+00	2.5E+00				2.5E+00
		Benzo(b)fluoranthene	ug/kg	2	1	0	8.7E-01	1.7E+00				1.7E+00
		Benzo(g,h,i)perylene	ug/kg	2	1	0	1.0E+00	2.0E+00				2.0E+00
		Benzo(k)fluoranthene	ug/kg	2	1	0	7.1E-01	1.4E+00				1.4E+00
		Chrysene	ug/kg	2	1	0	1.5E+00	2.9E+00				2.9E+00
		Dibenzo(a,h)anthracene	ug/kg	2	1	0	1.3E-01	2.4E-01				2.4E-01
		Dibenzothiophene	ug/kg	2	1	0	1.1E+00	2.1E+00				2.1E+00
		Fluoranthene	ug/kg	2	1	0	6.2E+00	1.2E+01				1.2E+01
		Fluorene	ug/kg	2	1	0	1.4E+00	2.5E+00				2.5E+00
		Indeno(1,2,3-cd)pyrene	ug/kg	2	1	0	9.7E-01	1.9E+00				1.9E+00
		Naphthalene	ug/kg	2	0	0	5.8E+00	1.1E+01				1.1E+01
		Phenanthrene	ug/kg	2	1	0	1.1E+01	2.2E+01				2.2E+01
		Pyrene	ug/kg	2	1	0	6.6E+00	1.3E+01				1.3E+01
		<b>Phthalates</b>										
		Bis(2-ethylhexyl) phthalate	ug/kg	2	2	ND	ND	ND				ND
		Dibutyl phthalate	ug/kg	2	2	ND	ND	ND				ND
		Diethyl phthalate	ug/kg	2	2	ND	ND	ND				ND
		<b>Semi-Volatile Organic Compounds</b>										
		Benzyl alcohol	ug/kg	2	0	0	2.6E+01	2.6E+01				2.6E+01
		Hexachlorobenzene	ug/kg	3	1	1	3.4E-01	3.5E-01				3.5E-01
		Hexachlorobutadiene	ug/kg	3	3	ND	ND	ND				ND
		<b>Phenols</b>										
		4-Nitrophenol	ug/kg	2	2	ND	ND	ND				ND
		<b>Polychlorinated Biphenyls</b>										
		Total Aroclors	ug/kg	1	0	0	9.3E+01	9.3E+01				9.3E+01
		Total PCB Congeners	pg/g	2	0	0	4.7E+04	5.2E+04				5.2E+04
		Total PCBs, Adjusted	pg/g	2	0	0	4.4E+04	4.7E+04				4.7E+04
		<b>Dioxin/Furans</b>										
		Total Dioxin/Furan TEQ	pg/g	2	0	0	5.4E-01	6.2E-01				6.2E-01
		Total PCB TEQ	pg/g	2	0	0	3.6E-01	4.0E-01				4.0E-01
		<b>Pesticides</b>										
		Aldrin	ug/kg	3	2	2	5.0E-03	5.0E-03				5.0E-03
		alpha-Hexachlorocyclohexane	ug/kg	3	3	ND	ND	ND				ND
		beta-Hexachlorocyclohexane	ug/kg	3	3	ND	ND	ND				ND
		Dieldrin	ug/kg	3	0	0	6.6E-01	1.4E+00				1.4E+00
		Endrin	ug/kg	3	3	ND	ND	ND				ND
		Endrin aldehyde	ug/kg	3	3	ND	ND	ND				ND
		Endrin ketone	ug/kg	3	3	ND	ND	ND				ND
		gamma-Hexachlorocyclohexane	ug/kg	3	2	2	3.0E-03	3.0E-03				3.0E-03
		Heptachlor	ug/kg	3	3	ND	ND	ND				ND
		Heptachlor epoxide	ug/kg	3	1	1	1.4E-02	1.6E-02				1.6E-02
		Total Chlordanes	ug/kg	3	0	0	2.8E+00	5.4E+00				5.4E+00
		Total DDD	ug/kg	3	0	0	5.7E+00	1.3E+01				1.3E+01
		Total DDE	ug/kg	3	0	0	1.5E+01	2.2E+01				2.2E+01
		Total DDT	ug/kg	3	0	0	1.0E+01	1.5E+01				1.5E+01
		Total Endosulfan	ug/kg	3	1	1	6.9E-02	7.7E-02				7.7E-02

TABLE 3-11  
Exposure Point Concentration Summary - Resident Fish Species, By River Mile

Scenario Timeframe: Current/Future
Medium: Fish Tissue
Exposure Medium: Smallmouth Bass

Exposure Point <sup>a</sup>	Tissue Type	Chemical of Potential Concern <sup>b</sup>	Units	Total Samples	Total Non-Detects <sup>c</sup>	Non-Detects greater than Maximum Detected Concentration <sup>d</sup>	Arithmetic Mean <sup>e</sup>	Maximum Detected Concentration	95% UCL			Exposure Point Concentration <sup>f</sup>	
									Distribution	95% UCL Method	Value		
RM 8 Swan Island Lagoon	F <sup>1</sup>	<b>Metals</b>											
		Aluminum	mg/kg									3.0E+00	
		Antimony	mg/kg									ND	
		Arsenic, inorganic	mg/kg									1.6E-02	
		Cadmium	mg/kg									5.6E-04	
		Chromium	mg/kg									3.6E-01	
		Copper	mg/kg									4.7E-01	
		Lead	mg/kg									3.4E-04	
		Manganese	mg/kg									3.7E-01	
		Mercury	mg/kg									1.3E-01	
		Nickel	mg/kg									ND	
		Selenium	mg/kg									ND	
		Silver	mg/kg									ND	
		Thallium	mg/kg									2.8E-03	
		Zinc	mg/kg									9.5E+00	
		<b>Butyltins</b>											
		Dibutyltin ion	ug/kg										NA
		Tributyltin ion	ug/kg										NA
		<b>Polynuclear Aromatic Hydrocarbons</b>											
		1-Methylnaphthalene	ug/kg										NA
		2-Methylnaphthalene	ug/kg										3.3E+00
		Acenaphthene	ug/kg										1.9E+00
		Acenaphthylene	ug/kg										ND
		Anthracene	ug/kg										ND
		Benzo(a)anthracene	ug/kg										ND
		Benzo(a)pyrene	ug/kg										ND
		Benzo(b)fluoranthene	ug/kg										ND
		Benzo(g,h,i)perylene	ug/kg										ND
		Benzo(k)fluoranthene	ug/kg										ND
		Chrysene	ug/kg										ND
		Dibenzo(a,h)anthracene	ug/kg										ND
		Dibenzothiophene	ug/kg										NA
		Fluoranthene	ug/kg										ND
Fluorene	ug/kg										ND		
Indeno(1,2,3-cd)pyrene	ug/kg										ND		
Naphthalene	ug/kg										ND		
Phenanthrene	ug/kg										ND		
Pyrene	ug/kg										ND		

TABLE 3-11  
Exposure Point Concentration Summary - Resident Fish Species, By River Mile

Scenario Timeframe: Current/Future
Medium: Fish Tissue
Exposure Medium: Smallmouth Bass

Exposure Point <sup>a</sup>	Tissue Type	Chemical of Potential Concern <sup>b</sup>	Units	Total Samples	Total Non-Detects <sup>c</sup>	Non-Detects greater than Maximum Detected Concentration <sup>d</sup>	Arithmetic Mean <sup>e</sup>	Maximum Detected Concentration	95% UCL			Exposure Point Concentration <sup>f</sup>
									Distribution	95% UCL Method	Value	
		<b>Phthalates</b>										
		Bis(2-ethylhexyl) phthalate	ug/kg									ND
		Dibutyl phthalate	ug/kg									ND
		Diethyl phthalate	ug/kg									ND
		<b>Semi-Volatile Organic Compounds</b>										
		Benzyl alcohol	ug/kg									ND
		Hexachlorobenzene	ug/kg									ND
		Hexachlorobutadiene	ug/kg									ND
		<b>Phenols</b>										
		4-Nitrophenol	ug/kg									ND
		<b>Polychlorinated Biphenyls</b>										
		Total Aroclors	ug/kg									2.6E+02
		Total PCB Congeners	pg/g									7.2E+05
		Total PCBs, Adjusted	pg/g									7.0E+05
		<b>Dioxin/Furans</b>										
		Total Dioxin/Furan TEQ	pg/g									7.5E-01
		Total PCB TEQ	pg/g									1.2E+00
		<b>Pesticides</b>										
		Aldrin	ug/kg									ND
		alpha-Hexachlorocyclohexane	ug/kg									ND
		beta-Hexachlorocyclohexane	ug/kg									ND
		Dieldrin	ug/kg									ND
		Endrin	ug/kg									ND
		Endrin aldehyde	ug/kg									ND
		Endrin ketone	ug/kg									ND
		gamma-Hexachlorocyclohexane	ug/kg									ND
		Heptachlor	ug/kg									ND
		Heptachlor epoxide	ug/kg									ND
		Total Chlordanes	ug/kg									ND
		Total DDD	ug/kg									3.5E+00
		Total DDE	ug/kg									1.1E+01
		Total DDT	ug/kg									1.9E+00
		Total Endosulfan	ug/kg									8.8E-01



TABLE 3-11  
Exposure Point Concentration Summary - Resident Fish Species, By River Mile

Scenario Timeframe: Current/Future  
Medium: Fish Tissue  
Exposure Medium: Smallmouth Bass

Exposure Point <sup>a</sup>	Tissue Type	Chemical of Potential Concern <sup>b</sup>	Units	Total Samples	Total Non-Detects <sup>c</sup>	Non-Detects greater than Maximum Detected Concentration <sup>d</sup>	Arithmetic Mean <sup>e</sup>	Maximum Detected Concentration	95% UCL			Exposure Point Concentration <sup>f</sup>	
									Distribution	95% UCL Method	Value		
RM 8 Swan Island Lagoon	WB	<b>Metals</b>											
		Aluminum	mg/kg	3	0	0	6.4E+00	7.7E+00		Fewer than 5 detects		7.7E+00	
		Antimony	mg/kg	3	3	ND	ND	ND				ND	
		Arsenic, inorganic	mg/kg	3	0	0	1.8E-02	2.0E-02				2.0E-02	
		Cadmium	mg/kg	3	0	0	5.3E-03	9.0E-03				9.0E-03	
		Chromium	mg/kg	3	1	0	7.4E-01	1.1E+00				1.1E+00	
		Copper	mg/kg	3	0	0	8.2E-01	9.5E-01				9.5E-01	
		Lead	mg/kg	3	0	0	1.5E-01	3.0E-01				3.0E-01	
		Manganese	mg/kg	3	0	0	1.3E+00	1.8E+00				1.8E+00	
		Mercury	mg/kg	3	0	0	6.0E-02	7.6E-02				7.6E-02	
		Nickel	mg/kg	3	3	ND	ND	ND				ND	
		Selenium	mg/kg	3	3	ND	ND	ND				ND	
		Silver	mg/kg	3	3	ND	ND	ND				ND	
		Thallium	mg/kg	3	0	0	2.7E-03	3.0E-03				3.0E-03	
		Zinc	mg/kg	3	0	0	1.4E+01	1.5E+01				1.5E+01	
				<b>Butyltins</b>									
				Dibutyltin ion	ug/kg	NA	NA	NA	NA	NA			NA
				Tributyltin ion	ug/kg	NA	NA	NA	NA	NA			NA
				<b>Polynuclear Aromatic Hydrocarbons</b>									
				1-Methylnaphthalene	ug/kg	NA	NA	NA	NA	NA			NA
				2-Methylnaphthalene	ug/kg	3	2	0	2.6E+01	4.5E+01			4.5E+01
				Acenaphthene	ug/kg	3	2	0	2.4E+01	4.0E+01			4.0E+01
				Acenaphthylene	ug/kg	3	3	ND	ND	ND			ND
				Anthracene	ug/kg	3	3	ND	ND	ND			ND
				Benzo(a)anthracene	ug/kg	3	3	ND	ND	ND			ND
				Benzo(a)pyrene	ug/kg	3	3	ND	ND	ND			ND
				Benzo(b)fluoranthene	ug/kg	3	3	ND	ND	ND			ND
				Benzo(g,h,i)perylene	ug/kg	3	3	ND	ND	ND			ND
				Benzo(k)fluoranthene	ug/kg	3	3	ND	ND	ND			ND
				Chrysene	ug/kg	3	3	ND	ND	ND			ND
				Dibenzo(a,h)anthracene	ug/kg	3	3	ND	ND	ND			ND
				Dibenzothiophene	ug/kg	NA	NA	NA	NA	NA			NA
				Fluoranthene	ug/kg	3	3	ND	ND	ND			ND
				Fluorene	ug/kg	3	3	ND	ND	ND			ND
				Indeno(1,2,3-cd)pyrene	ug/kg	3	3	ND	ND	ND			ND
				Naphthalene	ug/kg	3	3	ND	ND	ND			ND
				Phenanthrene	ug/kg	3	3	ND	ND	ND			ND
				Pyrene	ug/kg	3	3	ND	ND	ND			ND
				<b>Phthalates</b>									
				Bis(2-ethylhexyl) phthalate	ug/kg	3	3	ND	ND	ND			ND
				Dibutyl phthalate	ug/kg	3	3	ND	ND	ND			ND
				Diethyl phthalate	ug/kg	3	3	ND	ND	ND			ND
		Di-n-octyl phthalate	ug/kg	3	3	ND	ND	ND			ND		

TABLE 3-11  
Exposure Point Concentration Summary - Resident Fish Species, By River Mile

Scenario Timeframe: Current/Future
Medium: Fish Tissue
Exposure Medium: Smallmouth Bass

Exposure Point <sup>a</sup>	Tissue Type	Chemical of Potential Concern <sup>b</sup>	Units	Total Samples	Total Non-Detects <sup>c</sup>	Non-Detects greater than Maximum Detected Concentration <sup>d</sup>	Arithmetic Mean <sup>e</sup>	Maximum Detected Concentration	95% UCL			Exposure Point Concentration <sup>f</sup>
									Distribution	95% UCL Method	Value	
		<b>Semi-Volatile Organic Compounds</b>										
		Benzoic acid	ug/kg	3	3	ND	ND	ND				ND
		Benzyl alcohol	ug/kg	3	3	ND	ND	ND				ND
		Bis(2-chloroethoxy) methane	ug/kg	3	3	ND	ND	ND				ND
		Dibenzofuran	ug/kg	3	3	ND	ND	ND				ND
		Hexachlorobenzene	ug/kg	3	3	ND	ND	ND				ND
		Hexachlorobutadiene	ug/kg	3	3	ND	ND	ND				ND
		<b>Phenols</b>										
		4-Methylphenol	ug/kg	3	3	ND	ND	ND				ND
		4-Nitrophenol	ug/kg	3	3	ND	ND	ND				ND
		Phenol	ug/kg	3	3	ND	ND	ND				ND
		<b>Polychlorinated Biphenyls</b>										
		Total Aroclors	ug/kg	3	0	0	3.2E+03	4.9E+03				4.9E+03
		Total PCB Congeners	pg/g	3	0	0	3.0E+06	4.5E+06				4.5E+06
		Total PCBs, Adjusted	pg/g	3	0	0	2.9E+06	4.4E+06				4.4E+06
		<b>Dioxin/Furans</b>										
		Total Dioxin/Furan TEQ	pg/g	3	0	0	3.3E+00	3.9E+00				3.9E+00
		Total PCB TEQ	pg/g	3	0	0	1.1E+01	1.4E+01				1.4E+01
		<b>Pesticides</b>										
		Aldrin	ug/kg	3	3	ND	ND	ND				ND
		alpha-Hexachlorocyclohexane	ug/kg	3	3	ND	ND	ND				ND
		beta-Hexachlorocyclohexane	ug/kg	3	3	ND	ND	ND				ND
		Dieldrin	ug/kg	3	3	ND	ND	ND				ND
		Endrin	ug/kg	3	3	ND	ND	ND				ND
		Endrin aldehyde	ug/kg	3	3	ND	ND	ND				ND
		Endrin ketone	ug/kg	3	3	ND	ND	ND				ND
		gamma-Hexachlorocyclohexane	ug/kg	3	3	ND	ND	ND				ND
		Heptachlor	ug/kg	3	3	ND	ND	ND				ND
		Heptachlor epoxide	ug/kg	3	3	ND	ND	ND				ND
		Total Chlordanes	ug/kg	3	3	ND	ND	ND				ND
		Total DDD	ug/kg	3	0	0	2.0E+01	3.0E+01				3.0E+01
		Total DDE	ug/kg	3	0	0	7.9E+01	9.6E+01				9.6E+01
		Total DDT	ug/kg	3	2	0	5.9E+00	1.1E+01				1.1E+01
		Total Endosulfan	ug/kg	3	2	0	1.4E+01	2.8E+01				2.8E+01
RM 9	F	<b>Metals</b>										
		Aluminum	mg/kg	3	0	0	2.3E+00	3.4E+00		Fewer than 5 detects		3.4E+00
		Antimony	mg/kg	3	2	0	2.8E-03	5.0E-03				5.0E-03
		Arsenic, inorganic	mg/kg	3	0	0	1.7E-02	1.9E-02				1.9E-02
		Cadmium	mg/kg	3	3	ND	ND	ND				ND
		Chromium	mg/kg	3	2	0	3.3E-01	9.0E-01				9.0E-01
		Copper	mg/kg	3	0	0	3.2E-01	3.9E-01				3.9E-01
		Lead	mg/kg	3	1	0	5.8E-03	9.0E-03				9.0E-03

TABLE 3-11  
Exposure Point Concentration Summary - Resident Fish Species, By River Mile

Scenario Timeframe: Current/Future
Medium: Fish Tissue
Exposure Medium: Smallmouth Bass

Exposure Point <sup>a</sup>	Tissue Type	Chemical of Potential Concern <sup>b</sup>	Units	Total Samples	Total Non-Detects <sup>c</sup>	Non-Detects greater than Maximum Detected Concentration <sup>d</sup>	Arithmetic Mean <sup>e</sup>	Maximum Detected Concentration	95% UCL			Exposure Point Concentration <sup>f</sup>
									Distribution	95% UCL Method	Value	
		Manganese	mg/kg	3	0	0	2.9E-01	4.6E-01				4.6E-01
		Mercury	mg/kg	3	0	0	1.9E-01	3.5E-01				3.5E-01
		Nickel	mg/kg	3	0	0	4.0E-02	7.4E-02				7.4E-02
		Selenium	mg/kg	3	3	ND	ND	ND				ND
		Silver	mg/kg	3	3	ND	ND	ND				ND
		Thallium	mg/kg	3	0	0	2.6E-03	2.7E-03				2.7E-03
		Zinc	mg/kg	3	0	0	8.9E+00	9.6E+00				9.6E+00
		<b>Butyltins</b>										
		Dibutyltin ion	ug/kg	2	0	0	5.0E-01	5.6E-01				5.6E-01
		Tributyltin ion	ug/kg	2	2	ND	ND	ND				ND
		<b>Polynuclear Aromatic Hydrocarbons</b>										
		1-Methylnaphthalene	ug/kg	2	1	0	2.5E-01	3.5E-01				3.5E-01
		2-Methylnaphthalene	ug/kg	2	0	0	7.0E-01	9.5E-01				9.5E-01
		Acenaphthene	ug/kg	2	2	ND	ND	ND				ND
		Acenaphthylene	ug/kg	2	0	0	3.7E-01	5.3E-01				5.3E-01
		Anthracene	ug/kg	2	0	0	5.0E-01	5.5E-01				5.5E-01
		Benzo(a)anthracene	ug/kg	2	1	0	3.8E-01	7.3E-01				7.3E-01
		Benzo(a)pyrene	ug/kg	2	1	0	2.6E-01	4.8E-01				4.8E-01
		Benzo(b)fluoranthene	ug/kg	2	1	0	1.7E-01	3.0E-01				3.0E-01
		Benzo(g,h,i)perylene	ug/kg	2	1	0	3.8E-01	7.2E-01				7.2E-01
		Benzo(k)fluoranthene	ug/kg	2	1	0	2.5E-01	4.7E-01				4.7E-01
		Chrysene	ug/kg	2	1	0	3.8E-01	7.2E-01				7.2E-01
		Dibenzo(a,h)anthracene	ug/kg	2	2	ND	ND	ND				ND
		Dibenzothiophene	ug/kg	2	1	0	2.3E-01	4.3E-01				4.3E-01
		Fluoranthene	ug/kg	2	0	0	2.0E+00	2.5E+00				2.5E+00
		Fluorene	ug/kg	2	2	ND	ND	ND				ND
		Indeno(1,2,3-cd)pyrene	ug/kg	2	1	0	4.5E-01	8.7E-01				8.7E-01
		Naphthalene	ug/kg	2	0	0	1.3E+00	1.8E+00				1.8E+00
		Phenanthrene	ug/kg	2	0	0	3.7E+00	4.4E+00				4.4E+00
		Pyrene	ug/kg	2	1	0	1.7E+00	2.8E+00				2.8E+00
		<b>Phthalates</b>										
		Bis(2-ethylhexyl) phthalate	ug/kg	2	1	0	8.2E+01	1.3E+02				1.3E+02
		Dibutyl phthalate	ug/kg	2	2	ND	ND	ND				ND
		Diethyl phthalate	ug/kg	2	2	ND	ND	ND				ND
		<b>Semi-Volatile Organic Compounds</b>										
		Benzyl alcohol	ug/kg	2	0	0	2.6E+01	2.8E+01				2.8E+01
		Hexachlorobenzene	ug/kg	3	1	1	4.2E-01	5.2E-01				5.2E-01
		Hexachlorobutadiene	ug/kg	3	3	ND	ND	ND				ND
		<b>Phenols</b>										
		4-Nitrophenol	ug/kg	2	2	ND	ND	ND				ND

TABLE 3-11  
Exposure Point Concentration Summary - Resident Fish Species, By River Mile

Scenario Timeframe: Current/Future
Medium: Fish Tissue
Exposure Medium: Smallmouth Bass

Exposure Point <sup>a</sup>	Tissue Type	Chemical of Potential Concern <sup>b</sup>	Units	Total Samples	Total Non-Detects <sup>c</sup>	Non-Detects greater than Maximum Detected Concentration <sup>d</sup>	Arithmetic Mean <sup>e</sup>	Maximum Detected Concentration	95% UCL			Exposure Point Concentration <sup>f</sup>
									Distribution	95% UCL Method	Value	
		<b>Polychlorinated Biphenyls</b>										
		Total Aroclors	ug/kg	1	0	0	7.2E+01	7.2E+01				7.2E+01
		Total PCB Congeners	pg/g	2	0	0	7.9E+04	1.0E+05				1.0E+05
		Total PCBs, Adjusted	pg/g	2	0	0	7.3E+04	9.6E+04				9.6E+04
		<b>Dioxin/Furans</b>										
		Total Dioxin/Furan TEQ	pg/g	2	0	0	4.2E-01	4.5E-01				4.5E-01
		Total PCB TEQ	pg/g	2	0	0	7.1E-01	1.0E+00				1.0E+00
		<b>Pesticides</b>										
		Aldrin	ug/kg	3	1	1	8.5E-03	1.1E-02				1.1E-02
		alpha-Hexachlorocyclohexane	ug/kg	3	2	1	4.5E-03	6.0E-03				6.0E-03
		beta-Hexachlorocyclohexane	ug/kg	3	3	ND	ND	ND				ND
		Dieldrin	ug/kg	3	0	0	6.3E-01	1.0E+00				1.0E+00
		Endrin	ug/kg	3	2	1	3.5E-03	5.0E-03				5.0E-03
		Endrin aldehyde	ug/kg	3	3	ND	ND	ND				ND
		Endrin ketone	ug/kg	3	3	ND	ND	ND				ND
		gamma-Hexachlorocyclohexane	ug/kg	3	2	2	5.0E-03	5.0E-03				5.0E-03
		Heptachlor	ug/kg	3	3	ND	ND	ND				ND
		Heptachlor epoxide	ug/kg	3	1	1	1.9E-02	2.4E-02				2.4E-02
		Total Chlordanes	ug/kg	3	1	0	1.6E+00	2.5E+00				2.5E+00
		Total DDD	ug/kg	3	0	0	2.3E+00	3.2E+00				3.2E+00
		Total DDE	ug/kg	3	0	0	1.3E+01	1.6E+01				1.6E+01
		Total DDT	ug/kg	3	0	0	3.7E+00	9.3E+00				9.3E+00
		Total Endosulfan	ug/kg	3	1	1	8.4E-02	9.8E-02				9.8E-02
RM 10	F	<b>Metals</b>								Fewer than 5 detects		
		Aluminum	mg/kg	2	0	0	2.4E+00	4.1E+00				4.1E+00
		Antimony	mg/kg	2	2	ND	ND	ND				ND
		Arsenic, inorganic	mg/kg	2	0	0	1.5E-02	1.5E-02				1.5E-02
		Cadmium	mg/kg	2	2	ND	ND	ND				ND
		Chromium	mg/kg	2	2	ND	ND	ND				ND
		Copper	mg/kg	2	0	0	3.4E-01	3.5E-01				3.5E-01
		Lead	mg/kg	2	0	0	1.7E-02	2.2E-02				2.2E-02
		Manganese	mg/kg	2	0	0	3.8E-01	4.7E-01				4.7E-01
		Mercury	mg/kg	2	0	0	1.7E-01	2.4E-01				2.4E-01
		Nickel	mg/kg	2	0	0	4.0E-02	4.5E-02				4.5E-02
		Selenium	mg/kg	2	2	ND	ND	ND				ND
		Silver	mg/kg	2	2	ND	ND	ND				ND
		Thallium	mg/kg	2	0	0	2.3E-03	2.6E-03				2.6E-03
		Zinc	mg/kg	2	0	0	7.5E+00	7.9E+00				7.9E+00
		<b>Butyltins</b>										
		Dibutyltin ion	ug/kg	2	0	0	3.5E-01	4.4E-01				4.4E-01
		Tributyltin ion	ug/kg	2	2	ND	ND	ND				ND
		<b>Polynuclear Aromatic Hydrocarbons</b>										
		1-Methylnaphthalene	ug/kg	2	0	0	5.5E-01	7.3E-01				7.3E-01
		2-Methylnaphthalene	ug/kg	2	0	0	5.7E-01	6.5E-01				6.5E-01
		Acenaphthene	ug/kg	2	2	ND	ND	ND				ND
		Acenaphthylene	ug/kg	2	1	0	1.1E-01	1.8E-01				1.8E-01

TABLE 3-11  
Exposure Point Concentration Summary - Resident Fish Species, By River Mile

Scenario Timeframe: Current/Future
Medium: Fish Tissue
Exposure Medium: Smallmouth Bass

Exposure Point <sup>a</sup>	Tissue Type	Chemical of Potential Concern <sup>b</sup>	Units	Total Samples	Total Non-Detects <sup>c</sup>	Non-Detects greater than Maximum Detected Concentration <sup>d</sup>	Arithmetic Mean <sup>e</sup>	Maximum Detected Concentration	95% UCL			Exposure Point Concentration <sup>f</sup>
									Distribution	95% UCL Method	Value	
		Anthracene	ug/kg	2	2	ND	ND	ND				ND
		Benzo(a)anthracene	ug/kg	2	2	ND	ND	ND				ND
		Benzo(a)pyrene	ug/kg	2	2	ND	ND	ND				ND
		Benzo(b)fluoranthene	ug/kg	2	2	ND	ND	ND				ND
		Benzo(g,h,i)perylene	ug/kg	2	2	ND	ND	ND				ND
		Benzo(k)fluoranthene	ug/kg	2	2	ND	ND	ND				ND
		Chrysene	ug/kg	2	2	ND	ND	ND				ND
		Dibenzo(a,h)anthracene	ug/kg	2	2	ND	ND	ND				ND
		Dibenzothiophene	ug/kg	2	2	ND	ND	ND				ND
		Fluoranthene	ug/kg	2	2	ND	ND	ND				ND
		Fluorene	ug/kg	2	2	ND	ND	ND				ND
		Indeno(1,2,3-cd)pyrene	ug/kg	2	2	ND	ND	ND				ND
		Naphthalene	ug/kg	2	0	0	6.3E-01	6.7E-01				6.7E-01
		Phenanthrene	ug/kg	2	2	ND	ND	ND				ND
		Pyrene	ug/kg	2	2	ND	ND	ND				ND
		<b>Phthalates</b>										
		Bis(2-ethylhexyl) phthalate	ug/kg	2	1	0	5.1E+01	6.9E+01				6.9E+01
		Dibutyl phthalate	ug/kg	2	2	ND	ND	ND				ND
		Diethyl phthalate	ug/kg	2	2	ND	ND	ND				ND
		<b>Semi-Volatile Organic Compounds</b>										
		Benzyl alcohol	ug/kg	2	2	ND	ND	ND				ND
		Hexachlorobenzene	ug/kg	2	0	0	3.2E-01	3.3E-01				3.3E-01
		Hexachlorobutadiene	ug/kg	2	1	1	6.0E-03	6.0E-03				6.0E-03
		<b>Phenols</b>										
		4-Nitrophenol	ug/kg	2	2	ND	ND	ND				ND
		<b>Polychlorinated Biphenyls</b>										
		Total Aroclors	ug/kg	NA	NA	NA	NA	NA				NA
		Total PCB Congeners	pg/g	2	0	0	1.0E+05	1.2E+05				1.2E+05
		Total PCBs, Adjusted	pg/g	2	0	0	9.7E+04	1.2E+05				1.2E+05
		<b>Dioxin/Furans</b>										
		Total Dioxin/Furan TEQ	pg/g	2	0	0	3.4E-01	4.3E-01				4.3E-01
		Total PCB TEQ	pg/g	2	0	0	4.9E-01	6.1E-01				6.1E-01
		<b>Pesticides</b>										
		Aldrin	ug/kg	2	2	ND	ND	ND				ND
		alpha-Hexachlorocyclohexane	ug/kg	2	1	1	5.0E-03	5.0E-03				5.0E-03
		beta-Hexachlorocyclohexane	ug/kg	2	2	ND	ND	ND				ND
		Dieldrin	ug/kg	2	0	0	2.7E-01	2.8E-01				2.8E-01
		Endrin	ug/kg	2	1	0	3.3E-03	4.5E-03				4.5E-03
		Endrin aldehyde	ug/kg	2	2	ND	ND	ND				ND
		Endrin ketone	ug/kg	2	1	1	1.1E-02	1.1E-02				1.1E-02
		gamma-Hexachlorocyclohexane	ug/kg	2	1	1	1.1E-02	1.1E-02				1.1E-02
		Heptachlor	ug/kg	2	2	ND	ND	ND				ND
		Heptachlor epoxide	ug/kg	2	0	0	1.5E-02	1.6E-02				1.6E-02
		Total Chlordanes	ug/kg	2	0	0	1.3E+00	1.3E+00				1.3E+00
		Total DDD	ug/kg	2	0	0	1.9E+00	3.0E+00				3.0E+00
		Total DDE	ug/kg	2	0	0	7.5E+00	8.6E+00				8.6E+00
		Total DDT	ug/kg	2	0	0	2.3E+00	3.9E+00				3.9E+00
		Total Endosulfan	ug/kg	2	0	0	6.5E-02	6.6E-02				6.6E-02

TABLE 3-11  
Exposure Point Concentration Summary - Resident Fish Species, By River Mile

Scenario Timeframe: Current/Future
Medium: Fish Tissue
Exposure Medium: Smallmouth Bass

Exposure Point <sup>a</sup>	Tissue Type	Chemical of Potential Concern <sup>b</sup>	Units	Total Samples	Total Non-Detects <sup>c</sup>	Non-Detects greater than Maximum Detected Concentration <sup>d</sup>	Arithmetic Mean <sup>e</sup>	Maximum Detected Concentration	95% UCL			Exposure Point Concentration <sup>f</sup>		
									Distribution	95% UCL Method	Value			
RM 11	F	<b>Metals</b>												
		Aluminum	mg/kg	2	0	0	1.1E+00	1.3E+00		Fewer than 5 detects		1.3E+00		
		Antimony	mg/kg	2	2	ND	ND	ND			ND			
		Arsenic, inorganic	mg/kg	2	0	0	1.6E-02	1.6E-02			1.6E-02			
		Cadmium	mg/kg	2	2	ND	ND	ND			ND			
		Chromium	mg/kg	2	2	ND	ND	ND			ND			
		Copper	mg/kg	2	0	0	3.6E-01	4.0E-01			4.0E-01			
		Lead	mg/kg	2	0	0	1.8E-02	2.3E-02			2.3E-02			
		Manganese	mg/kg	2	0	0	4.1E-01	4.4E-01			4.4E-01			
		Mercury	mg/kg	2	0	0	1.9E-01	1.9E-01			1.9E-01			
		Nickel	mg/kg	2	0	0	5.3E-02	5.5E-02			5.5E-02			
		Selenium	mg/kg	2	1	0	2.3E+00	4.5E+00			4.5E+00			
		Silver	mg/kg	2	2	ND	ND	ND			ND			
		Thallium	mg/kg	2	0	0	2.7E-03	2.7E-03			2.7E-03			
		Zinc	mg/kg	2	0	0	8.5E+00	9.2E+00			9.2E+00			
		<b>Butyltins</b>												
		Dibutyltin ion	ug/kg	2	0	0	2.8E-01	2.8E-01			2.8E-01			
		Tributyltin ion	ug/kg	2	2	ND	ND	ND			ND			
		<b>Polynuclear Aromatic Hydrocarbons</b>												
		1-Methylnaphthalene	ug/kg	2	1	0	2.8E-01	4.1E-01			4.1E-01			
		2-Methylnaphthalene	ug/kg	2	1	0	3.7E-01	5.2E-01			5.2E-01			
		Acenaphthene	ug/kg	2	2	ND	ND	ND			ND			
		Acenaphthylene	ug/kg	2	1	0	8.7E-02	1.4E-01			1.4E-01			
		Anthracene	ug/kg	2	2	ND	ND	ND			ND			
		Benzo(a)anthracene	ug/kg	2	2	ND	ND	ND			ND			
		Benzo(a)pyrene	ug/kg	2	2	ND	ND	ND			ND			
		Benzo(b)fluoranthene	ug/kg	2	2	ND	ND	ND			ND			
		Benzo(g,h,i)perylene	ug/kg	2	2	ND	ND	ND			ND			
		Benzo(k)fluoranthene	ug/kg	2	2	ND	ND	ND			ND			
		Chrysene	ug/kg	2	2	ND	ND	ND			ND			
		Dibenzo(a,h)anthracene	ug/kg	2	2	ND	ND	ND			ND			
		Dibenzothiophene	ug/kg	2	1	0	9.4E-02	1.5E-01			1.5E-01			
		Fluoranthene	ug/kg	2	2	ND	ND	ND			ND			
		Fluorene	ug/kg	2	2	ND	ND	ND			ND			
		Indeno(1,2,3-cd)pyrene	ug/kg	2	2	ND	ND	ND			ND			
		Naphthalene	ug/kg	2	0	0	6.9E-01	7.9E-01			7.9E-01			
		Phenanthrene	ug/kg	2	2	ND	ND	ND			ND			
		Pyrene	ug/kg	2	2	ND	ND	ND			ND			
		<b>Phthalates</b>												
		Bis(2-ethylhexyl) phthalate	ug/kg	2	2	ND	ND	ND			ND			
		Dibutyl phthalate	ug/kg	2	0	0	3.9E+01	3.9E+01			3.9E+01			
		Diethyl phthalate	ug/kg	2	2	ND	ND	ND			ND			

TABLE 3-11  
Exposure Point Concentration Summary - Resident Fish Species, By River Mile

Scenario Timeframe: Current/Future  
Medium: Fish Tissue  
Exposure Medium: Smallmouth Bass

Exposure Point <sup>a</sup>	Tissue Type	Chemical of Potential Concern <sup>b</sup>	Units	Total Samples	Total Non-Detects <sup>c</sup>	Non-Detects greater than Maximum Detected Concentration <sup>d</sup>	Arithmetic Mean <sup>e</sup>	Maximum Detected Concentration	95% UCL			Exposure Point Concentration <sup>f</sup>
									Distribution	95% UCL Method	Value	
		<b>Semi-Volatile Organic Compounds</b>										
		Benzyl alcohol	ug/kg	2	1	0	1.8E+01	2.5E+01				2.5E+01
		Hexachlorobenzene	ug/kg	2	0	0	3.4E-01	3.7E-01				3.7E-01
		Hexachlorobutadiene	ug/kg	2	2	ND	ND	ND				ND
		<b>Phenols</b>										
		4-Nitrophenol	ug/kg	2	2	ND	ND	ND				ND
		<b>Polychlorinated Biphenyls</b>										
		Total Aroclors	ug/kg	NA	NA	NA	NA	NA				NA
		Total PCB Congeners	pg/g	2	0	0	7.8E+05	1.5E+06				1.5E+06
		Total PCBs, Adjusted	pg/g	2	0	0	7.7E+05	1.5E+06				1.5E+06
		<b>Dioxin/Furans</b>										
		Total Dioxin/Furan TEQ	pg/g	2	0	0	4.4E-01	4.7E-01				4.7E-01
		Total PCB TEQ	pg/g	2	0	0	1.2E+00	2.1E+00				2.1E+00
		<b>Pesticides</b>										
		Aldrin	ug/kg	2	2	ND	ND	ND				ND
		alpha-Hexachlorocyclohexane	ug/kg	2	2	ND	ND	ND				ND
		beta-Hexachlorocyclohexane	ug/kg	2	1	1	5.0E-03	5.0E-03				5.0E-03
		Dieldrin	ug/kg	2	0	0	2.5E-01	3.3E-01				3.3E-01
		Endrin	ug/kg	2	1	0	6.8E-03	1.1E-02				1.1E-02
		Endrin aldehyde	ug/kg	2	2	ND	ND	ND				ND
		Endrin ketone	ug/kg	2	2	ND	ND	ND				ND
		gamma-Hexachlorocyclohexane	ug/kg	2	0	0	5.5E-03	6.0E-03				6.0E-03
		Heptachlor	ug/kg	2	1	1	5.0E-03	5.0E-03				5.0E-03
		Heptachlor epoxide	ug/kg	2	0	0	1.4E-02	1.8E-02				1.8E-02
		Total Chlordanes	ug/kg	2	0	0	1.3E+00	1.4E+00				1.4E+00
		Total DDD	ug/kg	2	0	0	7.5E-01	7.5E-01				7.5E-01
		Total DDE	ug/kg	2	0	0	5.4E+00	5.8E+00				5.8E+00
		Total DDT	ug/kg	2	0	0	7.4E-01	8.1E-01				8.1E-01
		Total Endosulfan	ug/kg	2	0	0	6.2E-02	7.6E-02				7.6E-02

Notes:

- a Exposure areas for smallmouth bass tissue are on a RM basis, such that samples collected from RM 1 5 - 2 5 are included in exposure area RM 2, samples collected from RM 2 5-3 5 are included in exposure area RM 3, etc Swan Island Lagoon is its own exposure area
- b Chemicals listed are analytes detected in each tissue type at least once within the Study Area
- c Total number of non-detects in the dataset
- d Number of non-detects with detection limit exceeding the maximum detected concentration for the exposure area These non-detects were removed from the dataset prior to calculation of EPCs
- e Non-detects less than the maximum detected concentration for a given exposure area are included in the arithmetic mean at half the detection limit
- f Exposure point concentration is the lesser value of maximum or 95%UCL
- g 95% UCL not calculated for analytes with fewer than five detects
- h "Total PCBs, Adjusted" equals "Total PCB Congeners" minus the sum of total dioxin-like PCBs concentrations
- i Swan Island Lagoon EPCs for fillet tissue calculated by applying ratio of Study-area Wide Fillet mean concentration/Study-area Wide Whole Body mean concentration to the Swan Island Lagoon Whole Body EPC

Abbreviations:

-- = Not applicable A 95% UCL could not be computed for the given data set  
 95% UCL = 95% Upper confidence limit on the mean  
 DDD = Dichlorodiphenyldichloroethane  
 DDE = Dichlorodiphenyldichloroethylene  
 DDT = Dichlorodiphenyltrichloroethane  
 F = Fillet tissue All smallmouth bass fillet tissue was analyzed as fillet with skin, except mercury, which was analyzed as fillet without skin  
 mg/kg = Milligrams per kilogram  
 NA = Not available Chemical not analyzed or had rejected result for given exposure area

ND = Not detected in the given exposure area  
 PCB = Polychlorinated biphenyls  
 pg/g = Picograms per gram  
 RM = River mile  
 TEQ = Toxic equivalents  
 ug/kg = Micrograms per kilogram  
 WB= Whole body



TABLE 3-12  
Exposure Point Concentration Summary - Resident Fish Species, Study Area-Wide

Scenario Timeframe: Current/Future  
Medium: Fish Tissue  
Exposure Medium: Resident Fish Species (Smallmouth Bass, Carp, Brown Bullhead, and Black Crappie)

Exposure Point	Species	Tissue Type	Chemical of Potential Concern <sup>a</sup>	Units	Total Samples	Total Non-Detects <sup>b</sup>	Non-Detects greater than Maximum Detected Concentration <sup>c</sup>	Arithmetic Mean <sup>d</sup>	Maximum Detected Concentration	95% UCL			Exposure Point Concentration <sup>e</sup>			
										Distribution	95% UCL Method	Value				
Study Area-wide	Smallmouth Bass	F	<b>Metals</b>													
			Aluminum	mg/kg	23	0	0	2.1E+00	7.2E+00	lognormal	95% H-UCL	2.7E+00	2.7E+00			
			Antimony	mg/kg	23	22	0	2.2E-03	5.0E-03	--	Fewer than 5 detects <sup>f</sup>	--	5.0E-03			
			Arsenic, inorganic	mg/kg	23	0	0	1.9E-02	3.4E-02	non-parametric	95% Student's-t UCL	2.1E-02	2.1E-02			
			Cadmium	mg/kg	23	21	18	7.0E-04	1.0E-03	--	Fewer than 5 detects	--	1.0E-03			
			Chromium	mg/kg	23	21	0	9.0E-02	9.0E-01	--	Fewer than 5 detects	--	9.0E-01			
			Copper	mg/kg	23	0	0	3.9E-01	1.1E+00	non-parametric	95% Student's-t UCL	4.7E-01	4.7E-01			
			Lead	mg/kg	23	4	0	3.9E-02	5.2E-01	non-parametric	97.5% KM (Chebyshev) UCL	1.8E-01	1.8E-01			
			Manganese	mg/kg	23	0	0	3.4E-01	5.5E-01	non-parametric	95% Chebyshev (Mean, Sd) UCL	4.8E-01	4.8E-01			
			Mercury	mg/kg	23	0	0	1.5E-01	3.5E-01	normal	95% KM (t) UCL	2.0E-01	2.0E-01			
			Nickel	mg/kg	23	0	0	6.0E-02	2.2E-01	non-parametric	95% Chebyshev (Mean, Sd) UCL	1.0E-01	1.0E-01			
			Selenium	mg/kg	23	22	0	2.7E-01	4.5E+00	--	Fewer than 5 detects	--	4.5E+00			
			Silver	mg/kg	23	22	0	5.7E-04	2.0E-03	--	Fewer than 5 detects	--	2.0E-03			
			Thallium	mg/kg	23	0	0	3.9E-03	1.0E-02	non-parametric	95% Student's-t UCL	4.6E-03	4.6E-03			
			Zinc	mg/kg	23	0	0	8.7E+00	1.1E+01	normal	95% Student's-t UCL	8.9E+00	8.9E+00			
						<b>Butyltins</b>										
						Dibutyltin ion	ug/kg	18	2	0	4.6E-01	9.2E-01	normal	95% KM (t) UCL	5.7E-01	5.7E-01
						Tributyltin ion	ug/kg	18	14	0	2.9E-01	9.2E-01	--	Fewer than 5 detects	--	9.2E-01
						<b>Polynuclear Aromatic Hydrocarbons</b>										
						1-Methylnaphthalene	ug/kg	18	3	0	7.0E-01	2.4E+00	gamma	95% KM (BCA) UCL	9.8E-01	9.8E-01
						2-Methylnaphthalene	ug/kg	18	2	0	9.3E-01	2.9E+00	gamma	95% KM (BCA) UCL	1.3E+00	1.3E+00
						Acenaphthene	ug/kg	18	16	0	8.3E-01	5.4E+00	--	Fewer than 5 detects	--	5.4E+00
						Acenaphthylene	ug/kg	18	5	0	3.9E-01	2.5E+00	non-parametric	95% KM (BCA) UCL	6.7E-01	6.7E-01
						Anthracene	ug/kg	18	8	0	6.6E-01	3.6E+00	approx. gamma	95% KM (t) UCL	1.1E+00	1.1E+00
						Benzo(a)anthracene	ug/kg	18	10	0	4.1E-01	2.6E+00	gamma	95% KM (t) UCL	7.6E-01	7.6E-01
						Benzo(a)pyrene	ug/kg	18	13	0	3.3E-01	2.5E+00	normal	95% KM (t) UCL	7.0E-01	7.0E-01
						Benzo(b)fluoranthene	ug/kg	18	12	0	2.8E-01	1.7E+00	normal	95% KM (t) UCL	5.6E-01	5.6E-01
						Benzo(g,h,i)perylene	ug/kg	18	12	0	3.2E-01	2.0E+00	normal	95% KM (t) UCL	6.2E-01	6.2E-01
						Benzo(k)fluoranthene	ug/kg	18	12	0	2.2E-01	1.4E+00	normal	95% KM (t) UCL	4.4E-01	4.4E-01
						Chrysene	ug/kg	18	9	0	7.7E-01	6.2E+00	gamma	95% KM (t) UCL	1.5E+00	1.5E+00
						Dibenzo(a,h)anthracene	ug/kg	18	15	0	5.6E-02	2.4E-01	--	Fewer than 5 detects	--	2.4E-01
						Dibenzothiophene	ug/kg	18	6	0	5.1E-01	2.1E+00	gamma	95% KM (Percentile Bootstrap) UCL	8.0E-01	8.0E-01
						Fluoranthene	ug/kg	18	8	0	2.3E+00	1.2E+01	non-parametric	95% KM (t) UCL	4.0E+00	4.0E+00
						Fluorene	ug/kg	18	14	0	8.1E-01	2.8E+00	--	Fewer than 5 detects	--	2.8E+00
						Indeno(1,2,3-cd)pyrene	ug/kg	18	11	0	3.0E-01	1.9E+00	normal	95% KM (t) UCL	5.8E-01	5.8E-01
						Naphthalene	ug/kg	18	0	0	1.7E+00	1.1E+01	non-parametric	95% KM (Chebyshev) UCL	4.2E+00	4.2E+00
						Phenanthrene	ug/kg	18	10	0	3.8E+00	2.2E+01	gamma	95% KM (t) UCL	6.9E+00	6.9E+00
						Pyrene	ug/kg	18	14	0	1.8E+00	1.3E+01	--	Fewer than 5 detects	--	1.3E+01
						<b>Phthalates</b>										
						Bis(2-ethylhexyl) phthalate	ug/kg	18	15	0	4.4E+01	1.3E+02	--	Fewer than 5 detects	--	1.3E+02
						Dibutyl phthalate	ug/kg	18	15	11	2.8E+01	4.3E+01	--	Fewer than 5 detects	--	4.3E+01
						Diethyl phthalate	ug/kg	18	17	4	6.8E+00	1.7E+01	--	Fewer than 5 detects	--	1.7E+01

TABLE 3-12  
Exposure Point Concentration Summary - Resident Fish Species, Study Area-Wide

Scenario Timeframe: Current/Future  
Medium: Fish Tissue  
Exposure Medium: Resident Fish Species (Smallmouth Bass, Carp, Brown Bullhead, and Black Crappie)

Exposure Point	Species	Tissue Type	Chemical of Potential Concern <sup>a</sup>	Units	Total Samples	Total Non-Detects <sup>b</sup>	Non-Detects greater than Maximum Detected Concentration <sup>c</sup>	Arithmetic Mean <sup>d</sup>	Maximum Detected Concentration	95% UCL			Exposure Point Concentration <sup>e</sup>
										Distribution	95% UCL Method	Value	
			<b>Semi-Volatile Organic Compounds</b>										
			Benzyl alcohol	ug/kg	18	8	0	1.9E+01	2.9E+01	normal	95% KM (t) UCL	2.5E+01	2.5E+01
			Hexachlorobenzene	ug/kg	23	5	5	3.9E-01	8.8E-01	approx. gamma	95% KM (BCA) UCL	4.5E-01	4.5E-01
			Hexachlorobutadiene	ug/kg	23	18	5	1.7E-02	1.7E-01	gamma	95% KM (t) UCL	3.4E-02	3.4E-02
			<b>Phenols</b>										
			4-Nitrophenol	ug/kg	18	17	5	6.4E+00	1.3E+01	--	Fewer than 5 detects	--	1.3E+01
			<b>Polychlorinated Biphenyls</b>										
			Total Aroclors	ug/kg	5	0	0	6.2E+01	9.3E+01	normal	95% KM (t) UCL	8.3E+01	8.3E+01
			Total PCB Congeners	pg/g	18	0	0	1.7E+05	1.5E+06	non-parametric	95% KM (Chebyshev) UCL	5.1E+05	5.1E+05
			Total PCBs, Adjusted <sup>e</sup>	pg/g	18	0	0	1.6E+05	1.5E+06	non-parametric	95% KM (Chebyshev) UCL	5.0E+05	5.0E+05
			<b>Dioxin/Furans</b>										
			Total Dioxin/Furan TEQ	pg/g	18	0	0	9.3E-01	8.7E+00	non-parametric	95% KM (Chebyshev) UCL	3.0E+00	3.0E+00
			Total PCB TEQ	pg/g	18	0	0	6.7E-01	2.1E+00	non-parametric	95% KM (Chebyshev) UCL	1.2E+00	1.2E+00
			<b>Pesticides</b>										
			Aldrin	ug/kg	23	17	15	5.6E-03	1.1E-02	gamma	95% KM (Percentile Bootstrap) UCL	7.6E-03	7.6E-03
			alpha-Hexachlorocyclohexane	ug/kg	23	18	9	3.4E-03	6.0E-03	normal	95% KM (t) UCL	4.8E-03	4.8E-03
			beta-Hexachlorocyclohexane	ug/kg	23	19	0	2.9E-01	4.5E+00	--	Fewer than 5 detects	--	4.5E+00
			Dieldrin	ug/kg	23	2	0	5.5E-01	3.3E+00	non-parametric	95% KM (Chebyshev) UCL	1.1E+00	1.1E+00
			Endrin	ug/kg	23	17	5	3.3E-03	1.1E-02	normal	95% KM (t) UCL	4.9E-03	4.9E-03
			Endrin aldehyde	ug/kg	23	21	0	2.2E-01	2.0E+00	--	Fewer than 5 detects	--	2.0E+00
			Endrin ketone	ug/kg	23	22	21	5.7E-03	1.1E-02	--	Fewer than 5 detects	--	1.1E-02
			gamma-Hexachlorocyclohexane	ug/kg	23	16	6	4.1E-03	1.1E-02	normal	95% KM (t) UCL	5.6E-03	5.6E-03
			Heptachlor	ug/kg	23	22	16	2.6E-03	5.0E-03	--	Fewer than 5 detects	--	5.0E-03
			Heptachlor epoxide	ug/kg	23	6	5	1.7E-02	2.7E-02	normal	95% KM (t) UCL	1.9E-02	1.9E-02
			Total Chlordanes	ug/kg	23	2	0	2.1E+00	7.8E+00	non-parametric	95% KM (Chebyshev) UCL	3.6E+00	3.6E+00
			Total DDD	ug/kg	23	0	0	6.1E+00	6.3E+01	non-parametric	95% Chebyshev (Mean, Sd) UCL	1.8E+01	1.8E+01
			Total DDE	ug/kg	23	0	0	1.3E+01	5.9E+01	approx. gamma	95% Approximate Gamma UCL	1.7E+01	1.7E+01
			Total DDT	ug/kg	23	0	0	6.6E+00	5.9E+01	non-parametric	99% Chebyshev (Mean, Sd) UCL	3.2E+01	3.2E+01
			Total Endosulfan	ug/kg	23	11	6	6.8E-02	1.1E-01	normal	95% KM (t) UCL	8.3E-02	8.3E-02
Study Area-wide	Smallmouth Bass	WB	<b>Metals</b>										
			Aluminum	mg/kg	32	0	0	5.3E+00	1.1E+01	gamma	95% Approximate Gamma UCL	6.0E+00	6.0E+00
			Antimony	mg/kg	32	27	0	1.9E-01	5.9E+00	gamma	95% KM (t) UCL	5.3E-01	5.3E-01
			Arsenic, inorganic	mg/kg	32	0	0	2.5E-02	3.9E-02	normal	95% Student's-t UCL	2.7E-02	2.7E-02
			Cadmium	mg/kg	32	6	0	1.1E-02	2.0E-01	non-parametric	95% KM (Chebyshev) UCL	3.8E-02	3.8E-02
			Chromium	mg/kg	32	11	0	2.8E-01	1.1E+00	non-parametric	95% KM (BCA) UCL	4.2E-01	4.2E-01
			Copper	mg/kg	32	0	0	8.1E-01	1.9E+00	gamma	95% Approximate Gamma UCL	9.2E-01	9.2E-01
			Lead	mg/kg	32	0	0	3.5E+01	1.1E+03	non-parametric	99% Chebyshev (Mean, Sd) UCL	3.8E+02	3.8E+02
			Manganese	mg/kg	32	0	0	1.7E+00	3.1E+00	normal	95% Student's-t UCL	1.9E+00	1.9E+00
			Mercury	mg/kg	32	0	0	9.3E-02	1.7E-01	normal	95% Student's-t UCL	1.0E-01	1.0E-01
			Nickel	mg/kg	32	7	0	9.6E-02	2.0E-01	non-parametric	95% KM (BCA) UCL	1.2E-01	1.2E-01
			Selenium	mg/kg	32	28	0	1.7E-01	1.2E+00	--	Fewer than 5 detects	--	1.2E+00
			Silver	mg/kg	32	23	0	3.6E-03	6.4E-02	non-parametric	95% KM (BCA) UCL	7.9E-03	7.9E-03
			Thallium	mg/kg	32	0	0	4.1E-03	8.5E-03	lognormal	95% Student's-t UCL	4.6E-03	4.6E-03
			Zinc	mg/kg	32	0	0	1.3E+01	1.6E+01	normal	95% Student's-t UCL	1.4E+01	1.4E+01

TABLE 3-12  
Exposure Point Concentration Summary - Resident Fish Species, Study Area-Wide

Scenario Timeframe: Current/Future  
Medium: Fish Tissue  
Exposure Medium: Resident Fish Species (Smallmouth Bass, Carp, Brown Bullhead, and Black Crappie)

Exposure Point	Species	Tissue Type	Chemical of Potential Concern <sup>a</sup>	Units	Total Samples	Total Non-Detects <sup>b</sup>	Non-Detects greater than Maximum Detected Concentration <sup>c</sup>	Arithmetic Mean <sup>d</sup>	Maximum Detected Concentration	95% UCL			Exposure Point Concentration <sup>e</sup>
										Distribution	95% UCL Method	Value	
			<b>Butyltins</b>										
			Dibutyltin ion	ug/kg	18	2	0	5.0E-01	1.1E+00	non-parametric	95% KM (Chebyshev) UCL	7.1E-01	7.1E-01
			Tributyltin ion	ug/kg	18	14	2	7.8E-01	1.6E+00	--	Fewer than 5 detects	--	1.6E+00
			<b>Polynuclear Aromatic Hydrocarbons</b>										
			1-Methylnaphthalene	ug/kg	18	3	0	2.6E+00	1.0E+01	gamma	95% KM (BCA) UCL	3.5E+00	3.5E+00
			2-Methylnaphthalene	ug/kg	32	11	0	1.3E+01	5.9E+01	non-parametric	97.5% KM (Chebyshev) UCL	2.6E+01	2.6E+01
			Acenaphthene	ug/kg	32	10	0	1.7E+01	9.5E+01	lognormal	97.5% KM (Chebyshev) UCL	3.7E+01	3.7E+01
			Acenaphthylene	ug/kg	32	18	14	7.0E-01	2.9E+00	gamma	95% KM (BCA) UCL	1.0E+00	1.0E+00
			Anthracene	ug/kg	32	15	14	1.6E+00	6.8E+00	lognormal	95% KM (Chebyshev) UCL	3.2E+00	3.2E+00
			Benzo(a)anthracene	ug/kg	32	24	14	2.9E-01	1.1E+00	normal	95% KM (t) UCL	4.2E-01	4.2E-01
			Benzo(a)pyrene	ug/kg	32	27	14	3.1E-01	1.3E+00	normal	95% KM (t) UCL	4.4E-01	4.4E-01
			Benzo(b)fluoranthene	ug/kg	32	26	14	2.6E-01	1.0E+00	normal	95% KM (t) UCL	3.6E-01	3.6E-01
			Benzo(g,h,i)perylene	ug/kg	32	26	14	3.8E-01	2.5E+00	normal	95% KM (t) UCL	6.3E-01	6.3E-01
			Benzo(k)fluoranthene	ug/kg	32	26	14	2.1E-01	9.2E-01	normal	95% KM (t) UCL	3.0E-01	3.0E-01
			Chrysene	ug/kg	32	23	14	4.2E-01	2.0E+00	gamma	95% KM (t) UCL	6.4E-01	6.4E-01
			Dibenzo(a,h)anthracene	ug/kg	32	29	29	1.4E-01	1.6E-01	--	Fewer than 5 detects	--	1.6E-01
			Dibenzothiophene	ug/kg	18	6	0	1.8E+00	1.1E+01	gamma	95% KM (BCA) UCL	3.1E+00	3.1E+00
			Fluoranthene	ug/kg	32	21	0	9.7E+00	3.6E+01	gamma	95% KM (t) UCL	7.9E+00	7.9E+00
			Fluorene	ug/kg	32	12	0	1.3E+01	6.9E+01	non-parametric	95% KM (BCA) UCL	1.5E+01	1.5E+01
			Indeno(1,2,3-cd)pyrene	ug/kg	32	25	14	3.2E-01	1.8E+00	gamma	95% KM (t) UCL	5.1E-01	5.1E-01
			Naphthalene	ug/kg	32	12	0	1.2E+01	8.6E+01	non-parametric	97.5% KM (Chebyshev) UCL	2.7E+01	2.7E+01
			Phenanthrene	ug/kg	32	12	0	1.8E+01	8.5E+01	lognormal	95% KM (BCA) UCL	2.2E+01	2.2E+01
			Pyrene	ug/kg	32	25	0	1.0E+01	4.9E+01	gamma	95% KM (t) UCL	9.3E+00	9.3E+00
			<b>Phthalates</b>										
			Bis(2-ethylhexyl) phthalate	ug/kg	31	25	0	4.1E+03	8.7E+04	gamma	95% KM (t) UCL	9.5E+03	9.5E+03
			Dibutyl phthalate	ug/kg	32	29	19	1.8E+01	3.7E+01	--	Fewer than 5 detects	--	3.7E+01
			Diethyl phthalate	ug/kg	32	31	31	1.0E+01	1.0E+01	--	Fewer than 5 detects	--	1.0E+01
			Di-n-octyl phthalate	ug/kg	32	29	0	1.7E+02	2.1E+03	--	Fewer than 5 detects	--	2.1E+03
			<b>Semi-Volatile Organic Compounds</b>										
			Benzoic acid	ug/kg	32	16	14	4.4E+02	6.1E+02	normal	95% KM (t) UCL	4.9E+02	4.9E+02
			Benzyl alcohol	ug/kg	32	16	14	2.5E+01	3.3E+01	normal	95% KM (t) UCL	2.8E+01	2.8E+01
			Bis(2-chloroethoxy) methane	ug/kg	32	16	14	1.2E+01	2.2E+01	non-parametric	95% KM (Chebyshev) UCL	1.6E+01	1.6E+01
			Dibenzofuran	ug/kg	32	13	0	1.0E+01	5.2E+01	non-parametric	97.5% KM (Chebyshev) UCL	1.8E+01	1.8E+01
			Hexachlorobenzene	ug/kg	32	14	12	2.1E+00	4.8E+00	non-parametric	95% KM (Chebyshev) UCL	2.8E+00	2.8E+00
			Hexachlorobutadiene	ug/kg	32	21	13	1.4E-01	1.4E+00	approx. gamma	95% KM (BCA) UCL	2.7E-01	2.7E-01
			<b>Phenols</b>										
			4-Methylphenol	ug/kg	32	29	14	5.3E+00	1.3E+01	--	Fewer than 5 detects	--	1.3E+01
			4-Nitrophenol	ug/kg	32	26	14	7.5E+00	1.4E+01	non-parametric	95% KM (t) UCL	9.8E+00	9.8E+00
			Phenol	ug/kg	32	31	13	4.5E+01	2.7E+02	--	Fewer than 5 detects	--	2.7E+02
			<b>Polychlorinated Biphenyls</b>										
			Total Aroclors	ug/kg	14	0	0	1.2E+03	4.9E+03	gamma	95% KM (Chebyshev) UCL	2.7E+03	2.7E+03
			Total PCB Congeners	pg/g	32	0	0	1.1E+06	6.6E+06	non-parametric	95% Chebyshev (Mean, Sd) UCL	2.1E+06	2.1E+06
			Total PCBs, Adjusted	pg/g	32	0	0	1.0E+06	6.4E+06	non-parametric	95% Chebyshev (Mean, Sd) UCL	2.0E+06	2.0E+06

TABLE 3-12  
Exposure Point Concentration Summary - Resident Fish Species, Study Area-Wide

Scenario Timeframe: Current/Future  
Medium: Fish Tissue  
Exposure Medium: Resident Fish Species (Smallmouth Bass, Carp, Brown Bullhead, and Black Crappie)

Exposure Point	Species	Tissue Type	Chemical of Potential Concern <sup>a</sup>	Units	Total Samples	Total Non-Detects <sup>b</sup>	Non-Detects greater than Maximum Detected Concentration <sup>c</sup>	Arithmetic Mean <sup>d</sup>	Maximum Detected Concentration	95% UCL			Exposure Point Concentration <sup>e</sup>
										Distribution	95% UCL Method	Value	
			<b>Dioxin/Furans</b>										
			Total Dioxin/Furan TEQ	pg/g	32	0	0	4.8E+00	5.2E+01	non-parametric	95% Chebyshev (Mean, Sd) UCL	1.2E+01	1.2E+01
			Total PCB TEQ	pg/g	32	0	0	7.8E+00	3.6E+01	gamma	95% Approximate Gamma UCL	9.7E+00	9.7E+00
			<b>Pesticides</b>										
			Aldrin	ug/kg	32	17	14	2.0E-02	4.0E-02	normal	95% KM (t) UCL	2.5E-02	2.5E-02
			alpha-Hexachlorocyclohexane	ug/kg	32	17	14	2.6E-02	4.2E-02	normal	95% KM (t) UCL	3.1E-02	3.1E-02
			beta-Hexachlorocyclohexane	ug/kg	32	24	15	1.3E-02	3.6E-02	normal	95% KM (t) UCL	1.7E-02	1.7E-02
			Dieldrin	ug/kg	32	13	10	2.4E+00	7.3E+00	non-parametric	95% KM (Chebyshev) UCL	3.5E+00	3.5E+00
			Endrin	ug/kg	32	17	14	2.0E-02	5.4E-02	non-parametric	95% KM (Chebyshev) UCL	3.2E-02	3.2E-02
			Endrin aldehyde	ug/kg	32	30	29	4.6E-03	6.2E-03	--	Fewer than 5 detects	--	6.2E-03
			Endrin ketone	ug/kg	32	28	19	4.5E-03	1.5E-02	--	Fewer than 5 detects	--	1.5E-02
			gamma-Hexachlorocyclohexane	ug/kg	32	20	14	2.0E-02	3.5E-02	normal	95% KM (t) UCL	2.5E-02	2.5E-02
			Heptachlor	ug/kg	32	23	15	9.2E-03	2.7E-02	gamma	95% KM (t) UCL	1.2E-02	1.2E-02
			Heptachlor epoxide	ug/kg	32	14	14	1.1E-01	1.8E-01	normal	95% Student's-t UCL	1.3E-01	1.3E-01
			Total Chlordanes	ug/kg	32	12	1	1.0E+01	2.2E+01	gamma	95% KM (Percentile Bootstrap) UCL	1.2E+01	1.2E+01
			Total DDD	ug/kg	32	0	0	5.2E+01	5.2E+02	lognormal	95% H-UCL	7.1E+01	7.1E+01
			Total DDE	ug/kg	32	0	0	1.2E+02	4.7E+02	gamma	95% Approximate Gamma UCL	1.4E+02	1.4E+02
			Total DDT	ug/kg	32	5	0	3.8E+01	4.6E+02	lognormal	97.5% KM (Chebyshev) UCL	1.3E+02	1.3E+02
			Total Endosulfan	ug/kg	32	13	0	2.2E+00	2.8E+01	non-parametric	95% KM (t) UCL	2.9E+00	2.9E+00
Study Area-wide	Carp	F	<b>Metals</b>										
			Aluminum	mg/kg	15	0	0	1.7E+00	2.8E+00	normal	95% KM (t) UCL	2.0E+00	2.0E+00
			Arsenic, inorganic	mg/kg	15	0	0	9.7E-03	2.1E-02	gamma	95% KM (BCA) UCL	1.2E-02	1.2E-02
			Cadmium	mg/kg	15	4	0	3.7E-03	9.0E-03	normal	95% KM (t) UCL	4.8E-03	4.8E-03
			Chromium	mg/kg	15	11	0	2.0E-01	1.5E+00	--	Fewer than 5 detects <sup>f</sup>	--	1.5E+00
			Copper	mg/kg	15	0	0	4.6E-01	6.9E-01	normal	95% KM (t) UCL	5.1E-01	5.1E-01
			Lead	mg/kg	15	4	0	5.7E-02	3.6E-01	non-parametric	95% KM (BCA) UCL	1.1E-01	1.1E-01
			Manganese	mg/kg	15	0	0	1.4E+00	2.8E+00	non-parametric	97.5% KM (Chebyshev) UCL	3.1E+00	2.8E+00
			Mercury	mg/kg	15	0	0	8.7E-02	1.9E-01	lognormal	95% KM (Chebyshev) UCL	1.5E-01	1.5E-01
			Nickel	mg/kg	15	1	0	6.6E-02	4.0E-01	lognormal	95% KM (Chebyshev) UCL	1.7E-01	1.7E-01
			Selenium	mg/kg	15	6	2	2.0E-01	3.0E-01	non-parametric	95% KM (BCA) UCL	N/A	3.0E-01
			Thallium	mg/kg	15	4	0	1.9E-03	6.2E-03	normal	95% KM (t) UCL	2.7E-03	2.7E-03
			Zinc	mg/kg	15	0	0	2.6E+01	3.1E+01	normal	95% KM (t) UCL	2.8E+01	2.8E+01
			<b>Butyltins</b>										
			Butyltin ion	ug/kg	9	7	1	4.0E-01	1.2E+00	--	Fewer than 5 detects	--	1.2E+00
			Dibutyltin ion	ug/kg	9	5	0	1.5E+00	7.3E+00	--	Fewer than 5 detects	--	7.3E+00
			Tributyltin ion	ug/kg	9	1	0	4.9E+00	1.1E+01	normal	95% KM (t) UCL	6.8E+00	6.8E+00
			<b>Polynuclear Aromatic Hydrocarbons</b>										
			1-Methylnaphthalene	ug/kg	9	0	0	3.4E+00	5.9E+00	normal	95% Student's-t UCL	4.3E+00	4.3E+00
			2-Methylnaphthalene	ug/kg	9	0	0	2.5E+00	3.7E+00	normal	95% Student's-t UCL	3.0E+00	3.0E+00
			Acenaphthene	ug/kg	9	0	0	2.1E+01	8.4E+01	gamma	95% Approximate Gamma UCL	4.3E+01	4.3E+01
			Acenaphthylene	ug/kg	9	0	0	2.0E+00	4.1E+00	gamma	95% Approximate Gamma UCL	2.7E+00	2.7E+00
			Anthracene	ug/kg	9	0	0	3.7E+00	9.0E+00	gamma	95% Approximate Gamma UCL	5.8E+00	5.8E+00
			Benzo(a)anthracene	ug/kg	9	8	0	6.0E-02	2.8E-01	--	Fewer than 5 detects	--	2.8E-01
			Benzo(b)fluoranthene	ug/kg	9	8	0	6.7E-02	3.2E-01	--	Fewer than 5 detects	--	3.2E-01
			Benzo(g,h,i)perylene	ug/kg	9	8	0	5.1E-02	1.7E-01	--	Fewer than 5 detects	--	1.7E-01
			Benzo(k)fluoranthene	ug/kg	9	8	0	4.5E-02	1.8E-01	--	Fewer than 5 detects	--	1.8E-01
			Dibenzo(a,h)anthracene	ug/kg	9	8	0	3.5E-02	7.5E-02	--	Fewer than 5 detects	--	7.5E-02

TABLE 3-12  
Exposure Point Concentration Summary - Resident Fish Species, Study Area-Wide

Scenario Timeframe: Current/Future  
Medium: Fish Tissue  
Exposure Medium: Resident Fish Species (Smallmouth Bass, Carp, Brown Bullhead, and Black Crappie)

Exposure Point	Species	Tissue Type	Chemical of Potential Concern <sup>a</sup>	Units	Total Samples	Total Non-Detects <sup>b</sup>	Non-Detects greater than Maximum Detected Concentration <sup>c</sup>	Arithmetic Mean <sup>d</sup>	Maximum Detected Concentration	95% UCL			Exposure Point Concentration <sup>e</sup>
										Distribution	95% UCL Method	Value	
			Dibenzothiophene	ug/kg	9	1	0	1.1E+00	3.0E+00	normal	95% KM (t) UCL	1.7E+00	1.7E+00
			Fluoranthene	ug/kg	9	3	0	2.7E+00	5.4E+00	normal	95% KM (t) UCL	4.0E+00	4.0E+00
			Fluorene	ug/kg	9	0	0	5.4E+00	1.3E+01	normal	95% Student's-t UCL	7.8E+00	7.8E+00
			Indeno(1,2,3-cd)pyrene	ug/kg	9	8	0	4.2E-02	1.2E-01	--	Fewer than 5 detects	--	1.2E-01
			Naphthalene	ug/kg	9	5	0	2.7E+00	6.8E+00	--	Fewer than 5 detects	--	6.8E+00
			Phenanthrene	ug/kg	9	4	0	5.5E+00	1.3E+01	normal	95% KM (t) UCL	9.2E+00	9.2E+00
			Pyrene	ug/kg	9	0	0	2.4E+00	4.5E+00	normal	95% Student's-t UCL	3.3E+00	3.3E+00
			<b>Semi-Volatile Organic Compounds</b>										
			Benzyl alcohol	ug/kg	9	4	0	2.2E+01	3.7E+01	normal	95% KM (t) UCL	3.1E+01	3.1E+01
			Dibenzofuran	ug/kg	9	0	0	1.7E+00	3.6E+00	normal	95% Student's-t UCL	2.4E+00	2.4E+00
			Hexachlorobenzene	ug/kg	15	4	0	1.2E+01	1.4E+02	non-parametric	97.5% KM (Chebyshev) UCL	7.0E+01	7.0E+01
			Hexachlorobutadiene	ug/kg	15	7	6	5.5E-02	1.7E-01	gamma	95% KM (Chebyshev) UCL	1.5E-01	1.5E-01
			Isophorone	ug/kg	9	6	0	6.2E+00	9.8E+00	--	Fewer than 5 detects	--	9.8E+00
			<b>Phenols</b>										
			4-Nitrophenol	ug/kg	9	1	0	1.3E+01	1.9E+01	normal	95% KM (t) UCL	1.5E+01	1.5E+01
			<b>Polychlorinated Biphenyls</b>										
			Total Aroclors	ug/kg	6	0	0	8.4E+02	1.3E+03	normal	95% KM (t) UCL	1.2E+03	1.2E+03
			Total PCB Congeners	pg/g	9	0	0	2.5E+06	2.0E+07	non-parametric	99% Chebyshev (Mean, Sd) UCL	2.4E+07	2.0E+07
			Total PCBs, Adjusted	pg/g	9	0	0	2.5E+06	1.9E+07	non-parametric	99% Chebyshev (Mean, Sd) UCL	2.4E+07	1.9E+07
			<b>Dioxin/Furans</b>										
			Total Dioxin/Furan TEQ	pg/g	9	0	0	2.8E+00	4.4E+00	gamma	95% Approximate Gamma UCL	3.5E+00	3.5E+00
			Total PCB TEQ	pg/g	9	0	0	3.3E+00	1.6E+01	non-parametric	95% Chebyshev (Mean, Sd) UCL	1.1E+01	1.1E+01
			<b>Pesticides</b>										
			Aldrin	ug/kg	15	6	6	8.4E-02	1.2E-01	normal	95% Student's-t UCL	1.0E-01	1.0E-01
			alpha-Hexachlorocyclohexane	ug/kg	15	9	6	2.2E-02	4.0E-02	normal	95% KM (t) UCL	2.9E-02	2.9E-02
			beta-Hexachlorocyclohexane	ug/kg	15	9	6	1.1E-02	2.3E-02	normal	95% KM (t) UCL	1.6E-02	1.6E-02
			Dieldrin	ug/kg	15	6	6	1.7E+00	2.3E+00	normal	95% Student's-t UCL	1.9E+00	1.9E+00
			Endrin	ug/kg	15	9	8	1.6E-02	2.2E-02	normal	95% KM (t) UCL	2.1E-02	2.1E-02
			Endrin aldehyde	ug/kg	15	13	8	1.3E-03	3.4E-03	--	Fewer than 5 detects	--	3.4E-03
			Endrin ketone	ug/kg	15	13	10	2.0E-03	6.7E-03	--	Fewer than 5 detects	--	6.7E-03
			gamma-Hexachlorocyclohexane	ug/kg	15	7	6	2.4E-02	3.6E-02	normal	95% KM (t) UCL	2.9E-02	2.9E-02
			Heptachlor epoxide	ug/kg	15	6	6	1.0E-01	1.5E-01	normal	95% Student's-t UCL	1.3E-01	1.3E-01
			Methoxychlor	ug/kg	15	13	0	1.2E+00	7.2E+00	--	Fewer than 5 detects	--	7.2E+00
			Total Chlordanes	ug/kg	15	5	2	8.9E+00	1.5E+01	normal	95% KM (t) UCL	1.1E+01	1.1E+01
			Total DDD	ug/kg	15	0	0	5.0E+01	2.0E+02	gamma	95% KM (Chebyshev) UCL	1.1E+02	1.1E+02
			Total DDE	ug/kg	15	0	0	9.4E+01	2.5E+02	gamma	95% KM (BCA) UCL	1.2E+02	1.2E+02
			Total DDT	ug/kg	15	5	0	1.0E+01	6.3E+01	gamma	95% KM (BCA) UCL	1.8E+01	1.8E+01
			Total Endosulfan	ug/kg	15	5	2	1.5E+00	8.1E+00	non-parametric	95% KM (BCA) UCL	2.3E+00	2.3E+00
Study Area-wide	Carp	WB	<b>Metals</b>										
			Aluminum	mg/kg	15	0	0	7.7E+01	1.3E+02	normal	95% Student's-t UCL	9.1E+01	9.1E+01
			Antimony	mg/kg	15	12	0	2.2E-03	6.4E-03	--	Fewer than 5 detects	--	6.4E-03
			Arsenic, inorganic	mg/kg	15	0	0	1.3E-02	2.3E-02	normal	95% Student's-t UCL	1.6E-02	1.6E-02
			Cadmium	mg/kg	15	0	0	6.0E-02	1.1E-01	normal	95% Student's-t UCL	6.9E-02	6.9E-02
			Chromium	mg/kg	15	0	0	8.4E-01	2.0E+00	normal	95% Student's-t UCL	1.1E+00	1.1E+00
			Copper	mg/kg	15	0	0	1.1E+00	1.4E+00	normal	95% Student's-t UCL	1.2E+00	1.2E+00
			Lead	mg/kg	15	0	0	2.0E-01	1.1E+00	non-parametric	95% Chebyshev (Mean, Sd) UCL	4.8E-01	4.8E-01
			Manganese	mg/kg	15	0	0	6.4E+00	8.5E+00	normal	95% Student's-t UCL	6.8E+00	6.8E+00

TABLE 3-12  
Exposure Point Concentration Summary - Resident Fish Species, Study Area-Wide

Scenario Timeframe: Current/Future  
Medium: Fish Tissue  
Exposure Medium: Resident Fish Species (Smallmouth Bass, Carp, Brown Bullhead, and Black Crappie)

Exposure Point	Species	Tissue Type	Chemical of Potential Concern <sup>a</sup>	Units	Total Samples	Total Non-Detects <sup>b</sup>	Non-Detects greater than Maximum Detected Concentration <sup>c</sup>	Arithmetic Mean <sup>d</sup>	Maximum Detected Concentration	95% UCL			Exposure Point Concentration <sup>e</sup>
										Distribution	95% UCL Method	Value	
			Mercury	mg/kg	15	0	0	4.5E-02	5.7E-02	normal	95% Student's-t UCL	4.9E-02	4.9E-02
			Nickel	mg/kg	15	0	0	5.6E-01	1.4E+00	gamma	95% Approximate Gamma UCL	6.9E-01	6.9E-01
			Selenium	mg/kg	15	0	0	3.2E-01	4.0E-01	non-parametric	95% Student's-t UCL	3.4E-01	3.4E-01
			Silver	mg/kg	15	2	0	6.8E-03	1.7E-02	gamma	95% KM (BCA) UCL	9.0E-03	9.0E-03
			Thallium	mg/kg	15	0	0	2.5E-03	5.4E-03	approx. gamma	95% Approximate Gamma UCL	3.6E-03	3.6E-03
			Zinc	mg/kg	15	0	0	9.2E+01	1.1E+02	normal	95% Student's-t UCL	9.8E+01	9.8E+01
			<b>Butyltins</b>										
			Butyltin ion	ug/kg	9	1	0	4.7E+00	2.7E+01	non-parametric	97.5% KM (Chebyshev) UCL	2.2E+01	2.2E+01
			Dibutyltin ion	ug/kg	9	0	0	1.9E+00	5.1E+00	gamma	95% KM (Chebyshev) UCL	4.0E+00	4.0E+00
			Tributyltin ion	ug/kg	9	0	0	5.6E+00	8.6E+00	normal	95% KM (t) UCL	6.9E+00	6.9E+00
			<b>Polynuclear Aromatic Hydrocarbons</b>										
			1-Methylnaphthalene	ug/kg	9	0	0	5.4E+00	1.2E+01	normal	95% Student's-t UCL	7.3E+00	7.3E+00
			2-Methylnaphthalene	ug/kg	15	5	0	1.0E+01	3.8E+01	non-parametric	95% KM (BCA) UCL	1.1E+01	1.1E+01
			Acenaphthene	ug/kg	15	4	0	3.3E+01	1.2E+02	normal	95% KM (t) UCL	4.8E+01	4.8E+01
			Acenaphthylene	ug/kg	15	6	6	1.6E+00	4.2E+00	gamma	95% KM (Chebyshev) UCL	3.2E+00	3.2E+00
			Anthracene	ug/kg	15	6	6	2.7E+00	7.6E+00	normal	95% KM (t) UCL	4.1E+00	4.1E+00
			Benzo(a)anthracene	ug/kg	15	14	10	1.5E-01	3.2E-01	--	Fewer than 5 detects	--	3.2E-01
			Benzo(a)pyrene	ug/kg	15	14	11	2.2E-01	5.4E-01	--	Fewer than 5 detects	--	5.4E-01
			Benzo(b)fluoranthene	ug/kg	15	13	8	3.1E-01	1.0E+00	--	Fewer than 5 detects	--	1.0E+00
			Benzo(g,h,i)perylene	ug/kg	15	13	8	2.5E-01	5.6E-01	--	Fewer than 5 detects	--	5.6E-01
			Benzo(k)fluoranthene	ug/kg	14	12	9	1.8E-01	4.1E-01	--	Fewer than 5 detects	--	4.1E-01
			Dibenzo(a,h)anthracene	ug/kg	15	13	10	1.5E-01	2.5E-01	--	Fewer than 5 detects	--	2.5E-01
			Dibenzothiophene	ug/kg	9	0	0	3.7E+00	2.1E+01	gamma	95% KM (Chebyshev) UCL	1.3E+01	1.3E+01
			Fluoranthene	ug/kg	15	9	6	5.7E+00	2.4E+01	normal	95% KM (t) UCL	1.1E+01	1.1E+01
			Fluorene	ug/kg	15	5	0	1.4E+01	5.3E+01	gamma	95% KM (BCA) UCL	1.9E+01	1.9E+01
			Indeno(1,2,3-cd)pyrene	ug/kg	15	13	8	2.3E-01	6.0E-01	--	Fewer than 5 detects	--	6.0E-01
			Naphthalene	ug/kg	15	8	0	1.4E+01	5.6E+01	gamma	95% KM (t) UCL	1.9E+01	1.9E+01
			Phenanthrene	ug/kg	15	10	6	6.7E+00	1.6E+01	normal	95% KM (t) UCL	1.0E+01	1.0E+01
			Pyrene	ug/kg	15	6	6	2.0E+00	7.3E+00	gamma	95% KM (Chebyshev) UCL	5.1E+00	5.1E+00
			<b>Semi-Volatile Organic Compounds</b>										
			Benzoic acid	ug/kg	15	8	6	3.7E+02	4.7E+02	normal	95% KM (t) UCL	4.3E+02	4.3E+02
			Benzyl alcohol	ug/kg	15	10	9	3.7E+01	8.0E+01	non-parametric	95% KM (Chebyshev) UCL	7.6E+01	7.6E+01
			Bis(2-chloroethoxy) methane	ug/kg	15	10	6	1.3E+01	3.0E+01	normal	95% KM (t) UCL	2.1E+01	2.1E+01
			Dibenzofuran	ug/kg	15	6	6	2.6E+00	6.0E+00	approx. gamma	95% KM (Chebyshev) UCL	5.7E+00	5.7E+00
			Hexachlorobenzene	ug/kg	15	6	5	2.9E+00	4.5E+00	normal	95% KM (t) UCL	3.4E+00	3.4E+00
			Hexachlorobutadiene	ug/kg	15	6	6	7.9E-02	2.6E-01	gamma	95% KM (Chebyshev) UCL	2.1E-01	2.1E-01
			Isophorone	ug/kg	15	12	12	5.9E+00	5.9E+00	--	Fewer than 5 detects	--	5.9E+00
			<b>Phenols</b>										
			4-Nitrophenol	ug/kg	15	7	7	8.1E+00	9.5E+00	normal	95% KM (t) UCL	8.6E+00	8.6E+00
			Phenol	ug/kg	15	14	14	4.3E+01	4.3E+01	--	Fewer than 5 detects	--	4.3E+01
			<b>Polychlorinated Biphenyls</b>										
			Total Aroclors	ug/kg	6	0	0	1.7E+03	6.9E+03	gamma	95% KM (Chebyshev) UCL	6.3E+03	6.3E+03
			Total PCB Congeners	pg/g	15	0	0	2.8E+06	2.5E+07	non-parametric	99% Chebyshev (Mean, Sd) UCL	1.9E+07	1.9E+07
			Total PCBs, Adjusted	pg/g	15	0	0	2.7E+06	2.5E+07	non-parametric	99% Chebyshev (Mean, Sd) UCL	1.9E+07	1.9E+07
			<b>Dioxin/Furans</b>										
			Total Dioxin/Furan TEQ	pg/g	15	0	0	4.1E+00	8.5E+00	approx. gamma	95% Approximate Gamma UCL	5.0E+00	5.0E+00
			Total PCB TEQ	pg/g	15	0	0	1.2E+01	1.1E+02	non-parametric	95% Chebyshev (Mean, Sd) UCL	2.5E+01	2.5E+01

TABLE 3-12  
Exposure Point Concentration Summary - Resident Fish Species, Study Area-Wide

Scenario Timeframe: Current/Future  
Medium: Fish Tissue  
Exposure Medium: Resident Fish Species (Smallmouth Bass, Carp, Brown Bullhead, and Black Crappie)

Exposure Point	Species	Tissue Type	Chemical of Potential Concern <sup>a</sup>	Units	Total Samples	Total Non-Detects <sup>b</sup>	Non-Detects greater than Maximum Detected Concentration <sup>c</sup>	Arithmetic Mean <sup>d</sup>	Maximum Detected Concentration	95% UCL			Exposure Point Concentration <sup>e</sup>			
										Distribution	95% UCL Method	Value				
			<b>Pesticides</b>													
			Aldrin	ug/kg	15	6	6	1.2E-01	1.6E-01	normal	95% KM (t) UCL	1.5E-01	1.5E-01			
			alpha-Hexachlorocyclohexane	ug/kg	15	6	6	3.5E-02	5.0E-02	normal	95% KM (t) UCL	3.9E-02	3.9E-02			
			beta-Hexachlorocyclohexane	ug/kg	15	6	6	1.9E-02	4.2E-02	non-parametric	95% KM (Chebyshev) UCL	3.3E-02	3.3E-02			
			delta-Hexachlorocyclohexane	ug/kg	15	10	6	2.3E-03	4.0E-03	normal	95% KM (t) UCL	3.1E-03	3.1E-03			
			Dieldrin	ug/kg	15	6	5	2.1E+00	3.0E+00	normal	95% KM (t) UCL	2.5E+00	2.5E+00			
			Endrin	ug/kg	15	6	6	2.3E-02	2.9E-02	normal	95% KM (t) UCL	2.7E-02	2.7E-02			
			Endrin aldehyde	ug/kg	15	13	11	3.5E-03	7.4E-03	--	Fewer than 5 detects	--	7.4E-03			
			Endrin ketone	ug/kg	15	12	9	4.3E-03	1.5E-02	--	Fewer than 5 detects	--	1.5E-02			
			gamma-Hexachlorocyclohexane	ug/kg	15	6	6	3.1E-02	4.6E-02	normal	95% KM (t) UCL	3.7E-02	3.7E-02			
			Heptachlor	ug/kg	15	10	8	4.1E-03	7.1E-03	normal	95% KM (t) UCL	5.9E-03	5.9E-03			
			Heptachlor epoxide	ug/kg	15	6	6	1.5E-01	2.1E-01	normal	95% KM (t) UCL	1.7E-01	1.7E-01			
			Methoxychlor	ug/kg	15	13	4	5.7E-01	4.2E+00	--	Fewer than 5 detects	--	4.2E+00			
			Total Chlordanes	ug/kg	15	3	0	1.3E+01	2.4E+01	approx. gamma	95% KM (BCA) UCL	1.6E+01	1.6E+01			
			Total DDD	ug/kg	15	0	0	7.5E+01	2.9E+02	approx. gamma	95% Approximate Gamma UCL	1.2E+02	1.2E+02			
			Total DDE	ug/kg	15	0	0	1.3E+02	3.2E+02	gamma	95% Approximate Gamma UCL	1.7E+02	1.7E+02			
			Total DDT	ug/kg	15	5	0	6.0E+00	4.7E+01	lognormal	99% KM (Chebyshev) UCL	3.7E+01	3.7E+01			
			Total Endosulfan	ug/kg	15	5	2	2.4E+00	1.4E+01	non-parametric	95% KM (BCA) UCL	3.7E+00	3.7E+00			
			Study Area-wide	Brown Bullhead	F	<b>Metals</b>										
						Aluminum	mg/kg	6	0	0	5.5E+00	1.1E+01	normal	95% Student's t-UCL	8.3E+00	8.3E+00
Arsenic, inorganic	mg/kg	6				0	0	2.0E-03	2.0E-03	--	--	--	2.0E-03			
Cadmium	mg/kg	6				1	1	1.0E-03	1.0E-03	--	--	--	1.0E-03			
Chromium	mg/kg	6				3	0	7.3E-02	2.3E-01	--	Fewer than 5 detects <sup>f</sup>	--	2.3E-01			
Copper	mg/kg	6				0	0	2.5E-01	2.9E-01	normal	95% Student's t-UCL	2.7E-01	2.7E-01			
Manganese	mg/kg	6				0	0	1.1E-01	1.8E-01	approx. gamma	95% Approximate Gamma UCL	1.4E-01	1.4E-01			
Mercury	mg/kg	6				0	0	6.1E-02	9.4E-02	normal	95% Student's t-UCL	7.8E-02	7.8E-02			
Nickel	mg/kg	6				0	0	2.1E-02	3.5E-02	normal	95% Student's t-UCL	3.6E-02	3.6E-02			
Thallium	mg/kg	6				0	0	2.1E-03	3.0E-03	approx. gamma	95% Approximate Gamma UCL	3.2E-03	3.0E-03			
Zinc	mg/kg	6				0	0	5.2E+00	6.5E+00	normal	95% Student's t-UCL	5.9E+00	5.9E+00			
<b>Polynuclear Aromatic Hydrocarbons</b>																
Fluoranthene	ug/kg	6				5	0	4.4E+01	1.1E+02	--	Fewer than 5 detects	--	1.1E+02			
Phenanthrene	ug/kg	6				4	0	5.8E+01	1.4E+02	--	Fewer than 5 detects	--	1.4E+02			
<b>Phthalates</b>																
Bis(2-ethylhexyl) phthalate	ug/kg	6				5	1	6.0E+01	1.0E+02	--	Fewer than 5 detects	--	1.0E+02			
<b>Polychlorinated Biphenyls</b>																
Total Aroclors	ug/kg	6				0	0	3.6E+02	1.3E+03	gamma	95% Approximate Gamma UCL	1.5E+03	1.3E+03			
<b>Pesticides</b>																
Dieldrin	ug/kg	6				5	2	9.0E-01	2.1E+00	--	Fewer than 5 detects	--	2.1E+00			
Total Chlordanes	ug/kg	6	2	2	1.4E+00	1.6E+00	--	Fewer than 5 detects	--	1.6E+00						
Total DDD	ug/kg	6	2	2	3.4E+00	4.3E+00	--	Fewer than 5 detects	--	4.3E+00						
Total DDE	ug/kg	6	0	0	1.4E+01	2.7E+01	normal	95% Student's t-UCL	1.9E+01	1.9E+01						
Total DDT	ug/kg	6	2	0	6.4E+00	1.2E+01	--	Less than 5 detects	--	1.2E+01						
Study Area-wide	Brown Bullhead	WB	<b>Metals</b>													
			Aluminum	mg/kg	6	0	0	9.8E+00	3.2E+01	non-parametric	95% Chebyshev (Mean, Sd) UCL	2.9E+01	2.9E+01			
			Arsenic, inorganic	mg/kg	6	0	0	5.6E-03	8.0E-03	normal	95% Student's t-UCL	6.8E-03	6.8E-03			
			Cadmium	mg/kg	6	0	0	1.2E-02	1.4E-02	normal	95% Student's t-UCL	1.4E-02	1.4E-02			
			Chromium	mg/kg	6	0	0	7.3E-01	1.3E+00	normal	95% Student's t-UCL	1.0E+00	1.0E+00			
			Copper	mg/kg	6	0	0	6.9E-01	8.0E-01	normal	95% Student's t-UCL	7.6E-01	7.6E-01			
			Lead	mg/kg	6	1	0	2.5E-02	4.4E-02	non-parametric	95% KM (Chebyshev) UCL	4.2E-02	4.2E-02			



TABLE 3-12  
Exposure Point Concentration Summary - Resident Fish Species, Study Area-Wide

Scenario Timeframe: Current/Future  
Medium: Fish Tissue  
Exposure Medium: Resident Fish Species (Smallmouth Bass, Carp, Brown Bullhead, and Black Crappie)

Exposure Point	Species	Tissue Type	Chemical of Potential Concern <sup>a</sup>	Units	Total Samples	Total Non-Detects <sup>b</sup>	Non-Detects greater than Maximum Detected Concentration <sup>c</sup>	Arithmetic Mean <sup>d</sup>	Maximum Detected Concentration	95% UCL			Exposure Point Concentration <sup>e</sup>
										Distribution	95% UCL Method	Value	
			Manganese	mg/kg	6	0	0	5.1E+00	1.1E+01	gamma	95% Approximate Gamma UCL	8.2E+00	8.2E+00
			Mercury	mg/kg	6	0	0	3.7E-02	5.4E-02	normal	95% Student's t-UCL	4.6E-02	4.6E-02
			Nickel	mg/kg	6	1	1	2.6E-01	3.2E-01	normal	95% Student's t-UCL	3.1E-01	3.1E-01
			Selenium	mg/kg	6	4	0	1.8E-01	3.0E-01	--	Fewer than 5 detects	--	3.0E-01
			Silver	mg/kg	6	5	0	1.6E-03	4.1E-03	--	Fewer than 5 detects	--	4.1E-03
			Thallium	mg/kg	6	2	0	2.3E-03	3.9E-03	--	Fewer than 5 detects	--	3.9E-03
			Zinc	mg/kg	6	0	0	1.4E+01	1.6E+01	normal	95% Student's t-UCL	1.5E+01	1.5E+01
			<b>Polynuclear Aromatic Hydrocarbons</b>										
			Fluoranthene	ug/kg	6	5	0	2.0E+01	4.0E+01	--	Fewer than 5 detects	--	4.0E+01
			Phenanthrene	ug/kg	6	5	0	2.4E+01	6.0E+01	--	Fewer than 5 detects	--	6.0E+01
			<b>Phthalates</b>										
			Bis(2-ethylhexyl) phthalate	ug/kg	6	5	0	4.9E+02	2.7E+03	--	Fewer than 5 detects	--	2.7E+03
			<b>Polychlorinated Biphenyls</b>										
			Total Aroclors	ug/kg	6	0	0	4.2E+02	1.7E+03	approx. gamma	95% Approximate Gamma UCL	1.4E+03	1.4E+03
			Total PCB Congeners	pg/g	6	0	0	5.1E+05	2.0E+06	gamma	95% Approximate Gamma UCL	1.6E+06	1.6E+06
			Total PCBs, Adjusted	pg/g	6	0	0	4.9E+05	1.9E+06	gamma	95% Approximate Gamma UCL	1.5E+06	1.5E+06
			<b>Dioxin/Furans</b>										
			Total Dioxin/Furan TEQ	pg/g	6	0	0	1.6E+00	2.1E+00	normal	95% Student's t-UCL	1.8E+00	1.8E+00
			Total PCB TEQ	pg/g	6	0	0	3.5E+00	6.0E+00	normal	95% Student's t-UCL	4.8E+00	4.8E+00
			<b>Pesticides</b>										
			Dieldrin	ug/kg	6	4	2	1.5E+00	2.6E+00	--	Fewer than 5 detects	--	2.6E+00
			gamma-Hexachlorocyclohexane	ug/kg	6	3	2	1.3E+00	1.9E+00	--	Fewer than 5 detects	--	1.9E+00
			Methoxychlor	ug/kg	6	5	2	6.6E-01	1.1E+00	--	Fewer than 5 detects	--	1.1E+00
			Total Chlordanes	ug/kg	6	2	0	1.6E+01	6.7E+01	--	Fewer than 5 detects	--	6.7E+01
			Total DDD	ug/kg	6	0	0	1.3E+01	2.5E+01	normal	95% Student's t-UCL	1.8E+01	1.8E+01
			Total DDE	ug/kg	6	0	0	4.7E+01	7.0E+01	normal	95% Student's t-UCL	6.0E+01	6.0E+01
			Total DDT	ug/kg	6	1	0	2.7E+01	5.8E+01	normal	95% KM (t) UCL	4.4E+01	4.4E+01
			Total Endosulfan	ug/kg	6	4	1	3.2E+00	8.6E+00	--	Fewer than 5 detects	--	8.6E+00
Study Area-wide	Black Crappie	F	<b>Metals</b>										
			Aluminum	mg/kg	4	0	0	5.2E+00	7.0E+00		Fewer than 5 detects		7.0E+00
			Arsenic, inorganic	mg/kg	4	0	0	1.4E-02	1.8E-02				1.8E-02
			Cadmium	mg/kg	4	2	0	7.5E-04	1.0E-03				1.0E-03
			Chromium	mg/kg	4	2	0	1.2E-01	2.8E-01				2.8E-01
			Copper	mg/kg	4	0	0	1.8E-01	1.8E-01				1.8E-01
			Manganese	mg/kg	4	0	0	1.3E-01	1.7E-01				1.7E-01
			Mercury	mg/kg	4	0	0	8.6E-02	1.0E-01				1.0E-01
			Nickel	mg/kg	4	2	0	3.1E-02	6.4E-02				6.4E-02
			Thallium	mg/kg	4	0	0	7.1E-03	9.9E-03				9.9E-03
			Zinc	mg/kg	4	0	0	8.2E+00	9.0E+00				9.0E+00
			<b>Polychlorinated Biphenyls</b>										
			Total Aroclors	ug/kg	4	0	0	2.4E+01	3.2E+01				3.2E+01
			<b>Pesticides</b>										
			Total Chlordanes	ug/kg	4	3	0	6.5E-01	1.1E+00				1.1E+00
			Total DDD	ug/kg	4	0	0	2.2E+00	2.7E+00				2.7E+00
			Total DDE	ug/kg	4	0	0	6.7E+00	7.8E+00				7.8E+00
			Total DDT	ug/kg	4	0	0	2.7E+00	3.4E+00				3.4E+00
Study Area-wide	Black Crappie	WB	<b>Metals</b>										
			Aluminum	mg/kg	4	0	0	2.2E+01	6.9E+01		Fewer than 5 detects		6.9E+01
			Arsenic, inorganic	mg/kg	4	0	0	2.8E-02	4.2E-02				4.2E-02

TABLE 3-12  
Exposure Point Concentration Summary - Resident Fish Species, Study Area-Wide

Scenario Timeframe: Current/Future  
Medium: Fish Tissue  
Exposure Medium: Resident Fish Species (Smallmouth Bass, Carp, Brown Bullhead, and Black Crappie)

Exposure Point	Species	Tissue Type	Chemical of Potential Concern <sup>a</sup>	Units	Total Samples	Total Non-Detects <sup>b</sup>	Non-Detects greater than Maximum Detected Concentration <sup>c</sup>	Arithmetic Mean <sup>d</sup>	Maximum Detected Concentration	95% UCL			Exposure Point Concentration <sup>e</sup>
										Distribution	95% UCL Method	Value	
			Cadmium	mg/kg	4	0	0	3.9E-03	6.0E-03				6.0E-03
			Copper	mg/kg	4	0	0	8.2E-01	9.5E-01				9.5E-01
			Lead	mg/kg	4	3	0	6.6E-03	1.9E-02				1.9E-02
			Manganese	mg/kg	4	0	0	3.1E+00	3.4E+00				3.4E+00
			Mercury	mg/kg	4	0	0	3.9E-02	4.4E-02				4.4E-02
			Nickel	mg/kg	4	0	0	3.4E-01	3.6E-01				3.6E-01
			Thallium	mg/kg	4	0	0	1.1E-02	1.7E-02				1.7E-02
			Zinc	mg/kg	4	0	0	1.5E+01	1.7E+01				1.7E+01
			<b>Semi-Volatile Organic Compounds</b>										
			Hexachlorobenzene	ug/kg	4	2	0	3.7E+00	8.1E+00				8.1E+00
			Hexachlorobutadiene	ug/kg	4	1	0	1.4E+00	2.3E+00				2.3E+00
			Polychlorinated Biphenyls										
			<b>Total Aroclors</b>	ug/kg	4	0	0	1.3E+02	2.5E+02				2.5E+02
			Total PCB Congeners	pg/g	4	0	0	1.6E+05	3.0E+05				3.0E+05
			Total PCBs, Adjusted <sup>g</sup>	pg/g	4	0	0	1.5E+05	2.8E+05				2.8E+05
			<b>Dioxin/Furans</b>										
			Total Dioxin/Furan TEQ	pg/g	4	0	0	1.2E+00	1.3E+00				1.3E+00
			Total PCB TEQ	pg/g	4	0	0	2.2E+00	3.2E+00				3.2E+00
			<b>Pesticides</b>										
			alpha-Hexachlorocyclohexane	ug/kg	4	3	0	7.3E-01	1.4E+00				1.4E+00
			Dieldrin	ug/kg	4	3	1	1.5E+00	2.5E+00				2.5E+00
			Heptachlor	ug/kg	4	3	0	8.6E-01	1.8E+00				1.8E+00
			Total Chlordanes	ug/kg	4	0	0	7.5E+00	9.7E+00				9.7E+00
			Total DDD	ug/kg	4	0	0	1.2E+01	1.9E+01				1.9E+01
			Total DDE	ug/kg	4	0	0	5.6E+01	8.1E+01				8.1E+01
			Total DDT	ug/kg	4	1	0	1.3E+01	2.2E+01				2.2E+01
			Total Endosulfan	ug/kg	4	3	1	7.0E-01	1.1E+00				1.1E+00

**Notes:**

- a Chemicals listed are analytes detected in each tissue type at least once within the Study Area.
- b Total number of non-detects in the dataset.
- c Number of non-detects with detection limit exceeding the maximum detected concentration for the exposure area. These non-detects were removed from the dataset prior to calculation of EPCs.
- d Non-detects less than the maximum detected concentration for a given exposure area are included in the arithmetic mean at half the detection limit.
- e Exposure point concentration is the lesser value of maximum or 95%UCL.
- f 95% UCL not calculated for analytes with fewer than five detects.
- g "Total PCBs, Adjusted" equals "Total PCB Congeners" minus the sum of total dioxin-like PCBs concentrations.

**Abbreviations:**

- = Not applicable. A 95% UCL could not be computed for the given data set.
- 95% UCL = 95% Upper confidence limit on the mean.
- DDD = Dichlorodiphenyldichloroethane.
- DDE = Dichlorodiphenyldichloroethylene.
- DDT = Dichlorodiphenyltrichloroethane.
- F = Fillet tissue. All smallmouth bass, carp, and crappie fillet tissue was analyzed as fillet with skin, except mercury, which was analyzed as fillet without skin. All brown bullhead fillet tissue was analyzed as fillet without skin.
- mg/kg = Milligrams per kilogram.
- PCB = Polychlorinated biphenyls.
- pg/g = Picograms per gram.
- TEQ = Toxic equivalents.
- ug/kg = Micrograms per kilogram.
- WB= Whole body.

**TABLE 3-13**  
**Exposure Point Concentration Summary - Pacific Lamprey Tissue**

Scenario Timeframe: Current/Future
Medium: Fish Tissue
Exposure Medium: Pacific Lamprey Tissue

Exposure Point <sup>a</sup>	Tissue Type	Chemical of Potential Concern <sup>b</sup>	Units	Total Samples	Total Non-Detects <sup>c</sup>	Non-Detects greater than Maximum Detected Concentration <sup>d</sup>	Arithmetic Mean <sup>c</sup>	Maximum Detected Concentration	95% UCL			Exposure Point Concentration <sup>f</sup>
									Distribution	95% UCL Method	Value	
Study Area-wide	WB	<b>Metals</b>										
		Antimony	mg/kg	4	2	0	8.9E-01	2.1E+00	Fewer than 5 detects <sup>g</sup>		2.1E+00	
		Arsenic, inorganic	mg/kg	4	0	0	2.4E-02	2.7E-02		2.7E-02		
		Cadmium	mg/kg	4	0	0	6.0E-02	6.5E-02		6.5E-02		
		Chromium	mg/kg	4	0	0	3.0E-01	4.5E-01		4.5E-01		
		Cobalt	mg/kg	4	0	0	5.7E-02	7.2E-02		7.2E-02		
		Copper	mg/kg	4	0	0	4.4E+00	4.8E+00		4.8E+00		
		Iron	mg/kg	4	0	0	7.3E+01	8.2E+01		8.2E+01		
		Lead	mg/kg	4	3	0	3.8E-02	1.3E-01		1.3E-01		
		Manganese	mg/kg	4	0	0	1.6E+00	5.2E+00		5.2E+00		
		Mercury	mg/kg	4	0	0	1.4E-01	1.7E-01		1.7E-01		
		Nickel	mg/kg	4	3	0	3.1E-02	5.5E-02		5.5E-02		
		Selenium	mg/kg	4	0	0	4.2E-01	4.8E-01		4.8E-01		
		Silver	mg/kg	4	0	0	8.1E-02	8.9E-02		8.9E-02		
		Zinc	mg/kg	4	0	0	1.9E+01	2.0E+01		2.0E+01		
		<b>Polynuclear Aromatic Hydrocarbons</b>										
		1-Methylnaphthalene	ug/kg	4	2	0	9.3E+00	1.5E+01		1.5E+01		
		2-Methylnaphthalene	ug/kg	4	2	0	1.6E+01	2.6E+01	2.6E+01			
		Acenaphthene	ug/kg	4	3	3	2.5E+00	2.5E+00	2.5E+00			
		Acenaphthylene	ug/kg	4	3	3	1.0E+00	1.0E+00	1.0E+00			
		Anthracene	ug/kg	4	3	3	1.7E+00	1.7E+00	1.7E+00			
		Fluoranthene	ug/kg	4	2	0	5.9E+00	1.1E+01	1.1E+01			
		Fluorene	ug/kg	4	2	0	3.2E+00	4.8E+00	4.8E+00			
		Naphthalene	ug/kg	4	2	0	6.4E+00	1.1E+01	1.1E+01			
		Phenanthrene	ug/kg	4	2	1	4.8E+00	8.2E+00	8.2E+00			
		Pyrene	ug/kg	4	2	2	1.7E+00	2.0E+00	2.0E+00			
		<b>Semi-Volatile Organic Compounds</b>										
		Dibenzofuran	ug/kg	4	3	3	2.9E+00	2.9E+00	2.9E+00			
		Hexachlorobenzene	ug/kg	4	0	0	9.1E+00	1.1E+01	1.1E+01			
		Retene	ug/kg	4	3	0	3.5E+00	7.8E+00	7.8E+00			
		<b>Polychlorinated Biphenyls</b>										
		Total Aroclors	ug/kg	4	0	0	4.4E+01	5.0E+01	5.0E+01			
		Total PCB Congeners	pg/g	4	0	0	4.5E+04	4.9E+04	4.9E+04			
		Total PCBs, Adjusted <sup>h</sup>	pg/g	4	0	0	4.1E+04	4.5E+04	4.5E+04			

**TABLE 3-13**  
**Exposure Point Concentration Summary - Pacific Lamprey Tissue**

Scenario Timeframe: Current/Future
Medium: Fish Tissue
Exposure Medium: Pacific Lamprey Tissue

Exposure Point <sup>a</sup>	Tissue Type	Chemical of Potential Concern <sup>b</sup>	Units	Total Samples	Total Non-Detects <sup>c</sup>	Non-Detects greater than Maximum Detected Concentration <sup>d</sup>	Arithmetic Mean <sup>e</sup>	Maximum Detected Concentration	95% UCL			Exposure Point Concentration <sup>f</sup>
									Distribution	95% UCL Method	Value	
		<b>Dioxin/Furans</b>										
		Total Dioxin/Furan TEQ	pg/g	4	0	0	2.8E-01	3.1E-01				3.1E-01
		Total PCB TEQ	pg/g	4	0	0	9.0E-01	9.7E-01				9.7E-01

**Notes:**

- a Lamprey samples were taken at Willamette Falls, outside of initial study area; samples represent EPCs for Study Area locations.
- b Chemicals listed are analytes detected at least once within the BHHRA data set for this species.
- c Total number of non-detects in the dataset.
- d Number of non-detects with detection limit exceeding the maximum detected concentration for the exposure area. These non-detects were removed from the dataset prior to calculation of EPCs.
- e Non-detects less than the maximum detected concentration for a given exposure area are included in the arithmetic mean at half the detection limit.
- f Exposure point concentration is lesser value of the 95% UCL or maximum.
- g 95% UCL not calculated for analytes with fewer than five detects.
- h "Total PCBs, Adjusted" equals "Total PCB Congeners" minus the sum of total dioxin-like PCBs concentrations.

**Abbreviations:**

- 95% UCL = 95% Upper confidence limit on the mean.
- BHHRA = Baseline human health risk assessment.
- mg/kg = Milligrams per kilogram.
- PCB = Polychlorinated biphenyl.
- pg/g = Picograms per gram.
- TEQ = Toxic equivalents.
- ug/kg = Micrograms per kilogram.
- WB = Whole body tissue.

TABLE 3-14  
Exposure Point Concentration Summary - Sturgeon Tissue

Scenario Timeframe: Current/Future  
Medium: Fish Tissue  
Exposure Medium: Sturgeon Tissue

Exposure Point <sup>a</sup>	Tissue Type	Chemical of Potential Concern <sup>b</sup>	Units	Total Samples	Total Non-Detects <sup>c</sup>	Non-Detects greater than Maximum Detected Concentration <sup>d</sup>	Arithmetic Mean <sup>e</sup>	Maximum Detected Concentration	95% UCL			Exposure Point Concentration <sup>f</sup>		
									Distribution	95% UCL Method	Value			
Study Area-wide	FNS	<b>Metals</b>												
		Aluminum	mg/kg	5	4	0	1.2E+00	2.2E+00	--	Fewer than 5 detects <sup>g</sup>	--	2.2E+00		
		Arsenic, inorganic	mg/kg	5	0	0	3.4E-02	5.4E-02	normal	95% Student's-t UCL	4.8E-02	4.8E-02		
		Barium	mg/kg	5	1	0	6.5E-02	9.5E-02	--	Fewer than 5 detects	--	9.5E-02		
		Chromium	mg/kg	5	0	0	1.5E+00	3.3E+00	normal	95% Student's-t UCL	2.7E+00	2.7E+00		
		Cobalt	mg/kg	5	0	0	2.8E-01	4.0E-01	normal	95% Student's-t UCL	4.1E-01	4.0E-01		
		Copper	mg/kg	5	0	0	1.9E-01	2.5E-01	normal	95% Student's-t UCL	2.4E-01	2.4E-01		
		Iron	mg/kg	5	0	0	8.2E+00	1.6E+01	normal	95% Student's-t UCL	1.3E+01	1.3E+01		
		Lead	mg/kg	5	4	0	7.3E-03	1.7E-02	--	Fewer than 5 detects	--	1.7E-02		
		Manganese	mg/kg	5	0	0	5.2E-01	1.1E+00	gamma	95% Approximate Gamma UCL	9.7E-01	9.7E-01		
		Mercury	mg/kg	5	0	0	2.4E-01	3.2E-01	normal	95% Student's-t UCL	3.3E-01	3.2E-01		
		Nickel	mg/kg	5	0	0	7.3E-01	1.7E+00	normal	95% Student's-t UCL	1.4E+00	1.4E+00		
		Selenium	mg/kg	5	0	0	4.2E-01	5.3E-01	normal	95% Student's-t UCL	5.2E-01	5.2E-01		
		Zinc	mg/kg	5	0	0	2.6E+00	2.9E+00	normal	95% Student's-t UCL	2.9E+00	2.9E+00		
				<b>Polynuclear Aromatic Hydrocarbons</b>										
				1-Methylnaphthalene	ug/kg	5	2	0	2.9E+00	3.9E+00	--	Fewer than 5 detects	--	3.9E+00
				2-Methylnaphthalene	ug/kg	5	4	0	2.4E+00	4.4E+00	--	Fewer than 5 detects	--	4.4E+00
				Acenaphthene	ug/kg	5	2	0	3.6E+00	8.4E+00	--	Fewer than 5 detects	--	8.4E+00
				Acenaphthylene	ug/kg	5	4	4	1.0E+00	1.0E+00	--	Fewer than 5 detects	--	1.0E+00
				Anthracene	ug/kg	5	4	0	2.6E+00	5.1E+00	--	Fewer than 5 detects	--	5.1E+00
				Fluoranthene	ug/kg	5	3	3	1.1E+00	1.3E+00	--	Fewer than 5 detects	--	1.3E+00
				Fluorene	ug/kg	5	4	0	2.6E+00	5.2E+00	--	Fewer than 5 detects	--	5.2E+00
				Pyrene	ug/kg	5	4	4	1.2E+00	1.2E+00	--	Fewer than 5 detects	--	1.2E+00
				<b>Semi-Volatile Organic Compounds</b>										
				Dibenzofuran	ug/kg	5	2	2	1.8E+00	3.6E+00	--	Fewer than 5 detects	--	3.6E+00
				Hexachlorobenzene	ug/kg	5	2	2	1.6E+00	1.6E+00	--	Fewer than 5 detects	--	1.6E+00
				<b>Polychlorinated Biphenyls</b>										
				Total Aroclors	ug/kg	5	0	0	1.3E+02	4.3E+02	gamma	95% Approximate Gamma UCL	4.7E+02	4.3E+02
				Total PCB Congeners	pg/g	5	0	0	2.9E+05	9.6E+05	gamma	95% Approximate Gamma UCL	1.1E+06	9.6E+05
				Total PCBs, Adjusted <sup>h</sup>	pg/g	5	0	0	2.8E+05	9.5E+05	gamma	95% Approximate Gamma UCL	1.1E+06	9.5E+05
				<b>Dioxin/Furans</b>										
				Total Dioxin/Furan TEQ	pg/g	5	0	0	5.8E-01	1.3E+00	normal	95% Student's-t UCL	1.0E+00	1.0E+00
				Total PCB TEQ	pg/g	5	0	0	5.2E-01	8.7E-01	normal	95% Student's-t UCL	7.6E-01	7.6E-01
				<b>Pesticides</b>										
				Dieldrin	ug/kg	5	3	0	7.0E-01	1.4E+00	--	Fewer than 5 detects	--	1.4E+00
				Methoxychlor	ug/kg	5	4	0	2.4E+00	4.4E+00	--	Fewer than 5 detects	--	4.4E+00
				Total Chlordanes	ug/kg	5	1	0	3.6E+00	5.6E+00	--	Fewer than 5 detects	--	5.6E+00

TABLE 3-14  
Exposure Point Concentration Summary - Sturgeon Tissue

Scenario Timeframe: Current/Future
Medium: Fish Tissue
Exposure Medium: Sturgeon Tissue

Exposure Point <sup>a</sup>	Tissue Type	Chemical of Potential Concern <sup>b</sup>	Units	Total Samples	Total Non-Detects <sup>c</sup>	Non-Detects greater than Maximum Detected Concentration <sup>d</sup>	Arithmetic Mean <sup>e</sup>	Maximum Detected Concentration	95% UCL			Exposure Point Concentration <sup>f</sup>
									Distribution	95% UCL Method	Value	
		Total DDE	ug/kg	5	0	0	5.0E+01	9.4E+01	normal	95% Student's-t UCL	7.6E+01	7.6E+01
		Total DDT	ug/kg	5	0	0	2.7E+01	7.4E+01	gamma	95% Approximate Gamma UCL	7.8E+01	7.4E+01
		Total Endosulfan	ug/kg	5	4	0	6.0E-01	1.1E+00	--	Fewer than 5 detects	--	1.1E+00

**Notes:**

- a Sturgeon samples were taken between Willamette River miles 3.5 and 9.2.
- b Chemicals listed are analytes detected at least once within the BHHRA data set for this species.
- c Total number of non-detects in the dataset.
- d Number of non-detects with detection limit exceeding the maximum detected concentration for the exposure area. These non-detects were removed from the dataset prior to calculation of EPCs.
- e Non-detects less than the maximum detected concentration for a given exposure area are included in the arithmetic mean at half the detection limit.
- f Exposure point concentration is lesser value of the 95% UCL or maximum.
- g 95% UCL not calculated for analytes with fewer than five detects.
- h "Total PCBs, Adjusted" equals "Total PCB Congeners" minus the sum of total dioxin-like PCBs concentrations.

**Abbreviations:**

- = Not applicable. A 95% UCL could not be computed for the given data set.
- 95% UCL = 95% Upper confidence limit on the mean.
- DDE = Dichlorodiphenyldichloroethylene.
- DDT = Dichlorodiphenyltrichloroethane.
- FNS = Fillet tissue without skin.
- mg/kg = Milligrams per kilogram.
- PCB = Polychlorinated biphenyl.
- pg/g = Picograms per gram.
- TEQ = Toxic equivalents.
- ug/kg = Micrograms per kilogram.

**TABLE 3-15**  
**Exposure Point Concentration Summary - Adult Chinook Tissue**

Scenario Timeframe: Current/Future
Medium: Fish Tissue
Exposure Medium: Adult Chinook Tissue

Exposure Point <sup>a</sup>	Tissue Type	Chemical of Potential Concern <sup>b</sup>	Units	Total Samples	Total Non-Detects <sup>c</sup>	Non-Detects greater than Maximum Detected Concentration <sup>d</sup>	Arithmetic Mean <sup>e</sup>	Maximum Detected Concentration	95% UCL			Exposure Point Concentration <sup>f</sup>
									Distribution	95% UCL Method	Value	
Study Area-wide	FS	<b>Metals</b>										
		Arsenic, inorganic	mg/kg	3	0	0	1.0E-01	1.3E-01		Fewer than 5 detects <sup>g</sup>		1.3E-01
		Chromium	mg/kg	3	0	0	3.1E-01	3.3E-01			3.3E-01	
		Cobalt	mg/kg	3	0	0	1.5E-01	2.7E-01			2.7E-01	
		Copper	mg/kg	3	0	0	5.2E-01	5.3E-01			5.3E-01	
		Iron	mg/kg	3	0	0	4.0E+00	4.3E+00			4.3E+00	
		Manganese	mg/kg	3	0	0	9.1E-02	9.5E-02			9.5E-02	
		Selenium	mg/kg	3	0	0	3.1E-01	3.4E-01			3.4E-01	
		Zinc	mg/kg	3	0	0	4.6E+00	4.6E+00			4.6E+00	
		<b>Polynuclear Aromatic Hydrocarbons</b>										
		2-Methylnaphthalene	ug/kg	3	2	0	3.1E+00	5.4E+00			5.4E+00	
		Fluorene	ug/kg	3	2	2	1.8E+00	1.8E+00			1.8E+00	
		<b>Polychlorinated Biphenyls</b>										
		Total Aroclors	ug/kg	3	0	0	1.5E+01	2.0E+01			2.0E+01	
		Total PCB Congeners	pg/g	3	0	0	1.3E+04	1.5E+04			1.5E+04	
		Total PCBs, Adjusted <sup>h</sup>	pg/g	3	0	0	1.2E+04	1.4E+04			1.4E+04	
		<b>Dioxin/Furans</b>										
		Total Dioxin/Furan TEQ	pg/g	3	0	0	1.7E-01	1.9E-01			1.9E-01	
		Total PCB TEQ	pg/g	3	0	0	1.7E-01	2.0E-01			2.0E-01	
		<b>Pesticides</b>										
Dieldrin	ug/kg	3	2	1	1.4E+00	2.0E+00		2.0E+00				
Total DDE	ug/kg	3	1	0	7.2E+00	1.1E+01		1.1E+01				
Total DDT	ug/kg	3	1	0	1.2E+00	2.0E+00		2.0E+00				
Total Endosulfan	ug/kg	3	2	1	8.3E-01	1.2E+00		1.2E+00				
	FNS	<b>Metals</b>										
		Mercury	mg/kg	3	0	0	8.1E-02	1.0E-01		Fewer than 5 detects		1.0E-01
		<b>Polychlorinated Biphenyls</b>										
		Total PCB Congeners	pg/g	3	0	0	1.0E+04	1.2E+04			1.2E+04	
		Total PCBs, Adjusted	pg/g	3	0	0	9.5E+03	1.2E+04			1.2E+04	
		<b>Dioxins/Furans</b>										
Total Dioxin/Furan TEQ	pg/g	3	0	0	1.4E-01	1.7E-01		1.7E-01				
Total PCB TEQ	pg/g	3	0	0	1.5E-01	1.8E-01		1.8E-01				



**TABLE 3-15**  
**Exposure Point Concentration Summary - Adult Chinook Tissue**

Scenario Timeframe: Current/Future
Medium: Fish Tissue
Exposure Medium: Adult Chinook Tissue

Exposure Point <sup>a</sup>	Tissue Type	Chemical of Potential Concern <sup>b</sup>	Units	Total Samples	Total Non-Detects <sup>c</sup>	Non-Detects greater than Maximum Detected Concentration <sup>d</sup>	Arithmetic Mean <sup>e</sup>	Maximum Detected Concentration	95% UCL			Exposure Point Concentration <sup>f</sup>
									Distribution	95% UCL Method	Value	
	WB	<b>Metals</b>										
		Aluminum	mg/kg	4	0	0	4.9E+00	5.6E+00		Fewer than 5 detects		5.6E+00
		Antimony	mg/kg	4	3	0	1.2E-01	2.8E-01			2.8E-01	
		Arsenic, inorganic	mg/kg	4	0	0	9.0E-02	9.8E-02			9.8E-02	
		Chromium	mg/kg	4	0	0	3.1E-01	4.0E-01			4.0E-01	
		Cobalt	mg/kg	4	0	0	6.8E-02	8.4E-02			8.4E-02	
		Copper	mg/kg	4	0	0	1.4E+00	1.5E+00			1.5E+00	
		Iron	mg/kg	4	0	0	2.0E+01	2.1E+01			2.1E+01	
		Manganese	mg/kg	4	0	0	3.0E-01	3.4E-01			3.4E-01	
		Mercury	mg/kg	4	0	0	5.7E-02	6.2E-02			6.2E-02	
		Nickel	mg/kg	4	0	0	1.3E-01	2.2E-01			2.2E-01	
		Selenium	mg/kg	4	0	0	4.7E-01	5.1E-01			5.1E-01	
		Silver	mg/kg	4	3	0	1.0E-02	1.7E-02			1.7E-02	
		Zinc	mg/kg	4	0	0	2.8E+01	3.8E+01			3.8E+01	
		<b>Polynuclear Aromatic Hydrocarbons</b>										
		1-Methyl-naphthalene	ug/kg	4	1	1	2.6E+00	2.8E+00		2.8E+00		
		2-Methyl-naphthalene	ug/kg	4	1	0	4.6E+00	5.7E+00		5.7E+00		
		Fluoranthene	ug/kg	4	3	3	1.0E+00	1.0E+00		1.0E+00		
		Fluorene	ug/kg	4	3	3	8.0E-01	8.0E-01		8.0E-01		
		<b>Semi-Volatile Organic Compounds</b>										
		Dibenzofuran	ug/kg	4	3	3	7.0E-01	7.0E-01		7.0E-01		
		Hexachlorobenzene	ug/kg	4	1	1	2.2E+00	2.6E+00		2.6E+00		
		<b>Polychlorinated Biphenyls</b>										
		Total Aroclors	ug/kg	4	0	0	1.7E+01	1.9E+01		1.9E+01		
		Total PCB Congeners	pg/g	4	0	0	1.5E+04	1.7E+04		1.7E+04		
		Total PCBs, Adjusted	pg/g	4	0	0	1.4E+04	1.6E+04		1.6E+04		
		<b>Dioxins/Furans</b>										
		Total Dioxin/Furan TEQ	pg/g	4	0	0	2.1E-01	2.6E-01		2.6E-01		
		Total PCB TEQ	pg/g	4	0	0	2.2E-01	2.5E-01		2.5E-01		
		<b>Pesticides</b>										
		Dieldrin	ug/kg	4	0	0	1.4E+00	1.6E+00		1.6E+00		
		Heptachlor	ug/kg	4	3	0	7.8E-01	1.7E+00		1.7E+00		
		Methoxychlor	ug/kg	4	3	2	2.8E+00	3.7E+00		3.7E+00		
		Total Chlordane	ug/kg	4	3	2	8.4E-01	1.2E+00		1.2E+00		

**TABLE 3-15**  
**Exposure Point Concentration Summary - Adult Chinook Tissue**

Scenario Timeframe: Current/Future
Medium: Fish Tissue
Exposure Medium: Adult Chinook Tissue

Exposure Point <sup>a</sup>	Tissue Type	Chemical of Potential Concern <sup>b</sup>	Units	Total Samples	Total Non-Detects <sup>c</sup>	Non-Detects greater than Maximum Detected Concentration <sup>d</sup>	Arithmetic Mean <sup>e</sup>	Maximum Detected Concentration	95% UCL			Exposure Point Concentration <sup>f</sup>
									Distribution	95% UCL Method	Value	
		Total DDE	ug/kg	4	0	0	6.4E+00	7.9E+00				7.9E+00
		Total DDT	ug/kg	4	3	3	1.4E+00	1.4E+00				1.4E+00
		Total Endosulfan	ug/kg	4	3	2	7.3E-01	9.9E-01				9.9E-01

**Notes:**

- a Chinook salmon samples were taken at Clackamas fish hatchery, outside of initial study area; samples represent EPCs for Study Area locations.
- b Chemicals listed are analytes detected in each tissue type at least once within the BHHRA data set for this species.
- c Total number of non-detects in the dataset.
- d Number of non-detects with detection limit exceeding the maximum detected concentration for the exposure area. These non-detects were removed from the dataset prior to calculation of EPCs.
- e Non-detects less than the maximum detected concentration for a given exposure area are included in the arithmetic mean at half the detection limit.
- f Exposure point concentration is lesser value of the 95% UCL or maximum.
- g 95% UCL not calculated for analytes with fewer than five detects.
- h "Total PCBs, Adjusted" equals "Total PCB Congeners" minus the sum of total dioxin-like PCBs concentrations.

**Abbreviations:**

- 95% UCL = 95% Upper confidence limit on the mean.
- DDE = Dichlorodiphenylchloroethylene.
- DDT = Dichlorodiphenyltrichloroethane.
- FNS = Fillet tissue without skin.
- FS = Fillet tissue with skin.
- mg/kg = Milligrams per kilogram.
- PCB = Polychlorinated biphenyl.
- pg/g = Picograms per gram.
- TEQ = Toxic equivalents.
- ug/kg = Micrograms per kilogram.
- WB = Whole body tissue.

TABLE 3-16  
Exposure Point Concentration Summary - Multi-Species Diet, Study Area-Wide

Scenario Timeframe: Current/Future  
Medium: Fish Tissue  
Exposure Medium: Multi-species

Exposure Point	Tissue Type	Chemical of Potential Concern <sup>a</sup>	Units	Recreational and Subsistence Fishers <sup>b</sup>					Tribal Fishers <sup>b</sup>								
				Smallmouth Bass	Common Carp	Brown Bullhead	Black Crappie	Multi-Species EPC <sup>c,d</sup>	Smallmouth Bass	Common Carp	Brown Bullhead	Black Crappie	Salmon <sup>e</sup>	Lamprey <sup>f</sup>	Sturgeon <sup>g</sup>	Multi-Species EPC <sup>h,i,j</sup>	
Study Area-wide	F	<b>Metals</b>															
		Aluminum	mg/kg	6 7E-01	4 9E-01	2 1E+00	1 8E+00	5 0E+00	3 3E-01	2 4E-01	1 0E+00	8 7E-01	ND	ND	1 1E-01	2 6E+00	
		Antimony	mg/kg	1 3E-03	ND	ND	ND	1 3E-03	6 2E-04	ND	ND	ND	1 4E-01	ND	1 4E-01	ND	
		Arsenic, inorganic	mg/kg	5 4E-03	3 0E-03	5 0E-04	4 5E-03	1 3E-02	2 7E-03	1 5E-03	2 5E-04	2 2E-03	4 8E-02	1 9E-03	2 4E-03	5 9E-02	
		Cadmium	mg/kg	2 5E-04	1 2E-03	2 5E-04	2 5E-04	2 0E-03	1 2E-04	6 0E-04	1 2E-04	1 2E-04	4 6E-03	ND	ND	5 5E-03	
		Chromium	mg/kg	2 3E-01	3 7E-01	5 8E-02	7 0E-02	7 3E-01	1 1E-01	1 8E-01	2 9E-02	3 5E-02	1 3E-01	3 1E-02	1 3E-01	6 5E-01	
		Copper	mg/kg	1 2E-01	1 3E-01	6 9E-02	4 6E-02	3 6E-01	5 8E-02	6 3E-02	3 4E-02	2 3E-02	2 0E-01	3 4E-01	1 2E-02	7 3E-01	
		Lead	mg/kg	4 5E-02	2 8E-02	ND	ND	7 3E-02	2 2E-02	1 4E-02	ND	ND	9 0E-03	8 1E-04	4 6E-02	4 6E-02	
		Manganese	mg/kg	1 2E-01	7 0E-01	3 5E-02	4 2E-02	9 0E-01	6 0E-02	3 5E-01	1 7E-02	2 1E-02	3 7E-02	3 6E-01	4 8E-02	8 9E-01	
		Mercury	mg/kg	5 0E-02	3 8E-02	2 0E-02	2 5E-02	1 3E-01	2 5E-02	1 9E-02	9 7E-03	1 3E-02	1 2E-02	1 6E-02	9 4E-02	9 4E-02	
		Nickel	mg/kg	2 6E-02	4 3E-02	9 1E-03	1 6E-02	9 4E-02	1 3E-02	2 1E-02	4 5E-03	7 9E-03	ND	3 8E-03	7 0E-02	1 2E-01	
		Selenium	mg/kg	1 1E+00	7 5E-02	ND	ND	1 2E+00	5 6E-01	3 7E-02	ND	ND	1 3E-01	3 4E-02	2 6E-02	7 9E-01	
		Silver	mg/kg	5 0E-04	ND	ND	ND	5 0E-04	2 5E-04	ND	ND	ND	6 2E-03	ND	6 4E-03	6 4E-03	
		Thallium	mg/kg	1 1E-03	6 8E-04	7 5E-04	2 5E-03	5 1E-03	5 7E-04	3 4E-04	3 7E-04	1 2E-03	ND	ND	ND	2 5E-03	
		Zinc	mg/kg	2 2E+00	6 9E+00	1 5E+00	2 3E+00	1 3E+01	1 1E+00	3 4E+00	7 3E-01	1 1E+00	1 8E+00	1 4E+00	1 4E-01	9 7E+00	
		<b>Butyltins</b>															
		Butyltin ion	ug/kg	ND	3 0E-01	NA	NA	3 0E-01	ND	1 5E-01	NA	NA	ND	ND	NA	1 5E-01	
		Dibutyltin ion	ug/kg	1 4E-01	1 8E+00	NA	NA	2 0E+00	7 0E-02	9 1E-01	NA	NA	ND	ND	NA	9 8E-01	
		Tributyltin ion	ug/kg	2 3E-01	1 7E+00	NA	NA	1 9E+00	1 1E-01	8 4E-01	NA	NA	ND	ND	NA	9 6E-01	
		<b>Polynuclear Aromatic Hydrocarbons</b>															
		1-Methylnaphthalene	ug/kg	2 5E-01	1 1E+00	NA	NA	1 3E+00	1 2E-01	5 4E-01	NA	NA	ND	1 1E+00	1 9E-01	1 9E+00	
		2-Methylnaphthalene	ug/kg	3 2E-01	7 6E-01	ND	NA	1 1E+00	1 6E-01	3 7E-01	ND	NA	2 1E+00	1 8E+00	2 2E-01	4 6E+00	
		Acenaphthene	ug/kg	1 4E+00	1 1E+01	ND	NA	1 2E+01	6 7E-01	5 3E+00	ND	NA	ND	1 8E-01	4 1E-01	6 6E+00	
		Acenaphthylene	ug/kg	1 7E-01	6 9E-01	ND	NA	8 5E-01	8 3E-02	3 4E-01	ND	NA	ND	7 0E-02	4 9E-02	5 4E-01	
		Anthracene	ug/kg	2 9E-01	1 4E+00	ND	NA	1 7E+00	1 4E-01	7 1E-01	ND	NA	ND	1 2E-01	2 5E-01	1 2E+00	
		Benzo(a)anthracene	ug/kg	1 9E-01	7 0E-02	ND	NA	2 6E-01	9 4E-02	3 5E-02	ND	NA	ND	ND	ND	1 3E-01	
		Benzo(a)pyrene	ug/kg	1 7E-01	ND	ND	NA	1 7E-01	8 6E-02	ND	ND	NA	ND	ND	ND	8 6E-02	
		Benzo(b)fluoranthene	ug/kg	1 4E-01	8 0E-02	ND	NA	2 2E-01	6 9E-02	4 0E-02	ND	NA	ND	ND	ND	1 1E-01	
		Benzo(g,h,i)perylene	ug/kg	1 5E-01	4 3E-02	ND	NA	2 0E-01	7 7E-02	2 1E-02	ND	NA	ND	ND	ND	9 8E-02	
		Benzo(k)fluoranthene	ug/kg	1 1E-01	4 5E-02	ND	NA	1 5E-01	5 4E-02	2 2E-02	ND	NA	ND	ND	ND	7 7E-02	
		Chrysene	ug/kg	3 7E-01	ND	ND	NA	3 7E-01	1 8E-01	ND	ND	NA	ND	ND	ND	1 8E-01	
		Dibenzo(a,h)anthracene	ug/kg	6 0E-02	1 9E-02	ND	NA	7 9E-02	3 0E-02	9 3E-03	ND	NA	ND	ND	ND	3 9E-02	
		Dibenzothiophene	ug/kg	2 0E-01	4 2E-01	NA	NA	6 2E-01	9 9E-02	2 1E-01	NA	NA	NA	NA	NA	3 1E-01	
		Fluoranthene	ug/kg	9 9E-01	1 0E+00	2 8E+01	NA	3 0E+01	4 9E-01	5 0E-01	1 4E+01	NA	ND	7 7E-01	6 4E-02	1 5E+01	
		Fluorene	ug/kg	7 0E-01	2 0E+00	ND	NA	2 7E+00	3 5E-01	9 7E-01	ND	NA	6 9E-01	3 4E-01	2 5E-01	2 6E+00	
		Indeno(1,2,3-cd)pyrene	ug/kg	1 4E-01	3 0E-02	ND	NA	1 7E-01	7 1E-02	1 5E-02	ND	NA	ND	ND	ND	8 6E-02	
		Naphthalene	ug/kg	1 0E+00	1 7E+00	ND	NA	2 7E+00	5 2E-01	8 4E-01	ND	NA	ND	7 7E-01	ND	2 1E+00	
		Phenanthrene	ug/kg	1 7E+00	2 3E+00	3 5E+01	NA	3 9E+01	8 6E-01	1 1E+00	1 7E+01	NA	ND	5 7E-01	ND	2 0E+01	
		Pyrene	ug/kg	3 3E+00	8 3E-01	ND	NA	4 1E+00	1 6E+00	4 1E-01	ND	NA	ND	1 4E-01	5 9E-02	2 2E+00	
		<b>Phthalates</b>															
		Bis(2-ethylhexyl) phthalate	ug/kg	3 3E+01	ND	2 5E+01	NA	5 8E+01	1 6E+01	ND	1 2E+01	NA	ND	ND	NA	2 9E+01	
		Dibutyl phthalate	ug/kg	1 1E+01	ND	ND	NA	1 1E+01	5 3E+00	ND	ND	NA	ND	NA	NA	5 3E+00	
		Diethyl phthalate	ug/kg	4 3E+00	ND	ND	NA	4 3E+00	2 1E+00	ND	ND	NA	ND	ND	NA	2 1E+00	
		<b>Semi-Volatile Organic Compounds</b>															
		Benzyl alcohol	ug/kg	6 3E+00	7 7E+00	ND	NA	1 4E+01	3 1E+00	3 8E+00	ND	NA	ND	ND	NA	6 9E+00	
		Dibenzofuran	ug/kg	ND	6 1E-01	ND	NA	6 1E-01	ND	3 0E-01	ND	NA	ND	2 0E-01	1 8E-01	6 8E-01	
		Hexachlorobenzene	ug/kg	1 1E-01	1 7E+01	ND	ND	1 8E+01	5 6E-02	8 6E+00	ND	ND	7 7E-01	7 8E-02	9 5E+00	9 5E+00	
		Hexachlorobutadiene	ug/kg	8 4E-03	3 7E-02	ND	ND	4 5E-02	4 2E-03	1 8E-02	ND	ND	ND	ND	ND	2 2E-02	
		Isophorone	ug/kg	ND	2 5E+00	ND	NA	2 5E+00	ND	1 2E+00	ND	NA	NA	NA	NA	1 2E+00	
		<b>Phenols</b>															
		4-Nitrophenol	ug/kg	3 3E+00	3 8E+00	ND	NA	7 1E+00	1 6E+00	1 9E+00	ND	NA	ND	NA	NA	3 5E+00	
		<b>Polychlorinated Biphenyls</b>															
		Total Aroclors	ug/kg	2 1E+01	3 0E+02	3 3E+02	8 0E+00	6 6E+02	1 0E+01	1 5E+02	1 7E+02	4 0E+00	7 7E+00	3 5E+00	2 1E+01	3 6E+02	
		Total PCB Congeners	pg/g	1 3E+05	4 9E+06	NA	NA	5 1E+06	6 3E+04	2 4E+06	NA	NA	5 9E+03	3 4E+03	4 7E+04	2 6E+06	
		Total PCBs, Adjusted <sup>k</sup>	pg/g	1 2E+05	4 9E+06	NA	NA	5 0E+06	6 1E+04	2 4E+06	NA	NA	5 5E+03	3 1E+03	4 7E+04	2 5E+06	

TABLE 3-16  
Exposure Point Concentration Summary - Multi-Species Diet, Study Area-Wide

Scenario Timeframe: Current/Future  
Medium: Fish Tissue  
Exposure Medium: Multi-species

Exposure Point	Tissue Type	Chemical of Potential Concern <sup>a</sup>	Units	Recreational and Subsistence Fishers <sup>b</sup>					Tribal Fishers <sup>b</sup>								
				Smallmouth Bass	Common Carp	Brown Bullhead	Black Crappie	Multi-Species EPC <sup>c,d</sup>	Smallmouth Bass	Common Carp	Brown Bullhead	Black Crappie	Salmon <sup>e</sup>	Lamprey <sup>f</sup>	Sturgeon <sup>g</sup>	Multi-Species EPC <sup>h,i,j</sup>	
		<b>Dioxin/Furans</b>															
		Total Dioxin/Furan TEQ	pg/g	7 5E-01	8 8E-01	NA	NA	1 6E+00	3 7E-01	4 4E-01	NA	NA	7 3E-02	2 2E-02	4 9E-02	9 5E-01	
		Total PCB TEQ	pg/g	3 1E-01	2 6E+00	NA	NA	2 9E+00	1 5E-01	1 3E+00	NA	NA	7 7E-02	6 8E-02	3 7E-02	1 6E+00	
		<b>Pesticides</b>															
		Aldrin	ug/kg	1 9E-03	2 5E-02	ND	ND	2 7E-02	9 4E-04	1 3E-02	ND	ND	ND	ND	ND	1 3E-02	
		alpha-Hexachlorocyclohexane	ug/kg	1 2E-03	7 2E-03	ND	ND	8 4E-03	6 0E-04	3 6E-03	ND	ND	ND	ND	ND	4 2E-03	
		beta-Hexachlorocyclohexane	ug/kg	1 1E+00	4 0E-03	ND	ND	1 1E+00	5 6E-01	2 0E-03	ND	ND	ND	ND	ND	5 6E-01	
		Dieldrin	ug/kg	2 8E-01	4 7E-01	5 3E-01	ND	1 3E+00	1 4E-01	2 3E-01	2 6E-01	ND	7 7E-01	ND	6 9E-02	1 5E+00	
		Endrin	ug/kg	1 2E-03	5 2E-03	ND	ND	6 4E-03	6 1E-04	2 6E-03	ND	ND	ND	ND	ND	3 2E-03	
		Endrin aldehyde	ug/kg	5 0E-01	8 5E-04	ND	ND	5 0E-01	2 5E-01	4 2E-04	ND	ND	ND	ND	ND	2 5E-01	
		Endrin ketone	ug/kg	2 7E-03	1 7E-03	ND	ND	4 4E-03	1 3E-03	8 3E-04	ND	ND	ND	ND	ND	2 2E-03	
		gamma-Hexachlorocyclohexane	ug/kg	1 4E-03	7 2E-03	ND	ND	8 6E-03	6 9E-04	3 6E-03	ND	ND	ND	ND	ND	4 3E-03	
		Heptachlor	ug/kg	1 3E-03	ND	ND	ND	1 3E-03	6 2E-04	ND	ND	ND	ND	ND	ND	6 2E-04	
		Heptachlor epoxide	ug/kg	4 8E-03	3 1E-02	ND	ND	3 6E-02	2 4E-03	1 6E-02	ND	ND	ND	ND	ND	1 8E-02	
		Methoxychlor	ug/kg	ND	1 8E+00	ND	ND	1 8E+00	ND	8 9E-01	ND	ND	ND	ND	2 2E-01	1 1E+00	
		Total Chlordanes	ug/kg	9 0E-01	2 7E+00	4 0E-01	2 8E-01	4 3E+00	4 4E-01	1 3E+00	2 0E-01	1 4E-01	ND	ND	2 7E-01	2 4E+00	
		Total DDD	ug/kg	4 4E+00	2 7E+01	1 1E+00	6 8E-01	3 3E+01	2 2E+00	1 3E+01	5 3E-01	3 3E-01	ND	ND	ND	1 6E+01	
		Total DDE	ug/kg	4 2E+00	2 9E+01	4 8E+00	2 0E+00	4 0E+01	2 1E+00	1 5E+01	2 4E+00	9 7E-01	4 2E+00	ND	3 7E+00	2 8E+01	
Total DDT	ug/kg	8 1E+00	4 5E+00	2 9E+00	8 5E-01	1 6E+01	4 0E+00	2 2E+00	1 4E+00	4 2E-01	7 7E-01	ND	3 6E+00	1 2E+01			
Total Endosulfan	ug/kg	2 1E-02	5 9E-01	ND	ND	6 1E-01	1 0E-02	2 9E-01	ND	ND	4 6E-01	ND	5 4E-02	8 2E-01			
Study Area-wide	WB	<b>Metals</b>															
		Aluminum	mg/kg	NC	NC	NC	NC	NC	7 4E-01	1 1E+01	3 6E+00	8 5E+00	2 2E+00	ND	1 1E-01	2 6E+01	
		Antimony	mg/kg	NC	NC	NC	NC	NC	6 6E-02	7 9E-04	ND	ND	1 1E-01	1 4E-01	ND	3 2E-01	
		Arsenic, inorganic	mg/kg	NC	NC	NC	NC	NC	3 3E-03	2 0E-03	8 4E-04	5 2E-03	3 8E-02	1 9E-03	2 4E-03	5 3E-02	
		Cadmium	mg/kg	NC	NC	NC	NC	NC	4 7E-03	8 6E-03	1 7E-03	7 4E-04	ND	4 6E-03	ND	2 0E-02	
		Chromium	mg/kg	NC	NC	NC	NC	NC	5 2E-02	1 3E-01	1 3E-01	ND	1 5E-01	3 1E-02	1 3E-01	6 3E-01	
		Copper	mg/kg	NC	NC	NC	NC	NC	1 1E-01	1 5E-01	9 4E-02	1 2E-01	5 8E-01	3 4E-01	1 2E-02	1 4E+00	
		Lead	mg/kg	NC	NC	NC	NC	NC	4 7E+01	6 0E-02	5 2E-03	2 3E-03	ND	9 0E-03	8 1E-04	4 7E+01	
		Manganese	mg/kg	NC	NC	NC	NC	NC	2 4E-01	8 5E-01	1 0E+00	4 2E-01	1 3E-01	3 6E-01	4 8E-02	3 1E+00	
		Mercury	mg/kg	NC	NC	NC	NC	NC	1 3E-02	6 0E-03	5 7E-03	5 5E-03	1 2E-02	1 6E-02	1 6E-02	8 1E-02	
		Nickel	mg/kg	NC	NC	NC	NC	NC	1 5E-02	8 6E-02	3 8E-02	4 4E-02	8 4E-02	3 8E-03	7 0E-02	3 4E-01	
		Selenium	mg/kg	NC	NC	NC	NC	NC	1 5E-01	4 2E-02	3 7E-02	ND	1 9E-01	3 4E-02	2 6E-02	4 8E-01	
		Silver	mg/kg	NC	NC	NC	NC	NC	9 8E-04	1 1E-03	5 0E-04	ND	6 6E-03	6 2E-03	ND	1 5E-02	
		Thallium	mg/kg	NC	NC	NC	NC	NC	5 8E-04	4 5E-04	4 8E-04	2 1E-03	ND	ND	ND	3 6E-03	
		Zinc	mg/kg	NC	NC	NC	NC	NC	1 7E+00	1 2E+01	1 9E+00	2 1E+00	1 4E+01	1 4E+00	1 4E-01	3 4E+01	
		<b>Butyltins</b>															
		Butyltin ion	ug/kg	NC	NC	NC	NC	NC	ND	2 8E+00	NA	NA	ND	ND	NA	2 8E+00	
		Dibutyltin ion	ug/kg	NC	NC	NC	NC	NC	8 8E-02	4 9E-01	NA	NA	ND	ND	NA	5 8E-01	
		Tributyltin ion	ug/kg	NC	NC	NC	NC	NC	2 0E-01	8 6E-01	NA	NA	ND	ND	NA	1 1E+00	
		<b>Polynuclear Aromatic Hydrocarbons</b>															
		1-Methylnaphthalene	ug/kg	NC	NC	NC	NC	NC	4 3E-01	9 0E-01	ND	NA	1 1E+00	1 1E+00	1 9E-01	3 7E+00	
		2-Methylnaphthalene	ug/kg	NC	NC	NC	NC	NC	3 2E+00	1 4E+00	ND	NA	2 2E+00	1 8E+00	2 2E-01	8 9E+00	
		Acenaphthene	ug/kg	NC	NC	NC	NC	NC	4 6E+00	6 0E+00	ND	NA	ND	1 8E-01	4 1E-01	1 1E+01	
		Acenaphthylene	ug/kg	NC	NC	NC	NC	NC	1 3E-01	4 0E-01	ND	NA	ND	7 0E-02	4 9E-02	6 5E-01	
		Anthracene	ug/kg	NC	NC	NC	NC	NC	3 9E-01	5 1E-01	ND	NA	ND	1 2E-01	2 5E-01	1 3E+00	
		Benzo(a)anthracene	ug/kg	NC	NC	NC	NC	NC	5 2E-02	4 0E-02	ND	NA	ND	ND	ND	9 2E-02	
		Benzo(a)pyrene	ug/kg	NC	NC	NC	NC	NC	5 5E-02	6 7E-02	ND	NA	ND	ND	ND	1 2E-01	
		Benzo(b)fluoranthene	ug/kg	NC	NC	NC	NC	NC	4 5E-02	1 2E-01	ND	NA	ND	ND	ND	1 7E-01	
		Benzo(g,h,i)perylene	ug/kg	NC	NC	NC	NC	NC	7 8E-02	6 9E-02	ND	NA	ND	ND	ND	1 5E-01	
		Benzo(k)fluoranthene	ug/kg	NC	NC	NC	NC	NC	3 8E-02	5 1E-02	ND	NA	ND	ND	ND	8 8E-02	
		Chrysene	ug/kg	NC	NC	NC	NC	NC	8 0E-02	0 0E+00	ND	NA	ND	ND	ND	8 0E-02	
		Dibenzo(a,h)anthracene	ug/kg	NC	NC	NC	NC	NC	2 0E-02	3 1E-02	ND	NA	ND	ND	ND	5 1E-02	
		Dibenzothiophene	ug/kg	NC	NC	NC	NC	NC	3 9E-01	1 6E+00	NA	NA	NA	NA	NA	2 0E+00	

TABLE 3-16  
Exposure Point Concentration Summary - Multi-Species Diet, Study Area-Wide

Scenario Timeframe: Current/Future  
Medium: Fish Tissue  
Exposure Medium: Multi-species

Exposure Point	Tissue Type	Chemical of Potential Concern <sup>a</sup>	Units	Recreational and Subsistence Fishers <sup>b</sup>					Tribal Fishers <sup>b</sup>							
				Smallmouth Bass	Common Carp	Brown Bullhead	Black Crappie	Multi-Species EPC <sup>c,d</sup>	Smallmouth Bass	Common Carp	Brown Bullhead	Black Crappie	Salmon <sup>e</sup>	Lamprey <sup>f</sup>	Sturgeon <sup>g</sup>	Multi-Species EPC <sup>h,i,j</sup>
		Fluoranthene	ug/kg	NC	NC	NC	NC	NC	9 8E-01	1 3E+00	5 0E+00	NA	3 8E-01	7 7E-01	6 4E-02	8 5E+00
		Fluorene	ug/kg	NC	NC	NC	NC	NC	1 9E+00	2 4E+00	ND	NA	3 1E-01	3 4E-01	2 5E-01	5 2E+00
		Indeno(1,2,3-cd)pyrene	ug/kg	NC	NC	NC	NC	NC	6 3E-02	7 4E-02	ND	NA	ND	NA	ND	1 4E-01
		Naphthalene	ug/kg	NC	NC	NC	NC	NC	3 4E+00	2 4E+00	ND	NA	ND	7 7E-01	ND	6 5E+00
		Phenanthrene	ug/kg	NC	NC	NC	NC	NC	2 8E+00	1 3E+00	7 4E+00	NA	ND	5 7E-01	ND	1 2E+01
		Pyrene	ug/kg	NC	NC	NC	NC	NC	1 1E+00	6 3E-01	ND	NA	ND	1 4E-01	5 9E-02	2 0E+00
		<b>Phthalates</b>														
		Bis(2-ethylhexyl) phthalate	ug/kg	NC	NC	NC	NC	NC	1 2E+03	ND	3 3E+02	NA	ND	ND	NA	1 5E+03
		Dibutyl phthalate	ug/kg	NC	NC	NC	NC	NC	4 6E+00	ND	ND	NA	ND	NA	NA	4 6E+00
		Diethyl phthalate	ug/kg	NC	NC	NC	NC	NC	1 2E+00	ND	ND	NA	ND	ND	NA	1 2E+00
		Di-n-octyl phthalate	ug/kg	NC	NC	NC	NC	NC	2 6E+02	ND	ND	NA	ND	ND	NA	2 6E+02
		<b>Semi-Volatile Organic Compounds</b>														
		Benzoic acid	ug/kg	NC	NC	NC	NC	NC	6 1E+01	5 3E+01	ND	NA	NA	NA	NA	1 1E+02
		Benzyl alcohol	ug/kg	NC	NC	NC	NC	NC	3 4E+00	9 4E+00	ND	NA	ND	ND	NA	1 3E+01
		Bis(2-chloroethoxy) methane	ug/kg	NC	NC	NC	NC	NC	2 0E+00	2 6E+00	ND	NA	ND	ND	ND	4 6E+00
		Dibenzofuran	ug/kg	NC	NC	NC	NC	NC	2 3E+00	7 1E-01	ND	NA	2 7E-01	2 0E-01	1 8E-01	3 6E+00
		Hexachlorobenzene	ug/kg	NC	NC	NC	NC	NC	3 5E-01	4 2E-01	ND	1 0E+00	1 0E+00	7 7E-01	7 8E-02	3 6E+00
		Hexachlorobutadiene	ug/kg	NC	NC	NC	NC	NC	3 3E-02	2 6E-02	ND	2 9E-01	ND	ND	ND	3 4E-01
		Isophorone	ug/kg	NC	NC	NC	NC	NC	ND	7 3E-01	ND	NA	NA	NA	NA	7 3E-01
		<b>Phenols</b>														
		4-Methylphenol	ug/kg	NC	NC	NC	NC	NC	1 6E+00	ND	ND	NA	ND	ND	NA	1 6E+00
		4-Nitrophenol	ug/kg	NC	NC	NC	NC	NC	1 2E+00	1 1E+00	ND	NA	ND	NA	NA	2 3E+00
		Phenol	ug/kg	NC	NC	NC	NC	NC	3 3E+01	5 3E+00	ND	NA	ND	ND	ND	3 9E+01
		<b>Polychlorinated Biphenyls</b>														
		Total Aroclors	ug/kg	NC	NC	NC	NC	NC	3 4E+02	7 8E+02	1 8E+02	3 1E+01	7 3E+00	3 5E+00	2 1E+01	1 4E+03
		Total PCB Congeners	pg/g	NC	NC	NC	NC	NC	2 6E+05	2 4E+06	1 9E+05	3 7E+04	6 6E+03	3 4E+03	4 7E+04	3 0E+06
		Total PCBs, Adjusted	pg/g	NC	NC	NC	NC	NC	2 5E+05	2 4E+06	1 9E+05	3 5E+04	6 2E+03	3 1E+03	4 7E+04	2 9E+06
		<b>Dioxin/Furans</b>														
		Total Dioxin/Furan TEQ	pg/g	NC	NC	NC	NC	NC	1 5E+00	6 2E-01	2 3E-01	1 6E-01	1 0E-01	2 2E-02	4 9E-02	2 6E+00
		Total PCB TEQ	pg/g	NC	NC	NC	NC	NC	1 2E+00	3 2E+00	6 0E-01	4 0E-01	9 5E-02	6 8E-02	3 7E-02	5 6E+00
		<b>Pesticides</b>														
		Aldrin	ug/kg	NC	NC	NC	NC	NC	3 1E-03	1 8E-02	ND	ND	ND	ND	ND	2 1E-02
		alpha-Hexachlorocyclohexane	ug/kg	NC	NC	NC	NC	NC	3 8E-03	4 9E-03	ND	1 7E-01	ND	ND	ND	1 8E-01
		beta-Hexachlorocyclohexane	ug/kg	NC	NC	NC	NC	NC	2 1E-03	4 1E-03	ND	ND	ND	ND	ND	6 2E-03
		delta-Hexachlorocyclohexane	ug/kg	NC	NC	NC	NC	NC	ND	3 8E-04	ND	ND	ND	ND	ND	3 8E-04
		Dieldrin	ug/kg	NC	NC	NC	NC	NC	4 4E-01	3 1E-01	3 2E-01	3 1E-01	6 1E-01	ND	6 9E-02	2 1E+00
		Endrin	ug/kg	NC	NC	NC	NC	NC	4 0E-03	3 3E-03	ND	ND	ND	ND	ND	7 2E-03
		Endrin aldehyde	ug/kg	NC	NC	NC	NC	NC	7 7E-04	9 2E-04	ND	ND	ND	ND	ND	1 7E-03
		Endrin ketone	ug/kg	NC	NC	NC	NC	NC	1 9E-03	1 9E-03	ND	ND	ND	ND	ND	3 8E-03
		gamma-Hexachlorocyclohexane	ug/kg	NC	NC	NC	NC	NC	3 1E-03	4 6E-03	2 4E-01	ND	ND	ND	ND	2 4E-01
		Heptachlor	ug/kg	NC	NC	NC	NC	NC	1 5E-03	7 3E-04	ND	2 2E-01	6 5E-01	ND	ND	8 8E-01
		Heptachlor epoxide	ug/kg	NC	NC	NC	NC	NC	1 6E-02	2 1E-02	ND	ND	ND	ND	ND	3 6E-02
		Methoxychlor	ug/kg	NC	NC	NC	NC	NC	ND	5 2E-01	1 4E-01	ND	1 4E+00	ND	2 2E-01	2 3E+00
		Total Chlordanes	ug/kg	NC	NC	NC	NC	NC	1 5E+00	2 0E+00	8 3E+00	1 2E+00	4 6E-01	ND	2 7E-01	1 4E+01
		Total DDD	ug/kg	NC	NC	NC	NC	NC	8 8E+00	1 5E+01	2 2E+00	2 3E+00	ND	ND	ND	2 8E+01
		Total DDE	ug/kg	NC	NC	NC	NC	NC	1 7E+01	2 1E+01	7 5E+00	1 0E+01	3 0E+00	ND	3 7E+00	6 2E+01

TABLE 3-16  
Exposure Point Concentration Summary - Multi-Species Diet, Study Area-Wide

Scenario Timeframe: Current/Future
Medium: Fish Tissue
Exposure Medium: Multi-species

Exposure Point	Tissue Type	Chemical of Potential Concern <sup>a</sup>	Units	Recreational and Subsistence Fishers <sup>b</sup>					Tribal Fishers <sup>b</sup>							
				Smallmouth Bass	Common Carp	Brown Bullhead	Black Crappie	Multi-Species EPC <sup>c,d</sup>	Smallmouth Bass	Common Carp	Brown Bullhead	Black Crappie	Salmon <sup>e</sup>	Lamprey <sup>f</sup>	Sturgeon <sup>g</sup>	Multi-Species EPC <sup>h,i,j</sup>
		Total DDT	ug/kg	NC	NC	NC	NC	NC	1.6E+01	4.6E+00	5.5E+00	2.7E+00	5.2E-01	ND	3.6E+00	3.3E+01
		Total Endosulfan	ug/kg	NC	NC	NC	NC	NC	3.6E-01	4.6E-01	1.1E+00	1.4E-01	3.8E-01	ND	5.4E-02	2.5E+00

Notes:

a Chemicals listed for fillet exposure are analytes detected in Study Area-wide fillet tissue samples of resident species. Chemicals listed for whole body exposure are analytes detected in whole body tissue samples of resident species (smallmouth bass, black crappie, common carp, brown bullhead).

b EPC values represent the lower value of the calculated maximum or 95% Upper confidence limit on the mean.

c For recreational and subsistence non-tribal fishers, EPCs for the multi-species diet were calculated assuming each of the four target fish species (smallmouth bass, black crappie, common carp, and brown bullhead) represent 1/4 of a person's diet, according to the Portland Harbor RI/FS Programmatic Work Plan.

d Numbers presented are rounded values. Sums calculated before rounding.

e Chinook salmon samples were taken at Clackamas fish hatchery, outside of initial study area; samples represent EPCs for Study Area locations.

f Lamprey samples were taken at Willamette Falls, outside of initial study area; samples represent EPCs for Study Area locations.

g Sturgeon samples were taken between Willamette River miles 3.5 and 9.2.

h The Tribal multi-species fish diet EPCs were calculated assuming different ingestion rates for each of seven fish species, which can also be represented by that species' percent of total fish diet. The EPCs shown in the table are the weighted sums of the EPCs for the individual species based on the following percentages:

- (38.4% x Salmon EPC)
- + (7.0% x Lamprey EPC)
- + (4.9% x Sturgeon EPC)
- + (12.4% x Smallmouth Bass EPC)
- + (12.4% x Black Crappie EPC)
- + (12.4% x Common Carp EPC)
- + (12.4% x Brown Bullhead EPC)
- 100% Tribal fish tissue diet EPC

i Fillet Tissue EPCs are based on Study Area-wide fillet tissue EPCs for each of the target resident species (smallmouth bass, black crappie, common carp, brown bullhead), and the available tissue data from the ODHS sampling effort, which are: fillet (with skin) Chinook salmon, whole body lamprey, and fillet (no skin) sturgeon.

j Whole Body Tissue EPCs are based on Study Area-wide whole body EPCs for each of the target resident species (smallmouth bass, black crappie, common carp, brown bullhead), and the available tissue data from the ODHS sampling effort, which are: whole body Chinook salmon, whole body lamprey, and fillet tissue (no skin) sturgeon.

k "Total PCBs, Adjusted" equals "Total PCB Congeners" minus the sum of total dioxin-like PCB concentrations.

Abbreviations:

- DDD = Dichlorodiphenyldichloroethane
- DDE = Dichlorodiphenyldichloroethylene
- DDT = Dichlorodiphenyltrichloroethane
- F = Fillet tissue. All resident fish fillet tissue was analyzed as fillet with skin, except mercury, which was analyzed as fillet without skin.
- mg/kg = Milligrams per kilogram
- NA = Not analyzed
- NC = Not calculated. Multi-species EPCs based on resident fish WB EPCs calculated for tribal fisher scenarios only.

- ND = Not detected in the given species and tissue type
- PCB = Polychlorinated biphenyls
- pg/g = Picograms per gram
- TEQ = Toxic equivalents
- ug/kg = Micrograms per kilogram
- WB = Whole body

TABLE 3-17  
Exposure Point Concentration Summary - Crayfish, by Station

Scenario Timeframe: Current/Future
Medium: Shellfish tissue
Exposure Medium: Crayfish, by Station

Exposure Point <sup>a</sup>	Tissue Type	Chemical of Potential Concern <sup>b</sup>	Units	Total Samples	Total Non-Detects <sup>c</sup>	Non-Detects greater than Maximum Detected Concentration <sup>d</sup>	Arithmetic Mean <sup>e</sup>	Maximum Detected Concentration	95% UCL			Exposure Point Concentration
									Distribution	95% UCL Method	Value	
RM 1, Station: CR01EA	WB	<b>Metals</b>										
		Aluminum	mg/kg	1	0	0	5.0E+01	5.0E+01	Fewer than 5 detects <sup>f</sup>		5.0E+01	
		Antimony	mg/kg	1	1	0	ND	ND			ND	
		Arsenic, inorganic	mg/kg	1	0	0	3.4E-02	3.4E-02			3.4E-02	
		Cadmium	mg/kg	1	0	0	2.4E-02	2.4E-02			2.4E-02	
		Chromium	mg/kg	1	0	0	2.0E-01	2.0E-01			2.0E-01	
		Copper	mg/kg	1	0	0	1.6E+01	1.6E+01			1.6E+01	
		Lead	mg/kg	1	0	0	4.7E-02	4.7E-02			4.7E-02	
		Manganese	mg/kg	1	0	0	2.5E+01	2.5E+01			2.5E+01	
		Mercury	mg/kg	1	0	0	1.9E-02	1.9E-02			1.9E-02	
		Nickel	mg/kg	1	0	0	2.4E-01	2.4E-01			2.4E-01	
		Selenium	mg/kg	1	1	0	ND	ND			ND	
		Silver	mg/kg	1	1	0	ND	ND			ND	
		Thallium	mg/kg	1	0	0	7.0E-03	7.0E-03			7.0E-03	
		Zinc	mg/kg	1	0	0	1.5E+01	1.5E+01			1.5E+01	
		<b>Butyltins</b>										
		Butyltin ion	ug/kg	1	0	0	2.8E-01	2.8E-01			2.8E-01	
		Dibutyltin ion	ug/kg	1	0	0	9.2E-01	9.2E-01			9.2E-01	
		Tributyltin ion	ug/kg	1	0	0	1.3E+00	1.3E+00			1.3E+00	
		<b>Polynuclear Aromatic Hydrocarbons</b>										
		2-Methylnaphthalene	ug/kg	1	0	0	5.0E-01	5.0E-01		5.0E-01		
		Acenaphthene	ug/kg	1	0	0	9.4E-01	9.4E-01		9.4E-01		
		Acenaphthylene	ug/kg	1	0	0	1.4E-01	1.4E-01		1.4E-01		
		Anthracene	ug/kg	1	0	0	2.9E-01	2.9E-01		2.9E-01		
		Benzo(a)anthracene	ug/kg	1	1	0	ND	ND		ND		
		Benzo(a)pyrene	ug/kg	1	0	0	3.2E-01	3.2E-01		3.2E-01		
		Benzo(b)fluoranthene	ug/kg	1	1	0	ND	ND		ND		
		Benzo(g,h,i)perylene	ug/kg	1	1	0	ND	ND		ND		
		Benzo(k)fluoranthene	ug/kg	1	1	0	ND	ND		ND		
		Chrysene	ug/kg	1	1	0	ND	ND		ND		
		Dibenzo(a,h)anthracene	ug/kg	1	1	0	ND	ND		ND		
		Fluoranthene	ug/kg	1	1	0	ND	ND		ND		
		Fluorene	ug/kg	1	0	0	6.7E-01	6.7E-01		6.7E-01		
		Indeno(1,2,3-cd)pyrene	ug/kg	1	1	0	ND	ND		ND		
		Naphthalene	ug/kg	1	0	0	6.4E-01	6.4E-01		6.4E-01		
		Phenanthrene	ug/kg	1	1	0	ND	ND		ND		
		Pyrene	ug/kg	1	1	0	ND	ND		ND		
		<b>Phthalates</b>										
		Butylbenzyl phthalate	ug/kg	1	1	0	ND	ND		ND		
		<b>Semi-Volatile Organic Compounds</b>										
		Dibenzofuran	ug/kg	1	0	0	3.8E-01	3.8E-01		3.8E-01		



**TABLE 3-17**  
**Exposure Point Concentration Summary - Crayfish, by Station**

Scenario Timeframe: Current/Future
Medium: Shellfish tissue
Exposure Medium: Crayfish, by Station

Exposure Point <sup>a</sup>	Tissue Type	Chemical of Potential Concern <sup>b</sup>	Units	Total Samples	Total Non-Detects <sup>c</sup>	Non-Detects greater than Maximum Detected Concentration <sup>d</sup>	Arithmetic Mean <sup>e</sup>	Maximum Detected Concentration	95% UCL			Exposure Point Concentration				
									Distribution	95% UCL Method	Value					
		Hexachlorobenzene	ug/kg	1	0	0	3.6E-02	3.6E-02				3.6E-02				
		Hexachlorobutadiene	ug/kg	1	0	0	2.1E-03	2.1E-03				2.1E-03				
		<b>Phenols</b>														
		4-Methylphenol	ug/kg	1	1	0	ND	ND				ND				
		Pentachlorophenol	ug/kg	1	1	0	ND	ND				ND				
		Phenol	ug/kg	1	0	0	5.0E+01	5.0E+01				5.0E+01				
		<b>Polychlorinated Biphenyls</b>														
		Total Aroclors	ug/kg	NA	NA	NA	NA	NA				NA				
		Total PCB Congeners	pg/g	1	0	0	7.2E+03	7.2E+03				7.2E+03				
		Total PCBs, Adjusted <sup>g</sup>	pg/g	1	0	0	6.2E+03	6.2E+03				6.2E+03				
		<b>Dioxin/Furans</b>														
		Total Dioxin/Furan TEQ	pg/g	1	0	0	2.5E-01	2.5E-01				2.5E-01				
		Total PCB TEQ	pg/g	1	0	0	3.1E-01	3.1E-01				3.1E-01				
		<b>Pesticides</b>														
		Aldrin	ug/kg	1	1	0	ND	ND				ND				
		alpha-Hexachlorocyclohexane	ug/kg	1	1	0	ND	ND				ND				
		Dieldrin	ug/kg	1	1	0	ND	ND				ND				
		Endrin	ug/kg	1	1	0	ND	ND				ND				
		Heptachlor epoxide	ug/kg	1	0	0	8.4E-04	8.4E-04				8.4E-04				
		Total DDD	ug/kg	1	0	0	1.7E-01	1.7E-01				1.7E-01				
		Total DDE	ug/kg	1	0	0	3.0E+00	3.0E+00				3.0E+00				
		Total DDT	ug/kg	1	1	0	ND	ND				ND				
		Total Chlordane	ug/kg	1	0	0	2.1E-01	2.1E-01				2.1E-01				
Total Endosulfan	ug/kg	1	1	0	ND	ND	ND									
RM 1, Station: CR01W	WB	<b>Metals</b>							Fewer than 5 detects							
		Aluminum	mg/kg	1	0	0	8.0E+01	8.0E+01		8.0E+01						
		Antimony	mg/kg	1	1	0	ND	ND		ND						
		Arsenic, inorganic	mg/kg	1	0	0	4.0E-02	4.0E-02		4.0E-02						
		Cadmium	mg/kg	1	0	0	1.8E-02	1.8E-02		1.8E-02						
		Chromium	mg/kg	1	0	0	4.0E-01	4.0E-01		4.0E-01						
		Copper	mg/kg	1	0	0	1.4E+01	1.4E+01		1.4E+01						
		Lead	mg/kg	1	0	0	4.6E-02	4.6E-02		4.6E-02						
		Manganese	mg/kg	1	0	0	3.1E+01	3.1E+01		3.1E+01						
		Mercury	mg/kg	1	0	0	2.1E-02	2.1E-02		2.1E-02						
		Nickel	mg/kg	1	0	0	3.4E-01	3.4E-01		3.4E-01						
		Selenium	mg/kg	1	1	0	ND	ND		ND						
		Silver	mg/kg	1	1	0	ND	ND		ND						
		Thallium	mg/kg	1	0	0	5.4E-03	5.4E-03		5.4E-03						
		Zinc	mg/kg	1	0	0	1.6E+01	1.6E+01		1.6E+01						
		<b>Butyltins</b>														
		Butyltin ion	ug/kg	1	1	0	ND	ND		ND						
		Dibutyltin ion	ug/kg	1	1	0	ND	ND		ND						
		Tributyltin ion	ug/kg	1	1	0	ND	ND		ND						

**TABLE 3-17**  
**Exposure Point Concentration Summary - Crayfish, by Station**

Scenario Timeframe: Current/Future
Medium: Shellfish tissue
Exposure Medium: Crayfish, by Station

Exposure Point <sup>a</sup>	Tissue Type	Chemical of Potential Concern <sup>b</sup>	Units	Total Samples	Total Non-Detects <sup>c</sup>	Non-Detects greater than Maximum Detected Concentration <sup>d</sup>	Arithmetic Mean <sup>e</sup>	Maximum Detected Concentration	95% UCL			Exposure Point Concentration
									Distribution	95% UCL Method	Value	
		<b>Polynuclear Aromatic Hydrocarbons</b>										
		2-Methylnaphthalene	ug/kg	1	1	0	ND	ND				ND
		Acenaphthene	ug/kg	1	1	0	ND	ND				ND
		Acenaphthylene	ug/kg	1	1	0	ND	ND				ND
		Anthracene	ug/kg	1	0	0	9.5E-02	9.5E-02				9.5E-02
		Benzo(a)anthracene	ug/kg	1	1	0	ND	ND				ND
		Benzo(a)pyrene	ug/kg	1	0	0	1.2E-01	1.2E-01				1.2E-01
		Benzo(b)fluoranthene	ug/kg	1	1	0	ND	ND				ND
		Benzo(g,h,i)perylene	ug/kg	1	1	0	ND	ND				ND
		Benzo(k)fluoranthene	ug/kg	1	1	0	ND	ND				ND
		Chrysene	ug/kg	1	1	0	ND	ND				ND
		Dibenzo(a,h)anthracene	ug/kg	1	1	0	ND	ND				ND
		Fluoranthene	ug/kg	1	1	0	ND	ND				ND
		Fluorene	ug/kg	1	0	0	1.6E-01	1.6E-01				1.6E-01
		Indeno(1,2,3-cd)pyrene	ug/kg	1	1	0	ND	ND				ND
		Naphthalene	ug/kg	1	0	0	6.1E-01	6.1E-01				6.1E-01
		Phenanthrene	ug/kg	1	1	0	ND	ND				ND
		Pyrene	ug/kg	1	1	0	ND	ND				ND
		<b>Phthalates</b>										
		Butylbenzyl phthalate	ug/kg	1	1	0	ND	ND				ND
		<b>Semi-Volatile Organic Compounds</b>										
		Dibenzofuran	ug/kg	1	0	0	1.5E-01	1.5E-01				1.5E-01
		Hexachlorobenzene	ug/kg	1	0	0	4.9E-02	4.9E-02				4.9E-02
		Hexachlorobutadiene	ug/kg	1	1	0	ND	ND				ND
		<b>Phenols</b>										
		4-Methylphenol	ug/kg	1	1	0	ND	ND				ND
		Pentachlorophenol	ug/kg	1	1	0	ND	ND				ND
		Phenol	ug/kg	1	0	0	7.4E+01	7.4E+01				7.4E+01
		<b>Polychlorinated Biphenyls</b>										
		Total Aroclors	ug/kg	NA	NA	NA	NA	NA				NA
		Total PCB Congeners	pg/g	1	0	0	7.1E+03	7.1E+03				7.1E+03
		Total PCBs, Adjusted	pg/g	1	0	0	6.1E+03	6.1E+03				6.1E+03
		<b>Dioxin/Furans</b>										
		Total Dioxin/Furan TEQ	pg/g	1	0	0	3.3E-01	3.3E-01				3.3E-01
		Total PCB TEQ	pg/g	1	0	0	1.8E-01	1.8E-01				1.8E-01
		<b>Pesticides</b>										
		Aldrin	ug/kg	1	1	0	ND	ND				ND
		alpha-Hexachlorocyclohexane	ug/kg	1	1	0	ND	ND				ND
		Dieldrin	ug/kg	1	0	0	1.3E-02	1.3E-02				1.3E-02
		Endrin	ug/kg	1	1	0	ND	ND				ND
		Heptachlor epoxide	ug/kg	1	1	0	ND	ND				ND
		Total DDD	ug/kg	1	0	0	1.8E-01	1.8E-01				1.8E-01

**TABLE 3-17**  
**Exposure Point Concentration Summary - Crayfish, by Station**

Scenario Timeframe: Current/Future
Medium: Shellfish tissue
Exposure Medium: Crayfish, by Station

Exposure Point <sup>a</sup>	Tissue Type	Chemical of Potential Concern <sup>b</sup>	Units	Total Samples	Total Non-Detects <sup>c</sup>	Non-Detects greater than Maximum Detected Concentration <sup>d</sup>	Arithmetic Mean <sup>e</sup>	Maximum Detected Concentration	95% UCL			Exposure Point Concentration
									Distribution	95% UCL Method	Value	
		Total DDE	ug/kg	1	0	0	2.4E+00	2.4E+00				2.4E+00
		Total DDT	ug/kg	1	1	0	ND	ND				ND
		Total Chlordane	ug/kg	1	0	0	2.1E-01	2.1E-01				2.1E-01
		Total Endosulfan	ug/kg	1	0	0	1.4E-01	1.4E-01				1.4E-01
RM 2, Station: 02R001	WB	<b>Metals</b>								Fewer than 5 detects		
		Aluminum	mg/kg	1	0	0	1.0E+02	1.0E+02				1.0E+02
		Antimony	mg/kg	1	0	0	7.0E-03	7.0E-03				7.0E-03
		Arsenic, inorganic	mg/kg	1	0	0	3.7E-02	3.7E-02				3.7E-02
		Cadmium	mg/kg	1	0	0	2.8E-02	2.8E-02				2.8E-02
		Chromium	mg/kg	1	0	0	9.0E-01	9.0E-01				9.0E-01
		Copper	mg/kg	1	0	0	1.3E+01	1.3E+01				1.3E+01
		Lead	mg/kg	1	0	0	5.9E-02	5.9E-02				5.9E-02
		Manganese	mg/kg	1	0	0	1.5E+02	1.5E+02				1.5E+02
		Mercury	mg/kg	1	0	0	2.4E-02	2.4E-02				2.4E-02
		Nickel	mg/kg	1	0	0	5.4E-01	5.4E-01				5.4E-01
		Selenium	mg/kg	1	1	0	ND	ND				ND
		Silver	mg/kg	1	0	0	2.7E-02	2.7E-02				2.7E-02
		Thallium	mg/kg	1	0	0	7.9E-03	7.9E-03				7.9E-03
		Zinc	mg/kg	1	0	0	1.7E+01	1.7E+01				1.7E+01
		<b>Butyltins</b>										
		Butyltin ion	ug/kg	NA	NA	NA	NA	NA				NA
		Dibutyltin ion	ug/kg	NA	NA	NA	NA	NA				NA
		Tributyltin ion	ug/kg	NA	NA	NA	NA	NA				NA
		<b>Polynuclear Aromatic Hydrocarbons</b>										
		2-Methylnaphthalene	ug/kg	1	1	0	ND	ND				ND
		Acenaphthene	ug/kg	1	1	0	ND	ND				ND
		Acenaphthylene	ug/kg	1	1	0	ND	ND				ND
		Anthracene	ug/kg	1	1	0	ND	ND				ND
		Benzo(a)anthracene	ug/kg	1	1	0	ND	ND				ND
		Benzo(a)pyrene	ug/kg	1	1	0	ND	ND				ND
		Benzo(b)fluoranthene	ug/kg	1	1	0	ND	ND				ND
		Benzo(g,h,i)perylene	ug/kg	1	1	0	ND	ND				ND
		Benzo(k)fluoranthene	ug/kg	1	1	0	ND	ND				ND
		Chrysene	ug/kg	1	1	0	ND	ND				ND
		Dibenzo(a,h)anthracene	ug/kg	1	1	0	ND	ND				ND
		Fluoranthene	ug/kg	1	1	0	ND	ND				ND
		Fluorene	ug/kg	1	1	0	ND	ND				ND
		Indeno(1,2,3-cd)pyrene	ug/kg	1	1	0	ND	ND				ND
		Naphthalene	ug/kg	1	1	0	ND	ND				ND
		Phenanthrene	ug/kg	1	1	0	ND	ND				ND
		Pyrene	ug/kg	1	1	0	ND	ND				ND

**TABLE 3-17**  
**Exposure Point Concentration Summary - Crayfish, by Station**

Scenario Timeframe: Current/Future
Medium: Shellfish tissue
Exposure Medium: Crayfish, by Station

Exposure Point <sup>a</sup>	Tissue Type	Chemical of Potential Concern <sup>b</sup>	Units	Total Samples	Total Non-Detects <sup>c</sup>	Non-Detects greater than Maximum Detected Concentration <sup>d</sup>	Arithmetic Mean <sup>e</sup>	Maximum Detected Concentration	95% UCL			Exposure Point Concentration
									Distribution	95% UCL Method	Value	
		<b>Phthalates</b>										
		Butylbenzyl phthalate	ug/kg	1	1	0	ND	ND				ND
		<b>Semi-Volatile Organic Compounds</b>										
		Dibenzofuran	ug/kg	1	1	0	ND	ND				ND
		Hexachlorobenzene	ug/kg	1	1	0	ND	ND				ND
		Hexachlorobutadiene	ug/kg	1	1	0	ND	ND				ND
		<b>Phenols</b>										
		4-Methylphenol	ug/kg	1	1	0	ND	ND				ND
		Pentachlorophenol	ug/kg	1	1	0	ND	ND				ND
		Phenol	ug/kg	1	1	0	ND	ND				ND
		<b>Polychlorinated Biphenyls</b>										
		Total Aroclors	ug/kg	1	0	0	2.1E+01	2.1E+01				2.1E+01
		Total PCB Congeners	pg/g	1	0	0	6.1E+04	6.1E+04				6.1E+04
		Total PCBs, Adjusted	pg/g	1	0	0	4.6E+04	4.6E+04				4.6E+04
		<b>Dioxin/Furans</b>										
		Total Dioxin/Furan TEQ	pg/g	1	0	0	4.2E-01	4.2E-01				4.2E-01
		Total PCB TEQ	pg/g	1	0	0	3.1E+00	3.1E+00				3.1E+00
		<b>Pesticides</b>										
		Aldrin	ug/kg	1	1	0	ND	ND				ND
		alpha-Hexachlorocyclohexane	ug/kg	1	1	0	ND	ND				ND
		Dieldrin	ug/kg	1	1	0	ND	ND				ND
		Endrin	ug/kg	1	1	0	ND	ND				ND
		Heptachlor epoxide	ug/kg	1	1	0	ND	ND				ND
		Total DDD	ug/kg	1	1	0	ND	ND				ND
		Total DDE	ug/kg	1	0	0	3.4E+00	3.4E+00				3.4E+00
		Total DDT	ug/kg	1	0	0	8.2E+00	8.2E+00				8.2E+00
		Total Chlordane	ug/kg	1	0	0	3.1E+00	3.1E+00				3.1E+00
		Total Endosulfan	ug/kg	1	1	0	ND	ND				ND
RM 2, Station: 02R015	WB	<b>Metals</b>										
		Aluminum	mg/kg	1	0	0	9.0E+01	9.0E+01		Fewer than 5 detects		9.0E+01
		Antimony	mg/kg	1	0	0	9.0E-03	9.0E-03				9.0E-03
		Arsenic, inorganic	mg/kg	1	0	0	4.0E-02	4.0E-02				4.0E-02
		Cadmium	mg/kg	1	0	0	1.7E-02	1.7E-02				1.7E-02
		Chromium	mg/kg	1	0	0	7.0E-01	7.0E-01				7.0E-01
		Copper	mg/kg	1	0	0	1.1E+01	1.1E+01				1.1E+01
		Lead	mg/kg	1	0	0	7.8E-02	7.8E-02				7.8E-02
		Manganese	mg/kg	1	0	0	1.8E+02	1.8E+02				1.8E+02
		Mercury	mg/kg	1	0	0	2.3E-02	2.3E-02				2.3E-02
		Nickel	mg/kg	1	0	0	4.7E-01	4.7E-01				4.7E-01
		Selenium	mg/kg	1	1	0	ND	ND				ND
		Silver	mg/kg	1	0	0	2.6E-02	2.6E-02				2.6E-02
		Thallium	mg/kg	1	0	0	6.8E-03	6.8E-03				6.8E-03
		Zinc	mg/kg	1	0	0	1.6E+01	1.6E+01				1.6E+01

**TABLE 3-17**  
**Exposure Point Concentration Summary - Crayfish, by Station**

Scenario Timeframe: Current/Future
Medium: Shellfish tissue
Exposure Medium: Crayfish, by Station

Exposure Point <sup>a</sup>	Tissue Type	Chemical of Potential Concern <sup>b</sup>	Units	Total Samples	Total Non-Detects <sup>c</sup>	Non-Detects greater than Maximum Detected Concentration <sup>d</sup>	Arithmetic Mean <sup>e</sup>	Maximum Detected Concentration	95% UCL			Exposure Point Concentration
									Distribution	95% UCL Method	Value	
		<b>Butyltins</b>										
		Butyltin ion	ug/kg	NA	NA	NA	NA	NA				NA
		Dibutyltin ion	ug/kg	NA	NA	NA	NA	NA				NA
		Tributyltin ion	ug/kg	NA	NA	NA	NA	NA				NA
		<b>Polynuclear Aromatic Hydrocarbons</b>										
		2-Methylnaphthalene	ug/kg	1	1	0	ND	ND				ND
		Acenaphthene	ug/kg	1	1	0	ND	ND				ND
		Acenaphthylene	ug/kg	1	1	0	ND	ND				ND
		Anthracene	ug/kg	1	1	0	ND	ND				ND
		Benzo(a)anthracene	ug/kg	1	1	0	ND	ND				ND
		Benzo(a)pyrene	ug/kg	1	1	0	ND	ND				ND
		Benzo(b)fluoranthene	ug/kg	1	1	0	ND	ND				ND
		Benzo(g,h,i)perylene	ug/kg	1	1	0	ND	ND				ND
		Benzo(k)fluoranthene	ug/kg	1	1	0	ND	ND				ND
		Chrysene	ug/kg	1	1	0	ND	ND				ND
		Dibenzo(a,h)anthracene	ug/kg	1	1	0	ND	ND				ND
		Fluoranthene	ug/kg	1	1	0	ND	ND				ND
		Fluorene	ug/kg	1	1	0	ND	ND				ND
		Indeno(1,2,3-cd)pyrene	ug/kg	1	1	0	ND	ND				ND
		Naphthalene	ug/kg	1	1	0	ND	ND				ND
		Phenanthrene	ug/kg	1	1	0	ND	ND				ND
		Pyrene	ug/kg	1	1	0	ND	ND				ND
		<b>Phthalates</b>										
		Butylbenzyl phthalate	ug/kg	1	1	0	ND	ND				ND
		<b>Semi-Volatile Organic Compounds</b>										
		Dibenzofuran	ug/kg	1	1	0	ND	ND				ND
		Hexachlorobenzene	ug/kg	1	1	0	ND	ND				ND
		Hexachlorobutadiene	ug/kg	1	1	0	ND	ND				ND
		<b>Phenols</b>										
		4-Methylphenol	ug/kg	1	1	0	ND	ND				ND
		Pentachlorophenol	ug/kg	1	1	0	ND	ND				ND
		Phenol	ug/kg	1	1	0	ND	ND				ND
		<b>Polychlorinated Biphenyls</b>										
		Total Aroclors	ug/kg	1	0	0	2.8E+01	2.8E+01				2.8E+01
		Total PCB Congeners	pg/g	NA	NA	NA	NA	NA				NA
		Total PCBs, Adjusted	pg/g	NA	NA	NA	NA	NA				NA
		<b>Dioxin/Furans</b>										
		Total Dioxin/Furan TEQ	pg/g	NA	NA	NA	NA	NA				NA
		Total PCB TEQ	pg/g	NA	NA	NA	NA	NA				NA
		<b>Pesticides</b>										
		Aldrin	ug/kg	1	1	0	ND	ND				ND
		alpha-Hexachlorocyclohexane	ug/kg	1	1	0	ND	ND				ND

**TABLE 3-17**  
**Exposure Point Concentration Summary - Crayfish, by Station**

Scenario Timeframe: Current/Future
Medium: Shellfish tissue
Exposure Medium: Crayfish, by Station

Exposure Point <sup>a</sup>	Tissue Type	Chemical of Potential Concern <sup>b</sup>	Units	Total Samples	Total Non-Detects <sup>c</sup>	Non-Detects greater than Maximum Detected Concentration <sup>d</sup>	Arithmetic Mean <sup>e</sup>	Maximum Detected Concentration	95% UCL			Exposure Point Concentration
									Distribution	95% UCL Method	Value	
		Dieldrin	ug/kg	1	1	0	ND	ND				ND
		Endrin	ug/kg	1	0	0	1.8E+00	1.8E+00				1.8E+00
		Heptachlor epoxide	ug/kg	1	1	0	ND	ND				ND
		Total DDD	ug/kg	1	1	0	ND	ND				ND
		Total DDE	ug/kg	1	0	0	4.6E+00	4.6E+00				4.6E+00
		Total DDT	ug/kg	1	0	0	1.0E+01	1.0E+01				1.0E+01
		Total Chlordane	ug/kg	1	0	0	3.3E+00	3.3E+00				3.3E+00
		Total Endosulfan	ug/kg	1	1	0	ND	ND				ND
RM: 3, Station: 03R001	WB	<b>Metals</b>										
		Aluminum	mg/kg	1	0	0	1.0E+02	1.0E+02		Fewer than 5 detects		1.0E+02
		Antimony	mg/kg	1	0	0	7.0E-03	7.0E-03				7.0E-03
		Arsenic, inorganic	mg/kg	1	0	0	3.5E-02	3.5E-02				3.5E-02
		Cadmium	mg/kg	1	0	0	1.6E-02	1.6E-02				1.6E-02
		Chromium	mg/kg	1	0	0	4.0E-01	4.0E-01				4.0E-01
		Copper	mg/kg	1	0	0	1.2E+01	1.2E+01				1.2E+01
		Lead	mg/kg	1	0	0	6.9E-02	6.9E-02				6.9E-02
		Manganese	mg/kg	1	0	0	1.4E+02	1.4E+02				1.4E+02
		Mercury	mg/kg	1	0	0	2.4E-02	2.4E-02				2.4E-02
		Nickel	mg/kg	1	0	0	3.0E-01	3.0E-01				3.0E-01
		Selenium	mg/kg	1	1	0	ND	ND				ND
		Silver	mg/kg	1	0	0	2.9E-02	2.9E-02				2.9E-02
		Thallium	mg/kg	1	0	0	5.4E-03	5.4E-03				5.4E-03
		Zinc	mg/kg	1	0	0	1.8E+01	1.8E+01				1.8E+01
		<b>Butyltins</b>										
		Butyltin ion	ug/kg	NA	NA	NA	NA	NA				NA
		Dibutyltin ion	ug/kg	NA	NA	NA	NA	NA				NA
		Tributyltin ion	ug/kg	NA	NA	NA	NA	NA				NA
		<b>Polynuclear Aromatic Hydrocarbons</b>										
		2-Methylnaphthalene	ug/kg	1	1	0	ND	ND				ND
		Acenaphthene	ug/kg	1	1	0	ND	ND				ND
		Acenaphthylene	ug/kg	1	1	0	ND	ND				ND
		Anthracene	ug/kg	1	1	0	ND	ND				ND
		Benzo(a)anthracene	ug/kg	1	1	0	ND	ND				ND
		Benzo(a)pyrene	ug/kg	1	1	0	ND	ND				ND
		Benzo(b)fluoranthene	ug/kg	1	1	0	ND	ND				ND
		Benzo(g,h,i)perylene	ug/kg	1	1	0	ND	ND				ND
		Benzo(k)fluoranthene	ug/kg	1	1	0	ND	ND				ND
		Chrysene	ug/kg	1	1	0	ND	ND				ND
		Dibenzo(a,h)anthracene	ug/kg	1	1	0	ND	ND				ND
		Fluoranthene	ug/kg	1	1	0	ND	ND				ND
		Fluorene	ug/kg	1	1	0	ND	ND				ND
		Indeno(1,2,3-cd)pyrene	ug/kg	1	1	0	ND	ND				ND

**TABLE 3-17**  
**Exposure Point Concentration Summary - Crayfish, by Station**

Scenario Timeframe: Current/Future
Medium: Shellfish tissue
Exposure Medium: Crayfish, by Station

Exposure Point <sup>a</sup>	Tissue Type	Chemical of Potential Concern <sup>b</sup>	Units	Total Samples	Total Non-Detects <sup>c</sup>	Non-Detects greater than Maximum Detected Concentration <sup>d</sup>	Arithmetic Mean <sup>e</sup>	Maximum Detected Concentration	95% UCL			Exposure Point Concentration	
									Distribution	95% UCL Method	Value		
RM: 3, Station: 03R002	WB	Naphthalene	ug/kg	1	1	0	ND	ND				ND	
		Phenanthrene	ug/kg	1	1	0	ND	ND				ND	
		Pyrene	ug/kg	1	1	0	ND	ND				ND	
		<b>Phthalates</b>											
		Butylbenzyl phthalate	ug/kg	1	1	0	ND	ND				ND	
		<b>Semi-Volatile Organic Compounds</b>											
		Dibenzofuran	ug/kg	1	1	0	ND	ND				ND	
		Hexachlorobenzene	ug/kg	1	1	0	ND	ND				ND	
		Hexachlorobutadiene	ug/kg	1	1	0	ND	ND				ND	
		<b>Phenols</b>											
		4-Methylphenol	ug/kg	1	1	0	ND	ND				ND	
		Pentachlorophenol	ug/kg	1	1	0	ND	ND				ND	
		Phenol	ug/kg	1	1	0	ND	ND				ND	
		<b>Polychlorinated Biphenyls</b>											
		Total Aroclors	ug/kg	1	1	0	ND	ND				ND	
		Total PCB Congeners	pg/g	NA	NA	NA	NA	NA				NA	
		Total PCBs, Adjusted	pg/g	NA	NA	NA	NA	NA				NA	
		<b>Dioxin/Furans</b>											
		Total Dioxin/Furan TEQ	pg/g	NA	NA	NA	NA	NA				NA	
		Total PCB TEQ	pg/g	NA	NA	NA	NA	NA				NA	
		<b>Pesticides</b>											
		Aldrin	ug/kg	1	1	0	ND	ND				ND	
		alpha-Hexachlorocyclohexane	ug/kg	1	1	0	ND	ND				ND	
		Dieldrin	ug/kg	1	1	0	ND	ND				ND	
		Endrin	ug/kg	1	1	0	ND	ND				ND	
		Heptachlor epoxide	ug/kg	1	1	0	ND	ND				ND	
		Total DDD	ug/kg	1	1	0	ND	ND				ND	
		Total DDE	ug/kg	1	0	0	5.3E+00	5.3E+00				5.3E+00	
Total DDT	ug/kg	1	0	0	2.7E+00	2.7E+00				2.7E+00			
Total Chlordane	ug/kg	1	1	0	ND	ND				ND			
Total Endosulfan	ug/kg	1	0	0	1.0E+00	1.0E+00				1.0E+00			
		<b>Metals</b>											
		Aluminum	mg/kg	1	0	0	9.3E+01	9.3E+01	Fewer than 5 detects			9.3E+01	
		Antimony	mg/kg	1	0	0	6.0E-03	6.0E-03				6.0E-03	
		Arsenic, inorganic	mg/kg	1	0	0	4.1E-02	4.1E-02				4.1E-02	
		Cadmium	mg/kg	1	0	0	1.8E-02	1.8E-02				1.8E-02	
		Chromium	mg/kg	1	0	0	4.0E-01	4.0E-01				4.0E-01	
		Copper	mg/kg	1	0	0	1.5E+01	1.5E+01				1.5E+01	
		Lead	mg/kg	1	0	0	4.4E-02	4.4E-02				4.4E-02	
		Manganese	mg/kg	1	0	0	1.6E+02	1.6E+02				1.6E+02	
		Mercury	mg/kg	1	0	0	2.7E-02	2.7E-02				2.7E-02	
		Nickel	mg/kg	1	0	0	3.6E-01	3.6E-01				3.6E-01	



**TABLE 3-17**  
**Exposure Point Concentration Summary - Crayfish, by Station**

Scenario Timeframe: Current/Future
Medium: Shellfish tissue
Exposure Medium: Crayfish, by Station

Exposure Point <sup>a</sup>	Tissue Type	Chemical of Potential Concern <sup>b</sup>	Units	Total Samples	Total Non-Detects <sup>c</sup>	Non-Detects greater than Maximum Detected Concentration <sup>d</sup>	Arithmetic Mean <sup>e</sup>	Maximum Detected Concentration	95% UCL			Exposure Point Concentration
									Distribution	95% UCL Method	Value	
		Selenium	mg/kg	1	1	0	ND	ND				ND
		Silver	mg/kg	1	0	0	2.9E-02	2.9E-02				2.9E-02
		Thallium	mg/kg	1	0	0	5.2E-03	5.2E-03				5.2E-03
		Zinc	mg/kg	1	0	0	1.8E+01	1.8E+01				1.8E+01
		<b>Butyltins</b>										
		Butyltin ion	ug/kg	NA	NA	NA	NA	NA				NA
		Dibutyltin ion	ug/kg	NA	NA	NA	NA	NA				NA
		Tributyltin ion	ug/kg	NA	NA	NA	NA	NA				NA
		<b>Polynuclear Aromatic Hydrocarbons</b>										
		2-Methylnaphthalene	ug/kg	1	1	0	ND	ND				ND
		Acenaphthene	ug/kg	1	1	0	ND	ND				ND
		Acenaphthylene	ug/kg	1	1	0	ND	ND				ND
		Anthracene	ug/kg	1	1	0	ND	ND				ND
		Benzo(a)anthracene	ug/kg	1	1	0	ND	ND				ND
		Benzo(a)pyrene	ug/kg	1	1	0	ND	ND				ND
		Benzo(b)fluoranthene	ug/kg	1	1	0	ND	ND				ND
		Benzo(g,h,i)perylene	ug/kg	1	1	0	ND	ND				ND
		Benzo(k)fluoranthene	ug/kg	1	1	0	ND	ND				ND
		Chrysene	ug/kg	1	1	0	ND	ND				ND
		Dibenzo(a,h)anthracene	ug/kg	1	1	0	ND	ND				ND
		Fluoranthene	ug/kg	1	1	0	ND	ND				ND
		Fluorene	ug/kg	1	1	0	ND	ND				ND
		Indeno(1,2,3-cd)pyrene	ug/kg	1	1	0	ND	ND				ND
		Naphthalene	ug/kg	1	1	0	ND	ND				ND
		Phenanthrene	ug/kg	1	1	0	ND	ND				ND
		Pyrene	ug/kg	1	1	0	ND	ND				ND
		<b>Phthalates</b>										
		Butylbenzyl phthalate	ug/kg	1	1	0	ND	ND				ND
		<b>Semi-Volatile Organic Compounds</b>										
		Dibenzofuran	ug/kg	1	1	0	ND	ND				ND
		Hexachlorobenzene	ug/kg	1	1	0	ND	ND				ND
		Hexachlorobutadiene	ug/kg	1	1	0	ND	ND				ND
		<b>Phenols</b>										
		4-Methylphenol	ug/kg	1	1	0	ND	ND				ND
		Pentachlorophenol	ug/kg	1	1	0	ND	ND				ND
		Phenol	ug/kg	1	1	0	ND	ND				ND
		<b>Polychlorinated Biphenyls</b>										
		Total Aroclors	ug/kg	1	1	0	ND	ND				ND
		Total PCB Congeners	pg/g	NA	NA	NA	NA	NA				NA
		Total PCBs, Adjusted	pg/g	NA	NA	NA	NA	NA				NA
		<b>Dioxin/Furans</b>										
		Total Dioxin/Furan TEQ	pg/g	NA	NA	NA	NA	NA				NA
		Total PCB TEQ	pg/g	NA	NA	NA	NA	NA				NA

**TABLE 3-17**  
**Exposure Point Concentration Summary - Crayfish, by Station**

Scenario Timeframe: Current/Future
Medium: Shellfish tissue
Exposure Medium: Crayfish, by Station

Exposure Point <sup>a</sup>	Tissue Type	Chemical of Potential Concern <sup>b</sup>	Units	Total Samples	Total Non-Detects <sup>c</sup>	Non-Detects greater than Maximum Detected Concentration <sup>d</sup>	Arithmetic Mean <sup>e</sup>	Maximum Detected Concentration	95% UCL			Exposure Point Concentration
									Distribution	95% UCL Method	Value	
		<b>Pesticides</b>										
		Aldrin	ug/kg	1	1	0	ND	ND				ND
		alpha-Hexachlorocyclohexane	ug/kg	1	1	0	ND	ND				ND
		Dieldrin	ug/kg	1	1	0	ND	ND				ND
		Endrin	ug/kg	1	0	0	1.3E+00	1.3E+00				1.3E+00
		Heptachlor epoxide	ug/kg	1	1	0	ND	ND				ND
		Total DDD	ug/kg	1	1	0	ND	ND				ND
		Total DDE	ug/kg	1	0	0	4.3E+00	4.3E+00				4.3E+00
		Total DDT	ug/kg	1	0	0	2.6E+00	2.6E+00				2.6E+00
		Total Chlordane	ug/kg	1	1	0	ND	ND				ND
		Total Endosulfan	ug/kg	1	0	0	1.4E+00	1.4E+00				1.4E+00
RM: 3, Station: 03R003	WB	<b>Metals</b>								Fewer than 5 detects		
		Aluminum	mg/kg	1	0	0	1.5E+02	1.5E+02				1.5E+02
		Antimony	mg/kg	1	0	0	6.0E-03	6.0E-03				6.0E-03
		Arsenic, inorganic	mg/kg	1	0	0	3.8E-02	3.8E-02				3.8E-02
		Cadmium	mg/kg	1	0	0	2.9E-02	2.9E-02				2.9E-02
		Chromium	mg/kg	1	0	0	5.0E-01	5.0E-01				5.0E-01
		Copper	mg/kg	1	0	0	1.7E+01	1.7E+01				1.7E+01
		Lead	mg/kg	1	0	0	8.8E-02	8.8E-02				8.8E-02
		Manganese	mg/kg	1	0	0	1.6E+02	1.6E+02				1.6E+02
		Mercury	mg/kg	1	0	0	2.9E-02	2.9E-02				2.9E-02
		Nickel	mg/kg	1	0	0	4.2E-01	4.2E-01				4.2E-01
		Selenium	mg/kg	1	1	0	ND	ND				ND
		Silver	mg/kg	1	0	0	4.2E-02	4.2E-02				4.2E-02
		Thallium	mg/kg	1	0	0	5.1E-03	5.1E-03				5.1E-03
		Zinc	mg/kg	1	0	0	2.0E+01	2.0E+01				2.0E+01
		<b>Butyltins</b>										
		Butyltin ion	ug/kg	NA	NA	NA	NA	NA				NA
		Dibutyltin ion	ug/kg	NA	NA	NA	NA	NA				NA
		Tributyltin ion	ug/kg	NA	NA	NA	NA	NA				NA
		<b>Polynuclear Aromatic Hydrocarbons</b>										
		2-Methylnaphthalene	ug/kg	1	1	0	ND	ND				ND
		Acenaphthene	ug/kg	1	1	0	ND	ND				ND
		Acenaphthylene	ug/kg	1	1	0	ND	ND				ND
		Anthracene	ug/kg	1	1	0	ND	ND				ND
		Benzo(a)anthracene	ug/kg	1	1	0	ND	ND				ND
		Benzo(a)pyrene	ug/kg	1	1	0	ND	ND				ND
		Benzo(b)fluoranthene	ug/kg	1	1	0	ND	ND				ND
		Benzo(g,h,i)perylene	ug/kg	1	1	0	ND	ND				ND
		Benzo(k)fluoranthene	ug/kg	1	1	0	ND	ND				ND
		Chrysene	ug/kg	1	1	0	ND	ND				ND
		Dibenzo(a,h)anthracene	ug/kg	1	1	0	ND	ND				ND

**TABLE 3-17**  
**Exposure Point Concentration Summary - Crayfish, by Station**

Scenario Timeframe: Current/Future
Medium: Shellfish tissue
Exposure Medium: Crayfish, by Station

Exposure Point <sup>a</sup>	Tissue Type	Chemical of Potential Concern <sup>b</sup>	Units	Total Samples	Total Non-Detects <sup>c</sup>	Non-Detects greater than Maximum Detected Concentration <sup>d</sup>	Arithmetic Mean <sup>e</sup>	Maximum Detected Concentration	95% UCL			Exposure Point Concentration
									Distribution	95% UCL Method	Value	
		Fluoranthene	ug/kg	1	1	0	ND	ND				ND
		Fluorene	ug/kg	1	1	0	ND	ND				ND
		Indeno(1,2,3-cd)pyrene	ug/kg	1	1	0	ND	ND				ND
		Naphthalene	ug/kg	1	1	0	ND	ND				ND
		Phenanthrene	ug/kg	1	1	0	ND	ND				ND
		Pyrene	ug/kg	1	1	0	ND	ND				ND
		<b>Phthalates</b>										
		Butylbenzyl phthalate	ug/kg	1	1	0	ND	ND				ND
		<b>Semi-Volatile Organic Compounds</b>										
		Dibenzofuran	ug/kg	1	1	0	ND	ND				ND
		Hexachlorobenzene	ug/kg	1	1	0	ND	ND				ND
		Hexachlorobutadiene	ug/kg	1	1	0	ND	ND				ND
		<b>Phenols</b>										
		4-Methylphenol	ug/kg	1	1	0	ND	ND				ND
		Pentachlorophenol	ug/kg	1	1	0	ND	ND				ND
		Phenol	ug/kg	1	1	0	ND	ND				ND
		<b>Polychlorinated Biphenyls</b>										
		Total Aroclors	ug/kg	1	1	0	ND	ND				ND
		Total PCB Congeners	pg/g	1	0	0	7.6E+04	7.6E+04				7.6E+04
		Total PCBs, Adjusted	pg/g	1	0	0	7.0E+04	7.0E+04				7.0E+04
		<b>Dioxin/Furans</b>										
		Total Dioxin/Furan TEQ	pg/g	1	0	0	6.1E-01	6.1E-01				6.1E-01
		Total PCB TEQ	pg/g	1	0	0	1.2E+00	1.2E+00				1.2E+00
		<b>Pesticides</b>										
		Aldrin	ug/kg	1	1	0	ND	ND				ND
		alpha-Hexachlorocyclohexane	ug/kg	1	1	0	ND	ND				ND
		Dieldrin	ug/kg	1	1	0	ND	ND				ND
		Endrin	ug/kg	1	0	0	1.1E+00	1.1E+00				1.1E+00
		Heptachlor epoxide	ug/kg	1	1	0	ND	ND				ND
		Total DDD	ug/kg	1	1	0	ND	ND				ND
		Total DDE	ug/kg	1	0	0	4.0E+00	4.0E+00				4.0E+00
		Total DDT	ug/kg	1	0	0	6.9E+00	6.9E+00				6.9E+00
		Total Chlordane	ug/kg	1	1	0	ND	ND				ND
		Total Endosulfan	ug/kg	1	0	0	1.1E+00	1.1E+00				1.1E+00
RM: 3, Station: 03R004	WB	<b>Metals</b>										
		Aluminum	mg/kg	1	0	0	1.1E+02	1.1E+02		Fewer than 5 detects		1.1E+02
		Antimony	mg/kg	1	0	0	1.4E-02	1.4E-02				1.4E-02
		Arsenic, inorganic	mg/kg	1	0	0	3.6E-02	3.6E-02				3.6E-02
		Cadmium	mg/kg	1	0	0	2.0E-02	2.0E-02				2.0E-02
		Chromium	mg/kg	1	0	0	6.0E-01	6.0E-01				6.0E-01
		Copper	mg/kg	1	0	0	1.6E+01	1.6E+01				1.6E+01
		Lead	mg/kg	1	0	0	1.0E-01	1.0E-01				1.0E-01

**TABLE 3-17**  
**Exposure Point Concentration Summary - Crayfish, by Station**

Scenario Timeframe: Current/Future
Medium: Shellfish tissue
Exposure Medium: Crayfish, by Station

Exposure Point <sup>a</sup>	Tissue Type	Chemical of Potential Concern <sup>b</sup>	Units	Total Samples	Total Non-Detects <sup>c</sup>	Non-Detects greater than Maximum Detected Concentration <sup>d</sup>	Arithmetic Mean <sup>e</sup>	Maximum Detected Concentration	95% UCL			Exposure Point Concentration
									Distribution	95% UCL Method	Value	
		Manganese	mg/kg	1	0	0	9.0E+01	9.0E+01				9.0E+01
		Mercury	mg/kg	1	0	0	2.5E-02	2.5E-02				2.5E-02
		Nickel	mg/kg	1	0	0	4.0E-01	4.0E-01				4.0E-01
		Selenium	mg/kg	1	1	0	ND	ND				ND
		Silver	mg/kg	1	0	0	4.6E-02	4.6E-02				4.6E-02
		Thallium	mg/kg	1	0	0	3.0E-03	3.0E-03				3.0E-03
		Zinc	mg/kg	1	0	0	1.8E+01	1.8E+01				1.8E+01
		<b>Butyltins</b>										
		Butyltin ion	ug/kg	NA	NA	NA	NA	NA				NA
		Dibutyltin ion	ug/kg	NA	NA	NA	NA	NA				NA
		Tributyltin ion	ug/kg	NA	NA	NA	NA	NA				NA
		<b>Polynuclear Aromatic Hydrocarbons</b>										
		2-Methylnaphthalene	ug/kg	1	1	0	ND	ND				ND
		Acenaphthene	ug/kg	1	1	0	ND	ND				ND
		Acenaphthylene	ug/kg	1	1	0	ND	ND				ND
		Anthracene	ug/kg	1	1	0	ND	ND				ND
		Benzo(a)anthracene	ug/kg	1	1	0	ND	ND				ND
		Benzo(a)pyrene	ug/kg	1	1	0	ND	ND				ND
		Benzo(b)fluoranthene	ug/kg	1	1	0	ND	ND				ND
		Benzo(g,h,i)perylene	ug/kg	1	1	0	ND	ND				ND
		Benzo(k)fluoranthene	ug/kg	1	1	0	ND	ND				ND
		Chrysene	ug/kg	1	1	0	ND	ND				ND
		Dibenzo(a,h)anthracene	ug/kg	1	1	0	ND	ND				ND
		Fluoranthene	ug/kg	1	1	0	ND	ND				ND
		Fluorene	ug/kg	1	1	0	ND	ND				ND
		Indeno(1,2,3-cd)pyrene	ug/kg	1	1	0	ND	ND				ND
		Naphthalene	ug/kg	1	1	0	ND	ND				ND
		Phenanthrene	ug/kg	1	1	0	ND	ND				ND
		Pyrene	ug/kg	1	1	0	ND	ND				ND
		<b>Phthalates</b>										
		Butylbenzyl phthalate	ug/kg	1	1	0	ND	ND				ND
		<b>Semi-Volatile Organic Compounds</b>										
		Dibenzofuran	ug/kg	1	1	0	ND	ND				ND
		Hexachlorobenzene	ug/kg	1	1	0	ND	ND				ND
		Hexachlorobutadiene	ug/kg	1	1	0	ND	ND				ND
		<b>Phenols</b>										
		4-Methylphenol	ug/kg	1	0	0	1.9E+02	1.9E+02				1.9E+02
		Pentachlorophenol	ug/kg	1	1	0	ND	ND				ND
		Phenol	ug/kg	1	0	0	5.2E+02	5.2E+02				5.2E+02
		<b>Polychlorinated Biphenyls</b>										
		Total Aroclors	ug/kg	1	1	0	ND	ND				ND
		Total PCB Congeners	pg/g	1	0	0	3.2E+04	3.2E+04				3.2E+04
		Total PCBs, Adjusted	pg/g	1	0	0	2.7E+04	2.7E+04				2.7E+04

**TABLE 3-17**  
**Exposure Point Concentration Summary - Crayfish, by Station**

Scenario Timeframe: Current/Future
Medium: Shellfish tissue
Exposure Medium: Crayfish, by Station

Exposure Point <sup>a</sup>	Tissue Type	Chemical of Potential Concern <sup>b</sup>	Units	Total Samples	Total Non-Detects <sup>c</sup>	Non-Detects greater than Maximum Detected Concentration <sup>d</sup>	Arithmetic Mean <sup>e</sup>	Maximum Detected Concentration	95% UCL			Exposure Point Concentration
									Distribution	95% UCL Method	Value	
		<b>Dioxin/Furans</b>										
		Total Dioxin/Furan TEQ	pg/g	1	0	0	6.1E-01	6.1E-01				6.1E-01
		Total PCB TEQ	pg/g	1	0	0	1.1E+00	1.1E+00				1.1E+00
		<b>Pesticides</b>										
		Aldrin	ug/kg	1	1	0	ND	ND				ND
		alpha-Hexachlorocyclohexane	ug/kg	1	1	0	ND	ND				ND
		Dieldrin	ug/kg	1	1	0	ND	ND				ND
		Endrin	ug/kg	1	1	0	ND	ND				ND
		Heptachlor epoxide	ug/kg	1	1	0	ND	ND				ND
		Total DDD	ug/kg	1	1	0	ND	ND				ND
		Total DDE	ug/kg	1	0	0	4.2E+00	4.2E+00				4.2E+00
		Total DDT	ug/kg	1	0	0	5.2E+00	5.2E+00				5.2E+00
		Total Chlordane	ug/kg	1	1	0	ND	ND				ND
		Total Endosulfan	ug/kg	1	0	0	3.1E+00	3.1E+00				3.1E+00
RM: 3, Station: 03R005	WB	<b>Metals</b>								Fewer than 5 detects		
		Aluminum	mg/kg	1	0	0	6.6E+01	6.6E+01				6.6E+01
		Antimony	mg/kg	1	0	0	1.5E-02	1.5E-02				1.5E-02
		Arsenic, inorganic	mg/kg	1	0	0	3.0E-02	3.0E-02				3.0E-02
		Cadmium	mg/kg	1	0	0	3.0E-02	3.0E-02				3.0E-02
		Chromium	mg/kg	1	0	0	3.0E-01	3.0E-01				3.0E-01
		Copper	mg/kg	1	0	0	1.2E+01	1.2E+01				1.2E+01
		Lead	mg/kg	1	0	0	1.5E-01	1.5E-01				1.5E-01
		Manganese	mg/kg	1	0	0	1.9E+02	1.9E+02				1.9E+02
		Mercury	mg/kg	1	0	0	2.2E-02	2.2E-02				2.2E-02
		Nickel	mg/kg	1	0	0	3.0E-01	3.0E-01				3.0E-01
		Selenium	mg/kg	1	1	0	ND	ND				ND
		Silver	mg/kg	1	0	0	1.5E-02	1.5E-02				1.5E-02
		Thallium	mg/kg	1	0	0	2.1E-03	2.1E-03				2.1E-03
		Zinc	mg/kg	1	0	0	1.5E+01	1.5E+01				1.5E+01
		<b>Butyltins</b>										
		Butyltin ion	ug/kg	NA	NA	NA	NA	NA				NA
		Dibutyltin ion	ug/kg	NA	NA	NA	NA	NA				NA
		Tributyltin ion	ug/kg	NA	NA	NA	NA	NA				NA
		<b>Polynuclear Aromatic Hydrocarbons</b>										
		2-Methylnaphthalene	ug/kg	1	1	0	ND	ND				ND
		Acenaphthene	ug/kg	1	1	0	ND	ND				ND
		Acenaphthylene	ug/kg	1	1	0	ND	ND				ND
		Anthracene	ug/kg	1	1	0	ND	ND				ND
		Benzo(a)anthracene	ug/kg	1	1	0	ND	ND				ND
		Benzo(a)pyrene	ug/kg	1	1	0	ND	ND				ND
		Benzo(b)fluoranthene	ug/kg	1	1	0	ND	ND				ND
		Benzo(g,h,i)perylene	ug/kg	1	1	0	ND	ND				ND
		Benzo(k)fluoranthene	ug/kg	1	1	0	ND	ND				ND

**TABLE 3-17**  
**Exposure Point Concentration Summary - Crayfish, by Station**

Scenario Timeframe: Current/Future
Medium: Shellfish tissue
Exposure Medium: Crayfish, by Station

Exposure Point <sup>a</sup>	Tissue Type	Chemical of Potential Concern <sup>b</sup>	Units	Total Samples	Total Non-Detects <sup>c</sup>	Non-Detects greater than Maximum Detected Concentration <sup>d</sup>	Arithmetic Mean <sup>e</sup>	Maximum Detected Concentration	95% UCL			Exposure Point Concentration
									Distribution	95% UCL Method	Value	
		Chrysene	ug/kg	1	1	0	ND	ND				ND
		Dibenzo(a,h)anthracene	ug/kg	1	1	0	ND	ND				ND
		Fluoranthene	ug/kg	1	1	0	ND	ND				ND
		Fluorene	ug/kg	1	1	0	ND	ND				ND
		Indeno(1,2,3-cd)pyrene	ug/kg	1	1	0	ND	ND				ND
		Naphthalene	ug/kg	1	1	0	ND	ND				ND
		Phenanthrene	ug/kg	1	1	0	ND	ND				ND
		Pyrene	ug/kg	1	1	0	ND	ND				ND
		<b>Phthalates</b>										
		Butylbenzyl phthalate	ug/kg	1	1	0	ND	ND				ND
		<b>Semi-Volatile Organic Compounds</b>										
		Dibenzofuran	ug/kg	1	1	0	ND	ND				ND
		Hexachlorobenzene	ug/kg	1	1	0	ND	ND				ND
		Hexachlorobutadiene	ug/kg	1	1	0	ND	ND				ND
		<b>Phenols</b>										
		4-Methylphenol	ug/kg	1	1	0	ND	ND				ND
		Pentachlorophenol	ug/kg	1	1	0	ND	ND				ND
		Phenol	ug/kg	1	1	0	ND	ND				ND
		<b>Polychlorinated Biphenyls</b>										
		Total Aroclors	ug/kg	1	0	0	2.8E+02	2.8E+02				2.8E+02
		Total PCB Congeners	pg/g	1	0	0	2.1E+05	2.1E+05				2.1E+05
		Total PCBs, Adjusted	pg/g	1	0	0	1.9E+05	1.9E+05				1.9E+05
		<b>Dioxin/Furans</b>										
		Total Dioxin/Furan TEQ	pg/g	1	0	0	5.9E-01	5.9E-01				5.9E-01
		Total PCB TEQ	pg/g	1	0	0	2.7E+00	2.7E+00				2.7E+00
		<b>Pesticides</b>										
		Aldrin	ug/kg	1	1	0	ND	ND				ND
		alpha-Hexachlorocyclohexane	ug/kg	1	1	0	ND	ND				ND
		Dieldrin	ug/kg	1	1	0	ND	ND				ND
		Endrin	ug/kg	1	0	0	2.8E+00	2.8E+00				2.8E+00
		Heptachlor epoxide	ug/kg	1	1	0	ND	ND				ND
		Total DDD	ug/kg	1	1	0	ND	ND				ND
		Total DDE	ug/kg	1	0	0	4.0E+00	4.0E+00				4.0E+00
		Total DDT	ug/kg	1	1	0	ND	ND				ND
		Total Chlordane	ug/kg	1	0	0	3.0E+00	3.0E+00				3.0E+00
		Total Endosulfan	ug/kg	1	0	0	1.6E+00	1.6E+00				1.6E+00
RM: 3, Station: 03R032	WB	<b>Metals</b>										
		Aluminum	mg/kg	1	0	0	5.9E+01	5.9E+01		Fewer than 5 detects		5.9E+01
		Antimony	mg/kg	1	0	0	6.0E-03	6.0E-03				6.0E-03
		Arsenic, inorganic	mg/kg	1	0	0	4.5E-02	4.5E-02				4.5E-02
		Cadmium	mg/kg	1	0	0	1.2E-02	1.2E-02				1.2E-02
		Chromium	mg/kg	1	0	0	5.0E-01	5.0E-01				5.0E-01

**TABLE 3-17**  
**Exposure Point Concentration Summary - Crayfish, by Station**

Scenario Timeframe: Current/Future
Medium: Shellfish tissue
Exposure Medium: Crayfish, by Station

Exposure Point <sup>a</sup>	Tissue Type	Chemical of Potential Concern <sup>b</sup>	Units	Total Samples	Total Non-Detects <sup>c</sup>	Non-Detects greater than Maximum Detected Concentration <sup>d</sup>	Arithmetic Mean <sup>e</sup>	Maximum Detected Concentration	95% UCL			Exposure Point Concentration
									Distribution	95% UCL Method	Value	
		Copper	mg/kg	1	0	0	1.3E+01	1.3E+01				1.3E+01
		Lead	mg/kg	1	0	0	4.1E-02	4.1E-02				4.1E-02
		Manganese	mg/kg	1	0	0	1.3E+02	1.3E+02				1.3E+02
		Mercury	mg/kg	1	0	0	2.8E-02	2.8E-02				2.8E-02
		Nickel	mg/kg	1	0	0	3.8E-01	3.8E-01				3.8E-01
		Selenium	mg/kg	1	1	0	ND	ND				ND
		Silver	mg/kg	1	0	0	3.5E-02	3.5E-02				3.5E-02
		Thallium	mg/kg	1	0	0	4.0E-03	4.0E-03				4.0E-03
		Zinc	mg/kg	1	0	0	1.7E+01	1.7E+01				1.7E+01
		<b>Butyltins</b>										
		Butyltin ion	ug/kg	NA	NA	NA	NA	NA				NA
		Dibutyltin ion	ug/kg	NA	NA	NA	NA	NA				NA
		Tributyltin ion	ug/kg	NA	NA	NA	NA	NA				NA
		<b>Polynuclear Aromatic Hydrocarbons</b>										
		2-Methylnaphthalene	ug/kg	1	1	0	ND	ND				ND
		Acenaphthene	ug/kg	1	1	0	ND	ND				ND
		Acenaphthylene	ug/kg	1	1	0	ND	ND				ND
		Anthracene	ug/kg	1	1	0	ND	ND				ND
		Benzo(a)anthracene	ug/kg	1	1	0	ND	ND				ND
		Benzo(a)pyrene	ug/kg	1	1	0	ND	ND				ND
		Benzo(b)fluoranthene	ug/kg	1	1	0	ND	ND				ND
		Benzo(g,h,i)perylene	ug/kg	1	1	0	ND	ND				ND
		Benzo(k)fluoranthene	ug/kg	1	1	0	ND	ND				ND
		Chrysene	ug/kg	1	1	0	ND	ND				ND
		Dibenzo(a,h)anthracene	ug/kg	1	1	0	ND	ND				ND
		Fluoranthene	ug/kg	1	1	0	ND	ND				ND
		Fluorene	ug/kg	1	1	0	ND	ND				ND
		Indeno(1,2,3-cd)pyrene	ug/kg	1	1	0	ND	ND				ND
		Naphthalene	ug/kg	1	1	0	ND	ND				ND
		Phenanthrene	ug/kg	1	1	0	ND	ND				ND
		Pyrene	ug/kg	1	1	0	ND	ND				ND
		<b>Phthalates</b>										
		Butylbenzyl phthalate	ug/kg	1	1	0	ND	ND				ND
		<b>Semi-Volatile Organic Compounds</b>										
		Dibenzofuran	ug/kg	1	1	0	ND	ND				ND
		Hexachlorobenzene	ug/kg	1	1	0	ND	ND				ND
		Hexachlorobutadiene	ug/kg	1	1	0	ND	ND				ND
		<b>Phenols</b>										
		4-Methylphenol	ug/kg	1	1	0	ND	ND				ND
		Pentachlorophenol	ug/kg	1	1	0	ND	ND				ND
		Phenol	ug/kg	1	1	0	ND	ND				ND



**TABLE 3-17**  
**Exposure Point Concentration Summary - Crayfish, by Station**

Scenario Timeframe: Current/Future
Medium: Shellfish tissue
Exposure Medium: Crayfish, by Station

Exposure Point <sup>a</sup>	Tissue Type	Chemical of Potential Concern <sup>b</sup>	Units	Total Samples	Total Non-Detects <sup>c</sup>	Non-Detects greater than Maximum Detected Concentration <sup>d</sup>	Arithmetic Mean <sup>e</sup>	Maximum Detected Concentration	95% UCL			Exposure Point Concentration
									Distribution	95% UCL Method	Value	
		<b>Polychlorinated Biphenyls</b>										
		Total Aroclors	ug/kg	1	1	0	ND	ND				ND
		Total PCB Congeners	pg/g	NA	NA	NA	NA	NA				NA
		Total PCBs, Adjusted	pg/g	NA	NA	NA	NA	NA				NA
		<b>Dioxin/Furans</b>										
		Total Dioxin/Furan TEQ	pg/g	NA	NA	NA	NA	NA				NA
		Total PCB TEQ	pg/g	NA	NA	NA	NA	NA				NA
		<b>Pesticides</b>										
		Aldrin	ug/kg	1	1	0	ND	ND				ND
		alpha-Hexachlorocyclohexane	ug/kg	1	1	0	ND	ND				ND
		Dieldrin	ug/kg	1	1	0	ND	ND				ND
		Endrin	ug/kg	1	1	0	ND	ND				ND
		Heptachlor epoxide	ug/kg	1	1	0	ND	ND				ND
		Total DDD	ug/kg	1	1	0	ND	ND				ND
		Total DDE	ug/kg	1	0	0	3.9E+00	3.9E+00				3.9E+00
		Total DDT	ug/kg	1	0	0	3.6E+00	3.6E+00				3.6E+00
		Total Chlordane	ug/kg	1	1	0	ND	ND				ND
		Total Endosulfan	ug/kg	1	1	0	ND	ND				ND
RM: 4, Station: 04R002	WB	<b>Metals</b>								Fewer than 5 detects		
		Aluminum	mg/kg	1	0	0	8.6E+01	8.6E+01				8.6E+01
		Antimony	mg/kg	1	0	0	9.0E-03	9.0E-03				9.0E-03
		Arsenic, inorganic	mg/kg	1	0	0	3.9E-02	3.9E-02				3.9E-02
		Cadmium	mg/kg	1	0	0	2.2E-02	2.2E-02				2.2E-02
		Chromium	mg/kg	1	0	0	2.0E-01	2.0E-01				2.0E-01
		Copper	mg/kg	1	0	0	1.5E+01	1.5E+01				1.5E+01
		Lead	mg/kg	1	0	0	1.3E+00	1.3E+00				1.3E+00
		Manganese	mg/kg	1	0	0	1.2E+02	1.2E+02				1.2E+02
		Mercury	mg/kg	1	0	0	3.5E-02	3.5E-02				3.5E-02
		Nickel	mg/kg	1	0	0	2.8E-01	2.8E-01				2.8E-01
		Selenium	mg/kg	1	1	0	ND	ND				ND
		Silver	mg/kg	1	0	0	4.3E-02	4.3E-02				4.3E-02
		Thallium	mg/kg	1	0	0	2.5E-03	2.5E-03				2.5E-03
		Zinc	mg/kg	1	0	0	1.7E+01	1.7E+01				1.7E+01
		<b>Butyltins</b>										
		Butyltin ion	ug/kg	NA	NA	NA	NA	NA				NA
		Dibutyltin ion	ug/kg	NA	NA	NA	NA	NA				NA
		Tributyltin ion	ug/kg	NA	NA	NA	NA	NA				NA
		<b>Polynuclear Aromatic Hydrocarbons</b>										
		2-Methylnaphthalene	ug/kg	1	1	0	ND	ND				ND
		Acenaphthene	ug/kg	1	1	0	ND	ND				ND
		Acenaphthylene	ug/kg	1	1	0	ND	ND				ND
		Anthracene	ug/kg	1	1	0	ND	ND				ND

**TABLE 3-17**  
**Exposure Point Concentration Summary - Crayfish, by Station**

Scenario Timeframe: Current/Future
Medium: Shellfish tissue
Exposure Medium: Crayfish, by Station

Exposure Point <sup>a</sup>	Tissue Type	Chemical of Potential Concern <sup>b</sup>	Units	Total Samples	Total Non-Detects <sup>c</sup>	Non-Detects greater than Maximum Detected Concentration <sup>d</sup>	Arithmetic Mean <sup>e</sup>	Maximum Detected Concentration	95% UCL			Exposure Point Concentration
									Distribution	95% UCL Method	Value	
		Benzo(a)anthracene	ug/kg	1	1	0	ND	ND				ND
		Benzo(a)pyrene	ug/kg	1	1	0	ND	ND				ND
		Benzo(b)fluoranthene	ug/kg	1	1	0	ND	ND				ND
		Benzo(g,h,i)perylene	ug/kg	1	1	0	ND	ND				ND
		Benzo(k)fluoranthene	ug/kg	1	1	0	ND	ND				ND
		Chrysene	ug/kg	1	1	0	ND	ND				ND
		Dibenzo(a,h)anthracene	ug/kg	1	1	0	ND	ND				ND
		Fluoranthene	ug/kg	1	1	0	ND	ND				ND
		Fluorene	ug/kg	1	1	0	ND	ND				ND
		Indeno(1,2,3-cd)pyrene	ug/kg	1	1	0	ND	ND				ND
		Naphthalene	ug/kg	1	1	0	ND	ND				ND
		Phenanthrene	ug/kg	1	1	0	ND	ND				ND
		Pyrene	ug/kg	1	1	0	ND	ND				ND
		<b>Phthalates</b>										
		Butylbenzyl phthalate	ug/kg	1	1	0	ND	ND				ND
		<b>Semi-Volatile Organic Compounds</b>										
		Dibenzofuran	ug/kg	1	1	0	ND	ND				ND
		Hexachlorobenzene	ug/kg	1	1	0	ND	ND				ND
		Hexachlorobutadiene	ug/kg	1	1	0	ND	ND				ND
		<b>Phenols</b>										
		4-Methylphenol	ug/kg	1	1	0	ND	ND				ND
		Pentachlorophenol	ug/kg	1	1	0	ND	ND				ND
		Phenol	ug/kg	1	1	0	ND	ND				ND
		<b>Polychlorinated Biphenyls</b>										
		Total Aroclors	ug/kg	1	1	0	ND	ND				ND
		Total PCB Congeners	pg/g	NA	NA	NA	NA	NA				NA
		Total PCBs, Adjusted	pg/g	NA	NA	NA	NA	NA				NA
		<b>Dioxin/Furans</b>										
		Total Dioxin/Furan TEQ	pg/g	NA	NA	NA	NA	NA				NA
		Total PCB TEQ	pg/g	NA	NA	NA	NA	NA				NA
		<b>Pesticides</b>										
		Aldrin	ug/kg	1	1	0	ND	ND				ND
		alpha-Hexachlorocyclohexane	ug/kg	1	1	0	ND	ND				ND
		Dieldrin	ug/kg	1	1	0	ND	ND				ND
		Endrin	ug/kg	1	1	0	ND	ND				ND
		Heptachlor epoxide	ug/kg	1	1	0	ND	ND				ND
		Total DDD	ug/kg	1	1	0	ND	ND				ND
		Total DDE	ug/kg	1	0	0	4.5E+00	4.5E+00				4.5E+00
		Total DDT	ug/kg	1	0	0	2.4E+00	2.4E+00				2.4E+00
		Total Chlordane	ug/kg	1	1	0	ND	ND				ND
		Total Endosulfan	ug/kg	1	1	0	ND	ND				ND

**TABLE 3-17**  
**Exposure Point Concentration Summary - Crayfish, by Station**

Scenario Timeframe: Current/Future
Medium: Shellfish tissue
Exposure Medium: Crayfish, by Station

Exposure Point <sup>a</sup>	Tissue Type	Chemical of Potential Concern <sup>b</sup>	Units	Total Samples	Total Non-Detects <sup>c</sup>	Non-Detects greater than Maximum Detected Concentration <sup>d</sup>	Arithmetic Mean <sup>e</sup>	Maximum Detected Concentration	95% UCL			Exposure Point Concentration		
									Distribution	95% UCL Method	Value			
RM: 4, Station: 04R003	WB	<b>Metals</b>												
		Aluminum	mg/kg	1	0	0	6.3E+01	6.3E+01		Fewer than 5 detects		6.3E+01		
		Antimony	mg/kg	1	0	0	1.0E-02	1.0E-02			1.0E-02			
		Arsenic, inorganic	mg/kg	1	0	0	3.7E-02	3.7E-02			3.7E-02			
		Cadmium	mg/kg	1	0	0	2.5E-02	2.5E-02			2.5E-02			
		Chromium	mg/kg	1	0	0	2.0E-01	2.0E-01			2.0E-01			
		Copper	mg/kg	1	0	0	1.5E+01	1.5E+01			1.5E+01			
		Lead	mg/kg	1	0	0	2.3E-01	2.3E-01			2.3E-01			
		Manganese	mg/kg	1	0	0	1.1E+02	1.1E+02			1.1E+02			
		Mercury	mg/kg	1	0	0	2.2E-02	2.2E-02			2.2E-02			
		Nickel	mg/kg	1	1	1	0	ND	ND			ND		
		Selenium	mg/kg	1	1	1	0	ND	ND			ND		
		Silver	mg/kg	1	0	0	0	4.7E-02	4.7E-02			4.7E-02		
		Thallium	mg/kg	1	0	0	0	2.4E-03	2.4E-03			2.4E-03		
		Zinc	mg/kg	1	0	0	0	1.7E+01	1.7E+01			1.7E+01		
		<b>Butyltins</b>												
		Butyltin ion	ug/kg	NA	NA	NA	NA	NA	NA			NA		
		Dibutyltin ion	ug/kg	NA	NA	NA	NA	NA	NA		NA			
		Tributyltin ion	ug/kg	NA	NA	NA	NA	NA	NA		NA			
		<b>Polynuclear Aromatic Hydrocarbons</b>												
		2-Methylnaphthalene	ug/kg	1	1	1	0	ND	ND		ND			
		Acenaphthene	ug/kg	1	1	1	0	ND	ND		ND			
		Acenaphthylene	ug/kg	1	1	1	0	ND	ND		ND			
		Anthracene	ug/kg	1	1	1	0	ND	ND		ND			
		Benzo(a)anthracene	ug/kg	1	1	1	0	ND	ND		ND			
		Benzo(a)pyrene	ug/kg	1	1	1	0	ND	ND		ND			
		Benzo(b)fluoranthene	ug/kg	1	1	1	0	ND	ND		ND			
		Benzo(g,h,i)perylene	ug/kg	1	1	1	0	ND	ND		ND			
		Benzo(k)fluoranthene	ug/kg	1	1	1	0	ND	ND		ND			
		Chrysene	ug/kg	1	1	1	0	ND	ND		ND			
		Dibenzo(a,h)anthracene	ug/kg	1	1	1	0	ND	ND		ND			
		Fluoranthene	ug/kg	1	0	0	0	9.3E+01	9.3E+01		9.3E+01			
		Fluorene	ug/kg	1	1	1	0	ND	ND		ND			
		Indeno(1,2,3-cd)pyrene	ug/kg	1	1	1	0	ND	ND		ND			
		Naphthalene	ug/kg	1	1	1	0	ND	ND		ND			
		Phenanthrene	ug/kg	1	1	1	0	ND	ND		ND			
		Pyrene	ug/kg	1	1	1	0	ND	ND		ND			
		<b>Phthalates</b>												
		Butylbenzyl phthalate	ug/kg	1	1	1	0	ND	ND		ND			
		<b>Semi-Volatile Organic Compounds</b>												
		Dibenzofuran	ug/kg	1	1	1	0	ND	ND		ND			
		Hexachlorobenzene	ug/kg	1	1	1	0	ND	ND		ND			
		Hexachlorobutadiene	ug/kg	1	1	1	0	ND	ND		ND			

**TABLE 3-17**  
**Exposure Point Concentration Summary - Crayfish, by Station**

Scenario Timeframe: Current/Future
Medium: Shellfish tissue
Exposure Medium: Crayfish, by Station

Exposure Point <sup>a</sup>	Tissue Type	Chemical of Potential Concern <sup>b</sup>	Units	Total Samples	Total Non-Detects <sup>c</sup>	Non-Detects greater than Maximum Detected Concentration <sup>d</sup>	Arithmetic Mean <sup>e</sup>	Maximum Detected Concentration	95% UCL			Exposure Point Concentration
									Distribution	95% UCL Method	Value	
		<b>Phenols</b>										
		4-Methylphenol	ug/kg	1	1	0	ND	ND				ND
		Pentachlorophenol	ug/kg	1	1	0	ND	ND				ND
		Phenol	ug/kg	1	1	0	ND	ND				ND
		<b>Polychlorinated Biphenyls</b>										
		Total Aroclors	ug/kg	1	1	0	ND	ND				ND
		Total PCB Congeners	pg/g	NA	NA	NA	NA	NA				NA
		Total PCBs, Adjusted	pg/g	NA	NA	NA	NA	NA				NA
		<b>Dioxin/Furans</b>										
		Total Dioxin/Furan TEQ	pg/g	NA	NA	NA	NA	NA				NA
		Total PCB TEQ	pg/g	NA	NA	NA	NA	NA				NA
		<b>Pesticides</b>										
		Aldrin	ug/kg	1	1	0	ND	ND				ND
		alpha-Hexachlorocyclohexane	ug/kg	1	1	0	ND	ND				ND
		Dieldrin	ug/kg	1	1	0	ND	ND				ND
		Endrin	ug/kg	1	1	0	ND	ND				ND
		Heptachlor epoxide	ug/kg	1	1	0	ND	ND				ND
		Total DDD	ug/kg	1	0	0	1.7E+00	1.7E+00				1.7E+00
		Total DDE	ug/kg	1	0	0	7.2E+00	7.2E+00				7.2E+00
		Total DDT	ug/kg	1	0	0	1.2E+01	1.2E+01				1.2E+01
		Total Chlordane	ug/kg	1	1	0	ND	ND				ND
		Total Endosulfan	ug/kg	1	0	0	1.6E+00	1.6E+00				1.6E+00
RM: 4, Station: 04R004	WB	<b>Metals</b>								Fewer than 5 detects		
		Aluminum	mg/kg	2	0	0	1.1E+02	1.3E+02				1.3E+02
		Antimony	mg/kg	2	0	0	8.0E-03	1.0E-02				1.0E-02
		Arsenic, inorganic	mg/kg	2	0	0	3.7E-02	3.9E-02				3.9E-02
		Cadmium	mg/kg	2	0	0	1.3E-02	1.3E-02				1.3E-02
		Chromium	mg/kg	2	0	0	3.0E-01	4.0E-01				4.0E-01
		Copper	mg/kg	2	0	0	1.2E+01	1.2E+01				1.2E+01
		Lead	mg/kg	2	0	0	1.0E-01	1.1E-01				1.1E-01
		Manganese	mg/kg	2	0	0	1.6E+02	1.7E+02				1.7E+02
		Mercury	mg/kg	2	0	0	3.1E-02	3.7E-02				3.7E-02
		Nickel	mg/kg	2	0	0	3.1E-01	3.9E-01				3.9E-01
		Selenium	mg/kg	2	2	0	ND	ND				ND
		Silver	mg/kg	2	0	0	2.8E-02	3.2E-02				3.2E-02
		Thallium	mg/kg	2	0	0	2.8E-03	3.1E-03				3.1E-03
		Zinc	mg/kg	2	0	0	1.5E+01	1.6E+01				1.6E+01
		<b>Butyltins</b>										
		Butyltin ion	ug/kg	NA	NA	NA	NA	NA				NA
		Dibutyltin ion	ug/kg	NA	NA	NA	NA	NA				NA
		Tributyltin ion	ug/kg	NA	NA	NA	NA	NA				NA

**TABLE 3-17**  
**Exposure Point Concentration Summary - Crayfish, by Station**

Scenario Timeframe: Current/Future
Medium: Shellfish tissue
Exposure Medium: Crayfish, by Station

Exposure Point <sup>a</sup>	Tissue Type	Chemical of Potential Concern <sup>b</sup>	Units	Total Samples	Total Non-Detects <sup>c</sup>	Non-Detects greater than Maximum Detected Concentration <sup>d</sup>	Arithmetic Mean <sup>e</sup>	Maximum Detected Concentration	95% UCL			Exposure Point Concentration
									Distribution	95% UCL Method	Value	
		<b>Polynuclear Aromatic Hydrocarbons</b>										
		2-Methylnaphthalene	ug/kg	2	2	0	ND	ND				ND
		Acenaphthene	ug/kg	2	2	0	ND	ND				ND
		Acenaphthylene	ug/kg	2	2	0	ND	ND				ND
		Anthracene	ug/kg	2	2	0	ND	ND				ND
		Benzo(a)anthracene	ug/kg	2	2	0	ND	ND				ND
		Benzo(a)pyrene	ug/kg	2	2	0	ND	ND				ND
		Benzo(b)fluoranthene	ug/kg	2	2	0	ND	ND				ND
		Benzo(g,h,i)perylene	ug/kg	2	2	0	ND	ND				ND
		Benzo(k)fluoranthene	ug/kg	2	2	0	ND	ND				ND
		Chrysene	ug/kg	2	2	0	ND	ND				ND
		Dibenzo(a,h)anthracene	ug/kg	2	2	0	ND	ND				ND
		Fluoranthene	ug/kg	2	1	0	7.8E+01	1.1E+02				1.1E+02
		Fluorene	ug/kg	2	2	0	ND	ND				ND
		Indeno(1,2,3-cd)pyrene	ug/kg	2	2	0	ND	ND				ND
		Naphthalene	ug/kg	2	2	0	ND	ND				ND
		Phenanthrene	ug/kg	2	2	0	ND	ND				ND
		Pyrene	ug/kg	2	1	0	4.3E+01	6.0E+01				6.0E+01
		<b>Phthalates</b>										
		Butylbenzyl phthalate	ug/kg	2	2	0	ND	ND				ND
		<b>Semi-Volatile Organic Compounds</b>										
		Dibenzofuran	ug/kg	2	2	0	ND	ND				ND
		Hexachlorobenzene	ug/kg	2	2	0	ND	ND				ND
		Hexachlorobutadiene	ug/kg	2	2	0	ND	ND				ND
		<b>Phenols</b>										
		4-Methylphenol	ug/kg	2	2	0	ND	ND				ND
		Pentachlorophenol	ug/kg	2	2	0	ND	ND				ND
		Phenol	ug/kg	2	2	0	ND	ND				ND
		<b>Polychlorinated Biphenyls</b>										
		Total Aroclors	ug/kg	2	2	0	ND	ND				ND
		Total PCB Congeners	pg/g	NA	NA	NA	NA	NA				NA
		Total PCBs, Adjusted	pg/g	NA	NA	NA	NA	NA				NA
		<b>Dioxin/Furans</b>										
		Total Dioxin/Furan TEQ	pg/g	NA	NA	NA	NA	NA				NA
		Total PCB TEQ	pg/g	NA	NA	NA	NA	NA				NA
		<b>Pesticides</b>										
		Aldrin	ug/kg	2	2	0	ND	ND				ND
		alpha-Hexachlorocyclohexane	ug/kg	2	2	0	ND	ND				ND
		Dieldrin	ug/kg	2	2	0	ND	ND				ND
		Endrin	ug/kg	2	2	0	ND	ND				ND
		Heptachlor epoxide	ug/kg	2	2	0	ND	ND				ND
		Total DDD	ug/kg	2	2	0	ND	ND				ND

**TABLE 3-17**  
**Exposure Point Concentration Summary - Crayfish, by Station**

Scenario Timeframe: Current/Future
Medium: Shellfish tissue
Exposure Medium: Crayfish, by Station

Exposure Point <sup>a</sup>	Tissue Type	Chemical of Potential Concern <sup>b</sup>	Units	Total Samples	Total Non-Detects <sup>c</sup>	Non-Detects greater than Maximum Detected Concentration <sup>d</sup>	Arithmetic Mean <sup>e</sup>	Maximum Detected Concentration	95% UCL			Exposure Point Concentration
									Distribution	95% UCL Method	Value	
		Total DDE	ug/kg	2	0	0	5.0E+00	7.4E+00				7.4E+00
		Total DDT	ug/kg	2	1	0	1.6E+00	2.6E+00				2.6E+00
		Total Chlordane	ug/kg	2	1	0	2.6E+00	4.7E+00				4.7E+00
		Total Endosulfan	ug/kg	2	2	0	ND	ND				ND
RM: 5, Station: 05R001	WB	<b>Metals</b>								Fewer than 5 detects		
		Aluminum	mg/kg	1	0	0	8.9E+01	8.9E+01				8.9E+01
		Antimony	mg/kg	1	0	0	6.0E-03	6.0E-03				6.0E-03
		Arsenic, inorganic	mg/kg	1	0	0	3.5E-02	3.5E-02				3.5E-02
		Cadmium	mg/kg	1	0	0	9.0E-03	9.0E-03				9.0E-03
		Chromium	mg/kg	1	0	0	4.0E-01	4.0E-01				4.0E-01
		Copper	mg/kg	1	0	0	1.3E+01	1.3E+01				1.3E+01
		Lead	mg/kg	1	0	0	8.3E-02	8.3E-02				8.3E-02
		Manganese	mg/kg	1	0	0	1.1E+02	1.1E+02				1.1E+02
		Mercury	mg/kg	1	0	0	3.1E-02	3.1E-02				3.1E-02
		Nickel	mg/kg	1	0	0	2.9E-01	2.9E-01				2.9E-01
		Selenium	mg/kg	1	1	0	ND	ND				ND
		Silver	mg/kg	1	0	0	2.8E-02	2.8E-02				2.8E-02
		Thallium	mg/kg	1	0	0	2.5E-03	2.5E-03				2.5E-03
		Zinc	mg/kg	1	0	0	1.6E+01	1.6E+01				1.6E+01
		<b>Butyltins</b>										
		Butyltin ion	ug/kg	NA	NA	NA	NA	NA				NA
		Dibutyltin ion	ug/kg	NA	NA	NA	NA	NA				NA
		Tributyltin ion	ug/kg	NA	NA	NA	NA	NA				NA
		<b>Polynuclear Aromatic Hydrocarbons</b>										
		2-Methylnaphthalene	ug/kg	1	1	0	ND	ND				ND
		Acenaphthene	ug/kg	1	1	0	ND	ND				ND
		Acenaphthylene	ug/kg	1	1	0	ND	ND				ND
		Anthracene	ug/kg	1	1	0	ND	ND				ND
		Benzo(a)anthracene	ug/kg	1	1	0	ND	ND				ND
		Benzo(a)pyrene	ug/kg	1	1	0	ND	ND				ND
		Benzo(b)fluoranthene	ug/kg	1	1	0	ND	ND				ND
		Benzo(g,h,i)perylene	ug/kg	1	1	0	ND	ND				ND
		Benzo(k)fluoranthene	ug/kg	1	1	0	ND	ND				ND
		Chrysene	ug/kg	1	1	0	ND	ND				ND
		Dibenzo(a,h)anthracene	ug/kg	1	1	0	ND	ND				ND
		Fluoranthene	ug/kg	1	1	0	ND	ND				ND
		Fluorene	ug/kg	1	1	0	ND	ND				ND
		Indeno(1,2,3-cd)pyrene	ug/kg	1	1	0	ND	ND				ND
		Naphthalene	ug/kg	1	1	0	ND	ND				ND
		Phenanthrene	ug/kg	1	1	0	ND	ND				ND
		Pyrene	ug/kg	1	1	0	ND	ND				ND

**TABLE 3-17**  
**Exposure Point Concentration Summary - Crayfish, by Station**

Scenario Timeframe: Current/Future
Medium: Shellfish tissue
Exposure Medium: Crayfish, by Station

Exposure Point <sup>a</sup>	Tissue Type	Chemical of Potential Concern <sup>b</sup>	Units	Total Samples	Total Non-Detects <sup>c</sup>	Non-Detects greater than Maximum Detected Concentration <sup>d</sup>	Arithmetic Mean <sup>e</sup>	Maximum Detected Concentration	95% UCL			Exposure Point Concentration
									Distribution	95% UCL Method	Value	
		<b>Phthalates</b>										
		Butylbenzyl phthalate	ug/kg	1	1	0	ND	ND				ND
		<b>Semi-Volatile Organic Compounds</b>										
		Dibenzofuran	ug/kg	1	1	0	ND	ND				ND
		Hexachlorobenzene	ug/kg	1	1	0	ND	ND				ND
		Hexachlorobutadiene	ug/kg	1	1	0	ND	ND				ND
		<b>Phenols</b>										
		4-Methylphenol	ug/kg	1	1	0	ND	ND				ND
		Pentachlorophenol	ug/kg	1	1	0	ND	ND				ND
		Phenol	ug/kg	1	1	0	ND	ND				ND
		<b>Polychlorinated Biphenyls</b>										
		Total Aroclors	ug/kg	1	1	0	ND	ND				ND
		Total PCB Congeners	pg/g	NA	NA	NA	NA	NA				NA
		Total PCBs, Adjusted	pg/g	NA	NA	NA	NA	NA				NA
		<b>Dioxin/Furans</b>										
		Total Dioxin/Furan TEQ	pg/g	NA	NA	NA	NA	NA				NA
		Total PCB TEQ	pg/g	NA	NA	NA	NA	NA				NA
		<b>Pesticides</b>										
		Aldrin	ug/kg	1	1	0	ND	ND				ND
		alpha-Hexachlorocyclohexane	ug/kg	1	1	0	ND	ND				ND
		Dieldrin	ug/kg	1	1	0	ND	ND				ND
		Endrin	ug/kg	1	1	0	ND	ND				ND
		Heptachlor epoxide	ug/kg	1	1	0	ND	ND				ND
		Total DDD	ug/kg	1	1	0	ND	ND				ND
		Total DDE	ug/kg	1	0	0	5.7E+00	5.7E+00				5.7E+00
		Total DDT	ug/kg	1	0	0	2.2E+00	2.2E+00				2.2E+00
		Total Chlordane	ug/kg	1	0	0	3.9E+00	3.9E+00				3.9E+00
		Total Endosulfan	ug/kg	1	0	0	1.7E+00	1.7E+00				1.7E+00
RM: 5, Station: 05R003	WB	<b>Metals</b>										
		Aluminum	mg/kg	1	0	0	9.7E+01	9.7E+01		Fewer than 5 detects		9.7E+01
		Antimony	mg/kg	1	0	0	2.0E-02	2.0E-02				2.0E-02
		Arsenic, inorganic	mg/kg	1	0	0	3.5E-02	3.5E-02				3.5E-02
		Cadmium	mg/kg	1	0	0	3.6E-02	3.6E-02				3.6E-02
		Chromium	mg/kg	1	0	0	9.0E-01	9.0E-01				9.0E-01
		Copper	mg/kg	1	0	0	1.7E+01	1.7E+01				1.7E+01
		Lead	mg/kg	1	0	0	1.1E-01	1.1E-01				1.1E-01
		Manganese	mg/kg	1	0	0	1.1E+02	1.1E+02				1.1E+02
		Mercury	mg/kg	1	0	0	3.9E-02	3.9E-02				3.9E-02
		Nickel	mg/kg	1	0	0	5.9E-01	5.9E-01				5.9E-01
		Selenium	mg/kg	1	1	0	ND	ND				ND
		Silver	mg/kg	1	0	0	2.4E-02	2.4E-02				2.4E-02
		Thallium	mg/kg	1	0	0	3.3E-03	3.3E-03				3.3E-03
		Zinc	mg/kg	1	0	0	1.9E+01	1.9E+01				1.9E+01



**TABLE 3-17**  
**Exposure Point Concentration Summary - Crayfish, by Station**

Scenario Timeframe: Current/Future
Medium: Shellfish tissue
Exposure Medium: Crayfish, by Station

Exposure Point <sup>a</sup>	Tissue Type	Chemical of Potential Concern <sup>b</sup>	Units	Total Samples	Total Non-Detects <sup>c</sup>	Non-Detects greater than Maximum Detected Concentration <sup>d</sup>	Arithmetic Mean <sup>e</sup>	Maximum Detected Concentration	95% UCL			Exposure Point Concentration
									Distribution	95% UCL Method	Value	
		<b>Butyltins</b>										
		Butyltin ion	ug/kg	NA	NA	NA	NA	NA				NA
		Dibutyltin ion	ug/kg	NA	NA	NA	NA	NA				NA
		Tributyltin ion	ug/kg	NA	NA	NA	NA	NA				NA
		<b>Polynuclear Aromatic Hydrocarbons</b>										
		2-Methylnaphthalene	ug/kg	1	1	0	ND	ND				ND
		Acenaphthene	ug/kg	1	1	0	ND	ND				ND
		Acenaphthylene	ug/kg	1	1	0	ND	ND				ND
		Anthracene	ug/kg	1	1	0	ND	ND				ND
		Benzo(a)anthracene	ug/kg	1	1	0	ND	ND				ND
		Benzo(a)pyrene	ug/kg	1	1	0	ND	ND				ND
		Benzo(b)fluoranthene	ug/kg	1	1	0	ND	ND				ND
		Benzo(g,h,i)perylene	ug/kg	1	1	0	ND	ND				ND
		Benzo(k)fluoranthene	ug/kg	1	1	0	ND	ND				ND
		Chrysene	ug/kg	1	1	0	ND	ND				ND
		Dibenzo(a,h)anthracene	ug/kg	1	1	0	ND	ND				ND
		Fluoranthene	ug/kg	1	1	0	ND	ND				ND
		Fluorene	ug/kg	1	1	0	ND	ND				ND
		Indeno(1,2,3-cd)pyrene	ug/kg	1	1	0	ND	ND				ND
		Naphthalene	ug/kg	1	1	0	ND	ND				ND
		Phenanthrene	ug/kg	1	1	0	ND	ND				ND
		Pyrene	ug/kg	1	1	0	ND	ND				ND
		<b>Phthalates</b>										
		Butylbenzyl phthalate	ug/kg	1	1	0	ND	ND				ND
		<b>Semi-Volatile Organic Compounds</b>										
		Dibenzofuran	ug/kg	1	1	0	ND	ND				ND
		Hexachlorobenzene	ug/kg	1	1	0	ND	ND				ND
		Hexachlorobutadiene	ug/kg	1	1	0	ND	ND				ND
		<b>Phenols</b>										
		4-Methylphenol	ug/kg	1	1	0	ND	ND				ND
		Pentachlorophenol	ug/kg	1	1	0	ND	ND				ND
		Phenol	ug/kg	1	1	0	ND	ND				ND
		<b>Polychlorinated Biphenyls</b>										
		Total Aroclors	ug/kg	1	0	0	2.7E+01	2.7E+01				2.7E+01
		Total PCB Congeners	pg/g	NA	NA	NA	NA	NA				NA
		Total PCBs, Adjusted	pg/g	NA	NA	NA	NA	NA				NA
		<b>Dioxin/Furans</b>										
		Total Dioxin/Furan TEQ	pg/g	NA	NA	NA	NA	NA				NA
		Total PCB TEQ	pg/g	NA	NA	NA	NA	NA				NA
		<b>Pesticides</b>										
		Aldrin	ug/kg	1	1	0	ND	ND				ND
		alpha-Hexachlorocyclohexane	ug/kg	1	1	0	ND	ND				ND

**TABLE 3-17**  
**Exposure Point Concentration Summary - Crayfish, by Station**

Scenario Timeframe: Current/Future
Medium: Shellfish tissue
Exposure Medium: Crayfish, by Station

Exposure Point <sup>a</sup>	Tissue Type	Chemical of Potential Concern <sup>b</sup>	Units	Total Samples	Total Non-Detects <sup>c</sup>	Non-Detects greater than Maximum Detected Concentration <sup>d</sup>	Arithmetic Mean <sup>e</sup>	Maximum Detected Concentration	95% UCL			Exposure Point Concentration
									Distribution	95% UCL Method	Value	
		Dieldrin	ug/kg	1	1	0	ND	ND				ND
		Endrin	ug/kg	1	0	0	1.2E+00	1.2E+00				1.2E+00
		Heptachlor epoxide	ug/kg	1	1	0	ND	ND				ND
		Total DDD	ug/kg	1	1	0	ND	ND				ND
		Total DDE	ug/kg	1	0	0	8.0E+00	8.0E+00				8.0E+00
		Total DDT	ug/kg	1	1	0	ND	ND				ND
		Total Chlordane	ug/kg	1	1	0	ND	ND				ND
		Total Endosulfan	ug/kg	1	0	0	1.3E+00	1.3E+00				1.3E+00
RM: 5, Station: CR05W	WB	<b>Metals</b>										
		Aluminum	mg/kg	1	0	0	8.1E+01	8.1E+01		Fewer than 5 detects		8.1E+01
		Antimony	mg/kg	1	1	0	ND	ND				ND
		Arsenic, inorganic	mg/kg	1	0	0	3.0E-02	3.0E-02				3.0E-02
		Cadmium	mg/kg	1	0	0	1.9E-02	1.9E-02				1.9E-02
		Chromium	mg/kg	1	0	0	2.0E-01	2.0E-01				2.0E-01
		Copper	mg/kg	1	0	0	1.8E+01	1.8E+01				1.8E+01
		Lead	mg/kg	1	0	0	1.1E-01	1.1E-01				1.1E-01
		Manganese	mg/kg	1	0	0	9.3E+01	9.3E+01				9.3E+01
		Mercury	mg/kg	1	0	0	3.4E-02	3.4E-02				3.4E-02
		Nickel	mg/kg	1	0	0	2.9E-01	2.9E-01				2.9E-01
		Selenium	mg/kg	1	0	0	2.1E-01	2.1E-01				2.1E-01
		Silver	mg/kg	1	1	0	ND	ND				ND
		Thallium	mg/kg	1	1	0	ND	ND				ND
		Zinc	mg/kg	1	0	0	1.8E+01	1.8E+01				1.8E+01
		<b>Butyltins</b>										
		Butyltin ion	ug/kg	1	0	0	3.6E-01	3.6E-01				3.6E-01
		Dibutyltin ion	ug/kg	1	0	0	3.9E-01	3.9E-01				3.9E-01
		Tributyltin ion	ug/kg	1	0	0	7.0E-01	7.0E-01				7.0E-01
		<b>Polynuclear Aromatic Hydrocarbons</b>										
		2-Methylnaphthalene	ug/kg	1	1	0	ND	ND				ND
		Acenaphthene	ug/kg	1	0	0	3.2E-01	3.2E-01				3.2E-01
		Acenaphthylene	ug/kg	1	1	0	ND	ND				ND
		Anthracene	ug/kg	1	0	0	1.8E-01	1.8E-01				1.8E-01
		Benzo(a)anthracene	ug/kg	1	1	0	ND	ND				ND
		Benzo(a)pyrene	ug/kg	1	0	0	5.4E-01	5.4E-01				5.4E-01
		Benzo(b)fluoranthene	ug/kg	1	1	0	ND	ND				ND
		Benzo(g,h,i)perylene	ug/kg	1	1	0	ND	ND				ND
		Benzo(k)fluoranthene	ug/kg	1	1	0	ND	ND				ND
		Chrysene	ug/kg	1	1	0	ND	ND				ND
		Dibenzo(a,h)anthracene	ug/kg	1	1	0	ND	ND				ND
		Fluoranthene	ug/kg	1	1	0	ND	ND				ND
		Fluorene	ug/kg	1	0	0	2.1E-01	2.1E-01				2.1E-01
		Indeno(1,2,3-cd)pyrene	ug/kg	1	1	0	ND	ND				ND

**TABLE 3-17**  
**Exposure Point Concentration Summary - Crayfish, by Station**

Scenario Timeframe: Current/Future
Medium: Shellfish tissue
Exposure Medium: Crayfish, by Station

Exposure Point <sup>a</sup>	Tissue Type	Chemical of Potential Concern <sup>b</sup>	Units	Total Samples	Total Non-Detects <sup>c</sup>	Non-Detects greater than Maximum Detected Concentration <sup>d</sup>	Arithmetic Mean <sup>e</sup>	Maximum Detected Concentration	95% UCL			Exposure Point Concentration
									Distribution	95% UCL Method	Value	
		Naphthalene	ug/kg	1	0	0	6.0E-01	6.0E-01				6.0E-01
		Phenanthrene	ug/kg	1	1	0	ND	ND				ND
		Pyrene	ug/kg	1	1	0	ND	ND				ND
		<b>Phthalates</b>										
		Butylbenzyl phthalate	ug/kg	1	0	0	1.5E+01	1.5E+01				1.5E+01
		<b>Semi-Volatile Organic Compounds</b>										
		Dibenzofuran	ug/kg	1	0	0	1.3E-01	1.3E-01				1.3E-01
		Hexachlorobenzene	ug/kg	1	0	0	4.2E-02	4.2E-02				4.2E-02
		Hexachlorobutadiene	ug/kg	1	1	0	ND	ND				ND
		<b>Phenols</b>										
		4-Methylphenol	ug/kg	1	1	0	ND	ND				ND
		Pentachlorophenol	ug/kg	1	1	0	ND	ND				ND
		Phenol	ug/kg	1	0	0	4.5E+01	4.5E+01				4.5E+01
		<b>Polychlorinated Biphenyls</b>										
		Total Aroclors	ug/kg	NA	NA	NA	NA	NA				NA
		Total PCB Congeners	pg/g	1	0	0	1.0E+04	1.0E+04				1.0E+04
		Total PCBs, Adjusted	pg/g	1	0	0	7.4E+03	7.4E+03				7.4E+03
		<b>Dioxin/Furans</b>										
		Total Dioxin/Furan TEQ	pg/g	1	0	0	2.1E-01	2.1E-01				2.1E-01
		Total PCB TEQ	pg/g	1	0	0	3.3E-01	3.3E-01				3.3E-01
		<b>Pesticides</b>										
		Aldrin	ug/kg	1	1	0	ND	ND				ND
		alpha-Hexachlorocyclohexane	ug/kg	1	1	0	ND	ND				ND
		Dieldrin	ug/kg	1	0	0	1.4E-02	1.4E-02				1.4E-02
		Endrin	ug/kg	1	1	0	ND	ND				ND
		Heptachlor epoxide	ug/kg	1	1	0	ND	ND				ND
		Total DDD	ug/kg	1	0	0	2.9E-01	2.9E-01				2.9E-01
		Total DDE	ug/kg	1	0	0	1.6E+00	1.6E+00				1.6E+00
		Total DDT	ug/kg	1	1	0	ND	ND				ND
		Total Chlordane	ug/kg	1	0	0	2.6E-01	2.6E-01				2.6E-01
		Total Endosulfan	ug/kg	1	1	0	ND	ND				ND
RM: 6, Station: 06R001	WB	<b>Metals</b>										
		Aluminum	mg/kg	1	0	0	1.1E+02	1.1E+02		Fewer than 5 detects		1.1E+02
		Antimony	mg/kg	1	1	0	ND	ND				ND
		Arsenic, inorganic	mg/kg	1	0	0	3.2E-02	3.2E-02				3.2E-02
		Cadmium	mg/kg	1	0	0	1.1E-02	1.1E-02				1.1E-02
		Chromium	mg/kg	1	0	0	9.0E-01	9.0E-01				9.0E-01
		Copper	mg/kg	1	0	0	1.5E+01	1.5E+01				1.5E+01
		Lead	mg/kg	1	0	0	7.1E-02	7.1E-02				7.1E-02
		Manganese	mg/kg	1	0	0	1.2E+02	1.2E+02				1.2E+02
		Mercury	mg/kg	1	0	0	4.1E-02	4.1E-02				4.1E-02
		Nickel	mg/kg	1	0	0	5.1E-01	5.1E-01				5.1E-01

**TABLE 3-17**  
**Exposure Point Concentration Summary - Crayfish, by Station**

Scenario Timeframe: Current/Future
Medium: Shellfish tissue
Exposure Medium: Crayfish, by Station

Exposure Point <sup>a</sup>	Tissue Type	Chemical of Potential Concern <sup>b</sup>	Units	Total Samples	Total Non-Detects <sup>c</sup>	Non-Detects greater than Maximum Detected Concentration <sup>d</sup>	Arithmetic Mean <sup>e</sup>	Maximum Detected Concentration	95% UCL			Exposure Point Concentration
									Distribution	95% UCL Method	Value	
		Selenium	mg/kg	1	1	0	ND	ND				ND
		Silver	mg/kg	1	0	0	3.2E-02	3.2E-02				3.2E-02
		Thallium	mg/kg	1	0	0	2.0E-03	2.0E-03				2.0E-03
		Zinc	mg/kg	1	0	0	1.5E+01	1.5E+01				1.5E+01
		<b>Butyltins</b>										
		Butyltin ion	ug/kg	NA	NA	NA	NA	NA				NA
		Dibutyltin ion	ug/kg	NA	NA	NA	NA	NA				NA
		Tributyltin ion	ug/kg	NA	NA	NA	NA	NA				NA
		<b>Polynuclear Aromatic Hydrocarbons</b>										
		2-Methylnaphthalene	ug/kg	1	1	0	ND	ND				ND
		Acenaphthene	ug/kg	1	1	0	ND	ND				ND
		Acenaphthylene	ug/kg	1	1	0	ND	ND				ND
		Anthracene	ug/kg	1	1	0	ND	ND				ND
		Benzo(a)anthracene	ug/kg	1	1	0	ND	ND				ND
		Benzo(a)pyrene	ug/kg	1	1	0	ND	ND				ND
		Benzo(b)fluoranthene	ug/kg	1	1	0	ND	ND				ND
		Benzo(g,h,i)perylene	ug/kg	1	1	0	ND	ND				ND
		Benzo(k)fluoranthene	ug/kg	1	1	0	ND	ND				ND
		Chrysene	ug/kg	1	1	0	ND	ND				ND
		Dibenzo(a,h)anthracene	ug/kg	1	1	0	ND	ND				ND
		Fluoranthene	ug/kg	1	1	0	ND	ND				ND
		Fluorene	ug/kg	1	1	0	ND	ND				ND
		Indeno(1,2,3-cd)pyrene	ug/kg	1	1	0	ND	ND				ND
		Naphthalene	ug/kg	1	1	0	ND	ND				ND
		Phenanthrene	ug/kg	1	1	0	ND	ND				ND
		Pyrene	ug/kg	1	1	0	ND	ND				ND
		<b>Phthalates</b>										
		Butylbenzyl phthalate	ug/kg	1	1	0	ND	ND				ND
		<b>Semi-Volatile Organic Compounds</b>										
		Dibenzofuran	ug/kg	1	1	0	ND	ND				ND
		Hexachlorobenzene	ug/kg	1	1	0	ND	ND				ND
		Hexachlorobutadiene	ug/kg	1	1	0	ND	ND				ND
		<b>Phenols</b>										
		4-Methylphenol	ug/kg	1	1	0	ND	ND				ND
		Pentachlorophenol	ug/kg	1	1	0	ND	ND				ND
		Phenol	ug/kg	1	1	0	ND	ND				ND
		<b>Polychlorinated Biphenyls</b>										
		Total Aroclors	ug/kg	1	1	0	ND	ND				ND
		Total PCB Congeners	pg/g	NA	NA	NA	NA	NA				NA
		Total PCBs, Adjusted	pg/g	NA	NA	NA	NA	NA				NA
		<b>Dioxin/Furans</b>										
		Total Dioxin/Furan TEQ	pg/g	NA	NA	NA	NA	NA				NA
		Total PCB TEQ	pg/g	NA	NA	NA	NA	NA				NA

**TABLE 3-17**  
**Exposure Point Concentration Summary - Crayfish, by Station**

Scenario Timeframe: Current/Future
Medium: Shellfish tissue
Exposure Medium: Crayfish, by Station

Exposure Point <sup>a</sup>	Tissue Type	Chemical of Potential Concern <sup>b</sup>	Units	Total Samples	Total Non-Detects <sup>c</sup>	Non-Detects greater than Maximum Detected Concentration <sup>d</sup>	Arithmetic Mean <sup>e</sup>	Maximum Detected Concentration	95% UCL			Exposure Point Concentration
									Distribution	95% UCL Method	Value	
		<b>Pesticides</b>										
		Aldrin	ug/kg	1	1	0	ND	ND				ND
		alpha-Hexachlorocyclohexane	ug/kg	1	1	0	ND	ND				ND
		Dieldrin	ug/kg	1	1	0	ND	ND				ND
		Endrin	ug/kg	1	1	0	ND	ND				ND
		Heptachlor epoxide	ug/kg	1	1	0	ND	ND				ND
		Total DDD	ug/kg	1	1	0	ND	ND				ND
		Total DDE	ug/kg	1	0	0	5.1E+00	5.1E+00				5.1E+00
		Total DDT	ug/kg	1	0	0	1.8E+00	1.8E+00				1.8E+00
		Total Chlordane	ug/kg	1	1	0	ND	ND				ND
		Total Endosulfan	ug/kg	1	0	0	2.1E+00	2.1E+00				2.1E+00
RM: 6, Station: 06R004	WB	<b>Metals</b>								Fewer than 5 detects		
		Aluminum	mg/kg	2	0	0	1.4E+02	1.5E+02				1.5E+02
		Antimony	mg/kg	2	0	0	6.0E-03	6.0E-03				6.0E-03
		Arsenic, inorganic	mg/kg	2	0	0	3.7E-02	3.8E-02				3.8E-02
		Cadmium	mg/kg	2	0	0	1.9E-02	2.0E-02				2.0E-02
		Chromium	mg/kg	2	0	0	6.5E-01	8.0E-01				8.0E-01
		Copper	mg/kg	2	0	0	1.5E+01	1.6E+01				1.6E+01
		Lead	mg/kg	2	0	0	8.5E-02	8.8E-02				8.8E-02
		Manganese	mg/kg	2	0	0	2.0E+02	2.1E+02				2.1E+02
		Mercury	mg/kg	2	0	0	3.2E-02	3.4E-02				3.4E-02
		Nickel	mg/kg	2	0	0	4.6E-01	5.0E-01				5.0E-01
		Selenium	mg/kg	2	2	0	ND	ND				ND
		Silver	mg/kg	2	0	0	3.0E-02	3.1E-02				3.1E-02
		Thallium	mg/kg	2	0	0	3.5E-03	3.7E-03				3.7E-03
		Zinc	mg/kg	2	0	0	1.9E+01	2.0E+01				2.0E+01
		<b>Butyltins</b>										
		Butyltin ion	ug/kg	NA	NA	NA	NA	NA				NA
		Dibutyltin ion	ug/kg	NA	NA	NA	NA	NA				NA
		Tributyltin ion	ug/kg	NA	NA	NA	NA	NA				NA
		<b>Polynuclear Aromatic Hydrocarbons</b>										
		2-Methylnaphthalene	ug/kg	2	2	0	ND	ND				ND
		Acenaphthene	ug/kg	2	2	0	ND	ND				ND
		Acenaphthylene	ug/kg	2	2	0	ND	ND				ND
		Anthracene	ug/kg	2	2	0	ND	ND				ND
		Benzo(a)anthracene	ug/kg	2	1	0	4.8E+01	8.0E+01				8.0E+01
		Benzo(a)pyrene	ug/kg	2	2	0	ND	ND				ND
		Benzo(b)fluoranthene	ug/kg	2	2	0	ND	ND				ND
		Benzo(g,h,i)perylene	ug/kg	2	2	0	ND	ND				ND
		Benzo(k)fluoranthene	ug/kg	2	2	0	ND	ND				ND
		Chrysene	ug/kg	2	1	0	5.2E+01	8.7E+01				8.7E+01
		Dibenzo(a,h)anthracene	ug/kg	2	2	0	ND	ND				ND

**TABLE 3-17**  
**Exposure Point Concentration Summary - Crayfish, by Station**

Scenario Timeframe: Current/Future
Medium: Shellfish tissue
Exposure Medium: Crayfish, by Station

Exposure Point <sup>a</sup>	Tissue Type	Chemical of Potential Concern <sup>b</sup>	Units	Total Samples	Total Non-Detects <sup>c</sup>	Non-Detects greater than Maximum Detected Concentration <sup>d</sup>	Arithmetic Mean <sup>e</sup>	Maximum Detected Concentration	95% UCL			Exposure Point Concentration
									Distribution	95% UCL Method	Value	
		Fluoranthene	ug/kg	2	1	0	7.3E+01	1.3E+02				1.3E+02
		Fluorene	ug/kg	2	2	0	ND	ND				ND
		Indeno(1,2,3-cd)pyrene	ug/kg	2	2	0	ND	ND				ND
		Naphthalene	ug/kg	2	2	0	ND	ND				ND
		Phenanthrene	ug/kg	2	1	0	5.7E+01	9.7E+01				9.7E+01
		Pyrene	ug/kg	2	1	0	5.4E+01	8.3E+01				8.3E+01
		<b>Phthalates</b>										
		Butylbenzyl phthalate	ug/kg	2	2	0	ND	ND				ND
		<b>Semi-Volatile Organic Compounds</b>										
		Dibenzofuran	ug/kg	2	2	0	ND	ND				ND
		Hexachlorobenzene	ug/kg	2	2	0	ND	ND				ND
		Hexachlorobutadiene	ug/kg	2	2	0	ND	ND				ND
		<b>Phenols</b>										
		4-Methylphenol	ug/kg	2	2	0	ND	ND				ND
		Pentachlorophenol	ug/kg	2	2	0	ND	ND				ND
		Phenol	ug/kg	2	2	0	ND	ND				ND
		<b>Polychlorinated Biphenyls</b>										
		Total Aroclors	ug/kg	2	2	0	ND	ND				ND
		Total PCB Congeners	pg/g	2	0	0	1.6E+04	1.7E+04				1.7E+04
		Total PCBs, Adjusted	pg/g	2	0	0	1.4E+04	1.5E+04				1.5E+04
		<b>Dioxin/Furans</b>										
		Total Dioxin/Furan TEQ	pg/g	2	0	0	1.3E+00	1.4E+00				1.4E+00
		Total PCB TEQ	pg/g	2	0	0	3.0E-01	3.5E-01				3.5E-01
		<b>Pesticides</b>										
		Aldrin	ug/kg	2	2	0	ND	ND				ND
		alpha-Hexachlorocyclohexane	ug/kg	2	2	0	ND	ND				ND
		Dieldrin	ug/kg	2	2	0	ND	ND				ND
		Endrin	ug/kg	2	2	0	ND	ND				ND
		Heptachlor epoxide	ug/kg	2	2	0	ND	ND				ND
		Total DDD	ug/kg	2	0	0	6.8E+00	1.0E+01				1.0E+01
		Total DDE	ug/kg	2	0	0	6.6E+00	9.3E+00				9.3E+00
		Total DDT	ug/kg	2	0	0	2.4E+00	3.1E+00				3.1E+00
		Total Chlordane	ug/kg	2	2	0	ND	ND				ND
		Total Endosulfan	ug/kg	2	2	0	ND	ND				ND
RM: 6, Station: CR06W	WB	<b>Metals</b>										
		Aluminum	mg/kg	1	0	0	1.4E+02	1.4E+02		Fewer than 5 detects		1.4E+02
		Antimony	mg/kg	1	1	0	ND	ND				ND
		Arsenic, inorganic	mg/kg	1	0	0	3.4E-02	3.4E-02				3.4E-02
		Cadmium	mg/kg	1	0	0	9.0E-03	9.0E-03				9.0E-03
		Chromium	mg/kg	1	0	0	4.0E-01	4.0E-01				4.0E-01
		Copper	mg/kg	1	0	0	1.5E+01	1.5E+01				1.5E+01
		Lead	mg/kg	1	0	0	9.8E-02	9.8E-02				9.8E-02

**TABLE 3-17**  
**Exposure Point Concentration Summary - Crayfish, by Station**

Scenario Timeframe: Current/Future
Medium: Shellfish tissue
Exposure Medium: Crayfish, by Station

Exposure Point <sup>a</sup>	Tissue Type	Chemical of Potential Concern <sup>b</sup>	Units	Total Samples	Total Non-Detects <sup>c</sup>	Non-Detects greater than Maximum Detected Concentration <sup>d</sup>	Arithmetic Mean <sup>e</sup>	Maximum Detected Concentration	95% UCL			Exposure Point Concentration
									Distribution	95% UCL Method	Value	
		Manganese	mg/kg	1	0	0	1.7E+02	1.7E+02				1.7E+02
		Mercury	mg/kg	1	0	0	3.9E-02	3.9E-02				3.9E-02
		Nickel	mg/kg	1	0	0	4.8E-01	4.8E-01				4.8E-01
		Selenium	mg/kg	1	1	0	ND	ND				ND
		Silver	mg/kg	1	1	0	ND	ND				ND
		Thallium	mg/kg	1	1	0	ND	ND				ND
		Zinc	mg/kg	1	0	0	1.8E+01	1.8E+01				1.8E+01
		<b>Butyltins</b>										
		Butyltin ion	ug/kg	1	0	0	4.6E+00	4.6E+00				4.6E+00
		Dibutyltin ion	ug/kg	1	0	0	3.3E+02	3.3E+02				3.3E+02
		Tributyltin ion	ug/kg	1	0	0	2.3E+00	2.3E+00				2.3E+00
		<b>Polynuclear Aromatic Hydrocarbons</b>										
		2-Methylnaphthalene	ug/kg	1	0	0	1.1E+00	1.1E+00				1.1E+00
		Acenaphthene	ug/kg	1	0	0	4.2E+00	4.2E+00				4.2E+00
		Acenaphthylene	ug/kg	1	0	0	1.1E+00	1.1E+00				1.1E+00
		Anthracene	ug/kg	1	0	0	2.9E+00	2.9E+00				2.9E+00
		Benzo(a)anthracene	ug/kg	1	0	0	7.5E+00	7.5E+00				7.5E+00
		Benzo(a)pyrene	ug/kg	1	0	0	7.5E+00	7.5E+00				7.5E+00
		Benzo(b)fluoranthene	ug/kg	1	0	0	5.3E+00	5.3E+00				5.3E+00
		Benzo(g,h,i)perylene	ug/kg	1	0	0	5.6E+00	5.6E+00				5.6E+00
		Benzo(k)fluoranthene	ug/kg	1	0	0	5.0E+00	5.0E+00				5.0E+00
		Chrysene	ug/kg	1	0	0	1.2E+01	1.2E+01				1.2E+01
		Dibenzo(a,h)anthracene	ug/kg	1	0	0	7.1E-01	7.1E-01				7.1E-01
		Fluoranthene	ug/kg	1	0	0	1.2E+01	1.2E+01				1.2E+01
		Fluorene	ug/kg	1	0	0	1.8E+00	1.8E+00				1.8E+00
		Indeno(1,2,3-cd)pyrene	ug/kg	1	0	0	5.3E+00	5.3E+00				5.3E+00
		Naphthalene	ug/kg	1	0	0	2.9E+00	2.9E+00				2.9E+00
		Phenanthrene	ug/kg	1	0	0	7.6E+00	7.6E+00				7.6E+00
		Pyrene	ug/kg	1	0	0	1.5E+01	1.5E+01				1.5E+01
		<b>Phthalates</b>										
		Butylbenzyl phthalate	ug/kg	1	1	0	ND	ND				ND
		<b>Semi-Volatile Organic Compounds</b>										
		Dibenzofuran	ug/kg	1	0	0	3.5E-01	3.5E-01				3.5E-01
		Hexachlorobenzene	ug/kg	1	0	0	5.1E-02	5.1E-02				5.1E-02
		Hexachlorobutadiene	ug/kg	1	1	0	ND	ND				ND
		<b>Phenols</b>										
		4-Methylphenol	ug/kg	1	1	0	ND	ND				ND
		Pentachlorophenol	ug/kg	1	1	0	ND	ND				ND
		Phenol	ug/kg	1	0	0	6.1E+01	6.1E+01				6.1E+01
		<b>Polychlorinated Biphenyls</b>										
		Total Aroclors	ug/kg	NA	NA	NA	NA	NA				NA
		Total PCB Congeners	pg/g	1	0	0	4.4E+04	4.4E+04				4.4E+04
		Total PCBs, Adjusted	pg/g	1	0	0	4.2E+04	4.2E+04				4.2E+04



**TABLE 3-17**  
**Exposure Point Concentration Summary - Crayfish, by Station**

Scenario Timeframe: Current/Future
Medium: Shellfish tissue
Exposure Medium: Crayfish, by Station

Exposure Point <sup>a</sup>	Tissue Type	Chemical of Potential Concern <sup>b</sup>	Units	Total Samples	Total Non-Detects <sup>c</sup>	Non-Detects greater than Maximum Detected Concentration <sup>d</sup>	Arithmetic Mean <sup>e</sup>	Maximum Detected Concentration	95% UCL			Exposure Point Concentration
									Distribution	95% UCL Method	Value	
		<b>Dioxin/Furans</b>										
		Total Dioxin/Furan TEQ	pg/g	1	0	0	5.5E-01	5.5E-01				5.5E-01
		Total PCB TEQ	pg/g	1	0	0	3.2E-01	3.2E-01				3.2E-01
		<b>Pesticides</b>										
		Aldrin	ug/kg	1	1	0	ND	ND				ND
		alpha-Hexachlorocyclohexane	ug/kg	1	1	0	ND	ND				ND
		Dieldrin	ug/kg	1	0	0	1.5E-02	1.5E-02				1.5E-02
		Endrin	ug/kg	1	1	0	ND	ND				ND
		Heptachlor epoxide	ug/kg	1	1	0	ND	ND				ND
		Total DDD	ug/kg	1	0	0	7.4E-01	7.4E-01				7.4E-01
		Total DDE	ug/kg	1	0	0	2.1E+00	2.1E+00				2.1E+00
		Total DDT	ug/kg	1	0	0	1.2E-01	1.2E-01				1.2E-01
		Total Chlordane	ug/kg	1	0	0	1.7E-01	1.7E-01				1.7E-01
		Total Endosulfan	ug/kg	1	1	0	ND	ND				ND
RM: 7, Station: 07R003	WB	<b>Metals</b>										
		Aluminum	mg/kg	1	0	0	9.8E+01	9.8E+01		Fewer than 5 detects		9.8E+01
		Antimony	mg/kg	1	1	0	ND	ND				ND
		Arsenic, inorganic	mg/kg	1	0	0	3.0E-02	3.0E-02				3.0E-02
		Cadmium	mg/kg	1	0	0	1.5E-02	1.5E-02				1.5E-02
		Chromium	mg/kg	1	0	0	3.0E-01	3.0E-01				3.0E-01
		Copper	mg/kg	1	0	0	1.4E+01	1.4E+01				1.4E+01
		Lead	mg/kg	1	0	0	9.1E-02	9.1E-02				9.1E-02
		Manganese	mg/kg	1	0	0	1.2E+02	1.2E+02				1.2E+02
		Mercury	mg/kg	1	0	0	3.0E-02	3.0E-02				3.0E-02
		Nickel	mg/kg	1	0	0	3.0E-01	3.0E-01				3.0E-01
		Selenium	mg/kg	1	1	0	ND	ND				ND
		Silver	mg/kg	1	0	0	1.9E-02	1.9E-02				1.9E-02
		Thallium	mg/kg	1	0	0	2.4E-03	2.4E-03				2.4E-03
		Zinc	mg/kg	1	0	0	1.6E+01	1.6E+01				1.6E+01
		<b>Butyltins</b>										
		Butyltin ion	ug/kg	NA	NA	NA	NA	NA				NA
		Dibutyltin ion	ug/kg	NA	NA	NA	NA	NA				NA
		Tributyltin ion	ug/kg	NA	NA	NA	NA	NA				NA
		<b>Polynuclear Aromatic Hydrocarbons</b>										
		2-Methylnaphthalene	ug/kg	1	1	0	ND	ND				ND
		Acenaphthene	ug/kg	1	1	0	ND	ND				ND
		Acenaphthylene	ug/kg	1	1	0	ND	ND				ND
		Anthracene	ug/kg	1	1	0	ND	ND				ND
		Benzo(a)anthracene	ug/kg	1	1	0	ND	ND				ND
		Benzo(a)pyrene	ug/kg	1	1	0	ND	ND				ND
		Benzo(b)fluoranthene	ug/kg	1	1	0	ND	ND				ND
Benzo(g,h,i)perylene	ug/kg	1	1	0	ND	ND				ND		

**TABLE 3-17**  
**Exposure Point Concentration Summary - Crayfish, by Station**

Scenario Timeframe: Current/Future
Medium: Shellfish tissue
Exposure Medium: Crayfish, by Station

Exposure Point <sup>a</sup>	Tissue Type	Chemical of Potential Concern <sup>b</sup>	Units	Total Samples	Total Non-Detects <sup>c</sup>	Non-Detects greater than Maximum Detected Concentration <sup>d</sup>	Arithmetic Mean <sup>e</sup>	Maximum Detected Concentration	95% UCL			Exposure Point Concentration
									Distribution	95% UCL Method	Value	
		Benzo(k)fluoranthene	ug/kg	1	1	0	ND	ND				ND
		Chrysene	ug/kg	1	1	0	ND	ND				ND
		Dibenzo(a,h)anthracene	ug/kg	1	1	0	ND	ND				ND
		Fluoranthene	ug/kg	1	1	0	ND	ND				ND
		Fluorene	ug/kg	1	1	0	ND	ND				ND
		Indeno(1,2,3-cd)pyrene	ug/kg	1	1	0	ND	ND				ND
		Naphthalene	ug/kg	1	1	0	ND	ND				ND
		Phenanthrene	ug/kg	1	1	0	ND	ND				ND
		Pyrene	ug/kg	1	1	0	ND	ND				ND
		<b>Phthalates</b>										
		Butylbenzyl phthalate	ug/kg	1	1	0	ND	ND				ND
		<b>Semi-Volatile Organic Compounds</b>										
		Dibenzofuran	ug/kg	1	1	0	ND	ND				ND
		Hexachlorobenzene	ug/kg	1	1	0	ND	ND				ND
		Hexachlorobutadiene	ug/kg	1	1	0	ND	ND				ND
		<b>Phenols</b>										
		4-Methylphenol	ug/kg	1	1	0	ND	ND				ND
		Pentachlorophenol	ug/kg	1	1	0	ND	ND				ND
		Phenol	ug/kg	1	1	0	ND	ND				ND
		<b>Polychlorinated Biphenyls</b>										
		Total Aroclors	ug/kg	1	0	0	3.9E+01	3.9E+01				3.9E+01
		Total PCB Congeners	pg/g	NA	NA	NA	NA	NA				NA
		Total PCBs, Adjusted	pg/g	NA	NA	NA	NA	NA				NA
		<b>Dioxin/Furans</b>										
		Total Dioxin/Furan TEQ	pg/g	NA	NA	NA	NA	NA				NA
		Total PCB TEQ	pg/g	NA	NA	NA	NA	NA				NA
		<b>Pesticides</b>										
		Aldrin	ug/kg	1	1	0	ND	ND				ND
		alpha-Hexachlorocyclohexane	ug/kg	1	1	0	ND	ND				ND
		Dieldrin	ug/kg	1	1	0	ND	ND				ND
		Endrin	ug/kg	1	1	0	ND	ND				ND
		Heptachlor epoxide	ug/kg	1	1	0	ND	ND				ND
		Total DDD	ug/kg	1	0	0	4.1E+00	4.1E+00				4.1E+00
		Total DDE	ug/kg	1	0	0	1.6E+01	1.6E+01				1.6E+01
		Total DDT	ug/kg	1	0	0	1.8E+01	1.8E+01				1.8E+01
		Total Chlordane	ug/kg	1	1	0	ND	ND				ND
		Total Endosulfan	ug/kg	1	1	0	ND	ND				ND
RM: 7, Station: 07R004	WB	<b>Metals</b>										
		Aluminum	mg/kg	1	0	0	2.0E+02	2.0E+02		Fewer than 5 detects		2.0E+02
		Antimony	mg/kg	1	0	0	9.0E-03	9.0E-03				9.0E-03
		Arsenic, inorganic	mg/kg	1	0	0	5.0E-02	5.0E-02				5.0E-02
		Cadmium	mg/kg	1	0	0	1.6E-02	1.6E-02				1.6E-02

**TABLE 3-17**  
**Exposure Point Concentration Summary - Crayfish, by Station**

Scenario Timeframe: Current/Future
Medium: Shellfish tissue
Exposure Medium: Crayfish, by Station

Exposure Point <sup>a</sup>	Tissue Type	Chemical of Potential Concern <sup>b</sup>	Units	Total Samples	Total Non-Detects <sup>c</sup>	Non-Detects greater than Maximum Detected Concentration <sup>d</sup>	Arithmetic Mean <sup>e</sup>	Maximum Detected Concentration	95% UCL			Exposure Point Concentration
									Distribution	95% UCL Method	Value	
		Chromium	mg/kg	1	0	0	9.0E-01	9.0E-01				9.0E-01
		Copper	mg/kg	1	0	0	1.8E+01	1.8E+01				1.8E+01
		Lead	mg/kg	1	0	0	2.0E-01	2.0E-01				2.0E-01
		Manganese	mg/kg	1	0	0	1.7E+02	1.7E+02				1.7E+02
		Mercury	mg/kg	1	0	0	3.6E-02	3.6E-02				3.6E-02
		Nickel	mg/kg	1	0	0	5.5E-01	5.5E-01				5.5E-01
		Selenium	mg/kg	1	1	0	ND	ND				ND
		Silver	mg/kg	1	0	0	3.9E-02	3.9E-02				3.9E-02
		Thallium	mg/kg	1	0	0	3.2E-03	3.2E-03				3.2E-03
		Zinc	mg/kg	1	0	0	1.9E+01	1.9E+01				1.9E+01
		<b>Butyltins</b>										
		Butyltin ion	ug/kg	NA	NA	NA	NA	NA				NA
		Dibutyltin ion	ug/kg	NA	NA	NA	NA	NA				NA
		Tributyltin ion	ug/kg	NA	NA	NA	NA	NA				NA
		<b>Polynuclear Aromatic Hydrocarbons</b>										
		2-Methylnaphthalene	ug/kg	1	1	0	ND	ND				ND
		Acenaphthene	ug/kg	1	1	0	ND	ND				ND
		Acenaphthylene	ug/kg	1	1	0	ND	ND				ND
		Anthracene	ug/kg	1	1	0	ND	ND				ND
		Benzo(a)anthracene	ug/kg	1	1	0	ND	ND				ND
		Benzo(a)pyrene	ug/kg	1	1	0	ND	ND				ND
		Benzo(b)fluoranthene	ug/kg	1	1	0	ND	ND				ND
		Benzo(g,h,i)perylene	ug/kg	1	1	0	ND	ND				ND
		Benzo(k)fluoranthene	ug/kg	1	1	0	ND	ND				ND
		Chrysene	ug/kg	1	1	0	ND	ND				ND
		Dibenzo(a,h)anthracene	ug/kg	1	1	0	ND	ND				ND
		Fluoranthene	ug/kg	1	1	0	ND	ND				ND
		Fluorene	ug/kg	1	1	0	ND	ND				ND
		Indeno(1,2,3-cd)pyrene	ug/kg	1	1	0	ND	ND				ND
		Naphthalene	ug/kg	1	1	0	ND	ND				ND
		Phenanthrene	ug/kg	1	1	0	ND	ND				ND
		Pyrene	ug/kg	1	1	0	ND	ND				ND
		<b>Phthalates</b>										
		Butylbenzyl phthalate	ug/kg	1	1	0	ND	ND				ND
		<b>Semi-Volatile Organic Compounds</b>										
		Dibenzofuran	ug/kg	1	1	0	ND	ND				ND
		Hexachlorobenzene	ug/kg	1	1	0	ND	ND				ND
		Hexachlorobutadiene	ug/kg	1	1	0	ND	ND				ND
		<b>Phenols</b>										
		4-Methylphenol	ug/kg	1	1	0	ND	ND				ND
		Pentachlorophenol	ug/kg	1	1	0	ND	ND				ND
		Phenol	ug/kg	1	1	0	ND	ND				ND

**TABLE 3-17**  
**Exposure Point Concentration Summary - Crayfish, by Station**

Scenario Timeframe: Current/Future
Medium: Shellfish tissue
Exposure Medium: Crayfish, by Station

Exposure Point <sup>a</sup>	Tissue Type	Chemical of Potential Concern <sup>b</sup>	Units	Total Samples	Total Non-Detects <sup>c</sup>	Non-Detects greater than Maximum Detected Concentration <sup>d</sup>	Arithmetic Mean <sup>e</sup>	Maximum Detected Concentration	95% UCL			Exposure Point Concentration
									Distribution	95% UCL Method	Value	
		<b>Polychlorinated Biphenyls</b>										
		Total Aroclors	ug/kg	1	1	0	ND	ND				ND
		Total PCB Congeners	pg/g	NA	NA	NA	NA	NA				NA
		Total PCBs, Adjusted	pg/g	NA	NA	NA	NA	NA				NA
		<b>Dioxin/Furans</b>										
		Total Dioxin/Furan TEQ	pg/g	NA	NA	NA	NA	NA				NA
		Total PCB TEQ	pg/g	NA	NA	NA	NA	NA				NA
		<b>Pesticides</b>										
		Aldrin	ug/kg	1	1	0	ND	ND				ND
		alpha-Hexachlorocyclohexane	ug/kg	1	1	0	ND	ND				ND
		Dieldrin	ug/kg	1	1	0	ND	ND				ND
		Endrin	ug/kg	1	1	0	ND	ND				ND
		Heptachlor epoxide	ug/kg	1	1	0	ND	ND				ND
		Total DDD	ug/kg	1	1	0	ND	ND				ND
		Total DDE	ug/kg	1	0	0	6.9E+00	6.9E+00				6.9E+00
		Total DDT	ug/kg	1	0	0	2.0E+00	2.0E+00				2.0E+00
		Total Chlordane	ug/kg	1	1	0	ND	ND				ND
		Total Endosulfan	ug/kg	1	0	0	2.2E+00	2.2E+00				2.2E+00
RM: 7, Station: 07R006	WB	<b>Metals</b>								Fewer than 5 detects		
		Aluminum	mg/kg	1	0	0	5.9E+01	5.9E+01				5.9E+01
		Antimony	mg/kg	1	0	0	6.0E-03	6.0E-03				6.0E-03
		Arsenic, inorganic	mg/kg	1	0	0	3.2E-02	3.2E-02				3.2E-02
		Cadmium	mg/kg	1	0	0	9.0E-03	9.0E-03				9.0E-03
		Chromium	mg/kg	1	0	0	5.4E-01	5.4E-01				5.4E-01
		Copper	mg/kg	1	0	0	1.3E+01	1.3E+01				1.3E+01
		Lead	mg/kg	1	0	0	2.4E-01	2.4E-01				2.4E-01
		Manganese	mg/kg	1	0	0	1.3E+02	1.3E+02				1.3E+02
		Mercury	mg/kg	1	0	0	2.4E-02	2.4E-02				2.4E-02
		Nickel	mg/kg	1	0	0	8.3E-01	8.3E-01				8.3E-01
		Selenium	mg/kg	1	1	0	ND	ND				ND
		Silver	mg/kg	1	0	0	3.2E-02	3.2E-02				3.2E-02
		Thallium	mg/kg	1	0	0	2.2E-03	2.2E-03				2.2E-03
		Zinc	mg/kg	1	0	0	1.6E+01	1.6E+01				1.6E+01
		<b>Butyltins</b>										
		Butyltin ion	ug/kg	NA	NA	NA	NA	NA				NA
		Dibutyltin ion	ug/kg	NA	NA	NA	NA	NA				NA
		Tributyltin ion	ug/kg	NA	NA	NA	NA	NA				NA
		<b>Polynuclear Aromatic Hydrocarbons</b>										
		2-Methylnaphthalene	ug/kg	1	1	0	ND	ND				ND
		Acenaphthene	ug/kg	1	1	0	ND	ND				ND
		Acenaphthylene	ug/kg	1	1	0	ND	ND				ND
		Anthracene	ug/kg	1	1	0	ND	ND				ND

**TABLE 3-17**  
**Exposure Point Concentration Summary - Crayfish, by Station**

Scenario Timeframe: Current/Future
Medium: Shellfish tissue
Exposure Medium: Crayfish, by Station

Exposure Point <sup>a</sup>	Tissue Type	Chemical of Potential Concern <sup>b</sup>	Units	Total Samples	Total Non-Detects <sup>c</sup>	Non-Detects greater than Maximum Detected Concentration <sup>d</sup>	Arithmetic Mean <sup>e</sup>	Maximum Detected Concentration	95% UCL			Exposure Point Concentration
									Distribution	95% UCL Method	Value	
		Benzo(a)anthracene	ug/kg	1	1	0	ND	ND				ND
		Benzo(a)pyrene	ug/kg	1	1	0	ND	ND				ND
		Benzo(b)fluoranthene	ug/kg	1	1	0	ND	ND				ND
		Benzo(g,h,i)perylene	ug/kg	1	1	0	ND	ND				ND
		Benzo(k)fluoranthene	ug/kg	1	1	0	ND	ND				ND
		Chrysene	ug/kg	1	1	0	ND	ND				ND
		Dibenzo(a,h)anthracene	ug/kg	1	1	0	ND	ND				ND
		Fluoranthene	ug/kg	1	1	0	ND	ND				ND
		Fluorene	ug/kg	1	1	0	ND	ND				ND
		Indeno(1,2,3-cd)pyrene	ug/kg	1	1	0	ND	ND				ND
		Naphthalene	ug/kg	1	1	0	ND	ND				ND
		Phenanthrene	ug/kg	1	1	0	ND	ND				ND
		Pyrene	ug/kg	1	1	0	ND	ND				ND
		<b>Phthalates</b>										
		Butylbenzyl phthalate	ug/kg	1	1	0	ND	ND				ND
		<b>Semi-Volatile Organic Compounds</b>										
		Dibenzofuran	ug/kg	1	1	0	ND	ND				ND
		Hexachlorobenzene	ug/kg	1	1	0	ND	ND				ND
		Hexachlorobutadiene	ug/kg	1	1	0	ND	ND				ND
		<b>Phenols</b>										
		4-Methylphenol	ug/kg	1	1	0	ND	ND				ND
		Pentachlorophenol	ug/kg	1	1	0	ND	ND				ND
		Phenol	ug/kg	1	1	0	ND	ND				ND
		<b>Polychlorinated Biphenyls</b>										
		Total Aroclors	ug/kg	1	0	0	4.5E+01	4.5E+01				4.5E+01
		Total PCB Congeners	pg/g	1	0	0	2.8E+04	2.8E+04				2.8E+04
		Total PCBs, Adjusted	pg/g	1	0	0	2.5E+04	2.5E+04				2.5E+04
		<b>Dioxin/Furans</b>										
		Total Dioxin/Furan TEQ	pg/g	1	0	0	1.8E+01	1.8E+01				1.8E+01
		Total PCB TEQ	pg/g	1	0	0	7.5E-01	7.5E-01				7.5E-01
		<b>Pesticides</b>										
		Aldrin	ug/kg	1	1	0	ND	ND				ND
		alpha-Hexachlorocyclohexane	ug/kg	1	1	0	ND	ND				ND
		Dieldrin	ug/kg	1	1	0	ND	ND				ND
		Endrin	ug/kg	1	1	0	ND	ND				ND
		Heptachlor epoxide	ug/kg	1	1	0	ND	ND				ND
		Total DDD	ug/kg	1	0	0	2.1E+01	2.1E+01				2.1E+01
		Total DDE	ug/kg	1	0	0	5.2E+01	5.2E+01				5.2E+01
		Total DDT	ug/kg	1	0	0	1.3E+01	1.3E+01				1.3E+01
		Total Chlordane	ug/kg	1	1	0	ND	ND				ND
		Total Endosulfan	ug/kg	1	1	0	ND	ND				ND

**TABLE 3-17**  
**Exposure Point Concentration Summary - Crayfish, by Station**

Scenario Timeframe: Current/Future
Medium: Shellfish tissue
Exposure Medium: Crayfish, by Station

Exposure Point <sup>a</sup>	Tissue Type	Chemical of Potential Concern <sup>b</sup>	Units	Total Samples	Total Non-Detects <sup>c</sup>	Non-Detects greater than Maximum Detected Concentration <sup>d</sup>	Arithmetic Mean <sup>e</sup>	Maximum Detected Concentration	95% UCL			Exposure Point Concentration		
									Distribution	95% UCL Method	Value			
RM: 8, Station: 08R001	WB	<b>Metals</b>												
		Aluminum	mg/kg	1	0	0	6.8E+01	6.8E+01		Fewer than 5 detects		6.8E+01		
		Antimony	mg/kg	1	0	0	7.0E-03	7.0E-03			7.0E-03			
		Arsenic, inorganic	mg/kg	1	0	0	3.5E-02	3.5E-02			3.5E-02			
		Cadmium	mg/kg	1	0	0	1.3E-02	1.3E-02			1.3E-02			
		Chromium	mg/kg	1	0	0	2.8E-01	2.8E-01			2.8E-01			
		Copper	mg/kg	1	0	0	1.5E+01	1.5E+01			1.5E+01			
		Lead	mg/kg	1	0	0	7.6E-02	7.6E-02			7.6E-02			
		Manganese	mg/kg	1	0	0	1.2E+02	1.2E+02			1.2E+02			
		Mercury	mg/kg	1	0	0	2.2E-02	2.2E-02			2.2E-02			
		Nickel	mg/kg	1	0	0	2.8E-01	2.8E-01			2.8E-01			
		Selenium	mg/kg	1	1	0	ND	ND			ND			
		Silver	mg/kg	1	0	0	2.4E-02	2.4E-02			2.4E-02			
		Thallium	mg/kg	1	0	0	2.4E-03	2.4E-03			2.4E-03			
		Zinc	mg/kg	1	0	0	1.5E+01	1.5E+01			1.5E+01			
		<b>Butyltins</b>												
		Butyltin ion	ug/kg	NA	NA	NA	NA	NA			NA			
		Dibutyltin ion	ug/kg	NA	NA	NA	NA	NA			NA			
		Tributyltin ion	ug/kg	NA	NA	NA	NA	NA		NA				
		<b>Polynuclear Aromatic Hydrocarbons</b>												
		2-Methylnaphthalene	ug/kg	1	1	0	ND	ND		ND				
		Acenaphthene	ug/kg	1	1	0	ND	ND		ND				
		Acenaphthylene	ug/kg	1	1	0	ND	ND		ND				
		Anthracene	ug/kg	1	1	0	ND	ND		ND				
		Benzo(a)anthracene	ug/kg	1	1	0	ND	ND		ND				
		Benzo(a)pyrene	ug/kg	1	1	0	ND	ND		ND				
		Benzo(b)fluoranthene	ug/kg	1	1	0	ND	ND		ND				
		Benzo(g,h,i)perylene	ug/kg	1	1	0	ND	ND		ND				
		Benzo(k)fluoranthene	ug/kg	1	1	0	ND	ND		ND				
		Chrysene	ug/kg	1	1	0	ND	ND		ND				
		Dibenzo(a,h)anthracene	ug/kg	1	1	0	ND	ND		ND				
		Fluoranthene	ug/kg	1	1	0	ND	ND		ND				
		Fluorene	ug/kg	1	1	0	ND	ND		ND				
		Indeno(1,2,3-cd)pyrene	ug/kg	1	1	0	ND	ND		ND				
		Naphthalene	ug/kg	1	1	0	ND	ND		ND				
		Phenanthrene	ug/kg	1	1	0	ND	ND		ND				
		Pyrene	ug/kg	1	1	0	ND	ND		ND				
		<b>Phthalates</b>												
		Butylbenzyl phthalate	ug/kg	1	1	0	ND	ND		ND				
		<b>Semi-Volatile Organic Compounds</b>												
		Dibenzofuran	ug/kg	1	1	0	ND	ND		ND				
		Hexachlorobenzene	ug/kg	1	1	0	ND	ND		ND				
		Hexachlorobutadiene	ug/kg	1	1	0	ND	ND		ND				

**TABLE 3-17**  
**Exposure Point Concentration Summary - Crayfish, by Station**

Scenario Timeframe: Current/Future
Medium: Shellfish tissue
Exposure Medium: Crayfish, by Station

Exposure Point <sup>a</sup>	Tissue Type	Chemical of Potential Concern <sup>b</sup>	Units	Total Samples	Total Non-Detects <sup>c</sup>	Non-Detects greater than Maximum Detected Concentration <sup>d</sup>	Arithmetic Mean <sup>e</sup>	Maximum Detected Concentration	95% UCL			Exposure Point Concentration
									Distribution	95% UCL Method	Value	
		<b>Phenols</b>										
		4-Methylphenol	ug/kg	1	0	0	3.3E+01	3.3E+01				3.3E+01
		Pentachlorophenol	ug/kg	1	1	0	ND	ND				ND
		Phenol	ug/kg	1	1	0	ND	ND				ND
		<b>Polychlorinated Biphenyls</b>										
		Total Aroclors	ug/kg	1	0	0	5.9E+01	5.9E+01				5.9E+01
		Total PCB Congeners	pg/g	NA	NA	NA	NA	NA				NA
		Total PCBs, Adjusted	pg/g	NA	NA	NA	NA	NA				NA
		<b>Dioxin/Furans</b>										
		Total Dioxin/Furan TEQ	pg/g	NA	NA	NA	NA	NA				NA
		Total PCB TEQ	pg/g	NA	NA	NA	NA	NA				NA
		<b>Pesticides</b>										
		Aldrin	ug/kg	1	1	0	ND	ND				ND
		alpha-Hexachlorocyclohexane	ug/kg	1	1	0	ND	ND				ND
		Dieldrin	ug/kg	1	1	0	ND	ND				ND
		Endrin	ug/kg	1	1	0	ND	ND				ND
		Heptachlor epoxide	ug/kg	1	1	0	ND	ND				ND
		Total DDD	ug/kg	1	1	0	ND	ND				ND
		Total DDE	ug/kg	1	0	0	6.8E+00	6.8E+00				6.8E+00
		Total DDT	ug/kg	1	0	0	8.7E+00	8.7E+00				8.7E+00
		Total Chlordane	ug/kg	1	1	0	ND	ND				ND
		Total Endosulfan	ug/kg	1	1	0	ND	ND				ND
RM: 8, Station: 08R002	WB	<b>Metals</b>								Fewer than 5 detects		
		Aluminum	mg/kg	1	0	0	8.7E+01	8.7E+01				8.7E+01
		Antimony	mg/kg	1	0	0	5.0E-03	5.0E-03				5.0E-03
		Arsenic, inorganic	mg/kg	1	0	0	2.8E-02	2.8E-02				2.8E-02
		Cadmium	mg/kg	1	0	0	1.3E-02	1.3E-02				1.3E-02
		Chromium	mg/kg	1	0	0	3.8E-01	3.8E-01				3.8E-01
		Copper	mg/kg	1	0	0	1.0E+01	1.0E+01				1.0E+01
		Lead	mg/kg	1	0	0	1.0E-01	1.0E-01				1.0E-01
		Manganese	mg/kg	1	0	0	1.6E+02	1.6E+02				1.6E+02
		Mercury	mg/kg	1	0	0	3.3E-02	3.3E-02				3.3E-02
		Nickel	mg/kg	1	0	0	3.2E-01	3.2E-01				3.2E-01
		Selenium	mg/kg	1	1	0	ND	ND				ND
		Silver	mg/kg	1	1	0	ND	ND				ND
		Thallium	mg/kg	1	0	0	2.1E-03	2.1E-03				2.1E-03
		Zinc	mg/kg	1	0	0	1.4E+01	1.4E+01				1.4E+01
		<b>Butyltins</b>										
		Butyltin ion	ug/kg	NA	NA	NA	NA	NA				NA
		Dibutyltin ion	ug/kg	NA	NA	NA	NA	NA				NA
		Tributyltin ion	ug/kg	NA	NA	NA	NA	NA				NA



**TABLE 3-17**  
**Exposure Point Concentration Summary - Crayfish, by Station**

Scenario Timeframe: Current/Future
Medium: Shellfish tissue
Exposure Medium: Crayfish, by Station

Exposure Point <sup>a</sup>	Tissue Type	Chemical of Potential Concern <sup>b</sup>	Units	Total Samples	Total Non-Detects <sup>c</sup>	Non-Detects greater than Maximum Detected Concentration <sup>d</sup>	Arithmetic Mean <sup>e</sup>	Maximum Detected Concentration	95% UCL			Exposure Point Concentration
									Distribution	95% UCL Method	Value	
		<b>Polynuclear Aromatic Hydrocarbons</b>										
		2-Methylnaphthalene	ug/kg	1	1	0	ND	ND				ND
		Acenaphthene	ug/kg	1	1	0	ND	ND				ND
		Acenaphthylene	ug/kg	1	1	0	ND	ND				ND
		Anthracene	ug/kg	1	1	0	ND	ND				ND
		Benzo(a)anthracene	ug/kg	1	1	0	ND	ND				ND
		Benzo(a)pyrene	ug/kg	1	1	0	ND	ND				ND
		Benzo(b)fluoranthene	ug/kg	1	1	0	ND	ND				ND
		Benzo(g,h,i)perylene	ug/kg	1	1	0	ND	ND				ND
		Benzo(k)fluoranthene	ug/kg	1	1	0	ND	ND				ND
		Chrysene	ug/kg	1	1	0	ND	ND				ND
		Dibenzo(a,h)anthracene	ug/kg	1	1	0	ND	ND				ND
		Fluoranthene	ug/kg	1	1	0	ND	ND				ND
		Fluorene	ug/kg	1	1	0	ND	ND				ND
		Indeno(1,2,3-cd)pyrene	ug/kg	1	1	0	ND	ND				ND
		Naphthalene	ug/kg	1	1	0	ND	ND				ND
		Phenanthrene	ug/kg	1	1	0	ND	ND				ND
		Pyrene	ug/kg	1	1	0	ND	ND				ND
		<b>Phthalates</b>										
		Butylbenzyl phthalate	ug/kg	1	1	0	ND	ND				ND
		<b>Semi-Volatile Organic Compounds</b>										
		Dibenzofuran	ug/kg	1	1	0	ND	ND				ND
		Hexachlorobenzene	ug/kg	1	1	0	ND	ND				ND
		Hexachlorobutadiene	ug/kg	1	1	0	ND	ND				ND
		<b>Phenols</b>										
		4-Methylphenol	ug/kg	1	1	0	ND	ND				ND
		Pentachlorophenol	ug/kg	1	1	0	ND	ND				ND
		Phenol	ug/kg	1	1	0	ND	ND				ND
		<b>Polychlorinated Biphenyls</b>										
		Total Aroclors	ug/kg	1	0	0	1.6E+01	1.6E+01				1.6E+01
		Total PCB Congeners	pg/g	NA	NA	NA	NA	NA				NA
		Total PCBs, Adjusted	pg/g	NA	NA	NA	NA	NA				NA
		<b>Dioxin/Furans</b>										
		Total Dioxin/Furan TEQ	pg/g	NA	NA	NA	NA	NA				NA
		Total PCB TEQ	pg/g	NA	NA	NA	NA	NA				NA
		<b>Pesticides</b>										
		Aldrin	ug/kg	1	1	0	ND	ND				ND
		alpha-Hexachlorocyclohexane	ug/kg	1	1	0	ND	ND				ND
		Dieldrin	ug/kg	1	1	0	ND	ND				ND
		Endrin	ug/kg	1	1	0	ND	ND				ND
		Heptachlor epoxide	ug/kg	1	1	0	ND	ND				ND
		Total DDD	ug/kg	1	1	0	ND	ND				ND
		Total DDE	ug/kg	1	0	0	3.5E+00	3.5E+00				3.5E+00

**TABLE 3-17**  
**Exposure Point Concentration Summary - Crayfish, by Station**

Scenario Timeframe: Current/Future
Medium: Shellfish tissue
Exposure Medium: Crayfish, by Station

Exposure Point <sup>a</sup>	Tissue Type	Chemical of Potential Concern <sup>b</sup>	Units	Total Samples	Total Non-Detects <sup>c</sup>	Non-Detects greater than Maximum Detected Concentration <sup>d</sup>	Arithmetic Mean <sup>e</sup>	Maximum Detected Concentration	95% UCL			Exposure Point Concentration
									Distribution	95% UCL Method	Value	
		Total DDT	ug/kg	1	0	0	3.4E+00	3.4E+00				3.4E+00
		Total Chlordane	ug/kg	1	1	0	ND	ND				ND
		Total Endosulfan	ug/kg	1	1	0	ND	ND				ND
RM: 8, Station: 08R003	WB	<b>Metals</b>								Fewer than 5 detects		
		Aluminum	mg/kg	1	0	0	6.7E+01	6.7E+01				6.7E+01
		Antimony	mg/kg	1	0	0	5.0E-03	5.0E-03				5.0E-03
		Arsenic, inorganic	mg/kg	1	0	0	2.8E-02	2.8E-02				2.8E-02
		Cadmium	mg/kg	1	0	0	1.6E-02	1.6E-02				1.6E-02
		Chromium	mg/kg	1	0	0	4.1E-01	4.1E-01				4.1E-01
		Copper	mg/kg	1	0	0	1.7E+01	1.7E+01				1.7E+01
		Lead	mg/kg	1	0	0	7.6E-02	7.6E-02				7.6E-02
		Manganese	mg/kg	1	0	0	7.2E+01	7.2E+01				7.2E+01
		Mercury	mg/kg	1	0	0	2.2E-02	2.2E-02				2.2E-02
		Nickel	mg/kg	1	0	0	2.7E-01	2.7E-01				2.7E-01
		Selenium	mg/kg	1	1	0	ND	ND				ND
		Silver	mg/kg	1	0	0	2.2E-02	2.2E-02				2.2E-02
		Thallium	mg/kg	1	0	0	2.1E-03	2.1E-03				2.1E-03
		Zinc	mg/kg	1	0	0	1.6E+01	1.6E+01				1.6E+01
		<b>Butyltins</b>										
		Butyltin ion	ug/kg	NA	NA	NA	NA	NA				NA
		Dibutyltin ion	ug/kg	NA	NA	NA	NA	NA				NA
		Tributyltin ion	ug/kg	NA	NA	NA	NA	NA				NA
		<b>Polynuclear Aromatic Hydrocarbons</b>										
		2-Methylnaphthalene	ug/kg	1	1	0	ND	ND				ND
		Acenaphthene	ug/kg	1	1	0	ND	ND				ND
		Acenaphthylene	ug/kg	1	1	0	ND	ND				ND
		Anthracene	ug/kg	1	1	0	ND	ND				ND
		Benzo(a)anthracene	ug/kg	1	1	0	ND	ND				ND
		Benzo(a)pyrene	ug/kg	1	1	0	ND	ND				ND
		Benzo(b)fluoranthene	ug/kg	1	1	0	ND	ND				ND
		Benzo(g,h,i)perylene	ug/kg	1	1	0	ND	ND				ND
		Benzo(k)fluoranthene	ug/kg	1	1	0	ND	ND				ND
		Chrysene	ug/kg	1	1	0	ND	ND				ND
		Dibenzo(a,h)anthracene	ug/kg	1	1	0	ND	ND				ND
		Fluoranthene	ug/kg	1	1	0	ND	ND				ND
		Fluorene	ug/kg	1	1	0	ND	ND				ND
		Indeno(1,2,3-cd)pyrene	ug/kg	1	1	0	ND	ND				ND
		Naphthalene	ug/kg	1	1	0	ND	ND				ND
		Phenanthrene	ug/kg	1	1	0	ND	ND				ND
		Pyrene	ug/kg	1	1	0	ND	ND				ND
		<b>Phthalates</b>										
		Butylbenzyl phthalate	ug/kg	1	1	0	ND	ND				ND

**TABLE 3-17**  
**Exposure Point Concentration Summary - Crayfish, by Station**

Scenario Timeframe: Current/Future
Medium: Shellfish tissue
Exposure Medium: Crayfish, by Station

Exposure Point <sup>a</sup>	Tissue Type	Chemical of Potential Concern <sup>b</sup>	Units	Total Samples	Total Non-Detects <sup>c</sup>	Non-Detects greater than Maximum Detected Concentration <sup>d</sup>	Arithmetic Mean <sup>e</sup>	Maximum Detected Concentration	95% UCL			Exposure Point Concentration
									Distribution	95% UCL Method	Value	
		<b>Semi-Volatile Organic Compounds</b>										
		Dibenzofuran	ug/kg	1	1	0	ND	ND				ND
		Hexachlorobenzene	ug/kg	1	1	0	ND	ND				ND
		Hexachlorobutadiene	ug/kg	1	1	0	ND	ND				ND
		<b>Phenols</b>										
		4-Methylphenol	ug/kg	1	1	0	ND	ND				ND
		Pentachlorophenol	ug/kg	1	0	0	1.3E+02	1.3E+02				1.3E+02
		Phenol	ug/kg	1	1	0	ND	ND				ND
		<b>Polychlorinated Biphenyls</b>										
		Total Aroclors	ug/kg	1	0	0	4.3E+01	4.3E+01				4.3E+01
		Total PCB Congeners	pg/g	1	0	0	3.9E+04	3.9E+04				3.9E+04
		Total PCBs, Adjusted	pg/g	1	0	0	3.6E+04	3.6E+04				3.6E+04
		<b>Dioxin/Furans</b>										
		Total Dioxin/Furan TEQ	pg/g	1	0	0	9.6E-01	9.6E-01				9.6E-01
		Total PCB TEQ	pg/g	1	0	0	6.9E-01	6.9E-01				6.9E-01
		<b>Pesticides</b>										
		Aldrin	ug/kg	1	1	0	ND	ND				ND
		alpha-Hexachlorocyclohexane	ug/kg	1	1	0	ND	ND				ND
		Dieldrin	ug/kg	1	1	0	ND	ND				ND
		Endrin	ug/kg	1	1	0	ND	ND				ND
		Heptachlor epoxide	ug/kg	1	1	0	ND	ND				ND
		Total DDD	ug/kg	1	1	0	ND	ND				ND
		Total DDE	ug/kg	1	0	0	3.9E+00	3.9E+00				3.9E+00
		Total DDT	ug/kg	1	1	0	ND	ND				ND
		Total Chlordane	ug/kg	1	1	0	ND	ND				ND
		Total Endosulfan	ug/kg	1	1	0	ND	ND				ND
RM: 8, Station: CR08W	WB	<b>Metals</b>										
		Aluminum	mg/kg	1	0	0	1.4E+02	1.4E+02		Fewer than 5 detects		1.4E+02
		Antimony	mg/kg	1	0	0	6.0E-03	6.0E-03				6.0E-03
		Arsenic, inorganic	mg/kg	1	1	0	ND	ND				ND
		Cadmium	mg/kg	1	0	0	1.2E-02	1.2E-02				1.2E-02
		Chromium	mg/kg	1	0	0	4.0E-01	4.0E-01				4.0E-01
		Copper	mg/kg	1	0	0	1.6E+01	1.6E+01				1.6E+01
		Lead	mg/kg	1	0	0	1.6E-01	1.6E-01				1.6E-01
		Manganese	mg/kg	1	0	0	1.4E+02	1.4E+02				1.4E+02
		Mercury	mg/kg	1	0	0	2.4E-02	2.4E-02				2.4E-02
		Nickel	mg/kg	1	0	0	3.7E-01	3.7E-01				3.7E-01
		Selenium	mg/kg	1	0	0	3.9E-01	3.9E-01				3.9E-01
		Silver	mg/kg	1	1	0	ND	ND				ND
		Thallium	mg/kg	1	1	0	ND	ND				ND
		Zinc	mg/kg	1	0	0	1.7E+01	1.7E+01				1.7E+01

**TABLE 3-17**  
**Exposure Point Concentration Summary - Crayfish, by Station**

Scenario Timeframe: Current/Future
Medium: Shellfish tissue
Exposure Medium: Crayfish, by Station

Exposure Point <sup>a</sup>	Tissue Type	Chemical of Potential Concern <sup>b</sup>	Units	Total Samples	Total Non-Detects <sup>c</sup>	Non-Detects greater than Maximum Detected Concentration <sup>d</sup>	Arithmetic Mean <sup>e</sup>	Maximum Detected Concentration	95% UCL			Exposure Point Concentration
									Distribution	95% UCL Method	Value	
		<b>Butyltins</b>										
		Butyltin ion	ug/kg	1	0	0	2.8E-01	2.8E-01				2.8E-01
		Dibutyltin ion	ug/kg	1	0	0	3.3E-01	3.3E-01				3.3E-01
		Tributyltin ion	ug/kg	1	0	0	5.6E-01	5.6E-01				5.6E-01
		<b>Polynuclear Aromatic Hydrocarbons</b>										
		2-Methylnaphthalene	ug/kg	1	0	0	4.7E-01	4.7E-01				4.7E-01
		Acenaphthene	ug/kg	1	0	0	9.9E-01	9.9E-01				9.9E-01
		Acenaphthylene	ug/kg	1	0	0	2.0E-01	2.0E-01				2.0E-01
		Anthracene	ug/kg	1	0	0	4.3E-01	4.3E-01				4.3E-01
		Benzo(a)anthracene	ug/kg	1	1	0	ND	ND				ND
		Benzo(a)pyrene	ug/kg	1	0	0	2.8E-01	2.8E-01				2.8E-01
		Benzo(b)fluoranthene	ug/kg	1	1	0	ND	ND				ND
		Benzo(g,h,i)perylene	ug/kg	1	1	0	ND	ND				ND
		Benzo(k)fluoranthene	ug/kg	1	1	0	ND	ND				ND
		Chrysene	ug/kg	1	1	0	ND	ND				ND
		Dibenzo(a,h)anthracene	ug/kg	1	1	0	ND	ND				ND
		Fluoranthene	ug/kg	1	1	0	ND	ND				ND
		Fluorene	ug/kg	1	0	0	8.1E-01	8.1E-01				8.1E-01
		Indeno(1,2,3-cd)pyrene	ug/kg	1	1	0	ND	ND				ND
		Naphthalene	ug/kg	1	0	0	6.1E-01	6.1E-01				6.1E-01
		Phenanthrene	ug/kg	1	1	0	ND	ND				ND
		Pyrene	ug/kg	1	1	0	ND	ND				ND
		<b>Phthalates</b>										
		Butylbenzyl phthalate	ug/kg	1	1	0	ND	ND				ND
		<b>Semi-Volatile Organic Compounds</b>										
		Dibenzofuran	ug/kg	1	0	0	4.8E-01	4.8E-01				4.8E-01
		Hexachlorobenzene	ug/kg	1	0	0	6.6E-02	6.6E-02				6.6E-02
		Hexachlorobutadiene	ug/kg	1	1	0	ND	ND				ND
		<b>Phenols</b>										
		4-Methylphenol	ug/kg	1	1	0	ND	ND				ND
		Pentachlorophenol	ug/kg	1	1	0	ND	ND				ND
		Phenol	ug/kg	1	0	0	9.4E+01	9.4E+01				9.4E+01
		<b>Polychlorinated Biphenyls</b>										
		Total Aroclors	ug/kg	NA	NA	NA	NA	NA				NA
		Total PCB Congeners	pg/g	1	0	0	3.0E+04	3.0E+04				3.0E+04
		Total PCBs, Adjusted	pg/g	1	0	0	2.7E+04	2.7E+04				2.7E+04
		<b>Dioxin/Furans</b>										
		Total Dioxin/Furan TEQ	pg/g	1	0	0	4.9E-01	4.9E-01				4.9E-01
		Total PCB TEQ	pg/g	1	0	0	4.6E-01	4.6E-01				4.6E-01
		<b>Pesticides</b>										
		Aldrin	ug/kg	1	0	0	3.7E-02	3.7E-02				3.7E-02
		alpha-Hexachlorocyclohexane	ug/kg	1	0	0	2.5E-03	2.5E-03				2.5E-03

**TABLE 3-17**  
**Exposure Point Concentration Summary - Crayfish, by Station**

Scenario Timeframe: Current/Future
Medium: Shellfish tissue
Exposure Medium: Crayfish, by Station

Exposure Point <sup>a</sup>	Tissue Type	Chemical of Potential Concern <sup>b</sup>	Units	Total Samples	Total Non-Detects <sup>c</sup>	Non-Detects greater than Maximum Detected Concentration <sup>d</sup>	Arithmetic Mean <sup>e</sup>	Maximum Detected Concentration	95% UCL			Exposure Point Concentration
									Distribution	95% UCL Method	Value	
		Dieldrin	ug/kg	1	0	0	4.7E-02	4.7E-02				4.7E-02
		Endrin	ug/kg	1	0	0	1.2E-03	1.2E-03				1.2E-03
		Heptachlor epoxide	ug/kg	1	0	0	1.8E-03	1.8E-03				1.8E-03
		Total DDD	ug/kg	1	0	0	2.8E-01	2.8E-01				2.8E-01
		Total DDE	ug/kg	1	0	0	4.4E+00	4.4E+00				4.4E+00
		Total DDT	ug/kg	1	1	0	ND	ND				ND
		Total Chlordane	ug/kg	1	0	0	5.6E-01	5.6E-01				5.6E-01
		Total Endosulfan	ug/kg	1	1	0	ND	ND				ND
RM: 9, Station: 09R001	WB	<b>Metals</b>										
		Aluminum	mg/kg	2	0	0	5.1E+01	6.8E+01		Fewer than 5 detects		6.8E+01
		Antimony	mg/kg	2	0	0	5.5E-03	7.0E-03				7.0E-03
		Arsenic, inorganic	mg/kg	2	0	0	3.0E-02	3.4E-02				3.4E-02
		Cadmium	mg/kg	2	0	0	2.2E-02	2.3E-02				2.3E-02
		Chromium	mg/kg	2	0	0	1.3E-01	1.6E-01				1.6E-01
		Copper	mg/kg	2	0	0	1.6E+01	1.8E+01				1.8E+01
		Lead	mg/kg	2	0	0	1.0E-01	1.1E-01				1.1E-01
		Manganese	mg/kg	2	0	0	6.0E+01	6.1E+01				6.1E+01
		Mercury	mg/kg	2	0	0	2.2E-02	2.3E-02				2.3E-02
		Nickel	mg/kg	2	0	0	2.0E-01	2.2E-01				2.2E-01
		Selenium	mg/kg	2	2	0	ND	ND				ND
		Silver	mg/kg	2	1	0	2.0E-02	3.1E-02				3.1E-02
		Thallium	mg/kg	2	0	0	1.6E-03	1.7E-03				1.7E-03
		Zinc	mg/kg	2	0	0	1.6E+01	1.7E+01				1.7E+01
		<b>Butyltins</b>										
		Butyltin ion	ug/kg	NA	NA	NA	NA	NA				NA
		Dibutyltin ion	ug/kg	NA	NA	NA	NA	NA				NA
		Tributyltin ion	ug/kg	NA	NA	NA	NA	NA				NA
		<b>Polynuclear Aromatic Hydrocarbons</b>										
		2-Methylnaphthalene	ug/kg	2	2	0	ND	ND				ND
		Acenaphthene	ug/kg	2	2	0	ND	ND				ND
		Acenaphthylene	ug/kg	2	2	0	ND	ND				ND
		Anthracene	ug/kg	2	2	0	ND	ND				ND
		Benzo(a)anthracene	ug/kg	2	2	0	ND	ND				ND
		Benzo(a)pyrene	ug/kg	2	2	0	ND	ND				ND
		Benzo(b)fluoranthene	ug/kg	2	2	0	ND	ND				ND
		Benzo(g,h,i)perylene	ug/kg	2	2	0	ND	ND				ND
		Benzo(k)fluoranthene	ug/kg	2	2	0	ND	ND				ND
		Chrysene	ug/kg	2	2	0	ND	ND				ND
		Dibenzo(a,h)anthracene	ug/kg	2	2	0	ND	ND				ND
		Fluoranthene	ug/kg	2	2	0	ND	ND				ND
		Fluorene	ug/kg	2	2	0	ND	ND				ND
		Indeno(1,2,3-cd)pyrene	ug/kg	2	2	0	ND	ND				ND

**TABLE 3-17**  
**Exposure Point Concentration Summary - Crayfish, by Station**

Scenario Timeframe: Current/Future
Medium: Shellfish tissue
Exposure Medium: Crayfish, by Station

Exposure Point <sup>a</sup>	Tissue Type	Chemical of Potential Concern <sup>b</sup>	Units	Total Samples	Total Non-Detects <sup>c</sup>	Non-Detects greater than Maximum Detected Concentration <sup>d</sup>	Arithmetic Mean <sup>e</sup>	Maximum Detected Concentration	95% UCL			Exposure Point Concentration	
									Distribution	95% UCL Method	Value		
RM: 9, Station: 09R002	WB	Naphthalene	ug/kg	2	2	0	ND	ND				ND	
		Phenanthrene	ug/kg	2	2	0	ND	ND				ND	
		Pyrene	ug/kg	2	2	0	ND	ND				ND	
		<b>Phthalates</b>											
		Butylbenzyl phthalate	ug/kg	2	2	0	ND	ND				ND	
		<b>Semi-Volatile Organic Compounds</b>											
		Dibenzofuran	ug/kg	2	2	0	ND	ND				ND	
		Hexachlorobenzene	ug/kg	2	2	0	ND	ND				ND	
		Hexachlorobutadiene	ug/kg	2	2	0	ND	ND				ND	
		<b>Phenols</b>											
		4-Methylphenol	ug/kg	2	2	0	ND	ND				ND	
		Pentachlorophenol	ug/kg	2	2	0	ND	ND				ND	
		Phenol	ug/kg	2	2	0	ND	ND				ND	
		<b>Polychlorinated Biphenyls</b>											
		Total Aroclors	ug/kg	2	0	0	4.8E+01	4.9E+01				4.9E+01	
		Total PCB Congeners	pg/g	NA	NA	NA	NA	NA				NA	
		Total PCBs, Adjusted	pg/g	NA	NA	NA	NA	NA				NA	
		<b>Dioxin/Furans</b>											
		Total Dioxin/Furan TEQ	pg/g	NA	NA	NA	NA	NA				NA	
		Total PCB TEQ	pg/g	NA	NA	NA	NA	NA				NA	
		<b>Pesticides</b>											
		Aldrin	ug/kg	2	2	0	ND	ND				ND	
		alpha-Hexachlorocyclohexane	ug/kg	2	2	0	ND	ND				ND	
		Dieldrin	ug/kg	2	2	0	ND	ND				ND	
		Endrin	ug/kg	2	2	0	ND	ND				ND	
		Heptachlor epoxide	ug/kg	2	2	0	ND	ND				ND	
		Total DDD	ug/kg	2	2	0	ND	ND				ND	
Total DDE	ug/kg	2	0	0	2.3E+00	2.4E+00				2.4E+00			
Total DDT	ug/kg	2	2	0	ND	ND				ND			
Total Chlordane	ug/kg	2	2	0	ND	ND				ND			
Total Endosulfan	ug/kg	2	2	0	ND	ND				ND			
		<b>Metals</b>											
		Aluminum	mg/kg	1	0	0	6.6E+01	6.6E+01	Fewer than 5 detects		6.6E+01		
		Antimony	mg/kg	1	0	0	8.0E-03	8.0E-03			8.0E-03		
		Arsenic, inorganic	mg/kg	1	0	0	3.5E-02	3.5E-02			3.5E-02		
		Cadmium	mg/kg	1	0	0	1.1E-02	1.1E-02			1.1E-02		
		Chromium	mg/kg	1	0	0	2.6E-01	2.6E-01			2.6E-01		
		Copper	mg/kg	1	0	0	1.4E+01	1.4E+01			1.4E+01		
		Lead	mg/kg	1	0	0	9.8E-02	9.8E-02			9.8E-02		
		Manganese	mg/kg	1	0	0	1.5E+02	1.5E+02			1.5E+02		
		Mercury	mg/kg	1	0	0	3.0E-02	3.0E-02			3.0E-02		
		Nickel	mg/kg	1	0	0	4.0E-01	4.0E-01			4.0E-01		

**TABLE 3-17**  
**Exposure Point Concentration Summary - Crayfish, by Station**

Scenario Timeframe: Current/Future
Medium: Shellfish tissue
Exposure Medium: Crayfish, by Station

Exposure Point <sup>a</sup>	Tissue Type	Chemical of Potential Concern <sup>b</sup>	Units	Total Samples	Total Non-Detects <sup>c</sup>	Non-Detects greater than Maximum Detected Concentration <sup>d</sup>	Arithmetic Mean <sup>e</sup>	Maximum Detected Concentration	95% UCL			Exposure Point Concentration
									Distribution	95% UCL Method	Value	
		Selenium	mg/kg	1	1	0	ND	ND				ND
		Silver	mg/kg	1	0	0	3.5E-02	3.5E-02				3.5E-02
		Thallium	mg/kg	1	0	0	2.7E-03	2.7E-03				2.7E-03
		Zinc	mg/kg	1	0	0	1.9E+01	1.9E+01				1.9E+01
		<b>Butyltins</b>										
		Butyltin ion	ug/kg	NA	NA	NA	NA	NA				NA
		Dibutyltin ion	ug/kg	NA	NA	NA	NA	NA				NA
		Tributyltin ion	ug/kg	NA	NA	NA	NA	NA				NA
		<b>Polynuclear Aromatic Hydrocarbons</b>										
		2-Methylnaphthalene	ug/kg	1	1	0	ND	ND				ND
		Acenaphthene	ug/kg	1	1	0	ND	ND				ND
		Acenaphthylene	ug/kg	1	1	0	ND	ND				ND
		Anthracene	ug/kg	1	1	0	ND	ND				ND
		Benzo(a)anthracene	ug/kg	1	1	0	ND	ND				ND
		Benzo(a)pyrene	ug/kg	1	1	0	ND	ND				ND
		Benzo(b)fluoranthene	ug/kg	1	1	0	ND	ND				ND
		Benzo(g,h,i)perylene	ug/kg	1	1	0	ND	ND				ND
		Benzo(k)fluoranthene	ug/kg	1	1	0	ND	ND				ND
		Chrysene	ug/kg	1	1	0	ND	ND				ND
		Dibenzo(a,h)anthracene	ug/kg	1	1	0	ND	ND				ND
		Fluoranthene	ug/kg	1	1	0	ND	ND				ND
		Fluorene	ug/kg	1	1	0	ND	ND				ND
		Indeno(1,2,3-cd)pyrene	ug/kg	1	1	0	ND	ND				ND
		Naphthalene	ug/kg	1	1	0	ND	ND				ND
		Phenanthrene	ug/kg	1	1	0	ND	ND				ND
		Pyrene	ug/kg	1	1	0	ND	ND				ND
		<b>Phthalates</b>										
		Butylbenzyl phthalate	ug/kg	1	1	0	ND	ND				ND
		<b>Semi-Volatile Organic Compounds</b>										
		Dibenzofuran	ug/kg	1	1	0	ND	ND				ND
		Hexachlorobenzene	ug/kg	1	1	0	ND	ND				ND
		Hexachlorobutadiene	ug/kg	1	1	0	ND	ND				ND
		<b>Phenols</b>										
		4-Methylphenol	ug/kg	1	1	0	ND	ND				ND
		Pentachlorophenol	ug/kg	1	1	0	ND	ND				ND
		Phenol	ug/kg	1	1	0	ND	ND				ND
		<b>Polychlorinated Biphenyls</b>										
		Total Aroclors	ug/kg	1	0	0	1.1E+02	1.1E+02				1.1E+02
		Total PCB Congeners	pg/g	1	0	0	8.3E+04	8.3E+04				8.3E+04
		Total PCBs, Adjusted	pg/g	1	0	0	7.9E+04	7.9E+04				7.9E+04
		<b>Dioxin/Furans</b>										
		Total Dioxin/Furan TEQ	pg/g	1	0	0	7.5E-01	7.5E-01				7.5E-01
		Total PCB TEQ	pg/g	1	0	0	9.1E-01	9.1E-01				9.1E-01



**TABLE 3-17**  
**Exposure Point Concentration Summary - Crayfish, by Station**

Scenario Timeframe: Current/Future
Medium: Shellfish tissue
Exposure Medium: Crayfish, by Station

Exposure Point <sup>a</sup>	Tissue Type	Chemical of Potential Concern <sup>b</sup>	Units	Total Samples	Total Non-Detects <sup>c</sup>	Non-Detects greater than Maximum Detected Concentration <sup>d</sup>	Arithmetic Mean <sup>e</sup>	Maximum Detected Concentration	95% UCL			Exposure Point Concentration
									Distribution	95% UCL Method	Value	
		<b>Pesticides</b>										
		Aldrin	ug/kg	1	1	0	ND	ND				ND
		alpha-Hexachlorocyclohexane	ug/kg	1	1	0	ND	ND				ND
		Dieldrin	ug/kg	1	1	0	ND	ND				ND
		Endrin	ug/kg	1	1	0	ND	ND				ND
		Heptachlor epoxide	ug/kg	1	1	0	ND	ND				ND
		Total DDD	ug/kg	1	1	0	ND	ND				ND
		Total DDE	ug/kg	1	0	0	3.0E+00	3.0E+00				3.0E+00
		Total DDT	ug/kg	1	1	0	ND	ND				ND
		Total Chlordane	ug/kg	1	1	0	ND	ND				ND
		Total Endosulfan	ug/kg	1	1	0	ND	ND				ND
RM: 10, Station: CR10W	WB	<b>Metals</b>										
		Aluminum	mg/kg	1	0	0	7.2E+01	7.2E+01		Fewer than 5 detects		7.2E+01
		Antimony	mg/kg	1	1	0	ND	ND				ND
		Arsenic, inorganic	mg/kg	1	0	0	3.4E-02	3.4E-02				3.4E-02
		Cadmium	mg/kg	1	0	0	1.1E-02	1.1E-02				1.1E-02
		Chromium	mg/kg	1	0	0	2.0E-01	2.0E-01				2.0E-01
		Copper	mg/kg	1	0	0	1.7E+01	1.7E+01				1.7E+01
		Lead	mg/kg	1	0	0	1.5E-01	1.5E-01				1.5E-01
		Manganese	mg/kg	1	0	0	9.9E+01	9.9E+01				9.9E+01
		Mercury	mg/kg	1	0	0	3.3E-02	3.3E-02				3.3E-02
		Nickel	mg/kg	1	0	0	3.1E-01	3.1E-01				3.1E-01
		Selenium	mg/kg	1	1	0	ND	ND				ND
		Silver	mg/kg	1	1	0	ND	ND				ND
		Thallium	mg/kg	1	1	0	ND	ND				ND
		Zinc	mg/kg	1	0	0	2.0E+01	2.0E+01				2.0E+01
		<b>Butyltins</b>										
		Butyltin ion	ug/kg	1	0	0	2.1E-01	2.1E-01				2.1E-01
		Dibutyltin ion	ug/kg	1	1	0	ND	ND				ND
		Tributyltin ion	ug/kg	1	1	0	ND	ND				ND
		<b>Polynuclear Aromatic Hydrocarbons</b>										
		2-Methylnaphthalene	ug/kg	1	1	0	ND	ND				ND
		Acenaphthene	ug/kg	1	0	0	3.5E-01	3.5E-01				3.5E-01
		Acenaphthylene	ug/kg	1	1	0	ND	ND				ND
		Anthracene	ug/kg	1	0	0	1.5E-01	1.5E-01				1.5E-01
		Benzo(a)anthracene	ug/kg	1	1	0	ND	ND				ND
		Benzo(a)pyrene	ug/kg	1	0	0	2.5E-01	2.5E-01				2.5E-01
		Benzo(b)fluoranthene	ug/kg	1	1	0	ND	ND				ND
		Benzo(g,h,i)perylene	ug/kg	1	1	0	ND	ND				ND
		Benzo(k)fluoranthene	ug/kg	1	1	0	ND	ND				ND
		Chrysene	ug/kg	1	1	0	ND	ND				ND
		Dibenzo(a,h)anthracene	ug/kg	1	1	0	ND	ND				ND

**TABLE 3-17**  
**Exposure Point Concentration Summary - Crayfish, by Station**

Scenario Timeframe: Current/Future
Medium: Shellfish tissue
Exposure Medium: Crayfish, by Station

Exposure Point <sup>a</sup>	Tissue Type	Chemical of Potential Concern <sup>b</sup>	Units	Total Samples	Total Non-Detects <sup>c</sup>	Non-Detects greater than Maximum Detected Concentration <sup>d</sup>	Arithmetic Mean <sup>e</sup>	Maximum Detected Concentration	95% UCL			Exposure Point Concentration
									Distribution	95% UCL Method	Value	
		Fluoranthene	ug/kg	1	1	0	ND	ND				ND
		Fluorene	ug/kg	1	0	0	3.6E-01	3.6E-01				3.6E-01
		Indeno(1,2,3-cd)pyrene	ug/kg	1	1	0	ND	ND				ND
		Naphthalene	ug/kg	1	0	0	5.0E-01	5.0E-01				5.0E-01
		Phenanthrene	ug/kg	1	1	0	ND	ND				ND
		Pyrene	ug/kg	1	1	0	ND	ND				ND
		<b>Phthalates</b>										
		Butylbenzyl phthalate	ug/kg	1	1	0	ND	ND				ND
		<b>Semi-Volatile Organic Compounds</b>										
		Dibenzofuran	ug/kg	1	0	0	1.9E-01	1.9E-01				1.9E-01
		Hexachlorobenzene	ug/kg	1	0	0	3.6E-02	3.6E-02				3.6E-02
		Hexachlorobutadiene	ug/kg	1	0	0	1.9E-03	1.9E-03				1.9E-03
		<b>Phenols</b>										
		4-Methylphenol	ug/kg	1	1	0	ND	ND				ND
		Pentachlorophenol	ug/kg	1	1	0	ND	ND				ND
		Phenol	ug/kg	1	0	0	5.6E+01	5.6E+01				5.6E+01
		<b>Polychlorinated Biphenyls</b>										
		Total Aroclors	ug/kg	NA	NA	NA	NA	NA				NA
		Total PCB Congeners	pg/g	1	0	0	5.1E+04	5.1E+04				5.1E+04
		Total PCBs, Adjusted	pg/g	1	0	0	4.2E+04	4.2E+04				4.2E+04
		<b>Dioxin/Furans</b>										
		Total Dioxin/Furan TEQ	pg/g	1	0	0	2.3E-01	2.3E-01				2.3E-01
		Total PCB TEQ	pg/g	1	0	0	7.1E-01	7.1E-01				7.1E-01
		<b>Pesticides</b>										
		Aldrin	ug/kg	1	1	0	ND	ND				ND
		alpha-Hexachlorocyclohexane	ug/kg	1	0	0	2.8E-03	2.8E-03				2.8E-03
		Dieldrin	ug/kg	1	0	0	1.5E-02	1.5E-02				1.5E-02
		Endrin	ug/kg	1	1	0	ND	ND				ND
		Heptachlor epoxide	ug/kg	1	1	0	ND	ND				ND
		Total DDD	ug/kg	1	0	0	6.5E-02	6.5E-02				6.5E-02
		Total DDE	ug/kg	1	0	0	1.1E+00	1.1E+00				1.1E+00
		Total DDT	ug/kg	1	1	0	ND	ND				ND
		Total Chlordane	ug/kg	1	0	0	1.7E-01	1.7E-01				1.7E-01
		Total Endosulfan	ug/kg	1	1	0	ND	ND				ND
RM: 11, Station: CR11E	WB	<b>Metals</b>										
		Aluminum	mg/kg	1	0	0	4.1E+01	4.1E+01		Fewer than 5 detects		4.1E+01
		Antimony	mg/kg	1	1	0	ND	ND				ND
		Arsenic, inorganic	mg/kg	1	0	0	2.4E-02	2.4E-02				2.4E-02
		Cadmium	mg/kg	1	0	0	2.2E-02	2.2E-02				2.2E-02
		Chromium	mg/kg	1	0	0	1.5E-01	1.5E-01				1.5E-01
		Copper	mg/kg	1	0	0	2.0E+01	2.0E+01				2.0E+01
		Lead	mg/kg	1	0	0	1.4E-01	1.4E-01				1.4E-01

**TABLE 3-17**  
**Exposure Point Concentration Summary - Crayfish, by Station**

Scenario Timeframe: Current/Future
Medium: Shellfish tissue
Exposure Medium: Crayfish, by Station

Exposure Point <sup>a</sup>	Tissue Type	Chemical of Potential Concern <sup>b</sup>	Units	Total Samples	Total Non-Detects <sup>c</sup>	Non-Detects greater than Maximum Detected Concentration <sup>d</sup>	Arithmetic Mean <sup>e</sup>	Maximum Detected Concentration	95% UCL			Exposure Point Concentration
									Distribution	95% UCL Method	Value	
		Manganese	mg/kg	1	0	0	3.9E+01	3.9E+01				3.9E+01
		Mercury	mg/kg	1	0	0	2.4E-02	2.4E-02				2.4E-02
		Nickel	mg/kg	1	0	0	2.4E-01	2.4E-01				2.4E-01
		Selenium	mg/kg	1	1	0	ND	ND				ND
		Silver	mg/kg	1	1	0	ND	ND				ND
		Thallium	mg/kg	1	1	0	ND	ND				ND
		Zinc	mg/kg	1	0	0	2.0E+01	2.0E+01				2.0E+01
		<b>Butyltins</b>										
		Butyltin ion	ug/kg	1	0	0	2.2E-01	2.2E-01				2.2E-01
		Dibutyltin ion	ug/kg	1	0	0	3.5E-01	3.5E-01				3.5E-01
		Tributyltin ion	ug/kg	1	1	0	ND	ND				ND
		<b>Polynuclear Aromatic Hydrocarbons</b>										
		2-Methylnaphthalene	ug/kg	1	1	0	ND	ND				ND
		Acenaphthene	ug/kg	1	0	0	1.5E-01	1.5E-01				1.5E-01
		Acenaphthylene	ug/kg	1	1	0	ND	ND				ND
		Anthracene	ug/kg	1	0	0	1.1E-01	1.1E-01				1.1E-01
		Benzo(a)anthracene	ug/kg	1	1	0	ND	ND				ND
		Benzo(a)pyrene	ug/kg	1	0	0	2.2E-01	2.2E-01				2.2E-01
		Benzo(b)fluoranthene	ug/kg	1	1	0	ND	ND				ND
		Benzo(g,h,i)perylene	ug/kg	1	1	0	ND	ND				ND
		Benzo(k)fluoranthene	ug/kg	1	1	0	ND	ND				ND
		Chrysene	ug/kg	1	1	0	ND	ND				ND
		Dibenzo(a,h)anthracene	ug/kg	1	1	0	ND	ND				ND
		Fluoranthene	ug/kg	1	1	0	ND	ND				ND
		Fluorene	ug/kg	1	0	0	2.3E-01	2.3E-01				2.3E-01
		Indeno(1,2,3-cd)pyrene	ug/kg	1	1	0	ND	ND				ND
		Naphthalene	ug/kg	1	0	0	4.7E-01	4.7E-01				4.7E-01
		Phenanthrene	ug/kg	1	1	0	ND	ND				ND
		Pyrene	ug/kg	1	1	0	ND	ND				ND
		<b>Phthalates</b>										
		Butylbenzyl phthalate	ug/kg	1	0	0	7.1E+01	7.1E+01				7.1E+01
		<b>Semi-Volatile Organic Compounds</b>										
		Dibenzofuran	ug/kg	1	0	0	2.2E-01	2.2E-01				2.2E-01
		Hexachlorobenzene	ug/kg	1	0	0	5.7E-02	5.7E-02				5.7E-02
		Hexachlorobutadiene	ug/kg	1	1	0	ND	ND				ND
		<b>Phenols</b>										
		4-Methylphenol	ug/kg	1	1	0	ND	ND				ND
		Pentachlorophenol	ug/kg	1	1	0	ND	ND				ND
		Phenol	ug/kg	1	0	0	4.7E+01	4.7E+01				4.7E+01
		<b>Polychlorinated Biphenyls</b>										
		Total Aroclors	ug/kg	NA	NA	NA	NA	NA				NA
		Total PCB Congeners	pg/g	1	0	0	1.2E+06	1.2E+06				1.2E+06
		Total PCBs, Adjusted	pg/g	1	0	0	1.1E+06	1.1E+06				1.1E+06

**TABLE 3-17**  
**Exposure Point Concentration Summary - Crayfish, by Station**

Scenario Timeframe: Current/Future
Medium: Shellfish tissue
Exposure Medium: Crayfish, by Station

Exposure Point <sup>a</sup>	Tissue Type	Chemical of Potential Concern <sup>b</sup>	Units	Total Samples	Total Non-Detects <sup>c</sup>	Non-Detects greater than Maximum Detected Concentration <sup>d</sup>	Arithmetic Mean <sup>e</sup>	Maximum Detected Concentration	95% UCL			Exposure Point Concentration
									Distribution	95% UCL Method	Value	
		<b>Dioxin/Furans</b>										
		Total Dioxin/Furan TEQ	pg/g	1	0	0	6.1E-01	6.1E-01				6.1E-01
		Total PCB TEQ	pg/g	1	0	0	5.1E+00	5.1E+00				5.1E+00
		<b>Pesticides</b>										
		Aldrin	ug/kg	1	1	0	ND	ND				ND
		alpha-Hexachlorocyclohexane	ug/kg	1	1	0	ND	ND				ND
		Dieldrin	ug/kg	1	0	0	9.4E-03	9.4E-03				9.4E-03
		Endrin	ug/kg	1	1	0	ND	ND				ND
		Heptachlor epoxide	ug/kg	1	0	0	5.9E-04	5.9E-04				5.9E-04
		Total DDD	ug/kg	1	0	0	3.7E-02	3.7E-02				3.7E-02
		Total DDE	ug/kg	1	0	0	1.8E+00	1.8E+00				1.8E+00
		Total DDT	ug/kg	1	1	0	ND	ND				ND
		Total Chlordane	ug/kg	1	0	0	3.4E-01	3.4E-01				3.4E-01
		Total Endosulfan	ug/kg	1	1	0	ND	ND				ND
RM: 12, Station: CR12W	WB	<b>Metals</b>								Fewer than 5 detects		
		Aluminum	mg/kg	1	0	0	6.9E+01	6.9E+01				6.9E+01
		Antimony	mg/kg	1	1	0	ND	ND				ND
		Arsenic, inorganic	mg/kg	1	0	0	2.9E-02	2.9E-02				2.9E-02
		Cadmium	mg/kg	1	0	0	1.0E-02	1.0E-02				1.0E-02
		Chromium	mg/kg	1	0	0	3.0E-01	3.0E-01				3.0E-01
		Copper	mg/kg	1	0	0	1.8E+01	1.8E+01				1.8E+01
		Lead	mg/kg	1	0	0	7.9E-02	7.9E-02				7.9E-02
		Manganese	mg/kg	1	0	0	6.9E+01	6.9E+01				6.9E+01
		Mercury	mg/kg	1	0	0	2.7E-02	2.7E-02				2.7E-02
		Nickel	mg/kg	1	0	0	2.7E-01	2.7E-01				2.7E-01
		Selenium	mg/kg	1	1	0	ND	ND				ND
		Silver	mg/kg	1	1	0	ND	ND				ND
		Thallium	mg/kg	1	1	0	ND	ND				ND
		Zinc	mg/kg	1	0	0	1.9E+01	1.9E+01				1.9E+01
		<b>Butyltins</b>										
		Butyltin ion	ug/kg	1	0	0	5.5E-01	5.5E-01				5.5E-01
		Dibutyltin ion	ug/kg	1	1	0	5.6E-01	5.6E-01				5.6E-01
		Tributyltin ion	ug/kg	1	1	0	1.6E+00	1.6E+00				1.6E+00
		<b>Polynuclear Aromatic Hydrocarbons</b>										
		2-Methylnaphthalene	ug/kg	1	1	0	ND	ND				ND
		Acenaphthene	ug/kg	1	1	0	2.3E-01	2.3E-01				2.3E-01
		Acenaphthylene	ug/kg	1	1	0	ND	ND				ND
		Anthracene	ug/kg	1	0	0	1.7E-01	1.7E-01				1.7E-01
		Benzo(a)anthracene	ug/kg	1	1	0	ND	ND				ND
		Benzo(a)pyrene	ug/kg	1	0	0	1.4E-01	1.4E-01				1.4E-01
		Benzo(b)fluoranthene	ug/kg	1	1	0	ND	ND				ND
		Benzo(g,h,i)perylene	ug/kg	1	1	0	ND	ND				ND

**TABLE 3-17**  
**Exposure Point Concentration Summary - Crayfish, by Station**

Scenario Timeframe: Current/Future
Medium: Shellfish tissue
Exposure Medium: Crayfish, by Station

Exposure Point <sup>a</sup>	Tissue Type	Chemical of Potential Concern <sup>b</sup>	Units	Total Samples	Total Non-Detects <sup>c</sup>	Non-Detects greater than Maximum Detected Concentration <sup>d</sup>	Arithmetic Mean <sup>e</sup>	Maximum Detected Concentration	95% UCL			Exposure Point Concentration
									Distribution	95% UCL Method	Value	
		Benzo(k)fluoranthene	ug/kg	1	0	0	ND	ND				ND
		Chrysene	ug/kg	1	1	0	ND	ND				ND
		Dibenzo(a,h)anthracene	ug/kg	1	1	0	ND	ND				ND
		Fluoranthene	ug/kg	1	1	0	ND	ND				ND
		Fluorene	ug/kg	1	0	0	1.9E-01	1.9E-01				1.9E-01
		Indeno(1,2,3-cd)pyrene	ug/kg	1	1	0	ND	ND				ND
		Naphthalene	ug/kg	1	0	0	5.4E-01	5.4E-01				5.4E-01
		Phenanthrene	ug/kg	1	1	0	ND	ND				ND
		Pyrene	ug/kg	1	1	0	ND	ND				ND
		<b>Phthalates</b>										
		Butylbenzyl phthalate	ug/kg	1	0	0	ND	ND				ND
		<b>Semi-Volatile Organic Compounds</b>										
		Dibenzofuran	ug/kg	1	1	0	1.3E-01	1.3E-01				1.3E-01
		Hexachlorobenzene	ug/kg	1	0	0	9.1E-02	9.1E-02				9.1E-02
		Hexachlorobutadiene	ug/kg	1	1	0	1.7E-03	1.7E-03				1.7E-03
		<b>Phenols</b>										
		4-Methylphenol	ug/kg	1	1	0	ND	ND				ND
		Pentachlorophenol	ug/kg	1	1	0	ND	ND				ND
		Phenol	ug/kg	1	0	0	ND	ND				ND
		<b>Polychlorinated Biphenyls</b>										
		Total Aroclors	ug/kg	NA	NA	NA	NA	NA				NA
		Total PCB Congeners	pg/g	1	0	0	7.4E+03	7.4E+03				7.4E+03
		Total PCBs, Adjusted	pg/g	1	0	0	6.5E+03	6.5E+03				6.5E+03
		<b>Dioxin/Furans</b>										
		Total Dioxin/Furan TEQ	pg/g	1	0	0	2.9E-01	2.9E-01				2.9E-01
		Total PCB TEQ	pg/g	1	0	0	2.0E-01	2.0E-01				2.0E-01
		<b>Pesticides</b>										
		Aldrin	ug/kg	1	1	0	ND	ND				ND
		alpha-Hexachlorocyclohexane	ug/kg	1	1	0	2.0E-03	2.0E-03				2.0E-03
		Dieldrin	ug/kg	1	0	0	1.6E-02	1.6E-02				1.6E-02
		Endrin	ug/kg	1	1	0	ND	ND				ND
		Heptachlor epoxide	ug/kg	1	1	0	1.5E-03	1.5E-03				1.5E-03
		Total DDD	ug/kg	1	0	0	6.3E-02	6.3E-02				6.3E-02
		Total DDE	ug/kg	1	0	0	1.7E+00	1.7E+00				1.7E+00
		Total DDT	ug/kg	1	1	0	ND	ND				ND
		Total Chlordane	ug/kg	1	0	0	2.4E-01	2.4E-01				2.4E-01
		Total Endosulfan	ug/kg	1	1	0	ND	ND				ND
RM: 12, Station: CR12E	WB	<b>Metals</b>										
		Aluminum	mg/kg	1	0	0	5.6E+01	5.6E+01		Fewer than 5 detects		5.6E+01
		Antimony	mg/kg	1	1	0	ND	ND				ND
		Arsenic, inorganic	mg/kg	1	0	0	2.9E-02	2.9E-02				2.9E-02
		Cadmium	mg/kg	1	0	0	1.1E-02	1.1E-02				1.1E-02

**TABLE 3-17**  
**Exposure Point Concentration Summary - Crayfish, by Station**

Scenario Timeframe: Current/Future
Medium: Shellfish tissue
Exposure Medium: Crayfish, by Station

Exposure Point <sup>a</sup>	Tissue Type	Chemical of Potential Concern <sup>b</sup>	Units	Total Samples	Total Non-Detects <sup>c</sup>	Non-Detects greater than Maximum Detected Concentration <sup>d</sup>	Arithmetic Mean <sup>e</sup>	Maximum Detected Concentration	95% UCL			Exposure Point Concentration
									Distribution	95% UCL Method	Value	
		Chromium	mg/kg	1	0	0	4.0E-01	4.0E-01				4.0E-01
		Copper	mg/kg	1	0	0	1.7E+01	1.7E+01				1.7E+01
		Lead	mg/kg	1	0	0	1.4E-01	1.4E-01				1.4E-01
		Manganese	mg/kg	1	0	0	8.2E+01	8.2E+01				8.2E+01
		Mercury	mg/kg	1	0	0	2.7E-02	2.7E-02				2.7E-02
		Nickel	mg/kg	1	0	0	3.2E-01	3.2E-01				3.2E-01
		Selenium	mg/kg	1	1	0	ND	ND				ND
		Silver	mg/kg	1	1	0	ND	ND				ND
		Thallium	mg/kg	1	1	0	ND	ND				ND
		Zinc	mg/kg	1	0	0	1.9E+01	1.9E+01				1.9E+01
		<b>Butyltins</b>										
		Butyltin ion	ug/kg	1	0	0	2.0E-01	2.0E-01				2.0E-01
		Dibutyltin ion	ug/kg	1	0	0	ND	ND				ND
		Tributyltin ion	ug/kg	1	0	0	ND	ND				ND
		<b>Polynuclear Aromatic Hydrocarbons</b>										
		2-Methylnaphthalene	ug/kg	1	1	0	ND	ND				ND
		Acenaphthene	ug/kg	1	0	0	ND	ND				ND
		Acenaphthylene	ug/kg	1	1	0	ND	ND				ND
		Anthracene	ug/kg	1	0	0	1.2E-01	1.2E-01				1.2E-01
		Benzo(a)anthracene	ug/kg	1	1	0	ND	ND				ND
		Benzo(a)pyrene	ug/kg	1	0	0	3.0E-01	3.0E-01				3.0E-01
		Benzo(b)fluoranthene	ug/kg	1	1	0	ND	ND				ND
		Benzo(g,h,i)perylene	ug/kg	1	1	0	ND	ND				ND
		Benzo(k)fluoranthene	ug/kg	1	1	0	5.7E-01	5.7E-01				5.7E-01
		Chrysene	ug/kg	1	1	0	ND	ND				ND
		Dibenzo(a,h)anthracene	ug/kg	1	1	0	ND	ND				ND
		Fluoranthene	ug/kg	1	1	0	ND	ND				ND
		Fluorene	ug/kg	1	0	0	1.6E-01	1.6E-01				1.6E-01
		Indeno(1,2,3-cd)pyrene	ug/kg	1	1	0	ND	ND				ND
		Naphthalene	ug/kg	1	0	0	5.2E-01	5.2E-01				5.2E-01
		Phenanthrene	ug/kg	1	1	0	ND	ND				ND
		Pyrene	ug/kg	1	1	0	ND	ND				ND
		<b>Phthalates</b>										
		Butylbenzyl phthalate	ug/kg	1	1	0	2.7E+01	2.7E+01				2.7E+01
		<b>Semi-Volatile Organic Compounds</b>										
		Dibenzofuran	ug/kg	1	0	0	ND	ND				ND
		Hexachlorobenzene	ug/kg	1	0	0	8.5E-02	8.5E-02				8.5E-02
		Hexachlorobutadiene	ug/kg	1	0	0	ND	ND				ND
		<b>Phenols</b>										
		4-Methylphenol	ug/kg	1	1	0	ND	ND				ND
		Pentachlorophenol	ug/kg	1	1	0	ND	ND				ND
		Phenol	ug/kg	1	1	0	7.4E+01	7.4E+01				7.4E+01
		<b>Polychlorinated Biphenyls</b>										
		Total Aroclors	ug/kg	NA	NA	NA	NA	NA				NA

**TABLE 3-17**  
**Exposure Point Concentration Summary - Crayfish, by Station**

Scenario Timeframe: Current/Future
Medium: Shellfish tissue
Exposure Medium: Crayfish, by Station

Exposure Point <sup>a</sup>	Tissue Type	Chemical of Potential Concern <sup>b</sup>	Units	Total Samples	Total Non-Detects <sup>c</sup>	Non-Detects greater than Maximum Detected Concentration <sup>d</sup>	Arithmetic Mean <sup>e</sup>	Maximum Detected Concentration	95% UCL			Exposure Point Concentration
									Distribution	95% UCL Method	Value	
		Total PCB Congeners	pg/g	1	0	0	1.9E+04	1.9E+04				1.9E+04
		Total PCBs, Adjusted <sup>f</sup>	pg/g	1	0	0	1.8E+04	1.8E+04				1.8E+04
		<b>Dioxin/Furans</b>										
		Total Dioxin/Furan TEQ	pg/g	1	0	0	4.9E-01	4.9E-01				4.9E-01
		Total PCB TEQ	pg/g	1	0	0	5.1E-01	5.1E-01				5.1E-01
		<b>Pesticides</b>										
		Aldrin	ug/kg	1	1	0	ND	ND				ND
		alpha-Hexachlorocyclohexane	ug/kg	1	0	0	ND	ND				ND
		Dieldrin	ug/kg	1	0	0	1.1E-02	1.1E-02				1.1E-02
		Endrin	ug/kg	1	1	0	ND	ND				ND
		Heptachlor epoxide	ug/kg	1	0	0	ND	ND				ND
		Total DDD	ug/kg	1	0	0	5.5E-02	5.5E-02				5.5E-02
		Total DDE	ug/kg	1	0	0	2.4E+00	2.4E+00				2.4E+00
		Total DDT	ug/kg	1	1	0	ND	ND				ND
		Total Chlordane	ug/kg	1	0	0	4.0E-01	4.0E-01				4.0E-01
		Total Endosulfan	ug/kg	1	1	0	ND	ND				ND

**Notes:**

- a Each crayfish sampling location is its own exposure area.
- b Chemicals listed are analytes detected at least once within the Study Area.
- c Total number of non-detects in the dataset.
- d Number of non-detects with detection limit exceeding the maximum detected concentration for the exposure area. These non-detects were removed from the dataset prior to calculation of EPCs.
- e Non-detects less than the maximum detected concentration for a given exposure area are included in the arithmetic mean at half the detection limit.
- f 95% UCL not calculated for analytes with fewer than five detects.
- g "Total PCBs, Adjusted" equals "Total PCB Congeners" minus the sum of total dioxin-like PCBs concentrations.

**Abbreviations:**

- 95% UCL = 95% Upper confidence limit on the mean.
- DDD = Dichlorodiphenyldichloroethane.
- DDE = Dichlorodiphenyldichloroethylene.
- DDT = Dichlorodiphenyltrichloroethane.
- mg/kg = Milligrams per kilogram.
- NA = Not available. Chemical not analyzed or had rejected result for given exposure area.
- ND = Not detected in the given exposure area.
- PCB = Polychlorinated biphenyls.
- pg/g = Picograms per gram.
- RM = River mile.
- SIL = Swan Island Lagoon.
- TEQ = Toxic equivalents.
- ug/kg = Micrograms per kilogram.
- WB= Whole body.



**TABLE 3-18**  
**Exposure Point Concentration Summary - Crayfish, Study Area-Wide**

Scenario Timeframe: Current/Future
Medium: Shellfish Tissue
Exposure Medium: Crayfish, Study Area-Wide

Exposure Point	Tissue Type	Chemical of Potential Concern <sup>a</sup>	Units	Total Samples	Total Non-Detects <sup>b</sup>	Non-Detects greater than Maximum Detected Concentration <sup>c</sup>	Arithmetic Mean <sup>d</sup>	Maximum Detected Concentration	95% UCL			Exposure Point Concentration		
									Distribution	95% UCL Method	Value			
Study Area-wide	WB	<b>Metals</b>												
		Aluminum	mg/kg	31	0	0	9.4E+01	2.0E+02	normal	95% Student's-t UCL	1.1E+02	1.1E+02		
		Antimony	mg/kg	31	6	0	6.9E-03	2.0E-02	non-parametric	95% KM (Chebyshev) UCL	1.0E-02	1.0E-02		
		Arsenic, inorganic	mg/kg	31	1	0	3.4E-02	5.0E-02	normal	95% KM (t) UCL	3.6E-02	3.6E-02		
		Cadmium	mg/kg	31	0	0	1.8E-02	3.6E-02	gamma	95% Approximate Gamma UCL	2.0E-02	2.0E-02		
		Chromium	mg/kg	31	0	0	4.3E-01	9.0E-01	gamma	95% Approximate Gamma UCL	5.2E-01	5.2E-01		
		Copper	mg/kg	31	0	0	1.5E+01	2.0E+01	normal	95% Student's-t UCL	1.5E+01	1.5E+01		
		Lead	mg/kg	31	0	0	1.5E-01	1.3E+00	non-parametric	95% Chebyshev (Mean, Sd) UCL	3.2E-01	3.2E-01		
		Manganese	mg/kg	31	0	0	1.3E+02	2.1E+02	normal	95% Student's-t UCL	1.4E+02	1.4E+02		
		Mercury	mg/kg	31	0	0	2.9E-02	4.1E-02	lognormal	95% Student's-t UCL	3.1E-02	3.1E-02		
		Nickel	mg/kg	31	1	0	3.7E-01	8.3E-01	gamma	95% KM (BCA) UCL	4.2E-01	4.2E-01		
		Selenium	mg/kg	31	29	0	1.4E-01	3.9E-01	--	Fewer than 5 detects <sup>e</sup>	--	3.9E-01		
		Silver	mg/kg	31	7	0	2.7E-02	4.7E-02	normal	95% KM (t) UCL	3.2E-02	3.2E-02		
		Thallium	mg/kg	31	5	0	3.0E-03	7.9E-03	lognormal	95% KM (Chebyshev) UCL	4.3E-03	4.3E-03		
		Zinc	mg/kg	31	0	0	1.7E+01	2.0E+01	normal	95% Student's-t UCL	1.8E+01	1.8E+01		
				<b>Butyltins</b>										
				Butyltin ion	ug/kg	5	0	0	1.1E+00	4.6E+00	non-parametric	99% Chebyshev (Mean, Sd) UCL	9.8E+00	4.6E+00
				Dibutyltin ion	ug/kg	5	1	0	6.6E+01	3.3E+02	--	Fewer than 5 detects	--	3.3E+02
				Tributyltin ion	ug/kg	5	2	0	7.8E-01	2.3E+00	--	Fewer than 5 detects	--	2.3E+00
				<b>Polynuclear Aromatic Hydrocarbons</b>										
				2-Methylnaphthalene	ug/kg	31	29	26	4.5E-01	1.1E+00	--	Fewer than 5 detects	--	1.1E+00
				Acenaphthene	ug/kg	31	26	26	1.2E+00	4.2E+00	gamma	95% Approximate Gamma UCL	5.6E+00	4.2E+00
				Acenaphthylene	ug/kg	31	29	26	2.8E-01	1.1E+00	--	Fewer than 5 detects	--	1.1E+00
				Anthracene	ug/kg	31	26	26	7.5E-01	2.9E+00	gamma	95% Approximate Gamma UCL	3.9E+00	2.9E+00
				Benzo(a)anthracene	ug/kg	31	29	0	1.6E+01	8.0E+01	--	Fewer than 5 detects	--	8.0E+01
				Benzo(a)pyrene	ug/kg	31	26	26	1.8E+00	7.5E+00	non-parametric	99% Chebyshev (Mean, Sd) UCL	1.6E+01	7.5E+00
				Benzo(b)fluoranthene	ug/kg	31	30	26	1.2E+00	5.3E+00	--	Fewer than 5 detects	--	5.3E+00
				Benzo(g,h,i)perylene	ug/kg	31	30	26	1.3E+00	5.6E+00	--	Fewer than 5 detects	--	5.6E+00
				Benzo(k)fluoranthene	ug/kg	31	30	26	1.1E+00	5.0E+00	--	Fewer than 5 detects	--	5.0E+00
				Chrysene	ug/kg	31	29	0	1.6E+01	8.7E+01	--	Fewer than 5 detects	--	8.7E+01
				Dibenzo(a,h)anthracene	ug/kg	31	30	26	1.7E-01	7.1E-01	--	Fewer than 5 detects	--	7.1E-01
				Fluoranthene	ug/kg	31	27	0	2.9E+01	1.3E+02	--	Fewer than 5 detects	--	1.3E+02
				Fluorene	ug/kg	31	26	26	6.8E-01	1.8E+00	normal	95% Student's-t UCL	1.3E+00	1.3E+00
				Indeno(1,2,3-cd)pyrene	ug/kg	31	30	26	1.2E+00	5.3E+00	--	Fewer than 5 detects	--	5.3E+00
				Naphthalene	ug/kg	31	26	26	1.0E+00	2.9E+00	non-parametric	95% Chebyshev (Mean, Sd) UCL	3.1E+00	2.9E+00
				Phenanthrene	ug/kg	31	29	0	1.8E+01	9.7E+01	--	Fewer than 5 detects	--	9.7E+01
				Pyrene	ug/kg	31	28	0	2.1E+01	8.3E+01	--	Fewer than 5 detects	--	8.3E+01
				<b>Phthalates</b>										
				Butylbenzyl phthalate	ug/kg	31	29	26	1.9E+01	7.1E+01	--	Fewer than 5 detects	--	7.1E+01
				<b>Semi-Volatile Organic Compounds</b>										
				Dibenzofuran	ug/kg	31	26	26	2.7E-01	4.8E-01	normal	95% Student's-t UCL	4.1E-01	4.1E-01
				Hexachlorobenzene	ug/kg	31	26	26	5.0E-02	6.6E-02	normal	95% Student's-t UCL	6.2E-02	6.2E-02
				Hexachlorobutadiene	ug/kg	31	30	30	1.9E-03	1.9E-03	--	Fewer than 5 detects	--	1.9E-03

**TABLE 3-18**  
**Exposure Point Concentration Summary - Crayfish, Study Area-Wide**

Scenario Timeframe: Current/Future
Medium: Shellfish Tissue
Exposure Medium: Crayfish, Study Area-Wide

Exposure Point	Tissue Type	Chemical of Potential Concern <sup>a</sup>	Units	Total Samples	Total Non-Detects <sup>b</sup>	Non-Detects greater than Maximum Detected Concentration <sup>c</sup>	Arithmetic Mean <sup>d</sup>	Maximum Detected Concentration	95% UCL			Exposure Point Concentration
									Distribution	95% UCL Method	Value	
		<b>Phenols</b>										
		4-Methylphenol	ug/kg	31	29	0	3.3E+01	1.9E+02	--	Fewer than 5 detects	--	1.9E+02
		Pentachlorophenol	ug/kg	31	30	25	3.4E+01	1.3E+02	--	Fewer than 5 detects	--	1.3E+02
		Phenol	ug/kg	31	25	0	1.6E+02	5.2E+02	non-parametric	95% KM (t) UCL	1.1E+02	1.1E+02
		<b>Polychlorinated Biphenyls</b>										
		Total Aroclors	ug/kg	26	14	0	3.0E+01	2.8E+02	lognormal	95% KM (t) UCL	5.6E+01	5.6E+01
		Total PCB Congeners	pg/g	14	0	0	1.3E+05	1.2E+06	lognormal	97.5% KM (Chebyshev) UCL	6.5E+05	6.5E+05
		Total PCBs, Adjusted <sup>f</sup>	pg/g	14	0	0	1.3E+05	1.1E+06	lognormal	97.5% KM (Chebyshev) UCL	6.2E+05	6.2E+05
		<b>Dioxin/Furans</b>										
		Total Dioxin/Furan TEQ	pg/g	14	0	0	1.9E+00	1.8E+01	non-parametric	97.5% KM (Chebyshev) UCL	9.8E+00	9.8E+00
		Total PCB TEQ	pg/g	14	0	0	1.3E+00	5.1E+00	gamma	95% KM (Chebyshev) UCL	2.9E+00	2.9E+00
		<b>Pesticides</b>										
		Aldrin	ug/kg	31	30	26	8.5E-03	3.7E-02	--	Fewer than 5 detects	--	3.7E-02
		alpha-Hexachlorocyclohexane	ug/kg	31	29	27	1.7E-03	2.8E-03	--	Fewer than 5 detects	--	2.8E-03
		Dieldrin	ug/kg	31	26	26	2.0E-02	4.7E-02	lognormal	95% H-UCL	5.5E-02	4.7E-02
		Endrin	ug/kg	31	25	0	6.3E-01	2.8E+00	normal	95% KM (t) UCL	5.0E-01	5.0E-01
		Heptachlor epoxide	ug/kg	31	29	27	8.4E-04	1.8E-03	--	Fewer than 5 detects	--	1.8E-03
		Total DDD	ug/kg	31	21	0	1.7E+00	2.1E+01	gamma	95% KM (t) UCL	2.9E+00	2.9E+00
		Total DDE	ug/kg	31	0	0	6.3E+00	5.2E+01	non-parametric	95% Chebyshev (Mean, Sd) UCL	1.3E+01	1.3E+01
		Total DDT	ug/kg	31	11	0	3.9E+00	1.8E+01	gamma	95% KM (Percentile Bootstrap) UCL	5.3E+00	5.3E+00
		Total Chlordane	ug/kg	31	21	0	1.0E+00	4.7E+00	non-parametric	95% KM (BCA) UCL	1.3E+00	1.3E+00
		Total Endosulfan	ug/kg	31	21	0	8.4E-01	3.1E+00	normal	95% KM (t) UCL	1.4E+00	1.4E+00

**Notes:**

- a Chemicals listed are analytes detected in each tissue type at least once within the Study Area.
- b Total number of non-detects in the dataset.
- c Number of non-detects with detection limit exceeding the maximum detected concentration for the exposure area. These non-detects were removed from the dataset prior to calculation of EPCs.
- d Non-detects less than the maximum detected concentration for a given exposure area are included in the arithmetic mean at half the detection limit.
- e 95% UCL not calculated for analytes with fewer than five detects.
- f "Total PCBs, Adjusted" equals "Total PCB Congeners" minus the sum of total dioxin-like PCBs concentrations.

**Abbreviations:**

- 95% UCL = 95% Upper confidence limit on the mean.
- = Not applicable. A 95% UCL could not be computed for the given data set.
- DDD = Dichlorodiphenyldichloroethane.
- DDE = Dichlorodiphenyldichloroethylene.
- DDT = Dichlorodiphenyltrichloroethane.
- mg/kg = Milligrams per kilogram.
- PCB = Polychlorinated biphenyls.
- pg/g = Picograms per gram.
- TEQ = Toxic equivalents.
- ug/kg = Micrograms per kilogram.

TABLE 3-19  
Exposure Point Concentration Summary - Clam, by River Mile

Scenario Timeframe: Current/Future
Medium: Shellfish Tissue
Exposure Medium: Clam, by River Mile

Exposure Point <sup>a</sup>	Tissue Type	Chemical of Potential Concern <sup>b</sup>	Units	Total Samples	Total Non-Detects <sup>c</sup>	Non-Detects greater than Maximum Detected Concentration <sup>d</sup>	Arithmetic Mean <sup>e</sup>	Maximum Detected Concentration	95% UCL			Exposure Point Concentration
									Distribution	95% UCL Method	Value	
RM 1 East	D	<b>Metals</b>										
		Aluminum	mg/kg	1	0	0	2.1E+01	2.1E+01		Fewer than 5 detects <sup>f</sup>		2.1E+01
		Arsenic, inorganic	mg/kg	1	0	0	1.0E-01	1.0E-01			1.0E-01	
		Cadmium	mg/kg	1	0	0	1.0E-01	1.0E-01			1.0E-01	
		Chromium	mg/kg	1	0	0	4.0E-01	4.0E-01			4.0E-01	
		Copper	mg/kg	1	0	0	7.6E+00	7.6E+00			7.6E+00	
		Lead	mg/kg	1	0	0	2.3E-02	2.3E-02			2.3E-02	
		Manganese	mg/kg	1	0	0	4.1E+00	4.1E+00			4.1E+00	
		Mercury	mg/kg	1	0	0	1.6E-02	1.6E-02			1.6E-02	
		Nickel	mg/kg	1	0	0	1.2E-01	1.2E-01			1.2E-01	
		Selenium	mg/kg	1	0	0	1.6E-01	1.6E-01			1.6E-01	
		Silver	mg/kg	1	0	0	2.1E-02	2.1E-02			2.1E-02	
		Thallium	mg/kg	1	0	0	2.0E-03	2.0E-03			2.0E-03	
		Zinc	mg/kg	1	0	0	2.1E+01	2.1E+01			2.1E+01	
		<b>Butyltins</b>										
		Butyltin ion	ug/kg	1	0	0	2.8E+00	2.8E+00		2.8E+00		
		<b>Polynuclear Aromatic Hydrocarbons</b>										
		1-Methylnaphthalene	ug/kg	1	1	ND	ND	ND		ND		
		2-Methylnaphthalene	ug/kg	1	0	0	9.7E-01	9.7E-01		9.7E-01		
		Acenaphthene	ug/kg	1	0	0	6.8E-01	6.8E-01		6.8E-01		
		Acenaphthylene	ug/kg	1	1	ND	ND	ND		ND		
		Anthracene	ug/kg	1	0	0	1.8E+00	1.8E+00		1.8E+00		
		Benzo(a)anthracene	ug/kg	1	0	0	4.3E+00	4.3E+00		4.3E+00		
		Benzo(a)pyrene	ug/kg	1	0	0	4.3E-01	4.3E-01		4.3E-01		
		Benzo(b)fluoranthene	ug/kg	1	0	0	9.0E-01	9.0E-01		9.0E-01		
		Benzo(e)pyrene	ug/kg	1	0	0	2.4E+00	2.4E+00		2.4E+00		
		Benzo(g,h,i)perylene	ug/kg	1	1	ND	ND	ND		ND		
		Chrysene	ug/kg	1	0	0	8.2E+00	8.2E+00		8.2E+00		
		Dibenzothiophene	ug/kg	1	1	ND	ND	ND		ND		
		Fluoranthene	ug/kg	1	0	0	2.8E+01	2.8E+01		2.8E+01		
		Fluorene	ug/kg	1	0	0	1.5E+00	1.5E+00		1.5E+00		
		Indeno(1,2,3-cd)pyrene	ug/kg	1	1	ND	ND	ND		ND		
		Perylene	ug/kg	1	1	ND	ND	ND		ND		
Phenanthrene	ug/kg	1	0	0	7.6E+00	7.6E+00		7.6E+00				
Pyrene	ug/kg	1	0	0	2.2E+01	2.2E+01		2.2E+01				
<b>Semivolatile Organic Compounds</b>												
Benzoic acid	ug/kg	1	0	0	3.0E+03	3.0E+03		3.0E+03				
Dibenzofuran	ug/kg	1	0	0	6.6E-01	6.6E-01		6.6E-01				
Hexachlorobenzene	ug/kg	1	0	0	4.8E-01	4.8E-01		4.8E-01				

TABLE 3-19  
Exposure Point Concentration Summary - Clam, by River Mile

Scenario Timeframe: Current/Future
Medium: Shellfish Tissue
Exposure Medium: Clam, by River Mile

Exposure Point <sup>a</sup>	Tissue Type	Chemical of Potential Concern <sup>b</sup>	Units	Total Samples	Total Non-Detects <sup>c</sup>	Non-Detects greater than Maximum Detected Concentration <sup>d</sup>	Arithmetic Mean <sup>e</sup>	Maximum Detected Concentration	95% UCL			Exposure Point Concentration
									Distribution	95% UCL Method	Value	
		Hexachlorobutadiene	ug/kg	1	1	ND	ND	ND				ND
		Nitrobenzene	ug/kg	1	0	0	2.9E+02	2.9E+02				2.9E+02
		<b>Phenols</b>										
		2-Methylphenol	ug/kg	1	1	ND	ND	ND				ND
		<b>Polychlorinated Biphenyls</b>										
		Total PCB Congeners	pg/g	1	0	0	1.1E+05	1.1E+05				1.1E+05
		Total PCBs, Adjusted <sup>g</sup>	pg/g	1	0	0	1.0E+05	1.0E+05				1.0E+05
		<b>Dioxin/Furan</b>										
		Total Dioxin/Furan TEQ	pg/g	1	0	0	2.9E-01	2.9E-01				2.9E-01
		Total PCB TEQ	pg/g	1	0	0	1.2E+00	1.2E+00				1.2E+00
		<b>Pesticides</b>										
		Aldrin	ug/kg	1	0	0	1.9E-01	1.9E-01				1.9E-01
		Dieldrin	ug/kg	1	0	0	5.0E-01	5.0E-01				5.0E-01
		gamma-Hexachlorocyclohexane	ug/kg	1	0	0	2.9E-02	2.9E-02				2.9E-02
		Heptachlor epoxide	ug/kg	1	0	0	4.3E-02	4.3E-02				4.3E-02
		Total Chlordanes	ug/kg	1	0	0	2.5E+00	2.5E+00				2.5E+00
		Total DDD	ug/kg	1	0	0	8.2E+00	8.2E+00				8.2E+00
		Total DDE	ug/kg	1	0	0	1.4E+01	1.4E+01				1.4E+01
		Total DDT	ug/kg	1	0	0	1.4E+00	1.4E+00				1.4E+00
		Total Endosulfan	ug/kg	1	0	0	4.3E-01	4.3E-01				4.3E-01
RM 1 East	UD	<b>Metals</b>										
		Aluminum	mg/kg	1	0	0	7.6E+01	7.6E+01		Fewer than 5 detects		7.6E+01
		Antimony	mg/kg	1	1	ND	ND	ND				ND
		Arsenic, inorganic	mg/kg	1	0	0	1.1E-01	1.1E-01				1.1E-01
		Cadmium	mg/kg	1	0	0	1.1E-01	1.1E-01				1.1E-01
		Chromium	mg/kg	1	0	0	5.0E-01	5.0E-01				5.0E-01
		Copper	mg/kg	1	0	0	8.2E+00	8.2E+00				8.2E+00
		Lead	mg/kg	1	0	0	3.7E-02	3.7E-02				3.7E-02
		Manganese	mg/kg	1	0	0	5.2E+00	5.2E+00				5.2E+00
		Mercury	mg/kg	1	0	0	1.2E-02	1.2E-02				1.2E-02
		Nickel	mg/kg	1	0	0	1.8E-01	1.8E-01				1.8E-01
		Selenium	mg/kg	1	0	0	2.2E-01	2.2E-01				2.2E-01
		Silver	mg/kg	1	0	0	2.5E-02	2.5E-02				2.5E-02
		Thallium	mg/kg	1	0	0	2.2E-03	2.2E-03				2.2E-03
		Zinc	mg/kg	1	0	0	2.5E+01	2.5E+01				2.5E+01
		<b>Butyltins</b>										
		Butyltin ion	ug/kg	1	0	0	2.9E+00	2.9E+00				2.9E+00
		Dibutyltin ion	ug/kg	1	0	0	3.4E+00	3.4E+00				3.4E+00
		Tributyltin ion	ug/kg	1	1	ND	ND	ND				ND

TABLE 3-19  
Exposure Point Concentration Summary - Clam, by River Mile

Scenario Timeframe: Current/Future
Medium: Shellfish Tissue
Exposure Medium: Clam, by River Mile

Exposure Point <sup>a</sup>	Tissue Type	Chemical of Potential Concern <sup>b</sup>	Units	Total Samples	Total Non-Detects <sup>c</sup>	Non-Detects greater than Maximum Detected Concentration <sup>d</sup>	Arithmetic Mean <sup>e</sup>	Maximum Detected Concentration	95% UCL			Exposure Point Concentration
									Distribution	95% UCL Method	Value	
		<b>Polynuclear Aromatic Hydrocarbons</b>										
		1-Methylnaphthalene	ug/kg	1	0	0	8.2E-01	8.2E-01				8.2E-01
		2-Methylnaphthalene	ug/kg	1	0	0	1.2E+00	1.2E+00				1.2E+00
		Acenaphthene	ug/kg	1	0	0	7.3E-01	7.3E-01				7.3E-01
		Acenaphthylene	ug/kg	1	0	0	3.1E-01	3.1E-01				3.1E-01
		Anthracene	ug/kg	1	0	0	1.9E+00	1.9E+00				1.9E+00
		Benzo(a)anthracene	ug/kg	1	0	0	5.5E+00	5.5E+00				5.5E+00
		Benzo(a)pyrene	ug/kg	1	0	0	8.8E-01	8.8E-01				8.8E-01
		Benzo(b)fluoranthene	ug/kg	1	0	0	1.5E+00	1.5E+00				1.5E+00
		Benzo(e)pyrene	ug/kg	1	0	0	2.9E+00	2.9E+00				2.9E+00
		Benzo(g,h,i)perylene	ug/kg	1	0	0	1.2E+00	1.2E+00				1.2E+00
		Benzo(k)fluoranthene	ug/kg	1	0	0	9.7E-01	9.7E-01				9.7E-01
		Chrysene	ug/kg	1	0	0	1.1E+01	1.1E+01				1.1E+01
		Dibenzo(a,h)anthracene	ug/kg	1	0	0	8.7E-01	8.7E-01				8.7E-01
		Dibenzothiophene	ug/kg	1	0	0	7.0E-01	7.0E-01				7.0E-01
		Fluoranthene	ug/kg	1	0	0	3.1E+01	3.1E+01				3.1E+01
		Fluorene	ug/kg	1	0	0	1.7E+00	1.7E+00				1.7E+00
		Indeno(1,2,3-cd)pyrene	ug/kg	1	0	0	5.5E-01	5.5E-01				5.5E-01
		Naphthalene	ug/kg	1	1	ND	ND	ND				ND
		Perylene	ug/kg	1	0	0	2.7E-01	2.7E-01				2.7E-01
		Phenanthrene	ug/kg	1	0	0	8.5E+00	8.5E+00				8.5E+00
		Pyrene	ug/kg	1	0	0	2.7E+01	2.7E+01				2.7E+01
		<b>Phthalates</b>										
		Bis(2-ethylhexyl) phthalate	ug/kg	1	1	ND	ND	ND				ND
		Dibutyl phthalate	ug/kg	1	1	ND	ND	ND				ND
		<b>Semivolatile Organic Compounds</b>										
		Benzoic acid	ug/kg	1	0	0	2.8E+03	2.8E+03				2.8E+03
		Benzyl alcohol	ug/kg	1	0	0	2.6E+01	2.6E+01				2.6E+01
		Bis(2-chloroethoxy) methane	ug/kg	1	1	ND	ND	ND				ND
		Dibenzofuran	ug/kg	1	0	0	8.1E-01	8.1E-01				8.1E-01
		Hexachlorobenzene	ug/kg	1	0	0	5.8E-01	5.8E-01				5.8E-01
		Hexachlorobutadiene	ug/kg	1	0	0	9.3E-03	9.3E-03				9.3E-03
		Nitrobenzene	ug/kg	1	0	0	3.2E+02	3.2E+02				3.2E+02
		<b>Phenols</b>										
		4-Nitrophenol	ug/kg	1	1	ND	ND	ND				ND
		Phenol	ug/kg	1	1	ND	ND	ND				ND
		<b>Polychlorinated Biphenyls</b>										
		Total Aroclors	ug/kg	NA	NA	NA	NA	NA				NA
		Total PCB Congeners	pg/g	1	0	0	1.3E+05	1.3E+05				1.3E+05
		Total PCBs, Adjusted	pg/g	1	0	0	1.2E+05	1.2E+05				1.2E+05

TABLE 3-19  
Exposure Point Concentration Summary - Clam, by River Mile

Scenario Timeframe: Current/Future
Medium: Shellfish Tissue
Exposure Medium: Clam, by River Mile

Exposure Point <sup>a</sup>	Tissue Type	Chemical of Potential Concern <sup>b</sup>	Units	Total Samples	Total Non-Detects <sup>c</sup>	Non-Detects greater than Maximum Detected Concentration <sup>d</sup>	Arithmetic Mean <sup>e</sup>	Maximum Detected Concentration	95% UCL			Exposure Point Concentration
									Distribution	95% UCL Method	Value	
		<b>Dioxin/Furan</b>										
		Total Dioxin/Furan TEQ	pg/g	1	0	0	5.1E-01	5.1E-01				5.1E-01
		Total PCB TEQ	pg/g	1	0	0	1.4E+00	1.4E+00				1.4E+00
		<b>Pesticides</b>										
		Aldrin	ug/kg	1	0	0	2.3E-01	2.3E-01				2.3E-01
		alpha-Hexachlorocyclohexane	ug/kg	1	1	ND	ND	ND				ND
		beta-Hexachlorocyclohexane	ug/kg	1	1	ND	ND	ND				ND
		Dieldrin	ug/kg	1	0	0	5.9E-01	5.9E-01				5.9E-01
		Endrin	ug/kg	1	1	ND	ND	ND				ND
		Endrin aldehyde	ug/kg	1	1	ND	ND	ND				ND
		Endrin ketone	ug/kg	1	1	ND	ND	ND				ND
		gamma-Hexachlorocyclohexane	ug/kg	1	0	0	3.6E-02	3.6E-02				3.6E-02
		Heptachlor	ug/kg	1	1	ND	ND	ND				ND
		Heptachlor epoxide	ug/kg	1	0	0	4.9E-02	4.9E-02				4.9E-02
		Methoxychlor	ug/kg	1	1	ND	ND	ND				ND
		Total Chlordanes	ug/kg	1	0	0	3.0E+00	3.0E+00				3.0E+00
		Total DDD	ug/kg	1	0	0	1.0E+01	1.0E+01				1.0E+01
		Total DDE	ug/kg	1	0	0	1.7E+01	1.7E+01				1.7E+01
		Total DDT	ug/kg	1	0	0	1.8E+00	1.8E+00				1.8E+00
		Total Endosulfan	ug/kg	1	0	0	6.0E-01	6.0E-01				6.0E-01
RM 2 East	UD	<b>Metals</b>								Fewer than 5 detects		
		Aluminum	mg/kg	2	0	0	4.0E+01	4.8E+01				4.8E+01
		Antimony	mg/kg	2	1	0	1.3E-03	2.0E-03				2.0E-03
		Arsenic, inorganic	mg/kg	2	0	0	1.2E-01	1.3E-01				1.3E-01
		Cadmium	mg/kg	2	0	0	1.7E-01	2.2E-01				2.2E-01
		Chromium	mg/kg	2	0	0	7.5E-01	7.9E-01				7.9E-01
		Copper	mg/kg	2	0	0	1.0E+01	1.1E+01				1.1E+01
		Lead	mg/kg	2	0	0	5.4E-02	7.1E-02				7.1E-02
		Manganese	mg/kg	NA	NA	NA	NA	NA				NA
		Mercury	mg/kg	2	0	0	7.0E-03	8.0E-03				8.0E-03
		Nickel	mg/kg	2	0	0	2.6E-01	2.9E-01				2.9E-01
		Selenium	mg/kg	2	0	0	1.4E-01	1.7E-01				1.7E-01
		Silver	mg/kg	2	0	0	4.5E-02	5.2E-02				5.2E-02
		Thallium	mg/kg	NA	NA	NA	NA	NA				NA
		Zinc	mg/kg	2	0	0	3.7E+01	4.0E+01				4.0E+01
		<b>Butyltins</b>										
		Butyltin ion	ug/kg	2	0	0	3.1E+00	4.5E+00				4.5E+00
		Dibutyltin ion	ug/kg	2	0	0	4.5E+00	5.4E+00				5.4E+00
		Tributyltin ion	ug/kg	2	0	0	5.9E+00	6.7E+00				6.7E+00

TABLE 3-19  
Exposure Point Concentration Summary - Clam, by River Mile

Scenario Timeframe: Current/Future
Medium: Shellfish Tissue
Exposure Medium: Clam, by River Mile

Exposure Point <sup>a</sup>	Tissue Type	Chemical of Potential Concern <sup>b</sup>	Units	Total Samples	Total Non-Detects <sup>c</sup>	Non-Detects greater than Maximum Detected Concentration <sup>d</sup>	Arithmetic Mean <sup>e</sup>	Maximum Detected Concentration	95% UCL			Exposure Point Concentration
									Distribution	95% UCL Method	Value	
		<b>Polynuclear Aromatic Hydrocarbons</b>										
		1-Methylnaphthalene	ug/kg	NA	NA	NA	NA	NA				NA
		2-Methylnaphthalene	ug/kg	2	0	0	1.5E+00	1.5E+00				1.5E+00
		Acenaphthene	ug/kg	2	0	0	9.9E-01	1.3E+00				1.3E+00
		Acenaphthylene	ug/kg	2	0	0	1.6E+00	2.0E+00				2.0E+00
		Anthracene	ug/kg	2	0	0	6.7E+00	7.0E+00				7.0E+00
		Benzo(a)anthracene	ug/kg	2	0	0	4.0E+01	4.8E+01				4.8E+01
		Benzo(a)pyrene	ug/kg	2	0	0	6.2E+00	7.7E+00				7.7E+00
		Benzo(b)fluoranthene	ug/kg	2	0	0	8.5E+00	1.1E+01				1.1E+01
		Benzo(e)pyrene	ug/kg	NA	NA	NA	NA	NA				NA
		Benzo(g,h,i)perylene	ug/kg	2	0	0	2.8E+00	3.2E+00				3.2E+00
		Benzo(k)fluoranthene	ug/kg	2	0	0	4.2E+00	5.4E+00				5.4E+00
		Chrysene	ug/kg	2	0	0	4.6E+01	5.4E+01				5.4E+01
		Dibenzo(a,h)anthracene	ug/kg	2	2	ND	ND	ND				ND
		Dibenzothiophene	ug/kg	NA	NA	NA	NA	NA				NA
		Fluoranthene	ug/kg	2	0	0	8.3E+01	8.3E+01				8.3E+01
		Fluorene	ug/kg	2	0	0	2.2E+00	2.4E+00				2.4E+00
		Indeno(1,2,3-cd)pyrene	ug/kg	2	0	0	1.9E+00	2.0E+00				2.0E+00
		Naphthalene	ug/kg	2	2	ND	ND	ND				ND
		Perylene	ug/kg	NA	NA	NA	NA	NA				NA
		Phenanthrene	ug/kg	2	0	0	2.1E+01	2.1E+01				2.1E+01
		Pyrene	ug/kg	2	0	0	1.0E+02	1.0E+02				1.0E+02
		<b>Phthalates</b>										
		Bis(2-ethylhexyl) phthalate	ug/kg	2	2	ND	ND	ND				ND
		Dibutyl phthalate	ug/kg	2	2	ND	ND	ND				ND
		<b>Semivolatile Organic Compounds</b>										
		Benzoic acid	ug/kg	NA	NA	NA	NA	NA				NA
		Benzyl alcohol	ug/kg	2	0	0	1.0E+01	1.1E+01				1.1E+01
		Bis(2-chloroethoxy) methane	ug/kg	NA	NA	NA	NA	NA				NA
		Dibenzofuran	ug/kg	2	2	ND	ND	ND				ND
		Hexachlorobenzene	ug/kg	2	0	0	5.6E-01	6.3E-01				6.3E-01
		Hexachlorobutadiene	ug/kg	2	2	ND	ND	ND				ND
		Nitrobenzene	ug/kg	NA	NA	NA	NA	NA				NA
		<b>Phenols</b>										
		4-Nitrophenol	ug/kg	NA	NA	NA	NA	NA				NA
		Phenol	ug/kg	2	2	ND	ND	ND				ND
		<b>Polychlorinated Biphenyls</b>										
		Total Aroclors	ug/kg	NA	NA	NA	NA	NA				NA
		Total PCB Congeners	pg/g	2	0	0	2.4E+05	3.3E+05				3.3E+05
		Total PCBs, Adjusted	pg/g	2	0	0	2.2E+05	3.0E+05				3.0E+05



TABLE 3-19  
Exposure Point Concentration Summary - Clam, by River Mile

Scenario Timeframe: Current/Future
Medium: Shellfish Tissue
Exposure Medium: Clam, by River Mile

Exposure Point <sup>a</sup>	Tissue Type	Chemical of Potential Concern <sup>b</sup>	Units	Total Samples	Total Non-Detects <sup>c</sup>	Non-Detects greater than Maximum Detected Concentration <sup>d</sup>	Arithmetic Mean <sup>e</sup>	Maximum Detected Concentration	95% UCL			Exposure Point Concentration
									Distribution	95% UCL Method	Value	
		<b>Dioxin/Furan</b>										
		Total Dioxin/Furan TEQ	pg/g	2	0	0	5.2E-01	5.9E-01				5.9E-01
		Total PCB TEQ	pg/g	2	0	0	2.5E+00	3.3E+00				3.3E+00
		<b>Pesticides</b>										
		Aldrin	ug/kg	2	0	0	2.0E-01	2.2E-01				2.2E-01
		alpha-Hexachlorocyclohexane	ug/kg	2	2	ND	ND	ND				ND
		beta-Hexachlorocyclohexane	ug/kg	2	2	ND	ND	ND				ND
		Dieldrin	ug/kg	2	0	0	8.2E-01	9.4E-01				9.4E-01
		Endrin	ug/kg	2	1	0	6.0E-03	8.2E-03				8.2E-03
		Endrin aldehyde	ug/kg	2	2	ND	ND	ND				ND
		Endrin ketone	ug/kg	2	2	ND	ND	ND				ND
		gamma-Hexachlorocyclohexane	ug/kg	2	0	0	6.6E-02	6.6E-02				6.6E-02
		Heptachlor	ug/kg	2	0	0	9.9E-03	1.2E-02				1.2E-02
		Heptachlor epoxide	ug/kg	2	0	0	6.0E-02	6.7E-02				6.7E-02
		Methoxychlor	ug/kg	2	2	ND	ND	ND				ND
		Total Chlordanes	ug/kg	2	0	0	3.2E+00	3.5E+00				3.5E+00
		Total DDD	ug/kg	2	0	0	1.1E+01	1.2E+01				1.2E+01
		Total DDE	ug/kg	2	0	0	1.3E+01	1.5E+01				1.5E+01
		Total DDT	ug/kg	2	0	0	1.9E+00	2.2E+00				2.2E+00
		Total Endosulfan	ug/kg	2	0	0	9.8E-01	1.1E+00				1.1E+00
RM 2 West	D	<b>Metals</b>										
		Aluminum	mg/kg	1	0	0	2.1E+01	2.1E+01		Fewer than 5 detects		2.1E+01
		Arsenic, inorganic	mg/kg	1	0	0	1.4E-01	1.4E-01				1.4E-01
		Cadmium	mg/kg	1	0	0	9.0E-02	9.0E-02				9.0E-02
		Chromium	mg/kg	1	0	0	5.0E-01	5.0E-01				5.0E-01
		Copper	mg/kg	1	0	0	9.0E+00	9.0E+00				9.0E+00
		Lead	mg/kg	1	0	0	3.3E-02	3.3E-02				3.3E-02
		Manganese	mg/kg	1	0	0	4.3E+00	4.3E+00				4.3E+00
		Mercury	mg/kg	1	0	0	2.2E-02	2.2E-02				2.2E-02
		Nickel	mg/kg	1	0	0	1.8E-01	1.8E-01				1.8E-01
		Selenium	mg/kg	1	0	0	1.5E-01	1.5E-01				1.5E-01
		Silver	mg/kg	1	0	0	2.5E-02	2.5E-02				2.5E-02
		Thallium	mg/kg	1	0	0	2.7E-03	2.7E-03				2.7E-03
		Zinc	mg/kg	1	0	0	2.2E+01	2.2E+01				2.2E+01
		<b>Butyltins</b>										
		Butyltin ion	ug/kg	1	1	ND	ND	ND				ND
		<b>Polynuclear Aromatic Hydrocarbons</b>										
		1-Methylnaphthalene	ug/kg	1	0	0	1.0E+00	1.0E+00				1.0E+00
		2-Methylnaphthalene	ug/kg	1	0	0	1.6E+00	1.6E+00				1.6E+00
		Acenaphthene	ug/kg	1	0	0	4.8E+00	4.8E+00				4.8E+00

TABLE 3-19  
Exposure Point Concentration Summary - Clam, by River Mile

Scenario Timeframe: Current/Future
Medium: Shellfish Tissue
Exposure Medium: Clam, by River Mile

Exposure Point <sup>a</sup>	Tissue Type	Chemical of Potential Concern <sup>b</sup>	Units	Total Samples	Total Non-Detects <sup>c</sup>	Non-Detects greater than Maximum Detected Concentration <sup>d</sup>	Arithmetic Mean <sup>e</sup>	Maximum Detected Concentration	95% UCL			Exposure Point Concentration
									Distribution	95% UCL Method	Value	
		Acenaphthylene	ug/kg	1	0	0	6.2E-01	6.2E-01				6.2E-01
		Anthracene	ug/kg	1	0	0	4.4E+00	4.4E+00				4.4E+00
		Benzo(a)anthracene	ug/kg	1	0	0	8.2E+00	8.2E+00				8.2E+00
		Benzo(a)pyrene	ug/kg	1	1	ND	ND	ND				ND
		Benzo(b)fluoranthene	ug/kg	1	0	0	1.8E+00	1.8E+00				1.8E+00
		Benzo(e)pyrene	ug/kg	1	0	0	4.6E+00	4.6E+00				4.6E+00
		Benzo(g,h,i)perylene	ug/kg	1	0	0	8.6E-01	8.6E-01				8.6E-01
		Chrysene	ug/kg	1	0	0	1.6E+01	1.6E+01				1.6E+01
		Dibenzothiophene	ug/kg	1	0	0	2.1E+00	2.1E+00				2.1E+00
		Fluoranthene	ug/kg	1	0	0	8.4E+01	8.4E+01				8.4E+01
		Fluorene	ug/kg	1	0	0	4.7E+00	4.7E+00				4.7E+00
		Indeno(1,2,3-cd)pyrene	ug/kg	1	0	0	3.0E-01	3.0E-01				3.0E-01
		Perylene	ug/kg	1	0	0	9.1E-01	9.1E-01				9.1E-01
		Phenanthrene	ug/kg	1	0	0	2.5E+01	2.5E+01				2.5E+01
		Pyrene	ug/kg	1	0	0	6.8E+01	6.8E+01				6.8E+01
		<b>Semivolatile Organic Compounds</b>										
		Benzoic acid	ug/kg	1	0	0	3.2E+03	3.2E+03				3.2E+03
		Dibenzofuran	ug/kg	1	0	0	1.3E+00	1.3E+00				1.3E+00
		Hexachlorobenzene	ug/kg	1	0	0	5.5E-01	5.5E-01				5.5E-01
		Hexachlorobutadiene	ug/kg	1	0	0	9.8E-03	9.8E-03				9.8E-03
		Nitrobenzene	ug/kg	1	0	0	6.0E+01	6.0E+01				6.0E+01
		<b>Phenols</b>										
		2-Methylphenol	ug/kg	1	0	0	9.7E+00	9.7E+00				9.7E+00
		<b>Polychlorinated Biphenyls</b>										
		Total PCB Congeners	pg/g	1	0	0	8.3E+04	8.3E+04				8.3E+04
		Total PCBs, Adjusted	pg/g	1	0	0	7.7E+04	7.7E+04				7.7E+04
		<b>Dioxin/Furan</b>										
		Total Dioxin/Furan TEQ	pg/g	1	0	0	3.7E-01	3.7E-01				3.7E-01
		Total PCB TEQ	pg/g	1	0	0	8.6E-01	8.6E-01				8.6E-01
		<b>Pesticides</b>										
		Aldrin	ug/kg	1	0	0	2.8E-01	2.8E-01				2.8E-01
		Dieldrin	ug/kg	1	0	0	5.9E-01	5.9E-01				5.9E-01
		gamma-Hexachlorocyclohexane	ug/kg	1	0	0	3.3E-02	3.3E-02				3.3E-02
		Heptachlor epoxide	ug/kg	1	0	0	4.5E-02	4.5E-02				4.5E-02
		Total Chlordanes	ug/kg	1	0	0	3.1E+00	3.1E+00				3.1E+00
		Total DDD	ug/kg	1	0	0	1.1E+01	1.1E+01				1.1E+01
		Total DDE	ug/kg	1	0	0	1.5E+01	1.5E+01				1.5E+01
		Total DDT	ug/kg	1	0	0	1.7E+00	1.7E+00				1.7E+00
		Total Endosulfan	ug/kg	1	0	0	5.1E-01	5.1E-01				5.1E-01

TABLE 3-19  
Exposure Point Concentration Summary - Clam, by River Mile

Scenario Timeframe: Current/Future
Medium: Shellfish Tissue
Exposure Medium: Clam, by River Mile

Exposure Point <sup>a</sup>	Tissue Type	Chemical of Potential Concern <sup>b</sup>	Units	Total Samples	Total Non-Detects <sup>c</sup>	Non-Detects greater than Maximum Detected Concentration <sup>d</sup>	Arithmetic Mean <sup>e</sup>	Maximum Detected Concentration	95% UCL			Exposure Point Concentration		
									Distribution	95% UCL Method	Value			
RM 2 West	UD	<b>Metals</b>												
		Aluminum	mg/kg	2	0	0	4.3E+01	6.5E+01		Fewer than 5 detects		6.5E+01		
		Antimony	mg/kg	2	2	ND	ND	ND			ND			
		Arsenic, inorganic	mg/kg	2	0	0	9.7E-02	1.0E-01			1.0E-01			
		Cadmium	mg/kg	2	0	0	8.5E-02	1.0E-01			1.0E-01			
		Chromium	mg/kg	2	0	0	5.1E-01	6.2E-01			6.2E-01			
		Copper	mg/kg	2	0	0	7.7E+00	9.4E+00			9.4E+00			
		Lead	mg/kg	2	0	0	3.1E-02	3.8E-02			3.8E-02			
		Manganese	mg/kg	1	0	0	3.9E+00	3.9E+00			3.9E+00			
		Mercury	mg/kg	2	0	0	9.2E-03	1.0E-02			1.0E-02			
		Nickel	mg/kg	2	0	0	2.1E-01	2.6E-01			2.6E-01			
		Selenium	mg/kg	2	0	0	1.5E-01	1.9E-01			1.9E-01			
		Silver	mg/kg	2	0	0	3.5E-02	5.0E-02			5.0E-02			
		Thallium	mg/kg	1	0	0	2.0E-03	2.0E-03			2.0E-03			
		Zinc	mg/kg	2	0	0	2.9E+01	3.1E+01			3.1E+01			
		<b>Butyltins</b>												
		Butyltin ion	ug/kg	2	1	0	1.0E+00	1.4E+00			1.4E+00			
		Dibutyltin ion	ug/kg	2	0	0	3.4E+00	3.7E+00			3.7E+00			
		Tributyltin ion	ug/kg	2	1	0	3.4E+00	4.7E+00			4.7E+00			
		<b>Polynuclear Aromatic Hydrocarbons</b>												
		1-Methylnaphthalene	ug/kg	1	0	0	1.2E+00	1.2E+00			1.2E+00			
		2-Methylnaphthalene	ug/kg	2	0	0	1.6E+00	1.8E+00			1.8E+00			
		Acenaphthene	ug/kg	2	0	0	2.2E+00	3.3E+00			3.3E+00			
		Acenaphthylene	ug/kg	2	0	0	1.2E+00	1.8E+00			1.8E+00			
		Anthracene	ug/kg	2	0	0	1.0E+01	1.7E+01			1.7E+01			
		Benzo(a)anthracene	ug/kg	2	0	0	3.3E+01	6.0E+01			6.0E+01			
		Benzo(a)pyrene	ug/kg	2	0	0	6.9E+00	1.3E+01			1.3E+01			
		Benzo(b)fluoranthene	ug/kg	2	0	0	8.3E+00	1.5E+01			1.5E+01			
		Benzo(e)pyrene	ug/kg	1	0	0	3.5E+00	3.5E+00			3.5E+00			
		Benzo(g,h,i)perylene	ug/kg	2	0	0	3.4E+00	6.1E+00			6.1E+00			
		Benzo(k)fluoranthene	ug/kg	2	1	0	4.0E+00	7.7E+00			7.7E+00			
		Chrysene	ug/kg	2	0	0	3.7E+01	6.1E+01			6.1E+01			
		Dibenzo(a,h)anthracene	ug/kg	2	2	ND	ND	ND			ND			
		Dibenzothiophene	ug/kg	1	0	0	1.4E+00	1.4E+00			1.4E+00			
		Fluoranthene	ug/kg	2	0	0	1.0E+02	1.5E+02			1.5E+02			
Fluorene	ug/kg	2	0	0	3.6E+00	3.9E+00		3.9E+00						
Indeno(1,2,3-cd)pyrene	ug/kg	2	0	0	2.1E+00	3.9E+00		3.9E+00						
Naphthalene	ug/kg	2	2	ND	ND	ND		ND						
Perylene	ug/kg	1	0	0	6.0E-01	6.0E-01		6.0E-01						
Phenanthrene	ug/kg	2	0	0	3.8E+01	5.9E+01		5.9E+01						
Pyrene	ug/kg	2	0	0	9.8E+01	1.5E+02		1.5E+02						

TABLE 3-19  
Exposure Point Concentration Summary - Clam, by River Mile

Scenario Timeframe: Current/Future
Medium: Shellfish Tissue
Exposure Medium: Clam, by River Mile

Exposure Point <sup>a</sup>	Tissue Type	Chemical of Potential Concern <sup>b</sup>	Units	Total Samples	Total Non-Detects <sup>c</sup>	Non-Detects greater than Maximum Detected Concentration <sup>d</sup>	Arithmetic Mean <sup>e</sup>	Maximum Detected Concentration	95% UCL			Exposure Point Concentration
									Distribution	95% UCL Method	Value	
		<b>Phthalates</b>										
		Bis(2-ethylhexyl) phthalate	ug/kg	2	2	ND	ND	ND				ND
		Dibutyl phthalate	ug/kg	2	2	ND	ND	ND				ND
		<b>Semivolatile Organic Compounds</b>										
		Benzoic acid	ug/kg	1	0	0	1.9E+03	1.9E+03				1.9E+03
		Benzyl alcohol	ug/kg	2	1	1	1.2E+01	1.2E+01				1.2E+01
		Bis(2-chloroethoxy) methane	ug/kg	1	1	ND	ND	ND				ND
		Dibenzofuran	ug/kg	2	0	0	1.0E+00	1.1E+00				1.1E+00
		Hexachlorobenzene	ug/kg	2	0	0	5.2E-01	6.1E-01				6.1E-01
		Hexachlorobutadiene	ug/kg	2	2	ND	ND	ND				ND
		Nitrobenzene	ug/kg	1	0	0	2.8E+02	2.8E+02				2.8E+02
		<b>Phenols</b>										
		4-Nitrophenol	ug/kg	1	0	0	1.9E+01	1.9E+01				1.9E+01
		Phenol	ug/kg	2	2	ND	ND	ND				ND
		<b>Polychlorinated Biphenyls</b>										
		Total Aroclors	ug/kg	NA	NA	NA	NA	NA				NA
		Total PCB Congeners	pg/g	2	0	0	7.7E+04	8.3E+04				8.3E+04
		Total PCBs, Adjusted	pg/g	2	0	0	7.2E+04	7.8E+04				7.8E+04
		<b>Dioxin/Furan</b>										
		Total Dioxin/Furan TEQ	pg/g	2	0	0	4.8E-01	5.6E-01				5.6E-01
		Total PCB TEQ	pg/g	2	0	0	7.8E-01	9.0E-01				9.0E-01
		<b>Pesticides</b>										
		Aldrin	ug/kg	2	0	0	2.2E-01	2.9E-01				2.9E-01
		alpha-Hexachlorocyclohexane	ug/kg	2	2	ND	ND	ND				ND
		beta-Hexachlorocyclohexane	ug/kg	2	2	ND	ND	ND				ND
		Dieldrin	ug/kg	2	0	0	6.3E-01	6.5E-01				6.5E-01
		Endrin	ug/kg	2	1	1	5.7E-03	5.7E-03				5.7E-03
		Endrin aldehyde	ug/kg	2	2	ND	ND	ND				ND
		Endrin ketone	ug/kg	2	2	ND	ND	ND				ND
		gamma-Hexachlorocyclohexane	ug/kg	2	0	0	5.0E-02	5.5E-02				5.5E-02
		Heptachlor	ug/kg	2	1	1	7.3E-03	7.3E-03				7.3E-03
		Heptachlor epoxide	ug/kg	2	0	0	4.7E-02	5.0E-02				5.0E-02
		Methoxychlor	ug/kg	2	2	ND	ND	ND				ND
		Total Chlordanes	ug/kg	2	0	0	2.8E+00	3.3E+00				3.3E+00
		Total DDD	ug/kg	2	0	0	1.1E+01	1.2E+01				1.2E+01
		Total DDE	ug/kg	2	0	0	1.3E+01	1.6E+01				1.6E+01
		Total DDT	ug/kg	2	0	0	1.8E+00	1.9E+00				1.9E+00
		Total Endosulfan	ug/kg	2	0	0	6.7E-01	7.2E-01				7.2E-01

TABLE 3-19  
Exposure Point Concentration Summary - Clam, by River Mile

Scenario Timeframe: Current/Future
Medium: Shellfish Tissue
Exposure Medium: Clam, by River Mile

Exposure Point <sup>a</sup>	Tissue Type	Chemical of Potential Concern <sup>b</sup>	Units	Total Samples	Total Non-Detects <sup>c</sup>	Non-Detects greater than Maximum Detected Concentration <sup>d</sup>	Arithmetic Mean <sup>e</sup>	Maximum Detected Concentration	95% UCL			Exposure Point Concentration		
									Distribution	95% UCL Method	Value			
RM 3 East	UD	<b>Metals</b>												
		Aluminum	mg/kg	3	0	0	5.5E+01	8.0E+01		Fewer than 5 detects		8.0E+01		
		Antimony	mg/kg	3	1	0	1.8E-03	2.8E-03			2.8E-03			
		Arsenic, inorganic	mg/kg	3	0	0	8.8E-02	9.6E-02			9.6E-02			
		Cadmium	mg/kg	3	0	0	1.4E-01	1.7E-01			1.7E-01			
		Chromium	mg/kg	3	0	0	7.8E-01	1.1E+00			1.1E+00			
		Copper	mg/kg	3	0	0	9.8E+00	1.0E+01			1.0E+01			
		Lead	mg/kg	3	0	0	7.9E-02	1.1E-01			1.1E-01			
		Manganese	mg/kg	NA	NA	NA	NA	NA			NA			
		Mercury	mg/kg	3	0	0	7.0E-03	8.0E-03			8.0E-03			
		Nickel	mg/kg	3	0	0	3.0E-01	3.1E-01			3.1E-01			
		Selenium	mg/kg	3	0	0	1.0E-01	1.2E-01			1.2E-01			
		Silver	mg/kg	3	0	0	3.9E-02	5.6E-02			5.6E-02			
		Thallium	mg/kg	NA	NA	NA	NA	NA			NA			
		Zinc	mg/kg	3	0	0	4.2E+01	4.8E+01			4.8E+01			
		<b>Butyltins</b>												
		Butyltin ion	ug/kg	3	1	0	1.8E+00	3.7E+00			3.7E+00			
		Dibutyltin ion	ug/kg	3	0	0	2.3E+01	5.4E+01			5.4E+01			
		Tributyltin ion	ug/kg	3	0	0	2.5E+01	6.3E+01			6.3E+01			
		<b>Polynuclear Aromatic Hydrocarbons</b>												
		1-Methylnaphthalene	ug/kg	NA	NA	NA	NA	NA			NA			
		2-Methylnaphthalene	ug/kg	3	0	0	1.6E+00	2.0E+00			2.0E+00			
		Acenaphthene	ug/kg	3	0	0	1.2E+00	1.7E+00			1.7E+00			
		Acenaphthylene	ug/kg	3	0	0	1.4E+00	1.8E+00			1.8E+00			
		Anthracene	ug/kg	3	0	0	8.3E+00	1.0E+01			1.0E+01			
		Benzo(a)anthracene	ug/kg	3	0	0	5.6E+01	6.7E+01			6.7E+01			
		Benzo(a)pyrene	ug/kg	3	0	0	1.3E+01	1.6E+01			1.6E+01			
		Benzo(b)fluoranthene	ug/kg	3	0	0	2.6E+01	3.9E+01			3.9E+01			
		Benzo(e)pyrene	ug/kg	NA	NA	NA	NA	NA			NA			
		Benzo(g,h,i)perylene	ug/kg	3	0	0	6.9E+00	9.6E+00			9.6E+00			
		Benzo(k)fluoranthene	ug/kg	3	0	0	1.1E+01	1.5E+01			1.5E+01			
		Chrysene	ug/kg	3	0	0	8.6E+01	1.1E+02			1.1E+02			
		Dibenzo(a,h)anthracene	ug/kg	3	2	0	9.7E-01	2.8E+00			2.8E+00			
		Dibenzothiophene	ug/kg	NA	NA	NA	NA	NA			NA			
		Fluoranthene	ug/kg	3	0	0	8.3E+01	9.3E+01			9.3E+01			
		Fluorene	ug/kg	3	0	0	3.5E+00	4.7E+00			4.7E+00			
		Indeno(1,2,3-cd)pyrene	ug/kg	3	0	0	4.5E+00	5.7E+00			5.7E+00			
		Naphthalene	ug/kg	3	3	ND	ND	ND			ND			
		Perylene	ug/kg	NA	NA	NA	NA	NA			NA			
		Phenanthrene	ug/kg	3	0	0	2.4E+01	3.0E+01			3.0E+01			
Pyrene	ug/kg	3	0	0	1.1E+02	1.5E+02		1.5E+02						

TABLE 3-19  
Exposure Point Concentration Summary - Clam, by River Mile

Scenario Timeframe: Current/Future
Medium: Shellfish Tissue
Exposure Medium: Clam, by River Mile

Exposure Point <sup>a</sup>	Tissue Type	Chemical of Potential Concern <sup>b</sup>	Units	Total Samples	Total Non-Detects <sup>c</sup>	Non-Detects greater than Maximum Detected Concentration <sup>d</sup>	Arithmetic Mean <sup>e</sup>	Maximum Detected Concentration	95% UCL			Exposure Point Concentration
									Distribution	95% UCL Method	Value	
		<b>Phthalates</b>										
		Bis(2-ethylhexyl) phthalate	ug/kg	3	3	ND	ND	ND				ND
		Dibutyl phthalate	ug/kg	3	3	ND	ND	ND				ND
		<b>Semivolatile Organic Compounds</b>										
		Benzoic acid	ug/kg	NA	NA	NA	NA	NA				NA
		Benzyl alcohol	ug/kg	3	1	0	1.1E+01	1.7E+01				1.7E+01
		Bis(2-chloroethoxy) methane	ug/kg	NA	NA	NA	NA	NA				NA
		Dibenzofuran	ug/kg	3	0	0	1.4E+00	2.1E+00				2.1E+00
		Hexachlorobenzene	ug/kg	3	0	0	5.0E-01	5.6E-01				5.6E-01
		Hexachlorobutadiene	ug/kg	3	3	ND	ND	ND				ND
		Nitrobenzene	ug/kg	NA	NA	NA	NA	NA				NA
		<b>Phenols</b>										
		4-Nitrophenol	ug/kg	NA	NA	NA	NA	NA				NA
		Phenol	ug/kg	3	3	ND	ND	ND				ND
		<b>Polychlorinated Biphenyls</b>										
		Total Aroclors	ug/kg	NA	NA	NA	NA	NA				NA
		Total PCB Congeners	pg/g	3	0	0	3.1E+05	5.1E+05				5.1E+05
		Total PCBs, Adjusted	pg/g	3	0	0	2.9E+05	4.7E+05				4.7E+05
		<b>Dioxin/Furan</b>										
		Total Dioxin/Furan TEQ	pg/g	3	0	0	6.4E-01	8.4E-01				8.4E-01
		Total PCB TEQ	pg/g	3	0	0	3.0E+00	5.4E+00				5.4E+00
		<b>Pesticides</b>										
		Aldrin	ug/kg	3	0	0	1.6E-01	1.9E-01				1.9E-01
		alpha-Hexachlorocyclohexane	ug/kg	3	2	2	5.7E-03	5.7E-03				5.7E-03
		beta-Hexachlorocyclohexane	ug/kg	3	3	ND	ND	ND				ND
		Dieldrin	ug/kg	3	0	0	7.5E-01	8.9E-01				8.9E-01
		Endrin	ug/kg	3	2	0	6.0E-03	1.0E-02				1.0E-02
		Endrin aldehyde	ug/kg	3	3	ND	ND	ND				ND
		Endrin ketone	ug/kg	3	2	1	2.1E-03	3.0E-03				3.0E-03
		gamma-Hexachlorocyclohexane	ug/kg	3	1	1	4.7E-02	5.4E-02				5.4E-02
		Heptachlor	ug/kg	3	0	0	1.4E-02	2.0E-02				2.0E-02
		Heptachlor epoxide	ug/kg	3	0	0	5.2E-02	6.1E-02				6.1E-02
		Methoxychlor	ug/kg	3	3	ND	ND	ND				ND
		Total Chlordanes	ug/kg	3	0	0	2.8E+00	3.1E+00				3.1E+00
		Total DDD	ug/kg	3	0	0	1.0E+01	1.1E+01				1.1E+01
		Total DDE	ug/kg	3	0	0	1.1E+01	1.2E+01				1.2E+01
		Total DDT	ug/kg	3	0	0	2.5E+00	3.4E+00				3.4E+00
		Total Endosulfan	ug/kg	3	0	0	8.3E-01	9.3E-01				9.3E-01

TABLE 3-19  
Exposure Point Concentration Summary - Clam, by River Mile

Scenario Timeframe: Current/Future
Medium: Shellfish Tissue
Exposure Medium: Clam, by River Mile

Exposure Point <sup>a</sup>	Tissue Type	Chemical of Potential Concern <sup>b</sup>	Units	Total Samples	Total Non-Detects <sup>c</sup>	Non-Detects greater than Maximum Detected Concentration <sup>d</sup>	Arithmetic Mean <sup>e</sup>	Maximum Detected Concentration	95% UCL			Exposure Point Concentration		
									Distribution	95% UCL Method	Value			
RM 3 West	UD	<b>Metals</b>												
		Aluminum	mg/kg	1	0	0	2.0E+02	2.0E+02		Fewer than 5 detects		2.0E+02		
		Antimony	mg/kg	1	1	ND	ND	ND			ND			
		Arsenic, inorganic	mg/kg	1	0	0	8.9E-02	8.9E-02			8.9E-02			
		Cadmium	mg/kg	1	0	0	6.1E-02	6.1E-02			6.1E-02			
		Chromium	mg/kg	1	0	0	6.0E-01	6.0E-01			6.0E-01			
		Copper	mg/kg	1	0	0	7.7E+00	7.7E+00			7.7E+00			
		Lead	mg/kg	1	0	0	8.9E-02	8.9E-02			8.9E-02			
		Manganese	mg/kg	1	0	0	7.8E+00	7.8E+00			7.8E+00			
		Mercury	mg/kg	1	0	0	1.6E-02	1.6E-02			1.6E-02			
		Nickel	mg/kg	1	0	0	2.5E-01	2.5E-01			2.5E-01			
		Selenium	mg/kg	1	0	0	2.2E-01	2.2E-01			2.2E-01			
		Silver	mg/kg	1	0	0	3.5E-02	3.5E-02			3.5E-02			
		Thallium	mg/kg	1	0	0	1.8E-03	1.8E-03			1.8E-03			
		Zinc	mg/kg	1	0	0	3.3E+01	3.3E+01			3.3E+01			
		<b>Butyltins</b>												
		Butyltin ion	ug/kg	1	1	ND	ND	ND			ND			
		Dibutyltin ion	ug/kg	1	1	ND	ND	ND		ND				
		Tributyltin ion	ug/kg	1	1	ND	ND	ND		ND				
		<b>Polynuclear Aromatic Hydrocarbons</b>												
		1-Methylnaphthalene	ug/kg	1	0	0	1.5E+00	1.5E+00		1.5E+00				
		2-Methylnaphthalene	ug/kg	1	0	0	2.0E+00	2.0E+00		2.0E+00				
		Acenaphthene	ug/kg	1	0	0	1.5E+00	1.5E+00		1.5E+00				
		Acenaphthylene	ug/kg	1	0	0	5.5E-01	5.5E-01		5.5E-01				
		Anthracene	ug/kg	1	0	0	3.2E+00	3.2E+00		3.2E+00				
		Benzo(a)anthracene	ug/kg	1	0	0	1.1E+01	1.1E+01		1.1E+01				
		Benzo(a)pyrene	ug/kg	1	0	0	1.5E+00	1.5E+00		1.5E+00				
		Benzo(b)fluoranthene	ug/kg	1	0	0	2.5E+00	2.5E+00		2.5E+00				
		Benzo(e)pyrene	ug/kg	1	0	0	6.0E+00	6.0E+00		6.0E+00				
		Benzo(g,h,i)perylene	ug/kg	1	0	0	1.8E+00	1.8E+00		1.8E+00				
		Benzo(k)fluoranthene	ug/kg	1	0	0	9.6E-01	9.6E-01		9.6E-01				
		Chrysene	ug/kg	1	0	0	1.8E+01	1.8E+01		1.8E+01				
		Dibenzo(a,h)anthracene	ug/kg	1	1	ND	ND	ND		ND				
		Dibenzothiophene	ug/kg	1	0	0	1.3E+00	1.3E+00		1.3E+00				
Fluoranthene	ug/kg	1	0	0	4.2E+01	4.2E+01		4.2E+01						
Fluorene	ug/kg	1	0	0	2.5E+00	2.5E+00		2.5E+00						
Indeno(1,2,3-cd)pyrene	ug/kg	1	0	0	9.0E-01	9.0E-01		9.0E-01						
Naphthalene	ug/kg	1	1	ND	ND	ND		ND						
Perylene	ug/kg	1	0	0	5.9E-01	5.9E-01		5.9E-01						
Phenanthrene	ug/kg	1	0	0	1.4E+01	1.4E+01		1.4E+01						
Pyrene	ug/kg	1	0	0	4.7E+01	4.7E+01		4.7E+01						



TABLE 3-19  
Exposure Point Concentration Summary - Clam, by River Mile

Scenario Timeframe: Current/Future
Medium: Shellfish Tissue
Exposure Medium: Clam, by River Mile

Exposure Point <sup>a</sup>	Tissue Type	Chemical of Potential Concern <sup>b</sup>	Units	Total Samples	Total Non-Detects <sup>c</sup>	Non-Detects greater than Maximum Detected Concentration <sup>d</sup>	Arithmetic Mean <sup>e</sup>	Maximum Detected Concentration	95% UCL			Exposure Point Concentration
									Distribution	95% UCL Method	Value	
		<b>Phthalates</b>										
		Bis(2-ethylhexyl) phthalate	ug/kg	1	0	0	9.9E+01	9.9E+01				9.9E+01
		Dibutyl phthalate	ug/kg	1	1	ND	ND	ND				ND
		<b>Semivolatile Organic Compounds</b>										
		Benzoic acid	ug/kg	1	0	0	5.9E+03	5.9E+03				5.9E+03
		Benzyl alcohol	ug/kg	1	0	0	2.9E+01	2.9E+01				2.9E+01
		Bis(2-chloroethoxy) methane	ug/kg	1	0	0	4.6E+01	4.6E+01				4.6E+01
		Dibenzofuran	ug/kg	1	0	0	1.0E+00	1.0E+00				1.0E+00
		Hexachlorobenzene	ug/kg	1	0	0	7.9E-01	7.9E-01				7.9E-01
		Hexachlorobutadiene	ug/kg	1	1	ND	ND	ND				ND
		Nitrobenzene	ug/kg	1	0	0	5.2E+02	5.2E+02				5.2E+02
		<b>Phenols</b>										
		4-Nitrophenol	ug/kg	1	1	ND	ND	ND				ND
		Phenol	ug/kg	1	1	ND	ND	ND				ND
		<b>Polychlorinated Biphenyls</b>										
		Total Aroclors	ug/kg	NA	NA	NA	NA	NA				NA
		Total PCB Congeners	pg/g	1	0	0	1.0E+05	1.0E+05				1.0E+05
		Total PCBs, Adjusted	pg/g	1	0	0	9.4E+04	9.4E+04				9.4E+04
		<b>Dioxin/Furan</b>										
		Total Dioxin/Furan TEQ	pg/g	1	0	0	8.6E-01	8.6E-01				8.6E-01
		Total PCB TEQ	pg/g	1	0	0	9.8E-01	9.8E-01				9.8E-01
		<b>Pesticides</b>										
		Aldrin	ug/kg	1	0	0	3.8E-01	3.8E-01				3.8E-01
		alpha-Hexachlorocyclohexane	ug/kg	1	1	ND	ND	ND				ND
		beta-Hexachlorocyclohexane	ug/kg	1	1	ND	ND	ND				ND
		Dieldrin	ug/kg	1	0	0	6.7E-01	6.7E-01				6.7E-01
		Endrin	ug/kg	1	1	ND	ND	ND				ND
		Endrin aldehyde	ug/kg	1	1	ND	ND	ND				ND
		Endrin ketone	ug/kg	1	1	ND	ND	ND				ND
		gamma-Hexachlorocyclohexane	ug/kg	1	1	ND	ND	ND				ND
		Heptachlor	ug/kg	1	1	ND	ND	ND				ND
		Heptachlor epoxide	ug/kg	1	1	ND	ND	ND				ND
		Methoxychlor	ug/kg	1	1	ND	ND	ND				ND
		Total Chlordanes	ug/kg	1	0	0	3.8E+00	3.8E+00				3.8E+00
		Total DDD	ug/kg	1	0	0	1.7E+01	1.7E+01				1.7E+01
		Total DDE	ug/kg	1	0	0	1.7E+01	1.7E+01				1.7E+01
		Total DDT	ug/kg	1	0	0	3.0E+00	3.0E+00				3.0E+00
		Total Endosulfan	ug/kg	1	0	0	6.9E-01	6.9E-01				6.9E-01

TABLE 3-19  
Exposure Point Concentration Summary - Clam, by River Mile

Scenario Timeframe: Current/Future
Medium: Shellfish Tissue
Exposure Medium: Clam, by River Mile

Exposure Point <sup>a</sup>	Tissue Type	Chemical of Potential Concern <sup>b</sup>	Units	Total Samples	Total Non-Detects <sup>c</sup>	Non-Detects greater than Maximum Detected Concentration <sup>d</sup>	Arithmetic Mean <sup>e</sup>	Maximum Detected Concentration	95% UCL			Exposure Point Concentration		
									Distribution	95% UCL Method	Value			
RM 4 East	UD	<b>Metals</b>												
		Aluminum	mg/kg	4	0	0	4.9E+01	7.3E+01		Fewer than 5 detects		7.3E+01		
		Antimony	mg/kg	4	2	0	1.0E-03	2.0E-03			2.0E-03			
		Arsenic, inorganic	mg/kg	4	0	0	9.0E-02	9.5E-02			9.5E-02			
		Cadmium	mg/kg	4	0	0	1.1E-01	1.5E-01			1.5E-01			
		Chromium	mg/kg	4	0	0	5.6E-01	7.3E-01			7.3E-01			
		Copper	mg/kg	4	0	0	9.3E+00	1.1E+01			1.1E+01			
		Lead	mg/kg	4	0	0	1.2E-01	2.6E-01			2.6E-01			
		Manganese	mg/kg	NA	NA	NA	NA	NA			NA			
		Mercury	mg/kg	4	0	0	9.4E-03	1.1E-02			1.1E-02			
		Nickel	mg/kg	4	0	0	3.3E-01	4.6E-01			4.6E-01			
		Selenium	mg/kg	4	0	0	8.6E-02	9.8E-02			9.8E-02			
		Silver	mg/kg	4	0	0	5.3E-02	5.8E-02			5.8E-02			
		Thallium	mg/kg	NA	NA	NA	NA	NA			NA			
		Zinc	mg/kg	4	0	0	3.0E+01	3.4E+01			3.4E+01			
		<b>Butyltins</b>												
		Butyltin ion	ug/kg	4	0	0	4.4E+00	5.7E+00			5.7E+00			
		Dibutyltin ion	ug/kg	4	0	0	5.4E+00	5.9E+00		5.9E+00				
		Tributyltin ion	ug/kg	4	0	0	7.6E+00	8.7E+00		8.7E+00				
		<b>Polynuclear Aromatic Hydrocarbons</b>												
		1-Methylnaphthalene	ug/kg	NA	NA	NA	NA	NA		NA				
		2-Methylnaphthalene	ug/kg	4	0	0	1.5E+00	1.8E+00		1.8E+00				
		Acenaphthene	ug/kg	4	0	0	1.8E+00	3.0E+00		3.0E+00				
		Acenaphthylene	ug/kg	4	0	0	1.6E+00	1.9E+00		1.9E+00				
		Anthracene	ug/kg	4	0	0	6.3E+00	8.9E+00		8.9E+00				
		Benzo(a)anthracene	ug/kg	4	0	0	3.8E+01	4.4E+01		4.4E+01				
		Benzo(a)pyrene	ug/kg	4	0	0	8.0E+00	9.8E+00		9.8E+00				
		Benzo(b)fluoranthene	ug/kg	4	0	0	1.2E+01	2.0E+01		2.0E+01				
		Benzo(e)pyrene	ug/kg	NA	NA	NA	NA	NA		NA				
		Benzo(g,h,i)perylene	ug/kg	4	0	0	3.6E+00	4.1E+00		4.1E+00				
		Benzo(k)fluoranthene	ug/kg	4	0	0	6.3E+00	8.7E+00		8.7E+00				
		Chrysene	ug/kg	4	0	0	4.2E+01	5.4E+01		5.4E+01				
		Dibenzo(a,h)anthracene	ug/kg	4	1	0	7.9E-01	1.3E+00		1.3E+00				
		Dibenzothiophene	ug/kg	NA	NA	NA	NA	NA		NA				
		Fluoranthene	ug/kg	4	0	0	5.8E+01	6.7E+01		6.7E+01				
		Fluorene	ug/kg	4	0	0	2.1E+00	2.4E+00		2.4E+00				
		Indeno(1,2,3-cd)pyrene	ug/kg	4	0	0	2.6E+00	3.3E+00		3.3E+00				
		Naphthalene	ug/kg	4	4	ND	ND	ND		ND				
		Perylene	ug/kg	NA	NA	NA	NA	NA		NA				
		Phenanthrene	ug/kg	4	0	0	1.7E+01	2.4E+01		2.4E+01				
		Pyrene	ug/kg	4	0	0	6.0E+01	6.9E+01		6.9E+01				

TABLE 3-19  
Exposure Point Concentration Summary - Clam, by River Mile

Scenario Timeframe: Current/Future
Medium: Shellfish Tissue
Exposure Medium: Clam, by River Mile

Exposure Point <sup>a</sup>	Tissue Type	Chemical of Potential Concern <sup>b</sup>	Units	Total Samples	Total Non-Detects <sup>c</sup>	Non-Detects greater than Maximum Detected Concentration <sup>d</sup>	Arithmetic Mean <sup>e</sup>	Maximum Detected Concentration	95% UCL			Exposure Point Concentration
									Distribution	95% UCL Method	Value	
		<b>Phthalates</b>										
		Bis(2-ethylhexyl) phthalate	ug/kg	4	4	ND	ND	ND				ND
		Dibutyl phthalate	ug/kg	4	4	ND	ND	ND				ND
		<b>Semivolatile Organic Compounds</b>										
		Benzoic acid	ug/kg	NA	NA	NA	NA	NA				NA
		Benzyl alcohol	ug/kg	4	1	1	9.9E+00	1.1E+01				1.1E+01
		Bis(2-chloroethoxy) methane	ug/kg	NA	NA	NA	NA	NA				NA
		Dibenzofuran	ug/kg	4	0	0	8.5E-01	1.1E+00				1.1E+00
		Hexachlorobenzene	ug/kg	4	1	1	4.2E-01	4.7E-01				4.7E-01
		Hexachlorobutadiene	ug/kg	4	4	ND	ND	ND				ND
		Nitrobenzene	ug/kg	NA	NA	NA	NA	NA				NA
		<b>Phenols</b>										
		4-Nitrophenol	ug/kg	NA	NA	NA	NA	NA				NA
		Phenol	ug/kg	4	4	ND	ND	ND				ND
		<b>Polychlorinated Biphenyls</b>										
		Total Aroclors	ug/kg	NA	NA	NA	NA	NA				NA
		Total PCB Congeners	pg/g	3	0	0	9.6E+04	1.1E+05				1.1E+05
		Total PCBs, Adjusted	pg/g	3	0	0	9.0E+04	1.0E+05				1.0E+05
		<b>Dioxin/Furan</b>										
		Total Dioxin/Furan TEQ	pg/g	4	0	0	1.2E+00	3.3E+00				3.3E+00
		Total PCB TEQ	pg/g	3	0	0	1.0E+00	1.4E+00				1.4E+00
		<b>Pesticides</b>										
		Aldrin	ug/kg	3	0	0	1.5E-01	1.7E-01				1.7E-01
		alpha-Hexachlorocyclohexane	ug/kg	3	2	2	6.1E-03	6.1E-03				6.1E-03
		beta-Hexachlorocyclohexane	ug/kg	3	3	ND	ND	ND				ND
		Dieldrin	ug/kg	3	0	0	6.7E-01	6.9E-01				6.9E-01
		Endrin	ug/kg	3	1	0	4.7E-03	6.9E-03				6.9E-03
		Endrin aldehyde	ug/kg	3	3	ND	ND	ND				ND
		Endrin ketone	ug/kg	3	3	ND	ND	ND				ND
		gamma-Hexachlorocyclohexane	ug/kg	3	0	0	4.5E-02	6.4E-02				6.4E-02
		Heptachlor	ug/kg	3	3	ND	ND	ND				ND
		Heptachlor epoxide	ug/kg	3	1	1	4.7E-02	4.8E-02				4.8E-02
		Methoxychlor	ug/kg	3	3	ND	ND	ND				ND
		Total Chlordanes	ug/kg	3	0	0	2.6E+00	2.7E+00				2.7E+00
		Total DDD	ug/kg	3	0	0	6.8E+00	7.4E+00				7.4E+00
		Total DDE	ug/kg	3	0	0	9.3E+00	9.7E+00				9.7E+00
		Total DDT	ug/kg	3	0	0	2.1E+00	2.2E+00				2.2E+00
		Total Endosulfan	ug/kg	3	0	0	7.8E-01	8.0E-01				8.0E-01

TABLE 3-19  
Exposure Point Concentration Summary - Clam, by River Mile

Scenario Timeframe: Current/Future
Medium: Shellfish Tissue
Exposure Medium: Clam, by River Mile

Exposure Point <sup>a</sup>	Tissue Type	Chemical of Potential Concern <sup>b</sup>	Units	Total Samples	Total Non-Detects <sup>c</sup>	Non-Detects greater than Maximum Detected Concentration <sup>d</sup>	Arithmetic Mean <sup>e</sup>	Maximum Detected Concentration	95% UCL			Exposure Point Concentration		
									Distribution	95% UCL Method	Value			
RM 4 West	UD	<b>Metals</b>												
		Aluminum	mg/kg	2	0	0	7.1E+01	7.2E+01		Fewer than 5 detects		7.2E+01		
		Antimony	mg/kg	2	2	ND	ND	ND			ND			
		Arsenic, inorganic	mg/kg	2	0	0	8.8E-02	1.0E-01			1.0E-01			
		Cadmium	mg/kg	2	0	0	6.6E-02	7.6E-02			7.6E-02			
		Chromium	mg/kg	2	0	0	5.2E-01	6.3E-01			6.3E-01			
		Copper	mg/kg	2	0	0	8.0E+00	9.5E+00			9.5E+00			
		Lead	mg/kg	2	0	0	5.7E-02	6.6E-02			6.6E-02			
		Manganese	mg/kg	1	0	0	5.3E+00	5.3E+00			5.3E+00			
		Mercury	mg/kg	2	0	0	1.1E-02	1.3E-02			1.3E-02			
		Nickel	mg/kg	2	0	0	2.3E-01	2.9E-01			2.9E-01			
		Selenium	mg/kg	2	0	0	1.3E-01	1.8E-01			1.8E-01			
		Silver	mg/kg	2	0	0	4.9E-02	6.7E-02			6.7E-02			
		Thallium	mg/kg	1	0	0	1.0E-03	1.0E-03			1.0E-03			
		Zinc	mg/kg	2	0	0	3.3E+01	3.8E+01			3.8E+01			
		<b>Butyltins</b>												
		Butyltin ion	ug/kg	2	1	0	9.8E-01	1.3E+00			1.3E+00			
		Dibutyltin ion	ug/kg	2	1	0	1.7E+00	2.4E+00			2.4E+00			
		Tributyltin ion	ug/kg	2	1	0	3.0E+00	4.0E+00			4.0E+00			
		<b>Polynuclear Aromatic Hydrocarbons</b>												
		1-Methylnaphthalene	ug/kg	1	0	0	1.7E+00	1.7E+00			1.7E+00			
		2-Methylnaphthalene	ug/kg	2	0	0	2.4E+00	2.4E+00			2.4E+00			
		Acenaphthene	ug/kg	2	1	0	2.3E+00	4.6E+00			4.6E+00			
		Acenaphthylene	ug/kg	2	0	0	2.6E+00	3.8E+00			3.8E+00			
		Anthracene	ug/kg	2	0	0	1.7E+01	3.0E+01			3.0E+01			
		Benzo(a)anthracene	ug/kg	2	0	0	8.4E+01	1.5E+02			1.5E+02			
		Benzo(a)pyrene	ug/kg	2	0	0	2.2E+01	3.9E+01			3.9E+01			
		Benzo(b)fluoranthene	ug/kg	2	0	0	2.4E+01	4.3E+01			4.3E+01			
		Benzo(e)pyrene	ug/kg	1	0	0	9.1E+00	9.1E+00			9.1E+00			
		Benzo(g,h,i)perylene	ug/kg	2	0	0	1.1E+01	1.6E+01			1.6E+01			
		Benzo(k)fluoranthene	ug/kg	2	0	0	1.6E+01	2.8E+01			2.8E+01			
		Chrysene	ug/kg	2	0	0	8.6E+01	1.5E+02			1.5E+02			
		Dibenzo(a,h)anthracene	ug/kg	2	0	0	2.3E+00	3.8E+00			3.8E+00			
		Dibenzothiophene	ug/kg	1	0	0	3.2E+00	3.2E+00			3.2E+00			
		Fluoranthene	ug/kg	2	0	0	1.3E+02	2.2E+02			2.2E+02			
		Fluorene	ug/kg	2	0	0	6.9E+00	9.2E+00			9.2E+00			
		Indeno(1,2,3-cd)pyrene	ug/kg	2	0	0	6.9E+00	9.6E+00			9.6E+00			
		Naphthalene	ug/kg	2	2	ND	ND	ND			ND			
		Perylene	ug/kg	1	0	0	1.3E+00	1.3E+00			1.3E+00			
		Phenanthrene	ug/kg	2	0	0	4.8E+01	6.6E+01			6.6E+01			
Pyrene	ug/kg	2	0	0	1.5E+02	2.4E+02		2.4E+02						

TABLE 3-19  
Exposure Point Concentration Summary - Clam, by River Mile

Scenario Timeframe: Current/Future
Medium: Shellfish Tissue
Exposure Medium: Clam, by River Mile

Exposure Point <sup>a</sup>	Tissue Type	Chemical of Potential Concern <sup>b</sup>	Units	Total Samples	Total Non-Detects <sup>c</sup>	Non-Detects greater than Maximum Detected Concentration <sup>d</sup>	Arithmetic Mean <sup>e</sup>	Maximum Detected Concentration	95% UCL			Exposure Point Concentration
									Distribution	95% UCL Method	Value	
		<b>Phthalates</b>										
		Bis(2-ethylhexyl) phthalate	ug/kg	3	2	1	5.6E+01	8.5E+01				8.5E+01
		Dibutyl phthalate	ug/kg	3	3	ND	ND	ND				ND
		<b>Semivolatile Organic Compounds</b>										
		Benzoic acid	ug/kg	1	0	0	3.7E+03	3.7E+03				3.7E+03
		Benzyl alcohol	ug/kg	3	1	0	4.5E+01	1.1E+02				1.1E+02
		Bis(2-chloroethoxy) methane	ug/kg	1	1	ND	ND	ND				ND
		Dibenzofuran	ug/kg	2	0	0	8.3E-01	1.2E+00				1.2E+00
		Hexachlorobenzene	ug/kg	3	0	0	6.3E-01	6.4E-01				6.4E-01
		Hexachlorobutadiene	ug/kg	3	3	ND	ND	ND				ND
		Nitrobenzene	ug/kg	1	0	0	1.9E+02	1.9E+02				1.9E+02
		<b>Phenols</b>										
		4-Nitrophenol	ug/kg	1	1	ND	ND	ND				ND
		Phenol	ug/kg	3	3	ND	ND	ND				ND
		<b>Polychlorinated Biphenyls</b>										
		Total Aroclors	ug/kg	NA	NA	NA	NA	NA				NA
		Total PCB Congeners	pg/g	3	0	0	9.7E+04	1.3E+05				1.3E+05
		Total PCBs, Adjusted	pg/g	3	0	0	9.1E+04	1.2E+05				1.2E+05
		<b>Dioxin/Furan</b>										
		Total Dioxin/Furan TEQ	pg/g	3	0	0	8.2E-01	9.5E-01				9.5E-01
		Total PCB TEQ	pg/g	3	0	0	1.1E+00	1.6E+00				1.6E+00
		<b>Pesticides</b>										
		Aldrin	ug/kg	3	0	0	2.3E-01	2.5E-01				2.5E-01
		alpha-Hexachlorocyclohexane	ug/kg	3	2	1	8.7E-03	1.4E-02				1.4E-02
		beta-Hexachlorocyclohexane	ug/kg	3	3	ND	ND	ND				ND
		Dieldrin	ug/kg	3	0	0	7.7E-01	9.4E-01				9.4E-01
		Endrin	ug/kg	3	2	0	8.6E-03	1.7E-02				1.7E-02
		Endrin aldehyde	ug/kg	3	3	ND	ND	ND				ND
		Endrin ketone	ug/kg	3	3	ND	ND	ND				ND
		gamma-Hexachlorocyclohexane	ug/kg	3	0	0	5.4E-02	6.8E-02				6.8E-02
		Heptachlor	ug/kg	3	2	1	9.4E-03	1.4E-02				1.4E-02
		Heptachlor epoxide	ug/kg	3	0	0	5.4E-02	6.7E-02				6.7E-02
		Methoxychlor	ug/kg	3	2	0	1.2E-01	3.2E-01				3.2E-01
		Total Chlordanes	ug/kg	3	0	0	3.2E+00	3.4E+00				3.4E+00
		Total DDD	ug/kg	3	0	0	1.6E+01	1.8E+01				1.8E+01
		Total DDE	ug/kg	3	0	0	1.4E+01	1.5E+01				1.5E+01
		Total DDT	ug/kg	3	0	0	3.5E+00	4.1E+00				4.1E+00
		Total Endosulfan	ug/kg	3	0	0	9.1E-01	1.2E+00				1.2E+00

TABLE 3-19  
Exposure Point Concentration Summary - Clam, by River Mile

Scenario Timeframe: Current/Future
Medium: Shellfish Tissue
Exposure Medium: Clam, by River Mile

Exposure Point <sup>a</sup>	Tissue Type	Chemical of Potential Concern <sup>b</sup>	Units	Total Samples	Total Non-Detects <sup>c</sup>	Non-Detects greater than Maximum Detected Concentration <sup>d</sup>	Arithmetic Mean <sup>e</sup>	Maximum Detected Concentration	95% UCL			Exposure Point Concentration	
									Distribution	95% UCL Method	Value		
RM 5 East	UD	<b>Metals</b>											
		Aluminum	mg/kg	2	0	0	1.1E+02	1.2E+02		Fewer than 5 detects		1.2E+02	
		Antimony	mg/kg	2	2	ND	ND	ND			ND		
		Arsenic, inorganic	mg/kg	2	0	0	8.0E-02	8.3E-02			8.3E-02		
		Cadmium	mg/kg	2	0	0	6.0E-02	6.9E-02			6.9E-02		
		Chromium	mg/kg	2	0	0	4.5E-01	5.1E-01			5.1E-01		
		Copper	mg/kg	2	0	0	8.2E+00	9.1E+00			9.1E+00		
		Lead	mg/kg	2	0	0	6.4E-02	6.9E-02			6.9E-02		
		Manganese	mg/kg	1	0	0	6.6E+00	6.6E+00			6.6E+00		
		Mercury	mg/kg	2	0	0	1.4E-02	1.9E-02			1.9E-02		
		Nickel	mg/kg	2	0	0	2.7E-01	3.6E-01			3.6E-01		
		Selenium	mg/kg	2	0	0	1.6E-01	1.7E-01			1.7E-01		
		Silver	mg/kg	2	0	0	4.8E-02	6.2E-02			6.2E-02		
		Thallium	mg/kg	1	0	0	1.2E-03	1.2E-03			1.2E-03		
		Zinc	mg/kg	2	0	0	3.1E+01	3.2E+01			3.2E+01		
		<b>Butyltins</b>											
		Butyltin ion	ug/kg	2	0	0	2.2E+00	2.4E+00			2.4E+00		
		Dibutyltin ion	ug/kg	2	0	0	3.6E+00	3.6E+00			3.6E+00		
		Tributyltin ion	ug/kg	2	0	0	7.2E+00	8.9E+00			8.9E+00		
		<b>Polynuclear Aromatic Hydrocarbons</b>											
		1-Methylnaphthalene	ug/kg	1	0	0	1.2E+00	1.2E+00		1.2E+00			
		2-Methylnaphthalene	ug/kg	2	0	0	2.1E+00	2.3E+00		2.3E+00			
		Acenaphthene	ug/kg	2	0	0	1.2E+00	1.3E+00		1.3E+00			
		Acenaphthylene	ug/kg	2	0	0	9.3E-01	1.4E+00		1.4E+00			
		Anthracene	ug/kg	2	0	0	4.2E+00	5.6E+00		5.6E+00			
		Benzo(a)anthracene	ug/kg	2	0	0	1.5E+01	2.2E+01		2.2E+01			
		Benzo(a)pyrene	ug/kg	2	0	0	2.7E+00	4.6E+00		4.6E+00			
		Benzo(b)fluoranthene	ug/kg	2	0	0	3.1E+00	4.7E+00		4.7E+00			
		Benzo(e)pyrene	ug/kg	1	0	0	3.1E+00	3.1E+00		3.1E+00			
		Benzo(g,h,i)perylene	ug/kg	2	0	0	1.3E+00	1.6E+00		1.6E+00			
		Benzo(k)fluoranthene	ug/kg	2	1	0	1.8E+00	3.3E+00		3.3E+00			
		Chrysene	ug/kg	2	0	0	1.8E+01	2.4E+01		2.4E+01			
		Dibenzo(a,h)anthracene	ug/kg	2	1	0	3.1E-01	5.0E-01		5.0E-01			
		Dibenzothiophene	ug/kg	1	1	ND	ND	ND		ND			
		Fluoranthene	ug/kg	2	0	0	3.1E+01	3.7E+01		3.7E+01			
		Fluorene	ug/kg	2	0	0	2.5E+00	3.0E+00		3.0E+00			
		Indeno(1,2,3-cd)pyrene	ug/kg	2	0	0	7.1E-01	9.5E-01		9.5E-01			
		Naphthalene	ug/kg	2	2	ND	ND	ND		ND			
		Perylene	ug/kg	1	0	0	2.6E-01	2.6E-01		2.6E-01			
		Phenanthrene	ug/kg	2	0	0	1.3E+01	1.6E+01		1.6E+01			
		Pyrene	ug/kg	2	0	0	2.9E+01	3.6E+01		3.6E+01			

TABLE 3-19  
Exposure Point Concentration Summary - Clam, by River Mile

Scenario Timeframe: Current/Future
Medium: Shellfish Tissue
Exposure Medium: Clam, by River Mile

Exposure Point <sup>a</sup>	Tissue Type	Chemical of Potential Concern <sup>b</sup>	Units	Total Samples	Total Non-Detects <sup>c</sup>	Non-Detects greater than Maximum Detected Concentration <sup>d</sup>	Arithmetic Mean <sup>e</sup>	Maximum Detected Concentration	95% UCL			Exposure Point Concentration
									Distribution	95% UCL Method	Value	
		<b>Phthalates</b>										
		Bis(2-ethylhexyl) phthalate	ug/kg	2	1	1	7.7E+01	7.7E+01				7.7E+01
		Dibutyl phthalate	ug/kg	2	2	ND	ND	ND				ND
		<b>Semivolatile Organic Compounds</b>										
		Benzoic acid	ug/kg	1	0	0	3.9E+03	3.9E+03				3.9E+03
		Benzyl alcohol	ug/kg	2	1	0	4.2E+01	7.2E+01				7.2E+01
		Bis(2-chloroethoxy) methane	ug/kg	1	1	ND	ND	ND				ND
		Dibenzofuran	ug/kg	2	0	0	1.2E+00	1.4E+00				1.4E+00
		Hexachlorobenzene	ug/kg	2	0	0	5.9E-01	7.4E-01				7.4E-01
		Hexachlorobutadiene	ug/kg	2	1	1	5.3E-03	5.3E-03				5.3E-03
		Nitrobenzene	ug/kg	1	0	0	4.1E+02	4.1E+02				4.1E+02
		<b>Phenols</b>										
		4-Nitrophenol	ug/kg	1	1	ND	ND	ND				ND
		Phenol	ug/kg	2	2	ND	ND	ND				ND
		<b>Polychlorinated Biphenyls</b>										
		Total Aroclors	ug/kg	NA	NA	NA	NA	NA				NA
		Total PCB Congeners	pg/g	2	0	0	1.3E+05	1.5E+05				1.5E+05
		Total PCBs, Adjusted	pg/g	2	0	0	1.2E+05	1.5E+05				1.5E+05
		<b>Dioxin/Furan</b>										
		Total Dioxin/Furan TEQ	pg/g	2	0	0	5.8E-01	6.1E-01				6.1E-01
		Total PCB TEQ	pg/g	2	0	0	1.2E+00	1.5E+00				1.5E+00
		<b>Pesticides</b>										
		Aldrin	ug/kg	2	0	0	3.0E-01	3.8E-01				3.8E-01
		alpha-Hexachlorocyclohexane	ug/kg	2	2	ND	ND	ND				ND
		beta-Hexachlorocyclohexane	ug/kg	2	2	ND	ND	ND				ND
		Dieldrin	ug/kg	2	0	0	6.9E-01	7.2E-01				7.2E-01
		Endrin	ug/kg	2	2	ND	ND	ND				ND
		Endrin aldehyde	ug/kg	2	2	ND	ND	ND				ND
		Endrin ketone	ug/kg	2	2	ND	ND	ND				ND
		gamma-Hexachlorocyclohexane	ug/kg	2	0	0	3.7E-02	3.8E-02				3.8E-02
		Heptachlor	ug/kg	2	1	0	7.2E-03	1.1E-02				1.1E-02
		Heptachlor epoxide	ug/kg	2	0	0	4.7E-02	5.1E-02				5.1E-02
		Methoxychlor	ug/kg	2	2	ND	ND	ND				ND
		Total Chlordanes	ug/kg	2	0	0	3.8E+00	4.6E+00				4.6E+00
		Total DDD	ug/kg	2	0	0	9.9E+00	1.1E+01				1.1E+01
		Total DDE	ug/kg	2	0	0	1.3E+01	1.5E+01				1.5E+01
		Total DDT	ug/kg	2	0	0	1.9E+00	2.3E+00				2.3E+00
		Total Endosulfan	ug/kg	2	0	0	5.9E-01	7.4E-01				7.4E-01

TABLE 3-19  
Exposure Point Concentration Summary - Clam, by River Mile

Scenario Timeframe: Current/Future
Medium: Shellfish Tissue
Exposure Medium: Clam, by River Mile

Exposure Point <sup>a</sup>	Tissue Type	Chemical of Potential Concern <sup>b</sup>	Units	Total Samples	Total Non-Detects <sup>c</sup>	Non-Detects greater than Maximum Detected Concentration <sup>d</sup>	Arithmetic Mean <sup>e</sup>	Maximum Detected Concentration	95% UCL			Exposure Point Concentration	
									Distribution	95% UCL Method	Value		
RM 5 West	UD	<b>Metals</b>											
		Aluminum	mg/kg	2	0	0	9.2E+01	1.3E+02		Fewer than 5 detects		1.3E+02	
		Antimony	mg/kg	2	2	ND	ND	ND			ND		
		Arsenic, inorganic	mg/kg	2	0	0	9.8E-02	1.1E-01			1.1E-01		
		Cadmium	mg/kg	2	0	0	7.2E-02	7.7E-02			7.7E-02		
		Chromium	mg/kg	2	0	0	6.3E-01	7.5E-01			7.5E-01		
		Copper	mg/kg	2	0	0	1.1E+01	1.2E+01			1.2E+01		
		Lead	mg/kg	2	0	0	6.0E-02	7.1E-02			7.1E-02		
		Manganese	mg/kg	1	0	0	7.4E+00	7.4E+00			7.4E+00		
		Mercury	mg/kg	2	0	0	2.1E-02	2.6E-02			2.6E-02		
		Nickel	mg/kg	2	0	0	2.7E-01	3.1E-01			3.1E-01		
		Selenium	mg/kg	2	0	0	1.5E-01	1.9E-01			1.9E-01		
		Silver	mg/kg	2	0	0	6.5E-02	8.3E-02			8.3E-02		
		Thallium	mg/kg	1	0	0	1.1E-03	1.1E-03			1.1E-03		
		Zinc	mg/kg	2	0	0	3.0E+01	3.1E+01			3.1E+01		
		<b>Butyltins</b>											
		Butyltin ion	ug/kg	2	1	0	1.5E+00	2.9E+00			2.9E+00		
		Dibutyltin ion	ug/kg	2	1	0	1.7E+00	2.5E+00			2.5E+00		
		Tributyltin ion	ug/kg	2	2	ND	ND	ND			ND		
		<b>Polynuclear Aromatic Hydrocarbons</b>											
		1-Methylnaphthalene	ug/kg	1	0	0	1.7E+00	1.7E+00		1.7E+00			
		2-Methylnaphthalene	ug/kg	2	0	0	2.2E+00	2.3E+00		2.3E+00			
		Acenaphthene	ug/kg	2	0	0	1.2E+01	2.1E+01		2.1E+01			
		Acenaphthylene	ug/kg	2	0	0	7.6E+00	1.4E+01		1.4E+01			
		Anthracene	ug/kg	2	0	0	3.6E+01	6.5E+01		6.5E+01			
		Benzo(a)anthracene	ug/kg	2	0	0	3.5E+02	6.7E+02		6.7E+02			
		Benzo(a)pyrene	ug/kg	2	0	0	2.3E+02	4.6E+02		4.6E+02			
		Benzo(b)fluoranthene	ug/kg	2	0	0	2.2E+02	4.3E+02		4.3E+02			
		Benzo(e)pyrene	ug/kg	1	0	0	1.1E+01	1.1E+01		1.1E+01			
		Benzo(g,h,i)perylene	ug/kg	2	0	0	1.2E+02	2.3E+02		2.3E+02			
		Benzo(k)fluoranthene	ug/kg	2	0	0	1.4E+02	2.8E+02		2.8E+02			
		Chrysene	ug/kg	2	0	0	2.9E+02	5.6E+02		5.6E+02			
		Dibenzo(a,h)anthracene	ug/kg	2	1	0	1.9E+01	3.7E+01		3.7E+01			
		Dibenzothiophene	ug/kg	1	0	0	2.4E+00	2.4E+00		2.4E+00			
		Fluoranthene	ug/kg	2	0	0	4.2E+02	7.7E+02		7.7E+02			
		Fluorene	ug/kg	2	0	0	1.0E+01	1.6E+01		1.6E+01			
		Indeno(1,2,3-cd)pyrene	ug/kg	2	0	0	8.1E+01	1.6E+02		1.6E+02			
		Naphthalene	ug/kg	2	1	0	2.2E+00	3.0E+00		3.0E+00			
		Perylene	ug/kg	1	0	0	1.0E+00	1.0E+00		1.0E+00			
		Phenanthrene	ug/kg	2	0	0	1.1E+02	1.9E+02		1.9E+02			
		Pyrene	ug/kg	2	0	0	4.6E+02	8.5E+02		8.5E+02			



TABLE 3-19  
Exposure Point Concentration Summary - Clam, by River Mile

Scenario Timeframe: Current/Future
Medium: Shellfish Tissue
Exposure Medium: Clam, by River Mile

Exposure Point <sup>a</sup>	Tissue Type	Chemical of Potential Concern <sup>b</sup>	Units	Total Samples	Total Non-Detects <sup>c</sup>	Non-Detects greater than Maximum Detected Concentration <sup>d</sup>	Arithmetic Mean <sup>e</sup>	Maximum Detected Concentration	95% UCL			Exposure Point Concentration
									Distribution	95% UCL Method	Value	
		<b>Phthalates</b>										
		Bis(2-ethylhexyl) phthalate	ug/kg	2	1	0	8.8E+01	1.5E+02				1.5E+02
		Dibutyl phthalate	ug/kg	2	2	ND	ND	ND				ND
		<b>Semivolatile Organic Compounds</b>										
		Benzoic acid	ug/kg	1	0	0	4.7E+03	4.7E+03				4.7E+03
		Benzyl alcohol	ug/kg	2	1	1	9.4E+00	9.4E+00				9.4E+00
		Bis(2-chloroethoxy) methane	ug/kg	1	1	ND	ND	ND				ND
		Dibenzofuran	ug/kg	2	1	0	6.7E-01	1.3E+00				1.3E+00
		Hexachlorobenzene	ug/kg	2	0	0	6.2E-01	6.8E-01				6.8E-01
		Hexachlorobutadiene	ug/kg	2	1	1	2.5E-02	2.5E-02				2.5E-02
		Nitrobenzene	ug/kg	1	0	0	1.9E+02	1.9E+02				1.9E+02
		<b>Phenols</b>										
		4-Nitrophenol	ug/kg	1	1	ND	ND	ND				ND
		Phenol	ug/kg	2	2	ND	ND	ND				ND
		<b>Polychlorinated Biphenyls</b>										
		Total Aroclors	ug/kg	NA	NA	NA	NA	NA				NA
		Total PCB Congeners	pg/g	2	0	0	7.5E+04	8.0E+04				8.0E+04
		Total PCBs, Adjusted	pg/g	2	0	0	7.1E+04	7.5E+04				7.5E+04
		<b>Dioxin/Furan</b>										
		Total Dioxin/Furan TEQ	pg/g	2	0	0	1.3E+00	1.5E+00				1.5E+00
		Total PCB TEQ	pg/g	2	0	0	8.7E-01	9.6E-01				9.6E-01
		<b>Pesticides</b>										
		Aldrin	ug/kg	2	0	0	2.4E-01	2.5E-01				2.5E-01
		alpha-Hexachlorocyclohexane	ug/kg	2	2	ND	ND	ND				ND
		beta-Hexachlorocyclohexane	ug/kg	2	2	ND	ND	ND				ND
		Dieldrin	ug/kg	2	0	0	7.2E-01	8.7E-01				8.7E-01
		Endrin	ug/kg	2	2	ND	ND	ND				ND
		Endrin aldehyde	ug/kg	2	2	ND	ND	ND				ND
		Endrin ketone	ug/kg	2	2	ND	ND	ND				ND
		gamma-Hexachlorocyclohexane	ug/kg	2	0	0	4.8E-02	6.5E-02				6.5E-02
		Heptachlor	ug/kg	2	1	0	2.1E-02	3.8E-02				3.8E-02
		Heptachlor epoxide	ug/kg	2	0	0	5.2E-02	6.1E-02				6.1E-02
		Methoxychlor	ug/kg	2	2	ND	ND	ND				ND
		Total Chlordanes	ug/kg	2	0	0	3.0E+00	3.3E+00				3.3E+00
		Total DDD	ug/kg	2	0	0	2.3E+01	2.4E+01				2.4E+01
		Total DDE	ug/kg	2	0	0	1.6E+01	1.7E+01				1.7E+01
		Total DDT	ug/kg	2	0	0	5.6E+00	6.8E+00				6.8E+00
		Total Endosulfan	ug/kg	2	0	0	6.3E-01	8.9E-01				8.9E-01

TABLE 3-19  
Exposure Point Concentration Summary - Clam, by River Mile

Scenario Timeframe: Current/Future
Medium: Shellfish Tissue
Exposure Medium: Clam, by River Mile

Exposure Point <sup>a</sup>	Tissue Type	Chemical of Potential Concern <sup>b</sup>	Units	Total Samples	Total Non-Detects <sup>c</sup>	Non-Detects greater than Maximum Detected Concentration <sup>d</sup>	Arithmetic Mean <sup>e</sup>	Maximum Detected Concentration	95% UCL			Exposure Point Concentration		
									Distribution	95% UCL Method	Value			
RM 6 East	UD	<b>Metals</b>												
		Aluminum	mg/kg	2	0	0	7.5E+01	9.7E+01		Fewer than 5 detects		9.7E+01		
		Antimony	mg/kg	2	1	1	1.0E-03	1.0E-03			1.0E-03			
		Arsenic, inorganic	mg/kg	2	0	0	9.0E-02	9.7E-02			9.7E-02			
		Cadmium	mg/kg	2	0	0	5.6E-02	5.8E-02			5.8E-02			
		Chromium	mg/kg	2	0	0	5.1E-01	5.9E-01			5.9E-01			
		Copper	mg/kg	2	0	0	9.5E+00	1.1E+01			1.1E+01			
		Lead	mg/kg	2	0	0	9.3E-02	1.2E-01			1.2E-01			
		Manganese	mg/kg	1	0	0	4.2E+00	4.2E+00			4.2E+00			
		Mercury	mg/kg	2	0	0	1.2E-02	1.2E-02			1.2E-02			
		Nickel	mg/kg	2	0	0	2.3E-01	3.0E-01			3.0E-01			
		Selenium	mg/kg	2	0	0	1.1E-01	1.2E-01			1.2E-01			
		Silver	mg/kg	2	0	0	4.9E-02	5.0E-02			5.0E-02			
		Thallium	mg/kg	1	0	0	3.5E-04	3.5E-04			3.5E-04			
		Zinc	mg/kg	2	0	0	2.5E+01	2.7E+01			2.7E+01			
		<b>Butyltins</b>												
		Butyltin ion	ug/kg	1	0	0	3.7E+00	3.7E+00			3.7E+00			
		Dibutyltin ion	ug/kg	1	0	0	7.9E+00	7.9E+00			7.9E+00			
		Tributyltin ion	ug/kg	1	0	0	7.6E+00	7.6E+00		7.6E+00				
		<b>Polynuclear Aromatic Hydrocarbons</b>												
		1-Methylnaphthalene	ug/kg	NA	NA	NA	NA	NA		NA				
		2-Methylnaphthalene	ug/kg	2	1	1	1.8E+00	1.8E+00		1.8E+00				
		Acenaphthene	ug/kg	2	1	1	9.7E-01	9.7E-01		9.7E-01				
		Acenaphthylene	ug/kg	2	1	1	1.2E+00	1.2E+00		1.2E+00				
		Anthracene	ug/kg	2	1	1	5.5E+00	5.5E+00		5.5E+00				
		Benzo(a)anthracene	ug/kg	2	1	1	1.8E+01	1.8E+01		1.8E+01				
		Benzo(a)pyrene	ug/kg	2	1	1	3.8E+00	3.8E+00		3.8E+00				
		Benzo(b)fluoranthene	ug/kg	2	1	1	4.2E+00	4.2E+00		4.2E+00				
		Benzo(e)pyrene	ug/kg	NA	NA	NA	NA	NA		NA				
		Benzo(g,h,i)perylene	ug/kg	2	1	1	1.5E+00	1.5E+00		1.5E+00				
		Benzo(k)fluoranthene	ug/kg	2	1	1	2.8E+00	2.8E+00		2.8E+00				
		Chrysene	ug/kg	2	1	1	2.2E+01	2.2E+01		2.2E+01				
		Dibenzo(a,h)anthracene	ug/kg	2	2	ND	ND	ND		ND				
		Dibenzothiophene	ug/kg	NA	NA	NA	NA	NA		NA				
Fluoranthene	ug/kg	2	0	0	4.2E+01	4.2E+01		4.2E+01						
Fluorene	ug/kg	2	1	1	2.4E+00	2.4E+00		2.4E+00						
Indeno(1,2,3-cd)pyrene	ug/kg	2	1	1	1.2E+00	1.2E+00		1.2E+00						
Naphthalene	ug/kg	2	2	ND	ND	ND		ND						
Perylene	ug/kg	NA	NA	NA	NA	NA		NA						
Phenanthrene	ug/kg	2	1	1	1.6E+01	1.6E+01		1.6E+01						
Pyrene	ug/kg	2	0	0	4.0E+01	4.2E+01		4.2E+01						

TABLE 3-19  
Exposure Point Concentration Summary - Clam, by River Mile

Scenario Timeframe: Current/Future
Medium: Shellfish Tissue
Exposure Medium: Clam, by River Mile

Exposure Point <sup>a</sup>	Tissue Type	Chemical of Potential Concern <sup>b</sup>	Units	Total Samples	Total Non-Detects <sup>c</sup>	Non-Detects greater than Maximum Detected Concentration <sup>d</sup>	Arithmetic Mean <sup>e</sup>	Maximum Detected Concentration	95% UCL			Exposure Point Concentration
									Distribution	95% UCL Method	Value	
		<b>Phthalates</b>										
		Bis(2-ethylhexyl) phthalate	ug/kg	2	2	ND	ND	ND				ND
		Dibutyl phthalate	ug/kg	2	2	ND	ND	ND				ND
		<b>Semivolatile Organic Compounds</b>										
		Benzoic acid	ug/kg	NA	NA	NA	NA	NA				NA
		Benzyl alcohol	ug/kg	2	1	1	2.7E+01	2.7E+01				2.7E+01
		Bis(2-chloroethoxy) methane	ug/kg	1	1	ND	ND	ND				ND
		Dibenzofuran	ug/kg	2	1	1	1.1E+00	1.1E+00				1.1E+00
		Hexachlorobenzene	ug/kg	2	1	1	5.5E-01	5.5E-01				5.5E-01
		Hexachlorobutadiene	ug/kg	2	2	ND	ND	ND				ND
		Nitrobenzene	ug/kg	1	1	ND	ND	ND				ND
		<b>Phenols</b>										
		4-Nitrophenol	ug/kg	1	1	ND	ND	ND				ND
		Phenol	ug/kg	2	2	ND	ND	ND				ND
		<b>Polychlorinated Biphenyls</b>										
		Total Aroclors	ug/kg	1	0	0	9.8E+01	9.8E+01				9.8E+01
		Total PCB Congeners	pg/g	1	0	0	2.7E+06	2.7E+06				2.7E+06
		Total PCBs, Adjusted	pg/g	1	0	0	2.6E+06	2.6E+06				2.6E+06
		<b>Dioxin/Furan</b>										
		Total Dioxin/Furan TEQ	pg/g	1	0	0	7.0E-01	7.0E-01				7.0E-01
		Total PCB TEQ	pg/g	1	0	0	8.6E+00	8.6E+00				8.6E+00
		<b>Pesticides</b>										
		Aldrin	ug/kg	2	1	1	2.1E-01	2.1E-01				2.1E-01
		alpha-Hexachlorocyclohexane	ug/kg	2	1	1	1.1E-02	1.1E-02				1.1E-02
		beta-Hexachlorocyclohexane	ug/kg	2	1	0	6.1E-01	1.2E+00				1.2E+00
		Dieldrin	ug/kg	2	1	1	7.7E-01	7.7E-01				7.7E-01
		Endrin	ug/kg	2	2	ND	ND	ND				ND
		Endrin aldehyde	ug/kg	2	2	ND	ND	ND				ND
		Endrin ketone	ug/kg	2	2	ND	ND	ND				ND
		gamma-Hexachlorocyclohexane	ug/kg	2	1	1	7.1E-02	7.1E-02				7.1E-02
		Heptachlor	ug/kg	2	1	1	8.3E-03	8.3E-03				8.3E-03
		Heptachlor epoxide	ug/kg	2	0	0	1.1E+00	2.1E+00				2.1E+00
		Methoxychlor	ug/kg	2	2	ND	ND	ND				ND
		Total Chlordanes	ug/kg	2	0	0	4.5E+00	6.1E+00				6.1E+00
		Total DDD	ug/kg	2	0	0	5.6E+00	6.4E+00				6.4E+00
		Total DDE	ug/kg	2	0	0	8.7E+00	9.4E+00				9.4E+00
		Total DDT	ug/kg	2	1	1	1.6E+00	1.6E+00				1.6E+00
		Total Endosulfan	ug/kg	2	1	0	7.6E-01	1.0E+00				1.0E+00

TABLE 3-19  
Exposure Point Concentration Summary - Clam, by River Mile

Scenario Timeframe: Current/Future
Medium: Shellfish Tissue
Exposure Medium: Clam, by River Mile

Exposure Point <sup>a</sup>	Tissue Type	Chemical of Potential Concern <sup>b</sup>	Units	Total Samples	Total Non-Detects <sup>c</sup>	Non-Detects greater than Maximum Detected Concentration <sup>d</sup>	Arithmetic Mean <sup>e</sup>	Maximum Detected Concentration	95% UCL			Exposure Point Concentration	
									Distribution	95% UCL Method	Value		
RM 6 West	UD	<b>Metals</b>											
		Aluminum	mg/kg	2	0	0	7.5E+01	8.0E+01		Fewer than 5 detects		8.0E+01	
		Antimony	mg/kg	2	2	ND	ND	ND			ND		
		Arsenic, inorganic	mg/kg	2	0	0	1.0E-01	1.1E-01			1.1E-01		
		Cadmium	mg/kg	2	0	0	7.7E-02	7.8E-02			7.8E-02		
		Chromium	mg/kg	2	0	0	7.0E-01	7.3E-01			7.3E-01		
		Copper	mg/kg	2	0	0	1.2E+01	1.2E+01			1.2E+01		
		Lead	mg/kg	2	0	0	6.3E-02	7.2E-02			7.2E-02		
		Manganese	mg/kg	NA	NA	NA	NA	NA			NA		
		Mercury	mg/kg	1	0	0	1.3E-02	1.3E-02			1.3E-02		
		Nickel	mg/kg	2	0	0	4.4E-01	4.4E-01			4.4E-01		
		Selenium	mg/kg	2	0	0	1.2E-01	1.4E-01			1.4E-01		
		Silver	mg/kg	2	0	0	7.3E-02	7.5E-02			7.5E-02		
		Thallium	mg/kg	NA	NA	NA	NA	NA			NA		
		Zinc	mg/kg	2	0	0	3.7E+01	3.8E+01			3.8E+01		
		<b>Butyltins</b>											
		Butyltin ion	ug/kg	1	0	0	3.5E+00	3.5E+00			3.5E+00		
		Dibutyltin ion	ug/kg	1	0	0	2.9E+00	2.9E+00		2.9E+00			
		Tributyltin ion	ug/kg	1	1	ND	ND	ND		ND			
		<b>Polynuclear Aromatic Hydrocarbons</b>											
		1-Methylnaphthalene	ug/kg	NA	NA	NA	NA	NA		NA			
		2-Methylnaphthalene	ug/kg	2	0	0	1.1E+01	2.0E+01		2.0E+01			
		Acenaphthene	ug/kg	2	0	0	3.2E+01	6.1E+01		6.1E+01			
		Acenaphthylene	ug/kg	2	0	0	9.3E+00	1.4E+01		1.4E+01			
		Anthracene	ug/kg	2	0	0	5.1E+01	7.8E+01		7.8E+01			
		Benzo(a)anthracene	ug/kg	2	0	0	4.0E+02	6.3E+02		6.3E+02			
		Benzo(a)pyrene	ug/kg	2	0	0	2.8E+02	4.9E+02		4.9E+02			
		Benzo(b)fluoranthene	ug/kg	2	0	0	2.6E+02	4.6E+02		4.6E+02			
		Benzo(e)pyrene	ug/kg	NA	NA	NA	NA	NA		NA			
		Benzo(g,h,i)perylene	ug/kg	2	0	0	1.3E+02	2.3E+02		2.3E+02			
		Benzo(k)fluoranthene	ug/kg	2	0	0	1.8E+02	3.1E+02		3.1E+02			
		Chrysene	ug/kg	2	0	0	3.6E+02	5.6E+02		5.6E+02			
		Dibenzo(a,h)anthracene	ug/kg	2	0	0	2.5E+01	4.3E+01		4.3E+01			
		Dibenzothiophene	ug/kg	NA	NA	NA	NA	NA		NA			
		Fluoranthene	ug/kg	2	0	0	4.9E+02	7.2E+02		7.2E+02			
		Fluorene	ug/kg	2	0	0	2.1E+01	3.6E+01		3.6E+01			
		Indeno(1,2,3-cd)pyrene	ug/kg	2	0	0	9.3E+01	1.7E+02		1.7E+02			
		Naphthalene	ug/kg	2	1	0	1.7E+01	3.3E+01		3.3E+01			
		Perylene	ug/kg	NA	NA	NA	NA	NA		NA			
		Phenanthrene	ug/kg	2	0	0	1.9E+02	3.0E+02		3.0E+02			
		Pyrene	ug/kg	2	0	0	5.5E+02	8.2E+02		8.2E+02			

TABLE 3-19  
Exposure Point Concentration Summary - Clam, by River Mile

Scenario Timeframe: Current/Future
Medium: Shellfish Tissue
Exposure Medium: Clam, by River Mile

Exposure Point <sup>a</sup>	Tissue Type	Chemical of Potential Concern <sup>b</sup>	Units	Total Samples	Total Non-Detects <sup>c</sup>	Non-Detects greater than Maximum Detected Concentration <sup>d</sup>	Arithmetic Mean <sup>e</sup>	Maximum Detected Concentration	95% UCL			Exposure Point Concentration
									Distribution	95% UCL Method	Value	
		<b>Phthalates</b>										
		Bis(2-ethylhexyl) phthalate	ug/kg	2	2	ND	ND	ND				ND
		Dibutyl phthalate	ug/kg	2	2	ND	ND	ND				ND
		<b>Semivolatile Organic Compounds</b>										
		Benzoic acid	ug/kg	NA	NA	NA	NA	NA				NA
		Benzyl alcohol	ug/kg	2	0	0	2.4E+01	3.5E+01				3.5E+01
		Bis(2-chloroethoxy) methane	ug/kg	NA	NA	NA	NA	NA				NA
		Dibenzofuran	ug/kg	2	0	0	3.4E+00	5.2E+00				5.2E+00
		Hexachlorobenzene	ug/kg	2	0	0	8.6E-01	1.1E+00				1.1E+00
		Hexachlorobutadiene	ug/kg	2	2	ND	ND	ND				ND
		Nitrobenzene	ug/kg	NA	NA	NA	NA	NA				NA
		<b>Phenols</b>										
		4-Nitrophenol	ug/kg	NA	NA	NA	NA	NA				NA
		Phenol	ug/kg	2	2	ND	ND	ND				ND
		<b>Polychlorinated Biphenyls</b>										
		Total Aroclors	ug/kg	NA	NA	NA	NA	NA				NA
		Total PCB Congeners	pg/g	2	0	0	9.5E+04	1.1E+05				1.1E+05
		Total PCBs, Adjusted	pg/g	2	0	0	8.9E+04	1.0E+05				1.0E+05
		<b>Dioxin/Furan</b>										
		Total Dioxin/Furan TEQ	pg/g	2	0	0	3.2E+00	4.0E+00				4.0E+00
		Total PCB TEQ	pg/g	2	0	0	1.3E+00	1.4E+00				1.4E+00
		<b>Pesticides</b>										
		Aldrin	ug/kg	2	0	0	3.1E-01	3.6E-01				3.6E-01
		alpha-Hexachlorocyclohexane	ug/kg	2	1	1	1.1E-02	1.1E-02				1.1E-02
		beta-Hexachlorocyclohexane	ug/kg	2	2	ND	ND	ND				ND
		Dieldrin	ug/kg	2	0	0	1.1E+00	1.3E+00				1.3E+00
		Endrin	ug/kg	2	1	1	4.4E-02	4.4E-02				4.4E-02
		Endrin aldehyde	ug/kg	2	2	ND	ND	ND				ND
		Endrin ketone	ug/kg	2	0	0	6.2E-03	8.6E-03				8.6E-03
		gamma-Hexachlorocyclohexane	ug/kg	2	0	0	7.3E-02	8.4E-02				8.4E-02
		Heptachlor	ug/kg	2	0	0	2.4E-01	4.2E-01				4.2E-01
		Heptachlor epoxide	ug/kg	2	0	0	8.7E-02	1.1E-01				1.1E-01
		Methoxychlor	ug/kg	2	1	0	5.4E-02	9.4E-02				9.4E-02
		Total Chlordanes	ug/kg	2	0	0	6.8E+00	9.9E+00				9.9E+00
		Total DDD	ug/kg	2	0	0	1.2E+02	2.0E+02				2.0E+02
		Total DDE	ug/kg	2	0	0	4.1E+01	6.3E+01				6.3E+01
		Total DDT	ug/kg	2	0	0	2.6E+01	4.4E+01				4.4E+01
		Total Endosulfan	ug/kg	2	0	0	1.2E+00	1.4E+00				1.4E+00

TABLE 3-19  
Exposure Point Concentration Summary - Clam, by River Mile

Scenario Timeframe: Current/Future
Medium: Shellfish Tissue
Exposure Medium: Clam, by River Mile

Exposure Point <sup>a</sup>	Tissue Type	Chemical of Potential Concern <sup>b</sup>	Units	Total Samples	Total Non-Detects <sup>c</sup>	Non-Detects greater than Maximum Detected Concentration <sup>d</sup>	Arithmetic Mean <sup>e</sup>	Maximum Detected Concentration	95% UCL			Exposure Point Concentration		
									Distribution	95% UCL Method	Value			
RM 7 East	UD	<b>Metals</b>												
		Aluminum	mg/kg	1	0	0	1.1E+02	1.1E+02		Fewer than 5 detects		1.1E+02		
		Antimony	mg/kg	1	1	ND	ND	ND			ND			
		Arsenic, inorganic	mg/kg	1	0	0	9.1E-02	9.1E-02			9.1E-02			
		Cadmium	mg/kg	1	0	0	7.5E-02	7.5E-02			7.5E-02			
		Chromium	mg/kg	1	0	0	9.0E-01	9.0E-01			9.0E-01			
		Copper	mg/kg	1	0	0	1.0E+01	1.0E+01			1.0E+01			
		Lead	mg/kg	1	0	0	7.3E-02	7.3E-02			7.3E-02			
		Manganese	mg/kg	NA	NA	NA	NA	NA			NA			
		Mercury	mg/kg	1	0	0	1.1E-02	1.1E-02			1.1E-02			
		Nickel	mg/kg	1	0	0	4.4E-01	4.4E-01			4.4E-01			
		Selenium	mg/kg	1	0	0	1.4E-01	1.4E-01			1.4E-01			
		Silver	mg/kg	1	0	0	5.9E-02	5.9E-02			5.9E-02			
		Thallium	mg/kg	NA	NA	NA	NA	NA			NA			
		Zinc	mg/kg	1	0	0	2.8E+01	2.8E+01			2.8E+01			
		<b>Butyltins</b>												
		Butyltin ion	ug/kg	1	0	0	8.4E+00	8.4E+00			8.4E+00			
		Dibutyltin ion	ug/kg	1	0	0	8.1E+00	8.1E+00			8.1E+00			
		Tributyltin ion	ug/kg	1	0	0	1.7E+01	1.7E+01			1.7E+01			
		<b>Polynuclear Aromatic Hydrocarbons</b>												
		1-Methylnaphthalene	ug/kg	NA	NA	NA	NA	NA			NA			
		2-Methylnaphthalene	ug/kg	1	0	0	2.1E+00	2.1E+00			2.1E+00			
		Acenaphthene	ug/kg	1	0	0	1.7E+00	1.7E+00			1.7E+00			
		Acenaphthylene	ug/kg	1	0	0	7.9E-01	7.9E-01			7.9E-01			
		Anthracene	ug/kg	1	0	0	3.4E+00	3.4E+00			3.4E+00			
		Benzo(a)anthracene	ug/kg	1	0	0	1.2E+01	1.2E+01			1.2E+01			
		Benzo(a)pyrene	ug/kg	1	0	0	2.4E+00	2.4E+00			2.4E+00			
		Benzo(b)fluoranthene	ug/kg	1	0	0	3.6E+00	3.6E+00			3.6E+00			
		Benzo(e)pyrene	ug/kg	NA	NA	NA	NA	NA			NA			
		Benzo(g,h,i)perylene	ug/kg	1	0	0	1.2E+00	1.2E+00			1.2E+00			
		Benzo(k)fluoranthene	ug/kg	1	0	0	2.0E+00	2.0E+00			2.0E+00			
		Chrysene	ug/kg	1	0	0	1.9E+01	1.9E+01			1.9E+01			
		Dibenzo(a,h)anthracene	ug/kg	1	1	ND	ND	ND			ND			
		Dibenzothiophene	ug/kg	NA	NA	NA	NA	NA			NA			
		Fluoranthene	ug/kg	1	0	0	4.1E+01	4.1E+01			4.1E+01			
		Fluorene	ug/kg	1	0	0	2.9E+00	2.9E+00			2.9E+00			
		Indeno(1,2,3-cd)pyrene	ug/kg	1	1	ND	ND	ND			ND			
		Naphthalene	ug/kg	1	1	ND	ND	ND			ND			
		Perylene	ug/kg	NA	NA	NA	NA	NA			NA			
		Phenanthrene	ug/kg	1	0	0	1.6E+01	1.6E+01			1.6E+01			
Pyrene	ug/kg	1	0	0	3.3E+01	3.3E+01		3.3E+01						

TABLE 3-19  
Exposure Point Concentration Summary - Clam, by River Mile

Scenario Timeframe: Current/Future
Medium: Shellfish Tissue
Exposure Medium: Clam, by River Mile

Exposure Point <sup>a</sup>	Tissue Type	Chemical of Potential Concern <sup>b</sup>	Units	Total Samples	Total Non-Detects <sup>c</sup>	Non-Detects greater than Maximum Detected Concentration <sup>d</sup>	Arithmetic Mean <sup>e</sup>	Maximum Detected Concentration	95% UCL			Exposure Point Concentration
									Distribution	95% UCL Method	Value	
		<b>Phthalates</b>										
		Bis(2-ethylhexyl) phthalate	ug/kg	1	1	ND	ND	ND				ND
		Dibutyl phthalate	ug/kg	1	1	ND	ND	ND				ND
		<b>Semivolatile Organic Compounds</b>										
		Benzoic acid	ug/kg	NA	NA	NA	NA	NA				NA
		Benzyl alcohol	ug/kg	1	0	0	9.5E+01	9.5E+01				9.5E+01
		Bis(2-chloroethoxy) methane	ug/kg	NA	NA	NA	NA	NA				NA
		Dibenzofuran	ug/kg	1	0	0	1.9E+00	1.9E+00				1.9E+00
		Hexachlorobenzene	ug/kg	1	0	0	5.2E-01	5.2E-01				5.2E-01
		Hexachlorobutadiene	ug/kg	1	1	ND	ND	ND				ND
		Nitrobenzene	ug/kg	NA	NA	NA	NA	NA				NA
		<b>Phenols</b>										
		4-Nitrophenol	ug/kg	NA	NA	NA	NA	NA				NA
		Phenol	ug/kg	1	1	ND	ND	ND				ND
		<b>Polychlorinated Biphenyls</b>										
		Total Aroclors	ug/kg	NA	NA	NA	NA	NA				NA
		Total PCB Congeners	pg/g	1	0	0	9.7E+04	9.7E+04				9.7E+04
		Total PCBs, Adjusted	pg/g	1	0	0	9.2E+04	9.2E+04				9.2E+04
		<b>Dioxin/Furan</b>										
		Total Dioxin/Furan TEQ	pg/g	1	0	0	1.0E+00	1.0E+00				1.0E+00
		Total PCB TEQ	pg/g	1	0	0	8.7E-01	8.7E-01				8.7E-01
		<b>Pesticides</b>										
		Aldrin	ug/kg	1	0	0	1.9E-01	1.9E-01				1.9E-01
		alpha-Hexachlorocyclohexane	ug/kg	1	1	ND	ND	ND				ND
		beta-Hexachlorocyclohexane	ug/kg	1	1	ND	ND	ND				ND
		Dieldrin	ug/kg	1	0	0	7.3E-01	7.3E-01				7.3E-01
		Endrin	ug/kg	1	1	ND	ND	ND				ND
		Endrin aldehyde	ug/kg	1	1	ND	ND	ND				ND
		Endrin ketone	ug/kg	1	0	0	2.4E-03	2.4E-03				2.4E-03
		gamma-Hexachlorocyclohexane	ug/kg	1	0	0	6.5E-02	6.5E-02				6.5E-02
		Heptachlor	ug/kg	1	1	ND	ND	ND				ND
		Heptachlor epoxide	ug/kg	1	0	0	5.2E-02	5.2E-02				5.2E-02
		Methoxychlor	ug/kg	1	1	ND	ND	ND				ND
		Total Chlordanes	ug/kg	1	0	0	2.9E+00	2.9E+00				2.9E+00
		Total DDD	ug/kg	1	0	0	4.5E+00	4.5E+00				4.5E+00
		Total DDE	ug/kg	1	0	0	8.5E+00	8.5E+00				8.5E+00
		Total DDT	ug/kg	1	0	0	1.3E+00	1.3E+00				1.3E+00
		Total Endosulfan	ug/kg	1	0	0	9.5E-01	9.5E-01				9.5E-01

TABLE 3-19  
Exposure Point Concentration Summary - Clam, by River Mile

Scenario Timeframe: Current/Future
Medium: Shellfish Tissue
Exposure Medium: Clam, by River Mile

Exposure Point <sup>a</sup>	Tissue Type	Chemical of Potential Concern <sup>b</sup>	Units	Total Samples	Total Non-Detects <sup>c</sup>	Non-Detects greater than Maximum Detected Concentration <sup>d</sup>	Arithmetic Mean <sup>e</sup>	Maximum Detected Concentration	95% UCL			Exposure Point Concentration		
									Distribution	95% UCL Method	Value			
RM 7 West	UD	<b>Metals</b>												
		Aluminum	mg/kg	4	0	0	9.1E+01	1.7E+02	--	Fewer than 5 detects	--	1.7E+02		
		Antimony	mg/kg	4	1	0	1.1E-03	2.0E-03	--	Fewer than 5 detects	--	2.0E-03		
		Arsenic, inorganic	mg/kg	4	0	0	8.9E-02	9.5E-02	--	Fewer than 5 detects	--	9.5E-02		
		Cadmium	mg/kg	4	0	0	6.7E-02	7.6E-02	--	Fewer than 5 detects	--	7.6E-02		
		Chromium	mg/kg	4	0	0	5.7E-01	6.5E-01	--	Fewer than 5 detects	--	6.5E-01		
		Copper	mg/kg	4	0	0	8.5E+00	9.5E+00	--	Fewer than 5 detects	--	9.5E+00		
		Lead	mg/kg	4	0	0	1.4E-01	3.2E-01	--	Fewer than 5 detects	--	3.2E-01		
		Manganese	mg/kg	2	0	0	6.2E+00	7.6E+00	--	Fewer than 5 detects	--	7.6E+00		
		Mercury	mg/kg	4	0	0	8.5E-03	1.1E-02	--	Fewer than 5 detects	--	1.1E-02		
		Nickel	mg/kg	4	0	0	2.6E-01	3.4E-01	--	Fewer than 5 detects	--	3.4E-01		
		Selenium	mg/kg	4	2	0	8.9E-02	1.7E-01	--	Fewer than 5 detects	--	1.7E-01		
		Silver	mg/kg	4	0	0	4.7E-02	5.6E-02	--	Fewer than 5 detects	--	5.6E-02		
		Thallium	mg/kg	2	0	0	5.5E-04	7.0E-04	--	Fewer than 5 detects	--	7.0E-04		
		Zinc	mg/kg	4	0	0	2.9E+01	4.0E+01	--	Fewer than 5 detects	--	4.0E+01		
				<b>Butyltins</b>										
				Butyltin ion	ug/kg	3	1	0	1.4E+00	2.9E+00	--	Fewer than 5 detects	--	2.9E+00
				Dibutyltin ion	ug/kg	3	0	0	3.2E+00	5.6E+00	--	Fewer than 5 detects	--	5.6E+00
				Tributyltin ion	ug/kg	3	0	0	3.5E+00	4.4E+00	--	Fewer than 5 detects	--	4.4E+00
				<b>Polynuclear Aromatic Hydrocarbons</b>										
				1-Methylnaphthalene	ug/kg	NA	NA	NA	NA	NA	--	Fewer than 5 detects	--	NA
				2-Methylnaphthalene	ug/kg	5	2	2	2.3E+00	3.3E+00	--	Fewer than 5 detects	--	3.3E+00
				Acenaphthene	ug/kg	5	2	2	2.7E+00	4.7E+00	--	Fewer than 5 detects	--	4.7E+00
				Acenaphthylene	ug/kg	5	2	2	1.9E+00	2.4E+00	--	Fewer than 5 detects	--	2.4E+00
				Anthracene	ug/kg	5	2	2	6.1E+00	8.6E+00	--	Fewer than 5 detects	--	8.6E+00
				Benzo(a)anthracene	ug/kg	5	1	0	3.6E+01	8.2E+01	--	Fewer than 5 detects	--	8.2E+01
				Benzo(a)pyrene	ug/kg	5	2	2	8.3E+00	1.9E+01	--	Fewer than 5 detects	--	1.9E+01
				Benzo(b)fluoranthene	ug/kg	5	2	2	1.3E+01	3.0E+01	--	Fewer than 5 detects	--	3.0E+01
				Benzo(e)pyrene	ug/kg	NA	NA	NA	NA	NA	--	Fewer than 5 detects	--	NA
				Benzo(g,h,i)perylene	ug/kg	5	2	2	3.5E+00	7.3E+00	--	Fewer than 5 detects	--	7.3E+00
				Benzo(k)fluoranthene	ug/kg	5	2	2	8.0E+00	2.0E+01	--	Fewer than 5 detects	--	2.0E+01
				Chrysene	ug/kg	5	1	0	3.6E+01	6.6E+01	--	Fewer than 5 detects	--	6.6E+01
				Dibenzo(a,h)anthracene	ug/kg	5	5	ND	ND	ND	--	Fewer than 5 detects	--	ND
				Dibenzothiophene	ug/kg	NA	NA	NA	NA	NA	--	Fewer than 5 detects	--	NA
		Fluoranthene	ug/kg	5	0	0	7.4E+01	1.4E+02	normal	95% Student's-t UCL	1.1E+02	1.1E+02		
		Fluorene	ug/kg	5	2	2	3.7E+00	5.2E+00	--	Fewer than 5 detects	--	5.2E+00		
		Indeno(1,2,3-cd)pyrene	ug/kg	5	3	2	2.8E+00	6.8E+00	--	Fewer than 5 detects	--	6.8E+00		
		Naphthalene	ug/kg	5	4	2	1.4E+00	2.6E+00	--	Fewer than 5 detects	--	2.6E+00		
		Perylene	ug/kg	NA	NA	NA	NA	NA	--	Fewer than 5 detects	--	NA		
		Phenanthrene	ug/kg	5	2	0	2.0E+01	3.6E+01	--	Fewer than 5 detects	--	3.6E+01		
		Pyrene	ug/kg	5	0	0	7.8E+01	1.4E+02	normal	95% Student's-t UCL	1.2E+02	1.2E+02		



TABLE 3-19  
Exposure Point Concentration Summary - Clam, by River Mile

Scenario Timeframe: Current/Future
Medium: Shellfish Tissue
Exposure Medium: Clam, by River Mile

Exposure Point <sup>a</sup>	Tissue Type	Chemical of Potential Concern <sup>b</sup>	Units	Total Samples	Total Non-Detects <sup>c</sup>	Non-Detects greater than Maximum Detected Concentration <sup>d</sup>	Arithmetic Mean <sup>e</sup>	Maximum Detected Concentration	95% UCL			Exposure Point Concentration
									Distribution	95% UCL Method	Value	
		<b>Phthalates</b>										
		Bis(2-ethylhexyl) phthalate	ug/kg	4	4	ND	ND	ND	--	Fewer than 5 detects	--	ND
		Dibutyl phthalate	ug/kg	4	4	ND	ND	ND	--	Fewer than 5 detects	--	ND
		<b>Semivolatile Organic Compounds</b>										
		Benzoic acid	ug/kg	NA	NA	NA	NA	NA	--	Fewer than 5 detects	--	NA
		Benzyl alcohol	ug/kg	4	1	0	3.7E+02	1.3E+03	--	Fewer than 5 detects	--	1.3E+03
		Bis(2-chloroethoxy) methane	ug/kg	2	2	ND	ND	ND	--	Fewer than 5 detects	--	ND
		Dibenzofuran	ug/kg	5	2	2	1.8E+00	2.5E+00	--	Fewer than 5 detects	--	2.5E+00
		Hexachlorobenzene	ug/kg	5	2	2	6.5E-01	7.9E-01	--	Fewer than 5 detects	--	7.9E-01
		Hexachlorobutadiene	ug/kg	4	4	ND	ND	ND	--	Fewer than 5 detects	--	ND
		Nitrobenzene	ug/kg	2	2	ND	ND	ND	--	Fewer than 5 detects	--	ND
		<b>Phenols</b>										
		4-Nitrophenol	ug/kg	2	2	ND	ND	ND	--	Fewer than 5 detects	--	ND
		Phenol	ug/kg	4	3	0	6.9E+02	2.6E+03	--	Fewer than 5 detects	--	2.6E+03
		<b>Polychlorinated Biphenyls</b>										
		Total Aroclors	ug/kg	2	0	0	9.7E+01	1.3E+02	--	Fewer than 5 detects	--	1.3E+02
		Total PCB Congeners	pg/g	3	0	0	9.3E+04	9.9E+04	--	Fewer than 5 detects	--	9.9E+04
		Total PCBs, Adjusted	pg/g	3	0	0	8.7E+04	9.3E+04	--	Fewer than 5 detects	--	9.3E+04
		<b>Dioxin/Furan</b>										
		Total Dioxin/Furan TEQ	pg/g	2	0	0	3.3E+00	5.6E+00	--	Fewer than 5 detects	--	5.6E+00
		Total PCB TEQ	pg/g	3	0	0	1.1E+00	1.2E+00	--	Fewer than 5 detects	--	1.2E+00
		<b>Pesticides</b>										
		Aldrin	ug/kg	5	2	2	3.0E-01	4.0E-01	--	Fewer than 5 detects	--	4.0E-01
		alpha-Hexachlorocyclohexane	ug/kg	5	5	ND	ND	ND	--	Fewer than 5 detects	--	ND
		beta-Hexachlorocyclohexane	ug/kg	5	5	ND	ND	ND	--	Fewer than 5 detects	--	ND
		Dieldrin	ug/kg	5	2	0	7.7E-01	1.2E+00	--	Fewer than 5 detects	--	1.2E+00
		Endrin	ug/kg	5	2	2	2.3E-02	4.9E-02	--	Fewer than 5 detects	--	4.9E-02
		Endrin aldehyde	ug/kg	5	4	1	1.0E-01	3.9E-01	--	Fewer than 5 detects	--	3.9E-01
		Endrin ketone	ug/kg	5	2	2	6.7E-03	1.4E-02	--	Fewer than 5 detects	--	1.4E-02
		gamma-Hexachlorocyclohexane	ug/kg	5	3	2	5.0E-02	6.4E-02	--	Fewer than 5 detects	--	6.4E-02
		Heptachlor	ug/kg	5	3	3	1.8E-02	2.4E-02	--	Fewer than 5 detects	--	2.4E-02
		Heptachlor epoxide	ug/kg	5	1	1	3.8E-01	1.3E+00	--	Fewer than 5 detects	--	1.3E+00
		Methoxychlor	ug/kg	5	5	ND	ND	ND	--	Fewer than 5 detects	--	ND
		Total Chlordanes	ug/kg	5	0	0	5.5E+00	8.6E+00	normal	95% Student's-t UCL	7.8E+00	7.8E+00
		Total DDD	ug/kg	5	0	0	8.9E+01	2.4E+02	normal	95% Student's-t UCL	1.8E+02	1.8E+02
		Total DDE	ug/kg	5	0	0	4.3E+01	1.1E+02	normal	95% Student's-t UCL	7.8E+01	7.8E+01
		Total DDT	ug/kg	5	0	0	4.5E+01	1.1E+02	normal	95% Student's-t UCL	8.9E+01	8.9E+01
		Total Endosulfan	ug/kg	5	2	1	9.6E-01	1.4E+00	--	Fewer than 5 detects	--	1.4E+00

TABLE 3-19  
Exposure Point Concentration Summary - Clam, by River Mile

Scenario Timeframe: Current/Future
Medium: Shellfish Tissue
Exposure Medium: Clam, by River Mile

Exposure Point <sup>a</sup>	Tissue Type	Chemical of Potential Concern <sup>b</sup>	Units	Total Samples	Total Non-Detects <sup>c</sup>	Non-Detects greater than Maximum Detected Concentration <sup>d</sup>	Arithmetic Mean <sup>e</sup>	Maximum Detected Concentration	95% UCL			Exposure Point Concentration		
									Distribution	95% UCL Method	Value			
RM 8 East	UD	<b>Metals</b>												
		Aluminum	mg/kg	2	0	0	1.1E+02	1.5E+02		Fewer than 5 detects		1.5E+02		
		Antimony	mg/kg	2	1	1	1.0E-03	1.0E-03			1.0E-03			
		Arsenic, inorganic	mg/kg	2	0	0	7.8E-02	8.7E-02			8.7E-02			
		Cadmium	mg/kg	2	0	0	7.3E-02	8.4E-02			8.4E-02			
		Chromium	mg/kg	2	0	0	6.7E-01	7.1E-01			7.1E-01			
		Copper	mg/kg	2	0	0	1.1E+01	1.4E+01			1.4E+01			
		Lead	mg/kg	2	0	0	8.5E-02	1.2E-01			1.2E-01			
		Manganese	mg/kg	NA	NA	NA	NA	NA			NA			
		Mercury	mg/kg	1	0	0	8.0E-03	8.0E-03			8.0E-03			
		Nickel	mg/kg	2	0	0	3.5E-01	3.9E-01			3.9E-01			
		Selenium	mg/kg	2	0	0	1.4E-01	1.9E-01			1.9E-01			
		Silver	mg/kg	2	0	0	5.6E-02	7.9E-02			7.9E-02			
		Thallium	mg/kg	NA	NA	NA	NA	NA			NA			
		Zinc	mg/kg	2	0	0	4.3E+01	5.4E+01			5.4E+01			
		<b>Butyltins</b>												
		Butyltin ion	ug/kg	2	0	0	5.0E+01	9.7E+01			9.7E+01			
		Dibutyltin ion	ug/kg	2	0	0	2.8E+02	5.6E+02		5.6E+02				
		Tributyltin ion	ug/kg	2	0	0	2.7E+02	5.3E+02		5.3E+02				
		<b>Polynuclear Aromatic Hydrocarbons</b>												
		1-Methylnaphthalene	ug/kg	NA	NA	NA	NA	NA		NA				
		2-Methylnaphthalene	ug/kg	1	0	0	1.3E+00	1.3E+00		1.3E+00				
		Acenaphthene	ug/kg	1	0	0	2.2E-01	2.2E-01		2.2E-01				
		Acenaphthylene	ug/kg	1	0	0	2.8E-01	2.8E-01		2.8E-01				
		Anthracene	ug/kg	1	0	0	1.3E+00	1.3E+00		1.3E+00				
		Benzo(a)anthracene	ug/kg	1	0	0	3.0E+00	3.0E+00		3.0E+00				
		Benzo(a)pyrene	ug/kg	1	0	0	1.4E+00	1.4E+00		1.4E+00				
		Benzo(b)fluoranthene	ug/kg	1	0	0	9.6E-01	9.6E-01		9.6E-01				
		Benzo(e)pyrene	ug/kg	NA	NA	NA	NA	NA		NA				
		Benzo(g,h,i)perylene	ug/kg	1	0	0	4.9E-01	4.9E-01		4.9E-01				
		Benzo(k)fluoranthene	ug/kg	1	0	0	4.7E-01	4.7E-01		4.7E-01				
		Chrysene	ug/kg	1	0	0	5.1E+00	5.1E+00		5.1E+00				
		Dibenzo(a,h)anthracene	ug/kg	1	1	ND	ND	ND		ND				
		Dibenzothiophene	ug/kg	NA	NA	NA	NA	NA		NA				
		Fluoranthene	ug/kg	1	0	0	7.9E+00	7.9E+00		7.9E+00				
		Fluorene	ug/kg	1	0	0	9.7E-01	9.7E-01		9.7E-01				
		Indeno(1,2,3-cd)pyrene	ug/kg	1	1	ND	ND	ND		ND				
		Naphthalene	ug/kg	1	1	ND	ND	ND		ND				
		Perylene	ug/kg	NA	NA	NA	NA	NA		NA				
		Phenanthrene	ug/kg	1	0	0	4.1E+00	4.1E+00		4.1E+00				
		Pyrene	ug/kg	1	0	0	6.9E+00	6.9E+00		6.9E+00				

TABLE 3-19  
Exposure Point Concentration Summary - Clam, by River Mile

Scenario Timeframe: Current/Future
Medium: Shellfish Tissue
Exposure Medium: Clam, by River Mile

Exposure Point <sup>a</sup>	Tissue Type	Chemical of Potential Concern <sup>b</sup>	Units	Total Samples	Total Non-Detects <sup>c</sup>	Non-Detects greater than Maximum Detected Concentration <sup>d</sup>	Arithmetic Mean <sup>e</sup>	Maximum Detected Concentration	95% UCL			Exposure Point Concentration
									Distribution	95% UCL Method	Value	
		<b>Phthalates</b>										
		Bis(2-ethylhexyl) phthalate	ug/kg	1	1	ND	ND	ND				ND
		Dibutyl phthalate	ug/kg	1	1	ND	ND	ND				ND
		<b>Semivolatile Organic Compounds</b>										
		Benzoic acid	ug/kg	NA	NA	NA	NA	NA				NA
		Benzyl alcohol	ug/kg	1	0	0	1.4E+01	1.4E+01				1.4E+01
		Bis(2-chloroethoxy) methane	ug/kg	NA	NA	NA	NA	NA				NA
		Dibenzofuran	ug/kg	1	0	0	5.0E-01	5.0E-01				5.0E-01
		Hexachlorobenzene	ug/kg	1	0	0	4.4E-01	4.4E-01				4.4E-01
		Hexachlorobutadiene	ug/kg	1	0	0	3.4E-03	3.4E-03				3.4E-03
		Nitrobenzene	ug/kg	NA	NA	NA	NA	NA				NA
		<b>Phenols</b>										
		4-Nitrophenol	ug/kg	NA	NA	NA	NA	NA				NA
		Phenol	ug/kg	1	1	ND	ND	ND				ND
		<b>Polychlorinated Biphenyls</b>										
		Total Aroclors	ug/kg	NA	NA	NA	NA	NA				NA
		Total PCB Congeners	pg/g	1	0	0	8.5E+04	8.5E+04				8.5E+04
		Total PCBs, Adjusted	pg/g	1	0	0	8.2E+04	8.2E+04				8.2E+04
		<b>Dioxin/Furan</b>										
		Total Dioxin/Furan TEQ	pg/g	1	0	0	4.3E-01	4.3E-01				4.3E-01
		Total PCB TEQ	pg/g	1	0	0	6.3E-01	6.3E-01				6.3E-01
		<b>Pesticides</b>										
		Aldrin	ug/kg	1	0	0	1.4E-01	1.4E-01				1.4E-01
		alpha-Hexachlorocyclohexane	ug/kg	1	0	0	6.8E-03	6.8E-03				6.8E-03
		beta-Hexachlorocyclohexane	ug/kg	1	1	ND	ND	ND				ND
		Dieldrin	ug/kg	1	0	0	6.2E-01	6.2E-01				6.2E-01
		Endrin	ug/kg	1	0	0	6.5E-03	6.5E-03				6.5E-03
		Endrin aldehyde	ug/kg	1	1	ND	ND	ND				ND
		Endrin ketone	ug/kg	1	0	0	1.8E-03	1.8E-03				1.8E-03
		gamma-Hexachlorocyclohexane	ug/kg	1	0	0	5.0E-02	5.0E-02				5.0E-02
		Heptachlor	ug/kg	1	0	0	9.3E-03	9.3E-03				9.3E-03
		Heptachlor epoxide	ug/kg	1	0	0	4.5E-02	4.5E-02				4.5E-02
		Methoxychlor	ug/kg	1	1	ND	ND	ND				ND
		Total Chlordanes	ug/kg	1	0	0	2.5E+00	2.5E+00				2.5E+00
		Total DDD	ug/kg	1	0	0	2.7E+00	2.7E+00				2.7E+00
		Total DDE	ug/kg	1	0	0	6.3E+00	6.3E+00				6.3E+00
		Total DDT	ug/kg	1	0	0	8.1E-01	8.1E-01				8.1E-01
		Total Endosulfan	ug/kg	1	0	0	8.3E-01	8.3E-01				8.3E-01

TABLE 3-19  
Exposure Point Concentration Summary - Clam, by River Mile

Scenario Timeframe: Current/Future
Medium: Shellfish Tissue
Exposure Medium: Clam, by River Mile

Exposure Point <sup>a</sup>	Tissue Type	Chemical of Potential Concern <sup>b</sup>	Units	Total Samples	Total Non-Detects <sup>c</sup>	Non-Detects greater than Maximum Detected Concentration <sup>d</sup>	Arithmetic Mean <sup>e</sup>	Maximum Detected Concentration	95% UCL			Exposure Point Concentration	
									Distribution	95% UCL Method	Value		
RM 8 West	UD	<b>Metals</b>											
		Aluminum	mg/kg	3	0	0	7.2E+01	1.2E+02		Fewer than 5 detects		1.2E+02	
		Antimony	mg/kg	3	0	0	2.0E-03	3.0E-03			3.0E-03		
		Arsenic, inorganic	mg/kg	3	0	0	9.4E-02	9.6E-02			9.6E-02		
		Cadmium	mg/kg	3	0	0	9.3E-02	1.1E-01			1.1E-01		
		Chromium	mg/kg	3	0	0	5.8E-01	6.7E-01			6.7E-01		
		Copper	mg/kg	3	0	0	9.1E+00	9.3E+00			9.3E+00		
		Lead	mg/kg	3	0	0	1.0E-01	1.5E-01			1.5E-01		
		Manganese	mg/kg	NA	NA	NA	NA	NA			NA		
		Mercury	mg/kg	3	0	0	9.0E-03	1.1E-02			1.1E-02		
		Nickel	mg/kg	3	0	0	2.9E-01	3.0E-01			3.0E-01		
		Selenium	mg/kg	3	0	0	1.2E-01	1.5E-01			1.5E-01		
		Silver	mg/kg	3	0	0	6.0E-02	7.8E-02			7.8E-02		
		Thallium	mg/kg	NA	NA	NA	NA	NA			NA		
		Zinc	mg/kg	3	0	0	4.1E+01	4.7E+01			4.7E+01		
		<b>Butyltins</b>											
		Butyltin ion	ug/kg	3	2	0	7.5E-01	1.4E+00		1.4E+00			
		Dibutyltin ion	ug/kg	3	0	0	2.0E+00	2.3E+00		2.3E+00			
		Tributyltin ion	ug/kg	3	2	1	2.2E+00	3.1E+00		3.1E+00			
		<b>Polynuclear Aromatic Hydrocarbons</b>											
		1-Methylnaphthalene	ug/kg	NA	NA	NA	NA	NA		NA			
		2-Methylnaphthalene	ug/kg	3	0	0	8.6E+00	2.2E+01		2.2E+01			
		Acenaphthene	ug/kg	3	0	0	7.8E+00	2.1E+01		2.1E+01			
		Acenaphthylene	ug/kg	3	0	0	1.9E+00	3.1E+00		3.1E+00			
		Anthracene	ug/kg	3	0	0	4.7E+00	5.0E+00		5.0E+00			
		Benzo(a)anthracene	ug/kg	3	0	0	1.4E+01	1.7E+01		1.7E+01			
		Benzo(a)pyrene	ug/kg	3	0	0	3.2E+00	5.0E+00		5.0E+00			
		Benzo(b)fluoranthene	ug/kg	3	0	0	8.4E+00	1.8E+01		1.8E+01			
		Benzo(e)pyrene	ug/kg	NA	NA	NA	NA	NA		NA			
		Benzo(g,h,i)perylene	ug/kg	3	0	0	1.9E+00	3.3E+00		3.3E+00			
		Benzo(k)fluoranthene	ug/kg	3	0	0	5.4E+00	1.3E+01		1.3E+01			
		Chrysene	ug/kg	3	0	0	2.8E+01	4.7E+01		4.7E+01			
		Dibenzo(a,h)anthracene	ug/kg	3	3	ND	ND	ND		ND			
		Dibenzothiophene	ug/kg	NA	NA	NA	NA	NA		NA			
		Fluoranthene	ug/kg	3	0	0	1.1E+02	2.4E+02		2.4E+02			
		Fluorene	ug/kg	3	0	0	8.8E+00	2.0E+01		2.0E+01			
		Indeno(1,2,3-cd)pyrene	ug/kg	3	1	0	2.6E+00	6.8E+00		6.8E+00			
		Naphthalene	ug/kg	3	2	0	3.5E+00	9.0E+00		9.0E+00			
		Perylene	ug/kg	NA	NA	NA	NA	NA		NA			
		Phenanthrene	ug/kg	3	0	0	6.5E+01	1.6E+02		1.6E+02			
		Pyrene	ug/kg	3	0	0	6.6E+01	1.3E+02		1.3E+02			

TABLE 3-19  
Exposure Point Concentration Summary - Clam, by River Mile

Scenario Timeframe: Current/Future
Medium: Shellfish Tissue
Exposure Medium: Clam, by River Mile

Exposure Point <sup>a</sup>	Tissue Type	Chemical of Potential Concern <sup>b</sup>	Units	Total Samples	Total Non-Detects <sup>c</sup>	Non-Detects greater than Maximum Detected Concentration <sup>d</sup>	Arithmetic Mean <sup>e</sup>	Maximum Detected Concentration	95% UCL			Exposure Point Concentration
									Distribution	95% UCL Method	Value	
		<b>Phthalates</b>										
		Bis(2-ethylhexyl) phthalate	ug/kg	3	3	ND	ND	ND				ND
		Dibutyl phthalate	ug/kg	3	3	ND	ND	ND				ND
		<b>Semivolatile Organic Compounds</b>										
		Benzoic acid	ug/kg	NA	NA	NA	NA	NA				NA
		Benzyl alcohol	ug/kg	3	0	0	1.8E+01	2.3E+01				2.3E+01
		Bis(2-chloroethoxy) methane	ug/kg	NA	NA	NA	NA	NA				NA
		Dibenzofuran	ug/kg	3	1	0	6.2E+00	1.7E+01				1.7E+01
		Hexachlorobenzene	ug/kg	3	0	0	7.1E-01	8.4E-01				8.4E-01
		Hexachlorobutadiene	ug/kg	3	3	ND	ND	ND				ND
		Nitrobenzene	ug/kg	NA	NA	NA	NA	NA				NA
		<b>Phenols</b>										
		4-Nitrophenol	ug/kg	NA	NA	NA	NA	NA				NA
		Phenol	ug/kg	3	3	ND	ND	ND				ND
		<b>Polychlorinated Biphenyls</b>										
		Total Aroclors	ug/kg	NA	NA	NA	NA	NA				NA
		Total PCB Congeners	pg/g	3	0	0	2.5E+05	4.2E+05				4.2E+05
		Total PCBs, Adjusted	pg/g	3	0	0	2.4E+05	4.0E+05				4.0E+05
		<b>Dioxin/Furan</b>										
		Total Dioxin/Furan TEQ	pg/g	2	0	0	1.0E+00	1.4E+00				1.4E+00
		Total PCB TEQ	pg/g	3	0	0	2.3E+00	3.6E+00				3.6E+00
		<b>Pesticides</b>										
		Aldrin	ug/kg	3	0	0	2.0E+00	5.1E+00				5.1E+00
		alpha-Hexachlorocyclohexane	ug/kg	3	0	0	1.5E-02	1.8E-02				1.8E-02
		beta-Hexachlorocyclohexane	ug/kg	3	3	ND	ND	ND				ND
		Dieldrin	ug/kg	3	0	0	1.5E+00	2.6E+00				2.6E+00
		Endrin	ug/kg	3	0	0	2.8E-02	6.4E-02				6.4E-02
		Endrin aldehyde	ug/kg	3	3	ND	ND	ND				ND
		Endrin ketone	ug/kg	3	0	0	3.7E-03	4.6E-03				4.6E-03
		gamma-Hexachlorocyclohexane	ug/kg	3	0	0	7.8E-02	8.1E-02				8.1E-02
		Heptachlor	ug/kg	3	0	0	3.3E-02	5.3E-02				5.3E-02
		Heptachlor epoxide	ug/kg	3	0	0	7.0E-02	8.6E-02				8.6E-02
		Methoxychlor	ug/kg	3	3	ND	ND	ND				ND
		Total Chlordanes	ug/kg	3	0	0	8.6E+00	1.6E+01				1.6E+01
		Total DDD	ug/kg	3	0	0	1.7E+01	3.0E+01				3.0E+01
		Total DDE	ug/kg	3	0	0	3.3E+01	6.7E+01				6.7E+01
		Total DDT	ug/kg	3	0	0	1.6E+00	2.1E+00				2.1E+00
		Total Endosulfan	ug/kg	3	0	0	1.3E+00	1.5E+00				1.5E+00

TABLE 3-19  
Exposure Point Concentration Summary - Clam, by River Mile

Scenario Timeframe: Current/Future
Medium: Shellfish Tissue
Exposure Medium: Clam, by River Mile

Exposure Point <sup>a</sup>	Tissue Type	Chemical of Potential Concern <sup>b</sup>	Units	Total Samples	Total Non-Detects <sup>c</sup>	Non-Detects greater than Maximum Detected Concentration <sup>d</sup>	Arithmetic Mean <sup>e</sup>	Maximum Detected Concentration	95% UCL			Exposure Point Concentration		
									Distribution	95% UCL Method	Value			
RM 8 SIL	UD	<b>Metals</b>												
		Aluminum	mg/kg	2	0	0	1.9E+02	2.0E+02		Fewer than 5 detects		2.0E+02		
		Antimony	mg/kg	2	1	1	4.0E-03	4.0E-03			4.0E-03			
		Arsenic, inorganic	mg/kg	2	0	0	8.7E-02	9.2E-02			9.2E-02			
		Cadmium	mg/kg	2	0	0	1.2E-01	1.4E-01			1.4E-01			
		Chromium	mg/kg	2	0	0	5.1E-01	5.7E-01			5.7E-01			
		Copper	mg/kg	2	0	0	8.9E+00	9.4E+00			9.4E+00			
		Lead	mg/kg	2	0	0	1.6E-01	1.9E-01			1.9E-01			
		Manganese	mg/kg	NA	NA	NA	NA	NA			NA			
		Mercury	mg/kg	1	0	0	1.1E-02	1.1E-02			1.1E-02			
		Nickel	mg/kg	2	0	0	3.7E-01	3.9E-01			3.9E-01			
		Selenium	mg/kg	2	0	0	1.5E-01	2.1E-01			2.1E-01			
		Silver	mg/kg	2	0	0	4.1E-02	4.4E-02			4.4E-02			
		Thallium	mg/kg	NA	NA	NA	NA	NA			NA			
		Zinc	mg/kg	2	0	0	3.7E+01	4.2E+01			4.2E+01			
		<b>Butyltins</b>												
		Butyltin ion	ug/kg	1	0	0	7.3E+00	7.3E+00			7.3E+00			
		Dibutyltin ion	ug/kg	1	0	0	1.2E+01	1.2E+01		1.2E+01				
		Tributyltin ion	ug/kg	1	0	0	3.3E+01	3.3E+01		3.3E+01				
		<b>Polynuclear Aromatic Hydrocarbons</b>												
		1-Methylnaphthalene	ug/kg	NA	NA	NA	NA	NA		NA				
		2-Methylnaphthalene	ug/kg	2	0	0	2.4E+00	3.0E+00		3.0E+00				
		Acenaphthene	ug/kg	2	0	0	9.9E-01	1.2E+00		1.2E+00				
		Acenaphthylene	ug/kg	2	0	0	1.3E+00	1.4E+00		1.4E+00				
		Anthracene	ug/kg	2	0	0	5.0E+00	6.8E+00		6.8E+00				
		Benzo(a)anthracene	ug/kg	2	0	0	1.4E+01	2.0E+01		2.0E+01				
		Benzo(a)pyrene	ug/kg	2	0	0	3.1E+00	3.9E+00		3.9E+00				
		Benzo(b)fluoranthene	ug/kg	2	0	0	6.1E+00	8.8E+00		8.8E+00				
		Benzo(e)pyrene	ug/kg	NA	NA	NA	NA	NA		NA				
		Benzo(g,h,i)perylene	ug/kg	2	0	0	2.1E+00	2.7E+00		2.7E+00				
		Benzo(k)fluoranthene	ug/kg	2	0	0	2.9E+00	4.2E+00		4.2E+00				
		Chrysene	ug/kg	2	0	0	3.1E+01	4.5E+01		4.5E+01				
		Dibenzo(a,h)anthracene	ug/kg	2	2	ND	ND	ND		ND				
		Dibenzothiophene	ug/kg	NA	NA	NA	NA	NA		NA				
		Fluoranthene	ug/kg	2	0	0	4.0E+01	5.6E+01		5.6E+01				
		Fluorene	ug/kg	2	0	0	2.8E+00	3.6E+00		3.6E+00				
		Indeno(1,2,3-cd)pyrene	ug/kg	2	1	0	1.6E+00	3.1E+00		3.1E+00				
		Naphthalene	ug/kg	2	2	ND	ND	ND		ND				
		Perylene	ug/kg	NA	NA	NA	NA	NA		NA				
		Phenanthrene	ug/kg	2	0	0	1.2E+01	1.6E+01		1.6E+01				
		Pyrene	ug/kg	2	0	0	4.8E+01	7.1E+01		7.1E+01				

TABLE 3-19  
Exposure Point Concentration Summary - Clam, by River Mile

Scenario Timeframe: Current/Future
Medium: Shellfish Tissue
Exposure Medium: Clam, by River Mile

Exposure Point <sup>a</sup>	Tissue Type	Chemical of Potential Concern <sup>b</sup>	Units	Total Samples	Total Non-Detects <sup>c</sup>	Non-Detects greater than Maximum Detected Concentration <sup>d</sup>	Arithmetic Mean <sup>e</sup>	Maximum Detected Concentration	95% UCL			Exposure Point Concentration
									Distribution	95% UCL Method	Value	
		<b>Phthalates</b>										
		Bis(2-ethylhexyl) phthalate	ug/kg	2	0	0	1.3E+02	1.4E+02				1.4E+02
		Dibutyl phthalate	ug/kg	2	1	0	6.6E+02	1.3E+03				1.3E+03
		<b>Semivolatile Organic Compounds</b>										
		Benzoic acid	ug/kg	NA	NA	NA	NA	NA				NA
		Benzyl alcohol	ug/kg	2	0	0	7.7E+01	1.2E+02				1.2E+02
		Bis(2-chloroethoxy) methane	ug/kg	NA	NA	NA	NA	NA				NA
		Dibenzofuran	ug/kg	2	0	0	1.3E+00	1.5E+00				1.5E+00
		Hexachlorobenzene	ug/kg	3	0	0	7.3E-01	7.6E-01				7.6E-01
		Hexachlorobutadiene	ug/kg	2	2	ND	ND	ND				ND
		Nitrobenzene	ug/kg	NA	NA	NA	NA	NA				NA
		<b>Phenols</b>										
		4-Nitrophenol	ug/kg	NA	NA	NA	NA	NA				NA
		Phenol	ug/kg	2	2	ND	ND	ND				ND
		<b>Polychlorinated Biphenyls</b>										
		Total Aroclors	ug/kg	NA	NA	NA	NA	NA				NA
		Total PCB Congeners	pg/g	3	0	0	3.0E+05	3.9E+05				3.9E+05
		Total PCBs, Adjusted	pg/g	3	0	0	2.9E+05	3.7E+05				3.7E+05
		<b>Dioxin/Furan</b>										
		Total Dioxin/Furan TEQ	pg/g	2	0	0	1.2E+00	1.3E+00				1.3E+00
		Total PCB TEQ	pg/g	3	0	0	2.6E+00	3.4E+00				3.4E+00
		<b>Pesticides</b>										
		Aldrin	ug/kg	3	0	0	3.2E-01	3.8E-01				3.8E-01
		alpha-Hexachlorocyclohexane	ug/kg	3	1	0	1.6E-02	2.1E-02				2.1E-02
		beta-Hexachlorocyclohexane	ug/kg	3	3	ND	ND	ND				ND
		Dieldrin	ug/kg	3	0	0	1.1E+00	1.1E+00				1.1E+00
		Endrin	ug/kg	3	1	1	1.3E-02	2.0E-02				2.0E-02
		Endrin aldehyde	ug/kg	3	3	ND	ND	ND				ND
		Endrin ketone	ug/kg	3	2	1	2.5E-03	3.9E-03				3.9E-03
		gamma-Hexachlorocyclohexane	ug/kg	3	0	0	7.7E-02	7.8E-02				7.8E-02
		Heptachlor	ug/kg	3	3	ND	ND	ND				ND
		Heptachlor epoxide	ug/kg	3	0	0	8.0E-02	8.2E-02				8.2E-02
		Methoxychlor	ug/kg	3	3	ND	ND	ND				ND
		Total Chlordanes	ug/kg	3	0	0	5.1E+00	6.3E+00				6.3E+00
		Total DDD	ug/kg	3	0	0	7.6E+00	8.1E+00				8.1E+00
		Total DDE	ug/kg	3	0	0	1.1E+01	1.3E+01				1.3E+01
		Total DDT	ug/kg	3	0	0	1.8E+00	2.4E+00				2.4E+00
		Total Endosulfan	ug/kg	3	0	0	1.3E+00	1.4E+00				1.4E+00

TABLE 3-19  
Exposure Point Concentration Summary - Clam, by River Mile

Scenario Timeframe: Current/Future
Medium: Shellfish Tissue
Exposure Medium: Clam, by River Mile

Exposure Point <sup>a</sup>	Tissue Type	Chemical of Potential Concern <sup>b</sup>	Units	Total Samples	Total Non-Detects <sup>c</sup>	Non-Detects greater than Maximum Detected Concentration <sup>d</sup>	Arithmetic Mean <sup>e</sup>	Maximum Detected Concentration	95% UCL			Exposure Point Concentration		
									Distribution	95% UCL Method	Value			
RM 9 East	UD	<b>Metals</b>												
		Aluminum	mg/kg	1	0	0	1.4E+02	1.4E+02		Fewer than 5 detects		1.4E+02		
		Antimony	mg/kg	1	0	0	2.0E-03	2.0E-03			2.0E-03			
		Arsenic, inorganic	mg/kg	1	0	0	1.0E-01	1.0E-01			1.0E-01			
		Cadmium	mg/kg	1	0	0	6.6E-02	6.6E-02			6.6E-02			
		Chromium	mg/kg	1	0	0	9.4E-01	9.4E-01			9.4E-01			
		Copper	mg/kg	1	0	0	9.5E+00	9.5E+00			9.5E+00			
		Lead	mg/kg	1	0	0	7.6E-02	7.6E-02			7.6E-02			
		Manganese	mg/kg	NA	NA	NA	NA	NA			NA			
		Mercury	mg/kg	1	0	0	1.2E-02	1.2E-02			1.2E-02			
		Nickel	mg/kg	1	0	0	3.4E-01	3.4E-01			3.4E-01			
		Selenium	mg/kg	1	0	0	8.8E-02	8.8E-02			8.8E-02			
		Silver	mg/kg	1	0	0	1.0E-01	1.0E-01			1.0E-01			
		Thallium	mg/kg	NA	NA	NA	NA	NA			NA			
		Zinc	mg/kg	1	0	0	3.8E+01	3.8E+01			3.8E+01			
		<b>Butyltins</b>												
		Butyltin ion	ug/kg	1	1	ND	ND	ND			ND			
		Dibutyltin ion	ug/kg	1	0	0	1.5E+00	1.5E+00		1.5E+00				
		Tributyltin ion	ug/kg	1	1	ND	ND	ND		ND				
		<b>Polynuclear Aromatic Hydrocarbons</b>												
		1-Methylnaphthalene	ug/kg	NA	NA	NA	NA	NA		NA				
		2-Methylnaphthalene	ug/kg	2	0	0	1.7E+00	1.7E+00		1.7E+00				
		Acenaphthene	ug/kg	2	0	0	8.6E-01	1.1E+00		1.1E+00				
		Acenaphthylene	ug/kg	2	2	ND	ND	ND		ND				
		Anthracene	ug/kg	2	0	0	1.5E+00	1.7E+00		1.7E+00				
		Benzo(a)anthracene	ug/kg	2	0	0	5.3E+00	5.9E+00		5.9E+00				
		Benzo(a)pyrene	ug/kg	2	0	0	1.8E+00	1.8E+00		1.8E+00				
		Benzo(b)fluoranthene	ug/kg	2	0	0	1.9E+00	2.3E+00		2.3E+00				
		Benzo(e)pyrene	ug/kg	NA	NA	NA	NA	NA		NA				
		Benzo(g,h,i)perylene	ug/kg	2	0	0	8.0E-01	8.0E-01		8.0E-01				
		Benzo(k)fluoranthene	ug/kg	2	0	0	9.9E-01	1.3E+00		1.3E+00				
		Chrysene	ug/kg	2	0	0	8.7E+00	1.0E+01		1.0E+01				
		Dibenzo(a,h)anthracene	ug/kg	2	2	ND	ND	ND		ND				
		Dibenzothiophene	ug/kg	NA	NA	NA	NA	NA		NA				
		Fluoranthene	ug/kg	2	0	0	1.2E+01	1.3E+01		1.3E+01				
		Fluorene	ug/kg	2	0	0	1.6E+00	1.7E+00		1.7E+00				
Indeno(1,2,3-cd)pyrene	ug/kg	2	2	ND	ND	ND		ND						
Naphthalene	ug/kg	2	2	ND	ND	ND		ND						
Perylene	ug/kg	NA	NA	NA	NA	NA		NA						
Phenanthrene	ug/kg	2	0	0	5.9E+00	6.0E+00		6.0E+00						
Pyrene	ug/kg	2	0	0	1.1E+01	1.2E+01		1.2E+01						



TABLE 3-19  
Exposure Point Concentration Summary - Clam, by River Mile

Scenario Timeframe: Current/Future
Medium: Shellfish Tissue
Exposure Medium: Clam, by River Mile

Exposure Point <sup>a</sup>	Tissue Type	Chemical of Potential Concern <sup>b</sup>	Units	Total Samples	Total Non-Detects <sup>c</sup>	Non-Detects greater than Maximum Detected Concentration <sup>d</sup>	Arithmetic Mean <sup>e</sup>	Maximum Detected Concentration	95% UCL			Exposure Point Concentration
									Distribution	95% UCL Method	Value	
		<b>Phthalates</b>										
		Bis(2-ethylhexyl) phthalate	ug/kg	1	1	ND	ND	ND				ND
		Dibutyl phthalate	ug/kg	1	1	ND	ND	ND				ND
		<b>Semivolatile Organic Compounds</b>										
		Benzoic acid	ug/kg	NA	NA	NA	NA	NA				NA
		Benzyl alcohol	ug/kg	1	0	0	1.8E+01	1.8E+01				1.8E+01
		Bis(2-chloroethoxy) methane	ug/kg	NA	NA	NA	NA	NA				NA
		Dibenzofuran	ug/kg	2	0	0	8.7E-01	1.2E+00				1.2E+00
		Hexachlorobenzene	ug/kg	2	0	0	4.9E-01	6.0E-01				6.0E-01
		Hexachlorobutadiene	ug/kg	1	1	ND	ND	ND				ND
		Nitrobenzene	ug/kg	NA	NA	NA	NA	NA				NA
		<b>Phenols</b>										
		4-Nitrophenol	ug/kg	NA	NA	NA	NA	NA				NA
		Phenol	ug/kg	1	1	ND	ND	ND				ND
		<b>Polychlorinated Biphenyls</b>										
		Total Aroclors	ug/kg	NA	NA	NA	NA	NA				NA
		Total PCB Congeners	pg/g	2	0	0	5.6E+04	6.1E+04				6.1E+04
		Total PCBs, Adjusted	pg/g	2	0	0	5.2E+04	5.7E+04				5.7E+04
		<b>Dioxin/Furan</b>										
		Total Dioxin/Furan TEQ	pg/g	2	0	0	4.7E-01	5.4E-01				5.4E-01
		Total PCB TEQ	pg/g	2	0	0	6.6E-01	7.8E-01				7.8E-01
		<b>Pesticides</b>										
		Aldrin	ug/kg	2	0	0	1.5E-01	1.7E-01				1.7E-01
		alpha-Hexachlorocyclohexane	ug/kg	2	1	1	7.4E-03	7.4E-03				7.4E-03
		beta-Hexachlorocyclohexane	ug/kg	2	2	ND	ND	ND				ND
		Dieldrin	ug/kg	2	0	0	7.2E-01	8.8E-01				8.8E-01
		Endrin	ug/kg	2	1	0	5.4E-03	8.2E-03				8.2E-03
		Endrin aldehyde	ug/kg	2	2	ND	ND	ND				ND
		Endrin ketone	ug/kg	2	2	ND	ND	ND				ND
		gamma-Hexachlorocyclohexane	ug/kg	2	0	0	6.1E-02	7.5E-02				7.5E-02
		Heptachlor	ug/kg	2	2	ND	ND	ND				ND
		Heptachlor epoxide	ug/kg	2	0	0	4.9E-02	6.1E-02				6.1E-02
		Methoxychlor	ug/kg	2	2	ND	ND	ND				ND
		Total Chlordanes	ug/kg	2	0	0	2.8E+00	3.2E+00				3.2E+00
		Total DDD	ug/kg	2	0	0	2.6E+00	3.0E+00				3.0E+00
		Total DDE	ug/kg	2	0	0	6.4E+00	8.0E+00				8.0E+00
		Total DDT	ug/kg	2	0	0	1.0E+00	1.3E+00				1.3E+00
		Total Endosulfan	ug/kg	2	0	0	9.7E-01	1.1E+00				1.1E+00

TABLE 3-19  
Exposure Point Concentration Summary - Clam, by River Mile

Scenario Timeframe: Current/Future
Medium: Shellfish Tissue
Exposure Medium: Clam, by River Mile

Exposure Point <sup>a</sup>	Tissue Type	Chemical of Potential Concern <sup>b</sup>	Units	Total Samples	Total Non-Detects <sup>c</sup>	Non-Detects greater than Maximum Detected Concentration <sup>d</sup>	Arithmetic Mean <sup>e</sup>	Maximum Detected Concentration	95% UCL			Exposure Point Concentration		
									Distribution	95% UCL Method	Value			
RM 9 West	UD	<b>Metals</b>												
		Aluminum	mg/kg	1	0	0	1.7E+02	1.7E+02		Fewer than 5 detects		1.7E+02		
		Antimony	mg/kg	1	0	0	3.0E-03	3.0E-03				3.0E-03		
		Arsenic, inorganic	mg/kg	1	0	0	9.0E-02	9.0E-02				9.0E-02		
		Cadmium	mg/kg	1	0	0	6.4E-02	6.4E-02				6.4E-02		
		Chromium	mg/kg	1	0	0	9.2E-01	9.2E-01				9.2E-01		
		Copper	mg/kg	1	0	0	9.0E+00	9.0E+00				9.0E+00		
		Lead	mg/kg	1	0	0	9.7E-02	9.7E-02				9.7E-02		
		Manganese	mg/kg	NA	NA	NA	NA	NA				NA		
		Mercury	mg/kg	1	0	0	9.0E-03	9.0E-03				9.0E-03		
		Nickel	mg/kg	1	0	0	4.9E-01	4.9E-01				4.9E-01		
		Selenium	mg/kg	1	0	0	1.1E-01	1.1E-01				1.1E-01		
		Silver	mg/kg	1	0	0	6.8E-02	6.8E-02				6.8E-02		
		Thallium	mg/kg	NA	NA	NA	NA	NA				NA		
		Zinc	mg/kg	1	0	0	4.0E+01	4.0E+01				4.0E+01		
		<b>Butyltins</b>												
		Butyltin ion	ug/kg	1	1	ND	ND	ND				ND		
		Dibutyltin ion	ug/kg	1	0	0	1.1E+00	1.1E+00			1.1E+00			
		Tributyltin ion	ug/kg	1	1	ND	ND	ND			ND			
		<b>Polynuclear Aromatic Hydrocarbons</b>												
		1-Methylnaphthalene	ug/kg	NA	NA	NA	NA	NA			NA			
		2-Methylnaphthalene	ug/kg	1	0	0	1.8E+00	1.8E+00			1.8E+00			
		Acenaphthene	ug/kg	1	0	0	3.4E+00	3.4E+00			3.4E+00			
		Acenaphthylene	ug/kg	1	0	0	8.9E-01	8.9E-01			8.9E-01			
		Anthracene	ug/kg	1	0	0	4.1E+00	4.1E+00			4.1E+00			
		Benzo(a)anthracene	ug/kg	1	0	0	8.4E+00	8.4E+00			8.4E+00			
		Benzo(a)pyrene	ug/kg	1	0	0	1.9E+00	1.9E+00			1.9E+00			
		Benzo(b)fluoranthene	ug/kg	1	0	0	2.0E+00	2.0E+00			2.0E+00			
		Benzo(e)pyrene	ug/kg	NA	NA	NA	NA	NA			NA			
		Benzo(g,h,i)perylene	ug/kg	1	0	0	7.1E-01	7.1E-01			7.1E-01			
		Benzo(k)fluoranthene	ug/kg	1	0	0	1.0E+00	1.0E+00			1.0E+00			
		Chrysene	ug/kg	1	0	0	1.2E+01	1.2E+01			1.2E+01			
		Dibenzo(a,h)anthracene	ug/kg	1	1	ND	ND	ND			ND			
		Dibenzothiophene	ug/kg	NA	NA	NA	NA	NA			NA			
		Fluoranthene	ug/kg	1	0	0	2.9E+01	2.9E+01			2.9E+01			
		Fluorene	ug/kg	1	0	0	5.2E+00	5.2E+00			5.2E+00			
		Indeno(1,2,3-cd)pyrene	ug/kg	1	1	ND	ND	ND			ND			
		Naphthalene	ug/kg	1	1	ND	ND	ND			ND			
		Perylene	ug/kg	NA	NA	NA	NA	NA			NA			
		Phenanthrene	ug/kg	1	0	0	1.9E+01	1.9E+01			1.9E+01			
Pyrene	ug/kg	1	0	0	2.1E+01	2.1E+01			2.1E+01					

TABLE 3-19  
Exposure Point Concentration Summary - Clam, by River Mile

Scenario Timeframe: Current/Future
Medium: Shellfish Tissue
Exposure Medium: Clam, by River Mile

Exposure Point <sup>a</sup>	Tissue Type	Chemical of Potential Concern <sup>b</sup>	Units	Total Samples	Total Non-Detects <sup>c</sup>	Non-Detects greater than Maximum Detected Concentration <sup>d</sup>	Arithmetic Mean <sup>e</sup>	Maximum Detected Concentration	95% UCL			Exposure Point Concentration
									Distribution	95% UCL Method	Value	
		<b>Phthalates</b>										
		Bis(2-ethylhexyl) phthalate	ug/kg	1	1	ND	ND	ND				ND
		Dibutyl phthalate	ug/kg	1	1	ND	ND	ND				ND
		<b>Semivolatile Organic Compounds</b>										
		Benzoic acid	ug/kg	NA	NA	NA	NA	NA				NA
		Benzyl alcohol	ug/kg	1	0	0	1.8E+01	1.8E+01				1.8E+01
		Bis(2-chloroethoxy) methane	ug/kg	NA	NA	NA	NA	NA				NA
		Dibenzofuran	ug/kg	1	0	0	2.5E+00	2.5E+00				2.5E+00
		Hexachlorobenzene	ug/kg	2	0	0	7.6E-01	8.4E-01				8.4E-01
		Hexachlorobutadiene	ug/kg	1	1	ND	ND	ND				ND
		Nitrobenzene	ug/kg	NA	NA	NA	NA	NA				NA
		<b>Phenols</b>										
		4-Nitrophenol	ug/kg	NA	NA	NA	NA	NA				NA
		Phenol	ug/kg	1	1	ND	ND	ND				ND
		<b>Polychlorinated Biphenyls</b>										
		Total Aroclors	ug/kg	NA	NA	NA	NA	NA				NA
		Total PCB Congeners	pg/g	2	0	0	3.1E+05	4.6E+05				4.6E+05
		Total PCBs, Adjusted	pg/g	2	0	0	3.0E+05	4.5E+05				4.5E+05
		<b>Dioxin/Furan</b>										
		Total Dioxin/Furan TEQ	pg/g	2	0	0	1.7E+00	2.7E+00				2.7E+00
		Total PCB TEQ	pg/g	2	0	0	2.6E+00	3.9E+00				3.9E+00
		<b>Pesticides</b>										
		Aldrin	ug/kg	2	0	0	3.6E-01	3.7E-01				3.7E-01
		alpha-Hexachlorocyclohexane	ug/kg	2	1	1	1.5E-02	1.5E-02				1.5E-02
		beta-Hexachlorocyclohexane	ug/kg	2	2	ND	ND	ND				ND
		Dieldrin	ug/kg	2	0	0	1.0E+00	1.1E+00				1.1E+00
		Endrin	ug/kg	2	0	0	3.0E-02	5.5E-02				5.5E-02
		Endrin aldehyde	ug/kg	2	2	ND	ND	ND				ND
		Endrin ketone	ug/kg	2	2	ND	ND	ND				ND
		gamma-Hexachlorocyclohexane	ug/kg	2	1	1	6.6E-02	6.6E-02				6.6E-02
		Heptachlor	ug/kg	2	1	1	1.6E-02	1.6E-02				1.6E-02
		Heptachlor epoxide	ug/kg	2	0	0	7.7E-02	8.9E-02				8.9E-02
		Methoxychlor	ug/kg	2	2	ND	ND	ND				ND
		Total Chlordanes	ug/kg	2	0	0	5.3E+00	6.3E+00				6.3E+00
		Total DDD	ug/kg	2	0	0	5.3E+00	5.8E+00				5.8E+00
		Total DDE	ug/kg	2	0	0	1.1E+01	1.3E+01				1.3E+01
		Total DDT	ug/kg	2	0	0	1.7E+00	2.3E+00				2.3E+00
		Total Endosulfan	ug/kg	2	0	0	1.2E+00	1.4E+00				1.4E+00

TABLE 3-19  
Exposure Point Concentration Summary - Clam, by River Mile

Scenario Timeframe: Current/Future
Medium: Shellfish Tissue
Exposure Medium: Clam, by River Mile

Exposure Point <sup>a</sup>	Tissue Type	Chemical of Potential Concern <sup>b</sup>	Units	Total Samples	Total Non-Detects <sup>c</sup>	Non-Detects greater than Maximum Detected Concentration <sup>d</sup>	Arithmetic Mean <sup>e</sup>	Maximum Detected Concentration	95% UCL			Exposure Point Concentration
									Distribution	95% UCL Method	Value	
RM 10 West	D	<b>Metals</b>										
		Aluminum	mg/kg	1	0	0	4.7E+01	4.7E+01		Fewer than 5 detects		4.7E+01
		Arsenic, inorganic	mg/kg	1	0	0	8.0E-02	8.0E-02			8.0E-02	
		Cadmium	mg/kg	1	0	0	5.2E-02	5.2E-02			5.2E-02	
		Chromium	mg/kg	1	0	0	5.0E-01	5.0E-01			5.0E-01	
		Copper	mg/kg	1	0	0	6.9E+00	6.9E+00			6.9E+00	
		Lead	mg/kg	1	0	0	5.8E-02	5.8E-02			5.8E-02	
		Manganese	mg/kg	1	0	0	5.1E+00	5.1E+00			5.1E+00	
		Mercury	mg/kg	NA	NA	NA	NA	NA			NA	
		Nickel	mg/kg	1	0	0	2.0E-01	2.0E-01			2.0E-01	
		Selenium	mg/kg	1	0	0	1.8E-01	1.8E-01			1.8E-01	
		Silver	mg/kg	1	0	0	5.6E-02	5.6E-02			5.6E-02	
		Thallium	mg/kg	1	0	0	1.0E-03	1.0E-03			1.0E-03	
		Zinc	mg/kg	1	0	0	2.8E+01	2.8E+01			2.8E+01	
		<b>Butyltins</b>										
		Butyltin ion	ug/kg	NA	NA	NA	NA	NA		NA		
		<b>Polynuclear Aromatic Hydrocarbons</b>										
		1-Methylnaphthalene	ug/kg	1	0	0	7.7E-01	7.7E-01		7.7E-01		
		2-Methylnaphthalene	ug/kg	1	0	0	1.2E+00	1.2E+00		1.2E+00		
		Acenaphthene	ug/kg	1	0	0	4.3E-01	4.3E-01		4.3E-01		
		Acenaphthylene	ug/kg	1	0	0	1.7E-01	1.7E-01		1.7E-01		
		Anthracene	ug/kg	1	0	0	1.2E+00	1.2E+00		1.2E+00		
		Benzo(a)anthracene	ug/kg	1	0	0	2.9E+00	2.9E+00		2.9E+00		
		Benzo(a)pyrene	ug/kg	1	1	ND	ND	ND		ND		
		Benzo(b)fluoranthene	ug/kg	1	1	ND	ND	ND		ND		
		Benzo(e)pyrene	ug/kg	1	0	0	1.3E+00	1.3E+00		1.3E+00		
		Benzo(g,h,i)perylene	ug/kg	1	1	ND	ND	ND		ND		
		Chrysene	ug/kg	1	0	0	4.2E+00	4.2E+00		4.2E+00		
		Dibenzothiophene	ug/kg	1	0	0	3.4E-01	3.4E-01		3.4E-01		
		Fluoranthene	ug/kg	1	0	0	8.4E+00	8.4E+00		8.4E+00		
		Fluorene	ug/kg	1	0	0	8.0E-01	8.0E-01		8.0E-01		
		Indeno(1,2,3-cd)pyrene	ug/kg	1	1	ND	ND	ND		ND		
		Perylene	ug/kg	1	1	ND	ND	ND		ND		
Phenanthrene	ug/kg	1	0	0	4.2E+00	4.2E+00		4.2E+00				
Pyrene	ug/kg	1	0	0	6.9E+00	6.9E+00		6.9E+00				
<b>Semivolatile Organic Compounds</b>												
Benzoic acid	ug/kg	NA	NA	NA	NA	NA		NA				
Dibenzofuran	ug/kg	1	0	0	5.7E-01	5.7E-01		5.7E-01				
Hexachlorobenzene	ug/kg	1	0	0	6.6E-01	6.6E-01		6.6E-01				
Hexachlorobutadiene	ug/kg	1	1	ND	ND	ND		ND				
Nitrobenzene	ug/kg	NA	NA	NA	NA	NA		NA				

TABLE 3-19  
Exposure Point Concentration Summary - Clam, by River Mile

Scenario Timeframe: Current/Future
Medium: Shellfish Tissue
Exposure Medium: Clam, by River Mile

Exposure Point <sup>a</sup>	Tissue Type	Chemical of Potential Concern <sup>b</sup>	Units	Total Samples	Total Non-Detects <sup>c</sup>	Non-Detects greater than Maximum Detected Concentration <sup>d</sup>	Arithmetic Mean <sup>e</sup>	Maximum Detected Concentration	95% UCL			Exposure Point Concentration
									Distribution	95% UCL Method	Value	
		<b>Phenols</b>										
		2-Methylphenol	ug/kg	NA	NA	NA	NA	NA				NA
		<b>Polychlorinated Biphenyls</b>										
		Total PCB Congeners	pg/g	1	0	0	1.5E+05	1.5E+05				1.5E+05
		Total PCBs, Adjusted	pg/g	1	0	0	1.4E+05	1.4E+05				1.4E+05
		<b>Dioxin/Furan</b>										
		Total Dioxin/Furan TEQ	pg/g	1	0	0	3.1E-01	3.1E-01				3.1E-01
		Total PCB TEQ	pg/g	1	0	0	7.1E-01	7.1E-01				7.1E-01
		<b>Pesticides</b>										
		Aldrin	ug/kg	1	0	0	1.7E-01	1.7E-01				1.7E-01
		Dieldrin	ug/kg	1	0	0	5.9E-01	5.9E-01				5.9E-01
		gamma-Hexachlorocyclohexane	ug/kg	1	0	0	3.7E-02	3.7E-02				3.7E-02
		Heptachlor epoxide	ug/kg	1	0	0	3.5E-02	3.5E-02				3.5E-02
		Total Chlordanes	ug/kg	1	0	0	2.5E+00	2.5E+00				2.5E+00
		Total DDD	ug/kg	1	0	0	2.5E+00	2.5E+00				2.5E+00
		Total DDE	ug/kg	1	0	0	8.2E+00	8.2E+00				8.2E+00
		Total DDT	ug/kg	1	0	0	7.3E-01	7.3E-01				7.3E-01
		Total Endosulfan	ug/kg	1	0	0	3.4E-01	3.4E-01				3.4E-01
RM 10 West	UD	<b>Metals</b>								Fewer than 5 detects		
		Aluminum	mg/kg	1	0	0	5.3E+01	5.3E+01				5.3E+01
		Antimony	mg/kg	1	1	ND	ND	ND				ND
		Arsenic, inorganic	mg/kg	1	0	0	6.5E-02	6.5E-02				6.5E-02
		Cadmium	mg/kg	1	0	0	4.0E-02	4.0E-02				4.0E-02
		Chromium	mg/kg	1	0	0	4.0E-01	4.0E-01				4.0E-01
		Copper	mg/kg	1	0	0	6.3E+00	6.3E+00				6.3E+00
		Lead	mg/kg	1	0	0	5.0E-02	5.0E-02				5.0E-02
		Manganese	mg/kg	1	0	0	4.0E+00	4.0E+00				4.0E+00
		Mercury	mg/kg	1	0	0	2.0E-02	2.0E-02				2.0E-02
		Nickel	mg/kg	1	0	0	1.5E-01	1.5E-01				1.5E-01
		Selenium	mg/kg	1	0	0	1.0E-01	1.0E-01				1.0E-01
		Silver	mg/kg	1	0	0	4.4E-02	4.4E-02				4.4E-02
		Thallium	mg/kg	1	0	0	9.0E-04	9.0E-04				9.0E-04
		Zinc	mg/kg	1	0	0	2.0E+01	2.0E+01				2.0E+01
		<b>Butyltins</b>										
		Butyltin ion	ug/kg	1	1	ND	ND	ND				ND
		Dibutyltin ion	ug/kg	1	1	ND	ND	ND				ND
		Tributyltin ion	ug/kg	1	1	ND	ND	ND				ND
		<b>Polynuclear Aromatic Hydrocarbons</b>										
		1-Methylnaphthalene	ug/kg	1	0	0	9.0E-01	9.0E-01				9.0E-01
		2-Methylnaphthalene	ug/kg	1	0	0	1.3E+00	1.3E+00				1.3E+00

TABLE 3-19  
Exposure Point Concentration Summary - Clam, by River Mile

Scenario Timeframe: Current/Future
Medium: Shellfish Tissue
Exposure Medium: Clam, by River Mile

Exposure Point <sup>a</sup>	Tissue Type	Chemical of Potential Concern <sup>b</sup>	Units	Total Samples	Total Non-Detects <sup>c</sup>	Non-Detects greater than Maximum Detected Concentration <sup>d</sup>	Arithmetic Mean <sup>e</sup>	Maximum Detected Concentration	95% UCL			Exposure Point Concentration
									Distribution	95% UCL Method	Value	
		Acenaphthene	ug/kg	1	0	0	5.1E-01	5.1E-01				5.1E-01
		Acenaphthylene	ug/kg	1	1	ND	ND	ND				ND
		Anthracene	ug/kg	1	0	0	1.1E+00	1.1E+00				1.1E+00
		Benzo(a)anthracene	ug/kg	1	0	0	2.5E+00	2.5E+00				2.5E+00
		Benzo(a)pyrene	ug/kg	1	1	ND	ND	ND				ND
		Benzo(b)fluoranthene	ug/kg	1	1	ND	ND	ND				ND
		Benzo(e)pyrene	ug/kg	1	0	0	1.3E+00	1.3E+00				1.3E+00
		Benzo(g,h,i)perylene	ug/kg	1	1	ND	ND	ND				ND
		Benzo(k)fluoranthene	ug/kg	1	1	ND	ND	ND				ND
		Chrysene	ug/kg	1	0	0	4.1E+00	4.1E+00				4.1E+00
		Dibenzo(a,h)anthracene	ug/kg	1	1	ND	ND	ND				ND
		Dibenzothiophene	ug/kg	1	1	ND	ND	ND				ND
		Fluoranthene	ug/kg	1	0	0	8.5E+00	8.5E+00				8.5E+00
		Fluorene	ug/kg	1	0	0	7.6E-01	7.6E-01				7.6E-01
		Indeno(1,2,3-cd)pyrene	ug/kg	1	0	0	1.9E-01	1.9E-01				1.9E-01
		Naphthalene	ug/kg	1	1	ND	ND	ND				ND
		Perylene	ug/kg	1	1	ND	ND	ND				ND
		Phenanthrene	ug/kg	1	0	0	3.8E+00	3.8E+00				3.8E+00
		Pyrene	ug/kg	1	0	0	7.4E+00	7.4E+00				7.4E+00
		<b>Phthalates</b>										
		Bis(2-ethylhexyl) phthalate	ug/kg	1	1	ND	ND	ND				ND
		Dibutyl phthalate	ug/kg	1	1	ND	ND	ND				ND
		<b>Semivolatile Organic Compounds</b>										
		Benzoic acid	ug/kg	1	0	0	2.5E+03	2.5E+03				2.5E+03
		Benzyl alcohol	ug/kg	1	1	ND	ND	ND				ND
		Bis(2-chloroethoxy) methane	ug/kg	1	1	ND	ND	ND				ND
		Dibenzofuran	ug/kg	1	0	0	5.5E-01	5.5E-01				5.5E-01
		Hexachlorobenzene	ug/kg	1	0	0	4.4E-01	4.4E-01				4.4E-01
		Hexachlorobutadiene	ug/kg	1	1	ND	ND	ND				ND
		Nitrobenzene	ug/kg	1	0	0	8.3E+01	8.3E+01				8.3E+01
		<b>Phenols</b>										
		4-Nitrophenol	ug/kg	1	1	ND	ND	ND				ND
		Phenol	ug/kg	1	1	ND	ND	ND				ND
		<b>Polychlorinated Biphenyls</b>										
		Total Aroclors	ug/kg	NA	NA	NA	NA	NA				NA
		Total PCB Congeners	pg/g	1	0	0	8.5E+04	8.5E+04				8.5E+04
		Total PCBs, Adjusted	pg/g	1	0	0	7.8E+04	7.8E+04				7.8E+04
		<b>Dioxin/Furan</b>										
		Total Dioxin/Furan TEQ	pg/g	1	0	0	3.9E-01	3.9E-01				3.9E-01
		Total PCB TEQ	pg/g	1	0	0	6.9E-01	6.9E-01				6.9E-01

TABLE 3-19  
Exposure Point Concentration Summary - Clam, by River Mile

Scenario Timeframe: Current/Future
Medium: Shellfish Tissue
Exposure Medium: Clam, by River Mile

Exposure Point <sup>a</sup>	Tissue Type	Chemical of Potential Concern <sup>b</sup>	Units	Total Samples	Total Non-Detects <sup>c</sup>	Non-Detects greater than Maximum Detected Concentration <sup>d</sup>	Arithmetic Mean <sup>e</sup>	Maximum Detected Concentration	95% UCL			Exposure Point Concentration
									Distribution	95% UCL Method	Value	
		<b>Pesticides</b>										
		Aldrin	ug/kg	1	0	0	1.3E-01	1.3E-01				1.3E-01
		alpha-Hexachlorocyclohexane	ug/kg	1	1	ND	ND	ND				ND
		beta-Hexachlorocyclohexane	ug/kg	1	1	ND	ND	ND				ND
		Dieldrin	ug/kg	1	0	0	3.4E-01	3.4E-01				3.4E-01
		Endrin	ug/kg	1	1	ND	ND	ND				ND
		Endrin aldehyde	ug/kg	1	1	ND	ND	ND				ND
		Endrin ketone	ug/kg	1	1	ND	ND	ND				ND
		gamma-Hexachlorocyclohexane	ug/kg	1	1	ND	ND	ND				ND
		Heptachlor	ug/kg	1	1	ND	ND	ND				ND
		Heptachlor epoxide	ug/kg	1	1	ND	ND	ND				ND
		Methoxychlor	ug/kg	1	1	ND	ND	ND				ND
		Total Chlordanes	ug/kg	1	0	0	1.6E+00	1.6E+00				1.6E+00
		Total DDD	ug/kg	1	0	0	1.7E+00	1.7E+00				1.7E+00
		Total DDE	ug/kg	1	0	0	5.3E+00	5.3E+00				5.3E+00
		Total DDT	ug/kg	1	0	0	4.6E-01	4.6E-01				4.6E-01
		Total Endosulfan	ug/kg	1	1	ND	ND	ND				ND
RM 11 East	D	<b>Metals</b>										
		Aluminum	mg/kg	1	0	0	3.2E+01	3.2E+01		Fewer than 5 detects		3.2E+01
		Arsenic, inorganic	mg/kg	1	0	0	8.2E-02	8.2E-02				8.2E-02
		Cadmium	mg/kg	1	0	0	1.0E-01	1.0E-01				1.0E-01
		Chromium	mg/kg	1	0	0	4.0E-01	4.0E-01				4.0E-01
		Copper	mg/kg	1	0	0	7.1E+00	7.1E+00				7.1E+00
		Lead	mg/kg	1	0	0	5.4E-02	5.4E-02				5.4E-02
		Manganese	mg/kg	1	0	0	4.5E+00	4.5E+00				4.5E+00
		Mercury	mg/kg	1	0	0	2.0E-02	2.0E-02				2.0E-02
		Nickel	mg/kg	1	0	0	2.0E-01	2.0E-01				2.0E-01
		Selenium	mg/kg	1	0	0	1.2E-01	1.2E-01				1.2E-01
		Silver	mg/kg	1	0	0	6.2E-02	6.2E-02				6.2E-02
		Thallium	mg/kg	1	0	0	6.0E-04	6.0E-04				6.0E-04
		Zinc	mg/kg	1	0	0	1.9E+01	1.9E+01				1.9E+01
		<b>Butyltins</b>										
		Butyltin ion	ug/kg	1	0	0	1.5E+00	1.5E+00				1.5E+00
		<b>Polynuclear Aromatic Hydrocarbons</b>										
		1-Methylnaphthalene	ug/kg	1	1	ND	ND	ND				ND
		2-Methylnaphthalene	ug/kg	1	1	ND	ND	ND				ND
		Acenaphthene	ug/kg	1	0	0	3.6E-01	3.6E-01				3.6E-01
		Acenaphthylene	ug/kg	1	1	ND	ND	ND				ND
		Anthracene	ug/kg	1	0	0	1.3E+00	1.3E+00				1.3E+00

TABLE 3-19  
Exposure Point Concentration Summary - Clam, by River Mile

Scenario Timeframe: Current/Future
Medium: Shellfish Tissue
Exposure Medium: Clam, by River Mile

Exposure Point <sup>a</sup>	Tissue Type	Chemical of Potential Concern <sup>b</sup>	Units	Total Samples	Total Non-Detects <sup>c</sup>	Non-Detects greater than Maximum Detected Concentration <sup>d</sup>	Arithmetic Mean <sup>e</sup>	Maximum Detected Concentration	95% UCL			Exposure Point Concentration
									Distribution	95% UCL Method	Value	
		Benzo(a)anthracene	ug/kg	1	0	0	1.6E+00	1.6E+00				1.6E+00
		Benzo(a)pyrene	ug/kg	1	0	0	4.3E-01	4.3E-01				4.3E-01
		Benzo(b)fluoranthene	ug/kg	1	0	0	9.7E-01	9.7E-01				9.7E-01
		Benzo(e)pyrene	ug/kg	1	0	0	1.3E+00	1.3E+00				1.3E+00
		Benzo(g,h,i)perylene	ug/kg	1	1	ND	ND	ND				ND
		Chrysene	ug/kg	1	0	0	3.7E+00	3.7E+00				3.7E+00
		Dibenzothiophene	ug/kg	1	0	0	3.6E-01	3.6E-01				3.6E-01
		Fluoranthene	ug/kg	1	0	0	9.9E+00	9.9E+00				9.9E+00
		Fluorene	ug/kg	1	0	0	8.2E-01	8.2E-01				8.2E-01
		Indeno(1,2,3-cd)pyrene	ug/kg	1	1	ND	ND	ND				ND
		Perylene	ug/kg	1	1	ND	ND	ND				ND
		Phenanthrene	ug/kg	1	0	0	4.2E+00	4.2E+00				4.2E+00
		Pyrene	ug/kg	1	0	0	7.0E+00	7.0E+00				7.0E+00
		<b>Semivolatile Organic Compounds</b>										
		Benzoic acid	ug/kg	1	0	0	1.9E+03	1.9E+03				1.9E+03
		Dibenzofuran	ug/kg	1	0	0	4.3E-01	4.3E-01				4.3E-01
		Hexachlorobenzene	ug/kg	1	0	0	4.3E-01	4.3E-01				4.3E-01
		Hexachlorobutadiene	ug/kg	1	1	ND	ND	ND				ND
		Nitrobenzene	ug/kg	1	0	0	8.6E+01	8.6E+01				8.6E+01
		<b>Phenols</b>										
		2-Methylphenol	ug/kg	1	1	ND	ND	ND				ND
		<b>Polychlorinated Biphenyls</b>										
		Total PCB Congeners	pg/g	1	0	0	4.8E+05	4.8E+05				4.8E+05
		Total PCBs, Adjusted	pg/g	1	0	0	4.7E+05	4.7E+05				4.7E+05
		<b>Dioxin/Furan</b>										
		Total Dioxin/Furan TEQ	pg/g	1	0	0	2.0E-01	2.0E-01				2.0E-01
		Total PCB TEQ	pg/g	1	0	0	6.5E-01	6.5E-01				6.5E-01
		<b>Pesticides</b>										
		Aldrin	ug/kg	1	1	ND	ND	ND				ND
		Dieldrin	ug/kg	1	0	0	3.4E-01	3.4E-01				3.4E-01
		gamma-Hexachlorocyclohexane	ug/kg	1	1	ND	ND	ND				ND
		Heptachlor epoxide	ug/kg	1	0	0	2.5E-02	2.5E-02				2.5E-02
		Total Chlordanes	ug/kg	1	0	0	1.4E+00	1.4E+00				1.4E+00
		Total DDD	ug/kg	1	0	0	1.3E+00	1.3E+00				1.3E+00
		Total DDE	ug/kg	1	0	0	4.1E+00	4.1E+00				4.1E+00
		Total DDT	ug/kg	1	0	0	6.3E-01	6.3E-01				6.3E-01
		Total Endosulfan	ug/kg	1	0	0	3.6E-01	3.6E-01				3.6E-01



TABLE 3-19  
Exposure Point Concentration Summary - Clam, by River Mile

Scenario Timeframe: Current/Future
Medium: Shellfish Tissue
Exposure Medium: Clam, by River Mile

Exposure Point <sup>a</sup>	Tissue Type	Chemical of Potential Concern <sup>b</sup>	Units	Total Samples	Total Non-Detects <sup>c</sup>	Non-Detects greater than Maximum Detected Concentration <sup>d</sup>	Arithmetic Mean <sup>e</sup>	Maximum Detected Concentration	95% UCL			Exposure Point Concentration
									Distribution	95% UCL Method	Value	
RM 11 East	UD	<b>Metals</b>										
		Aluminum	mg/kg	1	0	0	2.0E+02	2.0E+02		Fewer than 5 detects		2.0E+02
		Antimony	mg/kg	1	1	ND	ND	ND			ND	
		Arsenic, inorganic	mg/kg	1	0	0	7.7E-02	7.7E-02			7.7E-02	
		Cadmium	mg/kg	1	0	0	7.8E-02	7.8E-02			7.8E-02	
		Chromium	mg/kg	1	0	0	7.0E-01	7.0E-01			7.0E-01	
		Copper	mg/kg	1	0	0	6.6E+00	6.6E+00			6.6E+00	
		Lead	mg/kg	1	0	0	1.8E-01	1.8E-01			1.8E-01	
		Manganese	mg/kg	1	0	0	7.5E+00	7.5E+00			7.5E+00	
		Mercury	mg/kg	1	0	0	2.6E-02	2.6E-02			2.6E-02	
		Nickel	mg/kg	1	0	0	3.2E-01	3.2E-01			3.2E-01	
		Selenium	mg/kg	1	0	0	1.4E-01	1.4E-01			1.4E-01	
		Silver	mg/kg	1	0	0	5.6E-02	5.6E-02			5.6E-02	
		Thallium	mg/kg	1	0	0	1.1E-03	1.1E-03			1.1E-03	
		Zinc	mg/kg	1	0	0	2.6E+01	2.6E+01			2.6E+01	
		<b>Butyltins</b>										
		Butyltin ion	ug/kg	1	0	0	2.1E+00	2.1E+00		2.1E+00		
		Dibutyltin ion	ug/kg	1	1	ND	ND	ND		ND		
		Tributyltin ion	ug/kg	1	1	ND	ND	ND		ND		
		<b>Polynuclear Aromatic Hydrocarbons</b>										
		1-Methylnaphthalene	ug/kg	1	0	0	9.3E-01	9.3E-01		9.3E-01		
		2-Methylnaphthalene	ug/kg	1	0	0	1.3E+00	1.3E+00		1.3E+00		
		Acenaphthene	ug/kg	1	0	0	3.0E-01	3.0E-01		3.0E-01		
		Acenaphthylene	ug/kg	1	1	ND	ND	ND		ND		
		Anthracene	ug/kg	1	0	0	1.2E+00	1.2E+00		1.2E+00		
		Benzo(a)anthracene	ug/kg	1	0	0	1.9E+00	1.9E+00		1.9E+00		
		Benzo(a)pyrene	ug/kg	1	1	ND	ND	ND		ND		
		Benzo(b)fluoranthene	ug/kg	1	1	ND	ND	ND		ND		
		Benzo(e)pyrene	ug/kg	1	0	0	1.2E+00	1.2E+00		1.2E+00		
		Benzo(g,h,i)perylene	ug/kg	1	1	ND	ND	ND		ND		
		Benzo(k)fluoranthene	ug/kg	1	1	ND	ND	ND		ND		
		Chrysene	ug/kg	1	0	0	3.8E+00	3.8E+00		3.8E+00		
		Dibenzo(a,h)anthracene	ug/kg	1	1	ND	ND	ND		ND		
		Dibenzothiophene	ug/kg	1	1	ND	ND	ND		ND		
		Fluoranthene	ug/kg	1	0	0	5.5E+00	5.5E+00		5.5E+00		
		Fluorene	ug/kg	1	0	0	6.3E-01	6.3E-01		6.3E-01		
		Indeno(1,2,3-cd)pyrene	ug/kg	1	1	ND	ND	ND		ND		
		Naphthalene	ug/kg	1	1	ND	ND	ND		ND		
		Perylene	ug/kg	1	1	ND	ND	ND		ND		
		Phenanthrene	ug/kg	1	0	0	2.7E+00	2.7E+00		2.7E+00		
Pyrene	ug/kg	1	0	0	5.5E+00	5.5E+00		5.5E+00				

TABLE 3-19  
Exposure Point Concentration Summary - Clam, by River Mile

Scenario Timeframe: Current/Future
Medium: Shellfish Tissue
Exposure Medium: Clam, by River Mile

Exposure Point <sup>a</sup>	Tissue Type	Chemical of Potential Concern <sup>b</sup>	Units	Total Samples	Total Non-Detects <sup>c</sup>	Non-Detects greater than Maximum Detected Concentration <sup>d</sup>	Arithmetic Mean <sup>e</sup>	Maximum Detected Concentration	95% UCL			Exposure Point Concentration
									Distribution	95% UCL Method	Value	
		<b>Phthalates</b>										
		Bis(2-ethylhexyl) phthalate	ug/kg	1	1	ND	ND	ND				ND
		Dibutyl phthalate	ug/kg	1	1	ND	ND	ND				ND
		<b>Semivolatile Organic Compounds</b>										
		Benzoic acid	ug/kg	1	0	0	4.0E+03	4.0E+03				4.0E+03
		Benzyl alcohol	ug/kg	1	0	0	2.3E+01	2.3E+01				2.3E+01
		Bis(2-chloroethoxy) methane	ug/kg	1	1	ND	ND	ND				ND
		Dibenzofuran	ug/kg	1	0	0	5.1E-01	5.1E-01				5.1E-01
		Hexachlorobenzene	ug/kg	1	0	0	5.5E-01	5.5E-01				5.5E-01
		Hexachlorobutadiene	ug/kg	1	1	ND	ND	ND				ND
		Nitrobenzene	ug/kg	1	0	0	7.8E+01	7.8E+01				7.8E+01
		<b>Phenols</b>										
		4-Nitrophenol	ug/kg	1	1	ND	ND	ND				ND
		Phenol	ug/kg	1	1	ND	ND	ND				ND
		<b>Polychlorinated Biphenyls</b>										
		Total Aroclors	ug/kg	NA	NA	NA	NA	NA				NA
		Total PCB Congeners	pg/g	1	0	0	8.6E+05	8.6E+05				8.6E+05
		Total PCBs, Adjusted	pg/g	1	0	0	8.4E+05	8.4E+05				8.4E+05
		<b>Dioxin/Furan</b>										
		Total Dioxin/Furan TEQ	pg/g	1	0	0	5.3E-01	5.3E-01				5.3E-01
		Total PCB TEQ	pg/g	1	0	0	1.7E+00	1.7E+00				1.7E+00
		<b>Pesticides</b>										
		Aldrin	ug/kg	1	1	ND	ND	ND				ND
		alpha-Hexachlorocyclohexane	ug/kg	1	1	ND	ND	ND				ND
		beta-Hexachlorocyclohexane	ug/kg	1	1	ND	ND	ND				ND
		Dieldrin	ug/kg	1	0	0	4.5E-01	4.5E-01				4.5E-01
		Endrin	ug/kg	1	1	ND	ND	ND				ND
		Endrin aldehyde	ug/kg	1	1	ND	ND	ND				ND
		Endrin ketone	ug/kg	1	1	ND	ND	ND				ND
		gamma-Hexachlorocyclohexane	ug/kg	1	0	0	2.6E-02	2.6E-02				2.6E-02
		Heptachlor	ug/kg	1	1	ND	ND	ND				ND
		Heptachlor epoxide	ug/kg	1	0	0	3.3E-02	3.3E-02				3.3E-02
		Methoxychlor	ug/kg	1	1	ND	ND	ND				ND
		Total Chlordanes	ug/kg	1	0	0	1.8E+00	1.8E+00				1.8E+00
		Total DDD	ug/kg	1	0	0	1.7E+00	1.7E+00				1.7E+00
		Total DDE	ug/kg	1	0	0	5.4E+00	5.4E+00				5.4E+00
		Total DDT	ug/kg	1	0	0	7.6E-01	7.6E-01				7.6E-01
		Total Endosulfan	ug/kg	1	0	0	4.5E-01	4.5E-01				4.5E-01

TABLE 3-19  
Exposure Point Concentration Summary - Clam, by River Mile

Scenario Timeframe: Current/Future
Medium: Shellfish Tissue
Exposure Medium: Clam, by River Mile

Exposure Point <sup>a</sup>	Tissue Type	Chemical of Potential Concern <sup>b</sup>	Units	Total Samples	Total Non-Detects <sup>c</sup>	Non-Detects greater than Maximum Detected Concentration <sup>d</sup>	Arithmetic Mean <sup>e</sup>	Maximum Detected Concentration	95% UCL			Exposure Point Concentration	
									Distribution	95% UCL Method	Value		
RM 11 West	UD	<b>Metals</b>											
		Aluminum	mg/kg	1	0	0	1.5E+02	1.5E+02		Fewer than 5 detects		1.5E+02	
		Antimony	mg/kg	1	1	ND	ND	ND			ND		
		Arsenic, inorganic	mg/kg	1	0	0	6.2E-02	6.2E-02			6.2E-02		
		Cadmium	mg/kg	1	0	0	3.5E-02	3.5E-02			3.5E-02		
		Chromium	mg/kg	1	0	0	5.0E-01	5.0E-01			5.0E-01		
		Copper	mg/kg	1	0	0	4.6E+00	4.6E+00			4.6E+00		
		Lead	mg/kg	1	0	0	7.0E-02	7.0E-02			7.0E-02		
		Manganese	mg/kg	1	0	0	7.8E+00	7.8E+00			7.8E+00		
		Mercury	mg/kg	1	0	0	2.0E-02	2.0E-02			2.0E-02		
		Nickel	mg/kg	1	0	0	2.5E-01	2.5E-01			2.5E-01		
		Selenium	mg/kg	1	0	0	1.4E-01	1.4E-01			1.4E-01		
		Silver	mg/kg	1	0	0	4.4E-02	4.4E-02			4.4E-02		
		Thallium	mg/kg	1	0	0	1.0E-03	1.0E-03			1.0E-03		
		Zinc	mg/kg	1	0	0	2.8E+01	2.8E+01			2.8E+01		
		<b>Butyltins</b>											
		Butyltin ion	ug/kg	1	1	ND	ND	ND		ND			
		Dibutyltin ion	ug/kg	1	1	ND	ND	ND		ND			
		Tributyltin ion	ug/kg	1	1	ND	ND	ND		ND			
		<b>Polynuclear Aromatic Hydrocarbons</b>											
		1-Methylnaphthalene	ug/kg	1	1	ND	ND	ND		ND			
		2-Methylnaphthalene	ug/kg	1	1	ND	ND	ND		ND			
		Acenaphthene	ug/kg	1	0	0	4.0E-01	4.0E-01		4.0E-01			
		Acenaphthylene	ug/kg	1	1	ND	ND	ND		ND			
		Anthracene	ug/kg	1	0	0	1.4E+00	1.4E+00		1.4E+00			
		Benzo(a)anthracene	ug/kg	1	0	0	2.1E+00	2.1E+00		2.1E+00			
		Benzo(a)pyrene	ug/kg	1	0	0	3.2E-01	3.2E-01		3.2E-01			
		Benzo(b)fluoranthene	ug/kg	1	1	ND	ND	ND		ND			
		Benzo(e)pyrene	ug/kg	1	0	0	1.2E+00	1.2E+00		1.2E+00			
		Benzo(g,h,i)perylene	ug/kg	1	1	ND	ND	ND		ND			
		Benzo(k)fluoranthene	ug/kg	1	1	ND	ND	ND		ND			
		Chrysene	ug/kg	1	0	0	3.2E+00	3.2E+00		3.2E+00			
		Dibenzo(a,h)anthracene	ug/kg	1	1	ND	ND	ND		ND			
		Dibenzothiophene	ug/kg	1	1	ND	ND	ND		ND			
		Fluoranthene	ug/kg	1	0	0	5.6E+00	5.6E+00		5.6E+00			
		Fluorene	ug/kg	1	0	0	8.2E-01	8.2E-01		8.2E-01			
		Indeno(1,2,3-cd)pyrene	ug/kg	1	0	0	1.5E-01	1.5E-01		1.5E-01			
		Naphthalene	ug/kg	1	1	ND	ND	ND		ND			
		Perylene	ug/kg	1	1	ND	ND	ND		ND			
		Phenanthrene	ug/kg	1	0	0	3.6E+00	3.6E+00		3.6E+00			
Pyrene	ug/kg	1	0	0	4.9E+00	4.9E+00		4.9E+00					

TABLE 3-19  
Exposure Point Concentration Summary - Clam, by River Mile

Scenario Timeframe: Current/Future
Medium: Shellfish Tissue
Exposure Medium: Clam, by River Mile

Exposure Point <sup>a</sup>	Tissue Type	Chemical of Potential Concern <sup>b</sup>	Units	Total Samples	Total Non-Detects <sup>c</sup>	Non-Detects greater than Maximum Detected Concentration <sup>d</sup>	Arithmetic Mean <sup>e</sup>	Maximum Detected Concentration	95% UCL			Exposure Point Concentration
									Distribution	95% UCL Method	Value	
		<b>Phthalates</b>										
		Bis(2-ethylhexyl) phthalate	ug/kg	1	1	ND	ND	ND				ND
		Dibutyl phthalate	ug/kg	1	1	ND	ND	ND				ND
		<b>Semivolatile Organic Compounds</b>										
		Benzoic acid	ug/kg	1	0	0	5.2E+03	5.2E+03				5.2E+03
		Benzyl alcohol	ug/kg	1	0	0	2.3E+01	2.3E+01				2.3E+01
		Bis(2-chloroethoxy) methane	ug/kg	1	1	ND	ND	ND				ND
		Dibenzofuran	ug/kg	1	0	0	6.1E-01	6.1E-01				6.1E-01
		Hexachlorobenzene	ug/kg	1	0	0	6.7E-01	6.7E-01				6.7E-01
		Hexachlorobutadiene	ug/kg	1	1	ND	ND	ND				ND
		Nitrobenzene	ug/kg	1	0	0	2.3E+02	2.3E+02				2.3E+02
		<b>Phenols</b>										
		4-Nitrophenol	ug/kg	1	1	ND	ND	ND				ND
		Phenol	ug/kg	1	1	ND	ND	ND				ND
		<b>Polychlorinated Biphenyls</b>										
		Total Aroclors	ug/kg	NA	NA	NA	NA	NA				NA
		Total PCB Congeners	pg/g	1	0	0	3.9E+04	3.9E+04				3.9E+04
		Total PCBs, Adjusted	pg/g	1	0	0	3.6E+04	3.6E+04				3.6E+04
		<b>Dioxin/Furan</b>										
		Total Dioxin/Furan TEQ	pg/g	1	0	0	5.8E-01	5.8E-01				5.8E-01
		Total PCB TEQ	pg/g	1	0	0	4.9E-01	4.9E-01				4.9E-01
		<b>Pesticides</b>										
		Aldrin	ug/kg	1	0	0	1.3E-01	1.3E-01				1.3E-01
		alpha-Hexachlorocyclohexane	ug/kg	1	1	ND	ND	ND				ND
		beta-Hexachlorocyclohexane	ug/kg	1	1	ND	ND	ND				ND
		Dieldrin	ug/kg	1	0	0	5.0E-01	5.0E-01				5.0E-01
		Endrin	ug/kg	1	1	ND	ND	ND				ND
		Endrin aldehyde	ug/kg	1	1	ND	ND	ND				ND
		Endrin ketone	ug/kg	1	1	ND	ND	ND				ND
		gamma-Hexachlorocyclohexane	ug/kg	1	0	0	1.8E-02	1.8E-02				1.8E-02
		Heptachlor	ug/kg	1	1	ND	ND	ND				ND
		Heptachlor epoxide	ug/kg	1	0	0	4.7E-02	4.7E-02				4.7E-02
		Methoxychlor	ug/kg	1	1	ND	ND	ND				ND
		Total Chlordanes	ug/kg	1	0	0	2.0E+00	2.0E+00				2.0E+00
		Total DDD	ug/kg	1	0	0	1.6E+00	1.6E+00				1.6E+00
		Total DDE	ug/kg	1	0	0	6.0E+00	6.0E+00				6.0E+00
		Total DDT	ug/kg	1	0	0	9.8E-01	9.8E-01				9.8E-01
		Total Endosulfan	ug/kg	1	0	0	2.4E-01	2.4E-01				2.4E-01

TABLE 3-19  
Exposure Point Concentration Summary - Clam, by River Mile

Scenario Timeframe: Current/Future
Medium: Shellfish Tissue
Exposure Medium: Clam, by River Mile

Exposure Point <sup>a</sup>	Tissue Type	Chemical of Potential Concern <sup>b</sup>	Units	Total Samples	Total Non-Detects <sup>c</sup>	Non-Detects greater than Maximum Detected Concentration <sup>d</sup>	Arithmetic Mean <sup>e</sup>	Maximum Detected Concentration	95% UCL			Exposure Point Concentration	
									Distribution	95% UCL Method	Value		
RM 12 East	D	<b>Metals</b>											
		Aluminum	mg/kg	1	0	0	6.2E+01	6.2E+01		Fewer than 5 detects		6.2E+01	
		Arsenic, inorganic	mg/kg	1	0	0	7.6E-02	7.6E-02			7.6E-02		
		Cadmium	mg/kg	1	0	0	5.8E-02	5.8E-02			5.8E-02		
		Chromium	mg/kg	1	0	0	5.0E-01	5.0E-01			5.0E-01		
		Copper	mg/kg	1	0	0	7.6E+00	7.6E+00			7.6E+00		
		Lead	mg/kg	1	0	0	1.1E-01	1.1E-01			1.1E-01		
		Manganese	mg/kg	1	0	0	5.0E+00	5.0E+00			5.0E+00		
		Mercury	mg/kg	1	0	0	2.2E-02	2.2E-02			2.2E-02		
		Nickel	mg/kg	1	0	0	1.9E-01	1.9E-01			1.9E-01		
		Selenium	mg/kg	1	0	0	1.2E-01	1.2E-01			1.2E-01		
		Silver	mg/kg	1	0	0	7.5E-02	7.5E-02			7.5E-02		
		Thallium	mg/kg	1	0	0	9.0E-04	9.0E-04			9.0E-04		
		Zinc	mg/kg	1	0	0	2.4E+01	2.4E+01			2.4E+01		
		<b>Butyltins</b>											
		Butyltin ion	ug/kg	1	1	ND	ND	ND		ND			
		<b>Polynuclear Aromatic Hydrocarbons</b>											
		1-Methylnaphthalene	ug/kg	1	1	ND	ND	ND		ND			
		2-Methylnaphthalene	ug/kg	1	1	ND	ND	ND		ND			
		Acenaphthene	ug/kg	1	1	ND	ND	ND		ND			
		Acenaphthylene	ug/kg	1	0	0	2.3E-01	2.3E-01		2.3E-01			
		Anthracene	ug/kg	1	0	0	1.2E+00	1.2E+00		1.2E+00			
		Benzo(a)anthracene	ug/kg	1	0	0	1.7E+00	1.7E+00		1.7E+00			
		Benzo(a)pyrene	ug/kg	1	0	0	3.1E-01	3.1E-01		3.1E-01			
		Benzo(b)fluoranthene	ug/kg	1	1	ND	ND	ND		ND			
		Benzo(e)pyrene	ug/kg	1	0	0	1.6E+00	1.6E+00		1.6E+00			
		Benzo(g,h,i)perylene	ug/kg	1	1	ND	ND	ND		ND			
		Chrysene	ug/kg	1	0	0	4.2E+00	4.2E+00		4.2E+00			
		Dibenzothiophene	ug/kg	1	1	ND	ND	ND		ND			
		Fluoranthene	ug/kg	1	0	0	5.9E+00	5.9E+00		5.9E+00			
		Fluorene	ug/kg	1	0	0	6.0E-01	6.0E-01		6.0E-01			
		Indeno(1,2,3-cd)pyrene	ug/kg	1	1	ND	ND	ND		ND			
		Perylene	ug/kg	1	1	ND	ND	ND		ND			
Phenanthrene	ug/kg	1	0	0	2.6E+00	2.6E+00		2.6E+00					
Pyrene	ug/kg	1	0	0	5.9E+00	5.9E+00		5.9E+00					
<b>Semivolatile Organic Compounds</b>													
Benzoic acid	ug/kg	1	0	0	2.7E+03	2.7E+03		2.7E+03					
Dibenzofuran	ug/kg	1	0	0	4.6E-01	4.6E-01		4.6E-01					
Hexachlorobenzene	ug/kg	1	0	0	5.5E-01	5.5E-01		5.5E-01					
Hexachlorobutadiene	ug/kg	1	1	ND	ND	ND		ND					
Nitrobenzene	ug/kg	1	0	0	9.6E+01	9.6E+01		9.6E+01					

TABLE 3-19  
Exposure Point Concentration Summary - Clam, by River Mile

Scenario Timeframe: Current/Future
Medium: Shellfish Tissue
Exposure Medium: Clam, by River Mile

Exposure Point <sup>a</sup>	Tissue Type	Chemical of Potential Concern <sup>b</sup>	Units	Total Samples	Total Non-Detects <sup>c</sup>	Non-Detects greater than Maximum Detected Concentration <sup>d</sup>	Arithmetic Mean <sup>e</sup>	Maximum Detected Concentration	95% UCL			Exposure Point Concentration
									Distribution	95% UCL Method	Value	
		<b>Phenols</b>										
		2-Methylphenol	ug/kg	1	1	ND	ND	ND				ND
		<b>Polychlorinated Biphenyls</b>										
		Total PCB Congeners	pg/g	1	0	0	8.7E+04	8.7E+04				8.7E+04
		Total PCBs, Adjusted	pg/g	1	0	0	8.3E+04	8.3E+04				8.3E+04
		<b>Dioxin/Furan</b>										
		Total Dioxin/Furan TEQ	pg/g	1	0	0	2.6E-01	2.6E-01				2.6E-01
		Total PCB TEQ	pg/g	1	0	0	5.2E-01	5.2E-01				5.2E-01
		<b>Pesticides</b>										
		Aldrin	ug/kg	1	1	ND	ND	ND				ND
		Dieldrin	ug/kg	1	0	0	4.3E-01	4.3E-01				4.3E-01
		gamma-Hexachlorocyclohexane	ug/kg	1	0	0	2.2E-02	2.2E-02				2.2E-02
		Heptachlor epoxide	ug/kg	1	0	0	3.7E-02	3.7E-02				3.7E-02
		Total Chlordanes	ug/kg	1	0	0	1.9E+00	1.9E+00				1.9E+00
		Total DDD	ug/kg	1	0	0	1.5E+00	1.5E+00				1.5E+00
		Total DDE	ug/kg	1	0	0	4.8E+00	4.8E+00				4.8E+00
		Total DDT	ug/kg	1	0	0	7.9E-01	7.9E-01				7.9E-01
		Total Endosulfan	ug/kg	1	0	0	5.0E-01	5.0E-01				5.0E-01
RM 12 East	UD	<b>Metals</b>								Fewer than 5 detects		
		Aluminum	mg/kg	1	0	0	1.1E+02	1.1E+02				1.1E+02
		Antimony	mg/kg	1	1	ND	ND	ND				ND
		Arsenic, inorganic	mg/kg	1	0	0	8.0E-02	8.0E-02				8.0E-02
		Cadmium	mg/kg	1	0	0	5.3E-02	5.3E-02				5.3E-02
		Chromium	mg/kg	1	0	0	7.0E-01	7.0E-01				7.0E-01
		Copper	mg/kg	1	0	0	7.0E+00	7.0E+00				7.0E+00
		Lead	mg/kg	1	0	0	1.8E-01	1.8E-01				1.8E-01
		Manganese	mg/kg	1	0	0	6.5E+00	6.5E+00				6.5E+00
		Mercury	mg/kg	1	0	0	2.5E-02	2.5E-02				2.5E-02
		Nickel	mg/kg	1	0	0	2.2E-01	2.2E-01				2.2E-01
		Selenium	mg/kg	1	0	0	1.4E-01	1.4E-01				1.4E-01
		Silver	mg/kg	1	0	0	6.4E-02	6.4E-02				6.4E-02
		Thallium	mg/kg	1	0	0	1.1E-03	1.1E-03				1.1E-03
		Zinc	mg/kg	1	0	0	3.0E+01	3.0E+01				3.0E+01
		<b>Butyltins</b>										
		Butyltin ion	ug/kg	1	1	ND	ND	ND				ND
		Dibutyltin ion	ug/kg	1	1	ND	ND	ND				ND
		Tributyltin ion	ug/kg	1	1	ND	ND	ND				ND
		<b>Polynuclear Aromatic Hydrocarbons</b>										
		1-Methylnaphthalene	ug/kg	1	0	0	8.1E-01	8.1E-01				8.1E-01
		2-Methylnaphthalene	ug/kg	1	0	0	1.7E+00	1.7E+00				1.7E+00

TABLE 3-19  
Exposure Point Concentration Summary - Clam, by River Mile

Scenario Timeframe: Current/Future
Medium: Shellfish Tissue
Exposure Medium: Clam, by River Mile

Exposure Point <sup>a</sup>	Tissue Type	Chemical of Potential Concern <sup>b</sup>	Units	Total Samples	Total Non-Detects <sup>c</sup>	Non-Detects greater than Maximum Detected Concentration <sup>d</sup>	Arithmetic Mean <sup>e</sup>	Maximum Detected Concentration	95% UCL			Exposure Point Concentration
									Distribution	95% UCL Method	Value	
		Acenaphthene	ug/kg	1	0	0	7.3E-01	7.3E-01				7.3E-01
		Acenaphthylene	ug/kg	1	1	ND	ND	ND				ND
		Anthracene	ug/kg	1	0	0	1.8E+00	1.8E+00				1.8E+00
		Benzo(a)anthracene	ug/kg	1	0	0	2.6E+00	2.6E+00				2.6E+00
		Benzo(a)pyrene	ug/kg	1	1	ND	ND	ND				ND
		Benzo(b)fluoranthene	ug/kg	1	1	ND	ND	ND				ND
		Benzo(e)pyrene	ug/kg	1	0	0	2.3E+00	2.3E+00				2.3E+00
		Benzo(g,h,i)perylene	ug/kg	1	1	ND	ND	ND				ND
		Benzo(k)fluoranthene	ug/kg	1	1	ND	ND	ND				ND
		Chrysene	ug/kg	1	0	0	6.3E+00	6.3E+00				6.3E+00
		Dibenzo(a,h)anthracene	ug/kg	1	1	ND	ND	ND				ND
		Dibenzothiophene	ug/kg	1	1	ND	ND	ND				ND
		Fluoranthene	ug/kg	1	0	0	7.8E+00	7.8E+00				7.8E+00
		Fluorene	ug/kg	1	0	0	9.6E-01	9.6E-01				9.6E-01
		Indeno(1,2,3-cd)pyrene	ug/kg	1	1	ND	ND	ND				ND
		Naphthalene	ug/kg	1	0	0	7.8E+01	7.8E+01				7.8E+01
		Perylene	ug/kg	1	1	ND	ND	ND				ND
		Phenanthrene	ug/kg	1	0	0	4.2E+00	4.2E+00				4.2E+00
		Pyrene	ug/kg	1	0	0	8.9E+00	8.9E+00				8.9E+00
		<b>Phthalates</b>										
		Bis(2-ethylhexyl) phthalate	ug/kg	1	0	0	1.5E+02	1.5E+02				1.5E+02
		Dibutyl phthalate	ug/kg	1	1	ND	ND	ND				ND
		<b>Semivolatile Organic Compounds</b>										
		Benzoic acid	ug/kg	1	0	0	3.4E+03	3.4E+03				3.4E+03
		Benzyl alcohol	ug/kg	1	1	ND	ND	ND				ND
		Bis(2-chloroethoxy) methane	ug/kg	1	1	ND	ND	ND				ND
		Dibenzofuran	ug/kg	1	0	0	6.3E-01	6.3E-01				6.3E-01
		Hexachlorobenzene	ug/kg	1	0	0	7.8E-01	7.8E-01				7.8E-01
		Hexachlorobutadiene	ug/kg	1	0	0	4.0E-03	4.0E-03				4.0E-03
		Nitrobenzene	ug/kg	1	0	0	1.7E+02	1.7E+02				1.7E+02
		<b>Phenols</b>										
		4-Nitrophenol	ug/kg	1	1	ND	ND	ND				ND
		Phenol	ug/kg	1	1	ND	ND	ND				ND
		<b>Polychlorinated Biphenyls</b>										
		Total Aroclors	ug/kg	NA	NA	NA	NA	NA				NA
		Total PCB Congeners	pg/g	1	0	0	1.4E+05	1.4E+05				1.4E+05
		Total PCBs, Adjusted	pg/g	1	0	0	1.4E+05	1.4E+05				1.4E+05
		<b>Dioxin/Furan</b>										
		Total Dioxin/Furan TEQ	pg/g	1	0	0	6.8E-01	6.8E-01				6.8E-01
		Total PCB TEQ	pg/g	1	0	0	9.2E-01	9.2E-01				9.2E-01

TABLE 3-19  
Exposure Point Concentration Summary - Clam, by River Mile

Scenario Timeframe: Current/Future
Medium: Shellfish Tissue
Exposure Medium: Clam, by River Mile

Exposure Point <sup>a</sup>	Tissue Type	Chemical of Potential Concern <sup>b</sup>	Units	Total Samples	Total Non-Detects <sup>c</sup>	Non-Detects greater than Maximum Detected Concentration <sup>d</sup>	Arithmetic Mean <sup>e</sup>	Maximum Detected Concentration	95% UCL			Exposure Point Concentration
									Distribution	95% UCL Method	Value	
		<b>Pesticides</b>										
		Aldrin	ug/kg	1	0	0	1.1E-01	1.1E-01				1.1E-01
		alpha-Hexachlorocyclohexane	ug/kg	1	1	ND	ND	ND				ND
		beta-Hexachlorocyclohexane	ug/kg	1	1	ND	ND	ND				ND
		Dieldrin	ug/kg	1	0	0	6.1E-01	6.1E-01				6.1E-01
		Endrin	ug/kg	1	1	ND	ND	ND				ND
		Endrin aldehyde	ug/kg	1	1	ND	ND	ND				ND
		Endrin ketone	ug/kg	1	1	ND	ND	ND				ND
		gamma-Hexachlorocyclohexane	ug/kg	1	0	0	3.6E-02	3.6E-02				3.6E-02
		Heptachlor	ug/kg	1	1	ND	ND	ND				ND
		Heptachlor epoxide	ug/kg	1	1	ND	ND	ND				ND
		Methoxychlor	ug/kg	1	1	ND	ND	ND				ND
		Total Chlordanes	ug/kg	1	0	0	2.5E+00	2.5E+00				2.5E+00
		Total DDD	ug/kg	1	0	0	2.0E+00	2.0E+00				2.0E+00
		Total DDE	ug/kg	1	0	0	6.3E+00	6.3E+00				6.3E+00
		Total DDT	ug/kg	1	0	0	1.1E+00	1.1E+00				1.1E+00
		Total Endosulfan	ug/kg	1	0	0	4.4E-01	4.4E-01				4.4E-01

Notes:

- a Exposure areas for clam tissue are on a RM basis per side of river, such that samples collected from RM 3.0 - 3.9 west of the navigation channel are included in exposure area RM 3 West, etc. Swan Island Lagoon is its own exposure area.
- b Chemicals listed are analytes detected in each tissue type at least once within the Study Area.
- c Total number of non-detects in the dataset.
- d Number of non-detects with detection limit exceeding the maximum detected concentration for the exposure area. These non-detects were removed from the dataset prior to calculation of EPCs.
- e Non-detects less than the maximum detected concentration for a given exposure area are included in the arithmetic mean at half the detection limit.
- f 95% UCL not calculated for analytes with fewer than five detects.
- g "Total PCBs, Adjusted" equals "Total PCB Congeners" minus the sum of total dioxin-like PCBs concentrations.

Abbreviations:

- = Not applicable. A 95% UCL could not be computed for the given data set.
- 95% UCL = 95% Upper confidence limit on the mean.
- D = Depurated tissue.
- DDD = Dichlorodiphenyldichloroethane.
- DDE = Dichlorodiphenyldichloroethylene.
- DDT = Dichlorodiphenyltrichloroethane.
- mg/kg = Milligrams per kilogram.
- NA = Not available. Chemical not analyzed or had rejected result for given exposure area.
- ND = Not detected in the given exposure area.

- PCB = Polychlorinated biphenyls.
- pg/g = Picograms per gram.
- RM = River mile.
- TEQ = Toxic equivalents.
- UD = Undepurated tissue.
- ug/kg = Micrograms per kilogram.



TABLE 3-20  
Exposure Point Concentration Summary - Clam, Study Area-Wide

Scenario Timeframe: Current/Future
Medium: Shellfish Tissue
Exposure Medium: Clam, Study Area-Wide

Exposure Point	Tissue Type	Chemical of Potential Concern <sup>a</sup>	Units	Total Samples	Total Non-Detects <sup>b</sup>	Non-Detects greater than Maximum Detected Concentration <sup>c</sup>	Arithmetic Mean <sup>d</sup>	Maximum Detected Concentration	95% UCL			Exposure Point Concentration
									Distribution	95% UCL Method	Value	
Study Area-wide	D	<b>Metals</b>										
		Aluminum	mg/kg	3	0	0	3.4E+01	4.7E+01		Fewer than 5 detects <sup>e</sup>		4.7E+01
		Arsenic, inorganic	mg/kg	3	0	0	9.9E-02	1.4E-01				1.4E-01
		Cadmium	mg/kg	3	0	0	8.1E-02	1.0E-01				1.0E-01
		Chromium	mg/kg	3	0	0	4.7E-01	5.0E-01				5.0E-01
		Copper	mg/kg	3	0	0	7.6E+00	9.0E+00				9.0E+00
		Lead	mg/kg	3	0	0	4.8E-02	5.8E-02				5.8E-02
		Manganese	mg/kg	3	0	0	4.6E+00	5.1E+00				5.1E+00
		Mercury	mg/kg	2	0	0	2.1E-02	2.2E-02				2.2E-02
		Nickel	mg/kg	3	0	0	1.9E-01	2.0E-01				2.0E-01
		Selenium	mg/kg	3	0	0	1.5E-01	1.8E-01				1.8E-01
		Silver	mg/kg	3	0	0	4.8E-02	6.2E-02				6.2E-02
		Thallium	mg/kg	3	0	0	1.4E-03	2.7E-03				2.7E-03
		Zinc	mg/kg	3	0	0	2.3E+01	2.8E+01				2.8E+01
		<b>Butyltins</b>										
		Butyltin ion	ug/kg	2	1	1	1.5E+00	1.5E+00				1.5E+00
		<b>Polynuclear Aromatic Hydrocarbons</b>										
		1-Methylnaphthalene	ug/kg	3	1	0	6.9E-01	1.0E+00				1.0E+00
		2-Methylnaphthalene	ug/kg	3	1	0	1.1E+00	1.6E+00				1.6E+00
		Acenaphthene	ug/kg	3	0	0	1.9E+00	4.8E+00				4.8E+00
		Acenaphthylene	ug/kg	3	1	0	2.9E-01	6.2E-01				6.2E-01
		Anthracene	ug/kg	3	0	0	2.3E+00	4.4E+00				4.4E+00
		Benzo(a)anthracene	ug/kg	3	0	0	4.2E+00	8.2E+00				8.2E+00
		Benzo(a)pyrene	ug/kg	3	2	0	2.1E-01	4.3E-01				4.3E-01
		Benzo(b)fluoranthene	ug/kg	3	1	0	1.0E+00	1.8E+00				1.8E+00
		Benzo(e)pyrene	ug/kg	3	0	0	2.4E+00	4.6E+00				4.6E+00
		Benzo(g,h,i)perylene	ug/kg	3	2	0	4.2E-01	8.6E-01				8.6E-01
		Chrysene	ug/kg	3	0	0	8.0E+00	1.6E+01				1.6E+01
		Dibenzothiophene	ug/kg	3	0	0	9.3E-01	2.1E+00				2.1E+00
		Fluoranthene	ug/kg	3	0	0	3.4E+01	8.4E+01				8.4E+01
		Fluorene	ug/kg	3	0	0	2.1E+00	4.7E+00				4.7E+00
		Indeno(1,2,3-cd)pyrene	ug/kg	3	2	0	1.5E-01	3.0E-01				3.0E-01
		Perylene	ug/kg	3	2	0	3.5E-01	9.1E-01				9.1E-01
		Phenanthrene	ug/kg	3	0	0	1.1E+01	2.5E+01				2.5E+01
		Pyrene	ug/kg	3	0	0	2.7E+01	6.8E+01				6.8E+01
		<b>Semivolatile Organic Compounds</b>										
		Benzoic acid	ug/kg	2	0	0	2.6E+03	3.2E+03				3.2E+03
		Dibenzofuran	ug/kg	3	0	0	7.7E-01	1.3E+00				1.3E+00
		Hexachlorobenzene	ug/kg	3	0	0	5.5E-01	6.6E-01				6.6E-01
		Hexachlorobutadiene	ug/kg	3	2	1	6.1E-03	9.8E-03				9.8E-03
		Nitrobenzene	ug/kg	2	0	0	7.3E+01	8.6E+01				8.6E+01

TABLE 3-20  
Exposure Point Concentration Summary - Clam, Study Area-Wide

Scenario Timeframe: Current/Future  
Medium: Shellfish Tissue  
Exposure Medium: Clam, Study Area-Wide

Exposure Point	Tissue Type	Chemical of Potential Concern <sup>a</sup>	Units	Total Samples	Total Non-Detects <sup>b</sup>	Non-Detects greater than Maximum Detected Concentration <sup>c</sup>	Arithmetic Mean <sup>d</sup>	Maximum Detected Concentration	95% UCL			Exposure Point Concentration
									Distribution	95% UCL Method	Value	
		<b>Phenols</b>										
		2-Methylphenol	ug/kg	2	1	0	6.9E+00	9.7E+00				9.7E+00
		<b>Polychlorinated Biphenyls</b>										
		Total PCB Congeners	pg/g	3	0	0	2.4E+05	4.8E+05				4.8E+05
		Total PCBs, Adjusted <sup>f</sup>	pg/g	3	0	0	2.3E+05	4.7E+05				4.7E+05
		<b>Dioxin/Furan</b>										
		Total Dioxin/Furan TEQ	pg/g	3	0	0	2.9E-01	3.7E-01				3.7E-01
		Total PCB TEQ	pg/g	3	0	0	7.4E-01	8.6E-01				8.6E-01
		<b>Pesticides</b>										
		Aldrin	ug/kg	3	1	0	1.6E-01	2.8E-01				2.8E-01
		Dieldrin	ug/kg	3	0	0	5.1E-01	5.9E-01				5.9E-01
		gamma-Hexachlorocyclohexane	ug/kg	3	1	0	2.6E-02	3.7E-02				3.7E-02
		Heptachlor epoxide	ug/kg	3	0	0	3.5E-02	4.5E-02				4.5E-02
		Total Chlordanes	ug/kg	3	0	0	2.3E+00	3.1E+00				3.1E+00
		Total DDD	ug/kg	3	0	0	4.9E+00	1.1E+01				1.1E+01
		Total DDE	ug/kg	3	0	0	9.2E+00	1.5E+01				1.5E+01
		Total DDT	ug/kg	3	0	0	1.0E+00	1.7E+00				1.7E+00
		Total Endosulfan	ug/kg	3	0	0	4.1E-01	5.1E-01				5.1E-01
Study Area-wide	UD	<b>Metals</b>										
		Aluminum	mg/kg	38	0	0	9.0E+01	2.0E+02	gamma	95% KM (BCA) UCL	1.0E+02	1.0E+02
		Antimony	mg/kg	38	22	1	1.4E-03	4.0E-03	non-parametric	95% KM (t) UCL	1.7E-03	1.7E-03
		Arsenic, inorganic	mg/kg	38	0	0	9.1E-02	1.3E-01	normal	95% KM (t) UCL	9.4E-02	9.4E-02
		Cadmium	mg/kg	38	0	0	8.8E-02	2.2E-01	lognormal	95% KM (Chebyshev) UCL	1.1E-01	1.1E-01
		Chromium	mg/kg	38	0	0	6.2E-01	1.1E+00	gamma	95% KM (BCA) UCL	6.6E-01	6.6E-01
		Copper	mg/kg	38	0	0	9.2E+00	1.4E+01	normal	95% KM (t) UCL	9.6E+00	9.6E+00
		Lead	mg/kg	38	0	0	9.1E-02	3.2E-01	lognormal	95% KM (Chebyshev) UCL	1.3E-01	1.3E-01
		Manganese	mg/kg	10	0	0	5.9E+00	7.8E+00	normal	95% KM (t) UCL	6.9E+00	6.9E+00
		Mercury	mg/kg	35	0	0	1.1E-02	2.6E-02	lognormal	95% KM (Chebyshev) UCL	1.5E-02	1.5E-02
		Nickel	mg/kg	38	0	0	3.0E-01	4.9E-01	normal	95% KM (t) UCL	3.2E-01	3.2E-01
		Selenium	mg/kg	38	2	0	1.2E-01	2.2E-01	lognormal	95% KM (Chebyshev) UCL	1.6E-01	1.6E-01
		Silver	mg/kg	38	0	0	5.2E-02	1.0E-01	normal	95% KM (t) UCL	5.7E-02	5.7E-02
		Thallium	mg/kg	10	0	0	1.1E-03	2.0E-03	normal	95% KM (t) UCL	1.4E-03	1.4E-03
		Zinc	mg/kg	38	0	0	3.4E+01	5.4E+01	normal	95% KM (t) UCL	3.6E+01	3.6E+01
		<b>Butyltins</b>										
		Butyltin ion	ug/kg	34	11	0	5.1E+00	9.7E+01	non-parametric	95% KM (BCA) UCL	1.1E+01	1.1E+01
		Dibutyltin ion	ug/kg	34	5	0	2.2E+01	5.6E+02	non-parametric	97.5% KM (Chebyshev) UCL	1.2E+02	1.2E+02
		Tributyltin ion	ug/kg	34	12	0	2.3E+01	5.3E+02	non-parametric	97.5% KM (Chebyshev) UCL	1.2E+02	1.2E+02
		<b>Polynuclear Aromatic Hydrocarbons</b>										
		1-Methylnaphthalene	ug/kg	7	0	0	1.3E+00	1.7E+00	normal	95% KM (t) UCL	1.6E+00	1.6E+00
		2-Methylnaphthalene	ug/kg	39	3	3	2.9E+00	2.2E+01	non-parametric	95% KM (Chebyshev) UCL	6.2E+00	6.2E+00
		Acenaphthene	ug/kg	39	4	0	5.6E+00	6.1E+01	non-parametric	97.5% KM (Chebyshev) UCL	1.5E+01	1.5E+01
		Acenaphthylene	ug/kg	39	7	3	2.1E+00	1.4E+01	non-parametric	95% KM (Chebyshev) UCL	4.3E+00	4.3E+00

TABLE 3-20  
Exposure Point Concentration Summary - Clam, Study Area-Wide

Scenario Timeframe: Current/Future  
Medium: Shellfish Tissue  
Exposure Medium: Clam, Study Area-Wide

Exposure Point	Tissue Type	Chemical of Potential Concern <sup>a</sup>	Units	Total Samples	Total Non-Detects <sup>b</sup>	Non-Detects greater than Maximum Detected Concentration <sup>c</sup>	Arithmetic Mean <sup>d</sup>	Maximum Detected Concentration	95% UCL			Exposure Point Concentration
									Distribution	95% UCL Method	Value	
		Anthracene	ug/kg	39	3	0	1.1E+01	7.8E+01	non-parametric	95% KM (Chebyshev) UCL	2.1E+01	2.1E+01
		Benzo(a)anthracene	ug/kg	39	2	0	6.3E+01	6.7E+02	lognormal	97.5% KM (Chebyshev) UCL	2.1E+02	2.1E+02
		Benzo(a)pyrene	ug/kg	39	5	0	3.2E+01	4.9E+02	non-parametric	97.5% KM (Chebyshev) UCL	1.4E+02	1.4E+02
		Benzo(b)fluoranthene	ug/kg	39	5	0	3.4E+01	4.6E+02	non-parametric	97.5% KM (Chebyshev) UCL	1.3E+02	1.3E+02
		Benzo(e)pyrene	ug/kg	7	0	0	5.0E+00	1.1E+01	normal	95% KM (t) UCL	7.8E+00	7.8E+00
		Benzo(g,h,i)perylene	ug/kg	39	5	0	1.9E+01	2.3E+02	non-parametric	97.5% KM (Chebyshev) UCL	6.6E+01	6.6E+01
		Benzo(k)fluoranthene	ug/kg	39	7	0	2.2E+01	3.1E+02	non-parametric	99% KM (Chebyshev) UCL	1.3E+02	1.3E+02
		Chrysene	ug/kg	39	2	0	6.5E+01	5.6E+02	lognormal	97.5% KM (Chebyshev) UCL	1.9E+02	1.9E+02
		Dibenzo(a,h)anthracene	ug/kg	39	29	0	3.8E+00	4.3E+01	approx. gamma	95% KM (t) UCL	5.4E+00	5.4E+00
		Dibenzothiophene	ug/kg	7	3	0	1.2E+00	3.2E+00	--	Fewer than 5 detects	--	3.2E+00
		Fluoranthene	ug/kg	39	0	0	1.0E+02	7.7E+02	lognormal	97.5% KM (Chebyshev) UCL	2.6E+02	2.6E+02
		Fluorene	ug/kg	39	3	0	5.6E+00	3.6E+01	non-parametric	95% KM (Chebyshev) UCL	9.3E+00	9.3E+00
		Indeno(1,2,3-cd)pyrene	ug/kg	39	12	0	1.2E+01	1.7E+02	non-parametric	99% KM (Chebyshev) UCL	6.9E+01	6.9E+01
		Naphthalene	ug/kg	39	35	0	3.2E+00	3.3E+01	--	Fewer than 5 detects	--	3.3E+01
		Perylene	ug/kg	7	2	0	5.5E-01	1.3E+00	normal	95% KM (t) UCL	9.2E-01	9.2E-01
		Phenanthrene	ug/kg	39	3	0	3.6E+01	3.0E+02	lognormal	97.5% KM (Chebyshev) UCL	9.4E+01	9.4E+01
		Pyrene	ug/kg	39	0	0	1.1E+02	8.5E+02	lognormal	97.5% KM (Chebyshev) UCL	2.9E+02	2.9E+02
		<b>Phthalates</b>										
		Bis(2-ethylhexyl) phthalate	ug/kg	38	32	2	4.8E+01	1.5E+02	normal	95% KM (t) UCL	8.8E+01	8.8E+01
		Dibutyl phthalate	ug/kg	38	37	0	6.1E+01	1.3E+03	--	Fewer than 5 detects	--	1.3E+03
		<b>Semivolatile Organic Compounds</b>										
		Benzoic acid	ug/kg	7	0	0	3.8E+03	5.9E+03	normal	95% KM (t) UCL	4.8E+03	4.8E+03
		Benzyl alcohol	ug/kg	38	9	0	6.5E+01	1.3E+03	non-parametric	97.5% KM (Chebyshev) UCL	2.7E+02	2.7E+02
		Bis(2-chloroethoxy) methane	ug/kg	10	9	3	1.0E+01	4.6E+01	--	Fewer than 5 detects	--	4.6E+01
		Dibenzofuran	ug/kg	39	7	3	1.6E+00	1.7E+01	non-parametric	95% KM (Chebyshev) UCL	3.7E+00	3.7E+00
		Hexachlorobenzene	ug/kg	42	4	3	6.0E-01	1.1E+00	normal	95% KM (t) UCL	6.5E-01	6.5E-01
		Hexachlorobutadiene	ug/kg	38	35	29	7.6E-03	2.5E-02	--	Fewer than 5 detects	--	2.5E-02
		Nitrobenzene	ug/kg	10	3	0	1.8E+02	5.2E+02	normal	95% KM (t) UCL	2.9E+02	2.9E+02
		<b>Phenols</b>										
		4-Nitrophenol	ug/kg	10	9	3	7.0E+00	1.9E+01	--	Fewer than 5 detects	--	1.9E+01
		Phenol	ug/kg	38	37	0	9.0E+01	2.6E+03	--	Fewer than 5 detects	--	2.6E+03
		<b>Polychlorinated Biphenyls</b>										
		Total Aroclors	ug/kg	3	0	0	9.7E+01	1.3E+02	--	Fewer than 5 detects	--	1.3E+02
		Total PCB Congeners	pg/g	38	0	0	2.4E+05	2.7E+06	non-parametric	95% KM (Chebyshev) UCL	5.5E+05	5.5E+05
		Total PCBs, Adjusted	pg/g	38	0	0	2.3E+05	2.6E+06	non-parametric	95% KM (Chebyshev) UCL	5.4E+05	5.4E+05
		<b>Dioxin/Furan</b>										
		Total Dioxin/Furan TEQ	pg/g	36	0	0	1.1E+00	5.6E+00	non-parametric	95% KM (Chebyshev) UCL	1.9E+00	1.9E+00
		Total PCB TEQ	pg/g	38	0	0	1.8E+00	8.6E+00	non-parametric	95% KM (Chebyshev) UCL	2.9E+00	2.9E+00
		<b>Pesticides</b>										
		Aldrin	ug/kg	41	4	0	3.8E-01	5.1E+00	non-parametric	95% KM (Chebyshev) UCL	8.8E-01	8.8E-01
		alpha-Hexachlorocyclohexane	ug/kg	41	28	7	8.1E-03	2.1E-02	normal	95% KM (t) UCL	1.0E-02	1.0E-02
		beta-Hexachlorocyclohexane	ug/kg	41	40	1	6.8E-02	1.2E+00	--	Fewer than 5 detects	--	1.2E+00

TABLE 3-20  
Exposure Point Concentration Summary - Clam, Study Area-Wide

Scenario Timeframe: Current/Future Medium: Shellfish Tissue Exposure Medium: Clam, Study Area-Wide
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Exposure Point	Tissue Type	Chemical of Potential Concern <sup>a</sup>	Units	Total Samples	Total Non-Detects <sup>b</sup>	Non-Detects greater than Maximum Detected Concentration <sup>c</sup>	Arithmetic Mean <sup>d</sup>	Maximum Detected Concentration	95% UCL			Exposure Point Concentration
									Distribution	95% UCL Method	Value	
		Dieldrin	ug/kg	41	3	0	8.2E-01	2.6E+00	lognormal	95% KM (Chebyshev) UCL	1.1E+00	1.1E+00
		Endrin	ug/kg	41	22	3	1.3E-02	6.4E-02	non-parametric	95% KM (t) UCL	1.7E-02	1.7E-02
		Endrin aldehyde	ug/kg	41	40	2	3.1E-02	3.9E-01	--	Fewer than 5 detects	--	3.9E-01
		Endrin ketone	ug/kg	41	29	14	2.9E-03	1.4E-02	lognormal	95% KM (t) UCL	4.0E-03	4.0E-03
		gamma-Hexachlorocyclohexane	ug/kg	41	8	4	5.4E-02	8.4E-02	non-parametric	95% KM (Chebyshev) UCL	6.9E-02	6.9E-02
		Heptachlor	ug/kg	41	22	3	2.4E-02	4.2E-01	non-parametric	95% KM (t) UCL	4.3E-02	4.3E-02
		Heptachlor epoxide	ug/kg	41	4	1	1.4E-01	2.1E+00	non-parametric	95% KM (Chebyshev) UCL	4.0E-01	4.0E-01
		Methoxychlor	ug/kg	41	39	3	2.6E-02	3.2E-01	--	Fewer than 5 detects	--	3.2E-01
		Total Chlordanes	ug/kg	41	0	0	4.2E+00	1.6E+01	non-parametric	95% KM (Chebyshev) UCL	5.9E+00	5.9E+00
		Total DDD	ug/kg	41	0	0	2.5E+01	2.4E+02	non-parametric	95% KM (Chebyshev) UCL	5.8E+01	5.8E+01
		Total DDE	ug/kg	41	0	0	1.8E+01	1.1E+02	non-parametric	95% KM (Chebyshev) UCL	3.1E+01	3.1E+01
		Total DDT	ug/kg	41	1	0	8.6E+00	1.1E+02	non-parametric	95% KM (Chebyshev) UCL	2.3E+01	2.3E+01
		Total Endosulfan	ug/kg	41	4	1	9.0E-01	1.5E+00	normal	95% KM (t) UCL	1.0E+00	1.0E+00

Notes:

- a Chemicals listed are analytes detected in each tissue type at least once within the Study Area.
- b Total number of non-detects in the dataset.
- c Number of non-detects with detection limit exceeding the maximum detected concentration for the exposure area. These non-detects were removed from the dataset prior to calculation of EPCs.
- d Non-detects less than the maximum detected concentration for a given exposure area are included in the arithmetic mean at half the detection limit.
- e 95% UCL not calculated for analytes with fewer than five detects.
- f "Total PCBs, Adjusted" equals "Total PCB Congeners" minus the sum of total dioxin-like PCBs concentrations.

Abbreviations:

- = Not applicable. A 95% UCL could not be computed for the given data set.
- 95% UCL = 95% Upper confidence limit on the mean.
- D = Depurated tissue.
- DDD = Dichlorodiphenyldichloroethane.
- DDE = Dichlorodiphenyldichloroethylene.
- DDT = Dichlorodiphenyltrichloroethane.
- mg/kg = Milligrams per kilogram.
- PCB = Polychlorinated biphenyls.
- pg/g = Picograms per gram.
- RM = River mile.
- TEQ = Toxic equivalents.
- UD = Undepurated tissue.
- ug/kg = Micrograms per kilogram.

**TABLE F3-1.**  
**Exposure Point Concentration Summary for PBDEs - In-Water Sediment**

Scenario Timeframe: Current/Future
Medium: Sediment
Exposure Medium: In-Water Sediment

Exposure Point <sup>a</sup>	Chemical of Potential Concern <sup>b</sup>	Units	Total Samples	Total Non-Detects <sup>c</sup>	Non-Detects greater than Maximum Detected Concentration <sup>d</sup>	Arithmetic Mean <sup>e</sup>	Maximum Detected Concentration	95% UCL			Exposure Point Concentration <sup>f</sup>	
								Distribution	95% UCL Method	Value	Mean	95% UCL/Max
RM 1 West	<b>Polybrominated Diphenyl Ethers</b>											
	PBDE # 47	ug/kg	2	0	0	3.3E-01	3.6E-01	--	Fewer than 5 detects <sup>g</sup>	--	3.3E-01	3.6E-01
	PBDE # 99	ug/kg	2	0	0	3.2E-01	3.7E-01				3.2E-01	3.7E-01
	PBDE # 153	ug/kg	2	2	ND	ND	ND				ND	ND
PBDE # 209	ug/kg	2	0	0	3.8E+00	4.0E+00	3.8E+00				4.0E+00	
RM 1 East	<b>Polybrominated Diphenyl Ethers</b>											
	PBDE # 47	ug/kg	1	0	0	7.6E-01	7.6E-01	--	Fewer than 5 detects	--	7.6E-01	7.6E-01
	PBDE # 99	ug/kg	1	0	0	6.3E-01	6.3E-01				6.3E-01	6.3E-01
	PBDE # 153	ug/kg	1	1	ND	ND	ND				ND	ND
PBDE # 209	ug/kg	1	0	0	3.7E+00	3.7E+00	3.7E+00				3.7E+00	
RM 1.5 West	<b>Polybrominated Diphenyl Ethers</b>											
	PBDE # 47	ug/kg	1	0	0	1.2E-01	1.2E-01	--	Fewer than 5 detects	--	1.2E-01	1.2E-01
	PBDE # 99	ug/kg	1	1	ND	ND	ND				ND	
	PBDE # 153	ug/kg	1	1	ND	ND	ND				ND	
PBDE # 209	ug/kg	1	1	ND	ND	ND	ND					
RM 1.5 East	<b>Polybrominated Diphenyl Ethers</b>											
	PBDE # 47	ug/kg	1	0	0	1.4E+00	1.4E+00	--	Fewer than 5 detects	--	1.4E+00	1.4E+00
	PBDE # 99	ug/kg	1	0	0	1.4E+00	1.4E+00				1.4E+00	1.4E+00
	PBDE # 153	ug/kg	1	0	0	1.8E-01	1.8E-01				1.8E-01	1.8E-01
PBDE # 209	ug/kg	1	0	0	4.5E+00	4.5E+00	4.5E+00				4.5E+00	
RM 2 West	<b>Polybrominated Diphenyl Ethers</b>											
	PBDE # 47	ug/kg	2	0	0	1.1E+00	1.8E+00	--	Fewer than 5 detects	--	1.1E+00	1.8E+00
	PBDE # 99	ug/kg	2	0	0	1.0E+00	1.7E+00				1.0E+00	1.7E+00
	PBDE # 153	ug/kg	2	1	1	4.2E-01	4.2E-01				4.2E-01	4.2E-01
PBDE # 209	ug/kg	2	1	1	6.0E+00	6.0E+00	6.0E+00				6.0E+00	
RM 2 East	<b>Polybrominated Diphenyl Ethers</b>											
	PBDE # 47	ug/kg	3	0	0	1.8E+00	1.8E+00	--	Fewer than 5 detects	--	1.8E+00	1.8E+00
	PBDE # 99	ug/kg	3	0	0	2.0E+00	2.1E+00				2.0E+00	2.1E+00
	PBDE # 153	ug/kg	3	0	0	2.8E-01	2.9E-01				2.8E-01	2.9E-01
PBDE # 209	ug/kg	3	0	0	6.9E+00	8.4E+00	6.9E+00				8.4E+00	
RM 2.5 East	<b>Polybrominated Diphenyl Ethers</b>											
	PBDE # 47	ug/kg	1	0	0	2.0E-01	2.0E-01	--	Fewer than 5 detects	--	2.0E-01	2.0E-01
	PBDE # 99	ug/kg	1	0	0	2.4E-01	2.4E-01				2.4E-01	2.4E-01
	PBDE # 153	ug/kg	1	1	ND	ND	ND				ND	ND
PBDE # 209	ug/kg	1	1	ND	ND	ND	ND				ND	
RM 2.5 MC	<b>Polybrominated Diphenyl Ethers</b>											
	PBDE # 47	ug/kg	1	0	0	1.4E-01	1.4E-01	--	Fewer than 5 detects	--	1.4E-01	1.4E-01
	PBDE # 99	ug/kg	1	1	ND	ND	ND				ND	
	PBDE # 153	ug/kg	1	1	ND	ND	ND				ND	
PBDE # 209	ug/kg	1	1	ND	ND	ND	ND					

**TABLE F3-1.**  
**Exposure Point Concentration Summary for PBDEs - In-Water Sediment**

Scenario Timeframe: Current/Future
Medium: Sediment
Exposure Medium: In-Water Sediment

Exposure Point <sup>a</sup>	Chemical of Potential Concern <sup>b</sup>	Units	Total Samples	Total Non-Detects <sup>c</sup>	Non-Detects greater than Maximum Detected Concentration <sup>d</sup>	Arithmetic Mean <sup>e</sup>	Maximum Detected Concentration	95% UCL			Exposure Point Concentration <sup>f</sup>	
								Distribution	95% UCL Method	Value	Mean	95% UCL/Max
RM 3 West	<b>Polybrominated Diphenyl Ethers</b>											
	PBDE # 47	ug/kg	1	0	0	1.4E+00	1.4E+00	--	Fewer than 5 detects	--	1.4E+00	1.4E+00
	PBDE # 99	ug/kg	1	0	0	1.3E+00	1.3E+00				1.3E+00	1.3E+00
	PBDE # 153	ug/kg	1	0	0	2.9E-01	2.9E-01				2.9E-01	2.9E-01
RM 3 East	<b>Polybrominated Diphenyl Ethers</b>											
	PBDE # 47	ug/kg	2	0	0	1.3E+00	1.6E+00	--	Fewer than 5 detects	--	1.3E+00	1.6E+00
	PBDE # 99	ug/kg	2	0	0	1.4E+00	1.6E+00				1.4E+00	1.6E+00
	PBDE # 153	ug/kg	2	0	0	2.8E-01	3.3E-01				2.8E-01	3.3E-01
RM 3.5 West	<b>Polybrominated Diphenyl Ethers</b>											
	PBDE # 47	ug/kg	1	0	0	1.4E-01	1.4E-01	--	Fewer than 5 detects	--	1.4E-01	1.4E-01
	PBDE # 99	ug/kg	1	0	0	1.2E-01	1.2E-01				1.2E-01	1.2E-01
	PBDE # 153	ug/kg	1	1	ND	ND	ND				ND	ND
RM 3.5 East	<b>Polybrominated Diphenyl Ethers</b>											
	PBDE # 47	ug/kg	3	0	0	4.0E+00	5.2E+00	--	Fewer than 5 detects	--	4.0E+00	5.2E+00
	PBDE # 99	ug/kg	3	0	0	5.8E+00	8.2E+00				5.8E+00	8.2E+00
	PBDE # 153	ug/kg	3	0	0	1.1E+00	1.5E+00				1.1E+00	1.5E+00
RM 4 West	<b>Polybrominated Diphenyl Ethers</b>											
	PBDE # 47	ug/kg	1	0	0	3.5E-01	3.5E-01	--	Fewer than 5 detects	--	3.5E-01	3.5E-01
	PBDE # 99	ug/kg	1	0	0	2.3E-01	2.3E-01				2.3E-01	2.3E-01
	PBDE # 153	ug/kg	1	1	ND	ND	ND				ND	ND
RM 5 West	<b>Polybrominated Diphenyl Ethers</b>											
	PBDE # 47	ug/kg	1	0	0	3.7E-01	3.7E-01	--	Fewer than 5 detects	--	3.7E-01	3.7E-01
	PBDE # 99	ug/kg	1	0	0	3.7E-01	3.7E-01				3.7E-01	3.7E-01
	PBDE # 153	ug/kg	1	1	ND	ND	ND				ND	ND
RM 5.5 West	<b>Polybrominated Diphenyl Ethers</b>											
	PBDE # 47	ug/kg	1	0	0	1.4E+00	1.4E+00	--	Fewer than 5 detects	--	1.4E+00	1.4E+00
	PBDE # 99	ug/kg	1	0	0	1.2E+00	1.2E+00				1.2E+00	1.2E+00
	PBDE # 153	ug/kg	1	0	0	2.3E-01	2.3E-01				2.3E-01	2.3E-01
RM 5.5 East	<b>Polybrominated Diphenyl Ethers</b>											
	PBDE # 47	ug/kg	2	0	0	1.0E+00	1.8E+00	--	Fewer than 5 detects	--	1.0E+00	1.8E+00
	PBDE # 99	ug/kg	2	1	0	1.2E+00	1.8E+00				1.2E+00	1.8E+00
	PBDE # 153	ug/kg	2	1	1	2.6E-01	2.6E-01				2.6E-01	2.6E-01
RM 5.5 East	<b>Polybrominated Diphenyl Ethers</b>											
	PBDE # 209	ug/kg	2	1	1	2.8E+00	2.8E+00				2.8E+00	2.8E+00

**TABLE F3-1.**  
**Exposure Point Concentration Summary for PBDEs - In-Water Sediment**

Scenario Timeframe: Current/Future
Medium: Sediment
Exposure Medium: In-Water Sediment

Exposure Point <sup>a</sup>	Chemical of Potential Concern <sup>b</sup>	Units	Total Samples	Total Non-Detects <sup>c</sup>	Non-Detects greater than Maximum Detected Concentration <sup>d</sup>	Arithmetic Mean <sup>e</sup>	Maximum Detected Concentration	95% UCL			Exposure Point Concentration <sup>f</sup>	
								Distribution	95% UCL Method	Value	Mean	95% UCL/Max
RM 6 West	<b>Polybrominated Diphenyl Ethers</b>											
	PBDE # 47	ug/kg	2	1	1	1.3E-01	1.3E-01	--	Fewer than 5 detects	--	1.3E-01	1.3E-01
	PBDE # 99	ug/kg	2	1	1	1.3E-01	1.3E-01				1.3E-01	1.3E-01
	PBDE # 153	ug/kg	2	2	ND	ND	ND				ND	ND
PBDE # 209	ug/kg	2	1	1	3.5E+00	3.5E+00	3.5E+00				3.5E+00	
RM 6 East	<b>Polybrominated Diphenyl Ethers</b>											
	PBDE # 47	ug/kg	1	0	0	2.7E-01	2.7E-01	--	Fewer than 5 detects	--	2.7E-01	2.7E-01
	PBDE # 99	ug/kg	1	0	0	1.7E-01	1.7E-01				1.7E-01	1.7E-01
	PBDE # 153	ug/kg	1	1	ND	ND	ND				ND	ND
PBDE # 209	ug/kg	1	1	ND	ND	ND	ND				ND	
RM 6.5 West	<b>Polybrominated Diphenyl Ethers</b>											
	PBDE # 47	ug/kg	1	0	0	1.1E-01	1.1E-01	--	Fewer than 5 detects	--	1.1E-01	1.1E-01
	PBDE # 99	ug/kg	1	0	0	1.3E-01	1.3E-01				1.3E-01	1.3E-01
	PBDE # 153	ug/kg	1	1	ND	ND	ND				ND	ND
PBDE # 209	ug/kg	1	1	ND	ND	ND	ND				ND	
RM 6.5 East	<b>Polybrominated Diphenyl Ethers</b>											
	PBDE # 47	ug/kg	2	0	0	1.2E+00	1.8E+00	--	Fewer than 5 detects	--	1.2E+00	1.8E+00
	PBDE # 99	ug/kg	2	0	0	1.3E+00	1.9E+00				1.3E+00	1.9E+00
	PBDE # 153	ug/kg	2	1	1	3.5E-01	3.5E-01				3.5E-01	3.5E-01
PBDE # 209	ug/kg	2	0	0	1.7E+01	2.5E+01	1.7E+01				2.5E+01	
RM 7 West	<b>Polybrominated Diphenyl Ethers</b>											
	PBDE # 47	ug/kg	1	0	0	9.5E-01	9.5E-01	--	Fewer than 5 detects	--	9.5E-01	9.5E-01
	PBDE # 99	ug/kg	1	0	0	9.9E-01	9.9E-01				9.9E-01	9.9E-01
	PBDE # 153	ug/kg	1	0	0	2.9E-01	2.9E-01				2.9E-01	2.9E-01
PBDE # 209	ug/kg	1	0	0	6.1E+00	6.1E+00	6.1E+00				6.1E+00	
RM 7 East	<b>Polybrominated Diphenyl Ethers</b>											
	PBDE # 47	ug/kg	3	0	0	1.2E+00	1.7E+00	--	Fewer than 5 detects	--	1.2E+00	1.7E+00
	PBDE # 99	ug/kg	3	0	0	1.0E+00	1.5E+00				1.0E+00	1.5E+00
	PBDE # 153	ug/kg	3	1	1	2.7E-01	3.1E-01				2.7E-01	3.1E-01
PBDE # 209	ug/kg	3	0	0	4.3E+00	6.2E+00	4.3E+00				6.2E+00	
RM 7.5 West	<b>Polybrominated Diphenyl Ethers</b>											
	PBDE # 47	ug/kg	2	0	0	9.9E-01	1.7E+00	--	Fewer than 5 detects	--	9.9E-01	1.7E+00
	PBDE # 99	ug/kg	2	0	0	8.5E-01	1.5E+00				8.5E-01	1.5E+00
	PBDE # 153	ug/kg	2	1	1	3.1E-01	3.1E-01				3.1E-01	3.1E-01
PBDE # 209	ug/kg	2	1	1	5.1E+00	5.1E+00	5.1E+00				5.1E+00	
RM 7.5 East	<b>Polybrominated Diphenyl Ethers</b>											
	PBDE # 47	ug/kg	2	0	0	1.9E+00	2.5E+00	--	Fewer than 5 detects	--	1.9E+00	2.5E+00
	PBDE # 99	ug/kg	2	0	0	2.2E+00	2.9E+00				2.2E+00	2.9E+00
	PBDE # 153	ug/kg	2	0	0	3.4E-01	4.5E-01				3.4E-01	4.5E-01
PBDE # 209	ug/kg	2	0	0	8.9E+00	1.3E+01	8.9E+00				1.3E+01	

**TABLE F3-1.**  
**Exposure Point Concentration Summary for PBDEs - In-Water Sediment**

Scenario Timeframe: Current/Future
Medium: Sediment
Exposure Medium: In-Water Sediment

Exposure Point <sup>a</sup>	Chemical of Potential Concern <sup>b</sup>	Units	Total Samples	Total Non-Detects <sup>c</sup>	Non-Detects greater than Maximum Detected Concentration <sup>d</sup>	Arithmetic Mean <sup>e</sup>	Maximum Detected Concentration	95% UCL			Exposure Point Concentration <sup>f</sup>	
								Distribution	95% UCL Method	Value	Mean	95% UCL/Max
RM 8 West	<b>Polybrominated Diphenyl Ethers</b>											
	PBDE # 47	ug/kg	1	0	0	8.3E-01	8.3E-01	--	Fewer than 5 detects	--	8.3E-01	8.3E-01
	PBDE # 99	ug/kg	1	0	0	1.2E+00	1.2E+00				1.2E+00	1.2E+00
	PBDE # 153	ug/kg	1	0	0	8.4E-01	8.4E-01				8.4E-01	8.4E-01
RM 8 East	<b>Polybrominated Diphenyl Ethers</b>											
	PBDE # 47	ug/kg	3	0	0	1.8E+00	2.1E+00	--	Fewer than 5 detects	--	1.8E+00	2.1E+00
	PBDE # 99	ug/kg	3	0	0	1.9E+00	2.2E+00				1.9E+00	2.2E+00
	PBDE # 153	ug/kg	3	0	0	4.2E-01	6.2E-01				4.2E-01	6.2E-01
RM 8 SIL	<b>Polybrominated Diphenyl Ethers</b>											
	PBDE # 47	ug/kg	6	0	0	1.6E+00	4.5E+00	Approx. Gamma	95% Approximate Gamma UCL	5.8E+00	1.6E+00	4.5E+00
	PBDE # 99	ug/kg	6	0	0	2.3E+00	6.2E+00	Normal	95% Student's-t UCL	4.3E+00	2.3E+00	4.3E+00
	PBDE # 153	ug/kg	6	4	0	7.1E-01	1.2E+00	--	Fewer than 5 detects	--	7.1E-01	1.2E+00
RM 8.5 West	<b>Polybrominated Diphenyl Ethers</b>											
	PBDE # 47	ug/kg	1	0	0	2.0E+00	2.0E+00	--	Fewer than 5 detects	--	2.0E+00	2.0E+00
	PBDE # 99	ug/kg	1	0	0	2.2E+00	2.2E+00				2.2E+00	2.2E+00
	PBDE # 153	ug/kg	1	0	0	4.1E-01	4.1E-01				4.1E-01	4.1E-01
RM 8.5 East	<b>Polybrominated Diphenyl Ethers</b>											
	PBDE # 47	ug/kg	1	0	0	4.1E+00	4.1E+00	--	Fewer than 5 detects	--	4.1E+00	4.1E+00
	PBDE # 99	ug/kg	1	0	0	5.6E+00	5.6E+00				5.6E+00	5.6E+00
	PBDE # 153	ug/kg	1	0	0	1.1E+00	1.1E+00				1.1E+00	1.1E+00
RM 9 West	<b>Polybrominated Diphenyl Ethers</b>											
	PBDE # 47	ug/kg	1	0	0	1.3E+00	1.3E+00	--	Fewer than 5 detects	--	1.3E+00	1.3E+00
	PBDE # 99	ug/kg	1	0	0	1.2E+00	1.2E+00				1.2E+00	1.2E+00
	PBDE # 153	ug/kg	1	0	0	1.9E-01	1.9E-01				1.9E-01	1.9E-01
RM 9 East	<b>Polybrominated Diphenyl Ethers</b>											
	PBDE # 47	ug/kg	1	0	0	3.3E-01	3.3E-01	--	Fewer than 5 detects	--	3.3E-01	3.3E-01
	PBDE # 99	ug/kg	1	0	0	1.8E-01	1.8E-01				1.8E-01	1.8E-01
	PBDE # 153	ug/kg	1	1	ND	ND	ND				ND	ND
RM 9.5 West	<b>Polybrominated Diphenyl Ethers</b>											
	PBDE # 47	ug/kg	1	0	0	1.8E+00	1.8E+00	--	Fewer than 5 detects	--	1.8E+00	1.8E+00
	PBDE # 99	ug/kg	1	0	0	2.7E+00	2.7E+00				2.7E+00	2.7E+00
	PBDE # 153	ug/kg	1	0	0	5.2E-01	5.2E-01				5.2E-01	5.2E-01



**TABLE F3-1.**  
**Exposure Point Concentration Summary for PBDEs - In-Water Sediment**

Scenario Timeframe: Current/Future
Medium: Sediment
Exposure Medium: In-Water Sediment

Exposure Point <sup>a</sup>	Chemical of Potential Concern <sup>b</sup>	Units	Total Samples	Total Non-Detects <sup>c</sup>	Non-Detects greater than Maximum Detected Concentration <sup>d</sup>	Arithmetic Mean <sup>e</sup>	Maximum Detected Concentration	95% UCL			Exposure Point Concentration <sup>f</sup>	
								Distribution	95% UCL Method	Value	Mean	95% UCL/Max
RM 9.5 East	<b>Polybrominated Diphenyl Ethers</b>											
	PBDE # 47	ug/kg	1	0	0	9.9E-01	9.9E-01	--	Fewer than 5 detects	--	9.9E-01	9.9E-01
	PBDE # 99	ug/kg	1	0	0	7.9E-01	7.9E-01				7.9E-01	7.9E-01
	PBDE # 153	ug/kg	1	1	ND	ND	ND				ND	ND
RM 11 West	<b>Polybrominated Diphenyl Ethers</b>											
	PBDE # 47	ug/kg	1	0	0	2.9E+00	2.9E+00	--	Fewer than 5 detects	--	2.9E+00	2.9E+00
	PBDE # 99	ug/kg	1	0	0	3.7E+00	3.7E+00				3.7E+00	3.7E+00
	PBDE # 153	ug/kg	1	0	0	6.3E-01	6.3E-01				6.3E-01	6.3E-01
RM 11 East	<b>Polybrominated Diphenyl Ethers</b>											
	PBDE # 47	ug/kg	2	0	0	9.7E-01	1.5E+00	--	Fewer than 5 detects	--	9.7E-01	1.5E+00
	PBDE # 99	ug/kg	2	0	0	7.8E-01	1.2E+00				7.8E-01	1.2E+00
	PBDE # 153	ug/kg	2	2	ND	ND	ND				ND	ND
RM 12 West	<b>Polybrominated Diphenyl Ethers</b>											
	PBDE # 47	ug/kg	1	0	0	3.1E-01	3.1E-01	--	Fewer than 5 detects	--	3.1E-01	3.1E-01
	PBDE # 99	ug/kg	1	0	0	3.0E-01	3.0E-01				3.0E-01	3.0E-01
	PBDE # 153	ug/kg	1	1	ND	ND	ND				ND	ND
RM 12 East	<b>Polybrominated Diphenyl Ethers</b>											
	PBDE # 47	ug/kg	1	0	0	1.2E+00	1.2E+00	--	Fewer than 5 detects	--	1.2E+00	1.2E+00
	PBDE # 99	ug/kg	1	0	0	1.1E+00	1.1E+00				1.1E+00	1.1E+00
	PBDE # 153	ug/kg	1	1	ND	ND	ND				ND	ND
Study Area Wide <sup>h</sup>	<b>Polybrominated Diphenyl Ethers</b>											
	PBDE # 47	ug/kg	51	1	0	1.4E+00	5.2E+00	Gamma	95% KM (Chebyshev) UCL	2.2E+00	1.4E+00	2.2E+00
	PBDE # 99	ug/kg	51	2	0	1.7E+00	8.2E+00	Gamma	95% KM (Chebyshev) UCL	2.8E+00	1.7E+00	2.8E+00
	PBDE # 153	ug/kg	51	21	0	5.1E-01	1.5E+00	Nonparametric	95% KM (t) UCL	5.3E-01	5.1E-01	5.3E-01
	PBDE # 209	ug/kg	51	14	0	2.2E+01	4.4E+02	Nonparametric	95% KM (Chebyshev) UCL	6.0E+01	2.2E+01	6.0E+01

**Notes:**

- a Exposure points for in-water sediment are per half river mile, per side of river. No samples within the human health data set were taken at exposure area of RM 11.5 East, and therefore it is not listed in the table. In-water sediment data set for human health includes in-water sediment samples taken from less than 30.5 centimeters in depth and outside of the navigation channel.
- b Chemicals of potential concern include all PBDE congeners detected in the BHHRA in-water sediment dataset, which is described in Section 2.
- c Total number of non-detects in the dataset.
- d Number of non-detects with detection limit exceeding the maximum detected concentration for the given exposure area. These non-detects were removed from the dataset prior to calculation of EPCs.
- e Non-detects less than the maximum detected concentration for a given exposure area are included in the arithmetic mean at half the detection limit.
- f Mean exposure point concentrations were used for Central Tendency (CT) exposure and 95% UCL/Max exposure point concentrations were used for Reasonable Maximum Exposure (RME) in the BHHRA.
- g 95% UCL not calculated for analytes with fewer than five detects.
- h Study Area-wide data set includes samples from RM 1.9 - 11.8 outside of the navigation channel and excluding Multnomah Channel.

**Abbreviations:**

-- = Not Applicable. A 95% UCL could not be computed for the given data set.  
95% UCL = 95% Upper confidence limit on the mean.

RM = River mile.  
ug/kg = micrograms per kilogram.

ND = Not detected. Chemical not detected in given exposure area.

**TABLE F3-2.**  
**Exposure Point Concentration Summary for PBDEs - Resident Fish Species, by River Mile**

Scenario Timeframe: Current/Future
Medium: Fish Tissue
Exposure Medium: Smallmouth Bass

Exposure Point <sup>a</sup>	Tissue Type	Chemical of Potential Concern <sup>b</sup>	Units	Total Samples	Total Non-Detects <sup>c</sup>	Non-Detects greater than Maximum Detected Concentration <sup>d</sup>	Arithmetic Mean <sup>e</sup>	Maximum Detected Concentration	95% UCL			Exposure Point Concentration
									Distribution	95% UCL Method	Value	
RM 2	F	<b>Polybrominated Diphenyl Ethers</b>										
		PBDE #028	ug/kg	1	1	0	ND	ND	--	Fewer than 5 detects <sup>f</sup>	--	ND
		PBDE #047	ug/kg	1	1	0	ND	ND				ND
		PBDE #099	ug/kg	1	1	0	ND	ND				ND
		PBDE #100	ug/kg	1	1	0	ND	ND				ND
		PBDE #153	ug/kg	1	1	0	ND	ND				ND
		PBDE #154	ug/kg	1	1	0	ND	ND				ND
RM 3	F	<b>Polybrominated Diphenyl Ethers</b>										
		PBDE #028	ug/kg	2	2	0	ND	ND	--	Fewer than 5 detects	--	ND
		PBDE #047	ug/kg	2	2	0	ND	ND				ND
		PBDE #099	ug/kg	2	2	0	ND	ND				ND
		PBDE #100	ug/kg	2	2	0	ND	ND				ND
		PBDE #153	ug/kg	2	0	0	1.2E-01	1.3E-01				1.3E-01
		PBDE #154	ug/kg	2	0	0	4.0E-02	5.0E-02				5.0E-02
RM 4	F	<b>Polybrominated Diphenyl Ethers</b>										
		PBDE #028	ug/kg	2	2	0	ND	ND	--	Fewer than 5 detects	--	ND
		PBDE #047	ug/kg	2	0	0	4.6E+00	6.0E+00				6.0E+00
		PBDE #099	ug/kg	2	2	0	ND	ND				ND
		PBDE #100	ug/kg	2	2	0	ND	ND				ND
		PBDE #153	ug/kg	2	0	0	3.4E-01	5.0E-01				5.0E-01
		PBDE #154	ug/kg	2	0	0	1.6E-01	2.5E-01				2.5E-01
RM 5	F	<b>Polybrominated Diphenyl Ethers</b>										
		PBDE #028	ug/kg	1	1	0	ND	ND	--	Fewer than 5 detects	--	ND
		PBDE #047	ug/kg	1	0	0	3.4E+00	3.4E+00				3.4E+00
		PBDE #099	ug/kg	1	1	0	ND	ND				ND
		PBDE #100	ug/kg	1	1	0	ND	ND				ND
		PBDE #153	ug/kg	1	0	0	1.3E-01	1.3E-01				1.3E-01
		PBDE #154	ug/kg	1	0	0	9.0E-02	9.0E-02				9.0E-02
RM 6	F	<b>Polybrominated Diphenyl Ethers</b>										
		PBDE #028	ug/kg	2	2	0	ND	ND	--	Fewer than 5 detects	--	ND
		PBDE #047	ug/kg	2	1	0	2.0E+00	3.0E+00				3.0E+00
		PBDE #099	ug/kg	2	2	0	ND	ND				ND
		PBDE #100	ug/kg	2	2	0	ND	ND				ND
		PBDE #153	ug/kg	2	0	0	1.4E-01	1.9E-01				1.9E-01
		PBDE #154	ug/kg	2	0	0	8.0E-02	9.0E-02				9.0E-02
		PBDE #183	ug/kg	2	2	0	ND	ND			ND	

**TABLE F3-2.**  
**Exposure Point Concentration Summary for PBDEs - Resident Fish Species, by River Mile**

Scenario Timeframe: Current/Future
Medium: Fish Tissue
Exposure Medium: Smallmouth Bass

Exposure Point <sup>a</sup>	Tissue Type	Chemical of Potential Concern <sup>b</sup>	Units	Total Samples	Total Non-Detects <sup>c</sup>	Non-Detects greater than Maximum Detected Concentration <sup>d</sup>	Arithmetic Mean <sup>e</sup>	Maximum Detected Concentration	95% UCL			Exposure Point Concentration
									Distribution	95% UCL Method	Value	
RM 7	F	<b>Polybrominated Diphenyl Ethers</b>										
		PBDE #028	ug/kg	2	2	0	ND	ND	--	Fewer than 5 detects	--	ND
		PBDE #047	ug/kg	2	2	0	ND	ND				ND
		PBDE #099	ug/kg	2	2	0	ND	ND				ND
		PBDE #100	ug/kg	2	2	0	ND	ND				ND
		PBDE #153	ug/kg	2	0	0	8.0E-02	1.0E-01				1.0E-01
		PBDE #154	ug/kg	2	0	0	5.0E-02	6.0E-02				6.0E-02
RM 8	F	<b>Polybrominated Diphenyl Ethers</b>										
		PBDE #028	ug/kg	2	2	0	ND	ND	--	Fewer than 5 detects	--	ND
		PBDE #047	ug/kg	2	2	0	ND	ND				ND
		PBDE #099	ug/kg	2	2	0	ND	ND				ND
		PBDE #100	ug/kg	2	2	0	ND	ND				ND
		PBDE #153	ug/kg	2	1	1	1.3E-01	1.3E-01				1.3E-01
		PBDE #154	ug/kg	2	1	1	5.0E-02	5.0E-02				5.0E-02
RM 9	F	<b>Polybrominated Diphenyl Ethers</b>										
		PBDE #028	ug/kg	2	2	0	ND	ND	--	Fewer than 5 detects	--	ND
		PBDE #047	ug/kg	2	2	0	ND	ND				ND
		PBDE #099	ug/kg	2	2	0	ND	ND				ND
		PBDE #100	ug/kg	2	2	0	ND	ND				ND
		PBDE #153	ug/kg	2	1	1	9.0E-02	9.0E-02				9.0E-02
		PBDE #154	ug/kg	2	1	1	3.0E-02	3.0E-02				3.0E-02
RM 10	F	<b>Polybrominated Diphenyl Ethers</b>										
		PBDE #028	ug/kg	2	2	0	ND	ND	--	Fewer than 5 detects	--	ND
		PBDE #047	ug/kg	2	2	0	ND	ND				ND
		PBDE #099	ug/kg	2	2	0	ND	ND				ND
		PBDE #100	ug/kg	2	2	0	ND	ND				ND
		PBDE #153	ug/kg	2	1	1	1.3E-01	1.3E-01				1.3E-01
		PBDE #154	ug/kg	2	1	1	5.0E-02	5.0E-02				5.0E-02
	PBDE #183	ug/kg	2	2	0	ND	ND				ND	

**TABLE F3-2.**  
**Exposure Point Concentration Summary for PBDEs - Resident Fish Species, by River Mile**

Scenario Timeframe: Current/Future
Medium: Fish Tissue
Exposure Medium: Smallmouth Bass

Exposure Point <sup>a</sup>	Tissue Type	Chemical of Potential Concern <sup>b</sup>	Units	Total Samples	Total Non-Detects <sup>c</sup>	Non-Detects greater than Maximum Detected Concentration <sup>d</sup>	Arithmetic Mean <sup>e</sup>	Maximum Detected Concentration	95% UCL			Exposure Point Concentration
									Distribution	95% UCL Method	Value	
RM 11	F	<b>Polybrominated Diphenyl Ethers</b>										
		PBDE #028	ug/kg	2	2	0	ND	ND	--	Fewer than 5 detects	--	ND
		PBDE #047	ug/kg	2	1	0	2.3E+00	3.4E+00			3.4E+00	
		PBDE #099	ug/kg	2	2	0	ND	ND			ND	
		PBDE #100	ug/kg	2	2	0	ND	ND			ND	
		PBDE #153	ug/kg	2	0	0	3.2E-01	4.4E-01			4.4E-01	
		PBDE #154	ug/kg	2	0	0	1.8E-01	2.8E-01			2.8E-01	
		PBDE #183	ug/kg	2	2	0	ND	ND			ND	

**Notes:**

- a Exposure areas for smallmouth bass tissue are on a RM basis, such that samples collected from RM 1.5 - 2.5 are included in exposure area RM 2, etc.
- b Chemicals of potential concern are PBDE congeners analyzed and detected at least once in smallmouth bass tissue within the Study Area. Congener #209 was analyzed but not detected in smallmouth bass tissue.
- c Total number of non-detects in the dataset.
- d Number of non-detects with detection limit exceeding the maximum detected concentration for the exposure area. These non-detects were removed from the dataset prior to calculation of EPCs.
- e Non-detects less than the maximum detected concentration for a given exposure area are included in the arithmetic mean at half the detection limit.
- f 95% UCL not calculated for analytes with fewer than five detects.

**Abbreviations:**

- = Not applicable. A 95% UCL could not be computed for the given data set.
- 95% UCL = 95% Upper confidence limit on the mean.
- F = Fillet tissue. All smallmouth bass fillet tissue was analyzed as fillet with skin, except mercury, which was analyzed as fillet without skin.
- ND = Not detected in the given exposure area.
- PBDE = Polybrominated Diphenyl Ether
- RM = River mile.
- ug/kg = micrograms per kilogram.

**TABLE F3-3.**  
**Exposure Point Concentration Summary for PBDEs - Clam, by River Mile**

Scenario Timeframe: Current/Future
Medium: Shellfish Tissue
Exposure Medium: Clam, River Mile

Exposure Point <sup>a</sup>	Tissue Type	Chemical of Potential Concern <sup>b</sup>	Units	Total Samples	Total Non-Detects <sup>c</sup>	Non-Detects greater than Maximum Detected Concentration <sup>d</sup>	Arithmetic Mean <sup>e</sup>	Maximum Detected Concentration	95% UCL			Exposure Point Concentration
									Distribution	95% UCL Method	Value	
RM 1 East	UD	<b>Polybrominated Diphenyl Ethers</b>										
		PBDE #047	ug/kg	1	0	0	7.9E+00	7.9E+00	--	Fewer than 5 detects <sup>f</sup>	--	7.9E+00
		PBDE #099	ug/kg	1	1	0	ND	ND				ND
		PBDE #100	ug/kg	1	0	0	3.2E+00	3.2E+00				3.2E+00
		PBDE #153	ug/kg	1	0	0	3.0E-01	3.0E-01				3.0E-01
RM 2 West	UD	<b>Polybrominated Diphenyl Ethers</b>										
		PBDE #047	ug/kg	1	0	0	7.9E+00	7.9E+00	--	Fewer than 5 detects	--	7.9E+00
		PBDE #099	ug/kg	1	1	0	ND	ND				ND
		PBDE #100	ug/kg	1	0	0	3.1E+00	3.1E+00				3.1E+00
		PBDE #153	ug/kg	1	0	0	2.9E-01	2.9E-01				2.9E-01
RM 5 East	UD	<b>Polybrominated Diphenyl Ethers</b>										
		PBDE #047	ug/kg	1	0	0	1.0E+01	1.0E+01	--	Fewer than 5 detects	--	1.0E+01
		PBDE #099	ug/kg	1	0	0	2.7E+00	2.7E+00				2.7E+00
		PBDE #100	ug/kg	1	0	0	3.8E+00	3.8E+00				3.8E+00
		PBDE #153	ug/kg	1	0	0	3.4E-01	3.4E-01				3.4E-01
RM 10 West	UD	<b>Polybrominated Diphenyl Ethers</b>										
		PBDE #047	ug/kg	1	0	0	7.3E+00	7.3E+00	--	Fewer than 5 detects	--	7.3E+00
		PBDE #099	ug/kg	1	0	0	2.0E+00	2.0E+00				2.0E+00
		PBDE #100	ug/kg	1	0	0	2.8E+00	2.8E+00				2.8E+00
		PBDE #153	ug/kg	1	0	0	2.2E-01	2.2E-01				2.2E-01
RM 11 East	UD	<b>Polybrominated Diphenyl Ethers</b>										
		PBDE #047	ug/kg	1	0	0	9.6E+00	9.6E+00	--	Fewer than 5 detects	--	9.6E+00
		PBDE #099	ug/kg	1	0	0	2.8E+00	2.8E+00				2.8E+00
		PBDE #100	ug/kg	1	0	0	3.9E+00	3.9E+00				3.9E+00
		PBDE #153	ug/kg	1	0	0	3.7E-01	3.7E-01				3.7E-01
RM 12 East	UD	<b>Polybrominated Diphenyl Ethers</b>										
		PBDE #047	ug/kg	1	0	0	1.2E+01	1.2E+01	--	Fewer than 5 detects	--	1.2E+01
		PBDE #099	ug/kg	1	0	0	3.7E+00	3.7E+00				3.7E+00
		PBDE #100	ug/kg	1	0	0	4.6E+00	4.6E+00				4.6E+00
		PBDE #153	ug/kg	1	0	0	4.9E-01	4.9E-01				4.9E-01
		PBDE #154	ug/kg	1	0	0	4.1E-01	4.1E-01				4.1E-01

**Notes:**

- a Exposure areas for clam tissue are on a RM basis per side of river, such that samples collected from RM 3.0 - 3.9 west of the navigation channel are included in exposure area RM 3 West, etc.
- b Chemicals of potential concern are PBDE congeners analyzed and detected at least once in clam tissue within the Study Area. Congeners #28, #183, and #209 were analyzed but not detected in clam tissue.
- c Total number of non-detects in the dataset.
- d Number of non-detects with detection limit exceeding the maximum detected concentration for the exposure area. These non-detects were removed from the dataset prior to calculation of EPCs.
- e Non-detects less than the maximum detected concentration for a given exposure area are included in the arithmetic mean at half the detection limit.
- f 95% UCL not calculated for analytes with fewer than five detects.

**Abbreviations:**

- = Not applicable. A 95% UCL could not be computed for the given data set.
- 95% UCL = 95% Upper confidence limit on the mean.
- ND = Not detected in the given exposure area.
- PBDE = Polybrominated Diphenyl Ether
- RM = River mile.
- UD = Undepurated tissue.
- ug/kg = micrograms per kilogram.

**TABLE F3-4.**  
**Exposure Point Concentration Summary for PBDEs - Clam, Study Area-Wide**

Scenario Timeframe: Current/Future
Medium: Shellfish Tissue
Exposure Medium: Clam, Study Area-Wide

Exposure Point	Tissue Type	Chemical of Potential Concern <sup>a</sup>	Units	Total Samples	Total Non-Detects <sup>b</sup>	Non-Detects greater than Maximum Detected Concentration <sup>c</sup>	Arithmetic Mean <sup>d</sup>	Maximum Detected Concentration	95% UCL			Exposure Point Concentration
									Distribution	95% UCL Method	Value	
Study Area-Wide	UD	<b>Polybrominated Diphenyl Ethers</b>										
		PBDE #047	ug/kg	4	0	0	8.7E+00	1.0E+01	--	Fewer than 5 detects <sup>f</sup>	--	1.0E+01
		PBDE #099	ug/kg	4	1	0	2.1E+00	2.8E+00	--	Fewer than 5 detects	--	2.8E+00
		PBDE #100	ug/kg	4	0	0	3.4E+00	3.9E+00	--	Fewer than 5 detects	--	3.9E+00
		PBDE #153	ug/kg	4	0	0	3.0E-01	3.7E-01	--	Fewer than 5 detects	--	3.7E-01
		PBDE #154	ug/kg	4	0	0	3.0E-01	3.5E-01	--	Fewer than 5 detects	--	3.5E-01

**Notes:**

- a Chemicals of potential concern are PBDE congeners analyzed and detected at least once in clam tissue within the Study Area. Congeners #28, #183, and #209 were analyzed but not detected in clam tissue.
- b Total number of non-detects in the Study Area-wide dataset.
- c Number of non-detects with detection limit exceeding the maximum detected concentration for the exposure area. These non-detects were removed from the dataset prior to calculation of EPCs.
- d Non-detects less than the maximum detected concentration for a given exposure area are included in the arithmetic mean at half the detection limit.
- e 95% UCL not calculated for analytes with fewer than five detects.

**Abbreviations:**

- = Not applicable. A 95% UCL could not be computed for the given data set.
- 95% UCL = 95% Upper confidence limit on the mean.
- PBDE = Polybrominated Diphenyl Ether
- RM = River mile.
- UD = Undepurated tissue.
- ug/kg = micrograms per kilogram.

### **III-2 Toxicity Assessment**

Table 4-1 Cancer Toxicity Data - Oral/Dermal

Table 4-2 Noncancer Toxicity Data - Oral/Dermal

Table F3-5 PBDE Toxicity Data

Table 4-1  
Cancer Toxicity Data - Oral/Dermal

CAS Number	Chemical of Potential Concern	Notes	Oral Cancer Slope Factor (mg/kg-day) <sup>-1</sup>	Oral Absorption Efficiency for	Absorbed Cancer Slope Factor for Dermal (mg/kg-day) <sup>-1</sup>	Oral CSF Source(s), Date <sup>2</sup>	Weight of Evidence for Carcinogenicity, listed under IRIS
	<b>Metals</b>						
7429-90-5	Aluminum		--	1	--	--	Not listed under IRIS program.
7440-36-0	Antimony		--	0.15	--	--	Not assessed under IRIS program.
7440-38-2	Arsenic		1.5E+00	1	1.5E+00	IRIS, Nov 2010	A, Human Carcinogen
7440-39-3	Barium		--	0.07	--	--	D, Not classifiable as to human carcinogenicity
7440-42-8	Boron		--	1	--	--	Not assessed under IRIS program.
7440-43-9	Cadmium	a	--	0.05	--	--	B1, Probable human carcinogen - based on limited evidence of carcinogenicity in humans
16065-83-1	Chromium, trivalent		--	0.013	--	--	D, Not classifiable as to human carcinogenicity
18540-29-9	Chromium, hexavalent		5.0E-01	0.025	1.3E-02	J, Nov 2010	D, Not classifiable as to human carcinogenicity (Oral route)
7440-48-4	Cobalt		--	1	--	--	Not listed under IRIS program.
7440-50-8	Copper		--	1	--	--	D, Not classifiable as to human carcinogenicity
7439-89-6	Iron		--	1	--	--	Not listed under IRIS program.
7439-92-1	Lead	b	NL	NL	NL	NL	B2, Probable human carcinogen - based on sufficient evidence of carcinogenicity in animals
7439-96-5	Manganese		--	0.04	--	--	D, Not classifiable as to human carcinogenicity
7439-97-6	Mercury (tissue)	c	--	1	--	--	C, Possible human carcinogen
7439-97-6	Mercury (sediment)	d	--	0.07	--	--	C, Possible human carcinogen
7439-98-7	Molybdenum		--	1	--	--	Not assessed under IRIS program.
7440-02-0	Nickel		--	0.04	--	--	Information reviewed but value not estimated.
7782-49-2	Selenium		--	1	--	--	D, Not classifiable as to human carcinogenicity
7440-22-4	Silver		--	0.04	--	--	D, Not classifiable as to human carcinogenicity
7440-28-0	Thallium	e	NL	1	NL	NL	Inadequate information to assess carcinogenic potential
7440-32-6	Titanium	e	NL	NL	NL	NL	Not listed under IRIS program.
7440-62-2	Vanadium		--	0.026	--	--	Not listed under IRIS program.
7440-66-6	Zinc		--	1	--	--	D, Not classifiable as to human carcinogenicity
	<b>Butyltins</b>						
78763-54-9	Butyltin ion	f	--	1	--	--	Not listed under IRIS program.
14488-53-0	Dibutyltin ion	f	--	1	--	--	Not listed under IRIS program.
36643-28-4	Tributyltin ion	f	--	1	--	--	D, Not classifiable as to human carcinogenicity
	<b>Polynuclear Aromatic Hydrocarbons</b>						
90-12-0	1-Methylnaphthalene		2.9E-02	1	2.9E-02	P, Nov 2010	Not listed under IRIS program.
91-57-6	2-Methylnaphthalene		--	1	--	--	Not assessed under IRIS program.
83-32-9	Acenaphthene		--	1	--	--	Not assessed under IRIS program.
208-96-8	Acenaphthylene	g	--	1	--	--	D, Not classifiable as to human carcinogenicity
120-12-7	Anthracene		--	1	--	--	D, Not classifiable as to human carcinogenicity
56-55-3	Benzo(a)anthracene		7.3E-01	1	7.3E-01	E, Nov 2010	B2, Probable human carcinogen - based on sufficient evidence of carcinogenicity in animals
50-32-8	Benzo(a)pyrene		7.3E+00	1	7.3E+00	IRIS, Nov 2010	B2, Probable human carcinogen - based on sufficient evidence of carcinogenicity in animals



Table 4-1  
Cancer Toxicity Data - Oral/Dermal

CAS Number	Chemical of Potential Concern	Notes	Oral Cancer Slope Factor (mg/kg-day) <sup>-1</sup>	Oral Absorption Efficiency for	Absorbed Cancer Slope Factor for Dermal (mg/kg-day) <sup>-1</sup>	Oral CSF Source(s), Date <sup>2</sup>	Weight of Evidence for Carcinogenicity, listed under IRIS
205-99-2	Benzo(b)fluoranthene		7.3E-01	1	7.3E-01	E, Nov 2010	B2, Probable human carcinogen - based on sufficient evidence of carcinogenicity in animals
192-97-2	Benzo(e)pyrene	h	--	1	--	--	D, Not classifiable as to human carcinogenicity
191-24-2	Benzo(g,h,i)perylene	h	--	1	--	--	D, Not classifiable as to human carcinogenicity
207-08-9	Benzo(k)fluoranthene		7.3E-02	1	7.3E-02	E, Nov 2010	B2, Probable human carcinogen - based on sufficient evidence of carcinogenicity in animals
218-01-9	Chrysene		7.3E-03	1	7.3E-03	E, Nov 2010	B2, Probable human carcinogen - based on sufficient evidence of carcinogenicity in animals
53-70-3	Dibenzo(a,h)anthracene		7.3E+00	1	7.3E+00	E, Nov 2010	B2, Probable human carcinogen - based on sufficient evidence of carcinogenicity in animals
132-65-0	Dibenzothiophene	i	--	1	--	--	D, Not classifiable as to human carcinogenicity
206-44-0	Fluoranthene		--	1	--	--	D, Not classifiable as to human carcinogenicity
86-73-7	Fluorene		--	1	--	--	D, Not classifiable as to human carcinogenicity
193-39-5	Indeno(1,2,3-cd)pyrene		7.3E-01	1	7.3E-01	E, Nov 2010	B2, Probable human carcinogen - based on sufficient evidence of carcinogenicity in animals
91-20-3	Naphthalene		--	1	--	--	C, Possible human carcinogen
198-55-0	Perylene	h	--	1	--	--	D, Not classifiable as to human carcinogenicity
85-01-8	Phenanthrene	h	--	1	--	--	D, Not classifiable as to human carcinogenicity
129-00-0	Pyrene		--	1	--	--	D, Not classifiable as to human carcinogenicity
	<b>Phthalates</b>						
117-81-7	Bis(2-ethylhexyl) phthalate		1.4E-02	1	1.4E-02	IRIS, Nov 2010	B2, Probable human carcinogen - based on sufficient evidence of carcinogenicity in animals
85-68-7	Butylbenzyl phthalate		1.9E-03	1	1.9E-03	P, Nov 2010	C, Possible human carcinogen
84-74-2	Dibutyl phthalate		--	1	--	--	D, Not classifiable as to human carcinogenicity
84-66-2	Diethyl phthalate		--	1	--	--	D, Not classifiable as to human carcinogenicity
117-84-0	Di-n-octyl phthalate	j	--	1	--	--	Not listed under IRIS program.
	<b>Semivolatile Organic Compounds</b>						
106-46-7	1,4-Dichlorobenzene		5.4E-03	1	5.4E-03	C, Nov 2010	Not assessed under IRIS program.
65-85-0	Benzoic acid		--	1	--	--	D, Not classifiable as to human carcinogenicity
100-51-6	Benzyl alcohol		--	1	--	--	Not listed under IRIS program.
111-91-1	Bis(2-chloroethoxy) methane		--	2	--	--	Not listed under IRIS program.
132-64-9	Dibenzofuran		--	1	--	--	D, Not classifiable as to human carcinogenicity
118-74-1	Hexachlorobenzene		1.6E+00	1	1.6E+00	IRIS, Nov 2010	B2, Probable human carcinogen - based on sufficient evidence of carcinogenicity in animals
87-68-3	Hexachlorobutadiene		7.8E-02	1	7.8E-02	IRIS, Nov 2010	C, Possible human carcinogen
78-59-1	Isophorone		9.5E-04	1	9.5E-04	IRIS, Nov 2010	C, Possible human carcinogen
98-95-3	Nitrobenzene		--	1	--	--	D, Not classifiable as to human carcinogenicity
483-65-8	Retene	h	--	1	--	--	D, Not classifiable as to human carcinogenicity
	<b>Phenols</b>						
120-83-2	2,4-Dichlorophenol		--	1	--	--	Not assessed under IRIS program.
105-67-9	2,4-Dimethylphenol		--	1	--	--	Not assessed under IRIS program.
95-48-7	2-Methylphenol		--	1	--	--	C, Possible human carcinogen
106-44-5	4-Methylphenol		--	1	--	--	C, Possible human carcinogen
100-02-7	4-Nitrophenol	k	--	1	--	--	Not assessed under IRIS program.

Table 4-1  
Cancer Toxicity Data - Oral/Dermal

CAS Number	Chemical of Potential Concern	Notes	Oral Cancer Slope Factor (mg/kg-day) <sup>-1</sup>	Oral Absorption Efficiency for	Absorbed Cancer Slope Factor for Dermal (mg/kg-day) <sup>-1</sup>	Oral CSF Source(s), Date <sup>2</sup>	Weight of Evidence for Carcinogenicity, listed under IRIS
87-86-5	Pentachlorophenol		4.0E-01	1	4.0E-01	IRIS, Nov 2010	B2, Probable human carcinogen - based on sufficient evidence of carcinogenicity in animals
108-95-2	Phenol		--	1	--	--	D, Not classifiable as to human carcinogenicity
	<b>Polychlorinated Biphenyls Aroclors</b>						
Total Aroclors	Total PCB Aroclors	m	2.0E+00	1	2.0E+00	IRIS, Nov 2010	B2, Probable human carcinogen - based on sufficient evidence of carcinogenicity in animals
	<b>Polychlorinated Biphenyls Congeners</b>						
Total PCB_Congeners	Total PCB Congeners	l	NA	1	NA	IRIS, Nov 2010	NA
Total PCBs, Adjusted	Total PCB Congeners, adjusted	m	2.0E+00	1	2.0E+00	IRIS, Nov 2010	B2, Probable human carcinogen - based on sufficient evidence of carcinogenicity in animals
	<b>Dioxins/Furans</b>						
Total Dioxin/Furan TEQ	Total Dioxin TEQ	n	1.3E+05	1	1.3E+05	C, Nov 2010	Not listed under IRIS program.
Total PCB TEQ	Total PCB TEQ	n	1.3E+05	1	1.3E+05	C, Nov 2010	Not listed under IRIS program.
	<b>Pesticides</b>						
309-00-2	Aldrin		1.7E+01	1	1.7E+01	IRIS, Nov 2010	B2, Probable human carcinogen - based on sufficient evidence of carcinogenicity in animals
319-84-6	alpha-Hexachlorocyclohexane		6.3E+00	1	6.3E+00	IRIS, Nov 2010	B2, Probable human carcinogen - based on sufficient evidence of carcinogenicity in animals
319-85-7	beta-Hexachlorocyclohexane		1.8E+00	1	1.8E+00	IRIS, Nov 2010	C, Possible human carcinogen
319-86-8	delta-Hexachlorocyclohexane	e	NL	1	NL	NL	D, Not classifiable as to human carcinogenicity
60-57-1	Dieldrin		1.6E+01	1	1.6E+01	IRIS, Nov 2010	B2, Probable human carcinogen - based on sufficient evidence of carcinogenicity in animals
72-20-8	Endrin		--	1	--	--	D, Not classifiable as to human carcinogenicity
7421-93-4	Endrin aldehyde	o	--	1	--	--	D, Not classifiable as to human carcinogenicity
53494-70-5	Endrin ketone	o	--	1	--	--	D, Not classifiable as to human carcinogenicity
58-89-9	gamma-Hexachlorocyclohexane		1.1E+00	1	1.1E+00	C, Nov 2010	Not assessed under IRIS program.
76-44-8	Heptachlor		4.5E+00	1	4.5E+00	IRIS, Nov 2010	B2, Probable human carcinogen - based on sufficient evidence of carcinogenicity in animals
1024-57-3	Heptachlor epoxide		9.1E+00	1	9.1E+00	IRIS, Nov 2010	B2, Probable human carcinogen - based on sufficient evidence of carcinogenicity in animals
72-43-5	Methoxychlor		--	1	--	--	D, Not classifiable as to human carcinogenicity
12789-03-6	Total Chlordane		3.5E-01	1	3.5E-01	IRIS, Nov 2010	B2, Probable human carcinogen - based on sufficient evidence of carcinogenicity in animals
Total DDD	Total DDD		2.4E-01	1	2.4E-01	IRIS, Nov 2010	B2, Probable human carcinogen - based on sufficient evidence of carcinogenicity in animals
Total DDE	Total DDE	p	3.4E-01	1	3.4E-01	IRIS, Nov 2010	B2, Probable human carcinogen - based on sufficient evidence of carcinogenicity in animals
Total DDT	Total DDT		3.4E-01	1	3.4E-01	IRIS, Nov 2010	B2, Probable human carcinogen - based on sufficient evidence of carcinogenicity in animals
115-29-7	Total Endosulfan		--	1	--	--	Not assessed under IRIS program.
	<b>Herbicides</b>						
93-65-2	MCPP		--	1	--	--	Not assessed under IRIS program.
	<b>Volatile Organic Compounds</b>						
108-90-7	Chlorobenzene		--	1	--	--	D, Not classifiable as to human carcinogenicity
127-18-4	Tetrachloroethene		5.4E-01	1	5.4E-01	C, Nov 2010	Not assessed under IRIS program.

Table 4-1  
Cancer Toxicity Data - Oral/Dermal

CAS Number	Chemical of Potential Concern	Notes	Oral Cancer Slope Factor (mg/kg-day) <sup>-1</sup>	Oral Absorption Efficiency for	Absorbed Cancer Slope Factor for Dermal (mg/kg-day) <sup>-1</sup>	Oral CSF Source(s), Date <sup>2</sup>	Weight of Evidence for Carcinogenicity, listed under IRIS
79-01-6	Trichloroethene <b>Conventional</b>	q	8.9E-02	1	8.9E-02	C, Nov 2010	Information reviewed but value not estimated.
14797-73-0	Perchlorate		--	1	--	--	Not assessed under IRIS program.

**Footnotes:**

- 1 Exhibit 4-1. Risk Assessment Guidance for Superfund. Volume I: Human Health Evaluation Manual (Part E, Supplemental Guidance for Dermal Risk Assessment) Final, July 2004. EPA/540/R/99/005.
- 2 Oral cancer slope factors were retrieved from the EPA Regional Screening Levels (RSL) Tables (November 2010), which uses the EPA recommended hierarchy for toxicity value sources. Sources listed above are those listed in the RSL table.

**Acronyms:**

- Not evaluated as a carcinogen
- A Agency for Toxic Substances and Disease Registry Minimum Risk Level
- C California EPA Office of Environmental Health Hazard Assessment, as referenced in RSL table
- CAS Chemical Abstracts Service
- CSF cancer slope factor
- E Environmental Criteria and Assessment Office, as referenced in RSL table
- EPA United States Environmental Protection Agency
- IRIS Integrated Risk Information System, Accessed online November 2010.
- J New Jersey Department of Environmental Protection, as referenced in RSL table
- mg/kg-day milligram per kilogram per day
- NA Not applicable. Chemical is not assessed individually for cancer risk.
- NL Not Listed
- P Provisional Peer Reviewed Toxicity Value
- TEQ Toxic equivalency quotient

**Notes:**

- a EPA lists an oral absorption efficiency of 2.5% and 5% for water and diet dosing regimens, respectively. The higher value of 5% is listed.
- b Lead not evaluated using cancer slope factor.
- c Methylmercury toxicity value used for tissue evaluation.
- d Toxicity value for mercuric chloride (and other Mercury salts) used for evaluation of mercury in sediment.
- e A toxicity value was not available from the recommended hierarchy and a surrogate chemical could not be identified. Analyte is discussed qualitatively in text.
- f Surrogate: Tributyltin oxide
- g Surrogate: Acenaphthene
- h Surrogate: Pyrene
- i Surrogate: Fluorene
- j Surrogate: Dibutyl phthalate
- k Surrogate: 4-Methylphenol
- l Not applicable. PCB Congeners are not assessed as a total sum for cancer risk. Adjusted PCBs and PCB TEQ assessed for cancer risk.
- m Toxicity value used for PCB congeners is the upper bound slope factor, based on high risk and persistence.
- n TEQ approach based on 2,3,7,8-TCDD toxicity
- o Surrogate: Endrin
- p Cancer slope factor is for the 4,4' isomer
- q Per an agreement with EPA, toxicity value for trichloroethene is based on EPA. 2001b. Trichloroethylene Health Risk Assessment: Synthesis and Characterization, August 2001, EPA/600/P-01/0002A – External Review Draft. The toxicity value for trichloroethene represents an older value that is superseded by more recent guidance. The use of the older toxicity value does not impact the conclusions of the risk assessment.

Table 4-2  
Non-Cancer Toxicity Data - Oral/Dermal

CAS Number	Chemical of Potential Concern	Notes	Oral RfD mg/kg-day	Oral Absorption Efficiency for Dermal <sup>1</sup>	Absorbed RfD for Dermal mg/kg-day	Primary Target Organ(s)	Combined Uncertainty/Modifying Factors	Oral RfD Source(s), Date <sup>2</sup>
<b>Metals</b>								
7429-90-5	Aluminum		1 0E+00	1	1 0E+00	--	--	P, Nov 2010
7440-36-0	Antimony		4 0E-04	0 15	6 0E-05	blood	1000	IRIS, Nov 2010
7440-38-2	Arsenic		3 0E-04	1	3 0E-04	skin, blood	3	IRIS, Nov 2010
7440-39-3	Barium		2 0E-01	0 07	1 4E-02	kidney	300	IRIS, Nov 2010
7440-42-8	Boron		2 0E-01	1	2 0E-01	developmental	66	IRIS, Nov 2010
7440-43-9	Cadmium	a	1 0E-03	0 05	5 0E-05	kidney	10	IRIS, Nov 2010
16065-83-1	Chromium, trivalent		1 5E+00	0 013	2 0E-02	no effects observed	1000	IRIS, Nov 2010
18540-29-9	Chromium, hexavalent		3 0E-03	0 025	7 5E-05	none reported	900	IRIS, Nov 2010
7440-48-4	Cobalt		3 0E-04	1	3 0E-04	blood	100	P, Nov 2010
7440-50-8	Copper		4 0E-02	1	4 0E-02	--	NA	H, Nov 2010
7439-89-6	Iron		7 0E-01	1	7 0E-01	--	--	P, Nov 2010
7439-92-1	Lead	b	--	NL	--	NL	NL	NL
7439-96-5	Manganese		1 4E-01	0 04	5 6E-03	CNS	1	IRIS, Nov 2010
7439-97-6	Mercury (tissue)	c	1 0E-04	1	1 0E-04	CNS, developmental	10	IRIS, Nov 2010
7439-97-6	Mercury (sediment)	d	3 0E-04	0 07	2 1E-05	immunological	1000	IRIS, Nov 2010
7439-98-7	Molybdenum		5 0E-03	1	5 0E-03	increased uric acid levels	30	IRIS, Nov 2010
7440-02-0	Nickel		2 0E-02	0 04	8 0E-04	whole body	300	IRIS, Nov 2010
7782-49-2	Selenium		5 0E-03	1	5 0E-03	whole body	3	IRIS, Nov 2010
7440-22-4	Silver		5 0E-03	0 04	2 0E-04	skin	3	IRIS, Nov 2010
7440-28-0	Thallium	e	NL	1	NL	NL	NL	NL
7440-32-6	Titanium	e	NL	NL	NL	NL	NL	NL
7440-62-2	Vanadium	f	7 0E-05	0 026	1 8E-06	decreased hair cysteine	--	P, Nov 2010
7440-66-6	Zinc		3 0E-01	1	3 0E-01	blood	3	IRIS, Nov 2010
<b>Butyltins</b>								
78763-54-9	Butyltin ion	g	3 0E-04	1	3 0E-04	immunological	1000	IRIS, Nov 2010
14488-53-0	Dibutyltin ion	g	3 0E-04	1	3 0E-04	immunological	1000	IRIS, Nov 2010
36643-28-4	Tributyltin ion	g	3 0E-04	1	3 0E-04	immunological	1000	IRIS, Nov 2010
<b>Polynuclear Aromatic Hydrocarbons</b>								
90-12-0	1-Methylnaphthalene		7 0E-02	1	7 0E-02	lungs	--	A, Nov 2010
91-57-6	2-Methylnaphthalene		4 0E-03	1	4 0E-03	lungs	1000	IRIS, Nov 2010
83-32-9	Acenaphthene		6 0E-02	1	6 0E-02	liver	3000	IRIS, Nov 2010
208-96-8	Acenaphthylene	h	6 0E-02	1	6 0E-02	liver	3000	IRIS, Nov 2010
120-12-7	Anthracene		3 0E-01	1	3 0E-01	no effects observed	3000	IRIS, Nov 2010
56-55-3	Benzo(a)anthracene		--	1	--	--	--	--
50-32-8	Benzo(a)pyrene		--	1	--	--	--	--
205-99-2	Benzo(b)fluoranthene		--	1	--	--	--	--
192-97-2	Benzo(e)pyrene	i	3 0E-02	1	3 0E-02	kidney	3000	IRIS, Nov 2010
191-24-2	Benzo(g,h,i)perylene	i	3 0E-02	1	3 0E-02	kidney	3000	IRIS, Nov 2010
207-08-9	Benzo(k)fluoranthene		--	1	--	--	--	--
218-01-9	Chrysene		--	1	--	--	--	--
53-70-3	Dibenzo(a,h)anthracene		--	1	--	--	--	--
132-65-0	Dibenzothiophene	j	4 0E-02	1	4 0E-02	blood	3000	IRIS, Nov 2010
206-44-0	Fluoranthene		4 0E-02	1	4 0E-02	kidney, liver, blood	3000	IRIS, Nov 2010
86-73-7	Fluorene		4 0E-02	1	4 0E-02	blood	3000	IRIS, Nov 2010
193-39-5	Indeno(1,2,3-cd)pyrene		--	1	--	--	--	--
91-20-3	Naphthalene		2 0E-02	1	2 0E-02	whole body, body weight	3000	IRIS, Nov 2010
198-55-0	Perylene	i	3 0E-02	1	3 0E-02	kidney	3000	IRIS, Nov 2010
85-01-8	Phenanthrene	i	3 0E-02	1	3 0E-02	kidney	3000	IRIS, Nov 2010
129-00-0	Pyrene		3 0E-02	1	3 0E-02	kidney	3000	IRIS, Nov 2010
<b>Phthalates</b>								
117-81-7	Bis(2-ethylhexyl) phthalate		2 0E-02	1	2 0E-02	liver	1000	IRIS, Nov 2010
85-68-7	Butylbenzyl phthalate		2 0E-01	1	2 0E-01	liver	1000	IRIS, Nov 2010
84-66-2	Diethyl phthalate		8 0E-01	1	8 0E-01	whole body, developmental	1000	IRIS, Nov 2010
84-74-2	Dibutyl phthalate		1 0E-01	1	1 0E-01	increased mortality	1000	IRIS, Nov 2010
117-84-0	Di-n-octyl phthalate	k	1 0E-01	1	1 0E-01	liver	1000	IRIS, Nov 2010
<b>Semivolatile Organic Compounds</b>								
106-46-7	1,4-Dichlorobenzene		7 0E-02	1	7 0E-02	--	--	A, Nov 2010
65-85-0	Benzoic acid		4 0E+00	1	4 0E+00	no effects observed	1	IRIS, Nov 2010
100-51-6	Benzyl alcohol		1 0E-01	1	1 0E-01	forestomach	1000	P, Nov 2010
111-91-1	Bis(2-chloroethoxy) methane		3 0E-03	1	3 0E-03	liver	3000	P, Nov 2010
132-64-9	Dibenzofuran		1 0E-03	1	1 0E-03	blood	3000	X, Nov 2010
118-74-1	Hexachlorobenzene		8 0E-04	1	8 0E-04	liver	100	IRIS, Nov 2010
87-68-3	Hexachlorobutadiene		1 0E-03	1	1 0E-03	--	1000	P, Nov 2010
78-59-1	Isophorone		2 0E-01	1	2 0E-01	kidney	1000	IRIS, Nov 2010
98-95-3	Nitrobenzene		2 0E-03	1	2 0E-03	blood	1000	IRIS, Nov 2010
483-65-8	Retene	i	3 0E-02	1	3 0E-02	kidney	3000	IRIS, Nov 2010
<b>Phenols</b>								
120-83-2	2,4-Dichlorophenol		3 0E-03	1	3 0E-03	decreased hypersensitivity response	100	IRIS, Nov 2010
105-67-9	2,4-Dimethylphenol		2 0E-02	1	2 0E-02	lethargy, prostration, ataxia, blood	3000	IRIS, Nov 2010
95-48-7	2-Methylphenol		5 0E-02	1	5 0E-02	decreased body weight, brain	1000	IRIS, Nov 2010
106-44-5	4-Methylphenol		5 0E-03	1	5 0E-03	whole body, CNS	1000	H, Nov 2010
100-02-7	4-Nitrophenol	l	5 0E-03	1	5 0E-03	whole body, CNS	1000	H, Nov 2010
87-86-5	Pentachlorophenol		5 0E-03	1	5 0E-03	liver, kidney	100	IRIS, Nov 2010
108-95-2	Phenol		3 0E-01	1	3 0E-01	whole body	300	IRIS, Nov 2010
<b>Polychlorinated Biphenyls Aroclors</b>								
Total Aroclors	Total PCB Aroclors	m	2 0E-05	1	2 0E-05	immune system, dermal system	300	IRIS, Nov 2010
<b>Polychlorinated Biphenyls Congeners</b>								
Total PCB_Congeners	Total PCB Congeners	n	NA	1	NA	NA	NA	IRIS, Nov 2010
Total PCBs, Adjusted	Total PCB Congeners, adjusted	m	2 0E-05	1	2 0E-05	immune system, dermal system	300	IRIS, Nov 2010
<b>Dioxins/Furans</b>								
Total Dioxin/Furan TEQ	Total Dioxin TEQ	o	1 0E-09	1	1 0E-09	reproduction	1000	A, Nov 2010
Total PCB TEQ	Total PCB TEQ	o	1 0E-09	1	1 0E-09	reproduction	1000	A, Nov 2010
<b>Pesticides</b>								
309-00-2	Aldrin		3 0E-05	1	3 0E-05	liver	1000	IRIS, Nov 2010
319-84-6	alpha-Hexachlorocyclohexane		8 0E-03	1	8 0E-03	liver	100	A, Nov 2010
319-85-7	beta-Hexachlorocyclohexane		6 0E-04	1	6 0E-04	liver	300	ATSDR MRL, Oct 2005

Table 4-2  
Non-Cancer Toxicity Data - Oral/Dermal

CAS Number	Chemical of Potential Concern	Notes	Oral RfD mg/kg-day	Oral Absorption Efficiency for Dermal <sup>1</sup>	Absorbed RfD for Dermal mg/kg-day	Primary Target Organ(s)	Combined Uncertainty/Modifying Factors	Oral RfD Source(s), Date <sup>2</sup>
319-86-8	delta-Hexachlorocyclohexane	e	NL	NL	NL	NL	NL	P, Nov 2010
60-57-1	Dieldrin		5 0E-05	1	5 0E-05	liver	100	IRIS, Nov 2010
72-20-8	Endrin		3 0E-04	1	3 0E-04	liver	100	IRIS, Nov 2010
7421-93-4	Endrin aldehyde	p	3 0E-04	1	3 0E-04	liver	100	IRIS, Nov 2010
53494-70-5	Endrin ketone	p	3 0E-04	1	3 0E-04	liver	100	IRIS, Nov 2010
58-89-9	gamma-Hexachlorocyclohexane		3 0E-04	1	3 0E-04	liver, kidney	1000	IRIS, Nov 2010
76-44-8	Heptachlor		5 0E-04	1	5 0E-04	liver	300	IRIS, Nov 2010
1024-57-3	Heptachlor epoxide		1 3E-05	1	1 3E-05	liver	1000	IRIS, Nov 2010
72-43-5	Methoxychlor		5 0E-03	1	5 0E-03	reproduction, endocrine	1000	IRIS, Nov 2010
12789-03-6	Total Chlordane		5 0E-04	1	5 0E-04	liver	300	IRIS, Nov 2010
Total DDD	Total DDD	q	5 0E-04	1	5 0E-04	liver	100	IRIS, Nov 2010
Total DDE	Total DDE	q	5 0E-04	1	5 0E-04	liver	100	IRIS, Nov 2010
Total DDT	Total DDT		5 0E-04	1	5 0E-04	liver	100	IRIS, Nov 2010
115-29-7	Total Endosulfan		6 0E-03	1	6 0E-03	whole body, CNS, blood vessels	100	IRIS, Nov 2010
<b>Herbicides</b>								
93-65-2	MCPP		1 0E-03	1	1 0E-03	liver	3000	IRIS, Nov 2010
<b>Volatile Organic Compounds</b>								
108-90-7	Chlorobenzene		2 0E-02	1	2 0E-02	liver	1000	IRIS, Nov 2010
127-18-4	Tetrachloroethene		1 0E-02	1	1 0E-02	liver, weight gain	1000	IRIS, Nov 2010
79-01-6	Trichloroethene	r	--	1	--	--	--	EPA, 2001b
<b>Conventionals</b>								
14797-73-0	Perchlorate		7 0E-04	1	7 0E-04	thyroid (endocrine)	10	IRIS, Nov 2010

**Footnotes:**

- Source: Exhibit 4-1 Risk Assessment Guidance for Superfund Volume I: Human Health Evaluation Manual (Part E, Supplemental Guidance for Dermal Risk Assessment) Final, July 2004 EPA/540/R/99/005
- Oral RfD toxicity values were retrieved from the EPA Regional Screening Levels (RSLs) Table (November 2010), which uses the EPA recommended hierarchy for toxicity value sources. Sources listed above are those listed in the RSL table.

**Acronyms:**

- Not available
- A Agency for Toxic Substances and Disease Registry, as referenced in RSL table
- ATSDR MRL Agency for Toxic Substances and Disease Registry Minimum Risk Level
- CAS Chemical Abstracts Service
- CNS Central Nervous System
- EPA United States Environmental Protection Agency
- H Health Effects Assessment Summary Table, July 1997
- IRIS Integrated Risk Information System, Accessed online November 2010
- mg/kg-day milligram per kilogram per day
- NA Not applicable. Chemical will not be assessed individually for noncancer risk
- NL Not Listed
- P Provisional Peer Reviewed Toxicity Value
- RfD Reference Dose
- TEQ Toxic equivalency quotient
- X Provisional Peer Reviewed Toxicity Value Appendix, as referenced in RSL table

**Notes:**

- a EPA lists an oral absorption efficiency of 2.5% and 5% for water and diet dosing regimens, respectively. The higher value of 5% is listed.
- b Lead not evaluated using reference dose
- c Methylmercury toxicity value used for tissue evaluation
- d Toxicity value for mercuric chloride (and other mercury salts) used for mercury in sediment evaluation
- e A toxicity value was not available from the recommended hierarchy and a surrogate chemical could not be identified. Analyte is discussed qualitatively in text.
- f Toxicity value calculated from vanadium pentoxide. Critical effect listed is for vanadium pentoxide.
- g Surrogate: Tributyltin Oxide
- h Surrogate: Acenaphthene
- i Surrogate: Pyrene
- j Surrogate: Fluorene
- k Surrogate: Dibutyl phthalate
- l Surrogate: 4-Methylphenol
- m RfDo for Aroclor 1254
- n Not applicable. Chemical will not be assessed individually for noncancer risk
- o TEQ approach based on 2,3,7,8-TCDD toxicity
- p Surrogate: Endrin
- q RfDo for DDT
- r Per an agreement with EPA, toxicity value for trichloroethene is based on EPA 2001b Trichloroethylene Health Risk Assessment: Synthesis and Characterization, August 2001, EPA/600/P-01/0002A – External Review Draft. The toxicity value for trichloroethene represents an older value that is superseded by more recent guidance. The use of the older toxicity value does not impact the conclusions of the risk assessment.

TABLE F3-5.  
PBDE Toxicity Data

Noncancer Toxicity Data

CAS Number	COPC <sup>a</sup>	Oral RfD <sup>b</sup> mg/kg-day	Oral Absorption Efficiency for Dermal <sup>c</sup>	Absorbed RfD for Dermal mg/kg-day	Primary Target Organ(s)	Combined Uncertainty/Modifying Factors
41318-75-6	PBDE #028	NL	1	NL	NL	NL
5436-43-1	PBDE #047	1.0E-04	1	1.0E-05	neurobehavioral	3000
60348-60-9	PBDE #099	1.0E-04	1	1.0E-05	neurobehavioral	3000
189084-64-8	PBDE #100	NL	1	NL	NL	NL
68631-49-2	PBDE #153	2.0E-04	1	2.0E-05	neurobehavioral	3000
207122-15-4	PBDE #154	NL	1	NL	NL	NL
68928-80-3	PBDE #183	NL	1	NL	NL	NL
1163-19-5	PBDE #209	7.0E-03	1	NL	NL	3.0E+02

Toxicity Data for Carcinogens

CAS Number	COPC <sup>a</sup>	Oral Cancer Slope Factor <sup>b</sup> (mg/kg-day) <sup>-1</sup>	Oral Absorption Efficiency for Dermal <sup>c</sup>	Absorbed Cancer Slope Factor for Dermal (mg/kg-day) <sup>-1</sup>	Weight of Evidence for Carcinogenicity <sup>b</sup>
41318-75-6	PBDE #028	NL	1	NL	Inadequate information to assess carcinogenic potential
5436-43-1	PBDE #047	NL	1	NL	Inadequate information to assess carcinogenic potential
60348-60-9	PBDE #099	NL	1	NL	Inadequate information to assess carcinogenic potential
189084-64-8	PBDE #100	NL	1	NL	Inadequate information to assess carcinogenic potential
68631-49-2	PBDE #153	NL	1	NL	Inadequate information to assess carcinogenic potential
207122-15-4	PBDE #154	NL	1	NL	Inadequate information to assess carcinogenic potential
68928-80-3	PBDE #183	NL	1	NL	Inadequate information to assess carcinogenic potential
1163-19-5	PBDE #209	7.0E-04	1	7.0E-04	Suggestive evidence of carcinogenic potential

Notes

a COPCs listed in table are PBDE congeners analyzed and detected in the BHHRA dataset, as described in Attachment F3.

b Retrieved from the EPA's IRIS database (February 2011).

c The value presented for the PBDE oral absorption efficiency for dermal is consistent with Risk Assessment Guidance for Superfund. Volume I: Human Health Evaluation Manual (Part E, Supplemental Guidance for Dermal Risk Assessment) Final, July 2004. EPA/540/R/99/005.

Abbreviations

- Not applicable.
- CAS Chemical Abstracts Service
- COPC Chemical of Potential Concern
- CSF Cancer slope factor
- EPA United States Environmental Protection Agency
- IRIS Integrated Risk Information System, Accessed online February 2011.
- mg/kg-day milligram per kilogram per day
- NL Not Listed
- PBDE Polybrominated Diphenyl Ethers
- RfD Reference Dose

### III-3 Risk Characterization<sup>1</sup>

Table 5-87	Risk Characterization Summary, Cancer Risks and Noncancer Hazards - Dockside Worker, Reasonable Maximum Exposure
Table 5-88	Risk Characterization Summary, Cancer Risks and Noncancer Hazards - Transient, Reasonable Maximum Exposure
Table 5-89	Risk Characterization Summary, Cancer Risks - Recreational Beach User, Reasonable Maximum Exposure
Table 5-90	Risk Characterization Summary, Noncancer Hazards - Recreational Beach User, Reasonable Maximum Exposure
Table 5-91	Risk Characterization Summary, Cancer Risks - Tribal Fisher, Beach, Reasonable Maximum Exposure
Table 5-92	Risk Characterization Summary, Cancer Risks - Tribal Fisher, Boat, Reasonable Maximum Exposure
Table 5-93	Risk Characterization Summary, Noncancer Hazards - Tribal Fisher, Reasonable Maximum Exposure
Table 5-94	Risk Characterization Summary, Noncancer Hazards – Breastfeeding Infant of Tribal Fisher, Reasonable Maximum Exposure
Table 5-95	Risk Characterization Summary, Cancer Risks and Noncancer Hazards - In-Water Worker, Reasonable Maximum Exposure
Table 5-96	Risk Characterization Summary, Noncancer Hazards – Breastfeeding Infant of In-Water Worker, Reasonable Maximum Exposure
Table 5-97	Risk Characterization Summary, Cancer Risks and Noncancer Hazards - Commercial Diver, Wet Suit, Reasonable Maximum Exposure
Table 5-98	Risk Characterization Summary, Noncancer Hazards – Breastfeeding Infant of Commercial Diver, Wet Suit, Reasonable Maximum Exposure
Table 5-99	Risk Characterization Summary, Cancer Risks and Noncancer Hazards - Commercial Diver, Dry Suit, Reasonable Maximum Exposure
Table 5-100	Risk Characterization Summary, Noncancer Hazards – Breastfeeding Infant of Commercial Diver, Dry Suit, Reasonable Maximum Exposure
Table 5-101	Risk Characterization Summary, Cancer Risks - Domestic Water Use, Reasonable Maximum Exposure

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<sup>1</sup> Note: Cancer risks are presented in Tables 5-87, 88, 89, 91, 92, 95, 97, 99, 101, 103, 106, and 109. Noncancer hazards are presented in Tables 5-87, 88, 90, 93 to 100, 102, 104, 105, 107, 108, 110, and 111. PBDE risk characterization is in BHHRA Tables F3-6 to F3-31.

Table 5-102	Risk Characterization Summary, Noncancer Hazards - Domestic Water Use, Reasonable Maximum Exposure
Table 5-103	Risk Characterization Summary, Cancer Risks - Subsistence Fisher, Reasonable Maximum Exposure
Table 5-104	Risk Characterization Summary, Noncancer Hazards - Subsistence Fisher, Reasonable Maximum Exposure
Table 5-105	Risk Characterization Summary, Noncancer Hazards – Breastfeeding Infant of Subsistence Fisher, Reasonable Maximum Exposure
Table 5-106	Risk Characterization Summary, Cancer Risks - Recreational Fisher, River-Mile Basis, Reasonable Maximum Exposure
Table 5-107	Risk Characterization Summary, Noncancer Hazards – Recreational Fisher, River-Mile Basis, Reasonable Maximum Exposure
Table 5-108	Risk Characterization Summary, Noncancer Hazards – Breastfeeding Infant of Recreational Fisher, River-Mile Basis, Reasonable Maximum Exposure
Table 5-109	Risk Characterization Summary, Cancer Risks - Recreational Fisher, Study Area-Wide Basis, Reasonable Maximum Exposure
Table 5-110	Risk Characterization Summary, Noncancer Hazards – Recreational Fisher, Study Area-Wide Basis, Reasonable Maximum Exposure
Table 5-111	Risk Characterization Summary, Noncancer Hazards – Breastfeeding Infant of Recreational Fisher, Study Area-Wide Basis, Reasonable Maximum Exposure

*PBDE Risk Characterization*

Table F3-6	Calculation of Cancer Risks and Noncancer Hazards - In-water Worker, Inwater Sediment Exposure, Reasonable Maximum Exposure
Table F3-7	Calculation of Cancer Risks and Noncancer Hazards - In-water Worker, Inwater Sediment Exposure, Central Tendency Exposure
Table F3-8	Calculation of Cancer Risks and Noncancer Hazards – Tribal Fisher, In-water Sediment Exposure, Reasonable Maximum Exposure
Table F3-9	Calculation of Cancer Risks and Noncancer Hazards – Tribal Fisher, In-water Sediment Exposure, Central Tendency Exposure
Table F3-10	Calculation of Cancer Risks and Noncancer Hazards – High-frequency fisher, In-water Sediment, Reasonable Maximum Exposure
Table F3-11	Calculation of Cancer Risks and Noncancer Hazards – High-frequency fisher, In-water Sediment Exposure, Central Tendency Exposure
Table F3-12	Calculation of Cancer Risks and Noncancer Hazards – Low-frequency fisher, In-water Sediment Exposure, Reasonable Maximum Exposure



Table F3-13	Calculation of Cancer Risks and Noncancer Hazards - Low-frequency fisher, Inwater Sediment Exposure, Central Tendency Exposure
Table F3-14	Calculation of Cancer Risks and Noncancer Hazards – Diver in Wet Suit, Inwater Sediment Exposure, Reasonable Maximum Exposure
Table F3-15	Calculation of Cancer Risks and Noncancer Hazards - Diver in Wet Suit, Inwater Sediment Exposure, Central Tendency Exposure
Table F3-16	Calculation of Cancer Risks and Noncancer Hazards - Diver in Dry Suit, Inwater Sediment Exposure, Reasonable Maximum Exposure
Table F3-17	Calculation of Noncancer Hazards - Child, Fish Consumption, River Mile Basis
Table F3-18	Calculation of Noncancer Hazards - Clam Consumption
Table F3-19	Calculation of Noncancer Hazards – Breastfeeding Infant of In-water Worker, In-water Sediment Exposure, Reasonable Maximum Exposure
Table F3-20	Calculation of Noncancer Hazards - Breastfeeding Infant of In-water Worker, In-water Sediment Exposure, Central Tendency Exposure
Table F3-21	Calculation of Noncancer Hazards – Breastfeeding Infant of Tribal Fisher, Inwater Sediment Exposure, Reasonable Maximum Exposure
Table F3-22	Calculation of Noncancer Hazards – Breastfeeding Infant of Tribal Fisher, Inwater Sediment Exposure, Central Tendency Exposure
Table F3-23	Calculation of Noncancer Hazards – Breastfeeding Infant of High-frequency fisher, In-water Sediment Exposure, Reasonable Maximum Exposure
Table F3-24	Calculation of Noncancer Hazards – Breastfeeding Infant of High-frequency fisher, In-water Sediment Exposure, Central Tendency Exposure
Table F3-25	Calculation of Noncancer Hazards – Breastfeeding Infant of Low-frequency fisher, In-water Sediment Exposure, Reasonable Maximum Exposure
Table F3-26	Calculation of Noncancer Hazards - Breastfeeding Infant of Low-frequency fisher, In-water Sediment Exposure, Central Tendency Exposure
Table F3-27	Calculation of Noncancer Hazards – Breastfeeding Infant of Diver in Wet Suit, In-water Sediment Exposure, Reasonable Maximum Exposure
Table F3-28	Calculation of Noncancer Hazards - Breastfeeding Infant of Diver in Wet Suit, In-water Sediment Exposure, Central Tendency Exposure
Table F3-29	Calculation of Noncancer Hazards - Breastfeeding Infant of Diver in Dry Suit, In-water Sediment Exposure, Reasonable Maximum Exposure
Table F3-30	Calculation of Noncancer Hazards - Breastfeeding Infant of Adult Consuming Fish, River Mile Basis
Table F3-31	Calculation of Noncancer Hazards - Breastfeeding Infant of Adult Clam Consumer

*Lead Risk Characterization*

Table F5-1	Calculations of Blood Lead Concentrations (PbBs), BHHRA In-Water Sediment Reasonable Maximum Exposure Scenarios
Table F5-2	Calculations of Blood Lead Concentrations (PbBs), BHHRA In-Water Sediment Central Tendency Exposure Scenarios
Table F5-3	Calculation of Protective Lead Fish Tissue Concentrations for Fetuses of Adult Fishers Using ALM Approach
Table F5-4	Input Parameters for IUEBK Model
Table F5-5	Calculation of Lead Risks From Ingestion of Shellfish Tissue Using ALM Approach

Table 5-87 Risk Characterization Summary, Cancer Risks and Noncancer Hazards - Dockside Worker, Reasonable Maximum Exposure							
Risk Characterization Summary - Carcinogens							
Scenario Timeframe:		Current/Future					
Receptor Population:		Dockside Worker					
Receptor Age:		Adult					
Medium	Exposure Medium	Exposure Point	Chemical of Concern	Carcinogenic Risk			
				Ingestion	Inhalation	Dermal	Exposure Routes Total
Sediment	Beach Sediment	Beach Sediment On-site Direct Contact					
		RM 1.5 East (B002)	<b>Total Risk =</b>				7E-07
		RM 2 East (B004)	Arsenic	4E-07	RNA	6E-08	5E-07
			cPAHs	1E-07	RNA	5E-08	2E-07
			Total PCBs	4E-07	RNA	2E-07	6E-07
			Total PCB TEQ	6E-07	RNA	3E-07	9E-07
		<b>Total Risk =</b>				2E-06	
		RM 2.5 East (B006)	<b>Total Risk =</b>				6E-07
		RM 5 East (05B019)	<b>Total Risk =</b>				7E-07
		RM 6 West (06B025)	Arsenic	5E-07	RNA	5E-08	6E-07
			cPAHs	6E-05	RNA	3E-05	9E-05
			Total PCBs	1E-08	RNA	6E-09	2E-08
			Total PCB TEQ	1E-08	RNA	6E-09	2E-08
		<b>Total Risk =</b>				9E-05	
		RM 6.5 West (06B029)	Arsenic	4E-07	RNA	4E-08	4E-07
			cPAHs	5E-07	RNA	2E-07	7E-07
			Total PCBs	ND	RNA	ND	ND
			Total PCB TEQ	NA	RNA	NA	NA
		<b>Total Risk =</b>				1E-06	
		RM 7.5 West (07B022)	<b>Total Risk =</b>				5E-07
SIL (08B032)	<b>Total Risk =</b>				6E-07		
<b>Key</b>							
--	Toxicity criteria are not available to quantitatively address this route of exposure.						
NA	Not Analyzed						
ND	Not Detected						
SIL	Swan Islan Lagoon						
RNA	Route of exposure is not applicable to this medium.						

Table 5-87 Risk Characterization Summary, Cancer Risks and Noncancer Hazards - Dockside Worker, Reasonable Maximum Exposure								
Risk Characterization Summary - Non-Carcinogens								
Scenario Timeframe:		Current/Future						
Receptor Population:		Dockside Worker						
Receptor Age:		Adult						
Medium	Exposure Medium	Exposure Point	Chemical of Concern	Primary Target Organ	Non-Carcinogens Hazard Quotient			Exposure Routes Total
					Ingestion	Inhalation	Dermal	
Sediment	Beach Sediment	Beach Sediment On-site Direct Contact						
		RM 1.5 East (B002)						Receptor Hazard Index = < 1
		RM 2 East (B004)						Receptor Hazard Index = < 1
		RM 2.5 East (B006)						Receptor Hazard Index = < 1
		RM 5 East (05B019)						Receptor Hazard Index = < 1
		RM 6 West (06B025)						Receptor Hazard Index = < 1
		RM 6.5 West (06B029)						Receptor Hazard Index = < 1
		RM 7.5 West (07B022)						Receptor Hazard Index = < 1
		SIL (08B032)					Receptor Hazard Index = < 1	
<b>Key</b>								
	--	Toxicity criteria are not available to quantitatively address this route of exposure.						
	NA	Not Analyzed						
	ND	Not Detected						
	SIL	Swan Islan Lagoon						
	RNA	Route of exposure is not applicable to this medium.						

Table 5-88 Risk Characterization Summary, Cancer Risks and Noncancer Hazards - Transients, Reasonable Maximum Exposure							
Risk Characterization Summary - Carcinogens							
Scenario Timeframe:		Current/Future					
Receptor Population:		Transient					
Receptor Age:		Adult					
Medium	Exposure Medium	Exposure Point	Chemical of Concern	Carcinogenic Risk			
				Ingestion	Inhalation	Dermal	Exposure Routes Total
Water	Surface Water	Surface Water On-site Direct Contact RM 2 Transect (W025)					<b>Total Risk =</b> 7E-07
Water	Surface Water	Surface Water On-site Direct Contact MC Transect (W027)					<b>Total Risk =</b> 6E-07
Sediment	Beach Sediment	Beach Sediment On-site Direct Contact RM 3 East (03B030)					<b>Sediment Total Risk =</b> 3E-07
Water	Surface Water	Surface Water On-site Direct Contact RM 3.9 Transect (W005)					<b>Surface Water Total Risk =</b> 6E-07
				<b>Total Risk =</b> 9E-07			
Sediment	Beach Sediment	Beach Sediment On-site Direct Contact RM 3 West (03B031)					<b>Sediment Total Risk =</b> 6E-07
Water	Surface Water	Surface Water On-site Direct Contact RM 3.9 Transect (W005)					<b>Surface Water Total Risk =</b> 6E-07
				<b>Total Risk =</b> 1E-06			
Sediment	Beach Sediment	Beach Sediment On-site Direct Contact RM 6.5 East (06B022)					<b>Sediment Total Risk =</b> 4E-07
Water	Surface Water	Surface Water On-site Direct Contact RM 6.5 East (W014)					<b>Surface Water Total Risk =</b> 6E-07
				<b>Total Risk =</b> 1E-06			
Sediment	Beach Sediment	Beach Sediment On-site Direct Contact SIL (07B023)					<b>Total Risk =</b> 1E-07
Sediment	Beach Sediment	Beach Sediment On-site Direct Contact RM 7 West (07B024)					<b>Sediment Total Risk =</b> 3E-07
Water	Surface Water	Surface Water On-site Direct Contact RM 6.3 Transect (W011)					<b>Surface Water Total Risk =</b> 6E-07
Water	Ground Water	Surface Water Seep On-site Direct Contact RM 6.8 West (OF22B)					<b>Ground Water Total Risk =</b> 3E-09
				<b>Total Risk =</b> 9E-07			
Sediment	Beach Sediment	Beach Sediment On-site Direct Contact RM 9 East (09B026)					<b>Total Risk =</b> 4E-07
Sediment	Beach Sediment	Beach Sediment On-site Direct Contact RM 9.5 East (09B027)					<b>Total Risk =</b> 2E-07
Water	Surface Water	Surface Water On-site Direct Contact RM 11 Transect (W023)					<b>Total Risk =</b> 6E-07
<b>Key</b> SIL Swan Island Lagoon RM River Mile MC Multnomah Channel							

Table 5-88 Risk Characterization Summary, Cancer Risks and Noncancer Hazards - Transients, Reasonable Maximum Exposure								
Risk Characterization Summary - Non-Carcinogens								
Scenario Timeframe:		Current/Future						
Receptor Population:		Transient						
Receptor Age:		Adult						
Medium	Exposure Medium	Exposure Point	Chemical of Concern	Primary Target Organ	Non-Carcinogens Hazard Quotient			
					Ingestion	Inhalation	Dermal	Exposure Routes Total
Water	Surface Water	Surface Water On-site Direct Contact RM 2 Transect (W025)			Receptor Hazard Index =			
					< 1			
Water	Surface Water	Surface Water On-site Direct Contact MC Transect (W027)			Receptor Hazard Index =			
					< 1			
Sediment	Beach Sediment	Beach Sediment On-site Direct Contact RM 3 East (03B030)			Sediment Hazard Index Total =			
					< 1			
Water	Surface Water	Surface Water On-site Direct Contact RM 3.9 Transect (W005)			Surface Water Hazard Index Total =			
					< 1			
					Receptor Hazard Index =			
					< 1			
Sediment	Beach Sediment	Beach Sediment On-site Direct Contact RM 3 West (03B031)			Sediment Hazard Index Total =			
					< 1			
Water	Surface Water	Surface Water On-site Direct Contact RM 3.9 Transect (W005)			Surface Water Hazard Index Total =			
					< 1			
					Receptor Hazard Index =			
					< 1			
Sediment	Beach Sediment	Beach Sediment On-site Direct Contact RM 6.5 East (06B022)			Sediment Hazard Index Total =			
					< 1			
Water	Surface Water	Surface Water On-site Direct Contact RM 6.5 East (W014)			Surface Water Hazard Index Total =			
					< 1			
					Receptor Hazard Index =			
					< 1			
Sediment	Beach Sediment	Beach Sediment On-site Direct Contact SIL (07B023)			Receptor Hazard Index =			
					< 1			
Sediment	Beach Sediment	Beach Sediment On-site Direct Contact RM 7 West (07B024)			Sediment Hazard Index Total =			
					< 1			
Water	Surface Water	Surface Water On-site Direct Contact RM 6.3 Transect (W011)			Surface Water Hazard Index Total =			
					< 1			
Water	Ground Water	Surface Water Seep On-site Direct Contact RM 6.8 West (OF22B)			Ground Water Hazard Index Total =			
					< 1			
					Receptor Hazard Index =			
					< 1			
Sediment	Beach Sediment	Beach Sediment On-site Direct Contact RM 9 East (09B026)			Receptor Hazard Index =			
					< 1			
Sediment	Beach Sediment	Beach Sediment On-site Direct Contact RM 9.5 East (09B027)			Receptor Hazard Index =			
					< 1			
Water	Surface Water	Surface Water On-site Direct Contact RM 11 Transect (W023)			Receptor Hazard Index =			
					< 1			
<b>Key</b> SIL Swan Island Lagoon RM River Mile MC Multnomah Channel								

Table 5-89 Risk Characterization Summary, Cancer Risks - Recreational Beach User, Reasonable Maximum Exposure							
Risk Characterization Summary - Carcinogens							
Scenario Timeframe:		Current/Future					
Receptor Population:		Recreational Beach User					
Receptor Age:		Adult/Child					
Medium	Exposure Medium	Exposure Point	Chemical of Concern	Carcinogenic Risk			
				Ingestion	Inhalation	Dermal	Exposure Routes Total
Sediment	Beach Sediment	Beach Sediment On-site Direct Contact RM 2 West (B001)	Antimony	--	--	--	--
			Arsenic	NC <sup>1</sup>	RNA	NC <sup>1</sup>	3E-06
			cPAHs	NC <sup>1</sup>	RNA	NC <sup>1</sup>	2E-06
			<b>Total Risk =</b>				5E-06
Sediment	Beach Sediment	Beach Sediment On-site Direct Contact RM 2.5 West (B003)	Antimony	--	--	--	--
			Arsenic	NC <sup>1</sup>	RNA	NC <sup>1</sup>	3E-06
			cPAHs	NC <sup>1</sup>	RNA	NC <sup>1</sup>	4E-05
			<b>Total Risk =</b>				4E-05
Sediment	Beach Sediment	Beach Sediment On-site Direct Contact RM 2.5 West (B005)	Antimony	--	--	--	--
			Arsenic	NC <sup>1</sup>	RNA	NC <sup>1</sup>	4E-06
			cPAHs	NC <sup>1</sup>	RNA	NC <sup>1</sup>	2E-05
			<b>Total Risk =</b>				2E-05
Sediment	Beach Sediment	Beach Sediment On-site Direct Contact RM 3 West (03B031)	Antimony	--	--	--	--
			Arsenic	NC <sup>1</sup>	RNA	NC <sup>1</sup>	4E-06
			cPAHs	NC <sup>1</sup>	RNA	NC <sup>1</sup>	6E-06
			<b>Total Risk =</b>				1E-05
Sediment	Beach Sediment	Beach Sediment On-site Direct Contact RM 3.5 West (03B033)	Antimony	--	--	--	--
			Arsenic	NC <sup>1</sup>	RNA	NC <sup>1</sup>	5E-06
			cPAHs	NC <sup>1</sup>	RNA	NC <sup>1</sup>	6E-07
			<b>Total Risk =</b>				6E-06
Sediment	Beach Sediment	Beach Sediment On-site Direct Contact RM 4 West (04B024)	Antimony	--	--	--	--
			Arsenic	NC <sup>1</sup>	RNA	NC <sup>1</sup>	6E-06
			cPAHs	NC <sup>1</sup>	RNA	NC <sup>1</sup>	4E-05
			<b>Total Risk =</b>				5E-05
Sediment	Beach Sediment	Beach Sediment On-site Direct Contact RM 4.5 West (04B023)	Antimony	--	--	--	--
			Arsenic	NC <sup>1</sup>	RNA	NC <sup>1</sup>	4E-06
			cPAHs	NC <sup>1</sup>	RNA	NC <sup>1</sup>	6E-06
			<b>Total Risk =</b>				1E-05
Sediment	Beach Sediment	Beach Sediment On-site Direct Contact RM 5 East (05B018)	Antimony	--	--	--	--
			Arsenic	NC <sup>1</sup>	RNA	NC <sup>1</sup>	3E-06
			cPAHs	NC <sup>1</sup>	RNA	NC <sup>1</sup>	4E-05
			<b>Sediment Total Risk =</b>				4E-05

Table 5-89 Risk Characterization Summary, Cancer Risks - Recreational Beach User, Reasonable Maximum Exposure							
Risk Characterization Summary - Carcinogens							
Scenario Timeframe:		Current/Future					
Receptor Population:		Recreational Beach User					
Receptor Age:		Adult/Child					
Medium	Exposure Medium	Exposure Point	Chemical of Concern	Carcinogenic Risk			
				Ingestion	Inhalation	Dermal	Exposure Routes Total
Water	Surface Water	Surface Water On-site Direct Contact RM 5.5 East (W010)		Surface Water Total Risk = 7E-08			
				<b>Total Risk = 4E-05</b>			
Sediment	Beach Sediment	Beach Sediment On-site Direct Contact RM 6 East (06B030)	Antimony	--	--	--	--
			Arsenic	NC <sup>1</sup>	RNA	NC <sup>1</sup>	1E-05
			cPAHs	NC <sup>1</sup>	RNA	NC <sup>1</sup>	8E-06
				Sediment Total Risk = 2E-05			
Water	Surface Water	Surface Water On-site Direct Contact RM 5.5 East (W014)		Surface Water Total Risk = 6E-08			
				<b>Total Risk = 2E-05</b>			
Sediment	Beach Sediment	Beach Sediment On-site Direct Contact RM 6 East (06B026)	Antimony	--	--	--	--
			Arsenic	NC <sup>1</sup>	RNA	NC <sup>1</sup>	2E-06
			cPAHs	NC <sup>1</sup>	RNA	NC <sup>1</sup>	8E-07
				Sediment Total Risk = 3E-06			
Water	Surface Water	Surface Water On-site Direct Contact RM 5.5 East (W014)		Surface Water Total Risk = 6E-08			
				<b>Total Risk = 3E-06</b>			
Sediment	Beach Sediment	Beach Sediment On-site Direct Contact RM 6.5 East (06B022)	Antimony	--	--	--	--
			Arsenic	NC <sup>1</sup>	RNA	NC <sup>1</sup>	4E-06
			cPAHs	NC <sup>1</sup>	RNA	NC <sup>1</sup>	5E-07
				Sediment Total Risk = 5E-06			
Water	Surface Water	Surface Water On-site Direct Contact RM 7 East (W014)		Surface Water Total Risk = 6E-08			
				<b>Total Risk = 5E-06</b>			
Sediment	Beach Sediment	Beach Sediment On-site Direct Contact SIL (09B024)	Antimony	--	--	--	--
			Arsenic	NC <sup>1</sup>	RNA	NC <sup>1</sup>	2E-06
			cPAHs	NC <sup>1</sup>	RNA	NC <sup>1</sup>	2E-06
				Sediment Total Risk = 4E-06			
Water	Surface Water	Surface Water On-site Direct Contact SIL (W020)		Surface Water Total Risk = 6E-08			
				<b>Total Risk = 4E-06</b>			
Sediment	Beach Sediment	Beach Sediment On-site Direct Contact SIL (09B028)	Antimony	--	--	--	--
			Arsenic	NC <sup>1</sup>	RNA	NC <sup>1</sup>	2E-06
			cPAHs	NC <sup>1</sup>	RNA	NC <sup>1</sup>	5E-07
				Sediment Total Risk = 3E-06			
Water	Surface Water	Surface Water On-site Direct Contact SIL (W020)		Surface Water Total Risk = 6E-08			
				<b>Total Risk = 3E-06</b>			
Sediment	Beach Sediment	Beach Sediment On-site Direct Contact RM 9 East (09B026)	Antimony	--	--	--	--
			Arsenic	NC <sup>1</sup>	RNA	NC <sup>1</sup>	3E-06
			cPAHs	NC <sup>1</sup>	RNA	NC <sup>1</sup>	2E-08
				Sediment Total Risk = 3E-06			



Table 5-89 Risk Characterization Summary, Cancer Risks - Recreational Beach User, Reasonable Maximum Exposure							
Risk Characterization Summary - Carcinogens							
Scenario Timeframe:		Current/Future					
Receptor Population:		Recreational Beach User					
Receptor Age:		Adult/Child					
Medium	Exposure Medium	Exposure Point	Chemical of Concern	Carcinogenic Risk			
				Ingestion	Inhalation	Dermal	Exposure Routes Total
Sediment	Beach Sediment	Beach Sediment On-site Direct Contact RM 9.5 East (09B027)					
			Antimony	--	--	--	--
			Arsenic	NC <sup>1</sup>	RNA	NC <sup>1</sup>	2E-06
			cPAHs	NC <sup>1</sup>	RNA	NC <sup>1</sup>	1E-06
				<b>Total Risk =</b>		3E-06	
<b>Key</b>							
NC		Not Calculated					
SIL		Swan Island Lagoon					
RM		River Mile					
--		Toxicity criteria are not available to quantitatively address this route of exposure.					
RNA		Route of exposure is not applicable to this medium.					
<b>Note 1</b>		Pathway specific integrated risks were not calculated.					

Table 5-90 Risk Characterization Summary, Noncancer Hazards - Recreational Beach User, Reasonable Maximum Exposure								
Risk Characterization Summary - Non-Carcinogens								
Scenario Timeframe:		Current/Future						
Receptor Population:		Recreational Beach User						
Receptor Age:		Child						
Medium	Exposure Medium	Exposure Point	Chemical of Concern	Primary Target	Non-Carcinogens Hazard Quotient			
					Ingestion	Inhalation	Dermal	Exposure Routes Total
Sediment	Beach Sediment	Beach Sediment On-site Direct Contact RM 2 West (B001)			Receptor Hazard Index =			< 1
					Receptor Hazard Index =			< 1
Sediment	Beach Sediment	Beach Sediment On-site Direct Contact RM 2.5 West (B003)			Receptor Hazard Index =			< 1
					Receptor Hazard Index =			< 1
Sediment	Beach Sediment	Beach Sediment On-site Direct Contact RM 2.5 West (B005)			Receptor Hazard Index =			< 1
					Receptor Hazard Index =			< 1
Sediment	Beach Sediment	Beach Sediment On-site Direct Contact RM 3 West (03B031)			Receptor Hazard Index =			< 1
					Receptor Hazard Index =			< 1
Sediment	Beach Sediment	Beach Sediment On-site Direct Contact RM 3.5 West (03B033)			Receptor Hazard Index =			< 1
					Receptor Hazard Index =			< 1
Sediment	Beach Sediment	Beach Sediment On-site Direct Contact RM 4 West (04B024)			Receptor Hazard Index =			< 1
					Receptor Hazard Index =			< 1
Sediment	Beach Sediment	Beach Sediment On-site Direct Contact RM 4.5 West (04B023)			Receptor Hazard Index =			< 1
					Receptor Hazard Index =			< 1
Sediment	Beach Sediment	Beach Sediment On-site Direct Contact RM 5 East (05B018)			Sediment Hazard Index Total =			< 1
					Sediment Hazard Index Total =			< 1
Water	Surface Water	Surface Water On-site Direct Contact RM 5.5 East (W010)			Surface Water Hazard Index Total =			< 1
					Surface Water Hazard Index Total =			< 1
					<b>Receptor Hazard Index =</b>			< 1
Sediment	Beach Sediment	Beach Sediment On-site Direct Contact RM 6 East (06B030)			Sediment Hazard Index Total =			< 1
					Sediment Hazard Index Total =			< 1
Water	Surface Water	Surface Water On-site Direct Contact RM 5.5 East (W014)			Surface Water Hazard Index Total =			< 1
					Surface Water Hazard Index Total =			< 1
					<b>Receptor Hazard Index =</b>			< 1
Sediment	Beach Sediment	Beach Sediment On-site Direct Contact RM 6 East (06B026)			Sediment Hazard Index Total =			< 1
					Sediment Hazard Index Total =			< 1
Water	Surface Water	Surface Water On-site Direct Contact RM 5.5 East (W014)			Surface Water Hazard Index Total =			< 1
					Surface Water Hazard Index Total =			< 1
					<b>Receptor Hazard Index =</b>			< 1
Sediment	Beach Sediment	Beach Sediment On-site Direct Contact RM 6.5 East (06B022)			Sediment Hazard Index Total =			< 1
					Sediment Hazard Index Total =			< 1
Water	Surface Water	Surface Water On-site Direct Contact RM 7 East (W014)			Surface Water Hazard Index Total =			< 1
					Surface Water Hazard Index Total =			< 1
					<b>Receptor Hazard Index =</b>			< 1
Sediment	Beach Sediment	Beach Sediment On-site Direct Contact SIL (09B024)			Sediment Hazard Index Total =			< 1
					Sediment Hazard Index Total =			< 1
Water	Surface Water	Surface Water On-site Direct Contact SIL (W020)			Surface Water Hazard Index Total =			< 1
					Surface Water Hazard Index Total =			< 1
					<b>Receptor Hazard Index =</b>			< 1
Sediment	Beach Sediment	Beach Sediment On-site Direct Contact SIL (09B028)			Sediment Hazard Index Total =			< 1
					Sediment Hazard Index Total =			< 1
Water	Surface Water	Surface Water On-site Direct Contact SIL (W020)			Surface Water Hazard Index Total =			< 1
					Surface Water Hazard Index Total =			< 1
					<b>Total Risk =</b>			< 1
Sediment	Beach Sediment	Beach Sediment On-site Direct Contact RM 9 East (09B026)			Receptor Hazard Index =			< 1
					Receptor Hazard Index =			< 1
Sediment	Beach Sediment	Beach Sediment On-site Direct Contact RM 9.5 East (09B027)			Receptor Hazard Index =			< 1
					Receptor Hazard Index =			< 1

Table 5-91 Risk Characterization Summary, Cancer Risks - Tribal Fisher, Beach, Reasonable Maximum Exposure								
Risk Characterization Summary - Carcinogens								
Scenario Timeframe: Current/Future								
Receptor Population: Tribal Fisher (Beach)								
Receptor Age: Adult/Child								
Medium	Exposure Medium	Exposure Point	Chemical of Concern	Carcinogenic Risk				
				Ingestion/Consumption	Inhalation	Dermal	Exposure Routes Total	
Sediment	Beach Sediment	Beach Sediment On-site Direct Contact RM 2 West (B001)	Antimony	--	--	--	--	
			Arsenic	NC <sup>1</sup>	RNA	NC <sup>1</sup>	5E-06	
			cPAHs	NC <sup>1</sup>	RNA	NC <sup>1</sup>	5E-07	
			Sediment Total Risk =			6E-06		
Fish Tissue	Multiple Species Tissue	Whole body Fish Tissue On-site Consumption (175:73 g/day)	Antimony	--	--	--	--	
			Arsenic	2E-04	RNA	RNA	2E-04	
			Chromium	--	--	--	--	
			Mercury	--	--	--	--	
			cPAHs	8E-06	RNA	RNA	8E-06	
			Bis(2-ethylhexyl)phthalate	6E-05	RNA	RNA	6E-05	
			Hexachlorobenzene	2E-05	RNA	RNA	2E-05	
			Total PCBs	2E-02	RNA	RNA	2E-02	
			Total Dioxin/Furan TEQ	9E-04	RNA	RNA	9E-04	
			Total PCB TEQ	2E-03	RNA	RNA	2E-03	
			Aldrin	1E-06	RNA	RNA	1E-06	
			alpha-Hexachlorocyclohexane	3E-06	RNA	RNA	3E-06	
			beta-Hexachlorocyclohexane	3E-08	RNA	RNA	3E-08	
			Dieldrin	9E-05	RNA	RNA	9E-05	
			Heptachlor	1E-05	RNA	RNA	1E-05	
			Heptachlor Epoxide	9E-07	RNA	RNA	9E-07	
			Total Chlordanes	1E-05	RNA	RNA	1E-05	
			Total DDX	1E-04	RNA	RNA	1E-04	
			Fish Tissue Total Risk =			2E-02		
			<b>Total Risk =</b>			<b>2E-02</b>		
Sediment	Beach Sediment	Beach Sediment On-site Direct Contact RM 2.5 West (B003)	Antimony	--	--	--	--	
			Arsenic	NC <sup>1</sup>	RNA	NC <sup>1</sup>	6E-06	
			cPAHs	NC <sup>1</sup>	RNA	NC <sup>1</sup>	1E-05	
			Sediment Total Risk =			2E-05		
Fish Tissue	Multiple Species Tissue	Whole body Fish Tissue On-site Consumption (175:73 g/day)	Antimony	--	--	--	--	
			Arsenic	2E-04	RNA	RNA	2E-04	
			Chromium	--	--	--	--	
			Mercury	--	--	--	--	
			cPAHs	8E-06	RNA	RNA	8E-06	
			Bis(2-ethylhexyl)phthalate	6E-05	RNA	RNA	6E-05	
			Hexachlorobenzene	2E-05	RNA	RNA	2E-05	
			Total PCBs	2E-02	RNA	RNA	2E-02	
			Total Dioxin/Furan TEQ	9E-04	RNA	RNA	9E-04	
			Total PCB TEQ	2E-03	RNA	RNA	2E-03	
			Aldrin	1E-06	RNA	RNA	1E-06	
			alpha-Hexachlorocyclohexane	3E-06	RNA	RNA	3E-06	
			beta-Hexachlorocyclohexane	3E-08	RNA	RNA	3E-08	
			Dieldrin	9E-05	RNA	RNA	9E-05	
			Heptachlor	1E-05	RNA	RNA	1E-05	
			Heptachlor Epoxide	9E-07	RNA	RNA	9E-07	
			Total Chlordanes	1E-05	RNA	RNA	1E-05	
			Total DDX	1E-04	RNA	RNA	1E-04	
			Fish Tissue Total Risk =			2E-02		
			<b>Total Risk =</b>			<b>2E-02</b>		

Table 5-91 Risk Characterization Summary, Cancer Risks - Tribal Fisher, Beach, Reasonable Maximum Exposure								
Risk Characterization Summary - Carcinogens								
Scenario Timeframe: Current/Future								
Receptor Population: Tribal Fisher (Beach)								
Receptor Age: Adult/Child								
Medium	Exposure Medium	Exposure Point	Chemical of Concern	Carcinogenic Risk				
				Ingestion/Consumption	Inhalation	Dermal	Exposure Routes Total	
Sediment	Beach Sediment	Beach Sediment On-site Direct Contact RM 2.5 West (B005)	Antimony	--	--	--	--	
			Arsenic	NC <sup>1</sup>	RNA	NC <sup>1</sup>	8E-06	
			cPAHs	NC <sup>1</sup>	RNA	NC <sup>1</sup>	5E-06	
			Sediment Total Risk =			1E-05		
Fish Tissue	Multiple Species Tissue	Whole body Fish Tissue On-site Consumption (175:73 g/day)	Antimony	--	--	--	--	
			Arsenic	2E-04	RNA	RNA	2E-04	
			Chromium	--	--	--	--	
			Mercury	--	--	--	--	
			cPAHs	8E-06	RNA	RNA	8E-06	
			Bis(2-ethylhexyl)phthalate	6E-05	RNA	RNA	6E-05	
			Hexachlorobenzene	2E-05	RNA	RNA	2E-05	
			Total PCBs	2E-02	RNA	RNA	2E-02	
			Total Dioxin/Furan TEQ	9E-04	RNA	RNA	9E-04	
			Total PCB TEQ	2E-03	RNA	RNA	2E-03	
			Aldrin	1E-06	RNA	RNA	1E-06	
			alpha-Hexachlorocyclohexane	3E-06	RNA	RNA	3E-06	
			beta-Hexachlorocyclohexane	3E-08	RNA	RNA	3E-08	
			Dieldrin	9E-05	RNA	RNA	9E-05	
			Heptachlor	1E-05	RNA	RNA	1E-05	
			Heptachlor Epoxide	9E-07	RNA	RNA	9E-07	
			Total Chlordanes	1E-05	RNA	RNA	1E-05	
			Total DDx	1E-04	RNA	RNA	1E-04	
			Fish Tissue Total Risk =			2E-02		
			<b>Total Risk =</b>			<b>2E-02</b>		
Sediment	Beach Sediment	Beach Sediment On-site Direct Contact RM 3 East (03B030)	Antimony	--	--	--	--	
			Arsenic	NC <sup>1</sup>	RNA	NC <sup>1</sup>	4E-06	
			cPAHs	NC <sup>1</sup>	RNA	NC <sup>1</sup>	3E-07	
			Sediment Total Risk =			4E-06		
Fish Tissue	Multiple Species Tissue	Whole body Fish Tissue On-site Consumption (175:73 g/day)	Antimony	--	--	--	--	
			Arsenic	2E-04	RNA	RNA	2E-04	
			Chromium	--	--	--	--	
			Mercury	--	--	--	--	
			cPAHs	8E-06	RNA	RNA	8E-06	
			Bis(2-ethylhexyl)phthalate	6E-05	RNA	RNA	6E-05	
			Hexachlorobenzene	2E-05	RNA	RNA	2E-05	
			Total PCBs	2E-02	RNA	RNA	2E-02	
			Total Dioxin/Furan TEQ	9E-04	RNA	RNA	9E-04	
			Total PCB TEQ	2E-03	RNA	RNA	2E-03	
			Aldrin	1E-06	RNA	RNA	1E-06	
			alpha-Hexachlorocyclohexane	3E-06	RNA	RNA	3E-06	
			beta-Hexachlorocyclohexane	3E-08	RNA	RNA	3E-08	
			Dieldrin	9E-05	RNA	RNA	9E-05	
			Heptachlor	1E-05	RNA	RNA	1E-05	
			Heptachlor Epoxide	9E-07	RNA	RNA	9E-07	
			Total Chlordanes	1E-05	RNA	RNA	1E-05	
			Total DDx	1E-04	RNA	RNA	1E-04	
			Fish Tissue Total Risk =			2E-02		
			<b>Total Risk =</b>			<b>2E-02</b>		

Table 5-91 Risk Characterization Summary, Cancer Risks - Tribal Fisher, Beach, Reasonable Maximum Exposure								
Risk Characterization Summary - Carcinogens								
Scenario Timeframe: Current/Future								
Receptor Population: Tribal Fisher (Beach)								
Receptor Age: Adult/Child								
Medium	Exposure Medium	Exposure Point	Chemical of Concern	Carcinogenic Risk				
				Ingestion/Consumption	Inhalation	Dermal	Exposure Routes Total	
Sediment	Beach Sediment	Beach Sediment On-site Direct Contact RM 3 West (03B031)	Antimony	--	--	--	--	
			Arsenic	NC <sup>1</sup>	RNA	NC <sup>1</sup>	7E-06	
			cPAHs	NC <sup>1</sup>	RNA	NC <sup>1</sup>	2E-06	
			Sediment Total Risk =			9E-06		
Fish Tissue	Multiple Species Tissue	Whole body Fish Tissue On-site Consumption (175:73 g/day)	Antimony	--	--	--	--	
			Arsenic	2E-04	RNA	RNA	2E-04	
			Chromium	--	--	--	--	
			Mercury	--	--	--	--	
			cPAHs	8E-06	RNA	RNA	8E-06	
			Bis(2-ethylhexyl)phthalate	6E-05	RNA	RNA	6E-05	
			Hexachlorobenzene	2E-05	RNA	RNA	2E-05	
			Total PCBs	2E-02	RNA	RNA	2E-02	
			Total Dioxin/Furan TEQ	9E-04	RNA	RNA	9E-04	
			Total PCB TEQ	2E-03	RNA	RNA	2E-03	
			Aldrin	1E-06	RNA	RNA	1E-06	
			alpha-Hexachlorocyclohexane	3E-06	RNA	RNA	3E-06	
			beta-Hexachlorocyclohexane	3E-08	RNA	RNA	3E-08	
			Dieldrin	9E-05	RNA	RNA	9E-05	
			Heptachlor	1E-05	RNA	RNA	1E-05	
			Heptachlor Epoxide	9E-07	RNA	RNA	9E-07	
			Total Chlordanes	1E-05	RNA	RNA	1E-05	
			Total DDX	1E-04	RNA	RNA	1E-04	
			Fish Tissue Total Risk =			2E-02		
			<b>Total Risk =</b>			<b>2E-02</b>		
Sediment	Beach Sediment	Beach Sediment On-site Direct Contact RM 3.5 West (03B033)	Antimony	--	--	--	--	
			Arsenic	NC <sup>1</sup>	RNA	NC <sup>1</sup>	9E-06	
			cPAHs	NC <sup>1</sup>	RNA	NC <sup>1</sup>	2E-07	
			Sediment Total Risk =			9E-06		
Fish Tissue	Multiple Species Tissue	Whole body Fish Tissue On-site Consumption (175:73 g/day)	Antimony	--	--	--	--	
			Arsenic	2E-04	RNA	RNA	2E-04	
			Chromium	--	--	--	--	
			Mercury	--	--	--	--	
			cPAHs	8E-06	RNA	RNA	8E-06	
			Bis(2-ethylhexyl)phthalate	6E-05	RNA	RNA	6E-05	
			Hexachlorobenzene	2E-05	RNA	RNA	2E-05	
			Total PCBs	2E-02	RNA	RNA	2E-02	
			Total Dioxin/Furan TEQ	9E-04	RNA	RNA	9E-04	
			Total PCB TEQ	2E-03	RNA	RNA	2E-03	
			Aldrin	1E-06	RNA	RNA	1E-06	
			alpha-Hexachlorocyclohexane	3E-06	RNA	RNA	3E-06	
			beta-Hexachlorocyclohexane	3E-08	RNA	RNA	3E-08	
			Dieldrin	9E-05	RNA	RNA	9E-05	
			Heptachlor	1E-05	RNA	RNA	1E-05	
			Heptachlor Epoxide	9E-07	RNA	RNA	9E-07	
			Total Chlordanes	1E-05	RNA	RNA	1E-05	
			Total DDX	1E-04	RNA	RNA	1E-04	
			Fish Tissue Total Risk =			2E-02		
			<b>Total Risk =</b>			<b>2E-02</b>		

Table 5-91 Risk Characterization Summary, Cancer Risks - Tribal Fisher, Beach, Reasonable Maximum Exposure							
Risk Characterization Summary - Carcinogens							
Scenario Timeframe: Current/Future							
Receptor Population: Tribal Fisher (Beach)							
Receptor Age: Adult/Child							
Medium	Exposure Medium	Exposure Point	Chemical of Concern	Carcinogenic Risk			
				Ingestion/Consumption	Inhalation	Dermal	Exposure Routes Total
Sediment	Beach Sediment	Beach Sediment On-site Direct Contact RM 4 West (04B024)	Antimony	--	--	--	--
			Arsenic	NC <sup>1</sup>	RNA	NC <sup>1</sup>	1E-05
			cPAHs	NC <sup>1</sup>	RNA	NC <sup>1</sup>	1E-05
			Sediment Total Risk =				2E-05
Fish Tissue	Multiple Species Tissue	Whole body Fish Tissue On-site Consumption (175:73 g/day)	Antimony	--	--	--	--
			Arsenic	2E-04	RNA	RNA	2E-04
			Chromium	--	--	--	--
			Mercury	--	--	--	--
			cPAHs	8E-06	RNA	RNA	8E-06
			Bis(2-ethylhexyl)phthalate	6E-05	RNA	RNA	6E-05
			Hexachlorobenzene	2E-05	RNA	RNA	2E-05
			Total PCBs	2E-02	RNA	RNA	2E-02
			Total Dioxin/Furan TEQ	9E-04	RNA	RNA	9E-04
			Total PCB TEQ	2E-03	RNA	RNA	2E-03
			Aldrin	1E-06	RNA	RNA	1E-06
			alpha-Hexachlorocyclohexane	3E-06	RNA	RNA	3E-06
			beta-Hexachlorocyclohexane	3E-08	RNA	RNA	3E-08
			Dieldrin	9E-05	RNA	RNA	9E-05
			Heptachlor	1E-05	RNA	RNA	1E-05
			Heptachlor Epoxide	9E-07	RNA	RNA	9E-07
			Total Chlordanes	1E-05	RNA	RNA	1E-05
			Total DDX	1E-04	RNA	RNA	1E-04
			Fish Tissue Total Risk =				2E-02
			<b>Total Risk =</b>				<b>2E-02</b>
Sediment	Beach Sediment	Beach Sediment On-site Direct Contact RM 4.5 West (04B023)	Antimony	--	--	--	--
			Arsenic	NC <sup>1</sup>	RNA	NC <sup>1</sup>	6E-06
			cPAHs	NC <sup>1</sup>	RNA	NC <sup>1</sup>	2E-06
			Sediment Total Risk =				8E-06
Fish Tissue	Multiple Species Tissue	Whole body Fish Tissue On-site Consumption (175:73 g/day)	Antimony	--	--	--	--
			Arsenic	2E-04	RNA	RNA	2E-04
			Chromium	--	--	--	--
			Mercury	--	--	--	--
			cPAHs	8E-06	RNA	RNA	8E-06
			Bis(2-ethylhexyl)phthalate	6E-05	RNA	RNA	6E-05
			Hexachlorobenzene	2E-05	RNA	RNA	2E-05
			Total PCBs	2E-02	RNA	RNA	2E-02
			Total Dioxin/Furan TEQ	9E-04	RNA	RNA	9E-04
			Total PCB TEQ	2E-03	RNA	RNA	2E-03
			Aldrin	1E-06	RNA	RNA	1E-06
			alpha-Hexachlorocyclohexane	3E-06	RNA	RNA	3E-06
			beta-Hexachlorocyclohexane	3E-08	RNA	RNA	3E-08
			Dieldrin	9E-05	RNA	RNA	9E-05
			Heptachlor	1E-05	RNA	RNA	1E-05
			Heptachlor Epoxide	9E-07	RNA	RNA	9E-07
			Total Chlordanes	1E-05	RNA	RNA	1E-05
			Total DDX	1E-04	RNA	RNA	1E-04
			Fish Tissue Total Risk =				2E-02
			<b>Total Risk =</b>				<b>2E-02</b>

Table 5-91 Risk Characterization Summary, Cancer Risks - Tribal Fisher, Beach, Reasonable Maximum Exposure							
Risk Characterization Summary - Carcinogens							
Scenario Timeframe: Current/Future							
Receptor Population: Tribal Fisher (Beach)							
Receptor Age: Adult/Child							
Medium	Exposure Medium	Exposure Point	Chemical of Concern	Carcinogenic Risk			
				Ingestion/Consumption	Inhalation	Dermal	Exposure Routes Total
Sediment	Beach Sediment	Beach Sediment On-site Direct Contact RM 5 East (05B018)	Antimony	--	--	--	
			Arsenic	NC <sup>1</sup>	RNA	NC <sup>1</sup>	
			cPAHs	NC <sup>1</sup>	RNA	NC <sup>1</sup>	
			Sediment Total Risk =			9E-06	
Fish Tissue	Multiple Species Tissue	Whole body Fish Tissue On-site Consumption (175:73 g/day)	Antimony	--	--	--	
			Arsenic	2E-04	RNA	RNA	
			Chromium	--	--	--	
			Mercury	--	--	--	
			cPAHs	8E-06	RNA	RNA	
			Bis(2-ethylhexyl)phthalate	6E-05	RNA	RNA	
			Hexachlorobenzene	2E-05	RNA	RNA	
			Total PCBs	2E-02	RNA	RNA	
			Total Dioxin/Furan TEQ	9E-04	RNA	RNA	
			Total PCB TEQ	2E-03	RNA	RNA	
			Aldrin	1E-06	RNA	RNA	
			alpha-Hexachlorocyclohexane	3E-06	RNA	RNA	
			beta-Hexachlorocyclohexane	3E-08	RNA	RNA	
			Dieldrin	9E-05	RNA	RNA	
			Heptachlor	1E-05	RNA	RNA	
			Heptachlor Epoxide	9E-07	RNA	RNA	
			Total Chlordanes	1E-05	RNA	RNA	
			Total DDx	1E-04	RNA	RNA	
			Fish Tissue Total Risk =			2E-02	
			<b>Total Risk =</b>			<b>2E-02</b>	
Sediment	Beach Sediment	Beach Sediment On-site Direct Contact RM 6 East (06B030)	Antimony	--	--	--	
			Arsenic	NC <sup>1</sup>	RNA	NC <sup>1</sup>	
			cPAHs	NC <sup>1</sup>	RNA	NC <sup>1</sup>	
			Sediment Total Risk =			2E-05	
Fish Tissue	Multiple Species Tissue	Whole body Fish Tissue On-site Consumption (175:73 g/day)	Antimony	--	--	--	
			Arsenic	2E-04	RNA	RNA	
			Chromium	--	--	--	
			Mercury	--	--	--	
			cPAHs	8E-06	RNA	RNA	
			Bis(2-ethylhexyl)phthalate	6E-05	RNA	RNA	
			Hexachlorobenzene	2E-05	RNA	RNA	
			Total PCBs	2E-02	RNA	RNA	
			Total Dioxin/Furan TEQ	9E-04	RNA	RNA	
			Total PCB TEQ	2E-03	RNA	RNA	
			Aldrin	1E-06	RNA	RNA	
			alpha-Hexachlorocyclohexane	3E-06	RNA	RNA	
			beta-Hexachlorocyclohexane	3E-08	RNA	RNA	
			Dieldrin	9E-05	RNA	RNA	
			Heptachlor	1E-05	RNA	RNA	
			Heptachlor Epoxide	9E-07	RNA	RNA	
			Total Chlordanes	1E-05	RNA	RNA	
			Total DDx	1E-04	RNA	RNA	
			Fish Tissue Total Risk =			2E-02	
			<b>Total Risk =</b>			<b>2E-02</b>	

Table 5-91 Risk Characterization Summary, Cancer Risks - Tribal Fisher, Beach, Reasonable Maximum Exposure								
Risk Characterization Summary - Carcinogens								
Scenario Timeframe: Current/Future								
Receptor Population: Tribal Fisher (Beach)								
Receptor Age: Adult/Child								
Medium	Exposure Medium	Exposure Point	Chemical of Concern	Carcinogenic Risk				
				Ingestion/Consumption	Inhalation	Dermal	Exposure Routes Total	
Sediment	Beach Sediment	Beach Sediment On-site Direct Contact RM 6 East (06B026)	Antimony	--	--	--	--	
			Arsenic	NC <sup>1</sup>	RNA	NC <sup>1</sup>	4E-06	
			cPAHs	NC <sup>1</sup>	RNA	NC <sup>1</sup>	2E-07	
			Sediment Total Risk =			4E-06		
Fish Tissue	Multiple Species Tissue	Whole body Fish Tissue On-site Consumption (175:73 g/day)	Antimony	--	--	--	--	
			Arsenic	2E-04	RNA	RNA	2E-04	
			Chromium	--	--	--	--	
			Mercury	--	--	--	--	
			cPAHs	8E-06	RNA	RNA	8E-06	
			Bis(2-ethylhexyl)phthalate	6E-05	RNA	RNA	6E-05	
			Hexachlorobenzene	2E-05	RNA	RNA	2E-05	
			Total PCBs	2E-02	RNA	RNA	2E-02	
			Total Dioxin/Furan TEQ	9E-04	RNA	RNA	9E-04	
			Total PCB TEQ	2E-03	RNA	RNA	2E-03	
			Aldrin	1E-06	RNA	RNA	1E-06	
			alpha-Hexachlorocyclohexane	3E-06	RNA	RNA	3E-06	
			beta-Hexachlorocyclohexane	3E-08	RNA	RNA	3E-08	
			Dieldrin	9E-05	RNA	RNA	9E-05	
			Heptachlor	1E-05	RNA	RNA	1E-05	
			Heptachlor Epoxide	9E-07	RNA	RNA	9E-07	
			Total Chlordanes	1E-05	RNA	RNA	1E-05	
			Total DDX	1E-04	RNA	RNA	1E-04	
			Fish Tissue Total Risk =			2E-02		
			<b>Total Risk =</b>			<b>2E-02</b>		
Sediment	Beach Sediment	Beach Sediment On-site Direct Contact RM 6.5 East (06B022)	Antimony	--	--	--	--	
			Arsenic	NC <sup>1</sup>	RNA	NC <sup>1</sup>	6E-06	
			cPAHs	NC <sup>1</sup>	RNA	NC <sup>1</sup>	1E-07	
			Sediment Total Risk =			6E-06		
Fish Tissue	Multiple Species Tissue	Whole body Fish Tissue On-site Consumption (175:73 g/day)	Antimony	--	--	--	--	
			Arsenic	2E-04	RNA	RNA	2E-04	
			Chromium	--	--	--	--	
			Mercury	--	--	--	--	
			cPAHs	8E-06	RNA	RNA	8E-06	
			Bis(2-ethylhexyl)phthalate	6E-05	RNA	RNA	6E-05	
			Hexachlorobenzene	2E-05	RNA	RNA	2E-05	
			Total PCBs	2E-02	RNA	RNA	2E-02	
			Total Dioxin/Furan TEQ	9E-04	RNA	RNA	9E-04	
			Total PCB TEQ	2E-03	RNA	RNA	2E-03	
			Aldrin	1E-06	RNA	RNA	1E-06	
			alpha-Hexachlorocyclohexane	3E-06	RNA	RNA	3E-06	
			beta-Hexachlorocyclohexane	3E-08	RNA	RNA	3E-08	
			Dieldrin	9E-05	RNA	RNA	9E-05	
			Heptachlor	1E-05	RNA	RNA	1E-05	
			Heptachlor Epoxide	9E-07	RNA	RNA	9E-07	
			Total Chlordanes	1E-05	RNA	RNA	1E-05	
			Total DDX	1E-04	RNA	RNA	1E-04	
			Fish Tissue Total Risk =			2E-02		
			<b>Total Risk =</b>			<b>2E-02</b>		



Table 5-91 Risk Characterization Summary, Cancer Risks - Tribal Fisher, Beach, Reasonable Maximum Exposure							
Risk Characterization Summary - Carcinogens							
Scenario Timeframe: Current/Future							
Receptor Population: Tribal Fisher (Beach)							
Receptor Age: Adult/Child							
Medium	Exposure Medium	Exposure Point	Chemical of Concern	Carcinogenic Risk			
				Ingestion/Consumption	Inhalation	Dermal	Exposure Routes Total
Sediment	Beach Sediment	Beach Sediment On-site Direct Contact RM 7 West (07B024)	Antimony	--	--	--	--
			Arsenic	2E-06	RNA	9E-07	3E-06
			cPAHs	2E-07	RNA	3E-07	5E-07
			Sediment Total Risk =				3E-06
Fish Tissue	Multiple Species Tissue	Whole body Fish Tissue On-site Consumption (175:73 g/day)	Antimony	--	--	--	--
			Arsenic	2E-04	RNA	RNA	2E-04
			Chromium	--	--	--	--
			Mercury	--	--	--	--
			cPAHs	8E-06	RNA	RNA	8E-06
			Bis(2-ethylhexyl)phthalate	6E-05	RNA	RNA	6E-05
			Hexachlorobenzene	2E-05	RNA	RNA	2E-05
			Total PCBs	2E-02	RNA	RNA	2E-02
			Total Dioxin/Furan TEQ	9E-04	RNA	RNA	9E-04
			Total PCB TEQ	2E-03	RNA	RNA	2E-03
			Aldrin	1E-06	RNA	RNA	1E-06
			alpha-Hexachlorocyclohexane	3E-06	RNA	RNA	3E-06
			beta-Hexachlorocyclohexane	3E-08	RNA	RNA	3E-08
			Dieldrin	9E-05	RNA	RNA	9E-05
			Heptachlor	1E-05	RNA	RNA	1E-05
			Heptachlor Epoxide	9E-07	RNA	RNA	9E-07
			Total Chlordanes	1E-05	RNA	RNA	1E-05
			Total DDX	1E-04	RNA	RNA	1E-04
			Fish Tissue Total Risk =				2E-02
			<b>Total Risk =</b>				<b>2E-02</b>
Sediment	Beach Sediment	Beach Sediment On-site Direct Contact SIL (07B023)	Antimony	--	--	--	--
			Arsenic	NC <sup>1</sup>	RNA	NC <sup>1</sup>	2E-06
			cPAHs	NC <sup>1</sup>	RNA	NC <sup>1</sup>	5E-07
			Sediment Total Risk =				3E-06
Fish Tissue	Multiple Species Tissue	Whole body Fish Tissue On-site Consumption (175:73 g/day)	Antimony	--	--	--	--
			Arsenic	2E-04	RNA	RNA	2E-04
			Chromium	--	--	--	--
			Mercury	--	--	--	--
			cPAHs	8E-06	RNA	RNA	8E-06
			Bis(2-ethylhexyl)phthalate	6E-05	RNA	RNA	6E-05
			Hexachlorobenzene	2E-05	RNA	RNA	2E-05
			Total PCBs	2E-02	RNA	RNA	2E-02
			Total Dioxin/Furan TEQ	9E-04	RNA	RNA	9E-04
			Total PCB TEQ	2E-03	RNA	RNA	2E-03
			Aldrin	1E-06	RNA	RNA	1E-06
			alpha-Hexachlorocyclohexane	3E-06	RNA	RNA	3E-06
			beta-Hexachlorocyclohexane	3E-08	RNA	RNA	3E-08
			Dieldrin	9E-05	RNA	RNA	9E-05
			Heptachlor	1E-05	RNA	RNA	1E-05
			Heptachlor Epoxide	9E-07	RNA	RNA	9E-07
			Total Chlordanes	1E-05	RNA	RNA	1E-05
			Total DDX	1E-04	RNA	RNA	1E-04
			Fish Tissue Total Risk =				2E-02
			<b>Total Risk =</b>				<b>2E-02</b>

Table 5-91 Risk Characterization Summary, Cancer Risks - Tribal Fisher, Beach, Reasonable Maximum Exposure								
Risk Characterization Summary - Carcinogens								
Scenario Timeframe: Current/Future								
Receptor Population: Tribal Fisher (Beach)								
Receptor Age: Adult/Child								
Medium	Exposure Medium	Exposure Point	Chemical of Concern	Carcinogenic Risk				
				Ingestion/Consumption	Inhalation	Dermal	Exposure Routes Total	
Sediment	Beach Sediment	Beach Sediment On-site Direct Contact SIL (09B024)	Antimony	--	--	--	--	
			Arsenic	NC <sup>1</sup>	RNA	NC <sup>1</sup>	3E-06	
			cPAHs	NC <sup>1</sup>	RNA	NC <sup>1</sup>	5E-07	
			Sediment Total Risk =			4E-06		
Fish Tissue	Multiple Species Tissue	Whole body Fish Tissue On-site Consumption (175:73 g/day)	Antimony	--	--	--	--	
			Arsenic	2E-04	RNA	RNA	2E-04	
			Chromium	--	--	--	--	
			Mercury	--	--	--	--	
			cPAHs	8E-06	RNA	RNA	8E-06	
			Bis(2-ethylhexyl)phthalate	6E-05	RNA	RNA	6E-05	
			Hexachlorobenzene	2E-05	RNA	RNA	2E-05	
			Total PCBs	2E-02	RNA	RNA	2E-02	
			Total Dioxin/Furan TEQ	9E-04	RNA	RNA	9E-04	
			Total PCB TEQ	2E-03	RNA	RNA	2E-03	
			Aldrin	1E-06	RNA	RNA	1E-06	
			alpha-Hexachlorocyclohexane	3E-06	RNA	RNA	3E-06	
			beta-Hexachlorocyclohexane	3E-08	RNA	RNA	3E-08	
			Dieldrin	9E-05	RNA	RNA	9E-05	
			Heptachlor	1E-05	RNA	RNA	1E-05	
			Heptachlor Epoxide	9E-07	RNA	RNA	9E-07	
			Total Chlordanes	1E-05	RNA	RNA	1E-05	
			Total DDx	1E-04	RNA	RNA	1E-04	
			Fish Tissue Total Risk =			2E-02		
			<b>Total Risk =</b>			<b>2E-02</b>		
Sediment	Beach Sediment	Beach Sediment On-site Direct Contact SIL (09B028)	Antimony	--	--	--	--	
			Arsenic	NC <sup>1</sup>	RNA	NC <sup>1</sup>	3E-06	
			cPAHs	NC <sup>1</sup>	RNA	NC <sup>1</sup>	1E-07	
			Sediment Total Risk =			3E-06		
Fish Tissue	Multiple Species Tissue	Whole body Fish Tissue On-site Consumption (175:73 g/day)	Antimony	--	--	--	--	
			Arsenic	2E-04	RNA	RNA	2E-04	
			Chromium	--	--	--	--	
			Mercury	--	--	--	--	
			cPAHs	8E-06	RNA	RNA	8E-06	
			Bis(2-ethylhexyl)phthalate	6E-05	RNA	RNA	6E-05	
			Hexachlorobenzene	2E-05	RNA	RNA	2E-05	
			Total PCBs	2E-02	RNA	RNA	2E-02	
			Total Dioxin/Furan TEQ	9E-04	RNA	RNA	9E-04	
			Total PCB TEQ	2E-03	RNA	RNA	2E-03	
			Aldrin	1E-06	RNA	RNA	1E-06	
			alpha-Hexachlorocyclohexane	3E-06	RNA	RNA	3E-06	
			beta-Hexachlorocyclohexane	3E-08	RNA	RNA	3E-08	
			Dieldrin	9E-05	RNA	RNA	9E-05	
			Heptachlor	1E-05	RNA	RNA	1E-05	
			Heptachlor Epoxide	9E-07	RNA	RNA	9E-07	
			Total Chlordanes	1E-05	RNA	RNA	1E-05	
			Total DDx	1E-04	RNA	RNA	1E-04	
			Fish Tissue Total Risk =			2E-02		
			<b>Total Risk =</b>			<b>2E-02</b>		

Table 5-91 Risk Characterization Summary, Cancer Risks - Tribal Fisher, Beach, Reasonable Maximum Exposure							
Risk Characterization Summary - Carcinogens							
Scenario Timeframe: Current/Future							
Receptor Population: Tribal Fisher (Beach)							
Receptor Age: Adult/Child							
Medium	Exposure Medium	Exposure Point	Chemical of Concern	Carcinogenic Risk			
				Ingestion/Consumption	Inhalation	Dermal	Exposure Routes Total
Sediment	Beach Sediment	Beach Sediment On-site Direct Contact RM 9 East (09B026)	Antimony	--	--	--	
			Arsenic	NC <sup>1</sup>	RNA	NC <sup>1</sup>	
			cPAHs	NC <sup>1</sup>	RNA	NC <sup>1</sup>	
			Sediment Total Risk =			6E-06	
Fish Tissue	Multiple Species Tissue	Whole body Fish Tissue On-site Consumption (175:73 g/day)	Antimony	--	--	--	
			Arsenic	2E-04	RNA	RNA	
			Chromium	--	--	--	
			Mercury	--	--	--	
			cPAHs	8E-06	RNA	RNA	
			Bis(2-ethylhexyl)phthalate	6E-05	RNA	RNA	
			Hexachlorobenzene	2E-05	RNA	RNA	
			Total PCBs	2E-02	RNA	RNA	
			Total Dioxin/Furan TEQ	9E-04	RNA	RNA	
			Total PCB TEQ	2E-03	RNA	RNA	
			Aldrin	1E-06	RNA	RNA	
			alpha-Hexachlorocyclohexane	3E-06	RNA	RNA	
			beta-Hexachlorocyclohexane	3E-08	RNA	RNA	
			Dieldrin	9E-05	RNA	RNA	
			Heptachlor	1E-05	RNA	RNA	
			Heptachlor Epoxide	9E-07	RNA	RNA	
			Total Chlordanes	1E-05	RNA	RNA	
			Total DDx	1E-04	RNA	RNA	
			Fish Tissue Total Risk =			2E-02	
						<b>Total Risk = 2E-02</b>	
Sediment	Beach Sediment	Beach Sediment On-site Direct Contact RM 9.5 East (09B027)	Antimony	--	--	--	
			Arsenic	NC <sup>1</sup>	RNA	NC <sup>1</sup>	
			cPAHs	NC <sup>1</sup>	RNA	NC <sup>1</sup>	
			Sediment Total Risk =			3E-06	
Fish Tissue	Multiple Species Tissue	Whole body Fish Tissue On-site Consumption (175:73 g/day)	Antimony	--	--	--	
			Arsenic	2E-04	RNA	RNA	
			Chromium	--	--	--	
			Mercury	--	--	--	
			cPAHs	8E-06	RNA	RNA	
			Bis(2-ethylhexyl)phthalate	6E-05	RNA	RNA	
			Hexachlorobenzene	2E-05	RNA	RNA	
			Total PCBs	2E-02	RNA	RNA	
			Total Dioxin/Furan TEQ	9E-04	RNA	RNA	
			Total PCB TEQ	2E-03	RNA	RNA	
			Aldrin	1E-06	RNA	RNA	
			alpha-Hexachlorocyclohexane	3E-06	RNA	RNA	
			beta-Hexachlorocyclohexane	3E-08	RNA	RNA	
			Dieldrin	9E-05	RNA	RNA	
			Heptachlor	1E-05	RNA	RNA	
			Heptachlor Epoxide	9E-07	RNA	RNA	
			Total Chlordanes	1E-05	RNA	RNA	
			Total DDx	1E-04	RNA	RNA	
			Fish Tissue Total Risk =			2E-02	
						<b>Total Risk = 2E-02</b>	
<b>Key</b>							
NC	Not Calculated						
SIL	Swan Island Lagoon						
RM	River Mile						
--	Toxicity criteria are not available to quantitatively address this route of exposure.						
RNA	Route of exposure is not applicable to this medium.						
<b>Note 1</b>	Pathway specific integrated risks were not calculated.						

Table 5-91 Risk Characterization Summary, Cancer Risks - Tribal Fisher, Beach, Reasonable Maximum Exposure							
Risk Characterization Summary - Carcinogens							
Scenario Timeframe: Current/Future							
Receptor Population: Tribal Fisher (Beach)							
Receptor Age: Adult/Child							
Medium	Exposure Medium	Exposure Point	Chemical of Concern	Carcinogenic Risk			
				Ingestion/Consumption	Inhalation	Dermal	Exposure Routes Total
Sediment	Beach Sediment	Beach Sediment On-site Direct Contact RM 2 West (B001)	Antimony	--	--	--	
			Arsenic	NC <sup>1</sup>	RNA	NC <sup>1</sup>	
			cPAHs	NC <sup>1</sup>	RNA	NC <sup>1</sup>	
			Sediment Total Risk =			6E-06	
Fish Tissue	Multiple Species Tissue	Fillet Fish Tissue On-site Consumption (175:73 g/day)	Antimony	--	--	--	
			Arsenic	2E-04	RNA	RNA	
			Chromium	--	--	--	
			Mercury	--	--	--	
			cPAHs	6E-06	RNA	RNA	
			Bis(2-ethylhexyl)phthalate	1E-06	RNA	RNA	
			Hexachlorobenzene	4E-05	RNA	RNA	
			Total PCBs	1E-02	RNA	RNA	
			Total Dioxin/Furan TEQ	3E-04	RNA	RNA	
			Total PCB TEQ	6E-04	RNA	RNA	
			Aldrin	6E-07	RNA	RNA	
			alpha-Hexachlorocyclohexane	7E-08	RNA	RNA	
			beta-Hexachlorocyclohexane	3E-06	RNA	RNA	
			Dieldrin	6E-05	RNA	RNA	
			Heptachlor	8E-09	RNA	RNA	
			Heptachlor Epoxide	4E-07	RNA	RNA	
			Total Chlordanes	2E-06	RNA	RNA	
			Total DDX	5E-05	RNA	RNA	
			Fish Tissue Total Risk =			1E-02	
			<b>Total Risk =</b>			<b>1E-02</b>	
Sediment	Beach Sediment	Beach Sediment On-site Direct Contact RM 2.5 West (B003)	Antimony	--	--	--	
			Arsenic	NC <sup>1</sup>	RNA	NC <sup>1</sup>	
			cPAHs	NC <sup>1</sup>	RNA	NC <sup>1</sup>	
			Sediment Total Risk =			2E-05	
Fish Tissue	Multiple Species Tissue	Fillet Fish Tissue On-site Consumption (175:73 g/day)	Antimony	--	--	--	
			Arsenic	2E-04	RNA	RNA	
			Chromium	--	--	--	
			Mercury	--	--	--	
			cPAHs	6E-06	RNA	RNA	
			Bis(2-ethylhexyl)phthalate	1E-06	RNA	RNA	
			Hexachlorobenzene	4E-05	RNA	RNA	
			Total PCBs	1E-02	RNA	RNA	
			Total Dioxin/Furan TEQ	3E-04	RNA	RNA	
			Total PCB TEQ	6E-04	RNA	RNA	
			Aldrin	6E-07	RNA	RNA	
			alpha-Hexachlorocyclohexane	7E-08	RNA	RNA	
			beta-Hexachlorocyclohexane	3E-06	RNA	RNA	
			Dieldrin	6E-05	RNA	RNA	
			Heptachlor	8E-09	RNA	RNA	
			Heptachlor Epoxide	4E-07	RNA	RNA	
			Total Chlordanes	2E-06	RNA	RNA	
			Total DDX	5E-05	RNA	RNA	
			Fish Tissue Total Risk =			1E-02	
			<b>Total Risk =</b>			<b>1E-02</b>	

Table 5-91 Risk Characterization Summary, Cancer Risks - Tribal Fisher, Beach, Reasonable Maximum Exposure							
Risk Characterization Summary - Carcinogens							
Scenario Timeframe: Current/Future							
Receptor Population: Tribal Fisher (Beach)							
Receptor Age: Adult/Child							
Medium	Exposure Medium	Exposure Point	Chemical of Concern	Carcinogenic Risk			
				Ingestion/Consumption	Inhalation	Dermal	Exposure Routes Total
Sediment	Beach Sediment	Beach Sediment On-site Direct Contact RM 2.5 West (B005)	Antimony	--	--	--	
			Arsenic	NC <sup>1</sup>	RNA	NC <sup>1</sup>	
			cPAHs	NC <sup>1</sup>	RNA	NC <sup>1</sup>	
			Sediment Total Risk =			1E-05	
Fish Tissue	Multiple Species Tissue	Fillet Fish Tissue On-site Consumption (175:73 g/day)	Antimony	--	--	--	
			Arsenic	2E-04	RNA	RNA	
			Chromium	--	--	--	
			Mercury	--	--	--	
			cPAHs	6E-06	RNA	RNA	
			Bis(2-ethylhexyl)phthalate	1E-06	RNA	RNA	
			Hexachlorobenzene	4E-05	RNA	RNA	
			Total PCBs	1E-02	RNA	RNA	
			Total Dioxin/Furan TEQ	3E-04	RNA	RNA	
			Total PCB TEQ	6E-04	RNA	RNA	
			Aldrin	6E-07	RNA	RNA	
			alpha-Hexachlorocyclohexane	7E-08	RNA	RNA	
			beta-Hexachlorocyclohexane	3E-06	RNA	RNA	
			Dieldrin	6E-05	RNA	RNA	
			Heptachlor	8E-09	RNA	RNA	
			Heptachlor Epoxide	4E-07	RNA	RNA	
			Total Chlordanes	2E-06	RNA	RNA	
			Total DDx	5E-05	RNA	RNA	
			Fish Tissue Total Risk =			1E-02	
			<b>Total Risk =</b>			<b>1E-02</b>	
Sediment	Beach Sediment	Beach Sediment On-site Direct Contact RM 3 East (03B030)	Antimony	--	--	--	
			Arsenic	NC <sup>1</sup>	RNA	NC <sup>1</sup>	
			cPAHs	NC <sup>1</sup>	RNA	NC <sup>1</sup>	
			Sediment Total Risk =			4E-06	
Fish Tissue	Multiple Species Tissue	Fillet Fish Tissue On-site Consumption (175:73 g/day)	Antimony	--	--	--	
			Arsenic	2E-04	RNA	RNA	
			Chromium	--	--	--	
			Mercury	--	--	--	
			cPAHs	6E-06	RNA	RNA	
			Bis(2-ethylhexyl)phthalate	1E-06	RNA	RNA	
			Hexachlorobenzene	4E-05	RNA	RNA	
			Total PCBs	1E-02	RNA	RNA	
			Total Dioxin/Furan TEQ	3E-04	RNA	RNA	
			Total PCB TEQ	6E-04	RNA	RNA	
			Aldrin	6E-07	RNA	RNA	
			alpha-Hexachlorocyclohexane	7E-08	RNA	RNA	
			beta-Hexachlorocyclohexane	3E-06	RNA	RNA	
			Dieldrin	6E-05	RNA	RNA	
			Heptachlor	8E-09	RNA	RNA	
			Heptachlor Epoxide	4E-07	RNA	RNA	
			Total Chlordanes	2E-06	RNA	RNA	
			Total DDx	5E-05	RNA	RNA	
			Fish Tissue Total Risk =			1E-02	
			<b>Total Risk =</b>			<b>1E-02</b>	

Table 5-91 Risk Characterization Summary, Cancer Risks - Tribal Fisher, Beach, Reasonable Maximum Exposure								
Risk Characterization Summary - Carcinogens								
Scenario Timeframe: Current/Future								
Receptor Population: Tribal Fisher (Beach)								
Receptor Age: Adult/Child								
Medium	Exposure Medium	Exposure Point	Chemical of Concern	Carcinogenic Risk				
				Ingestion/Consumption	Inhalation	Dermal	Exposure Routes Total	
Sediment	Beach Sediment	Beach Sediment On-site Direct Contact RM 3 West (03B031)	Antimony	--	--	--	--	
			Arsenic	NC <sup>1</sup>	RNA	NC <sup>1</sup>	7E-06	
			cPAHs	NC <sup>1</sup>	RNA	NC <sup>1</sup>	2E-06	
			Sediment Total Risk =					9E-06
Fish Tissue	Multiple Species Tissue	Fillet Fish Tissue On-site Consumption (175:73 g/day)	Antimony	--	--	--	--	
			Arsenic	2E-04	RNA	RNA	2E-04	
			Chromium	--	--	--	--	
			Mercury	--	--	--	--	
			cPAHs	6E-06	RNA	RNA	6E-06	
			Bis(2-ethylhexyl)phthalate	1E-06	RNA	RNA	1E-06	
			Hexachlorobenzene	4E-05	RNA	RNA	4E-05	
			Total PCBs	1E-02	RNA	RNA	1E-02	
			Total Dioxin/Furan TEQ	3E-04	RNA	RNA	3E-04	
			Total PCB TEQ	6E-04	RNA	RNA	6E-04	
			Aldrin	6E-07	RNA	RNA	6E-07	
			alpha-Hexachlorocyclohexane	7E-08	RNA	RNA	7E-08	
			beta-Hexachlorocyclohexane	3E-06	RNA	RNA	3E-06	
			Dieldrin	6E-05	RNA	RNA	6E-05	
			Heptachlor	8E-09	RNA	RNA	8E-09	
			Heptachlor Epoxide	4E-07	RNA	RNA	4E-07	
			Total Chlordanes	2E-06	RNA	RNA	2E-06	
			Total DDx	5E-05	RNA	RNA	5E-05	
			Fish Tissue Total Risk =					1E-02
			<b>Total Risk =</b>					<b>1E-02</b>
Sediment	Beach Sediment	Beach Sediment On-site Direct Contact RM 3.5 West (03B033)	Antimony	--	--	--	--	
			Arsenic	NC <sup>1</sup>	RNA	NC <sup>1</sup>	9E-06	
			cPAHs	NC <sup>1</sup>	RNA	NC <sup>1</sup>	2E-07	
			Sediment Total Risk =					9E-06
Fish Tissue	Multiple Species Tissue	Fillet Fish Tissue On-site Consumption (175:73 g/day)	Antimony	--	--	--	--	
			Arsenic	2E-04	RNA	RNA	2E-04	
			Chromium	--	--	--	--	
			Mercury	--	--	--	--	
			cPAHs	6E-06	RNA	RNA	6E-06	
			Bis(2-ethylhexyl)phthalate	1E-06	RNA	RNA	1E-06	
			Hexachlorobenzene	4E-05	RNA	RNA	4E-05	
			Total PCBs	1E-02	RNA	RNA	1E-02	
			Total Dioxin/Furan TEQ	3E-04	RNA	RNA	3E-04	
			Total PCB TEQ	6E-04	RNA	RNA	6E-04	
			Aldrin	6E-07	RNA	RNA	6E-07	
			alpha-Hexachlorocyclohexane	7E-08	RNA	RNA	7E-08	
			beta-Hexachlorocyclohexane	3E-06	RNA	RNA	3E-06	
			Dieldrin	6E-05	RNA	RNA	6E-05	
			Heptachlor	8E-09	RNA	RNA	8E-09	
			Heptachlor Epoxide	4E-07	RNA	RNA	4E-07	
			Total Chlordanes	2E-06	RNA	RNA	2E-06	
			Total DDx	5E-05	RNA	RNA	5E-05	
			Fish Tissue Total Risk =					1E-02
			<b>Total Risk =</b>					<b>1E-02</b>

Table 5-91 Risk Characterization Summary, Cancer Risks - Tribal Fisher, Beach, Reasonable Maximum Exposure							
Risk Characterization Summary - Carcinogens							
Scenario Timeframe: Current/Future							
Receptor Population: Tribal Fisher (Beach)							
Receptor Age: Adult/Child							
Medium	Exposure Medium	Exposure Point	Chemical of Concern	Carcinogenic Risk			
				Ingestion/Consumption	Inhalation	Dermal	Exposure Routes Total
Sediment	Beach Sediment	Beach Sediment On-site Direct Contact RM 4 West (04B024)	Antimony	--	--	--	
			Arsenic	NC <sup>1</sup>	RNA	NC <sup>1</sup>	
			cPAHs	NC <sup>1</sup>	RNA	NC <sup>1</sup>	
			Sediment Total Risk =			2E-05	
Fish Tissue	Multiple Species Tissue	Fillet Fish Tissue On-site Consumption (175:73 g/day)	Antimony	--	--	--	
			Arsenic	2E-04	RNA	RNA	
			Chromium	--	--	--	
			Mercury	--	--	--	
			cPAHs	6E-06	RNA	RNA	
			Bis(2-ethylhexyl)phthalate	1E-06	RNA	RNA	
			Hexachlorobenzene	4E-05	RNA	RNA	
			Total PCBs	1E-02	RNA	RNA	
			Total Dioxin/Furan TEQ	3E-04	RNA	RNA	
			Total PCB TEQ	6E-04	RNA	RNA	
			Aldrin	6E-07	RNA	RNA	
			alpha-Hexachlorocyclohexane	7E-08	RNA	RNA	
			beta-Hexachlorocyclohexane	3E-06	RNA	RNA	
			Dieldrin	6E-05	RNA	RNA	
			Heptachlor	8E-09	RNA	RNA	
			Heptachlor Epoxide	4E-07	RNA	RNA	
			Total Chlordanes	2E-06	RNA	RNA	
			Total DDx	5E-05	RNA	RNA	
			Fish Tissue Total Risk =			1E-02	
			<b>Total Risk =</b>			<b>1E-02</b>	
Sediment	Beach Sediment	Beach Sediment On-site Direct Contact RM 4.5 West (04B023)	Antimony	--	--	--	
			Arsenic	NC <sup>1</sup>	RNA	NC <sup>1</sup>	
			cPAHs	NC <sup>1</sup>	RNA	NC <sup>1</sup>	
			Sediment Total Risk =			8E-06	
Fish Tissue	Multiple Species Tissue	Fillet Fish Tissue On-site Consumption (175:73 g/day)	Antimony	--	--	--	
			Arsenic	2E-04	RNA	RNA	
			Chromium	--	--	--	
			Mercury	--	--	--	
			cPAHs	6E-06	RNA	RNA	
			Bis(2-ethylhexyl)phthalate	1E-06	RNA	RNA	
			Hexachlorobenzene	4E-05	RNA	RNA	
			Total PCBs	1E-02	RNA	RNA	
			Total Dioxin/Furan TEQ	3E-04	RNA	RNA	
			Total PCB TEQ	6E-04	RNA	RNA	
			Aldrin	6E-07	RNA	RNA	
			alpha-Hexachlorocyclohexane	7E-08	RNA	RNA	
			beta-Hexachlorocyclohexane	3E-06	RNA	RNA	
			Dieldrin	6E-05	RNA	RNA	
			Heptachlor	8E-09	RNA	RNA	
			Heptachlor Epoxide	4E-07	RNA	RNA	
			Total Chlordanes	2E-06	RNA	RNA	
			Total DDx	5E-05	RNA	RNA	
			Fish Tissue Total Risk =			1E-02	
			<b>Total Risk =</b>			<b>1E-02</b>	

Table 5-91 Risk Characterization Summary, Cancer Risks - Tribal Fisher, Beach, Reasonable Maximum Exposure							
Risk Characterization Summary - Carcinogens							
Scenario Timeframe:	Current/Future						
Receptor Population:	Tribal Fisher (Beach)						
Receptor Age:	Adult/Child						
Medium	Exposure Medium	Exposure Point	Chemical of Concern	Carcinogenic Risk			
				Ingestion/Consumption	Inhalation	Dermal	Exposure Routes Total
Sediment	Beach Sediment	Beach Sediment On-site Direct Contact RM 5 East (05B018)	Antimony	--	--	--	
			Arsenic	NC <sup>1</sup>	RNA	NC <sup>1</sup>	
			cPAHs	NC <sup>1</sup>	RNA	NC <sup>1</sup>	
			Sediment Total Risk =			9E-06	
Fish Tissue	Multiple Species Tissue	Fillet Fish Tissue On-site Consumption (175:73 g/day)	Antimony	--	--	--	
			Arsenic	2E-04	RNA	RNA	
			Chromium	--	--	--	
			Mercury	--	--	--	
			cPAHs	6E-06	RNA	RNA	
			Bis(2-ethylhexyl)phthalate	1E-06	RNA	RNA	
			Hexachlorobenzene	4E-05	RNA	RNA	
			Total PCBs	1E-02	RNA	RNA	
			Total Dioxin/Furan TEQ	3E-04	RNA	RNA	
			Total PCB TEQ	6E-04	RNA	RNA	
			Aldrin	6E-07	RNA	RNA	
			alpha-Hexachlorocyclohexane	7E-08	RNA	RNA	
			beta-Hexachlorocyclohexane	3E-06	RNA	RNA	
			Dieldrin	6E-05	RNA	RNA	
			Heptachlor	8E-09	RNA	RNA	
			Heptachlor Epoxide	4E-07	RNA	RNA	
			Total Chlordanes	2E-06	RNA	RNA	
			Total DDx	5E-05	RNA	RNA	
			Fish Tissue Total Risk =			1E-02	
			<b>Total Risk =</b>			<b>1E-02</b>	
Sediment	Beach Sediment	Beach Sediment On-site Direct Contact RM 6 East (06B030)	Antimony	--	--	--	
			Arsenic	NC <sup>1</sup>	RNA	NC <sup>1</sup>	
			cPAHs	NC <sup>1</sup>	RNA	NC <sup>1</sup>	
			Sediment Total Risk =			2E-05	
Fish Tissue	Multiple Species Tissue	Fillet Fish Tissue On-site Consumption (175:73 g/day)	Antimony	--	--	--	
			Arsenic	2E-04	RNA	RNA	
			Chromium	--	--	--	
			Mercury	--	--	--	
			cPAHs	6E-06	RNA	RNA	
			Bis(2-ethylhexyl)phthalate	1E-06	RNA	RNA	
			Hexachlorobenzene	4E-05	RNA	RNA	
			Total PCBs	1E-02	RNA	RNA	
			Total Dioxin/Furan TEQ	3E-04	RNA	RNA	
			Total PCB TEQ	6E-04	RNA	RNA	
			Aldrin	6E-07	RNA	RNA	
			alpha-Hexachlorocyclohexane	7E-08	RNA	RNA	
			beta-Hexachlorocyclohexane	3E-06	RNA	RNA	
			Dieldrin	6E-05	RNA	RNA	
			Heptachlor	8E-09	RNA	RNA	
			Heptachlor Epoxide	4E-07	RNA	RNA	
			Total Chlordanes	2E-06	RNA	RNA	
			Total DDx	5E-05	RNA	RNA	
			Fish Tissue Total Risk =			1E-02	
			<b>Total Risk =</b>			<b>1E-02</b>	



Table 5-91 Risk Characterization Summary, Cancer Risks - Tribal Fisher, Beach, Reasonable Maximum Exposure								
Risk Characterization Summary - Carcinogens								
Scenario Timeframe:		Current/Future						
Receptor Population:		Tribal Fisher (Beach)						
Receptor Age:		Adult/Child						
Medium	Exposure Medium	Exposure Point	Chemical of Concern	Carcinogenic Risk			Exposure Routes Total	
				Ingestion/Consumption	Inhalation	Dermal		
Sediment	Beach Sediment	Beach Sediment On-site Direct Contact RM 6 East (06B026)	Antimony	--	--	--	--	
			Arsenic	NC <sup>1</sup>	RNA	NC <sup>1</sup>	4E-06	
			cPAHs	NC <sup>1</sup>	RNA	NC <sup>1</sup>	2E-07	
			Sediment Total Risk =					4E-06
Fish Tissue	Multiple Species Tissue	Fillet Fish Tissue On-site Consumption (175:73 g/day)	Antimony	--	--	--	--	
			Arsenic	2E-04	RNA	RNA	2E-04	
			Chromium	--	--	--	--	
			Mercury	--	--	--	--	
			cPAHs	6E-06	RNA	RNA	6E-06	
			Bis(2-ethylhexyl)phthalate	1E-06	RNA	RNA	1E-06	
			Hexachlorobenzene	4E-05	RNA	RNA	4E-05	
			Total PCBs	1E-02	RNA	RNA	1E-02	
			Total Dioxin/Furan TEQ	3E-04	RNA	RNA	3E-04	
			Total PCB TEQ	6E-04	RNA	RNA	6E-04	
			Aldrin	6E-07	RNA	RNA	6E-07	
			alpha-Hexachlorocyclohexane	7E-08	RNA	RNA	7E-08	
			beta-Hexachlorocyclohexane	3E-06	RNA	RNA	3E-06	
			Dieldrin	6E-05	RNA	RNA	6E-05	
			Heptachlor	8E-09	RNA	RNA	8E-09	
			Heptachlor Epoxide	4E-07	RNA	RNA	4E-07	
			Total Chlordanes	2E-06	RNA	RNA	2E-06	
			Total DDx	5E-05	RNA	RNA	5E-05	
			Fish Tissue Total Risk =					1E-02
			<b>Total Risk =</b>					<b>1E-02</b>
Sediment	Beach Sediment	Beach Sediment On-site Direct Contact RM 6.5 East (06B022)	Antimony	--	--	--	--	
			Arsenic	NC <sup>1</sup>	RNA	NC <sup>1</sup>	6E-06	
			cPAHs	NC <sup>1</sup>	RNA	NC <sup>1</sup>	1E-07	
			Sediment Total Risk =					6E-06
Fish Tissue	Multiple Species Tissue	Fillet Fish Tissue On-site Consumption (175:73 g/day)	Antimony	--	--	--	--	
			Arsenic	2E-04	RNA	RNA	2E-04	
			Chromium	--	--	--	--	
			Mercury	--	--	--	--	
			cPAHs	6E-06	RNA	RNA	6E-06	
			Bis(2-ethylhexyl)phthalate	1E-06	RNA	RNA	1E-06	
			Hexachlorobenzene	4E-05	RNA	RNA	4E-05	
			Total PCBs	1E-02	RNA	RNA	1E-02	
			Total Dioxin/Furan TEQ	3E-04	RNA	RNA	3E-04	
			Total PCB TEQ	6E-04	RNA	RNA	6E-04	
			Aldrin	6E-07	RNA	RNA	6E-07	
			alpha-Hexachlorocyclohexane	7E-08	RNA	RNA	7E-08	
			beta-Hexachlorocyclohexane	3E-06	RNA	RNA	3E-06	
			Dieldrin	6E-05	RNA	RNA	6E-05	
			Heptachlor	8E-09	RNA	RNA	8E-09	
			Heptachlor Epoxide	4E-07	RNA	RNA	4E-07	
			Total Chlordanes	2E-06	RNA	RNA	2E-06	
			Total DDx	5E-05	RNA	RNA	5E-05	
			Fish Tissue Total Risk =					1E-02
			<b>Total Risk =</b>					<b>1E-02</b>

Table 5-91 Risk Characterization Summary, Cancer Risks - Tribal Fisher, Beach, Reasonable Maximum Exposure							
Risk Characterization Summary - Carcinogens							
Scenario Timeframe: Current/Future							
Receptor Population: Tribal Fisher (Beach)							
Receptor Age: Adult/Child							
Medium	Exposure Medium	Exposure Point	Chemical of Concern	Carcinogenic Risk			
				Ingestion/Consumption	Inhalation	Dermal	Exposure Routes Total
Sediment	Beach Sediment	Beach Sediment On-site Direct Contact RM 7 West (07B024)	Antimony	--	--	--	--
			Arsenic	2E-06	RNA	9E-07	3E-06
			cPAHs	2E-07	RNA	3E-07	5E-07
			Sediment Total Risk =				3E-06
Fish Tissue	Multiple Species Tissue	Fillet Fish Tissue On-site Consumption (175:73 g/day)	Antimony	--	--	--	--
			Arsenic	2E-04	RNA	RNA	2E-04
			Chromium	--	--	--	--
			Mercury	--	--	--	--
			cPAHs	6E-06	RNA	RNA	6E-06
			Bis(2-ethylhexyl)phthalate	1E-06	RNA	RNA	1E-06
			Hexachlorobenzene	4E-05	RNA	RNA	4E-05
			Total PCBs	1E-02	RNA	RNA	1E-02
			Total Dioxin/Furan TEQ	3E-04	RNA	RNA	3E-04
			Total PCB TEQ	6E-04	RNA	RNA	6E-04
			Aldrin	6E-07	RNA	RNA	6E-07
			alpha-Hexachlorocyclohexane	7E-08	RNA	RNA	7E-08
			beta-Hexachlorocyclohexane	3E-06	RNA	RNA	3E-06
			Dieldrin	6E-05	RNA	RNA	6E-05
			Heptachlor	8E-09	RNA	RNA	8E-09
			Heptachlor Epoxide	4E-07	RNA	RNA	4E-07
			Total Chlordanes	2E-06	RNA	RNA	2E-06
			Total DDX	5E-05	RNA	RNA	5E-05
			Fish Tissue Total Risk =				1E-02
			<b>Total Risk =</b>				<b>1E-02</b>
Sediment	Beach Sediment	Beach Sediment On-site Direct Contact SIL (07B023)	Antimony	--	--	--	--
			Arsenic	NC <sup>1</sup>	RNA	NC <sup>1</sup>	2E-06
			cPAHs	NC <sup>1</sup>	RNA	NC <sup>1</sup>	5E-07
			Sediment Total Risk =				3E-06
Fish Tissue	Multiple Species Tissue	Fillet Fish Tissue On-site Consumption (175:73 g/day)	Antimony	--	--	--	--
			Arsenic	2E-04	RNA	RNA	2E-04
			Chromium	--	--	--	--
			Mercury	--	--	--	--
			cPAHs	6E-06	RNA	RNA	6E-06
			Bis(2-ethylhexyl)phthalate	1E-06	RNA	RNA	1E-06
			Hexachlorobenzene	4E-05	RNA	RNA	4E-05
			Total PCBs	1E-02	RNA	RNA	1E-02
			Total Dioxin/Furan TEQ	3E-04	RNA	RNA	3E-04
			Total PCB TEQ	6E-04	RNA	RNA	6E-04
			Aldrin	6E-07	RNA	RNA	6E-07
			alpha-Hexachlorocyclohexane	7E-08	RNA	RNA	7E-08
			beta-Hexachlorocyclohexane	3E-06	RNA	RNA	3E-06
			Dieldrin	6E-05	RNA	RNA	6E-05
			Heptachlor	8E-09	RNA	RNA	8E-09
			Heptachlor Epoxide	4E-07	RNA	RNA	4E-07
			Total Chlordanes	2E-06	RNA	RNA	2E-06
			Total DDX	5E-05	RNA	RNA	5E-05
			Fish Tissue Total Risk =				1E-02
			<b>Total Risk =</b>				<b>1E-02</b>

Table 5-91 Risk Characterization Summary, Cancer Risks - Tribal Fisher, Beach, Reasonable Maximum Exposure								
Risk Characterization Summary - Carcinogens								
Scenario Timeframe:		Current/Future						
Receptor Population:		Tribal Fisher (Beach)						
Receptor Age:		Adult/Child						
Medium	Exposure Medium	Exposure Point	Chemical of Concern	Carcinogenic Risk			Exposure Routes Total	
				Ingestion/Consumption	Inhalation	Dermal		
Sediment	Beach Sediment	Beach Sediment On-site Direct Contact SIL (09B024)	Antimony	--	--	--	--	
			Arsenic	NC <sup>1</sup>	RNA	NC <sup>1</sup>	3E-06	
			cPAHs	NC <sup>1</sup>	RNA	NC <sup>1</sup>	5E-07	
			Sediment Total Risk =			4E-06		
Fish Tissue	Multiple Species Tissue	Fillet Fish Tissue On-site Consumption (175:73 g/day)	Antimony	--	--	--	--	
			Arsenic	2E-04	RNA	RNA	2E-04	
			Chromium	--	--	--	--	
			Mercury	--	--	--	--	
			cPAHs	6E-06	RNA	RNA	6E-06	
			Bis(2-ethylhexyl)phthalate	1E-06	RNA	RNA	1E-06	
			Hexachlorobenzene	4E-05	RNA	RNA	4E-05	
			Total PCBs	1E-02	RNA	RNA	1E-02	
			Total Dioxin/Furan TEQ	3E-04	RNA	RNA	3E-04	
			Total PCB TEQ	6E-04	RNA	RNA	6E-04	
			Aldrin	6E-07	RNA	RNA	6E-07	
			alpha-Hexachlorocyclohexane	7E-08	RNA	RNA	7E-08	
			beta-Hexachlorocyclohexane	3E-06	RNA	RNA	3E-06	
			Dieldrin	6E-05	RNA	RNA	6E-05	
			Heptachlor	8E-09	RNA	RNA	8E-09	
			Heptachlor Epoxide	4E-07	RNA	RNA	4E-07	
			Total Chlordanes	2E-06	RNA	RNA	2E-06	
			Total DDx	5E-05	RNA	RNA	5E-05	
			Fish Tissue Total Risk =			1E-02		
			<b>Total Risk =</b>			<b>1E-02</b>		
Sediment	Beach Sediment	Beach Sediment On-site Direct Contact SIL (09B028)	Antimony	--	--	--	--	
			Arsenic	NC <sup>1</sup>	RNA	NC <sup>1</sup>	3E-06	
			cPAHs	NC <sup>1</sup>	RNA	NC <sup>1</sup>	1E-07	
			Sediment Total Risk =			3E-06		
Fish Tissue	Multiple Species Tissue	Fillet Fish Tissue On-site Consumption (175:73 g/day)	Antimony	--	--	--	--	
			Arsenic	2E-04	RNA	RNA	2E-04	
			Chromium	--	--	--	--	
			Mercury	--	--	--	--	
			cPAHs	6E-06	RNA	RNA	6E-06	
			Bis(2-ethylhexyl)phthalate	1E-06	RNA	RNA	1E-06	
			Hexachlorobenzene	4E-05	RNA	RNA	4E-05	
			Total PCBs	1E-02	RNA	RNA	1E-02	
			Total Dioxin/Furan TEQ	3E-04	RNA	RNA	3E-04	
			Total PCB TEQ	6E-04	RNA	RNA	6E-04	
			Aldrin	6E-07	RNA	RNA	6E-07	
			alpha-Hexachlorocyclohexane	7E-08	RNA	RNA	7E-08	
			beta-Hexachlorocyclohexane	3E-06	RNA	RNA	3E-06	
			Dieldrin	6E-05	RNA	RNA	6E-05	
			Heptachlor	8E-09	RNA	RNA	8E-09	
			Heptachlor Epoxide	4E-07	RNA	RNA	4E-07	
			Total Chlordanes	2E-06	RNA	RNA	2E-06	
			Total DDx	5E-05	RNA	RNA	5E-05	
			Fish Tissue Total Risk =			1E-02		
			<b>Total Risk =</b>			<b>1E-02</b>		

Table 5-91 Risk Characterization Summary, Cancer Risks - Tribal Fisher, Beach, Reasonable Maximum Exposure								
Risk Characterization Summary - Carcinogens								
Scenario Timeframe: Current/Future								
Receptor Population: Tribal Fisher (Beach)								
Receptor Age: Adult/Child								
Medium	Exposure Medium	Exposure Point	Chemical of Concern	Carcinogenic Risk			Exposure Routes Total	
				Ingestion/Consumption	Inhalation	Dermal		
Sediment	Beach Sediment	Beach Sediment On-site Direct Contact RM 9 East (09B026)	Antimony	--	--	--	--	
			Arsenic	NC <sup>1</sup>	RNA	NC <sup>1</sup>	6E-06	
			cPAHs	NC <sup>1</sup>	RNA	NC <sup>1</sup>	5E-09	
			Sediment Total Risk =					6E-06
Fish Tissue	Multiple Species Tissue	Fillet Fish Tissue On-site Consumption (175:73 g/day)	Antimony	--	--	--	--	
			Arsenic	2E-04	RNA	RNA	2E-04	
			Chromium	--	--	--	--	
			Mercury	--	--	--	--	
			cPAHs	6E-06	RNA	RNA	6E-06	
			Bis(2-ethylhexyl)phthalate	1E-06	RNA	RNA	1E-06	
			Hexachlorobenzene	4E-05	RNA	RNA	4E-05	
			Total PCBs	1E-02	RNA	RNA	1E-02	
			Total Dioxin/Furan TEQ	3E-04	RNA	RNA	3E-04	
			Total PCB TEQ	6E-04	RNA	RNA	6E-04	
			Aldrin	6E-07	RNA	RNA	6E-07	
			alpha-Hexachlorocyclohexane	7E-08	RNA	RNA	7E-08	
			beta-Hexachlorocyclohexane	3E-06	RNA	RNA	3E-06	
			Dieldrin	6E-05	RNA	RNA	6E-05	
			Heptachlor	8E-09	RNA	RNA	8E-09	
			Heptachlor Epoxide	4E-07	RNA	RNA	4E-07	
			Total Chlordanes	2E-06	RNA	RNA	2E-06	
			Total DDx	5E-05	RNA	RNA	5E-05	
			Fish Tissue Total Risk =					1E-02
			<b>Total Risk =</b>					<b>1E-02</b>
Sediment	Beach Sediment	Beach Sediment On-site Direct Contact RM 9.5 East (09B027)	Antimony	--	--	--	--	
			Arsenic	NC <sup>1</sup>	RNA	NC <sup>1</sup>	3E-06	
			cPAHs	NC <sup>1</sup>	RNA	NC <sup>1</sup>	3E-07	
			Sediment Total Risk =					3E-06
Fish Tissue	Multiple Species Tissue	Fillet Fish Tissue On-site Consumption (175:73 g/day)	Antimony	--	--	--	--	
			Arsenic	2E-04	RNA	RNA	2E-04	
			Chromium	--	--	--	--	
			Mercury	--	--	--	--	
			cPAHs	6E-06	RNA	RNA	6E-06	
			Bis(2-ethylhexyl)phthalate	1E-06	RNA	RNA	1E-06	
			Hexachlorobenzene	4E-05	RNA	RNA	4E-05	
			Total PCBs	1E-02	RNA	RNA	1E-02	
			Total Dioxin/Furan TEQ	3E-04	RNA	RNA	3E-04	
			Total PCB TEQ	6E-04	RNA	RNA	6E-04	
			Aldrin	6E-07	RNA	RNA	6E-07	
			alpha-Hexachlorocyclohexane	7E-08	RNA	RNA	7E-08	
			beta-Hexachlorocyclohexane	3E-06	RNA	RNA	3E-06	
			Dieldrin	6E-05	RNA	RNA	6E-05	
			Heptachlor	8E-09	RNA	RNA	8E-09	
			Heptachlor Epoxide	4E-07	RNA	RNA	4E-07	
			Total Chlordanes	2E-06	RNA	RNA	2E-06	
			Total DDx	5E-05	RNA	RNA	5E-05	
			Fish Tissue Total Risk =					1E-02
			<b>Total Risk =</b>					<b>1E-02</b>
<b>Key</b>								
NC	Not Calculated							
SIL	Swan Island Lagoon							
RM	River Mile							
--	Toxicity criteria are not available to quantitatively address this route of exposure.							
RNA	Route of exposure is not applicable to this medium.							
<b>Note 1</b>	Pathway specific integrated risks were not calculated.							

Table 5-92 Risk Characterization Summary, Cancer Risks - Tribal Fisher, Boat, Reasonable Maximum Exposure								
Risk Characterization Summary - Carcinogens								
Scenario Timeframe:		Current/Future						
Receptor Population:		Tribal Fisher (Boat)						
Receptor Age:		Adult/Child						
Medium	Exposure Medium	Exposure Point	Chemical of Concern	Carcinogenic Risk				
				Ingestion/Consumption	Inhalation	Dermal	Exposure Routes Total	
Sediment	In-river Sediment	In-river Sediment On-site Direct Contact  RM 1 West	Antimony	--	--	--	--	
			Arsenic	NC <sup>1</sup>	RNA	NC <sup>1</sup>	1E-06	
			cPAHs	NC <sup>1</sup>	RNA	NC <sup>1</sup>	8E-07	
			Total PCBs	NC <sup>1</sup>	RNA	NC <sup>1</sup>	1E-08	
			Total Dioxin/Furan TEQ	NC <sup>1</sup>	RNA	NC <sup>1</sup>	6E-08	
			Total PCB TEQ	NC <sup>1</sup>	RNA	NC <sup>1</sup>	1E-08	
			Sediment Total Risk =				2E-06	
Fish Tissue	Multiple Species Tissue	Whole body Fish Tissue On-site Consumption (175:73 g/day)	Antimony	--	--	--	--	
			Arsenic	2E-04	RNA	RNA	2E-04	
			Chromium	--	--	--	--	
			Mercury	--	--	--	--	
			cPAHs	8E-06	RNA	RNA	8E-06	
			Bis(2-ethylhexyl)phthalate	6E-05	RNA	RNA	6E-05	
			Hexachlorobenzene	2E-05	RNA	RNA	2E-05	
			Total PCBs	2E-02	RNA	RNA	2E-02	
			Total Dioxin/Furan TEQ	9E-04	RNA	RNA	9E-04	
			Total PCB TEQ	2E-03	RNA	RNA	2E-03	
			Aldrin	1E-06	RNA	RNA	1E-06	
			alpha-Hexachlorocyclohexane	3E-06	RNA	RNA	3E-06	
			beta-Hexachlorocyclohexane	3E-08	RNA	RNA	3E-08	
			Dieldrin	9E-05	RNA	RNA	9E-05	
			Heptachlor	1E-05	RNA	RNA	1E-05	
			Heptachlor Epoxide	9E-07	RNA	RNA	9E-07	
			Total Chlordanes	1E-05	RNA	RNA	1E-05	
			Total DDx	1E-04	RNA	RNA	1E-04	
Fish Tissue Total Risk =				2E-02				
<b>Total Risk =</b>				<b>2E-02</b>				

Table 5-92 Risk Characterization Summary, Cancer Risks - Tribal Fisher, Boat, Reasonable Maximum Exposure									
Risk Characterization Summary - Carcinogens									
Scenario Timeframe:		Current/Future							
Receptor Population:		Tribal Fisher (Boat)							
Receptor Age:		Adult/Child							
Medium	Exposure Medium	Exposure Point	Chemical of Concern	Carcinogenic Risk					
				Ingestion/Consumption	Inhalation	Dermal	Exposure Routes Total		
Sediment	In-river Sediment	In-river Sediment On-site Direct Contact  RM 1.5 West	Antimony	--	--	--	--		
			Arsenic	NC <sup>1</sup>	RNA	NC <sup>1</sup>	1E-06		
			cPAHs	NC <sup>1</sup>	RNA	NC <sup>1</sup>	2E-07		
			Total PCBs	NC <sup>1</sup>	RNA	NC <sup>1</sup>	2E-08		
			Total Dioxin/Furan TEQ	NC <sup>1</sup>	RNA	NC <sup>1</sup>	3E-09		
			Total PCB TEQ	NC <sup>1</sup>	RNA	NC <sup>1</sup>	1E-08		
			Sediment Total Risk =						1E-06
Fish Tissue	Multiple Species Tissue	Whole body Fish Tissue On-site Consumption (175:73 g/day)	Antimony	--	--	--	--		
			Arsenic	2E-04	RNA	RNA	2E-04		
			Chromium	--	--	--	--		
			Mercury	--	--	--	--		
			cPAHs	8E-06	RNA	RNA	8E-06		
			Bis(2-ethylhexyl)phthalate	6E-05	RNA	RNA	6E-05		
			Hexachlorobenzene	2E-05	RNA	RNA	2E-05		
			Total PCBs	2E-02	RNA	RNA	2E-02		
			Total Dioxin/Furan TEQ	9E-04	RNA	RNA	9E-04		
			Total PCB TEQ	2E-03	RNA	RNA	2E-03		
			Aldrin	1E-06	RNA	RNA	1E-06		
			alpha-Hexachlorocyclohexane	3E-06	RNA	RNA	3E-06		
			beta-Hexachlorocyclohexane	3E-08	RNA	RNA	3E-08		
			Dieldrin	9E-05	RNA	RNA	9E-05		
			Heptachlor	1E-05	RNA	RNA	1E-05		
			Heptachlor Epoxide	9E-07	RNA	RNA	9E-07		
			Total Chlordanes	1E-05	RNA	RNA	1E-05		
			Total DDx	1E-04	RNA	RNA	1E-04		
Fish Tissue Total Risk =						2E-02			
<b>Total Risk =</b>							<b>2E-02</b>		

Table 5-92 Risk Characterization Summary, Cancer Risks - Tribal Fisher, Boat, Reasonable Maximum Exposure							
Risk Characterization Summary - Carcinogens							
Scenario Timeframe:		Current/Future					
Receptor Population:		Tribal Fisher (Boat)					
Receptor Age:		Adult/Child					
Medium	Exposure Medium	Exposure Point	Chemical of Concern	Carcinogenic Risk			
				Ingestion/Consumption	Inhalation	Dermal	Exposure Routes Total
Sediment	In-river Sediment	In-river Sediment On-site Direct Contact  RM 2 West	Antimony	--	--	--	--
			Arsenic	NC <sup>1</sup>	RNA	NC <sup>1</sup>	1E-06
			cPAHs	NC <sup>1</sup>	RNA	NC <sup>1</sup>	3E-07
			Total PCBs	NC <sup>1</sup>	RNA	NC <sup>1</sup>	1E-08
			Total Dioxin/Furan TEQ	NC <sup>1</sup>	RNA	NC <sup>1</sup>	5E-08
			Total PCB TEQ	NC <sup>1</sup>	RNA	NC <sup>1</sup>	2E-08
			Sediment Total Risk =				1E-06
Fish Tissue	Multiple Species Tissue	Whole body Fish Tissue On-site Consumption (175:73 g/day)	Antimony	--	--	--	--
			Arsenic	2E-04	RNA	RNA	2E-04
			Chromium	--	--	--	--
			Mercury	--	--	--	--
			cPAHs	8E-06	RNA	RNA	8E-06
			Bis(2-ethylhexyl)phthalate	6E-05	RNA	RNA	6E-05
			Hexachlorobenzene	2E-05	RNA	RNA	2E-05
			Total PCBs	2E-02	RNA	RNA	2E-02
			Total Dioxin/Furan TEQ	9E-04	RNA	RNA	9E-04
			Total PCB TEQ	2E-03	RNA	RNA	2E-03
			Aldrin	1E-06	RNA	RNA	1E-06
			alpha-Hexachlorocyclohexane	3E-06	RNA	RNA	3E-06
			beta-Hexachlorocyclohexane	3E-08	RNA	RNA	3E-08
			Dieldrin	9E-05	RNA	RNA	9E-05
			Heptachlor	1E-05	RNA	RNA	1E-05
			Heptachlor Epoxide	9E-07	RNA	RNA	9E-07
			Total Chlordanes	1E-05	RNA	RNA	1E-05
			Total DDx	1E-04	RNA	RNA	1E-04
			Fish Tissue Total Risk =				2E-02
			<b>Total Risk =</b>				<b>2E-02</b>

Table 5-92 Risk Characterization Summary, Cancer Risks - Tribal Fisher, Boat, Reasonable Maximum Exposure								
Risk Characterization Summary - Carcinogens								
Scenario Timeframe:		Current/Future						
Receptor Population:		Tribal Fisher (Boat)						
Receptor Age:		Adult/Child						
Medium	Exposure Medium	Exposure Point	Chemical of Concern	Carcinogenic Risk				
				Ingestion/Consumption	Inhalation	Dermal	Exposure Routes Total	
Sediment	In-river Sediment	In-river Sediment On-site Direct Contact  RM 2.5 West	Antimony	--	--	--	--	
			Arsenic	NC <sup>1</sup>	RNA	NC <sup>1</sup>	1E-06	
			cPAHs	NC <sup>1</sup>	RNA	NC <sup>1</sup>	2E-06	
			Total PCBs	NC <sup>1</sup>	RNA	NC <sup>1</sup>	1E-08	
			Total Dioxin/Furan TEQ	NC <sup>1</sup>	RNA	NC <sup>1</sup>	9E-09	
			Total PCB TEQ	NC <sup>1</sup>	RNA	NC <sup>1</sup>	5E-09	
			Sediment Total Risk =				3E-06	
Fish Tissue	Multiple Species Tissue	Whole body Fish Tissue On-site Consumption (175:73 g/day)	Antimony	--	--	--	--	
			Arsenic	2E-04	RNA	RNA	2E-04	
			Chromium	--	--	--	--	
			Mercury	--	--	--	--	
			cPAHs	8E-06	RNA	RNA	8E-06	
			Bis(2-ethylhexyl)phthalate	6E-05	RNA	RNA	6E-05	
			Hexachlorobenzene	2E-05	RNA	RNA	2E-05	
			Total PCBs	2E-02	RNA	RNA	2E-02	
			Total Dioxin/Furan TEQ	9E-04	RNA	RNA	9E-04	
			Total PCB TEQ	2E-03	RNA	RNA	2E-03	
			Aldrin	1E-06	RNA	RNA	1E-06	
			alpha-Hexachlorocyclohexane	3E-06	RNA	RNA	3E-06	
			beta-Hexachlorocyclohexane	3E-08	RNA	RNA	3E-08	
			Dieldrin	9E-05	RNA	RNA	9E-05	
			Heptachlor	1E-05	RNA	RNA	1E-05	
			Heptachlor Epoxide	9E-07	RNA	RNA	9E-07	
			Total Chlordanes	1E-05	RNA	RNA	1E-05	
			Total DDx	1E-04	RNA	RNA	1E-04	
Fish Tissue Total Risk =				2E-02				
<b>Total Risk =</b>							<b>2E-02</b>	



Table 5-92 Risk Characterization Summary, Cancer Risks - Tribal Fisher, Boat, Reasonable Maximum Exposure								
Risk Characterization Summary - Carcinogens								
Scenario Timeframe:		Current/Future						
Receptor Population:		Tribal Fisher (Boat)						
Receptor Age:		Adult/Child						
Medium	Exposure Medium	Exposure Point	Chemical of Concern	Carcinogenic Risk				
				Ingestion/Consumption	Inhalation	Dermal	Exposure Routes Total	
Sediment	In-river Sediment	In-river Sediment On-site Direct Contact  RM 3 West	Antimony	--	--	--	--	
			Arsenic	NC <sup>1</sup>	RNA	NC <sup>1</sup>	1E-06	
			cPAHs	NC <sup>1</sup>	RNA	NC <sup>1</sup>	2E-06	
			Total PCBs	NC <sup>1</sup>	RNA	NC <sup>1</sup>	1E-08	
			Total Dioxin/Furan TEQ	NC <sup>1</sup>	RNA	NC <sup>1</sup>	4E-08	
			Total PCB TEQ	NC <sup>1</sup>	RNA	NC <sup>1</sup>	2E-08	
			Sediment Total Risk =				3E-06	
Fish Tissue	Multiple Species Tissue	Whole body Fish Tissue On-site Consumption (175:73 g/day)	Antimony	--	--	--	--	
			Arsenic	2E-04	RNA	RNA	2E-04	
			Chromium	--	--	--	--	
			Mercury	--	--	--	--	
			cPAHs	8E-06	RNA	RNA	8E-06	
			Bis(2-ethylhexyl)phthalate	6E-05	RNA	RNA	6E-05	
			Hexachlorobenzene	2E-05	RNA	RNA	2E-05	
			Total PCBs	2E-02	RNA	RNA	2E-02	
			Total Dioxin/Furan TEQ	9E-04	RNA	RNA	9E-04	
			Total PCB TEQ	2E-03	RNA	RNA	2E-03	
			Aldrin	1E-06	RNA	RNA	1E-06	
			alpha-Hexachlorocyclohexane	3E-06	RNA	RNA	3E-06	
			beta-Hexachlorocyclohexane	3E-08	RNA	RNA	3E-08	
			Dieldrin	9E-05	RNA	RNA	9E-05	
			Heptachlor	1E-05	RNA	RNA	1E-05	
			Heptachlor Epoxide	9E-07	RNA	RNA	9E-07	
			Total Chlordanes	1E-05	RNA	RNA	1E-05	
			Total DDx	1E-04	RNA	RNA	1E-04	
Fish Tissue Total Risk =				2E-02				
<b>Total Risk =</b>							<b>2E-02</b>	

Table 5-92 Risk Characterization Summary, Cancer Risks - Tribal Fisher, Boat, Reasonable Maximum Exposure									
Risk Characterization Summary - Carcinogens									
Scenario Timeframe:		Current/Future							
Receptor Population:		Tribal Fisher (Boat)							
Receptor Age:		Adult/Child							
Medium	Exposure Medium	Exposure Point	Chemical of Concern	Carcinogenic Risk					
				Ingestion/Consumption	Inhalation	Dermal	Exposure Routes Total		
Sediment	In-river Sediment	In-river Sediment On-site Direct Contact  RM 3.5 West	Antimony	--	--	--	--		
			Arsenic	NC <sup>1</sup>	RNA	NC <sup>1</sup>	3E-06		
			cPAHs	NC <sup>1</sup>	RNA	NC <sup>1</sup>	8E-06		
			Total PCBs	NC <sup>1</sup>	RNA	NC <sup>1</sup>	2E-08		
			Total Dioxin/Furan TEQ	NC <sup>1</sup>	RNA	NC <sup>1</sup>	4E-08		
			Total PCB TEQ	NC <sup>1</sup>	RNA	NC <sup>1</sup>	3E-08		
			Sediment Total Risk =						1E-05
Fish Tissue	Multiple Species Tissue	Whole body Fish Tissue On-site Consumption (175:73 g/day)	Antimony	--	--	--	--		
			Arsenic	2E-04	RNA	RNA	2E-04		
			Chromium	--	--	--	--		
			Mercury	--	--	--	--		
			cPAHs	8E-06	RNA	RNA	8E-06		
			Bis(2-ethylhexyl)phthalate	6E-05	RNA	RNA	6E-05		
			Hexachlorobenzene	2E-05	RNA	RNA	2E-05		
			Total PCBs	2E-02	RNA	RNA	2E-02		
			Total Dioxin/Furan TEQ	9E-04	RNA	RNA	9E-04		
			Total PCB TEQ	2E-03	RNA	RNA	2E-03		
			Aldrin	1E-06	RNA	RNA	1E-06		
			alpha-Hexachlorocyclohexane	3E-06	RNA	RNA	3E-06		
			beta-Hexachlorocyclohexane	3E-08	RNA	RNA	3E-08		
			Dieldrin	9E-05	RNA	RNA	9E-05		
			Heptachlor	1E-05	RNA	RNA	1E-05		
			Heptachlor Epoxide	9E-07	RNA	RNA	9E-07		
			Total Chlordanes	1E-05	RNA	RNA	1E-05		
			Total DDx	1E-04	RNA	RNA	1E-04		
			Fish Tissue Total Risk =						2E-02
			<b>Total Risk =</b>						

Table 5-92 Risk Characterization Summary, Cancer Risks - Tribal Fisher, Boat, Reasonable Maximum Exposure									
Risk Characterization Summary - Carcinogens									
Scenario Timeframe:		Current/Future							
Receptor Population:		Tribal Fisher (Boat)							
Receptor Age:		Adult/Child							
Medium	Exposure Medium	Exposure Point	Chemical of Concern	Carcinogenic Risk					
				Ingestion/Consumption	Inhalation	Dermal	Exposure Routes Total		
Sediment	In-river Sediment	In-river Sediment On-site Direct Contact  RM 4 West	Antimony	--	--	--	--		
			Arsenic	NC <sup>1</sup>	RNA	NC <sup>1</sup>	1E-06		
			cPAHs	NC <sup>1</sup>	RNA	NC <sup>1</sup>	2E-06		
			Total PCBs	NC <sup>1</sup>	RNA	NC <sup>1</sup>	2E-08		
			Total Dioxin/Furan TEQ	NC <sup>1</sup>	RNA	NC <sup>1</sup>	7E-08		
			Total PCB TEQ	NC <sup>1</sup>	RNA	NC <sup>1</sup>	3E-08		
			Sediment Total Risk =						3E-06
Fish Tissue	Multiple Species Tissue	Whole body Fish Tissue On-site Consumption (175:73 g/day)	Antimony	--	--	--	--		
			Arsenic	2E-04	RNA	RNA	2E-04		
			Chromium	--	--	--	--		
			Mercury	--	--	--	--		
			cPAHs	8E-06	RNA	RNA	8E-06		
			Bis(2-ethylhexyl)phthalate	6E-05	RNA	RNA	6E-05		
			Hexachlorobenzene	2E-05	RNA	RNA	2E-05		
			Total PCBs	2E-02	RNA	RNA	2E-02		
			Total Dioxin/Furan TEQ	9E-04	RNA	RNA	9E-04		
			Total PCB TEQ	2E-03	RNA	RNA	2E-03		
			Aldrin	1E-06	RNA	RNA	1E-06		
			alpha-Hexachlorocyclohexane	3E-06	RNA	RNA	3E-06		
			beta-Hexachlorocyclohexane	3E-08	RNA	RNA	3E-08		
			Dieldrin	9E-05	RNA	RNA	9E-05		
			Heptachlor	1E-05	RNA	RNA	1E-05		
			Heptachlor Epoxide	9E-07	RNA	RNA	9E-07		
			Total Chlordanes	1E-05	RNA	RNA	1E-05		
			Total DDx	1E-04	RNA	RNA	1E-04		
Fish Tissue Total Risk =						2E-02			
<b>Total Risk =</b>							<b>2E-02</b>		

Table 5-92 Risk Characterization Summary, Cancer Risks - Tribal Fisher, Boat, Reasonable Maximum Exposure								
Risk Characterization Summary - Carcinogens								
Scenario Timeframe:		Current/Future						
Receptor Population:		Tribal Fisher (Boat)						
Receptor Age:		Adult/Child						
Medium	Exposure Medium	Exposure Point	Chemical of Concern	Carcinogenic Risk				
				Ingestion/Consumption	Inhalation	Dermal	Exposure Routes Total	
Sediment	In-river Sediment	In-river Sediment On-site Direct Contact  RM 4.5 West	Antimony	--	--	--	--	
			Arsenic	NC <sup>1</sup>	RNA	NC <sup>1</sup>	1E-06	
			cPAHs	NC <sup>1</sup>	RNA	NC <sup>1</sup>	7E-06	
			Total PCBs	NC <sup>1</sup>	RNA	NC <sup>1</sup>	3E-08	
			Total Dioxin/Furan TEQ	NC <sup>1</sup>	RNA	NC <sup>1</sup>	1E-07	
			Total PCB TEQ	NC <sup>1</sup>	RNA	NC <sup>1</sup>	1E-07	
			Sediment Total Risk =				8E-06	
Fish Tissue	Multiple Species Tissue	Whole body Fish Tissue On-site Consumption (175:73 g/day)	Antimony	--	--	--	--	
			Arsenic	2E-04	RNA	RNA	2E-04	
			Chromium	--	--	--	--	
			Mercury	--	--	--	--	
			cPAHs	8E-06	RNA	RNA	8E-06	
			Bis(2-ethylhexyl)phthalate	6E-05	RNA	RNA	6E-05	
			Hexachlorobenzene	2E-05	RNA	RNA	2E-05	
			Total PCBs	2E-02	RNA	RNA	2E-02	
			Total Dioxin/Furan TEQ	9E-04	RNA	RNA	9E-04	
			Total PCB TEQ	2E-03	RNA	RNA	2E-03	
			Aldrin	1E-06	RNA	RNA	1E-06	
			alpha-Hexachlorocyclohexane	3E-06	RNA	RNA	3E-06	
			beta-Hexachlorocyclohexane	3E-08	RNA	RNA	3E-08	
			Dieldrin	9E-05	RNA	RNA	9E-05	
			Heptachlor	1E-05	RNA	RNA	1E-05	
			Heptachlor Epoxide	9E-07	RNA	RNA	9E-07	
			Total Chlordanes	1E-05	RNA	RNA	1E-05	
			Total DDx	1E-04	RNA	RNA	1E-04	
Fish Tissue Total Risk =				2E-02				
<b>Total Risk =</b>							<b>2E-02</b>	

Table 5-92 Risk Characterization Summary, Cancer Risks - Tribal Fisher, Boat, Reasonable Maximum Exposure									
Risk Characterization Summary - Carcinogens									
Scenario Timeframe:		Current/Future							
Receptor Population:		Tribal Fisher (Boat)							
Receptor Age:		Adult/Child							
Medium	Exposure Medium	Exposure Point	Chemical of Concern	Carcinogenic Risk					
				Ingestion/Consumption	Inhalation	Dermal	Exposure Routes Total		
Sediment	In-river Sediment	In-river Sediment On-site Direct Contact  RM 5 West	Antimony	--	--	--	--		
			Arsenic	NC <sup>1</sup>	RNA	NC <sup>1</sup>	1E-06		
			cPAHs	NC <sup>1</sup>	RNA	NC <sup>1</sup>	1E-05		
			Total PCBs	NC <sup>1</sup>	RNA	NC <sup>1</sup>	2E-08		
			Total Dioxin/Furan TEQ	NC <sup>1</sup>	RNA	NC <sup>1</sup>	1E-07		
			Total PCB TEQ	NC <sup>1</sup>	RNA	NC <sup>1</sup>	9E-08		
			Sediment Total Risk =						1E-05
Fish Tissue	Multiple Species Tissue	Whole body Fish Tissue On-site Consumption (175:73 g/day)	Antimony	--	--	--	--		
			Arsenic	2E-04	RNA	RNA	2E-04		
			Chromium	--	--	--	--		
			Mercury	--	--	--	--		
			cPAHs	8E-06	RNA	RNA	8E-06		
			Bis(2-ethylhexyl)phthalate	6E-05	RNA	RNA	6E-05		
			Hexachlorobenzene	2E-05	RNA	RNA	2E-05		
			Total PCBs	2E-02	RNA	RNA	2E-02		
			Total Dioxin/Furan TEQ	9E-04	RNA	RNA	9E-04		
			Total PCB TEQ	2E-03	RNA	RNA	2E-03		
			Aldrin	1E-06	RNA	RNA	1E-06		
			alpha-Hexachlorocyclohexane	3E-06	RNA	RNA	3E-06		
			beta-Hexachlorocyclohexane	3E-08	RNA	RNA	3E-08		
			Dieldrin	9E-05	RNA	RNA	9E-05		
			Heptachlor	1E-05	RNA	RNA	1E-05		
			Heptachlor Epoxide	9E-07	RNA	RNA	9E-07		
			Total Chlordanes	1E-05	RNA	RNA	1E-05		
			Total DDx	1E-04	RNA	RNA	1E-04		
Fish Tissue Total Risk =						2E-02			
<b>Total Risk =</b>							<b>2E-02</b>		

Table 5-92 Risk Characterization Summary, Cancer Risks - Tribal Fisher, Boat, Reasonable Maximum Exposure									
Risk Characterization Summary - Carcinogens									
Scenario Timeframe:		Current/Future							
Receptor Population:		Tribal Fisher (Boat)							
Receptor Age:		Adult/Child							
Medium	Exposure Medium	Exposure Point	Chemical of Concern	Carcinogenic Risk					
				Ingestion/Consumption	Inhalation	Dermal	Exposure Routes Total		
Sediment	In-river Sediment	In-river Sediment On-site Direct Contact  RM 5.5 West	Antimony	--	--	--	--		
			Arsenic	NC <sup>1</sup>	RNA	NC <sup>1</sup>	1E-06		
			cPAHs	NC <sup>1</sup>	RNA	NC <sup>1</sup>	1E-05		
			Total PCBs	NC <sup>1</sup>	RNA	NC <sup>1</sup>	3E-08		
			Total Dioxin/Furan TEQ	NC <sup>1</sup>	RNA	NC <sup>1</sup>	5E-08		
			Total PCB TEQ	NC <sup>1</sup>	RNA	NC <sup>1</sup>	5E-08		
							Sediment Total Risk =		1E-05
Fish Tissue	Multiple Species Tissue	Whole body Fish Tissue On-site Consumption (175:73 g/day)	Antimony	--	--	--	--		
			Arsenic	2E-04	RNA	RNA	2E-04		
			Chromium	--	--	--	--		
			Mercury	--	--	--	--		
			cPAHs	8E-06	RNA	RNA	8E-06		
			Bis(2-ethylhexyl)phthalate	6E-05	RNA	RNA	6E-05		
			Hexachlorobenzene	2E-05	RNA	RNA	2E-05		
			Total PCBs	2E-02	RNA	RNA	2E-02		
			Total Dioxin/Furan TEQ	9E-04	RNA	RNA	9E-04		
			Total PCB TEQ	2E-03	RNA	RNA	2E-03		
			Aldrin	1E-06	RNA	RNA	1E-06		
			alpha-Hexachlorocyclohexane	3E-06	RNA	RNA	3E-06		
			beta-Hexachlorocyclohexane	3E-08	RNA	RNA	3E-08		
			Dieldrin	9E-05	RNA	RNA	9E-05		
			Heptachlor	1E-05	RNA	RNA	1E-05		
			Heptachlor Epoxide	9E-07	RNA	RNA	9E-07		
			Total Chlordanes	1E-05	RNA	RNA	1E-05		
			Total DDx	1E-04	RNA	RNA	1E-04		
				Fish Tissue Total Risk =		2E-02			
				<b>Total Risk =</b>		<b>2E-02</b>			

Table 5-92 Risk Characterization Summary, Cancer Risks - Tribal Fisher, Boat, Reasonable Maximum Exposure									
Risk Characterization Summary - Carcinogens									
Scenario Timeframe:		Current/Future							
Receptor Population:		Tribal Fisher (Boat)							
Receptor Age:		Adult/Child							
Medium	Exposure Medium	Exposure Point	Chemical of Concern	Carcinogenic Risk					
				Ingestion/Consumption	Inhalation	Dermal	Exposure Routes Total		
Sediment	In-river Sediment	In-river Sediment On-site Direct Contact  RM 6 West	Antimony	--	--	--	--		
			Arsenic	NC <sup>1</sup>	RNA	NC <sup>1</sup>	1E-06		
			cPAHs	NC <sup>1</sup>	RNA	NC <sup>1</sup>	2E-04		
			Total PCBs	NC <sup>1</sup>	RNA	NC <sup>1</sup>	5E-08		
			Total Dioxin/Furan TEQ	NC <sup>1</sup>	RNA	NC <sup>1</sup>	4E-08		
			Total PCB TEQ	NC <sup>1</sup>	RNA	NC <sup>1</sup>	1E-07		
							Sediment Total Risk =		2E-04
Fish Tissue	Multiple Species Tissue	Whole body Fish Tissue On-site Consumption (175:73 g/day)	Antimony	--	--	--	--		
			Arsenic	2E-04	RNA	RNA	2E-04		
			Chromium	--	--	--	--		
			Mercury	--	--	--	--		
			cPAHs	8E-06	RNA	RNA	8E-06		
			Bis(2-ethylhexyl)phthalate	6E-05	RNA	RNA	6E-05		
			Hexachlorobenzene	2E-05	RNA	RNA	2E-05		
			Total PCBs	2E-02	RNA	RNA	2E-02		
			Total Dioxin/Furan TEQ	9E-04	RNA	RNA	9E-04		
			Total PCB TEQ	2E-03	RNA	RNA	2E-03		
			Aldrin	1E-06	RNA	RNA	1E-06		
			alpha-Hexachlorocyclohexane	3E-06	RNA	RNA	3E-06		
			beta-Hexachlorocyclohexane	3E-08	RNA	RNA	3E-08		
			Dieldrin	9E-05	RNA	RNA	9E-05		
			Heptachlor	1E-05	RNA	RNA	1E-05		
			Heptachlor Epoxide	9E-07	RNA	RNA	9E-07		
			Total Chlordanes	1E-05	RNA	RNA	1E-05		
			Total DDx	1E-04	RNA	RNA	1E-04		
				Fish Tissue Total Risk =		2E-02			
				<b>Total Risk =</b>		<b>2E-02</b>			

Table 5-92 Risk Characterization Summary, Cancer Risks - Tribal Fisher, Boat, Reasonable Maximum Exposure									
Risk Characterization Summary - Carcinogens									
Scenario Timeframe:		Current/Future							
Receptor Population:		Tribal Fisher (Boat)							
Receptor Age:		Adult/Child							
Medium	Exposure Medium	Exposure Point	Chemical of Concern	Carcinogenic Risk					
				Ingestion/Consumption	Inhalation	Dermal	Exposure Routes Total		
Sediment	In-river Sediment	In-river Sediment On-site Direct Contact  RM 6.5 West	Antimony	--	--	--	--		
			Arsenic	NC <sup>1</sup>	RNA	NC <sup>1</sup>	4E-06		
			cPAHs	NC <sup>1</sup>	RNA	NC <sup>1</sup>	5E-06		
			Total PCBs	NC <sup>1</sup>	RNA	NC <sup>1</sup>	6E-08		
			Total Dioxin/Furan TEQ	NC <sup>1</sup>	RNA	NC <sup>1</sup>	3E-06		
			Total PCB TEQ	NC <sup>1</sup>	RNA	NC <sup>1</sup>	1E-07		
			Sediment Total Risk =						1E-05
Fish Tissue	Multiple Species Tissue	Whole body Fish Tissue On-site Consumption (175:73 g/day)	Antimony	--	--	--	--		
			Arsenic	2E-04	RNA	RNA	2E-04		
			Chromium	--	--	--	--		
			Mercury	--	--	--	--		
			cPAHs	8E-06	RNA	RNA	8E-06		
			Bis(2-ethylhexyl)phthalate	6E-05	RNA	RNA	6E-05		
			Hexachlorobenzene	2E-05	RNA	RNA	2E-05		
			Total PCBs	2E-02	RNA	RNA	2E-02		
			Total Dioxin/Furan TEQ	9E-04	RNA	RNA	9E-04		
			Total PCB TEQ	2E-03	RNA	RNA	2E-03		
			Aldrin	1E-06	RNA	RNA	1E-06		
			alpha-Hexachlorocyclohexane	3E-06	RNA	RNA	3E-06		
			beta-Hexachlorocyclohexane	3E-08	RNA	RNA	3E-08		
			Dieldrin	9E-05	RNA	RNA	9E-05		
			Heptachlor	1E-05	RNA	RNA	1E-05		
			Heptachlor Epoxide	9E-07	RNA	RNA	9E-07		
			Total Chlordanes	1E-05	RNA	RNA	1E-05		
			Total DDx	1E-04	RNA	RNA	1E-04		
Fish Tissue Total Risk =						2E-02			
<b>Total Risk =</b>							<b>2E-02</b>		



Table 5-92 Risk Characterization Summary, Cancer Risks - Tribal Fisher, Boat, Reasonable Maximum Exposure									
Risk Characterization Summary - Carcinogens									
Scenario Timeframe:		Current/Future							
Receptor Population:		Tribal Fisher (Boat)							
Receptor Age:		Adult/Child							
Medium	Exposure Medium	Exposure Point	Chemical of Concern	Carcinogenic Risk					
				Ingestion/Consumption	Inhalation	Dermal	Exposure Routes Total		
Sediment	In-river Sediment	In-river Sediment On-site Direct Contact  RM 7 West	Antimony	--	--	--	--		
			Arsenic	NC <sup>1</sup>	RNA	NC <sup>1</sup>	1E-06		
			cPAHs	NC <sup>1</sup>	RNA	NC <sup>1</sup>	8E-06		
			Total PCBs	NC <sup>1</sup>	RNA	NC <sup>1</sup>	6E-08		
			Total Dioxin/Furan TEQ	NC <sup>1</sup>	RNA	NC <sup>1</sup>	3E-04		
			Total PCB TEQ	NC <sup>1</sup>	RNA	NC <sup>1</sup>	1E-06		
							Sediment Total Risk =		3E-04
Fish Tissue	Multiple Species Tissue	Whole body Fish Tissue On-site Consumption (175:73 g/day)	Antimony	--	--	--	--		
			Arsenic	2E-04	RNA	RNA	2E-04		
			Chromium	--	--	--	--		
			Mercury	--	--	--	--		
			cPAHs	8E-06	RNA	RNA	8E-06		
			Bis(2-ethylhexyl)phthalate	6E-05	RNA	RNA	6E-05		
			Hexachlorobenzene	2E-05	RNA	RNA	2E-05		
			Total PCBs	2E-02	RNA	RNA	2E-02		
			Total Dioxin/Furan TEQ	9E-04	RNA	RNA	9E-04		
			Total PCB TEQ	2E-03	RNA	RNA	2E-03		
			Aldrin	1E-06	RNA	RNA	1E-06		
			alpha-Hexachlorocyclohexane	3E-06	RNA	RNA	3E-06		
			beta-Hexachlorocyclohexane	3E-08	RNA	RNA	3E-08		
			Dieldrin	9E-05	RNA	RNA	9E-05		
			Heptachlor	1E-05	RNA	RNA	1E-05		
			Heptachlor Epoxide	9E-07	RNA	RNA	9E-07		
			Total Chlordanes	1E-05	RNA	RNA	1E-05		
			Total DDx	1E-04	RNA	RNA	1E-04		
							Fish Tissue Total Risk =		2E-02
							<b>Total Risk =</b>		<b>2E-02</b>

Table 5-92 Risk Characterization Summary, Cancer Risks - Tribal Fisher, Boat, Reasonable Maximum Exposure									
Risk Characterization Summary - Carcinogens									
Scenario Timeframe:		Current/Future							
Receptor Population:		Tribal Fisher (Boat)							
Receptor Age:		Adult/Child							
Medium	Exposure Medium	Exposure Point	Chemical of Concern	Carcinogenic Risk					
				Ingestion/Consumption	Inhalation	Dermal	Exposure Routes Total		
Sediment	In-river Sediment	In-river Sediment On-site Direct Contact  RM 7.5 West	Antimony	--	--	--	--		
			Arsenic	NC <sup>1</sup>	RNA	NC <sup>1</sup>	9E-07		
			cPAHs	NC <sup>1</sup>	RNA	NC <sup>1</sup>	1E-06		
			Total PCBs	NC <sup>1</sup>	RNA	NC <sup>1</sup>	2E-07		
			Total Dioxin/Furan TEQ	NC <sup>1</sup>	RNA	NC <sup>1</sup>	6E-08		
			Total PCB TEQ	NC <sup>1</sup>	RNA	NC <sup>1</sup>	6E-08		
							Sediment Total Risk =		2E-06
Fish Tissue	Multiple Species Tissue	Whole body Fish Tissue On-site Consumption (175:73 g/day)	Antimony	--	--	--	--		
			Arsenic	2E-04	RNA	RNA	2E-04		
			Chromium	--	--	--	--		
			Mercury	--	--	--	--		
			cPAHs	8E-06	RNA	RNA	8E-06		
			Bis(2-ethylhexyl)phthalate	6E-05	RNA	RNA	6E-05		
			Hexachlorobenzene	2E-05	RNA	RNA	2E-05		
			Total PCBs	2E-02	RNA	RNA	2E-02		
			Total Dioxin/Furan TEQ	9E-04	RNA	RNA	9E-04		
			Total PCB TEQ	2E-03	RNA	RNA	2E-03		
			Aldrin	1E-06	RNA	RNA	1E-06		
			alpha-Hexachlorocyclohexane	3E-06	RNA	RNA	3E-06		
			beta-Hexachlorocyclohexane	3E-08	RNA	RNA	3E-08		
			Dieldrin	9E-05	RNA	RNA	9E-05		
			Heptachlor	1E-05	RNA	RNA	1E-05		
			Heptachlor Epoxide	9E-07	RNA	RNA	9E-07		
			Total Chlordanes	1E-05	RNA	RNA	1E-05		
			Total DDx	1E-04	RNA	RNA	1E-04		
				Fish Tissue Total Risk =		2E-02			
				<b>Total Risk =</b>		<b>2E-02</b>			

Table 5-92 Risk Characterization Summary, Cancer Risks - Tribal Fisher, Boat, Reasonable Maximum Exposure									
Risk Characterization Summary - Carcinogens									
Scenario Timeframe:		Current/Future							
Receptor Population:		Tribal Fisher (Boat)							
Receptor Age:		Adult/Child							
Medium	Exposure Medium	Exposure Point	Chemical of Concern	Carcinogenic Risk					
				Ingestion/Consumption	Inhalation	Dermal	Exposure Routes Total		
Sediment	In-river Sediment	In-river Sediment On-site Direct Contact  RM 8 West	Antimony	--	--	--	--		
			Arsenic	NC <sup>1</sup>	RNA	NC <sup>1</sup>	3E-06		
			cPAHs	NC <sup>1</sup>	RNA	NC <sup>1</sup>	2E-06		
			Total PCBs	NC <sup>1</sup>	RNA	NC <sup>1</sup>	3E-07		
			Total Dioxin/Furan TEQ	NC <sup>1</sup>	RNA	NC <sup>1</sup>	1E-08		
			Total PCB TEQ	NC <sup>1</sup>	RNA	NC <sup>1</sup>	3E-07		
							Sediment Total Risk =		6E-06
Fish Tissue	Multiple Species Tissue	Whole body Fish Tissue On-site Consumption (175:73 g/day)	Antimony	--	--	--	--		
			Arsenic	2E-04	RNA	RNA	2E-04		
			Chromium	--	--	--	--		
			Mercury	--	--	--	--		
			cPAHs	8E-06	RNA	RNA	8E-06		
			Bis(2-ethylhexyl)phthalate	6E-05	RNA	RNA	6E-05		
			Hexachlorobenzene	2E-05	RNA	RNA	2E-05		
			Total PCBs	2E-02	RNA	RNA	2E-02		
			Total Dioxin/Furan TEQ	9E-04	RNA	RNA	9E-04		
			Total PCB TEQ	2E-03	RNA	RNA	2E-03		
			Aldrin	1E-06	RNA	RNA	1E-06		
			alpha-Hexachlorocyclohexane	3E-06	RNA	RNA	3E-06		
			beta-Hexachlorocyclohexane	3E-08	RNA	RNA	3E-08		
			Dieldrin	9E-05	RNA	RNA	9E-05		
			Heptachlor	1E-05	RNA	RNA	1E-05		
			Heptachlor Epoxide	9E-07	RNA	RNA	9E-07		
			Total Chlordanes	1E-05	RNA	RNA	1E-05		
			Total DDx	1E-04	RNA	RNA	1E-04		
				Fish Tissue Total Risk =		2E-02			
				<b>Total Risk =</b>		<b>2E-02</b>			

Table 5-92 Risk Characterization Summary, Cancer Risks - Tribal Fisher, Boat, Reasonable Maximum Exposure									
Risk Characterization Summary - Carcinogens									
Scenario Timeframe:		Current/Future							
Receptor Population:		Tribal Fisher (Boat)							
Receptor Age:		Adult/Child							
Medium	Exposure Medium	Exposure Point	Chemical of Concern	Carcinogenic Risk					
				Ingestion/Consumption	Inhalation	Dermal	Exposure Routes Total		
Sediment	In-river Sediment	In-river Sediment On-site Direct Contact  RM 8.5 West	Antimony	--	--	--	--		
			Arsenic	NC <sup>1</sup>	RNA	NC <sup>1</sup>	3E-06		
			cPAHs	NC <sup>1</sup>	RNA	NC <sup>1</sup>	7E-07		
			Total PCBs	NC <sup>1</sup>	RNA	NC <sup>1</sup>	6E-06		
			Total Dioxin/Furan TEQ	NC <sup>1</sup>	RNA	NC <sup>1</sup>	4E-07		
			Total PCB TEQ	NC <sup>1</sup>	RNA	NC <sup>1</sup>	1E-05		
			Sediment Total Risk =						2E-05
Fish Tissue	Multiple Species Tissue	Whole body Fish Tissue On-site Consumption (175:73 g/day)	Antimony	--	--	--	--		
			Arsenic	2E-04	RNA	RNA	2E-04		
			Chromium	--	--	--	--		
			Mercury	--	--	--	--		
			cPAHs	8E-06	RNA	RNA	8E-06		
			Bis(2-ethylhexyl)phthalate	6E-05	RNA	RNA	6E-05		
			Hexachlorobenzene	2E-05	RNA	RNA	2E-05		
			Total PCBs	2E-02	RNA	RNA	2E-02		
			Total Dioxin/Furan TEQ	9E-04	RNA	RNA	9E-04		
			Total PCB TEQ	2E-03	RNA	RNA	2E-03		
			Aldrin	1E-06	RNA	RNA	1E-06		
			alpha-Hexachlorocyclohexane	3E-06	RNA	RNA	3E-06		
			beta-Hexachlorocyclohexane	3E-08	RNA	RNA	3E-08		
			Dieldrin	9E-05	RNA	RNA	9E-05		
			Heptachlor	1E-05	RNA	RNA	1E-05		
			Heptachlor Epoxide	9E-07	RNA	RNA	9E-07		
			Total Chlordanes	1E-05	RNA	RNA	1E-05		
			Total DDx	1E-04	RNA	RNA	1E-04		
Fish Tissue Total Risk =						2E-02			
<b>Total Risk =</b>							<b>2E-02</b>		

Table 5-92 Risk Characterization Summary, Cancer Risks - Tribal Fisher, Boat, Reasonable Maximum Exposure								
Risk Characterization Summary - Carcinogens								
Scenario Timeframe:		Current/Future						
Receptor Population:		Tribal Fisher (Boat)						
Receptor Age:		Adult/Child						
Medium	Exposure Medium	Exposure Point	Chemical of Concern	Carcinogenic Risk				
				Ingestion/Consumption	Inhalation	Dermal	Exposure Routes Total	
Sediment	In-river Sediment	In-river Sediment On-site Direct Contact  RM 9 West	Antimony	--	--	--	--	
			Arsenic	NC <sup>1</sup>	RNA	NC <sup>1</sup>	1E-06	
			cPAHs	NC <sup>1</sup>	RNA	NC <sup>1</sup>	8E-07	
			Total PCBs	NC <sup>1</sup>	RNA	NC <sup>1</sup>	2E-06	
			Total Dioxin/Furan TEQ	NC <sup>1</sup>	RNA	NC <sup>1</sup>	1E-07	
			Total PCB TEQ	NC <sup>1</sup>	RNA	NC <sup>1</sup>	1E-06	
			Sediment Total Risk =					5E-06
Fish Tissue	Multiple Species Tissue	Whole body Fish Tissue On-site Consumption (175:73 g/day)	Antimony	--	--	--	--	
			Arsenic	2E-04	RNA	RNA	2E-04	
			Chromium	--	--	--	--	
			Mercury	--	--	--	--	
			cPAHs	8E-06	RNA	RNA	8E-06	
			Bis(2-ethylhexyl)phthalate	6E-05	RNA	RNA	6E-05	
			Hexachlorobenzene	2E-05	RNA	RNA	2E-05	
			Total PCBs	2E-02	RNA	RNA	2E-02	
			Total Dioxin/Furan TEQ	9E-04	RNA	RNA	9E-04	
			Total PCB TEQ	2E-03	RNA	RNA	2E-03	
			Aldrin	1E-06	RNA	RNA	1E-06	
			alpha-Hexachlorocyclohexane	3E-06	RNA	RNA	3E-06	
			beta-Hexachlorocyclohexane	3E-08	RNA	RNA	3E-08	
			Dieldrin	9E-05	RNA	RNA	9E-05	
			Heptachlor	1E-05	RNA	RNA	1E-05	
			Heptachlor Epoxide	9E-07	RNA	RNA	9E-07	
			Total Chlordanes	1E-05	RNA	RNA	1E-05	
			Total DDx	1E-04	RNA	RNA	1E-04	
Fish Tissue Total Risk =					2E-02			
<b>Total Risk =</b>							<b>2E-02</b>	

Table 5-92 Risk Characterization Summary, Cancer Risks - Tribal Fisher, Boat, Reasonable Maximum Exposure									
Risk Characterization Summary - Carcinogens									
Scenario Timeframe:		Current/Future							
Receptor Population:		Tribal Fisher (Boat)							
Receptor Age:		Adult/Child							
Medium	Exposure Medium	Exposure Point	Chemical of Concern	Carcinogenic Risk					
				Ingestion/Consumption	Inhalation	Dermal	Exposure Routes Total		
Sediment	In-river Sediment	In-river Sediment On-site Direct Contact  RM 9.5 West	Antimony	--	--	--	--		
			Arsenic	NC <sup>1</sup>	RNA	NC <sup>1</sup>	1E-06		
			cPAHs	NC <sup>1</sup>	RNA	NC <sup>1</sup>	2E-06		
			Total PCBs	NC <sup>1</sup>	RNA	NC <sup>1</sup>	2E-07		
			Total Dioxin/Furan TEQ	NC <sup>1</sup>	RNA	NC <sup>1</sup>	4E-07		
			Total PCB TEQ	NC <sup>1</sup>	RNA	NC <sup>1</sup>	2E-07		
							Sediment Total Risk =		4E-06
Fish Tissue	Multiple Species Tissue	Whole body Fish Tissue On-site Consumption (175:73 g/day)	Antimony	--	--	--	--		
			Arsenic	2E-04	RNA	RNA	2E-04		
			Chromium	--	--	--	--		
			Mercury	--	--	--	--		
			cPAHs	8E-06	RNA	RNA	8E-06		
			Bis(2-ethylhexyl)phthalate	6E-05	RNA	RNA	6E-05		
			Hexachlorobenzene	2E-05	RNA	RNA	2E-05		
			Total PCBs	2E-02	RNA	RNA	2E-02		
			Total Dioxin/Furan TEQ	9E-04	RNA	RNA	9E-04		
			Total PCB TEQ	2E-03	RNA	RNA	2E-03		
			Aldrin	1E-06	RNA	RNA	1E-06		
			alpha-Hexachlorocyclohexane	3E-06	RNA	RNA	3E-06		
			beta-Hexachlorocyclohexane	3E-08	RNA	RNA	3E-08		
			Dieldrin	9E-05	RNA	RNA	9E-05		
			Heptachlor	1E-05	RNA	RNA	1E-05		
			Heptachlor Epoxide	9E-07	RNA	RNA	9E-07		
			Total Chlordanes	1E-05	RNA	RNA	1E-05		
			Total DDx	1E-04	RNA	RNA	1E-04		
				Fish Tissue Total Risk =		2E-02			
				<b>Total Risk =</b>		<b>2E-02</b>			

Table 5-92 Risk Characterization Summary, Cancer Risks - Tribal Fisher, Boat, Reasonable Maximum Exposure									
Risk Characterization Summary - Carcinogens									
Scenario Timeframe:		Current/Future							
Receptor Population:		Tribal Fisher (Boat)							
Receptor Age:		Adult/Child							
Medium	Exposure Medium	Exposure Point	Chemical of Concern	Carcinogenic Risk					
				Ingestion/Consumption	Inhalation	Dermal	Exposure Routes Total		
Sediment	In-river Sediment	In-river Sediment On-site Direct Contact  RM 10 West	Antimony	--	--	--	--		
			Arsenic	NC <sup>1</sup>	RNA	NC <sup>1</sup>	8E-06		
			cPAHs	NC <sup>1</sup>	RNA	NC <sup>1</sup>	1E-06		
			Total PCBs	NC <sup>1</sup>	RNA	NC <sup>1</sup>	3E-07		
			Total Dioxin/Furan TEQ	NC <sup>1</sup>	RNA	NC <sup>1</sup>	3E-07		
			Total PCB TEQ	NC <sup>1</sup>	RNA	NC <sup>1</sup>	1E-07		
			Sediment Total Risk =						1E-05
Fish Tissue	Multiple Species Tissue	Whole body Fish Tissue On-site Consumption (175:73 g/day)	Antimony	--	--	--	--		
			Arsenic	2E-04	RNA	RNA	2E-04		
			Chromium	--	--	--	--		
			Mercury	--	--	--	--		
			cPAHs	8E-06	RNA	RNA	8E-06		
			Bis(2-ethylhexyl)phthalate	6E-05	RNA	RNA	6E-05		
			Hexachlorobenzene	2E-05	RNA	RNA	2E-05		
			Total PCBs	2E-02	RNA	RNA	2E-02		
			Total Dioxin/Furan TEQ	9E-04	RNA	RNA	9E-04		
			Total PCB TEQ	2E-03	RNA	RNA	2E-03		
			Aldrin	1E-06	RNA	RNA	1E-06		
			alpha-Hexachlorocyclohexane	3E-06	RNA	RNA	3E-06		
			beta-Hexachlorocyclohexane	3E-08	RNA	RNA	3E-08		
			Dieldrin	9E-05	RNA	RNA	9E-05		
			Heptachlor	1E-05	RNA	RNA	1E-05		
			Heptachlor Epoxide	9E-07	RNA	RNA	9E-07		
			Total Chlordanes	1E-05	RNA	RNA	1E-05		
			Total DDx	1E-04	RNA	RNA	1E-04		
			Fish Tissue Total Risk =						2E-02
			<b>Total Risk =</b>						

Table 5-92 Risk Characterization Summary, Cancer Risks - Tribal Fisher, Boat, Reasonable Maximum Exposure							
Risk Characterization Summary - Carcinogens							
Scenario Timeframe:		Current/Future					
Receptor Population:		Tribal Fisher (Boat)					
Receptor Age:		Adult/Child					
Medium	Exposure Medium	Exposure Point	Chemical of Concern	Carcinogenic Risk			
				Ingestion/Consumption	Inhalation	Dermal	Exposure Routes Total
Sediment	In-river Sediment	In-river Sediment On-site Direct Contact  RM 10.5 West	Antimony	--	--	--	--
			Arsenic	NC <sup>1</sup>	RNA	NC <sup>1</sup>	1E-06
			cPAHs	NC <sup>1</sup>	RNA	NC <sup>1</sup>	2E-07
			Total PCBs	NC <sup>1</sup>	RNA	NC <sup>1</sup>	3E-08
			Total Dioxin/Furan TEQ	NA	RNA	NA	NA
			Total PCB TEQ	NC <sup>1</sup>	RNA	NC <sup>1</sup>	3E-08
			Sediment Total Risk =				
Fish Tissue	Multiple Species Tissue	Whole body Fish Tissue On-site Consumption (175:73 g/day)	Antimony	--	--	--	--
			Arsenic	2E-04	RNA	RNA	2E-04
			Chromium	--	--	--	--
			Mercury	--	--	--	--
			cPAHs	8E-06	RNA	RNA	8E-06
			Bis(2-ethylhexyl)phthalate	6E-05	RNA	RNA	6E-05
			Hexachlorobenzene	2E-05	RNA	RNA	2E-05
			Total PCBs	2E-02	RNA	RNA	2E-02
			Total Dioxin/Furan TEQ	9E-04	RNA	RNA	9E-04
			Total PCB TEQ	2E-03	RNA	RNA	2E-03
			Aldrin	1E-06	RNA	RNA	1E-06
			alpha-Hexachlorocyclohexane	3E-06	RNA	RNA	3E-06
			beta-Hexachlorocyclohexane	3E-08	RNA	RNA	3E-08
			Dieldrin	9E-05	RNA	RNA	9E-05
			Heptachlor	1E-05	RNA	RNA	1E-05
			Heptachlor Epoxide	9E-07	RNA	RNA	9E-07
			Total Chlordanes	1E-05	RNA	RNA	1E-05
Total DDx	1E-04	RNA	RNA	1E-04			
Fish Tissue Total Risk =						2E-02	
<b>Total Risk =</b>						<b>2E-02</b>	



Table 5-92 Risk Characterization Summary, Cancer Risks - Tribal Fisher, Boat, Reasonable Maximum Exposure							
Risk Characterization Summary - Carcinogens							
Scenario Timeframe:		Current/Future					
Receptor Population:		Tribal Fisher (Boat)					
Receptor Age:		Adult/Child					
Medium	Exposure Medium	Exposure Point	Chemical of Concern	Carcinogenic Risk			
				Ingestion/Consumption	Inhalation	Dermal	Exposure Routes Total
Sediment	In-river Sediment	In-river Sediment On-site Direct Contact  RM 11 West	Antimony	--	--	--	--
			Arsenic	NC <sup>1</sup>	RNA	NC <sup>1</sup>	9E-07
			cPAHs	NC <sup>1</sup>	RNA	NC <sup>1</sup>	7E-07
			Total PCBs	NC <sup>1</sup>	RNA	NC <sup>1</sup>	2E-08
			Total Dioxin/Furan TEQ	NA	RNA	NA	NA
			Total PCB TEQ	NA	RNA	NA	NA
			Sediment Total Risk =				
Fish Tissue	Multiple Species Tissue	Whole body Fish Tissue On-site Consumption (175:73 g/day)	Antimony	--	--	--	--
			Arsenic	2E-04	RNA	RNA	2E-04
			Chromium	--	--	--	--
			Mercury	--	--	--	--
			cPAHs	8E-06	RNA	RNA	8E-06
			Bis(2-ethylhexyl)phthalate	6E-05	RNA	RNA	6E-05
			Hexachlorobenzene	2E-05	RNA	RNA	2E-05
			Total PCBs	2E-02	RNA	RNA	2E-02
			Total Dioxin/Furan TEQ	9E-04	RNA	RNA	9E-04
			Total PCB TEQ	2E-03	RNA	RNA	2E-03
			Aldrin	1E-06	RNA	RNA	1E-06
			alpha-Hexachlorocyclohexane	3E-06	RNA	RNA	3E-06
			beta-Hexachlorocyclohexane	3E-08	RNA	RNA	3E-08
			Dieldrin	9E-05	RNA	RNA	9E-05
			Heptachlor	1E-05	RNA	RNA	1E-05
			Heptachlor Epoxide	9E-07	RNA	RNA	9E-07
			Total Chlordanes	1E-05	RNA	RNA	1E-05
			Total DDx	1E-04	RNA	RNA	1E-04
Fish Tissue Total Risk =						2E-02	
<b>Total Risk =</b>						<b>2E-02</b>	

Table 5-92 Risk Characterization Summary, Cancer Risks - Tribal Fisher, Boat, Reasonable Maximum Exposure									
Risk Characterization Summary - Carcinogens									
Scenario Timeframe:		Current/Future							
Receptor Population:		Tribal Fisher (Boat)							
Receptor Age:		Adult/Child							
Medium	Exposure Medium	Exposure Point	Chemical of Concern	Carcinogenic Risk					
				Ingestion/Consumption	Inhalation	Dermal	Exposure Routes Total		
Sediment	In-river Sediment	In-river Sediment On-site Direct Contact  RM 11.5 West	Antimony	--	--	--	--		
			Arsenic	NC <sup>1</sup>	RNA	NC <sup>1</sup>	9E-07		
			cPAHs	NC <sup>1</sup>	RNA	NC <sup>1</sup>	6E-08		
			Total PCBs	NC <sup>1</sup>	RNA	NC <sup>1</sup>	2E-08		
			Total Dioxin/Furan TEQ	NC <sup>1</sup>	RNA	NC <sup>1</sup>	4E-09		
			Total PCB TEQ	NC <sup>1</sup>	RNA	NC <sup>1</sup>	1E-08		
			Sediment Total Risk =						1E-06
Fish Tissue	Multiple Species Tissue	Whole body Fish Tissue On-site Consumption (175:73 g/day)	Antimony	--	--	--	--		
			Arsenic	2E-04	RNA	RNA	2E-04		
			Chromium	--	--	--	--		
			Mercury	--	--	--	--		
			cPAHs	8E-06	RNA	RNA	8E-06		
			Bis(2-ethylhexyl)phthalate	6E-05	RNA	RNA	6E-05		
			Hexachlorobenzene	2E-05	RNA	RNA	2E-05		
			Total PCBs	2E-02	RNA	RNA	2E-02		
			Total Dioxin/Furan TEQ	9E-04	RNA	RNA	9E-04		
			Total PCB TEQ	2E-03	RNA	RNA	2E-03		
			Aldrin	1E-06	RNA	RNA	1E-06		
			alpha-Hexachlorocyclohexane	3E-06	RNA	RNA	3E-06		
			beta-Hexachlorocyclohexane	3E-08	RNA	RNA	3E-08		
			Dieldrin	9E-05	RNA	RNA	9E-05		
			Heptachlor	1E-05	RNA	RNA	1E-05		
			Heptachlor Epoxide	9E-07	RNA	RNA	9E-07		
			Total Chlordanes	1E-05	RNA	RNA	1E-05		
			Total DDx	1E-04	RNA	RNA	1E-04		
Fish Tissue Total Risk =						2E-02			
<b>Total Risk =</b>							<b>2E-02</b>		

Table 5-92 Risk Characterization Summary, Cancer Risks - Tribal Fisher, Boat, Reasonable Maximum Exposure								
Risk Characterization Summary - Carcinogens								
Scenario Timeframe:		Current/Future						
Receptor Population:		Tribal Fisher (Boat)						
Receptor Age:		Adult/Child						
Medium	Exposure Medium	Exposure Point	Chemical of Concern	Carcinogenic Risk				
				Ingestion/Consumption	Inhalation	Dermal	Exposure Routes Total	
Sediment	In-river Sediment	In-river Sediment On-site Direct Contact  RM 12 West	Antimony	--	--	--	--	
			Arsenic	NC <sup>1</sup>	RNA	NC <sup>1</sup>	1E-06	
			cPAHs	NC <sup>1</sup>	RNA	NC <sup>1</sup>	5E-06	
			Total PCBs	NC <sup>1</sup>	RNA	NC <sup>1</sup>	8E-08	
			Total Dioxin/Furan TEQ	NC <sup>1</sup>	RNA	NC <sup>1</sup>	4E-09	
			Total PCB TEQ	NC <sup>1</sup>	RNA	NC <sup>1</sup>	2E-08	
			Sediment Total Risk =				6E-06	
Fish Tissue	Multiple Species Tissue	Whole body Fish Tissue On-site Consumption (175:73 g/day)	Antimony	--	--	--	--	
			Arsenic	2E-04	RNA	RNA	2E-04	
			Chromium	--	--	--	--	
			Mercury	--	--	--	--	
			cPAHs	8E-06	RNA	RNA	8E-06	
			Bis(2-ethylhexyl)phthalate	6E-05	RNA	RNA	6E-05	
			Hexachlorobenzene	2E-05	RNA	RNA	2E-05	
			Total PCBs	2E-02	RNA	RNA	2E-02	
			Total Dioxin/Furan TEQ	9E-04	RNA	RNA	9E-04	
			Total PCB TEQ	2E-03	RNA	RNA	2E-03	
			Aldrin	1E-06	RNA	RNA	1E-06	
			alpha-Hexachlorocyclohexane	3E-06	RNA	RNA	3E-06	
			beta-Hexachlorocyclohexane	3E-08	RNA	RNA	3E-08	
			Dieldrin	9E-05	RNA	RNA	9E-05	
			Heptachlor	1E-05	RNA	RNA	1E-05	
			Heptachlor Epoxide	9E-07	RNA	RNA	9E-07	
			Total Chlordanes	1E-05	RNA	RNA	1E-05	
			Total DDx	1E-04	RNA	RNA	1E-04	
Fish Tissue Total Risk =				2E-02				
<b>Total Risk =</b>							<b>2E-02</b>	

Table 5-92 Risk Characterization Summary, Cancer Risks - Tribal Fisher, Boat, Reasonable Maximum Exposure									
Risk Characterization Summary - Carcinogens									
Scenario Timeframe:		Current/Future							
Receptor Population:		Tribal Fisher (Boat)							
Receptor Age:		Adult/Child							
Medium	Exposure Medium	Exposure Point	Chemical of Concern	Carcinogenic Risk					
				Ingestion/Consumption	Inhalation	Dermal	Exposure Routes Total		
Sediment	In-river Sediment	In-river Sediment On-site Direct Contact  RM 1 East	Antimony	--	--	--	--		
			Arsenic	NC <sup>1</sup>	RNA	NC <sup>1</sup>	1E-06		
			cPAHs	NC <sup>1</sup>	RNA	NC <sup>1</sup>	3E-07		
			Total PCBs	NC <sup>1</sup>	RNA	NC <sup>1</sup>	3E-07		
			Total Dioxin/Furan TEQ	NC <sup>1</sup>	RNA	NC <sup>1</sup>	1E-08		
			Total PCB TEQ	NC <sup>1</sup>	RNA	NC <sup>1</sup>	1E-08		
							Sediment Total Risk =		2E-06
Fish Tissue	Multiple Species Tissue	Whole body Fish Tissue On-site Consumption (175:73 g/day)	Antimony	--	--	--	--		
			Arsenic	2E-04	RNA	RNA	2E-04		
			Chromium	--	--	--	--		
			Mercury	--	--	--	--		
			cPAHs	8E-06	RNA	RNA	8E-06		
			Bis(2-ethylhexyl)phthalate	6E-05	RNA	RNA	6E-05		
			Hexachlorobenzene	2E-05	RNA	RNA	2E-05		
			Total PCBs	2E-02	RNA	RNA	2E-02		
			Total Dioxin/Furan TEQ	9E-04	RNA	RNA	9E-04		
			Total PCB TEQ	2E-03	RNA	RNA	2E-03		
			Aldrin	1E-06	RNA	RNA	1E-06		
			alpha-Hexachlorocyclohexane	3E-06	RNA	RNA	3E-06		
			beta-Hexachlorocyclohexane	3E-08	RNA	RNA	3E-08		
			Dieldrin	9E-05	RNA	RNA	9E-05		
			Heptachlor	1E-05	RNA	RNA	1E-05		
			Heptachlor Epoxide	9E-07	RNA	RNA	9E-07		
			Total Chlordanes	1E-05	RNA	RNA	1E-05		
			Total DDx	1E-04	RNA	RNA	1E-04		
				Fish Tissue Total Risk =		2E-02			
				<b>Total Risk =</b>		<b>2E-02</b>			

Table 5-92 Risk Characterization Summary, Cancer Risks - Tribal Fisher, Boat, Reasonable Maximum Exposure									
Risk Characterization Summary - Carcinogens									
Scenario Timeframe:		Current/Future							
Receptor Population:		Tribal Fisher (Boat)							
Receptor Age:		Adult/Child							
Medium	Exposure Medium	Exposure Point	Chemical of Concern	Carcinogenic Risk					
				Ingestion/Consumption	Inhalation	Dermal	Exposure Routes Total		
Sediment	In-river Sediment	In-river Sediment On-site Direct Contact  RM 1.5 East	Antimony	--	--	--	--		
			Arsenic	NC <sup>1</sup>	RNA	NC <sup>1</sup>	1E-06		
			cPAHs	NC <sup>1</sup>	RNA	NC <sup>1</sup>	5E-06		
			Total PCBs	NC <sup>1</sup>	RNA	NC <sup>1</sup>	3E-08		
			Total Dioxin/Furan TEQ	NC <sup>1</sup>	RNA	NC <sup>1</sup>	4E-08		
			Total PCB TEQ	NC <sup>1</sup>	RNA	NC <sup>1</sup>	5E-09		
			Sediment Total Risk =						6E-06
Fish Tissue	Multiple Species Tissue	Whole body Fish Tissue On-site Consumption (175:73 g/day)	Antimony	--	--	--	--		
			Arsenic	2E-04	RNA	RNA	2E-04		
			Chromium	--	--	--	--		
			Mercury	--	--	--	--		
			cPAHs	8E-06	RNA	RNA	8E-06		
			Bis(2-ethylhexyl)phthalate	6E-05	RNA	RNA	6E-05		
			Hexachlorobenzene	2E-05	RNA	RNA	2E-05		
			Total PCBs	2E-02	RNA	RNA	2E-02		
			Total Dioxin/Furan TEQ	9E-04	RNA	RNA	9E-04		
			Total PCB TEQ	2E-03	RNA	RNA	2E-03		
			Aldrin	1E-06	RNA	RNA	1E-06		
			alpha-Hexachlorocyclohexane	3E-06	RNA	RNA	3E-06		
			beta-Hexachlorocyclohexane	3E-08	RNA	RNA	3E-08		
			Dieldrin	9E-05	RNA	RNA	9E-05		
			Heptachlor	1E-05	RNA	RNA	1E-05		
			Heptachlor Epoxide	9E-07	RNA	RNA	9E-07		
			Total Chlordanes	1E-05	RNA	RNA	1E-05		
			Total DDx	1E-04	RNA	RNA	1E-04		
Fish Tissue Total Risk =						2E-02			
<b>Total Risk =</b>							<b>2E-02</b>		

Table 5-92 Risk Characterization Summary, Cancer Risks - Tribal Fisher, Boat, Reasonable Maximum Exposure									
Risk Characterization Summary - Carcinogens									
Scenario Timeframe:		Current/Future							
Receptor Population:		Tribal Fisher (Boat)							
Receptor Age:		Adult/Child							
Medium	Exposure Medium	Exposure Point	Chemical of Concern	Carcinogenic Risk					
				Ingestion/Consumption	Inhalation	Dermal	Exposure Routes Total		
Sediment	In-river Sediment	In-river Sediment On-site Direct Contact  RM 2 East	Antimony	--	--	--	--		
			Arsenic	NC <sup>1</sup>	RNA	NC <sup>1</sup>	1E-06		
			cPAHs	NC <sup>1</sup>	RNA	NC <sup>1</sup>	5E-07		
			Total PCBs	NC <sup>1</sup>	RNA	NC <sup>1</sup>	1E-06		
			Total Dioxin/Furan TEQ	NC <sup>1</sup>	RNA	NC <sup>1</sup>	9E-08		
			Total PCB TEQ	NC <sup>1</sup>	RNA	NC <sup>1</sup>	3E-06		
			Sediment Total Risk =						6E-06
Fish Tissue	Multiple Species Tissue	Whole body Fish Tissue On-site Consumption (175:73 g/day)	Antimony	--	--	--	--		
			Arsenic	2E-04	RNA	RNA	2E-04		
			Chromium	--	--	--	--		
			Mercury	--	--	--	--		
			cPAHs	8E-06	RNA	RNA	8E-06		
			Bis(2-ethylhexyl)phthalate	6E-05	RNA	RNA	6E-05		
			Hexachlorobenzene	2E-05	RNA	RNA	2E-05		
			Total PCBs	2E-02	RNA	RNA	2E-02		
			Total Dioxin/Furan TEQ	9E-04	RNA	RNA	9E-04		
			Total PCB TEQ	2E-03	RNA	RNA	2E-03		
			Aldrin	1E-06	RNA	RNA	1E-06		
			alpha-Hexachlorocyclohexane	3E-06	RNA	RNA	3E-06		
			beta-Hexachlorocyclohexane	3E-08	RNA	RNA	3E-08		
			Dieldrin	9E-05	RNA	RNA	9E-05		
			Heptachlor	1E-05	RNA	RNA	1E-05		
			Heptachlor Epoxide	9E-07	RNA	RNA	9E-07		
			Total Chlordanes	1E-05	RNA	RNA	1E-05		
			Total DDx	1E-04	RNA	RNA	1E-04		
Fish Tissue Total Risk =						2E-02			
<b>Total Risk =</b>							<b>2E-02</b>		

Table 5-92 Risk Characterization Summary, Cancer Risks - Tribal Fisher, Boat, Reasonable Maximum Exposure									
Risk Characterization Summary - Carcinogens									
Scenario Timeframe:		Current/Future							
Receptor Population:		Tribal Fisher (Boat)							
Receptor Age:		Adult/Child							
Medium	Exposure Medium	Exposure Point	Chemical of Concern	Carcinogenic Risk					
				Ingestion/Consumption	Inhalation	Dermal	Exposure Routes Total		
Sediment	In-river Sediment	In-river Sediment On-site Direct Contact  RM 2.5 East	Antimony	--	--	--	--		
			Arsenic	NC <sup>1</sup>	RNA	NC <sup>1</sup>	1E-06		
			cPAHs	NC <sup>1</sup>	RNA	NC <sup>1</sup>	2E-05		
			Total PCBs	NC <sup>1</sup>	RNA	NC <sup>1</sup>	5E-08		
			Total Dioxin/Furan TEQ	NC <sup>1</sup>	RNA	NC <sup>1</sup>	3E-08		
			Total PCB TEQ	NC <sup>1</sup>	RNA	NC <sup>1</sup>	1E-07		
			Sediment Total Risk =						2E-05
Fish Tissue	Multiple Species Tissue	Whole body Fish Tissue On-site Consumption (175:73 g/day)	Antimony	--	--	--	--		
			Arsenic	2E-04	RNA	RNA	2E-04		
			Chromium	--	--	--	--		
			Mercury	--	--	--	--		
			cPAHs	8E-06	RNA	RNA	8E-06		
			Bis(2-ethylhexyl)phthalate	6E-05	RNA	RNA	6E-05		
			Hexachlorobenzene	2E-05	RNA	RNA	2E-05		
			Total PCBs	2E-02	RNA	RNA	2E-02		
			Total Dioxin/Furan TEQ	9E-04	RNA	RNA	9E-04		
			Total PCB TEQ	2E-03	RNA	RNA	2E-03		
			Aldrin	1E-06	RNA	RNA	1E-06		
			alpha-Hexachlorocyclohexane	3E-06	RNA	RNA	3E-06		
			beta-Hexachlorocyclohexane	3E-08	RNA	RNA	3E-08		
			Dieldrin	9E-05	RNA	RNA	9E-05		
			Heptachlor	1E-05	RNA	RNA	1E-05		
			Heptachlor Epoxide	9E-07	RNA	RNA	9E-07		
			Total Chlordanes	1E-05	RNA	RNA	1E-05		
			Total DDx	1E-04	RNA	RNA	1E-04		
Fish Tissue Total Risk =						2E-02			
<b>Total Risk =</b>							<b>2E-02</b>		

Table 5-92 Risk Characterization Summary, Cancer Risks - Tribal Fisher, Boat, Reasonable Maximum Exposure									
Risk Characterization Summary - Carcinogens									
Scenario Timeframe:		Current/Future							
Receptor Population:		Tribal Fisher (Boat)							
Receptor Age:		Adult/Child							
Medium	Exposure Medium	Exposure Point	Chemical of Concern	Carcinogenic Risk					
				Ingestion/Consumption	Inhalation	Dermal	Exposure Routes Total		
Sediment	In-river Sediment	In-river Sediment On-site Direct Contact  RM 3 East	Antimony	--	--	--	--		
			Arsenic	NC <sup>1</sup>	RNA	NC <sup>1</sup>	1E-06		
			cPAHs	NC <sup>1</sup>	RNA	NC <sup>1</sup>	5E-07		
			Total PCBs	NC <sup>1</sup>	RNA	NC <sup>1</sup>	2E-08		
			Total Dioxin/Furan TEQ	NC <sup>1</sup>	RNA	NC <sup>1</sup>	1E-07		
			Total PCB TEQ	NC <sup>1</sup>	RNA	NC <sup>1</sup>	5E-09		
			Sediment Total Risk =						2E-06
Fish Tissue	Multiple Species Tissue	Whole body Fish Tissue On-site Consumption (175:73 g/day)	Antimony	--	--	--	--		
			Arsenic	2E-04	RNA	RNA	2E-04		
			Chromium	--	--	--	--		
			Mercury	--	--	--	--		
			cPAHs	8E-06	RNA	RNA	8E-06		
			Bis(2-ethylhexyl)phthalate	6E-05	RNA	RNA	6E-05		
			Hexachlorobenzene	2E-05	RNA	RNA	2E-05		
			Total PCBs	2E-02	RNA	RNA	2E-02		
			Total Dioxin/Furan TEQ	9E-04	RNA	RNA	9E-04		
			Total PCB TEQ	2E-03	RNA	RNA	2E-03		
			Aldrin	1E-06	RNA	RNA	1E-06		
			alpha-Hexachlorocyclohexane	3E-06	RNA	RNA	3E-06		
			beta-Hexachlorocyclohexane	3E-08	RNA	RNA	3E-08		
			Dieldrin	9E-05	RNA	RNA	9E-05		
			Heptachlor	1E-05	RNA	RNA	1E-05		
			Heptachlor Epoxide	9E-07	RNA	RNA	9E-07		
			Total Chlordanes	1E-05	RNA	RNA	1E-05		
			Total DDx	1E-04	RNA	RNA	1E-04		
Fish Tissue Total Risk =						2E-02			
<b>Total Risk =</b>							<b>2E-02</b>		



Table 5-92 Risk Characterization Summary, Cancer Risks - Tribal Fisher, Boat, Reasonable Maximum Exposure								
Risk Characterization Summary - Carcinogens								
Scenario Timeframe:		Current/Future						
Receptor Population:		Tribal Fisher (Boat)						
Receptor Age:		Adult/Child						
Medium	Exposure Medium	Exposure Point	Chemical of Concern	Carcinogenic Risk				
				Ingestion/Consumption	Inhalation	Dermal	Exposure Routes Total	
Sediment	In-river Sediment	In-river Sediment On-site Direct Contact  RM 3.5 East	Antimony	--	--	--	--	
			Arsenic	NC <sup>1</sup>	RNA	NC <sup>1</sup>	1E-06	
			cPAHs	NC <sup>1</sup>	RNA	NC <sup>1</sup>	3E-06	
			Total PCBs	NC <sup>1</sup>	RNA	NC <sup>1</sup>	1E-06	
			Total Dioxin/Furan TEQ	NC <sup>1</sup>	RNA	NC <sup>1</sup>	3E-07	
			Total PCB TEQ	NC <sup>1</sup>	RNA	NC <sup>1</sup>	5E-06	
			Sediment Total Risk =					1E-05
Fish Tissue	Multiple Species Tissue	Whole body Fish Tissue On-site Consumption (175:73 g/day)	Antimony	--	--	--	--	
			Arsenic	2E-04	RNA	RNA	2E-04	
			Chromium	--	--	--	--	
			Mercury	--	--	--	--	
			cPAHs	8E-06	RNA	RNA	8E-06	
			Bis(2-ethylhexyl)phthalate	6E-05	RNA	RNA	6E-05	
			Hexachlorobenzene	2E-05	RNA	RNA	2E-05	
			Total PCBs	2E-02	RNA	RNA	2E-02	
			Total Dioxin/Furan TEQ	9E-04	RNA	RNA	9E-04	
			Total PCB TEQ	2E-03	RNA	RNA	2E-03	
			Aldrin	1E-06	RNA	RNA	1E-06	
			alpha-Hexachlorocyclohexane	3E-06	RNA	RNA	3E-06	
			beta-Hexachlorocyclohexane	3E-08	RNA	RNA	3E-08	
			Dieldrin	9E-05	RNA	RNA	9E-05	
			Heptachlor	1E-05	RNA	RNA	1E-05	
			Heptachlor Epoxide	9E-07	RNA	RNA	9E-07	
			Total Chlordanes	1E-05	RNA	RNA	1E-05	
			Total DDx	1E-04	RNA	RNA	1E-04	
Fish Tissue Total Risk =					2E-02			
<b>Total Risk =</b>							<b>2E-02</b>	

Table 5-92 Risk Characterization Summary, Cancer Risks - Tribal Fisher, Boat, Reasonable Maximum Exposure								
Risk Characterization Summary - Carcinogens								
Scenario Timeframe:		Current/Future						
Receptor Population:		Tribal Fisher (Boat)						
Receptor Age:		Adult/Child						
Medium	Exposure Medium	Exposure Point	Chemical of Concern	Carcinogenic Risk				
				Ingestion/Consumption	Inhalation	Dermal	Exposure Routes Total	
Sediment	In-river Sediment	In-river Sediment On-site Direct Contact  RM 4 East	Antimony	--	--	--	--	
			Arsenic	NC <sup>1</sup>	RNA	NC <sup>1</sup>	1E-06	
			cPAHs	NC <sup>1</sup>	RNA	NC <sup>1</sup>	8E-06	
			Total PCBs	NC <sup>1</sup>	RNA	NC <sup>1</sup>	8E-07	
			Total Dioxin/Furan TEQ	NC <sup>1</sup>	RNA	NC <sup>1</sup>	1E-07	
			Total PCB TEQ	NC <sup>1</sup>	RNA	NC <sup>1</sup>	2E-07	
			Sediment Total Risk =				1E-05	
Fish Tissue	Multiple Species Tissue	Whole body Fish Tissue On-site Consumption (175:73 g/day)	Antimony	--	--	--	--	
			Arsenic	2E-04	RNA	RNA	2E-04	
			Chromium	--	--	--	--	
			Mercury	--	--	--	--	
			cPAHs	8E-06	RNA	RNA	8E-06	
			Bis(2-ethylhexyl)phthalate	6E-05	RNA	RNA	6E-05	
			Hexachlorobenzene	2E-05	RNA	RNA	2E-05	
			Total PCBs	2E-02	RNA	RNA	2E-02	
			Total Dioxin/Furan TEQ	9E-04	RNA	RNA	9E-04	
			Total PCB TEQ	2E-03	RNA	RNA	2E-03	
			Aldrin	1E-06	RNA	RNA	1E-06	
			alpha-Hexachlorocyclohexane	3E-06	RNA	RNA	3E-06	
			beta-Hexachlorocyclohexane	3E-08	RNA	RNA	3E-08	
			Dieldrin	9E-05	RNA	RNA	9E-05	
			Heptachlor	1E-05	RNA	RNA	1E-05	
			Heptachlor Epoxide	9E-07	RNA	RNA	9E-07	
			Total Chlordanes	1E-05	RNA	RNA	1E-05	
			Total DDx	1E-04	RNA	RNA	1E-04	
Fish Tissue Total Risk =				2E-02				
<b>Total Risk =</b>				<b>2E-02</b>				

Table 5-92 Risk Characterization Summary, Cancer Risks - Tribal Fisher, Boat, Reasonable Maximum Exposure									
Risk Characterization Summary - Carcinogens									
Scenario Timeframe:		Current/Future							
Receptor Population:		Tribal Fisher (Boat)							
Receptor Age:		Adult/Child							
Medium	Exposure Medium	Exposure Point	Chemical of Concern	Carcinogenic Risk					
				Ingestion/Consumption	Inhalation	Dermal	Exposure Routes Total		
Sediment	In-river Sediment	In-river Sediment On-site Direct Contact  RM 4.5 East	Antimony	--	--	--	--		
			Arsenic	NC <sup>1</sup>	RNA	NC <sup>1</sup>	1E-06		
			cPAHs	NC <sup>1</sup>	RNA	NC <sup>1</sup>	3E-05		
			Total PCBs	NC <sup>1</sup>	RNA	NC <sup>1</sup>	3E-08		
			Total Dioxin/Furan TEQ	NC <sup>1</sup>	RNA	NC <sup>1</sup>	7E-09		
			Total PCB TEQ	NC <sup>1</sup>	RNA	NC <sup>1</sup>	2E-08		
							Sediment Total Risk =		3E-05
Fish Tissue	Multiple Species Tissue	Whole body Fish Tissue On-site Consumption (175:73 g/day)	Antimony	--	--	--	--		
			Arsenic	2E-04	RNA	RNA	2E-04		
			Chromium	--	--	--	--		
			Mercury	--	--	--	--		
			cPAHs	8E-06	RNA	RNA	8E-06		
			Bis(2-ethylhexyl)phthalate	6E-05	RNA	RNA	6E-05		
			Hexachlorobenzene	2E-05	RNA	RNA	2E-05		
			Total PCBs	2E-02	RNA	RNA	2E-02		
			Total Dioxin/Furan TEQ	9E-04	RNA	RNA	9E-04		
			Total PCB TEQ	2E-03	RNA	RNA	2E-03		
			Aldrin	1E-06	RNA	RNA	1E-06		
			alpha-Hexachlorocyclohexane	3E-06	RNA	RNA	3E-06		
			beta-Hexachlorocyclohexane	3E-08	RNA	RNA	3E-08		
			Dieldrin	9E-05	RNA	RNA	9E-05		
			Heptachlor	1E-05	RNA	RNA	1E-05		
			Heptachlor Epoxide	9E-07	RNA	RNA	9E-07		
			Total Chlordanes	1E-05	RNA	RNA	1E-05		
			Total DDx	1E-04	RNA	RNA	1E-04		
				Fish Tissue Total Risk =		2E-02			
				<b>Total Risk =</b>		<b>2E-02</b>			

Table 5-92 Risk Characterization Summary, Cancer Risks - Tribal Fisher, Boat, Reasonable Maximum Exposure							
Risk Characterization Summary - Carcinogens							
Scenario Timeframe:		Current/Future					
Receptor Population:		Tribal Fisher (Boat)					
Receptor Age:		Adult/Child					
Medium	Exposure Medium	Exposure Point	Chemical of Concern	Carcinogenic Risk			
				Ingestion/Consumption	Inhalation	Dermal	Exposure Routes Total
Sediment	In-river Sediment	In-river Sediment On-site Direct Contact  RM 5 East	Antimony	--	--	--	--
			Arsenic	NC <sup>1</sup>	RNA	NC <sup>1</sup>	9E-07
			cPAHs	NC <sup>1</sup>	RNA	NC <sup>1</sup>	2E-06
			Total PCBs	NC <sup>1</sup>	RNA	NC <sup>1</sup>	2E-08
			Total Dioxin/Furan TEQ	NA	RNA	NA	NA
			Total PCB TEQ	NA	RNA	NA	NA
			Sediment Total Risk =				
Fish Tissue	Multiple Species Tissue	Whole body Fish Tissue On-site Consumption (175:73 g/day)	Antimony	--	--	--	--
			Arsenic	2E-04	RNA	RNA	2E-04
			Chromium	--	--	--	--
			Mercury	--	--	--	--
			cPAHs	8E-06	RNA	RNA	8E-06
			Bis(2-ethylhexyl)phthalate	6E-05	RNA	RNA	6E-05
			Hexachlorobenzene	2E-05	RNA	RNA	2E-05
			Total PCBs	2E-02	RNA	RNA	2E-02
			Total Dioxin/Furan TEQ	9E-04	RNA	RNA	9E-04
			Total PCB TEQ	2E-03	RNA	RNA	2E-03
			Aldrin	1E-06	RNA	RNA	1E-06
			alpha-Hexachlorocyclohexane	3E-06	RNA	RNA	3E-06
			beta-Hexachlorocyclohexane	3E-08	RNA	RNA	3E-08
			Dieldrin	9E-05	RNA	RNA	9E-05
			Heptachlor	1E-05	RNA	RNA	1E-05
			Heptachlor Epoxide	9E-07	RNA	RNA	9E-07
			Total Chlordanes	1E-05	RNA	RNA	1E-05
Total DDx	1E-04	RNA	RNA	1E-04			
Fish Tissue Total Risk =						2E-02	
<b>Total Risk =</b>						<b>2E-02</b>	

Table 5-92 Risk Characterization Summary, Cancer Risks - Tribal Fisher, Boat, Reasonable Maximum Exposure									
Risk Characterization Summary - Carcinogens									
Scenario Timeframe:		Current/Future							
Receptor Population:		Tribal Fisher (Boat)							
Receptor Age:		Adult/Child							
Medium	Exposure Medium	Exposure Point	Chemical of Concern	Carcinogenic Risk					
				Ingestion/Consumption	Inhalation	Dermal	Exposure Routes Total		
Sediment	In-river Sediment	In-river Sediment On-site Direct Contact  RM 5.5 East	Antimony	--	--	--	--		
			Arsenic	NC <sup>1</sup>	RNA	NC <sup>1</sup>	3E-06		
			cPAHs	NC <sup>1</sup>	RNA	NC <sup>1</sup>	2E-06		
			Total PCBs	NC <sup>1</sup>	RNA	NC <sup>1</sup>	1E-07		
			Total Dioxin/Furan TEQ	NC <sup>1</sup>	RNA	NC <sup>1</sup>	2E-07		
			Total PCB TEQ	NC <sup>1</sup>	RNA	NC <sup>1</sup>	3E-07		
			Sediment Total Risk =						6E-06
Fish Tissue	Multiple Species Tissue	Whole body Fish Tissue On-site Consumption (175:73 g/day)	Antimony	--	--	--	--		
			Arsenic	2E-04	RNA	RNA	2E-04		
			Chromium	--	--	--	--		
			Mercury	--	--	--	--		
			cPAHs	8E-06	RNA	RNA	8E-06		
			Bis(2-ethylhexyl)phthalate	6E-05	RNA	RNA	6E-05		
			Hexachlorobenzene	2E-05	RNA	RNA	2E-05		
			Total PCBs	2E-02	RNA	RNA	2E-02		
			Total Dioxin/Furan TEQ	9E-04	RNA	RNA	9E-04		
			Total PCB TEQ	2E-03	RNA	RNA	2E-03		
			Aldrin	1E-06	RNA	RNA	1E-06		
			alpha-Hexachlorocyclohexane	3E-06	RNA	RNA	3E-06		
			beta-Hexachlorocyclohexane	3E-08	RNA	RNA	3E-08		
			Dieldrin	9E-05	RNA	RNA	9E-05		
			Heptachlor	1E-05	RNA	RNA	1E-05		
			Heptachlor Epoxide	9E-07	RNA	RNA	9E-07		
			Total Chlordanes	1E-05	RNA	RNA	1E-05		
			Total DDx	1E-04	RNA	RNA	1E-04		
			Fish Tissue Total Risk =						2E-02
			<b>Total Risk =</b>						

Table 5-92 Risk Characterization Summary, Cancer Risks - Tribal Fisher, Boat, Reasonable Maximum Exposure								
Risk Characterization Summary - Carcinogens								
Scenario Timeframe:		Current/Future						
Receptor Population:		Tribal Fisher (Boat)						
Receptor Age:		Adult/Child						
Medium	Exposure Medium	Exposure Point	Chemical of Concern	Carcinogenic Risk				
				Ingestion/Consumption	Inhalation	Dermal	Exposure Routes Total	
Sediment	In-river Sediment	In-river Sediment On-site Direct Contact  RM 6 East	Antimony	--	--	--	--	
			Arsenic	NC <sup>1</sup>	RNA	NC <sup>1</sup>	1E-06	
			cPAHs	NC <sup>1</sup>	RNA	NC <sup>1</sup>	7E-06	
			Total PCBs	NC <sup>1</sup>	RNA	NC <sup>1</sup>	1E-07	
			Total Dioxin/Furan TEQ	NC <sup>1</sup>	RNA	NC <sup>1</sup>	9E-08	
			Total PCB TEQ	NC <sup>1</sup>	RNA	NC <sup>1</sup>	2E-07	
			Sediment Total Risk =				8E-06	
Fish Tissue	Multiple Species Tissue	Whole body Fish Tissue On-site Consumption (175:73 g/day)	Antimony	--	--	--	--	
			Arsenic	2E-04	RNA	RNA	2E-04	
			Chromium	--	--	--	--	
			Mercury	--	--	--	--	
			cPAHs	8E-06	RNA	RNA	8E-06	
			Bis(2-ethylhexyl)phthalate	6E-05	RNA	RNA	6E-05	
			Hexachlorobenzene	2E-05	RNA	RNA	2E-05	
			Total PCBs	2E-02	RNA	RNA	2E-02	
			Total Dioxin/Furan TEQ	9E-04	RNA	RNA	9E-04	
			Total PCB TEQ	2E-03	RNA	RNA	2E-03	
			Aldrin	1E-06	RNA	RNA	1E-06	
			alpha-Hexachlorocyclohexane	3E-06	RNA	RNA	3E-06	
			beta-Hexachlorocyclohexane	3E-08	RNA	RNA	3E-08	
			Dieldrin	9E-05	RNA	RNA	9E-05	
			Heptachlor	1E-05	RNA	RNA	1E-05	
			Heptachlor Epoxide	9E-07	RNA	RNA	9E-07	
			Total Chlordanes	1E-05	RNA	RNA	1E-05	
			Total DDx	1E-04	RNA	RNA	1E-04	
Fish Tissue Total Risk =				2E-02				
<b>Total Risk =</b>							<b>2E-02</b>	

Table 5-92 Risk Characterization Summary, Cancer Risks - Tribal Fisher, Boat, Reasonable Maximum Exposure									
Risk Characterization Summary - Carcinogens									
Scenario Timeframe:		Current/Future							
Receptor Population:		Tribal Fisher (Boat)							
Receptor Age:		Adult/Child							
Medium	Exposure Medium	Exposure Point	Chemical of Concern	Carcinogenic Risk					
				Ingestion/Consumption	Inhalation	Dermal	Exposure Routes Total		
Sediment	In-river Sediment	In-river Sediment On-site Direct Contact  RM 6.5 East	Antimony	--	--	--	--		
			Arsenic	NC <sup>1</sup>	RNA	NC <sup>1</sup>	1E-06		
			cPAHs	NC <sup>1</sup>	RNA	NC <sup>1</sup>	5E-07		
			Total PCBs	NC <sup>1</sup>	RNA	NC <sup>1</sup>	9E-07		
			Total Dioxin/Furan TEQ	NC <sup>1</sup>	RNA	NC <sup>1</sup>	2E-06		
			Total PCB TEQ	NC <sup>1</sup>	RNA	NC <sup>1</sup>	6E-07		
			Sediment Total Risk =						5E-06
Fish Tissue	Multiple Species Tissue	Whole body Fish Tissue On-site Consumption (175:73 g/day)	Antimony	--	--	--	--		
			Arsenic	2E-04	RNA	RNA	2E-04		
			Chromium	--	--	--	--		
			Mercury	--	--	--	--		
			cPAHs	8E-06	RNA	RNA	8E-06		
			Bis(2-ethylhexyl)phthalate	6E-05	RNA	RNA	6E-05		
			Hexachlorobenzene	2E-05	RNA	RNA	2E-05		
			Total PCBs	2E-02	RNA	RNA	2E-02		
			Total Dioxin/Furan TEQ	9E-04	RNA	RNA	9E-04		
			Total PCB TEQ	2E-03	RNA	RNA	2E-03		
			Aldrin	1E-06	RNA	RNA	1E-06		
			alpha-Hexachlorocyclohexane	3E-06	RNA	RNA	3E-06		
			beta-Hexachlorocyclohexane	3E-08	RNA	RNA	3E-08		
			Dieldrin	9E-05	RNA	RNA	9E-05		
			Heptachlor	1E-05	RNA	RNA	1E-05		
			Heptachlor Epoxide	9E-07	RNA	RNA	9E-07		
			Total Chlordanes	1E-05	RNA	RNA	1E-05		
			Total DDx	1E-04	RNA	RNA	1E-04		
Fish Tissue Total Risk =						2E-02			
<b>Total Risk =</b>							<b>2E-02</b>		

Table 5-92 Risk Characterization Summary, Cancer Risks - Tribal Fisher, Boat, Reasonable Maximum Exposure								
Risk Characterization Summary - Carcinogens								
Scenario Timeframe:		Current/Future						
Receptor Population:		Tribal Fisher (Boat)						
Receptor Age:		Adult/Child						
Medium	Exposure Medium	Exposure Point	Chemical of Concern	Carcinogenic Risk				
				Ingestion/Consumption	Inhalation	Dermal	Exposure Routes Total	
Sediment	In-river Sediment	In-river Sediment On-site Direct Contact  RM 7 East	Antimony	--	--	--	--	
			Arsenic	NC <sup>1</sup>	RNA	NC <sup>1</sup>	4E-06	
			cPAHs	NC <sup>1</sup>	RNA	NC <sup>1</sup>	2E-06	
			Total PCBs	NC <sup>1</sup>	RNA	NC <sup>1</sup>	5E-08	
			Total Dioxin/Furan TEQ	NC <sup>1</sup>	RNA	NC <sup>1</sup>	9E-07	
			Total PCB TEQ	NC <sup>1</sup>	RNA	NC <sup>1</sup>	3E-08	
			Sediment Total Risk =					7E-06
Fish Tissue	Multiple Species Tissue	Whole body Fish Tissue On-site Consumption (175:73 g/day)	Antimony	--	--	--	--	
			Arsenic	2E-04	RNA	RNA	2E-04	
			Chromium	--	--	--	--	
			Mercury	--	--	--	--	
			cPAHs	8E-06	RNA	RNA	8E-06	
			Bis(2-ethylhexyl)phthalate	6E-05	RNA	RNA	6E-05	
			Hexachlorobenzene	2E-05	RNA	RNA	2E-05	
			Total PCBs	2E-02	RNA	RNA	2E-02	
			Total Dioxin/Furan TEQ	9E-04	RNA	RNA	9E-04	
			Total PCB TEQ	2E-03	RNA	RNA	2E-03	
			Aldrin	1E-06	RNA	RNA	1E-06	
			alpha-Hexachlorocyclohexane	3E-06	RNA	RNA	3E-06	
			beta-Hexachlorocyclohexane	3E-08	RNA	RNA	3E-08	
			Dieldrin	9E-05	RNA	RNA	9E-05	
			Heptachlor	1E-05	RNA	RNA	1E-05	
			Heptachlor Epoxide	9E-07	RNA	RNA	9E-07	
			Total Chlordanes	1E-05	RNA	RNA	1E-05	
			Total DDx	1E-04	RNA	RNA	1E-04	
Fish Tissue Total Risk =					2E-02			
<b>Total Risk =</b>							<b>2E-02</b>	



Table 5-92 Risk Characterization Summary, Cancer Risks - Tribal Fisher, Boat, Reasonable Maximum Exposure							
Risk Characterization Summary - Carcinogens							
Scenario Timeframe:		Current/Future					
Receptor Population:		Tribal Fisher (Boat)					
Receptor Age:		Adult/Child					
Medium	Exposure Medium	Exposure Point	Chemical of Concern	Carcinogenic Risk			
				Ingestion/Consumption	Inhalation	Dermal	Exposure Routes Total
Sediment	In-river Sediment	In-river Sediment On-site Direct Contact  RM 7.5 East	Antimony	--	--	--	--
			Arsenic	NC <sup>1</sup>	RNA	NC <sup>1</sup>	1E-06
			cPAHs	NC <sup>1</sup>	RNA	NC <sup>1</sup>	1E-07
			Total PCBs	NC <sup>1</sup>	RNA	NC <sup>1</sup>	8E-08
			Total Dioxin/Furan TEQ	NA	RNA	NA	NA
			Total PCB TEQ	NA	RNA	NA	NA
			Sediment Total Risk =				
Fish Tissue	Multiple Species Tissue	Whole body Fish Tissue On-site Consumption (175:73 g/day)	Antimony	--	--	--	--
			Arsenic	2E-04	RNA	RNA	2E-04
			Chromium	--	--	--	--
			Mercury	--	--	--	--
			cPAHs	8E-06	RNA	RNA	8E-06
			Bis(2-ethylhexyl)phthalate	6E-05	RNA	RNA	6E-05
			Hexachlorobenzene	2E-05	RNA	RNA	2E-05
			Total PCBs	2E-02	RNA	RNA	2E-02
			Total Dioxin/Furan TEQ	9E-04	RNA	RNA	9E-04
			Total PCB TEQ	2E-03	RNA	RNA	2E-03
			Aldrin	1E-06	RNA	RNA	1E-06
			alpha-Hexachlorocyclohexane	3E-06	RNA	RNA	3E-06
			beta-Hexachlorocyclohexane	3E-08	RNA	RNA	3E-08
			Dieldrin	9E-05	RNA	RNA	9E-05
			Heptachlor	1E-05	RNA	RNA	1E-05
			Heptachlor Epoxide	9E-07	RNA	RNA	9E-07
			Total Chlordanes	1E-05	RNA	RNA	1E-05
Total DDx	1E-04	RNA	RNA	1E-04			
Fish Tissue Total Risk =						2E-02	
<b>Total Risk =</b>						<b>2E-02</b>	

Table 5-92 Risk Characterization Summary, Cancer Risks - Tribal Fisher, Boat, Reasonable Maximum Exposure								
Risk Characterization Summary - Carcinogens								
Scenario Timeframe:		Current/Future						
Receptor Population:		Tribal Fisher (Boat)						
Receptor Age:		Adult/Child						
Medium	Exposure Medium	Exposure Point	Chemical of Concern	Carcinogenic Risk				
				Ingestion/Consumption	Inhalation	Dermal	Exposure Routes Total	
Sediment	In-river Sediment	In-river Sediment On-site Direct Contact  RM 8 East	Antimony	--	--	--	--	
			Arsenic	NC <sup>1</sup>	RNA	NC <sup>1</sup>	3E-06	
			cPAHs	NC <sup>1</sup>	RNA	NC <sup>1</sup>	2E-06	
			Total PCBs	NC <sup>1</sup>	RNA	NC <sup>1</sup>	3E-07	
			Total Dioxin/Furan TEQ	NC <sup>1</sup>	RNA	NC <sup>1</sup>	4E-08	
			Total PCB TEQ	NC <sup>1</sup>	RNA	NC <sup>1</sup>	8E-07	
			Sediment Total Risk =					6E-06
Fish Tissue	Multiple Species Tissue	Whole body Fish Tissue On-site Consumption (175:73 g/day)	Antimony	--	--	--	--	
			Arsenic	2E-04	RNA	RNA	2E-04	
			Chromium	--	--	--	--	
			Mercury	--	--	--	--	
			cPAHs	8E-06	RNA	RNA	8E-06	
			Bis(2-ethylhexyl)phthalate	6E-05	RNA	RNA	6E-05	
			Hexachlorobenzene	2E-05	RNA	RNA	2E-05	
			Total PCBs	2E-02	RNA	RNA	2E-02	
			Total Dioxin/Furan TEQ	9E-04	RNA	RNA	9E-04	
			Total PCB TEQ	2E-03	RNA	RNA	2E-03	
			Aldrin	1E-06	RNA	RNA	1E-06	
			alpha-Hexachlorocyclohexane	3E-06	RNA	RNA	3E-06	
			beta-Hexachlorocyclohexane	3E-08	RNA	RNA	3E-08	
			Dieldrin	9E-05	RNA	RNA	9E-05	
			Heptachlor	1E-05	RNA	RNA	1E-05	
			Heptachlor Epoxide	9E-07	RNA	RNA	9E-07	
			Total Chlordanes	1E-05	RNA	RNA	1E-05	
			Total DDx	1E-04	RNA	RNA	1E-04	
Fish Tissue Total Risk =					2E-02			
<b>Total Risk =</b>							<b>2E-02</b>	

Table 5-92 Risk Characterization Summary, Cancer Risks - Tribal Fisher, Boat, Reasonable Maximum Exposure							
Risk Characterization Summary - Carcinogens							
Scenario Timeframe: Current/Future							
Receptor Population: Tribal Fisher (Boat)							
Receptor Age: Adult/Child							
Medium	Exposure Medium	Exposure Point	Chemical of Concern	Carcinogenic Risk			
				Ingestion/Consumption	Inhalation	Dermal	Exposure Routes Total
Sediment	In-river Sediment	In-river Sediment On-site Direct Contact	SIL Antimony	--	--	--	--
			Arsenic	NC <sup>1</sup>	RNA	NC <sup>1</sup>	1E-06
			cPAHs	NC <sup>1</sup>	RNA	NC <sup>1</sup>	1E-06
			Total PCBs	NC <sup>1</sup>	RNA	NC <sup>1</sup>	3E-07
			Total Dioxin/Furan TEQ	NC <sup>1</sup>	RNA	NC <sup>1</sup>	7E-07
			Total PCB TEQ	NC <sup>1</sup>	RNA	NC <sup>1</sup>	3E-06
			Sediment Total Risk =				6E-06
Fish Tissue	Multiple Species Tissue	Whole body Fish Tissue On-site Consumption (175:73 g/day)	Antimony	--	--	--	--
			Arsenic	2E-04	RNA	RNA	2E-04
			Chromium	--	--	--	--
			Mercury	--	--	--	--
			cPAHs	8E-06	RNA	RNA	8E-06
			Bis(2-ethylhexyl)phthalate	6E-05	RNA	RNA	6E-05
			Hexachlorobenzene	2E-05	RNA	RNA	2E-05
			Total PCBs	2E-02	RNA	RNA	2E-02
			Total Dioxin/Furan TEQ	9E-04	RNA	RNA	9E-04
			Total PCB TEQ	2E-03	RNA	RNA	2E-03
			Aldrin	1E-06	RNA	RNA	1E-06
			alpha-Hexachlorocyclohexane	3E-06	RNA	RNA	3E-06
			beta-Hexachlorocyclohexane	3E-08	RNA	RNA	3E-08
			Dieldrin	9E-05	RNA	RNA	9E-05
			Heptachlor	1E-05	RNA	RNA	1E-05
			Heptachlor Epoxide	9E-07	RNA	RNA	9E-07
			Total Chlordanes	1E-05	RNA	RNA	1E-05
			Total DDx	1E-04	RNA	RNA	1E-04
Fish Tissue Total Risk =				2E-02			
<b>Total Risk =</b>				<b>2E-02</b>			

Table 5-92 Risk Characterization Summary, Cancer Risks - Tribal Fisher, Boat, Reasonable Maximum Exposure								
Risk Characterization Summary - Carcinogens								
Scenario Timeframe:		Current/Future						
Receptor Population:		Tribal Fisher (Boat)						
Receptor Age:		Adult/Child						
Medium	Exposure Medium	Exposure Point	Chemical of Concern	Carcinogenic Risk				
				Ingestion/Consumption	Inhalation	Dermal	Exposure Routes Total	
Sediment	In-river Sediment	In-river Sediment On-site Direct Contact  RM 8.5 East	Antimony	--	--	--	--	
			Arsenic	NC <sup>1</sup>	RNA	NC <sup>1</sup>	3E-06	
			cPAHs	NC <sup>1</sup>	RNA	NC <sup>1</sup>	3E-07	
			Total PCBs	NC <sup>1</sup>	RNA	NC <sup>1</sup>	5E-08	
			Total Dioxin/Furan TEQ	NC <sup>1</sup>	RNA	NC <sup>1</sup>	3E-08	
			Total PCB TEQ	NC <sup>1</sup>	RNA	NC <sup>1</sup>	3E-08	
			Sediment Total Risk =				3E-06	
Fish Tissue	Multiple Species Tissue	Whole body Fish Tissue On-site Consumption (175:73 g/day)	Antimony	--	--	--	--	
			Arsenic	2E-04	RNA	RNA	2E-04	
			Chromium	--	--	--	--	
			Mercury	--	--	--	--	
			cPAHs	8E-06	RNA	RNA	8E-06	
			Bis(2-ethylhexyl)phthalate	6E-05	RNA	RNA	6E-05	
			Hexachlorobenzene	2E-05	RNA	RNA	2E-05	
			Total PCBs	2E-02	RNA	RNA	2E-02	
			Total Dioxin/Furan TEQ	9E-04	RNA	RNA	9E-04	
			Total PCB TEQ	2E-03	RNA	RNA	2E-03	
			Aldrin	1E-06	RNA	RNA	1E-06	
			alpha-Hexachlorocyclohexane	3E-06	RNA	RNA	3E-06	
			beta-Hexachlorocyclohexane	3E-08	RNA	RNA	3E-08	
			Dieldrin	9E-05	RNA	RNA	9E-05	
			Heptachlor	1E-05	RNA	RNA	1E-05	
			Heptachlor Epoxide	9E-07	RNA	RNA	9E-07	
			Total Chlordanes	1E-05	RNA	RNA	1E-05	
			Total DDx	1E-04	RNA	RNA	1E-04	
Fish Tissue Total Risk =				2E-02				
<b>Total Risk =</b>							<b>2E-02</b>	

Table 5-92 Risk Characterization Summary, Cancer Risks - Tribal Fisher, Boat, Reasonable Maximum Exposure									
Risk Characterization Summary - Carcinogens									
Scenario Timeframe:		Current/Future							
Receptor Population:		Tribal Fisher (Boat)							
Receptor Age:		Adult/Child							
Medium	Exposure Medium	Exposure Point	Chemical of Concern	Carcinogenic Risk					
				Ingestion/Consumption	Inhalation	Dermal	Exposure Routes Total		
Sediment	In-river Sediment	In-river Sediment On-site Direct Contact  RM 9 East	Antimony	--	--	--	--		
			Arsenic	NC <sup>1</sup>	RNA	NC <sup>1</sup>	1E-06		
			cPAHs	NC <sup>1</sup>	RNA	NC <sup>1</sup>	6E-08		
			Total PCBs	NC <sup>1</sup>	RNA	NC <sup>1</sup>	7E-08		
			Total Dioxin/Furan TEQ	NC <sup>1</sup>	RNA	NC <sup>1</sup>	5E-09		
			Total PCB TEQ	NC <sup>1</sup>	RNA	NC <sup>1</sup>	3E-08		
							Sediment Total Risk =		1E-06
Fish Tissue	Multiple Species Tissue	Whole body Fish Tissue On-site Consumption (175:73 g/day)	Antimony	--	--	--	--		
			Arsenic	2E-04	RNA	RNA	2E-04		
			Chromium	--	--	--	--		
			Mercury	--	--	--	--		
			cPAHs	8E-06	RNA	RNA	8E-06		
			Bis(2-ethylhexyl)phthalate	6E-05	RNA	RNA	6E-05		
			Hexachlorobenzene	2E-05	RNA	RNA	2E-05		
			Total PCBs	2E-02	RNA	RNA	2E-02		
			Total Dioxin/Furan TEQ	9E-04	RNA	RNA	9E-04		
			Total PCB TEQ	2E-03	RNA	RNA	2E-03		
			Aldrin	1E-06	RNA	RNA	1E-06		
			alpha-Hexachlorocyclohexane	3E-06	RNA	RNA	3E-06		
			beta-Hexachlorocyclohexane	3E-08	RNA	RNA	3E-08		
			Dieldrin	9E-05	RNA	RNA	9E-05		
			Heptachlor	1E-05	RNA	RNA	1E-05		
			Heptachlor Epoxide	9E-07	RNA	RNA	9E-07		
			Total Chlordanes	1E-05	RNA	RNA	1E-05		
			Total DDx	1E-04	RNA	RNA	1E-04		
				Fish Tissue Total Risk =		2E-02			
				<b>Total Risk =</b>		<b>2E-02</b>			

Table 5-92 Risk Characterization Summary, Cancer Risks - Tribal Fisher, Boat, Reasonable Maximum Exposure									
Risk Characterization Summary - Carcinogens									
Scenario Timeframe:		Current/Future							
Receptor Population:		Tribal Fisher (Boat)							
Receptor Age:		Adult/Child							
Medium	Exposure Medium	Exposure Point	Chemical of Concern	Carcinogenic Risk					
				Ingestion/Consumption	Inhalation	Dermal	Exposure Routes Total		
Sediment	In-river Sediment	In-river Sediment On-site Direct Contact  RM 9.5 East	Antimony	--	--	--	--		
			Arsenic	NC <sup>1</sup>	RNA	NC <sup>1</sup>	9E-07		
			cPAHs	NC <sup>1</sup>	RNA	NC <sup>1</sup>	1E-07		
			Total PCBs	NC <sup>1</sup>	RNA	NC <sup>1</sup>	3E-08		
			Total Dioxin/Furan TEQ	NC <sup>1</sup>	RNA	NC <sup>1</sup>	3E-08		
			Total PCB TEQ	NC <sup>1</sup>	RNA	NC <sup>1</sup>	1E-08		
			Sediment Total Risk =						1E-06
Fish Tissue	Multiple Species Tissue	Whole body Fish Tissue On-site Consumption (175:73 g/day)	Antimony	--	--	--	--		
			Arsenic	2E-04	RNA	RNA	2E-04		
			Chromium	--	--	--	--		
			Mercury	--	--	--	--		
			cPAHs	8E-06	RNA	RNA	8E-06		
			Bis(2-ethylhexyl)phthalate	6E-05	RNA	RNA	6E-05		
			Hexachlorobenzene	2E-05	RNA	RNA	2E-05		
			Total PCBs	2E-02	RNA	RNA	2E-02		
			Total Dioxin/Furan TEQ	9E-04	RNA	RNA	9E-04		
			Total PCB TEQ	2E-03	RNA	RNA	2E-03		
			Aldrin	1E-06	RNA	RNA	1E-06		
			alpha-Hexachlorocyclohexane	3E-06	RNA	RNA	3E-06		
			beta-Hexachlorocyclohexane	3E-08	RNA	RNA	3E-08		
			Dieldrin	9E-05	RNA	RNA	9E-05		
			Heptachlor	1E-05	RNA	RNA	1E-05		
			Heptachlor Epoxide	9E-07	RNA	RNA	9E-07		
			Total Chlordanes	1E-05	RNA	RNA	1E-05		
			Total DDx	1E-04	RNA	RNA	1E-04		
			Fish Tissue Total Risk =						2E-02
			<b>Total Risk =</b>						

Table 5-92 Risk Characterization Summary, Cancer Risks - Tribal Fisher, Boat, Reasonable Maximum Exposure									
Risk Characterization Summary - Carcinogens									
Scenario Timeframe:		Current/Future							
Receptor Population:		Tribal Fisher (Boat)							
Receptor Age:		Adult/Child							
Medium	Exposure Medium	Exposure Point	Chemical of Concern	Carcinogenic Risk					
				Ingestion/Consumption	Inhalation	Dermal	Exposure Routes Total		
Sediment	In-river Sediment	In-river Sediment On-site Direct Contact  RM 10 East	Antimony	--	--	--	--		
			Arsenic	NC <sup>1</sup>	RNA	NC <sup>1</sup>	9E-07		
			cPAHs	NC <sup>1</sup>	RNA	NC <sup>1</sup>	1E-06		
			Total PCBs	NC <sup>1</sup>	RNA	NC <sup>1</sup>	3E-08		
			Total Dioxin/Furan TEQ	NC <sup>1</sup>	RNA	NC <sup>1</sup>	1E-08		
			Total PCB TEQ	NC <sup>1</sup>	RNA	NC <sup>1</sup>	3E-08		
			Sediment Total Risk =						2E-06
Fish Tissue	Multiple Species Tissue	Whole body Fish Tissue On-site Consumption (175:73 g/day)	Antimony	--	--	--	--		
			Arsenic	2E-04	RNA	RNA	2E-04		
			Chromium	--	--	--	--		
			Mercury	--	--	--	--		
			cPAHs	8E-06	RNA	RNA	8E-06		
			Bis(2-ethylhexyl)phthalate	6E-05	RNA	RNA	6E-05		
			Hexachlorobenzene	2E-05	RNA	RNA	2E-05		
			Total PCBs	2E-02	RNA	RNA	2E-02		
			Total Dioxin/Furan TEQ	9E-04	RNA	RNA	9E-04		
			Total PCB TEQ	2E-03	RNA	RNA	2E-03		
			Aldrin	1E-06	RNA	RNA	1E-06		
			alpha-Hexachlorocyclohexane	3E-06	RNA	RNA	3E-06		
			beta-Hexachlorocyclohexane	3E-08	RNA	RNA	3E-08		
			Dieldrin	9E-05	RNA	RNA	9E-05		
			Heptachlor	1E-05	RNA	RNA	1E-05		
			Heptachlor Epoxide	9E-07	RNA	RNA	9E-07		
			Total Chlordanes	1E-05	RNA	RNA	1E-05		
			Total DDx	1E-04	RNA	RNA	1E-04		
Fish Tissue Total Risk =						2E-02			
<b>Total Risk =</b>							<b>2E-02</b>		

Table 5-92 Risk Characterization Summary, Cancer Risks - Tribal Fisher, Boat, Reasonable Maximum Exposure							
Risk Characterization Summary - Carcinogens							
Scenario Timeframe:		Current/Future					
Receptor Population:		Tribal Fisher (Boat)					
Receptor Age:		Adult/Child					
Medium	Exposure Medium	Exposure Point	Chemical of Concern	Carcinogenic Risk			
				Ingestion/Consumption	Inhalation	Dermal	Exposure Routes Total
Sediment	In-river Sediment	In-river Sediment On-site Direct Contact  RM 10.5 East	Antimony	--	--	--	--
			Arsenic	NC <sup>1</sup>	RNA	NC <sup>1</sup>	8E-07
			cPAHs	NC <sup>1</sup>	RNA	NC <sup>1</sup>	3E-07
			Total PCBs	NC <sup>1</sup>	RNA	NC <sup>1</sup>	1E-07
			Total Dioxin/Furan TEQ	NA	RNA	NA	NA
			Total PCB TEQ	NC <sup>1</sup>	RNA	NC <sup>1</sup>	2E-08
			Sediment Total Risk =				
Fish Tissue	Multiple Species Tissue	Whole body Fish Tissue On-site Consumption (175:73 g/day)	Antimony	--	--	--	--
			Arsenic	2E-04	RNA	RNA	2E-04
			Chromium	--	--	--	--
			Mercury	--	--	--	--
			cPAHs	8E-06	RNA	RNA	8E-06
			Bis(2-ethylhexyl)phthalate	6E-05	RNA	RNA	6E-05
			Hexachlorobenzene	2E-05	RNA	RNA	2E-05
			Total PCBs	2E-02	RNA	RNA	2E-02
			Total Dioxin/Furan TEQ	9E-04	RNA	RNA	9E-04
			Total PCB TEQ	2E-03	RNA	RNA	2E-03
			Aldrin	1E-06	RNA	RNA	1E-06
			alpha-Hexachlorocyclohexane	3E-06	RNA	RNA	3E-06
			beta-Hexachlorocyclohexane	3E-08	RNA	RNA	3E-08
			Dieldrin	9E-05	RNA	RNA	9E-05
			Heptachlor	1E-05	RNA	RNA	1E-05
			Heptachlor Epoxide	9E-07	RNA	RNA	9E-07
			Total Chlordanes	1E-05	RNA	RNA	1E-05
Total DDx	1E-04	RNA	RNA	1E-04			
Fish Tissue Total Risk =						2E-02	
<b>Total Risk =</b>						<b>2E-02</b>	



Table 5-92 Risk Characterization Summary, Cancer Risks - Tribal Fisher, Boat, Reasonable Maximum Exposure									
Risk Characterization Summary - Carcinogens									
Scenario Timeframe:		Current/Future							
Receptor Population:		Tribal Fisher (Boat)							
Receptor Age:		Adult/Child							
Medium	Exposure Medium	Exposure Point	Chemical of Concern	Carcinogenic Risk					
				Ingestion/Consumption	Inhalation	Dermal	Exposure Routes Total		
Sediment	In-river Sediment	In-river Sediment On-site Direct Contact  RM 11 East	Antimony	--	--	--	--		
			Arsenic	NC <sup>1</sup>	RNA	NC <sup>1</sup>	8E-07		
			cPAHs	NC <sup>1</sup>	RNA	NC <sup>1</sup>	5E-07		
			Total PCBs	NC <sup>1</sup>	RNA	NC <sup>1</sup>	3E-06		
			Total Dioxin/Furan TEQ	NC <sup>1</sup>	RNA	NC <sup>1</sup>	7E-08		
			Total PCB TEQ	NC <sup>1</sup>	RNA	NC <sup>1</sup>	1E-06		
			Sediment Total Risk =						5E-06
Fish Tissue	Multiple Species Tissue	Whole body Fish Tissue On-site Consumption (175:73 g/day)	Antimony	--	--	--	--		
			Arsenic	2E-04	RNA	RNA	2E-04		
			Chromium	--	--	--	--		
			Mercury	--	--	--	--		
			cPAHs	8E-06	RNA	RNA	8E-06		
			Bis(2-ethylhexyl)phthalate	6E-05	RNA	RNA	6E-05		
			Hexachlorobenzene	2E-05	RNA	RNA	2E-05		
			Total PCBs	2E-02	RNA	RNA	2E-02		
			Total Dioxin/Furan TEQ	9E-04	RNA	RNA	9E-04		
			Total PCB TEQ	2E-03	RNA	RNA	2E-03		
			Aldrin	1E-06	RNA	RNA	1E-06		
			alpha-Hexachlorocyclohexane	3E-06	RNA	RNA	3E-06		
			beta-Hexachlorocyclohexane	3E-08	RNA	RNA	3E-08		
			Dieldrin	9E-05	RNA	RNA	9E-05		
			Heptachlor	1E-05	RNA	RNA	1E-05		
			Heptachlor Epoxide	9E-07	RNA	RNA	9E-07		
			Total Chlordanes	1E-05	RNA	RNA	1E-05		
			Total DDx	1E-04	RNA	RNA	1E-04		
Fish Tissue Total Risk =						2E-02			
<b>Total Risk =</b>							<b>2E-02</b>		

Table 5-92 Risk Characterization Summary, Cancer Risks - Tribal Fisher, Boat, Reasonable Maximum Exposure									
Risk Characterization Summary - Carcinogens									
Scenario Timeframe:		Current/Future							
Receptor Population:		Tribal Fisher (Boat)							
Receptor Age:		Adult/Child							
Medium	Exposure Medium	Exposure Point	Chemical of Concern	Carcinogenic Risk					
				Ingestion/Consumption	Inhalation	Dermal	Exposure Routes Total		
Sediment	In-river Sediment	In-river Sediment On-site Direct Contact  RM 11.5 East	Antimony	--	--	--	--		
			Arsenic	NA	RNA	NA	NA		
			cPAHs	NA	RNA	NA	NA		
			Total PCBs	NA	RNA	NA	NA		
			Total Dioxin/Furan TEQ	NA	RNA	NA	NA		
			Total PCB TEQ	NA	RNA	NA	NA		
							Sediment Total Risk =		NA
Fish Tissue	Multiple Species Tissue	Whole body Fish Tissue On-site Consumption (175:73 g/day)	Antimony	--	--	--	--		
			Arsenic	2E-04	RNA	RNA	2E-04		
			Chromium	--	--	--	--		
			Mercury	--	--	--	--		
			cPAHs	8E-06	RNA	RNA	8E-06		
			Bis(2-ethylhexyl)phthalate	6E-05	RNA	RNA	6E-05		
			Hexachlorobenzene	2E-05	RNA	RNA	2E-05		
			Total PCBs	2E-02	RNA	RNA	2E-02		
			Total Dioxin/Furan TEQ	9E-04	RNA	RNA	9E-04		
			Total PCB TEQ	2E-03	RNA	RNA	2E-03		
			Aldrin	1E-06	RNA	RNA	1E-06		
			alpha-Hexachlorocyclohexane	3E-06	RNA	RNA	3E-06		
			beta-Hexachlorocyclohexane	3E-08	RNA	RNA	3E-08		
			Dieldrin	9E-05	RNA	RNA	9E-05		
			Heptachlor	1E-05	RNA	RNA	1E-05		
			Heptachlor Epoxide	9E-07	RNA	RNA	9E-07		
			Total Chlordanes	1E-05	RNA	RNA	1E-05		
			Total DDx	1E-04	RNA	RNA	1E-04		
							Fish Tissue Total Risk =		2E-02
							<b>Total Risk =</b>		<b>2E-02</b>

Table 5-92 Risk Characterization Summary, Cancer Risks - Tribal Fisher, Boat, Reasonable Maximum Exposure									
Risk Characterization Summary - Carcinogens									
Scenario Timeframe:		Current/Future							
Receptor Population:		Tribal Fisher (Boat)							
Receptor Age:		Adult/Child							
Medium	Exposure Medium	Exposure Point	Chemical of Concern	Carcinogenic Risk					
				Ingestion/Consumption	Inhalation	Dermal	Exposure Routes Total		
Sediment	In-river Sediment	In-river Sediment On-site Direct Contact  RM 12 East	Antimony	--	--	--	--		
			Arsenic	NC <sup>1</sup>	RNA	NC <sup>1</sup>	7E-07		
			cPAHs	NC <sup>1</sup>	RNA	NC <sup>1</sup>	7E-08		
			Total PCBs	NC <sup>1</sup>	RNA	NC <sup>1</sup>	1E-07		
			Total Dioxin/Furan TEQ	NC <sup>1</sup>	RNA	NC <sup>1</sup>	4E-08		
			Total PCB TEQ	NC <sup>1</sup>	RNA	NC <sup>1</sup>	2E-07		
			Sediment Total Risk =						1E-06
Fish Tissue	Multiple Species Tissue	Whole body Fish Tissue On-site Consumption (175:73 g/day)	Antimony	--	--	--	--		
			Arsenic	2E-04	RNA	RNA	2E-04		
			Chromium	--	--	--	--		
			Mercury	--	--	--	--		
			cPAHs	8E-06	RNA	RNA	8E-06		
			Bis(2-ethylhexyl)phthalate	6E-05	RNA	RNA	6E-05		
			Hexachlorobenzene	2E-05	RNA	RNA	2E-05		
			Total PCBs	2E-02	RNA	RNA	2E-02		
			Total Dioxin/Furan TEQ	9E-04	RNA	RNA	9E-04		
			Total PCB TEQ	2E-03	RNA	RNA	2E-03		
			Aldrin	1E-06	RNA	RNA	1E-06		
			alpha-Hexachlorocyclohexane	3E-06	RNA	RNA	3E-06		
			beta-Hexachlorocyclohexane	3E-08	RNA	RNA	3E-08		
			Dieldrin	9E-05	RNA	RNA	9E-05		
			Heptachlor	1E-05	RNA	RNA	1E-05		
			Heptachlor Epoxide	9E-07	RNA	RNA	9E-07		
			Total Chlordanes	1E-05	RNA	RNA	1E-05		
			Total DDx	1E-04	RNA	RNA	1E-04		
Fish Tissue Total Risk =						2E-02			
<b>Total Risk =</b>							<b>2E-02</b>		

Table 5-92 Risk Characterization Summary, Cancer Risks - Tribal Fisher, Boat, Reasonable Maximum Exposure									
Risk Characterization Summary - Carcinogens									
Scenario Timeframe:		Current/Future							
Receptor Population:		Tribal Fisher (Boat)							
Receptor Age:		Adult/Child							
Medium	Exposure Medium	Exposure Point	Chemical of Concern	Carcinogenic Risk					
				Ingestion/Consumption	Inhalation	Dermal	Exposure Routes Total		
Sediment	In-river Sediment	In-river Sediment On-site Direct Contact  Study Area-wide	Antimony	--	--	--	--		
			Arsenic	NC <sup>1</sup>	RNA	NC <sup>1</sup>	1E-06		
			cPAHs	NC <sup>1</sup>	RNA	NC <sup>1</sup>	1E-05		
			Total PCBs	NC <sup>1</sup>	RNA	NC <sup>1</sup>	3E-07		
			Total Dioxin/Furan TEQ	NC <sup>1</sup>	RNA	NC <sup>1</sup>	1E-05		
			Total PCB TEQ	NC <sup>1</sup>	RNA	NC <sup>1</sup>	8E-07		
			Sediment Total Risk =						2E-05
Fish Tissue	Multiple Species Tissue	Whole body Fish Tissue On-site Consumption (175:73 g/day)	Antimony	--	--	--	--		
			Arsenic	2E-04	RNA	RNA	2E-04		
			Chromium	--	--	--	--		
			Mercury	--	--	--	--		
			cPAHs	8E-06	RNA	RNA	8E-06		
			Bis(2-ethylhexyl)phthalate	6E-05	RNA	RNA	6E-05		
			Hexachlorobenzene	2E-05	RNA	RNA	2E-05		
			Total PCBs	2E-02	RNA	RNA	2E-02		
			Total Dioxin/Furan TEQ	9E-04	RNA	RNA	9E-04		
			Total PCB TEQ	2E-03	RNA	RNA	2E-03		
			Aldrin	1E-06	RNA	RNA	1E-06		
			alpha-Hexachlorocyclohexane	3E-06	RNA	RNA	3E-06		
			beta-Hexachlorocyclohexane	3E-08	RNA	RNA	3E-08		
			Dieldrin	9E-05	RNA	RNA	9E-05		
			Heptachlor	1E-05	RNA	RNA	1E-05		
			Heptachlor Epoxide	9E-07	RNA	RNA	9E-07		
			Total Chlordanes	1E-05	RNA	RNA	1E-05		
			Total DDx	1E-04	RNA	RNA	1E-04		
Fish Tissue Total Risk =						2E-02			
<b>Total Risk =</b>							<b>2E-02</b>		
<b>Key</b>									
NC		Not Calculated							
SIL		Swan Island Lagoon							
RM		River Mile							
--		Toxicity criteria are not available to quantitatively address this route of exposure.							
RNA		Route of exposure is not applicable to this medium.							
<b>Note 1</b>		Pathway specific integrated risks were not calculated.							

Table 5-92 Risk Characterization Summary, Cancer Risks - Tribal Fisher, Boat, Reasonable Maximum Exposure									
Risk Characterization Summary - Carcinogens									
Scenario Timeframe: Current/Future									
Receptor Population: Tribal Fisher (Boat)									
Receptor Age: Adult/Child									
Medium	Exposure Medium	Exposure Point	Chemical of Concern	Carcinogenic Risk					
				Ingestion/Consumption	Inhalation	Dermal	Exposure Routes Total		
Sediment	In-river Sediment	In-river Sediment On-site Direct Contact RM 1 West	Antimony	--	--	--	--		
			Arsenic	NC <sup>1</sup>	RNA	NC <sup>1</sup>	1E-06		
			cPAHs	NC <sup>1</sup>	RNA	NC <sup>1</sup>	8E-07		
			Total PCBs	NC <sup>1</sup>	RNA	NC <sup>1</sup>	1E-08		
			Total Dioxin/Furan TEQ	NC <sup>1</sup>	RNA	NC <sup>1</sup>	6E-08		
			Total PCB TEQ	NC <sup>1</sup>	RNA	NC <sup>1</sup>	1E-08		
			Sediment Total Risk =						2E-06
Fish Tissue	Multiple Species Tissue	Fillet Fish Tissue On-site Consumption (175:73 g/day)	Antimony	--	--	--	--		
			Arsenic	2E-04	RNA	RNA	2E-04		
			Chromium	--	--	--	--		
			Mercury	--	--	--	--		
			cPAHs	6E-06	RNA	RNA	6E-06		
			Bis(2-ethylhexyl)phthalate	1E-06	RNA	RNA	1E-06		
			Hexachlorobenzene	4E-05	RNA	RNA	4E-05		
			Total PCBs	1E-02	RNA	RNA	1E-02		
			Total Dioxin/Furan TEQ	3E-04	RNA	RNA	3E-04		
			Total PCB TEQ	6E-04	RNA	RNA	6E-04		
			Aldrin	6E-07	RNA	RNA	6E-07		
			alpha-Hexachlorocyclohexane	7E-08	RNA	RNA	7E-08		
			beta-Hexachlorocyclohexane	3E-06	RNA	RNA	3E-06		
			Dieldrin	6E-05	RNA	RNA	6E-05		
			Heptachlor	8E-09	RNA	RNA	8E-09		
			Heptachlor Epoxide	4E-07	RNA	RNA	4E-07		
			Total Chlordanes	2E-06	RNA	RNA	2E-06		
			Total DDx	5E-05	RNA	RNA	5E-05		
Fish Tissue Total Risk =						1E-02			
<b>Total Risk =</b>							<b>1E-02</b>		

Table 5-92 Risk Characterization Summary, Cancer Risks - Tribal Fisher, Boat, Reasonable Maximum Exposure							
Risk Characterization Summary - Carcinogens							
Scenario Timeframe:		Current/Future					
Receptor Population:		Tribal Fisher (Boat)					
Receptor Age:		Adult/Child					
Medium	Exposure Medium	Exposure Point	Chemical of Concern	Carcinogenic Risk			
				Ingestion/Consumption	Inhalation	Dermal	Exposure Routes Total
Sediment	In-river Sediment	In-river Sediment On-site Direct Contact  RM 1.5 West					
			Antimony	--	--	--	--
			Arsenic	NC <sup>1</sup>	RNA	NC <sup>1</sup>	1E-06
			cPAHs	NC <sup>1</sup>	RNA	NC <sup>1</sup>	2E-07
			Total PCBs	NC <sup>1</sup>	RNA	NC <sup>1</sup>	2E-08
			Total Dioxin/Furan TEQ	NC <sup>1</sup>	RNA	NC <sup>1</sup>	3E-09
			Total PCB TEQ	NC <sup>1</sup>	RNA	NC <sup>1</sup>	1E-08
			Sediment Total Risk =				1E-06
Fish Tissue	Multiple Species Tissue	Fillet Fish Tissue On-site Consumption (175:73 g/day)					
			Antimony	--	--	--	--
			Arsenic	2E-04	RNA	RNA	2E-04
			Chromium	--	--	--	--
			Mercury	--	--	--	--
			cPAHs	6E-06	RNA	RNA	6E-06
			Bis(2-ethylhexyl)phthalate	1E-06	RNA	RNA	1E-06
			Hexachlorobenzene	4E-05	RNA	RNA	4E-05
			Total PCBs	1E-02	RNA	RNA	1E-02
			Total Dioxin/Furan TEQ	3E-04	RNA	RNA	3E-04
			Total PCB TEQ	6E-04	RNA	RNA	6E-04
			Aldrin	6E-07	RNA	RNA	6E-07
			alpha-Hexachlorocyclohexane	7E-08	RNA	RNA	7E-08
			beta-Hexachlorocyclohexane	3E-06	RNA	RNA	3E-06
			Dieldrin	6E-05	RNA	RNA	6E-05
			Heptachlor	8E-09	RNA	RNA	8E-09
			Heptachlor Epoxide	4E-07	RNA	RNA	4E-07
			Total Chlordanes	2E-06	RNA	RNA	2E-06
Total DDX	5E-05	RNA	RNA	5E-05			
Fish Tissue Total Risk =				1E-02			
<b>Total Risk =</b>				<b>1E-02</b>			

Table 5-92 Risk Characterization Summary, Cancer Risks - Tribal Fisher, Boat, Reasonable Maximum Exposure							
Risk Characterization Summary - Carcinogens							
Scenario Timeframe:		Current/Future					
Receptor Population:		Tribal Fisher (Boat)					
Receptor Age:		Adult/Child					
Medium	Exposure Medium	Exposure Point	Chemical of Concern	Carcinogenic Risk			
				Ingestion/Consumption	Inhalation	Dermal	Exposure Routes Total
Sediment	In-river Sediment	In-river Sediment On-site Direct Contact  RM 2 West					
			Antimony	--	--	--	--
			Arsenic	NC <sup>1</sup>	RNA	NC <sup>1</sup>	1E-06
			cPAHs	NC <sup>1</sup>	RNA	NC <sup>1</sup>	3E-07
			Total PCBs	NC <sup>1</sup>	RNA	NC <sup>1</sup>	1E-08
			Total Dioxin/Furan TEQ	NC <sup>1</sup>	RNA	NC <sup>1</sup>	5E-08
			Total PCB TEQ	NC <sup>1</sup>	RNA	NC <sup>1</sup>	2E-08
				Sediment Total Risk =			1E-06
Fish Tissue	Multiple Species Tissue	Fillet Fish Tissue On-site Consumption (175:73 g/day)					
			Antimony	--	--	--	--
			Arsenic	2E-04	RNA	RNA	2E-04
			Chromium	--	--	--	--
			Mercury	--	--	--	--
			cPAHs	6E-06	RNA	RNA	6E-06
			Bis(2-ethylhexyl)phthalate	1E-06	RNA	RNA	1E-06
			Hexachlorobenzene	4E-05	RNA	RNA	4E-05
			Total PCBs	1E-02	RNA	RNA	1E-02
			Total Dioxin/Furan TEQ	3E-04	RNA	RNA	3E-04
			Total PCB TEQ	6E-04	RNA	RNA	6E-04
			Aldrin	6E-07	RNA	RNA	6E-07
			alpha-Hexachlorocyclohexane	7E-08	RNA	RNA	7E-08
			beta-Hexachlorocyclohexane	3E-06	RNA	RNA	3E-06
			Dieldrin	6E-05	RNA	RNA	6E-05
			Heptachlor	8E-09	RNA	RNA	8E-09
			Heptachlor Epoxide	4E-07	RNA	RNA	4E-07
			Total Chlordanes	2E-06	RNA	RNA	2E-06
Total DDX	5E-05	RNA	RNA	5E-05			
	Fish Tissue Total Risk =			1E-02			
	<b>Total Risk =</b>			<b>1E-02</b>			

Table 5-92 Risk Characterization Summary, Cancer Risks - Tribal Fisher, Boat, Reasonable Maximum Exposure							
Risk Characterization Summary - Carcinogens							
Scenario Timeframe:		Current/Future					
Receptor Population:		Tribal Fisher (Boat)					
Receptor Age:		Adult/Child					
Medium	Exposure Medium	Exposure Point	Chemical of Concern	Carcinogenic Risk			
				Ingestion/Consumption	Inhalation	Dermal	Exposure Routes Total
Sediment	In-river Sediment	In-river Sediment On-site Direct Contact  RM 2.5 West					
			Antimony	--	--	--	--
			Arsenic	NC <sup>1</sup>	RNA	NC <sup>1</sup>	1E-06
			cPAHs	NC <sup>1</sup>	RNA	NC <sup>1</sup>	2E-06
			Total PCBs	NC <sup>1</sup>	RNA	NC <sup>1</sup>	1E-08
			Total Dioxin/Furan TEQ	NC <sup>1</sup>	RNA	NC <sup>1</sup>	9E-09
			Total PCB TEQ	NC <sup>1</sup>	RNA	NC <sup>1</sup>	5E-09
				Sediment Total Risk =			3E-06
Fish Tissue	Multiple Species Tissue	Fillet Fish Tissue On-site Consumption (175:73 g/day)					
			Antimony	--	--	--	--
			Arsenic	2E-04	RNA	RNA	2E-04
			Chromium	--	--	--	--
			Mercury	--	--	--	--
			cPAHs	6E-06	RNA	RNA	6E-06
			Bis(2-ethylhexyl)phthalate	1E-06	RNA	RNA	1E-06
			Hexachlorobenzene	4E-05	RNA	RNA	4E-05
			Total PCBs	1E-02	RNA	RNA	1E-02
			Total Dioxin/Furan TEQ	3E-04	RNA	RNA	3E-04
			Total PCB TEQ	6E-04	RNA	RNA	6E-04
			Aldrin	6E-07	RNA	RNA	6E-07
			alpha-Hexachlorocyclohexane	7E-08	RNA	RNA	7E-08
			beta-Hexachlorocyclohexane	3E-06	RNA	RNA	3E-06
			Dieldrin	6E-05	RNA	RNA	6E-05
			Heptachlor	8E-09	RNA	RNA	8E-09
			Heptachlor Epoxide	4E-07	RNA	RNA	4E-07
			Total Chlordanes	2E-06	RNA	RNA	2E-06
Total DDX	5E-05	RNA	RNA	5E-05			
	Fish Tissue Total Risk =			1E-02			
	<b>Total Risk =</b>			<b>1E-02</b>			



Table 5-92 Risk Characterization Summary, Cancer Risks - Tribal Fisher, Boat, Reasonable Maximum Exposure							
Risk Characterization Summary - Carcinogens							
Scenario Timeframe:		Current/Future					
Receptor Population:		Tribal Fisher (Boat)					
Receptor Age:		Adult/Child					
Medium	Exposure Medium	Exposure Point	Chemical of Concern	Carcinogenic Risk			
				Ingestion/Consumption	Inhalation	Dermal	Exposure Routes Total
Sediment	In-river Sediment	In-river Sediment On-site Direct Contact  RM 3 West					
			Antimony	--	--	--	--
			Arsenic	NC <sup>1</sup>	RNA	NC <sup>1</sup>	1E-06
			cPAHs	NC <sup>1</sup>	RNA	NC <sup>1</sup>	2E-06
			Total PCBs	NC <sup>1</sup>	RNA	NC <sup>1</sup>	1E-08
			Total Dioxin/Furan TEQ	NC <sup>1</sup>	RNA	NC <sup>1</sup>	4E-08
			Total PCB TEQ	NC <sup>1</sup>	RNA	NC <sup>1</sup>	2E-08
							Sediment Total Risk =
Fish Tissue	Multiple Species Tissue	Fillet Fish Tissue On-site Consumption (175:73 g/day)					
			Antimony	--	--	--	--
			Arsenic	2E-04	RNA	RNA	2E-04
			Chromium	--	--	--	--
			Mercury	--	--	--	--
			cPAHs	6E-06	RNA	RNA	6E-06
			Bis(2-ethylhexyl)phthalate	1E-06	RNA	RNA	1E-06
			Hexachlorobenzene	4E-05	RNA	RNA	4E-05
			Total PCBs	1E-02	RNA	RNA	1E-02
			Total Dioxin/Furan TEQ	3E-04	RNA	RNA	3E-04
			Total PCB TEQ	6E-04	RNA	RNA	6E-04
			Aldrin	6E-07	RNA	RNA	6E-07
			alpha-Hexachlorocyclohexane	7E-08	RNA	RNA	7E-08
			beta-Hexachlorocyclohexane	3E-06	RNA	RNA	3E-06
			Dieldrin	6E-05	RNA	RNA	6E-05
			Heptachlor	8E-09	RNA	RNA	8E-09
			Heptachlor Epoxide	4E-07	RNA	RNA	4E-07
			Total Chlordanes	2E-06	RNA	RNA	2E-06
Total DDX	5E-05	RNA	RNA	5E-05			
				Fish Tissue Total Risk =		1E-02	
				<b>Total Risk =</b>		<b>1E-02</b>	

Table 5-92 Risk Characterization Summary, Cancer Risks - Tribal Fisher, Boat, Reasonable Maximum Exposure							
Risk Characterization Summary - Carcinogens							
Scenario Timeframe:		Current/Future					
Receptor Population:		Tribal Fisher (Boat)					
Receptor Age:		Adult/Child					
Medium	Exposure Medium	Exposure Point	Chemical of Concern	Carcinogenic Risk			
				Ingestion/Consumption	Inhalation	Dermal	Exposure Routes Total
Sediment	In-river Sediment	In-river Sediment On-site Direct Contact  RM 3.5 West					
			Antimony	--	--	--	--
			Arsenic	NC <sup>1</sup>	RNA	NC <sup>1</sup>	3E-06
			cPAHs	NC <sup>1</sup>	RNA	NC <sup>1</sup>	8E-06
			Total PCBs	NC <sup>1</sup>	RNA	NC <sup>1</sup>	2E-08
			Total Dioxin/Furan TEQ	NC <sup>1</sup>	RNA	NC <sup>1</sup>	4E-08
			Total PCB TEQ	NC <sup>1</sup>	RNA	NC <sup>1</sup>	3E-08
				Sediment Total Risk =			1E-05
Fish Tissue	Multiple Species Tissue	Fillet Fish Tissue On-site Consumption (175:73 g/day)					
			Antimony	--	--	--	--
			Arsenic	2E-04	RNA	RNA	2E-04
			Chromium	--	--	--	--
			Mercury	--	--	--	--
			cPAHs	6E-06	RNA	RNA	6E-06
			Bis(2-ethylhexyl)phthalate	1E-06	RNA	RNA	1E-06
			Hexachlorobenzene	4E-05	RNA	RNA	4E-05
			Total PCBs	1E-02	RNA	RNA	1E-02
			Total Dioxin/Furan TEQ	3E-04	RNA	RNA	3E-04
			Total PCB TEQ	6E-04	RNA	RNA	6E-04
			Aldrin	6E-07	RNA	RNA	6E-07
			alpha-Hexachlorocyclohexane	7E-08	RNA	RNA	7E-08
			beta-Hexachlorocyclohexane	3E-06	RNA	RNA	3E-06
			Dieldrin	6E-05	RNA	RNA	6E-05
			Heptachlor	8E-09	RNA	RNA	8E-09
			Heptachlor Epoxide	4E-07	RNA	RNA	4E-07
			Total Chlordanes	2E-06	RNA	RNA	2E-06
Total DDX	5E-05	RNA	RNA	5E-05			
	Fish Tissue Total Risk =			1E-02			
	<b>Total Risk =</b>			<b>1E-02</b>			

Table 5-92 Risk Characterization Summary, Cancer Risks - Tribal Fisher, Boat, Reasonable Maximum Exposure									
Risk Characterization Summary - Carcinogens									
Scenario Timeframe: Current/Future									
Receptor Population: Tribal Fisher (Boat)									
Receptor Age: Adult/Child									
Medium	Exposure Medium	Exposure Point	Chemical of Concern	Carcinogenic Risk					
				Ingestion/Consumption	Inhalation	Dermal	Exposure Routes Total		
Sediment	In-river Sediment	In-river Sediment On-site Direct Contact RM 4 West	Antimony	--	--	--	--		
			Arsenic	NC <sup>1</sup>	RNA	NC <sup>1</sup>	1E-06		
			cPAHs	NC <sup>1</sup>	RNA	NC <sup>1</sup>	2E-06		
			Total PCBs	NC <sup>1</sup>	RNA	NC <sup>1</sup>	2E-08		
			Total Dioxin/Furan TEQ	NC <sup>1</sup>	RNA	NC <sup>1</sup>	7E-08		
			Total PCB TEQ	NC <sup>1</sup>	RNA	NC <sup>1</sup>	3E-08		
			Sediment Total Risk =				3E-06		
Fish Tissue	Multiple Species Tissue	Fillet Fish Tissue On-site Consumption (175:73 g/day)	Antimony	--	--	--	--		
			Arsenic	2E-04	RNA	RNA	2E-04		
			Chromium	--	--	--	--		
			Mercury	--	--	--	--		
			cPAHs	6E-06	RNA	RNA	6E-06		
			Bis(2-ethylhexyl)phthalate	1E-06	RNA	RNA	1E-06		
			Hexachlorobenzene	4E-05	RNA	RNA	4E-05		
			Total PCBs	1E-02	RNA	RNA	1E-02		
			Total Dioxin/Furan TEQ	3E-04	RNA	RNA	3E-04		
			Total PCB TEQ	6E-04	RNA	RNA	6E-04		
			Aldrin	6E-07	RNA	RNA	6E-07		
			alpha-Hexachlorocyclohexane	7E-08	RNA	RNA	7E-08		
			beta-Hexachlorocyclohexane	3E-06	RNA	RNA	3E-06		
			Dieldrin	6E-05	RNA	RNA	6E-05		
			Heptachlor	8E-09	RNA	RNA	8E-09		
			Heptachlor Epoxide	4E-07	RNA	RNA	4E-07		
			Total Chlordanes	2E-06	RNA	RNA	2E-06		
			Total DDX	5E-05	RNA	RNA	5E-05		
Fish Tissue Total Risk =				1E-02					
<b>Total Risk =</b>				<b>1E-02</b>					

Table 5-92 Risk Characterization Summary, Cancer Risks - Tribal Fisher, Boat, Reasonable Maximum Exposure							
Risk Characterization Summary - Carcinogens							
Scenario Timeframe:		Current/Future					
Receptor Population:		Tribal Fisher (Boat)					
Receptor Age:		Adult/Child					
Medium	Exposure Medium	Exposure Point	Chemical of Concern	Carcinogenic Risk			
				Ingestion/Consumption	Inhalation	Dermal	Exposure Routes Total
Sediment	In-river Sediment	In-river Sediment On-site Direct Contact  RM 4.5 West					
			Antimony	--	--	--	--
			Arsenic	NC <sup>1</sup>	RNA	NC <sup>1</sup>	1E-06
			cPAHs	NC <sup>1</sup>	RNA	NC <sup>1</sup>	7E-06
			Total PCBs	NC <sup>1</sup>	RNA	NC <sup>1</sup>	3E-08
			Total Dioxin/Furan TEQ	NC <sup>1</sup>	RNA	NC <sup>1</sup>	1E-07
			Total PCB TEQ	NC <sup>1</sup>	RNA	NC <sup>1</sup>	1E-07
			Sediment Total Risk =				8E-06
Fish Tissue	Multiple Species Tissue	Fillet Fish Tissue On-site Consumption (175:73 g/day)					
			Antimony	--	--	--	--
			Arsenic	2E-04	RNA	RNA	2E-04
			Chromium	--	--	--	--
			Mercury	--	--	--	--
			cPAHs	6E-06	RNA	RNA	6E-06
			Bis(2-ethylhexyl)phthalate	1E-06	RNA	RNA	1E-06
			Hexachlorobenzene	4E-05	RNA	RNA	4E-05
			Total PCBs	1E-02	RNA	RNA	1E-02
			Total Dioxin/Furan TEQ	3E-04	RNA	RNA	3E-04
			Total PCB TEQ	6E-04	RNA	RNA	6E-04
			Aldrin	6E-07	RNA	RNA	6E-07
			alpha-Hexachlorocyclohexane	7E-08	RNA	RNA	7E-08
			beta-Hexachlorocyclohexane	3E-06	RNA	RNA	3E-06
			Dieldrin	6E-05	RNA	RNA	6E-05
			Heptachlor	8E-09	RNA	RNA	8E-09
			Heptachlor Epoxide	4E-07	RNA	RNA	4E-07
			Total Chlordanes	2E-06	RNA	RNA	2E-06
Total DDX	5E-05	RNA	RNA	5E-05			
Fish Tissue Total Risk =				1E-02			
<b>Total Risk =</b>				<b>1E-02</b>			

Table 5-92 Risk Characterization Summary, Cancer Risks - Tribal Fisher, Boat, Reasonable Maximum Exposure							
Risk Characterization Summary - Carcinogens							
Scenario Timeframe:		Current/Future					
Receptor Population:		Tribal Fisher (Boat)					
Receptor Age:		Adult/Child					
Medium	Exposure Medium	Exposure Point	Chemical of Concern	Carcinogenic Risk			
				Ingestion/Consumption	Inhalation	Dermal	Exposure Routes Total
Sediment	In-river Sediment	In-river Sediment On-site Direct Contact RM 5 West					
			Antimony	--	--	--	--
			Arsenic	NC <sup>1</sup>	RNA	NC <sup>1</sup>	1E-06
			cPAHs	NC <sup>1</sup>	RNA	NC <sup>1</sup>	1E-05
			Total PCBs	NC <sup>1</sup>	RNA	NC <sup>1</sup>	2E-08
			Total Dioxin/Furan TEQ	NC <sup>1</sup>	RNA	NC <sup>1</sup>	1E-07
			Total PCB TEQ	NC <sup>1</sup>	RNA	NC <sup>1</sup>	9E-08
				Sediment Total Risk =			1E-05
Fish Tissue	Multiple Species Tissue	Fillet Fish Tissue On-site Consumption (175:73 g/day)					
			Antimony	--	--	--	--
			Arsenic	2E-04	RNA	RNA	2E-04
			Chromium	--	--	--	--
			Mercury	--	--	--	--
			cPAHs	6E-06	RNA	RNA	6E-06
			Bis(2-ethylhexyl)phthalate	1E-06	RNA	RNA	1E-06
			Hexachlorobenzene	4E-05	RNA	RNA	4E-05
			Total PCBs	1E-02	RNA	RNA	1E-02
			Total Dioxin/Furan TEQ	3E-04	RNA	RNA	3E-04
			Total PCB TEQ	6E-04	RNA	RNA	6E-04
			Aldrin	6E-07	RNA	RNA	6E-07
			alpha-Hexachlorocyclohexane	7E-08	RNA	RNA	7E-08
			beta-Hexachlorocyclohexane	3E-06	RNA	RNA	3E-06
			Dieldrin	6E-05	RNA	RNA	6E-05
			Heptachlor	8E-09	RNA	RNA	8E-09
			Heptachlor Epoxide	4E-07	RNA	RNA	4E-07
			Total Chlordanes	2E-06	RNA	RNA	2E-06
Total DDX	5E-05	RNA	RNA	5E-05			
	Fish Tissue Total Risk =			1E-02			
	<b>Total Risk =</b>			<b>1E-02</b>			

Table 5-92 Risk Characterization Summary, Cancer Risks - Tribal Fisher, Boat, Reasonable Maximum Exposure							
Risk Characterization Summary - Carcinogens							
Scenario Timeframe:		Current/Future					
Receptor Population:		Tribal Fisher (Boat)					
Receptor Age:		Adult/Child					
Medium	Exposure Medium	Exposure Point	Chemical of Concern	Carcinogenic Risk			
				Ingestion/Consumption	Inhalation	Dermal	Exposure Routes Total
Sediment	In-river Sediment	In-river Sediment On-site Direct Contact  RM 5.5 West					
			Antimony	--	--	--	--
			Arsenic	NC <sup>1</sup>	RNA	NC <sup>1</sup>	1E-06
			cPAHs	NC <sup>1</sup>	RNA	NC <sup>1</sup>	1E-05
			Total PCBs	NC <sup>1</sup>	RNA	NC <sup>1</sup>	3E-08
			Total Dioxin/Furan TEQ	NC <sup>1</sup>	RNA	NC <sup>1</sup>	5E-08
			Total PCB TEQ	NC <sup>1</sup>	RNA	NC <sup>1</sup>	5E-08
			Sediment Total Risk =				1E-05
Fish Tissue	Multiple Species Tissue	Fillet Fish Tissue On-site Consumption (175:73 g/day)					
			Antimony	--	--	--	--
			Arsenic	2E-04	RNA	RNA	2E-04
			Chromium	--	--	--	--
			Mercury	--	--	--	--
			cPAHs	6E-06	RNA	RNA	6E-06
			Bis(2-ethylhexyl)phthalate	1E-06	RNA	RNA	1E-06
			Hexachlorobenzene	4E-05	RNA	RNA	4E-05
			Total PCBs	1E-02	RNA	RNA	1E-02
			Total Dioxin/Furan TEQ	3E-04	RNA	RNA	3E-04
			Total PCB TEQ	6E-04	RNA	RNA	6E-04
			Aldrin	6E-07	RNA	RNA	6E-07
			alpha-Hexachlorocyclohexane	7E-08	RNA	RNA	7E-08
			beta-Hexachlorocyclohexane	3E-06	RNA	RNA	3E-06
			Dieldrin	6E-05	RNA	RNA	6E-05
			Heptachlor	8E-09	RNA	RNA	8E-09
			Heptachlor Epoxide	4E-07	RNA	RNA	4E-07
			Total Chlordanes	2E-06	RNA	RNA	2E-06
Total DDX	5E-05	RNA	RNA	5E-05			
Fish Tissue Total Risk =				1E-02			
<b>Total Risk =</b>				<b>1E-02</b>			

Table 5-92 Risk Characterization Summary, Cancer Risks - Tribal Fisher, Boat, Reasonable Maximum Exposure							
Risk Characterization Summary - Carcinogens							
Scenario Timeframe:		Current/Future					
Receptor Population:		Tribal Fisher (Boat)					
Receptor Age:		Adult/Child					
Medium	Exposure Medium	Exposure Point	Chemical of Concern	Carcinogenic Risk			
				Ingestion/Consumption	Inhalation	Dermal	Exposure Routes Total
Sediment	In-river Sediment	In-river Sediment On-site Direct Contact  RM 6 West					
			Antimony	--	--	--	--
			Arsenic	NC <sup>1</sup>	RNA	NC <sup>1</sup>	1E-06
			cPAHs	NC <sup>1</sup>	RNA	NC <sup>1</sup>	2E-04
			Total PCBs	NC <sup>1</sup>	RNA	NC <sup>1</sup>	5E-08
			Total Dioxin/Furan TEQ	NC <sup>1</sup>	RNA	NC <sup>1</sup>	4E-08
			Total PCB TEQ	NC <sup>1</sup>	RNA	NC <sup>1</sup>	1E-07
							Sediment Total Risk =
Fish Tissue	Multiple Species Tissue	Fillet Fish Tissue On-site Consumption (175:73 g/day)					
			Antimony	--	--	--	--
			Arsenic	2E-04	RNA	RNA	2E-04
			Chromium	--	--	--	--
			Mercury	--	--	--	--
			cPAHs	6E-06	RNA	RNA	6E-06
			Bis(2-ethylhexyl)phthalate	1E-06	RNA	RNA	1E-06
			Hexachlorobenzene	4E-05	RNA	RNA	4E-05
			Total PCBs	1E-02	RNA	RNA	1E-02
			Total Dioxin/Furan TEQ	3E-04	RNA	RNA	3E-04
			Total PCB TEQ	6E-04	RNA	RNA	6E-04
			Aldrin	6E-07	RNA	RNA	6E-07
			alpha-Hexachlorocyclohexane	7E-08	RNA	RNA	7E-08
			beta-Hexachlorocyclohexane	3E-06	RNA	RNA	3E-06
			Dieldrin	6E-05	RNA	RNA	6E-05
			Heptachlor	8E-09	RNA	RNA	8E-09
			Heptachlor Epoxide	4E-07	RNA	RNA	4E-07
			Total Chlordanes	2E-06	RNA	RNA	2E-06
Total DDX	5E-05	RNA	RNA	5E-05			
				Fish Tissue Total Risk =		1E-02	
				<b>Total Risk =</b>		<b>1E-02</b>	

Table 5-92 Risk Characterization Summary, Cancer Risks - Tribal Fisher, Boat, Reasonable Maximum Exposure							
Risk Characterization Summary - Carcinogens							
Scenario Timeframe:		Current/Future					
Receptor Population:		Tribal Fisher (Boat)					
Receptor Age:		Adult/Child					
Medium	Exposure Medium	Exposure Point	Chemical of Concern	Carcinogenic Risk			
				Ingestion/Consumption	Inhalation	Dermal	Exposure Routes Total
Sediment	In-river Sediment	In-river Sediment On-site Direct Contact  RM 6.5 West					
			Antimony	--	--	--	--
			Arsenic	NC <sup>1</sup>	RNA	NC <sup>1</sup>	4E-06
			cPAHs	NC <sup>1</sup>	RNA	NC <sup>1</sup>	5E-06
			Total PCBs	NC <sup>1</sup>	RNA	NC <sup>1</sup>	6E-08
			Total Dioxin/Furan TEQ	NC <sup>1</sup>	RNA	NC <sup>1</sup>	3E-06
			Total PCB TEQ	NC <sup>1</sup>	RNA	NC <sup>1</sup>	1E-07
			Sediment Total Risk =				1E-05
Fish Tissue	Multiple Species Tissue	Fillet Fish Tissue On-site Consumption (175:73 g/day)					
			Antimony	--	--	--	--
			Arsenic	2E-04	RNA	RNA	2E-04
			Chromium	--	--	--	--
			Mercury	--	--	--	--
			cPAHs	6E-06	RNA	RNA	6E-06
			Bis(2-ethylhexyl)phthalate	1E-06	RNA	RNA	1E-06
			Hexachlorobenzene	4E-05	RNA	RNA	4E-05
			Total PCBs	1E-02	RNA	RNA	1E-02
			Total Dioxin/Furan TEQ	3E-04	RNA	RNA	3E-04
			Total PCB TEQ	6E-04	RNA	RNA	6E-04
			Aldrin	6E-07	RNA	RNA	6E-07
			alpha-Hexachlorocyclohexane	7E-08	RNA	RNA	7E-08
			beta-Hexachlorocyclohexane	3E-06	RNA	RNA	3E-06
			Dieldrin	6E-05	RNA	RNA	6E-05
			Heptachlor	8E-09	RNA	RNA	8E-09
			Heptachlor Epoxide	4E-07	RNA	RNA	4E-07
			Total Chlordanes	2E-06	RNA	RNA	2E-06
Total DDX	5E-05	RNA	RNA	5E-05			
Fish Tissue Total Risk =				1E-02			
<b>Total Risk =</b>				<b>1E-02</b>			



Table 5-92 Risk Characterization Summary, Cancer Risks - Tribal Fisher, Boat, Reasonable Maximum Exposure							
Risk Characterization Summary - Carcinogens							
Scenario Timeframe:		Current/Future					
Receptor Population:		Tribal Fisher (Boat)					
Receptor Age:		Adult/Child					
Medium	Exposure Medium	Exposure Point	Chemical of Concern	Carcinogenic Risk			
				Ingestion/Consumption	Inhalation	Dermal	Exposure Routes Total
Sediment	In-river Sediment	In-river Sediment On-site Direct Contact RM 7 West					
			Antimony	--	--	--	--
			Arsenic	NC <sup>1</sup>	RNA	NC <sup>1</sup>	1E-06
			cPAHs	NC <sup>1</sup>	RNA	NC <sup>1</sup>	8E-06
			Total PCBs	NC <sup>1</sup>	RNA	NC <sup>1</sup>	6E-08
			Total Dioxin/Furan TEQ	NC <sup>1</sup>	RNA	NC <sup>1</sup>	3E-04
			Total PCB TEQ	NC <sup>1</sup>	RNA	NC <sup>1</sup>	1E-06
				Sediment Total Risk =			3E-04
Fish Tissue	Multiple Species Tissue	Fillet Fish Tissue On-site Consumption (175:73 g/day)					
			Antimony	--	--	--	--
			Arsenic	2E-04	RNA	RNA	2E-04
			Chromium	--	--	--	--
			Mercury	--	--	--	--
			cPAHs	6E-06	RNA	RNA	6E-06
			Bis(2-ethylhexyl)phthalate	1E-06	RNA	RNA	1E-06
			Hexachlorobenzene	4E-05	RNA	RNA	4E-05
			Total PCBs	1E-02	RNA	RNA	1E-02
			Total Dioxin/Furan TEQ	3E-04	RNA	RNA	3E-04
			Total PCB TEQ	6E-04	RNA	RNA	6E-04
			Aldrin	6E-07	RNA	RNA	6E-07
			alpha-Hexachlorocyclohexane	7E-08	RNA	RNA	7E-08
			beta-Hexachlorocyclohexane	3E-06	RNA	RNA	3E-06
			Dieldrin	6E-05	RNA	RNA	6E-05
			Heptachlor	8E-09	RNA	RNA	8E-09
			Heptachlor Epoxide	4E-07	RNA	RNA	4E-07
			Total Chlordanes	2E-06	RNA	RNA	2E-06
Total DDX	5E-05	RNA	RNA	5E-05			
	Fish Tissue Total Risk =			1E-02			
	<b>Total Risk =</b>			<b>1E-02</b>			

Table 5-92 Risk Characterization Summary, Cancer Risks - Tribal Fisher, Boat, Reasonable Maximum Exposure							
Risk Characterization Summary - Carcinogens							
Scenario Timeframe: Current/Future							
Receptor Population: Tribal Fisher (Boat)							
Receptor Age: Adult/Child							
Medium	Exposure Medium	Exposure Point	Chemical of Concern	Carcinogenic Risk			
				Ingestion/Consumption	Inhalation	Dermal	Exposure Routes Total
Sediment	In-river Sediment	In-river Sediment On-site Direct Contact  RM 7.5 West					
			Antimony	--	--	--	--
			Arsenic	NC <sup>1</sup>	RNA	NC <sup>1</sup>	9E-07
			cPAHs	NC <sup>1</sup>	RNA	NC <sup>1</sup>	1E-06
			Total PCBs	NC <sup>1</sup>	RNA	NC <sup>1</sup>	2E-07
			Total Dioxin/Furan TEQ	NC <sup>1</sup>	RNA	NC <sup>1</sup>	6E-08
			Total PCB TEQ	NC <sup>1</sup>	RNA	NC <sup>1</sup>	6E-08
							Sediment Total Risk =
Fish Tissue	Multiple Species Tissue	Fillet Fish Tissue On-site Consumption (175:73 g/day)					
			Antimony	--	--	--	--
			Arsenic	2E-04	RNA	RNA	2E-04
			Chromium	--	--	--	--
			Mercury	--	--	--	--
			cPAHs	6E-06	RNA	RNA	6E-06
			Bis(2-ethylhexyl)phthalate	1E-06	RNA	RNA	1E-06
			Hexachlorobenzene	4E-05	RNA	RNA	4E-05
			Total PCBs	1E-02	RNA	RNA	1E-02
			Total Dioxin/Furan TEQ	3E-04	RNA	RNA	3E-04
			Total PCB TEQ	6E-04	RNA	RNA	6E-04
			Aldrin	6E-07	RNA	RNA	6E-07
			alpha-Hexachlorocyclohexane	7E-08	RNA	RNA	7E-08
			beta-Hexachlorocyclohexane	3E-06	RNA	RNA	3E-06
			Dieldrin	6E-05	RNA	RNA	6E-05
			Heptachlor	8E-09	RNA	RNA	8E-09
			Heptachlor Epoxide	4E-07	RNA	RNA	4E-07
			Total Chlordanes	2E-06	RNA	RNA	2E-06
Total DDX	5E-05	RNA	RNA	5E-05			
				Fish Tissue Total Risk =		1E-02	
				<b>Total Risk =</b>		<b>1E-02</b>	

Table 5-92 Risk Characterization Summary, Cancer Risks - Tribal Fisher, Boat, Reasonable Maximum Exposure							
Risk Characterization Summary - Carcinogens							
Scenario Timeframe:		Current/Future					
Receptor Population:		Tribal Fisher (Boat)					
Receptor Age:		Adult/Child					
Medium	Exposure Medium	Exposure Point	Chemical of Concern	Carcinogenic Risk			
				Ingestion/Consumption	Inhalation	Dermal	Exposure Routes Total
Sediment	In-river Sediment	In-river Sediment On-site Direct Contact  RM 8 West					
			Antimony	--	--	--	--
			Arsenic	NC <sup>1</sup>	RNA	NC <sup>1</sup>	3E-06
			cPAHs	NC <sup>1</sup>	RNA	NC <sup>1</sup>	2E-06
			Total PCBs	NC <sup>1</sup>	RNA	NC <sup>1</sup>	3E-07
			Total Dioxin/Furan TEQ	NC <sup>1</sup>	RNA	NC <sup>1</sup>	1E-08
			Total PCB TEQ	NC <sup>1</sup>	RNA	NC <sup>1</sup>	3E-07
			Sediment Total Risk =				6E-06
Fish Tissue	Multiple Species Tissue	Fillet Fish Tissue On-site Consumption (175:73 g/day)					
			Antimony	--	--	--	--
			Arsenic	2E-04	RNA	RNA	2E-04
			Chromium	--	--	--	--
			Mercury	--	--	--	--
			cPAHs	6E-06	RNA	RNA	6E-06
			Bis(2-ethylhexyl)phthalate	1E-06	RNA	RNA	1E-06
			Hexachlorobenzene	4E-05	RNA	RNA	4E-05
			Total PCBs	1E-02	RNA	RNA	1E-02
			Total Dioxin/Furan TEQ	3E-04	RNA	RNA	3E-04
			Total PCB TEQ	6E-04	RNA	RNA	6E-04
			Aldrin	6E-07	RNA	RNA	6E-07
			alpha-Hexachlorocyclohexane	7E-08	RNA	RNA	7E-08
			beta-Hexachlorocyclohexane	3E-06	RNA	RNA	3E-06
			Dieldrin	6E-05	RNA	RNA	6E-05
			Heptachlor	8E-09	RNA	RNA	8E-09
			Heptachlor Epoxide	4E-07	RNA	RNA	4E-07
			Total Chlordanes	2E-06	RNA	RNA	2E-06
Total DDX	5E-05	RNA	RNA	5E-05			
Fish Tissue Total Risk =				1E-02			
<b>Total Risk =</b>				<b>1E-02</b>			

Table 5-92 Risk Characterization Summary, Cancer Risks - Tribal Fisher, Boat, Reasonable Maximum Exposure							
Risk Characterization Summary - Carcinogens							
Scenario Timeframe:		Current/Future					
Receptor Population:		Tribal Fisher (Boat)					
Receptor Age:		Adult/Child					
Medium	Exposure Medium	Exposure Point	Chemical of Concern	Carcinogenic Risk			
				Ingestion/Consumption	Inhalation	Dermal	Exposure Routes Total
Sediment	In-river Sediment	In-river Sediment On-site Direct Contact  RM 8.5 West					
			Antimony	--	--	--	--
			Arsenic	NC <sup>1</sup>	RNA	NC <sup>1</sup>	3E-06
			cPAHs	NC <sup>1</sup>	RNA	NC <sup>1</sup>	7E-07
			Total PCBs	NC <sup>1</sup>	RNA	NC <sup>1</sup>	6E-06
			Total Dioxin/Furan TEQ	NC <sup>1</sup>	RNA	NC <sup>1</sup>	4E-07
			Total PCB TEQ	NC <sup>1</sup>	RNA	NC <sup>1</sup>	1E-05
			Sediment Total Risk =				2E-05
Fish Tissue	Multiple Species Tissue	Fillet Fish Tissue On-site Consumption (175:73 g/day)					
			Antimony	--	--	--	--
			Arsenic	2E-04	RNA	RNA	2E-04
			Chromium	--	--	--	--
			Mercury	--	--	--	--
			cPAHs	6E-06	RNA	RNA	6E-06
			Bis(2-ethylhexyl)phthalate	1E-06	RNA	RNA	1E-06
			Hexachlorobenzene	4E-05	RNA	RNA	4E-05
			Total PCBs	1E-02	RNA	RNA	1E-02
			Total Dioxin/Furan TEQ	3E-04	RNA	RNA	3E-04
			Total PCB TEQ	6E-04	RNA	RNA	6E-04
			Aldrin	6E-07	RNA	RNA	6E-07
			alpha-Hexachlorocyclohexane	7E-08	RNA	RNA	7E-08
			beta-Hexachlorocyclohexane	3E-06	RNA	RNA	3E-06
			Dieldrin	6E-05	RNA	RNA	6E-05
			Heptachlor	8E-09	RNA	RNA	8E-09
			Heptachlor Epoxide	4E-07	RNA	RNA	4E-07
			Total Chlordanes	2E-06	RNA	RNA	2E-06
Total DDX	5E-05	RNA	RNA	5E-05			
Fish Tissue Total Risk =				1E-02			
<b>Total Risk =</b>				<b>1E-02</b>			

Table 5-92 Risk Characterization Summary, Cancer Risks - Tribal Fisher, Boat, Reasonable Maximum Exposure									
Risk Characterization Summary - Carcinogens									
Scenario Timeframe:		Current/Future							
Receptor Population:		Tribal Fisher (Boat)							
Receptor Age:		Adult/Child							
Medium	Exposure Medium	Exposure Point	Chemical of Concern	Carcinogenic Risk					
				Ingestion/Consumption	Inhalation	Dermal	Exposure Routes Total		
Sediment	In-river Sediment	In-river Sediment On-site Direct Contact RM 9 West	Antimony	--	--	--	--		
			Arsenic	NC <sup>1</sup>	RNA	NC <sup>1</sup>	1E-06		
			cPAHs	NC <sup>1</sup>	RNA	NC <sup>1</sup>	8E-07		
			Total PCBs	NC <sup>1</sup>	RNA	NC <sup>1</sup>	2E-06		
			Total Dioxin/Furan TEQ	NC <sup>1</sup>	RNA	NC <sup>1</sup>	1E-07		
			Total PCB TEQ	NC <sup>1</sup>	RNA	NC <sup>1</sup>	1E-06		
			Sediment Total Risk =				5E-06		
Fish Tissue	Multiple Species Tissue	Fillet Fish Tissue On-site Consumption (175:73 g/day)	Antimony	--	--	--	--		
			Arsenic	2E-04	RNA	RNA	2E-04		
			Chromium	--	--	--	--		
			Mercury	--	--	--	--		
			cPAHs	6E-06	RNA	RNA	6E-06		
			Bis(2-ethylhexyl)phthalate	1E-06	RNA	RNA	1E-06		
			Hexachlorobenzene	4E-05	RNA	RNA	4E-05		
			Total PCBs	1E-02	RNA	RNA	1E-02		
			Total Dioxin/Furan TEQ	3E-04	RNA	RNA	3E-04		
			Total PCB TEQ	6E-04	RNA	RNA	6E-04		
			Aldrin	6E-07	RNA	RNA	6E-07		
			alpha-Hexachlorocyclohexane	7E-08	RNA	RNA	7E-08		
			beta-Hexachlorocyclohexane	3E-06	RNA	RNA	3E-06		
			Dieldrin	6E-05	RNA	RNA	6E-05		
			Heptachlor	8E-09	RNA	RNA	8E-09		
			Heptachlor Epoxide	4E-07	RNA	RNA	4E-07		
			Total Chlordanes	2E-06	RNA	RNA	2E-06		
			Total DDX	5E-05	RNA	RNA	5E-05		
Fish Tissue Total Risk =				1E-02					
<b>Total Risk =</b>				<b>1E-02</b>					

Table 5-92 Risk Characterization Summary, Cancer Risks - Tribal Fisher, Boat, Reasonable Maximum Exposure							
Risk Characterization Summary - Carcinogens							
Scenario Timeframe:		Current/Future					
Receptor Population:		Tribal Fisher (Boat)					
Receptor Age:		Adult/Child					
Medium	Exposure Medium	Exposure Point	Chemical of Concern	Carcinogenic Risk			
				Ingestion/Consumption	Inhalation	Dermal	Exposure Routes Total
Sediment	In-river Sediment	In-river Sediment On-site Direct Contact  RM 9.5 West					
			Antimony	--	--	--	--
			Arsenic	NC <sup>1</sup>	RNA	NC <sup>1</sup>	1E-06
			cPAHs	NC <sup>1</sup>	RNA	NC <sup>1</sup>	2E-06
			Total PCBs	NC <sup>1</sup>	RNA	NC <sup>1</sup>	2E-07
			Total Dioxin/Furan TEQ	NC <sup>1</sup>	RNA	NC <sup>1</sup>	4E-07
			Total PCB TEQ	NC <sup>1</sup>	RNA	NC <sup>1</sup>	2E-07
			Sediment Total Risk =				4E-06
Fish Tissue	Multiple Species Tissue	Fillet Fish Tissue On-site Consumption (175:73 g/day)					
			Antimony	--	--	--	--
			Arsenic	2E-04	RNA	RNA	2E-04
			Chromium	--	--	--	--
			Mercury	--	--	--	--
			cPAHs	6E-06	RNA	RNA	6E-06
			Bis(2-ethylhexyl)phthalate	1E-06	RNA	RNA	1E-06
			Hexachlorobenzene	4E-05	RNA	RNA	4E-05
			Total PCBs	1E-02	RNA	RNA	1E-02
			Total Dioxin/Furan TEQ	3E-04	RNA	RNA	3E-04
			Total PCB TEQ	6E-04	RNA	RNA	6E-04
			Aldrin	6E-07	RNA	RNA	6E-07
			alpha-Hexachlorocyclohexane	7E-08	RNA	RNA	7E-08
			beta-Hexachlorocyclohexane	3E-06	RNA	RNA	3E-06
			Dieldrin	6E-05	RNA	RNA	6E-05
			Heptachlor	8E-09	RNA	RNA	8E-09
			Heptachlor Epoxide	4E-07	RNA	RNA	4E-07
			Total Chlordanes	2E-06	RNA	RNA	2E-06
Total DDX	5E-05	RNA	RNA	5E-05			
Fish Tissue Total Risk =				1E-02			
<b>Total Risk =</b>				<b>1E-02</b>			

Table 5-92 Risk Characterization Summary, Cancer Risks - Tribal Fisher, Boat, Reasonable Maximum Exposure							
Risk Characterization Summary - Carcinogens							
Scenario Timeframe:		Current/Future					
Receptor Population:		Tribal Fisher (Boat)					
Receptor Age:		Adult/Child					
Medium	Exposure Medium	Exposure Point	Chemical of Concern	Carcinogenic Risk			
				Ingestion/Consumption	Inhalation	Dermal	Exposure Routes Total
Sediment	In-river Sediment	In-river Sediment On-site Direct Contact  RM 10 West					
			Antimony	--	--	--	--
			Arsenic	NC <sup>1</sup>	RNA	NC <sup>1</sup>	8E-06
			cPAHs	NC <sup>1</sup>	RNA	NC <sup>1</sup>	1E-06
			Total PCBs	NC <sup>1</sup>	RNA	NC <sup>1</sup>	3E-07
			Total Dioxin/Furan TEQ	NC <sup>1</sup>	RNA	NC <sup>1</sup>	3E-07
			Total PCB TEQ	NC <sup>1</sup>	RNA	NC <sup>1</sup>	1E-07
			Sediment Total Risk =				1E-05
Fish Tissue	Multiple Species Tissue	Fillet Fish Tissue On-site Consumption (175:73 g/day)					
			Antimony	--	--	--	--
			Arsenic	2E-04	RNA	RNA	2E-04
			Chromium	--	--	--	--
			Mercury	--	--	--	--
			cPAHs	6E-06	RNA	RNA	6E-06
			Bis(2-ethylhexyl)phthalate	1E-06	RNA	RNA	1E-06
			Hexachlorobenzene	4E-05	RNA	RNA	4E-05
			Total PCBs	1E-02	RNA	RNA	1E-02
			Total Dioxin/Furan TEQ	3E-04	RNA	RNA	3E-04
			Total PCB TEQ	6E-04	RNA	RNA	6E-04
			Aldrin	6E-07	RNA	RNA	6E-07
			alpha-Hexachlorocyclohexane	7E-08	RNA	RNA	7E-08
			beta-Hexachlorocyclohexane	3E-06	RNA	RNA	3E-06
			Dieldrin	6E-05	RNA	RNA	6E-05
			Heptachlor	8E-09	RNA	RNA	8E-09
			Heptachlor Epoxide	4E-07	RNA	RNA	4E-07
			Total Chlordanes	2E-06	RNA	RNA	2E-06
Total DDX	5E-05	RNA	RNA	5E-05			
Fish Tissue Total Risk =				1E-02			
<b>Total Risk =</b>				<b>1E-02</b>			

Table 5-92 Risk Characterization Summary, Cancer Risks - Tribal Fisher, Boat, Reasonable Maximum Exposure							
Risk Characterization Summary - Carcinogens							
Scenario Timeframe:		Current/Future					
Receptor Population:		Tribal Fisher (Boat)					
Receptor Age:		Adult/Child					
Medium	Exposure Medium	Exposure Point	Chemical of Concern	Carcinogenic Risk			
				Ingestion/Consumption	Inhalation	Dermal	Exposure Routes Total
Sediment	In-river Sediment	In-river Sediment On-site Direct Contact  RM 10.5 West					
			Antimony	--	--	--	--
			Arsenic	NC <sup>1</sup>	RNA	NC <sup>1</sup>	1E-06
			cPAHs	NC <sup>1</sup>	RNA	NC <sup>1</sup>	2E-07
			Total PCBs	NC <sup>1</sup>	RNA	NC <sup>1</sup>	3E-08
			Total Dioxin/Furan TEQ	NA	RNA	NA	NA
			Total PCB TEQ	NC <sup>1</sup>	RNA	NC <sup>1</sup>	3E-08
							Sediment Total Risk =
Fish Tissue	Multiple Species Tissue	Fillet Fish Tissue On-site Consumption (175:73 g/day)					
			Antimony	--	--	--	--
			Arsenic	2E-04	RNA	RNA	2E-04
			Chromium	--	--	--	--
			Mercury	--	--	--	--
			cPAHs	6E-06	RNA	RNA	6E-06
			Bis(2-ethylhexyl)phthalate	1E-06	RNA	RNA	1E-06
			Hexachlorobenzene	4E-05	RNA	RNA	4E-05
			Total PCBs	1E-02	RNA	RNA	1E-02
			Total Dioxin/Furan TEQ	3E-04	RNA	RNA	3E-04
			Total PCB TEQ	6E-04	RNA	RNA	6E-04
			Aldrin	6E-07	RNA	RNA	6E-07
			alpha-Hexachlorocyclohexane	7E-08	RNA	RNA	7E-08
			beta-Hexachlorocyclohexane	3E-06	RNA	RNA	3E-06
			Dieldrin	6E-05	RNA	RNA	6E-05
			Heptachlor	8E-09	RNA	RNA	8E-09
			Heptachlor Epoxide	4E-07	RNA	RNA	4E-07
			Total Chlordanes	2E-06	RNA	RNA	2E-06
			Total DDx	5E-05	RNA	RNA	5E-05
							Fish Tissue Total Risk =
				<b>Total Risk =</b>		<b>1E-02</b>	



Table 5-92 Risk Characterization Summary, Cancer Risks - Tribal Fisher, Boat, Reasonable Maximum Exposure							
Risk Characterization Summary - Carcinogens							
Scenario Timeframe:		Current/Future					
Receptor Population:		Tribal Fisher (Boat)					
Receptor Age:		Adult/Child					
Medium	Exposure Medium	Exposure Point	Chemical of Concern	Carcinogenic Risk			
				Ingestion/Consumption	Inhalation	Dermal	Exposure Routes Total
Sediment	In-river Sediment	In-river Sediment On-site Direct Contact  RM 11 West	Antimony	--	--	--	--
			Arsenic	NC <sup>1</sup>	RNA	NC <sup>1</sup>	9E-07
			cPAHs	NC <sup>1</sup>	RNA	NC <sup>1</sup>	7E-07
			Total PCBs	NC <sup>1</sup>	RNA	NC <sup>1</sup>	2E-08
			Total Dioxin/Furan TEQ	NA	RNA	NA	NA
			Total PCB TEQ	NA	RNA	NA	NA
			Sediment Total Risk =				
Fish Tissue	Multiple Species Tissue	Fillet Fish Tissue On-site Consumption (175:73 g/day)	Antimony	--	--	--	--
			Arsenic	2E-04	RNA	RNA	2E-04
			Chromium	--	--	--	--
			Mercury	--	--	--	--
			cPAHs	6E-06	RNA	RNA	6E-06
			Bis(2-ethylhexyl)phthalate	1E-06	RNA	RNA	1E-06
			Hexachlorobenzene	4E-05	RNA	RNA	4E-05
			Total PCBs	1E-02	RNA	RNA	1E-02
			Total Dioxin/Furan TEQ	3E-04	RNA	RNA	3E-04
			Total PCB TEQ	6E-04	RNA	RNA	6E-04
			Aldrin	6E-07	RNA	RNA	6E-07
			alpha-Hexachlorocyclohexane	7E-08	RNA	RNA	7E-08
			beta-Hexachlorocyclohexane	3E-06	RNA	RNA	3E-06
			Dieldrin	6E-05	RNA	RNA	6E-05
			Heptachlor	8E-09	RNA	RNA	8E-09
			Heptachlor Epoxide	4E-07	RNA	RNA	4E-07
			Total Chlordanes	2E-06	RNA	RNA	2E-06
Total DDx	5E-05	RNA	RNA	5E-05			
Fish Tissue Total Risk =						1E-02	
<b>Total Risk =</b>						<b>1E-02</b>	

Table 5-92 Risk Characterization Summary, Cancer Risks - Tribal Fisher, Boat, Reasonable Maximum Exposure							
Risk Characterization Summary - Carcinogens							
Scenario Timeframe:		Current/Future					
Receptor Population:		Tribal Fisher (Boat)					
Receptor Age:		Adult/Child					
Medium	Exposure Medium	Exposure Point	Chemical of Concern	Carcinogenic Risk			
				Ingestion/Consumption	Inhalation	Dermal	Exposure Routes Total
Sediment	In-river Sediment	In-river Sediment On-site Direct Contact  RM 11.5 West					
			Antimony	--	--	--	--
			Arsenic	NC <sup>1</sup>	RNA	NC <sup>1</sup>	9E-07
			cPAHs	NC <sup>1</sup>	RNA	NC <sup>1</sup>	6E-08
			Total PCBs	NC <sup>1</sup>	RNA	NC <sup>1</sup>	2E-08
			Total Dioxin/Furan TEQ	NC <sup>1</sup>	RNA	NC <sup>1</sup>	4E-09
			Total PCB TEQ	NC <sup>1</sup>	RNA	NC <sup>1</sup>	1E-08
			Sediment Total Risk =				1E-06
Fish Tissue	Multiple Species Tissue	Fillet Fish Tissue On-site Consumption (175:73 g/day)					
			Antimony	--	--	--	--
			Arsenic	2E-04	RNA	RNA	2E-04
			Chromium	--	--	--	--
			Mercury	--	--	--	--
			cPAHs	6E-06	RNA	RNA	6E-06
			Bis(2-ethylhexyl)phthalate	1E-06	RNA	RNA	1E-06
			Hexachlorobenzene	4E-05	RNA	RNA	4E-05
			Total PCBs	1E-02	RNA	RNA	1E-02
			Total Dioxin/Furan TEQ	3E-04	RNA	RNA	3E-04
			Total PCB TEQ	6E-04	RNA	RNA	6E-04
			Aldrin	6E-07	RNA	RNA	6E-07
			alpha-Hexachlorocyclohexane	7E-08	RNA	RNA	7E-08
			beta-Hexachlorocyclohexane	3E-06	RNA	RNA	3E-06
			Dieldrin	6E-05	RNA	RNA	6E-05
			Heptachlor	8E-09	RNA	RNA	8E-09
			Heptachlor Epoxide	4E-07	RNA	RNA	4E-07
			Total Chlordanes	2E-06	RNA	RNA	2E-06
Total DDX	5E-05	RNA	RNA	5E-05			
Fish Tissue Total Risk =				1E-02			
<b>Total Risk =</b>				<b>1E-02</b>			

Table 5-92 Risk Characterization Summary, Cancer Risks - Tribal Fisher, Boat, Reasonable Maximum Exposure							
Risk Characterization Summary - Carcinogens							
Scenario Timeframe:		Current/Future					
Receptor Population:		Tribal Fisher (Boat)					
Receptor Age:		Adult/Child					
Medium	Exposure Medium	Exposure Point	Chemical of Concern	Carcinogenic Risk			
				Ingestion/Consumption	Inhalation	Dermal	Exposure Routes Total
Sediment	In-river Sediment	In-river Sediment On-site Direct Contact  RM 12 West					
			Antimony	--	--	--	--
			Arsenic	NC <sup>1</sup>	RNA	NC <sup>1</sup>	1E-06
			cPAHs	NC <sup>1</sup>	RNA	NC <sup>1</sup>	5E-06
			Total PCBs	NC <sup>1</sup>	RNA	NC <sup>1</sup>	8E-08
			Total Dioxin/Furan TEQ	NC <sup>1</sup>	RNA	NC <sup>1</sup>	4E-09
			Total PCB TEQ	NC <sup>1</sup>	RNA	NC <sup>1</sup>	2E-08
							Sediment Total Risk =
Fish Tissue	Multiple Species Tissue	Fillet Fish Tissue On-site Consumption (175:73 g/day)					
			Antimony	--	--	--	--
			Arsenic	2E-04	RNA	RNA	2E-04
			Chromium	--	--	--	--
			Mercury	--	--	--	--
			cPAHs	6E-06	RNA	RNA	6E-06
			Bis(2-ethylhexyl)phthalate	1E-06	RNA	RNA	1E-06
			Hexachlorobenzene	4E-05	RNA	RNA	4E-05
			Total PCBs	1E-02	RNA	RNA	1E-02
			Total Dioxin/Furan TEQ	3E-04	RNA	RNA	3E-04
			Total PCB TEQ	6E-04	RNA	RNA	6E-04
			Aldrin	6E-07	RNA	RNA	6E-07
			alpha-Hexachlorocyclohexane	7E-08	RNA	RNA	7E-08
			beta-Hexachlorocyclohexane	3E-06	RNA	RNA	3E-06
			Dieldrin	6E-05	RNA	RNA	6E-05
			Heptachlor	8E-09	RNA	RNA	8E-09
			Heptachlor Epoxide	4E-07	RNA	RNA	4E-07
			Total Chlordanes	2E-06	RNA	RNA	2E-06
Total DDX	5E-05	RNA	RNA	5E-05			
				Fish Tissue Total Risk =		1E-02	
				<b>Total Risk =</b>		<b>1E-02</b>	

Table 5-92 Risk Characterization Summary, Cancer Risks - Tribal Fisher, Boat, Reasonable Maximum Exposure							
Risk Characterization Summary - Carcinogens							
Scenario Timeframe:		Current/Future					
Receptor Population:		Tribal Fisher (Boat)					
Receptor Age:		Adult/Child					
Medium	Exposure Medium	Exposure Point	Chemical of Concern	Carcinogenic Risk			
				Ingestion/Consumption	Inhalation	Dermal	Exposure Routes Total
Sediment	In-river Sediment	In-river Sediment On-site Direct Contact RM 1 East					
			Antimony	--	--	--	--
			Arsenic	NC <sup>1</sup>	RNA	NC <sup>1</sup>	1E-06
			cPAHs	NC <sup>1</sup>	RNA	NC <sup>1</sup>	3E-07
			Total PCBs	NC <sup>1</sup>	RNA	NC <sup>1</sup>	3E-07
			Total Dioxin/Furan TEQ	NC <sup>1</sup>	RNA	NC <sup>1</sup>	1E-08
			Total PCB TEQ	NC <sup>1</sup>	RNA	NC <sup>1</sup>	1E-08
			Sediment Total Risk =				2E-06
Fish Tissue	Multiple Species Tissue	Fillet Fish Tissue On-site Consumption (175:73 g/day)					
			Antimony	--	--	--	--
			Arsenic	2E-04	RNA	RNA	2E-04
			Chromium	--	--	--	--
			Mercury	--	--	--	--
			cPAHs	6E-06	RNA	RNA	6E-06
			Bis(2-ethylhexyl)phthalate	1E-06	RNA	RNA	1E-06
			Hexachlorobenzene	4E-05	RNA	RNA	4E-05
			Total PCBs	1E-02	RNA	RNA	1E-02
			Total Dioxin/Furan TEQ	3E-04	RNA	RNA	3E-04
			Total PCB TEQ	6E-04	RNA	RNA	6E-04
			Aldrin	6E-07	RNA	RNA	6E-07
			alpha-Hexachlorocyclohexane	7E-08	RNA	RNA	7E-08
			beta-Hexachlorocyclohexane	3E-06	RNA	RNA	3E-06
			Dieldrin	6E-05	RNA	RNA	6E-05
			Heptachlor	8E-09	RNA	RNA	8E-09
			Heptachlor Epoxide	4E-07	RNA	RNA	4E-07
			Total Chlordanes	2E-06	RNA	RNA	2E-06
Total DDX	5E-05	RNA	RNA	5E-05			
Fish Tissue Total Risk =				1E-02			
<b>Total Risk =</b>				<b>1E-02</b>			

Table 5-92 Risk Characterization Summary, Cancer Risks - Tribal Fisher, Boat, Reasonable Maximum Exposure								
Risk Characterization Summary - Carcinogens								
Scenario Timeframe:		Current/Future						
Receptor Population:		Tribal Fisher (Boat)						
Receptor Age:		Adult/Child						
Medium	Exposure Medium	Exposure Point	Chemical of Concern	Carcinogenic Risk				
				Ingestion/Consumption	Inhalation	Dermal	Exposure Routes Total	
Sediment	In-river Sediment	In-river Sediment On-site Direct Contact RM 1.5 East	Antimony	--	--	--	--	
			Arsenic	NC <sup>1</sup>	RNA	NC <sup>1</sup>	1E-06	
			cPAHs	NC <sup>1</sup>	RNA	NC <sup>1</sup>	5E-06	
			Total PCBs	NC <sup>1</sup>	RNA	NC <sup>1</sup>	3E-08	
			Total Dioxin/Furan TEQ	NC <sup>1</sup>	RNA	NC <sup>1</sup>	4E-08	
			Total PCB TEQ	NC <sup>1</sup>	RNA	NC <sup>1</sup>	5E-09	
			Sediment Total Risk =				6E-06	
Fish Tissue	Multiple Species Tissue	Fillet Fish Tissue On-site Consumption (175:73 g/day)	Antimony	--	--	--	--	
			Arsenic	2E-04	RNA	RNA	2E-04	
			Chromium	--	--	--	--	
			Mercury	--	--	--	--	
			cPAHs	6E-06	RNA	RNA	6E-06	
			Bis(2-ethylhexyl)phthalate	1E-06	RNA	RNA	1E-06	
			Hexachlorobenzene	4E-05	RNA	RNA	4E-05	
			Total PCBs	1E-02	RNA	RNA	1E-02	
			Total Dioxin/Furan TEQ	3E-04	RNA	RNA	3E-04	
			Total PCB TEQ	6E-04	RNA	RNA	6E-04	
			Aldrin	6E-07	RNA	RNA	6E-07	
			alpha-Hexachlorocyclohexane	7E-08	RNA	RNA	7E-08	
			beta-Hexachlorocyclohexane	3E-06	RNA	RNA	3E-06	
			Dieldrin	6E-05	RNA	RNA	6E-05	
			Heptachlor	8E-09	RNA	RNA	8E-09	
			Heptachlor Epoxide	4E-07	RNA	RNA	4E-07	
			Total Chlordanes	2E-06	RNA	RNA	2E-06	
			Total DDX	5E-05	RNA	RNA	5E-05	
Fish Tissue Total Risk =				1E-02				
<b>Total Risk =</b>				<b>1E-02</b>				

Table 5-92 Risk Characterization Summary, Cancer Risks - Tribal Fisher, Boat, Reasonable Maximum Exposure							
Risk Characterization Summary - Carcinogens							
Scenario Timeframe:		Current/Future					
Receptor Population:		Tribal Fisher (Boat)					
Receptor Age:		Adult/Child					
Medium	Exposure Medium	Exposure Point	Chemical of Concern	Carcinogenic Risk			
				Ingestion/Consumption	Inhalation	Dermal	Exposure Routes Total
Sediment	In-river Sediment	In-river Sediment On-site Direct Contact RM 2 East					
			Antimony	--	--	--	--
			Arsenic	NC <sup>1</sup>	RNA	NC <sup>1</sup>	1E-06
			cPAHs	NC <sup>1</sup>	RNA	NC <sup>1</sup>	5E-07
			Total PCBs	NC <sup>1</sup>	RNA	NC <sup>1</sup>	1E-06
			Total Dioxin/Furan TEQ	NC <sup>1</sup>	RNA	NC <sup>1</sup>	9E-08
			Total PCB TEQ	NC <sup>1</sup>	RNA	NC <sup>1</sup>	3E-06
							Sediment Total Risk =
Fish Tissue	Multiple Species Tissue	Fillet Fish Tissue On-site Consumption (175:73 g/day)					
			Antimony	--	--	--	--
			Arsenic	2E-04	RNA	RNA	2E-04
			Chromium	--	--	--	--
			Mercury	--	--	--	--
			cPAHs	6E-06	RNA	RNA	6E-06
			Bis(2-ethylhexyl)phthalate	1E-06	RNA	RNA	1E-06
			Hexachlorobenzene	4E-05	RNA	RNA	4E-05
			Total PCBs	1E-02	RNA	RNA	1E-02
			Total Dioxin/Furan TEQ	3E-04	RNA	RNA	3E-04
			Total PCB TEQ	6E-04	RNA	RNA	6E-04
			Aldrin	6E-07	RNA	RNA	6E-07
			alpha-Hexachlorocyclohexane	7E-08	RNA	RNA	7E-08
			beta-Hexachlorocyclohexane	3E-06	RNA	RNA	3E-06
			Dieldrin	6E-05	RNA	RNA	6E-05
			Heptachlor	8E-09	RNA	RNA	8E-09
			Heptachlor Epoxide	4E-07	RNA	RNA	4E-07
			Total Chlordanes	2E-06	RNA	RNA	2E-06
Total DDX	5E-05	RNA	RNA	5E-05			
				Fish Tissue Total Risk =		1E-02	
				<b>Total Risk =</b>		<b>1E-02</b>	

Table 5-92 Risk Characterization Summary, Cancer Risks - Tribal Fisher, Boat, Reasonable Maximum Exposure							
Risk Characterization Summary - Carcinogens							
Scenario Timeframe:		Current/Future					
Receptor Population:		Tribal Fisher (Boat)					
Receptor Age:		Adult/Child					
Medium	Exposure Medium	Exposure Point	Chemical of Concern	Carcinogenic Risk			
				Ingestion/Consumption	Inhalation	Dermal	Exposure Routes Total
Sediment	In-river Sediment	In-river Sediment On-site Direct Contact RM 2.5 East	Antimony	--	--	--	--
			Arsenic	NC <sup>1</sup>	RNA	NC <sup>1</sup>	1E-06
			cPAHs	NC <sup>1</sup>	RNA	NC <sup>1</sup>	2E-05
			Total PCBs	NC <sup>1</sup>	RNA	NC <sup>1</sup>	5E-08
			Total Dioxin/Furan TEQ	NC <sup>1</sup>	RNA	NC <sup>1</sup>	3E-08
			Total PCB TEQ	NC <sup>1</sup>	RNA	NC <sup>1</sup>	1E-07
			Sediment Total Risk =				2E-05
Fish Tissue	Multiple Species Tissue	Fillet Fish Tissue On-site Consumption (175:73 g/day)	Antimony	--	--	--	--
			Arsenic	2E-04	RNA	RNA	2E-04
			Chromium	--	--	--	--
			Mercury	--	--	--	--
			cPAHs	6E-06	RNA	RNA	6E-06
			Bis(2-ethylhexyl)phthalate	1E-06	RNA	RNA	1E-06
			Hexachlorobenzene	4E-05	RNA	RNA	4E-05
			Total PCBs	1E-02	RNA	RNA	1E-02
			Total Dioxin/Furan TEQ	3E-04	RNA	RNA	3E-04
			Total PCB TEQ	6E-04	RNA	RNA	6E-04
			Aldrin	6E-07	RNA	RNA	6E-07
			alpha-Hexachlorocyclohexane	7E-08	RNA	RNA	7E-08
			beta-Hexachlorocyclohexane	3E-06	RNA	RNA	3E-06
			Dieldrin	6E-05	RNA	RNA	6E-05
			Heptachlor	8E-09	RNA	RNA	8E-09
			Heptachlor Epoxide	4E-07	RNA	RNA	4E-07
			Total Chlordanes	2E-06	RNA	RNA	2E-06
Total DDX	5E-05	RNA	RNA	5E-05			
Fish Tissue Total Risk =				1E-02			
<b>Total Risk =</b>				<b>1E-02</b>			

Table 5-92 Risk Characterization Summary, Cancer Risks - Tribal Fisher, Boat, Reasonable Maximum Exposure							
Risk Characterization Summary - Carcinogens							
Scenario Timeframe:		Current/Future					
Receptor Population:		Tribal Fisher (Boat)					
Receptor Age:		Adult/Child					
Medium	Exposure Medium	Exposure Point	Chemical of Concern	Carcinogenic Risk			
				Ingestion/Consumption	Inhalation	Dermal	Exposure Routes Total
Sediment	In-river Sediment	In-river Sediment On-site Direct Contact  RM 3 East	Antimony	--	--	--	--
			Arsenic	NC <sup>1</sup>	RNA	NC <sup>1</sup>	1E-06
			cPAHs	NC <sup>1</sup>	RNA	NC <sup>1</sup>	5E-07
			Total PCBs	NC <sup>1</sup>	RNA	NC <sup>1</sup>	2E-08
			Total Dioxin/Furan TEQ	NC <sup>1</sup>	RNA	NC <sup>1</sup>	1E-07
			Total PCB TEQ	NC <sup>1</sup>	RNA	NC <sup>1</sup>	5E-09
			Sediment Total Risk =				2E-06
Fish Tissue	Multiple Species Tissue	Fillet Fish Tissue On-site Consumption (175:73 g/day)	Antimony	--	--	--	--
			Arsenic	2E-04	RNA	RNA	2E-04
			Chromium	--	--	--	--
			Mercury	--	--	--	--
			cPAHs	6E-06	RNA	RNA	6E-06
			Bis(2-ethylhexyl)phthalate	1E-06	RNA	RNA	1E-06
			Hexachlorobenzene	4E-05	RNA	RNA	4E-05
			Total PCBs	1E-02	RNA	RNA	1E-02
			Total Dioxin/Furan TEQ	3E-04	RNA	RNA	3E-04
			Total PCB TEQ	6E-04	RNA	RNA	6E-04
			Aldrin	6E-07	RNA	RNA	6E-07
			alpha-Hexachlorocyclohexane	7E-08	RNA	RNA	7E-08
			beta-Hexachlorocyclohexane	3E-06	RNA	RNA	3E-06
			Dieldrin	6E-05	RNA	RNA	6E-05
			Heptachlor	8E-09	RNA	RNA	8E-09
			Heptachlor Epoxide	4E-07	RNA	RNA	4E-07
			Total Chlordanes	2E-06	RNA	RNA	2E-06
			Total DDX	5E-05	RNA	RNA	5E-05
Fish Tissue Total Risk =				1E-02			
<b>Total Risk =</b>				<b>1E-02</b>			



Table 5-92 Risk Characterization Summary, Cancer Risks - Tribal Fisher, Boat, Reasonable Maximum Exposure								
Risk Characterization Summary - Carcinogens								
Scenario Timeframe:		Current/Future						
Receptor Population:		Tribal Fisher (Boat)						
Receptor Age:		Adult/Child						
Medium	Exposure Medium	Exposure Point	Chemical of Concern	Carcinogenic Risk				
				Ingestion/Consumption	Inhalation	Dermal	Exposure Routes Total	
Sediment	In-river Sediment	In-river Sediment On-site Direct Contact RM 3.5 East	Antimony	--	--	--	--	
			Arsenic	NC <sup>1</sup>	RNA	NC <sup>1</sup>	1E-06	
			cPAHs	NC <sup>1</sup>	RNA	NC <sup>1</sup>	3E-06	
			Total PCBs	NC <sup>1</sup>	RNA	NC <sup>1</sup>	1E-06	
			Total Dioxin/Furan TEQ	NC <sup>1</sup>	RNA	NC <sup>1</sup>	3E-07	
			Total PCB TEQ	NC <sup>1</sup>	RNA	NC <sup>1</sup>	5E-06	
			Sediment Total Risk =				1E-05	
Fish Tissue	Multiple Species Tissue	Fillet Fish Tissue On-site Consumption (175:73 g/day)	Antimony	--	--	--	--	
			Arsenic	2E-04	RNA	RNA	2E-04	
			Chromium	--	--	--	--	
			Mercury	--	--	--	--	
			cPAHs	6E-06	RNA	RNA	6E-06	
			Bis(2-ethylhexyl)phthalate	1E-06	RNA	RNA	1E-06	
			Hexachlorobenzene	4E-05	RNA	RNA	4E-05	
			Total PCBs	1E-02	RNA	RNA	1E-02	
			Total Dioxin/Furan TEQ	3E-04	RNA	RNA	3E-04	
			Total PCB TEQ	6E-04	RNA	RNA	6E-04	
			Aldrin	6E-07	RNA	RNA	6E-07	
			alpha-Hexachlorocyclohexane	7E-08	RNA	RNA	7E-08	
			beta-Hexachlorocyclohexane	3E-06	RNA	RNA	3E-06	
			Dieldrin	6E-05	RNA	RNA	6E-05	
			Heptachlor	8E-09	RNA	RNA	8E-09	
			Heptachlor Epoxide	4E-07	RNA	RNA	4E-07	
			Total Chlordanes	2E-06	RNA	RNA	2E-06	
Total DDX	5E-05	RNA	RNA	5E-05				
Fish Tissue Total Risk =				1E-02				
<b>Total Risk =</b>				<b>1E-02</b>				

Table 5-92 Risk Characterization Summary, Cancer Risks - Tribal Fisher, Boat, Reasonable Maximum Exposure							
Risk Characterization Summary - Carcinogens							
Scenario Timeframe: Current/Future							
Receptor Population: Tribal Fisher (Boat)							
Receptor Age: Adult/Child							
Medium	Exposure Medium	Exposure Point	Chemical of Concern	Carcinogenic Risk			
				Ingestion/Consumption	Inhalation	Dermal	Exposure Routes Total
Sediment	In-river Sediment	In-river Sediment On-site Direct Contact  RM 4 East					
			Antimony	--	--	--	--
			Arsenic	NC <sup>1</sup>	RNA	NC <sup>1</sup>	1E-06
			cPAHs	NC <sup>1</sup>	RNA	NC <sup>1</sup>	8E-06
			Total PCBs	NC <sup>1</sup>	RNA	NC <sup>1</sup>	8E-07
			Total Dioxin/Furan TEQ	NC <sup>1</sup>	RNA	NC <sup>1</sup>	1E-07
			Total PCB TEQ	NC <sup>1</sup>	RNA	NC <sup>1</sup>	2E-07
							Sediment Total Risk =
Fish Tissue	Multiple Species Tissue	Fillet Fish Tissue On-site Consumption (175:73 g/day)					
			Antimony	--	--	--	--
			Arsenic	2E-04	RNA	RNA	2E-04
			Chromium	--	--	--	--
			Mercury	--	--	--	--
			cPAHs	6E-06	RNA	RNA	6E-06
			Bis(2-ethylhexyl)phthalate	1E-06	RNA	RNA	1E-06
			Hexachlorobenzene	4E-05	RNA	RNA	4E-05
			Total PCBs	1E-02	RNA	RNA	1E-02
			Total Dioxin/Furan TEQ	3E-04	RNA	RNA	3E-04
			Total PCB TEQ	6E-04	RNA	RNA	6E-04
			Aldrin	6E-07	RNA	RNA	6E-07
			alpha-Hexachlorocyclohexane	7E-08	RNA	RNA	7E-08
			beta-Hexachlorocyclohexane	3E-06	RNA	RNA	3E-06
			Dieldrin	6E-05	RNA	RNA	6E-05
			Heptachlor	8E-09	RNA	RNA	8E-09
			Heptachlor Epoxide	4E-07	RNA	RNA	4E-07
			Total Chlordanes	2E-06	RNA	RNA	2E-06
Total DDX	5E-05	RNA	RNA	5E-05			
				Fish Tissue Total Risk =		1E-02	
				<b>Total Risk =</b>		<b>1E-02</b>	

Table 5-92 Risk Characterization Summary, Cancer Risks - Tribal Fisher, Boat, Reasonable Maximum Exposure							
Risk Characterization Summary - Carcinogens							
Scenario Timeframe:		Current/Future					
Receptor Population:		Tribal Fisher (Boat)					
Receptor Age:		Adult/Child					
Medium	Exposure Medium	Exposure Point	Chemical of Concern	Carcinogenic Risk			
				Ingestion/Consumption	Inhalation	Dermal	Exposure Routes Total
Sediment	In-river Sediment	In-river Sediment On-site Direct Contact RM 4.5 East	Antimony	--	--	--	--
			Arsenic	NC <sup>1</sup>	RNA	NC <sup>1</sup>	1E-06
			cPAHs	NC <sup>1</sup>	RNA	NC <sup>1</sup>	3E-05
			Total PCBs	NC <sup>1</sup>	RNA	NC <sup>1</sup>	3E-08
			Total Dioxin/Furan TEQ	NC <sup>1</sup>	RNA	NC <sup>1</sup>	7E-09
			Total PCB TEQ	NC <sup>1</sup>	RNA	NC <sup>1</sup>	2E-08
			Sediment Total Risk =				3E-05
Fish Tissue	Multiple Species Tissue	Fillet Fish Tissue On-site Consumption (175:73 g/day)	Antimony	--	--	--	--
			Arsenic	2E-04	RNA	RNA	2E-04
			Chromium	--	--	--	--
			Mercury	--	--	--	--
			cPAHs	6E-06	RNA	RNA	6E-06
			Bis(2-ethylhexyl)phthalate	1E-06	RNA	RNA	1E-06
			Hexachlorobenzene	4E-05	RNA	RNA	4E-05
			Total PCBs	1E-02	RNA	RNA	1E-02
			Total Dioxin/Furan TEQ	3E-04	RNA	RNA	3E-04
			Total PCB TEQ	6E-04	RNA	RNA	6E-04
			Aldrin	6E-07	RNA	RNA	6E-07
			alpha-Hexachlorocyclohexane	7E-08	RNA	RNA	7E-08
			beta-Hexachlorocyclohexane	3E-06	RNA	RNA	3E-06
			Dieldrin	6E-05	RNA	RNA	6E-05
			Heptachlor	8E-09	RNA	RNA	8E-09
			Heptachlor Epoxide	4E-07	RNA	RNA	4E-07
			Total Chlordanes	2E-06	RNA	RNA	2E-06
			Total DDX	5E-05	RNA	RNA	5E-05
Fish Tissue Total Risk =				1E-02			
<b>Total Risk =</b>				<b>1E-02</b>			

Table 5-92 Risk Characterization Summary, Cancer Risks - Tribal Fisher, Boat, Reasonable Maximum Exposure								
Risk Characterization Summary - Carcinogens								
Scenario Timeframe:		Current/Future						
Receptor Population:		Tribal Fisher (Boat)						
Receptor Age:		Adult/Child						
Medium	Exposure Medium	Exposure Point	Chemical of Concern	Carcinogenic Risk				
				Ingestion/Consumption	Inhalation	Dermal	Exposure Routes Total	
Sediment	In-river Sediment	In-river Sediment On-site Direct Contact  RM 5 East	Antimony	--	--	--	--	
			Arsenic	NC <sup>1</sup>	RNA	NC <sup>1</sup>	9E-07	
			cPAHs	NC <sup>1</sup>	RNA	NC <sup>1</sup>	2E-06	
			Total PCBs	NC <sup>1</sup>	RNA	NC <sup>1</sup>	2E-08	
			Total Dioxin/Furan TEQ	NA	RNA	NA	NA	
			Total PCB TEQ	NA	RNA	NA	NA	
			Sediment Total Risk =				3E-06	
Fish Tissue	Multiple Species Tissue	Fillet Fish Tissue On-site Consumption (175:73 g/day)	Antimony	--	--	--	--	
			Arsenic	2E-04	RNA	RNA	2E-04	
			Chromium	--	--	--	--	
			Mercury	--	--	--	--	
			cPAHs	6E-06	RNA	RNA	6E-06	
			Bis(2-ethylhexyl)phthalate	1E-06	RNA	RNA	1E-06	
			Hexachlorobenzene	4E-05	RNA	RNA	4E-05	
			Total PCBs	1E-02	RNA	RNA	1E-02	
			Total Dioxin/Furan TEQ	3E-04	RNA	RNA	3E-04	
			Total PCB TEQ	6E-04	RNA	RNA	6E-04	
			Aldrin	6E-07	RNA	RNA	6E-07	
			alpha-Hexachlorocyclohexane	7E-08	RNA	RNA	7E-08	
			beta-Hexachlorocyclohexane	3E-06	RNA	RNA	3E-06	
			Dieldrin	6E-05	RNA	RNA	6E-05	
			Heptachlor	8E-09	RNA	RNA	8E-09	
			Heptachlor Epoxide	4E-07	RNA	RNA	4E-07	
			Total Chlordanes	2E-06	RNA	RNA	2E-06	
			Total DDx	5E-05	RNA	RNA	5E-05	
Fish Tissue Total Risk =				1E-02				
<b>Total Risk =</b>				<b>1E-02</b>				

Table 5-92 Risk Characterization Summary, Cancer Risks - Tribal Fisher, Boat, Reasonable Maximum Exposure							
Risk Characterization Summary - Carcinogens							
Scenario Timeframe:		Current/Future					
Receptor Population:		Tribal Fisher (Boat)					
Receptor Age:		Adult/Child					
Medium	Exposure Medium	Exposure Point	Chemical of Concern	Carcinogenic Risk			
				Ingestion/Consumption	Inhalation	Dermal	Exposure Routes Total
Sediment	In-river Sediment	In-river Sediment On-site Direct Contact RM 5.5 East	Antimony	--	--	--	--
			Arsenic	NC <sup>1</sup>	RNA	NC <sup>1</sup>	3E-06
			cPAHs	NC <sup>1</sup>	RNA	NC <sup>1</sup>	2E-06
			Total PCBs	NC <sup>1</sup>	RNA	NC <sup>1</sup>	1E-07
			Total Dioxin/Furan TEQ	NC <sup>1</sup>	RNA	NC <sup>1</sup>	2E-07
			Total PCB TEQ	NC <sup>1</sup>	RNA	NC <sup>1</sup>	3E-07
			Sediment Total Risk =				6E-06
Fish Tissue	Multiple Species Tissue	Fillet Fish Tissue On-site Consumption (175:73 g/day)	Antimony	--	--	--	--
			Arsenic	2E-04	RNA	RNA	2E-04
			Chromium	--	--	--	--
			Mercury	--	--	--	--
			cPAHs	6E-06	RNA	RNA	6E-06
			Bis(2-ethylhexyl)phthalate	1E-06	RNA	RNA	1E-06
			Hexachlorobenzene	4E-05	RNA	RNA	4E-05
			Total PCBs	1E-02	RNA	RNA	1E-02
			Total Dioxin/Furan TEQ	3E-04	RNA	RNA	3E-04
			Total PCB TEQ	6E-04	RNA	RNA	6E-04
			Aldrin	6E-07	RNA	RNA	6E-07
			alpha-Hexachlorocyclohexane	7E-08	RNA	RNA	7E-08
			beta-Hexachlorocyclohexane	3E-06	RNA	RNA	3E-06
			Dieldrin	6E-05	RNA	RNA	6E-05
			Heptachlor	8E-09	RNA	RNA	8E-09
			Heptachlor Epoxide	4E-07	RNA	RNA	4E-07
			Total Chlordanes	2E-06	RNA	RNA	2E-06
			Total DDX	5E-05	RNA	RNA	5E-05
Fish Tissue Total Risk =				1E-02			
<b>Total Risk =</b>				<b>1E-02</b>			

Table 5-92 Risk Characterization Summary, Cancer Risks - Tribal Fisher, Boat, Reasonable Maximum Exposure							
Risk Characterization Summary - Carcinogens							
Scenario Timeframe:		Current/Future					
Receptor Population:		Tribal Fisher (Boat)					
Receptor Age:		Adult/Child					
Medium	Exposure Medium	Exposure Point	Chemical of Concern	Carcinogenic Risk			
				Ingestion/Consumption	Inhalation	Dermal	Exposure Routes Total
Sediment	In-river Sediment	In-river Sediment On-site Direct Contact RM 6 East	Antimony	--	--	--	--
			Arsenic	NC <sup>1</sup>	RNA	NC <sup>1</sup>	1E-06
			cPAHs	NC <sup>1</sup>	RNA	NC <sup>1</sup>	7E-06
			Total PCBs	NC <sup>1</sup>	RNA	NC <sup>1</sup>	1E-07
			Total Dioxin/Furan TEQ	NC <sup>1</sup>	RNA	NC <sup>1</sup>	9E-08
			Total PCB TEQ	NC <sup>1</sup>	RNA	NC <sup>1</sup>	2E-07
			Sediment Total Risk =				8E-06
Fish Tissue	Multiple Species Tissue	Fillet Fish Tissue On-site Consumption (175:73 g/day)	Antimony	--	--	--	--
			Arsenic	2E-04	RNA	RNA	2E-04
			Chromium	--	--	--	--
			Mercury	--	--	--	--
			cPAHs	6E-06	RNA	RNA	6E-06
			Bis(2-ethylhexyl)phthalate	1E-06	RNA	RNA	1E-06
			Hexachlorobenzene	4E-05	RNA	RNA	4E-05
			Total PCBs	1E-02	RNA	RNA	1E-02
			Total Dioxin/Furan TEQ	3E-04	RNA	RNA	3E-04
			Total PCB TEQ	6E-04	RNA	RNA	6E-04
			Aldrin	6E-07	RNA	RNA	6E-07
			alpha-Hexachlorocyclohexane	7E-08	RNA	RNA	7E-08
			beta-Hexachlorocyclohexane	3E-06	RNA	RNA	3E-06
			Dieldrin	6E-05	RNA	RNA	6E-05
			Heptachlor	8E-09	RNA	RNA	8E-09
			Heptachlor Epoxide	4E-07	RNA	RNA	4E-07
			Total Chlordanes	2E-06	RNA	RNA	2E-06
			Total DDX	5E-05	RNA	RNA	5E-05
Fish Tissue Total Risk =				1E-02			
<b>Total Risk =</b>				<b>1E-02</b>			

Table 5-92 Risk Characterization Summary, Cancer Risks - Tribal Fisher, Boat, Reasonable Maximum Exposure								
Risk Characterization Summary - Carcinogens								
Scenario Timeframe:		Current/Future						
Receptor Population:		Tribal Fisher (Boat)						
Receptor Age:		Adult/Child						
Medium	Exposure Medium	Exposure Point	Chemical of Concern	Carcinogenic Risk				
				Ingestion/Consumption	Inhalation	Dermal	Exposure Routes Total	
Sediment	In-river Sediment	In-river Sediment On-site Direct Contact RM 6.5 East	Antimony	--	--	--	--	
			Arsenic	NC <sup>1</sup>	RNA	NC <sup>1</sup>	1E-06	
			cPAHs	NC <sup>1</sup>	RNA	NC <sup>1</sup>	5E-07	
			Total PCBs	NC <sup>1</sup>	RNA	NC <sup>1</sup>	9E-07	
			Total Dioxin/Furan TEQ	NC <sup>1</sup>	RNA	NC <sup>1</sup>	2E-06	
			Total PCB TEQ	NC <sup>1</sup>	RNA	NC <sup>1</sup>	6E-07	
			Sediment Total Risk =				5E-06	
Fish Tissue	Multiple Species Tissue	Fillet Fish Tissue On-site Consumption (175:73 g/day)	Antimony	--	--	--	--	
			Arsenic	2E-04	RNA	RNA	2E-04	
			Chromium	--	--	--	--	
			Mercury	--	--	--	--	
			cPAHs	6E-06	RNA	RNA	6E-06	
			Bis(2-ethylhexyl)phthalate	1E-06	RNA	RNA	1E-06	
			Hexachlorobenzene	4E-05	RNA	RNA	4E-05	
			Total PCBs	1E-02	RNA	RNA	1E-02	
			Total Dioxin/Furan TEQ	3E-04	RNA	RNA	3E-04	
			Total PCB TEQ	6E-04	RNA	RNA	6E-04	
			Aldrin	6E-07	RNA	RNA	6E-07	
			alpha-Hexachlorocyclohexane	7E-08	RNA	RNA	7E-08	
			beta-Hexachlorocyclohexane	3E-06	RNA	RNA	3E-06	
			Dieldrin	6E-05	RNA	RNA	6E-05	
			Heptachlor	8E-09	RNA	RNA	8E-09	
			Heptachlor Epoxide	4E-07	RNA	RNA	4E-07	
			Total Chlordanes	2E-06	RNA	RNA	2E-06	
Total DDX	5E-05	RNA	RNA	5E-05				
Fish Tissue Total Risk =				1E-02				
<b>Total Risk =</b>				<b>1E-02</b>				

Table 5-92 Risk Characterization Summary, Cancer Risks - Tribal Fisher, Boat, Reasonable Maximum Exposure							
Risk Characterization Summary - Carcinogens							
Scenario Timeframe:		Current/Future					
Receptor Population:		Tribal Fisher (Boat)					
Receptor Age:		Adult/Child					
Medium	Exposure Medium	Exposure Point	Chemical of Concern	Carcinogenic Risk			
				Ingestion/Consumption	Inhalation	Dermal	Exposure Routes Total
Sediment	In-river Sediment	In-river Sediment On-site Direct Contact RM 7 East					
			Antimony	--	--	--	--
			Arsenic	NC <sup>1</sup>	RNA	NC <sup>1</sup>	4E-06
			cPAHs	NC <sup>1</sup>	RNA	NC <sup>1</sup>	2E-06
			Total PCBs	NC <sup>1</sup>	RNA	NC <sup>1</sup>	5E-08
			Total Dioxin/Furan TEQ	NC <sup>1</sup>	RNA	NC <sup>1</sup>	9E-07
			Total PCB TEQ	NC <sup>1</sup>	RNA	NC <sup>1</sup>	3E-08
			Sediment Total Risk =				7E-06
Fish Tissue	Multiple Species Tissue	Fillet Fish Tissue On-site Consumption (175:73 g/day)					
			Antimony	--	--	--	--
			Arsenic	2E-04	RNA	RNA	2E-04
			Chromium	--	--	--	--
			Mercury	--	--	--	--
			cPAHs	6E-06	RNA	RNA	6E-06
			Bis(2-ethylhexyl)phthalate	1E-06	RNA	RNA	1E-06
			Hexachlorobenzene	4E-05	RNA	RNA	4E-05
			Total PCBs	1E-02	RNA	RNA	1E-02
			Total Dioxin/Furan TEQ	3E-04	RNA	RNA	3E-04
			Total PCB TEQ	6E-04	RNA	RNA	6E-04
			Aldrin	6E-07	RNA	RNA	6E-07
			alpha-Hexachlorocyclohexane	7E-08	RNA	RNA	7E-08
			beta-Hexachlorocyclohexane	3E-06	RNA	RNA	3E-06
			Dieldrin	6E-05	RNA	RNA	6E-05
			Heptachlor	8E-09	RNA	RNA	8E-09
			Heptachlor Epoxide	4E-07	RNA	RNA	4E-07
			Total Chlordanes	2E-06	RNA	RNA	2E-06
Total DDX	5E-05	RNA	RNA	5E-05			
Fish Tissue Total Risk =				1E-02			
<b>Total Risk =</b>				<b>1E-02</b>			



Table 5-92 Risk Characterization Summary, Cancer Risks - Tribal Fisher, Boat, Reasonable Maximum Exposure								
Risk Characterization Summary - Carcinogens								
Scenario Timeframe:		Current/Future						
Receptor Population:		Tribal Fisher (Boat)						
Receptor Age:		Adult/Child						
Medium	Exposure Medium	Exposure Point	Chemical of Concern	Carcinogenic Risk				
				Ingestion/Consumption	Inhalation	Dermal	Exposure Routes Total	
Sediment	In-river Sediment	In-river Sediment On-site Direct Contact  RM 7.5 East	Antimony	--	--	--	--	
			Arsenic	NC <sup>1</sup>	RNA	NC <sup>1</sup>	1E-06	
			cPAHs	NC <sup>1</sup>	RNA	NC <sup>1</sup>	1E-07	
			Total PCBs	NC <sup>1</sup>	RNA	NC <sup>1</sup>	8E-08	
			Total Dioxin/Furan TEQ	NA	RNA	NA	NA	
			Total PCB TEQ	NA	RNA	NA	NA	
			Sediment Total Risk =					1E-06
Fish Tissue	Multiple Species Tissue	Fillet Fish Tissue On-site Consumption (175:73 g/day)	Antimony	--	--	--	--	
			Arsenic	2E-04	RNA	RNA	2E-04	
			Chromium	--	--	--	--	
			Mercury	--	--	--	--	
			cPAHs	6E-06	RNA	RNA	6E-06	
			Bis(2-ethylhexyl)phthalate	1E-06	RNA	RNA	1E-06	
			Hexachlorobenzene	4E-05	RNA	RNA	4E-05	
			Total PCBs	1E-02	RNA	RNA	1E-02	
			Total Dioxin/Furan TEQ	3E-04	RNA	RNA	3E-04	
			Total PCB TEQ	6E-04	RNA	RNA	6E-04	
			Aldrin	6E-07	RNA	RNA	6E-07	
			alpha-Hexachlorocyclohexane	7E-08	RNA	RNA	7E-08	
			beta-Hexachlorocyclohexane	3E-06	RNA	RNA	3E-06	
			Dieldrin	6E-05	RNA	RNA	6E-05	
			Heptachlor	8E-09	RNA	RNA	8E-09	
			Heptachlor Epoxide	4E-07	RNA	RNA	4E-07	
			Total Chlordanes	2E-06	RNA	RNA	2E-06	
			Total DDx	5E-05	RNA	RNA	5E-05	
Fish Tissue Total Risk =					1E-02			
<b>Total Risk =</b>						<b>1E-02</b>		

Table 5-92 Risk Characterization Summary, Cancer Risks - Tribal Fisher, Boat, Reasonable Maximum Exposure							
Risk Characterization Summary - Carcinogens							
Scenario Timeframe:		Current/Future					
Receptor Population:		Tribal Fisher (Boat)					
Receptor Age:		Adult/Child					
Medium	Exposure Medium	Exposure Point	Chemical of Concern	Carcinogenic Risk			
				Ingestion/Consumption	Inhalation	Dermal	Exposure Routes Total
Sediment	In-river Sediment	In-river Sediment On-site Direct Contact RM 8 East					
			Antimony	--	--	--	--
			Arsenic	NC <sup>1</sup>	RNA	NC <sup>1</sup>	3E-06
			cPAHs	NC <sup>1</sup>	RNA	NC <sup>1</sup>	2E-06
			Total PCBs	NC <sup>1</sup>	RNA	NC <sup>1</sup>	3E-07
			Total Dioxin/Furan TEQ	NC <sup>1</sup>	RNA	NC <sup>1</sup>	4E-08
			Total PCB TEQ	NC <sup>1</sup>	RNA	NC <sup>1</sup>	8E-07
							Sediment Total Risk =
Fish Tissue	Multiple Species Tissue	Fillet Fish Tissue On-site Consumption (175:73 g/day)					
			Antimony	--	--	--	--
			Arsenic	2E-04	RNA	RNA	2E-04
			Chromium	--	--	--	--
			Mercury	--	--	--	--
			cPAHs	6E-06	RNA	RNA	6E-06
			Bis(2-ethylhexyl)phthalate	1E-06	RNA	RNA	1E-06
			Hexachlorobenzene	4E-05	RNA	RNA	4E-05
			Total PCBs	1E-02	RNA	RNA	1E-02
			Total Dioxin/Furan TEQ	3E-04	RNA	RNA	3E-04
			Total PCB TEQ	6E-04	RNA	RNA	6E-04
			Aldrin	6E-07	RNA	RNA	6E-07
			alpha-Hexachlorocyclohexane	7E-08	RNA	RNA	7E-08
			beta-Hexachlorocyclohexane	3E-06	RNA	RNA	3E-06
			Dieldrin	6E-05	RNA	RNA	6E-05
			Heptachlor	8E-09	RNA	RNA	8E-09
			Heptachlor Epoxide	4E-07	RNA	RNA	4E-07
			Total Chlordanes	2E-06	RNA	RNA	2E-06
Total DDX	5E-05	RNA	RNA	5E-05			
				Fish Tissue Total Risk =		1E-02	
				<b>Total Risk =</b>		<b>1E-02</b>	

Table 5-92 Risk Characterization Summary, Cancer Risks - Tribal Fisher, Boat, Reasonable Maximum Exposure							
Risk Characterization Summary - Carcinogens							
Scenario Timeframe:		Current/Future					
Receptor Population:		Tribal Fisher (Boat)					
Receptor Age:		Adult/Child					
Medium	Exposure Medium	Exposure Point	Chemical of Concern	Carcinogenic Risk			
				Ingestion/Consumption	Inhalation	Dermal	Exposure Routes Total
Sediment	In-river Sediment	In-river Sediment On-site Direct Contact	SIL				
			Antimony	--	--	--	--
			Arsenic	NC <sup>1</sup>	RNA	NC <sup>1</sup>	1E-06
			cPAHs	NC <sup>1</sup>	RNA	NC <sup>1</sup>	1E-06
			Total PCBs	NC <sup>1</sup>	RNA	NC <sup>1</sup>	3E-07
			Total Dioxin/Furan TEQ	NC <sup>1</sup>	RNA	NC <sup>1</sup>	7E-07
			Total PCB TEQ	NC <sup>1</sup>	RNA	NC <sup>1</sup>	3E-06
							Sediment Total Risk =
Fish Tissue	Multiple Species Tissue	Fillet Fish Tissue On-site Consumption (175:73 g/day)					
			Antimony	--	--	--	--
			Arsenic	2E-04	RNA	RNA	2E-04
			Chromium	--	--	--	--
			Mercury	--	--	--	--
			cPAHs	6E-06	RNA	RNA	6E-06
			Bis(2-ethylhexyl)phthalate	1E-06	RNA	RNA	1E-06
			Hexachlorobenzene	4E-05	RNA	RNA	4E-05
			Total PCBs	1E-02	RNA	RNA	1E-02
			Total Dioxin/Furan TEQ	3E-04	RNA	RNA	3E-04
			Total PCB TEQ	6E-04	RNA	RNA	6E-04
			Aldrin	6E-07	RNA	RNA	6E-07
			alpha-Hexachlorocyclohexane	7E-08	RNA	RNA	7E-08
			beta-Hexachlorocyclohexane	3E-06	RNA	RNA	3E-06
			Dieldrin	6E-05	RNA	RNA	6E-05
			Heptachlor	8E-09	RNA	RNA	8E-09
			Heptachlor Epoxide	4E-07	RNA	RNA	4E-07
			Total Chlordanes	2E-06	RNA	RNA	2E-06
Total DDx	5E-05	RNA	RNA	5E-05			
				Fish Tissue Total Risk =		1E-02	
				<b>Total Risk =</b>		<b>1E-02</b>	

Table 5-92 Risk Characterization Summary, Cancer Risks - Tribal Fisher, Boat, Reasonable Maximum Exposure							
Risk Characterization Summary - Carcinogens							
Scenario Timeframe:		Current/Future					
Receptor Population:		Tribal Fisher (Boat)					
Receptor Age:		Adult/Child					
Medium	Exposure Medium	Exposure Point	Chemical of Concern	Carcinogenic Risk			
				Ingestion/Consumption	Inhalation	Dermal	Exposure Routes Total
Sediment	In-river Sediment	In-river Sediment On-site Direct Contact RM 8.5 East					
			Antimony	--	--	--	--
			Arsenic	NC <sup>1</sup>	RNA	NC <sup>1</sup>	3E-06
			cPAHs	NC <sup>1</sup>	RNA	NC <sup>1</sup>	3E-07
			Total PCBs	NC <sup>1</sup>	RNA	NC <sup>1</sup>	5E-08
			Total Dioxin/Furan TEQ	NC <sup>1</sup>	RNA	NC <sup>1</sup>	3E-08
			Total PCB TEQ	NC <sup>1</sup>	RNA	NC <sup>1</sup>	3E-08
							Sediment Total Risk =
Fish Tissue	Multiple Species Tissue	Fillet Fish Tissue On-site Consumption (175:73 g/day)					
			Antimony	--	--	--	--
			Arsenic	2E-04	RNA	RNA	2E-04
			Chromium	--	--	--	--
			Mercury	--	--	--	--
			cPAHs	6E-06	RNA	RNA	6E-06
			Bis(2-ethylhexyl)phthalate	1E-06	RNA	RNA	1E-06
			Hexachlorobenzene	4E-05	RNA	RNA	4E-05
			Total PCBs	1E-02	RNA	RNA	1E-02
			Total Dioxin/Furan TEQ	3E-04	RNA	RNA	3E-04
			Total PCB TEQ	6E-04	RNA	RNA	6E-04
			Aldrin	6E-07	RNA	RNA	6E-07
			alpha-Hexachlorocyclohexane	7E-08	RNA	RNA	7E-08
			beta-Hexachlorocyclohexane	3E-06	RNA	RNA	3E-06
			Dieldrin	6E-05	RNA	RNA	6E-05
			Heptachlor	8E-09	RNA	RNA	8E-09
			Heptachlor Epoxide	4E-07	RNA	RNA	4E-07
			Total Chlordanes	2E-06	RNA	RNA	2E-06
Total DDX	5E-05	RNA	RNA	5E-05			
				Fish Tissue Total Risk =		1E-02	
				<b>Total Risk =</b>		<b>1E-02</b>	

Table 5-92 Risk Characterization Summary, Cancer Risks - Tribal Fisher, Boat, Reasonable Maximum Exposure									
Risk Characterization Summary - Carcinogens									
Scenario Timeframe:		Current/Future							
Receptor Population:		Tribal Fisher (Boat)							
Receptor Age:		Adult/Child							
Medium	Exposure Medium	Exposure Point	Chemical of Concern	Carcinogenic Risk					
				Ingestion/Consumption	Inhalation	Dermal	Exposure Routes Total		
Sediment	In-river Sediment	In-river Sediment On-site Direct Contact RM 9 East	Antimony	--	--	--	--		
			Arsenic	NC <sup>1</sup>	RNA	NC <sup>1</sup>	1E-06		
			cPAHs	NC <sup>1</sup>	RNA	NC <sup>1</sup>	6E-08		
			Total PCBs	NC <sup>1</sup>	RNA	NC <sup>1</sup>	7E-08		
			Total Dioxin/Furan TEQ	NC <sup>1</sup>	RNA	NC <sup>1</sup>	5E-09		
			Total PCB TEQ	NC <sup>1</sup>	RNA	NC <sup>1</sup>	3E-08		
			Sediment Total Risk =						1E-06
Fish Tissue	Multiple Species Tissue	Fillet Fish Tissue On-site Consumption (175:73 g/day)	Antimony	--	--	--	--		
			Arsenic	2E-04	RNA	RNA	2E-04		
			Chromium	--	--	--	--		
			Mercury	--	--	--	--		
			cPAHs	6E-06	RNA	RNA	6E-06		
			Bis(2-ethylhexyl)phthalate	1E-06	RNA	RNA	1E-06		
			Hexachlorobenzene	4E-05	RNA	RNA	4E-05		
			Total PCBs	1E-02	RNA	RNA	1E-02		
			Total Dioxin/Furan TEQ	3E-04	RNA	RNA	3E-04		
			Total PCB TEQ	6E-04	RNA	RNA	6E-04		
			Aldrin	6E-07	RNA	RNA	6E-07		
			alpha-Hexachlorocyclohexane	7E-08	RNA	RNA	7E-08		
			beta-Hexachlorocyclohexane	3E-06	RNA	RNA	3E-06		
			Dieldrin	6E-05	RNA	RNA	6E-05		
			Heptachlor	8E-09	RNA	RNA	8E-09		
			Heptachlor Epoxide	4E-07	RNA	RNA	4E-07		
			Total Chlordanes	2E-06	RNA	RNA	2E-06		
			Total DDX	5E-05	RNA	RNA	5E-05		
Fish Tissue Total Risk =						1E-02			
<b>Total Risk =</b>							<b>1E-02</b>		

Table 5-92 Risk Characterization Summary, Cancer Risks - Tribal Fisher, Boat, Reasonable Maximum Exposure									
Risk Characterization Summary - Carcinogens									
Scenario Timeframe:		Current/Future							
Receptor Population:		Tribal Fisher (Boat)							
Receptor Age:		Adult/Child							
Medium	Exposure Medium	Exposure Point	Chemical of Concern	Carcinogenic Risk					
				Ingestion/Consumption	Inhalation	Dermal	Exposure Routes Total		
Sediment	In-river Sediment	In-river Sediment On-site Direct Contact  RM 9.5 East	Antimony	--	--	--	--		
			Arsenic	NC <sup>1</sup>	RNA	NC <sup>1</sup>	9E-07		
			cPAHs	NC <sup>1</sup>	RNA	NC <sup>1</sup>	1E-07		
			Total PCBs	NC <sup>1</sup>	RNA	NC <sup>1</sup>	3E-08		
			Total Dioxin/Furan TEQ	NC <sup>1</sup>	RNA	NC <sup>1</sup>	3E-08		
			Total PCB TEQ	NC <sup>1</sup>	RNA	NC <sup>1</sup>	1E-08		
							Sediment Total Risk =		1E-06
Fish Tissue	Multiple Species Tissue	Fillet Fish Tissue On-site Consumption (175:73 g/day)	Antimony	--	--	--	--		
			Arsenic	2E-04	RNA	RNA	2E-04		
			Chromium	--	--	--	--		
			Mercury	--	--	--	--		
			cPAHs	6E-06	RNA	RNA	6E-06		
			Bis(2-ethylhexyl)phthalate	1E-06	RNA	RNA	1E-06		
			Hexachlorobenzene	4E-05	RNA	RNA	4E-05		
			Total PCBs	1E-02	RNA	RNA	1E-02		
			Total Dioxin/Furan TEQ	3E-04	RNA	RNA	3E-04		
			Total PCB TEQ	6E-04	RNA	RNA	6E-04		
			Aldrin	6E-07	RNA	RNA	6E-07		
			alpha-Hexachlorocyclohexane	7E-08	RNA	RNA	7E-08		
			beta-Hexachlorocyclohexane	3E-06	RNA	RNA	3E-06		
			Dieldrin	6E-05	RNA	RNA	6E-05		
			Heptachlor	8E-09	RNA	RNA	8E-09		
			Heptachlor Epoxide	4E-07	RNA	RNA	4E-07		
			Total Chlordanes	2E-06	RNA	RNA	2E-06		
Total DDX	5E-05	RNA	RNA	5E-05					
				Fish Tissue Total Risk =		1E-02			
				<b>Total Risk =</b>		<b>1E-02</b>			

Table 5-92 Risk Characterization Summary, Cancer Risks - Tribal Fisher, Boat, Reasonable Maximum Exposure								
Risk Characterization Summary - Carcinogens								
Scenario Timeframe:		Current/Future						
Receptor Population:		Tribal Fisher (Boat)						
Receptor Age:		Adult/Child						
Medium	Exposure Medium	Exposure Point	Chemical of Concern	Carcinogenic Risk				
				Ingestion/Consumption	Inhalation	Dermal	Exposure Routes Total	
Sediment	In-river Sediment	In-river Sediment On-site Direct Contact RM 10 East	Antimony	--	--	--	--	
			Arsenic	NC <sup>1</sup>	RNA	NC <sup>1</sup>	9E-07	
			cPAHs	NC <sup>1</sup>	RNA	NC <sup>1</sup>	1E-06	
			Total PCBs	NC <sup>1</sup>	RNA	NC <sup>1</sup>	3E-08	
			Total Dioxin/Furan TEQ	NC <sup>1</sup>	RNA	NC <sup>1</sup>	1E-08	
			Total PCB TEQ	NC <sup>1</sup>	RNA	NC <sup>1</sup>	3E-08	
			Sediment Total Risk =				2E-06	
Fish Tissue	Multiple Species Tissue	Fillet Fish Tissue On-site Consumption (175:73 g/day)	Antimony	--	--	--	--	
			Arsenic	2E-04	RNA	RNA	2E-04	
			Chromium	--	--	--	--	
			Mercury	--	--	--	--	
			cPAHs	6E-06	RNA	RNA	6E-06	
			Bis(2-ethylhexyl)phthalate	1E-06	RNA	RNA	1E-06	
			Hexachlorobenzene	4E-05	RNA	RNA	4E-05	
			Total PCBs	1E-02	RNA	RNA	1E-02	
			Total Dioxin/Furan TEQ	3E-04	RNA	RNA	3E-04	
			Total PCB TEQ	6E-04	RNA	RNA	6E-04	
			Aldrin	6E-07	RNA	RNA	6E-07	
			alpha-Hexachlorocyclohexane	7E-08	RNA	RNA	7E-08	
			beta-Hexachlorocyclohexane	3E-06	RNA	RNA	3E-06	
			Dieldrin	6E-05	RNA	RNA	6E-05	
			Heptachlor	8E-09	RNA	RNA	8E-09	
			Heptachlor Epoxide	4E-07	RNA	RNA	4E-07	
			Total Chlordanes	2E-06	RNA	RNA	2E-06	
Total DDX	5E-05	RNA	RNA	5E-05				
Fish Tissue Total Risk =				1E-02				
<b>Total Risk =</b>				<b>1E-02</b>				

Table 5-92 Risk Characterization Summary, Cancer Risks - Tribal Fisher, Boat, Reasonable Maximum Exposure							
Risk Characterization Summary - Carcinogens							
Scenario Timeframe:		Current/Future					
Receptor Population:		Tribal Fisher (Boat)					
Receptor Age:		Adult/Child					
Medium	Exposure Medium	Exposure Point	Chemical of Concern	Carcinogenic Risk			
				Ingestion/Consumption	Inhalation	Dermal	Exposure Routes Total
Sediment	In-river Sediment	In-river Sediment On-site Direct Contact  RM 10.5 East					
			Antimony	--	--	--	--
			Arsenic	NC <sup>1</sup>	RNA	NC <sup>1</sup>	8E-07
			cPAHs	NC <sup>1</sup>	RNA	NC <sup>1</sup>	3E-07
			Total PCBs	NC <sup>1</sup>	RNA	NC <sup>1</sup>	1E-07
			Total Dioxin/Furan TEQ	NA	RNA	NA	NA
			Total PCB TEQ	NC <sup>1</sup>	RNA	NC <sup>1</sup>	2E-08
							Sediment Total Risk =
Fish Tissue	Multiple Species Tissue	Fillet Fish Tissue On-site Consumption (175:73 g/day)					
			Antimony	--	--	--	--
			Arsenic	2E-04	RNA	RNA	2E-04
			Chromium	--	--	--	--
			Mercury	--	--	--	--
			cPAHs	6E-06	RNA	RNA	6E-06
			Bis(2-ethylhexyl)phthalate	1E-06	RNA	RNA	1E-06
			Hexachlorobenzene	4E-05	RNA	RNA	4E-05
			Total PCBs	1E-02	RNA	RNA	1E-02
			Total Dioxin/Furan TEQ	3E-04	RNA	RNA	3E-04
			Total PCB TEQ	6E-04	RNA	RNA	6E-04
			Aldrin	6E-07	RNA	RNA	6E-07
			alpha-Hexachlorocyclohexane	7E-08	RNA	RNA	7E-08
			beta-Hexachlorocyclohexane	3E-06	RNA	RNA	3E-06
			Dieldrin	6E-05	RNA	RNA	6E-05
			Heptachlor	8E-09	RNA	RNA	8E-09
			Heptachlor Epoxide	4E-07	RNA	RNA	4E-07
			Total Chlordanes	2E-06	RNA	RNA	2E-06
			Total DDx	5E-05	RNA	RNA	5E-05
							Fish Tissue Total Risk =
				<b>Total Risk =</b>		<b>1E-02</b>	



Table 5-92 Risk Characterization Summary, Cancer Risks - Tribal Fisher, Boat, Reasonable Maximum Exposure								
Risk Characterization Summary - Carcinogens								
Scenario Timeframe:		Current/Future						
Receptor Population:		Tribal Fisher (Boat)						
Receptor Age:		Adult/Child						
Medium	Exposure Medium	Exposure Point	Chemical of Concern	Carcinogenic Risk				
				Ingestion/Consumption	Inhalation	Dermal	Exposure Routes Total	
Sediment	In-river Sediment	In-river Sediment On-site Direct Contact RM 11 East	Antimony	--	--	--	--	
			Arsenic	NC <sup>1</sup>	RNA	NC <sup>1</sup>	8E-07	
			cPAHs	NC <sup>1</sup>	RNA	NC <sup>1</sup>	5E-07	
			Total PCBs	NC <sup>1</sup>	RNA	NC <sup>1</sup>	3E-06	
			Total Dioxin/Furan TEQ	NC <sup>1</sup>	RNA	NC <sup>1</sup>	7E-08	
			Total PCB TEQ	NC <sup>1</sup>	RNA	NC <sup>1</sup>	1E-06	
			Sediment Total Risk =				5E-06	
Fish Tissue	Multiple Species Tissue	Fillet Fish Tissue On-site Consumption (175:73 g/day)	Antimony	--	--	--	--	
			Arsenic	2E-04	RNA	RNA	2E-04	
			Chromium	--	--	--	--	
			Mercury	--	--	--	--	
			cPAHs	6E-06	RNA	RNA	6E-06	
			Bis(2-ethylhexyl)phthalate	1E-06	RNA	RNA	1E-06	
			Hexachlorobenzene	4E-05	RNA	RNA	4E-05	
			Total PCBs	1E-02	RNA	RNA	1E-02	
			Total Dioxin/Furan TEQ	3E-04	RNA	RNA	3E-04	
			Total PCB TEQ	6E-04	RNA	RNA	6E-04	
			Aldrin	6E-07	RNA	RNA	6E-07	
			alpha-Hexachlorocyclohexane	7E-08	RNA	RNA	7E-08	
			beta-Hexachlorocyclohexane	3E-06	RNA	RNA	3E-06	
			Dieldrin	6E-05	RNA	RNA	6E-05	
			Heptachlor	8E-09	RNA	RNA	8E-09	
			Heptachlor Epoxide	4E-07	RNA	RNA	4E-07	
			Total Chlordanes	2E-06	RNA	RNA	2E-06	
			Total DDX	5E-05	RNA	RNA	5E-05	
Fish Tissue Total Risk =				1E-02				
<b>Total Risk =</b>				<b>1E-02</b>				

Table 5-92 Risk Characterization Summary, Cancer Risks - Tribal Fisher, Boat, Reasonable Maximum Exposure							
Risk Characterization Summary - Carcinogens							
Scenario Timeframe:		Current/Future					
Receptor Population:		Tribal Fisher (Boat)					
Receptor Age:		Adult/Child					
Medium	Exposure Medium	Exposure Point	Chemical of Concern	Carcinogenic Risk			
				Ingestion/Consumption	Inhalation	Dermal	Exposure Routes Total
Sediment	In-river Sediment	In-river Sediment On-site Direct Contact  RM 11.5 East	Antimony	--	--	--	--
			Arsenic	NA	RNA	NA	NA
			cPAHs	NA	RNA	NA	NA
			Total PCBs	NA	RNA	NA	NA
			Total Dioxin/Furan TEQ	NA	RNA	NA	NA
			Total PCB TEQ	NA	RNA	NA	NA
			Sediment Total Risk =				
Fish Tissue	Multiple Species Tissue	Fillet Fish Tissue On-site Consumption (175:73 g/day)	Antimony	--	--	--	--
			Arsenic	2E-04	RNA	RNA	2E-04
			Chromium	--	--	--	--
			Mercury	--	--	--	--
			cPAHs	6E-06	RNA	RNA	6E-06
			Bis(2-ethylhexyl)phthalate	1E-06	RNA	RNA	1E-06
			Hexachlorobenzene	4E-05	RNA	RNA	4E-05
			Total PCBs	1E-02	RNA	RNA	1E-02
			Total Dioxin/Furan TEQ	3E-04	RNA	RNA	3E-04
			Total PCB TEQ	6E-04	RNA	RNA	6E-04
			Aldrin	6E-07	RNA	RNA	6E-07
			alpha-Hexachlorocyclohexane	7E-08	RNA	RNA	7E-08
			beta-Hexachlorocyclohexane	3E-06	RNA	RNA	3E-06
			Dieldrin	6E-05	RNA	RNA	6E-05
			Heptachlor	8E-09	RNA	RNA	8E-09
			Heptachlor Epoxide	4E-07	RNA	RNA	4E-07
			Total Chlordanes	2E-06	RNA	RNA	2E-06
Total DDx	5E-05	RNA	RNA	5E-05			
Fish Tissue Total Risk =						1E-02	
<b>Total Risk =</b>						<b>1E-02</b>	

Table 5-92 Risk Characterization Summary, Cancer Risks - Tribal Fisher, Boat, Reasonable Maximum Exposure							
Risk Characterization Summary - Carcinogens							
Scenario Timeframe:		Current/Future					
Receptor Population:		Tribal Fisher (Boat)					
Receptor Age:		Adult/Child					
Medium	Exposure Medium	Exposure Point	Chemical of Concern	Carcinogenic Risk			
				Ingestion/Consumption	Inhalation	Dermal	Exposure Routes Total
Sediment	In-river Sediment	In-river Sediment On-site Direct Contact  RM 12 East	Antimony	--	--	--	--
			Arsenic	NC <sup>1</sup>	RNA	NC <sup>1</sup>	7E-07
			cPAHs	NC <sup>1</sup>	RNA	NC <sup>1</sup>	7E-08
			Total PCBs	NC <sup>1</sup>	RNA	NC <sup>1</sup>	1E-07
			Total Dioxin/Furan TEQ	NC <sup>1</sup>	RNA	NC <sup>1</sup>	4E-08
			Total PCB TEQ	NC <sup>1</sup>	RNA	NC <sup>1</sup>	2E-07
			Sediment Total Risk =				1E-06
Fish Tissue	Multiple Species Tissue	Fillet Fish Tissue On-site Consumption (175:73 g/day)	Antimony	--	--	--	--
			Arsenic	2E-04	RNA	RNA	2E-04
			Chromium	--	--	--	--
			Mercury	--	--	--	--
			cPAHs	6E-06	RNA	RNA	6E-06
			Bis(2-ethylhexyl)phthalate	1E-06	RNA	RNA	1E-06
			Hexachlorobenzene	4E-05	RNA	RNA	4E-05
			Total PCBs	1E-02	RNA	RNA	1E-02
			Total Dioxin/Furan TEQ	3E-04	RNA	RNA	3E-04
			Total PCB TEQ	6E-04	RNA	RNA	6E-04
			Aldrin	6E-07	RNA	RNA	6E-07
			alpha-Hexachlorocyclohexane	7E-08	RNA	RNA	7E-08
			beta-Hexachlorocyclohexane	3E-06	RNA	RNA	3E-06
			Dieldrin	6E-05	RNA	RNA	6E-05
			Heptachlor	8E-09	RNA	RNA	8E-09
			Heptachlor Epoxide	4E-07	RNA	RNA	4E-07
			Total Chlordanes	2E-06	RNA	RNA	2E-06
Total DDX	5E-05	RNA	RNA	5E-05			
Fish Tissue Total Risk =				1E-02			
<b>Total Risk =</b>				<b>1E-02</b>			

Table 5-92 Risk Characterization Summary, Cancer Risks - Tribal Fisher, Boat, Reasonable Maximum Exposure							
Risk Characterization Summary - Carcinogens							
Scenario Timeframe:		Current/Future					
Receptor Population:		Tribal Fisher (Boat)					
Receptor Age:		Adult/Child					
Medium	Exposure Medium	Exposure Point	Chemical of Concern	Carcinogenic Risk			
				Ingestion/Consumption	Inhalation	Dermal	Exposure Routes Total
Sediment	In-river Sediment	In-river Sediment On-site Direct Contact					
			Study Area-wide	Antimony	--	--	--
			Arsenic	NC <sup>1</sup>	RNA	NC <sup>1</sup>	1E-06
			cPAHs	NC <sup>1</sup>	RNA	NC <sup>1</sup>	1E-05
			Total PCBs	NC <sup>1</sup>	RNA	NC <sup>1</sup>	3E-07
			Total Dioxin/Furan TEQ	NC <sup>1</sup>	RNA	NC <sup>1</sup>	1E-05
			Total PCB TEQ	NC <sup>1</sup>	RNA	NC <sup>1</sup>	8E-07
					Sediment Total Risk =		2E-05
Fish Tissue	Multiple Species Tissue	Fillet Fish Tissue On-site Consumption (175:73 g/day)					
			Antimony	--	--	--	--
			Arsenic	2E-04	RNA	RNA	2E-04
			Chromium	--	--	--	--
			Mercury	--	--	--	--
			cPAHs	6E-06	RNA	RNA	6E-06
			Bis(2-ethylhexyl)phthalate	1E-06	RNA	RNA	1E-06
			Hexachlorobenzene	4E-05	RNA	RNA	4E-05
			Total PCBs	1E-02	RNA	RNA	1E-02
			Total Dioxin/Furan TEQ	3E-04	RNA	RNA	3E-04
			Total PCB TEQ	6E-04	RNA	RNA	6E-04
			Aldrin	6E-07	RNA	RNA	6E-07
			alpha-Hexachlorocyclohexane	7E-08	RNA	RNA	7E-08
			beta-Hexachlorocyclohexane	3E-06	RNA	RNA	3E-06
			Dieldrin	6E-05	RNA	RNA	6E-05
			Heptachlor	8E-09	RNA	RNA	8E-09
			Heptachlor Epoxide	4E-07	RNA	RNA	4E-07
			Total Chlordanes	2E-06	RNA	RNA	2E-06
Total DDX	5E-05	RNA	RNA	5E-05			
			Fish Tissue Total Risk =		1E-02		
			<b>Total Risk =</b>		<b>1E-02</b>		
<b>Key</b>							
NC		Not Calculated					
SIL		Swan Island Lagoon					
RM		River Mile					
--		Toxicity criteria are not available to quantitatively address this route of exposure.					
RNA		Route of exposure is not applicable to this medium.					
<b>Note 1</b>		Pathway specific integrated risks were not calculated.					

Table 5-93 Risk Characterization Summary, Noncancer Hazards - Tribal Fisher, Reasonable Maximum Exposure

Risk Characterization Summary - Non-Carcinogens

Scenario Timeframe: Current/Future  
Receptor Population: Tribal  
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Chemical of Concern	Primary Target Organ	Non-Carcinogens Hazard Quotient				
					Ingestion	Inhalation	Dermal	Exposure Routes Total	
Fish Tissue	Multiple Species Tissue	Whole body Fish Tissue On-site Consumption (73 g/day)							
			Antimony	Blood	4	RNA	RNA	4	
			Arsenic	Skin/Blood	0.9	RNA	RNA	0.9	
			Chromium		<1	RNA	RNA	0	
			Mercury	CNS	4	RNA	RNA	4	
			cPAHs		--	--	--	--	
			Bis(2-ethylhexyl)phthalate	Liver	0.4	RNA	RNA	0.4	
			Hexachlorobenzene	Liver	<1	RNA	RNA	0	
			Total PCBs	Skin/Immunological	700	RNA	RNA	700	
			Total Dioxin/Furan TEQ	Reproduction	10	RNA	RNA	10	
			Total PCB TEQ	Reproduction	30	RNA	RNA	30	
			Aldrin	Liver	<1	RNA	RNA	0	
			alpha-Hexachlorocyclohexane	Liver	<1	RNA	RNA	0	
			beta-Hexachlorocyclohexane	Liver	<1	RNA	RNA	0	
			Dieldrin	Liver	0.2	RNA	RNA	0.2	
			Heptachlor	Liver	<1	RNA	RNA	0	
			Heptachlor Epoxide	Liver	<1	RNA	RNA	0	
			Total Chlordanes	Liver	0	RNA	RNA	0	
			Total DDX	Liver	1	RNA	RNA	1	
			Fish Tissue Hazard Index Total =					800	
			Receptor Hazard Index =					800	
Blood Hazard Index =					5				
Skin Hazard Index =					700				
CNS Hazard Index =					4				
Whole Body Hazard Index =					<1				
Liver Hazard Index =					2				
Immological Hazard Index =					700				
Reproduction Hazard Index =					40				
Kidney Hazard Index =					<1				

**Key**  
 SIL Swan Island Lagoon  
 RM River Mile  
 CNS Central Nervous System  
 -- Toxicity criteria are not available to quantitatively address this route of exposure.  
 RNA Route of exposure is not applicable to this medium.

Table 5-93 Risk Characterization Summary, Noncancer Hazards - Tribal Fisher, Reasonable Maximum Exposure										
Risk Characterization Summary - Non-Carcinogens										
Scenario Timeframe: Current/Future										
Receptor Population: Tribal										
Receptor Age: Child										
Medium	Exposure Medium	Exposure Point	Chemical of Concern	Primary Target Organ	Non-Carcinogens Hazard Quotient			Exposure Routes Total		
					Ingestion	Inhalation	Dermal			
Fish Tissue	Multiple Species Tissue	Fillet Fish Tissue On-site Consumption (73 g/day)								
			Antimony	Blood	2	RNA	RNA	2		
			Arsenic	Skin/Blood	1	RNA	RNA	1		
			Chromium		<1	RNA	RNA	0		
			Mercury	CNS	5	RNA	RNA	5		
			cPAHs		--	--	--	--		
			Bis(2-ethylhexyl)phthalate	Liver	<1	RNA	RNA	0		
			Hexachlorobenzene	Liver	<1	RNA	RNA	0		
			Total PCBs	Skin/Immunological	600	RNA	RNA	600		
			Total Dioxin/Furan TEQ	Reproduction	5	RNA	RNA	5		
			Total PCB TEQ	Reproduction	8	RNA	RNA	8		
			Aldrin	Liver	<1	RNA	RNA	0		
			alpha-Hexachlorocyclohexane	Liver	<1	RNA	RNA	0		
			beta-Hexachlorocyclohexane	Liver	<1	RNA	RNA	0		
			Dieldrin	Liver	0.1	RNA	RNA	0.1		
			Heptachlor	Liver	<1	RNA	RNA	0		
			Heptachlor Epoxide	Liver	<1	RNA	RNA	0		
			Total Chlordanes	Liver	<1	RNA	RNA	0		
			Total DDX	Liver	0.6	RNA	RNA	0.6		
			Fish Tissue Hazard Index Total =							600
			Receptor Hazard Index =							600
Blood Hazard Index =							3			
Skin Hazard Index =							600			
CNS Hazard Index =							5			
Whole Body Hazard Index =							<1			
Liver Hazard Index =							<1			
Immunological Hazard Index =							600			
Reproduction Hazard Index =							10			
Kidney Hazard Index =							<1			
<b>Key</b>										
SIL		Swan Island Lagoon								
RM		River Mile								
CNS		Central Nervous System								
--		Toxicity criteria are not available to quantitatively address this route of exposure.								
RNA		Route of exposure is not applicable to this medium.								

Table 5-94 Risk Characterization Summary, Noncancer Hazards - Breastfeeding Infant of Tribal Fisher, Reasonable Maximum Exposure								
Risk Characterization Summary - Non-Carcinogens								
Scenario Timeframe: Current/Future								
Receptor Population: Tribal								
Receptor Age: Infant								
Medium	Exposure Medium	Exposure Point	Chemical of Concern	Primary Target Organ	Non-Carcinogens Hazard Quotient			Exposure Routes Total
					Ingestion	Inhalation	Dermal	
Sediment	Breast Milk	Breastfeeding from Adult with Direct Contact of on-site sediment RM 1 West						
								Sediment Hazard Index Total = < 1
Fish Tissue	Breast Milk	Breastfeeding from Adult consumption of Whole body Fish Tissue On-site (175 g/day) Ingestion						
			Antimony	Blood	--	RNA	RNA	--
			Arsenic	Skin/Blood	--	RNA	RNA	--
			Chromium		--	RNA	RNA	--
			Mercury	CNS	--	RNA	RNA	--
			cPAHs		--	--	--	--
			Bis(2-ethylhexyl)phthalate	Liver	--	RNA	RNA	--
			Hexachlorobenzene	Liver	--	RNA	RNA	--
			Total PCBs	Skin/Immunological	9000	RNA	RNA	9000
			Total Dioxin/Furan TEQ	Reproduction	10	RNA	RNA	10
			Total PCB TEQ	Reproduction	30	RNA	RNA	30
			Aldrin	Liver	--	RNA	RNA	--
			alpha-Hexachlorocyclohexane	Liver	--	RNA	RNA	--
			beta-Hexachlorocyclohexane	Liver	--	RNA	RNA	--
			Dieldrin	Liver	--	RNA	RNA	--
			Heptachlor	Liver	--	RNA	RNA	--
			Heptachlor Epoxide	Liver	--	RNA	RNA	--
			Total Chlordanes	Liver	--	RNA	RNA	--
			Total DDX	Liver	1	RNA	RNA	1
								Fish Tissue Hazard Index Total = 9000
								Receptor Hazard Index = 9000
								Blood Hazard Index = --
								Skin Hazard Index = 9000
								CNS Hazard Index = --
								Whole Body Hazard Index = --
								Liver Hazard Index = 1
								Immological Hazard Index = 9000
								Reproduction Hazard Index = --
								Kidney Hazard Index = --
Sediment	Breast Milk	Breastfeeding from Adult with Direct Contact of on-site sediment RM 1.5 West						
								Sediment Hazard Index Total = < 1
Fish Tissue	Breast Milk	Breastfeeding from Adult consumption of Whole body Fish Tissue On-site (175 g/day) Ingestion						
			Antimony	Blood	--	RNA	RNA	--
			Arsenic	Skin/Blood	--	RNA	RNA	--
			Chromium		--	RNA	RNA	--
			Mercury	CNS	--	RNA	RNA	--
			cPAHs		--	--	--	--
			Bis(2-ethylhexyl)phthalate	Liver	--	RNA	RNA	--
			Hexachlorobenzene	Liver	--	RNA	RNA	--
			Total PCBs	Skin/Immunological	9000	RNA	RNA	9000
			Total Dioxin/Furan TEQ	Reproduction	10	RNA	RNA	10
			Total PCB TEQ	Reproduction	30	RNA	RNA	30
			Aldrin	Liver	--	RNA	RNA	--
			alpha-Hexachlorocyclohexane	Liver	--	RNA	RNA	--
			beta-Hexachlorocyclohexane	Liver	--	RNA	RNA	--
			Dieldrin	Liver	--	RNA	RNA	--
			Heptachlor	Liver	--	RNA	RNA	--
			Heptachlor Epoxide	Liver	--	RNA	RNA	--
			Total Chlordanes	Liver	--	RNA	RNA	--
			Total DDX	Liver	1	RNA	RNA	--
								Fish Tissue Hazard Index Total = 9000
								Receptor Hazard Index = 9000
								Blood Hazard Index = --
								Skin Hazard Index = 9000
								CNS Hazard Index = --
								Whole Body Hazard Index = --
								Liver Hazard Index = --
								Immological Hazard Index = 9000
								Reproduction Hazard Index = --
								Kidney Hazard Index = --

Table 5-94 Risk Characterization Summary, Noncancer Hazards - Breastfeeding Infant of Tribal Fisher, Reasonable Maximum Exposure									
Risk Characterization Summary - Non-Carcinogens									
Scenario Timeframe: Current/Future									
Receptor Population: Tribal									
Receptor Age: Infant									
Medium	Exposure Medium	Exposure Point	Chemical of Concern	Primary Target Organ	Non-Carcinogens Hazard Quotient			Exposure Routes Total	
					Ingestion	Inhalation	Dermal		
Sediment	Breast Milk	Breastfeeding from Adult with Direct Contact of on-site sediment RM 2 West							
			Sediment Hazard Index Total = < 1						
Fish Tissue	Breast Milk	Breastfeeding from Adult consumption of Whole body Fish Tissue On-site (175 g/day) Ingestion							
			Antimony	Blood	--	RNA	RNA	--	
			Arsenic	Skin/Blood	--	RNA	RNA	--	
			Chromium		--	RNA	RNA	--	
			Mercury	CNS	--	RNA	RNA	--	
			cPAHs		--	--	--	--	
			Bis(2-ethylhexyl)phthalate	Liver	--	RNA	RNA	--	
			Hexachlorobenzene	Liver	--	RNA	RNA	--	
			Total PCBs	Skin/Immunological	9000	RNA	RNA	9000	
			Total Dioxin/Furan TEQ	Reproduction	10	RNA	RNA	10	
			Total PCB TEQ	Reproduction	30	RNA	RNA	30	
			Aldrin	Liver	--	RNA	RNA	--	
			alpha-Hexachlorocyclohexane	Liver	--	RNA	RNA	--	
			beta-Hexachlorocyclohexane	Liver	--	RNA	RNA	--	
			Dieldrin	Liver	--	RNA	RNA	--	
			Heptachlor	Liver	--	RNA	RNA	--	
			Heptachlor Epoxide	Liver	--	RNA	RNA	--	
			Total Chlordanes	Liver	--	RNA	RNA	--	
			Total DDx	Liver	1	RNA	RNA	--	
			Fish Tissue Hazard Index Total =					9000	
			Receptor Hazard Index =					9000	
			Blood Hazard Index =					--	
			Skin Hazard Index =					9000	
			CNS Hazard Index =					--	
			Whole Body Hazard Index =					--	
			Liver Hazard Index =					--	
			Immological Hazard Index =					9000	
			Reproduction Hazard Index =					--	
			Kidney Hazard Index =					--	
Sediment	Breast Milk	Breastfeeding from Adult with Direct Contact of on-site sediment RM 2.5 West							
			Sediment Hazard Index Total = < 1						
Fish Tissue	Breast Milk	Breastfeeding from Adult consumption of Whole body Fish Tissue On-site (175 g/day) Ingestion							
			Antimony	Blood	--	RNA	RNA	--	
			Arsenic	Skin/Blood	--	RNA	RNA	--	
			Chromium		--	RNA	RNA	--	
			Mercury	CNS	--	RNA	RNA	--	
			cPAHs		--	--	--	--	
			Bis(2-ethylhexyl)phthalate	Liver	--	RNA	RNA	--	
			Hexachlorobenzene	Liver	--	RNA	RNA	--	
			Total PCBs	Skin/Immunological	9000	RNA	RNA	9000	
			Total Dioxin/Furan TEQ	Reproduction	10	RNA	RNA	10	
			Total PCB TEQ	Reproduction	30	RNA	RNA	30	
			Aldrin	Liver	--	RNA	RNA	--	
			alpha-Hexachlorocyclohexane	Liver	--	RNA	RNA	--	
			beta-Hexachlorocyclohexane	Liver	--	RNA	RNA	--	
			Dieldrin	Liver	--	RNA	RNA	--	
			Heptachlor	Liver	--	RNA	RNA	--	
			Heptachlor Epoxide	Liver	--	RNA	RNA	--	
			Total Chlordanes	Liver	--	RNA	RNA	--	
			Total DDx	Liver	1	RNA	RNA	--	
			Fish Tissue Hazard Index Total =					9000	
			Receptor Hazard Index =					9000	
			Blood Hazard Index =					--	
			Skin Hazard Index =					9000	
			CNS Hazard Index =					--	
			Whole Body Hazard Index =					--	
			Liver Hazard Index =					--	
			Immological Hazard Index =					9000	
			Reproduction Hazard Index =					--	
			Kidney Hazard Index =					--	



Table 5-94 Risk Characterization Summary, Noncancer Hazards - Breastfeeding Infant of Tribal Fisher, Reasonable Maximum Exposure								
Risk Characterization Summary - Non-Carcinogens								
Scenario Timeframe: Current/Future								
Receptor Population: Tribal								
Receptor Age: Infant								
Medium	Exposure Medium	Exposure Point	Chemical of Concern	Primary Target Organ	Non-Carcinogens Hazard Quotient			Exposure Routes Total
					Ingestion	Inhalation	Dermal	
Sediment	Breast Milk	Breastfeeding from Adult with Direct Contact of on-site sediment RM 3 West						
			Sediment Hazard Index Total = < 1					
Fish Tissue	Breast Milk	Breastfeeding from Adult consumption of Whole body Fish Tissue On-site (175 g/day) Ingestion						
			Antimony	Blood	--	RNA	RNA	--
			Arsenic	Skin/Blood	--	RNA	RNA	--
			Chromium		--	RNA	RNA	--
			Mercury	CNS	--	RNA	RNA	--
			cPAHs		--	--	--	--
			Bis(2-ethylhexyl)phthalate	Liver	--	RNA	RNA	--
			Hexachlorobenzene	Liver	--	RNA	RNA	--
			Total PCBs	Skin/Immunological	9000	RNA	RNA	9000
			Total Dioxin/Furan TEQ	Reproduction	10	RNA	RNA	10
			Total PCB TEQ	Reproduction	30	RNA	RNA	30
			Aldrin	Liver	--	RNA	RNA	--
			alpha-Hexachlorocyclohexane	Liver	--	RNA	RNA	--
			beta-Hexachlorocyclohexane	Liver	--	RNA	RNA	--
			Dieldrin	Liver	--	RNA	RNA	--
			Heptachlor	Liver	--	RNA	RNA	--
			Heptachlor Epoxide	Liver	--	RNA	RNA	--
			Total Chlordanes	Liver	--	RNA	RNA	--
			Total DDx	Liver	1	RNA	RNA	--
					Fish Tissue Hazard Index Total =			9000
					Receptor Hazard Index =			9000
					Blood Hazard Index =			--
					Skin Hazard Index =			9000
					CNS Hazard Index =			--
					Whole Body Hazard Index =			--
					Liver Hazard Index =			--
					Immological Hazard Index =			9000
					Reproduction Hazard Index =			--
					Kidney Hazard Index =			--
Sediment	Breast Milk	Breastfeeding from Adult with Direct Contact of on-site sediment RM 3.5 West						
			Sediment Hazard Index Total = < 1					
Fish Tissue	Breast Milk	Breastfeeding from Adult consumption of Whole body Fish Tissue On-site (175 g/day) Ingestion						
			Antimony	Blood	--	RNA	RNA	--
			Arsenic	Skin/Blood	--	RNA	RNA	--
			Chromium		--	RNA	RNA	--
			Mercury	CNS	--	RNA	RNA	--
			cPAHs		--	--	--	--
			Bis(2-ethylhexyl)phthalate	Liver	--	RNA	RNA	--
			Hexachlorobenzene	Liver	--	RNA	RNA	--
			Total PCBs	Skin/Immunological	9000	RNA	RNA	9000
			Total Dioxin/Furan TEQ	Reproduction	10	RNA	RNA	10
			Total PCB TEQ	Reproduction	30	RNA	RNA	30
			Aldrin	Liver	--	RNA	RNA	--
			alpha-Hexachlorocyclohexane	Liver	--	RNA	RNA	--
			beta-Hexachlorocyclohexane	Liver	--	RNA	RNA	--
			Dieldrin	Liver	--	RNA	RNA	--
			Heptachlor	Liver	--	RNA	RNA	--
			Heptachlor Epoxide	Liver	--	RNA	RNA	--
			Total Chlordanes	Liver	--	RNA	RNA	--
			Total DDx	Liver	1	RNA	RNA	--
					Fish Tissue Hazard Index Total =			9000
					Receptor Hazard Index =			9000
					Blood Hazard Index =			--
					Skin Hazard Index =			9000
					CNS Hazard Index =			--
					Whole Body Hazard Index =			--
					Liver Hazard Index =			--
					Immological Hazard Index =			9000
					Reproduction Hazard Index =			--
					Kidney Hazard Index =			--

Table 5-94 Risk Characterization Summary, Noncancer Hazards - Breastfeeding Infant of Tribal Fisher, Reasonable Maximum Exposure								
Risk Characterization Summary - Non-Carcinogens								
Scenario Timeframe: Current/Future								
Receptor Population: Tribal								
Receptor Age: Infant								
Medium	Exposure Medium	Exposure Point	Chemical of Concern	Primary Target Organ	Non-Carcinogens Hazard Quotient			Exposure Routes Total
					Ingestion	Inhalation	Dermal	
Sediment	Breast Milk	Breastfeeding from Adult with Direct Contact of on-site sediment RM 4 West						
			Sediment Hazard Index Total = < 1					
Fish Tissue	Breast Milk	Breastfeeding from Adult consumption of Whole body Fish Tissue On-site (175 g/day) Ingestion						
			Antimony	Blood	--	RNA	RNA	--
			Arsenic	Skin/Blood	--	RNA	RNA	--
			Chromium		--	RNA	RNA	--
			Mercury	CNS	--	RNA	RNA	--
			cPAHs		--	--	--	--
			Bis(2-ethylhexyl)phthalate	Liver	--	RNA	RNA	--
			Hexachlorobenzene	Liver	--	RNA	RNA	--
			Total PCBs	Skin/Immunological	9000	RNA	RNA	9000
			Total Dioxin/Furan TEQ	Reproduction	10	RNA	RNA	10
			Total PCB TEQ	Reproduction	30	RNA	RNA	30
			Aldrin	Liver	--	RNA	RNA	--
			alpha-Hexachlorocyclohexane	Liver	--	RNA	RNA	--
			beta-Hexachlorocyclohexane	Liver	--	RNA	RNA	--
			Dieldrin	Liver	--	RNA	RNA	--
			Heptachlor	Liver	--	RNA	RNA	--
			Heptachlor Epoxide	Liver	--	RNA	RNA	--
			Total Chlordanes	Liver	--	RNA	RNA	--
			Total DDX	Liver	1	RNA	RNA	--
					Fish Tissue Hazard Index Total =			9000
					Receptor Hazard Index =			9000
					Blood Hazard Index =			--
					Skin Hazard Index =			9000
					CNS Hazard Index =			--
					Whole Body Hazard Index =			--
					Liver Hazard Index =			--
					Immological Hazard Index =			9000
					Reproduction Hazard Index =			--
					Kidney Hazard Index =			--
Sediment	Breast Milk	Breastfeeding from Adult with Direct Contact of on-site sediment RM 4.5 West						
			Sediment Hazard Index Total = < 1					
Fish Tissue	Breast Milk	Breastfeeding from Adult consumption of Whole body Fish Tissue On-site (175 g/day) Ingestion						
			Antimony	Blood	--	RNA	RNA	--
			Arsenic	Skin/Blood	--	RNA	RNA	--
			Chromium		--	RNA	RNA	--
			Mercury	CNS	--	RNA	RNA	--
			cPAHs		--	--	--	--
			Bis(2-ethylhexyl)phthalate	Liver	--	RNA	RNA	--
			Hexachlorobenzene	Liver	--	RNA	RNA	--
			Total PCBs	Skin/Immunological	9000	RNA	RNA	9000
			Total Dioxin/Furan TEQ	Reproduction	10	RNA	RNA	10
			Total PCB TEQ	Reproduction	30	RNA	RNA	30
			Aldrin	Liver	--	RNA	RNA	--
			alpha-Hexachlorocyclohexane	Liver	--	RNA	RNA	--
			beta-Hexachlorocyclohexane	Liver	--	RNA	RNA	--
			Dieldrin	Liver	--	RNA	RNA	--
			Heptachlor	Liver	--	RNA	RNA	--
			Heptachlor Epoxide	Liver	--	RNA	RNA	--
			Total Chlordanes	Liver	--	RNA	RNA	--
			Total DDX	Liver	1	RNA	RNA	--
					Fish Tissue Hazard Index Total =			9000
					Receptor Hazard Index =			9000
					Blood Hazard Index =			--
					Skin Hazard Index =			9000
					CNS Hazard Index =			--
					Whole Body Hazard Index =			--
					Liver Hazard Index =			--
					Immological Hazard Index =			9000
					Reproduction Hazard Index =			--
					Kidney Hazard Index =			--

Table 5-94 Risk Characterization Summary, Noncancer Hazards - Breastfeeding Infant of Tribal Fisher, Reasonable Maximum Exposure								
Risk Characterization Summary - Non-Carcinogens								
Scenario Timeframe: Current/Future								
Receptor Population: Tribal								
Receptor Age: Infant								
Medium	Exposure Medium	Exposure Point	Chemical of Concern	Primary Target Organ	Non-Carcinogens Hazard Quotient			Exposure Routes Total
					Ingestion	Inhalation	Dermal	
Sediment	Breast Milk	Breastfeeding from Adult with Direct Contact of on-site sediment RM 5 West						
			Sediment Hazard Index Total = < 1					
Fish Tissue	Breast Milk	Breastfeeding from Adult consumption of Whole body Fish Tissue On-site (175 g/day) Ingestion						
			Antimony	Blood	--	RNA	RNA	--
			Arsenic	Skin/Blood	--	RNA	RNA	--
			Chromium		--	RNA	RNA	--
			Mercury	CNS	--	RNA	RNA	--
			cPAHs		--	--	--	--
			Bis(2-ethylhexyl)phthalate	Liver	--	RNA	RNA	--
			Hexachlorobenzene	Liver	--	RNA	RNA	--
			Total PCBs	Skin/Immunological	9000	RNA	RNA	9000
			Total Dioxin/Furan TEQ	Reproduction	10	RNA	RNA	10
			Total PCB TEQ	Reproduction	30	RNA	RNA	30
			Aldrin	Liver	--	RNA	RNA	--
			alpha-Hexachlorocyclohexane	Liver	--	RNA	RNA	--
			beta-Hexachlorocyclohexane	Liver	--	RNA	RNA	--
			Dieldrin	Liver	--	RNA	RNA	--
			Heptachlor	Liver	--	RNA	RNA	--
			Heptachlor Epoxide	Liver	--	RNA	RNA	--
			Total Chlordanes	Liver	--	RNA	RNA	--
			Total DDx	Liver	1	RNA	RNA	--
					Fish Tissue Hazard Index Total =			9000
					Receptor Hazard Index =			9000
					Blood Hazard Index =			--
					Skin Hazard Index =			9000
					CNS Hazard Index =			--
					Whole Body Hazard Index =			--
					Liver Hazard Index =			--
					Immological Hazard Index =			9000
					Reproduction Hazard Index =			--
					Kidney Hazard Index =			--
Sediment	Breast Milk	Breastfeeding from Adult with Direct Contact of on-site sediment RM 5.5 West						
			Sediment Hazard Index Total = < 1					
Fish Tissue	Breast Milk	Breastfeeding from Adult consumption of Whole body Fish Tissue On-site (175 g/day) Ingestion						
			Antimony	Blood	--	RNA	RNA	--
			Arsenic	Skin/Blood	--	RNA	RNA	--
			Chromium		--	RNA	RNA	--
			Mercury	CNS	--	RNA	RNA	--
			cPAHs		--	--	--	--
			Bis(2-ethylhexyl)phthalate	Liver	--	RNA	RNA	--
			Hexachlorobenzene	Liver	--	RNA	RNA	--
			Total PCBs	Skin/Immunological	9000	RNA	RNA	9000
			Total Dioxin/Furan TEQ	Reproduction	10	RNA	RNA	10
			Total PCB TEQ	Reproduction	30	RNA	RNA	30
			Aldrin	Liver	--	RNA	RNA	--
			alpha-Hexachlorocyclohexane	Liver	--	RNA	RNA	--
			beta-Hexachlorocyclohexane	Liver	--	RNA	RNA	--
			Dieldrin	Liver	--	RNA	RNA	--
			Heptachlor	Liver	--	RNA	RNA	--
			Heptachlor Epoxide	Liver	--	RNA	RNA	--
			Total Chlordanes	Liver	--	RNA	RNA	--
			Total DDx	Liver	1	RNA	RNA	--
					Fish Tissue Hazard Index Total =			9000
					Receptor Hazard Index =			9000
					Blood Hazard Index =			--
					Skin Hazard Index =			9000
					CNS Hazard Index =			--
					Whole Body Hazard Index =			--
					Liver Hazard Index =			--
					Immological Hazard Index =			9000
					Reproduction Hazard Index =			--
					Kidney Hazard Index =			--

Table 5-94 Risk Characterization Summary, Noncancer Hazards - Breastfeeding Infant of Tribal Fisher, Reasonable Maximum Exposure									
Risk Characterization Summary - Non-Carcinogens									
Scenario Timeframe: Current/Future									
Receptor Population: Tribal									
Receptor Age: Infant									
Medium	Exposure Medium	Exposure Point	Chemical of Concern	Primary Target Organ	Non-Carcinogens Hazard Quotient			Exposure Routes Total	
					Ingestion	Inhalation	Dermal		
Sediment	Breast Milk	Breastfeeding from Adult with Direct Contact of on-site sediment RM 6 West							
			Sediment Hazard Index Total = < 1						
Fish Tissue	Breast Milk	Breastfeeding from Adult consumption of Whole body Fish Tissue On-site (175 g/day) Ingestion							
			Antimony	Blood	--	RNA	RNA	--	
			Arsenic	Skin/Blood	--	RNA	RNA	--	
			Chromium		--	RNA	RNA	--	
			Mercury	CNS	--	RNA	RNA	--	
			cPAHs		--	--	--	--	
			Bis(2-ethylhexyl)phthalate	Liver	--	RNA	RNA	--	
			Hexachlorobenzene	Liver	--	RNA	RNA	--	
			Total PCBs	Skin/Immunological	9000	RNA	RNA	9000	
			Total Dioxin/Furan TEQ	Reproduction	10	RNA	RNA	10	
			Total PCB TEQ	Reproduction	30	RNA	RNA	30	
			Aldrin	Liver	--	RNA	RNA	--	
			alpha-Hexachlorocyclohexane	Liver	--	RNA	RNA	--	
			beta-Hexachlorocyclohexane	Liver	--	RNA	RNA	--	
			Dieldrin	Liver	--	RNA	RNA	--	
			Heptachlor	Liver	--	RNA	RNA	--	
			Heptachlor Epoxide	Liver	--	RNA	RNA	--	
			Total Chlordanes	Liver	--	RNA	RNA	--	
			Total DDX	Liver	1	RNA	RNA	--	
			Fish Tissue Hazard Index Total =					9000	
			Receptor Hazard Index =					9000	
			Blood Hazard Index =					--	
			Skin Hazard Index =					9000	
			CNS Hazard Index =					--	
			Whole Body Hazard Index =					--	
			Liver Hazard Index =					--	
			Immological Hazard Index =					9000	
			Reproduction Hazard Index =					--	
			Kidney Hazard Index =					--	
Sediment	Breast Milk	Breastfeeding from Adult with Direct Contact of on-site sediment RM 6 5 West							
			Sediment Hazard Index Total = < 1						
Fish Tissue	Breast Milk	Breastfeeding from Adult consumption of Whole body Fish Tissue On-site (175 g/day) Ingestion							
			Antimony	Blood	--	RNA	RNA	--	
			Arsenic	Skin/Blood	--	RNA	RNA	--	
			Chromium		--	RNA	RNA	--	
			Mercury	CNS	--	RNA	RNA	--	
			cPAHs		--	--	--	--	
			Bis(2-ethylhexyl)phthalate	Liver	--	RNA	RNA	--	
			Hexachlorobenzene	Liver	--	RNA	RNA	--	
			Total PCBs	Skin/Immunological	9000	RNA	RNA	9000	
			Total Dioxin/Furan TEQ	Reproduction	10	RNA	RNA	10	
			Total PCB TEQ	Reproduction	30	RNA	RNA	30	
			Aldrin	Liver	--	RNA	RNA	--	
			alpha-Hexachlorocyclohexane	Liver	--	RNA	RNA	--	
			beta-Hexachlorocyclohexane	Liver	--	RNA	RNA	--	
			Dieldrin	Liver	--	RNA	RNA	--	
			Heptachlor	Liver	--	RNA	RNA	--	
			Heptachlor Epoxide	Liver	--	RNA	RNA	--	
			Total Chlordanes	Liver	--	RNA	RNA	--	
			Total DDX	Liver	1	RNA	RNA	--	
			Fish Tissue Hazard Index Total =					9000	
			Receptor Hazard Index =					9000	
			Blood Hazard Index =					--	
			Skin Hazard Index =					9000	
			CNS Hazard Index =					--	
			Whole Body Hazard Index =					--	
			Liver Hazard Index =					--	
			Immological Hazard Index =					9000	
			Reproduction Hazard Index =					--	
			Kidney Hazard Index =					--	

Table 5-94 Risk Characterization Summary, Noncancer Hazards - Breastfeeding Infant of Tribal Fisher, Reasonable Maximum Exposure										
Risk Characterization Summary - Non-Carcinogens										
Scenario Timeframe: Current/Future										
Receptor Population: Tribal										
Receptor Age: Infant										
Medium	Exposure Medium	Exposure Point	Chemical of Concern	Primary Target Organ	Non-Carcinogens Hazard Quotient			Exposure Routes Total		
					Ingestion	Inhalation	Dermal			
Sediment	Breast Milk	Breastfeeding from Adult with Direct Contact of on-site sediment RM 7 West	Antimony	Blood	NA	RNA	RNA	0		
			Arsenic	Skin/Blood	--	--	--	--		
			cPAHs		--	--	--	--		
			Total PCBs	Skin/Immunological	<1	RNA	RNA	0		
			Total Dioxin/Furan TEQ	Reproduction	5	RNA	RNA	5		
			Total PCB TEQ	Reproduction	<1	RNA	RNA	0		
			Sediment Hazard Index Total =							5
Fish Tissue	Breast Milk	Breastfeeding from Adult consumption of Whole body Fish Tissue On-site (175 g/day) Ingestion	Antimony	Blood	--	RNA	RNA	--		
			Arsenic	Skin/Blood	--	RNA	RNA	--		
			Chromium		--	RNA	RNA	--		
			Mercury	CNS	--	RNA	RNA	--		
			cPAHs		--	--	--	--		
			Bis(2-ethylhexyl)phthalate	Liver	--	RNA	RNA	--		
			Hexachlorobenzene	Liver	--	RNA	RNA	--		
			Total PCBs	Skin/Immunological	9000	RNA	RNA	9000		
			Total Dioxin/Furan TEQ	Reproduction	10	RNA	RNA	10		
			Total PCB TEQ	Reproduction	30	RNA	RNA	30		
			Aldrin	Liver	--	RNA	RNA	--		
			alpha-Hexachlorocyclohexane	Liver	--	RNA	RNA	--		
			beta-Hexachlorocyclohexane	Liver	--	RNA	RNA	--		
			Dieldrin	Liver	--	RNA	RNA	--		
			Heptachlor	Liver	--	RNA	RNA	--		
			Heptachlor Epoxide	Liver	--	RNA	RNA	--		
			Total Chlordanes	Liver	--	RNA	RNA	--		
			Total DDx	Liver	1	RNA	RNA	--		
			Fish Tissue Hazard Index Total =							9000
			Receptor Hazard Index =							9000
			Blood Hazard Index =							--
			Skin Hazard Index =							9000
CNS Hazard Index =							--			
Whole Body Hazard Index =							--			
Liver Hazard Index =							--			
Immological Hazard Index =							9000			
Reproduction Hazard Index =							--			
Kidney Hazard Index =							--			
Sediment	Breast Milk	Breastfeeding from Adult with Direct Contact of on-site sediment RM 7.5 West						Sediment Hazard Index Total =	< 1	
Fish Tissue	Breast Milk	Breastfeeding from Adult consumption of Whole body Fish Tissue On-site (175 g/day) Ingestion	Antimony	Blood	--	RNA	RNA	--		
			Arsenic	Skin/Blood	--	RNA	RNA	--		
			Chromium		--	RNA	RNA	--		
			Mercury	CNS	--	RNA	RNA	--		
			cPAHs		--	--	--	--		
			Bis(2-ethylhexyl)phthalate	Liver	--	RNA	RNA	--		
			Hexachlorobenzene	Liver	--	RNA	RNA	--		
			Total PCBs	Skin/Immunological	9000	RNA	RNA	9000		
			Total Dioxin/Furan TEQ	Reproduction	10	RNA	RNA	10		
			Total PCB TEQ	Reproduction	30	RNA	RNA	30		
			Aldrin	Liver	--	RNA	RNA	--		
			alpha-Hexachlorocyclohexane	Liver	--	RNA	RNA	--		
			beta-Hexachlorocyclohexane	Liver	--	RNA	RNA	--		
			Dieldrin	Liver	--	RNA	RNA	--		
			Heptachlor	Liver	--	RNA	RNA	--		
			Heptachlor Epoxide	Liver	--	RNA	RNA	--		
			Total Chlordanes	Liver	--	RNA	RNA	--		
			Total DDx	Liver	1	RNA	RNA	--		
			Fish Tissue Hazard Index Total =							9000
			Receptor Hazard Index =							9000
			Blood Hazard Index =							--
			Skin Hazard Index =							9000
CNS Hazard Index =							--			
Whole Body Hazard Index =							--			
Liver Hazard Index =							--			
Immological Hazard Index =							9000			
Reproduction Hazard Index =							--			
Kidney Hazard Index =							--			

Table 5-94 Risk Characterization Summary, Noncancer Hazards - Breastfeeding Infant of Tribal Fisher, Reasonable Maximum Exposure									
Risk Characterization Summary - Non-Carcinogens									
Scenario Timeframe: Current/Future									
Receptor Population: Tribal									
Receptor Age: Infant									
Medium	Exposure Medium	Exposure Point	Chemical of Concern	Primary Target Organ	Non-Carcinogens Hazard Quotient			Exposure Routes Total	
					Ingestion	Inhalation	Dermal		
Sediment	Breast Milk	Breastfeeding from Adult with Direct Contact of on-site sediment RM 8 West							
			Sediment Hazard Index Total = < 1						
Fish Tissue	Breast Milk	Breastfeeding from Adult consumption of Whole body Fish Tissue On-site (175 g/day) Ingestion							
			Antimony	Blood	--	RNA	RNA	--	
			Arsenic	Skin/Blood	--	RNA	RNA	--	
			Chromium		--	RNA	RNA	--	
			Mercury	CNS	--	RNA	RNA	--	
			cPAHs		--	--	--	--	
			Bis(2-ethylhexyl)phthalate	Liver	--	RNA	RNA	--	
			Hexachlorobenzene	Liver	--	RNA	RNA	--	
			Total PCBs	Skin/Immunological	9000	RNA	RNA	9000	
			Total Dioxin/Furan TEQ	Reproduction	10	RNA	RNA	10	
			Total PCB TEQ	Reproduction	30	RNA	RNA	30	
			Aldrin	Liver	--	RNA	RNA	--	
			alpha-Hexachlorocyclohexane	Liver	--	RNA	RNA	--	
			beta-Hexachlorocyclohexane	Liver	--	RNA	RNA	--	
			Dieldrin	Liver	--	RNA	RNA	--	
			Heptachlor	Liver	--	RNA	RNA	--	
			Heptachlor Epoxide	Liver	--	RNA	RNA	--	
			Total Chlordanes	Liver	--	RNA	RNA	--	
			Total DDX	Liver	1	RNA	RNA	--	
			Fish Tissue Hazard Index Total =					9000	
			Receptor Hazard Index =					9000	
			Blood Hazard Index =					--	
			Skin Hazard Index =					9000	
			CNS Hazard Index =					--	
			Whole Body Hazard Index =					--	
			Liver Hazard Index =					--	
			Immological Hazard Index =					9000	
			Reproduction Hazard Index =					--	
			Kidney Hazard Index =					--	
Sediment	Breast Milk	Breastfeeding from Adult with Direct Contact of on-site sediment RM 8 5 West							
			Antimony	Blood	NA	RNA	RNA	0	
			Arsenic	Skin/Blood	--	--	--	--	
			cPAHs		--	--	--	--	
			Total PCBs	Skin/Immunological	4	RNA	RNA	4	
			Total Dioxin/Furan TEQ	Reproduction	<1	RNA	RNA	0	
			Total PCB TEQ	Reproduction	<1	RNA	RNA	0	
			Sediment Hazard Index Total = 4						
Fish Tissue	Breast Milk	Breastfeeding from Adult consumption of Whole body Fish Tissue On-site (175 g/day) Ingestion							
			Antimony	Blood	--	RNA	RNA	--	
			Arsenic	Skin/Blood	--	RNA	RNA	--	
			Chromium		--	RNA	RNA	--	
			Mercury	CNS	--	RNA	RNA	--	
			cPAHs		--	--	--	--	
			Bis(2-ethylhexyl)phthalate	Liver	--	RNA	RNA	--	
			Hexachlorobenzene	Liver	--	RNA	RNA	--	
			Total PCBs	Skin/Immunological	9000	RNA	RNA	9000	
			Total Dioxin/Furan TEQ	Reproduction	10	RNA	RNA	10	
			Total PCB TEQ	Reproduction	30	RNA	RNA	30	
			Aldrin	Liver	--	RNA	RNA	--	
			alpha-Hexachlorocyclohexane	Liver	--	RNA	RNA	--	
			beta-Hexachlorocyclohexane	Liver	--	RNA	RNA	--	
			Dieldrin	Liver	--	RNA	RNA	--	
			Heptachlor	Liver	--	RNA	RNA	--	
			Heptachlor Epoxide	Liver	--	RNA	RNA	--	
			Total Chlordanes	Liver	--	RNA	RNA	--	
			Total DDX	Liver	1	RNA	RNA	--	
			Fish Tissue Hazard Index Total =					9000	
			Receptor Hazard Index =					9000	
			Blood Hazard Index =					--	
			Skin Hazard Index =					9000	
			CNS Hazard Index =					--	
			Whole Body Hazard Index =					--	
			Liver Hazard Index =					--	
			Immological Hazard Index =					9000	
			Reproduction Hazard Index =					--	
			Kidney Hazard Index =					--	

Table 5-94 Risk Characterization Summary, Noncancer Hazards - Breastfeeding Infant of Tribal Fisher, Reasonable Maximum Exposure										
Risk Characterization Summary - Non-Carcinogens										
Scenario Timeframe: Current/Future										
Receptor Population: Tribal										
Receptor Age: Infant										
Medium	Exposure Medium	Exposure Point	Chemical of Concern	Primary Target Organ	Non-Carcinogens Hazard Quotient			Exposure Routes Total		
					Ingestion	Inhalation	Dermal			
Sediment	Breast Milk	Breastfeeding from Adult with Direct Contact of on-site sediment RM 9 West	Antimony	Blood	NA	RNA	RNA	0		
			Arsenic	Skin/Blood	--	--	--	--		
			cPAHs		--	--	--	--		
			Total PCBs	Skin/Immunological	1	RNA	RNA	1		
			Total Dioxin/Furan TEQ	Reproduction	<1	RNA	RNA	0		
			Total PCB TEQ	Reproduction	<1	RNA	RNA	0		
			Sediment Hazard Index Total =							1
Fish Tissue	Breast Milk	Breastfeeding from Adult consumption of Whole body Fish Tissue On-site (175 g/day) Ingestion	Antimony	Blood	--	RNA	RNA	--		
			Arsenic	Skin/Blood	--	RNA	RNA	--		
			Chromium		--	RNA	RNA	--		
			Mercury	CNS	--	RNA	RNA	--		
			cPAHs		--	--	--	--		
			Bis(2-ethylhexyl)phthalate	Liver	--	RNA	RNA	--		
			Hexachlorobenzene	Liver	--	RNA	RNA	--		
			Total PCBs	Skin/Immunological	9000	RNA	RNA	9000		
			Total Dioxin/Furan TEQ	Reproduction	10	RNA	RNA	10		
			Total PCB TEQ	Reproduction	30	RNA	RNA	30		
			Aldrin	Liver	--	RNA	RNA	--		
			alpha-Hexachlorocyclohexane	Liver	--	RNA	RNA	--		
			beta-Hexachlorocyclohexane	Liver	--	RNA	RNA	--		
			Dieldrin	Liver	--	RNA	RNA	--		
			Heptachlor	Liver	--	RNA	RNA	--		
			Heptachlor Epoxide	Liver	--	RNA	RNA	--		
			Total Chlordanes	Liver	--	RNA	RNA	--		
			Total DDx	Liver	1	RNA	RNA	--		
			Fish Tissue Hazard Index Total =							9000
			Receptor Hazard Index =							9000
			Blood Hazard Index =							--
			Skin Hazard Index =							9000
			CNS Hazard Index =							--
Whole Body Hazard Index =							--			
Liver Hazard Index =							--			
Immological Hazard Index =							9000			
Reproduction Hazard Index =							--			
Kidney Hazard Index =							--			
Sediment	Breast Milk	Breastfeeding from Adult with Direct Contact of on-site sediment RM 9.5 West						Sediment Hazard Index Total =	< 1	
Fish Tissue	Breast Milk	Breastfeeding from Adult consumption of Whole body Fish Tissue On-site (175 g/day) Ingestion	Antimony	Blood	--	RNA	RNA	--		
			Arsenic	Skin/Blood	--	RNA	RNA	--		
			Chromium		--	RNA	RNA	--		
			Mercury	CNS	--	RNA	RNA	--		
			cPAHs		--	--	--	--		
			Bis(2-ethylhexyl)phthalate	Liver	--	RNA	RNA	--		
			Hexachlorobenzene	Liver	--	RNA	RNA	--		
			Total PCBs	Skin/Immunological	9000	RNA	RNA	9000		
			Total Dioxin/Furan TEQ	Reproduction	10	RNA	RNA	10		
			Total PCB TEQ	Reproduction	30	RNA	RNA	30		
			Aldrin	Liver	--	RNA	RNA	--		
			alpha-Hexachlorocyclohexane	Liver	--	RNA	RNA	--		
			beta-Hexachlorocyclohexane	Liver	--	RNA	RNA	--		
			Dieldrin	Liver	--	RNA	RNA	--		
			Heptachlor	Liver	--	RNA	RNA	--		
			Heptachlor Epoxide	Liver	--	RNA	RNA	--		
			Total Chlordanes	Liver	--	RNA	RNA	--		
			Total DDx	Liver	1	RNA	RNA	--		
			Fish Tissue Hazard Index Total =							9000
			Receptor Hazard Index =							9000
			Blood Hazard Index =							--
			Skin Hazard Index =							9000
			CNS Hazard Index =							--
Whole Body Hazard Index =							--			
Liver Hazard Index =							--			
Immological Hazard Index =							9000			
Reproduction Hazard Index =							--			
Kidney Hazard Index =							--			

Table 5-94 Risk Characterization Summary, Noncancer Hazards - Breastfeeding Infant of Tribal Fisher, Reasonable Maximum Exposure									
Risk Characterization Summary - Non-Carcinogens									
Scenario Timeframe: Current/Future									
Receptor Population: Tribal									
Receptor Age: Infant									
Medium	Exposure Medium	Exposure Point	Chemical of Concern	Primary Target Organ	Non-Carcinogens Hazard Quotient			Exposure Routes Total	
					Ingestion	Inhalation	Dermal		
Sediment	Breast Milk	Breastfeeding from Adult with Direct Contact of on-site sediment RM 10 West							
			Sediment Hazard Index Total = < 1						
Fish Tissue	Breast Milk	Breastfeeding from Adult consumption of Whole body Fish Tissue On-site (175 g/day) Ingestion							
			Antimony	Blood	--	RNA	RNA	--	
			Arsenic	Skin/Blood	--	RNA	RNA	--	
			Chromium		--	RNA	RNA	--	
			Mercury	CNS	--	RNA	RNA	--	
			cPAHs		--	--	--	--	
			Bis(2-ethylhexyl)phthalate	Liver	--	RNA	RNA	--	
			Hexachlorobenzene	Liver	--	RNA	RNA	--	
			Total PCBs	Skin/Immunological	9000	RNA	RNA	9000	
			Total Dioxin/Furan TEQ	Reproduction	10	RNA	RNA	10	
			Total PCB TEQ	Reproduction	30	RNA	RNA	30	
			Aldrin	Liver	--	RNA	RNA	--	
			alpha-Hexachlorocyclohexane	Liver	--	RNA	RNA	--	
			beta-Hexachlorocyclohexane	Liver	--	RNA	RNA	--	
			Dieldrin	Liver	--	RNA	RNA	--	
			Heptachlor	Liver	--	RNA	RNA	--	
			Heptachlor Epoxide	Liver	--	RNA	RNA	--	
			Total Chlordanes	Liver	--	RNA	RNA	--	
			Total DDX	Liver	1	RNA	RNA	--	
			Fish Tissue Hazard Index Total =					9000	
			Receptor Hazard Index =					9000	
			Blood Hazard Index =					--	
			Skin Hazard Index =					9000	
			CNS Hazard Index =					--	
			Whole Body Hazard Index =					--	
			Liver Hazard Index =					--	
			Immological Hazard Index =					9000	
			Reproduction Hazard Index =					--	
			Kidney Hazard Index =					--	
Sediment	Breast Milk	Breastfeeding from Adult with Direct Contact of on-site sediment RM 10.5 West							
			Sediment Hazard Index Total = < 1						
Fish Tissue	Breast Milk	Breastfeeding from Adult consumption of Whole body Fish Tissue On-site (175 g/day) Ingestion							
			Antimony	Blood	--	RNA	RNA	--	
			Arsenic	Skin/Blood	--	RNA	RNA	--	
			Chromium		--	RNA	RNA	--	
			Mercury	CNS	--	RNA	RNA	--	
			cPAHs		--	--	--	--	
			Bis(2-ethylhexyl)phthalate	Liver	--	RNA	RNA	--	
			Hexachlorobenzene	Liver	--	RNA	RNA	--	
			Total PCBs	Skin/Immunological	9000	RNA	RNA	9000	
			Total Dioxin/Furan TEQ	Reproduction	10	RNA	RNA	10	
			Total PCB TEQ	Reproduction	30	RNA	RNA	30	
			Aldrin	Liver	--	RNA	RNA	--	
			alpha-Hexachlorocyclohexane	Liver	--	RNA	RNA	--	
			beta-Hexachlorocyclohexane	Liver	--	RNA	RNA	--	
			Dieldrin	Liver	--	RNA	RNA	--	
			Heptachlor	Liver	--	RNA	RNA	--	
			Heptachlor Epoxide	Liver	--	RNA	RNA	--	
			Total Chlordanes	Liver	--	RNA	RNA	--	
			Total DDX	Liver	1	RNA	RNA	--	
			Fish Tissue Hazard Index Total =					9000	
			Receptor Hazard Index =					9000	
			Blood Hazard Index =					--	
			Skin Hazard Index =					9000	
			CNS Hazard Index =					--	
			Whole Body Hazard Index =					--	
			Liver Hazard Index =					--	
			Immological Hazard Index =					9000	
			Reproduction Hazard Index =					--	
			Kidney Hazard Index =					--	



Table 5-94 Risk Characterization Summary, Noncancer Hazards - Breastfeeding Infant of Tribal Fisher, Reasonable Maximum Exposure									
Risk Characterization Summary - Non-Carcinogens									
Scenario Timeframe: Current/Future									
Receptor Population: Tribal									
Receptor Age: Infant									
Medium	Exposure Medium	Exposure Point	Chemical of Concern	Primary Target Organ	Non-Carcinogens Hazard Quotient			Exposure Routes Total	
					Ingestion	Inhalation	Dermal		
Sediment	Breast Milk	Breastfeeding from Adult with Direct Contact of on-site sediment RM 11 West							
			Sediment Hazard Index Total = < 1						
Fish Tissue	Breast Milk	Breastfeeding from Adult consumption of Whole body Fish Tissue On-site (175 g/day) Ingestion							
			Antimony	Blood	--	RNA	RNA	--	
			Arsenic	Skin/Blood	--	RNA	RNA	--	
			Chromium		--	RNA	RNA	--	
			Mercury	CNS	--	RNA	RNA	--	
			cPAHs		--	--	--	--	
			Bis(2-ethylhexyl)phthalate	Liver	--	RNA	RNA	--	
			Hexachlorobenzene	Liver	--	RNA	RNA	--	
			Total PCBs	Skin/Immunological	9000	RNA	RNA	9000	
			Total Dioxin/Furan TEQ	Reproduction	10	RNA	RNA	10	
			Total PCB TEQ	Reproduction	30	RNA	RNA	30	
			Aldrin	Liver	--	RNA	RNA	--	
			alpha-Hexachlorocyclohexane	Liver	--	RNA	RNA	--	
			beta-Hexachlorocyclohexane	Liver	--	RNA	RNA	--	
			Dieldrin	Liver	--	RNA	RNA	--	
			Heptachlor	Liver	--	RNA	RNA	--	
			Heptachlor Epoxide	Liver	--	RNA	RNA	--	
			Total Chlordanes	Liver	--	RNA	RNA	--	
			Total DDx	Liver	1	RNA	RNA	--	
			Fish Tissue Hazard Index Total =					9000	
			Receptor Hazard Index =					9000	
			Blood Hazard Index =					--	
			Skin Hazard Index =					9000	
			CNS Hazard Index =					--	
			Whole Body Hazard Index =					--	
			Liver Hazard Index =					--	
			Immological Hazard Index =					9000	
			Reproduction Hazard Index =					--	
			Kidney Hazard Index =					--	
Sediment	Breast Milk	Breastfeeding from Adult with Direct Contact of on-site sediment RM 11.5 West							
			Sediment Hazard Index Total = < 1						
Fish Tissue	Breast Milk	Breastfeeding from Adult consumption of Whole body Fish Tissue On-site (175 g/day) Ingestion							
			Antimony	Blood	--	RNA	RNA	--	
			Arsenic	Skin/Blood	--	RNA	RNA	--	
			Chromium		--	RNA	RNA	--	
			Mercury	CNS	--	RNA	RNA	--	
			cPAHs		--	--	--	--	
			Bis(2-ethylhexyl)phthalate	Liver	--	RNA	RNA	--	
			Hexachlorobenzene	Liver	--	RNA	RNA	--	
			Total PCBs	Skin/Immunological	9000	RNA	RNA	9000	
			Total Dioxin/Furan TEQ	Reproduction	10	RNA	RNA	10	
			Total PCB TEQ	Reproduction	30	RNA	RNA	30	
			Aldrin	Liver	--	RNA	RNA	--	
			alpha-Hexachlorocyclohexane	Liver	--	RNA	RNA	--	
			beta-Hexachlorocyclohexane	Liver	--	RNA	RNA	--	
			Dieldrin	Liver	--	RNA	RNA	--	
			Heptachlor	Liver	--	RNA	RNA	--	
			Heptachlor Epoxide	Liver	--	RNA	RNA	--	
			Total Chlordanes	Liver	--	RNA	RNA	--	
			Total DDx	Liver	1	RNA	RNA	--	
			Fish Tissue Hazard Index Total =					9000	
			Receptor Hazard Index =					9000	
			Blood Hazard Index =					--	
			Skin Hazard Index =					9000	
			CNS Hazard Index =					--	
			Whole Body Hazard Index =					--	
			Liver Hazard Index =					--	
			Immological Hazard Index =					9000	
			Reproduction Hazard Index =					--	
			Kidney Hazard Index =					--	

Table 5-94 Risk Characterization Summary, Noncancer Hazards - Breastfeeding Infant of Tribal Fisher, Reasonable Maximum Exposure								
Risk Characterization Summary - Non-Carcinogens								
Scenario Timeframe: Current/Future								
Receptor Population: Tribal								
Receptor Age: Infant								
Medium	Exposure Medium	Exposure Point	Chemical of Concern	Primary Target Organ	Non-Carcinogens Hazard Quotient			Exposure Routes Total
					Ingestion	Inhalation	Dermal	
Sediment	Breast Milk	Breastfeeding from Adult with Direct Contact of on-site sediment RM 12 West						
			Sediment Hazard Index Total = < 1					
Fish Tissue	Breast Milk	Breastfeeding from Adult consumption of Whole body Fish Tissue On-site (175 g/day) Ingestion						
			Antimony	Blood	--	RNA	RNA	--
			Arsenic	Skin/Blood	--	RNA	RNA	--
			Chromium		--	RNA	RNA	--
			Mercury	CNS	--	RNA	RNA	--
			cPAHs		--	--	--	--
			Bis(2-ethylhexyl)phthalate	Liver	--	RNA	RNA	--
			Hexachlorobenzene	Liver	--	RNA	RNA	--
			Total PCBs	Skin/Immunological	9000	RNA	RNA	9000
			Total Dioxin/Furan TEQ	Reproduction	10	RNA	RNA	10
			Total PCB TEQ	Reproduction	30	RNA	RNA	30
			Aldrin	Liver	--	RNA	RNA	--
			alpha-Hexachlorocyclohexane	Liver	--	RNA	RNA	--
			beta-Hexachlorocyclohexane	Liver	--	RNA	RNA	--
			Dieldrin	Liver	--	RNA	RNA	--
			Heptachlor	Liver	--	RNA	RNA	--
			Heptachlor Epoxide	Liver	--	RNA	RNA	--
			Total Chlordanes	Liver	--	RNA	RNA	--
			Total DDX	Liver	1	RNA	RNA	--
					Fish Tissue Hazard Index Total =			9000
					Receptor Hazard Index =			9000
					Blood Hazard Index =			--
					Skin Hazard Index =			9000
					CNS Hazard Index =			--
					Whole Body Hazard Index =			--
					Liver Hazard Index =			--
					Immological Hazard Index =			9000
					Reproduction Hazard Index =			--
					Kidney Hazard Index =			--
Sediment	Breast Milk	Breastfeeding from Adult with Direct Contact of on-site sediment RM 1 East						
			Sediment Hazard Index Total = < 1					
Fish Tissue	Breast Milk	Breastfeeding from Adult consumption of Whole body Fish Tissue On-site (175 g/day) Ingestion						
			Antimony	Blood	--	RNA	RNA	--
			Arsenic	Skin/Blood	--	RNA	RNA	--
			Chromium		--	RNA	RNA	--
			Mercury	CNS	--	RNA	RNA	--
			cPAHs		--	--	--	--
			Bis(2-ethylhexyl)phthalate	Liver	--	RNA	RNA	--
			Hexachlorobenzene	Liver	--	RNA	RNA	--
			Total PCBs	Skin/Immunological	9000	RNA	RNA	9000
			Total Dioxin/Furan TEQ	Reproduction	10	RNA	RNA	10
			Total PCB TEQ	Reproduction	30	RNA	RNA	30
			Aldrin	Liver	--	RNA	RNA	--
			alpha-Hexachlorocyclohexane	Liver	--	RNA	RNA	--
			beta-Hexachlorocyclohexane	Liver	--	RNA	RNA	--
			Dieldrin	Liver	--	RNA	RNA	--
			Heptachlor	Liver	--	RNA	RNA	--
			Heptachlor Epoxide	Liver	--	RNA	RNA	--
			Total Chlordanes	Liver	--	RNA	RNA	--
			Total DDX	Liver	1	RNA	RNA	--
					Fish Tissue Hazard Index Total =			9000
					Receptor Hazard Index =			9000
					Blood Hazard Index =			--
					Skin Hazard Index =			9000
					CNS Hazard Index =			--
					Whole Body Hazard Index =			--
					Liver Hazard Index =			--
					Immological Hazard Index =			9000
					Reproduction Hazard Index =			--
					Kidney Hazard Index =			--

Table 5-94 Risk Characterization Summary, Noncancer Hazards - Breastfeeding Infant of Tribal Fisher, Reasonable Maximum Exposure								
Risk Characterization Summary - Non-Carcinogens								
Scenario Timeframe: Current/Future								
Receptor Population: Tribal								
Receptor Age: Infant								
Medium	Exposure Medium	Exposure Point	Chemical of Concern	Primary Target Organ	Non-Carcinogens Hazard Quotient			Exposure Routes Total
					Ingestion	Inhalation	Dermal	
Sediment	Breast Milk	Breastfeeding from Adult with Direct Contact of on-site sediment RM 1.5 East						
			Sediment Hazard Index Total = < 1					
Fish Tissue	Breast Milk	Breastfeeding from Adult consumption of Whole body Fish Tissue On-site (175 g/day) Ingestion						
			Antimony	Blood	--	RNA	RNA	--
			Arsenic	Skin/Blood	--	RNA	RNA	--
			Chromium		--	RNA	RNA	--
			Mercury	CNS	--	RNA	RNA	--
			cPAHs		--	--	--	--
			Bis(2-ethylhexyl)phthalate	Liver	--	RNA	RNA	--
			Hexachlorobenzene	Liver	--	RNA	RNA	--
			Total PCBs	Skin/Immunological	9000	RNA	RNA	9000
			Total Dioxin/Furan TEQ	Reproduction	10	RNA	RNA	10
			Total PCB TEQ	Reproduction	30	RNA	RNA	30
			Aldrin	Liver	--	RNA	RNA	--
			alpha-Hexachlorocyclohexane	Liver	--	RNA	RNA	--
			beta-Hexachlorocyclohexane	Liver	--	RNA	RNA	--
			Dieldrin	Liver	--	RNA	RNA	--
			Heptachlor	Liver	--	RNA	RNA	--
			Heptachlor Epoxide	Liver	--	RNA	RNA	--
			Total Chlordanes	Liver	--	RNA	RNA	--
			Total DDX	Liver	1	RNA	RNA	--
			Fish Tissue Hazard Index Total =					9000
			Receptor Hazard Index =					9000
			Blood Hazard Index =					--
			Skin Hazard Index =					9000
			CNS Hazard Index =					--
			Whole Body Hazard Index =					--
			Liver Hazard Index =					--
			Immological Hazard Index =					9000
			Reproduction Hazard Index =					--
			Kidney Hazard Index =					--
Sediment	Breast Milk	Breastfeeding from Adult with Direct Contact of on-site sediment RM 2 East						
			Sediment Hazard Index Total = < 1					
Fish Tissue	Breast Milk	Breastfeeding from Adult consumption of Whole body Fish Tissue On-site (175 g/day) Ingestion						
			Antimony	Blood	--	RNA	RNA	--
			Arsenic	Skin/Blood	--	RNA	RNA	--
			Chromium		--	RNA	RNA	--
			Mercury	CNS	--	RNA	RNA	--
			cPAHs		--	--	--	--
			Bis(2-ethylhexyl)phthalate	Liver	--	RNA	RNA	--
			Hexachlorobenzene	Liver	--	RNA	RNA	--
			Total PCBs	Skin/Immunological	9000	RNA	RNA	9000
			Total Dioxin/Furan TEQ	Reproduction	10	RNA	RNA	10
			Total PCB TEQ	Reproduction	30	RNA	RNA	30
			Aldrin	Liver	--	RNA	RNA	--
			alpha-Hexachlorocyclohexane	Liver	--	RNA	RNA	--
			beta-Hexachlorocyclohexane	Liver	--	RNA	RNA	--
			Dieldrin	Liver	--	RNA	RNA	--
			Heptachlor	Liver	--	RNA	RNA	--
			Heptachlor Epoxide	Liver	--	RNA	RNA	--
			Total Chlordanes	Liver	--	RNA	RNA	--
			Total DDX	Liver	1	RNA	RNA	--
			Fish Tissue Hazard Index Total =					9000
			Receptor Hazard Index =					9000
			Blood Hazard Index =					--
			Skin Hazard Index =					9000
			CNS Hazard Index =					--
			Whole Body Hazard Index =					--
			Liver Hazard Index =					--
			Immological Hazard Index =					9000
			Reproduction Hazard Index =					--
			Kidney Hazard Index =					--

Table 5-94 Risk Characterization Summary, Noncancer Hazards - Breastfeeding Infant of Tribal Fisher, Reasonable Maximum Exposure								
Risk Characterization Summary - Non-Carcinogens								
Scenario Timeframe: Current/Future								
Receptor Population: Tribal								
Receptor Age: Infant								
Medium	Exposure Medium	Exposure Point	Chemical of Concern	Primary Target Organ	Non-Carcinogens Hazard Quotient			Exposure Routes Total
					Ingestion	Inhalation	Dermal	
Sediment	Breast Milk	Breastfeeding from Adult with Direct Contact of on-site sediment RM 2.5 East						
							Sediment Hazard Index Total =	< 1
Fish Tissue	Breast Milk	Breastfeeding from Adult consumption of Whole body Fish Tissue On-site (175 g/day) Ingestion						
			Antimony	Blood	--	RNA	RNA	--
			Arsenic	Skin/Blood	--	RNA	RNA	--
			Chromium		--	RNA	RNA	--
			Mercury	CNS	--	RNA	RNA	--
			cPAHs		--	--	--	--
			Bis(2-ethylhexyl)phthalate	Liver	--	RNA	RNA	--
			Hexachlorobenzene	Liver	--	RNA	RNA	--
			Total PCBs	Skin/Immunological	9000	RNA	RNA	9000
			Total Dioxin/Furan TEQ	Reproduction	10	RNA	RNA	10
			Total PCB TEQ	Reproduction	30	RNA	RNA	30
			Aldrin	Liver	--	RNA	RNA	--
			alpha-Hexachlorocyclohexane	Liver	--	RNA	RNA	--
			beta-Hexachlorocyclohexane	Liver	--	RNA	RNA	--
			Dieldrin	Liver	--	RNA	RNA	--
			Heptachlor	Liver	--	RNA	RNA	--
			Heptachlor Epoxide	Liver	--	RNA	RNA	--
			Total Chlordanes	Liver	--	RNA	RNA	--
			Total DDX	Liver	1	RNA	RNA	--
							Fish Tissue Hazard Index Total =	9000
							Receptor Hazard Index =	9000
							Blood Hazard Index =	--
							Skin Hazard Index =	9000
							CNS Hazard Index =	--
							Whole Body Hazard Index =	--
							Liver Hazard Index =	--
							Immological Hazard Index =	9000
							Reproduction Hazard Index =	--
							Kidney Hazard Index =	--
Sediment	Breast Milk	Breastfeeding from Adult with Direct Contact of on-site sediment RM 3 East						
							Sediment Hazard Index Total =	< 1
Fish Tissue	Breast Milk	Breastfeeding from Adult consumption of Whole body Fish Tissue On-site (175 g/day) Ingestion						
			Antimony	Blood	--	RNA	RNA	--
			Arsenic	Skin/Blood	--	RNA	RNA	--
			Chromium		--	RNA	RNA	--
			Mercury	CNS	--	RNA	RNA	--
			cPAHs		--	--	--	--
			Bis(2-ethylhexyl)phthalate	Liver	--	RNA	RNA	--
			Hexachlorobenzene	Liver	--	RNA	RNA	--
			Total PCBs	Skin/Immunological	9000	RNA	RNA	9000
			Total Dioxin/Furan TEQ	Reproduction	10	RNA	RNA	10
			Total PCB TEQ	Reproduction	30	RNA	RNA	30
			Aldrin	Liver	--	RNA	RNA	--
			alpha-Hexachlorocyclohexane	Liver	--	RNA	RNA	--
			beta-Hexachlorocyclohexane	Liver	--	RNA	RNA	--
			Dieldrin	Liver	--	RNA	RNA	--
			Heptachlor	Liver	--	RNA	RNA	--
			Heptachlor Epoxide	Liver	--	RNA	RNA	--
			Total Chlordanes	Liver	--	RNA	RNA	--
			Total DDX	Liver	1	RNA	RNA	--
							Fish Tissue Hazard Index Total =	9000
							Receptor Hazard Index =	9000
							Blood Hazard Index =	--
							Skin Hazard Index =	9000
							CNS Hazard Index =	--
							Whole Body Hazard Index =	--
							Liver Hazard Index =	--
							Immological Hazard Index =	9000
							Reproduction Hazard Index =	--
							Kidney Hazard Index =	--

Table 5-94 Risk Characterization Summary, Noncancer Hazards - Breastfeeding Infant of Tribal Fisher, Reasonable Maximum Exposure								
Risk Characterization Summary - Non-Carcinogens								
Scenario Timeframe: Current/Future								
Receptor Population: Tribal								
Receptor Age: Infant								
Medium	Exposure Medium	Exposure Point	Chemical of Concern	Primary Target Organ	Non-Carcinogens Hazard Quotient			Exposure Routes Total
					Ingestion	Inhalation	Dermal	
Sediment	Breast Milk	Breastfeeding from Adult with Direct Contact of on-site sediment RM 3.5 East						
			Sediment Hazard Index Total = < 1					
Fish Tissue	Breast Milk	Breastfeeding from Adult consumption of Whole body Fish Tissue On-site (175 g/day) Ingestion						
			Antimony	Blood	--	RNA	RNA	--
			Arsenic	Skin/Blood	--	RNA	RNA	--
			Chromium		--	RNA	RNA	--
			Mercury	CNS	--	RNA	RNA	--
			cPAHs		--	--	--	--
			Bis(2-ethylhexyl)phthalate	Liver	--	RNA	RNA	--
			Hexachlorobenzene	Liver	--	RNA	RNA	--
			Total PCBs	Skin/Immunological	9000	RNA	RNA	9000
			Total Dioxin/Furan TEQ	Reproduction	10	RNA	RNA	10
			Total PCB TEQ	Reproduction	30	RNA	RNA	30
			Aldrin	Liver	--	RNA	RNA	--
			alpha-Hexachlorocyclohexane	Liver	--	RNA	RNA	--
			beta-Hexachlorocyclohexane	Liver	--	RNA	RNA	--
			Dieldrin	Liver	--	RNA	RNA	--
			Heptachlor	Liver	--	RNA	RNA	--
			Heptachlor Epoxide	Liver	--	RNA	RNA	--
			Total Chlordanes	Liver	--	RNA	RNA	--
			Total DDX	Liver	1	RNA	RNA	--
			Fish Tissue Hazard Index Total =					9000
			Receptor Hazard Index =					9000
			Blood Hazard Index =					--
			Skin Hazard Index =					9000
			CNS Hazard Index =					--
			Whole Body Hazard Index =					--
			Liver Hazard Index =					--
			Immological Hazard Index =					9000
			Reproduction Hazard Index =					--
			Kidney Hazard Index =					--
Sediment	Breast Milk	Breastfeeding from Adult with Direct Contact of on-site sediment RM 4 East						
			Sediment Hazard Index Total = < 1					
Fish Tissue	Breast Milk	Breastfeeding from Adult consumption of Whole body Fish Tissue On-site (175 g/day) Ingestion						
			Antimony	Blood	--	RNA	RNA	--
			Arsenic	Skin/Blood	--	RNA	RNA	--
			Chromium		--	RNA	RNA	--
			Mercury	CNS	--	RNA	RNA	--
			cPAHs		--	--	--	--
			Bis(2-ethylhexyl)phthalate	Liver	--	RNA	RNA	--
			Hexachlorobenzene	Liver	--	RNA	RNA	--
			Total PCBs	Skin/Immunological	9000	RNA	RNA	9000
			Total Dioxin/Furan TEQ	Reproduction	10	RNA	RNA	10
			Total PCB TEQ	Reproduction	30	RNA	RNA	30
			Aldrin	Liver	--	RNA	RNA	--
			alpha-Hexachlorocyclohexane	Liver	--	RNA	RNA	--
			beta-Hexachlorocyclohexane	Liver	--	RNA	RNA	--
			Dieldrin	Liver	--	RNA	RNA	--
			Heptachlor	Liver	--	RNA	RNA	--
			Heptachlor Epoxide	Liver	--	RNA	RNA	--
			Total Chlordanes	Liver	--	RNA	RNA	--
			Total DDX	Liver	1	RNA	RNA	--
			Fish Tissue Hazard Index Total =					9000
			Receptor Hazard Index =					9000
			Blood Hazard Index =					--
			Skin Hazard Index =					9000
			CNS Hazard Index =					--
			Whole Body Hazard Index =					--
			Liver Hazard Index =					--
			Immological Hazard Index =					9000
			Reproduction Hazard Index =					--
			Kidney Hazard Index =					--

Table 5-94 Risk Characterization Summary, Noncancer Hazards - Breastfeeding Infant of Tribal Fisher, Reasonable Maximum Exposure								
Risk Characterization Summary - Non-Carcinogens								
Scenario Timeframe: Current/Future								
Receptor Population: Tribal								
Receptor Age: Infant								
Medium	Exposure Medium	Exposure Point	Chemical of Concern	Primary Target Organ	Non-Carcinogens Hazard Quotient			Exposure Routes Total
					Ingestion	Inhalation	Dermal	
Sediment	Breast Milk	Breastfeeding from Adult with Direct Contact of on-site sediment RM 4.5 East						
			Sediment Hazard Index Total = < 1					
Fish Tissue	Breast Milk	Breastfeeding from Adult consumption of Whole body Fish Tissue On-site (175 g/day) Ingestion						
			Antimony	Blood	--	RNA	RNA	--
			Arsenic	Skin/Blood	--	RNA	RNA	--
			Chromium		--	RNA	RNA	--
			Mercury	CNS	--	RNA	RNA	--
			cPAHs		--	--	--	--
			Bis(2-ethylhexyl)phthalate	Liver	--	RNA	RNA	--
			Hexachlorobenzene	Liver	--	RNA	RNA	--
			Total PCBs	Skin/Immunological	9000	RNA	RNA	9000
			Total Dioxin/Furan TEQ	Reproduction	10	RNA	RNA	10
			Total PCB TEQ	Reproduction	30	RNA	RNA	30
			Aldrin	Liver	--	RNA	RNA	--
			alpha-Hexachlorocyclohexane	Liver	--	RNA	RNA	--
			beta-Hexachlorocyclohexane	Liver	--	RNA	RNA	--
			Dieldrin	Liver	--	RNA	RNA	--
			Heptachlor	Liver	--	RNA	RNA	--
			Heptachlor Epoxide	Liver	--	RNA	RNA	--
			Total Chlordanes	Liver	--	RNA	RNA	--
			Total DDX	Liver	1	RNA	RNA	--
			Fish Tissue Hazard Index Total =					9000
			Receptor Hazard Index =					9000
			Blood Hazard Index =					--
			Skin Hazard Index =					9000
			CNS Hazard Index =					--
			Whole Body Hazard Index =					--
			Liver Hazard Index =					--
			Immological Hazard Index =					9000
			Reproduction Hazard Index =					--
			Kidney Hazard Index =					--
Sediment	Breast Milk	Breastfeeding from Adult with Direct Contact of on-site sediment RM 5 East						
			Sediment Hazard Index Total = < 1					
Fish Tissue	Breast Milk	Breastfeeding from Adult consumption of Whole body Fish Tissue On-site (175 g/day) Ingestion						
			Antimony	Blood	--	RNA	RNA	--
			Arsenic	Skin/Blood	--	RNA	RNA	--
			Chromium		--	RNA	RNA	--
			Mercury	CNS	--	RNA	RNA	--
			cPAHs		--	--	--	--
			Bis(2-ethylhexyl)phthalate	Liver	--	RNA	RNA	--
			Hexachlorobenzene	Liver	--	RNA	RNA	--
			Total PCBs	Skin/Immunological	9000	RNA	RNA	9000
			Total Dioxin/Furan TEQ	Reproduction	10	RNA	RNA	10
			Total PCB TEQ	Reproduction	30	RNA	RNA	30
			Aldrin	Liver	--	RNA	RNA	--
			alpha-Hexachlorocyclohexane	Liver	--	RNA	RNA	--
			beta-Hexachlorocyclohexane	Liver	--	RNA	RNA	--
			Dieldrin	Liver	--	RNA	RNA	--
			Heptachlor	Liver	--	RNA	RNA	--
			Heptachlor Epoxide	Liver	--	RNA	RNA	--
			Total Chlordanes	Liver	--	RNA	RNA	--
			Total DDX	Liver	1	RNA	RNA	--
			Fish Tissue Hazard Index Total =					9000
			Receptor Hazard Index =					9000
			Blood Hazard Index =					--
			Skin Hazard Index =					9000
			CNS Hazard Index =					--
			Whole Body Hazard Index =					--
			Liver Hazard Index =					--
			Immological Hazard Index =					9000
			Reproduction Hazard Index =					--
			Kidney Hazard Index =					--

Table 5-94 Risk Characterization Summary, Noncancer Hazards - Breastfeeding Infant of Tribal Fisher, Reasonable Maximum Exposure								
Risk Characterization Summary - Non-Carcinogens								
Scenario Timeframe: Current/Future								
Receptor Population: Tribal								
Receptor Age: Infant								
Medium	Exposure Medium	Exposure Point	Chemical of Concern	Primary Target Organ	Non-Carcinogens Hazard Quotient			Exposure Routes Total
					Ingestion	Inhalation	Dermal	
Sediment	Breast Milk	Breastfeeding from Adult with Direct Contact of on-site sediment RM 5.5 East						
			Sediment Hazard Index Total = < 1					
Fish Tissue	Breast Milk	Breastfeeding from Adult consumption of Whole body Fish Tissue On-site (175 g/day) Ingestion						
			Antimony	Blood	--	RNA	RNA	--
			Arsenic	Skin/Blood	--	RNA	RNA	--
			Chromium		--	RNA	RNA	--
			Mercury	CNS	--	RNA	RNA	--
			cPAHs		--	--	--	--
			Bis(2-ethylhexyl)phthalate	Liver	--	RNA	RNA	--
			Hexachlorobenzene	Liver	--	RNA	RNA	--
			Total PCBs	Skin/Immunological	9000	RNA	RNA	9000
			Total Dioxin/Furan TEQ	Reproduction	10	RNA	RNA	10
			Total PCB TEQ	Reproduction	30	RNA	RNA	30
			Aldrin	Liver	--	RNA	RNA	--
			alpha-Hexachlorocyclohexane	Liver	--	RNA	RNA	--
			beta-Hexachlorocyclohexane	Liver	--	RNA	RNA	--
			Dieldrin	Liver	--	RNA	RNA	--
			Heptachlor	Liver	--	RNA	RNA	--
			Heptachlor Epoxide	Liver	--	RNA	RNA	--
			Total Chlordanes	Liver	--	RNA	RNA	--
			Total DDX	Liver	1	RNA	RNA	--
			Fish Tissue Hazard Index Total =					9000
			Receptor Hazard Index =					9000
			Blood Hazard Index =					--
			Skin Hazard Index =					9000
			CNS Hazard Index =					--
			Whole Body Hazard Index =					--
			Liver Hazard Index =					--
			Immological Hazard Index =					9000
			Reproduction Hazard Index =					--
			Kidney Hazard Index =					--
Sediment	Breast Milk	Breastfeeding from Adult with Direct Contact of on-site sediment RM 6 East						
			Sediment Hazard Index Total = < 1					
Fish Tissue	Breast Milk	Breastfeeding from Adult consumption of Whole body Fish Tissue On-site (175 g/day) Ingestion						
			Antimony	Blood	--	RNA	RNA	--
			Arsenic	Skin/Blood	--	RNA	RNA	--
			Chromium		--	RNA	RNA	--
			Mercury	CNS	--	RNA	RNA	--
			cPAHs		--	--	--	--
			Bis(2-ethylhexyl)phthalate	Liver	--	RNA	RNA	--
			Hexachlorobenzene	Liver	--	RNA	RNA	--
			Total PCBs	Skin/Immunological	9000	RNA	RNA	9000
			Total Dioxin/Furan TEQ	Reproduction	10	RNA	RNA	10
			Total PCB TEQ	Reproduction	30	RNA	RNA	30
			Aldrin	Liver	--	RNA	RNA	--
			alpha-Hexachlorocyclohexane	Liver	--	RNA	RNA	--
			beta-Hexachlorocyclohexane	Liver	--	RNA	RNA	--
			Dieldrin	Liver	--	RNA	RNA	--
			Heptachlor	Liver	--	RNA	RNA	--
			Heptachlor Epoxide	Liver	--	RNA	RNA	--
			Total Chlordanes	Liver	--	RNA	RNA	--
			Total DDX	Liver	1	RNA	RNA	--
			Fish Tissue Hazard Index Total =					9000
			Receptor Hazard Index =					9000
			Blood Hazard Index =					--
			Skin Hazard Index =					9000
			CNS Hazard Index =					--
			Whole Body Hazard Index =					--
			Liver Hazard Index =					--
			Immological Hazard Index =					9000
			Reproduction Hazard Index =					--
			Kidney Hazard Index =					--

Table 5-94 Risk Characterization Summary, Noncancer Hazards - Breastfeeding Infant of Tribal Fisher, Reasonable Maximum Exposure									
Risk Characterization Summary - Non-Carcinogens									
Scenario Timeframe: Current/Future									
Receptor Population: Tribal									
Receptor Age: Infant									
Medium	Exposure Medium	Exposure Point	Chemical of Concern	Primary Target Organ	Non-Carcinogens Hazard Quotient			Exposure Routes Total	
					Ingestion	Inhalation	Dermal		
Sediment	Breast Milk	Breastfeeding from Adult with Direct Contact of on-site sediment RM 6.5 East							
			Sediment Hazard Index Total = < 1						
Fish Tissue	Breast Milk	Breastfeeding from Adult consumption of Whole body Fish Tissue On-site (175 g/day) Ingestion							
			Antimony	Blood	--	RNA	RNA	--	
			Arsenic	Skin/Blood	--	RNA	RNA	--	
			Chromium		--	RNA	RNA	--	
			Mercury	CNS	--	RNA	RNA	--	
			cPAHs		--	--	--	--	
			Bis(2-ethylhexyl)phthalate	Liver	--	RNA	RNA	--	
			Hexachlorobenzene	Liver	--	RNA	RNA	--	
			Total PCBs	Skin/Immunological	9000	RNA	RNA	9000	
			Total Dioxin/Furan TEQ	Reproduction	10	RNA	RNA	10	
			Total PCB TEQ	Reproduction	30	RNA	RNA	30	
			Aldrin	Liver	--	RNA	RNA	--	
			alpha-Hexachlorocyclohexane	Liver	--	RNA	RNA	--	
			beta-Hexachlorocyclohexane	Liver	--	RNA	RNA	--	
			Dieldrin	Liver	--	RNA	RNA	--	
			Heptachlor	Liver	--	RNA	RNA	--	
			Heptachlor Epoxide	Liver	--	RNA	RNA	--	
			Total Chlordanes	Liver	--	RNA	RNA	--	
			Total DDX	Liver	1	RNA	RNA	--	
			Fish Tissue Hazard Index Total =					9000	
			Receptor Hazard Index =					9000	
			Blood Hazard Index =					--	
			Skin Hazard Index =					9000	
			CNS Hazard Index =					--	
			Whole Body Hazard Index =					--	
			Liver Hazard Index =					--	
			Immological Hazard Index =					9000	
			Reproduction Hazard Index =					--	
			Kidney Hazard Index =					--	
Sediment	Breast Milk	Breastfeeding from Adult with Direct Contact of on-site sediment RM 7 East							
			Sediment Hazard Index Total = < 1						
Fish Tissue	Breast Milk	Breastfeeding from Adult consumption of Whole body Fish Tissue On-site (175 g/day) Ingestion							
			Antimony	Blood	--	RNA	RNA	--	
			Arsenic	Skin/Blood	--	RNA	RNA	--	
			Chromium		--	RNA	RNA	--	
			Mercury	CNS	--	RNA	RNA	--	
			cPAHs		--	--	--	--	
			Bis(2-ethylhexyl)phthalate	Liver	--	RNA	RNA	--	
			Hexachlorobenzene	Liver	--	RNA	RNA	--	
			Total PCBs	Skin/Immunological	9000	RNA	RNA	9000	
			Total Dioxin/Furan TEQ	Reproduction	10	RNA	RNA	10	
			Total PCB TEQ	Reproduction	30	RNA	RNA	30	
			Aldrin	Liver	--	RNA	RNA	--	
			alpha-Hexachlorocyclohexane	Liver	--	RNA	RNA	--	
			beta-Hexachlorocyclohexane	Liver	--	RNA	RNA	--	
			Dieldrin	Liver	--	RNA	RNA	--	
			Heptachlor	Liver	--	RNA	RNA	--	
			Heptachlor Epoxide	Liver	--	RNA	RNA	--	
			Total Chlordanes	Liver	--	RNA	RNA	--	
			Total DDX	Liver	1	RNA	RNA	--	
			Fish Tissue Hazard Index Total =					9000	
			Receptor Hazard Index =					9000	
			Blood Hazard Index =					--	
			Skin Hazard Index =					9000	
			CNS Hazard Index =					--	
			Whole Body Hazard Index =					--	
			Liver Hazard Index =					--	
			Immological Hazard Index =					9000	
			Reproduction Hazard Index =					--	
			Kidney Hazard Index =					--	



Table 5-94 Risk Characterization Summary, Noncancer Hazards - Breastfeeding Infant of Tribal Fisher, Reasonable Maximum Exposure								
Risk Characterization Summary - Non-Carcinogens								
Scenario Timeframe: Current/Future								
Receptor Population: Tribal								
Receptor Age: Infant								
Medium	Exposure Medium	Exposure Point	Chemical of Concern	Primary Target Organ	Non-Carcinogens Hazard Quotient			Exposure Routes Total
					Ingestion	Inhalation	Dermal	
Sediment	Breast Milk	Breastfeeding from Adult with Direct Contact of on-site sediment RM 7.5 East						
			Sediment Hazard Index Total = < 1					
Fish Tissue	Breast Milk	Breastfeeding from Adult consumption of Whole body Fish Tissue On-site (175 g/day) Ingestion						
			Antimony	Blood	--	RNA	RNA	--
			Arsenic	Skin/Blood	--	RNA	RNA	--
			Chromium		--	RNA	RNA	--
			Mercury	CNS	--	RNA	RNA	--
			cPAHs		--	--	--	--
			Bis(2-ethylhexyl)phthalate	Liver	--	RNA	RNA	--
			Hexachlorobenzene	Liver	--	RNA	RNA	--
			Total PCBs	Skin/Immunological	9000	RNA	RNA	9000
			Total Dioxin/Furan TEQ	Reproduction	10	RNA	RNA	10
			Total PCB TEQ	Reproduction	30	RNA	RNA	30
			Aldrin	Liver	--	RNA	RNA	--
			alpha-Hexachlorocyclohexane	Liver	--	RNA	RNA	--
			beta-Hexachlorocyclohexane	Liver	--	RNA	RNA	--
			Dieldrin	Liver	--	RNA	RNA	--
			Heptachlor	Liver	--	RNA	RNA	--
			Heptachlor Epoxide	Liver	--	RNA	RNA	--
			Total Chlordanes	Liver	--	RNA	RNA	--
			Total DDX	Liver	1	RNA	RNA	--
			Fish Tissue Hazard Index Total =					9000
			Receptor Hazard Index =					9000
			Blood Hazard Index =					--
			Skin Hazard Index =					9000
			CNS Hazard Index =					--
			Whole Body Hazard Index =					--
			Liver Hazard Index =					--
			Immological Hazard Index =					9000
			Reproduction Hazard Index =					--
			Kidney Hazard Index =					--
Sediment	Breast Milk	Breastfeeding from Adult with Direct Contact of on-site sediment RM 8 East						
			Sediment Hazard Index Total = < 1					
Fish Tissue	Breast Milk	Breastfeeding from Adult consumption of Whole body Fish Tissue On-site (175 g/day) Ingestion						
			Antimony	Blood	--	RNA	RNA	--
			Arsenic	Skin/Blood	--	RNA	RNA	--
			Chromium		--	RNA	RNA	--
			Mercury	CNS	--	RNA	RNA	--
			cPAHs		--	--	--	--
			Bis(2-ethylhexyl)phthalate	Liver	--	RNA	RNA	--
			Hexachlorobenzene	Liver	--	RNA	RNA	--
			Total PCBs	Skin/Immunological	9000	RNA	RNA	9000
			Total Dioxin/Furan TEQ	Reproduction	10	RNA	RNA	10
			Total PCB TEQ	Reproduction	30	RNA	RNA	30
			Aldrin	Liver	--	RNA	RNA	--
			alpha-Hexachlorocyclohexane	Liver	--	RNA	RNA	--
			beta-Hexachlorocyclohexane	Liver	--	RNA	RNA	--
			Dieldrin	Liver	--	RNA	RNA	--
			Heptachlor	Liver	--	RNA	RNA	--
			Heptachlor Epoxide	Liver	--	RNA	RNA	--
			Total Chlordanes	Liver	--	RNA	RNA	--
			Total DDX	Liver	1	RNA	RNA	--
			Fish Tissue Hazard Index Total =					9000
			Receptor Hazard Index =					9000
			Blood Hazard Index =					--
			Skin Hazard Index =					9000
			CNS Hazard Index =					--
			Whole Body Hazard Index =					--
			Liver Hazard Index =					--
			Immological Hazard Index =					9000
			Reproduction Hazard Index =					--
			Kidney Hazard Index =					--

Table 5-94 Risk Characterization Summary, Noncancer Hazards - Breastfeeding Infant of Tribal Fisher, Reasonable Maximum Exposure									
Risk Characterization Summary - Non-Carcinogens									
Scenario Timeframe: Current/Future									
Receptor Population: Tribal									
Receptor Age: Infant									
Medium	Exposure Medium	Exposure Point	Chemical of Concern	Primary Target Organ	Non-Carcinogens Hazard Quotient			Exposure Routes Total	
					Ingestion	Inhalation	Dermal		
Sediment	Breast Milk	Breastfeeding from Adult with Direct Contact of on-site sediment Ingestion SIL							
			Sediment Hazard Index Total = < 1						
Fish Tissue	Breast Milk	Breastfeeding from Adult consumption of Whole body Fish Tissue On-site (175 g/day) Ingestion							
			Antimony	Blood	--	RNA	RNA	--	
			Arsenic	Skin/Blood	--	RNA	RNA	--	
			Chromium		--	RNA	RNA	--	
			Mercury	CNS	--	RNA	RNA	--	
			cPAHs		--	--	--	--	
			Bis(2-ethylhexyl)phthalate	Liver	--	RNA	RNA	--	
			Hexachlorobenzene	Liver	--	RNA	RNA	--	
			Total PCBs	Skin/Immunological	9000	RNA	RNA	9000	
			Total Dioxin/Furan TEQ	Reproduction	10	RNA	RNA	10	
			Total PCB TEQ	Reproduction	30	RNA	RNA	30	
			Aldrin	Liver	--	RNA	RNA	--	
			alpha-Hexachlorocyclohexane	Liver	--	RNA	RNA	--	
			beta-Hexachlorocyclohexane	Liver	--	RNA	RNA	--	
			Dieldrin	Liver	--	RNA	RNA	--	
			Heptachlor	Liver	--	RNA	RNA	--	
			Heptachlor Epoxide	Liver	--	RNA	RNA	--	
			Total Chlordanes	Liver	--	RNA	RNA	--	
			Total DDx	Liver	1	RNA	RNA	--	
			Fish Tissue Hazard Index Total =					9000	
			Receptor Hazard Index =					9000	
			Blood Hazard Index =					--	
			Skin Hazard Index =					9000	
			CNS Hazard Index =					--	
			Whole Body Hazard Index =					--	
			Liver Hazard Index =					--	
			Immological Hazard Index =					9000	
			Reproduction Hazard Index =					--	
			Kidney Hazard Index =					--	
Sediment	Breast Milk	Breastfeeding from Adult with Direct Contact of on-site sediment Ingestion RM 8.5 East							
			Sediment Hazard Index Total = < 1						
Fish Tissue	Breast Milk	Breastfeeding from Adult consumption of Whole body Fish Tissue On-site (175 g/day) Ingestion							
			Antimony	Blood	--	RNA	RNA	--	
			Arsenic	Skin/Blood	--	RNA	RNA	--	
			Chromium		--	RNA	RNA	--	
			Mercury	CNS	--	RNA	RNA	--	
			cPAHs		--	--	--	--	
			Bis(2-ethylhexyl)phthalate	Liver	--	RNA	RNA	--	
			Hexachlorobenzene	Liver	--	RNA	RNA	--	
			Total PCBs	Skin/Immunological	9000	RNA	RNA	9000	
			Total Dioxin/Furan TEQ	Reproduction	10	RNA	RNA	10	
			Total PCB TEQ	Reproduction	30	RNA	RNA	30	
			Aldrin	Liver	--	RNA	RNA	--	
			alpha-Hexachlorocyclohexane	Liver	--	RNA	RNA	--	
			beta-Hexachlorocyclohexane	Liver	--	RNA	RNA	--	
			Dieldrin	Liver	--	RNA	RNA	--	
			Heptachlor	Liver	--	RNA	RNA	--	
			Heptachlor Epoxide	Liver	--	RNA	RNA	--	
			Total Chlordanes	Liver	--	RNA	RNA	--	
			Total DDx	Liver	1	RNA	RNA	--	
			Fish Tissue Hazard Index Total =					9000	
			Receptor Hazard Index =					9000	
			Blood Hazard Index =					--	
			Skin Hazard Index =					9000	
			CNS Hazard Index =					--	
			Whole Body Hazard Index =					--	
			Liver Hazard Index =					--	
			Immological Hazard Index =					9000	
			Reproduction Hazard Index =					--	
			Kidney Hazard Index =					--	

Table 5-94 Risk Characterization Summary, Noncancer Hazards - Breastfeeding Infant of Tribal Fisher, Reasonable Maximum Exposure								
Risk Characterization Summary - Non-Carcinogens								
Scenario Timeframe: Current/Future								
Receptor Population: Tribal								
Receptor Age: Infant								
Medium	Exposure Medium	Exposure Point	Chemical of Concern	Primary Target Organ	Non-Carcinogens Hazard Quotient			Exposure Routes Total
					Ingestion	Inhalation	Dermal	
Sediment	Breast Milk	Breastfeeding from Adult with Direct Contact of on-site sediment RM 9 East						
			Sediment Hazard Index Total = < 1					
Fish Tissue	Breast Milk	Breastfeeding from Adult consumption of Whole body Fish Tissue On-site (175 g/day) Ingestion						
			Antimony	Blood	--	RNA	RNA	--
			Arsenic	Skin/Blood	--	RNA	RNA	--
			Chromium		--	RNA	RNA	--
			Mercury	CNS	--	RNA	RNA	--
			cPAHs		--	--	--	--
			Bis(2-ethylhexyl)phthalate	Liver	--	RNA	RNA	--
			Hexachlorobenzene	Liver	--	RNA	RNA	--
			Total PCBs	Skin/Immunological	9000	RNA	RNA	9000
			Total Dioxin/Furan TEQ	Reproduction	10	RNA	RNA	10
			Total PCB TEQ	Reproduction	30	RNA	RNA	30
			Aldrin	Liver	--	RNA	RNA	--
			alpha-Hexachlorocyclohexane	Liver	--	RNA	RNA	--
			beta-Hexachlorocyclohexane	Liver	--	RNA	RNA	--
			Dieldrin	Liver	--	RNA	RNA	--
			Heptachlor	Liver	--	RNA	RNA	--
			Heptachlor Epoxide	Liver	--	RNA	RNA	--
			Total Chlordanes	Liver	--	RNA	RNA	--
			Total DDX	Liver	1	RNA	RNA	--
					Fish Tissue Hazard Index Total =			9000
					Receptor Hazard Index =			9000
					Blood Hazard Index =			--
					Skin Hazard Index =			9000
					CNS Hazard Index =			--
					Whole Body Hazard Index =			--
					Liver Hazard Index =			--
					Immological Hazard Index =			9000
					Reproduction Hazard Index =			--
					Kidney Hazard Index =			--
Sediment	Breast Milk	Breastfeeding from Adult with Direct Contact of on-site sediment RM 9.5 East						
			Sediment Hazard Index Total = < 1					
Fish Tissue	Breast Milk	Breastfeeding from Adult consumption of Whole body Fish Tissue On-site (175 g/day) Ingestion						
			Antimony	Blood	--	RNA	RNA	--
			Arsenic	Skin/Blood	--	RNA	RNA	--
			Chromium		--	RNA	RNA	--
			Mercury	CNS	--	RNA	RNA	--
			cPAHs		--	--	--	--
			Bis(2-ethylhexyl)phthalate	Liver	--	RNA	RNA	--
			Hexachlorobenzene	Liver	--	RNA	RNA	--
			Total PCBs	Skin/Immunological	9000	RNA	RNA	9000
			Total Dioxin/Furan TEQ	Reproduction	10	RNA	RNA	10
			Total PCB TEQ	Reproduction	30	RNA	RNA	30
			Aldrin	Liver	--	RNA	RNA	--
			alpha-Hexachlorocyclohexane	Liver	--	RNA	RNA	--
			beta-Hexachlorocyclohexane	Liver	--	RNA	RNA	--
			Dieldrin	Liver	--	RNA	RNA	--
			Heptachlor	Liver	--	RNA	RNA	--
			Heptachlor Epoxide	Liver	--	RNA	RNA	--
			Total Chlordanes	Liver	--	RNA	RNA	--
			Total DDX	Liver	1	RNA	RNA	--
					Fish Tissue Hazard Index Total =			9000
					Receptor Hazard Index =			9000
					Blood Hazard Index =			--
					Skin Hazard Index =			9000
					CNS Hazard Index =			--
					Whole Body Hazard Index =			--
					Liver Hazard Index =			--
					Immological Hazard Index =			9000
					Reproduction Hazard Index =			--
					Kidney Hazard Index =			--

Table 5-94 Risk Characterization Summary, Noncancer Hazards - Breastfeeding Infant of Tribal Fisher, Reasonable Maximum Exposure									
Risk Characterization Summary - Non-Carcinogens									
Scenario Timeframe: Current/Future									
Receptor Population: Tribal									
Receptor Age: Infant									
Medium	Exposure Medium	Exposure Point	Chemical of Concern	Primary Target Organ	Non-Carcinogens Hazard Quotient			Exposure Routes Total	
					Ingestion	Inhalation	Dermal		
Sediment	Breast Milk	Breastfeeding from Adult with Direct Contact of on-site sediment RM 10 East							
			Sediment Hazard Index Total = < 1						
Fish Tissue	Breast Milk	Breastfeeding from Adult consumption of Whole body Fish Tissue On-site (175 g/day) Ingestion							
			Antimony	Blood	--	RNA	RNA	--	
			Arsenic	Skin/Blood	--	RNA	RNA	--	
			Chromium		--	RNA	RNA	--	
			Mercury	CNS	--	RNA	RNA	--	
			cPAHs		--	--	--	--	
			Bis(2-ethylhexyl)phthalate	Liver	--	RNA	RNA	--	
			Hexachlorobenzene	Liver	--	RNA	RNA	--	
			Total PCBs	Skin/Immunological	9000	RNA	RNA	9000	
			Total Dioxin/Furan TEQ	Reproduction	10	RNA	RNA	10	
			Total PCB TEQ	Reproduction	30	RNA	RNA	30	
			Aldrin	Liver	--	RNA	RNA	--	
			alpha-Hexachlorocyclohexane	Liver	--	RNA	RNA	--	
			beta-Hexachlorocyclohexane	Liver	--	RNA	RNA	--	
			Dieldrin	Liver	--	RNA	RNA	--	
			Heptachlor	Liver	--	RNA	RNA	--	
			Heptachlor Epoxide	Liver	--	RNA	RNA	--	
			Total Chlordanes	Liver	--	RNA	RNA	--	
			Total DDX	Liver	1	RNA	RNA	--	
			Fish Tissue Hazard Index Total =					9000	
			Receptor Hazard Index =					9000	
			Blood Hazard Index =					--	
			Skin Hazard Index =					9000	
			CNS Hazard Index =					--	
			Whole Body Hazard Index =					--	
			Liver Hazard Index =					--	
			Immological Hazard Index =					9000	
			Reproduction Hazard Index =					--	
			Kidney Hazard Index =					--	
Sediment	Breast Milk	Breastfeeding from Adult with Direct Contact of on-site sediment RM 10.5 East							
			Sediment Hazard Index Total = < 1						
Fish Tissue	Breast Milk	Breastfeeding from Adult consumption of Whole body Fish Tissue On-site (175 g/day) Ingestion							
			Antimony	Blood	--	RNA	RNA	--	
			Arsenic	Skin/Blood	--	RNA	RNA	--	
			Chromium		--	RNA	RNA	--	
			Mercury	CNS	--	RNA	RNA	--	
			cPAHs		--	--	--	--	
			Bis(2-ethylhexyl)phthalate	Liver	--	RNA	RNA	--	
			Hexachlorobenzene	Liver	--	RNA	RNA	--	
			Total PCBs	Skin/Immunological	9000	RNA	RNA	9000	
			Total Dioxin/Furan TEQ	Reproduction	10	RNA	RNA	10	
			Total PCB TEQ	Reproduction	30	RNA	RNA	30	
			Aldrin	Liver	--	RNA	RNA	--	
			alpha-Hexachlorocyclohexane	Liver	--	RNA	RNA	--	
			beta-Hexachlorocyclohexane	Liver	--	RNA	RNA	--	
			Dieldrin	Liver	--	RNA	RNA	--	
			Heptachlor	Liver	--	RNA	RNA	--	
			Heptachlor Epoxide	Liver	--	RNA	RNA	--	
			Total Chlordanes	Liver	--	RNA	RNA	--	
			Total DDX	Liver	1	RNA	RNA	--	
			Fish Tissue Hazard Index Total =					9000	
			Receptor Hazard Index =					9000	
			Blood Hazard Index =					--	
			Skin Hazard Index =					9000	
			CNS Hazard Index =					--	
			Whole Body Hazard Index =					--	
			Liver Hazard Index =					--	
			Immological Hazard Index =					9000	
			Reproduction Hazard Index =					--	
			Kidney Hazard Index =					--	

Table 5-94 Risk Characterization Summary, Noncancer Hazards - Breastfeeding Infant of Tribal Fisher, Reasonable Maximum Exposure										
Risk Characterization Summary - Non-Carcinogens										
Scenario Timeframe: Current/Future										
Receptor Population: Tribal										
Receptor Age: Infant										
Medium	Exposure Medium	Exposure Point	Chemical of Concern	Primary Target Organ	Non-Carcinogens Hazard Quotient			Exposure Routes Total		
					Ingestion	Inhalation	Dermal			
Sediment	Breast Milk	Breastfeeding from Adult with Direct Contact of on-site sediment RM 11 East	Antimony	Blood	NA	RNA	RNA	0		
			Arsenic	Skin/Blood	--	--	--	--		
			cPAHs		--	--	--	--		
			Total PCBs	Skin/Immunological	2	RNA	RNA	2		
			Total Dioxin/Furan TEQ	Reproduction	<1	RNA	RNA	0		
			Total PCB TEQ	Reproduction	<1	RNA	RNA	0		
			Sediment Hazard Index Total =							2
Fish Tissue	Breast Milk	Breastfeeding from Adult consumption of Whole body Fish Tissue On-site (175 g/day) Ingestion	Antimony	Blood	--	RNA	RNA	--		
			Arsenic	Skin/Blood	--	RNA	RNA	--		
			Chromium		--	RNA	RNA	--		
			Mercury	CNS	--	RNA	RNA	--		
			cPAHs		--	--	--	--		
			Bis(2-ethylhexyl)phthalate	Liver	--	RNA	RNA	--		
			Hexachlorobenzene	Liver	--	RNA	RNA	--		
			Total PCBs	Skin/Immunological	9000	RNA	RNA	9000		
			Total Dioxin/Furan TEQ	Reproduction	10	RNA	RNA	10		
			Total PCB TEQ	Reproduction	30	RNA	RNA	30		
			Aldrin	Liver	--	RNA	RNA	--		
			alpha-Hexachlorocyclohexane	Liver	--	RNA	RNA	--		
			beta-Hexachlorocyclohexane	Liver	--	RNA	RNA	--		
			Dieldrin	Liver	--	RNA	RNA	--		
			Heptachlor	Liver	--	RNA	RNA	--		
			Heptachlor Epoxide	Liver	--	RNA	RNA	--		
			Total Chlordanes	Liver	--	RNA	RNA	--		
			Total DDx	Liver	1	RNA	RNA	--		
			Fish Tissue Hazard Index Total =							9000
			Receptor Hazard Index =							9000
			Blood Hazard Index =							--
			Skin Hazard Index =							9000
			CNS Hazard Index =							--
Whole Body Hazard Index =							--			
Liver Hazard Index =							--			
Immological Hazard Index =							9000			
Reproduction Hazard Index =							--			
Kidney Hazard Index =							--			
Sediment	Breast Milk	Breastfeeding from Adult with Direct Contact of on-site sediment RM 11.5 East						Sediment Hazard Index Total =	< 1	
Fish Tissue	Breast Milk	Breastfeeding from Adult consumption of Whole body Fish Tissue On-site (175 g/day) Ingestion	Antimony	Blood	--	RNA	RNA	--		
			Arsenic	Skin/Blood	--	RNA	RNA	--		
			Chromium		--	RNA	RNA	--		
			Mercury	CNS	--	RNA	RNA	--		
			cPAHs		--	--	--	--		
			Bis(2-ethylhexyl)phthalate	Liver	--	RNA	RNA	--		
			Hexachlorobenzene	Liver	--	RNA	RNA	--		
			Total PCBs	Skin/Immunological	9000	RNA	RNA	9000		
			Total Dioxin/Furan TEQ	Reproduction	10	RNA	RNA	10		
			Total PCB TEQ	Reproduction	30	RNA	RNA	30		
			Aldrin	Liver	--	RNA	RNA	--		
			alpha-Hexachlorocyclohexane	Liver	--	RNA	RNA	--		
			beta-Hexachlorocyclohexane	Liver	--	RNA	RNA	--		
			Dieldrin	Liver	--	RNA	RNA	--		
			Heptachlor	Liver	--	RNA	RNA	--		
			Heptachlor Epoxide	Liver	--	RNA	RNA	--		
			Total Chlordanes	Liver	--	RNA	RNA	--		
			Total DDx	Liver	1	RNA	RNA	--		
			Fish Tissue Hazard Index Total =							9000
			Receptor Hazard Index =							9000
			Blood Hazard Index =							--
			Skin Hazard Index =							9000
			CNS Hazard Index =							--
Whole Body Hazard Index =							--			
Liver Hazard Index =							--			
Immological Hazard Index =							9000			
Reproduction Hazard Index =							--			
Kidney Hazard Index =							--			

Table 5-94 Risk Characterization Summary, Noncancer Hazards - Breastfeeding Infant of Tribal Fisher, Reasonable Maximum Exposure								
Risk Characterization Summary - Non-Carcinogens								
Scenario Timeframe: Current/Future								
Receptor Population: Tribal								
Receptor Age: Infant								
Medium	Exposure Medium	Exposure Point	Chemical of Concern	Primary Target Organ	Non-Carcinogens Hazard Quotient			Exposure Routes Total
					Ingestion	Inhalation	Dermal	
Sediment	Breast Milk	Breastfeeding from Adult with Direct Contact of on-site sediment RM 12 East						
			Sediment Hazard Index Total = < 1					
Fish Tissue	Breast Milk	Breastfeeding from Adult consumption of Whole body Fish Tissue On-site (175 g/day) Ingestion						
			Antimony	Blood	--	RNA	RNA	--
			Arsenic	Skin/Blood	--	RNA	RNA	--
			Chromium		--	RNA	RNA	--
			Mercury	CNS	--	RNA	RNA	--
			cPAHs		--	--	--	--
			Bis(2-ethylhexyl)phthalate	Liver	--	RNA	RNA	--
			Hexachlorobenzene	Liver	--	RNA	RNA	--
			Total PCBs	Skin/Immunological	9000	RNA	RNA	9000
			Total Dioxin/Furan TEQ	Reproduction	10	RNA	RNA	10
			Total PCB TEQ	Reproduction	30	RNA	RNA	30
			Aldrin	Liver	--	RNA	RNA	--
			alpha-Hexachlorocyclohexane	Liver	--	RNA	RNA	--
			beta-Hexachlorocyclohexane	Liver	--	RNA	RNA	--
			Dieldrin	Liver	--	RNA	RNA	--
			Heptachlor	Liver	--	RNA	RNA	--
			Heptachlor Epoxide	Liver	--	RNA	RNA	--
			Total Chlordanes	Liver	--	RNA	RNA	--
			Total DDX	Liver	1	RNA	RNA	--
			Fish Tissue Hazard Index Total =					9000
			Receptor Hazard Index =					9000
			Blood Hazard Index =					--
			Skin Hazard Index =					9000
			CNS Hazard Index =					--
			Whole Body Hazard Index =					--
			Liver Hazard Index =					--
			Immological Hazard Index =					9000
			Reproduction Hazard Index =					--
			Kidney Hazard Index =					--
Sediment	Breast Milk	Breastfeeding from Adult with Direct Contact of on-site sediment Study Area-wide						
			Sediment Hazard Index Total = < 1					
Fish Tissue	Breast Milk	Breastfeeding from Adult consumption of Whole body Fish Tissue On-site (175 g/day) Ingestion						
			Antimony	Blood	--	RNA	RNA	--
			Arsenic	Skin/Blood	--	RNA	RNA	--
			Chromium		--	RNA	RNA	--
			Mercury	CNS	--	RNA	RNA	--
			cPAHs		--	--	--	--
			Bis(2-ethylhexyl)phthalate	Liver	--	RNA	RNA	--
			Hexachlorobenzene	Liver	--	RNA	RNA	--
			Total PCBs	Skin/Immunological	9000	RNA	RNA	9000
			Total Dioxin/Furan TEQ	Reproduction	10	RNA	RNA	10
			Total PCB TEQ	Reproduction	30	RNA	RNA	30
			Aldrin	Liver	--	RNA	RNA	--
			alpha-Hexachlorocyclohexane	Liver	--	RNA	RNA	--
			beta-Hexachlorocyclohexane	Liver	--	RNA	RNA	--
			Dieldrin	Liver	--	RNA	RNA	--
			Heptachlor	Liver	--	RNA	RNA	--
			Heptachlor Epoxide	Liver	--	RNA	RNA	--
			Total Chlordanes	Liver	--	RNA	RNA	--
			Total DDX	Liver	1	RNA	RNA	--
			Fish Tissue Hazard Index Total =					9000
			Receptor Hazard Index =					9000
			Blood Hazard Index =					--
			Skin Hazard Index =					9000
			CNS Hazard Index =					--
			Whole Body Hazard Index =					--
			Liver Hazard Index =					--
			Immological Hazard Index =					9000
			Reproduction Hazard Index =					--
			Kidney Hazard Index =					--

<b>Key</b>	
SIL	Swan Island Lagoon
RM	River Mile
CNS	Central Nervous System
--	Toxicity criteria are not available to quantitatively address this route of exposure.
RNA	Route of exposure is not applicable to this medium.

Table 5-94 Risk Characterization Summary, Noncancer Hazards - Breastfeeding Infant of Tribal Fisher, Reasonable Maximum Exposure								
Risk Characterization Summary - Non-Carcinogens								
Scenario Timeframe: Current/Future								
Receptor Population: Tribal								
Receptor Age: Infant								
Medium	Exposure Medium	Exposure Point	Chemical of Concern	Primary Target Organ	Non-Carcinogens Hazard Quotient			Exposure Routes Total
					Ingestion	Inhalation	Dermal	
Sediment	Breast Milk	Breastfeeding from Adult with Direct Contact of on-site sediment RM 1 West						
								Sediment Hazard Index Total = < 1
Fish Tissue	Breast Milk	Breastfeeding from Adult consumption of Fillet Fish Tissue On-site (175 g/day) Ingestion						
			Antimony	Blood	--	RNA	RNA	--
			Arsenic	Skin/Blood	--	RNA	RNA	--
			Chromium		--	RNA	RNA	--
			Mercury	CNS	--	RNA	RNA	--
			cPAHs		--	--	--	--
			Bis(2-ethylhexyl)phthalate	Liver	--	RNA	RNA	--
			Hexachlorobenzene	Liver	--	RNA	RNA	--
			Total PCBs	Skin/Immunological	8000	RNA	RNA	8000
			Total Dioxin/Furan TEQ	Reproduction	5	RNA	RNA	5
			Total PCB TEQ	Reproduction	8	RNA	RNA	8
			Aldrin	Liver	--	RNA	RNA	--
			alpha-Hexachlorocyclohexane	Liver	--	RNA	RNA	--
			beta-Hexachlorocyclohexane	Liver	--	RNA	RNA	--
			Dieldrin	Liver	--	RNA	RNA	--
			Heptachlor	Liver	--	RNA	RNA	--
			Heptachlor Epoxide	Liver	--	RNA	RNA	--
			Total Chlordanes	Liver	--	RNA	RNA	--
			Total DDX	Liver	0.6	RNA	RNA	0.6
								Fish Tissue Hazard Index Total = 8000
								Receptor Hazard Index = 8000
								Blood Hazard Index = --
								Skin Hazard Index = 8000
								CNS Hazard Index = --
								Whole Body Hazard Index = --
								Liver Hazard Index = --
								Immological Hazard Index = 8000
								Reproduction Hazard Index = 10
								Kidney Hazard Index = --
Sediment	Breast Milk	Breastfeeding from Adult with Direct Contact of on-site sediment RM 1.5 West						
								Sediment Hazard Index Total = < 1
Fish Tissue	Breast Milk	Breastfeeding from Adult consumption of Fillet Fish Tissue On-site (175 g/day) Ingestion						
			Antimony	Blood	--	RNA	RNA	--
			Arsenic	Skin/Blood	--	RNA	RNA	--
			Chromium		--	RNA	RNA	--
			Mercury	CNS	--	RNA	RNA	--
			cPAHs		--	--	--	--
			Bis(2-ethylhexyl)phthalate	Liver	--	RNA	RNA	--
			Hexachlorobenzene	Liver	--	RNA	RNA	--
			Total PCBs	Skin/Immunological	8000	RNA	RNA	8000
			Total Dioxin/Furan TEQ	Reproduction	5	RNA	RNA	5
			Total PCB TEQ	Reproduction	8	RNA	RNA	8
			Aldrin	Liver	--	RNA	RNA	--
			alpha-Hexachlorocyclohexane	Liver	--	RNA	RNA	--
			beta-Hexachlorocyclohexane	Liver	--	RNA	RNA	--
			Dieldrin	Liver	--	RNA	RNA	--
			Heptachlor	Liver	--	RNA	RNA	--
			Heptachlor Epoxide	Liver	--	RNA	RNA	--
			Total Chlordanes	Liver	--	RNA	RNA	--
			Total DDX	Liver	0.6	RNA	RNA	0.6
								Fish Tissue Hazard Index Total = 8000
								Receptor Hazard Index = 8000
								Blood Hazard Index = --
								Skin Hazard Index = 8000
								CNS Hazard Index = --
								Whole Body Hazard Index = --
								Liver Hazard Index = --
								Immological Hazard Index = 8000
								Reproduction Hazard Index = 10
								Kidney Hazard Index = --

Table 5-94 Risk Characterization Summary, Noncancer Hazards - Breastfeeding Infant of Tribal Fisher, Reasonable Maximum Exposure								
Risk Characterization Summary - Non-Carcinogens								
Scenario Timeframe: Current/Future								
Receptor Population: Tribal								
Receptor Age: Infant								
Medium	Exposure Medium	Exposure Point	Chemical of Concern	Primary Target Organ	Non-Carcinogens Hazard Quotient			Exposure Routes Total
					Ingestion	Inhalation	Dermal	
Sediment	Breast Milk	Breastfeeding from Adult with Direct Contact of on-site sediment RM 2 West						
								Sediment Hazard Index Total = < 1
Fish Tissue	Breast Milk	Breastfeeding from Adult consumption of Fillet Fish Tissue On-site (175 g/day) Ingestion						
			Antimony	Blood	--	RNA	RNA	--
			Arsenic	Skin/Blood	--	RNA	RNA	--
			Chromium		--	RNA	RNA	--
			Mercury	CNS	--	RNA	RNA	--
			cPAHs		--	--	--	--
			Bis(2-ethylhexyl)phthalate	Liver	--	RNA	RNA	--
			Hexachlorobenzene	Liver	--	RNA	RNA	--
			Total PCBs	Skin/Immunological	8000	RNA	RNA	8000
			Total Dioxin/Furan TEQ	Reproduction	5	RNA	RNA	5
			Total PCB TEQ	Reproduction	8	RNA	RNA	8
			Aldrin	Liver	--	RNA	RNA	--
			alpha-Hexachlorocyclohexane	Liver	--	RNA	RNA	--
			beta-Hexachlorocyclohexane	Liver	--	RNA	RNA	--
			Dieldrin	Liver	--	RNA	RNA	--
			Heptachlor	Liver	--	RNA	RNA	--
			Heptachlor Epoxide	Liver	--	RNA	RNA	--
			Total Chlordanes	Liver	--	RNA	RNA	--
			Total DDx	Liver	0.6	RNA	RNA	0.6
								Fish Tissue Hazard Index Total = 8000
								Receptor Hazard Index = 8000
								Blood Hazard Index = --
								Skin Hazard Index = 8000
								CNS Hazard Index = --
								Whole Body Hazard Index = --
								Liver Hazard Index = --
								Immunological Hazard Index = 8000
								Reproduction Hazard Index = 10
								Kidney Hazard Index = --
Sediment	Breast Milk	Breastfeeding from Adult with Direct Contact of on-site sediment RM 2.5 West						
								Sediment Hazard Index Total = < 1
Fish Tissue	Breast Milk	Breastfeeding from Adult consumption of Fillet Fish Tissue On-site (175 g/day) Ingestion						
			Antimony	Blood	--	RNA	RNA	--
			Arsenic	Skin/Blood	--	RNA	RNA	--
			Chromium		--	RNA	RNA	--
			Mercury	CNS	--	RNA	RNA	--
			cPAHs		--	--	--	--
			Bis(2-ethylhexyl)phthalate	Liver	--	RNA	RNA	--
			Hexachlorobenzene	Liver	--	RNA	RNA	--
			Total PCBs	Skin/Immunological	8000	RNA	RNA	8000
			Total Dioxin/Furan TEQ	Reproduction	5	RNA	RNA	5
			Total PCB TEQ	Reproduction	8	RNA	RNA	8
			Aldrin	Liver	--	RNA	RNA	--
			alpha-Hexachlorocyclohexane	Liver	--	RNA	RNA	--
			beta-Hexachlorocyclohexane	Liver	--	RNA	RNA	--
			Dieldrin	Liver	--	RNA	RNA	--
			Heptachlor	Liver	--	RNA	RNA	--
			Heptachlor Epoxide	Liver	--	RNA	RNA	--
			Total Chlordanes	Liver	--	RNA	RNA	--
			Total DDx	Liver	0.6	RNA	RNA	0.6
								Fish Tissue Hazard Index Total = 8000
								Receptor Hazard Index = 8000
								Blood Hazard Index = --
								Skin Hazard Index = 8000
								CNS Hazard Index = --
								Whole Body Hazard Index = --
								Liver Hazard Index = --
								Immunological Hazard Index = 8000
								Reproduction Hazard Index = 10
								Kidney Hazard Index = --



Table 5-94 Risk Characterization Summary, Noncancer Hazards - Breastfeeding Infant of Tribal Fisher, Reasonable Maximum Exposure								
Risk Characterization Summary - Non-Carcinogens								
Scenario Timeframe:		Current/Future						
Receptor Population:		Tribal						
Receptor Age:		Infant						
Medium	Exposure Medium	Exposure Point	Chemical of Concern	Primary Target Organ	Non-Carcinogens Hazard Quotient			Exposure Routes Total
					Ingestion	Inhalation	Dermal	
Sediment	Breast Milk	Breastfeeding from Adult with Direct Contact of on-site sediment RM 3 West						
								Sediment Hazard Index Total = < 1
Fish Tissue	Breast Milk	Breastfeeding from Adult consumption of Fillet Fish Tissue On-site (175 g/day) Ingestion						
			Antimony	Blood	--	RNA	RNA	--
			Arsenic	Skin/Blood	--	RNA	RNA	--
			Chromium		--	RNA	RNA	--
			Mercury	CNS	--	RNA	RNA	--
			cPAHs		--	--	--	--
			Bis(2-ethylhexyl)phthalate	Liver	--	RNA	RNA	--
			Hexachlorobenzene	Liver	--	RNA	RNA	--
			Total PCBs	Skin/Immunological	8000	RNA	RNA	8000
			Total Dioxin/Furan TEQ	Reproduction	5	RNA	RNA	5
			Total PCB TEQ	Reproduction	8	RNA	RNA	8
			Aldrin	Liver	--	RNA	RNA	--
			alpha-Hexachlorocyclohexane	Liver	--	RNA	RNA	--
			beta-Hexachlorocyclohexane	Liver	--	RNA	RNA	--
			Dieldrin	Liver	--	RNA	RNA	--
			Heptachlor	Liver	--	RNA	RNA	--
			Heptachlor Epoxide	Liver	--	RNA	RNA	--
			Total Chlordanes	Liver	--	RNA	RNA	--
			Total DDX	Liver	0.6	RNA	RNA	0.6
								Fish Tissue Hazard Index Total = 8000
								Receptor Hazard Index = 8000
								Blood Hazard Index = --
								Skin Hazard Index = 8000
								CNS Hazard Index = --
								Whole Body Hazard Index = --
								Liver Hazard Index = --
								Immological Hazard Index = 8000
								Reproduction Hazard Index = 10
								Kidney Hazard Index = --
Sediment	Breast Milk	Breastfeeding from Adult with Direct Contact of on-site sediment RM 3.5 West						
								Sediment Hazard Index Total = < 1
Fish Tissue	Breast Milk	Breastfeeding from Adult consumption of Fillet Fish Tissue On-site (175 g/day) Ingestion						
			Antimony	Blood	--	RNA	RNA	--
			Arsenic	Skin/Blood	--	RNA	RNA	--
			Chromium		--	RNA	RNA	--
			Mercury	CNS	--	RNA	RNA	--
			cPAHs		--	--	--	--
			Bis(2-ethylhexyl)phthalate	Liver	--	RNA	RNA	--
			Hexachlorobenzene	Liver	--	RNA	RNA	--
			Total PCBs	Skin/Immunological	8000	RNA	RNA	8000
			Total Dioxin/Furan TEQ	Reproduction	5	RNA	RNA	5
			Total PCB TEQ	Reproduction	8	RNA	RNA	8
			Aldrin	Liver	--	RNA	RNA	--
			alpha-Hexachlorocyclohexane	Liver	--	RNA	RNA	--
			beta-Hexachlorocyclohexane	Liver	--	RNA	RNA	--
			Dieldrin	Liver	--	RNA	RNA	--
			Heptachlor	Liver	--	RNA	RNA	--
			Heptachlor Epoxide	Liver	--	RNA	RNA	--
			Total Chlordanes	Liver	--	RNA	RNA	--
			Total DDX	Liver	0.6	RNA	RNA	0.6
								Fish Tissue Hazard Index Total = 8000
								Receptor Hazard Index = 8000
								Blood Hazard Index = --
								Skin Hazard Index = 8000
								CNS Hazard Index = --
								Whole Body Hazard Index = --
								Liver Hazard Index = --
								Immological Hazard Index = 8000
								Reproduction Hazard Index = 10
								Kidney Hazard Index = --

Table 5-94 Risk Characterization Summary, Noncancer Hazards - Breastfeeding Infant of Tribal Fisher, Reasonable Maximum Exposure								
Risk Characterization Summary - Non-Carcinogens								
Scenario Timeframe:		Current/Future						
Receptor Population:		Tribal						
Receptor Age:		Infant						
Medium	Exposure Medium	Exposure Point	Chemical of Concern	Primary Target Organ	Non-Carcinogens Hazard Quotient			Exposure Routes Total
					Ingestion	Inhalation	Dermal	
Sediment	Breast Milk	Breastfeeding from Adult with Direct Contact of on-site sediment RM 4 West						
								Sediment Hazard Index Total = < 1
Fish Tissue	Breast Milk	Breastfeeding from Adult consumption of Fillet Fish Tissue On-site (175 g/day) Ingestion						
			Antimony	Blood	--	RNA	RNA	--
			Arsenic	Skin/Blood	--	RNA	RNA	--
			Chromium		--	RNA	RNA	--
			Mercury	CNS	--	RNA	RNA	--
			cPAHs		--	--	--	--
			Bis(2-ethylhexyl)phthalate	Liver	--	RNA	RNA	--
			Hexachlorobenzene	Liver	--	RNA	RNA	--
			Total PCBs	Skin/Immunological	8000	RNA	RNA	8000
			Total Dioxin/Furan TEQ	Reproduction	5	RNA	RNA	5
			Total PCB TEQ	Reproduction	8	RNA	RNA	8
			Aldrin	Liver	--	RNA	RNA	--
			alpha-Hexachlorocyclohexane	Liver	--	RNA	RNA	--
			beta-Hexachlorocyclohexane	Liver	--	RNA	RNA	--
			Dieldrin	Liver	--	RNA	RNA	--
			Heptachlor	Liver	--	RNA	RNA	--
			Heptachlor Epoxide	Liver	--	RNA	RNA	--
			Total Chlordanes	Liver	--	RNA	RNA	--
			Total DDx	Liver	0.6	RNA	RNA	0.6
								Fish Tissue Hazard Index Total = 8000
								Receptor Hazard Index = 8000
								Blood Hazard Index = --
								Skin Hazard Index = 8000
								CNS Hazard Index = --
								Whole Body Hazard Index = --
								Liver Hazard Index = --
								Immunological Hazard Index = 8000
								Reproduction Hazard Index = 10
								Kidney Hazard Index = --
Sediment	Breast Milk	Breastfeeding from Adult with Direct Contact of on-site sediment RM 4.5 West						
								Sediment Hazard Index Total = < 1
Fish Tissue	Breast Milk	Breastfeeding from Adult consumption of Fillet Fish Tissue On-site (175 g/day) Ingestion						
			Antimony	Blood	--	RNA	RNA	--
			Arsenic	Skin/Blood	--	RNA	RNA	--
			Chromium		--	RNA	RNA	--
			Mercury	CNS	--	RNA	RNA	--
			cPAHs		--	--	--	--
			Bis(2-ethylhexyl)phthalate	Liver	--	RNA	RNA	--
			Hexachlorobenzene	Liver	--	RNA	RNA	--
			Total PCBs	Skin/Immunological	8000	RNA	RNA	8000
			Total Dioxin/Furan TEQ	Reproduction	5	RNA	RNA	5
			Total PCB TEQ	Reproduction	8	RNA	RNA	8
			Aldrin	Liver	--	RNA	RNA	--
			alpha-Hexachlorocyclohexane	Liver	--	RNA	RNA	--
			beta-Hexachlorocyclohexane	Liver	--	RNA	RNA	--
			Dieldrin	Liver	--	RNA	RNA	--
			Heptachlor	Liver	--	RNA	RNA	--
			Heptachlor Epoxide	Liver	--	RNA	RNA	--
			Total Chlordanes	Liver	--	RNA	RNA	--
			Total DDx	Liver	0.6	RNA	RNA	0.6
								Fish Tissue Hazard Index Total = 8000
								Receptor Hazard Index = 8000
								Blood Hazard Index = --
								Skin Hazard Index = 8000
								CNS Hazard Index = --
								Whole Body Hazard Index = --
								Liver Hazard Index = --
								Immunological Hazard Index = 8000
								Reproduction Hazard Index = 10
								Kidney Hazard Index = --

Table 5-94 Risk Characterization Summary, Noncancer Hazards - Breastfeeding Infant of Tribal Fisher, Reasonable Maximum Exposure								
Risk Characterization Summary - Non-Carcinogens								
Scenario Timeframe:		Current/Future						
Receptor Population:		Tribal						
Receptor Age:		Infant						
Medium	Exposure Medium	Exposure Point	Chemical of Concern	Primary Target Organ	Non-Carcinogens Hazard Quotient			Exposure Routes Total
					Ingestion	Inhalation	Dermal	
Sediment	Breast Milk	Breastfeeding from Adult with Direct Contact of on-site sediment RM 5 West						
								Sediment Hazard Index Total = < 1
Fish Tissue	Breast Milk	Breastfeeding from Adult consumption of Fillet Fish Tissue On-site (175 g/day) Ingestion						
			Antimony	Blood	--	RNA	RNA	--
			Arsenic	Skin/Blood	--	RNA	RNA	--
			Chromium		--	RNA	RNA	--
			Mercury	CNS	--	RNA	RNA	--
			cPAHs		--	--	--	--
			Bis(2-ethylhexyl)phthalate	Liver	--	RNA	RNA	--
			Hexachlorobenzene	Liver	--	RNA	RNA	--
			Total PCBs	Skin/Immunological	8000	RNA	RNA	8000
			Total Dioxin/Furan TEQ	Reproduction	5	RNA	RNA	5
			Total PCB TEQ	Reproduction	8	RNA	RNA	8
			Aldrin	Liver	--	RNA	RNA	--
			alpha-Hexachlorocyclohexane	Liver	--	RNA	RNA	--
			beta-Hexachlorocyclohexane	Liver	--	RNA	RNA	--
			Dieldrin	Liver	--	RNA	RNA	--
			Heptachlor	Liver	--	RNA	RNA	--
			Heptachlor Epoxide	Liver	--	RNA	RNA	--
			Total Chlordanes	Liver	--	RNA	RNA	--
			Total DDx	Liver	0.6	RNA	RNA	0.6
								Fish Tissue Hazard Index Total = 8000
								Receptor Hazard Index = 8000
								Blood Hazard Index = --
								Skin Hazard Index = 8000
								CNS Hazard Index = --
								Whole Body Hazard Index = --
								Liver Hazard Index = --
								Immunological Hazard Index = 8000
								Reproduction Hazard Index = 10
								Kidney Hazard Index = --
Sediment	Breast Milk	Breastfeeding from Adult with Direct Contact of on-site sediment RM 5.5 West						
								Sediment Hazard Index Total = < 1
Fish Tissue	Breast Milk	Breastfeeding from Adult consumption of Fillet Fish Tissue On-site (175 g/day) Ingestion						
			Antimony	Blood	--	RNA	RNA	--
			Arsenic	Skin/Blood	--	RNA	RNA	--
			Chromium		--	RNA	RNA	--
			Mercury	CNS	--	RNA	RNA	--
			cPAHs		--	--	--	--
			Bis(2-ethylhexyl)phthalate	Liver	--	RNA	RNA	--
			Hexachlorobenzene	Liver	--	RNA	RNA	--
			Total PCBs	Skin/Immunological	8000	RNA	RNA	8000
			Total Dioxin/Furan TEQ	Reproduction	5	RNA	RNA	5
			Total PCB TEQ	Reproduction	8	RNA	RNA	8
			Aldrin	Liver	--	RNA	RNA	--
			alpha-Hexachlorocyclohexane	Liver	--	RNA	RNA	--
			beta-Hexachlorocyclohexane	Liver	--	RNA	RNA	--
			Dieldrin	Liver	--	RNA	RNA	--
			Heptachlor	Liver	--	RNA	RNA	--
			Heptachlor Epoxide	Liver	--	RNA	RNA	--
			Total Chlordanes	Liver	--	RNA	RNA	--
			Total DDx	Liver	0.6	RNA	RNA	0.6
								Fish Tissue Hazard Index Total = 8000
								Receptor Hazard Index = 8000
								Blood Hazard Index = --
								Skin Hazard Index = 8000
								CNS Hazard Index = --
								Whole Body Hazard Index = --
								Liver Hazard Index = --
								Immunological Hazard Index = 8000
								Reproduction Hazard Index = 10
								Kidney Hazard Index = --

Table 5-94 Risk Characterization Summary, Noncancer Hazards - Breastfeeding Infant of Tribal Fisher, Reasonable Maximum Exposure								
Risk Characterization Summary - Non-Carcinogens								
Scenario Timeframe: Current/Future								
Receptor Population: Tribal								
Receptor Age: Infant								
Medium	Exposure Medium	Exposure Point	Chemical of Concern	Primary Target Organ	Non-Carcinogens Hazard Quotient			Exposure Routes Total
					Ingestion	Inhalation	Dermal	
Sediment	Breast Milk	Breastfeeding from Adult with Direct Contact of on-site sediment RM 6 West						
								Sediment Hazard Index Total = < 1
Fish Tissue	Breast Milk	Breastfeeding from Adult consumption of Fillet Fish Tissue On-site (175 g/day) Ingestion						
			Antimony	Blood	--	RNA	RNA	--
			Arsenic	Skin/Blood	--	RNA	RNA	--
			Chromium		--	RNA	RNA	--
			Mercury	CNS	--	RNA	RNA	--
			cPAHs		--	--	--	--
			Bis(2-ethylhexyl)phthalate	Liver	--	RNA	RNA	--
			Hexachlorobenzene	Liver	--	RNA	RNA	--
			Total PCBs	Skin/Immunological	8000	RNA	RNA	8000
			Total Dioxin/Furan TEQ	Reproduction	5	RNA	RNA	5
			Total PCB TEQ	Reproduction	8	RNA	RNA	8
			Aldrin	Liver	--	RNA	RNA	--
			alpha-Hexachlorocyclohexane	Liver	--	RNA	RNA	--
			beta-Hexachlorocyclohexane	Liver	--	RNA	RNA	--
			Dieldrin	Liver	--	RNA	RNA	--
			Heptachlor	Liver	--	RNA	RNA	--
			Heptachlor Epoxide	Liver	--	RNA	RNA	--
			Total Chlordanes	Liver	--	RNA	RNA	--
			Total DDx	Liver	0.6	RNA	RNA	0.6
								Fish Tissue Hazard Index Total = 8000
								Receptor Hazard Index = 8000
								Blood Hazard Index = --
								Skin Hazard Index = 8000
								CNS Hazard Index = --
								Whole Body Hazard Index = --
								Liver Hazard Index = --
								Immunological Hazard Index = 8000
								Reproduction Hazard Index = 10
								Kidney Hazard Index = --
Sediment	Breast Milk	Breastfeeding from Adult with Direct Contact of on-site sediment RM 6 5 West						
								Sediment Hazard Index Total = < 1
Fish Tissue	Breast Milk	Breastfeeding from Adult consumption of Fillet Fish Tissue On-site (175 g/day) Ingestion						
			Antimony	Blood	--	RNA	RNA	--
			Arsenic	Skin/Blood	--	RNA	RNA	--
			Chromium		--	RNA	RNA	--
			Mercury	CNS	--	RNA	RNA	--
			cPAHs		--	--	--	--
			Bis(2-ethylhexyl)phthalate	Liver	--	RNA	RNA	--
			Hexachlorobenzene	Liver	--	RNA	RNA	--
			Total PCBs	Skin/Immunological	8000	RNA	RNA	8000
			Total Dioxin/Furan TEQ	Reproduction	5	RNA	RNA	5
			Total PCB TEQ	Reproduction	8	RNA	RNA	8
			Aldrin	Liver	--	RNA	RNA	--
			alpha-Hexachlorocyclohexane	Liver	--	RNA	RNA	--
			beta-Hexachlorocyclohexane	Liver	--	RNA	RNA	--
			Dieldrin	Liver	--	RNA	RNA	--
			Heptachlor	Liver	--	RNA	RNA	--
			Heptachlor Epoxide	Liver	--	RNA	RNA	--
			Total Chlordanes	Liver	--	RNA	RNA	--
			Total DDx	Liver	0.6	RNA	RNA	0.6
								Fish Tissue Hazard Index Total = 8000
								Receptor Hazard Index = 8000
								Blood Hazard Index = --
								Skin Hazard Index = 8000
								CNS Hazard Index = --
								Whole Body Hazard Index = --
								Liver Hazard Index = --
								Immunological Hazard Index = 8000
								Reproduction Hazard Index = 10
								Kidney Hazard Index = --

Table 5-94 Risk Characterization Summary, Noncancer Hazards - Breastfeeding Infant of Tribal Fisher, Reasonable Maximum Exposure										
Risk Characterization Summary - Non-Carcinogens										
Scenario Timeframe: Current/Future										
Receptor Population: Tribal										
Receptor Age: Infant										
Medium	Exposure Medium	Exposure Point	Chemical of Concern	Primary Target Organ	Non-Carcinogens Hazard Quotient			Exposure Routes Total		
					Ingestion	Inhalation	Dermal			
Sediment	Breast Milk	Breastfeeding from Adult with Direct Contact of on-site sediment Ingestion  RM 7 West	Antimony	Blood	NA	RNA	RNA	0		
			Arsenic	Skin/Blood	--	--	--	--		
			cPAHs		--	--	--	--		
			Total PCBs	Skin/Immunological	<1	RNA	RNA	0		
			Total Dioxin/Furan TEQ	Reproduction	5	RNA	RNA	5		
			Total PCB TEQ	Reproduction	<1	RNA	RNA	0		
			Sediment Hazard Index Total =							5
Fish Tissue	Breast Milk	Breastfeeding from Adult consumption of Fillet Fish Tissue On-site (175 g/day) Ingestion	Antimony	Blood	--	RNA	RNA	--		
			Arsenic	Skin/Blood	--	RNA	RNA	--		
			Chromium		--	RNA	RNA	--		
			Mercury	CNS	--	RNA	RNA	--		
			cPAHs		--	--	--	--		
			Bis(2-ethylhexyl)phthalate	Liver	--	RNA	RNA	--		
			Hexachlorobenzene	Liver	--	RNA	RNA	--		
			Total PCBs	Skin/Immunological	8000	RNA	RNA	8000		
			Total Dioxin/Furan TEQ	Reproduction	5	RNA	RNA	5		
			Total PCB TEQ	Reproduction	8	RNA	RNA	8		
			Aldrin	Liver	--	RNA	RNA	--		
			alpha-Hexachlorocyclohexane	Liver	--	RNA	RNA	--		
			beta-Hexachlorocyclohexane	Liver	--	RNA	RNA	--		
			Dieldrin	Liver	--	RNA	RNA	--		
			Heptachlor	Liver	--	RNA	RNA	--		
			Heptachlor Epoxide	Liver	--	RNA	RNA	--		
			Total Chlordanes	Liver	--	RNA	RNA	--		
			Total DDX	Liver	0.6	RNA	RNA	0.6		
			Fish Tissue Hazard Index Total =							8000
			Receptor Hazard Index =							8000
			Blood Hazard Index =							--
			Skin Hazard Index =							8000
			CNS Hazard Index =							--
Whole Body Hazard Index =							--			
Liver Hazard Index =							--			
Immological Hazard Index =							8000			
Reproduction Hazard Index =							10			
Kidney Hazard Index =							--			
Sediment	Breast Milk	Breastfeeding from Adult with Direct Contact of on-site sediment Ingestion  RM 7.5 West						Sediment Hazard Index Total =	< 1	
Fish Tissue	Breast Milk	Breastfeeding from Adult consumption of Fillet Fish Tissue On-site (175 g/day) Ingestion	Antimony	Blood	--	RNA	RNA	--		
			Arsenic	Skin/Blood	--	RNA	RNA	--		
			Chromium		--	RNA	RNA	--		
			Mercury	CNS	--	RNA	RNA	--		
			cPAHs		--	--	--	--		
			Bis(2-ethylhexyl)phthalate	Liver	--	RNA	RNA	--		
			Hexachlorobenzene	Liver	--	RNA	RNA	--		
			Total PCBs	Skin/Immunological	8000	RNA	RNA	8000		
			Total Dioxin/Furan TEQ	Reproduction	5	RNA	RNA	5		
			Total PCB TEQ	Reproduction	8	RNA	RNA	8		
			Aldrin	Liver	--	RNA	RNA	--		
			alpha-Hexachlorocyclohexane	Liver	--	RNA	RNA	--		
			beta-Hexachlorocyclohexane	Liver	--	RNA	RNA	--		
			Dieldrin	Liver	--	RNA	RNA	--		
			Heptachlor	Liver	--	RNA	RNA	--		
			Heptachlor Epoxide	Liver	--	RNA	RNA	--		
			Total Chlordanes	Liver	--	RNA	RNA	--		
			Total DDX	Liver	0.6	RNA	RNA	0.6		
			Fish Tissue Hazard Index Total =							8000
			Receptor Hazard Index =							8000
			Blood Hazard Index =							--
			Skin Hazard Index =							8000
			CNS Hazard Index =							--
Whole Body Hazard Index =							--			
Liver Hazard Index =							--			
Immological Hazard Index =							8000			
Reproduction Hazard Index =							10			
Kidney Hazard Index =							--			

Table 5-94 Risk Characterization Summary, Noncancer Hazards - Breastfeeding Infant of Tribal Fisher, Reasonable Maximum Exposure										
Risk Characterization Summary - Non-Carcinogens										
Scenario Timeframe: Current/Future										
Receptor Population: Tribal										
Receptor Age: Infant										
Medium	Exposure Medium	Exposure Point	Chemical of Concern	Primary Target Organ	Non-Carcinogens Hazard Quotient			Exposure Routes Total		
					Ingestion	Inhalation	Dermal			
Sediment	Breast Milk	Breastfeeding from Adult with Direct Contact of on-site sediment RM 8 West								
			Sediment Hazard Index Total = < 1							
Fish Tissue	Breast Milk	Breastfeeding from Adult consumption of Fillet Fish Tissue On-site (175 g/day) Ingestion								
			Antimony	Blood	--	RNA	RNA	--		
			Arsenic	Skin/Blood	--	RNA	RNA	--		
			Chromium		--	RNA	RNA	--		
			Mercury	CNS	--	RNA	RNA	--		
			cPAHs		--	--	--	--		
			Bis(2-ethylhexyl)phthalate	Liver	--	RNA	RNA	--		
			Hexachlorobenzene	Liver	--	RNA	RNA	--		
			Total PCBs	Skin/Immunological	8000	RNA	RNA	8000		
			Total Dioxin/Furan TEQ	Reproduction	5	RNA	RNA	5		
			Total PCB TEQ	Reproduction	8	RNA	RNA	8		
			Aldrin	Liver	--	RNA	RNA	--		
			alpha-Hexachlorocyclohexane	Liver	--	RNA	RNA	--		
			beta-Hexachlorocyclohexane	Liver	--	RNA	RNA	--		
			Dieldrin	Liver	--	RNA	RNA	--		
			Heptachlor	Liver	--	RNA	RNA	--		
			Heptachlor Epoxide	Liver	--	RNA	RNA	--		
			Total Chlordanes	Liver	--	RNA	RNA	--		
			Total DDx	Liver	0.6	RNA	RNA	0.6		
			Fish Tissue Hazard Index Total =					8000		
Receptor Hazard Index =					8000					
Blood Hazard Index =					--					
Skin Hazard Index =					8000					
CNS Hazard Index =					--					
Whole Body Hazard Index =					--					
Liver Hazard Index =					--					
Immunological Hazard Index =					8000					
Reproduction Hazard Index =					10					
Kidney Hazard Index =					--					
Sediment	Breast Milk	Breastfeeding from Adult with Direct Contact of on-site sediment RM 8 5 West								
			Sediment Hazard Index Total = 4							
Fish Tissue	Breast Milk	Breastfeeding from Adult consumption of Fillet Fish Tissue On-site (175 g/day) Ingestion								
			Antimony	Blood	NA	RNA	RNA	0		
			Arsenic	Skin/Blood	--	--	--	--		
			cPAHs		--	--	--	--		
			Total PCBs	Skin/Immunological	4	RNA	RNA	4		
			Total Dioxin/Furan TEQ	Reproduction	<1	RNA	RNA	0		
			Total PCB TEQ	Reproduction	<1	RNA	RNA	0		
			Fish Tissue Hazard Index Total =					4		
			Receptor Hazard Index =					8000		
			Blood Hazard Index =					--		
			Skin Hazard Index =					8000		
			CNS Hazard Index =					--		
			Whole Body Hazard Index =					--		
			Liver Hazard Index =					--		
			Immunological Hazard Index =					8000		
			Reproduction Hazard Index =					10		
			Kidney Hazard Index =					--		

Table 5-94 Risk Characterization Summary, Noncancer Hazards - Breastfeeding Infant of Tribal Fisher, Reasonable Maximum Exposure										
Risk Characterization Summary - Non-Carcinogens										
Scenario Timeframe: Current/Future										
Receptor Population: Tribal										
Receptor Age: Infant										
Medium	Exposure Medium	Exposure Point	Chemical of Concern	Primary Target Organ	Non-Carcinogens Hazard Quotient			Exposure Routes Total		
					Ingestion	Inhalation	Dermal			
Sediment	Breast Milk	Breastfeeding from Adult with Direct Contact of on-site sediment Ingestion  RM 9 West	Antimony	Blood	NA	RNA	RNA	0		
			Arsenic	Skin/Blood	--	--	--	--		
			cPAHs		--	--	--	--		
			Total PCBs	Skin/Immunological	1	RNA	RNA	1		
			Total Dioxin/Furan TEQ	Reproduction	<1	RNA	RNA	0		
			Total PCB TEQ	Reproduction	<1	RNA	RNA	0		
			Sediment Hazard Index Total =							1
Fish Tissue	Breast Milk	Breastfeeding from Adult consumption of Fillet Fish Tissue On-site (175 g/day) Ingestion	Antimony	Blood	--	RNA	RNA	--		
			Arsenic	Skin/Blood	--	RNA	RNA	--		
			Chromium		--	RNA	RNA	--		
			Mercury	CNS	--	RNA	RNA	--		
			cPAHs		--	--	--	--		
			Bis(2-ethylhexyl)phthalate	Liver	--	RNA	RNA	--		
			Hexachlorobenzene	Liver	--	RNA	RNA	--		
			Total PCBs	Skin/Immunological	8000	RNA	RNA	8000		
			Total Dioxin/Furan TEQ	Reproduction	5	RNA	RNA	5		
			Total PCB TEQ	Reproduction	8	RNA	RNA	8		
			Aldrin	Liver	--	RNA	RNA	--		
			alpha-Hexachlorocyclohexane	Liver	--	RNA	RNA	--		
			beta-Hexachlorocyclohexane	Liver	--	RNA	RNA	--		
			Dieldrin	Liver	--	RNA	RNA	--		
			Heptachlor	Liver	--	RNA	RNA	--		
			Heptachlor Epoxide	Liver	--	RNA	RNA	--		
			Total Chlordanes	Liver	--	RNA	RNA	--		
			Total DDX	Liver	0.6	RNA	RNA	0.6		
			Fish Tissue Hazard Index Total =							8000
			Receptor Hazard Index =							8000
			Blood Hazard Index =							--
			Skin Hazard Index =							8000
			CNS Hazard Index =							--
Whole Body Hazard Index =							--			
Liver Hazard Index =							--			
Immological Hazard Index =							8000			
Reproduction Hazard Index =							10			
Kidney Hazard Index =							--			
Sediment	Breast Milk	Breastfeeding from Adult with Direct Contact of on-site sediment Ingestion  RM 9.5 West						Sediment Hazard Index Total =	< 1	
Fish Tissue	Breast Milk	Breastfeeding from Adult consumption of Fillet Fish Tissue On-site (175 g/day) Ingestion	Antimony	Blood	--	RNA	RNA	--		
			Arsenic	Skin/Blood	--	RNA	RNA	--		
			Chromium		--	RNA	RNA	--		
			Mercury	CNS	--	RNA	RNA	--		
			cPAHs		--	--	--	--		
			Bis(2-ethylhexyl)phthalate	Liver	--	RNA	RNA	--		
			Hexachlorobenzene	Liver	--	RNA	RNA	--		
			Total PCBs	Skin/Immunological	8000	RNA	RNA	8000		
			Total Dioxin/Furan TEQ	Reproduction	5	RNA	RNA	5		
			Total PCB TEQ	Reproduction	8	RNA	RNA	8		
			Aldrin	Liver	--	RNA	RNA	--		
			alpha-Hexachlorocyclohexane	Liver	--	RNA	RNA	--		
			beta-Hexachlorocyclohexane	Liver	--	RNA	RNA	--		
			Dieldrin	Liver	--	RNA	RNA	--		
			Heptachlor	Liver	--	RNA	RNA	--		
			Heptachlor Epoxide	Liver	--	RNA	RNA	--		
			Total Chlordanes	Liver	--	RNA	RNA	--		
			Total DDX	Liver	0.6	RNA	RNA	0.6		
			Fish Tissue Hazard Index Total =							8000
			Receptor Hazard Index =							8000
			Blood Hazard Index =							--
			Skin Hazard Index =							8000
			CNS Hazard Index =							--
Whole Body Hazard Index =							--			
Liver Hazard Index =							--			
Immological Hazard Index =							8000			
Reproduction Hazard Index =							10			
Kidney Hazard Index =							--			

Table 5-94 Risk Characterization Summary, Noncancer Hazards - Breastfeeding Infant of Tribal Fisher, Reasonable Maximum Exposure								
Risk Characterization Summary - Non-Carcinogens								
Scenario Timeframe: Current/Future								
Receptor Population: Tribal								
Receptor Age: Infant								
Medium	Exposure Medium	Exposure Point	Chemical of Concern	Primary Target Organ	Non-Carcinogens Hazard Quotient			Exposure Routes Total
					Ingestion	Inhalation	Dermal	
Sediment	Breast Milk	Breastfeeding from Adult with Direct Contact of on-site sediment RM 10 West						
								Sediment Hazard Index Total = < 1
Fish Tissue	Breast Milk	Breastfeeding from Adult consumption of Fillet Fish Tissue On-site (175 g/day) Ingestion						
			Antimony	Blood	--	RNA	RNA	--
			Arsenic	Skin/Blood	--	RNA	RNA	--
			Chromium		--	RNA	RNA	--
			Mercury	CNS	--	RNA	RNA	--
			cPAHs		--	--	--	--
			Bis(2-ethylhexyl)phthalate	Liver	--	RNA	RNA	--
			Hexachlorobenzene	Liver	--	RNA	RNA	--
			Total PCBs	Skin/Immunological	8000	RNA	RNA	8000
			Total Dioxin/Furan TEQ	Reproduction	5	RNA	RNA	5
			Total PCB TEQ	Reproduction	8	RNA	RNA	8
			Aldrin	Liver	--	RNA	RNA	--
			alpha-Hexachlorocyclohexane	Liver	--	RNA	RNA	--
			beta-Hexachlorocyclohexane	Liver	--	RNA	RNA	--
			Dieldrin	Liver	--	RNA	RNA	--
			Heptachlor	Liver	--	RNA	RNA	--
			Heptachlor Epoxide	Liver	--	RNA	RNA	--
			Total Chlordanes	Liver	--	RNA	RNA	--
			Total DDx	Liver	0.6	RNA	RNA	0.6
								Fish Tissue Hazard Index Total = 8000
								Receptor Hazard Index = 8000
								Blood Hazard Index = --
								Skin Hazard Index = 8000
								CNS Hazard Index = --
								Whole Body Hazard Index = --
								Liver Hazard Index = --
								Immunological Hazard Index = 8000
								Reproduction Hazard Index = 10
								Kidney Hazard Index = --
Sediment	Breast Milk	Breastfeeding from Adult with Direct Contact of on-site sediment RM 10.5 West						
								Sediment Hazard Index Total = < 1
Fish Tissue	Breast Milk	Breastfeeding from Adult consumption of Fillet Fish Tissue On-site (175 g/day) Ingestion						
			Antimony	Blood	--	RNA	RNA	--
			Arsenic	Skin/Blood	--	RNA	RNA	--
			Chromium		--	RNA	RNA	--
			Mercury	CNS	--	RNA	RNA	--
			cPAHs		--	--	--	--
			Bis(2-ethylhexyl)phthalate	Liver	--	RNA	RNA	--
			Hexachlorobenzene	Liver	--	RNA	RNA	--
			Total PCBs	Skin/Immunological	8000	RNA	RNA	8000
			Total Dioxin/Furan TEQ	Reproduction	5	RNA	RNA	5
			Total PCB TEQ	Reproduction	8	RNA	RNA	8
			Aldrin	Liver	--	RNA	RNA	--
			alpha-Hexachlorocyclohexane	Liver	--	RNA	RNA	--
			beta-Hexachlorocyclohexane	Liver	--	RNA	RNA	--
			Dieldrin	Liver	--	RNA	RNA	--
			Heptachlor	Liver	--	RNA	RNA	--
			Heptachlor Epoxide	Liver	--	RNA	RNA	--
			Total Chlordanes	Liver	--	RNA	RNA	--
			Total DDx	Liver	0.6	RNA	RNA	0.6
								Fish Tissue Hazard Index Total = 8000
								Receptor Hazard Index = 8000
								Blood Hazard Index = --
								Skin Hazard Index = 8000
								CNS Hazard Index = --
								Whole Body Hazard Index = --
								Liver Hazard Index = --
								Immunological Hazard Index = 8000
								Reproduction Hazard Index = 10
								Kidney Hazard Index = --



Table 5-94 Risk Characterization Summary, Noncancer Hazards - Breastfeeding Infant of Tribal Fisher, Reasonable Maximum Exposure								
Risk Characterization Summary - Non-Carcinogens								
Scenario Timeframe: Current/Future								
Receptor Population: Tribal								
Receptor Age: Infant								
Medium	Exposure Medium	Exposure Point	Chemical of Concern	Primary Target Organ	Non-Carcinogens Hazard Quotient			Exposure Routes Total
					Ingestion	Inhalation	Dermal	
Sediment	Breast Milk	Breastfeeding from Adult with Direct Contact of on-site sediment RM 11 West						
								Sediment Hazard Index Total = < 1
Fish Tissue	Breast Milk	Breastfeeding from Adult consumption of Fillet Fish Tissue On-site (175 g/day) Ingestion						
			Antimony	Blood	--	RNA	RNA	--
			Arsenic	Skin/Blood	--	RNA	RNA	--
			Chromium		--	RNA	RNA	--
			Mercury	CNS	--	RNA	RNA	--
			cPAHs		--	--	--	--
			Bis(2-ethylhexyl)phthalate	Liver	--	RNA	RNA	--
			Hexachlorobenzene	Liver	--	RNA	RNA	--
			Total PCBs	Skin/Immunological	8000	RNA	RNA	8000
			Total Dioxin/Furan TEQ	Reproduction	5	RNA	RNA	5
			Total PCB TEQ	Reproduction	8	RNA	RNA	8
			Aldrin	Liver	--	RNA	RNA	--
			alpha-Hexachlorocyclohexane	Liver	--	RNA	RNA	--
			beta-Hexachlorocyclohexane	Liver	--	RNA	RNA	--
			Dieldrin	Liver	--	RNA	RNA	--
			Heptachlor	Liver	--	RNA	RNA	--
			Heptachlor Epoxide	Liver	--	RNA	RNA	--
			Total Chlordanes	Liver	--	RNA	RNA	--
			Total DDx	Liver	0.6	RNA	RNA	0.6
								Fish Tissue Hazard Index Total = 8000
								Receptor Hazard Index = 8000
								Blood Hazard Index = --
								Skin Hazard Index = 8000
								CNS Hazard Index = --
								Whole Body Hazard Index = --
								Liver Hazard Index = --
								Immunological Hazard Index = 8000
								Reproduction Hazard Index = 10
								Kidney Hazard Index = --
Sediment	Breast Milk	Breastfeeding from Adult with Direct Contact of on-site sediment RM 11.5 West						
								Sediment Hazard Index Total = < 1
Fish Tissue	Breast Milk	Breastfeeding from Adult consumption of Fillet Fish Tissue On-site (175 g/day) Ingestion						
			Antimony	Blood	--	RNA	RNA	--
			Arsenic	Skin/Blood	--	RNA	RNA	--
			Chromium		--	RNA	RNA	--
			Mercury	CNS	--	RNA	RNA	--
			cPAHs		--	--	--	--
			Bis(2-ethylhexyl)phthalate	Liver	--	RNA	RNA	--
			Hexachlorobenzene	Liver	--	RNA	RNA	--
			Total PCBs	Skin/Immunological	8000	RNA	RNA	8000
			Total Dioxin/Furan TEQ	Reproduction	5	RNA	RNA	5
			Total PCB TEQ	Reproduction	8	RNA	RNA	8
			Aldrin	Liver	--	RNA	RNA	--
			alpha-Hexachlorocyclohexane	Liver	--	RNA	RNA	--
			beta-Hexachlorocyclohexane	Liver	--	RNA	RNA	--
			Dieldrin	Liver	--	RNA	RNA	--
			Heptachlor	Liver	--	RNA	RNA	--
			Heptachlor Epoxide	Liver	--	RNA	RNA	--
			Total Chlordanes	Liver	--	RNA	RNA	--
			Total DDx	Liver	0.6	RNA	RNA	0.6
								Fish Tissue Hazard Index Total = 8000
								Receptor Hazard Index = 8000
								Blood Hazard Index = --
								Skin Hazard Index = 8000
								CNS Hazard Index = --
								Whole Body Hazard Index = --
								Liver Hazard Index = --
								Immunological Hazard Index = 8000
								Reproduction Hazard Index = 10
								Kidney Hazard Index = --

Table 5-94 Risk Characterization Summary, Noncancer Hazards - Breastfeeding Infant of Tribal Fisher, Reasonable Maximum Exposure								
Risk Characterization Summary - Non-Carcinogens								
Scenario Timeframe:		Current/Future						
Receptor Population:		Tribal						
Receptor Age:		Infant						
Medium	Exposure Medium	Exposure Point	Chemical of Concern	Primary Target Organ	Non-Carcinogens Hazard Quotient			Exposure Routes Total
					Ingestion	Inhalation	Dermal	
Sediment	Breast Milk	Breastfeeding from Adult with Direct Contact of on-site sediment RM 12 West						
								Sediment Hazard Index Total = < 1
Fish Tissue	Breast Milk	Breastfeeding from Adult consumption of Fillet Fish Tissue On-site (175 g/day) Ingestion						
			Antimony	Blood	--	RNA	RNA	--
			Arsenic	Skin/Blood	--	RNA	RNA	--
			Chromium		--	RNA	RNA	--
			Mercury	CNS	--	RNA	RNA	--
			cPAHs		--	--	--	--
			Bis(2-ethylhexyl)phthalate	Liver	--	RNA	RNA	--
			Hexachlorobenzene	Liver	--	RNA	RNA	--
			Total PCBs	Skin/Immunological	8000	RNA	RNA	8000
			Total Dioxin/Furan TEQ	Reproduction	5	RNA	RNA	5
			Total PCB TEQ	Reproduction	8	RNA	RNA	8
			Aldrin	Liver	--	RNA	RNA	--
			alpha-Hexachlorocyclohexane	Liver	--	RNA	RNA	--
			beta-Hexachlorocyclohexane	Liver	--	RNA	RNA	--
			Dieldrin	Liver	--	RNA	RNA	--
			Heptachlor	Liver	--	RNA	RNA	--
			Heptachlor Epoxide	Liver	--	RNA	RNA	--
			Total Chlordanes	Liver	--	RNA	RNA	--
			Total DDx	Liver	0.6	RNA	RNA	0.6
								Fish Tissue Hazard Index Total = 8000
								Receptor Hazard Index = 8000
								Blood Hazard Index = --
								Skin Hazard Index = 8000
								CNS Hazard Index = --
								Whole Body Hazard Index = --
								Liver Hazard Index = --
								Immunological Hazard Index = 8000
								Reproduction Hazard Index = 10
								Kidney Hazard Index = --
Sediment	Breast Milk	Breastfeeding from Adult with Direct Contact of on-site sediment RM 1 East						
								Sediment Hazard Index Total = < 1
Fish Tissue	Breast Milk	Breastfeeding from Adult consumption of Fillet Fish Tissue On-site (175 g/day) Ingestion						
			Antimony	Blood	--	RNA	RNA	--
			Arsenic	Skin/Blood	--	RNA	RNA	--
			Chromium		--	RNA	RNA	--
			Mercury	CNS	--	RNA	RNA	--
			cPAHs		--	--	--	--
			Bis(2-ethylhexyl)phthalate	Liver	--	RNA	RNA	--
			Hexachlorobenzene	Liver	--	RNA	RNA	--
			Total PCBs	Skin/Immunological	8000	RNA	RNA	8000
			Total Dioxin/Furan TEQ	Reproduction	5	RNA	RNA	5
			Total PCB TEQ	Reproduction	8	RNA	RNA	8
			Aldrin	Liver	--	RNA	RNA	--
			alpha-Hexachlorocyclohexane	Liver	--	RNA	RNA	--
			beta-Hexachlorocyclohexane	Liver	--	RNA	RNA	--
			Dieldrin	Liver	--	RNA	RNA	--
			Heptachlor	Liver	--	RNA	RNA	--
			Heptachlor Epoxide	Liver	--	RNA	RNA	--
			Total Chlordanes	Liver	--	RNA	RNA	--
			Total DDx	Liver	0.6	RNA	RNA	0.6
								Fish Tissue Hazard Index Total = 8000
								Receptor Hazard Index = 8000
								Blood Hazard Index = --
								Skin Hazard Index = 8000
								CNS Hazard Index = --
								Whole Body Hazard Index = --
								Liver Hazard Index = --
								Immunological Hazard Index = 8000
								Reproduction Hazard Index = 10
								Kidney Hazard Index = --

Table 5-94 Risk Characterization Summary, Noncancer Hazards - Breastfeeding Infant of Tribal Fisher, Reasonable Maximum Exposure								
Risk Characterization Summary - Non-Carcinogens								
Scenario Timeframe: Current/Future								
Receptor Population: Tribal								
Receptor Age: Infant								
Medium	Exposure Medium	Exposure Point	Chemical of Concern	Primary Target Organ	Non-Carcinogens Hazard Quotient			Exposure Routes Total
					Ingestion	Inhalation	Dermal	
Sediment	Breast Milk	Breastfeeding from Adult with Direct Contact of on-site sediment RM 1.5 East						
								Sediment Hazard Index Total = < 1
Fish Tissue	Breast Milk	Breastfeeding from Adult consumption of Fillet Fish Tissue On-site (175 g/day) Ingestion						
			Antimony	Blood	--	RNA	RNA	--
			Arsenic	Skin/Blood	--	RNA	RNA	--
			Chromium		--	RNA	RNA	--
			Mercury	CNS	--	RNA	RNA	--
			cPAHs		--	--	--	--
			Bis(2-ethylhexyl)phthalate	Liver	--	RNA	RNA	--
			Hexachlorobenzene	Liver	--	RNA	RNA	--
			Total PCBs	Skin/Immunological	8000	RNA	RNA	8000
			Total Dioxin/Furan TEQ	Reproduction	5	RNA	RNA	5
			Total PCB TEQ	Reproduction	8	RNA	RNA	8
			Aldrin	Liver	--	RNA	RNA	--
			alpha-Hexachlorocyclohexane	Liver	--	RNA	RNA	--
			beta-Hexachlorocyclohexane	Liver	--	RNA	RNA	--
			Dieldrin	Liver	--	RNA	RNA	--
			Heptachlor	Liver	--	RNA	RNA	--
			Heptachlor Epoxide	Liver	--	RNA	RNA	--
			Total Chlordanes	Liver	--	RNA	RNA	--
			Total DDx	Liver	0.6	RNA	RNA	0.6
								Fish Tissue Hazard Index Total = 8000
								Receptor Hazard Index = 8000
								Blood Hazard Index = --
								Skin Hazard Index = 8000
								CNS Hazard Index = --
								Whole Body Hazard Index = --
								Liver Hazard Index = --
								Immunological Hazard Index = 8000
								Reproduction Hazard Index = 10
								Kidney Hazard Index = --
Sediment	Breast Milk	Breastfeeding from Adult with Direct Contact of on-site sediment RM 2 East						
								Sediment Hazard Index Total = < 1
Fish Tissue	Breast Milk	Breastfeeding from Adult consumption of Fillet Fish Tissue On-site (175 g/day) Ingestion						
			Antimony	Blood	--	RNA	RNA	--
			Arsenic	Skin/Blood	--	RNA	RNA	--
			Chromium		--	RNA	RNA	--
			Mercury	CNS	--	RNA	RNA	--
			cPAHs		--	--	--	--
			Bis(2-ethylhexyl)phthalate	Liver	--	RNA	RNA	--
			Hexachlorobenzene	Liver	--	RNA	RNA	--
			Total PCBs	Skin/Immunological	8000	RNA	RNA	8000
			Total Dioxin/Furan TEQ	Reproduction	5	RNA	RNA	5
			Total PCB TEQ	Reproduction	8	RNA	RNA	8
			Aldrin	Liver	--	RNA	RNA	--
			alpha-Hexachlorocyclohexane	Liver	--	RNA	RNA	--
			beta-Hexachlorocyclohexane	Liver	--	RNA	RNA	--
			Dieldrin	Liver	--	RNA	RNA	--
			Heptachlor	Liver	--	RNA	RNA	--
			Heptachlor Epoxide	Liver	--	RNA	RNA	--
			Total Chlordanes	Liver	--	RNA	RNA	--
			Total DDx	Liver	0.6	RNA	RNA	0.6
								Fish Tissue Hazard Index Total = 8000
								Receptor Hazard Index = 8000
								Blood Hazard Index = --
								Skin Hazard Index = 8000
								CNS Hazard Index = --
								Whole Body Hazard Index = --
								Liver Hazard Index = --
								Immunological Hazard Index = 8000
								Reproduction Hazard Index = 10
								Kidney Hazard Index = --

Table 5-94 Risk Characterization Summary, Noncancer Hazards - Breastfeeding Infant of Tribal Fisher, Reasonable Maximum Exposure								
Risk Characterization Summary - Non-Carcinogens								
Scenario Timeframe: Current/Future								
Receptor Population: Tribal								
Receptor Age: Infant								
Medium	Exposure Medium	Exposure Point	Chemical of Concern	Primary Target Organ	Non-Carcinogens Hazard Quotient			Exposure Routes Total
					Ingestion	Inhalation	Dermal	
Sediment	Breast Milk	Breastfeeding from Adult with Direct Contact of on-site sediment RM 2.5 East						
								Sediment Hazard Index Total = < 1
Fish Tissue	Breast Milk	Breastfeeding from Adult consumption of Fillet Fish Tissue On-site (175 g/day) Ingestion						
			Antimony	Blood	--	RNA	RNA	--
			Arsenic	Skin/Blood	--	RNA	RNA	--
			Chromium		--	RNA	RNA	--
			Mercury	CNS	--	RNA	RNA	--
			cPAHs		--	--	--	--
			Bis(2-ethylhexyl)phthalate	Liver	--	RNA	RNA	--
			Hexachlorobenzene	Liver	--	RNA	RNA	--
			Total PCBs	Skin/Immunological	8000	RNA	RNA	8000
			Total Dioxin/Furan TEQ	Reproduction	5	RNA	RNA	5
			Total PCB TEQ	Reproduction	8	RNA	RNA	8
			Aldrin	Liver	--	RNA	RNA	--
			alpha-Hexachlorocyclohexane	Liver	--	RNA	RNA	--
			beta-Hexachlorocyclohexane	Liver	--	RNA	RNA	--
			Dieldrin	Liver	--	RNA	RNA	--
			Heptachlor	Liver	--	RNA	RNA	--
			Heptachlor Epoxide	Liver	--	RNA	RNA	--
			Total Chlordanes	Liver	--	RNA	RNA	--
			Total DDx	Liver	0.6	RNA	RNA	0.6
								Fish Tissue Hazard Index Total = 8000
								Receptor Hazard Index = 8000
								Blood Hazard Index = --
								Skin Hazard Index = 8000
								CNS Hazard Index = --
								Whole Body Hazard Index = --
								Liver Hazard Index = --
								Immunological Hazard Index = 8000
								Reproduction Hazard Index = 10
								Kidney Hazard Index = --
Sediment	Breast Milk	Breastfeeding from Adult with Direct Contact of on-site sediment RM 3 East						
								Sediment Hazard Index Total = < 1
Fish Tissue	Breast Milk	Breastfeeding from Adult consumption of Fillet Fish Tissue On-site (175 g/day) Ingestion						
			Antimony	Blood	--	RNA	RNA	--
			Arsenic	Skin/Blood	--	RNA	RNA	--
			Chromium		--	RNA	RNA	--
			Mercury	CNS	--	RNA	RNA	--
			cPAHs		--	--	--	--
			Bis(2-ethylhexyl)phthalate	Liver	--	RNA	RNA	--
			Hexachlorobenzene	Liver	--	RNA	RNA	--
			Total PCBs	Skin/Immunological	8000	RNA	RNA	8000
			Total Dioxin/Furan TEQ	Reproduction	5	RNA	RNA	5
			Total PCB TEQ	Reproduction	8	RNA	RNA	8
			Aldrin	Liver	--	RNA	RNA	--
			alpha-Hexachlorocyclohexane	Liver	--	RNA	RNA	--
			beta-Hexachlorocyclohexane	Liver	--	RNA	RNA	--
			Dieldrin	Liver	--	RNA	RNA	--
			Heptachlor	Liver	--	RNA	RNA	--
			Heptachlor Epoxide	Liver	--	RNA	RNA	--
			Total Chlordanes	Liver	--	RNA	RNA	--
			Total DDx	Liver	0.6	RNA	RNA	0.6
								Fish Tissue Hazard Index Total = 8000
								Receptor Hazard Index = 8000
								Blood Hazard Index = --
								Skin Hazard Index = 8000
								CNS Hazard Index = --
								Whole Body Hazard Index = --
								Liver Hazard Index = --
								Immunological Hazard Index = 8000
								Reproduction Hazard Index = 10
								Kidney Hazard Index = --

Table 5-94 Risk Characterization Summary, Noncancer Hazards - Breastfeeding Infant of Tribal Fisher, Reasonable Maximum Exposure								
Risk Characterization Summary - Non-Carcinogens								
Scenario Timeframe: Current/Future								
Receptor Population: Tribal								
Receptor Age: Infant								
Medium	Exposure Medium	Exposure Point	Chemical of Concern	Primary Target Organ	Non-Carcinogens Hazard Quotient			Exposure Routes Total
					Ingestion	Inhalation	Dermal	
Sediment	Breast Milk	Breastfeeding from Adult with Direct Contact of on-site sediment RM 3.5 East						
								Sediment Hazard Index Total = < 1
Fish Tissue	Breast Milk	Breastfeeding from Adult consumption of Fillet Fish Tissue On-site (175 g/day) Ingestion						
			Antimony	Blood	--	RNA	RNA	--
			Arsenic	Skin/Blood	--	RNA	RNA	--
			Chromium		--	RNA	RNA	--
			Mercury	CNS	--	RNA	RNA	--
			cPAHs		--	--	--	--
			Bis(2-ethylhexyl)phthalate	Liver	--	RNA	RNA	--
			Hexachlorobenzene	Liver	--	RNA	RNA	--
			Total PCBs	Skin/Immunological	8000	RNA	RNA	8000
			Total Dioxin/Furan TEQ	Reproduction	5	RNA	RNA	5
			Total PCB TEQ	Reproduction	8	RNA	RNA	8
			Aldrin	Liver	--	RNA	RNA	--
			alpha-Hexachlorocyclohexane	Liver	--	RNA	RNA	--
			beta-Hexachlorocyclohexane	Liver	--	RNA	RNA	--
			Dieldrin	Liver	--	RNA	RNA	--
			Heptachlor	Liver	--	RNA	RNA	--
			Heptachlor Epoxide	Liver	--	RNA	RNA	--
			Total Chlordanes	Liver	--	RNA	RNA	--
			Total DDx	Liver	0.6	RNA	RNA	0.6
								Fish Tissue Hazard Index Total = 8000
								Receptor Hazard Index = 8000
								Blood Hazard Index = --
								Skin Hazard Index = 8000
								CNS Hazard Index = --
								Whole Body Hazard Index = --
								Liver Hazard Index = --
								Immunological Hazard Index = 8000
								Reproduction Hazard Index = 10
								Kidney Hazard Index = --
Sediment	Breast Milk	Breastfeeding from Adult with Direct Contact of on-site sediment RM 4 East						
								Sediment Hazard Index Total = < 1
Fish Tissue	Breast Milk	Breastfeeding from Adult consumption of Fillet Fish Tissue On-site (175 g/day) Ingestion						
			Antimony	Blood	--	RNA	RNA	--
			Arsenic	Skin/Blood	--	RNA	RNA	--
			Chromium		--	RNA	RNA	--
			Mercury	CNS	--	RNA	RNA	--
			cPAHs		--	--	--	--
			Bis(2-ethylhexyl)phthalate	Liver	--	RNA	RNA	--
			Hexachlorobenzene	Liver	--	RNA	RNA	--
			Total PCBs	Skin/Immunological	8000	RNA	RNA	8000
			Total Dioxin/Furan TEQ	Reproduction	5	RNA	RNA	5
			Total PCB TEQ	Reproduction	8	RNA	RNA	8
			Aldrin	Liver	--	RNA	RNA	--
			alpha-Hexachlorocyclohexane	Liver	--	RNA	RNA	--
			beta-Hexachlorocyclohexane	Liver	--	RNA	RNA	--
			Dieldrin	Liver	--	RNA	RNA	--
			Heptachlor	Liver	--	RNA	RNA	--
			Heptachlor Epoxide	Liver	--	RNA	RNA	--
			Total Chlordanes	Liver	--	RNA	RNA	--
			Total DDx	Liver	0.6	RNA	RNA	0.6
								Fish Tissue Hazard Index Total = 8000
								Receptor Hazard Index = 8000
								Blood Hazard Index = --
								Skin Hazard Index = 8000
								CNS Hazard Index = --
								Whole Body Hazard Index = --
								Liver Hazard Index = --
								Immunological Hazard Index = 8000
								Reproduction Hazard Index = 10
								Kidney Hazard Index = --

Table 5-94 Risk Characterization Summary, Noncancer Hazards - Breastfeeding Infant of Tribal Fisher, Reasonable Maximum Exposure								
Risk Characterization Summary - Non-Carcinogens								
Scenario Timeframe: Current/Future								
Receptor Population: Tribal								
Receptor Age: Infant								
Medium	Exposure Medium	Exposure Point	Chemical of Concern	Primary Target Organ	Non-Carcinogens Hazard Quotient			Exposure Routes Total
					Ingestion	Inhalation	Dermal	
Sediment	Breast Milk	Breastfeeding from Adult with Direct Contact of on-site sediment RM 4.5 East						
								Sediment Hazard Index Total = < 1
Fish Tissue	Breast Milk	Breastfeeding from Adult consumption of Fillet Fish Tissue On-site (175 g/day) Ingestion						
			Antimony	Blood	--	RNA	RNA	--
			Arsenic	Skin/Blood	--	RNA	RNA	--
			Chromium		--	RNA	RNA	--
			Mercury	CNS	--	RNA	RNA	--
			cPAHs		--	--	--	--
			Bis(2-ethylhexyl)phthalate	Liver	--	RNA	RNA	--
			Hexachlorobenzene	Liver	--	RNA	RNA	--
			Total PCBs	Skin/Immunological	8000	RNA	RNA	8000
			Total Dioxin/Furan TEQ	Reproduction	5	RNA	RNA	5
			Total PCB TEQ	Reproduction	8	RNA	RNA	8
			Aldrin	Liver	--	RNA	RNA	--
			alpha-Hexachlorocyclohexane	Liver	--	RNA	RNA	--
			beta-Hexachlorocyclohexane	Liver	--	RNA	RNA	--
			Dieldrin	Liver	--	RNA	RNA	--
			Heptachlor	Liver	--	RNA	RNA	--
			Heptachlor Epoxide	Liver	--	RNA	RNA	--
			Total Chlordanes	Liver	--	RNA	RNA	--
			Total DDx	Liver	0.6	RNA	RNA	0.6
								Fish Tissue Hazard Index Total = 8000
								Receptor Hazard Index = 8000
								Blood Hazard Index = --
								Skin Hazard Index = 8000
								CNS Hazard Index = --
								Whole Body Hazard Index = --
								Liver Hazard Index = --
								Immunological Hazard Index = 8000
								Reproduction Hazard Index = 10
								Kidney Hazard Index = --
Sediment	Breast Milk	Breastfeeding from Adult with Direct Contact of on-site sediment RM 5 East						
								Sediment Hazard Index Total = < 1
Fish Tissue	Breast Milk	Breastfeeding from Adult consumption of Fillet Fish Tissue On-site (175 g/day) Ingestion						
			Antimony	Blood	--	RNA	RNA	--
			Arsenic	Skin/Blood	--	RNA	RNA	--
			Chromium		--	RNA	RNA	--
			Mercury	CNS	--	RNA	RNA	--
			cPAHs		--	--	--	--
			Bis(2-ethylhexyl)phthalate	Liver	--	RNA	RNA	--
			Hexachlorobenzene	Liver	--	RNA	RNA	--
			Total PCBs	Skin/Immunological	8000	RNA	RNA	8000
			Total Dioxin/Furan TEQ	Reproduction	5	RNA	RNA	5
			Total PCB TEQ	Reproduction	8	RNA	RNA	8
			Aldrin	Liver	--	RNA	RNA	--
			alpha-Hexachlorocyclohexane	Liver	--	RNA	RNA	--
			beta-Hexachlorocyclohexane	Liver	--	RNA	RNA	--
			Dieldrin	Liver	--	RNA	RNA	--
			Heptachlor	Liver	--	RNA	RNA	--
			Heptachlor Epoxide	Liver	--	RNA	RNA	--
			Total Chlordanes	Liver	--	RNA	RNA	--
			Total DDx	Liver	0.6	RNA	RNA	0.6
								Fish Tissue Hazard Index Total = 8000
								Receptor Hazard Index = 8000
								Blood Hazard Index = --
								Skin Hazard Index = 8000
								CNS Hazard Index = --
								Whole Body Hazard Index = --
								Liver Hazard Index = --
								Immunological Hazard Index = 8000
								Reproduction Hazard Index = 10
								Kidney Hazard Index = --

Table 5-94 Risk Characterization Summary, Noncancer Hazards - Breastfeeding Infant of Tribal Fisher, Reasonable Maximum Exposure								
Risk Characterization Summary - Non-Carcinogens								
Scenario Timeframe: Current/Future								
Receptor Population: Tribal								
Receptor Age: Infant								
Medium	Exposure Medium	Exposure Point	Chemical of Concern	Primary Target Organ	Non-Carcinogens Hazard Quotient			Exposure Routes Total
					Ingestion	Inhalation	Dermal	
Sediment	Breast Milk	Breastfeeding from Adult with Direct Contact of on-site sediment RM 5.5 East						
								Sediment Hazard Index Total = < 1
Fish Tissue	Breast Milk	Breastfeeding from Adult consumption of Fillet Fish Tissue On-site (175 g/day) Ingestion						
			Antimony	Blood	--	RNA	RNA	--
			Arsenic	Skin/Blood	--	RNA	RNA	--
			Chromium		--	RNA	RNA	--
			Mercury	CNS	--	RNA	RNA	--
			cPAHs		--	--	--	--
			Bis(2-ethylhexyl)phthalate	Liver	--	RNA	RNA	--
			Hexachlorobenzene	Liver	--	RNA	RNA	--
			Total PCBs	Skin/Immunological	8000	RNA	RNA	8000
			Total Dioxin/Furan TEQ	Reproduction	5	RNA	RNA	5
			Total PCB TEQ	Reproduction	8	RNA	RNA	8
			Aldrin	Liver	--	RNA	RNA	--
			alpha-Hexachlorocyclohexane	Liver	--	RNA	RNA	--
			beta-Hexachlorocyclohexane	Liver	--	RNA	RNA	--
			Dieldrin	Liver	--	RNA	RNA	--
			Heptachlor	Liver	--	RNA	RNA	--
			Heptachlor Epoxide	Liver	--	RNA	RNA	--
			Total Chlordanes	Liver	--	RNA	RNA	--
			Total DDx	Liver	0.6	RNA	RNA	0.6
								Fish Tissue Hazard Index Total = 8000
								Receptor Hazard Index = 8000
								Blood Hazard Index = --
								Skin Hazard Index = 8000
								CNS Hazard Index = --
								Whole Body Hazard Index = --
								Liver Hazard Index = --
								Immunological Hazard Index = 8000
								Reproduction Hazard Index = 10
								Kidney Hazard Index = --
Sediment	Breast Milk	Breastfeeding from Adult with Direct Contact of on-site sediment RM 6 East						
								Sediment Hazard Index Total = < 1
Fish Tissue	Breast Milk	Breastfeeding from Adult consumption of Fillet Fish Tissue On-site (175 g/day) Ingestion						
			Antimony	Blood	--	RNA	RNA	--
			Arsenic	Skin/Blood	--	RNA	RNA	--
			Chromium		--	RNA	RNA	--
			Mercury	CNS	--	RNA	RNA	--
			cPAHs		--	--	--	--
			Bis(2-ethylhexyl)phthalate	Liver	--	RNA	RNA	--
			Hexachlorobenzene	Liver	--	RNA	RNA	--
			Total PCBs	Skin/Immunological	8000	RNA	RNA	8000
			Total Dioxin/Furan TEQ	Reproduction	5	RNA	RNA	5
			Total PCB TEQ	Reproduction	8	RNA	RNA	8
			Aldrin	Liver	--	RNA	RNA	--
			alpha-Hexachlorocyclohexane	Liver	--	RNA	RNA	--
			beta-Hexachlorocyclohexane	Liver	--	RNA	RNA	--
			Dieldrin	Liver	--	RNA	RNA	--
			Heptachlor	Liver	--	RNA	RNA	--
			Heptachlor Epoxide	Liver	--	RNA	RNA	--
			Total Chlordanes	Liver	--	RNA	RNA	--
			Total DDx	Liver	0.6	RNA	RNA	0.6
								Fish Tissue Hazard Index Total = 8000
								Receptor Hazard Index = 8000
								Blood Hazard Index = --
								Skin Hazard Index = 8000
								CNS Hazard Index = --
								Whole Body Hazard Index = --
								Liver Hazard Index = --
								Immunological Hazard Index = 8000
								Reproduction Hazard Index = 10
								Kidney Hazard Index = --

Table 5-94 Risk Characterization Summary, Noncancer Hazards - Breastfeeding Infant of Tribal Fisher, Reasonable Maximum Exposure								
Risk Characterization Summary - Non-Carcinogens								
Scenario Timeframe: Current/Future								
Receptor Population: Tribal								
Receptor Age: Infant								
Medium	Exposure Medium	Exposure Point	Chemical of Concern	Primary Target Organ	Non-Carcinogens Hazard Quotient			Exposure Routes Total
					Ingestion	Inhalation	Dermal	
Sediment	Breast Milk	Breastfeeding from Adult with Direct Contact of on-site sediment RM 6.5 East						
								Sediment Hazard Index Total = < 1
Fish Tissue	Breast Milk	Breastfeeding from Adult consumption of Fillet Fish Tissue On-site (175 g/day) Ingestion						
			Antimony	Blood	--	RNA	RNA	--
			Arsenic	Skin/Blood	--	RNA	RNA	--
			Chromium		--	RNA	RNA	--
			Mercury	CNS	--	RNA	RNA	--
			cPAHs		--	--	--	--
			Bis(2-ethylhexyl)phthalate	Liver	--	RNA	RNA	--
			Hexachlorobenzene	Liver	--	RNA	RNA	--
			Total PCBs	Skin/Immunological	8000	RNA	RNA	8000
			Total Dioxin/Furan TEQ	Reproduction	5	RNA	RNA	5
			Total PCB TEQ	Reproduction	8	RNA	RNA	8
			Aldrin	Liver	--	RNA	RNA	--
			alpha-Hexachlorocyclohexane	Liver	--	RNA	RNA	--
			beta-Hexachlorocyclohexane	Liver	--	RNA	RNA	--
			Dieldrin	Liver	--	RNA	RNA	--
			Heptachlor	Liver	--	RNA	RNA	--
			Heptachlor Epoxide	Liver	--	RNA	RNA	--
			Total Chlordanes	Liver	--	RNA	RNA	--
			Total DDx	Liver	0.6	RNA	RNA	0.6
								Fish Tissue Hazard Index Total = 8000
								Receptor Hazard Index = 8000
								Blood Hazard Index = --
								Skin Hazard Index = 8000
								CNS Hazard Index = --
								Whole Body Hazard Index = --
								Liver Hazard Index = --
								Immunological Hazard Index = 8000
								Reproduction Hazard Index = 10
								Kidney Hazard Index = --
Sediment	Breast Milk	Breastfeeding from Adult with Direct Contact of on-site sediment RM 7 East						
								Sediment Hazard Index Total = < 1
Fish Tissue	Breast Milk	Breastfeeding from Adult consumption of Fillet Fish Tissue On-site (175 g/day) Ingestion						
			Antimony	Blood	--	RNA	RNA	--
			Arsenic	Skin/Blood	--	RNA	RNA	--
			Chromium		--	RNA	RNA	--
			Mercury	CNS	--	RNA	RNA	--
			cPAHs		--	--	--	--
			Bis(2-ethylhexyl)phthalate	Liver	--	RNA	RNA	--
			Hexachlorobenzene	Liver	--	RNA	RNA	--
			Total PCBs	Skin/Immunological	8000	RNA	RNA	8000
			Total Dioxin/Furan TEQ	Reproduction	5	RNA	RNA	5
			Total PCB TEQ	Reproduction	8	RNA	RNA	8
			Aldrin	Liver	--	RNA	RNA	--
			alpha-Hexachlorocyclohexane	Liver	--	RNA	RNA	--
			beta-Hexachlorocyclohexane	Liver	--	RNA	RNA	--
			Dieldrin	Liver	--	RNA	RNA	--
			Heptachlor	Liver	--	RNA	RNA	--
			Heptachlor Epoxide	Liver	--	RNA	RNA	--
			Total Chlordanes	Liver	--	RNA	RNA	--
			Total DDx	Liver	0.6	RNA	RNA	0.6
								Fish Tissue Hazard Index Total = 8000
								Receptor Hazard Index = 8000
								Blood Hazard Index = --
								Skin Hazard Index = 8000
								CNS Hazard Index = --
								Whole Body Hazard Index = --
								Liver Hazard Index = --
								Immunological Hazard Index = 8000
								Reproduction Hazard Index = 10
								Kidney Hazard Index = --



Table 5-94 Risk Characterization Summary, Noncancer Hazards - Breastfeeding Infant of Tribal Fisher, Reasonable Maximum Exposure								
Risk Characterization Summary - Non-Carcinogens								
Scenario Timeframe: Current/Future								
Receptor Population: Tribal								
Receptor Age: Infant								
Medium	Exposure Medium	Exposure Point	Chemical of Concern	Primary Target Organ	Non-Carcinogens Hazard Quotient			Exposure Routes Total
					Ingestion	Inhalation	Dermal	
Sediment	Breast Milk	Breastfeeding from Adult with Direct Contact of on-site sediment RM 7.5 East						
								Sediment Hazard Index Total = < 1
Fish Tissue	Breast Milk	Breastfeeding from Adult consumption of Fillet Fish Tissue On-site (175 g/day) Ingestion						
			Antimony	Blood	--	RNA	RNA	--
			Arsenic	Skin/Blood	--	RNA	RNA	--
			Chromium		--	RNA	RNA	--
			Mercury	CNS	--	RNA	RNA	--
			cPAHs		--	--	--	--
			Bis(2-ethylhexyl)phthalate	Liver	--	RNA	RNA	--
			Hexachlorobenzene	Liver	--	RNA	RNA	--
			Total PCBs	Skin/Immunological	8000	RNA	RNA	8000
			Total Dioxin/Furan TEQ	Reproduction	5	RNA	RNA	5
			Total PCB TEQ	Reproduction	8	RNA	RNA	8
			Aldrin	Liver	--	RNA	RNA	--
			alpha-Hexachlorocyclohexane	Liver	--	RNA	RNA	--
			beta-Hexachlorocyclohexane	Liver	--	RNA	RNA	--
			Dieldrin	Liver	--	RNA	RNA	--
			Heptachlor	Liver	--	RNA	RNA	--
			Heptachlor Epoxide	Liver	--	RNA	RNA	--
			Total Chlordanes	Liver	--	RNA	RNA	--
			Total DDx	Liver	0.6	RNA	RNA	0.6
								Fish Tissue Hazard Index Total = 8000
								Receptor Hazard Index = 8000
								Blood Hazard Index = --
								Skin Hazard Index = 8000
								CNS Hazard Index = --
								Whole Body Hazard Index = --
								Liver Hazard Index = --
								Immunological Hazard Index = 8000
								Reproduction Hazard Index = 10
								Kidney Hazard Index = --
Sediment	Breast Milk	Breastfeeding from Adult with Direct Contact of on-site sediment RM 8 East						
								Sediment Hazard Index Total = < 1
Fish Tissue	Breast Milk	Breastfeeding from Adult consumption of Fillet Fish Tissue On-site (175 g/day) Ingestion						
			Antimony	Blood	--	RNA	RNA	--
			Arsenic	Skin/Blood	--	RNA	RNA	--
			Chromium		--	RNA	RNA	--
			Mercury	CNS	--	RNA	RNA	--
			cPAHs		--	--	--	--
			Bis(2-ethylhexyl)phthalate	Liver	--	RNA	RNA	--
			Hexachlorobenzene	Liver	--	RNA	RNA	--
			Total PCBs	Skin/Immunological	8000	RNA	RNA	8000
			Total Dioxin/Furan TEQ	Reproduction	5	RNA	RNA	5
			Total PCB TEQ	Reproduction	8	RNA	RNA	8
			Aldrin	Liver	--	RNA	RNA	--
			alpha-Hexachlorocyclohexane	Liver	--	RNA	RNA	--
			beta-Hexachlorocyclohexane	Liver	--	RNA	RNA	--
			Dieldrin	Liver	--	RNA	RNA	--
			Heptachlor	Liver	--	RNA	RNA	--
			Heptachlor Epoxide	Liver	--	RNA	RNA	--
			Total Chlordanes	Liver	--	RNA	RNA	--
			Total DDx	Liver	0.6	RNA	RNA	0.6
								Fish Tissue Hazard Index Total = 8000
								Receptor Hazard Index = 8000
								Blood Hazard Index = --
								Skin Hazard Index = 8000
								CNS Hazard Index = --
								Whole Body Hazard Index = --
								Liver Hazard Index = --
								Immunological Hazard Index = 8000
								Reproduction Hazard Index = 10
								Kidney Hazard Index = --

Table 5-94 Risk Characterization Summary, Noncancer Hazards - Breastfeeding Infant of Tribal Fisher, Reasonable Maximum Exposure								
Risk Characterization Summary - Non-Carcinogens								
Scenario Timeframe: Current/Future								
Receptor Population: Tribal								
Receptor Age: Infant								
Medium	Exposure Medium	Exposure Point	Chemical of Concern	Primary Target Organ	Non-Carcinogens Hazard Quotient			Exposure Routes Total
					Ingestion	Inhalation	Dermal	
Sediment	Breast Milk	Breastfeeding from Adult with Direct Contact of on-site sediment Ingestion SIL						
					Sediment Hazard Index Total =			< 1
Fish Tissue	Breast Milk	Breastfeeding from Adult consumption of Fillet Fish Tissue On-site (175 g/day) Ingestion						
			Antimony	Blood	--	RNA	RNA	--
			Arsenic	Skin/Blood	--	RNA	RNA	--
			Chromium		--	RNA	RNA	--
			Mercury	CNS	--	RNA	RNA	--
			cPAHs		--	--	--	--
			Bis(2-ethylhexyl)phthalate	Liver	--	RNA	RNA	--
			Hexachlorobenzene	Liver	--	RNA	RNA	--
			Total PCBs	Skin/Immunological	8000	RNA	RNA	8000
			Total Dioxin/Furan TEQ	Reproduction	5	RNA	RNA	5
			Total PCB TEQ	Reproduction	8	RNA	RNA	8
			Aldrin	Liver	--	RNA	RNA	--
			alpha-Hexachlorocyclohexane	Liver	--	RNA	RNA	--
			beta-Hexachlorocyclohexane	Liver	--	RNA	RNA	--
			Dieldrin	Liver	--	RNA	RNA	--
			Heptachlor	Liver	--	RNA	RNA	--
			Heptachlor Epoxide	Liver	--	RNA	RNA	--
			Total Chlordanes	Liver	--	RNA	RNA	--
			Total DDx	Liver	0.6	RNA	RNA	0.6
					Fish Tissue Hazard Index Total =			8000
					Receptor Hazard Index =			8000
					Blood Hazard Index =			--
					Skin Hazard Index =			8000
					CNS Hazard Index =			--
					Whole Body Hazard Index =			--
					Liver Hazard Index =			--
					Immunological Hazard Index =			8000
					Reproduction Hazard Index =			10
					Kidney Hazard Index =			--
Sediment	Breast Milk	Breastfeeding from Adult with Direct Contact of on-site sediment Ingestion RM 8.5 East						
					Sediment Hazard Index Total =			< 1
Fish Tissue	Breast Milk	Breastfeeding from Adult consumption of Fillet Fish Tissue On-site (175 g/day) Ingestion						
			Antimony	Blood	--	RNA	RNA	--
			Arsenic	Skin/Blood	--	RNA	RNA	--
			Chromium		--	RNA	RNA	--
			Mercury	CNS	--	RNA	RNA	--
			cPAHs		--	--	--	--
			Bis(2-ethylhexyl)phthalate	Liver	--	RNA	RNA	--
			Hexachlorobenzene	Liver	--	RNA	RNA	--
			Total PCBs	Skin/Immunological	8000	RNA	RNA	8000
			Total Dioxin/Furan TEQ	Reproduction	5	RNA	RNA	5
			Total PCB TEQ	Reproduction	8	RNA	RNA	8
			Aldrin	Liver	--	RNA	RNA	--
			alpha-Hexachlorocyclohexane	Liver	--	RNA	RNA	--
			beta-Hexachlorocyclohexane	Liver	--	RNA	RNA	--
			Dieldrin	Liver	--	RNA	RNA	--
			Heptachlor	Liver	--	RNA	RNA	--
			Heptachlor Epoxide	Liver	--	RNA	RNA	--
			Total Chlordanes	Liver	--	RNA	RNA	--
			Total DDx	Liver	0.6	RNA	RNA	0.6
					Fish Tissue Hazard Index Total =			8000
					Receptor Hazard Index =			8000
					Blood Hazard Index =			--
					Skin Hazard Index =			8000
					CNS Hazard Index =			--
					Whole Body Hazard Index =			--
					Liver Hazard Index =			--
					Immunological Hazard Index =			8000
					Reproduction Hazard Index =			10
					Kidney Hazard Index =			--

Table 5-94 Risk Characterization Summary, Noncancer Hazards - Breastfeeding Infant of Tribal Fisher, Reasonable Maximum Exposure								
Risk Characterization Summary - Non-Carcinogens								
Scenario Timeframe: Current/Future								
Receptor Population: Tribal								
Receptor Age: Infant								
Medium	Exposure Medium	Exposure Point	Chemical of Concern	Primary Target Organ	Non-Carcinogens Hazard Quotient			Exposure Routes Total
					Ingestion	Inhalation	Dermal	
Sediment	Breast Milk	Breastfeeding from Adult with Direct Contact of on-site sediment RM 9 East						
								Sediment Hazard Index Total = < 1
Fish Tissue	Breast Milk	Breastfeeding from Adult consumption of Fillet Fish Tissue On-site (175 g/day) Ingestion						
			Antimony	Blood	--	RNA	RNA	--
			Arsenic	Skin/Blood	--	RNA	RNA	--
			Chromium		--	RNA	RNA	--
			Mercury	CNS	--	RNA	RNA	--
			cPAHs		--	--	--	--
			Bis(2-ethylhexyl)phthalate	Liver	--	RNA	RNA	--
			Hexachlorobenzene	Liver	--	RNA	RNA	--
			Total PCBs	Skin/Immunological	8000	RNA	RNA	8000
			Total Dioxin/Furan TEQ	Reproduction	5	RNA	RNA	5
			Total PCB TEQ	Reproduction	8	RNA	RNA	8
			Aldrin	Liver	--	RNA	RNA	--
			alpha-Hexachlorocyclohexane	Liver	--	RNA	RNA	--
			beta-Hexachlorocyclohexane	Liver	--	RNA	RNA	--
			Dieldrin	Liver	--	RNA	RNA	--
			Heptachlor	Liver	--	RNA	RNA	--
			Heptachlor Epoxide	Liver	--	RNA	RNA	--
			Total Chlordanes	Liver	--	RNA	RNA	--
			Total DDx	Liver	0.6	RNA	RNA	0.6
								Fish Tissue Hazard Index Total = 8000
								Receptor Hazard Index = 8000
								Blood Hazard Index = --
								Skin Hazard Index = 8000
								CNS Hazard Index = --
								Whole Body Hazard Index = --
								Liver Hazard Index = --
								Immunological Hazard Index = 8000
								Reproduction Hazard Index = 10
								Kidney Hazard Index = --
Sediment	Breast Milk	Breastfeeding from Adult with Direct Contact of on-site sediment RM 9.5 East						
								Sediment Hazard Index Total = < 1
Fish Tissue	Breast Milk	Breastfeeding from Adult consumption of Fillet Fish Tissue On-site (175 g/day) Ingestion						
			Antimony	Blood	--	RNA	RNA	--
			Arsenic	Skin/Blood	--	RNA	RNA	--
			Chromium		--	RNA	RNA	--
			Mercury	CNS	--	RNA	RNA	--
			cPAHs		--	--	--	--
			Bis(2-ethylhexyl)phthalate	Liver	--	RNA	RNA	--
			Hexachlorobenzene	Liver	--	RNA	RNA	--
			Total PCBs	Skin/Immunological	8000	RNA	RNA	8000
			Total Dioxin/Furan TEQ	Reproduction	5	RNA	RNA	5
			Total PCB TEQ	Reproduction	8	RNA	RNA	8
			Aldrin	Liver	--	RNA	RNA	--
			alpha-Hexachlorocyclohexane	Liver	--	RNA	RNA	--
			beta-Hexachlorocyclohexane	Liver	--	RNA	RNA	--
			Dieldrin	Liver	--	RNA	RNA	--
			Heptachlor	Liver	--	RNA	RNA	--
			Heptachlor Epoxide	Liver	--	RNA	RNA	--
			Total Chlordanes	Liver	--	RNA	RNA	--
			Total DDx	Liver	0.6	RNA	RNA	0.6
								Fish Tissue Hazard Index Total = 8000
								Receptor Hazard Index = 8000
								Blood Hazard Index = --
								Skin Hazard Index = 8000
								CNS Hazard Index = --
								Whole Body Hazard Index = --
								Liver Hazard Index = --
								Immunological Hazard Index = 8000
								Reproduction Hazard Index = 10
								Kidney Hazard Index = --

Table 5-94 Risk Characterization Summary, Noncancer Hazards - Breastfeeding Infant of Tribal Fisher, Reasonable Maximum Exposure								
Risk Characterization Summary - Non-Carcinogens								
Scenario Timeframe: Current/Future								
Receptor Population: Tribal								
Receptor Age: Infant								
Medium	Exposure Medium	Exposure Point	Chemical of Concern	Primary Target Organ	Non-Carcinogens Hazard Quotient			Exposure Routes Total
					Ingestion	Inhalation	Dermal	
Sediment	Breast Milk	Breastfeeding from Adult with Direct Contact of on-site sediment RM 10 East						
								Sediment Hazard Index Total = < 1
Fish Tissue	Breast Milk	Breastfeeding from Adult consumption of Fillet Fish Tissue On-site (175 g/day) Ingestion						
			Antimony	Blood	--	RNA	RNA	--
			Arsenic	Skin/Blood	--	RNA	RNA	--
			Chromium		--	RNA	RNA	--
			Mercury	CNS	--	RNA	RNA	--
			cPAHs		--	--	--	--
			Bis(2-ethylhexyl)phthalate	Liver	--	RNA	RNA	--
			Hexachlorobenzene	Liver	--	RNA	RNA	--
			Total PCBs	Skin/Immunological	8000	RNA	RNA	8000
			Total Dioxin/Furan TEQ	Reproduction	5	RNA	RNA	5
			Total PCB TEQ	Reproduction	8	RNA	RNA	8
			Aldrin	Liver	--	RNA	RNA	--
			alpha-Hexachlorocyclohexane	Liver	--	RNA	RNA	--
			beta-Hexachlorocyclohexane	Liver	--	RNA	RNA	--
			Dieldrin	Liver	--	RNA	RNA	--
			Heptachlor	Liver	--	RNA	RNA	--
			Heptachlor Epoxide	Liver	--	RNA	RNA	--
			Total Chlordanes	Liver	--	RNA	RNA	--
			Total DDx	Liver	0.6	RNA	RNA	0.6
								Fish Tissue Hazard Index Total = 8000
								Receptor Hazard Index = 8000
								Blood Hazard Index = --
								Skin Hazard Index = 8000
								CNS Hazard Index = --
								Whole Body Hazard Index = --
								Liver Hazard Index = --
								Immunological Hazard Index = 8000
								Reproduction Hazard Index = 10
								Kidney Hazard Index = --
Sediment	Breast Milk	Breastfeeding from Adult with Direct Contact of on-site sediment RM 10.5 East						
								Sediment Hazard Index Total = < 1
Fish Tissue	Breast Milk	Breastfeeding from Adult consumption of Fillet Fish Tissue On-site (175 g/day) Ingestion						
			Antimony	Blood	--	RNA	RNA	--
			Arsenic	Skin/Blood	--	RNA	RNA	--
			Chromium		--	RNA	RNA	--
			Mercury	CNS	--	RNA	RNA	--
			cPAHs		--	--	--	--
			Bis(2-ethylhexyl)phthalate	Liver	--	RNA	RNA	--
			Hexachlorobenzene	Liver	--	RNA	RNA	--
			Total PCBs	Skin/Immunological	8000	RNA	RNA	8000
			Total Dioxin/Furan TEQ	Reproduction	5	RNA	RNA	5
			Total PCB TEQ	Reproduction	8	RNA	RNA	8
			Aldrin	Liver	--	RNA	RNA	--
			alpha-Hexachlorocyclohexane	Liver	--	RNA	RNA	--
			beta-Hexachlorocyclohexane	Liver	--	RNA	RNA	--
			Dieldrin	Liver	--	RNA	RNA	--
			Heptachlor	Liver	--	RNA	RNA	--
			Heptachlor Epoxide	Liver	--	RNA	RNA	--
			Total Chlordanes	Liver	--	RNA	RNA	--
			Total DDx	Liver	0.6	RNA	RNA	0.6
								Fish Tissue Hazard Index Total = 8000
								Receptor Hazard Index = 8000
								Blood Hazard Index = --
								Skin Hazard Index = 8000
								CNS Hazard Index = --
								Whole Body Hazard Index = --
								Liver Hazard Index = --
								Immunological Hazard Index = 8000
								Reproduction Hazard Index = 10
								Kidney Hazard Index = --

Table 5-94 Risk Characterization Summary, Noncancer Hazards - Breastfeeding Infant of Tribal Fisher, Reasonable Maximum Exposure										
Risk Characterization Summary - Non-Carcinogens										
Scenario Timeframe: Current/Future										
Receptor Population: Tribal										
Receptor Age: Infant										
Medium	Exposure Medium	Exposure Point	Chemical of Concern	Primary Target Organ	Non-Carcinogens Hazard Quotient			Exposure Routes Total		
					Ingestion	Inhalation	Dermal			
Sediment	Breast Milk	Breastfeeding from Adult with Direct Contact of on-site sediment Ingestion  RM 11 East	Antimony	Blood	NA	RNA	RNA	0		
			Arsenic	Skin/Blood	--	--	--	--		
			cPAHs		--	--	--	--		
			Total PCBs	Skin/Immunological	2	RNA	RNA	2		
			Total Dioxin/Furan TEQ	Reproduction	<1	RNA	RNA	0		
			Total PCB TEQ	Reproduction	<1	RNA	RNA	0		
			Sediment Hazard Index Total =							2
Fish Tissue	Breast Milk	Breastfeeding from Adult consumption of Fillet Fish Tissue On-site (175 g/day) Ingestion	Antimony	Blood	--	RNA	RNA	--		
			Arsenic	Skin/Blood	--	RNA	RNA	--		
			Chromium		--	RNA	RNA	--		
			Mercury	CNS	--	RNA	RNA	--		
			cPAHs		--	--	--	--		
			Bis(2-ethylhexyl)phthalate	Liver	--	RNA	RNA	--		
			Hexachlorobenzene	Liver	--	RNA	RNA	--		
			Total PCBs	Skin/Immunological	8000	RNA	RNA	8000		
			Total Dioxin/Furan TEQ	Reproduction	5	RNA	RNA	5		
			Total PCB TEQ	Reproduction	8	RNA	RNA	8		
			Aldrin	Liver	--	RNA	RNA	--		
			alpha-Hexachlorocyclohexane	Liver	--	RNA	RNA	--		
			beta-Hexachlorocyclohexane	Liver	--	RNA	RNA	--		
			Dieldrin	Liver	--	RNA	RNA	--		
			Heptachlor	Liver	--	RNA	RNA	--		
			Heptachlor Epoxide	Liver	--	RNA	RNA	--		
			Total Chlordanes	Liver	--	RNA	RNA	--		
			Total DDX	Liver	0.6	RNA	RNA	0.6		
			Fish Tissue Hazard Index Total =							8000
			Receptor Hazard Index =							8000
			Blood Hazard Index =							--
			Skin Hazard Index =							8000
			CNS Hazard Index =							--
			Whole Body Hazard Index =							--
			Liver Hazard Index =							--
			Immological Hazard Index =							8000
			Reproduction Hazard Index =							10
Kidney Hazard Index =							--			
Sediment	Breast Milk	Breastfeeding from Adult with Direct Contact of on-site sediment Ingestion  RM 11.5 East						Sediment Hazard Index Total =	< 1	
Fish Tissue	Breast Milk	Breastfeeding from Adult consumption of Fillet Fish Tissue On-site (175 g/day) Ingestion	Antimony	Blood	--	RNA	RNA	--		
			Arsenic	Skin/Blood	--	RNA	RNA	--		
			Chromium		--	RNA	RNA	--		
			Mercury	CNS	--	RNA	RNA	--		
			cPAHs		--	--	--	--		
			Bis(2-ethylhexyl)phthalate	Liver	--	RNA	RNA	--		
			Hexachlorobenzene	Liver	--	RNA	RNA	--		
			Total PCBs	Skin/Immunological	8000	RNA	RNA	8000		
			Total Dioxin/Furan TEQ	Reproduction	5	RNA	RNA	5		
			Total PCB TEQ	Reproduction	8	RNA	RNA	8		
			Aldrin	Liver	--	RNA	RNA	--		
			alpha-Hexachlorocyclohexane	Liver	--	RNA	RNA	--		
			beta-Hexachlorocyclohexane	Liver	--	RNA	RNA	--		
			Dieldrin	Liver	--	RNA	RNA	--		
			Heptachlor	Liver	--	RNA	RNA	--		
			Heptachlor Epoxide	Liver	--	RNA	RNA	--		
			Total Chlordanes	Liver	--	RNA	RNA	--		
			Total DDX	Liver	0.6	RNA	RNA	0.6		
			Fish Tissue Hazard Index Total =							8000
			Receptor Hazard Index =							8000
			Blood Hazard Index =							--
			Skin Hazard Index =							8000
			CNS Hazard Index =							--
			Whole Body Hazard Index =							--
			Liver Hazard Index =							--
			Immological Hazard Index =							8000
			Reproduction Hazard Index =							10
Kidney Hazard Index =							--			

Table 5-94 Risk Characterization Summary, Noncancer Hazards - Breastfeeding Infant of Tribal Fisher, Reasonable Maximum Exposure								
Risk Characterization Summary - Non-Carcinogens								
Scenario Timeframe: Current/Future								
Receptor Population: Tribal								
Receptor Age: Infant								
Medium	Exposure Medium	Exposure Point	Chemical of Concern	Primary Target Organ	Non-Carcinogens Hazard Quotient			Exposure Routes Total
					Ingestion	Inhalation	Dermal	
Sediment	Breast Milk	Breastfeeding from Adult with Direct Contact of on-site sediment RM 12 East						
								Sediment Hazard Index Total = < 1
Fish Tissue	Breast Milk	Breastfeeding from Adult consumption of Fillet Fish Tissue On-site (175 g/day) Ingestion						
			Antimony	Blood	--	RNA	RNA	--
			Arsenic	Skin/Blood	--	RNA	RNA	--
			Chromium		--	RNA	RNA	--
			Mercury	CNS	--	RNA	RNA	--
			cPAHs		--	--	--	--
			Bis(2-ethylhexyl)phthalate	Liver	--	RNA	RNA	--
			Hexachlorobenzene	Liver	--	RNA	RNA	--
			Total PCBs	Skin/Immunological	8000	RNA	RNA	8000
			Total Dioxin/Furan TEQ	Reproduction	5	RNA	RNA	5
			Total PCB TEQ	Reproduction	8	RNA	RNA	8
			Aldrin	Liver	--	RNA	RNA	--
			alpha-Hexachlorocyclohexane	Liver	--	RNA	RNA	--
			beta-Hexachlorocyclohexane	Liver	--	RNA	RNA	--
			Dieldrin	Liver	--	RNA	RNA	--
			Heptachlor	Liver	--	RNA	RNA	--
			Heptachlor Epoxide	Liver	--	RNA	RNA	--
			Total Chlordanes	Liver	--	RNA	RNA	--
			Total DDx	Liver	0.6	RNA	RNA	0.6
								Fish Tissue Hazard Index Total = 8000
								Receptor Hazard Index = 8000
								Blood Hazard Index = --
								Skin Hazard Index = 8000
								CNS Hazard Index = --
								Whole Body Hazard Index = --
								Liver Hazard Index = --
								Immunological Hazard Index = 8000
								Reproduction Hazard Index = 10
								Kidney Hazard Index = --
Sediment	Breast Milk	Breastfeeding from Adult with Direct Contact of on-site sediment Study Area-wide						
								Sediment Hazard Index Total = < 1
Fish Tissue	Breast Milk	Breastfeeding from Adult consumption of Fillet Fish Tissue On-site (175 g/day) Ingestion						
			Antimony	Blood	--	RNA	RNA	--
			Arsenic	Skin/Blood	--	RNA	RNA	--
			Chromium		--	RNA	RNA	--
			Mercury	CNS	--	RNA	RNA	--
			cPAHs		--	--	--	--
			Bis(2-ethylhexyl)phthalate	Liver	--	RNA	RNA	--
			Hexachlorobenzene	Liver	--	RNA	RNA	--
			Total PCBs	Skin/Immunological	8000	RNA	RNA	8000
			Total Dioxin/Furan TEQ	Reproduction	5	RNA	RNA	5
			Total PCB TEQ	Reproduction	8	RNA	RNA	8
			Aldrin	Liver	--	RNA	RNA	--
			alpha-Hexachlorocyclohexane	Liver	--	RNA	RNA	--
			beta-Hexachlorocyclohexane	Liver	--	RNA	RNA	--
			Dieldrin	Liver	--	RNA	RNA	--
			Heptachlor	Liver	--	RNA	RNA	--
			Heptachlor Epoxide	Liver	--	RNA	RNA	--
			Total Chlordanes	Liver	--	RNA	RNA	--
			Total DDx	Liver	0.6	RNA	RNA	0.6
								Fish Tissue Hazard Index Total = 8000
								Receptor Hazard Index = 8000
								Blood Hazard Index = --
								Skin Hazard Index = 8000
								CNS Hazard Index = --
								Whole Body Hazard Index = --
								Liver Hazard Index = --
								Immunological Hazard Index = 8000
								Reproduction Hazard Index = 10
								Kidney Hazard Index = --
<b>Key</b>								
SIL	Swan Island Lagoon							
RM	River Mile							
CNS	Central Nervous System							
--	Toxicity criteria are not available to quantitatively address this route of exposure.							
RNA	Route of exposure is not applicable to this medium.							

Table 5-95 Risk Characterization Summary, Cancer Risks and Noncancer Hazards - In-Water Worker, Reasonable Maximum Exposure									
Risk Characterization Summary - Carcinogens									
Scenario Timeframe: Current/Future									
Receptor Population: In-Water Worker									
Receptor Age: Adult									
Medium	Exposure Medium	Exposure Point	Chemical of Concern	Carcinogenic Risk					
				Ingestion	Inhalation	Dermal	Exposure Routes Total		
Sediment	River Sediment	River Sediment On-site Direct Contact							
		RM 1 West					Total Risk =	1E-07	
		RM 1.5 West					Total Risk =	9E-08	
		RM 2 West					Total Risk =	9E-08	
		RM 2.5 West					Total Risk =	2E-07	
		RM 3 West					Total Risk =	2E-07	
		RM 3.5 West					Total Risk =	6E-07	
		RM 4 West					Total Risk =	2E-07	
		RM 4.5 West					Total Risk =	4E-07	
		RM 5 West					Total Risk =	7E-07	
		RM 5.5 West					Total Risk =	8E-07	
		RM 6 West	Arsenic		7E-08	RNA	7E-09		8E-08
			cPAHs		6E-06	RNA	3E-06		9E-06
			Total PCBs		6E-10	RNA	1E-09		2E-09
			Total Dioxin/Furan TEQ		4E-09	RNA	2E-09		6E-09
			Total PCB TEQ		4E-09	RNA	2E-09		6E-09
								Total Risk =	9E-06
		RM 6.5 West					Total Risk =	7E-07	
		RM 7 West	Arsenic		9E-08	RNA	9E-09		1E-07
			cPAHs		3E-07	RNA	1E-07		4E-07
			Total PCBs		2E-09	RNA	1E-09		3E-09
			Total Dioxin/Furan TEQ		2E-05	RNA	2E-06		2E-05
			Total PCB TEQ		4E-08	RNA	2E-08		6E-08
								Total Risk =	2E-05
		RM 7.5 West					Total Risk =	1E-07	
		RM 8 West					Total Risk =	3E-07	
		RM 8.5 West					Total Risk =	1E-06	
		RM 9 West					Total Risk =	3E-07	
		RM 9.5 West					Total Risk =	2E-07	
		RM 10 West					Total Risk =	6E-07	
		RM 10.5 West					Total Risk =	1E-07	
		RM 11 West					Total Risk =	1E-07	
		RM 11.5 West					Total Risk =	7E-08	
		RM 12 West					Total Risk =	4E-07	
		RM 1 East					Total Risk =	1E-07	
		RM 1.5 East					Total Risk =	3E-07	
		RM 2 East					Total Risk =	3E-07	
		RM 2.5 East					Total Risk =	8E-07	
		RM 3 East					Total Risk =	1E-07	
		RM 3.5 East					Total Risk =	6E-07	
		RM 4 East					Total Risk =	5E-07	
		RM 4.5 East	Arsenic		8E-08	RNA	8E-09		9E-08
			cPAHs		1E-06	RNA	5E-07		2E-06
			Total PCBs		1E-09	RNA	5E-10		2E-09
			Total Dioxin/Furan TEQ		4E-10	RNA	4E-11		4E-10
			Total PCB TEQ		5E-10	RNA	2E-10		7E-10
								Total Risk =	2E-06
		RM 5 East					Total Risk =	2E-07	
		RM 5.5 East					Total Risk =	3E-07	
		RM 6 East					Total Risk =	4E-07	
		RM 6.5 East					Total Risk =	3E-07	
		RM 7 East					Total Risk =	4E-07	
RM 7.5 East					Total Risk =	9E-08			
RM 8 East					Total Risk =	3E-07			
SIL					Total Risk =	4E-07			
RM 8.5 East					Total Risk =	2E-07			
RM 9 East					Total Risk =	1E-07			
RM 9.5 East					Total Risk =	8E-08			
RM 10 East					Total Risk =	1E-07			
RM 10.5 East					Total Risk =	8E-08			
RM 11 East					Total Risk =	3E-07			
RM 11.5 East					Total Risk =	NA			
RM 12 East					Total Risk =	7E-08			
Study Area-wide	Arsenic		8E-08	RNA	8E-09		9E-08		
	cPAHs		4E-07	RNA	2E-07		6E-07		
	Total PCBs		8E-09	RNA	4E-09		1E-08		
	Total Dioxin/Furan TEQ		1E-06	RNA	9E-08		1E-06		
	Total PCB TEQ		2E-08	RNA	1E-08		3E-08		
						Total Risk =	2E-06		

Key		
--		Toxicity criteria are not available to quantitatively address this route of exposure.
NA		Not Analyzed
ND		Not Detected
SIL		Swan Islan Lagoon
RNA		Route of exposure is not applicable to this medium.

Table 5-96 Risk Characterization Summary, Noncancer Hazards - Breastfeeding Infant of In-Water Worker, Reasonable Maximum Exposure

Risk Characterization Summary - Non-Carcinogens									
Scenario Timeframe: Current/Future									
Receptor Population: In-Water Worker									
Receptor Age: Infant									
Medium	Exposure Medium	Exposure Point	Chemical of Concern	Primary Target Organ	Non-Carcinogens Hazard Quotient			Exposure Routes Total	
					Ingestion	Inhalation	Dermal		
Sediment	Breast Milk	Breastfeeding from Adult with Direct Contact of on-site sediment Ingestion							
		RM 1 West						Receptor Hazard Index =	< 1
		RM 1.5 West						Receptor Hazard Index =	< 1
		RM 2 West						Receptor Hazard Index =	< 1
		RM 2.5 West						Receptor Hazard Index =	< 1
		RM 3 West						Receptor Hazard Index =	< 1
		RM 3.5 West						Receptor Hazard Index =	< 1
		RM 4 West						Receptor Hazard Index =	< 1
		RM 4.5 West						Receptor Hazard Index =	< 1
		RM 5 West						Receptor Hazard Index =	< 1
		RM 5.5 West						Receptor Hazard Index =	< 1
		RM 6 West						Receptor Hazard Index =	< 1
		RM 6.5 West						Receptor Hazard Index =	< 1
		RM 7 West	Arsenic	Skin/Blood	--	RNA	RNA	--	
			cPAHs		--	--	--	--	
			Total PCBs	Skin/Immunological	<1	RNA	RNA		0
			Total Dioxin/Furan TEQ	Reproduction	2	RNA	RNA		2
			Total PCB TEQ	Reproduction	<1	RNA	RNA		0
								Receptor Hazard Index =	2
								Skin/Blood =	--
								Skin/Immunological =	--
								Reproduction Hazard Index =	2
		RM 7.5 West						Receptor Hazard Index =	< 1
		RM 8 West						Receptor Hazard Index =	< 1
		RM 8.5 West						Receptor Hazard Index =	< 1
		RM 9 West						Receptor Hazard Index =	< 1
		RM 9.5 West						Receptor Hazard Index =	< 1
		RM 10 West						Receptor Hazard Index =	< 1
RM 10.5 West						Receptor Hazard Index =	< 1		
RM 11 West						Receptor Hazard Index =	< 1		
RM 11.5 West						Receptor Hazard Index =	< 1		
RM 12 West						Receptor Hazard Index =	< 1		
RM 1 East						Receptor Hazard Index =	< 1		
RM 1.5 East						Receptor Hazard Index =	< 1		



Table 5-96 Risk Characterization Summary, Noncancer Hazards - Breastfeeding Infant of In-Water Worker, Reasonable Maximum Exposure

Risk Characterization Summary - Non-Carcinogens									
Scenario Timeframe:		Current/Future							
Receptor Population:		In-Water Worker							
Receptor Age:		Infant							
Medium	Exposure Medium	Exposure Point	Chemical of Concern	Primary Target Organ	Non-Carcinogens Hazard Quotient				
					Ingestion	Inhalation	Dermal	Exposure Routes Total	
Sediment	Breast Milk	RM 2 East			<b>Receptor Hazard Index =</b>				< 1
		RM 2.5 East			<b>Receptor Hazard Index =</b>				< 1
		RM 3 East			<b>Receptor Hazard Index =</b>				< 1
		RM 3.5 East			<b>Receptor Hazard Index =</b>				< 1
		RM 4 East			<b>Receptor Hazard Index =</b>				< 1
		RM 4.5 East			<b>Receptor Hazard Index =</b>				< 1
		RM 5 East			<b>Receptor Hazard Index =</b>				< 1
		RM 5.5 East			<b>Receptor Hazard Index =</b>				< 1
		RM 6 East			<b>Receptor Hazard Index =</b>				< 1
		RM 6.5 East			<b>Receptor Hazard Index =</b>				< 1
		RM 7 East			<b>Receptor Hazard Index =</b>				< 1
		RM 7.5 East			<b>Receptor Hazard Index =</b>				< 1
		RM 8 East			<b>Receptor Hazard Index =</b>				< 1
		SIL			<b>Receptor Hazard Index =</b>				< 1
		RM 8.5 East			<b>Receptor Hazard Index =</b>				< 1
		RM 9 East			<b>Receptor Hazard Index =</b>				< 1
		RM 9.5 East			<b>Receptor Hazard Index =</b>				< 1
		RM 10 East			<b>Receptor Hazard Index =</b>				< 1
RM 10.5 East			<b>Receptor Hazard Index =</b>				< 1		
RM 11 East			<b>Receptor Hazard Index =</b>				< 1		
RM 11.5 East			<b>Receptor Hazard Index =</b>				< 1		
RM 12 East			<b>Receptor Hazard Index =</b>				< 1		
		Study Area-wide			<b>Receptor Hazard Index =</b>				< 1
<b>Key</b>									
	--	Toxicity criteria are not available to quantitatively address this route of exposure.							
	NA	Not Analyzed							
	ND	Not Detected							
	SIL	Swan Islan Lagoon							
	RNA	Route of exposure is not applicable to this medium.							

Table 5-97 Risk Characterization Summary, Cancer Risks and Noncancer Hazards - Commercial Diver, Wet Suit, Reasonable Maximum Exposure

Risk Characterization Summary - Carcinogens								
Scenario Timeframe:		Current/Future						
Receptor Population:		Commercial Diver (wet suit)						
Receptor Age:		Adult						
Medium	Exposure Medium	Exposure Point	Chemical of Concern	Carcinogenic Risk				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	
Sediment	River Sediment	River Sediment On-site Direct Contact						
		RM 1 West					<b>Total Risk = 3E-07</b>	
Sediment	River Sediment	River Sediment On-site Direct Contact						
		RM 1.5 West					<b>Total Risk = 1E-07</b>	
Sediment	River Sediment	River Sediment On-site Direct Contact						
		RM 2 West					<b>Total Sediment Risk = 1E-06</b>	
Water	River Water	River Water On-site Direct Contact						
		RM 2 West					<b>Total Water Risk = 2E-08</b>	
							<b>Total Risk = 1E-06</b>	
Sediment	River Sediment	River Sediment On-site Direct Contact						
		RM 2.5 West					<b>Total Risk = 4E-07</b>	
Sediment	River Sediment	River Sediment On-site Direct Contact						
		RM 3 West					<b>Total Sediment Risk = 5E-07</b>	
Water	River Water	River Water On-site Direct Contact						
		RM 3 West					<b>Total Water Risk = 2E-07</b>	
							<b>Total Risk = 7E-07</b>	
Sediment	River Sediment	River Sediment On-site Direct Contact						
		RM 3.5 West					<b>Total Risk = 1E-06</b>	
Sediment	River Sediment	River Sediment On-site Direct Contact						
		RM 4 West					<b>Total Sediment Risk = 4E-07</b>	
Water	River Water	River Water On-site Direct Contact						
		RM 4 West					<b>Total Water Risk = 3E-08</b>	
							<b>Total Risk = 4E-07</b>	
Sediment	River Sediment	River Sediment On-site Direct Contact						
		RM 4.5 West					<b>Total Risk = 1E-06</b>	
Sediment	River Sediment	River Sediment On-site Direct Contact	RM 5 West	Arsenic	2E-08	RNA	6E-08	8E-08
			cPAHs	1E-07	RNA	2E-06	2E-06	
			Total PCBs	2E-10	RNA	3E-09	3E-09	
			Total Dioxin/Furan TEQ	2E-09	RNA	8E-09	1E-08	
			Total PCB TEQ	9E-10	RNA	1E-08	1E-08	
							<b>Total Risk = 2E-06</b>	
Sediment	River Sediment	River Sediment On-site Direct Contact	RM 5.5 West	Arsenic	3E-08	RNA	1E-07	1E-07
			cPAHs	1E-07	RNA	2E-06	2E-06	
			Total PCBs	4E-10	RNA	5E-09	5E-09	
			Total Dioxin/Furan TEQ	1E-09	RNA	3E-09	4E-09	
			Total PCB TEQ	5E-10	RNA	8E-09	9E-09	
							<b>Total Sediment Risk = 2E-06</b>	
Water	River Water	River Water On-site Direct Contact						
		RM 5.5 West					<b>Total Water Risk = 3E-08</b>	
							<b>Total Risk = 2E-06</b>	
Sediment	River Sediment	River Sediment On-site Direct Contact	RM 6 West	Arsenic	2E-08	RNA	7E-08	9E-08
			cPAHs	2E-06	RNA	3E-05	3E-05	
			Total PCBs	4E-10	RNA	7E-09	7E-09	
			Total Dioxin/Furan TEQ	7E-10	RNA	2E-09	3E-09	
			Total PCB TEQ	1E-09	RNA	2E-08	2E-08	
							<b>Total Sediment Risk = 3E-05</b>	
Water	River Water	River Water On-site Direct Contact						
		RM 6 West	cPAHs	1E-05	RNA	2E-08	1E-05	
							<b>Total Water Risk = 1E-05</b>	
							<b>Total Risk = 4E-05</b>	
Sediment	River Sediment	River Sediment On-site Direct Contact						
		RM 6.5 West					<b>Total Sediment Risk = 1E-06</b>	
Water	River Water	River Water On-site Direct Contact						
		RM 6.5 West					<b>Total Water Risk = 6E-07</b>	
							<b>Total Risk = 2E-06</b>	

Table 5-97 Risk Characterization Summary, Cancer Risks and Noncancer Hazards - Commercial Diver, Wet Suit, Reasonable Maximum Exposure

Risk Characterization Summary - Carcinogens							
Scenario Timeframe:		Current/Future					
Receptor Population:		Commercial Diver (wet suit)					
Receptor Age:		Adult					
Medium	Exposure Medium	Exposure Point	Chemical of Concern	Carcinogenic Risk			
				Ingestion	Inhalation	Dermal	Exposure Routes Total
Sediment	River Sediment	River Sediment On-site Direct Contact					
		RM 7 West	Arsenic	3E-08	RNA	9E-08	1E-07
			cPAHs	8E-08	RNA	1E-06	1E-06
			Total PCBs	6E-10	RNA	1E-08	1E-08
			Total Dioxin/Furan TEQ	6E-06	RNA	2E-05	3E-05
			Total PCB TEQ	1E-08	RNA	2E-07	2E-07
Total Sediment Risk =						3E-05	
Water	River Water	River Water On-site Direct Contact					
		RM 7 West					Total Water Risk =
<b>Total Risk =</b>						<b>3E-05</b>	
Sediment	River Sediment	River Sediment On-site Direct Contact					
		RM 7.5 West					Total Sediment Risk =
Water	River Water	River Water On-site Direct Contact					
		RM 7.5 West					Total Water Risk =
<b>Total Risk =</b>						<b>3E-07</b>	
Sediment	River Sediment	River Sediment On-site Direct Contact					
		RM 8 West					Total Risk =
Sediment	River Sediment	River Sediment On-site Direct Contact					
		RM 8.5 West	Arsenic	6E-08	RNA	2E-07	3E-07
			cPAHs	7E-09	RNA	1E-07	1E-07
			Total PCBs	6E-08	RNA	9E-07	1E-06
			Total Dioxin/Furan TEQ	8E-09	RNA	3E-08	4E-08
			Total PCB TEQ	1E-07	RNA	2E-06	2E-06
Total Sediment Risk =						3E-06	
Water	River Water	River Water On-site Direct Contact					
		RM 8.5 West					Total Water Risk =
<b>Total Risk =</b>						<b>4E-06</b>	
Sediment	River Sediment	River Sediment On-site Direct Contact					
		RM 9 West					Total Risk =
Sediment	River Sediment	River Sediment On-site Direct Contact					
		RM 9.5 West					Total Sediment Risk =
Water	River Water	River Water On-site Direct Contact					
		RM 9.5 West					Total Water Risk =
<b>Total Risk =</b>						<b>4E-07</b>	
Sediment	River Sediment	River Sediment On-site Direct Contact					
		RM 10 West					Total Risk =
Sediment	River Sediment	River Sediment On-site Direct Contact					
		RM 10.5 West					Total Risk =
Sediment	River Sediment	River Sediment On-site Direct Contact					
		RM 11 West					Total Sediment Risk =
Water	River Water	River Water On-site Direct Contact					
		RM 11 Transect (W023)					Total Water Risk =
<b>Total Risk =</b>						<b>3E-07</b>	
Sediment	River Sediment	River Sediment On-site Direct Contact					
		RM 11.5 West					Total Risk =
Sediment	River Sediment	River Sediment On-site Direct Contact					
		RM 12 West					Total Risk =
Sediment	River Sediment	River Sediment On-site Direct Contact					
		RM 1 East					Total Risk =
Sediment	River Sediment	River Sediment On-site Direct Contact					
		RM 1.5 East					Total Risk =
Sediment	River Sediment	River Sediment On-site Direct Contact					
		RM 2 East					Total Sediment Risk =
Water	River Water	River Water On-site Direct Contact					
		RM 2 East					Total Water Risk =
<b>Total Risk =</b>						<b>1E-06</b>	

Table 5-97 Risk Characterization Summary, Cancer Risks and Noncancer Hazards - Commercial Diver, Wet Suit, Reasonable Maximum Exposure

Risk Characterization Summary - Carcinogens							
Scenario Timeframe:		Current/Future					
Receptor Population:		Commercial Diver (wet suit)					
Receptor Age:		Adult					
Medium	Exposure Medium	Exposure Point	Chemical of Concern	Carcinogenic Risk			
				Ingestion	Inhalation	Dermal	Exposure Routes Total
Sediment	River Sediment	River Sediment On-site Direct Contact					
		RM 2.5 East	Arsenic	3E-08	RNA	8E-08	1E-07
			cPAHs	2E-07	RNA	2E-06	2E-06
			Total PCBs	5E-10	RNA	8E-09	9E-09
			Total Dioxin/Furan TEQ	5E-10	RNA	2E-09	3E-09
			Total PCB TEQ	2E-09	RNA	2E-08	2E-08
<b>Total Risk =</b>						2E-06	
Sediment	River Sediment	River Sediment On-site Direct Contact					
		RM 3 East	<b>Total Risk =</b>				
							2E-07
Sediment	River Sediment	River Sediment On-site Direct Contact					
		RM 3.5 East	Arsenic	3E-08	RNA	8E-08	1E-07
			cPAHs	3E-08	RNA	5E-07	5E-07
			Total PCBs	1E-08	RNA	2E-07	2E-07
			Total Dioxin/Furan TEQ	5E-09	RNA	2E-08	3E-08
			Total PCB TEQ	5E-08	RNA	8E-07	9E-07
<b>Total Sediment Risk =</b>						2E-06	
Water	River Water	River Water On-site Direct Contact					
		RM 3.5 East	<b>Total Water Risk =</b>				
							1E-07
							<b>Total Risk =</b>
							2E-06
Sediment	River Sediment	River Sediment On-site Direct Contact					
		RM 4 East	<b>Total Sediment Risk =</b>				
							1E-06
Water	River Water	River Water On-site Direct Contact					
		RM 4 East	<b>Total Water Risk =</b>				
							3E-07
							<b>Total Risk =</b>
							1E-06
Sediment	River Sediment	River Sediment On-site Direct Contact					
		RM 4.5 East	Arsenic	3E-08	RNA	8E-08	1E-07
			cPAHs	3E-07	RNA	5E-06	5E-06
			Total PCBs	3E-10	RNA	5E-09	5E-09
			Total Dioxin/Furan TEQ	1E-10	RNA	4E-10	5E-10
			Total PCB TEQ	2E-10	RNA	2E-09	2E-09
<b>Total Sediment Risk =</b>						5E-06	
Water	River Water	River Water On-site Direct Contact					
		RM 4.5 East	<b>Total Water Risk =</b>				
							1E-06
							<b>Total Risk =</b>
							6E-06
Sediment	River Sediment	River Sediment On-site Direct Contact					
		RM 5 East	<b>Total Risk =</b>				
							4E-07
Sediment	River Sediment	River Sediment On-site Direct Contact					
		RM 5.5 East	<b>Total Sediment Risk =</b>				
							7E-07
Water	River Water	River Water On-site Direct Contact					
		RM 5.5 East	<b>Total Water Risk =</b>				
							2E-08
							<b>Total Risk =</b>
							7E-07
Sediment	River Sediment	River Sediment On-site Direct Contact					
		RM 6 East	<b>Total Sediment Risk =</b>				
							1E-06
Water	River Water	River Water On-site Direct Contact					
		RM 6.3 Transect (W011)	<b>Total Water Risk =</b>				
							1E-07
							<b>Total Risk =</b>
							1E-06
Sediment	River Sediment	River Sediment On-site Direct Contact					
		RM 6.5 East	<b>Total Sediment Risk =</b>				
							6E-07
Water	River Water	River Water On-site Direct Contact					
		RM 6.5 East	<b>Total Water Risk =</b>				
							2E-07
							<b>Total Risk =</b>
							8E-07
Sediment	River Sediment	River Sediment On-site Direct Contact					
		RM 7 East	<b>Total Risk =</b>				
							8E-07
Sediment	River Sediment	River Sediment On-site Direct Contact					
		RM 7.5 East	<b>Total Risk =</b>				
							1E-07
Sediment	River Sediment	River Sediment On-site Direct Contact					
		RM 8 East	<b>Total Risk =</b>				
							7E-07
Sediment	River Sediment	River Sediment On-site Direct Contact					
		SIL	<b>Total Sediment Risk =</b>				
							1E-06
Water	River Water	River Water On-site Direct Contact					
		SIL	<b>Total Water Risk =</b>				
							4E-07
							<b>Total Risk =</b>
							1E-06

Table 5-97 Risk Characterization Summary, Cancer Risks and Noncancer Hazards - Commercial Diver, Wet Suit, Reasonable Maximum Exposure								
Risk Characterization Summary - Carcinogens								
Scenario Timeframe:		Current/Future						
Receptor Population:		Commercial Diver (wet suit)						
Receptor Age:		Adult						
Medium	Exposure Medium	Exposure Point	Chemical of Concern	Carcinogenic Risk				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	
Sediment	River Sediment	River Sediment On-site Direct Contact	RM 8.5 East	Total Risk =				3E-07
Sediment	River Sediment	River Sediment On-site Direct Contact	RM 9 East	Total Risk =				1E-07
Sediment	River Sediment	River Sediment On-site Direct Contact	RM 9.5 East	Total Sediment Risk =				1E-07
Water	River Water	River Water On-site Direct Contact	RM 9.5 East	Total Water Risk =				1E-08
				Total Risk =				1E-07
Sediment	River Sediment	River Sediment On-site Direct Contact	RM 10 East	Total Risk =				3E-07
Sediment	River Sediment	River Sediment On-site Direct Contact	RM 10.5 East	Total Risk =				1E-07
Sediment	River Sediment	River Sediment On-site Direct Contact	RM 11 East	Total Sediment Risk =				8E-07
Water	River Water	River Water On-site Direct Contact	RM 11 Transect (W023)	Total Water Risk =				1E-07
				Total Risk =				9E-07
Sediment	River Sediment	River Sediment On-site Direct Contact	RM 11.5 East	Total Risk =				NA
Sediment	River Sediment	River Sediment On-site Direct Contact	RM 12 East	Total Risk =				1E-07
Sediment	River Sediment	River Sediment On-site Direct Contact	Study Area-wide	Arsenic	3E-08	RNA	9E-08	1E-07
				cPAHs	1E-07	RNA	2E-06	2E-06
				Total PCBs	3E-09	RNA	4E-08	4E-08
				Total Dioxin/Furan TEQ	3E-07	RNA	1E-06	1E-06
				Total PCB TEQ	3E-09	RNA	1E-07	1E-07
								Total Risk =

**Key**

-- Toxicity criteria are not available to quantitatively address this route of exposure.

NA Not Analyzed

ND Not Detected

SIL Swan Islan Lagoon

RNA Route of exposure is not applicable to this medium.

Table 5-98 Risk Characterization Summary, Noncancer Hazards - Breastfeeding Infant of Commercial Diver, Wet Suit, Reasonable Maximum Exposure									
Risk Characterization Summary - Non-Carcinogens									
Scenario Timeframe:		Current/Future							
Receptor Population:		Commercial Diver (wet suit)							
Receptor Age:		Infant							
Medium	Exposure Medium	Exposure Point	Chemical of Concern	Primary Target Organ	Non-Carcinogens Hazard Quotient			Exposure Routes Total	
					Ingestion	Inhalation	Dermal		
Sediment	Breast Milk	Breastfeeding from Adult with Direct Contact of on-site sediment Ingestion							
		RM 1 West						Receptor Hazard Index = < 1	
		RM 1.5 West						Receptor Hazard Index = < 1	
		RM 2 West						Receptor Hazard Index = < 1	
		RM 2.5 West						Receptor Hazard Index = < 1	
		RM 3 West						Receptor Hazard Index = < 1	
		RM 3.5 West						Receptor Hazard Index = < 1	
		RM 4 West						Receptor Hazard Index = < 1	
		RM 4.5 West						Receptor Hazard Index = < 1	
		RM 5 West						Receptor Hazard Index = < 1	
		RM 5.5 West						Receptor Hazard Index = < 1	
		RM 6 West						Receptor Hazard Index = < 1	
		RM 6.5 West						Receptor Hazard Index = < 1	
		RM 7 West	Arsenic	Skin/Blood	--	RNA	RNA	--	
			cPAHs		--	--	--	--	
			Total PCBs	Skin/Immunological	<1	RNA	RNA	0	
			Total Dioxin/Furan TEQ	Reproduction	1	RNA	RNA	1	
			Total PCB TEQ	Reproduction	<1	RNA	RNA	0	
									Receptor Hazard Index = 1
		RM 7.5 West							Receptor Hazard Index = < 1
		RM 8 West							Receptor Hazard Index = < 1
		RM 8.5 West	Arsenic	Skin/Blood	--	RNA	RNA	--	
			cPAHs		--	--	--	--	
			Total PCBs	Skin/Immunological	2	RNA	RNA	2	
			Total Dioxin/Furan TEQ	Reproduction	<1	RNA	RNA	0	
			Total PCB TEQ	Reproduction	<1	RNA	RNA	0	
									Receptor Hazard Index = 2
		RM 9 West							Receptor Hazard Index = < 1
		RM 9.5 West							Receptor Hazard Index = < 1
		RM 10 West							Receptor Hazard Index = < 1
RM 10.5 West							Receptor Hazard Index = < 1		
RM 11 West							Receptor Hazard Index = < 1		
RM 11.5 West							Receptor Hazard Index = < 1		
RM 12 West							Receptor Hazard Index = < 1		
RM 1 East							Receptor Hazard Index = < 1		

Table 5-98 Risk Characterization Summary, Noncancer Hazards - Breastfeeding Infant of Commercial Diver, Wet Suit, Reasonable Maximum Exposure								
Risk Characterization Summary - Non-Carcinogens								
Scenario Timeframe:		Current/Future						
Receptor Population:		Commercial Diver (wet suit)						
Receptor Age:		Infant						
Medium	Exposure Medium	Exposure Point	Chemical of Concern	Primary Target Organ	Non-Carcinogens Hazard Quotient			
					Ingestion	Inhalation	Dermal	Exposure Routes Total
Sediment	Breast Milk	RM 1.5 East			Receptor Hazard Index = < 1			
		RM 2 East			Receptor Hazard Index = < 1			
		RM 2.5 East			Receptor Hazard Index = < 1			
		RM 3 East			Receptor Hazard Index = < 1			
		RM 3.5 East			Receptor Hazard Index = < 1			
		RM 4 East			Receptor Hazard Index = < 1			
		RM 4.5 East			Receptor Hazard Index = < 1			
		RM 5 East			Receptor Hazard Index = < 1			
		RM 5.5 East			Receptor Hazard Index = < 1			
		RM 6 East			Receptor Hazard Index = < 1			
		RM 6.5 East			Receptor Hazard Index = < 1			
		RM 7 East			Receptor Hazard Index = < 1			
		RM 7.5 East			Receptor Hazard Index = < 1			
		RM 8 East			Receptor Hazard Index = < 1			
		SIL			Receptor Hazard Index = < 1			
		RM 8.5 East			Receptor Hazard Index = < 1			
		RM 9 East			Receptor Hazard Index = < 1			
		RM 9.5 East			Receptor Hazard Index = < 1			
		RM 10 East			Receptor Hazard Index = < 1			
		RM 10.5 East			Receptor Hazard Index = < 1			
RM 11 East			Receptor Hazard Index = < 1					
RM 11.5 East			Receptor Hazard Index = < 1					
RM 12 East			Receptor Hazard Index = < 1					
		Study Area-wide			Receptor Hazard Index = < 1			
<b>Key</b>								
--	Toxicity criteria are not available to quantitatively address this route of exposure.							
NA	Not Analyzed							
ND	Not Detected							
SIL	Swan Islan Lagoon							
RNA	Route of exposure is not applicable to this medium.							

Table 5-99 Risk Characterization Summary, Cancer Risks and Noncancer Hazards - Commercial Diver, Dry Suit, Reasonable Maximum Exposure

Risk Characterization Summary - Carcinogens								
Scenario Timeframe:		Current/Future						
Receptor Population:		Commercial Diver dry suit)						
Receptor Age:		Adult						
Medium	Exposure Medium	Exposure Point	Chemical of Concern	Carcinogenic Risk				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	
Sediment	River Sediment	River Sediment On-site Direct Contact						
		RM 1 West	Total Risk =				7E-08	
Sediment	River Sediment	River Sediment On-site Direct Contact						
		RM 1.5 West	Total Risk =				4E-08	
Sediment	River Sediment	River Sediment On-site Direct Contact						
		RM 2 West	Total Sediment Risk =				4E-08	
Water	River Water	River Water On-site Direct Contact						
		RM 2 West	Total Water Risk =				2E-08	
				Total Risk =				6E-08
Sediment	River Sediment	River Sediment On-site Direct Contact						
		RM 2.5 West	Total Risk =				9E-08	
Sediment	River Sediment	River Sediment On-site Direct Contact						
		RM 3 West	Total Sediment Risk =				1E-07	
Water	River Water	River Water On-site Direct Contact						
		RM 3 West	Total Water Risk =				4E-08	
				Total Risk =				1E-07
Sediment	River Sediment	River Sediment On-site Direct Contact						
		RM 3.5 West	Total Risk =				3E-07	
Sediment	River Sediment	River Sediment On-site Direct Contact						
		RM 4 West	Total Sediment Risk =				1E-07	
Water	River Water	River Water On-site Direct Contact						
		RM 4 West	Total Water Risk =				1E-08	
				Total Risk =				1E-07
Sediment	River Sediment	River Sediment On-site Direct Contact						
		RM 4.5 West	Total Risk =				3E-07	
Sediment	River Sediment	River Sediment On-site Direct Contact						
		RM 5 West	Total Risk =				5E-07	
Sediment	River Sediment	River Sediment On-site Direct Contact						
		RM 5.5 West	Total Sediment Risk =				5E-07	
Water	River Water	River Water On-site Direct Contact						
		RM 5.5 West	Total Water Risk =				1E-08	
				Total Risk =				5E-07
Sediment	River Sediment	River Sediment On-site Direct Contact						
		RM 6 West	Arsenic	1E-08	RNA	5E-10	1E-08	
			cPAHs	2E-08	RNA	4E-06	4E-06	
			Total PCBs	4E-10	RNA	9E-10	1E-09	
			Total Dioxin/Furan TEQ	7E-10	RNA	3E-10	1E-09	
			Total PCB TEQ	1E-09	RNA	3E-09	4E-09	
						Total Sediment Risk =		4E-06
Water	River Water	River Water On-site Direct Contact						
		RM 6 West	Total Water Risk =				1E-06	
				Total Risk =				5E-06
Sediment	River Sediment	River Sediment On-site Direct Contact						
		RM 6.5 West	Total Sediment Risk =				3E-07	
Water	River Water	River Water On-site Direct Contact						
		RM 6.5 West	Total Water Risk =				9E-08	
				Total Risk =				4E-07
Sediment	River Sediment	River Sediment On-site Direct Contact						
		RM 7 West	Arsenic	3E-08	RNA	1E-08	4E-08	
			cPAHs	8E-08	RNA	2E-07	3E-07	
			Total PCBs	6E-10	RNA	1E-09	2E-09	
			Total Dioxin/Furan TEQ	6E-06	RNA	3E-06	9E-06	
			Total PCB TEQ	1E-08	RNA	3E-08	4E-08	
				Total Sediment Risk =		9E-06		
Water	River Water	River Water On-site Direct Contact						
		RM 7 West	Total Water Risk =				5E-07	
				Total Risk =				1E-05



Table 5-99 Risk Characterization Summary, Cancer Risks and Noncancer Hazards - Commercial Diver, Dry Suit, Reasonable Maximum Exposure

Risk Characterization Summary - Carcinogens			
Scenario Timeframe:		Current/Future	
Receptor Population:		Commercial Diver dry suit)	
Receptor Age:		Adult	
Sediment	River Sediment	River Sediment On-site Direct Contact	
		RM 7.5 West	Total Sediment Risk = 7E-08
Water	River Water	River Water On-site Direct Contact	
		RM 7.5 West	Total Water Risk = 1E-07
		<b>Total Risk = 2E-07</b>	
Sediment	River Sediment	River Sediment On-site Direct Contact	
		RM 8 West	<b>Total Risk = 1E-07</b>
Sediment	River Sediment	River Sediment On-site Direct Contact	
		RM 8.5 West	Total Sediment Risk = 7E-07
Water	River Water	River Water On-site Direct Contact	
		RM 8.5 West	Total Water Risk = 2E-08
		<b>Total Risk = 7E-07</b>	
Sediment	River Sediment	River Sediment On-site Direct Contact	
		RM 9 West	<b>Total Risk = 2E-07</b>
Sediment	River Sediment	River Sediment On-site Direct Contact	
		RM 9.5 West	Total Sediment Risk = 1E-07
Water	River Water	River Water On-site Direct Contact	
		RM 9.5 West	Total Water Risk = 1E-07
		<b>Total Risk = 2E-07</b>	
Sediment	River Sediment	River Sediment On-site Direct Contact	
		RM 10 West	<b>Total Risk = 3E-07</b>
Sediment	River Sediment	River Sediment On-site Direct Contact	
		RM 10.5 West	<b>Total Risk = 4E-08</b>
Sediment	River Sediment	River Sediment On-site Direct Contact	
		RM 11 West	Total Sediment Risk = 5E-08
Water	River Water	River Water On-site Direct Contact	
		RM 11 Transect (W023)	Total Water Risk = 2E-08
		<b>Total Risk = 7E-08</b>	
Sediment	River Sediment	River Sediment On-site Direct Contact	
		RM 11.5 West	<b>Total Risk = 3E-08</b>
Sediment	River Sediment	River Sediment On-site Direct Contact	
		RM 12 West	<b>Total Risk = 2E-07</b>
Sediment	River Sediment	River Sediment On-site Direct Contact	
		RM 1 East	<b>Total Risk = 6E-08</b>
Sediment	River Sediment	River Sediment On-site Direct Contact	
		RM 1.5 East	<b>Total Risk = 2E-07</b>
Sediment	River Sediment	River Sediment On-site Direct Contact	
		RM 2 East	Total Sediment Risk = 2E-07
Water	River Water	River Water On-site Direct Contact	
		RM 2 East	Total Water Risk = 1E-08
		<b>Total Risk = 2E-07</b>	
Sediment	River Sediment	River Sediment On-site Direct Contact	
		RM 2.5 East	<b>Total Risk = 5E-07</b>
Sediment	River Sediment	River Sediment On-site Direct Contact	
		RM 3 East	<b>Total Risk = 6E-08</b>
Sediment	River Sediment	River Sediment On-site Direct Contact	
		RM 3.5 East	Total Sediment Risk = 3E-07
Water	River Water	River Water On-site Direct Contact	
		RM 3.5 East	Total Water Risk = 2E-08
		<b>Total Risk = 3E-07</b>	
Sediment	River Sediment	River Sediment On-site Direct Contact	
		RM 4 East	Total Sediment Risk = 3E-07
Water	River Water	River Water On-site Direct Contact	
		RM 4 East	Total Water Risk = 5E-08
		<b>Total Risk = 4E-07</b>	
Sediment	River Sediment	River Sediment On-site Direct Contact	
		RM 4.5 East	Total Sediment Risk = 1E-06

Table 5-99 Risk Characterization Summary, Cancer Risks and Noncancer Hazards - Commercial Diver, Dry Suit, Reasonable Maximum Exposure

Risk Characterization Summary - Carcinogens			
Scenario Timeframe:		Current/Future	
Receptor Population:		Commercial Diver dry suit)	
Receptor Age:		Adult	
Water	River Water	River Water On-site Direct Contact	
		RM 4.5 East	Total Water Risk = 1E-07
			<b>Total Risk = 1E-06</b>
Sediment	River Sediment	River Sediment On-site Direct Contact	
		RM 5 East	Total Risk = 8E-08
Sediment	River Sediment	River Sediment On-site Direct Contact	
		RM 5.5 East	Total Sediment Risk = 2E-07
Water	River Water	River Water On-site Direct Contact	
		RM 5.5 East	Total Water Risk = 1E-08
			<b>Total Risk = 2E-07</b>
Sediment	River Sediment	River Sediment On-site Direct Contact	
		RM 6 East	Total Sediment Risk = 3E-07
Water	River Water	River Water On-site Direct Contact	
		RM 6.3 Transect (W011)	Total Water Risk = 3E-08
			<b>Total Risk = 3E-07</b>
Sediment	River Sediment	River Sediment On-site Direct Contact	
		RM 6.5 East	Total Sediment Risk = 2E-07
Water	River Water	River Water On-site Direct Contact	
		RM 6.5 East	Total Water Risk = 3E-08
			<b>Total Risk = 2E-07</b>
Sediment	River Sediment	River Sediment On-site Direct Contact	
		RM 7 East	Total Risk = 2E-07
Sediment	River Sediment	River Sediment On-site Direct Contact	
		RM 7.5 East	Total Risk = 4E-08
Sediment	River Sediment	River Sediment On-site Direct Contact	
		RM 8 East	Total Risk = 2E-07
Sediment	River Sediment	River Sediment On-site Direct Contact	
		SIL	Total Sediment Risk = 3E-07
Water	River Water	River Water On-site Direct Contact	
		SIL	Total Water Risk = 6E-08
			<b>Total Risk = 4E-07</b>
Sediment	River Sediment	River Sediment On-site Direct Contact	
		RM 8.5 East	Total Risk = 8E-08
Sediment	River Sediment	River Sediment On-site Direct Contact	
		RM 9 East	Total Risk = 4E-08
Sediment	River Sediment	River Sediment On-site Direct Contact	
		RM 9.5 East	Total Sediment Risk = 3E-08
Water	River Water	River Water On-site Direct Contact	
		RM 9.5 East	Total Water Risk = 1E-08
			<b>Total Risk = 4E-08</b>
Sediment	River Sediment	River Sediment On-site Direct Contact	
		RM 10 East	Total Risk = 4E-08
Sediment	River Sediment	River Sediment On-site Direct Contact	
		RM 10.5 East	Total Risk = 1E-07
Sediment	River Sediment	River Sediment On-site Direct Contact	
		RM 11 East	Total Sediment Risk = 2E-07
Water	River Water	River Water On-site Direct Contact	
		RM 11 Transect (W023)	Total Water Risk = 2E-08
			<b>Total Risk = 2E-07</b>
Sediment	River Sediment	River Sediment On-site Direct Contact	
		RM 11.5 East	Total Risk = NA
Sediment	River Sediment	River Sediment On-site Direct Contact	
		RM 12 East	Total Risk = 4E-08
Sediment	River Sediment	River Sediment On-site Direct Contact	
		Study Area-wide	Total Risk = 9E-07
<b>Key</b>			
--	Toxicity criteria are not available to quantitatively address this route of exposure.		
NA	Not Analyzed		
ND	Not Detected		
SIL	Swan Islan Lagoon		
RNA	Route of exposure is not applicable to this medium.		

Table 5-100 Risk Characterization Summary, Noncancer Hazards - Breastfeeding Infant of Commercial Diver, Dry Suit, Reasonable Maximum Exposure

Risk Characterization Summary - Non-Carcinogens								
Scenario Timeframe: Current/Future								
Receptor Population: Commercial Diver (wet suit)								
Receptor Age: Infant								
Medium	Exposure Medium	Exposure Point	Chemical of Concern	Primary Target Organ	Non-Carcinogens Hazard Quotient			
					Ingestion	Inhalation	Dermal	Exposure Routes Total
Sediment	Breast Milk	Breastfeeding from Adult with Direct Contact of on-site sediment Ingestion						
		RM 1 West					Receptor Hazard Index =	< 1
		RM 1.5 West					Receptor Hazard Index =	< 1
		RM 2 West					Receptor Hazard Index =	< 1
		RM 2.5 West					Receptor Hazard Index =	< 1
		RM 3 West					Receptor Hazard Index =	< 1
		RM 3.5 West					Receptor Hazard Index =	< 1
		RM 4 West					Receptor Hazard Index =	< 1
		RM 4.5 West					Receptor Hazard Index =	< 1
		RM 5 West					Receptor Hazard Index =	< 1
		RM 5.5 West					Receptor Hazard Index =	< 1
		RM 6 West					Receptor Hazard Index =	< 1
		RM 6.5 West					Receptor Hazard Index =	< 1
		RM 7 West					Receptor Hazard Index =	< 1
		RM 7.5 West					Receptor Hazard Index =	< 1
		RM 8 West					Receptor Hazard Index =	< 1
		RM 8.5 West					Receptor Hazard Index =	< 1
		RM 9 West					Receptor Hazard Index =	< 1
		RM 9.5 West					Receptor Hazard Index =	< 1
		RM 10 West					Receptor Hazard Index =	< 1
		RM 10.5 West					Receptor Hazard Index =	< 1
		RM 11 West					Receptor Hazard Index =	< 1
		RM 11.5 West					Receptor Hazard Index =	< 1
		RM 12 West					Receptor Hazard Index =	< 1
		RM 1 East					Receptor Hazard Index =	< 1
		RM 1.5 East					Receptor Hazard Index =	< 1
		RM 2 East					Receptor Hazard Index =	< 1
		RM 2.5 East					Receptor Hazard Index =	< 1
		RM 3 East					Receptor Hazard Index =	< 1
		RM 3.5 East					Receptor Hazard Index =	< 1
RM 4 East					Receptor Hazard Index =	< 1		
RM 4.5 East					Receptor Hazard Index =	< 1		
RM 5 East					Receptor Hazard Index =	< 1		
RM 5.5 East					Receptor Hazard Index =	< 1		

Table 5-100 Risk Characterization Summary, Noncancer Hazards - Breastfeeding Infant of Commercial Diver, Dry Suit, Reasonable Maximum Exposure

Risk Characterization Summary - Non-Carcinogens			
Scenario Timeframe:	Current/Future		
Receptor Population:	Commercial Diver (wet suit)		
Receptor Age:	Infant		
Sediment	Breast Milk	RM 6 East	Receptor Hazard Index = < 1
		RM 6.5 East	Receptor Hazard Index = < 1
		RM 7 East	Receptor Hazard Index = < 1
		RM 7.5 East	Receptor Hazard Index = < 1
		RM 8 East	Receptor Hazard Index = < 1
		SIL	Receptor Hazard Index = < 1
		RM 8.5 East	Receptor Hazard Index = < 1
		RM 9 East	Receptor Hazard Index = < 1
		RM 9.5 East	Receptor Hazard Index = < 1
		RM 10 East	Receptor Hazard Index = < 1
		RM 10.5 East	Receptor Hazard Index = < 1
		RM 11 East	Receptor Hazard Index = < 1
		RM 11.5 East	Receptor Hazard Index = < 1
		RM 12 East	Receptor Hazard Index = < 1
	Study Area-wide	Receptor Hazard Index = < 1	
<b>Key</b>			
--	Toxicity criteria are not available to quantitatively address this route of exposure.		
NA	Not Analyzed		
ND	Not Detected		
SIL	Swan Islan Lagoon		
RNA	Route of exposure is not applicable to this medium.		

Table 5-101 Risk Characterization Summary, Cancer Risks - Domestic Water Use, Reasonable Maximum Exposure

Risk Characterization Summary - Carcinogens							
Scenario Timeframe:		Future					
Receptor Population:		Domestic Water User					
Receptor Age:		Adult/Child					
Medium	Exposure Medium	Exposure Point	Chemical of Concern	Carcinogenic Risk			
				Ingestion	Inhalation	Dermal	Exposure Routes Total
Water	River Water	River Water On-site Direct Contact					
		RM 2 Transect (W025)	Arsenic, total	NC <sup>1</sup>	RNA	NC <sup>1</sup>	2E-05
			Chromium VI	ND	RNA	ND	0E+00
			Total cPAHs	NC <sup>1</sup>	RNA	NC <sup>1</sup>	5E-06
			MCP	---	---	---	---
		<b>Total Risk =</b>					3E-05
		RM 2.1 E (W026)	Arsenic, total	NC <sup>1</sup>	RNA	NC <sup>1</sup>	1E-05
			Chromium VI	ND	RNA	ND	0E+00
			Total cPAHs	ND	RNA	ND	0E+00
			MCP	---	---	---	---
		<b>Total Risk =</b>					1E-05
		RM 2.9 W (W027)	Arsenic, total	NC <sup>1</sup>	RNA	NC <sup>1</sup>	1E-05
			Chromium VI	ND	RNA	ND	0E+00
			Total cPAHs	NC <sup>1</sup>	RNA	NC <sup>1</sup>	2E-05
			MCP	---	---	---	---
		<b>Total Risk =</b>					3E-05
		RM 3.6 E (W028)	Arsenic, total	NC <sup>1</sup>	RNA	NC <sup>1</sup>	1E-05
			Chromium VI	ND	RNA	ND	0E+00
			Total cPAHs	ND	RNA	ND	0E+00
			MCP	---	---	---	---
		<b>Total Risk =</b>					1E-05
		RM 3.9 Transect (W005)	Arsenic, total	NC <sup>1</sup>	RNA	NC <sup>1</sup>	1E-05
			Chromium VI	ND	RNA	ND	0E+00
			Total cPAHs	NC <sup>1</sup>	RNA	NC <sup>1</sup>	5E-06
			MCP	---	---	---	---
		<b>Total Risk =</b>					2E-05
		RM 4.4 W (W029)	Arsenic, total	NC <sup>1</sup>	RNA	NC <sup>1</sup>	9E-06
			Chromium VI	ND	RNA	ND	0E+00
Total cPAHs	ND		RNA	ND	0E+00		
MCP	---		---	---	---		
<b>Total Risk =</b>					9E-06		

Table 5-101 Risk Characterization Summary, Cancer Risks - Domestic Water Use, Reasonable Maximum Exposure

Risk Characterization Summary - Carcinogens								
Scenario Timeframe:		Future						
Receptor Population:		Domestic Water User						
Receptor Age:		Adult/Child						
Medium	Exposure Medium	Exposure Point	Chemical of Concern	Carcinogenic Risk				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	
Water	River Water	RM 5.5 E (W030)	Arsenic, total	NC <sup>1</sup>	RNA	NC <sup>1</sup>	1E-05	
			Chromium VI	ND	RNA	ND	0E+00	
			Total cPAHs	ND	RNA	ND	0E+00	
			MCP	---	---	---	---	
		<b>Total Risk =</b>						1E-05
		RM 5.7 E (W010)	Arsenic, total	NC <sup>1</sup>	RNA	NC <sup>1</sup>	1E-05	
			Chromium VI	ND	RNA	ND	0E+00	
			Total cPAHs	ND	RNA	ND	0E+00	
			MCP	---	---	---	---	
		<b>Total Risk =</b>						1E-05
		RM 6.1 W (W031)	Arsenic, total	NC <sup>1</sup>	RNA	NC <sup>1</sup>	1E-05	
			Chromium VI	ND	RNA	ND	0E+00	
			Total cPAHs	NC <sup>1</sup>	RNA	NC <sup>1</sup>	4E-04	
			MCP	---	---	---	---	
		<b>Total Risk =</b>						4E-04
		RM 6.3 Transect (W011)	Arsenic, total	NC <sup>1</sup>	RNA	NC <sup>1</sup>	1E-05	
			Chromium VI	ND	RNA	ND	0E+00	
			Total cPAHs	NC <sup>1</sup>	RNA	NC <sup>1</sup>	4E-06	
			MCP	---	---	---	---	
		<b>Total Risk =</b>						1E-05
		RM 6.7 E (W032)	Arsenic, total	NC <sup>1</sup>	RNA	NC <sup>1</sup>	9E-06	
			Chromium VI	ND	RNA	ND	0E+00	
			Total cPAHs	NC <sup>1</sup>	RNA	NC <sup>1</sup>	2E-06	
			MCP	---	---	---	---	
		<b>Total Risk =</b>						1E-05
		RM 6.9 E (W014)	Arsenic, total	NC <sup>1</sup>	RNA	NC <sup>1</sup>	1E-05	
			Chromium VI	ND	RNA	ND	0E+00	
			Total cPAHs	ND	RNA	ND	0E+00	
			MCP	---	---	---	---	
		<b>Total Risk =</b>						1E-05
		RM 7 W (W033)	Arsenic, total	NC <sup>1</sup>	RNA	NC <sup>1</sup>	9E-06	
			Chromium VI	NC <sup>1</sup>	RNA	NC <sup>1</sup>	7E-06	
			Total cPAHs	NC <sup>1</sup>	RNA	NC <sup>1</sup>	1E-06	
			MCP	---	---	---	---	
		<b>Total Risk =</b>						2E-05
		RM 7.5 W (W034)	Arsenic, total	NC <sup>1</sup>	RNA	NC <sup>1</sup>	1E-05	
			Chromium VI	ND	RNA	ND	0E+00	
			Total cPAHs	ND	RNA	ND	0E+00	
			MCP	---	---	---	---	
		<b>Total Risk =</b>						1E-05

Table 5-101 Risk Characterization Summary, Cancer Risks - Domestic Water Use, Reasonable Maximum Exposure

Risk Characterization Summary - Carcinogens								
Scenario Timeframe:		Future						
Receptor Population:		Domestic Water User						
Receptor Age:		Adult/Child						
Medium	Exposure Medium	Exposure Point	Chemical of Concern	Carcinogenic Risk				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	
Water	River Water	SIL RM 8.5 (W035)	Arsenic, total	NC <sup>1</sup>	RNA	NC <sup>1</sup>	1E-05	
			Chromium VI	ND	RNA	ND	0E+00	
			Total cPAHs	NC <sup>1</sup>	RNA	NC <sup>1</sup>	2E-05	
			MCPP	---	---	---	---	
		<b>Total Risk =</b>						3E-05
		SIL RM 9.1 (W020)	Arsenic, total	NC <sup>1</sup>	RNA	NC <sup>1</sup>	1E-05	
			Chromium VI	ND	RNA	ND	0E+00	
			Total cPAHs	ND	RNA	ND	0E+00	
			MCPP	---	---	---	---	
		<b>Total Risk =</b>						1E-05
		RM 8.6 W (W036)	Arsenic, total	NC <sup>1</sup>	RNA	NC <sup>1</sup>	1E-05	
			Chromium VI	ND	RNA	ND	0E+00	
			Total cPAHs	NC <sup>1</sup>	RNA	NC <sup>1</sup>	7E-06	
			MCPP	---	---	---	---	
		<b>Total Risk =</b>						2E-05
		RM 9.6 W (W037)	Arsenic, total	NC <sup>1</sup>	RNA	NC <sup>1</sup>	1E-05	
			Chromium VI	ND	RNA	ND	0E+00	
			Total cPAHs	ND	RNA	ND	0E+00	
			MCPP	---	---	---	---	
		<b>Total Risk =</b>						1E-05
		RM 9.9 E (W038)	Arsenic, total	NC <sup>1</sup>	RNA	NC <sup>1</sup>	1E-05	
			Chromium VI	ND	RNA	ND	0E+00	
			Total cPAHs	ND	RNA	ND	0E+00	
			MCPP	---	---	---	---	
		<b>Total Risk =</b>						1E-05
		RM 11 Transect (W023)	Arsenic, total	NC <sup>1</sup>	RNA	NC <sup>1</sup>	1E-05	
			Chromium VI	ND	RNA	ND	0E+00	
			Total cPAHs	NC <sup>1</sup>	RNA	NC <sup>1</sup>	4E-06	
MCPP	---		---	---	---			
<b>Total Risk =</b>						1E-05		

Table 5-101 Risk Characterization Summary, Cancer Risks - Domestic Water Use, Reasonable Maximum Exposure

Risk Characterization Summary - Carcinogens							
Scenario Timeframe:		Future					
Receptor Population:		Domestic Water User					
Receptor Age:		Adult/Child					
Medium	Exposure Medium	Exposure Point	Chemical of Concern	Carcinogenic Risk			
				Ingestion	Inhalation	Dermal	Exposure Routes Total
Water	River Water	Study Area-wide	Arsenic, total	NC <sup>1</sup>	RNA	NC <sup>1</sup>	1E-05
			Chromium VI	NC <sup>1</sup>	RNA	NC <sup>1</sup>	8E-06
			Total cPAHs	NC <sup>1</sup>	RNA	NC <sup>1</sup>	2E-05
			MCPP	---	---	---	---
			<b>Total Risk =</b>				
<b>Key</b>							
	--	Toxicity criteria are not available to quantitatively address this route of exposure.					
	MCPP	2-(2-Methyl-4-chlorophenoxy)propionic acid					
	NA	Not Analyzed					
	NC	Not Calculated					
	ND	Not Detected					
	SIL	Swan Islan Lagoon					
	RNA	Route of exposure is not applicable to this medium.					
	<b>Note 1</b>	Pathway specific integrated risks were not calculated.					



Table 5-102 Risk Characterization Summary, Noncancer Hazards - Domestic Water Use, Reasonable Maximum Exposure									
Risk Characterization Summary - Non-Carcinogens									
Scenario Timeframe:		Future							
Receptor Population:		Domestic Water User							
Receptor Age:		Child							
Medium	Exposure Medium	Exposure Point	Chemical of Concern	Primary Target Organ	Non-Carcinogens Hazard Quotient				
					Ingestion	Inhalation	Dermal	Exposure Routes Total	
Water	River Water	River Water On-site							
		Direct Contact							
		RM 2 Transect (W025)					Receptor Hazard Index =	< 1	
		RM 2.1 E (W026)					Receptor Hazard Index =	< 1	
		RM 2.9 W (W027)	MCP		Kidney	1	RNA	RNA	1
							Receptor Hazard Index =		1
							Kidney Hazard Index =		1
		RM 3.6 E (W028)					Receptor Hazard Index =		< 1
		RM 3.9 Transect (W005)	MCP		Kidney	1	RNA	RNA	1
							Receptor Hazard Index =		1
							Kidney Hazard Index =		1
		RM 4.4 W (W029)					Receptor Hazard Index =		< 1
		RM 5.5 E (W030)					Receptor Hazard Index =		< 1
		RM 5.7 E (W010)					Receptor Hazard Index =		< 1
		RM 6.1 W (W031)					Receptor Hazard Index =		< 1
		RM 6.3 Transect (W011)					Receptor Hazard Index =		< 1
		RM 6.7 E (W032)					Receptor Hazard Index =		< 1
		RM 6.9 E (W014)					Receptor Hazard Index =		< 1
		RM 7 W (W033)					Receptor Hazard Index =		< 1
		RM 7.5 W (W034)					Receptor Hazard Index =		< 1
		SIL RM 8.5 (W035)	MCP		Kidney	2	RNA	RNA	2
							Receptor Hazard Index =		2
							Kidney Hazard Index =		2
SIL RM 9.1 (W020)					Receptor Hazard Index =		< 1		
RM 8.6 W (W036)					Receptor Hazard Index =		< 1		
RM 9.6 W (W037)					Receptor Hazard Index =		< 1		
RM 9.9 E (W038)					Receptor Hazard Index =		< 1		
RM 11 Transect (W023)					Receptor Hazard Index =		< 1		
Study Area-wide					Receptor Hazard Index =		< 1		
<b>Key</b>									
--	Toxicity criteria are not available to quantitatively address this route of exposure.								
MCP	2-(2-Methyl-4-chlorophenoxy)propionic acid								
NA	Not Analyzed								
ND	Not Detected								
SIL	Swan Islan Lagoon								
RNA	Route of exposure is not applicable to this medium.								

Table 5-103 Risk Characterization Summary, Cancer Risks - Subsistence Fisher, Reasonable Maximum Exposure										
Risk Characterization Summary - Carcinogens										
Scenario Timeframe: Current/Future										
Receptor Population: Subsistence Fisher										
Receptor Age: Adult/Child										
Medium	Exposure Medium	Exposure Point	Chemical of Concern	Carcinogenic Risk						
				Ingestion/Consumption	Inhalation	Dermal	Exposure Routes Total			
Fish Tissue	Multiple Species Tissue	Fillet Fish Tissue On-site Consumption (142-60 g/day) Study Area-wide	Antimony	--	--	--	--			
			Arsenic	2E-05	RNA	RNA	2E-05			
			Chromium	--	--	--	--			
			Mercury	--	--	--	--			
			cPAHs	2E-06	RNA	RNA	2E-06			
			Bis(2-ethylhexyl)phthalate	8E-07	RNA	RNA	8E-07			
			Hexachlorobenzene	3E-05	RNA	RNA	3E-05			
			Total PCBs	1E-02	RNA	RNA	1E-02			
			Total Dioxin/Furan TEQ	2E-04	RNA	RNA	2E-04			
			Total PCB TEQ	4E-04	RNA	RNA	4E-04			
			Aldrin	5E-07	RNA	RNA	5E-07			
			alpha-Hexachlorocyclohexane	6E-08	RNA	RNA	6E-08			
			beta-Hexachlorocyclohexane	2E-06	RNA	RNA	2E-06			
			Dieldrin	2E-05	RNA	RNA	2E-05			
			Heptachlor	6E-09	RNA	RNA	6E-09			
			Heptachlor Epoxide	3E-07	RNA	RNA	3E-07			
			Total Chlordanes	2E-06	RNA	RNA	2E-06			
			Total DDx	2E-05	RNA	RNA	2E-05			
									Fish Tissue Total Risk =	1E-02
									<b>Total Risk =</b>	<b>1E-02</b>
<b>Key</b>										
SIL		Swan Island Lagoon								
NA		Not Analyzed								
ND		Not Detected								
RM		River Mile								
--		Toxicity criteria are not available to quantitatively address this route of exposure.								
RNA		Route of exposure is not applicable to this medium.								

Table 5-104 Risk Characterization Summary, Noncancer Hazards - Subsistence Fisher, Reasonable Maximum Exposure										
Risk Characterization Summary - Non-Carcinogens										
Scenario Timeframe: Current/Future										
Receptor Population: Subsistence Fisher										
Receptor Age: Child										
Medium	Exposure Medium	Exposure Point	Chemical of Concern	Primary Target Organ	Non-Carcinogens Hazard Quotient			Exposure Routes Total		
					Ingestion/Consumption	Inhalation	Dermal			
Fish Tissue	Multiple Species Tissue	Fillet Fish Tissue On-site Consumption (60 g/day) Study Area-wide	Antimony	Blood	<1	RNA	RNA	0		
			Arsenic	Skin/Blood	0.2	RNA	RNA	0.2		
			Chromium		<1	RNA	RNA	0		
			Mercury	CNS	5	RNA	RNA	5		
			cPAHs		--	--	--	--		
			Bis(2-ethylhexyl)phthalate	Liver	<1	RNA	RNA	0		
			Hexachlorobenzene	Liver	<1	RNA	RNA	0		
			Total PCBs	Skin/Immunological	1000	RNA	RNA	1000		
			Total Dioxin/Furan TEQ	Reproduction	7	RNA	RNA	7		
			Total PCB TEQ	Reproduction	10	RNA	RNA	10		
			Aldrin	Liver	<1	RNA	RNA	0		
			alpha-Hexachlorocyclohexane	Liver	<1	RNA	RNA	0		
			beta-Hexachlorocyclohexane	Liver	<1	RNA	RNA	0		
			Dieldrin	Liver	0.1	RNA	RNA	0.1		
			Heptachlor	Liver	<1	RNA	RNA	0		
			Heptachlor Epoxide	Liver	<1	RNA	RNA	0		
			Total Chlordanes	Liver	<1	RNA	RNA	0		
			Total DDX	Liver	0.7	RNA	RNA	0.7		
			Fish Tissue Hazard Index Total =							1000
			Receptor Hazard Index =							1000
Blood Hazard Index =							<1			
Skin Hazard Index =							1000			
CNS Hazard Index =							5			
Whole Body Hazard Index =							1			
Liver Hazard Index =							<1			
Immological Hazard Index =							1000			
Reproduction Hazard Index =							20			
Kidney Hazard Index =							<1			
<b>Key</b>										
SIL	Swan Island Lagoon									
ND	Not Detected									
NA	Not Analyzed									
RM	River Mile									
CNS	Central Nervous System									
--	Toxicity criteria are not available to quantitatively address this route of exposure.									
RNA	Route of exposure is not applicable to this medium.									

Table 5-105 Risk Characterization Summary, Noncancer Hazards - Breastfeeding Infant of Subsistence Fisher, Reasonable Maximum Exposure									
Risk Characterization Summary - Non-Carcinogens									
Scenario Timeframe: Current/Future									
Receptor Population: Subsistence Fisher (Boat)									
Receptor Age: Infant									
Medium	Exposure Medium	Exposure Point	Chemical of Concern	Primary Target Organ	Non-Carcinogens Hazard Quotient			Exposure Routes Total	
					Ingestion/Consumption	Inhalation	Dermal		
Sediment	Breast Milk	Breastfeeding from Adult with Direct Contact of On-site Sediment Ingestion							
		Study Area-wide	Sediment Hazard Index Total =					<1	
Fish Tissue	Breast Milk	Breastfeeding from Adult Consumer of Fillet Multi-Species Fish Tissue On-site (142-60 g/day) Ingestion							
			Study Area-wide	Total PCBs	Skin/Immunological	10000	RNA	RNA	10000
				Total Dioxin/Furan TEQ	Reproduction	7	RNA	RNA	7
				Total PCB TEQ	Reproduction	10	RNA	RNA	10
				Total DDx	Liver	0.7	RNA	RNA	0.7
								Fish Tissue Hazard Index Total =	10000
Shellfish Tissue	Breast Milk	Breastfeeding from Adult Consumer of Clam Tissue On-site (18 g/day) Ingestion							
			Study Area-wide	Total PCBs	Skin/Immunological	200	RNA	RNA	200
				Total Dioxin/Furan TEQ	Reproduction	1	RNA	RNA	1
				Total PCB TEQ	Reproduction	1	RNA	RNA	1
				Total DDx	Liver	0.1	RNA	RNA	0.1
						Clam Tissue Hazard Index Total =	200		
	Breast Milk	Breastfeeding from Adult Consumer of Crayfish Tissue On-site (18 g/day) Ingestion							
			Study Area-wide	Total PCBs	Skin/Immunological	200	RNA	RNA	200
				Total Dioxin/Furan TEQ	Reproduction	5	RNA	RNA	5
				Total PCB TEQ	Reproduction	1	RNA	RNA	1
Total DDx				Liver	<1	RNA	RNA	0	
					Crayfish Tissue Hazard Index Total =	200			
					Shellfish Tissue Hazard Index Total =	400			
					Receptor Hazard Index =	10000			
					Skin Hazard Index =	10000			
					Liver Hazard Index =	<1			
					Immological Hazard Index =	10000			
					Reproduction Hazard Index =	30			
<b>Key</b>									
SIL	Swan Island Lagoon								
ND	Not Detected								
NA	Not Analyzed								
RM	River Mile								
CNS	Central Nervous System								
--	Toxicity criteria are not available to quantitatively address this route of exposure.								
RNA	Route of exposure is not applicable to this medium.								

Table 5-106 Risk Characterization Summary, Cancer Risks - Recreational Fisher, River-Mile Basis, Reasonable Maximum Exposure

Risk Characterization Summary - Carcinogens											
Scenario Timeframe: Current/Future											
Receptor Population: Subsistence Fisher											
Receptor Age: Adult/Child											
Medium	Exposure Medium	Exposure Point	Chemical of Concern	Carcinogenic Risk							
				Ingestion/Consumption	Inhalation	Dermal	Exposure Routes Total				
Fish Tissue	Smallmouth Bass Tissue	Fillet Fish Tissue On-site Consumption (48.9-20.5 g/day)	RM 2	Antimony	--	--	--	--			
				Arsenic	2E-05	RNA	RNA	2E-05			
				Chromium	--	--	--	--			
				Mercury	--	--	--	--			
				cPAHs	ND	RNA	RNA	0E+00			
				Bis(2-ethylhexyl)phthalate	ND	RNA	RNA	0E+00			
				Hexachlorobenzene	2E-07	RNA	RNA	2E-07			
				Total PCBs	1E-04	RNA	RNA	1E-04			
				Total Dioxin/Furan TEQ	1E-05	RNA	RNA	1E-05			
				Total PCB TEQ	8E-05	RNA	RNA	8E-05			
				Aldrin	4E-08	RNA	RNA	4E-08			
				alpha-Hexachlorocyclohexane	1E-08	RNA	RNA	1E-08			
				beta-Hexachlorocyclohexane	ND	RNA	RNA	0E+00			
				Dieldrin	2E-06	RNA	RNA	2E-06			
				Heptachlor	ND	RNA	RNA	0E+00			
				Heptachlor Epoxide	9E-08	RNA	RNA	9E-08			
				Total Chlordanes	2E-07	RNA	RNA	2E-07			
				Total DDx	2E-06	RNA	RNA	2E-06			
				Fish Tissue Total Risk =							2E-04
				<b>Total Risk =</b>							<b>2E-04</b>
Fish Tissue	Smallmouth Bass Tissue	Fillet Fish Tissue On-site Consumption (48.9-20.5 g/day)	RM 3	Antimony	--	--	--	--			
				Arsenic	2E-05	RNA	RNA	2E-05			
				Chromium	--	--	--	--			
				Mercury	--	--	--	--			
				cPAHs	6E-07	RNA	RNA	6E-07			
				Bis(2-ethylhexyl)phthalate	ND	RNA	RNA	0E+00			
				Hexachlorobenzene	2E-07	RNA	RNA	2E-07			
				Total PCBs	3E-05	RNA	RNA	3E-05			
				Total Dioxin/Furan TEQ	1E-05	RNA	RNA	1E-05			
				Total PCB TEQ	2E-05	RNA	RNA	2E-05			
				Aldrin	3E-08	RNA	RNA	3E-08			
				alpha-Hexachlorocyclohexane	1E-08	RNA	RNA	1E-08			
				beta-Hexachlorocyclohexane	3E-06	RNA	RNA	3E-06			
				Dieldrin	2E-05	RNA	RNA	2E-05			
				Heptachlor	ND	RNA	RNA	0E+00			
				Heptachlor Epoxide	8E-08	RNA	RNA	8E-08			
				Total Chlordanes	1E-06	RNA	RNA	1E-06			
				Total DDx	5E-06	RNA	RNA	5E-06			
				Fish Tissue Total Risk =							1E-04
				<b>Total Risk =</b>							<b>1E-04</b>

Table 5-106 Risk Characterization Summary, Cancer Risks - Recreational Fisher, River-Mile Basis, Reasonable Maximum Exposure

Risk Characterization Summary - Carcinogens											
Scenario Timeframe: Current/Future											
Receptor Population: Subsistence Fisher											
Receptor Age: Adult/Child											
Medium	Exposure Medium	Exposure Point	Chemical of Concern	Carcinogenic Risk							
				Ingestion/Consumption	Inhalation	Dermal	Exposure Routes Total				
Fish Tissue	Smallmouth Bass Tissue	Fillet Fish Tissue On-site Consumption (48.9-20.5 g/day)	RM 4	Antimony	--	--	--	--			
				Arsenic	1E-05	RNA	RNA	1E-05			
				Chromium	--	--	--	--			
				Mercury	--	--	--	--			
				cPAHs	4E-06	RNA	RNA	4E-06			
				Bis(2-ethylhexyl)phthalate	ND	RNA	RNA	0E+00			
				Hexachlorobenzene	3E-07	RNA	RNA	3E-07			
				Total PCBs	2E-04	RNA	RNA	2E-04			
				Total Dioxin/Furan TEQ	2E-05	RNA	RNA	2E-05			
				Total PCB TEQ	6E-05	RNA	RNA	6E-05			
				Aldrin	3E-08	RNA	RNA	3E-08			
				alpha-Hexachlorocyclohexane	9E-09	RNA	RNA	9E-09			
				beta-Hexachlorocyclohexane	2E-09	RNA	RNA	2E-09			
				Dieldrin	2E-06	RNA	RNA	2E-06			
				Heptachlor	ND	RNA	RNA	0E+00			
				Heptachlor Epoxide	7E-08	RNA	RNA	7E-08			
				Total Chlordanes	3E-07	RNA	RNA	3E-07			
				Total DDX	2E-06	RNA	RNA	2E-06			
				Fish Tissue Total Risk =							3E-04
				<b>Total Risk =</b>							<b>3E-04</b>
Fish Tissue	Smallmouth Bass Tissue	Fillet Fish Tissue On-site Consumption (48.9-20.5 g/day)	RM 5	Antimony	--	--	--	--			
				Arsenic	1E-05	RNA	RNA	1E-05			
				Chromium	--	--	--	--			
				Mercury	--	--	--	--			
				cPAHs	2E-05	RNA	RNA	2E-05			
				Bis(2-ethylhexyl)phthalate	ND	RNA	RNA	0E+00			
				Hexachlorobenzene	2E-07	RNA	RNA	2E-07			
				Total PCBs	2E-05	RNA	RNA	2E-05			
				Total Dioxin/Furan TEQ	1E-05	RNA	RNA	1E-05			
				Total PCB TEQ	2E-05	RNA	RNA	2E-05			
				Aldrin	ND	RNA	RNA	0E+00			
				alpha-Hexachlorocyclohexane	ND	RNA	RNA	0E+00			
				beta-Hexachlorocyclohexane	ND	RNA	RNA	0E+00			
				Dieldrin	2E-06	RNA	RNA	2E-06			
				Heptachlor	ND	RNA	RNA	0E+00			
				Heptachlor Epoxide	6E-08	RNA	RNA	6E-08			
				Total Chlordanes	2E-07	RNA	RNA	2E-07			
				Total DDX	3E-06	RNA	RNA	3E-06			
				Fish Tissue Total Risk =							9E-05
				<b>Total Risk =</b>							<b>9E-05</b>

Table 5-106 Risk Characterization Summary, Cancer Risks - Recreational Fisher, River-Mile Basis, Reasonable Maximum Exposure

Risk Characterization Summary - Carcinogens											
Scenario Timeframe: Current/Future											
Receptor Population: Subsistence Fisher											
Receptor Age: Adult/Child											
Medium	Exposure Medium	Exposure Point	Chemical of Concern	Carcinogenic Risk							
				Ingestion/Consumption	Inhalation	Dermal	Exposure Routes Total				
Fish Tissue	Smallmouth Bass Tissue	Fillet Fish Tissue On-site Consumption (48.9-20.5 g/day)	RM 6	Antimony	--	--	--	--			
				Arsenic	1E-05	RNA	RNA	1E-05			
				Chromium	--	--	--	--			
				Mercury	--	--	--	--			
				cPAHs	9E-07	RNA	RNA	9E-07			
				Bis(2-ethylhexyl)phthalate	5E-07	RNA	RNA	5E-07			
				Hexachlorobenzene	2E-07	RNA	RNA	2E-07			
				Total PCBs	6E-05	RNA	RNA	6E-05			
				Total Dioxin/Furan TEQ	2E-05	RNA	RNA	2E-05			
				Total PCB TEQ	2E-05	RNA	RNA	2E-05			
				Aldrin	ND	RNA	RNA	0E+00			
				alpha-Hexachlorocyclohexane	ND	RNA	RNA	0E+00			
				beta-Hexachlorocyclohexane	ND	RNA	RNA	0E+00			
				Dieldrin	2E-06	RNA	RNA	2E-06			
				Heptachlor	ND	RNA	RNA	0E+00			
				Heptachlor Epoxide	6E-08	RNA	RNA	6E-08			
				Total Chlordanes	6E-07	RNA	RNA	6E-07			
				Total DDX	3E-06	RNA	RNA	3E-06			
				Fish Tissue Total Risk =							1E-04
				<b>Total Risk =</b>							<b>1E-04</b>
Fish Tissue	Smallmouth Bass Tissue	Fillet Fish Tissue On-site Consumption (48.9-20.5 g/day)	RM 7	Antimony	--	--	--	--			
				Arsenic	1E-05	RNA	RNA	1E-05			
				Chromium	--	--	--	--			
				Mercury	--	--	--	--			
				cPAHs	3E-07	RNA	RNA	3E-07			
				Bis(2-ethylhexyl)phthalate	ND	RNA	RNA	0E+00			
				Hexachlorobenzene	5E-07	RNA	RNA	5E-07			
				Total PCBs	1E-04	RNA	RNA	1E-04			
				Total Dioxin/Furan TEQ	4E-04	RNA	RNA	4E-04			
				Total PCB TEQ	3E-05	RNA	RNA	3E-05			
				Aldrin	ND	RNA	RNA	0E+00			
				alpha-Hexachlorocyclohexane	ND	RNA	RNA	0E+00			
				beta-Hexachlorocyclohexane	3E-09	RNA	RNA	3E-09			
				Dieldrin	2E-06	RNA	RNA	2E-06			
				Heptachlor	ND	RNA	RNA	0E+00			
				Heptachlor Epoxide	5E-08	RNA	RNA	5E-08			
				Total Chlordanes	2E-07	RNA	RNA	2E-07			
				Total DDX	2E-05	RNA	RNA	2E-05			
				Fish Tissue Total Risk =							6E-04
				<b>Total Risk =</b>							<b>6E-04</b>

Table 5-106 Risk Characterization Summary, Cancer Risks - Recreational Fisher, River-Mile Basis, Reasonable Maximum Exposure

Risk Characterization Summary - Carcinogens									
Scenario Timeframe: Current/Future									
Receptor Population: Subsistence Fisher									
Receptor Age: Adult/Child									
Medium	Exposure Medium	Exposure Point	Chemical of Concern	Carcinogenic Risk					
				Ingestion/Consumption	Inhalation	Dermal	Exposure Routes Total		
Fish Tissue	Smallmouth Bass Tissue	Fillet Fish Tissue On-site Consumption (48.9-20.5 g/day) RM 8	Antimony	--	--	--	--		
			Arsenic	1E-05	RNA	RNA	1E-05		
			Chromium	--	--	--	--		
			Mercury	--	--	--	--		
			cPAHs	2E-05	RNA	RNA	2E-05		
			Bis(2-ethylhexyl)phthalate	ND	RNA	RNA	0E+00		
			Hexachlorobenzene	2E-07	RNA	RNA	2E-07		
			Total PCBs	3E-05	RNA	RNA	3E-05		
			Total Dioxin/Furan TEQ	3E-05	RNA	RNA	3E-05		
			Total PCB TEQ	2E-05	RNA	RNA	2E-05		
			Aldrin	3E-08	RNA	RNA	3E-08		
			alpha-Hexachlorocyclohexane	ND	RNA	RNA	0E+00		
			beta-Hexachlorocyclohexane	ND	RNA	RNA	0E+00		
			Dieldrin	8E-06	RNA	RNA	8E-06		
			Heptachlor	ND	RNA	RNA	0E+00		
			Heptachlor Epoxide	5E-08	RNA	RNA	5E-08		
			Total Chlordanes	7E-07	RNA	RNA	7E-07		
			Total DDX	6E-06	RNA	RNA	6E-06		
			Fish Tissue Total Risk =						1E-04
			<b>Total Risk =</b>						<b>1E-04</b>
Fish Tissue	Smallmouth Bass Tissue	Fillet Fish Tissue On-site Consumption (48.9-20.5 g/day) SIL RM 8	Antimony	--	--	--	--		
			Arsenic	8E-06	RNA	RNA	8E-06		
			Chromium	--	--	--	--		
			Mercury	--	--	--	--		
			cPAHs	ND	RNA	RNA	0E+00		
			Bis(2-ethylhexyl)phthalate	ND	RNA	RNA	0E+00		
			Hexachlorobenzene	ND	RNA	RNA	0E+00		
			Total PCBs	5E-04	RNA	RNA	5E-04		
			Total Dioxin/Furan TEQ	3E-05	RNA	RNA	3E-05		
			Total PCB TEQ	5E-05	RNA	RNA	5E-05		
			Aldrin	ND	RNA	RNA	0E+00		
			alpha-Hexachlorocyclohexane	ND	RNA	RNA	0E+00		
			beta-Hexachlorocyclohexane	ND	RNA	RNA	0E+00		
			Dieldrin	ND	RNA	RNA	0E+00		
			Heptachlor	ND	RNA	RNA	0E+00		
			Heptachlor Epoxide	ND	RNA	RNA	0E+00		
			Total Chlordanes	ND	RNA	RNA	0E+00		
			Total DDX	2E-06	RNA	RNA	2E-06		
			Fish Tissue Total Risk =						6E-04
			<b>Total Risk =</b>						<b>6E-04</b>



Table 5-106 Risk Characterization Summary, Cancer Risks - Recreational Fisher, River-Mile Basis, Reasonable Maximum Exposure

Risk Characterization Summary - Carcinogens											
Scenario Timeframe: Current/Future											
Receptor Population: Subsistence Fisher											
Receptor Age: Adult/Child											
Medium	Exposure Medium	Exposure Point	Chemical of Concern	Carcinogenic Risk							
				Ingestion/Consumption	Inhalation	Dermal	Exposure Routes Total				
Fish Tissue	Smallmouth Bass Tissue	Fillet Fish Tissue On-site Consumption (48.9-20.5 g/day)	RM 9	Antimony	--	--	--	--			
				Arsenic	1E-05	RNA	RNA	1E-05			
				Chromium	--	--	--	--			
				Mercury	--	--	--	--			
				cPAHs	4E-06	RNA	RNA	4E-06			
				Bis(2-ethylhexyl)phthalate	6E-07	RNA	RNA	6E-07			
				Hexachlorobenzene	3E-07	RNA	RNA	3E-07			
				Total PCBs	7E-05	RNA	RNA	7E-05			
				Total Dioxin/Furan TEQ	2E-05	RNA	RNA	2E-05			
				Total PCB TEQ	5E-05	RNA	RNA	5E-05			
				Aldrin	7E-08	RNA	RNA	7E-08			
				alpha-Hexachlorocyclohexane	1E-08	RNA	RNA	1E-08			
				beta-Hexachlorocyclohexane	ND	RNA	RNA	0E+00			
				Dieldrin	6E-06	RNA	RNA	6E-06			
				Heptachlor	ND	RNA	RNA	0E+00			
				Heptachlor Epoxide	8E-08	RNA	RNA	8E-08			
				Total Chlordanes	3E-07	RNA	RNA	3E-07			
				Total DDX	3E-06	RNA	RNA	3E-06			
				Fish Tissue Total Risk =							2E-04
				<b>Total Risk =</b>							<b>2E-04</b>
Fish Tissue	Smallmouth Bass Tissue	Fillet Fish Tissue On-site Consumption (48.9-20.5 g/day)	RM 10	Antimony	--	--	--	--			
				Arsenic	8E-06	RNA	RNA	8E-06			
				Chromium	--	--	--	--			
				Mercury	--	--	--	--			
				cPAHs	ND	RNA	RNA	0E+00			
				Bis(2-ethylhexyl)phthalate	3E-07	RNA	RNA	3E-07			
				Hexachlorobenzene	2E-07	RNA	RNA	2E-07			
				Total PCBs	8E-05	RNA	RNA	8E-05			
				Total Dioxin/Furan TEQ	2E-05	RNA	RNA	2E-05			
				Total PCB TEQ	3E-05	RNA	RNA	3E-05			
				Aldrin	ND	RNA	RNA	0E+00			
				alpha-Hexachlorocyclohexane	1E-08	RNA	RNA	1E-08			
				beta-Hexachlorocyclohexane	ND	RNA	RNA	0E+00			
				Dieldrin	2E-06	RNA	RNA	2E-06			
				Heptachlor	ND	RNA	RNA	0E+00			
				Heptachlor Epoxide	5E-08	RNA	RNA	5E-08			
				Total Chlordanes	2E-07	RNA	RNA	2E-07			
				Total DDX	2E-06	RNA	RNA	2E-06			
				Fish Tissue Total Risk =							1E-04
				<b>Total Risk =</b>							<b>1E-04</b>

Table 5-106 Risk Characterization Summary, Cancer Risks - Recreational Fisher, River-Mile Basis, Reasonable Maximum Exposure

Risk Characterization Summary - Carcinogens									
Scenario Timeframe: Current/Future									
Receptor Population: Subsistence Fisher									
Receptor Age: Adult/Child									
Medium	Exposure Medium	Exposure Point	Chemical of Concern	Carcinogenic Risk					
				Ingestion/Consumption	Inhalation	Dermal	Exposure Routes Total		
Fish Tissue	Smallmouth Bass Tissue	Fillet Fish Tissue On-site Consumption (48.9-20.5 g/day) RM 11	Antimony	--	--	--	--		
			Arsenic	9E-06	RNA	RNA	9E-06		
			Chromium	--	--	--	--		
			Mercury	--	--	--	--		
			cPAHs	ND	RNA	RNA	0E+00		
			Bis(2-ethylhexyl)phthalate	ND	RNA	RNA	0E+00		
			Hexachlorobenzene	2E-07	RNA	RNA	2E-07		
			Total PCBs	1E-03	RNA	RNA	1E-03		
			Total Dioxin/Furan TEQ	2E-05	RNA	RNA	2E-05		
			Total PCB TEQ	1E-04	RNA	RNA	1E-04		
			Aldrin	ND	RNA	RNA	0E+00		
			alpha-Hexachlorocyclohexane	ND	RNA	RNA	0E+00		
			beta-Hexachlorocyclohexane	3E-09	RNA	RNA	3E-09		
			Dieldrin	2E-06	RNA	RNA	2E-06		
			Heptachlor	8E-09	RNA	RNA	8E-09		
			Heptachlor Epoxide	6E-08	RNA	RNA	6E-08		
			Total Chlordanes	2E-07	RNA	RNA	2E-07		
			Total DDX	9E-07	RNA	RNA	9E-07		
			Fish Tissue Total Risk =						1E-03
			<b>Total Risk =</b>						<b>1E-03</b>
<b>Key</b>									
SIL	Swan Island Lagoon								
NA	Not Analyzed								
ND	Not Detected								
RM	River Mile								
--	Toxicity criteria are not available to quantitatively address this route of exposure.								
RNA	Route of exposure is not applicable to this medium.								

Table 5-107 Risk Characterization Summary, Noncancer Hazards - Recreational Fisher, River-Mile Basis, Reasonable Maximum Exposure									
Risk Characterization Summary - Non-Carcinogens									
Scenario Timeframe: Current/Future									
Receptor Population: Subsistence Fisher									
Receptor Age: Child									
Medium	Exposure Medium	Exposure Point	Chemical of Concern	Primary Target Organ	Non-Carcinogens Hazard Quotient				
					Ingestion/Consumption	Inhalation	Dermal	Exposure Routes Total	
Fish Tissue	Smallmouth Bass Tissue	Fillet Fish Tissue On-site Consumption (20.5 g/day)	RM 2						
			Antimony	Blood	ND	RNA	RNA	0	
			Arsenic	Skin/Blood	0.2	RNA	RNA	0.2	
			Chromium		<1	RNA	RNA	0	
			Mercury	CNS	1	RNA	RNA	1	
			Selenium	Whole Body	ND	RNA	RNA	0	
			Zinc	Blood	<1	RNA	RNA	0	
			cPAHs		--	--	--	--	
			Bis(2-ethylhexyl)phthalate	Liver	ND	RNA	RNA	0	
			Hexachlorobenzene	Liver	ND	RNA	RNA	0	
			Total PCBs	Skin/Immunological	10	RNA	RNA	10	
			Total PBDEs	CNS	ND	RNA	RNA	0	
			Total Dioxin/Furan TEQ	Reproduction	0.3	RNA	RNA	0.3	
			Total PCB TEQ	Reproduction	2	RNA	RNA	2	
			Aldrin	Liver	<1	RNA	RNA	0	
			alpha-Hexachlorocyclohexane	Liver	<1	RNA	RNA	0	
			beta-Hexachlorocyclohexane	Liver	ND	RNA	RNA	0	
			gamma-Hexachlorocyclohexane	Kidney/Liver	ND	RNA	RNA	0	
			Dieldrin	Liver	<1	RNA	RNA	0	
			Heptachlor	Liver	ND	RNA	RNA	0	
			Heptachlor Epoxide	Liver	<1	RNA	RNA	0	
			Total Chlordanes	Liver	<1	RNA	RNA	0	
			Total DDx	Liver	<1	RNA	RNA	0	
			Fish Tissue Hazard Index Total =						10
			Receptor Hazard Index =						10
			Blood Hazard Index =						<1
Skin Hazard Index =						10			
CNS Hazard Index =						1			
Whole Body Hazard Index =						<1			
Liver Hazard Index =						<1			
Immological Hazard Index =						10			
Reproduction Hazard Index =						2			
Kidney Hazard Index =						<1			
Fish Tissue	Smallmouth Bass Tissue	Fillet Fish Tissue On-site Consumption (20.5 g/day)	RM 3						
			Antimony	Blood	ND	RNA	RNA	0	
			Arsenic	Skin/Blood	0.1	RNA	RNA	0.1	
			Chromium		ND	RNA	RNA	0	
			Mercury	CNS	2	RNA	RNA	2	
			Selenium	Whole Body	ND	RNA	RNA	0	
			Zinc	Blood	<1	RNA	RNA	0	
			cPAHs		--	--	--	--	
			Bis(2-ethylhexyl)phthalate	Liver	ND	RNA	RNA	0	
			Hexachlorobenzene	Liver	<1	RNA	RNA	0	
			Total PCBs	Skin/Immunological	3	RNA	RNA	3	
			Total PBDEs	CNS	<1	RNA	RNA	0	
			Total Dioxin/Furan TEQ	Reproduction	0.4	RNA	RNA	0.4	
			Total PCB TEQ	Reproduction	0.7	RNA	RNA	1	
			Aldrin	Liver	<1	RNA	RNA	0	
			alpha-Hexachlorocyclohexane	Liver	<1	RNA	RNA	0	
			beta-Hexachlorocyclohexane	Liver	<1	RNA	RNA	0	
			gamma-Hexachlorocyclohexane	Kidney/Liver	ND	RNA	RNA	0	
			Dieldrin	Liver	<1	RNA	RNA	0	
			Heptachlor	Liver	ND	RNA	RNA	0	
			Heptachlor Epoxide	Liver	<1	RNA	RNA	0	
			Total Chlordanes	Liver	<1	RNA	RNA	0	
			Total DDx	Liver	0.1	RNA	RNA	0.1	
			Fish Tissue Hazard Index Total =						6
			Receptor Hazard Index =						6
			Blood Hazard Index =						<1
Skin Hazard Index =						3			
CNS Hazard Index =						2			
Whole Body Hazard Index =						<1			
Liver Hazard Index =						<1			
Immological Hazard Index =						3			
Reproduction Hazard Index =						1			
Kidney Hazard Index =						<1			

Table 5-107 Risk Characterization Summary, Noncancer Hazards - Recreational Fisher, River-Mile Basis, Reasonable Maximum Exposure										
Risk Characterization Summary - Non-Carcinogens										
Scenario Timeframe: Current/Future										
Receptor Population: Subsistence Fisher										
Receptor Age: Child										
Medium	Exposure Medium	Exposure Point	Chemical of Concern	Primary Target Organ	Non-Carcinogens Hazard Quotient			Exposure Routes Total		
					Ingestion/Consumption	Inhalation	Dermal			
Fish Tissue	Smallmouth Bass Tissue	Fillet Fish Tissue On-site Consumption (20.5 g/day)	RM 4							
			Antimony	Blood	ND	RNA	RNA	0		
			Arsenic	Skin/Blood	0.1	RNA	RNA	0.1		
			Chromium		ND	RNA	RNA	0		
			Mercury	CNS	3	RNA	RNA	3		
			Selenium	Whole Body	ND	RNA	RNA	0		
			Zinc	Blood	<1	RNA	RNA	0		
			cPAHs		--	--	--	--		
			Bis(2-ethylhexyl)phthalate	Liver	ND	RNA	RNA	0		
			Hexachlorobenzene	Liver	<1	RNA	RNA	0		
			Total PCBs	Skin/Immunological	10	RNA	RNA	10		
			Total PBDEs	CNS	<1	RNA	RNA	0		
			Total Dioxin/Furan TEQ	Reproduction	0.5	RNA	RNA	0.5		
			Total PCB TEQ	Reproduction	2	RNA	RNA	2		
			Aldrin	Liver	<1	RNA	RNA	0		
			alpha-Hexachlorocyclohexane	Liver	<1	RNA	RNA	0		
			beta-Hexachlorocyclohexane	Liver	<1	RNA	RNA	0		
			gamma-Hexachlorocyclohexane	Kidney/Liver	ND	RNA	RNA	0		
			Dieldrin	Liver	<1	RNA	RNA	0		
			Heptachlor	Liver	ND	RNA	RNA	0		
			Heptachlor Epoxide	Liver	<1	RNA	RNA	0		
			Total Chlordanes	Liver	<1	RNA	RNA	0		
			Total DDx	Liver	<1	RNA	RNA	0		
			Fish Tissue Hazard Index Total =						20	
			Receptor Hazard Index =						20	
			Blood Hazard Index =						<1	
			Skin Hazard Index =						10	
CNS Hazard Index =						3				
Whole Body Hazard Index =						<1				
Liver Hazard Index =						<1				
Immological Hazard Index =						10				
Reproduction Hazard Index =						3				
Kidney Hazard Index =						<1				
Fish Tissue	Smallmouth Bass Tissue	Fillet Fish Tissue On-site Consumption (20.5 g/day)	RM 5							
			Antimony	Blood	ND	RNA	RNA	0		
			Arsenic	Skin/Blood	<1	RNA	RNA	0		
			Chromium		ND	RNA	RNA	0		
			Mercury	CNS	3	RNA	RNA	3		
			Selenium	Whole Body	ND	RNA	RNA	0		
			Zinc	Blood	<1	RNA	RNA	0		
			cPAHs		--	--	--	--		
			Bis(2-ethylhexyl)phthalate	Liver	ND	RNA	RNA	0		
			Hexachlorobenzene	Liver	<1	RNA	RNA	0		
			Total PCBs	Skin/Immunological	2	RNA	RNA	2		
			Total PBDEs	CNS	<1	RNA	RNA	0		
			Total Dioxin/Furan TEQ	Reproduction	0.3	RNA	RNA	0.3		
			Total PCB TEQ	Reproduction	0.4	RNA	RNA	0.4		
			Aldrin	Liver	ND	RNA	RNA	0		
			alpha-Hexachlorocyclohexane	Liver	ND	RNA	RNA	0		
			beta-Hexachlorocyclohexane	Liver	ND	RNA	RNA	0		
			gamma-Hexachlorocyclohexane	Kidney/Liver	<1	RNA	RNA	0		
			Dieldrin	Liver	<1	RNA	RNA	0		
			Heptachlor	Liver	ND	RNA	RNA	0		
			Heptachlor Epoxide	Liver	<1	RNA	RNA	0		
			Total Chlordanes	Liver	<1	RNA	RNA	0		
			Total DDx	Liver	<1	RNA	RNA	0		
			Fish Tissue Hazard Index Total =						6	
			Receptor Hazard Index =						6	
			Blood Hazard Index =						<1	
			Skin Hazard Index =						2	
CNS Hazard Index =						3				
Whole Body Hazard Index =						<1				
Liver Hazard Index =						<1				
Immological Hazard Index =						2				
Reproduction Hazard Index =						1				
Kidney Hazard Index =						<1				

Table 5-107 Risk Characterization Summary, Noncancer Hazards - Recreational Fisher, River-Mile Basis, Reasonable Maximum Exposure											
Risk Characterization Summary - Non-Carcinogens											
Scenario Timeframe: Current/Future											
Receptor Population: Subsistence Fisher											
Receptor Age: Child											
Medium	Exposure Medium	Exposure Point	Chemical of Concern	Primary Target Organ	Non-Carcinogens Hazard Quotient			Exposure Routes Total			
					Ingestion/Consumption	Inhalation	Dermal				
Fish Tissue	Smallmouth Bass Tissue	Fillet Fish Tissue On-site Consumption (20.5 g/day)	RM 6	Antimony	Blood	ND	RNA	RNA	0		
				Arsenic	Skin/Blood	<1	RNA	RNA	0		
				Chromium		ND	RNA	RNA	0		
				Mercury	CNS	2	RNA	RNA	2		
				Selenium	Whole Body	ND	RNA	RNA	0		
				Zinc	Blood	<1	RNA	RNA	0		
				cPAHs		--	--	--	--		
				Bis(2-ethylhexyl)phthalate	Liver	<1	RNA	RNA	0		
				Hexachlorobenzene	Liver	<1	RNA	RNA	0		
				Total PCBs	Skin/Immunological	5	RNA	RNA	5		
				Total PBDEs	CNS	<1	RNA	RNA	0		
				Total Dioxin/Furan TEQ	Reproduction	0.5	RNA	RNA	0.5		
				Total PCB TEQ	Reproduction	0.5	RNA	RNA	0.5		
				Aldrin	Liver	ND	RNA	RNA	0		
				alpha-Hexachlorocyclohexane	Liver	ND	RNA	RNA	0		
				beta-Hexachlorocyclohexane	Liver	ND	RNA	RNA	0		
				gamma-Hexachlorocyclohexane	Kidney/Liver	<1	RNA	RNA	0		
				Dieldrin	Liver	<1	RNA	RNA	0		
				Heptachlor	Liver	ND	RNA	RNA	0		
				Heptachlor Epoxide	Liver	<1	RNA	RNA	0		
				Total Chlordanes	Liver	<1	RNA	RNA	0		
				Total DDx	Liver	<1	RNA	RNA	0		
				Fish Tissue Hazard Index Total = 8							
				Receptor Hazard Index = 8							
				Blood Hazard Index = <1							
				Skin Hazard Index = 5							
CNS Hazard Index = 2											
Whole Body Hazard Index = <1											
Liver Hazard Index = <1											
Immological Hazard Index = 5											
Reproduction Hazard Index = 1											
Kidney Hazard Index = <1											
Fish Tissue	Smallmouth Bass Tissue	Fillet Fish Tissue On-site Consumption (20.5 g/day)	RM 7	Antimony	Blood	ND	RNA	RNA	0		
				Arsenic	Skin/Blood	<1	RNA	RNA	0		
				Chromium		ND	RNA	RNA	0		
				Mercury	CNS	3	RNA	RNA	3		
				Selenium	Whole Body	ND	RNA	RNA	0		
				Zinc	Blood	<1	RNA	RNA	0		
				cPAHs		--	--	--	--		
				Bis(2-ethylhexyl)phthalate	Liver	ND	RNA	RNA	0		
				Hexachlorobenzene	Liver	<1	RNA	RNA	0		
				Total PCBs	Skin/Immunological	10	RNA	RNA	10		
				Total PBDEs	CNS	ND	RNA	RNA	0		
				Total Dioxin/Furan TEQ	Reproduction	10	RNA	RNA	10		
				Total PCB TEQ	Reproduction	1	RNA	RNA	1		
				Aldrin	Liver	ND	RNA	RNA	0		
				alpha-Hexachlorocyclohexane	Liver	ND	RNA	RNA	0		
				beta-Hexachlorocyclohexane	Liver	<1	RNA	RNA	0		
				gamma-Hexachlorocyclohexane	Kidney/Liver	ND	RNA	RNA	0		
				Dieldrin	Liver	<1	RNA	RNA	0		
				Heptachlor	Liver	ND	RNA	RNA	0		
				Heptachlor Epoxide	Liver	<1	RNA	RNA	0		
				Total Chlordanes	Liver	<1	RNA	RNA	0		
				Total DDx	Liver	0.6	RNA	RNA	0.6		
				Fish Tissue Hazard Index Total = 20							
				Receptor Hazard Index = 20							
				Blood Hazard Index = <1							
				Skin Hazard Index = 10							
CNS Hazard Index = 3											
Whole Body Hazard Index = <1											
Liver Hazard Index = <1											
Immological Hazard Index = 10											
Reproduction Hazard Index = 10											
Kidney Hazard Index = <1											

Table 5-107 Risk Characterization Summary, Noncancer Hazards - Recreational Fisher, River-Mile Basis, Reasonable Maximum Exposure											
Risk Characterization Summary - Non-Carcinogens											
Scenario Timeframe: Current/Future											
Receptor Population: Subsistence Fisher											
Receptor Age: Child											
Medium	Exposure Medium	Exposure Point	Chemical of Concern	Primary Target Organ	Non-Carcinogens Hazard Quotient						
					Ingestion/Consumption	Inhalation	Dermal	Exposure Routes Total			
Fish Tissue	Smallmouth Bass Tissue	Fillet Fish Tissue On-site Consumption (20.5 g/day)	RM 8	Antimony	Blood	ND	RNA	RNA	0		
				Arsenic	Skin/Blood	<1	RNA	RNA	0		
				Chromium		ND	RNA	RNA	0		
				Mercury	CNS	2	RNA	RNA	2		
				Selenium	Whole Body	ND	RNA	RNA	0		
				Zinc	Blood	<1	RNA	RNA	0		
				cPAHs		--	--	--	--		
				Bis(2-ethylhexyl)phthalate	Liver	ND	RNA	RNA	0		
				Hexachlorobenzene	Liver	<1	RNA	RNA	0		
				Total PCBs	Skin/Immunological	3	RNA	RNA	3		
				Total PBDEs	CNS	<1	RNA	RNA	0		
				Total Dioxin/Furan TEQ	Reproduction	0.8	RNA	RNA	1		
				Total PCB TEQ	Reproduction	0.6	RNA	RNA	0.6		
				Aldrin	Liver	<1	RNA	RNA	0		
				alpha-Hexachlorocyclohexane	Liver	ND	RNA	RNA	0		
				beta-Hexachlorocyclohexane	Liver	ND	RNA	RNA	0		
				gamma-Hexachlorocyclohexane	Kidney/Liver	<1	RNA	RNA	0		
				Dieldrin	Liver	<1	RNA	RNA	0		
				Heptachlor	Liver	ND	RNA	RNA	0		
				Heptachlor Epoxide	Liver	<1	RNA	RNA	0		
				Total Chlordanes	Liver	<1	RNA	RNA	0		
				Total DDx	Liver	0.1	RNA	RNA	0.1		
				Fish Tissue Hazard Index Total = 7							
				Receptor Hazard Index = 7							
				Blood Hazard Index = <1							
				Skin Hazard Index = 3							
				CNS Hazard Index = 2							
Whole Body Hazard Index = <1											
Liver Hazard Index = <1											
Immological Hazard Index = 3											
Reproduction Hazard Index = 1											
Kidney Hazard Index = <1											
Fish Tissue	Smallmouth Bass Tissue	Fillet Fish Tissue On-site Consumption (20.5 g/day)	SIL RM 8	Antimony	Blood	ND	RNA	RNA	0		
				Arsenic	Skin/Blood	<1	RNA	RNA	0		
				Chromium		<1	RNA	RNA	0		
				Mercury	CNS	2	RNA	RNA	2		
				Selenium	Whole Body	ND	RNA	RNA	0		
				Zinc	Blood	<1	RNA	RNA	0		
				cPAHs		--	--	--	--		
				Bis(2-ethylhexyl)phthalate	Liver	ND	RNA	RNA	0		
				Hexachlorobenzene	Liver	ND	RNA	RNA	0		
				Total PCBs	Skin/Immunological	50	RNA	RNA	50		
				Total PBDEs	CNS	ND	RNA	RNA	0		
				Total Dioxin/Furan TEQ	Reproduction	1	RNA	RNA	1		
				Total PCB TEQ	Reproduction	2	RNA	RNA	2		
				Aldrin	Liver	ND	RNA	RNA	0		
				alpha-Hexachlorocyclohexane	Liver	ND	RNA	RNA	0		
				beta-Hexachlorocyclohexane	Liver	ND	RNA	RNA	0		
				gamma-Hexachlorocyclohexane	Kidney/Liver	ND	RNA	RNA	0		
				Dieldrin	Liver	ND	RNA	RNA	0		
				Heptachlor	Liver	ND	RNA	RNA	0		
				Heptachlor Epoxide	Liver	ND	RNA	RNA	0		
				Total Chlordanes	Liver	ND	RNA	RNA	0		
				Total DDx	Liver	<1	RNA	RNA	0		
				Fish Tissue Hazard Index Total = 50							
				Receptor Hazard Index = 50							
				Blood Hazard Index = <1							
				Skin Hazard Index = 50							
				CNS Hazard Index = 2							
Whole Body Hazard Index = <1											
Liver Hazard Index = <1											
Immological Hazard Index = 50											
Reproduction Hazard Index = 3											
Kidney Hazard Index = <1											

Table 5-107 Risk Characterization Summary, Noncancer Hazards - Recreational Fisher, River-Mile Basis, Reasonable Maximum Exposure											
Risk Characterization Summary - Non-Carcinogens											
Scenario Timeframe: Current/Future											
Receptor Population: Subsistence Fisher											
Receptor Age: Child											
Medium	Exposure Medium	Exposure Point	Chemical of Concern	Primary Target Organ	Non-Carcinogens Hazard Quotient						
					Ingestion/Consumption	Inhalation	Dermal	Exposure Routes Total			
Fish Tissue	Smallmouth Bass Tissue	Fillet Fish Tissue On-site Consumption (20.5 g/day)	RM 9	Antimony	Blood	<1	RNA	RNA	0		
				Arsenic	Skin/Blood	<1	RNA	RNA	0.0		
				Chromium		<1	RNA	RNA	0		
				Mercury	CNS	5	RNA	RNA	5		
				Selenium	Whole Body	ND	RNA	RNA	0		
				Zinc	Blood	<1	RNA	RNA	0		
				cPAHs		--	--	--	--		
				Bis(2-ethylhexyl)phthalate	Liver	<1	RNA	RNA	0		
				Hexachlorobenzene	Liver	<1	RNA	RNA	0		
				Total PCBs	Skin/Immunological	7	RNA	RNA	7		
				Total PBDEs	CNS	<1	RNA	RNA	0		
				Total Dioxin/Furan TEQ	Reproduction	0.6	RNA	RNA	0.6		
				Total PCB TEQ	Reproduction	1	RNA	RNA	1		
				Aldrin	Liver	<1	RNA	RNA	0		
				alpha-Hexachlorocyclohexane	Liver	<1	RNA	RNA	0		
				beta-Hexachlorocyclohexane	Liver	ND	RNA	RNA	0		
				gamma-Hexachlorocyclohexane	Kidney/Liver	<1	RNA	RNA	0		
				Dieldrin	Liver	<1	RNA	RNA	0		
				Heptachlor	Liver	ND	RNA	RNA	0		
				Heptachlor Epoxide	Liver	<1	RNA	RNA	0		
				Total Chlordanes	Liver	<1	RNA	RNA	0		
				Total DDx	Liver	0.1	RNA	RNA	0.1		
				Fish Tissue Hazard Index Total = 10							
				Receptor Hazard Index = 10							
				Blood Hazard Index = <1							
				Skin Hazard Index = 7							
				CNS Hazard Index = 5							
				Whole Body Hazard Index = <1							
Liver Hazard Index = <1											
Immological Hazard Index = 7											
Reproduction Hazard Index = 2											
Kidney Hazard Index = <1											
Fish Tissue	Smallmouth Bass Tissue	Fillet Fish Tissue On-site Consumption (20.5 g/day)	RM 10	Antimony	Blood	ND	RNA	RNA	0		
				Arsenic	Skin/Blood	<1	RNA	RNA	0.0		
				Chromium		ND	RNA	RNA	0		
				Mercury	CNS	3	RNA	RNA	3		
				Selenium	Whole Body	ND	RNA	RNA	0		
				Zinc	Blood	<1	RNA	RNA	0		
				cPAHs		--	--	--	--		
				Bis(2-ethylhexyl)phthalate	Liver	<1	RNA	RNA	0		
				Hexachlorobenzene	Liver	<1	RNA	RNA	0		
				Total PCBs	Skin/Immunological	8	RNA	RNA	8		
				Total PBDEs	CNS	<1	RNA	RNA	0		
				Total Dioxin/Furan TEQ	Reproduction	0.6	RNA	RNA	0.6		
				Total PCB TEQ	Reproduction	0.8	RNA	RNA	1		
				Aldrin	Liver	ND	RNA	RNA	0		
				alpha-Hexachlorocyclohexane	Liver	<1	RNA	RNA	0		
				beta-Hexachlorocyclohexane	Liver	ND	RNA	RNA	0		
				gamma-Hexachlorocyclohexane	Kidney/Liver	<1	RNA	RNA	0		
				Dieldrin	Liver	<1	RNA	RNA	0		
				Heptachlor	Liver	ND	RNA	RNA	0		
				Heptachlor Epoxide	Liver	<1	RNA	RNA	0		
				Total Chlordanes	Liver	<1	RNA	RNA	0		
				Total DDx	Liver	<1	RNA	RNA	0		
				Fish Tissue Hazard Index Total = 10							
				Receptor Hazard Index = 10							
				Blood Hazard Index = <1							
				Skin Hazard Index = 8							
				CNS Hazard Index = 3							
				Whole Body Hazard Index = <1							
Liver Hazard Index = <1											
Immological Hazard Index = 8											
Reproduction Hazard Index = 1											
Kidney Hazard Index = <1											

Table 5-107 Risk Characterization Summary, Noncancer Hazards - Recreational Fisher, River-Mile Basis, Reasonable Maximum Exposure									
Risk Characterization Summary - Non-Carcinogens									
Scenario Timeframe: Current/Future									
Receptor Population: Subsistence Fisher									
Receptor Age: Child									
Medium	Exposure Medium	Exposure Point	Chemical of Concern	Primary Target Organ	Non-Carcinogens Hazard Quotient				
					Ingestion/Consumption	Inhalation	Dermal	Exposure Routes Total	
Fish Tissue	Smallmouth Bass Tissue	Fillet Fish Tissue On-site Consumption (20.5 g/day)							
			RM 11	Antimony	Blood	ND	RNA	RNA	0
			Arsenic	Skin/Blood	<1	RNA	RNA	0.0	
			Chromium		ND	RNA	RNA	0	
			Mercury	CNS	3	RNA	RNA	3	
			Selenium	Whole Body	1	RNA	RNA	1	
			Zinc	Blood	<1	RNA	RNA	0	
			cPAHs		--	--	--	--	
			Bis(2-ethylhexyl)phthalate	Liver	ND	RNA	RNA	0	
			Hexachlorobenzene	Liver	<1	RNA	RNA	0	
			Total PCBs	Skin/Immunological	100	RNA	RNA	100	
			Total PBDEs	CNS	1	RNA	RNA	1	
			Total Dioxin/Furan TEQ	Reproduction	0.6	RNA	RNA	1	
			Total PCB TEQ	Reproduction	3	RNA	RNA	3	
			Aldrin	Liver	ND	RNA	RNA	0	
			alpha-Hexachlorocyclohexane	Liver	ND	RNA	RNA	0	
			beta-Hexachlorocyclohexane	Liver	<1	RNA	RNA	0	
			gamma-Hexachlorocyclohexane	Kidney/Liver	<1	RNA	RNA	0	
			Dieldrin	Liver	<1	RNA	RNA	0	
			Heptachlor	Liver	<1	RNA	RNA	0	
			Heptachlor Epoxide	Liver	<1	RNA	RNA	0	
			Total Chlordanes	Liver	<1	RNA	RNA	0	
			Total DDx	Liver	<1	RNA	RNA	0	
Fish Tissue Hazard Index Total =							100		
Receptor Hazard Index =							100		
Blood Hazard Index =							<1		
Skin Hazard Index =							100		
CNS Hazard Index =							4		
Whole Body Hazard Index =							1		
Liver Hazard Index =							<1		
Immological Hazard Index =							100		
Reproduction Hazard Index =							4		
Kidney Hazard Index =							<1		



Table 5-108 Risk Characterization Summary, Noncancer Hazards - Breastfeeding Infant of Recreational Fisher, River-Mile Basis, Reasonable Maximum Exposure

Risk Characterization Summary - Non-Carcinogens									
Scenario Timeframe: Current/Future									
Receptor Population: Recreational Fisher (Boat)									
Receptor Age: Infant									
Medium	Exposure Medium	Exposure Point	Chemical of Concern	Primary Target Organ	Non-Carcinogens Hazard Quotient				
					Ingestion/Consumption	Inhalation	Dermal	Exposure Routes Total	
Sediment	Breast Milk	Breastfeeding from Adult with Direct Contact of On-site Sediment Ingestion RM 2 West						Sediment Hazard Index Total =	<1
Fish Tissue	Breast Milk	Breastfeeding from Adult Consumer of Fillet Smallmouth Bass Fish Tissue On-site (48.9-20.5 g/day) Ingestion RM 2	Total PCBs	Skin/Immunological	200	RNA	RNA	200	
			Total PBDEs	CNS	ND	RNA	RNA	0	
			Total Dioxin/Furan TEQ	Reproduction	0.3	RNA	RNA	0.3	
			Total PCB TEQ	Reproduction	3	RNA	RNA	3	
			Total DDX	Liver	<1	RNA	RNA	0	
			Fish Tissue Hazard Index Total =						
Receptor Hazard Index =							200		
CNS Hazard Index =							0		
Skin Hazard Index =							200		
Liver Hazard Index =							<1		
Immological Hazard Index =							200		
Reproduction Hazard Index =							3		
Sediment	Breast Milk	Breastfeeding from Adult with Direct Contact of On-site Sediment Ingestion RM 2.5 West						Sediment Hazard Index Total =	<1
Fish Tissue	Breast Milk	Breastfeeding from Adult Consumer of Fillet Smallmouth Bass Fish Tissue On-site (48.9-20.5 g/day) Ingestion RM 2	Total PCBs	Skin/Immunological	200	RNA	RNA	200	
			Total PBDEs	CNS	ND	RNA	RNA	0	
			Total Dioxin/Furan TEQ	Reproduction	0.3	RNA	RNA	0.3	
			Total PCB TEQ	Reproduction	3	RNA	RNA	3	
			Total DDX	Liver	<1	RNA	RNA	0	
			Fish Tissue Hazard Index Total =						
Receptor Hazard Index =							200		
CNS Hazard Index =							0		
Skin Hazard Index =							200		
Liver Hazard Index =							<1		
Immological Hazard Index =							200		
Reproduction Hazard Index =							3		
Sediment	Breast Milk	Breastfeeding from Adult with Direct Contact of On-site Sediment Ingestion RM 3 West						Sediment Hazard Index Total =	<1
Fish Tissue	Breast Milk	Breastfeeding from Adult Consumer of Fillet Smallmouth Bass Fish Tissue On-site (48.9-20.5 g/day) Ingestion RM 3	Total PCBs	Skin/Immunological	30	RNA	RNA	30	
			Total PBDEs	CNS	<1	RNA	RNA	0	
			Total Dioxin/Furan TEQ	Reproduction	0.4	RNA	RNA	0.4	
			Total PCB TEQ	Reproduction	1	RNA	RNA	1	
			Total DDX	Liver	0.1	RNA	RNA	0.1	
			Fish Tissue Hazard Index Total =						
Receptor Hazard Index =							30		
CNS Hazard Index =							0		
Skin Hazard Index =							30		
Liver Hazard Index =							<1		
Immological Hazard Index =							30		
Reproduction Hazard Index =							1		

Table 5-108 Risk Characterization Summary, Noncancer Hazards - Breastfeeding Infant of Recreational Fisher, River-Mile Basis, Reasonable Maximum Exposure

Risk Characterization Summary - Non-Carcinogens									
Scenario Timeframe: Current/Future									
Receptor Population: Recreational Fisher (Boat)									
Receptor Age: Infant									
Medium	Exposure Medium	Exposure Point	Chemical of Concern	Primary Target Organ	Non-Carcinogens Hazard Quotient				
					Ingestion/Consumption	Inhalation	Dermal	Exposure Routes Total	
Sediment	Breast Milk	Breastfeeding from Adult with Direct Contact of On-site Sediment Ingestion RM 3.5 West						Sediment Hazard Index Total =	<1
Fish Tissue	Breast Milk	Breastfeeding from Adult Consumer of Fillet Smallmouth Bass Fish Tissue On-site (48.9-20.5 g/day) Ingestion RM 3	Total PCBs	Skin/Immunological	30	RNA	RNA	30	
			Total PBDEs	CNS	<1	RNA	RNA	0	
			Total Dioxin/Furan TEQ	Reproduction	0.4	RNA	RNA	0.4	
			Total PCB TEQ	Reproduction	1	RNA	RNA	1	
			Total DDx	Liver	0.1	RNA	RNA	0.1	
			Fish Tissue Hazard Index Total =						
Receptor Hazard Index =							30		
CNS Hazard Index =							0		
Skin Hazard Index =							30		
Liver Hazard Index =							<1		
Immological Hazard Index =							30		
Reproduction Hazard Index =							1		
Sediment	Breast Milk	Breastfeeding from Adult with Direct Contact of On-site Sediment Ingestion RM 4 West						Sediment Hazard Index Total =	<1
Fish Tissue	Breast Milk	Breastfeeding from Adult Consumer of Fillet Smallmouth Bass Fish Tissue On-site (48.9-20.5 g/day) Ingestion RM 4	Total PCBs	Skin/Immunological	200	RNA	RNA	200	
			Total PBDEs	CNS	2	RNA	RNA	2	
			Total Dioxin/Furan TEQ	Reproduction	0.5	RNA	RNA	0.5	
			Total PCB TEQ	Reproduction	2	RNA	RNA	2	
			Total DDx	Liver	<1	RNA	RNA	0	
			Fish Tissue Hazard Index Total =						
Receptor Hazard Index =							200		
CNS Hazard Index =							2		
Skin Hazard Index =							200		
Liver Hazard Index =							<1		
Immological Hazard Index =							200		
Reproduction Hazard Index =							2		
Sediment	Breast Milk	Breastfeeding from Adult with Direct Contact of On-site Sediment Ingestion RM 4.5 West						Sediment Hazard Index Total =	<1
Fish Tissue	Breast Milk	Breastfeeding from Adult Consumer of Fillet Smallmouth Bass Fish Tissue On-site (48.9-20.5 g/day) Ingestion RM 4	Total PCBs	Skin/Immunological	200	RNA	RNA	200	
			Total PBDEs	CNS	2	RNA	RNA	2	
			Total Dioxin/Furan TEQ	Reproduction	0.5	RNA	RNA	0.5	
			Total PCB TEQ	Reproduction	2	RNA	RNA	2	
			Total DDx	Liver	<1	RNA	RNA	0	
			Fish Tissue Hazard Index Total =						
Receptor Hazard Index =							200		
CNS Hazard Index =							2		
Skin Hazard Index =							200		
Liver Hazard Index =							<1		
Immological Hazard Index =							200		
Reproduction Hazard Index =							2		

Table 5-108 Risk Characterization Summary, Noncancer Hazards - Breastfeeding Infant of Recreational Fisher, River-Mile Basis, Reasonable Maximum Exposure

Risk Characterization Summary - Non-Carcinogens									
Scenario Timeframe: Current/Future									
Receptor Population: Recreational Fisher (Boat)									
Receptor Age: Infant									
Medium	Exposure Medium	Exposure Point	Chemical of Concern	Primary Target Organ	Non-Carcinogens Hazard Quotient				
					Ingestion/Consumption	Inhalation	Dermal	Exposure Routes Total	
Sediment	Breast Milk	Breastfeeding from Adult with Direct Contact of On-site Sediment Ingestion RM 5 West						Sediment Hazard Index Total =	<1
Fish Tissue	Breast Milk	Breastfeeding from Adult Consumer of Fillet Smallmouth Bass Fish Tissue On-site (48.9-20.5 g/day) Ingestion RM 5	Total PCBs	Skin/Immunological	30	RNA	RNA	30	
			Total PBDEs	CNS	0.9	RNA	RNA	0.9	
			Total Dioxin/Furan TEQ	Reproduction	0.3	RNA	RNA	0.3	
			Total PCB TEQ	Reproduction	0.5	RNA	RNA	0.5	
			Total DDX	Liver	0.1	RNA	RNA	0.1	
			Fish Tissue Hazard Index Total =						
Receptor Hazard Index =							30		
CNS Hazard Index =							1		
Skin Hazard Index =							30		
Liver Hazard Index =							<1		
Immological Hazard Index =							30		
Reproduction Hazard Index =							1		
Sediment	Breast Milk	Breastfeeding from Adult with Direct Contact of On-site Sediment Ingestion RM 5.5 West						Sediment Hazard Index Total =	<1
Fish Tissue	Breast Milk	Breastfeeding from Adult Consumer of Fillet Smallmouth Bass Fish Tissue On-site (48.9-20.5 g/day) Ingestion RM 5	Total PCBs	Skin/Immunological	30	RNA	RNA	30	
			Total PBDEs	CNS	0.9	RNA	RNA	0.9	
			Total Dioxin/Furan TEQ	Reproduction	0.3	RNA	RNA	0.3	
			Total PCB TEQ	Reproduction	0.5	RNA	RNA	0.5	
			Total DDX	Liver	0.1	RNA	RNA	0.1	
			Fish Tissue Hazard Index Total =						
Receptor Hazard Index =							30		
CNS Hazard Index =							1		
Skin Hazard Index =							30		
Liver Hazard Index =							<1		
Immological Hazard Index =							30		
Reproduction Hazard Index =							1		
Sediment	Breast Milk	Breastfeeding from Adult with Direct Contact of On-site Sediment Ingestion RM 6 West						Sediment Hazard Index Total =	<1
Fish Tissue	Breast Milk	Breastfeeding from Adult Consumer of Fillet Smallmouth Bass Fish Tissue On-site (48.9-20.5 g/day) Ingestion RM 6	Total PCBs	Skin/Immunological	70	RNA	RNA	70	
			Total PBDEs	CNS	0.8	RNA	RNA	0.8	
			Total Dioxin/Furan TEQ	Reproduction	0.5	RNA	RNA	0.5	
			Total PCB TEQ	Reproduction	0.5	RNA	RNA	0.5	
			Total DDX	Liver	0.1	RNA	RNA	0.1	
			Fish Tissue Hazard Index Total =						
Receptor Hazard Index =							70		
CNS Hazard Index =							1		
Skin Hazard Index =							70		
Liver Hazard Index =							<1		
Immological Hazard Index =							70		
Reproduction Hazard Index =							1		

Table 5-108 Risk Characterization Summary, Noncancer Hazards - Breastfeeding Infant of Recreational Fisher, River-Mile Basis, Reasonable Maximum Exposure

Risk Characterization Summary - Non-Carcinogens									
Scenario Timeframe: Current/Future									
Receptor Population: Recreational Fisher (Boat)									
Receptor Age: Infant									
Medium	Exposure Medium	Exposure Point	Chemical of Concern	Primary Target Organ	Non-Carcinogens Hazard Quotient				
					Ingestion/Consumption	Inhalation	Dermal	Exposure Routes Total	
Sediment	Breast Milk	Breastfeeding from Adult with Direct Contact of On-site Sediment Ingestion RM 6.5 West						Sediment Hazard Index Total =	<1
Fish Tissue	Breast Milk	Breastfeeding from Adult Consumer of Fillet Smallmouth Bass Fish Tissue On-site (48.9-20.5 g/day) Ingestion RM 6	Total PCBs	Skin/Immunological	70	RNA	RNA	70	
			Total PBDEs	CNS	0.8	RNA	RNA	0.8	
			Total Dioxin/Furan TEQ	Reproduction	0.5	RNA	RNA	0.5	
			Total PCB TEQ	Reproduction	0.5	RNA	RNA	0.5	
			Total DDx	Liver	0.1	RNA	RNA	0.1	
			Fish Tissue Hazard Index Total =						
Receptor Hazard Index =							70		
CNS Hazard Index =							1		
Skin Hazard Index =							70		
Liver Hazard Index =							<1		
Immological Hazard Index =							70		
Reproduction Hazard Index =							1		
Sediment	Breast Milk	Breastfeeding from Adult with Direct Contact of On-site Sediment Ingestion RM 7 West	Total PCBs	Skin/Immunological	<1	RNA	RNA	0	
			Total Dioxin/Furan TEQ	Reproduction	2	RNA	RNA	2	
			Total PCB TEQ	Reproduction	<1	RNA	RNA	0	
			Sediment Hazard Index Total =						
Fish Tissue	Breast Milk	Breastfeeding from Adult Consumer of Fillet Smallmouth Bass Fish Tissue On-site (48.9-20.5 g/day) Ingestion RM 7	Total PCBs	Skin/Immunological	200	RNA	RNA	200	
			Total PBDEs	CNS	ND	RNA	RNA	0	
			Total Dioxin/Furan TEQ	Reproduction	10	RNA	RNA	10	
			Total PCB TEQ	Reproduction	1	RNA	RNA	1	
			Total DDx	Liver	0.5	RNA	RNA	0.5	
			Fish Tissue Hazard Index Total =						
Receptor Hazard Index =							200		
CNS Hazard Index =							0		
Skin Hazard Index =							200		
Liver Hazard Index =							<1		
Immological Hazard Index =							200		
Reproduction Hazard Index =							10		
Sediment	Breast Milk	Breastfeeding from Adult with Direct Contact of On-site Sediment Ingestion RM 7.5 West						Sediment Hazard Index Total =	<1
Fish Tissue	Breast Milk	Breastfeeding from Adult Consumer of Fillet Smallmouth Bass Fish Tissue On-site (48.9-20.5 g/day) Ingestion RM 7	Total PCBs	Skin/Immunological	200	RNA	RNA	200	
			Total PBDEs	CNS	ND	RNA	RNA	0	
			Total Dioxin/Furan TEQ	Reproduction	10	RNA	RNA	10	
			Total PCB TEQ	Reproduction	1	RNA	RNA	1	
			Total DDx	Liver	0.5	RNA	RNA	0.5	
			Fish Tissue Hazard Index Total =						
Receptor Hazard Index =							200		
CNS Hazard Index =							0		
Skin Hazard Index =							200		
Liver Hazard Index =							<1		
Immological Hazard Index =							200		
Reproduction Hazard Index =							10		

Table 5-108 Risk Characterization Summary, Noncancer Hazards - Breastfeeding Infant of Recreational Fisher, River-Mile Basis, Reasonable Maximum Exposure

Risk Characterization Summary - Non-Carcinogens									
Scenario Timeframe: Current/Future									
Receptor Population: Recreational Fisher (Boat)									
Receptor Age: Infant									
Medium	Exposure Medium	Exposure Point	Chemical of Concern	Primary Target Organ	Non-Carcinogens Hazard Quotient				
					Ingestion/Consumption	Inhalation	Dermal	Exposure Routes Total	
Sediment	Breast Milk	Breastfeeding from Adult with Direct Contact of On-site Sediment Ingestion RM 8 West						Sediment Hazard Index Total =	<1
Fish Tissue	Breast Milk	Breastfeeding from Adult Consumer of Fillet Smallmouth Bass Fish Tissue On-site (48.9-20.5 g/day) Ingestion RM 8	Total PCBs	Skin/Immunological	40	RNA	RNA	40	
			PBDEs	CNS	<1	RNA	RNA	0	
			Total Dioxin/Furan TEQ	Reproduction	1	RNA	RNA	1	
			Total PCB TEQ	Reproduction	0.6	RNA	RNA	0.6	
			Total DDX	Liver	0.1	RNA	RNA	0.1	
			Fish Tissue Hazard Index Total =						
<b>Receptor Hazard Index =</b>							40		
<b>CNS Hazard Index =</b>							0		
<b>Skin Hazard Index =</b>							40		
<b>Liver Hazard Index =</b>							<1		
<b>Immological Hazard Index =</b>							40		
<b>Reproduction Hazard Index =</b>							1		
Sediment	Breast Milk	Breastfeeding from Adult with Direct Contact of On-site Sediment Ingestion RM 8.5 West	Total PCBs	Skin/Immunological	1	RNA	RNA	1	
			Total Dioxin/Furan TEQ	Reproduction	<1	RNA	RNA	0	
			Total PCB TEQ	Reproduction	<1	RNA	RNA	0	
			Sediment Hazard Index Total =						
Fish Tissue	Breast Milk	Breastfeeding from Adult Consumer of Fillet Smallmouth Bass Fish Tissue On-site (48.9-20.5 g/day) Ingestion RM 8	Total PCBs	Skin/Immunological	40	RNA	RNA	40	
			PBDEs	CNS	<1	RNA	RNA	0	
			Total Dioxin/Furan TEQ	Reproduction	1	RNA	RNA	1	
			Total PCB TEQ	Reproduction	0.6	RNA	RNA	0.6	
			Total DDX	Liver	0.1	RNA	RNA	0.1	
			Fish Tissue Hazard Index Total =						
<b>Receptor Hazard Index =</b>							40		
<b>CNS Hazard Index =</b>							0		
<b>Skin Hazard Index =</b>							40		
<b>Liver Hazard Index =</b>							<1		
<b>Immological Hazard Index =</b>							40		
<b>Reproduction Hazard Index =</b>							1		
Sediment	Breast Milk	Breastfeeding from Adult with Direct Contact of On-site Sediment Ingestion RM 9 West						Sediment Hazard Index Total =	<1
Fish Tissue	Breast Milk	Breastfeeding from Adult Consumer of Fillet Smallmouth Bass Fish Tissue On-site (48.9-20.5 g/day) Ingestion RM 9	Total PCBs	Skin/Immunological	80	RNA	RNA	80	
			PBDEs	CNS	<1	RNA	RNA	0	
			Total Dioxin/Furan TEQ	Reproduction	0.6	RNA	RNA	0.6	
			Total PCB TEQ	Reproduction	1	RNA	RNA	1	
			Total DDX	Liver	0.1	RNA	RNA	0.1	
			Fish Tissue Hazard Index Total =						
<b>Receptor Hazard Index =</b>							80		
<b>CNS Hazard Index =</b>							0		
<b>Skin Hazard Index =</b>							80		
<b>Liver Hazard Index =</b>							<1		
<b>Immological Hazard Index =</b>							80		
<b>Reproduction Hazard Index =</b>							2		

Table 5-108 Risk Characterization Summary, Noncancer Hazards - Breastfeeding Infant of Recreational Fisher, River-Mile Basis, Reasonable Maximum Exposure

Risk Characterization Summary - Non-Carcinogens									
Scenario Timeframe: Current/Future									
Receptor Population: Recreational Fisher (Boat)									
Receptor Age: Infant									
Medium	Exposure Medium	Exposure Point	Chemical of Concern	Primary Target Organ	Non-Carcinogens Hazard Quotient				
					Ingestion/Consumption	Inhalation	Dermal	Exposure Routes Total	
Sediment	Breast Milk	Breastfeeding from Adult with Direct Contact of On-site Sediment Ingestion RM 9.5 West						Sediment Hazard Index Total =	<1
Fish Tissue	Breast Milk	Breastfeeding from Adult Consumer of Fillet Smallmouth Bass Fish Tissue On-site (48.9-20.5 g/day) Ingestion RM 9	Total PCBs	Skin/Immunological	80	RNA	RNA	80	
			PBDEs	CNS	<1	RNA	RNA	0	
			Total Dioxin/Furan TEQ	Reproduction	0.6	RNA	RNA	0.6	
			Total PCB TEQ	Reproduction	1	RNA	RNA	1	
			Total DDX	Liver	0.1	RNA	RNA	0.1	
			Fish Tissue Hazard Index Total =						
Receptor Hazard Index =							80		
CNS Hazard Index =							0		
Skin Hazard Index =							80		
Liver Hazard Index =							<1		
Immological Hazard Index =							80		
Reproduction Hazard Index =							2		
Sediment	Breast Milk	Breastfeeding from Adult with Direct Contact of On-site Sediment Ingestion RM 10 West						Sediment Hazard Index Total =	<1
Fish Tissue	Breast Milk	Breastfeeding from Adult Consumer of Fillet Smallmouth Bass Fish Tissue On-site (48.9-20.5 g/day) Ingestion RM 10	Total PCBs	Skin/Immunological	100	RNA	RNA	100	
			PBDEs	CNS	<1	RNA	RNA	0	
			Total Dioxin/Furan TEQ	Reproduction	0.6	RNA	RNA	0.6	
			Total PCB TEQ	Reproduction	1	RNA	RNA	1	
			Total DDX	Liver	<1	RNA	RNA	0	
			Fish Tissue Hazard Index Total =						
Receptor Hazard Index =							100		
CNS Hazard Index =							0		
Skin Hazard Index =							100		
Liver Hazard Index =							<1		
Immological Hazard Index =							100		
Reproduction Hazard Index =							1		
Sediment	Breast Milk	Breastfeeding from Adult with Direct Contact of On-site Sediment Ingestion RM 10.5 West						Sediment Hazard Index Total =	<1
Fish Tissue	Breast Milk	Breastfeeding from Adult Consumer of Fillet Smallmouth Bass Fish Tissue On-site (48.9-20.5 g/day) Ingestion RM 10	Total PCBs	Skin/Immunological	100	RNA	RNA	100	
			PBDEs	CNS	<1	RNA	RNA	0	
			Total Dioxin/Furan TEQ	Reproduction	0.6	RNA	RNA	0.6	
			Total PCB TEQ	Reproduction	1	RNA	RNA	1	
			Total DDX	Liver	<1	RNA	RNA	0	
			Fish Tissue Hazard Index Total =						
Receptor Hazard Index =							100		
CNS Hazard Index =							0		
Skin Hazard Index =							100		
Liver Hazard Index =							<1		
Immological Hazard Index =							100		
Reproduction Hazard Index =							1		

Table 5-108 Risk Characterization Summary, Noncancer Hazards - Breastfeeding Infant of Recreational Fisher, River-Mile Basis, Reasonable Maximum Exposure

Risk Characterization Summary - Non-Carcinogens									
Scenario Timeframe: Current/Future									
Receptor Population: Recreational Fisher (Boat)									
Receptor Age: Infant									
Medium	Exposure Medium	Exposure Point	Chemical of Concern	Primary Target Organ	Non-Carcinogens Hazard Quotient			Exposure Routes Total	
					Ingestion/Consumption	Inhalation	Dermal		
Sediment	Breast Milk	Breastfeeding from Adult with Direct Contact of On-site Sediment Ingestion RM 11 West						Sediment Hazard Index Total =	<1
Fish Tissue	Breast Milk	Breastfeeding from Adult Consumer of Fillet Smallmouth Bass Fish Tissue On-site (48.9-20.5 g/day) Ingestion RM 11	Total PCBs	Skin/Immunological	1000	RNA	RNA	1000	
			PBDEs	CNS	1	RNA	RNA	1	
			Total Dioxin/Furan TEQ	Reproduction	1	RNA	RNA	1	
			Total PCB TEQ	Reproduction	3	RNA	RNA	3	
			Total DDX	Liver	<1	RNA	RNA	0	
			Fish Tissue Hazard Index Total =						
Receptor Hazard Index =							1000		
CNS Hazard Index =							1		
Skin Hazard Index =							1000		
Liver Hazard Index =							<1		
Immological Hazard Index =							1000		
Reproduction Hazard Index =							4		
Sediment	Breast Milk	Breastfeeding from Adult with Direct Contact of On-site Sediment Ingestion RM 11.5 West						Sediment Hazard Index Total =	<1
Fish Tissue	Breast Milk	Breastfeeding from Adult Consumer of Fillet Smallmouth Bass Fish Tissue On-site (48.9-20.5 g/day) Ingestion RM 11	Total PCBs	Skin/Immunological	1000	RNA	RNA	1000	
			PBDEs	CNS	1	RNA	RNA	1	
			Total Dioxin/Furan TEQ	Reproduction	1	RNA	RNA	1	
			Total PCB TEQ	Reproduction	3	RNA	RNA	3	
			Total DDX	Liver	<1	RNA	RNA	0	
			Fish Tissue Hazard Index Total =						
Receptor Hazard Index =							1000		
CNS Hazard Index =							1		
Skin Hazard Index =							1000		
Liver Hazard Index =							<1		
Immological Hazard Index =							1000		
Reproduction Hazard Index =							4		
Sediment	Breast Milk	Breastfeeding from Adult with Direct Contact of On-site Sediment Ingestion RM 2 East						Sediment Hazard Index Total =	<1
Fish Tissue	Breast Milk	Breastfeeding from Adult Consumer of Fillet Smallmouth Bass Fish Tissue On-site (48.9-20.5 g/day) Ingestion RM 2	Total PCBs	Skin/Immunological	200	RNA	RNA	200	
			PBDEs	CNS	ND	RNA	RNA	0	
			Total Dioxin/Furan TEQ	Reproduction	0.3	RNA	RNA	0.3	
			Total PCB TEQ	Reproduction	3	RNA	RNA	3	
			Total DDX	Liver	<1	RNA	RNA	0	
			Fish Tissue Hazard Index Total =						
Receptor Hazard Index =							200		
CNS Hazard Index =							0		
Skin Hazard Index =							200		
Liver Hazard Index =							<1		
Immological Hazard Index =							200		
Reproduction Hazard Index =							3		

Table 5-108 Risk Characterization Summary, Noncancer Hazards - Breastfeeding Infant of Recreational Fisher, River-Mile Basis, Reasonable Maximum Exposure

Risk Characterization Summary - Non-Carcinogens									
Scenario Timeframe: Current/Future									
Receptor Population: Recreational Fisher (Boat)									
Receptor Age: Infant									
Medium	Exposure Medium	Exposure Point	Chemical of Concern	Primary Target Organ	Non-Carcinogens Hazard Quotient				
					Ingestion/Consumption	Inhalation	Dermal	Exposure Routes Total	
Sediment	Breast Milk	Breastfeeding from Adult with Direct Contact of On-site Sediment Ingestion RM 2.5 East						Sediment Hazard Index Total =	<1
Fish Tissue	Breast Milk	Breastfeeding from Adult Consumer of Fillet Smallmouth Bass Fish Tissue On-site (48.9-20.5 g/day) Ingestion RM 2	Total PCBs	Skin/Immunological	200	RNA	RNA	200	
			PBDEs	CNS	ND	RNA	RNA	0	
			Total Dioxin/Furan TEQ	Reproduction	0.3	RNA	RNA	0.3	
			Total PCB TEQ	Reproduction	3	RNA	RNA	3	
			Total DDX	Liver	<1	RNA	RNA	0	
			Fish Tissue Hazard Index Total =						
Receptor Hazard Index =							200		
CNS Hazard Index =							0		
Skin Hazard Index =							200		
Liver Hazard Index =							<1		
Immological Hazard Index =							200		
Reproduction Hazard Index =							3		
Sediment	Breast Milk	Breastfeeding from Adult with Direct Contact of On-site Sediment Ingestion RM 3 East						Sediment Hazard Index Total =	<1
Fish Tissue	Breast Milk	Breastfeeding from Adult Consumer of Fillet Smallmouth Bass Fish Tissue On-site (48.9-20.5 g/day) Ingestion RM 3	Total PCBs	Skin/Immunological	30	RNA	RNA	30	
			PBDEs	CNS	<1	RNA	RNA	0	
			Total Dioxin/Furan TEQ	Reproduction	0.4	RNA	RNA	0.4	
			Total PCB TEQ	Reproduction	1	RNA	RNA	1	
			Total DDX	Liver	0.2	RNA	RNA	0.2	
			Fish Tissue Hazard Index Total =						
Receptor Hazard Index =							30		
CNS Hazard Index =							0		
Skin Hazard Index =							30		
Liver Hazard Index =							<1		
Immological Hazard Index =							30		
Reproduction Hazard Index =							1		
Sediment	Breast Milk	Breastfeeding from Adult with Direct Contact of On-site Sediment Ingestion RM 3.5 East						Sediment Hazard Index Total =	<1
Fish Tissue	Breast Milk	Breastfeeding from Adult Consumer of Fillet Smallmouth Bass Fish Tissue On-site (48.9-20.5 g/day) Ingestion RM 3	Total PCBs	Skin/Immunological	30	RNA	RNA	30	
			PBDEs	CNS	<1	RNA	RNA	0	
			Total Dioxin/Furan TEQ	Reproduction	0.4	RNA	RNA	0.4	
			Total PCB TEQ	Reproduction	1	RNA	RNA	1	
			Total DDX	Liver	0.2	RNA	RNA	0.2	
			Fish Tissue Hazard Index Total =						
Receptor Hazard Index =							30		
CNS Hazard Index =							0		
Skin Hazard Index =							30		
Liver Hazard Index =							<1		
Immological Hazard Index =							30		
Reproduction Hazard Index =							1		



Table 5-108 Risk Characterization Summary, Noncancer Hazards - Breastfeeding Infant of Recreational Fisher, River-Mile Basis, Reasonable Maximum Exposure

Risk Characterization Summary - Non-Carcinogens									
Scenario Timeframe: Current/Future									
Receptor Population: Recreational Fisher (Boat)									
Receptor Age: Infant									
Medium	Exposure Medium	Exposure Point	Chemical of Concern	Primary Target Organ	Non-Carcinogens Hazard Quotient				
					Ingestion/Consumption	Inhalation	Dermal	Exposure Routes Total	
Sediment	Breast Milk	Breastfeeding from Adult with Direct Contact of On-site Sediment Ingestion RM 4 East						Sediment Hazard Index Total =	<1
Fish Tissue	Breast Milk	Breastfeeding from Adult Consumer of Fillet Smallmouth Bass Fish Tissue On-site (48.9-20.5 g/day) Ingestion RM 4	Total PCBs	Skin/Immunological	200	RNA	RNA	200	
			PBDEs	CNS	2	RNA	RNA	2	
			Total Dioxin/Furan TEQ	Reproduction	0.5	RNA	RNA	0.5	
			Total PCB TEQ	Reproduction	2	RNA	RNA	2	
			Total DDX	Liver	<1	RNA	RNA	0	
			Fish Tissue Hazard Index Total =						
Receptor Hazard Index =							200		
CNS Hazard Index =							2		
Skin Hazard Index =							200		
Liver Hazard Index =							<1		
Immological Hazard Index =							200		
Reproduction Hazard Index =							2		
Sediment	Breast Milk	Breastfeeding from Adult with Direct Contact of On-site Sediment Ingestion RM 4.5 East						Sediment Hazard Index Total =	<1
Fish Tissue	Breast Milk	Breastfeeding from Adult Consumer of Fillet Smallmouth Bass Fish Tissue On-site (48.9-20.5 g/day) Ingestion RM 4	Total PCBs	Skin/Immunological	200	RNA	RNA	200	
			PBDEs	CNS	2	RNA	RNA	2	
			Total Dioxin/Furan TEQ	Reproduction	0.5	RNA	RNA	0.5	
			Total PCB TEQ	Reproduction	2	RNA	RNA	2	
			Total DDX	Liver	<1	RNA	RNA	0	
			Fish Tissue Hazard Index Total =						
Receptor Hazard Index =							200		
CNS Hazard Index =							2		
Skin Hazard Index =							200		
Liver Hazard Index =							<1		
Immological Hazard Index =							200		
Reproduction Hazard Index =							2		
Sediment	Breast Milk	Breastfeeding from Adult with Direct Contact of On-site Sediment Ingestion RM 5 East						Sediment Hazard Index Total =	<1
Fish Tissue	Breast Milk	Breastfeeding from Adult Consumer of Fillet Smallmouth Bass Fish Tissue On-site (48.9-20.5 g/day) Ingestion RM 5	Total PCBs	Skin/Immunological	30	RNA	RNA	30	
			PBDEs	CNS	0.9	RNA	RNA	1	
			Total Dioxin/Furan TEQ	Reproduction	0.3	RNA	RNA	0.3	
			Total PCB TEQ	Reproduction	0.5	RNA	RNA	0.5	
			Total DDX	Liver	0.1	RNA	RNA	0.1	
			Fish Tissue Hazard Index Total =						
Receptor Hazard Index =							30		
CNS Hazard Index =							1		
Skin Hazard Index =							30		
Liver Hazard Index =							<1		
Immological Hazard Index =							30		
Reproduction Hazard Index =							1		

Table 5-108 Risk Characterization Summary, Noncancer Hazards - Breastfeeding Infant of Recreational Fisher, River-Mile Basis, Reasonable Maximum Exposure

Risk Characterization Summary - Non-Carcinogens									
Scenario Timeframe: Current/Future									
Receptor Population: Recreational Fisher (Boat)									
Receptor Age: Infant									
Medium	Exposure Medium	Exposure Point	Chemical of Concern	Primary Target Organ	Non-Carcinogens Hazard Quotient				
					Ingestion/Consumption	Inhalation	Dermal	Exposure Routes Total	
Sediment	Breast Milk	Breastfeeding from Adult with Direct Contact of On-site Sediment Ingestion RM 5.5 East						Sediment Hazard Index Total =	<1
Fish Tissue	Breast Milk	Breastfeeding from Adult Consumer of Fillet Smallmouth Bass Fish Tissue On-site (48.9-20.5 g/day) Ingestion RM 5	Total PCBs	Skin/Immunological	30	RNA	RNA	30	
			PBDEs	CNS	0.9	RNA	RNA	1	
			Total Dioxin/Furan TEQ	Reproduction	0.3	RNA	RNA	0.3	
			Total PCB TEQ	Reproduction	0.5	RNA	RNA	0.5	
			Total DDX	Liver	0.1	RNA	RNA	0.1	
			Fish Tissue Hazard Index Total =						
Receptor Hazard Index =							30		
CNS Hazard Index =							1		
Skin Hazard Index =							30		
Liver Hazard Index =							<1		
Immological Hazard Index =							30		
Reproduction Hazard Index =							1		
Sediment	Breast Milk	Breastfeeding from Adult with Direct Contact of On-site Sediment Ingestion RM 6 East						Sediment Hazard Index Total =	<1
Fish Tissue	Breast Milk	Breastfeeding from Adult Consumer of Fillet Smallmouth Bass Fish Tissue On-site (48.9-20.5 g/day) Ingestion RM 6	Total PCBs	Skin/Immunological	70	RNA	RNA	70	
			PBDEs	CNS	0.8	RNA	RNA	1	
			Total Dioxin/Furan TEQ	Reproduction	0.5	RNA	RNA	0.5	
			Total PCB TEQ	Reproduction	0.5	RNA	RNA	0.5	
			Total DDX	Liver	0.1	RNA	RNA	0.1	
			Fish Tissue Hazard Index Total =						
Receptor Hazard Index =							70		
CNS Hazard Index =							1		
Skin Hazard Index =							70		
Liver Hazard Index =							<1		
Immological Hazard Index =							70		
Reproduction Hazard Index =							1		
Sediment	Breast Milk	Breastfeeding from Adult with Direct Contact of On-site Sediment Ingestion RM 6.5 East						Sediment Hazard Index Total =	<1
Fish Tissue	Breast Milk	Breastfeeding from Adult Consumer of Fillet Smallmouth Bass Fish Tissue On-site (48.9-20.5 g/day) Ingestion RM 6	Total PCBs	Skin/Immunological	70	RNA	RNA	70	
			PBDEs	CNS	0.8	RNA	RNA	1	
			Total Dioxin/Furan TEQ	Reproduction	0.5	RNA	RNA	0.5	
			Total PCB TEQ	Reproduction	0.5	RNA	RNA	0.5	
			Total DDX	Liver	0.1	RNA	RNA	0.1	
			Fish Tissue Hazard Index Total =						
Receptor Hazard Index =							70		
CNS Hazard Index =							1		
Skin Hazard Index =							70		
Liver Hazard Index =							<1		
Immological Hazard Index =							70		
Reproduction Hazard Index =							1		

Table 5-108 Risk Characterization Summary, Noncancer Hazards - Breastfeeding Infant of Recreational Fisher, River-Mile Basis, Reasonable Maximum Exposure

Risk Characterization Summary - Non-Carcinogens									
Scenario Timeframe: Current/Future									
Receptor Population: Recreational Fisher (Boat)									
Receptor Age: Infant									
Medium	Exposure Medium	Exposure Point	Chemical of Concern	Primary Target Organ	Non-Carcinogens Hazard Quotient				
					Ingestion/Consumption	Inhalation	Dermal	Exposure Routes Total	
Sediment	Breast Milk	Breastfeeding from Adult with Direct Contact of On-site Sediment Ingestion RM 7 East						Sediment Hazard Index Total =	<1
Fish Tissue	Breast Milk	Breastfeeding from Adult Consumer of Fillet Smallmouth Bass Fish Tissue On-site (48.9-20.5 g/day) Ingestion RM 7	Total PCBs	Skin/Immunological	200	RNA	RNA	200	
			PBDEs	CNS	ND	RNA	RNA	0	
			Total Dioxin/Furan TEQ	Reproduction	10	RNA	RNA	10	
			Total PCB TEQ	Reproduction	1	RNA	RNA	1	
			Total DDX	Liver	0.8	RNA	RNA	0.8	
			Fish Tissue Hazard Index Total =						
Receptor Hazard Index =							200		
CNS Hazard Index =							0		
Skin Hazard Index =							200		
Liver Hazard Index =							<1		
Immological Hazard Index =							200		
Reproduction Hazard Index =							10		
Sediment	Breast Milk	Breastfeeding from Adult with Direct Contact of On-site Sediment Ingestion RM 7.5 East						Sediment Hazard Index Total =	<1
Fish Tissue	Breast Milk	Breastfeeding from Adult Consumer of Fillet Smallmouth Bass Fish Tissue On-site (48.9-20.5 g/day) Ingestion RM 7	Total PCBs	Skin/Immunological	200	RNA	RNA	200	
			PBDEs	CNS	ND	RNA	RNA	0	
			Total Dioxin/Furan TEQ	Reproduction	10	RNA	RNA	10	
			Total PCB TEQ	Reproduction	1	RNA	RNA	1	
			Total DDX	Liver	0.8	RNA	RNA	0.8	
			Fish Tissue Hazard Index Total =						
Receptor Hazard Index =							200		
CNS Hazard Index =							0		
Skin Hazard Index =							200		
Liver Hazard Index =							<1		
Immological Hazard Index =							200		
Reproduction Hazard Index =							10		
Sediment	Breast Milk	Breastfeeding from Adult with Direct Contact of On-site Sediment Ingestion RM 8 East						Sediment Hazard Index Total =	<1
Fish Tissue	Breast Milk	Breastfeeding from Adult Consumer of Fillet Smallmouth Bass Fish Tissue On-site (48.9-20.5 g/day) Ingestion RM 8	Total PCBs	Skin/Immunological	40	RNA	RNA	40	
			PBDEs	CNS	<1	RNA	RNA	0	
			Total Dioxin/Furan TEQ	Reproduction	1	RNA	RNA	1	
			Total PCB TEQ	Reproduction	0.6	RNA	RNA	0.6	
			Total DDX	Liver	0.1	RNA	RNA	0.1	
			Fish Tissue Hazard Index Total =						
Receptor Hazard Index =							40		
CNS Hazard Index =							0		
Skin Hazard Index =							40		
Liver Hazard Index =							<1		
Immological Hazard Index =							40		
Reproduction Hazard Index =							1		

Table 5-108 Risk Characterization Summary, Noncancer Hazards - Breastfeeding Infant of Recreational Fisher, River-Mile Basis, Reasonable Maximum Exposure

Risk Characterization Summary - Non-Carcinogens									
Scenario Timeframe: Current/Future									
Receptor Population: Recreational Fisher (Boat)									
Receptor Age: Infant									
Medium	Exposure Medium	Exposure Point	Chemical of Concern	Primary Target Organ	Non-Carcinogens Hazard Quotient				
					Ingestion/Consumption	Inhalation	Dermal	Exposure Routes Total	
Sediment	Breast Milk	Breastfeeding from Adult with Direct Contact of On-site Sediment Ingestion						Sediment Hazard Index Total =	<1
Fish Tissue	Breast Milk	Breastfeeding from Adult Consumer of Fillet Smallmouth Bass Fish Tissue On-site (48.9-20.5 g/day) Ingestion							
			Total PCBs	Skin/Immunological	600	RNA	RNA	600	
			PBDEs	CNS	<1	RNA	RNA	0	
			Total Dioxin/Furan TEQ	Reproduction	1	RNA	RNA	1	
			Total PCB TEQ	Reproduction	2	RNA	RNA	2	
			Total DDX	Liver	<1	RNA	RNA	0	
						Fish Tissue Hazard Index Total =	600		
						Receptor Hazard Index =	1		
						CNS Hazard Index =	0		
						Skin Hazard Index =	2		
						Liver Hazard Index =	<1		
						Immological Hazard Index =	600		
						Reproduction Hazard Index =	1		
Sediment	Breast Milk	Breastfeeding from Adult with Direct Contact of On-site Sediment Ingestion						Sediment Hazard Index Total =	<1
Fish Tissue	Breast Milk	Breastfeeding from Adult Consumer of Fillet Smallmouth Bass Fish Tissue On-site (48.9-20.5 g/day) Ingestion							
			Total PCBs	Skin/Immunological	40	RNA	RNA	40	
			PBDEs	CNS	<1	RNA	RNA	0	
			Total Dioxin/Furan TEQ	Reproduction	1	RNA	RNA	1	
			Total PCB TEQ	Reproduction	0.6	RNA	RNA	0.6	
			Total DDX	Liver	0.1	RNA	RNA	0.1	
						Fish Tissue Hazard Index Total =	40		
						Receptor Hazard Index =	40		
						CNS Hazard Index =	0		
						Skin Hazard Index =	40		
						Liver Hazard Index =	<1		
						Immological Hazard Index =	40		
						Reproduction Hazard Index =	1		
Sediment	Breast Milk	Breastfeeding from Adult with Direct Contact of On-site Sediment Ingestion						Sediment Hazard Index Total =	<1
Fish Tissue	Breast Milk	Breastfeeding from Adult Consumer of Fillet Smallmouth Bass Fish Tissue On-site (48.9-20.5 g/day) Ingestion							
			Total PCBs	Skin/Immunological	80	RNA	RNA	80	
			PBDEs	CNS	<1	RNA	RNA	0	
			Total Dioxin/Furan TEQ	Reproduction	0.6	RNA	RNA	0.6	
			Total PCB TEQ	Reproduction	1	RNA	RNA	1	
			Total DDX	Liver	0.1	RNA	RNA	0.1	
						Fish Tissue Hazard Index Total =	80		
						Receptor Hazard Index =	80		
						CNS Hazard Index =	0		
						Skin Hazard Index =	80		
						Liver Hazard Index =	<1		
						Immological Hazard Index =	80		
						Reproduction Hazard Index =	2		

Table 5-108 Risk Characterization Summary, Noncancer Hazards - Breastfeeding Infant of Recreational Fisher, River-Mile Basis, Reasonable Maximum Exposure

Risk Characterization Summary - Non-Carcinogens									
Scenario Timeframe: Current/Future									
Receptor Population: Recreational Fisher (Boat)									
Receptor Age: Infant									
Medium	Exposure Medium	Exposure Point	Chemical of Concern	Primary Target Organ	Non-Carcinogens Hazard Quotient				
					Ingestion/Consumption	Inhalation	Dermal	Exposure Routes Total	
Sediment	Breast Milk	Breastfeeding from Adult with Direct Contact of On-site Sediment Ingestion RM 9.5 East						Sediment Hazard Index Total =	<1
Fish Tissue	Breast Milk	Breastfeeding from Adult Consumer of Fillet Smallmouth Bass Fish Tissue On-site (48.9-20.5 g/day) Ingestion RM 9	Total PCBs	Skin/Immunological	80	RNA	RNA	80	
			PBDEs	CNS	<1	RNA	RNA	0	
			Total Dioxin/Furan TEQ	Reproduction	0.6	RNA	RNA	0.6	
			Total PCB TEQ	Reproduction	1	RNA	RNA	1	
			Total DDX	Liver	0.1	RNA	RNA	0.1	
			Fish Tissue Hazard Index Total =						
<b>Receptor Hazard Index =</b>							80		
<b>CNS Hazard Index =</b>							0		
<b>Skin Hazard Index =</b>							80		
<b>Liver Hazard Index =</b>							<1		
<b>Immological Hazard Index =</b>							80		
<b>Reproduction Hazard Index =</b>							2		
Sediment	Breast Milk	Breastfeeding from Adult with Direct Contact of On-site Sediment Ingestion RM 10 East						Sediment Hazard Index Total =	<1
Fish Tissue	Breast Milk	Breastfeeding from Adult Consumer of Fillet Smallmouth Bass Fish Tissue On-site (48.9-20.5 g/day) Ingestion RM 10	Total PCBs	Skin/Immunological	100	RNA	RNA	100	
			PBDEs	CNS	<1	RNA	RNA	0	
			Total Dioxin/Furan TEQ	Reproduction	0.6	RNA	RNA	0.6	
			Total PCB TEQ	Reproduction	1	RNA	RNA	1	
			Total DDX	Liver	<1	RNA	RNA	0	
			Fish Tissue Hazard Index Total =						
<b>Receptor Hazard Index =</b>							100		
<b>CNS Hazard Index =</b>							0		
<b>Skin Hazard Index =</b>							100		
<b>Liver Hazard Index =</b>							<1		
<b>Immological Hazard Index =</b>							100		
<b>Reproduction Hazard Index =</b>							1		
Sediment	Breast Milk	Breastfeeding from Adult with Direct Contact of On-site Sediment Ingestion RM 10.5 East						Sediment Hazard Index Total =	<1
Fish Tissue	Breast Milk	Breastfeeding from Adult Consumer of Fillet Smallmouth Bass Fish Tissue On-site (48.9-20.5 g/day) Ingestion RM 10	Total PCBs	Skin/Immunological	100	RNA	RNA	100	
			PBDEs	CNS	<1	RNA	RNA	0	
			Total Dioxin/Furan TEQ	Reproduction	0.6	RNA	RNA	0.6	
			Total PCB TEQ	Reproduction	1	RNA	RNA	1	
			Total DDX	Liver	<1	RNA	RNA	0	
			Fish Tissue Hazard Index Total =						
<b>Receptor Hazard Index =</b>							100		
<b>CNS Hazard Index =</b>							0		
<b>Skin Hazard Index =</b>							100		
<b>Liver Hazard Index =</b>							<1		
<b>Immological Hazard Index =</b>							100		
<b>Reproduction Hazard Index =</b>							1		

Table 5-108 Risk Characterization Summary, Noncancer Hazards - Breastfeeding Infant of Recreational Fisher, River-Mile Basis, Reasonable Maximum Exposure

Risk Characterization Summary - Non-Carcinogens									
Scenario Timeframe: Current/Future									
Receptor Population: Recreational Fisher (Boat)									
Receptor Age: Infant									
Medium	Exposure Medium	Exposure Point	Chemical of Concern	Primary Target Organ	Non-Carcinogens Hazard Quotient				
					Ingestion/Consumption	Inhalation	Dermal	Exposure Routes Total	
Sediment	Breast Milk	Breastfeeding from Adult with Direct Contact of On-site Sediment Ingestion RM 11 East						Sediment Hazard Index Total =	<1
Fish Tissue	Breast Milk	Breastfeeding from Adult Consumer of Fillet Smallmouth Bass Fish Tissue On-site (48.9-20.5 g/day) Ingestion RM 11	Total PCBs	Skin/Immunological	1000	RNA	RNA	1000	
			PBDEs	CNS	1	RNA	RNA	1	
			Total Dioxin/Furan TEQ	Reproduction	1	RNA	RNA	1	
			Total PCB TEQ	Reproduction	3	RNA	RNA	3	
			Total DDx	Liver	<1	RNA	RNA	0	
			Fish Tissue Hazard Index Total =						
Receptor Hazard Index =							1000		
CNS Hazard Index =							1		
Skin Hazard Index =							1000		
Liver Hazard Index =							<1		
Immological Hazard Index =							1000		
Reproduction Hazard Index =							4		
Sediment	Breast Milk	Breastfeeding from Adult with Direct Contact of On-site Sediment Ingestion RM 11.5 East						Sediment Hazard Index Total =	NA
Fish Tissue	Breast Milk	Breastfeeding from Adult Consumer of Fillet Smallmouth Bass Fish Tissue On-site (48.9-20.5 g/day) Ingestion RM 11	Total PCBs	Skin/Immunological	1000	RNA	RNA	1000	
			PBDEs	CNS	1	RNA	RNA	1	
			Total Dioxin/Furan TEQ	Reproduction	1	RNA	RNA	1	
			Total PCB TEQ	Reproduction	3	RNA	RNA	3	
			Total DDx	Liver	<1	RNA	RNA	0	
			Fish Tissue Hazard Index Total =						
Receptor Hazard Index =							1000		
CNS Hazard Index =							1		
Skin Hazard Index =							1000		
Liver Hazard Index =							<1		
Immological Hazard Index =							1000		
Reproduction Hazard Index =							4		
<b>Key</b>									
SIL	Swan Island Lagoon								
ND	Not Detected								
NA	Not Analyzed								
RM	River Mile								
CNS	Central Nervous System								
--	Toxicity criteria are not available to quantitatively address this route of exposure.								
RNA	Route of exposure is not applicable to this medium.								

Table 5-109 Risk Characterization Summary, Cancer Risks - Recreational Fisher, Study Area-Wide Basis, Reasonable Maximum Exposure

Risk Characterization Summary - Carcinogens							
Scenario Timeframe: Current/Future							
Receptor Population: Subsistence Fisher							
Receptor Age: Adult/Child							
Medium	Exposure Medium	Exposure Point	Chemical of Concern	Carcinogenic Risk			Exposure Routes Total
				Ingestion/Consumption	Inhalation	Dermal	
Fish Tissue	Multiple Species Tissue	Fillet Fish Tissue On-site Consumption (48.9-20.5 g/day) Study Area-wide					
			Antimony	--	--	--	--
			Arsenic	7E-06	RNA	RNA	7E-06
			Chromium	--	--	--	--
			Mercury	--	--	--	--
			cPAHs	2E-06	RNA	RNA	2E-06
			Bis(2-ethylhexyl)phthalate	3E-07	RNA	RNA	3E-07
			Hexachlorobenzene	1E-05	RNA	RNA	1E-05
			Total PCBs	4E-03	RNA	RNA	4E-03
			Total Dioxin/Furan TEQ	8E-05	RNA	RNA	8E-05
			Total PCB TEQ	1E-04	RNA	RNA	1E-04
			Aldrin	2E-07	RNA	RNA	2E-07
			alpha-Hexachlorocyclohexane	2E-08	RNA	RNA	2E-08
			beta-Hexachlorocyclohexane	7E-07	RNA	RNA	7E-07
			Dieldrin	7E-06	RNA	RNA	7E-06
			Heptachlor	2E-09	RNA	RNA	2E-09
			Heptachlor Epoxide	1E-07	RNA	RNA	1E-07
			Total Chlordanes	5E-07	RNA	RNA	5E-07
			Total DDx	1E-05	RNA	RNA	1E-05
			Fish Tissue Total Risk =				
<b>Total Risk =</b>						<b>4E-03</b>	
<b>Key</b>							
SIL	Swan Island Lagoon						
NA	Not Analyzed						
ND	Not Detected						
RM	River Mile						
--	Toxicity criteria are not available to quantitatively address this route of exposure.						
RNA	Route of exposure is not applicable to this medium.						

Table 5-110 Risk Characterization Summary, Noncancer Hazards - Recreational Fisher, Study Area-Wide Basis, Reasonable Maximum Exposure

Risk Characterization Summary - Non-Carcinogens								
Scenario Timeframe: Current/Future								
Receptor Population: Subsistence Fisher								
Receptor Age: Child								
Medium	Exposure Medium	Exposure Point	Chemical of Concern	Primary Target Organ	Non-Carcinogens Hazard Quotient			Exposure Routes Total
					Ingestion/Consumption	Inhalation	Dermal	
Fish Tissue	Multiple Species Tissue	Fillet Fish Tissue On-site Consumption (20.5 g/day) Study Area-wide	Antimony	Blood	<1	RNA	RNA	0
			Arsenic	Skin/Blood	<1	RNA	RNA	0
			Chromium		<1	RNA	RNA	0
			Mercury	CNS	2	RNA	RNA	2
			Selenium	Whole Body	0.3	RNA	RNA	0.3
			Zinc	Blood	<1	RNA	RNA	0
			cPAHs		--	--	--	--
			Bis(2-ethylhexyl)phthalate	Liver	<1	RNA	RNA	0
			Hexachlorobenzene	Liver	<1	RNA	RNA	0
			Total PCBs	Skin/Immunological	300	RNA	RNA	300
			Total Dioxin/Furan TEQ	Reproduction	2	RNA	RNA	2
			Total PCB TEQ	Reproduction	4	RNA	RNA	4
			Aldrin	Liver	<1	RNA	RNA	0
			alpha-Hexachlorocyclohexane	Liver	<1	RNA	RNA	0
			beta-Hexachlorocyclohexane	Liver	<1	RNA	RNA	0
			gamma-Hexachlorocyclohexane	Kidney/Liver	<1	RNA	RNA	0
			Dieldrin	Liver	<1	RNA	RNA	0
			Heptachlor	Liver	<1	RNA	RNA	0
			Heptachlor Epoxide	Liver	<1	RNA	RNA	0
			Total Chlordanes	Liver	<1	RNA	RNA	0
Total DDX	Liver	0.2	RNA	RNA	0.2			
Fish Tissue Hazard Index Total =							300	
Receptor Hazard Index =							300	
Blood Hazard Index =							<1	
Skin Hazard Index =							300	
CNS Hazard Index =							2	
Whole Body Hazard Index =							<1	
Liver Hazard Index =							<1	
Immological Hazard Index =							300	
Reproduction Hazard Index =							6	
Kidney Hazard Index =							<1	
<b>Key</b>								
SIL	Swan Island Lagoon							
ND	Not Detected							
NA	Not Analyzed							
RM	River Mile							
CNS	Central Nervous System							
--	Toxicity criteria are not available to quantitatively address this route of exposure.							
RNA	Route of exposure is not applicable to this medium.							



Table 5-111 Risk Characterization Summary, Noncancer Hazards - Breastfeeding Infant of Recreational Fisher, Study Area-Wide Basis, Reasonable Maximum Exposure

Risk Characterization Summary - Non-Carcinogens									
Scenario Timeframe:		Current/Future							
Receptor Population:		Recreational Fisher (Boat)							
Receptor Age:		Infant							
Medium	Exposure Medium	Exposure Point	Chemical of Concern	Primary Target Organ	Non-Carcinogens Hazard Quotient			Exposure Routes Total	
					Ingestion/Consumption	Inhalation	Dermal		
Sediment	Breast Milk	Breastfeeding from Adult with Direct Contact of On-site Sediment Ingestion							
		Study Area-wide						Sediment Hazard Index Total = <1	
Fish Tissue	Breast Milk	Breastfeeding from Adult Consumer of Fillet Multiple Species Fish Tissue On-site (48.9-20.5 g/day) Ingestion	Study Area-wide	Total PCBs	Skin/Immunological	4000	RNA	RNA	4000
				Total Dioxin/Furan TEQ	Reproduction	2	RNA	RNA	2
				Total PCB TEQ	Reproduction	4	RNA	RNA	4
				Total DDX	Liver	0.2	RNA	RNA	0.2
				Fish Tissue Hazard Index Total =					
Receptor Hazard Index =							4000		
Skin Hazard Index =							4000		
Liver Hazard Index =							<1		
Immological Hazard Index =							4000		
Reproduction Hazard Index =							6		
<b>Key</b>									
SIL	Swan Island Lagoon								
ND	Not Detected								
NA	Not Analyzed								
RM	River Mile								
CNS	Central Nervous System								
--	Toxicity criteria are not available to quantitatively address this route of exposure.								
RNA	Route of exposure is not applicable to this medium.								

**TABLE F3-6.**  
**Calculation of Cancer Risks and Noncancer Hazards - In-water Worker, In-water Sediment Exposure**  
**Reasonable Maximum Exposure**

Scenario Timeframe: Current/Future Medium: Sediment  
Receptor Population: In-water Worker Exposure Medium: In-water Sediment  
Population Age: Adult Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC		Cancer Risk Calculations <sup>a</sup>							Noncancer Hazard Calculations <sup>a</sup>						
		Value	Units	Dermal Cancer Slope Factor (mg/kg-day) <sup>-1</sup>	Oral Cancer Slope Factor (mg/kg-day) <sup>-1</sup>	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk <sup>b</sup>	Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ <sup>b</sup>
RM 1 West	<b>Polybrominated Diphenyl Ethers</b>																
	PBDE # 47	3.6E-01	ug/kg	--	--	1E-12	4E-12	--	--	--	1E-04	1E-04	9E-12	3E-11	9E-08	3E-07	0.0000004
	PBDE # 99	3.7E-01	ug/kg	--	--	1E-12	4E-12	--	--	--	1E-04	1E-04	1E-11	3E-11	1E-07	3E-07	0.0000004
	PBDE # 209	4.0E+00	ug/kg	7E-04	7E-04	1E-11	4E-11	1E-14	3E-14	4E-14	7E-03	7E-03	1E-10	3E-10	1E-08	4E-08	0.0000001
Exposure Point Total <sup>c</sup>										4E-14							0.000001
RM 1 East	<b>Polybrominated Diphenyl Ethers</b>																
	PBDE # 47	7.6E-01	ug/kg	--	--	3E-12	8E-12	--	--	--	1E-04	1E-04	2E-11	6E-11	2E-07	6E-07	0.000001
	PBDE # 99	6.3E-01	ug/kg	--	--	2E-12	7E-12	--	--	--	1E-04	1E-04	2E-11	5E-11	2E-07	5E-07	0.000001
	PBDE # 209	3.7E+00	ug/kg	7E-04	7E-04	1E-11	4E-11	1E-14	3E-14	4E-14	7E-03	7E-03	1E-10	3E-10	1E-08	4E-08	0.0000001
Exposure Point Total										4E-14							0.000002
RM 1.5 West	<b>Polybrominated Diphenyl Ethers</b>																
PBDE # 47	1.2E-01	ug/kg	--	--	4E-13	1E-12	--	--	--	--	1E-04	1E-04	3E-12	9E-12	3E-08	9E-08	0.0000001
Exposure Point Total										--							0.0000001
RM 1.5 East	<b>Polybrominated Diphenyl Ethers</b>																
	PBDE # 47	1.4E+00	ug/kg	--	--	5E-12	2E-11	--	--	--	1E-04	1E-04	4E-11	1E-10	4E-07	1E-06	0.000001
	PBDE # 99	1.4E+00	ug/kg	--	--	5E-12	2E-11	--	--	--	1E-04	1E-04	4E-11	1E-10	4E-07	1E-06	0.000001
	PBDE # 153	1.8E-01	ug/kg	--	--	7E-13	2E-12	--	--	--	2E-04	2E-04	5E-12	1E-11	2E-08	7E-08	0.0000001
	PBDE # 209	4.5E+00	ug/kg	7E-04	7E-04	2E-11	5E-11	1E-14	4E-14	5E-14	7E-03	7E-03	1E-10	4E-10	2E-08	5E-08	0.0000001
Exposure Point Total										5E-14							0.000003
RM 2 West	<b>Polybrominated Diphenyl Ethers</b>																
	PBDE # 47	1.8E+00	ug/kg	--	--	7E-12	2E-11	--	--	--	1E-04	1E-04	5E-11	1E-10	5E-07	1E-06	0.000002
	PBDE # 99	1.7E+00	ug/kg	--	--	6E-12	2E-11	--	--	--	1E-04	1E-04	4E-11	1E-10	4E-07	1E-06	0.000002
	PBDE # 153	4.2E-01	ug/kg	--	--	2E-12	5E-12	--	--	--	2E-04	2E-04	1E-11	3E-11	5E-08	2E-07	0.0000002
	PBDE # 209	6.0E+00	ug/kg	7E-04	7E-04	2E-11	7E-11	2E-14	5E-14	6E-14	7E-03	7E-03	2E-10	5E-10	2E-08	7E-08	0.0000001
Exposure Point Total										6E-14							0.000004
RM 2 East	<b>Polybrominated Diphenyl Ethers</b>																
	PBDE # 47	1.8E+00	ug/kg	--	--	7E-12	2E-11	--	--	--	1E-04	1E-04	5E-11	1E-10	5E-07	1E-06	0.000002
	PBDE # 99	2.1E+00	ug/kg	--	--	8E-12	2E-11	--	--	--	1E-04	1E-04	5E-11	2E-10	5E-07	2E-06	0.000002
	PBDE # 153	2.9E-01	ug/kg	--	--	1E-12	3E-12	--	--	--	2E-04	2E-04	7E-12	2E-11	4E-08	1E-07	0.0000002
	PBDE # 209	8.4E+00	ug/kg	7E-04	7E-04	3E-11	9E-11	2E-14	7E-14	9E-14	7E-03	7E-03	2E-10	7E-10	3E-08	9E-08	0.0000001
Exposure Point Total										9E-14							0.000004
RM 2.5 East	<b>Polybrominated Diphenyl Ethers</b>																
	PBDE # 47	2.0E-01	ug/kg	--	--	7E-13	2E-12	--	--	--	1E-04	1E-04	5E-12	2E-11	5E-08	2E-07	0.0000002
	PBDE # 99	2.4E-01	ug/kg	--	--	9E-13	3E-12	--	--	--	1E-04	1E-04	6E-12	2E-11	6E-08	2E-07	0.0000002
Exposure Point Total										--							0.0000005

**TABLE F3-6.**  
**Calculation of Cancer Risks and Noncancer Hazards - In-water Worker, In-water Sediment Exposure**  
**Reasonable Maximum Exposure**

Scenario Timeframe: Current/Future  
Receptor Population: In-water Worker  
Population Age: Adult

Medium: Sediment  
Exposure Medium: In-water Sediment  
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC		Cancer Risk Calculations <sup>a</sup>							Noncancer Hazard Calculations <sup>a</sup>						
		Value	Units	Dermal Cancer Slope Factor (mg/kg-day) <sup>-1</sup>	Oral Cancer Slope Factor (mg/kg-day) <sup>-1</sup>	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk <sup>b</sup>	Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ <sup>b</sup>
RM 2.5 MC	<b>Polybrominated Diphenyl Ethers</b> PBDE # 47	1.4E-01	ug/kg	--	--	5E-13	2E-12	--	--	--	1E-04	1E-04	4E-12	1E-11	4E-08	1E-07	0.0000001
Exposure Point Total				--							0.0000001						
RM 3 West	<b>Polybrominated Diphenyl Ethers</b> PBDE # 47 PBDE # 99 PBDE # 153 PBDE # 209	1.4E+00 1.3E+00 2.9E-01 5.3E+00	ug/kg ug/kg ug/kg ug/kg	-- -- -- 7E-04	-- -- -- 7E-04	5E-12 5E-12 1E-12 2E-11	2E-11 1E-11 3E-12 6E-11	-- -- -- 1E-14	-- -- -- 4E-14	-- -- -- 6E-14	1E-04 1E-04 2E-04 7E-03	1E-04 1E-04 2E-04 7E-03	4E-11 3E-11 7E-12 1E-10	1E-10 1E-10 2E-11 4E-10	4E-07 3E-07 4E-08 2E-08	1E-06 1E-06 1E-07 6E-08	0.0000001 0.0000001 0.0000002 0.0000001
Exposure Point Total				6E-14							0.0000003						
RM 3 East	<b>Polybrominated Diphenyl Ethers</b> PBDE # 47 PBDE # 99 PBDE # 153 PBDE # 209	1.6E+00 1.6E+00 3.3E-01 6.9E+00	ug/kg ug/kg ug/kg ug/kg	-- -- -- 7E-04	-- -- -- 7E-04	6E-12 6E-12 1E-12 3E-11	2E-11 2E-11 4E-12 8E-11	-- -- -- 2E-14	-- -- -- 5E-14	-- -- -- 7E-14	1E-04 1E-04 2E-04 7E-03	1E-04 1E-04 2E-04 7E-03	4E-11 4E-11 9E-12 2E-10	1E-10 1E-10 3E-11 5E-10	4E-07 4E-07 4E-08 3E-08	1E-06 1E-06 1E-07 8E-08	0.0000002 0.0000002 0.0000002 0.0000001
Exposure Point Total				7E-14							0.0000004						
RM 3.5 West	<b>Polybrominated Diphenyl Ethers</b> PBDE # 47 PBDE # 99	1.4E-01 1.2E-01	ug/kg ug/kg	-- --	-- --	5E-13 4E-13	2E-12 1E-12	-- --	-- --	-- --	1E-04 1E-04	1E-04 1E-04	4E-12 3E-12	1E-11 9E-12	4E-08 3E-08	1E-07 9E-08	0.0000001 0.0000001
Exposure Point Total				--							0.0000003						
RM 3.5 East	<b>Polybrominated Diphenyl Ethers</b> PBDE # 47 PBDE # 99 PBDE # 153 PBDE # 209	5.2E+00 8.2E+00 1.5E+00 5.6E+01	ug/kg ug/kg ug/kg ug/kg	-- -- -- 7E-04	-- -- -- 7E-04	2E-11 3E-11 6E-12 2E-10	6E-11 9E-11 2E-11 6E-10	-- -- -- 1E-13	-- -- -- 4E-13	-- -- -- 6E-13	1E-04 1E-04 2E-04 7E-03	1E-04 1E-04 2E-04 7E-03	1E-10 2E-10 4E-11 1E-09	4E-10 6E-10 1E-10 4E-09	1E-06 2E-06 2E-07 2E-07	4E-06 6E-06 6E-07 6E-07	0.0000005 0.0000009 0.0000001 0.0000001
Exposure Point Total				6E-13							0.000002						
RM 4 West	<b>Polybrominated Diphenyl Ethers</b> PBDE # 47 PBDE # 99	3.5E-01 2.3E-01	ug/kg ug/kg	-- --	-- --	1E-12 8E-13	4E-12 3E-12	-- --	-- --	-- --	1E-04 1E-04	1E-04 1E-04	9E-12 6E-12	3E-11 2E-11	9E-08 6E-08	3E-07 2E-07	0.0000004 0.0000002
Exposure Point Total				--							0.0000001						
RM 5 West	<b>Polybrominated Diphenyl Ethers</b> PBDE # 47 PBDE # 99	3.7E-01 3.7E-01	ug/kg ug/kg	-- --	-- --	1E-12 1E-12	4E-12 4E-12	-- --	-- --	-- --	1E-04 1E-04	1E-04 1E-04	1E-11 1E-11	3E-11 3E-11	1E-07 1E-07	3E-07 3E-07	0.0000004 0.0000004
Exposure Point Total				--							0.0000001						
RM 5.5 West	<b>Polybrominated Diphenyl Ethers</b> PBDE # 47 PBDE # 99 PBDE # 153 PBDE # 209	1.4E+00 1.2E+00 2.3E-01 7.4E+00	ug/kg ug/kg ug/kg ug/kg	-- -- -- 7E-04	-- -- -- 7E-04	5E-12 4E-12 8E-13 3E-11	2E-11 1E-11 3E-12 8E-11	-- -- -- 2E-14	-- -- -- 6E-14	-- -- -- 8E-14	1E-04 1E-04 2E-04 7E-03	1E-04 1E-04 2E-04 7E-03	4E-11 3E-11 6E-12 2E-10	1E-10 9E-11 2E-11 6E-10	4E-07 3E-07 3E-08 3E-08	1E-06 9E-07 9E-08 8E-08	0.0000001 0.0000001 0.0000001 0.0000001
Exposure Point Total				8E-14							0.0000003						

**TABLE F3-6.**  
**Calculation of Cancer Risks and Noncancer Hazards - In-water Worker, In-water Sediment Exposure**  
**Reasonable Maximum Exposure**

Scenario Timeframe: Current/Future Medium: Sediment  
Receptor Population: In-water Worker Exposure Medium: In-water Sediment  
Population Age: Adult Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC		Cancer Risk Calculations <sup>a</sup>							Noncancer Hazard Calculations <sup>a</sup>						
		Value	Units	Dermal Cancer Slope Factor (mg/kg-day) <sup>-1</sup>	Oral Cancer Slope Factor (mg/kg-day) <sup>-1</sup>	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk <sup>b</sup>	Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ <sup>b</sup>
RM 5.5 East	<b>Polybrominated Diphenyl Ethers</b>																
	PBDE # 47	1.8E+00	ug/kg	--	--	7E-12	2E-11	--	--	--	1E-04	1E-04	5E-11	1E-10	5E-07	1E-06	0.000002
	PBDE # 99	1.8E+00	ug/kg	--	--	7E-12	2E-11	--	--	--	1E-04	1E-04	5E-11	1E-10	5E-07	1E-06	0.000002
	PBDE # 153	2.6E-01	ug/kg	--	--	1E-12	3E-12	--	--	--	2E-04	2E-04	7E-12	2E-11	3E-08	1E-07	0.0000001
	PBDE # 209	2.8E+00	ug/kg	7E-04	7E-04	1E-11	3E-11	7E-15	2E-14	3E-14	7E-03	7E-03	7E-11	2E-10	1E-08	3E-08	0.00000004
Exposure Point Total										3E-14							0.000004
RM 6 West	<b>Polybrominated Diphenyl Ethers</b>																
	PBDE # 47	1.3E-01	ug/kg	--	--	5E-13	1E-12	--	--	--	1E-04	1E-04	3E-12	1E-11	3E-08	1E-07	0.0000001
	PBDE # 99	1.3E-01	ug/kg	--	--	5E-13	1E-12	--	--	--	1E-04	1E-04	3E-12	1E-11	3E-08	1E-07	0.0000001
	PBDE # 209	3.5E+00	ug/kg	7E-04	7E-04	1E-11	4E-11	9E-15	3E-14	4E-14	7E-03	7E-03	9E-11	3E-10	1E-08	4E-08	0.0000001
Exposure Point Total										4E-14							0.0000003
RM 6 East	<b>Polybrominated Diphenyl Ethers</b>																
	PBDE # 47	2.7E-01	ug/kg	--	--	1E-12	3E-12	--	--	--	1E-04	1E-04	7E-12	2E-11	7E-08	2E-07	0.0000003
	PBDE # 99	1.7E-01	ug/kg	--	--	6E-13	2E-12	--	--	--	1E-04	1E-04	4E-12	1E-11	4E-08	1E-07	0.0000002
Exposure Point Total										--							0.0000005
RM 6.5 West	<b>Polybrominated Diphenyl Ethers</b>																
	PBDE # 47	1.1E-01	ug/kg	--	--	4E-13	1E-12	--	--	--	1E-04	1E-04	3E-12	9E-12	3E-08	9E-08	0.0000001
	PBDE # 99	1.3E-01	ug/kg	--	--	5E-13	1E-12	--	--	--	1E-04	1E-04	3E-12	1E-11	3E-08	1E-07	0.0000001
Exposure Point Total										--							0.0000002
RM 6.5 East	<b>Polybrominated Diphenyl Ethers</b>																
	PBDE # 47	1.8E+00	ug/kg	--	--	7E-12	2E-11	--	--	--	1E-04	1E-04	5E-11	1E-10	5E-07	1E-06	0.000002
	PBDE # 99	1.9E+00	ug/kg	--	--	7E-12	2E-11	--	--	--	1E-04	1E-04	5E-11	1E-10	5E-07	1E-06	0.000002
	PBDE # 153	3.5E-01	ug/kg	--	--	1E-12	4E-12	--	--	--	2E-04	2E-04	9E-12	3E-11	5E-08	1E-07	0.0000002
	PBDE # 209	2.5E+01	ug/kg	7E-04	7E-04	9E-11	3E-10	6E-14	2E-13	3E-13	7E-03	7E-03	6E-10	2E-09	9E-08	3E-07	0.0000004
Exposure Point Total										3E-13							0.000004
RM 7 West	<b>Polybrominated Diphenyl Ethers</b>																
	PBDE # 47	9.5E-01	ug/kg	--	--	4E-12	1E-11	--	--	--	1E-04	1E-04	2E-11	7E-11	2E-07	7E-07	0.000001
	PBDE # 99	9.9E-01	ug/kg	--	--	4E-12	1E-11	--	--	--	1E-04	1E-04	3E-11	8E-11	3E-07	8E-07	0.000001
	PBDE # 153	2.9E-01	ug/kg	--	--	1E-12	3E-12	--	--	--	2E-04	2E-04	7E-12	2E-11	4E-08	1E-07	0.0000002
	PBDE # 209	6.1E+00	ug/kg	7E-04	7E-04	2E-11	7E-11	2E-14	5E-14	6E-14	7E-03	7E-03	2E-10	5E-10	2E-08	7E-08	0.0000001
Exposure Point Total										6E-14							0.000002
RM 7 East	<b>Polybrominated Diphenyl Ethers</b>																
	PBDE # 47	1.7E+00	ug/kg	--	--	6E-12	2E-11	--	--	--	1E-04	1E-04	4E-11	1E-10	4E-07	1E-06	0.000002
	PBDE # 99	1.5E+00	ug/kg	--	--	6E-12	2E-11	--	--	--	1E-04	1E-04	4E-11	1E-10	4E-07	1E-06	0.000002
	PBDE # 153	3.1E-01	ug/kg	--	--	1E-12	3E-12	--	--	--	2E-04	2E-04	8E-12	2E-11	4E-08	1E-07	0.0000002
	PBDE # 209	6.2E+00	ug/kg	7E-04	7E-04	2E-11	7E-11	2E-14	5E-14	6E-14	7E-03	7E-03	2E-10	5E-10	2E-08	7E-08	0.0000001
Exposure Point Total										6E-14							0.000004
RM 7.5 West	<b>Polybrominated Diphenyl Ethers</b>																
	PBDE # 47	1.7E+00	ug/kg	--	--	6E-12	2E-11	--	--	--	1E-04	1E-04	4E-11	1E-10	4E-07	1E-06	0.000002
	PBDE # 99	1.5E+00	ug/kg	--	--	6E-12	2E-11	--	--	--	1E-04	1E-04	4E-11	1E-10	4E-07	1E-06	0.000002
	PBDE # 153	3.1E-01	ug/kg	--	--	1E-12	3E-12	--	--	--	2E-04	2E-04	8E-12	2E-11	4E-08	1E-07	0.0000002
	PBDE # 209	5.1E+00	ug/kg	7E-04	7E-04	2E-11	6E-11	1E-14	4E-14	5E-14	7E-03	7E-03	1E-10	4E-10	2E-08	6E-08	0.0000001
Exposure Point Total										5E-14							0.000004

**TABLE F3-6.**  
**Calculation of Cancer Risks and Noncancer Hazards - In-water Worker, In-water Sediment Exposure**  
**Reasonable Maximum Exposure**

Scenario Timeframe: Current/Future Medium: Sediment  
Receptor Population: In-water Worker Exposure Medium: In-water Sediment  
Population Age: Adult Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC		Cancer Risk Calculations <sup>a</sup>							Noncancer Hazard Calculations <sup>a</sup>						
		Value	Units	Dermal Cancer Slope Factor (mg/kg-day) <sup>-1</sup>	Oral Cancer Slope Factor (mg/kg-day) <sup>-1</sup>	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk <sup>b</sup>	Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ <sup>b</sup>
RM 7.5 East	<b>Polybrominated Diphenyl Ethers</b>																
	PBDE # 47	2.5E+00	ug/kg	--	--	9E-12	3E-11	--	--	--	1E-04	1E-04	6E-11	2E-10	6E-07	2E-06	0.000003
	PBDE # 99	2.9E+00	ug/kg	--	--	1E-11	3E-11	--	--	--	1E-04	1E-04	7E-11	2E-10	7E-07	2E-06	0.000003
	PBDE # 153	4.5E-01	ug/kg	--	--	2E-12	5E-12	--	--	--	2E-04	2E-04	1E-11	4E-11	6E-08	2E-07	0.0000002
	PBDE # 209	1.3E+01	ug/kg	7E-04	7E-04	5E-11	1E-10	3E-14	1E-13	1E-13	7E-03	7E-03	3E-10	1E-09	5E-08	1E-07	0.0000002
Exposure Point Total										1E-13							0.000006
RM 8 West	<b>Polybrominated Diphenyl Ethers</b>																
	PBDE # 47	8.3E-01	ug/kg	--	--	3E-12	9E-12	--	--	--	1E-04	1E-04	2E-11	6E-11	2E-07	6E-07	0.000001
	PBDE # 99	1.2E+00	ug/kg	--	--	4E-12	1E-11	--	--	--	1E-04	1E-04	3E-11	9E-11	3E-07	9E-07	0.000001
	PBDE # 153	8.4E-01	ug/kg	--	--	3E-12	9E-12	--	--	--	2E-04	2E-04	2E-11	7E-11	1E-07	3E-07	0.0000004
	PBDE # 209	4.4E+02	ug/kg	7E-04	7E-04	2E-09	5E-09	1E-12	3E-12	5E-12	7E-03	7E-03	1E-08	3E-08	2E-06	5E-06	0.000007
Exposure Point Total										5E-12							0.000009
RM 8 East	<b>Polybrominated Diphenyl Ethers</b>																
	PBDE # 47	2.1E+00	ug/kg	--	--	8E-12	2E-11	--	--	--	1E-04	1E-04	5E-11	2E-10	5E-07	2E-06	0.000002
	PBDE # 99	2.2E+00	ug/kg	--	--	8E-12	2E-11	--	--	--	1E-04	1E-04	6E-11	2E-10	6E-07	2E-06	0.000002
	PBDE # 153	6.2E-01	ug/kg	--	--	2E-12	7E-12	--	--	--	2E-04	2E-04	2E-11	5E-11	8E-08	2E-07	0.0000003
	PBDE # 209	2.4E+01	ug/kg	7E-04	7E-04	9E-11	3E-10	6E-14	2E-13	2E-13	7E-03	7E-03	6E-10	2E-09	9E-08	3E-07	0.0000004
Exposure Point Total										2E-13							0.000005
RM 8 SIL	<b>Polybrominated Diphenyl Ethers</b>																
	PBDE # 47	4.5E+00	ug/kg	--	--	2E-11	5E-11	--	--	--	1E-04	1E-04	1E-10	4E-10	1E-06	4E-06	0.000005
	PBDE # 99	4.3E+00	ug/kg	--	--	2E-11	5E-11	--	--	--	1E-04	1E-04	1E-10	3E-10	1E-06	3E-06	0.000004
	PBDE # 153	1.2E+00	ug/kg	--	--	4E-12	1E-11	--	--	--	2E-04	2E-04	3E-11	9E-11	2E-07	5E-07	0.000001
	PBDE # 209	3.7E+01	ug/kg	7E-04	7E-04	1E-10	4E-10	1E-13	3E-13	4E-13	7E-03	7E-03	1E-09	3E-09	1E-07	4E-07	0.000001
Exposure Point Total										4E-13							0.00001
RM 8.5 West	<b>Polybrominated Diphenyl Ethers</b>																
	PBDE # 47	2.0E+00	ug/kg	--	--	7E-12	2E-11	--	--	--	1E-04	1E-04	5E-11	2E-10	5E-07	2E-06	0.000002
	PBDE # 99	2.2E+00	ug/kg	--	--	8E-12	2E-11	--	--	--	1E-04	1E-04	6E-11	2E-10	6E-07	2E-06	0.000002
	PBDE # 153	4.1E-01	ug/kg	--	--	2E-12	5E-12	--	--	--	2E-04	2E-04	1E-11	3E-11	5E-08	2E-07	0.0000002
	PBDE # 209	1.1E+01	ug/kg	7E-04	7E-04	4E-11	1E-10	3E-14	9E-14	1E-13	7E-03	7E-03	3E-10	9E-10	4E-08	1E-07	0.0000002
Exposure Point Total										1E-13							0.000005
RM 8.5 East	<b>Polybrominated Diphenyl Ethers</b>																
	PBDE # 47	4.1E+00	ug/kg	--	--	2E-11	5E-11	--	--	--	1E-04	1E-04	1E-10	3E-10	1E-06	3E-06	0.000004
	PBDE # 99	5.6E+00	ug/kg	--	--	2E-11	6E-11	--	--	--	1E-04	1E-04	1E-10	4E-10	1E-06	4E-06	0.000006
	PBDE # 153	1.1E+00	ug/kg	--	--	4E-12	1E-11	--	--	--	2E-04	2E-04	3E-11	9E-11	1E-07	4E-07	0.000001
	PBDE # 209	9.0E+01	ug/kg	7E-04	7E-04	3E-10	1E-09	2E-13	7E-13	9E-13	7E-03	7E-03	2E-09	7E-09	3E-07	1E-06	0.000001
Exposure Point Total										9E-13							0.00001
RM 9 West	<b>Polybrominated Diphenyl Ethers</b>																
	PBDE # 47	1.3E+00	ug/kg	--	--	5E-12	1E-11	--	--	--	1E-04	1E-04	3E-11	1E-10	3E-07	1E-06	0.000001
	PBDE # 99	1.2E+00	ug/kg	--	--	4E-12	1E-11	--	--	--	1E-04	1E-04	3E-11	9E-11	3E-07	9E-07	0.000001
	PBDE # 153	1.9E-01	ug/kg	--	--	7E-13	2E-12	--	--	--	2E-04	2E-04	5E-12	1E-11	2E-08	7E-08	0.0000001
	PBDE # 209	2.9E+00	ug/kg	7E-04	7E-04	1E-11	3E-11	7E-15	2E-14	3E-14	7E-03	7E-03	7E-11	2E-10	1E-08	3E-08	0.0000004
Exposure Point Total										3E-14							0.000003

**TABLE F3-6.**  
**Calculation of Cancer Risks and Noncancer Hazards - In-water Worker, In-water Sediment Exposure**  
**Reasonable Maximum Exposure**

Scenario Timeframe: Current/Future  
Receptor Population: In-water Worker  
Population Age: Adult

Medium: Sediment  
Exposure Medium: In-water Sediment  
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC		Cancer Risk Calculations <sup>a</sup>							Noncancer Hazard Calculations <sup>a</sup>						
		Value	Units	Dermal Cancer Slope Factor (mg/kg-day) <sup>-1</sup>	Oral Cancer Slope Factor (mg/kg-day) <sup>-1</sup>	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk <sup>b</sup>	Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ <sup>b</sup>
RM 9 East	<b>Polybrominated Diphenyl Ethers</b>																
	PBDE # 47	3.3E-01	ug/kg	--	--	1E-12	4E-12	--	--	--	1E-04	1E-04	9E-12	3E-11	9E-08	3E-07	0.0000003
	PBDE # 99	1.8E-01	ug/kg	--	--	7E-13	2E-12	--	--	--	1E-04	1E-04	5E-12	1E-11	5E-08	1E-07	0.0000002
Exposure Point Total										--							0.000001
RM 9.5 West	<b>Polybrominated Diphenyl Ethers</b>																
	PBDE # 47	1.8E+00	ug/kg	--	--	7E-12	2E-11	--	--	--	1E-04	1E-04	5E-11	1E-10	5E-07	1E-06	0.000002
	PBDE # 99	2.7E+00	ug/kg	--	--	1E-11	3E-11	--	--	--	1E-04	1E-04	7E-11	2E-10	7E-07	2E-06	0.000003
	PBDE # 153	5.2E-01	ug/kg	--	--	2E-12	6E-12	--	--	--	2E-04	2E-04	1E-11	4E-11	7E-08	2E-07	0.0000003
	PBDE # 209	4.6E+01	ug/kg	7E-04	7E-04	2E-10	5E-10	1E-13	4E-13	5E-13	7E-03	7E-03	1E-09	4E-09	2E-07	5E-07	0.000001
Exposure Point Total										5E-13							0.000006
RM 9.5 East	<b>Polybrominated Diphenyl Ethers</b>																
	PBDE # 47	9.9E-01	ug/kg	--	--	4E-12	1E-11	--	--	--	1E-04	1E-04	3E-11	8E-11	3E-07	8E-07	0.000001
	PBDE # 99	7.9E-01	ug/kg	--	--	3E-12	9E-12	--	--	--	1E-04	1E-04	2E-11	6E-11	2E-07	6E-07	0.000001
	PBDE # 209	2.0E+00	ug/kg	7E-04	7E-04	7E-12	2E-11	5E-15	2E-14	2E-14	7E-03	7E-03	5E-11	2E-10	7E-09	2E-08	0.0000003
Exposure Point Total										2E-14							0.000002
RM 11 West	<b>Polybrominated Diphenyl Ethers</b>																
	PBDE # 47	2.9E+00	ug/kg	--	--	1E-11	3E-11	--	--	--	1E-04	1E-04	7E-11	2E-10	7E-07	2E-06	0.000003
	PBDE # 99	3.7E+00	ug/kg	--	--	1E-11	4E-11	--	--	--	1E-04	1E-04	1E-10	3E-10	1E-06	3E-06	0.000004
	PBDE # 153	6.3E-01	ug/kg	--	--	2E-12	7E-12	--	--	--	2E-04	2E-04	2E-11	5E-11	8E-08	2E-07	0.0000003
	PBDE # 209	5.7E+01	ug/kg	7E-04	7E-04	2E-10	6E-10	1E-13	4E-13	6E-13	7E-03	7E-03	1E-09	4E-09	2E-07	6E-07	0.000001
Exposure Point Total										6E-13							0.000008
RM 11 East	<b>Polybrominated Diphenyl Ethers</b>																
	PBDE # 47	1.5E+00	ug/kg	--	--	6E-12	2E-11	--	--	--	1E-04	1E-04	4E-11	1E-10	4E-07	1E-06	0.000002
	PBDE # 99	1.2E+00	ug/kg	--	--	4E-12	1E-11	--	--	--	1E-04	1E-04	3E-11	9E-11	3E-07	9E-07	0.000001
Exposure Point Total										--							0.000003
RM 12 West	<b>Polybrominated Diphenyl Ethers</b>																
	PBDE # 47	3.1E-01	ug/kg	--	--	1E-12	3E-12	--	--	--	1E-04	1E-04	8E-12	2E-11	8E-08	2E-07	0.0000003
	PBDE # 99	3.0E-01	ug/kg	--	--	1E-12	3E-12	--	--	--	1E-04	1E-04	8E-12	2E-11	8E-08	2E-07	0.0000003
Exposure Point Total										--							0.000001
RM 12 East	<b>Polybrominated Diphenyl Ethers</b>																
	PBDE # 47	1.2E+00	ug/kg	--	--	4E-12	1E-11	--	--	--	1E-04	1E-04	3E-11	9E-11	3E-07	9E-07	0.000001
	PBDE # 99	1.1E+00	ug/kg	--	--	4E-12	1E-11	--	--	--	1E-04	1E-04	3E-11	9E-11	3E-07	9E-07	0.000001
Exposure Point Total										--							0.000002

**TABLE F3-6.**  
**Calculation of Cancer Risks and Noncancer Hazards - In-water Worker, In-water Sediment Exposure**  
**Reasonable Maximum Exposure**

Scenario Timeframe: Current/Future  
Receptor Population: In-water Worker  
Population Age: Adult

Medium: Sediment  
Exposure Medium: In-water Sediment  
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC		Cancer Risk Calculations <sup>a</sup>							Noncancer Hazard Calculations <sup>a</sup>						
		Value	Units	Dermal Cancer Slope Factor (mg/kg-day) <sup>-1</sup>	Oral Cancer Slope Factor (mg/kg-day) <sup>-1</sup>	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk <sup>b</sup>	Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ <sup>b</sup>
Study Area-wide <sup>b</sup>	<b>Polybrominated Diphenyl Ethers</b>																
	PBDE # 47	2.2E+00	ug/kg	--	--	8E-12	2E-11	--	--	--	1E-04	1E-04	6E-11	2E-10	6E-07	2E-06	0.000002
	PBDE # 99	2.8E+00	ug/kg	--	--	1E-11	3E-11	--	--	--	1E-04	1E-04	7E-11	2E-10	7E-07	2E-06	0.000003
	PBDE # 153	5.3E-01	ug/kg	--	--	2E-12	6E-12	--	--	--	2E-04	2E-04	1E-11	4E-11	7E-08	2E-07	0.0000003
	PBDE # 209	6.0E+01	ug/kg	7E-04	7E-04	2E-10	7E-10	2E-13	5E-13	6E-13	7E-03	7E-03	2E-09	5E-09	2E-07	7E-07	0.000001
Exposure Point Total										6E-13							0.000006

**Notes:**

a Numbers presented are rounded values. Sums calculated before rounding. Risks and hazards are calculated based on exposure parameters presented in Section 3 of Appendix F. For risks and hazards from dermal contact, a dermal absorption efficiency of 0.1 was used, which is the dermal absorption efficiency presented for semi-volatile organic compounds in Risk Assessment Guidance for Superfund, Volume I: Human Health Evaluation Manual (Part E, Supplemental Guidance for Dermal Risk Assessment) Final, July 2004. EPA/540/R/99/005.

b Study Area-wide dataset includes human health in-water sediment samples from RM 1.9 - 11.8 outside of the navigation channel and excluding Multnomah Channel.

**Abbreviations:**

-- = Not Applicable.  
CDI = Chronic Daily Intake.  
EPC = Exposure Point Concentration.  
HQ = Hazard Quotient.  
LADI = Lifetime Average Daily Intake.  
mg/kg = milligrams per kilogram.

RfD = Reference dose.  
RM = River mile.  
ug/kg = micrograms per kilogram.



**TABLE F3-7.**  
**Calculation of Cancer Risks and Noncancer Hazards - In-water Worker, In-water Sediment Exposure**  
**Central Tendency Exposure**

Scenario Timeframe: Current/Future  
Receptor Population: In-water Worker  
Population Age: Adult

Medium: Sediment  
Exposure Medium: In-water Sediment  
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC		Cancer Risk Calculations <sup>a</sup>							Noncancer Hazard Calculations <sup>a</sup>							
		Value	Units	Dermal Cancer Slope Factor (mg/kg-day) <sup>-1</sup>	Oral Cancer Slope Factor (mg/kg-day) <sup>-1</sup>	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk <sup>b</sup>	Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ <sup>b</sup>	
RM 1 West	<b>Polybrominated Diphenyl Ethers</b>																	
	PBDE # 47	3.3E-01	ug/kg	--	--	5E-14	4E-13	--	--	--	1E-04	1E-04	8E-13	6E-12	8E-09	6E-08	0.0000007	
	PBDE # 99	3.2E-01	ug/kg	--	--	5E-14	4E-13	--	--	--	1E-04	1E-04	8E-13	6E-12	8E-09	6E-08	0.0000007	
	PBDE # 209	3.8E+00	ug/kg	7E-04	7E-04	6E-13	4E-12	4E-16	3E-15	3E-15	7E-03	7E-03	1E-11	7E-11	1E-09	1E-08	0.0000001	
Exposure Point Total <sup>c</sup>											3E-15							0.0000002
RM 1 East	<b>Polybrominated Diphenyl Ethers</b>																	
	PBDE # 47	7.6E-01	ug/kg	--	--	1E-13	8E-13	--	--	--	1E-04	1E-04	2E-12	1E-11	2E-08	1E-07	0.0000002	
	PBDE # 99	6.3E-01	ug/kg	--	--	9E-14	7E-13	--	--	--	1E-04	1E-04	2E-12	1E-11	2E-08	1E-07	0.0000001	
	PBDE # 209	3.7E+00	ug/kg	7E-04	7E-04	5E-13	4E-12	4E-16	3E-15	3E-15	7E-03	7E-03	1E-11	7E-11	1E-09	1E-08	0.0000001	
Exposure Point Total											3E-15							0.0000003
RM 1.5 West	<b>Polybrominated Diphenyl Ethers</b>																	
	PBDE # 47	1.2E-01	ug/kg	--	--	2E-14	1E-13	--	--	--	1E-04	1E-04	3E-13	2E-12	3E-09	2E-08	0.0000003	
Exposure Point Total											--							0.0000003
RM 1.5 East	<b>Polybrominated Diphenyl Ethers</b>																	
	PBDE # 47	1.4E+00	ug/kg	--	--	2E-13	2E-12	--	--	--	1E-04	1E-04	4E-12	3E-11	4E-08	3E-07	0.0000003	
	PBDE # 99	1.4E+00	ug/kg	--	--	2E-13	2E-12	--	--	--	1E-04	1E-04	4E-12	3E-11	4E-08	3E-07	0.0000003	
	PBDE # 153	1.8E-01	ug/kg	--	--	3E-14	2E-13	--	--	--	2E-04	2E-04	5E-13	4E-12	2E-09	2E-08	0.0000002	
	PBDE # 209	4.5E+00	ug/kg	7E-04	7E-04	7E-13	5E-12	5E-16	4E-15	4E-15	7E-03	7E-03	1E-11	9E-11	2E-09	1E-08	0.0000001	
Exposure Point Total											4E-15							0.0000007
RM 2 West	<b>Polybrominated Diphenyl Ethers</b>																	
	PBDE # 47	1.1E+00	ug/kg	--	--	2E-13	1E-12	--	--	--	1E-04	1E-04	3E-12	2E-11	3E-08	2E-07	0.0000002	
	PBDE # 99	1.0E+00	ug/kg	--	--	1E-13	1E-12	--	--	--	1E-04	1E-04	3E-12	2E-11	3E-08	2E-07	0.0000002	
	PBDE # 153	4.9E-01	ug/kg	--	--	7E-14	5E-13	--	--	--	2E-04	2E-04	1E-12	9E-12	6E-09	5E-08	0.0000005	
	PBDE # 209	5.8E+00	ug/kg	7E-04	7E-04	8E-13	6E-12	6E-16	5E-15	5E-15	7E-03	7E-03	1E-11	1E-10	2E-09	2E-08	0.0000002	
Exposure Point Total											5E-15							0.0000005
RM 2 East	<b>Polybrominated Diphenyl Ethers</b>																	
	PBDE # 47	1.8E+00	ug/kg	--	--	3E-13	2E-12	--	--	--	1E-04	1E-04	5E-12	3E-11	5E-08	3E-07	0.0000004	
	PBDE # 99	2.0E+00	ug/kg	--	--	3E-13	2E-12	--	--	--	1E-04	1E-04	5E-12	4E-11	5E-08	4E-07	0.0000004	
	PBDE # 153	2.8E-01	ug/kg	--	--	4E-14	3E-13	--	--	--	2E-04	2E-04	7E-13	6E-12	4E-09	3E-08	0.0000003	
	PBDE # 209	6.9E+00	ug/kg	7E-04	7E-04	1E-12	8E-12	7E-16	5E-15	6E-15	7E-03	7E-03	2E-11	1E-10	3E-09	2E-08	0.0000002	
Exposure Point Total											6E-15							0.0000009
RM 2.5 East	<b>Polybrominated Diphenyl Ethers</b>																	
	PBDE # 47	2.0E-01	ug/kg	--	--	3E-14	2E-13	--	--	--	1E-04	1E-04	5E-13	4E-12	5E-09	4E-08	0.0000004	
	PBDE # 99	2.4E-01	ug/kg	--	--	4E-14	3E-13	--	--	--	1E-04	1E-04	6E-13	5E-12	6E-09	5E-08	0.0000005	
Exposure Point Total											--							0.0000001
RM 2.5 MC	<b>Polybrominated Diphenyl Ethers</b>																	
	PBDE # 47	1.4E-01	ug/kg	--	--	2E-14	2E-13	--	--	--	1E-04	1E-04	4E-13	3E-12	4E-09	3E-08	0.0000003	
Exposure Point Total											--							0.0000003



**TABLE F3-7.**  
**Calculation of Cancer Risks and Noncancer Hazards - In-water Worker, In-water Sediment Exposure**  
**Central Tendency Exposure**

Scenario Timeframe: Current/Future  
Receptor Population: In-water Worker  
Population Age: Adult

Medium: Sediment  
Exposure Medium: In-water Sediment  
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC		Cancer Risk Calculations <sup>a</sup>							Noncancer Hazard Calculations <sup>a</sup>						
		Value	Units	Dermal Cancer Slope Factor (mg/kg-day) <sup>-1</sup>	Oral Cancer Slope Factor (mg/kg-day) <sup>-1</sup>	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk <sup>b</sup>	Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ <sup>b</sup>
RM 3 West	<b>Polybrominated Diphenyl Ethers</b>																
	PBDE # 47	1.4E+00	ug/kg	--	--	2E-13	2E-12	--	--	--	1E-04	1E-04	4E-12	3E-11	4E-08	3E-07	0.0000003
	PBDE # 99	1.3E+00	ug/kg	--	--	2E-13	1E-12	--	--	--	1E-04	1E-04	3E-12	3E-11	3E-08	3E-07	0.0000003
	PBDE # 153	2.9E-01	ug/kg	--	--	4E-14	3E-13	--	--	--	2E-04	2E-04	7E-13	6E-12	4E-09	3E-08	0.0000003
	PBDE # 209	5.3E+00	ug/kg	7E-04	7E-04	8E-13	6E-12	5E-16	4E-15	5E-15	7E-03	7E-03	1E-11	1E-10	2E-09	1E-08	0.0000002
Exposure Point Total										5E-15							0.0000006
RM 3 East	<b>Polybrominated Diphenyl Ethers</b>																
	PBDE # 47	1.3E+00	ug/kg	--	--	2E-13	1E-12	--	--	--	1E-04	1E-04	3E-12	3E-11	3E-08	3E-07	0.0000003
	PBDE # 99	1.4E+00	ug/kg	--	--	2E-13	2E-12	--	--	--	1E-04	1E-04	3E-12	3E-11	3E-08	3E-07	0.0000003
	PBDE # 153	2.8E-01	ug/kg	--	--	4E-14	3E-13	--	--	--	2E-04	2E-04	7E-13	5E-12	4E-09	3E-08	0.0000003
	PBDE # 209	6.4E+00	ug/kg	7E-04	7E-04	9E-13	7E-12	7E-16	5E-15	6E-15	7E-03	7E-03	2E-11	1E-10	2E-09	2E-08	0.0000002
Exposure Point Total										6E-15							0.0000006
RM 3.5 West	<b>Polybrominated Diphenyl Ethers</b>																
	PBDE # 47	1.4E-01	ug/kg	--	--	2E-14	2E-13	--	--	--	1E-04	1E-04	4E-13	3E-12	4E-09	3E-08	0.0000003
	PBDE # 99	1.2E-01	ug/kg	--	--	2E-14	1E-13	--	--	--	1E-04	1E-04	3E-13	2E-12	3E-09	2E-08	0.0000003
Exposure Point Total										--							0.0000006
RM 3.5 East	<b>Polybrominated Diphenyl Ethers</b>																
	PBDE # 47	4.0E+00	ug/kg	--	--	6E-13	4E-12	--	--	--	1E-04	1E-04	1E-11	8E-11	1E-07	8E-07	0.0000009
	PBDE # 99	5.8E+00	ug/kg	--	--	9E-13	7E-12	--	--	--	1E-04	1E-04	2E-11	1E-10	2E-07	1E-06	0.0000001
	PBDE # 153	1.1E+00	ug/kg	--	--	2E-13	1E-12	--	--	--	2E-04	2E-04	3E-12	2E-11	1E-08	1E-07	0.0000001
	PBDE # 209	3.2E+01	ug/kg	7E-04	7E-04	5E-12	4E-11	3E-15	2E-14	3E-14	7E-03	7E-03	8E-11	6E-10	1E-08	9E-08	0.0000001
Exposure Point Total										3E-14							0.0000002
RM 4 West	<b>Polybrominated Diphenyl Ethers</b>																
	PBDE # 47	3.5E-01	ug/kg	--	--	5E-14	4E-13	--	--	--	1E-04	1E-04	9E-13	7E-12	9E-09	7E-08	0.0000008
	PBDE # 99	2.3E-01	ug/kg	--	--	3E-14	3E-13	--	--	--	1E-04	1E-04	6E-13	5E-12	6E-09	5E-08	0.0000005
Exposure Point Total										--							0.0000001
RM 5 West	<b>Polybrominated Diphenyl Ethers</b>																
	PBDE # 47	3.7E-01	ug/kg	--	--	5E-14	4E-13	--	--	--	1E-04	1E-04	1E-12	7E-12	1E-08	7E-08	0.0000008
	PBDE # 99	3.7E-01	ug/kg	--	--	5E-14	4E-13	--	--	--	1E-04	1E-04	1E-12	7E-12	1E-08	7E-08	0.0000008
Exposure Point Total										--							0.0000002
RM 5.5 West	<b>Polybrominated Diphenyl Ethers</b>																
	PBDE # 47	1.4E+00	ug/kg	--	--	2E-13	2E-12	--	--	--	1E-04	1E-04	4E-12	3E-11	4E-08	3E-07	0.0000003
	PBDE # 99	1.2E+00	ug/kg	--	--	2E-13	1E-12	--	--	--	1E-04	1E-04	3E-12	2E-11	3E-08	2E-07	0.0000003
	PBDE # 153	2.3E-01	ug/kg	--	--	3E-14	3E-13	--	--	--	2E-04	2E-04	6E-13	5E-12	3E-09	2E-08	0.0000003
	PBDE # 209	7.4E+00	ug/kg	7E-04	7E-04	1E-12	8E-12	8E-16	6E-15	7E-15	7E-03	7E-03	2E-11	1E-10	3E-09	2E-08	0.0000002
Exposure Point Total										7E-15							0.0000006

**TABLE F3-7.**  
**Calculation of Cancer Risks and Noncancer Hazards - In-water Worker, In-water Sediment Exposure**  
**Central Tendency Exposure**

Scenario Timeframe: Current/Future  
Receptor Population: In-water Worker  
Population Age: Adult

Medium: Sediment  
Exposure Medium: In-water Sediment  
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC		Cancer Risk Calculations <sup>a</sup>							Noncancer Hazard Calculations <sup>a</sup>						
		Value	Units	Dermal Cancer Slope Factor (mg/kg-day) <sup>-1</sup>	Oral Cancer Slope Factor (mg/kg-day) <sup>-1</sup>	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk <sup>b</sup>	Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ <sup>b</sup>
RM 5.5 East	<b>Polybrominated Diphenyl Ethers</b>																
	PBDE # 47	1.0E+00	ug/kg	--	--	1E-13	1E-12	--	--	--	1E-04	1E-04	3E-12	2E-11	3E-08	2E-07	0.0000002
	PBDE # 99	1.2E+00	ug/kg	--	--	2E-13	1E-12	--	--	--	1E-04	1E-04	3E-12	2E-11	3E-08	2E-07	0.0000003
	PBDE # 153	4.1E-01	ug/kg	--	--	6E-14	5E-13	--	--	--	2E-04	2E-04	1E-12	8E-12	5E-09	4E-08	0.0000004
	PBDE # 209	4.2E+00	ug/kg	7E-04	7E-04	6E-13	5E-12	4E-16	3E-15	4E-15	7E-03	7E-03	1E-11	8E-11	2E-09	1E-08	0.0000001
Exposure Point Total										4E-15							0.0000005
RM 6 West	<b>Polybrominated Diphenyl Ethers</b>																
	PBDE # 47	3.7E-01	ug/kg	--	--	5E-14	4E-13	--	--	--	1E-04	1E-04	9E-13	7E-12	9E-09	7E-08	0.0000008
	PBDE # 99	3.7E-01	ug/kg	--	--	5E-14	4E-13	--	--	--	1E-04	1E-04	9E-13	7E-12	9E-09	7E-08	0.0000008
	PBDE # 209	4.8E+00	ug/kg	7E-04	7E-04	7E-13	5E-12	5E-16	4E-15	4E-15	7E-03	7E-03	1E-11	9E-11	2E-09	1E-08	0.0000002
Exposure Point Total										4E-15							0.0000002
RM 6 East	<b>Polybrominated Diphenyl Ethers</b>																
	PBDE # 47	2.7E-01	ug/kg	--	--	4E-14	3E-13	--	--	--	1E-04	1E-04	7E-13	5E-12	7E-09	5E-08	0.0000006
	PBDE # 99	1.7E-01	ug/kg	--	--	3E-14	2E-13	--	--	--	1E-04	1E-04	4E-13	3E-12	4E-09	3E-08	0.0000004
Exposure Point Total										--							0.0000001
RM 6.5 West	<b>Polybrominated Diphenyl Ethers</b>																
	PBDE # 47	1.1E-01	ug/kg	--	--	2E-14	1E-13	--	--	--	1E-04	1E-04	3E-13	2E-12	3E-09	2E-08	0.0000002
	PBDE # 99	1.3E-01	ug/kg	--	--	2E-14	1E-13	--	--	--	1E-04	1E-04	3E-13	3E-12	3E-09	3E-08	0.0000003
Exposure Point Total										--							0.0000005
RM 6.5 East	<b>Polybrominated Diphenyl Ethers</b>																
	PBDE # 47	1.2E+00	ug/kg	--	--	2E-13	1E-12	--	--	--	1E-04	1E-04	3E-12	2E-11	3E-08	2E-07	0.0000003
	PBDE # 99	1.3E+00	ug/kg	--	--	2E-13	1E-12	--	--	--	1E-04	1E-04	3E-12	2E-11	3E-08	2E-07	0.0000003
	PBDE # 153	4.5E-01	ug/kg	--	--	7E-14	5E-13	--	--	--	2E-04	2E-04	1E-12	9E-12	6E-09	4E-08	0.0000005
	PBDE # 209	1.7E+01	ug/kg	7E-04	7E-04	3E-12	2E-11	2E-15	1E-14	2E-14	7E-03	7E-03	4E-11	3E-10	6E-09	5E-08	0.0000005
Exposure Point Total										2E-14							0.0000006
RM 7 West	<b>Polybrominated Diphenyl Ethers</b>																
	PBDE # 47	9.5E-01	ug/kg	--	--	1E-13	1E-12	--	--	--	1E-04	1E-04	2E-12	2E-11	2E-08	2E-07	0.0000002
	PBDE # 99	9.9E-01	ug/kg	--	--	1E-13	1E-12	--	--	--	1E-04	1E-04	3E-12	2E-11	3E-08	2E-07	0.0000002
	PBDE # 153	2.9E-01	ug/kg	--	--	4E-14	3E-13	--	--	--	2E-04	2E-04	7E-13	6E-12	4E-09	3E-08	0.0000003
	PBDE # 209	6.1E+00	ug/kg	7E-04	7E-04	9E-13	7E-12	6E-16	5E-15	5E-15	7E-03	7E-03	2E-11	1E-10	2E-09	2E-08	0.0000002
Exposure Point Total										5E-15							0.0000005
RM 7 East	<b>Polybrominated Diphenyl Ethers</b>																
	PBDE # 47	1.2E+00	ug/kg	--	--	2E-13	1E-12	--	--	--	1E-04	1E-04	3E-12	2E-11	3E-08	2E-07	0.0000003
	PBDE # 99	1.0E+00	ug/kg	--	--	2E-13	1E-12	--	--	--	1E-04	1E-04	3E-12	2E-11	3E-08	2E-07	0.0000002
	PBDE # 153	3.6E-01	ug/kg	--	--	5E-14	4E-13	--	--	--	2E-04	2E-04	9E-13	7E-12	5E-09	4E-08	0.0000004
	PBDE # 209	4.3E+00	ug/kg	7E-04	7E-04	6E-13	5E-12	4E-16	3E-15	4E-15	7E-03	7E-03	1E-11	8E-11	2E-09	1E-08	0.0000001
Exposure Point Total										4E-15							0.0000005

**TABLE F3-7.**  
**Calculation of Cancer Risks and Noncancer Hazards - In-water Worker, In-water Sediment Exposure**  
**Central Tendency Exposure**

Scenario Timeframe: Current/Future  
Receptor Population: In-water Worker  
Population Age: Adult

Medium: Sediment  
Exposure Medium: In-water Sediment  
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC		Cancer Risk Calculations <sup>a</sup>							Noncancer Hazard Calculations <sup>a</sup>						
		Value	Units	Dermal Cancer Slope Factor (mg/kg-day) <sup>-1</sup>	Oral Cancer Slope Factor (mg/kg-day) <sup>-1</sup>	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk <sup>b</sup>	Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ <sup>b</sup>
RM 7.5 West	<b>Polybrominated Diphenyl Ethers</b>																
	PBDE # 47	9.9E-01	ug/kg	--	--	1E-13	1E-12	--	--	--	1E-04	1E-04	3E-12	2E-11	3E-08	2E-07	0.0000002
	PBDE # 99	8.5E-01	ug/kg	--	--	1E-13	9E-13	--	--	--	1E-04	1E-04	2E-12	2E-11	2E-08	2E-07	0.0000002
	PBDE # 153	4.3E-01	ug/kg	--	--	6E-14	5E-13	--	--	--	2E-04	2E-04	1E-12	8E-12	6E-09	4E-08	0.00000005
	PBDE # 209	5.3E+00	ug/kg	7E-04	7E-04	8E-13	6E-12	5E-16	4E-15	5E-15	7E-03	7E-03	1E-11	1E-10	2E-09	1E-08	0.00000002
Exposure Point Total										5E-15							0.0000005
RM 7.5 East	<b>Polybrominated Diphenyl Ethers</b>																
	PBDE # 47	1.9E+00	ug/kg	--	--	3E-13	2E-12	--	--	--	1E-04	1E-04	5E-12	4E-11	5E-08	4E-07	0.0000004
	PBDE # 99	2.2E+00	ug/kg	--	--	3E-13	2E-12	--	--	--	1E-04	1E-04	6E-12	4E-11	6E-08	4E-07	0.0000005
	PBDE # 153	3.4E-01	ug/kg	--	--	5E-14	4E-13	--	--	--	2E-04	2E-04	9E-13	7E-12	4E-09	3E-08	0.00000004
	PBDE # 209	8.9E+00	ug/kg	7E-04	7E-04	1E-12	1E-11	9E-16	7E-15	8E-15	7E-03	7E-03	2E-11	2E-10	3E-09	2E-08	0.00000003
Exposure Point Total										8E-15							0.0000001
RM 8 West	<b>Polybrominated Diphenyl Ethers</b>																
	PBDE # 47	8.3E-01	ug/kg	--	--	1E-13	9E-13	--	--	--	1E-04	1E-04	2E-12	2E-11	2E-08	2E-07	0.0000002
	PBDE # 99	1.2E+00	ug/kg	--	--	2E-13	1E-12	--	--	--	1E-04	1E-04	3E-12	2E-11	3E-08	2E-07	0.0000003
	PBDE # 153	8.4E-01	ug/kg	--	--	1E-13	9E-13	--	--	--	2E-04	2E-04	2E-12	2E-11	1E-08	8E-08	0.00000009
	PBDE # 209	4.4E+02	ug/kg	7E-04	7E-04	6E-11	5E-10	5E-14	3E-13	4E-13	7E-03	7E-03	1E-09	9E-09	2E-07	1E-06	0.0000001
Exposure Point Total										4E-13							0.0000002
RM 8 East	<b>Polybrominated Diphenyl Ethers</b>																
	PBDE # 47	1.8E+00	ug/kg	--	--	3E-13	2E-12	--	--	--	1E-04	1E-04	5E-12	4E-11	5E-08	4E-07	0.0000004
	PBDE # 99	1.9E+00	ug/kg	--	--	3E-13	2E-12	--	--	--	1E-04	1E-04	5E-12	4E-11	5E-08	4E-07	0.0000004
	PBDE # 153	4.2E-01	ug/kg	--	--	6E-14	5E-13	--	--	--	2E-04	2E-04	1E-12	8E-12	5E-09	4E-08	0.00000005
	PBDE # 209	1.5E+01	ug/kg	7E-04	7E-04	2E-12	2E-11	2E-15	1E-14	1E-14	7E-03	7E-03	4E-11	3E-10	5E-09	4E-08	0.00000005
Exposure Point Total										1E-14							0.0000009
RM 8 SIL	<b>Polybrominated Diphenyl Ethers</b>																
	PBDE # 47	1.6E+00	ug/kg	--	--	2E-13	2E-12	--	--	--	1E-04	1E-04	4E-12	3E-11	4E-08	3E-07	0.0000004
	PBDE # 99	2.3E+00	ug/kg	--	--	3E-13	3E-12	--	--	--	1E-04	1E-04	6E-12	4E-11	6E-08	4E-07	0.0000005
	PBDE # 153	7.1E-01	ug/kg	--	--	1E-13	8E-13	--	--	--	2E-04	2E-04	2E-12	1E-11	9E-09	7E-08	0.00000008
	PBDE # 209	1.9E+01	ug/kg	7E-04	7E-04	3E-12	2E-11	2E-15	1E-14	2E-14	7E-03	7E-03	5E-11	4E-10	7E-09	5E-08	0.00000006
Exposure Point Total										2E-14							0.0000001
RM 8.5 West	<b>Polybrominated Diphenyl Ethers</b>																
	PBDE # 47	2.0E+00	ug/kg	--	--	3E-13	2E-12	--	--	--	1E-04	1E-04	5E-12	4E-11	5E-08	4E-07	0.0000004
	PBDE # 99	2.2E+00	ug/kg	--	--	3E-13	2E-12	--	--	--	1E-04	1E-04	6E-12	4E-11	6E-08	4E-07	0.0000005
	PBDE # 153	4.1E-01	ug/kg	--	--	6E-14	5E-13	--	--	--	2E-04	2E-04	1E-12	8E-12	5E-09	4E-08	0.00000005
	PBDE # 209	1.1E+01	ug/kg	7E-04	7E-04	2E-12	1E-11	1E-15	9E-15	1E-14	7E-03	7E-03	3E-11	2E-10	4E-09	3E-08	0.00000003
Exposure Point Total										1E-14							0.0000001

**TABLE F3-7.**  
**Calculation of Cancer Risks and Noncancer Hazards - In-water Worker, In-water Sediment Exposure**  
**Central Tendency Exposure**

Scenario Timeframe: Current/Future  
Receptor Population: In-water Worker  
Population Age: Adult

Medium: Sediment  
Exposure Medium: In-water Sediment  
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC		Cancer Risk Calculations <sup>a</sup>							Noncancer Hazard Calculations <sup>a</sup>						
		Value	Units	Dermal Cancer Slope Factor (mg/kg-day) <sup>-1</sup>	Oral Cancer Slope Factor (mg/kg-day) <sup>-1</sup>	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk <sup>b</sup>	Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ <sup>b</sup>
RM 8.5 East	<b>Polybrominated Diphenyl Ethers</b>																
	PBDE # 47	4.1E+00	ug/kg	--	--	6E-13	5E-12	--	--	--	1E-04	1E-04	1E-11	8E-11	1E-07	8E-07	0.0000009
	PBDE # 99	5.6E+00	ug/kg	--	--	8E-13	6E-12	--	--	--	1E-04	1E-04	1E-11	1E-10	1E-07	1E-06	0.0000001
	PBDE # 153	1.1E+00	ug/kg	--	--	2E-13	1E-12	--	--	--	2E-04	2E-04	3E-12	2E-11	1E-08	1E-07	0.0000001
	PBDE # 209	9.0E+01	ug/kg	7E-04	7E-04	1E-11	1E-10	9E-15	7E-14	8E-14	7E-03	7E-03	2E-10	2E-09	3E-08	3E-07	0.0000003
Exposure Point Total										8E-14							0.0000003
RM 9 West	<b>Polybrominated Diphenyl Ethers</b>																
	PBDE # 47	1.3E+00	ug/kg	--	--	2E-13	1E-12	--	--	--	1E-04	1E-04	3E-12	3E-11	3E-08	3E-07	0.0000003
	PBDE # 99	1.2E+00	ug/kg	--	--	2E-13	1E-12	--	--	--	1E-04	1E-04	3E-12	2E-11	3E-08	2E-07	0.0000003
	PBDE # 153	1.9E-01	ug/kg	--	--	3E-14	2E-13	--	--	--	2E-04	2E-04	5E-13	4E-12	2E-09	2E-08	0.0000002
	PBDE # 209	2.9E+00	ug/kg	7E-04	7E-04	4E-13	3E-12	3E-16	2E-15	3E-15	7E-03	7E-03	7E-12	6E-11	1E-09	8E-09	0.0000001
Exposure Point Total										3E-15							0.0000006
RM 9 East	<b>Polybrominated Diphenyl Ethers</b>																
	PBDE # 47	3.3E-01	ug/kg	--	--	5E-14	4E-13	--	--	--	1E-04	1E-04	9E-13	6E-12	9E-09	6E-08	0.0000007
	PBDE # 99	1.8E-01	ug/kg	--	--	3E-14	2E-13	--	--	--	1E-04	1E-04	5E-13	4E-12	5E-09	4E-08	0.0000004
Exposure Point Total										--							0.0000001
RM 9.5 West	<b>Polybrominated Diphenyl Ethers</b>																
	PBDE # 47	1.8E+00	ug/kg	--	--	3E-13	2E-12	--	--	--	1E-04	1E-04	5E-12	4E-11	5E-08	4E-07	0.0000004
	PBDE # 99	2.7E+00	ug/kg	--	--	4E-13	3E-12	--	--	--	1E-04	1E-04	7E-12	5E-11	7E-08	5E-07	0.0000006
	PBDE # 153	5.2E-01	ug/kg	--	--	8E-14	6E-13	--	--	--	2E-04	2E-04	1E-12	1E-11	7E-09	5E-08	0.0000006
	PBDE # 209	4.6E+01	ug/kg	7E-04	7E-04	7E-12	5E-11	5E-15	4E-14	4E-14	7E-03	7E-03	1E-10	9E-10	2E-08	1E-07	0.0000001
Exposure Point Total										4E-14							0.0000001
RM 9.5 East	<b>Polybrominated Diphenyl Ethers</b>																
	PBDE # 47	9.9E-01	ug/kg	--	--	1E-13	1E-12	--	--	--	1E-04	1E-04	3E-12	2E-11	3E-08	2E-07	0.0000002
	PBDE # 99	7.9E-01	ug/kg	--	--	1E-13	9E-13	--	--	--	1E-04	1E-04	2E-12	2E-11	2E-08	2E-07	0.0000002
	PBDE # 209	2.0E+00	ug/kg	7E-04	7E-04	3E-13	2E-12	2E-16	2E-15	2E-15	7E-03	7E-03	5E-12	4E-11	7E-10	6E-09	0.0000001
Exposure Point Total										2E-15							0.0000004
RM 11 West	<b>Polybrominated Diphenyl Ethers</b>																
	PBDE # 47	2.9E+00	ug/kg	--	--	4E-13	3E-12	--	--	--	1E-04	1E-04	7E-12	6E-11	7E-08	6E-07	0.0000006
	PBDE # 99	3.7E+00	ug/kg	--	--	5E-13	4E-12	--	--	--	1E-04	1E-04	1E-11	7E-11	1E-07	7E-07	0.0000008
	PBDE # 153	6.3E-01	ug/kg	--	--	9E-14	7E-13	--	--	--	2E-04	2E-04	2E-12	1E-11	8E-09	6E-08	0.0000007
	PBDE # 209	5.7E+01	ug/kg	7E-04	7E-04	8E-12	6E-11	6E-15	4E-14	5E-14	7E-03	7E-03	1E-10	1E-09	2E-08	2E-07	0.0000002
Exposure Point Total										5E-14							0.0000002
RM 11 East	<b>Polybrominated Diphenyl Ethers</b>																
	PBDE # 47	9.7E-01	ug/kg	--	--	1E-13	1E-12	--	--	--	1E-04	1E-04	2E-12	2E-11	2E-08	2E-07	0.0000002
	PBDE # 99	7.8E-01	ug/kg	--	--	1E-13	9E-13	--	--	--	1E-04	1E-04	2E-12	2E-11	2E-08	2E-07	0.0000002
Exposure Point Total										--							0.0000004

**TABLE F3-7.**  
**Calculation of Cancer Risks and Noncancer Hazards - In-water Worker, In-water Sediment Exposure**  
**Central Tendency Exposure**

Scenario Timeframe: Current/Future Medium: Sediment  
Receptor Population: In-water Worker Exposure Medium: In-water Sediment  
Population Age: Adult Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC		Cancer Risk Calculations <sup>a</sup>							Noncancer Hazard Calculations <sup>a</sup>						
		Value	Units	Dermal Cancer Slope Factor (mg/kg-day) <sup>-1</sup>	Oral Cancer Slope Factor (mg/kg-day) <sup>-1</sup>	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk <sup>b</sup>	Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ <sup>b</sup>
RM 12 West	<b>Polybrominated Diphenyl Ethers</b>																
	PBDE # 47	3.1E-01	ug/kg	--	--	5E-14	3E-13	--	--	--	1E-04	1E-04	8E-13	6E-12	8E-09	6E-08	0.0000007
	PBDE # 99	3.0E-01	ug/kg	--	--	4E-14	3E-13	--	--	--	1E-04	1E-04	8E-13	6E-12	8E-09	6E-08	0.0000007
Exposure Point Total										--							0.0000001
RM 12 East	<b>Polybrominated Diphenyl Ethers</b>																
	PBDE # 47	1.2E+00	ug/kg	--	--	2E-13	1E-12	--	--	--	1E-04	1E-04	3E-12	2E-11	3E-08	2E-07	0.0000003
	PBDE # 99	1.1E+00	ug/kg	--	--	2E-13	1E-12	--	--	--	1E-04	1E-04	3E-12	2E-11	3E-08	2E-07	0.0000002
Exposure Point Total										--							0.0000005
Study Area Wide <sup>d</sup>	<b>Polybrominated Diphenyl Ethers</b>																
	PBDE # 47	1.4E+00	ug/kg	--	--	2E-13	2E-12	--	--	--	1E-04	1E-04	4E-12	3E-11	4E-08	3E-07	0.0000003
	PBDE # 99	1.7E+00	ug/kg	--	--	2E-13	2E-12	--	--	--	1E-04	1E-04	4E-12	3E-11	4E-08	3E-07	0.0000004
	PBDE # 153	5.1E-01	ug/kg	--	--	7E-14	6E-13	--	--	--	2E-04	2E-04	1E-12	1E-11	7E-09	5E-08	0.0000006
	PBDE # 209	2.2E+01	ug/kg	7E-04	7E-04	3E-12	2E-11	2E-15	2E-14	2E-14	7E-03	7E-03	6E-11	4E-10	8E-09	6E-08	0.0000007
Exposure Point Total										2E-14							0.0000008

**Notes:**

- a Numbers presented are rounded values. Sums calculated before rounding. Risks and hazards are calculated based on exposure parameters presented in Section 3 of Appendix F. For risks and hazards from dermal contact, a dermal absorption efficiency of 0.1 was used, which is the dermal absorption efficiency presented for semi-volatile organic compounds in Risk Assessment Guidance for Superfund, Volume I: Human Health Evaluation Manual (Part E, Supplemental Guidance for Dermal Risk Assessment) Final, July 2004. EPA/540/R/99/005.
- b Study Area-wide dataset includes human health in-water sediment samples from RM 1.9 - 11.8 outside of the navigation channel and excluding Multnomah Channel.

**Abbreviations:**

- = Not Applicable.
- CDI = Chronic Daily Intake.
- EPC = Exposure Point Concentration.
- HQ = Hazard Quotient.
- LADI = Lifetime Average Daily Intake.
- mg/kg = milligrams per kilogram.
- RfD = Reference dose.
- RM = River mile.
- ug/kg = micrograms per kilogram.

**TABLE F3-8.**  
**Calculation of Cancer Risks and Noncancer Hazards - Tribal Fisher, In-water Sediment Exposure**  
**Reasonable Maximum Exposure**

Scenario Timeframe: Current/Future  
Receptor Population: Tribal Fisher  
Population Age: Adult

Medium: Sediment  
Exposure Medium: In-water Sediment  
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC		Cancer Risk Calculations <sup>a</sup>							Noncancer Hazard Calculations <sup>a</sup>							
		Value	Units	Dermal Cancer Slope Factor (mg/kg-day) <sup>-1</sup>	Oral Cancer Slope Factor (mg/kg-day) <sup>-1</sup>	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk	Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ	
RM 1 West	<b>Polybrominated Diphenyl Ethers</b>																	
	PBDE # 47	3.6E-01	ug/kg	--	--	5E-11	5E-11	--	--	--	1E-04	1E-04	5E-11	5E-11	5E-07	5E-07	0.000001	
	PBDE # 99	3.7E-01	ug/kg	--	--	6E-11	5E-11	--	--	--	1E-04	1E-04	6E-11	5E-11	6E-07	5E-07	0.000001	
	PBDE # 209	4.0E+00	ug/kg	7E-04	7E-04	6E-10	5E-10	4E-13	4E-13	8E-13	7E-03	7E-03	6E-10	5E-10	9E-08	7E-08	0.000002	
Exposure Point Total											8E-13							0.000002
RM 1 East	<b>Polybrominated Diphenyl Ethers</b>																	
	PBDE # 47	7.6E-01	ug/kg	--	--	1E-10	1E-10	--	--	--	1E-04	1E-04	1E-10	1E-10	1E-06	1E-06	0.000002	
	PBDE # 99	6.3E-01	ug/kg	--	--	1E-10	8E-11	--	--	--	1E-04	1E-04	1E-10	8E-11	1E-06	8E-07	0.000002	
	PBDE # 209	3.7E+00	ug/kg	7E-04	7E-04	6E-10	5E-10	4E-13	3E-13	7E-13	7E-03	7E-03	6E-10	5E-10	8E-08	7E-08	0.000001	
Exposure Point Total											7E-13							0.000004
RM 1.5 West	<b>Polybrominated Diphenyl Ethers</b>																	
	PBDE # 47	1.2E-01	ug/kg	--	--	2E-11	2E-11	--	--	--	1E-04	1E-04	2E-11	2E-11	2E-07	2E-07	0.000003	
Exposure Point Total											--							0.000003
RM 1.5 East	<b>Polybrominated Diphenyl Ethers</b>																	
	PBDE # 47	1.4E+00	ug/kg	--	--	2E-10	2E-10	--	--	--	1E-04	1E-04	2E-10	2E-10	2E-06	2E-06	0.000004	
	PBDE # 99	1.4E+00	ug/kg	--	--	2E-10	2E-10	--	--	--	1E-04	1E-04	2E-10	2E-10	2E-06	2E-06	0.000004	
	PBDE # 153	1.8E-01	ug/kg	--	--	3E-11	2E-11	--	--	--	2E-04	2E-04	3E-11	2E-11	1E-07	1E-07	0.000003	
	PBDE # 209	4.5E+00	ug/kg	7E-04	7E-04	7E-10	6E-10	5E-13	4E-13	9E-13	7E-03	7E-03	7E-10	6E-10	1E-07	8E-08	0.000002	
Exposure Point Total											9E-13							0.000008
RM 2 West	<b>Polybrominated Diphenyl Ethers</b>																	
	PBDE # 47	1.8E+00	ug/kg	--	--	3E-10	2E-10	--	--	--	1E-04	1E-04	3E-10	2E-10	3E-06	2E-06	0.000005	
	PBDE # 99	1.7E+00	ug/kg	--	--	3E-10	2E-10	--	--	--	1E-04	1E-04	3E-10	2E-10	3E-06	2E-06	0.000005	
	PBDE # 153	4.2E-01	ug/kg	--	--	6E-11	5E-11	--	--	--	2E-04	2E-04	6E-11	5E-11	3E-07	3E-07	0.000001	
	PBDE # 209	6.0E+00	ug/kg	7E-04	7E-04	9E-10	8E-10	6E-13	5E-13	1E-12	7E-03	7E-03	9E-10	8E-10	1E-07	1E-07	0.000002	
Exposure Point Total											1E-12							0.00001
RM 2 East	<b>Polybrominated Diphenyl Ethers</b>																	
	PBDE # 47	1.8E+00	ug/kg	--	--	3E-10	2E-10	--	--	--	1E-04	1E-04	3E-10	2E-10	3E-06	2E-06	0.000005	
	PBDE # 99	2.1E+00	ug/kg	--	--	3E-10	3E-10	--	--	--	1E-04	1E-04	3E-10	3E-10	3E-06	3E-06	0.000006	
	PBDE # 153	2.9E-01	ug/kg	--	--	4E-11	4E-11	--	--	--	2E-04	2E-04	4E-11	4E-11	2E-07	2E-07	0.000004	
	PBDE # 209	8.4E+00	ug/kg	7E-04	7E-04	1E-09	1E-09	9E-13	7E-13	2E-12	7E-03	7E-03	1E-09	1E-09	2E-07	2E-07	0.000003	
Exposure Point Total											2E-12							0.00001
RM 2.5 East	<b>Polybrominated Diphenyl Ethers</b>																	
	PBDE # 47	2.0E-01	ug/kg	--	--	3E-11	3E-11	--	--	--	1E-04	1E-04	3E-11	3E-11	3E-07	3E-07	0.000001	
	PBDE # 99	2.4E-01	ug/kg	--	--	4E-11	3E-11	--	--	--	1E-04	1E-04	4E-11	3E-11	4E-07	3E-07	0.000001	
Exposure Point Total											--							0.000001
RM 2.5 MC	<b>Polybrominated Diphenyl Ethers</b>																	
	PBDE # 47	1.4E-01	ug/kg	--	--	2E-11	2E-11	--	--	--	1E-04	1E-04	2E-11	2E-11	2E-07	2E-07	0.000004	
Exposure Point Total											--							0.000004



**TABLE F3-8.**  
**Calculation of Cancer Risks and Noncancer Hazards - Tribal Fisher, In-water Sediment Exposure**  
**Reasonable Maximum Exposure**

Scenario Timeframe: Current/Future  
Receptor Population: Tribal Fisher  
Population Age: Adult

Medium: Sediment  
Exposure Medium: In-water Sediment  
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC		Cancer Risk Calculations <sup>a</sup>							Noncancer Hazard Calculations <sup>a</sup>							
		Value	Units	Dermal Cancer Slope Factor (mg/kg-day) <sup>-1</sup>	Oral Cancer Slope Factor (mg/kg-day) <sup>-1</sup>	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk	Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ	
RM 3 West	<b>Polybrominated Diphenyl Ethers</b>																	
	PBDE # 47	1.4E+00	ug/kg	--	--	2E-10	2E-10	--	--	--	1E-04	1E-04	2E-10	2E-10	2E-06	2E-06	0.000004	
	PBDE # 99	1.3E+00	ug/kg	--	--	2E-10	2E-10	--	--	--	1E-04	1E-04	2E-10	2E-10	2E-06	2E-06	0.000004	
	PBDE # 153	2.9E-01	ug/kg	--	--	4E-11	4E-11	--	--	--	2E-04	2E-04	4E-11	4E-11	2E-07	2E-07	0.0000004	
	PBDE # 209	5.3E+00	ug/kg	7E-04	7E-04	8E-10	7E-10	6E-13	5E-13	1E-12	7E-03	7E-03	8E-10	7E-10	1E-07	1E-07	0.0000002	
Exposure Point Total											1E-12							0.000008
RM 3 East	<b>Polybrominated Diphenyl Ethers</b>																	
	PBDE # 47	1.6E+00	ug/kg	--	--	2E-10	2E-10	--	--	--	1E-04	1E-04	2E-10	2E-10	2E-06	2E-06	0.000004	
	PBDE # 99	1.6E+00	ug/kg	--	--	2E-10	2E-10	--	--	--	1E-04	1E-04	2E-10	2E-10	2E-06	2E-06	0.000004	
	PBDE # 153	3.3E-01	ug/kg	--	--	5E-11	4E-11	--	--	--	2E-04	2E-04	5E-11	4E-11	2E-07	2E-07	0.0000005	
	PBDE # 209	6.9E+00	ug/kg	7E-04	7E-04	1E-09	9E-10	7E-13	6E-13	1E-12	7E-03	7E-03	1E-09	9E-10	1E-07	1E-07	0.0000003	
Exposure Point Total											1E-12							0.000001
RM 3.5 West	<b>Polybrominated Diphenyl Ethers</b>																	
	PBDE # 47	1.4E-01	ug/kg	--	--	2E-11	2E-11	--	--	--	1E-04	1E-04	2E-11	2E-11	2E-07	2E-07	0.0000004	
	PBDE # 99	1.2E-01	ug/kg	--	--	2E-11	2E-11	--	--	--	1E-04	1E-04	2E-11	2E-11	2E-07	2E-07	0.0000003	
Exposure Point Total											--							0.000001
RM 3.5 East	<b>Polybrominated Diphenyl Ethers</b>																	
	PBDE # 47	5.2E+00	ug/kg	--	--	8E-10	7E-10	--	--	--	1E-04	1E-04	8E-10	7E-10	8E-06	7E-06	0.000001	
	PBDE # 99	8.2E+00	ug/kg	--	--	1E-09	1E-09	--	--	--	1E-04	1E-04	1E-09	1E-09	1E-05	1E-05	0.000002	
	PBDE # 153	1.5E+00	ug/kg	--	--	2E-10	2E-10	--	--	--	2E-04	2E-04	2E-10	2E-10	1E-06	1E-06	0.000002	
	PBDE # 209	5.6E+01	ug/kg	7E-04	7E-04	8E-09	7E-09	6E-12	5E-12	1E-11	7E-03	7E-03	8E-09	7E-09	1E-06	1E-06	0.000002	
Exposure Point Total											1E-11							0.000004
RM 4 West	<b>Polybrominated Diphenyl Ethers</b>																	
	PBDE # 47	3.5E-01	ug/kg	--	--	5E-11	4E-11	--	--	--	1E-04	1E-04	5E-11	4E-11	5E-07	4E-07	0.000001	
	PBDE # 99	2.3E-01	ug/kg	--	--	3E-11	3E-11	--	--	--	1E-04	1E-04	3E-11	3E-11	3E-07	3E-07	0.000001	
Exposure Point Total											--							0.000002
RM 5 West	<b>Polybrominated Diphenyl Ethers</b>																	
	PBDE # 47	3.7E-01	ug/kg	--	--	6E-11	5E-11	--	--	--	1E-04	1E-04	6E-11	5E-11	6E-07	5E-07	0.000001	
	PBDE # 99	3.7E-01	ug/kg	--	--	6E-11	5E-11	--	--	--	1E-04	1E-04	6E-11	5E-11	6E-07	5E-07	0.000001	
Exposure Point Total											--							0.000002
RM 5.5 West	<b>Polybrominated Diphenyl Ethers</b>																	
	PBDE # 47	1.4E+00	ug/kg	--	--	2E-10	2E-10	--	--	--	1E-04	1E-04	2E-10	2E-10	2E-06	2E-06	0.000004	
	PBDE # 99	1.2E+00	ug/kg	--	--	2E-10	2E-10	--	--	--	1E-04	1E-04	2E-10	2E-10	2E-06	2E-06	0.000003	
	PBDE # 153	2.3E-01	ug/kg	--	--	3E-11	3E-11	--	--	--	2E-04	2E-04	3E-11	3E-11	2E-07	1E-07	0.0000003	
	PBDE # 209	7.4E+00	ug/kg	7E-04	7E-04	1E-09	9E-10	8E-13	7E-13	1E-12	7E-03	7E-03	1E-09	9E-10	2E-07	1E-07	0.0000003	
Exposure Point Total											1E-12							0.000008

**TABLE F3-8.**  
**Calculation of Cancer Risks and Noncancer Hazards - Tribal Fisher, In-water Sediment Exposure**  
**Reasonable Maximum Exposure**

Scenario Timeframe: Current/Future  
Receptor Population: Tribal Fisher  
Population Age: Adult

Medium: Sediment  
Exposure Medium: In-water Sediment  
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC		Cancer Risk Calculations <sup>a</sup>							Noncancer Hazard Calculations <sup>a</sup>						
		Value	Units	Dermal Cancer Slope Factor (mg/kg-day) <sup>-1</sup>	Oral Cancer Slope Factor (mg/kg-day) <sup>-1</sup>	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk	Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ
RM 5.5 East	<b>Polybrominated Diphenyl Ethers</b>																
	PBDE # 47	1.8E+00	ug/kg	--	--	3E-10	2E-10	--	--	--	1E-04	1E-04	3E-10	2E-10	3E-06	2E-06	0.000005
	PBDE # 99	1.8E+00	ug/kg	--	--	3E-10	2E-10	--	--	--	1E-04	1E-04	3E-10	2E-10	3E-06	2E-06	0.000005
	PBDE # 153	2.6E-01	ug/kg	--	--	4E-11	3E-11	--	--	--	2E-04	2E-04	4E-11	3E-11	2E-07	2E-07	0.0000004
	PBDE # 209	2.8E+00	ug/kg	7E-04	7E-04	4E-10	4E-10	3E-13	2E-13	5E-13	7E-03	7E-03	4E-10	4E-10	6E-08	5E-08	0.0000001
Exposure Point Total										5E-13							0.00001
RM 6 West	<b>Polybrominated Diphenyl Ethers</b>																
	PBDE # 47	1.3E-01	ug/kg	--	--	2E-11	2E-11	--	--	--	1E-04	1E-04	2E-11	2E-11	2E-07	2E-07	0.0000004
	PBDE # 99	1.3E-01	ug/kg	--	--	2E-11	2E-11	--	--	--	1E-04	1E-04	2E-11	2E-11	2E-07	2E-07	0.0000004
	PBDE # 209	3.5E+00	ug/kg	7E-04	7E-04	5E-10	4E-10	4E-13	3E-13	7E-13	7E-03	7E-03	5E-10	4E-10	8E-08	6E-08	0.0000001
Exposure Point Total										7E-13							0.000001
RM 6 East	<b>Polybrominated Diphenyl Ethers</b>																
	PBDE # 47	2.7E-01	ug/kg	--	--	4E-11	3E-11	--	--	--	1E-04	1E-04	4E-11	3E-11	4E-07	3E-07	0.000001
	PBDE # 99	1.7E-01	ug/kg	--	--	3E-11	2E-11	--	--	--	1E-04	1E-04	3E-11	2E-11	3E-07	2E-07	0.0000005
Exposure Point Total										--							0.000001
RM 6.5 West	<b>Polybrominated Diphenyl Ethers</b>																
	PBDE # 47	1.1E-01	ug/kg	--	--	2E-11	1E-11	--	--	--	1E-04	1E-04	2E-11	1E-11	2E-07	1E-07	0.0000003
	PBDE # 99	1.3E-01	ug/kg	--	--	2E-11	2E-11	--	--	--	1E-04	1E-04	2E-11	2E-11	2E-07	2E-07	0.0000004
Exposure Point Total										--							0.000001
RM 6.5 East	<b>Polybrominated Diphenyl Ethers</b>																
	PBDE # 47	1.8E+00	ug/kg	--	--	3E-10	2E-10	--	--	--	1E-04	1E-04	3E-10	2E-10	3E-06	2E-06	0.000005
	PBDE # 99	1.9E+00	ug/kg	--	--	3E-10	2E-10	--	--	--	1E-04	1E-04	3E-10	2E-10	3E-06	2E-06	0.000005
	PBDE # 153	3.5E-01	ug/kg	--	--	5E-11	4E-11	--	--	--	2E-04	2E-04	5E-11	4E-11	3E-07	2E-07	0.0000005
	PBDE # 209	2.5E+01	ug/kg	7E-04	7E-04	4E-09	3E-09	3E-12	2E-12	5E-12	7E-03	7E-03	4E-09	3E-09	5E-07	5E-07	0.000001
Exposure Point Total										5E-12							0.00001
RM 7 West	<b>Polybrominated Diphenyl Ethers</b>																
	PBDE # 47	9.5E-01	ug/kg	--	--	1E-10	1E-10	--	--	--	1E-04	1E-04	1E-10	1E-10	1E-06	1E-06	0.000003
	PBDE # 99	9.9E-01	ug/kg	--	--	1E-10	1E-10	--	--	--	1E-04	1E-04	1E-10	1E-10	1E-06	1E-06	0.000003
	PBDE # 153	2.9E-01	ug/kg	--	--	4E-11	4E-11	--	--	--	2E-04	2E-04	4E-11	4E-11	2E-07	2E-07	0.0000004
	PBDE # 209	6.1E+00	ug/kg	7E-04	7E-04	9E-10	8E-10	6E-13	5E-13	1E-12	7E-03	7E-03	9E-10	8E-10	1E-07	1E-07	0.0000002
Exposure Point Total										1E-12							0.000006
RM 7 East	<b>Polybrominated Diphenyl Ethers</b>																
	PBDE # 47	1.7E+00	ug/kg	--	--	3E-10	2E-10	--	--	--	1E-04	1E-04	3E-10	2E-10	3E-06	2E-06	0.000005
	PBDE # 99	1.5E+00	ug/kg	--	--	2E-10	2E-10	--	--	--	1E-04	1E-04	2E-10	2E-10	2E-06	2E-06	0.000004
	PBDE # 153	3.1E-01	ug/kg	--	--	5E-11	4E-11	--	--	--	2E-04	2E-04	5E-11	4E-11	2E-07	2E-07	0.0000004
	PBDE # 209	6.2E+00	ug/kg	7E-04	7E-04	9E-10	8E-10	7E-13	6E-13	1E-12	7E-03	7E-03	9E-10	8E-10	1E-07	1E-07	0.0000002
Exposure Point Total										1E-12							0.00001



**TABLE F3-8.**  
**Calculation of Cancer Risks and Noncancer Hazards - Tribal Fisher, In-water Sediment Exposure**  
**Reasonable Maximum Exposure**

Scenario Timeframe: Current/Future  
Receptor Population: Tribal Fisher  
Population Age: Adult

Medium: Sediment  
Exposure Medium: In-water Sediment  
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC		Cancer Risk Calculations <sup>a</sup>							Noncancer Hazard Calculations <sup>a</sup>						
		Value	Units	Dermal Cancer Slope Factor (mg/kg-day) <sup>-1</sup>	Oral Cancer Slope Factor (mg/kg-day) <sup>-1</sup>	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk	Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ
RM 7.5 West	<b>Polybrominated Diphenyl Ethers</b>																
	PBDE # 47	1.7E+00	ug/kg	--	--	3E-10	2E-10	--	--	--	1E-04	1E-04	3E-10	2E-10	3E-06	2E-06	0.000005
	PBDE # 99	1.5E+00	ug/kg	--	--	2E-10	2E-10	--	--	--	1E-04	1E-04	2E-10	2E-10	2E-06	2E-06	0.000004
	PBDE # 153	3.1E-01	ug/kg	--	--	5E-11	4E-11	--	--	--	2E-04	2E-04	5E-11	4E-11	2E-07	2E-07	0.0000004
	PBDE # 209	5.1E+00	ug/kg	7E-04	7E-04	8E-10	6E-10	5E-13	5E-13	1E-12	7E-03	7E-03	8E-10	6E-10	1E-07	9E-08	0.0000002
Exposure Point Total										1E-12							0.00001
RM 7.5 East	<b>Polybrominated Diphenyl Ethers</b>																
	PBDE # 47	2.5E+00	ug/kg	--	--	4E-10	3E-10	--	--	--	1E-04	1E-04	4E-10	3E-10	4E-06	3E-06	0.000007
	PBDE # 99	2.9E+00	ug/kg	--	--	4E-10	4E-10	--	--	--	1E-04	1E-04	4E-10	4E-10	4E-06	4E-06	0.000008
	PBDE # 153	4.5E-01	ug/kg	--	--	7E-11	6E-11	--	--	--	2E-04	2E-04	7E-11	6E-11	3E-07	3E-07	0.000001
	PBDE # 209	1.3E+01	ug/kg	7E-04	7E-04	2E-09	2E-09	1E-12	1E-12	3E-12	7E-03	7E-03	2E-09	2E-09	3E-07	2E-07	0.000001
Exposure Point Total										3E-12							0.00002
RM 8 West	<b>Polybrominated Diphenyl Ethers</b>																
	PBDE # 47	8.3E-01	ug/kg	--	--	1E-10	1E-10	--	--	--	1E-04	1E-04	1E-10	1E-10	1E-06	1E-06	0.000002
	PBDE # 99	1.2E+00	ug/kg	--	--	2E-10	2E-10	--	--	--	1E-04	1E-04	2E-10	2E-10	2E-06	2E-06	0.000003
	PBDE # 153	8.4E-01	ug/kg	--	--	1E-10	1E-10	--	--	--	2E-04	2E-04	1E-10	1E-10	6E-07	5E-07	0.000001
	PBDE # 209	4.4E+02	ug/kg	7E-04	7E-04	7E-08	6E-08	5E-11	4E-11	9E-11	7E-03	7E-03	7E-08	6E-08	9E-06	8E-06	0.00002
Exposure Point Total										9E-11							0.00002
RM 8 East	<b>Polybrominated Diphenyl Ethers</b>																
	PBDE # 47	2.1E+00	ug/kg	--	--	3E-10	3E-10	--	--	--	1E-04	1E-04	3E-10	3E-10	3E-06	3E-06	0.000006
	PBDE # 99	2.2E+00	ug/kg	--	--	3E-10	3E-10	--	--	--	1E-04	1E-04	3E-10	3E-10	3E-06	3E-06	0.000006
	PBDE # 153	6.2E-01	ug/kg	--	--	9E-11	8E-11	--	--	--	2E-04	2E-04	9E-11	8E-11	5E-07	4E-07	0.000001
	PBDE # 209	2.4E+01	ug/kg	7E-04	7E-04	4E-09	3E-09	3E-12	2E-12	5E-12	7E-03	7E-03	4E-09	3E-09	5E-07	4E-07	0.000001
Exposure Point Total										5E-12							0.00001
RM 8 SIL	<b>Polybrominated Diphenyl Ethers</b>																
	PBDE # 47	4.5E+00	ug/kg	--	--	7E-10	6E-10	--	--	--	1E-04	1E-04	7E-10	6E-10	7E-06	6E-06	0.00001
	PBDE # 99	4.3E+00	ug/kg	--	--	7E-10	5E-10	--	--	--	1E-04	1E-04	7E-10	5E-10	7E-06	5E-06	0.00001
	PBDE # 153	1.2E+00	ug/kg	--	--	2E-10	2E-10	--	--	--	2E-04	2E-04	2E-10	2E-10	9E-07	8E-07	0.000002
	PBDE # 209	3.7E+01	ug/kg	7E-04	7E-04	6E-09	5E-09	4E-12	3E-12	7E-12	7E-03	7E-03	6E-09	5E-09	8E-07	7E-07	0.000001
Exposure Point Total										7E-12							0.00003
RM 8.5 West	<b>Polybrominated Diphenyl Ethers</b>																
	PBDE # 47	2.0E+00	ug/kg	--	--	3E-10	3E-10	--	--	--	1E-04	1E-04	3E-10	3E-10	3E-06	3E-06	0.000006
	PBDE # 99	2.2E+00	ug/kg	--	--	3E-10	3E-10	--	--	--	1E-04	1E-04	3E-10	3E-10	3E-06	3E-06	0.000006
	PBDE # 153	4.1E-01	ug/kg	--	--	6E-11	5E-11	--	--	--	2E-04	2E-04	6E-11	5E-11	3E-07	3E-07	0.000001
	PBDE # 209	1.1E+01	ug/kg	7E-04	7E-04	2E-09	1E-09	1E-12	1E-12	2E-12	7E-03	7E-03	2E-09	1E-09	2E-07	2E-07	0.000000
Exposure Point Total										2E-12							0.00001

**TABLE F3-8.**  
**Calculation of Cancer Risks and Noncancer Hazards - Tribal Fisher, In-water Sediment Exposure**  
**Reasonable Maximum Exposure**

Scenario Timeframe: Current/Future  
Receptor Population: Tribal Fisher  
Population Age: Adult

Medium: Sediment  
Exposure Medium: In-water Sediment  
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC		Cancer Risk Calculations <sup>a</sup>							Noncancer Hazard Calculations <sup>a</sup>							
		Value	Units	Dermal Cancer Slope Factor (mg/kg-day) <sup>-1</sup>	Oral Cancer Slope Factor (mg/kg-day) <sup>-1</sup>	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk	Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ	
RM 8.5 East	<b>Polybrominated Diphenyl Ethers</b>																	
	PBDE # 47	4.1E+00	ug/kg	--	--	6E-10	5E-10	--	--	--	1E-04	1E-04	6E-10	5E-10	6E-06	5E-06	0.00001	
	PBDE # 99	5.6E+00	ug/kg	--	--	8E-10	7E-10	--	--	--	1E-04	1E-04	8E-10	7E-10	8E-06	7E-06	0.00002	
	PBDE # 153	1.1E+00	ug/kg	--	--	2E-10	1E-10	--	--	--	2E-04	2E-04	2E-10	1E-10	8E-07	7E-07	0.000002	
	PBDE # 209	9.0E+01	ug/kg	7E-04	7E-04	1E-08	1E-08	1E-11	8E-12	2E-11	7E-03	7E-03	1E-08	1E-08	2E-06	2E-06	0.000004	
Exposure Point Total											2E-11							0.00003
RM 9 West	<b>Polybrominated Diphenyl Ethers</b>																	
	PBDE # 47	1.3E+00	ug/kg	--	--	2E-10	2E-10	--	--	--	1E-04	1E-04	2E-10	2E-10	2E-06	2E-06	0.000004	
	PBDE # 99	1.2E+00	ug/kg	--	--	2E-10	2E-10	--	--	--	1E-04	1E-04	2E-10	2E-10	2E-06	2E-06	0.000003	
	PBDE # 153	1.9E-01	ug/kg	--	--	3E-11	2E-11	--	--	--	2E-04	2E-04	3E-11	2E-11	1E-07	1E-07	0.0000003	
	PBDE # 209	2.9E+00	ug/kg	7E-04	7E-04	4E-10	4E-10	3E-13	3E-13	6E-13	7E-03	7E-03	4E-10	4E-10	6E-08	5E-08	0.0000001	
Exposure Point Total											6E-13							0.000007
RM 9 East	<b>Polybrominated Diphenyl Ethers</b>																	
	PBDE # 47	3.3E-01	ug/kg	--	--	5E-11	4E-11	--	--	--	1E-04	1E-04	5E-11	4E-11	5E-07	4E-07	0.000001	
	PBDE # 99	1.8E-01	ug/kg	--	--	3E-11	2E-11	--	--	--	1E-04	1E-04	3E-11	2E-11	3E-07	2E-07	0.000001	
Exposure Point Total											--							0.000001
RM 9.5 West	<b>Polybrominated Diphenyl Ethers</b>																	
	PBDE # 47	1.8E+00	ug/kg	--	--	3E-10	2E-10	--	--	--	1E-04	1E-04	3E-10	2E-10	3E-06	2E-06	0.000005	
	PBDE # 99	2.7E+00	ug/kg	--	--	4E-10	3E-10	--	--	--	1E-04	1E-04	4E-10	3E-10	4E-06	3E-06	0.000008	
	PBDE # 153	5.2E-01	ug/kg	--	--	8E-11	7E-11	--	--	--	2E-04	2E-04	8E-11	7E-11	4E-07	3E-07	0.000001	
	PBDE # 209	4.6E+01	ug/kg	7E-04	7E-04	7E-09	6E-09	5E-12	4E-12	9E-12	7E-03	7E-03	7E-09	6E-09	1E-06	8E-07	0.000002	
Exposure Point Total											9E-12							0.00002
RM 9.5 East	<b>Polybrominated Diphenyl Ethers</b>																	
	PBDE # 47	9.9E-01	ug/kg	--	--	1E-10	1E-10	--	--	--	1E-04	1E-04	1E-10	1E-10	1E-06	1E-06	0.000003	
	PBDE # 99	7.9E-01	ug/kg	--	--	1E-10	1E-10	--	--	--	1E-04	1E-04	1E-10	1E-10	1E-06	1E-06	0.000002	
	PBDE # 209	2.0E+00	ug/kg	7E-04	7E-04	3E-10	3E-10	2E-13	2E-13	4E-13	7E-03	7E-03	3E-10	3E-10	4E-08	4E-08	0.0000001	
Exposure Point Total											4E-13							0.000005
RM 11 West	<b>Polybrominated Diphenyl Ethers</b>																	
	PBDE # 47	2.9E+00	ug/kg	--	--	4E-10	4E-10	--	--	--	1E-04	1E-04	4E-10	4E-10	4E-06	4E-06	0.000008	
	PBDE # 99	3.7E+00	ug/kg	--	--	6E-10	5E-10	--	--	--	1E-04	1E-04	6E-10	5E-10	6E-06	5E-06	0.00001	
	PBDE # 153	6.3E-01	ug/kg	--	--	1E-10	8E-11	--	--	--	2E-04	2E-04	1E-10	8E-11	5E-07	4E-07	0.000001	
	PBDE # 209	5.7E+01	ug/kg	7E-04	7E-04	9E-09	7E-09	6E-12	5E-12	1E-11	7E-03	7E-03	9E-09	7E-09	1E-06	1E-06	0.000002	
Exposure Point Total											1E-11							0.00002
RM 11 East	<b>Polybrominated Diphenyl Ethers</b>																	
	PBDE # 47	1.5E+00	ug/kg	--	--	2E-10	2E-10	--	--	--	1E-04	1E-04	2E-10	2E-10	2E-06	2E-06	0.000004	
	PBDE # 99	1.2E+00	ug/kg	--	--	2E-10	2E-10	--	--	--	1E-04	1E-04	2E-10	2E-10	2E-06	2E-06	0.000003	
Exposure Point Total											--							0.000008

**TABLE F3-8.**  
**Calculation of Cancer Risks and Noncancer Hazards - Tribal Fisher, In-water Sediment Exposure**  
**Reasonable Maximum Exposure**

Scenario Timeframe: Current/Future  
Receptor Population: Tribal Fisher  
Population Age: Adult

Medium: Sediment  
Exposure Medium: In-water Sediment  
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC		Cancer Risk Calculations <sup>a</sup>							Noncancer Hazard Calculations <sup>a</sup>						
		Value	Units	Dermal Cancer Slope Factor (mg/kg-day) <sup>-1</sup>	Oral Cancer Slope Factor (mg/kg-day) <sup>-1</sup>	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk	Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ
RM 12 West	<b>Polybrominated Diphenyl Ethers</b>																
	PBDE # 47	3.1E-01	ug/kg	--	--	5E-11	4E-11	--	--	--	1E-04	1E-04	5E-11	4E-11	5E-07	4E-07	0.000001
	PBDE # 99	3.0E-01	ug/kg	--	--	5E-11	4E-11	--	--	--	1E-04	1E-04	5E-11	4E-11	5E-07	4E-07	0.000001
Exposure Point Total										--							0.000002
RM 12 East	<b>Polybrominated Diphenyl Ethers</b>																
	PBDE # 47	1.2E+00	ug/kg	--	--	2E-10	2E-10	--	--	--	1E-04	1E-04	2E-10	2E-10	2E-06	2E-06	0.000003
	PBDE # 99	1.1E+00	ug/kg	--	--	2E-10	1E-10	--	--	--	1E-04	1E-04	2E-10	1E-10	2E-06	1E-06	0.000003
Exposure Point Total										--							0.000006
Study Area Wide <sup>b</sup>	<b>Polybrominated Diphenyl Ethers</b>																
	PBDE # 47	2.2E+00	ug/kg	--	--	3E-10	3E-10	--	--	--	1E-04	1E-04	3E-10	3E-10	3E-06	3E-06	0.000006
	PBDE # 99	2.8E+00	ug/kg	--	--	4E-10	4E-10	--	--	--	1E-04	1E-04	4E-10	4E-10	4E-06	4E-06	0.000008
	PBDE # 153	5.3E-01	ug/kg	--	--	8E-11	7E-11	--	--	--	2E-04	2E-04	8E-11	7E-11	4E-07	3E-07	0.000001
	PBDE # 209	6.0E+01	ug/kg	7E-04	7E-04	9E-09	8E-09	6E-12	5E-12	1E-11	7E-03	7E-03	9E-09	8E-09	1E-06	1E-06	0.000002
Exposure Point Total										1E-11							0.00002

**Notes:**

a Numbers presented are rounded values. Sums calculated before rounding. Risks and hazards are calculated based on exposure parameters presented in Section 3 of Appendix F. For risks and hazards from dermal contact, a dermal absorption efficiency of 0.1 was used, which is the dermal absorption efficiency presented for semi-volatile organic compounds in Risk Assessment Guidance for Superfund. Volume I: Human Health Evaluation Manual (Part E, Supplemental Guidance for Dermal Risk Assessment) Final, July 2004. EPA/540/R/99/005.

b Study Area-wide dataset includes human health in-water sediment samples from RM 1.9 - 11.8 outside of the navigation channel and excluding Multnomah Channel.

**Abbreviations:**

-- = Not Applicable.  
CDI = Chronic Daily Intake.  
EPC = Exposure Point Concentration.  
HQ = Hazard Quotient.  
LADI = Lifetime Average Daily Intake.  
mg/kg = milligrams per kilogram.

RfD = Reference dose.  
RM = River mile.  
ug/kg = micrograms per kilogram.

**TABLE F3-9.**  
**Calculation of Cancer Risks and Noncancer Hazards - Tribal Fisher, In-water Sediment Exposure**  
**Central Tendency Exposure**

Scenario Timeframe: Current/Future  
Receptor Population: Tribal Fisher  
Population Age: Adult

Medium: Sediment  
Exposure Medium: In-water Sediment  
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC		Cancer Risk Calculations <sup>a</sup>							Noncancer Hazard Calculations <sup>a</sup>						
		Value	Units	Dermal Cancer Slope Factor (mg/kg-day) <sup>-1</sup>	Oral Cancer Slope Factor (mg/kg-day) <sup>-1</sup>	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk <sup>b</sup>	Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ <sup>b</sup>
RM 1 West	<b>Polybrominated Diphenyl Ethers</b>																
	PBDE # 47	3.3E-01	ug/kg	--	--	2E-12	4E-12	--	--	--	1E-04	1E-04	5E-12	8E-12	5E-08	8E-08	0.0000001
	PBDE # 99	3.2E-01	ug/kg	--	--	2E-12	3E-12	--	--	--	1E-04	1E-04	4E-12	8E-12	4E-08	8E-08	0.0000001
	PBDE # 209	3.8E+00	ug/kg	7E-04	7E-04	2E-11	4E-11	2E-14	3E-14	5E-14	7E-03	7E-03	5E-11	1E-10	8E-09	1E-08	0.0000002
Exposure Point Total <sup>c</sup>				5E-14							0.0000003						
RM 1 East	<b>Polybrominated Diphenyl Ethers</b>																
	PBDE # 47	7.6E-01	ug/kg	--	--	5E-12	8E-12	--	--	--	1E-04	1E-04	1E-11	2E-11	1E-07	2E-07	0.0000003
	PBDE # 99	6.3E-01	ug/kg	--	--	4E-12	7E-12	--	--	--	1E-04	1E-04	9E-12	2E-11	9E-08	2E-07	0.0000002
	PBDE # 209	3.7E+00	ug/kg	7E-04	7E-04	2E-11	4E-11	2E-14	3E-14	4E-14	7E-03	7E-03	5E-11	9E-11	7E-09	1E-08	0.0000002
Exposure Point Total				4E-14							0.0000006						
RM 1.5 West	<b>Polybrominated Diphenyl Ethers</b>																
	PBDE # 47	1.2E-01	ug/kg	--	--	7E-13	1E-12	--	--	--	1E-04	1E-04	2E-12	3E-12	2E-08	3E-08	0.0000005
Exposure Point Total				--							0.0000005						
RM 1.5 East	<b>Polybrominated Diphenyl Ethers</b>																
	PBDE # 47	1.4E+00	ug/kg	--	--	8E-12	2E-11	--	--	--	1E-04	1E-04	2E-11	4E-11	2E-07	4E-07	0.0000006
	PBDE # 99	1.4E+00	ug/kg	--	--	8E-12	2E-11	--	--	--	1E-04	1E-04	2E-11	4E-11	2E-07	4E-07	0.0000006
	PBDE # 153	1.8E-01	ug/kg	--	--	1E-12	2E-12	--	--	--	2E-04	2E-04	3E-12	5E-12	1E-08	2E-08	0.0000004
	PBDE # 209	4.5E+00	ug/kg	7E-04	7E-04	3E-11	5E-11	2E-14	3E-14	5E-14	7E-03	7E-03	6E-11	1E-10	9E-09	2E-08	0.0000003
Exposure Point Total				5E-14							0.000001						
RM 2 West	<b>Polybrominated Diphenyl Ethers</b>																
	PBDE # 47	1.1E+00	ug/kg	--	--	7E-12	1E-11	--	--	--	1E-04	1E-04	2E-11	3E-11	2E-07	3E-07	0.0000004
	PBDE # 99	1.0E+00	ug/kg	--	--	6E-12	1E-11	--	--	--	1E-04	1E-04	1E-11	3E-11	1E-07	3E-07	0.0000004
	PBDE # 153	4.9E-01	ug/kg	--	--	3E-12	5E-12	--	--	--	2E-04	2E-04	7E-12	1E-11	3E-08	6E-08	0.0000001
	PBDE # 209	5.8E+00	ug/kg	7E-04	7E-04	3E-11	6E-11	2E-14	4E-14	7E-14	7E-03	7E-03	8E-11	1E-10	1E-08	2E-08	0.0000003
Exposure Point Total				7E-14							0.000001						
RM 2 East	<b>Polybrominated Diphenyl Ethers</b>																
	PBDE # 47	1.8E+00	ug/kg	--	--	1E-11	2E-11	--	--	--	1E-04	1E-04	2E-11	4E-11	2E-07	4E-07	0.0000007
	PBDE # 99	2.0E+00	ug/kg	--	--	1E-11	2E-11	--	--	--	1E-04	1E-04	3E-11	5E-11	3E-07	5E-07	0.0000008
	PBDE # 153	2.8E-01	ug/kg	--	--	2E-12	3E-12	--	--	--	2E-04	2E-04	4E-12	7E-12	2E-08	4E-08	0.0000001
	PBDE # 209	6.9E+00	ug/kg	7E-04	7E-04	4E-11	8E-11	3E-14	5E-14	8E-14	7E-03	7E-03	1E-10	2E-10	1E-08	3E-08	0.0000004
Exposure Point Total				8E-14							0.000002						
RM 2.5 East	<b>Polybrominated Diphenyl Ethers</b>																
	PBDE # 47	2.0E-01	ug/kg	--	--	1E-12	2E-12	--	--	--	1E-04	1E-04	3E-12	5E-12	3E-08	5E-08	0.0000001
	PBDE # 99	2.4E-01	ug/kg	--	--	1E-12	3E-12	--	--	--	1E-04	1E-04	3E-12	6E-12	3E-08	6E-08	0.0000001
Exposure Point Total				--							0.0000002						

**TABLE F3-9.**  
**Calculation of Cancer Risks and Noncancer Hazards - Tribal Fisher, In-water Sediment Exposure**  
**Central Tendency Exposure**

Scenario Timeframe: Current/Future  
Receptor Population: Tribal Fisher  
Population Age: Adult

Medium: Sediment  
Exposure Medium: In-water Sediment  
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC		Cancer Risk Calculations <sup>a</sup>							Noncancer Hazard Calculations <sup>a</sup>							
		Value	Units	Dermal Cancer Slope Factor (mg/kg-day) <sup>-1</sup>	Oral Cancer Slope Factor (mg/kg-day) <sup>-1</sup>	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk <sup>b</sup>	Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ <sup>b</sup>	
RM 2.5 MC	<b>Polybrominated Diphenyl Ethers</b> PBDE # 47	1.4E-01	ug/kg	--	--	8E-13	2E-12	--	--	--	1E-04	1E-04	2E-12	4E-12	2E-08	4E-08	0.0000001	
Exposure Point Total											--							0.0000001
RM 3 West	<b>Polybrominated Diphenyl Ethers</b> PBDE # 47	1.4E+00	ug/kg	--	--	8E-12	2E-11	--	--	--	1E-04	1E-04	2E-11	4E-11	2E-07	4E-07	0.0000006	
	PBDE # 99	1.3E+00	ug/kg	--	--	8E-12	1E-11	--	--	--	1E-04	1E-04	2E-11	3E-11	2E-07	3E-07	0.0000005	
	PBDE # 153	2.9E-01	ug/kg	--	--	2E-12	3E-12	--	--	--	2E-04	2E-04	4E-12	7E-12	2E-08	4E-08	0.0000001	
	PBDE # 209	5.3E+00	ug/kg	7E-04	7E-04	3E-11	6E-11	2E-14	4E-14	6E-14	7E-03	7E-03	7E-11	1E-10	1E-08	2E-08	0.0000003	
Exposure Point Total											6E-14							0.0000001
RM 3 East	<b>Polybrominated Diphenyl Ethers</b> PBDE # 47	1.3E+00	ug/kg	--	--	8E-12	1E-11	--	--	--	1E-04	1E-04	2E-11	3E-11	2E-07	3E-07	0.0000005	
	PBDE # 99	1.4E+00	ug/kg	--	--	8E-12	1E-11	--	--	--	1E-04	1E-04	2E-11	3E-11	2E-07	3E-07	0.0000005	
	PBDE # 153	2.8E-01	ug/kg	--	--	2E-12	3E-12	--	--	--	2E-04	2E-04	4E-12	7E-12	2E-08	4E-08	0.0000001	
	PBDE # 209	6.4E+00	ug/kg	7E-04	7E-04	4E-11	7E-11	3E-14	5E-14	8E-14	7E-03	7E-03	9E-11	2E-10	1E-08	2E-08	0.0000004	
Exposure Point Total											8E-14							0.0000001
RM 3.5 West	<b>Polybrominated Diphenyl Ethers</b> PBDE # 47	1.4E-01	ug/kg	--	--	8E-13	2E-12	--	--	--	1E-04	1E-04	2E-12	4E-12	2E-08	4E-08	0.0000001	
	PBDE # 99	1.2E-01	ug/kg	--	--	7E-13	1E-12	--	--	--	1E-04	1E-04	2E-12	3E-12	2E-08	3E-08	0.0000005	
Exposure Point Total											--							0.0000001
RM 3.5 East	<b>Polybrominated Diphenyl Ethers</b> PBDE # 47	4.0E+00	ug/kg	--	--	2E-11	4E-11	--	--	--	1E-04	1E-04	6E-11	1E-10	6E-07	1E-06	0.0000002	
	PBDE # 99	5.8E+00	ug/kg	--	--	4E-11	6E-11	--	--	--	1E-04	1E-04	8E-11	1E-10	8E-07	1E-06	0.0000002	
	PBDE # 153	1.1E+00	ug/kg	--	--	6E-12	1E-11	--	--	--	2E-04	2E-04	1E-11	3E-11	7E-08	1E-07	0.0000002	
	PBDE # 209	3.2E+01	ug/kg	7E-04	7E-04	2E-10	3E-10	1E-13	2E-13	4E-13	7E-03	7E-03	4E-10	8E-10	6E-08	1E-07	0.0000002	
Exposure Point Total											4E-13							0.0000004
RM 4 West	<b>Polybrominated Diphenyl Ethers</b> PBDE # 47	3.5E-01	ug/kg	--	--	2E-12	4E-12	--	--	--	1E-04	1E-04	5E-12	9E-12	5E-08	9E-08	0.0000001	
	PBDE # 99	2.3E-01	ug/kg	--	--	1E-12	3E-12	--	--	--	1E-04	1E-04	3E-12	6E-12	3E-08	6E-08	0.0000001	
Exposure Point Total											--							0.0000002
RM 5 West	<b>Polybrominated Diphenyl Ethers</b> PBDE # 47	3.7E-01	ug/kg	--	--	2E-12	4E-12	--	--	--	1E-04	1E-04	5E-12	9E-12	5E-08	9E-08	0.0000001	
	PBDE # 99	3.7E-01	ug/kg	--	--	2E-12	4E-12	--	--	--	1E-04	1E-04	5E-12	9E-12	5E-08	9E-08	0.0000001	
Exposure Point Total											--							0.0000003

**TABLE F3-9.**  
**Calculation of Cancer Risks and Noncancer Hazards - Tribal Fisher, In-water Sediment Exposure**  
**Central Tendency Exposure**

Scenario Timeframe: Current/Future  
Receptor Population: Tribal Fisher  
Population Age: Adult

Medium: Sediment  
Exposure Medium: In-water Sediment  
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC		Cancer Risk Calculations <sup>a</sup>							Noncancer Hazard Calculations <sup>a</sup>						
		Value	Units	Dermal Cancer Slope Factor (mg/kg-day) <sup>-1</sup>	Oral Cancer Slope Factor (mg/kg-day) <sup>-1</sup>	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk <sup>b</sup>	Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ <sup>b</sup>
RM 5.5 West	<b>Polybrominated Diphenyl Ethers</b>																
	PBDE # 47	1.4E+00	ug/kg	--	--	8E-12	2E-11	--	--	--	1E-04	1E-04	2E-11	4E-11	2E-07	4E-07	0.0000006
	PBDE # 99	1.2E+00	ug/kg	--	--	7E-12	1E-11	--	--	--	1E-04	1E-04	2E-11	3E-11	2E-07	3E-07	0.0000005
	PBDE # 153	2.3E-01	ug/kg	--	--	1E-12	3E-12	--	--	--	2E-04	2E-04	3E-12	6E-12	2E-08	3E-08	0.0000005
	PBDE # 209	7.4E+00	ug/kg	7E-04	7E-04	4E-11	8E-11	3E-14	6E-14	9E-14	7E-03	7E-03	1E-10	2E-10	1E-08	3E-08	0.0000004
Exposure Point Total										9E-14							0.000001
RM 5.5 East	<b>Polybrominated Diphenyl Ethers</b>																
	PBDE # 47	1.0E+00	ug/kg	--	--	6E-12	1E-11	--	--	--	1E-04	1E-04	1E-11	3E-11	1E-07	3E-07	0.0000004
	PBDE # 99	1.2E+00	ug/kg	--	--	7E-12	1E-11	--	--	--	1E-04	1E-04	2E-11	3E-11	2E-07	3E-07	0.0000005
	PBDE # 153	4.1E-01	ug/kg	--	--	2E-12	4E-12	--	--	--	2E-04	2E-04	6E-12	1E-11	3E-08	5E-08	0.0000001
	PBDE # 209	4.2E+00	ug/kg	7E-04	7E-04	3E-11	5E-11	2E-14	3E-14	5E-14	7E-03	7E-03	6E-11	1E-10	8E-09	2E-08	0.0000002
Exposure Point Total										5E-14							0.000001
RM 6 West	<b>Polybrominated Diphenyl Ethers</b>																
	PBDE # 47	3.7E-01	ug/kg	--	--	2E-12	4E-12	--	--	--	1E-04	1E-04	5E-12	9E-12	5E-08	9E-08	0.0000001
	PBDE # 99	3.7E-01	ug/kg	--	--	2E-12	4E-12	--	--	--	1E-04	1E-04	5E-12	9E-12	5E-08	9E-08	0.0000001
	PBDE # 209	4.8E+00	ug/kg	7E-04	7E-04	3E-11	5E-11	2E-14	4E-14	6E-14	7E-03	7E-03	7E-11	1E-10	1E-08	2E-08	0.0000003
Exposure Point Total										6E-14							0.0000003
RM 6 East	<b>Polybrominated Diphenyl Ethers</b>																
	PBDE # 47	2.7E-01	ug/kg	--	--	2E-12	3E-12	--	--	--	1E-04	1E-04	4E-12	7E-12	4E-08	7E-08	0.0000001
	PBDE # 99	1.7E-01	ug/kg	--	--	1E-12	2E-12	--	--	--	1E-04	1E-04	2E-12	4E-12	2E-08	4E-08	0.0000001
Exposure Point Total										--							0.0000002
RM 6.5 West	<b>Polybrominated Diphenyl Ethers</b>																
	PBDE # 47	1.1E-01	ug/kg	--	--	7E-13	1E-12	--	--	--	1E-04	1E-04	2E-12	3E-12	2E-08	3E-08	0.0000004
	PBDE # 99	1.3E-01	ug/kg	--	--	8E-13	1E-12	--	--	--	1E-04	1E-04	2E-12	3E-12	2E-08	3E-08	0.0000001
Exposure Point Total										--							0.0000001
RM 6.5 East	<b>Polybrominated Diphenyl Ethers</b>																
	PBDE # 47	1.2E+00	ug/kg	--	--	7E-12	1E-11	--	--	--	1E-04	1E-04	2E-11	3E-11	2E-07	3E-07	0.0000005
	PBDE # 99	1.3E+00	ug/kg	--	--	8E-12	1E-11	--	--	--	1E-04	1E-04	2E-11	3E-11	2E-07	3E-07	0.0000005
	PBDE # 153	4.5E-01	ug/kg	--	--	3E-12	5E-12	--	--	--	2E-04	2E-04	6E-12	1E-11	3E-08	6E-08	0.0000001
	PBDE # 209	1.7E+01	ug/kg	7E-04	7E-04	1E-10	2E-10	7E-14	1E-13	2E-13	7E-03	7E-03	2E-10	4E-10	3E-08	6E-08	0.0000001
Exposure Point Total										2E-13							0.000001
RM 7 West	<b>Polybrominated Diphenyl Ethers</b>																
	PBDE # 47	9.5E-01	ug/kg	--	--	6E-12	1E-11	--	--	--	1E-04	1E-04	1E-11	2E-11	1E-07	2E-07	0.0000004
	PBDE # 99	9.9E-01	ug/kg	--	--	6E-12	1E-11	--	--	--	1E-04	1E-04	1E-11	3E-11	1E-07	3E-07	0.0000004
	PBDE # 153	2.9E-01	ug/kg	--	--	2E-12	3E-12	--	--	--	2E-04	2E-04	4E-12	7E-12	2E-08	4E-08	0.0000001
	PBDE # 209	6.1E+00	ug/kg	7E-04	7E-04	4E-11	7E-11	3E-14	5E-14	7E-14	7E-03	7E-03	9E-11	2E-10	1E-08	2E-08	0.0000003
Exposure Point Total										7E-14							0.0000009



**TABLE F3-9.**  
**Calculation of Cancer Risks and Noncancer Hazards - Tribal Fisher, In-water Sediment Exposure**  
**Central Tendency Exposure**

Scenario Timeframe: Current/Future  
Receptor Population: Tribal Fisher  
Population Age: Adult

Medium: Sediment  
Exposure Medium: In-water Sediment  
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC		Cancer Risk Calculations <sup>a</sup>							Noncancer Hazard Calculations <sup>a</sup>						
		Value	Units	Dermal Cancer Slope Factor (mg/kg-day) <sup>-1</sup>	Oral Cancer Slope Factor (mg/kg-day) <sup>-1</sup>	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk <sup>b</sup>	Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ <sup>b</sup>
RM 7 East	<b>Polybrominated Diphenyl Ethers</b>																
	PBDE # 47	1.2E+00	ug/kg	--	--	7E-12	1E-11	--	--	--	1E-04	1E-04	2E-11	3E-11	2E-07	3E-07	0.0000005
	PBDE # 99	1.0E+00	ug/kg	--	--	6E-12	1E-11	--	--	--	1E-04	1E-04	1E-11	3E-11	1E-07	3E-07	0.0000004
	PBDE # 153	3.6E-01	ug/kg	--	--	2E-12	4E-12	--	--	--	2E-04	2E-04	5E-12	9E-12	3E-08	5E-08	0.0000001
	PBDE # 209	4.3E+00	ug/kg	7E-04	7E-04	3E-11	5E-11	2E-14	3E-14	5E-14	7E-03	7E-03	6E-11	1E-10	9E-09	2E-08	0.0000000
Exposure Point Total										5E-14							0.0000010
RM 7.5 West	<b>Polybrominated Diphenyl Ethers</b>																
	PBDE # 47	9.9E-01	ug/kg	--	--	6E-12	1E-11	--	--	--	1E-04	1E-04	1E-11	3E-11	1E-07	3E-07	0.0000004
	PBDE # 99	8.5E-01	ug/kg	--	--	5E-12	9E-12	--	--	--	1E-04	1E-04	1E-11	2E-11	1E-07	2E-07	0.0000003
	PBDE # 153	4.3E-01	ug/kg	--	--	3E-12	5E-12	--	--	--	2E-04	2E-04	6E-12	1E-11	3E-08	5E-08	0.0000001
	PBDE # 209	5.3E+00	ug/kg	7E-04	7E-04	3E-11	6E-11	2E-14	4E-14	6E-14	7E-03	7E-03	7E-11	1E-10	1E-08	2E-08	0.0000003
Exposure Point Total										6E-14							0.0000008
RM 7.5 East	<b>Polybrominated Diphenyl Ethers</b>																
	PBDE # 47	1.9E+00	ug/kg	--	--	1E-11	2E-11	--	--	--	1E-04	1E-04	3E-11	5E-11	3E-07	5E-07	0.0000008
	PBDE # 99	2.2E+00	ug/kg	--	--	1E-11	2E-11	--	--	--	1E-04	1E-04	3E-11	5E-11	3E-07	5E-07	0.0000009
	PBDE # 153	3.4E-01	ug/kg	--	--	2E-12	4E-12	--	--	--	2E-04	2E-04	5E-12	9E-12	2E-08	4E-08	0.0000001
	PBDE # 209	8.9E+00	ug/kg	7E-04	7E-04	5E-11	1E-10	4E-14	7E-14	1E-13	7E-03	7E-03	1E-10	2E-10	2E-08	3E-08	0.0000005
Exposure Point Total										1E-13							0.0000002
RM 8 West	<b>Polybrominated Diphenyl Ethers</b>																
	PBDE # 47	8.3E-01	ug/kg	--	--	5E-12	9E-12	--	--	--	1E-04	1E-04	1E-11	2E-11	1E-07	2E-07	0.0000003
	PBDE # 99	1.2E+00	ug/kg	--	--	7E-12	1E-11	--	--	--	1E-04	1E-04	2E-11	3E-11	2E-07	3E-07	0.0000005
	PBDE # 153	8.4E-01	ug/kg	--	--	5E-12	9E-12	--	--	--	2E-04	2E-04	1E-11	2E-11	6E-08	1E-07	0.0000002
	PBDE # 209	4.4E+02	ug/kg	7E-04	7E-04	3E-09	5E-09	2E-12	3E-12	5E-12	7E-03	7E-03	6E-09	1E-08	9E-07	2E-06	0.0000002
Exposure Point Total										5E-12							0.0000003
RM 8 East	<b>Polybrominated Diphenyl Ethers</b>																
	PBDE # 47	1.8E+00	ug/kg	--	--	1E-11	2E-11	--	--	--	1E-04	1E-04	3E-11	5E-11	3E-07	5E-07	0.0000007
	PBDE # 99	1.9E+00	ug/kg	--	--	1E-11	2E-11	--	--	--	1E-04	1E-04	3E-11	5E-11	3E-07	5E-07	0.0000008
	PBDE # 153	4.2E-01	ug/kg	--	--	3E-12	5E-12	--	--	--	2E-04	2E-04	6E-12	1E-11	3E-08	5E-08	0.0000001
	PBDE # 209	1.5E+01	ug/kg	7E-04	7E-04	9E-11	2E-10	6E-14	1E-13	2E-13	7E-03	7E-03	2E-10	4E-10	3E-08	5E-08	0.0000001
Exposure Point Total										2E-13							0.0000002
RM 8 SIL	<b>Polybrominated Diphenyl Ethers</b>																
	PBDE # 47	1.6E+00	ug/kg	--	--	1E-11	2E-11	--	--	--	1E-04	1E-04	2E-11	4E-11	2E-07	4E-07	0.0000006
	PBDE # 99	2.3E+00	ug/kg	--	--	1E-11	2E-11	--	--	--	1E-04	1E-04	3E-11	6E-11	3E-07	6E-07	0.0000009
	PBDE # 153	7.1E-01	ug/kg	--	--	4E-12	8E-12	--	--	--	2E-04	2E-04	1E-11	2E-11	5E-08	9E-08	0.0000001
	PBDE # 209	1.9E+01	ug/kg	7E-04	7E-04	1E-10	2E-10	8E-14	1E-13	2E-13	7E-03	7E-03	3E-10	5E-10	4E-08	7E-08	0.0000001
Exposure Point Total										2E-13							0.0000018

**TABLE F3-9.**  
**Calculation of Cancer Risks and Noncancer Hazards - Tribal Fisher, In-water Sediment Exposure**  
**Central Tendency Exposure**

Scenario Timeframe: Current/Future  
Receptor Population: Tribal Fisher  
Population Age: Adult

Medium: Sediment  
Exposure Medium: In-water Sediment  
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC		Cancer Risk Calculations <sup>a</sup>							Noncancer Hazard Calculations <sup>a</sup>						
		Value	Units	Dermal Cancer Slope Factor (mg/kg-day) <sup>-1</sup>	Oral Cancer Slope Factor (mg/kg-day) <sup>-1</sup>	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk <sup>b</sup>	Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ <sup>b</sup>
RM 8.5 West	<b>Polybrominated Diphenyl Ethers</b>																
	PBDE # 47	2.0E+00	ug/kg	--	--	1E-11	2E-11	--	--	--	1E-04	1E-04	3E-11	5E-11	3E-07	5E-07	0.0000008
	PBDE # 99	2.2E+00	ug/kg	--	--	1E-11	2E-11	--	--	--	1E-04	1E-04	3E-11	6E-11	3E-07	6E-07	0.0000009
	PBDE # 153	4.1E-01	ug/kg	--	--	2E-12	4E-12	--	--	--	2E-04	2E-04	6E-12	1E-11	3E-08	5E-08	0.0000001
	PBDE # 209	1.1E+01	ug/kg	7E-04	7E-04	7E-11	1E-10	5E-14	8E-14	1E-13	7E-03	7E-03	2E-10	3E-10	2E-08	4E-08	0.0000001
Exposure Point Total										1E-13							0.0000002
RM 8.5 East	<b>Polybrominated Diphenyl Ethers</b>																
	PBDE # 47	4.1E+00	ug/kg	--	--	2E-11	4E-11	--	--	--	1E-04	1E-04	6E-11	1E-10	6E-07	1E-06	0.0000002
	PBDE # 99	5.6E+00	ug/kg	--	--	3E-11	6E-11	--	--	--	1E-04	1E-04	8E-11	1E-10	8E-07	1E-06	0.0000002
	PBDE # 153	1.1E+00	ug/kg	--	--	7E-12	1E-11	--	--	--	2E-04	2E-04	2E-11	3E-11	8E-08	1E-07	0.0000002
	PBDE # 209	9.0E+01	ug/kg	7E-04	7E-04	5E-10	1E-09	4E-13	7E-13	1E-12	7E-03	7E-03	1E-09	2E-09	2E-07	3E-07	0.0000005
Exposure Point Total										1E-12							0.0000005
RM 9 West	<b>Polybrominated Diphenyl Ethers</b>																
	PBDE # 47	1.3E+00	ug/kg	--	--	8E-12	1E-11	--	--	--	1E-04	1E-04	2E-11	3E-11	2E-07	3E-07	0.0000005
	PBDE # 99	1.2E+00	ug/kg	--	--	7E-12	1E-11	--	--	--	1E-04	1E-04	2E-11	3E-11	2E-07	3E-07	0.0000005
	PBDE # 153	1.9E-01	ug/kg	--	--	1E-12	2E-12	--	--	--	2E-04	2E-04	3E-12	5E-12	1E-08	2E-08	0.00000004
	PBDE # 209	2.9E+00	ug/kg	7E-04	7E-04	2E-11	3E-11	1E-14	2E-14	3E-14	7E-03	7E-03	4E-11	7E-11	6E-09	1E-08	0.00000002
Exposure Point Total										3E-14							0.0000001
RM 9 East	<b>Polybrominated Diphenyl Ethers</b>																
	PBDE # 47	3.3E-01	ug/kg	--	--	2E-12	4E-12	--	--	--	1E-04	1E-04	5E-12	8E-12	5E-08	8E-08	0.0000001
	PBDE # 99	1.8E-01	ug/kg	--	--	1E-12	2E-12	--	--	--	1E-04	1E-04	3E-12	5E-12	3E-08	5E-08	0.0000001
Exposure Point Total										--							0.0000002
RM 9.5 West	<b>Polybrominated Diphenyl Ethers</b>																
	PBDE # 47	1.8E+00	ug/kg	--	--	1E-11	2E-11	--	--	--	1E-04	1E-04	3E-11	5E-11	3E-07	5E-07	0.0000007
	PBDE # 99	2.7E+00	ug/kg	--	--	2E-11	3E-11	--	--	--	1E-04	1E-04	4E-11	7E-11	4E-07	7E-07	0.0000001
	PBDE # 153	5.2E-01	ug/kg	--	--	3E-12	6E-12	--	--	--	2E-04	2E-04	7E-12	1E-11	4E-08	7E-08	0.0000001
	PBDE # 209	4.6E+01	ug/kg	7E-04	7E-04	3E-10	5E-10	2E-13	4E-13	5E-13	7E-03	7E-03	6E-10	1E-09	9E-08	2E-07	0.0000003
Exposure Point Total										5E-13							0.0000002
RM 9.5 East	<b>Polybrominated Diphenyl Ethers</b>																
	PBDE # 47	9.9E-01	ug/kg	--	--	6E-12	1E-11	--	--	--	1E-04	1E-04	1E-11	3E-11	1E-07	3E-07	0.0000004
	PBDE # 99	7.9E-01	ug/kg	--	--	5E-12	9E-12	--	--	--	1E-04	1E-04	1E-11	2E-11	1E-07	2E-07	0.0000003
	PBDE # 209	2.0E+00	ug/kg	7E-04	7E-04	1E-11	2E-11	8E-15	2E-14	2E-14	7E-03	7E-03	3E-11	5E-11	4E-09	7E-09	0.0000001
Exposure Point Total										2E-14							0.0000007



**TABLE F3-9.**  
**Calculation of Cancer Risks and Noncancer Hazards - Tribal Fisher, In-water Sediment Exposure**  
**Central Tendency Exposure**

Scenario Timeframe: Current/Future  
Receptor Population: Tribal Fisher  
Population Age: Adult

Medium: Sediment  
Exposure Medium: In-water Sediment  
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC		Cancer Risk Calculations <sup>a</sup>						Noncancer Hazard Calculations <sup>a</sup>							
		Value	Units	Dermal Cancer Slope Factor (mg/kg-day) <sup>-1</sup>	Oral Cancer Slope Factor (mg/kg-day) <sup>-1</sup>	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk <sup>b</sup>	Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ <sup>b</sup>
RM 11 West	<b>Polybrominated Diphenyl Ethers</b>																
	PBDE # 47	2.9E+00	ug/kg	--	--	2E-11	3E-11	--	--	--	1E-04	1E-04	4E-11	7E-11	4E-07	7E-07	0.000001
	PBDE # 99	3.7E+00	ug/kg	--	--	2E-11	4E-11	--	--	--	1E-04	1E-04	5E-11	9E-11	5E-07	9E-07	0.000001
	PBDE # 153	6.3E-01	ug/kg	--	--	4E-12	7E-12	--	--	--	2E-04	2E-04	9E-12	2E-11	4E-08	8E-08	0.0000001
	PBDE # 209	5.7E+01	ug/kg	7E-04	7E-04	3E-10	6E-10	2E-13	4E-13	7E-13	7E-03	7E-03	8E-10	1E-09	1E-07	2E-07	0.0000003
Exposure Point Total										7E-13							0.000003
RM 11 East	<b>Polybrominated Diphenyl Ethers</b>																
	PBDE # 47	9.7E-01	ug/kg	--	--	6E-12	1E-11	--	--	--	1E-04	1E-04	1E-11	2E-11	1E-07	2E-07	0.0000004
	PBDE # 99	7.8E-01	ug/kg	--	--	5E-12	8E-12	--	--	--	1E-04	1E-04	1E-11	2E-11	1E-07	2E-07	0.0000003
Exposure Point Total										--							0.0000007
RM 12 West	<b>Polybrominated Diphenyl Ethers</b>																
	PBDE # 47	3.1E-01	ug/kg	--	--	2E-12	3E-12	--	--	--	1E-04	1E-04	4E-12	8E-12	4E-08	8E-08	0.0000001
	PBDE # 99	3.0E-01	ug/kg	--	--	2E-12	3E-12	--	--	--	1E-04	1E-04	4E-12	8E-12	4E-08	8E-08	0.0000001
Exposure Point Total										--							0.0000002
RM 12 East	<b>Polybrominated Diphenyl Ethers</b>																
	PBDE # 47	1.2E+00	ug/kg	--	--	7E-12	1E-11	--	--	--	1E-04	1E-04	2E-11	3E-11	2E-07	3E-07	0.0000005
	PBDE # 99	1.1E+00	ug/kg	--	--	7E-12	1E-11	--	--	--	1E-04	1E-04	2E-11	3E-11	2E-07	3E-07	0.0000004
Exposure Point Total										--							0.0000009
Study Area Wide <sup>d</sup>	<b>Polybrominated Diphenyl Ethers</b>																
	PBDE # 47	1.4E+00	ug/kg	--	--	9E-12	2E-11	--	--	--	1E-04	1E-04	2E-11	4E-11	2E-07	4E-07	0.0000006
	PBDE # 99	1.7E+00	ug/kg	--	--	1E-11	2E-11	--	--	--	1E-04	1E-04	2E-11	4E-11	2E-07	4E-07	0.0000007
	PBDE # 153	5.1E-01	ug/kg	--	--	3E-12	6E-12	--	--	--	2E-04	2E-04	7E-12	1E-11	4E-08	6E-08	0.0000001
	PBDE # 209	2.2E+01	ug/kg	7E-04	7E-04	1E-10	2E-10	9E-14	2E-13	3E-13	7E-03	7E-03	3E-10	6E-10	4E-08	8E-08	0.0000001
Exposure Point Total										3E-13							0.000001

**Notes:**

- a Numbers presented are rounded values. Sums calculated before rounding. Risks and hazards are calculated based on exposure parameters presented in Section 3 of Appendix F. For risks and hazards from dermal contact, a dermal absorption efficiency of 0.1 was used, which is the dermal absorption efficiency presented for semi-volatile organic compounds in Risk Assessment Guidance for Superfund. Volume I: Human Health Evaluation Manual (Part E, Supplemental Guidance for Dermal Risk Assessment) Final, July 2004. EPA/540/R/99/005.
- b Study Area-wide dataset includes human health in-water sediment samples from RM 1.9 - 11.8 outside of the navigation channel and excluding Multnomah Channel.

**Abbreviations:**

- = Not Applicable.
- CDI = Chronic Daily Intake.
- EPC = Exposure Point Concentration.
- HQ = Hazard Quotient.
- LADI = Lifetime Average Daily Intake.
- mg/kg = milligrams per kilogram.
- RfD = Reference dose.
- RM = River mile.
- ug/kg = micrograms per kilogram.

**TABLE F3-10.**  
**Calculation of Cancer Risks and Noncancer Hazards - High-Frequency Fisher, In-water Sediment Exposure**  
**Reasonable Maximum Exposure**

Scenario Timeframe: Current/Future Medium: Sediment  
Receptor Population: High-frequency Fisher Exposure Medium: In-water Sediment  
Population Age: Adult Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC		Cancer Risk Calculations <sup>a</sup>							Noncancer Hazard Calculations <sup>a</sup>						
		Value	Units	Dermal Cancer Slope Factor (mg/kg-day) <sup>-1</sup>	Oral Cancer Slope Factor (mg/kg-day) <sup>-1</sup>	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk	Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ
RM 1 West	<b>Polybrominated Diphenyl Ethers</b>																
	PBDE # 47	3.6E-01	ug/kg	--	--	1E-11	1E-11	--	--	--	1E-04	1E-04	3E-11	3E-11	3E-07	3E-07	0.000006
	PBDE # 99	3.7E-01	ug/kg	--	--	1E-11	1E-11	--	--	--	1E-04	1E-04	3E-11	3E-11	3E-07	3E-07	0.000006
	PBDE # 209	4.0E+00	ug/kg	7E-04	7E-04	2E-10	1E-10	1E-13	9E-14	2E-13	7E-03	7E-03	4E-10	3E-10	5E-08	4E-08	0.000001
Exposure Point Total										2E-13							0.000001
RM 1 East	<b>Polybrominated Diphenyl Ethers</b>																
	PBDE # 47	7.6E-01	ug/kg	--	--	3E-11	2E-11	--	--	--	1E-04	1E-04	7E-11	6E-11	7E-07	6E-07	0.000001
	PBDE # 99	6.3E-01	ug/kg	--	--	2E-11	2E-11	--	--	--	1E-04	1E-04	6E-11	5E-11	6E-07	5E-07	0.000001
	PBDE # 209	3.7E+00	ug/kg	7E-04	7E-04	1E-10	1E-10	1E-13	8E-14	2E-13	7E-03	7E-03	3E-10	3E-10	5E-08	4E-08	0.000001
Exposure Point Total										2E-13							0.000002
RM 1.5 West	<b>Polybrominated Diphenyl Ethers</b>																
	PBDE # 47	1.2E-01	ug/kg	--	--	5E-12	4E-12	--	--	--	1E-04	1E-04	1E-11	9E-12	1E-07	9E-08	0.000002
Exposure Point Total										--							0.000002
RM 1.5 East	<b>Polybrominated Diphenyl Ethers</b>																
	PBDE # 47	1.4E+00	ug/kg	--	--	5E-11	5E-11	--	--	--	1E-04	1E-04	1E-10	1E-10	1E-06	1E-06	0.000002
	PBDE # 99	1.4E+00	ug/kg	--	--	5E-11	5E-11	--	--	--	1E-04	1E-04	1E-10	1E-10	1E-06	1E-06	0.000002
	PBDE # 153	1.8E-01	ug/kg	--	--	7E-12	6E-12	--	--	--	2E-04	2E-04	2E-11	1E-11	8E-08	7E-08	0.000002
	PBDE # 209	4.5E+00	ug/kg	7E-04	7E-04	2E-10	1E-10	1E-13	1E-13	2E-13	7E-03	7E-03	4E-10	3E-10	6E-08	5E-08	0.000001
Exposure Point Total										2E-13							0.000005
RM 2 West	<b>Polybrominated Diphenyl Ethers</b>																
	PBDE # 47	1.8E+00	ug/kg	--	--	7E-11	6E-11	--	--	--	1E-04	1E-04	2E-10	1E-10	2E-06	1E-06	0.000003
	PBDE # 99	1.7E+00	ug/kg	--	--	7E-11	6E-11	--	--	--	1E-04	1E-04	2E-10	1E-10	2E-06	1E-06	0.000003
	PBDE # 153	4.2E-01	ug/kg	--	--	2E-11	1E-11	--	--	--	2E-04	2E-04	4E-11	3E-11	2E-07	2E-07	0.000004
	PBDE # 209	6.0E+00	ug/kg	7E-04	7E-04	2E-10	2E-10	2E-13	1E-13	3E-13	7E-03	7E-03	5E-10	5E-10	8E-08	7E-08	0.000001
Exposure Point Total										3E-13							0.000006
RM 2 East	<b>Polybrominated Diphenyl Ethers</b>																
	PBDE # 47	1.8E+00	ug/kg	--	--	7E-11	6E-11	--	--	--	1E-04	1E-04	2E-10	1E-10	2E-06	1E-06	0.000003
	PBDE # 99	2.1E+00	ug/kg	--	--	8E-11	7E-11	--	--	--	1E-04	1E-04	2E-10	2E-10	2E-06	2E-06	0.000004
	PBDE # 153	2.9E-01	ug/kg	--	--	1E-11	9E-12	--	--	--	2E-04	2E-04	3E-11	2E-11	1E-07	1E-07	0.000002
	PBDE # 209	8.4E+00	ug/kg	7E-04	7E-04	3E-10	3E-10	2E-13	2E-13	4E-13	7E-03	7E-03	8E-10	6E-10	1E-07	9E-08	0.000002
Exposure Point Total										4E-13							0.000007
RM 2.5 East	<b>Polybrominated Diphenyl Ethers</b>																
	PBDE # 47	2.0E-01	ug/kg	--	--	8E-12	7E-12	--	--	--	1E-04	1E-04	2E-11	2E-11	2E-07	2E-07	0.000003
	PBDE # 99	2.4E-01	ug/kg	--	--	9E-12	8E-12	--	--	--	1E-04	1E-04	2E-11	2E-11	2E-07	2E-07	0.000004
Exposure Point Total										--							0.000007

**TABLE F3-10.**  
**Calculation of Cancer Risks and Noncancer Hazards - High-Frequency Fisher, In-water Sediment Exposure**  
**Reasonable Maximum Exposure**

Scenario Timeframe: Current/Future Medium: Sediment  
Receptor Population: High-frequency Fisher Exposure Medium: In-water Sediment  
Population Age: Adult Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC		Cancer Risk Calculations <sup>a</sup>						Noncancer Hazard Calculations <sup>a</sup>							
		Value	Units	Dermal Cancer Slope Factor (mg/kg-day) <sup>-1</sup>	Oral Cancer Slope Factor (mg/kg-day) <sup>-1</sup>	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk	Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ
RM 2.5 MC	<b>Polybrominated Diphenyl Ethers</b> PBDE # 47	1.4E-01	ug/kg	--	--	5E-12	5E-12	--	--	--	1E-04	1E-04	1E-11	1E-11	1E-07	1E-07	0.0000002
Exposure Point Total				--						0.0000002							
RM 3 West	<b>Polybrominated Diphenyl Ethers</b> PBDE # 47 PBDE # 99 PBDE # 153 PBDE # 209	1.4E+00 1.3E+00 2.9E-01 5.3E+00	ug/kg ug/kg ug/kg ug/kg	-- -- -- 7E-04	-- -- -- 7E-04	5E-11 5E-11 1E-11 2E-10	5E-11 4E-11 9E-12 2E-10	-- -- -- 1E-13	-- -- -- 1E-13	-- -- -- 3E-13	1E-04 1E-04 2E-04 7E-03	1E-04 1E-04 2E-04 7E-03	1E-10 1E-10 3E-11 5E-10	1E-10 1E-10 2E-11 4E-10	1E-06 1E-06 1E-07 7E-08	1E-06 1E-06 1E-07 6E-08	0.000002 0.000002 0.0000002 0.0000001
Exposure Point Total				3E-13						0.000005							
RM 3 East	<b>Polybrominated Diphenyl Ethers</b> PBDE # 47 PBDE # 99 PBDE # 153 PBDE # 209	1.6E+00 1.6E+00 3.3E-01 6.9E+00	ug/kg ug/kg ug/kg ug/kg	-- -- -- 7E-04	-- -- -- 7E-04	6E-11 6E-11 1E-11 3E-10	5E-11 5E-11 1E-11 2E-10	-- -- -- 2E-13	-- -- -- 2E-13	-- -- -- 3E-13	1E-04 1E-04 2E-04 7E-03	1E-04 1E-04 2E-04 7E-03	1E-10 1E-10 3E-11 6E-10	1E-10 1E-10 3E-11 5E-10	1E-06 1E-06 1E-07 9E-08	1E-06 1E-06 1E-07 8E-08	0.000003 0.000003 0.0000003 0.0000002
Exposure Point Total				3E-13						0.000006							
RM 3.5 West	<b>Polybrominated Diphenyl Ethers</b> PBDE # 47 PBDE # 99	1.4E-01 1.2E-01	ug/kg ug/kg	-- --	-- --	5E-12 5E-12	5E-12 4E-12	-- --	-- --	-- --	1E-04 1E-04	1E-04 1E-04	1E-11 1E-11	1E-11 9E-12	1E-07 1E-07	1E-07 9E-08	0.0000002 0.0000002
Exposure Point Total				--						0.0000004							
RM 3.5 East	<b>Polybrominated Diphenyl Ethers</b> PBDE # 47 PBDE # 99 PBDE # 153 PBDE # 209	5.2E+00 8.2E+00 1.5E+00 5.6E+01	ug/kg ug/kg ug/kg ug/kg	-- -- -- 7E-04	-- -- -- 7E-04	2E-10 3E-10 6E-11 2E-09	2E-10 3E-10 5E-11 2E-09	-- -- -- 2E-12	-- -- -- 1E-12	-- -- -- 3E-12	1E-04 1E-04 2E-04 7E-03	1E-04 1E-04 2E-04 7E-03	5E-10 7E-10 1E-10 5E-09	4E-10 6E-10 1E-10 4E-09	5E-06 7E-06 7E-07 7E-07	4E-06 6E-06 6E-07 6E-07	0.000009 0.000001 0.000001 0.000001
Exposure Point Total				3E-12						0.00002							
RM 4 West	<b>Polybrominated Diphenyl Ethers</b> PBDE # 47 PBDE # 99	3.5E-01 2.3E-01	ug/kg ug/kg	-- --	-- --	1E-11 9E-12	1E-11 8E-12	-- --	-- --	-- --	1E-04 1E-04	1E-04 1E-04	3E-11 2E-11	3E-11 2E-11	3E-07 2E-07	3E-07 2E-07	0.0000006 0.0000004
Exposure Point Total				--						0.000001							
RM 5 West	<b>Polybrominated Diphenyl Ethers</b> PBDE # 47 PBDE # 99	3.7E-01 3.7E-01	ug/kg ug/kg	-- --	-- --	1E-11 1E-11	1E-11 1E-11	-- --	-- --	-- --	1E-04 1E-04	1E-04 1E-04	3E-11 3E-11	3E-11 3E-11	3E-07 3E-07	3E-07 3E-07	0.0000006 0.0000006
Exposure Point Total				--						0.000001							

**TABLE F3-10.**  
**Calculation of Cancer Risks and Noncancer Hazards - High-Frequency Fisher, In-water Sediment Exposure**  
**Reasonable Maximum Exposure**

Scenario Timeframe: Current/Future Medium: Sediment  
Receptor Population: High-frequency Fisher Exposure Medium: In-water Sediment  
Population Age: Adult Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC		Cancer Risk Calculations <sup>a</sup>							Noncancer Hazard Calculations <sup>a</sup>						
		Value	Units	Dermal Cancer Slope Factor (mg/kg-day) <sup>-1</sup>	Oral Cancer Slope Factor (mg/kg-day) <sup>-1</sup>	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk	Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ
RM 5.5 West	<b>Polybrominated Diphenyl Ethers</b>																
	PBDE # 47	1.4E+00	ug/kg	--	--	5E-11	5E-11	--	--	--	1E-04	1E-04	1E-10	1E-10	1E-06	1E-06	0.000002
	PBDE # 99	1.2E+00	ug/kg	--	--	5E-11	4E-11	--	--	--	1E-04	1E-04	1E-10	9E-11	1E-06	9E-07	0.000002
	PBDE # 153	2.3E-01	ug/kg	--	--	9E-12	8E-12	--	--	--	2E-04	2E-04	2E-11	2E-11	1E-07	9E-08	0.0000002
	PBDE # 209	7.4E+00	ug/kg	7E-04	7E-04	3E-10	2E-10	2E-13	2E-13	4E-13	7E-03	7E-03	7E-10	6E-10	1E-07	8E-08	0.0000002
Exposure Point Total										4E-13							0.000005
RM 5.5 East	<b>Polybrominated Diphenyl Ethers</b>																
	PBDE # 47	1.8E+00	ug/kg	--	--	7E-11	6E-11	--	--	--	1E-04	1E-04	2E-10	1E-10	2E-06	1E-06	0.000003
	PBDE # 99	1.8E+00	ug/kg	--	--	7E-11	6E-11	--	--	--	1E-04	1E-04	2E-10	1E-10	2E-06	1E-06	0.000003
	PBDE # 153	2.6E-01	ug/kg	--	--	1E-11	9E-12	--	--	--	2E-04	2E-04	2E-11	2E-11	1E-07	1E-07	0.0000002
	PBDE # 209	2.8E+00	ug/kg	7E-04	7E-04	1E-10	9E-11	8E-14	6E-14	1E-13	7E-03	7E-03	3E-10	2E-10	4E-08	3E-08	0.0000001
Exposure Point Total										1E-13							0.000006
RM 6 West	<b>Polybrominated Diphenyl Ethers</b>																
	PBDE # 47	1.3E-01	ug/kg	--	--	5E-12	4E-12	--	--	--	1E-04	1E-04	1E-11	1E-11	1E-07	1E-07	0.0000002
	PBDE # 99	1.3E-01	ug/kg	--	--	5E-12	4E-12	--	--	--	1E-04	1E-04	1E-11	1E-11	1E-07	1E-07	0.0000002
	PBDE # 209	3.5E+00	ug/kg	7E-04	7E-04	1E-10	1E-10	1E-13	8E-14	2E-13	7E-03	7E-03	3E-10	3E-10	5E-08	4E-08	0.0000001
Exposure Point Total										2E-13							0.0000005
RM 6 East	<b>Polybrominated Diphenyl Ethers</b>																
	PBDE # 47	2.7E-01	ug/kg	--	--	1E-11	9E-12	--	--	--	1E-04	1E-04	2E-11	2E-11	2E-07	2E-07	0.0000005
	PBDE # 99	1.7E-01	ug/kg	--	--	7E-12	6E-12	--	--	--	1E-04	1E-04	2E-11	1E-11	2E-07	1E-07	0.0000003
Exposure Point Total										--							0.0000007
RM 6.5 West	<b>Polybrominated Diphenyl Ethers</b>																
	PBDE # 47	1.1E-01	ug/kg	--	--	4E-12	4E-12	--	--	--	1E-04	1E-04	1E-11	8E-12	1E-07	8E-08	0.0000002
	PBDE # 99	1.3E-01	ug/kg	--	--	5E-12	4E-12	--	--	--	1E-04	1E-04	1E-11	1E-11	1E-07	1E-07	0.0000002
Exposure Point Total										--							0.0000004
RM 6.5 East	<b>Polybrominated Diphenyl Ethers</b>																
	PBDE # 47	1.8E+00	ug/kg	--	--	7E-11	6E-11	--	--	--	1E-04	1E-04	2E-10	1E-10	2E-06	1E-06	0.000003
	PBDE # 99	1.9E+00	ug/kg	--	--	7E-11	6E-11	--	--	--	1E-04	1E-04	2E-10	1E-10	2E-06	1E-06	0.000003
	PBDE # 153	3.5E-01	ug/kg	--	--	1E-11	1E-11	--	--	--	2E-04	2E-04	3E-11	3E-11	2E-07	1E-07	0.0000003
	PBDE # 209	2.5E+01	ug/kg	7E-04	7E-04	1E-09	8E-10	7E-13	6E-13	1E-12	7E-03	7E-03	2E-09	2E-09	3E-07	3E-07	0.0000006
Exposure Point Total										1E-12							0.000007
RM 7 West	<b>Polybrominated Diphenyl Ethers</b>																
	PBDE # 47	9.5E-01	ug/kg	--	--	4E-11	3E-11	--	--	--	1E-04	1E-04	9E-11	7E-11	9E-07	7E-07	0.000002
	PBDE # 99	9.9E-01	ug/kg	--	--	4E-11	3E-11	--	--	--	1E-04	1E-04	9E-11	8E-11	9E-07	8E-07	0.000002
	PBDE # 153	2.9E-01	ug/kg	--	--	1E-11	9E-12	--	--	--	2E-04	2E-04	3E-11	2E-11	1E-07	1E-07	0.0000002
	PBDE # 209	6.1E+00	ug/kg	7E-04	7E-04	2E-10	2E-10	2E-13	1E-13	3E-13	7E-03	7E-03	6E-10	5E-10	8E-08	7E-08	0.0000001
Exposure Point Total										3E-13							0.000004

**TABLE F3-10.**  
**Calculation of Cancer Risks and Noncancer Hazards - High-Frequency Fisher, In-water Sediment Exposure**  
**Reasonable Maximum Exposure**

Scenario Timeframe: Current/Future Medium: Sediment  
Receptor Population: High-frequency Fisher Exposure Medium: In-water Sediment  
Population Age: Adult Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC		Cancer Risk Calculations <sup>a</sup>							Noncancer Hazard Calculations <sup>a</sup>						
		Value	Units	Dermal Cancer Slope Factor (mg/kg-day) <sup>-1</sup>	Oral Cancer Slope Factor (mg/kg-day) <sup>-1</sup>	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk	Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ
RM 7 East	<b>Polybrominated Diphenyl Ethers</b>																
	PBDE # 47	1.7E+00	ug/kg	--	--	7E-11	6E-11	--	--	--	1E-04	1E-04	2E-10	1E-10	2E-06	1E-06	0.000003
	PBDE # 99	1.5E+00	ug/kg	--	--	6E-11	5E-11	--	--	--	1E-04	1E-04	1E-10	1E-10	1E-06	1E-06	0.000003
	PBDE # 153	3.1E-01	ug/kg	--	--	1E-11	1E-11	--	--	--	2E-04	2E-04	3E-11	2E-11	1E-07	1E-07	0.0000003
	PBDE # 209	6.2E+00	ug/kg	7E-04	7E-04	2E-10	2E-10	2E-13	1E-13	3E-13	7E-03	7E-03	6E-10	5E-10	8E-08	7E-08	0.0000001
Exposure Point Total										3E-13							0.000006
RM 7.5 West	<b>Polybrominated Diphenyl Ethers</b>																
	PBDE # 47	1.7E+00	ug/kg	--	--	7E-11	6E-11	--	--	--	1E-04	1E-04	2E-10	1E-10	2E-06	1E-06	0.000003
	PBDE # 99	1.5E+00	ug/kg	--	--	6E-11	5E-11	--	--	--	1E-04	1E-04	1E-10	1E-10	1E-06	1E-06	0.000003
	PBDE # 153	3.1E-01	ug/kg	--	--	1E-11	1E-11	--	--	--	2E-04	2E-04	3E-11	2E-11	1E-07	1E-07	0.0000003
	PBDE # 209	5.1E+00	ug/kg	7E-04	7E-04	2E-10	2E-10	1E-13	1E-13	3E-13	7E-03	7E-03	5E-10	4E-10	7E-08	6E-08	0.0000001
Exposure Point Total										3E-13							0.000006
RM 7.5 East	<b>Polybrominated Diphenyl Ethers</b>																
	PBDE # 47	2.5E+00	ug/kg	--	--	1E-10	8E-11	--	--	--	1E-04	1E-04	2E-10	2E-10	2E-06	2E-06	0.000004
	PBDE # 99	2.9E+00	ug/kg	--	--	1E-10	9E-11	--	--	--	1E-04	1E-04	3E-10	2E-10	3E-06	2E-06	0.000005
	PBDE # 153	4.5E-01	ug/kg	--	--	2E-11	1E-11	--	--	--	2E-04	2E-04	4E-11	3E-11	2E-07	2E-07	0.0000004
	PBDE # 209	1.3E+01	ug/kg	7E-04	7E-04	5E-10	4E-10	4E-13	3E-13	7E-13	7E-03	7E-03	1E-09	1E-09	2E-07	1E-07	0.0000003
Exposure Point Total										7E-13							0.000001
RM 8 West	<b>Polybrominated Diphenyl Ethers</b>																
	PBDE # 47	8.3E-01	ug/kg	--	--	3E-11	3E-11	--	--	--	1E-04	1E-04	8E-11	6E-11	8E-07	6E-07	0.000001
	PBDE # 99	1.2E+00	ug/kg	--	--	5E-11	4E-11	--	--	--	1E-04	1E-04	1E-10	9E-11	1E-06	9E-07	0.000002
	PBDE # 153	8.4E-01	ug/kg	--	--	3E-11	3E-11	--	--	--	2E-04	2E-04	8E-11	6E-11	4E-07	3E-07	0.0000007
	PBDE # 209	4.4E+02	ug/kg	7E-04	7E-04	2E-08	1E-08	1E-11	1E-11	2E-11	7E-03	7E-03	4E-08	3E-08	6E-06	5E-06	0.000001
Exposure Point Total										2E-11							0.000001
RM 8 East	<b>Polybrominated Diphenyl Ethers</b>																
	PBDE # 47	2.1E+00	ug/kg	--	--	8E-11	7E-11	--	--	--	1E-04	1E-04	2E-10	2E-10	2E-06	2E-06	0.000004
	PBDE # 99	2.2E+00	ug/kg	--	--	9E-11	7E-11	--	--	--	1E-04	1E-04	2E-10	2E-10	2E-06	2E-06	0.000004
	PBDE # 153	6.2E-01	ug/kg	--	--	2E-11	2E-11	--	--	--	2E-04	2E-04	6E-11	5E-11	3E-07	2E-07	0.0000005
	PBDE # 209	2.4E+01	ug/kg	7E-04	7E-04	9E-10	8E-10	7E-13	5E-13	1E-12	7E-03	7E-03	2E-09	2E-09	3E-07	3E-07	0.0000006
Exposure Point Total										1E-12							0.000008
RM 8 SIL	<b>Polybrominated Diphenyl Ethers</b>																
	PBDE # 47	4.5E+00	ug/kg	--	--	2E-10	1E-10	--	--	--	1E-04	1E-04	4E-10	3E-10	4E-06	3E-06	0.000008
	PBDE # 99	4.3E+00	ug/kg	--	--	2E-10	1E-10	--	--	--	1E-04	1E-04	4E-10	3E-10	4E-06	3E-06	0.000007
	PBDE # 153	1.2E+00	ug/kg	--	--	5E-11	4E-11	--	--	--	2E-04	2E-04	1E-10	9E-11	5E-07	5E-07	0.000001
	PBDE # 209	3.7E+01	ug/kg	7E-04	7E-04	1E-09	1E-09	1E-12	9E-13	2E-12	7E-03	7E-03	3E-09	3E-09	5E-07	4E-07	0.0000009
Exposure Point Total										2E-12							0.000002

**TABLE F3-10.**  
**Calculation of Cancer Risks and Noncancer Hazards - High-Frequency Fisher, In-water Sediment Exposure**  
**Reasonable Maximum Exposure**

Scenario Timeframe: Current/Future Medium: Sediment  
Receptor Population: High-frequency Fisher Exposure Medium: In-water Sediment  
Population Age: Adult Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC		Cancer Risk Calculations <sup>a</sup>							Noncancer Hazard Calculations <sup>a</sup>						
		Value	Units	Dermal Cancer Slope Factor (mg/kg-day) <sup>-1</sup>	Oral Cancer Slope Factor (mg/kg-day) <sup>-1</sup>	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk	Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ
RM 8.5 West	<b>Polybrominated Diphenyl Ethers</b>																
	PBDE # 47	2.0E+00	ug/kg	--	--	8E-11	7E-11	--	--	--	1E-04	1E-04	2E-10	2E-10	2E-06	2E-06	0.000003
	PBDE # 99	2.2E+00	ug/kg	--	--	9E-11	7E-11	--	--	--	1E-04	1E-04	2E-10	2E-10	2E-06	2E-06	0.000004
	PBDE # 153	4.1E-01	ug/kg	--	--	2E-11	1E-11	--	--	--	2E-04	2E-04	4E-11	3E-11	2E-07	2E-07	0.0000003
	PBDE # 209	1.1E+01	ug/kg	7E-04	7E-04	4E-10	4E-10	3E-13	3E-13	6E-13	7E-03	7E-03	1E-09	8E-10	1E-07	1E-07	0.0000003
Exposure Point Total										6E-13							0.000008
RM 8.5 East	<b>Polybrominated Diphenyl Ethers</b>																
	PBDE # 47	4.1E+00	ug/kg	--	--	2E-10	1E-10	--	--	--	1E-04	1E-04	4E-10	3E-10	4E-06	3E-06	0.000007
	PBDE # 99	5.6E+00	ug/kg	--	--	2E-10	2E-10	--	--	--	1E-04	1E-04	5E-10	4E-10	5E-06	4E-06	0.000009
	PBDE # 153	1.1E+00	ug/kg	--	--	4E-11	4E-11	--	--	--	2E-04	2E-04	1E-10	8E-11	5E-07	4E-07	0.0000009
	PBDE # 209	9.0E+01	ug/kg	7E-04	7E-04	3E-09	3E-09	2E-12	2E-12	5E-12	7E-03	7E-03	8E-09	7E-09	1E-06	1E-06	0.000002
Exposure Point Total										5E-12							0.00002
RM 9 West	<b>Polybrominated Diphenyl Ethers</b>																
	PBDE # 47	1.3E+00	ug/kg	--	--	5E-11	4E-11	--	--	--	1E-04	1E-04	1E-10	1E-10	1E-06	1E-06	0.000002
	PBDE # 99	1.2E+00	ug/kg	--	--	5E-11	4E-11	--	--	--	1E-04	1E-04	1E-10	9E-11	1E-06	9E-07	0.000002
	PBDE # 153	1.9E-01	ug/kg	--	--	7E-12	6E-12	--	--	--	2E-04	2E-04	2E-11	1E-11	9E-08	7E-08	0.0000002
	PBDE # 209	2.9E+00	ug/kg	7E-04	7E-04	1E-10	9E-11	8E-14	7E-14	1E-13	7E-03	7E-03	3E-10	2E-10	4E-08	3E-08	0.0000001
Exposure Point Total										1E-13							0.000004
RM 9 East	<b>Polybrominated Diphenyl Ethers</b>																
	PBDE # 47	3.3E-01	ug/kg	--	--	1E-11	1E-11	--	--	--	1E-04	1E-04	3E-11	3E-11	3E-07	3E-07	0.0000006
	PBDE # 99	1.8E-01	ug/kg	--	--	7E-12	6E-12	--	--	--	1E-04	1E-04	2E-11	1E-11	2E-07	1E-07	0.0000003
Exposure Point Total										--							0.0000009
RM 9.5 West	<b>Polybrominated Diphenyl Ethers</b>																
	PBDE # 47	1.8E+00	ug/kg	--	--	7E-11	6E-11	--	--	--	1E-04	1E-04	2E-10	1E-10	2E-06	1E-06	0.000003
	PBDE # 99	2.7E+00	ug/kg	--	--	1E-10	9E-11	--	--	--	1E-04	1E-04	2E-10	2E-10	2E-06	2E-06	0.000005
	PBDE # 153	5.2E-01	ug/kg	--	--	2E-11	2E-11	--	--	--	2E-04	2E-04	5E-11	4E-11	2E-07	2E-07	0.0000004
	PBDE # 209	4.6E+01	ug/kg	7E-04	7E-04	2E-09	2E-09	1E-12	1E-12	2E-12	7E-03	7E-03	4E-09	4E-09	6E-07	5E-07	0.000001
Exposure Point Total										2E-12							0.000009
RM 9.5 East	<b>Polybrominated Diphenyl Ethers</b>																
	PBDE # 47	9.9E-01	ug/kg	--	--	4E-11	3E-11	--	--	--	1E-04	1E-04	9E-11	8E-11	9E-07	8E-07	0.000002
	PBDE # 99	7.9E-01	ug/kg	--	--	3E-11	3E-11	--	--	--	1E-04	1E-04	7E-11	6E-11	7E-07	6E-07	0.000001
	PBDE # 209	2.0E+00	ug/kg	7E-04	7E-04	8E-11	7E-11	5E-14	5E-14	1E-13	7E-03	7E-03	2E-10	2E-10	3E-08	2E-08	0.0000005
Exposure Point Total										1E-13							0.000003



**TABLE F3-10.**  
**Calculation of Cancer Risks and Noncancer Hazards - High-Frequency Fisher, In-water Sediment Exposure**  
**Reasonable Maximum Exposure**

Scenario Timeframe: Current/Future Medium: Sediment  
Receptor Population: High-frequency Fisher Exposure Medium: In-water Sediment  
Population Age: Adult Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC		Cancer Risk Calculations <sup>a</sup>							Noncancer Hazard Calculations <sup>a</sup>						
		Value	Units	Dermal Cancer Slope Factor (mg/kg-day) <sup>-1</sup>	Oral Cancer Slope Factor (mg/kg-day) <sup>-1</sup>	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk	Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ
RM 11 West	<b>Polybrominated Diphenyl Ethers</b>																
	PBDE # 47	2.9E+00	ug/kg	--	--	1E-10	9E-11	--	--	--	1E-04	1E-04	3E-10	2E-10	3E-06	2E-06	0.000005
	PBDE # 99	3.7E+00	ug/kg	--	--	1E-10	1E-10	--	--	--	1E-04	1E-04	3E-10	3E-10	3E-06	3E-06	0.000006
	PBDE # 153	6.3E-01	ug/kg	--	--	2E-11	2E-11	--	--	--	2E-04	2E-04	6E-11	5E-11	3E-07	2E-07	0.0000005
	PBDE # 209	5.7E+01	ug/kg	7E-04	7E-04	2E-09	2E-09	2E-12	1E-12	3E-12	7E-03	7E-03	5E-09	4E-09	7E-07	6E-07	0.000001
Exposure Point Total										3E-12							0.00001
RM 11 East	<b>Polybrominated Diphenyl Ethers</b>																
	PBDE # 47	1.5E+00	ug/kg	--	--	6E-11	5E-11	--	--	--	1E-04	1E-04	1E-10	1E-10	1E-06	1E-06	0.000003
	PBDE # 99	1.2E+00	ug/kg	--	--	5E-11	4E-11	--	--	--	1E-04	1E-04	1E-10	9E-11	1E-06	9E-07	0.000002
Exposure Point Total										--							0.000005
RM 12 West	<b>Polybrominated Diphenyl Ethers</b>																
	PBDE # 47	3.1E-01	ug/kg	--	--	1E-11	1E-11	--	--	--	1E-04	1E-04	3E-11	2E-11	3E-07	2E-07	0.0000005
	PBDE # 99	3.0E-01	ug/kg	--	--	1E-11	1E-11	--	--	--	1E-04	1E-04	3E-11	2E-11	3E-07	2E-07	0.0000005
Exposure Point Total										--							0.000001
RM 12 East	<b>Polybrominated Diphenyl Ethers</b>																
	PBDE # 47	1.2E+00	ug/kg	--	--	5E-11	4E-11	--	--	--	1E-04	1E-04	1E-10	9E-11	1E-06	9E-07	0.000002
	PBDE # 99	1.1E+00	ug/kg	--	--	4E-11	4E-11	--	--	--	1E-04	1E-04	1E-10	8E-11	1E-06	8E-07	0.000002
Exposure Point Total										--							0.000004
Study Area Wide <sup>b</sup>	<b>Polybrominated Diphenyl Ethers</b>																
	PBDE # 47	2.2E+00	ug/kg	--	--	8E-11	7E-11	--	--	--	1E-04	1E-04	2E-10	2E-10	2E-06	2E-06	0.000004
	PBDE # 99	2.8E+00	ug/kg	--	--	1E-10	9E-11	--	--	--	1E-04	1E-04	3E-10	2E-10	3E-06	2E-06	0.000005
	PBDE # 153	5.3E-01	ug/kg	--	--	2E-11	2E-11	--	--	--	2E-04	2E-04	5E-11	4E-11	2E-07	2E-07	0.0000004
	PBDE # 209	6.0E+01	ug/kg	7E-04	7E-04	2E-09	2E-09	2E-12	1E-12	3E-12	7E-03	7E-03	5E-09	5E-09	8E-07	7E-07	0.000001
Exposure Point Total										3E-12							0.00001

**Notes:**

a Numbers presented are rounded values. Sums calculated before rounding. Risks and hazards are calculated based on exposure parameters presented in Section 3 of Appendix F. For risks and hazards from dermal contact, a dermal absorption efficiency of 0.1 was used, which is the dermal absorption efficiency presented for semi-volatile organic compounds in Risk Assessment Guidance for Superfund. Volume I: Human Health Evaluation Manual (Part E, Supplemental Guidance for Dermal Risk Assessment) Final, July 2004. EPA/540/R/99/005.

b Study Area wide dataset includes human health in-water sediment samples from RM 1.9 - 11.8 outside of the navigation channel and excluding Multnomah Channel.

**Abbreviations:**

-- = Not Applicable.  
CDI = Chronic Daily Intake.  
EPC = Exposure Point Concentration.  
HQ = Hazard Quotient.  
LADI = Lifetime Average Daily Intake.  
mg/kg = milligrams per kilogram.

RfD = Reference dose.  
RM = River mile.  
ug/kg = micrograms per kilogram.

**TABLE F3-11.**  
**Calculation of Cancer Risks and Noncancer Hazards - High-Frequency Fisher, In-water Sediment Exposure**  
**Central Tendency Exposure**

Scenario Timeframe: Current/Future  
Receptor Population: High frequency Fisher  
Population Age: Adult

Medium: Sediment  
Exposure Medium: In-water Sediment  
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC		Cancer Risk Calculations <sup>a</sup>							Noncancer Hazard Calculations <sup>a</sup>						
		Value	Units	Dermal Cancer Slope Factor (mg/kg-day) <sup>-1</sup>	Oral Cancer Slope Factor (mg/kg-day) <sup>-1</sup>	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk <sup>b</sup>	Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ <sup>b</sup>
RM 1 West	<b>Polybrominated Diphenyl Ethers</b>																
	PBDE # 47	3.3E-01	ug/kg	--	--	3E-13	5E-13	--	--	--	1E-04	1E-04	2E-12	4E-12	2E-08	4E-08	0.0000001
	PBDE # 99	3.2E-01	ug/kg	--	--	3E-13	5E-13	--	--	--	1E-04	1E-04	2E-12	4E-12	2E-08	4E-08	0.0000001
	PBDE # 209	3.8E+00	ug/kg	7E-04	7E-04	3E-12	6E-12	2E-15	4E-15	7E-15	7E-03	7E-03	3E-11	5E-11	4E-09	7E-09	0.0000001
Exposure Point Total <sup>c</sup>										7E-15							0.0000001
RM 1 East	<b>Polybrominated Diphenyl Ethers</b>																
	PBDE # 47	7.6E-01	ug/kg	--	--	7E-13	1E-12	--	--	--	1E-04	1E-04	5E-12	1E-11	5E-08	1E-07	0.0000002
	PBDE # 99	6.3E-01	ug/kg	--	--	6E-13	1E-12	--	--	--	1E-04	1E-04	4E-12	8E-12	4E-08	8E-08	0.0000001
	PBDE # 209	3.7E+00	ug/kg	7E-04	7E-04	3E-12	6E-12	2E-15	4E-15	7E-15	7E-03	7E-03	3E-11	5E-11	4E-09	7E-09	0.0000001
Exposure Point Total										7E-15							0.0000003
RM 1.5 West	<b>Polybrominated Diphenyl Ethers</b>																
	PBDE # 47	1.2E-01	ug/kg	--	--	1E-13	2E-13	--	--	--	1E-04	1E-04	8E-13	2E-12	8E-09	2E-08	0.0000002
Exposure Point Total										--							0.0000002
RM 1.5 East	<b>Polybrominated Diphenyl Ethers</b>																
	PBDE # 47	1.4E+00	ug/kg	--	--	1E-12	2E-12	--	--	--	1E-04	1E-04	1E-11	2E-11	1E-07	2E-07	0.0000003
	PBDE # 99	1.4E+00	ug/kg	--	--	1E-12	2E-12	--	--	--	1E-04	1E-04	1E-11	2E-11	1E-07	2E-07	0.0000003
	PBDE # 153	1.8E-01	ug/kg	--	--	2E-13	3E-13	--	--	--	2E-04	2E-04	1E-12	2E-12	6E-09	1E-08	0.0000002
	PBDE # 209	4.5E+00	ug/kg	7E-04	7E-04	4E-12	7E-12	3E-15	5E-15	8E-15	7E-03	7E-03	3E-11	6E-11	5E-09	8E-09	0.0000001
Exposure Point Total										8E-15							0.0000006
RM 2 West	<b>Polybrominated Diphenyl Ethers</b>																
	PBDE # 47	1.1E+00	ug/kg	--	--	1E-12	2E-12	--	--	--	1E-04	1E-04	8E-12	1E-11	8E-08	1E-07	0.0000002
	PBDE # 99	1.0E+00	ug/kg	--	--	9E-13	2E-12	--	--	--	1E-04	1E-04	7E-12	1E-11	7E-08	1E-07	0.0000002
	PBDE # 153	4.9E-01	ug/kg	--	--	4E-13	8E-13	--	--	--	2E-04	2E-04	3E-12	6E-12	2E-08	3E-08	0.0000005
	PBDE # 209	5.8E+00	ug/kg	7E-04	7E-04	5E-12	9E-12	4E-15	7E-15	1E-14	7E-03	7E-03	4E-11	7E-11	6E-09	1E-08	0.0000002
Exposure Point Total										1E-14							0.0000005
RM 2 East	<b>Polybrominated Diphenyl Ethers</b>																
	PBDE # 47	1.8E+00	ug/kg	--	--	2E-12	3E-12	--	--	--	1E-04	1E-04	1E-11	2E-11	1E-07	2E-07	0.0000003
	PBDE # 99	2.0E+00	ug/kg	--	--	2E-12	3E-12	--	--	--	1E-04	1E-04	1E-11	3E-11	1E-07	3E-07	0.0000004
	PBDE # 153	2.8E-01	ug/kg	--	--	3E-13	5E-13	--	--	--	2E-04	2E-04	2E-12	4E-12	1E-08	2E-08	0.0000003
	PBDE # 209	6.9E+00	ug/kg	7E-04	7E-04	6E-12	1E-11	4E-15	8E-15	1E-14	7E-03	7E-03	5E-11	9E-11	7E-09	1E-08	0.0000002
Exposure Point Total										1E-14							0.0000008
RM 2.5 East	<b>Polybrominated Diphenyl Ethers</b>																
	PBDE # 47	2.0E-01	ug/kg	--	--	2E-13	3E-13	--	--	--	1E-04	1E-04	1E-12	3E-12	1E-08	3E-08	0.0000004
	PBDE # 99	2.4E-01	ug/kg	--	--	2E-13	4E-13	--	--	--	1E-04	1E-04	2E-12	3E-12	2E-08	3E-08	0.0000005
Exposure Point Total										--							0.0000001
RM 2.5 MC	<b>Polybrominated Diphenyl Ethers</b>																
	PBDE # 47	1.4E-01	ug/kg	--	--	1E-13	2E-13	--	--	--	1E-04	1E-04	1E-12	2E-12	1E-08	2E-08	0.0000003
Exposure Point Total										--							0.0000003



**TABLE F3-11.**  
**Calculation of Cancer Risks and Noncancer Hazards - High-Frequency Fisher, In-water Sediment Exposure**  
**Central Tendency Exposure**

Scenario Timeframe: Current/Future  
Receptor Population: High frequency Fisher  
Population Age: Adult

Medium: Sediment  
Exposure Medium: In-water Sediment  
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC		Cancer Risk Calculations <sup>a</sup>							Noncancer Hazard Calculations <sup>a</sup>						
		Value	Units	Dermal Cancer Slope Factor (mg/kg-day) <sup>-1</sup>	Oral Cancer Slope Factor (mg/kg-day) <sup>-1</sup>	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk <sup>b</sup>	Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ <sup>b</sup>
RM 3 West	<b>Polybrominated Diphenyl Ethers</b>																
	PBDE # 47	1.4E+00	ug/kg	--	--	1E-12	2E-12	--	--	--	1E-04	1E-04	1E-11	2E-11	1E-07	2E-07	0.0000003
	PBDE # 99	1.3E+00	ug/kg	--	--	1E-12	2E-12	--	--	--	1E-04	1E-04	9E-12	2E-11	9E-08	2E-07	0.0000003
	PBDE # 153	2.9E-01	ug/kg	--	--	3E-13	5E-13	--	--	--	2E-04	2E-04	2E-12	4E-12	1E-08	2E-08	0.0000003
	PBDE # 209	5.3E+00	ug/kg	7E-04	7E-04	5E-12	9E-12	3E-15	6E-15	9E-15	7E-03	7E-03	4E-11	7E-11	5E-09	1E-08	0.0000001
Exposure Point Total										9E-15							0.0000006
RM 3 East	<b>Polybrominated Diphenyl Ethers</b>																
	PBDE # 47	1.3E+00	ug/kg	--	--	1E-12	2E-12	--	--	--	1E-04	1E-04	9E-12	2E-11	9E-08	2E-07	0.0000003
	PBDE # 99	1.4E+00	ug/kg	--	--	1E-12	2E-12	--	--	--	1E-04	1E-04	1E-11	2E-11	1E-07	2E-07	0.0000003
	PBDE # 153	2.8E-01	ug/kg	--	--	3E-13	5E-13	--	--	--	2E-04	2E-04	2E-12	4E-12	1E-08	2E-08	0.0000003
	PBDE # 209	6.4E+00	ug/kg	7E-04	7E-04	6E-12	1E-11	4E-15	7E-15	1E-14	7E-03	7E-03	5E-11	8E-11	6E-09	1E-08	0.0000002
Exposure Point Total										1E-14							0.0000006
RM 3.5 West	<b>Polybrominated Diphenyl Ethers</b>																
	PBDE # 47	1.4E-01	ug/kg	--	--	1E-13	2E-13	--	--	--	1E-04	1E-04	1E-12	2E-12	1E-08	2E-08	0.0000003
	PBDE # 99	1.2E-01	ug/kg	--	--	1E-13	2E-13	--	--	--	1E-04	1E-04	8E-13	2E-12	8E-09	2E-08	0.0000002
Exposure Point Total										--							0.0000001
RM 3.5 East	<b>Polybrominated Diphenyl Ethers</b>																
	PBDE # 47	4.0E+00	ug/kg	--	--	4E-12	6E-12	--	--	--	1E-04	1E-04	3E-11	5E-11	3E-07	5E-07	0.0000008
	PBDE # 99	5.8E+00	ug/kg	--	--	5E-12	1E-11	--	--	--	1E-04	1E-04	4E-11	7E-11	4E-07	7E-07	0.0000001
	PBDE # 153	1.1E+00	ug/kg	--	--	1E-12	2E-12	--	--	--	2E-04	2E-04	7E-12	1E-11	4E-08	7E-08	0.0000001
	PBDE # 209	3.2E+01	ug/kg	7E-04	7E-04	3E-11	5E-11	2E-14	4E-14	6E-14	7E-03	7E-03	2E-10	4E-10	3E-08	6E-08	0.0000001
Exposure Point Total										6E-14							0.0000002
RM 4 West	<b>Polybrominated Diphenyl Ethers</b>																
	PBDE # 47	3.5E-01	ug/kg	--	--	3E-13	6E-13	--	--	--	1E-04	1E-04	2E-12	4E-12	2E-08	4E-08	0.0000001
	PBDE # 99	2.3E-01	ug/kg	--	--	2E-13	4E-13	--	--	--	1E-04	1E-04	2E-12	3E-12	2E-08	3E-08	0.0000005
Exposure Point Total										--							0.0000001
RM 5 West	<b>Polybrominated Diphenyl Ethers</b>																
	PBDE # 47	3.7E-01	ug/kg	--	--	3E-13	6E-13	--	--	--	1E-04	1E-04	3E-12	5E-12	3E-08	5E-08	0.0000001
	PBDE # 99	3.7E-01	ug/kg	--	--	3E-13	6E-13	--	--	--	1E-04	1E-04	3E-12	5E-12	3E-08	5E-08	0.0000001
Exposure Point Total										--							0.0000001
RM 5.5 West	<b>Polybrominated Diphenyl Ethers</b>																
	PBDE # 47	1.4E+00	ug/kg	--	--	1E-12	2E-12	--	--	--	1E-04	1E-04	1E-11	2E-11	1E-07	2E-07	0.0000003
	PBDE # 99	1.2E+00	ug/kg	--	--	1E-12	2E-12	--	--	--	1E-04	1E-04	8E-12	2E-11	8E-08	2E-07	0.0000002
	PBDE # 153	2.3E-01	ug/kg	--	--	2E-13	4E-13	--	--	--	2E-04	2E-04	2E-12	3E-12	8E-09	1E-08	0.0000002
	PBDE # 209	7.4E+00	ug/kg	7E-04	7E-04	7E-12	1E-11	5E-15	8E-15	1E-14	7E-03	7E-03	5E-11	9E-11	7E-09	1E-08	0.0000002
Exposure Point Total										1E-14							0.0000006

**TABLE F3-11.**  
**Calculation of Cancer Risks and Noncancer Hazards - High-Frequency Fisher, In-water Sediment Exposure**  
**Central Tendency Exposure**

Scenario Timeframe: Current/Future  
Receptor Population: High frequency Fisher  
Population Age: Adult

Medium: Sediment  
Exposure Medium: In-water Sediment  
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC		Cancer Risk Calculations <sup>a</sup>						Noncancer Hazard Calculations <sup>a</sup>							
		Value	Units	Dermal Cancer Slope Factor (mg/kg-day) <sup>-1</sup>	Oral Cancer Slope Factor (mg/kg-day) <sup>-1</sup>	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk <sup>b</sup>	Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ <sup>b</sup>
RM 5.5 East	<b>Polybrominated Diphenyl Ethers</b>																
	PBDE # 47	1.0E+00	ug/kg	--	--	9E-13	2E-12	--	--	--	1E-04	1E-04	7E-12	1E-11	7E-08	1E-07	0.0000002
	PBDE # 99	1.2E+00	ug/kg	--	--	1E-12	2E-12	--	--	--	1E-04	1E-04	8E-12	1E-11	8E-08	1E-07	0.0000002
	PBDE # 153	4.1E-01	ug/kg	--	--	4E-13	7E-13	--	--	--	2E-04	2E-04	3E-12	5E-12	1E-08	3E-08	0.00000004
	PBDE # 209	4.2E+00	ug/kg	7E-04	7E-04	4E-12	7E-12	3E-15	5E-15	7E-15	7E-03	7E-03	3E-11	5E-11	4E-09	8E-09	0.00000001
Exposure Point Total										7E-15							0.0000005
RM 6 West	<b>Polybrominated Diphenyl Ethers</b>																
	PBDE # 47	3.7E-01	ug/kg	--	--	3E-13	6E-13	--	--	--	1E-04	1E-04	3E-12	5E-12	3E-08	5E-08	0.0000001
	PBDE # 99	3.7E-01	ug/kg	--	--	3E-13	6E-13	--	--	--	1E-04	1E-04	3E-12	5E-12	3E-08	5E-08	0.0000001
	PBDE # 209	4.8E+00	ug/kg	7E-04	7E-04	4E-12	8E-12	3E-15	5E-15	8E-15	7E-03	7E-03	3E-11	6E-11	5E-09	9E-09	0.00000001
Exposure Point Total										8E-15							0.0000002
RM 6 East	<b>Polybrominated Diphenyl Ethers</b>																
	PBDE # 47	2.7E-01	ug/kg	--	--	2E-13	4E-13	--	--	--	1E-04	1E-04	2E-12	3E-12	2E-08	3E-08	0.0000001
	PBDE # 99	1.7E-01	ug/kg	--	--	2E-13	3E-13	--	--	--	1E-04	1E-04	1E-12	2E-12	1E-08	2E-08	0.00000003
Exposure Point Total										--							0.0000001
RM 6.5 West	<b>Polybrominated Diphenyl Ethers</b>																
	PBDE # 47	1.1E-01	ug/kg	--	--	1E-13	2E-13	--	--	--	1E-04	1E-04	8E-13	1E-12	8E-09	1E-08	0.00000002
	PBDE # 99	1.3E-01	ug/kg	--	--	1E-13	2E-13	--	--	--	1E-04	1E-04	9E-13	2E-12	9E-09	2E-08	0.00000003
Exposure Point Total										--							0.00000005
RM 6.5 East	<b>Polybrominated Diphenyl Ethers</b>																
	PBDE # 47	1.2E+00	ug/kg	--	--	1E-12	2E-12	--	--	--	1E-04	1E-04	8E-12	2E-11	8E-08	2E-07	0.0000002
	PBDE # 99	1.3E+00	ug/kg	--	--	1E-12	2E-12	--	--	--	1E-04	1E-04	9E-12	2E-11	9E-08	2E-07	0.0000002
	PBDE # 153	4.5E-01	ug/kg	--	--	4E-13	7E-13	--	--	--	2E-04	2E-04	3E-12	6E-12	2E-08	3E-08	0.00000004
	PBDE # 209	1.7E+01	ug/kg	7E-04	7E-04	2E-11	3E-11	1E-14	2E-14	3E-14	7E-03	7E-03	1E-10	2E-10	2E-08	3E-08	0.00000005
Exposure Point Total										3E-14							0.0000006
RM 7 West	<b>Polybrominated Diphenyl Ethers</b>																
	PBDE # 47	9.5E-01	ug/kg	--	--	9E-13	2E-12	--	--	--	1E-04	1E-04	7E-12	1E-11	7E-08	1E-07	0.0000002
	PBDE # 99	9.9E-01	ug/kg	--	--	9E-13	2E-12	--	--	--	1E-04	1E-04	7E-12	1E-11	7E-08	1E-07	0.0000002
	PBDE # 153	2.9E-01	ug/kg	--	--	3E-13	5E-13	--	--	--	2E-04	2E-04	2E-12	4E-12	1E-08	2E-08	0.00000003
	PBDE # 209	6.1E+00	ug/kg	7E-04	7E-04	6E-12	1E-11	4E-15	7E-15	1E-14	7E-03	7E-03	4E-11	8E-11	6E-09	1E-08	0.00000002
Exposure Point Total										1E-14							0.0000004
RM 7 East	<b>Polybrominated Diphenyl Ethers</b>																
	PBDE # 47	1.2E+00	ug/kg	--	--	1E-12	2E-12	--	--	--	1E-04	1E-04	8E-12	2E-11	8E-08	2E-07	0.0000002
	PBDE # 99	1.0E+00	ug/kg	--	--	9E-13	2E-12	--	--	--	1E-04	1E-04	7E-12	1E-11	7E-08	1E-07	0.0000002
	PBDE # 153	3.6E-01	ug/kg	--	--	3E-13	6E-13	--	--	--	2E-04	2E-04	3E-12	5E-12	1E-08	2E-08	0.00000004
	PBDE # 209	4.3E+00	ug/kg	7E-04	7E-04	4E-12	7E-12	3E-15	5E-15	8E-15	7E-03	7E-03	3E-11	5E-11	4E-09	8E-09	0.00000001
Exposure Point Total										8E-15							0.0000005

**TABLE F3-11.**  
**Calculation of Cancer Risks and Noncancer Hazards - High-Frequency Fisher, In-water Sediment Exposure**  
**Central Tendency Exposure**

Scenario Timeframe: Current/Future  
Receptor Population: High frequency Fisher  
Population Age: Adult

Medium: Sediment  
Exposure Medium: In-water Sediment  
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC		Cancer Risk Calculations <sup>a</sup>							Noncancer Hazard Calculations <sup>a</sup>						
		Value	Units	Dermal Cancer Slope Factor (mg/kg-day) <sup>-1</sup>	Oral Cancer Slope Factor (mg/kg-day) <sup>-1</sup>	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk <sup>b</sup>	Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ <sup>b</sup>
RM 7.5 West	<b>Polybrominated Diphenyl Ethers</b>																
	PBDE # 47	9.9E-01	ug/kg	--	--	9E-13	2E-12	--	--	--	1E-04	1E-04	7E-12	1E-11	7E-08	1E-07	0.0000002
	PBDE # 99	8.5E-01	ug/kg	--	--	8E-13	1E-12	--	--	--	1E-04	1E-04	6E-12	1E-11	6E-08	1E-07	0.0000002
	PBDE # 153	4.3E-01	ug/kg	--	--	4E-13	7E-13	--	--	--	2E-04	2E-04	3E-12	5E-12	2E-08	3E-08	0.00000004
	PBDE # 209	5.3E+00	ug/kg	7E-04	7E-04	5E-12	9E-12	3E-15	6E-15	9E-15	7E-03	7E-03	4E-11	7E-11	5E-09	1E-08	0.00000001
Exposure Point Total										9E-15							0.0000004
RM 7.5 East	<b>Polybrominated Diphenyl Ethers</b>																
	PBDE # 47	1.9E+00	ug/kg	--	--	2E-12	3E-12	--	--	--	1E-04	1E-04	1E-11	2E-11	1E-07	2E-07	0.0000004
	PBDE # 99	2.2E+00	ug/kg	--	--	2E-12	4E-12	--	--	--	1E-04	1E-04	2E-11	3E-11	2E-07	3E-07	0.0000004
	PBDE # 153	3.4E-01	ug/kg	--	--	3E-13	6E-13	--	--	--	2E-04	2E-04	2E-12	4E-12	1E-08	2E-08	0.00000003
	PBDE # 209	8.9E+00	ug/kg	7E-04	7E-04	8E-12	1E-11	6E-15	1E-14	2E-14	7E-03	7E-03	6E-11	1E-10	9E-09	2E-08	0.00000002
Exposure Point Total										2E-14							0.0000009
RM 8 West	<b>Polybrominated Diphenyl Ethers</b>																
	PBDE # 47	8.3E-01	ug/kg	--	--	8E-13	1E-12	--	--	--	1E-04	1E-04	6E-12	1E-11	6E-08	1E-07	0.0000002
	PBDE # 99	1.2E+00	ug/kg	--	--	1E-12	2E-12	--	--	--	1E-04	1E-04	8E-12	2E-11	8E-08	2E-07	0.0000002
	PBDE # 153	8.4E-01	ug/kg	--	--	8E-13	1E-12	--	--	--	2E-04	2E-04	6E-12	1E-11	3E-08	5E-08	0.0000001
	PBDE # 209	4.4E+02	ug/kg	7E-04	7E-04	4E-10	7E-10	3E-13	5E-13	8E-13	7E-03	7E-03	3E-09	6E-09	4E-07	8E-07	0.000001
Exposure Point Total										8E-13							0.000002
RM 8 East	<b>Polybrominated Diphenyl Ethers</b>																
	PBDE # 47	1.8E+00	ug/kg	--	--	2E-12	3E-12	--	--	--	1E-04	1E-04	1E-11	2E-11	1E-07	2E-07	0.0000004
	PBDE # 99	1.9E+00	ug/kg	--	--	2E-12	3E-12	--	--	--	1E-04	1E-04	1E-11	2E-11	1E-07	2E-07	0.0000004
	PBDE # 153	4.2E-01	ug/kg	--	--	4E-13	7E-13	--	--	--	2E-04	2E-04	3E-12	5E-12	1E-08	3E-08	0.00000004
	PBDE # 209	1.5E+01	ug/kg	7E-04	7E-04	1E-11	2E-11	9E-15	2E-14	3E-14	7E-03	7E-03	1E-10	2E-10	1E-08	3E-08	0.00000004
Exposure Point Total										3E-14							0.0000008
RM 8 SIL	<b>Polybrominated Diphenyl Ethers</b>																
	PBDE # 47	1.6E+00	ug/kg	--	--	1E-12	3E-12	--	--	--	1E-04	1E-04	1E-11	2E-11	1E-07	2E-07	0.0000003
	PBDE # 99	2.3E+00	ug/kg	--	--	2E-12	4E-12	--	--	--	1E-04	1E-04	2E-11	3E-11	2E-07	3E-07	0.0000005
	PBDE # 153	7.1E-01	ug/kg	--	--	6E-13	1E-12	--	--	--	2E-04	2E-04	5E-12	9E-12	2E-08	5E-08	0.0000001
	PBDE # 209	1.9E+01	ug/kg	7E-04	7E-04	2E-11	3E-11	1E-14	2E-14	3E-14	7E-03	7E-03	1E-10	2E-10	2E-08	3E-08	0.0000001
Exposure Point Total										3E-14							0.0000009
RM 8.5 West	<b>Polybrominated Diphenyl Ethers</b>																
	PBDE # 47	2.0E+00	ug/kg	--	--	2E-12	3E-12	--	--	--	1E-04	1E-04	1E-11	3E-11	1E-07	3E-07	0.0000004
	PBDE # 99	2.2E+00	ug/kg	--	--	2E-12	4E-12	--	--	--	1E-04	1E-04	2E-11	3E-11	2E-07	3E-07	0.0000004
	PBDE # 153	4.1E-01	ug/kg	--	--	4E-13	7E-13	--	--	--	2E-04	2E-04	3E-12	5E-12	1E-08	3E-08	0.00000004
	PBDE # 209	1.1E+01	ug/kg	7E-04	7E-04	1E-11	2E-11	7E-15	1E-14	2E-14	7E-03	7E-03	8E-11	1E-10	1E-08	2E-08	0.00000003
Exposure Point Total										2E-14							0.0000009

**TABLE F3-11.**  
**Calculation of Cancer Risks and Noncancer Hazards - High-Frequency Fisher, In-water Sediment Exposure**  
**Central Tendency Exposure**

Scenario Timeframe: Current/Future  
Receptor Population: High frequency Fisher  
Population Age: Adult

Medium: Sediment  
Exposure Medium: In-water Sediment  
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC		Cancer Risk Calculations <sup>a</sup>						Noncancer Hazard Calculations <sup>a</sup>							
		Value	Units	Dermal Cancer Slope Factor (mg/kg-day) <sup>-1</sup>	Oral Cancer Slope Factor (mg/kg-day) <sup>-1</sup>	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk <sup>b</sup>	Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ <sup>b</sup>
RM 8.5 East	<b>Polybrominated Diphenyl Ethers</b>																
	PBDE # 47	4.1E+00	ug/kg	--	--	4E-12	7E-12	--	--	--	1E-04	1E-04	3E-11	5E-11	3E-07	5E-07	0.000008
	PBDE # 99	5.6E+00	ug/kg	--	--	5E-12	9E-12	--	--	--	1E-04	1E-04	4E-11	7E-11	4E-07	7E-07	0.000001
	PBDE # 153	1.1E+00	ug/kg	--	--	1E-12	2E-12	--	--	--	2E-04	2E-04	8E-12	1E-11	4E-08	7E-08	0.000001
	PBDE # 209	9.0E+01	ug/kg	7E-04	7E-04	8E-11	1E-10	6E-14	1E-13	2E-13	7E-03	7E-03	6E-10	1E-09	9E-08	2E-07	0.000003
Exposure Point Total										2E-13							0.000002
RM 9 West	<b>Polybrominated Diphenyl Ethers</b>																
	PBDE # 47	1.3E+00	ug/kg	--	--	1E-12	2E-12	--	--	--	1E-04	1E-04	9E-12	2E-11	9E-08	2E-07	0.000003
	PBDE # 99	1.2E+00	ug/kg	--	--	1E-12	2E-12	--	--	--	1E-04	1E-04	8E-12	2E-11	8E-08	2E-07	0.000002
	PBDE # 153	1.9E-01	ug/kg	--	--	2E-13	3E-13	--	--	--	2E-04	2E-04	1E-12	2E-12	7E-09	1E-08	0.0000002
	PBDE # 209	2.9E+00	ug/kg	7E-04	7E-04	3E-12	5E-12	2E-15	3E-15	5E-15	7E-03	7E-03	2E-11	4E-11	3E-09	5E-09	0.0000001
Exposure Point Total										5E-15							0.0000005
RM 9 East	<b>Polybrominated Diphenyl Ethers</b>																
	PBDE # 47	3.3E-01	ug/kg	--	--	3E-13	5E-13	--	--	--	1E-04	1E-04	2E-12	4E-12	2E-08	4E-08	0.0000001
	PBDE # 99	1.8E-01	ug/kg	--	--	2E-13	3E-13	--	--	--	1E-04	1E-04	1E-12	2E-12	1E-08	2E-08	0.0000004
Exposure Point Total										--							0.0000001
RM 9.5 West	<b>Polybrominated Diphenyl Ethers</b>																
	PBDE # 47	1.8E+00	ug/kg	--	--	2E-12	3E-12	--	--	--	1E-04	1E-04	1E-11	2E-11	1E-07	2E-07	0.0000004
	PBDE # 99	2.7E+00	ug/kg	--	--	2E-12	4E-12	--	--	--	1E-04	1E-04	2E-11	3E-11	2E-07	3E-07	0.0000005
	PBDE # 153	5.2E-01	ug/kg	--	--	5E-13	9E-13	--	--	--	2E-04	2E-04	4E-12	7E-12	2E-08	3E-08	0.0000001
	PBDE # 209	4.6E+01	ug/kg	7E-04	7E-04	4E-11	8E-11	3E-14	5E-14	8E-14	7E-03	7E-03	3E-10	6E-10	5E-08	8E-08	0.0000001
Exposure Point Total										8E-14							0.000001
RM 9.5 East	<b>Polybrominated Diphenyl Ethers</b>																
	PBDE # 47	9.9E-01	ug/kg	--	--	9E-13	2E-12	--	--	--	1E-04	1E-04	7E-12	1E-11	7E-08	1E-07	0.0000002
	PBDE # 99	7.9E-01	ug/kg	--	--	7E-13	1E-12	--	--	--	1E-04	1E-04	6E-12	1E-11	6E-08	1E-07	0.0000002
	PBDE # 209	2.0E+00	ug/kg	7E-04	7E-04	2E-12	3E-12	1E-15	2E-15	4E-15	7E-03	7E-03	1E-11	3E-11	2E-09	4E-09	0.0000001
Exposure Point Total										4E-15							0.0000004
RM 11 West	<b>Polybrominated Diphenyl Ethers</b>																
	PBDE # 47	2.9E+00	ug/kg	--	--	3E-12	5E-12	--	--	--	1E-04	1E-04	2E-11	4E-11	2E-07	4E-07	0.0000006
	PBDE # 99	3.7E+00	ug/kg	--	--	3E-12	6E-12	--	--	--	1E-04	1E-04	3E-11	5E-11	3E-07	5E-07	0.0000007
	PBDE # 153	6.3E-01	ug/kg	--	--	6E-13	1E-12	--	--	--	2E-04	2E-04	4E-12	8E-12	2E-08	4E-08	0.0000001
	PBDE # 209	5.7E+01	ug/kg	7E-04	7E-04	5E-11	9E-11	4E-14	7E-14	1E-13	7E-03	7E-03	4E-10	7E-10	6E-08	1E-07	0.0000002
Exposure Point Total										1E-13							0.000002
RM 11 East	<b>Polybrominated Diphenyl Ethers</b>																
	PBDE # 47	9.7E-01	ug/kg	--	--	9E-13	2E-12	--	--	--	1E-04	1E-04	7E-12	1E-11	7E-08	1E-07	0.0000002
	PBDE # 99	7.8E-01	ug/kg	--	--	7E-13	1E-12	--	--	--	1E-04	1E-04	5E-12	1E-11	5E-08	1E-07	0.0000002
Exposure Point Total										--							0.0000003

**TABLE F3-11.**  
**Calculation of Cancer Risks and Noncancer Hazards - High-Frequency Fisher, In-water Sediment Exposure**  
**Central Tendency Exposure**

Scenario Timeframe: Current/Future  
Receptor Population: High frequency Fisher  
Population Age: Adult

Medium: Sediment  
Exposure Medium: In-water Sediment  
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC		Cancer Risk Calculations <sup>a</sup>							Noncancer Hazard Calculations <sup>a</sup>						
		Value	Units	Dermal Cancer Slope Factor (mg/kg-day) <sup>-1</sup>	Oral Cancer Slope Factor (mg/kg-day) <sup>-1</sup>	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk <sup>b</sup>	Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ <sup>b</sup>
RM 12 West	<b>Polybrominated Diphenyl Ethers</b>																
	PBDE # 47	3.1E-01	ug/kg	--	--	3E-13	5E-13	--	--	--	1E-04	1E-04	2E-12	4E-12	2E-08	4E-08	0.0000001
	PBDE # 99	3.0E-01	ug/kg	--	--	3E-13	5E-13	--	--	--	1E-04	1E-04	2E-12	4E-12	2E-08	4E-08	0.0000001
Exposure Point Total										--							0.0000001
RM 12 East	<b>Polybrominated Diphenyl Ethers</b>																
	PBDE # 47	1.2E+00	ug/kg	--	--	1E-12	2E-12	--	--	--	1E-04	1E-04	8E-12	2E-11	8E-08	2E-07	0.0000002
	PBDE # 99	1.1E+00	ug/kg	--	--	1E-12	2E-12	--	--	--	1E-04	1E-04	8E-12	1E-11	8E-08	1E-07	0.0000002
Exposure Point Total										--							0.0000005
Study Area Wide <sup>d</sup>	<b>Polybrominated Diphenyl Ethers</b>																
	PBDE # 47	1.4E+00	ug/kg	--	--	1E-12	2E-12	--	--	--	1E-04	1E-04	1E-11	2E-11	1E-07	2E-07	0.0000003
	PBDE # 99	1.7E+00	ug/kg	--	--	2E-12	3E-12	--	--	--	1E-04	1E-04	1E-11	2E-11	1E-07	2E-07	0.0000003
	PBDE # 153	5.1E-01	ug/kg	--	--	5E-13	8E-13	--	--	--	2E-04	2E-04	4E-12	6E-12	2E-08	3E-08	0.0000001
	PBDE # 209	2.2E+01	ug/kg	7E-04	7E-04	2E-11	4E-11	1E-14	2E-14	4E-14	7E-03	7E-03	2E-10	3E-10	2E-08	4E-08	0.0000001
Exposure Point Total										4E-14							0.0000007

**Notes:**

- a Numbers presented are rounded values. Sums calculated before rounding. Risks and hazards are calculated based on exposure parameters presented in Section 3 of Appendix F. For risks and hazards from dermal contact, a dermal absorption efficiency of 0.1 was used, which is the dermal absorption efficiency presented for semi-volatile organic compounds in Risk Assessment Guidance for Superfund. Volume I: Human Health Evaluation Manual (Part E, Supplemental Guidance for Dermal Risk Assessment) Final, July 2004. EPA/540/R/99/005.
- b Study Area-wide dataset includes human health in-water sediment samples from RM 1.9 - 11.8 outside of the navigation channel and excluding Multnomah Channel.

**Abbreviations:**

-- = Not Applicable.  
 CDI = Chronic Daily Intake.  
 EPC = Exposure Point Concentration.  
 HQ = Hazard Quotient.  
 LADI = Lifetime Average Daily Intake.  
 mg/kg = milligrams per kilogram.

RfD = Reference dose.  
 RM = River mile.  
 ug/kg = micrograms per kilogram.

**TABLE F3-12.**  
**Calculation of Cancer Risks and Noncancer Hazards - Low-Frequency Fisher, In-water Sediment Exposure**  
**Reasonable Maximum Exposure**

Scenario Timeframe: Current/Future  
Receptor Population: Low-frequency Fisher  
Population Age: Adult

Medium: Sediment  
Exposure Medium: In-water Sediment  
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC		Cancer Risk Calculations <sup>a</sup>							Noncancer Hazard Calculations <sup>a</sup>						
		Value	Units	Dermal Cancer Slope Factor (mg/kg-day) <sup>-1</sup>	Oral Cancer Slope Factor (mg/kg-day) <sup>-1</sup>	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk	Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ
RM 1 West	<b>Polybrominated Diphenyl Ethers</b>																
	PBDE # 47	3.6E-01	ug/kg	--	--	9E-12	8E-12	--	--	--	1E-04	1E-04	2E-11	2E-11	2E-07	2E-07	0.000004
	PBDE # 99	3.7E-01	ug/kg	--	--	1E-11	8E-12	--	--	--	1E-04	1E-04	2E-11	2E-11	2E-07	2E-07	0.000004
	PBDE # 209	4.0E+00	ug/kg	7E-04	7E-04	1E-10	9E-11	7E-14	6E-14	1E-13	7E-03	7E-03	2E-10	2E-10	3E-08	3E-08	0.000001
Exposure Point Total				1E-13							0.000001						
RM 1 East	<b>Polybrominated Diphenyl Ethers</b>																
	PBDE # 47	7.6E-01	ug/kg	--	--	2E-11	2E-11	--	--	--	1E-04	1E-04	5E-11	4E-11	5E-07	4E-07	0.000001
	PBDE # 99	6.3E-01	ug/kg	--	--	2E-11	1E-11	--	--	--	1E-04	1E-04	4E-11	3E-11	4E-07	3E-07	0.000001
	PBDE # 209	3.7E+00	ug/kg	7E-04	7E-04	1E-10	8E-11	7E-14	6E-14	1E-13	7E-03	7E-03	2E-10	2E-10	3E-08	3E-08	0.000001
Exposure Point Total				1E-13							0.000002						
RM 1.5 West	<b>Polybrominated Diphenyl Ethers</b>																
PBDE # 47	1.2E-01	ug/kg	--	--	3E-12	3E-12	--	--	--	1E-04	1E-04	7E-12	6E-12	7E-08	6E-08	0.000001	
Exposure Point Total				--							0.000001						
RM 1.5 East	<b>Polybrominated Diphenyl Ethers</b>																
	PBDE # 47	1.4E+00	ug/kg	--	--	4E-11	3E-11	--	--	--	1E-04	1E-04	8E-11	7E-11	8E-07	7E-07	0.000002
	PBDE # 99	1.4E+00	ug/kg	--	--	4E-11	3E-11	--	--	--	1E-04	1E-04	8E-11	7E-11	8E-07	7E-07	0.000002
	PBDE # 153	1.8E-01	ug/kg	--	--	5E-12	4E-12	--	--	--	2E-04	2E-04	1E-11	9E-12	5E-08	5E-08	0.000001
	PBDE # 209	4.5E+00	ug/kg	7E-04	7E-04	1E-10	1E-10	8E-14	7E-14	2E-13	7E-03	7E-03	3E-10	2E-10	4E-08	3E-08	0.000001
Exposure Point Total				2E-13							0.000003						
RM 2 West	<b>Polybrominated Diphenyl Ethers</b>																
	PBDE # 47	1.8E+00	ug/kg	--	--	5E-11	4E-11	--	--	--	1E-04	1E-04	1E-10	9E-11	1E-06	9E-07	0.000002
	PBDE # 99	1.7E+00	ug/kg	--	--	4E-11	4E-11	--	--	--	1E-04	1E-04	1E-10	9E-11	1E-06	9E-07	0.000002
	PBDE # 153	4.2E-01	ug/kg	--	--	1E-11	9E-12	--	--	--	2E-04	2E-04	3E-11	2E-11	1E-07	1E-07	0.000002
	PBDE # 209	6.0E+00	ug/kg	7E-04	7E-04	2E-10	1E-10	1E-13	9E-14	2E-13	7E-03	7E-03	4E-10	3E-10	5E-08	4E-08	0.000001
Exposure Point Total				2E-13							0.000004						
RM 2 East	<b>Polybrominated Diphenyl Ethers</b>																
	PBDE # 47	1.8E+00	ug/kg	--	--	5E-11	4E-11	--	--	--	1E-04	1E-04	1E-10	9E-11	1E-06	9E-07	0.000002
	PBDE # 99	2.1E+00	ug/kg	--	--	5E-11	5E-11	--	--	--	1E-04	1E-04	1E-10	1E-10	1E-06	1E-06	0.000002
	PBDE # 153	2.9E-01	ug/kg	--	--	8E-12	6E-12	--	--	--	2E-04	2E-04	2E-11	1E-11	9E-08	7E-08	0.000002
	PBDE # 209	8.4E+00	ug/kg	7E-04	7E-04	2E-10	2E-10	2E-13	1E-13	3E-13	7E-03	7E-03	5E-10	4E-10	7E-08	6E-08	0.000001
Exposure Point Total				3E-13							0.000005						
RM 2.5 East	<b>Polybrominated Diphenyl Ethers</b>																
	PBDE # 47	2.0E-01	ug/kg	--	--	5E-12	4E-12	--	--	--	1E-04	1E-04	1E-11	1E-11	1E-07	1E-07	0.000002
	PBDE # 99	2.4E-01	ug/kg	--	--	6E-12	5E-12	--	--	--	1E-04	1E-04	1E-11	1E-11	1E-07	1E-07	0.000003
Exposure Point Total				--							0.000005						
RM 2.5 MC	<b>Polybrominated Diphenyl Ethers</b>																
PBDE # 47	1.4E-01	ug/kg	--	--	4E-12	3E-12	--	--	--	1E-04	1E-04	8E-12	7E-12	8E-08	7E-08	0.000002	
Exposure Point Total				--							0.000002						



**TABLE F3-12.**  
**Calculation of Cancer Risks and Noncancer Hazards - Low-Frequency Fisher, In-water Sediment Exposure**  
**Reasonable Maximum Exposure**

Scenario Timeframe: Current/Future  
Receptor Population: Low-frequency Fisher  
Population Age: Adult

Medium: Sediment  
Exposure Medium: In-water Sediment  
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC		Cancer Risk Calculations <sup>a</sup>						Noncancer Hazard Calculations <sup>a</sup>							
		Value	Units	Dermal Cancer Slope Factor (mg/kg-day) <sup>-1</sup>	Oral Cancer Slope Factor (mg/kg-day) <sup>-1</sup>	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk	Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ
RM 3 West	<b>Polybrominated Diphenyl Ethers</b>																
	PBDE # 47	1.4E+00	ug/kg	--	--	4E-11	3E-11	--	--	--	1E-04	1E-04	8E-11	7E-11	8E-07	7E-07	0.000002
	PBDE # 99	1.3E+00	ug/kg	--	--	3E-11	3E-11	--	--	--	1E-04	1E-04	8E-11	7E-11	8E-07	7E-07	0.000001
	PBDE # 153	2.9E-01	ug/kg	--	--	8E-12	6E-12	--	--	--	2E-04	2E-04	2E-11	1E-11	9E-08	7E-08	0.0000002
	PBDE # 209	5.3E+00	ug/kg	7E-04	7E-04	1E-10	1E-10	1E-13	8E-14	2E-13	7E-03	7E-03	3E-10	3E-10	5E-08	4E-08	0.0000001
Exposure Point Total										2E-13							0.000003
RM 3 East	<b>Polybrominated Diphenyl Ethers</b>																
	PBDE # 47	1.6E+00	ug/kg	--	--	4E-11	3E-11	--	--	--	1E-04	1E-04	1E-10	8E-11	1E-06	8E-07	0.000002
	PBDE # 99	1.6E+00	ug/kg	--	--	4E-11	3E-11	--	--	--	1E-04	1E-04	1E-10	8E-11	1E-06	8E-07	0.000002
	PBDE # 153	3.3E-01	ug/kg	--	--	9E-12	7E-12	--	--	--	2E-04	2E-04	2E-11	2E-11	1E-07	8E-08	0.0000002
	PBDE # 209	6.9E+00	ug/kg	7E-04	7E-04	2E-10	2E-10	1E-13	1E-13	2E-13	7E-03	7E-03	4E-10	4E-10	6E-08	5E-08	0.0000001
Exposure Point Total										2E-13							0.000004
RM 3.5 West	<b>Polybrominated Diphenyl Ethers</b>																
	PBDE # 47	1.4E-01	ug/kg	--	--	4E-12	3E-12	--	--	--	1E-04	1E-04	8E-12	7E-12	8E-08	7E-08	0.0000002
	PBDE # 99	1.2E-01	ug/kg	--	--	3E-12	3E-12	--	--	--	1E-04	1E-04	7E-12	6E-12	7E-08	6E-08	0.0000001
Exposure Point Total										--							0.0000003
RM 3.5 East	<b>Polybrominated Diphenyl Ethers</b>																
	PBDE # 47	5.2E+00	ug/kg	--	--	1E-10	1E-10	--	--	--	1E-04	1E-04	3E-10	3E-10	3E-06	3E-06	0.000006
	PBDE # 99	8.2E+00	ug/kg	--	--	2E-10	2E-10	--	--	--	1E-04	1E-04	5E-10	4E-10	5E-06	4E-06	0.000009
	PBDE # 153	1.5E+00	ug/kg	--	--	4E-11	3E-11	--	--	--	2E-04	2E-04	9E-11	8E-11	5E-07	4E-07	0.000001
	PBDE # 209	5.6E+01	ug/kg	7E-04	7E-04	1E-09	1E-09	1E-12	9E-13	2E-12	7E-03	7E-03	3E-09	3E-09	5E-07	4E-07	0.000001
Exposure Point Total										2E-12							0.00002
RM 4 West	<b>Polybrominated Diphenyl Ethers</b>																
	PBDE # 47	3.5E-01	ug/kg	--	--	9E-12	8E-12	--	--	--	1E-04	1E-04	2E-11	2E-11	2E-07	2E-07	0.0000004
	PBDE # 99	2.3E-01	ug/kg	--	--	6E-12	5E-12	--	--	--	1E-04	1E-04	1E-11	1E-11	1E-07	1E-07	0.0000003
Exposure Point Total										--							0.000001
RM 5 West	<b>Polybrominated Diphenyl Ethers</b>																
	PBDE # 47	3.7E-01	ug/kg	--	--	1E-11	8E-12	--	--	--	1E-04	1E-04	2E-11	2E-11	2E-07	2E-07	0.0000004
	PBDE # 99	3.7E-01	ug/kg	--	--	1E-11	8E-12	--	--	--	1E-04	1E-04	2E-11	2E-11	2E-07	2E-07	0.0000004
Exposure Point Total										--							0.000001
RM 5.5 West	<b>Polybrominated Diphenyl Ethers</b>																
	PBDE # 47	1.4E+00	ug/kg	--	--	4E-11	3E-11	--	--	--	1E-04	1E-04	8E-11	7E-11	8E-07	7E-07	0.000002
	PBDE # 99	1.2E+00	ug/kg	--	--	3E-11	3E-11	--	--	--	1E-04	1E-04	7E-11	6E-11	7E-07	6E-07	0.000001
	PBDE # 153	2.3E-01	ug/kg	--	--	6E-12	5E-12	--	--	--	2E-04	2E-04	1E-11	1E-11	7E-08	6E-08	0.0000001
	PBDE # 209	7.4E+00	ug/kg	7E-04	7E-04	2E-10	2E-10	1E-13	1E-13	2E-13	7E-03	7E-03	4E-10	4E-10	6E-08	5E-08	0.0000001
Exposure Point Total										2E-13							0.000003

**TABLE F3-12.**  
**Calculation of Cancer Risks and Noncancer Hazards - Low-Frequency Fisher, In-water Sediment Exposure**  
**Reasonable Maximum Exposure**

Scenario Timeframe: Current/Future  
Receptor Population: Low-frequency Fisher  
Population Age: Adult

Medium: Sediment  
Exposure Medium: In-water Sediment  
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC		Cancer Risk Calculations <sup>a</sup>						Noncancer Hazard Calculations <sup>a</sup>							
		Value	Units	Dermal Cancer Slope Factor (mg/kg-day) <sup>-1</sup>	Oral Cancer Slope Factor (mg/kg-day) <sup>-1</sup>	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk	Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ
RM 5.5 East	<b>Polybrominated Diphenyl Ethers</b>																
	PBDE # 47	1.8E+00	ug/kg	--	--	5E-11	4E-11	--	--	--	1E-04	1E-04	1E-10	9E-11	1E-06	9E-07	0.000002
	PBDE # 99	1.8E+00	ug/kg	--	--	5E-11	4E-11	--	--	--	1E-04	1E-04	1E-10	9E-11	1E-06	9E-07	0.000002
	PBDE # 153	2.6E-01	ug/kg	--	--	7E-12	6E-12	--	--	--	2E-04	2E-04	2E-11	1E-11	8E-08	7E-08	0.0000001
	PBDE # 209	2.8E+00	ug/kg	7E-04	7E-04	7E-11	6E-11	5E-14	4E-14	9E-14	7E-03	7E-03	2E-10	1E-10	2E-08	2E-08	0.00000004
Exposure Point Total										9E-14							0.000004
RM 6 West	<b>Polybrominated Diphenyl Ethers</b>																
	PBDE # 47	1.3E-01	ug/kg	--	--	3E-12	3E-12	--	--	--	1E-04	1E-04	8E-12	7E-12	8E-08	7E-08	0.0000001
	PBDE # 99	1.3E-01	ug/kg	--	--	3E-12	3E-12	--	--	--	1E-04	1E-04	8E-12	7E-12	8E-08	7E-08	0.0000001
	PBDE # 209	3.5E+00	ug/kg	7E-04	7E-04	9E-11	8E-11	6E-14	5E-14	1E-13	7E-03	7E-03	2E-10	2E-10	3E-08	3E-08	0.0000001
Exposure Point Total										1E-13							0.0000003
RM 6 East	<b>Polybrominated Diphenyl Ethers</b>																
	PBDE # 47	2.7E-01	ug/kg	--	--	7E-12	6E-12	--	--	--	1E-04	1E-04	2E-11	1E-11	2E-07	1E-07	0.0000003
	PBDE # 99	1.7E-01	ug/kg	--	--	4E-12	4E-12	--	--	--	1E-04	1E-04	1E-11	9E-12	1E-07	9E-08	0.0000002
Exposure Point Total										--							0.0000005
RM 6.5 West	<b>Polybrominated Diphenyl Ethers</b>																
	PBDE # 47	1.1E-01	ug/kg	--	--	3E-12	2E-12	--	--	--	1E-04	1E-04	7E-12	6E-12	7E-08	6E-08	0.0000001
	PBDE # 99	1.3E-01	ug/kg	--	--	3E-12	3E-12	--	--	--	1E-04	1E-04	8E-12	7E-12	8E-08	7E-08	0.0000001
Exposure Point Total										--							0.0000003
RM 6.5 East	<b>Polybrominated Diphenyl Ethers</b>																
	PBDE # 47	1.8E+00	ug/kg	--	--	5E-11	4E-11	--	--	--	1E-04	1E-04	1E-10	9E-11	1E-06	9E-07	0.000002
	PBDE # 99	1.9E+00	ug/kg	--	--	5E-11	4E-11	--	--	--	1E-04	1E-04	1E-10	1E-10	1E-06	1E-06	0.000002
	PBDE # 153	3.5E-01	ug/kg	--	--	9E-12	8E-12	--	--	--	2E-04	2E-04	2E-11	2E-11	1E-07	9E-08	0.0000002
	PBDE # 209	2.5E+01	ug/kg	7E-04	7E-04	6E-10	5E-10	5E-13	4E-13	8E-13	7E-03	7E-03	2E-09	1E-09	2E-07	2E-07	0.0000004
Exposure Point Total										8E-13							0.000005
RM 7 West	<b>Polybrominated Diphenyl Ethers</b>																
	PBDE # 47	9.5E-01	ug/kg	--	--	2E-11	2E-11	--	--	--	1E-04	1E-04	6E-11	5E-11	6E-07	5E-07	0.000001
	PBDE # 99	9.9E-01	ug/kg	--	--	3E-11	2E-11	--	--	--	1E-04	1E-04	6E-11	5E-11	6E-07	5E-07	0.000001
	PBDE # 153	2.9E-01	ug/kg	--	--	8E-12	6E-12	--	--	--	2E-04	2E-04	2E-11	1E-11	9E-08	7E-08	0.0000002
	PBDE # 209	6.1E+00	ug/kg	7E-04	7E-04	2E-10	1E-10	1E-13	9E-14	2E-13	7E-03	7E-03	4E-10	3E-10	5E-08	4E-08	0.0000001
Exposure Point Total										2E-13							0.000002
RM 7 East	<b>Polybrominated Diphenyl Ethers</b>																
	PBDE # 47	1.7E+00	ug/kg	--	--	4E-11	4E-11	--	--	--	1E-04	1E-04	1E-10	9E-11	1E-06	9E-07	0.000002
	PBDE # 99	1.5E+00	ug/kg	--	--	4E-11	3E-11	--	--	--	1E-04	1E-04	9E-11	8E-11	9E-07	8E-07	0.000002
	PBDE # 153	3.1E-01	ug/kg	--	--	8E-12	7E-12	--	--	--	2E-04	2E-04	2E-11	2E-11	9E-08	8E-08	0.0000002
	PBDE # 209	6.2E+00	ug/kg	7E-04	7E-04	2E-10	1E-10	1E-13	9E-14	2E-13	7E-03	7E-03	4E-10	3E-10	5E-08	5E-08	0.0000001
Exposure Point Total										2E-13							0.000004



**TABLE F3-12.**  
**Calculation of Cancer Risks and Noncancer Hazards - Low-Frequency Fisher, In-water Sediment Exposure**  
**Reasonable Maximum Exposure**

Scenario Timeframe: Current/Future  
Receptor Population: Low-frequency Fisher  
Population Age: Adult

Medium: Sediment  
Exposure Medium: In-water Sediment  
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC		Cancer Risk Calculations <sup>a</sup>						Noncancer Hazard Calculations <sup>a</sup>							
		Value	Units	Dermal Cancer Slope Factor (mg/kg-day) <sup>-1</sup>	Oral Cancer Slope Factor (mg/kg-day) <sup>-1</sup>	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk	Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ
RM 7.5 West	<b>Polybrominated Diphenyl Ethers</b>																
	PBDE # 47	1.7E+00	ug/kg	--	--	4E-11	4E-11	--	--	--	1E-04	1E-04	1E-10	9E-11	1E-06	9E-07	0.000002
	PBDE # 99	1.5E+00	ug/kg	--	--	4E-11	3E-11	--	--	--	1E-04	1E-04	9E-11	8E-11	9E-07	8E-07	0.000002
	PBDE # 153	3.1E-01	ug/kg	--	--	8E-12	7E-12	--	--	--	2E-04	2E-04	2E-11	2E-11	9E-08	8E-08	0.0000002
	PBDE # 209	5.1E+00	ug/kg	7E-04	7E-04	1E-10	1E-10	9E-14	8E-14	2E-13	7E-03	7E-03	3E-10	3E-10	4E-08	4E-08	0.0000001
Exposure Point Total										2E-13							0.000004
RM 7.5 East	<b>Polybrominated Diphenyl Ethers</b>																
	PBDE # 47	2.5E+00	ug/kg	--	--	6E-11	5E-11	--	--	--	1E-04	1E-04	2E-10	1E-10	2E-06	1E-06	0.000003
	PBDE # 99	2.9E+00	ug/kg	--	--	8E-11	6E-11	--	--	--	1E-04	1E-04	2E-10	1E-10	2E-06	1E-06	0.000003
	PBDE # 153	4.5E-01	ug/kg	--	--	1E-11	1E-11	--	--	--	2E-04	2E-04	3E-11	2E-11	1E-07	1E-07	0.0000003
	PBDE # 209	1.3E+01	ug/kg	7E-04	7E-04	3E-10	3E-10	2E-13	2E-13	4E-13	7E-03	7E-03	8E-10	7E-10	1E-07	9E-08	0.0000002
Exposure Point Total										4E-13							0.000006
RM 8 West	<b>Polybrominated Diphenyl Ethers</b>																
	PBDE # 47	8.3E-01	ug/kg	--	--	2E-11	2E-11	--	--	--	1E-04	1E-04	5E-11	4E-11	5E-07	4E-07	0.000001
	PBDE # 99	1.2E+00	ug/kg	--	--	3E-11	3E-11	--	--	--	1E-04	1E-04	7E-11	6E-11	7E-07	6E-07	0.000001
	PBDE # 153	8.4E-01	ug/kg	--	--	2E-11	2E-11	--	--	--	2E-04	2E-04	5E-11	4E-11	3E-07	2E-07	0.000000
	PBDE # 209	4.4E+02	ug/kg	7E-04	7E-04	1E-08	1E-08	8E-12	7E-12	1E-11	7E-03	7E-03	3E-08	2E-08	4E-06	3E-06	0.000007
Exposure Point Total										1E-11							0.000010
RM 8 East	<b>Polybrominated Diphenyl Ethers</b>																
	PBDE # 47	2.1E+00	ug/kg	--	--	5E-11	5E-11	--	--	--	1E-04	1E-04	1E-10	1E-10	1E-06	1E-06	0.000002
	PBDE # 99	2.2E+00	ug/kg	--	--	6E-11	5E-11	--	--	--	1E-04	1E-04	1E-10	1E-10	1E-06	1E-06	0.000002
	PBDE # 153	6.2E-01	ug/kg	--	--	2E-11	1E-11	--	--	--	2E-04	2E-04	4E-11	3E-11	2E-07	2E-07	0.0000003
	PBDE # 209	2.4E+01	ug/kg	7E-04	7E-04	6E-10	5E-10	4E-13	4E-13	8E-13	7E-03	7E-03	1E-09	1E-09	2E-07	2E-07	0.0000004
Exposure Point Total										8E-13							0.000006
RM 8 SIL	<b>Polybrominated Diphenyl Ethers</b>																
	PBDE # 47	4.5E+00	ug/kg	--	--	1E-10	1E-10	--	--	--	1E-04	1E-04	3E-10	2E-10	3E-06	2E-06	0.000005
	PBDE # 99	4.3E+00	ug/kg	--	--	1E-10	9E-11	--	--	--	1E-04	1E-04	3E-10	2E-10	3E-06	2E-06	0.000005
	PBDE # 153	1.2E+00	ug/kg	--	--	3E-11	3E-11	--	--	--	2E-04	2E-04	7E-11	6E-11	4E-07	3E-07	0.000001
	PBDE # 209	3.7E+01	ug/kg	7E-04	7E-04	1E-09	8E-10	7E-13	6E-13	1E-12	7E-03	7E-03	2E-09	2E-09	3E-07	3E-07	0.000001
Exposure Point Total										1E-12							0.00001
RM 8.5 West	<b>Polybrominated Diphenyl Ethers</b>																
	PBDE # 47	2.0E+00	ug/kg	--	--	5E-11	4E-11	--	--	--	1E-04	1E-04	1E-10	1E-10	1E-06	1E-06	0.000002
	PBDE # 99	2.2E+00	ug/kg	--	--	6E-11	5E-11	--	--	--	1E-04	1E-04	1E-10	1E-10	1E-06	1E-06	0.000002
	PBDE # 153	4.1E-01	ug/kg	--	--	1E-11	9E-12	--	--	--	2E-04	2E-04	2E-11	2E-11	1E-07	1E-07	0.0000002
	PBDE # 209	1.1E+01	ug/kg	7E-04	7E-04	3E-10	2E-10	2E-13	2E-13	4E-13	7E-03	7E-03	7E-10	6E-10	9E-08	8E-08	0.0000002
Exposure Point Total										4E-13							0.000005

**TABLE F3-12.**  
**Calculation of Cancer Risks and Noncancer Hazards - Low-Frequency Fisher, In-water Sediment Exposure**  
**Reasonable Maximum Exposure**

Scenario Timeframe: Current/Future  
Receptor Population: Low-frequency Fisher  
Population Age: Adult

Medium: Sediment  
Exposure Medium: In-water Sediment  
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC		Cancer Risk Calculations <sup>a</sup>						Noncancer Hazard Calculations <sup>a</sup>							
		Value	Units	Dermal Cancer Slope Factor (mg/kg-day) <sup>-1</sup>	Oral Cancer Slope Factor (mg/kg-day) <sup>-1</sup>	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk	Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ
RM 8.5 East	<b>Polybrominated Diphenyl Ethers</b>																
	PBDE # 47	4.1E+00	ug/kg	--	--	1E-10	9E-11	--	--	--	1E-04	1E-04	2E-10	2E-10	2E-06	2E-06	0.000005
	PBDE # 99	5.6E+00	ug/kg	--	--	1E-10	1E-10	--	--	--	1E-04	1E-04	3E-10	3E-10	3E-06	3E-06	0.000006
	PBDE # 153	1.1E+00	ug/kg	--	--	3E-11	2E-11	--	--	--	2E-04	2E-04	7E-11	6E-11	3E-07	3E-07	0.000001
	PBDE # 209	9.0E+01	ug/kg	7E-04	7E-04	2E-09	2E-09	2E-12	1E-12	3E-12	7E-03	7E-03	5E-09	5E-09	8E-07	7E-07	0.000001
Exposure Point Total										3E-12							0.00001
RM 9 West	<b>Polybrominated Diphenyl Ethers</b>																
	PBDE # 47	1.3E+00	ug/kg	--	--	3E-11	3E-11	--	--	--	1E-04	1E-04	8E-11	7E-11	8E-07	7E-07	0.000001
	PBDE # 99	1.2E+00	ug/kg	--	--	3E-11	3E-11	--	--	--	1E-04	1E-04	7E-11	6E-11	7E-07	6E-07	0.000001
	PBDE # 153	1.9E-01	ug/kg	--	--	5E-12	4E-12	--	--	--	2E-04	2E-04	1E-11	1E-11	6E-08	5E-08	0.000000
	PBDE # 209	2.9E+00	ug/kg	7E-04	7E-04	8E-11	6E-11	5E-14	4E-14	1E-13	7E-03	7E-03	2E-10	1E-10	3E-08	2E-08	0.000000
Exposure Point Total										1E-13							0.000003
RM 9 East	<b>Polybrominated Diphenyl Ethers</b>																
	PBDE # 47	3.3E-01	ug/kg	--	--	9E-12	7E-12	--	--	--	1E-04	1E-04	2E-11	2E-11	2E-07	2E-07	0.0000004
	PBDE # 99	1.8E-01	ug/kg	--	--	5E-12	4E-12	--	--	--	1E-04	1E-04	1E-11	9E-12	1E-07	9E-08	0.0000002
Exposure Point Total										--							0.000001
RM 9.5 West	<b>Polybrominated Diphenyl Ethers</b>																
	PBDE # 47	1.8E+00	ug/kg	--	--	5E-11	4E-11	--	--	--	1E-04	1E-04	1E-10	9E-11	1E-06	9E-07	0.000002
	PBDE # 99	2.7E+00	ug/kg	--	--	7E-11	6E-11	--	--	--	1E-04	1E-04	2E-10	1E-10	2E-06	1E-06	0.000003
	PBDE # 153	5.2E-01	ug/kg	--	--	1E-11	1E-11	--	--	--	2E-04	2E-04	3E-11	3E-11	2E-07	1E-07	0.0000003
	PBDE # 209	4.6E+01	ug/kg	7E-04	7E-04	1E-09	1E-09	8E-13	7E-13	2E-12	7E-03	7E-03	3E-09	2E-09	4E-07	3E-07	0.000001
Exposure Point Total										2E-12							0.000006
RM 9.5 East	<b>Polybrominated Diphenyl Ethers</b>																
	PBDE # 47	9.9E-01	ug/kg	--	--	3E-11	2E-11	--	--	--	1E-04	1E-04	6E-11	5E-11	6E-07	5E-07	0.000001
	PBDE # 99	7.9E-01	ug/kg	--	--	2E-11	2E-11	--	--	--	1E-04	1E-04	5E-11	4E-11	5E-07	4E-07	0.000001
	PBDE # 209	2.0E+00	ug/kg	7E-04	7E-04	5E-11	4E-11	4E-14	3E-14	7E-14	7E-03	7E-03	1E-10	1E-10	2E-08	1E-08	0.0000003
Exposure Point Total										7E-14							0.000002
RM 11 West	<b>Polybrominated Diphenyl Ethers</b>																
	PBDE # 47	2.9E+00	ug/kg	--	--	8E-11	6E-11	--	--	--	1E-04	1E-04	2E-10	1E-10	2E-06	1E-06	0.000003
	PBDE # 99	3.7E+00	ug/kg	--	--	1E-10	8E-11	--	--	--	1E-04	1E-04	2E-10	2E-10	2E-06	2E-06	0.000004
	PBDE # 153	6.3E-01	ug/kg	--	--	2E-11	1E-11	--	--	--	2E-04	2E-04	4E-11	3E-11	2E-07	2E-07	0.0000004
	PBDE # 209	5.7E+01	ug/kg	7E-04	7E-04	1E-09	1E-09	1E-12	9E-13	2E-12	7E-03	7E-03	3E-09	3E-09	5E-07	4E-07	0.000001
Exposure Point Total										2E-12							0.000009
RM 11 East	<b>Polybrominated Diphenyl Ethers</b>																
	PBDE # 47	1.5E+00	ug/kg	--	--	4E-11	3E-11	--	--	--	1E-04	1E-04	9E-11	8E-11	9E-07	8E-07	0.000002
	PBDE # 99	1.2E+00	ug/kg	--	--	3E-11	3E-11	--	--	--	1E-04	1E-04	7E-11	6E-11	7E-07	6E-07	0.000001
Exposure Point Total										--							0.000003

**TABLE F3-12.**  
**Calculation of Cancer Risks and Noncancer Hazards - Low-Frequency Fisher, In-water Sediment Exposure**  
**Reasonable Maximum Exposure**

Scenario Timeframe: Current/Future Medium: Sediment  
Receptor Population: Low-frequency Fisher Exposure Medium: In-water Sediment  
Population Age: Adult Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC		Cancer Risk Calculations <sup>a</sup>						Noncancer Hazard Calculations <sup>a</sup>							
		Value	Units	Dermal Cancer Slope Factor (mg/kg-day) <sup>-1</sup>	Oral Cancer Slope Factor (mg/kg-day) <sup>-1</sup>	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk	Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ
RM 12 West	<b>Polybrominated Diphenyl Ethers</b>																
	PBDE # 47	3.1E-01	ug/kg	--	--	8E-12	7E-12	--	--	--	1E-04	1E-04	2E-11	2E-11	2E-07	2E-07	0.000003
	PBDE # 99	3.0E-01	ug/kg	--	--	8E-12	7E-12	--	--	--	1E-04	1E-04	2E-11	2E-11	2E-07	2E-07	0.000003
Exposure Point Total										--							0.000001
RM 12 East	<b>Polybrominated Diphenyl Ethers</b>																
	PBDE # 47	1.2E+00	ug/kg	--	--	3E-11	3E-11	--	--	--	1E-04	1E-04	7E-11	6E-11	7E-07	6E-07	0.000001
	PBDE # 99	1.1E+00	ug/kg	--	--	3E-11	2E-11	--	--	--	1E-04	1E-04	7E-11	6E-11	7E-07	6E-07	0.000001
Exposure Point Total										--							0.000003
Study Area Wide <sup>b</sup>	<b>Polybrominated Diphenyl Ethers</b>																
	PBDE # 47	2.2E+00	ug/kg	--	--	6E-11	5E-11	--	--	--	1E-04	1E-04	1E-10	1E-10	1E-06	1E-06	0.000002
	PBDE # 99	2.8E+00	ug/kg	--	--	7E-11	6E-11	--	--	--	1E-04	1E-04	2E-10	1E-10	2E-06	1E-06	0.000003
	PBDE # 153	5.3E-01	ug/kg	--	--	1E-11	1E-11	--	--	--	2E-04	2E-04	3E-11	3E-11	2E-07	1E-07	0.000003
	PBDE # 209	6.0E+01	ug/kg	7E-04	7E-04	2E-09	1E-09	1E-12	9E-13	2E-12	7E-03	7E-03	4E-09	3E-09	5E-07	4E-07	0.000001
Exposure Point Total										2E-12							0.000007

**Notes:**

a Numbers presented are rounded values. Sums calculated before rounding. Risks and hazards are calculated based on exposure parameters presented in Section 3 of Appendix F. For risks and hazards from dermal contact, a dermal absorption efficiency of 0.1 was used, which is the dermal absorption efficiency presented for semi-volatile organic compounds in Risk Assessment Guidance for Superfund. Volume I: Human Health Evaluation Manual (Part E, Supplemental Guidance for Dermal Risk Assessment) Final, July 2004. EPA/540/R/99/005.

b Study Area wide dataset includes human health in-water sediment samples from RM 1.9 - 11.8 outside of the navigation channel and excluding Multnomah Channel.

**Abbreviations:**

-- = Not Applicable.  
CDI = Chronic Daily Intake.  
EPC = Exposure Point Concentration.  
HQ = Hazard Quotient.  
LADI = Lifetime Average Daily Intake.  
mg/kg = milligrams per kilogram.

RfD = Reference dose.  
RM = River mile.  
ug/kg = micrograms per kilogram.

**TABLE F3-13.**  
**Calculation of Cancer Risks and Noncancer Hazards - Low-Frequency Fisher, In-water Sediment Exposure**  
**Central Tendency Exposure**

Scenario Timeframe: Current/Future  
Receptor Population: Low frequency Fisher  
Population Age: Adult

Medium: Sediment  
Exposure Medium: In-water Sediment  
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC		Cancer Risk Calculations <sup>a</sup>							Noncancer Hazard Calculations <sup>a</sup>						
		Value	Units	Dermal Cancer Slope Factor (mg/kg-day) <sup>-1</sup>	Oral Cancer Slope Factor (mg/kg-day) <sup>-1</sup>	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk <sup>b</sup>	Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ <sup>b</sup>
RM 1 West	<b>Polybrominated Diphenyl Ethers</b>																
	PBDE # 47	3.3E-01	ug/kg	--	--	1E-13	3E-13	--	--	--	1E-04	1E-04	1E-12	2E-12	1E-08	2E-08	0.00000003
	PBDE # 99	3.2E-01	ug/kg	--	--	1E-13	3E-13	--	--	--	1E-04	1E-04	1E-12	2E-12	1E-08	2E-08	0.00000003
	PBDE # 209	3.8E+00	ug/kg	7E-04	7E-04	2E-12	3E-12	1E-15	2E-15	3E-15	7E-03	7E-03	1E-11	2E-11	2E-09	3E-09	0.00000001
Exposure Point Total <sup>c</sup>										3E-15							0.00000001
RM 1 East	<b>Polybrominated Diphenyl Ethers</b>																
	PBDE # 47	7.6E-01	ug/kg	--	--	3E-13	6E-13	--	--	--	1E-04	1E-04	3E-12	5E-12	3E-08	5E-08	0.00000001
	PBDE # 99	6.3E-01	ug/kg	--	--	3E-13	5E-13	--	--	--	1E-04	1E-04	2E-12	4E-12	2E-08	4E-08	0.00000001
	PBDE # 209	3.7E+00	ug/kg	7E-04	7E-04	2E-12	3E-12	1E-15	2E-15	3E-15	7E-03	7E-03	1E-11	2E-11	2E-09	3E-09	0.00000001
Exposure Point Total										3E-15							0.00000001
RM 1.5 West	<b>Polybrominated Diphenyl Ethers</b>																
	PBDE # 47	1.2E-01	ug/kg	--	--	5E-14	1E-13	--	--	--	1E-04	1E-04	4E-13	8E-13	4E-09	8E-09	0.00000001
Exposure Point Total										--							0.00000001
RM 1.5 East	<b>Polybrominated Diphenyl Ethers</b>																
	PBDE # 47	1.4E+00	ug/kg	--	--	6E-13	1E-12	--	--	--	1E-04	1E-04	5E-12	9E-12	5E-08	9E-08	0.00000001
	PBDE # 99	1.4E+00	ug/kg	--	--	6E-13	1E-12	--	--	--	1E-04	1E-04	5E-12	9E-12	5E-08	9E-08	0.00000001
	PBDE # 153	1.8E-01	ug/kg	--	--	8E-14	1E-13	--	--	--	2E-04	2E-04	6E-13	1E-12	3E-09	6E-09	0.00000001
	PBDE # 209	4.5E+00	ug/kg	7E-04	7E-04	2E-12	4E-12	1E-15	3E-15	4E-15	7E-03	7E-03	2E-11	3E-11	2E-09	4E-09	0.00000001
Exposure Point Total										4E-15							0.00000003
RM 2 West	<b>Polybrominated Diphenyl Ethers</b>																
	PBDE # 47	1.1E+00	ug/kg	--	--	5E-13	9E-13	--	--	--	1E-04	1E-04	4E-12	7E-12	4E-08	7E-08	0.00000001
	PBDE # 99	1.0E+00	ug/kg	--	--	5E-13	8E-13	--	--	--	1E-04	1E-04	4E-12	6E-12	4E-08	6E-08	0.00000001
	PBDE # 153	4.9E-01	ug/kg	--	--	2E-13	4E-13	--	--	--	2E-04	2E-04	2E-12	3E-12	9E-09	2E-08	0.00000002
	PBDE # 209	5.8E+00	ug/kg	7E-04	7E-04	3E-12	5E-12	2E-15	3E-15	5E-15	7E-03	7E-03	2E-11	4E-11	3E-09	5E-09	0.00000001
Exposure Point Total										5E-15							0.00000002
RM 2 East	<b>Polybrominated Diphenyl Ethers</b>																
	PBDE # 47	1.8E+00	ug/kg	--	--	8E-13	1E-12	--	--	--	1E-04	1E-04	6E-12	1E-11	6E-08	1E-07	0.00000002
	PBDE # 99	2.0E+00	ug/kg	--	--	9E-13	2E-12	--	--	--	1E-04	1E-04	7E-12	1E-11	7E-08	1E-07	0.00000002
	PBDE # 153	2.8E-01	ug/kg	--	--	1E-13	2E-13	--	--	--	2E-04	2E-04	1E-12	2E-12	5E-09	9E-09	0.00000001
	PBDE # 209	6.9E+00	ug/kg	7E-04	7E-04	3E-12	6E-12	2E-15	4E-15	6E-15	7E-03	7E-03	2E-11	4E-11	3E-09	6E-09	0.00000001
Exposure Point Total										6E-15							0.00000004
RM 2.5 East	<b>Polybrominated Diphenyl Ethers</b>																
	PBDE # 47	2.0E-01	ug/kg	--	--	9E-14	2E-13	--	--	--	1E-04	1E-04	7E-13	1E-12	7E-09	1E-08	0.00000002
	PBDE # 99	2.4E-01	ug/kg	--	--	1E-13	2E-13	--	--	--	1E-04	1E-04	8E-13	2E-12	8E-09	2E-08	0.00000002
Exposure Point Total										--							0.00000004
RM 2.5 MC	<b>Polybrominated Diphenyl Ethers</b>																
	PBDE # 47	1.4E-01	ug/kg	--	--	6E-14	1E-13	--	--	--	1E-04	1E-04	5E-13	9E-13	5E-09	9E-09	0.00000001
Exposure Point Total										--							0.00000001

**TABLE F3-13.**  
**Calculation of Cancer Risks and Noncancer Hazards - Low-Frequency Fisher, In-water Sediment Exposure**  
**Central Tendency Exposure**

Scenario Timeframe: Current/Future  
Receptor Population: Low frequency Fisher  
Population Age: Adult

Medium: Sediment  
Exposure Medium: In-water Sediment  
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC		Cancer Risk Calculations <sup>a</sup>							Noncancer Hazard Calculations <sup>a</sup>						
		Value	Units	Dermal Cancer Slope Factor (mg/kg-day) <sup>-1</sup>	Oral Cancer Slope Factor (mg/kg-day) <sup>-1</sup>	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk <sup>b</sup>	Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ <sup>b</sup>
RM 3 West	<b>Polybrominated Diphenyl Ethers</b>																
	PBDE # 47	1.4E+00	ug/kg	--	--	6E-13	1E-12	--	--	--	1E-04	1E-04	5E-12	9E-12	5E-08	9E-08	0.0000001
	PBDE # 99	1.3E+00	ug/kg	--	--	6E-13	1E-12	--	--	--	1E-04	1E-04	5E-12	8E-12	5E-08	8E-08	0.0000001
	PBDE # 153	2.9E-01	ug/kg	--	--	1E-13	2E-13	--	--	--	2E-04	2E-04	1E-12	2E-12	5E-09	9E-09	0.00000001
	PBDE # 209	5.3E+00	ug/kg	7E-04	7E-04	2E-12	4E-12	2E-15	3E-15	5E-15	7E-03	7E-03	2E-11	3E-11	3E-09	5E-09	0.00000001
Exposure Point Total										5E-15							0.0000003
RM 3 East	<b>Polybrominated Diphenyl Ethers</b>																
	PBDE # 47	1.3E+00	ug/kg	--	--	6E-13	1E-12	--	--	--	1E-04	1E-04	5E-12	8E-12	5E-08	8E-08	0.0000001
	PBDE # 99	1.4E+00	ug/kg	--	--	6E-13	1E-12	--	--	--	1E-04	1E-04	5E-12	9E-12	5E-08	9E-08	0.0000001
	PBDE # 153	2.8E-01	ug/kg	--	--	1E-13	2E-13	--	--	--	2E-04	2E-04	1E-12	2E-12	5E-09	9E-09	0.00000001
	PBDE # 209	6.4E+00	ug/kg	7E-04	7E-04	3E-12	5E-12	2E-15	4E-15	6E-15	7E-03	7E-03	2E-11	4E-11	3E-09	6E-09	0.00000001
Exposure Point Total										6E-15							0.0000003
RM 3.5 West	<b>Polybrominated Diphenyl Ethers</b>																
	PBDE # 47	1.4E-01	ug/kg	--	--	6E-14	1E-13	--	--	--	1E-04	1E-04	5E-13	9E-13	5E-09	9E-09	0.00000001
	PBDE # 99	1.2E-01	ug/kg	--	--	5E-14	1E-13	--	--	--	1E-04	1E-04	4E-13	8E-13	4E-09	8E-09	0.00000001
Exposure Point Total										--							0.00000003
RM 3.5 East	<b>Polybrominated Diphenyl Ethers</b>																
	PBDE # 47	4.0E+00	ug/kg	--	--	2E-12	3E-12	--	--	--	1E-04	1E-04	1E-11	3E-11	1E-07	3E-07	0.0000004
	PBDE # 99	5.8E+00	ug/kg	--	--	3E-12	5E-12	--	--	--	1E-04	1E-04	2E-11	4E-11	2E-07	4E-07	0.0000006
	PBDE # 153	1.1E+00	ug/kg	--	--	5E-13	9E-13	--	--	--	2E-04	2E-04	4E-12	7E-12	2E-08	3E-08	0.0000001
	PBDE # 209	3.2E+01	ug/kg	7E-04	7E-04	1E-11	3E-11	1E-14	2E-14	3E-14	7E-03	7E-03	1E-10	2E-10	2E-08	3E-08	0.00000004
Exposure Point Total										3E-14							0.000001
RM 4 West	<b>Polybrominated Diphenyl Ethers</b>																
	PBDE # 47	3.5E-01	ug/kg	--	--	2E-13	3E-13	--	--	--	1E-04	1E-04	1E-12	2E-12	1E-08	2E-08	0.00000003
	PBDE # 99	2.3E-01	ug/kg	--	--	1E-13	2E-13	--	--	--	1E-04	1E-04	8E-13	1E-12	8E-09	1E-08	0.00000002
Exposure Point Total										--							0.0000001
RM 5 West	<b>Polybrominated Diphenyl Ethers</b>																
	PBDE # 47	3.7E-01	ug/kg	--	--	2E-13	3E-13	--	--	--	1E-04	1E-04	1E-12	2E-12	1E-08	2E-08	0.00000004
	PBDE # 99	3.7E-01	ug/kg	--	--	2E-13	3E-13	--	--	--	1E-04	1E-04	1E-12	2E-12	1E-08	2E-08	0.00000004
Exposure Point Total										--							0.0000001
RM 5.5 West	<b>Polybrominated Diphenyl Ethers</b>																
	PBDE # 47	1.4E+00	ug/kg	--	--	6E-13	1E-12	--	--	--	1E-04	1E-04	5E-12	9E-12	5E-08	9E-08	0.0000001
	PBDE # 99	1.2E+00	ug/kg	--	--	5E-13	1E-12	--	--	--	1E-04	1E-04	4E-12	8E-12	4E-08	8E-08	0.0000001
	PBDE # 153	2.3E-01	ug/kg	--	--	1E-13	2E-13	--	--	--	2E-04	2E-04	8E-13	1E-12	4E-09	7E-09	0.00000001
	PBDE # 209	7.4E+00	ug/kg	7E-04	7E-04	3E-12	6E-12	2E-15	4E-15	7E-15	7E-03	7E-03	3E-11	5E-11	4E-09	7E-09	0.00000001
Exposure Point Total										7E-15							0.0000003

**TABLE F3-13.**  
**Calculation of Cancer Risks and Noncancer Hazards - Low-Frequency Fisher, In-water Sediment Exposure**  
**Central Tendency Exposure**

Scenario Timeframe: Current/Future  
Receptor Population: Low frequency Fisher  
Population Age: Adult

Medium: Sediment  
Exposure Medium: In-water Sediment  
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC		Cancer Risk Calculations <sup>a</sup>							Noncancer Hazard Calculations <sup>a</sup>							
		Value	Units	Dermal Cancer Slope Factor (mg/kg-day) <sup>-1</sup>	Oral Cancer Slope Factor (mg/kg-day) <sup>-1</sup>	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk <sup>b</sup>	Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ <sup>b</sup>	
RM 5.5 East	<b>Polybrominated Diphenyl Ethers</b>																	
	PBDE # 47	1.0E+00	ug/kg	--	--	5E-13	8E-13	--	--	--	1E-04	1E-04	4E-12	6E-12	4E-08	6E-08	0.0000001	
	PBDE # 99	1.2E+00	ug/kg	--	--	5E-13	1E-12	--	--	--	1E-04	1E-04	4E-12	7E-12	4E-08	7E-08	0.0000001	
	PBDE # 153	4.1E-01	ug/kg	--	--	2E-13	3E-13	--	--	--	2E-04	2E-04	1E-12	3E-12	7E-09	1E-08	0.00000002	
	PBDE # 209	4.2E+00	ug/kg	7E-04	7E-04	2E-12	3E-12	1E-15	2E-15	4E-15	7E-03	7E-03	1E-11	3E-11	2E-09	4E-09	0.00000001	
Exposure Point Total											4E-15							0.0000002
RM 6 West	<b>Polybrominated Diphenyl Ethers</b>																	
	PBDE # 47	3.7E-01	ug/kg	--	--	2E-13	3E-13	--	--	--	1E-04	1E-04	1E-12	2E-12	1E-08	2E-08	0.00000004	
	PBDE # 99	3.7E-01	ug/kg	--	--	2E-13	3E-13	--	--	--	1E-04	1E-04	1E-12	2E-12	1E-08	2E-08	0.00000004	
	PBDE # 209	4.8E+00	ug/kg	7E-04	7E-04	2E-12	4E-12	2E-15	3E-15	4E-15	7E-03	7E-03	2E-11	3E-11	2E-09	4E-09	0.00000001	
Exposure Point Total											4E-15							0.0000001
RM 6 East	<b>Polybrominated Diphenyl Ethers</b>																	
	PBDE # 47	2.7E-01	ug/kg	--	--	1E-13	2E-13	--	--	--	1E-04	1E-04	1E-12	2E-12	1E-08	2E-08	0.00000003	
	PBDE # 99	1.7E-01	ug/kg	--	--	8E-14	1E-13	--	--	--	1E-04	1E-04	6E-13	1E-12	6E-09	1E-08	0.00000002	
Exposure Point Total											--							0.00000004
RM 6.5 West	<b>Polybrominated Diphenyl Ethers</b>																	
	PBDE # 47	1.1E-01	ug/kg	--	--	5E-14	9E-14	--	--	--	1E-04	1E-04	4E-13	7E-13	4E-09	7E-09	0.00000001	
	PBDE # 99	1.3E-01	ug/kg	--	--	6E-14	1E-13	--	--	--	1E-04	1E-04	5E-13	8E-13	5E-09	8E-09	0.00000001	
Exposure Point Total											--							0.00000002
RM 6.5 East	<b>Polybrominated Diphenyl Ethers</b>																	
	PBDE # 47	1.2E+00	ug/kg	--	--	5E-13	1E-12	--	--	--	1E-04	1E-04	4E-12	8E-12	4E-08	8E-08	0.0000001	
	PBDE # 99	1.3E+00	ug/kg	--	--	6E-13	1E-12	--	--	--	1E-04	1E-04	4E-12	8E-12	4E-08	8E-08	0.0000001	
	PBDE # 153	4.5E-01	ug/kg	--	--	2E-13	4E-13	--	--	--	2E-04	2E-04	2E-12	3E-12	8E-09	1E-08	0.00000002	
	PBDE # 209	1.7E+01	ug/kg	7E-04	7E-04	8E-12	1E-11	6E-15	1E-14	2E-14	7E-03	7E-03	6E-11	1E-10	9E-09	2E-08	0.00000002	
Exposure Point Total											2E-14							0.0000003
RM 7 West	<b>Polybrominated Diphenyl Ethers</b>																	
	PBDE # 47	9.5E-01	ug/kg	--	--	4E-13	8E-13	--	--	--	1E-04	1E-04	3E-12	6E-12	3E-08	6E-08	0.0000001	
	PBDE # 99	9.9E-01	ug/kg	--	--	4E-13	8E-13	--	--	--	1E-04	1E-04	3E-12	6E-12	3E-08	6E-08	0.0000001	
	PBDE # 153	2.9E-01	ug/kg	--	--	1E-13	2E-13	--	--	--	2E-04	2E-04	1E-12	2E-12	5E-09	9E-09	0.00000001	
	PBDE # 209	6.1E+00	ug/kg	7E-04	7E-04	3E-12	5E-12	2E-15	3E-15	5E-15	7E-03	7E-03	2E-11	4E-11	3E-09	6E-09	0.00000001	
Exposure Point Total											5E-15							0.0000002
RM 7 East	<b>Polybrominated Diphenyl Ethers</b>																	
	PBDE # 47	1.2E+00	ug/kg	--	--	5E-13	1E-12	--	--	--	1E-04	1E-04	4E-12	8E-12	4E-08	8E-08	0.0000001	
	PBDE # 99	1.0E+00	ug/kg	--	--	5E-13	8E-13	--	--	--	1E-04	1E-04	4E-12	7E-12	4E-08	7E-08	0.0000001	
	PBDE # 153	3.6E-01	ug/kg	--	--	2E-13	3E-13	--	--	--	2E-04	2E-04	1E-12	2E-12	6E-09	1E-08	0.00000002	
	PBDE # 209	4.3E+00	ug/kg	7E-04	7E-04	2E-12	4E-12	1E-15	2E-15	4E-15	7E-03	7E-03	2E-11	3E-11	2E-09	4E-09	0.00000001	
Exposure Point Total											4E-15							0.0000002



**TABLE F3-13.**  
**Calculation of Cancer Risks and Noncancer Hazards - Low-Frequency Fisher, In-water Sediment Exposure**  
**Central Tendency Exposure**

Scenario Timeframe: Current/Future  
Receptor Population: Low frequency Fisher  
Population Age: Adult

Medium: Sediment  
Exposure Medium: In-water Sediment  
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC		Cancer Risk Calculations <sup>a</sup>							Noncancer Hazard Calculations <sup>a</sup>						
		Value	Units	Dermal Cancer Slope Factor (mg/kg-day) <sup>-1</sup>	Oral Cancer Slope Factor (mg/kg-day) <sup>-1</sup>	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk <sup>b</sup>	Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ <sup>b</sup>
RM 7.5 West	<b>Polybrominated Diphenyl Ethers</b>																
	PBDE # 47	9.9E-01	ug/kg	--	--	4E-13	8E-13	--	--	--	1E-04	1E-04	3E-12	6E-12	3E-08	6E-08	0.0000001
	PBDE # 99	8.5E-01	ug/kg	--	--	4E-13	7E-13	--	--	--	1E-04	1E-04	3E-12	5E-12	3E-08	5E-08	0.0000001
	PBDE # 153	4.3E-01	ug/kg	--	--	2E-13	4E-13	--	--	--	2E-04	2E-04	2E-12	3E-12	8E-09	1E-08	0.00000002
	PBDE # 209	5.3E+00	ug/kg	7E-04	7E-04	2E-12	4E-12	2E-15	3E-15	5E-15	7E-03	7E-03	2E-11	3E-11	3E-09	5E-09	0.00000001
Exposure Point Total										5E-15							0.0000002
RM 7.5 East	<b>Polybrominated Diphenyl Ethers</b>																
	PBDE # 47	1.9E+00	ug/kg	--	--	9E-13	2E-12	--	--	--	1E-04	1E-04	7E-12	1E-11	7E-08	1E-07	0.0000002
	PBDE # 99	2.2E+00	ug/kg	--	--	1E-12	2E-12	--	--	--	1E-04	1E-04	8E-12	1E-11	8E-08	1E-07	0.0000002
	PBDE # 153	3.4E-01	ug/kg	--	--	2E-13	3E-13	--	--	--	2E-04	2E-04	1E-12	2E-12	6E-09	1E-08	0.00000002
	PBDE # 209	8.9E+00	ug/kg	7E-04	7E-04	4E-12	7E-12	3E-15	5E-15	8E-15	7E-03	7E-03	3E-11	6E-11	4E-09	8E-09	0.00000001
Exposure Point Total										8E-15							0.0000004
RM 8 West	<b>Polybrominated Diphenyl Ethers</b>																
	PBDE # 47	8.3E-01	ug/kg	--	--	4E-13	7E-13	--	--	--	1E-04	1E-04	3E-12	5E-12	3E-08	5E-08	0.0000001
	PBDE # 99	1.2E+00	ug/kg	--	--	5E-13	1E-12	--	--	--	1E-04	1E-04	4E-12	8E-12	4E-08	8E-08	0.0000001
	PBDE # 153	8.4E-01	ug/kg	--	--	4E-13	7E-13	--	--	--	2E-04	2E-04	3E-12	5E-12	1E-08	3E-08	0.00000004
	PBDE # 209	4.4E+02	ug/kg	7E-04	7E-04	2E-10	4E-10	1E-13	3E-13	4E-13	7E-03	7E-03	2E-09	3E-09	2E-07	4E-07	0.00000006
Exposure Point Total										4E-13							0.0000009
RM 8 East	<b>Polybrominated Diphenyl Ethers</b>																
	PBDE # 47	1.8E+00	ug/kg	--	--	8E-13	1E-12	--	--	--	1E-04	1E-04	6E-12	1E-11	6E-08	1E-07	0.0000002
	PBDE # 99	1.9E+00	ug/kg	--	--	9E-13	2E-12	--	--	--	1E-04	1E-04	7E-12	1E-11	7E-08	1E-07	0.0000002
	PBDE # 153	4.2E-01	ug/kg	--	--	2E-13	3E-13	--	--	--	2E-04	2E-04	1E-12	3E-12	7E-09	1E-08	0.00000002
	PBDE # 209	1.5E+01	ug/kg	7E-04	7E-04	7E-12	1E-11	5E-15	8E-15	1E-14	7E-03	7E-03	5E-11	9E-11	7E-09	1E-08	0.00000002
Exposure Point Total										1E-14							0.0000004
RM 8 SIL	<b>Polybrominated Diphenyl Ethers</b>																
	PBDE # 47	1.6E+00	ug/kg	--	--	7E-13	1E-12	--	--	--	1E-04	1E-04	6E-12	1E-11	6E-08	1E-07	0.0000002
	PBDE # 99	2.3E+00	ug/kg	--	--	1E-12	2E-12	--	--	--	1E-04	1E-04	8E-12	1E-11	8E-08	1E-07	0.0000002
	PBDE # 153	7.1E-01	ug/kg	--	--	3E-13	6E-13	--	--	--	2E-04	2E-04	2E-12	5E-12	1E-08	2E-08	0.00000003
	PBDE # 209	1.9E+01	ug/kg	7E-04	7E-04	9E-12	2E-11	6E-15	1E-14	2E-14	7E-03	7E-03	7E-11	1E-10	1E-08	2E-08	0.00000003
Exposure Point Total										2E-14							0.0000004
RM 8.5 West	<b>Polybrominated Diphenyl Ethers</b>																
	PBDE # 47	2.0E+00	ug/kg	--	--	9E-13	2E-12	--	--	--	1E-04	1E-04	7E-12	1E-11	7E-08	1E-07	0.0000002
	PBDE # 99	2.2E+00	ug/kg	--	--	1E-12	2E-12	--	--	--	1E-04	1E-04	8E-12	1E-11	8E-08	1E-07	0.0000002
	PBDE # 153	4.1E-01	ug/kg	--	--	2E-13	3E-13	--	--	--	2E-04	2E-04	1E-12	3E-12	7E-09	1E-08	0.00000002
	PBDE # 209	1.1E+01	ug/kg	7E-04	7E-04	5E-12	9E-12	3E-15	6E-15	1E-14	7E-03	7E-03	4E-11	7E-11	6E-09	1E-08	0.00000002
Exposure Point Total										1E-14							0.0000005

**TABLE F3-13.**  
**Calculation of Cancer Risks and Noncancer Hazards - Low-Frequency Fisher, In-water Sediment Exposure**  
**Central Tendency Exposure**

Scenario Timeframe: Current/Future  
Receptor Population: Low frequency Fisher  
Population Age: Adult

Medium: Sediment  
Exposure Medium: In-water Sediment  
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC		Cancer Risk Calculations <sup>a</sup>							Noncancer Hazard Calculations <sup>a</sup>							
		Value	Units	Dermal Cancer Slope Factor (mg/kg-day) <sup>-1</sup>	Oral Cancer Slope Factor (mg/kg-day) <sup>-1</sup>	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk <sup>b</sup>	Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ <sup>b</sup>	
RM 8.5 East	<b>Polybrominated Diphenyl Ethers</b>																	
	PBDE # 47	4.1E+00	ug/kg	--	--	2E-12	3E-12	--	--	--	1E-04	1E-04	1E-11	3E-11	1E-07	3E-07	0.0000004	
	PBDE # 99	5.6E+00	ug/kg	--	--	3E-12	5E-12	--	--	--	1E-04	1E-04	2E-11	4E-11	2E-07	4E-07	0.0000006	
	PBDE # 153	1.1E+00	ug/kg	--	--	5E-13	9E-13	--	--	--	2E-04	2E-04	4E-12	7E-12	2E-08	3E-08	0.0000001	
	PBDE # 209	9.0E+01	ug/kg	7E-04	7E-04	4E-11	7E-11	3E-14	5E-14	8E-14	7E-03	7E-03	3E-10	6E-10	5E-08	8E-08	0.0000001	
Exposure Point Total											8E-14							0.000001
RM 9 West	<b>Polybrominated Diphenyl Ethers</b>																	
	PBDE # 47	1.3E+00	ug/kg	--	--	6E-13	1E-12	--	--	--	1E-04	1E-04	5E-12	8E-12	5E-08	8E-08	0.0000001	
	PBDE # 99	1.2E+00	ug/kg	--	--	5E-13	1E-12	--	--	--	1E-04	1E-04	4E-12	8E-12	4E-08	8E-08	0.0000001	
	PBDE # 153	1.9E-01	ug/kg	--	--	9E-14	2E-13	--	--	--	2E-04	2E-04	7E-13	1E-12	3E-09	6E-09	0.0000001	
	PBDE # 209	2.9E+00	ug/kg	7E-04	7E-04	1E-12	2E-12	9E-16	2E-15	3E-15	7E-03	7E-03	1E-11	2E-11	1E-09	3E-09	0.00000004	
Exposure Point Total											3E-15							0.0000003
RM 9 East	<b>Polybrominated Diphenyl Ethers</b>																	
	PBDE # 47	3.3E-01	ug/kg	--	--	1E-13	3E-13	--	--	--	1E-04	1E-04	1E-12	2E-12	1E-08	2E-08	0.00000003	
	PBDE # 99	1.8E-01	ug/kg	--	--	8E-14	1E-13	--	--	--	1E-04	1E-04	6E-13	1E-12	6E-09	1E-08	0.0000002	
Exposure Point Total											--							0.0000001
RM 9.5 West	<b>Polybrominated Diphenyl Ethers</b>																	
	PBDE # 47	1.8E+00	ug/kg	--	--	8E-13	1E-12	--	--	--	1E-04	1E-04	6E-12	1E-11	6E-08	1E-07	0.0000002	
	PBDE # 99	2.7E+00	ug/kg	--	--	1E-12	2E-12	--	--	--	1E-04	1E-04	1E-11	2E-11	1E-07	2E-07	0.0000003	
	PBDE # 153	5.2E-01	ug/kg	--	--	2E-13	4E-13	--	--	--	2E-04	2E-04	2E-12	3E-12	9E-09	2E-08	0.00000003	
	PBDE # 209	4.6E+01	ug/kg	7E-04	7E-04	2E-11	4E-11	1E-14	3E-14	4E-14	7E-03	7E-03	2E-10	3E-10	2E-08	4E-08	0.0000001	
Exposure Point Total											4E-14							0.0000005
RM 9.5 East	<b>Polybrominated Diphenyl Ethers</b>																	
	PBDE # 47	9.9E-01	ug/kg	--	--	4E-13	8E-13	--	--	--	1E-04	1E-04	3E-12	6E-12	3E-08	6E-08	0.0000001	
	PBDE # 99	7.9E-01	ug/kg	--	--	4E-13	6E-13	--	--	--	1E-04	1E-04	3E-12	5E-12	3E-08	5E-08	0.0000001	
	PBDE # 209	2.0E+00	ug/kg	7E-04	7E-04	9E-13	2E-12	6E-16	1E-15	2E-15	7E-03	7E-03	7E-12	1E-11	1E-09	2E-09	0.00000003	
Exposure Point Total											2E-15							0.0000002
RM 11 West	<b>Polybrominated Diphenyl Ethers</b>																	
	PBDE # 47	2.9E+00	ug/kg	--	--	1E-12	2E-12	--	--	--	1E-04	1E-04	1E-11	2E-11	1E-07	2E-07	0.0000003	
	PBDE # 99	3.7E+00	ug/kg	--	--	2E-12	3E-12	--	--	--	1E-04	1E-04	1E-11	2E-11	1E-07	2E-07	0.0000004	
	PBDE # 153	6.3E-01	ug/kg	--	--	3E-13	5E-13	--	--	--	2E-04	2E-04	2E-12	4E-12	1E-08	2E-08	0.00000003	
	PBDE # 209	5.7E+01	ug/kg	7E-04	7E-04	3E-11	5E-11	2E-14	3E-14	5E-14	7E-03	7E-03	2E-10	4E-10	3E-08	5E-08	0.0000001	
Exposure Point Total											5E-14							0.0000008
RM 11 East	<b>Polybrominated Diphenyl Ethers</b>																	
	PBDE # 47	9.7E-01	ug/kg	--	--	4E-13	8E-13	--	--	--	1E-04	1E-04	3E-12	6E-12	3E-08	6E-08	0.0000001	
	PBDE # 99	7.8E-01	ug/kg	--	--	4E-13	6E-13	--	--	--	1E-04	1E-04	3E-12	5E-12	3E-08	5E-08	0.0000001	
Exposure Point Total											--							0.0000002



**TABLE F3-13.**  
**Calculation of Cancer Risks and Noncancer Hazards - Low-Frequency Fisher, In-water Sediment Exposure**  
**Central Tendency Exposure**

Scenario Timeframe: Current/Future  
Receptor Population: Low frequency Fisher  
Population Age: Adult

Medium: Sediment  
Exposure Medium: In-water Sediment  
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC		Cancer Risk Calculations <sup>a</sup>							Noncancer Hazard Calculations <sup>a</sup>						
		Value	Units	Dermal Cancer Slope Factor (mg/kg-day) <sup>-1</sup>	Oral Cancer Slope Factor (mg/kg-day) <sup>-1</sup>	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk <sup>b</sup>	Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ <sup>b</sup>
RM 12 West	<b>Polybrominated Diphenyl Ethers</b>																
	PBDE # 47	3.1E-01	ug/kg	--	--	1E-13	3E-13	--	--	--	1E-04	1E-04	1E-12	2E-12	1E-08	2E-08	0.00000003
	PBDE # 99	3.0E-01	ug/kg	--	--	1E-13	2E-13	--	--	--	1E-04	1E-04	1E-12	2E-12	1E-08	2E-08	0.00000003
Exposure Point Total										--							0.0000001
RM 12 East	<b>Polybrominated Diphenyl Ethers</b>																
	PBDE # 47	1.2E+00	ug/kg	--	--	5E-13	1E-12	--	--	--	1E-04	1E-04	4E-12	8E-12	4E-08	8E-08	0.0000001
	PBDE # 99	1.1E+00	ug/kg	--	--	5E-13	9E-13	--	--	--	1E-04	1E-04	4E-12	7E-12	4E-08	7E-08	0.0000001
Exposure Point Total										--							0.0000002
Study Area Wide <sup>d</sup>	<b>Polybrominated Diphenyl Ethers</b>																
	PBDE # 47	1.4E+00	ug/kg	--	--	6E-13	1E-12	--	--	--	1E-04	1E-04	5E-12	9E-12	5E-08	9E-08	0.0000001
	PBDE # 99	1.7E+00	ug/kg	--	--	8E-13	1E-12	--	--	--	1E-04	1E-04	6E-12	1E-11	6E-08	1E-07	0.0000002
	PBDE # 153	5.1E-01	ug/kg	--	--	2E-13	4E-13	--	--	--	2E-04	2E-04	2E-12	3E-12	9E-09	2E-08	0.00000003
	PBDE # 209	2.2E+01	ug/kg	7E-04	7E-04	1E-11	2E-11	7E-15	1E-14	2E-14	7E-03	7E-03	8E-11	1E-10	1E-08	2E-08	0.00000003
Exposure Point Total										2E-14							0.0000004

**Notes:**

a Numbers presented are rounded values. Sums calculated before rounding. Risks and hazards are calculated based on exposure parameters presented in Section 3 of Appendix F. For risks and hazards from dermal contact, a dermal absorption efficiency of 0.1 was used, which is the dermal absorption efficiency presented for semi-volatile organic compounds in Risk Assessment Guidance for Superfund. Volume I: Human Health Evaluation Manual (Part E, Supplemental Guidance for Dermal Risk Assessment) Final, July 2004. EPA/540/R/99/005.

b Study Area-wide dataset includes human health in-water sediment samples from RM 1.9 - 11.8 outside of the navigation channel and excluding Multnomah Channel.

**Abbreviations:**

-- = Not Applicable.  
CDI = Chronic Daily Intake.  
EPC = Exposure Point Concentration.  
HQ = Hazard Quotient.  
LADI = Lifetime Average Daily Intake.  
mg/kg = milligrams per kilogram.

RfD = Reference dose.  
RM = River mile.  
ug/kg = micrograms per kilogram.

**TABLE F3-14.**  
**Calculation of Cancer Risks and Noncancer Hazards - Commercial Diver in Wet Suit, In-water Sediment Exposure**  
**Reasonable Maximum Exposure**

Scenario Timeframe: Current/Future  
Receptor Population: Diver in Wet Suit  
Population Age: Adult

Medium: Sediment  
Exposure Medium: In-water Sediment  
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC		Cancer Risk Calculations <sup>a</sup>							Noncancer Hazard Calculations <sup>a</sup>						
		Value	Units	Dermal Cancer Slope Factor (mg/kg-day) <sup>-1</sup>	Oral Cancer Slope Factor (mg/kg-day) <sup>-1</sup>	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk	Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ
RM 1 West	<b>Polybrominated Diphenyl Ethers</b>																
	PBDE # 47	3.6E-01	ug/kg	--	--	1E-11	1E-12	--	--	--	1E-04	1E-04	4E-11	4E-12	4E-07	4E-08	0.0000004
	PBDE # 99	3.7E-01	ug/kg	--	--	1E-11	1E-12	--	--	--	1E-04	1E-04	4E-11	4E-12	4E-07	4E-08	0.0000004
	PBDE # 209	4.0E+00	ug/kg	7E-04	7E-04	2E-10	1E-11	1E-13	1E-14	1E-13	7E-03	7E-03	4E-10	4E-11	6E-08	6E-09	0.0000001
Exposure Point Total										1E-13							0.000001
RM 1 East	<b>Polybrominated Diphenyl Ethers</b>																
	PBDE # 47	7.6E-01	ug/kg	--	--	3E-11	3E-12	--	--	--	1E-04	1E-04	8E-11	7E-12	8E-07	7E-08	0.000001
	PBDE # 99	6.3E-01	ug/kg	--	--	2E-11	2E-12	--	--	--	1E-04	1E-04	7E-11	6E-12	7E-07	6E-08	0.000001
	PBDE # 209	3.7E+00	ug/kg	7E-04	7E-04	1E-10	1E-11	1E-13	9E-15	1E-13	7E-03	7E-03	4E-10	4E-11	6E-08	5E-09	0.0000001
Exposure Point Total										1E-13							0.000002
RM 1.5 West	<b>Polybrominated Diphenyl Ethers</b>																
	PBDE # 47	1.2E-01	ug/kg	--	--	5E-12	4E-13	--	--	--	1E-04	1E-04	1E-11	1E-12	1E-07	1E-08	0.0000001
Exposure Point Total										--							0.0000001
RM 1.5 East	<b>Polybrominated Diphenyl Ethers</b>																
	PBDE # 47	1.4E+00	ug/kg	--	--	5E-11	5E-12	--	--	--	1E-04	1E-04	1E-10	1E-11	1E-06	1E-07	0.000002
	PBDE # 99	1.4E+00	ug/kg	--	--	5E-11	5E-12	--	--	--	1E-04	1E-04	1E-10	1E-11	1E-06	1E-07	0.000002
	PBDE # 153	1.8E-01	ug/kg	--	--	7E-12	6E-13	--	--	--	2E-04	2E-04	2E-11	2E-12	1E-07	9E-09	0.000000
	PBDE # 209	4.5E+00	ug/kg	7E-04	7E-04	2E-10	2E-11	1E-13	1E-14	1E-13	7E-03	7E-03	5E-10	4E-11	7E-08	6E-09	0.000000
Exposure Point Total										1E-13							0.000003
RM 2 West	<b>Polybrominated Diphenyl Ethers</b>																
	PBDE # 47	1.8E+00	ug/kg	--	--	7E-11	6E-12	--	--	--	1E-04	1E-04	2E-10	2E-11	2E-06	2E-07	0.000002
	PBDE # 99	1.7E+00	ug/kg	--	--	6E-11	6E-12	--	--	--	1E-04	1E-04	2E-10	2E-11	2E-06	2E-07	0.000002
	PBDE # 153	4.2E-01	ug/kg	--	--	2E-11	1E-12	--	--	--	2E-04	2E-04	4E-11	4E-12	2E-07	2E-08	0.0000002
	PBDE # 209	6.0E+00	ug/kg	7E-04	7E-04	2E-10	2E-11	2E-13	1E-14	2E-13	7E-03	7E-03	6E-10	6E-11	9E-08	8E-09	0.0000001
Exposure Point Total										2E-13							0.000004
RM 2 East	<b>Polybrominated Diphenyl Ethers</b>																
	PBDE # 47	1.8E+00	ug/kg	--	--	7E-11	6E-12	--	--	--	1E-04	1E-04	2E-10	2E-11	2E-06	2E-07	0.000002
	PBDE # 99	2.1E+00	ug/kg	--	--	8E-11	7E-12	--	--	--	1E-04	1E-04	2E-10	2E-11	2E-06	2E-07	0.000002
	PBDE # 153	2.9E-01	ug/kg	--	--	1E-11	1E-12	--	--	--	2E-04	2E-04	3E-11	3E-12	2E-07	1E-08	0.0000002
	PBDE # 209	8.4E+00	ug/kg	7E-04	7E-04	3E-10	3E-11	2E-13	2E-14	2E-13	7E-03	7E-03	9E-10	8E-11	1E-07	1E-08	0.0000001
Exposure Point Total										2E-13							0.000005
RM 2.5 East	<b>Polybrominated Diphenyl Ethers</b>																
	PBDE # 47	2.0E-01	ug/kg	--	--	8E-12	7E-13	--	--	--	1E-04	1E-04	2E-11	2E-12	2E-07	2E-08	0.0000002
	PBDE # 99	2.4E-01	ug/kg	--	--	9E-12	8E-13	--	--	--	1E-04	1E-04	3E-11	2E-12	3E-07	2E-08	0.0000003
Exposure Point Total										--							0.000001

**TABLE F3-14.**  
**Calculation of Cancer Risks and Noncancer Hazards - Commercial Diver in Wet Suit, In-water Sediment Exposure**  
**Reasonable Maximum Exposure**

Scenario Timeframe: Current/Future  
Receptor Population: Diver in Wet Suit  
Population Age: Adult

Medium: Sediment  
Exposure Medium: In-water Sediment  
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC		Cancer Risk Calculations <sup>a</sup>							Noncancer Hazard Calculations <sup>a</sup>						
		Value	Units	Dermal Cancer Slope Factor (mg/kg-day) <sup>-1</sup>	Oral Cancer Slope Factor (mg/kg-day) <sup>-1</sup>	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk	Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ
RM 2.5 MC	<b>Polybrominated Diphenyl Ethers</b> PBDE # 47	1.4E-01	ug/kg	--	--	5E-12	5E-13	--	--	--	1E-04	1E-04	1E-11	1E-12	1E-07	1E-08	0.000002
Exposure Point Total																	0.000002
RM 3 West	<b>Polybrominated Diphenyl Ethers</b> PBDE # 47 PBDE # 99 PBDE # 153 PBDE # 209	1.4E+00 1.3E+00 2.9E-01 5.3E+00	ug/kg ug/kg ug/kg ug/kg	-- -- -- 7E-04	-- -- -- 7E-04	5E-11 5E-11 1E-11 2E-10	5E-12 5E-12 1E-12 2E-11	-- -- -- 1E-13	-- -- -- 1E-14	-- -- -- 2E-13	1E-04 1E-04 2E-04 7E-03	1E-04 1E-04 2E-04 7E-03	1E-10 1E-10 3E-11 6E-10	1E-11 1E-11 3E-12 5E-11	1E-06 1E-06 2E-07 8E-08	1E-07 1E-07 1E-08 7E-09	0.000002 0.000002 0.000002 0.000001
Exposure Point Total																	0.000003
RM 3 East	<b>Polybrominated Diphenyl Ethers</b> PBDE # 47 PBDE # 99 PBDE # 153 PBDE # 209	1.6E+00 1.6E+00 3.3E-01 6.9E+00	ug/kg ug/kg ug/kg ug/kg	-- -- -- 7E-04	-- -- -- 7E-04	6E-11 6E-11 1E-11 3E-10	6E-12 6E-12 1E-12 2E-11	-- -- -- 2E-13	-- -- -- 2E-14	-- -- -- 2E-13	1E-04 1E-04 2E-04 7E-03	1E-04 1E-04 2E-04 7E-03	2E-10 2E-10 4E-11 7E-10	2E-11 2E-11 3E-12 7E-11	2E-06 2E-06 2E-07 1E-07	2E-07 2E-07 2E-08 1E-08	0.000002 0.000002 0.000002 0.000001
Exposure Point Total																	0.000004
RM 3.5 West	<b>Polybrominated Diphenyl Ethers</b> PBDE # 47 PBDE # 99	1.4E-01 1.2E-01	ug/kg ug/kg	-- --	-- --	5E-12 5E-12	5E-13 4E-13	-- --	-- --	-- --	1E-04 1E-04	1E-04 1E-04	1E-11 1E-11	1E-12 1E-12	1E-07 1E-07	1E-08 1E-08	0.000002 0.000001
Exposure Point Total																	0.000003
RM 3.5 East	<b>Polybrominated Diphenyl Ethers</b> PBDE # 47 PBDE # 99 PBDE # 153 PBDE # 209	5.2E+00 8.2E+00 1.5E+00 5.6E+01	ug/kg ug/kg ug/kg ug/kg	-- -- -- 7E-04	-- -- -- 7E-04	2E-10 3E-10 6E-11 2E-09	2E-11 3E-11 5E-12 2E-10	-- -- -- 1E-12	-- -- -- 1E-13	-- -- -- 2E-12	1E-04 1E-04 2E-04 7E-03	1E-04 1E-04 2E-04 7E-03	6E-10 9E-10 2E-10 6E-09	5E-11 8E-11 1E-11 5E-10	6E-06 9E-06 8E-07 9E-07	5E-07 8E-07 7E-08 8E-08	0.000006 0.00001 0.000001 0.000001
Exposure Point Total																	0.00002
RM 4 West	<b>Polybrominated Diphenyl Ethers</b> PBDE # 47 PBDE # 99	3.5E-01 2.3E-01	ug/kg ug/kg	-- --	-- --	1E-11 9E-12	1E-12 8E-13	-- --	-- --	-- --	1E-04 1E-04	1E-04 1E-04	4E-11 2E-11	3E-12 2E-12	4E-07 2E-07	3E-08 2E-08	0.000004 0.000003
Exposure Point Total																	0.000001
RM 5 West	<b>Polybrominated Diphenyl Ethers</b> PBDE # 47 PBDE # 99	3.7E-01 3.7E-01	ug/kg ug/kg	-- --	-- --	1E-11 1E-11	1E-12 1E-12	-- --	-- --	-- --	1E-04 1E-04	1E-04 1E-04	4E-11 4E-11	4E-12 4E-12	4E-07 4E-07	4E-08 4E-08	0.000004 0.000004
Exposure Point Total																	0.000001
RM 5.5 West	<b>Polybrominated Diphenyl Ethers</b> PBDE # 47 PBDE # 99 PBDE # 153 PBDE # 209	1.4E+00 1.2E+00 2.3E-01 7.4E+00	ug/kg ug/kg ug/kg ug/kg	-- -- -- 7E-04	-- -- -- 7E-04	5E-11 5E-11 9E-12 3E-10	5E-12 4E-12 8E-13 3E-11	-- -- -- 2E-13	-- -- -- 2E-14	-- -- -- 2E-13	1E-04 1E-04 2E-04 7E-03	1E-04 1E-04 2E-04 7E-03	1E-10 1E-10 2E-11 8E-10	1E-11 1E-11 2E-12 7E-11	1E-06 1E-06 1E-07 1E-07	1E-07 1E-07 1E-08 1E-08	0.000002 0.000001 0.000001 0.000001
Exposure Point Total																	0.000003

**TABLE F3-14.**  
**Calculation of Cancer Risks and Noncancer Hazards - Commercial Diver in Wet Suit, In-water Sediment Exposure**  
**Reasonable Maximum Exposure**

Scenario Timeframe: Current/Future  
Receptor Population: Diver in Wet Suit  
Population Age: Adult

Medium: Sediment  
Exposure Medium: In-water Sediment  
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC		Cancer Risk Calculations <sup>a</sup>							Noncancer Hazard Calculations <sup>a</sup>							
		Value	Units	Dermal Cancer Slope Factor (mg/kg-day) <sup>-1</sup>	Oral Cancer Slope Factor (mg/kg-day) <sup>-1</sup>	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk	Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ	
RM 5.5 East	<b>Polybrominated Diphenyl Ethers</b>																	
	PBDE # 47	1.8E+00	ug/kg	--	--	7E-11	6E-12	--	--	--	1E-04	1E-04	2E-10	2E-11	2E-06	2E-07	0.000002	
	PBDE # 99	1.8E+00	ug/kg	--	--	7E-11	6E-12	--	--	--	1E-04	1E-04	2E-10	2E-11	2E-06	2E-07	0.000002	
	PBDE # 153	2.6E-01	ug/kg	--	--	1E-11	9E-13	--	--	--	2E-04	2E-04	3E-11	3E-12	1E-07	1E-08	0.0000002	
	PBDE # 209	2.8E+00	ug/kg	7E-04	7E-04	1E-10	1E-11	7E-14	7E-15	8E-14	7E-03	7E-03	3E-10	3E-11	4E-08	4E-09	0.0000005	
Exposure Point Total											8E-14							0.000004
RM 6 West	<b>Polybrominated Diphenyl Ethers</b>																	
	PBDE # 47	1.3E-01	ug/kg	--	--	5E-12	5E-13	--	--	--	1E-04	1E-04	1E-11	1E-12	1E-07	1E-08	0.0000002	
	PBDE # 99	1.3E-01	ug/kg	--	--	5E-12	5E-13	--	--	--	1E-04	1E-04	1E-11	1E-12	1E-07	1E-08	0.0000002	
	PBDE # 209	3.5E+00	ug/kg	7E-04	7E-04	1E-10	1E-11	9E-14	9E-15	1E-13	7E-03	7E-03	4E-10	3E-11	5E-08	5E-09	0.0000001	
Exposure Point Total											1E-13							0.0000004
RM 6 East	<b>Polybrominated Diphenyl Ethers</b>																	
	PBDE # 47	2.7E-01	ug/kg	--	--	1E-11	9E-13	--	--	--	1E-04	1E-04	3E-11	3E-12	3E-07	3E-08	0.0000003	
	PBDE # 99	1.7E-01	ug/kg	--	--	6E-12	6E-13	--	--	--	1E-04	1E-04	2E-11	2E-12	2E-07	2E-08	0.0000002	
Exposure Point Total											--							0.000001
RM 6.5 West	<b>Polybrominated Diphenyl Ethers</b>																	
	PBDE # 47	1.1E-01	ug/kg	--	--	4E-12	4E-13	--	--	--	1E-04	1E-04	1E-11	1E-12	1E-07	1E-08	0.0000001	
	PBDE # 99	1.3E-01	ug/kg	--	--	5E-12	5E-13	--	--	--	1E-04	1E-04	1E-11	1E-12	1E-07	1E-08	0.0000002	
Exposure Point Total											--							0.0000003
RM 6.5 East	<b>Polybrominated Diphenyl Ethers</b>																	
	PBDE # 47	1.8E+00	ug/kg	--	--	7E-11	6E-12	--	--	--	1E-04	1E-04	2E-10	2E-11	2E-06	2E-07	0.000002	
	PBDE # 99	1.9E+00	ug/kg	--	--	7E-11	7E-12	--	--	--	1E-04	1E-04	2E-10	2E-11	2E-06	2E-07	0.000002	
	PBDE # 153	3.5E-01	ug/kg	--	--	1E-11	1E-12	--	--	--	2E-04	2E-04	4E-11	3E-12	2E-07	2E-08	0.0000002	
	PBDE # 209	2.5E+01	ug/kg	7E-04	7E-04	1E-09	9E-11	7E-13	6E-14	7E-13	7E-03	7E-03	3E-09	2E-10	4E-07	3E-08	0.0000004	
Exposure Point Total											7E-13							0.000005
RM 7 West	<b>Polybrominated Diphenyl Ethers</b>																	
	PBDE # 47	9.5E-01	ug/kg	--	--	4E-11	3E-12	--	--	--	1E-04	1E-04	1E-10	9E-12	1E-06	9E-08	0.000001	
	PBDE # 99	9.9E-01	ug/kg	--	--	4E-11	3E-12	--	--	--	1E-04	1E-04	1E-10	1E-11	1E-06	1E-07	0.000001	
	PBDE # 153	2.9E-01	ug/kg	--	--	1E-11	1E-12	--	--	--	2E-04	2E-04	3E-11	3E-12	2E-07	1E-08	0.0000002	
	PBDE # 209	6.1E+00	ug/kg	7E-04	7E-04	2E-10	2E-11	2E-13	1E-14	2E-13	7E-03	7E-03	6E-10	6E-11	9E-08	9E-09	0.0000001	
Exposure Point Total											2E-13							0.000003
RM 7 East	<b>Polybrominated Diphenyl Ethers</b>																	
	PBDE # 47	1.7E+00	ug/kg	--	--	6E-11	6E-12	--	--	--	1E-04	1E-04	2E-10	2E-11	2E-06	2E-07	0.000002	
	PBDE # 99	1.5E+00	ug/kg	--	--	6E-11	5E-12	--	--	--	1E-04	1E-04	2E-10	1E-11	2E-06	1E-07	0.000002	
	PBDE # 153	3.1E-01	ug/kg	--	--	1E-11	1E-12	--	--	--	2E-04	2E-04	3E-11	3E-12	2E-07	2E-08	0.0000002	
	PBDE # 209	6.2E+00	ug/kg	7E-04	7E-04	2E-10	2E-11	2E-13	2E-14	2E-13	7E-03	7E-03	7E-10	6E-11	9E-08	9E-09	0.0000001	
Exposure Point Total											2E-13							0.000004

**TABLE F3-14.**  
**Calculation of Cancer Risks and Noncancer Hazards - Commercial Diver in Wet Suit, In-water Sediment Exposure**  
**Reasonable Maximum Exposure**

Scenario Timeframe: Current/Future  
Receptor Population: Diver in Wet Suit  
Population Age: Adult

Medium: Sediment  
Exposure Medium: In-water Sediment  
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC		Cancer Risk Calculations <sup>a</sup>							Noncancer Hazard Calculations <sup>a</sup>						
		Value	Units	Dermal Cancer Slope Factor (mg/kg-day) <sup>-1</sup>	Oral Cancer Slope Factor (mg/kg-day) <sup>-1</sup>	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk	Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ
RM 7.5 West	<b>Polybrominated Diphenyl Ethers</b>																
	PBDE # 47	1.7E+00	ug/kg	--	--	6E-11	6E-12	--	--	--	1E-04	1E-04	2E-10	2E-11	2E-06	2E-07	0.000002
	PBDE # 99	1.5E+00	ug/kg	--	--	6E-11	5E-12	--	--	--	1E-04	1E-04	2E-10	1E-11	2E-06	1E-07	0.000002
	PBDE # 153	3.1E-01	ug/kg	--	--	1E-11	1E-12	--	--	--	2E-04	2E-04	3E-11	3E-12	2E-07	2E-08	0.0000002
	PBDE # 209	5.1E+00	ug/kg	7E-04	7E-04	2E-10	2E-11	1E-13	1E-14	1E-13	7E-03	7E-03	5E-10	5E-11	8E-08	7E-09	0.0000001
Exposure Point Total										1E-13							0.000004
RM 7.5 East	<b>Polybrominated Diphenyl Ethers</b>																
	PBDE # 47	2.5E+00	ug/kg	--	--	1E-10	9E-12	--	--	--	1E-04	1E-04	3E-10	2E-11	3E-06	2E-07	0.000003
	PBDE # 99	2.9E+00	ug/kg	--	--	1E-10	1E-11	--	--	--	1E-04	1E-04	3E-10	3E-11	3E-06	3E-07	0.000003
	PBDE # 153	4.5E-01	ug/kg	--	--	2E-11	2E-12	--	--	--	2E-04	2E-04	5E-11	4E-12	2E-07	2E-08	0.0000003
	PBDE # 209	1.3E+01	ug/kg	7E-04	7E-04	5E-10	5E-11	3E-13	3E-14	4E-13	7E-03	7E-03	1E-09	1E-10	2E-07	2E-08	0.0000002
Exposure Point Total										4E-13							0.000007
RM 8 West	<b>Polybrominated Diphenyl Ethers</b>																
	PBDE # 47	8.3E-01	ug/kg	--	--	3E-11	3E-12	--	--	--	1E-04	1E-04	9E-11	8E-12	9E-07	8E-08	0.000001
	PBDE # 99	1.2E+00	ug/kg	--	--	5E-11	4E-12	--	--	--	1E-04	1E-04	1E-10	1E-11	1E-06	1E-07	0.000001
	PBDE # 153	8.4E-01	ug/kg	--	--	3E-11	3E-12	--	--	--	2E-04	2E-04	9E-11	8E-12	4E-07	4E-08	0.0000005
	PBDE # 209	4.4E+02	ug/kg	7E-04	7E-04	2E-08	2E-09	1E-11	1E-12	1E-11	7E-03	7E-03	5E-08	4E-09	7E-06	6E-07	0.0000007
Exposure Point Total										1E-11							0.00001
RM 8 East	<b>Polybrominated Diphenyl Ethers</b>																
	PBDE # 47	2.1E+00	ug/kg	--	--	8E-11	7E-12	--	--	--	1E-04	1E-04	2E-10	2E-11	2E-06	2E-07	0.000002
	PBDE # 99	2.2E+00	ug/kg	--	--	8E-11	8E-12	--	--	--	1E-04	1E-04	2E-10	2E-11	2E-06	2E-07	0.000003
	PBDE # 153	6.2E-01	ug/kg	--	--	2E-11	2E-12	--	--	--	2E-04	2E-04	7E-11	6E-12	3E-07	3E-08	0.0000004
	PBDE # 209	2.4E+01	ug/kg	7E-04	7E-04	9E-10	8E-11	6E-13	6E-14	7E-13	7E-03	7E-03	3E-09	2E-10	4E-07	3E-08	0.0000004
Exposure Point Total										7E-13							0.000006
RM 8 SIL	<b>Polybrominated Diphenyl Ethers</b>																
	PBDE # 47	4.5E+00	ug/kg	--	--	2E-10	2E-11	--	--	--	1E-04	1E-04	5E-10	4E-11	5E-06	4E-07	0.000005
	PBDE # 99	4.3E+00	ug/kg	--	--	2E-10	2E-11	--	--	--	1E-04	1E-04	5E-10	4E-11	5E-06	4E-07	0.000005
	PBDE # 153	1.2E+00	ug/kg	--	--	5E-11	4E-12	--	--	--	2E-04	2E-04	1E-10	1E-11	6E-07	6E-08	0.000001
	PBDE # 209	3.7E+01	ug/kg	7E-04	7E-04	1E-09	1E-10	1E-12	9E-14	1E-12	7E-03	7E-03	4E-09	4E-10	6E-07	5E-08	0.000001
Exposure Point Total										1E-12							0.000012
RM 8.5 West	<b>Polybrominated Diphenyl Ethers</b>																
	PBDE # 47	2.0E+00	ug/kg	--	--	8E-11	7E-12	--	--	--	1E-04	1E-04	2E-10	2E-11	2E-06	2E-07	0.000002
	PBDE # 99	2.2E+00	ug/kg	--	--	8E-11	8E-12	--	--	--	1E-04	1E-04	2E-10	2E-11	2E-06	2E-07	0.000003
	PBDE # 153	4.1E-01	ug/kg	--	--	2E-11	1E-12	--	--	--	2E-04	2E-04	4E-11	4E-12	2E-07	2E-08	0.0000002
	PBDE # 209	1.1E+01	ug/kg	7E-04	7E-04	4E-10	4E-11	3E-13	3E-14	3E-13	7E-03	7E-03	1E-09	1E-10	2E-07	2E-08	0.0000002
Exposure Point Total										3E-13							0.000005

**TABLE F3-14.**  
**Calculation of Cancer Risks and Noncancer Hazards - Commercial Diver in Wet Suit, In-water Sediment Exposure**  
**Reasonable Maximum Exposure**

Scenario Timeframe: Current/Future  
Receptor Population: Diver in Wet Suit  
Population Age: Adult

Medium: Sediment  
Exposure Medium: In-water Sediment  
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC		Cancer Risk Calculations <sup>a</sup>							Noncancer Hazard Calculations <sup>a</sup>						
		Value	Units	Dermal Cancer Slope Factor (mg/kg-day) <sup>-1</sup>	Oral Cancer Slope Factor (mg/kg-day) <sup>-1</sup>	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk	Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ
RM 8.5 East	<b>Polybrominated Diphenyl Ethers</b>																
	PBDE # 47	4.1E+00	ug/kg	--	--	2E-10	1E-11	--	--	--	1E-04	1E-04	4E-10	4E-11	4E-06	4E-07	0.000005
	PBDE # 99	5.6E+00	ug/kg	--	--	2E-10	2E-11	--	--	--	1E-04	1E-04	6E-10	5E-11	6E-06	5E-07	0.000007
	PBDE # 153	1.1E+00	ug/kg	--	--	4E-11	4E-12	--	--	--	2E-04	2E-04	1E-10	1E-11	6E-07	5E-08	0.000001
	PBDE # 209	9.0E+01	ug/kg	7E-04	7E-04	3E-09	3E-10	2E-12	2E-13	3E-12	7E-03	7E-03	1E-08	9E-10	1E-06	1E-07	0.000001
Exposure Point Total										3E-12							0.00001
RM 9 West	<b>Polybrominated Diphenyl Ethers</b>																
	PBDE # 47	1.3E+00	ug/kg	--	--	5E-11	5E-12	--	--	--	1E-04	1E-04	1E-10	1E-11	1E-06	1E-07	0.000002
	PBDE # 99	1.2E+00	ug/kg	--	--	5E-11	4E-12	--	--	--	1E-04	1E-04	1E-10	1E-11	1E-06	1E-07	0.000001
	PBDE # 153	1.9E-01	ug/kg	--	--	7E-12	7E-13	--	--	--	2E-04	2E-04	2E-11	2E-12	1E-07	9E-09	0.0000001
	PBDE # 209	2.9E+00	ug/kg	7E-04	7E-04	1E-10	1E-11	8E-14	7E-15	8E-14	7E-03	7E-03	3E-10	3E-11	4E-08	4E-09	0.00000005
Exposure Point Total										8E-14							0.000003
RM 9 East	<b>Polybrominated Diphenyl Ethers</b>																
	PBDE # 47	3.3E-01	ug/kg	--	--	1E-11	1E-12	--	--	--	1E-04	1E-04	4E-11	3E-12	4E-07	3E-08	0.0000004
	PBDE # 99	1.8E-01	ug/kg	--	--	7E-12	6E-13	--	--	--	1E-04	1E-04	2E-11	2E-12	2E-07	2E-08	0.0000002
Exposure Point Total										--							0.000001
RM 9.5 West	<b>Polybrominated Diphenyl Ethers</b>																
	PBDE # 47	1.8E+00	ug/kg	--	--	7E-11	6E-12	--	--	--	1E-04	1E-04	2E-10	2E-11	2E-06	2E-07	0.000002
	PBDE # 99	2.7E+00	ug/kg	--	--	1E-10	9E-12	--	--	--	1E-04	1E-04	3E-10	3E-11	3E-06	3E-07	0.000003
	PBDE # 153	5.2E-01	ug/kg	--	--	2E-11	2E-12	--	--	--	2E-04	2E-04	6E-11	5E-12	3E-07	3E-08	0.0000003
	PBDE # 209	4.6E+01	ug/kg	7E-04	7E-04	2E-09	2E-10	1E-12	1E-13	1E-12	7E-03	7E-03	5E-09	5E-10	7E-07	6E-08	0.000001
Exposure Point Total										1E-12							0.000006
RM 9.5 East	<b>Polybrominated Diphenyl Ethers</b>																
	PBDE # 47	9.9E-01	ug/kg	--	--	4E-11	3E-12	--	--	--	1E-04	1E-04	1E-10	1E-11	1E-06	1E-07	0.000001
	PBDE # 99	7.9E-01	ug/kg	--	--	3E-11	3E-12	--	--	--	1E-04	1E-04	8E-11	8E-12	8E-07	8E-08	0.000001
	PBDE # 209	2.0E+00	ug/kg	7E-04	7E-04	8E-11	7E-12	5E-14	5E-15	6E-14	7E-03	7E-03	2E-10	2E-11	3E-08	3E-09	0.0000003
Exposure Point Total										6E-14							0.000002
RM 11 West	<b>Polybrominated Diphenyl Ethers</b>																
	PBDE # 47	2.9E+00	ug/kg	--	--	1E-10	1E-11	--	--	--	1E-04	1E-04	3E-10	3E-11	3E-06	3E-07	0.000003
	PBDE # 99	3.7E+00	ug/kg	--	--	1E-10	1E-11	--	--	--	1E-04	1E-04	4E-10	4E-11	4E-06	4E-07	0.000004
	PBDE # 153	6.3E-01	ug/kg	--	--	2E-11	2E-12	--	--	--	2E-04	2E-04	7E-11	6E-12	3E-07	3E-08	0.0000004
	PBDE # 209	5.7E+01	ug/kg	7E-04	7E-04	2E-09	2E-10	2E-12	1E-13	2E-12	7E-03	7E-03	6E-09	6E-10	9E-07	8E-08	0.000001
Exposure Point Total										2E-12							0.000009
RM 11 East	<b>Polybrominated Diphenyl Ethers</b>																
	PBDE # 47	1.5E+00	ug/kg	--	--	6E-11	5E-12	--	--	--	1E-04	1E-04	2E-10	1E-11	2E-06	1E-07	0.000002
	PBDE # 99	1.2E+00	ug/kg	--	--	5E-11	4E-12	--	--	--	1E-04	1E-04	1E-10	1E-11	1E-06	1E-07	0.000001
Exposure Point Total										--							0.000003

**TABLE F3-14.**  
**Calculation of Cancer Risks and Noncancer Hazards - Commercial Diver in Wet Suit, In-water Sediment Exposure**  
**Reasonable Maximum Exposure**

Scenario Timeframe: Current/Future  
Receptor Population: Diver in Wet Suit  
Population Age: Adult

Medium: Sediment  
Exposure Medium: In-water Sediment  
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC		Cancer Risk Calculations <sup>a</sup>							Noncancer Hazard Calculations <sup>a</sup>						
		Value	Units	Dermal Cancer Slope Factor (mg/kg-day) <sup>-1</sup>	Oral Cancer Slope Factor (mg/kg-day) <sup>-1</sup>	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk	Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ
RM 12 West	<b>Polybrominated Diphenyl Ethers</b>																
	PBDE # 47	3.1E-01	ug/kg	--	--	1E-11	1E-12	--	--	--	1E-04	1E-04	3E-11	3E-12	3E-07	3E-08	0.000004
	PBDE # 99	3.0E-01	ug/kg	--	--	1E-11	1E-12	--	--	--	1E-04	1E-04	3E-11	3E-12	3E-07	3E-08	0.000003
Exposure Point Total										--							0.000001
RM 12 East	<b>Polybrominated Diphenyl Ethers</b>																
	PBDE # 47	1.2E+00	ug/kg	--	--	5E-11	4E-12	--	--	--	1E-04	1E-04	1E-10	1E-11	1E-06	1E-07	0.000001
	PBDE # 99	1.1E+00	ug/kg	--	--	4E-11	4E-12	--	--	--	1E-04	1E-04	1E-10	1E-11	1E-06	1E-07	0.000001
Exposure Point Total										--							0.000003
Study Area Wide <sup>b</sup>	<b>Polybrominated Diphenyl Ethers</b>																
	PBDE # 47	2.2E+00	ug/kg	--	--	8E-11	8E-12	--	--	--	1E-04	1E-04	2E-10	2E-11	2E-06	2E-07	0.000003
	PBDE # 99	2.8E+00	ug/kg	--	--	1E-10	1E-11	--	--	--	1E-04	1E-04	3E-10	3E-11	3E-06	3E-07	0.000003
	PBDE # 153	5.3E-01	ug/kg	--	--	2E-11	2E-12	--	--	--	2E-04	2E-04	6E-11	5E-12	3E-07	3E-08	0.000003
	PBDE # 209	6.0E+01	ug/kg	7E-04	7E-04	2E-09	2E-10	2E-12	1E-13	2E-12	7E-03	7E-03	6E-09	6E-10	9E-07	8E-08	0.000001
Exposure Point Total										2E-12							0.000007

**Notes:**

a Numbers presented are rounded values. Sums calculated before rounding. Risks and hazards are calculated based on exposure parameters presented in Section 3 of Appendix F. For risks and hazards from dermal contact, a dermal absorption efficiency of 0.1 was used, which is the dermal absorption efficiency presented for semi-volatile organic compounds in Risk Assessment Guidance for Superfund. Volume I: Human Health Evaluation Manual (Part E, Supplemental Guidance for Dermal Risk Assessment) Final, July 2004. EPA/540/R/99/005.

b Study Area wide dataset includes human health in-water sediment samples from RM 1.9 - 11.8 outside of the navigation channel and excluding Multnomah Channel.

**Abbreviations:**

-- = Not Applicable.  
CDI = Chronic Daily Intake.  
EPC = Exposure Point Concentration.  
HQ = Hazard Quotient.  
LADI = Lifetime Average Daily Intake.  
mg/kg = milligrams per kilogram.

RfD = Reference dose.  
RM = River mile.  
ug/kg = micrograms per kilogram.



**TABLE F3-15.**  
**Calculation of Cancer Risks and Noncancer Hazards - Commercial Diver in Wet Suit, In-water Sediment Exposure**  
**Central Tendency Exposure**

Scenario Timeframe: Current/Future  
Receptor Population: Diver in Wet Suit  
Population Age: Adult

Medium: Sediment  
Exposure Medium: In-water Sediment  
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC		Cancer Risk Calculations <sup>a</sup>							Noncancer Hazard Calculations <sup>a</sup>						
		Value	Units	Dermal Cancer Slope Factor (mg/kg-day) <sup>-1</sup>	Oral Cancer Slope Factor (mg/kg-day) <sup>-1</sup>	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk <sup>b</sup>	Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ <sup>b</sup>
RM 1 West	<b>Polybrominated Diphenyl Ethers</b>																
	PBDE # 47	3.3E-01	ug/kg	--	--	4E-13	8E-14	--	--	--	1E-04	1E-04	3E-12	6E-13	3E-08	6E-09	0.00000004
	PBDE # 99	3.2E-01	ug/kg	--	--	4E-13	8E-14	--	--	--	1E-04	1E-04	3E-12	6E-13	3E-08	6E-09	0.00000004
	PBDE # 209	3.8E+00	ug/kg	7E-04	7E-04	5E-12	1E-12	3E-15	7E-16	4E-15	7E-03	7E-03	4E-11	7E-12	5E-09	1E-09	0.00000001
Exposure Point Total <sup>c</sup>										4E-15							0.00000008
RM 1 East	<b>Polybrominated Diphenyl Ethers</b>																
	PBDE # 47	7.6E-01	ug/kg	--	--	1E-12	2E-13	--	--	--	1E-04	1E-04	8E-12	1E-12	8E-08	1E-08	0.00000009
	PBDE # 99	6.3E-01	ug/kg	--	--	8E-13	2E-13	--	--	--	1E-04	1E-04	6E-12	1E-12	6E-08	1E-08	0.00000007
	PBDE # 209	3.7E+00	ug/kg	7E-04	7E-04	5E-12	9E-13	3E-15	7E-16	4E-15	7E-03	7E-03	4E-11	7E-12	5E-09	1E-09	0.00000001
Exposure Point Total										4E-15							0.00000002
RM 1.5 West	<b>Polybrominated Diphenyl Ethers</b>																
	PBDE # 47	1.2E-01	ug/kg	--	--	2E-13	3E-14	--	--	--	1E-04	1E-04	1E-12	2E-13	1E-08	2E-09	0.00000001
Exposure Point Total										--							0.00000001
RM 1.5 East	<b>Polybrominated Diphenyl Ethers</b>																
	PBDE # 47	1.4E+00	ug/kg	--	--	2E-12	4E-13	--	--	--	1E-04	1E-04	1E-11	3E-12	1E-07	3E-08	0.00000002
	PBDE # 99	1.4E+00	ug/kg	--	--	2E-12	4E-13	--	--	--	1E-04	1E-04	1E-11	3E-12	1E-07	3E-08	0.00000002
	PBDE # 153	1.8E-01	ug/kg	--	--	2E-13	5E-14	--	--	--	2E-04	2E-04	2E-12	4E-13	9E-09	2E-09	0.00000001
	PBDE # 209	4.5E+00	ug/kg	7E-04	7E-04	6E-12	1E-12	4E-15	8E-16	5E-15	7E-03	7E-03	4E-11	9E-12	6E-09	1E-09	0.00000001
Exposure Point Total										5E-15							0.00000004
RM 2 West	<b>Polybrominated Diphenyl Ethers</b>																
	PBDE # 47	1.1E+00	ug/kg	--	--	1E-12	3E-13	--	--	--	1E-04	1E-04	1E-11	2E-12	1E-07	2E-08	0.00000001
	PBDE # 99	1.0E+00	ug/kg	--	--	1E-12	3E-13	--	--	--	1E-04	1E-04	1E-11	2E-12	1E-07	2E-08	0.00000001
	PBDE # 153	4.9E-01	ug/kg	--	--	6E-13	1E-13	--	--	--	2E-04	2E-04	5E-12	9E-13	2E-08	5E-09	0.00000003
	PBDE # 209	5.8E+00	ug/kg	7E-04	7E-04	7E-12	1E-12	5E-15	1E-15	6E-15	7E-03	7E-03	6E-11	1E-11	8E-09	2E-09	0.00000001
Exposure Point Total										6E-15							0.00000003
RM 2 East	<b>Polybrominated Diphenyl Ethers</b>																
	PBDE # 47	1.8E+00	ug/kg	--	--	2E-12	4E-13	--	--	--	1E-04	1E-04	2E-11	3E-12	2E-07	3E-08	0.00000002
	PBDE # 99	2.0E+00	ug/kg	--	--	3E-12	5E-13	--	--	--	1E-04	1E-04	2E-11	4E-12	2E-07	4E-08	0.00000002
	PBDE # 153	2.8E-01	ug/kg	--	--	4E-13	7E-14	--	--	--	2E-04	2E-04	3E-12	6E-13	1E-08	3E-09	0.00000002
	PBDE # 209	6.9E+00	ug/kg	7E-04	7E-04	9E-12	2E-12	6E-15	1E-15	7E-15	7E-03	7E-03	7E-11	1E-11	1E-08	2E-09	0.00000001
Exposure Point Total										7E-15							0.00000005
RM 2.5 East	<b>Polybrominated Diphenyl Ethers</b>																
	PBDE # 47	2.0E-01	ug/kg	--	--	3E-13	5E-14	--	--	--	1E-04	1E-04	2E-12	4E-13	2E-08	4E-09	0.00000002
	PBDE # 99	2.4E-01	ug/kg	--	--	3E-13	6E-14	--	--	--	1E-04	1E-04	2E-12	5E-13	2E-08	5E-09	0.00000003
Exposure Point Total										--							0.00000005



**TABLE F3-15.**  
**Calculation of Cancer Risks and Noncancer Hazards - Commercial Diver in Wet Suit, In-water Sediment Exposure**  
**Central Tendency Exposure**

Scenario Timeframe: Current/Future Medium: Sediment  
Receptor Population: Diver in Wet Suit Exposure Medium: In-water Sediment  
Population Age: Adult Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC		Cancer Risk Calculations <sup>a</sup>						Noncancer Hazard Calculations <sup>a</sup>							
		Value	Units	Dermal Cancer Slope Factor (mg/kg-day) <sup>-1</sup>	Oral Cancer Slope Factor (mg/kg-day) <sup>-1</sup>	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk <sup>b</sup>	Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ <sup>b</sup>
RM 2.5 MC	<b>Polybrominated Diphenyl Ethers</b> PBDE # 47	1.4E-01	ug/kg	--	--	2E-13	4E-14	--	--	--	1E-04	1E-04	1E-12	3E-13	1E-08	3E-09	0.00000002
Exposure Point Total										--							0.00000002
RM 3 West	<b>Polybrominated Diphenyl Ethers</b> PBDE # 47	1.4E+00	ug/kg	--	--	2E-12	4E-13	--	--	--	1E-04	1E-04	1E-11	3E-12	1E-07	3E-08	0.0000002
	PBDE # 99	1.3E+00	ug/kg	--	--	2E-12	3E-13	--	--	--	1E-04	1E-04	1E-11	3E-12	1E-07	3E-08	0.0000002
	PBDE # 153	2.9E-01	ug/kg	--	--	4E-13	7E-14	--	--	--	2E-04	2E-04	3E-12	6E-13	1E-08	3E-09	0.00000002
	PBDE # 209	5.3E+00	ug/kg	7E-04	7E-04	7E-12	1E-12	5E-15	9E-16	6E-15	7E-03	7E-03	5E-11	1E-11	8E-09	1E-09	0.00000001
Exposure Point Total										6E-15							0.00000003
RM 3 East	<b>Polybrominated Diphenyl Ethers</b> PBDE # 47	1.3E+00	ug/kg	--	--	2E-12	3E-13	--	--	--	1E-04	1E-04	1E-11	3E-12	1E-07	3E-08	0.0000002
	PBDE # 99	1.4E+00	ug/kg	--	--	2E-12	3E-13	--	--	--	1E-04	1E-04	1E-11	3E-12	1E-07	3E-08	0.0000002
	PBDE # 153	2.8E-01	ug/kg	--	--	4E-13	7E-14	--	--	--	2E-04	2E-04	3E-12	5E-13	1E-08	3E-09	0.00000002
	PBDE # 209	6.4E+00	ug/kg	7E-04	7E-04	8E-12	2E-12	6E-15	1E-15	7E-15	7E-03	7E-03	6E-11	1E-11	9E-09	2E-09	0.00000001
Exposure Point Total										7E-15							0.00000003
RM 3.5 West	<b>Polybrominated Diphenyl Ethers</b> PBDE # 47	1.4E-01	ug/kg	--	--	2E-13	4E-14	--	--	--	1E-04	1E-04	1E-12	3E-13	1E-08	3E-09	0.00000002
	PBDE # 99	1.2E-01	ug/kg	--	--	2E-13	3E-14	--	--	--	1E-04	1E-04	1E-12	2E-13	1E-08	2E-09	0.00000001
Exposure Point Total										--							0.00000003
RM 3.5 East	<b>Polybrominated Diphenyl Ethers</b> PBDE # 47	4.0E+00	ug/kg	--	--	5E-12	1E-12	--	--	--	1E-04	1E-04	4E-11	8E-12	4E-07	8E-08	0.0000005
	PBDE # 99	5.8E+00	ug/kg	--	--	7E-12	1E-12	--	--	--	1E-04	1E-04	6E-11	1E-11	6E-07	1E-07	0.0000007
	PBDE # 153	1.1E+00	ug/kg	--	--	1E-12	3E-13	--	--	--	2E-04	2E-04	1E-11	2E-12	5E-08	1E-08	0.00000006
	PBDE # 209	3.2E+01	ug/kg	7E-04	7E-04	4E-11	8E-12	3E-14	6E-15	3E-14	7E-03	7E-03	3E-10	6E-11	4E-08	9E-09	0.00000005
Exposure Point Total										3E-14							0.000001
RM 4 West	<b>Polybrominated Diphenyl Ethers</b> PBDE # 47	3.5E-01	ug/kg	--	--	4E-13	9E-14	--	--	--	1E-04	1E-04	3E-12	7E-13	3E-08	7E-09	0.00000004
	PBDE # 99	2.3E-01	ug/kg	--	--	3E-13	6E-14	--	--	--	1E-04	1E-04	2E-12	5E-13	2E-08	5E-09	0.00000003
Exposure Point Total										--							0.00000007
RM 5 West	<b>Polybrominated Diphenyl Ethers</b> PBDE # 47	3.7E-01	ug/kg	--	--	5E-13	9E-14	--	--	--	1E-04	1E-04	4E-12	7E-13	4E-08	7E-09	0.00000004
	PBDE # 99	3.7E-01	ug/kg	--	--	5E-13	9E-14	--	--	--	1E-04	1E-04	4E-12	7E-13	4E-08	7E-09	0.00000004
Exposure Point Total										--							0.00000009

**TABLE F3-15.**  
**Calculation of Cancer Risks and Noncancer Hazards - Commercial Diver in Wet Suit, In-water Sediment Exposure**  
**Central Tendency Exposure**

Scenario Timeframe: Current/Future  
Receptor Population: Diver in Wet Suit  
Population Age: Adult

Medium: Sediment  
Exposure Medium: In-water Sediment  
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC		Cancer Risk Calculations <sup>a</sup>						Noncancer Hazard Calculations <sup>a</sup>							
		Value	Units	Dermal Cancer Slope Factor (mg/kg-day) <sup>-1</sup>	Oral Cancer Slope Factor (mg/kg-day) <sup>-1</sup>	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk <sup>b</sup>	Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ <sup>b</sup>
RM 5.5 West	<b>Polybrominated Diphenyl Ethers</b>																
	PBDE # 47	1.4E+00	ug/kg	--	--	2E-12	4E-13	--	--	--	1E-04	1E-04	1E-11	3E-12	1E-07	3E-08	0.0000002
	PBDE # 99	1.2E+00	ug/kg	--	--	2E-12	3E-13	--	--	--	1E-04	1E-04	1E-11	2E-12	1E-07	2E-08	0.0000001
	PBDE # 153	2.3E-01	ug/kg	--	--	3E-13	6E-14	--	--	--	2E-04	2E-04	2E-12	5E-13	1E-08	2E-09	0.00000001
	PBDE # 209	7.4E+00	ug/kg	7E-04	7E-04	9E-12	2E-12	7E-15	1E-15	8E-15	7E-03	7E-03	7E-11	1E-11	1E-08	2E-09	0.00000001
Exposure Point Total										8E-15							0.0000003
RM 5.5 East	<b>Polybrominated Diphenyl Ethers</b>																
	PBDE # 47	1.0E+00	ug/kg	--	--	1E-12	3E-13	--	--	--	1E-04	1E-04	1E-11	2E-12	1E-07	2E-08	0.0000001
	PBDE # 99	1.2E+00	ug/kg	--	--	2E-12	3E-13	--	--	--	1E-04	1E-04	1E-11	2E-12	1E-07	2E-08	0.0000001
	PBDE # 153	4.1E-01	ug/kg	--	--	5E-13	1E-13	--	--	--	2E-04	2E-04	4E-12	8E-13	2E-08	4E-09	0.00000002
	PBDE # 209	4.2E+00	ug/kg	7E-04	7E-04	5E-12	1E-12	4E-15	7E-16	4E-15	7E-03	7E-03	4E-11	8E-12	6E-09	1E-09	0.00000001
Exposure Point Total										4E-15							0.0000003
RM 6 West	<b>Polybrominated Diphenyl Ethers</b>																
	PBDE # 47	3.7E-01	ug/kg	--	--	5E-13	9E-14	--	--	--	1E-04	1E-04	4E-12	7E-13	4E-08	7E-09	0.00000004
	PBDE # 99	3.7E-01	ug/kg	--	--	5E-13	9E-14	--	--	--	1E-04	1E-04	4E-12	7E-13	4E-08	7E-09	0.00000004
	PBDE # 209	4.8E+00	ug/kg	7E-04	7E-04	6E-12	1E-12	4E-15	8E-16	5E-15	7E-03	7E-03	5E-11	9E-12	7E-09	1E-09	0.00000001
Exposure Point Total										5E-15							0.00000009
RM 6 East	<b>Polybrominated Diphenyl Ethers</b>																
	PBDE # 47	2.7E-01	ug/kg	--	--	3E-13	7E-14	--	--	--	1E-04	1E-04	3E-12	5E-13	3E-08	5E-09	0.00000003
	PBDE # 99	1.7E-01	ug/kg	--	--	2E-13	4E-14	--	--	--	1E-04	1E-04	2E-12	3E-13	2E-08	3E-09	0.00000002
Exposure Point Total										--							0.00000005
RM 6.5 West	<b>Polybrominated Diphenyl Ethers</b>																
	PBDE # 47	1.1E-01	ug/kg	--	--	1E-13	3E-14	--	--	--	1E-04	1E-04	1E-12	2E-13	1E-08	2E-09	0.00000001
	PBDE # 99	1.3E-01	ug/kg	--	--	2E-13	3E-14	--	--	--	1E-04	1E-04	1E-12	3E-13	1E-08	3E-09	0.00000002
Exposure Point Total										--							0.00000003
RM 6.5 East	<b>Polybrominated Diphenyl Ethers</b>																
	PBDE # 47	1.2E+00	ug/kg	--	--	2E-12	3E-13	--	--	--	1E-04	1E-04	1E-11	2E-12	1E-07	2E-08	0.0000001
	PBDE # 99	1.3E+00	ug/kg	--	--	2E-12	3E-13	--	--	--	1E-04	1E-04	1E-11	2E-12	1E-07	2E-08	0.0000001
	PBDE # 153	4.5E-01	ug/kg	--	--	6E-13	1E-13	--	--	--	2E-04	2E-04	4E-12	9E-13	2E-08	4E-09	0.00000003
	PBDE # 209	1.7E+01	ug/kg	7E-04	7E-04	2E-11	4E-12	2E-14	3E-15	2E-14	7E-03	7E-03	2E-10	3E-11	2E-08	5E-09	0.00000003
Exposure Point Total										2E-14							0.0000003
RM 7 West	<b>Polybrominated Diphenyl Ethers</b>																
	PBDE # 47	9.5E-01	ug/kg	--	--	1E-12	2E-13	--	--	--	1E-04	1E-04	9E-12	2E-12	9E-08	2E-08	0.0000001
	PBDE # 99	9.9E-01	ug/kg	--	--	1E-12	2E-13	--	--	--	1E-04	1E-04	1E-11	2E-12	1E-07	2E-08	0.0000001
	PBDE # 153	2.9E-01	ug/kg	--	--	4E-13	7E-14	--	--	--	2E-04	2E-04	3E-12	6E-13	1E-08	3E-09	0.00000002
	PBDE # 209	6.1E+00	ug/kg	7E-04	7E-04	8E-12	2E-12	5E-15	1E-15	7E-15	7E-03	7E-03	6E-11	1E-11	9E-09	2E-09	0.00000001
Exposure Point Total										7E-15							0.0000003

**TABLE F3-15.**  
**Calculation of Cancer Risks and Noncancer Hazards - Commercial Diver in Wet Suit, In-water Sediment Exposure**  
**Central Tendency Exposure**

Scenario Timeframe: Current/Future  
Receptor Population: Diver in Wet Suit  
Population Age: Adult

Medium: Sediment  
Exposure Medium: In-water Sediment  
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC		Cancer Risk Calculations <sup>a</sup>						Noncancer Hazard Calculations <sup>a</sup>							
		Value	Units	Dermal Cancer Slope Factor (mg/kg-day) <sup>-1</sup>	Oral Cancer Slope Factor (mg/kg-day) <sup>-1</sup>	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk <sup>b</sup>	Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ <sup>b</sup>
RM 7 East	<b>Polybrominated Diphenyl Ethers</b>																
	PBDE # 47	1.2E+00	ug/kg	--	--	2E-12	3E-13	--	--	--	1E-04	1E-04	1E-11	2E-12	1E-07	2E-08	0.0000001
	PBDE # 99	1.0E+00	ug/kg	--	--	1E-12	3E-13	--	--	--	1E-04	1E-04	1E-11	2E-12	1E-07	2E-08	0.0000001
	PBDE # 153	3.6E-01	ug/kg	--	--	5E-13	9E-14	--	--	--	2E-04	2E-04	4E-12	7E-13	2E-08	4E-09	0.00000002
	PBDE # 209	4.3E+00	ug/kg	7E-04	7E-04	5E-12	1E-12	4E-15	8E-16	5E-15	7E-03	7E-03	4E-11	8E-12	6E-09	1E-09	0.00000001
Exposure Point Total										5E-15							0.0000003
RM 7.5 West	<b>Polybrominated Diphenyl Ethers</b>																
	PBDE # 47	9.9E-01	ug/kg	--	--	1E-12	2E-13	--	--	--	1E-04	1E-04	1E-11	2E-12	1E-07	2E-08	0.0000001
	PBDE # 99	8.5E-01	ug/kg	--	--	1E-12	2E-13	--	--	--	1E-04	1E-04	8E-12	2E-12	8E-08	2E-08	0.0000001
	PBDE # 153	4.3E-01	ug/kg	--	--	5E-13	1E-13	--	--	--	2E-04	2E-04	4E-12	8E-13	2E-08	4E-09	0.00000003
	PBDE # 209	5.3E+00	ug/kg	7E-04	7E-04	7E-12	1E-12	5E-15	9E-16	6E-15	7E-03	7E-03	5E-11	1E-11	8E-09	1E-09	0.00000001
Exposure Point Total										6E-15							0.0000003
RM 7.5 East	<b>Polybrominated Diphenyl Ethers</b>																
	PBDE # 47	1.9E+00	ug/kg	--	--	2E-12	5E-13	--	--	--	1E-04	1E-04	2E-11	4E-12	2E-07	4E-08	0.0000002
	PBDE # 99	2.2E+00	ug/kg	--	--	3E-12	5E-13	--	--	--	1E-04	1E-04	2E-11	4E-12	2E-07	4E-08	0.0000003
	PBDE # 153	3.4E-01	ug/kg	--	--	4E-13	9E-14	--	--	--	2E-04	2E-04	3E-12	7E-13	2E-08	3E-09	0.00000002
	PBDE # 209	8.9E+00	ug/kg	7E-04	7E-04	1E-11	2E-12	8E-15	2E-15	9E-15	7E-03	7E-03	9E-11	2E-11	1E-08	2E-09	0.00000002
Exposure Point Total										9E-15							0.0000005
RM 8 West	<b>Polybrominated Diphenyl Ethers</b>																
	PBDE # 47	8.3E-01	ug/kg	--	--	1E-12	2E-13	--	--	--	1E-04	1E-04	8E-12	2E-12	8E-08	2E-08	0.0000001
	PBDE # 99	1.2E+00	ug/kg	--	--	2E-12	3E-13	--	--	--	1E-04	1E-04	1E-11	2E-12	1E-07	2E-08	0.0000001
	PBDE # 153	8.4E-01	ug/kg	--	--	1E-12	2E-13	--	--	--	2E-04	2E-04	8E-12	2E-12	4E-08	8E-09	0.00000005
	PBDE # 209	4.4E+02	ug/kg	7E-04	7E-04	6E-10	1E-10	4E-13	8E-14	5E-13	7E-03	7E-03	4E-09	9E-10	6E-07	1E-07	0.0000007
Exposure Point Total										5E-13							0.000001
RM 8 East	<b>Polybrominated Diphenyl Ethers</b>																
	PBDE # 47	1.8E+00	ug/kg	--	--	2E-12	5E-13	--	--	--	1E-04	1E-04	2E-11	4E-12	2E-07	4E-08	0.0000002
	PBDE # 99	1.9E+00	ug/kg	--	--	2E-12	5E-13	--	--	--	1E-04	1E-04	2E-11	4E-12	2E-07	4E-08	0.0000002
	PBDE # 153	4.2E-01	ug/kg	--	--	5E-13	1E-13	--	--	--	2E-04	2E-04	4E-12	8E-13	2E-08	4E-09	0.00000002
	PBDE # 209	1.5E+01	ug/kg	7E-04	7E-04	2E-11	4E-12	1E-14	3E-15	2E-14	7E-03	7E-03	1E-10	3E-11	2E-08	4E-09	0.00000003
Exposure Point Total										2E-14							0.0000005
RM 8 SIL	<b>Polybrominated Diphenyl Ethers</b>																
	PBDE # 47	1.6E+00	ug/kg	--	--	2E-12	4E-13	--	--	--	1E-04	1E-04	2E-11	3E-12	2E-07	3E-08	0.0000002
	PBDE # 99	2.3E+00	ug/kg	--	--	3E-12	6E-13	--	--	--	1E-04	1E-04	2E-11	4E-12	2E-07	4E-08	0.0000003
	PBDE # 153	7.1E-01	ug/kg	--	--	9E-13	2E-13	--	--	--	2E-04	2E-04	7E-12	1E-12	4E-08	7E-09	0.00000004
	PBDE # 209	1.9E+01	ug/kg	7E-04	7E-04	2E-11	5E-12	2E-14	3E-15	2E-14	7E-03	7E-03	2E-10	4E-11	3E-08	5E-09	0.00000003
Exposure Point Total										2E-14							0.0000005

**TABLE F3-15.**  
**Calculation of Cancer Risks and Noncancer Hazards - Commercial Diver in Wet Suit, In-water Sediment Exposure**  
**Central Tendency Exposure**

Scenario Timeframe: Current/Future  
Receptor Population: Diver in Wet Suit  
Population Age: Adult

Medium: Sediment  
Exposure Medium: In-water Sediment  
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC		Cancer Risk Calculations <sup>a</sup>						Noncancer Hazard Calculations <sup>a</sup>							
		Value	Units	Dermal Cancer Slope Factor (mg/kg-day) <sup>-1</sup>	Oral Cancer Slope Factor (mg/kg-day) <sup>-1</sup>	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk <sup>b</sup>	Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ <sup>b</sup>
RM 8.5 West	<b>Polybrominated Diphenyl Ethers</b>																
	PBDE # 47	2.0E+00	ug/kg	--	--	3E-12	5E-13	--	--	--	1E-04	1E-04	2E-11	4E-12	2E-07	4E-08	0.0000002
	PBDE # 99	2.2E+00	ug/kg	--	--	3E-12	6E-13	--	--	--	1E-04	1E-04	2E-11	4E-12	2E-07	4E-08	0.0000003
	PBDE # 153	4.1E-01	ug/kg	--	--	5E-13	1E-13	--	--	--	2E-04	2E-04	4E-12	8E-13	2E-08	4E-09	0.00000002
	PBDE # 209	1.1E+01	ug/kg	7E-04	7E-04	1E-11	3E-12	1E-14	2E-15	1E-14	7E-03	7E-03	1E-10	2E-11	2E-08	3E-09	0.00000002
Exposure Point Total										1E-14							0.0000005
RM 8.5 East	<b>Polybrominated Diphenyl Ethers</b>																
	PBDE # 47	4.1E+00	ug/kg	--	--	5E-12	1E-12	--	--	--	1E-04	1E-04	4E-11	8E-12	4E-07	8E-08	0.0000005
	PBDE # 99	5.6E+00	ug/kg	--	--	7E-12	1E-12	--	--	--	1E-04	1E-04	6E-11	1E-11	6E-07	1E-07	0.0000007
	PBDE # 153	1.1E+00	ug/kg	--	--	1E-12	3E-13	--	--	--	2E-04	2E-04	1E-11	2E-12	5E-08	1E-08	0.00000007
	PBDE # 209	9.0E+01	ug/kg	7E-04	7E-04	1E-10	2E-11	8E-14	2E-14	1E-13	7E-03	7E-03	9E-10	2E-10	1E-07	3E-08	0.0000002
Exposure Point Total										1E-13							0.000001
RM 9 West	<b>Polybrominated Diphenyl Ethers</b>																
	PBDE # 47	1.3E+00	ug/kg	--	--	2E-12	3E-13	--	--	--	1E-04	1E-04	1E-11	3E-12	1E-07	3E-08	0.0000002
	PBDE # 99	1.2E+00	ug/kg	--	--	2E-12	3E-13	--	--	--	1E-04	1E-04	1E-11	2E-12	1E-07	2E-08	0.0000001
	PBDE # 153	1.9E-01	ug/kg	--	--	2E-13	5E-14	--	--	--	2E-04	2E-04	2E-12	4E-13	9E-09	2E-09	0.00000001
	PBDE # 209	2.9E+00	ug/kg	7E-04	7E-04	4E-12	7E-13	3E-15	5E-16	3E-15	7E-03	7E-03	3E-11	6E-12	4E-09	8E-10	0.00000005
Exposure Point Total										3E-15							0.0000003
RM 9 East	<b>Polybrominated Diphenyl Ethers</b>																
	PBDE # 47	3.3E-01	ug/kg	--	--	4E-13	8E-14	--	--	--	1E-04	1E-04	3E-12	6E-13	3E-08	6E-09	0.00000004
	PBDE # 99	1.8E-01	ug/kg	--	--	2E-13	5E-14	--	--	--	1E-04	1E-04	2E-12	4E-13	2E-08	4E-09	0.00000002
Exposure Point Total										--							0.00000006
RM 9.5 West	<b>Polybrominated Diphenyl Ethers</b>																
	PBDE # 47	1.8E+00	ug/kg	--	--	2E-12	5E-13	--	--	--	1E-04	1E-04	2E-11	4E-12	2E-07	4E-08	0.0000002
	PBDE # 99	2.7E+00	ug/kg	--	--	3E-12	7E-13	--	--	--	1E-04	1E-04	3E-11	5E-12	3E-07	5E-08	0.0000003
	PBDE # 153	5.2E-01	ug/kg	--	--	7E-13	1E-13	--	--	--	2E-04	2E-04	5E-12	1E-12	3E-08	5E-09	0.00000003
	PBDE # 209	4.6E+01	ug/kg	7E-04	7E-04	6E-11	1E-11	4E-14	8E-15	5E-14	7E-03	7E-03	5E-10	9E-11	7E-08	1E-08	0.00000008
Exposure Point Total										5E-14							0.0000006
RM 9.5 East	<b>Polybrominated Diphenyl Ethers</b>																
	PBDE # 47	9.9E-01	ug/kg	--	--	1E-12	2E-13	--	--	--	1E-04	1E-04	1E-11	2E-12	1E-07	2E-08	0.0000001
	PBDE # 99	7.9E-01	ug/kg	--	--	1E-12	2E-13	--	--	--	1E-04	1E-04	8E-12	2E-12	8E-08	2E-08	0.00000009
	PBDE # 209	2.0E+00	ug/kg	7E-04	7E-04	3E-12	5E-13	2E-15	4E-16	2E-15	7E-03	7E-03	2E-11	4E-12	3E-09	6E-10	0.00000003
Exposure Point Total										2E-15							0.0000002

**TABLE F3-15.**  
**Calculation of Cancer Risks and Noncancer Hazards - Commercial Diver in Wet Suit, In-water Sediment Exposure**  
**Central Tendency Exposure**

Scenario Timeframe: Current/Future Medium: Sediment  
Receptor Population: Diver in Wet Suit Exposure Medium: In-water Sediment  
Population Age: Adult Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC		Cancer Risk Calculations <sup>a</sup>						Noncancer Hazard Calculations <sup>a</sup>							
		Value	Units	Dermal Cancer Slope Factor (mg/kg-day) <sup>-1</sup>	Oral Cancer Slope Factor (mg/kg-day) <sup>-1</sup>	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk <sup>b</sup>	Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ <sup>b</sup>
RM 11 West	<b>Polybrominated Diphenyl Ethers</b>																
	PBDE # 47	2.9E+00	ug/kg	--	--	4E-12	7E-13	--	--	--	1E-04	1E-04	3E-11	6E-12	3E-07	6E-08	0.0000003
	PBDE # 99	3.7E+00	ug/kg	--	--	5E-12	9E-13	--	--	--	1E-04	1E-04	4E-11	7E-12	4E-07	7E-08	0.0000004
	PBDE # 153	6.3E-01	ug/kg	--	--	8E-13	2E-13	--	--	--	2E-04	2E-04	6E-12	1E-12	3E-08	6E-09	0.0000004
	PBDE # 209	5.7E+01	ug/kg	7E-04	7E-04	7E-11	1E-11	5E-14	1E-14	6E-14	7E-03	7E-03	6E-10	1E-10	8E-08	2E-08	0.0000001
Exposure Point Total										6E-14							0.0000009
RM 11 East	<b>Polybrominated Diphenyl Ethers</b>																
	PBDE # 47	9.7E-01	ug/kg	--	--	1E-12	2E-13	--	--	--	1E-04	1E-04	1E-11	2E-12	1E-07	2E-08	0.0000001
	PBDE # 99	7.8E-01	ug/kg	--	--	1E-12	2E-13	--	--	--	1E-04	1E-04	8E-12	2E-12	8E-08	2E-08	0.0000009
Exposure Point Total										--							0.0000002
RM 12 West	<b>Polybrominated Diphenyl Ethers</b>																
	PBDE # 47	3.1E-01	ug/kg	--	--	4E-13	8E-14	--	--	--	1E-04	1E-04	3E-12	6E-13	3E-08	6E-09	0.0000004
	PBDE # 99	3.0E-01	ug/kg	--	--	4E-13	8E-14	--	--	--	1E-04	1E-04	3E-12	6E-13	3E-08	6E-09	0.0000004
Exposure Point Total										--							0.0000007
RM 12 East	<b>Polybrominated Diphenyl Ethers</b>																
	PBDE # 47	1.2E+00	ug/kg	--	--	2E-12	3E-13	--	--	--	1E-04	1E-04	1E-11	2E-12	1E-07	2E-08	0.0000001
	PBDE # 99	1.1E+00	ug/kg	--	--	1E-12	3E-13	--	--	--	1E-04	1E-04	1E-11	2E-12	1E-07	2E-08	0.0000001
Exposure Point Total										--							0.0000003
Study Area Wide <sup>d</sup>	<b>Polybrominated Diphenyl Ethers</b>																
	PBDE # 47	1.4E+00	ug/kg	--	--	2E-12	4E-13	--	--	--	1E-04	1E-04	1E-11	3E-12	1E-07	3E-08	0.0000002
	PBDE # 99	1.7E+00	ug/kg	--	--	2E-12	4E-13	--	--	--	1E-04	1E-04	2E-11	3E-12	2E-07	3E-08	0.0000002
	PBDE # 153	5.1E-01	ug/kg	--	--	6E-13	1E-13	--	--	--	2E-04	2E-04	5E-12	1E-12	3E-08	5E-09	0.0000003
	PBDE # 209	2.2E+01	ug/kg	7E-04	7E-04	3E-11	5E-12	2E-14	4E-15	2E-14	7E-03	7E-03	2E-10	4E-11	3E-08	6E-09	0.0000004
Exposure Point Total										2E-14							0.0000004

**Notes:**

- a Numbers presented are rounded values. Sums calculated before rounding. Risks and hazards are calculated based on exposure parameters presented in Section 3 of Appendix F. For risks and hazards from dermal contact, a dermal absorption efficiency of 0.1 was used, which is the dermal absorption efficiency presented for semi-volatile organic compounds in Risk Assessment Guidance for Superfund. Volume I: Human Health Evaluation Manual (Part E, Supplemental Guidance for Dermal Risk Assessment) Final, July 2004. EPA/540/R/99/005.
- b Study Area-wide dataset includes human health in-water sediment samples from RM 1.9 - 11.8 outside of the navigation channel and excluding Multnomah Channel.

**Abbreviations:**

- = Not Applicable.
- CDI = Chronic Daily Intake.
- EPC = Exposure Point Concentration.
- HQ = Hazard Quotient.
- LADI = Lifetime Average Daily Intake.
- mg/kg = milligrams per kilogram.
- ND = Not Detected in given exposure area.
- RfD = Reference dose.
- RM = River mile.
- ug/kg = micrograms per kilogram.

**TABLE F3-16.**  
**Calculation of Cancer Risks and Noncancer Hazards - Commercial Diver in Dry Suit, In-water Sediment Exposure**  
**Reasonable Maximum Exposure**

Scenario Timeframe: Current/Future Medium: Sediment  
Receptor Population: Diver in Dry Suit Exposure Medium: In-water Sediment  
Population Age: Adult Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC		Cancer Risk Calculations <sup>a</sup>							Noncancer Hazard Calculations <sup>a</sup>						
		Value	Units	Dermal Cancer Slope Factor (mg/kg-day) <sup>-1</sup>	Oral Cancer Slope Factor (mg/kg-day) <sup>-1</sup>	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk	Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ
RM 1 West	<b>Polybrominated Diphenyl Ethers</b>																
	PBDE # 47	3.6E-01	ug/kg	--	--	2E-12	1E-12	--	--	--	1E-04	1E-04	5E-12	4E-12	5E-08	4E-08	0.0000009
	PBDE # 99	3.7E-01	ug/kg	--	--	2E-12	1E-12	--	--	--	1E-04	1E-04	5E-12	4E-12	5E-08	4E-08	0.0000009
	PBDE # 209	4.0E+00	ug/kg	7E-04	7E-04	2E-11	1E-11	1E-14	1E-14	2E-14	7E-03	7E-03	6E-11	4E-11	8E-09	6E-09	0.0000001
Exposure Point Total										2E-14							0.0000002
RM 1 East	<b>Polybrominated Diphenyl Ethers</b>																
	PBDE # 47	7.6E-01	ug/kg	--	--	4E-12	3E-12	--	--	--	1E-04	1E-04	1E-11	7E-12	1E-07	7E-08	0.0000002
	PBDE # 99	6.3E-01	ug/kg	--	--	3E-12	2E-12	--	--	--	1E-04	1E-04	9E-12	6E-12	9E-08	6E-08	0.0000002
	PBDE # 209	3.7E+00	ug/kg	7E-04	7E-04	2E-11	1E-11	1E-14	9E-15	2E-14	7E-03	7E-03	5E-11	4E-11	8E-09	5E-09	0.0000001
Exposure Point Total										2E-14							0.0000004
RM 1.5 West	<b>Polybrominated Diphenyl Ethers</b>																
	PBDE # 47	1.2E-01	ug/kg	--	--	6E-13	4E-13	--	--	--	1E-04	1E-04	2E-12	1E-12	2E-08	1E-08	0.0000003
Exposure Point Total										--							0.0000003
RM 1.5 East	<b>Polybrominated Diphenyl Ethers</b>																
	PBDE # 47	1.4E+00	ug/kg	--	--	7E-12	5E-12	--	--	--	1E-04	1E-04	2E-11	1E-11	2E-07	1E-07	0.0000003
	PBDE # 99	1.4E+00	ug/kg	--	--	7E-12	5E-12	--	--	--	1E-04	1E-04	2E-11	1E-11	2E-07	1E-07	0.0000003
	PBDE # 153	1.8E-01	ug/kg	--	--	9E-13	6E-13	--	--	--	2E-04	2E-04	3E-12	2E-12	1E-08	9E-09	0.0000002
	PBDE # 209	4.5E+00	ug/kg	7E-04	7E-04	2E-11	2E-11	2E-14	1E-14	3E-14	7E-03	7E-03	7E-11	4E-11	9E-09	6E-09	0.0000002
Exposure Point Total										3E-14							0.0000007
RM 2 West	<b>Polybrominated Diphenyl Ethers</b>																
	PBDE # 47	1.8E+00	ug/kg	--	--	9E-12	6E-12	--	--	--	1E-04	1E-04	3E-11	2E-11	3E-07	2E-07	0.0000004
	PBDE # 99	1.7E+00	ug/kg	--	--	9E-12	6E-12	--	--	--	1E-04	1E-04	3E-11	2E-11	3E-07	2E-07	0.0000004
	PBDE # 153	4.2E-01	ug/kg	--	--	2E-12	1E-12	--	--	--	2E-04	2E-04	6E-12	4E-12	3E-08	2E-08	0.0000005
	PBDE # 209	6.0E+00	ug/kg	7E-04	7E-04	3E-11	2E-11	2E-14	1E-14	4E-14	7E-03	7E-03	9E-11	6E-11	1E-08	8E-09	0.0000002
Exposure Point Total										4E-14							0.0000009
RM 2 East	<b>Polybrominated Diphenyl Ethers</b>																
	PBDE # 47	1.8E+00	ug/kg	--	--	9E-12	6E-12	--	--	--	1E-04	1E-04	3E-11	2E-11	3E-07	2E-07	0.0000004
	PBDE # 99	2.1E+00	ug/kg	--	--	1E-11	7E-12	--	--	--	1E-04	1E-04	3E-11	2E-11	3E-07	2E-07	0.0000005
	PBDE # 153	2.9E-01	ug/kg	--	--	2E-12	1E-12	--	--	--	2E-04	2E-04	4E-12	3E-12	2E-08	1E-08	0.0000004
	PBDE # 209	8.4E+00	ug/kg	7E-04	7E-04	4E-11	3E-11	3E-14	2E-14	5E-14	7E-03	7E-03	1E-10	8E-11	2E-08	1E-08	0.0000003
Exposure Point Total										5E-14							0.000001
RM 2.5 East	<b>Polybrominated Diphenyl Ethers</b>																
	PBDE # 47	2.0E-01	ug/kg	--	--	1E-12	7E-13	--	--	--	1E-04	1E-04	3E-12	2E-12	3E-08	2E-08	0.0000005
	PBDE # 99	2.4E-01	ug/kg	--	--	1E-12	8E-13	--	--	--	1E-04	1E-04	4E-12	2E-12	4E-08	2E-08	0.0000006
Exposure Point Total										--							0.000001



**TABLE F3-16.**  
**Calculation of Cancer Risks and Noncancer Hazards - Commercial Diver in Dry Suit, In-water Sediment Exposure**  
**Reasonable Maximum Exposure**

Scenario Timeframe: Current/Future  
Receptor Population: Diver in Dry Suit  
Population Age: Adult

Medium: Sediment  
Exposure Medium: In-water Sediment  
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC		Cancer Risk Calculations <sup>a</sup>						Noncancer Hazard Calculations <sup>a</sup>							
		Value	Units	Dermal Cancer Slope Factor (mg/kg-day) <sup>-1</sup>	Oral Cancer Slope Factor (mg/kg-day) <sup>-1</sup>	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk	Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ
RM 2.5 MC	<b>Polybrominated Diphenyl Ethers</b> PBDE # 47	1.4E-01	ug/kg	--	--	7E-13	5E-13	--	--	--	1E-04	1E-04	2E-12	1E-12	2E-08	1E-08	0.00000003
Exposure Point Total				--						0.00000003							
RM 3 West	<b>Polybrominated Diphenyl Ethers</b> PBDE # 47	1.4E+00	ug/kg	--	--	7E-12	5E-12	--	--	--	1E-04	1E-04	2E-11	1E-11	2E-07	1E-07	0.0000003
	PBDE # 99	1.3E+00	ug/kg	--	--	7E-12	5E-12	--	--	--	1E-04	1E-04	2E-11	1E-11	2E-07	1E-07	0.0000003
	PBDE # 153	2.9E-01	ug/kg	--	--	2E-12	1E-12	--	--	--	2E-04	2E-04	4E-12	3E-12	2E-08	1E-08	0.00000004
	PBDE # 209	5.3E+00	ug/kg	7E-04	7E-04	3E-11	2E-11	2E-14	1E-14	3E-14	7E-03	7E-03	8E-11	5E-11	1E-08	7E-09	0.00000002
Exposure Point Total				3E-14						0.0000007							
RM 3 East	<b>Polybrominated Diphenyl Ethers</b> PBDE # 47	1.6E+00	ug/kg	--	--	8E-12	6E-12	--	--	--	1E-04	1E-04	2E-11	2E-11	2E-07	2E-07	0.0000004
	PBDE # 99	1.6E+00	ug/kg	--	--	8E-12	6E-12	--	--	--	1E-04	1E-04	2E-11	2E-11	2E-07	2E-07	0.0000004
	PBDE # 153	3.3E-01	ug/kg	--	--	2E-12	1E-12	--	--	--	2E-04	2E-04	5E-12	3E-12	2E-08	2E-08	0.00000004
	PBDE # 209	6.9E+00	ug/kg	7E-04	7E-04	4E-11	2E-11	3E-14	2E-14	4E-14	7E-03	7E-03	1E-10	7E-11	1E-08	1E-08	0.00000002
Exposure Point Total				4E-14						0.0000008							
RM 3.5 West	<b>Polybrominated Diphenyl Ethers</b> PBDE # 47	1.4E-01	ug/kg	--	--	7E-13	5E-13	--	--	--	1E-04	1E-04	2E-12	1E-12	2E-08	1E-08	0.00000003
	PBDE # 99	1.2E-01	ug/kg	--	--	6E-13	4E-13	--	--	--	1E-04	1E-04	2E-12	1E-12	2E-08	1E-08	0.00000003
Exposure Point Total				--						0.00000006							
RM 3.5 East	<b>Polybrominated Diphenyl Ethers</b> PBDE # 47	5.2E+00	ug/kg	--	--	3E-11	2E-11	--	--	--	1E-04	1E-04	8E-11	5E-11	8E-07	5E-07	0.000001
	PBDE # 99	8.2E+00	ug/kg	--	--	4E-11	3E-11	--	--	--	1E-04	1E-04	1E-10	8E-11	1E-06	8E-07	0.000002
	PBDE # 153	1.5E+00	ug/kg	--	--	8E-12	5E-12	--	--	--	2E-04	2E-04	2E-11	1E-11	1E-07	7E-08	0.0000002
	PBDE # 209	5.6E+01	ug/kg	7E-04	7E-04	3E-10	2E-10	2E-13	1E-13	3E-13	7E-03	7E-03	8E-10	5E-10	1E-07	8E-08	0.0000002
Exposure Point Total				3E-13						0.000004							
RM 4 West	<b>Polybrominated Diphenyl Ethers</b> PBDE # 47	3.5E-01	ug/kg	--	--	2E-12	1E-12	--	--	--	1E-04	1E-04	5E-12	3E-12	5E-08	3E-08	0.00000009
	PBDE # 99	2.3E-01	ug/kg	--	--	1E-12	8E-13	--	--	--	1E-04	1E-04	3E-12	2E-12	3E-08	2E-08	0.00000006
Exposure Point Total				--						0.0000001							
RM 5 West	<b>Polybrominated Diphenyl Ethers</b> PBDE # 47	3.7E-01	ug/kg	--	--	2E-12	1E-12	--	--	--	1E-04	1E-04	5E-12	4E-12	5E-08	4E-08	0.00000009
	PBDE # 99	3.7E-01	ug/kg	--	--	2E-12	1E-12	--	--	--	1E-04	1E-04	5E-12	4E-12	5E-08	4E-08	0.00000009
Exposure Point Total				--						0.0000002							

**TABLE F3-16.**  
**Calculation of Cancer Risks and Noncancer Hazards - Commercial Diver in Dry Suit, In-water Sediment Exposure**  
**Reasonable Maximum Exposure**

Scenario Timeframe: Current/Future Medium: Sediment  
Receptor Population: Diver in Dry Suit Exposure Medium: In-water Sediment  
Population Age: Adult Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC		Cancer Risk Calculations <sup>a</sup>							Noncancer Hazard Calculations <sup>a</sup>						
		Value	Units	Dermal Cancer Slope Factor (mg/kg-day) <sup>-1</sup>	Oral Cancer Slope Factor (mg/kg-day) <sup>-1</sup>	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk	Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ
RM 5.5 West	<b>Polybrominated Diphenyl Ethers</b>																
	PBDE # 47	1.4E+00	ug/kg	--	--	7E-12	5E-12	--	--	--	1E-04	1E-04	2E-11	1E-11	2E-07	1E-07	0.0000003
	PBDE # 99	1.2E+00	ug/kg	--	--	6E-12	4E-12	--	--	--	1E-04	1E-04	2E-11	1E-11	2E-07	1E-07	0.0000003
	PBDE # 153	2.3E-01	ug/kg	--	--	1E-12	8E-13	--	--	--	2E-04	2E-04	3E-12	2E-12	2E-08	1E-08	0.0000003
	PBDE # 209	7.4E+00	ug/kg	7E-04	7E-04	4E-11	3E-11	3E-14	2E-14	5E-14	7E-03	7E-03	1E-10	7E-11	2E-08	1E-08	0.0000003
Exposure Point Total										5E-14							0.0000007
RM 5.5 East	<b>Polybrominated Diphenyl Ethers</b>																
	PBDE # 47	1.8E+00	ug/kg	--	--	9E-12	6E-12	--	--	--	1E-04	1E-04	3E-11	2E-11	3E-07	2E-07	0.0000004
	PBDE # 99	1.8E+00	ug/kg	--	--	9E-12	6E-12	--	--	--	1E-04	1E-04	3E-11	2E-11	3E-07	2E-07	0.0000004
	PBDE # 153	2.6E-01	ug/kg	--	--	1E-12	9E-13	--	--	--	2E-04	2E-04	4E-12	3E-12	2E-08	1E-08	0.0000003
	PBDE # 209	2.8E+00	ug/kg	7E-04	7E-04	1E-11	1E-11	1E-14	7E-15	2E-14	7E-03	7E-03	4E-11	3E-11	6E-09	4E-09	0.0000001
Exposure Point Total										2E-14							0.0000009
RM 6 West	<b>Polybrominated Diphenyl Ethers</b>																
	PBDE # 47	1.3E-01	ug/kg	--	--	7E-13	5E-13	--	--	--	1E-04	1E-04	2E-12	1E-12	2E-08	1E-08	0.0000003
	PBDE # 99	1.3E-01	ug/kg	--	--	7E-13	5E-13	--	--	--	1E-04	1E-04	2E-12	1E-12	2E-08	1E-08	0.0000003
	PBDE # 209	3.5E+00	ug/kg	7E-04	7E-04	2E-11	1E-11	1E-14	9E-15	2E-14	7E-03	7E-03	5E-11	3E-11	7E-09	5E-09	0.0000001
Exposure Point Total										2E-14							0.0000008
RM 6 East	<b>Polybrominated Diphenyl Ethers</b>																
	PBDE # 47	2.7E-01	ug/kg	--	--	1E-12	9E-13	--	--	--	1E-04	1E-04	4E-12	3E-12	4E-08	3E-08	0.0000007
	PBDE # 99	1.7E-01	ug/kg	--	--	9E-13	6E-13	--	--	--	1E-04	1E-04	3E-12	2E-12	3E-08	2E-08	0.0000004
Exposure Point Total										--							0.0000001
RM 6.5 West	<b>Polybrominated Diphenyl Ethers</b>																
	PBDE # 47	1.1E-01	ug/kg	--	--	6E-13	4E-13	--	--	--	1E-04	1E-04	2E-12	1E-12	2E-08	1E-08	0.0000003
	PBDE # 99	1.3E-01	ug/kg	--	--	7E-13	5E-13	--	--	--	1E-04	1E-04	2E-12	1E-12	2E-08	1E-08	0.0000003
Exposure Point Total										--							0.0000006
RM 6.5 East	<b>Polybrominated Diphenyl Ethers</b>																
	PBDE # 47	1.8E+00	ug/kg	--	--	9E-12	6E-12	--	--	--	1E-04	1E-04	3E-11	2E-11	3E-07	2E-07	0.0000004
	PBDE # 99	1.9E+00	ug/kg	--	--	1E-11	7E-12	--	--	--	1E-04	1E-04	3E-11	2E-11	3E-07	2E-07	0.0000005
	PBDE # 153	3.5E-01	ug/kg	--	--	2E-12	1E-12	--	--	--	2E-04	2E-04	5E-12	3E-12	3E-08	2E-08	0.0000004
	PBDE # 209	2.5E+01	ug/kg	7E-04	7E-04	1E-10	9E-11	9E-14	6E-14	2E-13	7E-03	7E-03	4E-10	2E-10	5E-08	3E-08	0.0000009
Exposure Point Total										2E-13							0.0000001
RM 7 West	<b>Polybrominated Diphenyl Ethers</b>																
	PBDE # 47	9.5E-01	ug/kg	--	--	5E-12	3E-12	--	--	--	1E-04	1E-04	1E-11	9E-12	1E-07	9E-08	0.0000002
	PBDE # 99	9.9E-01	ug/kg	--	--	5E-12	3E-12	--	--	--	1E-04	1E-04	1E-11	1E-11	1E-07	1E-07	0.0000002
	PBDE # 153	2.9E-01	ug/kg	--	--	2E-12	1E-12	--	--	--	2E-04	2E-04	4E-12	3E-12	2E-08	1E-08	0.0000004
	PBDE # 209	6.1E+00	ug/kg	7E-04	7E-04	3E-11	2E-11	2E-14	1E-14	4E-14	7E-03	7E-03	9E-11	6E-11	1E-08	9E-09	0.0000002
Exposure Point Total										4E-14							0.0000005



**TABLE F3-16.**  
**Calculation of Cancer Risks and Noncancer Hazards - Commercial Diver in Dry Suit, In-water Sediment Exposure**  
**Reasonable Maximum Exposure**

Scenario Timeframe: Current/Future  
Receptor Population: Diver in Dry Suit  
Population Age: Adult

Medium: Sediment  
Exposure Medium: In-water Sediment  
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC		Cancer Risk Calculations <sup>a</sup>							Noncancer Hazard Calculations <sup>a</sup>						
		Value	Units	Dermal Cancer Slope Factor (mg/kg-day) <sup>-1</sup>	Oral Cancer Slope Factor (mg/kg-day) <sup>-1</sup>	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk	Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ
RM 7 East	<b>Polybrominated Diphenyl Ethers</b>																
	PBDE # 47	1.7E+00	ug/kg	--	--	9E-12	6E-12	--	--	--	1E-04	1E-04	3E-11	2E-11	3E-07	2E-07	0.0000004
	PBDE # 99	1.5E+00	ug/kg	--	--	8E-12	5E-12	--	--	--	1E-04	1E-04	2E-11	1E-11	2E-07	1E-07	0.0000004
	PBDE # 153	3.1E-01	ug/kg	--	--	2E-12	1E-12	--	--	--	2E-04	2E-04	5E-12	3E-12	2E-08	2E-08	0.00000004
	PBDE # 209	6.2E+00	ug/kg	7E-04	7E-04	3E-11	2E-11	2E-14	2E-14	4E-14	7E-03	7E-03	9E-11	6E-11	1E-08	9E-09	0.00000002
Exposure Point Total										4E-14							0.0000008
RM 7.5 West	<b>Polybrominated Diphenyl Ethers</b>																
	PBDE # 47	1.7E+00	ug/kg	--	--	9E-12	6E-12	--	--	--	1E-04	1E-04	3E-11	2E-11	3E-07	2E-07	0.0000004
	PBDE # 99	1.5E+00	ug/kg	--	--	8E-12	5E-12	--	--	--	1E-04	1E-04	2E-11	1E-11	2E-07	1E-07	0.0000004
	PBDE # 153	3.1E-01	ug/kg	--	--	2E-12	1E-12	--	--	--	2E-04	2E-04	5E-12	3E-12	2E-08	2E-08	0.00000004
	PBDE # 209	5.1E+00	ug/kg	7E-04	7E-04	3E-11	2E-11	2E-14	1E-14	3E-14	7E-03	7E-03	8E-11	5E-11	1E-08	7E-09	0.00000002
Exposure Point Total										3E-14							0.0000008
RM 7.5 East	<b>Polybrominated Diphenyl Ethers</b>																
	PBDE # 47	2.5E+00	ug/kg	--	--	1E-11	9E-12	--	--	--	1E-04	1E-04	4E-11	2E-11	4E-07	2E-07	0.0000006
	PBDE # 99	2.9E+00	ug/kg	--	--	2E-11	1E-11	--	--	--	1E-04	1E-04	4E-11	3E-11	4E-07	3E-07	0.0000007
	PBDE # 153	4.5E-01	ug/kg	--	--	2E-12	2E-12	--	--	--	2E-04	2E-04	7E-12	4E-12	3E-08	2E-08	0.00000006
	PBDE # 209	1.3E+01	ug/kg	7E-04	7E-04	7E-11	5E-11	5E-14	3E-14	8E-14	7E-03	7E-03	2E-10	1E-10	3E-08	2E-08	0.00000005
Exposure Point Total										8E-14							0.0000001
RM 8 West	<b>Polybrominated Diphenyl Ethers</b>																
	PBDE # 47	8.3E-01	ug/kg	--	--	4E-12	3E-12	--	--	--	1E-04	1E-04	1E-11	8E-12	1E-07	8E-08	0.0000002
	PBDE # 99	1.2E+00	ug/kg	--	--	6E-12	4E-12	--	--	--	1E-04	1E-04	2E-11	1E-11	2E-07	1E-07	0.0000003
	PBDE # 153	8.4E-01	ug/kg	--	--	4E-12	3E-12	--	--	--	2E-04	2E-04	1E-11	8E-12	6E-08	4E-08	0.0000001
	PBDE # 209	4.4E+02	ug/kg	7E-04	7E-04	2E-09	2E-09	2E-12	1E-12	3E-12	7E-03	7E-03	6E-09	4E-09	9E-07	6E-07	0.0000002
Exposure Point Total										3E-12							0.0000002
RM 8 East	<b>Polybrominated Diphenyl Ethers</b>																
	PBDE # 47	2.1E+00	ug/kg	--	--	1E-11	7E-12	--	--	--	1E-04	1E-04	3E-11	2E-11	3E-07	2E-07	0.0000005
	PBDE # 99	2.2E+00	ug/kg	--	--	1E-11	8E-12	--	--	--	1E-04	1E-04	3E-11	2E-11	3E-07	2E-07	0.0000005
	PBDE # 153	6.2E-01	ug/kg	--	--	3E-12	2E-12	--	--	--	2E-04	2E-04	9E-12	6E-12	5E-08	3E-08	0.00000008
	PBDE # 209	2.4E+01	ug/kg	7E-04	7E-04	1E-10	8E-11	9E-14	6E-14	1E-13	7E-03	7E-03	4E-10	2E-10	5E-08	3E-08	0.00000008
Exposure Point Total										1E-13							0.0000001
RM 8 SIL	<b>Polybrominated Diphenyl Ethers</b>																
	PBDE # 47	4.5E+00	ug/kg	--	--	2E-11	2E-11	--	--	--	1E-04	1E-04	7E-11	4E-11	7E-07	4E-07	0.0000001
	PBDE # 99	4.3E+00	ug/kg	--	--	2E-11	2E-11	--	--	--	1E-04	1E-04	6E-11	4E-11	6E-07	4E-07	0.0000001
	PBDE # 153	1.2E+00	ug/kg	--	--	6E-12	4E-12	--	--	--	2E-04	2E-04	2E-11	1E-11	9E-08	6E-08	0.0000001
	PBDE # 209	3.7E+01	ug/kg	7E-04	7E-04	2E-10	1E-10	1E-13	9E-14	2E-13	7E-03	7E-03	5E-10	4E-10	8E-08	5E-08	0.0000001
Exposure Point Total										2E-13							0.0000002

**TABLE F3-16.**  
**Calculation of Cancer Risks and Noncancer Hazards - Commercial Diver in Dry Suit, In-water Sediment Exposure**  
**Reasonable Maximum Exposure**

Scenario Timeframe: Current/Future  
Receptor Population: Diver in Dry Suit  
Population Age: Adult

Medium: Sediment  
Exposure Medium: In-water Sediment  
Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC		Cancer Risk Calculations <sup>a</sup>						Noncancer Hazard Calculations <sup>a</sup>							
		Value	Units	Dermal Cancer Slope Factor (mg/kg-day) <sup>-1</sup>	Oral Cancer Slope Factor (mg/kg-day) <sup>-1</sup>	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk	Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ
RM 8.5 West	<b>Polybrominated Diphenyl Ethers</b>																
	PBDE # 47	2.0E+00	ug/kg	--	--	1E-11	7E-12	--	--	--	1E-04	1E-04	3E-11	2E-11	3E-07	2E-07	0.0000005
	PBDE # 99	2.2E+00	ug/kg	--	--	1E-11	8E-12	--	--	--	1E-04	1E-04	3E-11	2E-11	3E-07	2E-07	0.0000005
	PBDE # 153	4.1E-01	ug/kg	--	--	2E-12	1E-12	--	--	--	2E-04	2E-04	6E-12	4E-12	3E-08	2E-08	0.00000005
	PBDE # 209	1.1E+01	ug/kg	7E-04	7E-04	6E-11	4E-11	4E-14	3E-14	7E-14	7E-03	7E-03	2E-10	1E-10	2E-08	2E-08	0.00000004
Exposure Point Total										7E-14							0.000001
RM 8.5 East	<b>Polybrominated Diphenyl Ethers</b>																
	PBDE # 47	4.1E+00	ug/kg	--	--	2E-11	1E-11	--	--	--	1E-04	1E-04	6E-11	4E-11	6E-07	4E-07	0.000001
	PBDE # 99	5.6E+00	ug/kg	--	--	3E-11	2E-11	--	--	--	1E-04	1E-04	8E-11	5E-11	8E-07	5E-07	0.000001
	PBDE # 153	1.1E+00	ug/kg	--	--	6E-12	4E-12	--	--	--	2E-04	2E-04	2E-11	1E-11	8E-08	5E-08	0.0000001
	PBDE # 209	9.0E+01	ug/kg	7E-04	7E-04	5E-10	3E-10	3E-13	2E-13	6E-13	7E-03	7E-03	1E-09	9E-10	2E-07	1E-07	0.0000003
Exposure Point Total										6E-13							0.000003
RM 9 West	<b>Polybrominated Diphenyl Ethers</b>																
	PBDE # 47	1.3E+00	ug/kg	--	--	7E-12	5E-12	--	--	--	1E-04	1E-04	2E-11	1E-11	2E-07	1E-07	0.0000003
	PBDE # 99	1.2E+00	ug/kg	--	--	6E-12	4E-12	--	--	--	1E-04	1E-04	2E-11	1E-11	2E-07	1E-07	0.0000003
	PBDE # 153	1.9E-01	ug/kg	--	--	1E-12	7E-13	--	--	--	2E-04	2E-04	3E-12	2E-12	1E-08	9E-09	0.00000002
	PBDE # 209	2.9E+00	ug/kg	7E-04	7E-04	2E-11	1E-11	1E-14	7E-15	2E-14	7E-03	7E-03	4E-11	3E-11	6E-09	4E-09	0.00000001
Exposure Point Total										2E-14							0.0000006
RM 9 East	<b>Polybrominated Diphenyl Ethers</b>																
	PBDE # 47	3.3E-01	ug/kg	--	--	2E-12	1E-12	--	--	--	1E-04	1E-04	5E-12	3E-12	5E-08	3E-08	0.00000008
	PBDE # 99	1.8E-01	ug/kg	--	--	9E-13	6E-13	--	--	--	1E-04	1E-04	3E-12	2E-12	3E-08	2E-08	0.00000004
Exposure Point Total										--							0.0000001
RM 9.5 West	<b>Polybrominated Diphenyl Ethers</b>																
	PBDE # 47	1.8E+00	ug/kg	--	--	9E-12	6E-12	--	--	--	1E-04	1E-04	3E-11	2E-11	3E-07	2E-07	0.0000004
	PBDE # 99	2.7E+00	ug/kg	--	--	1E-11	9E-12	--	--	--	1E-04	1E-04	4E-11	3E-11	4E-07	3E-07	0.0000007
	PBDE # 153	5.2E-01	ug/kg	--	--	3E-12	2E-12	--	--	--	2E-04	2E-04	8E-12	5E-12	4E-08	3E-08	0.00000006
	PBDE # 209	4.6E+01	ug/kg	7E-04	7E-04	2E-10	2E-10	2E-13	1E-13	3E-13	7E-03	7E-03	7E-10	5E-10	1E-07	6E-08	0.0000002
Exposure Point Total										3E-13							0.000001
RM 9.5 East	<b>Polybrominated Diphenyl Ethers</b>																
	PBDE # 47	9.9E-01	ug/kg	--	--	5E-12	3E-12	--	--	--	1E-04	1E-04	1E-11	1E-11	1E-07	1E-07	0.0000002
	PBDE # 99	7.9E-01	ug/kg	--	--	4E-12	3E-12	--	--	--	1E-04	1E-04	1E-11	8E-12	1E-07	8E-08	0.0000002
	PBDE # 209	2.0E+00	ug/kg	7E-04	7E-04	1E-11	7E-12	7E-15	5E-15	1E-14	7E-03	7E-03	3E-11	2E-11	4E-09	3E-09	0.00000001
Exposure Point Total										1E-14							0.0000004

**TABLE F3-16.**  
**Calculation of Cancer Risks and Noncancer Hazards - Commercial Diver in Dry Suit, In-water Sediment Exposure**  
**Reasonable Maximum Exposure**

Scenario Timeframe: Current/Future Medium: Sediment  
Receptor Population: Diver in Dry Suit Exposure Medium: In-water Sediment  
Population Age: Adult Exposure Route: Direct Contact

Exposure Point	Chemical of Potential Concern	EPC		Cancer Risk Calculations <sup>a</sup>						Noncancer Hazard Calculations <sup>a</sup>							
		Value	Units	Dermal Cancer Slope Factor (mg/kg-day) <sup>-1</sup>	Oral Cancer Slope Factor (mg/kg-day) <sup>-1</sup>	Dermal LADI (mg/kg-day)	Oral LADI (mg/kg-day)	Cancer Risk from Dermal Contact	Cancer Risk from Ingestion	Total Cancer Risk	Dermal RfD (mg/kg-day)	Oral RfD (mg/kg-day)	Dermal CDI (mg/kg-day)	Oral CDI (mg/kg-day)	Noncancer HQ from Dermal Contact	Noncancer HQ from Ingestion	Total Noncancer HQ
RM 11 West	<b>Polybrominated Diphenyl Ethers</b>																
	PBDE # 47	2.9E+00	ug/kg	--	--	2E-11	1E-11	--	--	--	1E-04	1E-04	4E-11	3E-11	4E-07	3E-07	0.0000007
	PBDE # 99	3.7E+00	ug/kg	--	--	2E-11	1E-11	--	--	--	1E-04	1E-04	5E-11	4E-11	5E-07	4E-07	0.0000009
	PBDE # 153	6.3E-01	ug/kg	--	--	3E-12	2E-12	--	--	--	2E-04	2E-04	9E-12	6E-12	5E-08	3E-08	0.0000008
	PBDE # 209	5.7E+01	ug/kg	7E-04	7E-04	3E-10	2E-10	2E-13	1E-13	3E-13	7E-03	7E-03	8E-10	6E-10	1E-07	8E-08	0.0000002
Exposure Point Total										3E-13							0.000002
RM 11 East	<b>Polybrominated Diphenyl Ethers</b>																
	PBDE # 47	1.5E+00	ug/kg	--	--	8E-12	5E-12	--	--	--	1E-04	1E-04	2E-11	1E-11	2E-07	1E-07	0.0000004
	PBDE # 99	1.2E+00	ug/kg	--	--	6E-12	4E-12	--	--	--	1E-04	1E-04	2E-11	1E-11	2E-07	1E-07	0.0000003
Exposure Point Total										--							0.0000007
RM 12 West	<b>Polybrominated Diphenyl Ethers</b>																
	PBDE # 47	3.1E-01	ug/kg	--	--	2E-12	1E-12	--	--	--	1E-04	1E-04	5E-12	3E-12	5E-08	3E-08	0.0000008
	PBDE # 99	3.0E-01	ug/kg	--	--	2E-12	1E-12	--	--	--	1E-04	1E-04	4E-12	3E-12	4E-08	3E-08	0.0000007
Exposure Point Total										--							0.0000001
RM 12 East	<b>Polybrominated Diphenyl Ethers</b>																
	PBDE # 47	1.2E+00	ug/kg	--	--	6E-12	4E-12	--	--	--	1E-04	1E-04	2E-11	1E-11	2E-07	1E-07	0.0000003
	PBDE # 99	1.1E+00	ug/kg	--	--	6E-12	4E-12	--	--	--	1E-04	1E-04	2E-11	1E-11	2E-07	1E-07	0.0000003
Exposure Point Total										--							0.0000006
Study Area Wide <sup>b</sup>	<b>Polybrominated Diphenyl Ethers</b>																
	PBDE # 47	2.2E+00	ug/kg	--	--	1E-11	8E-12	--	--	--	1E-04	1E-04	3E-11	2E-11	3E-07	2E-07	0.0000005
	PBDE # 99	2.8E+00	ug/kg	--	--	1E-11	1E-11	--	--	--	1E-04	1E-04	4E-11	3E-11	4E-07	3E-07	0.0000007
	PBDE # 153	5.3E-01	ug/kg	--	--	3E-12	2E-12	--	--	--	2E-04	2E-04	8E-12	5E-12	4E-08	3E-08	0.0000006
	PBDE # 209	6.0E+01	ug/kg	7E-04	7E-04	3E-10	2E-10	2E-13	1E-13	4E-13	7E-03	7E-03	9E-10	6E-10	1E-07	8E-08	0.0000002
Exposure Point Total										4E-13							0.000001

**Notes:**

- a Numbers presented are rounded values. Sums calculated before rounding. Risks and hazards are calculated based on exposure parameters presented in Section 3 of Appendix F. For risks and hazards from dermal contact, a dermal absorption efficiency of 0.1 was used, which is the dermal absorption efficiency presented for semi-volatile organic compounds in Risk Assessment Guidance for Superfund. Volume I: Human Health Evaluation Manual (Part E, Supplemental Guidance for Dermal Risk Assessment) Final, July 2004. EPA/540/R/99/005.
- b Study Area wide dataset includes human health in-water sediment samples from RM 1.9 - 11.8 outside of the navigation channel and excluding Multnomah Channel.

**Abbreviations:**

- = Not Applicable.
- CDI = Chronic Daily Intake.
- EPC = Exposure Point Concentration.
- HQ = Hazard Quotient.
- LADI = Lifetime Average Daily Intake.
- mg/kg = milligrams per kilogram.
- RfD = Reference dose.
- RM = River mile.
- ug/kg = micrograms per kilogram.

**TABLE F3-17.**  
**Calculation of Noncancer Hazards - Child, Fish Consumption, River-Mile Basis**

Scenario Timeframe: Current/Future  
Receptor Population: Consumer  
Population Age: Child

Medium: Tissue  
Exposure Medium: Smallmouth Bass Tissue (Fillet)  
Exposure Route: Ingestion

Tissue Type	Exposure Point	Chemical of Potential Concern <sup>a</sup>	EPC		Hazard Quotient Calculations <sup>b</sup>				
					Oral RfD mg/kg-day	Consumption Rate: 20.5 g/day		Consumption Rate: 7 g/day	
						CDI mg/kg-day	Noncancer Hazard Quotient	CDI mg/kg-day	Noncancer Hazard Quotient
Value	Units								
F	RM 3	<b>Polybrominated Diphenyl Ethers</b> PBDE #153	1.3E-01	ug/kg	2.0E-04	1.8E-07	0.001	6.1E-08	0.0003
	Exposure Point Total						0.001		0.0003
F	RM 4	<b>Polybrominated Diphenyl Ethers</b> PBDE #047 PBDE #153	6.0E+00 5.0E-01	ug/kg ug/kg	1.0E-04 2.0E-04	8.2E-06 6.8E-07	0.08 0.003	2.8E-06 2.3E-07	0.03 0.001
	Exposure Point Total						0.09		0.03
F	RM 5	<b>Polybrominated Diphenyl Ethers</b> PBDE #047 PBDE #153	3.4E+00 1.3E-01	ug/kg ug/kg	1.0E-04 2.0E-04	4.6E-06 1.8E-07	0.05 0.001	1.6E-06 6.1E-08	0.02 0.0003
	Exposure Point Total						0.05		0.02
F	RM 6	<b>Polybrominated Diphenyl Ethers</b> PBDE #047 PBDE #153	3.0E+00 1.9E-01	ug/kg ug/kg	1.0E-04 2.0E-04	4.1E-06 2.6E-07	0.04 0.001	1.4E-06 8.9E-08	0.01 0.0004
	Exposure Point Total						0.04		0.01
F	RM 8	<b>Polybrominated Diphenyl Ethers</b> PBDE #153	1.3E-01	ug/kg	2.0E-04	1.8E-07	0.001	6.1E-08	0.0003
	Exposure Point Total						0.001		0.0003
F	RM 9	<b>Polybrominated Diphenyl Ethers</b> PBDE #153	9.0E-02	ug/kg	2.0E-04	1.2E-07	0.001	4.2E-08	0.0002
	Exposure Point Total						0.001		0.0002
F	RM 10	<b>Polybrominated Diphenyl Ethers</b> PBDE #153	1.3E-01	ug/kg	2.0E-04	1.8E-07	0.001	6.1E-08	0.0003
	Exposure Point Total						0.001		0.0003
F	RM 11	<b>Polybrominated Diphenyl Ethers</b> PBDE #047 PBDE #153	3.4E+00 4.4E-01	ug/kg ug/kg	1.0E-04 2.0E-04	4.6E-06 6.0E-07	0.05 0.003	1.6E-06 2.1E-07	0.02 0.001
	Exposure Point Total						0.05		0.02

**Notes:**

- <sup>a</sup> Chemicals listed as COPCs are PBDE congeners having published toxicity values which were detected in at least once in smallmouth bass tissue in the Study Area.  
<sup>b</sup> Numbers presented are rounded values. Sums calculated before rounding.

**Abbreviations:**

CDI = Chronic Daily Intake.  
COPC = Chemical of Potential Concern.  
EPC = Exposure Point Concentration.  
F = Fillet tissue.  
g/day = grams per day.  
mg/kg = milligrams per kilogram.  
PBDE = Polybrominated Diphenyl Ether  
RfD = Reference Dose.  
ug/kg = micrograms per kilogram.

**TABLE F3-18.**  
**Calculation of Noncancer Hazards - Clam Consumption**

Scenario Timeframe: Current/Future Medium: Tissue  
Receptor Population: Fisher Exposure Medium: Clam Tissue (Whole Body, without shell, Undepurated)  
Population Age: Adult Exposure Route: Ingestion

Tissue Type	Exposure Point	Chemical of Potential Concern <sup>a</sup>	EPC		Noncancer Hazard Quotient Calculations <sup>b</sup>				
					Oral RfD mg/kg-day	Consumption Rate: 18 g/day		Consumption Rate: 3.3 g/day	
						CDI mg/kg-day	Noncancer Hazard Quotient	CDI mg/kg-day	Noncancer Hazard Quotient
UD	RM 1 East	<b>Polybrominated Diphenyl Ethers</b> PBDE # 47 PBDE # 153	7.9E+00	ug/kg	1.0E-04	2.0E-06	0.02	3.7E-07	0.004
			3.0E-01	ug/kg	2.0E-04	7.7E-08	0.0004	1.4E-08	0.0001
Exposure Point Total						0.02		0.004	
UD	RM 2 West	<b>Polybrominated Diphenyl Ethers</b> PBDE # 47 PBDE # 153	7.9E+00	ug/kg	1.0E-04	2.0E-06	0.02	3.7E-07	0.004
			2.9E-01	ug/kg	2.0E-04	7.5E-08	0.0004	1.4E-08	0.0001
Exposure Point Total						0.02		0.004	
UD	RM 5 East	<b>Polybrominated Diphenyl Ethers</b> PBDE # 47 PBDE # 99 PBDE # 153	1.0E+01	ug/kg	1.0E-04	2.6E-06	0.03	4.7E-07	0.005
			2.7E+00	ug/kg	1.0E-04	6.9E-07	0.01	1.3E-07	0.001
			3.4E-01	ug/kg	2.0E-04	8.7E-08	0.0004	1.6E-08	0.0001
Exposure Point Total						0.03		0.006	
UD	RM 10 West	<b>Polybrominated Diphenyl Ethers</b> PBDE # 47 PBDE # 99 PBDE # 153	7.3E+00	ug/kg	1.0E-04	1.9E-06	0.02	3.4E-07	0.003
			2.0E+00	ug/kg	1.0E-04	5.1E-07	0.01	9.4E-08	0.001
			2.2E-01	ug/kg	2.0E-04	5.7E-08	0.0003	1.0E-08	0.0001
Exposure Point Total						0.02		0.004	
UD	RM 11 East	<b>Polybrominated Diphenyl Ethers</b> PBDE # 47 PBDE # 99 PBDE # 153	9.6E+00	ug/kg	1.0E-04	2.5E-06	0.02	4.5E-07	0.005
			2.8E+00	ug/kg	1.0E-04	7.2E-07	0.01	1.3E-07	0.001
			3.7E-01	ug/kg	2.0E-04	9.5E-08	0.0005	1.7E-08	0.0001
Exposure Point Total						0.03		0.006	
UD	RM 12 East	<b>Polybrominated Diphenyl Ethers</b> PBDE # 47 PBDE # 99 PBDE # 153	1.2E+01	ug/kg	1.0E-04	3.1E-06	0.03	5.7E-07	0.01
			3.7E+00	ug/kg	1.0E-04	9.5E-07	0.01	1.7E-07	0.002
			4.9E-01	ug/kg	2.0E-04	1.3E-07	0.001	2.3E-08	0.0001
Exposure Point Total						0.04		0.01	
UD	Study Area-wide	<b>Polybrominated Diphenyl Ethers</b> PBDE # 47 PBDE # 99 PBDE # 153	1.0E+01	ug/kg	1.0E-04	2.6E-06	3.E-02	4.7E-07	5.E-03
			2.8E+00	ug/kg	1.0E-04	7.2E-07	7.E-03	1.3E-07	1.E-03
			3.7E-01	ug/kg	2.0E-04	9.5E-08	5.E-04	1.7E-08	9.E-05
Exposure Point Total						0.03		0.006	

**Notes:**

- a Chemicals listed are PBDE congeners detected in clam tissue at least once within the study area (RM 1.9-11.8).  
b Numbers presented are rounded values. Sums calculated before rounding.

**Abbreviations:**

-- = Not applicable. PBDE congeners detected in clam tissue are not classified as known carcinogens.  
CDI = Chronic Daily Intake.  
EPC = Exposure Point Concentration.  
g/day = grams per day.  
LADI = Lifetime Average Daily Intake.  
mg/kg = milligrams per kilogram.  
PBDE = Polybrominated Diphenyl Ethers  
RfD = Reference Dose.  
RM = River mile.  
UD = Undepurated clam.  
ug/kg = micrograms per kilogram.

**TABLE F3-19.**  
**Calculation of Noncancer Hazards - Breastfeeding Infant of In-water Worker, In-water Sediment Exposure**  
**Reasonable Maximum Exposure**

Scenario Timeframe: Current/Future  
Receptor Population: Infant  
Population Age: Infant

Medium: In-water Sediment  
Exposure Medium: Breastmilk  
Exposure Route: Ingestion

Exposure Point	Chemical of Potential Concern	Noncancer Hazard Calculations <sup>b</sup>		
		IRAF	Adult (Mother) Noncancer HQ	Infant Noncancer HQ
RM 1 West	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.000001	0.00003
RM 1 East	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.000002	0.00006
RM 1.5 West	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.0000001	0.000005
RM 1.5 East	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.000003	0.0001
RM 2 West	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.000004	0.0002
RM 2 East	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.000004	0.0002
RM 2.5 East	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.000000	0.00002
RM 2.5 MC	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.000000	0.00001
RM 3 West	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.000003	0.0001
RM 3 East	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.000004	0.0001
RM 3.5 West	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.000000	0.00001
RM 3.5 East	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.00002	0.0006
RM 4 West	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.000001	0.00002
RM 5 West	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.000001	0.00003
RM 5.5 West	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.000003	0.0001
RM 5.5 East	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.000004	0.0001
RM 6 West	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.0000003	0.00001
RM 6 East	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.0000005	0.00002
RM 6.5 West	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.0000002	0.00001
RM 6.5 East	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.000004	0.0002
RM 7 West	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.000002	0.00009
RM 7 East	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.000004	0.0001
RM 7.5 West	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.000004	0.0001
RM 7.5 East	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.00001	0.0002
RM 8 West	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.00001	0.0003
RM 8 East	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.00001	0.0002
RM 8 SIL	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.00001	0.0004
RM 8.5 West	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.000005	0.0002
RM 8.5 East	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.00001	0.0005
RM 9 West	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.000003	0.0001

**TABLE F3-19.**  
**Calculation of Noncancer Hazards - Breastfeeding Infant of In-water Worker, In-water Sediment Exposure**  
**Reasonable Maximum Exposure**

Scenario Timeframe: Current/Future  
Receptor Population: Infant  
Population Age: Infant

Medium: In-water Sediment  
Exposure Medium: Breastmilk  
Exposure Route: Ingestion

Exposure Point	Chemical of Potential Concern	Noncancer Hazard Calculations <sup>b</sup>		
		IRAF	Adult (Mother) Noncancer HQ	Infant Noncancer HQ
RM 9 East	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.000001	0.00002
RM 9.5 West	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.00001	0.0002
RM 9.5 East	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.00000	0.00007
RM 11 West	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.00001	0.0003
RM 11 East	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.00000	0.0001
RM 12 West	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.000001	0.00002
RM 12 East	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.000002	0.00009
Study Area Wide <sup>b</sup>	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.00001	0.0002

**Notes:**

- a Numbers presented are rounded values. Sums calculated before rounding.
- b Study Area wide dataset includes human health in-water sediment samples from RM 1.9 - 11.8 outside of the navigation channel and excluding Multnomah Channel.

**Abbreviations:**

- = Not Applicable.
- CDI = Chronic Daily Intake.
- EPC = Exposure Point Concentration.
- HQ = Hazard Quotient.
- IRAF = Infant Risk Adjustment Factor.
- ug/kg = micrograms per kilogram.
- ND = Not Detected in given exposure area.



**TABLE F3-20.**  
**Calculation of Cancer Risks and Noncancer Hazards - Breastfeeding Infant of In-water Worker, In-water Sediment Exposure**  
**Central Tendency Exposure**

Scenario Timeframe: Current/Future  
Receptor Population: Infant  
Population Age: Infant

Medium: In-water Sediment  
Exposure Medium: Breastmilk  
Exposure Route: Ingestion

Exposure Point	Chemical of Potential Concern	Noncancer Hazard Calculations <sup>b</sup>		
		IRAF	Adult (Mother) Noncancer HQ	Infant Noncancer HQ
RM 1 West	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.0000002	0.000006
RM 1 East	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.0000003	0.00001
RM 1.5 West	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.00000003	0.000001
RM 1.5 East	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.000001	0.00002
RM 2 West	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.000001	0.00002
RM 2 East	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.000001	0.00003
RM 2.5 East	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.0000001	0.000004
RM 2.5 MC	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.00000003	0.000001
RM 3 West	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.000001	0.00002
RM 3 East	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.000001	0.00002
RM 3.5 West	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.0000001	0.000002
RM 3.5 East	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.000002	0.00009
RM 4 West	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.0000001	0.000005
RM 5 West	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.0000002	0.000006
RM 5.5 West	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.000001	0.00002
RM 5.5 East	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.000001	0.00002
RM 6 West	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.0000002	0.000007
RM 6 East	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.0000001	0.000004
RM 6.5 West	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.0000001	0.000002
RM 6.5 East	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.000001	0.00002
RM 7 West	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.0000005	0.00002
RM 7 East	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.000001	0.00002
RM 7.5 West	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.0000005	0.00002
RM 7.5 East	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.000001	0.00004
RM 8 West	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.000002	0.00007
RM 8 East	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.000001	0.00003
RM 8 SIL	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.000001	0.00004
RM 8.5 West	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.000001	0.00004
RM 8.5 East	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.000003	0.0001
RM 9 West	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.000001	0.00002
RM 9 East	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.000000	0.000004
RM 9.5 West	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.000001	0.00005
RM 9.5 East	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.0000004	0.00002
RM 11 West	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.000002	0.00007



**TABLE F3-20.**  
**Calculation of Cancer Risks and Noncancer Hazards - Breastfeeding Infant of In-water Worker, In-water Sediment Exposure Central Tendency Exposure**

Scenario Timeframe: Current/Future  
Receptor Population: Infant  
Population Age: Infant

Medium: In-water Sediment  
Exposure Medium: Breastmilk  
Exposure Route: Ingestion

Exposure Point	Chemical of Potential Concern	Noncancer Hazard Calculations <sup>b</sup>		
		IRAF	Adult (Mother) Noncancer HQ	Infant Noncancer HQ
RM 11 East	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.0000004	0.00001
RM 12 West	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.0000001	0.000005
RM 12 East	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.000001	0.00002
Study Area-wide <sup>b</sup>	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.000001	0.00003

**Notes:**

- a Numbers presented are rounded values. Sums calculated before rounding.
- b Study Area wide dataset includes human health in-water sediment samples from RM 1.9 - 11.8 outside of the navigation channel and excluding Multnomah Channel.

**Abbreviations:**

- = Not Applicable.
- CDI = Chronic Daily Intake.
- EPC = Exposure Point Concentration.
- HQ = Hazard Quotient.
- IRAF = Infant Risk Adjustment Factor.
- ug/kg = micrograms per kilogram.
- ND = Not Detected in given exposure area.

**TABLE F3-21.**  
**Calculation of Noncancer Hazards - Breastfeeding Infant of Tribal Fisher, In-water Sediment Exposure**  
**Reasonable Maximum Exposure**

Scenario Timeframe: Current/Future  
Receptor Population: Infant  
Population Age: Infant

Medium: In-water Sediment  
Exposure Medium: Breastmilk  
Exposure Route: Ingestion

Exposure Point	Chemical of Potential Concern	Noncancer Hazard Calculations <sup>b</sup>		
		IRAF	Adult (Mother) Noncancer HQ	Infant Noncancer HQ
RM 1 West	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.000002	0.00008
RM 1 East	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.000004	0.0002
RM 1.5 West	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.0000003	0.00001
RM 1.5 East	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.00001	0.0003
RM 2 West	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.00001	0.0004
RM 2 East	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.00001	0.0004
RM 2.5 East	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.000001	0.00005
RM 2.5 MC	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.0000004	0.00001
RM 3 West	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.00001	0.0003
RM 3 East	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.00001	0.0004
RM 3.5 West	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.00000	0.00003
RM 3.5 East	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.00004	0.002
RM 4 West	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.000002	0.00006
RM 5 West	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.000002	0.00008
RM 5.5 West	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.00001	0.0003
RM 5.5 East	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.00001	0.0004
RM 6 West	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.000001	0.00003
RM 6 East	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.000001	0.00005
RM 6.5 West	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.000001	0.00003
RM 6.5 East	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.00001	0.0004
RM 7 West	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.00001	0.0002
RM 7 East	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.00001	0.0004
RM 7.5 West	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.00001	0.0004
RM 7.5 East	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.00002	0.0006
RM 8 West	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.00002	0.0009
RM 8 East	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.00001	0.0005
RM 8 SIL	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.00003	0.001
RM 8.5 West	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.00001	0.0005
RM 8.5 East	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.00003	0.001
RM 9 West	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.00001	0.0003

**TABLE F3-21.**  
**Calculation of Noncancer Hazards - Breastfeeding Infant of Tribal Fisher, In-water Sediment Exposure Reasonable Maximum Exposure**

Scenario Timeframe: Current/Future  
Receptor Population: Infant  
Population Age: Infant

Medium: In-water Sediment  
Exposure Medium: Breastmilk  
Exposure Route: Ingestion

Exposure Point	Chemical of Potential Concern	Noncancer Hazard Calculations <sup>b</sup>		
		IRAF	Adult (Mother) Noncancer HQ	Infant Noncancer HQ
RM 9 East	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.00000	0.00005
RM 9.5 West	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.00002	0.0006
RM 9.5 East	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.00001	0.0002
RM 11 West	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.00002	0.0008
RM 11 East	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.00001	0.0003
RM 12 West	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.000002	0.00006
RM 12 East	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.00001	0.0002
Study Area-wide <sup>b</sup>	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.00002	0.0006

**Notes:**

- a Numbers presented are rounded values. Sums calculated before rounding.
- b Study Area wide dataset includes human health in-water sediment samples from RM 1.9 - 11.8 outside of the navigation channel and excluding Multnomah Channel.

**Abbreviations:**

- = Not Applicable.
- CDI = Chronic Daily Intake.
- EPC = Exposure Point Concentration.
- HQ = Hazard Quotient.
- IRAF = Infant Risk Adjustment Factor.
- ug/kg = micrograms per kilogram.

**TABLE F3-22.**  
**Calculation of Noncancer Hazards - Breastfeeding Infant of Tribal Fisher, In-water Sediment Exposure**  
**Central Tendency Exposure**

Scenario Timeframe: Current/Future  
Receptor Population: Infant  
Population Age: Infant

Medium: In-water Sediment  
Exposure Medium: Breastmilk  
Exposure Route: Ingestion

Exposure Point	Chemical of Potential Concern	Noncancer Hazard Calculations <sup>b</sup>		
		IRAF	Adult (Mother) Noncancer HQ	Infant Noncancer HQ
RM 1 West	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.000003	0.00001
RM 1 East	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.000001	0.00002
RM 1.5 West	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.00000005	0.000002
RM 1.5 East	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.000001	0.00004
RM 2 West	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.000001	0.00004
RM 2 East	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.000002	0.00006
RM 2.5 East	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.000002	0.00007
RM 2.5 MC	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.0000001	0.000002
RM 3 West	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.000001	0.00004
RM 3 East	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.000001	0.00004
RM 3.5 West	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.0000001	0.000004
RM 3.5 East	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.000004	0.0002
RM 4 West	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.000002	0.00009
RM 5 West	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.000003	0.00001
RM 5.5 West	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.000001	0.00004
RM 5.5 East	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.000001	0.00004
RM 6 West	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.000003	0.00001
RM 6 East	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.000002	0.00007
RM 6.5 West	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.0000001	0.000004
RM 6.5 East	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.000001	0.00004
RM 7 West	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.000001	0.00003
RM 7 East	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.000001	0.00004
RM 7.5 West	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.000001	0.00003
RM 7.5 East	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.000002	0.00007
RM 8 West	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.000003	0.0001
RM 8 East	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.000002	0.00006
RM 8 SIL	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.000002	0.00007
RM 8.5 West	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.000002	0.00007
RM 8.5 East	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.000005	0.0002
RM 9 West	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.000001	0.00004

**TABLE F3-22.**  
**Calculation of Noncancer Hazards - Breastfeeding Infant of Tribal Fisher, In-water Sediment Exposure**  
**Central Tendency Exposure**

Scenario Timeframe: Current/Future  
Receptor Population: Infant  
Population Age: Infant

Medium: In-water Sediment  
Exposure Medium: Breastmilk  
Exposure Route: Ingestion

Exposure Point	Chemical of Potential Concern	Noncancer Hazard Calculations <sup>b</sup>		
		IRAF	Adult (Mother) Noncancer HQ	Infant Noncancer HQ
RM 9 East	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.000002	0.000008
RM 9.5 West	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.000002	0.000008
RM 9.5 East	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.000001	0.000003
RM 11 West	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.000003	0.0001
RM 11 East	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.000001	0.000003
RM 12 West	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.000002	0.000009
RM 12 East	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.000001	0.000003
Study Area-wide <sup>b</sup>	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.000001	0.000006

**Notes:**

- a Numbers presented are rounded values. Sums calculated before rounding.
- b Study Area wide dataset includes human health in-water sediment samples from RM 1.9 - 11.8 outside of the navigation channel and excluding Multnomah Channel.

**Abbreviations:**

- = Not Applicable.
- CDI = Chronic Daily Intake.
- EPC = Exposure Point Concentration.
- HQ = Hazard Quotient.
- IRAF = Infant Risk Adjustment Factor.
- ug/kg = micrograms per kilogram.

**TABLE F3-23.**  
**Calculation of Noncancer Hazards - Breastfeeding Infant of High-Frequency Fisher, In-water Sediment Exposure Reasonable Maximum Exposure**

Scenario Timeframe: Current/Future  
Receptor Population: Infant  
Population Age: Infant

Medium: In-water Sediment  
Exposure Medium: Breastmilk  
Exposure Route: Ingestion

Exposure Point	Chemical of Potential Concern	Noncancer Hazard Calculations <sup>b</sup>		
		IRAF	Adult (Mother) Noncancer HQ	Infant Noncancer HQ
RM 1 West	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.000001	0.00005
RM 1 East	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.000002	0.0001
RM 1.5 West	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.0000002	0.000008
RM 1.5 East	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.000005	0.0002
RM 2 West	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.00001	0.0002
RM 2 East	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.00001	0.0003
RM 2.5 East	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.000001	0.00003
RM 2.5 MC	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.0000002	0.00001
RM 3 West	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.000005	0.0002
RM 3 East	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.00001	0.0002
RM 3.5 West	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.0000004	0.00002
RM 3.5 East	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.00002	0.0009
RM 4 West	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.000001	0.00004
RM 5 West	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.000001	0.00005
RM 5.5 West	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.000005	0.0002
RM 5.5 East	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.00001	0.0002
RM 6 West	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.000001	0.00002
RM 6 East	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.000001	0.00003
RM 6.5 West	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.0000004	0.00002
RM 6.5 East	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.00001	0.0003
RM 7 West	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.000004	0.0001
RM 7 East	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.00001	0.0002
RM 7.5 West	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.00001	0.0002
RM 7.5 East	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.00001	0.0004
RM 8 West	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.00001	0.0006
RM 8 East	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.00001	0.0003
RM 8 SIL	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.00002	0.0006
RM 8.5 West	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.00001	0.0003
RM 8.5 East	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.00002	0.0007
RM 9 West	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.000004	0.0002

**TABLE F3-23.**  
**Calculation of Noncancer Hazards - Breastfeeding Infant of High-Frequency Fisher, In-water Sediment Exposure Reasonable Maximum Exposure**

Scenario Timeframe: Current/Future  
Receptor Population: Infant  
Population Age: Infant

Medium: In-water Sediment  
Exposure Medium: Breastmilk  
Exposure Route: Ingestion

Exposure Point	Chemical of Potential Concern	Noncancer Hazard Calculations <sup>b</sup>		
		IRAF	Adult (Mother) Noncancer HQ	Infant Noncancer HQ
RM 9 East	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.000001	0.00003
RM 9.5 West	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.00001	0.0003
RM 9.5 East	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.000003	0.0001
RM 11 West	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.00001	0.0005
RM 11 East	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.000005	0.0002
RM 12 West	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.000001	0.00004
RM 12 East	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.000004	0.0001
Study Area-wide <sup>b</sup>	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.00001	0.0004

**Notes:**

- a Numbers presented are rounded values. Sums calculated before rounding.
- b Study Area wide dataset includes human health in-water sediment samples from RM 1.9 - 11.8 outside of the navigation channel and excluding Multnomah Channel.

**Abbreviations:**

- = Not Applicable.
- CDI = Chronic Daily Intake.
- EPC = Exposure Point Concentration.
- HQ = Hazard Quotient.
- IRAF = Infant Risk Adjustment Factor.
- ug/kg = micrograms per kilogram.



**TABLE F3-24.**  
**Calculation of Noncancer Hazards - Breastfeeding Infant of High-Frequency Fisher, In-water Sediment Exposure**  
**Central Tendency Exposure**

Scenario Timeframe: Current/Future  
Receptor Population: Infant  
Population Age: Infant

Medium: In-water Sediment  
Exposure Medium: Breastmilk  
Exposure Route: Ingestion

Exposure Point	Chemical of Potential Concern	Noncancer Hazard Calculations <sup>b</sup>		
		IRAF	Adult (Mother) Noncancer HQ	Infant Noncancer HQ
RM 1 West	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.0000001	0.00001
RM 1 East	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.0000003	0.00001
RM 1.5 West	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.00000002	0.0000009
RM 1.5 East	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.000001	0.00002
RM 2 West	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.0000005	0.00002
RM 2 East	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.000001	0.00003
RM 2.5 East	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.0000001	0.000003
RM 2.5 MC	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.00000003	0.000001
RM 3 West	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.000001	0.00002
RM 3 East	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.000001	0.00002
RM 3.5 West	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.0000001	0.000002
RM 3.5 East	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.000002	0.00008
RM 4 West	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.000000	0.00000
RM 5 West	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.000000	0.00001
RM 5.5 West	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.000001	0.00002
RM 5.5 East	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.0000005	0.00002
RM 6 West	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.0000002	0.00001
RM 6 East	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.0000001	0.000003
RM 6.5 West	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.00000005	0.000002
RM 6.5 East	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.000001	0.00002
RM 7 West	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.0000004	0.00002
RM 7 East	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.0000005	0.00002
RM 7.5 West	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.0000004	0.00002
RM 7.5 East	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.000001	0.00003
RM 8 West	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.000002	0.00007
RM 8 East	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.000001	0.00003
RM 8 SIL	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.000001	0.00003
RM 8.5 West	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.000001	0.00003
RM 8.5 East	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.000002	0.00009
RM 9 West	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.000001	0.00002



**TABLE F3-24.**  
**Calculation of Noncancer Hazards - Breastfeeding Infant of High-Frequency Fisher, In-water Sediment Exposure**  
**Central Tendency Exposure**

Scenario Timeframe: Current/Future  
Receptor Population: Infant  
Population Age: Infant

Medium: In-water Sediment  
Exposure Medium: Breastmilk  
Exposure Route: Ingestion

Exposure Point	Chemical of Potential Concern	Noncancer Hazard Calculations <sup>b</sup>		
		IRAF	Adult (Mother) Noncancer HQ	Infant Noncancer HQ
RM 9 East	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.000001	0.000004
RM 9.5 West	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.000001	0.00004
RM 9.5 East	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.0000004	0.00001
RM 11 West	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.000002	0.00006
RM 11 East	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.0000003	0.00001
RM 12 West	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.0000001	0.000005
RM 12 East	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.0000005	0.00002
Study Area-wide <sup>b</sup>	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.000001	0.00003

**Notes:**

- a Numbers presented are rounded values. Sums calculated before rounding.
- b Study Area wide dataset includes human health in-water sediment samples from RM 1.9 - 11.8 outside of the navigation channel and excluding Multnomah Channel.

**Abbreviations:**

- = Not Applicable.
- CDI = Chronic Daily Intake.
- EPC = Exposure Point Concentration.
- HQ = Hazard Quotient.
- IRAF = Infant Risk Adjustment Factor.
- ug/kg = micrograms per kilogram.

**TABLE F3-25.**  
**Calculation of Noncancer Hazards - Breastfeeding Infant of Low-Frequency Fisher, In-water Sediment Exposure Reasonable Maximum Exposure**

Scenario Timeframe: Current/Future  
Receptor Population: Infant  
Population Age: Infant

Medium: In-water Sediment  
Exposure Medium: Breastmilk  
Exposure Route: Ingestion

Exposure Point	Chemical of Potential Concern	Noncancer Hazard Calculations <sup>b</sup>		
		IRAF	Adult (Mother) Noncancer HQ	Infant Noncancer HQ
RM 1 West	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.000001	0.00003
RM 1 East	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.000002	0.00006
RM 1.5 West	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.0000001	0.00001
RM 1.5 East	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.000003	0.0001
RM 2 West	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.000004	0.0002
RM 2 East	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.000005	0.0002
RM 2.5 East	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.0000005	0.00002
RM 2.5 MC	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.0000002	0.00001
RM 3 West	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.000003	0.0001
RM 3 East	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.000004	0.0001
RM 3.5 West	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.0000003	0.00001
RM 3.5 East	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.00002	0.0006
RM 4 West	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.000001	0.00002
RM 5 West	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.000001	0.00003
RM 5.5 West	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.000003	0.0001
RM 5.5 East	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.000004	0.0002
RM 6 West	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.0000003	0.00001
RM 6 East	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.0000005	0.00002
RM 6.5 West	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.0000003	0.00001
RM 6.5 East	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.000005	0.0002
RM 7 West	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.000002	0.00009
RM 7 East	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.000004	0.0001
RM 7.5 West	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.000004	0.0001
RM 7.5 East	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.00001	0.0002
RM 8 West	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.00001	0.0004
RM 8 East	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.00001	0.0002
RM 8 SIL	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.00001	0.0004
RM 8.5 West	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.00001	0.0002
RM 8.5 East	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.00001	0.0005
RM 9 West	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.000003	0.0001

**TABLE F3-25.**  
**Calculation of Noncancer Hazards - Breastfeeding Infant of Low-Frequency Fisher, In-water Sediment Exposure Reasonable Maximum Exposure**

Scenario Timeframe: Current/Future  
Receptor Population: Infant  
Population Age: Infant

Medium: In-water Sediment  
Exposure Medium: Breastmilk  
Exposure Route: Ingestion

Exposure Point	Chemical of Potential Concern	Noncancer Hazard Calculations <sup>b</sup>		
		IRAF	Adult (Mother) Noncancer HQ	Infant Noncancer HQ
RM 9 East	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.000001	0.00002
RM 9.5 West	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.000001	0.0002
RM 9.5 East	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.000002	0.00008
RM 11 West	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.000001	0.0003
RM 11 East	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.000003	0.0001
RM 12 West	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.000001	0.00003
RM 12 East	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.000003	0.0001
Study Area-wide <sup>b</sup>	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.000001	0.0003

**Notes:**

- a Numbers presented are rounded values. Sums calculated before rounding.
- b Study Area wide dataset includes human health in-water sediment samples from RM 1.9 - 11.8 outside of the navigation channel and excluding Multnomah Channel.

**Abbreviations:**

- = Not Applicable.
- CDI = Chronic Daily Intake.
- EPC = Exposure Point Concentration.
- HQ = Hazard Quotient.
- IRAF = Infant Risk Adjustment Factor.
- ug/kg = micrograms per kilogram.

**TABLE F3-26.**  
**Calculation of Noncancer Hazards - Breastfeeding Infant of Low-Frequency Fisher, In-water Sediment Exposure**  
**Central Tendency Exposure**

Scenario Timeframe: Current/Future  
Receptor Population: Infant  
Population Age: Infant

Medium: In-water Sediment  
Exposure Medium: Breastmilk  
Exposure Route: Ingestion

Exposure Point	Chemical of Potential Concern	Noncancer Hazard Calculations <sup>b</sup>		
		IRAF	Adult (Mother) Noncancer HQ	Infant Noncancer HQ
RM 1 West	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.0000001	0.000003
RM 1 East	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.0000001	0.000005
RM 1.5 West	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.00000001	0.0000005
RM 1.5 East	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.0000003	0.00001
RM 2 West	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.0000002	0.000009
RM 2 East	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.0000004	0.00002
RM 2.5 East	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.00000004	0.000002
RM 2.5 MC	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.00000001	0.000001
RM 3 West	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.0000003	0.00001
RM 3 East	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.0000003	0.00001
RM 3.5 West	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.00000003	0.000001
RM 3.5 East	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.000001	0.00004
RM 4 West	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.0000001	0.000002
RM 5 West	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.0000001	0.000003
RM 5.5 West	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.0000003	0.00001
RM 5.5 East	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.0000002	0.000009
RM 6 West	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.0000001	0.000003
RM 6 East	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.00000004	0.000002
RM 6.5 West	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.00000002	0.000001
RM 6.5 East	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.0000003	0.00001
RM 7 West	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.0000002	0.000008
RM 7 East	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.0000002	0.000009
RM 7.5 West	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.0000002	0.000008
RM 7.5 East	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.0000004	0.00002
RM 8 West	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.000001	0.00003
RM 8 East	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.0000004	0.00002
RM 8 SIL	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.0000004	0.00002
RM 8.5 West	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.0000005	0.00002
RM 8.5 East	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.000001	0.00004
RM 9 West	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.0000003	0.00001

**TABLE F3-26.**  
**Calculation of Noncancer Hazards - Breastfeeding Infant of Low-Frequency Fisher, In-water Sediment Exposure**  
**Central Tendency Exposure**

Scenario Timeframe: Current/Future  
Receptor Population: Infant  
Population Age: Infant

Medium: In-water Sediment  
Exposure Medium: Breastmilk  
Exposure Route: Ingestion

Exposure Point	Chemical of Potential Concern	Noncancer Hazard Calculations <sup>b</sup>		
		IRAF	Adult (Mother) Noncancer HQ	Infant Noncancer HQ
RM 9 East	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.000001	0.000002
RM 9.5 West	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.000001	0.000002
RM 9.5 East	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.0000002	0.000007
RM 11 West	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.000001	0.000003
RM 11 East	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.0000002	0.000007
RM 12 West	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.0000001	0.000002
RM 12 East	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.0000002	0.000009
Study Area-wide <sup>b</sup>	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.0000004	0.00001

**Notes:**

- a Numbers presented are rounded values. Sums calculated before rounding.
- b Study Area wide dataset includes human health in-water sediment samples from RM 1.9 - 11.8 outside of the navigation channel and excluding Multnomah Channel.

**Abbreviations:**

- = Not Applicable.
- CDI = Chronic Daily Intake.
- EPC = Exposure Point Concentration.
- HQ = Hazard Quotient.
- IRAF = Infant Risk Adjustment Factor.
- ug/kg = micrograms per kilogram.

**TABLE F3-27.**  
**Calculation of Noncancer Hazards - Breastfeeding Infant of Diver in Wet Suit, In-water Sediment Exposure Reasonable Maximum Exposure**

Scenario Timeframe: Current/Future  
Receptor Population: Infant  
Population Age: Infant

Medium: In-water Sediment  
Exposure Medium: Breastmilk  
Exposure Route: Ingestion

Exposure Point	Chemical of Potential Concern	Noncancer Hazard Calculations <sup>b</sup>		
		IRAF	Adult (Mother) Noncancer HQ	Infant Noncancer HQ
RM 1 West	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.000001	0.00003
RM 1 East	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.000002	0.00006
RM 1.5 West	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.0000001	0.000005
RM 1.5 East	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.000003	0.0001
RM 2 West	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.000004	0.0002
RM 2 East	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.000005	0.0002
RM 2.5 East	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.000001	0.00002
RM 2.5 MC	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.0000002	0.000006
RM 3 West	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.000003	0.0001
RM 3 East	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.000004	0.0002
RM 3.5 West	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.0000003	0.00001
RM 3.5 East	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.00002	0.0007
RM 4 West	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.000001	0.00003
RM 5 West	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.000001	0.00003
RM 5.5 West	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.000003	0.0001
RM 5.5 East	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.000004	0.0002
RM 6 West	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.0000004	0.00001
RM 6 East	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.000001	0.00002
RM 6.5 West	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.0000003	0.00001
RM 6.5 East	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.000005	0.0002
RM 7 West	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.000003	0.0001
RM 7 East	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.000004	0.0002
RM 7.5 West	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.000004	0.0002
RM 7.5 East	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.000007	0.0003
RM 8 West	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.00001	0.0004
RM 8 East	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.000006	0.0002
RM 8 SIL	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.00001	0.0004
RM 8.5 West	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.000005	0.0002
RM 8.5 East	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.00001	0.0005
RM 9 West	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.000003	0.0001

**TABLE F3-27.**  
**Calculation of Noncancer Hazards - Breastfeeding Infant of Diver in Wet Suit, In-water Sediment Exposure Reasonable Maximum Exposure**

Scenario Timeframe: Current/Future  
Receptor Population: Infant  
Population Age: Infant

Medium: In-water Sediment  
Exposure Medium: Breastmilk  
Exposure Route: Ingestion

Exposure Point	Chemical of Potential Concern	Noncancer Hazard Calculations <sup>b</sup>		
		IRAF	Adult (Mother) Noncancer HQ	Infant Noncancer HQ
RM 9 East	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.000001	0.00002
RM 9.5 West	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.000006	0.0002
RM 9.5 East	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.000002	0.00008
RM 11 West	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.000009	0.0003
RM 11 East	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.000003	0.0001
RM 12 West	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.000001	0.00003
RM 12 East	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.000003	0.0001
Study Area-wide <sup>b</sup>	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.000007	0.0003

**Notes:**

- a Numbers presented are rounded values. Sums calculated before rounding.
- b Study Area wide dataset includes human health in-water sediment samples from RM 1.9 - 11.8 outside of the navigation channel and excluding Multnomah Channel.

**Abbreviations:**

- = Not Applicable.
- CDI = Chronic Daily Intake.
- EPC = Exposure Point Concentration.
- HQ = Hazard Quotient.
- IRAF = Infant Risk Adjustment Factor.
- ug/kg = micrograms per kilogram.



**TABLE F3-28.**  
**Calculation of Noncancer Hazards - Breastfeeding Infant of Diver in Wet Suit, In-water Sediment Exposure**  
**Central Tendency Exposure**

Scenario Timeframe: Current/Future  
Receptor Population: Infant  
Population Age: Infant

Medium: In-water Sediment  
Exposure Medium: Breastmilk  
Exposure Route: Ingestion

Exposure Point	Chemical of Potential Concern	Noncancer Hazard Calculations <sup>b</sup>		
		IRAF	Adult (Mother) Noncancer HQ	Infant Noncancer HQ
RM 1 West	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.0000001	0.000003
RM 1 East	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.0000002	0.000007
RM 1.5 West	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.0000001	0.0000005
RM 1.5 East	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.0000004	0.00001
RM 2 West	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.0000003	0.00001
RM 2 East	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.0000005	0.00002
RM 2.5 East	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.0000001	0.000002
RM 2.5 MC	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.0000002	0.0000006
RM 3 West	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.0000003	0.00001
RM 3 East	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.0000003	0.00001
RM 3.5 West	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.0000003	0.000001
RM 3.5 East	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.000001	0.00005
RM 4 West	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.0000001	0.000003
RM 5 West	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.0000001	0.000003
RM 5.5 West	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.0000003	0.00001
RM 5.5 East	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.0000003	0.00001
RM 6 West	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.0000001	0.000004
RM 6 East	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.0000001	0.000002
RM 6.5 West	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.0000003	0.000001
RM 6.5 East	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.0000003	0.00001
RM 7 West	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.0000003	0.00001
RM 7 East	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.0000003	0.00001
RM 7.5 West	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.0000003	0.00001
RM 7.5 East	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.0000005	0.00002
RM 8 West	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.000001	0.00004
RM 8 East	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.0000005	0.00002
RM 8 SIL	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.0000005	0.00002
RM 8.5 West	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.0000005	0.00002
RM 8.5 East	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.000001	0.00005
RM 9 West	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.0000003	0.00001



**TABLE F3-28.**  
**Calculation of Noncancer Hazards - Breastfeeding Infant of Diver in Wet Suit, In-water Sediment Exposure**  
**Central Tendency Exposure**

Scenario Timeframe: Current/Future  
Receptor Population: Infant  
Population Age: Infant

Medium: In-water Sediment  
Exposure Medium: Breastmilk  
Exposure Route: Ingestion

Exposure Point	Chemical of Potential Concern	Noncancer Hazard Calculations <sup>b</sup>		
		IRAF	Adult (Mother) Noncancer HQ	Infant Noncancer HQ
RM 9 East	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.000001	0.000002
RM 9.5 West	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.000006	0.00002
RM 9.5 East	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.000002	0.000008
RM 11 West	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.000009	0.00003
RM 11 East	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.000002	0.000008
RM 12 West	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.000001	0.000003
RM 12 East	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.000003	0.00001
Study Area-wide <sup>b</sup>	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.000004	0.00002

**Notes:**

- a Numbers presented are rounded values. Sums calculated before rounding.
- b Study Area wide dataset includes human health in-water sediment samples from RM 1.9 - 11.8 outside of the navigation channel and excluding Multnomah Channel.

**Abbreviations:**

- = Not Applicable.
- CDI = Chronic Daily Intake.
- EPC = Exposure Point Concentration.
- HQ = Hazard Quotient.
- IRAF = Infant Risk Adjustment Factor.
- ug/kg = micrograms per kilogram.

**TABLE F3-29.**  
**Calculation of Noncancer Hazards - Breastfeeding Infant of Diver in Dry Suit, In-water Sediment Exposure Reasonable Maximum Exposure**

Scenario Timeframe: Current/Future  
Receptor Population: Infant  
Population Age: Infant

Medium: In-water Sediment  
Exposure Medium: Breastmilk  
Exposure Route: Ingestion

Exposure Point	Chemical of Potential Concern	Noncancer Hazard Calculations <sup>b</sup>		
		IRAF	Adult (Mother) Noncancer HQ	Infant Noncancer HQ
RM 1 West	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.0000002	0.000007
RM 1 East	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.0000004	0.00001
RM 1.5 West	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.00000003	0.000001
RM 1.5 East	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.0000007	0.00003
RM 2 West	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.0000009	0.00004
RM 2 East	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.000001	0.00004
RM 2.5 East	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.0000001	0.000004
RM 2.5 MC	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.00000003	0.000001
RM 3 West	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.0000007	0.00003
RM 3 East	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.0000008	0.00003
RM 3.5 West	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.0000001	0.000002
RM 3.5 East	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.000004	0.0001
RM 4 West	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.0000001	0.000005
RM 5 West	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.0000002	0.000007
RM 5.5 West	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.0000007	0.00003
RM 5.5 East	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.0000009	0.00004
RM 6 West	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.0000001	0.000003
RM 6 East	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.0000001	0.000004
RM 6.5 West	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.0000001	0.000002
RM 6.5 East	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.000001	0.00004
RM 7 West	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.0000005	0.00002
RM 7 East	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.0000008	0.00003
RM 7.5 West	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.0000008	0.00003
RM 7.5 East	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.000001	0.00005
RM 8 West	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.000002	0.00008
RM 8 East	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.000001	0.00005
RM 8 SIL	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.000002	0.00009
RM 8.5 West	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.000001	0.00004
RM 8.5 East	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.000003	0.0001
RM 9 West	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.0000006	0.00002

**TABLE F3-29.**  
**Calculation of Noncancer Hazards - Breastfeeding Infant of Diver in Dry Suit, In-water Sediment Exposure Reasonable Maximum Exposure**

Scenario Timeframe: Current/Future  
Receptor Population: Infant  
Population Age: Infant

Medium: In-water Sediment  
Exposure Medium: Breastmilk  
Exposure Route: Ingestion

Exposure Point	Chemical of Potential Concern	Noncancer Hazard Calculations <sup>b</sup>		
		IRAF	Adult (Mother) Noncancer HQ	Infant Noncancer HQ
RM 9 East	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.000001	0.000005
RM 9.5 West	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.000001	0.000005
RM 9.5 East	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.0000004	0.000002
RM 11 West	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.000002	0.000007
RM 11 East	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.0000007	0.000003
RM 12 West	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.0000001	0.000006
RM 12 East	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.0000006	0.000002
Study Area-wide <sup>b</sup>	Polybrominated Diphenyl Ethers			
Exposure Point Total		38	0.000001	0.000006

**Notes:**

- a Numbers presented are rounded values. Sums calculated before rounding.
- b Study Area wide dataset includes human health in-water sediment samples from RM 1.9 - 11.8 outside of the navigation channel and excluding Multnomah Channel.

**Abbreviations:**

- = Not Applicable.
- CDI = Chronic Daily Intake.
- EPC = Exposure Point Concentration.
- HQ = Hazard Quotient.
- IRAF = Infant Risk Adjustment Factor.
- ug/kg = micrograms per kilogram.

**TABLE F3-30.**  
**Calculation of Noncancer Hazards - Breastfeeding Infant of Adult Consuming Fish, River-Mile Basis**

Scenario Timeframe: Current/Future    Medium: Fish Tissue  
Receptor Population: Infant            Exposure Medium: Breastmilk  
Population Age: Infant                  Exposure Route: Ingestion

Tissue Type	Exposure Point	Chemical of Potential Concern <sup>a</sup>	Noncancer Hazard Quotient Calculations <sup>b</sup>				
			IRAF	Consumption Rate: 48.9 g/day		Consumption Rate: 17.5 g/day	
				Adult (Mother) Noncancer Hazard Quotient	Infant Noncancer Hazard Quotient	Adult (Mother) Noncancer Hazard Quotient	Infant Noncancer Hazard Quotient
F	RM 3	Polybrominated Diphenyl Ethers	--				
	Exposure Point Total		38	0.0005	0.02	0.0002	0.01
F	RM 4	Polybrominated Diphenyl Ethers	--				
	Exposure Point Total		38	0.04	2	0.02	0.6
F	RM 5	Polybrominated Diphenyl Ethers	--				
	Exposure Point Total		38	0.02	0.9	0.01	0.3
F	RM 6	Polybrominated Diphenyl Ethers	--				
	Exposure Point Total		38	0.02	0.8	0.01	0.3
F	RM 8	Polybrominated Diphenyl Ethers	--				
	Exposure Point Total		38	0.0005	0.02	0.0002	0.01
F	RM 9	Polybrominated Diphenyl Ethers	--				
	Exposure Point Total		38	0.0003	0.01	0.0001	0.004
F	RM 10	Polybrominated Diphenyl Ethers	--				
	Exposure Point Total		38	0.0005	0.02	0.0002	0.01
F	RM 11	Polybrominated Diphenyl Ethers	--				
	Exposure Point Total		38	0.03	1	0.009	0.3

**Notes:**

- a Chemicals listed are PBDE congeners detected in clam tissue at least once within the study area (RM 1.9-11.8).
- b Numbers presented are rounded values. Sums calculated before rounding.

**Abbreviations:**

- F = Fillet tissue.
- g/day = grams per day.
- IRAF = Infant Risk Adjustment Factor

**TABLE F3-31.**  
**Calculation of Noncancer Hazards - Breastfeeding Infant of Adult Clam Consumer**

Scenario Timeframe: Current/Future      Medium: Tissue  
Receptor Population: Infant                Exposure Medium: Breastmilk  
Population Age: Infant                        Exposure Route: Ingestion

Tissue Type	Exposure Point	Chemical of Potential Concern <sup>a</sup>	Noncancer Hazard Calculations <sup>b</sup>				
			IRAF	Consumption Rate: 18 g/day		Consumption Rate: 3.3 g/day	
				Adult (Mother) Noncancer Hazard Quotient	Infant Noncancer Hazard Quotient	Adult (Mother) Noncancer Hazard Quotient	Infant Noncancer Hazard Quotient
UD	RM 1 East	Polybrominated Diphenyl Ethers					
	Exposure Point Total		38	0.02	0.8	0.004	0.1
UD	RM 2 West	Polybrominated Diphenyl Ethers					
	Exposure Point Total		38	0.02	0.8	0.004	0.1
UD	RM 5 East	Polybrominated Diphenyl Ethers					
	Exposure Point Total		38	0.03	1	0.01	0.2
UD	RM 10 West	Polybrominated Diphenyl Ethers					
	Exposure Point Total		38	0.02	0.9	0.004	0.2
UD	RM 11 East	Polybrominated Diphenyl Ethers					
	Exposure Point Total		38	0.03	1	0.01	0.2
UD	RM 12 East	Polybrominated Diphenyl Ethers					
	Exposure Point Total		38	0.04	2	0.01	0.3
UD	Study Area-wide	Polybrominated Diphenyl Ethers					
	Exposure Point Total		38	0.03	1	0.01	0.2

**Notes:**

- a Chemicals listed are PBDE congeners detected in clam tissue at least once within the study area (RM 1.9-11.8).
- b Numbers presented are rounded values. Sums calculated before rounding.

**Abbreviations:**

- g/day = grams per day.
- IRAF = Infant Risk Adjustment Factor
- PBDE = Polybrominated Diphenyl Ethers
- RM = River mile.
- UD = Undepurated clam.

**Table F5-1.**  
**Calculations of Blood Lead Concentrations (PbBs)**  
**BHHRA In-Water Sediment Reasonable Maximum Exposure Scenarios**  
**U.S. EPA Technical Review Workgroup for Lead, Adult Lead Committee**  
**Version date 05/19/05**

Exposure Variable	Description of Exposure Variable	Units	BHHRA Receptor:	In-Water Worker	Low Frequency Fisher	High Frequency Fisher	Tribal Fisher	Diver in Wet Suit	Diver in Dry Suit
			Region OR Ethnic GSDi and PbBo Data from NHANES III Analysis						
			West/All	West/All	West/All	West/All	West/All	West/All	
PbS	Soil lead concentration	ug/g or ppm	2200	2200	2200	2200	2200	2200	2200
R <sub>fetal/maternal</sub>	Fetal/maternal PbB ratio	--	0.9	0.9	0.9	0.9	0.9	0.9	0.9
BKSF	Biokinetic Slope Factor	ug/dL per ug/day	0.4	0.4	0.4	0.4	0.4	0.4	0.4
GSD <sub>i</sub>	Geometric standard deviation PbB	--	2.1	2.1	2.1	1.8	2.1	2.1	2.1
PbB <sub>0</sub>	Baseline PbB	ug/dL	1.4	1.4	1.4	1.4	1.4	1.4	1.4
IR <sub>S</sub>	Soil ingestion rate (including soil-derived indoor dust)	g/day	0.200	0.050	0.050	0.050	0.050	0.050	0.050
IR <sub>S+D</sub>	Total ingestion rate of outdoor soil and indoor dust	g/day	--	--	--	--	--	--	--
W <sub>S</sub>	Weighting factor; fraction of IR <sub>S+D</sub> ingested as outdoor soil	--	--	--	--	--	--	--	--
K <sub>SD</sub>	Mass fraction of soil in dust	--	--	--	--	--	--	--	--
AF <sub>S,D</sub>	Absorption fraction (same for soil and dust)	--	0.12	0.12	0.12	0.12	0.12	0.12	0.12
EF <sub>S,D</sub>	Exposure frequency (same for soil and dust)	days/yr	10	26	39	65	5	5	5
AT <sub>S,D</sub>	Averaging time (same for soil and dust)	days/yr	365	365	365	365	365	365	365
<b>PbB<sub>adult</sub></b>	<b>PbB of adult worker, geometric mean</b>	<b>ug/dL</b>	<b>2.0</b>	<b>1.8</b>	<b>2.0</b>	<b>2.3</b>	<b>1.5</b>	<b>1.5</b>	<b>1.5</b>
PbB <sub>fetal, 0.95</sub>	95th percentile PbB among fetuses of adult workers	ug/dL	6.1	5.5	6.0	5.5	4.5	4.5	4.5
PbB <sub>t</sub>	Target PbB level of concern (e.g., 10 ug/dL)	ug/dL	10.0	10.0	10.0	10.0	10.0	10.0	10.0
<b>P(PbB<sub>fetal</sub> &gt; PbB<sub>t</sub>)</b>	<b>Probability that fetal PbB &gt; PbB<sub>t</sub>, assuming lognormal distribution</b>	<b>%</b>	<b>1.0%</b>	<b>0.7%</b>	<b>1.0%</b>	<b>0.4%</b>	<b>0.3%</b>	<b>0.3%</b>	<b>0.3%</b>

**Notes:**

Shaded cells indicate site-specific values.

Maximum soil lead concentration (2,200 mg/kg) is the maximum exposure point concentration for lead within the Study Area.

**Source:** U.S. EPA (2003c). Recommendations of the Technical Review Workgroup for Lead for an Interim Approach to Assessing Risks Associated with Adult Exposures to Lead in Soil

Table F5-2.  
Calculations of Blood Lead Concentrations (PbBs)  
BHHRA In-Water Sediment Central Tendency Exposure Scenarios  
U.S. EPA Technical Review Workgroup for Lead, Adult Lead Committee  
Version date 05/19/05

Exposure Variable	Description of Exposure Variable	Units	BHHRA Receptor:	In-Water Worker	Low Frequency Fisher	High Frequency Fisher	Tribal Fisher	Diver in Wet Suit
			Region OR Ethnic GSDi and PbBo Data from NHANES III Analysis					
			West/All	West/All	West/All	West/All	West/All	
PbS	Soil lead concentration	ug/g or ppm	2200	2200	2200	2200	2200	2200
R <sub>fetal/maternal</sub>	Fetal/maternal PbB ratio	--	0.9	0.9	0.9	0.9	0.9	0.9
BKSF	Biokinetic Slope Factor	ug/dL per ug/day	0.4	0.4	0.4	0.4	0.4	0.4
GSD <sub>i</sub>	Geometric standard deviation PbB	--	2.1	2.1	2.1	1.8	2.1	2.1
PbB <sub>0</sub>	Baseline PbB	ug/dL	1.4	1.4	1.4	1.4	1.4	1.4
IR <sub>s</sub>	Soil ingestion rate (including soil-derived indoor dust)	g/day	0.050	0.025	0.025	0.025	0.025	0.025
IR <sub>s+D</sub>	Total ingestion rate of outdoor soil and indoor dust	g/day	--	--	--	--	--	--
W <sub>s</sub>	Weighting factor; fraction of IR <sub>s+D</sub> ingested as outdoor soil	--	--	--	--	--	--	--
K <sub>SD</sub>	Mass fraction of soil in dust	--	--	--	--	--	--	--
AF <sub>s,D</sub>	Absorption fraction (same for soil and dust)	--	0.12	0.12	0.12	0.12	0.12	0.12
EF <sub>s,D</sub>	Exposure frequency (same for soil and dust)	days/yr	10	6.5	13	26	2	2
AT <sub>s,D</sub>	Averaging time (same for soil and dust)	days/yr	365	365	365	365	365	365
<b>PbB<sub>adult</sub></b>	<b>PbB of adult worker, geometric mean</b>	<b>ug/dL</b>	<b>1.5</b>	<b>1.4</b>	<b>1.5</b>	<b>1.6</b>	<b>1.4</b>	<b>1.4</b>
PbB <sub>fetal, 0.95</sub>	95th percentile PbB among fetuses of adult workers	ug/dL	4.7	4.4	4.6	3.8	4.3	4.3
PbB <sub>t</sub>	Target PbB level of concern (e.g., 10 ug/dL)	ug/dL	10.0	10.0	10.0	10.0	10.0	10.0
<b>P(PbB<sub>fetal</sub> &gt; PbB<sub>t</sub>)</b>	<b>Probability that fetal PbB &gt; PbB<sub>t</sub> assuming lognormal distribution</b>	<b>%</b>	<b>0.4%</b>	<b>0.3%</b>	<b>0.3%</b>	<b>0.0%</b>	<b>0.3%</b>	<b>0.3%</b>

Notes:

Shaded cells indicate site-specific values.

Maximum soil lead concentration (2,200 mg/kg) is the maximum exposure point concentration for lead within the Study Area.

Source: U.S. EPA (2003c). Recommendations of the Technical Review Workgroup for Lead for an Interim Approach to Assessing Risks Associated with Adult Exposures to Lead in Soil

**Table F5-3. Calculation of Protective Lead Fish Tissue Concentrations for Fetuses of Adult Fishers Using ALM Approach**

ALM Parameter	Description	Units	Adult Fisher	Tribal Fisher
GSD	Geometric standard deviation PbB	--	2.1	2.1
PbBa	Central tendency of adult blood lead level	ug/dL	3.29	3.29
PbBo	Adult baseline blood lead level	ug/dL	1.4	1.4
BKSF	Biokinetic Slope Factor	ug/dL per ug/day	0.4	0.4
IR F	Tissue ingestion rate	g/day	7.5	39.2
AF F	Absolute gastrointestinal ingestion factor for ingested lead in tissue	--	0.12	0.12
EF F	Exposure frequency of fish ingestion	days/yr	365	365
AT	Averaging time	days/yr	365	365
PbBf	Fetal blood lead level	ug/dL	2.96	2.96
z	z-value	--	1.64	1.64
p'	probability of exceeding blood lead level of 10 ug/dl, based on z-value	%	5%	5%
<b>PbF Protective Tissue Lead Concentration</b>		<b>mg/kg</b>	<b>5.25</b>	<b>1.01</b>

**Equations:**

$$PbB_a = PbB_o + BKSF * (PbF * IR_F * AF_F * EF_F) / AT$$

$$PbBf = PbBa * 0.9$$

Probability that fetal blood lead is less than 10 mg/dl using the z-value where:

$$p' = \Phi z [ (\ln(PbBf) - \ln(10)) / \ln(GSD) ]$$



**Table F5-4. Input Parameters for IUEBK Model**

<b>Input Parameter</b>	<b>Value</b>	<b>Units</b>	<b>Basis</b>
Soil lead concentration	200	mg/kg	Default concentration.
House dust lead concentration	140	mg/kg	Default concentration
Combined soil and dust ingestion rate by age			
0-11 months	85	mg/day	Default ingestion rate
12-23 months	135	mg/day	Default ingestion rate
24-35 months	135	mg/day	Default ingestion rate
36-47 months	135	mg/day	Default ingestion rate
48-59 months	100	mg/day	Default ingestion rate
60-71 months	90	mg/day	Default ingestion rate
Lead concentration in air	0.1	µg/m <sup>3</sup>	Default concentration
Lead concentration in drinking water	4	µg/L	Default concentration
Percent of meat in diet	3.12	unitless	Based on a fish consumption rate of 3.15 grams per day and the default meat consumption rate of 101 grams per day.

**Table F5-5. Calculation of Lead Risks From Ingestion of Shellfish Tissue Using ALM Approach**

ALM Parameter	Description	Units	Receptor: Adult Fisher
GSD	Geometric standard deviation PbB	--	2.1
PbBa	Central tendency of adult blood lead level	ug/dL	1.61
PbBo	Adult baseline blood lead level	ug/dL	1.4
BKSF	Biokinetic Slope Factor	ug/dL per ug/day	0.4
<b>PbF</b>	<b>Maximum Shellfish Lead EPC</b>	<b>mg/kg</b>	<b>1.32</b>
IR F	Tissue consumption rate	g/day	3.3
AF F	Absolute gastrointestinal ingestion factor for ingested lead in tissue	--	0.12
EF F	Exposure frequency of fish consumption	days/yr	365
AT	Averaging time	days/yr	365
PbBf	Fetal blood lead level	ug/dL	1.45
z	z-value	--	2.60
<b>p'</b>	<b>probability of exceeding blood lead level of 10 ug/dl, based on z-value</b>	<b>%</b>	<b>0.47%</b>

**Equations:**

$$PbB_a = PbB_o + BKSF * (PbF * IR_F * AF_F * EF_F) / AT$$

$$PbBf = PbBa * 0.9$$

Probability that fetal blood lead is less than 10 mg/dl using the z-value where:

$$p' = \Phi z [ (\ln(PbBf) - \ln(10)) / \ln(GSD) ]$$

**Appendix IV**  
**Updated FS Information and**  
**Supplemental Information for Alternative F Modified**

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Attachment A Post-Remediation Sediment Concentration Assumptions

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## Introduction to Appendix IV

Appendix IV provides supporting information for the detailed analysis of Alternative F Modified (F Mod). Tables and figures presented herein correlate to FS figures and tables revised to include data for Alternative F Mod. Where possible, FS figure and table numbers were used to title the updated versions presented herein.

It is important to note that specific values such as residual risk and surface water results updated in this appendix (Appendix IV) and presented in the ROD are not directly comparable with those found in the FS. This is the result of two revisions. First, the immediate ( $t=0$ ) pollutant removal effectiveness of enhanced natural recovery (ENR) was assumed to be zero in the FS, but was increased to 97.5% in the ROD. The rationale for this revision is based on further evaluation of post-remediation sediment concentrations assumed at other sites, which are wide ranging, but overall account for some percentage of reduction in sediment concentrations after remediation. While a reduction assumption of 97.5% may be considered at the higher range of post-remedial sediment concentration reduction, the sensitivity of this assumption was evaluated and considered having minimal influence on the alternatives evaluated due to the limited amount of ENR applied site wide. Additional post-remediation sediment concentrations assumed for the evaluation of alternatives are presented in **Attachment A** to this document (Appendix IV). Second, SWACs were computed differently between the ROD and the FS. In the FS, the SWAC values were based on the 95% UCL of the mean, and the mean was the simple average SWACs of the 27 subareas delineated in the statistical analysis presented in Appendix I of the FS. In the ROD, the SWACs are based on the simple average concentrations of each pixel over the entire Site-wide area. The reason EPA made these revisions was to respond to several comments related to the methodology used to calculate SWACs presented in FS Appendix J, which indicated that the basis for the calculations were not transparent and appeared to be inconsistent with other assumptions presented in the FS. Therefore, the updated method is based on an approach that is easier to reproduce and is consistent with other FS elements.

## 4.2 Detailed Analysis of Remedial Alternatives

### 4.2.5 Alternative F Modified (F Mod)

Alternative F Modified (F Mod) uses the RALs presented in Table 18 in Appendix II to develop the combination of remedial technologies applied at the Site. This alternative would support DMM Scenario 2 – off-site disposal.

Alternative F Mod would have a total constructed area of 394 acres of sediment and 23,305 lineal ft of river bank, would allow 1,774 acres of sediment to naturally recover, and would not address 6,744 lineal ft of known contaminated river bank.

This alternative would include capping and dredging 365.3 acres of contaminated sediment and 28.2 acres of ENR. Additionally, 23,305 lineal ft of river bank would be assumed to be appropriately sloped and covered with either a significantly augmented reactive cap or an engineered cap using beach mix or vegetation.

#### *Site Wide*

- Dredging (varying depths): 342.4 acres – 2,481,000 to 3,308,000 cy of sediment
- Excavation: 123,000 cy of soil
- Capping area: 117.8 acres
- Ex-situ treatment: 156,000 to 208,000 cy of sediment and 9,500 cy soil of soil
- In-situ treatment: 0 acres
- ENR: 28.2 acres
- MNR: 1,774 acres

The design concept for Alternative F Mod is shown on Figure 31(a) through (e) in Appendix I.

Construction Duration: Alternative F Mod would take an estimated 13 years of construction, with no additional time required to complete processing of dredged material (i.e., dewatering and sampling for disposal parameters). The estimated schedule would be as follows:

- Year 0: Establish initial conditions
- Year 0: Construction of on-site material handling/treatment facility (if applicable)
- Year 0: Start-up activities and mobilization, including pre-design investigations
- Years 1 through 11: In-river construction
- Year 12: Demobilization and mitigation

Disposal: The material removed from the Site under Alternative F Mod would be managed in the following disposal scenario:

- DMM Scenario 2: 2,481,000 to 3,308,000 cy to off-site disposal facilities in compliance with the off-site rule



ICs and monitoring as described in Section 10.1.1, Common Elements of the Alternatives, would be implemented under this alternative. The key ARARs associated with this alternative are also provided in Common Elements of the Alternatives.

#### **4.2.5.1 Overall Protection of Human Health and the Environment**

Alternative F Mod is expected to be protective of human health and the environment since the postconstruction risks are at or below the interim targets in the majority of the Site and therefore MNR is likely to achieve PRGs within a reasonable time frame. A discussion of how Alternative F Mod performs relative to the interim targets is presented below. An uncertainty analysis (FS Appendix I) was not performed for Alternative F Mod because it is not substantially different from Alternative F in all areas of the Site except the navigation channel. Therefore, it is expected that an uncertainty analysis would be similar to Alternative F and would show that Alternative F Mod would be expected to be statistically distinguishable from the No Action alternative and would provide environmental benefit.

##### RAO 1

The post-construction carcinogenic risks are estimated to be no higher than  $1.0 \times 10^{-5}$  (Appendix IV Figure 4.2-1a-c). Residual risk estimates are based on direct contact exposure to shallow sediments. There is insufficient data to estimate post construction risks based on exposure to beach sediments.

##### RAO 2

The estimated post-construction risk is  $1 \times 10^{-4}$  on a Site-wide scale (Appendix IV Figure 4.2-2). On a river mile scale, post-construction risks are no higher than  $2 \times 10^{-4}$  (Appendix IV Figure 4.2-3a-d and Table J2.3-6a). The highest post-construction risk on an SDU scale is  $2 \times 10^{-4}$  (Appendix IV Table 4.2-1 and Table 4.2-1). The post-construction HI is 15 when evaluated Site-wide, which is greater than the interim target of 10 (Appendix IV Figure 4.2-4). The post-construction HI for infants is 259 on a Site-wide scale (Appendix IV Figure 4.2-6), which is less than the Site-wide interim target of 1,320.

Fish consumption advisories would be required until such time as RAO 2 is achieved. Outreach would be conducted to educate the public about the fish consumption advisories. Informational materials will be needed and evaluated to determine advisory effectiveness.

##### RAO 3

After construction of Alternative F Mod, all surface water COC concentrations achieve the interim target of 10 times the PRG (Appendix IV Figures 4.2-8a-f).

##### RAO 4

Alternative F Mod addresses 39 percent of the river bottom impacted by groundwater plumes through construction (Appendix IV Figure 4.2-24a and Table 4.2-6); the remainder of the contaminated groundwater would be left to MNA and more dependent on the adequacy of the source control.

#### RAO 5

Alternative F Mod addresses 72 percent of the area that exceeds 10 times the benthic risk value (unacceptable benthic risks) (Appendix IV Figure 4.2-25a and Table 4.2-7), which achieves the interim target of 50 percent.

#### RAO 6

The maximum post-construction HQ for BEHP is 5 (Appendix IV Figures 4.2-9a-e through 4.2-17a-e) on a river mile scale, which is less than the interim target of 10. All postconstruction HQs on an SDU scale achieve the interim target of 10 (Appendix IV Table 4.2-5).

#### RAO 7

There is insufficient surface water data to evaluate the effectiveness of this alternative in meeting the PRGs for BEHP, PAHs and TBT. All other sediment-related PRGs for this RAO are achieved with this alternative. Ethylbenzene is expected to be addressed through RAO 8 and implementation of source control measures.

#### RAO 8

Alternative F Mod addresses 39 percent of the river bottom impacted by groundwater plumes through construction (Appendix IV Figure 4.2-18 and Table 4.2-6); the remainder of the contaminated groundwater would be left to MNA and more dependent on the adequacy of the source control.

#### RAO 9

Alternative F Mod addresses 78 percent of the contaminated river bank through construction (Appendix IV Table 4.2-8); the remainder of the contaminated river bank would be left to no action.

### **4.2.5.2 Compliance with ARARs**

Alternative F Mod is expected to comply with ARARs as described in Section 15.2 of the ROD.

### **4.2.5.3 Long-Term Effectiveness and Permanence**

Alternative F Mod permanently removes approximately 3,017,189 cy of contaminated sediment and river bank soil covering approximately 248 acres of river bottom and 23,305 lineal feet of river bank by dredging or excavating to targeted removal depths. Various caps would be placed over 176 acres of the Site. Residuals from dredging and contaminated areas subject to ENR (approximately 240 acres) would be managed with a thin layer sand cover. After construction is completed, the remediated areas would no longer pose unacceptable risks to humans and the environment. However, 82 percent of the area of contaminated sediment would rely on MNR to achieve PRGs and no action would be taken on 22 percent of contaminated river bank.

### **Magnitude of Residual Risk**

Alternative F Mod addresses the highest contaminant concentrations and would result in reducing the risks posed by the Site as well as the potential for contamination in the Site

sediments to be dispersed to less contaminated areas and downstream to the Columbia River. Reductions in COC concentration and related risks are expected to occur over time.

The magnitude of residual risks for each RAO are as follows:

#### RAO 1

The residual risk from exposure to nearshore sediment once PRGs are achieved is  $1 \times 10^{-5}$ , within EPA's acceptable risk range.

#### RAO 2

The Site-wide risk level associated with PRGs is calculated to be  $8 \times 10^{-5}$  (FS Appendix J Table J1-2). The post-construction risk for Alternative F Mod (excluding other risk reduction methods such as MNR and implementation of institutional controls) is  $1 \times 10^{-4}$  (Appendix IV Figure 4.2-2). On both a river mile and SDU scale, the risk level associated with PRGs is calculated to be  $3 \times 10^{-5}$  (FS Appendix J Table J1-2). The highest post-construction risks on a river mile scale is  $2 \times 10^{-4}$  (Appendix IV Figure 4.2-3a-d and Table J2.3-6a). The highest post-construction risk on an SDU scale is  $2 \times 10^{-4}$  (Appendix IV Table 4.2-1).

The Site-wide HI for the child associated with the PRG is calculated to be 6 (FS Appendix J Table J1-2). The post-construction HI for the child is 15 when evaluated Site-wide (Appendix IV Figure 4.2-4).

The Site-wide HI for the infant exposure associated with the PRG is calculated to be 132 (FS Appendix J Table J1-2). The post-construction HI for the infant exposure is 259 when evaluated Site-wide (Appendix IV Figure 4.2-4).

Further reductions in risk are expected through MNR and implementation of institutional controls, although the timeframe for achieving RAOs is uncertain. Fish consumption advisories would be required until such time as RAO 2 is achieved.

The acceptable consumption rates once the PRGs are attained is 27 eight-ounce fish meals every year based on  $1 \times 10^{-5}$  risk, 30 eight-ounce fish meals every year based on noncancer hazard, and 2 eight-ounce fish meals every year for women who may breastfeed (Appendix IV Table 4.2-2). After construction of Alternative F Mod, the acceptable consumption rate is 16 eight-ounce fish meal every year based on  $1 \times 10^{-5}$  risk (Appendix IV Figure 4.2-2), 14 eight-ounce fish meal every year based on a noncancer hazard (Appendix IV Figure 4.2-4) and 0.9 fish meal every year (9 fish meals/10 years) for women who may breastfeed (Appendix IV Figure 4.2-6). Outreach would be conducted to educate the public about the fish consumption advisories. Informational materials will be needed and evaluated to determine advisory effectiveness.

#### RAO 3

The Site-wide surface water contaminant concentrations from contaminated sediment in the Site is a factor of 10 greater than the PRG for PCBs, a factor of 7 greater than the PRG for Tetrachlorodibenzo-p-dioxin (TCDD) (Appendix IV Figures 4.2-8a-f).

#### RAO 4

Approximately 61 percent of the river bottom impacted by contaminated groundwater plumes would not be addressed by Alternative F Mod (Appendix IV Figure 4.2-24a and Table 4.2-6). Placement of reactive caps in locations of contaminated groundwater flux would reduce the exposure to those contaminants and assist in attainment of RAO 4. Residual risks will remain in areas of contaminated groundwater plumes that are not otherwise addressed by capping, dredging, in-situ treatment and ENR; however, the magnitude residual risk is uncertain because it is likely that not all contaminated pore water will be addressed with this alternative.

#### RAO 5

Approximately 28 percent of the area with unacceptable benthic risks would not be addressed by Alternative F Mod (Appendix IV Table 4.2-7 and Figure 4.2-25a). Further risk reductions are likely to occur over time due to natural recovery processes, but the degree in which these benthic risk areas might recover is uncertain because it is likely that an insufficient amount of the benthic risk areas will be addressed with this alternative.

#### RAO 6

The residual HQ once PRGs are achieved is 1 for each COC. The post-construction HQ on a river mile scale is a factor of 5 greater than the residual HQ estimate for BEHP (Figures 4.2-9a-e through 4.2-17a-e). On an SDU scale, the post-construction HQ varies but the maximum is a factor of 3 greater than the residual HQ estimate for BEHP (Appendix IV Table 4.2-5).

#### RAO 7

There is insufficient surface water data to evaluate the magnitude of residual risk. Since Alternative F Mod focuses on containing or removing the highest contaminant concentrations at the Site through capping, dredging, in-situ treatment and ENR it is expected that this will result reductions in contaminant flux from the surface sediment to the surface water and subsequently surface water and fish tissue concentrations. Residual risks in surface water will remain in areas of contaminated sediment that are not otherwise addressed by capping, dredging, in-situ treatment and ENR; however, the magnitude of residual risk is uncertain because it is likely that contaminated sediments remaining will continue to impact the water column with this alternative.

#### RAO 8

Approximately 61 percent of the river bottom impacted by contaminated groundwater plumes would not be addressed by Alternative F Mod (Appendix IV Figure 4.2-24a and Table 4.2-6). Placement of reactive caps in locations of contaminated groundwater flux would reduce the exposure to those contaminants and assist in attainment of RAO 8. Residual risks will remain in areas of contaminated groundwater plumes that are not otherwise addressed by capping, dredging, in-situ treatment and ENR; however, the magnitude of residual risk is uncertain because it is likely that not all pore water will be addressed with this alternative.

### RAO 9

Approximately 22 percent of contaminated river bank soils would not be addressed by Alternative F Mod (Appendix IV Table 4.2-8). Removal of contaminated river bank materials and placement of either an armored or engineered cap using beach mix or vegetation would reduce exposure and erosion potential; however, the magnitude of residual risk is uncertain because it is likely that not all contaminated river banks will be addressed with this alternative.

#### **Adequacy and Reliability of Engineering and Institutional Controls**

Sediment removal, capping, and thin layer covers are reliable and proven technologies as long as they are designed for the appropriate environmental and anthropogenic conditions. Off-site thermal desorption, solidification/stabilization, and land-based disposal facilities are in operation and have proven to be reliable technologies.

Alternative F Mod would be effective in limiting exposure to risks posed by COCs in the sediments and river bank soils provided the integrity of the caps is maintained. Therefore, the caps would need to be monitored and maintained in perpetuity. Reviews at least every five years, as required, would be necessary to evaluate the effectiveness of any of these alternatives because hazardous substances would remain onsite in concentrations greater than would allow for unrestricted use and unlimited exposure.

Operation and maintenance activities, ICs and long-term monitoring will be implemented to assure protectiveness and reliability of caps and thin layer covers. The following paragraphs further describe how these activities maintain the protectiveness and reliability of these controls:

O&M will be required for material left in place and is expected to include bathymetric surveys and diver performed monitoring at regular intervals to confirm the thickness of capping materials. In addition to regular surveys, supplemental surveys will be performed following episodic natural) and anthropogenic events that have the potential to disturb caps and sand covers.

ICs include governmental controls, proprietary controls and informational devices. The reliability of ICs can be enhanced through activities such as regular inspection of buoys and other devices to delineate regulated navigation areas, administrative procedures and inspections to ensure the maintenance of collocated structures and ongoing public outreach efforts to enhance the effectiveness of informational devices. Coordination will need to occur with federal and state regulatory authorities during future permitting activities that are expected to disturb subsurface contaminated sediment or capped areas. Additional institutional controls (see FS Table 2.4-2) would be necessary to maintain cap integrity in perpetuity. Fish consumption advisories, which rely on voluntary compliance, would be enhanced by additional outreach to improve their effectiveness in reducing risk to human health by limiting exposure to COCs.

Monitoring of the effectiveness of the remedial alternative would include sampling of the water column, sediment, pore water, and biota tissue before, during and after construction to verify that

risks to the ecosystem continue to decrease. The planned post-construction monitoring program would result in collection of the data necessary to determine whether the fish consumption advisory or other restrictions imposed as part of the remedial action could be relaxed. Tissue PRGs will be used during the post-construction monitoring period to evaluate if contaminant concentrations are decreasing toward PRGs as expected.

#### **4.2.5.4 Reduction in Toxicity, Mobility and Volume through Treatment**

Implementation of Alternative F Mod reduces toxicity, mobility and volume through treating sediments and river banks where PTW is present or where groundwater plumes are discharging or have the potential to discharge into the sediment and surface water. PTW will be treated in-situ or ex-situ, depending on the technology assignment, while in-situ treatment will be used in areas where groundwater plumes are located.

##### **Treatment Processes Used**

Activated carbon or organophilic clay are the representative in-situ treatment technologies that reduce the bioavailable fractions and thus toxicity and mobility of contaminants as measured through pore water concentrations. The delivery mechanisms for activated carbon or organophilic clay include:

- Broadcast Activated Carbon: Direct broadcasting of 12-inches sand mixed with 5 percent activated carbon (0.12 pounds per square foot per centimeter [lbs/ft<sup>2</sup>/cm])
- Reactive Caps: Includes a 12-inch chemical isolation layer comprised of sand mixed with 5 percent activated carbon (0.12 lbs/ft<sup>2</sup>/cm)
- Reactive Residual Layer: 12 inches of sand mixed with 5 percent activated carbon (0.12 lbs/ft<sup>2</sup>/cm)
- Significantly Augmented Reactive Cap: Includes a 1-inch organoclay mat

PTW that is highly mobile and not reliably contained (NRC) is identified to be treated ex-situ prior to disposal; however, ex-situ treatment of PTW is assumed only to the extent that it is required by the disposal facility. All PTW treated ex-situ under Alternative F Mod is assumed to be disposed at a RCRA Subtitle C facility. In addition, the Subtitle C disposal facility selected as a representative process option (Chem Waste) uses treatment processes such as cement stabilization or thermal desorption, as needed, to meet LDRs for hazardous waste.

##### **Amount of Material Destroyed or Treated**

Under Alternative F Mod, 133 acres of material are assumed to be treated in-situ (includes broadcast activated carbon, reactive caps, reactive residual layers and significantly augmented reactive caps) and 192,000 cy of material would be treated ex-situ.

### **Reduction of Toxicity, Mobility or Volume**

Reduction of toxicity, mobility and volume would be achieved through:

- Broadcast Activated Carbon: 0 acres
- Reactive Caps: 83.2 acres
- Reactive Residual Layer: 45.9 acres
- Significantly Augmented Reactive Cap: 3.7 acres

In addition, based on the technology assignments for Alternative F Mod, the quantity of dredged PTW (source material and not reliably contained) requiring ex-situ treatment is estimated at 192,000 cy. The actual amount of material subject to ex-situ treatment would depend on the results of the waste characterization testing during the remedial design. Thermal desorption reduces the mobility of approximately 39 percent of the dredged material that is PTW NRC/NAPL where stabilization/solidification would reduce the mobility most of this material. In addition, the mobility of contaminants would be further reduced through sequestration by placing it in a permitted landfill, not due to permanent and irreversible treatment.

For dredged material not subject to ex-situ treatment, mobility would be reduced by placing it into a permitted landfill (through sequestration, not treatment); there would be no reduction in toxicity or volume.

### **Irreversible Treatment**

Activated carbon is not readily broken down in the environment and thermodynamic principles indicate that the bonding of COCs to activated carbon will remain strong over time. COCs are expected to remain bound whether the sorbent and bound chemicals remain in the sediment bed or are re-suspended and transported away from the area (ITRC 2014). As a result, use of activated carbon for in-situ treatment is considered permanent and irreversible as long as there is sufficient quantity of activated carbon to address the amount of contamination present.

Low-Temperature Thermal Desorption is an ex-situ remedial technology that uses heat to physically separate organic contaminants from excavated soils and sediments. Thermal desorbers are designed to heat contaminated sediments to temperatures sufficient to cause contaminants to volatilize and desorb (physically separate) from the sediment. Although they are not designed to decompose organic constituents, thermal desorbers can, depending upon the specific organics present and the temperature of the desorber system, cause some of the contaminants to completely or partially decompose. The vaporized hydrocarbons are generally treated in a secondary treatment unit (such as an afterburner, catalytic oxidation chamber, condenser, or carbon adsorption unit) prior to discharge to the atmosphere. Afterburners and oxidizers destroy the organic constituents. Condensers and carbon adsorption units trap organic compounds for subsequent treatment or disposal.

Solidification/Stabilization adds chemically reactive compounds to dredge materials that form stable solids that are non-hazardous or less-hazardous than the original materials. Solidification

refers to the physical changes in the contaminated material when a certain binding agent is added. These changes include an increase in compressive strength, a decrease in permeability, and condensing of hazardous materials. Stabilization refers to the chemical changes between the stabilizing agent (binding agent) and the hazardous constituent. These changes result in a less soluble, less toxic material with reduced mobility. Common bonding agents include, but are not limited to, Portland cement, lime, limestone, fly ash, slag, clay, and gypsum. Because of the vast types of hazardous materials, each agent should be tested/piloted at the Site before a full-scale project is undertaken. Most binding agents used are a blend of various single binding agents, depending on the hazardous material. Portland cement has been used to treat more contaminated material than any other solidification/stabilization binding agent because of its ability to bind free liquids, reduce permeability, encapsulate hazardous materials, and reduce the toxicity of certain contaminants. Lime can be used to adjust the pH of the substance of drive off water by the exo-thermic reaction. Limestone can also be used to adjust pH levels.

### **Type and Quantity of Residuals Remaining After Treatment**

Implementation of Alternative F Mod address all of the PTW at the Site. Therefore, this alternative meets the NCP expectation for addressing all principal threat wastes to the maximum extent practicable. While 83.2 acres of reactive caps are included in this alternative to deal with exposures from contaminated groundwater plumes, the full extent of exposure from these plumes is uncertain and has not been quantified. Based on the upland evaluations on the nature and extent of these groundwater plumes, this alternative would treat approximately 39 percent of contaminated groundwater discharging to the sediment bed within the Site. Additional characterization during remedial design would be required to ensure that the full extent of the exposure is addressed in remedy implementation.

#### **4.2.5.5 Short-Term Effectiveness**

Implementation of Alternative F Mod would have some impact to the community, workers, and the environment during construction. The period of construction is estimated as 4 months per year for 13 years. During the construction period, approximately 3,017,189 cy dredged sediment and excavated soil would be transported off the Site and 1,339,587 cy capping and residual management materials would be transported into the Site. Dredged materials and capping and residual management materials will need to be handled by workers. Impacts to the environment would occur during construction and continue until RAOs are achieved. These impacts would include unacceptable human and ecological exposure as well as reducing the ability for humans to safely consume fish and the ability of the tribes to fully engage in their ceremonial practices, which involve fish consumption. Impacts to the aquatic environment for are also described further in FS Appendix L.

### **Community Protection**

There are some short-term risks to the community from exposure to contaminated sediments and river bank soils during the construction period. This alternative involves dredging of 248 acres and excavation of 23,305 lineal feet of river bank, with import of approximately 1,339,587 cy of



capping and residual management material. Construction is assumed to proceed continuously for 24 hours per day, six days per week, 122 days per year, and for 13 years. Construction and operation of a treatment and transport facility should be necessary. Construction and operation activities is expected to result in temporary noise, light, odors, potential air quality impacts and disruptions to commercial and recreational river users on both sides of the river. However, the actual duration at any specific location would be less than the overall construction period.

Material transported off-site for disposal is assumed to be conducted via barge to an offsite transloading facility and then trucked or railed to the disposal facility. Increased barge traffic transporting dredged material will likely interfere with commercial navigation, with increased potential for waterborne accidents and on-shore impacts from exhaust. If an on-site transloading facility were constructed, off-site disposal is expected to result in upland impacts to the community through increased vehicular traffic (direct transport to off-site disposal or rail transfer facilities) with potential increases in accidents and air-quality issues associated with dust, odor, and vehicular exhaust. Under Alternative F Mod, the capping and residual management materials for construction would require handling and transport through the community and would have impacts similar to those described for off-site disposal.

Measures to minimize short-term risks to the community will be addressed through implementation of health and safety plans and the use of BMPs, including but not limited to, the following:

- Limiting access to sediment processing at upland treatment and transfer facility areas to authorized and trained personnel.
- Pollution controls to minimize emissions and odors from construction activities.
- Engineering and navigation controls (established by the dredging and/or materials management contractor working in coordination with the U.S. Coast Guard and other entities) to mitigate increased river traffic.
- Isolating work areas with an adequate buffer zone so that pleasure craft and commercial shipping can safely avoid construction areas.
- Fish consumption advisories would continue under this alternative until such time as RAOs are achieved. COC concentrations in fish tissue are expected to increase during the course of the multi-year construction period; however, this will mainly occur during the in-river work window of July 1 through October 31. Based on experience at other sites [Hudson River (NY), Grasse River (NY)], recovery following construction is relatively rapid, on the order of a few years, and is expected to continue to decrease as contaminant concentrations in sediment decrease.

### **Worker Protection**

Alternative F Mod would pose potential risks to Site workers through:

- Direct contact with COCs in dredged sediment
- Demolition, removal, and/or replacement of structures
- Activities in a river environment such as working on a vessel, near heavy and mobile equipment in and around working docks
- Working around marine operations with frequent vessel traffic
- Transport of borrow materials and carbon amendment for cover construction
- Placing amendments in in-situ treatment areas
- Transport of contaminated sediment and river bank soils

Safety measures and BMPs would be used to minimize the impacts referenced above. Measures such as:

- Use personal protective equipment (PPE)
- Establish work zones
- Dust suppression during material handling and river bank actions
- Worker Health and Safety Plans
- Following Occupational Safety and Health Administration (OSHA) approved health and safety procedures

### **Environmental Impacts**

Sediment removal and capping is expected to result in short-term adverse impacts to the river, including:

- Exposure of fish and other biota to suspended and dissolved contaminants or material in the water column
- Temporary loss of benthos and habitat for the ecological community in dredged areas
- Increased emissions from construction and transportation equipment

Measures and BMPs would be used to minimize the above referenced impacts, including:

- Engineering controls to minimize resuspension/release during cap placement
- Sequencing of dredging and placement activities to minimize recontamination potential
- Conduct work within the in-river work window (July 1st through October 31st) to minimize impacts to migratory fish
- Silt curtains, sheet pile walls, or other physical barriers will be used as appropriate to minimize releases
- Actions will be taken to remove fish from within barrier enclosures prior to commencing construction activities

Precautions and controls will be taken to prevent incidental and accidental discharges of toxic materials from entering the water column from in-river work. These include:

- Use spill plates and aprons to prevent dropping dredge material into the water
- Reduction of cycle times
- Restrict lateral movement of the dredge bucket while under water
- Use closed dredge buckets whenever Site conditions allow
- Reduce or stop dredging during periods of peak current

Application of BMPs for emissions reduction would reduce short-term impacts posed to the environment and would be consistent with the EPA Region 10 Clean and Green Policy. A Green Remediation Plan will be required during remedial design consistent with the outline provided in FS Appendix M. Emission reduction could be controlled through BMPs such as:

- Use of reusable energy sources.
- Limit idling of trucks and equipment.
- Rely on local sources of materials.
- Ensuring that trucks, barges and railcars are full prior to transport
- Implement onsite dust and noise control to reduce air pollutant and greenhouse gas emissions.
- Require clean fuel incentives in construction contracts.

Environmental impacts would continue until RAOs are achieved. Environmental impacts to human health via consumption would be controlled through fish consumption advisories.

#### **Time until Action Complete**

Construction operations for this alternative are estimated to take 13 years.

#### **4.2.5.6 Implementability**

Alternative F Mod would be implementable from both the technical and administrative standpoints given the considerations described in the following paragraphs.

#### **Ability to Construct and Operate**

The in-river construction activities required for the implementation of Alternative F Mod would be technically feasible and have been implemented at many Superfund sites around the country. Implementation of Alternative F Mod would involve dredging and excavating approximately 3,017,189 cy of contaminated material and the handling and placement of 1,339,587 cy capping and residual management material.

Alternative F Mod has a construction period of approximately 13 years, involves construction activities within 394 acres. Portland Harbor is a working industrial waterway that has the necessary infrastructure to support sediment remediation activities. Nevertheless, careful coordination will be required among government agencies, private entities and the community to

design, schedule, and construct the cleanup actions. Further, it will be important to evaluate whether upland source control actions have been implemented to a sufficient degree before or as a part of remedy construction to limit recontamination potential.<sup>1</sup>

Inadequate removal of contaminated sediment and soil or the need to manage residuals remaining after dredging or excavating could require further evaluation to determine the need for additional actions. Construction and reliable operation of release and residual management measures such as silt curtains and sheet piles will increase in difficulty in portions of the river affected by navigation traffic, deeper water, and significant current, and will lead to increased schedule and implementation delays.

Another technical implementability challenge is remediation under and behind piers and other above-water structures. Debris is expected to complicate, but is not likely to significantly delay, construction efforts. Maintaining flexibility in construction methods through the remedial design phase is an important consideration for these areas.

#### **Ease of Doing More Action, if Needed**

Increasing the extent of capping, dredging/excavation, in-situ treatment, or ENR would be easily implemented. Additional remedial actions on river banks could be more problematic due to factors such as adjacent land use, structures, steepness, use of the adjacent waterways, and community concerns. Depending on the scope of the additional actions, post-ROD changes will likely be needed.

#### **Ability to Monitor Effectiveness**

Monitoring of the effectiveness of the remedial alternative would include sampling of the water column, sediment, pore water, and biota tissue before, during and after construction to verify that risks to the ecosystem continue to decrease. Fish consumption advisories would be required until such time as RAO 2 is achieved. Outreach would be conducted to educate the public about the fish consumption advisories. Informational materials will be needed and evaluated to determine advisory effectiveness.

RNAs are assumed for 150 acres of caps. Regular monitoring of cap performance would be conducted and evaluated on 176 acres of caps required under 5-year reviews. Inspection, maintenance, and repair/replacement of caps are relatively easy and straightforward to implement in unobstructed areas, but are expected to be more challenging around obstructions, in the navigation channel, or in future maintenance dredge areas. If monitoring should fail to detect in a reasonable time frame a release in areas where waste has been left in place, then an unacceptable release of COCs to the environment will likely occur.

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<sup>1</sup> If further action under CERCLA is warranted, then a separate decision document would be issued.

Alternative F Mod relies on reducing contaminant concentrations through MNR for approximately 1,774 acres. MNR requires significant administrative effort over the long term to oversee and coordinate sampling, data evaluation, and future additional actions, if any are needed. The MNR analysis conducted in FS Appendix D.8 indicates that the majority of the site is neutral (transitional); therefore, there is greater uncertainty that RAOs will be achieved in a reasonable timeframe due to the remaining concentrations. For this reason, some additional future remedial actions are predicted to be more likely for Alternative F Mod. Should future remedial actions be warranted, subsequent decision documents would be issued.

#### **Ability to Obtain Approvals and Coordinate with Other Agencies**

Coordination with the ODFW, NMFS, and USF&W would need to be conducted during construction in order to protect migrating salmon in the lower Willamette River. The current in-river fish work window established for the Willamette River is July 1 through October 31 and accounts for fish migration patterns. Extending the period of the work each year would require consultation with ODFW, NMFS, and USF&W, but should be obtainable.

Coordination with DSL and/or other property owners would need to be conducted to manage waste left in place and implement land use restriction ICs, if needed. Additionally, property owners of potential staging areas and transloading facilities would also need to be consulted and access obtained. Alternative F Mod leaves waste in place in 1,920 acres of the Site.

Regulatory approval for off-site permitted disposal facilities as identified in FS Table 2.4-2 should be readily obtainable.

Coordination with DSL and/or other property owners would need to be conducted for demolition and removal, or relocation of structures are expected to be challenging, but should be obtainable.

Institutional controls, such as RNAs or other land use restriction mechanism, would need to be established for all in-river caps. Under Alternative F Mod, 150 acres of caps are assumed to need RNAs and 176 acres of caps are assumed to need land use restrictions. These ICs should be straightforward and easily obtainable.

Coordination with ODFW, NMFS, and USF&W would need to be conducted during construction in order to determine mitigation requirements under CWA 404 and ESA. Onsite identification of mitigation sites will likely be difficult to attain due to the lack of available locations within the Site and current and or future land uses. Off-site mitigation, if required, would need regulatory approvals which could likely take longer than on-site mitigation. Implementation of mitigation should be straightforward. Under Alternative F Mod, it is estimated that 60 acres for costing purposes would require some type of mitigation.

### **Availability of Adequate Off-site Treatment, Storage Capacity, and Disposal Capacity and Services**

Regional upland landfills are authorized to receive contaminated sediment and have done so on several recent projects in or near the Site. Upland commercial landfills are identified in FS Table 2.4-2 have capacity relative to the volume of sediment expected to be dredged from the Site for Alternative F Mod. The upland commercial landfills can accept wastes transported by rail, barge, or trucking. Transportation and management of materials would involve identification of sufficient space and proximity to the transportation network to the landfill facility. Several potential sites were identified in the Portland Harbor area where transload facility exists for handling material for disposal in an upland commercial landfill (FS Appendix F).

### **Availability of Specialists, Equipment and Materials**

Services, equipment, and materials are locally or regionally available. Experienced environmental dredge and excavator operators, and material placement specialists would be required. Three dredges are assumed for Alternative F Mod. Modes of transporting material offsite include barging to existing transloading facilities and transporting to an off-site disposal facility via truck or rail. Approximately 1,985 barge loads and 198,615 truckloads or 49,606 rail loads are assumed to transport the removed material. If an onsite transloading facility were constructed, approximately the same number of truckloads and/or rail loads are assumed for off-site disposal. Additionally, 941 barge loads, 116,829 truckloads, or 24,258 rail loads are assumed to transport material into the Site. Columbia River dredge material is a potential source of capping and residual management material, if it meets the clean fill requirements specified in the ROD.

### **Availability of Technologies**

Technologies specific to dredging, capping, and on-site treatment are available and have been previously used at the Site for early actions.

#### **4.2.5.7 Cost**

Total capital costs estimated for this alternative are \$1,184,607,000 over 13 years. Total periodic costs (including O&M) are \$524,028,000; of which the 5-year review periodic costs are \$308,000 per event, totaling \$1,848,000 over 30 years. The total undiscounted alternative cost is estimated to be \$1,708,635,000, with a net present value cost of \$1,054,200,000. Detailed costs associated with implementing Alternative F Mod are presented in Appendix IV.

**Attachment A**  
**Post-Remediation Sediment Concentration Assumptions**

**ESTIMATE OF POST-REMEDICATION SEDIMENT CONCENTRATIONS:**

For the purposes of evaluating long term effectiveness and permanence and overall protection of human health and the environment in the feasibility study, estimates of post remediation sediment concentrations are required. Technology assignments used to develop remedial action alternatives include dredging, capping, in-situ treatment, ENR and MNR alone or in combination. Specific technology assignments used to develop remedial action alternatives are listed below:

- Broadcast GAC (Aquablock or equivalent)
- Engineered cap (3ft)
- Cap with armoring (3ft)
- Reactive armored cap (3ft)
- Reactive cap (3ft)
- Dredge with backfill
- Dredge with engineered cap (3ft)
- Dredge with reactive armored cap (3ft)
- Dredge with reactive cap (3ft)
- Dredge with reactive cap (3ft)
- Dredge with residual layer (1ft)
- Dredge with reactive residual layer (1ft)
- Dredge with reactive residual layer (1ft) and backfill
- Dredge with significantly augmented reactive cap (3ft)
- Dredge with significantly augmented reactive cap (3ft)
- ENR in Swan Island
- MNR
- MNR - No tech assigned
- Previously remediated

Post remediation sediment concentrations were estimated based on specific technology assignments:

- **Removal Based Technologies:** Post remediation sediment concentrations for removal based technologies are a function of the residual management layer placed following completion of dredging or excavation. Residual management layers include capping, backfill to grade and placement of thin layer sand covers. For each of these technologies, initial sediment concentrations are assumed to be zero following placement of the clean cap, backfill, or sand layer. For placement of thin layer sand covers as a residual management layer, the feasibility study assumed that the 12-inch thin layer sand cover in conjunction with the dredging best management practices described in the FS will be sufficient to minimize the potential for contamination at the surface of the residual management layer following placement. Therefore, the surface sediment concentration is assumed to be zero.



- Capping Based Technologies: Capping based technologies include conventional sand caps, armored caps and reactive caps alone or in combination. In addition, caps may be placed following dredging activities. For all capping based technologies including caps placed post dredging, the feasibility study assumes that sediment concentrations will be reduced by 100 percent to an initial sediment concentration of zero. Although it is recognized that recontamination from adjacent and upstream sediments will occur following placement of the cap material, this feasibility study does not consider this process for the purpose of evaluating remedial action alternatives.
- In-situ Treatment: A literature review suggests that activated carbon can reduce the bioavailable fraction of PCBs, PAHs, and 4,4'- DDT as measured through porewater concentrations by 90 percent (Ghosh et al. 2011; Tomaszewski et al. 2008; Zimmerman et al. 2005). For the purpose of the feasibility study, in-situ treatment is expected to be accomplished through placement of a 12-inch sand layer including enough reactive material to achieve 5 percent by weight GAC. Because further reductions in contaminant concentration through placement of the sand layer are expected, it is assumed that in-situ treatment will reduce surface sediment concentrations to zero using the same assumptions as described above for the post dredging thin layer sand cover.
- ENR: ENR is assumed to be accomplished through placement of a 12-inch thin layer ENR sand cover. Post remedy surface sediment concentrations are assumed to be reduced by 97.5 percent. The 97.5% reduction assumes that limited mixing of the 12-inch ENR layer will occur.
- MNR: No reduction in sediment concentration is assumed from monitored natural recovery.

A summary of the post remedial sediment concentrations is presented in Table 1.

There is uncertainty associated with the development of post remediation sediment concentrations all technology assignments. Key uncertainties include:

- Uncertainty in the dredged residual surface sediment concentration due uncertainties in the vertical sediment concentration profile;
- Uncertainty in the concentration of backfill material used as post dredging residual layer prior to and following placement;
- Uncertainty in the concentration of the capping material prior to and following placement; and
- Uncertainty in the recontamination potential associated with unremediated sediments adjacent to the remediated area.

Post remediation sediment concentration estimates were developed on a surface weighted average concentration (SWAC) basis. The SWAC was estimated on a RAO basis. The RAO determined the spatial scale over which the SWAC was estimated as summarized below:

- RAO 1 - Direct Contact Human Health: Risk reduction was evaluated on a one-mile exposure scale based on rolling river miles (e.g., RM 3.1 – 4.1, RM 3.2 – 4.2, RM 3.3 – 4.3, etc.) for both the east and west nearshore areas along with Swan Island Lagoon.
- RAO 2 – Fish Consumption Human Health: Risk reduction was evaluated on a one-mile exposure scale based on rolling river miles (e.g., RM 3.1 – 4.1, RM 3.2 – 4.2, RM 3.3 – 4.3, etc.) for the east, west, and navigation channel along with Swan Island Lagoon.
- RAO 5 – Direct Contact Ecological Receptors: Risk reduction was evaluated on a 0.2 mile exposure scale based on rolling river miles (e.g., RM 3.2 – 3.4, RM 3.3 – 3.5, RM 3.4 – 3.6, etc.) for the east, west, and navigation channel along with Swan Island Lagoon.
- RAO 6 – Prey Consumption Ecological Receptors: Risk reduction was evaluated on a one-mile exposure scale based on rolling river miles (e.g., RM 3.1 – 4.1, RM 3.2 – 4.2, RM 3.3 – 4.3, etc.) for the east, west, and navigation channel along with Swan Island Lagoon.

In addition to rolling river mile averages for the east side of the river, the west side of the river, the navigation channel and Swan Island Lagoon, risk reduction was also evaluated on a site-wide exposure scale. Results of the risk reduction evaluation are presented in the risk discussions by alternative in ROD Table 22 and updated Section 4.2 for Alt F Modified (ROD, Part II, Appendix IV).

**REFERENCES CITED**

Ghosh U, Luthy, RG, Cornelissen G, Werner D, and Menzie CA. 2011. In-situ Sorbent Amendments: A New Direction in Contaminated Sediment Management. *Environ Sci Technol.* 45:1163-1168.

Tomaszewski JE, McLeod PB, and Luthy RG. 2008. Measuring and modeling reduction of DDT availability to the water column and mussels following activated carbon amendment of contaminated sediment. *Water Research.* 42:4348-4356.

Zimmerman JR, Werner D, Ghosh U, Millward RN, Bridges TS, and Luthy RG. 2005. Effects of dose and particle size on activated carbon treatment to sequester polychlorinated biphenyls and polycyclic aromatic hydrocarbons in marine sediments. *Environ Toxicol Chem.* 24:1594-1601.

**Table 1. Post Remediation Sediment Concentration Assumptions**

Technology Assignment	Remedial Zone			Post Remediation Surface Sediment Concentration Assumption
	Shallow	Inter-mediate	Nav-FMD	
Dredge with backfill	X			0 percent of surface sediment concentration (complete remediation)
Dredge with engineered cap (3ft)	X			
Dredge with reactive armored cap (3ft)	X			
Dredge with reactive cap (3ft)	X			
Dredge with reactive cap + backfill	X			
Dredge with residual layer (1ft)		X	X	
Dredge with reactive residual layer (1ft)		X	X	
Dredge with reactive residual layer + backfill	X			
Dredge with significantly augmented reactive cap (3ft)		X		
Dredge with significantly augmented reactive cap + backfill	X			
Engineered cap (3ft)		X		
Cap with armoring (3ft)	X	X		
Reactive armored cap (3ft)	X	X		
Reactive cap (3ft)		X		
Broadcast GAC (in-situ treatment)		X		
ENR in Swan Island	X	X	X	2.5 percent of surface sediment concentration
Monitored Natural Recovery	X	X	X	100 percent of surface sediment concentration

PORTLAND HARBOR RI/FS  
**FIGURES - UPDATE**

**Alternative F-Modified**

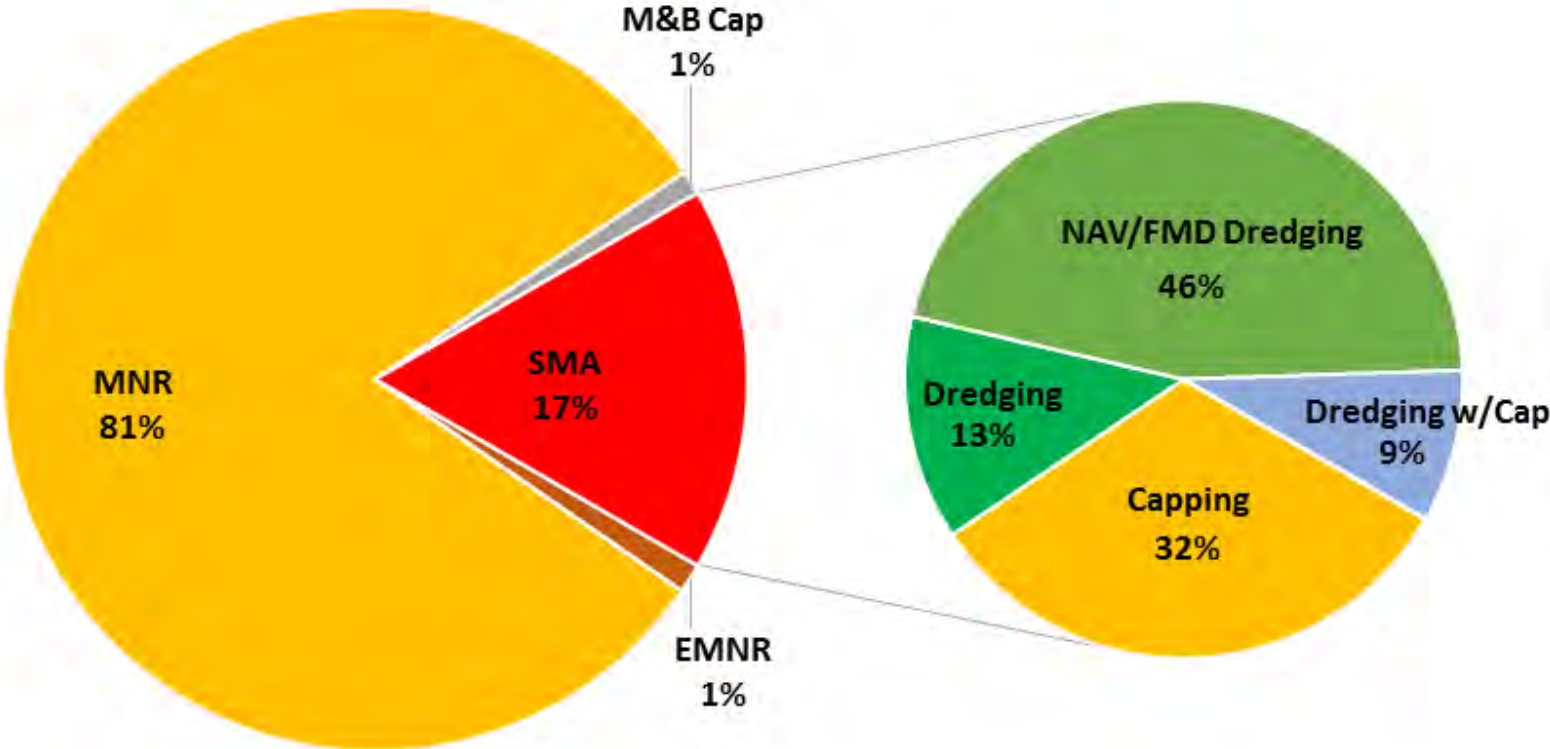


Figure 3.8-18. Proportion of the Site Assigned to Each Technology for Alternative F-Modified

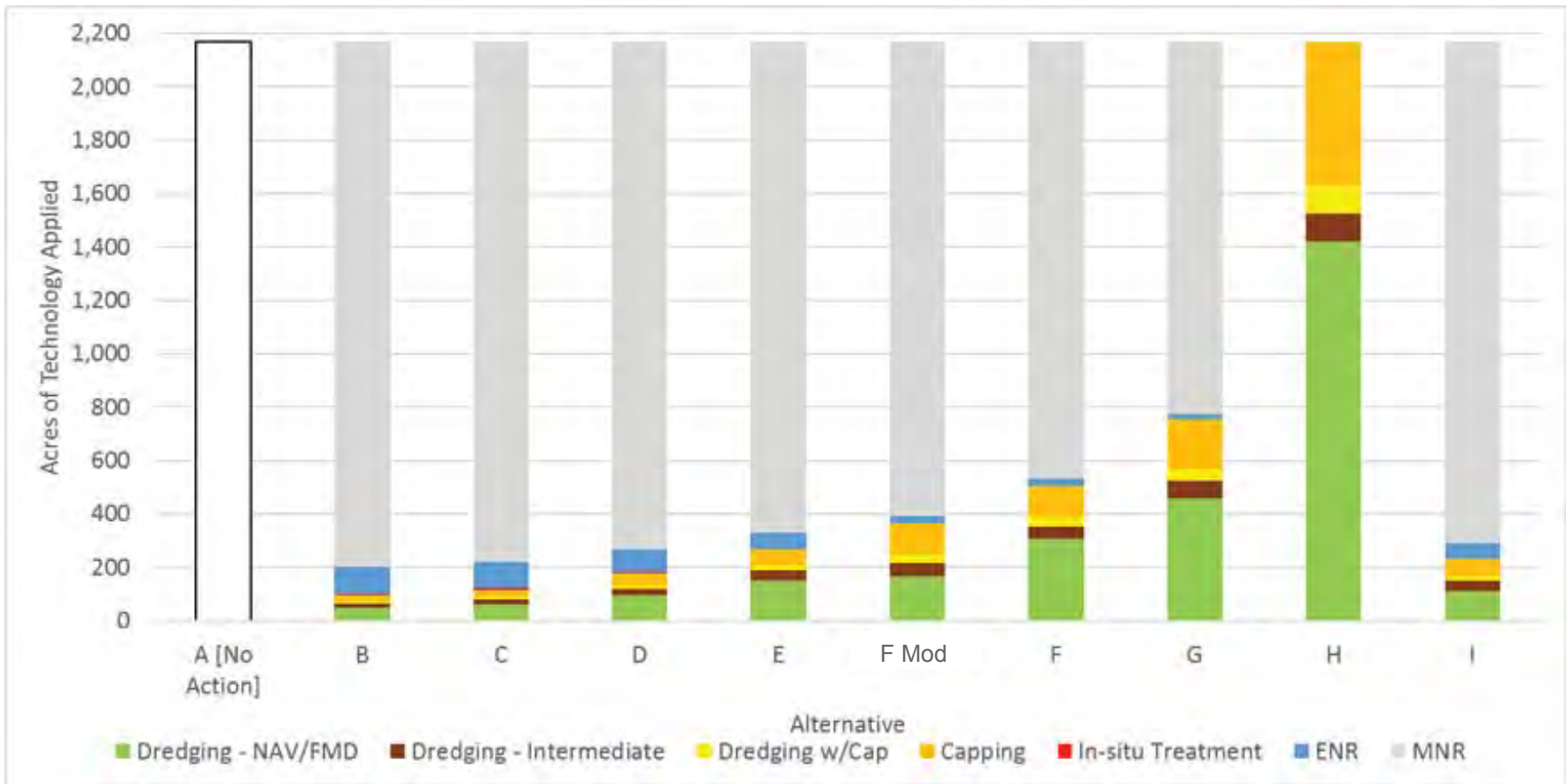


Figure 3.9-2. Acres of Technology Applied by Alternative

Figure 4.2-1 a . Residual Human Health Cancer Risk for RAO 1 at Year 0 – East – Rolling Avg 0.5 mile

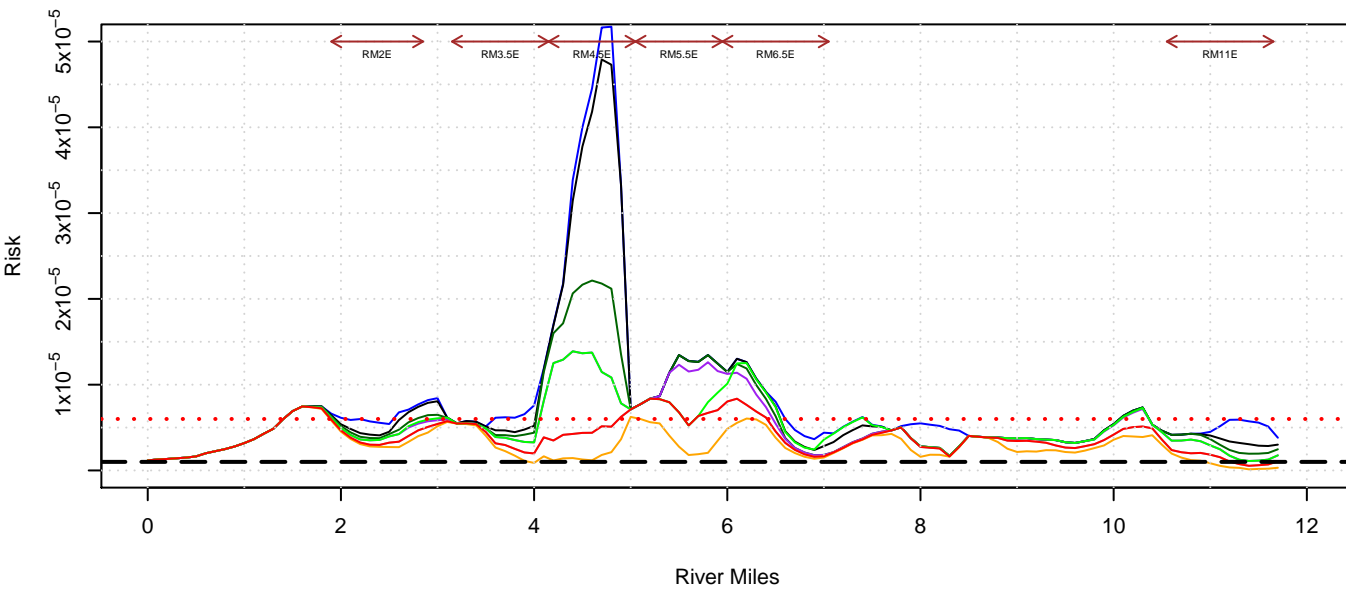


Figure 4.2-1 b . Residual Human Health Cancer Risk for RAO 1 at Year 0 – West – Rolling Avg 0.5 mile

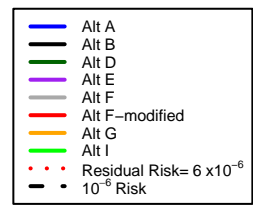
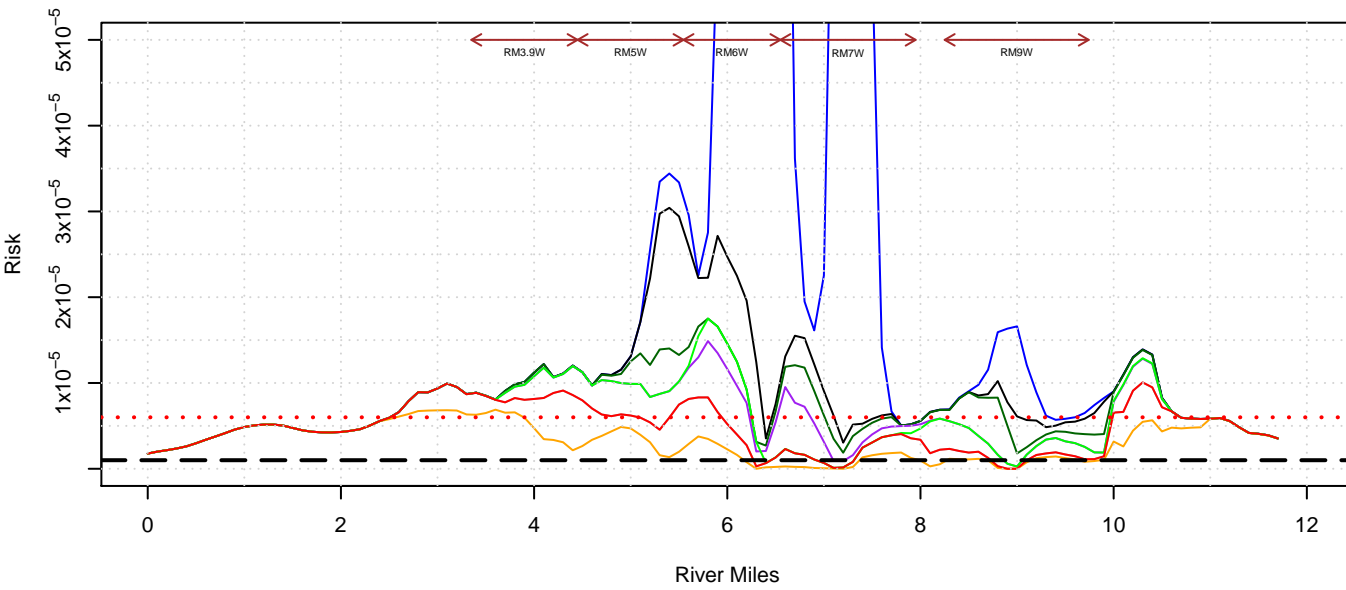
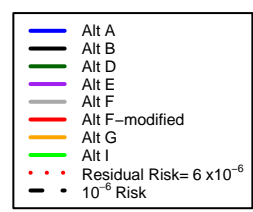
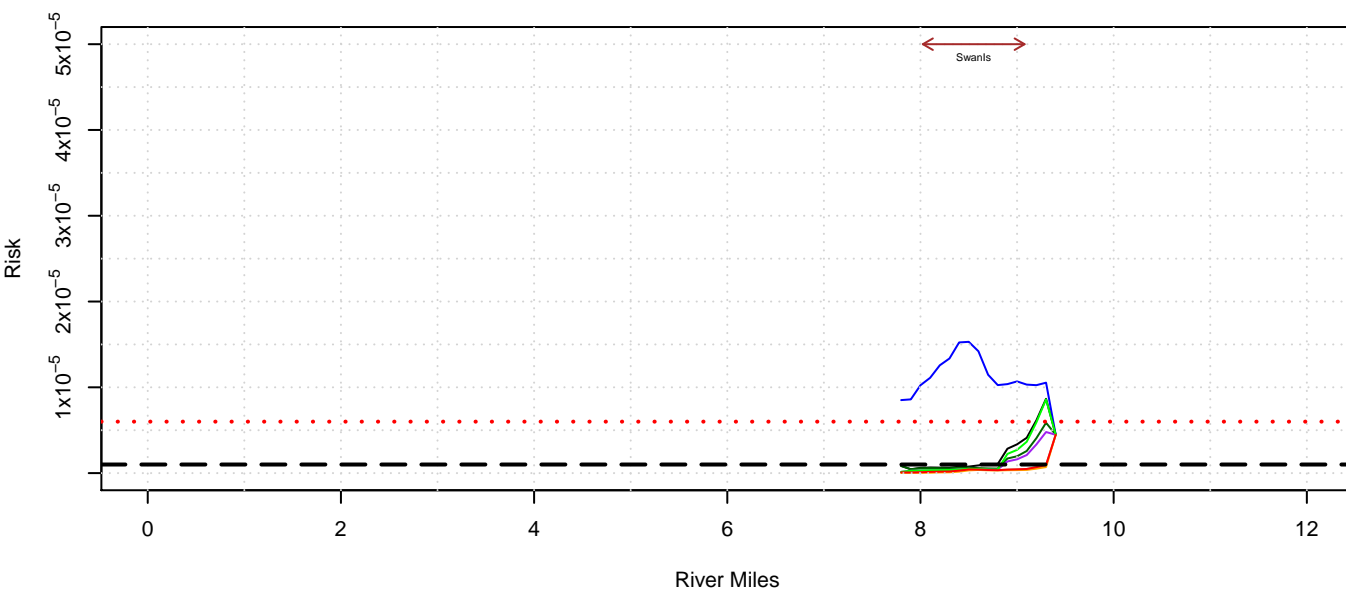


Figure 4.2-1 c . Residual Human Health Cancer Risk for RAO 1 at Year 0 – Swan Isl – Rolling Avg 0.5 mile





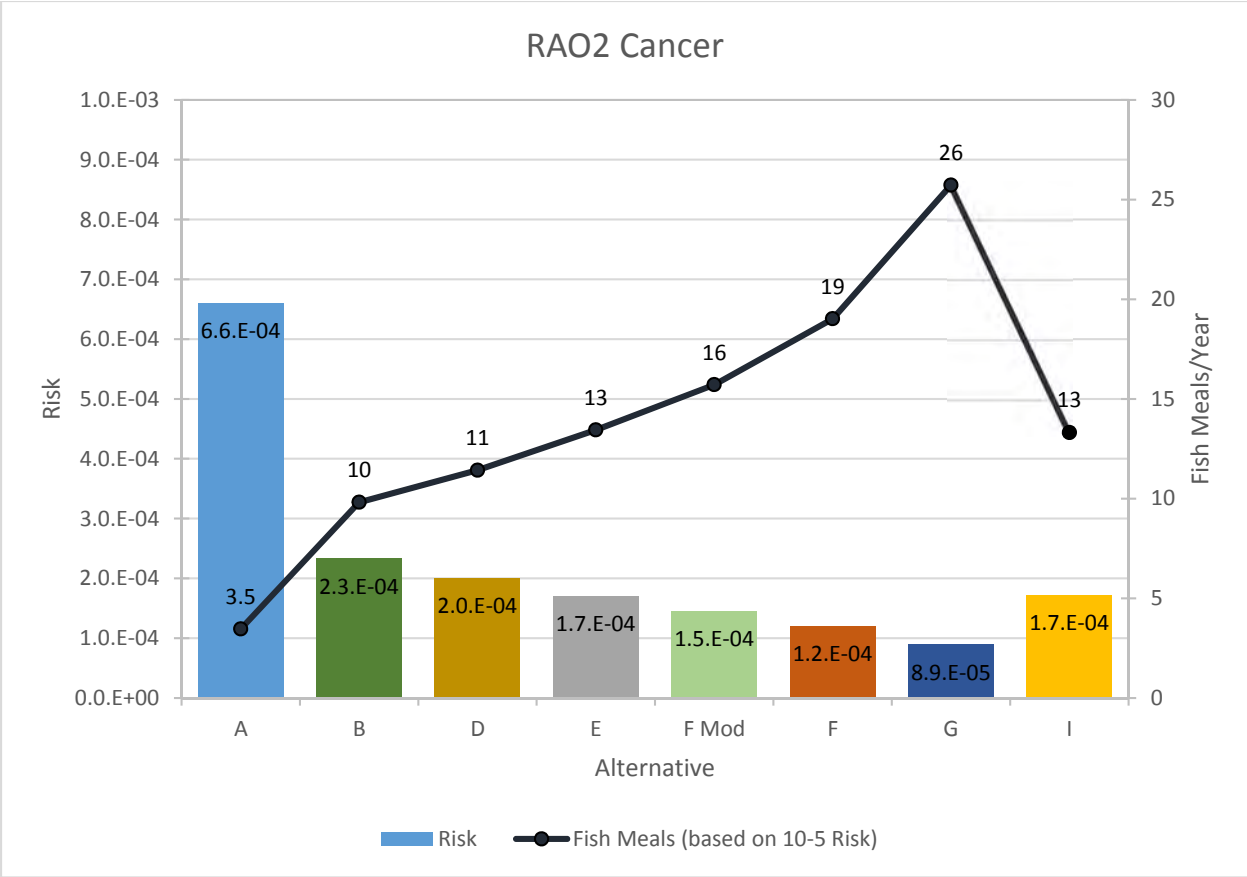


Figure 4.2-2. Residual Site-wide Human Health Cancer Risk and Acceptable Consumption Rates by Alternative. (Fish meals based on  $10^{-5}$  risk)

Figure 4.2-3 a . Residual Cancer Risk for RAO 2 at Year 0 – East – Rolling Avg 1 mile

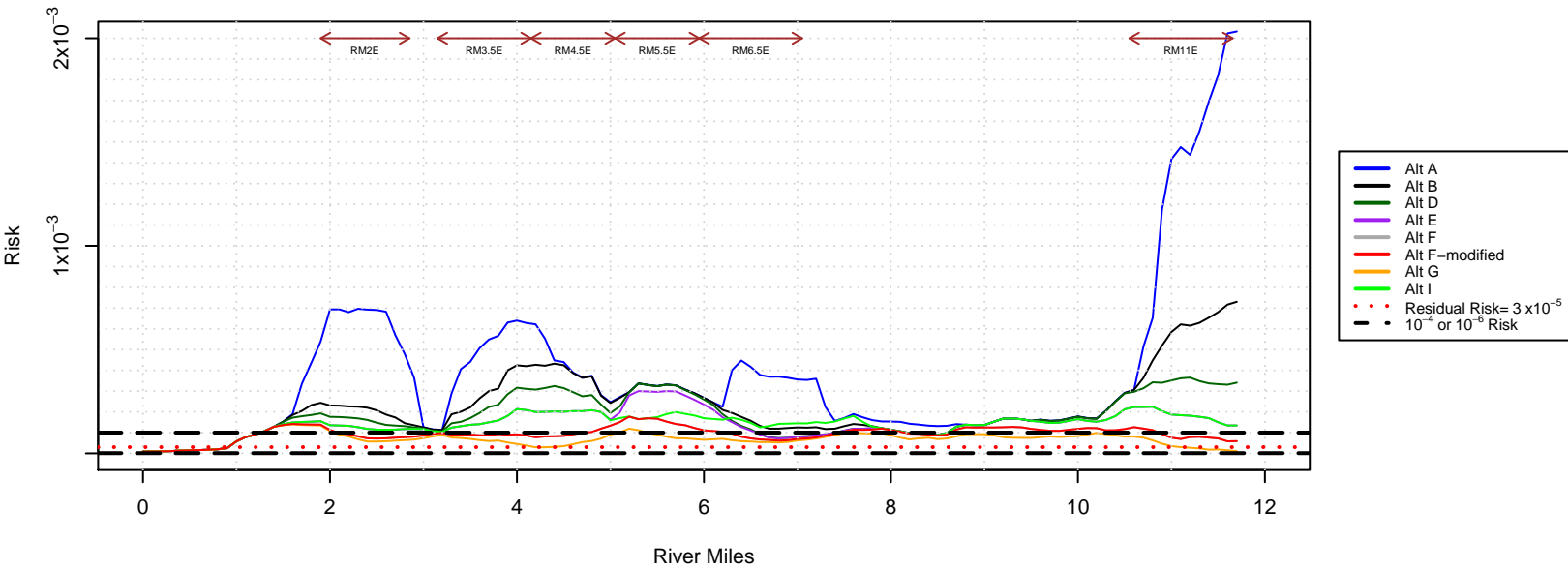


Figure 4.2-3 b . Residual Cancer Risk for RAO 2 at Year 0 – Nav Channel – Rolling Avg 1 mile

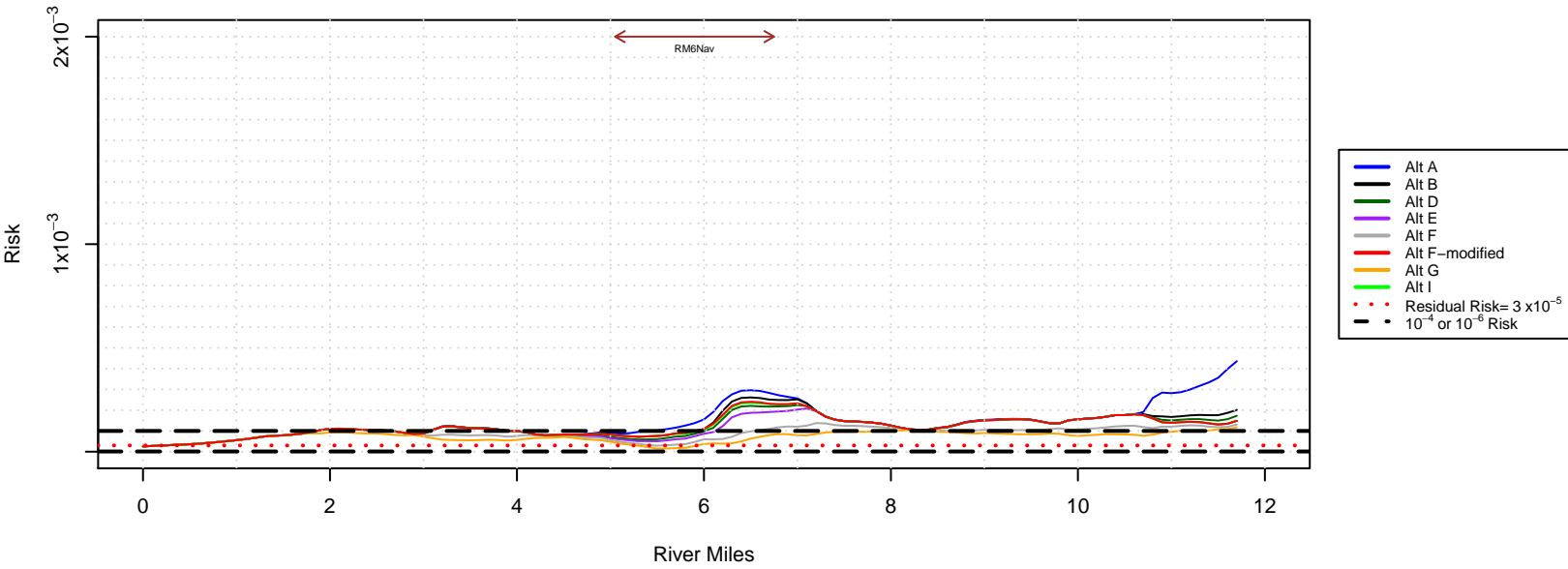


Figure 4.2-3 c . Residual Cancer Risk for RAO 2 at Year 0 – West – Rolling Avg 1 mile

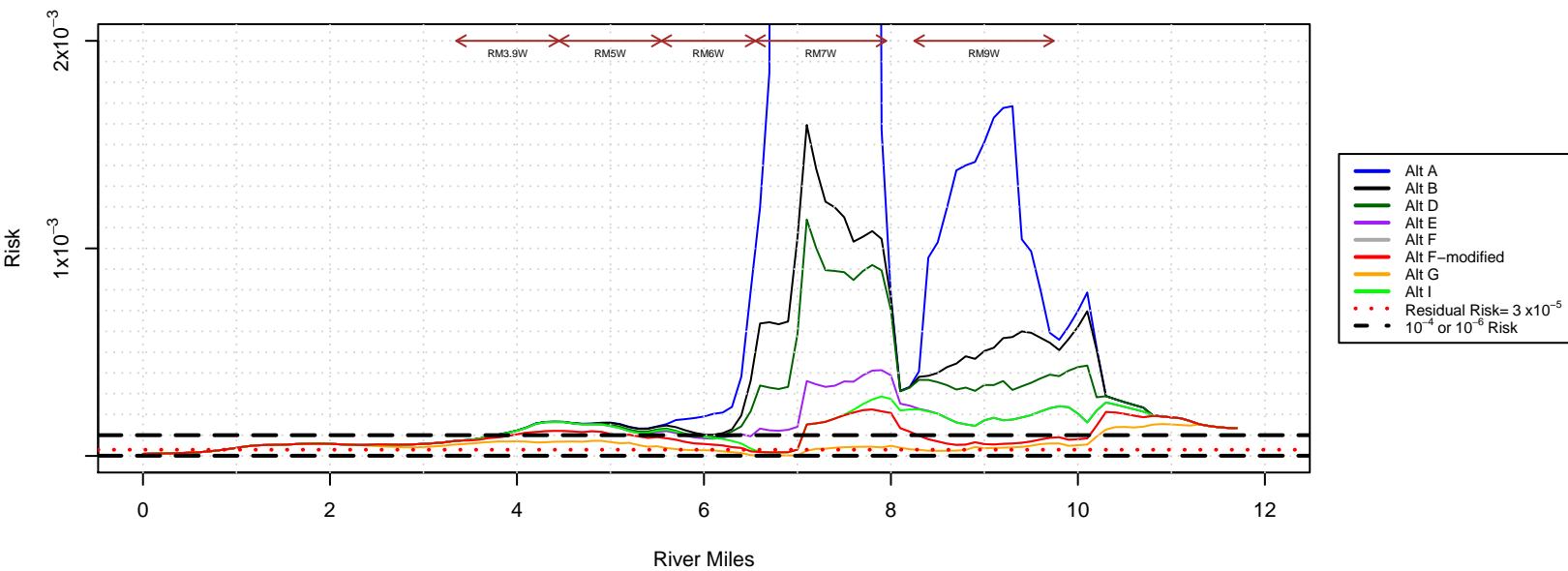
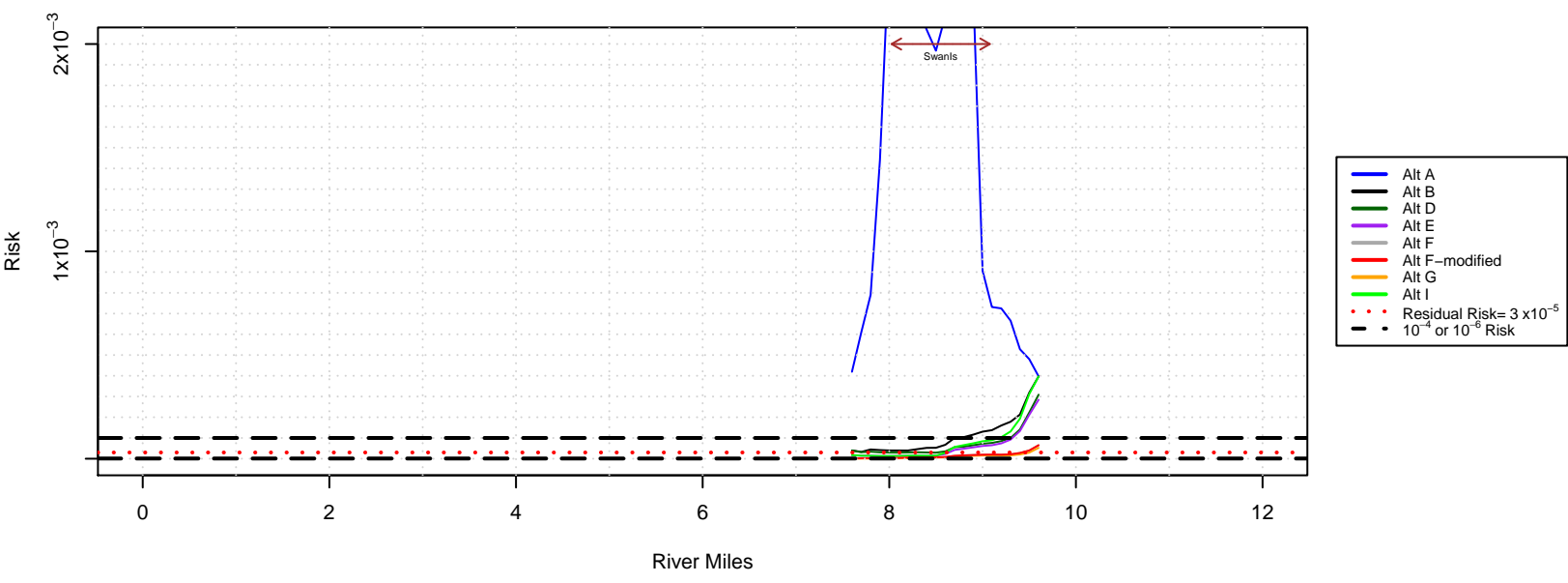


Figure 4.2-3 d . Residual Cancer Risk for RAO 2 at Year 0 – Swan Isl – Rolling Avg 1 mile



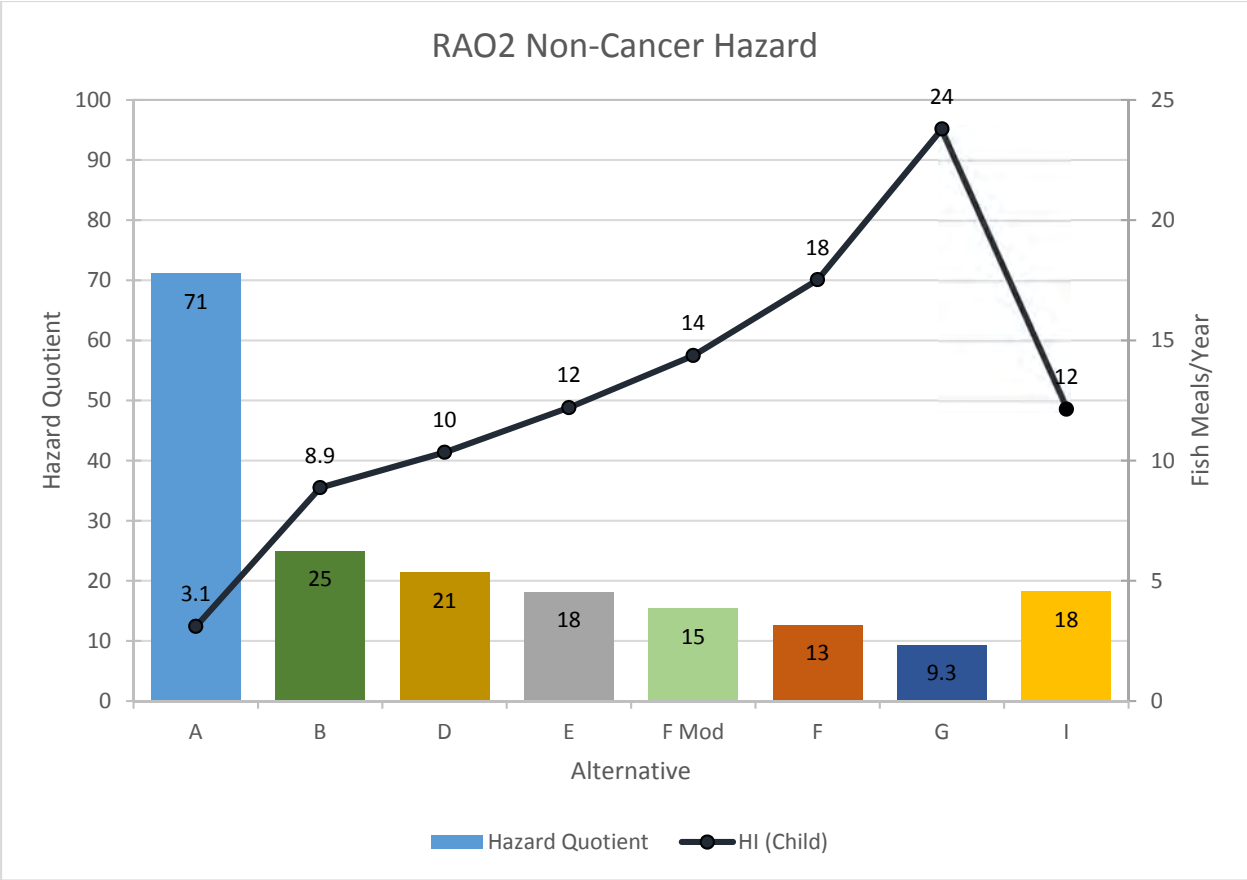


Figure 4.2-4. Residual Site-wide Human Health Non-cancer Hazard and Acceptable Consumption Rates by Alternative.

Figure 4.2-5 a . Residual Human Health Non-Cancer Risk for RAO 2 at Year 0 – East – Rolling Avg 1 mile

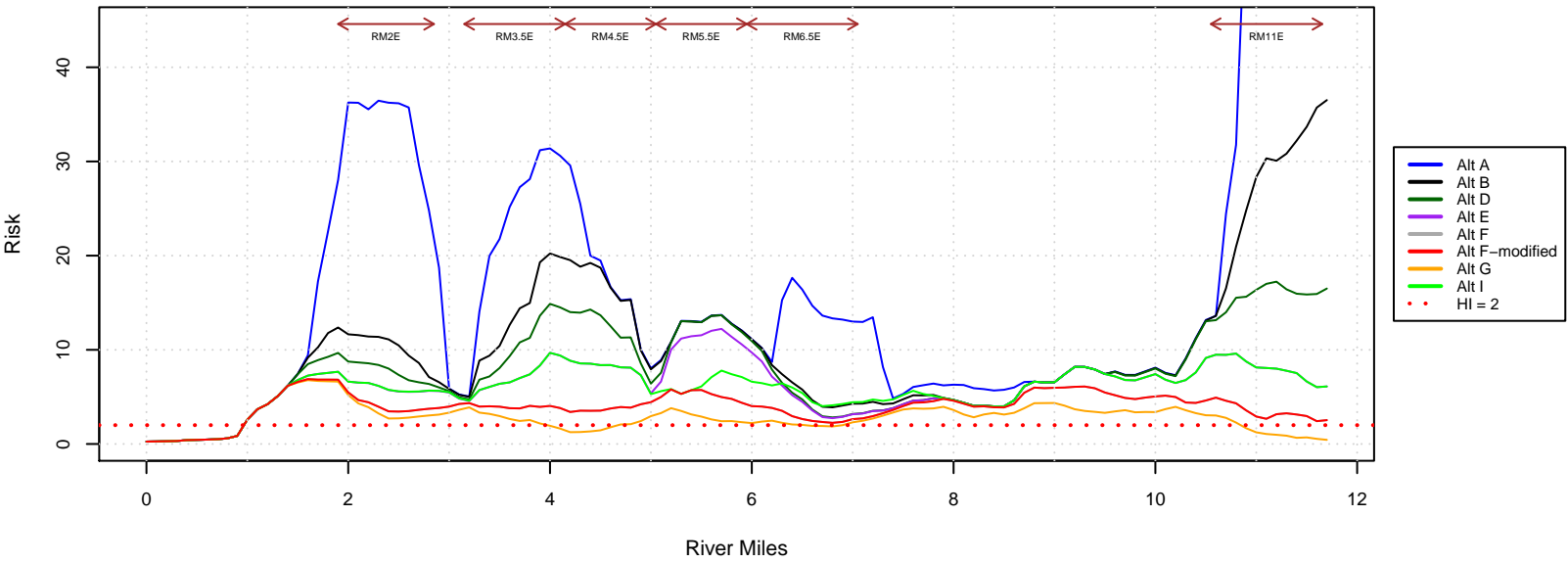


Figure 4.2-5 b . Residual Human Health Non-Cancer Risk for RAO 2 at Year 0 – Nav Channel – Rolling Avg 1 mile

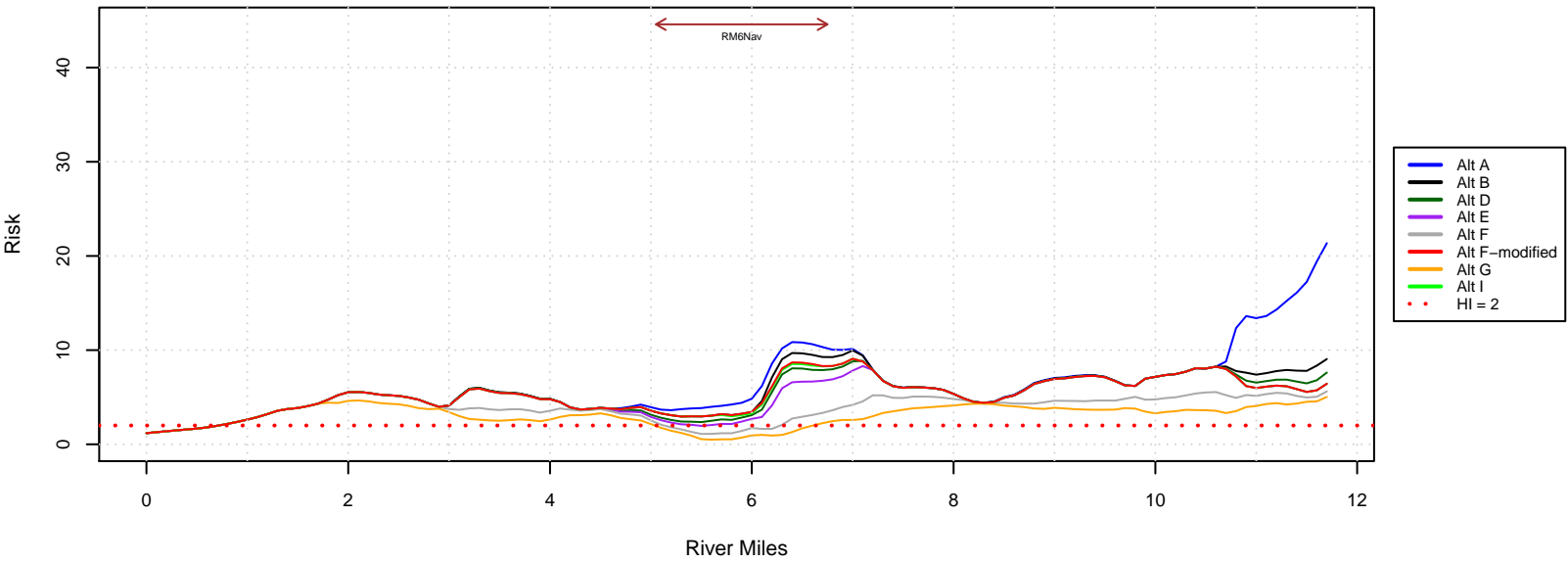
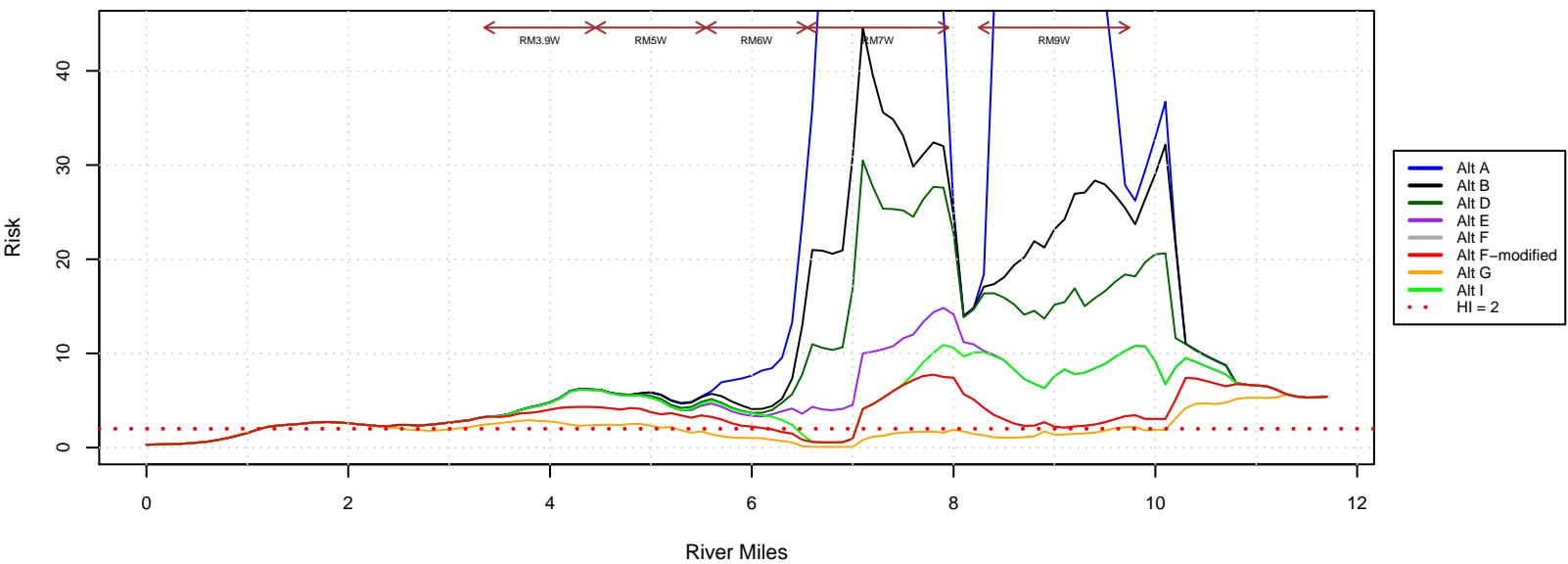


Figure 4.2-5 c . Residual Human Health Non-Cancer Risk for RAO 2 at Year 0 – West – Rolling Avg 1 mile





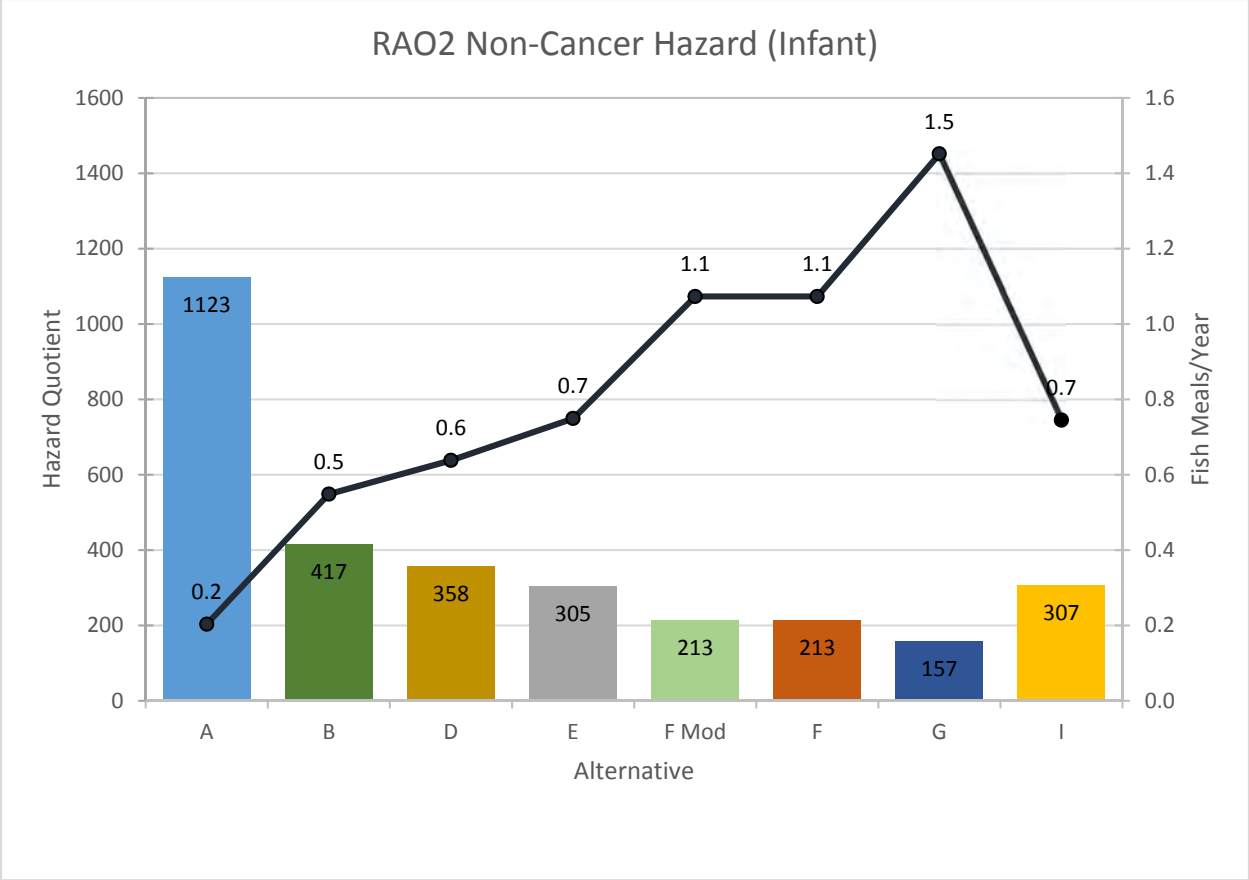


Figure 4.2-6. Residual Site-wide Human Health Non-cancer Hazard (Infant) and Acceptable Consumption Rates by Alternative.

Figure 4.2-7 a . Residual Human Health Non-Cancer Risk for RAO 2 at Year 0 – Infant – East – Rolling Avg 1 mile

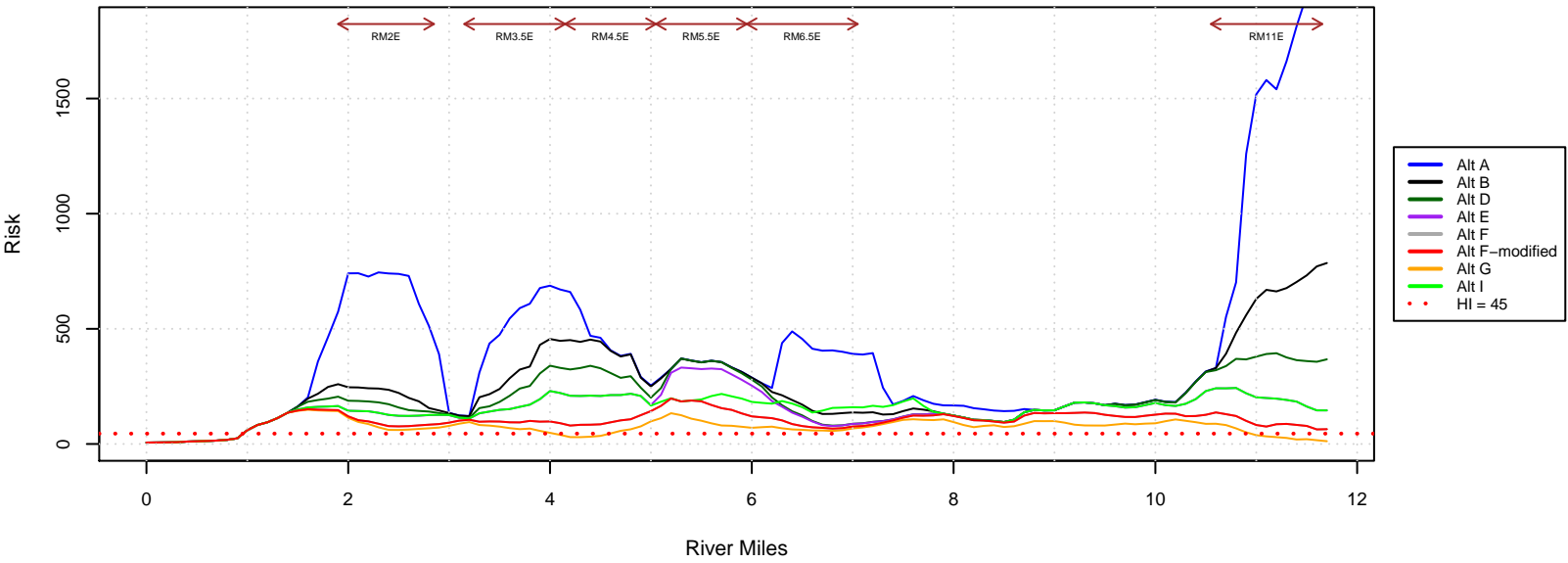


Figure 4.2-7 b . Residual Human Health Non-Cancer Risk for RAO 2 at Year 0 – Infant – Nav Channel – Rolling Avg 1 mile

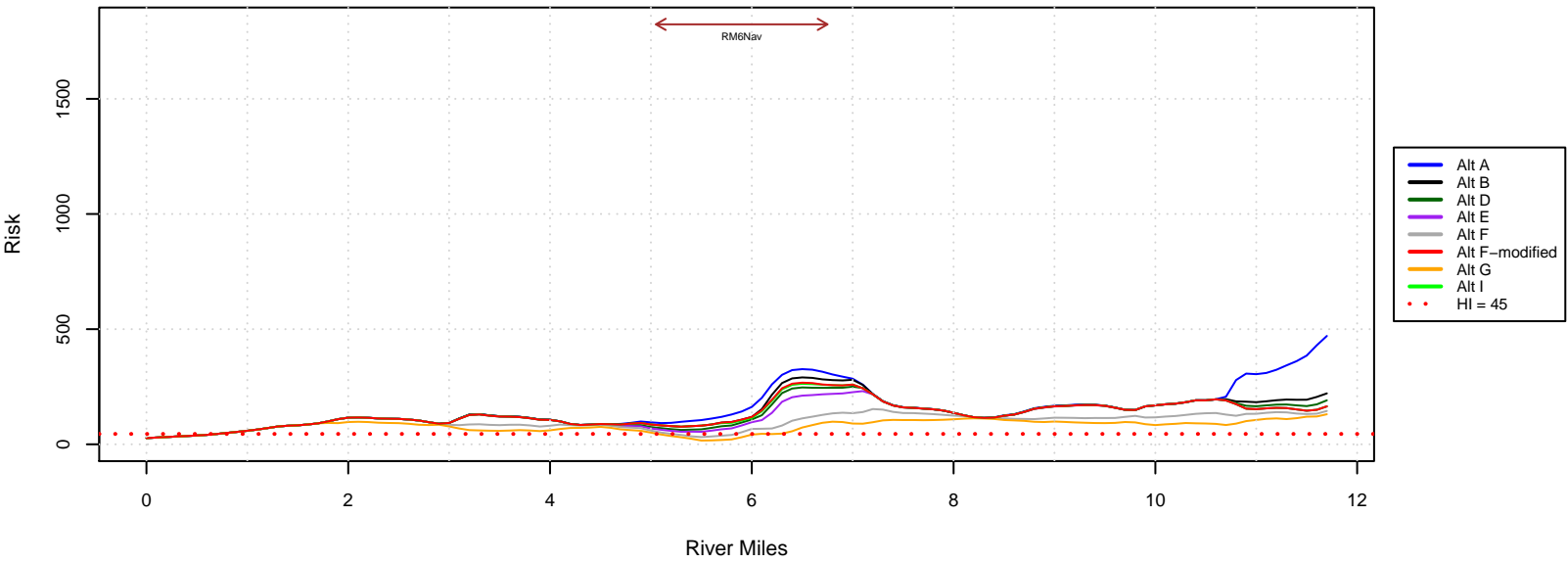
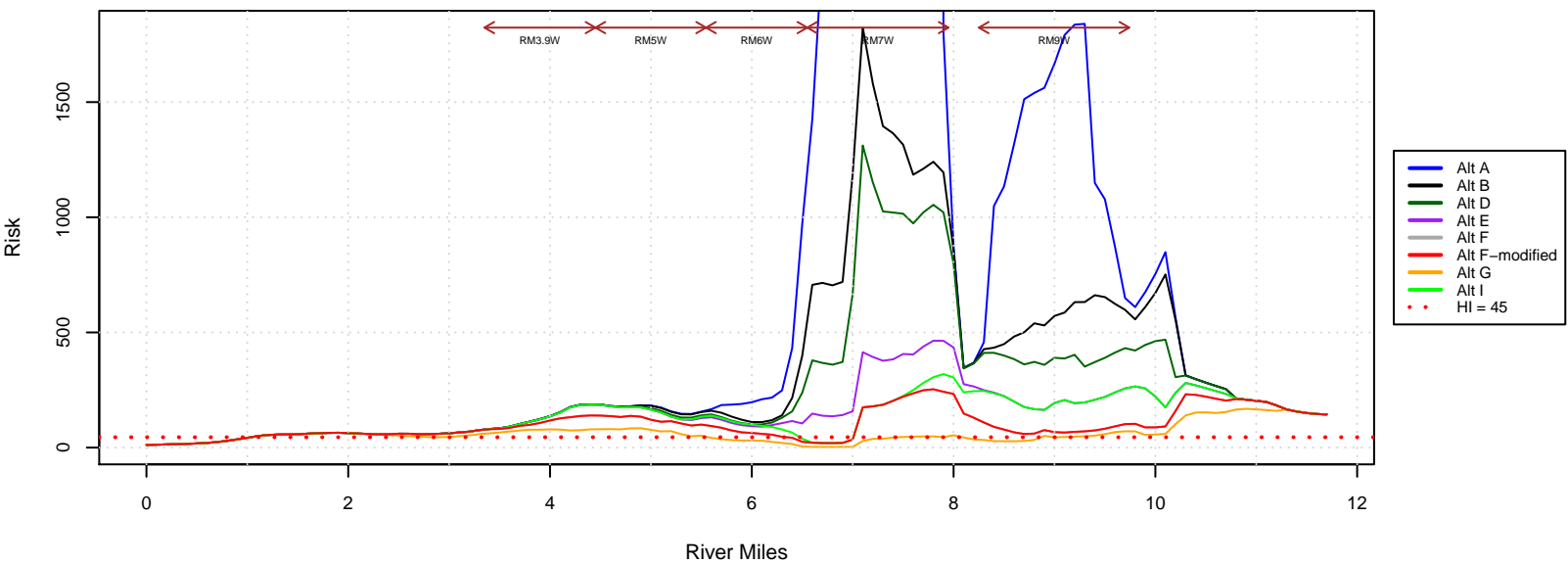


Figure 4.2-7 c . Residual Human Health Non-Cancer Risk for RAO 2 at Year 0 – Infant – West – Rolling Avg 1 mile







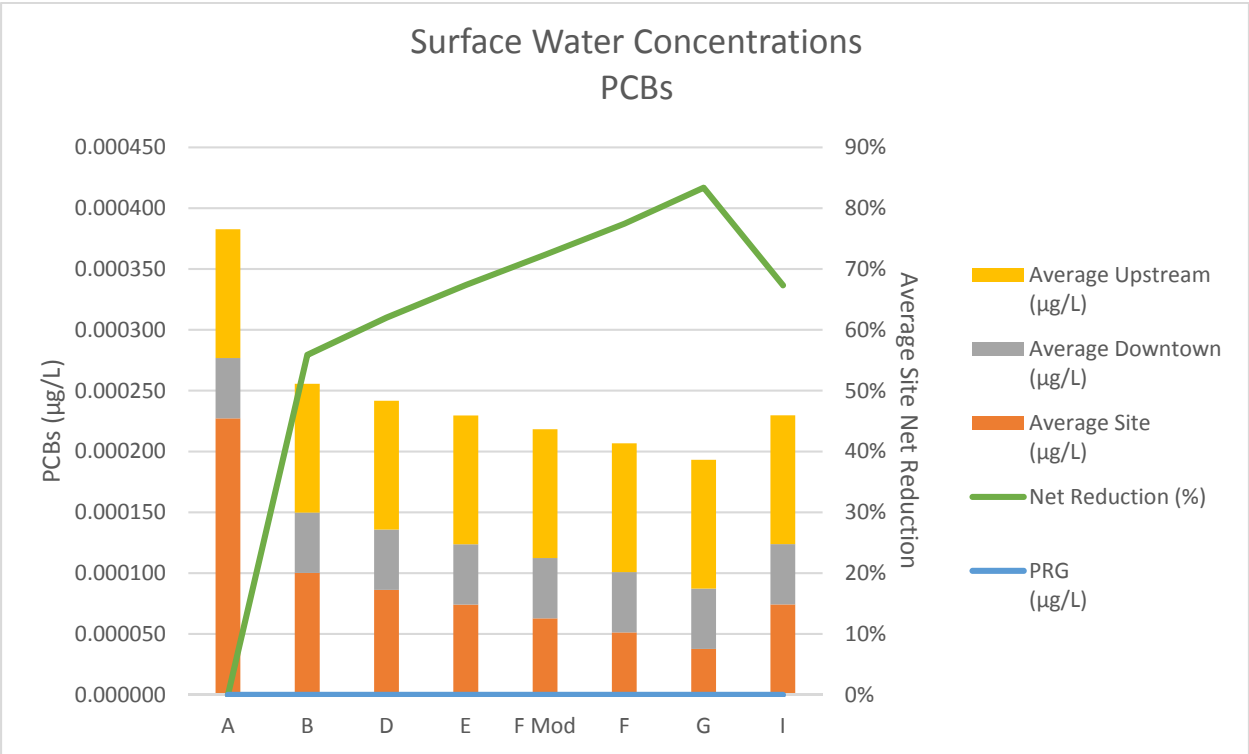


Figure 4.2-8a. Predicted surface water PCB concentration reductions.

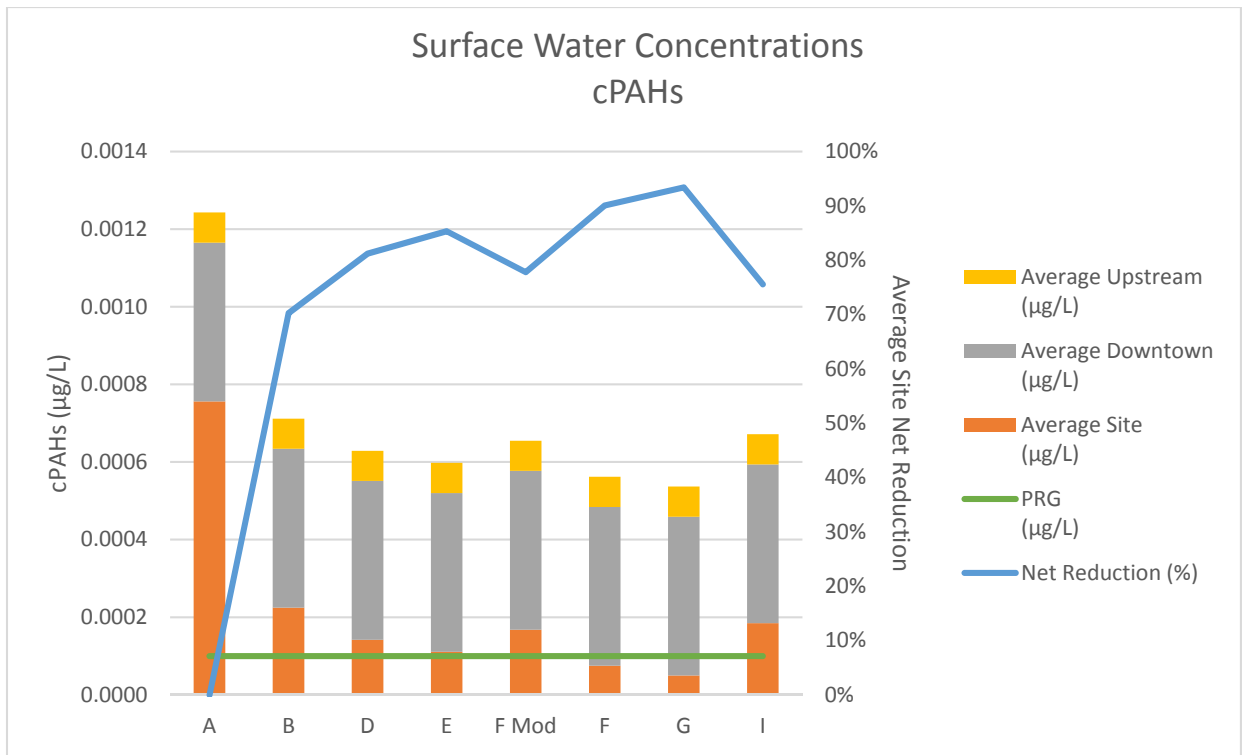


Figure 4.2-8b. Predicted surface water cPAH concentration reductions.

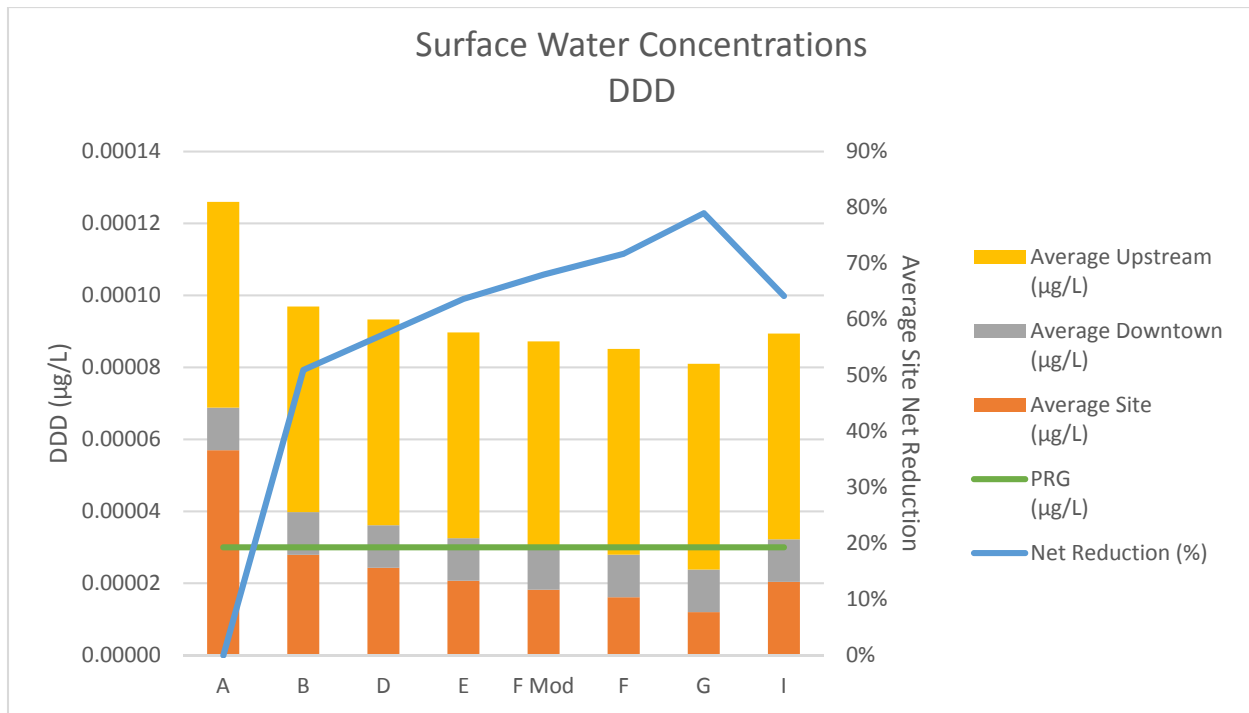


Figure 4.2-8c. Predicted surface water DDD concentration reductions.

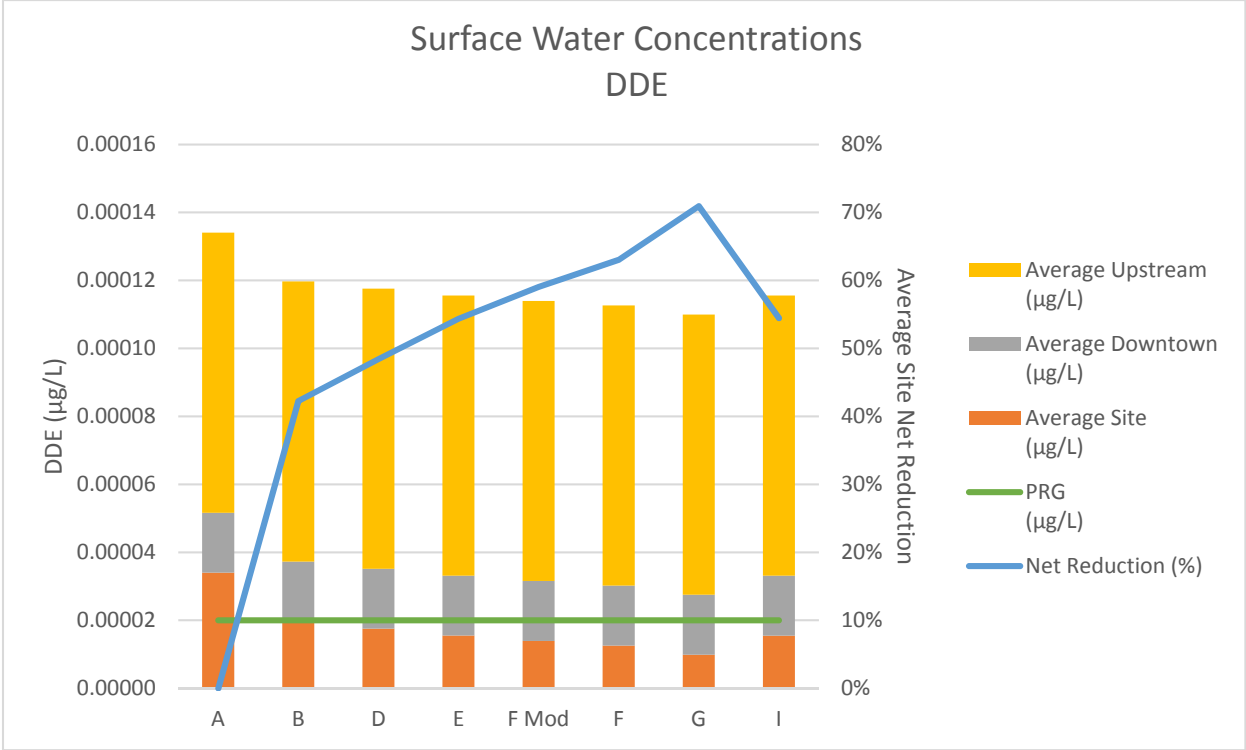


Figure 4.2-8d. Predicted surface water DDE concentration reductions.

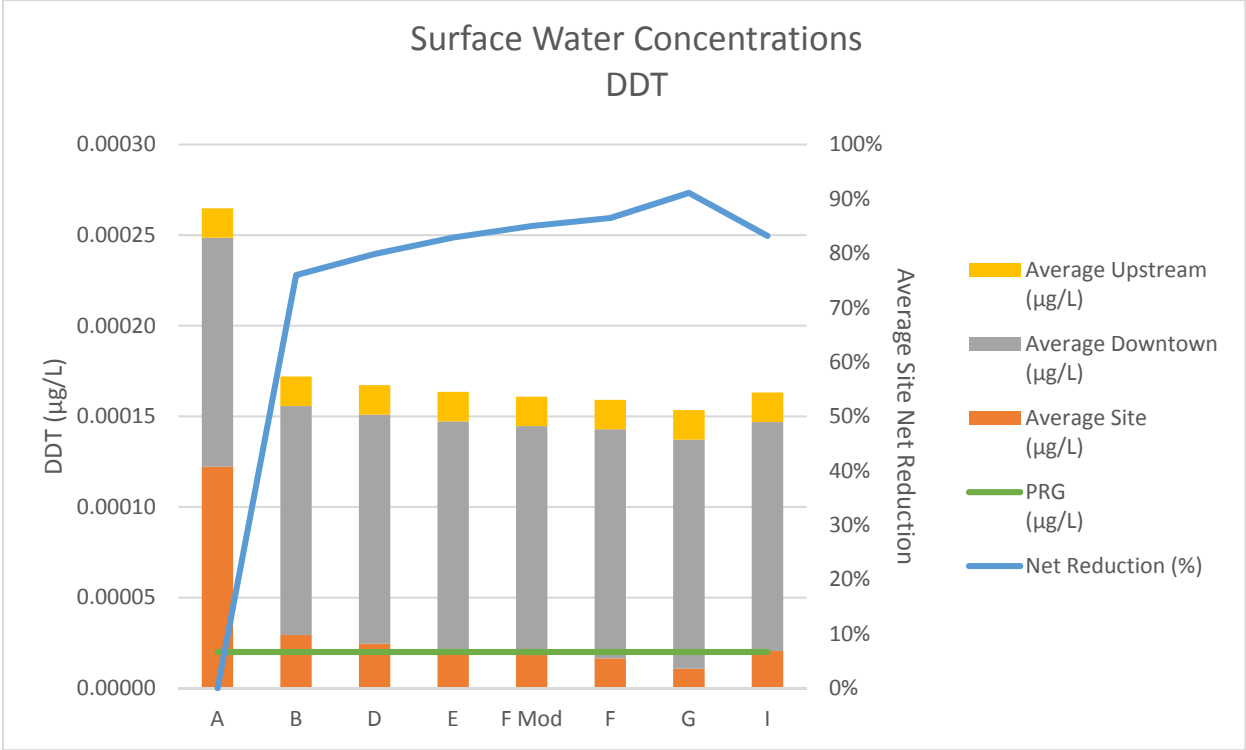


Figure 4.2-8e. Predicted surface water DDT concentration reductions.

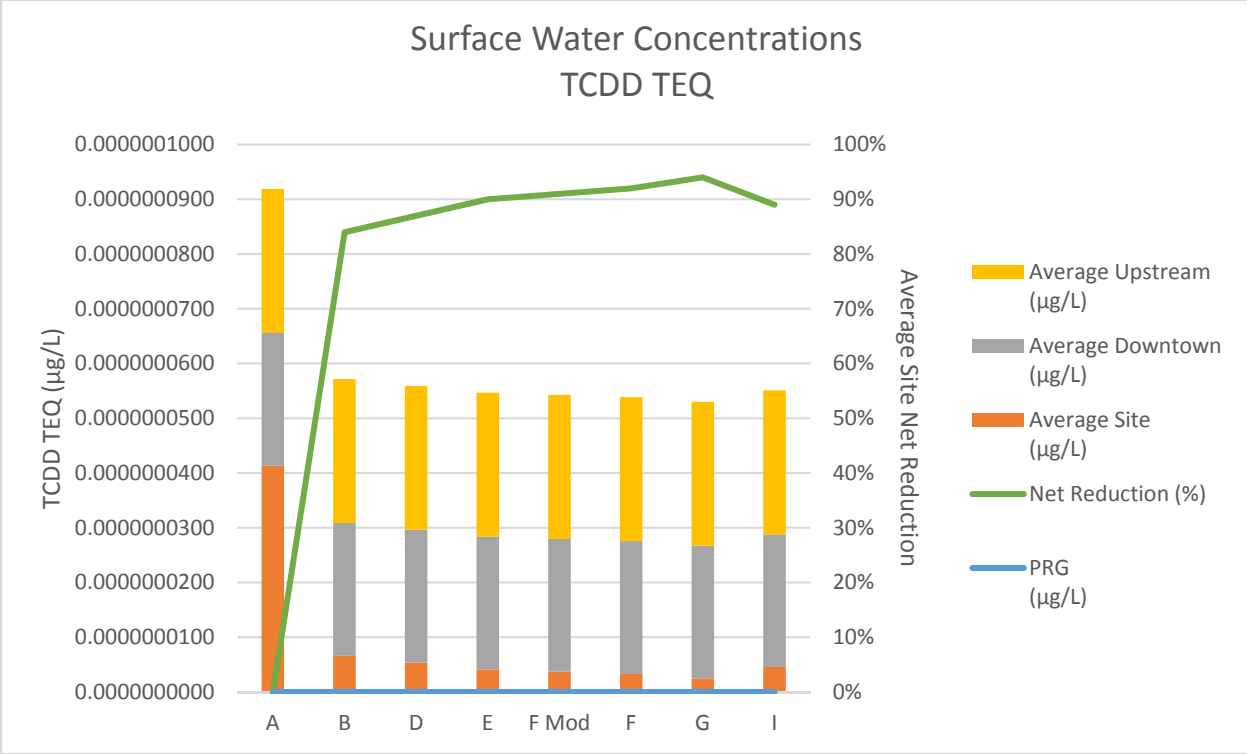


Figure 4.2-8f. Predicted surface water 2,3,7,8-TCDD eq concentration reductions.

Figure 4.2– 9 a . Residual Ecological Risk for RAO 6 at Year 0 – BEHP – Site – Rolling Avg 1 mile

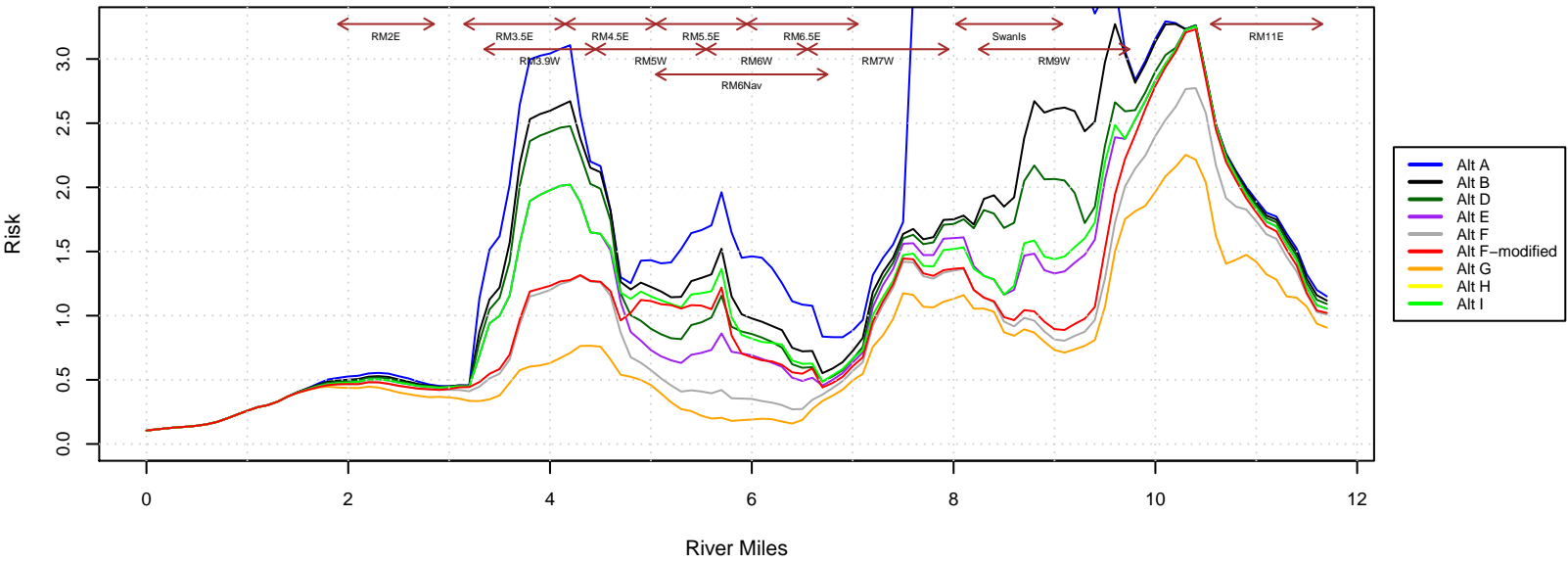


Figure 4.2– 9 b . Residual Ecological Risk for RAO 6 at Year 0 – BEHP – East – Rolling Avg 1 mile

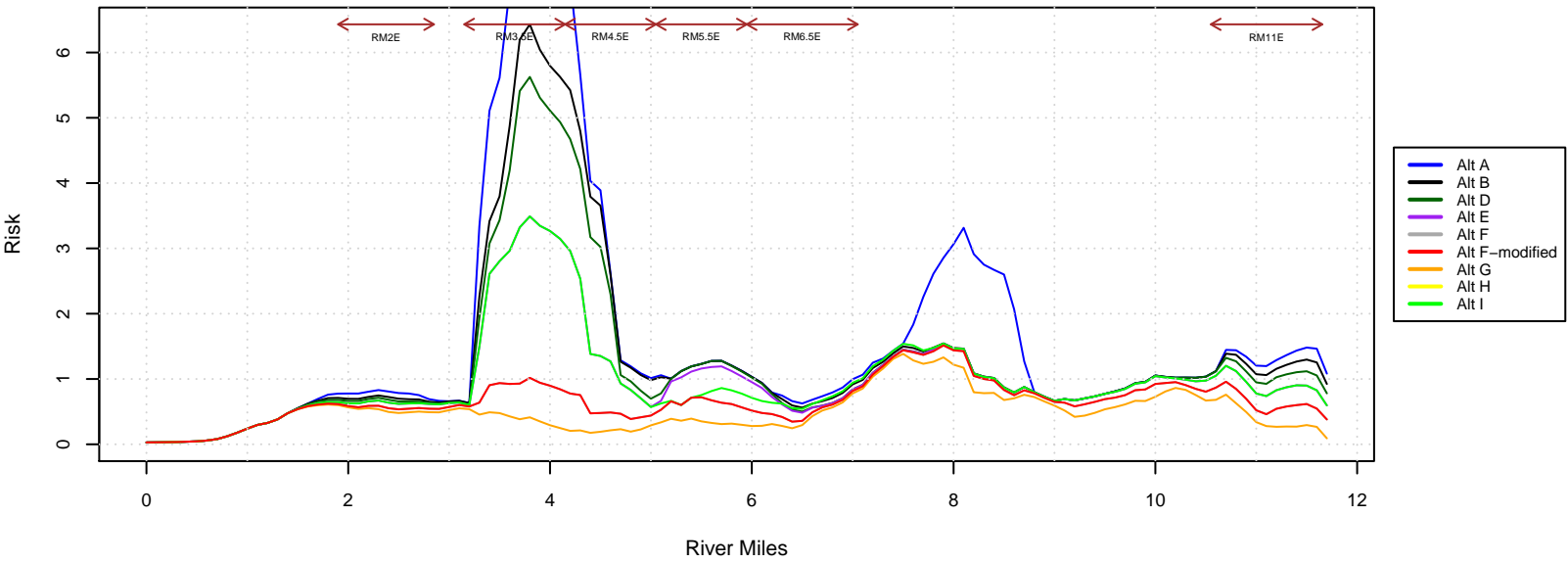


Figure 4.2– 9 c . Residual Ecological Risk for RAO 6 at Year 0 – BEHP – Nav Channel – Rolling Avg 1 mile

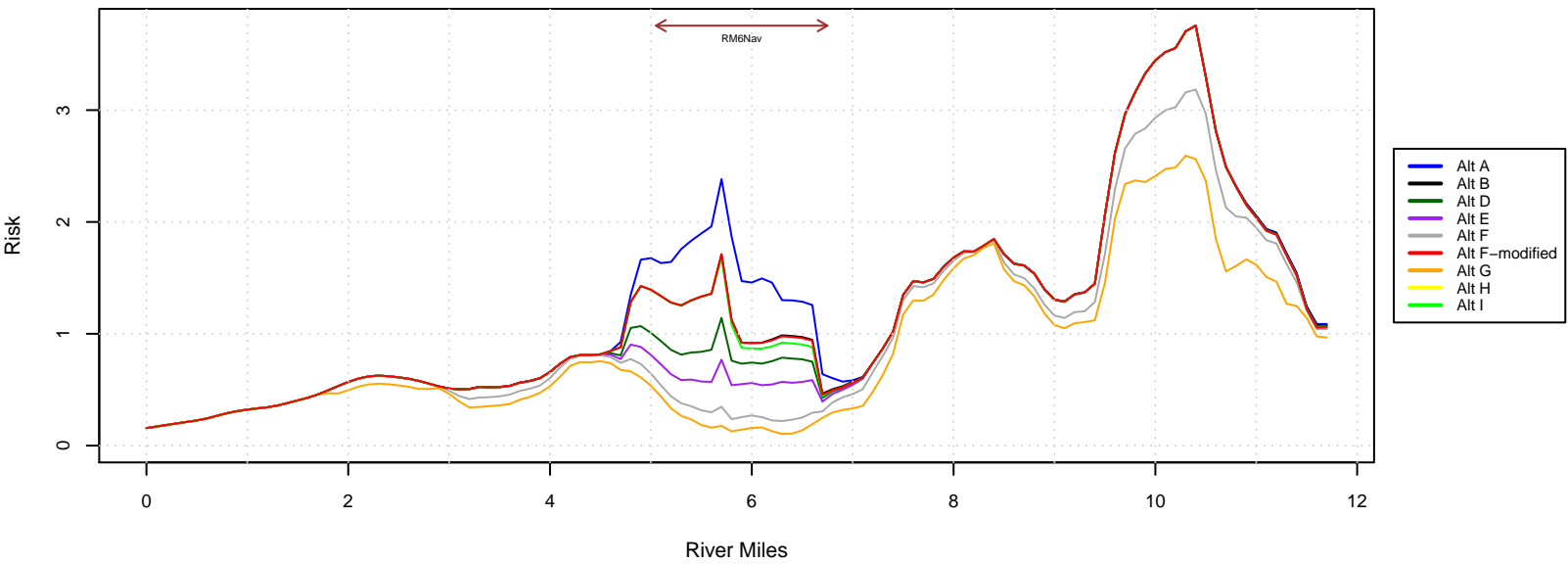




Figure 4.2- 9 d . Residual Ecological Risk for RAO 6 at Year 0 – BEHP – West – Rolling Avg 1 mile

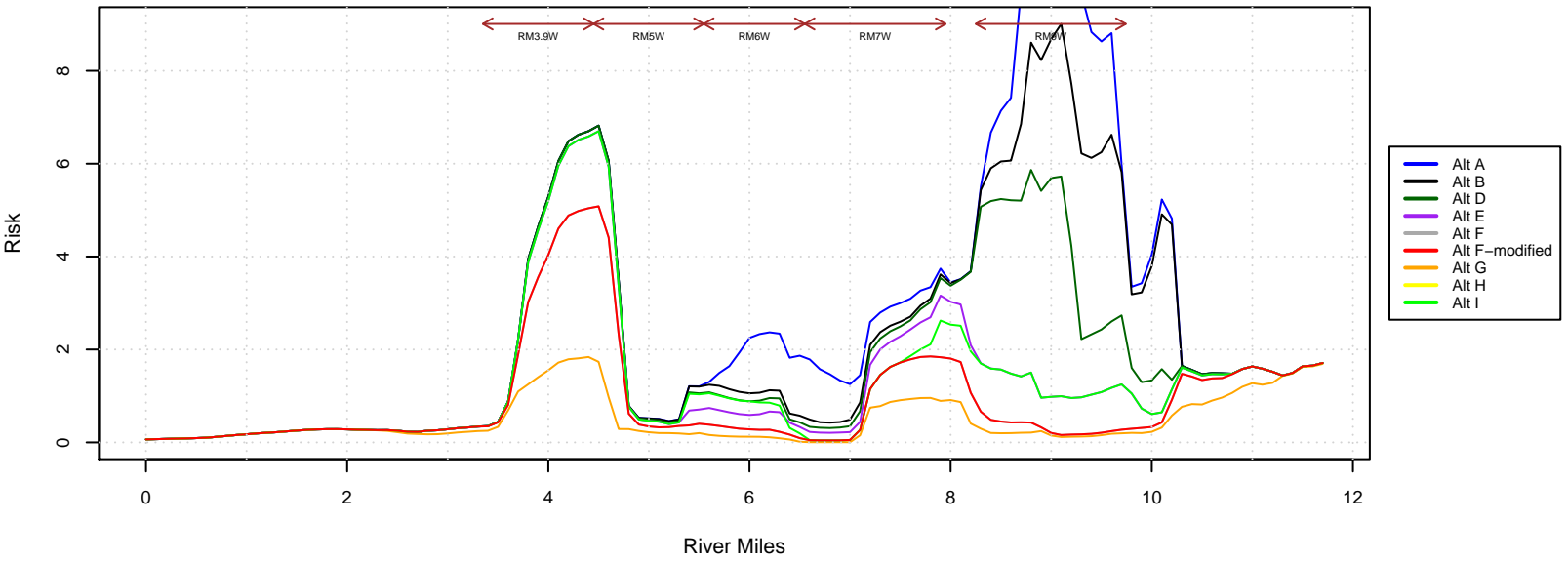


Figure 4.2- 9 e . Residual Ecological Risk for RAO 6 at Year 0 – BEHP – Swan Isl – Rolling Avg 1 mile

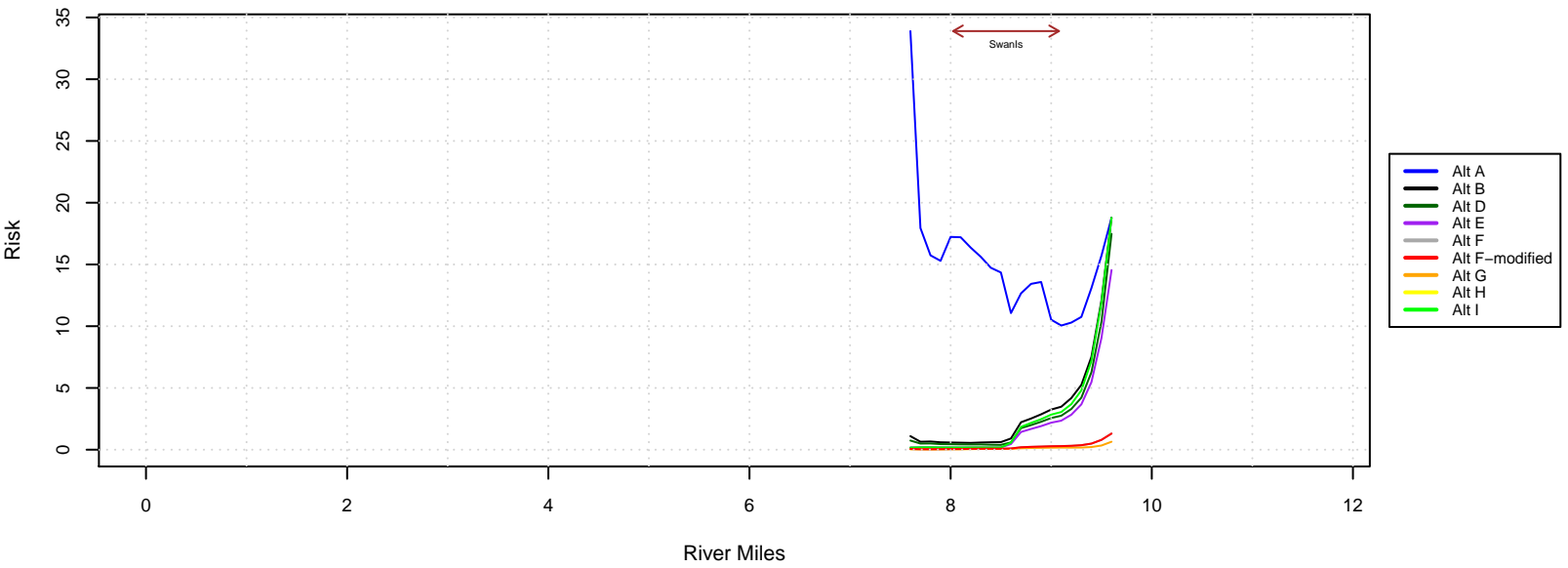


Figure 4.2– 10 a . Residual Ecological Risk for RAO 6 at Year 0 – DDx – Site – Rolling Avg 1 mile

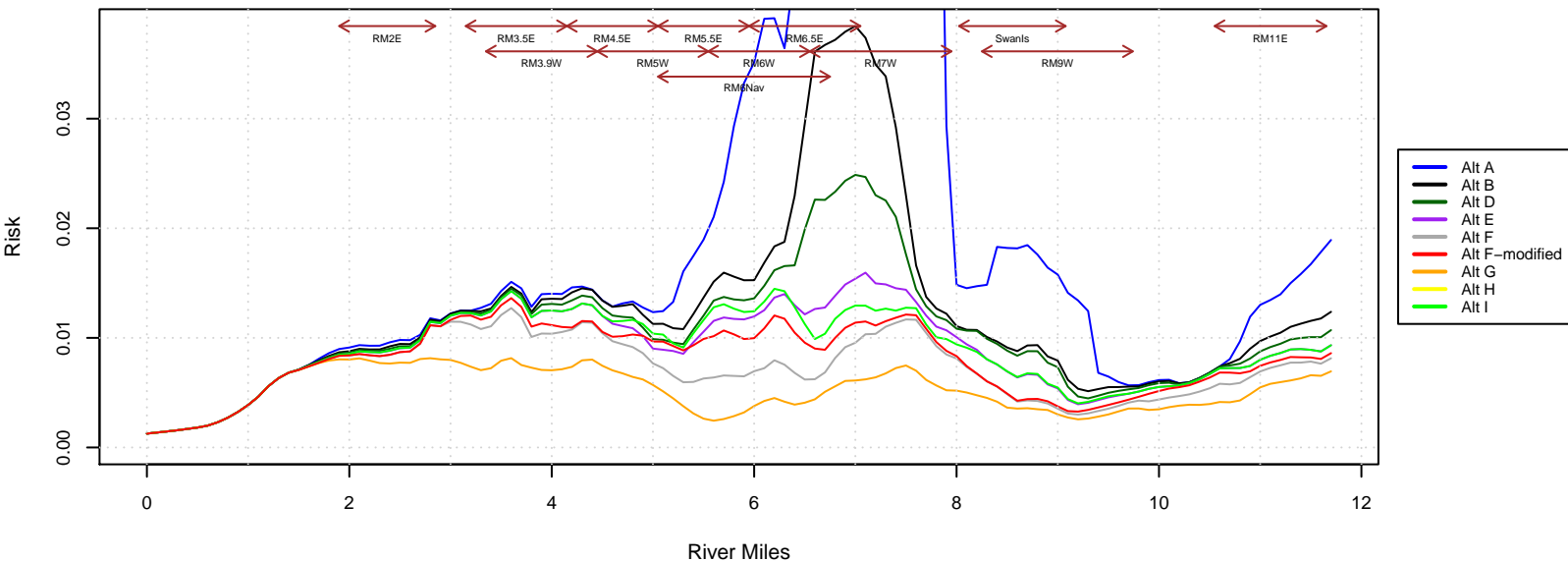


Figure 4.2– 10 b . Residual Ecological Risk for RAO 6 at Year 0 – DDx – East – Rolling Avg 1 mile

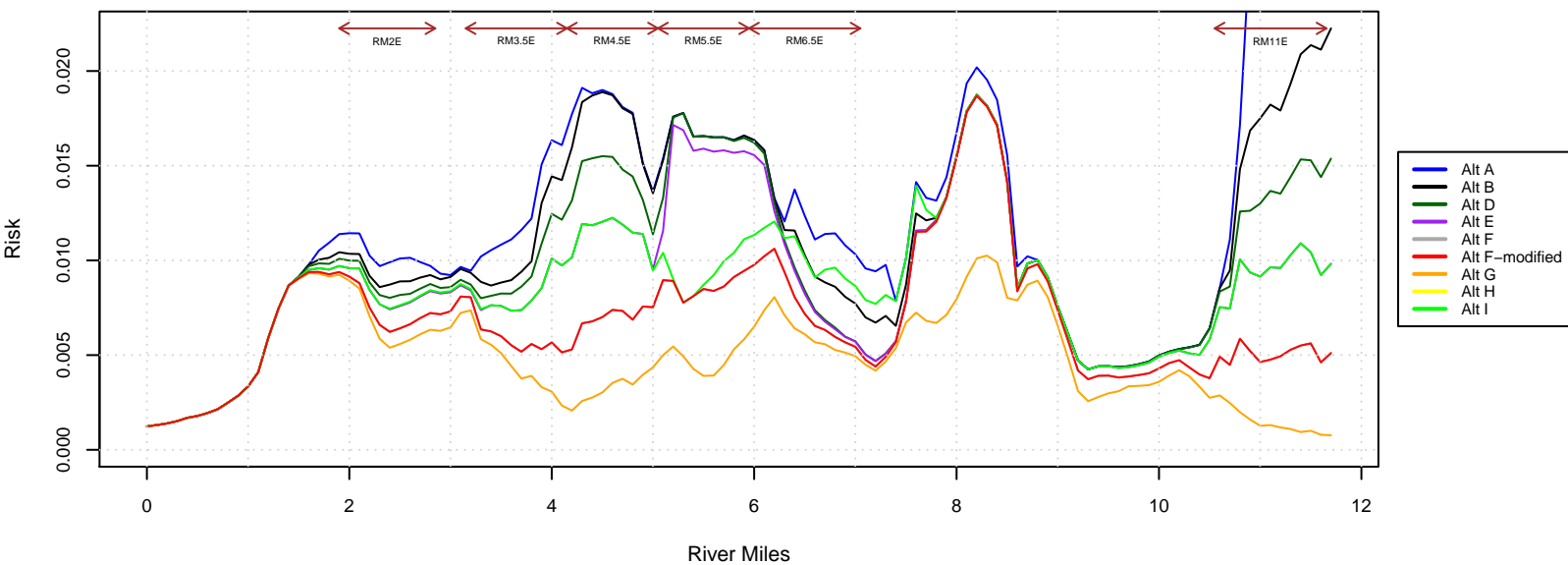


Figure 4.2– 10 c . Residual Ecological Risk for RAO 6 at Year 0 – DDx – Nav Channel – Rolling Avg 1 mile

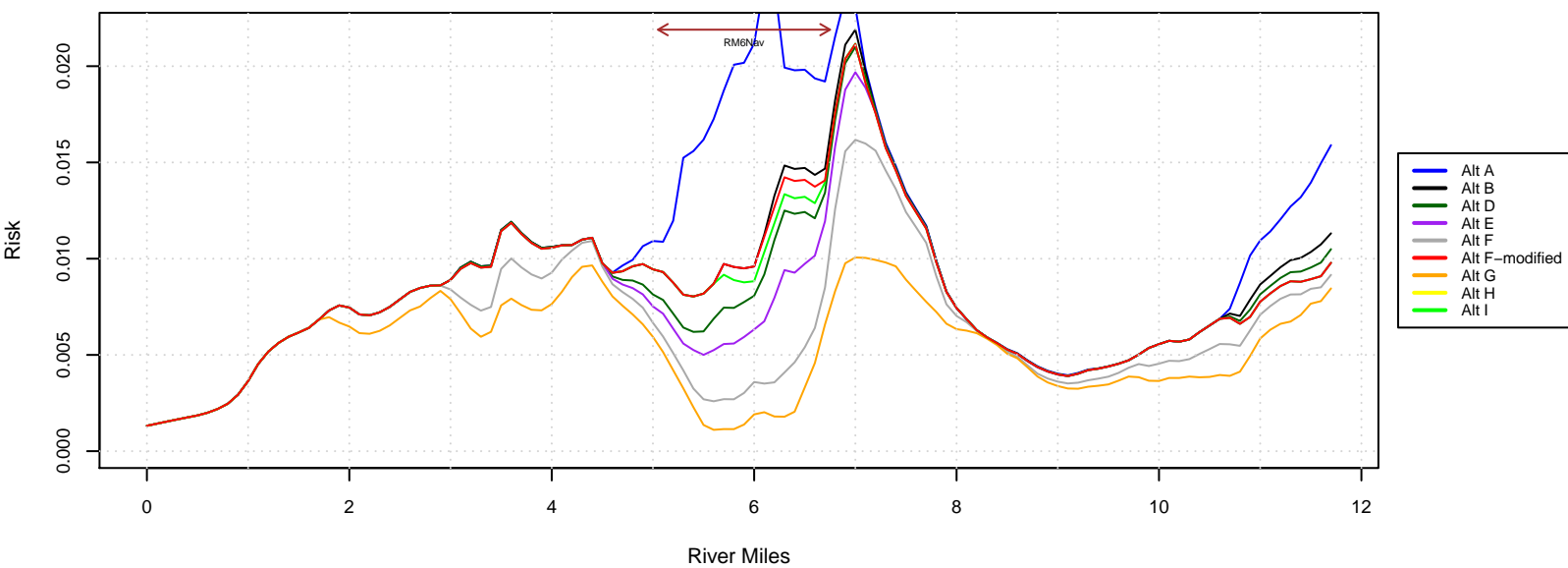


Figure 4.2- 10 d . Residual Ecological Risk for RAO 6 at Year 0 – DDx – West – Rolling Avg 1 mile

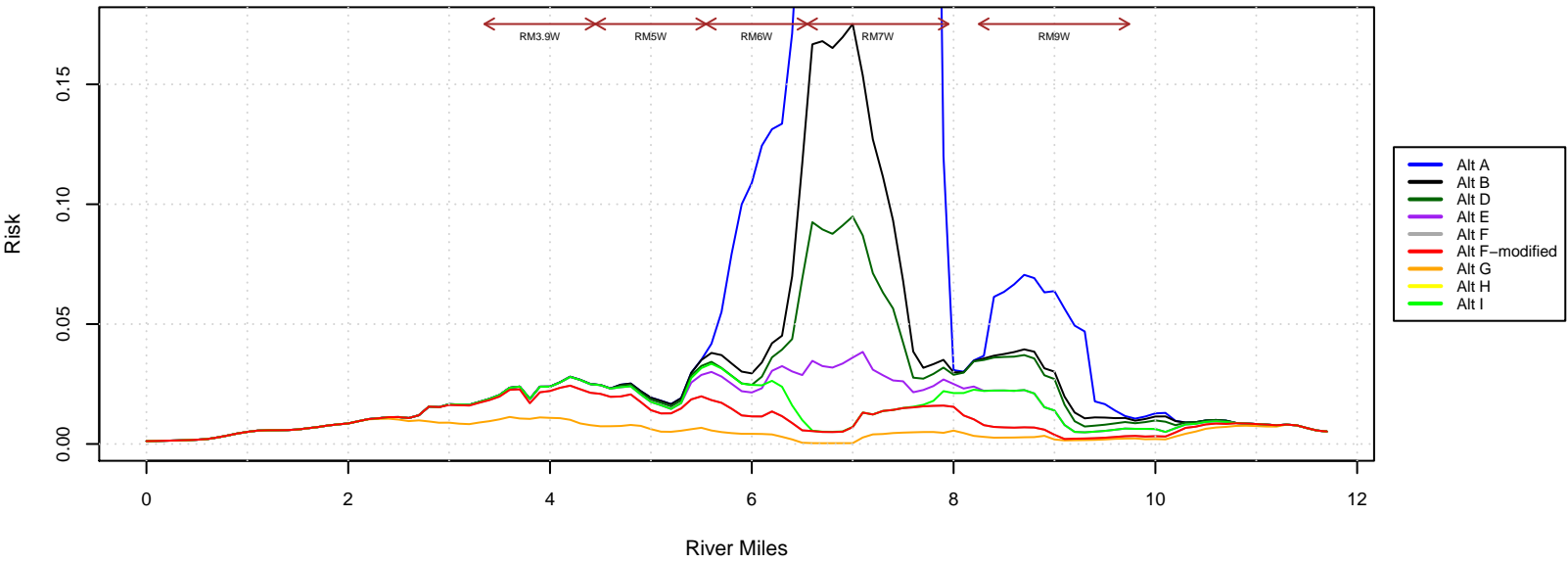


Figure 4.2- 10 e . Residual Ecological Risk for RAO 6 at Year 0 – DDx – Swan Isl – Rolling Avg 1 mile

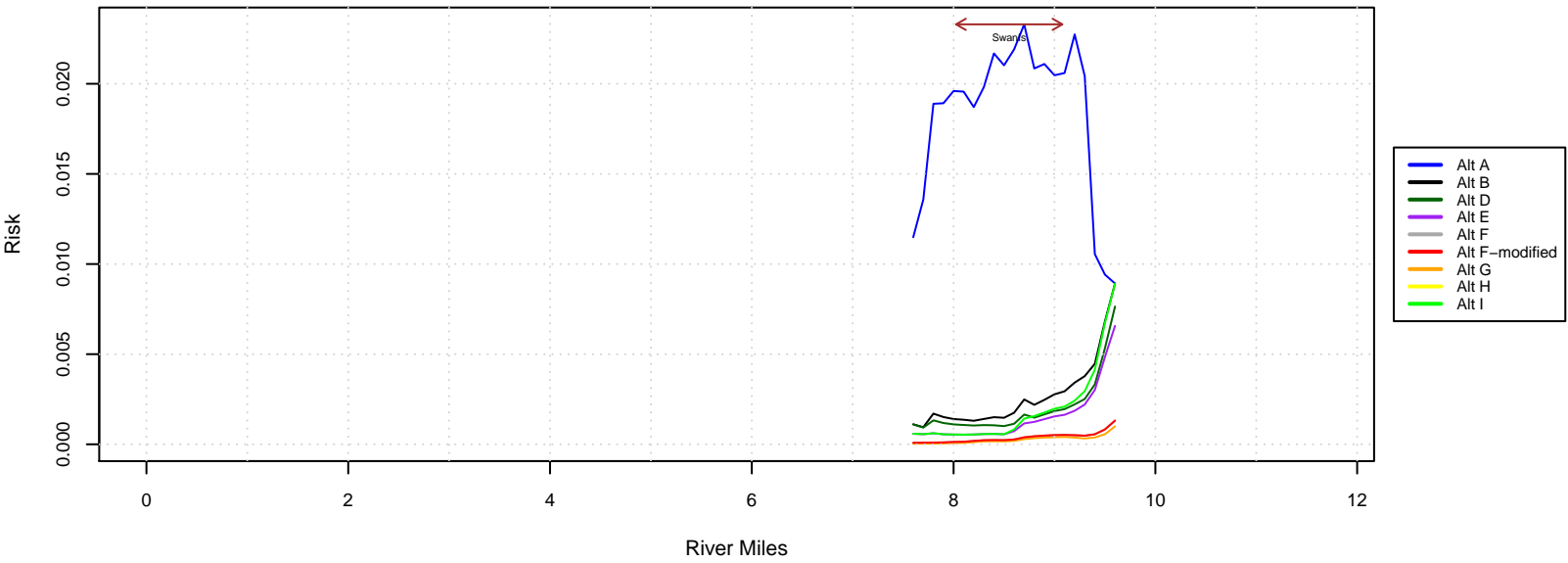


Figure 4.2- 11 a . Residual Ecological Risk for RAO 6 at Year 0 – DDE – Site – Rolling Avg 1 mile

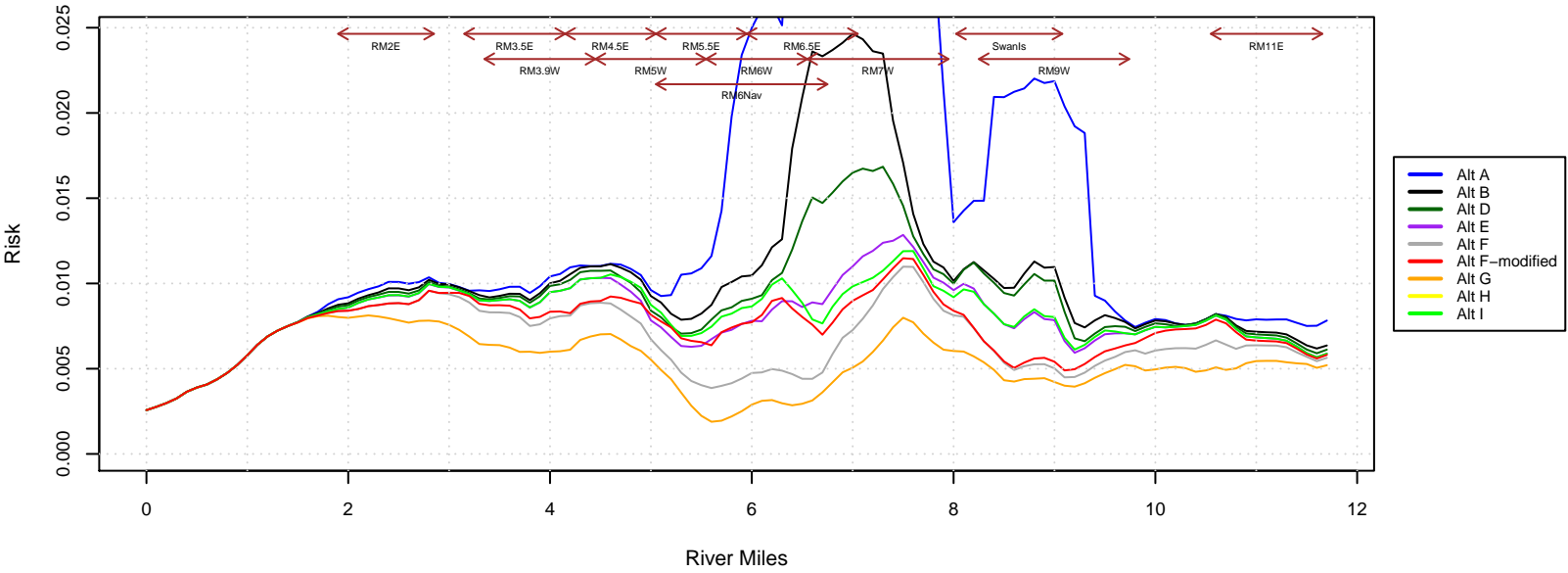


Figure 4.2- 11 b . Residual Ecological Risk for RAO 6 at Year 0 – DDE – East – Rolling Avg 1 mile

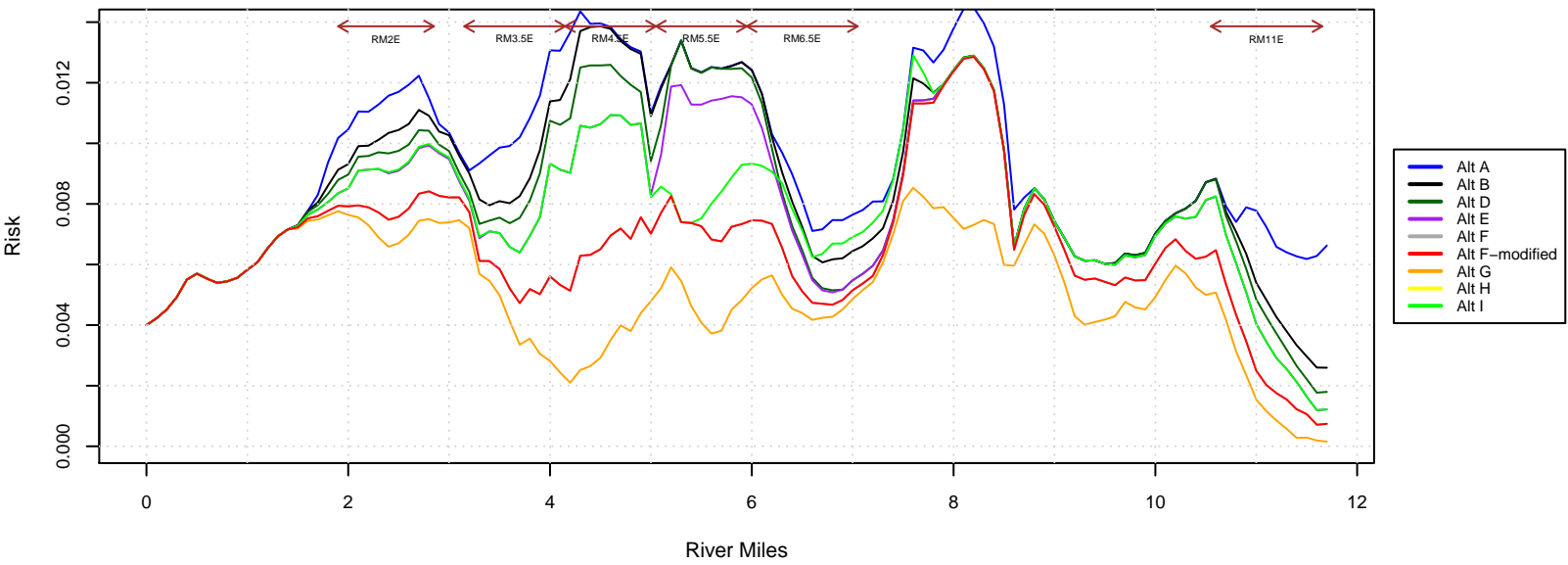


Figure 4.2- 11 c . Residual Ecological Risk for RAO 6 at Year 0 – DDE – Nav Channel – Rolling Avg 1 mile

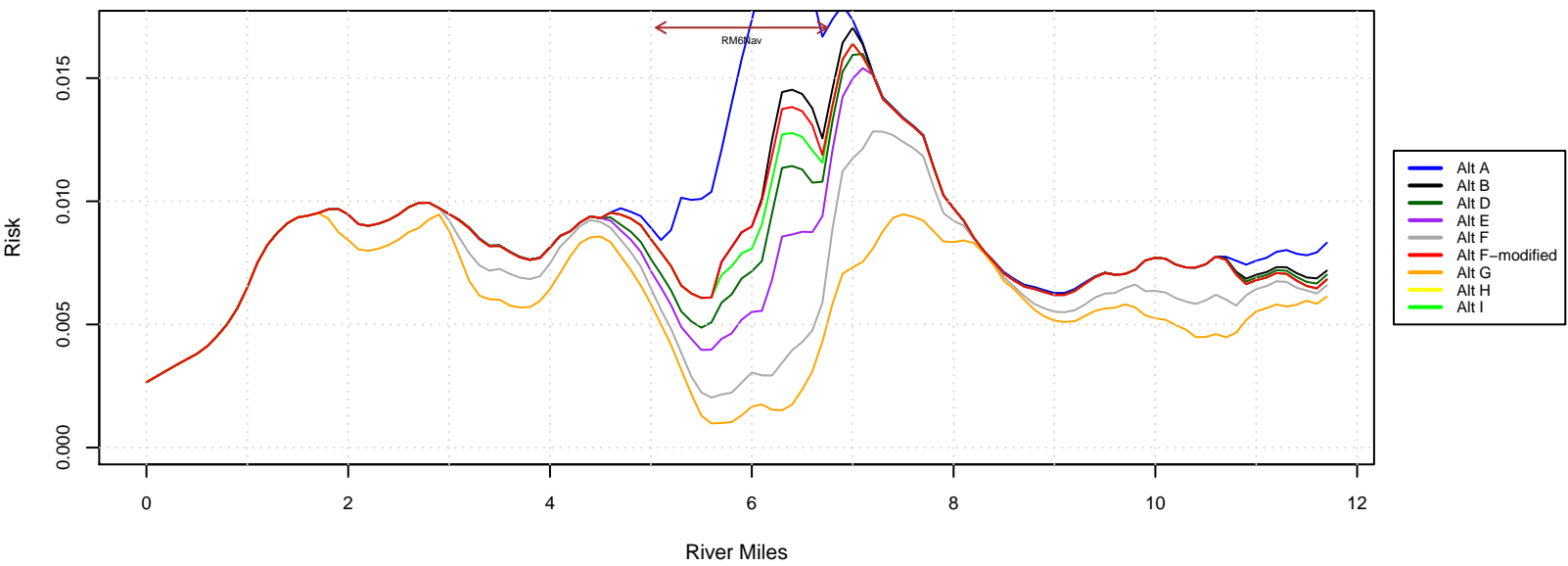


Figure 4.2- 11 d . Residual Ecological Risk for RAO 6 at Year 0 – DDE – West – Rolling Avg 1 mile

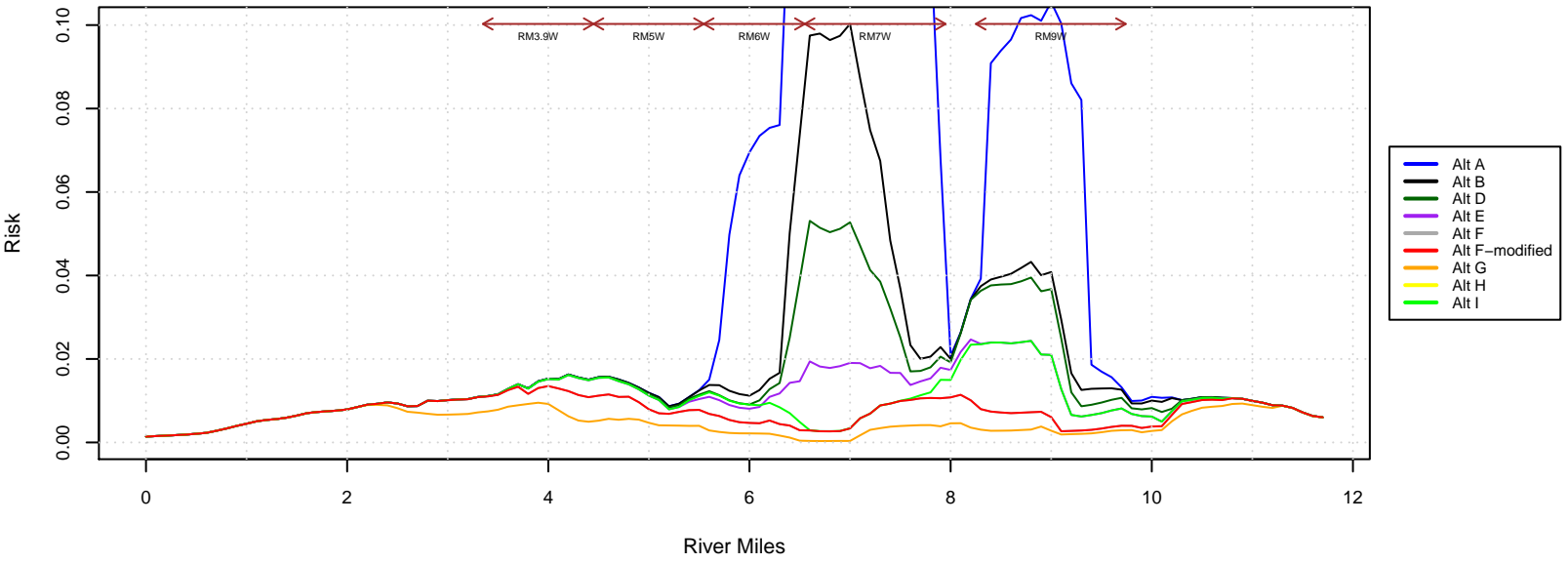


Figure 4.2- 11 e . Residual Ecological Risk for RAO 6 at Year 0 – DDE – Swan Isl – Rolling Avg 1 mile

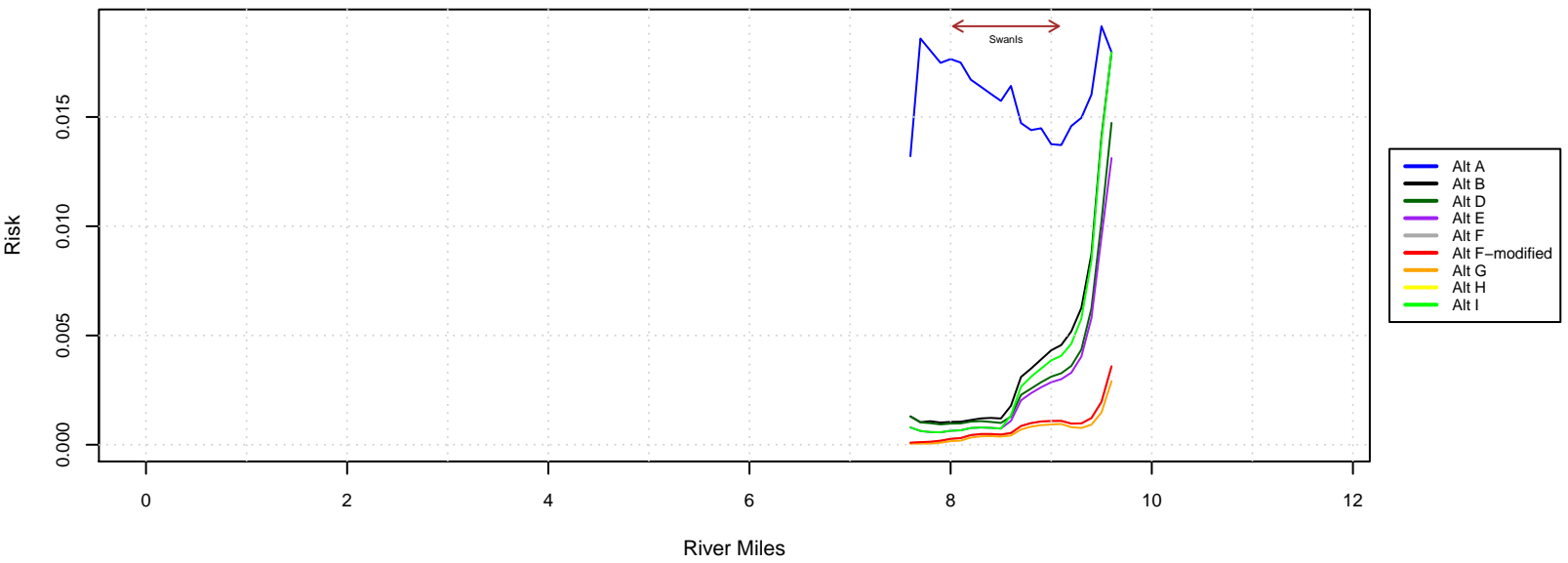


Figure 4.2– 12 a . Residual Ecological Risk for RAO 6 at Year 0 – PCB – Site – Rolling Avg 1 mile

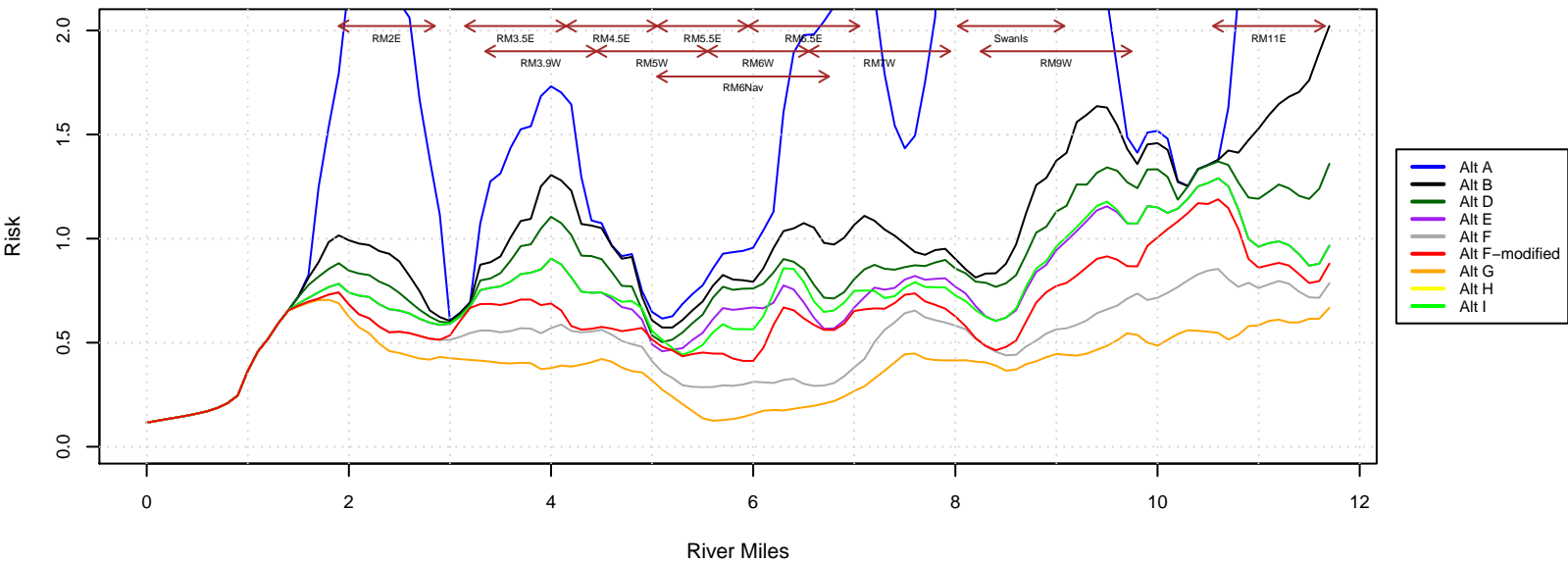


Figure 4.2– 12 b . Residual Ecological Risk for RAO 6 at Year 0 – PCB – East – Rolling Avg 1 mile

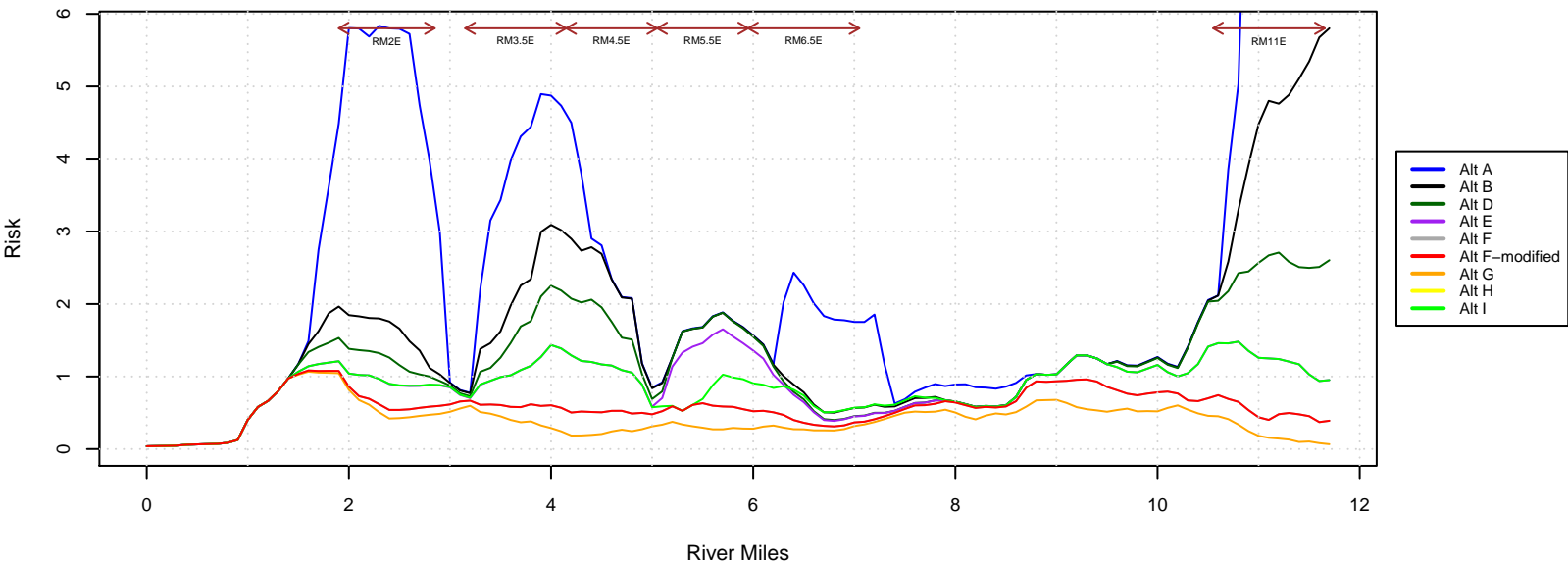


Figure 4.2– 12 c . Residual Ecological Risk for RAO 6 at Year 0 – PCB – Nav Channel – Rolling Avg 1 mile

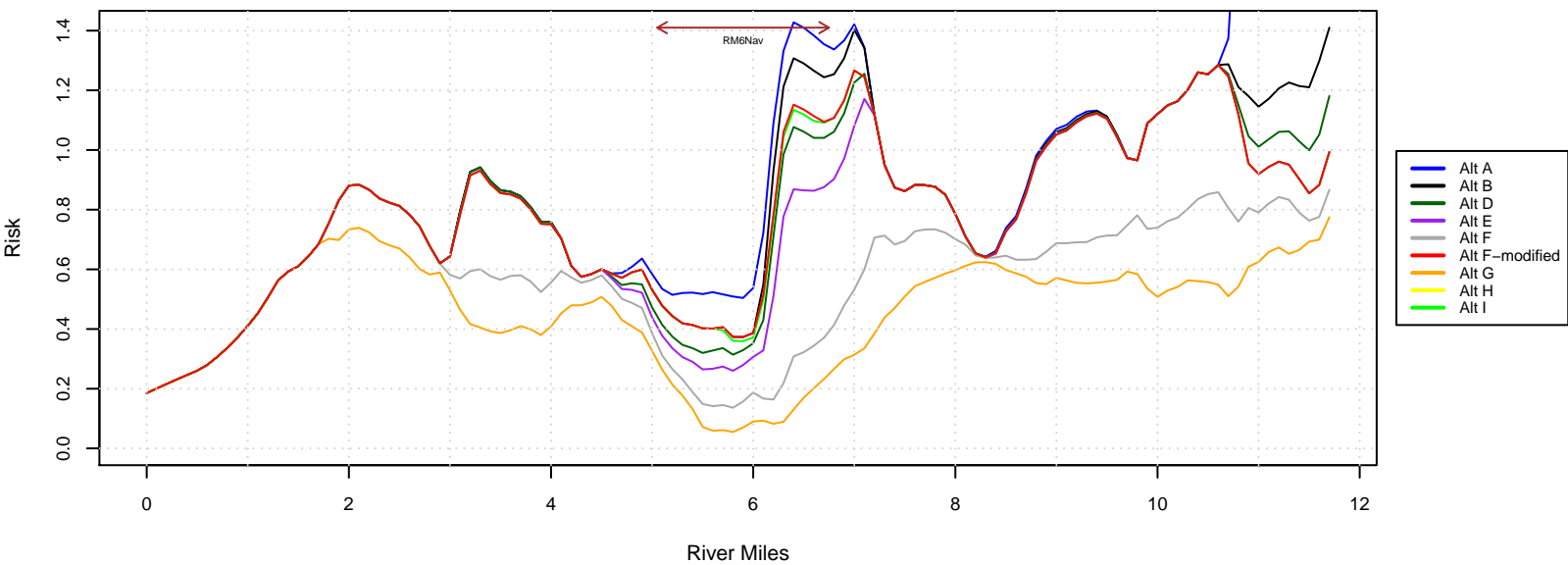


Figure 4.2- 12 d . Residual Ecological Risk for RAO 6 at Year 0 – PCB – West – Rolling Avg 1 mile

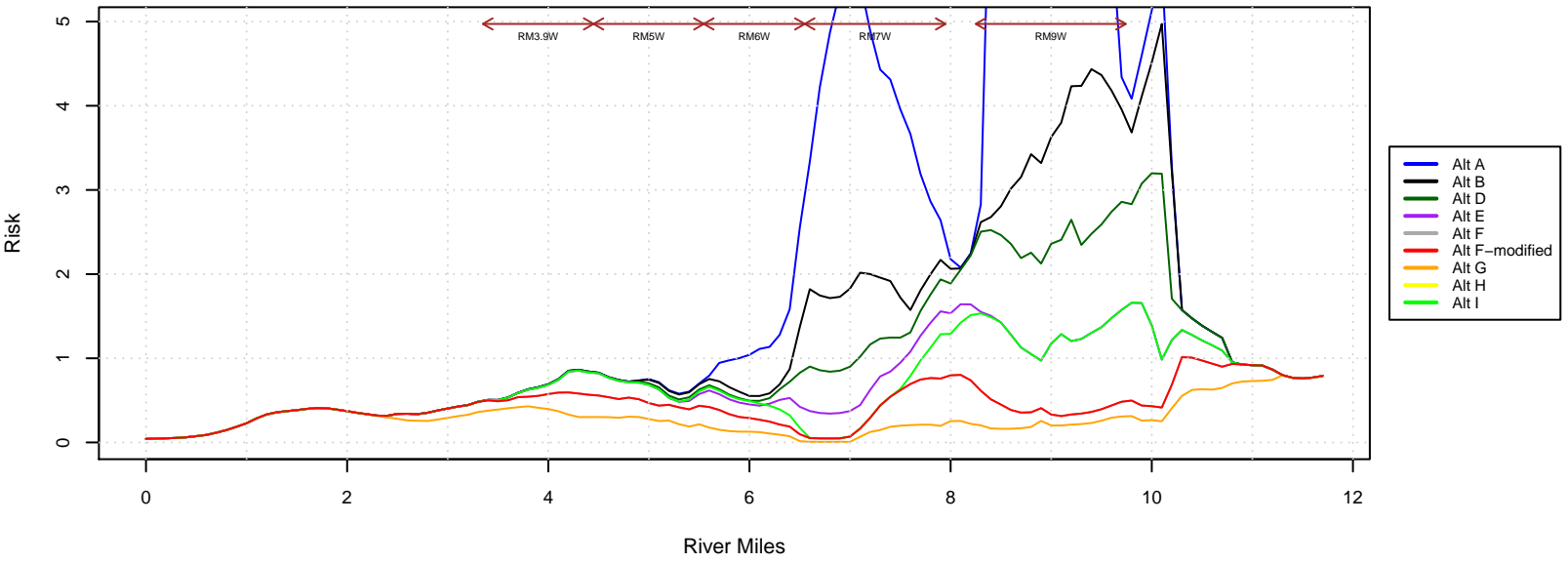


Figure 4.2- 12 e . Residual Ecological Risk for RAO 6 at Year 0 – PCB – Swan Isl – Rolling Avg 1 mile

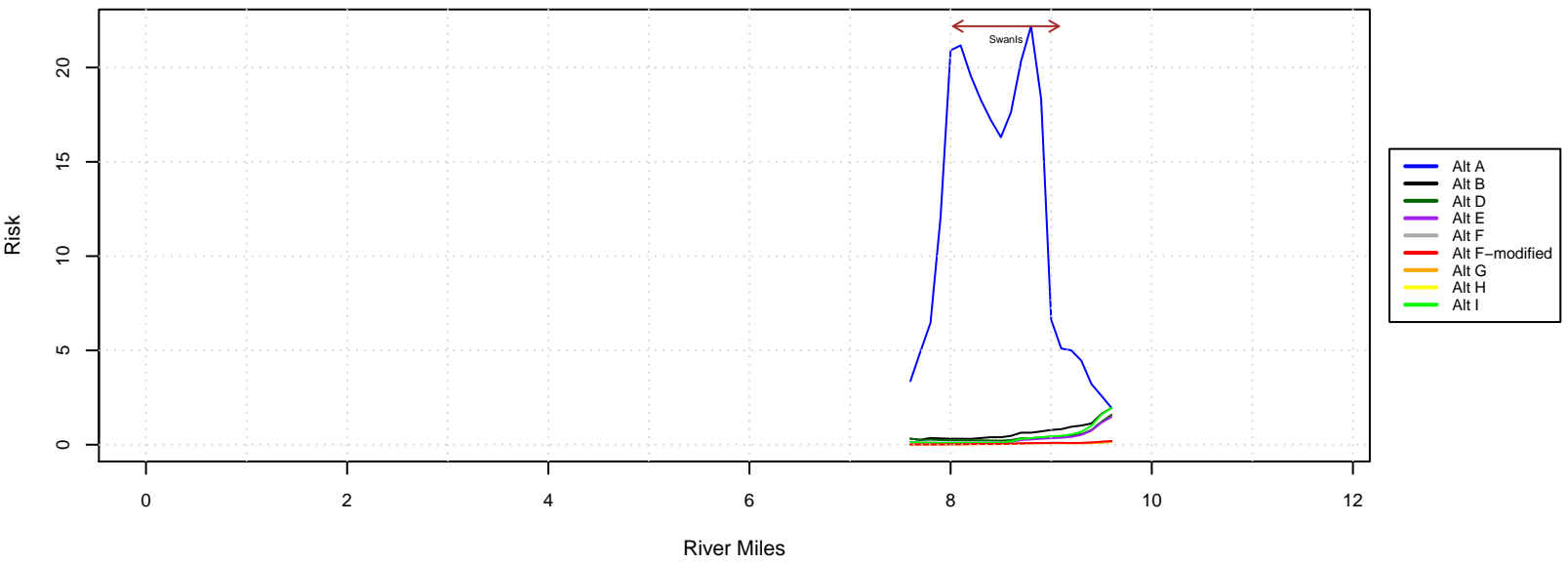


Figure 4.2- 13 a . Residual Ecological Risk for RAO 6 at Year 0 – HxCDF – Site – Rolling Avg 1 mile

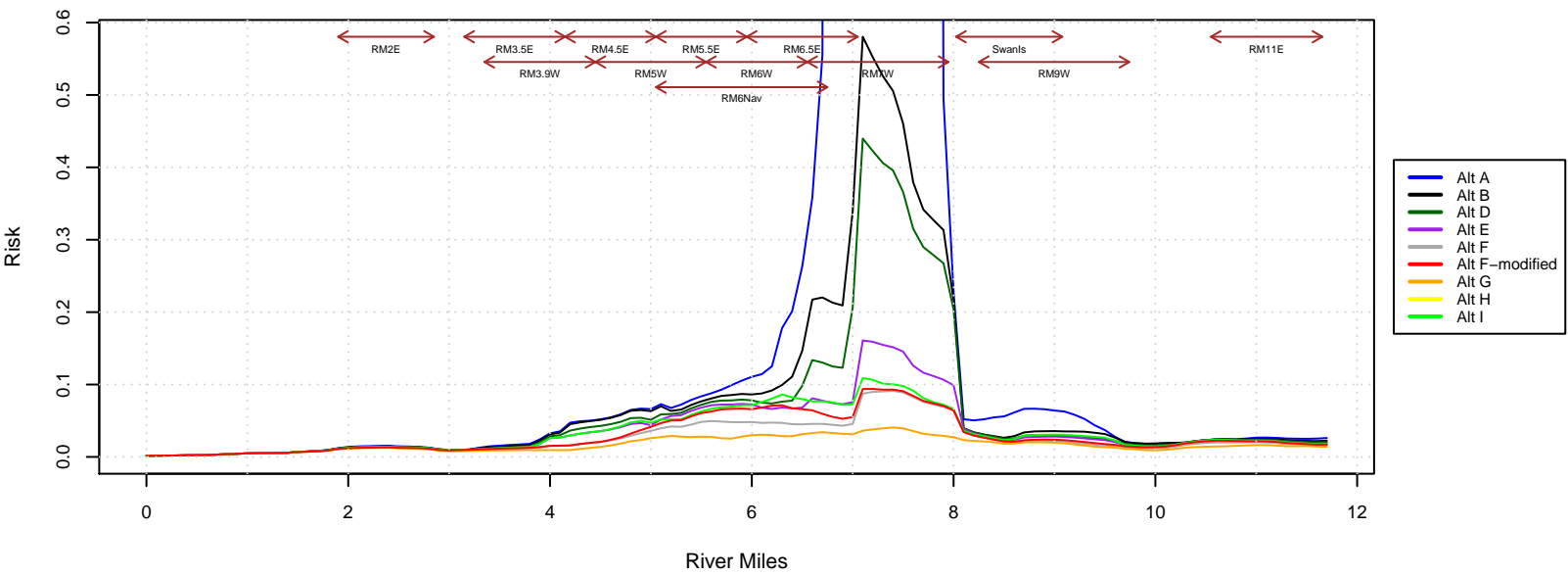


Figure 4.2- 13 b . Residual Ecological Risk for RAO 6 at Year 0 – HxCDF – East – Rolling Avg 1 mile

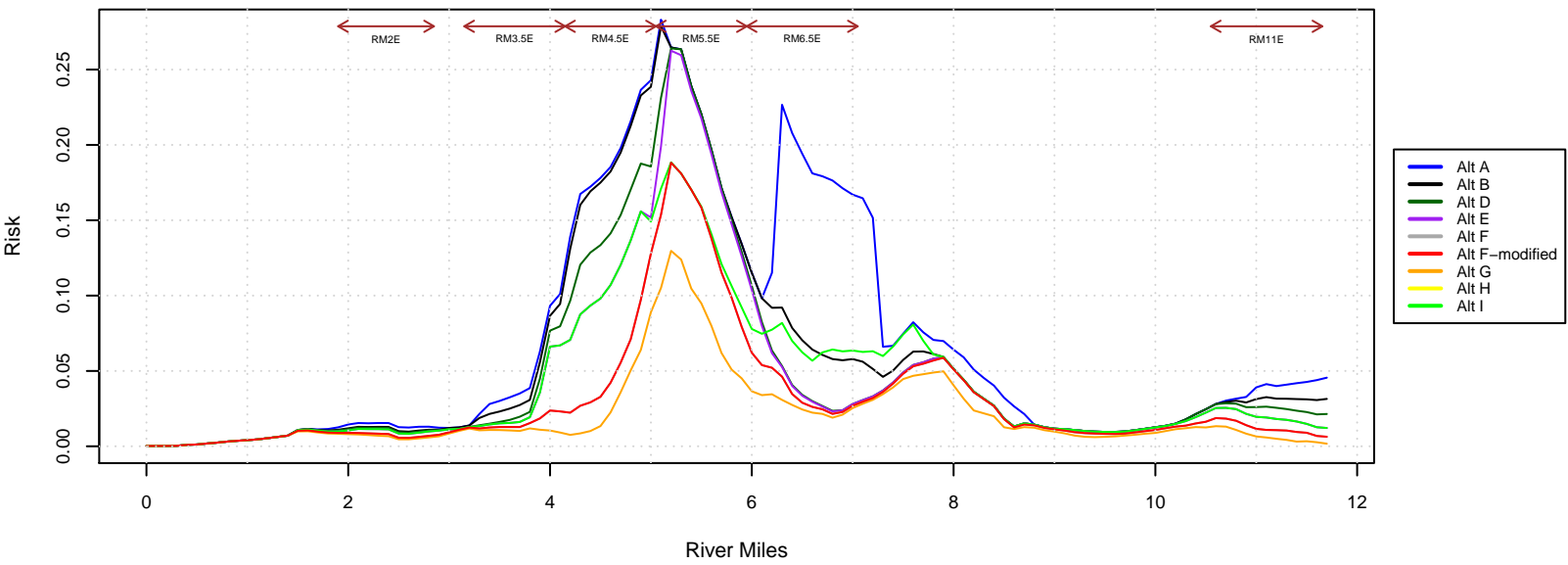


Figure 4.2- 13 c . Residual Ecological Risk for RAO 6 at Year 0 – HxCDF – Nav Channel – Rolling Avg 1 mile

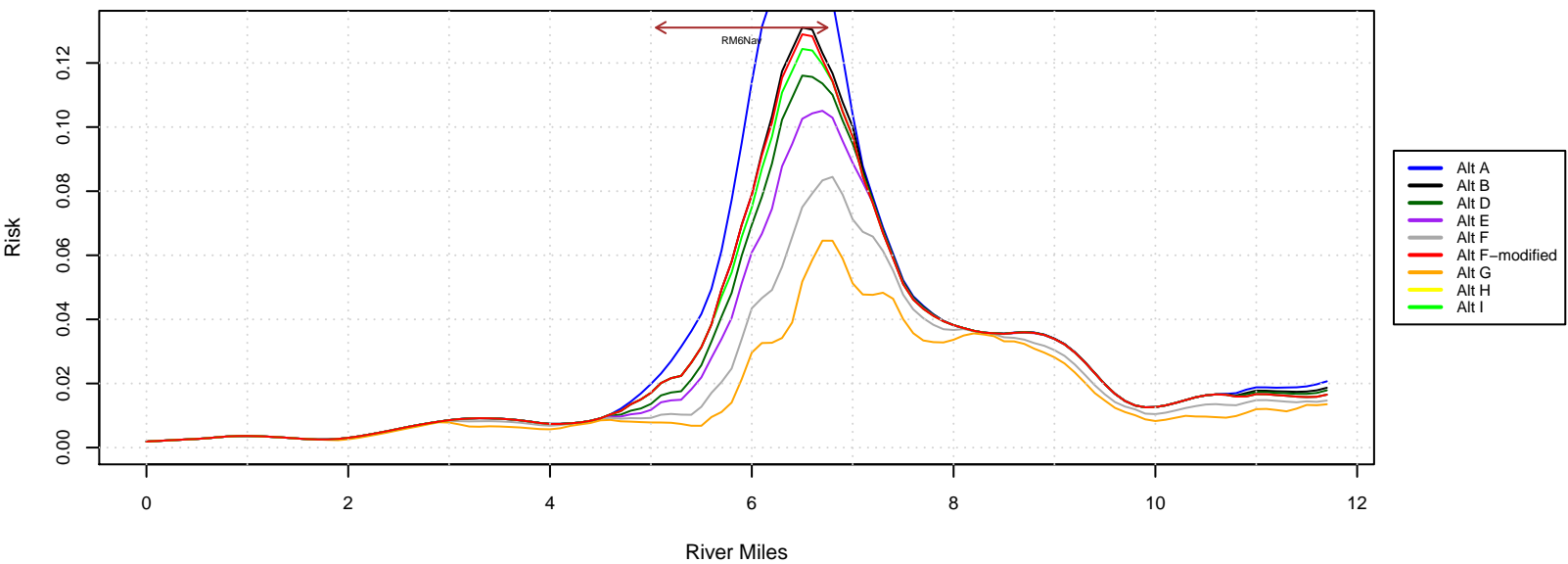




Figure 4.2- 13 d . Residual Ecological Risk for RAO 6 at Year 0 – HxCDF – West – Rolling Avg 1 mile

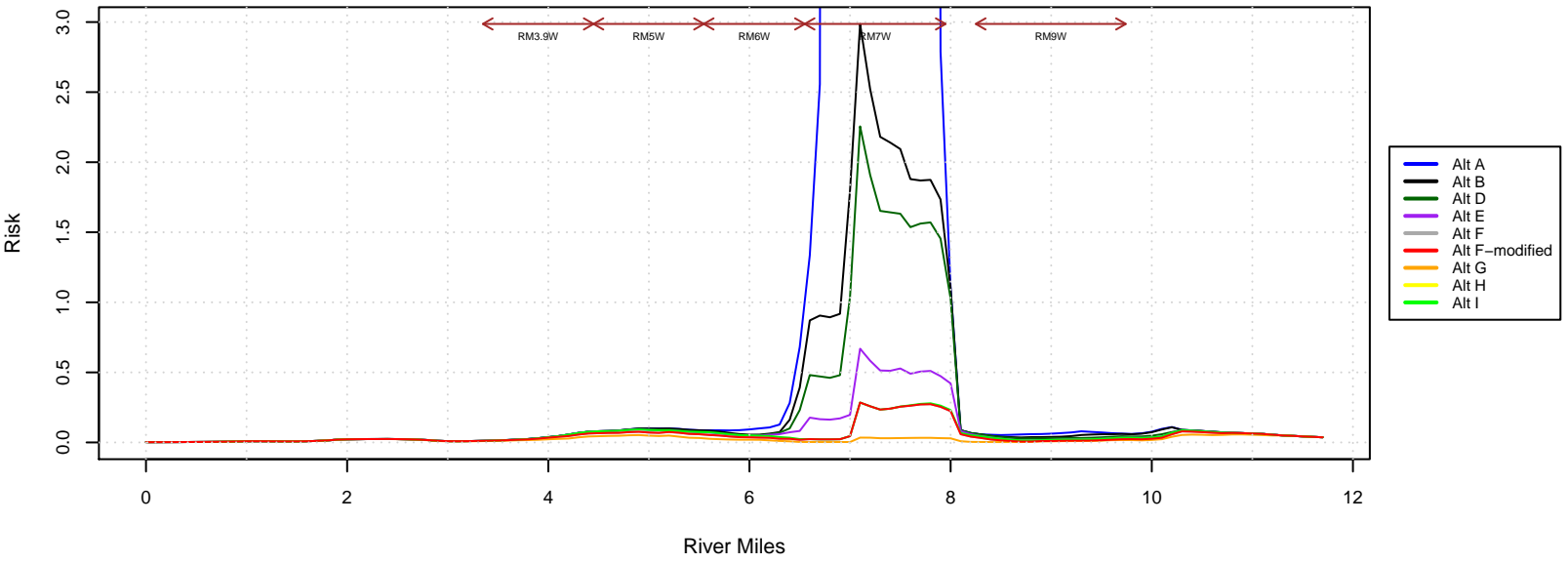


Figure 4.2- 13 e . Residual Ecological Risk for RAO 6 at Year 0 – HxCDF – Swan Isl – Rolling Avg 1 mile

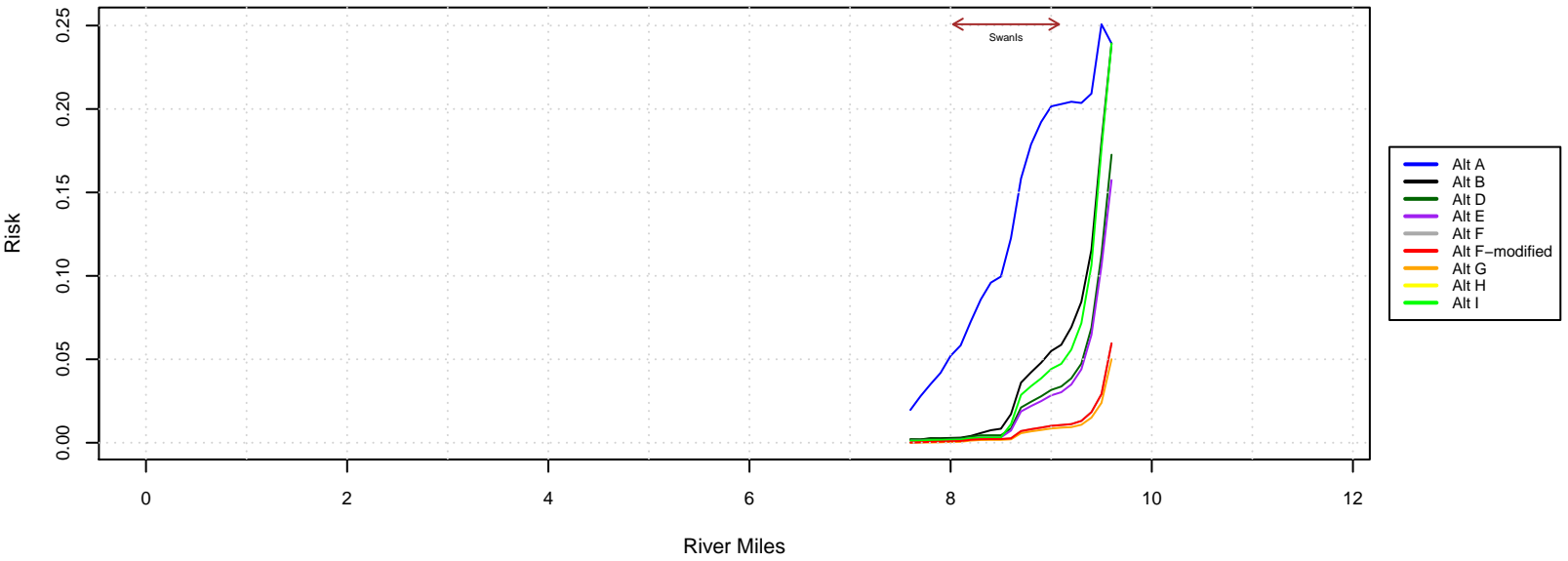


Figure 4.2- 14 a . Residual Ecological Risk for RAO 6 at Year 0 – PeCDD – Site – Rolling Avg 1 mile

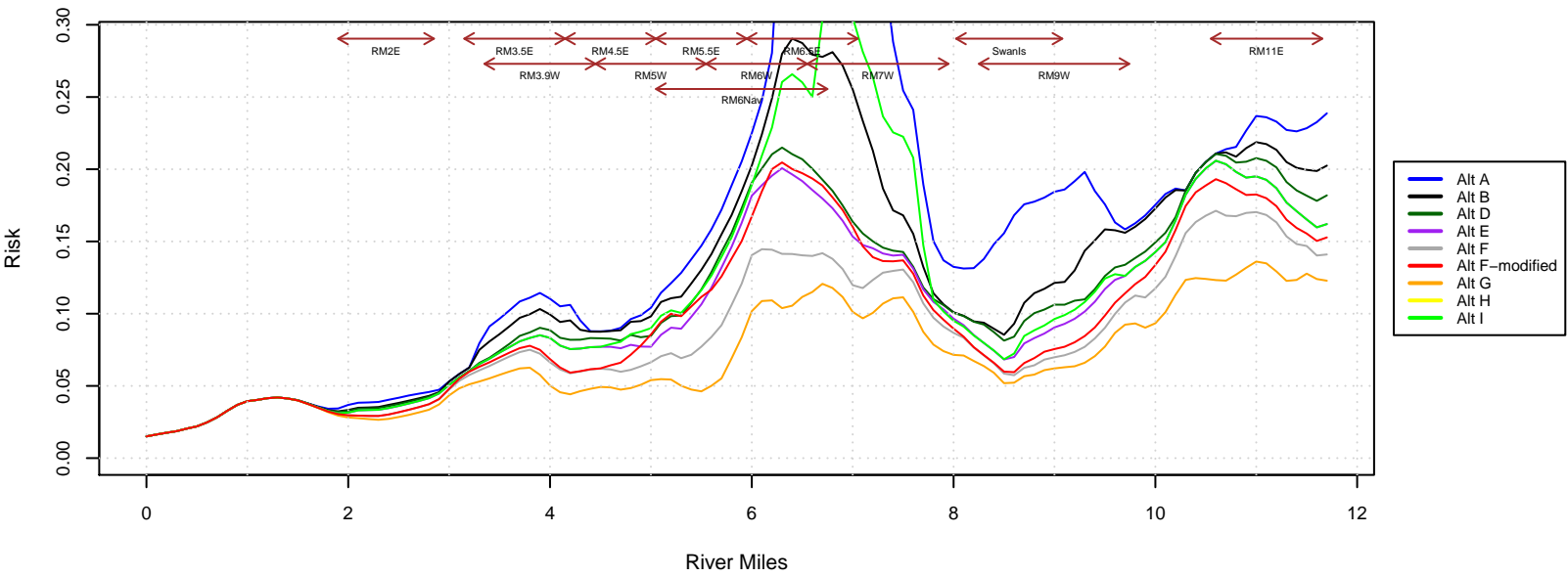


Figure 4.2- 14 b . Residual Ecological Risk for RAO 6 at Year 0 – PeCDD – East – Rolling Avg 1 mile

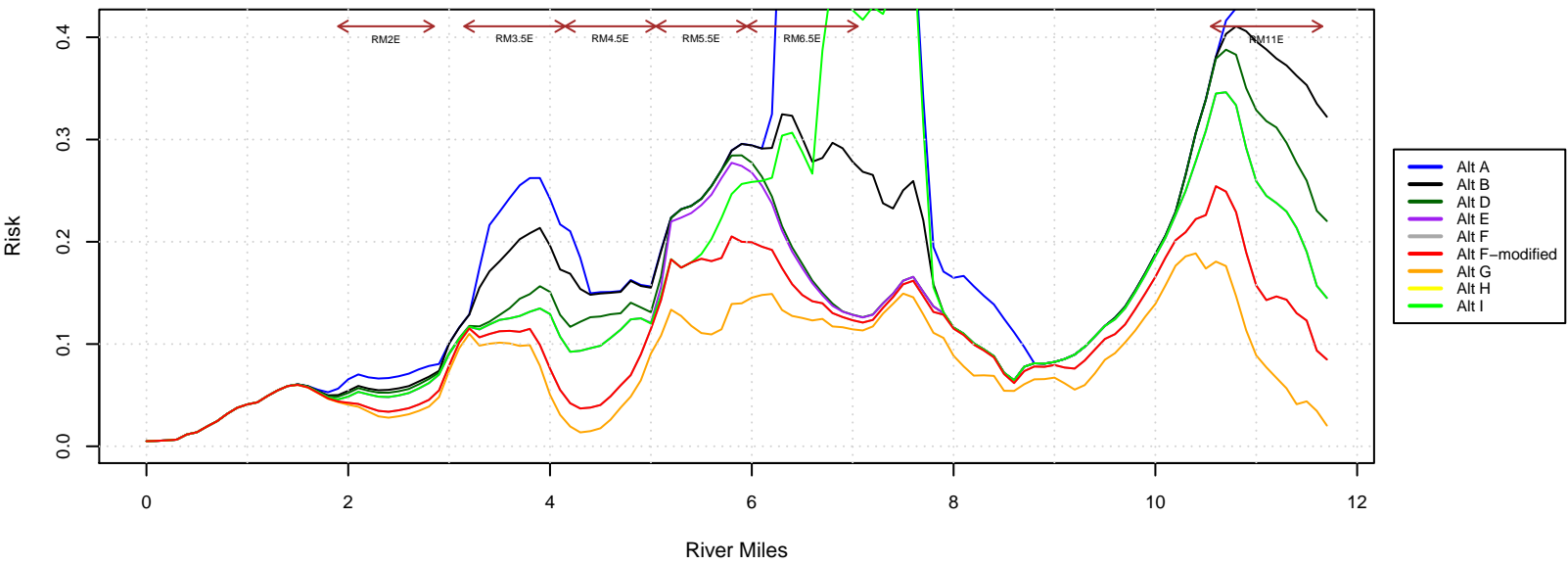


Figure 4.2- 14 c . Residual Ecological Risk for RAO 6 at Year 0 – PeCDD – Nav Channel – Rolling Avg 1 mile

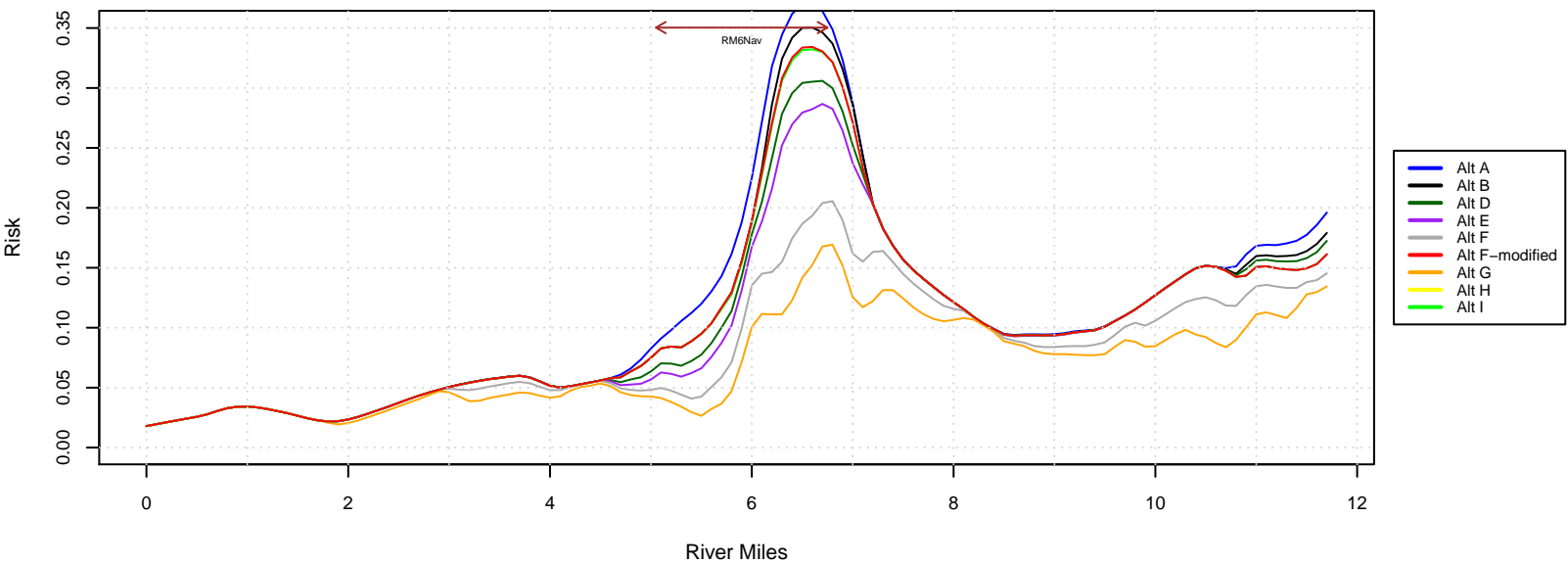




Figure 4.2- 15 a . Residual Ecological Risk for RAO 6 at Year 0 – PeCDF – Site – Rolling Avg 1 mile

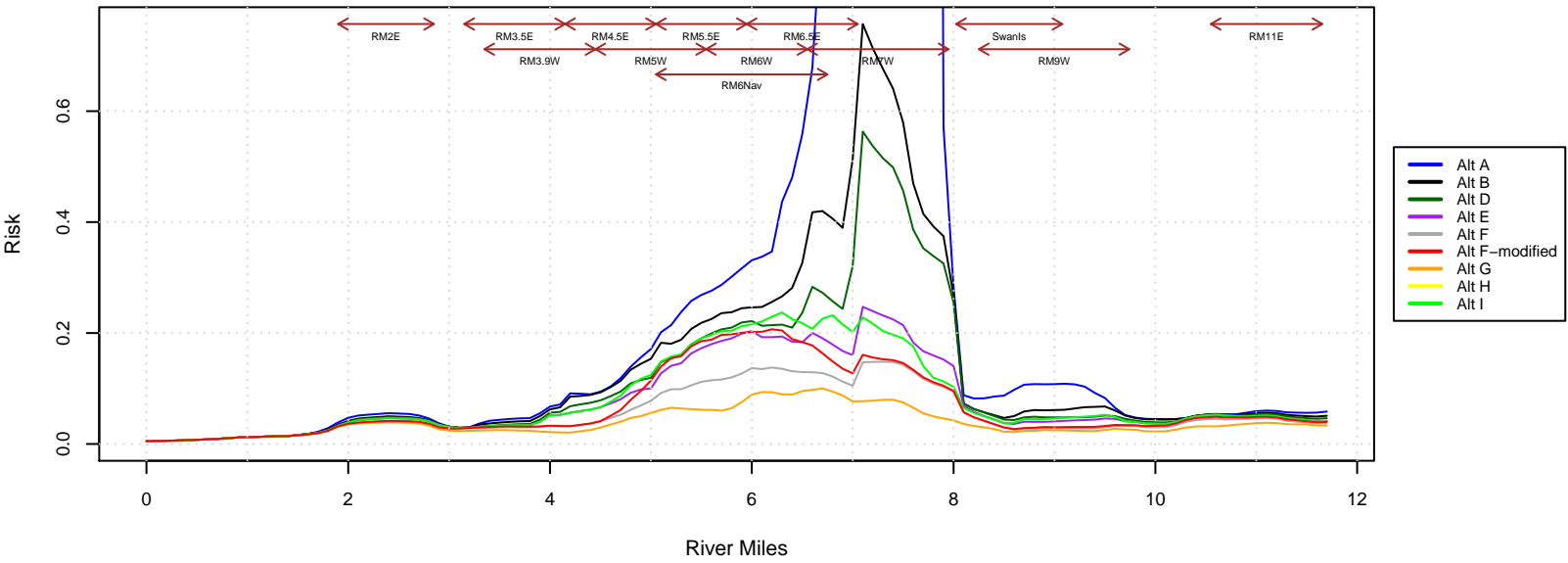


Figure 4.2- 15 b . Residual Ecological Risk for RAO 6 at Year 0 – PeCDF – East – Rolling Avg 1 mile

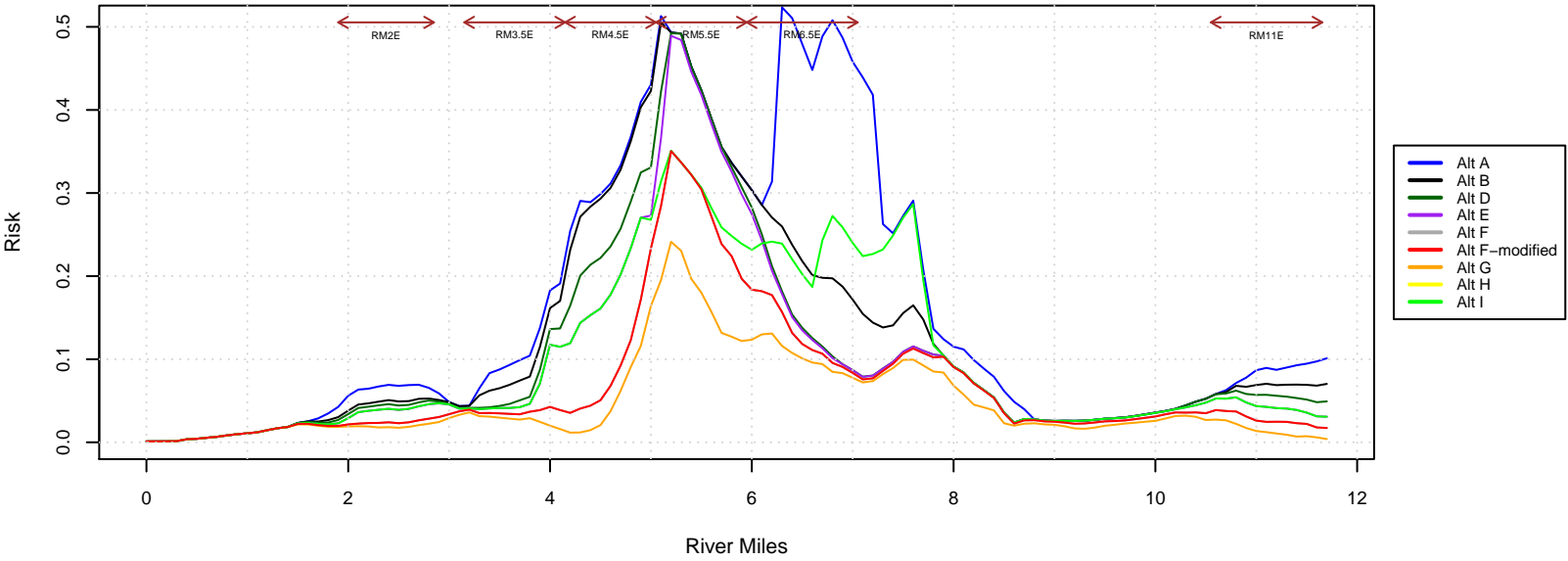


Figure 4.2- 15 c . Residual Ecological Risk for RAO 6 at Year 0 – PeCDF – Nav Channel – Rolling Avg 1 mile

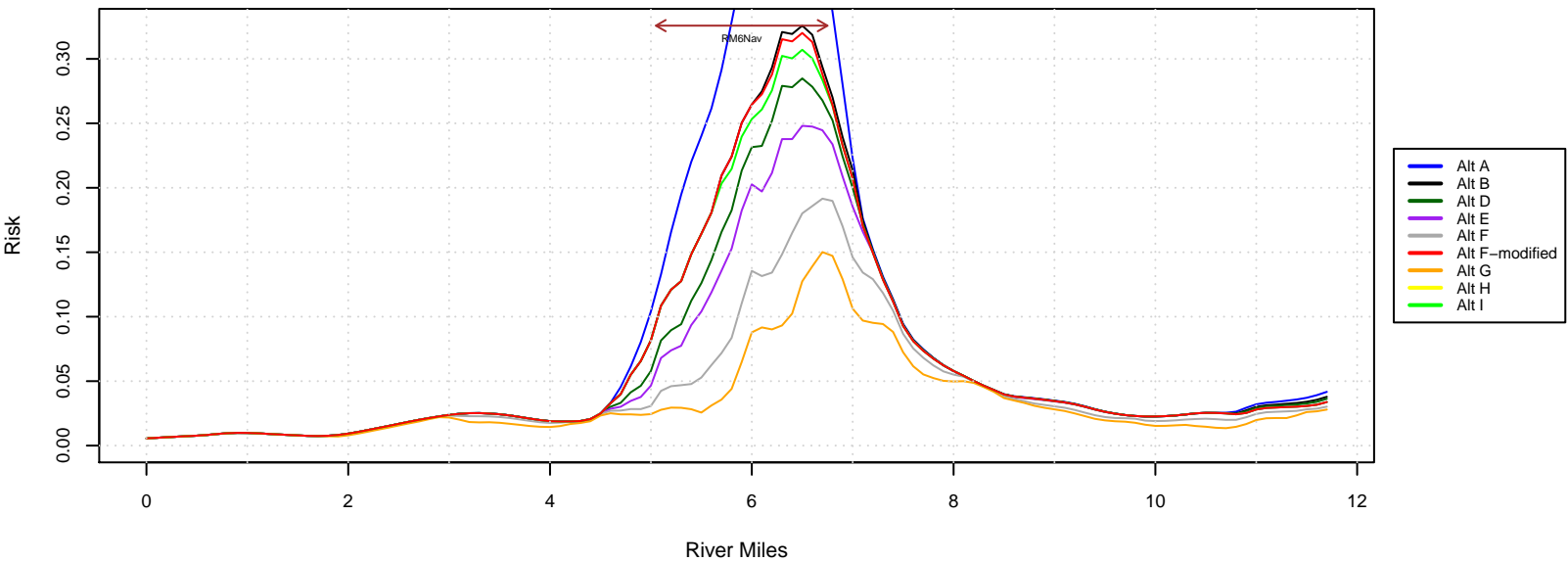


Figure 4.2- 15 d . Residual Ecological Risk for RAO 6 at Year 0 – PeCDF – West – Rolling Avg 1 mile

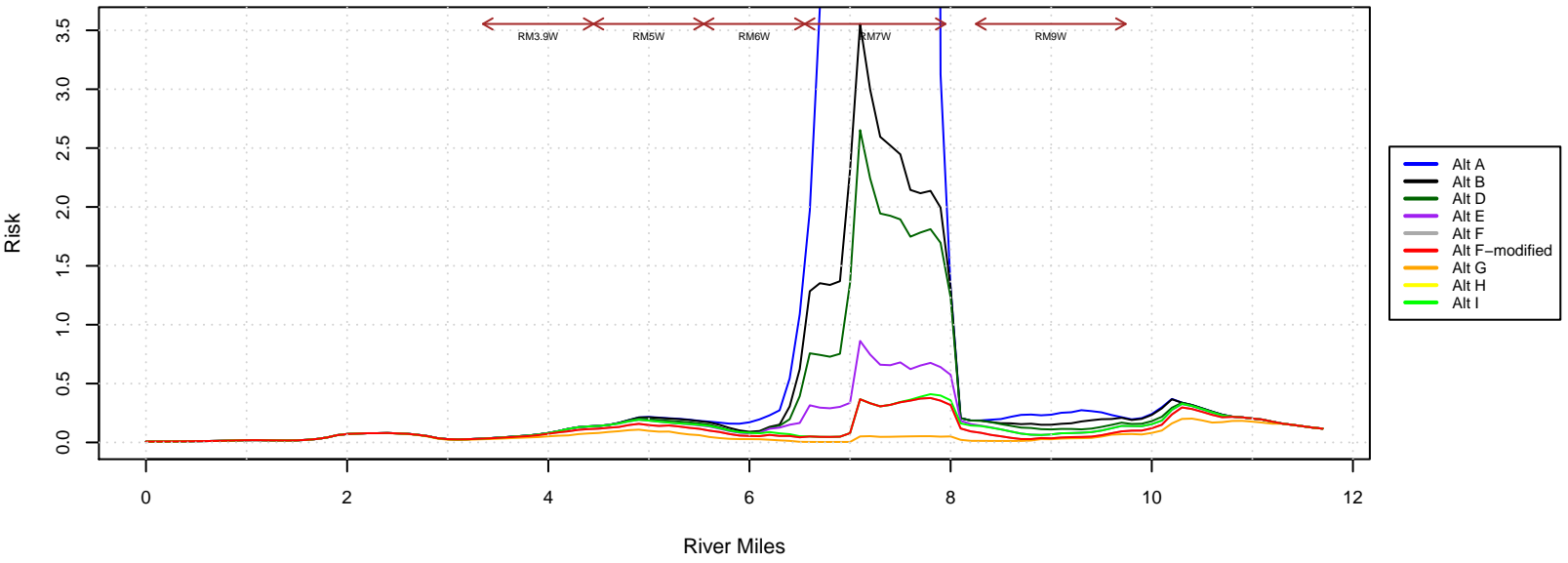


Figure 4.2- 15 e . Residual Ecological Risk for RAO 6 at Year 0 – PeCDF – Swan Isl – Rolling Avg 1 mile

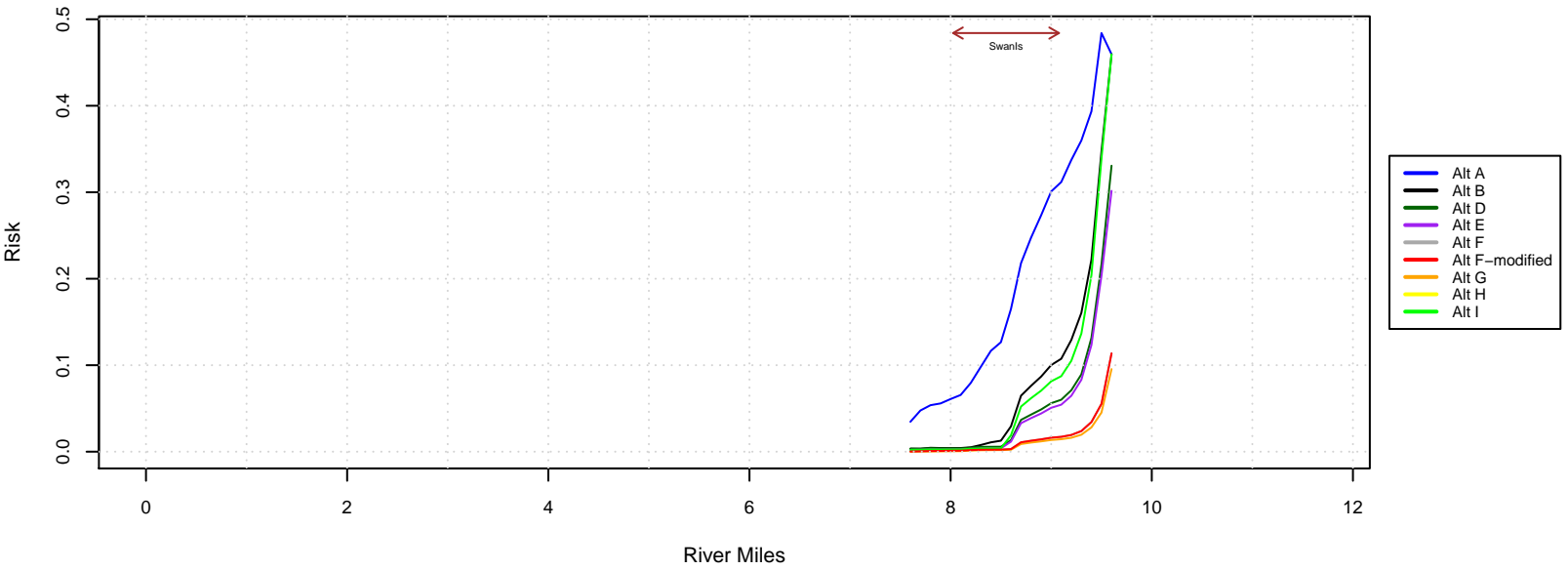


Figure 4.2- 16 a . Residual Ecological Risk for RAO 6 at Year 0 – TCDD – Site – Rolling Avg 1 mile

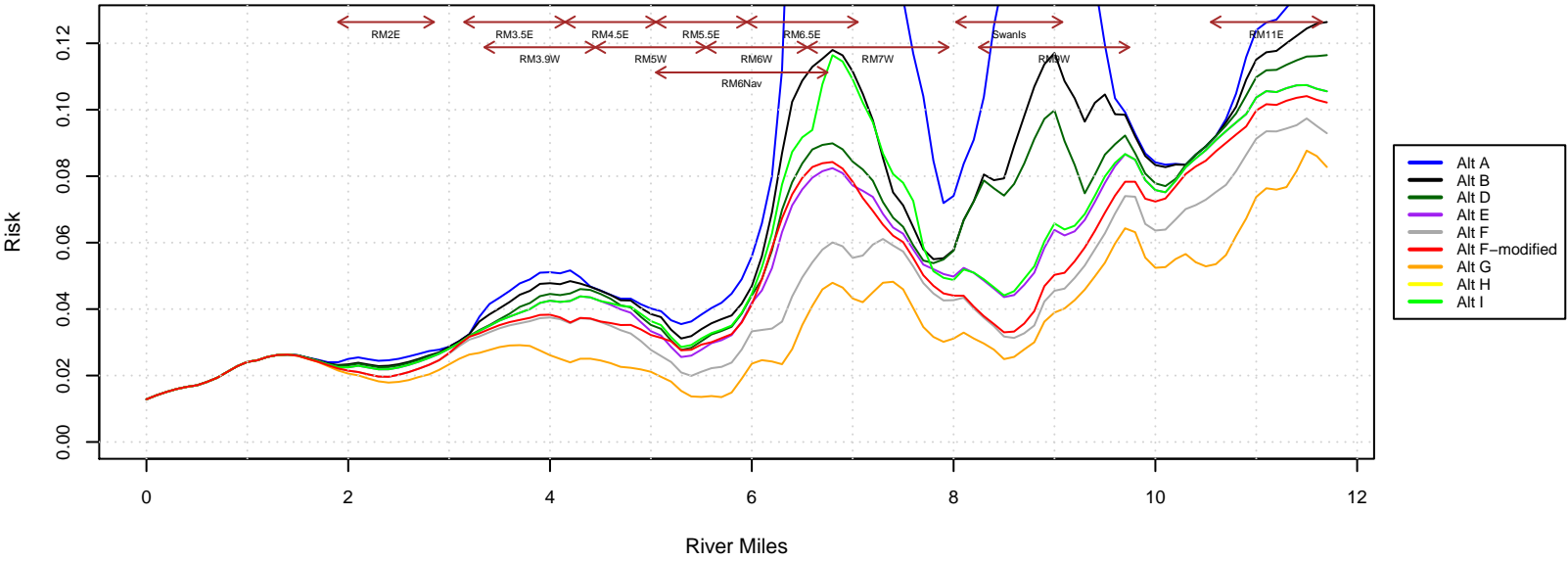


Figure 4.2- 16 b . Residual Ecological Risk for RAO 6 at Year 0 – TCDD – East – Rolling Avg 1 mile

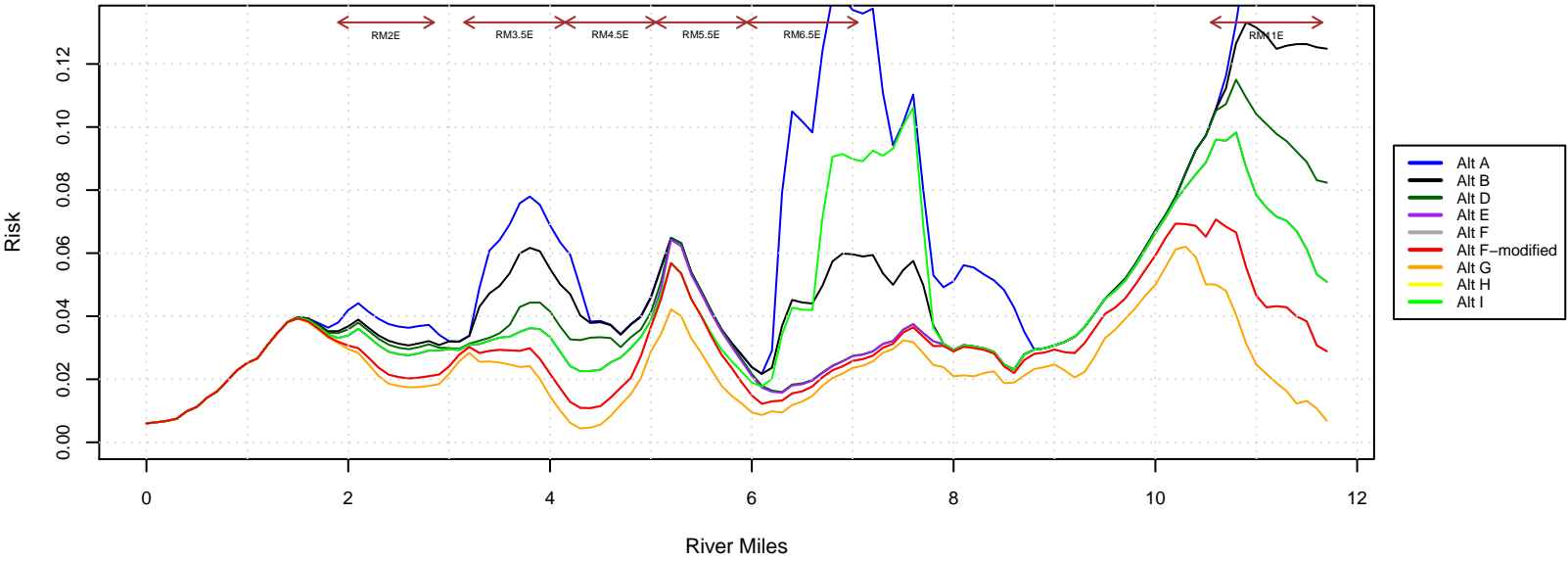


Figure 4.2- 16 c . Residual Ecological Risk for RAO 6 at Year 0 – TCDD – Nav Channel – Rolling Avg 1 mile

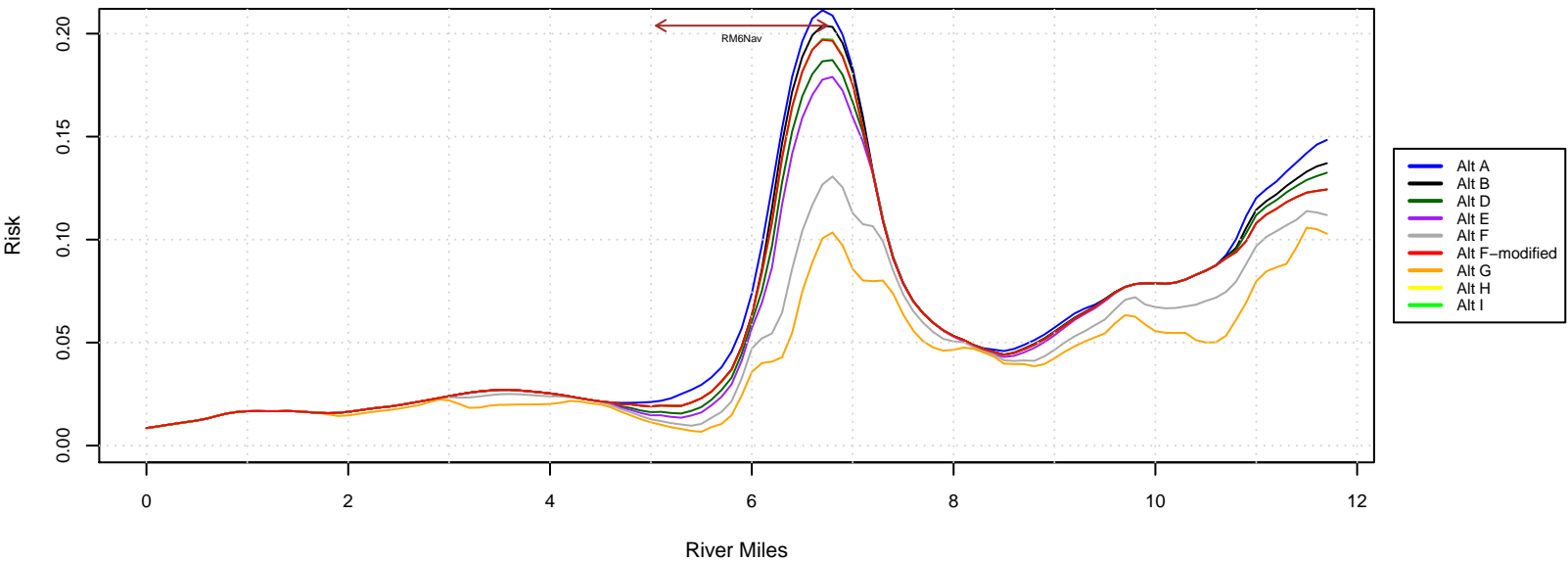


Figure 4.2- 16 d . Residual Ecological Risk for RAO 6 at Year 0 – TCDD – West – Rolling Avg 1 mile

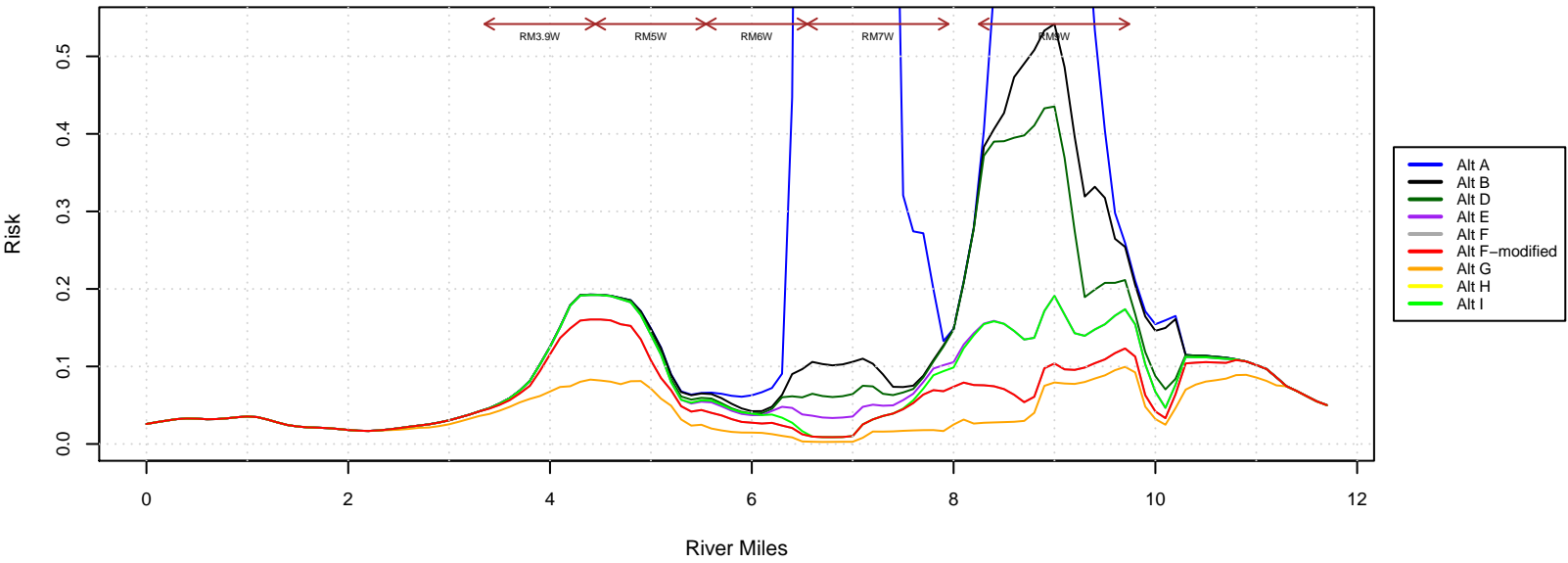


Figure 4.2- 16 e . Residual Ecological Risk for RAO 6 at Year 0 – TCDD – Swan Isl – Rolling Avg 1 mile

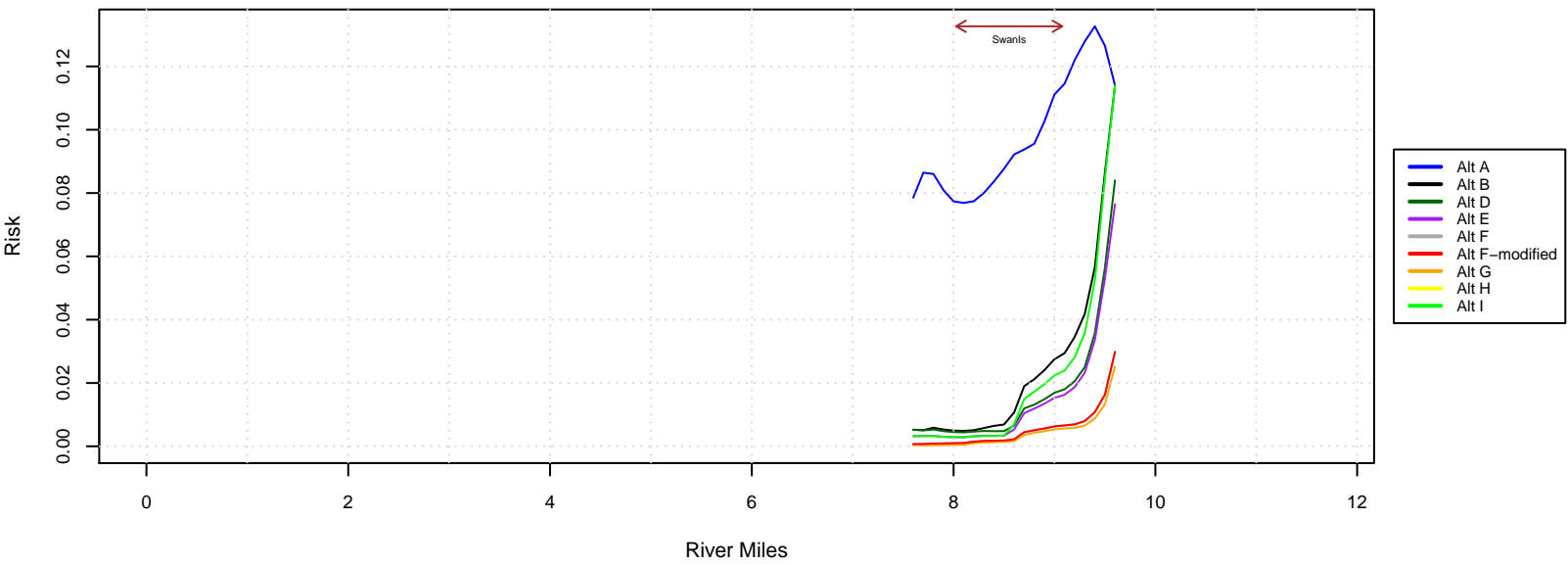


Figure 4.2- 17 a . Residual Ecological Risk for RAO 6 at Year 0 – TCDF – Site – Rolling Avg 1 mile

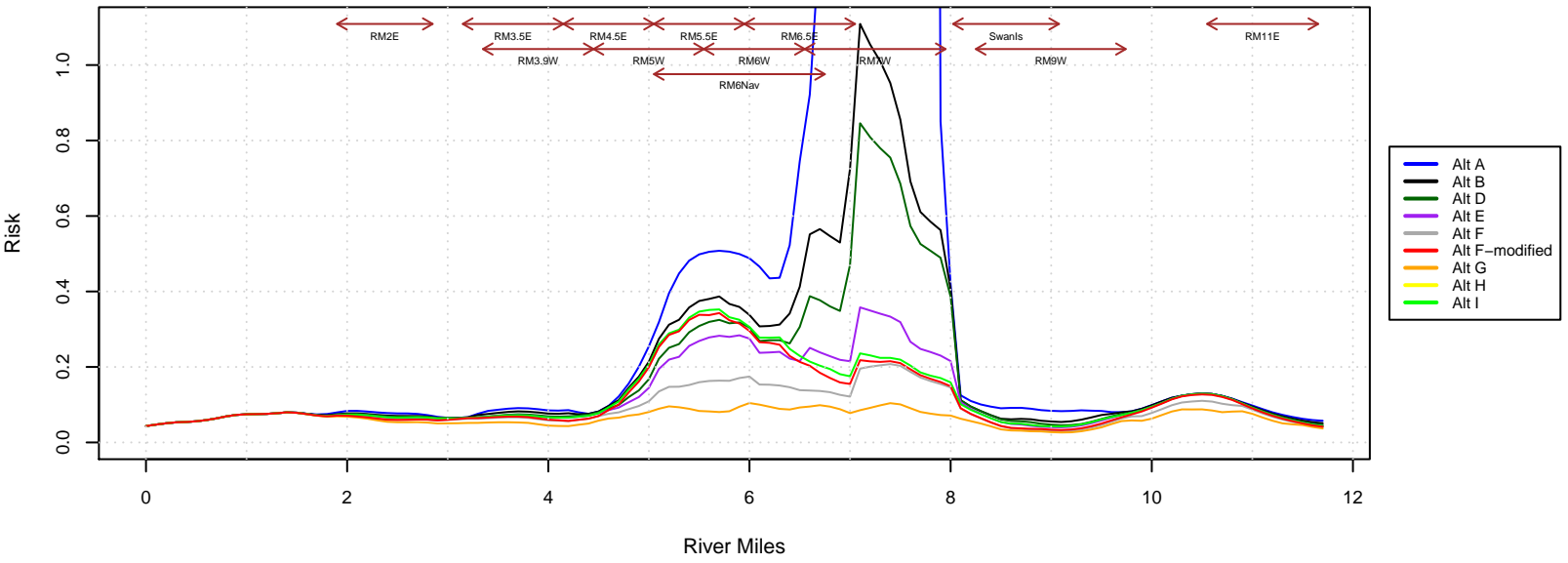


Figure 4.2- 17 b . Residual Ecological Risk for RAO 6 at Year 0 – TCDF – East – Rolling Avg 1 mile

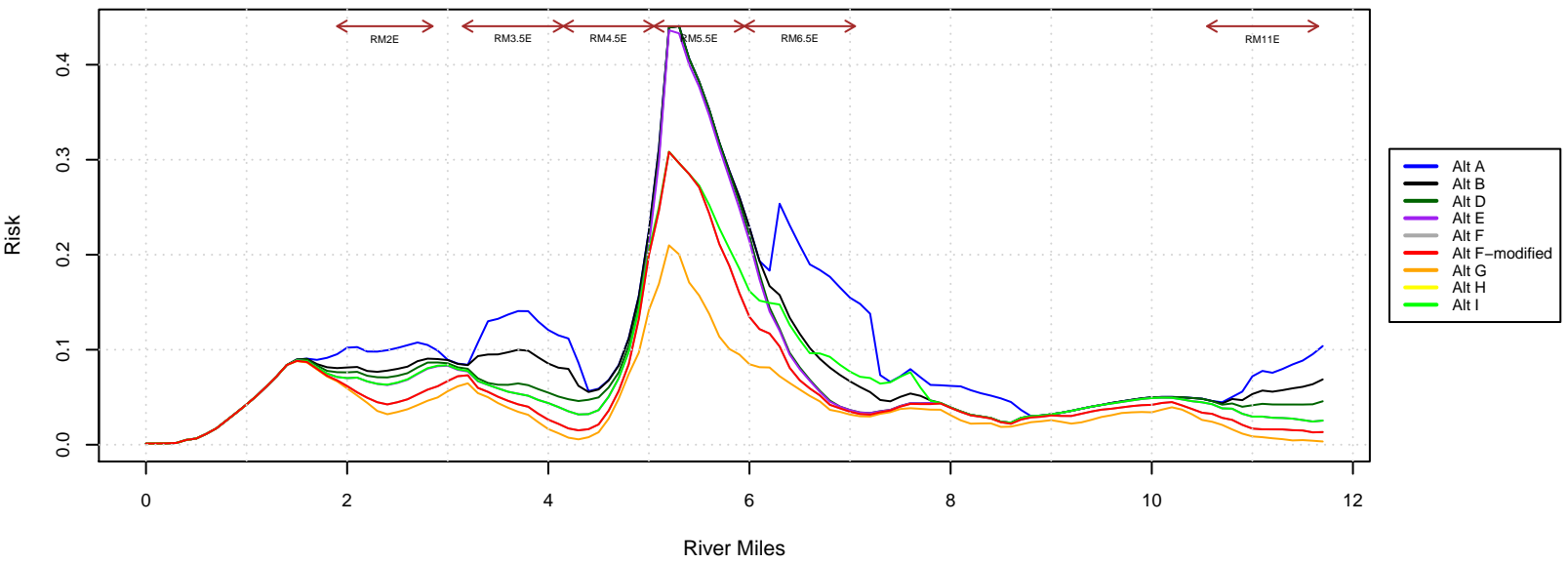


Figure 4.2- 17 c . Residual Ecological Risk for RAO 6 at Year 0 – TCDF – Nav Channel – Rolling Avg 1 mile

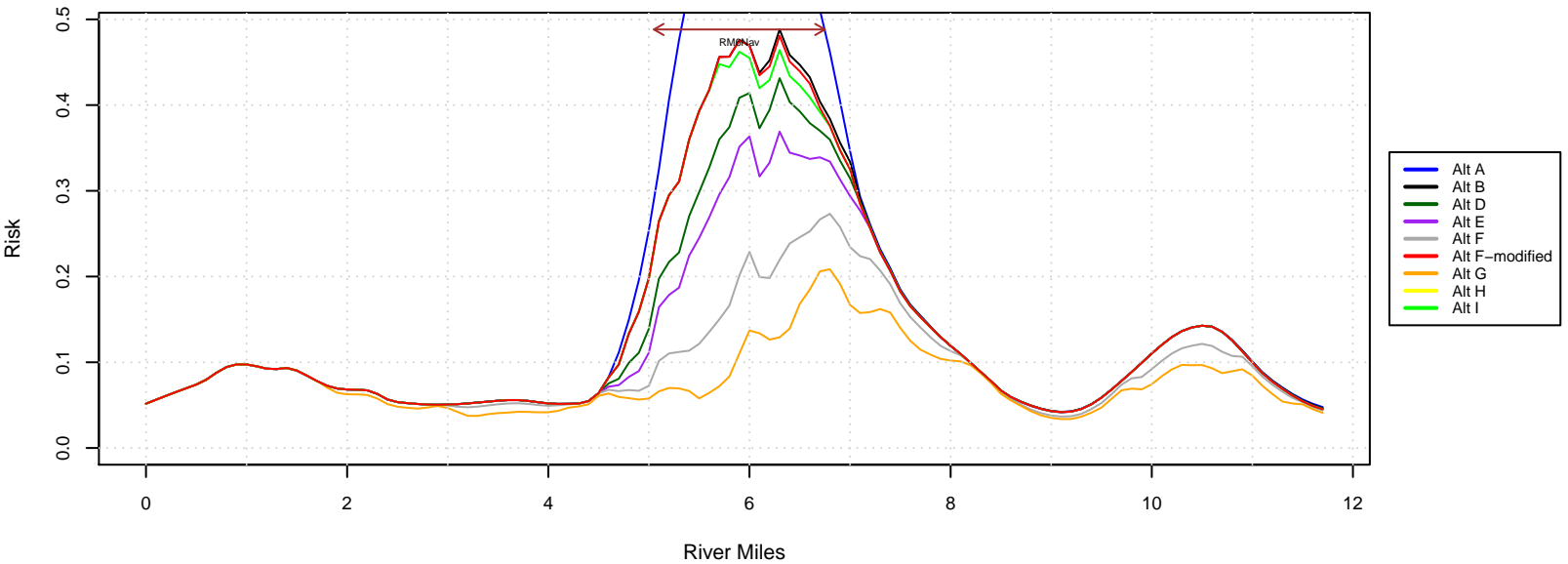




Figure 4.2- 17 d . Residual Ecological Risk for RAO 6 at Year 0 – TCDF – West – Rolling Avg 1 mile

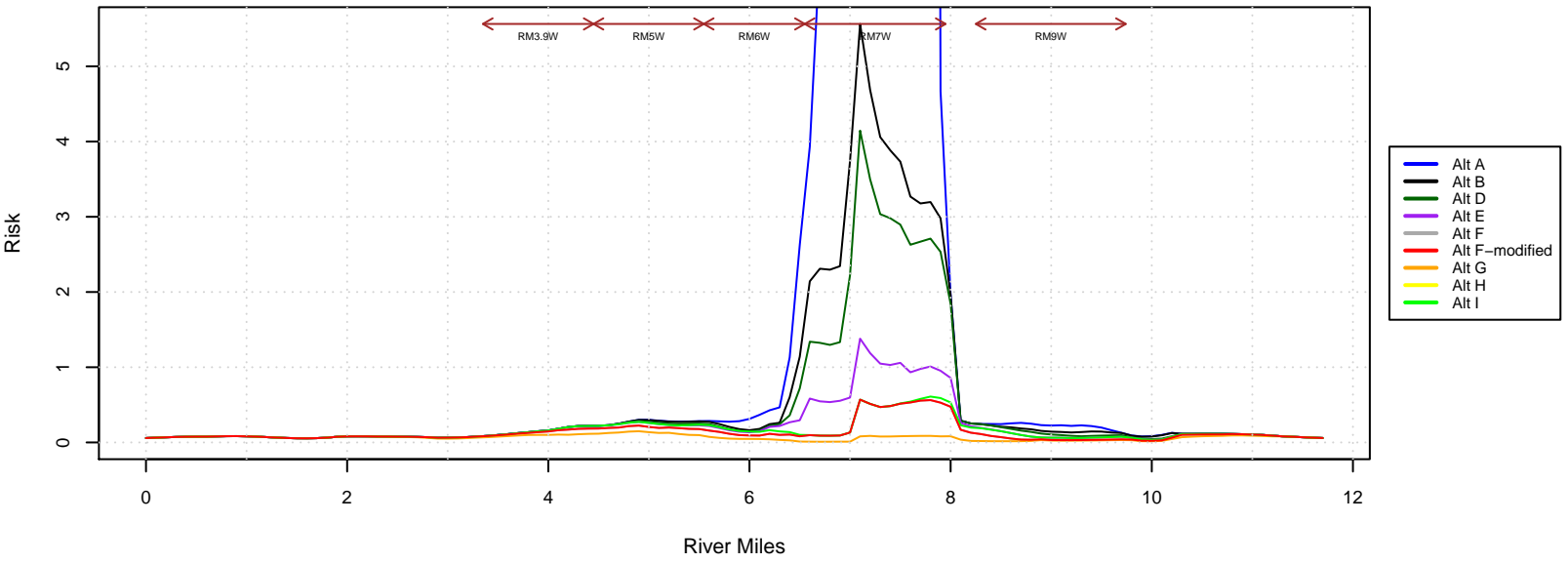
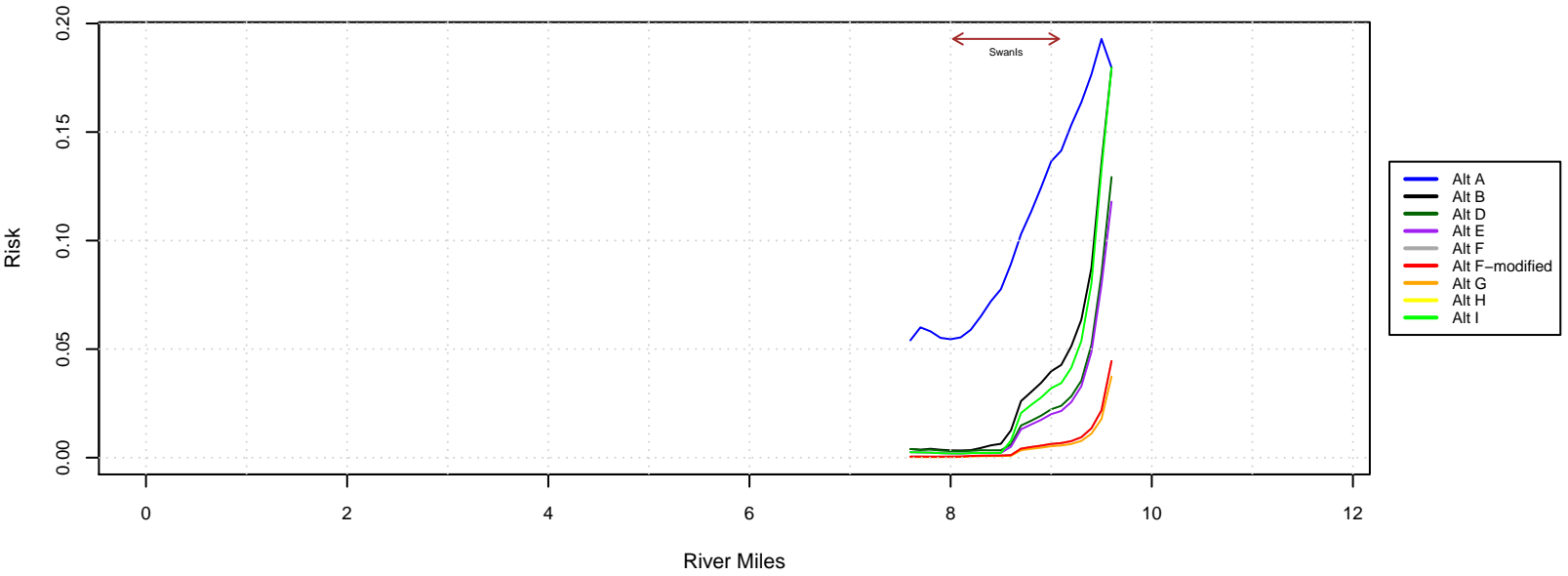


Figure 4.2- 17 e . Residual Ecological Risk for RAO 6 at Year 0 – TCDF – Swan Isl – Rolling Avg 1 mile



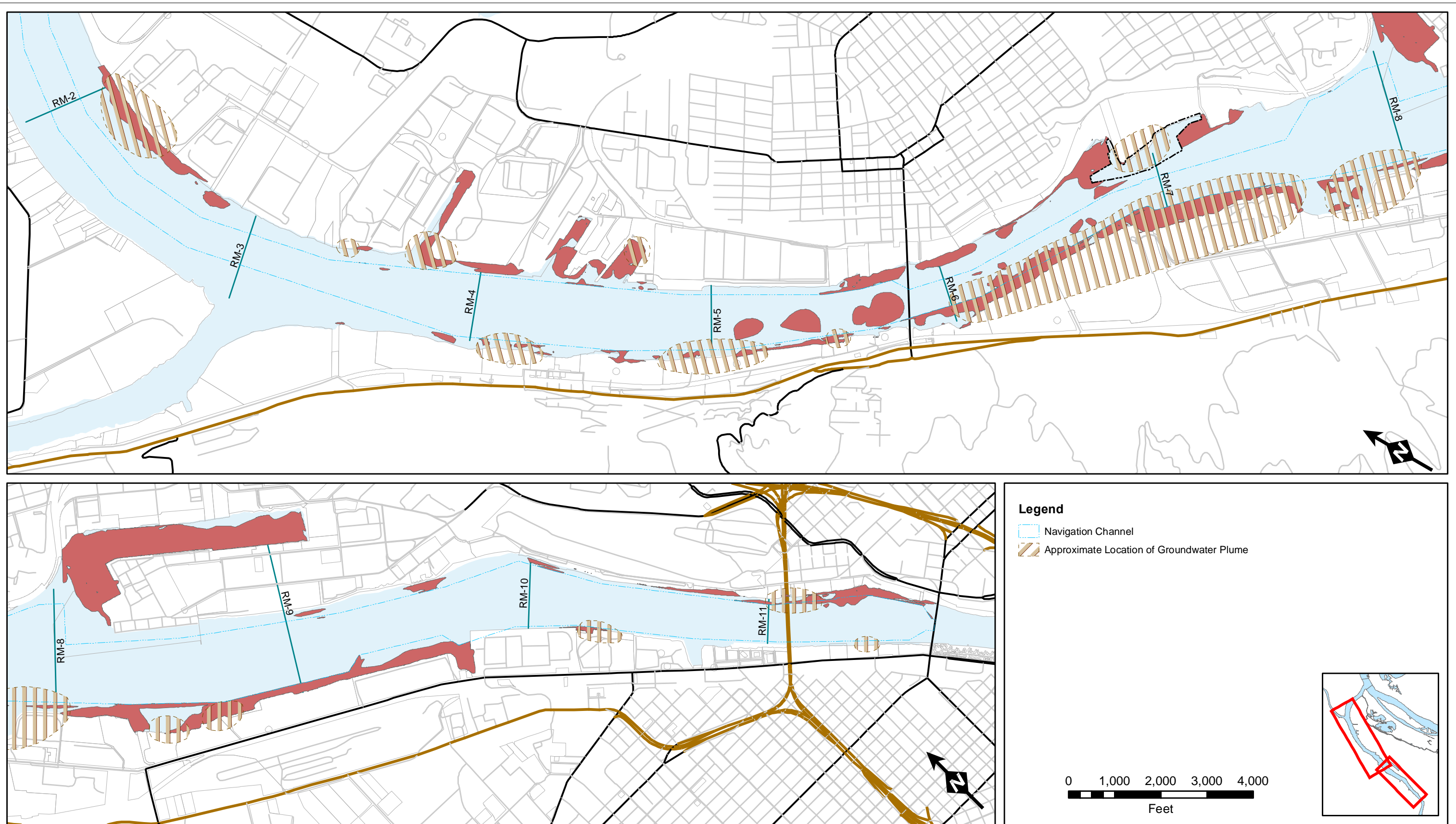


Figure 4.2-24a. Portland Harbor Study Area Groundwater Plume Map with Alternative F-Modified

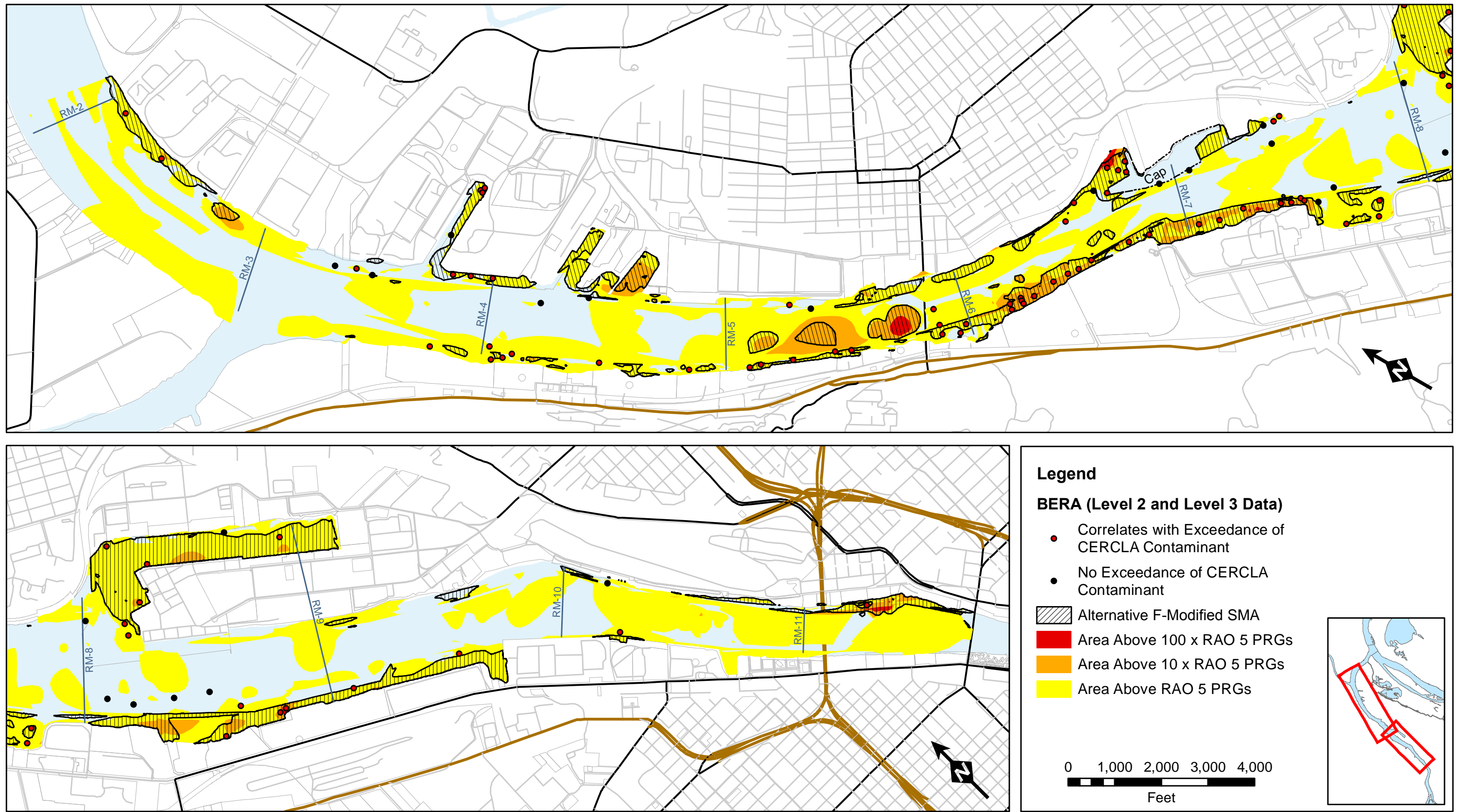
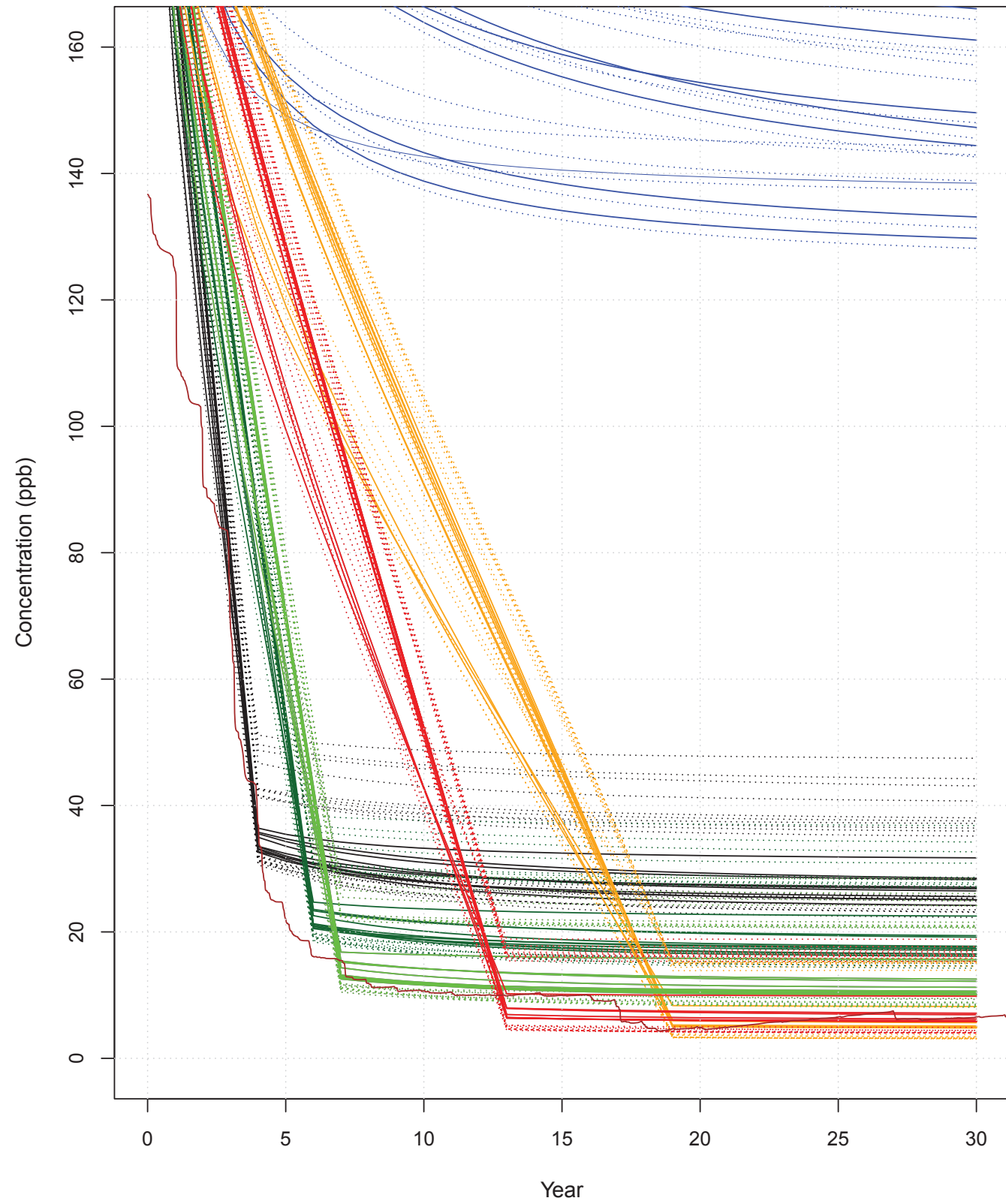


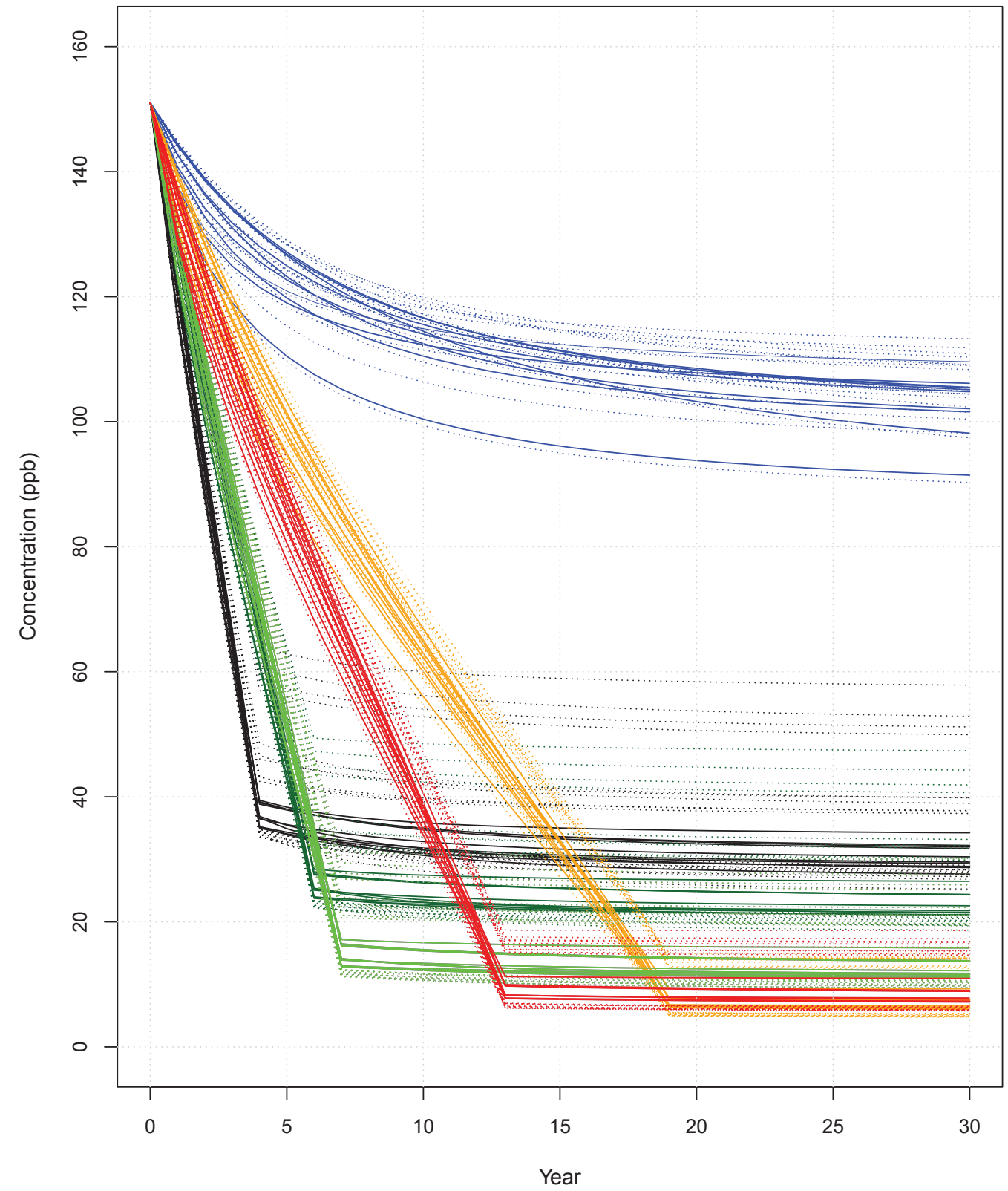
Figure 4.2-25a. Benthic Risk Area Exceeding RAO 5 PRGs - Alternative F-Modified



Average PCB Concentration - SDU RM2E

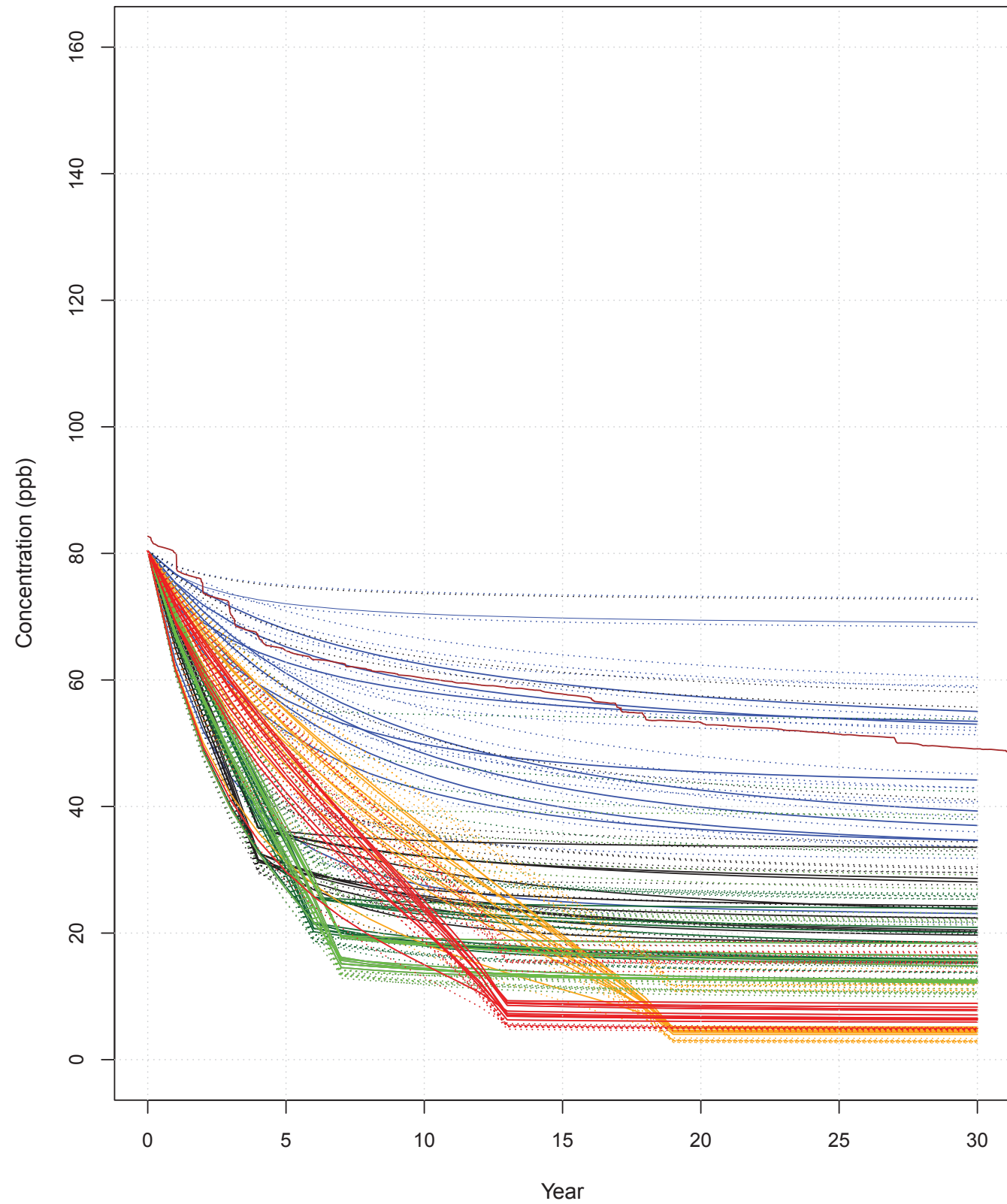


Average PCB Concentration - SDU RM3.5E

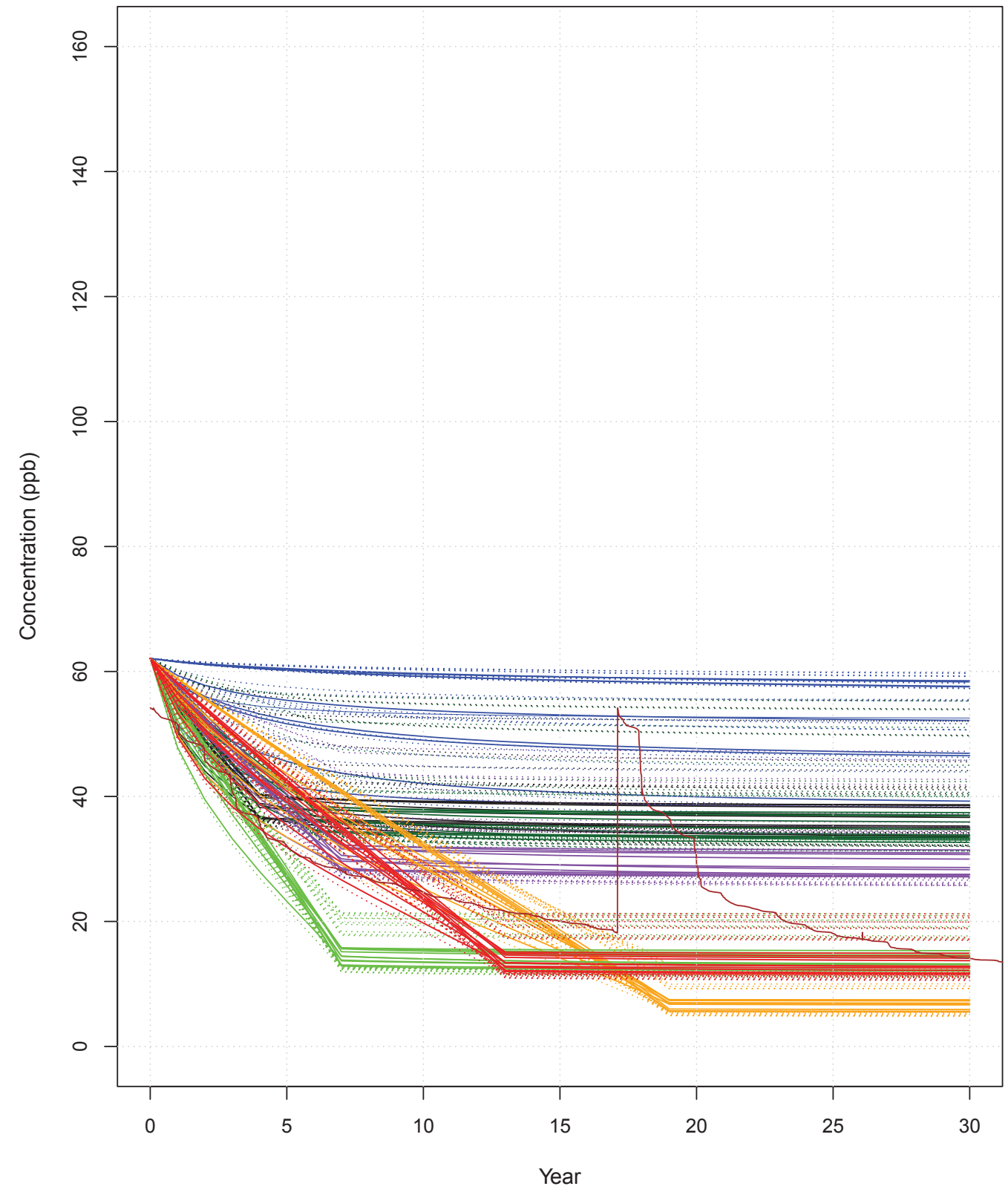


SEDCAM t>0 PCB Concentrations by SDU at a fixed Scale - SDU RM2E and SDU RM3.5E

Average PCB Concentration – SDU RM4.5E



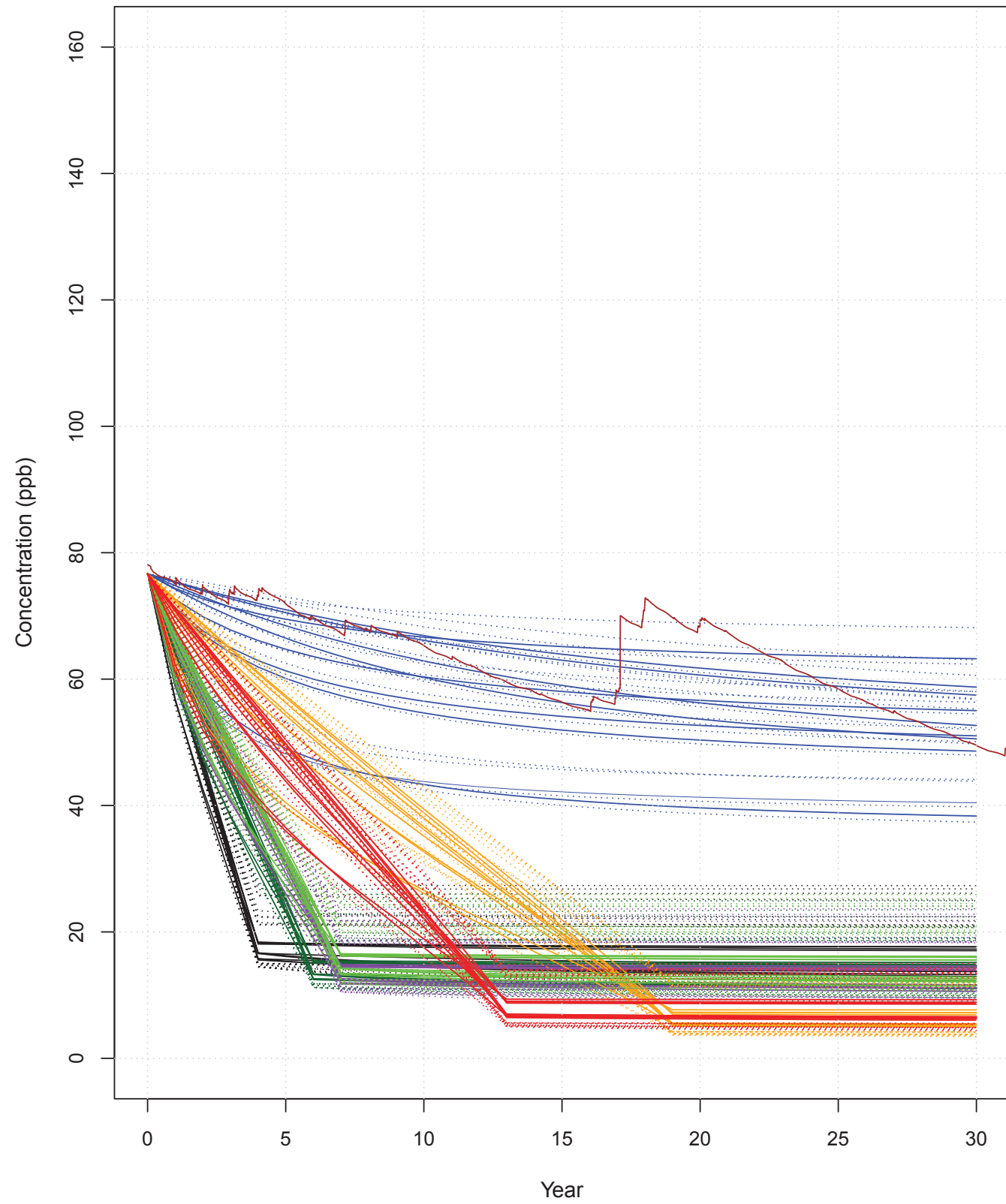
Average PCB Concentration – SDU RM5.5E



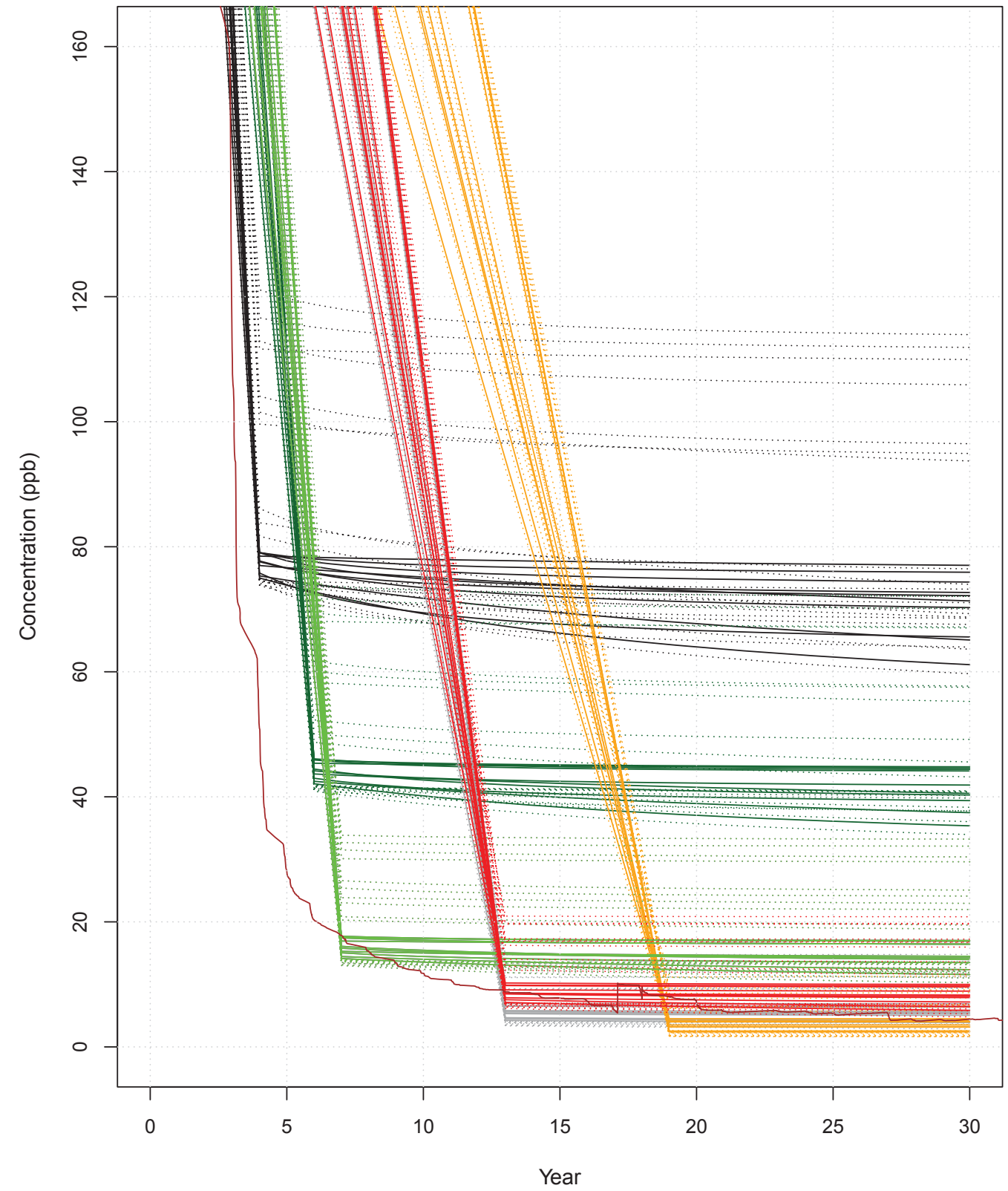
SEDCAM t>0 PCB Concentrations by SDU at a fixed Scale - SDU RM4.5E and SDU RM5.5E



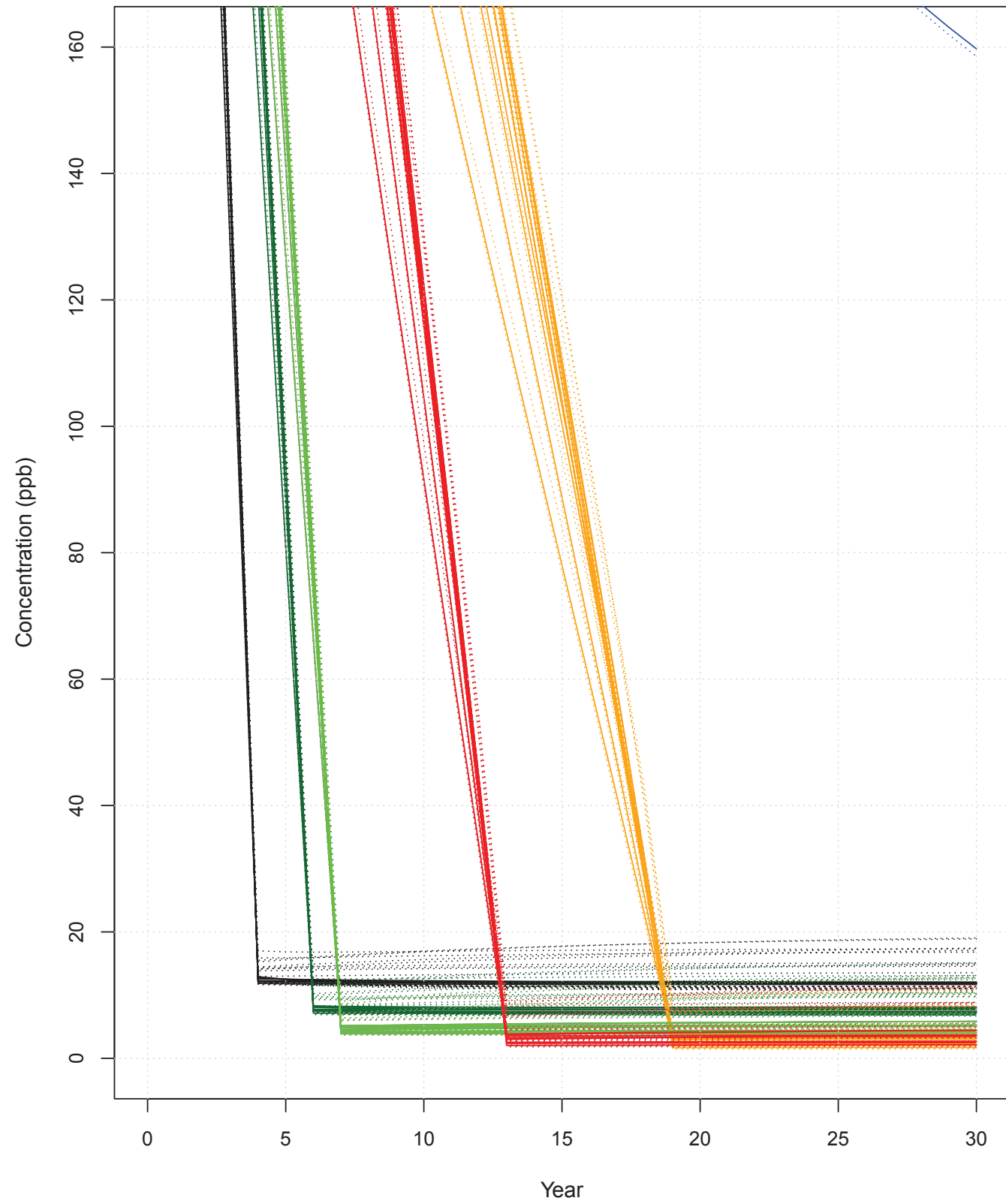
Average PCB Concentration – SDU RM6.5E



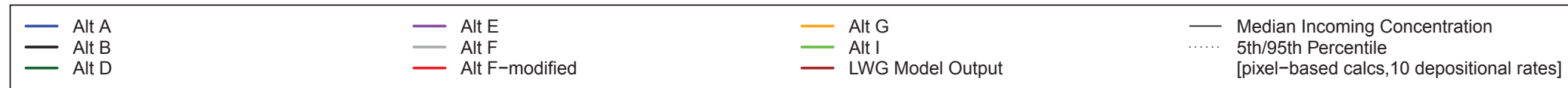
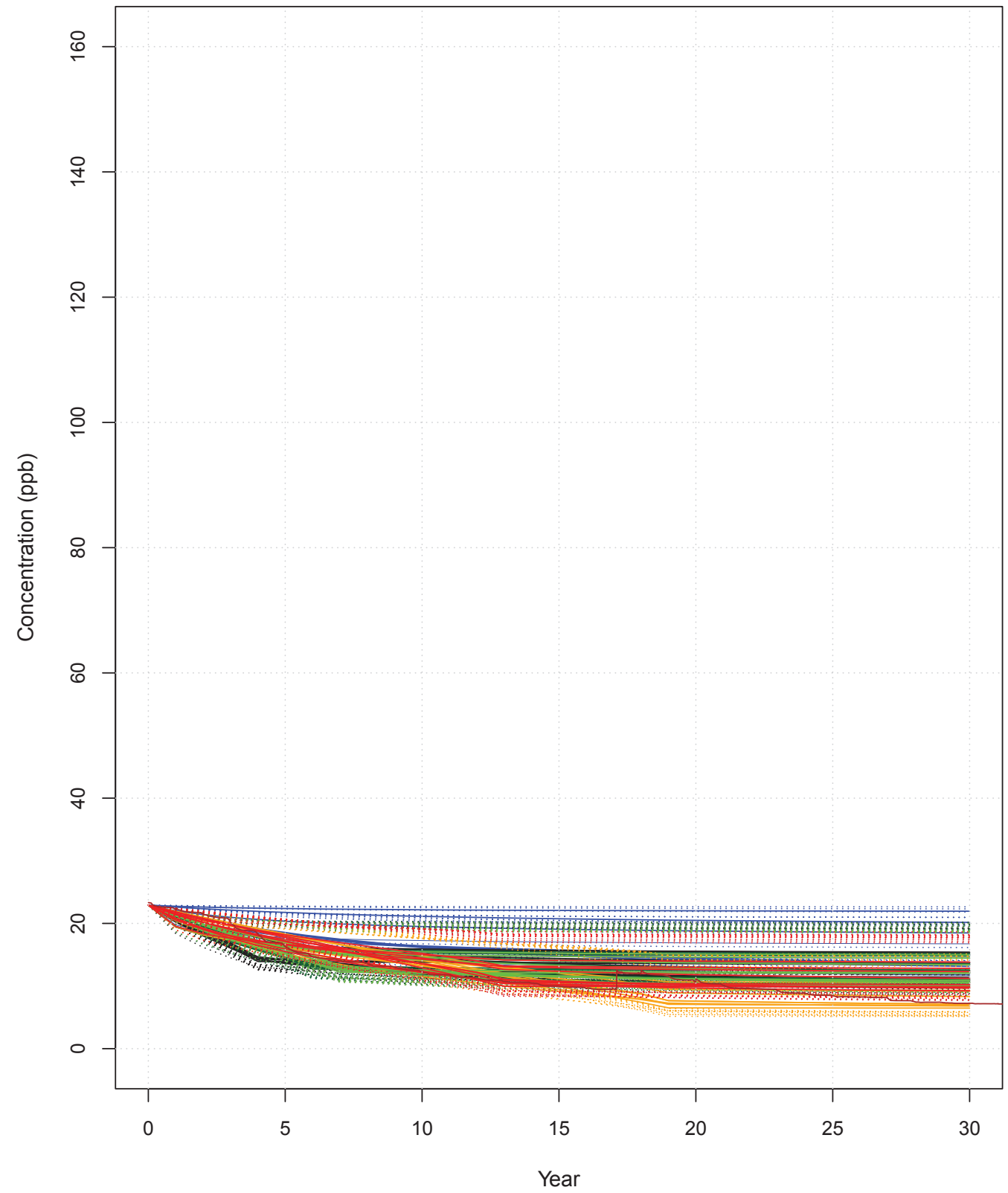
Average PCB Concentration – SDU RM11E



Average PCB Concentration – SDU Swan Island

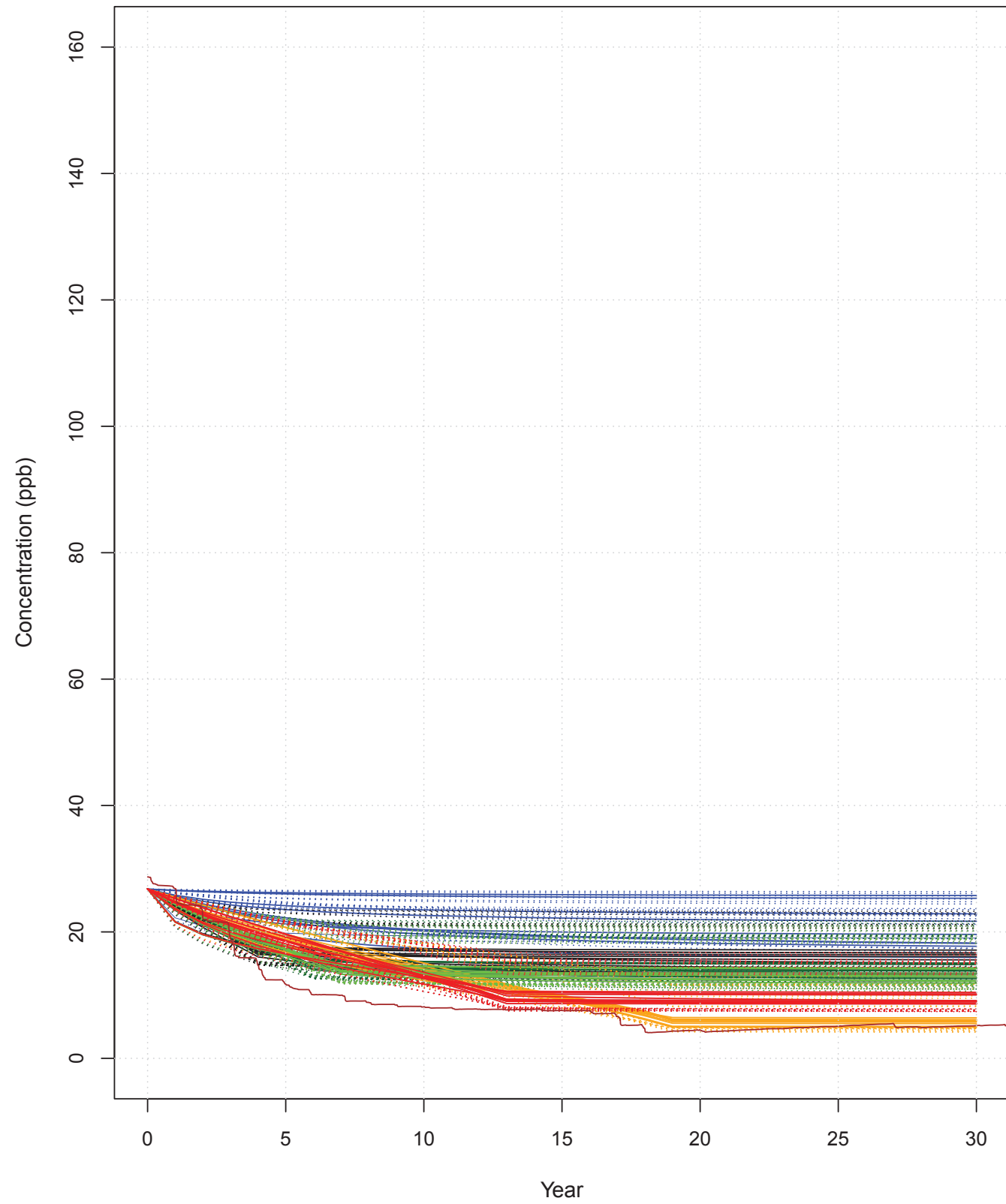


Average PCB Concentration – SDU RM3.9W

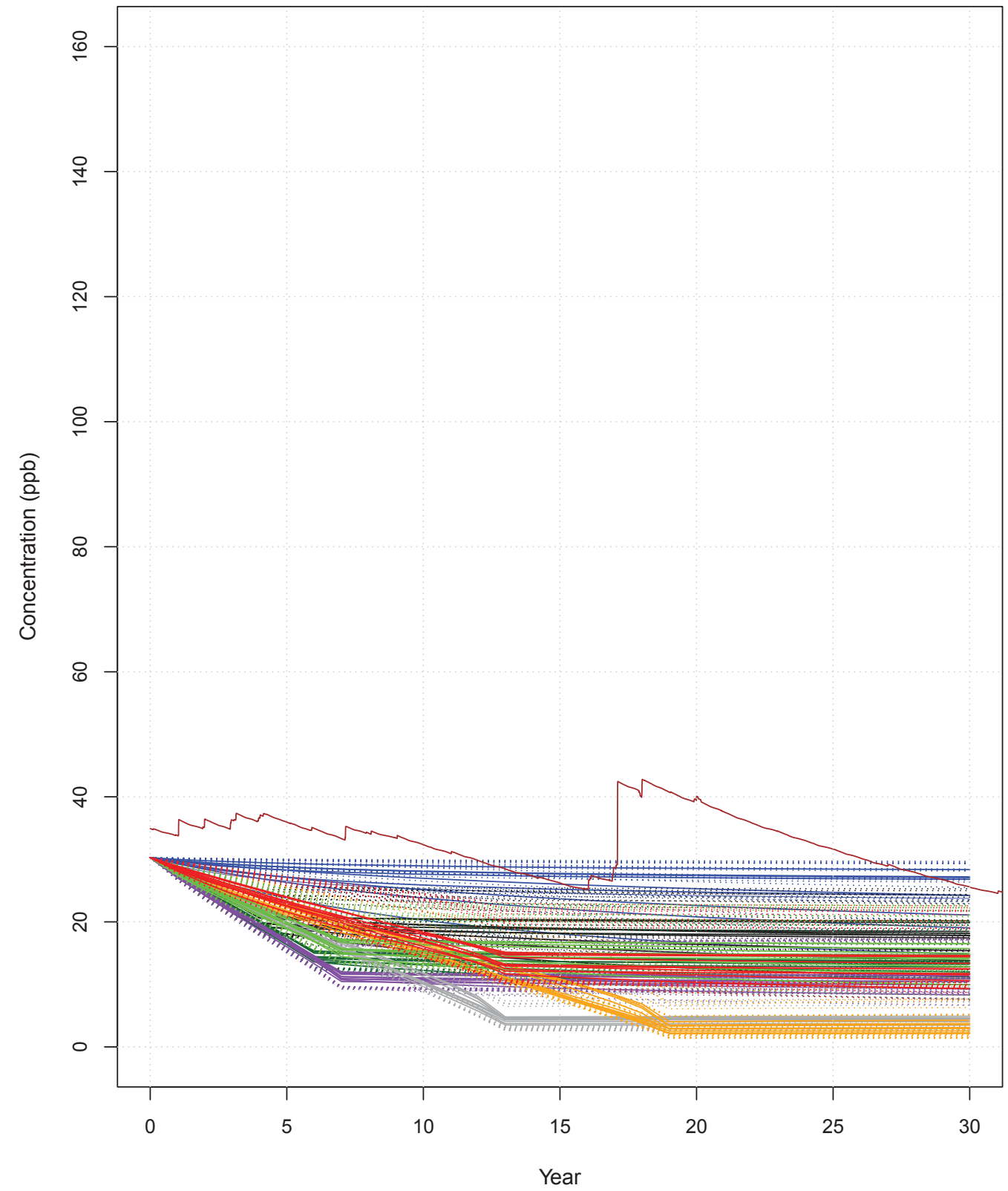


SEDCAM t>0 PCB Concentrations by SDU at a fixed Scale - SDU Swan Island and SDU RM3.9W

Average PCB Concentration – SDU RM5W



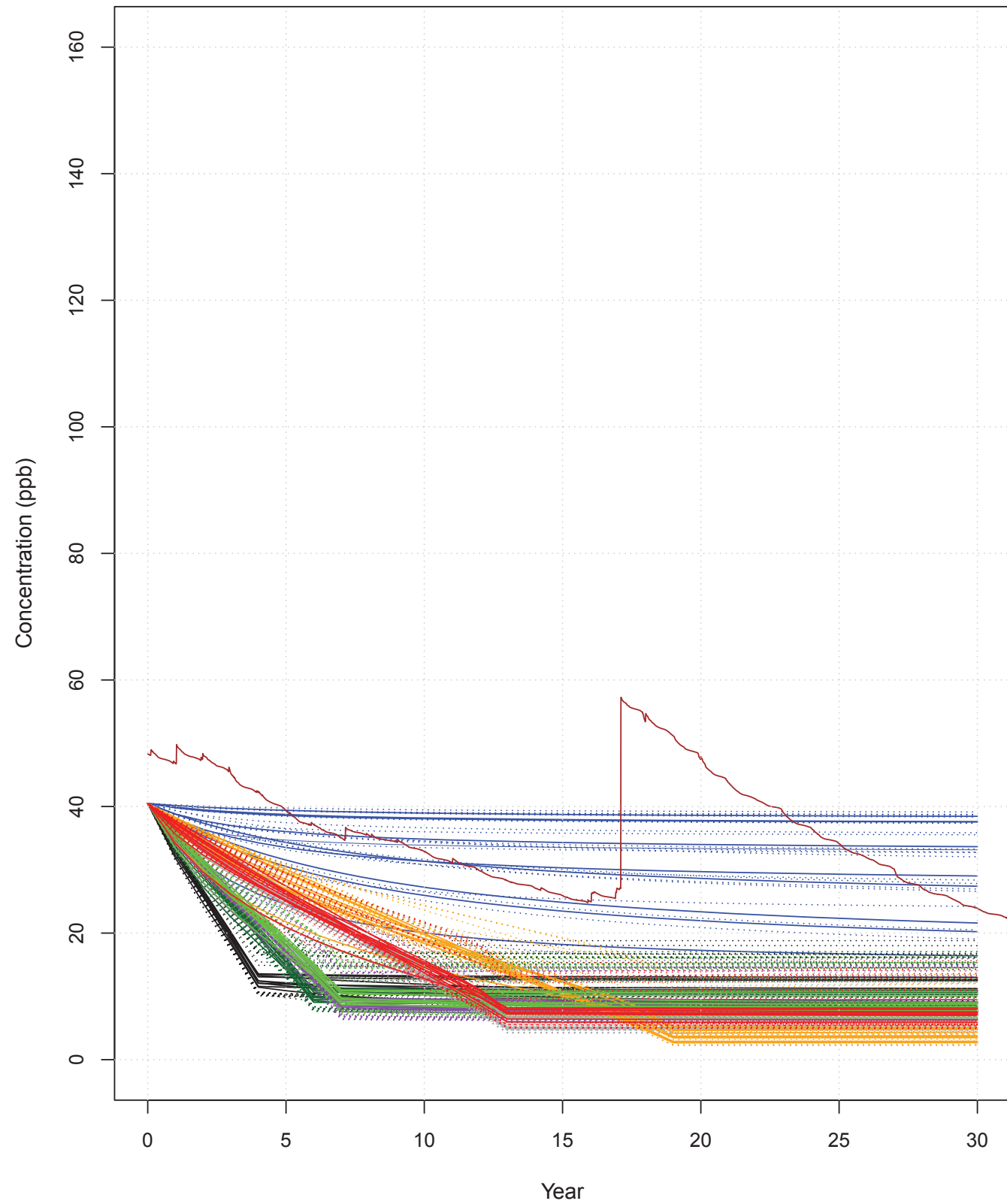
Average PCB Concentration – SDU RM6Nav



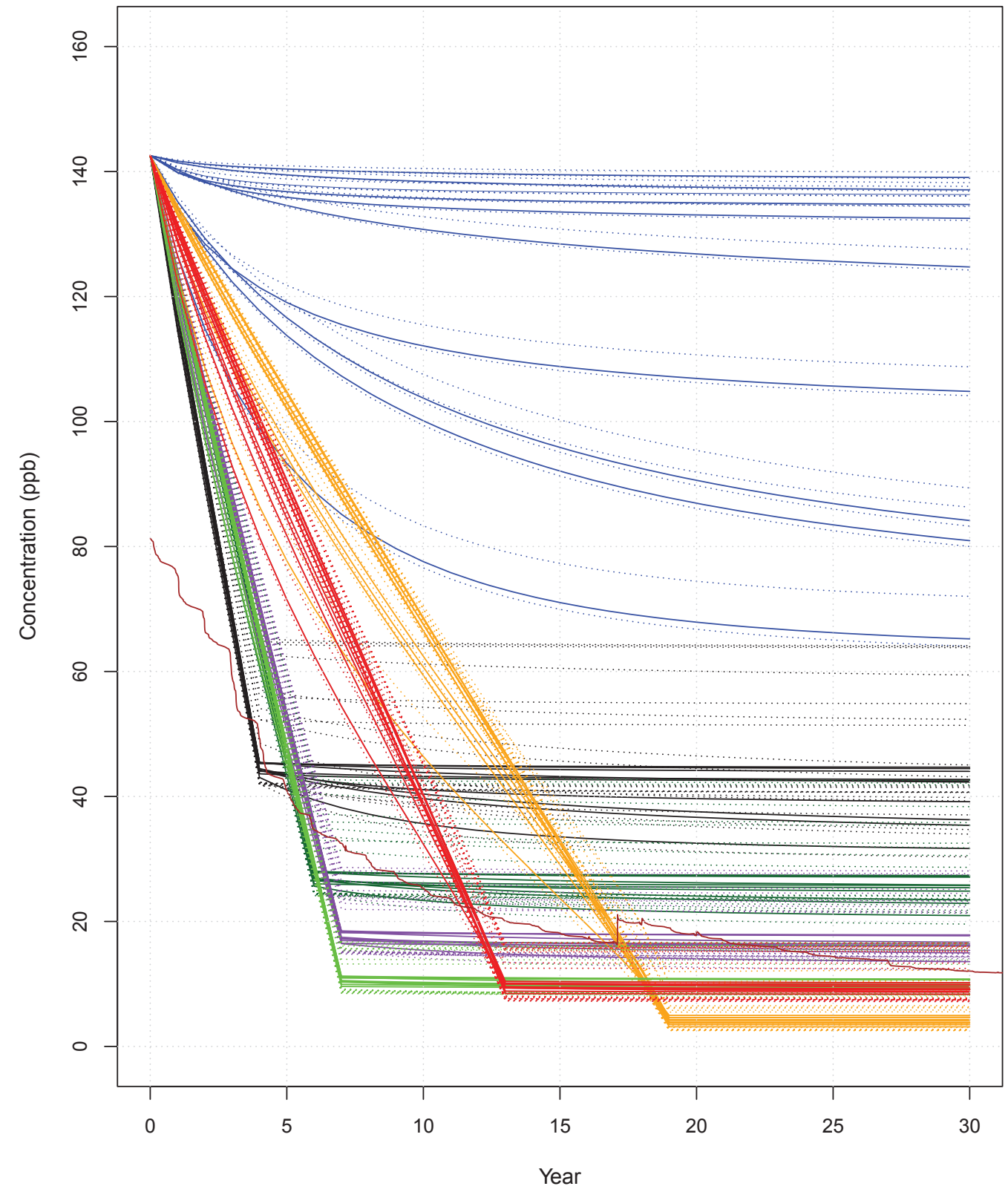
SEDCAM t>0 PCB Concentrations by SDU at a fixed Scale



Average PCB Concentration – SDU RM6W

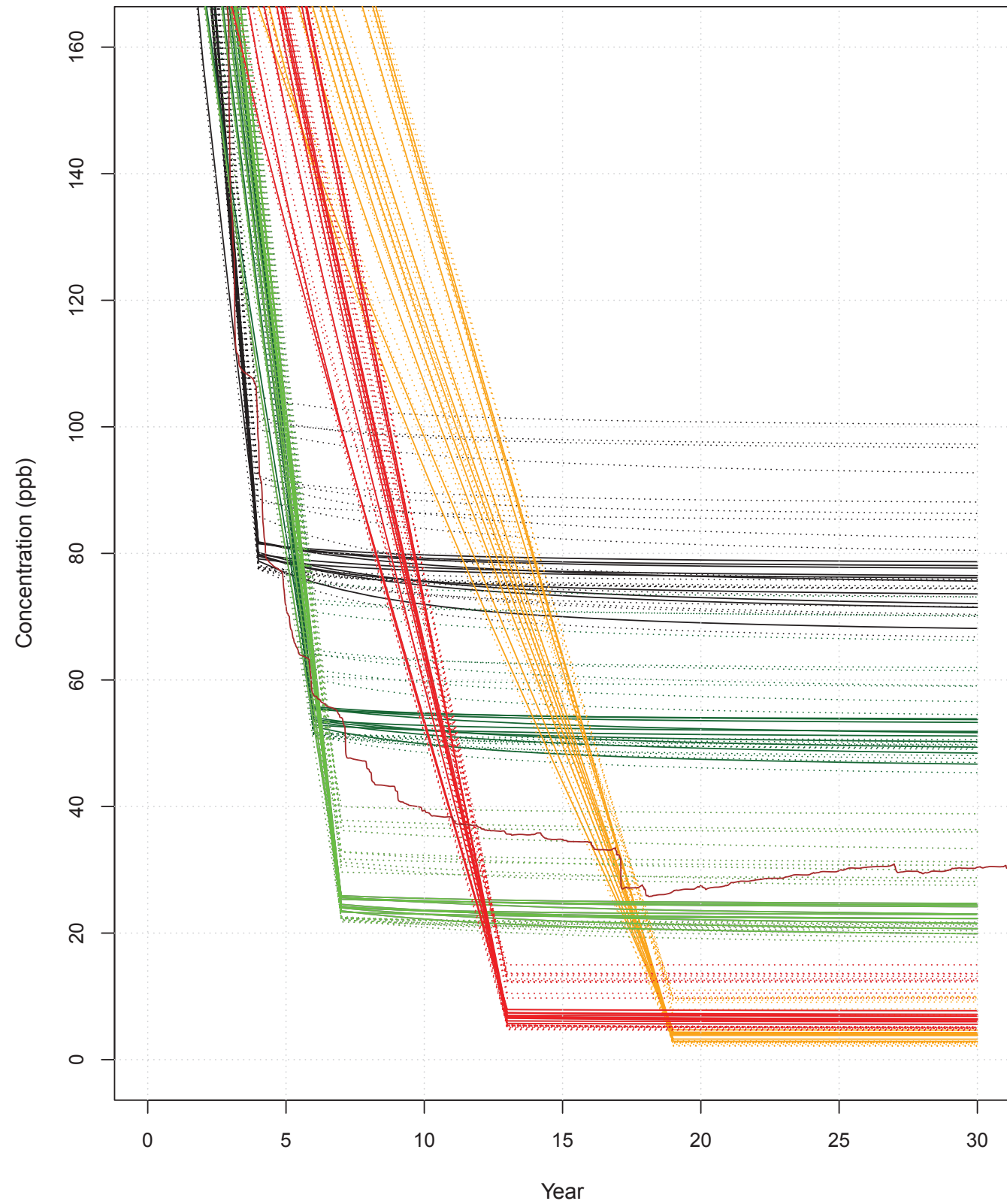


Average PCB Concentration – SDU RM7W

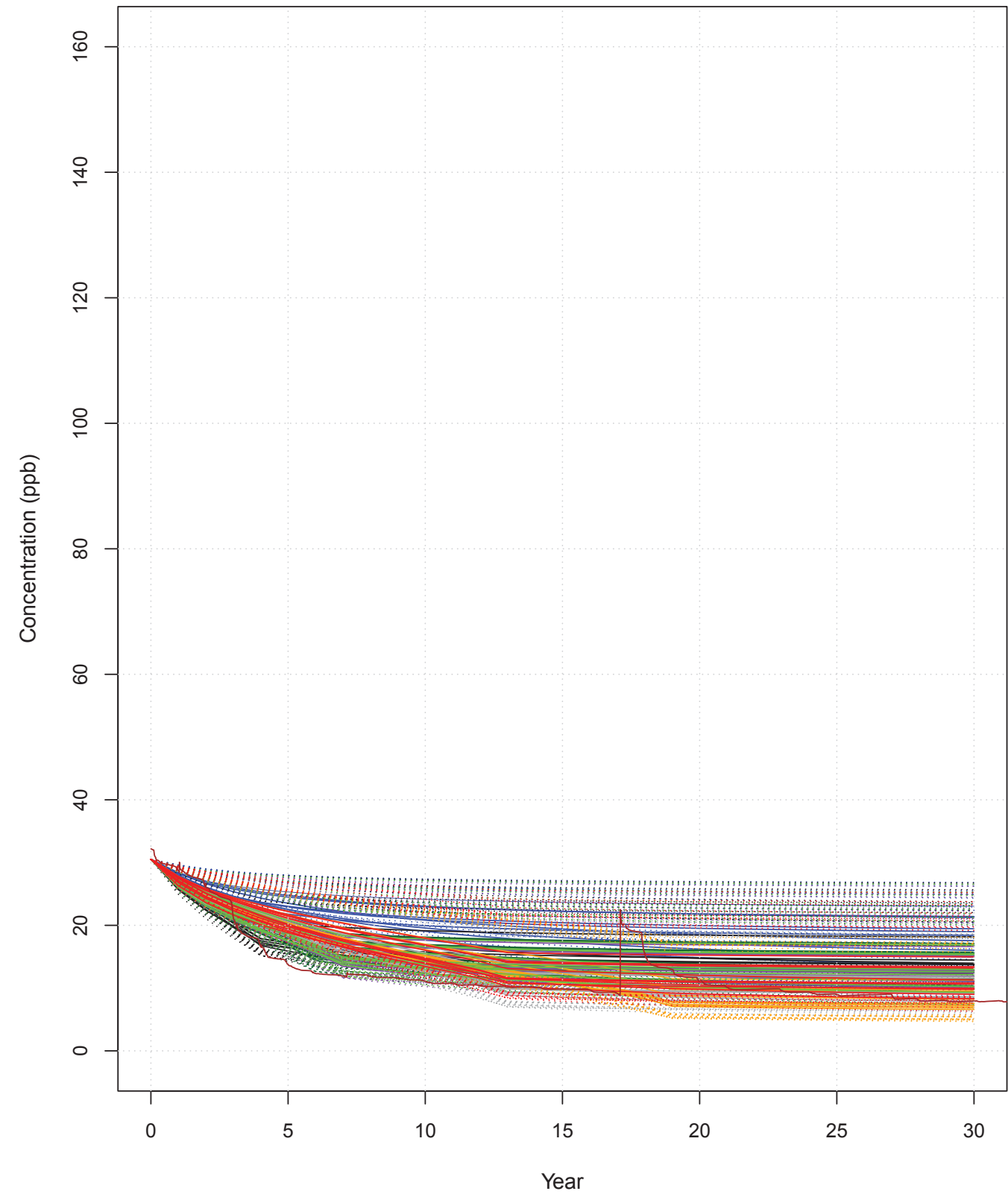


SEDCAM  $t > 0$  PCB Concentrations by SDU at a fixed Scale - SDU RM6W and SDU RM 7W

Average PCB Concentration – SDU RM9W



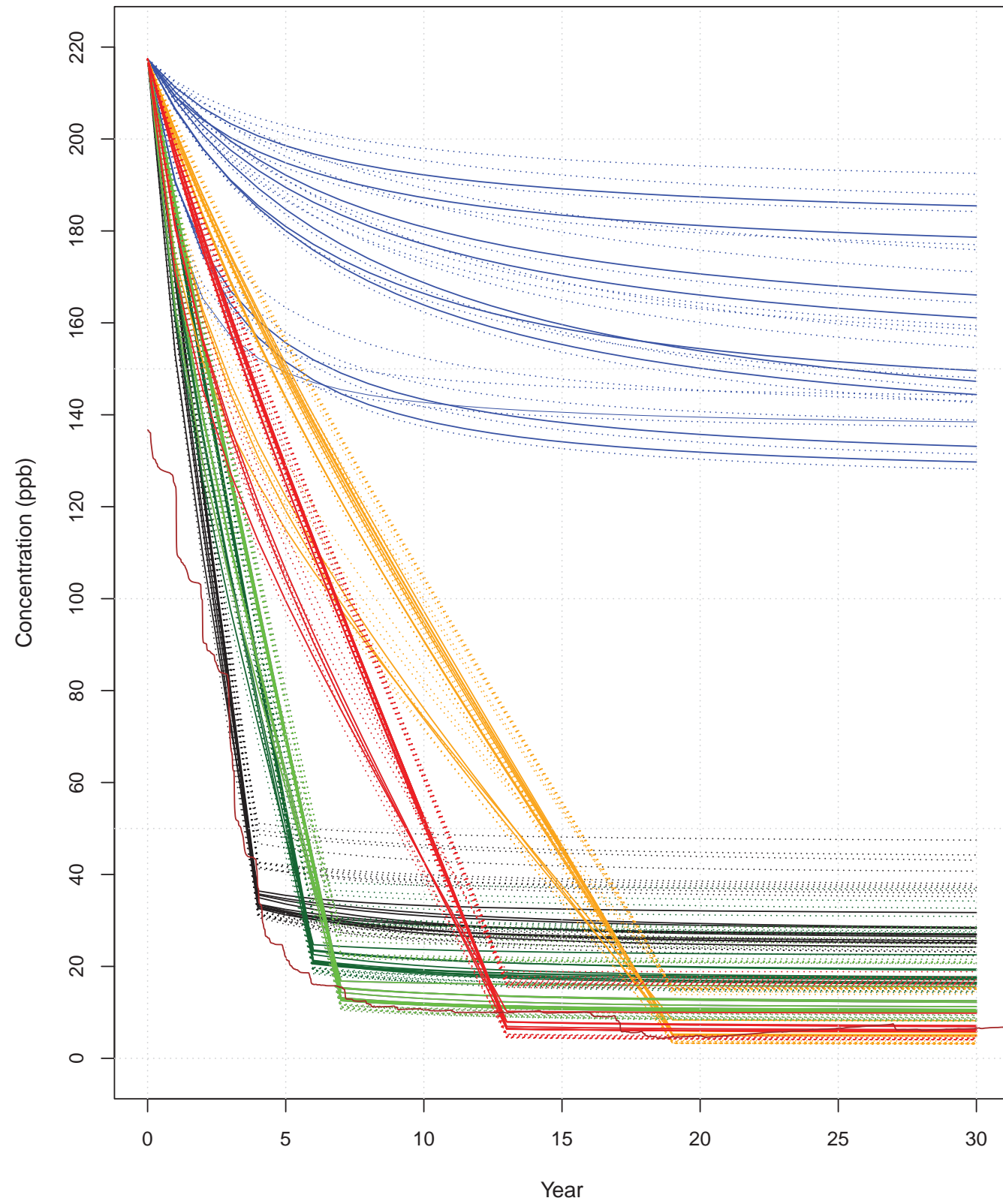
Average PCB Concentration – Outside SDU



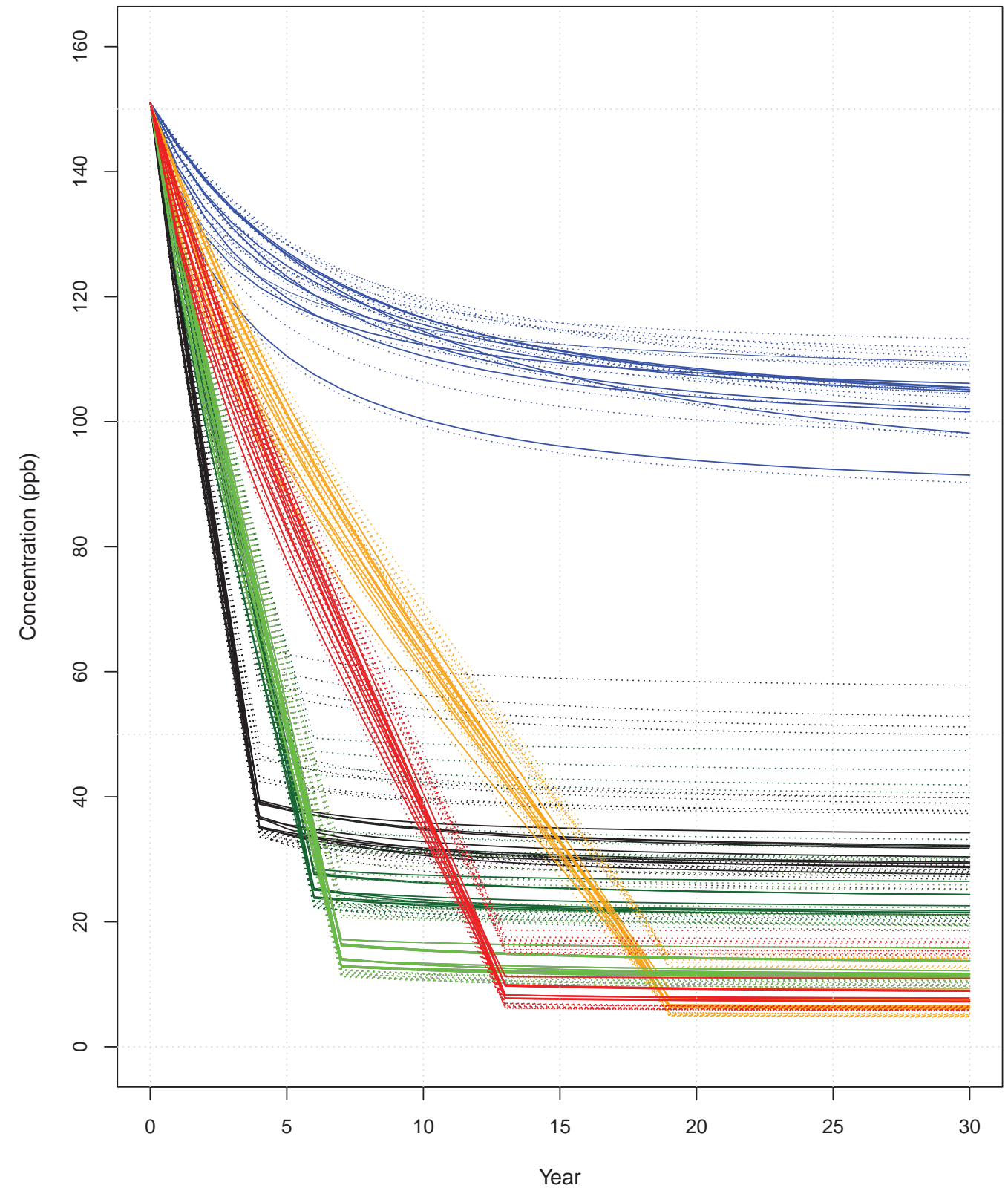
SEDCAM t>0 PCB Concentrations by SDU at a fixed Scale - SDU RM9W and Outside SDU



Average PCB Concentration - SDU RM2E

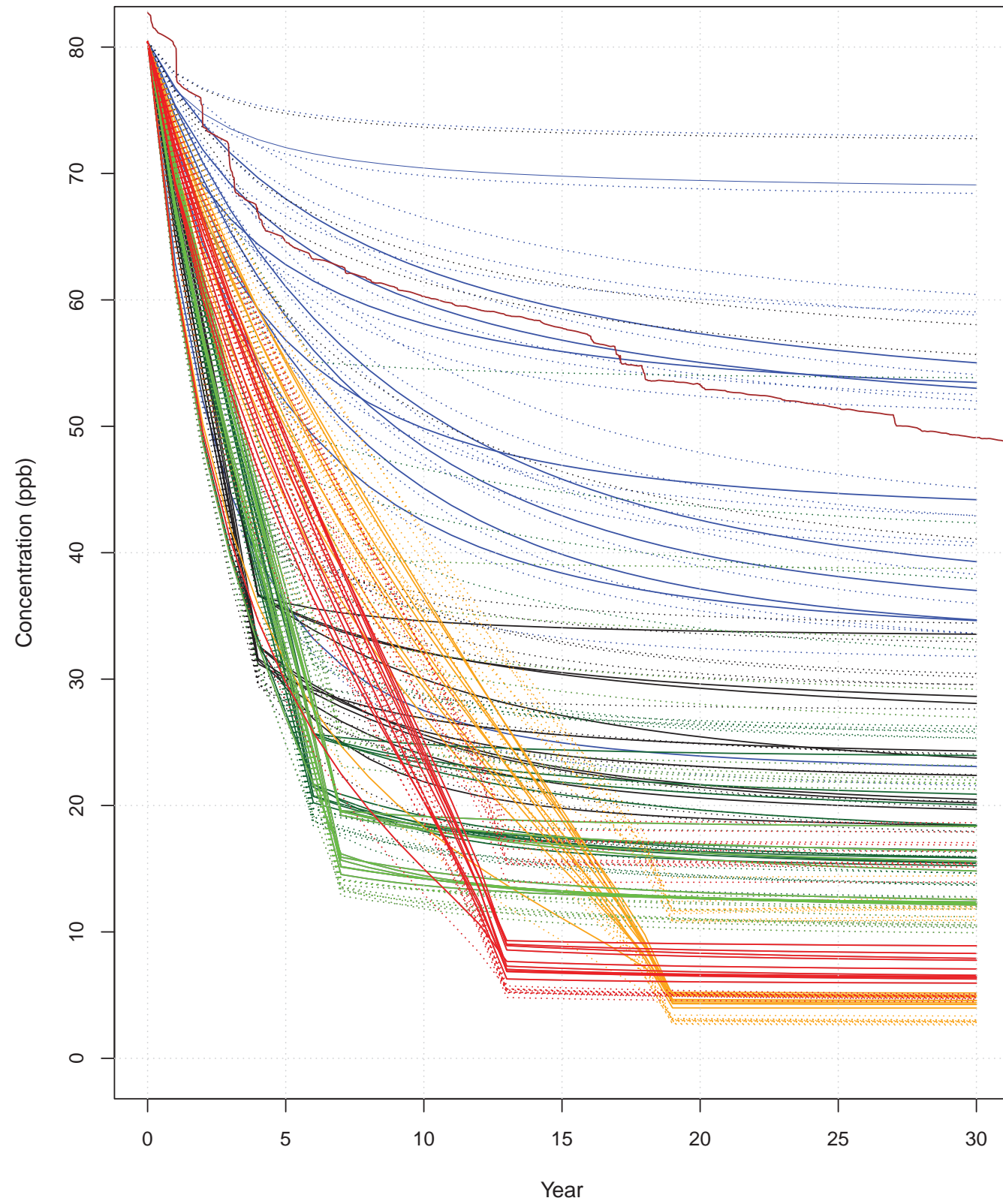


Average PCB Concentration - SDU RM3.5E

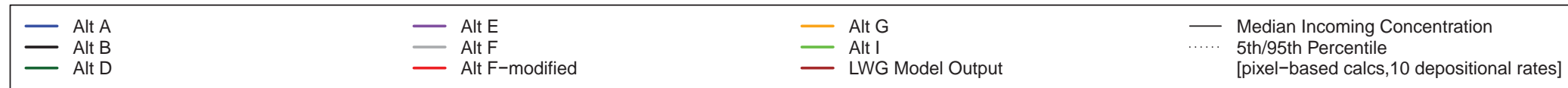
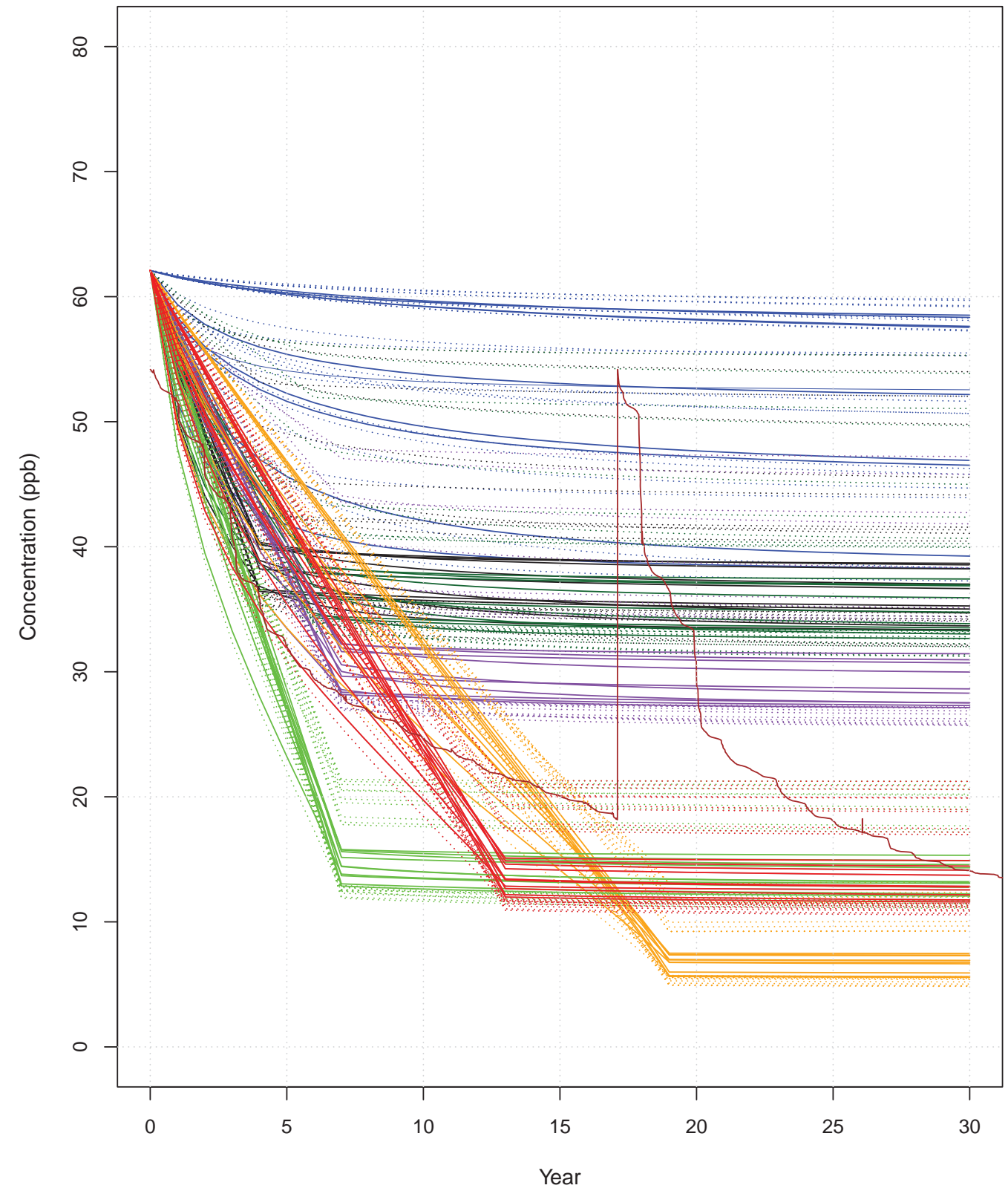


SEDCAM t>0 PCB Concentrations by SDU at Full Scale - SDU RM2E and SDU RM3.5E

Average PCB Concentration – SDU RM4.5E

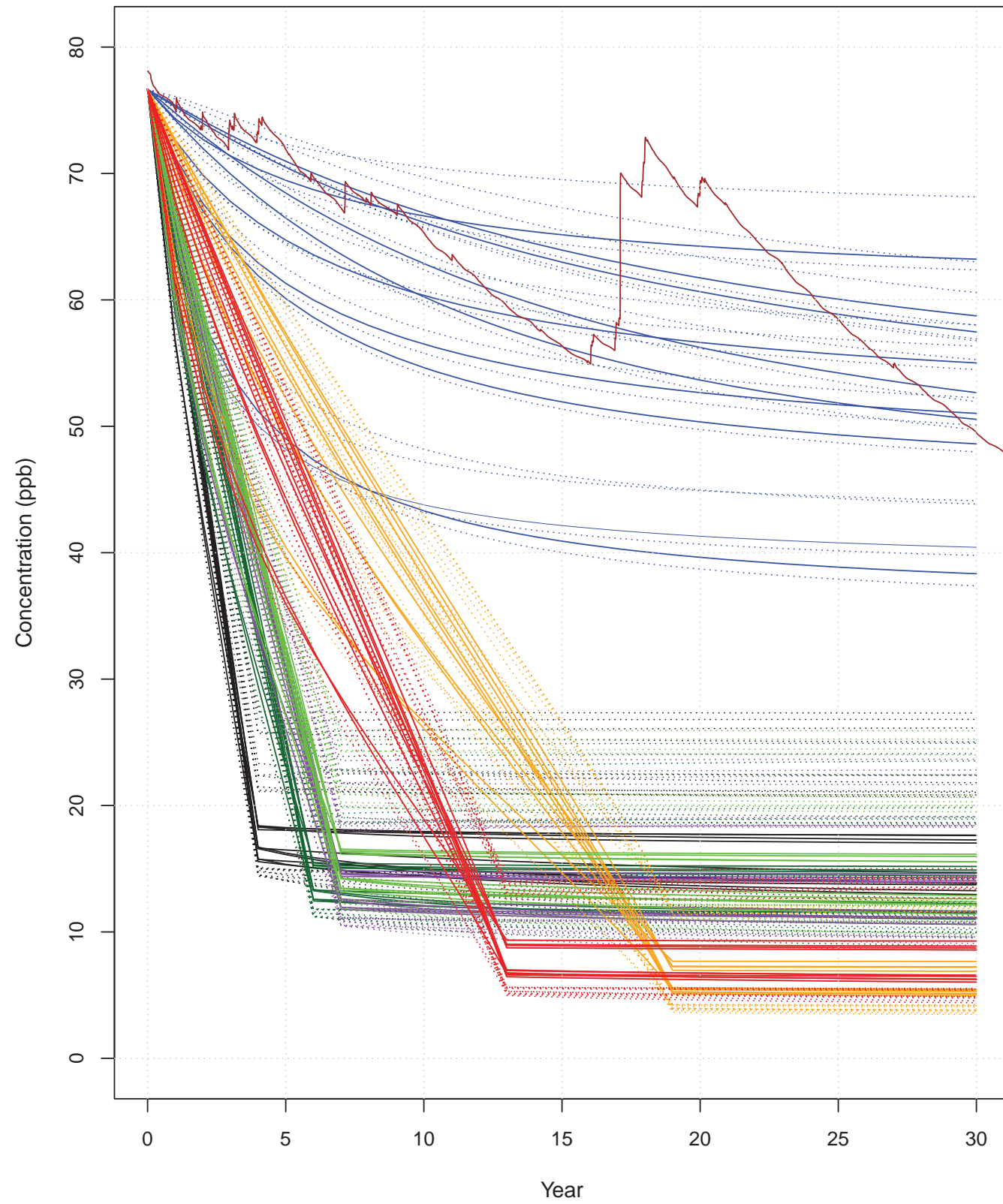


Average PCB Concentration – SDU RM5.5E

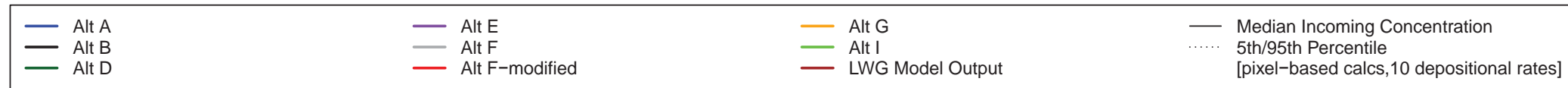
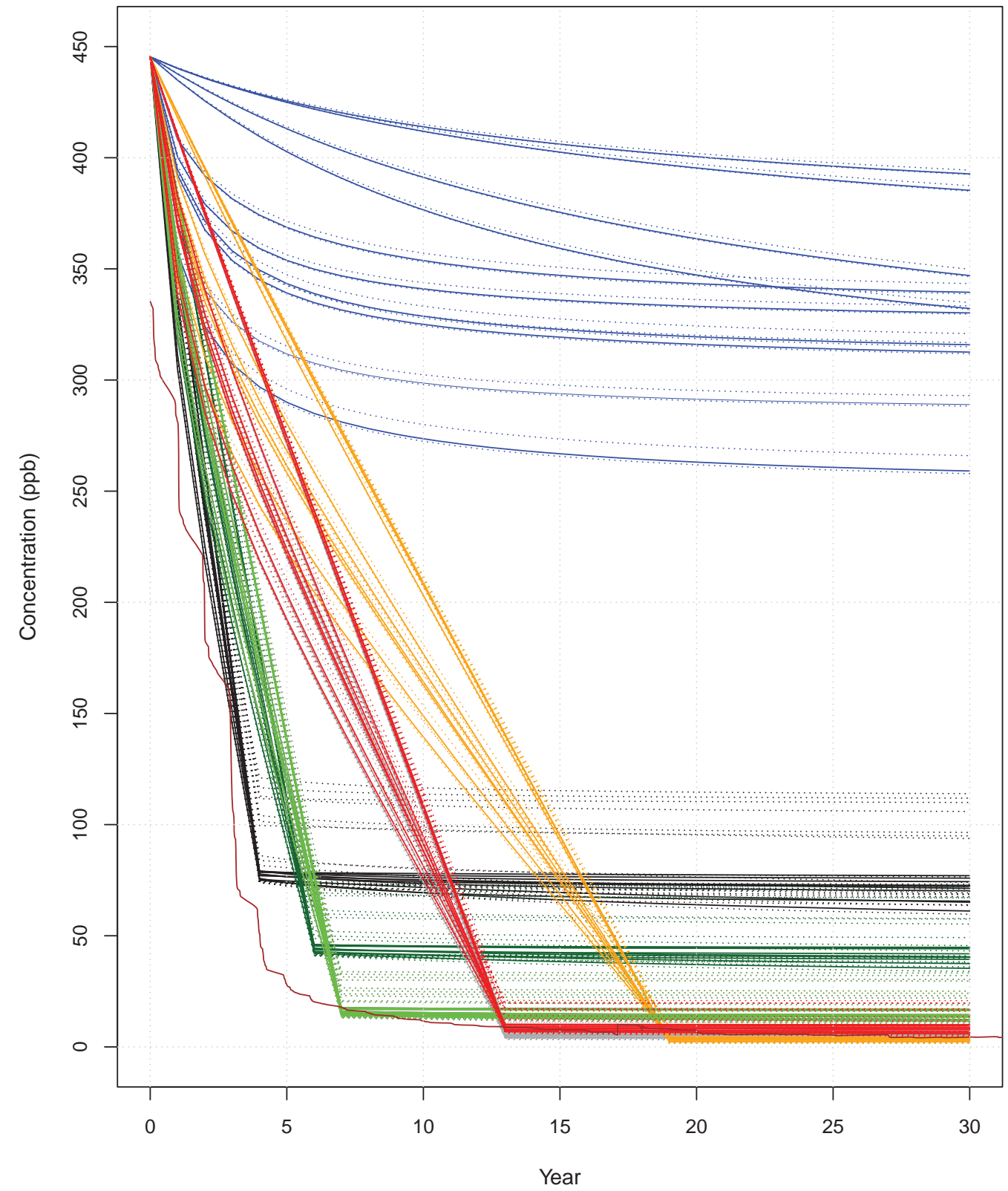




Average PCB Concentration – SDU RM6.5E

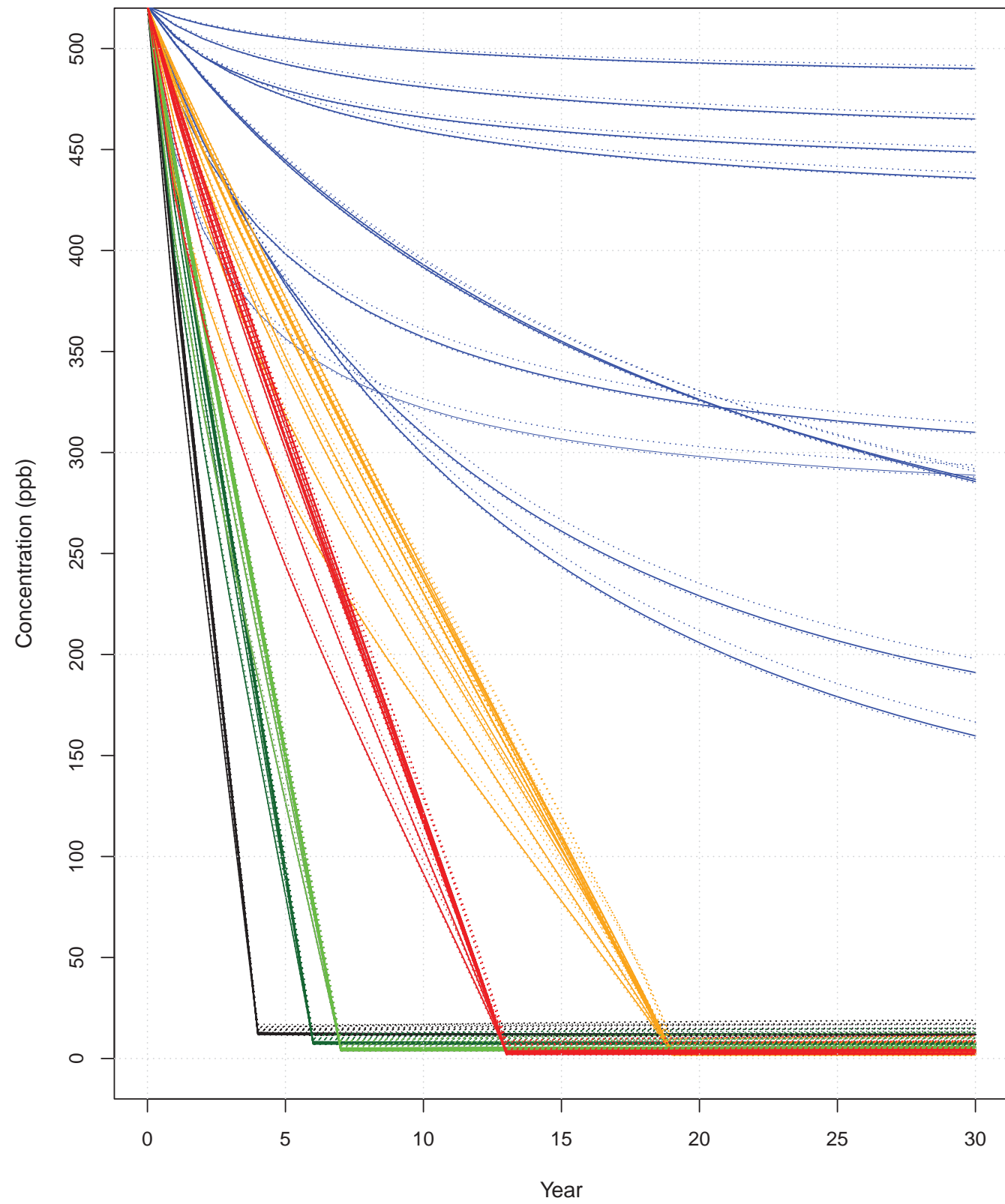


Average PCB Concentration – SDU RM11E

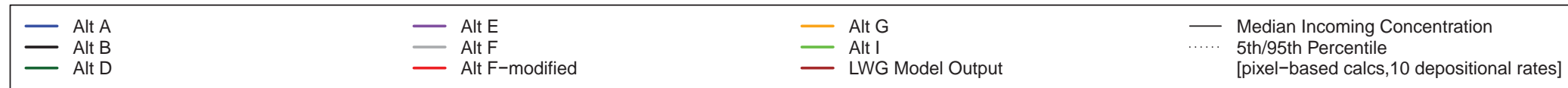
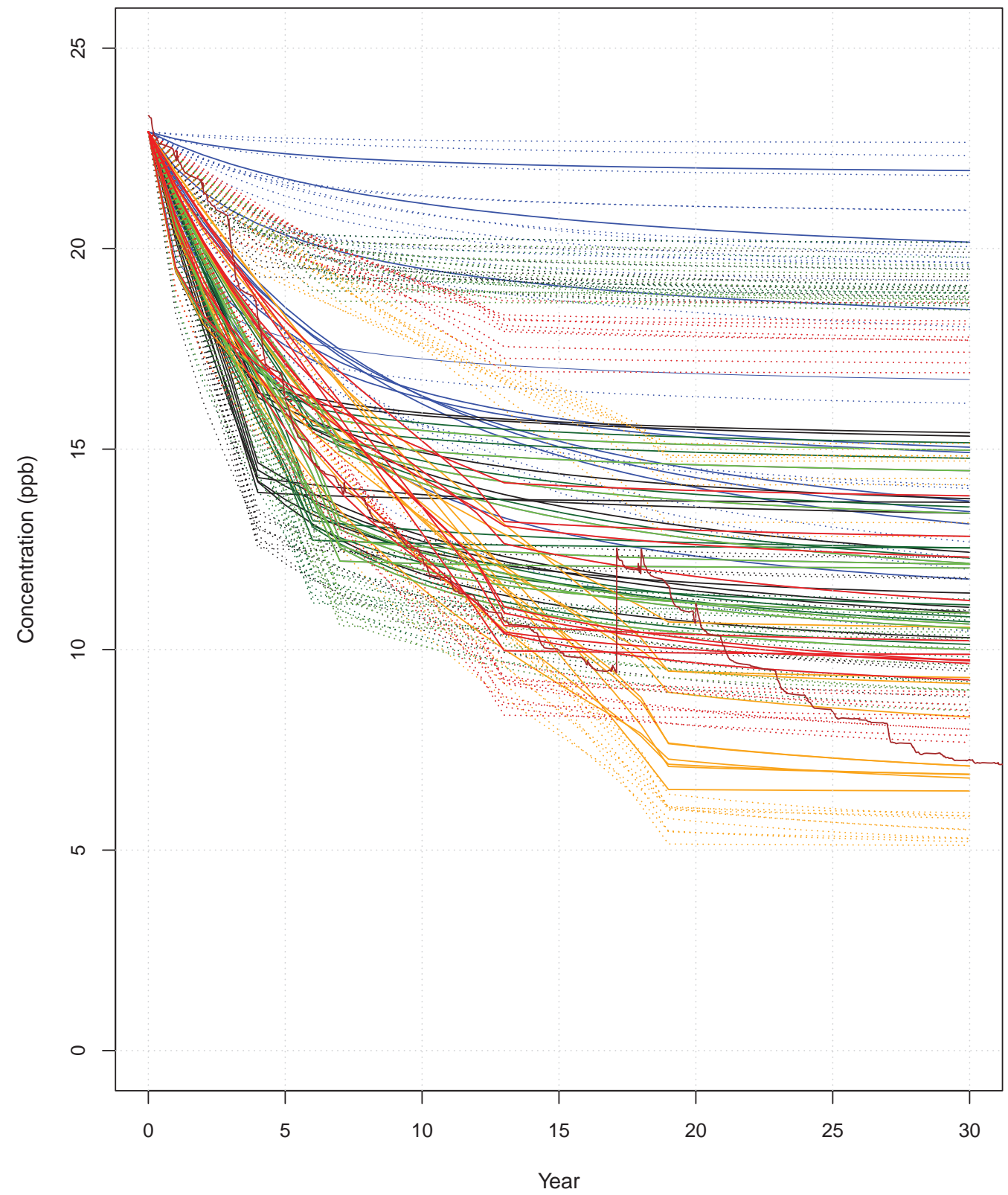


SEDCAM t>0 PCB Concentrations by SDU at Full Scale - SDU RM6.5E and SDU RM11E

Average PCB Concentration – SDU Swan Island



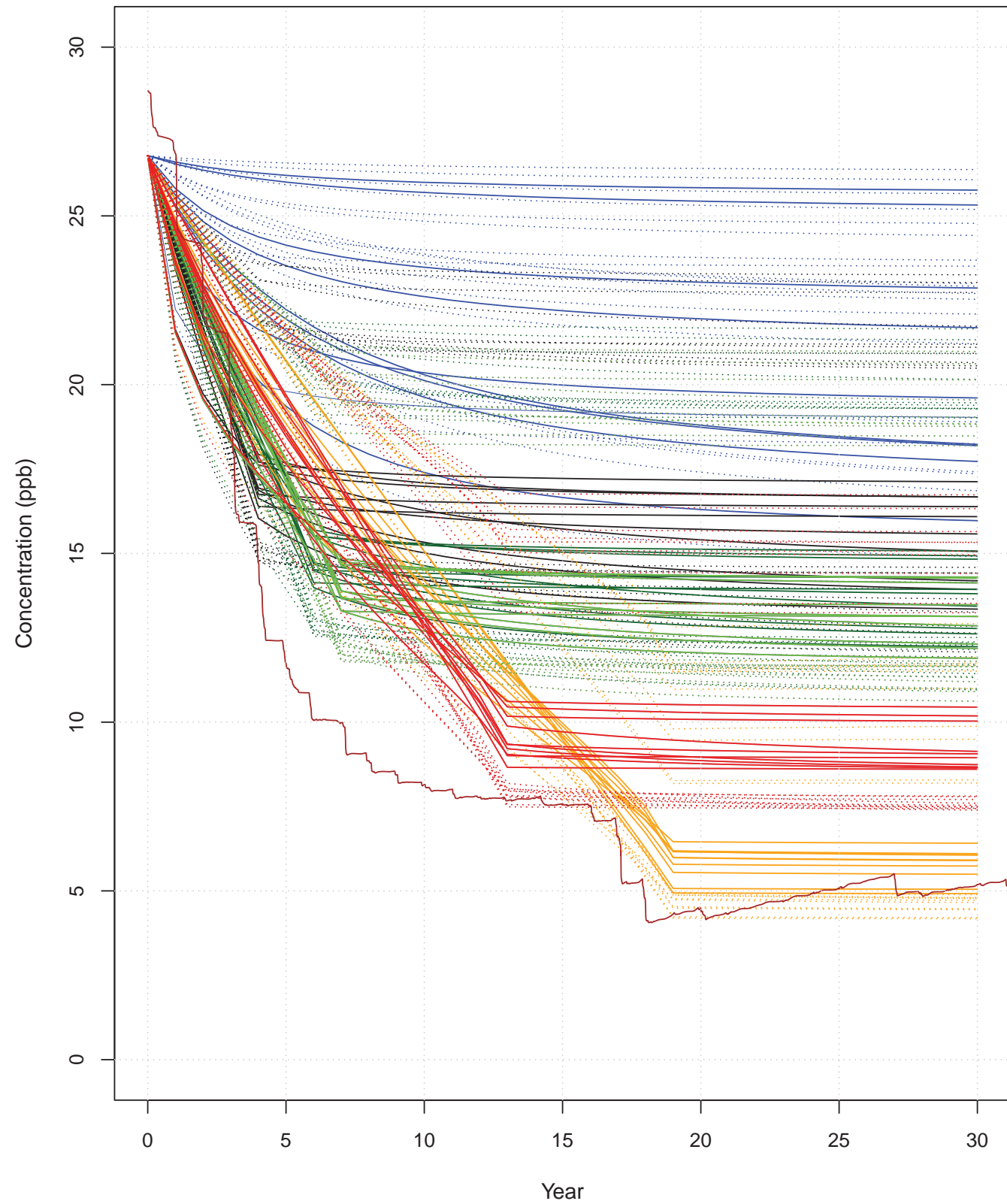
Average PCB Concentration – SDU RM3.9W



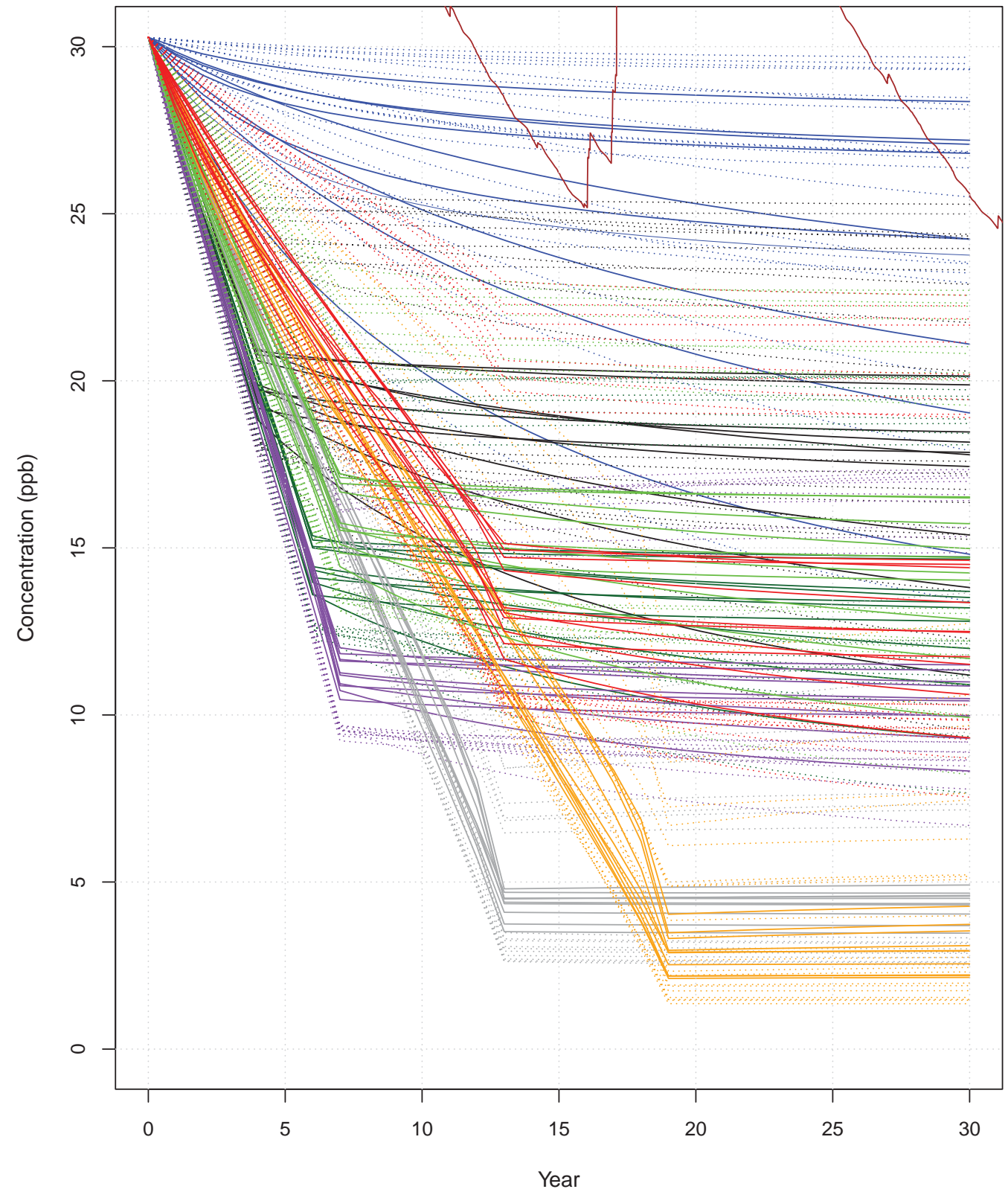
SEDCAM t>0 PCB Concentrations by SDU at Full Scale - SDU Swan Island and SDU RM3.9W



Average PCB Concentration – SDU RM5W



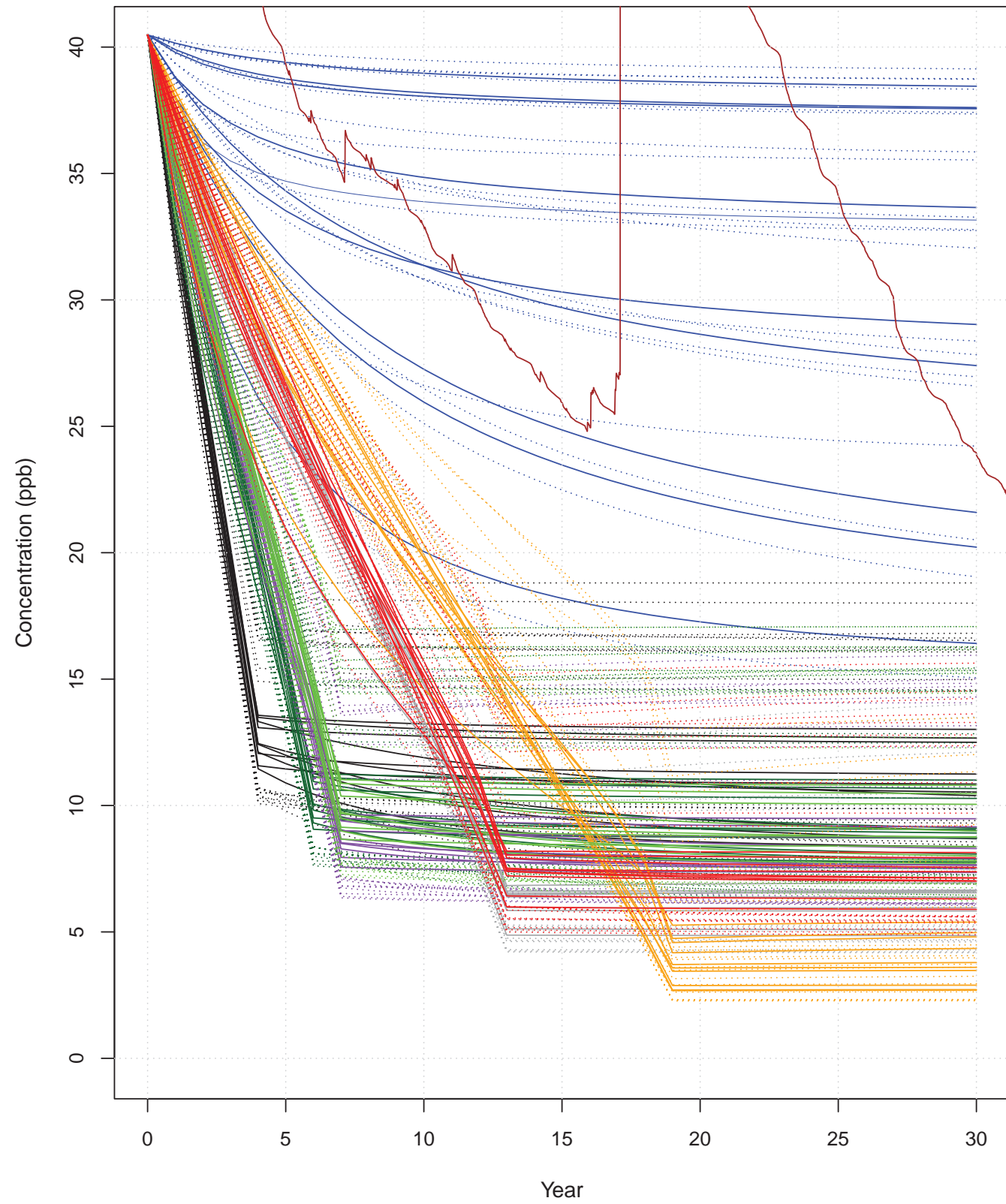
Average PCB Concentration – SDU RM6Nav



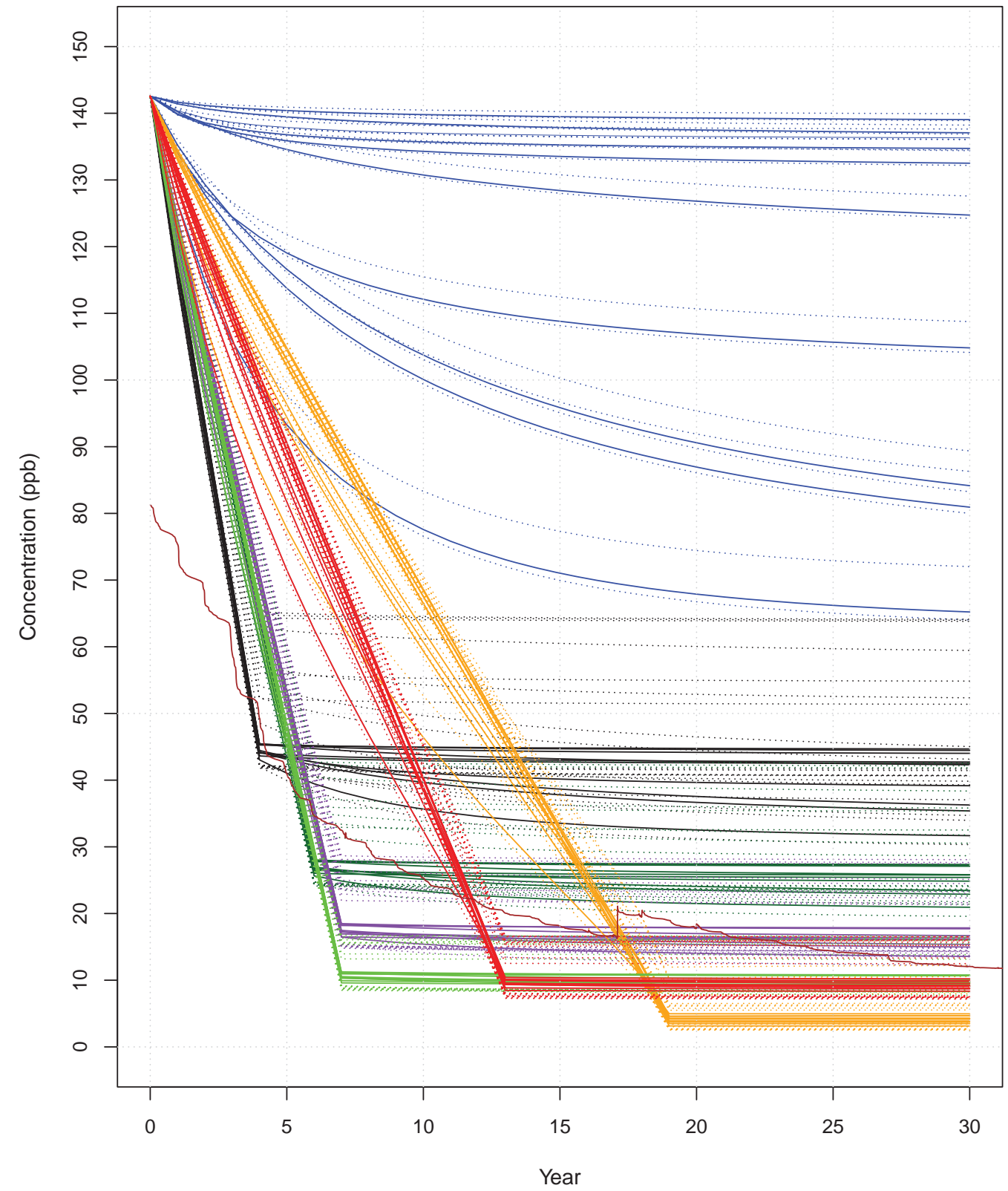
SEDCAM t>0 PCB Concentrations by SDU at Full Scale - SDU RM5W and SDU RM6Nav



Average PCB Concentration – SDU RM6W

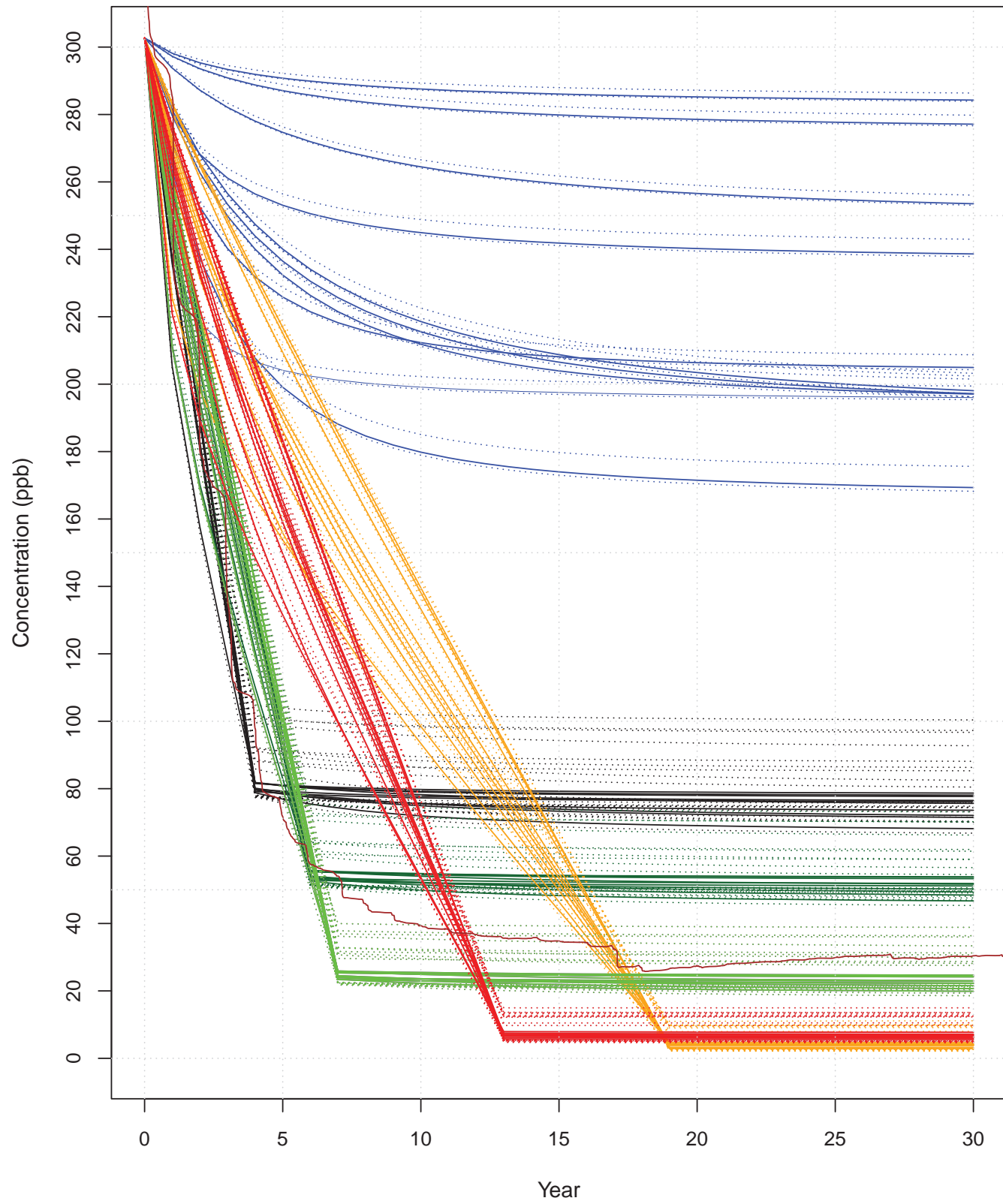


Average PCB Concentration – SDU RM7W

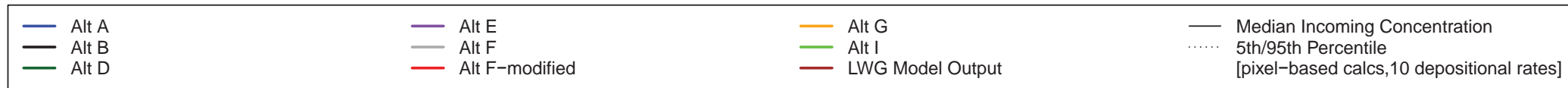
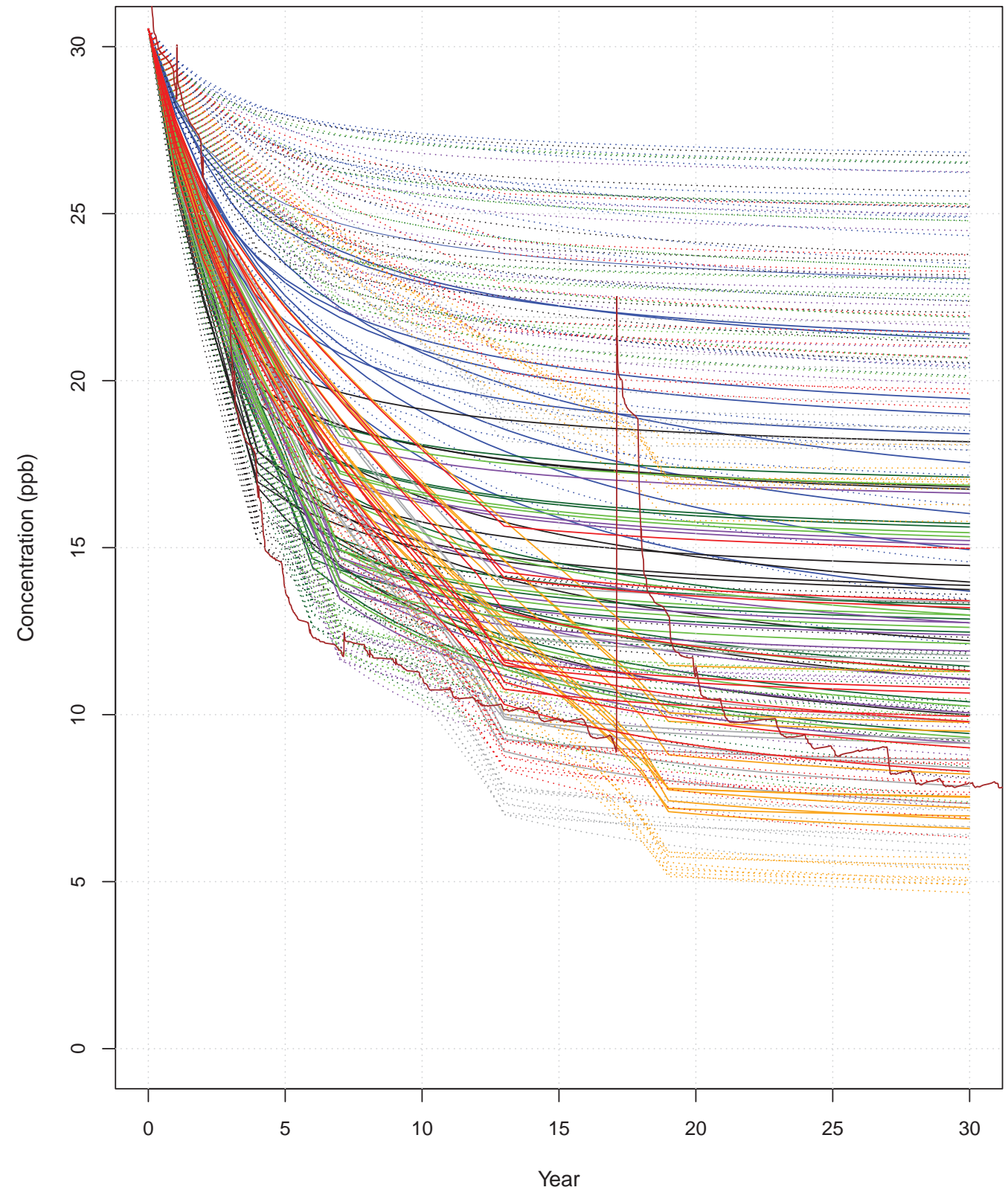




Average PCB Concentration – SDU RM9W



Average PCB Concentration – Outside SDU



PORTLAND HARBOR RI/FS  
**TABLES - UPDATE**

**Table 3.7-1**

**Alternative Cost Summary**

Portland Harbor Superfund Site  
Portland, Oregon

<b>Alternative</b>	<b>Total Capital Cost</b>	<b>Total Periodic Cost</b>	<b>Total Non-Discounted Cost</b>	<b>Present Value Cost</b>	<b>Minus 30% Plus 50% Range</b>
B	\$352,097,000	\$290,324,000	\$642,421,000	\$451,460,000	\$316,022,000 to \$677,190,000
C	\$400,933,000	\$317,464,000	\$718,397,000	\$496,760,000	\$347,732,000 to \$745,140,000
D	\$556,004,000	\$397,028,000	\$953,032,000	\$653,700,000	\$457,590,000 to \$980,550,000
E	\$827,465,000	\$412,332,000	\$1,239,797,000	\$869,530,000	\$608,671,000 to \$1,304,295,000
F Mod	\$1,184,607,000	\$524,028,000	\$1,708,635,000	\$1,054,200,000	\$737,940,000 to \$1,581,300,000
F	\$1,629,407,000	\$549,512,000	\$2,178,919,000	\$1,371,170,000	\$959,819,000 to \$2,056,755,000
G	\$2,500,545,000	\$708,114,000	\$3,208,659,000	\$1,777,320,000	\$1,244,124,000 to \$2,665,980,000
H	\$8,948,573,000	\$1,284,174,000	\$10,232,747,000	\$9,524,940,000	\$6,667,458,000 to \$14,287,410,000
I	\$751,359,000	\$421,940,000	\$1,173,299,000	\$811,290,000	\$567,903,000 to \$1,216,935,000

Notes:

1) Additional Cost information is provided in Appendix G.

**Table 3.8-1**  
**Summary of Alternatives**  
 Portland Harbor Superfund Site  
 Portland, Oregon

Alternative	Volume Removed						Constructed Area				MNR (acres)	Cost <sup>3</sup> (Present Value)	Years to Construct
	Dredged/Excavated <sup>1</sup>			Ex-Situ Treatment <sup>1</sup>			Remove/Contain		In-Situ Treatment <sup>2</sup>	ENR			
	Low Estimate	High Estimate	Average Estimate	Low Estimate	High Estimate	Average Estimate	Sediment	River Bank	Sediment	Sediment			
	(cu yd)	(cu yd)	(cu yd)	(cu yd)	(cu yd)	(cu yd)	(acres)	(lineal ft)	(acres)	(acres)			
B	545,000	710,000	628,000	165,500	217,500	191,500	95	10,000	6.7	99.8	2,000	\$451,460,000	4
C	650,000	848,000	749,000	165,500	217,500	191,500	117	11,000	5.0	97.4	1,900	\$496,760,000	5
D	1,023,000	1,339,000	1,181,000	165,500	217,500	191,500	177	14,000	3.2	87.0	1,900	\$653,700,000	6
E	1,749,000	2,300,000	2,024,000	165,500	217,500	191,500	269	18,000	0	59.8	1,800	\$869,530,000	7
F Mod	2,604,000	3,431,000	3,018,000	165,500	217,500	191,500	365	23,000	0	28.2	1,800	\$1,054,200,000	13
F	3,948,000	5,223,000	4,586,000	165,500	217,500	191,500	505	23,000	0	28.2	1,600	\$1,371,170,000	13
G	6,360,000	8,433,000	7,397,000	165,500	217,500	191,500	756	26,000	0	19.5	1,400	\$1,777,320,000	19
H	25,273,000	33,645,000	29,459,000	165,500	217,500	191,500	2,167	30,000	0	0.0	0	\$9,524,940,000	62
I	1,517,000	1,988,000	1,753,000	165,500	217,500	191,500	231	19,000	0	59.8	1,900	\$811,290,000	7

Notes:

1) Neat volumes are multiplied by an overdredge factor of 1.5 to estimate the "Low Volume with Overdredge" and multiplied by an overdredge factor of 2.0 to estimate the "High Volume with Overdredge".

2) Cost information is provided in Appendix G.

3) In-situ treatment quantity includes only those PTW areas outside of sediment management areas (SMAs).

Removal volumes presented in this table are a product of rounded and non-rounded estimates found on Tables 3.8-4 and 3.8-5. Please see the notes under these tables and Appendix D2 for more information.

**Table 3.8-2a**

**Acres Sediment Assigned to Each Technology Type**

Portland Harbor Superfund Site

Portland, Oregon

Alternative	Containment									
	Intermediate Regions						Shallow Regions			
	Aquablok	Armored	Engineered Cap	Reactive Cap	Reactive Armored Cap	Significantly Augmented Reactive Cap	Aquablok	Armored	Reactive Armored Cap	Significantly Augmented Reactive Cap
	(acres)						(acres)			
B	1.4	2.8	0.8	3.1	12.8	1.1	0.4	0.0	0.3	0.1
C	1.9	4.5	1.6	4.7	15.6	1.1	0.5	0.0	0.3	0.1
D	3.3	8.8	3.8	6.1	20.4	1.1	0.7	0.1	0.4	0.1
E	5.2	13.5	4.1	9.4	30.6	1.1	1.0	0.1	0.6	0.1
F Mod	5.2	44.2	9.5	11.1	44.0	1.1	1.0	0.7	0.9	0.1
F	5.2	44.2	9.5	11.1	44.0	1.1	1.0	0.7	0.9	0.1
G	5.2	91.3	16.3	13.2	54.5	1.1	1.0	1.0	1.1	0.1
H	5.2	392.8	44.9	16.0	71.1	1.1	1.0	1.5	1.6	0.1
I	5.2	10.7	1.7	9.6	34.1	1.1	1.0	0.1	0.6	0.1

Notes:  
 The acreage presented for river banks does not come directly from the R code. The lengths of river banks were conservatively estimated using property boundaries and the outer limits of the site boundary.  
 All values rounded to tenths except MNR.

**Table 3.8-2a****Acres Sediment Assigned to Each Technology Type**

Portland Harbor Superfund Site

Portland, Oregon

Alternative	Dredging						
	NAV		FMD		Intermediate Regions		
	Residual Layer	Reactive Residual Layer	Residual Layer	Reactive Residual Layer	Residual Layer	Reactive Residual Layer	Significantly Augmented Reactive Cap
	(acres)		(acres)		(acres)		
B	26.9	7.3	0.4	14.6	0.2	8.5	0.4
C	32.6	8.1	1.2	17.7	0.4	8.7	0.4
D	46.4	14.2	4.9	30.0	0.7	9.1	0.4
E	63.5	15.8	63.2	8.2	3.1	8.6	0.4
F Mod	28.7	9.5	114.1	15.3	8.5	9.3	0.4
F	156.1	21.9	114.1	15.3	8.5	9.3	0.4
G	261.8	35.0	140.2	22.8	17.2	9.7	0.4
H	1,105.7	74.3	205.3	35.4	31.1	10.0	0.4
I	28.5	10.9	62.2	11.4	3.1	9.5	0.4

## Notes:

The acreage presented for river banks does not come directly from the R code. The lengths of river banks were conservatively estimated using property boundaries and the outer limits of the site boundary.

All values rounded to tenths except MNR.

**Table 3.8-2b****Acres Sediment Assigned to Each Technology Type**

Portland Harbor Superfund Site

Portland, Oregon

Alternative	Dredging (continued)					Excavation/Dredging		
	Shallow Regions					River Bank		
	Backfill	Reactive Residual Layer	Engineered Cap	Reactive Cap	Significantly Augmented Reactive Cap	Engineered cap	Significantly Augmented Reactive Cap	No Action
	(acres)					(acres)		
B	2.8	6.1	0.0	5.0	0.2	8.5	2.0	22.2
C	4.6	6.9	0.0	5.9	0.2	10.1	2.0	20.7
D	8.0	7.7	1.3	9.2	0.2	13.2	2.0	17.6
E	13.5	12.4	1.6	13.2	0.2	17.9	2.0	12.9
F Mod	18.0	11.7	10.8	21.0	0.2	23.4	2.0	7.3
F	18.0	11.7	10.8	21.0	0.2	23.4	2.0	7.3
G	26.0	12.4	20.3	25.9	0.2	26.8	2.0	4.0
H	52.1	11.6	69.2	36.7	0.2	30.8	2.0	-
I	10.9	13.7	3.0	13.4	0.2	19.2	2.0	11.5

## Notes:

The acreage presented for river banks does not come directly from the R code. The lengths of river banks were conservatively estimated using property boundaries and the outer limits of the site boundary.

All values rounded to tenths except MNR.

**Table 3.8-2b****Acres Sediment Assigned to Each Technology Type**

Portland Harbor Superfund Site

Portland, Oregon

Alternative	In-Situ Treatment	ENR		MNR				Previously Remediated (acres)
		FMD	Intermediate Regions	NAV Channel	FMD	Shallow Regions	Intermediate Regions	
	Broadcast GAC	Residual Layer	Residual Layer	Dispersion or Deposition	Dispersion or Deposition	Dispersion or Deposition	Dispersion or Deposition	
	(acres)	(acres)	(acres)	(acres)	(acres)	(acres)	(acres)	
B	6.7	87.8	12.0	1,146	138	159	523	23.2
C	5.0	85.5	11.9	1,139	136	156	517	23.2
D	3.2	77.0	10.0	1,119	129	146	506	23.2
E	0.0	51.1	8.7	1,101	118	131	488	23.2
F Mod	0.0	22.3	5.9	1,142	89	109	433	23.2
F	0.0	22.3	5.9	1,002	89	109	433	23.2
G	0.0	15.4	4.1	883	62	86	360	23.2
H	0.0	0.0	0.0	0	0	0	0	23.2
I	0.0	51.1	8.7	1,141	116	131	489	23.2

## Notes:

The acreage presented for river banks does not come directly from the R code. The lengths of river banks were conservatively estimated using property boundaries and the outer limits of the site boundary.

All values rounded to tenths except MNR.



**Table 3.8-3**  
**Summary of Acres Assigned to Each Technology**  
 Portland Harbor Superfund Site  
 Portland, Oregon

Alternative	Technology						
	Cap	Dredge	Dredge/Cap	River Bank Excavation/Cap	In-Situ Treatment *	ENR	MNR
	(acres)	(acres)	(acres)	(lineal ft)	(acres)	(acres)	(acres)
B	22.8	66.6	5.5	10,000	6.7	99.8	2,000
C	30.2	80.2	6.4	11,000	5.0	97.4	1,900
D	44.8	121.1	10.9	14,000	3.2	87.0	1,900
E	65.6	188.3	15.3	18,000	0	59.8	1,800
F Mod	117.8	215.2	32.3	23,000	0	28.2	1,800
F	117.8	355.1	32.3	23,000	0	28.2	1,600
G	184.7	525.0	46.7	26,000	0	19.5	1,400
H	535.3	1525.5	106.4	30,000	0	0.0	0
I	64.1	150.2	16.9	19,000	0	59.8	1,900

**Table 3.8-4**

**Summary of Dredge Volumes and Material Quantities for each Alternative**

Portland Harbor Superfund Site

Portland, Oregon

Alternative	Total Dredge Volume <sup>1</sup>			Ex-Situ Treatment Volume <sup>1</sup>			Material Volumes for Containment, Dredge Residuals Management, and In-Situ Treatment <sup>2</sup>						
	Low Estimate	High Estimate	Average Estimate	Low Estimate	High Estimate	Average Estimate	Sand	Low-Permeability Sand	Organoclay Mats	Beach Mix	Armor	Aquablok	AquaGate + 10% PAC
	(cu yd)			(cu yd)			(cu yd)					(tons)	
B	494,000	659,000	577,000	156,000	208,000	182,000	349,000	3,900	230	12,000	28,000	1,600	50,000
C	592,000	790,000	691,000	156,000	208,000	182,000	392,000	3,900	230	15,000	36,000	2,200	57,000
D	950,000	1,266,000	1,108,000	156,000	208,000	182,000	494,000	3,900	230	22,000	52,000	3,700	79,000
E	1,653,000	2,204,000	1,928,000	156,000	208,000	182,000	663,000	3,900	230	34,000	78,000	5,700	78,000
F Mod	2,481,000	3,308,000	2,895,000	156,000	208,000	182,000	910,000	3,900	230	50,600	150,300	5,700	96,300
F	3,825,000	5,100,000	4,463,000	156,000	208,000	182,000	1,126,000	3,900	230	51,000	150,000	5,700	106,000
G	6,221,000	8,294,000	7,258,000	156,000	208,000	182,000	1,659,000	3,900	230	69,000	244,000	5,700	137,000
H	25,115,000	33,487,000	29,301,000	156,000	208,000	182,000	4,719,000	3,900	230	138,000	759,000	5,700	201,000
I	1,414,000	1,885,000	1,650,000	156,000	208,000	182,000	595,000	3,900	230	34,000	79,000	5,700	81,000

Notes:

1) Estimated range of volume for alternatives derived by multiplying the “neat” dredge volume by 1.5 for the low range and by 2 for the high range.

2) All material quantities expressed as in-situ, neat measurements.

The quantities presented above are rounded. See Appendix D.2 for additional information.

**Table 3.8-5****Summary of Excavated River Bank Volumes and Material Quantities for each Alternative**

Portland Harbor Superfund Site

Portland, Oregon

Alternative	Total Excavated Volume (cu yd)	Ex-Situ Treatment Volume (cu yd)	Material Volumes for Containment, Dredge Residuals Management, and In-Situ Treatment <sup>1</sup>						
			Sand	Low-Permeability Sand	Beach Mix	Armor	Aquablok	AquaGate + 10% PAC	Organoclay Mats
			(cu yd)				(tons)		
B	51,000	9,500	38,000	4,500	7,000	2,000	0	0	260
C	58,000	9,500	44,000	4,500	8,000	2,000	0	0	260
D	73,000	9,500	56,000	4,500	11,000	2,000	0	0	260
E	96,000	9,500	75,000	4,500	14,000	2,000	0	0	260
F Mod	123,000	9,500	98,000	4,500	19,000	2,000	0	0	260
F	123,000	9,500	98,000	4,500	19,000	2,000	0	0	260
G	139,000	9,500	111,000	4,500	22,000	2,000	0	0	260
H	158,000	9,500	127,000	4,500	25,000	2,000	0	0	260
I	103,000	9,500	81,000	4,500	16,000	2,000	0	0	260

## Notes:

1) All material quantities neat measurements.

The quantities presented above do not come directly from the R code. The lengths of river banks were conservatively estimated using property boundaries and the outer limits of the site boundary. Area calculations were based on simplifying assumptions for bank slope length. Calculations for river banks with full assumptions are presented in Appendix D.

**Table 3.9-1**  
**Percent Reduction in Site-Wide Sediment SWAC**  
 Portland Harbor Superfund Site  
 Portland, Oregon

Alternative	PCBs	Total PAHs	DDx	TCDD	PeCDD	PeCDF
	(Percent Reduction)					
B	56	79	66	41	26	90
C	58	82	68	43	29	91
D	62	87	71	47	36	92
E	67	91	75	54	40	94
F Mod	72	84	78	57	43	95
F	77	94	80	62	50	96
G	83	96	86	70	59	97
H	100	100	100	100	100	100
I	67	83	76	50	30	94

**Table 3.9-2**  
**Summary of Area and Volume Information Used for Alternatives Screening**  
 Portland Harbor Superfund Site  
 Portland, Oregon

Alternative	Construction							Materials							Cost Summary	
	Capping	Dredging		ENR	In-Situ Treatment *	MNR	Total Area Constructed	Sand	Low-Permeability Sand	Organoclay Mats	Beach Mix	Armor	Aquablok	AquaGate + 10% PAC	Present Value Cost	Minus 30% Plus 50% Range
	(acres)	(acres)	(cy)	(acres)	(acres)	(acres)	(acres)	(cy)					(tons)			
B	22.8	72.2	494,000 to 659,000	99.8	6.7	2,000	201	349,000	3,900	230	12,000	28,000	1,600	50,000	\$451,460,000	\$316,022,000 to \$677,190,000
C	30.2	86.6	592,000 to 790,000	97.4	5.0	1,900	219	392,000	3,900	230	15,000	36,000	2,200	57,000	\$496,760,000	\$347,732,000 to \$745,140,000
D	44.8	132.1	950,000 to 1,266,000	87.0	3.2	1,900	267	494,000	3,900	230	22,000	52,000	3,700	79,000	\$653,700,000	\$457,590,000 to \$980,550,000
E	65.6	203.7	1,653,000 to 2,204,000	59.8	0	1,800	329	663,000	3,900	230	34,000	78,000	5,700	78,000	\$869,530,000	\$608,671,000 to \$1,304,295,000
F Mod	117.8	247.6	2,481,000 to 3,308,000	28.2	0	1,800	394	910,000	3,900	230	50,600	150,300	5,700	96,300	\$1,054,200,000	\$737,940,000 to \$1,581,300,000
F	117.8	387.4	3,825,000 to 5,100,000	28.2	0	1,600	533	1,126,000	3,900	230	51,000	150,000	5,700	106,000	\$1,371,170,000	\$959,819,000 to \$2,056,755,000
G	184.7	571.7	6,221,000 to 8,294,000	19.5	0	1,400	776	1,659,000	3,900	230	69,000	244,000	5,700	137,000	\$1,777,320,000	\$1,244,124,000 to \$2,665,980,000
H	535.3	1631.9	25,115,000 to 33,487,000	0.0	0	0	2,167	4,719,000	3,900	230	138,000	759,000	5,700	201,000	\$9,524,940,000	\$6,667,458,000 to \$14,287,410,000
I	64.1	167.1	1,414,000 to 1,885,000	59.8	0	1,900	291	595,000	3,900	230	34,000	79,000	5,700	81,000	\$811,290,000	\$567,903,000 to \$1,216,935,000

Notes:  
 Quantities above do not include river bank volumes presented in Table 3.8-5  
 \* In-situ treatment quantity includes only those PTW areas outside of sediment management areas (SMAs).

**Table 4.2-1****RAO 2 Post-construction Carcinogenic Risk by SDU**

Portland Harbor Superfund Site

Portland, OR

SDU	Alternative							
	A	B	D	E	F Mod	F	G	I
Outside SDU	1E-04	1E-04	1E-04	1E-04	1E-04	1E-04	8E-05	1E-04
RM2E	7E-04	2E-04	2E-04	1E-04	7E-05	7E-05	6E-05	1E-04
RM3.5E	5E-04	3E-04	2E-04	1E-04	9E-05	9E-05	6E-05	1E-04
RM4.5E	4E-04	4E-04	3E-04	2E-04	9E-05	9E-05	4E-05	2E-04
RM5.5E	3E-04	3E-04	3E-04	3E-04	2E-04	2E-04	9E-05	2E-04
RM6.5E	4E-04	2E-04	1E-04	1E-04	7E-05	7E-05	6E-05	1E-04
Swans	2E-03	5E-05	3E-05	1E-05	7E-06	7E-06	5E-06	1E-05
RM11E	2E-03	6E-04	3E-04	2E-04	1E-04	7E-05	4E-05	2E-04
RM3.9W	1E-04	1E-04	1E-04	1E-04	9E-05	9E-05	7E-05	1E-04
RM5W	2E-04	2E-04	1E-04	1E-04	1E-04	1E-04	7E-05	1E-04
RM6Nav	2E-04	1E-04	1E-04	1E-04	1E-04	5E-05	3E-05	1E-04
RM6W	2E-04	1E-04	9E-05	7E-05	7E-05	4E-05	2E-05	9E-05
RM7W	2E-02	1E-03	8E-04	3E-04	2E-04	2E-04	3E-05	2E-04
RM9W	1E-03	5E-04	3E-04	2E-04	6E-05	6E-05	4E-05	2E-04

NoSDU is the area of the Site outside other SDUs

Residual risk on a river mile scale is  $3 \times 10^{-5}$

**Table 4.2-2**

**Acceptable Fish Consumption Rates (meals/year)**

Portland Harbor Superfund Site

Portland, OR

Alternative	Post-Construction Risk			RAO 2 Risk Reduction	Post-Construction Acceptable Fish Meals				
	Carcinogenic Risk	HI	HI (Infant)		Carcinogenic Risk			Non-Cancer Hazard	
					$1 \times 10^{-6}$	$1 \times 10^{-5}$	$1 \times 10^{-4}$	HI	HI (infant)
A	6.6E-04	71	1123	0%	0.3	3.5	34.6	3.1	0.2
B	2.3E-04	25	417	65%	1.0	9.8	98.2	8.9	0.5
D	2.0E-04	21	358	70%	1.1	11.4	114.3	10.3	0.6
E	1.7E-04	18	305	74%	1.3	13.4	134.5	12.2	0.7
F Mod	1.5E-04	15	259	78%	1.6	15.7	157.2	14.4	1.1
F	1.2E-04	13	213	82%	1.9	19.0	190.2	17.5	1.1
G	8.9E-05	9	157	87%	2.6	25.7	257.3	23.8	1.5
I	1.7E-04	18	307	74%	1.3	13.3	133.2	12.1	0.7
Remedial Goal	8.3E-05	7	133	87%	2.7	27.4	274.4	29.7	1.7

- Acceptable Fish Meals calculated according to the following formula: Acceptable Risk Level/Post Construction Risk x consumption rate (meals/yr).

- Consumption rates utilized are highlighted in green below:

Scenario	Meal Size (ounces)	Consumption Rate	
		g/day	meals/yr
Recreational CTE	8	17.5	28
Recreational RME	8	49	79
Subsistence	8	142	229
Tribal	8	175	282
Child Subsistence	3.5	60	221
OHA advisory	8	7.5	12

- Adult consumption rate in meals per year are based on a 142 g/day fish consumption rate and an 8 ounce fish meal.

- Child consumption rate in meals per year are based on a 60 g/day fish consumption rate and an 3.5 ounce fish meal.

- Acceptable meal rates are based on fish consumption only and do not consider cPAH contamination and shellfish consumption.

**Table 4.2-3****RAO 2 Post-construction Non-Cancer Hazard (HI) by SDU**

Portland Harbor Superfund Site

Portland, OR

SDU	Alternative							
	A	B	D	E	F Mod	F	G	I
NoSDU	6	6	6	5	5	4	4	6
RM2E	38	11	8	6	3	3	3	6
RM3.5E	27	14	10	7	4	4	3	7
RM4.5E	16	16	12	8	4	4	2	8
RM5.5E	13	13	13	12	6	6	3	6
RM6.5E	15	6	5	4	3	3	2	5
SwanIs	91	2	1	1	0	0	0	1
RM11E	78	27	16	8	4	3	1	8
RM3.9W	4	4	4	4	4	4	3	4
RM5W	6	6	5	5	4	4	2	5
RM6Nav	6	6	4	3	5	1	1	5
RM6W	9	4	3	3	3	2	1	3
RM7W	479	31	23	10	5	5	1	5
RM9W	53	23	16	8	3	3	1	8

NoSDU is the area of the Site outside other SDUs

Residual risk on a river mile scale is 2.



**Table 4.2-4****RAO 2 Post-construction Non-Cancer Hazard (HI) for Infant by SDU**

Portland Harbor Superfund Site

Portland, OR

SDU	Alternative							
	A	B	D	E	F Mod	F	G	I
NoSDU	140	138	135	134	129	110	89	138
RM2E	770	241	175	127	77	77	60	127
RM3.5E	574	312	231	154	93	93	66	154
RM4.5E	395	392	294	214	92	92	42	214
RM5.5E	367	366	366	334	188	188	100	188
RM6.5E	429	166	123	118	77	77	60	155
SwanIs	1,880	52	29	15	7	7	5	15
RM11E	1,634	607	373	199	114	81	40	199
RM3.9W	120	120	120	119	106	106	76	119
RM5W	181	179	168	162	121	121	76	162
RM6Nav	179	158	128	105	147	51	29	147
RM6W	237	108	92	77	74	49	23	92
RM7W	22,730	1,211	902	356	180	180	38	180
RM9W	1,197	547	389	202	70	70	43	202

NoSDU is the area of the Site outside other SDUs

Residual risk on a river mile scale is 45.

**Table 4.2-5**

**RAO 6 Post-construction Non-Cancer Hazards (HQs) for COCs by SDU**

Portland Harbor Superfund Site  
Portland, OR

SDU	Alternative							
	A	B	D	E	F Mod	F	G	I
<b>BEHP</b>								
Outside SD	1.40	1.40	1.38	1.37	1.29	1.21	1.06	1.40
RM2E	0.83	0.74	0.70	0.65	0.56	0.56	0.50	0.65
RM3.5E	7.94	5.83	5.05	3.04	0.90	0.90	0.39	3.04
RM4.5E	1.65	1.63	1.42	1.23	0.50	0.50	0.22	1.23
RM5.5E	1.27	1.27	1.27	1.19	0.74	0.74	0.36	0.74
RM6.5E	0.65	0.59	0.53	0.52	0.39	0.39	0.32	0.57
SwanIs	13.48	0.59	0.37	0.19	0.09	0.09	0.07	0.19
RM11E	1.01	0.90	0.81	0.66	0.46	0.43	0.27	0.66
RM3.9W	4.10	4.10	4.10	4.03	3.15	3.15	1.26	4.03
RM5W	0.52	0.51	0.49	0.46	0.35	0.35	0.22	0.46
RM6Nav	1.82	1.33	0.89	0.62	1.32	0.29	0.15	1.32
RM6W	2.33	1.04	0.80	0.49	0.45	0.21	0.09	0.80
RM7W	2.58	2.22	2.11	1.91	1.38	1.38	0.73	1.38
RM9W	8.49	6.65	4.31	1.35	0.35	0.35	0.19	1.35
<b>DDE</b>								
Outside SD	0.009	0.009	0.009	0.009	0.009	0.008	0.007	0.009
RM2E	0.012	0.010	0.010	0.009	0.008	0.008	0.007	0.009
RM3.5E	0.010	0.008	0.007	0.006	0.005	0.005	0.004	0.006
RM4.5E	0.014	0.014	0.012	0.011	0.007	0.007	0.003	0.011
RM5.5E	0.012	0.012	0.012	0.011	0.007	0.007	0.004	0.007
RM6.5E	0.008	0.007	0.006	0.006	0.005	0.005	0.004	0.007
SwanIs	0.015	0.001	0.001	0.001	0.000	0.000	0.000	0.001
RM11E	0.009	0.005	0.005	0.004	0.003	0.002	0.002	0.004
RM3.9W	0.014	0.014	0.014	0.014	0.013	0.013	0.009	0.014
RM5W	0.012	0.012	0.012	0.011	0.008	0.008	0.005	0.011
RM6Nav	0.012	0.009	0.007	0.006	0.009	0.003	0.001	0.009
RM6W	0.067	0.013	0.009	0.007	0.008	0.004	0.002	0.009
RM7W	0.217	0.060	0.036	0.019	0.009	0.009	0.003	0.009
RM9W	0.068	0.031	0.028	0.018	0.006	0.006	0.003	0.018
<b>DDx</b>								
Outside SD	0.009	0.009	0.009	0.009	0.009	0.008	0.007	0.009
RM2E	0.010	0.009	0.008	0.007	0.006	0.006	0.005	0.007
RM3.5E	0.011	0.009	0.008	0.007	0.005	0.005	0.004	0.007
RM4.5E	0.019	0.019	0.016	0.013	0.008	0.008	0.004	0.013
RM5.5E	0.017	0.017	0.017	0.016	0.008	0.008	0.004	0.008
RM6.5E	0.012	0.010	0.008	0.008	0.007	0.007	0.006	0.010
SwanIs	0.019	0.001	0.001	0.001	0.000	0.000	0.000	0.001
RM11E	0.034	0.018	0.013	0.009	0.006	0.005	0.002	0.009
RM3.9W	0.023	0.023	0.023	0.023	0.021	0.021	0.011	0.023
RM5W	0.019	0.019	0.019	0.018	0.014	0.014	0.006	0.018
RM6Nav	0.016	0.010	0.008	0.006	0.010	0.003	0.001	0.010
RM6W	0.104	0.028	0.023	0.018	0.014	0.009	0.003	0.023
RM7W	0.837	0.102	0.062	0.031	0.014	0.014	0.004	0.014
RM9W	0.048	0.029	0.026	0.016	0.005	0.005	0.003	0.016

**Table 4.2-5**

**RAO 6 Post-construction Non-Cancer Hazards (HQs) for COCs by SDU**

Portland Harbor Superfund Site  
Portland, OR

SDU	Alternative							
	A	B	D	E	F Mod	F	G	I
<b>PCBs</b>								
Outside SD	0.85	0.84	0.84	0.83	0.79	0.66	0.52	0.83
RM2E	6.04	1.80	1.28	0.90	0.53	0.53	0.41	0.90
RM3.5E	4.20	2.18	1.62	1.04	0.57	0.57	0.38	1.04
RM4.5E	2.23	2.23	1.64	1.16	0.53	0.53	0.24	1.16
RM5.5E	1.72	1.72	1.72	1.48	0.63	0.63	0.28	0.63
RM6.5E	2.13	0.77	0.68	0.64	0.36	0.36	0.27	0.73
SwanIs	14.47	0.36	0.20	0.10	0.04	0.04	0.03	0.10
RM11E	12.37	4.26	2.48	1.19	0.61	0.40	0.16	1.19
RM3.9W	0.64	0.64	0.64	0.63	0.55	0.55	0.40	0.63
RM5W	0.74	0.74	0.69	0.67	0.46	0.46	0.27	0.67
RM6Nav	0.84	0.75	0.58	0.46	0.67	0.17	0.07	0.67
RM6W	1.12	0.51	0.44	0.37	0.32	0.22	0.10	0.44
RM7W	3.96	1.88	1.27	0.86	0.50	0.50	0.16	0.50
RM9W	8.41	3.54	2.47	1.28	0.38	0.38	0.22	1.28
<b>1,2,3,4,7,8-HxCDF</b>								
Outside SD	0.028	0.027	0.026	0.026	0.025	0.024	0.020	0.028
RM2E	0.016	0.013	0.012	0.011	0.008	0.008	0.007	0.011
RM3.5E	0.034	0.027	0.019	0.016	0.013	0.013	0.010	0.016
RM4.5E	0.190	0.187	0.143	0.108	0.039	0.039	0.018	0.108
RM5.5E	0.232	0.232	0.232	0.229	0.164	0.164	0.096	0.164
RM6.5E	0.181	0.067	0.034	0.033	0.029	0.029	0.024	0.060
SwanIs	0.099	0.008	0.004	0.003	0.002	0.002	0.002	0.003
RM11E	0.044	0.035	0.029	0.022	0.016	0.013	0.009	0.022
RM3.9W	0.030	0.030	0.030	0.030	0.027	0.027	0.019	0.030
RM5W	0.099	0.098	0.091	0.087	0.070	0.070	0.048	0.087
RM6Nav	0.075	0.064	0.055	0.047	0.063	0.031	0.019	0.063
RM6W	0.146	0.062	0.051	0.042	0.049	0.028	0.015	0.051
RM7W	42.76	1.842	1.403	0.453	0.209	0.209	0.026	0.209
RM9W	0.057	0.043	0.032	0.019	0.010	0.010	0.007	0.019
<b>1,2,3,7,8-PeCDD</b>								
Outside SD	0.122	0.110	0.104	0.104	0.101	0.095	0.082	0.122
RM2E	0.067	0.055	0.052	0.048	0.033	0.033	0.027	0.048
RM3.5E	0.250	0.198	0.141	0.125	0.112	0.112	0.099	0.125
RM4.5E	0.147	0.146	0.124	0.106	0.046	0.046	0.023	0.106
RM5.5E	0.244	0.244	0.244	0.237	0.184	0.184	0.111	0.184
RM6.5E	0.560	0.289	0.176	0.172	0.146	0.146	0.123	0.276
SwanIs	0.211	0.019	0.011	0.008	0.005	0.005	0.004	0.008
RM11E	0.465	0.372	0.316	0.248	0.178	0.152	0.095	0.248
RM3.9W	0.114	0.114	0.114	0.114	0.104	0.104	0.074	0.114
RM5W	0.161	0.159	0.147	0.139	0.109	0.109	0.071	0.139
RM6Nav	0.221	0.199	0.164	0.145	0.191	0.091	0.065	0.191
RM6W	0.110	0.068	0.061	0.054	0.049	0.037	0.019	0.061
RM7W	0.369	0.108	0.082	0.064	0.046	0.046	0.021	0.046
RM9W	0.387	0.299	0.209	0.123	0.063	0.063	0.045	0.123

**Table 4.2-5**

**RAO 6 Post-construction Non-Cancer Hazards (HQs) for COCs by SDU**

Portland Harbor Superfund Site  
Portland, OR

SDU	Alternative							
	A	B	D	E	F Mod	F	G	I
<b>1,2,3,7,8-PeCDF</b>								
Outside SD	0.063	0.057	0.053	0.053	0.050	0.048	0.041	0.063
RM2E	0.071	0.051	0.046	0.040	0.024	0.024	0.018	0.040
RM3.5E	0.097	0.072	0.049	0.041	0.034	0.034	0.028	0.041
RM4.5E	0.318	0.312	0.237	0.179	0.062	0.062	0.030	0.179
RM5.5E	0.443	0.443	0.443	0.437	0.313	0.313	0.181	0.313
RM6.5E	0.449	0.208	0.134	0.131	0.116	0.116	0.098	0.194
SwanIs	0.133	0.013	0.006	0.004	0.003	0.003	0.002	0.004
RM11E	0.091	0.072	0.061	0.047	0.035	0.029	0.018	0.047
RM3.9W	0.068	0.068	0.068	0.067	0.063	0.063	0.045	0.067
RM5W	0.212	0.210	0.194	0.181	0.145	0.145	0.097	0.181
RM6Nav	0.293	0.228	0.186	0.157	0.225	0.094	0.056	0.225
RM6W	0.351	0.127	0.097	0.074	0.102	0.044	0.021	0.097
RM7W	46.48	2.220	1.678	0.605	0.285	0.285	0.041	0.285
RM9W	0.211	0.160	0.124	0.081	0.039	0.039	0.027	0.081
<b>2,3,7,8-TCDD</b>								
Outside SD	0.058	0.055	0.053	0.053	0.052	0.048	0.041	0.057
RM2E	0.038	0.033	0.031	0.029	0.022	0.022	0.019	0.029
RM3.5E	0.073	0.058	0.041	0.034	0.029	0.029	0.024	0.034
RM4.5E	0.033	0.033	0.028	0.025	0.013	0.013	0.007	0.025
RM5.5E	0.050	0.050	0.050	0.049	0.041	0.041	0.029	0.041
RM6.5E	0.095	0.042	0.019	0.018	0.016	0.016	0.013	0.040
SwanIs	0.088	0.007	0.005	0.004	0.002	0.002	0.001	0.004
RM11E	0.214	0.169	0.143	0.112	0.090	0.070	0.048	0.112
RM3.9W	0.102	0.102	0.102	0.101	0.094	0.094	0.060	0.101
RM5W	0.152	0.151	0.147	0.143	0.113	0.113	0.073	0.143
RM6Nav	0.081	0.075	0.063	0.057	0.072	0.032	0.023	0.072
RM6W	0.062	0.036	0.033	0.030	0.025	0.021	0.011	0.033
RM7W	1.059	0.095	0.074	0.057	0.038	0.038	0.014	0.038
RM9W	0.625	0.404	0.328	0.149	0.080	0.080	0.060	0.149
<b>2,3,7,8-TCDF</b>								
Outside SD	0.091	0.090	0.089	0.089	0.087	0.081	0.069	0.091
RM2E	0.099	0.076	0.069	0.061	0.040	0.040	0.030	0.061
RM3.5E	0.139	0.099	0.065	0.054	0.044	0.044	0.037	0.054
RM4.5E	0.059	0.059	0.051	0.045	0.029	0.029	0.021	0.045
RM5.5E	0.400	0.400	0.400	0.394	0.279	0.279	0.158	0.279
RM6.5E	0.199	0.113	0.080	0.078	0.067	0.067	0.057	0.107
SwanIs	0.081	0.006	0.003	0.002	0.001	0.001	0.001	0.002
RM11E	0.064	0.049	0.039	0.029	0.020	0.017	0.010	0.029
RM3.9W	0.149	0.149	0.149	0.148	0.139	0.139	0.098	0.148
RM5W	0.295	0.292	0.270	0.254	0.204	0.204	0.135	0.254
RM6Nav	0.583	0.434	0.345	0.288	0.430	0.162	0.089	0.430
RM6W	0.516	0.200	0.157	0.123	0.150	0.073	0.036	0.157
RM7W	70.13	3.467	2.614	0.956	0.437	0.437	0.070	0.437
RM9W	0.203	0.155	0.125	0.081	0.036	0.036	0.023	0.081

**Table 4.2-6**

**Percent Groundwater Plume Area Adressed by Alternative**

Portland Harbor Superfund Site

Portland, OR

	Alternative						
	B	D	E	F Mod	F	G	I
% Reactive Cap within SMA	6%	9%	13%	21%	22%	29%	15%
% Reactive residual layer within SMA	10%	14%	19%	17%	24%	33%	18%
Total % groundwater plume Area Adressed	16%	23%	32%	39%	46%	62%	33%

\*Groundwater plume area within Site = 243 acres

\*Groundwater plume area within Site = 243 acres

**Table 4.2-7**

**Percentage of Benthic Risk Area Addressed by Each Alternative**

Portland Harbor Superfund Site

Portland, OR

<b>Alternative</b>	<b>Benthic Risk</b>	<b>10x Benthic Risk</b>	<b>100x Benthic Risk</b>
B	7%	48%	81%
D	13%	64%	86%
E	20%	73%	88%
F Mod	27%	72%	90%
F	36%	87%	89%
G	51%	93%	92%
I	17%	64%	87%

\*Benthic risk area within Site = 1,289 acres

**Table 4.2-8**

**Percentage Contaminated River Bank Addressed by Each Alternative**

Portland Harbor Superfund Site

Portland, OR

<b>Alternative</b>	<b>Acres Contaminated River Bank Addressed</b>	<b>Total Acres Contaminated River Bank</b>	<b>Contaminated River Bank Addressed</b>
B	9,633	30,048	32%
D	13,887	30,048	46%
E	18,231	30,048	61%
F Mod	23,305	30,048	78%
F	23,305	30,048	78%
G	26,362	30,048	88%
I	19,472	30,048	65%

**Table 4.2-9**

**Percentage of PTW Addressed by Each Alternative**

Portland Harbor Superfund Site

Portland, OR

<b>Alternative</b>	<b>Acres PTW Addressed</b>	<b>Total Acres PTW</b>	<b>PTW Addressed</b>
B	64	172	37%
C	74	172	43%
D	98	172	57%
E	172	172	100%
F Mod	172	172	100%
F	172	172	100%
G	172	172	100%
I	172	172	100%



**PORTLAND HARBOR RI/FS**  
**APPENDIX D - UPDATE**  
**Supporting Information for Alternative**  
**Development**

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Figure D9-1t Rolling River Mile Average and SDUs - Normalized Concentrations Swan Island Lagoon\*

Figure D9-2 Sediment Decision Units and Focused COCs\*

Figure D9-3a-ac Rolling River Mile Averages\*

Figure D10-1a-d. RAO1 COC Concentration (Year 0) – Arsenic\*

Figure D10-2a-k RAO2 COC Concentration (Year 0) – Aldrin\*

Figure D10-3a-i RAO6 COC Concentration (Year 0) – BEHP\*

Figure D11-1a-p BERA (Level 2 and Level 3) Locations on COC Areas Exceeding PRG RAO5\*

Figure D11-2 Comprehensive Benthic Risk Area Exceeding RAO 5 PRGs\*

\* Unchanged. See FS Report - June 2016

## D5. PAH/cPAH CONVERSION

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PRGs were developed for both total PAHs (ecological risk) and cPAHs (human health risk). A regressions analysis was performed to determine the relationship between total PAHs and cPAHs (as benzo(a)pyrene equivalent [BaP-Eq]). The calculated values for total PAHs and the corresponding cPAHs for each data point were plotted, and a regression line was generated. The results are presented on **Figure D5-1**. Total PAHs are well correlated with cPAHs (adjusted  $R^2 = 0.969$ ) although local variation in the total PAH/cPAH relationship imparts some uncertainty. Therefore, the relationship is defined using the following regression equation:

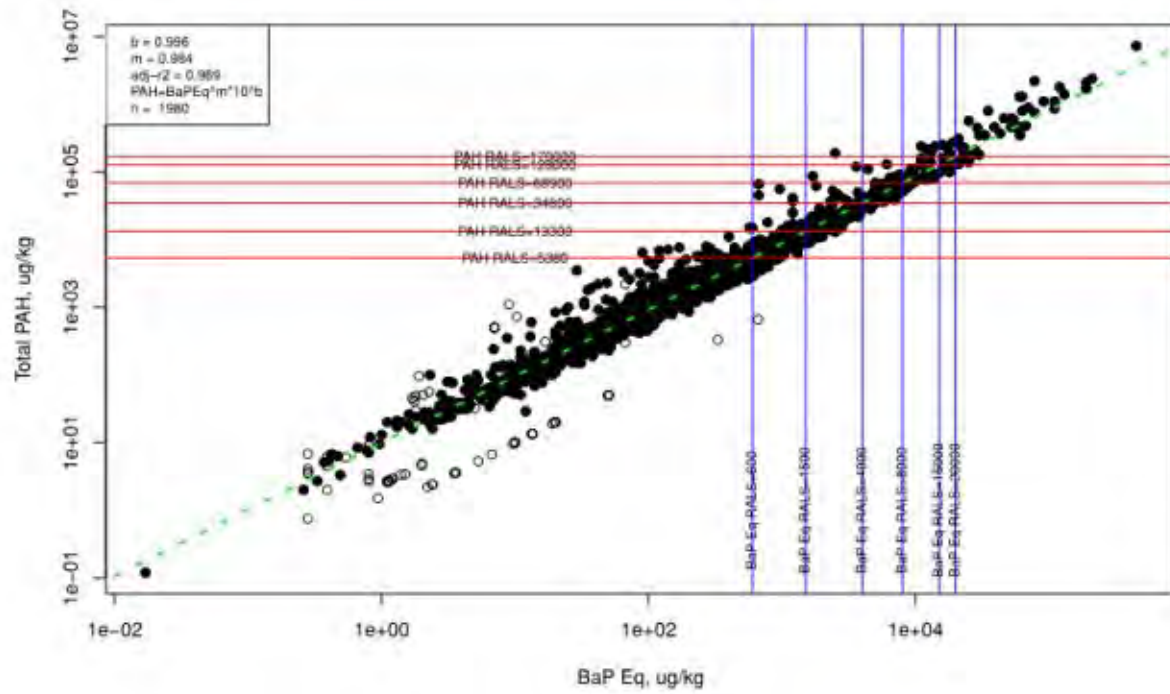
$$TotalPAHs = (BaP - Eq)^m \times 10^b$$

where:

$$m = 0.984 \text{ and } b = 0.996.$$

This relationship was developed based on 1980 measurements. The relationship shows that the Alternative F RAL for total PAHs of 13,000 ug/kg results in a cPAH RAL equivalent of 1500 ug/kg when measured as BaPEq.

Figure D5-1: Total PAH vs BAP Eq Relationship – Sitewide Surface Sediment





## **Tables**

**Table D2.a. In-Water Areas by Technology Assignment**

Portland Harbor Superfund Site  
 Portland, Oregon

**Summary of In-Water Areas by Technology Assignment**

Technology Name	Area (AC)	
		Alt. F Mod
Broadcast GAC (1ft)		NA
Engineered Cap (3ft)		9.53
Armored Cap (3ft)		44.91
Aquablok w/armor (1ft)		5.16
Aquablok w/beach mix (1ft)		0.98
Reactive Armored Cap (3ft)		44.92
Reactive Cap (3ft)		11.14
Significantly Augmented Reactive Cap (3ft)		1.20
Dredge w/Backfill + Beach Mix (6in)		18.03
Dredge w/Engineered Cap + Beach Mix (3ft)		10.84
Dredge with reactive cap with Beachmix (3ft)		20.99
Dredge with residual layer (1ft)		151.29
Dredge with reactive residual layer (1ft)		34.14
Dredge with reactive residual layer with Beachmix (1ft)		11.75
Dredge with significantly augmented reactive cap (3ft)		0.36
Dredge with significantly augmented reactive cap with Beachmix (3ft)		0.16
ENR in Swan Island		28.23
Monitored Natural Recovery		1773.61
MNR - No tech assigned		NA
Previously remediated		23.16
<b>Total Acres (AC)</b>		<b>2,191</b>
<b>Active Acres (AC)</b>		<b>394</b>

Notes:

- 1 - Cells highlighted in Yellow are direct output quantities from R code. Red bold quantities are cost estimate input values.
- 2 - Quantities are considered "neat" with no overage allowance
- 3 - Quantities for Total Acres and Active Acres are rounded up to nearest whole number.

**Summary of In-Water Capping Areas (Intermediate)**

Alternative	Capping						
	Intermediate Areas						
	Aquablok	Armored	Engineered Cap	Reactive Cap	Reactive Armored Cap	Significantly Augmented Reactive Cap	Total
F Modified	5.2	44.2	9.5	11.1	44.0	1.1	115.1

Notes:

- 1 - Cells highlighted in Yellow are direct output quantities from R code. Green bold quantities are presented in ROD Text and Tables.
- 2 - Quantities are rounded to nearest tenth.

**Summary of In-Water Capping Areas (Shallow & Overall)**

Alternative	Capping					
	Shallow Areas					Overall
	Aquablok	Armored	Reactive Armored Cap	Significantly Augmented Reactive Cap	Total	
F Modified	1.0	0.7	0.9	0.1	2.8	117.8

Notes:

- 1 - Cells highlighted in Yellow are direct output quantities from R code. Green bold quantities are presented in ROD Text and Tables.
- 2 - Quantities are rounded to nearest tenth.

**Summary of In-Water Dredging Areas (NAV, FMD, & Intermediate)**

Alternative	Dredging									
	NAV			FMD			Intermediate Areas			
	Residual Layer	Reactive Residual Layer	Total	Residual Layer	Reactive Residual Layer	Total	Residual Layer	Reactive Residual Layer	Significantly Augmented Reactive Cap	Total
	Area (AC)			Area (AC)			Area (AC)			
F Mod	28.7	9.5	38.1	114.1	15.3	129.4	8.5	9.3	0.4	18.2

Notes:

- 1 - Cells highlighted in Yellow are direct output quantities from R code. Green bold quantities are presented in ROD Text and Tables.
- 2 - Quantities are rounded to nearest tenth.

**Table D2.a. In-Water Areas by Technology Assignment (continued)**

Portland Harbor Superfund Site  
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**Summary of In-Water Dredging Areas (Shallow & Overall)**

Alternative	Dredging								
	Shallow Areas						Overall		
	Backfill	Reactive Residual Layer	Engineered Cap	Reactive Cap	Significantly Augmented Reactive Cap	Total	Dredge	Dredge/Cap	Overall
	Area (AC)						Area (AC)		
F Mod	18.0	11.7	10.8	21.0	0.2	61.8	215.2	32.3	247.6

- Notes:  
 1 - Cells highlighted in Yellow are direct output quantities from R code. Green bold quantities are presented in ROD Text and Tables.  
 2 - Quantities are rounded to nearest tenth.

<b>Total In-Water Capping, Dredging, and Dredge/Cap Areas (AC)</b>	<b>Alt. F Mod</b> 365
--	--------------------------

- Notes:  
 1 - Green bold quantities are ROD Text and Table input values.  
 2 - Quantities are rounded to nearest whole number

**Summary of Riverbank, In-Situ Treatment, and Previously Remediated Areas**

Alternative	Excavation/Capping					In-Situ Treatment	Previously Remediated
	River Bank					Broadcast GAC	
	Engineered cap	Significantly Augmented Reactive Cap	No Action	Total Riverbank Excavate/Cap	Total Riverbank No Action		
	Area (AC)					Area (AC)	
F Modified	23.5	2.0	7.3	23,000	7,000	0.0	23.2

- Notes:  
 1 - Cells highlighted in Yellow are direct output quantities from R code. Green bold quantities are presented in ROD Text and Tables.  
 2 - All quantities, except total riverbank excavate/cap quantities, are rounded to nearest tenth. Total riverbank excavate/cap quantities are rounded to nearest thousand.  
 3 - Riverbank quantities are presented in D2.b and are incorporated into the following summary table

**Summary of In-Water ENR and MNR Areas**

Alternative	ENR			MNR				
	FMD	Intermediate Areas	Total	NAV	FMD	Shallow Regions	Intermediate Regions	Total
	Residual Layer	Residual Layer		Dispersion or Deposition	Dispersion or Deposition	Dispersion or Deposition	Dispersion or Deposition	
	Area (AC)			Area (AC)				
F Modified	22.3	5.9	28.2	1,142	89	109	433	1,800

- Notes:  
 1 - Cells highlighted in Yellow are direct output quantities from R code. Green bold quantities are presented in ROD Text and Tables.  
 2 - ENR quantities are rounded to nearest tenth. All MNR quantities, except total MNR quantities, are rounded to nearest whole number. Total MNR quantities are rounded to nearest hundred.

<b>Total In-Water Constructed Area (AC)</b>	<b>Alt. F Mod</b> 394
---	--------------------------

- Notes:  
 1 - Includes in-water capping, dredging, and dredge/cap, in-situ treatment, and ENR areas. Green bold quantities are presented in ROD Text and Tables.  
 2 - Quantities are rounded to nearest whole number

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**Table D2.b. Riverbank Quantities**

Portland Harbor Superfund Site  
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**Riverbank Assumptions**

- Contaminated riverbanks are pre-determined areas defined as lines along the outer limits of the site boundary and are estimated locations only.
- Riverbank technology assignments were based on adjacent nearshore PTW and RAL areas:
  - Potentially contaminated riverbanks are identified as lines along the shore of the site. Because the riverbank lines do not fall directly on RAL or PTW (NRC or NAPL) area created for the site, a parallel line was created 20 ft into the site area to best estimate the amount of each line that intersects with RAL boundaries and/or PTW (NRC or N boundaries and keep consistent overlap.
  - The parallel line was intersected with RAL boundaries and PTW (NRC and NAPL) boundaries to determine the length of riverbank technology assignments based on the following:
    - Riverbanks adjacent to PTW (NRC or NAPL) areas were assigned excavation and significantly augmented reactive cap (Geofabric, 17" fine-grained low permeability sand organoclay mat, 12" medium sand, and 6" armor stone).
    - Riverbanks adjacent to RAL Boundaries and outside PTW (NRC or NAPL) areas were assigned excavation and engineered cap (Geofabric, 30" sand, and 6" beachmix).
    - Otherwise no action was assigned.
- Based on this intersection some rough linear estimates were given in the following table.
- No action will be taken for the areas adjacent to MNR because it is not considered to be in an SMA.

Technology Name	Length of Riverbank by Tech Assignment (FT)	
	Alt. F Mod	
Excavate with engineered cap (3ft)		21,510.8
Excavate with significantly augmented reactive cap (3ft)		1,794.0
No Action		6,743.5
<b>Grand Total</b>		<b>30,049</b>

Note:

1 - Grand Total above is rounded to the nearest whole number.

**PTW Assumptions**

- The parallel riverbank lines from above were intersected with each of the three types of PTW.
- Not reliably contained PTW was not found within 20 ft of the riverbank areas and no values were obtained. The others are shown in the table below.
- NAPL is the only PTW assumed to be treated and the only one used for calculations

		Length of Riverbank Identified as PTW Excavated (FT)
NRC/NAPL PTW - Area 6W		1,794.0
NRC/NAPL PTW - Area 7W		0.0
<b>Grand Total</b>		<b>1,794</b>

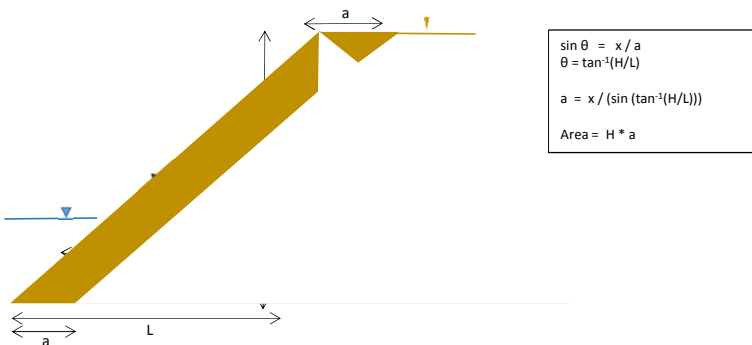
Note:

1 - Grand Total above is rounded to the nearest whole number.

**Riverbank Volume Assumptions for Excavate-Disposal**

Common Earth Conversion from BCY to LCY = 1.12 Means Heavy Construction Handbook

Bank volumes and areas are based on linear feet and the simplified assumptions listed below:



Assumed Bank Slope =	1	V	:	H	3
H (Assumed Bank Height) (FT) =	15				
L (Horizontal distance) (FT) =	45				
Hypotenuse Length of Riverbank Surface (FT) =	47.4				
x (Average Excavation Depth) (FT) =	3				
a (FT) =	9.49				
Area of Excavation Surface (SF) =	142.30				

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**Table D2.b. Riverbank Quantities (continued)**

Portland Harbor Superfund Site  
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**Riverbank Volumes for Excavate-Disposal**

	<b>Alt. F Mod</b>
Riverbank to be Excavated (LF)	23,305
<b>Volume Excavated (BCY)</b>	<b>122,827</b>
Excavated Volume for Riverbanks (LCY)	137,567
Area 6W NRC/NAPL PTW Riverbank to be Excavated (LF)	1,794
Area 6W NRC/NAPL PTW Riverbank Volume (BCY)	9,456
Area 6W NRC/NAPL PTW Riverbank Volume (LCY)	<b>10,591</b>
Area 7W NRC/NAPL PTW Riverbank to be Excavated (LF)	0
Area 7W NRC/NAPL PTW Riverbank Volume (BCY)	0
Area 7W NRC/NAPL PTW Riverbank Volume (LCY)	<b>0</b>
Riverbank Volume for Subtitle D (LCY)	<b>126,976</b>

Note:

- 1 - Quantities with red bold formatting are cost estimate input values.
- 2 - Total quantities are rounded up to the nearest whole number.

**Riverbank Technology Assumptions for Capping**

<b>Technology Name</b> Excavation with engineered cap (3ft)	Sand Layer Thickness (FT)	Beachmix Thickness (FT)	Low Permeability Sand (FT)
	2.5	0.5	-
<b>Technology Name</b> Excavation with significantly augmented reactive cap (3ft)	Sand Layer Thickness (FT)	Armor Stone (FT)	Low Permeability Sand (FT)
	1	0.5	1.42
Excavation with significantly augmented reactive cap (3ft)	Organoclay (FT)		
	0.08		
<b>Geometry of Engineered Cap</b>	Sand Layer Thickness (FT)	Beachmix Thickness (FT)	Low Permeability Sand (FT)
	a (FT) =	1.6	-
	Area of Surface (SF) =	23.7	-
<b>Geometry of Significantly Augmented Reactive Cap</b>	Sand Layer Thickness (FT)	Armor Stone (FT)	Low Permeability Sand (FT)
	a (FT) =	1.6	4.5
	Area of Surface (SF) =	23.7	67.2

**Riverbank Backfill and Cap Quantities**

Material	<b>Alt. F Mod</b>
<b>Excavation and Engineered Cap</b>	
Sand Layer (CY)	94,477
Beachmix (CY)	18,896
Surface Area for Monitoring and Geofabric (AC)	23.5
<b>Excavation and Significantly Augmented Reactive Cap</b>	
Sand Layer (CY)	3,152
Low Perm Sand Layer (CY)	4,465
Surface Area for Monitoring, Organoclay and Geofabric (AC)	2.0
Organoclay (CY)	269
Armor Layer (CY)	1,576

**Summary of Riverbank Quantities**

Excavation and Engineered Cap (AC):	<b>23.5</b>
Excavation and Significantly Augmented Reactive Cap Area (AC):	<b>2.0</b>
No Action Area (AC):	7.3
Armor and Organoclay Mat Layer Area (AC):	2.0
Cap Monitoring and Geofabric Area (AC):	<b>25.5</b>
Volume of Sand for Backfill and Capping (CY):	<b>102,094</b>
Volume of Armor for Capping (CY):	<b>1,576</b>
Volume of Beachmix for Capping (CY):	<b>18,896</b>
Volume of Organoclay Mat (CY):	269

Note:

- 1 - Quantities with red bold formatting are cost estimate input values.
- 2 - Total area quantities are rounded up to the nearest tenth, while the total volume quantities are rounded up to the nearest whole number.

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### Table D2.c. Dredge Quantities

Portland Harbor Superfund Site  
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Confined Dredged Volumes (CY)	
Technology Name	Alt. F Mod
Dredge w/Backfill + Beach Mix (6in)	11,224.9
Dredge w/Engineered Cap + Beach Mix (3ft)	2,300.0
Dredge with reactive cap with Beachmix (3ft)	11,377.8
Dredge with residual layer (1ft)	6,318.8
Dredge with reactive residual layer (1ft)	21,422.1
Dredge with reactive residual layer with Beachmix (1ft)	12,278.8
Dredge with significantly augmented reactive cap (3ft)	4,666.7
Dredge with significantly augmented reactive cap with Beachmix (3ft)	833.3
<b>Total Confined Dredged Material (CY)</b>	<b>70,423</b>

Open Water Dredged Volumes (CY)	
Dredge w/Backfill + Beach Mix (6in)	76,788.4
Dredge w/Engineered Cap + Beach Mix (3ft)	50,155.6
Dredge with reactive cap with Beachmix (3ft)	90,200.0
Dredge with residual layer (1ft)	1,015,480.7
Dredge with reactive residual layer (1ft)	282,186.3
Dredge with reactive residual layer with Beachmix (1ft)	61,519.5
Dredge with significantly augmented reactive cap (3ft)	4,055.6
Dredge with significantly augmented reactive cap with Beachmix (3ft)	3,111.1
<b>Total Open Water Dredged Material (CY)</b>	<b>1,583,498</b>

**Notes:**

- 1 - Cells highlighted in Yellow are direct output quantities from R code.
- 2 - Quantities above are considered "neat" with no overdredge allowance. Overdredge factors are incorporated into the following summary calculations.
- 3 - In place and excavated volumes are assumed to be similar because the excavated material will be in a somewhat loose state following dredging.
- 4 - Total quantities are rounded up to nearest whole number.

### Summary of Dredge Volumes

	Alt. F Mod
Total CY Dredged (Open Water) Neat	1,583,498
Low Volume with Overdredge (Open Water)	2,375,247
High Volume with Overdredge (Open Water)	3,166,996
<b>Total Open Water Dredge Volume (CY)</b>	<b>2,771,122</b>
Total CY Dredged (Confined) Neat	70,423
Low Volume with Overdredge (Confined)	105,635
High Volume with Overdredge (Confined)	140,846
<b>Total Confined Dredge Volume (CY)</b>	<b>123,241</b>
Total CY Dredged Neat	1,653,921
Low Volume with Overdredge	2,480,882
High Volume with Overdredge, Total Volume (Overdredge Factor of 2.0)	3,307,842
<b>Total Volume Dredged (CY)</b>	<b>2,894,362</b>

**Notes:**

- 1 - Neat volumes are multiplied by an overdredge factor of 1.5 to estimate the "Low Volume with Overdredge" and multiplied by an overdredge factor of 2.0 to estimate the "High Volume with Overdredge"
- 2 - Dredge Volume Totals represent an average of the estimated Low and High Overdredge Volumes.
- 3 - Quantities with red bold formatting are cost estimate input values.
- 4 - Dredge Volume Totals are rounded up to the nearest whole number.

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### Table D2.c. Dredge Quantities (continued)

Portland Harbor Superfund Site  
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#### Dredge and Dewatering Productivity Quantities

Assumed Dredging Productivity (CY/DY): 5100  
 Per dredging productivity assumptions

	Alt. F Mod
Estimated Number of Dredging Days (DY)	568
<b>Estimated Number of Days for Dewatering/Water Treatment Operations (DY)</b>	<b>568</b>
Excavated Volume for Riverbanks (BCY)	122,827
Excavated Volume for Riverbanks (LCY)	137,567

**Notes:**

- 1 - Quantities with red bold formatting are cost estimate input values.
- 2 - Total quantities are rounded up to the nearest whole number.
- 3 - Quantity derivation for the riverbank volumes are presented Table D2.b.

#### Summary of Dredging and Riverbank Excavation Volumes

	Alt. F Mod
Total Dredged Volume (Low Overdredge) (CY)	2,481,000
Total Dredged Volume (High Overdredge) (CY)	3,308,000
Total Dredged Volume (Average) (CY)	2,894,000
Total Riverbank Excavation Volume (CY)	123,000
Total Combined Dredge/Excavation Volume (Low) (CY)	2,604,000
Total Combined Dredge/Excavation Volume (High) (CY)	3,431,000
Total Combined Dredge/Excavation Volume (Average) (CY)	3,017,000

**Notes:**

- 1 - Green bold quantities are presented in ROD Text and Tables.
- 2 - Quantities are rounded to the nearest thousand.

### Table D2.d. Treatment and Disposal Quantities

Portland Harbor Superfund Site  
 Portland, Oregon

#### Treatment and Disposal Assumptions

1. Not Reliably Contained (NRC) / Non Aqueous Phase Liquid (NAPL) Principal Threat Waste (PTW) will be disposed at Subtitle C and everything else will be disposed at a Subtitle D facility
2. For purposes of evaluating cost, ex-situ treatment will be assumed only for NRC/NAPL PTW materials. Ex-situ treatment assumptions differ depending on whether the NRC/NAPL PTW is dredged from Area 6W or Area 7W. The table below summarizes assumptions:

Material	No Treatment
NRC/NAPL PTW - Area 6W	0%
NRC/NAPL PTW - Area 7W	33.33%
All Other Materials	100%

Material	Disposal	
	Subtitle C	Subtitle D
NRC/NAPL PTW - Area 6W	X	
NRC/NAPL PTW - Area 7W	X	
All Other Materials		X

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### Table D2.d. Treatment and Disposal Quantities (continued)

Portland Harbor Superfund Site  
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3. Assumed amendment rates are summarized below:

Treatment Type	Diatomaceous Earth Amendment Rate
Stabilization/Solidification	5%
Thermal Desorption	10%
No Treatment - Subtitle C Disposal	10%
No Treatment - Subtitle D Disposal	5%

Note:

Quicklime amendment rate is based on the average amendment rate of two case studies presented in *Ex-Situ Treatment of Dense Non-Aqueous Phase Liquids Using Calcium Oxide (Quick Lime)*, Indiana Department of Environmental Management (IDEM), 2009. Amendment rates were 5% by weight and 5% by volume (8.84% by weight).

4. Assumed material densities are summarized below:

Diatomaceous Earth Density (LB/CF): 19  
 Diatomaceous Earth Density (TON/CY): 0.26  
*Source: MSDS (Wet Bulk Density)*

Quicklime Density (g/cm<sup>3</sup>): 3.25  
 Quicklime Density (TON/CY): 2.74  
*Source: Vendor Website - Quicklime Safety Data Sheet*

Dredged Sediment Density (LB/CY): 3,100  
 Dredged Sediment Density (TON/CY): 1.55  
*Source: Caterpillar Performance Handbook, edition 3.1 (Assumes Sand - Wet)*

#### Summary of Subtitle C Volumes by Area

	Alt. F Mod
Nav Subtitle C Dredge Volume (Low Overdredge) (CY)	30,200
Nav Subtitle C Dredge Volume (High Overdredge) (CY)	40,300
FMD Subtitle C Dredge Volume (Low Overdredge) (CY)	11,600
FMD Subtitle C Dredge Volume (High Overdredge) (CY)	15,500
Intermediate Subtitle C Dredge Volume (Low Overdredge) (CY)	85,800
Intermediate Subtitle C Dredge Volume (High Overdredge) (CY)	114,400
Shallow Subtitle C Dredge Volume (Low Overdredge) (CY)	41,100
Shallow Subtitle C Dredge Volume (High Overdredge) (CY)	54,800

#### Summary of Ex Situ Treatment Volumes

Total In-Water Ex-Situ Treatment Dredge Volume (Low Overdredge) (CY)	156,000
Total In-Water Ex-Situ Treatment Dredge Volume (High Overdredge) (CY)	208,000
Total In-Water Ex-Situ Treatment Dredge Volume (Average) (CY)	182,000
Total Riverbank Ex-Situ Treatment Excavation Volume (CY)	9,500
Total Combined Dredge/Excavation Volume (Low) (CY)	165,500
Total Combined Dredge/Excavation Volume (High) (CY)	217,500
Total Combined Dredge/Excavation Volume (Average) (CY)	191,500

Notes:

- Cells highlighted in Yellow are direct output quantities from R code. Green bold quantities are presented in ROD Text and Tables.
- Total in-water quantities are rounded to the nearest thousand. All other quantities are rounded to nearest hundred.



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**Table D2.d. Treatment and Disposal Quantities (continued)**

Portland Harbor Superfund Site  
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Technology Name	Alt. F Mod
<b>NRC/NAPL PTW Dredged Volumes - Area 6W, In-Water (CY)</b>	
Dredge with reactive cap with Beachmix (3ft)	1,684
Dredge with reactive residual layer (1ft)	57,855
Dredge with reactive residual layer with Beachmix (1ft)	20,104
Dredge with significantly augmented reactive cap (3ft)	4,056
Dredge with significantly augmented reactive cap with Beachmix (3ft)	3,556
<b>Total NRC/NAPL PTW Dredged Material - Area 6W (CY)</b>	<b>87,254</b>

<b>NRC/NAPL PTW Dredged Volumes - Area 7W, In-Water (CY)</b>	
Dredge with reactive cap with Beachmix (3ft)	1,076
Dredge with reactive residual layer (1ft)	18,494
Dredge with reactive residual layer with Beachmix (1ft)	595
Dredge with significantly augmented reactive cap (3ft)	4,667
Dredge with significantly augmented reactive cap with Beachmix (3ft)	389
<b>Total NRC/NAPL PTW Dredged Material - Area 7W (CY)</b>	<b>25,221</b>

<b>Highly Toxic PTW Dredge Volumes, In-Water (CY)</b>	
Technology Name	Alt. F Mod
Dredge w/Backfill + Beach Mix (6in)	22,809
Dredge w/Engineered Cap + Beach Mix (3ft)	12,055
Dredge with reactive cap with Beachmix (3ft)	47,950
Dredge with reactive residual layer with Beachmix (1ft)	380,078
Dredge with significantly augmented reactive cap (3ft)	24,317
Dredge with significantly augmented reactive cap with Beachmix (3ft)	27,704
<b>Total Highly Toxic PTW Dredged Material (CY)</b>	<b>514,913</b>

Notes:

- 1 - Cells highlighted in Yellow are direct output quantities from R code.
- 2 - Quantities above are considered "neat" with no overdredge allowance. Overdredge factors are incorporated into the following summary calculations.
- 3 - Total quantities are rounded up to nearest whole number.
- 4 - Quantities above do not include Riverbank disposal quantities. Riverbank quantities are presented in D2.b and are incorporated into the following summary calculations.

**Quantities for Area 6W NRC/NAPL PTW**

**Subtitle C Disposal Quantities for Area 6W NRC/NAPL PTW**

	Alt. F Mod
Total NRC/NAPL PTW Volume Dredged (Area 6W) Neat	87,254
Low NRC/NAPL PTW Volume with Overdredge (Area 6W)	130,881
High NRC/NAPL PTW Volume with Overdredge (Area 6W)	174,508
<b>Area 6W NRC/NAPL PTW Dredged for Subtitle C Disposal (Not Including Riverbanks) (CY)</b>	<b>152,695</b>

<b>Area 6W NRC/NAPL PTW from Riverbank Excavation for Subtitle C Disposal (BCY)</b>	<b>9,456</b>
<b>Area 6W NRC/NAPL PTW from Riverbank Excavation for Subtitle C Disposal (LCY)</b>	<b>10,591</b>

<b>Total Area 6W NRC/NAPL PTW Dredged for Subtitle C Disposal (CY)</b>	<b>163,286</b>
<b>Total Weight of Area 6W NRC/NAPL PTW Dredged for Subtitle C Disposal (TON)</b>	<b>253,094</b>

Notes:

- 1 - Neat volumes are multiplied by an overdredge factor of 1.5 to estimate the "Low Volume with Overdredge" and multiplied by an overdredge factor of 2.0 to estimate the "High Volume with Overdredge"
- 2 - Dredge Volume Totals represent an average of the estimated Low and High Overdredge Volumes.
- 3 - Quantities above are rounded to the nearest whole number.
- 4 - Riverbank Quantities are presented in D2.b.

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**Table D2.d. Treatment and Disposal Quantities (continued)**

Portland Harbor Superfund Site  
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**Ex Situ Treatment Quantities for Area 6W NRC/NAPL PTW**

	<b>Alt. F Mod</b>
Percentage of Area 6W NRC/NAPL PTW for Ex Situ Stabilization/Solidification (%)	100%
Diatomaceous Earth Rate for dewatering and material handling (% by weight)	5.0%
Quicklime Amendment Rate for Stabilization/Solidification (% by weight)	6.9%
<b>Weight of Diatomaceous Earth for Stabilization/Solidification Sediments (TON)</b>	<b>12,655</b>
<b>Volume of Diatomaceous Earth for Stabilization/Solidification Sediments (CY)</b>	<b>48,674</b>
<b>Weight of Quicklime for Amendment (TON)</b>	<b>17,463</b>
<b>Volume of Quicklime for Amendment (CY)</b>	<b>6,374</b>
<b>Total Weight of Amended Area 6W NRC/NAPL PTW for Subtitle C Disposal (TON)</b>	<b>283,212</b>
<b>Total Volume of Amended Area 6W NRC/NAPL PTW for Subtitle C Disposal (CY)</b>	<b>218,334</b>

Note:

- 1 - Quantities with red bold formatting are cost estimate input values.
- 2 - Total quantities are rounded up to the nearest whole number.

**Quantities for Area 7W NRC/NAPL PTW**

**Subtitle C Disposal Quantities for Area 7W NRC/NAPL PTW**

	<b>Alt. F Mod</b>
Total NRC/NAPL PTW Volume Dredged (Area 7W) Neat	25,221
Low NRC/NAPL PTW Volume with Overdredge (Area 7W)	37,832
High NRC/NAPL PTW Volume with Overdredge (Area 7W)	50,442
<b>Area 7W NRC/NAPL PTW Dredged for Subtitle C Disposal (Not Including Riverbanks) (CY)</b>	<b>44,137</b>
<b>Area 7W NRC/NAPL PTW from Riverbank Excavation for Subtitle C Disposal (CY)</b>	<b>0</b>
<b>Total Area 7W NRC/NAPL PTW Dredged for Subtitle C Disposal (CY)</b>	<b>44,137</b>
<b>Total Weight of Area 7W NRC/NAPL PTW Dredged for Subtitle C Disposal (TON)</b>	<b>68,413</b>

Notes:

- 1 - Neat volumes are multiplied by an overdredge factor of 1.5 to estimate the "Low Volume with Overdredge" and multiplied by an overdredge factor of 2.0 to estimate the "High Volume with Overdredge"
- 2 - Dredge Volume Totals represent an average of the estimated Low and High Overdredge Volumes.
- 3 - Quantities above are rounded to the nearest whole number.
- 4 - Riverbank Quantities are presented in D2.b.

**Ex Situ Treatment Quantities for Area 7W NRC/NAPL PTW**

	<b>Alt. F Mod</b>
Percentage of Area 7W NRC/NAPL PTW for No Treatment (%)	33.33%
Percentage of Area 7W NRC/NAPL PTW for Ex Situ Thermal Treatment (at Subtitle C Facility) (%)	33.33%
Percentage of Area 7W NRC/NAPL PTW for Ex Situ Stabilization/Solidification (%)	33.33%

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**Table D2.d. Treatment and Disposal Quantities (continued)**

Portland Harbor Superfund Site  
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Area 7W NRC/NAPL PTW - 1/3 of Volume - No Treatment Required

	<b>Alt. F Mod</b>
<b>Volume of Sediments for No Treatment (CY)</b>	<b>14,711</b>
<b>Weight of Sediments for No Treatment (TON)</b>	<b>22,802</b>
Diatomaceous Earth Rate for dewatering and material handling (% by weight)	10.0%
<b>Weight of Diatomaceous Earth for No Treatment Sediments (TON)</b>	<b>2,280</b>
<b>Volume of Diatomaceous Earth for No Treatment Sediments (CY)</b>	<b>8,770</b>
<b>Total Weight of No Treatment Sediments (with Diatomaceous Earth) (TON)</b>	<b>25,082</b>
<b>Total Volume of No Treatment Sediments (with Diatomaceous Earth) (CY)</b>	<b>23,481</b>

Note:

1 - Quantities above are rounded to the nearest whole number.

**Ex Situ Treatment Quantities for Area 7W NRC/NAPL PTW (continued)**

Area 7W NRC/NAPL PTW - 1/3 of Volume - Thermal Treatment at Subtitle C Facility

	<b>Alt. F Mod</b>
<b>Volume of Sediments for Thermal Treatment (CY)</b>	<b>14,711</b>
<b>Weight of Sediments for Thermal Treatment (TON)</b>	<b>22,802</b>
Diatomaceous Earth Rate for dewatering and material handling (% by weight)	10.0%
<b>Weight of Diatomaceous Earth for Thermal Treatment Sediments (TON)</b>	<b>2,280</b>
<b>Volume of Diatomaceous Earth for Thermal Treatment Sediments (CY)</b>	<b>8,770</b>
<b>Total Weight of Thermal Treatment Sediments (with Diatomaceous Earth) (TON)</b>	<b>25,082</b>
<b>Total Volume of Thermal Treatment Sediments (with Diatomaceous Earth) (CY)</b>	<b>23,481</b>
Assumed Percentage of Thermal Desorption for Low End of Treatment Cost Range (%)	50%
Assumed Percentage of Thermal Desorption for High End of Treatment Cost Range (%)	50%
<b>Weight of Thermal Treatment Sediments for Low End of Thermal Cost Range (TON)</b>	<b>12,541</b>
<b>Volume of Thermal Treatment Sediments for Low End of Thermal Cost Range (CY)</b>	<b>11,741</b>
<b>Weight of Thermal Treatment Sediments for High End of Thermal Cost Range (TON)</b>	<b>12,541</b>
<b>Volume of Thermal Treatment Sediments for High End of Thermal Cost Range (CY)</b>	<b>11,741</b>

Note:

1 - Total quantities are rounded up to the nearest whole number.

Area 7W NRC/NAPL PTW - 1/3 of Volume - Stabilization/Solidification

	<b>Alt. F Mod</b>
<b>Volume of Sediments for Stabilization/Solidification Treatment (CY)</b>	<b>14,711</b>
<b>Weight of Sediments for Stabilization/Solidification Treatment (TON)</b>	<b>22,802</b>
Diatomaceous Earth Rate for dewatering and material handling (% by weight)	5.0%
Quicklime Amendment Rate for Stabilization/Solidification (% by weight)	6.9%

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**Table D2.d. Treatment and Disposal Quantities (continued)**

Portland Harbor Superfund Site  
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	<b>Alt. F Mod</b>
<b>Weight of Diatomaceous Earth for Stabilization/Solidification Sediments (TON)</b>	<b>1,140</b>
<b>Volume of Diatomaceous Earth for Stabilization/Solidification Sediments (CY)</b>	<b>4,385</b>
<b>Weight of Quicklime for Stabilization/Solidification Sediments (TON)</b>	<b>1,573</b>
<b>Volume of Quicklime for Stabilization/Solidification Sediments (CY)</b>	<b>575</b>
<b>Total Weight of Quicklime/Diatomaceous Earth Amended Sediments (TON)</b>	<b>25,515</b>
<b>Total Volume of Quicklime/Diatomaceous Earth Amended Sediments (CY)</b>	<b>19,671</b>

Note:

1 - Total quantities are rounded up to the nearest whole number.

**Summary of Subtitle C Disposal and Ex Situ Treatment Volumes for Area 7W NRC/NAPL PTW**

	<b>Alt. F Mod</b>
<b>Weight of Thermal Treatment Sediments for Low End of Thermal Cost Range (TON)</b>	<b>12,541</b>
<b>Weight of Thermal Treatment Sediments for High End of Thermal Cost Range (TON)</b>	<b>12,541</b>
<b>Weight of Quicklime for Stabilization/Solidification Sediments (TON)</b>	<b>1,573</b>
<b>Total Weight of Diatomaceous Earth for 7W PTW Sediments (TON)</b>	<b>5,700</b>
<b>Total Volume of Diatomaceous Earth for 7W PTW Sediments (CY)</b>	<b>21,925</b>
<b>Total Weight of Amended Area 7W NRC/NAPL PTW for Subtitle C Disposal (TON)</b>	<b>75,679</b>
<b>Total Volume of Amended Area 7W NRC/NAPL PTW for Subtitle C Disposal (CY)</b>	<b>66,633</b>

Note:

1 - Quantities with red bold formatting are cost estimate input values.  
 2 - Total quantities are rounded up to the nearest whole number.

**Quantities for Highly Toxic PTW**

	<b>Alt. F Mod</b>
Total Highly Toxic PTW Volume Dredged Neat	514,913
Low Highly Toxic PTW Volume with Overdredge	772,370
High Highly Toxic PTW Volume with Overdredge	1,029,826
<b>Highly Toxic PTW Dredged for Subtitle D Disposal (Not Including Riverbanks) (CY)</b>	<b>901,098</b>

Notes:

1 - Neat volumes are multiplied by an overdredge factor of 1.5 to estimate the "Low Volume with Overdredge" and multiplied by an overdredge factor of 2.0 to estimate the "High Volume with Overdredge"  
 2 - Dredge Volume Totals represent an average of the estimated Low and High Overdredge Volumes.  
 3 - Quantities above are rounded to the nearest whole number.

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**Table D2.d. Treatment and Disposal Quantities (continued)**

Portland Harbor Superfund Site  
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**Subtitle D Disposal Quantities**

	<b>Alt. F Mod</b>
Volume of Riverbanks for Subtitle D (CY)	126,976
Total Dredge for Subtitle D Disposal (CY)	2,824,507
Total Dredge for Subtitle D Disposal (TON)	4,377,986

Note:

- 1 - The above calculation for total dredge volume for Subtitle D Disposal assumes that all NRC/NAPL PTW will be disposed at Subtitle C and everything else will be disposed at a Subtitle D facility.
- 2 - Riverbank Quantities are presented in D2.b.

Diatomaceous Earth Rate for dewatering and material handling (% by weight)	5.0%
<b>Weight of Diatomaceous Earth for Subtitle D Materials (TON)</b>	<b>218,899</b>
<b>Volume of Diatomaceous Earth for Subtitle D Materials (CY)</b>	<b>841,920</b>
<b>Total Weight of Subtitle D Materials (with Diatomaceous Earth) (TON)</b>	<b>4,596,885</b>
<b>Total Volume of Subtitle D Materials (with Diatomaceous Earth) (CY)</b>	<b>3,666,427</b>

Note:

- 1 - Quantities with red bold formatting are cost estimate input values.
- 2 - Total quantities are rounded up to the nearest whole number.

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**Table D2.e. Armor Quantities**

Portland Harbor Superfund Site  
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Technology Name	Confined Armor Placement Volumes (CY)	
		Alt. F Mod
Broadcast GAC (1ft)		NA
Engineered Cap (3ft)		-
Armored Cap (3ft)		11,529.6
Aquablok w/armor (1ft)		4,159
Aquablok w/beach mix (1ft)		-
Reactive Armored Cap (3ft)		17,033.3
Reactive Cap (3ft)		-
Significantly Augmented Reactive Cap (3ft)		970.4
Dredge w/Backfill + Beach Mix (6in)		-
Dredge w/Engineered Cap + Beach Mix (3ft)		-
Dredge with reactive cap with Beachmix (3ft)		-
Dredge with residual layer (1ft)		-
Dredge with reactive residual layer (1ft)		-
Dredge with reactive residual layer with Beachmix (1ft)		-
Dredge with significantly augmented reactive cap (3ft)		155.6
Dredge with significantly augmented reactive cap with Beachmix (3ft)		-
<b>Confined Material Placement (CY)</b>		<b>33,849</b>

Technology Name	Open Water Armor Placement Volumes (CY)	
		Alt. F Mod
Broadcast GAC (1ft)		-
Engineered Cap (3ft)		-
Armored Cap (3ft)		60,918.5
Aquablok w/armor (1ft)		NA
Aquablok w/beach mix (1ft)		NA
Reactive Armored Cap (3ft)		55,429.6
Reactive Cap (3ft)		-
Significantly Augmented Reactive Cap (3ft)		NA
Dredge w/Backfill + Beach Mix (6in)		-
Dredge w/Engineered Cap + Beach Mix (3ft)		-
Dredge with reactive cap with Beachmix (3ft)		-
Dredge with residual layer (1ft)		-
Dredge with reactive residual layer (1ft)		-
Dredge with reactive residual layer with Beachmix (1ft)		-
Dredge with significantly augmented reactive cap (3ft)		135.2
Dredge with significantly augmented reactive cap with Beachmix (3ft)		-
<b>Open Water Material Placement (CY)</b>		<b>116,484</b>

**Summary of Armor Quantities**

<b>Total Armor Material Quantities (CY):</b>	<b>151,909</b>
<b>Confined Armor Placement (CY):</b>	<b>33,849</b>
<b>Open Water Armor Placement (CY):</b>	<b>116,484</b>
<b>Armor for Capping Riverbanks (CY):</b>	<b>1,576</b>

Notes:

- 1 - Cells highlighted in Yellow are direct output quantities from R code. Red bold quantities are cost estimate input values.
- 2 - Total quantities are rounded up to nearest whole number.

	Alt. F Mod
<b>In-water Armor Material Quantities (CY)</b>	<b>150,000</b>
<b>Riverbanks Armor Material Quantities (CY)</b>	<b>2,000</b>
<b>Total Armor Material Quantities (CY)</b>	<b>152,000</b>

Notes:

- 1 - Green bold quantities are presented in ROD Text and Tables.
- 2 - Armor quantities are rounded to the nearest thousand.

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**Table D2.f. Sand Quantities**

Portland Harbor Superfund Site  
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Technology Name	Confined Sand Placement Volumes (CY)	
	Alt.	F Mod
Broadcast GAC (1ft)	-	-
Engineered Cap (3ft)	122.2	-
Armored Cap (3ft)	23,059.3	-
Aquablok w/armor (1ft)	-	-
Aquablok w/beach mix (1ft)	-	-
Reactive Armored Cap (3ft)	17,033.3	-
Reactive Cap (3ft)	2,288.9	-
Significantly Augmented Reactive Cap (3ft)	1,940.7	-
Dredge w/Backfill + Beach Mix (6in)	9,665.6	-
Dredge w/Engineered Cap + Beach Mix (3ft)	1,916.7	-
Dredge with reactive cap with Beachmix (3ft)	5,688.9	-
Dredge with residual layer (1ft)	1,440.7	-
Dredge with reactive residual layer (1ft)	-	-
Dredge with reactive residual layer with Beachmix (1ft)	8,212.1	-
Dredge with significantly augmented reactive cap (3ft)	311.1	-
Dredge with significantly augmented reactive cap with Beachmix (3ft)	722.2	-
ENR in Swan Island	5,981.5	-
<b>Confined Material Placement (CY)</b>	<b>78,384</b>	

Technology Name	Open Water Sand Placement Volumes (CY)	
	Alt.	F Mod
Broadcast GAC (1ft)	-	-
Engineered Cap (3ft)	46,000.0	-
Armored Cap (3ft)	121,837.0	-
Aquablok w/armor (1ft)	-	-
Aquablok w/beach mix (1ft)	-	-
Reactive Armored Cap (3ft)	55,429.6	-
Reactive Cap (3ft)	33,666.7	-
Significantly Augmented Reactive Cap (3ft)	-	-
Dredge w/Backfill + Beach Mix (6in)	63,803.3	-
Dredge w/Engineered Cap + Beach Mix (3ft)	41,796.3	-
Dredge with reactive cap with Beachmix (3ft)	45,100.0	-
Dredge with residual layer (1ft)	242,633.3	-
Dredge with reactive residual layer (1ft)	-	-
Dredge with reactive residual layer with Beachmix (1ft)	37,165.3	-
Dredge with significantly augmented reactive cap (3ft)	270.4	-
Dredge with significantly augmented reactive cap with Beachmix (3ft)	2,696.3	-
ENR in Swan Island	39,559.3	-
<b>Open Water Material Placement (CY)</b>	<b>729,958</b>	

Notes:

- 1 - Cells highlighted in Yellow are direct output quantities from R code.
- 2 - Total quantities are rounded up to nearest whole number.

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## D2.f. Sand Quantities (continued)

Portland Harbor Superfund Site  
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Technology Name	Low Permeability Sand, Confined Placement Volumes (CY)
	Alt. F Mod
Significantly Augmented Reactive Cap (3ft)	2,749.4
Dredge with significantly augmented reactive cap (3ft)	440.7
Dredge with significantly augmented reactive cap with Beachmix (3ft)	78.7
<b>Volume of Low Permeability Sand, Confined Placement (CY):</b>	<b>3,269</b>

Technology Name	Low Permeability Sand, Open Water Placement Volumes (CY)
	Alt. F Mod
Significantly Augmented Reactive Cap (3ft)	NA
Dredge with significantly augmented reactive cap (3ft)	383.0
Dredge with significantly augmented reactive cap with Beachmix (3ft)	293.8
<b>Volume of Low Permeability Sand, Open Water Placement (CY):</b>	<b>677</b>

**Notes:**

1 - Cells highlighted in Yellow are direct output quantities from R code. Red bold quantities are cost estimate input values.

### Summary of Sand Quantities

	Alt. F Mod
<b>In-water Sand Material Quantities (including reactive layer mixing sand) (CY)</b>	<b>910,284</b>
<b>In-water Low Permeability Sand Material Quantities (CY)</b>	<b>3,946</b>
<b>Riverbanks Sand Material Quantities (CY)</b>	<b>97,629</b>
<b>Riverbanks Low Permeability Sand Material Quantities (CY)</b>	<b>4,465</b>
<b>Total Sand Material Quantities (does not include Low Permeability Sand) (CY)</b>	<b>1,007,913</b>
<b>Total Low Permeability Sand Material Quantities (CY)</b>	<b>8,411</b>

**Notes:**

1 - Total quantities are rounded up to nearest whole number.

### Cost Estimate Quantity Assumptions

- For purposes of estimating costs, total sand quantities presented below are assumed to include low permeability sand.
- Sand quantities (materials, placement and mixing) for reactive layers is presented in D2.g, and not included in the totals presented below.

	Alt. F Mod
<b>Total Sand Material Quantities, Including Low Permeability Sand (CY)</b>	<b>914,382</b>
<b>Confined Placement of Sand, Including Low Permeability Sand (CY)</b>	<b>81,653</b>
<b>Open Water Placement of Sand, Including Low Permeability Sand (CY)</b>	<b>730,635</b>
<b>Sand for Backfill and Capping Riverbanks, Including Low Permeability Sand (CY)</b>	<b>102,094</b>

**Notes:**

- Total quantities are rounded up to nearest whole number.
- Quantities with red bold formatting are cost estimate input values.

	Alt. F Mod
<b>In-water Sand Material Quantities (including reactive layer mixing sand) (CY)</b>	<b>910,000</b>
<b>In-water Low Permeability Sand Material Quantities (CY)</b>	<b>3,900</b>
<b>Riverbanks Sand Material Quantities (CY)</b>	<b>98,000</b>
<b>Riverbanks Low Permeability Sand Material Quantities (CY)</b>	<b>4,500</b>
<b>Total Sand Material Quantities (does not include Low Permeability Sand) (CY)</b>	<b>1,008,000</b>
<b>Total Low Permeability Sand Material Quantities (CY)</b>	<b>8,400</b>

**Notes:**

- Green bold quantities are presented in ROD Text and Tables.
- Low permeability sand quantities are rounded to nearest hundred. Sand quantities are rounded to the nearest thousand.



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**Table D2.g. Carbon/Reactive Material Quantities**

Portland Harbor Superfund Site  
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Technology Name	Aquablok Confined Placement Quantities (TON)
	Alt. F Mod
Aquablok w/armor (1ft)	4,772.8
Aquablok w/beach mix (1ft)	907.4
<b>Confined Material Placement (TON)</b>	<b>5,681</b>

<b>Confined AquaBlok Placement (CY):</b>	<b>4,951</b>
--	--------------

Notes:

- 1 - Cells highlighted in Yellow are direct output quantities from R code. Red bold quantities are cost estimate input values.
- 2 - Total quantities are rounded up to nearest whole number.
- 3 - Per Vendor Information provided 7/21/2015, AquaBlok density is 85 lb per cubic foot. Total confined aquablok quantities rounded up to nearest whole number

Technology Name	AquaGate Material Quantities (TON)
	Alt. F Mod
Broadcast GAC (1ft)	NA
Engineered Cap (3ft)	-
Armored Cap (3ft)	-
Aquablok w/armor (1ft)	-
Aquablok w/beach mix (1ft)	-
Reactive Armored Cap (3ft)	35,181.8
Reactive Cap (3ft)	8,728.5
Significantly Augmented Reactive Cap (3ft)	-
Dredge w/Backfill + Beach Mix (6in)	-
Dredge w/Engineered Cap + Beach Mix (3ft)	-
Dredge with reactive cap with Beachmix (3ft)	16,439.1
Dredge with residual layer (1ft)	-
Dredge with reactive residual layer (1ft)	26,741.0
Dredge with reactive residual layer with Beachmix (1ft)	9,201.4
<b>Site Wide AquaGate Material Quantities (TON)</b>	<b>96,292</b>

Notes:

- 1 - Cells highlighted in Yellow are direct output quantities from R code. Red bold quantities are cost estimate input values.
- 2 - Total quantities are rounded up to nearest whole number.

Technology Name	Sand for Mixing with AquaGate, Confined Placement (CY)
	Alt. F Mod
Broadcast GAC (1ft)	NA
Engineered Cap (3ft)	-
Armored Cap (3ft)	-
Aquablok w/armor (1ft)	-
Aquablok w/beach mix (1ft)	-
Reactive Armored Cap (3ft)	8,755.1
Reactive Cap (3ft)	588.2
Significantly Augmented Reactive Cap (3ft)	-
Dredge w/Backfill + Beach Mix (6in)	-
Dredge w/Engineered Cap + Beach Mix (3ft)	-
Dredge with reactive cap with Beachmix (3ft)	1,949.4
Dredge with residual layer (1ft)	-
Dredge with reactive residual layer (1ft)	1,180.3
Dredge with reactive residual layer with Beachmix (1ft)	1,393.5
Dredge with significantly augmented reactive cap (3ft)	-
Dredge with significantly augmented reactive cap with Beachmix (3ft)	-
ENR in Swan Island	-
<b>Confined Sand Material Volume for Mixing and Placement of Reactive Layers with AquaGate (CY):</b>	<b>13,867</b>

Notes:

- 1 - Cells highlighted in Yellow are direct output quantities from R code. Red bold quantities are cost estimate input values.
- 2 - Total quantities are rounded up to nearest whole number.

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**Table D2.g. Carbon/Reactive Material Quantities (continued)**

Portland Harbor Superfund Site  
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Technology Name	Sand for Mixing with AquaGate, Open Water Placement (CY)
	Alt. F Mod
Broadcast GAC (1ft)	NA
Engineered Cap (3ft)	-
Armored Cap (3ft)	-
Aquablok w/armor (1ft)	NA
Aquablok w/beach mix (1ft)	NA
Reactive Armored Cap (3ft)	28,490.8
Reactive Cap (3ft)	8,652.3
Significantly Augmented Reactive Cap (3ft)	NA
Dredge w/Backfill + Beach Mix (6in)	-
Dredge w/Engineered Cap + Beach Mix (3ft)	-
Dredge with reactive cap with Beachmix (3ft)	15,454.3
Dredge with residual layer (1ft)	-
Dredge with reactive residual layer (1ft)	27,129.7
Dredge with reactive residual layer with Beachmix (1ft)	8,347.7
Dredge with significantly augmented reactive cap (3ft)	-
Dredge with significantly augmented reactive cap with Beachmix (3ft)	-
ENR in Swan Island	-
<b>Open Water Sand Material Quantity for Mixing and Placement of Reactive Layers with AquaGate (CY):</b>	<b>88,075</b>

<b>Total Material Quantity of Sand for Reactive Layer with AquaGate (CY):</b>	<b>101,942</b>
---	----------------

**Summary of Carbon/Reactive Material Quantities**

<b>Total AquaGate Material Quantities (TON):</b>	<b>96,292</b>
<b>Total Sand for Mixing Material Quantities (CY):</b>	<b>101,942</b>
<b>Confined Placement and Mixing Volumes for AquaGate Reactive Layers (CY):</b>	<b>26,979</b>
<b>Open Water Placement and Mixing Volumes for AquaGate Reactive Layers (CY):</b>	<b>171,353</b>
<b>Total Aquablok Material Quantities (TON):</b>	<b>5,681</b>
<b>Confined AquaBlok Placement (CY):</b>	<b>4,951</b>

**Notes:**

- 1 - Cells highlighted in Yellow are direct output quantities from R code. Red bold quantities are cost estimate input values.
- 2 - Total quantities are rounded up to nearest whole number.
- 3 - Per Vendor Information provided 7/21/2015, AquaGate+PAC10% constitutes 48.6% of the total volume.

	Alt. F Mod
<b>In-water Aquablok Material Quantities (TON):</b>	<b>5,700</b>
<b>In-water AquaGate Material Quantities (TON):</b>	<b>96,000</b>
<b>Riverbank Aquablok Material Quantities (TON):</b>	<b>-</b>
<b>Riverbank AquaGate Material Quantities (TON):</b>	<b>-</b>
<b>Total Aquablok Material Quantities (TON):</b>	<b>5,700</b>
<b>Total AquaGate Material Quantities (TON):</b>	<b>96,000</b>

**Notes:**

- 1 - Green bold quantities are presented in ROD Text and Tables.
- 2 - Aquablok quantities are rounded to nearest hundred. AquaGate quantities are rounded to the nearest thousand.

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**Table D2.h. Beach Mix Quantities**

Portland Harbor Superfund Site  
 Portland, Oregon

Technology Name	Confined Beachmix Placement Volumes (CY)	
		Alt. F Mod
Broadcast GAC (1ft)		NA
Engineered Cap (3ft)		-
Armored Cap (3ft)		-
Aquablok w/armor (1ft)		-
Aquablok w/beach mix (1ft)		790.7
Reactive Armored Cap (3ft)		-
Reactive Cap (3ft)		-
Significantly Augmented Reactive Cap (3ft)		-
Dredge w/Backfill + Beach Mix (6in)		1,559.3
Dredge w/Engineered Cap + Beach Mix (3ft)		383.3
Dredge with reactive cap with Beachmix (3ft)		1,896.3
Dredge with residual layer (1ft)		-
Dredge with reactive residual layer (1ft)		-
Dredge with reactive residual layer with Beachmix (1ft)		1,355.6
Dredge with significantly augmented reactive cap (3ft)		-
Dredge with significantly augmented reactive cap with Beachmix (3ft)		27.8
<b>Confined Material Placement (CY)</b>		<b>6,013</b>

Technology Name	Open Water Beachmix Placement Volumes (CY)	
		Alt. F Mod
Broadcast GAC (1ft)		-
Engineered Cap (3ft)		-
Armored Cap (3ft)		-
Aquablok w/armor (1ft)		NA
Aquablok w/beach mix (1ft)		NA
Reactive Armored Cap (3ft)		-
Reactive Cap (3ft)		-
Significantly Augmented Reactive Cap (3ft)		NA
Dredge w/Backfill + Beach Mix (6in)		12,985.2
Dredge w/Engineered Cap + Beach Mix (3ft)		8,359.3
Dredge with reactive cap with Beachmix (3ft)		15,033.3
Dredge with residual layer (1ft)		-
Dredge with reactive residual layer (1ft)		-
Dredge with reactive residual layer with Beachmix (1ft)		8,120.4
Dredge with significantly augmented reactive cap (3ft)		-
Dredge with significantly augmented reactive cap with Beachmix (3ft)		103.7
<b>Open Water Material Placement (CY)</b>		<b>44,602</b>

**Summary of Beachmix Quantities**

<b>Total Beachmix Material Quantities (CY):</b>	<b>69,511</b>
<b>Confined Beachmix Placement (CY):</b>	<b>6,013</b>
<b>Open Beachmix Placement (CY):</b>	<b>44,602</b>
<b>Beachmix for Capping Riverbanks (CY):</b>	<b>18,896</b>

Notes:

- 1 - Cells highlighted in Yellow are direct output quantities from R code. Red bold quantities are cost estimate input values.
- 2 - Total quantities are rounded up to nearest whole number.

	Alt. F Mod
<b>In-water Beach Mix Material Quantities (CY)</b>	<b>51,000</b>
<b>Riverbanks Beach Mix Material Quantities (CY)</b>	<b>19,000</b>
<b>Total Beach Mix Material Quantities (CY)</b>	<b>70,000</b>

Notes:

- 1 - Green bold quantities are presented in ROD Text and Tables.
- 2 - Beach mix quantities are rounded to the nearest thousand.

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**Table D2.i. Organoclay Quantities**

Portland Harbor Superfund Site  
 Portland, Oregon

Technology Name	Confined Organoclay Placement Area (AC)
	Alt. F Mod
Significantly Augmented Reactive Cap (3ft)	1.20
Dredge with significantly augmented reactive cap (3ft)	0.19
Dredge with significantly augmented reactive cap with Beachmix (3ft)	0.03
<b>Confined Material Placement (AC)</b>	<b>1.5</b>

Technology Name	Open Water Organoclay Placement Area (AC)
	Alt. F Mod
Dredge with significantly augmented reactive cap (3ft)	0.17
Dredge with significantly augmented reactive cap with Beachmix (3ft)	0.13
<b>Open Water Material Placement (AC)</b>	<b>0.3</b>

Technology Name	Confined Organoclay Placement Area (CY)
	Alt. F Mod
Significantly Augmented Reactive Cap (3ft)	161.73
Dredge with significantly augmented reactive cap (3ft)	25.93
Dredge with significantly augmented reactive cap with Beachmix (3ft)	4.63
<b>Confined Material Placement (CY)</b>	<b>192.3</b>

Technology Name	Open Water Organoclay Placement Area (CY)
	Alt. F Mod
Dredge with significantly augmented reactive cap (3ft)	22.53
Dredge with significantly augmented reactive cap with Beachmix (3ft)	17.28
<b>Open Water Material Placement (CY)</b>	<b>39.9</b>

**Summary of Organoclay Quantities**

Confined Organoclay Mat Placement (AC):	1.5
Open Organoclay Mat Placement (AC):	0.3
Organoclay Mat Layer for Riverbanks (AC):	2.0
<b>Total Organoclay Mat Material Quantities (AC):</b>	<b>4</b>
In-Water Organoclay Mat Material Quantities (CY):	233
<b>Total Organoclay Mat Material Quantities, Including Riverbanks (CY):</b>	<b>502</b>
<b>Total Organoclay Mat Material Quantities (SF):</b>	<b>174,300</b>

**Notes:**

- 1 - Cells highlighted in Yellow are direct output quantities from R code. Red bold quantities are cost estimate input values.
- 2 - Total quantities are rounded up to nearest whole number.

	Alt. F Mod
<b>In-water Organoclay Mat Material Quantities (CY)</b>	<b>230</b>
<b>Riverbanks Organoclay Material Quantities (CY)</b>	<b>270</b>
<b>Total Organoclay Material Quantities (CY)</b>	<b>500</b>

**Notes:**

- 1 - Green bold quantities are presented in ROD Text and Tables.
- 2 - Organoclay quantities are rounded to the nearest ten.

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**Table D2.j. Erosion Control and Obstruction Quantities**

Portland Harbor Superfund Site  
 Portland, Oregon

	Length of Silt Curtain By Rivermile Section (LF)	
	Alt.	F Mod
Rivermile 1.9 to 4	7032	
	914	
	2556	
	1159	
Rivermile 4 to 6	465	
	2927	
	3783	
	2384	
	3019	
	3202	
	1903	
Rivermile 6 to 8	4237	
	2642	
	898	
	3073	
	3199	
Rivermile 8 to 10	1285	
	1349	
	1591	
	938	
	8537	
Rivermile 10 to 12	525	
	6860	
	1447	
<b>Total</b>	<b>65,925</b>	

Notes:

1 - Quantities estimated using the technology assignment figures.

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**Table D2.j. Erosion Control Quantities (continued)**

Portland Harbor Superfund Site  
 Portland, Oregon

River Section	Length of Silt Curtains by River Section	
	Alt. F Mod	
Rivermile 1.9 to 4	11,661	
Rivermile 4 to 6	17,683	
Rivermile 6 to 8	14,049	
Rivermile 8 to 10	13,700	
Rivermile 10 to 12	8,832	
<b>Total Silt Curtain Length (LF)</b>		<b>67,500</b>

**Notes:**

- 1 - Quantities estimated using the technology assignment figures.
- 2 - Total is rounded up to nearest 2,500
- 3 - Quantities with red bold formatting are cost estimate input values.

Area	Length of Sheet Pile by Area (LF)	
	Alt. F Mod	
Rivermile 6 to 8	5,000	
	2,500	
<b>Total Sheet Pile Length (LF)</b>		<b>7,500</b>

**Notes:**

- 1 - Quantities estimated using the technology assignment figures.
- 2 - Total is rounded up to nearest 2,500
- 3 - Quantities with red bold formatting are cost estimate input values.

**D2.k. Obstruction Quantities**

Portland Harbor Superfund Site  
 Portland, Oregon

	Alt. F Mod
<b>Piles for Removal and Replacement (EA)</b>	<b>2,418</b>
<b>Structures for Relocation (EA)</b>	<b>9</b>

**Notes:**

- 1 - Quantity estimated using the technology assignment footprints.
- 2 - Quantities with red bold formatting are cost estimate input values.

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## Table D2.I. Institutional Control Quantities

Portland Harbor Superfund Site  
 Portland, Oregon

### Initial Establishment of Institutional Controls

1 Full-Time Equivalent (FTE) = 2,080 HR (approximately 1 calendar year of work hours)

#### Information Devices - Fish Consumption Advisory

		Professional Labor Hours (HR)	
		Alt. F Mod	
	FTE		
<b>Project Manager</b>	1	2,080	
<b>Environmental Engineer</b>	0.5	1,040	
<b>Environmental Scientist</b>	0.5	1,040	
<b>Clerk, Typist</b>	0.25	520	
<b>Environmental Lawyer</b>	0.125	260	
<b>Paralegal</b>	0.125	260	
<b>Total</b>	<b>2.5</b>	<b>5,200</b>	

Assumed Sign Placement Productivity, HR/EA: 0.5 Assumes placement of 1 sign per 0.5 hours  
 Assumed Field Technicians per Sign Placement Crew, EA: 2

		Materials	
		Alt. F Mod	
	EA		
<b>Signs (EA)</b>		50	
<b>Sign Placement (HR)</b>		50	
<b>Production &amp; Copies for Advisories (YR)</b>		1	

#### Information Devices - Regulated Navigation Area (RNA) Setup

		Total Cap Area for RNA Setup (AC)	
	Total Cap Monitoring	222	

Assumed Buoy Placement Density, EA/AC: 1 Assumed based on irregular shape of caps

		Total Buoys for RNA Setup (EA)	
	<b>Buoys Required</b>	222	

Assumed Buoy Placement Productivity, HR/EA: 2 Assumes placement of 1 buoy per 2 hours

		Buoy Placement (HR)	
		Alt. F Mod	
	EA/Crew		
<b>Boat</b>	1	444	
<b>Boat Operator</b>	1	444	
<b>Field Technician</b>	2	888	

		Professional Labor Hours (HR)	
		Alt. F Mod	
<b>Project Manager</b>		200	
<b>Environmental Engineer</b>		150	
<b>Clerk, Typist</b>		40	
<b>Total</b>		<b>390</b>	

Note:

1 - Red bold formatted titles indicate cost estimate input values.

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**Table D2.I. Institutional Control Quantities (continued)**

Portland Harbor Superfund Site  
 Portland, Oregon

**Initial Establishment of Institutional Controls (continued)**

**Proprietary Controls**

	Approximate Number of Dock Structures (EA) <sup>1</sup>
	Alt. F Mod
Dock Structures	52

<sup>1</sup> - Number of dock structures estimated using Google Earth

	HR/Dock	Professional Labor Hours (HR)
		Alt. F Mod
Environmental Lawyer	150	7,800
Paralegal	200	10,400
Clerk, Typist	100	5,200
<b>Total</b>	<b>450</b>	<b>23,400</b>

**Enforcement Tools**

	FTE	Professional Labor Hours (HR)
		Alt. F Mod
Project Manager	0.125	260
Environmental Lawyer	1	2,080
Paralegal	2	4,160
Clerk, Typist	0.125	260
<b>Total</b>	<b>3.25</b>	<b>6,760</b>

**Evaluating and Updating Institutional Controls**

Costs assume evaluating and updating institutional controls every 5 years.

**Information Devices - Fish Consumption Advisory (Evaluating and Updating)**

Assumed Percentage of Initial Implementation for Updating, %: 10% Assumes 10% of initial costs for updating periodically

	Professional Labor Hours (HR)
	Alt. F Mod
Project Manager	208
Environmental Engineer	104
Environmental Scientist	104
Clerk, Typist	52
Environmental Lawyer	26
Paralegal	26
<b>Total</b>	<b>520</b>

Assumed Percentage of Signs Replaced, %: 100% Assumes replacement of 100% of signs every 5 years  
 Assumed Sign Placement Productivity, HR/EA: 0.5 Assumes placement of 1 sign per 0.5 hours  
 Assumed Field Technicians per Sign Placement Crew, EA: 2

	Materials
	Alt. F Mod
Signs (EA)	50
Sign Placement (HR)	50
Production & Copy of Pamphlets/Brochures (YR)	5



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**Table D2.I. Institutional Control Quantities (continued)**

Portland Harbor Superfund Site  
 Portland, Oregon

**Information Devices - Regulated Navigation Area (RNA) Setup (Evaluating and Updating)**

Assumed Percentage of Buoys Replaced, %: 100% Assumes replacement of 100% of buoys every 5 years

<b>Buoys Required</b>	<b>Total Buoys for RNA Setup (EA)</b>
	222

Assumed Buoy Placement Productivity, HR/EA: 2 Assumes placement of 1 buoy per 2 hours

		<b>Buoy Placement (HR)</b>	
		<b>Alt. F Mod</b>	
<b>Boat</b>	1	444	
<b>Boat Operator</b>	1	444	
<b>Field Technician</b>	2	888	

		<b>Professional Labor Hours (HR)</b>	
		<b>Alt. F Mod</b>	
<b>Project Manager</b>		200	
<b>Environmental Engineer</b>		150	
<b>Clerk, Typist</b>		40	
<b>Total</b>		<b>390</b>	

**Proprietary Controls (Evaluating and Updating)**

Assumed Percentage of Initial Implementation for Updating, %: 10% Assumes 10% of initial costs for updating periodically

		<b>Professional Labor Hours (HR)</b>	
		<b>Alt. F Mod</b>	
<b>Environmental Lawyer</b>		780	
<b>Paralegal</b>		1,040	
<b>Clerk, Typist</b>		520	
<b>Total</b>		<b>2,340</b>	

**Enforcement Tools (Evaluating and Updating)**

Assumed Percentage of Initial Implementation for Updating, %: 10% Assumes 10% of initial costs for updating periodically

		<b>Professional Labor Hours (HR)</b>	
		<b>Alt. F Mod</b>	
<b>Project Manager</b>		26	
<b>Environmental Lawyer</b>		208	
<b>Paralegal</b>		416	
<b>Clerk, Typist</b>		26	
<b>Total</b>		<b>676</b>	

Note:

1 - Red bold formatted titles indicate cost estimate input values.

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**Table D2.m. Monitoring Quantities**

Portland Harbor Superfund Site  
 Portland, Oregon

	Alt. F Mod
Total Area for Cap Monitoring (AC):	222
Total Area for Porewater Reactive Layer Monitoring (AC):	133
Total Area for MNR/ENR/Broadcast GAC (AC):	1,802

Notes:

- 1 - Quantities with red bold formatting are cost estimate input values.
- 2 - Quantities for Total Areas for Cap Monitoring, Porewater Reactive Layer Monitoring, and MNR/ENR/Broadcast GAC include both the in-water areas (See worksheet D2.a) and also the riverbank areas (See worksheet D2.b). The summation of these quantities are rounded up to the nearest whole number.

**Table D2.n. Mitigation Quantities**

Technology Assignment	NMFS Shallow Area in Acres (Above -13 ft NAVD 88)
	Alt. F Mod
Armored Cap (3ft)	25.85
Aquablok w/armor (1ft)	2.61
Reactive Armored Cap (3ft)	28.04
Significantly Augmented Reactive Cap (3ft)	0.91
Dredge with significantly augmented reactive cap (3ft)	0.34

Notes:

- 1 - Cells highlighted in yellow are direct output quantities from R code.
- 2 - Quantities above represent only those areas with an armoring layer.

Areas with Armoring (AC):	58
Riverbank Areas with Armoring (AC):	2
Total Mitigation Area (AC):	60

Notes:

- 1 - Quantities with red bold formatting are cost estimate input values.
- 2 - Quantities for Armoring, Riverbank Areas with Armoring, and Total Mitigation Area are rounded up to the nearest whole number.
- 3 - Calculations for riverbank areas by technology assignment are presented in worksheet D2.b.

**Table D2.o. Truck, Rail, Barge Size Assumptions**

Portland Harbor Superfund Site  
Portland, Oregon

**Truck, Rail, Barge Size Assumptions**

The following densities, unit weights, and volume capacities were used for determination of the number of barge, truck, or rail gondola loads that may be required for transportation of contaminated material to an off-site disposal location and for transportation of import materials to the site. The densities for waste amended with diatomaceous earth or diatomaceous earth and quicklime were determined from weight and volume calculations presented in D2.d. Assumed average weight and volume per transportation method was based on previous work by others, quantity assumptions, or manufacturer literature. Densities utilized in the section are consistent with densities used in other sections of D2.d.

**Transportation Method Assumptions**

**Super Jumbo Barge**

	Length	Dimensions		Capacity	
		Width	Depth	Weight	Volume
		FT		TON	CY
Low End	250	40	9	2500	3333
High End	290	52	9	3000	5027

Source: River Mechanics (2002) - Pierre Julien

Density (TON/CY) > 0.76 means capacity is limited by weight for low end  
 Density (TON/CY) < 0.76 means capacity is limited by volume for low end

**Rail Gondola**

	Weight	Capacity	
		Volume	
	TON	CF	CY
65' Gondola	100-110	3242	120

Source: Standard Railroad Equipment Sizes - CSX Website

Density (TON/CY) > 0.83 means capacity is limited by weight for 65' gondola  
 Density (TON/CY) < 0.83 means capacity is limited by volume

**Density Calculations**

**Subtitle C**

Density of Sub C Waste w/Diatomaceous Earth Only, TON/CY: 1.07 DE Application Rate = 10%  
 Density of Sub C Waste w/Diatomaceous Earth & Quicklime, TON/CY: 1.30 DE Application Rate = 5%; Quicklime Application Rate = 6.9%

**Subtitle D**

Density of Sub D Waste w/DE, TON/CY: 1.25 DE Application Rate = 5% for all Sub D Material

**Waste Amendment Materials**

Diatomaceous Earth Density (LB/CF): 19 Source: MSDS (Wet Bulk Density)  
 Diatomaceous Earth Density (TON/CY): 0.26  
 Quicklime Density (g/cm<sup>3</sup>): 3.25 Source: Vendor Website - Quicklime Safety Data Sheet  
 Quicklime Density (TON/CY): 2.74

**Capping/Backfill Materials**

**Capping/Backfill**

Density of Sand (dry), LB/LCY: 2,400 Caterpillar Performance Handbook, edition 3.1  
 Density of Sand (dry), TON/LCY: 1.20  
 Density of Riprap, LB/LCY: 2,700 Caterpillar Performance Handbook, edition 3.1  
 Density of Riprap, TON/LCY: 1.35  
 Density of Gravel (pitrun), LB/LCY: 3,250 Caterpillar Performance Handbook, edition 3.1  
 Density of Gravel (pitrun), TON/LCY: 1.63  
 Density of AquaBlok, LB/CF: 85 Per Vendor Information  
 Density of AquaBlok, TON/CY: 1.15  
 Density of AquaGate, LB/CF: 74 Per Vendor Information  
 Density of AquaGate, TON/CY: 1.00

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**Table D2.o. Truck, Rail, Barge Size Assumptions (continued)**

Portland Harbor Superfund Site  
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**Barge Capacity**

Barge Capacity, TON/EA: **2,500** *Per Communications with Tidewater*  
 Barge Capacity, CY/EA: **3,333**

**Subtitle C Disposal**

Barge volume capacity- Sub C Material w/DE Only, CY/EA: **2,336**  
 Barge Volume Capacity - Sub C Material w/DE & Quicklime, CY/EA: **1,923**

**Subtitle D Disposal**

Barge volume capacity - Sub D Waste w/DE, CY/EA: **2,000**

**Waste Amendment Materials**

Barge volume capacity - quicklime amendment, CY/EA: **912**  
 Barge volume capacity - diatomaceous amendment, CY/EA: **3,333** *Volume cannot exceed barge capacity*

**Capping/Backfill Materials**

Barge volume capacity - sand placement, CY/EA: **2,083**  
 Barge volume capacity - armor placement, CY/EA: **1,851**  
 Barge volume capacity - beachmix placement, CY/EA: **1,533**  
 Barge volume capacity - AquaBlok placement, CY/EA: **2,173**  
 Barge volume capacity - AquaGate placement, CY/EA: **2,500**

**Truck Capacity**

Truck Capacity, CY/EA: **22** *Per Productivity Sheet PD-03*  
 Fill Factor, % **90%** *Per Productivity Sheet PD-03*  
 Truck Payload Capacity, CY/EA: **20** *Per Productivity Sheet PD-03, Used for MII-Derived Unit Cost*

Maximum Allowable Tonnage, LBS/EA: **80,000**  
 Maximum Allowable Tonnage, TON/EA: **40** *Based on Oregon maximum legal gross weight limit*

Assumed Truck Weight, TON: **15**  
 Assumed Truck Carrying Capacity, TON: **25**

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**Table D2.o. Truck, Rail, Barge Size Assumptions (continued)**

Portland Harbor Superfund Site  
 Portland, Oregon

**Subtitle C Disposal**

Truck Weight Capacity (Sub C Material w/DE Only), TON/EA: **21**  
 Truck Weight Capacity (Sub C Material w/DE & Quicklime), TON/EA: **25**

**Subtitle D Disposal**

Truck Weight Capacity (Sub D Waste w/DE), TON/EA: **25**

**Waste Amendment Materials**

Truck weight capacity - quicklime amendment, TON/EA: **25**  
 Truck weight capacity - diatomaceous amendment, TON/EA: **5**

**Capping/Backfill Materials**

Truck weight capacity - sand placement, TON/EA: **24**  
 Truck weight capacity - armor placement, TON/EA: **25**  
 Truck weight capacity - beachmix placement, TON/EA: **25**  
 Truck weight capacity - AquaBlok placement, TON/EA: **23**  
 Truck weight capacity - AquaGate placement, TON/EA: **20**

**Rail Capacity**

Rail Gondola Capacity, TON/EA: **100** *Per Anchor QEA (2010), see Backup Table 25*  
 Rail Gondola Capacity, CY/EA: **120** *Based on dimensions of a jumbo gondola*

**Subtitle C Disposal**

Gondola Volume Capacity (Sub C Material w/DE Only), CY/EA: **93**  
 Gondola Volume Capacity (Sub C Material w/DE & Quicklime), CY/EA: **76**

**Subtitle D Disposal**

Gondola Volume Capacity (Sub D Waste w/DE), CY/EA: **80**

**Waste Amendment Materials**

Gondola volume capacity - quicklime amendment, CY/EA: **36**  
 Gondola volume capacity - diatomaceous amendment, CY/EA: **120** *Volume cannot exceed gondola capacity*

**Capping/Backfill Materials**

Gondola volume capacity - sand placement, CY/EA: **83**  
 Gondola volume capacity - armor placement, CY/EA: **74**  
 Gondola volume capacity - beachmix placement, CY/EA: **61**  
 Gondola volume capacity - AquaBlok placement, CY/EA: **86**  
 Gondola volume capacity - AquaGate placement, CY/EA: **100**

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**Table D2.q. Truck, Rail, Barge Loads for Disposal Volumes**

Portland Harbor Superfund Site  
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**Truck, Rail, Barge Load Calculations**

The number of barges, trucks, or rail gondolas was calculated based on weight and volumes presented in D2.d and the size assumptions presented in D2.o. The larger number of loads of the two methods (weight or volume) was used to determine the number of barges, trucks, or rail gondolas that may be needed under each alternative.

**Subtitle C Disposal Volumes**

	Subtitle C Diatomaceous Earth Amendment Only		Subtitle C Diatomaceous Earth & Quicklime Amendment		
	TN/EA	CY/EA	TN/EA	CY/EA	
Barge Size Assumed	2,500	2,336	2,500	1,923	See worksheet D2.o for details
Truck Size Assumed	21	20	25	20	See worksheet D2.o for details
Rail Gondola Size Assumed	100	93	100	76	See worksheet D2.o for details

Area 6W - Stabilization with Diatomaceous Earth and Quicklime

	Alt. F Mod	
Weight of Amended Area 6W NRC/NAPL PTW for Subtitle C Disposal (TON)	283,212	See D2.d Quantities
Number of Barge Loads (EA)	114	
Number of Truck Loads (EA)	11,329	
Number of Rail Car Loads (EA)	2,833	
Volume of Amended Area 6W NRC/NAPL PTW for Subtitle C Disposal (CY)	218,334	See D2.d Quantities
Number of Barge Loads (EA)	114	
Number of Truck Loads (EA)	10,917	
Number of Rail Car Loads (EA)	2,873	

Area 7W - Stabilization with Diatomaceous Earth Only

	Alt. F Mod	
Weight of Amended Area 7W NRC/NAPL PTW for Subtitle C Disposal (TON)	50,164	See D2.d Quantities
Number of Barge Loads (EA)	21	
Number of Truck Loads (EA)	2,389	
Number of Rail Car Loads (EA)	502	
Volume of Amended Area 7W NRC/NAPL PTW for Subtitle C Disposal (CY)	46,962	See D2.d Quantities
Number of Barge Loads (EA)	21	
Number of Truck Loads (EA)	2,349	
Number of Rail Car Loads (EA)	505	

Area 7W - Stabilization with Diatomaceous Earth and Quicklime

	Alt. F Mod	
Weight of Amended Area 7W NRC/NAPL PTW for Subtitle C Disposal (TON)	25,515	See D2.d Quantities
Number of Barge Loads (EA)	11	
Number of Truck Loads (EA)	1,021	
Number of Rail Car Loads (EA)	256	
Volume of Amended Area 7W NRC/NAPL PTW for Subtitle C Disposal (CY)	19,671	See D2.d Quantities
Number of Barge Loads (EA)	11	
Number of Truck Loads (EA)	984	
Number of Rail Car Loads (EA)	259	

**Total Disposal at Subtitle C - Summation**

	Alt. F Mod
Total Weight of Amended NRC/NAPL PTW for Subtitle C Disposal (TON)	358,891
Number of Barge Loads (EA)	146
Number of Truck Loads (EA)	14,739
Number of Rail Car Loads (EA)	3,591
Total Volume of Amended NRC/NAPL PTW for Subtitle C Disposal (CY)	284,967
Number of Barge Loads (EA)	146
Number of Truck Loads (EA)	14,250
Number of Rail Car Loads (EA)	3,637

**Total Disposal at Subtitle C - Maximum Number of Probable Loads**

	Alt. F Mod
Number of Barge Loads (EA)	146
Number of Truck Loads (EA)	14,739
Number of Rail Car Loads (EA)	3,637

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**Table D2.q. Truck, Rail, Barge Loads for Off-Site Disposal Volumes (continued)**

Portland Harbor Superfund Site  
 Portland, Oregon

**Subtitle D Disposal Volumes**

Subtitle D Diatomaceous Earth Amendment Only			
	TN/EA	CY/EA	
Barge Size Assumed	2,500	2,000	See worksheet D2.o for details
Truck Size Assumed	25	20	See worksheet D2.o for details
Rail Gondola Size Assumed	100	80	See worksheet D2.o for details

*Disposal at Off-Site Sub D Landfill - Stabilization with Diatomaceous Earth*

	Alt. F Mod	
Total Weight of Amended Subtitle D Materials for Subtitle D Disposal (TON)	4,596,885	See D2.d Quantities
Number of Barge Loads (EA)	1,839	
Number of Truck Loads (EA)	183,876	
Number of Rail Car Loads (EA)	45,969	See D2.d Quantities
Total Volume of Amended Subtitle D Materials for Subtitle D Disposal (CY)	3,666,427	
Number of Barge Loads (EA)	1,834	
Number of Truck Loads (EA)	183,322	
Number of Rail Car Loads (EA)	45,831	

*Total Disposal at Subtitle D - Maximum Number of Probable Loads*

	Alt. F Mod
Number of Barge Loads (EA)	1,839
Number of Truck Loads (EA)	183,876
Number of Rail Car Loads (EA)	45,969

**Total Number of Barges, Trucks, Rail Cars**

	Alt. F Mod
Total Weight of Amended Materials for Off-Site Disposal (TON)	4,955,776
Total Weight of Amended Materials for Off-Site Disposal (CY)	3,951,394
Number of Barge Loads (EA)	1,985
Number of Truck Loads (EA)	198,615
Number of Rail Car Loads (EA)	49,606

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**Table D2.s. Truck, Rail, Barge Loads for Import Materials**

Portland Harbor Superfund Site  
 Portland, Oregon

**Truck, Rail, Barge Load Calculations**

Quantities represent importing materials on-site, including materials for capping/backing (sand, armor, beachmix, AquaBlok, AquaGate) and materials for amending sediments (quicklime, diatomaceous earth). The number of barges, trucks, or rail gondolas was calculated based on weight and volume quantities in D2.d through D2.h and the size/density assumptions in D2.o. The larger number of loads of the two methods (weight or volume) was used to determine the number of barges, trucks, or rail gondolas that may be needed under each alternative.

**Sand Placement Volumes**

	TN/EA	CY/EA	
Barge Size Assumed	2,500	2,083	See worksheet D2.o for details
Truck Size Assumed	24	20	See worksheet D2.o for details
Rail Gondola Size Assumed	100	83	See worksheet D2.o for details

	Alt. F Mod	
Sand Material Quantities, Including Low Permeability Sand (Non-Reactive Layers) (CY)	914,382	See D2.f Quantities
Sand for Mixing Material Quantities (Reactive Layers) (CY)	101,942	See D2.g Quantities
Total Sand (CY)	1,016,324	
Number of Barge Loads (EA)	488	
Number of Truck Loads (EA)	50,817	
Number of Rail Car Loads (EA)	12,245	
Total Sand (TON)	1,219,589	
Number of Barge Loads (EA)	488	
Number of Truck Loads (EA)	50,817	
Number of Rail Car Loads (EA)	12,196	

**Sand Placement - Maximum Number of Probable Loads**

	Alt. F Mod
Number of Barge Loads (EA)	488
Number of Truck Loads (EA)	50,817
Number of Rail Car Loads (EA)	12,245

**Armor Placement Volumes**

	TN/EA	CY/EA	
Barge Size Assumed	2,500	1,851	See worksheet D2.o for details
Truck Size Assumed	25	20	See worksheet D2.o for details
Rail Gondola Size Assumed	100	74	See worksheet D2.o for details

	Alt. F Mod	
Total Armor Material Quantities (CY)	151,909	See D2.e Quantities
Number of Barge Loads (EA)	83	
Number of Truck Loads (EA)	7,596	
Number of Rail Car Loads (EA)	2,053	
Total Armor (TON):	205,078	
Number of Barge Loads (EA)	83	
Number of Truck Loads (EA)	8,204	
Number of Rail Car Loads (EA)	2,051	

**Armor Placement - Maximum Number of Probable Loads**

	Alt. F Mod
Number of Barge Loads (EA)	83
Number of Truck Loads (EA)	8,204
Number of Rail Car Loads (EA)	2,053

**Beachmix Placement Volumes**

	TN/EA	CY/EA	
Barge Size Assumed	2,500	1,533	See worksheet D2.o for details
Truck Size Assumed	25	20	See worksheet D2.o for details
Rail Gondola Size Assumed	100	61	See worksheet D2.o for details

	Alt. F Mod	
Total Beachmix Material Quantities (CY)	69,511	See D2.h Quantities
Number of Barge Loads (EA)	46	
Number of Truck Loads (EA)	3,476	
Number of Rail Car Loads (EA)	1,140	
Total Beachmix (TON)	113,303	
Number of Barge Loads (EA)	46	
Number of Truck Loads (EA)	4,533	



Number of Rail Car Loads (EA)		1,134
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**Table D2.s. Truck, Rail, Barge Loads for Import Materials (continued)**

Portland Harbor Superfund Site  
Portland, Oregon

**Beachmix Placement - Maximum Number of Probable Loads**

	Alt. F Mod
Number of Barge Loads (EA)	46
Number of Truck Loads (EA)	4,533
Number of Rail Car Loads (EA)	1,140

**AquaBlok Placement Volumes**

	TN/EA	CY/EA	
Barge Size Assumed	2,500	2,173	See worksheet D2.o for details
Truck Size Assumed	23	23	See worksheet D2.o for details
Rail Gondola Size Assumed	100	86	See worksheet D2.o for details

	Alt. F Mod	
Confined AquaBlok Placement (CY)	4,951	See D2.g Quantities
Number of Barge Loads (EA)	3	
Number of Truck Loads (EA)	216	
Number of Rail Car Loads (EA)	58	
Confined AquaBlok Placement (TON)	5,681	See D2.g Quantities
Number of Barge Loads (EA)	3	
Number of Truck Loads (EA)	247	
Number of Rail Car Loads (EA)	57	

**AquaBlok Placement - Maximum Number of Probable Loads**

	Alt. F Mod
Number of Barge Loads (EA)	3
Number of Truck Loads (EA)	247
Number of Rail Car Loads (EA)	58

**AquaGate Placement Volumes**

	TN/EA	CY/EA	
Barge Size Assumed	2,500	2,500	See worksheet D2.o for details
Truck Size Assumed	20	20	See worksheet D2.o for details
Rail Gondola Size Assumed	100	100	See worksheet D2.o for details

	Alt. F Mod	
Total AquaGate Material Quantities (TON):	96,292	See D2.g Quantities
Number of Barge Loads (EA)	39	
Number of Truck Loads (EA)	4,815	
Number of Rail Car Loads (EA)	963	
Total Aquagate Material Quantities (CY)	96,292	
Number of Barge Loads (EA)	39	
Number of Truck Loads (EA)	4,815	
Number of Rail Car Loads (EA)	963	

**AquaGate Placement - Maximum Number of Probable Loads**

	Alt. F Mod
Number of Barge Loads (EA)	39
Number of Truck Loads (EA)	4,815
Number of Rail Car Loads (EA)	963

**Quicklime Amendment Volumes**

	TN/EA	CY/EA	
Barge Size Assumed	2,500	912	See worksheet D2.o for details
Truck Size Assumed	25	20	See worksheet D2.o for details
Rail Gondola Size Assumed	100	36	See worksheet D2.o for details

	Alt. F Mod	
Quicklime (CY)	6,949	Summation of D2.d Quantities
Number of Barge Loads (EA)	8	
Number of Truck Loads (EA)	348	
Number of Rail Car Loads (EA)	194	
Quicklime (TON)	19,036	Summation of D2.d Quantities
Number of Barge Loads (EA)	8	
Number of Truck Loads (EA)	762	

Number of Rail Car Loads (EA)	191
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**Table D2.s. Truck, Rail, Barge Loads for Import Materials (continued)**

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 Portland, Oregon

Quicklime Placement - Maximum Number of Probable Loads

	Alt. F Mod
Number of Barge Loads (EA)	8
Number of Truck Loads (EA)	762
Number of Rail Car Loads (EA)	194

Diatomaceous Earth Amendment Volumes

	TN/EA	CY/EA	
Barge Size Assumed	2,500	3,333	<i>See worksheet D2.o for details</i>
Truck Size Assumed	5	20	<i>See worksheet D2.o for details</i>
Rail Gondola Size Assumed	100	120	<i>See worksheet D2.o for details</i>

	Alt. F Mod	
Diatomaceous Earth (CY)	912,519	<i>Summation of D2.d Quantities</i>
Number of Barge Loads (EA)	274	
Number of Truck Loads (EA)	45,626	
Number of Rail Car Loads (EA)	7,605	<i>Summation of D2.d Quantities</i>
Diatomaceous Earth (TON)	237,254	
Number of Barge Loads (EA)	95	
Number of Truck Loads (EA)	47,451	
Number of Rail Car Loads (EA)	2,373	

Diatomaceous Earth Placement - Maximum Number of Probable Loads

	Alt. F Mod
Number of Barge Loads (EA)	274
Number of Truck Loads (EA)	47,451
Number of Rail Car Loads (EA)	7,605

Total Number of Barges, Trucks, Rail Cars - Materials

	Alt. F Mod
Number of Barge Loads (EA)	941
Number of Truck Loads (EA)	116,829
Number of Rail Car Loads (EA)	24,258

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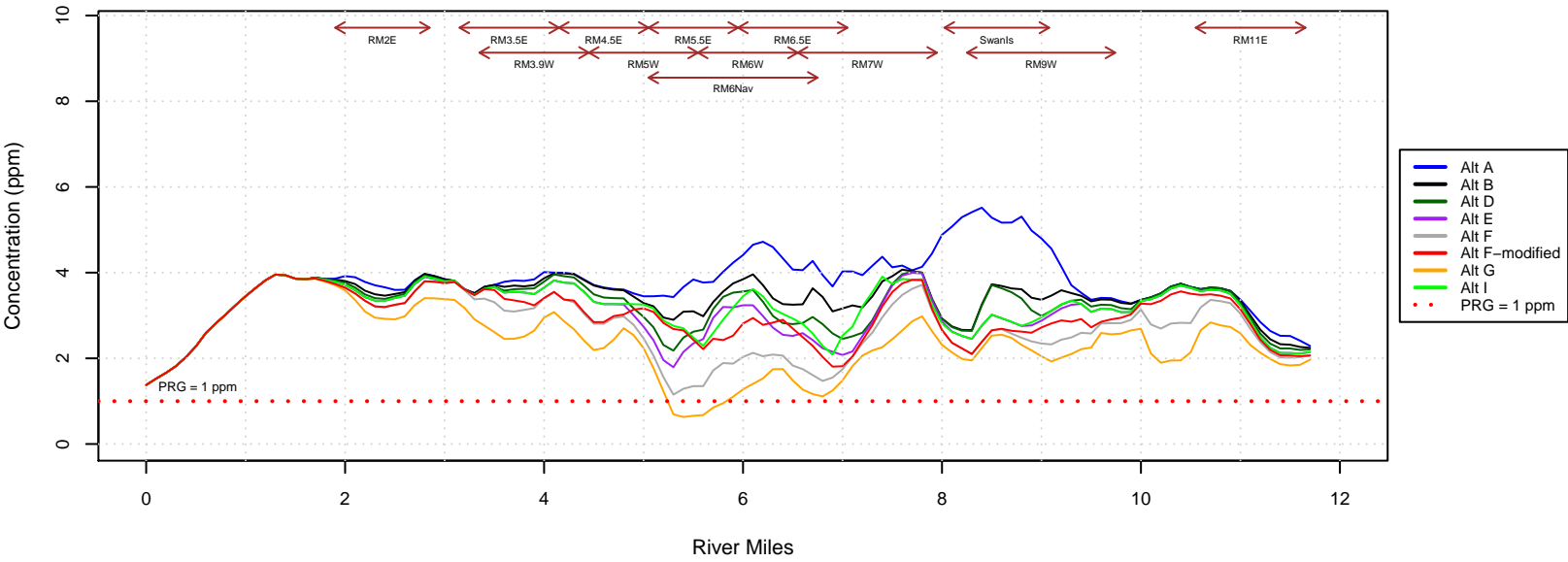
**Table D2.t. Summary of Total Truck, Rail, Barge Loads**

Portland Harbor Superfund Site  
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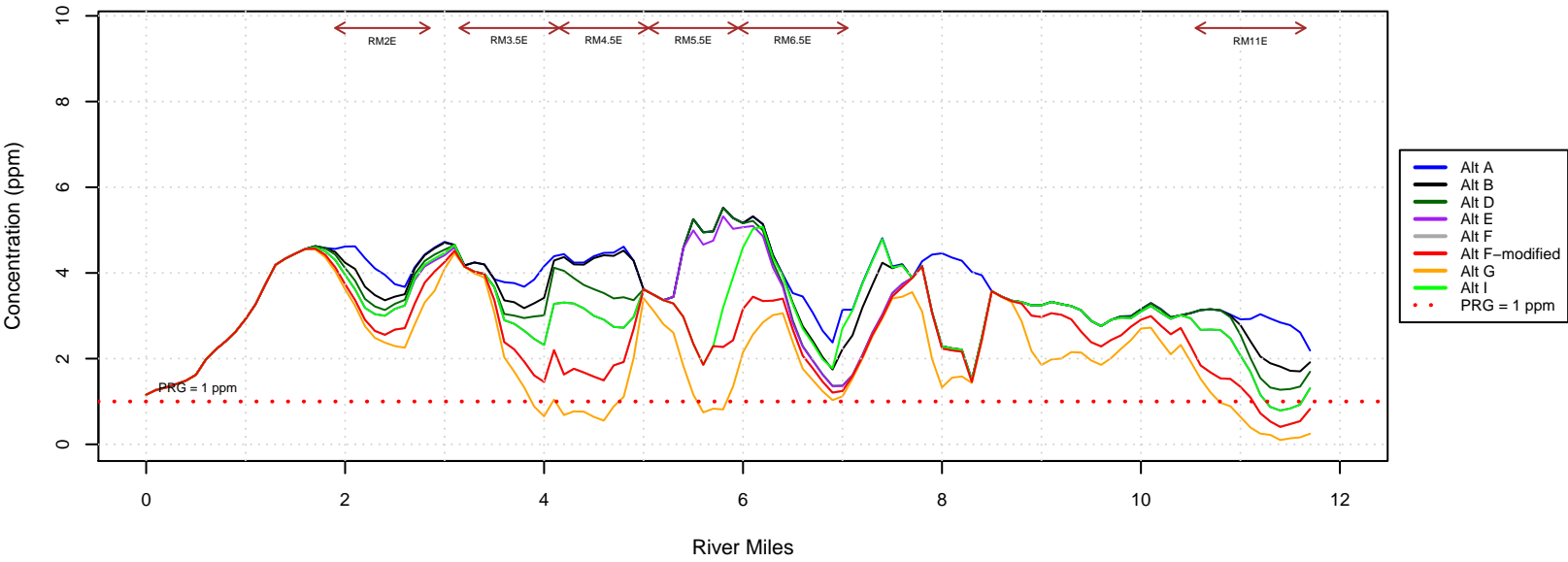
Task	Mode of Transportation		Alt. F Mod
Transportation for Disposal at Off-Site Commercial Landfills	Barging	Barge Loads	1,985
	Trucking	Truck Loads	198,615
	Rail	Rail Car Loads	49,606
Transportation for Import of Materials On-Site for Construction	Barging	Barge Loads	941
	Trucking	Truck Loads	116,829
	Rail	Rail Car Loads	24,258
Total	Barging	Barge Loads	2,926
	Trucking	Truck Loads	315,444
	Rail	Rail Car Loads	73,864

# Figures

Sediment Concentration for RAO 1 COC at Year 0 – Arsenic – Site – Rolling Avg 0.5 mile



Sediment Concentration for RAO 1 COC at Year 0 – Arsenic – East – Rolling Avg 0.5 mile



Sediment Concentration for RAO 1 COC at Year 0 – Arsenic – Nav Channel – Rolling Avg 0.5 mile

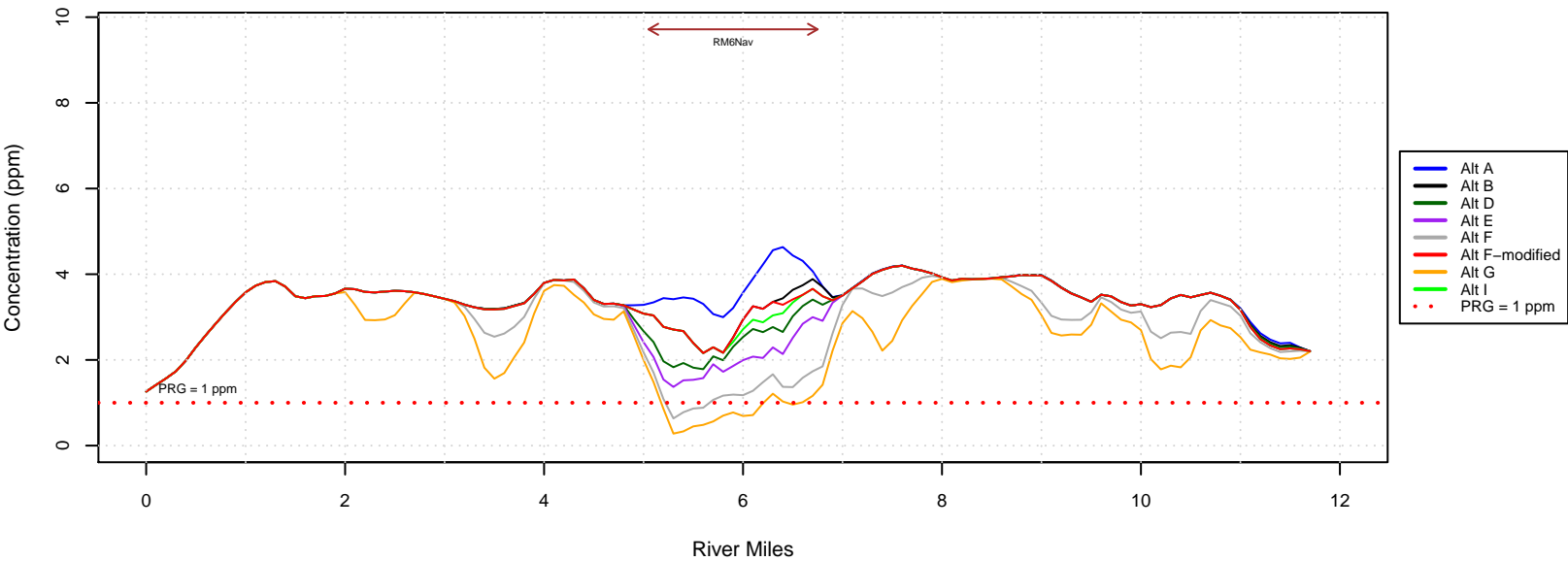
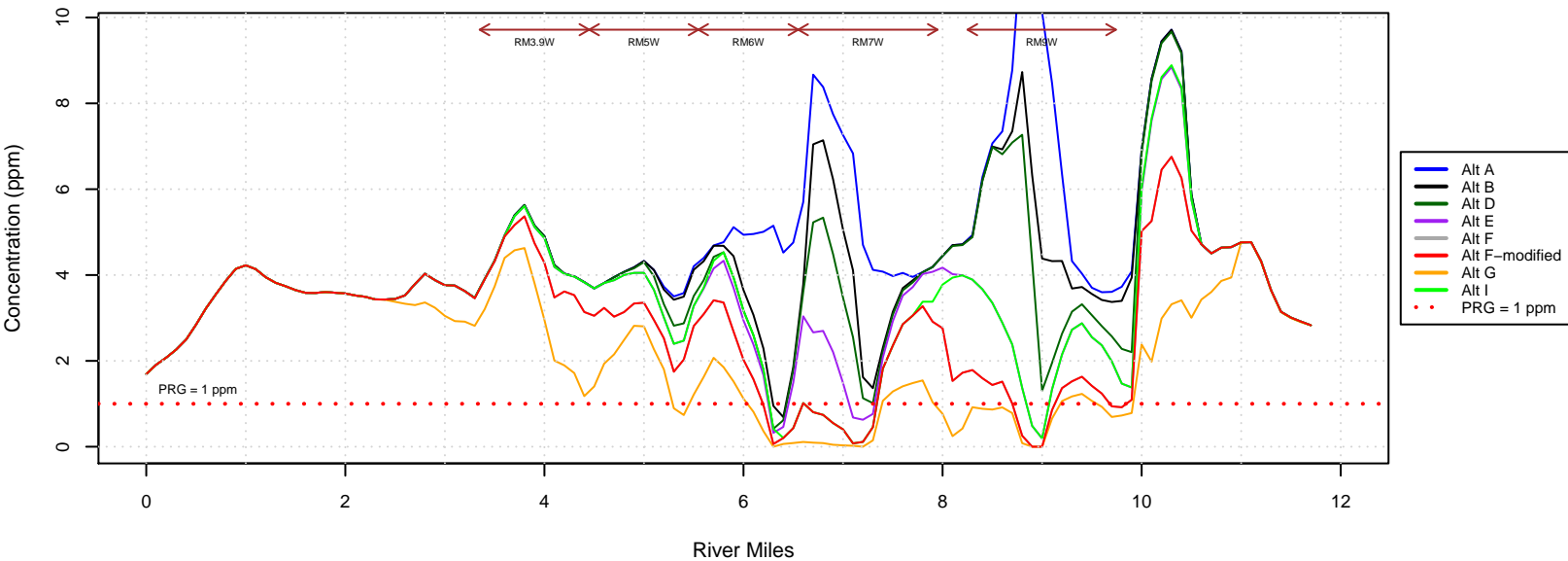
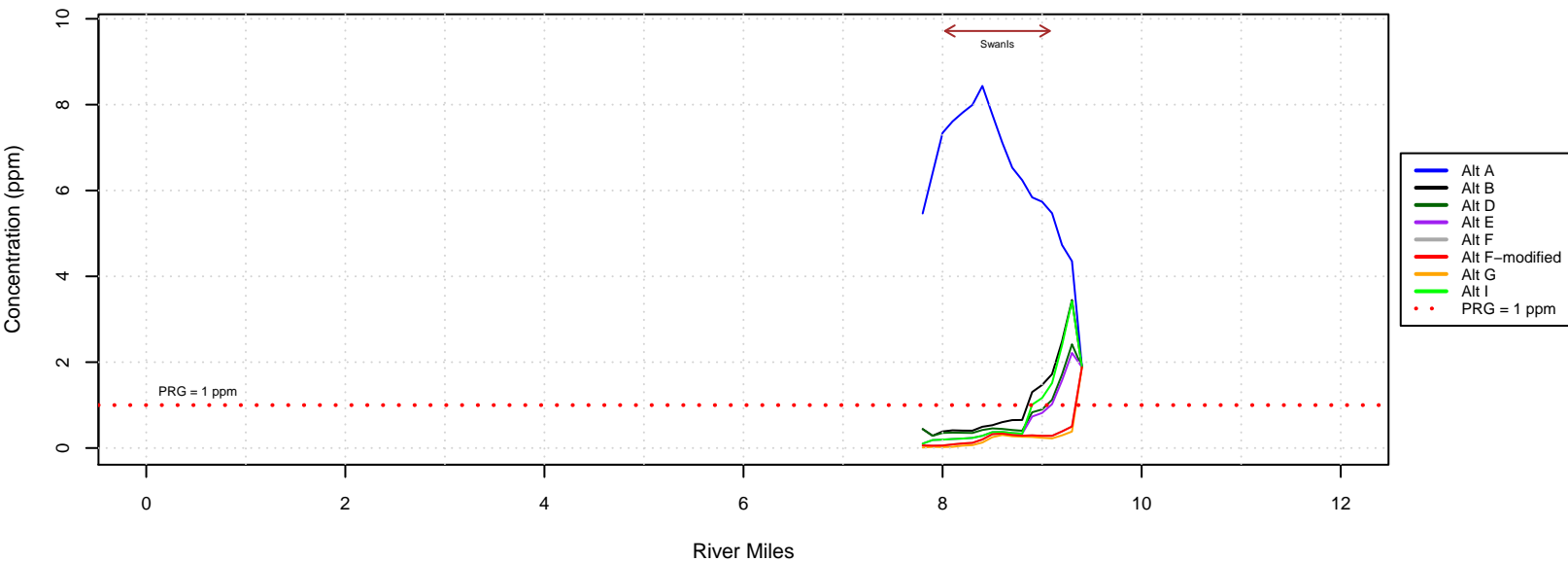


Figure D.10–1a. RAO1 COC Concentration (Year 0) – Arsenic

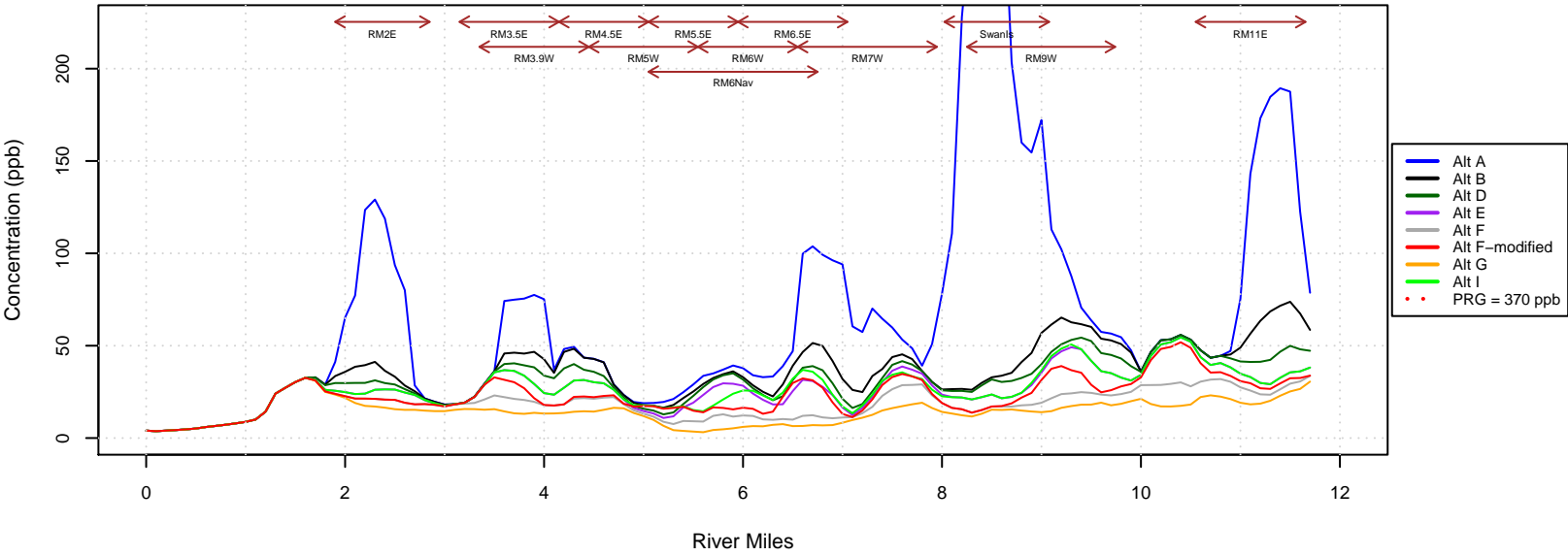
Sediment Concentration for RAO 1 COC at Year 0 – Arsenic – West – Rolling Avg 0.5 mile



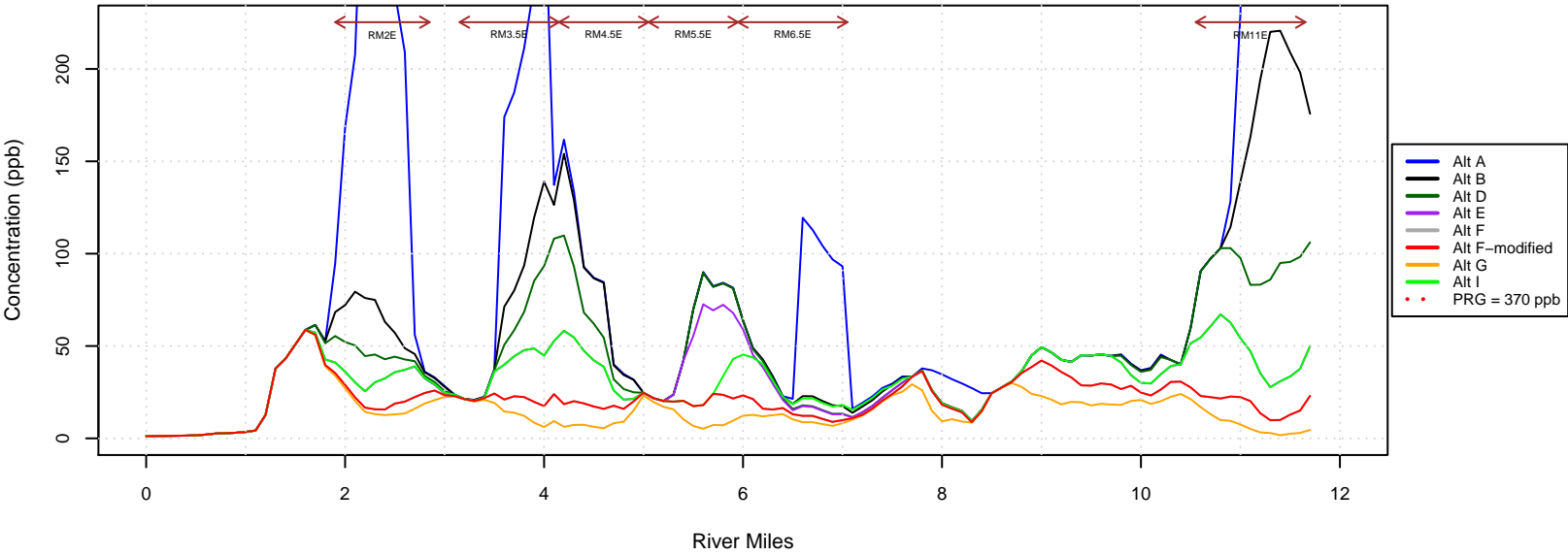
Sediment Concentration for RAO 1 COC at Year 0 – Arsenic – Swan Isl – Rolling Avg 0.5 mile



Sediment Concentration for RAO 1 COC at Year 0 – PCB – Site – Rolling Avg 0.5 mile



Sediment Concentration for RAO 1 COC at Year 0 – PCB – East – Rolling Avg 0.5 mile



Sediment Concentration for RAO 1 COC at Year 0 – PCB – Nav Channel – Rolling Avg 0.5 mile

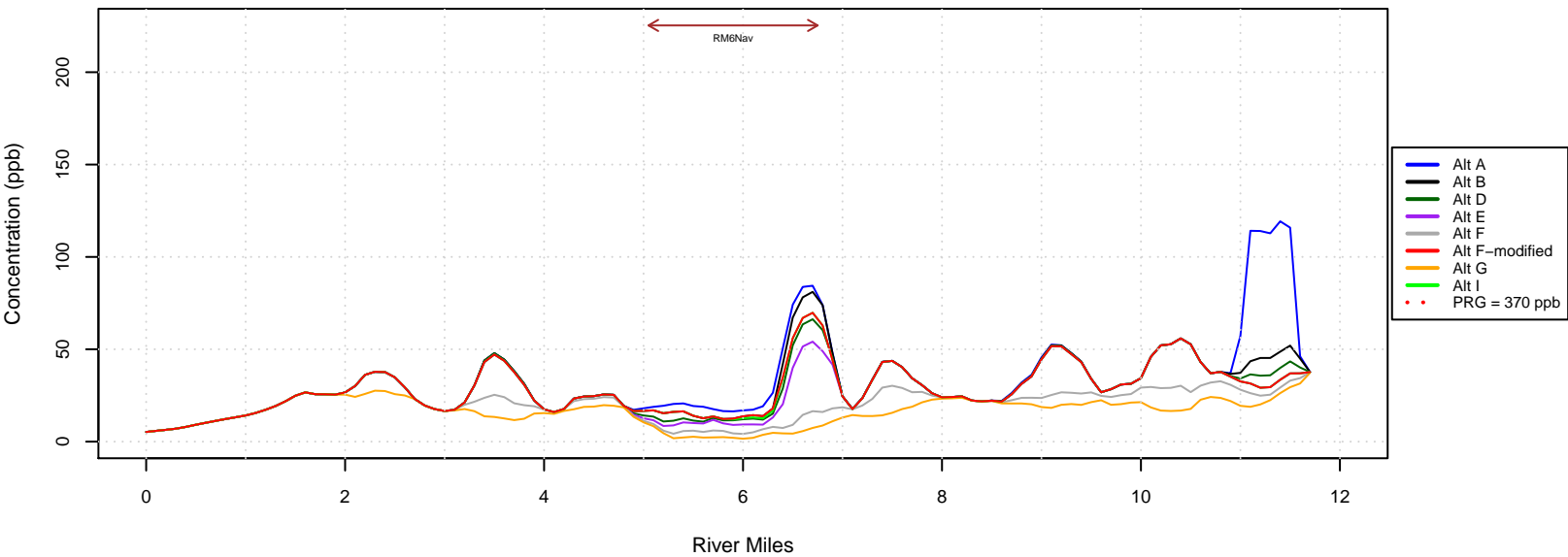
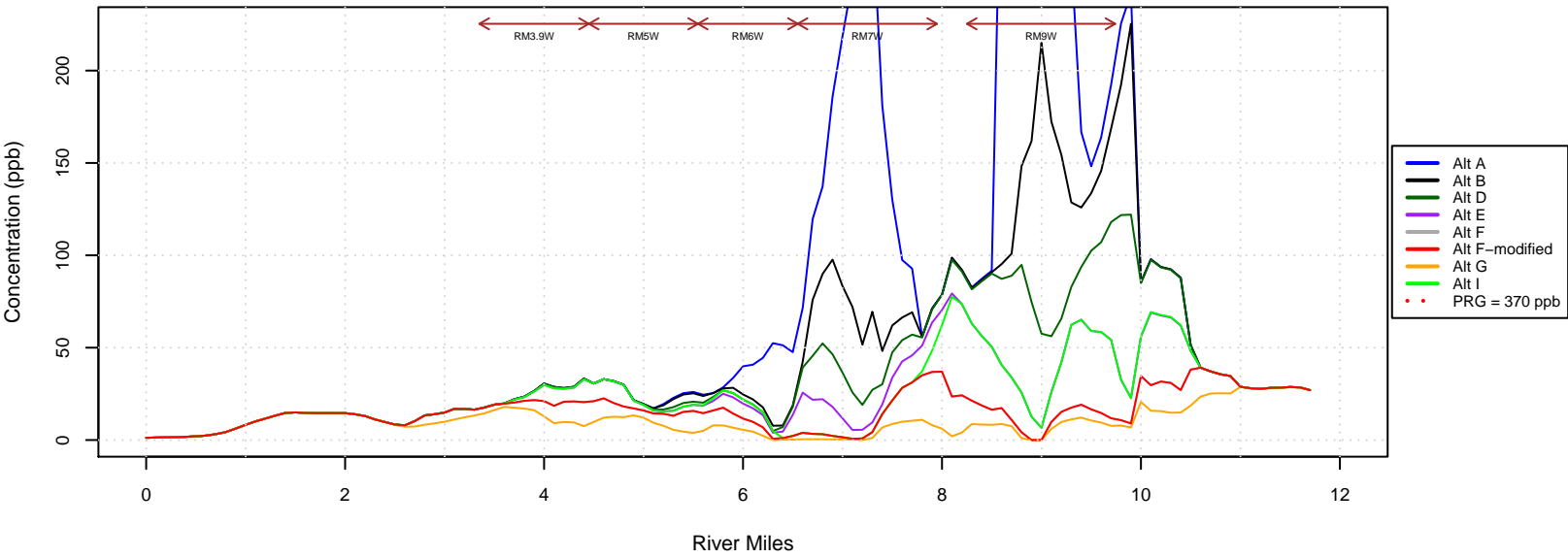


Figure D.10-1b. RAO1 COC Concentration (Year 0) – PCB

Sediment Concentration for RAO 1 COC at Year 0 – PCB – West – Rolling Avg 0.5 mile



Sediment Concentration for RAO 1 COC at Year 0 – PCB – Swan Isl – Rolling Avg 0.5 mile

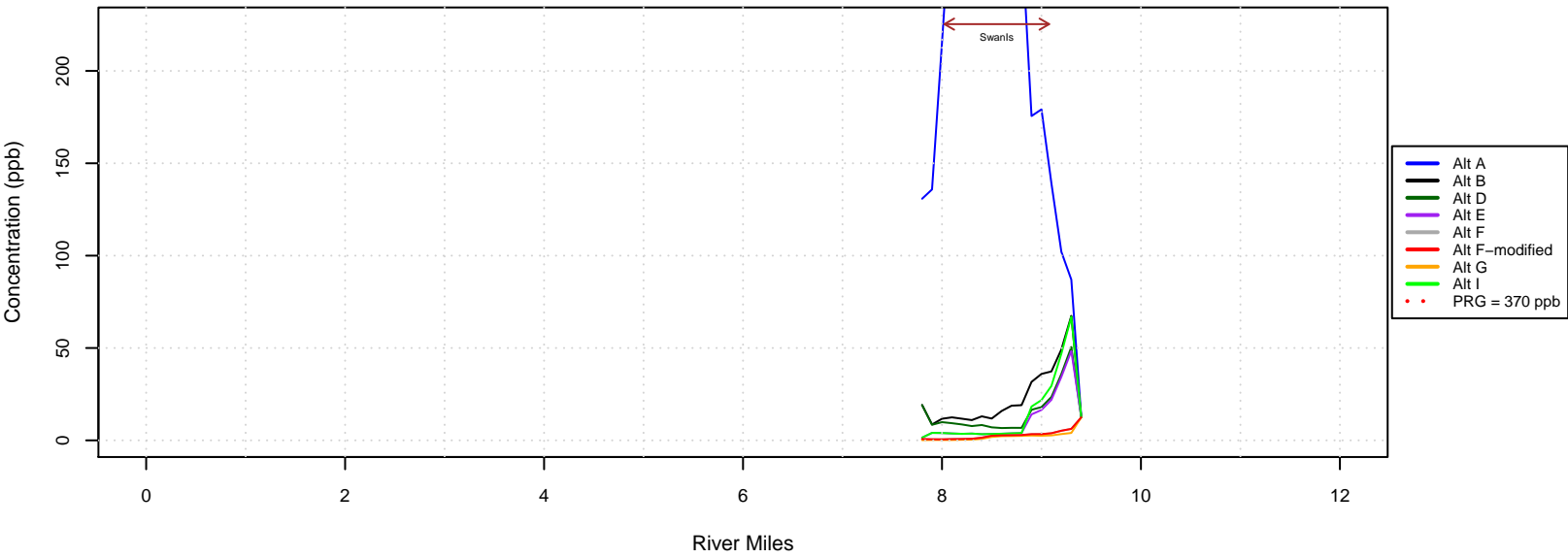
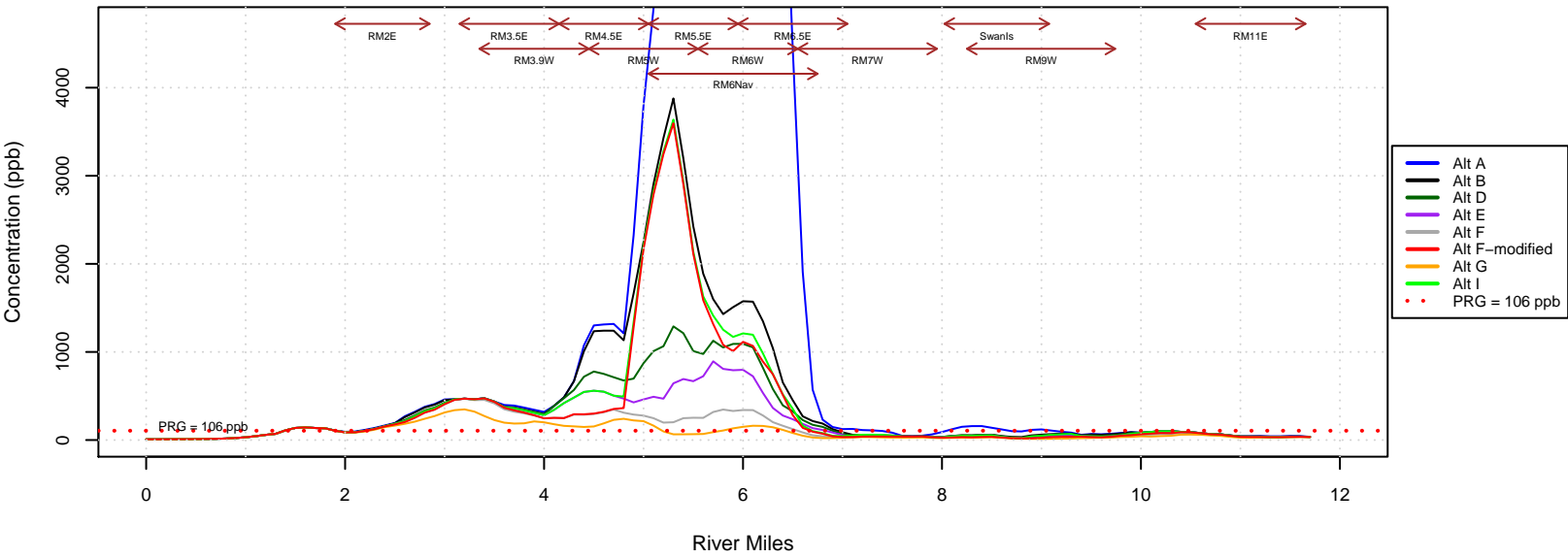


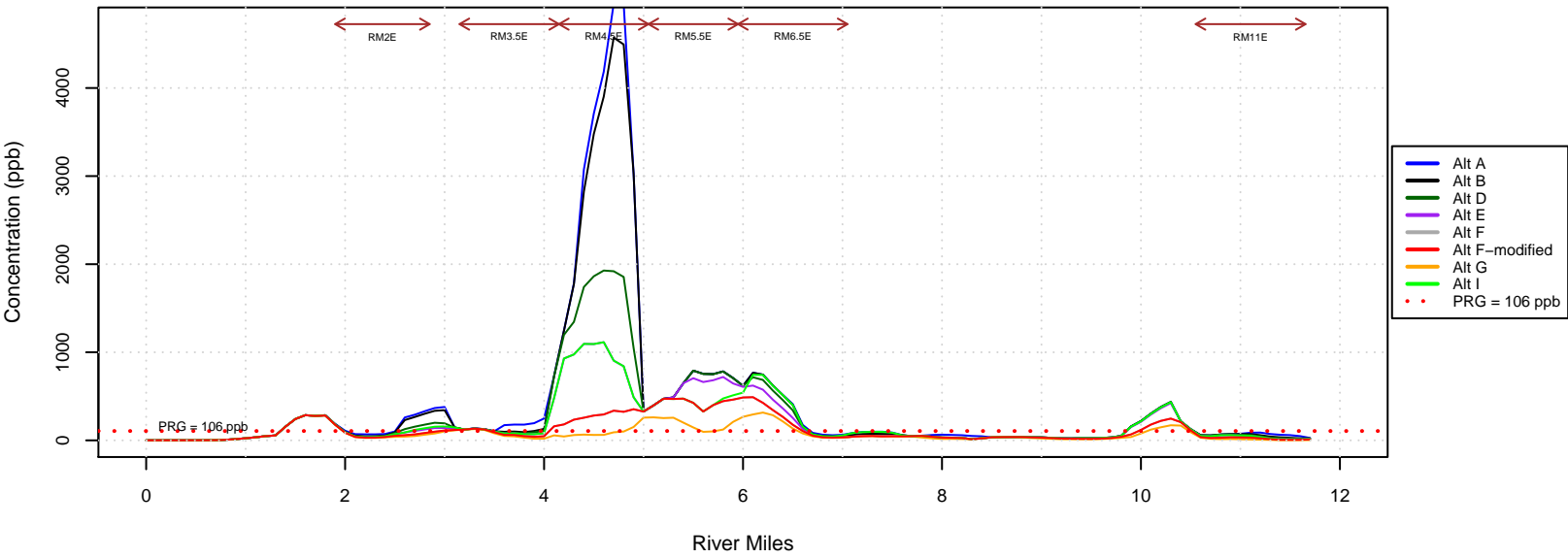
Figure 10.1–b(Continued). RAO1 COC Concentration (Year 0) – PCB



Sediment Concentration for RAO 1 COC at Year 0 – cPAHs – Site – Rolling Avg 0.5 mile



Sediment Concentration for RAO 1 COC at Year 0 – cPAHs – East – Rolling Avg 0.5 mile



Sediment Concentration for RAO 1 COC at Year 0 – cPAHs – Nav Channel – Rolling Avg 0.5 mile

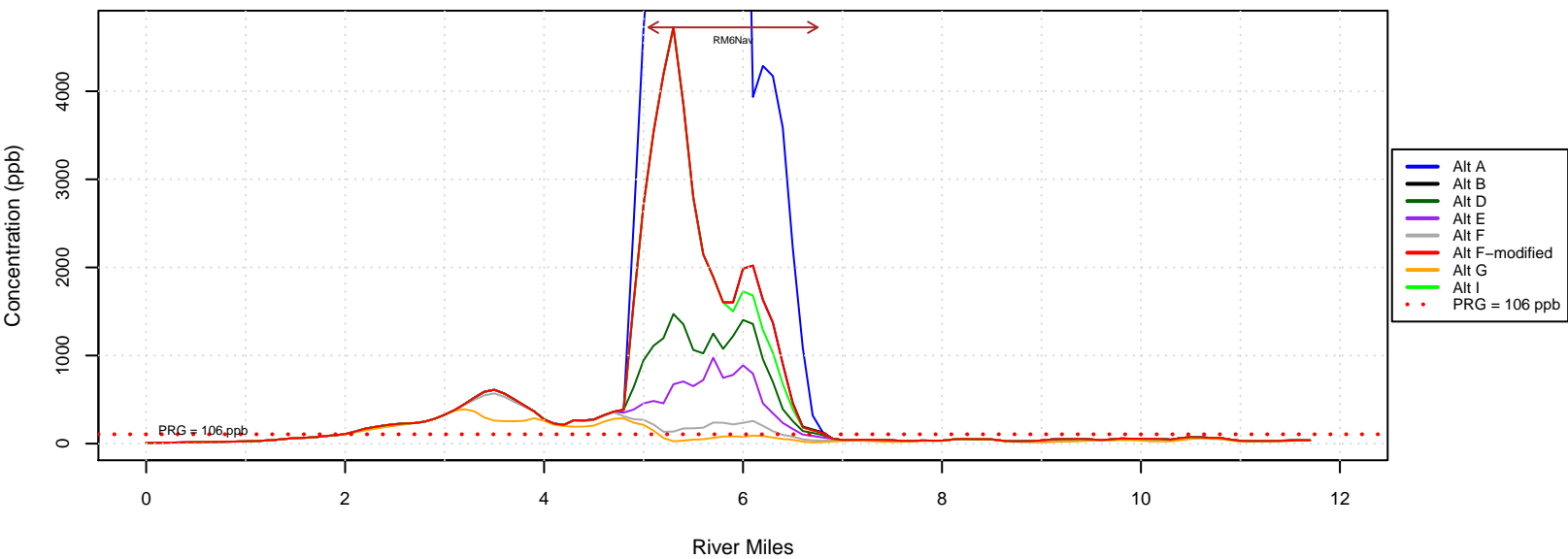
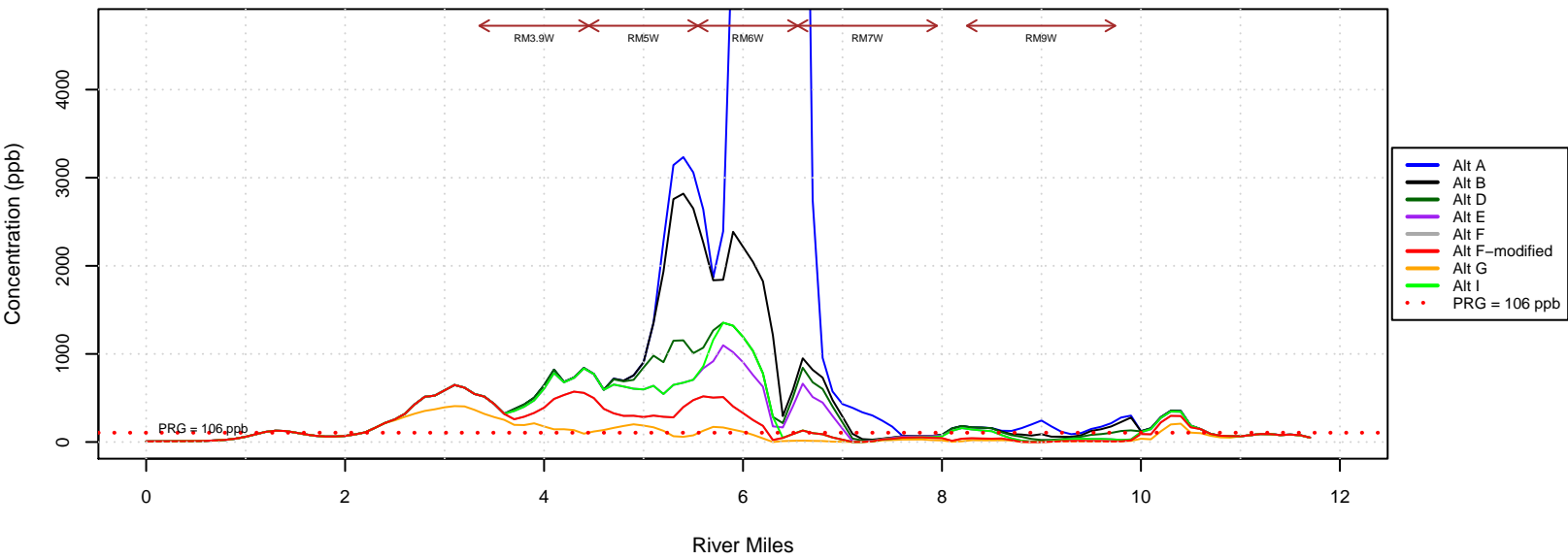


Figure D.10–1c. RAO1 COC Concentration (Year 0) – cPAHs

Sediment Concentration for RAO 1 COC at Year 0 – cPAHs – West – Rolling Avg 0.5 mile



Sediment Concentration for RAO 1 COC at Year 0 – cPAHs – Swan Isl – Rolling Avg 0.5 mile

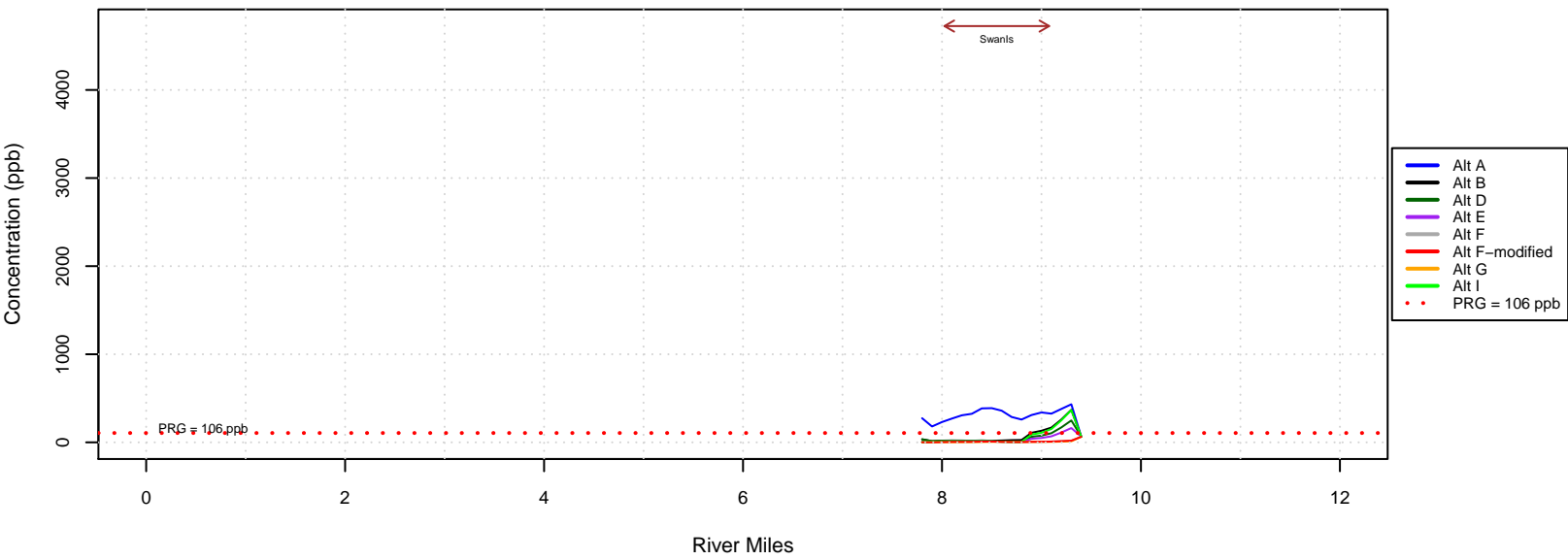
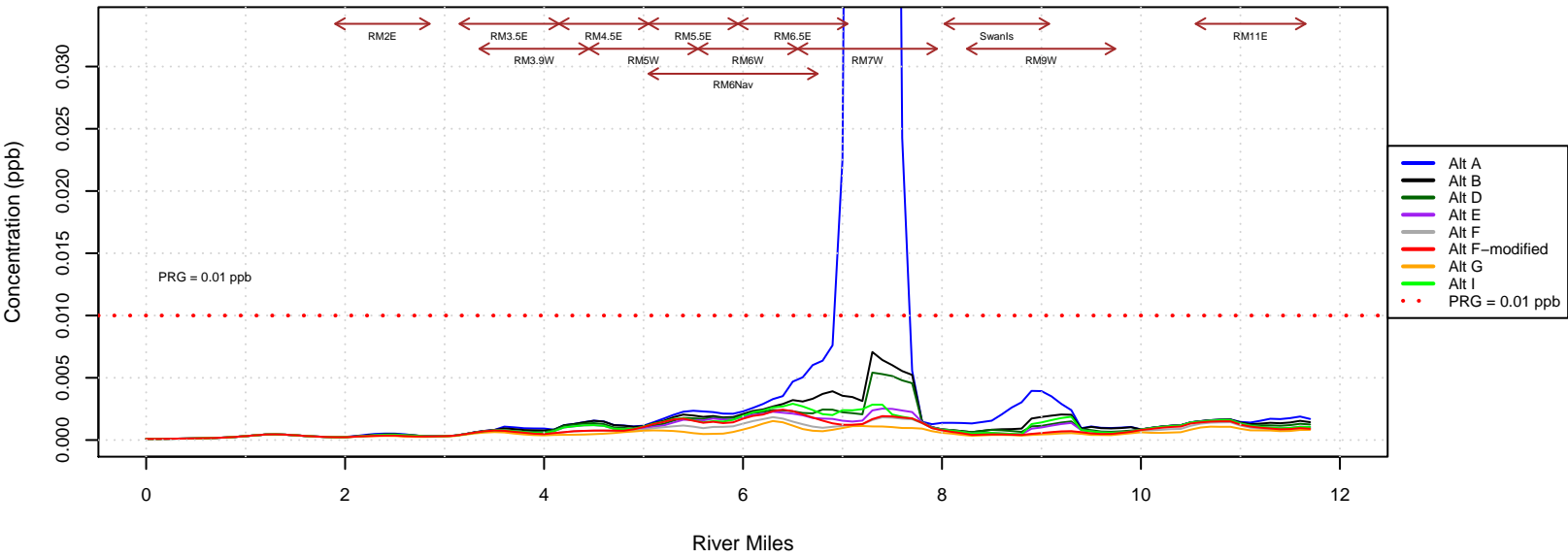
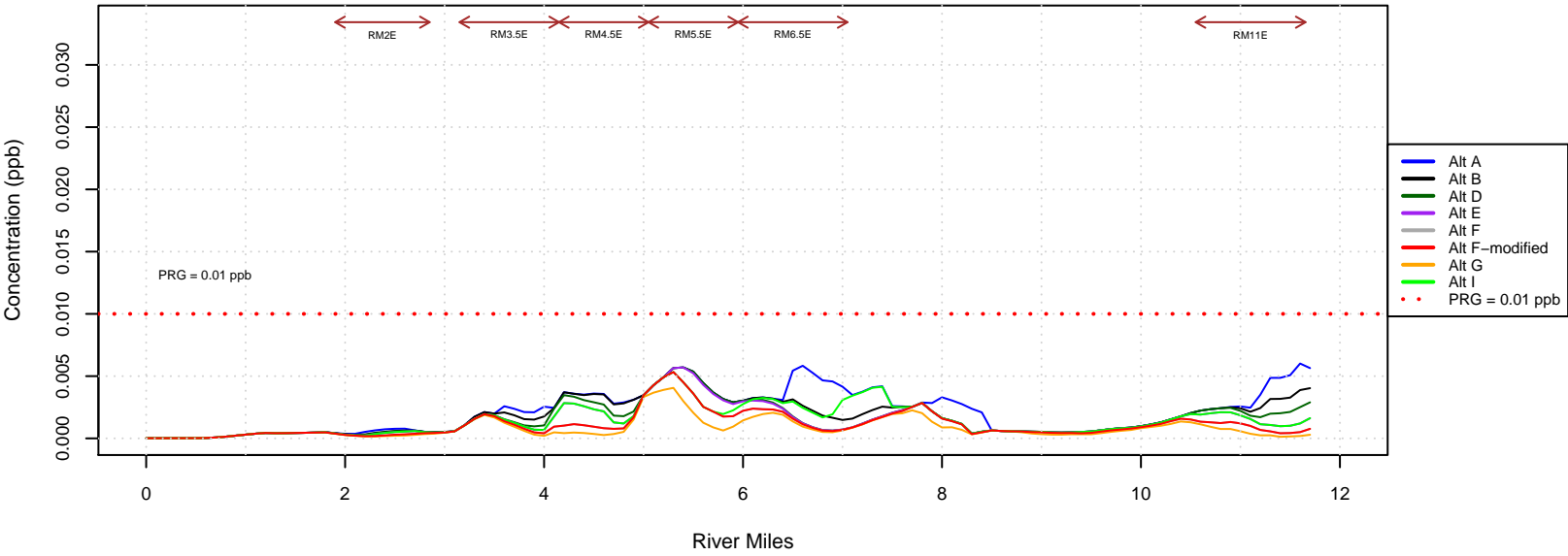


Figure 10.1–c(Continued). RAO1 COC Concentration (Year 0) – cPAHs

Sediment Concentration for RAO 1 COC at Year 0 – Dioxins/Furans (TCDD eq) – Site – Rolling Avg 0.5 mile



Sediment Concentration for RAO 1 COC at Year 0 – Dioxins/Furans (TCDD eq) – East – Rolling Avg 0.5 mile



Sediment Concentration for RAO 1 COC at Year 0 – Dioxins/Furans (TCDD eq) – Nav Channel – Rolling Avg 0.5 mile

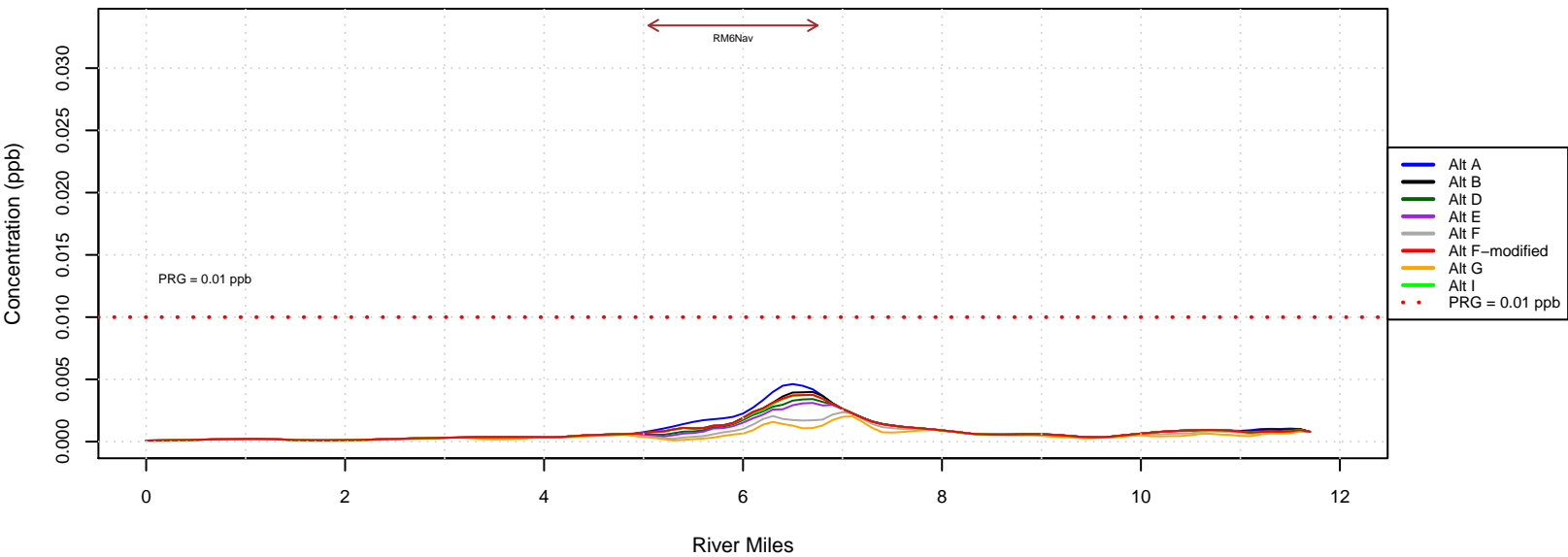
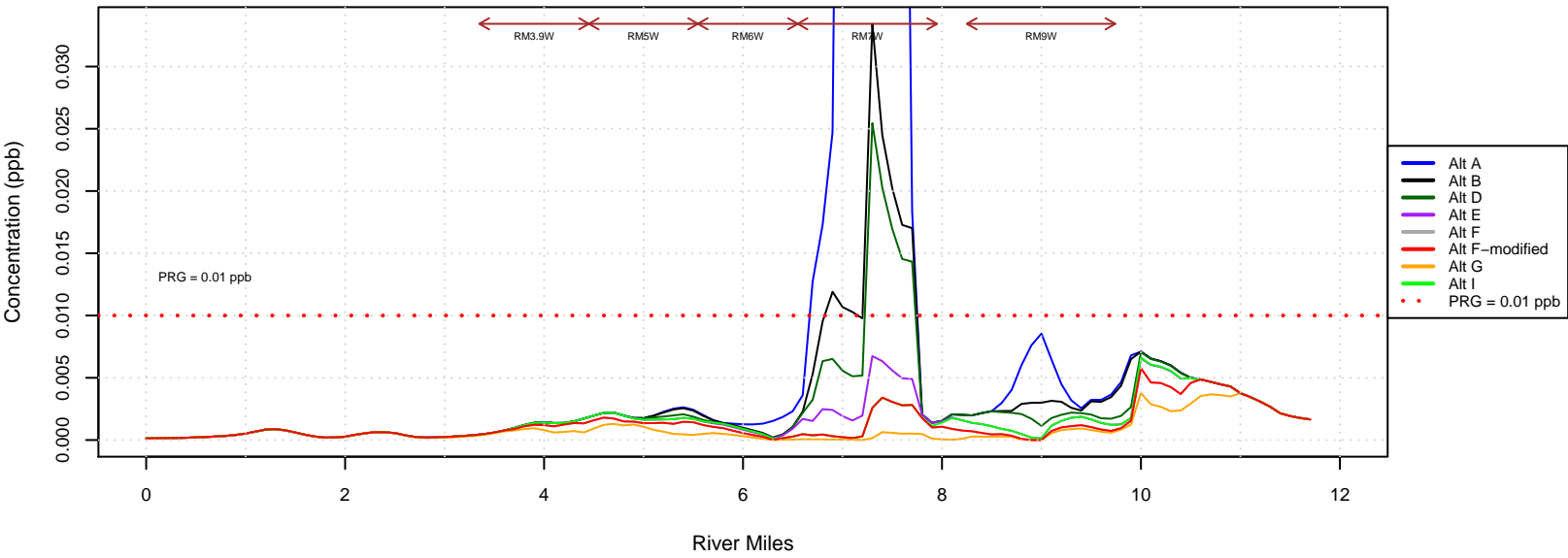


Figure D.10-1d. RAO1 COC Concentration (Year 0) – Dioxins/Furans (TCDD eq)

Sediment Concentration for RAO 1 COC at Year 0 – Dioxins/Furans (TCDD eq) – West – Rolling Avg 0.5 mile



Sediment Concentration for RAO 1 COC at Year 0 – Dioxins/Furans (TCDD eq) – Swan Isl – Rolling Avg 0.5 mile

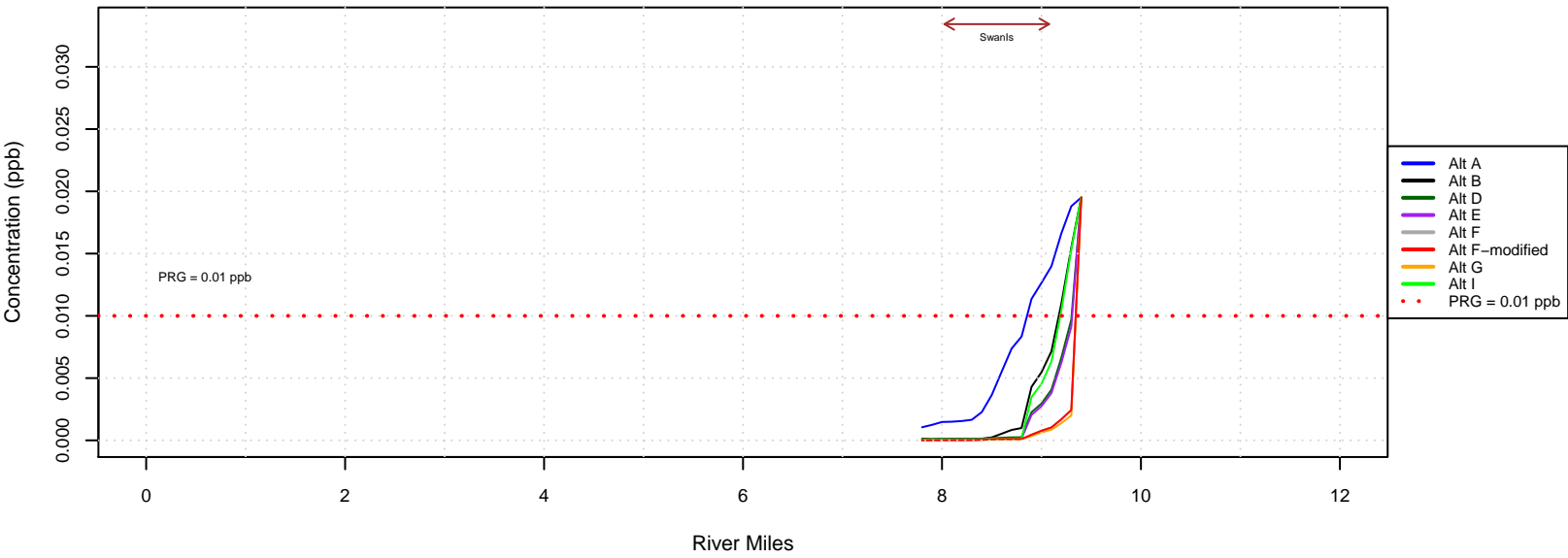
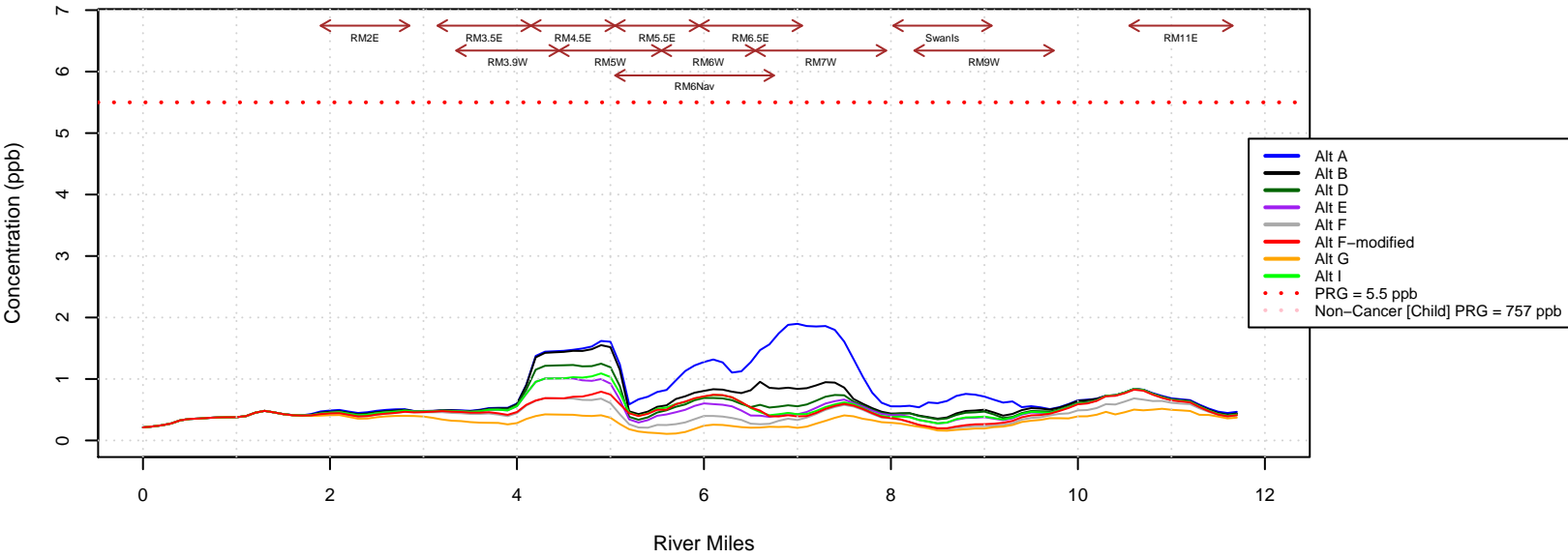
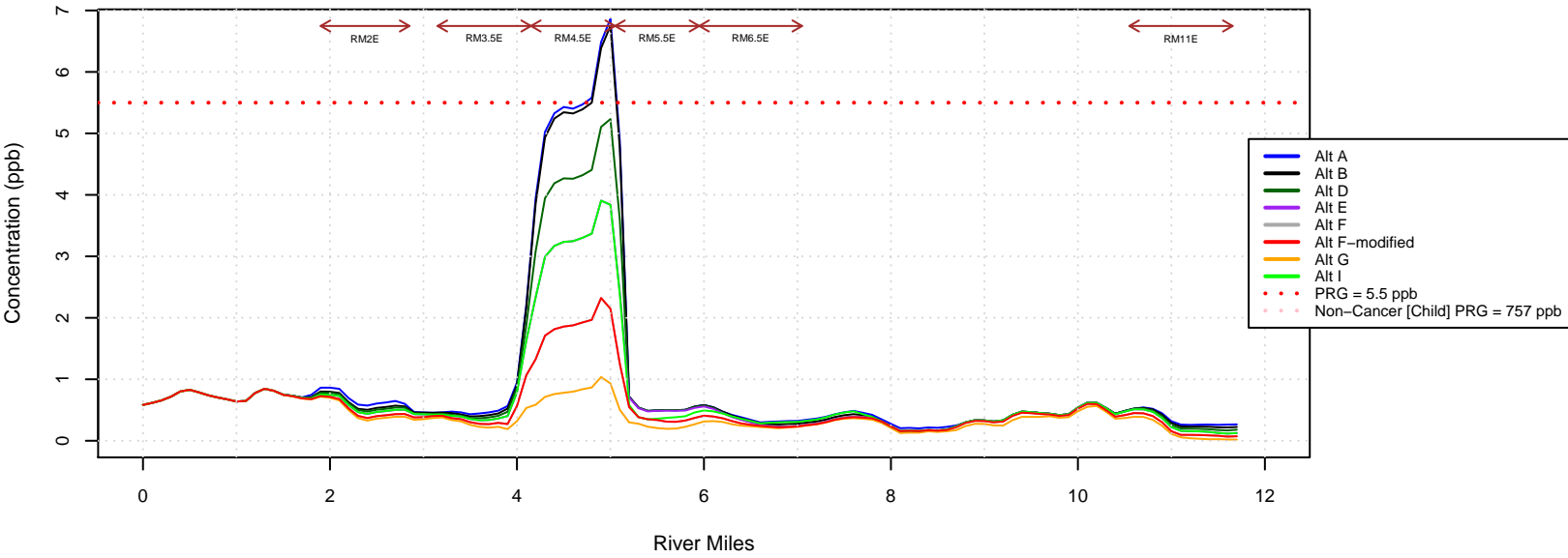


Figure 10.1–d(Continued). RAO1 COC Concentration (Year 0) – Dioxins/Furans (TCDD eq)

Sediment Concentration for RAO 2 COC at Year 0 – Aldrin – Site – Rolling Avg 1 mile



Sediment Concentration for RAO 2 COC at Year 0 – Aldrin – East – Rolling Avg 1 mile



Sediment Concentration for RAO 2 COC at Year 0 – Aldrin – Nav Channel – Rolling Avg 1 mile

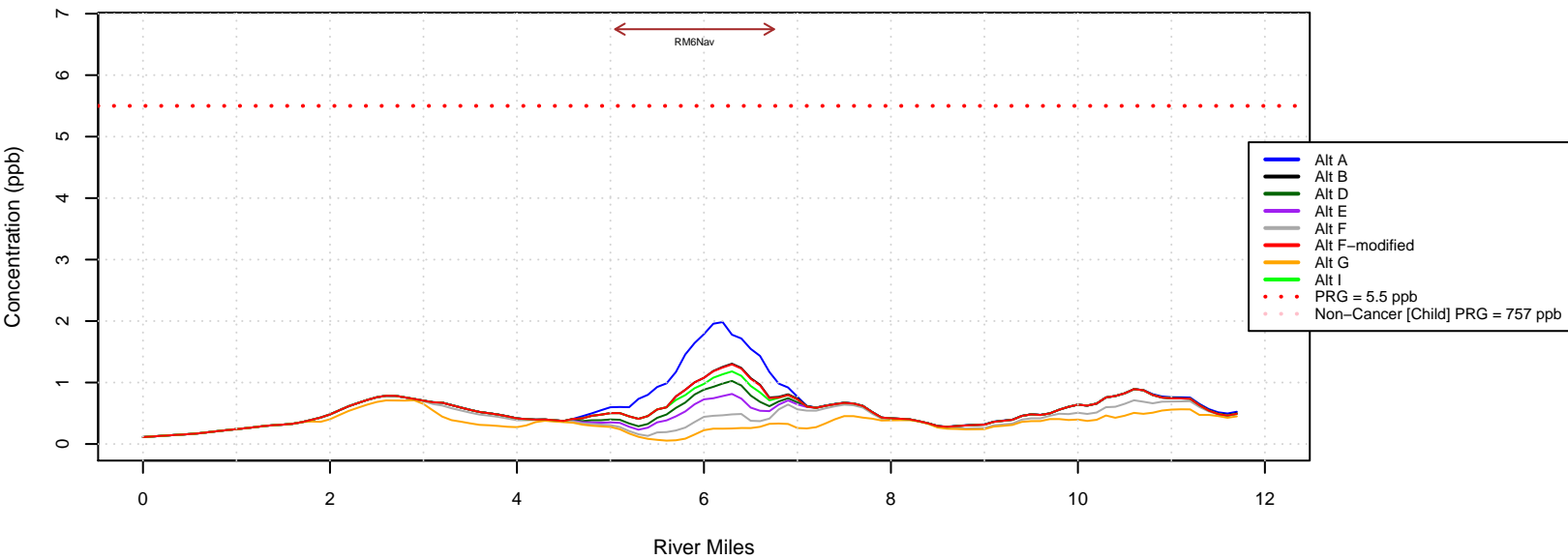
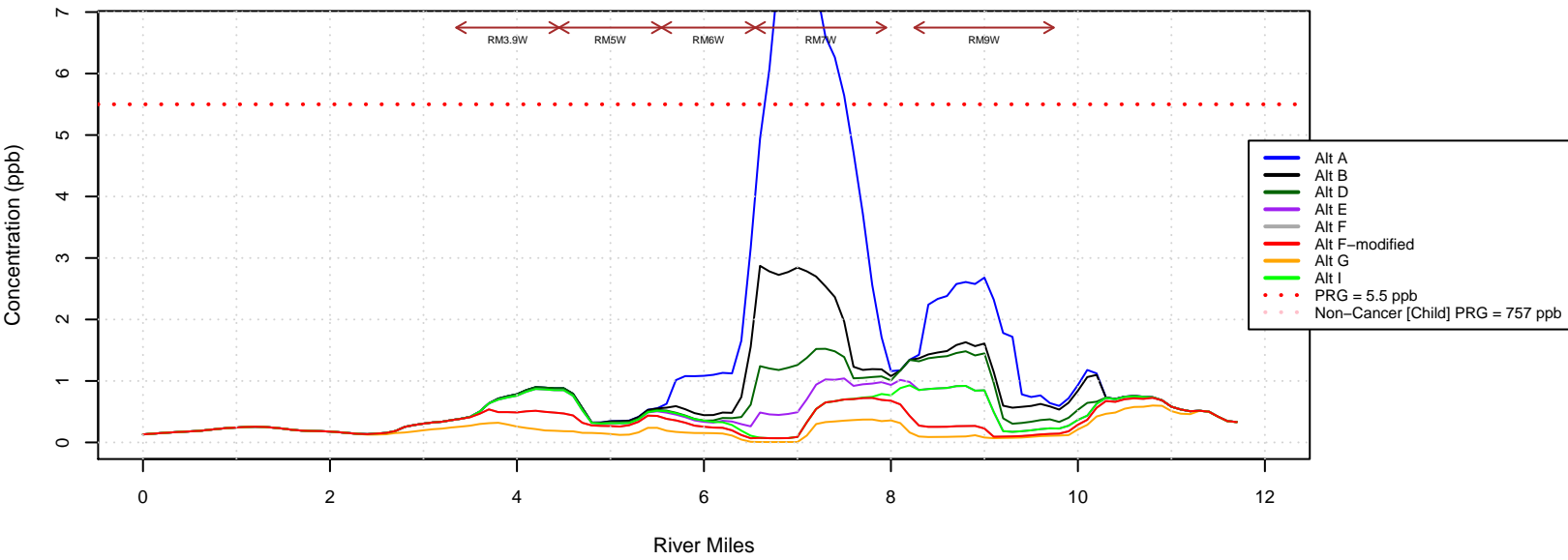
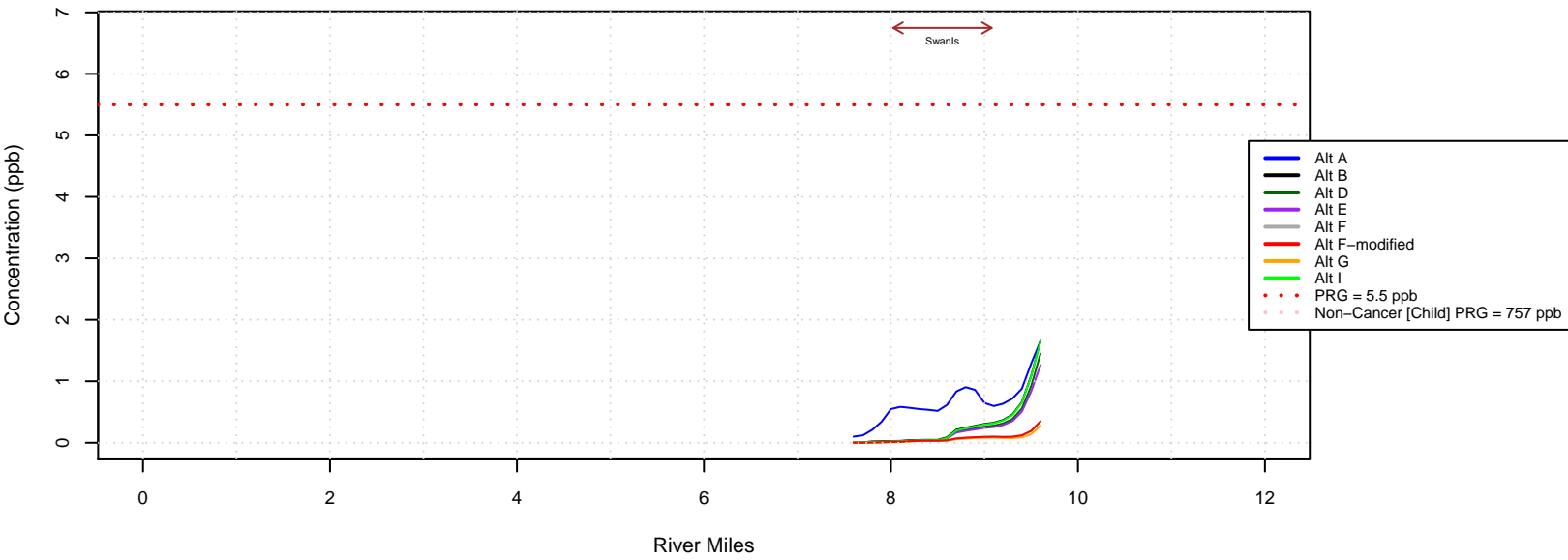


Figure D10-2a. RAO2 COC Concentration (Year 0) – Aldrin

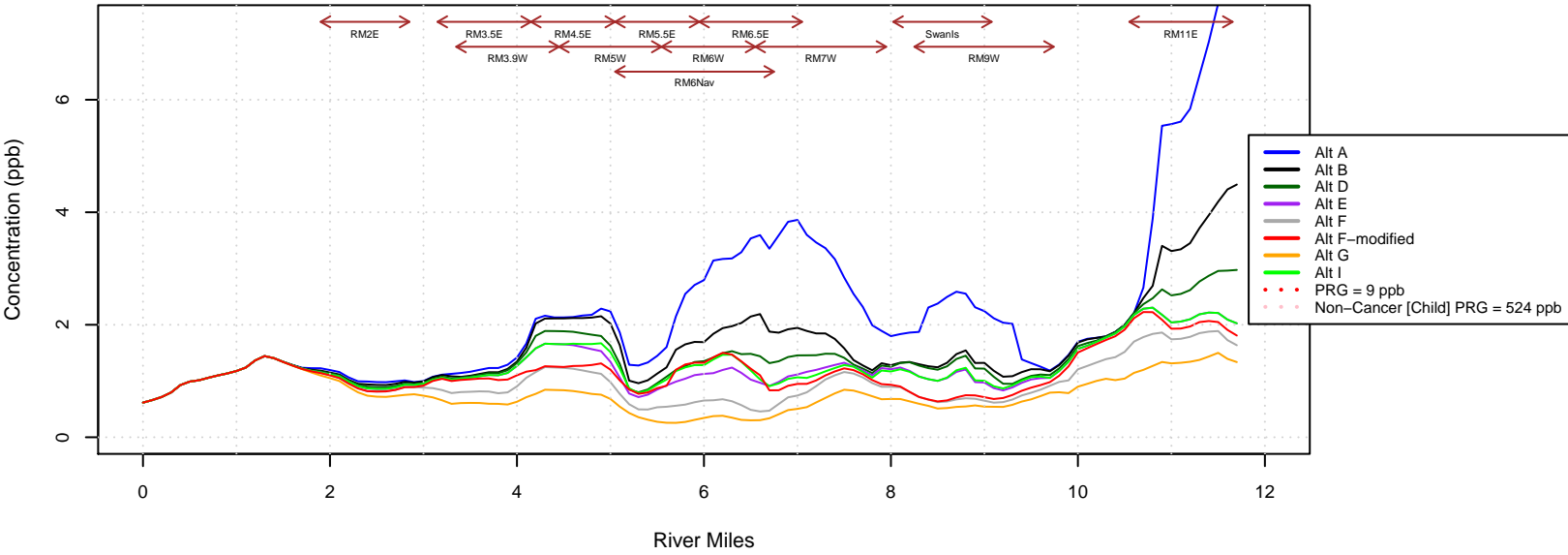
Sediment Concentration for RAO 2 COC at Year 0 – Aldrin – West – Rolling Avg 1 mile



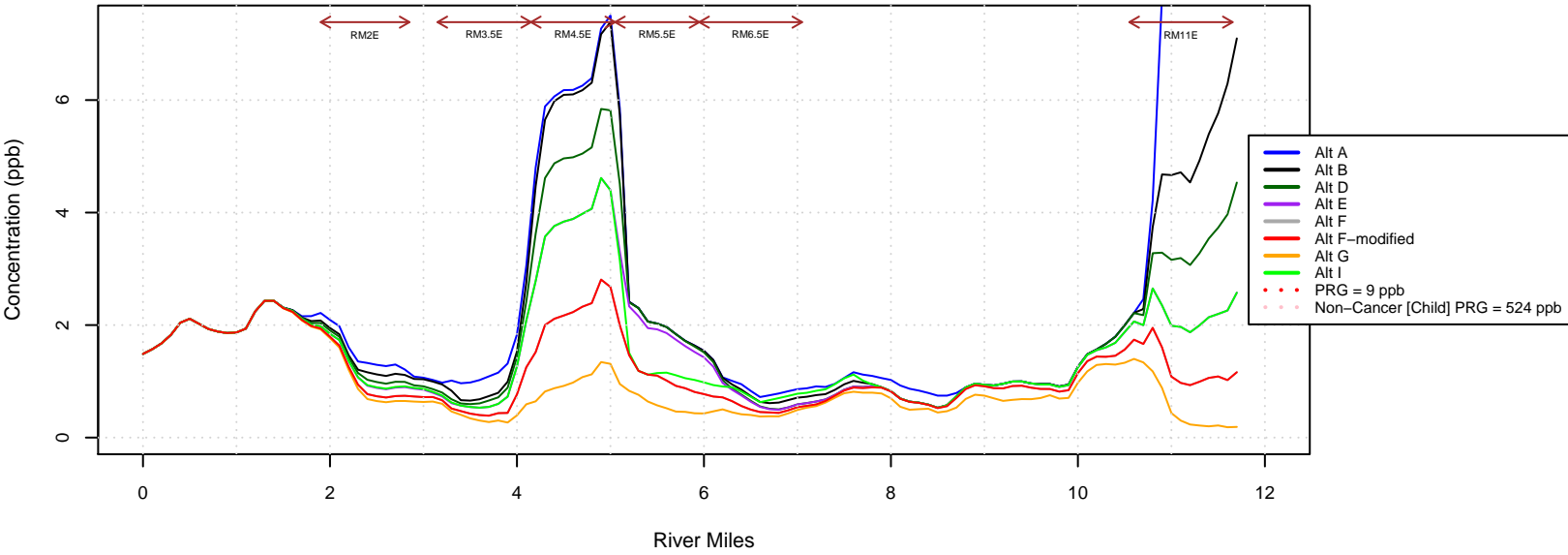
Sediment Concentration for RAO 2 COC at Year 0 – Aldrin – Swan Isl – Rolling Avg 1 mile



Sediment Concentration for RAO 2 COC at Year 0 – Chlordanes – Site – Rolling Avg 1 mile



Sediment Concentration for RAO 2 COC at Year 0 – Chlordanes – East – Rolling Avg 1 mile



Sediment Concentration for RAO 2 COC at Year 0 – Chlordanes – Nav Channel – Rolling Avg 1 mile

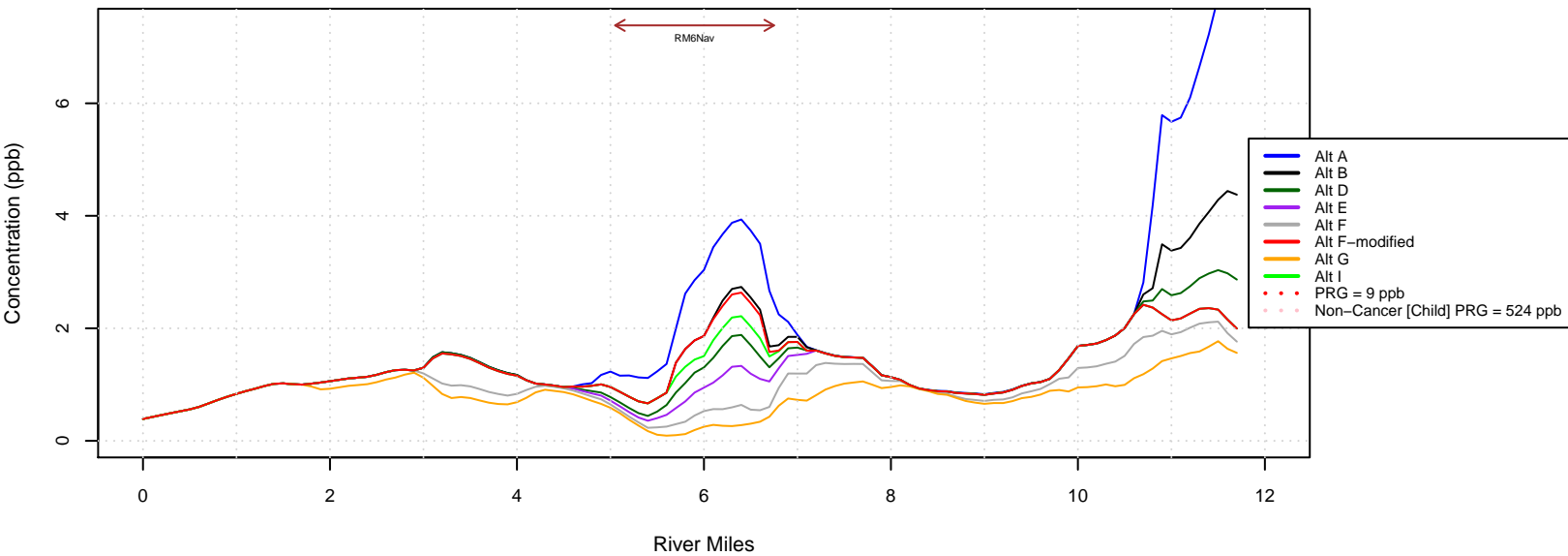
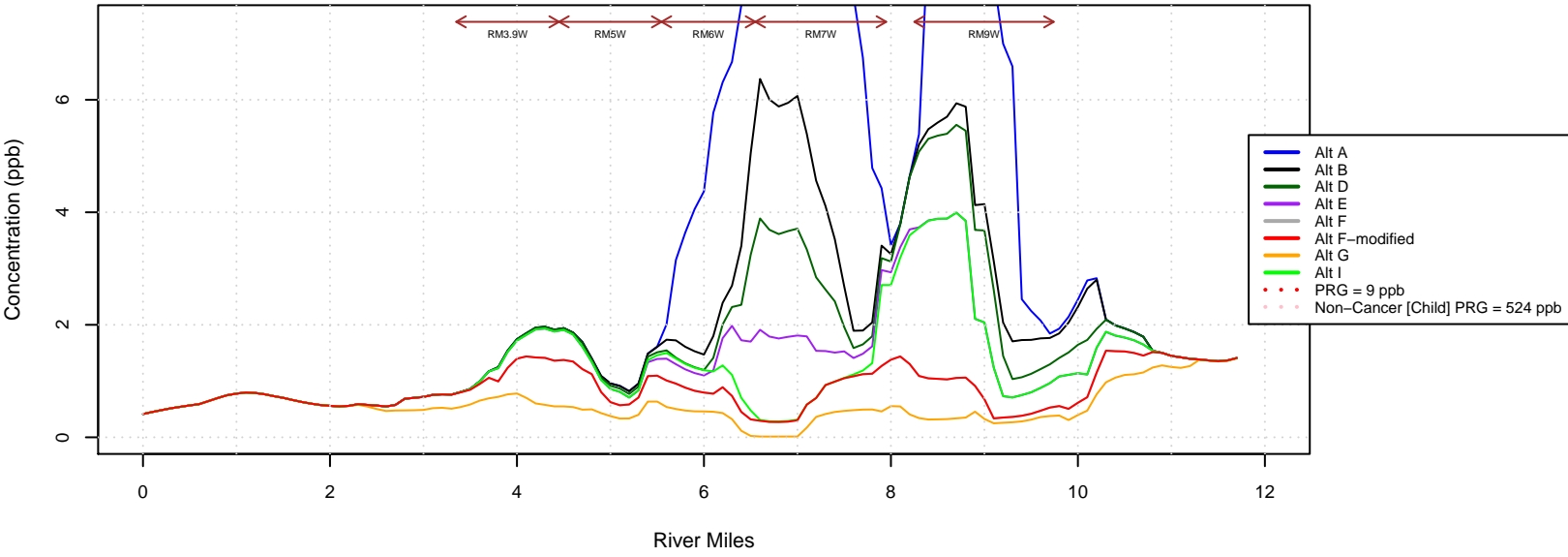
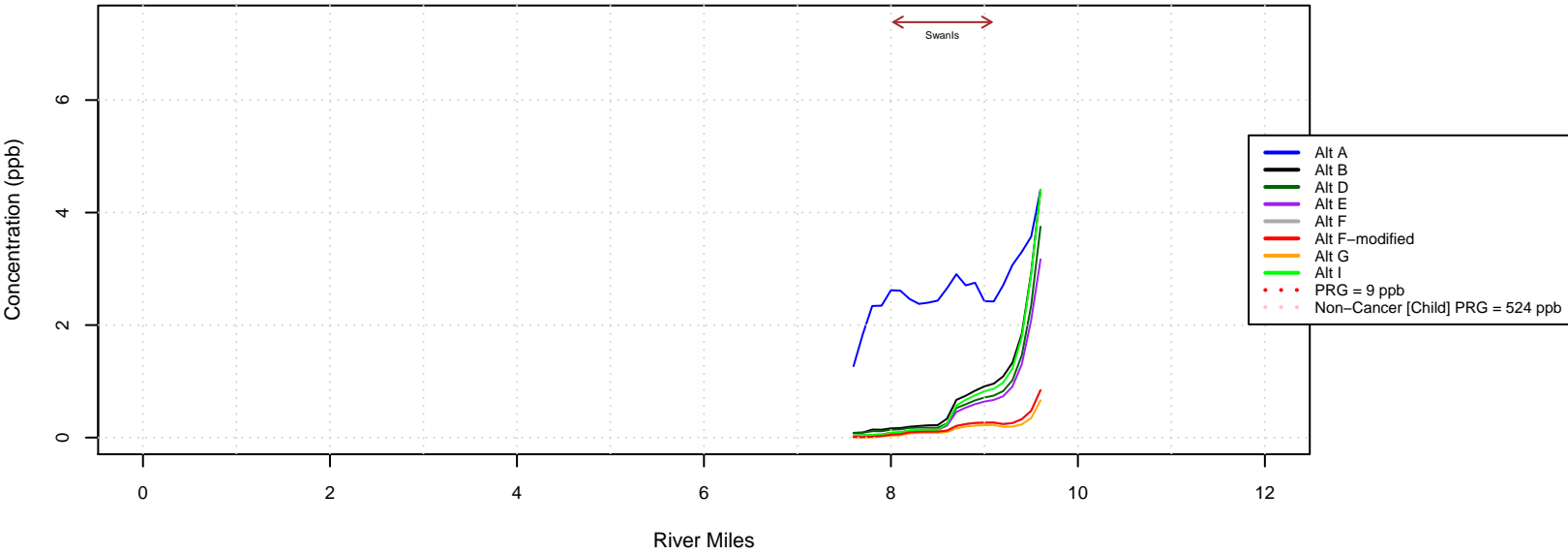


Figure D10–2b. RAO2 COC Concentration (Year 0) – Chlordanes

Sediment Concentration for RAO 2 COC at Year 0 – Chlordanes – West – Rolling Avg 1 mile

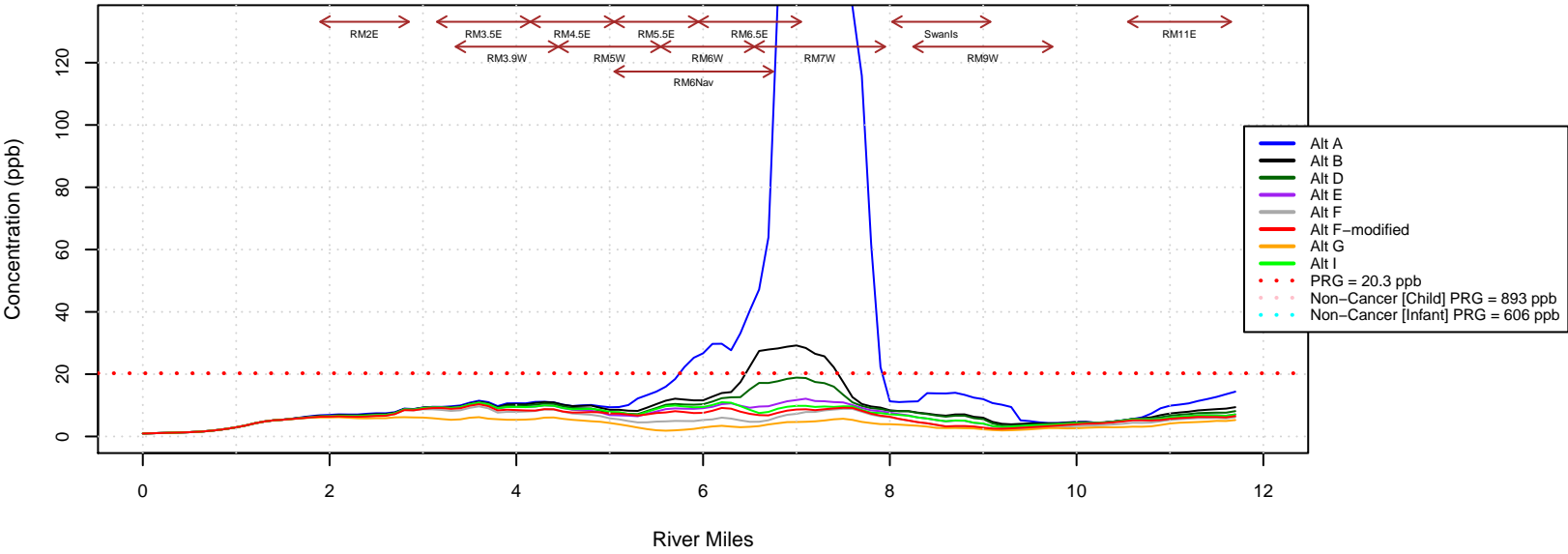


Sediment Concentration for RAO 2 COC at Year 0 – Chlordanes – Swan Isl – Rolling Avg 1 mile

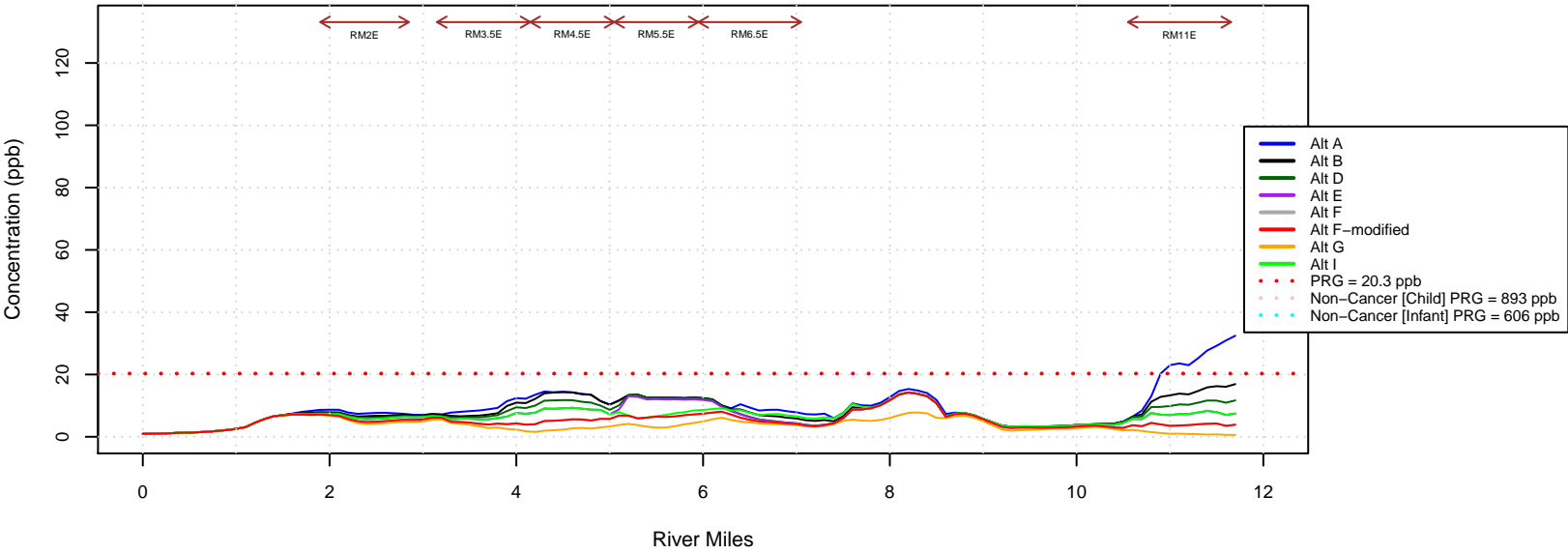




Sediment Concentration for RAO 2 COC at Year 0 – DDx – Site – Rolling Avg 1 mile



Sediment Concentration for RAO 2 COC at Year 0 – DDx – East – Rolling Avg 1 mile



Sediment Concentration for RAO 2 COC at Year 0 – DDx – Nav Channel – Rolling Avg 1 mile

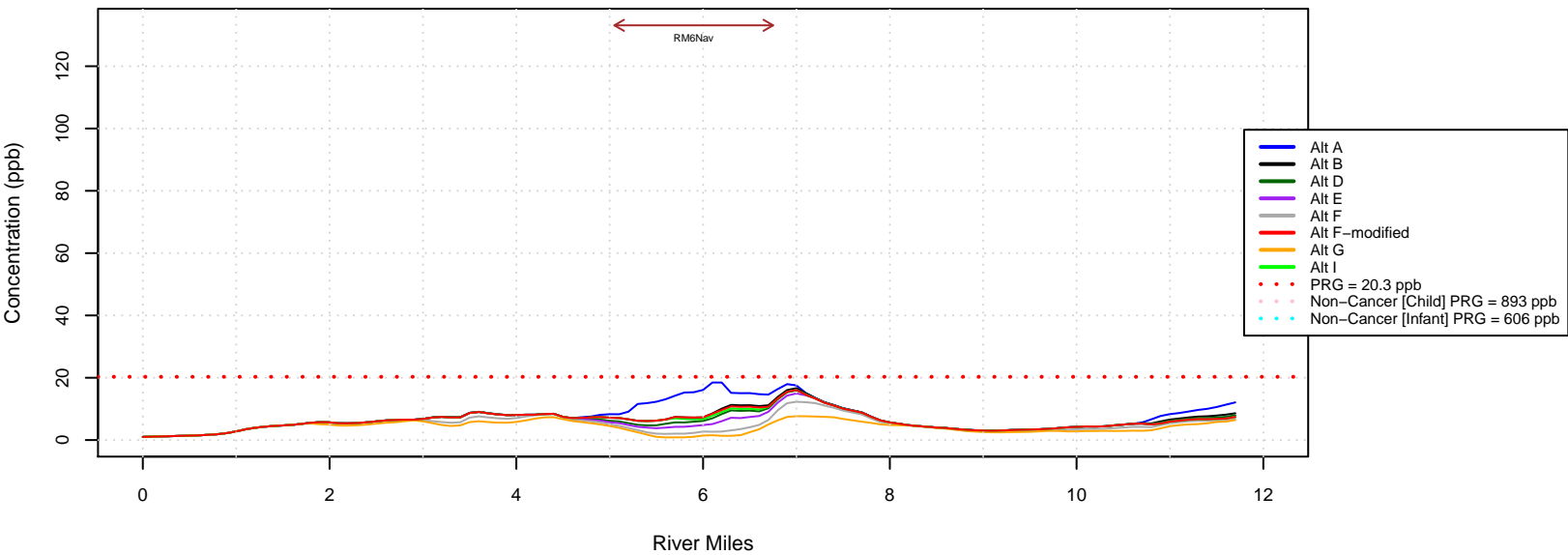
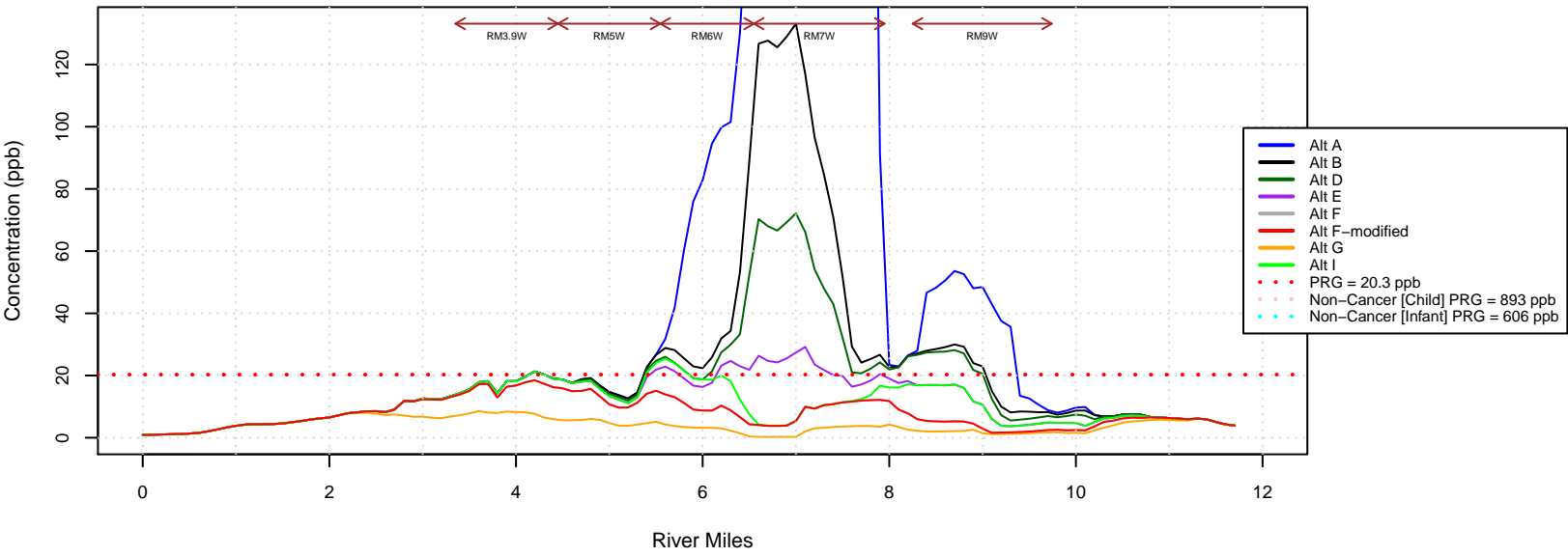
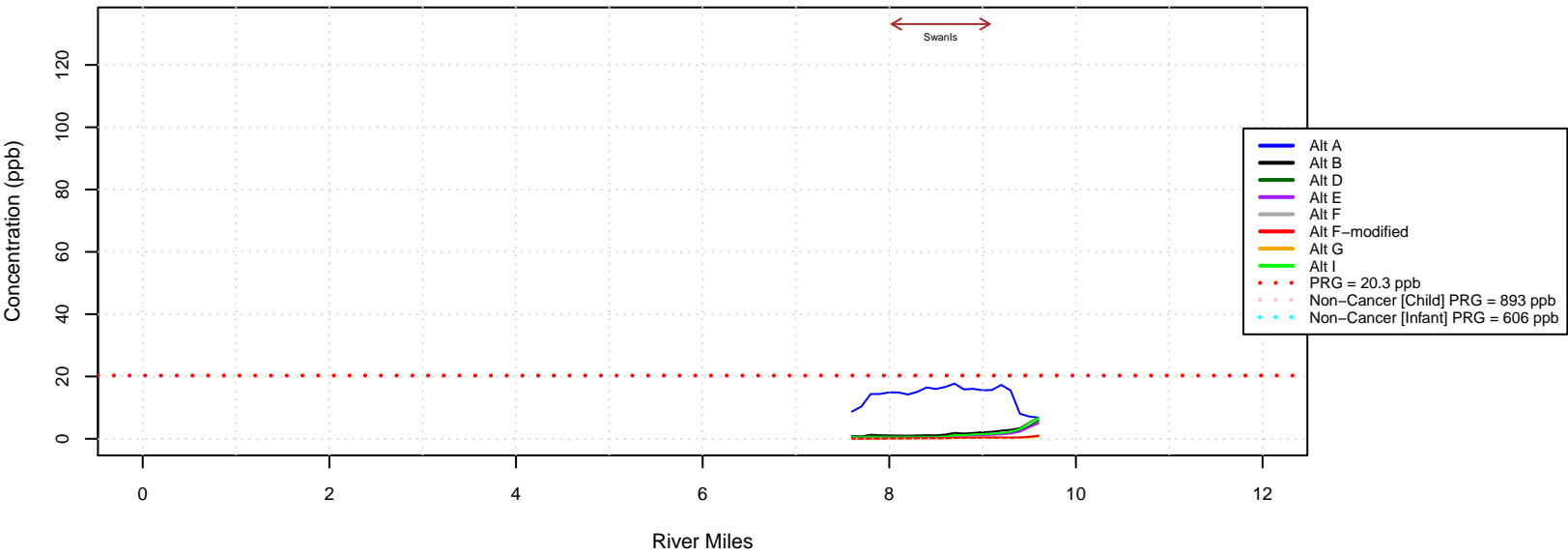


Figure D10–2c. RAO2 COC Concentration (Year 0) – DDx

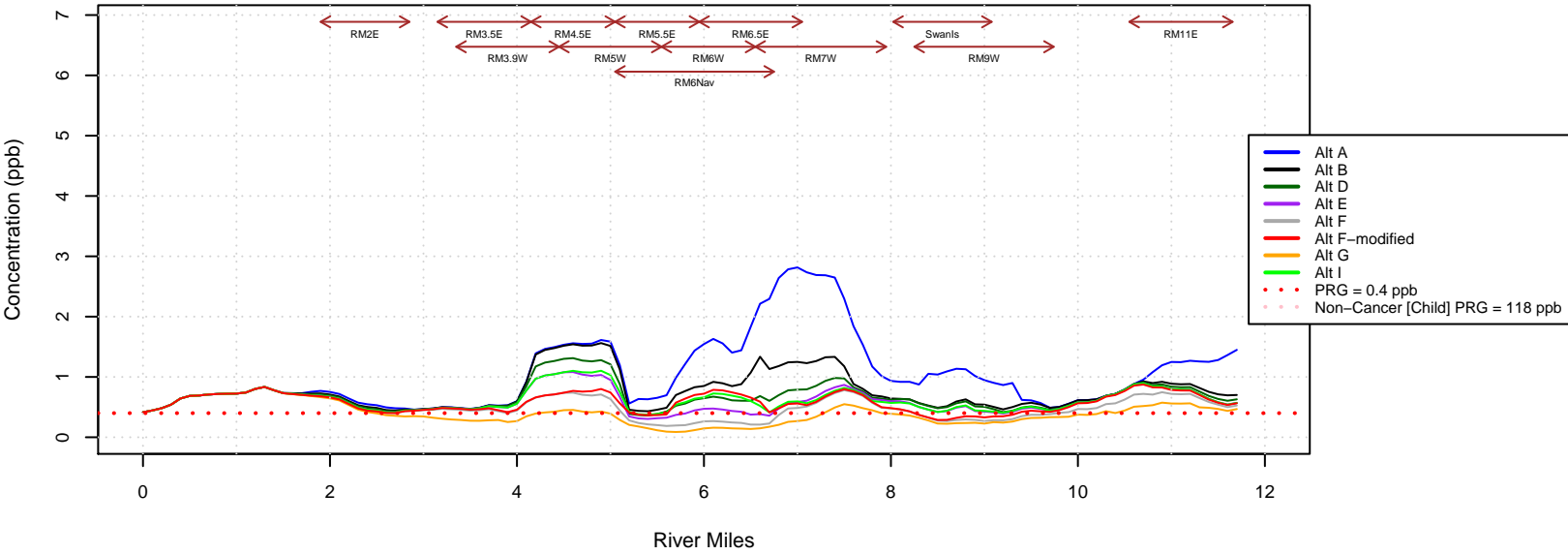
Sediment Concentration for RAO 2 COC at Year 0 – DDx – West – Rolling Avg 1 mile



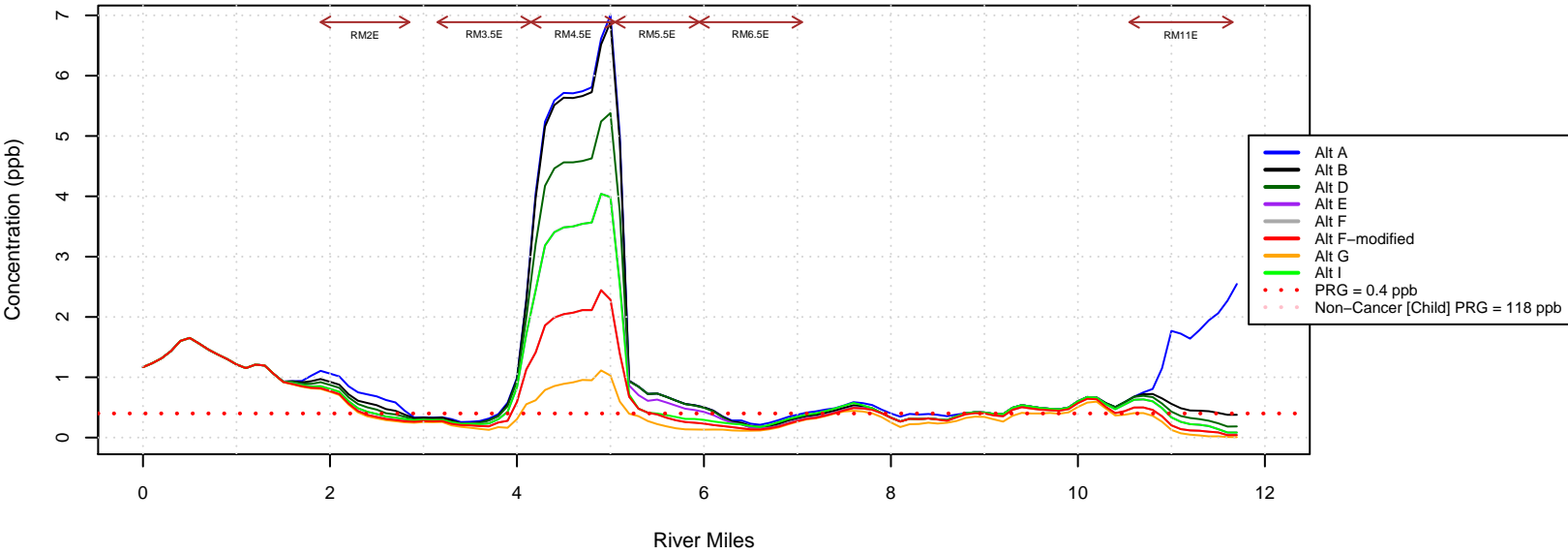
Sediment Concentration for RAO 2 COC at Year 0 – DDx – Swan Isl – Rolling Avg 1 mile



Sediment Concentration for RAO 2 COC at Year 0 – Dieldrin – Site – Rolling Avg 1 mile



Sediment Concentration for RAO 2 COC at Year 0 – Dieldrin – East – Rolling Avg 1 mile



Sediment Concentration for RAO 2 COC at Year 0 – Dieldrin – Nav Channel – Rolling Avg 1 mile

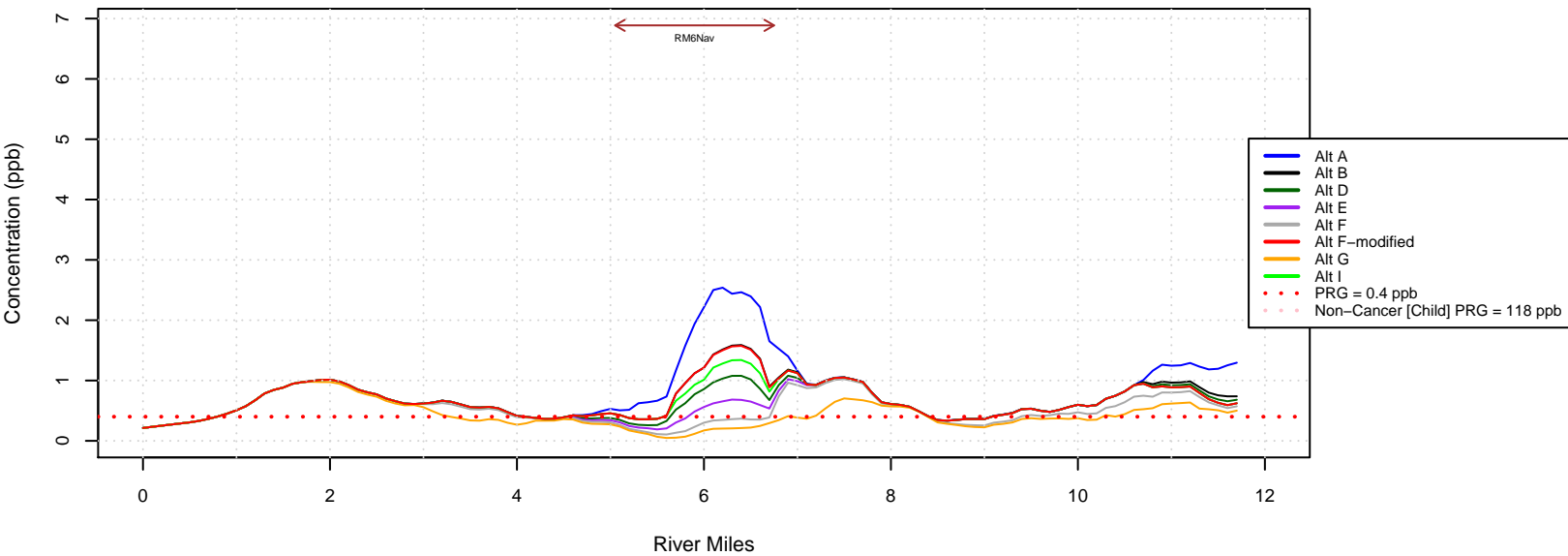
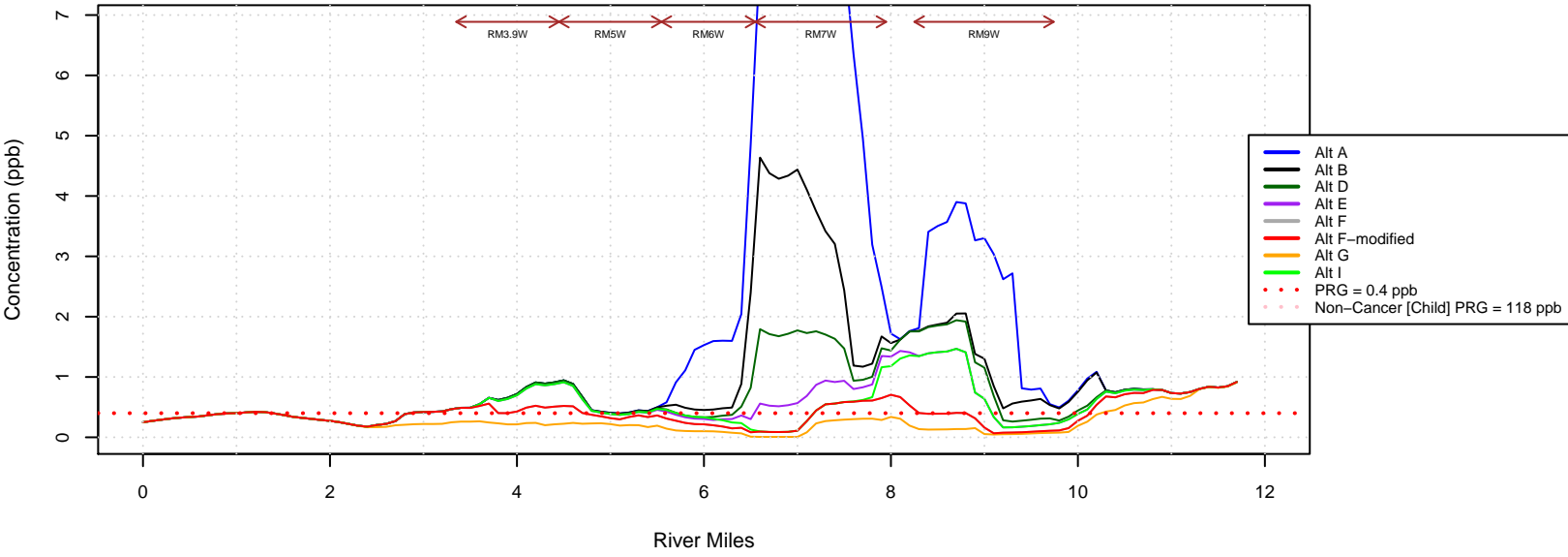


Figure D10–2d. RAO2 COC Concentration (Year 0) – Dieldrin

Sediment Concentration for RAO 2 COC at Year 0 – Dieldrin – West – Rolling Avg 1 mile



Sediment Concentration for RAO 2 COC at Year 0 – Dieldrin – Swan Isl – Rolling Avg 1 mile

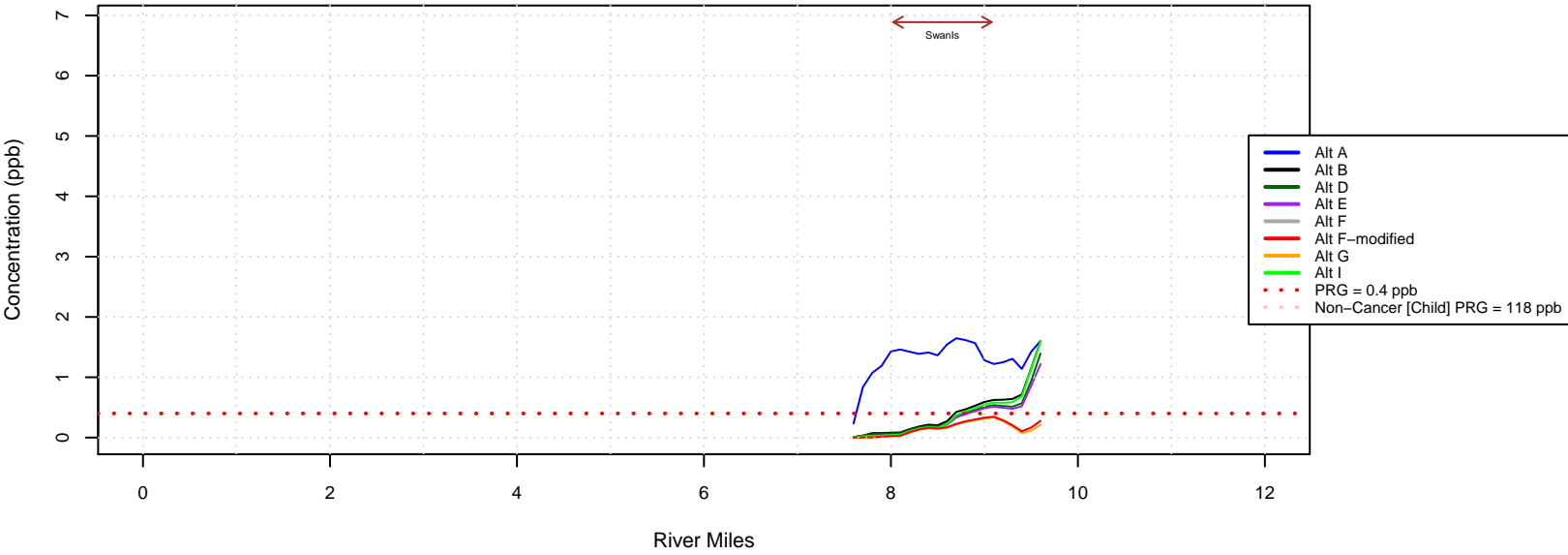
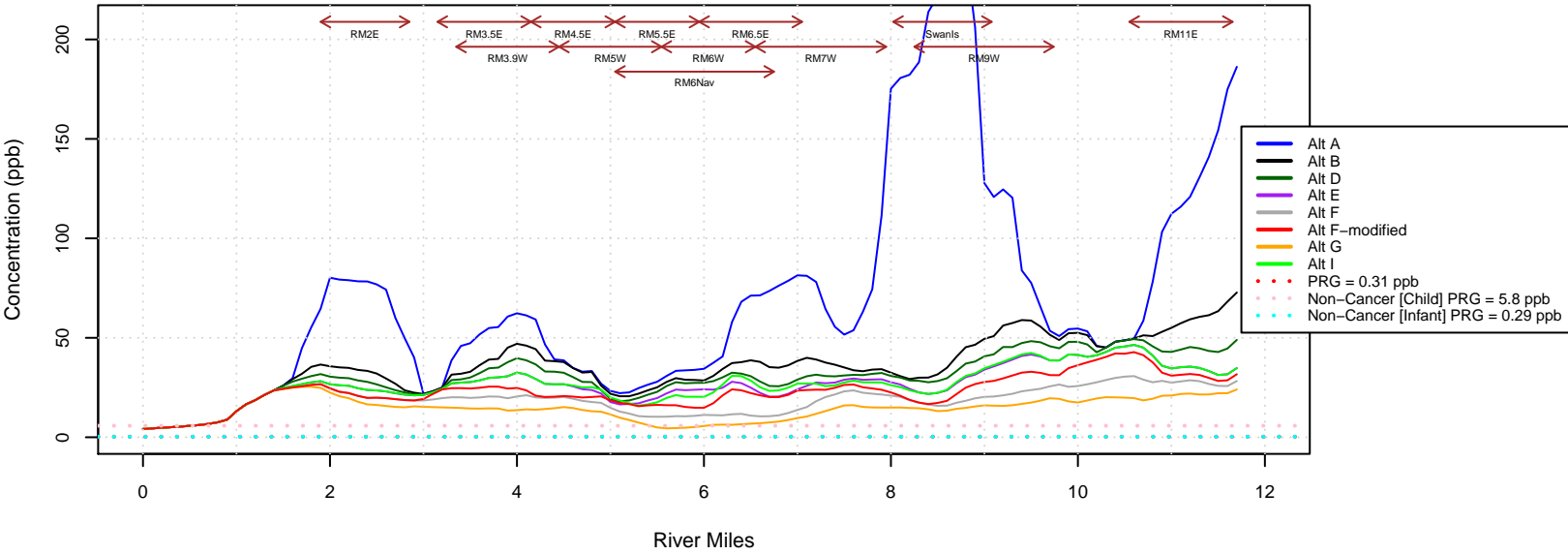
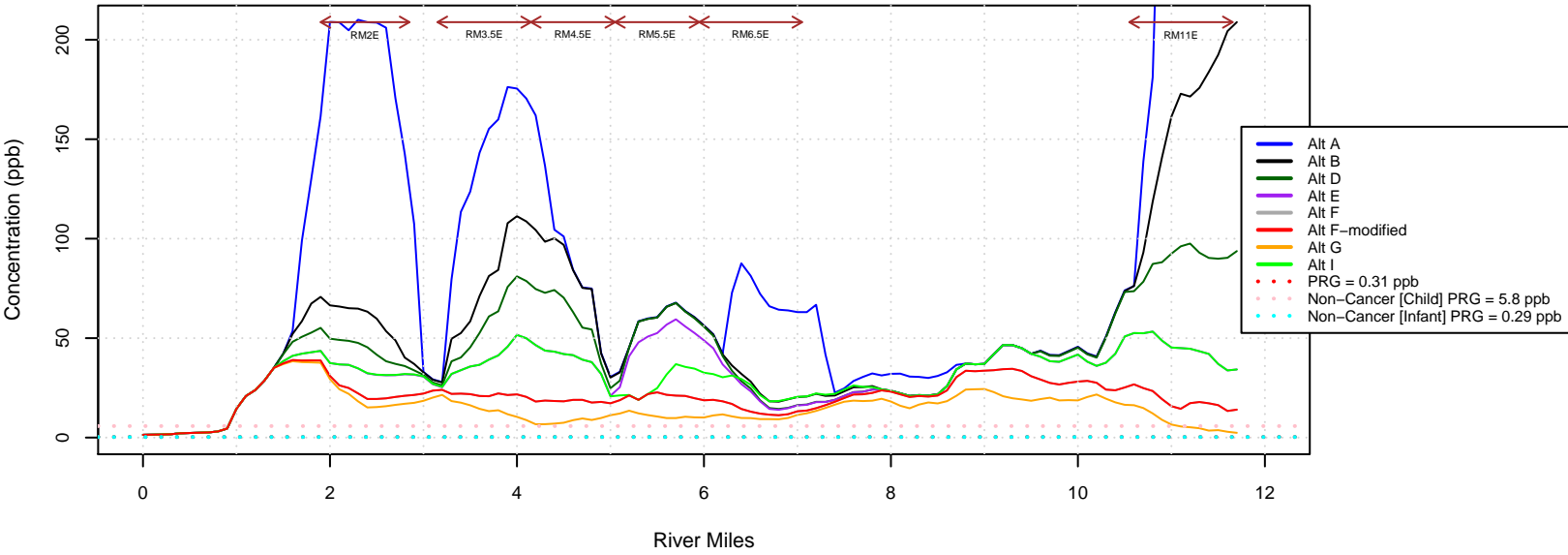


Figure D10–2d(Continued). RAO2 COC Concentration (Year 0) – Dieldrin

Sediment Concentration for RAO 2 COC at Year 0 – PCB – Site – Rolling Avg 1 mile



Sediment Concentration for RAO 2 COC at Year 0 – PCB – East – Rolling Avg 1 mile



Sediment Concentration for RAO 2 COC at Year 0 – PCB – Nav Channel – Rolling Avg 1 mile

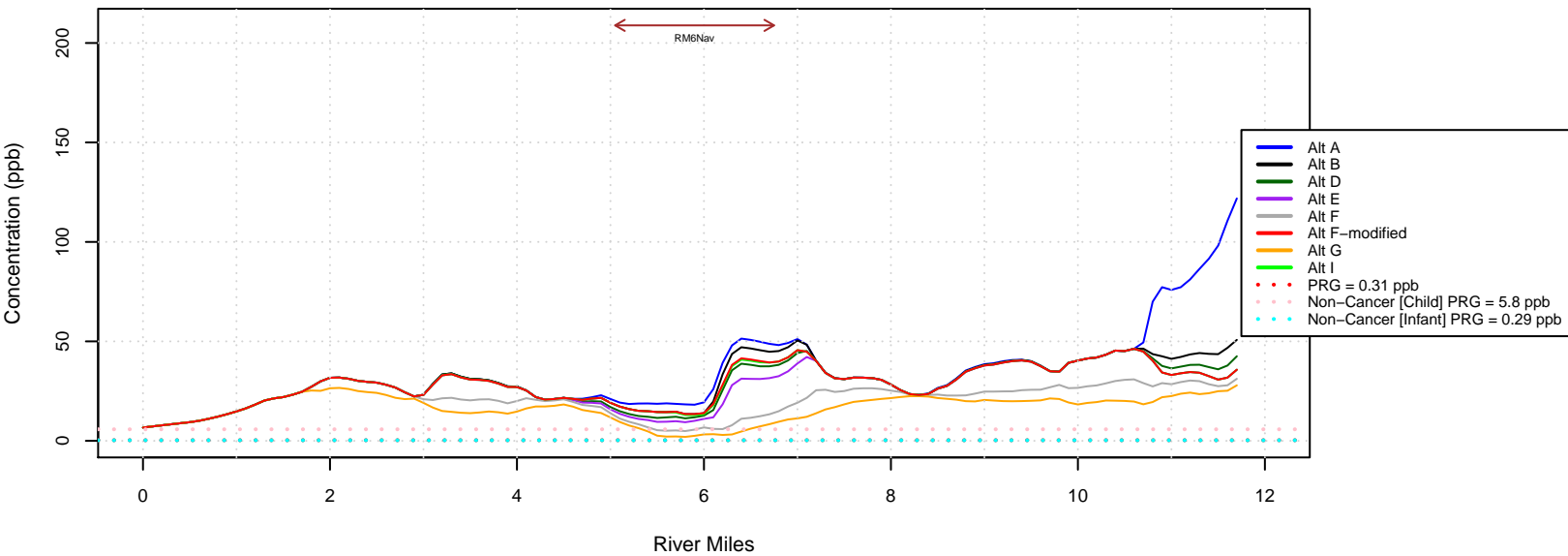
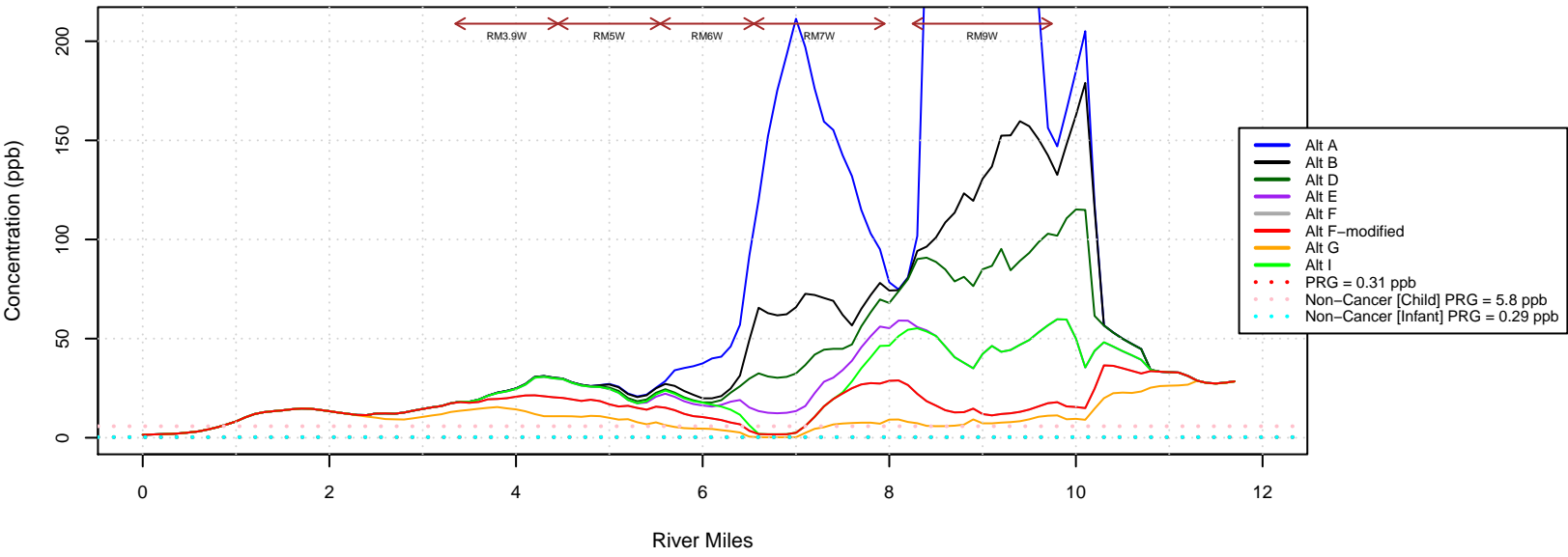
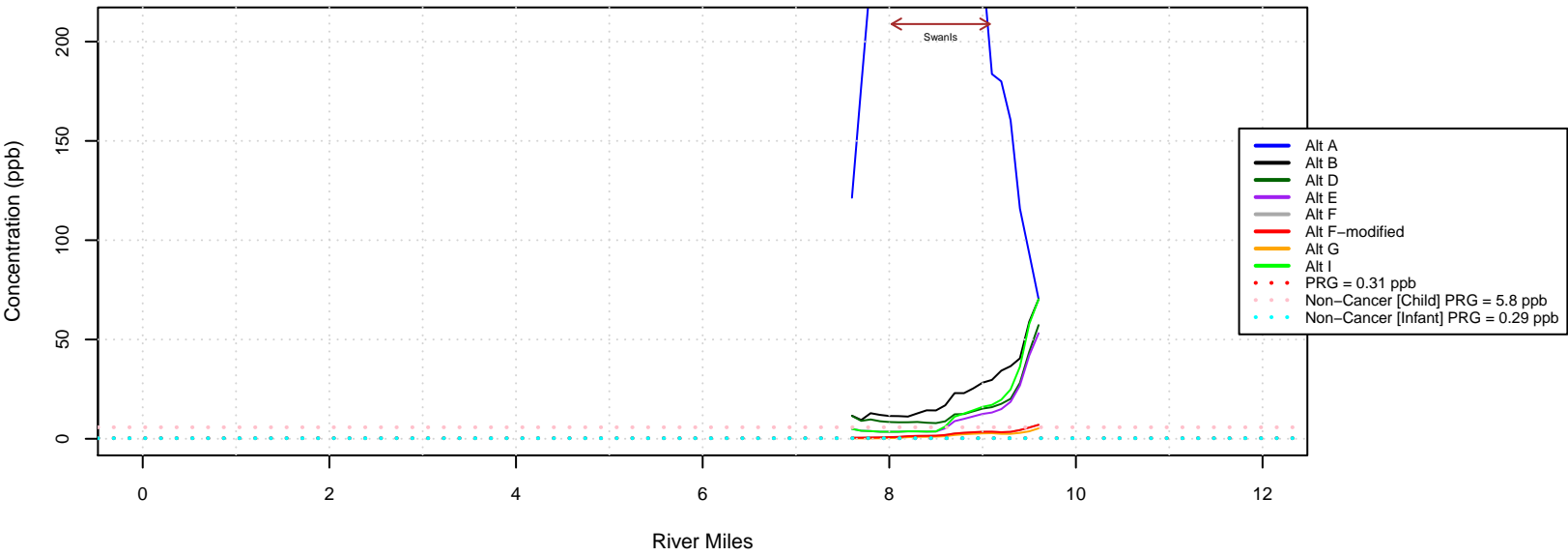


Figure D10–2e. RAO2 COC Concentration (Year 0) – PCB

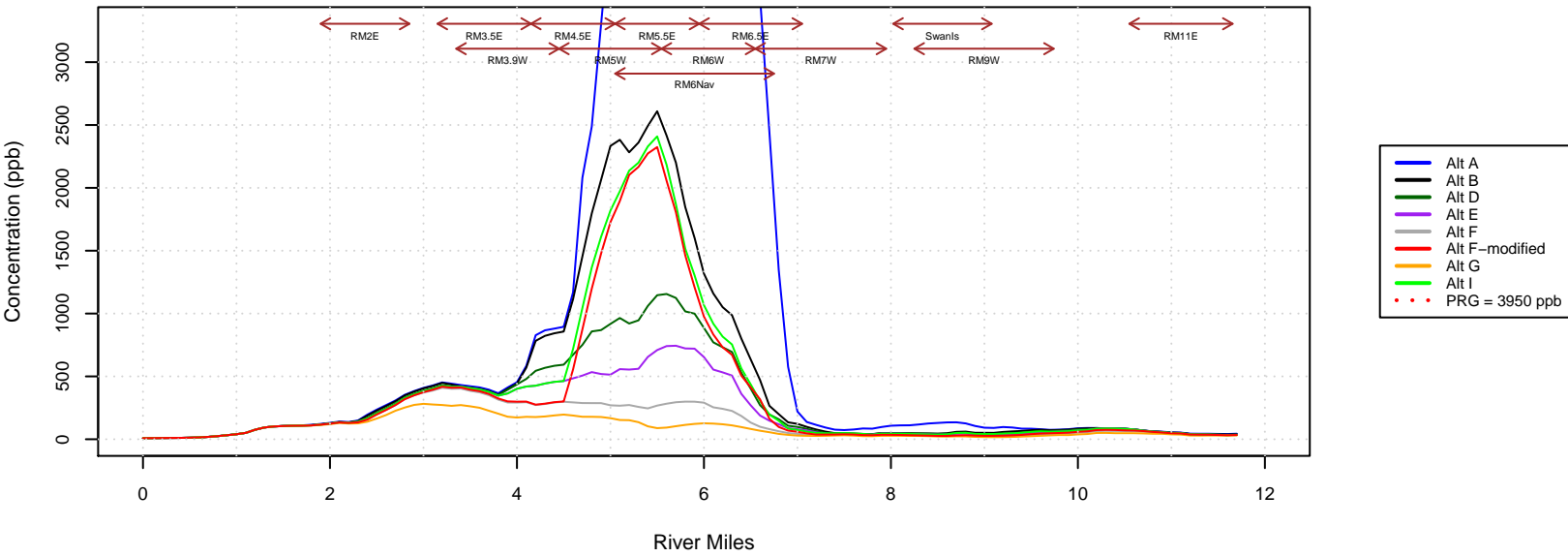
Sediment Concentration for RAO 2 COC at Year 0 – PCB – West – Rolling Avg 1 mile



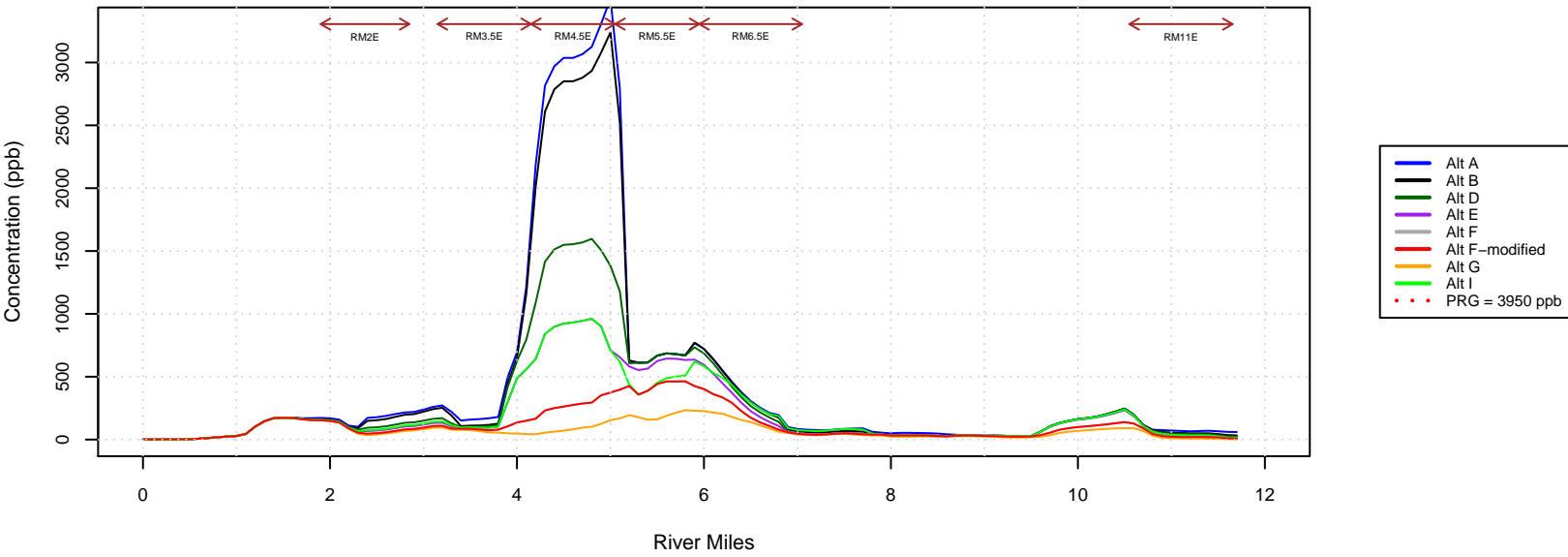
Sediment Concentration for RAO 2 COC at Year 0 – PCB – Swan Isl – Rolling Avg 1 mile



Sediment Concentration for RAO 2 COC at Year 0 – cPAHs – Site – Rolling Avg 1 mile



Sediment Concentration for RAO 2 COC at Year 0 – cPAHs – East – Rolling Avg 1 mile



Sediment Concentration for RAO 2 COC at Year 0 – cPAHs – Nav Channel – Rolling Avg 1 mile

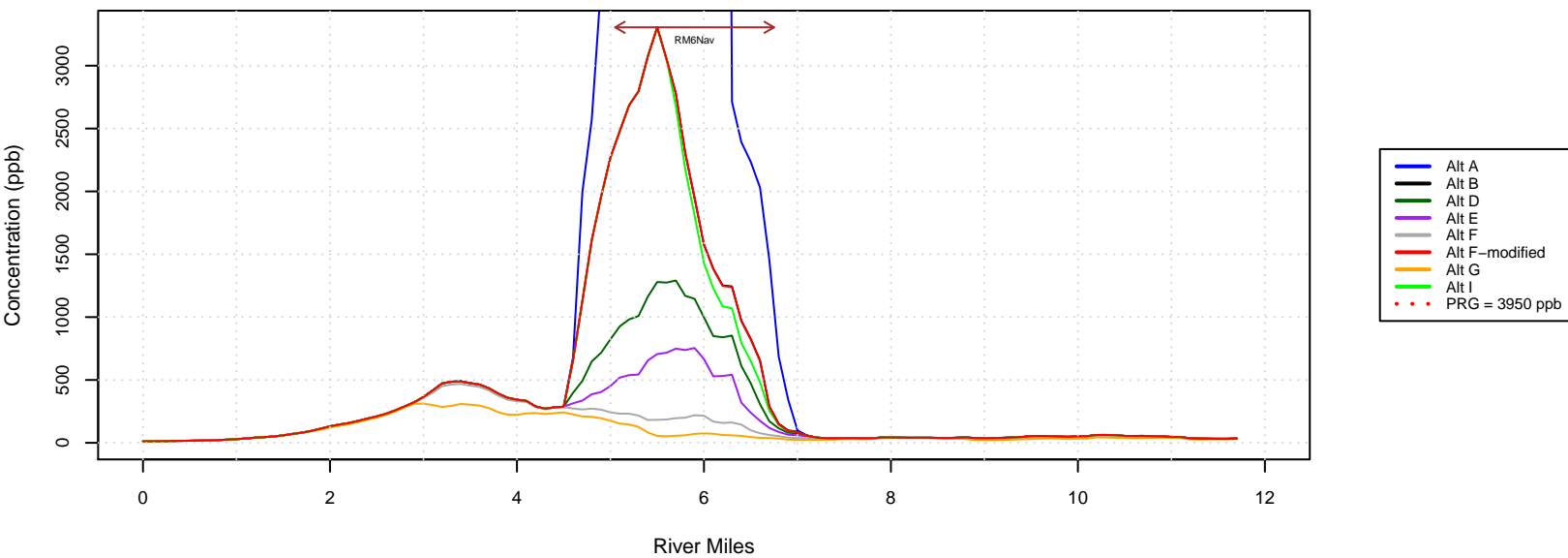
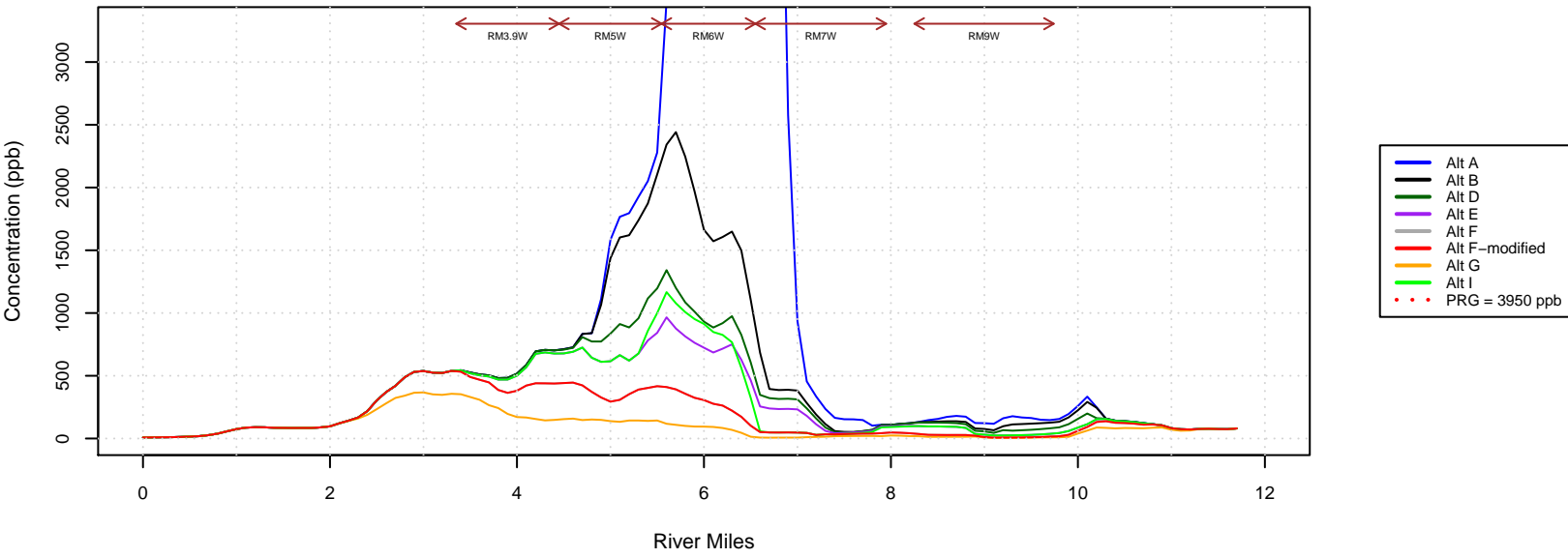


Figure D10–2f. RAO2 COC Concentration (Year 0) – cPAHs

Sediment Concentration for RAO 2 COC at Year 0 – cPAHs – West – Rolling Avg 1 mile



Sediment Concentration for RAO 2 COC at Year 0 – cPAHs – Swan Isl – Rolling Avg 1 mile

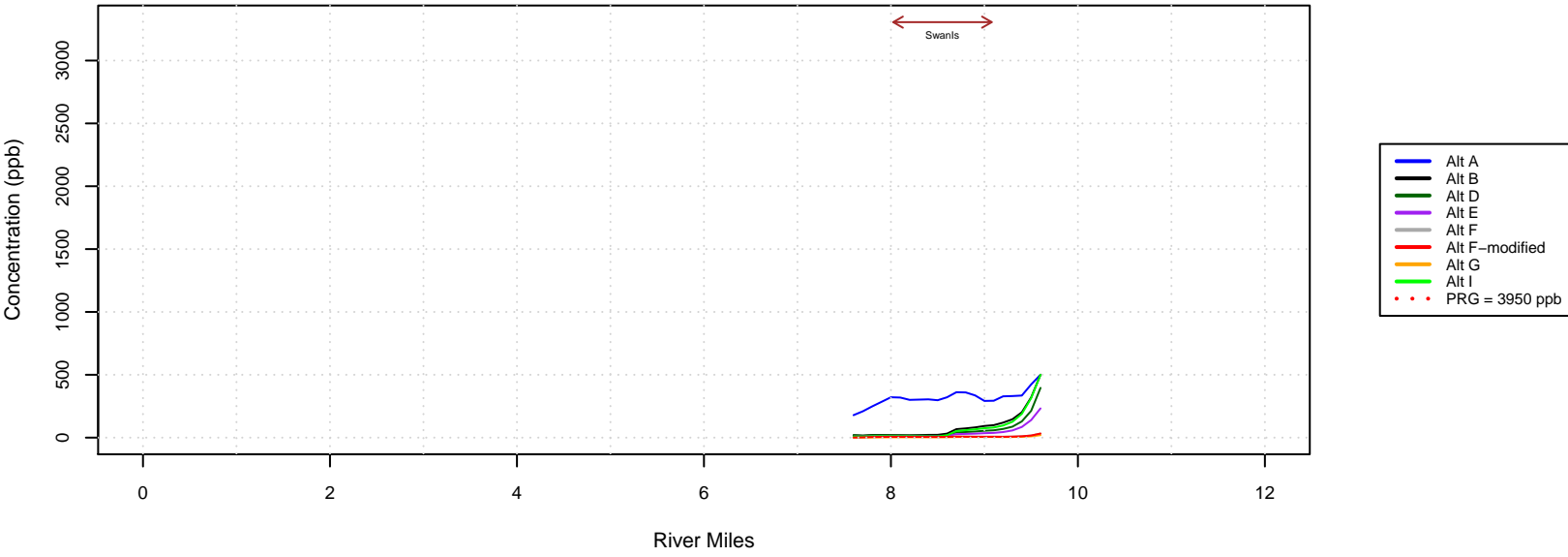
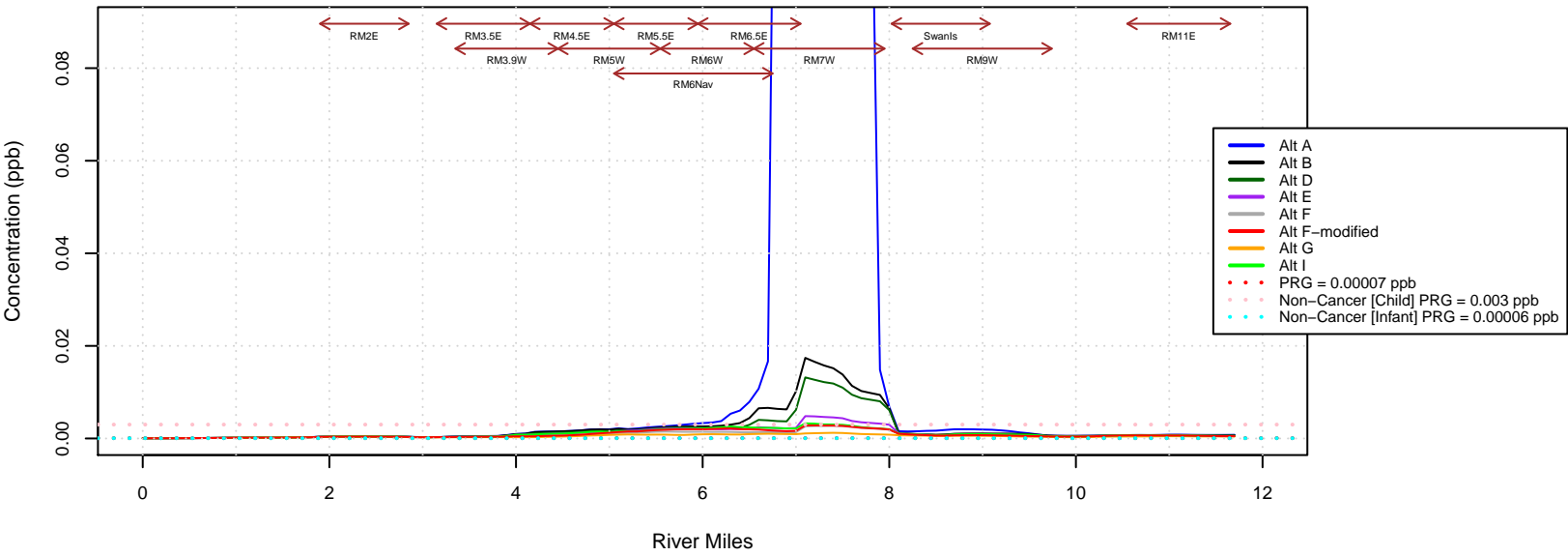


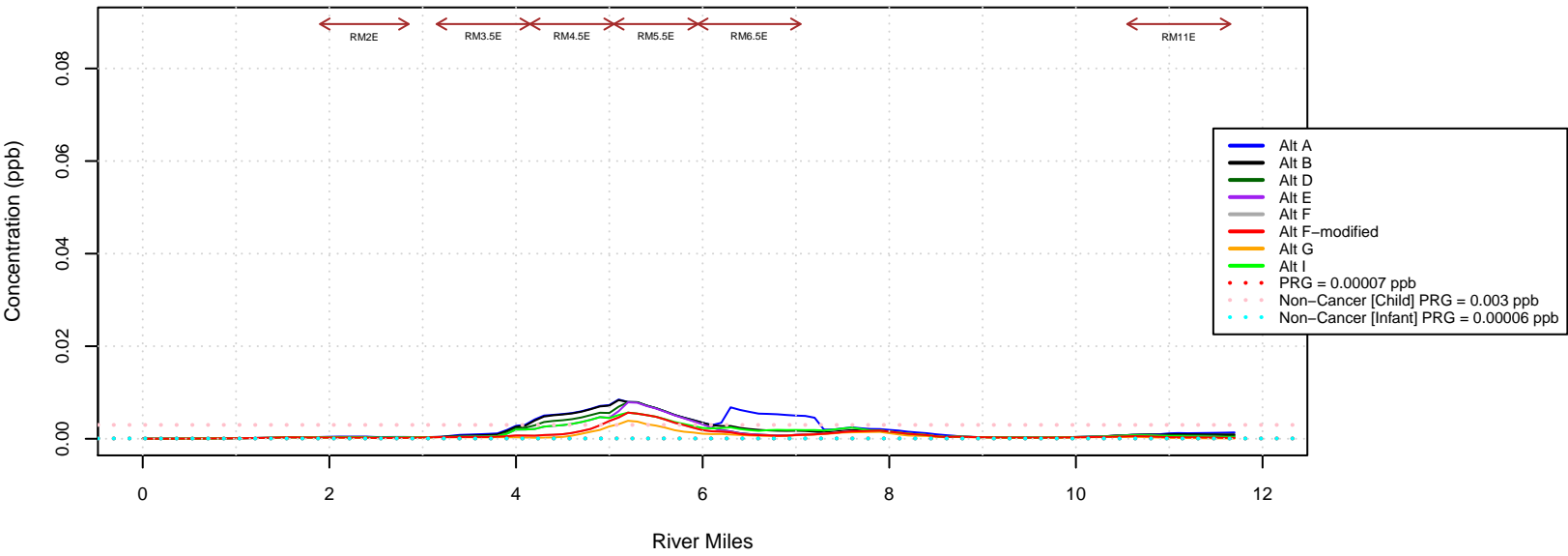
Figure D10-2f(Continued). RAO2 COC Concentration (Year 0) – cPAHs



Sediment Concentration for RAO 2 COC at Year 0 – HxCDF – Site – Rolling Avg 1 mile



Sediment Concentration for RAO 2 COC at Year 0 – HxCDF – East – Rolling Avg 1 mile



Sediment Concentration for RAO 2 COC at Year 0 – HxCDF – Nav Channel – Rolling Avg 1 mile

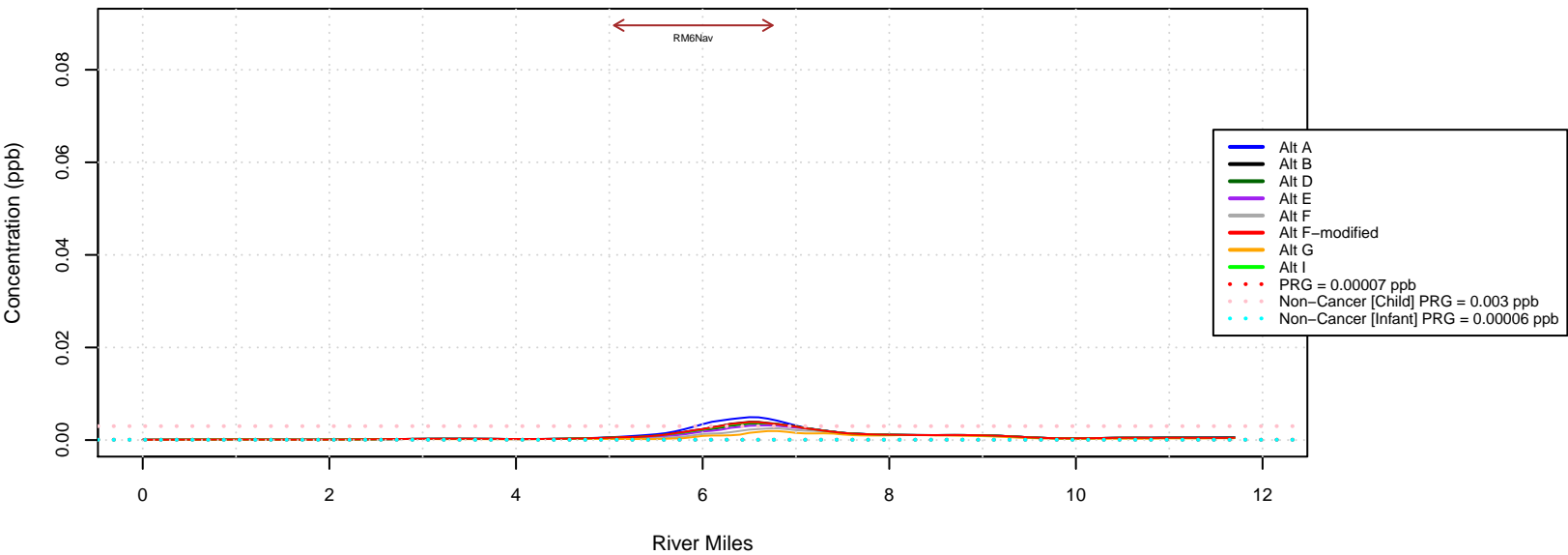
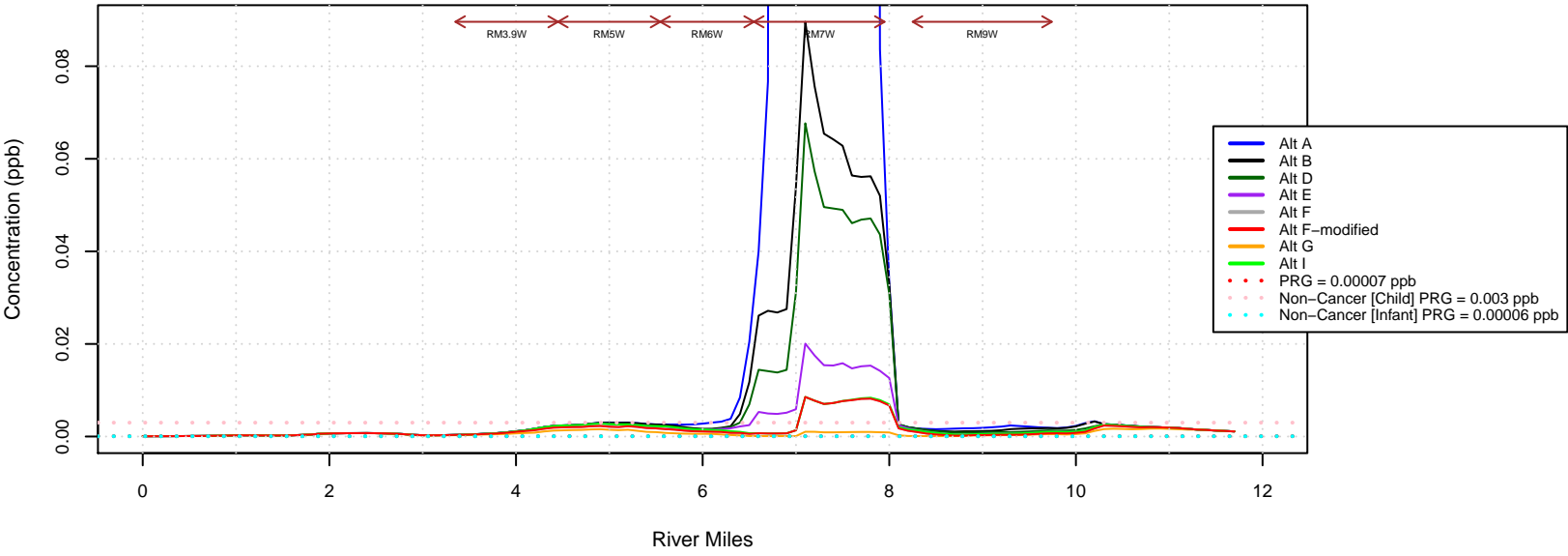
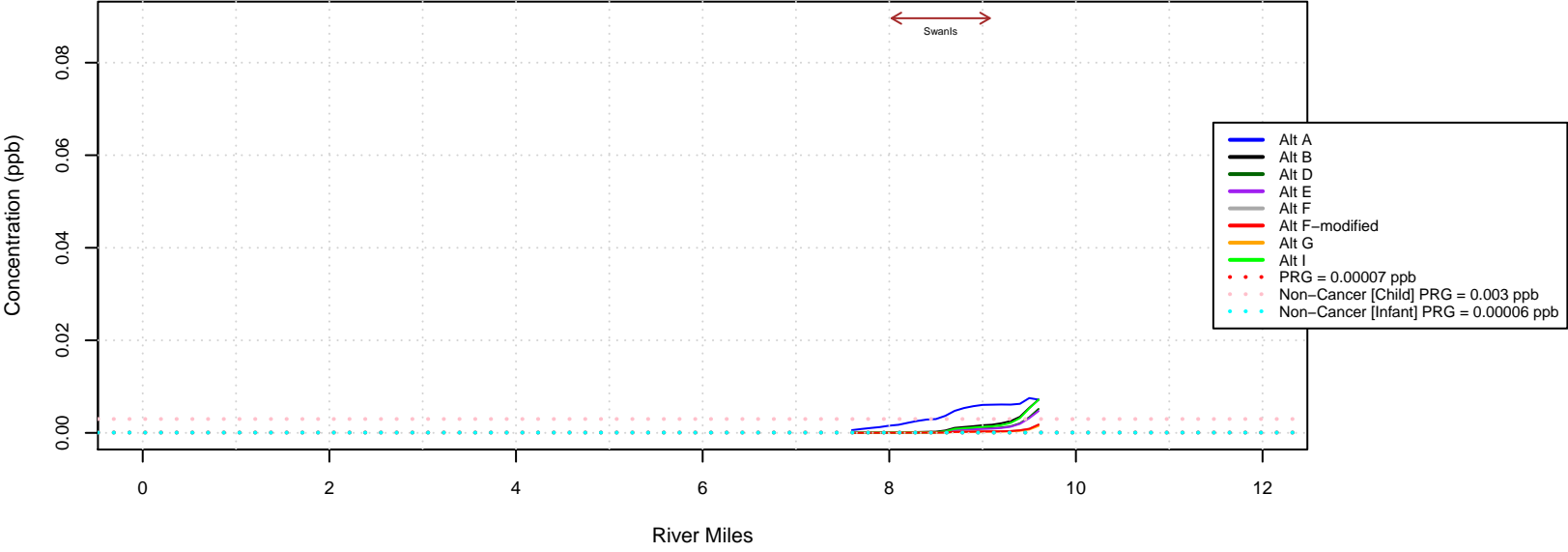


Figure D10-2g. RAO2 COC Concentration (Year 0) – HxCDF

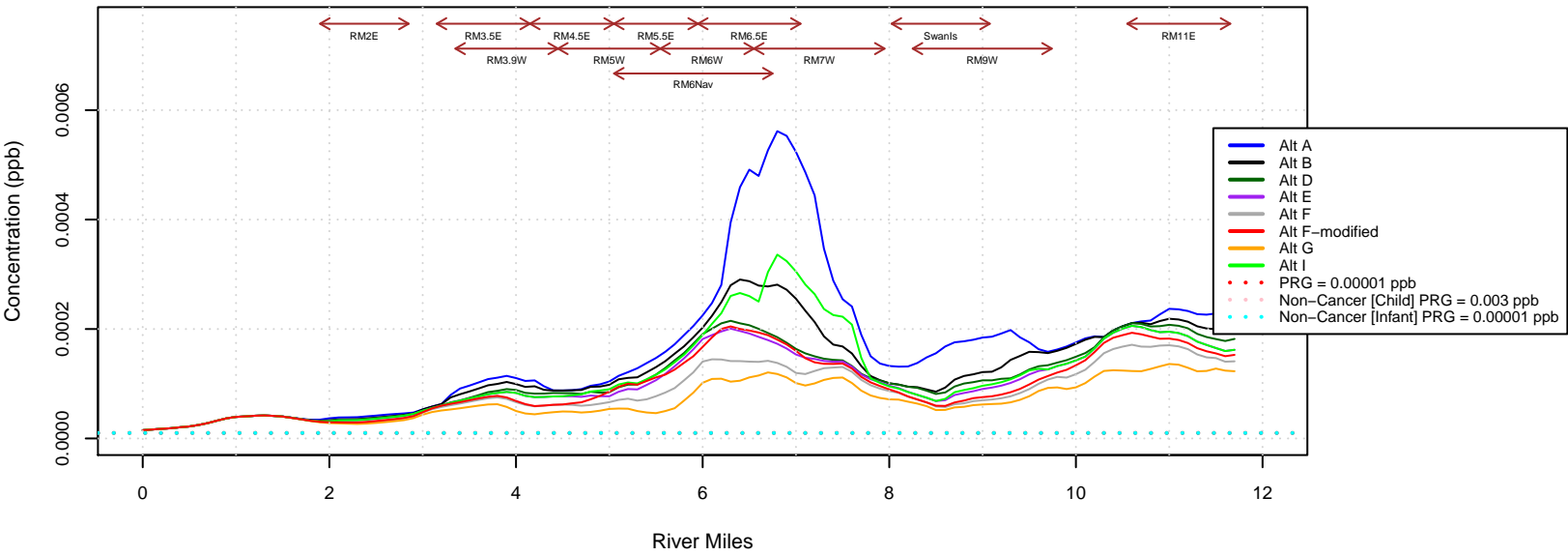
Sediment Concentration for RAO 2 COC at Year 0 – HxCDF – West – Rolling Avg 1 mile



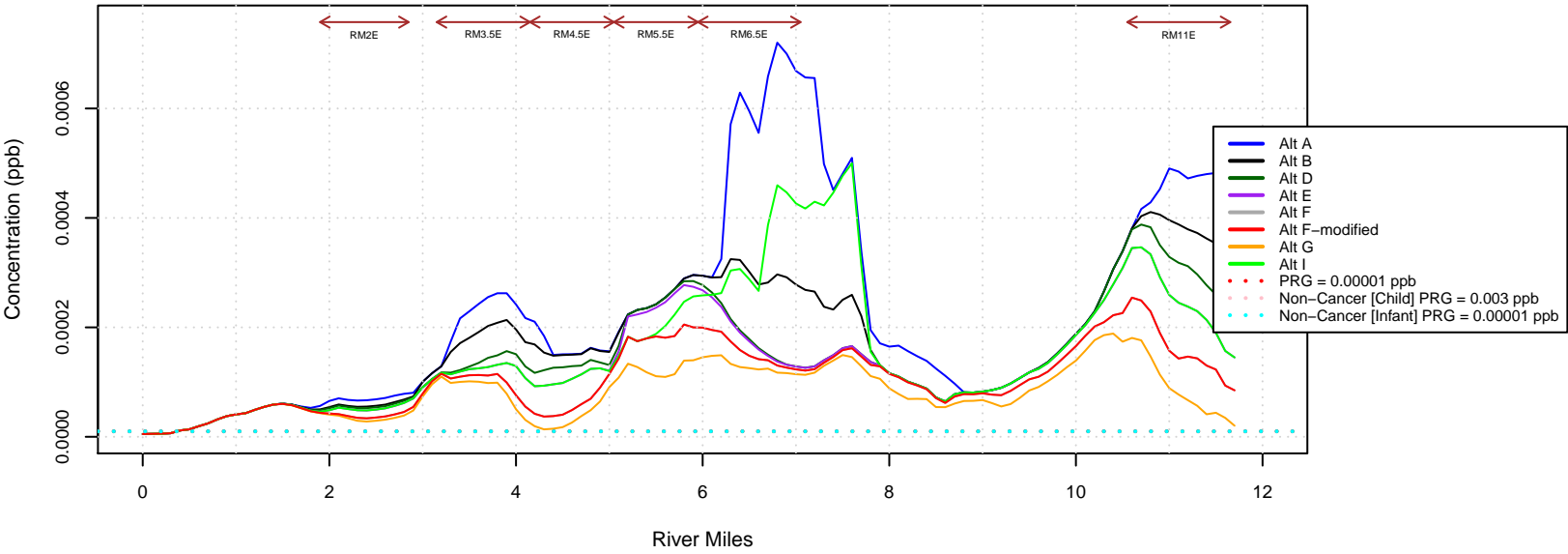
Sediment Concentration for RAO 2 COC at Year 0 – HxCDF – Swan Isl – Rolling Avg 1 mile



Sediment Concentration for RAO 2 COC at Year 0 – PeCDD – Site – Rolling Avg 1 mile



Sediment Concentration for RAO 2 COC at Year 0 – PeCDD – East – Rolling Avg 1 mile



Sediment Concentration for RAO 2 COC at Year 0 – PeCDD – Nav Channel – Rolling Avg 1 mile

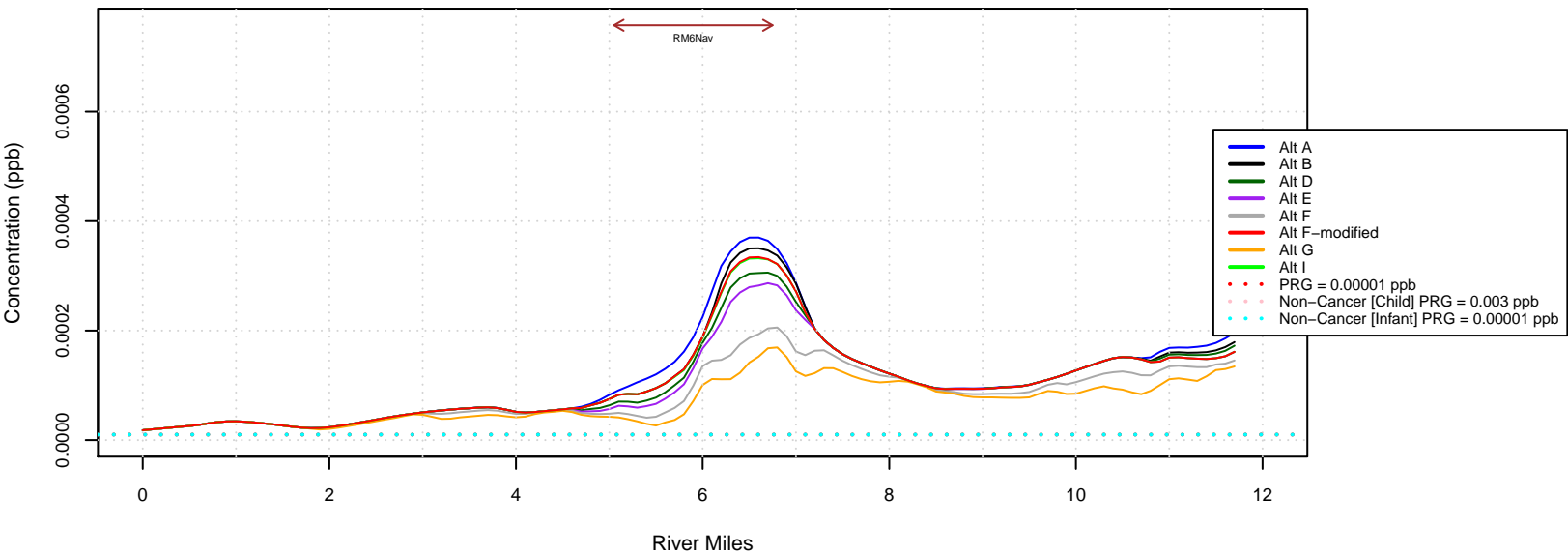
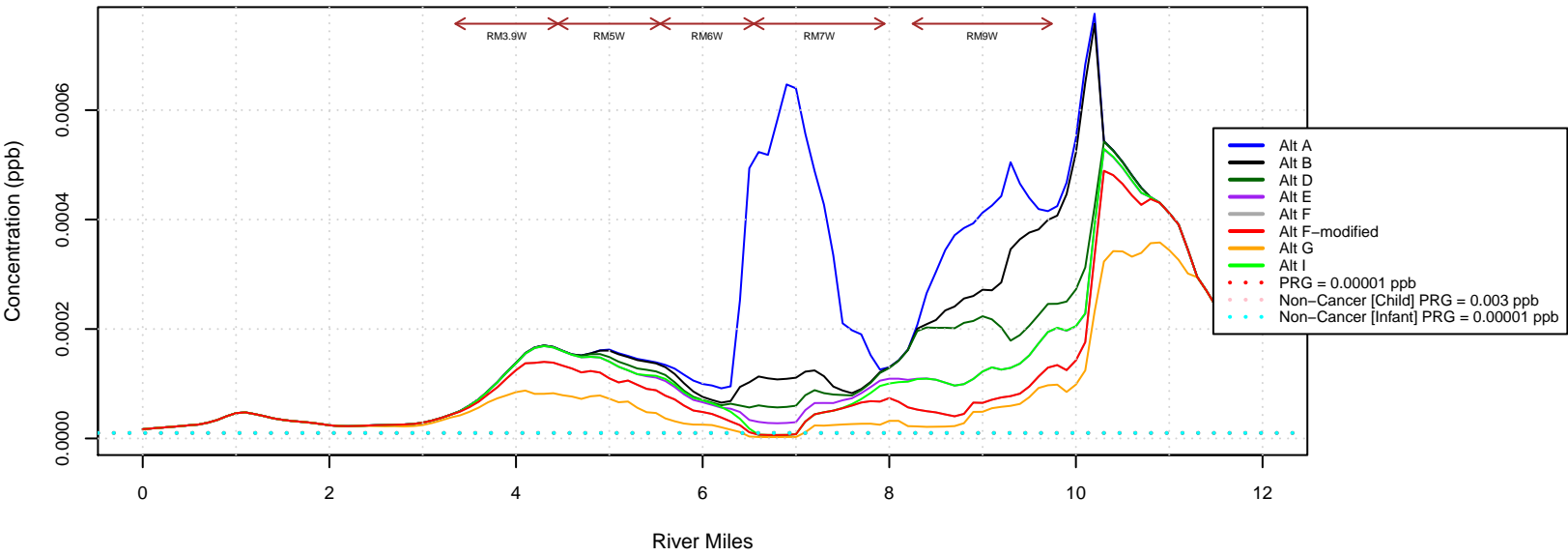
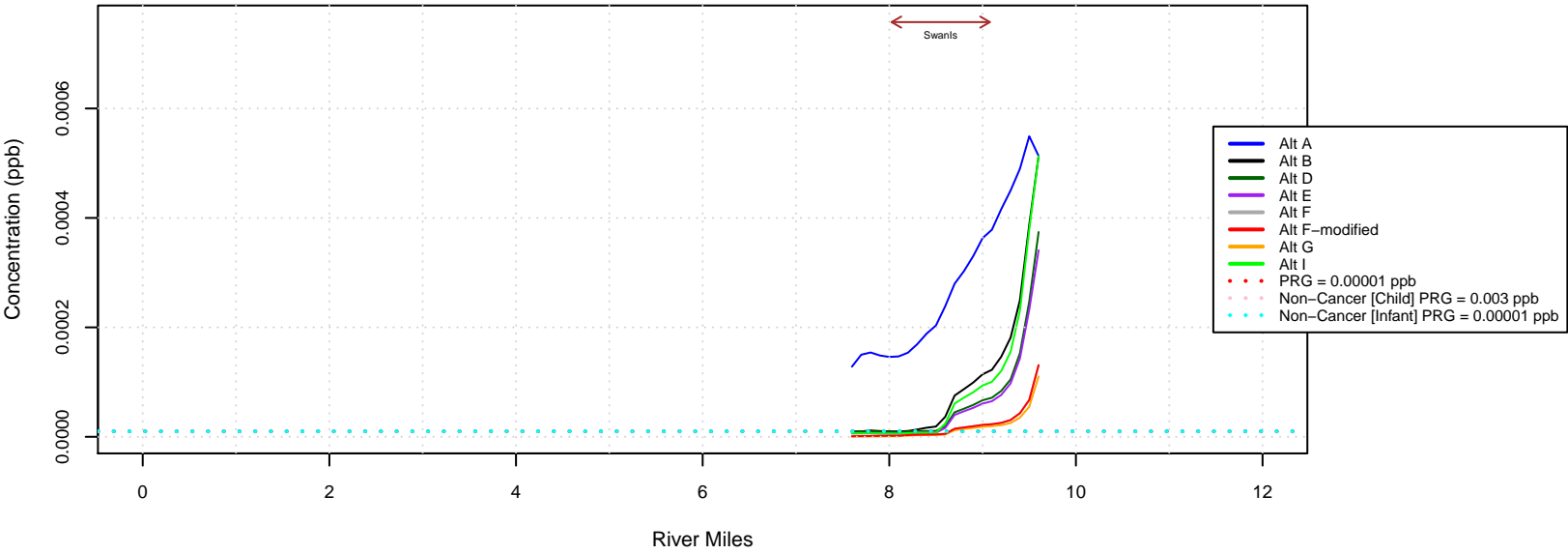


Figure D10-2h. RAO2 COC Concentration (Year 0) – PeCDD

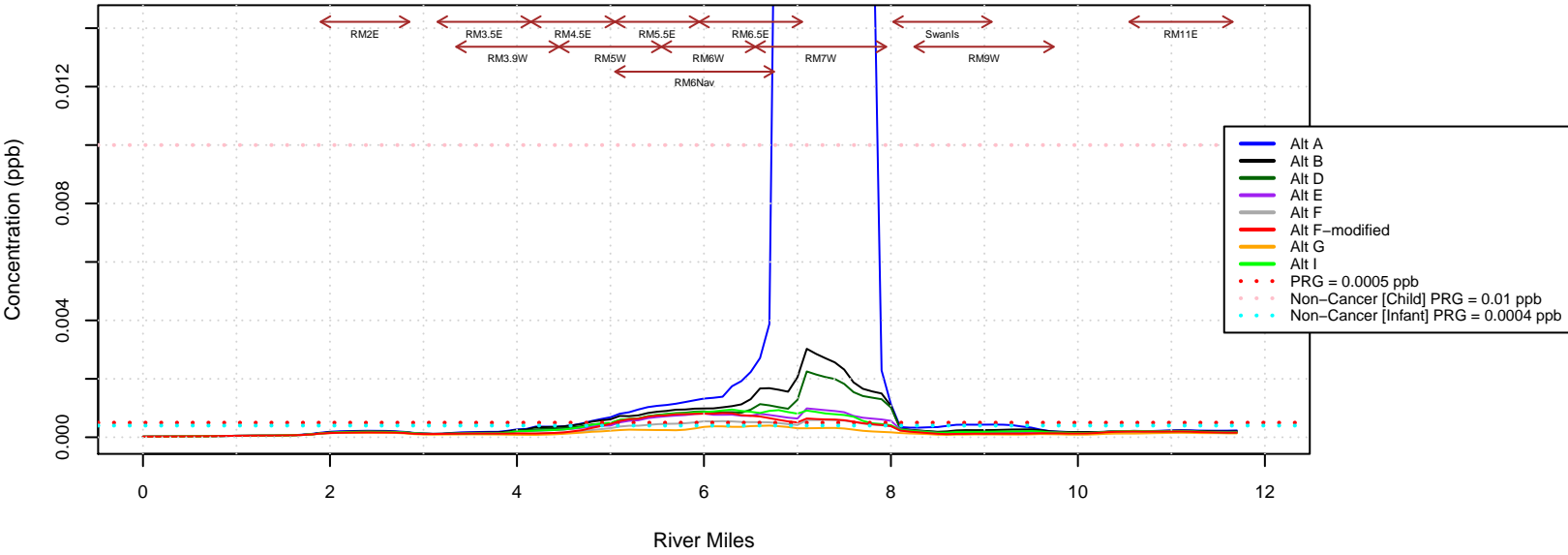
Sediment Concentration for RAO 2 COC at Year 0 – PeCDD – West – Rolling Avg 1 mile



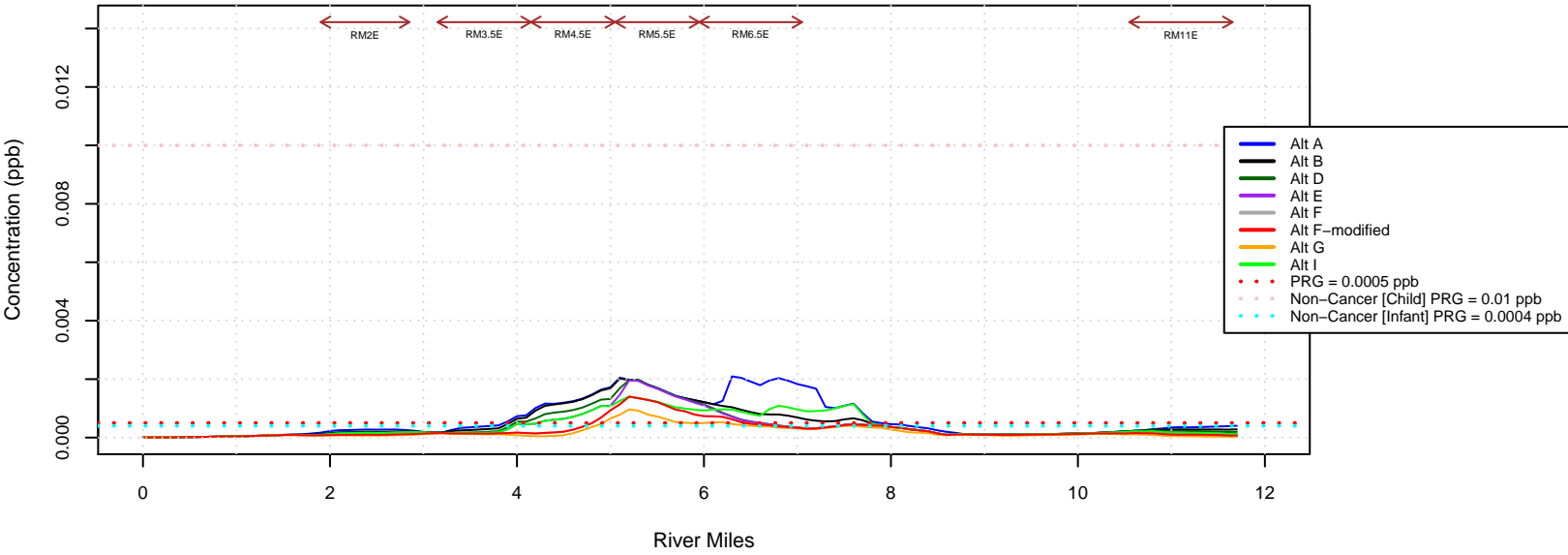
Sediment Concentration for RAO 2 COC at Year 0 – PeCDD – Swan Isl – Rolling Avg 1 mile



Sediment Concentration for RAO 2 COC at Year 0 – PeCDF – Site – Rolling Avg 1 mile



Sediment Concentration for RAO 2 COC at Year 0 – PeCDF – East – Rolling Avg 1 mile



Sediment Concentration for RAO 2 COC at Year 0 – PeCDF – Nav Channel – Rolling Avg 1 mile

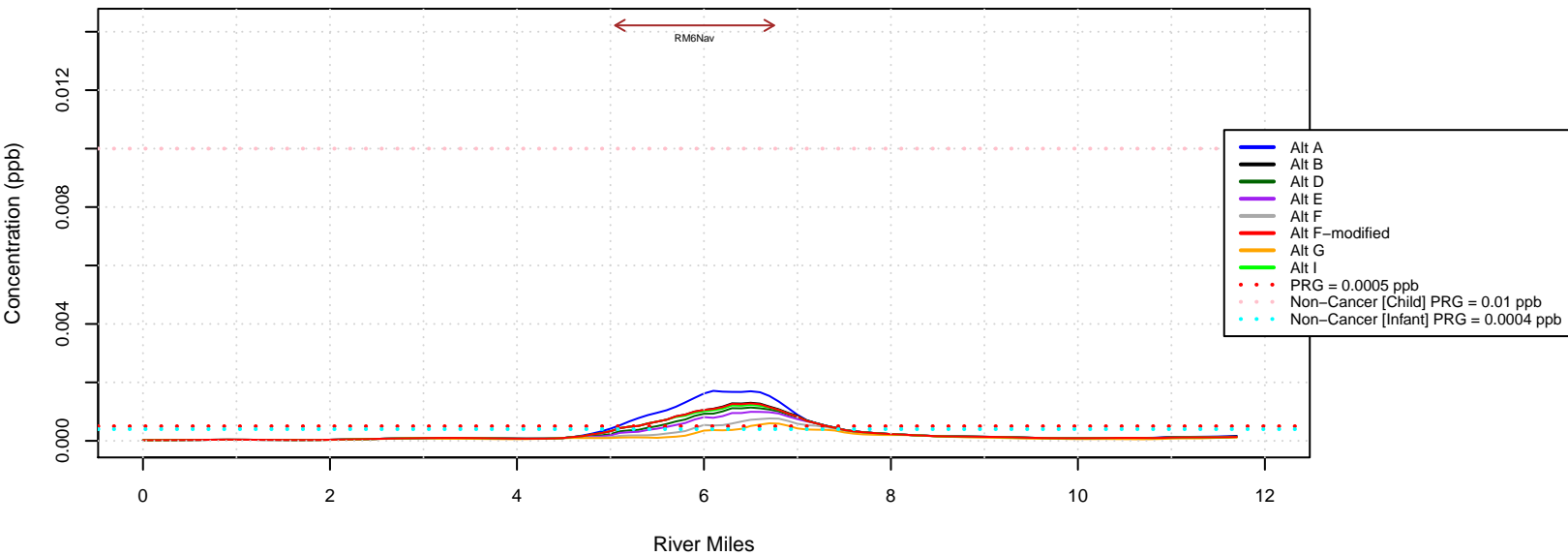
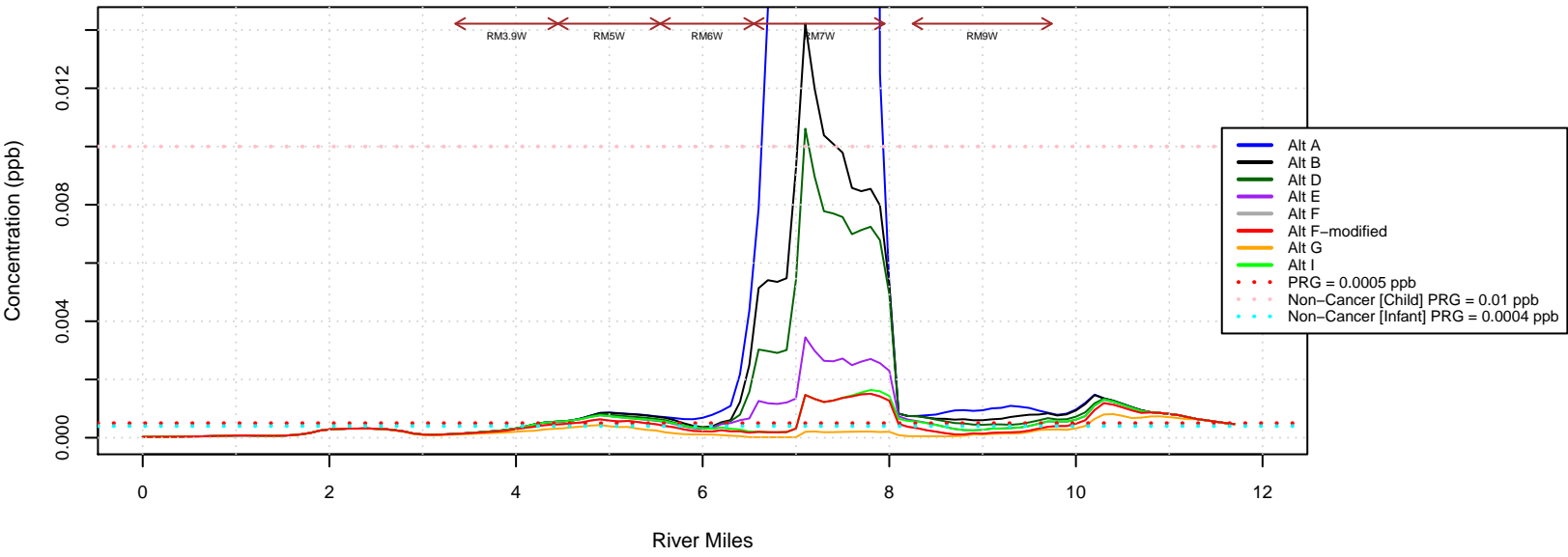
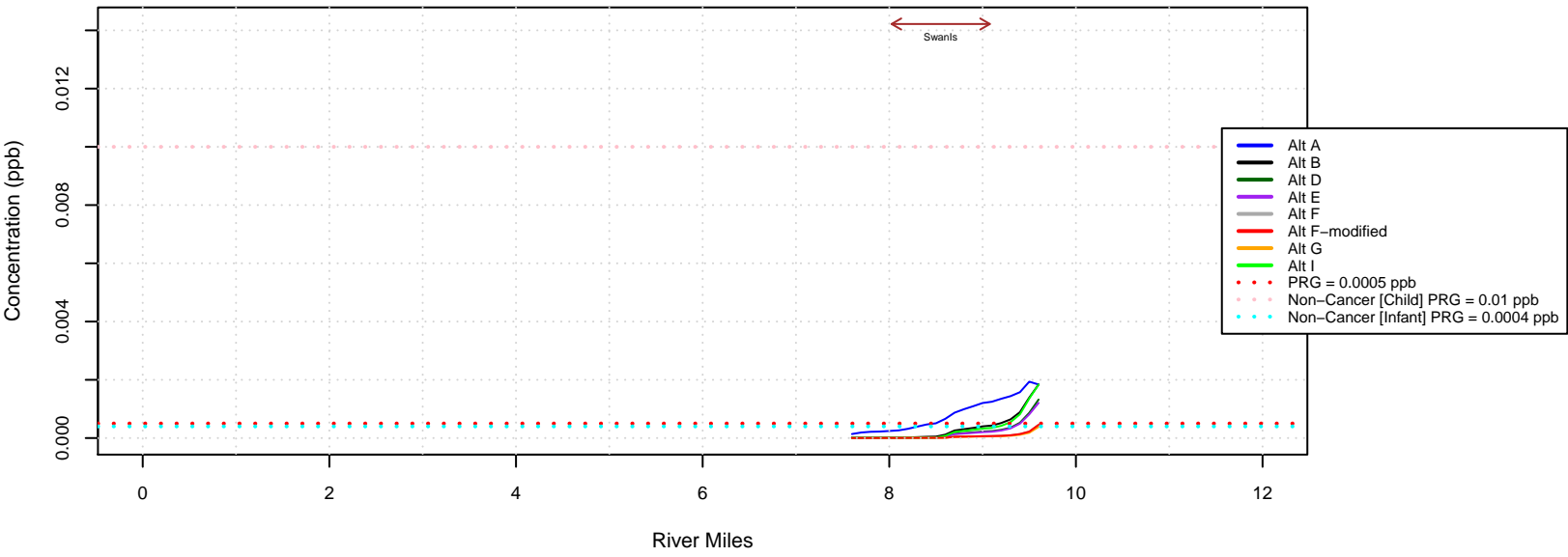


Figure D10–2i. RAO2 COC Concentration (Year 0) – PeCDF

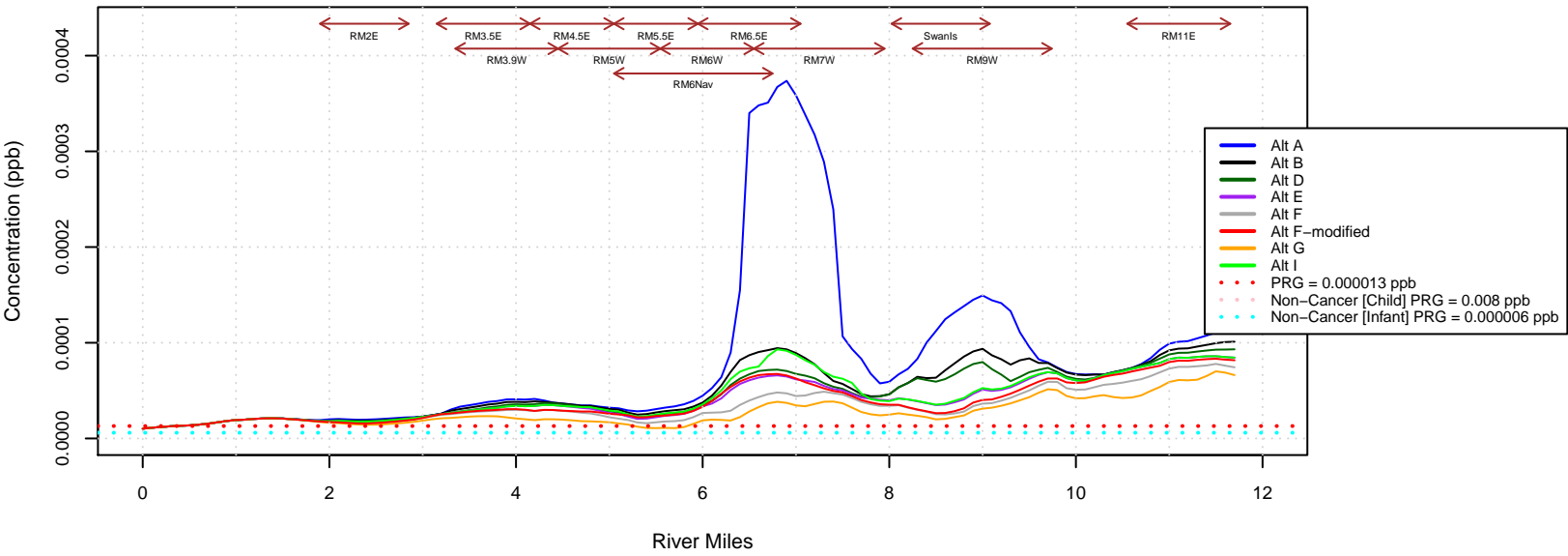
Sediment Concentration for RAO 2 COC at Year 0 – PeCDF – West – Rolling Avg 1 mile



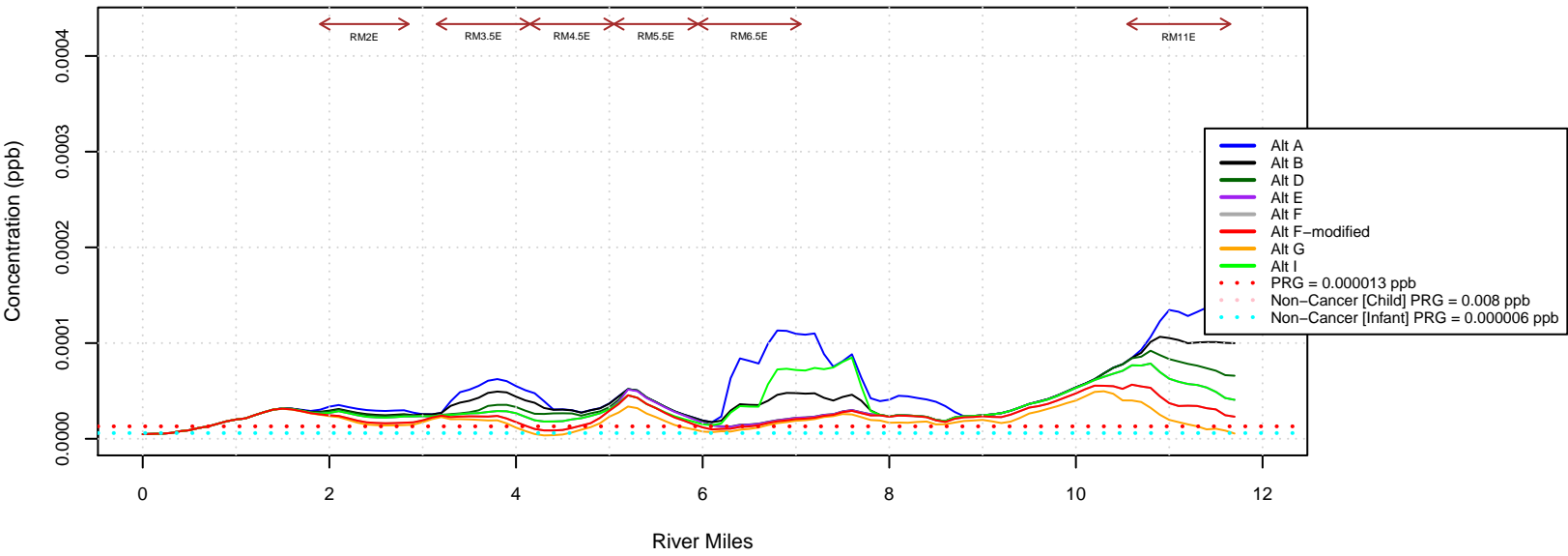
Sediment Concentration for RAO 2 COC at Year 0 – PeCDF – Swan Isl – Rolling Avg 1 mile



Sediment Concentration for RAO 2 COC at Year 0 – TCDD – Site – Rolling Avg 1 mile



Sediment Concentration for RAO 2 COC at Year 0 – TCDD – East – Rolling Avg 1 mile



Sediment Concentration for RAO 2 COC at Year 0 – TCDD – Nav Channel – Rolling Avg 1 mile

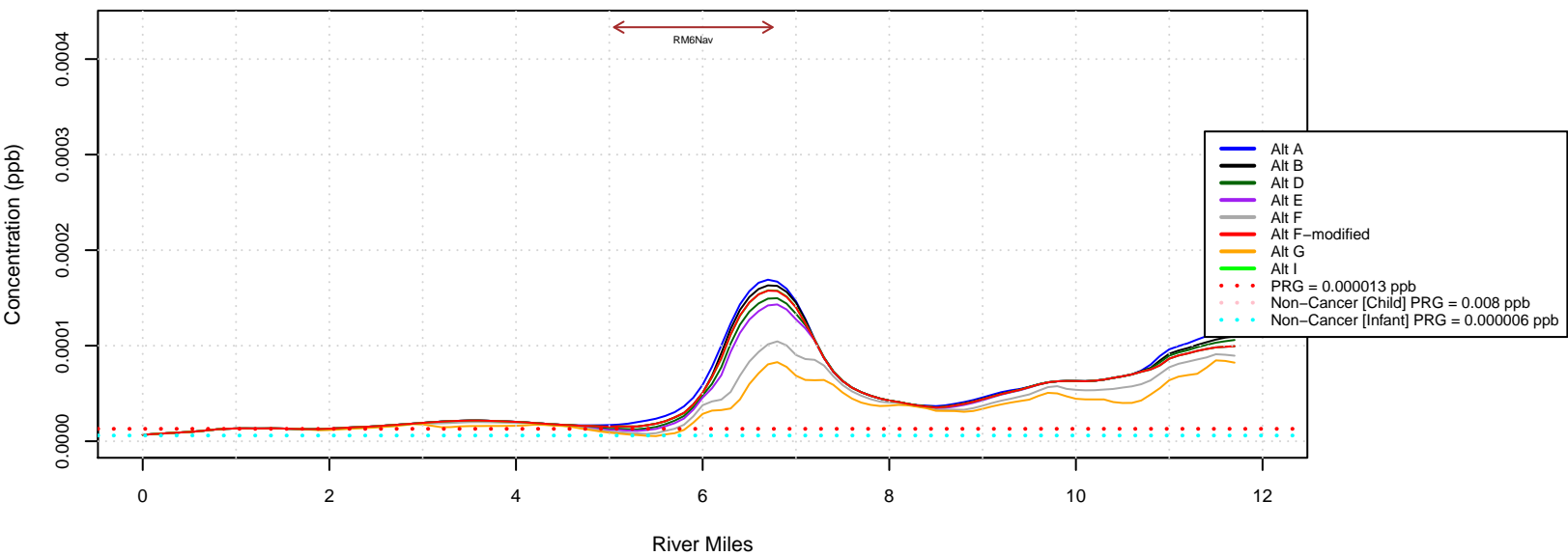
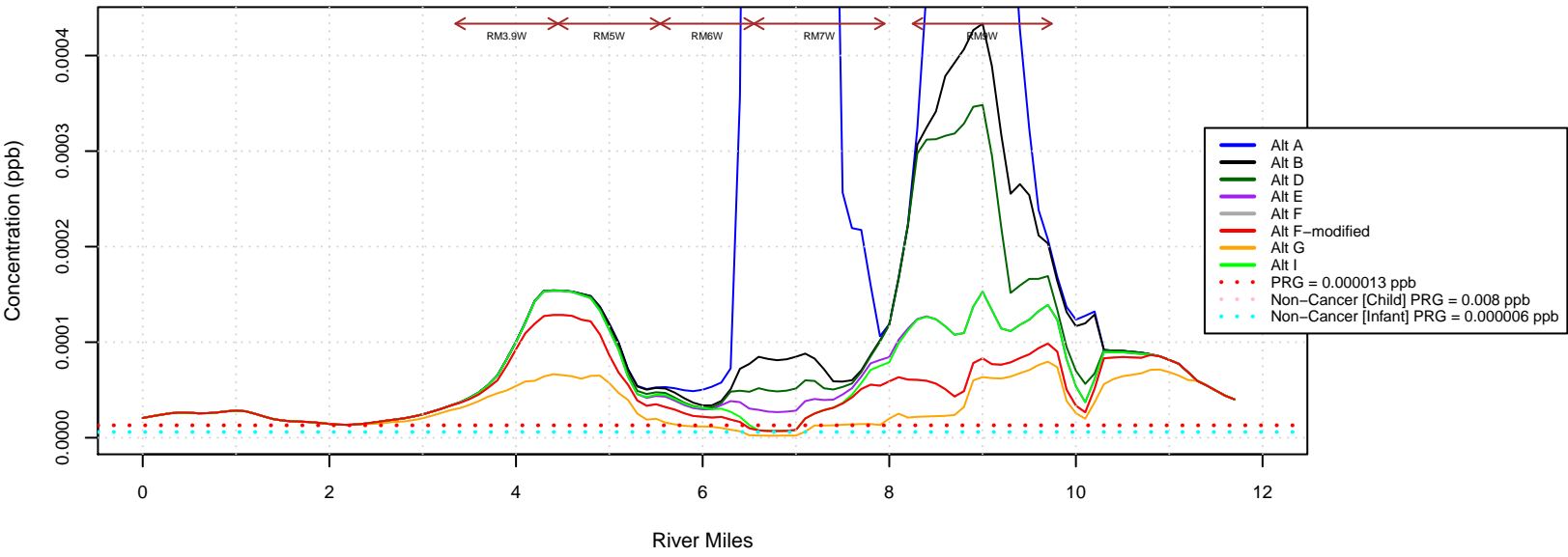
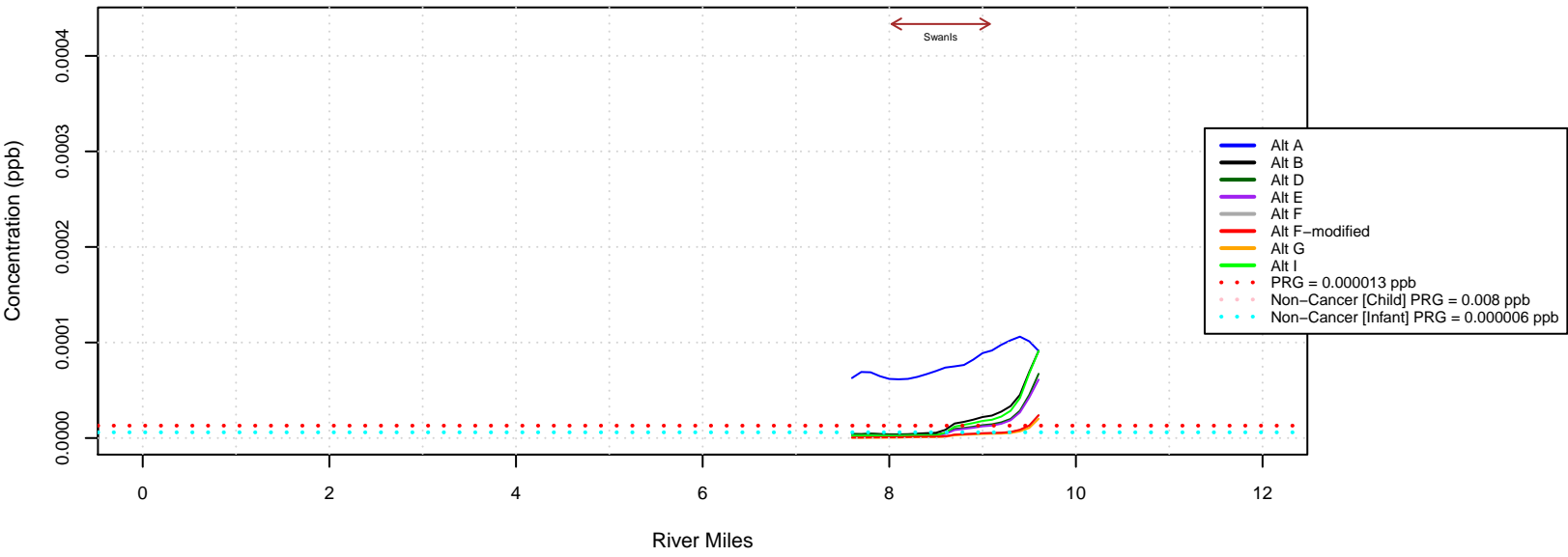


Figure D10-2j. RAO2 COC Concentration (Year 0) – TCDD

Sediment Concentration for RAO 2 COC at Year 0 – TCDD – West – Rolling Avg 1 mile

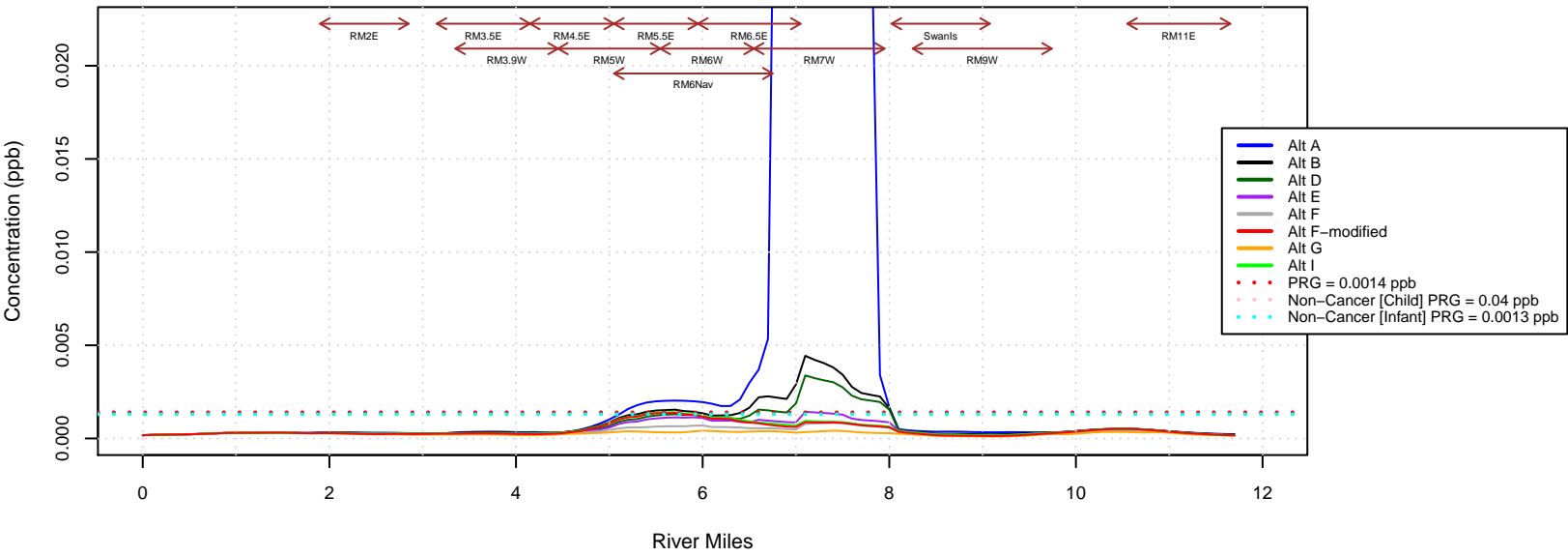


Sediment Concentration for RAO 2 COC at Year 0 – TCDD – Swan Isl – Rolling Avg 1 mile

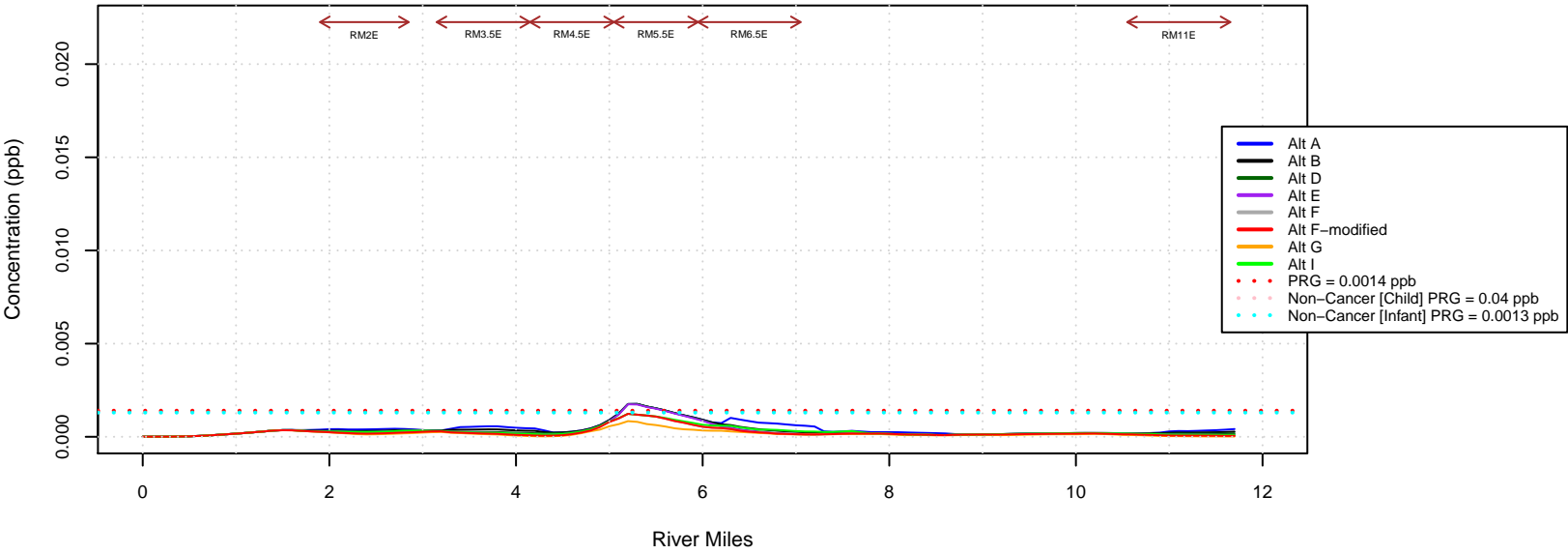




Sediment Concentration for RAO 2 COC at Year 0 – TCDF – Site – Rolling Avg 1 mile



Sediment Concentration for RAO 2 COC at Year 0 – TCDF – East – Rolling Avg 1 mile



Sediment Concentration for RAO 2 COC at Year 0 – TCDF – Nav Channel – Rolling Avg 1 mile

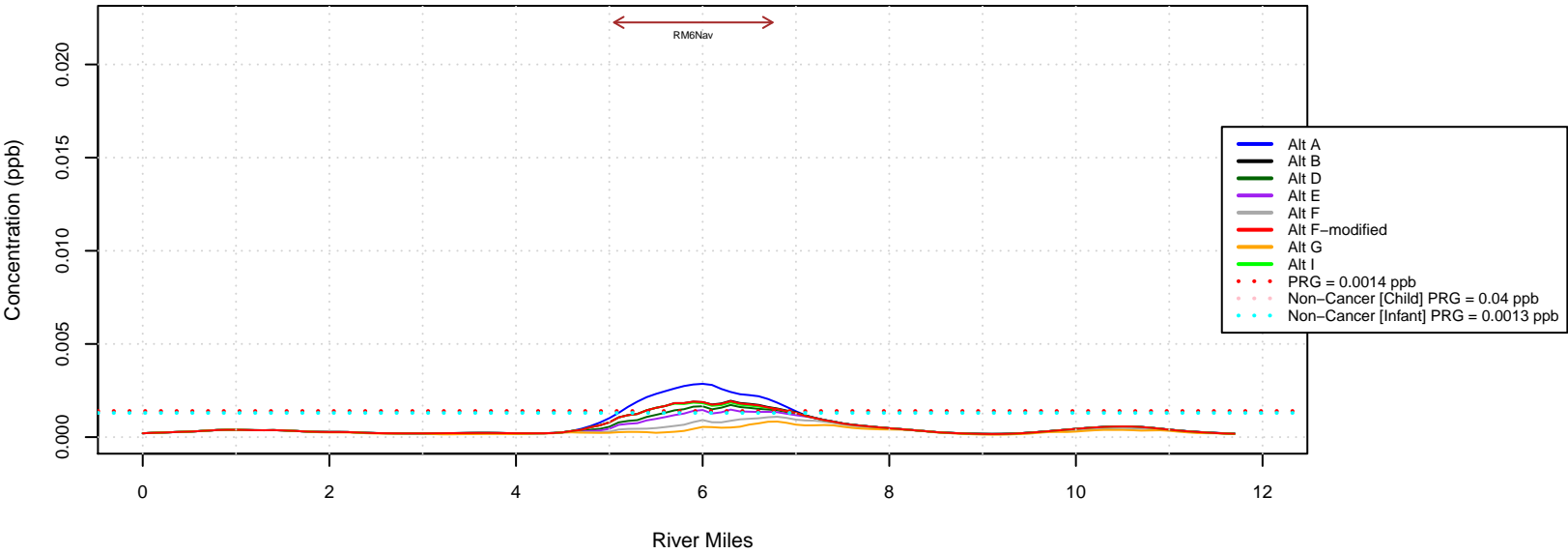
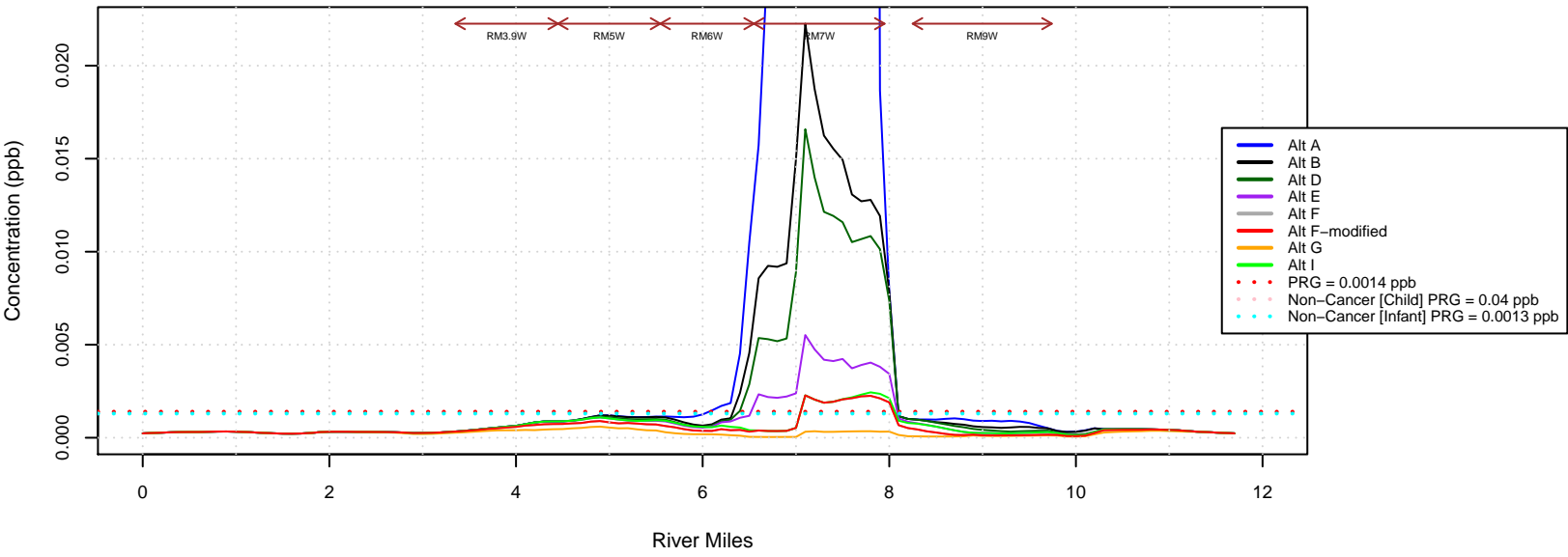
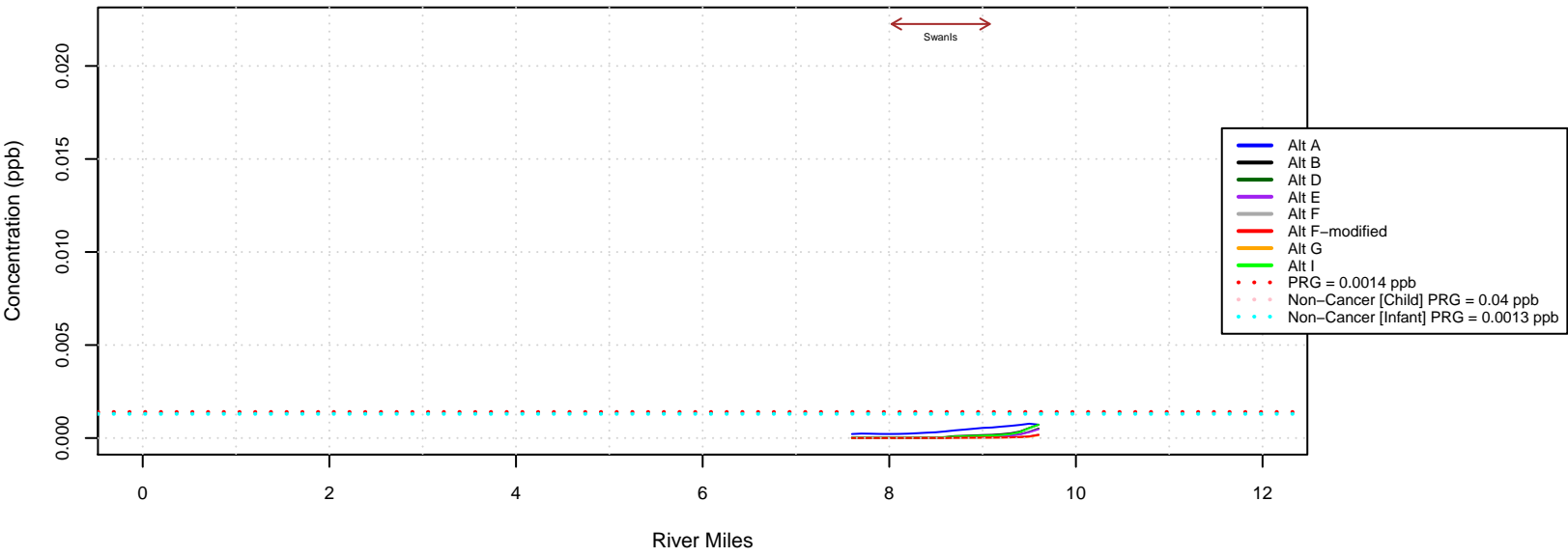


Figure D10–2k. RAO2 COC Concentration (Year 0) – TCDF

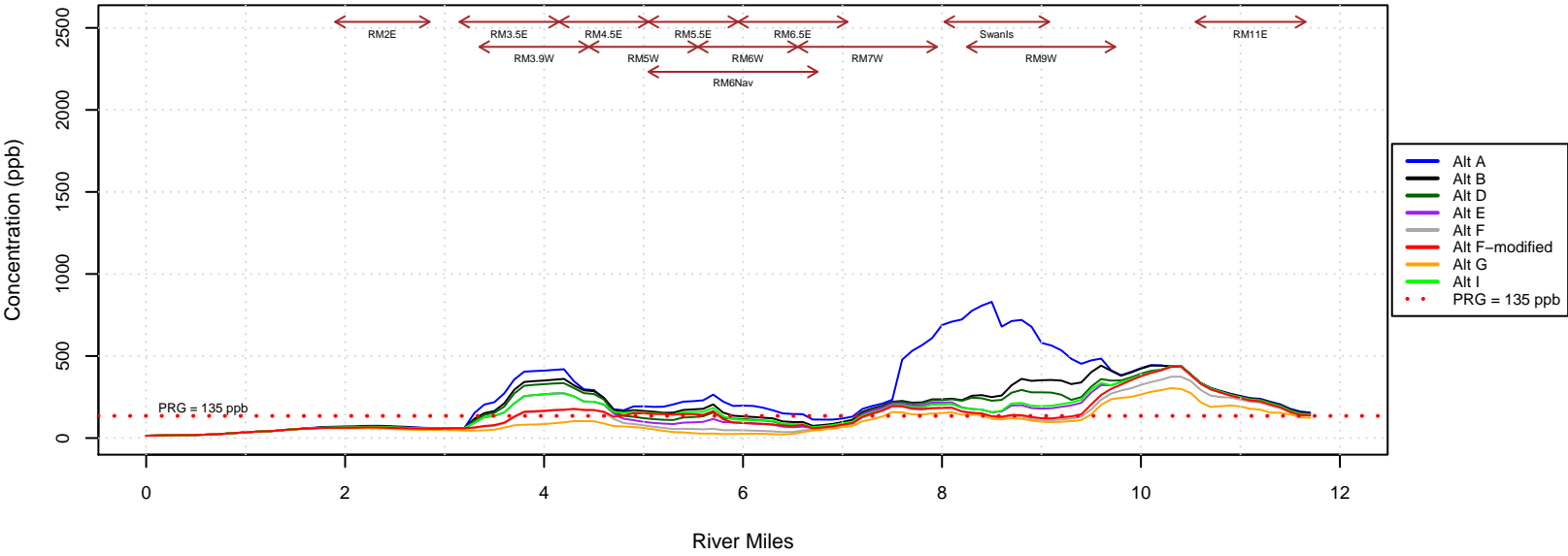
Sediment Concentration for RAO 2 COC at Year 0 – TCDF – West – Rolling Avg 1 mile



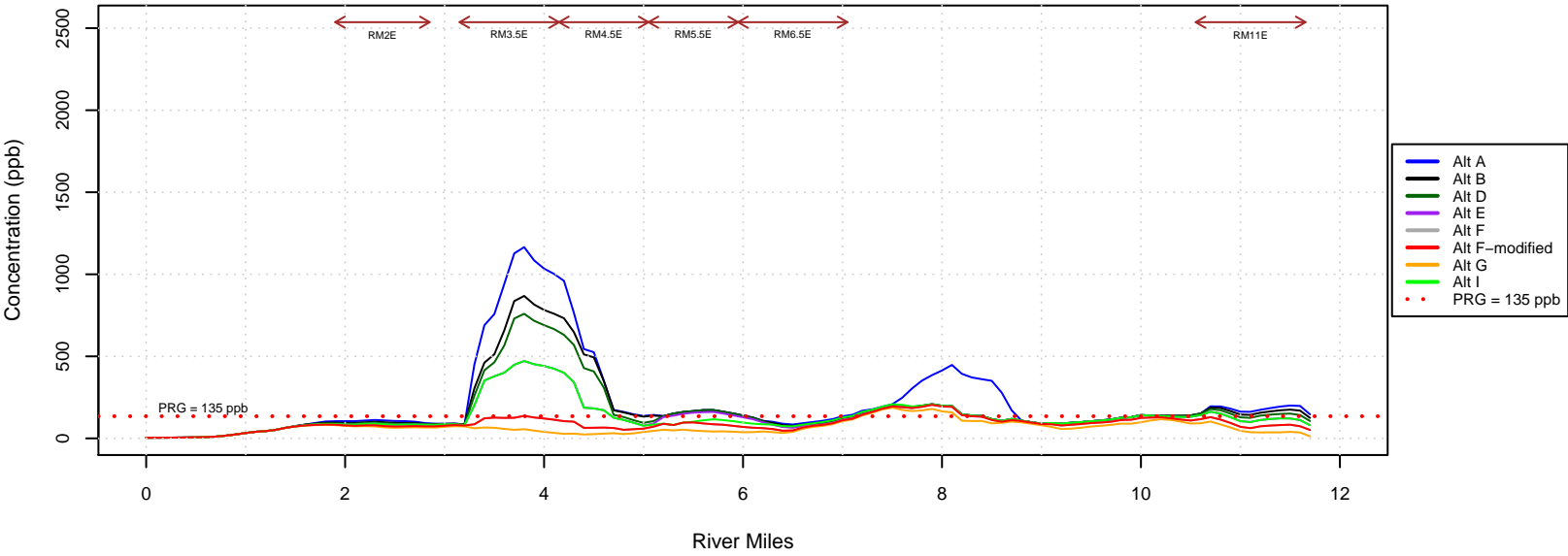
Sediment Concentration for RAO 2 COC at Year 0 – TCDF – Swan Isl – Rolling Avg 1 mile



Sediment Concentration for RAO 6 COC at Year 0 – BEHP – Site – Rolling Avg 1 mile



Sediment Concentration for RAO 6 COC at Year 0 – BEHP – East – Rolling Avg 1 mile



Sediment Concentration for RAO 6 COC at Year 0 – BEHP – Nav Channel – Rolling Avg 1 mile

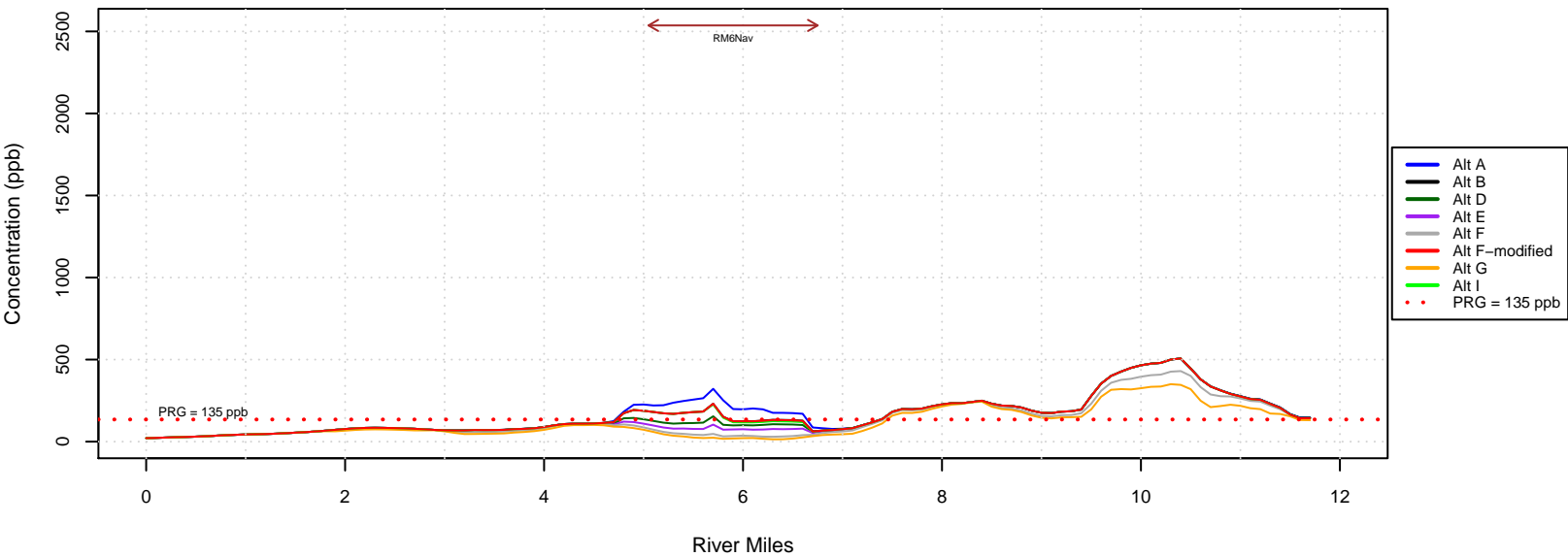
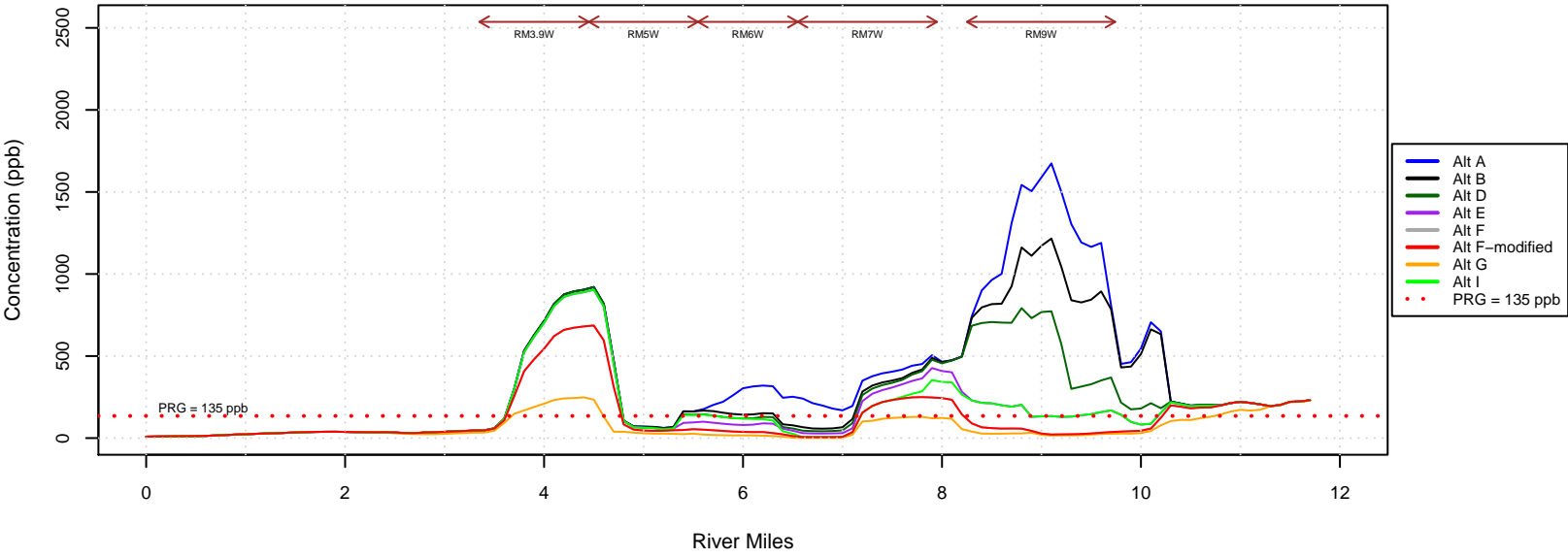
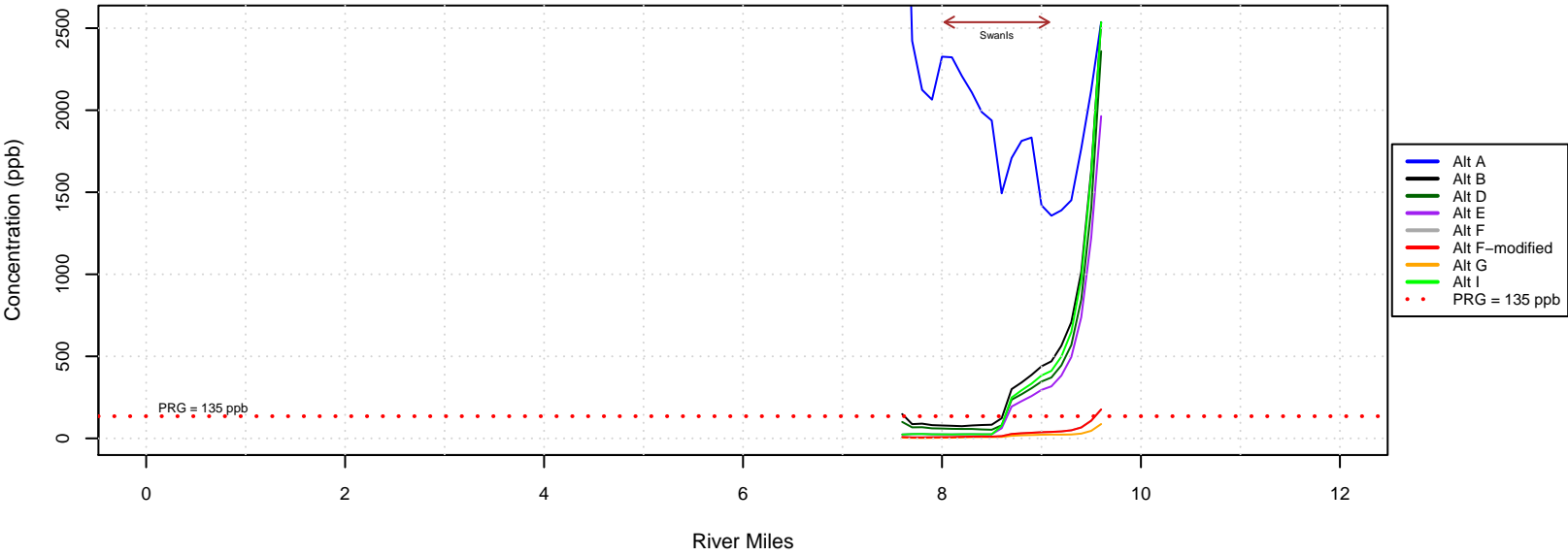


Figure D10–3a. RAO6 COC Concentration (Year 0) – BEHP

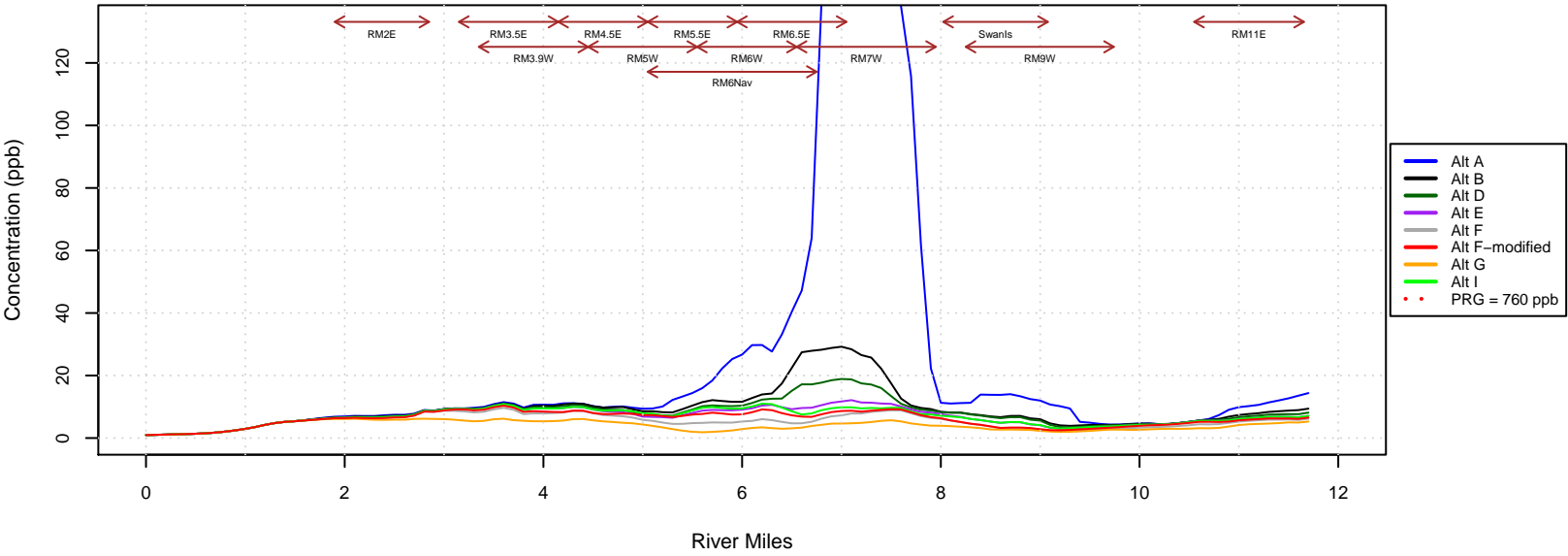
Sediment Concentration for RAO 6 COC at Year 0 – BEHP – West – Rolling Avg 1 mile



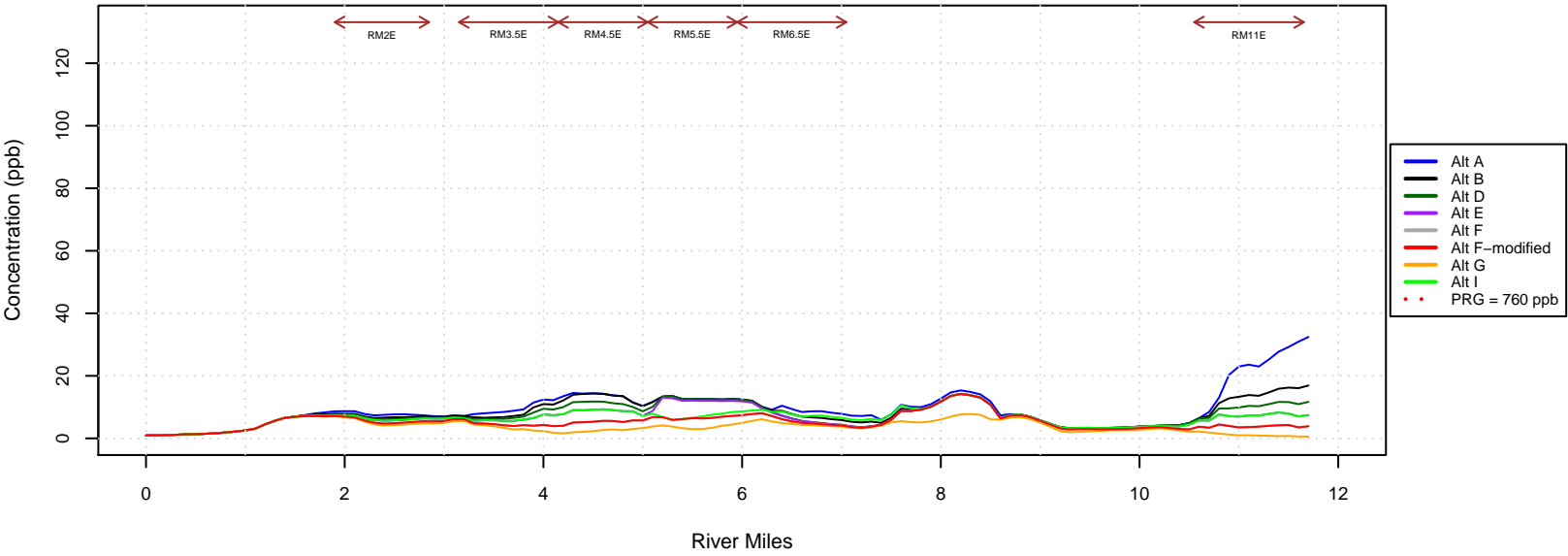
Sediment Concentration for RAO 6 COC at Year 0 – BEHP – Swan Isl – Rolling Avg 1 mile



Sediment Concentration for RAO 6 COC at Year 0 – DDx – Site – Rolling Avg 1 mile



Sediment Concentration for RAO 6 COC at Year 0 – DDx – East – Rolling Avg 1 mile



Sediment Concentration for RAO 6 COC at Year 0 – DDx – Nav Channel – Rolling Avg 1 mile

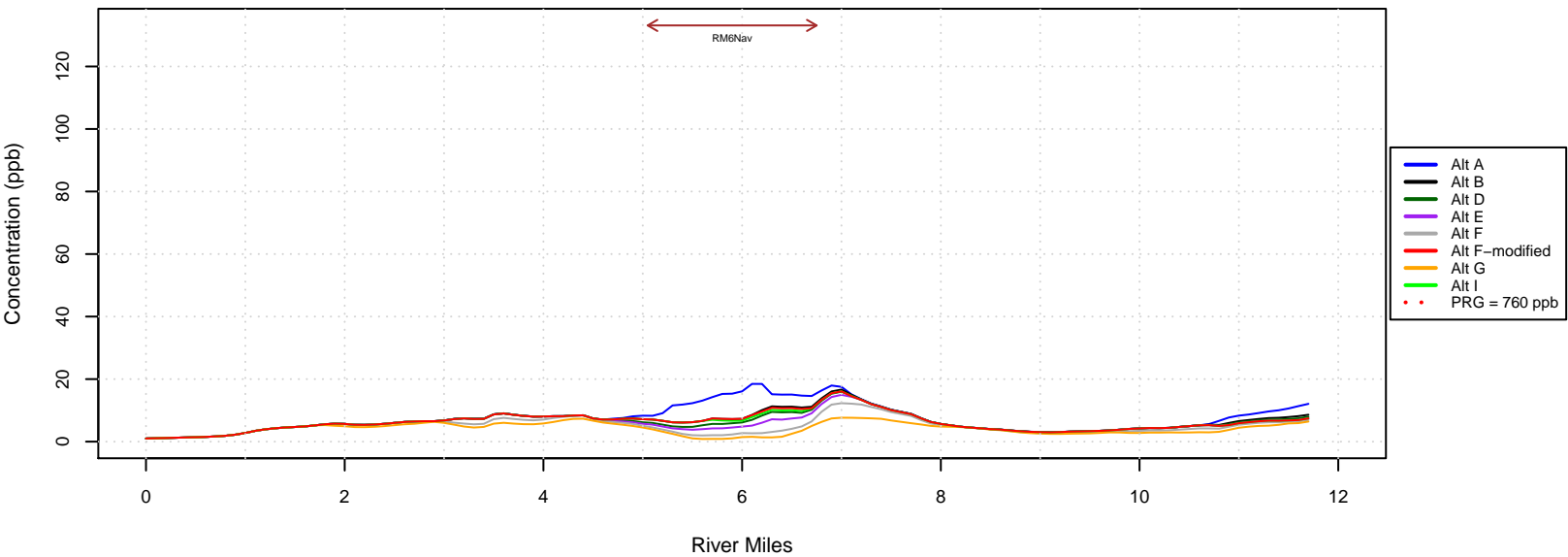
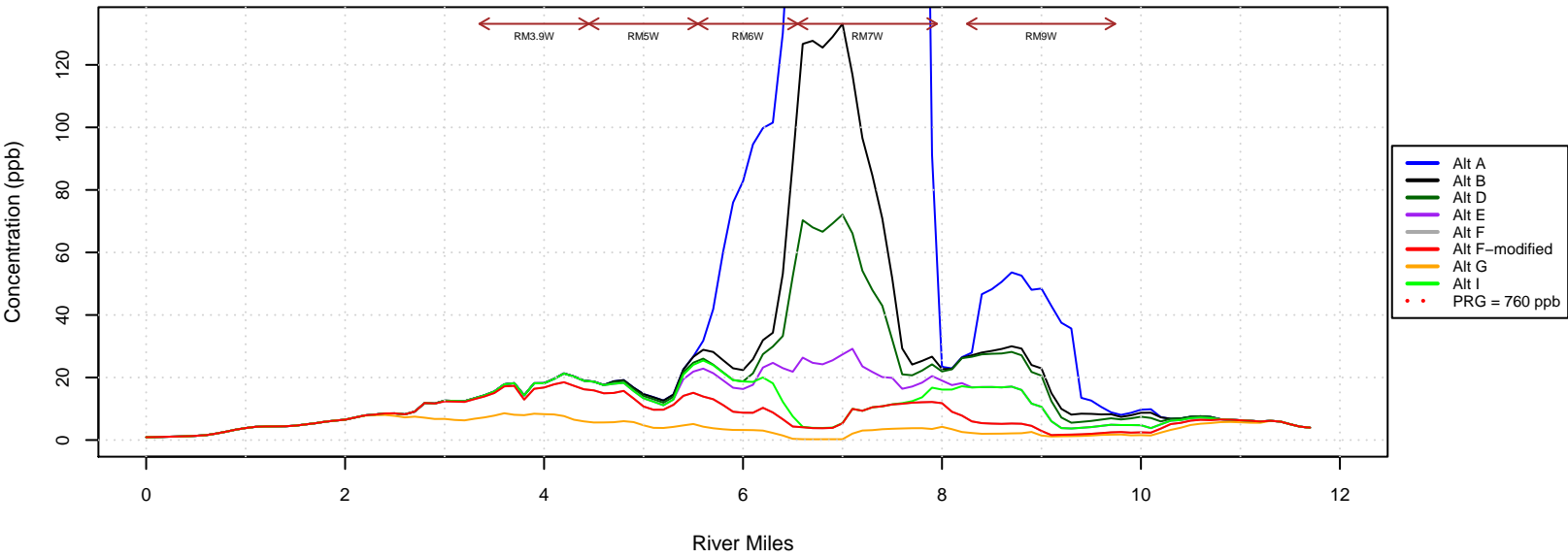


Figure D10–3b. RAO6 COC Concentration (Year 0) – DDx

Sediment Concentration for RAO 6 COC at Year 0 – DDx – West – Rolling Avg 1 mile



Sediment Concentration for RAO 6 COC at Year 0 – DDx – Swan Isl – Rolling Avg 1 mile

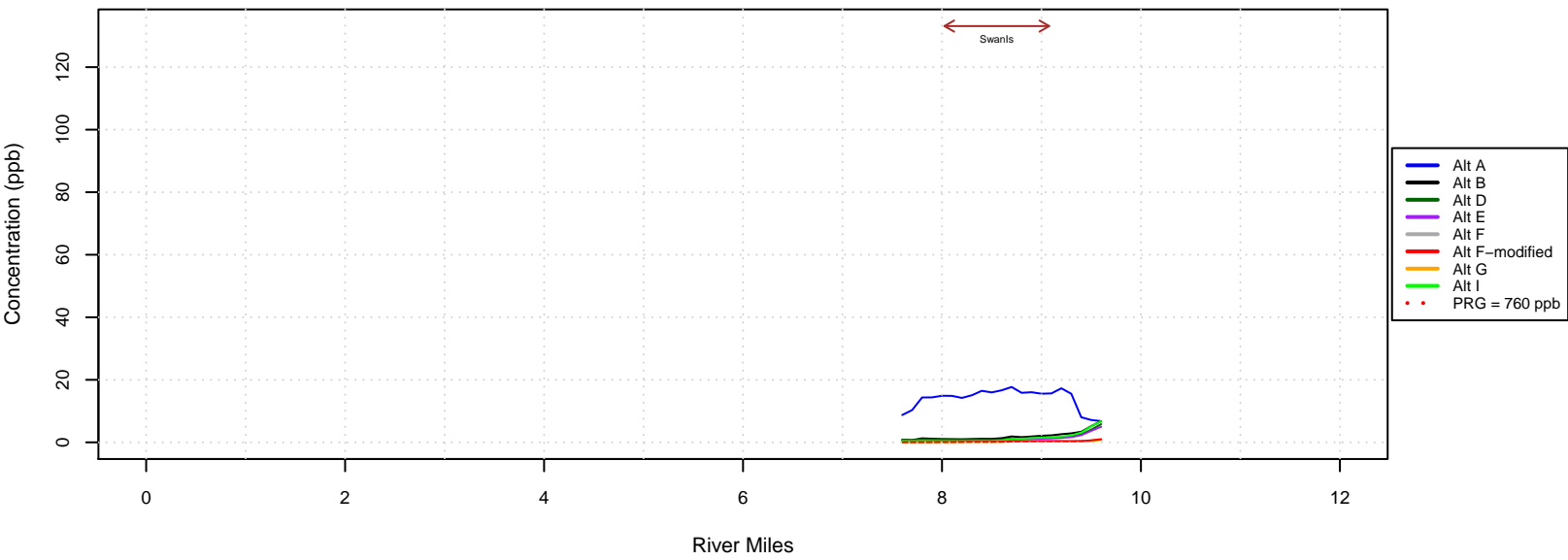
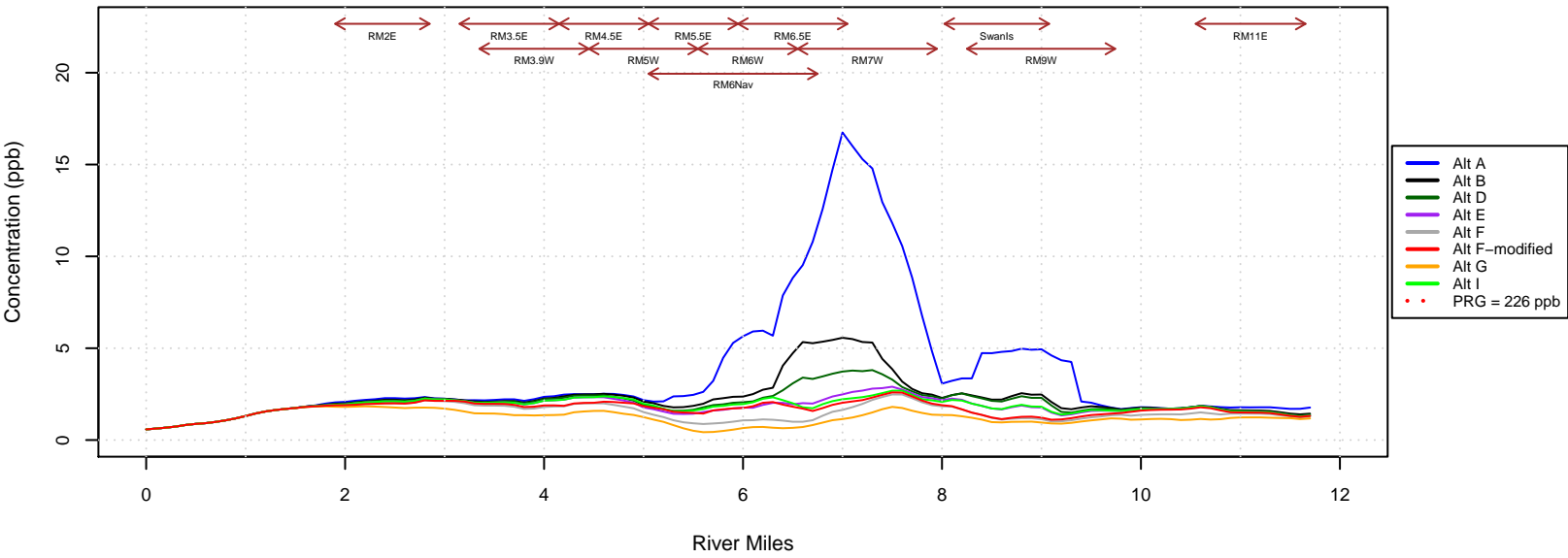
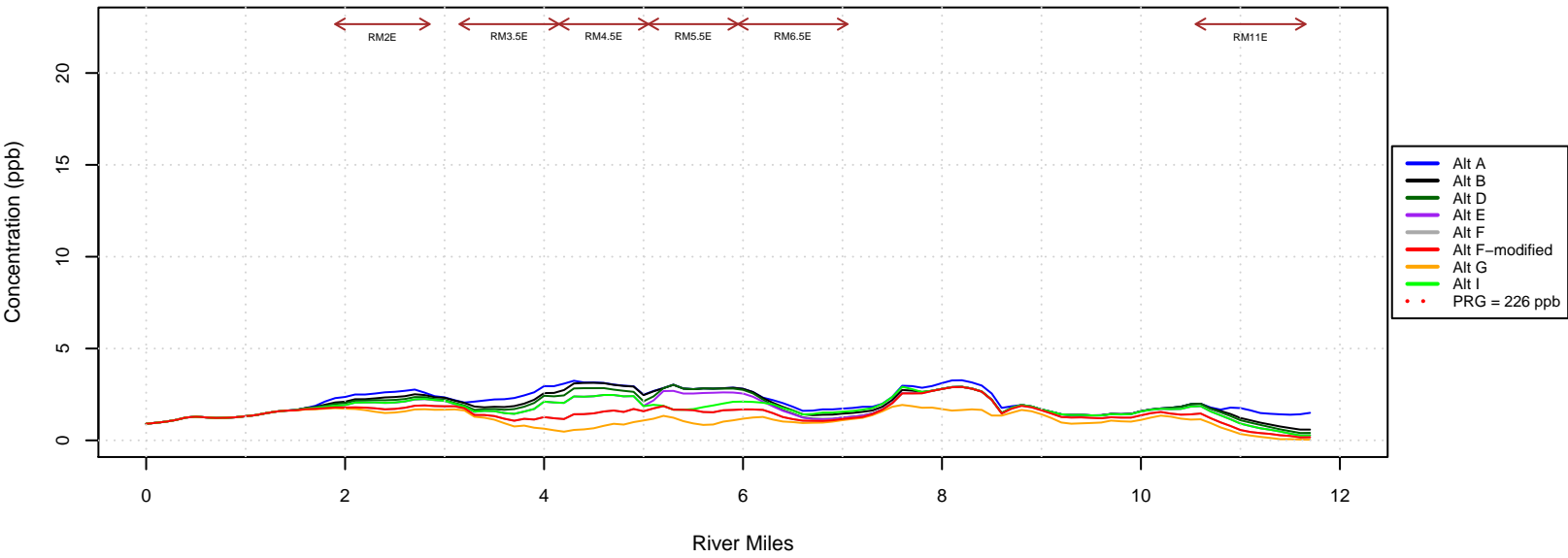


Figure D10–3b(Continued). RAO6 COC Concentration (Year 0) – DDx

Sediment Concentration for RAO 6 COC at Year 0 – DDE – Site – Rolling Avg 1 mile



Sediment Concentration for RAO 6 COC at Year 0 – DDE – East – Rolling Avg 1 mile



Sediment Concentration for RAO 6 COC at Year 0 – DDE – Nav Channel – Rolling Avg 1 mile

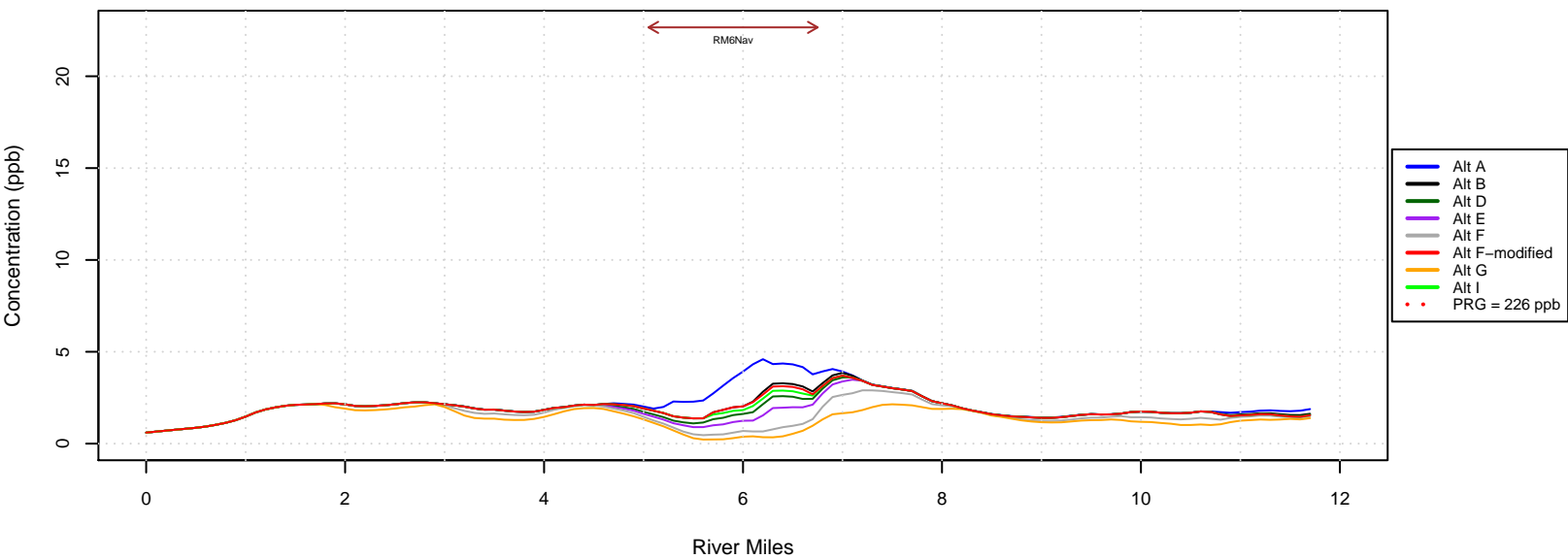
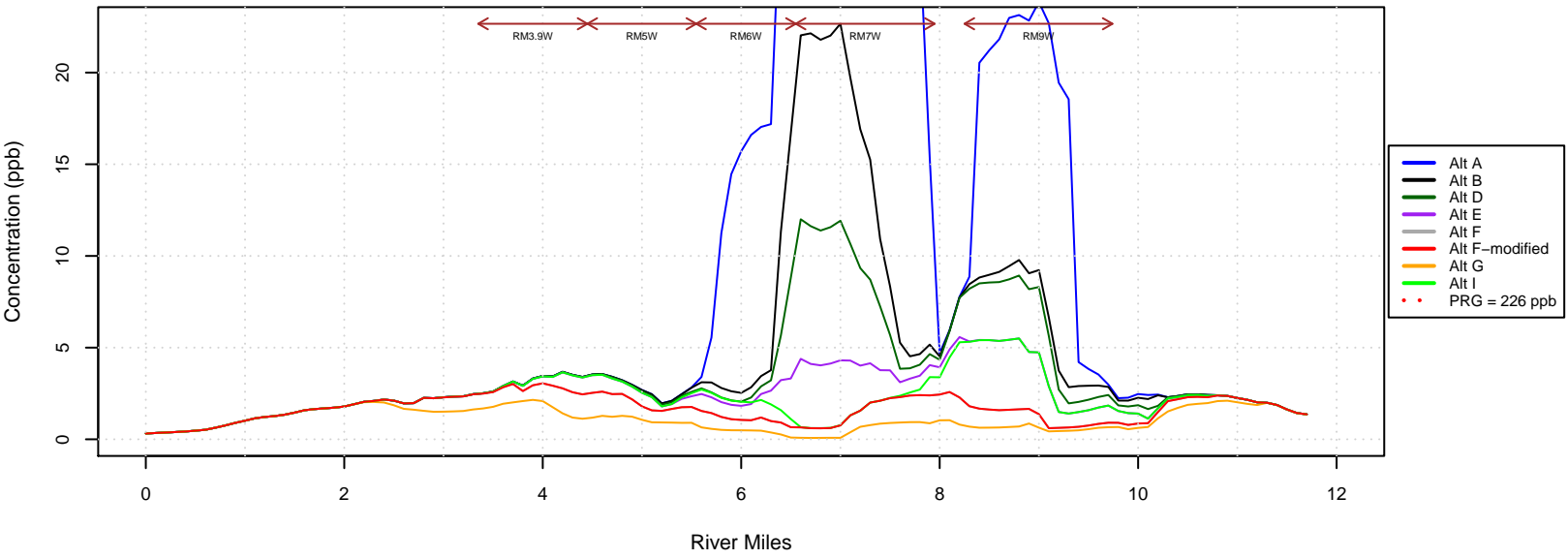


Figure D10–3c. RAO6 COC Concentration (Year 0) – DDE

Sediment Concentration for RAO 6 COC at Year 0 – DDE – West – Rolling Avg 1 mile



Sediment Concentration for RAO 6 COC at Year 0 – DDE – Swan Isl – Rolling Avg 1 mile

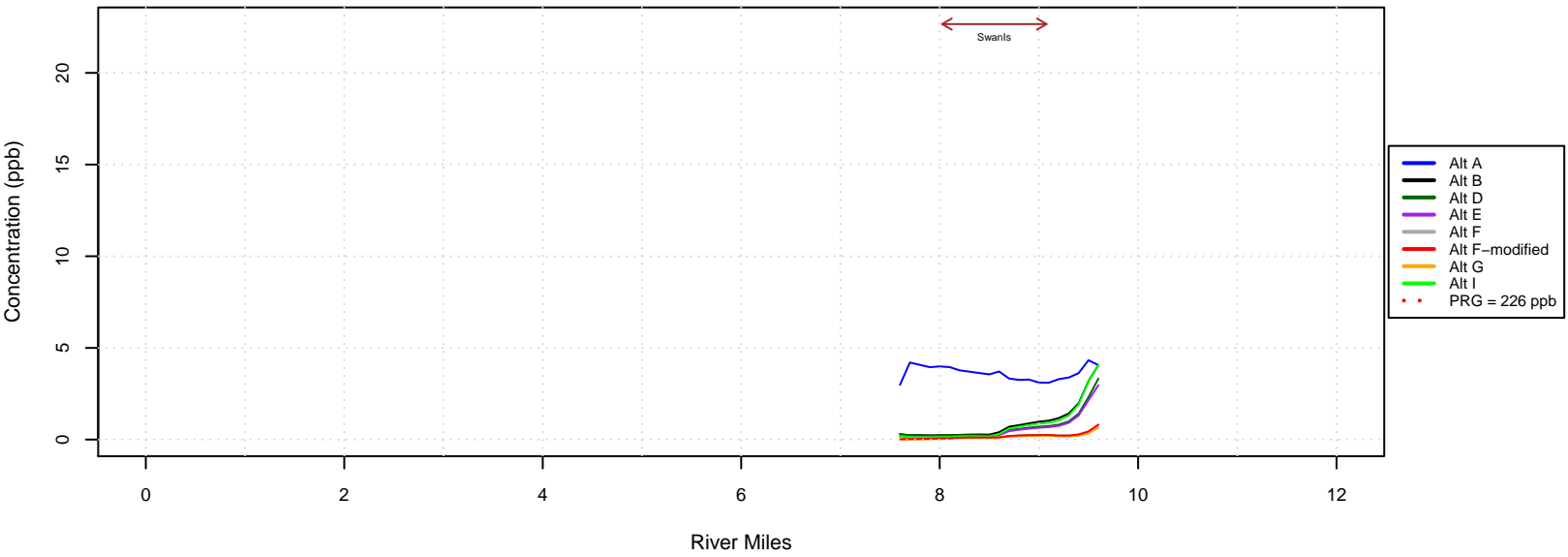
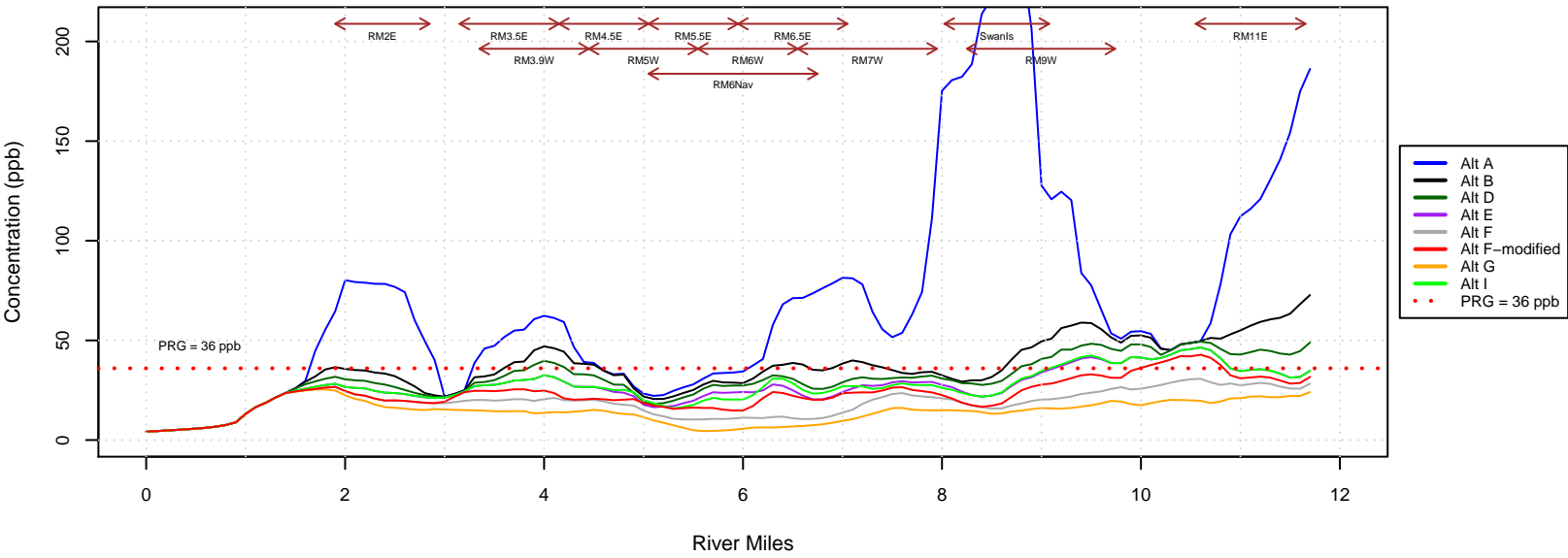


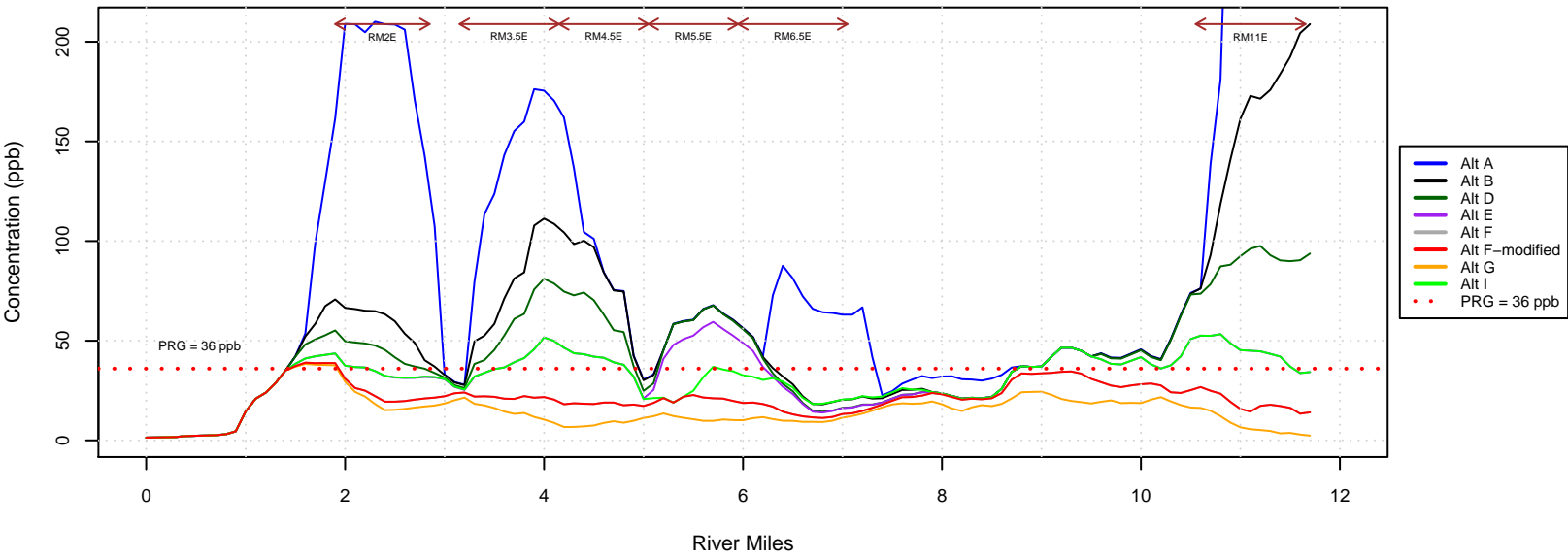
Figure D10-3c(Continued). RAO6 COC Concentration (Year 0) – DDE



Sediment Concentration for RAO 6 COC at Year 0 – PCB – Site – Rolling Avg 1 mile



Sediment Concentration for RAO 6 COC at Year 0 – PCB – East – Rolling Avg 1 mile



Sediment Concentration for RAO 6 COC at Year 0 – PCB – Nav Channel – Rolling Avg 1 mile

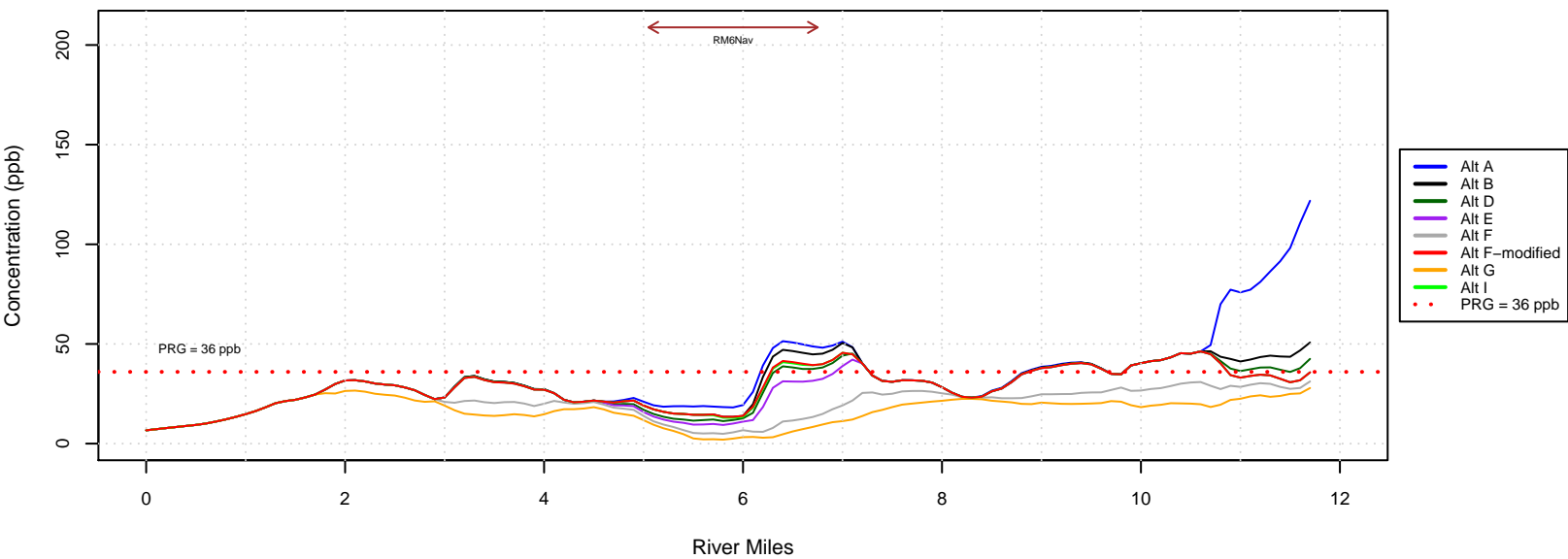
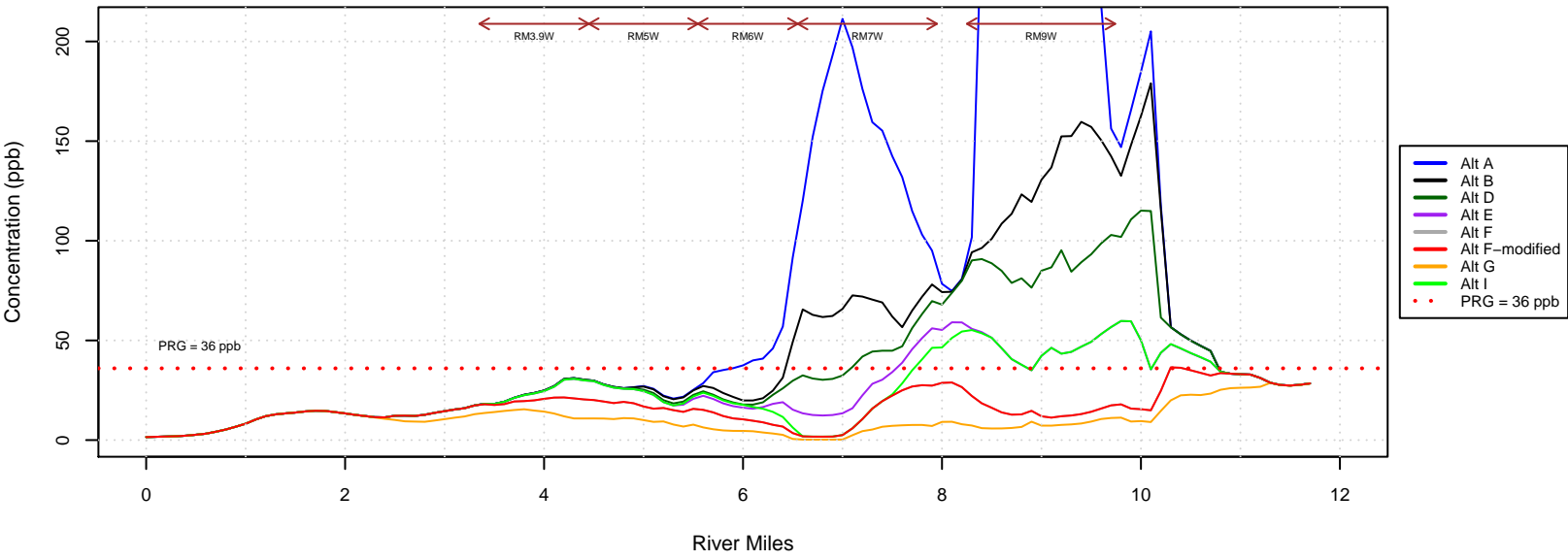
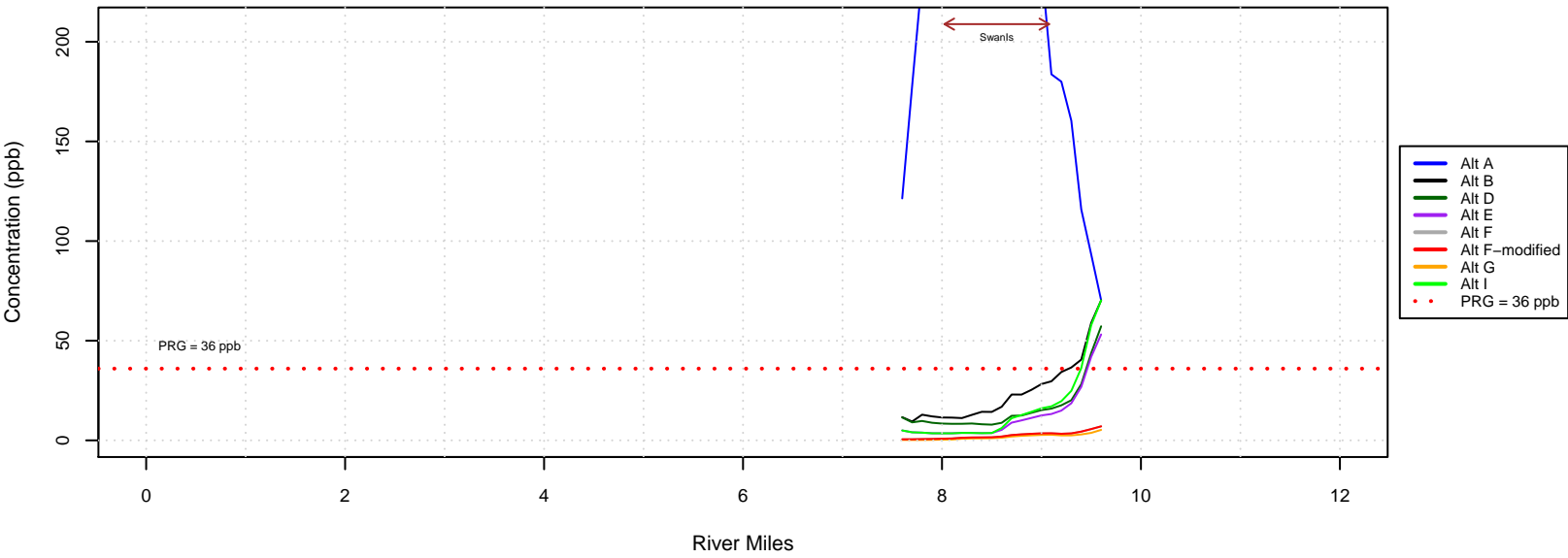


Figure D10–3d. RAO6 COC Concentration (Year 0) – PCB

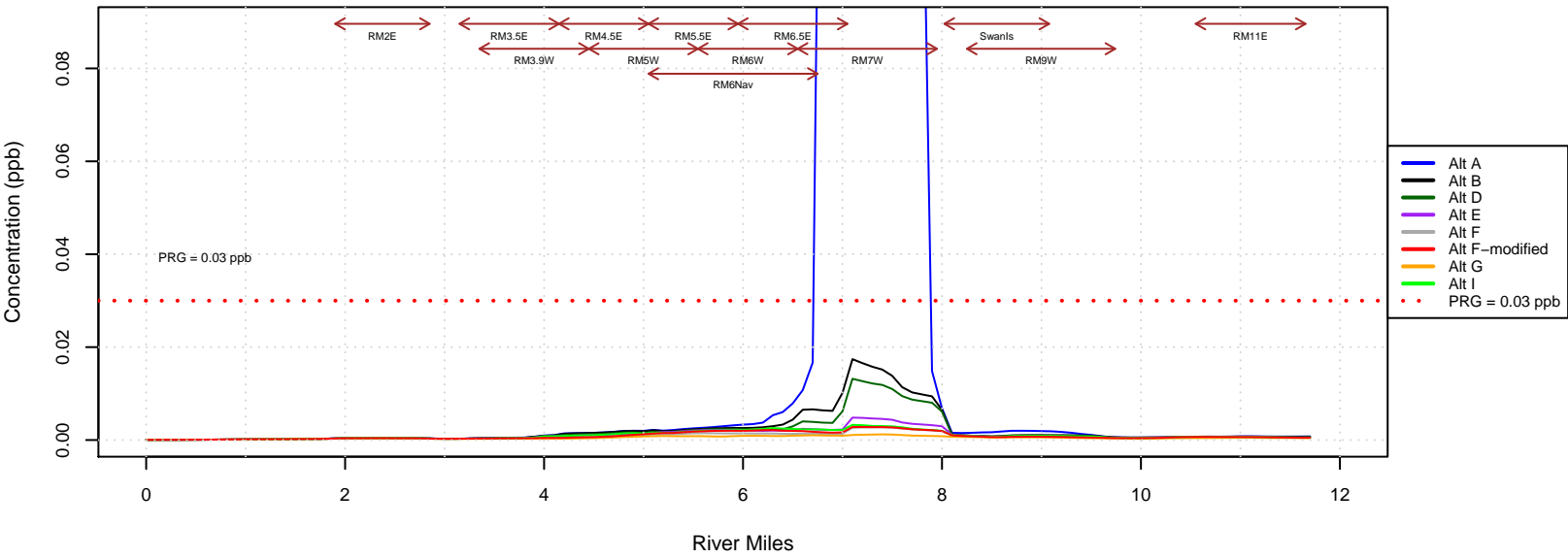
Sediment Concentration for RAO 6 COC at Year 0 – PCB – West – Rolling Avg 1 mile



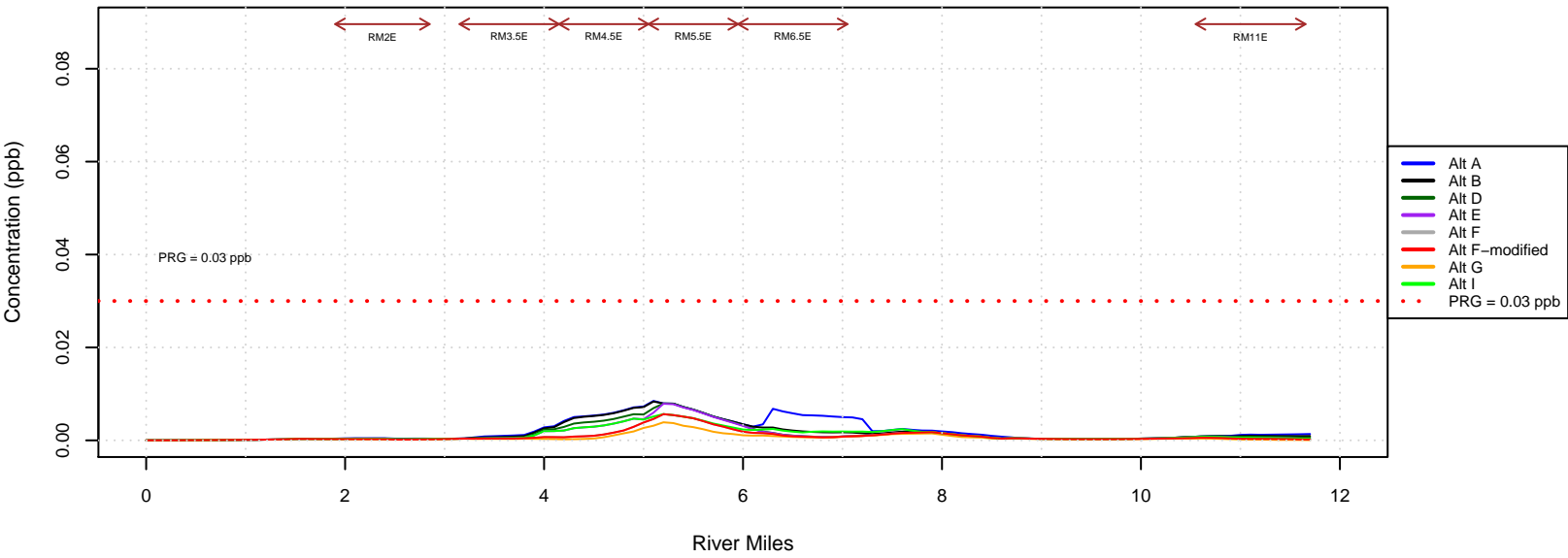
Sediment Concentration for RAO 6 COC at Year 0 – PCB – Swan Isl – Rolling Avg 1 mile



Sediment Concentration for RAO 6 COC at Year 0 – HxCDF – Site – Rolling Avg 1 mile



Sediment Concentration for RAO 6 COC at Year 0 – HxCDF – East – Rolling Avg 1 mile



Sediment Concentration for RAO 6 COC at Year 0 – HxCDF – Nav Channel – Rolling Avg 1 mile

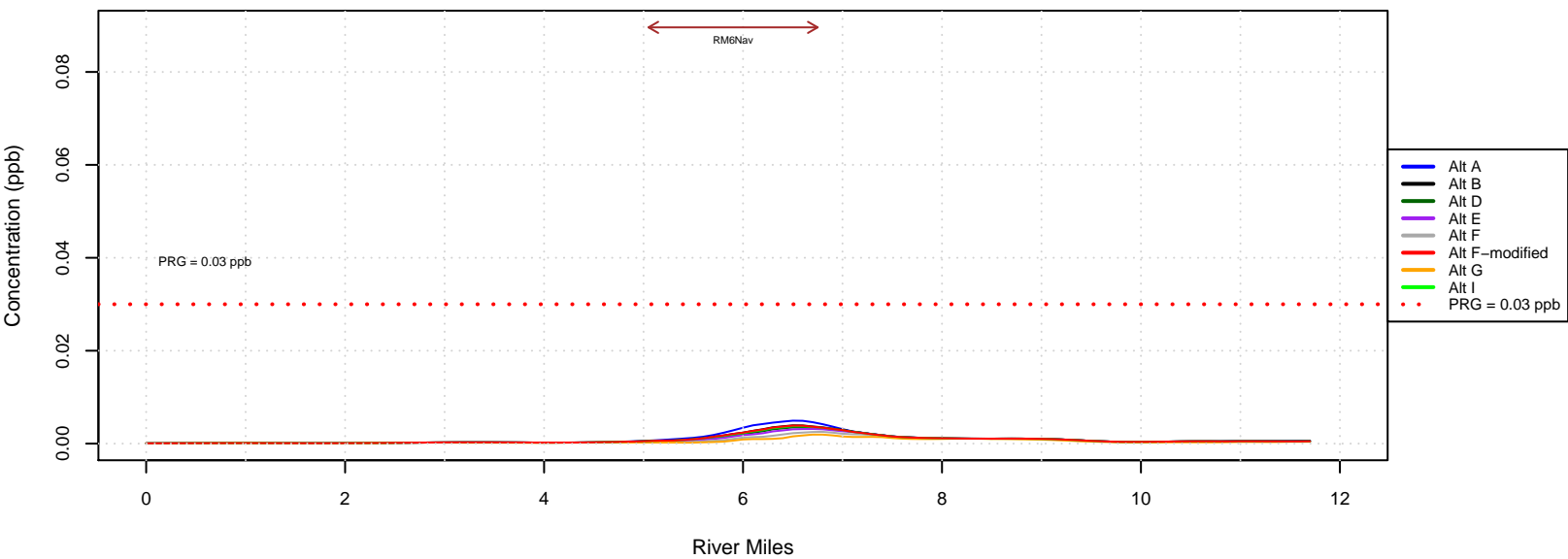
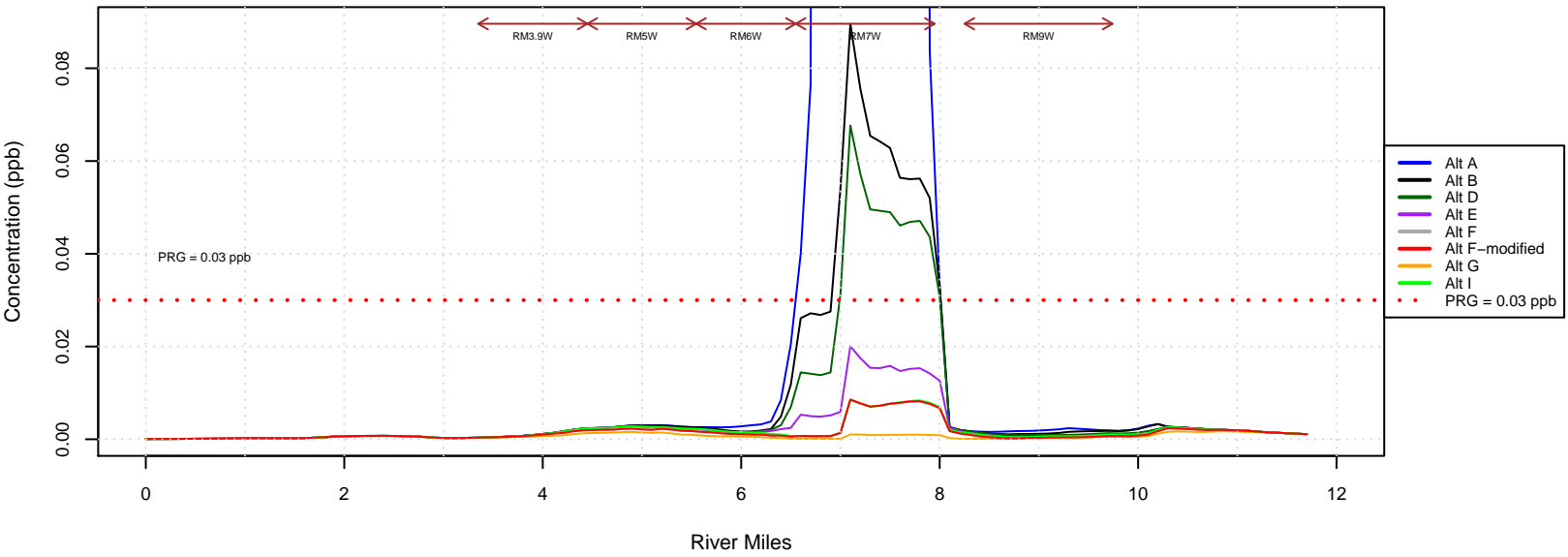
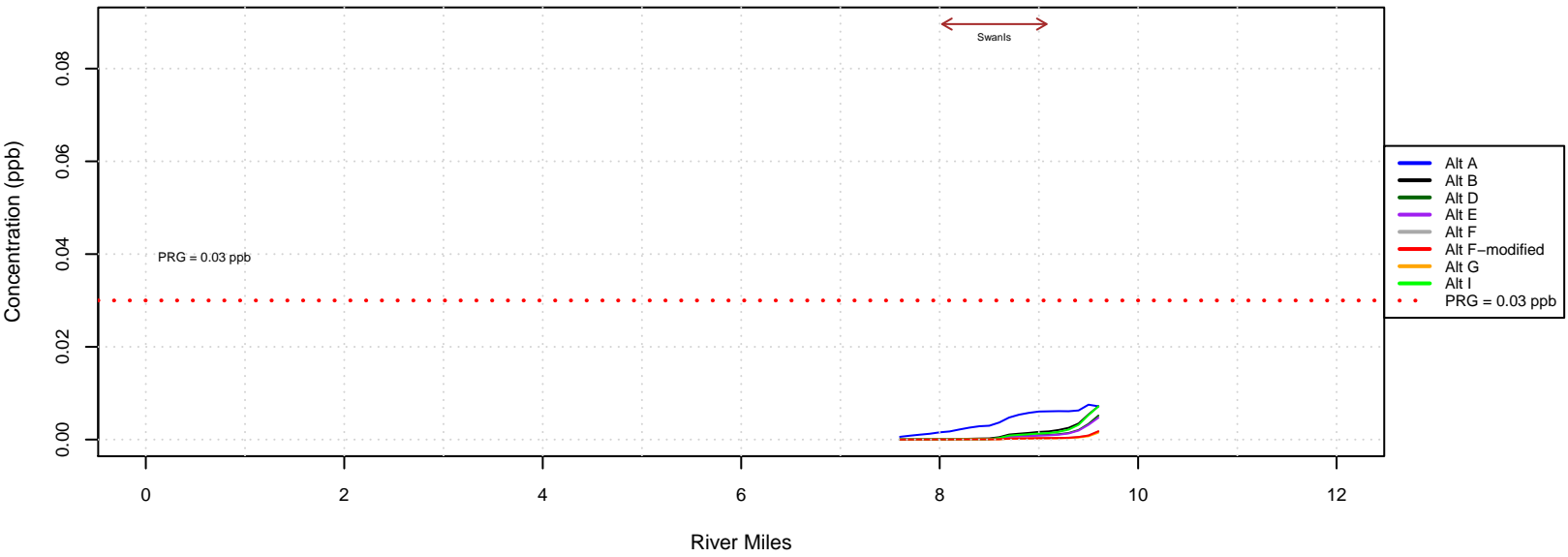


Figure D10-3e. RAO6 COC Concentration (Year 0) – HxCDF

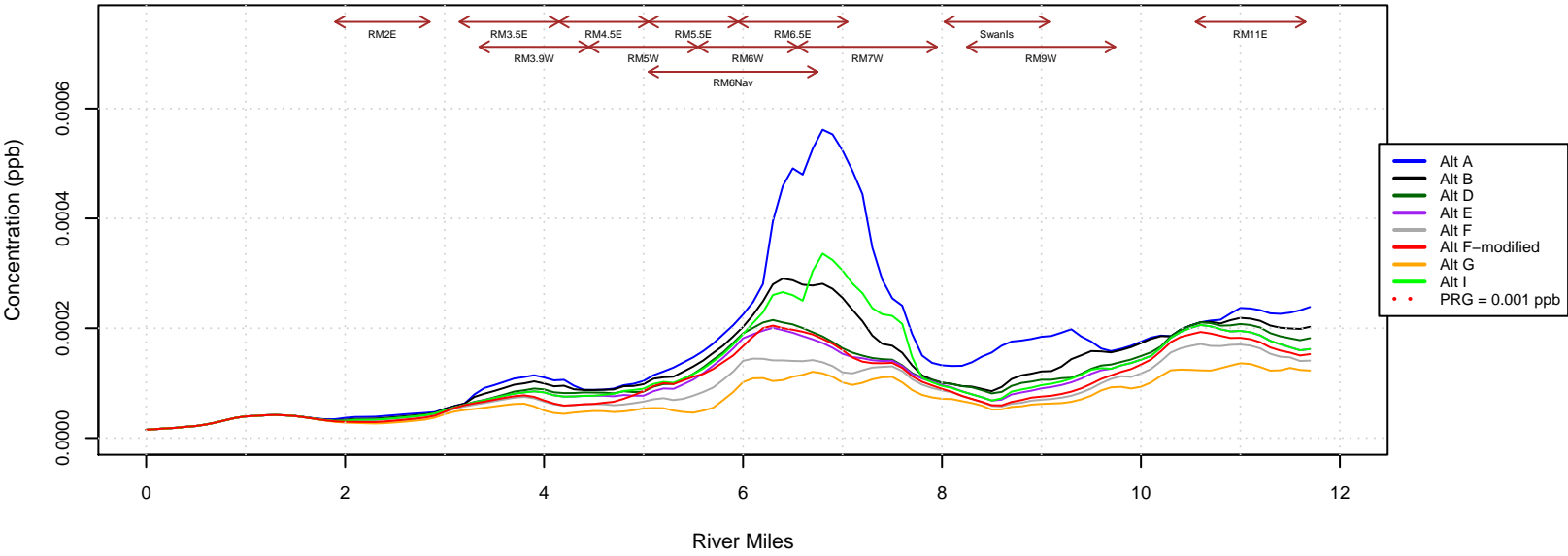
Sediment Concentration for RAO 6 COC at Year 0 – HxCDF – West – Rolling Avg 1 mile



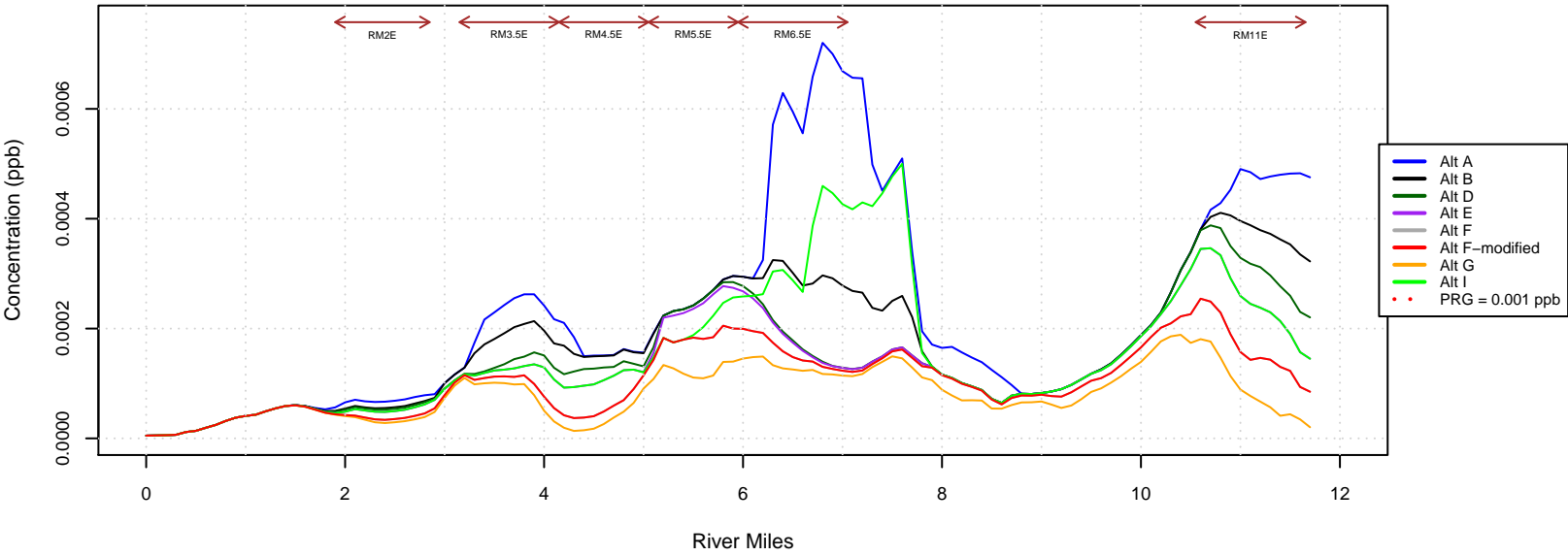
Sediment Concentration for RAO 6 COC at Year 0 – HxCDF – Swan Isl – Rolling Avg 1 mile



Sediment Concentration for RAO 6 COC at Year 0 – PeCDD – Site – Rolling Avg 1 mile



Sediment Concentration for RAO 6 COC at Year 0 – PeCDD – East – Rolling Avg 1 mile



Sediment Concentration for RAO 6 COC at Year 0 – PeCDD – Nav Channel – Rolling Avg 1 mile

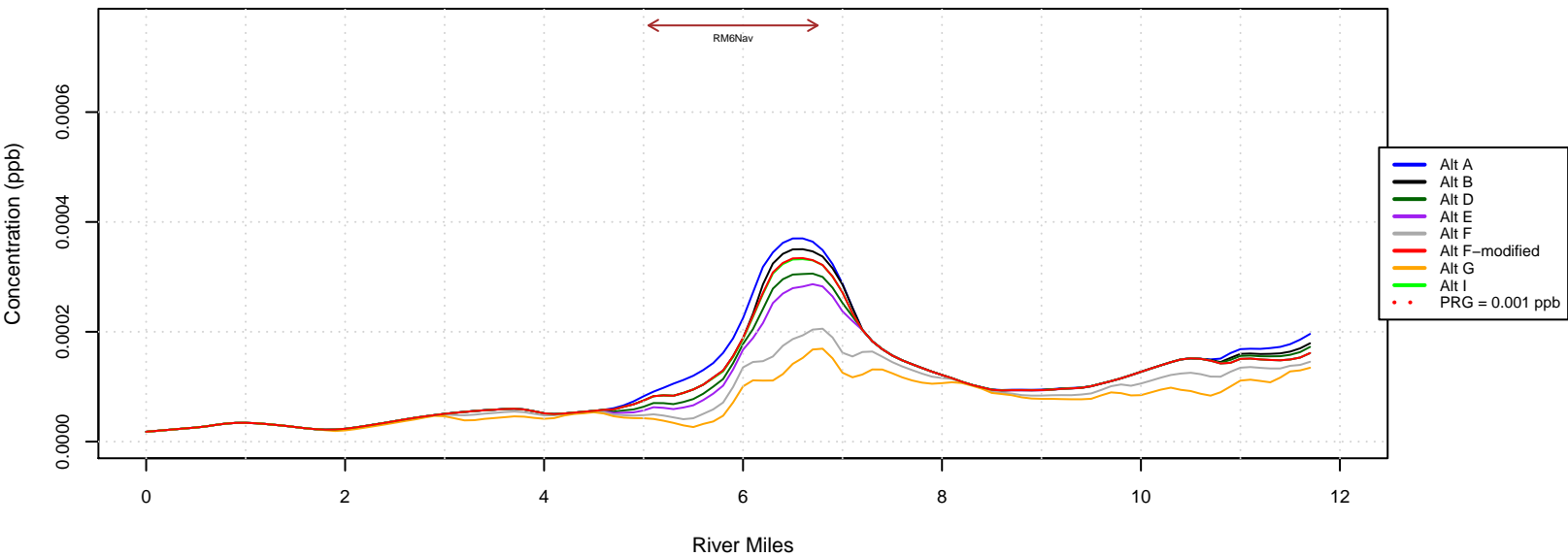
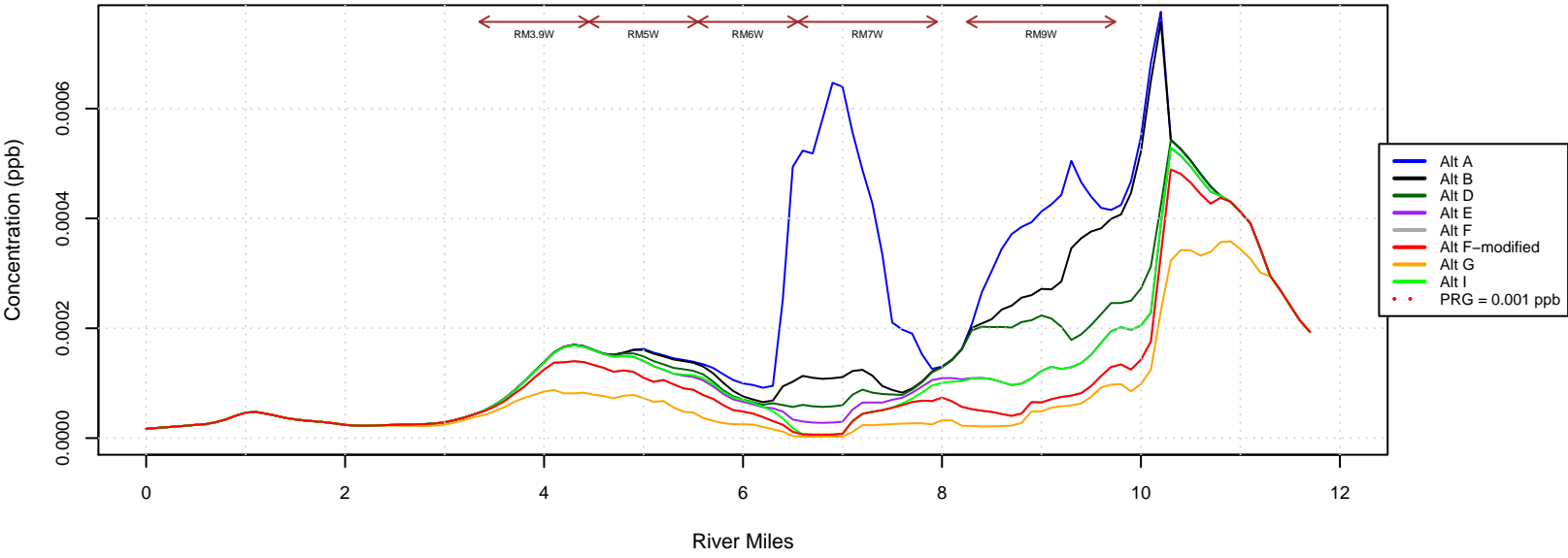
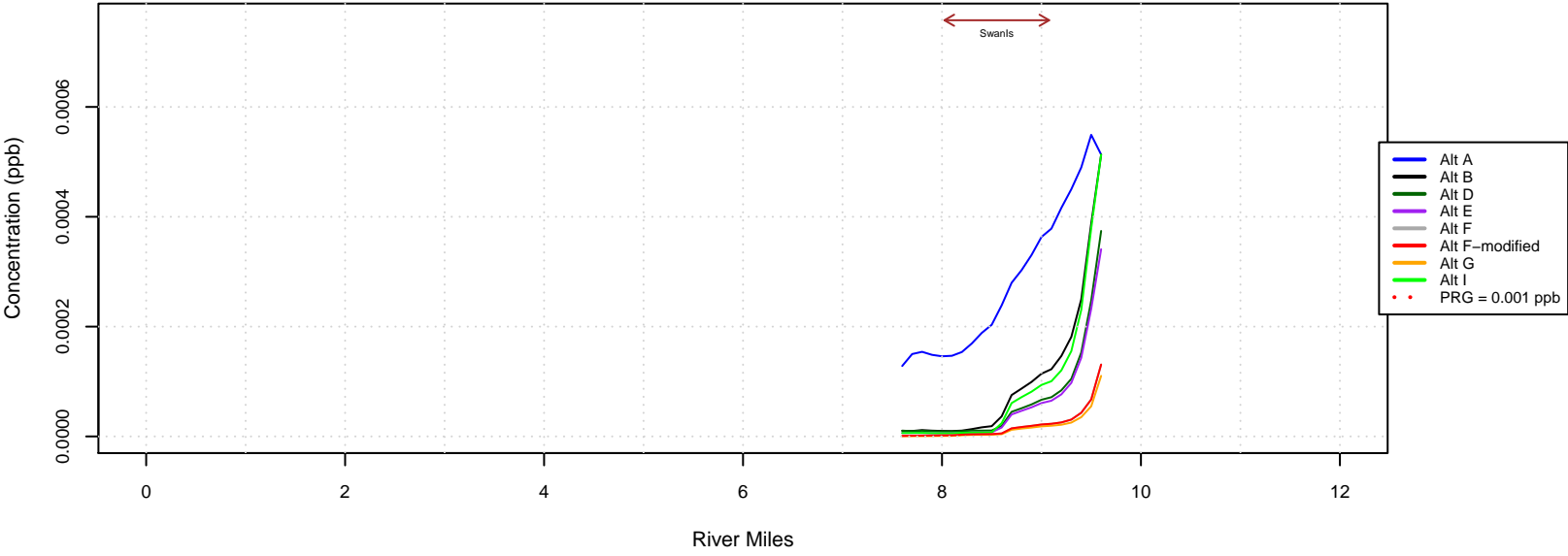


Figure D10–3f. RAO6 COC Concentration (Year 0) – PeCDD

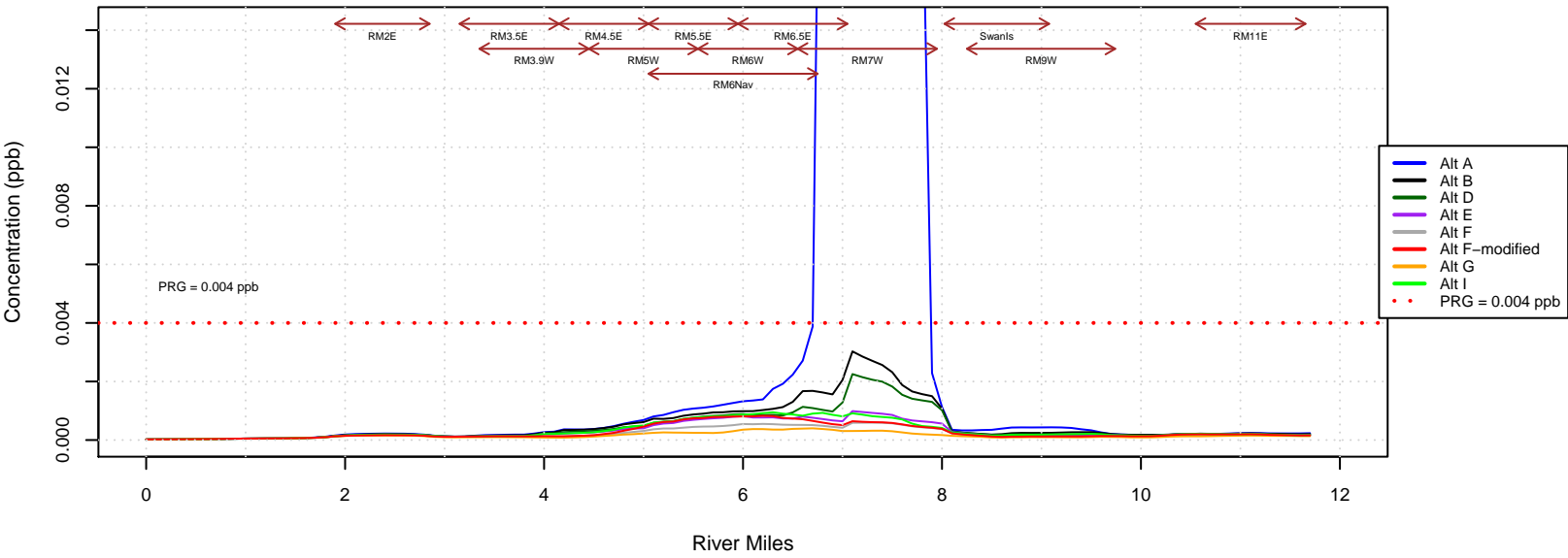
Sediment Concentration for RAO 6 COC at Year 0 – PeCDD – West – Rolling Avg 1 mile



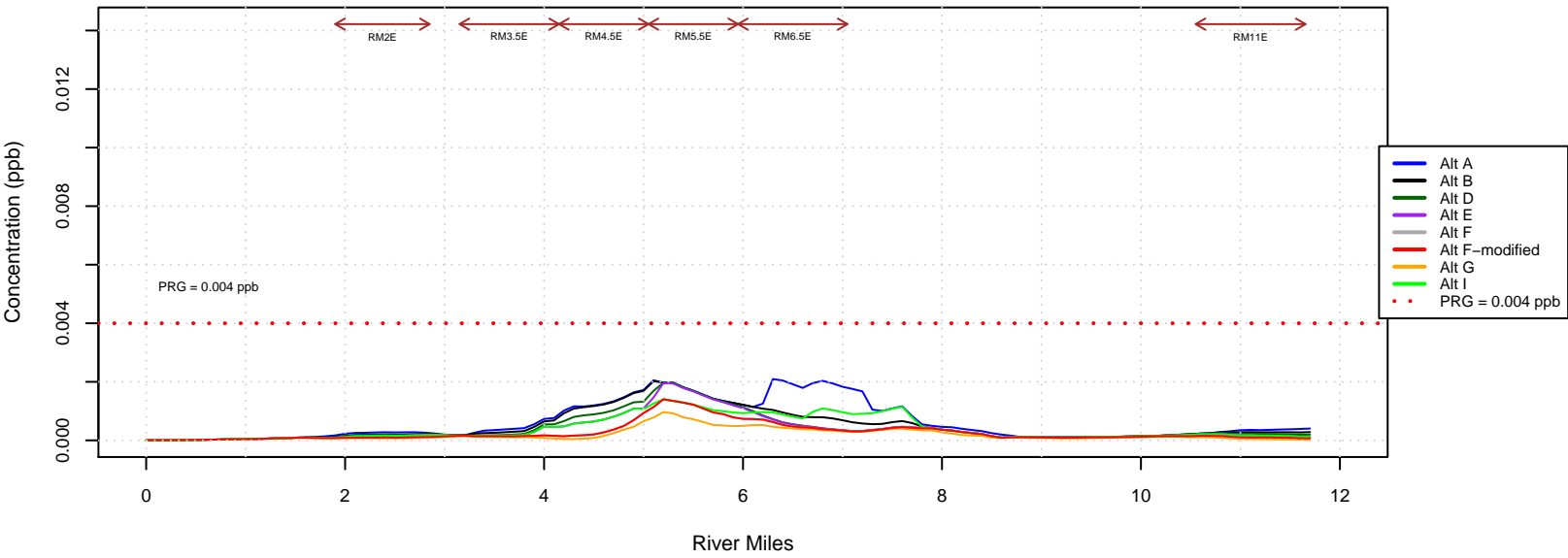
Sediment Concentration for RAO 6 COC at Year 0 – PeCDD – Swan Isl – Rolling Avg 1 mile



Sediment Concentration for RAO 6 COC at Year 0 – PeCDF – Site – Rolling Avg 1 mile



Sediment Concentration for RAO 6 COC at Year 0 – PeCDF – East – Rolling Avg 1 mile



Sediment Concentration for RAO 6 COC at Year 0 – PeCDF – Nav Channel – Rolling Avg 1 mile

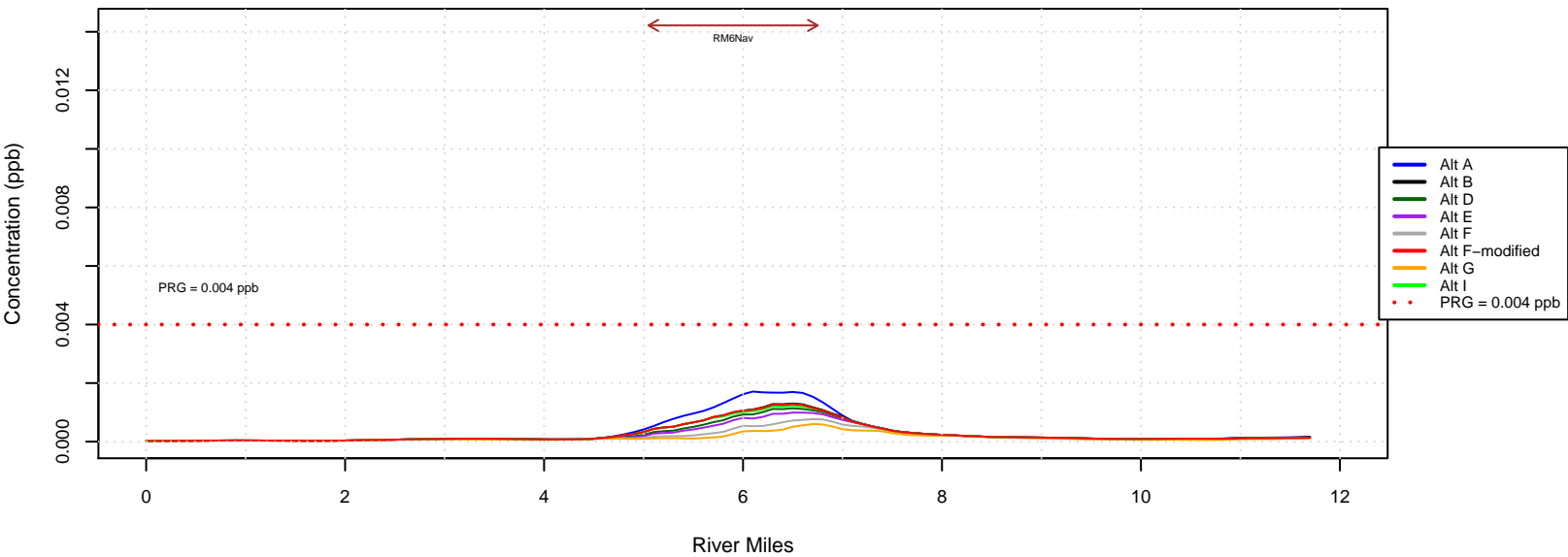
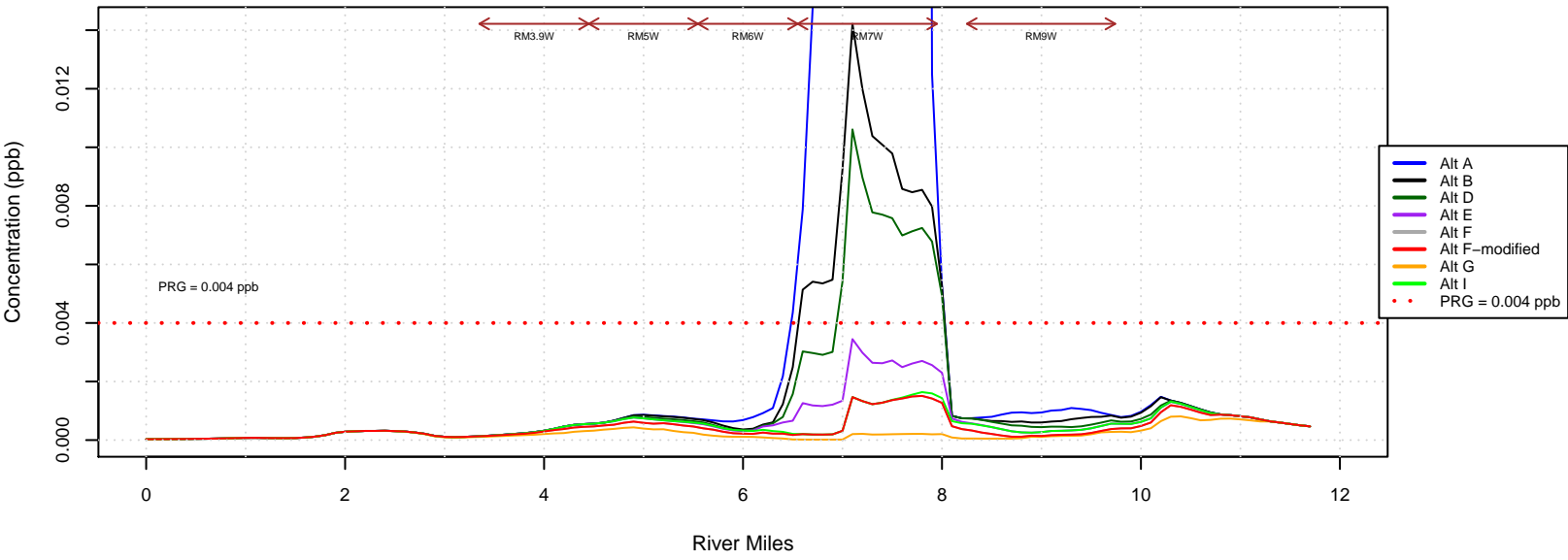
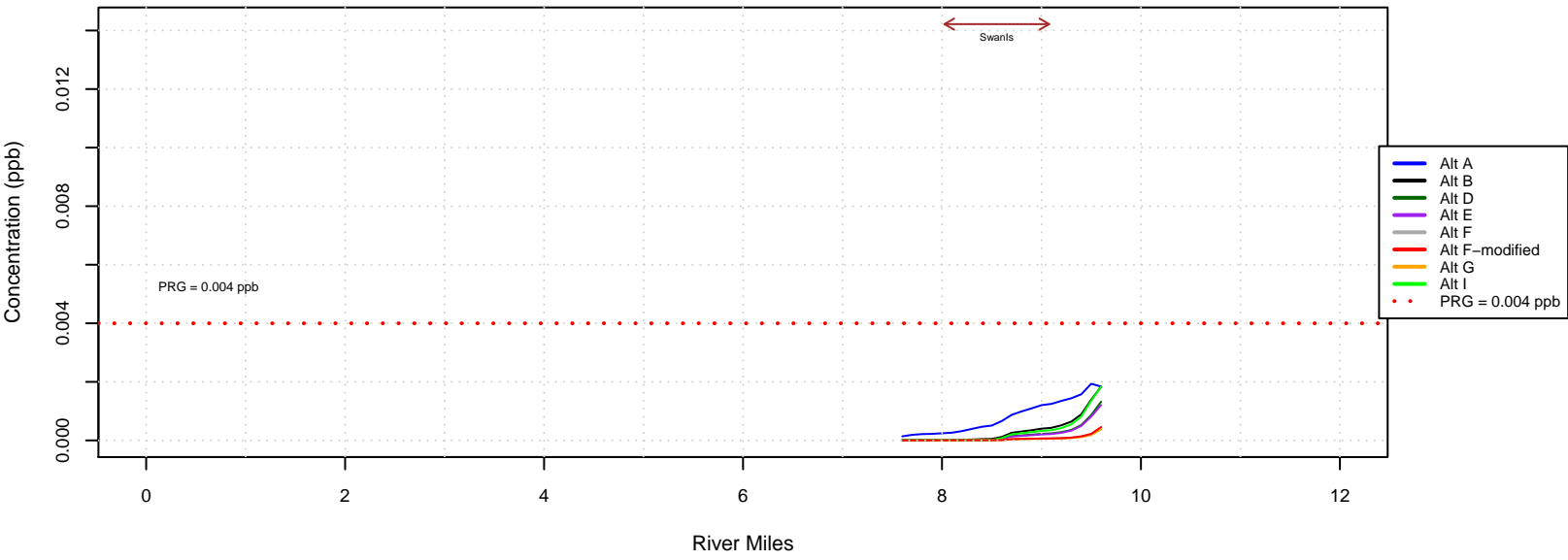


Figure D10–3g. RAO6 COC Concentration (Year 0) – PeCDF

Sediment Concentration for RAO 6 COC at Year 0 – PeCDF – West – Rolling Avg 1 mile

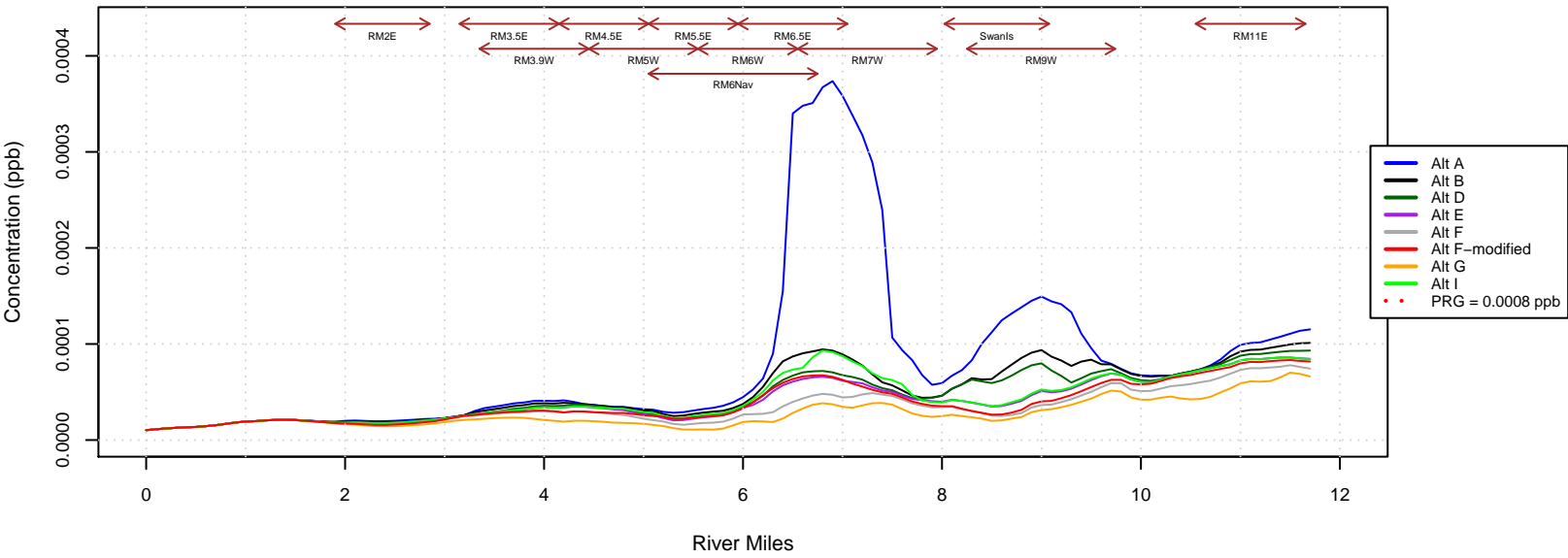


Sediment Concentration for RAO 6 COC at Year 0 – PeCDF – Swan Isl – Rolling Avg 1 mile

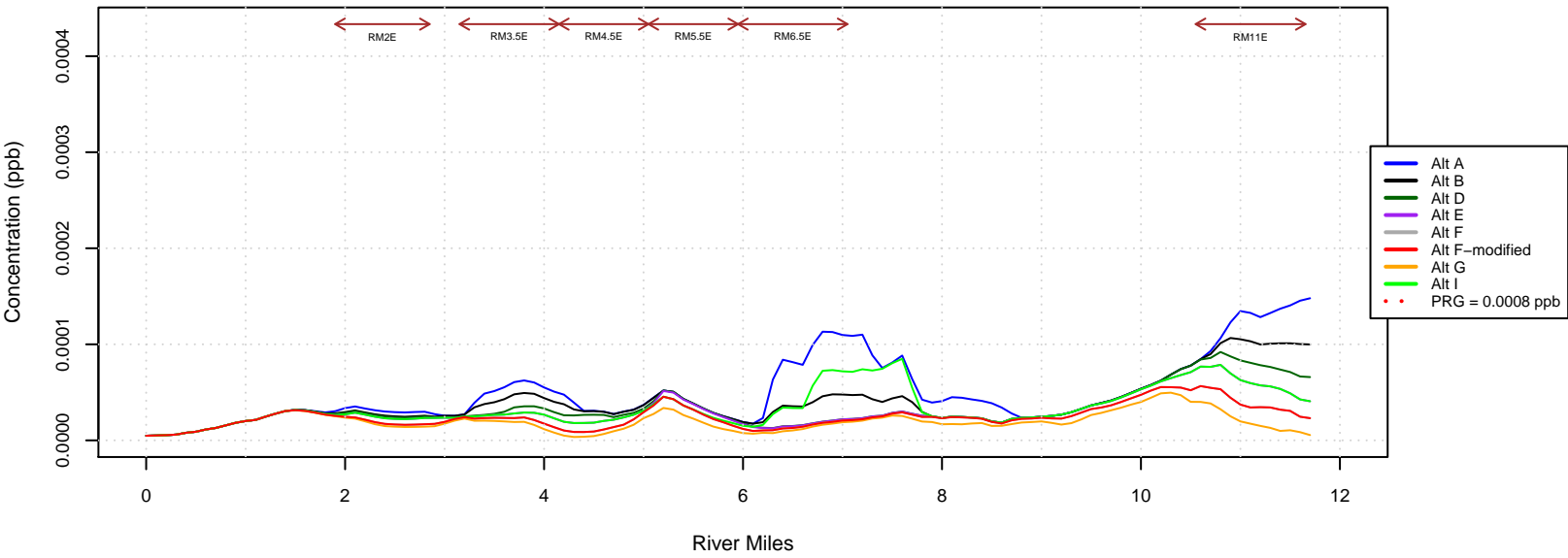




Sediment Concentration for RAO 6 COC at Year 0 – TCDD – Site – Rolling Avg 1 mile



Sediment Concentration for RAO 6 COC at Year 0 – TCDD – East – Rolling Avg 1 mile



Sediment Concentration for RAO 6 COC at Year 0 – TCDD – Nav Channel – Rolling Avg 1 mile

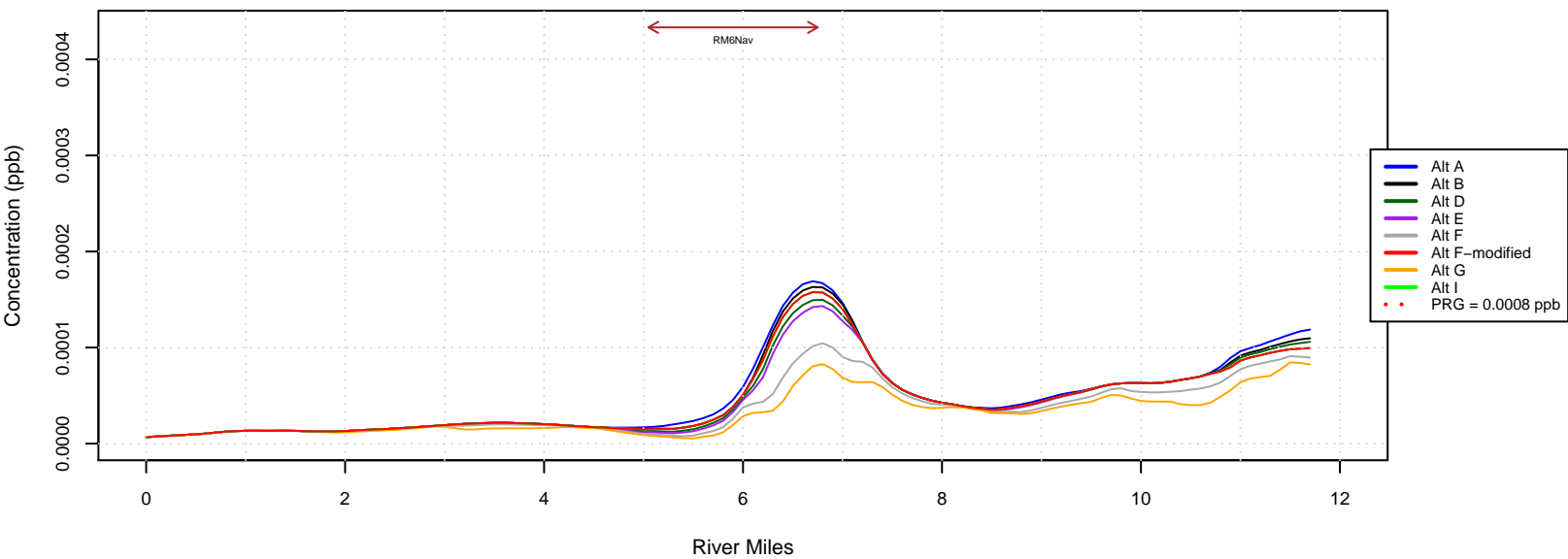
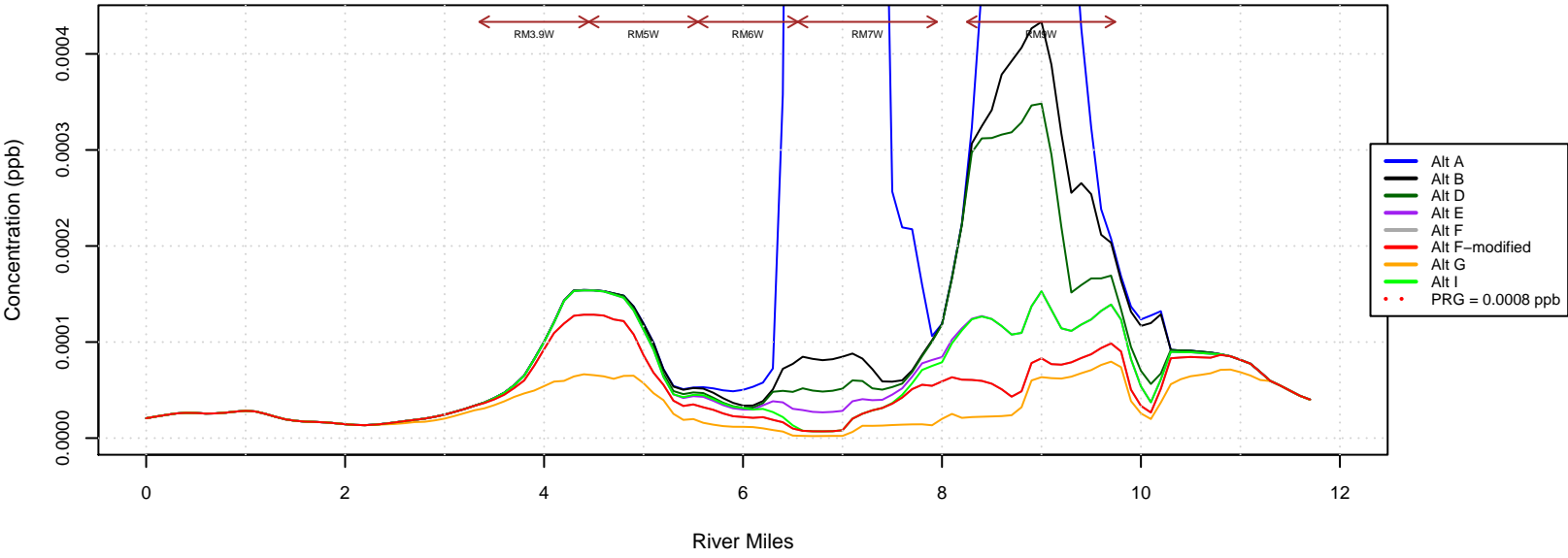
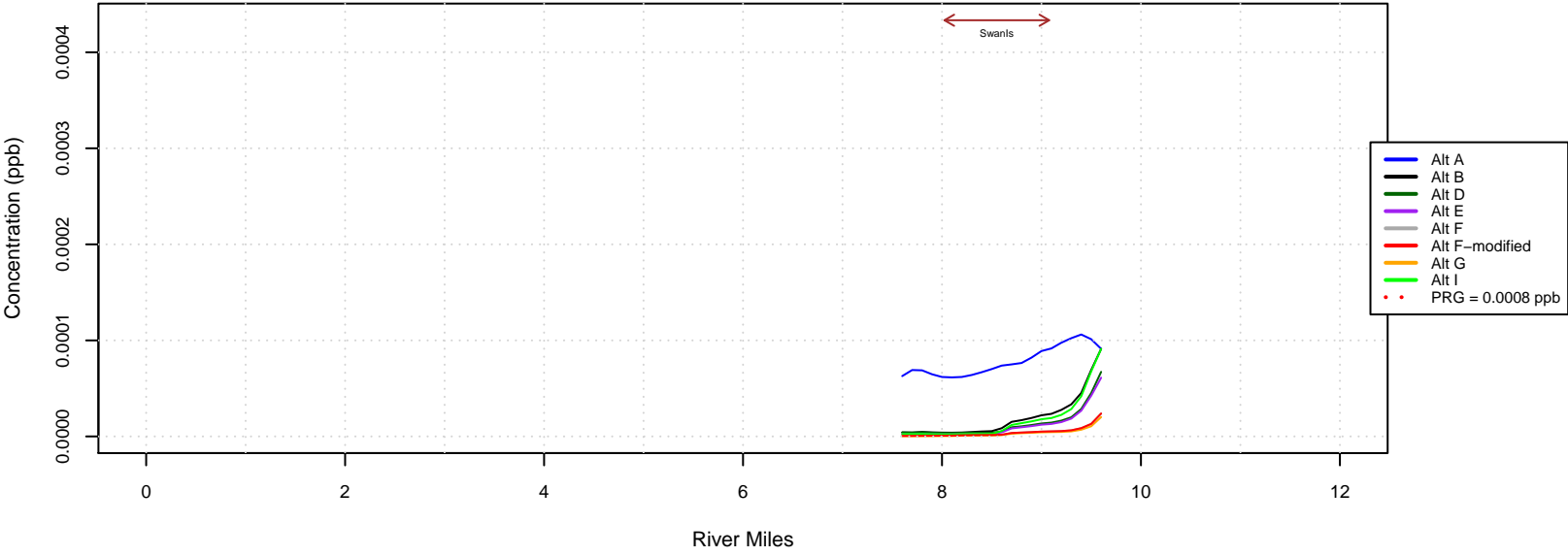


Figure D10–3h. RAO6 COC Concentration (Year 0) – TCDD

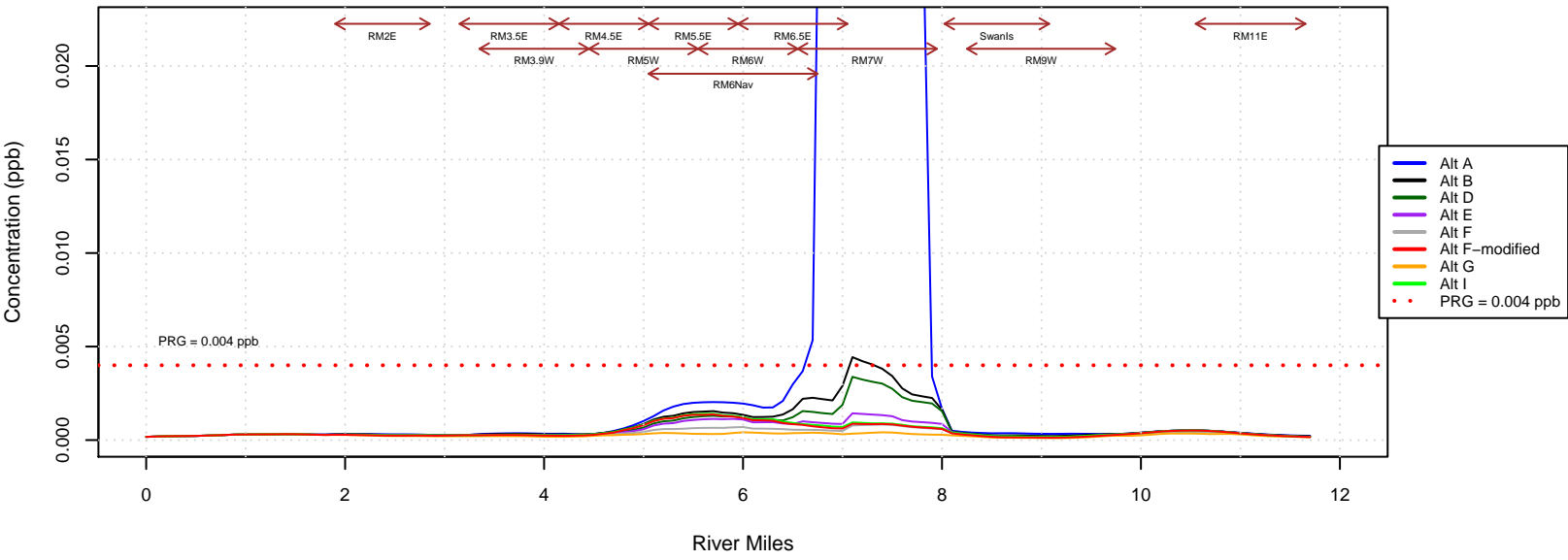
Sediment Concentration for RAO 6 COC at Year 0 – TCDD – West – Rolling Avg 1 mile



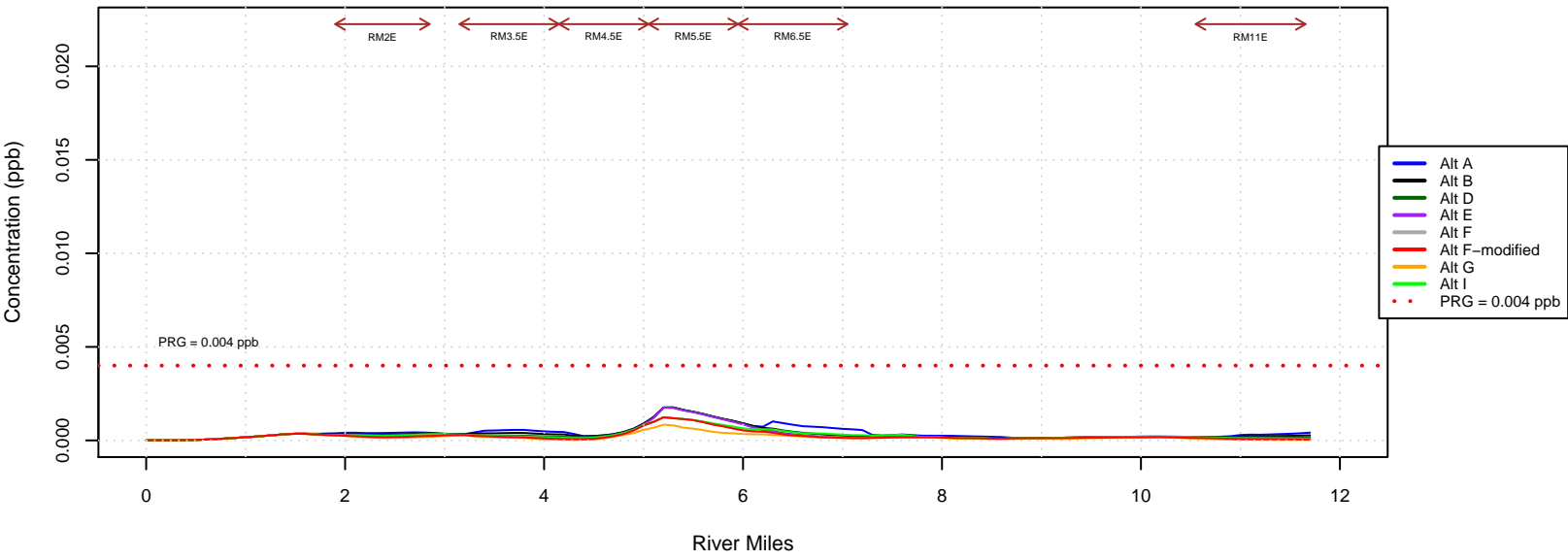
Sediment Concentration for RAO 6 COC at Year 0 – TCDD – Swan Isl – Rolling Avg 1 mile



Sediment Concentration for RAO 6 COC at Year 0 – TCDF – Site – Rolling Avg 1 mile



Sediment Concentration for RAO 6 COC at Year 0 – TCDF – East – Rolling Avg 1 mile



Sediment Concentration for RAO 6 COC at Year 0 – TCDF – Nav Channel – Rolling Avg 1 mile

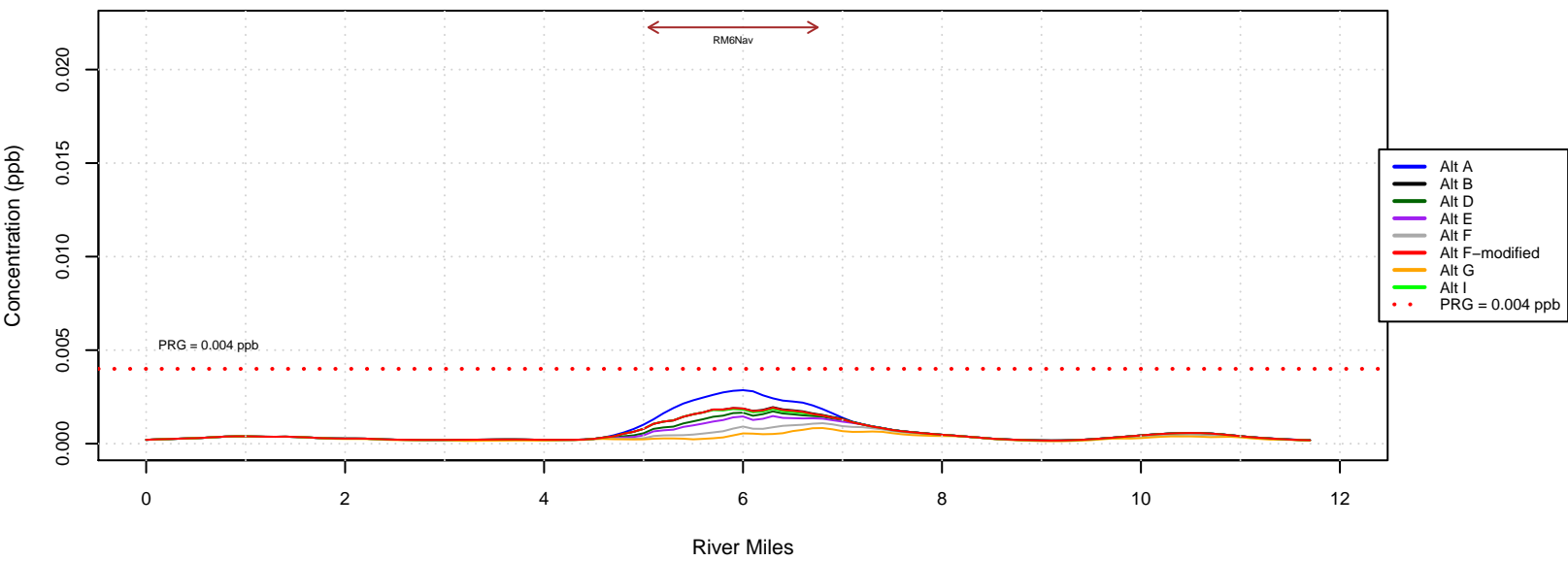
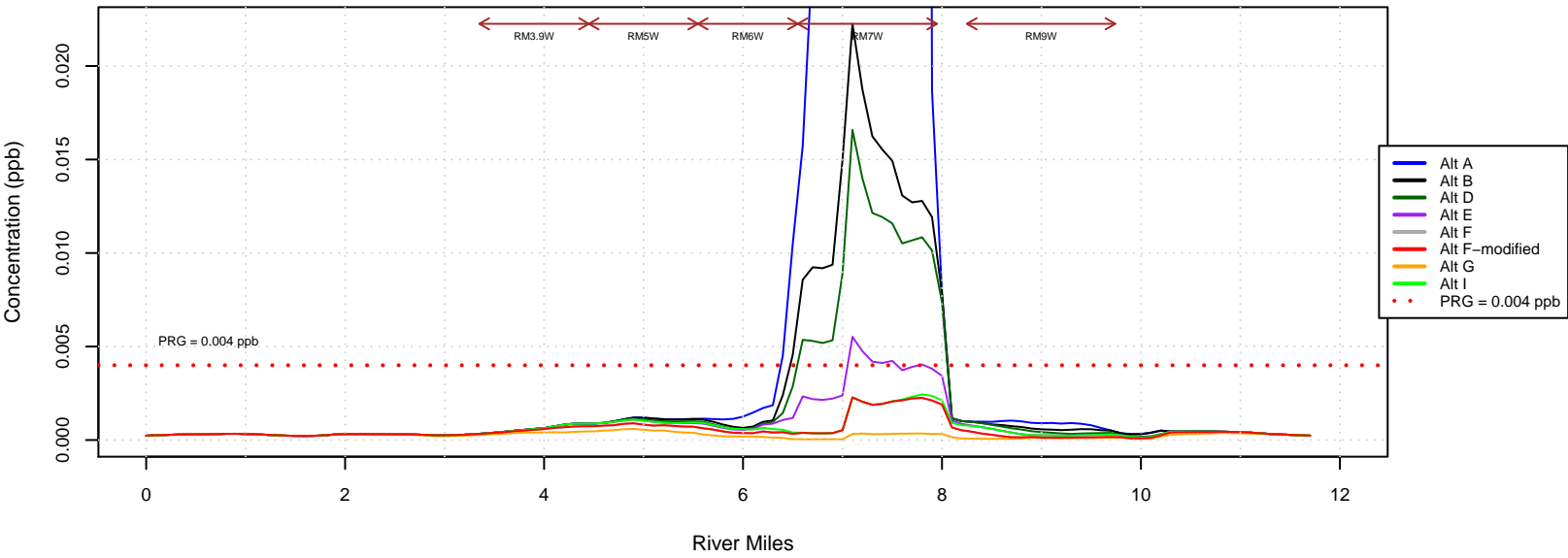
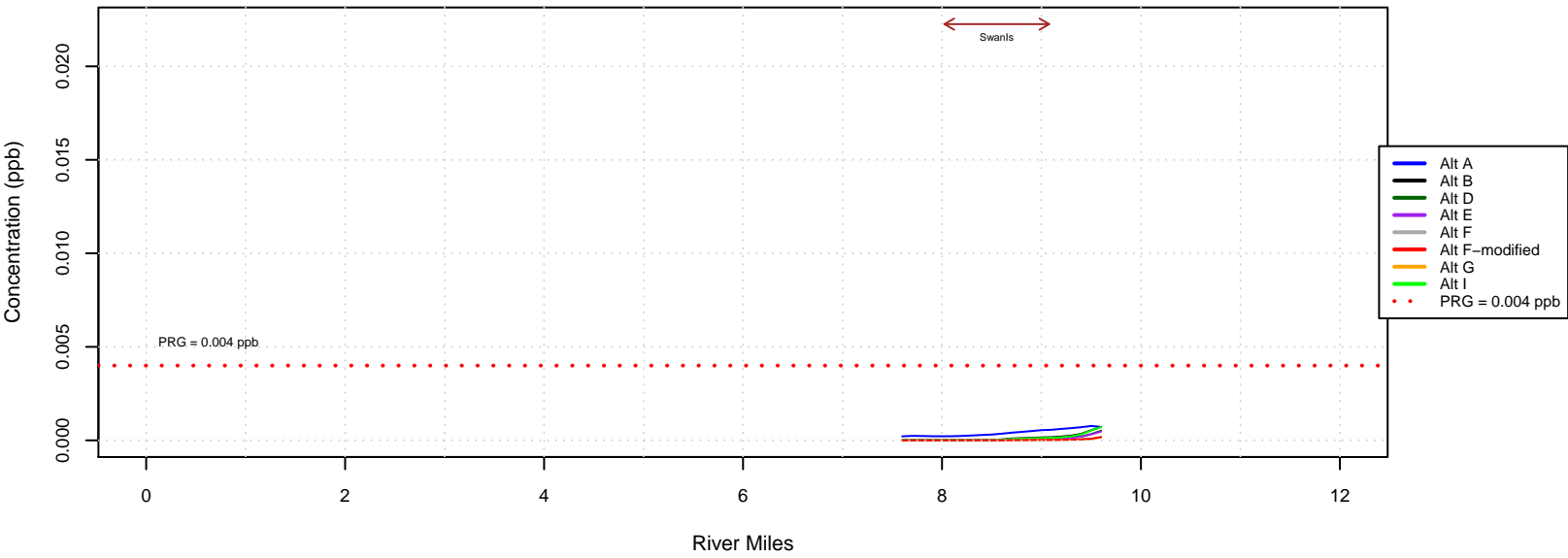


Figure D10-3i. RAO6 COC Concentration (Year 0) – TCDF

Sediment Concentration for RAO 6 COC at Year 0 – TCDF – West – Rolling Avg 1 mile



Sediment Concentration for RAO 6 COC at Year 0 – TCDF – Swan Isl – Rolling Avg 1 mile



PORTLAND HARBOR RI/FS  
**APPENDIX G - UPDATE**  
**Detailed Analysis Cost Estimate**

# Memorandum

To: U.S. Environmental Protection Agency (EPA) Administrative Record

From: EPA Team

Date: November 16, 2016

Subject: Methodology and Organization of Selected Remedy Cost Estimate, Record of Decision, Portland Harbor Superfund Site

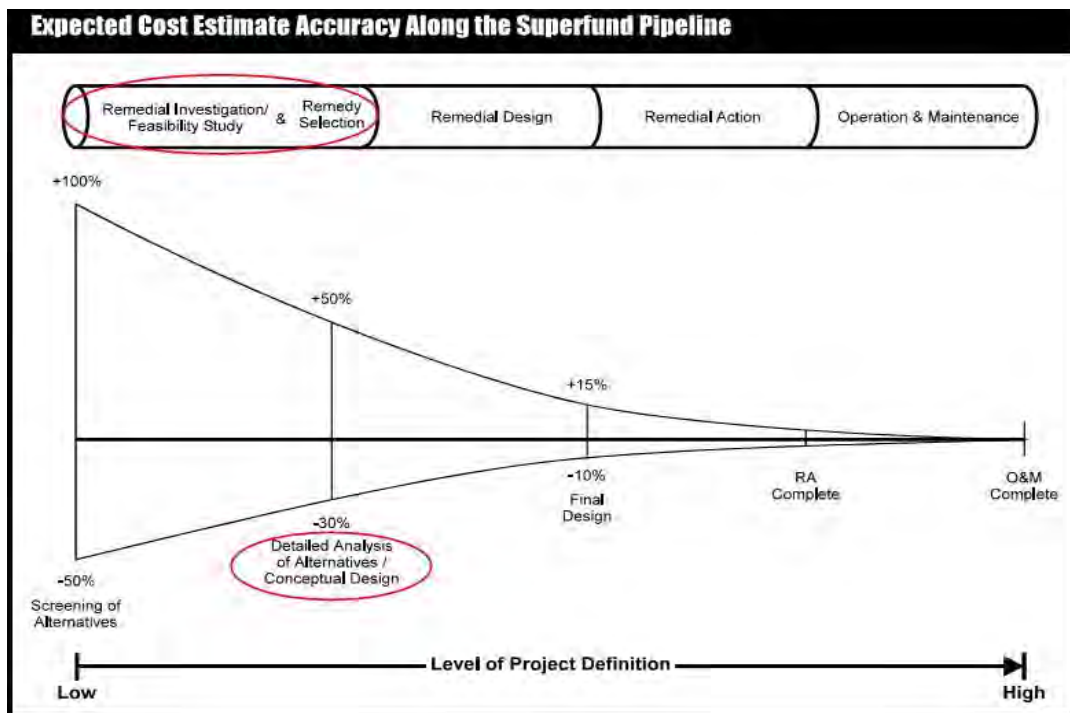
## Introduction

The EPA Record of Decision (ROD) Team has been tasked to develop a ROD cost estimate for Alternative F Modified (selected remedy) as part of the ROD for the Portland Harbor Superfund Site (herein referred to as "ROD cost estimate"). The ROD cost estimate is based on the scope of the selected remedy as presented in the ROD.

## Purpose and Accuracy of ROD Selected Remedy Cost Estimate

The ROD cost estimate was developed to support remedy selection, not to establish project budgets or negotiate Superfund settlements. At the ROD stage of the project, the "design" for the remedial action as represented by the selected remedy is still conceptual, not detailed, and the cost estimate is considered to be "order-of-magnitude".

Exhibit 1. Expected Cost Estimate Accuracy Along the Superfund Pipeline (EPA 2000)



The information provided in the cost estimate is based on the best available information regarding the anticipated scope of the selected remedy. As described in *A Guide to Developing and Documenting Cost Estimates During the Feasibility Study* (EPA 2000), this level of cost estimate is expected to have an accuracy between -30% to +50% of actual cost, based on the scope presented in the ROD. **Exhibit 1** illustrates the relationship between level of alternative scope definition and related accuracy as a typical project progresses through the CERCLA process.

## Generalized Scope of Selected Remedy

The selected remedy presented in the ROD includes the following primary scope elements to address contaminated sediment and riverbank soils as presented in the ROD text:

- Technology assignments
  - capping (several types depending on location and conditions)
  - dredging/excavation and related transportation/disposal
  - enhanced natural recovery (ENR)
- Monitored natural recovery (MNR)
- Institutional controls
- Monitoring and maintenance of remedy components (technology assignments as well as ICs) and five year site reviews

Other secondary elements of this scope include but are not limited to erosion/sedimentation best management practices and mitigation.

Transportation and disposal of dredged/excavated materials is a significant consideration that affects the overall costs of the selected remedy. As discussed in the text of the ROD, EPA selected offsite disposal for the selected remedy (i.e. confined disposal facility (CDF) disposal as indicated in the Proposed Plan was not selected).

The primary variable scope item between alternatives for off-site disposal is the type of facility used for off-site disposal of dredged/excavated contaminated sediments and riverbank soils and whether ex situ treatment is required prior to disposal. There are a number of complicating factors that can affect this decision such as presence of listed or characteristic RCRA hazardous waste, state hazardous waste (such as DDx), and designation of ex situ treatment principal threat waste (PTW) (i.e. not reliably contained [NRC]/non-aqueous phase liquid [NAPL] PTW). Assumptions for material management and disposal of dredged/excavated materials are consistent with the ROD text. In addition, the off-site facilities have the right to accept or reject the wastes proposed for disposal based on acceptance criteria.

The following assumptions were made for purposes of the ROD cost estimate with respect to management, disposal, and ex situ treatment (if needed) at off-site facilities:

- Contaminated materials designated for the Subtitle C/TSCA facility need to be sufficiently managed through pre-treatment (dewatering and/or amendment with diatomaceous earth) to pass the paint filter test.

- Contaminated materials designated for the Subtitle D facility need to be sufficiently managed through pre-treatment (dewatering assumed with diatomaceous earth) to minimize free liquids.
- All NRC/NAPL PTW will be disposed of at the representative Subtitle C/TSCA facility. Treatment assumptions prior to disposal at Subtitle C/TSCA facility were broken down by which of the two areas the NRC/NAPL PTW originated from (Area 6W or Area 7W).
- All NRC/NAPL PTW originating from Area 6W is assumed to undergo ex-situ solidification treatment (using quicklime) prior to disposal at the Subtitle C/TSCA facility.
- For NRC/NAPL PTW originating from Area 7W, one-third will undergo ex-situ solidification treatment (using quicklime) prior to disposal, one-third is assumed to undergo ex-situ low temperature thermal desorption treatment prior to disposal, and the remaining one-third is assumed to not require treatment prior to disposal at the Subtitle C/TSCA facility.
- Ex-situ stabilization/solidification will consist of quicklime amendment on the barge prior to transportation offsite for disposal.
- Ex-situ low temperature thermal desorption will be performed offsite at the Subtitle C/TSCA facility prior to disposal.
- All other contaminated sediment and riverbank soils designated for off-site disposal is assumed to be disposed of at the representative Subtitle D facility.
- No treatment will be performed for contaminated sediment and riverbank soils designated for the Subtitle D facility as they are assumed to have waste classifications and contaminant concentrations when generated that are acceptable to the facility.

Several modes of transport (truck, rail, and barge) are available for disposal of contaminated sediments and riverbank soils. After discussions with the representative Subtitle C/TSCA disposal facility (Chemical Waste Management of the Northwest) and the representative Subtitle D facility (Roosevelt Regional), the following assumptions were made for purposes of the ROD cost estimate with respect to transport methods for disposal at off-site facilities:

- Transport of contaminated sediment/riverbank soils to the Subtitle C/TSCA facility is assumed to be by barge. The representative facility's opinion is that barge transportation will have a cost similar to rail or trucking. For costing purposes, transloading was assumed to occur at the Port of Morrow, near Boardman, Oregon, followed by truck transportation from the Port of Morrow to the Subtitle C/TSCA facility.
- Transport of contaminated sediment/riverbank soils for off-site disposal at the Subtitle D facility is assumed to be by barge. The representative facility's opinion is that for their facility barge transport will have a cost representative of other transportation methods, and they provided unit costs for transloading at an off-site facility and truck transportation from the transload facility to the Subtitle D facility.

The selected remedy includes the work activities listed as follows.

***Major Work Activities Costed for Selected Remedy:***

1. Implementation of institutional controls



2. Mobilization/demobilization
3. Debris removal and disposal from dredge/excavation areas
4. Obstruction (i.e. structure and utility) removal and relocation from dredge/excavation areas
5. Dredging of contaminated sediments (both open water and confined dredging)
6. Excavation of riverbank materials (assumed for cost estimating purposes to be from barges)
7. Development of an offsite transload facility for facilitating off-site disposal of contaminated sediments and riverbank soils
8. Offloading of sediments to the transload facility
9. Management of dredged/excavated sediments and riverbank soils prior to off-site transportation to the transload facility, including ex-situ solidification for select NRC/NAPL PTW materials and dewatering for all materials.
10. Transportation (assumed to be by barge) to the off-site transload facility.
11. Transportation and disposal of contaminated sediments/riverbank soils at off-site facilities, including ex-situ thermal desorption treatment of select NRC/NAPL PTW materials at the off-site Subtitle C/TSCA facility
12. Placement of sand, beach mix, armor, reactive layer amendments, organoclay mats, and geofabric for technology assignments including capping, reactive residual layers, ENR, and in situ treatment (such as broadcast GAC)
13. Mitigation of nearshore areas impacted by activities such as capping, dredging, in situ treatment and ENR that extend to a depth of -13 feet NAVD88
14. MNR
15. Site-wide monitoring, cap area monitoring, and reactive layer monitoring
16. Long-term maintenance for capping, ENR, and in-situ treatment
17. Five-year site reviews

### ***Assumptions for Scope of Selected Remedy that Represent Cost Refinement Opportunities***

As described in the section above, for various elements of the selected remedy, assumptions were made about the scope and implementation of the selected remedy during remedial action. These assumptions are based on the best available information regarding the anticipated scope of the selected remedy and represent elements of scope that have significant impact on the overall estimated cost of the selected remedy. There could be opportunities for refinements to approaches during remedial design represented by these assumptions that could result in cost reductions, assuming other estimated costs during implementation do not increase. These include:

- Treatment of dredged/excavated materials - There are a number of complicating factors that can affect treatment of dredged/excavated contaminated sediments and riverbank soils, such as presence of listed or characteristic RCRA hazardous waste, state hazardous waste (such as DDX), and designation of ex situ treatment PTW (i.e. NRC/NAPL PTW). Based on future determinations of what types of treatment would be required, refinements to the treatment and

pre-treatment (dewatering and/or amendment with diatomaceous earth) approaches during the Remedial Design phase could potentially result in beneficial impacts to the costs.

- Disposal of dredged/excavated materials – In developing costs for disposal of contaminated sediments and riverbank soils, a preliminary evaluation of available landfill facilities was conducted. Based on that evaluation, assumptions were built into this cost estimate for representative Subtitle D and Subtitle C/TSCA landfill facilities, distances to those landfills, and tipping fees. Additional evaluation of available landfill facilities during the Remedial Design phase could result in further refinements to approach and thus cost.
- Transportation of dredged/excavated materials – For cost estimating purposes, barging was the assumed mode of transportation for offsite disposal of dredged/excavated materials. Further evaluation of other modes of transportation, such as rail, during the Remedial Design may result in beneficial impacts to costs. Additionally, as described above, further evaluation of landfill facilities could result in refinements to transportation distance to landfills that could beneficially affect costs.
- Dredging – In developing the costs for dredging, quantities for dredging were split out into open water and confined dredging. Crews and unit costs for open water dredging and confined dredging were developed with open water dredging assuming larger equipment and crews, but also higher productivity. During the Remedial Design phase, further refinement is expected in delineating open water and confined dredge areas as well as potentially refining the type of equipment that would be required for each type of dredging that could potentially result in reduced costs for dredging.
- Mitigation – Assumptions were made concerning types of capping and residual layer materials that would constitute onsite mitigation and would reduce the requirements for offsite mitigation. Coordination with Oregon Department of Fish and Wildlife (ODFW), National Marine Fisheries Service (NMFS), and U.S. Fish and Wildlife Service (USF&W) would need to be conducted during future phases in order to determine mitigation requirements under CWA 404 and ESA. In addition, mitigation costs were based on numerous projects in the Pacific Northwest region rather than local, Portland-specific mitigation. Therefore, current mitigation assumptions may need to be re-evaluated in future phases which could potentially result in cost reductions.
- Reactive Layers - For cost estimating purposes, assumptions were made about depths of reactive materials for reactive layers and the type of reactive materials that would be used for these reactive layers. During the Remedial Design phase, the definition of these assumptions will be further refined and could result in beneficial impacts to costs.
- Erosion/Residual Control Measures and Obstruction Removal/Relocation – Costs for erosion/residual control measures, including silt curtains and sheet piles, and obstruction removal/relocation were estimated using technology assignment figures for the selected remedy. During the Remedial Design phase further refinement is expected for these components, including what specific types of erosion/residual control measures would be required and where they would be required as well as what obstructions would require removal or relocation. Depending on the revised assumptions, these could potentially result in reduced costs.

As previously stated, the cost estimate developed in the ROD for the selected remedy is not meant to establish project budgets or negotiate Superfund settlements because they are conceptual, not detailed, and the cost estimate is considered “order-of-magnitude” with an expected accuracy that could result in costs as much as 50 percent greater during implementation than currently projected. This is particularly true of the Portland Harbor Superfund Site that involves remediation of miles of river with potentially hundreds of property owners that could involve incremental implementation and funding. Thus, any potential cost reductions indicated here may be nullified by increases in costs for other estimated activities within the scope of the selected remedy.

## **General Methodology and Relevant Cost Guidance**

This cost estimate was developed according to *A Guide to Developing and Documenting Cost Estimates during the Feasibility Study* (EPA 2000). Flexibility is incorporated into the selected remedy for the location of remedial facilities, the selection of cleanup levels, and the period in which remedial action will be completed.

Types of costs that are assessed for the selected remedy include the following:

- Capital costs
- Periodic costs
- Present value of capital and periodic costs

The levels of detail employed in making this estimate are conceptual but are considered appropriate for the remedy selection process. The information provided in the cost estimate is based on the best available information regarding the anticipated scope of the selected remedy.

The costs are evaluated with respect to the following categories:

- Capital costs are expenditures that are required to construct a remedial action. They are exclusive of costs required to operate or maintain the action throughout its lifetime. Capital costs consist primarily of expenditures initially incurred to build or install the remedial action. Capital costs include all labor, equipment, and material costs (including contractor markups, such as overhead and profit) associated with activities, such as mobilization/demobilization, site work, dredging of sediments, installation of caps, and disposal facilities. Capital costs also include expenditures for professional/technical services that are necessary to support construction of the remedial action. The construction activities occurring as capital costs include major work activities 1 through 13.
- Periodic costs are costs that occur only once every few years (e.g., 5-year reviews, monitoring, and maintenance) or expenditures that occur only once during the entire O&M period or remedial time frame (e.g., site closeout and remedy failure/replacement). These costs may be either capital or O&M costs, but because of their periodic nature, it is more practical to consider them separately from other capital or O&M costs in the estimating process. The post-construction activity occurring on a periodic basis that is typical of capital costs is the pre-construction baseline MNR event for major work activity 13. The post-construction activities

occurring on a periodic basis that are typical of O&M costs include major work activities 14 through 17.

- The present value cost represents the amount of money that, if invested in the initial year of the remedial action at a given rate, would provide the funds required to make future payments to cover all costs associated with the remedial action over its planned life. Future O&M and periodic costs are included and reduced by the appropriate present value real discount rate (7%) as outlined in *A Guide to Developing and Documenting Cost Estimates during the Feasibility Study* (EPA 540-R-00-002, July 2000). Inflation and depreciation were not considered in preparing the present value costs developed from the constant dollar analysis that the undiscounted capital and periodic costs represent.

## Development Approach for Information Provided in Cost Worksheets

Unit quantities (lengths, areas and volumes) used to cost activities such as capping, dredging, in-situ treatment, ENR, MNR, transport, and disposal were developed for each alternative primarily using the results of the technology assignment modeling performed using the software called "R". Additional calculations were developed to supplement the quantities provided by the model. Output quantities from the technology assignment model and supplemental calculations are provided in Appendix IV. In addition to the model quantities and supplemental calculations, additional quantities such as obstruction removal and relocation, riverbanks, mitigation, and installation of silt curtains and sheet piles were estimated from the technology assignment figures for the selected remedy. Information provided by Anchor QEA, vendors, literature from sites of similar scope, as well as engineering judgment was used to develop quantity assumptions and other design components not estimated from the technology assignment model or figures.

Unit costs were derived from three main sources:

- EPA-Derived Unit Costs – EPA-derived unit costs were prepared using USACE's Micro Computer Aided Cost Engineering System (MCACES) Second Generation (MII) software version 4.2, Build 3. This is the software platform generally used by Federal agencies, including the EPA, to develop construction cost estimates for CERCLA remedial actions. The MII unit costs account for local market conditions to the degree practicable (e.g. the estimate uses local Davis Bacon wage rate determinations for labor costs and local fuel and energy rates for equipment costs). Crews and productivities were developed based on assumptions within the ROD. Assumptions for the MII crews and productivities are presented in the MII backup calculations (PDSM-01, CRW-01, and PD-01).
- Unit Costs Previously Developed by Anchor QEA – These unit costs were derived from costs developed by Anchor QEA in 2010. Crew productivities assumed in development of the unit costs by Anchor QEA were not modified by EPA. These unit costs were originally obtained in 2010 and were escalated to the base year of these estimates (2016) using the Civil Works Construction Cost Index System (CWCCIS), Engineer Manual (EM) 1110-2-1304, Amendment #7 revised as of 30 September 2015. In addition, some of these unit costs were converted to another unit of measure using assumed densities as presented in the cost buildup calculations (CALC-1).

- Project-Specific Vendor Quotes – EPA obtained project-specific vendor quote for numerous items including, but not limited to, transportation and disposal of waste at off-site disposal facilities, reactive layer amendments, and quicklime.

In instances where these three cost sources were not sufficient for costing all major work activities, supplemental unit costs were obtained. Costs that were derived from other sources include the following:

- Vendor quotes from a project of similar scope were utilized for geotextile material and placement costs.
- Unit costs for professional labor rates included in the labor rate backup were determined using FLCdatacenter.com tailored to the Portland, Oregon area. These labor rates were used in developing costs for implementation of institutional controls, evaluating and updating institutional controls, and five-year site reviews.
- The mitigation unit cost was calculated from the average cost of projects presented in Tables 6.1-1 and 6.1-4 of the Appendix M, Attachment 1, Anchor QEA FS (2010) as well as select other projects. The calculation of the mitigation cost is presented in the summary of cost buildup (CALC-MITIGATION).
- Mobilization/demobilization costs are applied as a percentage of the capital cost for each alternative. This percentage was based on an evaluation of the mobilization/demobilization costs presented in the detailed cost estimates of the Lower Duwamish Waterway Final Feasibility Study (EPA 2012). Lower Duwamish mobilization/demobilization costs accounted for approximately 1.5%-1.6% of total capital costs for each alternative based on the scope of the work. The scope and duration of the remedial activities assumed for each of the Lower Duwamish Waterway FS alternatives was taken into consideration when determining the cost assumption for mobilization/demobilization presented in the ROD. The derivation of the mobilization/demobilization assumption is presented in the summary of cost buildup (CALC-01).

Specific modifications from the general approach and shown in the cost worksheets include the following:

- Unit costs developed by EPA using MII include contractor markups such as overhead and profit; therefore, additional no additional overhead and profit was added to these items in the cost worksheets.
- Unit cost buildups provided by Anchor QEA (including quotes) indicate they include prime contractor overhead and profit; thus, no additional overhead and profit was added to these items.
- Disposal and treatment costs obtained by EPA from the disposal facilities presumably include the facility's overhead and profit. However, the prime contractor implementing the work would likely need to have some type of overhead costs for administering and tracking disposal off-site. Thus a handling fee of 1 percent was included in the prime contractor overhead but no additional profit was added on that activity.

- In addition to disposal and treatment costs, EPA obtained vendor quotes for materials such as reactive layer amendments and quicklime. For these items, a handling fee of 5 percent was included in the prime contractor overhead but no additional profit was added.

## **Development Approach for Information Provided in Cost Summary Tables**

The cost summary tables are organized by the two major cost categories: capital costs and periodic costs. Costs are totaled for each major work activity. Contingency and professional/technical services are applied within the cost summary tables after subtotaling the costs for major work activities. Percentages used for contingency and professional/technical services costs are based on the recommended ranges presented in Section 5.0 of *A Guide to Developing and Documenting Cost Estimates During the Feasibility Study* (EPA 2000), unless otherwise noted within the cost summary tables.

Specific modifications from the general approach and shown in the cost summary tables include the following:

- As described in Section 5.4 of *A Guide to Developing and Documenting Cost Estimates During the Feasibility Study*, engineering judgment may be used to adjust rule-of-thumb percentages presented in Exhibit 5-6 for scope contingency with a lower contingency indicating that project scope will undergo minimal change during design. Due to the high overall costs for major work activities and a detailed level of conceptual design performed as part of the technology assignment modeling, the scope contingency percentages were modified to the low end of the recommended range presented in the guidance, to better reflect the detailed evaluation and concepts developed for these items.
- As described in Section 5.5 of *A Guide to Developing and Documenting Cost Estimates During the Feasibility Study*, engineering judgment may be used to adjust rule-of-thumb percentages presented in Exhibit 5-8 for project management, remedial design, and construction management as well as the recommended range presented for technical support. Due to the high overall costs for major work activities, the professional/technical percentages were modified to lower than the recommended range presented in the guidance, to better reflect realistic costs for professional/technical services costs for these items.
- As described in Section 5.6 of *A Guide to Developing and Documenting Cost Estimates During the Feasibility Study*, contingency is generally not applied to institutional control cost elements. However, due to the complexity of the site and the numerous property owners involved at the site, a 15% contingency (10% Scope, 5% Bid) was applied to account for uncertainties relating to implementation of institutional controls and a 10% contingency (10% Scope, 0% Bid) was applied to account for uncertainties relating to evaluating and updating institutional controls.
- As described in Section 5.5 of *A Guide to Developing and Documenting Cost Estimates During the Feasibility Study*, bid contingency is typically applied to remedial action construction or O&M activities. Since costs for 5-Year Site Reviews fall outside that definition, bid contingency was not applied for 5-Year Site Review Periodic Costs and only 10% scope contingency was applied.



## Development Approach for Information Provided in Present Value Tables

The present value cost represents the amount of money that, if invested in the initial year of the remedial action at a given rate, would provide the funds required to make future payments to cover all costs associated with the remedial action over its planned life. Future O&M periodic costs are included and reduced by the appropriate present value discount rate as outlined in *A Guide to Developing and Documenting Cost Estimates during the Feasibility Study* (EPA 2000a). Per the guidance, the present value analysis was performed on the selected remedy using a 7 percent real discount (interest) rate over the period of evaluation for the selected remedy. Per guidance, inflation and depreciation were not considered in preparing the present value costs.

Specific modifications from the general approach and shown in the present value tables include the following:

- As discussed in *A Guide to Developing and Documenting Cost Estimates during the Feasibility Study* (EPA 2000), the real discount (interest) rate used for present value analysis depends on whether the Site is classified as a federal facility site. Federal facility sites are former or current installations operated or controlled by a federal government agency and identified by EPA's Federal Facilities Restoration and Reuse Office (FFRRO). Based on a cursory review, the areas within the Site are not a federal facility identified within FFRRO's site inventory. In addition, the guidance specifically mentions that although a federal-lead site cleaned up by EPA using the Superfund trust fund (i.e., fund-lead sites) may be an analogous situation to a federal facility site being cleaned up using Superfund authority, there is always a chance that a potentially responsible party (PRP) could remediate the Site. Thus, per guidance a real discount rate of 7 percent should be used in calculating present value costs for all non-federal facility sites. A 7 percent real discount rate was used to develop present value costs for the selected remedy over the period of evaluation since there is PRP involvement and the site or areas within the site are not identified as federal facilities in the FFRRO site inventory.
- The project duration for the selected remedy is longer than the period of evaluation for present value analysis (Years 0 through 30 as selected by EPA). The guidance indicates in those situations that site-specific justification for the selected period of evaluation should be provided. It is likely that the selected remedy would require an indefinite duration of O&M (evaluated as periodic costs within these estimates). However, evaluation of long durations of O&M is cumbersome and is generally not necessary for comparative evaluation between alternatives because of the effects of cost discounting in later years under present value analysis. The period of analysis for the ROD is assumed to be 30 years, because the increase of present value cost due to small periodic expenditures for maintenance and monitoring after 30 years is minimal relative to the accuracy range of the estimates.
- As described in Section 4.2 of *A Guide to Developing and Documenting Cost Estimates During the Feasibility Study* (EPA 2000), most cost analyses assume that initial construction and startup will occur in year zero, but this assumption can be modified if it is known that capital costs will be expended beyond one year. Capital costs for the selected remedy were split out evenly over assumed construction durations. Due to the vast size of the cleanup and factors external to the project, construction durations were assumed to be longer than the minimum calculated which were based solely on productivities and work windows. The assumed

construction duration for the selected remedy (starting at Year 0) is 13 years. This was based on the construction duration for Alternative F without modifications. While the construction duration may be slightly less for Alternative F Modified, the estimated duration would be conservative and would not affect undiscounted costs. The impact to present value cost would not be significant relative to the expected accuracy range of the estimate.

- In addition, a “no-discounting” scenario is included for the present value analysis of the selected remedy as recommended by the guidance for long-term projects (e.g., project duration exceeding 30 years). A non-discounted constant dollar cash flow over time demonstrates the impact of a discount rate on the total present value cost and the relative amounts of future annual expenditures. Non-discounted constant dollar costs are presented for comparison purposes only and should not be used in place of present value costs in the Superfund remedy selection process.

## **Record of Decision Selected Remedy Cost Estimate Organization**

The ROD selected remedy cost estimate are organized into the following sections:

- Methodology and Organization of the Selected Remedy Cost Estimate, Record of Decision, Portland Harbor Superfund Site

This is the memorandum you are currently reading that summarizes the approach to developing the selected remedy cost estimate within the ROD for the Portland Harbor Superfund Site.

- Alternative F Modified Cost Estimate



**Alternative F Modified Cost Estimate**

**The cost spreadsheets included in this appendix were developed in accordance with EPA 540-R-00-002 (OSWER 9355.0-75) July 2000.**

**Costs for project management, remedial design, and construction management were determined as percentages of capital cost per the guidance. Costs for these work items may not reflect costs for implementation. These costs are determined based on specific client requirements during implementation.**

**Cost Summary  
Alternative F Modified**

**TABLE CS-SUMMARY****SELECTED REMEDY COST SUMMARY**

**Site:** Portland Harbor Superfund Site  
**Location:** Portland, Oregon  
**Phase:** Record of Decision (-30% to +50%)  
**Base Year:** 2016

<u>Selected Alternative</u>	<u>Total Capital Cost</u>	<u>Total Periodic Cost</u>	<u>Total Non-Discounted Cost</u>	<u>Present Value Cost</u>
F Modified	\$1,184,607,000	\$524,028,000	\$1,708,635,000	\$1,054,200,000

**Notes:**

- 1 - Capital costs, annual costs, and periodic costs are presented on Table CS-F (MOD).
- 2 - Estimated remedial timeframe and associated present value analysis for the selected alternative are provided on Table PV-F (MOD).
- 3 - The total present value cost demonstrates the impact of a discount rate on the total non-discounted cost and the relative amount of future annual expenditures. Non-discounted costs are presented for comparison purposes only and should not be used in place of present value costs in the CERCLA remedy selection process.
- 4 - Costs presented for this alternative are expected to have an accuracy between -30% to +50% of actual costs, based on the scope presented.

**Present Value Analysis and Detailed Cost Estimate Summary  
Alternative F Modified**

**TABLE PV-F (MOD)**

**PRESENT VALUE ANALYSIS**

Alternative **F Modified**

Site: Portland Harbor Superfund Site  
 Location: Portland, Oregon  
 Phase: Record of Decision (-30% to +50%)  
 Base Year: 2016

Year <sup>1</sup>	Capital Costs (Institutional Controls) <sup>2</sup>	Capital Costs (Monitored Natural Recovery) <sup>2</sup>	Capital Costs (Technology Assignments) <sup>2</sup>	Periodic Costs (Long Term Monitoring and Monitored Natural Recovery)	(Long Term Operations and Maintenance and Institutional Controls)	Periodic Costs (Five-Year Site Reviews)	Total Annual Expenditure <sup>3</sup>	Discount Factor (7.0%)	Present Value <sup>4</sup>
0	\$351,769	\$9,486,000	\$90,042,154	\$0	\$0	\$0	\$99,879,923	1.0000	\$99,879,923
1	\$351,769	\$0	\$90,042,154	\$0	\$0	\$0	\$90,393,923	0.9346	\$84,482,160
2	\$351,769	\$0	\$90,042,154	\$47,460,000	\$0	\$0	\$137,853,923	0.8734	\$120,401,616
3	\$351,769	\$0	\$90,042,154	\$0	\$0	\$0	\$90,393,923	0.8163	\$73,788,559
4	\$351,769	\$0	\$90,042,154	\$47,460,000	\$0	\$0	\$137,853,923	0.7629	\$105,168,758
5	\$351,769	\$0	\$90,042,154	\$0	\$7,930,000	\$308,000	\$98,631,923	0.7130	\$70,324,561
6	\$351,769	\$0	\$90,042,154	\$47,460,000	\$0	\$0	\$137,853,923	0.6663	\$91,852,069
7	\$351,769	\$0	\$90,042,154	\$0	\$0	\$0	\$90,393,923	0.6227	\$56,288,296
8	\$351,769	\$0	\$90,042,154	\$47,460,000	\$0	\$0	\$137,853,923	0.5820	\$80,230,983
9	\$351,769	\$0	\$90,042,154	\$0	\$0	\$0	\$90,393,923	0.5439	\$49,165,255
10	\$351,769	\$0	\$90,042,154	\$47,460,000	\$7,930,000	\$308,000	\$146,091,923	0.5083	\$74,258,524
11	\$351,769	\$0	\$90,042,154	\$0	\$0	\$0	\$90,393,923	0.4751	\$42,946,153
12	\$351,769	\$0	\$90,042,154	\$0	\$0	\$0	\$90,393,923	0.4440	\$40,134,902
13	\$0	\$0	\$0	\$0	\$0	\$0	\$0	0.4150	\$0
14	\$0	\$0	\$0	\$47,460,000	\$0	\$0	\$47,460,000	0.3878	\$18,404,988
15	\$0	\$0	\$0	\$0	\$7,930,000	\$308,000	\$8,238,000	0.3624	\$2,985,451
16	\$0	\$0	\$0	\$0	\$0	\$0	\$0	0.3387	\$0
17	\$0	\$0	\$0	\$0	\$0	\$0	\$0	0.3166	\$0
18	\$0	\$0	\$0	\$47,460,000	\$0	\$0	\$47,460,000	0.2959	\$14,043,414
19	\$0	\$0	\$0	\$0	\$0	\$0	\$0	0.2765	\$0
20	\$0	\$0	\$0	\$0	\$7,930,000	\$308,000	\$8,238,000	0.2584	\$2,128,699
21	\$0	\$0	\$0	\$0	\$0	\$0	\$0	0.2415	\$0
22	\$0	\$0	\$0	\$47,460,000	\$0	\$0	\$47,460,000	0.2257	\$10,711,722
23	\$0	\$0	\$0	\$0	\$0	\$0	\$0	0.2109	\$0
24	\$0	\$0	\$0	\$0	\$0	\$0	\$0	0.1971	\$0
25	\$0	\$0	\$0	\$0	\$7,930,000	\$308,000	\$8,238,000	0.1842	\$1,517,440
26	\$0	\$0	\$0	\$47,460,000	\$0	\$0	\$47,460,000	0.1722	\$8,172,612
27	\$0	\$0	\$0	\$0	\$0	\$0	\$0	0.1609	\$0
28	\$0	\$0	\$0	\$0	\$0	\$0	\$0	0.1504	\$0
29	\$0	\$0	\$0	\$0	\$0	\$0	\$0	0.1406	\$0
30	\$0	\$0	\$0	\$47,460,000	\$7,930,000	\$308,000	\$55,698,000	0.1314	\$7,318,717
<b>TOTALS:</b>	\$4,573,000	\$9,486,000	\$1,170,548,000	\$474,600,000	\$47,580,000	\$1,848,000	\$1,708,635,000		\$1,054,204,802
<b>TOTAL PRESENT VALUE OF ALTERNATIVE F MODIFIED<sup>5</sup></b>									<b>\$1,054,200,000</b>

**Notes:**

- <sup>1</sup> The selected remedy is expected to require cost expenditures for perpetuity since some contamination addressed by the remedy within the sediment bed and associated riverbank soils would remain in-place that do not allow for unrestricted use or unlimited exposure to human or ecological receptors. However, the period of analysis was assumed to be 30 yrs beyond the start of construction in Year 0.
- <sup>2</sup> Capital costs, for purposes of this analysis, are assumed to be distributed as indicated on Table CS-F(MOD).
- <sup>3</sup> Total annual expenditure is the total cost per year with no discounting.
- <sup>4</sup> Present value is the total cost per year including a 7.0% discount factor for that year. See Table PV-ADRFT for details.
- <sup>5</sup> Total present value is rounded to the nearest \$10,000. Inflation and depreciation are excluded from the present value cost. Costs presented for this alternative are expected to have an accuracy between -30% to +50% of actual costs, based on the scope presented.

**TABLE CS-F (MOD)**

**DETAILED COST ESTIMATE SUMMARY**

<b>Alternative</b>	F Modified	<b>Description:</b> The selected alternative (Alternative F Modified) evaluates a remedy that would involve dredging of contaminated sediments, disposal of the remaining contaminated sediment at offsite facilities (Subtitle D and Subtitle C/TSCA), capping, enhanced natural recovery (ENR), in-situ treatment, and monitored natural recovery (MNR). Capital costs are based on Disposed Material Management (DMM) Scenario 2.
<b>Site:</b>	Portland Harbor Superfund Site	
<b>Location:</b>	Portland, Oregon	
<b>Phase:</b>	Record of Decision (-30% to +50%)	
<b>Base Year:</b>	2016	
<b>Date:</b>	11/16/2016	

**INSTITUTIONAL CONTROLS CAPITAL COSTS: (Assumed to be Incurred During Years 0 through 12)**

DESCRIPTION	WORKSHEET	QTY	UNIT(S)	UNIT COST	TOTAL	NOTES
Initial Establishment of Institutional Controls	CW-F(MOD)-2	1	LS	\$3,716,324	\$3,716,324	
<b>SUBTOTAL</b>					<b>\$3,716,324</b>	
Contingency (Scope and Bid)		15%			\$557,449	10% Scope, 5% Bid as documented in Cost Estimate Methodology and Organization Memo.
<b>SUBTOTAL</b>					<b>\$4,273,773</b>	
Project Management		2%			\$85,475	Percentage modified as documented in Cost Estimate Methodology Memo.
Remedial Design		2%			\$85,475	Percentage modified as documented in Cost Estimate Methodology Memo.
Construction Management		3%			\$128,213	Percentage modified as documented in Cost Estimate Methodology Memo.
<b>TOTAL</b>					<b>\$4,572,936</b>	
<b>TOTAL CAPITAL COST</b>					<b>\$4,573,000</b>	Total capital cost is rounded to the nearest \$1,000.

**MONITORED NATURAL RECOVERY CAPITAL COSTS: (Assumed to be Incurred During Year 0)**

DESCRIPTION	WORKSHEET	QTY	UNIT(S)	UNIT COST	TOTAL	NOTES
Monitored Natural Recovery (MNR) for MNR/Enhanced Natural Recovery (ENR) and Broadcast GAC Areas	CW-F(MOD)-22	1,802	AC	\$3,686	\$6,642,761	Quantity represents dredge, MNR/ENR and in situ treatment areas.
<b>SUBTOTAL</b>					<b>\$6,642,761</b>	
Contingency (Scope and Bid)		20%			\$1,328,552	10% Scope, 10% Bid (Low end of the recommended range in EPA 540-R-00-002).
<b>SUBTOTAL</b>					<b>\$7,971,313</b>	
Project Management		5%			\$398,566	Percentage from Exhibit 5-8 in EPA 540-R-00-002 was used.
Remedial Design		8%			\$637,705	Percentage from Exhibit 5-8 in EPA 540-R-00-002 was used.
Construction Management		6%			\$478,279	Percentage from Exhibit 5-8 in EPA 540-R-00-002 was used.
<b>TOTAL</b>					<b>\$9,485,863</b>	
<b>TOTAL CAPITAL COST</b>					<b>\$9,486,000</b>	Total capital cost is rounded to the nearest \$1,000.

**TABLE CS-F (MOD)**

**DETAILED COST ESTIMATE SUMMARY**

<b>Alternative</b>	<b>F Modified</b>	
<b>Site:</b>	Portland Harbor Superfund Site	Description: The selected alternative (Alternative F Modified) evaluates a remedy that would involve dredging of contaminated sediments, disposal of the remaining contaminated sediment at offsite facilities (Subtitle D and Subtitle C/TSCA), capping, enhanced natural recovery (ENR), in-situ treatment, and monitored natural recovery (MNR). Capital costs are based on Disposed Material Management (DMM) Scenario 2.
<b>Location:</b>	Portland, Oregon	
<b>Phase:</b>	Record of Decision (-30% to +50%)	
<b>Base Year:</b>	2016	
<b>Date:</b>	11/16/2016	

**TECHNOLOGY ASSIGNMENTS MEASURES CAPITAL CONSTRUCTION COSTS: (Assumed to be Incurred During Years 0 through 12)**

DESCRIPTION	WORKSHEET	QTY	UNIT(S)	UNIT COST	TOTAL	NOTES
Mobilization / Demobilization	CW-F(MOD)-1	1	LS	\$14,357,000	\$14,357,000	
Transload Facility Development	CW-F(MOD)-21	1	LS	\$15,651,213	\$15,651,213	
Debris Removal and Disposal	CW-F(MOD)-5	394	AC	\$13,107	\$5,164,162	
Obstruction Removal and Relocation	CW-F(MOD)-6	1	LS	\$20,718,583	\$20,718,583	
Erosion/Residual Control Measures	CW-F(MOD)-7	1	LS	\$27,166,335	\$27,166,335	
Dredging of Contaminated Sediments (Open Water)	CW-F(MOD)-8	2,771,122	CY	\$24.53	\$67,975,623	
Dredging of Contaminated Sediments (Confined)	CW-F(MOD)-9	123,241	CY	\$31.10	\$3,832,795	
Excavation of Riverbanks	CW-F(MOD)-10	122,827	CY	\$5.19	\$637,472	
Dewatering and Water Treatment for Dredging Operations	CW-F(MOD)-11	1	LS	\$12,775,272	\$12,775,272	Includes collection and treatment of water from sediment dewatering during dredging operations
Subtitle C/TSCA Disposal (Handling, Transportation, Treatment of Select PTW Materials, and Disposal)	CW-F(MOD)-12	358,891	TON	\$191	\$68,536,125	Includes waste going to offsite Subtitle C/TSCA facility for disposal, including the volume of NRC/NAPL PTW that would require treatment
Subtitle D Disposal (Handling, Transportation, and Disposal)	CW-F(MOD)-13	4,596,885	TON	\$111	\$509,132,912	Includes waste going to offsite Subtitle D facility for disposal without treatment, including the volume of non-PTW contaminated sediments/riverbank soils as well as the volume of highly toxic PTW
Mitigation	CW-F(MOD)-14	60	AC	\$1,070,827	\$64,249,620	
Sand Placement for Technology Assignments	CW-F(MOD)-15	914,382	CY	\$33.77	\$30,880,134	
Beach Mix Placement for Technology Assignments	CW-F(MOD)-16	69,511	CY	\$72.97	\$5,071,941	
Armor Placement for Technology Assignments	CW-F(MOD)-17	151,909	CY	\$71.97	\$10,932,677	
Reactive/PAC Placement for Technology Assignments	CW-F(MOD)-18	1	LS	\$53,081,326	\$53,081,326	
Geofabric for Riverbanks	CW-F(MOD)-19	25.5	AC	\$14,311	\$364,936	
Organoclay Mat Placement for Technology Assignments	CW-F(MOD)-20	174,300	SF	\$6.39	\$1,113,777	
<b>SUBTOTAL</b>					<u>\$911,641,903</u>	
Contingency (Scope and Bid)		20%			\$182,328,381	10% Scope, 10% Bid (Low end of the recommended range in EPA 540-R-00-002).
<b>SUBTOTAL</b>					<u>\$1,093,970,284</u>	
Project Management		2%			\$21,879,406	Percentage modified as documented in Cost Estimate Methodology and Organization Memo.
Remedial Design		2%			\$21,879,406	Percentage modified as documented in Cost Estimate Methodology and Organization Memo.
Construction Management		3%			\$32,819,109	Percentage modified as documented in Cost Estimate Methodology and Organization Memo.
<b>TOTAL</b>					<u>\$1,170,548,205</u>	
<b>TOTAL CAPITAL COST</b>					<b>\$1,170,548,000</b>	Total capital cost is rounded to the nearest \$1,000.



**TABLE CS-F (MOD)**

**DETAILED COST ESTIMATE SUMMARY**

<b>Alternative</b>	<b>F Modified</b>
<b>Site:</b>	Portland Harbor Superfund Site
<b>Location:</b>	Portland, Oregon
<b>Phase:</b>	Record of Decision (-30% to +50%)
<b>Base Year:</b>	2016
<b>Date:</b>	11/16/2016

Description: The selected alternative (Alternative F Modified) evaluates a remedy that would involve dredging of contaminated sediments, disposal of the remaining contaminated sediment at offsite facilities (Subtitle D and Subtitle C/TSCA), capping, enhanced natural recovery (ENR), in-situ treatment, and monitored natural recovery (MNR). Capital costs are based on Disposed Material Management (DMM) Scenario 2.

**SITE-WIDE MONITORING AND MONITORED NATURAL RECOVERY PERIODIC COSTS: (Assumed to be Incurred at Years 2, 4, 6, 8, 10, 14, 18, 22, 26, & 30)**

DESCRIPTION	WORKSHEET	QTY	UNIT(S)	UNIT COST	TOTAL	NOTES
Monitored Natural Recovery (MNR) for MNR/Enhanced Natural Recovery (ENR) and Broadcast GAC Areas	CW-F(MOD)-22	1,802	AC	\$3,686	\$6,642,761	Quantity represents dredge, MNR/ENR and in situ treatment areas.
Site-Wide Monitoring	CW-F(MOD)-23	1	LS	\$957,659	\$957,659	
Cap Area Monitoring and Reactive Layer Monitoring	CW-F(MOD)-24	1	LS	\$29,362,262	\$29,362,262	
<b>SUBTOTAL</b>					<u>\$36,962,682</u>	
Contingency (Scope and Bid)		20%			\$7,392,536	10% Scope, 10% Bid (Low end of the recommended range in EPA 540-R-00-002).
<b>SUBTOTAL</b>					<u>\$44,355,218</u>	
Project Management		2%			\$887,104	Percentage modified as documented in Cost Estimate Methodology and Organization Memo.
Technical Support		5%			\$2,217,761	Percentage modified as documented in Cost Estimate Methodology and Organization Memo.
<b>TOTAL</b>					<u>\$47,460,083</u>	
<b>TOTAL PERIODIC COST</b>					<b>\$47,460,000</b>	Total periodic cost is rounded to the nearest \$1,000.

**LONG TERM OPERATIONS AND MAINTENANCE PERIODIC COSTS: (Assumed to be Incurred at Years 5, 10, 15, 20, 25, & 30)**

DESCRIPTION	WORKSHEET	QTY	UNIT(S)	UNIT COST	TOTAL	NOTES
Long-Term Maintenance for Capping, ENR, and In Situ Treatment	CW-F(MOD)-25	1	LS	\$5,153,976	\$5,153,976	Assume 5% of placement of additional material for capping, ENR and In Situ Treatment. Includes mobilization and demobilization costs.
<b>SUBTOTAL</b>					<u>\$5,153,976</u>	
Contingency (Scope and Bid)		20%			\$1,030,795	10% Scope, 10% Bid (Low end of the recommended range in EPA 540-R-00-002).
<b>SUBTOTAL</b>					<u>\$6,184,771</u>	
Project Management		5%			\$309,239	Low end of the recommended range in EPA 540-R-00-002 was used.
Technical Support		10%			\$618,477	Low end of the recommended range in EPA 540-R-00-002 was used.
<b>TOTAL</b>					<u>\$7,112,487</u>	
<b>TOTAL PERIODIC COST</b>					<b>\$7,112,000</b>	Total periodic cost is rounded to the nearest \$1,000.

**TABLE CS-F (MOD)**

Alternative	F Modified	<b>DETAILED COST ESTIMATE SUMMARY</b>				
<b>Site:</b> Portland Harbor Superfund Site <b>Location:</b> Portland, Oregon <b>Phase:</b> Record of Decision (-30% to +50%) <b>Base Year:</b> 2016 <b>Date:</b> 11/16/2016		<b>Description:</b> The selected alternative (Alternative F Modified) evaluates a remedy that would involve dredging of contaminated sediments, disposal of the remaining contaminated sediment at offsite facilities (Subtitle D and Subtitle C/TSCA), capping, enhanced natural recovery (ENR), in-situ treatment, and monitored natural recovery (MNR). Capital costs are based on Disposed Material Management (DMM) Scenario 2.				
<b>INSTITUTIONAL CONTROLS PERIODIC COSTS: (Assumed to be Incurred at Years 5, 10, 15, 20, 25, &amp; 30)</b>						
<b>DESCRIPTION</b>	<b>WORKSHEET</b>	<b>QTY</b>	<b>UNIT(S)</b>	<b>UNIT COST</b>	<b>TOTAL</b>	<b>NOTES</b>
Evaluating and Updating Institutional Controls	CW-F(MOD)-3	1	LS	\$646,624	\$646,624	
<b>SUBTOTAL</b>					<u>\$646,624</u>	
Contingency (Scope and Bid)		10%			\$64,662	10% Scope, 0% Bid as documented in Cost Estimate Methodology and Organization Memo.
<b>SUBTOTAL</b>					<u>\$711,286</u>	
Project Management		5%			\$35,564	Low end of the recommended range in EPA 540-R-00-002 was used.
Technical Support		10%			\$71,129	Low end of the recommended range in EPA 540-R-00-002 was used.
<b>TOTAL</b>					<u>\$817,979</u>	
<b>TOTAL PERIODIC COST</b>					<b>\$818,000</b>	Total periodic cost is rounded to the nearest \$1,000.
<b>5-YEAR SITE REVIEW PERIODIC COSTS: (Assumed to be Incurred at Years 5, 10, 15, 20, 25, &amp; 30)</b>						
<b>DESCRIPTION</b>	<b>WORKSHEET</b>	<b>QTY</b>	<b>UNIT(S)</b>	<b>UNIT COST</b>	<b>TOTAL</b>	<b>NOTES</b>
5-Year Site Review	CW-F(MOD)-26	1	LS	\$243,687	\$243,687	
<b>SUBTOTAL</b>					<u>\$243,687</u>	
Contingency (Scope and Bid)		10%			\$24,369	10% Scope, 0% Bid as documented in Cost Estimate Methodology and Organization Memo.
<b>SUBTOTAL</b>					<u>\$268,056</u>	
Project Management		5%			\$13,403	Low end of the recommended range in EPA 540-R-00-002 was used.
Technical Support		10%			\$26,806	Low end of the recommended range in EPA 540-R-00-002 was used.
<b>TOTAL</b>					<u>\$308,265</u>	
<b>TOTAL PERIODIC COST</b>					<b>\$308,000</b>	Total periodic cost is rounded to the nearest \$1,000.

**Notes:**  
 Percentages used for contingency and professional/technical services costs are based on guidance from Section 5.0 of "A Guide to Developing and Documenting Cost Estimates During the Feasibility Study", EPA 2000. Modifications to the percentages applied for contingency and professional/technical services are documented in the memorandum - Methodology and Organization of Selected Remedy Cost Estimate.  
 Costs presented for this alternative are expected to have an accuracy between -30% to +50% of actual costs, based on the scope presented.

**Abbreviations:**  
 AC Acre  
 CY Cubic Yard  
 LS Lump Sum  
 QTY Quantity  
 SF Square Foot  
 TON Ton

**Cost Worksheets  
Alternative F Modified**

**TABLE CW-F(MOD)-1**

**Alternative F (Modified)**  
**Capital Cost Sub-Element**  
**Mobilization / Demobilization**

**Cost Worksheet: CW-F(MOD)-1**

**COST WORKSHEET**

**Site:** Portland Harbor Superfund Site  
**Location:** Portland, Oregon  
**Phase:** Record of Decision  
**Base Year:** 2016

**Prepared By:** JN      **Date:** 10/20/2016  
**Checked By:** MS      **Date:** 10/27/2016

**Work Statement:**  
 This sub-element involves mobilization and demobilization of all the required equipment to and from the site respectively.

**Cost Analysis:**  
 Cost for Mobilization/Demobilization (Lump Sum)

COST DATABASE CODE	DESCRIPTION	QTY	UNIT(S)	HPF	LABOR	ADJ LABOR	EQUIP	ADJ EQUIP	MATL	OTHER	UNMOD UC	UNMOD LIC	PC OH	PC PF	BUR LIC	COST SOURCE CITATION	COMMENTS
O1	Mobilization/Demobilization	1	LS	1.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$14,357,000.00	\$14,357,000.00	\$14,357,000.00	0%	0%	\$14,357,000	LD Lower Duwamish	Assumes 1.6% of total capital costs per Lower Duwamish Feasibility Study. See Calculations for derivation.
<b>TOTAL COST:</b>															\$14,357,000		
												<b>Representative Unit Quantity</b>	<b>Unit(s)</b>	<b>Total Cost</b>	<b>Unit Cost</b>		
<b>COST WORKSHEET SUMMARY</b>												1	LS	\$14,357,000	\$14,357,000		

**Notes:**  
 Further information about the development of cost worksheets can be found in the memorandum - Methodology and Organization of Selected Remedy Cost Estimate. The quantity bolded in the QTY column is the quantity selected as the representative unit quantity for this cost worksheet. If multiple quantities are bolded, the representative unit quantity is the sum of those quantities. When the LS unit is utilized, the default representative unit quantity is 1.  
 HTRW productivity factor is from Exhibit B-3 or B-4 of "A Guide to Developing and Documenting Cost Estimates During the Feasibility Study", EPA 2000  
 EPA developed project-specific unit costs using the Micro Computer Aided Cost Engineering System (MCACES) Second Generation (MII) software version 4.2, build 3

**Abbreviations:**

QTY	Quantity	AC	Acre
EQUIP	Equipment	CLF	100 Linear Foot
MATL	Material	CY	Cubic Yard
HPF	HTRW Productivity Factor	DY	Days
ADJ LABOR	Adjusted Labor for HFP	EA	Each
ADJ EQUIP	Adjusted Equipment for HFP	FTE	Full Time Equivalent
UNMOD UC	Unmodified Unit Cost	HR	Hours
UNMOD LIC	Unmodified Line Item Cost	LB	Pounds
UNBUR LIC	Unburdened Line Item Cost	LCY	Loose Cubic Yard
PC OH	Prime Contractor Overhead	LF	Linear Foot
PC PF	Prime Contractor Profit	LS	Lump Sum
BUR LIC	Burdened Line Item Cost	MO	Month
		SF	Square Foot
		SY	Square Yard
		TON	Tons
		YR	Years

**Cost Database Code:**  
 The Cost Database Code is a reference code for linking with line item cost information with the cost source database and is not otherwise used within these cost worksheets. The following cost source database prefixes apply:  
 L (EPA-Derived Labor Unit Costs), M (Project-Specific Vendor Unit Costs), P (Previously Developed Unit Costs by Anchor QEA for Portland Harbor), A (EPA-Derived MII Unit Costs), O (Unit Costs from Other Projects/Sources)

**Source of Cost Data:**  
 For citation references, the following sources apply:  
 ALL (Allowance), FLC (www.flodatacenter.com), LD (Costs Derived from Lower Duwamish Waterway Final Feasibility Study), MII (MII), O (Other), P (Previously Developed by Anchor QEA for Portland Harbor), and V (Vendor Quote)

**Cost Adjustment Checklist:**

<b>FACTOR:</b>	<b>NOTES:</b>
H&S Productivity (labor and equipment only)	Field work will be in Level 'D' PPE.
Escalation to Base Year	MII assembly costs include HPF adjustments.
Area Cost Factor	2016 cost sources are not escalated (EF=1.00). All other costs are escalated based on the USACE CWCCIS, EM 1110-2-1304, Sept 2015.
Subcontractor Overhead and Profit	An AF of 1.05 is used for Oregon, except that an AF of 1.00 (national unmodified average) is used for MII assembly costs and local vendor quotes.
Prime Contractor Overhead and Profit	It is assumed that home office OH is 8% and profit is 9% for the Prime Contractor. Professional labor overhead is 100%. Allowances and items with mandated costs such as per diem do not have overhead and profit applied.
	Items previously developed by Anchor QEA already include contractor markups, therefore overhead and profit were not applied to those items.
	It is assumed that OH is 1% and profit is 0% for vendor quotes for treatment and disposal at offsite disposal facilities. It is assumed that OH is 5% and profit is 0% for quotes for all other material vendor quotes.
	Items developed using MII already include contractor markups such as overhead and profit, therefore additional overhead and profit were not applied in the PC OH and PC PF to those items.

**TABLE CW-F(MOD)-2**

**Alternative F (Modified) Cost Worksheet: CW-F(MOD)-2**

**COST WORKSHEET**

**Capital Cost Sub-Element  
Initial Establishment of Institutional Controls**

**Site:** Portland Harbor Superfund Site  
**Location:** Portland, Oregon  
**Phase:** Record of Decision  
**Base Year:** 2016

**Prepared By:** JN **Date:** 10/20/2016

**Checked By:** MS **Date:** 10/27/2016

**Work Statement:**

This sub-element involves implementation of institutional controls for the site. The following cost includes labor and materials to develop legal documents for institutional controls and cost for document submission and recording. Quantity development presented in Appendix IV.

**Cost Analysis:**

Cost for Initial Establishment of Institutional Controls (Lump Sum)

COST DATABASE CODE	DESCRIPTION	QTY	UNIT(S)	HPF	LABOR	ADJ LABOR	EQUIP	ADJ EQUIP	MATL	OTHER	UNMOD UC	UNMOD LIC	PC OH	PC PF	BUR LIC	COST SOURCE CITATION	COMMENTS	
<b>Informational Devices - Fish Consumption Advisory</b>																		
L11	Project Manager	2,080	HR	1.00	\$82.17	\$82.17	\$0.00	\$0.00	\$0.00	\$0.00	\$82.17	\$170,913.60	100%	9%	\$372,592	FLC FLCDataCenter	Assumes 1 FTE for implementation of fish advisory	
L4	Environmental Engineer	1,040	HR	1.00	\$48.91	\$48.91	\$0.00	\$0.00	\$0.00	\$0.00	\$48.91	\$50,866.40	100%	9%	\$110,889	FLC FLCDataCenter	Assumes 0.5 FTE for implementation of fish advisory	
L6	Environmental Scientist	1,040	HR	1.00	\$37.70	\$37.70	\$0.00	\$0.00	\$0.00	\$0.00	\$37.70	\$39,208.00	100%	9%	\$85,473	FLC FLCDataCenter	Assumes 0.5 FTE for implementation of fish advisory	
L3	Clerks, Typist, Bookkeeper & Receptionist	520	HR	1.00	\$19.89	\$19.89	\$0.00	\$0.00	\$0.00	\$0.00	\$19.89	\$10,342.80	100%	9%	\$22,547	FLC FLCDataCenter	Assumes 0.25 FTE for implementation of fish advisory	
L5	Environmental Lawyer	260	HR	1.00	\$71.72	\$71.72	\$0.00	\$0.00	\$0.00	\$0.00	\$71.72	\$18,647.20	100%	9%	\$40,651	FLC FLCDataCenter	Assumes 0.125 FTE for implementation of fish advisory	
L13	Paralegal	260	HR	1.00	\$29.56	\$29.56	\$0.00	\$0.00	\$0.00	\$0.00	\$29.56	\$7,685.60	100%	9%	\$16,755	FLC FLCDataCenter	Assumes 0.125 FTE for implementation of fish advisory	
M26	Signage	50	EA	1.00	\$0.00	\$0.00	\$0.00	\$0.00	\$165.75	\$0.00	\$165.75	\$8,287.50	5%	0%	\$8,702	V Vendor Quote	Project-specific vendor quote - Allstate Sign & Plaque, 2016. 36" x 36" Signs	
L8	Field Technician	50	HR	1.00	\$31.42	\$31.42	\$0.00	\$0.00	\$0.00	\$0.00	\$31.42	\$1,571.00	100%	9%	\$3,425	FLC FLCDataCenter	Assumes 1 hr/sign for sign placement (2 technician crew)	
O5	Allowance for Production & Copies for Advisories	1	LS	1.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$1,000.00	\$1,000.00	\$1,000.00	0%	0%	\$1,000	ALL Allowance		
<b>Informational Devices - Regulated Navigation Area (RNA) Setup</b>																		
L11	Project Manager	200	HR	1.00	\$82.17	\$82.17	\$0.00	\$0.00	\$0.00	\$0.00	\$82.17	\$16,434.00	100%	9%	\$35,826	FLC FLCDataCenter	Project-specific unit cost developed by EPA.	
L4	Environmental Engineer	150	HR	1.00	\$48.91	\$48.91	\$0.00	\$0.00	\$0.00	\$0.00	\$48.91	\$7,336.50	100%	9%	\$15,994	FLC FLCDataCenter	Project-specific unit cost developed by EPA.	
L3	Clerks, Typist, Bookkeeper & Receptionist	40	HR	1.00	\$19.89	\$19.89	\$0.00	\$0.00	\$0.00	\$0.00	\$19.89	\$795.60	100%	9%	\$1,734	FLC FLCDataCenter	Project-specific unit cost developed by EPA.	
A1	18' Boat	444	HR	1.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$25.42	\$25.42	\$11,286.48	0%	0%	\$11,286	MII MII	Assumes 2 hr/buoy for buoy setup	
L17	Boat Operator	444	HR	1.00	\$33.16	\$33.16	\$0.00	\$0.00	\$0.00	\$0.00	\$33.16	\$14,723.04	100%	9%	\$32,096	FLC FLCDataCenter	Assumes 2 hr/buoy for buoy setup	
L8	Field Technician	888	HR	1.00	\$31.42	\$31.42	\$0.00	\$0.00	\$0.00	\$0.00	\$31.42	\$27,900.96	100%	9%	\$60,824	FLC FLCDataCenter	Assumes 4 hrs/buoy for buoy setup (2 technician crew)	
M21	Buoy	222	EA	1.00	\$0.00	\$0.00	\$0.00	\$0.00	\$558.63	\$0.00	\$558.63	\$124,015.86	5%	0%	\$130,217	V Vendor Quote	Project-specific vendor quote - Go2Marine, 2016.	
<b>Proprietary Controls</b>																		
L5	Environmental Lawyer	7,800	HR	1.00	\$71.72	\$71.72	\$0.00	\$0.00	\$0.00	\$0.00	\$71.72	\$559,416.00	100%	9%	\$1,219,527	FLC FLCDataCenter	Assumes 150 hrs per dock/structure	
L13	Paralegal	10,400	HR	1.00	\$29.56	\$29.56	\$0.00	\$0.00	\$0.00	\$0.00	\$29.56	\$307,424.00	100%	9%	\$670,184	FLC FLCDataCenter	Assumes 200 hrs per dock/structure	
L3	Clerks, Typist, Bookkeeper & Receptionist	5,200	HR	1.00	\$19.89	\$19.89	\$0.00	\$0.00	\$0.00	\$0.00	\$19.89	\$103,428.00	100%	9%	\$225,473	FLC FLCDataCenter	Assumes 100 hrs per dock/structure	
<b>Enforcement Tools</b>																		
L11	Project Manager	260	HR	1.00	\$82.17	\$82.17	\$0.00	\$0.00	\$0.00	\$0.00	\$82.17	\$21,364.20	100%	9%	\$46,574	FLC FLCDataCenter	Assumes 0.125 FTE for implementation of enforcement tools	
L5	Environmental Lawyer	2,080	HR	1.00	\$71.72	\$71.72	\$0.00	\$0.00	\$0.00	\$0.00	\$71.72	\$149,177.60	100%	9%	\$325,207	FLC FLCDataCenter	Assumes 1 FTE for implementation of enforcement tools	
L13	Paralegal	4,160	HR	1.00	\$29.56	\$29.56	\$0.00	\$0.00	\$0.00	\$0.00	\$29.56	\$122,969.60	100%	9%	\$268,074	FLC FLCDataCenter	Assumes 2 FTE for implementation of enforcement tools	
L3	Clerks, Typist, Bookkeeper & Receptionist	260	HR	1.00	\$19.89	\$19.89	\$0.00	\$0.00	\$0.00	\$0.00	\$19.89	\$5,171.40	100%	9%	\$11,274	FLC FLCDataCenter	Assumes 0.125 FTE for implementation of enforcement tools	
															<b>TOTAL COST:</b>		\$3,716,324	

COST WORKSHEET SUMMARY	Representative	Unit(s)	Total Cost	Unit Cost
	Unit Quantity			
	1	LS	\$3,716,324	\$3,716,324

**TABLE CW-F(MOD)-2**

**Alternative F (Modified) Cost Worksheet: CW-F(MOD)-2**

**Capital Cost Sub-Element  
Initial Establishment of Institutional Controls**

**COST WORKSHEET**

<b>Site:</b> Portland Harbor Superfund Site	<b>Prepared By:</b> JN	<b>Date:</b> 10/20/2016
<b>Location:</b> Portland, Oregon		
<b>Phase:</b> Record of Decision	<b>Checked By:</b> MS	<b>Date:</b> 10/27/2016
<b>Base Year:</b> 2016		

**Notes:**  
 Further information about the development of cost worksheets can be found in the memorandum - Methodology and Organization of Selected Remedy Cost Estimate.  
 The quantity bolded in the QTY column is the quantity selected as the representative unit quantity for this cost worksheet. If multiple quantities are bolded, the representative unit quantity is the sum of those quantities. When the LS unit is utilized, the default representative unit quantity is 1.  
 HTRW productivity factor is from Exhibit B-3 or B-4 of "A Guide to Developing and Documenting Cost Estimates During the Feasibility Study", EPA 2000  
 EPA developed project-specific unit costs using the Micro Computer Aided Cost Engineering System (MCACES) Second Generation (MII) software version 4.2, build 3

**Abbreviations:**

QTY	Quantity	AC	Acre
EQUIP	Equipment	CLF	100 Linear Foot
MATL	Material	CY	Cubic Yard
HPF	HTRW Productivity Factor	DY	Days
ADJ LABOR	Adjusted Labor for HFP	EA	Each
ADJ EQUIP	Adjusted Equipment for HFP	FTE	Full Time Equivalent
UNMOD UC	Unmodified Unit Cost	HR	Hours
UNMOD LIC	Unmodified Line Item Cost	LB	Pounds
UNBUR LIC	Unburdened Line Item Cost	LCY	Loose Cubic Yard
PC OH	Prime Contractor Overhead	LF	Linear Foot
PC PF	Prime Contractor Profit	LS	Lump Sum
BUR LIC	Burdened Line Item Cost	MO	Month
		SF	Square Foot
		SY	Square Yard
		TON	Tons
		YR	Years

**Cost Database Code:**  
 The Cost Database Code is a reference code for linking with line item cost information with the cost source database and is not otherwise used within these cost worksheets. The following cost source database prefixes apply:  
 L (EPA-Derived Labor Unit Costs), M (Project-Specific Vendor Unit Costs), P (Previously Developed Unit Costs by Anchor QEA for Portland Harbor), A (EPA-Derived MII Unit Costs), O (Unit Costs from Other Projects/Sources)

**Source of Cost Data:**  
 For citation references, the following sources apply:  
 ALL (Allowance), FLC (www.fldatacenter.com), LD (Costs Derived from Lower Duwamish Waterway Final Feasibility Study), MII (MII), O (Other), P (Previously Developed by Anchor QEA for Portland Harbor), and V (Vendor Quote)

<b>Cost Adjustment Checklist:</b>	<b>NOTES:</b>
FACTOR:	Field work will be in Level "D" PPE.
H&S Productivity (labor and equipment only)	MII assembly costs include HPF adjustments.
Escalation to Base Year	2016 cost sources are not escalated (EF=1.00). All other costs are escalated based on the USACE CWCCIS, EM 1110-2-1304, Sept 2015.
Area Cost Factor	An AF of 1.05 is used for Oregon, except that an AF of 1.00 (national unmodified average) is used for MII assembly costs and local vendor quotes.
Subcontractor Overhead and Profit	It is assumed that home office OH is 8% and profit is 9% for the Prime Contractor. Professional labor overhead is 100%.
Prime Contractor Overhead and Profit	Allowances and items with mandated costs such as per diem do not have overhead and profit applied. Items previously developed by Anchor QEA already include contractor markups, therefore overhead and profit were not applied to those items. It is assumed that OH is 1% and profit is 0% for vendor quotes for treatment and disposal at offsite disposal facilities. It is assumed that OH is 5% and profit is 0% for quotes for all other material vendor quotes. Items developed using MII already include contractor markups such as overhead and profit, therefore additional overhead and profit were not applied in the PC OH and PC PF to those items.

TABLE CW-F(MOD)-3

Alternative F (Modified) Cost Worksheet: CW-F(MOD)-3

**COST WORKSHEET**

**Periodic Cost Sub-Element  
Evaluating and Updating Institutional Controls**

Site: Portland Harbor Superfund Site  
 Location: Portland, Oregon  
 Phase: Record of Decision  
 Base Year: 2016

Prepared By: JN Date: 10/20/2016  
 Checked By: MS Date: 10/27/2016

**Work Statement:**  
 This sub-element involves evaluating and updating of institutional controls for the site. The following cost includes labor and materials to required for evaluating and updating institutional controls every 5 years.  
 Quantity development presented in Appendix IV.

**Cost Analysis:**  
 Cost for Evaluating and Updating Institutional Controls (Lump Sum)

COST DATABASE CODE	DESCRIPTION	QTY	UNIT(S)	HPF	LABOR	ADJ LABOR	EQUIP	ADJ EQUIP	MATL	OTHER	UNMOD UC	UNMOD LIC	PC OH	PC PF	BUR LIC	COST SOURCE CITATION	COMMENTS
<b>Informational Devices - Fish Consumption Advisory</b>																	
L11	Project Manager	208	HR	1.00	\$82.17	\$82.17	\$0.00	\$0.00	\$0.00	\$0.00	\$82.17	\$17,091.36	100%	9%	\$37,259	FLC FLCDataCenter	Assumes 10% of initial costs for updating periodically
L4	Environmental Engineer	104	HR	1.00	\$48.91	\$48.91	\$0.00	\$0.00	\$0.00	\$0.00	\$48.91	\$5,086.64	100%	9%	\$11,089	FLC FLCDataCenter	Assumes 10% of initial costs for updating periodically
L6	Environmental Scientist	104	HR	1.00	\$37.70	\$37.70	\$0.00	\$0.00	\$0.00	\$0.00	\$37.70	\$3,920.80	100%	9%	\$8,547	FLC FLCDataCenter	Assumes 10% of initial costs for updating periodically
L3	Clerks, Typist, Bookkeeper & Receptionist	52	HR	1.00	\$19.89	\$19.89	\$0.00	\$0.00	\$0.00	\$0.00	\$19.89	\$1,034.28	100%	9%	\$2,255	FLC FLCDataCenter	Assumes 10% of initial costs for updating periodically
L5	Environmental Lawyer	26	HR	1.00	\$71.72	\$71.72	\$0.00	\$0.00	\$0.00	\$0.00	\$71.72	\$1,864.72	100%	9%	\$4,065	FLC FLCDataCenter	Assumes 10% of initial costs for updating periodically
L13	Paralegal	26	HR	1.00	\$29.56	\$29.56	\$0.00	\$0.00	\$0.00	\$0.00	\$29.56	\$768.56	100%	9%	\$1,675	FLC FLCDataCenter	Assumes 10% of initial costs for updating periodically
M26	Signage	50	EA	1.00	\$0.00	\$0.00	\$0.00	\$0.00	\$165.75	\$0.00	\$165.75	\$8,287.50	5%	0%	\$8,702	V Vendor Quote	Assumes 100% replacement of signs every 5 years
L8	Field Technician	50	HR	1.00	\$31.42	\$31.42	\$0.00	\$0.00	\$0.00	\$0.00	\$31.42	\$1,571.00	100%	9%	\$3,425	FLC FLCDataCenter	Assumes 1 hr/sign for sign placement (2 technician crew)
O5	Allowance for Production & Copies for Advisories	5	LS	1.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$1,000.00	\$1,000.00	\$5,000.00	0%	0%	\$5,000	ALL Allowance	Assumes yearly allowance for production and copies during 5-yr periodic updates
<b>Informational Devices - Regulated Navigation Area (RNA) Setup</b>																	
L11	Project Manager	200	HR	1.00	\$82.17	\$82.17	\$0.00	\$0.00	\$0.00	\$0.00	\$82.17	\$16,434.00	100%	9%	\$35,826	FLC FLCDataCenter	Project-specific unit cost developed by EPA.
L4	Environmental Engineer	150	HR	1.00	\$48.91	\$48.91	\$0.00	\$0.00	\$0.00	\$0.00	\$48.91	\$7,336.50	100%	9%	\$15,994	FLC FLCDataCenter	Project-specific unit cost developed by EPA.
L3	Clerks, Typist, Bookkeeper & Receptionist	40	HR	1.00	\$19.89	\$19.89	\$0.00	\$0.00	\$0.00	\$0.00	\$19.89	\$795.60	100%	9%	\$1,734	FLC FLCDataCenter	Project-specific unit cost developed by EPA.
A1	18' Boat	444	HR	1.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$25.42	\$25.42	\$11,286.48	0%	0%	\$11,286	MII MII	Assumes 2 hr/buoy for buoy setup
L17	Boat Operator	444	HR	1.00	\$33.16	\$33.16	\$0.00	\$0.00	\$0.00	\$0.00	\$33.16	\$14,723.04	100%	9%	\$32,096	FLC FLCDataCenter	Assumes 2 hr/buoy for buoy setup
L8	Field Technician	888	HR	1.00	\$31.42	\$31.42	\$0.00	\$0.00	\$0.00	\$0.00	\$31.42	\$27,900.96	100%	9%	\$60,824	FLC FLCDataCenter	Assumes 4 hrs/buoy for buoy setup (2 technician crew)
M21	Buoy	222	EA	1.00	\$0.00	\$0.00	\$0.00	\$0.00	\$558.63	\$0.00	\$558.63	\$124,015.86	5%	0%	\$130,217	V Vendor Quote	Assumes 100% replacement of buoys every 5 years. Quote - Go2Marine 2016.
<b>Proprietary Controls</b>																	
L5	Environmental Lawyer	780	HR	1.00	\$71.72	\$71.72	\$0.00	\$0.00	\$0.00	\$0.00	\$71.72	\$55,941.60	100%	9%	\$121,953	FLC FLCDataCenter	Assumes 10% of initial costs for updating periodically
L13	Paralegal	1,040	HR	1.00	\$29.56	\$29.56	\$0.00	\$0.00	\$0.00	\$0.00	\$29.56	\$30,742.40	100%	9%	\$67,018	FLC FLCDataCenter	Assumes 10% of initial costs for updating periodically
L3	Clerks, Typist, Bookkeeper & Receptionist	520	HR	1.00	\$19.89	\$19.89	\$0.00	\$0.00	\$0.00	\$0.00	\$19.89	\$10,342.80	100%	9%	\$22,547	FLC FLCDataCenter	Assumes 10% of initial costs for updating periodically
<b>Enforcement Tools</b>																	
L11	Project Manager	26	HR	1.00	\$82.17	\$82.17	\$0.00	\$0.00	\$0.00	\$0.00	\$82.17	\$2,136.42	100%	9%	\$4,657	FLC FLCDataCenter	Assumes 10% of initial costs for updating periodically
L5	Environmental Lawyer	208	HR	1.00	\$71.72	\$71.72	\$0.00	\$0.00	\$0.00	\$0.00	\$71.72	\$14,917.76	100%	9%	\$32,521	FLC FLCDataCenter	Assumes 10% of initial costs for updating periodically
L13	Paralegal	416	HR	1.00	\$29.56	\$29.56	\$0.00	\$0.00	\$0.00	\$0.00	\$29.56	\$12,296.96	100%	9%	\$26,807	FLC FLCDataCenter	Assumes 10% of initial costs for updating periodically
L3	Clerks, Typist, Bookkeeper & Receptionist	26	HR	1.00	\$19.89	\$19.89	\$0.00	\$0.00	\$0.00	\$0.00	\$19.89	\$517.14	100%	9%	\$1,127	FLC FLCDataCenter	Assumes 10% of initial costs for updating periodically
<b>TOTAL COST:</b>															\$646,624		

COST WORKSHEET SUMMARY	Representative	Unit(s)	Total Cost	Unit Cost
	Unit Quantity			
	1	LS	\$646,624	\$646,624

**TABLE CW-F(MOD)-3**

**Alternative F (Modified)**

**Cost Worksheet: CW-F(MOD)-3**

**COST WORKSHEET**

**Periodic Cost Sub-Element  
Evaluating and Updating Institutional Controls**

**Site:** Portland Harbor Superfund Site  
**Location:** Portland, Oregon  
**Phase:** Record of Decision  
**Base Year:** 2016

**Prepared By:** JN      **Date:** 10/20/2016  
**Checked By:** MS      **Date:** 10/27/2016

**Notes:**

Further information about the development of cost worksheets can be found in the memorandum - Methodology and Organization of Selected Remedy Cost Estimate.  
 The quantity bolded in the QTY column is the quantity selected as the representative unit quantity for this cost worksheet. If multiple quantities are bolded, the representative unit quantity is the sum of those quantities. When the LS unit is utilized, the default representative unit quantity is 1.  
 HTRW productivity factor is from Exhibit B-3 or B-4 of "A Guide to Developing and Documenting Cost Estimates During the Feasibility Study", EPA 2000  
 EPA developed project-specific unit costs using the Micro Computer Aided Cost Engineering System (MCACES) Second Generation (MII) software version 4.2, build 3

**Abbreviations:**

QTY	Quantity	AC	Acres
EQUIP	Equipment	CLF	100 Linear Foot
MATL	Material	CY	Cubic Yard
HPF	HTRW Productivity Factor	DY	Days
ADJ LABOR	Adjusted Labor for HFP	EA	Each
ADJ EQUIP	Adjusted Equipment for HFP	FTE	Full Time Equivalent
UNMOD UC	Unmodified Unit Cost	HR	Hours
UNMOD LIC	Unmodified Line Item Cost	LB	Pounds
UNBUR LIC	Unburdened Line Item Cost	LCY	Loose Cubic Yard
PC OH	Prime Contractor Overhead	LF	Linear Foot
PC PF	Prime Contractor Profit	LS	Lump Sum
BUR LIC	Burdened Line Item Cost	MO	Month
		SF	Square Foot
		SY	Square Yard
		TON	Tons
		YR	Years

**Cost Database Code:**

The Cost Database Code is a reference code for linking with line item cost information with the cost source database and is not otherwise used within these cost worksheets. The following cost source database prefixes apply:  
 L (EPA-Derived Labor Unit Costs), M (Project-Specific Vendor Unit Costs), P (Previously Developed Unit Costs by Anchor QEA for Portland Harbor), A (EPA-Derived MII Unit Costs), O (Unit Costs from Other Projects/Sources)

**Source of Cost Data:**

For citation references, the following sources apply:  
 ALL (Allowance), FLC (www.fldatacenter.com), LD (Costs Derived from Lower Duwamish Waterway Final Feasibility Study), MII (MII), O (Other), P (Previously Developed by Anchor QEA for Portland Harbor), and V (Vendor Quote)

**Cost Adjustment Checklist:**

**FACTOR:**  
 H&S Productivity (labor and equipment only)  
 Escalation to Base Year  
 Area Cost Factor  
 Subcontractor Overhead and Profit  
 Prime Contractor Overhead and Profit

**NOTES:**

Field work will be in Level "D" PPE.  
 MII assembly costs include HPF adjustments.  
 2016 cost sources are not escalated (EF=1.00). All other costs are escalated based on the USACE CWCCIS, EM 1110-2-1304, Sept 2015.  
 An AF of 1.05 is used for Oregon, except that an AF of 1.00 (national unmodified average) is used for MII assembly costs and local vendor quotes.  
 It is assumed that home office OH is 8% and profit is 9% for the Prime Contractor. Professional labor overhead is 100%.  
 Allowances and items with mandated costs such as per diem do not have overhead and profit applied.  
 Items previously developed by Anchor QEA already include contractor markups, therefore overhead and profit were not applied to those items.  
 It is assumed that OH is 1% and profit is 0% for vendor quotes for treatment and disposal at offsite disposal facilities. It is assumed that OH is 5% and profit is 0% for quotes for all other material vendor quotes.  
 Items developed using MII already include contractor markups such as overhead and profit, therefore additional overhead and profit were not applied in the PC OH and PC PF to those items.



**TABLE CW-F(MOD)-5**

**Alternative F (Modified)  
Capital Cost Sub-Element  
Debris Removal and Disposal**

**Cost Worksheet: CW-F(MOD)-5**

**COST WORKSHEET**

**Site:** Portland Harbor Superfund Site  
**Location:** Portland, Oregon  
**Phase:** Record of Decision  
**Base Year:** 2016

**Prepared By:** JN      **Date:** 10/20/2016  
**Checked By:** MS      **Date:** 10/27/2016

**Work Statement:**  
This sub-element involves removal and disposal of debris for all areas prior to remedial activities. It includes costs for on-site labor, equipment, and materials developed from previous work. Quantity development presented in Appendix IV.

**Cost Analysis:**  
Cost for Debris Removal and Disposal (Lump Sum)

COST DATABASE CODE	DESCRIPTION	QTY	UNIT(S)	HPF	LABOR	ADJ LABOR	EQUIP	ADJ EQUIP	MATL	OTHER	UNMOD UC	UNMOD LIC	PC OH	PC PF	BUR LIC	COST SOURCE CITATION	COMMENTS
P9	Debris Removal and Disposal	<b>394</b>	AC	1.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$13,107.01	\$13,107.01	\$5,164,161.94	0%	0%	\$5,164,162	P Anchor QEA	Project-specific cost developed by Anchor QEA (2010) - see Backup Table 2.
<b>TOTAL COST:</b>															\$5,164,162		

	<u>Representative Unit Quantity</u>	<u>Unit(s)</u>	<u>Total Cost</u>	<u>Unit Cost</u>
<b>COST WORKSHEET SUMMARY</b>				
	394	AC	\$5,164,162	\$13,107

**Notes:**  
Further information about the development of cost worksheets can be found in the memorandum - Methodology and Organization of Selected Remedy Cost Estimate. The quantity bolded in the QTY column is the quantity selected as the representative unit quantity for this cost worksheet. If multiple quantities are bolded, the representative unit quantity is the sum of those quantities. When the LS unit is utilized, the default representative unit quantity is 1.  
HTRW productivity factor is from Exhibit B-3 or B-4 of "A Guide to Developing and Documenting Cost Estimates During the Feasibility Study", EPA 2000  
EPA developed project-specific unit costs using the Micro Computer Aided Cost Engineering System (MCACES) Second Generation (MII) software version 4.2, build 3

**Abbreviations:**

QTY	Quantity	AC	Acre
EQUIP	Equipment	CLF	100 Linear Foot
MATL	Material	CY	Cubic Yard
HPF	HTRW Productivity Factor	DY	Days
ADJ LABOR	Adjusted Labor for HFP	EA	Each
ADJ EQUIP	Adjusted Equipment for HFP	FTE	Full Time Equivalent
UNMOD UC	Unmodified Unit Cost	HR	Hours
UNMOD LIC	Unmodified Line Item Cost	LB	Pounds
UNBUR LIC	Unburdened Line Item Cost	LCY	Loose Cubic Yard
PC OH	Prime Contractor Overhead	LF	Linear Foot
PC PF	Prime Contractor Profit	LS	Lump Sum
BUR LIC	Burdened Line Item Cost	MO	Morth
		SF	Square Foot
		SY	Square Yard
		TON	Tons
		YR	Years

**Cost Database Code:**  
The Cost Database Code is a reference code for linking with line item cost information with the cost source database and is not otherwise used within these cost worksheets. The following cost source database prefixes apply:  
L (EPA-Derived Labor Unit Costs), M (Project-Specific Vendor Unit Costs), P (Previously Developed Unit Costs by Anchor QEA for Portland Harbor), A (EPA-Derived MII Unit Costs), O (Unit Costs from Other Projects/Sources)

**Source of Cost Data:**  
For citation references, the following sources apply:  
ALL (Allowance), FLC (www.flodatacenter.com), LD (Costs Derived from Lower Duwamish Waterway Final Feasibility Study), MII (MII), O (Other), P (Previously Developed by Anchor QEA for Portland Harbor), and V (Vendor Quote)

**Cost Adjustment Checklist:**

<b>FACTOR:</b>	<b>NOTES:</b>
H&S Productivity (labor and equipment only)	Field work will be in Level "D" PPE.
Escalation to Base Year	MII assembly costs include HPF adjustments.
Area Cost Factor	2016 cost sources are not escalated (EF=1.00). All other costs are escalated based on the USACE CWCCIS, EM 1110-2-1304, Sept 2015.
Subcontractor Overhead and Profit	An AF of 1.05 is used for Oregon, except that an AF of 1.00 (national unmodified average) is used for MII assembly costs and local vendor quotes. It is assumed that home office OH is 8% and profit is 9% for the Prime Contractor. Professional labor overhead is 100%.
Prime Contractor Overhead and Profit	Allowances and items with mandated costs such as per diem do not have overhead and profit applied. Items previously developed by Anchor QEA already include contractor markups, therefore overhead and profit were not applied to those items. It is assumed that OH is 1% and profit is 0% for vendor quotes for treatment and disposal at offsite disposal facilities. It is assumed that OH is 5% and profit is 0% for quotes for all other material vendor quotes. Items developed using MII already include contractor markups such as overhead and profit, therefore additional overhead and profit were not applied in the PC OH and PC PF to those items.

**TABLE CW-F(MOD)-6**

**Alternative F (Modified)**  
**Capital Cost Sub-Element**  
**Obstruction Removal and Relocation**

**Cost Worksheet: CW-F(MOD)-6**

**COST WORKSHEET**

**Site:** Portland Harbor Superfund Site  
**Location:** Portland, Oregon  
**Phase:** Record of Decision  
**Base Year:** 2016

**Prepared By:** JN      **Date:** 10/20/2016  
**Checked By:** MS      **Date:** 10/27/2016

**Work Statement:**

This sub-element involves all work related to obstructions removal, relocation, and disposal. It includes all costs for labor, equipment and materials developed from previous work for pile removal and disposal, pile replacement, and temporary dock relocation. Quantity development presented in Appendix IV.

**Cost Analysis:**

Cost for Obstructions (Lump Sum)

COST DATABASE CODE	DESCRIPTION	QTY	UNIT(S)	HPF	LABOR	ADJ LABOR	EQUIP	ADJ EQUIP	MATL	OTHER	UNMOD UC	UNMOD LIC	PC OH	PC PF	BUR LIC	COST SOURCE CITATION	COMMENTS	
P10	Pile Removal and Disposal	2,418	EA	1.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$715.65	\$715.65	\$1,730,429.61	0%	0%	\$1,730,430	P Anchor QEA	Project-specific cost developed by Anchor QEA (2010) - see Backup Table 3.	
P11	Pile Replacement	2,418	EA	1.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$7,478.77	\$7,478.77	\$18,083,670.70	0%	0%	\$18,083,671	P Anchor QEA	Project-specific cost developed by Anchor QEA (2010) - see Backup Table 4.	
P12	Temporary Dock Relocation	9	EA	1.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$100,497.97	\$100,497.97	\$904,481.74	0%	0%	\$904,482	P Anchor QEA	Project-specific cost developed by Anchor QEA (2010) - see Backup Table 5.	
<b>TOTAL COST:</b>															\$20,718,583			

	Representative Unit Quantity	Unit(s)	Total Cost	Unit Cost
<b>COST WORKSHEET SUMMARY</b>				
	1	LS	\$20,718,583	\$20,718,583

**Notes:**

Further information about the development of cost worksheets can be found in the memorandum - Methodology and Organization of Selected Remedy Cost Estimate. The quantity bolded in the QTY column is the quantity selected as the representative unit quantity for this cost worksheet. If multiple quantities are bolded, the representative unit quantity is the sum of those quantities. When the LS unit is utilized, the default representative unit quantity is 1.  
 HTRW productivity factor is from Exhibit B-3 or B-4 of "A Guide to Developing and Documenting Cost Estimates During the Feasibility Study", EPA 2000  
 EPA developed project-specific unit costs using the Micro Computer Aided Cost Engineering System (MCACES) Second Generation (MII) software version 4.2, build 3

**Abbreviations:**

QTY	Quantity	AC	Acre
EQUIP	Equipment	CLF	100 Linear Foot
MATL	Material	CY	Cubic Yard
HPF	HTRW Productivity Factor	DY	Days
ADJ LABOR	Adjusted Labor for HFP	EA	Each
ADJ EQUIP	Adjusted Equipment for HFP	FTE	Full Time Equivalent
UNMOD UC	Unmodified Unit Cost	HR	Hours
UNMOD LIC	Unmodified Line Item Cost	LB	Pounds
UNBUR LIC	Unburdened Line Item Cost	LCY	Loose Cubic Yard
PC OH	Prime Contractor Overhead	LF	Linear Foot
PC PF	Prime Contractor Profit	LS	Lump Sum
BUR LIC	Burdened Line Item Cost	MO	Month
		SF	Square Foot
		SY	Square Yard
		TON	Tons
		YR	Years

**Cost Database Code:**

The Cost Database Code is a reference code for linking with line item cost information with the cost source database and is not otherwise used within these cost worksheets. The following cost source database prefixes apply:  
 L (EPA-Derived Labor Unit Costs), M (Project-Specific Vendor Unit Costs), P (Previously Developed Unit Costs by Anchor QEA for Portland Harbor), A (EPA-Derived MII Unit Costs), O (Unit Costs from Other Projects/Sources)

**Source of Cost Data:**

For citation references, the following sources apply:  
 ALL (Allowance), FLC (www.flcdatabase.com), LD (Costs Derived from Lower Duwamish Waterway Final Feasibility Study), MII (MII), O (Other), P (Previously Developed by Anchor QEA for Portland Harbor), and V (Vendor Quote)

**Cost Adjustment Checklist:**

**FACTOR:**  
 H&S Productivity (labor and equipment only)  
 Escalation to Base Year  
 Area Cost Factor  
 Subcontractor Overhead and Profit  
 Prime Contractor Overhead and Profit

**NOTES:**

Field work will be in Level "D" PPE.  
 MII assembly costs include HPF adjustments.  
 2016 cost sources are not escalated (EF=1.00). All other costs are escalated based on the USACE CWCCIS, EM 1110-2-1304, Sept 2015.  
 An AF of 1.05 is used for Oregon, except that an AF of 1.00 (national unmodified average) is used for MII assembly costs and local vendor quotes.  
 It is assumed that home office OH is 8% and profit is 9% for the Prime Contractor. Professional labor overhead is 100%.  
 Allowances and items with mandated costs such as per diem do not have overhead and profit applied.  
 Items previously developed by Anchor QEA already include contractor markups, therefore overhead and profit were not applied to those items.  
 It is assumed that OH is 1% and profit is 0% for vendor quotes for treatment and disposal at offsite disposal facilities. It is assumed that OH is 5% and profit is 0% for quotes for all other material vendor quotes.  
 Items developed using MII already include contractor markups such as overhead and profit, therefore additional overhead and profit were not applied in the PC OH and PC PF to those items.

**TABLE CW-F(MOD)-7**

**Alternative F (Modified)**

**Cost Worksheet: CW-F(MOD)-7**

**COST WORKSHEET**

**Capital Cost Sub-Element  
Erosion/Residual Control Measures**

**Site:** Portland Harbor Superfund Site  
**Location:** Portland, Oregon  
**Phase:** Record of Decision  
**Base Year:** 2016

**Prepared By:** JN      **Date:** 10/20/2016

**Checked By:** MS      **Date:** 10/27/2016

**Work Statement:**

This sub-element involves the installation, maintenance, and removal of silt curtains and sheet pile walls for erosion and residual control. It includes costs for on-site labor, equipment, and materials developed from previous work. Quantity development presented in Appendix IV.

**Cost Analysis:**

Cost for Erosion/Residual Control Measures (Lump Sum)

COST DATABASE CODE	DESCRIPTION	QTY	UNIT(S)	HPF	LABOR	ADJ LABOR	EQUIP	ADJ EQUIP	MATL	OTHER	UNMOD UC	UNMOD LIC	PC OH	PC PF	BUR LIC	COST SOURCE CITATION	COMMENTS
P13	Purchase, Install and Maintain Silt Curtains	67,500	LF	1.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$96.92	\$96.92	\$6,542,235.00	0%	0%	\$6,542,235	P Anchor QEA	Project-specific cost developed by Anchor QEA (2010) - see Backup Table 7.
P14	Purchase, Install and Remove Sheet Pile Walls	7,500	LF	1.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$2,749.88	\$2,749.88	\$20,624,100.00	0%	0%	\$20,624,100	P Anchor QEA	Project-specific cost developed by Anchor QEA (2010) - see Backup Table 6.
<b>TOTAL COST:</b>															\$27,166,335		

	Representative Unit Quantity	Unit(s)	Total Cost	Unit Cost
<b>COST WORKSHEET SUMMARY</b>				
	1	LS	\$27,166,335	\$27,166,335

**Notes:**

Further information about the development of cost worksheets can be found in the memorandum - Methodology and Organization of Selected Remedy Cost Estimate. The quantity bolded in the QTY column is the quantity selected as the representative unit quantity for this cost worksheet. If multiple quantities are bolded, the representative unit quantity is the sum of those quantities. When the LS unit is utilized, the default representative unit quantity is 1.  
 HTRW productivity factor is from Exhibit B-3 or B-4 of "A Guide to Developing and Documenting Cost Estimates During the Feasibility Study", EPA 2000  
 EPA developed project-specific unit costs using the Micro Computer Aided Cost Engineering System (MCACES) Second Generation (MII) software version 4.2, build 3

**Abbreviations:**

QTY	Quantity	AC	Acre
EQUIP	Equipment	CLF	100 Linear Foot
MATL	Material	CY	Cubic Yard
HPF	HTRW Productivity Factor	DY	Days
ADJ LABOR	Adjusted Labor for HFP	EA	Each
ADJ EQUIP	Adjusted Equipment for HFP	FTE	Full Time Equivalent
UNMOD UC	Unmodified Unit Cost	HR	Hours
UNMOD LIC	Unmodified Line Item Cost	LB	Pounds
UNBUR LIC	Unburdened Line Item Cost	LCY	Loose Cubic Yard
PC OH	Prime Contractor Overhead	LF	Linear Foot
PC PF	Prime Contractor Profit	LS	Lump Sum
BUR LIC	Burdened Line Item Cost	MO	Month
		SF	Square Foot
		SY	Square Yard
		TON	Tons
		YR	Years

**Cost Database Code:**

The Cost Database Code is a reference code for linking with line item cost information with the cost source database and is not otherwise used within these cost worksheets. The following cost source database prefixes apply:  
 L (EPA-Derived Labor Unit Costs), M (Project-Specific Vendor Unit Costs), P (Previously Developed Unit Costs by Anchor QEA for Portland Harbor), A (EPA-Derived MII Unit Costs), O (Unit Costs from Other Projects/Sources)

**Source of Cost Data:**

For citation references, the following sources apply:  
 ALL (Allowance), FLC (www.flcdatabase.com), LD (Costs Derived from Lower Duwamish Waterway Final Feasibility Study), MII (MII), O (Other), P (Previously Developed by Anchor QEA for Portland Harbor), and V (Vendor Quote)

**Cost Adjustment Checklist:**

**NOTES:**

**FACTOR:**  
 H&S Productivity (labor and equipment only)  
 Escalation to Base Year  
 Area Cost Factor  
 Subcontractor Overhead and Profit  
 Prime Contractor Overhead and Profit

Field work will be in Level "D" PPE.  
 MII assembly costs include HPF adjustments.  
 2016 cost sources are not escalated (EF=1.00). All other costs are escalated based on the USACE CWCCIS, EM 1110-2-1304, Sept 2015.  
 An AF of 1.05 is used for Oregon, except that an AF of 1.00 (national unmodified average) is used for MII assembly costs and local vendor quotes.  
 It is assumed that home office OH is 8% and profit is 9% for the Prime Contractor. Professional labor overhead is 100%.  
 Allowances and items with mandated costs such as per diem do not have overhead and profit applied.  
 Items previously developed by Anchor QEA already include contractor markups, therefore overhead and profit were not applied to those items.  
 It is assumed that OH is 1% and profit is 0% for vendor quotes for treatment and disposal at offsite disposal facilities. It is assumed that OH is 5% and profit is 0% for quotes for all other material vendor quotes.  
 Items developed using MII already include contractor markups such as overhead and profit, therefore additional overhead and profit were not applied in the PC OH and PC PF to those items.

**TABLE CW-F(MOD)-8**

**Alternative F (Modified) Cost Worksheet: CW-F(MOD)-8**

**COST WORKSHEET**

**Capital Cost Sub-Element  
Dredging of Contaminated Sediments (Open Water)**

**Site:** Portland Harbor Superfund Site  
**Location:** Portland, Oregon  
**Phase:** Record of Decision  
**Base Year:** 2016

**Prepared By:** JN      **Date:** 10/20/2016  
**Checked By:** MS      **Date:** 10/27/2016

**Work Statement:**

This sub-element involves mechanical dredging of contaminated sediments in open water areas and transport to dewatering/stabilization area. It includes costs for on-site labor, equipment, and materials for open water dredging, assuming a 10 CY barge mounted crane and clamshell. Quantity development presented in Appendix IV.

**Cost Analysis:**

Cost for Open Water Dredging (Lump Sum)

COST DATABASE CODE	DESCRIPTION	QTY	UNIT(S)	HPF	LABOR	ADJ LABOR	EQUIP	ADJ EQUIP	MATL	OTHER	UNMOD UC	UNMOD LIC	PC OH	PC PF	BUR LIC	COST SOURCE CITATION	COMMENTS
A6	Open Water Dredging	2,771,122	CY	1.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$24.53	\$24.53	\$67,975,622.66	0%	0%	\$67,975,623	MII MII	Project-specific unit cost developed in MII.
<b>TOTAL COST:</b>													\$67,975,623				
												<b>Representative Unit Quantity</b>	<b>Unit(s)</b>	<b>Total Cost</b>	<b>Unit Cost</b>		
<b>COST WORKSHEET SUMMARY</b>												2,771,122	CY	\$67,975,623	\$24.53		

**Notes:**

Further information about the development of cost worksheets can be found in the memorandum - Methodology and Organization of Selected Remedy Cost Estimate. The quantity bolded in the QTY column is the quantity selected as the representative unit quantity for this cost worksheet. If multiple quantities are bolded, the representative unit quantity is the sum of those quantities. When the LS unit is utilized, the default representative unit quantity is 1. HTRW productivity factor is from Exhibit B-3 or B-4 of "A Guide to Developing and Documenting Cost Estimates During the Feasibility Study", EPA 2000. EPA developed project-specific unit costs using the Micro Computer Aided Cost Engineering System (MCACES) Second Generation (MII) software version 4.2, build 3.

**Abbreviations:**

QTY Quantity  
EQUIP Equipment  
MATL Material  
HPF HTRW Productivity Factor  
ADJ LABOR Adjusted Labor for HFP  
ADJ EQUIP Adjusted Equipment for HFP  
UNMOD UC Unmodified Unit Cost  
UNMOD LIC Unmodified Line Item Cost  
UNBUR LIC Unburdened Line Item Cost  
PC OH Prime Contractor Overhead  
PC PF Prime Contractor Profit  
BUR LIC Burdened Line Item Cost

AC Acres  
CLF 100 Linear Foot  
CY Cubic Yard  
DY Days  
EA Each  
FTE Full Time Equivalent  
HR Hours  
LB Pounds  
LCY Loose Cubic Yard  
LF Linear Foot  
LS Lump Sum  
MO Month  
SF Square Foot  
SY Square Yard  
TON Tons  
YR Years

**Cost Database Code:**

The Cost Database Code is a reference code for linking with line item cost information with the cost source database and is not otherwise used within these cost worksheets. The following cost source database prefixes apply:  
L (EPA-Derived Labor Unit Costs), M (Project-Specific Vendor Unit Costs), P (Previously Developed Unit Costs by Anchor QEA for Portland Harbor), A (EPA-Derived MII Unit Costs), O (Unit Costs from Other Projects/Sources)

**Source of Cost Data:**

For citation references, the following sources apply:  
ALL (Allowance), FLC (www.flcdatacenter.com), LD (Costs Derived from Lower Duwamish Waterway Final Feasibility Study), MII (MII), O (Other), P (Previously Developed by Anchor QEA for Portland Harbor), and V (Vendor Quote)

**Cost Adjustment Checklist:**

**FACTOR:**  
H&S Productivity (labor and equipment only)  
Escalation to Base Year  
Area Cost Factor  
Subcontractor Overhead and Profit  
Prime Contractor Overhead and Profit

**NOTES:**

Field work will be in Level "D" PPE.  
MII assembly costs include HPF adjustments.  
2016 cost sources are not escalated (EF=1.00). All other costs are escalated based on the USACE CWCCIS, EM 1110-2-1304, Sept 2015.  
An AF of 1.05 is used for Oregon, except that an AF of 1.00 (national unmodified average) is used for MII assembly costs and local vendor quotes.  
It is assumed that home office OH is 8% and profit is 9% for the Prime Contractor. Professional labor overhead is 100%.  
Allowances and items with mandated costs such as per diem do not have overhead and profit applied.  
Items previously developed by Anchor QEA already include contractor markups, therefore overhead and profit were not applied to those items.  
It is assumed that OH is 1% and profit is 0% for vendor quotes for treatment and disposal at offsite disposal facilities. It is assumed that OH is 5% and profit is 0% for quotes for all other material vendor quotes.  
Items developed using MII already include contractor markups such as overhead and profit, therefore additional overhead and profit were not applied in the PC OH and PC PF to those items.

**TABLE CW-F(MOD)-9**

**Alternative F (Modified) Cost Worksheet: CW-F(MOD)-9**

**COST WORKSHEET**

**Capital Cost Sub-Element  
Dredging of Contaminated Sediments (Confined)**

**Site:** Portland Harbor Superfund Site **Prepared By:** JN **Date:** 10/20/2016  
**Location:** Portland, Oregon  
**Phase:** Record of Decision **Checked By:** MS **Date:** 10/27/2016  
**Base Year:** 2016

**Work Statement:**  
 This sub-element involves mechanical dredging of contaminated sediments in confined areas and transport to dewatering/stabilization area. It includes costs for on-site labor, equipment, and materials for confined dredging, assuming a 4 CY barge mounted excavator. Quantity development presented in Appendix IV.

**Cost Analysis:**  
 Cost for Confined Dredging (Lump Sum)

COST DATABASE CODE	DESCRIPTION	QTY	UNIT(S)	HPF	LABOR	ADJ LABOR	EQUIP	ADJ EQUIP	MATL	OTHER	UNMOD UC	UNMOD LIC	PC OH	PC PF	BUR LIC	COST SOURCE CITATION	COMMENTS
A7	Confined Dredging	123,241	CY	1.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$31.10	\$31.10	\$3,832,795.10	0%	0%	\$3,832,795	MII MII	Project-specific unit cost developed in MII.
<b>TOTAL COST:</b>															\$3,832,795		

	<u>Representative Unit Quantity</u>	<u>Unit(s)</u>	<u>Total Cost</u>	<u>Unit Cost</u>
<b>COST WORKSHEET SUMMARY</b>				
	123,241	CY	\$3,832,795	\$31.10

**Notes:**  
 Further information about the development of cost worksheets can be found in the memorandum - Methodology and Organization of Selected Remedy Cost Estimate.  
 The quantity bolded in the QTY column is the quantity selected as the representative unit quantity for this cost worksheet. If multiple quantities are bolded, the representative unit quantity is the sum of those quantities. When the LS unit is utilized, the default representative unit quantity is 1.  
 HTRW productivity factor is from Exhibit B-3 or B-4 of "A Guide to Developing and Documenting Cost Estimates During the Feasibility Study", EPA 2000  
 EPA developed project-specific unit costs using the Micro Computer Aided Cost Engineering System (MCACES) Second Generation (MII) software version 4.2, build 3

**Abbreviations:**

QTY	Quantity	AC	Acre
EQUIP	Equipment	CLF	100 Linear Foot
MATL	Material	CY	Cubic Yard
HPF	HTRW Productivity Factor	DY	Days
ADJ LABOR	Adjusted Labor for HFP	EA	Each
ADJ EQUIP	Adjusted Equipment for HFP	FTE	Full Time Equivalent
UNMOD UC	Unmodified Unit Cost	HR	Hours
UNMOD LIC	Unmodified Line Item Cost	LB	Pounds
UNBUR LIC	Unburdened Line Item Cost	LCY	Loose Cubic Yard
PC OH	Prime Contractor Overhead	LF	Linear Foot
PC PF	Prime Contractor Profit	LS	Lump Sum
BUR LIC	Burdened Line Item Cost	MO	Morth
		SF	Square Foot
		SY	Square Yard
		TON	Tons
		YR	Years

**Cost Database Code:**  
 The Cost Database Code is a reference code for linking with line item cost information with the cost source database and is not otherwise used within these cost worksheets. The following cost source database prefixes apply:  
 L (EPA-Derived Labor Unit Costs), M (Project-Specific Vendor Unit Costs), P (Previously Developed Unit Costs by Anchor QEA for Portland Harbor), A (EPA-Derived MII Unit Costs), O (Unit Costs from Other Projects/Sources)

**Source of Cost Data:**  
 For citation references, the following sources apply:  
 ALL (Allowance), FLC (www.flodatacenter.com), LD (Costs Derived from Lower Duwamish Waterway Final Feasibility Study), MII (MII), O (Other), P (Previously Developed by Anchor QEA for Portland Harbor), and V (Vendor Quote)

**Cost Adjustment Checklist:**  
 FACTOR:  
 H&S Productivity (labor and equipment only)  
 Escalation to Base Year  
 Area Cost Factor  
 Subcontractor Overhead and Profit  
 Prime Contractor Overhead and Profit

**NOTES:**  
 Field work will be in Level "D" PPE.  
 MII assembly costs include HPF adjustments.  
 2016 cost sources are not escalated (EF=1.00). All other costs are escalated based on the USACE CWCCIS, EM 1110-2-1304, Sept 2015.  
 An AF of 1.05 is used for Oregon, except that an AF of 1.00 (national unmodified average) is used for MII assembly costs and local vendor quotes.  
 It is assumed that home office OH is 8% and profit is 9% for the Prime Contractor. Professional labor overhead is 100%.  
 Allowances and items with mandated costs such as per diem do not have overhead and profit applied.  
 Items previously developed by Anchor QEA already include contractor markups, therefore overhead and profit were not applied to those items.  
 It is assumed that OH is 1% and profit is 0% for vendor quotes for treatment and disposal at offsite disposal facilities. It is assumed that OH is 5% and profit is 0% for quotes for all other material vendor quotes.  
 Items developed using MII already include contractor markups such as overhead and profit, therefore additional overhead and profit were not applied in the PC OH and PC PF to those items.

**TABLE CW-F(MOD)-10**

**Alternative F (Modified)**  
**Capital Cost Sub-Element**  
**Excavation of Riverbanks**

**Cost Worksheet: CW-F(MOD)-10**

**COST WORKSHEET**

**Site:** Portland Harbor Superfund Site  
**Location:** Portland, Oregon  
**Phase:** Record of Decision  
**Base Year:** 2016

**Prepared By:** JN      **Date:** 10/20/2016  
**Checked By:** MS      **Date:** 10/27/2016

**Work Statement:**  
 This sub-element involves mechanical excavation of riverbank materials and transport to dewatering/stabilization area. It includes costs for on-site labor, equipment, and materials for riverbank excavation, assuming a 4 CY long-arm excavator.  
 Quantity development presented in Appendix IV.

**Cost Analysis:**  
 Cost for Excavation from Shore for Riverbanks (Lump Sum)

COST DATABASE CODE	DESCRIPTION	QTY	UNIT(S)	HPF	LABOR	ADJ LABOR	EQUIP	ADJ EQUIP	MATL	OTHER	UNMOD UC	UNMOD LIC	PC OH	PC PF	BUR LIC	COST SOURCE CITATION	COMMENTS
A8	Riverbank Excavation	122,827	CY	1.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$5.19	\$5.19	\$637,472.13	0%	0%	\$637,472	MII MII	Project-specific unit cost developed in MII.
<b>TOTAL COST:</b>															\$637,472		

	Representative Unit Quantity	Unit(s)	Total Cost	Unit Cost
<b>COST WORKSHEET SUMMARY</b>				
	122,827	CY	\$637,472	\$5.19

**Notes:**  
 Further information about the development of cost worksheets can be found in the memorandum - Methodology and Organization of Selected Remedy Cost Estimate.  
 The quantity bolded in the QTY column is the quantity selected as the representative unit quantity for this cost worksheet. If multiple quantities are bolded, the representative unit quantity is the sum of those quantities. When the LS unit is utilized, the default representative unit quantity is 1.  
 HTRW productivity factor is from Exhibit B-3 or B-4 of "A Guide to Developing and Documenting Cost Estimates During the Feasibility Study", EPA 2000  
 EPA developed project-specific unit costs using the Micro Computer Aided Cost Engineering System (MCACES) Second Generation (MII) software version 4.2, build 3

**Abbreviations:**

QTY	Quantity	AC	Acre
EQUIP	Equipment	CLF	100 Linear Foot
MATL	Material	CY	Cubic Yard
HPF	HTRW Productivity Factor	DY	Days
ADJ LABOR	Adjusted Labor for HFP	EA	Each
ADJ EQUIP	Adjusted Equipment for HFP	FTE	Full Time Equivalent
UNMOD UC	Unmodified Unit Cost	HR	Hours
UNMOD LIC	Unmodified Line Item Cost	LB	Pounds
UNBUR LIC	Unburdened Line Item Cost	LCY	Loose Cubic Yard
PC OH	Prime Contractor Overhead	LF	Linear Foot
PC PF	Prime Contractor Profit	LS	Lump Sum
BUR LIC	Burdened Line Item Cost	MO	Morth
		SF	Square Foot
		SY	Square Yard
		TON	Tons
		YR	Years

**Cost Database Code:**  
 The Cost Database Code is a reference code for linking with line item cost information with the cost source database and is not otherwise used within these cost worksheets. The following cost source database prefixes apply:  
 L (EPA-Derived Labor Unit Costs), M (Project-Specific Vendor Unit Costs), P (Previously Developed Unit Costs by Anchor QEA for Portland Harbor), A (EPA-Derived MII Unit Costs), O (Unit Costs from Other Projects/Sources)

**Source of Cost Data:**  
 For citation references, the following sources apply:  
 ALL (Allowance), FLC (www.flodatacenter.com), LD (Costs Derived from Lower Duwamish Waterway Final Feasibility Study), MII (MII), O (Other), P (Previously Developed by Anchor QEA for Portland Harbor), and V (Vendor Quote)

**Cost Adjustment Checklist:**  
 FACTOR:  
 H&S Productivity (labor and equipment only)  
 Escalation to Base Year  
 Area Cost Factor  
 Subcontractor Overhead and Profit  
 Prime Contractor Overhead and Profit

**NOTES:**  
 Field work will be in Level "D" PPE.  
 MII assembly costs include HPF adjustments.  
 2016 cost sources are not escalated (EF=1.00). All other costs are escalated based on the USACE CWCCIS, EM 1110-2-1304, Sept 2015.  
 An AF of 1.05 is used for Oregon, except that an AF of 1.00 (national unmodified average) is used for MII assembly costs and local vendor quotes.  
 It is assumed that home office OH is 8% and profit is 9% for the Prime Contractor. Professional labor overhead is 100%.  
 Allowances and items with mandated costs such as per diem do not have overhead and profit applied.  
 Items previously developed by Anchor QEA already include contractor markups, therefore overhead and profit were not applied to those items.  
 It is assumed that OH is 1% and profit is 0% for vendor quotes for treatment and disposal at offsite disposal facilities. It is assumed that OH is 5% and profit is 0% for quotes for all other material vendor quotes.  
 Items developed using MII already include contractor markups such as overhead and profit, therefore additional overhead and profit were not applied in the PC OH and PC PF to those items.

**TABLE CW-F(MOD)-11**

**Alternative F (Modified) Cost Worksheet: CW-F(MOD)-11**

**COST WORKSHEET**

**Capital Cost Sub-Element  
Dewatering and Water Treatment for Dredging Operations**

**Site:** Portland Harbor Superfund Site  
**Location:** Portland, Oregon  
**Phase:** Record of Decision  
**Base Year:** 2016

**Prepared By:** JN      **Date:** 10/20/2016  
**Checked By:** MS      **Date:** 10/27/2016

**Work Statement:**  
 This sub-element involves the dewatering and water treatment for dredging operations. Assumes a temporary water treatment plant will be utilized for treatment of water generated from dewatering of sediments. It includes costs for labor, equipment, and materials for treatment of water generated from dredged sediments. Quantity development presented in Appendix IV.

**Cost Analysis:**  
 Cost for Dewatering and Water Treatment for Dredging Operations (Lump Sum)

COST DATABASE CODE	DESCRIPTION	QTY	UNIT(S)	HPF	LABOR	ADJ LABOR	EQUIP	ADJ EQUIP	MATL	OTHER	UNMOD UC	UNMOD LIC	PC OH	PC PF	BUR LIC	COST SOURCE CITATION	COMMENTS
A9	Mobilization/Demobilization of Temporary Water Treatment System	13	EA	1.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$36,600.00	\$36,600.00	\$475,800.00	0%	0%	\$475,800	MII MII	Project-specific unit cost developed in MII. Assumes mob/demob of treatment system will be required for each construction season
A10	Dewatering and Temporary Water Treatment System Operations	568	DY	1.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$21,654.00	\$21,654.00	\$12,299,472.00	0%	0%	\$12,299,472	MII MII	Project-specific unit cost developed in MII.
												<b>TOTAL COST:</b>	\$12,775,272				

	<u>Representative Unit Quantity</u>	<u>Unit(s)</u>	<u>Total Cost</u>	<u>Unit Cost</u>
<b>COST WORKSHEET SUMMARY</b>	1	LS	\$12,775,272	\$12,775,272

**Notes:**  
 Further information about the development of cost worksheets can be found in the memorandum - Methodology and Organization of Selected Remedy Cost Estimate. The quantity bolded in the QTY column is the quantity selected as the representative unit quantity for this cost worksheet. If multiple quantities are bolded, the representative unit quantity is the sum of those quantities. When the LS unit is utilized, the default representative unit quantity is 1.  
 HTRW productivity factor is from Exhibit B-3 or B-4 of "A Guide to Developing and Documenting Cost Estimates During the Feasibility Study", EPA 2000  
 EPA developed project-specific unit costs using the Micro Computer Aided Cost Engineering System (MCACES) Second Generation (MII) software version 4.2, build 3

**Abbreviations:**

QTY	Quantity	AC	Acres
EQUIP	Equipment	CLF	100 Linear Foot
MATL	Material	CY	Cubic Yard
HPF	HTRW Productivity Factor	DY	Days
ADJ LABOR	Adjusted Labor for HFP	EA	Each
ADJ EQUIP	Adjusted Equipment for HFP	FTE	Full Time Equivalent
UNMOD UC	Unmodified Unit Cost	HR	Hours
UNMOD LIC	Unmodified Line Item Cost	LB	Pounds
UNBUR LIC	Unburdened Line Item Cost	LCY	Loose Cubic Yard
PC OH	Prime Contractor Overhead	LF	Linear Foot
PC PF	Prime Contractor Profit	LS	Lump Sum
BUR LIC	Burdened Line Item Cost	MO	Month
		SF	Square Foot
		SY	Square Yard
		TON	Tons
		YR	Years

**Cost Database Code:**  
 The Cost Database Code is a reference code for linking with line item cost information with the cost source database and is not otherwise used within these cost worksheets. The following cost source database prefixes apply:

L (EPA-Derived Labor Unit Costs), M (Project-Specific Vendor Unit Costs), P (Previously Developed Unit Costs by Anchor QEA for Portland Harbor), A (EPA-Derived MII Unit Costs), O (Unit Costs from Other Projects/Sources)

**Source of Cost Data:**  
 For citation references, the following sources apply:

ALL (Allowance), FLC (www.flcdatabase.com), LD (Costs Derived from Lower Duwamish Waterway Final Feasibility Study), MII (MII), O (Other), P (Previously Developed by Anchor QEA for Portland Harbor), and V (Vendor Quote)

**Cost Adjustment Checklist:**  
 FACTOR:  
 H&S Productivity (labor and equipment only)  
 Escalation to Base Year  
 Area Cost Factor  
 Subcontractor Overhead and Profit  
 Prime Contractor Overhead and Profit

**NOTES:**  
 Field work will be in Level "D" PPE.  
 MII assembly costs include HPF adjustments.  
 2016 cost sources are not escalated (EF=1.00). All other costs are escalated based on the USACE CWCCIS, EM 1110-2-1304, Sept 2015.  
 An AF of 1.05 is used for Oregon, except that an AF of 1.00 (national unmodified average) is used for MII assembly costs and local vendor quotes.  
 It is assumed that home office OH is 8% and profit is 9% for the Prime Contractor. Professional labor overhead is 100%.  
 Allowances and items with mandated costs such as per diem do not have overhead and profit applied.  
 Items previously developed by Anchor QEA already include contractor markups, therefore overhead and profit were not applied to those items.  
 It is assumed that OH is 1% and profit is 0% for vendor quotes for treatment and disposal at offsite disposal facilities. It is assumed that OH is 5% and profit is 0% for quotes for all other material vendor quotes.  
 Items developed using MII already include contractor markups such as overhead and profit, therefore additional overhead and profit were not applied in the PC OH and PC PF to those items.

**TABLE CW-F(MOD)-12**

**Alternative F (Modified) Cost Worksheet: CW-F(MOD)-12**  
**Capital Cost Sub-Element**  
**Subtitle C/TSCA Disposal (Handling, Transportation, Treatment of Select PTW Materials, and Disposal)**

**COST WORKSHEET**

**Site:** Portland Harbor Superfund Site **Prepared By:** JN **Date:** 10/20/2016  
**Location:** Portland, Oregon **Checked By:** MS **Date:** 10/27/2016  
**Phase:** Record of Decision  
**Base Year:** 2016

**Work Statement:**  
 This sub-element involves the disposal of contaminated sediments at a Subtitle C/TSCA landfill, including in-barge mixing of amendments, barge transportation of materials to a transload facility, materials handling from the barge to truck, transportation of the sediments to the Subtitle C/TSCA landfill, and disposal of contaminated sediments (including thermal treatment at the landfill facility for a portion of the volume). It includes costs for labor, equipment, and materials as well as recent vendor quotes. Costs for development of a transload facility are included in a separate cost worksheet. Quantity development presented in Appendix IV.

**Cost Analysis:**  
 Cost for Subtitle C/TSCA Disposal (Lump Sum)

COST DATABASE CODE	DESCRIPTION	QTY	UNIT(S)	HPF	LABOR	ADJ LABOR	EQUIP	ADJ EQUIP	MATL	OTHER	UNMOD UC	UNMOD LIC	PC OH	PC PF	BUR LIC	COST SOURCE CITATION	COMMENTS
<b>Area 6W NRC/NAPL PTW</b>																	
<b>Transportation</b>																	
A13	Barging to Transload Facility	218,334	CY	1.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$13.66	\$13.66	\$2,982,442.44	0%	0%	\$2,982,442	MII MII	Project-specific unit cost developed in MII.
A5	Hauling Waste from Transload Facility to Landfill	218,334	CY	1.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$16.70	\$16.70	\$3,646,177.80	0%	0%	\$3,646,178	MII MII	Project-specific unit cost developed in MII.
<b>Materials Handling at Transload Facility</b>																	
A14	Offloading of Sediments	218,334	CY	1.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$9.70	\$9.70	\$2,117,839.80	0%	0%	\$2,117,840	MII MII	Project-specific unit cost developed in MII. Assumes mechanical offloading of sediments at the transload facility.
A4	Loading Trucks at Transload Facility	218,334	CY	1.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$2.68	\$2.68	\$585,135.12	0%	0%	\$585,135	MII MII	Project-specific unit cost developed in MII.
<b>Treatment</b>																	
A11	In-Barge Stabilization / Mixing of Amendments	218,334	CY	1.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$24.50	\$24.50	\$5,349,183.00	0%	0%	\$5,349,183	MII MII	Project-specific unit cost developed in MII.
P5	Diatomaceous Earth	12,655	TON	1.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$105.94	\$105.94	\$1,340,670.70	0%	0%	\$1,340,671	P Anchor QEA	Project-specific cost developed by Anchor QEA (2010) - see Backup Table 24.
M25	Quicklime	17,463	TON	1.00	\$0.00	\$0.00	\$0.00	\$0.00	\$239.00	\$0.00	\$239.00	\$4,173,657.00	5%	0%	\$4,382,340	V Vendor Quote	Project-specific vendor quote - Graymont, 2016.
A2	Hauling - Quicklime to Site	17,463	TON	1.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$5.71	\$5.71	\$99,713.73	0%	0%	\$99,714	MII MII	Project-specific unit cost developed in MII. Assumes 10 mile one-way haul.
<b>Disposal at Subtitle C/TSCA Landfill</b>																	
M10	Tipping Fee at Subtitle C/TSCA Landfill	283,212	TON	1.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$86.19	\$86.19	\$24,410,042.28	1%	0%	\$24,654,143	V Vendor Quote	Project-specific vendor quote - CWM of the Northwest, 2015.
<b>Area 7W NRC/NAPL PTW</b>																	
<b>Transportation</b>																	
A13	Barging to Transload Facility	66,633	CY	1.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$13.66	\$13.66	\$910,206.78	0%	0%	\$910,207	MII MII	Project-specific unit cost developed in MII.
A5	Hauling Waste from Transload Facility to Landfill	66,633	CY	1.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$16.70	\$16.70	\$1,112,771.10	0%	0%	\$1,112,771	MII MII	Project-specific unit cost developed in MII.
<b>Materials Handling at Transload Facility</b>																	
A14	Offloading of Sediments	66,633	CY	1.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$9.70	\$9.70	\$646,340.10	0%	0%	\$646,340	MII MII	Project-specific unit cost developed in MII. Assumes mechanical offloading of sediments at the transload facility.
A4	Loading Trucks at Transload Facility	66,633	CY	1.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$2.68	\$2.68	\$178,576.44	0%	0%	\$178,576	MII MII	Project-specific unit cost developed in MII.
<b>Treatment</b>																	
A11	In-Barge Stabilization / Mixing of Amendments	66,633	CY	1.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$24.50	\$24.50	\$1,632,508.50	0%	0%	\$1,632,509	MII MII	Project-specific unit cost developed in MII.
P5	Diatomaceous Earth	5,700	TON	1.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$105.94	\$105.94	\$603,858.00	0%	0%	\$603,858	P Anchor QEA	Project-specific cost developed by Anchor QEA (2010) - see Backup Table 24.
M25	Quicklime	1,573	TON	1.00	\$0.00	\$0.00	\$0.00	\$0.00	\$239.00	\$0.00	\$239.00	\$375,947.00	5%	0%	\$394,744	V Vendor Quote	Project-specific vendor quote - Graymont, 2016.
A2	Hauling - Quicklime to Site	1,573	TON	1.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$5.71	\$5.71	\$8,981.83	0%	0%	\$8,982	MII MII	Project-specific unit cost developed in MII. Assumes 10 mile one-way haul.
M20	Thermal Desorption Treatment at Subtitle C/TSCA Landfill (Low End of Treatment Cost Range)	12,541	TON	1.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$319.41	\$319.41	\$4,005,720.81	1%	0%	\$4,045,778	V Vendor Quote	Project-specific vendor quote - CWM of the Northwest, 2015.
M9	Thermal Desorption Treatment at Subtitle C/TSCA Landfill (High End of Treatment Cost Range)	12,541	TON	1.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$572.91	\$572.91	\$7,184,864.31	1%	0%	\$7,256,713	V Vendor Quote	Project-specific vendor quote - CWM of the Northwest, 2015.
<b>Disposal at Subtitle C/TSCA Landfill</b>																	
M10	Tipping Fee at Subtitle C/TSCA Landfill	75,679	TON	1.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$86.19	\$86.19	\$6,522,773.01	1%	0%	\$6,588,001	V Vendor Quote	Project-specific vendor quote - CWM of the Northwest, 2015.
<b>TOTAL COST:</b>															\$68,536,125		

	Representative Unit Quantity	Unit(s)	Total Cost	Unit Cost
<b>COST WORKSHEET SUMMARY</b>				
	358,891	TON	\$68,536,125	\$191



**TABLE CW-F(MOD)-12**

**Alternative F (Modified)**

**Cost Worksheet: CW-F(MOD)-12**

**Capital Cost Sub-Element**

**Subtitle C/TSCA Disposal (Handling, Transportation, Treatment of Select PTW Materials, and Disposal)**

**COST WORKSHEET**

**Site:** Portland Harbor Superfund Site  
**Location:** Portland, Oregon  
**Phase:** Record of Decision  
**Base Year:** 2016

**Prepared By:** JN

**Date:** 10/20/2016

**Checked By:** MS

**Date:** 10/27/2016

**Notes:**

Further information about the development of cost worksheets can be found in the memorandum - Methodology and Organization of Selected Remedy Cost Estimate. The quantity bolded in the QTY column is the quantity selected as the representative unit quantity for this cost worksheet. If multiple quantities are bolded, the representative unit quantity is the sum of those quantities. When the LS unit is utilized, the default representative unit quantity is 1.  
 HTRW productivity factor is from Exhibit B-3 or B-4 of "A Guide to Developing and Documenting Cost Estimates During the Feasibility Study", EPA 2000  
 EPA developed project-specific unit costs using the Micro Computer Aided Cost Engineering System (MCACES) Second Generation (MII) software version 4.2, build 3

**Abbreviations:**

QTY	Quantity	AC	Acres
EQUIP	Equipment	CLF	100 Linear Foot
MATL	Material	CY	Cubic Yard
HPF	HTRW Productivity Factor	DY	Days
ADJ LABOR	Adjusted Labor for HFP	EA	Each
ADJ EQUIP	Adjusted Equipment for HFP	FTE	Full Time Equivalent
UNMOD UC	Unmodified Unit Cost	HR	Hours
UNMOD LIC	Unmodified Line Item Cost	LB	Pounds
UNBUR LIC	Unburdened Line Item Cost	LCY	Loose Cubic Yard
PC OH	Prime Contractor Overhead	LF	Linear Foot
PC PF	Prime Contractor Profit	LS	Lump Sum
BUR LIC	Burdened Line Item Cost	MO	Month
		SF	Square Foot
		SY	Square Yard
		TON	Tons
		YR	Years

**Cost Database Code:**

The Cost Database Code is a reference code for linking with line item cost information with the cost source database and is not otherwise used within these cost worksheets. The following cost source database prefixes apply:

L (EPA-Derived Labor Unit Costs), M (Project-Specific Vendor Unit Costs), P (Previously Developed Unit Costs by Anchor QEA for Portland Harbor), A (EPA-Derived MII Unit Costs), O (Unit Costs from Other Projects/Sources)

**Source of Cost Data:**

For citation references, the following sources apply:

ALL (Allowance), FLC (www.flcdatabcenter.com), LD (Costs Derived from Lower Duwamish Waterway Final Feasibility Study), MII (MII), O (Other), P (Previously Developed by Anchor QEA for Portland Harbor), and V (Vendor Quote)

**Cost Adjustment Checklist:**

**FACTOR:**  
 H&S Productivity (labor and equipment only)  
 Escalation to Base Year  
 Area Cost Factor  
 Subcontractor Overhead and Profit  
 Prime Contractor Overhead and Profit

**NOTES:**

Field work will be in Level "D" PPE.  
 MII assembly costs include HPF adjustments.  
 2016 cost sources are not escalated (EF=1.00). All other costs are escalated based on the USACE CWCCIS, EM 1110-2-1304, Sept 2015.  
 An AF of 1.05 is used for Oregon, except that an AF of 1.00 (national unmodified average) is used for MII assembly costs and local vendor quotes.  
 It is assumed that home office OH is 8% and profit is 9% for the Prime Contractor. Professional labor overhead is 100%.  
 Allowances and items with mandated costs such as per diem do not have overhead and profit applied.  
 Items previously developed by Anchor QEA already include contractor markups, therefore overhead and profit were not applied to those items.  
 It is assumed that OH is 1% and profit is 0% for vendor quotes for treatment and disposal at offsite disposal facilities. It is assumed that OH is 5% and profit is 0% for quotes for all other material vendor quotes.  
 Items developed using MII already include contractor markups such as overhead and profit, therefore additional overhead and profit were not applied in the PC OH and PC PF to those items.

**TABLE CW-F(MOD)-13**

**Alternative F (Modified) Cost Worksheet: CW-F(MOD)-13**

**COST WORKSHEET**

**Capital Cost Sub-Element  
Subtitle D Disposal (Handling, Transportation, and Disposal)**

**Site:** Portland Harbor Superfund Site  
**Location:** Portland, Oregon  
**Phase:** Record of Decision  
**Base Year:** 2016

**Prepared By:** JN **Date:** 10/20/2016  
**Checked By:** MS **Date:** 10/27/2016

**Work Statement:**  
This sub-element involves the disposal of contaminated sediments at a Subtitle D landfill, including barge transportation of materials to a transload facility, materials handling from the barge to truck, transportation of the sediments to the Subtitle C/TSCA landfill, and disposal of contaminated sediments (including thermal treatment at the landfill facility for a portion of the volume). It includes costs for labor, equipment, and materials as well as recent vendor quotes. Quantity development presented in Appendix IV.

**Cost Analysis:**  
Cost for Subtitle D Disposal (Lump Sum)

COST DATABASE CODE	DESCRIPTION	QTY	UNIT(S)	HPF	LABOR	ADJ LABOR	EQUIP	ADJ EQUIP	MATL	OTHER	UNMOD UC	UNMOD LIC	PC OH	PC PF	BUR LIC	COST SOURCE CITATION	COMMENTS									
A11	Diatomaceous Earth Amendment																									
	In-Barge Stabilization / Mixing of Amendments	3,666,427	CY	1.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$24.50	\$24.50	\$89,827,461.50	0%	0%	\$89,827,462	MII MII	Project-specific unit cost developed in MII.									
P5	Diatomaceous Earth	218,899	TON	1.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$105.94	\$105.94	\$23,190,160.06	0%	0%	\$23,190,160	P Anchor QEA	Project-specific cost developed by Anchor QEA (2010) - see Backup Table 24.									
	<b>Transportation to Transload Facility</b>																									
A13	Barging to Transload Facility	3,666,427	CY	1.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$13.66	\$13.66	\$50,083,392.82	0%	0%	\$50,083,393	MII MII	Project-specific unit cost developed in MII.									
	<b>Transportation and Disposal at Subtitle D Landfill</b>																									
M11	Transportation and Disposal at Subtitle D Landfill	<b>4,596,885</b>	TON	1.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$74.53	\$74.53	\$342,605,839.05	1%	0%	\$346,031,897	V Vendor Quote	Project-specific vendor quote - Republic Services (Roosevelt Landfill), 2015. Includes transloading of the sediments, truck transportation from the transload facility to the landfill, and disposal at the landfill.									
<b>TOTAL COST:</b>																										

	Representative Unit Quantity	Unit(s)	Total Cost	Unit Cost
<b>COST WORKSHEET SUMMARY</b>				
	4,596,885	TON	\$509,132,912	\$111

**Notes:**  
Further information about the development of cost worksheets can be found in the memorandum - Methodology and Organization of Selected Remedy Cost Estimate. The quantity bolded in the QTY column is the quantity selected as the representative unit quantity for this cost worksheet. If multiple quantities are bolded, the representative unit quantity is the sum of those quantities. When the LS unit is utilized, the default representative unit quantity is 1.  
HTRW productivity factor is from Exhibit B-3 or B-4 of "A Guide to Developing and Documenting Cost Estimates During the Feasibility Study", EPA 2000  
EPA developed project-specific unit costs using the Micro Computer Aided Cost Engineering System (MCACES) Second Generation (MII) software version 4.2, build 3

**Abbreviations:**

QTY	Quantity	AC	Acre
EQUIP	Equipment	CLF	100 Linear Foot
MATL	Material	CY	Cubic Yard
HPF	HTRW Productivity Factor	DY	Days
ADJ LABOR	Adjusted Labor for HFP	EA	Each
ADJ EQUIP	Adjusted Equipment for HFP	FTE	Full Time Equivalent
UNMOD UC	Unmodified Unit Cost	HR	Hours
UNMOD LIC	Unmodified Line Item Cost	LB	Pounds
UNBUR LIC	Unburdened Line Item Cost	LCY	Loose Cubic Yard
PC OH	Prime Contractor Overhead	LF	Linear Foot
PC PF	Prime Contractor Profit	LS	Lump Sum
BUR LIC	Burdened Line Item Cost	MO	Month
		SF	Square Foot
		SY	Square Yard
		TON	Tons
		YR	Years

**Cost Database Code:**  
The Cost Database Code is a reference code for linking with line item cost information with the cost source database and is not otherwise used within these cost worksheets. The following cost source database prefixes apply:  
L (EPA-Derived Labor Unit Costs), M (Project-Specific Vendor Unit Costs), P (Previously Developed Unit Costs by Anchor QEA for Portland Harbor), A (EPA-Derived MII Unit Costs), O (Unit Costs from Other Projects/Sources)

**Source of Cost Data:**  
For citation references, the following sources apply:  
ALL (Allowance), FLC (www.flccenter.com), LD (Costs Derived from Lower Duwamish Waterway Final Feasibility Study), MII (MII), O (Other), P (Previously Developed by Anchor QEA for Portland Harbor), and V (Vendor Quote)

**Cost Adjustment Checklist:**  
FACTOR:  
H&S Productivity (labor and equipment only)  
Escalation to Base Year  
Area Cost Factor  
Subcontractor Overhead and Profit  
Prime Contractor Overhead and Profit

**NOTES:**  
Field work will be in Level "D" PPE.  
MII assembly costs include HPF adjustments.  
2016 cost sources are not escalated (EF=1.00). All other costs are escalated based on the USACE CWCCIS, EM 1110-2-1304, Sept 2015.  
An AF of 1.05 is used for Oregon, except that an AF of 1.00 (national unmodified average) is used for MII assembly costs and local vendor quotes.  
It is assumed that home office OH is 8% and profit is 9% for the Prime Contractor. Professional labor overhead is 100%.  
Allowances and items with mandated costs such as per diem do not have overhead and profit applied.  
Items previously developed by Anchor QEA already include contractor markups, therefore overhead and profit were not applied to those items.  
It is assumed that OH is 1% and profit is 0% for vendor quotes for treatment and disposal at offsite disposal facilities. It is assumed that OH is 5% and profit is 0% for quotes for all other material vendor quotes.  
Items developed using MII already include contractor markups such as overhead and profit, therefore additional overhead and profit were not applied in the PC OH and PC PF to those items.

**TABLE CW-F(MOD)-14**

**Alternative F (Modified)  
Capital Cost Sub-Element  
Mitigation**

**Cost Worksheet: CW-F(MOD)-14**

**COST WORKSHEET**

**Site:** Portland Harbor Superfund Site  
**Location:** Portland, Oregon  
**Phase:** Record of Decision  
**Base Year:** 2016

**Prepared By:** JN      **Date:** 10/20/2016  
**Checked By:** MS      **Date:** 10/27/2016

**Work Statement:**  
This sub-element involves mitigation of shallow water and riverbank areas. It includes costs for on-site labor, equipment, and materials developed from previous work. Quantity development presented in Appendix IV.

**Cost Analysis:**  
Cost for Mitigation (Lump Sum)

COST DATABASE CODE	DESCRIPTION	QTY	UNIT(S)	HPF	LABOR	ADJ LABOR	EQUIP	ADJ EQUIP	MATL	OTHER	UNMOD UC	UNMOD LIC	PC OH	PC PF	BUR LIC	COST SOURCE CITATION	COMMENTS
O3	Mitigation	<b>60</b>	AC	1.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$1,070,827.00	\$1,070,827.00	\$64,249,620.00	0%	0%	\$64,249,620	O Other	Average cost of projects presented in Tables 6.1-1 and 6.1-4 of the Appendix M, Attachment 1, Anchor QEA FS (2010) as well as select other projects. See Calculations for derivation.
<b>TOTAL COST:</b>															\$64,249,620		
<b>Representative Unit Quantity</b>												<b>Unit(s)</b>	<b>Total Cost</b>	<b>Unit Cost</b>			
<b>COST WORKSHEET SUMMARY</b>												60	AC	\$64,249,620	\$1,070,827		

**Notes:**  
Further information about the development of cost worksheets can be found in the memorandum - Methodology and Organization of Selected Remedy Cost Estimate. The quantity bolded in the QTY column is the quantity selected as the representative unit quantity for this cost worksheet. If multiple quantities are bolded, the representative unit quantity is the sum of those quantities. When the LS unit is utilized, the default representative unit quantity is 1.  
HTRW productivity factor is from Exhibit B-3 or B-4 of "A Guide to Developing and Documenting Cost Estimates During the Feasibility Study", EPA 2000  
EPA developed project-specific unit costs using the Micro Computer Aided Cost Engineering System (MCACES) Second Generation (MII) software version 4.2, build 3

**Abbreviations:**  
QTY Quantity AC Acres  
EQUIP Equipment CLF 100 Linear Foot  
MATL Material CY Cubic Yard  
HPF HTRW Productivity Factor DY Days  
ADJ LABOR Adjusted Labor for HFP EA Each  
ADJ EQUIP Adjusted Equipment for HFP FTE Full Time Equivalent  
UNMOD UC Unmodified Unit Cost HR Hours  
UNMOD LIC Unmodified Line Item Cost LB Pounds  
UNBUR LIC Unburdened Line Item Cost LCY Loose Cubic Yard  
PC OH Prime Contractor Overhead LF Linear Foot  
PC PF Prime Contractor Profit LS Lump Sum  
BUR LIC Burdened Line Item Cost MO Month  
SF Square Foot  
SY Square Yard  
TON Tons  
YR Years

**Cost Database Code:**  
The Cost Database Code is a reference code for linking with line item cost information with the cost source database and is not otherwise used within these cost worksheets. The following cost source database prefixes apply:  
L (EPA-Derived Labor Unit Costs), M (Project-Specific Vendor Unit Costs), P (Previously Developed Unit Costs by Anchor QEA for Portland Harbor), A (EPA-Derived MII Unit Costs), O (Unit Costs from Other Projects/Sources)

**Source of Cost Data:**  
For citation references, the following sources apply:  
ALL (Allowance), FLC (www.flcdatabase.com), LD (Costs Derived from Lower Duwamish Waterway Final Feasibility Study), MII (MII), O (Other), P (Previously Developed by Anchor QEA for Portland Harbor), and V (Vendor Quote)

**Cost Adjustment Checklist:**  
FACTOR:  
H&S Productivity (labor and equipment only)  
Escalation to Base Year  
Area Cost Factor  
Subcontractor Overhead and Profit  
Prime Contractor Overhead and Profit

**NOTES:**  
Field work will be in Level "D" PPE.  
MII assembly costs include HPF adjustments.  
2016 cost sources are not escalated (EF=1.00). All other costs are escalated based on the USACE CWCCIS, EM 1110-2-1304, Sept 2015.  
An AF of 1.05 is used for Oregon, except that an AF of 1.00 (national unmodified average) is used for MII assembly costs and local vendor quotes.  
It is assumed that home office OH is 8% and profit is 9% for the Prime Contractor. Professional labor overhead is 100%.  
Allowances and items with mandated costs such as per diem do not have overhead and profit applied.  
Items previously developed by Anchor QEA already include contractor markups, therefore overhead and profit were not applied to those items.  
It is assumed that OH is 1% and profit is 0% for vendor quotes for treatment and disposal at offsite disposal facilities. It is assumed that OH is 5% and profit is 0% for quotes for all other material vendor quotes.  
Items developed using MII already include contractor markups such as overhead and profit, therefore additional overhead and profit were not applied in the PC OH and PC PF to those items.

**TABLE CW-F(MOD)-15**

**Alternative F (Modified) Cost Worksheet: CW-F(MOD)-15**

**COST WORKSHEET**

**Capital Cost Sub-Element  
Sand Placement for Technology Assignments**

**Site:** Portland Harbor Superfund Site  
**Location:** Portland, Oregon  
**Phase:** Record of Decision  
**Base Year:** 2016

**Prepared By:** JN      **Date:** 10/20/2016  
**Checked By:** MS      **Date:** 10/27/2016

**Work Statement:**  
 This sub-element involves the placement of sand for the construction of capping areas. It includes placement of sand within confined areas, open areas, and riverbanks. It includes costs for on-site labor, equipment, and materials as well as recent vendor quotes. Quantity development presented in Appendix IV.

**Cost Analysis:**  
 Cost for Sand Placement for Technology Assignments (Lump Sum)

COST DATABASE CODE	DESCRIPTION	QTY	UNIT(S)	HPF	LABOR	ADJ LABOR	EQUIP	ADJ EQUIP	MATL	OTHER	UNMOD UC	UNMOD LIC	PC OH	PC PF	BUR LIC	COST SOURCE CITATION	COMMENTS
P1	Sand	<b>914,382</b>	LCY	1.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$19.75	\$19.75	\$18,059,044.50	0%	0%	\$18,059,045	P Anchor QEA	Project-specific cost developed by Anchor QEA (2010) - see Backup Table 29A. Includes conversion from TON to LCY.
	<b>Sand Placement (Riverbanks)</b>																
A16	Material Placement (Confined)	102,094	CY	1.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$20.39	\$20.39	\$2,081,696.66	0%	0%	\$2,081,697	MII MII	Project-specific unit cost developed in MII.
	<b>Sand Placement (Confined)</b>																
A16	Material Placement (Confined)	81,653	CY	1.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$20.39	\$20.39	\$1,664,904.67	0%	0%	\$1,664,905	MII MII	Project-specific unit cost developed in MII.
	<b>Sand Placement (Open Water)</b>																
A15	Material Placement (Open)	730,635	CY	1.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$12.42	\$12.42	\$9,074,486.70	0%	0%	\$9,074,487	MII MII	Project-specific unit cost developed in MII.
												<b>TOTAL COST:</b>					
														\$30,880,134			

	<u>Representative Unit Quantity</u>	<u>Unit(s)</u>	<u>Total Cost</u>	<u>Unit Cost</u>
<b>COST WORKSHEET SUMMARY</b>				
	914,382	CY	\$30,880,134	\$33.77

**Notes:**  
 Further information about the development of cost worksheets can be found in the memorandum - Methodology and Organization of Selected Remedy Cost Estimate. The quantity bolded in the QTY column is the quantity selected as the representative unit quantity for this cost worksheet. If multiple quantities are bolded, the representative unit quantity is the sum of those quantities. When the LS unit is utilized, the default representative unit quantity is 1.  
 HTRW productivity factor is from Exhibit B-3 or B-4 of "A Guide to Developing and Documenting Cost Estimates During the Feasibility Study", EPA 2000  
 EPA developed project-specific unit costs using the Micro Computer Aided Cost Engineering System (MCACES) Second Generation (MII) software version 4.2, build 3

- Abbreviations:**
- QTY Quantity
  - EQUIP Equipment
  - MATL Material
  - HPF HTRW Productivity Factor
  - ADJ LABOR Adjusted Labor for HFP
  - ADJ EQUIP Adjusted Equipment for HFP
  - UNMOD UC Unmodified Unit Cost
  - UNMOD LIC Unmodified Line Item Cost
  - UNBUR LIC Unburdened Line Item Cost
  - PC OH Prime Contractor Overhead
  - PC PF Prime Contractor Profit
  - BUR LIC Burdened Line Item Cost
  - AC Acres
  - CLF 100 Linear Foot
  - CY Cubic Yard
  - DY Days
  - EA Each
  - FTE Full Time Equivalent
  - HR Hours
  - LB Pounds
  - LCY Loose Cubic Yard
  - LF Linear Foot
  - LS Lump Sum
  - MO Month
  - SF Square Foot
  - SY Square Yard
  - TON Tons
  - YR Years

**Cost Database Code:**  
 The Cost Database Code is a reference code for linking with line item cost information with the cost source database and is not otherwise used within these cost worksheets. The following cost source database prefixes apply:  
 L (EPA-Derived Labor Unit Costs), M (Project-Specific Vendor Unit Costs), P (Previously Developed Unit Costs by Anchor QEA for Portland Harbor), A (EPA-Derived MII Unit Costs), O (Unit Costs from Other Projects/Sources)

**Source of Cost Data:**  
 For citation references, the following sources apply:  
 ALL (Allowance), FLC (www.flldatacenter.com), LD (Costs Derived from Lower Duwamish Waterway Final Feasibility Study), MII (MII), O (Other), P (Previously Developed by Anchor QEA for Portland Harbor), and V (Vendor Quote)

**Cost Adjustment Checklist:**  
 FACTOR:  
 H&S Productivity (labor and equipment only)  
 Escalation to Base Year  
 Area Cost Factor  
 Subcontractor Overhead and Profit  
 Prime Contractor Overhead and Profit

**NOTES:**  
 Field work will be in Level "D" PPE.  
 MII assembly costs include HPF adjustments.  
 2016 cost sources are not escalated (EF=1.00). All other costs are escalated based on the USACE CWCCIS, EM 1110-2-1304, Sept 2015.  
 An AF of 1.05 is used for Oregon, except that an AF of 1.00 (national unmodified average) is used for MII assembly costs and local vendor quotes.  
 It is assumed that home office OH is 8% and profit is 9% for the Prime Contractor. Professional labor overhead is 100%.  
 Allowances and items with mandated costs such as per diem do not have overhead and profit applied.  
 Items previously developed by Anchor QEA already include contractor markups, therefore overhead and profit were not applied to those items.  
 It is assumed that OH is 1% and profit is 0% for vendor quotes for treatment and disposal at offsite disposal facilities. It is assumed that OH is 5% and profit is 0% for quotes for all other material vendor quotes.  
 Items developed using MII already include contractor markups such as overhead and profit, therefore additional overhead and profit were not applied in the PC OH and PC PF to those items.

**TABLE CW-F(MOD)-16**

**Alternative F (Modified) Cost Worksheet: CW-F(MOD)-16**

**COST WORKSHEET**

**Capital Cost Sub-Element  
Beach Mix Placement for Technology Assignments**

<b>Site:</b> Portland Harbor Superfund Site	<b>Prepared By:</b> JN	<b>Date:</b> 10/20/2016
<b>Location:</b> Portland, Oregon	<b>Checked By:</b> MS	<b>Date:</b> 10/27/2016
<b>Phase:</b> Record of Decision		
<b>Base Year:</b> 2016		

**Work Statement:**  
This sub-element involves the placement of beach mix for the construction of capping areas. It includes placement of beach mix within confined areas, open areas, and riverbanks. It includes costs for on-site labor, equipment, and materials as well as recent vendor quotes. Quantity development presented in Appendix IV.

**Cost Analysis:**  
Cost for Beach Mix Placement for Technology Assignments (Lump Sum)

COST DATABASE CODE	DESCRIPTION	QTY	UNIT(S)	HPF	LABOR	ADJ LABOR	EQUIP	ADJ EQUIP	MATL	OTHER	UNMOD UC	UNMOD LIC	PC OH	PC PF	BUR LIC	COST SOURCE CITATION	COMMENTS
P3	ODOT 100 Beach Mix	<b>69,511</b>	LCY	1.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$57.69	\$57.69	\$4,010,089.59	0%	0%	\$4,010,090	P Anchor QEA	Project-specific cost developed by Anchor QEA (2010) - see Backup Table 29A. Includes conversion from TON to LCY.
	<b>Beach Mix Placement (Riverbanks)</b>																
A16	Material Placement (Confined)	18,896	CY	1.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$20.39	\$20.39	\$385,289.44	0%	0%	\$385,289	MII MII	Project-specific unit cost developed in MII.
	<b>Beach Mix Placement (Confined)</b>																
A16	Material Placement (Confined)	6,013	CY	1.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$20.39	\$20.39	\$122,605.07	0%	0%	\$122,605	MII MII	Project-specific unit cost developed in MII.
	<b>Beach Mix Placement (Open Water)</b>																
A15	Material Placement (Open)	44,602	CY	1.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$12.42	\$12.42	\$553,956.84	0%	0%	\$553,957	MII MII	Project-specific unit cost developed in MII.
<b>TOTAL COST:</b>															\$5,071,941		

COST WORKSHEET SUMMARY	Representative Unit Quantity	Unit(s)	Total Cost	Unit Cost
	69,511	CY	\$5,071,941	\$72.97

**Notes:**  
Further information about the development of cost worksheets can be found in the memorandum - Methodology and Organization of Selected Remedy Cost Estimate. The quantity bolded in the QTY column is the quantity selected as the representative unit quantity for this cost worksheet. If multiple quantities are bolded, the representative unit quantity is the sum of those quantities. When the LS unit is utilized, the default representative unit quantity is 1.  
HTRW productivity factor is from Exhibit B-3 or B-4 of "A Guide to Developing and Documenting Cost Estimates During the Feasibility Study", EPA 2000  
EPA developed project-specific unit costs using the Micro Computer Aided Cost Engineering System (MCACES) Second Generation (MII) software version 4.2, build 3

- Abbreviations:**
- QTY Quantity
  - EQUIP Equipment
  - MATL Material
  - HPF HTRW Productivity Factor
  - ADJ LABOR Adjusted Labor for HFP
  - ADJ EQUIP Adjusted Equipment for HFP
  - UNMOD UC Unmodified Unit Cost
  - UNMOD LIC Unmodified Line Item Cost
  - UNBUR LIC Unburdened Line Item Cost
  - PC OH Prime Contractor Overhead
  - PC PF Prime Contractor Profit
  - BUR LIC Burdened Line Item Cost
  - AC Acres
  - CLF 100 Linear Foot
  - CY Cubic Yard
  - DY Days
  - EA Each
  - FTE Full Time Equivalent
  - HR Hours
  - LB Pounds
  - LCY Loose Cubic Yard
  - LF Linear Foot
  - LS Lump Sum
  - MO Month
  - SF Square Foot
  - SY Square Yard
  - TON Tons
  - YR Years

**Cost Database Code:**  
The Cost Database Code is a reference code for linking with line item cost information with the cost source database and is not otherwise used within these cost worksheets. The following cost source database prefixes apply:  
L (EPA-Derived Labor Unit Costs), M (Project-Specific Vendor Unit Costs), P (Previously Developed Unit Costs by Anchor QEA for Portland Harbor), A (EPA-Derived MII Unit Costs), O (Unit Costs from Other Projects/Sources)

**Source of Cost Data:**  
For citation references, the following sources apply:  
ALL (Allowance), FLC (www.flldatacenter.com), LD (Costs Derived from Lower Duwamish Waterway Final Feasibility Study), MII (MII), O (Other), P (Previously Developed by Anchor QEA for Portland Harbor), and V (Vendor Quote)

**Cost Adjustment Checklist:**  
FACTOR:  
H&S Productivity (labor and equipment only)  
Escalation to Base Year  
Area Cost Factor  
Subcontractor Overhead and Profit  
Prime Contractor Overhead and Profit

**NOTES:**  
Field work will be in Level "D" PPE.  
MII assembly costs include HPF adjustments.  
2016 cost sources are not escalated (EF=1.00). All other costs are escalated based on the USACE CWCCIS, EM 1110-2-1304, Sept 2015.  
An AF of 1.05 is used for Oregon, except that an AF of 1.00 (national unmodified average) is used for MII assembly costs and local vendor quotes.  
It is assumed that home office OH is 8% and profit is 9% for the Prime Contractor. Professional labor overhead is 100%.  
Allowances and items with mandated costs such as per diem do not have overhead and profit applied.  
Items previously developed by Anchor QEA already include contractor markups, therefore overhead and profit were not applied to those items.  
It is assumed that OH is 1% and profit is 0% for vendor quotes for treatment and disposal at offsite disposal facilities. It is assumed that OH is 5% and profit is 0% for quotes for all other material vendor quotes.  
Items developed using MII already include contractor markups such as overhead and profit, therefore additional overhead and profit were not applied in the PC OH and PC PF to those items.

**TABLE CW-F(MOD)-17**

**Alternative F (Modified) Cost Worksheet: CW-F(MOD)-17**

**COST WORKSHEET**

**Capital Cost Sub-Element  
Armor Placement for Technology Assignments**

<b>Site:</b> Portland Harbor Superfund Site	<b>Prepared By:</b> JN	<b>Date:</b> 10/20/2016
<b>Location:</b> Portland, Oregon	<b>Checked By:</b> MS	<b>Date:</b> 10/27/2016
<b>Phase:</b> Record of Decision		
<b>Base Year:</b> 2016		

**Work Statement:**  
This sub-element involves the placement of armor for the construction of capping areas. It includes placement of armor within confined areas, open areas, and riverbanks. It includes costs for on-site labor, equipment, and materials as well as recent vendor quotes. Quantity development presented in Appendix IV.

**Cost Analysis:**  
Cost for Armor Placement for Technology Assignments (Lump Sum)

COST DATABASE CODE	DESCRIPTION	QTY	UNIT(S)	HPF	LABOR	ADJ LABOR	EQUIP	ADJ EQUIP	MATL	OTHER	UNMOD UC	UNMOD LIC	PC OH	PC PF	BUR LIC	COST SOURCE CITATION	COMMENTS													
P2	ODOT 200 Armor	<b>151,909</b>	LCY	1.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$57.69	\$57.69	\$8,763,630.21	0%	0%	\$8,763,630	P Anchor QEA	Project-specific cost developed by Anchor QEA (2010) - see Backup Table 29A. Includes conversion from TON to LCY.													
	<b>Armor Placement (Riverbanks)</b>																													
A16	Material Placement (Confined)	1,576	CY	1.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$20.39	\$20.39	\$32,134.64	0%	0%	\$32,135	MII MII	Project-specific unit cost developed in MII.													
	<b>Armor Placement (Confined)</b>																													
A16	Material Placement (Confined)	33,849	CY	1.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$20.39	\$20.39	\$690,181.11	0%	0%	\$690,181	MII MII	Project-specific unit cost developed in MII.													
	<b>Armor Placement (Open Water)</b>																													
A15	Material Placement (Open)	116,484	CY	1.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$12.42	\$12.42	\$1,446,731.28	0%	0%	\$1,446,731	MII MII	Project-specific unit cost developed in MII.													
<b>TOTAL COST:</b>																														

	<u>Representative Unit Quantity</u>	<u>Unit(s)</u>	<u>Total Cost</u>	<u>Unit Cost</u>
<b>COST WORKSHEET SUMMARY</b>	151,909	CY	\$10,932,677	\$71.97

**Notes:**  
Further information about the development of cost worksheets can be found in the memorandum - Methodology and Organization of Selected Remedy Cost Estimate. The quantity bolded in the QTY column is the quantity selected as the representative unit quantity for this cost worksheet. If multiple quantities are bolded, the representative unit quantity is the sum of those quantities. When the LS unit is utilized, the default representative unit quantity is 1.  
HTRW productivity factor is from Exhibit B-3 or B-4 of "A Guide to Developing and Documenting Cost Estimates During the Feasibility Study", EPA 2000  
EPA developed project-specific unit costs using the Micro Computer Aided Cost Engineering System (MCACES) Second Generation (MII) software version 4.2, build 3

- Abbreviations:**
- QTY Quantity
  - EQUIP Equipment
  - MATL Material
  - HPF HTRW Productivity Factor
  - ADJ LABOR Adjusted Labor for HFP
  - ADJ EQUIP Adjusted Equipment for HFP
  - UNMOD UC Unmodified Unit Cost
  - UNMOD LIC Unmodified Line Item Cost
  - UNBUR LIC Unburdened Line Item Cost
  - PC OH Prime Contractor Overhead
  - PC PF Prime Contractor Profit
  - BUR LIC Burdened Line Item Cost
  - AC Acres
  - CLF 100 Linear Foot
  - CY Cubic Yard
  - DY Days
  - EA Each
  - FTE Full Time Equivalent
  - HR Hours
  - LB Pounds
  - LCY Loose Cubic Yard
  - LF Linear Foot
  - LS Lump Sum
  - MO Month
  - SF Square Foot
  - SY Square Yard
  - TON Tons
  - YR Years

**Cost Database Code:**  
The Cost Database Code is a reference code for linking with line item cost information with the cost source database and is not otherwise used within these cost worksheets. The following cost source database prefixes apply:  
L (EPA-Derived Labor Unit Costs), M (Project-Specific Vendor Unit Costs), P (Previously Developed Unit Costs by Anchor QEA for Portland Harbor), A (EPA-Derived MII Unit Costs), O (Unit Costs from Other Projects/Sources)

**Source of Cost Data:**  
For citation references, the following sources apply:  
ALL (Allowance), FLC (www.flcdatabase.com), LD (Costs Derived from Lower Duwamish Waterway Final Feasibility Study), MII (MII), O (Other), P (Previously Developed by Anchor QEA for Portland Harbor), and V (Vendor Quote)

**Cost Adjustment Checklist:**  
FACTOR:  
H&S Productivity (labor and equipment only)  
Escalation to Base Year  
Area Cost Factor  
Subcontractor Overhead and Profit  
Prime Contractor Overhead and Profit

**NOTES:**  
Field work will be in Level "D" PPE.  
MII assembly costs include HPF adjustments.  
2016 cost sources are not escalated (EF=1.00). All other costs are escalated based on the USACE CWCCIS, EM 1110-2-1304, Sept 2015.  
An AF of 1.05 is used for Oregon, except that an AF of 1.00 (national unmodified average) is used for MII assembly costs and local vendor quotes.  
It is assumed that home office OH is 8% and profit is 9% for the Prime Contractor. Professional labor overhead is 100%.  
Allowances and items with mandated costs such as per diem do not have overhead and profit applied.  
Items previously developed by Anchor QEA already include contractor markups, therefore overhead and profit were not applied to those items.  
It is assumed that OH is 1% and profit is 0% for vendor quotes for treatment and disposal at offsite disposal facilities. It is assumed that OH is 5% and profit is 0% for quotes for all other material vendor quotes.  
Items developed using MII already include contractor markups such as overhead and profit, therefore additional overhead and profit were not applied in the PC OH and PC PF to those items.

**TABLE CW-F(MOD)-18**

**Alternative F (Modified) Cost Worksheet: CW-F(MOD)-18**  
**Capital Cost Sub-Element**  
**Reactive/PAC Placement for Technology Assignments**

**COST WORKSHEET**

<b>Site:</b> Portland Harbor Superfund Site	<b>Prepared By:</b> JN	<b>Date:</b> 10/20/2016
<b>Location:</b> Portland, Oregon	<b>Checked By:</b> MS	<b>Date:</b> 10/27/2016
<b>Phase:</b> Record of Decision		
<b>Base Year:</b> 2016		

**Work Statement:**  
 This sub-element involves the placement of the reactive layers for the construction of capping areas. It includes placement of the reactive layer within confined areas, open areas, and riverbanks. It includes costs for on-site labor, equipment, and materials as well as recent vendor quotes. Quantity development presented in Appendix IV.

**Cost Analysis:**  
 Cost for Reactive/PAC Placement for Technology Assignments (Lump Sum)

COST DATABASE CODE	DESCRIPTION	QTY	UNIT(S)	HPF	LABOR	ADJ LABOR	EQUIP	ADJ EQUIP	MATL	OTHER	UNMOD UC	UNMOD LIC	PC OH	PC PF	BUR LIC	COST SOURCE CITATION	COMMENTS	
	<b>AquaGate Reactive Layer</b>																	
M4	Carbon (AquaGate + PAC 10%)	96,292	TON	1.00	\$0.00	\$0.00	\$0.00	\$0.00	\$456.30	\$0.00	\$456.30	\$43,938,039.60	5%	0%	\$46,134,942	V Vendor Quote	Project-specific vendor quote - AquaBlok 2015. Material cost is \$/TON.	
P1	Sand	101,942	LCY	1.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$19.75	\$19.75	\$2,013,354.50	0%	0%	\$2,013,355	P Anchor QEA	Project-specific cost developed by Anchor QEA (2010) - see Backup Table 29A. Includes conversion from TON to LCY.	
A3	Mixing Sand & Carbon for Reactive Layer	198,332	CY	1.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$4.76	\$4.76	\$944,060.32	0%	0%	\$944,060	MII MII	Project-specific unit cost developed in MII.	
A16	Material Placement (Confined)	26,979	CY	1.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$20.39	\$20.39	\$550,101.81	0%	0%	\$550,102	MII MII	Project-specific unit cost developed in MII.	
A15	Material Placement (Open)	171,353	CY	1.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$12.42	\$12.42	\$2,128,204.26	0%	0%	\$2,128,204	MII MII	Project-specific unit cost developed in MII.	
	<b>AquaBlok</b>																	
M3	Impermeable Layer Amendment (AquaBlok)	5,681	TON	1.00	\$0.00	\$0.00	\$0.00	\$0.00	\$202.80	\$0.00	\$202.80	\$1,152,106.80	5%	0%	\$1,209,712	V Vendor Quote	Project-specific vendor quote - AquaBlok 2015. Material cost is \$/TON.	
A16	Material Placement (Confined)	4,951	CY	1.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$20.39	\$20.39	\$100,950.89	0%	0%	\$100,951	MII MII	Project-specific unit cost developed in MII.	
<b>TOTAL COST:</b>																	\$53,081,326	

	Representative Unit Quantity	Unit(s)	Total Cost	Unit Cost
<b>COST WORKSHEET SUMMARY</b>				
	1	LS	\$53,081,326	\$53,081,326

**Notes:**  
 Further information about the development of cost worksheets can be found in the memorandum - Methodology and Organization of Selected Remedy Cost Estimate. The quantity bolded in the QTY column is the quantity selected as the representative unit quantity for this cost worksheet. If multiple quantities are bolded, the representative unit quantity is the sum of those quantities. When the LS unit is utilized, the default representative unit quantity is 1.  
 HTRW productivity factor is from Exhibit B-3 or B-4 of "A Guide to Developing and Documenting Cost Estimates During the Feasibility Study", EPA 2000  
 EPA developed project-specific unit costs using the Micro Computer Aided Cost Engineering System (MCACES) Second Generation (MII) software version 4.2, build 3

**Abbreviations:**

QTY	Quantity	AC	Acre
EQUIP	Equipment	CLF	100 Linear Foot
MATL	Material	CY	Cubic Yard
HPF	HTRW Productivity Factor	DY	Days
ADJ LABOR	Adjusted Labor for HFP	EA	Each
ADJ EQUIP	Adjusted Equipment for HFP	FTE	Full Time Equivalent
UNMOD UC	Unmodified Unit Cost	HR	Hours
UNMOD LIC	Unmodified Line Item Cost	LB	Pounds
UNBUR LIC	Unburdened Line Item Cost	LCY	Loose Cubic Yard
PC OH	Prime Contractor Overhead	LF	Linear Foot
PC PF	Prime Contractor Profit	LS	Lump Sum
BUR LIC	Burdened Line Item Cost	MO	Month
		SF	Square Foot
		SY	Square Yard
		TON	Tons
		YR	Years

**Cost Database Code:**  
 The Cost Database Code is a reference code for linking with line item cost information with the cost source database and is not otherwise used within these cost worksheets. The following cost source database prefixes apply:  
 L (EPA-Derived Labor Unit Costs), M (Project-Specific Vendor Unit Costs), P (Previously Developed Unit Costs by Anchor QEA for Portland Harbor), A (EPA-Derived MII Unit Costs), O (Unit Costs from Other Projects/Sources)

**Source of Cost Data:**  
 For citation references, the following sources apply:  
 ALL (Allowance), FLC (www.flcdatacenter.com), LD (Costs Derived from Lower Duwamish Waterway Final Feasibility Study), MII (MII), O (Other), P (Previously Developed by Anchor QEA for Portland Harbor), and V (Vendor Quote)

**Cost Adjustment Checklist:**

<b>FACTOR:</b> H&S Productivity (labor and equipment only) Escalation to Base Year Area Cost Factor Subcontractor Overhead and Profit Prime Contractor Overhead and Profit	<b>NOTES:</b> Field work will be in Level "D" PPE. MII assembly costs include HPF adjustments. 2016 cost sources are not escalated (EF=1.00). All other costs are escalated based on the USACE CWCCIS, EM 1110-2-1304, Sept 2015. An AF of 1.05 is used for Oregon, except that an AF of 1.00 (national unmodified average) is used for MII assembly costs and local vendor quotes. It is assumed that home office OH is 8% and profit is 9% for the Prime Contractor. Professional labor overhead is 100%. Allowances and items with mandated costs such as per diem do not have overhead and profit applied. Items previously developed by Anchor QEA already include contractor markups, therefore overhead and profit were not applied to those items. It is assumed that OH is 1% and profit is 0% for vendor quotes for treatment and disposal at offsite disposal facilities. It is assumed that OH is 5% and profit is 0% for quotes for all other material vendor quotes. Items developed using MII already include contractor markups such as overhead and profit, therefore additional overhead and profit were not applied in the PC OH and PC PF to those items.
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**TABLE CW-F(MOD)-19**

**Alternative F (Modified)**  
**Capital Cost Sub-Element**  
**Geofabric for Riverbanks**

**Cost Worksheet: CW-F(MOD)-19**

**COST WORKSHEET**

**Site:** Portland Harbor Superfund Site  
**Location:** Portland, Oregon  
**Phase:** Record of Decision  
**Base Year:** 2016

**Prepared By:** JN      **Date:** 10/20/2016  
**Checked By:** MS      **Date:** 10/27/2016

**Work Statement:**  
 This sub-element involves the installation of geofabric along the riverbanks. It includes costs for on-site labor, equipment, and materials from recent vendor quotes. Quantity development presented in Appendix IV.

**Cost Analysis:**  
 Cost for Geofabric for Riverbanks (Lump Sum)

COST DATABASE CODE	DESCRIPTION	QTY	UNIT(S)	HPF	LABOR	ADJ LABOR	EQUIP	ADJ EQUIP	MATL	OTHER	UNMOD UC	UNMOD LIC	PC OH	PC PF	BUR LIC	COST SOURCE CITATION	COMMENTS
O7	Geotextile Installation	<b>25.5</b>	AC	1.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$7,074.14	\$7,074.14	\$180,390.67	8%	9%	\$212,356	V Vendor Quote	Vendor Quote - Geo-Synthetics (2014). Includes labor and equipment for installation
O6	Geotextile Material	25.5	AC	1.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$5,698.62	\$5,698.62	\$145,314.71	5%	0%	\$152,580	V Vendor Quote	Vendor quote obtained for project of similar scope - Geo-Synthetics, 2014.
<b>TOTAL COST:</b>																\$364,936	

	<u>Representative Unit Quantity</u>	<u>Unit(s)</u>	<u>Total Cost</u>	<u>Unit Cost</u>
<b>COST WORKSHEET SUMMARY</b>				
	25.5	AC	\$364,936	\$14,311

**Notes:**  
 Further information about the development of cost worksheets can be found in the memorandum - Methodology and Organization of Selected Remedy Cost Estimate.  
 The quantity bolded in the QTY column is the quantity selected as the representative unit quantity for this cost worksheet. If multiple quantities are bolded, the representative unit quantity is the sum of those quantities. When the LS unit is utilized, the default representative unit quantity is 1.  
 HTRW productivity factor is from Exhibit B-3 or B-4 of "A Guide to Developing and Documenting Cost Estimates During the Feasibility Study", EPA 2000  
 EPA developed project-specific unit costs using the Micro Computer Aided Cost Engineering System (MCACES) Second Generation (MII) software version 4.2, build 3

**Abbreviations:**

QTY	Quantity	AC	Acre
EQUIP	Equipment	CLF	100 Linear Foot
MATL	Material	CY	Cubic Yard
HPF	HTRW Productivity Factor	DY	Days
ADJ LABOR	Adjusted Labor for HFP	EA	Each
ADJ EQUIP	Adjusted Equipment for HFP	FTE	Full Time Equivalent
UNMOD UC	Unmodified Unit Cost	HR	Hours
UNMOD LIC	Unmodified Line Item Cost	LB	Pounds
UNBUR LIC	Unburdened Line Item Cost	LCY	Loose Cubic Yard
PC OH	Prime Contractor Overhead	LF	Linear Foot
PC PF	Prime Contractor Profit	LS	Lump Sum
BUR LIC	Burdened Line Item Cost	MO	Month
		SF	Square Foot
		SY	Square Yard
		TON	Tons
		YR	Years

**Cost Database Code:**  
 The Cost Database Code is a reference code for linking with line item cost information with the cost source database and is not otherwise used within these cost worksheets. The following cost source database prefixes apply:  
 L (EPA-Derived Labor Unit Costs), M (Project-Specific Vendor Unit Costs), P (Previously Developed Unit Costs by Anchor QEA for Portland Harbor), A (EPA-Derived MII Unit Costs), O (Unit Costs from Other Projects/Sources)

**Source of Cost Data:**  
 For citation references, the following sources apply:  
 ALL (Allowance), FLC (www.flodatacenter.com), LD (Costs Derived from Lower Duwamish Waterway Final Feasibility Study), MII (MII), O (Other), P (Previously Developed by Anchor QEA for Portland Harbor), and V (Vendor Quote)

**Cost Adjustment Checklist:**  
 FACTOR:  
 H&S Productivity (labor and equipment only)  
 Escalation to Base Year  
 Area Cost Factor  
 Subcontractor Overhead and Profit  
 Prime Contractor Overhead and Profit

**NOTES:**  
 Field work will be in Level "D" PPE.  
 MII assembly costs include HPF adjustments.  
 2016 cost sources are not escalated (EF=1.00). All other costs are escalated based on the USACE CWCCIS, EM 1110-2-1304, Sept 2015.  
 An AF of 1.05 is used for Oregon, except that an AF of 1.00 (national unmodified average) is used for MII assembly costs and local vendor quotes.  
 It is assumed that home office OH is 8% and profit is 9% for the Prime Contractor. Professional labor overhead is 100%.  
 Allowances and items with mandated costs such as per diem do not have overhead and profit applied.  
 Items previously developed by Anchor QEA already include contractor markups, therefore overhead and profit were not applied to those items.  
 It is assumed that OH is 1% and profit is 0% for vendor quotes for treatment and disposal at offsite disposal facilities. It is assumed that OH is 5% and profit is 0% for quotes for all other material vendor quotes.  
 Items developed using MII already include contractor markups such as overhead and profit, therefore additional overhead and profit were not applied in the PC OH and PC PF to those items.



**TABLE CW-F(MOD)-20**

**Alternative F (Modified) Cost Worksheet: CW-F(MOD)-20**

**COST WORKSHEET**

**Capital Cost Sub-Element  
Organoclay Mat Placement for Technology Assignments**

**Site:** Portland Harbor Superfund Site  
**Location:** Portland, Oregon  
**Phase:** Record of Decision  
**Base Year:** 2016

**Prepared By:** JN      **Date:** 10/20/2016  
**Checked By:** MS      **Date:** 10/27/2016

**Work Statement:**

This sub-element involves the placement of the organoclay mat for the construction of capping areas. It includes placement of the organoclay mat within confined areas, open areas, and riverbanks. It includes costs for on-site labor, equipment, and materials as well as recent vendor quotes. Quantity development presented in Appendix IV.

**Cost Analysis:**

Cost for Organoclay Mat Placement for Technology Assignments (Lump Sum)

COST DATABASE CODE	DESCRIPTION	QTY	UNIT(S)	HPF	LABOR	ADJ LABOR	EQUIP	ADJ EQUIP	MATL	OTHER	UNMOD UC	UNMOD LIC	PC OH	PC PF	BUR LIC	COST SOURCE CITATION	COMMENTS
A17	Organoclay Mat Placement	<b>174,300</b>	SF	1.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$3.35	\$3.35	\$583,905.00	0%	0%	\$583,905	MII MII	Project-specific unit cost developed in MII.
P4	Organoclay Mat Material	174,300	SF	1.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$3.04	\$3.04	\$529,872.00	0%	0%	\$529,872	P Anchor QEA	Project-specific cost developed by Anchor QEA (2010) - see Backup Table 29A.
<b>TOTAL COST:</b>															\$1,113,777		

	Representative Unit Quantity	Unit(s)	Total Cost	Unit Cost
<b>COST WORKSHEET SUMMARY</b>				
	174,300	SF	\$1,113,777	\$6.39

**Notes:**

Further information about the development of cost worksheets can be found in the memorandum - Methodology and Organization of Selected Remedy Cost Estimate. The quantity bolded in the QTY column is the quantity selected as the representative unit quantity for this cost worksheet. If multiple quantities are bolded, the representative unit quantity is the sum of those quantities. When the LS unit is utilized, the default representative unit quantity is 1.  
 HTRW productivity factor is from Exhibit B-3 or B-4 of "A Guide to Developing and Documenting Cost Estimates During the Feasibility Study", EPA 2000  
 EPA developed project-specific unit costs using the Micro Computer Aided Cost Engineering System (MCACES) Second Generation (MII) software version 4.2, build 3

**Abbreviations:**

QTY	Quantity	AC	Acre
EQUIP	Equipment	CLF	100 Linear Foot
MATL	Material	CY	Cubic Yard
HPF	HTRW Productivity Factor	DY	Days
ADJ LABOR	Adjusted Labor for HFP	EA	Each
ADJ EQUIP	Adjusted Equipment for HFP	FTE	Full Time Equivalent
UNMOD UC	Unmodified Unit Cost	HR	Hours
UNMOD LIC	Unmodified Line Item Cost	LB	Pounds
UNBUR LIC	Unburdened Line Item Cost	LCY	Loose Cubic Yard
PC OH	Prime Contractor Overhead	LF	Linear Foot
PC PF	Prime Contractor Profit	LS	Lump Sum
BUR LIC	Burdened Line Item Cost	MO	Month
		SF	Square Foot
		SY	Square Yard
		TON	Tons
		YR	Years

**Cost Database Code:**

The Cost Database Code is a reference code for linking with line item cost information with the cost source database and is not otherwise used within these cost worksheets. The following cost source database prefixes apply:  
 L (EPA-Derived Labor Unit Costs), M (Project-Specific Vendor Unit Costs), P (Previously Developed Unit Costs by Anchor QEA for Portland Harbor), A (EPA-Derived MII Unit Costs), O (Unit Costs from Other Projects/Sources)

**Source of Cost Data:**

For citation references, the following sources apply:  
 ALL (Allowance), FLC (www.flcdatabase.com), LD (Costs Derived from Lower Duwamish Waterway Final Feasibility Study), MII (MII), O (Other), P (Previously Developed by Anchor QEA for Portland Harbor), and V (Vendor Quote)

**Cost Adjustment Checklist:**

**NOTES:**

**FACTOR:**  
 H&S Productivity (labor and equipment only)  
 Escalation to Base Year  
 Area Cost Factor  
 Subcontractor Overhead and Profit  
 Prime Contractor Overhead and Profit

Field work will be in Level "D" PPE.  
 MII assembly costs include HPF adjustments.  
 2016 cost sources are not escalated (EF=1.00). All other costs are escalated based on the USACE CWCCIS, EM 1110-2-1304, Sept 2015.  
 An AF of 1.05 is used for Oregon, except that an AF of 1.00 (national unmodified average) is used for MII assembly costs and local vendor quotes.  
 It is assumed that home office OH is 8% and profit is 9% for the Prime Contractor. Professional labor overhead is 100%.  
 Allowances and items with mandated costs such as per diem do not have overhead and profit applied.  
 Items previously developed by Anchor QEA already include contractor markups, therefore overhead and profit were not applied to those items.  
 It is assumed that OH is 1% and profit is 0% for vendor quotes for treatment and disposal at offsite disposal facilities. It is assumed that OH is 5% and profit is 0% for quotes for all other material vendor quotes.  
 Items developed using MII already include contractor markups such as overhead and profit, therefore additional overhead and profit were not applied in the PC OH and PC PF to those items.

**TABLE CW-F(MOD)-21**

**Alternative F (Modified) Cost Worksheet: CW-F(MOD)-21**  
**Capital Cost Sub-Element**  
**Transload Facility Development**

**COST WORKSHEET**

<b>Site:</b> Portland Harbor Superfund Site	<b>Prepared By:</b> JN	<b>Date:</b> 10/20/2016
<b>Location:</b> Portland, Oregon	<b>Checked By:</b> MS	<b>Date:</b> 10/27/2016
<b>Phase:</b> Record of Decision		
<b>Base Year:</b> 2016		

**Work Statement:**  
 This sub-element involves the development of a transload facility for facilitating offsite disposal of contaminated sediments. It includes costs for on-site labor, equipment, and materials developed from previous work. Transload facility is expected to be operated for 19 years, based on estimated construction duration. Property lease quantity (20 acres) adjusted for construction duration. Labor for the annual inspections is assumed to be 2.5 times full time equivalent. Environmental monitoring is assumed to be once per quarter year for construction duration.

**Cost Analysis:**  
 Cost for Transload Facility Development (Lump Sum)

COST DATABASE CODE	DESCRIPTION	QTY	UNIT(S)	HPF	LABOR	ADJ LABOR	EQUIP	ADJ EQUIP	MATL	OTHER	UNMOD UC	UNMOD LIC	PC OH	PC PF	BUR LIC	COST SOURCE CITATION	COMMENTS
	<b>Transload Facility Development</b>																
P31	Transload Facility Permitting	1	LS	1.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$45,080.00	\$45,080.00	\$45,080.00	0%	0%	\$45,080	P Anchor QEA	Project-specific cost developed by Anchor QEA (2010) - see Backup Table 24.
P32	Transload Facility Development	1	LS	1.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$4,508,000.00	\$4,508,000.00	\$4,508,000.00	0%	0%	\$4,508,000	P Anchor QEA	Project-specific cost developed by Anchor QEA (2010) - see Backup Table 24.
P33	Yearly Property Lease	260	AC	1.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$26,484.50	\$26,484.50	\$6,885,970.00	0%	0%	\$6,885,970	P Anchor QEA	Developed by Anchor QEA (2010) - see Backup Table 24. Assumes leasing of 20 acres multiplied by estimated construction duration.
	<b>Inspection and Monitoring of Transload Facility</b>																
P34	Labor Inspections During Operations of Transload Facility	32.5	FTE	1.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$84,525.00	\$84,525.00	\$2,747,062.50	0%	0%	\$2,747,063	P Anchor QEA	Developed by Anchor QEA (2010) - see Backup Table 24. Assumes 2.5 FTE/YR multiplied by estimated construction duration.
P35	Environmental Monitoring During Offloading at Transload Facility	52	MO	1.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$16,905.00	\$16,905.00	\$879,060.00	0%	0%	\$879,060	P Anchor QEA	Developed by Anchor QEA (2010) - see Backup Table 24. Assumes 4 MO/YR multiplied by estimated construction duration.
P36	Inspection and Monitoring Reporting for Transload Facility	13	YR	1.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$45,080.00	\$45,080.00	\$586,040.00	0%	0%	\$586,040	P Anchor QEA	Project-specific cost developed by Anchor QEA (2010) - see Backup Table 24.
<b>TOTAL COST:</b>															\$15,651,213		

	Representative Unit Quantity	Unit(s)	Total Cost	Unit Cost
<b>COST WORKSHEET SUMMARY</b>	1	LS	\$15,651,213	\$15,651,213

**TABLE CW-F(MOD)-21**

**Alternative F (Modified)**  
**Capital Cost Sub-Element**  
**Transload Facility Development**

**Cost Worksheet: CW-F(MOD)-21**

**COST WORKSHEET**

**Site:** Portland Harbor Superfund Site  
**Location:** Portland, Oregon  
**Phase:** Record of Decision  
**Base Year:** 2016

**Prepared By:** JN      **Date:** 10/20/2016  
**Checked By:** MS      **Date:** 10/27/2016

**Notes:**  
 Further information about the development of cost worksheets can be found in the memorandum - Methodology and Organization of Selected Remedy Cost Estimate.  
 The quantity bolded in the QTY column is the quantity selected as the representative unit quantity for this cost worksheet. If multiple quantities are bolded, the representative unit quantity is the sum of those quantities. When the LS unit is utilized, the default representative unit quantity is 1.  
 HTRW productivity factor is from Exhibit B-3 or B-4 of "A Guide to Developing and Documenting Cost Estimates During the Feasibility Study", EPA 2000  
 EPA developed project-specific unit costs using the Micro Computer Aided Cost Engineering System (MCACES) Second Generation (MII) software version 4.2, build 3

**Abbreviations:**

QTY	Quantity	AC	Acre
EQUIP	Equipment	CLF	100 Linear Foot
MATL	Material	CY	Cubic Yard
HPF	HTRW Productivity Factor	DY	Days
ADJ LABOR	Adjusted Labor for HFP	EA	Each
ADJ EQUIP	Adjusted Equipment for HFP	FTE	Full Time Equivalent
UNMOD UC	Unmodified Unit Cost	HR	Hours
UNMOD LIC	Unmodified Line Item Cost	LB	Pounds
UNBUR LIC	Unburdened Line Item Cost	LCY	Loose Cubic Yard
PC OH	Prime Contractor Overhead	LF	Linear Foot
PC PF	Prime Contractor Profit	LS	Lump Sum
BUR LIC	Burdened Line Item Cost	MO	Month
		SF	Square Foot
		SY	Square Yard
		TON	Tons
		YR	Years

**Cost Database Code:**  
 The Cost Database Code is a reference code for linking with line item cost information with the cost source database and is not otherwise used within these cost worksheets. The following cost source database prefixes apply:  
 L (EPA-Derived Labor Unit Costs), M (Project-Specific Vendor Unit Costs), P (Previously Developed Unit Costs by Anchor QEA for Portland Harbor), A (EPA-Derived MII Unit Costs), O (Unit Costs from Other Projects/Sources)

**Source of Cost Data:**  
 For citation references, the following sources apply:  
 ALL (Allowance), FLC (www.fldatacenter.com), LD (Costs Derived from Lower Duwamish Waterway Final Feasibility Study), MII (MII), O (Other), P (Previously Developed by Anchor QEA for Portland Harbor), and V (Vendor Quote)

**Cost Adjustment Checklist:**  
 FACTOR:  
 H&S Productivity (labor and equipment only)  
 Escalation to Base Year  
 Area Cost Factor  
 Subcontractor Overhead and Profit  
 Prime Contractor Overhead and Profit

**NOTES:**  
 Field work will be in Level "D" PPE.  
 MII assembly costs include HPF adjustments.  
 2016 cost sources are not escalated (EF=1.00). All other costs are escalated based on the USACE CWCCIS, EM 1110-2-1304, Sept 2015.  
 An AF of 1.05 is used for Oregon, except that an AF of 1.00 (national unmodified average) is used for MII assembly costs and local vendor quotes.  
 It is assumed that home office OH is 8% and profit is 9% for the Prime Contractor. Professional labor overhead is 100%.  
 Allowances and items with mandated costs such as per diem do not have overhead and profit applied.  
 Items previously developed by Anchor QEA already include contractor markups, therefore overhead and profit were not applied to those items.  
 It is assumed that OH is 1% and profit is 0% for vendor quotes for treatment and disposal at offsite disposal facilities. It is assumed that OH is 5% and profit is 0% for quotes for all other material vendor quotes.  
 Items developed using MII already include contractor markups such as overhead and profit, therefore additional overhead and profit were not applied in the PC OH and PC PF to those items.

**TABLE CW-F(MOD)-22**

**Alternative F (Modified) Cost Worksheet: CW-F(MOD)-22**  
**Capital and Periodic Cost Sub-Element**  
**Monitored Natural Recovery (MNR) for MNR/Enhanced Natural Recovery (ENR) and Broadcast GAC Areas**

**COST WORKSHEET**

**Site:** Portland Harbor Superfund Site **Prepared By:** JN **Date:** 10/20/2016  
**Location:** Portland, Oregon  
**Phase:** Record of Decision **Checked By:** MS **Date:** 10/27/2016  
**Base Year:** 2016

**Work Statement:**  
 This sub-element involves sampling as part of monitored natural recovery for MNR, ENR, and Broadcast GAC areas. It includes costs for on-site labor, equipment, and materials developed from previous work. Quantity development presented in Appendix IV.

**Cost Analysis:**  
 Cost for Monitored Natural Recovery for MNR/ENR and Broadcast GAC Areas (Lump Sum)

COST DATABASE CODE	DESCRIPTION	QTY	UNIT(S)	HPF	LABOR	ADJ LABOR	EQUIP	ADJ EQUIP	MATL	OTHER	UNMOD UC	UNMOD LIC	PC OH	PC PF	BUR LIC	COST SOURCE CITATION	COMMENTS
P25	Monitored Natural Recovery	<b>1,802</b>	AC	1.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$3,686.33	\$3,686.33	\$6,642,760.97	0%	0%	\$6,642,761	P Anchor QEA	Project-specific cost developed by Anchor QEA (2010) - based on Backup Table 2.
<b>TOTAL COST:</b>															\$6,642,761		

	<u>Representative Unit Quantity</u>	<u>Unit(s)</u>	<u>Total Cost</u>	<u>Unit Cost</u>
<b>COST WORKSHEET SUMMARY</b>	1,802	AC	\$6,642,761	\$3,686

**Notes:**  
 Further information about the development of cost worksheets can be found in the memorandum - Methodology and Organization of Selected Remedy Cost Estimate. The quantity bolded in the QTY column is the quantity selected as the representative unit quantity for this cost worksheet. If multiple quantities are bolded, the representative unit quantity is the sum of those quantities. When the LS unit is utilized, the default representative unit quantity is 1.  
 HTRW productivity factor is from Exhibit B-3 or B-4 of "A Guide to Developing and Documenting Cost Estimates During the Feasibility Study", EPA 2000  
 EPA developed project-specific unit costs using the Micro Computer Aided Cost Engineering System (MCACES) Second Generation (MII) software version 4.2, build 3

**Abbreviations:**

QTY	Quantity	AC	Acre
EQUIP	Equipment	CLF	100 Linear Foot
MATL	Material	CY	Cubic Yard
HPF	HTRW Productivity Factor	DY	Days
ADJ LABOR	Adjusted Labor for HFP	EA	Each
ADJ EQUIP	Adjusted Equipment for HFP	FTE	Full Time Equivalent
UNMOD UC	Unmodified Unit Cost	HR	Hours
UNMOD LIC	Unmodified Line Item Cost	LB	Pounds
UNBUR LIC	Unburdened Line Item Cost	LCY	Loose Cubic Yard
PC OH	Prime Contractor Overhead	LF	Linear Foot
PC PF	Prime Contractor Profit	LS	Lump Sum
BUR LIC	Burdened Line Item Cost	MO	Morth
		SF	Square Foot
		SY	Square Yard
		TON	Tons
		YR	Years

**Cost Database Code:**  
 The Cost Database Code is a reference code for linking with line item cost information with the cost source database and is not otherwise used within these cost worksheets. The following cost source database prefixes apply:  
 L (EPA-Derived Labor Unit Costs), M (Project-Specific Vendor Unit Costs), P (Previously Developed Unit Costs by Anchor QEA for Portland Harbor), A (EPA-Derived MII Unit Costs), O (Unit Costs from Other Projects/Sources)

**Source of Cost Data:**  
 For citation references, the following sources apply:  
 ALL (Allowance), FLC (www.flodatacenter.com), LD (Costs Derived from Lower Duwamish Waterway Final Feasibility Study), MII (MII), O (Other), P (Previously Developed by Anchor QEA for Portland Harbor), and V (Vendor Quote)

**Cost Adjustment Checklist:**

<b>FACTOR:</b>	<b>NOTES:</b>
H&S Productivity (labor and equipment only)	Field work will be in Level "D" PPE.
Escalation to Base Year	MII assembly costs include HPF adjustments.
Area Cost Factor	2016 cost sources are not escalated (EF=1.00). All other costs are escalated based on the USACE CWCCIS, EM 1110-2-1304, Sept 2015.
Subcontractor Overhead and Profit	An AF of 1.05 is used for Oregon, except that an AF of 1.00 (national unmodified average) is used for MII assembly costs and local vendor quotes. It is assumed that home office OH is 8% and profit is 9% for the Prime Contractor. Professional labor overhead is 100%.
Prime Contractor Overhead and Profit	Allowances and items with mandated costs such as per diem do not have overhead and profit applied. Items previously developed by Anchor QEA already include contractor markups, therefore overhead and profit were not applied to those items. It is assumed that OH is 1% and profit is 0% for vendor quotes for treatment and disposal at offsite disposal facilities. It is assumed that OH is 5% and profit is 0% for quotes for all other material vendor quotes. Items developed using MII already include contractor markups such as overhead and profit, therefore additional overhead and profit were not applied in the PC OH and PC PF to those items.

**TABLE CW-F(MOD)-23**

**Alternative F (Modified)**  
**Periodic Cost Sub-Element**  
**Site-Wide Monitoring**

**Cost Worksheet: CW-F(MOD)-23**

**COST WORKSHEET**

**Site:** Portland Harbor Superfund Site  
**Location:** Portland, Oregon  
**Phase:** Record of Decision  
**Base Year:** 2016

**Prepared By:** JN      **Date:** 10/20/2016  
**Checked By:** MS      **Date:** 10/27/2016

**Work Statement:**  
 This sub-element involves sampling, surveying, data management, and reporting as part of sitewide monitoring. It includes costs for on-site labor, equipment, and materials developed from previous work.

**Cost Analysis:**  
 Cost for Site-Wide Monitoring (Lump Sum)

COST DATABASE CODE	DESCRIPTION	QTY	UNIT(S)	HPF	LABOR	ADJ LABOR	EQUIP	ADJ EQUIP	MATL	OTHER	UNMOD UC	UNMOD LIC	PC OH	PC PF	BUR LIC	COST SOURCE CITATION	COMMENTS
	Site-Wide Monitoring																
P26	Site-wide Monitoring	1	LS	1.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$957,659.23	\$957,659.23	\$957,659.23	0%	0%	\$957,659	P Anchor QEA	Project-specific cost developed by Anchor QEA (2010) - based on Backup Table 1.
<b>TOTAL COST:</b>															\$957,659		

	Representative Unit Quantity	Unit(s)	Total Cost	Unit Cost
<b>COST WORKSHEET SUMMARY</b>				
	1	LS	\$957,659	\$957,659

**Notes:**  
 Further information about the development of cost worksheets can be found in the memorandum - Methodology and Organization of Selected Remedy Cost Estimate.  
 The quantity bolded in the QTY column is the quantity selected as the representative unit quantity for this cost worksheet. If multiple quantities are bolded, the representative unit quantity is the sum of those quantities. When the LS unit is utilized, the default representative unit quantity is 1.  
 HTRW productivity factor is from Exhibit B-3 or B-4 of "A Guide to Developing and Documenting Cost Estimates During the Feasibility Study", EPA 2000  
 EPA developed project-specific unit costs using the Micro Computer Aided Cost Engineering System (MCACES) Second Generation (MII) software version 4.2, build 3

**Abbreviations:**

QTY	Quantity	AC	Acre
EQUIP	Equipment	CLF	100 Linear Foot
MATL	Material	CY	Cubic Yard
HPF	HTRW Productivity Factor	DY	Days
ADJ LABOR	Adjusted Labor for HFP	EA	Each
ADJ EQUIP	Adjusted Equipment for HFP	FTE	Full Time Equivalent
UNMOD UC	Unmodified Unit Cost	HR	Hours
UNMOD LIC	Unmodified Line Item Cost	LB	Pounds
UNBUR LIC	Unburdened Line Item Cost	LCY	Loose Cubic Yard
PC OH	Prime Contractor Overhead	LF	Linear Foot
PC PF	Prime Contractor Profit	LS	Lump Sum
BUR LIC	Burdened Line Item Cost	MO	Month
		SF	Square Foot
		SY	Square Yard
		TON	Tons
		YR	Years

**Cost Database Code:**  
 The Cost Database Code is a reference code for linking with line item cost information with the cost source database and is not otherwise used within these cost worksheets. The following cost source database prefixes apply:  
 L (EPA-Derived Labor Unit Costs), M (Project-Specific Vendor Unit Costs), P (Previously Developed Unit Costs by Anchor QEA for Portland Harbor), A (EPA-Derived MII Unit Costs), O (Unit Costs from Other Projects/Sources)

**Source of Cost Data:**  
 For citation references, the following sources apply:  
 ALL (Allowance), FLC (www.flldatacenter.com), LD (Costs Derived from Lower Duwamish Waterway Final Feasibility Study), MII (MII), O (Other), P (Previously Developed by Anchor QEA for Portland Harbor), and V (Vendor Quote)

**Cost Adjustment Checklist:**

<b>FACTOR:</b>	<b>NOTES:</b>
H&S Productivity (labor and equipment only)	Field work will be in Level "D" PPE.
Escalation to Base Year	MII assembly costs include HPF adjustments.
Area Cost Factor	2016 cost sources are not escalated (EF=1.00). All other costs are escalated based on the USACE CWCCIS, EM 1110-2-1304, Sept 2015.
Subcontractor Overhead and Profit	An AF of 1.05 is used for Oregon, except that an AF of 1.00 (national unmodified average) is used for MII assembly costs and local vendor quotes.
Prime Contractor Overhead and Profit	It is assumed that home office OH is 8% and profit is 9% for the Prime Contractor. Professional labor overhead is 100%.
	Allowances and items with mandated costs such as per diem do not have overhead and profit applied.
	Items previously developed by Anchor QEA already include contractor markups, therefore overhead and profit were not applied to those items.
	It is assumed that OH is 1% and profit is 0% for vendor quotes for treatment and disposal at offsite disposal facilities. It is assumed that OH is 5% and profit is 0% for quotes for all other material vendor quotes.
	Items developed using MII already include contractor markups such as overhead and profit, therefore additional overhead and profit were not applied in the PC OH and PC PF to those items.

**TABLE CW-F(MOD)-24**

**Alternative F (Modified) Cost Worksheet: CW-F(MOD)-24**

**COST WORKSHEET**

**Periodic Cost Sub-Element  
Cap Area Monitoring and Reactive Layer Monitoring**

<b>Site:</b> Portland Harbor Superfund Site	<b>Prepared By:</b> JN	<b>Date:</b> 10/20/2016
<b>Location:</b> Portland, Oregon	<b>Checked By:</b> MS	<b>Date:</b> 10/27/2016
<b>Phase:</b> Record of Decision		
<b>Base Year:</b> 2016		

**Work Statement:**  
This sub-element involves sampling, surveying, data management, and reporting as part of cap and reactive layer monitoring. It includes costs for on-site labor, equipment, and materials developed from previous work. Quantity development presented in Appendix IV.

**Cost Analysis:**  
Cost for Cap and Reactive Layer Monitoring (Lump Sum)

COST DATABASE CODE	DESCRIPTION	QTY	UNIT(S)	HPF	LABOR	ADJ LABOR	EQUIP	ADJ EQUIP	MATL	OTHER	UNMOD UC	UNMOD LIC	PC OH	PC PF	BUR LIC	COST SOURCE CITATION	COMMENTS
<b>Cap Area Monitoring</b>																	
P27	Cap Monitoring	222	AC	1.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$78,961.34	\$78,961.34	\$17,529,417.28	0%	0%	\$17,529,417	P Anchor QEA	Project-specific cost developed by Anchor QEA (2010) - based on Backup Table 4.
<b>Reactive Layer Monitoring</b>																	
P28	Reactive Layer Monitoring	133	AC	1.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$88,968.76	\$88,968.76	\$11,832,845.21	0%	0%	\$11,832,845	P Anchor QEA	Project-specific cost developed by Anchor QEA (2010) - based on Backup Table 3.
<b>TOTAL COST:</b>															\$29,362,262		

	<u>Representative Unit Quantity</u>	<u>Unit(s)</u>	<u>Total Cost</u>	<u>Unit Cost</u>
<b>COST WORKSHEET SUMMARY</b>	1	LS	\$29,362,262	\$29,362,262

**Notes:**  
Further information about the development of cost worksheets can be found in the memorandum - Methodology and Organization of Selected Remedy Cost Estimate. The quantity bolded in the QTY column is the quantity selected as the representative unit quantity for this cost worksheet. If multiple quantities are bolded, the representative unit quantity is the sum of those quantities. When the LS unit is utilized, the default representative unit quantity is 1.  
HTRW productivity factor is from Exhibit B-3 or B-4 of "A Guide to Developing and Documenting Cost Estimates During the Feasibility Study", EPA 2000  
EPA developed project-specific unit costs using the Micro Computer Aided Cost Engineering System (MCACES) Second Generation (MII) software version 4.2, build 3

**Abbreviations:**

QTY	Quantity	AC	Acre
EQUIP	Equipment	CLF	100 Linear Foot
MATL	Material	CY	Cubic Yard
HPF	HTRW Productivity Factor	DY	Days
ADJ LABOR	Adjusted Labor for HFP	EA	Each
ADJ EQUIP	Adjusted Equipment for HFP	FTE	Full Time Equivalent
UNMOD UC	Unmodified Unit Cost	HR	Hours
UNMOD LIC	Unmodified Line Item Cost	LB	Pounds
UNBUR LIC	Unburdened Line Item Cost	LCY	Loose Cubic Yard
PC OH	Prime Contractor Overhead	LF	Linear Foot
PC PF	Prime Contractor Profit	LS	Lump Sum
BUR LIC	Burdened Line Item Cost	MO	Month
		SF	Square Foot
		SY	Square Yard
		TON	Tons
		YR	Years

**Cost Database Code:**  
The Cost Database Code is a reference code for linking with line item cost information with the cost source database and is not otherwise used within these cost worksheets. The following cost source database prefixes apply:  
L (EPA-Derived Labor Unit Costs), M (Project-Specific Vendor Unit Costs), P (Previously Developed Unit Costs by Anchor QEA for Portland Harbor), A (EPA-Derived MII Unit Costs), O (Unit Costs from Other Projects/Sources)

**Source of Cost Data:**  
For citation references, the following sources apply:  
ALL (Allowance), FLC (www.flcdcenter.com), LD (Costs Derived from Lower Duwamish Waterway Final Feasibility Study), MII (MII), O (Other), P (Previously Developed by Anchor QEA for Portland Harbor), and V (Vendor Quote)

**Cost Adjustment Checklist:**

<p>FACTOR: H&amp;S Productivity (labor and equipment only) Escalation to Base Year Area Cost Factor Subcontractor Overhead and Profit Prime Contractor Overhead and Profit</p>	<p><b>NOTES:</b> Field work will be in Level "D" PPE. MII assembly costs include HPF adjustments. 2016 cost sources are not escalated (EF=1.00). All other costs are escalated based on the USACE CWCCIS, EM 1110-2-1304, Sept 2015. An AF of 1.05 is used for Oregon, except that an AF of 1.00 (national unmodified average) is used for MII assembly costs and local vendor quotes. It is assumed that home office OH is 8% and profit is 9% for the Prime Contractor. Professional labor overhead is 100%. Allowances and items with mandated costs such as per diem do not have overhead and profit applied. Items previously developed by Anchor QEA already include contractor markups, therefore overhead and profit were not applied to those items. It is assumed that OH is 1% and profit is 0% for vendor quotes for treatment and disposal at offsite disposal facilities. It is assumed that OH is 5% and profit is 0% for quotes for all other material vendor quotes. Items developed using MII already include contractor markups such as overhead and profit, therefore additional overhead and profit were not applied in the PC OH and PC PF to those items.</p>
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TABLE CW-F(MOD)-25

Alternative F (Modified) Cost Worksheet: CW-F(MOD)-25

COST WORKSHEET

Periodic Cost Sub-Element  
 Long-Term Maintenance for Capping, ENR, and In Situ Treatment

Site: Portland Harbor Superfund Site  
 Location: Portland, Oregon  
 Phase: Record of Decision  
 Base Year: 2016

Prepared By: JN Date: 10/20/2016  
 Checked By: MS Date: 10/27/2016

**Work Statement:**  
 This sub-element involves replacement of 5% of the technology assignment layers as part of long-term maintenance. It includes costs for on-site labor, equipment, and materials developed from previous work. Quantities represent 5% of material placement quantities which were developed and presented in Appendix IV.

**Cost Analysis:**  
 Cost for Long-Term Maintenance (Lump Sum)

COST DATABASE CODE	DESCRIPTION	QTY	UNIT(S)	HPF	LABOR	ADJ LABOR	EQUIP	ADJ EQUIP	MATL	OTHER	UNMOD UC	UNMOD LIC	PC OH	PC PF	BUR LIC	COST SOURCE CITATION	COMMENTS
<b>Mobilization / Demobilization</b>																	
O2	Mobilization/Demobilization for Long Term Maintenance	1	LS	1.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$81,164.98	\$81,164.98	\$81,164.98	0%	0%	\$81,165	LD Lower Duwamish	Assumes 1.6% of total capital costs per Lower Duwamish Feasibility Study. See Calculations for derivation.
<b>Sand Placement for Technology Assignments</b>																	
P1	Sand	45,719	LCY	1.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$19.75	\$19.75	\$902,950.25	0%	0%	\$902,950	P Anchor QEA	Assume 5% of placement of additional material
<b>Sand Placement (Riverbanks)</b>																	
A16	Material Placement (Confined)	5,105	CY	1.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$20.39	\$20.39	\$104,090.95	0%	0%	\$104,091	MII MII	Assume 5% of placement of additional material
<b>Sand Placement (Confined)</b>																	
A16	Material Placement (Confined)	4,083	CY	1.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$20.39	\$20.39	\$83,252.37	0%	0%	\$83,252	MII MII	Assume 5% of placement of additional material
<b>Sand Placement (Open Water)</b>																	
A15	Material Placement (Open)	36,532	CY	1.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$12.42	\$12.42	\$453,727.44	0%	0%	\$453,727	MII MII	Assume 5% of placement of additional material
<b>Beach Mix Placement for Technology Assignments</b>																	
P3	ODOT 100 Beach Mix	3,476	LCY	1.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$57.69	\$57.69	\$200,530.44	0%	0%	\$200,530	P Anchor QEA	Assume 5% of placement of additional material
<b>Beach Mix Placement (Riverbanks)</b>																	
A16	Material Placement (Confined)	945	CY	1.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$20.39	\$20.39	\$19,268.55	0%	0%	\$19,269	MII MII	Assume 5% of placement of additional material
<b>Beach Mix Placement (Confined)</b>																	
A16	Material Placement (Confined)	301	CY	1.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$20.39	\$20.39	\$6,137.39	0%	0%	\$6,137	MII MII	Assume 5% of placement of additional material
<b>Beach Mix Placement (Open Water)</b>																	
A15	Material Placement (Open)	2,230	CY	1.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$12.42	\$12.42	\$27,696.60	0%	0%	\$27,697	MII MII	Assume 5% of placement of additional material
<b>Armor Placement for Technology Assignments</b>																	
P2	ODOT 200 Armor	7,595	LCY	1.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$57.69	\$57.69	\$438,155.55	0%	0%	\$438,156	P Anchor QEA	Assume 5% of placement of additional material
<b>Armor Placement (Riverbanks)</b>																	
A16	Material Placement (Confined)	79	CY	1.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$20.39	\$20.39	\$1,610.81	0%	0%	\$1,611	MII MII	Assume 5% of placement of additional material
<b>Armor Placement (Confined)</b>																	
A16	Material Placement (Confined)	1,692	CY	1.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$20.39	\$20.39	\$34,499.88	0%	0%	\$34,500	MII MII	Assume 5% of placement of additional material
<b>Armor Placement (Open Water)</b>																	
A15	Material Placement (Open)	5,824	CY	1.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$12.42	\$12.42	\$72,334.08	0%	0%	\$72,334	MII MII	Assume 5% of placement of additional material
<b>Reactive/GAC Placement for Technology Assignments</b>																	
<b>AquaGate Reactive Layer</b>																	
M4	Carbon (AquaGate + PAC 10%)	4,815	TON	1.00	\$0.00	\$0.00	\$0.00	\$0.00	\$456.30	\$0.00	\$456.30	\$2,197,084.50	5%	0%	\$2,306,939	V Vendor Quote	Assume 5% of placement of additional material
P1	Sand	5,097	LCY	1.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$19.75	\$19.75	\$100,665.75	0%	0%	\$100,666	P Anchor QEA	Assume 5% of placement of additional material
A3	Mixing Sand & Carbon for Reactive Layer	9,917	CY	1.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$4.76	\$4.76	\$47,204.92	0%	0%	\$47,205	MII MII	Assume 5% of placement of additional material
A16	Material Placement (Confined)	1,349	CY	1.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$20.39	\$20.39	\$27,506.11	0%	0%	\$27,506	MII MII	Assume 5% of placement of additional material
A15	Material Placement (Open)	8,568	CY	1.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$12.42	\$12.42	\$106,414.56	0%	0%	\$106,415	MII MII	Assume 5% of placement of additional material

**TABLE CW-F(MOD)-25**

**Alternative F (Modified) Cost Worksheet: CW-F(MOD)-25**

**COST WORKSHEET**

**Periodic Cost Sub-Element**  
**Long-Term Maintenance for Capping, ENR, and In Situ Treatment**

<b>Site:</b> Portland Harbor Superfund Site	<b>Prepared By:</b> JN	<b>Date:</b> 10/20/2016
<b>Location:</b> Portland, Oregon	<b>Checked By:</b> MS	<b>Date:</b> 10/27/2016
<b>Phase:</b> Record of Decision		
<b>Base Year:</b> 2016		

**Work Statement:**  
 This sub-element involves replacement of 5% of the technology assignment layers as part of long-term maintenance. It includes costs for on-site labor, equipment, and materials developed from previous work. Quantities represent 5% of material placement quantities which were developed and presented in Appendix IV.

**Cost Analysis:**  
 Cost for Long-Term Maintenance (Lump Sum)

COST DATABASE CODE	DESCRIPTION	QTY	UNIT(S)	HPF	LABOR	ADJ LABOR	EQUIP	ADJ EQUIP	MATL	OTHER	UNMOD UC	UNMOD LIC	PC OH	PC PF	BUR LIC	COST SOURCE CITATION	COMMENTS
	<b>AquaBlock</b>																
M3	Impermeable Layer Amendment (AquaBlok)	284	TON	1.00	\$0.00	\$0.00	\$0.00	\$0.00	\$202.80	\$0.00	\$202.80	\$57,595.20	5%	0%	\$60,475	V Vendor Quote	Assume 5% of placement of additional material
A16	Material Placement (Confined)	248	CY	1.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$20.39	\$20.39	\$5,056.72	0%	0%	\$5,057	MII MII	Assume 5% of placement of additional material
	<b>Geofabric for Riverbanks</b>																
O7	Geotextile Installation	1.3	AC	1.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$7,074.14	\$7,074.14	\$9,196.39	8%	9%	\$10,826	V Vendor Quote	Assume 5% of placement of additional material
O6	Geotextile Material	1.3	AC	1.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$5,698.62	\$5,698.62	\$7,408.20	5%	0%	\$7,779	V Vendor Quote	Assume 5% of placement of additional material
	<b>Organoclay Mat Placement for Technology Assignments</b>																
A17	Organoclay Mat Placement	8,715	SF	1.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$3.35	\$3.35	\$29,195.25	0%	0%	\$29,195	MII MII	Assume 5% of placement of additional material
P4	Organoclay Mat Material	8,715	SF	1.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$3.04	\$3.04	\$26,493.60	0%	0%	\$26,494	P Anchor QEA	Assume 5% of placement of additional material
<b>TOTAL COST:</b>															\$5,153,976		

	<u>Representative</u>	<u>Unit(s)</u>	<u>Total Cost</u>	<u>Unit Cost</u>
<b>COST WORKSHEET SUMMARY</b>	1	LS	\$5,153,976	\$5,153,976

**Notes:**  
 Further information about the development of cost worksheets can be found in the memorandum - Methodology and Organization of Selected Remedy Cost Estimate. The quantity bolded in the QTY column is the quantity selected as the representative unit quantity for this cost worksheet. If multiple quantities are bolded, the representative unit quantity is the sum of those quantities. When the LS unit is utilized, the default representative unit quantity is 1.  
 HTRW productivity factor is from Exhibit B-3 or B-4 of "A Guide to Developing and Documenting Cost Estimates During the Feasibility Study", EPA 2000  
 EPA developed project-specific unit costs using the Micro Computer Aided Cost Engineering System (MCACES) Second Generation (MII) software version 4.2, build 3

**Cost Database Code:**  
 The Cost Database Code is a reference code for linking with line item cost information with the cost source database and is not otherwise used within these cost worksheets. The following cost source database prefixes apply:  
 L (EPA-Derived Labor Unit Costs), M (Project-Specific Vendor Unit Costs), P (Previously Developed Unit Costs by Anchor QEA for Portland Harbor), A (EPA-Derived MII Unit Costs), O (Unit Costs from Other Projects/Sources)

**Source of Cost Data:**  
 For citation references, the following sources apply:  
 ALL (Allowance), FLC (www.flcdatabase.com), LD (Costs Derived from Lower Duwamish Waterway Final Feasibility Study), MII (MII), O (Other), P (Previously Developed by Anchor QEA for Portland Harbor), and V (Vendor Quote)

**Abbreviations:**

QTY	Quantity	AC	Acre
EQUIP	Equipment	CLF	100 Linear Foot
MATL	Material	CY	Cubic Yard
HPF	HTRW Productivity Factor	DY	Days
ADJ LABOR	Adjusted Labor for HFP	EA	Each
ADJ EQUIP	Adjusted Equipment for HFP	FTE	Full Time Equivalent
UNMOD UC	Unmodified Unit Cost	HR	Hours
UNMOD LIC	Unmodified Line Item Cost	LB	Pounds
UNBUR LIC	Unburdened Line Item Cost	LCY	Loose Cubic Yard
PC OH	Prime Contractor Overhead	LF	Linear Foot
PC PF	Prime Contractor Profit	LS	Lump Sum
BUR LIC	Burdened Line Item Cost	MO	Month
		SF	Square Foot
		SY	Square Yard
		TON	Tons
		YR	Years

<b>Cost Adjustment Checklist:</b>	<b>NOTES:</b>
FACTOR:	Field work will be in Level "D" PPE.
H&S Productivity (labor and equipment only)	MII assembly costs include HPF adjustments.
Escalation to Base Year	2016 cost sources are not escalated (EF=1.00). All other costs are escalated based on the USACE CWCCIS, EM 1110-2-1304, Sept 2015.
Area Cost Factor	An AF of 1.05 is used for Oregon, except that an AF of 1.00 (national unmodified average) is used for MII assembly costs and local vendor quotes.
Subcontractor Overhead and Profit	It is assumed that home office OH is 8% and profit is 9% for the Prime Contractor. Professional labor overhead is 100%.
Prime Contractor Overhead and Profit	Allowances and items with mandated costs such as per diem do not have overhead and profit applied.
	Items previously developed by Anchor QEA already include contractor markups, therefore overhead and profit were not applied to those items.
	It is assumed that OH is 1% and profit is 0% for vendor quotes for treatment and disposal at offsite disposal facilities. It is assumed that OH is 5% and profit is 0% for quotes for all other material vendor quotes.
	Items developed using MII already include contractor markups such as overhead and profit, therefore additional overhead and profit were not applied in the PC OH and PC PF to those items.



**TABLE CW-F(MOD)-26**

**Alternative F (Modified)  
Periodic Cost Sub-Element  
5-Year Site Review**

**Cost Worksheet: CW-F(MOD)-26**

**COST WORKSHEET**

**Site:** Portland Harbor Superfund Site  
**Location:** Portland, Oregon  
**Phase:** Record of Decision  
**Base Year:** 2016

**Prepared By:** JN      **Date:** 10/20/2016  
**Checked By:** MS      **Date:** 10/27/2016

**Work Statement:**  
This sub-element involves the site visit and 5-year site review report. The following cost includes labor, material and shipping costs for site visits and 5-year site review reports.

**Cost Analysis:**  
Cost for 5-Year Site Review (Lump Sum)

COST DATABASE CODE	DESCRIPTION	QTY	UNIT(S)	HPF	LABOR	ADJ LABOR	EQUIP	ADJ EQUIP	MATL	OTHER	UNMOD UC	UNMOD LIC	PC OH	PC PF	BUR LIC	COST SOURCE CITATION	COMMENTS
L11	Project Manager	300	HR	1.00	\$82.17	\$82.17	\$0.00	\$0.00	\$0.00	\$0.00	\$82.17	\$24,651.00	100%	9%	\$53,739	FLC FLCDataCenter	Project-specific unit cost developed by EPA.
L4	Environmental Engineer	600	HR	1.00	\$48.91	\$48.91	\$0.00	\$0.00	\$0.00	\$0.00	\$48.91	\$29,346.00	100%	9%	\$63,974	FLC FLCDataCenter	Project-specific unit cost developed by EPA.
L6	Environmental Scientist	900	HR	1.00	\$37.70	\$37.70	\$0.00	\$0.00	\$0.00	\$0.00	\$37.70	\$33,930.00	100%	9%	\$73,967	FLC FLCDataCenter	Project-specific unit cost developed by EPA.
L12	Quality Control Engineer	120	HR	1.00	\$64.99	\$64.99	\$0.00	\$0.00	\$0.00	\$0.00	\$64.99	\$7,798.80	100%	9%	\$17,001	FLC FLCDataCenter	Project-specific unit cost developed by EPA.
L1	CAD Drafter	300	HR	1.00	\$31.31	\$31.31	\$0.00	\$0.00	\$0.00	\$0.00	\$31.31	\$9,393.00	100%	9%	\$20,477	FLC FLCDataCenter	Project-specific unit cost developed by EPA.
L3	Clerks, Typist, Bookkeeper & Receptionist	300	HR	1.00	\$19.89	\$19.89	\$0.00	\$0.00	\$0.00	\$0.00	\$19.89	\$5,967.00	100%	9%	\$13,008	FLC FLCDataCenter	Project-specific unit cost developed by EPA.
O4	Copy and Shipping Allowance	1	LS	1.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$1,521.00	\$1,521.00	\$1,521.00	0%	0%	\$1,521	ALL Allowance	
<b>TOTAL COST:</b>															\$243,687		

	Representative Unit Quantity	Unit(s)	Total Cost	Unit Cost
<b>COST WORKSHEET SUMMARY</b>				
	1	LS	\$243,687	\$243,687

**Notes:**  
Further information about the development of cost worksheets can be found in the memorandum - Methodology and Organization of Selected Remedy Cost Estimate.  
The quantity bolded in the QTY column is the quantity selected as the representative unit quantity for this cost worksheet. If multiple quantities are bolded, the representative unit quantity is the sum of those quantities. When the LS unit is utilized, the default representative unit quantity is 1.  
HTRW productivity factor is from Exhibit B-3 or B-4 of "A Guide to Developing and Documenting Cost Estimates During the Feasibility Study", EPA 2000  
EPA developed project-specific unit costs using the Micro Computer Aided Cost Engineering System (MCACES) Second Generation (MII) software version 4.2, build 3

**Abbreviations:**

QTY	Quantity	AC	Acre
EQUIP	Equipment	CLF	100 Linear Foot
MATL	Material	CY	Cubic Yard
HPF	HTRW Productivity Factor	DY	Days
ADJ LABOR	Adjusted Labor for HFP	EA	Each
ADJ EQUIP	Adjusted Equipment for HFP	FTE	Full Time Equivalent
UNMOD UC	Unmodified Unit Cost	HR	Hours
UNMOD LIC	Unmodified Line Item Cost	LB	Pounds
UNBUR LIC	Unburdened Line Item Cost	LCY	Loose Cubic Yard
PC OH	Prime Contractor Overhead	LF	Linear Foot
PC PF	Prime Contractor Profit	LS	Lump Sum
BUR LIC	Burdened Line Item Cost	MO	Month
		SF	Square Foot
		SY	Square Yard
		TON	Tons
		YR	Years

**Cost Database Code:**  
The Cost Database Code is a reference code for linking with line item cost information with the cost source database and is not otherwise used within these cost worksheets. The following cost source database prefixes apply:  
L (EPA-Derived Labor Unit Costs), M (Project-Specific Vendor Unit Costs), P (Previously Developed Unit Costs by Anchor QEA for Portland Harbor), A (EPA-Derived MII Unit Costs), O (Unit Costs from Other Projects/Sources)

**Source of Cost Data:**  
For citation references, the following sources apply:  
ALL (Allowance), FLC (www.flodatacenter.com), LD (Costs Derived from Lower Duwamish Waterway Final Feasibility Study), MII (MII), O (Other), P (Previously Developed by Anchor QEA for Portland Harbor), and V (Vendor Quote)

**Cost Adjustment Checklist:**  
FACTOR:  
H&S Productivity (labor and equipment only)  
Escalation to Base Year  
Area Cost Factor  
Subcontractor Overhead and Profit  
Prime Contractor Overhead and Profit

**NOTES:**  
Field work will be in Level "D" PPE.  
MII assembly costs include HPF adjustments.  
2016 cost sources are not escalated (EF=1.00). All other costs are escalated based on the USACE CWCCIS, EM 1110-2-1304, Sept 2015.  
An AF of 1.05 is used for Oregon, except that an AF of 1.00 (national unmodified average) is used for MII assembly costs and local vendor quotes.  
It is assumed that home office OH is 8% and profit is 9% for the Prime Contractor. Professional labor overhead is 100%.  
Allowances and items with mandated costs such as per diem do not have overhead and profit applied.  
Items previously developed by Anchor QEA already include contractor markups, therefore overhead and profit were not applied to those items.  
It is assumed that OH is 1% and profit is 0% for vendor quotes for treatment and disposal at offsite disposal facilities. It is assumed that OH is 5% and profit is 0% for quotes for all other material vendor quotes.  
Items developed using MII already include contractor markups such as overhead and profit, therefore additional overhead and profit were not applied in the PC OH and PC PF to those items.

## **Cost Estimate Backup**

**Cost Estimate Backup  
Cost Source Database**

## COST INDICES FOR ESCALATION

Base Year for Work:

2016

Year	Cost Index <sup>1</sup>
2000	497.07
2001	503.52
2002	517.46
2003	529.95
2004	571.29
2005	608.36
2006	641.91
2007	673.52
2008	716.54
2009	703.00
2010	724.17
2011	756.48
2012	773.75
2013	787.64
2014	804.05
2015	804.78
2016	815.68
2017	830.36
2018	846.14
2019	863.06
2020	880.32
2021	897.93
2022	915.88
2023	934.20
2024	952.89
2025	971.94

<sup>1</sup> Yearly composite cost index (weighted average) from the U.S. Army Corps of Engineers Civil Works Construction Cost Index System (CWCCIS), EM 1110-2-1304, 31 March 2000. Revised as of 30 September 2015.

FLC Data Center Cost Sources

Base Year: 2016

COST CODES FOR EPA-DERIVED LABOR UNIT COSTS

Cost Code	Description	Units	Unit Labor Cost	Unit Equipment Cost	Unit Material Cost	Unit Other Cost	Year of Cost Source	Escalation Factor	Area Factor	Adjusted Labor Cost	Adjusted Equipment Cost	Adjusted Material Cost	Adjusted Other Cost	PC OH	PC PF	Cost Source		Comments
																Source	Source ID	
L1	CAD Drafter	HR	\$31.31	\$0.00	\$0.00	\$0.00	2016	1	1	\$31.31	\$0.00	\$0.00	\$0.00	100%	9%	FLC	FLCDataCenter	Project-specific unit cost developed by EPA.
L2	Civil Engineer	HR	\$46.64	\$0.00	\$0.00	\$0.00	2016	1	1	\$46.64	\$0.00	\$0.00	\$0.00	100%	9%	FLC	FLCDataCenter	Project-specific unit cost developed by EPA.
L3	Clerks, Typist, Bookkeeper & Receptionist	HR	\$19.89	\$0.00	\$0.00	\$0.00	2016	1	1	\$19.89	\$0.00	\$0.00	\$0.00	100%	9%	FLC	FLCDataCenter	Project-specific unit cost developed by EPA.
L4	Environmental Engineer	HR	\$48.91	\$0.00	\$0.00	\$0.00	2016	1	1	\$48.91	\$0.00	\$0.00	\$0.00	100%	9%	FLC	FLCDataCenter	Project-specific unit cost developed by EPA.
L5	Environmental Lawyer	HR	\$71.72	\$0.00	\$0.00	\$0.00	2016	1	1	\$71.72	\$0.00	\$0.00	\$0.00	100%	9%	FLC	FLCDataCenter	Project-specific unit cost developed by EPA.
L6	Environmental Scientist	HR	\$37.70	\$0.00	\$0.00	\$0.00	2016	1	1	\$37.70	\$0.00	\$0.00	\$0.00	100%	9%	FLC	FLCDataCenter	Project-specific unit cost developed by EPA.
L7	Field Engineer	HR	\$31.42	\$0.00	\$0.00	\$0.00	2016	1	1	\$31.42	\$0.00	\$0.00	\$0.00	100%	9%	FLC	FLCDataCenter	Project-specific unit cost developed by EPA.
L8	Field Technician	HR	\$31.42	\$0.00	\$0.00	\$0.00	2016	1	1	\$31.42	\$0.00	\$0.00	\$0.00	100%	9%	FLC	FLCDataCenter	Project-specific unit cost developed by EPA.
L9	Geologist	HR	\$45.04	\$0.00	\$0.00	\$0.00	2016	1	1	\$45.04	\$0.00	\$0.00	\$0.00	100%	9%	FLC	FLCDataCenter	Project-specific unit cost developed by EPA.
L10	General Superintendent (P.M.)	HR	\$64.70	\$0.00	\$0.00	\$0.00	2016	1	1	\$64.70	\$0.00	\$0.00	\$0.00	100%	9%	FLC	FLCDataCenter	Project-specific unit cost developed by EPA.
L11	Project Manager	HR	\$82.17	\$0.00	\$0.00	\$0.00	2016	1	1	\$82.17	\$0.00	\$0.00	\$0.00	100%	9%	FLC	FLCDataCenter	Project-specific unit cost developed by EPA.
L12	Quality Control Engineer	HR	\$64.99	\$0.00	\$0.00	\$0.00	2016	1	1	\$64.99	\$0.00	\$0.00	\$0.00	100%	9%	FLC	FLCDataCenter	Project-specific unit cost developed by EPA.
L13	Paralegal	HR	\$29.56	\$0.00	\$0.00	\$0.00	2016	1	1	\$29.56	\$0.00	\$0.00	\$0.00	100%	9%	FLC	FLCDataCenter	Project-specific unit cost developed by EPA.
L14	Surveyor	HR	\$41.56	\$0.00	\$0.00	\$0.00	2016	1	1	\$41.56	\$0.00	\$0.00	\$0.00	100%	9%	FLC	FLCDataCenter	Project-specific unit cost developed by EPA.
L15	Surveyor Assistant	HR	\$29.37	\$0.00	\$0.00	\$0.00	2016	1	1	\$29.37	\$0.00	\$0.00	\$0.00	100%	9%	FLC	FLCDataCenter	Project-specific unit cost developed by EPA.
L16	Safety Engineer	HR	\$53.79	\$0.00	\$0.00	\$0.00	2016	1	1	\$53.79	\$0.00	\$0.00	\$0.00	100%	9%	FLC	FLCDataCenter	Project-specific unit cost developed by EPA.
L17	Boat Operator	HR	\$33.16	\$0.00	\$0.00	\$0.00	2016	1	1	\$33.16	\$0.00	\$0.00	\$0.00	100%	9%	FLC	FLCDataCenter	Project-specific unit cost developed by EPA.

Note:

Wage rates based on fldatacenter.com salary estimates for Portland-Vancouver-Beaverton, OR-WA MSA obtained February 2016.

**COST CODES FOR PROJECT-SPECIFIC VENDOR QUOTE UNIT COSTS**

Cost Code	Description	Units	Unit Labor Cost	Unit Equipment Cost	Unit Material Cost	Unit Other Cost	Year of Cost Source	Escalation Factor	Area Factor	Adjusted Labor Cost	Adjusted Equipment Cost	Adjusted Material Cost	Adjusted Other Cost	PC OH	PC PF	Cost Source		Comments
																Source	Source ID	
M1	Cost Code Not Used																	
M2	Cost Code Not Used																	
M3	Impermeable Layer Amendment (AquaBlok)	TON	\$0.00	\$0.00	<b>\$200.00</b>	\$0.00	2015	1.014	1	\$0.00	\$0.00	\$202.80	\$0.00	5%	0%	V	Vendor Quote	Project-specific vendor quote - AquaBlok 2015. Material cost is \$/TON.
M4	Carbon (AquaGate + PAC 10%)	TON	\$0.00	\$0.00	<b>\$450.00</b>	\$0.00	2015	1.014	1	\$0.00	\$0.00	\$456.30	\$0.00	5%	0%	V	Vendor Quote	Project-specific vendor quote - AquaBlok 2015. Material cost is \$/TON.
M5	Cost Code Not Used																	
M6	Cost Code Not Used																	
M7	Cost Code Not Used																	
M8	Cost Code Not Used																	
M9	Thermal Desorption Treatment at Subtitle C/TSCA Landfill (High End of Treatment Cost Range)	TON	\$0.00	\$0.00	\$0.00	<b>\$565.00</b>	2015	1.014	1	\$0.00	\$0.00	\$0.00	\$572.91	1%	0%	V	Vendor Quote	Project-specific vendor quote - CWM of the Northwest, 2015.
M10	Tipping Fee at Subtitle C/TSCA Landfill	TON	\$0.00	\$0.00	\$0.00	<b>\$85.00</b>	2015	1.014	1	\$0.00	\$0.00	\$0.00	\$86.19	1%	0%	V	Vendor Quote	Project-specific vendor quote - CWM of the Northwest, 2015.
M11	Transportation and Disposal at Subtitle D Landfill	TON	\$0.00	\$0.00	\$0.00	<b>\$73.50</b>	2015	1.014	1	\$0.00	\$0.00	\$0.00	\$74.53	1%	0%	V	Vendor Quote	Project-specific vendor quote - Republic Services (Roosevelt Landfill), 2015. Includes transloading of the sediments, truck transportation from the transload facility to the landfill, and disposal at the landfill.
M12	Cost Code Not Used																	
M13	Cost Code Not Used																	
M14	Cost Code Not Used																	
M15	Cost Code Not Used																	
M16	Cost Code Not Used																	
M17	Cost Code Not Used																	
M18	Cost Code Not Used																	
M19	Cost Code Not Used																	
M20	Thermal Desorption Treatment at Subtitle C/TSCA Landfill (Low End of Treatment Cost Range)	TON	\$0.00	\$0.00	\$0.00	<b>\$315.00</b>	2015	1.014	1	\$0.00	\$0.00	\$0.00	\$319.41	1%	0%	V	Vendor Quote	Project-specific vendor quote - CWM of the Northwest, 2015.
M21	Buoy	EA	\$0.00	\$0.00	<b>\$558.63</b>	\$0.00	2016	1	1	\$0.00	\$0.00	\$558.63	\$0.00	5%	0%	V	Vendor Quote	Project-specific vendor quote - Go2Marine, 2016.
M22	Cost Code Not Used																	
M23	Portland Cement	TON	\$0.00	\$0.00	<b>\$125.50</b>	\$0.00	2016	1	1	\$0.00	\$0.00	\$125.50	\$0.00	5%	0%	V	Vendor Quote	Project-specific vendor quote - Cal Portland, 2016.
M24	Concrete (3000 psi)	CY	\$0.00	\$0.00	<b>\$124.50</b>	\$0.00	2016	1	1	\$0.00	\$0.00	\$124.50	\$0.00	5%	0%	V	Vendor Quote	Project-specific vendor quote - Knife River, 2016. Includes delivery.
M25	Quicklime	TON	\$0.00	\$0.00	<b>\$239.00</b>	\$0.00	2016	1	1	\$0.00	\$0.00	\$239.00	\$0.00	5%	0%	V	Vendor Quote	Project-specific vendor quote - Graymont, 2016.
M26	Signage	EA	\$0.00	\$0.00	<b>\$165.75</b>	\$0.00	2016	1	1	\$0.00	\$0.00	\$165.75	\$0.00	5%	0%	V	Vendor Quote	Project-specific vendor quote - Allstate Sign & Plaque, 2016. 36" x 36" Signs

**COST CODES FOR PREVIOUSLY DEVELOPED UNIT COSTS BY ANCHOR QEA FOR PORTLAND HARBOR**

Cost Code	Work or Material Description	Description for Cost Worksheets	Units	Previous Work Unit Cost	Year of Cost Source	Escalation Factor	Area Factor	Adjusted Unit Cost	PC OH	PC PF	Cost Source		Comments
											Source	Source ID	
P1	Sand	Sand	LCY	\$17.52	2010	1.127	1	\$19.75	0%	0%	P	Anchor QEA	Project-specific cost developed by Anchor QEA (2010) - see Backup Table 29A. Includes conversion from TON to LCY.
P2	ODOT 200 Armor	ODOT 200 Armor	LCY	\$51.19	2010	1.127	1	\$57.69	0%	0%	P	Anchor QEA	Project-specific cost developed by Anchor QEA (2010) - see Backup Table 29A. Includes conversion from TON to LCY.
P3	ODOT 100 Beach Mix	ODOT 100 Beach Mix	LCY	\$51.19	2010	1.127	1	\$57.69	0%	0%	P	Anchor QEA	Project-specific cost developed by Anchor QEA (2010) - see Backup Table 29A. Includes conversion from TON to LCY.
P4	Organoclay Mat Material	Organoclay Mat Material	SF	\$2.70	2010	1.127	1	\$3.04	0%	0%	P	Anchor QEA	Project-specific cost developed by Anchor QEA (2010) - see Backup Table 29A.
P5	Diatomaceous Earth	Diatomaceous Earth	TON	\$94.00	2010	1.127	1	\$105.94	0%	0%	P	Anchor QEA	Project-specific cost developed by Anchor QEA (2010) - see Backup Table 24.
P6	Cost Code Not Used	Cost Code Not Used											
P7	Cost Code Not Used	Cost Code Not Used											
P8	Cost Code Not Used	Cost Code Not Used											
P9	Debris Removal and Disposal	Debris Removal and Disposal	AC	\$11,630.00	2010	1.127	1	\$13,107.01	0%	0%	P	Anchor QEA	Project-specific cost developed by Anchor QEA (2010) - see Backup Table 2.
P10	Pile Removal and Disposal	Pile Removal and Disposal	EA	\$635.00	2010	1.127	1	\$715.65	0%	0%	P	Anchor QEA	Project-specific cost developed by Anchor QEA (2010) - see Backup Table 3.
P11	Pile Replacement	Pile Replacement	EA	\$6,636.00	2010	1.127	1	\$7,478.77	0%	0%	P	Anchor QEA	Project-specific cost developed by Anchor QEA (2010) - see Backup Table 4.
P12	Temporary Dock Relocation	Temporary Dock Relocation	EA	\$89,173.00	2010	1.127	1	\$100,497.97	0%	0%	P	Anchor QEA	Project-specific cost developed by Anchor QEA (2010) - see Backup Table 5.
P13	Purchase, Install, and Maintain Silt Curtains	Purchase, Install and Maintain Silt Curtains	LF	\$86.00	2010	1.127	1	\$96.92	0%	0%	P	Anchor QEA	Project-specific cost developed by Anchor QEA (2010) - see Backup Table 7.
P14	Purchase, Install, and Remove Sheet Pile Walls	Purchase, Install and Remove Sheet Pile Walls	LF	\$2,440.00	2010	1.127	1	\$2,749.88	0%	0%	P	Anchor QEA	Project-specific cost developed by Anchor QEA (2010) - see Backup Table 6.
P15	Cost Code Not Used	Cost Code Not Used											
P16	Cost Code Not Used	Cost Code Not Used											
P17	Cost Code Not Used	Cost Code Not Used											
P19	Cost Code Not Used	Cost Code Not Used											
P20	Cost Code Not Used	Cost Code Not Used											
P21	Cost Code Not Used	Cost Code Not Used											
P22	Cost Code Not Used	Cost Code Not Used											
P23	Cost Code Not Used	Cost Code Not Used											
P24	Cost Code Not Used	Cost Code Not Used											
P25	Monitored Natural Recovery	Monitored Natural Recovery	AC	\$3,270.92	2010	1.127	1	\$3,686.33	0%	0%	P	Anchor QEA	Project-specific cost developed by Anchor QEA (2010) - based on Backup Table 2.
P26	Sitewide Monitoring	Sitewide Monitoring	LS	\$849,742.00	2010	1.127	1	\$957,659.23	0%	0%	P	Anchor QEA	Project-specific cost developed by Anchor QEA (2010) - based on Backup Table 1.
P27	Cap Monitoring	Cap Monitoring	AC	\$70,063.30	2010	1.127	1	\$78,961.34	0%	0%	P	Anchor QEA	Project-specific cost developed by Anchor QEA (2010) - based on Backup Table 4.
P28	Reactive Layer Monitoring	Reactive Layer Monitoring	AC	\$78,943.00	2010	1.127	1	\$88,968.76	0%	0%	P	Anchor QEA	Project-specific cost developed by Anchor QEA (2010) - based on Backup Table 3.
P29	Cost Code Not Used	Cost Code Not Used											
P30	Cost Code Not Used	Cost Code Not Used											
P31	Transload Facility Permitting	Transload Facility Permitting	LS	\$40,000.00	2010	1.127	1	\$45,080.00	0%	0%	P	Anchor QEA	Project-specific cost developed by Anchor QEA (2010) - see Backup Table 24.
P32	Transload Facility Development	Transload Facility Development	LS	\$4,000,000.00	2010	1.127	1	\$4,508,000.00	0%	0%	P	Anchor QEA	Project-specific cost developed by Anchor QEA (2010) - see Backup Table 24.
P33	Yearly Property Lease	Yearly Property Lease	AC	\$23,500.00	2010	1.127	1	\$26,484.50	0%	0%	P	Anchor QEA	Developed by Anchor QEA (2010) - see Backup Table 24. Assumes leasing of 20 acres multiplied by estimated construction duration.
P34	Labor Inspections During Operations of Transload Facility	Labor Inspections During Operations of Transload Facility	FTE	\$75,000.00	2010	1.127	1	\$84,525.00	0%	0%	P	Anchor QEA	Developed by Anchor QEA (2010) - see Backup Table 24. Assumes 2.5 FTE/YR multiplied by estimated construction duration.
P35	Environmental Monitoring During Offloading at Transload Facility	Environmental Monitoring During Offloading at Transload Facility	MO	\$15,000.00	2010	1.127	1	\$16,905.00	0%	0%	P	Anchor QEA	Developed by Anchor QEA (2010) - see Backup Table 24. Assumes 4 MO/YR multiplied by estimated construction duration.
P36	Inspection and Monitoring Reporting for Transload Facility	Inspection and Monitoring Reporting for Transload Facility	YR	\$40,000.00	2010	1.127	1	\$45,080.00	0%	0%	P	Anchor QEA	Project-specific cost developed by Anchor QEA (2010) - see Backup Table 24.
P37	Cost Code Not Used	Cost Code Not Used											
P38	Cost Code Not Used	Cost Code Not Used											
P39	Cost Code Not Used	Cost Code Not Used											
P40	Cost Code Not Used	Cost Code Not Used											
P41	Cost Code Not Used	Cost Code Not Used											
P42	Cost Code Not Used	Cost Code Not Used											

**COST CODES FOR PREVIOUSLY DEVELOPED UNIT COSTS BY ANCHOR QEA FOR PORTLAND HARBOR**

Cost Code	Work or Material Description	Description for Cost Worksheets	Units	Previous Work Unit Cost	Year of Cost Source	Escalation Factor	Area Factor	Adjusted Unit Cost	PC OH	PC PF	Cost Source		Comments
											Source	Source ID	
P43	Cost Code Not Used	Cost Code Not Used											
P44	Cost Code Not Used	Cost Code Not Used											
P45	Cost Code Not Used	Cost Code Not Used											
P46	Cost Code Not Used	Cost Code Not Used											
P47	Cost Code Not Used	Cost Code Not Used											
P48	Cost Code Not Used	Cost Code Not Used											
P49	CDF Construction	CDF Construction	LS	\$48,600,000.00	2011	1.079	1	\$52,439,400.00	0%	0%	P	Anchor QEA	Project-specific cost developed by Anchor QEA (2011)

Sources:

Draft Feasibility Study, Portland Harbor, Anchor QEA, March 2012 (costs cited in this document are 2010 costs)  
 Terminal 4 Confined Disposal Facility Design Analysis Report, Prefinal 60 Percent Design Deliverable, Port of Portland, Anchor QEA, August 2011



Cost Code	Work or Material Description	Description for Cost Worksheets	Units	Unit Cost	Year of Cost Source	Escalation Factor	Area Factor	Adjusted MII Unit Cost	PC OH	PC PF	Cost Source		Comments
											Source	Source ID	
A1	18' Boat	18' Boat	HR	\$25.42	2016	1.00	1	\$25.42	0%	0%	MII	MII	Project-specific unit cost developed in MII. For buoy setup.
A2	Hauling - Quicklime to Site	Hauling - Quicklime to Site	TON	\$5.71	2016	1.00	1	\$5.71	0%	0%	MII	MII	Project-specific unit cost developed in MII. Assumes 10 mile one-way haul.
A3	Mixing Sand & Carbon for Reactive Layer	Mixing Sand & Carbon for Reactive Layer	CY	\$4.76	2016	1.00	1	\$4.76	0%	0%	MII	MII	Project-specific unit cost developed in MII.
A4	Loading Trucks at Transload Facility	Loading Trucks at Transload Facility	CY	\$2.68	2016	1.00	1	\$2.68	0%	0%	MII	MII	Project-specific unit cost developed in MII.
A5	Hauling Waste from Transload Facility to Landfill	Hauling Waste from Transload Facility to Landfill	CY	\$16.70	2016	1.00	1	\$16.70	0%	0%	MII	MII	Project-specific unit cost developed in MII.
A6	Open Water Dredging	Open Water Dredging	CY	\$24.53	2016	1.00	1	\$24.53	0%	0%	MII	MII	Project-specific unit cost developed in MII.
A7	Confined Dredging	Confined Dredging	CY	\$31.10	2016	1.00	1	\$31.10	0%	0%	MII	MII	Project-specific unit cost developed in MII.
A8	Riverbank Excavation	Riverbank Excavation	CY	\$5.19	2016	1.00	1	\$5.19	0%	0%	MII	MII	Project-specific unit cost developed in MII.
A9	Mobilization/Demobilization of Temporary Water Treatment System	Mobilization/Demobilization of Temporary Water Treatment System	EA	\$36,600	2016	1.00	1	\$36,600.00	0%	0%	MII	MII	Assumes mob/demob of treatment system will be required for each construction season
A10	Dewatering and Temporary Water Treatment System Operations	Dewatering and Temporary Water Treatment System Operations	DY	\$21,654	2016	1.00	1	\$21,654.00	0%	0%	MII	MII	Project-specific unit cost developed in MII.
A11	In-Barge Stabilization / Mixing of Amendments	In-Barge Stabilization / Mixing of Amendments	CY	\$24.50	2016	1.00	1	\$24.50	0%	0%	MII	MII	Project-specific unit cost developed in MII.
A12A	Handling of Sediment for Dewatering (Open)	Handling of Sediment for Dewatering (Open)	CY	\$12.57	2016	1.00	1	\$12.57	0%	0%	MII	MII	Project-specific unit cost developed in MII. Transfer of dredged sediments from sediment drying barge to barge for offsite transport.
A12B	Handling of Sediment for Dewatering (Open)	Handling of Sediment for Dewatering (Open)	CY	\$11.75	2016	1.00	1	\$11.75	0%	0%	MII	MII	Project-specific unit cost developed in MII. Transfer of dredged sediments from sediment drying barge to barge for offsite transport.
A13	Barging to Transload Facility	Barging to Transload Facility	CY	\$13.66	2016	1.00	1	\$13.66	0%	0%	MII	MII	Project-specific unit cost developed in MII.
A14	Offloading of Sediments	Offloading of Sediments	CY	\$9.70	2016	1.00	1	\$9.70	0%	0%	MII	MII	Assumes mechanical offloading of sediments at the transload facility.
A15	Material Placement (Open)	Material Placement (Open)	CY	\$12.42	2016	1.00	1	\$12.42	0%	0%	MII	MII	Project-specific unit cost developed in MII.
A16	Material Placement (Confined)	Material Placement (Confined)	CY	\$20.39	2016	1.00	1	\$20.39	0%	0%	MII	MII	Project-specific unit cost developed in MII.
A17	Organoclay Mat Placement	Organoclay Mat Placement	SF	\$3.35	2016	1.00	1	\$3.35	0%	0%	MII	MII	Project-specific unit cost developed in MII.

Note:  
 EPA developed project-specific unit costs using the Micro Computer Aided Cost Engineering System (MCACES) Second Generation (MII) software version 4.2, build 3

**COST CODES FOR UNIT COSTS FROM OTHER PROJECTS/SOURCES**

Cost Code	Work or Material Description	Description for Cost Worksheets	Units	Unit Cost	Year of Cost Source	Escalation Factor	Area Factor	Adjusted Unit Cost	PC OH	PC PF	Cost Source		Comments
											Source	Source ID	
O1	Mobilization/Demobilization	Mobilization/Demobilization	LS	1.6% of Total Cost	2016	1.000	1	1.6%	0%	0%	LD	Lower Duwamish	Assumes 1.6% of total capital costs per Lower Duwamish Feasibility Study. See Calculations for derivation.
O2	Mobilization/Demobilization for Long Term Maintenance	Mobilization/Demobilization for Long Term Maintenance	LS	1.6% of Total Cost	2016	1.000	1	1.6%	0%	0%	LD	Lower Duwamish	Assumes 1.6% of total capital costs per Lower Duwamish Feasibility Study. See Calculations for derivation.
O3	Mitigation	Mitigation	AC	\$1,070,827.00	2016	1.000	1	\$1,070,827.00	0%	0%	O	Other	Tables 6.1-1 and 6.1-4 of the Appendix M, Attachment 1, Anchor QEA FS (2010) as well as select other projects. See Calculations for derivation.
O4	Copy and Shipping Allowance	Copy and Shipping Allowance	LS	\$1,500.00	2015	1.014	1	\$1,521.00	0%	0%	ALL	Allowance	
O5	Allowance for Production & Copies for Advisories	Allowance for Production & Copies for Advisories	LS	\$1,000.00	2016	1.000	1	\$1,000.00	0%	0%	ALL	Allowance	
O6	Geotextile Material	Geotextile Material	AC	\$5,614.40	2014	1.015	1	\$5,698.62	5%	0%	V	Vendor Quote	Vendor quote obtained for project of similar scope - Geo-Synthetics, 2014.
O7	Geotextile Installation	Geotextile Installation	AC	\$6,969.60	2014	1.015	1	\$7,074.14	8%	9%	V	Vendor Quote	Vendor Quote - Geo-Synthetics (2014). Includes labor and equipment for installation

Source:  
Final Feasibility Study, Lower Duwamish Waterway, Seattle, WA, AECOM, October 2012



PROJECT: Portland Harbor FS  
 JOB NO.: 79171.3383.345.FSZ  
 CLIENT: EPA

COMPUTED BY: JN  
 DATE: 3/4/2016

CHECKED BY: AB  
 DATE CHECKED: 3/7/2016  
 WRKSHT NO.: CALC-1

Description: Summary of cost buildup for unit costs for detailed costing of alternatives for Portland Harbor FS.

Estimate Base Year	2016	
<b>Assumed Material Properties</b>		
Density of Sand (wet), LB/LCY:	3,100	Caterpillar Performance Handbook, edition 3.1
Density of Sand (dry), LB/LCY:	2,400	Caterpillar Performance Handbook, edition 3.1
Density of Riprap, LB/LCY:	2,700	Caterpillar Performance Handbook, edition 3.1
Density of Gravel (pitrun), LB/LCY:	3,250	Caterpillar Performance Handbook, edition 3.1
<b>Material and Placement Costs for Capping Materials</b>		
<b>Material Costs</b>		
Sand Material Cost, \$/TN:	\$14.60	cost developed by Anchor QEA, 2010 (See Backup Table 29A) based on material cost from Knife River quote #7838 (2010)
Sand Material Cost, \$/LB:	\$0.0073	
<b>Unescalated Sand Material Cost, \$/LCY:</b>	<b>\$17.52</b>	
<b>Unescalated Backfill Material Cost, \$/LCY:</b>	<b>\$17.52</b>	Assumes backfill will be sand
ODOT 200 Armor Material Cost, \$/TN:	\$31.50	cost developed by Anchor QEA, 2010 (See Backup Table 29A) based on material cost from Knife River quote #7838 (2010)
ODOT 200 Armor Material Cost, \$/LB:	\$0.0158	
<b>Unescalated ODOT 200 Armor Material Cost, \$/LCY:</b>	<b>\$51.19</b>	Assumed density of Gravel (pitrun)
Beach Mix Material Cost, \$/TN:	\$31.50	cost developed by Anchor QEA, 2010 (See Backup Table 29A) based on material cost from Knife River quote #7838 (2010)
Beach Mix Material Cost, \$/LB:	\$0.0158	
<b>Unescalated Beach Mix Material Cost, \$/LCY:</b>	<b>\$51.19</b>	Assumed density of Gravel (pitrun)
Diatomaceous Earth Material Cost, \$/TN:	\$94.00	material cost from Waste Management (2010), see Anchor QEA, 2010 (See Backup Table 24)
<b>Unescalated Diatomaceous Earth Material Cost, \$/TN:</b>	<b>\$94.00</b>	
Geotextile Material Cost, \$/SY:	\$1.16	material cost from vendor quote (2014) for 8 oz/sy geotextile
<b>Unescalated Geotextile Material Cost, \$/AC:</b>	<b>\$5,614.40</b>	
Organoclay Material Cost, \$/SF:	\$2.70	cost developed by Anchor QEA, 2010 (See Backup Table 29A) based on material cost from Cetco quote (2010), excludes 15% cost increase for overlap
<b>Unescalated Organoclay Material Cost, \$/SF:</b>	<b>\$2.70</b>	
Geotextile Installation Cost, \$/SF:	\$0.16	installation cost from vendor quote (2014) for 8 oz/sy geotextile
<b>Unescalated Geotextile Installation Cost, \$/AC:</b>	<b>\$6,969.60</b>	
<b>Unit Costs for Obstruction and Debris Removal</b>		
Pile Removal and Disposal, \$/EA:	\$635	cost developed by Anchor QEA, 2010 (See Backup Table 3), includes removal and disposal
<b>Unescalated Pile Removal and Disposal, \$/EA:</b>	<b>\$635.00</b>	
Pile Replacement, \$/EA:	\$6,636	cost developed by Anchor QEA, 2010 (See Backup Table 4)
<b>Unescalated Pile Replacement, \$/EA:</b>	<b>\$6,636.00</b>	
Temporary Dock Relocation, \$/EA:	\$89,173	cost developed by Anchor QEA, 2010 (See Backup Table 5)
<b>Unescalated Temporary Dock Relocation, \$/EA:</b>	<b>\$89,173.00</b>	
Debris Removal and Disposal, \$/EA:	\$11,630	cost developed by Anchor QEA, 2010 (See Backup Table 2), includes removal and disposal
<b>Unescalated Debris Removal and Disposal, \$/EA:</b>	<b>\$11,630.00</b>	
<b>Unit Costs for Erosion/Residual Control Measures</b>		
Temporary Sheetpile Walls, \$/LF:	\$2,440	cost developed by Anchor QEA, 2010 (See Backup Table 6)
<b>Unescalated Temporary Sheetpile Walls, \$/LF:</b>	<b>\$2,440.00</b>	
Silt Curtain Installation, \$/LF:	\$86	cost developed by Anchor QEA, 2010 (See Backup Table 7)
<b>Unescalated Silt Curtain Installation, \$/LF:</b>	<b>\$86.00</b>	
<b>Unit Costs for Transload Facility Development</b>		
Transload Facility Permitting, \$/LS:	\$40,000.00	cost developed by Anchor QEA, 2010 (See Backup Table 24)
<b>Unescalated Transload Facility Permitting, \$/LS:</b>	<b>\$40,000.00</b>	
Transload Facility Development, \$/LS:	\$4,000,000.00	cost developed by Anchor QEA, 2010 (See Backup Table 24), includes full development cost (minus addition of new rail line)
<b>Unescalated Transload Facility Development, \$/LS:</b>	<b>\$4,000,000.00</b>	
Yearly Property Lease, \$/AC:	\$23,500.00	cost developed by Anchor QEA, 2010 (See Backup Table 24)
<b>Unescalated Yearly Property Lease, \$/AC:</b>	<b>\$23,500.00</b>	
Labor Inspections During Operations of Transload Facility, \$/FTE:	\$75,000.00	cost developed by Anchor QEA, 2010 (See Backup Table 24)
<b>Unescalated Labor Inspections During Operations of Transload Facility, \$/FTE:</b>	<b>\$75,000.00</b>	
Unescalated Environmental Monitoring During Offloading at Transload Facility, \$/MO:	\$15,000.00	cost developed by Anchor QEA, 2010 (See Backup Table 24)
<b>Unescalated Environmental Monitoring During Offloading at Transload Facility, \$/MO:</b>	<b>\$15,000.00</b>	
Inspection and Monitoring Reporting for Transload Facility, \$/YR:	\$40,000.00	cost developed by Anchor QEA, 2010 (See Backup Table 24)
<b>Unescalated Inspection and Monitoring Reporting for Transload Facility, \$/YR:</b>	<b>\$40,000.00</b>	



PROJECT: Portland Harbor FS  
 JOB NO.: 79171.3383.345.FSZ  
 CLIENT: EPA

COMPUTED BY: JN  
 DATE: 3/4/2016

CHECKED BY: AB  
 DATE CHECKED: 3/7/2016  
 WRKSH# NO.: CALC-1

Description: Summary of cost buildup for unit costs for detailed costing of alternatives for Portland Harbor FS.

**Unit Costs for Transportation and Disposal**

**Subtitle C Disposal**

Thermal Desorption Treatment at Subtitle C Landfill (High End of Treatment Cost Range), \$/TON: **\$565.00** Vendor quote - CWM of the Northwest, 2015

**Unescalated Thermal Desorption Treatment at Subtitle C Landfill (High End of Treatment Cost Range), \$/TON: \$565.00**

Thermal Desorption Treatment at Subtitle C Landfill (Low End of Treatment Cost Range), \$/TON: **\$315.00** Vendor quote - CWM of the Northwest, 2015

**Unescalated Thermal Desorption Treatment at Subtitle C Landfill (Low End of Treatment Cost Range), \$/TON: \$315.00**

Tipping Fee at Subtitle C Landfill, \$/TON: **\$85.00** Vendor quote - CWM of the Northwest, 2015

**Unescalated Tipping Fee at Subtitle C Landfill, \$/TON: \$85.00**

**Subtitle D Transportation and Disposal**

Transportation to Subtitle D Landfill, \$/TON: **\$73.50** Vendor quote - Republic Services, 2015. Includes transloading of waste, transportation of waste from transload facility to landfill, and disposal at landfill

**Unescalated Transportation to Subtitle D Landfill, \$/TON: \$73.50**

**Unit Costs for CDF Construction**

CDF Construction, \$/LS: **\$48,600,000.00** cost developed by Anchor QEA for T4 CDF 60% Design (2011) - excludes Indirect construction costs, Long-term monitoring and maintenance, and Contingency

**CDF Construction, \$/LS: \$48,600,000.00**

**Unit Costs for Mitigation**

Mitigation, \$/AC: **\$1,070,827** See CALC-MITIGATION worksheet for unit cost buildup, includes escalation

**Mitigation, \$/AC: \$1,070,827.00**

**Unit Costs for Monitoring**

**Monitored Natural Recovery for MNR/ENR and Broadcast GAC Areas**

Monitored Natural Recovery, \$/AC: **\$3,271** assumes 4 composite surface sediment samples per acre of MNR area. Developed by Anchor QEA, 2010 (See Backup Table 2)

**Unescalated Monitored Natural Recovery, \$/AC: \$3,270.92**

**Sitewide Monitoring**

Site-wide Monitoring Costs, LS: **\$849,742** includes sampling for biota tissue chemistry and surface water chemistry, and mob/demob, data management and reporting for the two sampling events. Developed by Anchor QEA, 2010 (See Backup Table 1)

**Unescalated Site-wide Monitoring Costs, LS: \$849,742.00**

**Technology Monitoring**

Shallow Subsurface Monitoring, \$/AC: **\$70,063** includes mob/demob, sampling for shallow subsurface sediment cores, hydrographic survey, data management and reporting. Developed by Anchor QEA, 2010 (See Backup Table 4). Excludes contingency.

**Unescalated Cap Monitoring Costs, LS: \$70,063.30**

Reactive Layer Monitoring, \$/AC: **\$78,943** Porewater chemistry sampling. Developed by Anchor QEA, 2010 (See Backup Table 3). Excludes contingency.

**Unescalated Reactive Layer Monitoring Costs, LS: \$78,943.00**

**Mobilization/Demobilization (Mob/Demob) Percentage of Capital Costs Derivation**

Lower Duwamish Waterway (LDW)

	Alternative 2R	Alternative 6R
Volume of Dredging, CY:	584,326	3,943,174

Project Cost for Mob, LS:	\$400,000	\$400,000
Project Cost for Demob, LS:	\$400,000	\$400,000

Seasonal Mob/Demob (30% of Project Mob Cost or 15% of Project Mob/Demob Cost), \$/Season:	\$120,000	\$120,000
Duration of Construction, Seasons:	6.8	46.6

**Total Recurring/Seasonal Cost for Mob/Demob, LS: \$816,000 \$5,592,000**

**Total Cost for Mobilization/Demobilization, LS: \$1,616,000 \$6,392,000**

Total Capital Cost of Alternative, LS:	\$97,975,502	\$417,698,523
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**Mobilization/Demobilization as Percentage of Capital Cost, %: 1.6% 1.5%**

**Average Percentage of Capital Costs for Mobilization/Demobilization, %: 1.6%**

**Cost Estimate Backup**  
**EPA-Derived Labor Costs**



PROJECT: Portland Harbor FS  
 JOB NO.: 79171.3383.345  
 CLIENT: EPA Region 10

COMPUTED BY: JN  
 DATE: 03/07/16

CHECKED BY: AB  
 DATE CHECKED: 03/08/16  
 PAGE NO.: LB-01

**Description:** Determination of base wage rates for management and engineering personnel (i.e., project manager, civil engineer, etc.). Wage rates based on FLCdatacenter.com salary estimates for Multnomah County, OR for March 2016.

**Escalation**

Previous salary cost index (2Q16): **813.65** EM 1110-2-1304, Rev. 30 September 2015  
 Cost estimate prep cost index (2Q16): **813.65** EM 1110-2-1304, Rev. 30 September 2015

**Hourly Wage Calculations**

Number of work hours per year: **2080** 52 weeks x 40 hours per week

<u>Labor Category</u>	<u>Salary</u>	<u>Hourly</u>	<u>Benefits</u>	<u>Bonus</u>	<u>Year</u>	<u>Source</u>
General Superintendent	\$110,573	\$53.16	15.20%	6.50%	2016	FLCdatacenter.com
Project Manager	\$140,442	\$67.52	15.20%	6.50%	2016	FLCdatacenter.com
Admin (Clerks, Typists)	\$33,987	\$16.34	15.20%	6.50%	2016	FLCdatacenter.com
Geologist	\$76,981	\$37.01	15.20%	6.50%	2016	FLCdatacenter.com
Civil Engineer	\$79,706	\$38.32	15.20%	6.50%	2016	FLCdatacenter.com
Environmental Engineer	\$83,595	\$40.19	15.20%	6.50%	2016	FLCdatacenter.com
Safety Engineer	\$91,936	\$44.20	15.20%	6.50%	2016	FLCdatacenter.com
Quality Control Engineer	\$111,072	\$53.40	15.20%	6.50%	2016	FLCdatacenter.com
Field Engineer	\$53,706	\$25.82	15.20%	6.50%	2016	FLCdatacenter.com
Operator / Technician	\$53,706	\$25.82	15.20%	6.50%	2016	FLCdatacenter.com
Draftsman	\$53,518	\$25.73	15.20%	6.50%	2016	FLCdatacenter.com
Surveyor, Chief	\$71,032	\$34.15	15.20%	6.50%	2016	FLCdatacenter.com
Surveyor	\$50,190	\$24.13	15.20%	6.50%	2016	FLCdatacenter.com
Environmental Scientist	\$64,438	\$30.98	15.20%	6.50%	2016	FLCdatacenter.com
Environmental Lawyer	\$122,574	\$58.93	15.20%	6.50%	2016	FLCdatacenter.com
Paralegal	\$50,523	\$24.29	15.20%	6.50%	2016	FLCdatacenter.com
Procurement Specialist	\$37,981	\$18.26	15.20%	6.50%	2016	FLCdatacenter.com
Boat Operator	\$56,680	\$27.25	15.20%	6.50%	2016	FLCdatacenter.com

<u>Labor Category</u>	<u>Salary</u>	<u>Hourly</u>	<u>Taxable Fringe</u>	<u>Non-Tax Fringe<sup>1</sup></u>	<u>Total</u>
General Superintendent	\$110,573	\$53.16	\$11.54	\$0.00	\$64.70
Project Manager	\$140,442	\$67.52	\$14.65	\$0.00	\$82.17
Admin (Clerks, Typists)	\$33,987	\$16.34	\$3.55	\$0.00	\$19.89
Geologist	\$76,981	\$37.01	\$8.03	\$0.00	\$45.04
Civil Engineer	\$79,706	\$38.32	\$8.32	\$0.00	\$46.64
Environmental Engineer	\$83,595	\$40.19	\$8.72	\$0.00	\$48.91
Safety Engineer	\$91,936	\$44.20	\$9.59	\$0.00	\$53.79
Quality Control Engineer	\$111,072	\$53.40	\$11.59	\$0.00	\$64.99
Field Engineer	\$53,706	\$25.82	\$5.60	\$0.00	\$31.42
Operator / Technician	\$53,706	\$25.82	\$5.60	\$0.00	\$31.42
Draftsman	\$53,518	\$25.73	\$5.58	\$0.00	\$31.31
Surveyor, Chief	\$71,032	\$34.15	\$7.41	\$0.00	\$41.56
Surveyor	\$50,190	\$24.13	\$5.24	\$0.00	\$29.37
Environmental Scientist	\$64,438	\$30.98	\$6.72	\$0.00	\$37.70
Environmental Lawyer	\$122,574	\$58.93	\$12.79	\$0.00	\$71.72
Paralegal	\$50,523	\$24.29	\$5.27	\$0.00	\$29.56
Procurement Specialist	\$37,981	\$18.26	\$3.96	\$0.00	\$22.22
Boat Operator	\$56,680	\$27.25	\$5.91	\$0.00	\$33.16

**Notes:**

<sup>1</sup> - Non-taxable fringe is set at \$0.00 in MII and is taken out of Taxable Fringe per the U.S. Army Corps of Engineers

**Cost Estimate Backup  
Project-Specific Vendor Quotes**



# Call Report

9200 Ward Parkway, Suite 500  
Kansas City, MO – 64114  
Tel: (816) 444-8270  
Fax: (816) 523-2600

**Project:** Portland Harbor FS **Client:** EPA Region 10

**Job No:** 79171 **Date:** 7/17/2015

Phone in  Phone out  Current project  Prospective project/Marketing  Administrative

Other

**Made by/Received by:** Abby Broadstone

**Talked with:** Mark Krening at Chemical Waste Management of the Northwest (503-519-3959)

**Subject:** Subtitle C Transportation, Pretreatment and Disposal of Contaminated Sand/Sediment

**Distribution:** Scott Coffey, Gary Hazen, and Eleonora Borisova

**Discussion:**

**Standard Tipping Fee:** Standard tipping fee for Subtitle C is \$85/TN. This is for waste that does not require pretreatment or does not exceed LDRs.

**Treatment Costs:** Stabilization is typically used for heavy metal contamination, and solidification is typically used for non-hazardous waste. Based on the fact that the waste contains TCE, PAH, Benzene (D018), and listed wastes (F002 and F027), we will need thermal desorption with organic recovery unit. The costs for thermal desorption treatment is in the range of \$315/TN and \$565/TN based on concentration and moisture content. This cost is based on the minimum volumes, those estimated for Alt B. There may be some cost savings based on volumes of waste.

Note: At the Arlington Facility they cannot accept Dioxin/Furan contamination with concentrations above treatment standards of 1 (typical of F027 wastes). This waste would have to go to Canada for incineration. This was not communicated with vendor, but note that the RPAC Outfall (F027) Waste concentrations of TCDDs do not exceed the 1 ug/kg treatment standard, total TCDFs were detected offshore of the RPAC outfall in two samples at 3.878 and 3.614 ug/kg.

**Transportation Costs:** Truck transport costs from Portland are approximately \$45/TN with up to 34 TN/truckload. Rail transportation from Portland does not provide costs savings compared to truck transport. Barge costs may provide some cost savings based on bulk volume efficiencies; however, there is not a Port in Arlington. The barge will need to unload at the Port of Morral and trucked to Chemical Waste Management in Arlington. Barge costs are site-specific and dependent on location.

**Action Required (what, who, when):**



## Nielsen, Justin C.

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**To:** Whiteman, Leslie  
**Subject:** RE: Pricing for Disposal of Sediments at Roosevelt Landfill

**From:** Whiteman, Leslie [mailto:LWhiteman@republicservices.com]  
**Sent:** Tuesday, July 28, 2015 12:37 PM  
**To:** Nielsen, Justin C. <nielsenjc@cdmsmith.com>  
**Cc:** Whiteman, Leslie <LWhiteman@republicservices.com>  
**Subject:** RE: Pricing for Disposal of Sediments at Roosevelt Landfill

Ok, if we assume you would be responsible for the transload of the dredge sediment and we would be responsible for transport and disposal from the Portland Area and we would use rail there- \$55.00 per ton plus the **Portland Metro Taxes (which is \$ 3.50 per ton.**

**If we offload barges at SDS in Bingen-** where we would be responsible for transload, transport and disposal **-\$70.00 per ton plus the Portland Metro Taxes.**

When you have more information I can work on the numbers but the above is a good estimate.

Leslie



We'll handle it from here.™

**Leslie Whiteman** Special Waste Sales

54 South Dawson Street  
Seattle, WA 98134  
e [lwhiteman@republicservices.com](mailto:lwhiteman@republicservices.com)  
o 206.332.7711 c 206.391.1389  
w [republicservices.com](http://republicservices.com)

## Nielsen, Justin C.

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**From:** John Collins <jcollins@aquablok.com>  
**Sent:** Tuesday, July 21, 2015 11:13 AM  
**To:** Broadstone, Abby  
**Cc:** Nielsen, Justin C.  
**Subject:** RE: CDM Smith Aquagate Sand Mixture Quote

Abby,

Thanks for the call, glad to get into the discussion.

Per our call, we can offer two products that meet the 0.12lb/SF/cm objective. These are as follows:

**AquaGate+PAC 5%** - \$385/CY (1,944lb of material at \$400/ton) – This product would constitute 94.7% of a CY in volume, so only a small amount sand/aggregate would be required to fill out the CY volume.

**AquaGate+PAC 10%** - \$220/CY (972lb of material at \$450/ton) – This product would constitute 48.6% of a CY in volume, so the balance of the volume would need a sand/aggregate mixture.

In regard to the 0.48lb/CF/cm carbon loading (which equates to 1.22lb/SF/Inch), AquaBlok does not have a carbon amended product that can meet this loading. However, for comparison, our AquaGate+PAC 10% material will provide a loading of 0.616lb/SF/Inch in carbon loading – which is approximately one half of this requested target loading. The pricing for this material at maximum loading is based on our nominal bulk density of 74lb/CF – or approximately 2,000lb per CY - \$450/CY (which is also almost exactly the price per ton).

As we discussed, I would question the 0.48lb/SF/cm loading, as this is very high compared to most activated carbon applications we have seen in the industry. It would be appreciated if we would have a further opportunity to discuss the need for this high loading level.

Please give me a call if you want to discuss or review the above.

Thanks, John

John A. Collins | COO  
AquaBlok, Ltd. | [www.aquablok.com](http://www.aquablok.com)  
3401 Glendal Ave. Suite 300 | Toledo, OH 43614  
Tel: 419.385.2980 | Cell 419.343.7803



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**From:** Broadstone, Abby [mailto:BroadstoneAR@cdmsmith.com]  
**Sent:** Tuesday, July 21, 2015 10:13 AM  
**To:** John Collins  
**Cc:** Nielsen, Justin C.  
**Subject:** CDM Smith Aquagate Sand Mixture Quote

Hi John,

Thanks for your help. We need cost for Aquagate (\$/CY) for activated carbon rates as follows:

0.12 lb/ft<sup>2</sup>/cm

0.48 lb/ft<sup>2</sup>/cm

Thanks,

~abby

**Abby R. Broadstone, P.E., LEED AP**

Environmental Engineer

CDM Smith

Phone: 314.704.5309

Fax: 816.412.3167

Email: [broadstonear@cdmsmith.com](mailto:broadstonear@cdmsmith.com)



Please consider the environment before printing this email.

## Nielsen, Justin C.

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**From:** Broadstone, Abby  
**Sent:** Wednesday, January 27, 2016 4:58 PM  
**To:** Nielsen, Justin C.  
**Subject:** FW: AquaBlok

**Abby R. Broadstone, P.E., LEED AP**  
Environmental Engineer  
CDM Smith  
Phone: 314.704.5309  
Fax: 816.412.3167  
Email: [broadstonear@cdmsmith.com](mailto:broadstonear@cdmsmith.com)

 Please consider the environment before printing this email.

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**From:** Blischke, Eric  
**Sent:** Tuesday, January 26, 2016 4:52 PM  
**To:** Broadstone, Abby <[BroadstoneAR@cdmsmith.com](mailto:BroadstoneAR@cdmsmith.com)>; Hazen, Gary <[HazenGL@cdmsmith.com](mailto:HazenGL@cdmsmith.com)>  
**Subject:** FW: AquaBlok

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**From:** Blischke, Eric  
**Sent:** Friday, December 18, 2015 9:55 AM  
**To:** Coffey, Scott <[CoffeySE@cdmsmith.com](mailto:CoffeySE@cdmsmith.com)>  
**Subject:** AquaBlok

Scott, attached is a summary of my conversation with John Collins yesterday.

Eric

On December 17, 2015, I spoke to John Collins of AquaBlok about application of AquaBlok to contaminated sediments beneath docks and similar structures.

AquaBlok is a low permeability material that is typically used in capping. Three questions must be answered when considering placement of AquaBlok – will it stay there when placed, will it mix with the sediments, will it move over time. Two physical conditions that can limit application of AquaBlok are placement on steep slopes and in high energy environments.

Typically, AquaBlok is placed with some sort of cover (sand, armor stone) to ensure that it remains in place.

The material can be placed under dock structures using telebelts or similar equipment. AquaBlok conducted a pilot study that involved placement of AquaGate material underneath dock structures at the Bremerton Naval Base in Washington.

Typically, a 6" hydrated layer of AquaBlok is required. This requires a dry placement thickness of 4" (hydrated thickness is typically 50% to 100% greater than dry thickness).

4.2" of thickness requires 30 lb per square foot at a density of 85 lb per cubic foot. The cost of AquaBlok is \$200 per ton or \$3.00 per square foot at 30 lb per square foot.

AquaBlok can be manufactured on site using the same manufacturing facility that would be used for manufacture of AquaGate. This reduces transportation costs. Approximately 2 acres of land with large buildings for weather protection is required.

Eric Blischke  
CDM Smith  
1220 SW Morrison, Suite 200  
Portland, OR 97205  
Office Phone: 503-205-7406  
Cell Phone: 503-720-0754



# Call Report

9200 Ward Parkway, Suite 500  
Kansas City, MO – 64114  
Tel: (816) 444-8270  
Fax: (816) 523-2600

**Project:** Portland Harbor FS

**Client:** EPA Region 10

**Job No:** 79171

**Date:** 2/12/2015

Phone in    Phone out    Current project    Prospective project/Marketing    Administrative

Other

**Made by/Received by:** Justin Nielsen

**Talked with:** Rob Freeman at Graymont (253-732-0605 [cell], 253-428-6550 [office])

**Subject:** Quicklime Cost

**Distribution:**

**Discussion:**

Graymont can supply quicklime from their Rivergate facility at 13939 North Rivergate Blvd, Portland, OR 97203. Material cost of quicklime from Rivergate facility is \$239/TON FOB.

From the Safety Data Sheet on Graymont's website, density is 3.25-3.28 g/cm<sup>3</sup>.


**Action Required (what, who, when):** No follow-up required.



### Shopping Cart

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Custom Aluminum Sign Builder was added to your shopping cart.

PRODUCT	PRICE	QTY	SUBTOTAL
 <p>Custom Aluminum Sign Builder SKU: G-CODE-3636R</p> <p><b>Size / Reflectivity</b> Options: 36" x 36" - Engineer Reflective</p> <p><b>Enter Wording and Instructions:</b> Fish Advisory</p> <p><b>Background Color:</b> White</p> <p><b>Wording and Border Color:</b> Black</p> <p><b>Orientation (If applicable):</b> Horizontal (Wide)</p> <p><b>Proofing Options:</b> No, use best layout and ship</p>	\$165.75	1 <a href="#">Edit</a>	\$165.75

Estimate Shipping and Tax

COUNTRY \*  STATE/PROVINCE \*  ZIP \*

[ESTIMATE](#)

SUBTOTAL \$165.75

**GRAND TOTAL \$165.75**

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- If you are a tax exempt organization, contact us and we can set your account as tax exempt.  
- Call **631-242-2828** if you have any questions or need help checking out.

Allstate Sign & Plaque  
70 Burt Dr  
Deer Park, NY 11729  
**631-242-2828**

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Items	Qty.	Price	Total
 <p><a href="#">1/4" ISO Proof Coil Chain, General Purpose/Anchor Chain - G30</a>  <b>Mfr.</b> Titan Marine Products  <b>Part No.</b> 479550   <b>Mfr No.</b> CHG30025ISO  <b>Unit:</b> Foot   Leaves Warehouse*: <a href="#">In-Stock</a>  <small>(Ships In: 1 - 2 Days)</small></p>	<input type="text" value="40"/> Remove	\$1.69	<b>\$67.60</b> <b>On Sale</b>
 <p><a href="#">Large Regulatory Buoy, White w/ Label, 428R</a>  FREIGHT</p> <div style="border: 1px solid red; padding: 5px; margin: 5px 0;"> <p><b>Note:</b> Due to this item's shipping origin, weight or size; a shipping quote will be sent to you <b>after</b> you place your order. Contact us if you would like a shipping quote before placing your order.</p> </div> <p><b>Mfr.</b> Jim Buoy  <b>Part No.</b> 218288   <b>Mfr No.</b> 428R  <b>Unit:</b> Each   Leaves Warehouse*: <a href="#">2 Weeks</a></p>	<input type="text" value="1"/> Remove	\$438.65	<b>\$438.65</b>
 <p><a href="#">River Anchor, Black Vinyl, #30</a>  <b>Mfr.</b> SeaChoice  <b>Part No.</b> 267581   <b>Mfr No.</b> 41530  <b>Unit:</b> Each   Leaves Warehouse*: <a href="#">In-Stock: 1 Day</a></p>	<input type="text" value="1"/> Remove	\$52.58	<b>\$52.58</b> <b>On Sale</b>

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Product Total: \*\* **\$558.83**

Shipping & Handling:

--

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Please note that business days do not include weekends or holidays. If the delivery of your order is time sensitive, please contact our [Customer Service Center](#) to verify stock and suggest the most appropriate shipping method.

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**\$32.60 - \$58.24**



**Cost Estimate Backup**  
**Previously Developed Costs by Anchor QEA**

**Note:** Unit costs presented herein were developed by Anchor QEA in 2010. Only selected unit costs from this backup were utilized in the cost estimate. Green highlighting indicates unit costs that were used in the cost estimate.

Table 2. Debris Removal and Disposal

ESTIMATE WORKSHEET 3.1												
DEBRIS REMOVAL & DISPOSAL												
BID DATE	PROJECT LOCATION					DESCRIPTION OF ITEM					ITEM NO.	
											3.1	
PRODUCTION DATA												
TOTAL QUANTITY ON PROPOSAL	2 Acre				HOURS PER SHIFT	SHIFTS PER DAY	DAYS PER WEEK	DAILY UNIT PRODUCTION RATE		DAYS REQ. TO COMPLETE		
					10	1	6	2		1		
ESTIMATE WORKSHEET		TOTAL LABOR	TOTAL MATERIAL	TOTAL EQUIPMENT	TOTAL RENTED EQUIPMENT	TOTAL SUB-CONTRACTOR	TOTAL					
WORKSHEET 3.1		\$4,516.20	\$3,614.00	\$0.00	\$5,076.00	\$750.00	\$13,956.20					
							\$0.00					
GRAND TOTALS		\$4,516.20	\$3,614.00	\$0.00	\$5,076.00	\$750.00	\$13,956.20					
UNIT PRICES		\$3,010.80	\$2,409.34	\$0.00	\$3,384.00	\$500.00						
SUB-CONTRACTOR	WORK TO PERFORM	QUANTITY UNITS	UNIT COST	TOTAL COST	UNIT PRICE		UNIT OF MEASURE					
Disposal Assumption		15	\$50.00	\$750.00			Acre					
				\$0.00			OH&P 25%					
				\$0.00								
				\$0.00								
				\$0.00								
BARE UNIT COST	\$500.00	TOTAL COST			\$750.00							
LABOR CLASSIFICATION	WORK TO PERFORM	TOTAL MEN	TOTAL HOURS	HRLY RATE	TOTAL COST	OWN EQUIPMENT	WORK TO PERFORM	FUEL GALS.	TOTAL UNITS	TOTAL HOURS	HRLY RATE	TOTAL COST
Crane Operator		1	10	\$51.00	\$510.00							
Oiler		1	10	\$50.00	\$500.00							
Captain	Tug	1	10	\$54.00	\$540.00							
Laborer		3	10	\$37.00	\$1,110.00							
Work Boat Labor		1	10	\$37.00	\$370.00							
Teamster		1	10	\$37.00	\$370.00							
Operator	Offload	1	10	\$46.00	\$460.00							
17% OT			0		\$656.20							
BARE UNIT COST	\$3,010.80	TOTAL LABOR COST			\$4,516.20							
MATERIAL / SERVICES						RENTAL EQUIP	WORK TO PERFORM	FUEL GALS.	TOTAL UNITS	TOTAL HOURS	HRLY RATE	TOTAL COST
Fuel / Oil / Grease	405	\$4.00		\$1,620.00	150 Ton Crane	Removal	120	1	10	\$111.00	\$1,110.00	
PPE	9	\$15.00		\$135.00	Tug	Move	150	1	10	\$60.00	\$600.00	
Equipment Repair	7%	\$216.30		\$216.30	Work Boat		15	1	10	\$56.00	\$560.00	
Oil Boom (FT)	250	\$2.00		\$500.00	Scows	Debris	0	1	10	\$68.00	\$680.00	
Debris Curtain (FT)	250	\$3.50		\$875.00	Barge		0	1	10	\$54.00	\$540.00	
				\$0.00	PC 300 long front	Unload	60	1	10	\$50.00	\$500.00	
				\$0.00	Dump Truck	Move	60	1	10	\$32.00	\$320.00	
				\$0.00	Clam Buck (10 cy)		0	1	10	\$39.00	\$390.00	
				\$0.00			0		0	\$0.00	\$0.00	
				\$0.00			0		0	\$0.00	\$0.00	
				\$0.00			0		0	\$0.00	\$0.00	
				\$0.00			0		0	\$0.00	\$0.00	
				\$0.00			0		0	\$0.00	\$0.00	
				\$0.00			0		0	\$0.00	\$0.00	
TAX AT 8%				\$267.70	TAX 8%		0		0	\$0.00	\$376.00	
BARE UNIT COST	\$0.00	TOTAL MATERIAL COST			\$3,614.00							
BARE UNIT COST						\$0.00	405	TOTAL RENTED EQUIP		\$5,076.00		

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Table 3. Pile Removal

ESTIMATE WORKSHEET 3.2													
PILE REMOVAL													
BID DATE		PROJECT LOCATION					DESCRIPTION OF ITEM					ITEM NO.	
												3.2	
TOTAL QUANTITY ON PROPOSAL	25 EA				HOURS PER SHIFT	SHIFTS PER DAY	DAYS PER WEEK	DAILY UNIT PRODUCTION RATE			DAYS REQ. TO COMPLETE		
QUANTITY					10	1	6	25			1		
ESTIMATE WORKSHEET	TOTAL LABOR	TOTAL MATERIAL	TOTAL EQUIPMENT	TOTAL RENTED EQUIPMENT	TOTAL SUB-CONTRACTOR	TOTAL							
	\$3,510.00	\$3,651.80		\$4,287.60	\$1,250.00	\$12,699.40							
GRAND TOTALS	\$3,510.00	\$3,651.80	\$0.00	\$4,287.60	\$1,250.00	\$12,699.40							
UNIT PRICES	\$140.40	\$146.07	\$0.00	\$171.50	\$50.00								
SUB-CONTRACTOR	WORK TO PERFORM	QUANTITY UNITS	UNIT COST	TOTAL COST	UNIT PRICE		\$507.98						
Pile Disposal		25	\$50.00	\$1,250.00	UNIT OF MEASURE		EA						
				\$0.00	OH&P		25%						
				\$0.00									
				\$0.00									
				\$0.00									
				\$0.00									
BARE UNIT COST	\$50.00	TOTAL COST			\$1,250.00								
LABOR CLASSIFICATION	WORK TO PERFORM	TOTAL MEN	TOTAL HOURS	HRLY RATE	TOTAL COST	OWN EQUIPMENT	WORK TO PERFORM	FUEL GALS.	TOTAL UNITS	TOTAL HOURS	HRLY RATE	TOTAL COST	
Crane Operator		1	10	\$51.00	\$510.00			0		0	\$0.00	\$0.00	
Operator		2	10	\$46.00	\$920.00			0		0	\$0.00	\$0.00	
Oiler		1	10	\$46.00	\$460.00			0		0	\$0.00	\$0.00	
Laborer		3	10	\$37.00	\$1,110.00			0		0	\$0.00	\$0.00	
								0		0	\$0.00	\$0.00	
								0		0	\$0.00	\$0.00	
								0		0	\$0.00	\$0.00	
								0		0	\$0.00	\$0.00	
								0		0	\$0.00	\$0.00	
17% OT					\$510.00			0		0	\$0.00	\$0.00	
BARE UNIT COST	\$140.40	TOTAL LABOR COST			\$3,510.00								
						BARE UNIT COS	\$0.00	0	TOTAL SES COST				\$0.00
MATERIAL / SERVICES	QUANTITY UNITS	UNIT COST	UNIT OF MEAS.	TOTAL COST	RENTAL EQUIP	WORK TO PERFORM	FUEL GALS.	TOTAL UNITS	TOTAL HOURS	HRLY RATE	TOTAL COST		
Fuel / Oil / Grease	345	\$ 4.00	GAL	\$1,380.00	150 Ton Crane		120	1	10	\$111.00	\$1,110.00		
Equipment Repairs 7%				\$135.10	Barge 200x50		0	1	10	\$107.00	\$1,070.00		
PPE	7	\$15.00		\$116.20	Tender 200 HP		20	1	10	\$16.00	\$160.00		
Oil Boom (FT)	250	\$2.00		\$500.00	Tug 800 HP		150	1	10	\$60.00	\$600.00		
Debris Curtain (FT)	250	\$5.00		\$1,250.00	Debris Barge		0	1	10	\$54.00	\$540.00		
				\$0.00	ICE Vibratory		15	1	10	\$22.00	\$220.00		
				\$0.00	Air compressor		20	1	10	\$5.00	\$50.00		
				\$0.00	Welder/ Torch		20	1	10	\$22.00	\$220.00		
				\$0.00			0		0	\$0.00	\$0.00		
				\$0.00			0		0	\$0.00	\$0.00		
				\$0.00			0		0	\$0.00	\$0.00		
				\$0.00			0		0	\$0.00	\$0.00		
				\$0.00			0		0	\$0.00	\$0.00		
				\$0.00			0		0	\$0.00	\$0.00		
				\$0.00			0		0	\$0.00	\$0.00		
TAX AT 8%				\$270.50	TAX AT 8%		0		0	\$0.00	\$317.60		
BARE UNIT COST	\$146.07	TOTAL MATERIAL COST			\$3,651.80								
						BARE UNIT COS	\$171.50	345	TOTAL RENTED EQUIP				\$4,287.60

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Table 4. Pile Replacement

ESTIMATE WORKSHEET 3.3													
PILE REPLACEMENT													
BID DATE		PROJECT LOCATION					DESCRIPTION OF ITEM					ITEM NO.	
												3.3	
TOTAL QUANTITY ON PROPOSAL	15 EA				HOURS PER SHIFT	SHIFTS PER DAY	DAYS PER WEEK	DAILY UNIT PRODUCTION RATE		DAYS REQ. TO COMPLETE			
QUANTITY					10	1	6	15		1			
ESTIMATE WORKSHEET	TOTAL LABOR	TOTAL MATERIAL			TOTAL EQUIPMENT	TOTAL RENTED EQUIPMENT		TOTAL SUB-CONTRACTOR			TOTAL		
	\$5,545.80	\$68,863.18				\$5,227.20		\$0.00			\$79,636.18		
GRAND TOTALS		\$5,545.80			\$68,863.18	\$0.00	\$5,227.20		\$0.00			\$79,636.18	
UNIT PRICES		\$369.72			\$4,590.88	\$0.00	\$348.48		\$0.00				
SUB-CONTRACTOR	WORK TO PERFORM	QUANTITY UNITS	UNIT COST	TOTAL COST			UNIT PRICE		\$5,309.08				
				\$0.00			UNIT OF MEASURE		EA				
				\$0.00			OH&P 25%		\$6,636				
				\$0.00									
				\$0.00									
				\$0.00									
				\$0.00									
BARE UNIT COST		\$0.00	TOTAL COST			\$0.00							
LABOR CLASSIFICATION	WORK TO PERFORM	TOTAL MEN	TOTAL HOURS	HRLY RATE	TOTAL COST	OWN EQUIPMENT	WORK TO PERFORM	FUEL GALS.	TOTAL UNITS	TOTAL HOURS	HRLY RATE	TOTAL COST	
Crane Operator		1	10	\$51.00	\$510.00			0		0	\$0.00	\$0.00	
Operator		3	10	\$46.00	\$1,380.00			0		0	\$0.00	\$0.00	
Oiler		2	10	\$50.00	\$1,000.00			0		0	\$0.00	\$0.00	
Laborer		5	10	\$37.00	\$1,850.00			0		0	\$0.00	\$0.00	
								0		0	\$0.00	\$0.00	
								0		0	\$0.00	\$0.00	
								0		0	\$0.00	\$0.00	
								0		0	\$0.00	\$0.00	
								0		0	\$0.00	\$0.00	
								0		0	\$0.00	\$0.00	
								0		0	\$0.00	\$0.00	
17% OT					\$805.80			0		0	\$0.00	\$0.00	
BARE UNIT COST		\$369.72	TOTAL LABOR COST			\$5,545.80		BARE UNIT COS		\$0.00	0	TOTAL SES COST	\$0.00
MATERIAL / SERVICES	QUANTITY UNITS	UNIT COST	UNIT OF MEAS.	TOTAL COST	RENTAL EQUIP	WORK TO PERFORM	FUEL GALS.	TOTAL UNITS	TOTAL HOURS	HRLY RATE	TOTAL COST		
Fuel / Oil / Grease	425	\$ 4.00	GAL	\$1,700.00	150 Ton Crane		120	1	10	\$111.00	\$1,110.00		
Equipment Repairs 7%				\$196.00	Barge 200x50		0	1	10	\$107.00	\$1,070.00		
PPE	11	\$15.00		\$116.20	Tender 200 HP		20	1	10	\$16.00	\$160.00		
Oil Boom	250	\$2.00		\$500.00	Tug 800 HP		150	1	10	\$60.00	\$600.00		
Debris Curtain	250	\$5.00		\$1,250.00	Debris Barge		0	1	10	\$54.00	\$540.00		
12" Dia. Replacement Pile	15	\$4,000.00		\$60,000.00	ICE Vibratory		15	1	10	\$22.00	\$220.00		
				\$0.00	Air compressor		20	1	10	\$5.00	\$50.00		
				\$0.00	Welder/ Torch		20	1	10	\$22.00	\$220.00		
				\$0.00	100 Ton Crane		80	1	10	\$87.00	\$870.00		
				\$0.00			0		0	\$0.00	\$0.00		
				\$0.00			0		0	\$0.00	\$0.00		
				\$0.00			0		0	\$0.00	\$0.00		
				\$0.00			0		0	\$0.00	\$0.00		
				\$0.00			0		0	\$0.00	\$0.00		
				\$0.00			0		0	\$0.00	\$0.00		
				\$0.00			0		0	\$0.00	\$0.00		
TAX AT 8%				\$5,100.98	TAX AT 8%		0		0	\$0.00	\$387.20		
BARE UNIT COST		\$4,590.88	TOTAL MATERIAL COST			\$68,863.18		BARE UNIT COS		\$348.48	425	TOTAL RENTED EQUIP	\$5,227.20

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Table 5. Temporary Dock Relocation

ESTIMATE WORKSHEET 3.4													
TEMPORARY DOCK RELOCATION													
BID DATE		PROJECT LOCATION					DESCRIPTION OF ITEM					ITEM NO.	
												3.4	
TOTAL QUANTITY ON PROPOSAL	1 Dock				HOURS PER SHIFT	SHIFTS PER DAY	DAYS PER WEEK	DAILY UNIT PRODUCTION RATE		DAYS REQ. TO COMPLETE			
QUANTITY					10	1	6	1		1			
ESTIMATE WORKSHEET	TOTAL LABOR	TOTAL MATERIAL			TOTAL EQUIPMENT	TOTAL RENTED EQUIPMENT		TOTAL SUB-CONTRACTOR		TOTAL			
	\$4,914.00	\$3,793.50				\$4,460.40		\$58,170.55		\$71,338.45			
GRAND TOTALS		\$4,914.00			\$0.00	\$4,460.40		\$58,170.55		\$71,338.45			
UNIT PRICES		\$4,914.00			\$0.00	\$4,460.40		\$58,170.55					
SUB-CONTRACTOR	WORK TO PERFORM	QUANTITY UNITS	UNIT COST	TOTAL COST	UNIT PRICE		UNIT OF MEASURE						
10 Pile Replacement		10	\$5,309.08	\$53,090.78			Dock						
10 Pile Removal		10	\$507.98	\$5,079.76			OH&P 25%		\$89,173				
				\$0.00									
				\$0.00									
				\$0.00									
				\$0.00									
BARE UNIT COST		\$58,170.55	TOTAL COST			\$58,170.55							
LABOR CLASSIFICATION	WORK TO PERFORM	TOTAL MEN	TOTAL HOURS	HRLY RATE	TOTAL COST	OWN EQUIPMENT	WORK TO PERFORM	FUEL GALS.	TOTAL UNITS	TOTAL HOURS	HRLY RATE	TOTAL COST	
Crane Operator		1	10	\$51.00	\$510.00			0		0	\$0.00	\$0.00	
Operator		3	10	\$46.00	\$1,380.00			0		0	\$0.00	\$0.00	
Oiler		1	10	\$46.00	\$460.00			0		0	\$0.00	\$0.00	
Laborer		5	10	\$37.00	\$1,850.00			0		0	\$0.00	\$0.00	
								0		0	\$0.00	\$0.00	
								0		0	\$0.00	\$0.00	
								0		0	\$0.00	\$0.00	
								0		0	\$0.00	\$0.00	
								0		0	\$0.00	\$0.00	
								0		0	\$0.00	\$0.00	
17% OT					\$714.00			0		0	\$0.00	\$0.00	
BARE UNIT COST		\$4,914.00	TOTAL LABOR COST			\$4,914.00		BARE UNIT COS		\$0.00	0	TOTAL SES COST	\$0.00
MATERIAL / SERVICES	QUANTITY UNITS	UNIT COST	UNIT OF MEAS.	TOTAL COST	RENTAL EQUIP	WORK TO PERFORM	FUEL GALS.	TOTAL UNITS	TOTAL HOURS	HRLY RATE	TOTAL COST		
Fuel / Oil / Grease	375	\$4.00	GAL	\$1,500.00	150 Ton Crane		120	1	10	\$111.00	\$1,110.00		
Equipment Repairs 7%				\$146.30	Barge 200x50		0	1	10	\$107.00	\$1,070.00		
PPE	10	\$15.00		\$116.20	Tender 200 HP		20	1	10	\$16.00	\$160.00		
Oil Boom	250	\$2.00		\$500.00	Tug 800 HP		150	1	10	\$60.00	\$600.00		
Debris Curtain	250	\$5.00		\$1,250.00	Pile Barge		0	1	10	\$54.00	\$540.00		
				\$0.00	ICE Vibratory		15	1	10	\$22.00	\$220.00		
				\$0.00	Air compressor		20	1	10	\$5.00	\$50.00		
				\$0.00	Welder/ Torch		20	1	10	\$22.00	\$220.00		
				\$0.00	Forklift		30	1	10	\$16.00	\$160.00		
				\$0.00			0		0	\$0.00	\$0.00		
				\$0.00			0		0	\$0.00	\$0.00		
				\$0.00			0		0	\$0.00	\$0.00		
				\$0.00			0		0	\$0.00	\$0.00		
				\$0.00			0		0	\$0.00	\$0.00		
				\$0.00			0		0	\$0.00	\$0.00		
				\$0.00			0		0	\$0.00	\$0.00		
TAX AT 8%				\$281.00	TAX AT 8%		0		0	\$0.00	\$330.40		
BARE UNIT COST		\$3,793.50	TOTAL MATERIAL COST			\$3,793.50		BARE UNIT COS		\$4,460.40	375	TOTAL RENTED EQUIP	\$4,460.40

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Table 6. Temporary Sheetpile Walls

ESTIMATE WORKSHEET 5.2													
Temp. Sheet Pile Walls											ITEM NO.		
BID DATE		PROJECT LOCATION				DESCRIPTION OF ITEM					5.2		
						PRODUCTION DATA							
TOTAL QUANTITY ON PROPOSAL		14 LF		3 pairs per day		HOURS PER SHIFT	SHIFTS PER DAY	DAYS PER WEEK	DAILY UNIT PRODUCTION RATE		DAYS REQ. TO COMPLETE		
QUANTITY				Assume sheets 80'		10	1	6	14		1		
ESTIMATE WORKSHEET		TOTAL LABOR		TOTAL MATERIAL		TOTAL EQUIPMENT	TOTAL RENTED EQUIPMENT		TOTAL SUB-CONTRACTOR		TOTAL		
WORKSHEET 5.2		\$4,800.00		\$1,756.51			\$5,130.00		\$14,675.28		\$26,362		
											\$0		
											\$0		
											\$0		
GRAND TOTALS		\$4,800.00		\$1,756.51		\$0.00	\$5,130.00		\$14,675.28		\$26,362		
UNIT PRICES		\$355.56		\$130.11		\$0.00	\$380.00		\$1,087.06				
SUB-CONTRACTOR		WORK TO PERFORM	QUANTITY UNITS	UNIT COST	TOTAL COST	UNIT PRICE		UNIT OF MEASURE					
Purchase and deliver steel sheets			14	\$1,082	\$14,601			LF		\$1,953			
Remove sheet pile wall			14	\$433	\$5,843	OH&P 25%				\$2,440			
Salvage Cost			14	-\$427	-\$5,769								
				\$0									
				\$0									
				\$0									
BARE UNIT COST		\$1,087.06		TOTAL COST		\$14,675.28							
LABOR CLASSIFICATION	WORK TO PERFORM	TOTAL MEN	TOTAL HOURS	HRLY RATE	TOTAL COST	OWN EQUIPMENT	WORK TO PERFORM	FUEL GALS.	TOTAL UNITS	TOTAL HOURS	HRLY RATE	TOTAL COST	
Laborer		8	10	\$37.00	\$2,960.00			0		0	\$0.00	\$0.00	
Operator		4	10	\$46.00	\$1,840.00			0		0	\$0.00	\$0.00	
			0	\$0.00	\$0.00			0		0	\$0.00	\$0.00	
			0	\$0.00	\$0.00			0		0	\$0.00	\$0.00	
			0	\$0.00	\$0.00			0		0	\$0.00	\$0.00	
			0	\$0.00	\$0.00			0		0	\$0.00	\$0.00	
			0	\$0.00	\$0.00			0		0	\$0.00	\$0.00	
			0	\$0.00	\$0.00			0		0	\$0.00	\$0.00	
			0	\$0.00	\$0.00			0		0	\$0.00	\$0.00	
			0	\$0.00	\$0.00			0		0	\$0.00	\$0.00	
			0	\$0.00	\$0.00			0		0	\$0.00	\$0.00	
17% OT			0		\$0.00			0		0	\$0.00	\$0.00	
BARE UNIT COST		\$0.00		TOTAL LABOR COST		\$4,800.00		BARE UNIT COS \$0.00		0		TOTAL SES COST \$0.00	
MATERIAL / SERVICES	QUANTITY UNITS	UNIT COST		TOTAL COST	RENTAL EQUIP	WORK TO PERFORM	FUEL GALS.	TOTAL UNITS	TOTAL HOURS	HRLY RATE	TOTAL COST		
Fuel / Oil / Grease	345	\$ 4.00	GAL	\$1,380.00	150 Ton Crane		120	1	10	\$111.00	\$1,110.00		
Equipment Repairs 7%				\$152.60	Barge 200x50		0	1	10	\$107.00	\$1,070.00		
PPE	12	\$15.00		\$93.80	Tender 200 HP		20	1	10	\$16.00	\$160.00		
				\$0.00	Tug 800 HP		150	1	10	\$60.00	\$600.00		
				\$0.00	ICE Vibratory		15	1	10	\$22.00	\$220.00		
				\$0.00	Air compressor		20	1	10	\$47.00	\$470.00		
				\$0.00	Welder/ Torch		20	1	10	\$5.00	\$50.00		
				\$0.00	Material Barge		0	1	10	\$107.00	\$1,070.00		
				\$0.00			0		0	\$0.00	\$0.00		
				\$0.00			0		0	\$0.00	\$0.00		
				\$0.00			0		0	\$0.00	\$0.00		
				\$0.00			0		0	\$0.00	\$0.00		
				\$0.00			0		0	\$0.00	\$0.00		
				\$0.00			0		0	\$0.00	\$0.00		
				\$0.00			0		0	\$0.00	\$0.00		
TAX AT 8%				\$130.11	TAX AT 8%		0		0	\$0.00	\$380.00		
BARE UNIT COST		\$130.11		TOTAL MATERIAL COST		\$1,756.51		BARE UNIT COS \$380.00		345		TOTAL RENTED EQUIP \$5,130.00	

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Table 7. Silt Curtain Installation

ESTIMATE WORKSHEET 5.1												
SILT CURTAIN INSTALLATION												
BID DATE	PROJECT LOCATION					DESCRIPTION OF ITEM					ITEM NO.	
											5.1	
PRODUCTION DATA												
TOTAL QUANTITY ON PROPOSAL	750 LF				HOURS PER SHIFT	SHIFTS PER DAY	DAYS PER WEEK	DAILY UNIT PRODUCTION RATE		DAYS REQ. TO COMPLETE		
					10	1	6	750		1		
ESTIMATE WORKSHEET		TOTAL LABOR	TOTAL MATERIAL	TOTAL EQUIPMENT	TOTAL RENTED EQUIPMENT	TOTAL SUB-CONTRACTOR	TOTAL					
WORKSHEET 5.1		\$2,808.00	\$44,788.90		\$1,252.80	\$2,800.00	\$51,649.70					
							\$0.00					
							\$0.00					
							\$0.00					
GRAND TOTALS		\$2,808.00	\$44,788.90	\$0.00	\$1,252.80	\$2,800.00	\$51,649.70					
UNIT PRICES		\$3.74	\$59.72	\$0.00	\$1.67	\$3.73						
SUB-CONTRACTOR	WORK TO PERFORM	QUANTITY UNITS	UNIT COST	TOTAL COST			UNIT PRICE		\$68.87			
IWT Delivery		1	\$2,800.00	\$2,800.00			UNIT OF MEASURE		LF			
				\$0.00			OH&P 25%		\$86			
				\$0.00								
				\$0.00								
				\$0.00								
BARE UNIT COST	\$0.00	TOTAL COST		\$2,800.00								
LABOR CLASSIFICATION	WORK TO PERFORM	TOTAL MEN	TOTAL HOURS	HRLY RATE	TOTAL COST	OWN EQUIPMENT	WORK TO PERFORM	FUEL GAL.	TOTAL UNITS	TOTAL HOURS	HRLY RATE	TOTAL COST
Laborer		4	10	\$37.00	\$1,480.00			0		0	\$0.00	\$0.00
Operator		2	10	\$46.00	\$920.00			0		0	\$0.00	\$0.00
			0	\$0.00	\$0.00			0		0	\$0.00	\$0.00
			0	\$0.00	\$0.00			0		0	\$0.00	\$0.00
			0	\$0.00	\$0.00			0		0	\$0.00	\$0.00
			0	\$0.00	\$0.00			0		0	\$0.00	\$0.00
			0	\$0.00	\$0.00			0		0	\$0.00	\$0.00
			0	\$0.00	\$0.00			0		0	\$0.00	\$0.00
			0	\$0.00	\$0.00			0		0	\$0.00	\$0.00
			0	\$0.00	\$0.00			0		0	\$0.00	\$0.00
17% OT			0		\$408.00			0		0	\$0.00	\$0.00
BARE UNIT COST	\$0.00	TOTAL LABOR COST			\$2,808.00	BARE UNIT COS	\$0.00	0	TOTAL SES COST		\$0.00	
MATERIAL / SERVICES	QUANTITY UNITS	UNIT COST	TOTAL COST	RENTAL EQUIP	WORK TO PERFORM	FUEL GAL.	TOTAL UNITS	TOTAL HOURS	HRLY RATE	TOTAL COST		
FOG	GAL	45	\$4.00	\$180.00	Work Boat	15	2	10	\$56.00	\$1,120.00		
Equipment Repair	7%	1	\$81.20	\$81.20	Forklift	30	1	2.5	\$16.00	\$40.00		
PPE		6	\$15.00	\$90.00		0		0	\$0.00	\$0.00		
Turbidity Curtains		800	\$51.40	\$41,120.00		0		0	\$0.00	\$0.00		
			\$0.00	\$0.00		0		0	\$0.00	\$0.00		
			\$0.00	\$0.00		0		0	\$0.00	\$0.00		
			\$0.00	\$0.00		0		0	\$0.00	\$0.00		
			\$0.00	\$0.00		0		0	\$0.00	\$0.00		
			\$0.00	\$0.00		0		0	\$0.00	\$0.00		
			\$0.00	\$0.00		0		0	\$0.00	\$0.00		
			\$0.00	\$0.00		0		0	\$0.00	\$0.00		
			\$0.00	\$0.00		0		0	\$0.00	\$0.00		
			\$0.00	\$0.00		0		0	\$0.00	\$0.00		
TAX AT 8%			\$3,317.70	TAX AT 8%		0		0	\$0.00	\$92.80		
BARE UNIT COST	\$59.72	TOTAL MATERIAL COST			\$44,788.90	BARE UNIT COS	\$1.67	45	TOTAL RENTED EQUIP		\$1,252.80	

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Table 24. Upland Subtitle D Landfill Disposal Cost Buildup

Task	Unit	Quantity	Unit Cost	Total Cost	Basis/Notes
<b>Transload Facility Development</b>					
Transload facility permitting	LS	1	\$40,000	\$5,000	(1); Based on past experience normalized over total landfill disposal volume
Transload facility development	LS	1	\$7,500,000	\$863,000	(1,2); One time cost normalized over total estimated landfill disposal volume
Yearly property lease rate	ACRE	20	\$23,500	\$470,000	(3); Lease rate based on Port of Portland T6 public records.
Yearly gondola mobilization	Cars	500	\$4,000	\$2,000,000	(4); Car mobilization price from Waste Management
<b>Materials Handling and Stabilization</b>					
Materials handling from barge to upland stockpile	TON	345,000	\$6	\$2,070,000	(5); Offloading rate based on crane on dock and off-road trucks hauling to stockpile
Purchase Diatomaceous Earth (DE)	TON	17,250	\$94	\$1,622,000	Assumed 5% by weight mixing rate. DE price from Waste Management
Mix DE with dredged material to improve handling	TON	17,250	\$2	\$35,000	Cost based on end loader mixing DE and dredge material
Materials handling from stockpile to rail cars	TON	362,250	\$5	\$1,811,000	Cost assumes end loaders loading to rail cars on each side of stockpiles
Water treatment	1,000 gal	7,500	\$10	\$75,000	(6); Water treatment cost based on recent construction project.
<b>Transportation and Disposal</b>					
Rail transportation and tipping fee at Subtitle D landfill	TON	362,250	\$50	\$18,113,000	Price from Waste Management for unit train service.
<b>Inspection and Monitoring of Transload Facility</b>					
Labor inspections during operations	FTE	2.5	\$75,000	\$188,000	Assumes 7 people during 4 months of dredging and 1 during subsequent 2 months
Environmental monitoring direct costs during offloading	MONTH	4	\$15,000	\$60,000	Cost for boat, monitoring equipment and chemistry analysis
Reporting	Year	1	\$40,000	\$40,000	Based on past experience
<b>Total Estimated Cost</b>				<b>\$27,352,000</b>	
<b>Total Cubic Yards Handled Per Season</b>				<b>230,000</b>	(7)
<b>Total Tons Handled Per Season</b>				<b>345,000</b>	Assumes 1.5 tons/cy unit weight
<b>Estimated Cost Per Cubic Yard</b>				<b>\$119</b>	
<b>Estimated Cost Per Ton</b>				<b>\$79</b>	

**Notes:**

- (1) Assumed total dredge volume taken to upland landfill through life of facility: 2,000,000 cy  
 Alts B&C - ~200,000 to 1,260,000 cy (w/o in-water); 0 to 600,000 cy (w/ in-water)  
 Alts D&E - ~440,000 to 2,300,000 cy (w/o in-water); 0 to 600,000 cy (w/ in-water)  
 Alt F - ~2,200,000 to 6,698,000 cy (w/o in-water); 0 to 4,305,000 cy (w/ in-water)
- (2) Assumption for site development:  
 Pier/dock structure development/upgrade (~\$1.5M)  
 -Addition of ~10,000 feet of new rail line & ~5 switches (~\$3.5M)  
 Creation of 12 to 15 acres of bermed stockpile areas holding up to 70,000 cy of sediment (~\$1M)  
 Mobilization of offloading equipment, off-road trucks, end loaders and other equipment (~\$0.5M)  
 Miscellaneous site improvements (utilities, water treatment, offices, etc.) (~\$1M)
- (3) Assumed another ~5 acres for support activities for total site need of 20 acres. Lease rate is yearly.
- (4) Assuming 3,000 to 5,000 tons/day loaded out, 100 tons/gondola, and 10-day turnaround produces 300 to 500 rail cars needed each year.
- (5) Assumes 230,000 cy/season and 1.5 tons/cy weight conversion.
- (6) Assumes 15-acre stockpile receiving 37 inches/year of rain over the 6-month stockpile time.
- (7) Assumes for transload volume per year:  
 -85 to 105 days of dredging (5 to 6 days/week) in a 120-day construction window  
 -700 cy/day/site and 2 to 3 cleanup sites being dredged at one time  
 - 10 to 15 acres of 5-foot stockpiles can hold between 70,000 and 120,000 cy for shipping to the landfill after the dredging season is complete.

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Table 29A. Material Costs

Material	Unit	FOB Plant Price	Barge Load Fee	Transport Fee <sup>a</sup>	Contractor Markup <sup>b</sup>	Total Unit Cost	Notes
Base Cap	Ton	\$12	\$0.5	\$0.5	\$1.63	\$14.6	Knife River quote #7838 8/23/2010 from Gordy Jarman
Armor Material A	Ton	\$15	\$0.5	\$0.5	\$2.00	\$18.0	Knife River quote #7838 8/23/2010 from Gordy Jarman
Armor Material B	Ton	\$15	\$0.5	\$0.5	\$2.00	\$18.0	Knife River quote #7838 8/23/2010 from Gordy Jarman
Armor Material C	Ton	\$15	\$0.5	\$0.5	\$2.00	\$18.0	Knife River quote #7838 8/23/2010 from Gordy Jarman
Armor Material D	Ton	\$15	\$0.5	\$0.5	\$2.00	\$18.0	Knife River quote #7838 8/23/2010 from Gordy Jarman
ODOT 100	Ton	\$27	\$0.5	\$0.5	\$3.50	\$31.5	Knife River quote #7838 8/23/2010 from Gordy Jarman
ODOT 200	Ton	\$27	\$0.5	\$0.5	\$3.50	\$31.5	Knife River quote #7838 8/23/2010 from Gordy Jarman
Organoclay Mat	SF	\$2.2	NA	\$0.1	\$0.29	\$3.0	Increased the cost 15% to account for overlaps. Cetco quote 10/4/10 from James Wang

Notes:


<sup>a</sup> Assumes aggregate transported by barge and mat by truck to middle of harbor

<sup>b</sup> Contractor Markup: 12.5%

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Table 29B. Vendor Quote



Quote #: 7838

**Project Name:** *WILLAMETTE RIVER PROJECT*

**Customer:** *ANCHOR QEA*

**Delivery Address:** *T-4 WILLAMETTE RIVER*

**Attention:** *Micheal Crystal*

**P:** *206-287-9130*

*mjcrystal@anchorqea.com*

Source	Product Name	FOB Plant Price	Transfer Delivery	Solo Delivery
Reichold	4"-3" SMALL COBBLES	\$15.00 Ton	\$22.00 Ton	
Reichold	2"-1" FINE GRAVEL	\$15.00 Ton	\$22.00 Ton	
Reichold	3/4"-1/4" FINE GRAVEL	\$15.00 Ton	\$22.00 Ton	
Reichold	3 1/2" -2 1/2" COURSE GRAVEL	\$15.00 Ton	\$22.00 Ton	
Reichold	GRAVELLY SAND	\$12.00 Ton	\$19.00 Ton	
Angell Quarry	CLASS 100 RIP RAP	\$20.00 Ton		\$27.00 Ton
Angell Quarry	CLASS 200 RIP RAP	\$20.00 Ton		\$27.00 Ton
Angell Quarry	CLASS 700 RIP RAP	\$25.00 Ton		\$32.00 Ton
Angell Quarry	CLASS 2000 RIP RAP	\$25.00 Ton		\$32.00 Ton

*The following terms will apply to material purchased at Knife River for this project:*

1. Prices include standard ODOT quality control and process control tests at the plant during production of the above quoted product(s). Acceptance of materials supplied by Knife River is at the plant at the time of production.
2. All gradations per ODOT specifications unless otherwise stated. Materials contain natural moisture only.
3. Credit terms net 15th of month following invoice.
4. Prices are for all materials and dump sites quoted inclusive.
5. Per ton pricing is based upon full load deliveries. Short loads are priced at truck time plus materials.
6. Knife River will attempt to secure adequate trucking with a minimum of 48 hours notice.
7. If applicable, dump site agreement must be signed before any export will be accepted.
8. Conversion rates & proctors are for information only & shall not be used to determine pay quantities.
9. No retainage of any material purchased.

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**Remarks:**

1. PRICING IS FOR BUDGET PURPOSES.
2. KNIFE RIVER HAS A BARGE LOAD OUT FACILITY IF BARGING MATERIAL IS AN OPTION.
3. THE PRICE TO RENT KNIFE RIVER'S 6000 TON BARGE, KR-1, IS \$500 PER HOUR. THIS DOES NOT INCLUDE A TUGBOAT.
4. WE WILL LOAD THE ABOVE MATERIAL FROM THE REICHOLD SOURCE ONTO THE CUSTOMER'S BARGE FOR A FEE OF \$0.50 PER TON.
5. THE RATE AT WHICH WE LOAD KR-1 IS 1500 TONS PER HOUR. IF NEEDED, KNIFE RIVER WILL BACK THAT SPEED DOWN TO 1000 TONS PER HOUR TO ACCOMMODATE THE CUSTOMER'S BARGES LOADING CAPABILITY.

**Salesman:** Gordy Jarman  
 Mobile: (503) 572-7236  
 Office: (503) 944-3500  
 gordy.jarman@kniferiver.com

Date of Origin: 8/23/2010  
 Quote Expires: 12/31/2010

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Printed: 08/23/2010

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Table 1. Harbor-wide, Long-term Monitoring and Maintenance Cost Backup

	Biota Tissue Monitoring	Six Surface Water Transect Composites	50 Surface Sediment Samples	Mob and Demob	Data Report, Data Management, and Monitoring Report
<b>Labor</b>					
Hours	768	1,020	364	160	1,360
Costs	\$91,740	\$121,560	\$43,360	\$18,960	\$166,675
<b>Sub-Contractors</b>					
Laboratory analysis	\$85,725	\$33,264	\$151,875		
Boat and core processing	\$18,000	\$53,180	\$18,900		
Data Validation	\$9,902	\$3,961	\$28,290		
<b>Reimursables</b>					
Vehicle rental	\$2,000	\$2,800	\$1,100	\$500	
Per diem	\$17,500	\$24,500	\$8,250	\$3,750	
<b>Equipment</b>	\$4,860	\$660	\$600	\$160	
<b>Subtotal</b>	<b>\$229,727</b>	<b>\$239,925</b>	\$252,375	<b>\$23,370</b>	<b>\$166,675</b>

Harbor Wide Task <sup>a</sup>	Cost	Cost with 40% Contingency
Tissue monitoring	\$420,000	\$588,000
Surface water	\$430,000	\$602,000
Sediment	\$442,000	\$619,000

**Note:**

<sup>a</sup> Each task will be conducted separately; include mob and demob plus data management and reporting.

Table 2. MNR/EMNR Long-term Monitoring and Maintenance Cost Backup

	40 Power Grab Samples	Mob and Demob	Data Report, Data Management, and Monitoring Report	Total
<b>Labor</b>				
Hours	308	160	1,220	
Costs	\$37,880	\$18,960	\$149,350	
<b>Sub-Contractors</b>				
Laboratory analysis	\$78,840			
Boat and core processing	\$18,620			
Data Validation	\$10,212			
<b>Reimursables</b>				
Vehicle rental	\$900	\$400		
Per diem	\$8,250	\$3,000		
<b>Equipment</b>	\$520	\$160		
<b>Subtotal</b>	<b>\$155,222</b>	<b>\$22,520</b>	<b>\$149,350</b>	<b>\$327,000</b>
<b>Contingency (40%)</b>				\$131,000
<b>Total</b>				\$458,000
<b>Cost per Acre<sup>a</sup></b>				\$4,600

Note:

<sup>a</sup> Cost normalized for a 10-acre area. As noted in the text, only 10 percent of that area would be monitored to serve as a surrogate for the remaining areas.

Table 3. In Situ Treatment Long-term Monitoring and Maintenance Cost Backup

	40 1-foot Cores and 40 Porewater Samples	Mob and Demob	Data Report, Data Management, and Monitoring Report	Bathymetry	Total
<b>Labor</b>					
Hours	946	460	1,304	0	
Costs	\$112,660	\$18,960	\$159,045	\$0	
<b>Sub-Contractors</b>					
Laboratory analysis	\$363,600				
Boat and core processing	\$24,290				
Data Validation	\$43,286				
Bathymetry				\$40,000	
<b>Reimursables</b>					
Vehicle rental	\$2,600	\$400			
Per diem	\$19,500	\$3,000			
<b>Equipment</b>		\$1,925	\$160		
<b>Subtotal</b>	<b>\$565,936</b>	<b>\$24,285</b>	<b>\$159,205</b>	<b>\$40,000</b>	\$789,000
<b>Contingency (40%)</b>					\$316,000
<b>Total</b>					<b>\$1,105,000</b>
<b>Cost per Acre<sup>a</sup></b>					<b>\$111,000</b>

Note:

<sup>a</sup> Costs normalized for a 10-acre area.

Table 4. Engineered Cap Long-term Monitoring and Maintenance Cost Backup

	40 4-foot Cores, 160 Samples	Mob and Demob	Data Report, Data Management, and Monitoring Report	Bathymetry	Total
<b>Labor</b>					
Hours	586	160	1,352	0	
Costs	\$70,060	\$18,960	\$164,585	\$0	
<b>Sub-Contractors</b>					
Laboratory analysis	\$315,360				
Boat and core processing	\$31,460				
Data Validation	\$40,848				
Bathymetry				\$40,000	
<b>Reimursables</b>					
Vehicle rental	\$1,800	\$400			
Per diem	\$13,500	\$3,000			
<b>Equipment</b>	\$660				
<b>Subtotal</b>	<b>\$473,688</b>	<b>\$22,360</b>	<b>\$164,585</b>	<b>\$40,000</b>	\$701,000
<b>Contingency (40%)</b>					\$280,000
<b>Total</b>					<b>\$981,000</b>
<b>Cost per Acre<sup>a</sup></b>					<b>\$98,000</b>

Note:

<sup>a</sup> Costs normalized for a 10-acre area.

**Cost Estimate Backup  
EPA-Derived MII Costs**



PROJECT: Portland Harbor FS  
 JOB NO.: 79171.3383.345  
 CLIENT: EPA Region 10

COMPUTED BY: MS  
 DATE: 3/1/2016

CHECKED BY: JN  
 DATE CHECKED: 3/4/2016  
 WRKSHT NO.: PDSM-01

**Description:** Determination of number of shifts per day and number of crews needed and comparison to specific FS productivity assumptions.

**General Assumptions**

In-water work window, DY/YR: 122  
 In-water work window, WK/YR: 17.4  
 Number of dredging days per week, DY/WK: 6  
 Actual dredging days per year, DY/YR: 104

all combined FS average daily dredging production, CY/DY: 5,100 *Per FS Engineers*

Overall combined FS average daily placement, CY/DY: 3,900 *Per FS Engineers*

FS average daily organoclay mat placement, SF/DY: 12,000

Total Hours per Shift, HR: 12  
 Crew shift time, breaks, etc., HR: 2  
 Actual Work Hours per Shift, HR: 10 *Assumes crew shift time, breaks, etc. (approx. 2 hours)*

**Dredging/Removal Activities**

	Number of Shifts EA/DY	No. of Crews EA/DY	Total Hours HR/DY	Work Hours HR/DY	Unit Productivity CY/HR/SHIFT	Unit Productivity CY/DY/SHIFT	Overall Productivity CY/DY
Open-Water Dredging	2	2	24	20	119.1	2,382	4,764
Confined Dredging	2	1	24	20	71.3	713	1,426
Riverbank Excavation	1	1	12	10	282.1	2,821	2,821

	Number of Shifts EA/DY	No. of Crews EA/DY	Total Hours HR/DY	Work Hours HR/DY	Unit Productivity CY/HR/SHIFT	Unit Productivity CY/DY/SHIFT	Overall Productivity CY/DY
Transfer to Barge (non-stabilized material)	2	2	24	20	133.7	1,337	5,348
In-Barge Stabilization	2	2	24	20	103	1,030	4,120

	Number of Shifts EA/DY	No. of Crews EA/DY	Total Hours HR/DY	Work Hours HR/DY
Dewatering and Water Treatment	2	1	24	20

	Number of Shifts EA/DY	No. of Crews EA/DY	Total Hours HR/DY	Barge Time to Facility HR	Return Barge Time HR
Transportation to Disposal Facility	1	1	12	24	18

	Number of Shifts EA/DY	No. of Crews EA/DY	Total Hours HR/DY	Work Hours HR/DY	Unit Productivity CY/HR/SHIFT	Unit Productivity CY/DY/SHIFT	Overall Productivity CY/DY
Offloading	2	2	24	20	171.6	1,716	6,864

**Capping/Placement Activities**

	Number of Shifts EA/DY	No. of Crews EA/DY	Total Hours HR/DY	Work Hours HR/DY	Unit Productivity CY/HR/SHIFT	Unit Productivity CY/DY/SHIFT	Overall Productivity CY/DY
Armor Placement - Open Water	2	1	24	20	228.7	2,287	4,574
Beach Mix Placement - Open Water	2	1	24	20	228.7	2,287	4,574
Low Per Sand Placement - Open Water	2	1	24	20	228.7	2,287	4,574
Reactive Layer Placement - Open Water	2	1	24	20	228.7	2,287	4,574
Sand Placement - Open Water	2	1	24	20	228.7	2,287	4,574
Armor Placement - Confined	1	1	12	10	116.6	1,166	1,166
Beach Mix Placement - Confined	1	1	12	10	116.6	1,166	1,166
Low Per Sand Placement - Confined	1	1	12	10	116.6	1,166	1,166
Reactive Layer Placement - Confined	1	1	12	10	116.6	1,166	1,166
Sand Placement - Confined	1	1	12	10	116.6	1,166	1,166
Aquablok Placement - Confined	1	1	12	10	116.6	1,166	1,166
Sand for Backfill and Capping Riverbanks	1	1	12	10	116.6	1,166	1,166
Armor for Capping Riverbanks	1	1	12	10	116.6	1,166	1,166
Beachmix for Capping Riverbanks	1	1	12	10	116.6	1,166	1,166





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 WRKSH T NO.: PDSM-01

**Description:** Determination of number of shifts per day and number of crews needed and comparison to specific FS productivity assumptions.

	Number of Shifts EA/DY	No. of Crews EA/DY	Total Hours HR/DY	Work Hours HR/DY	Unit Productivity SF/HR/SHIFT	Unit Productivity SF/DY/SHIFT	Overall Productivity SF/DY
Organoclay Mat Placement - Open Water	1	1	12	10	1200	12,000	12,000
Organoclay Mat Placement - Confined	1	1	12	10	1200	12,000	12,000



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**Description:** Assumptions for crew composition development. Adjusts crew composition based on productivity and duration determination. Adjusted crew man and equipment hours and adjusted productivity used to determine unit costs.

**Overtime Assumptions**

	# Days/Week	# Hrs/Shift	# Shifts/Day	# Work Hours/Shift			Total Hrs/Day
				1st	2nd	3rd	
Standard:	5	8	2	8	8	0	16
Actual:	6	8	2	12	12	0	24

Day	OT	Work
Monday	1	Y
Tuesday	1	Y
Wednesday	1	Y
Thursday	1.5	Y
Friday	1.5	Y
Saturday	1.5	Y
Sunday	1.5	N

MII Calculated Labor Overtime Percentage: 13.89%  
 MII Calculated Equipment Overtime Percentage: -72.22%

**Open Water Dredging with Clamshell**

Number of Shifts, EA/DY:	2	See Worksheet PDSM-01
Number of Crews, EA/DY:	2	See Worksheet PDSM-01
Dredge time, HR/DY:	40	See Worksheet PDSM-01
Adjusted productivity, CY/DY:	<b>4,764</b>	See Worksheet PDSM-01
Total time, HR/DY:	24	
Adjusted productivity, CY/HR:	<b>198.5</b>	Takes into account total shift time, not just work time.

**MII Assumptions**

Labor Tag	Labor
B-EQOPRCRB	Equip. Operators Crane with Boom Pay
X-EQOPROIL	Outside Equip. Oilers / Grade Checker
X-LABORER4	Outside Laborers, Group 4 Skilled
X-LABORER4	Outside Laborers, Group 4 Skilled

Crew Labor Type	Adj. Crew	
	Man Hours	Man Hours
Journeyman	1	<b>2</b>
Journeyman	1	<b>2</b>
Foreman	1	<b>2</b>
Journeyman	4	<b>8</b>

Equip Tag	Equipment
XX0XX410	BARGE MOUNTED CLAMSHELL, 10 CY CRANE
XX0XX810	DUMP SCOW BARGE, 3,000 CY
M10SM004	MARINE EQUIPMENT, BOATS & LAUNCHES, 23' LITTLE GIANT, W/CABIN TRI-HULL, CAP 3,400 LBS, OUTBOARD, 23.4' X 8.5' X 1.2'
U-MISC-010	Miscellaneous Equipment (crane mats, etc.)

Condition	Adj. Crew	
	Eq. Hours	Eq. Hours
Average	1	<b>2</b>
Average	2	<b>4</b>
Average	2	<b>4</b>
Average	1	<b>2</b>



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**Description:** Assumptions for crew composition development. Adjusts crew composition based on productivity and duration determination. Adjusted crew man and equipment hours and adjusted productivity used to determine unit costs.

**Confined Dredging with Barge-Mounted Excavator**

Number of Shifts, EA/DY: 2 *See Worksheet PDSM-01*  
 Number of Crews, EA/DY: 1 *See Worksheet PDSM-01*  
 Dredge time, HR/DY: 20 *See Worksheet PDSM-01*  
 Adjusted productivity, CY/DY: **1,426** *See Worksheet PDSM-01*  
 Total time, HR/DY: 24  
 Adjusted productivity, CY/HR: **59.4**

**MII Assumptions**

<u>Labor Tag</u>	<u>Labor</u>
B-EQOPRCRB	Equip. Operators Crane with Boom Pay
X-LABORER4	Outside Laborers, Group 4 Skilled
X-LABORER4	Outside Laborers, Group 4 Skilled
X-EQOPRMED	Outside Equip. Operators, Medium

<u>Labor Type</u>	<u>Crew</u>	
	<u>Man Hours</u>	<u>Adj. Crew Man Hours</u>
Journeyman	1	1
Foreman	1	1
Journeyman	1	1
Journeyman	1	1

<u>Equip Tag</u>	<u>Equipment</u>
H25Z3215	HYDRAULIC EXCAVATOR, CRAWLER, 140,000 LB (63,503 KG), 4.00 CY (3.1 M3) BUCKET, 31.4' (9.6 M) MAX DIGGING DEPTH
M10XX022	MARINE EQUIPMENT, BOATS & LAUNCHES, 45' LENGTH, 16' BEAM, 5' 0" DRAFT, PUSH BOAT
M10SM004	MARINE EQUIPMENT, BOATS & LAUNCHES, 23' LITTLE GIANT, W/CABIN TRI-HULL, CAP 3,400 LBS, OUTBOARD, 23.4' X 8.5' X 1.2'
XX0XX740	WORK BARGE, FLAT DECK, 2000 TON WITH 4 SPUDS
XX0XX800	DUMP SCOW BARGE, 1,500 CY
U-MISC-010	Miscellaneous Equipment (crane mats, etc.)

<u>Condition</u>	<u>Adj. Crew</u>	
	<u>Eq Hours</u>	<u>Eq. Hours</u>
Average	1	1
Average	1	1
Average	1	1
Average	4	4
Average	4	4
Average	1	1

**Riverbank Excavation with Barge-Mounted Excavator**

Number of Shifts, EA/DY: 1 *See Worksheet PDSM-01*  
 Number of Crews, EA/DY: 1 *See Worksheet PDSM-01*  
 Dredge time, HR/DY: 10 *See Worksheet PDSM-01*  
 Adjusted productivity, CY/DY: **2,821** *See Worksheet PDSM-01*  
 Total time, HR/DY: 12  
 Adjusted productivity, CY/HR: **235.1**

**MII Assumptions**

<u>Labor Tag</u>	<u>Labor</u>
B-EQOPRCRN	Equip. Operators, Heavy
B-LABORER	Laborers, (Semi-Skilled)
B-LABORER	Laborers, (Semi-Skilled)
X-EQOPRMED	Outside Equip. Operators, Medium

<u>Labor Type</u>	<u>Adj. Crew</u>	
	<u>Man Hours</u>	<u>Man Hours</u>
Journeyman	1	1
Foreman	1	1
Journeyman	2	2
Journeyman	1	1

<u>Equip Tag</u>	<u>Equipment</u>
H25Z3215	HYDRAULIC EXCAVATOR, CRAWLER, 140,000 LB (63,503 KG), 4.00 CY (3.1 M3) BUCKET, 31.4' (9.6 M) MAX DIGGING DEPTH
XX0XX800	DUMP SCOW BARGE, 1,500 CY
S30KB033	SCREENING & CRUSHING PLANTS, CONVEYOR, ADJUSTABLE HEIGHT RADIAL STACKER, 36" WIDE X 150' LONG, PORTABLE, 2,000 TPH
M10XX022	MARINE EQUIPMENT, BOATS & LAUNCHES, 45' LENGTH, 16' BEAM, 5' 0" DRAFT, PUSH BOAT
XX0XX740	WORK BARGE, FLAT DECK, 2000 TON WITH 4 SPUDS

<u>Condition</u>	<u>Adj. Crew</u>	
	<u>Eq Hours</u>	<u>Eq. Hours</u>
Average	1	1
Average	2	2
Average	1	1
Average	1	1
Average	1	1



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**Dewatering and Treatment**

Number of Shifts, EA/DY: **2** See Worksheet PDSM-01  
 Number of Crews, EA/DY: **1** See Worksheet PDSM-01  
 Dewatering and Water Treatment time, HR/DY: **20** See Worksheet PDSM-01

**MII Assumptions**

<u>Labor Tag</u>	<u>Labor</u>
X-LABORER4	Outside Laborers, Group 4 Skilled
X-LABORER4	Outside Laborers, Group 4 Skilled

<u>Labor Type</u>	<u>Man Hours</u>	<u>Adj. Crew Man Hours</u>
Foreman	1	1
Journeyman	2	2

<u>Equip Tag</u>	<u>Equipment</u>
M10SM004	MARINE EQUIPMENT, BOATS & LAUNCHES, 23' LITTLE GIANT, W/CABIN TRI-HULL, CAP 3,400 LBS, OUTBOARD, 23.4' X 8.5' X 1.2'
P50WC004	PUMP, WATER, CENTRIFUGAL, TRASH, ENGINE DRIVE, 6" DIA, 1,300 GPM @ 100' HEAD, TRAILER MTD (ADD HOSES)
P50Z5099	PUMP, WATER, CENTRIFUGAL, TRASH, HOSE, SUCTION/DISCH, 6" (150 MM) DIA X 50' (15 M) WITH COUPLING (PER SECTION)
P50GR008	PUMP, WATER, CENTRIFUGAL, TRASH, HOSE, DISCH, 6" DIA X 50' WITH COUPLING (PER SECTION)
XX0X740	WORK BARGE, FLAT DECK, 2000 TON WITH 4 SPUDS

<u>Condition</u>	<u>Eq Hours</u>	<u>Adj. Crew Eq. Hours</u>
Average	1	1
Average	1	1
Average	2	2
Average	6	6
Average	1	1

**Mobilization/Demobilization**

U-B-MANAGE-150 Delivery/pick-up fees for frac tank rental **2**  
 U-B-MANAGE-170 Delivery/pick-up fees for temporary water treatment plant rental **1**

<b>2</b>
<b>1</b>

**Rental Equipment**

U-B-MANAGE-180 Temporary water treatment plant rental **1**  
 U-B-MANAGE-190 Carbon disposal **0**  
 U-B-MANAGE-160 Frac tank rental **2**

<b>1</b>
<b>0.167</b>
<b>2</b>

*Weekly carbon changeo*

**Transfer to Hauling Barge - Open Water Dredging (for non-stabilized material)**

Number of Shifts, EA/DY: **2** See Worksheet PDSM-01  
 Number of Crews, EA/DY: **2** See Worksheet PDSM-01  
 Adjusted productivity, CY/DY: **5,348** See Worksheet PDSM-01  
 Work time, HR/DY: **24** See Worksheet PDSM-01  
 Adjusted productivity, CY/HR: **222.8**

**MII Assumptions**

<u>Labor Tag</u>	<u>Labor</u>
X-EQOPRHVY	Outside Equip. Operators, Heavy
B-EQOPRCRN	Equip. Operators, Heavy
X-LABORER4	Outside Laborers, Group 4 Skilled
B-LABORER	Laborers, (Semi-Skilled)

<u>Labor Type</u>	<u>Man Hours</u>	<u>Adj. Crew Man Hours</u>
Journeyman	1	2
Journeyman	1	2
Journeyman	1	2
Journeyman	1	2

<u>Equip Tag</u>	<u>Equipment</u>
H25Z3215	HYDRAULIC EXCAVATOR, CRAWLER, 140,000 LB (63,503 KG), 4.00 CY (3.1 M3) BUCKET, 31.4' (9.6 M) MAX DIGGING DEPTH
XX0X740	WORK BARGE, FLAT DECK, 2000 TON WITH 4 SPUDS
XX0X810	DUMP SCOW BARGE, 3,000 CY
M10XX019	MARINE EQUIPMENT, ALL OTHER BARGES, HOPPER, 200' X 35' X 12', 1,600 TON (COVERED)
M10XX033	MARINE EQUIPMENT, TUGS, 60 FT LENGTH, 21 FT BEAM, 5'0" DRAFT, 80 TON, TOW BOAT
M10SM004	MARINE EQUIPMENT, BOATS & LAUNCHES, 23' LITTLE GIANT, W/CABIN TRI-HULL, CAP 3,400 LBS, OUTBOARD, 23.4' X 8.5' X 1.2'
U-MISC-010	Miscellaneous Equipment (crane mats, etc.)

<u>Condition</u>	<u>Eq Hours</u>	<u>Adj. Crew Eq. Hours</u>
Average	1	2
Average	1	2
Average	1	2
Average	1	2
Average	1	2
Average	1	2
Average	1	2



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**Transfer to Hauling Barge - Confined Dredging (for non-stabilized material)**

Number of Shifts, EA/DY: 2 See Worksheet PDSM-01  
 Number of Crews, EA/DY: 2 See Worksheet PDSM-01  
 Adjusted productivity, CY/DY: 5,348 See Worksheet PDSM-01  
 Work time, HR/DY: 24 See Worksheet PDSM-01  
 Adjusted productivity, CY/HR: 222.8

**MII Assumptions**

<u>Labor Tag</u>	<u>Labor</u>
X-EQOPRHVY	Outside Equip. Operators, Heavy
B-EQOPRCRN	Equip. Operators, Heavy
X-LABORER4	Outside Laborers, Group 4 Skilled
B-LABORER	Laborers, (Semi-Skilled)

<u>Labor Type</u>	<u>Man Hours</u>	<u>Adj. Crew Man Hours</u>
Journeyman	1	2
Journeyman	1	2
Journeyman	1	2
Journeyman	1	2

<u>Equip Tag</u>	<u>Equipment</u>
H25Z3215	HYDRAULIC EXCAVATOR, CRAWLER, 140,000 LB (63,503 KG), 4.00 CY (3.1 M3) BUCKET, 31.4' (9.6 M) MAX DIGGING DEPTH
XX0XX740	WORK BARGE, FLAT DECK, 2000 TON WITH 4 SPUDS
XX0XX800	DUMP SCOW BARGE, 1,500 CY
M10XX019	MARINE EQUIPMENT, ALL OTHER BARGES, HOPPER, 200' X 35' X 12', 1,600 TON (COVERED)
M10XX033	MARINE EQUIPMENT, TUGS, 60 FT LENGTH, 21 FT BEAM, 5'0" DRAFT, 80 TON, TOW BOAT
M10SM004	MARINE EQUIPMENT, BOATS & LAUNCHES, 23' LITTLE GIANT, W/CABIN TRI-HULL, CAP 3,400 LBS, OUTBOARD, 23.4' X 8.5' X 1.2'
U-MISC-010	Miscellaneous Equipment (crane mats, etc.)

<u>Condition</u>	<u>Eq Hours</u>	<u>Adj. Crew Eq. Hours</u>
Average	1	2
Average	1	2
Average	1	2
Average	1	2
Average	1	2
Average	1	2
Average	1	2

**In-Barge Stabilization**

Number of Shifts, EA/DY: 2 See Worksheet PDSM-01  
 Number of Crews, EA/DY: 2 See Worksheet PDSM-01  
 Dredge time, HR/DY: 40 See Worksheet PDSM-01  
 Adjusted productivity, CY/DY: 4,120 See Worksheet PDSM-01  
 Work time, HR/DY: 24  
 Adjusted productivity, CY/HR: 171.7

**MII Assumptions**

<u>Labor Tag</u>	<u>Labor</u>
X-EQOPRHVY	Outside Equip. Operators, Heavy
B-EQOPRCRN	Equip. Operators, Heavy
X-EQOPROIL	Outside Equip. Oilers / Grade Checker
X-LABORER4	Outside Laborers, Group 4 Skilled
B-LABORER	Laborers, (Semi-Skilled)

<u>Labor Type</u>	<u>Man Hours</u>	<u>Adj. Crew Man Hours</u>
Journeyman	2	4
Journeyman	2	4
Journeyman	1	2
Journeyman	2	4
Journeyman	2	4

<u>Equip Tag</u>	<u>Equipment</u>
H25Z3215	HYDRAULIC EXCAVATOR, CRAWLER, 140,000 LB (63,503 KG), 4.00 CY (3.1 M3) BUCKET, 31.4' (9.6 M) MAX DIGGING DEPTH
XX0XX740	WORK BARGE, FLAT DECK, 2000 TON WITH 4 SPUDS
M10XX019	MARINE EQUIPMENT, ALL OTHER BARGES, HOPPER, 200' X 35' X 12', 1,600 TON (COVERED)
M10XX033	MARINE EQUIPMENT, TUGS, 60 FT LENGTH, 21 FT BEAM, 5'0" DRAFT, 80 TON, TOW BOAT
M10SM004	MARINE EQUIPMENT, BOATS & LAUNCHES, 23' LITTLE GIANT, W/CABIN TRI-HULL, CAP 3,400 LBS, OUTBOARD, 23.4' X 8.5' X 1.2'

<u>Condition</u>	<u>Eq Hours</u>	<u>Adj. Crew Eq. Hours</u>
Average	2	4
Average	2	4
Average	5	10
Average	1	2
Average	1	2



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**Description:** Assumptions for crew composition development. Adjusts crew composition based on productivity and duration determination. Adjusted crew man and equipment hours and adjusted productivity used to determine unit costs.

**Barge Transportation to Disposal Facility**

Number of Shifts, EA/DY: 1 *See Worksheet PDSM-01*  
 Number of Crews, EA/DY: 1 *See Worksheet PDSM-01*  
 Barge time to disposal facility, HR: 24 *See Worksheet PDSM-01*  
 Barge time return, HR: 18 *See Worksheet PDSM-01*  
 Total crew time, HR: **42**

**MII Assumptions**

<u>Labor Tag</u>	<u>Labor</u>
X-EQOPRHVY	Outside Equip. Operators, Heavy
X-LABORER4	Outside Laborers, Group 4 Skilled
X-LABORER4	Outside Laborers, Group 4 Skilled

<u>Labor Type</u>	<u>Man Hours</u>	<u>Adj. Crew Man Hours</u>
Journeyman	2	2
Foreman	1	1
Journeyman	1	1

<u>Equip Tag</u>	<u>Equipment</u>
M10XX036	MARINE EQUIPMENT, TUGS, 120 FT LENGTH, 34 FT BEAM, 8'0" DRAFT, 80 TON, TOW BOAT
M10XX019	MARINE EQUIPMENT, ALL OTHER BARGES, HOPPER, 200' X 35' X 12', 1,600 TON (COVERED)

<u>Condition</u>	<u>Eq Hours</u>	<u>Adj. Crew Eq. Hours</u>
Average	1	1
Average	1	1

**Offloading**

Number of Shifts, EA/DY: 2 *See Worksheet PDSM-01*  
 Number of Crews, EA/DY: 2 *See Worksheet PDSM-01*  
 Dredge time, HR/DY: 40 *See Worksheet PDSM-01*  
 Adjusted productivity, CY/DY: **6,864** *See Worksheet PDSM-01*  
 Work time, HR/DY: 24  
 Adjusted productivity, CY/HR: **286.0**

**MII Assumptions**

<u>Labor Tag</u>	<u>Labor</u>
B-EQOPRCRN	Equip. Operators, Heavy
X-LABORER4	Outside Laborers, Group 4 Skilled
X-LABORER4	Outside Laborers, Group 4 Skilled
X-EQOPROIL	Outside Equip. Oilers / Grade Checker

<u>Labor Type</u>	<u>Man Hours</u>	<u>Adj. Crew Man Hours</u>
Journeyman	1	2
Foreman	1	2
Journeyman	2	4
Journeyman	1	2

<u>Equip Tag</u>	<u>Equipment</u>
XX0XX410	BARGE MOUNTED CLAMSHELL, 10 CY CRANE
M10XX022	MARINE EQUIPMENT, BOATS & LAUNCHES, 45' LENGTH, 16' BEAM, 5' 0" DRAFT, PUSH BOAT

<u>Condition</u>	<u>Eq Hours</u>	<u>Adj. Crew Eq. Hours</u>
Average	1	2
Average	1	2



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**Description:** Assumptions for crew composition development. Adjusts crew composition based on productivity and duration determination. Adjusted crew man and equipment hours and adjusted productivity used to determine unit costs.

**Placement - Open Water**

Number of Shifts, EA/DY: 2 *See Worksheet PDSM-01*  
 Number of Crews, EA/DY: 1 *See Worksheet PDSM-01*  
 Placement time, HR/DY: 20 *See Worksheet PDSM-01*  
 Adjusted productivity, CY/DY: **4,574** *See Worksheet PDSM-01*  
 Work time, HR/DY: 24  
 Adjusted productivity, CY/HR: **190.6**

**MII Assumptions**

<u>Labor Tag</u>	<u>Labor</u>
B-EQOPRCRB	Equip. Operators Crane with Boom Pay
X-LABORER4	Outside Laborers, Group 4 Skilled
X-LABORER4	Outside Laborers, Group 4 Skilled
X-EQOPRHVY	Outside Equip. Operators, Heavy
X-EQOPROIL	Outside Equip. Oilers / Grade Checker

<u>Labor Type</u>	<u>Man Hours</u>	<u>Adj. Crew Man Hours</u>
Journeyman	1	1
Journeyman	1	1
Foreman	1	1
Journeyman	2	2
Journeyman	1	1

<u>Equip Tag</u>	<u>Equipment</u>
XX0XX410	BARGE MOUNTED CLAMSHELL, 10 CY CRANE
XX0XX810	DUMP SCOW BARGE, 3,000 CY
M10XX033	MARINE EQUIPMENT, TUGS, 60 FT LENGTH, 21 FT BEAM, 5'0" DRAFT, 80 TON, TOW BOAT
M10SM004	MARINE EQUIPMENT, BOATS & LAUNCHES, 23' LITTLE GIANT, W/CABIN TRI-HULL, CAP 3,400 LBS, OUTBOARD, 23.4' X 8.5' X 1.2'
U-MISC-010	Miscellaneous Equipment (crane mats, etc.)

<u>Condition</u>	<u>Eq Hours</u>	<u>Adj. Crew Eq. Hours</u>
Average	1	1
Average	3	3
Average	1	1
Average	2	2
Average	1	1

**Placement - Confined**

Number of Shifts, EA/DY: 1 *See Worksheet PDSM-01*  
 Number of Crews, EA/DY: 1 *See Worksheet PDSM-01*  
 Placement time, HR/DY: 10 *See Worksheet PDSM-01*  
 Adjusted productivity, CY/DY: **1,166** *See Worksheet PDSM-01*  
 Work time, HR/DY: 12  
 Adjusted productivity, CY/HR: **97.2**

**MII Assumptions**

<u>Labor Tag</u>	<u>Labor</u>
B-EQOPRCRN	Equip. Operators, Heavy
X-EQOPRHVY	Outside Equip. Operators, Heavy
X-LABORER4	Outside Laborers, Group 4 Skilled
X-LABORER4	Outside Laborers, Group 4 Skilled
X-EQOPRMED	Outside Equip. Operators, Medium

<u>Labor Type</u>	<u>Man Hours</u>	<u>Adj. Crew Man Hours</u>
Journeyman	1	1
Journeyman	1	1
Foreman	1	1
Journeyman	2	2
Journeyman	1	1

<u>Equip Tag</u>	<u>Equipment</u>
H25Z3215	HYDRAULIC EXCAVATOR, CRAWLER, 140,000 LB (63,503 KG), 4.00 CY (3.1 M3) BUCKET, 31.4' (9.6 M) MAX DIGGING DEPTH
M10XX033	MARINE EQUIPMENT, TUGS, 60 FT LENGTH, 21 FT BEAM, 5'0" DRAFT, 80 TON, TOW BOAT
M10SM004	MARINE EQUIPMENT, BOATS & LAUNCHES, 23' LITTLE GIANT, W/CABIN TRI-HULL, CAP 3,400 LBS, OUTBOARD, 23.4' X 8.5' X 1.2'
XX0XX740	WORK BARGE, FLAT DECK, 2000 TON WITH 4 SPUDS
XX0XX800	DUMP SCOW BARGE, 1,500 CY
M10XX022	MARINE EQUIPMENT, BOATS & LAUNCHES, 45' LENGTH, 16' BEAM, 5' 0" DRAFT, PUSH BOAT
S30KB033	SCREENING & CRUSHING PLANTS, CONVEYOR, ADJUSTABLE HEIGHT RADIAL STACKER, 36" WIDE X 150' LONG, PORTABLE, 2,000 TPH
U-MISC-010	Miscellaneous Equipment (crane mats, etc.)

<u>Condition</u>	<u>Eq Hours</u>	<u>Adj. Crew Eq. Hours</u>
Average	1	1
Average	1	1
Average	1	1
Average	2	2
Average	2	2
Average	1	1
Average	1	1
Average	1	1



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 JOB NO.: 79171.3383.345  
 CLIENT: EPA Region 10

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 DATE: 3/1/2016  
 CHECKED BY: JN  
 DATE CHECKED: 3/4/2016  
 WRKSHT NO.: CRW-01

**Description:** Assumptions for crew composition development. Adjusts crew composition based on productivity and duration determination. Adjusted crew man and equipment hours and adjusted productivity used to determine unit costs.

**Placement - Organoclay Mat**

Number of Shifts, EA/DY: 1 *See Worksheet PDSM-01*  
 Number of Crews, EA/DY: 1 *See Worksheet PDSM-01*  
 Placement time, HR/DY: 10 *See Worksheet PDSM-01*  
 Adjusted productivity, SF/DY: **12,000** *See Worksheet PDSM-01*  
 Work time, HR/DY: 12  
 Adjusted productivity, SF/HR: **1,000.0**

**MII Assumptions**

<u>Labor Tag</u>	<u>Labor</u>
X-EQOPRHVY	Outside Equip. Operators, Heavy
B-EQOPRCRN	Equip. Operators, Heavy
X-EQOPROIL	Outside Equip. Oilers / Grade Checker
X-EQOPRMED	Outside Equip. Operators, Medium
X-LABORER4	Outside Laborers, Group 4 Skilled
X-LABORER4	Outside Laborers, Group 4 Skilled

<u>Labor Type</u>	<u>Man Hours</u>	<u>Adj. Crew Man Hours</u>
Journeyman	1	<b>1</b>
Journeyman	1	<b>1</b>
Journeyman	1	<b>1</b>
Journeyman	1	<b>1</b>
Foreman	1	<b>1</b>
Journeyman	3	<b>3</b>

<u>Equip Tag</u>	<u>Equipment</u>	<u>Condition</u>	<u>Eq Hours</u>	<u>Adj. Crew Eq. Hours</u>
M10XX033	MARINE EQUIPMENT, TUGS, 60 FT LENGTH, 21 FT BEAM, 5'0" DRAFT, 80 TON, TOW BOAT	Average	1	<b>1</b>
XX0XX520	BARGE MOUNTED CRANE, 150 TON, 150' BOOM, FOR LIFTING	Average	1	<b>1</b>
M10XX005	MARINE EQUIPMENT, FLAT-DECK CARGO BARGE, 120' X 30' X 7.25', 400 TON	Average	1	<b>1</b>
F10Z3040	FORK LIFT, ROUGH TERRAIN, 8,000 LB (3629 KG), 16.0' (4.9 M) HIGH, TELESCOPING MAST	Average	1	<b>1</b>
M10SM004	MARINE EQUIPMENT, BOATS & LAUNCHES, 23' LITTLE GIANT, W/CABIN TRI-HULL, CAP 3,400 LBS, OUTBOARD, 23.4' X 8.5' X 1.2'	Average	1	<b>1</b>





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**Description:** Determine estimated productivities for typical crews including open water dredging, confined dredging, riverbank excavation, in-barge stabilization, off-loading, and placement of various cap materials.

**Open Water Dredging - Clam Shell**

Assumptions

Dredging

Total Hours per Shift, HR: 12  
 Crew shift time, breaks, etc., HR: 2  
 Actual Work Hours per Shift\*, HR: 10

\*Assumes crew shift time, breaks, etc. (approx. 2 hours)

Assumed Bucket Capacity, CY: 10  
 Work Efficiency, %: 90%  
 Operator Ability Correction Factor: 0.9  
 Bucket Fill Factor, %: 60%

Load Time, MIN: 1  
 Swing Time Loaded, MIN: 0.25  
 Dump Time, MIN: 0.20  
 Swing Time Unloaded, MIN: 0.25  
 Maneuver Time, MIN: 0.75

Hauling for Disposal

Travel time to facility per barge, HR: 24  
 Return time per barge, HR: 24  
 Assumed barge capacity, CY: 3000  
 Assumed barge fill factor, %: 95%

Productivity Calculations

Clamshell Volume CY 10  
 Clamshell Fill Factor % 60%  
 Clamshell Payload CY 6  
 Cycle Time MIN/cycle 2.45  
 Cycle/HR 24  
 Ideal Clamshell Productivity BCY/HR 147  
 Work Efficiency % 90%  
 Operator Ability Correction Factor 0.9  
 Dredging Productivity BCY/HR 119.1  
**BCY/SHIFT 1,191**

Barge volume CY 3000  
 Barge Fill Factor % 95%  
 Barge Payload CY 2850  
 Cycle Time HR/cycle 48  
 Barge Productivity CY/HR 59.4  
 CY/DY 2850  
 No. of Barges Anticipated EA/DY 2  
 Adj. Barge Productivity CY/DY 5700

**No. of Shifts EA 2**  
**No. of Crews EA 2**  
**Adj. Dredging Productivity CY/DY 4,764**

**Volume to Dredge CY 513,840**

**Dredge Time DY 108**

**No. of barges needed EA 181**



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**Description:** Determine estimated productivities for typical crews including open water dredging, confined dredging, riverbank excavation, in-barge stabilization, off-loading, and placement of various cap materials.

**Confined Area Dredging - Barge Mounted Excavator**

**Assumptions**

Assumes barge mounted excavator. Assumes excavator similar to CAT 365B or Komatsu PC 600.

Total Hours per Shift, HR:	12
Crew shift time, breaks, etc., HR:	2
Actual Work Hours per Shift*, HR:	10

\*Assumes crew shift time, breaks, etc. (approx. 2 hours)

Assumed Bucket Capacity, CY:	4
Work Efficiency, %:	90%
Operator Ability Correction Factor:	0.9
Bucket Fill Factor, %:	55%

Load Time, MIN:	0.34
Swing Time Loaded, MIN:	0.18
Dump Time, MIN:	0.04
Swing Time Unloaded, MIN:	0.14
Maneuver Time, MIN:	0.8

**Productivity Calculations**

Bucket Volume	CY	4
Bucket Fill Factor	%	55%
Bucket Payload	CY	2.2
Cycle Time	MIN/cycle	1.50
Ideal Loader Productivity	BCY/HR	88
Work Efficiency	%	90%
Operator Ability Correction Factor		0.9
Adjusted Loader Productivity	BCY/HR	71.3
	<b>BCY/SHIFT</b>	<b>595</b>



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 WRKSHT NO.: PD-01

**Description:** Determine estimated productivities for typical crews including open water dredging, confined dredging, riverbank excavation, in-barge stabilization, off-loading, and placement of various cap materials.

**Riverbank Excavation - Barge Mounted Excavator**

**Assumptions**

Assumes barge mounted excavator loading telebelt and material transfer barge. Assumes large excavator similar to CAT 375 or Komatsu PC 1100.

Total Hours per Shift, HR:	12
Crew shift time, breaks, etc., HR:	2
Actual Work Hours per Shift*, HR:	10
Assumed Bucket Capacity, CY:	6.5
Work Efficiency, %:	90%
Operator Ability Correction Factor:	0.9
Bucket Fill Factor, %:	75%
Load Time, MIN:	0.11
Swing Time Loaded, MIN:	0.1
Dump Time, MIN:	0.04
Swing Time Unloaded, MIN:	0.09
Maneuver Time, MIN:	0.5

\*Assumes crew shift time, breaks, etc. (approx. 2 hours)

**Productivity Calculations**

Bucket Volume	CY	6.5
Bucket Fill Factor	%	75%
Bucket Payload	CY	4.875
Cycle Time	MIN/cycle	0.84
Ideal Loader Productivity	BCY/HR	348.3
Work Efficiency	%	90%
Operator Ability Correction Factor		0.9
Adjusted Loader Productivity	BCY/HR	282.1
	<b>BCY/SHIFT</b>	<b>2,821</b>



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**Description:** Determine estimated productivities for typical crews including open water dredging, confined dredging, riverbank excavation, in-barge stabilization, off-loading, and placement of various cap materials.

**Transfer to Hauling Barge - Barge Mounted Excavator**

**Assumptions**

Assumes barge mounted excavator. Assumes excavator similar to CAT 365B or Komatsu PC 600.

Total Hours per Shift, HR:	12
Crew shift time, breaks, etc., HR:	2
Actual Work Hours per Shift*, HR:	10

\*Assumes crew shift time, breaks, etc. (approx. 2 hours)

Assumed Bucket Capacity, CY:	4
Work Efficiency, %:	90%
Operator Ability Correction Factor:	0.9
Bucket Fill Factor, %:	55%

Load Time, MIN:	0.1
Swing Time Loaded, MIN:	0.09
Dump Time, MIN:	0.04
Swing Time Unloaded, MIN:	0.07
Maneuver Time, MIN:	0.5

**Productivity Calculations**

Bucket Volume	CY	4
Bucket Fill Factor	%	55%
Bucket Payload	CY	2.2
Cycle Time	MIN/cycle	0.80
Ideal Loader Productivity	BCY/HR	165
Work Efficiency	%	90%
Operator Ability Correction Factor		0.9
Adjusted Loader Productivity	BCY/HR	133.7
	<b>BCY/SHIFT</b>	<b>1,115</b>



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**Description:** Determine estimated productivities for typical crews including open water dredging, confined dredging, riverbank excavation, in-barge stabilization, off-loading, and placement of various cap materials.

**In-Barge Stabilization**

Assumptions

Total Hours per Shift, HR:	12	
Crew shift time, breaks, etc., HR:	2	
Actual Work Hours per Shift*, HR:	10	<i>Assumes crew shift time, breaks, etc. (approx. 2 hours)</i>
Assumed Bucket Capacity, CY:	4	
Work Efficiency, %:	90%	
Operator Ability Correction Factor:	0.9	
Bucket Fill Factor, %:	90%	
Load Time from Dredge Barge, MIN:	0.1	
Swing Time Loaded to Mix Barge, MIN:	0.09	
Dump Time, MIN:	0.04	
Mix Time, MIN:	1	
Load Time from Mix Barge, MIN:	0.1	
Swing Time Loaded to Haul Barge, MIN:	0.09	
Dump Time, MIN:	0.04	
Swing Time Unloaded to Dredge Barge, MIN:	0.14	
Maneuver Time, MIN:	0.1	

Productivity Calculations

Bucket Volume	CY	4
Bucket Fill Factor	%	90%
Bucket Payload	CY	3.6
Cycle Time	MIN/cycle	1.7
Ideal Loader Productivity	BCY/HR	127.1
Work Efficiency	%	90%
Operator Ability Correction Factor		0.9
Adjusted Loader Productivity	BCY/HR	103
	<b>BCY/SHIFT</b>	<b>1,030</b>



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**Description:** Determine estimated productivities for typical crews including open water dredging, confined dredging, riverbank excavation, in-barge stabilization, off-loading, and placement of various cap materials.

**Offloading - Clam Shell**

Assumptions

Total Hours per Shift, HR:	12	
Crew shift time, breaks, etc., HR:	2	
Actual Work Hours per Shift*, HR:	10	<i>Assumes crew shift time, breaks, etc. (approx. 2 hours)</i>
Assumed Bucket Capacity, CY:	10	
Work Efficiency, %:	90%	
Operator Ability Correction Factor:	0.9	
Bucket Fill Factor, %:	60%	
Load Time, MIN:	0.5	
Swing Time Loaded, MIN:	0.25	
Dump Time, MIN:	0.2	
Swing Time Unloaded, MIN:	0.25	
Maneuver Time, MIN:	0.5	

Productivity Calculations

Bucket Volume	CY	10
Bucket Fill Factor	%	60%
Bucket Payload	CY	6
Cycle Time	MIN/cycle	1.7
Ideal Loader Productivity	BCY/HR	211.8
Work Efficiency	%	90%
Operator Ability Correction Factor		0.9
Adjusted Loader Productivity	BCY/HR	171.6
	<b>BCY/SHIFT</b>	<b>1,716</b>



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**Description:** Determine estimated productivities for typical crews including open water dredging, confined dredging, riverbank excavation, in-barge stabilization, off-loading, and placement of various cap materials.

**Placement - Clam Shell**

Assumptions

Total Hours per Shift, HR:	12	
Crew shift time, breaks, etc., HR:	2	
Actual Work Hours per Shift*, HR:	10	<i>Assumes crew shift time, breaks, etc. (approx. 2 hours)</i>
Assumed Bucket Capacity, CY:	10	
Work Efficiency, %:	90%	
Operator Ability Correction Factor:	0.9	
Bucket Fill Factor, %:	80%	
Load Time, MIN:	0.5	
Swing Time Loaded, MIN:	0.25	
Dump Time, MIN:	0.2	
Swing Time Unloaded, MIN:	0.25	
Maneuver Time, MIN:	0.5	

Productivity Calculations

Bucket Volume	CY	10
Bucket Fill Factor	%	80%
Bucket Payload	CY	8
Cycle Time	MIN/cycle	1.7
Ideal Loader Productivity	BCY/HR	282.4
Work Efficiency	%	90%
Operator Ability Correction Factor		0.9
Adjusted Loader Productivity	BCY/HR	228.7
	<b>BCY/SHIFT</b>	<b>2,287</b>



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 WRKSHT NO.: PD-01

**Description:** Determine estimated productivities for typical crews including open water dredging, confined dredging, riverbank excavation, in-barge stabilization, off-loading, and placement of various cap materials.

**Placement - Confined**

**Assumptions**

Assumes barge mounted excavator loading telebelt. Assumes large excavator similar to CAT 375 or Komatsu PC 1100.

Total Hours per Shift, HR:	12
Crew shift time, breaks, etc., HR:	2
Actual Work Hours per Shift*, HR:	10

\*Assumes crew shift time, breaks, etc. (approx. 2 hours)

Assumed Bucket Capacity, CY:	4
Work Efficiency, %:	90%
Operator Ability Correction Factor:	0.9
Bucket Fill Factor, %:	90%

Load Time, MIN:	0.34
Swing Time Loaded, MIN:	0.18
Dump Time, MIN:	0.04
Swing Time Unloaded, MIN:	0.14
Maneuver Time, MIN:	0.8

**Productivity Calculations**

Bucket Volume	CY	4
Bucket Fill Factor	%	90%
Bucket Payload	CY	3.6
Cycle Time	MIN/cycle	1.5
Ideal Loader Productivity	BCY/HR	144
Work Efficiency	%	90%
Operator Ability Correction Factor		0.9
Adjusted Loader Productivity	BCY/HR	116.6
	<b>BCY/SHIFT</b>	<b>1,166</b>





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PAGE NO.: PD-02

**Description:** Determine the productivity of loading/transporting quicklime to the site.

**Hauling Productivity Determination**

<b>Assumed Payload Capacity, TON:</b>	<b>25</b>
<b>Work Efficiency, %:</b>	<b>90%</b>
<b>Average Distance for Haul, MI:</b>	<b>10</b>
<b>Average Speed, MPH:</b>	<b>30</b>
<b>Unloaded Haul Time, MIN:</b>	<b>20</b>
<b>Loaded Haul Time (20% additional time), MIN:</b>	<b>24</b>

Payload Capacity	TON/truck	25
Hours per Shift	HR/DY	7
Work Efficiency	%	90%
Load Time per Truck	MIN	<b>10.0</b>
Dump and Maneuver Time	MIN	<b>10.0</b>
On Road Haul Time	MIN	24
On Road Return Time	MIN	20
Cycle Time per Truck	MIN/cycle	64.0
Cycle Time per Truck	HR/cycle	1.07
Ideal Cycles Per Day	Cyc/Truck/DY	7
Ideal Productivity per Truck	TON/HR	25
<b>Adjusted Productivity per Truck</b>	<b>TON/HR</b>	<b>22.5</b>



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 WRKSHT NO.: PD-03

**Description:** General assumptions for loading sediments onto trucks at the offsite transload facility and hauling of the sediments to a Subtitle C for disposal.

**Productivity Determinations - Load and Haul - Subtitle C Waste**

**Loader and Hauling**

Excavator Productivity Determination

**Assumed Bucket Capacity, CY:** 4  
**Hours per Shift, HR:** 7  
**Work Efficiency, %:** 70%  
**Operator Ability Correction Factor:** 0.9

Hauling Productivity Determination

**Hours per Shift, HR:** 7  
**Assumed Payload Capacity, LCY:** 22  
**Work Efficiency, %:** 90%  
**Estimated haul distance, MI:** 45  
**Assumed Average Haul Speed, MPH:** 50  
**Assumed Average Return Speed, MPH:** 55  
**Payload Fill Factor:** 90%

Summary

	<u>Number</u>	<u>Prod</u>	<u>Units</u>
Loader	1.0	115.5	LCY/HR
Laborer (Loading)	1.0	HR/Loader	HR
Haul Trucks	15.0	115.5	LCY/HR

<sup>1</sup> (Ref: CAT Performance Handbook-40, Page 12-108)  
<sup>2</sup> (Ref: CAT Performance Handbook-40, Page 12-107)

Bucket Size	CY	4
	Moist loam	
Bucket Fill Factor <sup>1</sup>	%	100%
Bucket Payload	CY	4.0
Work Efficiency	%	70%
Operator Ability Correction Factor	Factor	0.9
Total Cycle Time <sup>2</sup>	Min/Cycle	0.55
Ideal Loader Productivity	LCY/HR	436.4
Adjusted Loader Productivity	LCY/HR	274.9
<b>Total Loader Productivity</b>	<b>LCY/HR</b>	<b>274.9</b>
Number of Excavators Anticipated		<b>1</b>
Total Excavator Productivity	LCY/HR	274.9
	LCY/DY	1924.3
Volume to Load	LCY	125,036
Loading Time	HR	455
Haul Time	HR	1083
Est total time to completion	HR	1083
<b>Imp. loader productivity</b>	<b>LCY/HR</b>	<b>115.5</b>

Assumed Payload Capacity	LCY/truck	20
Hours per Shift	HR/DY	7
Work Efficiency	%	90%
Adjusted Loading Productivity	LCY/HR	274.9
Load Time per Truck	MIN	4.8
Dump and Maneuver Time	MIN	<b>20</b>
Loaded Haul Time	MIN	54.0
Unloaded Return Time	MIN	49.1
Cycle Time per Truck	MIN/cycle	127.9
Cycle Time per Truck	HR/cycle	2.14
Ideal Cycles Per Day	Cyc/Truck/DY	3
Ideal Productivity per Truck	LCY/HR	8.6
Adjusted Productivity per Truck	LCY/HR	7.7
Number of Haul Trucks Anticipated		<b>15</b>
Total Hauling Productivity	LCY/HR	115.5
	LCY/DY	808.5
Volume to Haul	LCY	125,036
Haul Time	HR	1083
Excavation Time	HR	455
Est total time to completion	HR	1083
<b>Imp. hauling productivity</b>	<b>LCY/HR</b>	<b>115.5</b>





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**Description:** Determination of base wage rates for general construction personnel (i.e., labor, equipment operators, etc.). Wage rates based on Foreign Labor Certification (FLC) Data Center Online Wage Library (flcdatacenter.com) or base wage rates from Davis-Bacon determinations for Multnomah County, Oregon obtained February 2016. Fringe rates were assumed where Davis-Bacon determination did not set fringe rates. Payroll taxes and insurance are included in the MII estimate calculations.

**Craft Labor Rates**

<u>Source Tag</u>	<u>Labor Category</u>	<u>Designated Labor Category</u>	<u>Hourly</u>	<u>Fringe</u>	<u>Year</u>	<u>Source</u>
B-SKILLWKR	Skilled Workers		-	-	-	Average of all labor rates
B-LABORER	Laborers, (Semi-Skilled)	Laborer - Shore	\$27.44	\$13.10	2016	LABO0003-023 - Group 2
B-LABORER G	Laborers, General (Lowest paid)		\$26.43	\$13.10	2016	LABO0003-023 - Group 1
X-LABORER	Outside Laborers, (Semi-Skilled)	Diver	\$29.16	\$6.33	2016	FLC 49-9092.00 Level 4
B-EQOPRCRB	Equip. Operators Crane with Boom Pay	Crane Operator, Dredge Operator	\$45.96	\$14.35	2016	ENGI0701-004 - Leverman, Dipper
B-EQOPRCRN	Equip. Operators, Heavy	Operator - Shore Dredging Excavator	\$37.58	\$14.10	2016	ENGI0701-034 - Group 2
B-EQOPRMED	Equip. Operators, Medium		\$36.44	\$14.10	2016	ENGI0701-034 - Group 3
B-EQOPRLT	Equip. Operators, Light		\$35.36	\$14.10	2016	ENGI0701-034 - Group 4
X-EQOPRHVY	Outside Equip. Operators, Heavy	Captain, Tug Captain, Derrick Captain	\$43.15	\$9.36	2016	FLC 17-3011.00 Level 3
X-EQOPRMED	Outside Equip. Operators, Medium	Boat Operator, Operator	\$42.80	\$14.35	2016	ENGI0701-004 - Asst. Engineer
X-EQOPROIL	Outside Equip. Oilers / Grade Checker	Oiler	\$41.31	\$14.35	2016	ENGI0701-004 - Tenderman
B-TRKDVRHV	Truck Drivers, Heavy	Teamster - Truck Driver	\$27.41	\$14.37	2016	TEAM0037-010 - Group 4
B-TRKDVRLT	Truck Drivers, Light		\$26.90	\$14.37	2016	TEAM0037-010 - Group 1
X-LABORER4	Outside Laborers, Group 4 Skilled	Laborer, Work Boat Laborer, Deck Hand, Teamster	\$37.44	\$14.35	2016	ENGI0701-004 - Asst. Mate

<u>Source Tag</u>	<u>Labor Category</u>		<u>Hourly</u>	<u>Taxable Fringe</u>	<u>Non-Tax Fringe<sup>1</sup></u>	<u>Total</u>
B-SKILLWKR	Skilled Workers	-	\$36.56	\$12.72	\$0.00	\$49.29
B-LABORER	Laborers, (Semi-Skilled)	Laborer - Shore	\$27.44	\$13.10	\$0.00	\$40.54
B-LABORER G	Laborers, General (Lowest paid)	-	\$26.43	\$13.10	\$0.00	\$39.53
B-EQOPRCRB	Equip. Operators Crane with Boom Pay	Crane Operator, Dredge Operator	\$45.96	\$14.35	\$0.00	\$60.31
B-EQOPRCRN	Equip. Operators, Heavy	Operator - Shore Dredging Excavator	\$37.58	\$14.10	\$0.00	\$51.68
B-EQOPRMED	Equip. Operators, Medium	-	\$36.44	\$14.10	\$0.00	\$50.54
B-EQOPRLT	Equip. Operators, Light	-	\$35.36	\$14.10	\$0.00	\$49.46
X-EQOPRHVY	Outside Equip. Operators, Heavy	Captain, Tug Captain, Derrick Captain	\$43.15	\$9.36	\$0.00	\$52.51
X-EQOPRMED	Outside Equip. Operators, Medium	Boat Operator, Operator	\$42.80	\$14.35	\$0.00	\$57.15
X-EQOPROIL	Outside Equip. Oilers / Grade Checker	Oiler	\$41.31	\$14.35	\$0.00	\$55.66
B-TRKDVRHV	Truck Drivers, Heavy	Teamster - Truck Driver	\$27.41	\$14.37	\$0.00	\$41.78
B-TRKDVRLT	Truck Drivers, Light	-	\$26.90	\$14.37	\$0.00	\$41.27
X-LABORER4	Outside Laborers, Group 4 Skilled	Laborer, Work Boat Laborer, Deck Hand, Teamster	\$37.44	\$14.35	\$0.00	\$51.79

**Notes**

1 - Non-taxable fringe is taken out of Taxable Fringe but is set at \$0.00 in MII per the U.S. Army Corps of Engineers.



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 DATE CHECKED: 3/4/2016  
 WRKSHT NO.: EQ-01

**Description:** Determination of backup for equipment rate updates. Information presented should represent the information that is used to update the project's MII equipment library. Region specific factors and shipping rates can be found in the region specific *Construction Equipment Ownership and Operating Expense Schedule* (EP 1110-1-8 - <http://www.nww.usace.army.mil/Missions/CostEngineering.aspx>).

**Library Detail**

**Area Location:** 08 NORTHWEST

**Title:** EP14R08

**Note:** 2014 Region 8 equipment library updated with February 2016 COM and area specific sales tax, electricity, gas, and diesel fuel costs for Multnomah County, Oregon.

**Factors**

<b>Sales Tax, %:</b>	<b>0.00</b>	<i>State and local sales tax rate - search internet</i>
<b>Working Hours/Year (WHPY), HR/YR:</b>	<b>1,540</b>	<i>See region specific Construction Equipment Ownership and Operating Expense Schedule (EP 1110-1-8)</i>
<b>Labor Adjustment Factor:</b>	<b>1.06</b>	<i>See region specific Construction Equipment Ownership and Operating Expense Schedule (EP 1110-1-8)</i>
<b>COM, %:</b>	<b>2.5</b>	<a href="https://www.fiscal.treasury.gov/fservices/gov/pmt/promptPayment/promptPayment_home.htm">https://www.fiscal.treasury.gov/fservices/gov/pmt/promptPayment/promptPayment_home.htm</a>
<b>COM Disc., %:</b>	<b>25</b>	<i>See region specific Construction Equipment Ownership and Operating Expense Schedule (EP 1110-1-8)</i>

**Fuels**

<b>Electricity, \$/KWH:</b>	<b>\$0.0884</b>	<a href="http://www.eia.gov/electricity/monthly/">http://www.eia.gov/electricity/monthly/</a> <i>See Table 5.6.A - End-Use Sector, by State - commercial rate</i>
<b>Gas, \$/GAL:</b>	<b>\$1.923</b>	<a href="http://fuelgaugereport.aaa.com/todays-gas-prices/">http://fuelgaugereport.aaa.com/todays-gas-prices/</a>
Federal Diesel Tax, \$/GAL:	\$0.244	
State Diesel Tax, \$/GAL:	\$0.3035	<a href="http://www.api.org/Oil-and-Natural-Gas-Overview/Industry-Economics/Fuel-Taxes">http://www.api.org/Oil-and-Natural-Gas-Overview/Industry-Economics/Fuel-Taxes</a>
<b>Diesel (Off-Road), \$/GAL:</b>	<b>\$1.471</b>	<i>On-Road diesel minus fuel taxes</i>
<b>Diesel (On-Road), \$/GAL:</b>	<b>\$2.018</b>	<a href="http://fuelgaugereport.aaa.com/todays-gas-prices/">http://fuelgaugereport.aaa.com/todays-gas-prices/</a>

Estimated by CDM Smith

Designed by CDM Smith

Prepared by Marc Schlebusch

Preparation Date 3/28/2016

Effective Date of Pricing 3/28/2016

Estimated Construction Time Days

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Markup Properties..... ii

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**20 Confined Dredging with Excavator ..... 1**

**30 Riverbank Excavation..... 1**

**40 Dewatering and Water Treatment..... 1**

        10 Mobilization/Demobilization ..... 1

        20 Dewatering and Treatment..... 1

**50 Transfer ..... 1**

        10 Open Water Dredging..... 2

        20 Confined Dredging ..... 2

**60 In-Barge Stabilization ..... 2**

**70 Barge Transportation to Disposal Offload Facility ..... 2**

**80 Offloading..... 2**

**90 Placement ..... 2**

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Designed by  
CDM Smith  
Estimated by  
CDM Smith  
Prepared by  
Marc Schlebusch

Design Document  
Document Date 3/28/2016  
District  
Contact Marc Schlebusch  
Budget Year 2016  
UOM System Original

**Direct Costs**

LaborCost  
EQCost  
MatlCost  
SubBidCost

**Timeline/Currency**

Preparation Date 3/28/2016  
Escalation Date 3/28/2016  
Eff. Pricing Date 3/28/2016  
Estimated Duration 0 Day(s)

Currency US dollars  
Exchange Rate 1.000000

**Costbook CB10EB: MII English Cost Book 2010**

**Labor MC\_OR\_2016: MCOR\_022016**

**Note: Labor costs updated with local labor costs (Davis-Bacon or FLCdatacenter.com), February 2016.**

**Labor Rates**

LaborCost1  
LaborCost2  
LaborCost3  
LaborCost4

**Equipment EP14R08: MII Equipment 2014 Region 08**

**Note: 2014 Region 8 equipment library updated with February 2016 COM and area specific sales tax, electricity, gas, and diesel fuel costs for Multnomah County, Oregon.**

**08 NORTHWEST**

Sales Tax 0.00  
Working Hours per Year 1,540  
Labor Adjustment Factor 1.06  
Cost of Money 2.50  
Cost of Money Discount 25.00  
Tire Recap Cost Factor 1.50  
Tire Recap Wear Factor 1.80  
Tire Repair Factor 0.15  
Equipment Cost Factor 1.00  
Standby Depreciation Factor 0.50

**Fuel**

Electricity 0.088  
Gas 1.923  
Diesel Off-Road 1.471  
Diesel On-Road 2.018

**Shipping Rates**

Over 0 CWT 30.86  
Over 240 CWT 29.05  
Over 300 CWT 26.59  
Over 400 CWT 24.30  
Over 500 CWT 11.26  
Over 700 CWT 9.51  
Over 800 CWT 6.48



**Direct Cost Markups**

	<b>Category</b>			<b>Method</b>		
	Productivity	Overtime		Productivity	Overtime	
	<i>Days/Week</i>	<i>Hours/Shift</i>	<i>Shifts/Day</i>	<i>1st Shift</i>	<i>2nd Shift</i>	<i>3rd Shift</i>
Standard	5.00	8.00	2.00	8.00	8.00	0.00
Actual	6.00	8.00	2.00	12.00	12.00	0.00

<i>Day</i>	<i>OT Factor</i>	<i>Working</i>	<i>OT Percent</i>	<i>FCCM Percent</i>
Monday	1.00	Yes	13.89	(72.22)
Tuesday	1.00	Yes		
Wednesday	1.00	Yes		
Thursday	1.50	Yes		
Friday	1.50	Yes		
Saturday	1.50	Yes		
Sunday	1.50	No		

Sales Tax TaxAdj Running % on Selected Costs  
 MatlCost

**Contractor Markups**

	<b>Category</b>	<b>Method</b>
JOOH	JOOH	Running %
HOOH	HOOH	Running %
Profit	Profit	Running %
Bond	Bond	Bond Table
<i>HTRW (Other), Banded, 24 months, 1.00% Surcharge</i>		

<i>Contract Price</i>	<i>Bond Rate</i>
0	4.40
3,000,000	3.85
5,000,000	3.30
7,500,000	2.75

Excise Tax Excise Running %

**Owner Markups**

	<b>Category</b>	<b>Method</b>
Escalation	Escalation	Escalation
	<i>StartDate</i>	<i>StartIndex</i>
		<i>EndDate</i>
		<i>EndIndex</i>
		<i>Escalation</i>
Contingency	Contingency	Running %
SIOH	SIOH	Running %

Description	Quantity	UOM	BareCost	DirectCost	CostToPrime	ContractCost
<b>Project Cost Summary Report</b>			<b>352,320</b>	<b>396,333</b>	<b>515,399</b>	<b>693,512</b>
<b>10 Open Water Dredging with Clamshell</b>	<b>4,764.00</b>	<b>CY</b>	<b>57,549</b>	<b>64,776</b>	<b>86,846</b>	<b>116,858</b>
USR U-B-DREDGE-100 Open Water Dredging with Clamshell	4,764.00	CY	52,135	58,016	78,066	105,044
USR U-B-MANAGE-400 Local Scow Transport - Open Water Dredging	3.00	EA	1,010	1,206	1,623	2,183
USR U-B-SURVEY-100 Surveying Crew/Boat - 2 shifts	1.00	DAY	4,403	5,553	7,158	9,631
<b>20 Confined Dredging with Excavator</b>	<b>1,426.00</b>	<b>CY</b>	<b>21,845</b>	<b>24,728</b>	<b>32,959</b>	<b>44,348</b>
USR U-B-DREDGE-200 Confined Dredging with Excavator	1,426.00	CY	16,769	18,371	24,719	33,262
USR U-B-DREDGE-410 Local Scow Transport -Scow Transport - Confined Dredging or Riverbank Excavation	2.00	EA	673	804	1,082	1,456
USR U-B-SURVEY-100 Surveying Crew/Boat - 2 shifts	1.00	DAY	4,403	5,553	7,158	9,631
<b>30 Riverbank Excavation</b>	<b>2,821.00</b>	<b>CY</b>	<b>7,111</b>	<b>8,083</b>	<b>10,876</b>	<b>14,634</b>
USR U-B-DREDGE-300 Riverbank Excavation	2,821.00	CY	6,438	7,279	9,794	13,179
USR U-B-DREDGE-410 Local Scow Transport - Scow Transport - Confined Dredging or Riverbank Excavation	2.00	EA	673	804	1,082	1,456
<b>40 Dewatering and Water Treatment</b>	<b>1.00</b>	<b>LS</b>	<b>41,149</b>	<b>43,293</b>	<b>43,293</b>	<b>58,254</b>
<b>10 Mobilization/Demobilization</b>	<b>1.00</b>	<b>EA</b>	<b>27,200</b>	<b>27,200</b>	<b>27,200</b>	<b>36,600</b>
USR U-B-MANAGE-150 Delivery/pick-up fees for frac tank rental	4.00	EA	1,200	1,200	1,200	1,615
USR U-B-MANAGE-170 Delivery/pick-up fees for temporary water treatment plant rental	1.00	LS	26,000	26,000	26,000	34,985
<b>20 Dewatering and Treatment</b>	<b>1.00</b>	<b>DAY</b>	<b>13,949</b>	<b>16,093</b>	<b>16,093</b>	<b>21,654</b>
USR U-B-MANAGE-100 Dewatering and Water Treatment	1.00	DAY	11,497	13,641	13,641	18,355
USR U-B-MANAGE-180 Temporary water treatment plant rental	1.00	DAY	692	692	692	932
USR U-B-MANAGE-190 Carbon disposal	0.17	EA	1,670	1,670	1,670	2,247
USR U-B-MANAGE-160 Frac tank rental	2.00	DAY	90	90	90	121
<b>50 Transfer</b>	<b>1.00</b>	<b>LS</b>	<b>62,773</b>	<b>71,854</b>	<b>96,686</b>	<b>130,099</b>

Description	Quantity	UOM	BareCost	DirectCost	CostToPrime	ContractCost
<b>10 Open Water Dredging</b>	<b>5,348.00</b>	<b>CY</b>	<b>32,596</b>	<b>37,136</b>	<b>49,970</b>	<b>67,239</b>
USR U-B-MANAGE-200 Transfer Non-Stabilized Material - Open Water Dredging	5,348.00	CY	32,596	37,136	49,970	67,239
<b>20 Confined Dredging</b>	<b>5,348.00</b>	<b>CY</b>	<b>30,177</b>	<b>34,718</b>	<b>46,716</b>	<b>62,860</b>
USR U-B-MANAGE-210 Transfer Non-Stabilized Material - Confined Dredging	5,348.00	EA	30,177	34,718	46,716	62,860
<b>60 In-Barge Stabilization</b>	<b>4,120.00</b>	<b>CY</b>	<b>48,430</b>	<b>55,759</b>	<b>75,028</b>	<b>100,957</b>
USR U-B-MANAGE-200 In-Barge Stabilization	4,120.00	CY	48,430	55,759	75,028	100,957
<b>70 Barge Transportation to Disposal Offload Facility</b>	<b>1.00</b>	<b>EA</b>	<b>21,586</b>	<b>23,629</b>	<b>30,455</b>	<b>40,980</b>
USR U-B-MANAGE-400 Barging to Disposal Offload Facility	42.00	HR	21,586	23,629	30,455	40,980
<b>80 Offloading</b>	<b>6,864.00</b>	<b>CY</b>	<b>32,740</b>	<b>36,779</b>	<b>49,489</b>	<b>66,592</b>
USR U-B-MANAGE-500 Offloading	6,864.00	CY	32,740	36,779	49,489	66,592
<b>90 Placement</b>	<b>1.00</b>	<b>EA</b>	<b>59,099</b>	<b>67,393</b>	<b>89,726</b>	<b>120,734</b>
<b>10 Open Water Placement</b>	<b>4,574.00</b>	<b>CY</b>	<b>28,789</b>	<b>31,611</b>	<b>42,221</b>	<b>56,811</b>
USR U-B-PLACE-110 Placement - Open Water	4,574.00	CY	24,386	26,058	35,063	47,180
USR U-B-SURVEY-100 Surveying Crew/Boat - 2 Shifts	1.00	DAY	4,403	5,553	7,158	9,631
<b>20 Confined Placement</b>	<b>1,166.00</b>	<b>CY</b>	<b>11,548</b>	<b>13,251</b>	<b>17,673</b>	<b>23,780</b>
USR U-B-PLACE-210 Placement - Confined Area	1,166.00	CY	9,347	10,474	14,094	18,965
USR U-B-SURVEY-110 Surveying Crew/Boat - 1 Shift	1.00	DAY	2,202	2,777	3,579	4,816
<b>40 Organoclay Mat Placement</b>	<b>12,000.00</b>	<b>SF</b>	<b>18,762</b>	<b>22,530</b>	<b>29,833</b>	<b>40,142</b>
USR U-B-PLACE-300 Placement - Organoclay Mat	12,000.00	SF	11,157	12,794	17,215	23,164

Description	Quantity	UOM	BareCost	DirectCost	CostToPrime	ContractCost
USR U-B-SURVEY-110 Surveying Crew/Boat - 1 Shift	1.00	DAY	2,202	2,777	3,579	4,816
USR U-B-PLACE-400 Divers	12.00	HR	366.03 4,392	479.52 5,754	618.04 7,416	831.62 9,979
USR U-B-MANAGE-420 Local Barge Movement	3.00	EA	336.75 1,010	401.98 1,206	540.89 1,623	727.82 2,183
<b>100 Mixing Sand &amp; Carbon for Reactive Layer</b>	<b>1.00</b>	<b>CY</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>
USR MIX-SAND-CARB Mixing Sand & Carbon for Reactive Layer	1.00	CY	2.29 2	2.63 3	3.53 4	4.76 5
<b>110 Loading Trucks at Transload Facility</b>	<b>1.00</b>	<b>CY</b>	<b>1</b>	<b>1</b>	<b>2</b>	<b>3</b>
USR LOAD-TRANS Loading Trucks at Transload Facility	1.00	CY	1.31 1	1.48 1	2.00 2	2.68 3
<b>120 Trucking Waste from Transload Facility to Landfill</b>	<b>1.00</b>	<b>CY</b>	<b>11</b>	<b>12</b>	<b>12</b>	<b>17</b>
USR HAUL-WASTE Trucking Waste from Transload Facility to Landfill	1.00	CY	11.48 11	12.41 12	12.41 12	16.70 17
<b>130 18' Boat</b>	<b>1.00</b>	<b>HR</b>	<b>19</b>	<b>19</b>	<b>19</b>	<b>25</b>
MAP M10SM005 MARINE EQUIPMENT, BOATS & LAUNCHES, 18' RIVER RUNNER, VEE HULL, NO CABIN, CAP 1,350 LBS, OUTBOARD, 18' X 7.9' X 0.5'	1.00	HR	18.89 19	18.89 19	18.89 19	25.42 25
<b>140 Hauling Quicklime to Site</b>	<b>1.00</b>	<b>TON</b>	<b>4</b>	<b>4</b>	<b>4</b>	<b>6</b>
USR HAUL-LIME Hauling Quicklime to Site	1.00	TON	3.93 4	4.25 4	4.25 4	5.71 6

Description	CrewHours	MemberType	MemberRate	ManHours	LaborCost	EQHours	EQCost	CrewCost
<b>Crews (Bare Costs) by Contractor, Report</b>	<b>388.19</b>			<b>2,788.21</b>	<b>143,596.37</b>	<b>3,218.39</b>	<b>179,052.73</b>	<b>322,649.10</b>
<b>General Contractor</b>	<b>388.19</b>		<b>0.00</b>	<b>2,788.21</b>	<b>143,596.37</b>	<b>3,218.39</b>	<b>179,052.73</b>	<b>322,649.10</b>
USR HAUL-LIME Hauling Quicklime to Site	0.04			1.00 0.04	41.78 1.86	2.00 0.09	46.58 2.07	88.36 3.93
MIL B-TRKDVRHV Truck Drivers, Heavy		Journeyman	41.78	1.00	41.78			
GEN T45Z7205 TRUCK TRAILER, END DUMP, 28 CY (21 M3), 36 TON (32.7 MT) (ADD 50,000 LB (22,680 KG) GVW TRUCK)		EP / Average	7.42			1.00	7.42	
GEN T50Z7630 TRUCK, HIGHWAY, 65,000 LB (29,484 KG) GVW, 6X6, 3 AXLE (ADD ACCESSORIES)		EP / Average	39.16			1.00	39.16	
USR HAUL-WASTE Hauling Waste to Landfill	0.13			1.00 0.13	41.78 5.43	2.00 0.26	46.58 6.05	88.36 11.48
MIL B-TRKDVRHV Truck Drivers, Heavy		Journeyman	41.78	1.00	41.78			
GEN T45Z7205 TRUCK TRAILER, END DUMP, 28 CY (21 M3), 36 TON (32.7 MT) (ADD 50,000 LB (22,680 KG) GVW TRUCK)		EP / Average	7.42			1.00	7.42	
GEN T50Z7630 TRUCK, HIGHWAY, 65,000 LB (29,484 KG) GVW, 6X6, 3 AXLE (ADD ACCESSORIES)		EP / Average	39.16			1.00	39.16	
USR U-B-MANAGE-100 Dewatering	24.00			6.00 144.00	312.74 7,505.75	22.00 528.00	166.31 3,991.37	479.05 11,497.13
RSM X-LABORER4 Outside Laborers, Group 4 Skilled		Journeyman	51.79	4.00	207.16			
RSM X-LABORER4 Outside Laborers, Group 4 Skilled		Foreman	52.79	2.00	105.58			
EP M10SM004 MARINE EQUIPMENT, BOATS & LAUNCHES, 23' LITTLE GIANT, W/CABIN TRI-HULL, CAP 3,400 LBS, OUTBOARD, 23.4' X 8.5' X 1.2'		EP / Average	43.20			2.00	86.40	
MAP P50GR008 PUMP, WATER, CENTRIFUGAL, TRASH, HOSE, DISCH, 6" DIA X 50' WITH COUPLING (PER SECTION)		EP / Average	0.36			12.00	4.28	
MAP P50WC004 PUMP, WATER, CENTRIFUGAL, TRASH, ENGINE DRIVE, 6" DIA, 1,300 GPM @ 100' HEAD, TRAILER MTD (ADD HOSES)		EP / Average	5.75			4.00	23.00	
GEN P50Z5099 PUMP, WATER, CENTRIFUGAL, TRASH, HOSE, SUCTION/DISCH, 6" (150 MM) DIA X 50' (15 M) WITH COUPLING (PER SECTION)		EP / Average	0.36			2.00	0.71	
NON XX0XX740 WORK BARGE, FLAT DECK, 2000 TON WITH 4 SPUDS		Non-EP / Average	25.96			2.00	51.92	
<b>Surveying Subcontractor</b>	<b>96.00</b>		<b>0.00</b>	<b>288.00</b>	<b>13,465.93</b>	<b>96.00</b>	<b>4,147.11</b>	<b>17,613.05</b>
USR U-B-SURVEY-100 Survey Crew/Boat	96.00			3.00 288.00	140.27 13,465.93	1.00 96.00	43.20 4,147.11	183.47 17,613.05
FOP FC-SURYR Surveyors		Journeyman	35.46	1.00	35.46			
MIL X-EQOPRMD Outside Equip. Operators, Medium		Journeyman	57.15	1.00	57.15			
FOP FC-SURYC Surveyors, Chief		Journeyman	47.66	1.00	47.66			
EP M10SM004 MARINE EQUIPMENT, BOATS & LAUNCHES, 23' LITTLE GIANT, W/CABIN TRI-HULL, CAP 3,400 LBS,		EP / Average	43.20			1.00	43.20	

Description	CrewHours	MemberType	MemberRate	ManHours	LaborCost	EQHours	EQCost	CrewCost
OUTBOARD, 23.4' X 8.5' X 1.2'								
<b>Barging Subcontractor</b>	<b>42.00</b>		<b>0.00</b>	<b>168.00</b>	<b>8,803.20</b>	<b>126.00</b>	<b>12,782.36</b>	<b>21,585.56</b>
				<i>4.00</i>	<i>209.60</i>	<i>3.00</i>	<i>304.34</i>	<i>513.94</i>
USR U-B-DREDGE-500 Barge Transport to Disposal Facility	42.00			168.00	8,803.20	126.00	12,782.36	21,585.56
RSM X-LABORER4 Outside Laborers, Group 4 Skilled		Journeyman	51.79	1.00	51.79			
MIL X-EQOPRHVY Outside Equip. Operators, Heavy		Journeyman	52.51	2.00	105.02			
RSM X-LABORER4 Outside Laborers, Group 4 Skilled		Foreman	52.79	1.00	52.79			
EP M10XX019 MARINE EQUIPMENT, ALL OTHER BARGES, HOPPER, 200' X 35' X 12', 1,600 TON (COVERED)		EP / Average	23.05			2.00	46.10	
EP M10XX036 MARINE EQUIPMENT, TUGS, 120 FT LENGTH, 34 FT BEAM, 8'0" DRAFT, 80 TON, TOW BOAT		EP / Average	258.25			1.00	258.25	
<b>Dredging Subcontractor</b>	<b>214.02</b>		<b>0.00</b>	<b>2,092.03</b>	<b>109,875.32</b>	<b>2,444.04</b>	<b>157,670.33</b>	<b>267,545.65</b>
				<i>2.00</i>	<i>91.71</i>	<i>1.00</i>	<i>59.67</i>	<i>151.38</i>
USR LOAD-TRANS Loading Trucks at Transload Facility	0.01			0.02	0.79	0.01	0.52	1.31
MIL B-LABORER Laborers, (Semi-Skilled)		Journeyman	40.03	1.00	40.03			
MIL B-EQOPRCRN Equip. Operators, Heavy		Journeyman	51.68	1.00	51.68			
MAP L40CA025 LOADER, FRONT END, WHEEL, 4.00 CY BUCKET, ARTICULATED, 4X4		EP / Average	59.67			1.00	59.67	
				<i>4.00</i>	<i>183.71</i>	<i>3.00</i>	<i>82.73</i>	<i>266.44</i>
USR MIX-SAND-CARB Mixing Sand & Carbon for Reactive Layer	0.01			0.03	1.58	0.03	0.71	2.29
MIL B-EQOPRMED Equip. Operators, Medium		Journeyman	50.54	1.00	50.54			
MIL B-LABORER Laborers, (Semi-Skilled)		Journeyman	40.03	2.00	80.06			
MIL B-SKILLWKR Skilled Workers		Foreman	53.11	1.00	53.11			
MAP L40CA025 LOADER, FRONT END, WHEEL, 4.00 CY BUCKET, ARTICULATED, 4X4		EP / Average	59.67			1.00	59.67	
EP S30KB034 SCREENING & CRUSHING PLANTS, FEEDER CONVEYOR, 30" WIDE X 50' LONG, 7 CY HOPPER & 6' FEED, PORTABLE, 500 TPH		EP / Average	11.53			2.00	23.05	
				<i>4.00</i>	<i>221.27</i>	<i>8.00</i>	<i>794.89</i>	<i>1,016.16</i>
USR U-B-CAP-010 Open Water Layer Placement	24.00			95.99	5,310.02	191.98	19,075.81	24,385.83
MIL B-EQOPRCRB Equip. Operators Crane with Boom Pay		Journeyman	60.31	1.00	60.31			
MIL X-EQOPROIL Outside Equip. Oilers / Grade Checker		Journeyman	55.66	1.00	55.66			
RSM X-LABORER4 Outside Laborers, Group 4 Skilled		Foreman	52.79	1.00	52.79			
MIL X-EQOPRHVY Outside Equip. Operators, Heavy		Journeyman	52.51	1.00	52.51			
USR U-MISC-010 Miscellaneous Equipment (crane mats, etc.)		Non-EP Rental / Average	1.00			1.00	1.00	
EP M10SM004 MARINE EQUIPMENT, BOATS & LAUNCHES, 23' LITTLE GIANT, W/CABIN TRI-HULL, CAP 3,400 LBS, OUTBOARD, 23.4' X 8.5' X 1.2'		EP / Average	43.20			2.00	86.40	
EP M10XX033 MARINE EQUIPMENT, TUGS, 60 FT LENGTH,		EP / Average	84.67			1.00	84.67	

Description	CrewHours	MemberType	MemberRate	ManHours	LaborCost	EQHours	EQCost	CrewCost
21 FT BEAM, 5'0" DRAFT, 80 TON, TOW BOAT NON XX0XX410 BARGE MOUNTED CLAMSHELL, 10 CY CRANE		Non-EP / Average	350.22			1.00	350.22	
NON XX0XX810 DUMP SCOW BARGE, 3,000 CY		Non-EP / Average	90.87			3.00	272.61	
USR U-B-CAP-020 Confined Area Layer Placement	12.00			6.00 71.98	317.71 3,811.21	10.00 119.96	461.44 5,535.42	779.15 9,346.64
RSM X-LABORER4 Outside Laborers, Group 4 Skilled		Foreman	52.79	1.00	52.79			
MIL X-EQOPRHVY Outside Equip. Operators, Heavy		Journeyman	52.51	1.00	52.51			
MIL X-EQOPRMED Outside Equip. Operators, Medium		Journeyman	57.15	1.00	57.15			
RSM X-LABORER4 Outside Laborers, Group 4 Skilled		Journeyman	51.79	2.00	103.58			
MIL B-EQOPRCRN Equip. Operators, Heavy		Journeyman	51.68	1.00	51.68			
USR U-MISC-010 Miscellaneous Equipment (crane mats, etc.)		Non-EP Rental / Average	1.00			1.00	1.00	
GEN H25Z3215 HYDRAULIC EXCAVATOR, CRAWLER, 140,000 LB (63,503 KG), 4.00 CY (3.1 M3) BUCKET, 31.4' (9.6 M) MAX DIGGING DEPTH		EP / Average	98.25			1.00	98.25	
EP M10SM004 MARINE EQUIPMENT, BOATS & LAUNCHES, 23' LITTLE GIANT, W/CABIN TRI-HULL, CAP 3,400 LBS, OUTBOARD, 23.4' X 8.5' X 1.2'		EP / Average	43.20			1.00	43.20	
EP M10XX022 MARINE EQUIPMENT, BOATS & LAUNCHES, 45' LENGTH, 16' BEAM, 5' 0" DRAFT, PUSH BOAT		EP / Average	68.16			1.00	68.16	
EP M10XX033 MARINE EQUIPMENT, TUGS, 60 FT LENGTH, 21 FT BEAM, 5'0" DRAFT, 80 TON, TOW BOAT		EP / Average	84.67			1.00	84.67	
EP S30KB033 SCREENING & CRUSHING PLANTS, CONVEYOR, ADJUSTABLE HEIGHT RADIAL STACKER, 36" WIDE X 150' LONG, PORTABLE, 2,000 TPH		EP / Average	33.24			1.00	33.24	
NON XX0XX740 WORK BARGE, FLAT DECK, 2000 TON WITH 4 SPUDS		Non-EP / Average	25.96			2.00	51.92	
NON XX0XX800 DUMP SCOW BARGE, 1,500 CY		Non-EP / Average	40.50			2.00	81.00	
USR U-B-CAP-100 Organoclay Mat Placement	12.00			8.00 96.00	426.99 5,123.88	6.00 72.00	502.79 6,033.48	929.78 11,157.36
MIL X-EQOPRHVY Outside Equip. Operators, Heavy		Foreman	53.51	1.00	53.51			
MIL X-EQOPRMED Outside Equip. Operators, Medium		Journeyman	57.15	1.00	57.15			
MIL X-EQOPROIL Outside Equip. Oilers / Grade Checker		Journeyman	55.66	1.00	55.66			
MIL X-EQOPRHVY Outside Equip. Operators, Heavy		Journeyman	52.51	1.00	52.51			
RSM X-LABORER4 Outside Laborers, Group 4 Skilled		Journeyman	51.79	3.00	155.37			
RSM X-LABORER4 Outside Laborers, Group 4 Skilled		Foreman	52.79	1.00	52.79			
GEN F10Z3040 FORK LIFT, ROUGH TERRAIN, 8,000 LB (3629 KG), 16.0' (4.9 M) HIGH, TELESCOPING MAST		EP / Average	18.89			1.00	18.89	
EP M10SM004 MARINE EQUIPMENT, BOATS & LAUNCHES, 23' LITTLE GIANT, W/CABIN TRI-HULL, CAP 3,400 LBS, OUTBOARD, 23.4' X 8.5' X 1.2'		EP / Average	43.20			1.00	43.20	

Description	CrewHours	MemberType	MemberRate	ManHours	LaborCost	EQHours	EQCost	CrewCost
EP M10XX005 MARINE EQUIPMENT, FLAT-DECK CARGO BARGE, 120' X 30' X 7.25', 400 TON		EP / Average	4.41			2.00	8.81	
EP M10XX033 MARINE EQUIPMENT, TUGS, 60 FT LENGTH, 21 FT BEAM, 5'0" DRAFT, 80 TON, TOW BOAT		EP / Average	84.67			1.00	84.67	
MAP XX0XX520 BARGE MOUNTED CRANE, 150 TON, 150' BOOM, FOR LIFTING		Non-EP / Average	347.22			1.00	347.22	
USR U-B-DREDGE-100 Open Water Dredging with Barge Mounted Clamshell	24.00			14.00 336.00	751.84 18,044.16	14.00 336.00	1,420.46 34,090.95	2,172.30 52,135.11
MIL X-EQOPROIL Outside Equip. Oilers / Grade Checker		Journeyman	55.66	2.00	111.32			
RSM X-LABORER4 Outside Laborers, Group 4 Skilled		Journeyman	51.79	8.00	414.32			
MIL B-EQOPRCRB Equip. Operators Crane with Boom Pay		Journeyman	60.31	2.00	120.62			
RSM X-LABORER4 Outside Laborers, Group 4 Skilled		Foreman	52.79	2.00	105.58			
USR U-MISC-010 Miscellaneous Equipment (crane mats, etc.)		Non-EP Rental / Average	1.00			2.00	2.00	
EP M10SM004 MARINE EQUIPMENT, BOATS & LAUNCHES, 23' LITTLE GIANT, W/CABIN TRI-HULL, CAP 3,400 LBS, OUTBOARD, 23.4' X 8.5' X 1.2'		EP / Average	43.20			4.00	172.80	
NON XX0XX410 BARGE MOUNTED CLAMSHELL, 10 CY CRANE		Non-EP / Average	350.22			2.00	700.44	
NON XX0XX810 DUMP SCOW BARGE, 3,000 CY		Non-EP / Average	90.87			6.00	545.22	
USR U-B-DREDGE-200 Confined Dredging with Barge Mounted Excavator	24.01			4.00 96.03	222.04 5,330.46	12.00 288.08	476.45 11,438.08	698.49 16,768.53
RSM X-LABORER4 Outside Laborers, Group 4 Skilled		Foreman	52.79	1.00	52.79			
MIL X-EQOPRMED Outside Equip. Operators, Medium		Journeyman	57.15	1.00	57.15			
RSM X-LABORER4 Outside Laborers, Group 4 Skilled		Journeyman	51.79	1.00	51.79			
MIL B-EQOPRCRB Equip. Operators Crane with Boom Pay		Journeyman	60.31	1.00	60.31			
USR U-MISC-010 Miscellaneous Equipment (crane mats, etc.)		Non-EP Rental / Average	1.00			1.00	1.00	
GEN H25Z3215 HYDRAULIC EXCAVATOR, CRAWLER, 140,000 LB (63,503 KG), 4.00 CY (3.1 M3) BUCKET, 31.4' (9.6 M) MAX DIGGING DEPTH		EP / Average	98.25			1.00	98.25	
EP M10SM004 MARINE EQUIPMENT, BOATS & LAUNCHES, 23' LITTLE GIANT, W/CABIN TRI-HULL, CAP 3,400 LBS, OUTBOARD, 23.4' X 8.5' X 1.2'		EP / Average	43.20			1.00	43.20	
EP M10XX022 MARINE EQUIPMENT, BOATS & LAUNCHES, 45' LENGTH, 16' BEAM, 5' 0" DRAFT, PUSH BOAT		EP / Average	68.16			1.00	68.16	
NON XX0XX740 WORK BARGE, FLAT DECK, 2000 TON WITH 4 SPUDS		Non-EP / Average	25.96			4.00	103.84	
NON XX0XX800 DUMP SCOW BARGE, 1,500 CY		Non-EP / Average	40.50			4.00	162.00	
USR U-B-DREDGE-300 Riverbank Excavation with Barge Mounted Excavator	12.00			5.00 60.00	229.92 2,758.84	6.00 71.99	306.62 3,679.15	536.54 6,438.00



Description	CrewHours	MemberType	MemberRate	ManHours	LaborCost	EQHours	EQCost	CrewCost
MIL X-EQOPRMED Outside Equip. Operators, Medium		Journeyman	57.15	1.00	57.15			
MIL B-LABORER Laborers, (Semi-Skilled)		Foreman	41.03	1.00	41.03			
MIL B-LABORER Laborers, (Semi-Skilled)		Journeyman	40.03	2.00	80.06			
MIL B-EQOPRCRN Equip. Operators, Heavy		Journeyman	51.68	1.00	51.68			
USR U-MISC-010 Miscellaneous Equipment (crane mats, etc.)		Non-EP Rental / Standby	0.00			0.00	0.00	
GEN H25Z3215 HYDRAULIC EXCAVATOR, CRAWLER, 140,000 LB (63,503 KG), 4.00 CY (3.1 M3) BUCKET, 31.4' (9.6 M) MAX DIGGING DEPTH		EP / Average	98.25			1.00	98.25	
EP M10XX022 MARINE EQUIPMENT, BOATS & LAUNCHES, 45' LENGTH, 16' BEAM, 5' 0" DRAFT, PUSH BOAT		EP / Average	68.16			1.00	68.16	
EP S30KB033 SCREENING & CRUSHING PLANTS, CONVEYOR, ADJUSTABLE HEIGHT RADIAL STACKER, 36" WIDE X 150' LONG, PORTABLE, 2,000 TPH		EP / Average	33.24			1.00	33.24	
NON XX0XX740 WORK BARGE, FLAT DECK, 2000 TON WITH 4 SPUDS		Non-EP / Average	25.96			1.00	25.96	
NON XX0XX800 DUMP SCOW BARGE, 1,500 CY		Non-EP / Average	40.50			2.00	81.00	
USR U-B-DREDGE-400 Scow Transport - Open Water Dredging	3.00			4.00 12.00	208.88 626.64	2.00 6.00	127.87 383.60	336.75 1,010.24
MIL X-EQOPRHVY Outside Equip. Operators, Heavy		Journeyman	52.51	1.00	52.51			
RSM X-LABORER4 Outside Laborers, Group 4 Skilled		Foreman	52.79	1.00	52.79			
RSM X-LABORER4 Outside Laborers, Group 4 Skilled		Journeyman	51.79	2.00	103.58			
EP M10SM004 MARINE EQUIPMENT, BOATS & LAUNCHES, 23' LITTLE GIANT, W/CABIN TRI-HULL, CAP 3,400 LBS, OUTBOARD, 23.4' X 8.5' X 1.2'		EP / Average	43.20			1.00	43.20	
EP M10XX033 MARINE EQUIPMENT, TUGS, 60 FT LENGTH, 21 FT BEAM, 5'0" DRAFT, 80 TON, TOW BOAT		EP / Average	84.67			1.00	84.67	
USR U-B-DREDGE-410 Scow Transport - Confined Dredging or Riverbank Excavation	4.00			4.00 16.00	208.88 835.52	2.00 8.00	127.87 511.46	336.75 1,346.98
RSM X-LABORER4 Outside Laborers, Group 4 Skilled		Foreman	52.79	1.00	52.79			
RSM X-LABORER4 Outside Laborers, Group 4 Skilled		Journeyman	51.79	2.00	103.58			
MIL X-EQOPRHVY Outside Equip. Operators, Heavy		Journeyman	52.51	1.00	52.51			
EP M10SM004 MARINE EQUIPMENT, BOATS & LAUNCHES, 23' LITTLE GIANT, W/CABIN TRI-HULL, CAP 3,400 LBS, OUTBOARD, 23.4' X 8.5' X 1.2'		EP / Average	43.20			1.00	43.20	
EP M10XX033 MARINE EQUIPMENT, TUGS, 60 FT LENGTH, 21 FT BEAM, 5'0" DRAFT, 80 TON, TOW BOAT		EP / Average	84.67			1.00	84.67	
USR U-B-DREDGE-420 Barge Movement	3.00			4.00 12.00	208.88 626.64	2.00 6.00	127.87 383.60	336.75 1,010.24
RSM X-LABORER4 Outside Laborers, Group 4 Skilled		Foreman	52.79	1.00	52.79			

Description	CrewHours	MemberType	MemberRate	ManHours	LaborCost	EQHours	EQCost	CrewCost
MIL X-EQOPRHVY Outside Equip. Operators, Heavy		Journeyman	52.51	1.00	52.51			
RSM X-LABORER4 Outside Laborers, Group 4 Skilled		Journeyman	51.79	2.00	103.58			
EP M10SM004 MARINE EQUIPMENT, BOATS & LAUNCHES, 23' LITTLE GIANT, W/CABIN TRI-HULL, CAP 3,400 LBS, OUTBOARD, 23.4' X 8.5' X 1.2'		EP / Average	43.20			1.00	43.20	
EP M10XX033 MARINE EQUIPMENT, TUGS, 60 FT LENGTH, 21 FT BEAM, 5'0" DRAFT, 80 TON, TOW BOAT		EP / Average	84.67			1.00	84.67	
USR U-B-MANAGE-200 Transfer Non-Stabilized Material - Open Water Dredging	24.00			12.00 288.04	623.96 14,977.28	14.00 336.05	733.99 17,618.33	1,357.95 32,595.61
MIL B-EQOPRCRB Equip. Operators Crane with Boom Pay		Journeyman	60.31	2.00	120.62			
MIL B-EQOPRCRN Equip. Operators, Heavy		Journeyman	51.68	2.00	103.36			
MIL B-LABORER Laborers, (Semi-Skilled)		Journeyman	40.03	2.00	80.06			
MIL X-EQOPROIL Outside Equip. Oilers / Grade Checker		Journeyman	55.66	2.00	111.32			
MIL X-EQOPRHVY Outside Equip. Operators, Heavy		Journeyman	52.51	2.00	105.02			
RSM X-LABORER4 Outside Laborers, Group 4 Skilled		Journeyman	51.79	2.00	103.58			
USR U-MISC-010 Miscellaneous Equipment (crane mats, etc.)		Non-EP Rental / Average	1.00			2.00	2.00	
GEN H25Z3215 HYDRAULIC EXCAVATOR, CRAWLER, 140,000 LB (63,503 KG), 4.00 CY (3.1 M3) BUCKET, 31.4' (9.6 M) MAX DIGGING DEPTH		EP / Average	98.25			2.00	196.50	
EP M10SM004 MARINE EQUIPMENT, BOATS & LAUNCHES, 23' LITTLE GIANT, W/CABIN TRI-HULL, CAP 3,400 LBS, OUTBOARD, 23.4' X 8.5' X 1.2'		EP / Average	43.20			2.00	86.40	
EP M10XX019 MARINE EQUIPMENT, ALL OTHER BARGES, HOPPER, 200' X 35' X 12', 1,600 TON (COVERED)		EP / Average	23.05			2.00	46.10	
EP M10XX033 MARINE EQUIPMENT, TUGS, 60 FT LENGTH, 21 FT BEAM, 5'0" DRAFT, 80 TON, TOW BOAT		EP / Average	84.67			2.00	169.33	
NON XX0XX740 WORK BARGE, FLAT DECK, 2000 TON WITH 4 SPUDS		Non-EP / Average	25.96			2.00	51.92	
NON XX0XX810 DUMP SCOW BARGE, 3,000 CY		Non-EP / Average	90.87			2.00	181.74	
USR U-B-MANAGE-210 Transfer Non-Stabilized Material - Confined Dredging	24.00			12.00 288.04	623.96 14,977.28	14.00 336.05	633.25 15,200.21	1,257.21 30,177.49
MIL B-EQOPRCRN Equip. Operators, Heavy		Journeyman	51.68	2.00	103.36			
RSM X-LABORER4 Outside Laborers, Group 4 Skilled		Journeyman	51.79	2.00	103.58			
MIL B-LABORER Laborers, (Semi-Skilled)		Journeyman	40.03	2.00	80.06			
MIL B-EQOPRCRB Equip. Operators Crane with Boom Pay		Journeyman	60.31	2.00	120.62			
MIL X-EQOPRHVY Outside Equip. Operators, Heavy		Journeyman	52.51	2.00	105.02			
MIL X-EQOPROIL Outside Equip. Oilers / Grade Checker		Journeyman	55.66	2.00	111.32			
USR U-MISC-010 Miscellaneous Equipment (crane mats, etc.)		Non-EP Rental / Average	1.00			2.00	2.00	

Description	CrewHours	MemberType	MemberRate	ManHours	LaborCost	EQHours	EQCost	CrewCost
GEN H25Z3215 HYDRAULIC EXCAVATOR, CRAWLER, 140,000 LB (63,503 KG), 4.00 CY (3.1 M3) BUCKET, 31.4' (9.6 M) MAX DIGGING DEPTH		EP / Average	98.25			2.00	196.50	
EP M10SM004 MARINE EQUIPMENT, BOATS & LAUNCHES, 23' LITTLE GIANT, W/CABIN TRI-HULL, CAP 3,400 LBS, OUTBOARD, 23.4' X 8.5' X 1.2'		EP / Average	43.20			2.00	86.40	
EP M10XX019 MARINE EQUIPMENT, ALL OTHER BARGES, HOPPER, 200' X 35' X 12', 1,600 TON (COVERED)		EP / Average	23.05			2.00	46.10	
EP M10XX033 MARINE EQUIPMENT, TUGS, 60 FT LENGTH, 21 FT BEAM, 5'0" DRAFT, 80 TON, TOW BOAT		EP / Average	84.67			2.00	169.33	
NON XX0XX740 WORK BARGE, FLAT DECK, 2000 TON WITH 4 SPUDS		Non-EP / Average	25.96			2.00	51.92	
NON XX0XX800 DUMP SCOW BARGE, 1,500 CY		Non-EP / Average	40.50			2.00	81.00	
USR U-B-MANAGE-300 In-Barge Stabilization	24.00			20.00	1,033.24	24.00	985.05	2,018.29
MIL B-EQOPRCRB Equip. Operators Crane with Boom Pay		Journeyman	60.31	4.00	241.24			
MIL B-LABORER Laborers, (Semi-Skilled)		Journeyman	40.03	4.00	160.12			
MIL B-EQOPRCRN Equip. Operators, Heavy		Journeyman	51.68	2.00	103.36			
RSM X-LABORER4 Outside Laborers, Group 4 Skilled		Journeyman	51.79	4.00	207.16			
MIL X-EQOPRHVY Outside Equip. Operators, Heavy		Journeyman	52.51	4.00	210.04			
MIL X-EQOPROIL Outside Equip. Oilers / Grade Checker		Journeyman	55.66	2.00	111.32			
USR U-MISC-010 Miscellaneous Equipment (crane mats, etc.)		Non-EP Rental / Average	1.00			2.00	2.00	
GEN H25Z3215 HYDRAULIC EXCAVATOR, CRAWLER, 140,000 LB (63,503 KG), 4.00 CY (3.1 M3) BUCKET, 31.4' (9.6 M) MAX DIGGING DEPTH		EP / Average	98.25			4.00	393.00	
EP M10SM004 MARINE EQUIPMENT, BOATS & LAUNCHES, 23' LITTLE GIANT, W/CABIN TRI-HULL, CAP 3,400 LBS, OUTBOARD, 23.4' X 8.5' X 1.2'		EP / Average	43.20			2.00	86.40	
EP M10XX019 MARINE EQUIPMENT, ALL OTHER BARGES, HOPPER, 200' X 35' X 12', 1,600 TON (COVERED)		EP / Average	23.05			10.00	230.48	
EP M10XX033 MARINE EQUIPMENT, TUGS, 60 FT LENGTH, 21 FT BEAM, 5'0" DRAFT, 80 TON, TOW BOAT		EP / Average	84.67			2.00	169.33	
NON XX0XX740 WORK BARGE, FLAT DECK, 2000 TON WITH 4 SPUDS		Non-EP / Average	25.96			4.00	103.84	
USR U-B-MANAGE-600 Offloading Material	24.00			10.00	527.42	4.00	836.77	1,364.19
RSM X-LABORER4 Outside Laborers, Group 4 Skilled		Foreman	52.79	2.00	105.58			
MIL X-EQOPROIL Outside Equip. Oilers / Grade Checker		Journeyman	55.66	2.00	111.32			
RSM X-LABORER4 Outside Laborers, Group 4 Skilled		Journeyman	51.79	4.00	207.16			
MIL B-EQOPRCRN Equip. Operators, Heavy		Journeyman	51.68	2.00	103.36			
EP M10XX022 MARINE EQUIPMENT, BOATS & LAUNCHES,		EP / Average	68.16			2.00	136.33	

Description	CrewHours	MemberType	MemberRate	ManHours	LaborCost	EQHours	EQCost	CrewCost
45' LENGTH, 16' BEAM, 5' 0" DRAFT, PUSH BOAT NON XX0XX410 BARGE MOUNTED CLAMSHELL, 10 CY CRANE		Non-EP / Average	350.22			2.00	700.44	
<b>Diver Subcontractor</b>	<b>12.00</b>		<b>0.00</b>	<b>96.00</b>	<b>3,938.88</b>	<b>24.00</b>	<b>453.43</b>	<b>4,392.31</b>
USR U-B-CAP-200 Divers	12.00			8.00 96.00	328.24 3,938.88	2.00 24.00	37.79 453.43	366.03 4,392.31
MIL X-EQOPRMD Outside Equip. Operators, Medium		Journeyman	57.15	2.00	114.30			
MIL X-LABORER Outside Laborers, (Semi-Skilled)		Journeyman	35.49	5.00	177.45			
MIL X-LABORER Outside Laborers, (Semi-Skilled)		Foreman	36.49	1.00	36.49			
GEN M10Z4230 MARINE EQUIPMENT, BOATS & LAUNCHES, 18' (5.5 M) LONG, R-RUNNER V-HULL, 1,350 LBS (612 KG), NO CABIN, OUTBOARD ENGINE		EP / Average	18.89			2.00	37.79	

**Cost Estimate Backup**  
**Costs from Other Projects/Sources**



PROJECT: Portland Harbor FS  
 JOB NO.: 79171.3383.345.FSZ  
 CLIENT: EPA

CHECKED BY: GH  
 DATE CHECKED: 2/9/2016  
 WRKSH T NO.: CALC-MITIGATION

**Description:** Summary of cost buildup for mitigation unit cost.

Project	Project Cost (\$)	Acreage (AC)	Unit Cost (\$/DSAY)	DSAY to Acre Conversion (DSAY/AC)	Unit Cost (\$/AC)	Year Constructed	2016 Escalated Cost (\$)	2016 Escalated Unit Cost (\$/AC)	Source
North Winds Weir Project (Lower Duwamish Waterway Natural Resources Damage Project), King County, WA	\$3,700,000	2.55	-	-	\$1,450,980.39	2010	\$4,167,552	\$1,634,334	Table 6.1-1 of the Appendix M, Attachment 1, Anchor QEA FS (2010)
South Park (Lower Duwamish Waterway Project), King County, WA	\$691,809	0.35	-	-	\$1,976,597.14	2010 <sup>1</sup>	\$779,230	\$2,226,371	Table 6.1-1 of the Appendix M, Attachment 1, Anchor QEA FS (2010)
Strawberry Plant (Bainbridge Island), Kitsap County, WA	\$1,168,212	1.58	-	-	\$739,374.68	2010 <sup>1</sup>	\$1,315,834	\$832,806	Table 6.1-4 of the Appendix M, Attachment 1, Anchor QEA FS (2010)
Pritchard Park East (Bainbridge Island), Kitsap County, WA	\$734,853	1.35	-	-	\$544,335.56	2010 <sup>1</sup>	\$827,713	\$613,121	Table 6.1-4 of the Appendix M, Attachment 1, Anchor QEA FS (2010)
Port of Bremerton Sinclair Inlet Estuary Restoration Phase 2 (A Primer on Habitat Project Costs ; Evergreen Funding Consultants 2003), Kitsap County, WA	\$885,581 <sup>2</sup>	1.7	-	-	\$520,930.00	2003 <sup>1</sup>	\$1,363,054	\$801,796	Table 6.1-4 of the Appendix M, Attachment 1, Anchor QEA FS (2010)
A Primer on Habitat Project Costs - Estuary Restoration Matrix Cost Range <sup>3</sup> (Evergreen Funding Consultants 2003)	\$450,000	1	-	-	\$450,000.00	2003	\$692,624	\$692,624	Table 6.1-4 of the Appendix M, Attachment 1, Anchor QEA FS (2010). Used the high end of cost range for "Somewhat Developed" Land Use and "Moderate/Average" Extent of Earthmoving.
West Fork Hylebos Habitat Restoration Project (Tacoma), Pierce County, WA	\$408,025	0.5	-	-	\$816,050.00	2010 <sup>1</sup>	\$459,585	\$919,170	Table 6.1-4 of the Appendix M, Attachment 1, Anchor QEA FS (2010)
Cle Elum River Instream Habitat (Salmon Recovery Funding Board [SRFB]), Kittitas County, WA	\$498,720	2	-	-	\$249,360.00	2010 <sup>1</sup>	\$561,741	\$280,871	Table 6.1-4 of the Appendix M, Attachment 1, Anchor QEA FS (2010)
Wildlands Inc - Alder Creek Restoration Project, Multnomah County, OR <sup>4,5</sup>	-	-	\$75,000	14.34	\$1,075,500.00	2014	-	\$1,091,056	Agreement for Purchase and Sale of Discounted Acre-Year Credits and Escrow Instructions (Alder Creek-City of Portland). City of Portland Ordinance No. 186911
A Primer on Habitat Project Costs - Estuary Restoration Matrix Cost Range <sup>6</sup> (Evergreen Funding Consultants 2003)	\$1,050,000	1	-	-	\$1,050,000.00	2003	\$1,616,122	\$1,616,122	A Primer on Habitat Project Costs (Evergreen Funding Consultants 2003). Used the middle of cost range for "Highly Developed" Land Use and "Moderate/Average" Extent of Earthmoving.
							<b>Revised Average Unit Cost (2016):</b>	<b>\$1,070,827</b>	

Notes:

Mitigation costs were escalated from the year of construction to 2016. The weighted average composite indices from USACE Civil Works Construction Cost Index System (CWCCIS), EM 1110-2-1304, revised 31 March 2012 and amended 30 September 2015 was used to determine the escalation rate to the base year of the current estimate (2016).

Mitigation costs for the McCormick & Baxter Superfund Site were excluded from the analysis as of 2/9/16 because costs for mitigation were not quantified per discussion with DEQ.

<sup>1</sup> - For projects where the construction year was not specified, costs were assumed to be current as of the year the source document was produced.

<sup>2</sup> - The cost presented in Table 6.1-4 of the Appendix M, Attachment 1, Anchor QEA FS (2010) for this item is \$885,581, as shown in the table above. However, the actual costs present in A Primer on Habitat Project Cost is \$885,817.

<sup>3</sup> - The cost presented in Table 6.1-4 of the Appendix M, Attachment 1, Anchor QEA FS (2010) for this item used the high end of cost range for "Somewhat Developed" Land Use and "Moderate/Average" Extent of Earthmoving. This cost is likely underestimating the cost of mitigation, as the Portland Harbor Site should be classified as "Highly Developed". See footnote 6.

<sup>4</sup> - Costs for the Alder Creek Restoration project are based on DSAY (discounted service-acre year) credits as opposed to acreage because it was for NRDA mitigation. Because the acreage and total project cost does not reflect in the calculation, it is not presented for purposes of this table.

<sup>5</sup> - Based on the Habitat Equivalency Analysis method used to evaluate the Alder Creek Restoration project, it is expected that 14.34 DSAY credits will be generated per acre. Therefore, a conversion factor of 14.34 DSAYs/AC was used to convert the unit cost of \$/DSAY to \$/AC.

<sup>6</sup> - Due to Table 6.1-4 of the Appendix M, Attachment 1, Anchor QEA FS (2010) likely underestimating the cost of mitigation, as discussed in footnote 3, a separate cost was included from the A Primer on Habitat Project Costs - Estuary Restoration Matrix Cost Range. This cost used the middle of cost range for "Highly Developed" Land Use and "Moderate/Average" Extent of Earthmoving.

# Telephone Call Report

9200 Ward Parkway, Suite 500  
Kansas City, MO – 64114  
Tel: (816) 444-8270  
Fax: (816) 523-2600

**Project:** Gilt Edge Mine Site, OU1

**Client:** USEPA

**Job No.**

**Date:** Sep 10, 2014 3:50 pm

Phone in  Phone out  Current Project  Prospective Project/Marketing  Administrative  Other

**Made by/Received by:** Abhay Sonawane

**Talked with:** Mark Downs, Geo-Synthetics, Inc.

**Subject:** Price Quote for Geomembrane, Geocomposite, and Geotextile Installation

**Distribution:**

● **Discussion:**

**Company:**

Geo-Synthetics, Inc.  
Mark H. Downs  
Geo-Synthetics, Inc.  
Ph: (605)428-4353  
Fax: (605)428-4393  
Cell: (262)366-5570  
markd@geo-synthetics.com

Installation costs only, no material

**Geomembrane Installation (60 mil):** \$0.29 / SF

**Geotextile Installation (8 oz):** \$0.16 / SF

**Geocomposite Installation (8-300-8):** \$0.288 / SF

● **Action Required (what, who, when):**





PORTLAND HARBOR RI/FS

**APPENDIX J - UPDATE**

**Calculation of Residual and Post  
Construction Risk Estimates**

## J1. CALCULATION OF RESIDUAL RISK ESTIMATES

Residual risk is defined as the cancer risk or HI once the PRGs are achieved. Because not all selected PRGs are risk-based, the residual risk or HQ for individual COCs may be greater than the  $1 \times 10^{-6}$  cancer risk or HQ of 1 used to calculate risk-based PRGs.

The residual risk for RAO 1 was calculated as the ratio of the carcinogenic risk-based PRGs and the selected PRG values presented in Table 2.2-4 using the following equation:

$$Residual\ risk = \sum_{n=a}^n \frac{S - PRG_n}{R - PRG_n} \times 10^{-6} \quad \text{Equation J1-1}$$

Where S-PRG<sub>a</sub> and R-PRG<sub>a</sub> represent the selected- and risk-based PRGs, respectively, for each COC in sediment. Residual risks and HIs for RAO 1 are presented in **Table J1-1**.

The residual risk for RAO 2 was calculated as the ratio of the average tissue concentration in fish for the selected sediment PRGs and the risk-based fish tissue concentrations. The selected average tissue concentrations were derived from the FWM using the methodology described in Appendix B, assuming a surface water concentration for each COC equal its respective water quality criterion (see RAO 3 PRGs). The risk-based tissue PRGs are presented in Table B3-5. This comparison was conducted using the following equations:

$$Residual\ risk = \sum_{n=a}^n \frac{Tissue\ Conc_{PRG-based}}{Tissue\ Conc_{Risk-based}} \times 10^{-6} \quad \text{Equation J1-2}$$

$$Residual\ HI = \sum_{n=a}^n \frac{Tissue\ Conc_{PRG-based}}{Tissue\ Conc_{Risk-based}} \quad \text{Equation J1-3}$$

Residual risks and HIs on a Site-wide scale were calculated using the risk-based tissue PRGs assuming consumption rate of 142 g/day, residual risks and HIs on a river-mile and SDU scale were calculated using the tissue PRGs assuming a consumption rate of 49 g/day. Residual risks and HIs for RAO 2 are presented in **Table J1-2**.

Residual HQs for RAO 6 were calculated as the ratio of the selected PRG and the risk-based PRG for each COC from Table 2.2-9 and using the following equation:

$$Residual\ HQ = \frac{F - PRG}{R - PRG} \quad \text{Equation J1-4}$$

The PRGs presented in Table 2.2-9 are COC-specific, but are not species-specific. For example, the PRG for PCBs is based on mink via dietary exposure from consumption of fish and shellfish, while the PRG for DDX is based on the Sandpiper via dietary exposure from consumption of invertebrates. For this reason, each COC was evaluated separately and exposures were not considered additive, and the HQ for each COC evaluated separately. Residual HQs for RAO 6 are presented in **Table J1-3**.

## **J2. CALCULATION OF POST-CONSTRUCTION RISK ESTIMATES**

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Post-construction risks were calculated for RAOs 1, 2, 4, 5, 6 and 8 for each for each alternative carried through the detailed analysis. These evaluations required estimates of surface sediment concentrations averaged on the following spatial scales: rolling river mile concentrations averaged over 0.5 river miles for only the eastern and western nearshore river segments and Swan Island Lagoon, rolling river mile average concentrations for each river segment, SDU-scale SWACs, and a site-wide weighted average concentration for each COC. All post-construction risks are evaluated as only the contribution from the sediment.

### **J2.1 POST-CONSTRUCTION SEDIMENT CONCENTRATIONS**

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Surface sediment concentrations on a rolling river mile scale were calculated by averaging surface sediment concentrations over a distance of 0.5 miles (RAO 1) or 1 mile (RAOs 2 and 6) in successive 0.1 mile increments in both the east and west nearshore segments, and the navigation channel. A 0.5 mile average concentration for RAO 1 is consistent with the exposure area evaluated for exposure to sediment used in the BHHRA. A 1 mile average concentrations was used for RAOs 2 and 6, consistent with the assumptions used to evaluate consumption of fish in the BHHRA and of prey by ecological receptors in the BERA. Concentrations averaged on an SDU scale are approximate to a 1 river mile scale, thus evaluations on an SDU scale for RAOs 2 and 6 are consistent with the exposure assumptions used in the risk assessments.

A site-wide evaluation was also used for RAO 2, consistent with the RME evaluation for subsistence fishers in the BHHRA. Site-wide sediment concentrations were calculated for RAO 2 using the post remedial SWACs based on the average concentrations of each pixel over the entire Site-wide area.

### **J2.2 POST-CONSTRUCTION RISK ESTIMATES FOR RAO 1**

---

Cancer risks for RAO 1 were calculated using the rolling river mile concentrations averaged on a 0.5 mile scale and the sediment PRGs for each COC based on a  $1 \times 10^{-6}$  cancer risk, using the following equation:

$$\text{Cancer risk} = \left( \frac{\text{Conc}_a}{\text{PRG}_a} + \frac{\text{Conc}_b}{\text{PRG}_b} + \frac{\text{Conc}_c}{\text{PRG}_c} + \dots + \frac{\text{Conc}_i}{\text{PRG}_i} \right) \times 10^{-6} \quad \text{Equation J2-1}$$

The cancer risk was calculated from each 0.1 mile incremental average surface concentration for each COC. Direct contact with sediment in the navigation channel segment was not evaluated for this RAO. Rolling river mile COC concentrations averaged on a 0.5 river mile scale are presented in **Tables J2.2-1a-d**, post-construction

cancer risks for RAO 1 are presented in **Tables J2.2-2a-e**. Residual non-cancer hazard for RAO 1 was not evaluated, as there are no PRGs for RAO 1 COCs based on non-cancer effects.

### **J2.3 POST-CONSTRUCTION RISK ESTIMATES FOR RAO 2**

Post-construction risks for RAO 2 were estimated on a on a site-wide basis, a rolling river mile scale (1-mile average concentration), and by SDU. Site-wide post-construction risks were calculated using the site-wide weighted average sediment concentrations calculated for each COC (see Section J2). These sediment concentrations were input into the FWM (Appendix B1) to calculate COC concentrations in tissue. Surface water concentrations in this analysis was set to zero in order to directly assess the contribution from post-construction sediment concentrations on the post-construction risk estimate. COC concentrations in fillet tissue were calculated using the fillet-whole body concentration ratios presented in Appendix B3 (Table B3-3), and a mean exposure concentration was calculated as the average of fillet concentration in sculpin, largescale sucker, carp, and smallmouth bass (with largescale sucker as a surrogate for brown bullhead and sculpin as a surrogate for black crappie). Post-construction cancer risks and noncancer HIs were calculated using the same equations used for residual risk (equations J1-2 and J1-3, respectively). The risk-based tissue PRGs presented in Table B3-5 assuming a consumption rate of 142 g/day were used for this evaluation. Post-construction risk and hazard estimates are presented in **Tables J2.3-1a-g**.

Post-construction risks on a rolling river mile and SDU scale were calculated using the sediment PRGs based on a consumption rate of 49 g/day (Table B3-5), using the following equation:

$$Cancer\ risk = \left( \frac{Conc_a}{PRG_a} + \frac{Conc_b}{PRG_b} + \frac{Conc_c}{PRG_c} + \dots + \frac{Conc_i}{PRG_i} \right) \times 10^{-6} \quad \text{Equation J2-2}$$

Noncancer hazard was calculated using the sediment PRGs presented in Table 2.2-5 for the child or infant the following equation:

$$Hazard\ Index = \left( \frac{Conc_a}{PRG_a} + \frac{Conc_b}{PRG_b} + \frac{Conc_c}{PRG_c} + \dots + \frac{Conc_i}{PRG_i} \right) \quad \text{Equation J2-3}$$

Post construction risks were calculated for 0.1 mile incremental average surface concentration for each COC. Concentrations averaged on a 1 river mile scale are presented in **Tables J2.3-2a-m** Site-wide post-construction risk estimates for individual COCs are presented in **Tables J2.3-3a-k** (cancer risk), **Tables J2.3-4a-j** (noncancer HI), and **Tables J2.3-5a-g** (noncancer HI-infant). Cumulative post-construction risk and HI estimates are presented in **Tables J2.3-6a-c**.

Post-construction COC concentrations on an SDU scale are presented in **Table J2.3-7**. Post-construction risk estimates for individual COCs and cumulative risks on an SDU scale are presented in **Tables J2.3-8a-b** (cancer risk), **Tables J2.3-9a-b** (noncancer HI), and **Tables J2.3-10a-b** (noncancer HI-infant).

#### **J2.4 RESIDUAL RISK ESTIMATES FOR RAO 5**

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The evaluation of risk reduction for RAO 5 was conducted using the results of the CBRA footprint (see Appendix D11 and Figure 4.1-1) and the GIS layers for each Alternative. To account for population level risk, the analysis also identified areas where the sediment concentration exceeded PRGs for RAO 5 by factors of 10 and 100 (**Figures J2.4-1** and **J2.4-2**). These areas were compared to the remedial footprint for each alternative and the area of overlap calculated. These results are presented in **Figures J2.4-3a-f** and in **Table J2.4-1**.

#### **J2.5 POST-CONSTRUCTION RISK ESTIMATES FOR RAO 6**

---

Post-construction HQs for RAO 6 were estimated on a rolling river mile scale (1-mile) and an SDU scale using the sediment PRGs presented in Table 2.2-9 using the following equation:

$$\text{Hazard Quotient} = \frac{\text{Conc}_a}{\text{PRG}_a} \quad \text{Equation J2-4}$$

Post construction risks were calculated for 0.1 mile incremental average surface concentration for each COC. Post-construction HQs on a rolling-river mile scale are presented in **Tables J2.5-1a-i** and on an SDU scale in **Table J2.5-2**.

#### **J2.6 POST-CONSTRUCTION RISK ESTIMATES FOR RAOS 4 AND 8**

---

The evaluation of risk reduction for RAOs 4 and 8 was conducted using the results of the contaminated groundwater footprint (see Figure 1.2-19) and the GIS layers for each Alternative. These areas were compared for each alternative and the area of overlap calculated. These results are presented in **Figures J2.6-1a-f** and in **Table J2.6-1**.

**Table J2.2-1a**

**Rolling River Mile Average Concentrations - Arsenic (mg/kg) - 0.5 Mile Increments**

Portland Harbor Superfund Site

Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
1.8	East	4.6	4.6	4.6	4.5	4.4	4.4	4.4	4.5
1.9	East	4.6	4.5	4.4	4.3	4.1	4.1	4.0	4.3
2	East	4.6	4.2	4.1	4.0	3.7	3.7	3.6	4.0
2.1	East	4.6	4.1	3.8	3.6	3.4	3.4	3.2	3.6
2.2	East	4.3	3.7	3.4	3.2	2.9	2.9	2.8	3.2
2.3	East	4.1	3.5	3.2	3.0	2.6	2.6	2.5	3.0
2.4	East	4.0	3.4	3.1	3.0	2.6	2.6	2.4	3.0
2.5	East	3.7	3.4	3.3	3.2	2.7	2.7	2.3	3.2
2.6	East	3.7	3.5	3.4	3.2	2.7	2.7	2.3	3.2
2.7	East	4.1	4.1	4.0	3.8	3.3	3.3	2.8	3.9
2.8	East	4.4	4.4	4.3	4.2	3.8	3.8	3.3	4.2
2.9	East	4.6	4.6	4.4	4.3	4.0	4.0	3.6	4.3
3	East	4.7	4.7	4.5	4.4	4.3	4.3	4.1	4.5
3.1	East	4.7	4.7	4.6	4.6	4.5	4.5	4.5	4.7
3.2	East	4.2	4.2	4.1	4.1	4.1	4.1	4.1	4.1
3.3	East	4.2	4.2	4.0	4.0	4.0	4.0	4.0	4.0
3.4	East	4.2	4.2	4.0	4.0	4.0	4.0	3.9	4.0
3.5	East	3.9	3.9	3.7	3.7	3.4	3.4	3.1	3.7
3.6	East	3.8	3.4	3.0	2.9	2.4	2.4	2.0	2.9
3.7	East	3.8	3.3	3.0	2.8	2.2	2.2	1.7	2.8
3.8	East	3.7	3.2	2.9	2.7	1.9	1.9	1.3	2.7
3.9	East	3.8	3.3	3.0	2.5	1.6	1.6	0.9	2.5
4	East	4.2	3.4	3.0	2.3	1.5	1.5	0.7	2.3
4.1	East	4.4	4.3	4.1	3.3	2.2	2.2	1.0	3.3
4.2	East	4.4	4.4	4.0	3.3	1.6	1.6	0.7	3.3
4.3	East	4.2	4.2	3.9	3.3	1.8	1.8	0.8	3.3
4.4	East	4.2	4.2	3.7	3.2	1.7	1.7	0.8	3.2
4.5	East	4.4	4.3	3.6	3.0	1.6	1.6	0.6	3.0
4.6	East	4.5	4.4	3.5	2.9	1.5	1.5	0.6	2.9
4.7	East	4.5	4.4	3.4	2.7	1.8	1.8	0.9	2.7
4.8	East	4.6	4.5	3.4	2.7	1.9	1.9	1.1	2.7
4.9	East	4.3	4.3	3.4	3.0	2.7	2.7	2.0	3.0
5	East	3.6	3.6	3.6	3.6	3.6	3.6	3.4	3.6
5.1	East	3.5	3.5	3.5	3.5	3.5	3.5	3.1	3.5
5.2	East	3.4	3.4	3.4	3.4	3.4	3.4	2.8	3.4
5.3	East	3.4	3.4	3.4	3.4	3.3	3.3	2.6	3.3
5.4	East	4.6	4.6	4.6	4.6	3.0	3.0	1.8	3.0
5.5	East	5.3	5.3	5.3	5.0	2.3	2.3	1.2	2.3
5.6	East	5.0	4.9	4.9	4.7	1.9	1.9	0.7	1.9
5.7	East	5.0	5.0	5.0	4.8	2.3	2.3	0.8	2.3
5.8	East	5.5	5.5	5.5	5.3	2.3	2.3	0.8	3.2

**Table J2.2-1a**

**Rolling River Mile Average Concentrations - Arsenic (mg/kg) - 0.5 Mile Increments**

Portland Harbor Superfund Site

Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
5.9	East	5.3	5.3	5.3	5.0	2.4	2.4	1.4	3.9
6	East	5.2	5.2	5.2	5.1	3.2	3.2	2.2	4.6
6.1	East	5.3	5.3	5.2	5.1	3.4	3.4	2.6	5.0
6.2	East	5.1	5.1	5.0	4.9	3.3	3.3	2.8	5.1
6.3	East	4.4	4.4	4.2	4.1	3.4	3.4	3.0	4.4
6.4	East	4.0	3.9	3.7	3.7	3.4	3.4	3.1	3.9
6.5	East	3.5	3.3	2.9	2.8	2.7	2.7	2.4	3.3
6.6	East	3.4	2.8	2.3	2.3	2.1	2.1	1.8	2.7
6.7	East	3.1	2.4	2.0	2.0	1.8	1.8	1.5	2.4
6.8	East	2.7	2.0	1.6	1.6	1.5	1.5	1.2	2.0
6.9	East	2.4	1.7	1.4	1.4	1.2	1.2	1.0	1.8
7	East	3.1	2.2	1.4	1.4	1.2	1.2	1.1	2.7
7.1	East	3.1	2.5	1.6	1.6	1.6	1.6	1.5	3.1
7.2	East	3.8	3.2	2.1	2.1	2.0	2.0	2.0	3.7
7.3	East	4.3	3.7	2.6	2.6	2.6	2.6	2.5	4.3
7.4	East	4.8	4.2	3.0	3.0	3.0	3.0	2.9	4.8
7.5	East	4.2	4.1	3.5	3.5	3.5	3.5	3.4	4.1
7.6	East	4.2	4.2	3.7	3.7	3.7	3.7	3.4	4.2
7.7	East	3.9	3.9	3.9	3.9	3.9	3.9	3.6	3.9
7.8	East	4.3	4.2	4.2	4.2	4.2	4.2	3.1	4.2
7.9	East	4.4	3.1	3.1	3.1	3.1	3.1	2.0	3.1
8	East	4.5	2.3	2.3	2.3	2.2	2.2	1.3	2.3
8.1	East	4.4	2.2	2.2	2.2	2.2	2.2	1.6	2.2
8.2	East	4.3	2.2	2.2	2.2	2.2	2.2	1.6	2.2
8.3	East	4.0	1.5	1.5	1.5	1.5	1.5	1.4	1.5
8.4	East	3.9	2.5	2.5	2.5	2.4	2.4	2.4	2.5
8.5	East	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6
8.6	East	3.4	3.4	3.4	3.4	3.4	3.4	3.4	3.4
8.7	East	3.4	3.4	3.4	3.4	3.3	3.3	3.3	3.4
8.8	East	3.3	3.3	3.3	3.3	3.3	3.3	2.9	3.3
8.9	East	3.2	3.2	3.2	3.2	3.0	3.0	2.2	3.2
9	East	3.2	3.2	3.2	3.2	3.0	3.0	1.9	3.2
9.1	East	3.3	3.3	3.3	3.3	3.1	3.1	2.0	3.3
9.2	East	3.3	3.3	3.3	3.3	3.0	3.0	2.0	3.3
9.3	East	3.2	3.2	3.2	3.2	2.9	2.9	2.2	3.2
9.4	East	3.1	3.1	3.1	3.1	2.6	2.6	2.1	3.1
9.5	East	2.9	2.9	2.9	2.9	2.4	2.4	2.0	2.9
9.6	East	2.8	2.8	2.8	2.8	2.3	2.3	1.9	2.8
9.7	East	2.9	2.9	2.9	2.9	2.4	2.4	2.0	2.9
9.8	East	3.0	3.0	3.0	3.0	2.5	2.5	2.2	3.0
9.9	East	3.0	3.0	3.0	2.9	2.7	2.7	2.4	2.9



**Table J2.2-1a**

**Rolling River Mile Average Concentrations - Arsenic (mg/kg) - 0.5 Mile Increments**

Portland Harbor Superfund Site

Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
10	East	3.2	3.1	3.1	3.1	2.9	2.9	2.7	3.1
10.1	East	3.3	3.3	3.3	3.2	3.0	3.0	2.7	3.2
10.2	East	3.2	3.1	3.1	3.1	2.8	2.8	2.4	3.1
10.3	East	3.0	3.0	3.0	2.9	2.6	2.6	2.1	2.9
10.4	East	3.0	3.0	3.0	3.0	2.7	2.7	2.3	3.0
10.5	East	3.1	3.1	3.1	2.9	2.3	2.3	1.9	2.9
10.6	East	3.1	3.1	3.1	2.7	1.8	1.8	1.5	2.7
10.7	East	3.2	3.2	3.2	2.7	1.7	1.7	1.2	2.7
10.8	East	3.1	3.1	3.1	2.7	1.5	1.5	1.0	2.7
10.9	East	3.0	3.0	3.0	2.5	1.5	1.5	0.9	2.5
11	East	2.9	2.8	2.6	2.1	1.3	1.3	0.6	2.1
11.1	East	2.9	2.4	2.0	1.7	1.1	1.1	0.4	1.7
11.2	East	3.0	2.0	1.5	1.2	0.7	0.7	0.3	1.2
11.3	East	2.9	1.9	1.3	0.9	0.5	0.5	0.2	0.9
11.4	East	2.8	1.8	1.3	0.8	0.4	0.4	0.1	0.8
11.5	East	2.8	1.7	1.3	0.8	0.5	0.5	0.1	0.8
11.6	East	2.6	1.7	1.3	0.9	0.5	0.5	0.2	0.9
11.7	East	2.2	1.9	1.7	1.3	0.8	0.8	0.2	1.3
1.8	West	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6
1.9	West	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6
2	West	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6
2.1	West	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
2.2	West	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
2.3	West	3.4	3.4	3.4	3.4	3.4	3.4	3.4	3.4
2.4	West	3.4	3.4	3.4	3.4	3.4	3.4	3.4	3.4
2.5	West	3.4	3.4	3.4	3.4	3.4	3.4	3.4	3.4
2.6	West	3.5	3.5	3.5	3.5	3.5	3.5	3.3	3.5
2.7	West	3.8	3.8	3.8	3.8	3.8	3.8	3.3	3.8
2.8	West	4.0	4.0	4.0	4.0	4.0	4.0	3.4	4.0
2.9	West	3.9	3.9	3.9	3.9	3.9	3.9	3.2	3.9
3	West	3.8	3.8	3.8	3.8	3.8	3.8	3.0	3.8
3.1	West	3.8	3.8	3.8	3.8	3.8	3.8	2.9	3.8
3.2	West	3.6	3.6	3.6	3.6	3.6	3.6	2.9	3.6
3.3	West	3.5	3.5	3.5	3.5	3.5	3.5	2.8	3.5
3.4	West	3.9	3.9	3.9	3.9	3.9	3.9	3.2	3.9
3.5	West	4.3	4.3	4.3	4.3	4.3	4.3	3.7	4.3
3.6	West	4.9	4.9	4.9	4.9	4.9	4.9	4.4	4.9
3.7	West	5.4	5.4	5.4	5.4	5.2	5.2	4.6	5.4
3.8	West	5.6	5.6	5.6	5.6	5.4	5.4	4.6	5.6
3.9	West	5.2	5.2	5.2	5.1	4.7	4.7	3.8	5.1
4	West	4.9	4.9	4.9	4.9	4.3	4.3	3.0	4.9

**Table J2.2-1a**

**Rolling River Mile Average Concentrations - Arsenic (mg/kg) - 0.5 Mile Increments**

Portland Harbor Superfund Site

Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
4.1	West	4.2	4.2	4.2	4.2	3.5	3.5	2.0	4.2
4.2	West	4.0	4.0	4.0	4.0	3.6	3.6	1.9	4.0
4.3	West	4.0	4.0	4.0	4.0	3.5	3.5	1.7	4.0
4.4	West	3.8	3.8	3.8	3.8	3.1	3.1	1.2	3.8
4.5	West	3.7	3.7	3.7	3.7	3.1	3.1	1.4	3.7
4.6	West	3.8	3.8	3.8	3.8	3.2	3.2	1.9	3.8
4.7	West	4.0	4.0	3.9	3.9	3.0	3.0	2.2	3.9
4.8	West	4.1	4.1	4.1	4.0	3.1	3.1	2.5	4.0
4.9	West	4.2	4.2	4.2	4.1	3.3	3.3	2.8	4.1
5	West	4.3	4.3	4.3	4.1	3.4	3.4	2.8	4.1
5.1	West	4.1	4.1	4.0	3.7	3.0	3.0	2.3	3.7
5.2	West	3.7	3.7	3.3	3.0	2.5	2.5	1.8	3.0
5.3	West	3.5	3.4	2.8	2.4	1.7	1.7	0.9	2.4
5.4	West	3.6	3.5	2.9	2.5	2.0	2.0	0.7	2.5
5.5	West	4.2	4.1	3.5	3.3	2.8	2.8	1.2	3.3
5.6	West	4.4	4.3	3.9	3.7	3.1	3.1	1.6	3.7
5.7	West	4.7	4.7	4.4	4.2	3.4	3.4	2.1	4.3
5.8	West	4.8	4.7	4.5	4.3	3.4	3.4	1.9	4.5
5.9	West	5.1	4.4	3.9	3.7	2.7	2.7	1.5	3.9
6	West	4.9	3.6	3.2	2.9	2.0	2.0	1.1	3.2
6.1	West	5.0	3.1	2.6	2.4	1.6	1.6	0.8	2.6
6.2	West	5.0	2.3	1.8	1.7	1.0	1.0	0.4	1.8
6.3	West	5.1	1.0	0.4	0.3	0.1	0.1	0.0	0.4
6.4	West	4.5	0.7	0.6	0.5	0.2	0.2	0.1	0.2
6.5	West	4.8	1.9	1.8	1.5	0.4	0.4	0.1	0.4
6.6	West	5.7	3.8	3.6	3.0	1.0	1.0	0.1	1.0
6.7	West	8.7	7.0	5.2	2.7	0.8	0.8	0.1	0.8
6.8	West	8.4	7.1	5.3	2.7	0.7	0.7	0.1	0.7
6.9	West	7.7	6.2	4.5	2.2	0.6	0.6	0.0	0.6
7	West	7.3	5.1	3.5	1.5	0.4	0.4	0.0	0.4
7.1	West	6.8	4.1	2.6	0.7	0.1	0.1	0.0	0.1
7.2	West	4.7	1.6	1.1	0.6	0.1	0.1	0.0	0.1
7.3	West	4.1	1.4	1.0	0.8	0.5	0.5	0.1	0.5
7.4	West	4.1	2.3	2.2	2.1	1.8	1.8	1.1	1.8
7.5	West	4.0	3.1	3.1	2.9	2.4	2.4	1.3	2.4
7.6	West	4.0	3.7	3.6	3.5	2.9	2.9	1.4	2.9
7.7	West	4.0	3.9	3.8	3.7	3.1	3.1	1.5	3.1
7.8	West	4.1	4.1	4.1	4.0	3.3	3.3	1.5	3.4
7.9	West	4.2	4.2	4.2	4.1	2.9	2.9	1.0	3.4
8	West	4.4	4.4	4.4	4.2	2.8	2.8	0.8	3.8
8.1	West	4.7	4.7	4.7	4.0	1.5	1.5	0.2	3.9

**Table J2.2-1a**

**Rolling River Mile Average Concentrations - Arsenic (mg/kg) - 0.5 Mile Increments**

Portland Harbor Superfund Site

Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
8.2	West	4.7	4.7	4.7	4.0	1.7	1.7	0.4	4.0
8.3	West	4.9	4.9	4.9	3.9	1.8	1.8	0.9	3.9
8.4	West	6.3	6.2	6.2	3.7	1.6	1.6	0.9	3.7
8.5	West	7.1	7.0	7.0	3.4	1.4	1.4	0.9	3.4
8.6	West	7.3	6.9	6.8	2.9	1.5	1.5	0.9	2.9
8.7	West	8.8	7.3	7.1	2.4	1.0	1.0	0.8	2.4
8.8	West	12.0	8.7	7.3	1.4	0.3	0.3	0.1	1.4
8.9	West	11.0	6.3	4.3	0.5	0.0	0.0	0.0	0.5
9	West	10.1	4.4	1.3	0.2	0.0	0.0	0.0	0.2
9.1	West	8.5	4.3	2.0	1.3	0.9	0.9	0.7	1.3
9.2	West	6.4	4.3	2.6	2.1	1.4	1.4	1.1	2.1
9.3	West	4.3	3.7	3.1	2.7	1.5	1.5	1.2	2.7
9.4	West	4.0	3.7	3.3	2.9	1.6	1.6	1.2	2.9
9.5	West	3.7	3.6	3.1	2.6	1.4	1.4	1.1	2.6
9.6	West	3.6	3.4	2.8	2.4	1.2	1.2	0.9	2.4
9.7	West	3.6	3.4	2.6	2.0	0.9	0.9	0.7	2.0
9.8	West	3.7	3.4	2.3	1.5	0.9	0.9	0.7	1.5
9.9	West	4.1	3.9	2.2	1.4	1.1	1.1	0.8	1.4
10	West	6.9	6.9	6.8	6.0	5.0	5.0	2.4	6.0
10.1	West	8.6	8.6	8.5	7.6	5.3	5.3	2.0	7.6
10.2	West	9.4	9.4	9.4	8.6	6.5	6.5	3.0	8.6
10.3	West	9.7	9.7	9.7	8.8	6.8	6.8	3.3	8.9
10.4	West	9.2	9.2	9.2	8.3	6.3	6.3	3.4	8.4
10.5	West	5.9	5.9	5.9	5.8	5.0	5.0	3.0	5.8
10.6	West	4.7	4.7	4.7	4.7	4.7	4.7	3.4	4.7
10.7	West	4.5	4.5	4.5	4.5	4.5	4.5	3.6	4.5
10.8	West	4.6	4.6	4.6	4.6	4.6	4.6	3.9	4.6
10.9	West	4.7	4.7	4.7	4.7	4.7	4.7	3.9	4.7
11	West	4.8	4.8	4.8	4.8	4.8	4.8	4.8	4.8
11.1	West	4.8	4.8	4.8	4.8	4.8	4.8	4.8	4.8
11.2	West	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3
11.3	West	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6
11.4	West	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1
11.5	West	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
11.6	West	2.9	2.9	2.9	2.9	2.9	2.9	2.9	2.9
11.7	West	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8
7.8	Swan Isl	5.5	0.4	0.4	0.1	0.1	0.1	0.0	0.1
7.9	Swan Isl	6.4	0.3	0.3	0.2	0.1	0.1	0.0	0.2
8	Swan Isl	7.3	0.4	0.4	0.2	0.1	0.1	0.0	0.2
8.1	Swan Isl	7.6	0.4	0.4	0.2	0.1	0.1	0.0	0.2
8.2	Swan Isl	7.8	0.4	0.4	0.2	0.1	0.1	0.1	0.2

**Table J2.2-1a**

**Rolling River Mile Average Concentrations - Arsenic (mg/kg) - 0.5 Mile Increments**

Portland Harbor Superfund Site

Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
8.3	Swan Isl	8.0	0.4	0.4	0.2	0.1	0.1	0.1	0.2
8.4	Swan Isl	8.4	0.5	0.4	0.3	0.2	0.2	0.1	0.3
8.5	Swan Isl	7.8	0.5	0.5	0.4	0.3	0.3	0.3	0.4
8.6	Swan Isl	7.1	0.6	0.4	0.4	0.3	0.3	0.3	0.4
8.7	Swan Isl	6.5	0.7	0.4	0.3	0.3	0.3	0.3	0.3
8.8	Swan Isl	6.2	0.7	0.4	0.3	0.3	0.3	0.3	0.3
8.9	Swan Isl	5.8	1.3	0.8	0.7	0.3	0.3	0.3	1.0
9	Swan Isl	5.7	1.5	0.9	0.8	0.3	0.3	0.2	1.2
9.1	Swan Isl	5.5	1.7	1.1	1.0	0.3	0.3	0.2	1.5
9.2	Swan Isl	4.7	2.5	1.7	1.6	0.4	0.4	0.3	2.4
9.3	Swan Isl	4.4	3.4	2.4	2.2	0.5	0.5	0.4	3.4
9.4	Swan Isl	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9

**Table J2.2-1b**

**Rolling River Mile Average Concentrations - PCBs (µg/kg) - 0.5 Mile Increments**

Portland Harbor Superfund Site

Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
1.8	East	52.62	52.62	51.49	42.71	39.76	39.76	38.90	42.71
1.9	East	94.65	68.37	55.42	41.08	35.37	35.37	34.00	41.08
2	East	168.32	72.15	52.17	36.15	28.98	28.98	27.18	36.15
2.1	East	207.80	79.41	50.31	30.31	22.19	22.19	20.23	30.31
2.2	East	351.32	76.00	44.54	25.49	16.64	16.64	14.35	25.49
2.3	East	334.66	74.96	45.39	30.36	15.76	15.76	13.14	30.36
2.4	East	313.69	63.12	42.86	32.47	15.66	15.66	12.62	32.47
2.5	East	241.46	57.14	44.24	35.84	18.83	18.83	12.98	35.84
2.6	East	209.03	48.81	42.75	37.13	19.89	19.89	13.47	37.13
2.7	East	56.06	45.66	41.77	38.88	22.35	22.35	16.04	39.12
2.8	East	36.10	35.76	33.80	32.43	24.57	24.57	18.86	32.70
2.9	East	32.98	32.61	30.46	28.96	25.92	25.92	20.71	29.26
3	East	28.32	27.89	25.57	24.40	23.37	23.37	22.41	24.75
3.1	East	23.64	23.64	23.60	23.29	22.93	22.93	22.69	23.64
3.2	East	21.29	21.29	21.25	21.25	21.21	21.21	21.18	21.25
3.3	East	20.83	20.83	20.38	20.38	20.24	20.24	19.97	20.38
3.4	East	22.48	22.48	22.02	22.02	21.78	21.78	20.88	22.02
3.5	East	37.28	37.28	36.91	36.25	24.29	24.29	19.24	36.25
3.6	East	173.97	71.29	50.63	39.88	21.02	21.02	14.57	39.88
3.7	East	187.32	80.09	58.61	44.49	22.81	22.81	13.88	44.49
3.8	East	211.33	93.66	68.51	47.75	22.34	22.34	12.19	47.75
3.9	East	245.47	119.56	85.28	48.67	19.79	19.79	8.47	48.67
4	East	306.99	139.05	93.32	44.81	17.46	17.46	6.17	44.81
4.1	East	137.23	126.40	108.12	52.70	23.96	23.96	9.40	52.70
4.2	East	161.75	154.05	109.81	58.30	18.51	18.51	6.26	58.30
4.3	East	133.67	129.03	93.10	54.66	20.14	20.14	7.31	54.66
4.4	East	92.80	92.48	68.10	47.43	18.91	18.91	7.34	47.43
4.5	East	86.94	86.65	62.06	42.19	17.26	17.26	6.25	42.19
4.6	East	84.59	84.23	54.52	38.80	15.98	15.98	5.50	38.80
4.7	East	40.05	39.56	31.95	25.94	17.69	17.69	8.23	25.94
4.8	East	34.90	34.31	26.72	20.96	15.95	15.95	9.05	20.96
4.9	East	31.73	31.73	24.94	21.43	20.05	20.05	15.17	21.43
5	East	24.69	24.69	24.69	24.69	24.68	24.68	23.22	24.69
5.1	East	21.74	21.74	21.74	21.74	21.74	21.74	19.66	21.74
5.2	East	20.23	20.23	20.23	20.23	20.23	20.23	17.11	20.23
5.3	East	23.64	23.64	23.64	23.64	19.90	19.90	15.72	19.90
5.4	East	42.05	42.05	42.05	42.05	20.32	20.32	10.37	20.32
5.5	East	69.93	69.93	69.93	55.48	17.47	17.47	6.68	17.47
5.6	East	90.06	89.59	89.59	72.59	18.00	18.00	5.24	18.00
5.7	East	82.43	82.07	82.07	69.30	24.15	24.15	7.24	24.15
5.8	East	84.26	83.94	83.94	72.33	23.56	23.56	7.09	33.77

**Table J2.2-1b**

**Rolling River Mile Average Concentrations - PCBs (µg/kg) - 0.5 Mile Increments**

Portland Harbor Superfund Site

Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
5.9	East	81.60	81.30	81.30	67.89	21.60	21.60	9.58	42.95
6	East	63.95	63.70	63.68	58.99	23.26	23.26	12.28	45.39
6.1	East	48.86	48.86	48.25	45.18	21.28	21.28	12.74	43.79
6.2	East	42.57	42.57	41.74	38.45	16.04	16.04	11.93	40.09
6.3	East	33.45	33.45	32.49	29.50	15.64	15.64	12.59	31.21
6.4	East	22.80	22.65	21.54	20.82	16.42	16.42	13.16	22.55
6.5	East	21.41	18.70	15.87	15.22	13.06	13.06	10.31	18.50
6.6	East	119.41	22.88	17.90	17.45	12.18	12.18	8.75	21.65
6.7	East	112.84	22.76	17.36	17.01	12.20	12.20	8.75	21.61
6.8	East	104.20	20.20	15.27	14.95	10.50	10.50	7.73	19.12
6.9	East	96.89	17.96	13.32	13.02	8.93	8.93	6.77	17.30
7	East	93.14	17.50	13.35	13.06	9.86	9.86	8.21	18.15
7.1	East	15.96	13.86	11.44	11.43	10.98	10.98	10.18	15.49
7.2	East	19.24	17.23	14.14	14.14	12.75	12.75	12.35	18.47
7.3	East	22.71	20.67	17.55	17.55	16.14	16.14	15.71	21.92
7.4	East	27.27	25.32	21.99	21.99	20.41	20.41	19.96	26.39
7.5	East	29.64	29.03	26.10	26.10	24.07	24.07	23.42	28.51
7.6	East	33.51	32.90	30.12	30.12	28.05	28.05	25.21	32.27
7.7	East	33.44	33.44	33.44	33.44	33.38	33.38	29.29	33.44
7.8	East	37.87	36.88	36.88	36.66	36.47	36.47	26.07	36.66
7.9	East	36.86	25.96	25.96	25.74	25.54	25.54	14.87	25.74
8	East	34.65	19.11	19.11	18.92	18.23	18.23	9.24	18.92
8.1	East	32.05	16.87	16.87	16.69	16.07	16.07	10.37	16.69
8.2	East	29.75	14.88	14.88	14.71	14.10	14.10	9.14	14.71
8.3	East	27.21	9.41	9.41	9.41	8.77	8.77	8.54	9.41
8.4	East	24.45	15.54	15.54	15.54	14.81	14.81	14.56	15.54
8.5	East	24.47	24.47	24.47	24.47	24.47	24.47	24.45	24.47
8.6	East	27.60	27.60	27.60	27.60	27.49	27.49	27.42	27.60
8.7	East	30.75	30.75	30.75	30.75	30.43	30.43	29.98	30.75
8.8	East	36.29	36.29	36.29	36.29	35.33	35.33	27.91	36.29
8.9	East	44.90	44.90	44.90	44.90	38.63	38.63	24.09	44.90
9	East	49.36	49.36	49.36	49.36	42.13	42.13	22.91	49.36
9.1	East	46.53	46.53	46.53	46.53	39.49	39.49	20.97	46.53
9.2	East	42.53	42.53	42.53	42.53	35.94	35.94	18.41	42.53
9.3	East	41.40	41.40	41.40	41.40	33.02	33.02	19.77	41.40
9.4	East	44.99	44.99	44.99	44.99	28.70	28.70	19.54	44.99
9.5	East	44.87	44.87	44.87	44.87	28.54	28.54	17.82	44.87
9.6	East	45.42	45.42	45.42	45.42	29.74	29.74	18.70	45.42
9.7	East	44.65	44.65	44.65	44.65	29.17	29.17	18.32	44.65
9.8	East	45.48	45.15	44.74	41.04	26.69	26.69	18.10	41.04
9.9	East	40.46	40.12	39.68	34.25	28.46	28.46	20.25	34.28

**Table J2.2-1b**

**Rolling River Mile Average Concentrations - PCBs (µg/kg) - 0.5 Mile Increments**

Portland Harbor Superfund Site

Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
10	East	36.89	36.52	36.03	30.06	24.82	24.82	20.79	30.09
10.1	East	38.16	37.69	37.09	29.71	23.21	23.21	18.64	29.75
10.2	East	45.35	44.76	44.01	34.69	26.46	26.46	20.13	34.74
10.3	East	42.44	42.44	42.44	39.16	30.55	30.55	22.52	39.22
10.4	East	40.08	40.08	40.08	40.08	30.72	30.72	24.03	40.08
10.5	East	59.90	59.90	59.90	51.44	27.58	27.58	21.25	51.44
10.6	East	90.50	90.50	90.50	54.58	22.98	22.98	16.93	54.58
10.7	East	97.34	97.34	97.34	60.69	22.30	22.30	13.08	60.69
10.8	East	102.96	102.96	102.96	67.13	21.59	21.59	9.90	67.13
10.9	East	128.38	114.42	103.01	62.69	22.64	22.64	9.49	62.69
11	East	230.02	139.00	97.63	54.25	22.33	22.33	7.54	54.25
11.1	East	429.49	163.19	83.09	47.18	20.19	20.19	5.14	47.18
11.2	East	620.36	194.37	83.22	35.24	13.61	13.61	3.24	35.24
11.3	East	672.70	220.10	85.94	27.74	9.85	9.85	2.92	27.74
11.4	East	664.89	220.70	94.96	30.89	9.95	9.95	1.69	30.89
11.5	East	638.72	208.93	95.53	33.51	12.84	12.84	2.52	33.51
11.6	East	539.70	198.19	98.29	37.67	15.07	15.07	2.98	37.67
11.7	East	300.08	175.77	106.15	50.03	22.99	22.99	4.54	50.03
1.8	West	14.56	14.56	14.56	14.56	14.56	14.56	14.56	14.56
1.9	West	14.54	14.54	14.54	14.54	14.54	14.54	14.54	14.54
2	West	14.57	14.57	14.57	14.57	14.57	14.57	14.57	14.57
2.1	West	13.96	13.96	13.96	13.96	13.96	13.96	13.96	13.96
2.2	West	13.00	13.00	13.00	13.00	13.00	13.00	13.00	13.00
2.3	West	11.16	11.16	11.16	11.16	11.16	11.16	11.16	11.16
2.4	West	9.76	9.76	9.76	9.76	9.76	9.76	9.74	9.76
2.5	West	8.40	8.40	8.40	8.40	8.40	8.40	8.19	8.40
2.6	West	7.98	7.98	7.98	7.98	7.98	7.98	7.20	7.98
2.7	West	10.26	10.26	10.26	10.26	10.26	10.26	7.30	10.26
2.8	West	13.34	13.34	13.34	13.34	13.34	13.34	8.31	13.34
2.9	West	13.99	13.99	13.99	13.99	13.99	13.99	9.04	13.99
3	West	14.90	14.90	14.90	14.90	14.90	14.90	9.90	14.90
3.1	West	16.91	16.91	16.91	16.91	16.91	16.91	11.14	16.91
3.2	West	16.83	16.83	16.83	16.83	16.83	16.83	12.30	16.83
3.3	West	16.48	16.48	16.48	16.48	16.42	16.42	13.28	16.48
3.4	West	17.63	17.63	17.63	17.63	17.57	17.57	14.45	17.63
3.5	West	19.20	19.20	19.20	19.20	19.12	19.12	16.26	19.20
3.6	West	19.82	19.82	19.82	19.82	19.72	19.72	17.94	19.82
3.7	West	22.08	22.08	22.08	21.87	20.29	20.29	17.51	21.87
3.8	West	23.51	23.51	23.51	23.25	21.21	21.21	17.04	23.25
3.9	West	26.56	26.56	26.56	26.25	21.64	21.64	16.14	26.25
4	West	30.58	30.58	30.58	29.85	21.08	21.08	12.78	29.85

**Table J2.2-1b**

**Rolling River Mile Average Concentrations - PCBs (µg/kg) - 0.5 Mile Increments**

Portland Harbor Superfund Site

Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
4.1	West	28.76	28.76	28.76	28.04	18.52	18.52	9.15	28.04
4.2	West	28.13	28.13	28.13	27.77	20.75	20.75	9.74	27.77
4.3	West	28.81	28.81	28.81	28.40	20.89	20.89	9.52	28.40
4.4	West	33.30	33.30	33.30	32.88	20.53	20.53	7.53	32.88
4.5	West	30.60	30.60	30.60	30.60	21.04	21.04	9.83	30.60
4.6	West	32.97	32.97	32.97	32.96	22.56	22.56	12.12	32.96
4.7	West	31.90	31.90	31.90	31.78	20.04	20.04	12.61	31.78
4.8	West	29.96	29.96	29.95	29.84	18.14	18.14	12.38	29.84
4.9	West	21.59	21.59	21.55	21.33	17.13	17.13	13.36	21.33
5	West	19.47	19.47	19.43	19.00	16.02	16.02	12.11	19.00
5.1	West	17.14	17.14	16.55	15.95	14.40	14.40	9.37	15.95
5.2	West	19.47	18.82	16.53	15.54	14.23	14.23	7.74	15.54
5.3	West	22.85	22.17	17.83	15.86	13.16	13.16	5.50	15.86
5.4	West	25.37	24.64	20.04	18.08	15.23	15.23	4.58	18.08
5.5	West	26.03	25.31	20.77	19.06	15.77	15.77	3.89	19.06
5.6	West	24.52	23.85	20.22	18.58	14.54	14.54	5.01	18.78
5.7	West	25.42	25.39	23.38	21.17	16.00	16.00	7.94	22.60
5.8	West	28.51	27.95	26.96	25.03	17.53	17.53	7.93	26.96
5.9	West	33.62	28.29	25.42	23.12	14.35	14.35	6.69	25.42
6	West	39.90	24.69	21.94	19.74	11.63	11.63	5.53	21.94
6.1	West	40.81	21.98	19.26	17.18	9.84	9.84	4.56	19.26
6.2	West	44.52	17.69	14.94	13.49	6.86	6.86	2.31	14.94
6.3	West	52.45	7.75	4.86	4.00	0.71	0.71	0.00	4.86
6.4	West	51.29	7.83	7.04	4.55	1.05	1.05	0.17	1.13
6.5	West	47.58	18.73	17.91	13.62	2.21	2.21	0.22	2.28
6.6	West	71.56	42.49	39.27	25.65	3.93	3.93	0.43	4.00
6.7	West	119.69	75.92	45.59	21.81	3.31	3.31	0.45	3.37
6.8	West	137.26	89.94	52.33	22.11	3.16	3.16	0.40	3.16
6.9	West	185.89	97.68	46.42	17.95	2.23	2.23	0.33	2.23
7	West	218.60	83.39	36.52	11.76	1.51	1.51	0.30	1.51
7.1	West	249.11	72.04	25.77	5.46	0.68	0.68	0.28	0.68
7.2	West	254.18	51.64	19.04	5.56	0.86	0.86	0.00	0.86
7.3	West	286.21	69.44	27.20	9.54	4.26	4.26	1.09	4.26
7.4	West	181.07	48.22	30.17	19.30	14.05	14.05	6.82	14.05
7.5	West	130.20	62.04	47.46	33.76	21.43	21.43	8.70	21.43
7.6	West	97.46	66.34	54.06	42.58	28.28	28.28	9.89	28.28
7.7	West	92.80	69.17	57.08	45.86	31.23	31.23	10.46	31.23
7.8	West	55.91	55.87	55.49	51.12	35.01	35.01	10.96	37.23
7.9	West	71.18	71.14	70.67	63.54	36.85	36.85	8.09	48.33
8	West	78.70	78.70	78.70	70.42	37.01	37.01	6.14	62.20
8.1	West	98.69	98.69	97.59	79.33	23.53	23.53	2.02	77.56



**Table J2.2-1b**

**Rolling River Mile Average Concentrations - PCBs (µg/kg) - 0.5 Mile Increments**

Portland Harbor Superfund Site

Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
8.2	West	92.08	92.08	91.20	73.62	24.22	24.22	4.04	73.62
8.3	West	82.65	82.27	81.60	63.04	21.32	21.32	8.64	63.04
8.4	West	87.32	86.58	85.96	56.34	18.72	18.72	8.38	56.34
8.5	West	91.62	90.85	90.12	50.55	16.43	16.43	8.21	50.55
8.6	West	345.63	95.29	87.25	40.61	17.31	17.31	8.69	40.61
8.7	West	439.26	100.90	88.94	33.88	10.88	10.88	7.50	33.88
8.8	West	685.59	148.33	94.85	25.67	4.19	4.19	1.05	25.67
8.9	West	996.37	161.81	74.77	12.68	0.00	0.00	0.00	12.68
9	West	1228.23	215.05	57.56	6.63	0.00	0.00	0.00	6.63
9.1	West	489.72	172.32	56.19	26.02	9.83	9.83	6.04	26.02
9.2	West	367.38	154.40	65.73	42.06	15.27	15.27	9.79	42.06
9.3	West	261.83	128.61	82.90	62.36	17.54	17.54	11.17	62.36
9.4	West	166.71	125.87	93.67	65.17	19.12	19.12	12.17	65.17
9.5	West	148.17	133.63	102.50	59.04	16.63	16.63	10.55	59.04
9.6	West	163.80	145.67	107.09	58.49	14.65	14.65	9.48	58.49
9.7	West	192.30	168.55	118.01	54.25	11.80	11.80	7.70	54.25
9.8	West	225.55	192.38	121.77	32.63	10.74	10.74	7.84	32.63
9.9	West	241.86	225.33	122.02	22.72	9.00	9.00	6.80	22.72
10	West	85.38	85.38	85.02	55.82	34.65	34.65	20.64	56.19
10.1	West	97.87	97.87	97.60	69.03	29.68	29.68	15.86	69.30
10.2	West	93.70	93.70	93.46	67.45	31.67	31.67	15.66	67.69
10.3	West	92.40	92.40	92.16	66.39	30.94	30.94	14.77	66.64
10.4	West	87.84	87.84	87.60	61.92	27.04	27.04	14.89	62.17
10.5	West	51.36	51.36	51.36	48.30	38.15	38.15	18.64	48.30
10.6	West	39.14	39.14	39.14	39.14	39.14	39.14	23.49	39.14
10.7	West	37.14	37.14	37.14	37.14	37.14	37.14	25.20	37.14
10.8	West	35.59	35.59	35.59	35.59	35.59	35.59	25.31	35.59
10.9	West	34.66	34.66	34.66	34.66	34.66	34.66	25.24	34.66
11	West	28.82	28.82	28.82	28.82	28.82	28.82	28.78	28.82
11.1	West	28.05	28.05	28.05	28.05	28.05	28.05	28.05	28.05
11.2	West	27.70	27.70	27.70	27.70	27.70	27.70	27.58	27.70
11.3	West	28.24	28.24	28.24	28.24	28.24	28.24	28.10	28.24
11.4	West	28.36	28.36	28.36	28.36	28.36	28.36	28.24	28.36
11.5	West	28.71	28.71	28.71	28.71	28.71	28.71	28.57	28.71
11.6	West	28.49	28.49	28.49	28.49	28.49	28.49	28.31	28.49
11.7	West	27.02	27.02	27.02	27.02	27.02	27.02	27.02	27.02
7.8	Swan Isl	130.79	19.18	19.11	1.47	0.71	0.71	0.12	1.47
7.9	Swan Isl	135.83	8.60	8.44	4.05	0.58	0.58	0.21	4.05
8	Swan Isl	215.32	11.70	9.86	3.98	0.53	0.53	0.20	3.98
8.1	Swan Isl	297.00	12.46	9.29	3.73	0.67	0.67	0.20	3.73
8.2	Swan Isl	630.17	11.73	8.62	3.53	0.75	0.75	0.32	3.53

**Table J2.2-1b****Rolling River Mile Average Concentrations - PCBs ( $\mu\text{g}/\text{kg}$ ) - 0.5 Mile Increments**

Portland Harbor Superfund Site

Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
8.3	Swan Isl	792.58	10.97	7.73	3.67	0.84	0.84	0.38	3.67
8.4	Swan Isl	1084.78	13.00	8.31	3.34	1.45	1.45	0.83	3.34
8.5	Swan Isl	1297.87	11.81	7.05	3.46	2.51	2.51	1.83	3.46
8.6	Swan Isl	1164.40	15.92	6.67	3.59	2.69	2.69	2.25	3.59
8.7	Swan Isl	546.94	18.78	6.79	3.80	2.78	2.78	2.33	3.80
8.8	Swan Isl	274.38	19.04	6.77	3.95	2.87	2.87	2.43	3.95
8.9	Swan Isl	175.57	31.66	16.56	14.05	3.35	3.35	2.62	18.31
9	Swan Isl	179.19	35.97	18.00	16.46	3.39	3.39	2.51	21.81
9.1	Swan Isl	139.15	37.31	23.47	21.95	3.85	3.85	2.68	29.46
9.2	Swan Isl	102.09	49.20	35.89	34.39	5.21	5.21	3.41	46.91
9.3	Swan Isl	87.02	67.38	50.53	48.37	6.22	6.22	4.00	66.91
9.4	Swan Isl	12.47	12.47	12.47	12.47	12.47	12.47	12.47	12.47

**Table J2.2-1c**

**Rolling River Mile Average Concentrations - cPAHs (µg/kg) - 0.5 Mile Increments**

Portland Harbor Superfund Site

Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
1.8	East	285.27	285.27	285.22	283.78	282.50	282.50	281.82	283.78
1.9	East	186.86	183.32	182.29	179.84	176.96	176.96	175.82	179.84
2	East	109.20	96.92	94.10	91.09	87.40	87.40	85.85	91.09
2.1	East	70.52	53.34	48.21	43.79	39.56	39.56	37.86	43.79
2.2	East	68.53	46.11	40.46	35.65	30.23	30.23	27.86	35.65
2.3	East	68.30	47.58	42.36	38.13	31.09	31.09	28.41	38.13
2.4	East	72.13	53.50	48.88	45.39	37.72	37.72	34.39	45.39
2.5	East	100.32	90.32	83.48	69.85	51.04	51.04	39.92	69.85
2.6	East	260.05	230.35	127.55	89.82	58.76	58.76	42.40	89.82
2.7	East	291.09	265.35	155.32	106.32	67.62	67.62	49.07	118.83
2.8	East	330.61	302.02	178.48	123.59	83.63	83.63	63.97	137.65
2.9	East	366.76	335.38	199.80	139.56	98.14	98.14	77.89	154.99
3	East	378.99	342.93	193.30	140.72	111.59	111.59	100.92	158.45
3.1	East	147.28	147.28	144.53	129.07	117.79	117.79	114.39	147.28
3.2	East	123.17	123.17	122.85	122.85	122.69	122.69	122.47	122.85
3.3	East	136.32	136.32	133.30	133.30	132.93	132.93	128.12	133.30
3.4	East	127.61	127.61	124.55	124.55	124.09	124.09	118.04	124.55
3.5	East	103.45	103.45	100.97	100.52	91.46	91.46	80.28	100.52
3.6	East	172.84	97.27	84.23	78.46	61.95	61.95	50.44	78.46
3.7	East	179.17	100.32	86.96	79.70	61.10	61.10	45.42	79.70
3.8	East	178.68	93.22	80.33	70.51	47.73	47.73	31.63	70.51
3.9	East	195.24	106.54	91.25	69.90	40.86	40.86	19.42	69.90
4	East	248.27	129.99	109.63	81.01	46.48	46.48	19.35	81.01
4.1	East	728.16	726.84	721.31	477.94	159.25	159.25	56.39	477.94
4.2	East	1246.57	1245.78	1198.34	929.37	181.08	181.08	43.96	929.37
4.3	East	1782.86	1773.03	1345.04	975.23	235.15	235.15	60.41	975.23
4.4	East	3074.92	2823.89	1741.18	1095.22	257.00	257.00	65.42	1095.22
4.5	East	3710.28	3478.82	1862.81	1093.30	281.79	281.79	61.57	1093.30
4.6	East	4185.69	3902.69	1927.87	1114.36	293.82	293.82	61.92	1114.36
4.7	East	4957.91	4571.35	1919.87	905.11	337.01	337.01	91.48	905.11
4.8	East	4953.33	4494.46	1855.23	841.19	324.02	324.02	100.17	841.19
4.9	East	3027.23	3027.23	1047.80	489.04	353.49	353.49	151.99	489.04
5	East	327.32	327.32	327.32	327.32	326.85	326.85	258.05	327.32
5.1	East	396.32	396.32	396.32	396.32	396.32	396.32	261.20	396.32
5.2	East	472.15	472.15	472.15	472.15	472.15	472.15	253.14	472.15
5.3	East	487.34	487.34	487.34	487.34	470.21	470.21	257.25	470.21
5.4	East	648.39	648.39	648.39	648.39	473.76	473.76	201.41	473.76
5.5	East	791.48	791.48	791.48	705.73	425.67	425.67	146.70	425.67
5.6	East	756.13	754.13	754.13	662.10	327.38	327.38	96.74	327.38
5.7	East	753.01	751.51	751.51	682.34	400.16	400.16	101.62	400.16
5.8	East	783.51	782.16	782.16	719.82	444.98	444.98	122.94	475.43

**Table J2.2-1c**

**Rolling River Mile Average Concentrations - cPAHs (µg/kg) - 0.5 Mile Increments**

Portland Harbor Superfund Site

Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
5.9	East	708.01	706.78	706.78	646.17	462.45	462.45	210.21	511.54
6	East	619.79	618.74	618.64	607.09	486.73	486.73	267.41	542.06
6.1	East	767.76	767.76	716.22	622.10	489.94	489.94	294.15	744.48
6.2	East	746.34	746.34	685.98	575.15	425.84	425.84	315.52	742.84
6.3	East	622.76	622.76	565.35	461.89	343.59	343.59	285.64	619.62
6.4	East	514.43	513.47	457.38	362.84	266.85	266.85	215.13	512.61
6.5	East	411.54	401.88	341.10	255.14	177.55	177.55	134.57	400.61
6.6	East	175.43	159.12	140.00	130.70	105.92	105.92	78.44	157.40
6.7	East	85.51	70.14	56.22	55.99	53.65	53.65	45.73	68.53
6.8	East	63.97	49.64	37.28	37.07	34.93	34.93	30.21	48.14
6.9	East	58.10	44.76	34.06	33.86	31.91	31.91	28.18	44.38
7	East	63.19	44.64	35.46	35.27	33.73	33.73	31.64	56.05
7.1	East	83.64	60.65	42.47	42.46	41.88	41.88	40.58	83.25
7.2	East	95.25	72.49	50.52	50.52	47.62	47.62	45.94	93.68
7.3	East	97.98	74.98	52.76	52.76	49.83	49.83	48.32	96.40
7.4	East	98.34	73.13	48.63	48.63	45.35	45.35	44.13	96.57
7.5	East	88.78	74.07	50.80	50.80	46.58	46.58	44.95	86.51
7.6	East	60.06	58.83	50.07	50.07	45.79	45.79	42.16	57.54
7.7	East	47.33	47.33	47.33	47.33	47.29	47.29	42.92	47.33
7.8	East	53.59	51.37	51.37	50.95	50.59	50.59	32.93	50.95
7.9	East	60.86	41.71	41.71	41.29	40.91	40.91	22.79	41.29
8	East	64.55	32.80	32.80	32.44	31.19	31.19	15.85	32.44
8.1	East	61.58	30.57	30.57	30.22	29.04	29.04	17.10	30.22
8.2	East	58.26	27.88	27.88	27.54	26.38	26.38	15.42	27.54
8.3	East	50.11	13.97	13.97	13.97	12.84	12.84	12.45	13.97
8.4	East	45.83	24.04	24.04	24.04	22.74	22.74	22.30	24.04
8.5	East	34.24	34.24	34.24	34.24	34.24	34.24	34.20	34.24
8.6	East	36.89	36.89	36.89	36.89	36.79	36.79	36.69	36.89
8.7	East	38.29	38.29	38.29	38.29	38.00	38.00	37.70	38.29
8.8	East	38.44	38.44	38.44	38.44	37.77	37.77	33.74	38.44
8.9	East	36.13	36.13	36.13	36.13	33.72	33.72	26.51	36.13
9	East	34.04	34.04	34.04	34.04	31.13	31.13	22.15	34.04
9.1	East	28.84	28.84	28.84	28.84	26.01	26.01	17.38	28.84
9.2	East	23.29	23.29	23.29	23.29	20.75	20.75	12.61	23.29
9.3	East	22.38	22.38	22.38	22.38	19.02	19.02	13.09	22.38
9.4	East	25.39	25.39	25.39	25.39	17.81	17.81	12.92	25.39
9.5	East	24.85	24.85	24.85	24.85	17.40	17.40	11.87	24.85
9.6	East	27.04	27.04	27.04	27.04	19.92	19.92	14.41	27.04
9.7	East	33.15	33.15	33.15	33.15	26.13	26.13	20.71	33.15
9.8	East	50.35	50.25	50.16	48.52	39.91	39.91	28.13	48.52
9.9	East	157.81	157.70	157.60	149.77	67.36	67.36	38.05	154.95

**Table J2.2-1c**

**Rolling River Mile Average Concentrations - cPAHs (µg/kg) - 0.5 Mile Increments**

Portland Harbor Superfund Site

Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
10	East	218.90	218.78	218.67	210.07	118.10	118.10	78.51	215.75
10.1	East	303.54	303.39	303.26	292.62	178.88	178.88	121.87	299.65
10.2	East	378.63	378.44	378.28	364.85	221.32	221.32	148.55	373.72
10.3	East	435.76	435.76	435.76	422.58	247.08	247.08	171.42	433.75
10.4	East	216.49	216.49	216.49	216.49	206.99	206.99	167.83	216.49
10.5	East	127.54	127.54	127.54	125.13	113.66	113.66	92.83	125.13
10.6	East	58.37	58.37	58.37	49.33	35.81	35.81	29.97	49.33
10.7	East	55.75	55.75	55.75	46.54	27.37	27.37	17.73	46.54
10.8	East	66.50	66.50	66.50	57.49	29.84	29.84	13.99	57.49
10.9	East	71.11	70.31	69.04	58.82	34.29	34.29	15.51	58.82
11	East	74.55	71.13	65.00	54.79	33.29	33.29	12.65	54.79
11.1	East	86.31	71.05	60.46	52.10	31.40	31.40	10.07	52.10
11.2	East	88.58	59.17	46.90	37.41	22.56	22.56	7.26	37.41
11.3	East	72.01	42.92	30.43	20.47	13.20	13.20	5.28	20.47
11.4	East	63.35	34.72	23.18	13.76	7.00	7.00	1.38	13.76
11.5	East	59.21	29.21	20.91	12.40	6.58	6.58	1.78	12.40
11.6	East	47.93	23.63	18.33	12.13	6.79	6.79	1.90	12.13
11.7	East	26.65	23.05	20.74	16.24	10.33	10.33	2.89	16.24
1.8	West	62.11	62.11	62.11	62.11	62.11	62.11	62.11	62.11
1.9	West	62.46	62.46	62.46	62.46	62.46	62.46	62.46	62.46
2	West	69.50	69.50	69.50	69.50	69.50	69.50	69.50	69.50
2.1	West	86.86	86.86	86.86	86.86	86.86	86.86	86.86	86.86
2.2	West	109.69	109.69	109.69	109.69	109.69	109.69	109.69	109.69
2.3	West	160.70	160.70	160.70	160.70	160.70	160.70	160.70	160.70
2.4	West	216.19	216.19	216.19	216.19	216.19	216.19	215.28	216.19
2.5	West	256.95	256.95	256.95	256.95	256.95	256.95	246.87	256.95
2.6	West	320.09	320.09	320.09	320.09	320.09	320.09	285.84	320.09
2.7	West	427.95	427.95	427.95	427.95	427.95	427.95	321.95	427.95
2.8	West	513.27	513.27	513.27	513.27	513.27	513.27	352.94	513.27
2.9	West	526.51	526.51	526.51	526.51	526.51	526.51	371.27	526.51
3	West	586.96	586.96	586.96	586.96	586.96	586.96	394.01	586.96
3.1	West	647.53	647.53	647.53	647.53	647.53	647.53	407.71	647.53
3.2	West	617.29	617.29	617.29	617.29	617.29	617.29	404.33	617.29
3.3	West	546.32	546.32	546.32	546.32	545.47	545.47	365.34	546.32
3.4	West	516.01	516.01	516.01	516.01	515.01	515.01	319.22	516.01
3.5	West	431.10	431.10	431.10	431.10	429.87	429.87	282.44	431.10
3.6	West	320.54	320.54	320.54	320.54	318.90	318.90	251.50	320.54
3.7	West	373.99	373.99	373.99	352.46	258.36	258.36	194.92	352.46
3.8	West	426.48	426.48	426.48	400.88	287.29	287.29	192.64	400.88
3.9	West	503.13	503.13	503.13	472.48	330.22	330.22	212.62	472.48
4	West	644.46	644.46	644.46	605.28	390.05	390.05	176.66	605.28

**Table J2.2-1c**

**Rolling River Mile Average Concentrations - cPAHs (µg/kg) - 0.5 Mile Increments**

Portland Harbor Superfund Site

Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
4.1	West	821.69	821.69	821.69	782.88	489.17	489.17	144.37	782.88
4.2	West	682.16	682.16	682.16	677.65	533.94	533.94	145.20	677.65
4.3	West	732.10	732.10	732.10	727.05	571.97	571.97	135.33	727.05
4.4	West	840.73	840.73	840.73	835.63	557.96	557.96	94.96	835.63
4.5	West	772.50	772.50	772.50	772.50	499.14	499.14	119.79	772.50
4.6	West	593.79	593.79	593.79	592.04	376.81	376.81	136.58	592.04
4.7	West	718.99	718.99	711.00	652.47	325.64	325.64	160.79	652.47
4.8	West	696.78	696.78	688.77	630.08	296.69	296.69	182.46	630.08
4.9	West	756.67	756.67	706.02	604.99	298.34	298.34	201.23	604.99
5	West	904.84	904.84	845.85	597.11	283.58	283.58	187.08	597.11
5.1	West	1352.60	1352.60	980.81	638.54	300.18	300.18	167.35	638.54
5.2	West	2277.41	1934.17	906.25	545.19	286.52	286.52	127.53	545.19
5.3	West	3143.22	2757.01	1149.48	648.54	279.96	279.96	65.85	648.54
5.4	West	3233.89	2819.33	1154.25	673.79	396.69	396.69	59.08	673.79
5.5	West	3059.56	2650.05	1008.27	707.00	475.85	475.85	75.97	707.00
5.6	West	2640.67	2264.25	1070.46	836.59	518.55	518.55	127.89	859.25
5.7	West	1869.14	1836.29	1266.85	917.04	504.08	504.08	171.97	1158.39
5.8	West	2391.43	1841.79	1354.01	1098.30	510.74	510.74	165.33	1354.01
5.9	West	6066.89	2386.42	1320.10	1019.74	404.12	404.12	140.70	1320.10
6	West	14260.55	2215.14	1193.81	906.11	328.49	328.49	116.58	1193.81
6.1	West	21991.86	2044.06	1034.16	760.87	249.80	249.80	81.87	1034.16
6.2	West	29236.75	1824.08	779.40	627.65	183.65	183.65	41.57	779.40
6.3	West	40104.32	1213.09	285.27	177.98	22.86	22.86	0.00	285.27
6.4	West	38796.86	294.52	214.70	165.60	46.48	46.48	10.64	47.78
6.5	West	25684.49	586.63	504.02	402.75	89.43	89.43	13.56	90.77
6.6	West	11444.97	950.62	843.35	662.72	130.46	130.46	15.80	131.76
6.7	West	2747.09	819.26	678.48	511.10	100.81	100.81	12.81	101.80
6.8	West	955.57	730.89	601.93	447.69	88.31	88.31	11.43	88.31
6.9	West	573.49	476.19	403.08	296.09	51.95	51.95	4.36	51.95
7	West	431.07	288.39	222.10	150.91	26.41	26.41	2.66	26.41
7.1	West	388.34	93.24	39.15	7.75	1.09	1.09	1.19	1.09
7.2	West	337.05	32.98	18.15	6.13	1.25	1.25	0.00	1.25
7.3	West	301.70	27.00	18.52	12.86	8.11	8.11	4.10	8.11
7.4	West	242.36	38.97	36.32	33.02	28.44	28.44	18.99	28.44
7.5	West	174.70	51.50	49.49	45.92	36.50	36.50	22.23	36.50
7.6	West	72.27	65.47	64.07	61.45	49.58	49.58	27.75	49.58
7.7	West	67.72	65.88	64.55	62.32	51.23	51.23	28.44	51.23
7.8	West	65.82	65.80	65.73	64.95	53.14	53.14	28.90	54.27
7.9	West	69.93	69.92	69.83	66.98	47.04	47.04	21.18	55.04
8	West	81.38	81.38	81.38	71.75	44.11	44.11	18.32	64.36
8.1	West	154.22	154.22	152.78	127.27	13.66	13.66	2.77	126.62

**Table J2.2-1c**

**Rolling River Mile Average Concentrations - cPAHs (µg/kg) - 0.5 Mile Increments**

Portland Harbor Superfund Site

Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
8.2	West	182.11	182.11	180.96	158.76	37.60	37.60	8.66	158.76
8.3	West	166.50	165.99	165.12	142.72	43.08	43.08	20.70	142.72
8.4	West	164.84	163.87	163.05	131.35	39.75	39.75	19.52	131.35
8.5	West	157.94	156.98	156.07	122.94	38.06	38.06	19.12	122.94
8.6	West	127.83	119.42	110.27	78.72	40.20	40.20	20.23	78.72
8.7	West	126.22	90.14	77.50	40.06	21.28	21.28	17.73	40.06
8.8	West	157.77	85.13	59.05	15.14	2.29	2.29	0.58	15.14
8.9	West	199.49	73.54	34.76	5.52	0.00	0.00	0.00	5.52
9	West	244.30	88.99	22.98	3.73	0.00	0.00	0.00	3.73
9.1	West	177.20	61.01	24.76	13.06	4.58	4.58	2.95	13.06
9.2	West	117.12	60.71	33.93	24.75	10.68	10.68	6.83	24.75
9.3	West	88.48	58.85	42.66	34.62	11.69	11.69	7.59	34.62
9.4	West	102.36	77.62	61.19	36.99	12.35	12.35	8.13	36.99
9.5	West	148.22	125.81	81.07	34.07	10.73	10.73	7.05	34.07
9.6	West	173.60	145.67	90.06	34.97	10.55	10.55	7.00	34.97
9.7	West	212.97	176.37	103.49	31.20	7.10	7.10	5.20	31.20
9.8	West	277.97	226.84	125.00	23.84	8.75	8.75	7.45	23.84
9.9	West	300.06	277.99	132.37	28.88	19.25	19.25	12.56	28.88
10	West	122.87	122.87	121.18	110.42	90.67	90.67	38.14	112.11
10.1	West	156.51	156.51	155.27	144.59	87.73	87.73	31.04	145.83
10.2	West	282.49	282.49	281.38	272.30	222.85	222.85	121.80	273.41
10.3	West	354.58	354.58	353.49	344.85	297.10	297.10	199.55	345.93
10.4	West	352.57	352.57	351.48	342.73	295.04	295.04	208.29	343.81
10.5	West	186.72	186.72	186.72	185.45	167.31	167.31	106.71	185.45
10.6	West	146.85	146.85	146.85	146.85	146.85	146.85	100.48	146.85
10.7	West	92.15	92.15	92.15	92.15	92.15	92.15	70.90	92.15
10.8	West	70.85	70.85	70.85	70.85	70.85	70.85	52.63	70.85
10.9	West	66.88	66.88	66.88	66.88	66.88	66.88	50.18	66.88
11	West	65.35	65.35	65.35	65.35	65.35	65.35	65.33	65.35
11.1	West	77.48	77.48	77.48	77.48	77.48	77.48	77.48	77.48
11.2	West	91.43	91.43	91.43	91.43	91.43	91.43	90.27	91.43
11.3	West	89.88	89.88	89.88	89.88	89.88	89.88	88.54	89.88
11.4	West	79.16	79.16	79.16	79.16	79.16	79.16	77.95	79.16
11.5	West	84.56	84.56	84.56	84.56	84.56	84.56	83.18	84.56
11.6	West	77.70	77.70	77.70	77.70	77.70	77.70	75.99	77.70
11.7	West	49.64	49.64	49.64	49.64	49.64	49.64	49.64	49.64
7.8	Swan Isl	274.24	34.87	34.82	3.82	1.90	1.90	0.28	3.82
7.9	Swan Isl	180.11	14.06	13.93	7.22	1.90	1.90	0.72	7.22
8	Swan Isl	230.60	19.33	18.31	9.87	4.01	4.01	0.98	9.87
8.1	Swan Isl	270.08	21.30	19.69	11.76	5.88	5.88	1.26	11.76
8.2	Swan Isl	306.92	20.23	18.69	11.55	6.23	6.23	2.12	11.55

**Table J2.2-1c****Rolling River Mile Average Concentrations - cPAHs ( $\mu\text{g}/\text{kg}$ ) - 0.5 Mile Increments**

Portland Harbor Superfund Site

Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
8.3	Swan Isl	324.18	18.63	17.03	11.80	6.47	6.47	2.34	11.80
8.4	Swan Isl	385.51	21.35	19.09	13.03	8.70	8.70	3.54	13.03
8.5	Swan Isl	388.14	18.20	15.29	11.45	9.16	9.16	5.45	11.45
8.6	Swan Isl	359.27	21.05	10.30	7.14	6.12	6.12	5.51	7.14
8.7	Swan Isl	288.09	25.06	8.82	5.66	4.49	4.49	3.91	5.66
8.8	Swan Isl	258.99	26.91	8.34	5.28	3.96	3.96	3.54	5.28
8.9	Swan Isl	309.88	108.46	63.12	40.65	6.27	6.27	4.28	87.76
9	Swan Isl	339.31	131.60	76.02	49.89	7.15	7.15	4.69	109.02
9.1	Swan Isl	325.88	167.56	104.18	68.44	8.88	8.88	5.55	151.36
9.2	Swan Isl	379.46	258.88	169.67	111.36	13.46	13.46	8.08	249.40
9.3	Swan Isl	431.88	369.29	248.47	162.50	19.22	19.22	11.44	366.47
9.4	Swan Isl	63.59	63.59	63.59	63.59	63.59	63.59	63.59	63.59



**Table J2.2-1d**

**Rolling River Mile Average Concentrations - 2,3,7,8-TCDD eq (µg/kg) - 0.5 Mile Increments**

Portland Harbor Superfund Site

Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
1.8	East	0.00050	0.00050	0.00050	0.00049	0.00048	0.00048	0.00047	0.00049
1.9	East	0.00043	0.00042	0.00041	0.00040	0.00038	0.00038	0.00037	0.00040
2	East	0.00037	0.00033	0.00031	0.00030	0.00028	0.00028	0.00027	0.00030
2.1	East	0.00037	0.00029	0.00027	0.00024	0.00022	0.00022	0.00021	0.00024
2.2	East	0.00052	0.00032	0.00028	0.00023	0.00018	0.00018	0.00016	0.00023
2.3	East	0.00064	0.00044	0.00040	0.00035	0.00019	0.00019	0.00016	0.00035
2.4	East	0.00073	0.00053	0.00049	0.00044	0.00024	0.00024	0.00019	0.00044
2.5	East	0.00077	0.00060	0.00057	0.00051	0.00029	0.00029	0.00021	0.00051
2.6	East	0.00078	0.00063	0.00060	0.00055	0.00032	0.00032	0.00023	0.00055
2.7	East	0.00064	0.00063	0.00061	0.00058	0.00037	0.00037	0.00028	0.00059
2.8	East	0.00053	0.00053	0.00051	0.00050	0.00042	0.00042	0.00035	0.00050
2.9	East	0.00051	0.00050	0.00049	0.00047	0.00044	0.00044	0.00038	0.00047
3	East	0.00052	0.00052	0.00050	0.00049	0.00048	0.00048	0.00046	0.00049
3.1	East	0.00057	0.00057	0.00057	0.00057	0.00056	0.00056	0.00056	0.00057
3.2	East	0.00106	0.00106	0.00104	0.00104	0.00104	0.00104	0.00104	0.00104
3.3	East	0.00173	0.00173	0.00157	0.00157	0.00157	0.00157	0.00154	0.00157
3.4	East	0.00211	0.00211	0.00194	0.00194	0.00194	0.00194	0.00189	0.00194
3.5	East	0.00199	0.00199	0.00185	0.00185	0.00178	0.00178	0.00168	0.00185
3.6	East	0.00258	0.00208	0.00154	0.00150	0.00138	0.00138	0.00126	0.00150
3.7	East	0.00238	0.00186	0.00130	0.00125	0.00110	0.00110	0.00094	0.00125
3.8	East	0.00211	0.00155	0.00104	0.00095	0.00077	0.00077	0.00060	0.00095
3.9	East	0.00210	0.00151	0.00097	0.00070	0.00048	0.00048	0.00030	0.00070
4	East	0.00255	0.00176	0.00104	0.00068	0.00041	0.00041	0.00020	0.00068
4.1	East	0.00245	0.00244	0.00239	0.00175	0.00094	0.00094	0.00048	0.00175
4.2	East	0.00371	0.00370	0.00347	0.00283	0.00103	0.00103	0.00042	0.00283
4.3	East	0.00359	0.00358	0.00335	0.00280	0.00114	0.00114	0.00047	0.00280
4.4	East	0.00352	0.00348	0.00307	0.00258	0.00106	0.00106	0.00043	0.00258
4.5	East	0.00360	0.00357	0.00290	0.00234	0.00094	0.00094	0.00036	0.00234
4.6	East	0.00357	0.00353	0.00272	0.00217	0.00082	0.00082	0.00027	0.00217
4.7	East	0.00279	0.00273	0.00183	0.00128	0.00077	0.00077	0.00035	0.00128
4.8	East	0.00288	0.00281	0.00178	0.00119	0.00080	0.00080	0.00053	0.00119
4.9	East	0.00310	0.00310	0.00216	0.00178	0.00169	0.00169	0.00151	0.00178
5	East	0.00347	0.00347	0.00347	0.00347	0.00347	0.00347	0.00333	0.00347
5.1	East	0.00427	0.00427	0.00427	0.00427	0.00427	0.00427	0.00367	0.00427
5.2	East	0.00490	0.00490	0.00490	0.00490	0.00490	0.00490	0.00389	0.00490
5.3	East	0.00565	0.00565	0.00565	0.00565	0.00533	0.00533	0.00406	0.00533
5.4	East	0.00569	0.00569	0.00569	0.00569	0.00450	0.00450	0.00299	0.00450
5.5	East	0.00536	0.00536	0.00536	0.00523	0.00360	0.00360	0.00206	0.00360
5.6	East	0.00445	0.00445	0.00445	0.00429	0.00253	0.00253	0.00126	0.00253
5.7	East	0.00369	0.00368	0.00368	0.00357	0.00215	0.00215	0.00088	0.00215
5.8	East	0.00316	0.00316	0.00316	0.00306	0.00175	0.00175	0.00063	0.00195

**Table J2.2-1d**

**Rolling River Mile Average Concentrations - 2,3,7,8-TCDD eq (µg/kg) - 0.5 Mile Increments**

Portland Harbor Superfund Site

Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
5.9	East	0.00290	0.00289	0.00289	0.00276	0.00178	0.00178	0.00094	0.00225
6	East	0.00304	0.00303	0.00303	0.00297	0.00222	0.00222	0.00144	0.00275
6.1	East	0.00324	0.00324	0.00312	0.00304	0.00239	0.00239	0.00173	0.00314
6.2	East	0.00329	0.00329	0.00309	0.00299	0.00234	0.00234	0.00195	0.00325
6.3	East	0.00319	0.00319	0.00288	0.00279	0.00232	0.00232	0.00206	0.00316
6.4	East	0.00308	0.00294	0.00243	0.00238	0.00214	0.00214	0.00190	0.00283
6.5	East	0.00544	0.00314	0.00176	0.00172	0.00159	0.00159	0.00136	0.00296
6.6	East	0.00583	0.00262	0.00122	0.00122	0.00114	0.00114	0.00095	0.00245
6.7	East	0.00526	0.00222	0.00090	0.00089	0.00085	0.00085	0.00071	0.00207
6.8	East	0.00466	0.00183	0.00067	0.00067	0.00063	0.00063	0.00051	0.00168
6.9	East	0.00457	0.00166	0.00063	0.00063	0.00059	0.00059	0.00050	0.00194
7	East	0.00415	0.00148	0.00071	0.00071	0.00068	0.00068	0.00064	0.00308
7.1	East	0.00348	0.00159	0.00089	0.00089	0.00088	0.00088	0.00086	0.00343
7.2	East	0.00375	0.00194	0.00119	0.00119	0.00114	0.00114	0.00112	0.00371
7.3	East	0.00410	0.00227	0.00151	0.00151	0.00146	0.00146	0.00144	0.00406
7.4	East	0.00419	0.00255	0.00177	0.00177	0.00172	0.00172	0.00170	0.00415
7.5	East	0.00259	0.00247	0.00206	0.00206	0.00199	0.00199	0.00196	0.00254
7.6	East	0.00257	0.00254	0.00227	0.00227	0.00220	0.00220	0.00201	0.00251
7.7	East	0.00253	0.00253	0.00253	0.00253	0.00253	0.00253	0.00225	0.00253
7.8	East	0.00288	0.00285	0.00285	0.00285	0.00284	0.00284	0.00203	0.00285
7.9	East	0.00284	0.00218	0.00218	0.00218	0.00217	0.00217	0.00133	0.00218
8	East	0.00330	0.00163	0.00163	0.00162	0.00159	0.00159	0.00088	0.00162
8.1	East	0.00305	0.00142	0.00142	0.00141	0.00138	0.00138	0.00089	0.00141
8.2	East	0.00276	0.00116	0.00116	0.00115	0.00112	0.00112	0.00068	0.00115
8.3	East	0.00238	0.00039	0.00039	0.00039	0.00035	0.00035	0.00032	0.00039
8.4	East	0.00209	0.00054	0.00054	0.00054	0.00049	0.00049	0.00047	0.00054
8.5	East	0.00064	0.00064	0.00064	0.00064	0.00064	0.00064	0.00064	0.00064
8.6	East	0.00059	0.00059	0.00059	0.00059	0.00059	0.00059	0.00059	0.00059
8.7	East	0.00057	0.00057	0.00057	0.00057	0.00057	0.00057	0.00056	0.00057
8.8	East	0.00056	0.00056	0.00056	0.00056	0.00055	0.00055	0.00049	0.00056
8.9	East	0.00054	0.00054	0.00054	0.00054	0.00051	0.00051	0.00039	0.00054
9	East	0.00053	0.00053	0.00053	0.00053	0.00049	0.00049	0.00034	0.00053
9.1	East	0.00048	0.00048	0.00048	0.00048	0.00045	0.00045	0.00030	0.00048
9.2	East	0.00047	0.00047	0.00047	0.00047	0.00043	0.00043	0.00030	0.00047
9.3	East	0.00048	0.00048	0.00048	0.00048	0.00044	0.00044	0.00033	0.00048
9.4	East	0.00052	0.00052	0.00052	0.00052	0.00041	0.00041	0.00033	0.00052
9.5	East	0.00056	0.00056	0.00056	0.00056	0.00045	0.00045	0.00033	0.00056
9.6	East	0.00065	0.00065	0.00065	0.00065	0.00055	0.00055	0.00043	0.00065
9.7	East	0.00075	0.00075	0.00075	0.00075	0.00065	0.00065	0.00053	0.00075
9.8	East	0.00082	0.00082	0.00082	0.00081	0.00071	0.00071	0.00061	0.00081
9.9	East	0.00087	0.00087	0.00087	0.00085	0.00079	0.00079	0.00068	0.00085

**Table J2.2-1d**

**Rolling River Mile Average Concentrations - 2,3,7,8-TCDD eq (µg/kg) - 0.5 Mile Increments**

Portland Harbor Superfund Site

Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
10	East	0.00098	0.00098	0.00098	0.00096	0.00090	0.00090	0.00082	0.00096
10.1	East	0.00112	0.00112	0.00112	0.00110	0.00102	0.00102	0.00092	0.00110
10.2	East	0.00129	0.00129	0.00129	0.00126	0.00117	0.00117	0.00102	0.00126
10.3	East	0.00153	0.00153	0.00153	0.00152	0.00139	0.00139	0.00116	0.00152
10.4	East	0.00177	0.00177	0.00177	0.00177	0.00158	0.00158	0.00136	0.00177
10.5	East	0.00203	0.00203	0.00203	0.00195	0.00152	0.00152	0.00129	0.00195
10.6	East	0.00223	0.00223	0.00223	0.00191	0.00134	0.00134	0.00113	0.00191
10.7	East	0.00234	0.00234	0.00234	0.00202	0.00129	0.00129	0.00093	0.00202
10.8	East	0.00242	0.00242	0.00242	0.00210	0.00123	0.00123	0.00075	0.00210
10.9	East	0.00252	0.00249	0.00245	0.00209	0.00132	0.00132	0.00076	0.00209
11	East	0.00257	0.00242	0.00221	0.00185	0.00120	0.00120	0.00057	0.00185
11.1	East	0.00246	0.00214	0.00182	0.00155	0.00100	0.00100	0.00037	0.00155
11.2	East	0.00350	0.00244	0.00170	0.00114	0.00068	0.00068	0.00025	0.00114
11.3	East	0.00486	0.00316	0.00198	0.00108	0.00056	0.00056	0.00025	0.00108
11.4	East	0.00486	0.00318	0.00202	0.00098	0.00041	0.00041	0.00013	0.00098
11.5	East	0.00507	0.00327	0.00212	0.00101	0.00043	0.00043	0.00016	0.00101
11.6	East	0.00601	0.00388	0.00251	0.00120	0.00050	0.00050	0.00019	0.00120
11.7	East	0.00564	0.00403	0.00290	0.00162	0.00077	0.00077	0.00029	0.00162
1.8	West	0.00020	0.00020	0.00020	0.00020	0.00020	0.00020	0.00020	0.00020
1.9	West	0.00021	0.00021	0.00021	0.00021	0.00021	0.00021	0.00021	0.00021
2	West	0.00027	0.00027	0.00027	0.00027	0.00027	0.00027	0.00027	0.00027
2.1	West	0.00042	0.00042	0.00042	0.00042	0.00042	0.00042	0.00042	0.00042
2.2	West	0.00054	0.00054	0.00054	0.00054	0.00054	0.00054	0.00054	0.00054
2.3	West	0.00064	0.00064	0.00064	0.00064	0.00064	0.00064	0.00064	0.00064
2.4	West	0.00062	0.00062	0.00062	0.00062	0.00062	0.00062	0.00062	0.00062
2.5	West	0.00056	0.00056	0.00056	0.00056	0.00056	0.00056	0.00056	0.00056
2.6	West	0.00039	0.00039	0.00039	0.00039	0.00039	0.00039	0.00038	0.00039
2.7	West	0.00025	0.00025	0.00025	0.00025	0.00025	0.00025	0.00023	0.00025
2.8	West	0.00020	0.00020	0.00020	0.00020	0.00020	0.00020	0.00016	0.00020
2.9	West	0.00021	0.00021	0.00021	0.00021	0.00021	0.00021	0.00017	0.00021
3	West	0.00024	0.00024	0.00024	0.00024	0.00024	0.00024	0.00019	0.00024
3.1	West	0.00028	0.00028	0.00028	0.00028	0.00028	0.00028	0.00022	0.00028
3.2	West	0.00034	0.00034	0.00034	0.00034	0.00034	0.00034	0.00027	0.00034
3.3	West	0.00040	0.00040	0.00040	0.00040	0.00040	0.00040	0.00034	0.00040
3.4	West	0.00048	0.00048	0.00048	0.00048	0.00048	0.00048	0.00042	0.00048
3.5	West	0.00061	0.00061	0.00061	0.00061	0.00061	0.00061	0.00055	0.00061
3.6	West	0.00077	0.00077	0.00077	0.00077	0.00077	0.00077	0.00070	0.00077
3.7	West	0.00097	0.00097	0.00097	0.00096	0.00088	0.00088	0.00076	0.00096
3.8	West	0.00121	0.00121	0.00121	0.00120	0.00110	0.00110	0.00088	0.00120
3.9	West	0.00139	0.00139	0.00139	0.00137	0.00123	0.00123	0.00095	0.00137
4	West	0.00142	0.00142	0.00142	0.00141	0.00120	0.00120	0.00080	0.00141

**Table J2.2-1d**

**Rolling River Mile Average Concentrations - 2,3,7,8-TCDD eq (µg/kg) - 0.5 Mile Increments**

Portland Harbor Superfund Site

Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
4.1	West	0.00137	0.00137	0.00137	0.00135	0.00110	0.00110	0.00061	0.00135
4.2	West	0.00137	0.00137	0.00137	0.00137	0.00125	0.00125	0.00065	0.00137
4.3	West	0.00150	0.00150	0.00150	0.00150	0.00136	0.00136	0.00072	0.00150
4.4	West	0.00172	0.00172	0.00172	0.00172	0.00134	0.00134	0.00061	0.00172
4.5	West	0.00196	0.00196	0.00196	0.00196	0.00159	0.00159	0.00093	0.00196
4.6	West	0.00218	0.00218	0.00218	0.00218	0.00180	0.00180	0.00122	0.00218
4.7	West	0.00221	0.00221	0.00221	0.00219	0.00173	0.00173	0.00130	0.00219
4.8	West	0.00197	0.00197	0.00197	0.00196	0.00150	0.00150	0.00117	0.00196
4.9	West	0.00177	0.00177	0.00176	0.00173	0.00148	0.00148	0.00124	0.00173
5	West	0.00177	0.00177	0.00175	0.00163	0.00135	0.00135	0.00107	0.00163
5.1	West	0.00195	0.00195	0.00182	0.00164	0.00136	0.00136	0.00082	0.00164
5.2	West	0.00227	0.00220	0.00189	0.00166	0.00138	0.00138	0.00067	0.00166
5.3	West	0.00252	0.00245	0.00198	0.00168	0.00130	0.00130	0.00050	0.00168
5.4	West	0.00263	0.00256	0.00207	0.00178	0.00146	0.00146	0.00045	0.00178
5.5	West	0.00243	0.00236	0.00188	0.00170	0.00143	0.00143	0.00041	0.00170
5.6	West	0.00201	0.00194	0.00161	0.00149	0.00120	0.00120	0.00049	0.00149
5.7	West	0.00160	0.00159	0.00146	0.00134	0.00106	0.00106	0.00056	0.00140
5.8	West	0.00138	0.00135	0.00130	0.00124	0.00096	0.00096	0.00050	0.00130
5.9	West	0.00132	0.00121	0.00111	0.00105	0.00075	0.00075	0.00041	0.00111
6	West	0.00126	0.00099	0.00090	0.00083	0.00056	0.00056	0.00031	0.00090
6.1	West	0.00126	0.00078	0.00069	0.00063	0.00040	0.00040	0.00020	0.00069
6.2	West	0.00132	0.00057	0.00048	0.00045	0.00026	0.00026	0.00010	0.00048
6.3	West	0.00153	0.00020	0.00012	0.00010	0.00002	0.00002	0.00000	0.00012
6.4	West	0.00185	0.00046	0.00043	0.00038	0.00015	0.00015	0.00003	0.00015
6.5	West	0.00232	0.00107	0.00104	0.00091	0.00028	0.00028	0.00003	0.00028
6.6	West	0.00361	0.00229	0.00218	0.00170	0.00047	0.00047	0.00006	0.00047
6.7	West	0.01275	0.00530	0.00323	0.00153	0.00038	0.00038	0.00006	0.00038
6.8	West	0.01729	0.00953	0.00634	0.00248	0.00044	0.00044	0.00005	0.00044
6.9	West	0.02473	0.01191	0.00651	0.00241	0.00031	0.00031	0.00004	0.00031
7	West	0.10602	0.01068	0.00557	0.00192	0.00023	0.00023	0.00004	0.00023
7.1	West	0.71134	0.01028	0.00511	0.00157	0.00016	0.00016	0.00002	0.00016
7.2	West	0.98818	0.00977	0.00518	0.00196	0.00029	0.00029	0.00000	0.00029
7.3	West	0.93433	0.03343	0.02546	0.00674	0.00259	0.00259	0.00015	0.00259
7.4	West	0.72691	0.02450	0.02026	0.00633	0.00341	0.00341	0.00063	0.00341
7.5	West	0.53434	0.02023	0.01696	0.00559	0.00306	0.00306	0.00058	0.00306
7.6	West	0.09139	0.01728	0.01454	0.00496	0.00279	0.00279	0.00051	0.00279
7.7	West	0.01838	0.01702	0.01433	0.00491	0.00282	0.00282	0.00051	0.00282
7.8	West	0.00206	0.00205	0.00205	0.00205	0.00177	0.00177	0.00048	0.00182
7.9	West	0.00138	0.00138	0.00138	0.00137	0.00101	0.00101	0.00011	0.00113
8	West	0.00154	0.00154	0.00154	0.00150	0.00107	0.00107	0.00006	0.00140
8.1	West	0.00206	0.00206	0.00205	0.00181	0.00090	0.00090	0.00002	0.00176

**Table J2.2-1d**

**Rolling River Mile Average Concentrations - 2,3,7,8-TCDD eq (µg/kg) - 0.5 Mile Increments**

Portland Harbor Superfund Site

Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
8.2	West	0.00203	0.00203	0.00202	0.00159	0.00077	0.00077	0.00010	0.00159
8.3	West	0.00198	0.00198	0.00198	0.00138	0.00071	0.00071	0.00028	0.00138
8.4	West	0.00217	0.00216	0.00216	0.00128	0.00057	0.00057	0.00027	0.00128
8.5	West	0.00232	0.00231	0.00231	0.00110	0.00045	0.00045	0.00026	0.00110
8.6	West	0.00298	0.00233	0.00224	0.00090	0.00048	0.00048	0.00028	0.00090
8.7	West	0.00402	0.00234	0.00219	0.00075	0.00035	0.00035	0.00027	0.00075
8.8	West	0.00602	0.00291	0.00208	0.00048	0.00009	0.00009	0.00003	0.00048
8.9	West	0.00762	0.00299	0.00170	0.00019	0.00000	0.00000	0.00000	0.00019
9	West	0.00855	0.00300	0.00114	0.00013	0.00000	0.00000	0.00000	0.00013
9.1	West	0.00649	0.00315	0.00177	0.00115	0.00072	0.00072	0.00055	0.00115
9.2	West	0.00449	0.00307	0.00202	0.00154	0.00101	0.00101	0.00080	0.00154
9.3	West	0.00319	0.00259	0.00220	0.00179	0.00112	0.00112	0.00088	0.00179
9.4	West	0.00255	0.00237	0.00216	0.00187	0.00119	0.00119	0.00093	0.00187
9.5	West	0.00323	0.00310	0.00204	0.00165	0.00104	0.00104	0.00081	0.00165
9.6	West	0.00323	0.00307	0.00175	0.00137	0.00085	0.00085	0.00067	0.00137
9.7	West	0.00365	0.00344	0.00171	0.00122	0.00073	0.00073	0.00059	0.00122
9.8	West	0.00465	0.00436	0.00194	0.00126	0.00096	0.00096	0.00084	0.00126
9.9	West	0.00680	0.00650	0.00266	0.00177	0.00155	0.00155	0.00124	0.00177
10	West	0.00710	0.00710	0.00705	0.00656	0.00577	0.00577	0.00377	0.00661
10.1	West	0.00654	0.00654	0.00651	0.00603	0.00462	0.00462	0.00287	0.00607
10.2	West	0.00633	0.00633	0.00630	0.00586	0.00458	0.00458	0.00266	0.00590
10.3	West	0.00600	0.00600	0.00596	0.00553	0.00425	0.00425	0.00231	0.00556
10.4	West	0.00541	0.00541	0.00537	0.00494	0.00370	0.00370	0.00238	0.00497
10.5	West	0.00500	0.00500	0.00500	0.00495	0.00458	0.00458	0.00292	0.00495
10.6	West	0.00487	0.00487	0.00487	0.00487	0.00487	0.00487	0.00353	0.00487
10.7	West	0.00468	0.00468	0.00468	0.00468	0.00468	0.00468	0.00367	0.00468
10.8	West	0.00448	0.00448	0.00448	0.00448	0.00448	0.00448	0.00361	0.00448
10.9	West	0.00430	0.00430	0.00430	0.00430	0.00430	0.00430	0.00350	0.00430
11	West	0.00376	0.00376	0.00376	0.00376	0.00376	0.00376	0.00376	0.00376
11.1	West	0.00345	0.00345	0.00345	0.00345	0.00345	0.00345	0.00345	0.00345
11.2	West	0.00308	0.00308	0.00308	0.00308	0.00308	0.00308	0.00308	0.00308
11.3	West	0.00267	0.00267	0.00267	0.00267	0.00267	0.00267	0.00266	0.00267
11.4	West	0.00215	0.00215	0.00215	0.00215	0.00215	0.00215	0.00214	0.00215
11.5	West	0.00193	0.00193	0.00193	0.00193	0.00193	0.00193	0.00192	0.00193
11.6	West	0.00177	0.00177	0.00177	0.00177	0.00177	0.00177	0.00176	0.00177
11.7	West	0.00165	0.00165	0.00165	0.00165	0.00165	0.00165	0.00165	0.00165
7.8	Swan Isl	0.00105	0.00013	0.00013	0.00002	0.00001	0.00001	0.00000	0.00002
7.9	Swan Isl	0.00125	0.00009	0.00009	0.00006	0.00001	0.00001	0.00000	0.00006
8	Swan Isl	0.00148	0.00013	0.00012	0.00008	0.00002	0.00002	0.00001	0.00008
8.1	Swan Isl	0.00150	0.00012	0.00011	0.00007	0.00002	0.00002	0.00001	0.00007
8.2	Swan Isl	0.00155	0.00012	0.00011	0.00007	0.00002	0.00002	0.00001	0.00007

**Table J2.2-1d****Rolling River Mile Average Concentrations - 2,3,7,8-TCDD eq ( $\mu\text{g}/\text{kg}$ ) - 0.5 Mile Increments**

Portland Harbor Superfund Site

Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
8.3	Swan Isl	0.00166	0.00011	0.00010	0.00008	0.00003	0.00003	0.00001	0.00008
8.4	Swan Isl	0.00227	0.00014	0.00012	0.00009	0.00005	0.00005	0.00003	0.00009
8.5	Swan Isl	0.00364	0.00024	0.00019	0.00011	0.00009	0.00009	0.00007	0.00011
8.6	Swan Isl	0.00552	0.00054	0.00021	0.00013	0.00010	0.00010	0.00009	0.00013
8.7	Swan Isl	0.00737	0.00084	0.00024	0.00014	0.00010	0.00010	0.00009	0.00014
8.8	Swan Isl	0.00834	0.00099	0.00025	0.00015	0.00010	0.00010	0.00009	0.00015
8.9	Swan Isl	0.01136	0.00430	0.00226	0.00204	0.00045	0.00045	0.00034	0.00348
9	Swan Isl	0.01265	0.00547	0.00295	0.00274	0.00077	0.00077	0.00064	0.00454
9.1	Swan Isl	0.01398	0.00714	0.00407	0.00379	0.00104	0.00104	0.00085	0.00632
9.2	Swan Isl	0.01663	0.01099	0.00664	0.00623	0.00169	0.00169	0.00138	0.01044
9.3	Swan Isl	0.01880	0.01548	0.00971	0.00912	0.00244	0.00244	0.00200	0.01534
9.4	Swan Isl	0.01951	0.01951	0.01951	0.01951	0.01951	0.01951	0.01951	0.01951

**Table J2.2-2a**

**RAO 1 Rolling River Mile Risk Estimates - Arsenic**

Portland Harbor Superfund Site

Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
1.8	East	5E-06	5E-06	5E-06	5E-06	4E-06	4E-06	4E-06	5E-06
1.9	East	5E-06	4E-06	4E-06	4E-06	4E-06	4E-06	4E-06	4E-06
2	East	5E-06	4E-06	4E-06	4E-06	4E-06	4E-06	4E-06	4E-06
2.1	East	5E-06	4E-06	4E-06	4E-06	3E-06	3E-06	3E-06	4E-06
2.2	East	4E-06	4E-06	3E-06	3E-06	3E-06	3E-06	3E-06	3E-06
2.3	East	4E-06	3E-06	3E-06	3E-06	3E-06	3E-06	2E-06	3E-06
2.4	East	4E-06	3E-06	3E-06	3E-06	3E-06	3E-06	2E-06	3E-06
2.5	East	4E-06	3E-06	3E-06	3E-06	3E-06	3E-06	2E-06	3E-06
2.6	East	4E-06	4E-06	3E-06	3E-06	3E-06	3E-06	2E-06	3E-06
2.7	East	4E-06	4E-06	4E-06	4E-06	3E-06	3E-06	3E-06	4E-06
2.8	East	4E-06	4E-06	4E-06	4E-06	4E-06	4E-06	3E-06	4E-06
2.9	East	5E-06	5E-06	4E-06	4E-06	4E-06	4E-06	4E-06	4E-06
3	East	5E-06	5E-06	5E-06	4E-06	4E-06	4E-06	4E-06	4E-06
3.1	East	5E-06	5E-06	5E-06	5E-06	5E-06	5E-06	4E-06	5E-06
3.2	East	4E-06	4E-06	4E-06	4E-06	4E-06	4E-06	4E-06	4E-06
3.3	East	4E-06	4E-06	4E-06	4E-06	4E-06	4E-06	4E-06	4E-06
3.4	East	4E-06	4E-06	4E-06	4E-06	4E-06	4E-06	4E-06	4E-06
3.5	East	4E-06	4E-06	4E-06	4E-06	3E-06	3E-06	3E-06	4E-06
3.6	East	4E-06	3E-06	3E-06	3E-06	2E-06	2E-06	2E-06	3E-06
3.7	East	4E-06	3E-06	3E-06	3E-06	2E-06	2E-06	2E-06	3E-06
3.8	East	4E-06	3E-06	3E-06	3E-06	2E-06	2E-06	1E-06	3E-06
3.9	East	4E-06	3E-06	3E-06	2E-06	2E-06	2E-06	9E-07	2E-06
4	East	4E-06	3E-06	3E-06	2E-06	1E-06	1E-06	7E-07	2E-06
4.1	East	4E-06	4E-06	4E-06	3E-06	2E-06	2E-06	1E-06	3E-06
4.2	East	4E-06	4E-06	4E-06	3E-06	2E-06	2E-06	7E-07	3E-06
4.3	East	4E-06	4E-06	4E-06	3E-06	2E-06	2E-06	8E-07	3E-06
4.4	East	4E-06	4E-06	4E-06	3E-06	2E-06	2E-06	8E-07	3E-06
4.5	East	4E-06	4E-06	4E-06	3E-06	2E-06	2E-06	6E-07	3E-06
4.6	East	4E-06	4E-06	4E-06	3E-06	1E-06	1E-06	6E-07	3E-06
4.7	East	4E-06	4E-06	3E-06	3E-06	2E-06	2E-06	9E-07	3E-06
4.8	East	5E-06	5E-06	3E-06	3E-06	2E-06	2E-06	1E-06	3E-06
4.9	East	4E-06	4E-06	3E-06	3E-06	3E-06	3E-06	2E-06	3E-06
5	East	4E-06	4E-06	4E-06	4E-06	4E-06	4E-06	3E-06	4E-06
5.1	East	3E-06	3E-06	3E-06	3E-06	3E-06	3E-06	3E-06	3E-06
5.2	East	3E-06	3E-06	3E-06	3E-06	3E-06	3E-06	3E-06	3E-06
5.3	East	3E-06	3E-06	3E-06	3E-06	3E-06	3E-06	3E-06	3E-06
5.4	East	5E-06	5E-06	5E-06	5E-06	3E-06	3E-06	2E-06	3E-06
5.5	East	5E-06	5E-06	5E-06	5E-06	2E-06	2E-06	1E-06	2E-06
5.6	East	5E-06	5E-06	5E-06	5E-06	2E-06	2E-06	7E-07	2E-06
5.7	East	5E-06	5E-06	5E-06	5E-06	2E-06	2E-06	8E-07	2E-06
5.8	East	6E-06	6E-06	6E-06	5E-06	2E-06	2E-06	8E-07	3E-06

**Table J2.2-2a**

**RAO 1 Rolling River Mile Risk Estimates - Arsenic**

Portland Harbor Superfund Site

Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
5.9	East	5E-06	5E-06	5E-06	5E-06	2E-06	2E-06	1E-06	4E-06
6	East	5E-06	5E-06	5E-06	5E-06	3E-06	3E-06	2E-06	5E-06
6.1	East	5E-06	5E-06	5E-06	5E-06	3E-06	3E-06	3E-06	5E-06
6.2	East	5E-06	5E-06	5E-06	5E-06	3E-06	3E-06	3E-06	5E-06
6.3	East	4E-06	4E-06	4E-06	4E-06	3E-06	3E-06	3E-06	4E-06
6.4	East	4E-06	4E-06	4E-06	4E-06	3E-06	3E-06	3E-06	4E-06
6.5	East	4E-06	3E-06	3E-06	3E-06	3E-06	3E-06	2E-06	3E-06
6.6	East	3E-06	3E-06	2E-06	2E-06	2E-06	2E-06	2E-06	3E-06
6.7	East	3E-06	2E-06	2E-06	2E-06	2E-06	2E-06	2E-06	2E-06
6.8	East	3E-06	2E-06	2E-06	2E-06	1E-06	1E-06	1E-06	2E-06
6.9	East	2E-06	2E-06	1E-06	1E-06	1E-06	1E-06	1E-06	2E-06
7	East	3E-06	2E-06	1E-06	1E-06	1E-06	1E-06	1E-06	3E-06
7.1	East	3E-06	3E-06	2E-06	2E-06	2E-06	2E-06	2E-06	3E-06
7.2	East	4E-06	3E-06	2E-06	2E-06	2E-06	2E-06	2E-06	4E-06
7.3	East	4E-06	4E-06	3E-06	3E-06	3E-06	3E-06	3E-06	4E-06
7.4	East	5E-06	4E-06	3E-06	3E-06	3E-06	3E-06	3E-06	5E-06
7.5	East	4E-06	4E-06	4E-06	4E-06	3E-06	3E-06	3E-06	4E-06
7.6	East	4E-06	4E-06	4E-06	4E-06	4E-06	4E-06	3E-06	4E-06
7.7	East	4E-06	4E-06	4E-06	4E-06	4E-06	4E-06	4E-06	4E-06
7.8	East	4E-06	4E-06	4E-06	4E-06	4E-06	4E-06	3E-06	4E-06
7.9	East	4E-06	3E-06	3E-06	3E-06	3E-06	3E-06	2E-06	3E-06
8	East	4E-06	2E-06	2E-06	2E-06	2E-06	2E-06	1E-06	2E-06
8.1	East	4E-06	2E-06	2E-06	2E-06	2E-06	2E-06	2E-06	2E-06
8.2	East	4E-06	2E-06	2E-06	2E-06	2E-06	2E-06	2E-06	2E-06
8.3	East	4E-06	2E-06	2E-06	2E-06	1E-06	1E-06	1E-06	2E-06
8.4	East	4E-06	2E-06	2E-06	2E-06	2E-06	2E-06	2E-06	2E-06
8.5	East	4E-06	4E-06	4E-06	4E-06	4E-06	4E-06	4E-06	4E-06
8.6	East	3E-06	3E-06	3E-06	3E-06	3E-06	3E-06	3E-06	3E-06
8.7	East	3E-06	3E-06	3E-06	3E-06	3E-06	3E-06	3E-06	3E-06
8.8	East	3E-06	3E-06	3E-06	3E-06	3E-06	3E-06	3E-06	3E-06
8.9	East	3E-06	3E-06	3E-06	3E-06	3E-06	3E-06	2E-06	3E-06
9	East	3E-06	3E-06	3E-06	3E-06	3E-06	3E-06	2E-06	3E-06
9.1	East	3E-06	3E-06	3E-06	3E-06	3E-06	3E-06	2E-06	3E-06
9.2	East	3E-06	3E-06	3E-06	3E-06	3E-06	3E-06	2E-06	3E-06
9.3	East	3E-06	3E-06	3E-06	3E-06	3E-06	3E-06	2E-06	3E-06
9.4	East	3E-06	3E-06	3E-06	3E-06	3E-06	3E-06	2E-06	3E-06
9.5	East	3E-06	3E-06	3E-06	3E-06	2E-06	2E-06	2E-06	3E-06
9.6	East	3E-06	3E-06	3E-06	3E-06	2E-06	2E-06	2E-06	3E-06
9.7	East	3E-06	3E-06	3E-06	3E-06	2E-06	2E-06	2E-06	3E-06
9.8	East	3E-06	3E-06	3E-06	3E-06	3E-06	3E-06	2E-06	3E-06
9.9	East	3E-06	3E-06	3E-06	3E-06	3E-06	3E-06	2E-06	3E-06



**Table J2.2-2a**  
**RAO 1 Rolling River Mile Risk Estimates - Arsenic**  
 Portland Harbor Superfund Site  
 Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
10	East	3E-06	3E-06	3E-06	3E-06	3E-06	3E-06	3E-06	3E-06
10.1	East	3E-06	3E-06	3E-06	3E-06	3E-06	3E-06	3E-06	3E-06
10.2	East	3E-06	3E-06	3E-06	3E-06	3E-06	3E-06	2E-06	3E-06
10.3	East	3E-06	3E-06	3E-06	3E-06	3E-06	3E-06	2E-06	3E-06
10.4	East	3E-06	3E-06	3E-06	3E-06	3E-06	3E-06	2E-06	3E-06
10.5	East	3E-06	3E-06	3E-06	3E-06	2E-06	2E-06	2E-06	3E-06
10.6	East	3E-06	3E-06	3E-06	3E-06	2E-06	2E-06	2E-06	3E-06
10.7	East	3E-06	3E-06	3E-06	3E-06	2E-06	2E-06	1E-06	3E-06
10.8	East	3E-06	3E-06	3E-06	3E-06	2E-06	2E-06	1E-06	3E-06
10.9	East	3E-06	3E-06	3E-06	2E-06	2E-06	2E-06	9E-07	2E-06
11	East	3E-06	3E-06	3E-06	2E-06	1E-06	1E-06	6E-07	2E-06
11.1	East	3E-06	2E-06	2E-06	2E-06	1E-06	1E-06	4E-07	2E-06
11.2	East	3E-06	2E-06	2E-06	1E-06	7E-07	7E-07	3E-07	1E-06
11.3	East	3E-06	2E-06	1E-06	9E-07	5E-07	5E-07	2E-07	9E-07
11.4	East	3E-06	2E-06	1E-06	8E-07	4E-07	4E-07	1E-07	8E-07
11.5	East	3E-06	2E-06	1E-06	8E-07	5E-07	5E-07	1E-07	8E-07
11.6	East	3E-06	2E-06	1E-06	9E-07	5E-07	5E-07	2E-07	9E-07
11.7	East	2E-06	2E-06	2E-06	1E-06	8E-07	8E-07	2E-07	1E-06
1.8	West	4E-06	4E-06	4E-06	4E-06	4E-06	4E-06	4E-06	4E-06
1.9	West	4E-06	4E-06	4E-06	4E-06	4E-06	4E-06	4E-06	4E-06
2	West	4E-06	4E-06	4E-06	4E-06	4E-06	4E-06	4E-06	4E-06
2.1	West	4E-06	4E-06	4E-06	4E-06	4E-06	4E-06	4E-06	4E-06
2.2	West	3E-06	3E-06	3E-06	3E-06	3E-06	3E-06	3E-06	3E-06
2.3	West	3E-06	3E-06	3E-06	3E-06	3E-06	3E-06	3E-06	3E-06
2.4	West	3E-06	3E-06	3E-06	3E-06	3E-06	3E-06	3E-06	3E-06
2.5	West	3E-06	3E-06	3E-06	3E-06	3E-06	3E-06	3E-06	3E-06
2.6	West	4E-06	4E-06	4E-06	4E-06	4E-06	4E-06	3E-06	4E-06
2.7	West	4E-06	4E-06	4E-06	4E-06	4E-06	4E-06	3E-06	4E-06
2.8	West	4E-06	4E-06	4E-06	4E-06	4E-06	4E-06	3E-06	4E-06
2.9	West	4E-06	4E-06	4E-06	4E-06	4E-06	4E-06	3E-06	4E-06
3	West	4E-06	4E-06	4E-06	4E-06	4E-06	4E-06	3E-06	4E-06
3.1	West	4E-06	4E-06	4E-06	4E-06	4E-06	4E-06	3E-06	4E-06
3.2	West	4E-06	4E-06	4E-06	4E-06	4E-06	4E-06	3E-06	4E-06
3.3	West	3E-06	3E-06	3E-06	3E-06	3E-06	3E-06	3E-06	3E-06
3.4	West	4E-06	4E-06	4E-06	4E-06	4E-06	4E-06	3E-06	4E-06
3.5	West	4E-06	4E-06	4E-06	4E-06	4E-06	4E-06	4E-06	4E-06
3.6	West	5E-06	5E-06	5E-06	5E-06	5E-06	5E-06	4E-06	5E-06
3.7	West	5E-06	5E-06	5E-06	5E-06	5E-06	5E-06	5E-06	5E-06
3.8	West	6E-06	6E-06	6E-06	6E-06	5E-06	5E-06	5E-06	6E-06
3.9	West	5E-06	5E-06	5E-06	5E-06	5E-06	5E-06	4E-06	5E-06
4	West	5E-06	5E-06	5E-06	5E-06	4E-06	4E-06	3E-06	5E-06

**Table J2.2-2a**

**RAO 1 Rolling River Mile Risk Estimates - Arsenic**

Portland Harbor Superfund Site

Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
4.1	West	4E-06	4E-06	4E-06	4E-06	3E-06	3E-06	2E-06	4E-06
4.2	West	4E-06	4E-06	4E-06	4E-06	4E-06	4E-06	2E-06	4E-06
4.3	West	4E-06	4E-06	4E-06	4E-06	4E-06	4E-06	2E-06	4E-06
4.4	West	4E-06	4E-06	4E-06	4E-06	3E-06	3E-06	1E-06	4E-06
4.5	West	4E-06	4E-06	4E-06	4E-06	3E-06	3E-06	1E-06	4E-06
4.6	West	4E-06	4E-06	4E-06	4E-06	3E-06	3E-06	2E-06	4E-06
4.7	West	4E-06	4E-06	4E-06	4E-06	3E-06	3E-06	2E-06	4E-06
4.8	West	4E-06	4E-06	4E-06	4E-06	3E-06	3E-06	2E-06	4E-06
4.9	West	4E-06	4E-06	4E-06	4E-06	3E-06	3E-06	3E-06	4E-06
5	West	4E-06	4E-06	4E-06	4E-06	3E-06	3E-06	3E-06	4E-06
5.1	West	4E-06	4E-06	4E-06	4E-06	3E-06	3E-06	2E-06	4E-06
5.2	West	4E-06	4E-06	3E-06	3E-06	3E-06	3E-06	2E-06	3E-06
5.3	West	4E-06	3E-06	3E-06	2E-06	2E-06	2E-06	9E-07	2E-06
5.4	West	4E-06	3E-06	3E-06	2E-06	2E-06	2E-06	7E-07	2E-06
5.5	West	4E-06	4E-06	4E-06	3E-06	3E-06	3E-06	1E-06	3E-06
5.6	West	4E-06	4E-06	4E-06	4E-06	3E-06	3E-06	2E-06	4E-06
5.7	West	5E-06	5E-06	4E-06	4E-06	3E-06	3E-06	2E-06	4E-06
5.8	West	5E-06	5E-06	5E-06	4E-06	3E-06	3E-06	2E-06	5E-06
5.9	West	5E-06	4E-06	4E-06	4E-06	3E-06	3E-06	2E-06	4E-06
6	West	5E-06	4E-06	3E-06	3E-06	2E-06	2E-06	1E-06	3E-06
6.1	West	5E-06	3E-06	3E-06	2E-06	2E-06	2E-06	8E-07	3E-06
6.2	West	5E-06	2E-06	2E-06	2E-06	1E-06	1E-06	4E-07	2E-06
6.3	West	5E-06	1E-06	4E-07	3E-07	6E-08	6E-08	0E+00	4E-07
6.4	West	5E-06	7E-07	6E-07	5E-07	2E-07	2E-07	6E-08	2E-07
6.5	West	5E-06	2E-06	2E-06	1E-06	4E-07	4E-07	9E-08	4E-07
6.6	West	6E-06	4E-06	4E-06	3E-06	1E-06	1E-06	1E-07	1E-06
6.7	West	9E-06	7E-06	5E-06	3E-06	8E-07	8E-07	9E-08	8E-07
6.8	West	8E-06	7E-06	5E-06	3E-06	7E-07	7E-07	8E-08	7E-07
6.9	West	8E-06	6E-06	4E-06	2E-06	6E-07	6E-07	5E-08	6E-07
7	West	7E-06	5E-06	3E-06	1E-06	4E-07	4E-07	3E-08	4E-07
7.1	West	7E-06	4E-06	3E-06	7E-07	8E-08	8E-08	2E-08	8E-08
7.2	West	5E-06	2E-06	1E-06	6E-07	1E-07	1E-07	0E+00	1E-07
7.3	West	4E-06	1E-06	1E-06	8E-07	5E-07	5E-07	1E-07	5E-07
7.4	West	4E-06	2E-06	2E-06	2E-06	2E-06	2E-06	1E-06	2E-06
7.5	West	4E-06	3E-06	3E-06	3E-06	2E-06	2E-06	1E-06	2E-06
7.6	West	4E-06	4E-06	4E-06	4E-06	3E-06	3E-06	1E-06	3E-06
7.7	West	4E-06	4E-06	4E-06	4E-06	3E-06	3E-06	1E-06	3E-06
7.8	West	4E-06	4E-06	4E-06	4E-06	3E-06	3E-06	2E-06	3E-06
7.9	West	4E-06	4E-06	4E-06	4E-06	3E-06	3E-06	1E-06	3E-06
8	West	4E-06	4E-06	4E-06	4E-06	3E-06	3E-06	8E-07	4E-06
8.1	West	5E-06	5E-06	5E-06	4E-06	2E-06	2E-06	2E-07	4E-06

**Table J2.2-2a**

**RAO 1 Rolling River Mile Risk Estimates - Arsenic**

Portland Harbor Superfund Site

Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
8.2	West	5E-06	5E-06	5E-06	4E-06	2E-06	2E-06	4E-07	4E-06
8.3	West	5E-06	5E-06	5E-06	4E-06	2E-06	2E-06	9E-07	4E-06
8.4	West	6E-06	6E-06	6E-06	4E-06	2E-06	2E-06	9E-07	4E-06
8.5	West	7E-06	7E-06	7E-06	3E-06	1E-06	1E-06	9E-07	3E-06
8.6	West	7E-06	7E-06	7E-06	3E-06	2E-06	2E-06	9E-07	3E-06
8.7	West	9E-06	7E-06	7E-06	2E-06	1E-06	1E-06	8E-07	2E-06
8.8	West	1E-05	9E-06	7E-06	1E-06	3E-07	3E-07	8E-08	1E-06
8.9	West	1E-05	6E-06	4E-06	5E-07	0E+00	0E+00	0E+00	5E-07
9	West	1E-05	4E-06	1E-06	2E-07	0E+00	0E+00	0E+00	2E-07
9.1	West	8E-06	4E-06	2E-06	1E-06	9E-07	9E-07	7E-07	1E-06
9.2	West	6E-06	4E-06	3E-06	2E-06	1E-06	1E-06	1E-06	2E-06
9.3	West	4E-06	4E-06	3E-06	3E-06	2E-06	2E-06	1E-06	3E-06
9.4	West	4E-06	4E-06	3E-06	3E-06	2E-06	2E-06	1E-06	3E-06
9.5	West	4E-06	4E-06	3E-06	3E-06	1E-06	1E-06	1E-06	3E-06
9.6	West	4E-06	3E-06	3E-06	2E-06	1E-06	1E-06	9E-07	2E-06
9.7	West	4E-06	3E-06	3E-06	2E-06	9E-07	9E-07	7E-07	2E-06
9.8	West	4E-06	3E-06	2E-06	1E-06	9E-07	9E-07	7E-07	1E-06
9.9	West	4E-06	4E-06	2E-06	1E-06	1E-06	1E-06	8E-07	1E-06
10	West	7E-06	7E-06	7E-06	6E-06	5E-06	5E-06	2E-06	6E-06
10.1	West	9E-06	9E-06	9E-06	8E-06	5E-06	5E-06	2E-06	8E-06
10.2	West	9E-06	9E-06	9E-06	9E-06	6E-06	6E-06	3E-06	9E-06
10.3	West	1E-05	1E-05	1E-05	9E-06	7E-06	7E-06	3E-06	9E-06
10.4	West	9E-06	9E-06	9E-06	8E-06	6E-06	6E-06	3E-06	8E-06
10.5	West	6E-06	6E-06	6E-06	6E-06	5E-06	5E-06	3E-06	6E-06
10.6	West	5E-06	5E-06	5E-06	5E-06	5E-06	5E-06	3E-06	5E-06
10.7	West	5E-06	5E-06	5E-06	5E-06	5E-06	5E-06	4E-06	5E-06
10.8	West	5E-06	5E-06	5E-06	5E-06	5E-06	5E-06	4E-06	5E-06
10.9	West	5E-06	5E-06	5E-06	5E-06	5E-06	5E-06	4E-06	5E-06
11	West	5E-06	5E-06	5E-06	5E-06	5E-06	5E-06	5E-06	5E-06
11.1	West	5E-06	5E-06	5E-06	5E-06	5E-06	5E-06	5E-06	5E-06
11.2	West	4E-06	4E-06	4E-06	4E-06	4E-06	4E-06	4E-06	4E-06
11.3	West	4E-06	4E-06	4E-06	4E-06	4E-06	4E-06	4E-06	4E-06
11.4	West	3E-06	3E-06	3E-06	3E-06	3E-06	3E-06	3E-06	3E-06
11.5	West	3E-06	3E-06	3E-06	3E-06	3E-06	3E-06	3E-06	3E-06
11.6	West	3E-06	3E-06	3E-06	3E-06	3E-06	3E-06	3E-06	3E-06
11.7	West	3E-06	3E-06	3E-06	3E-06	3E-06	3E-06	3E-06	3E-06
7.8	Swan Isl	5E-06	4E-07	4E-07	1E-07	6E-08	6E-08	1E-08	1E-07
7.9	Swan Isl	6E-06	3E-07	3E-07	2E-07	5E-08	5E-08	3E-08	2E-07
8	Swan Isl	7E-06	4E-07	4E-07	2E-07	6E-08	6E-08	2E-08	2E-07
8.1	Swan Isl	8E-06	4E-07	4E-07	2E-07	8E-08	8E-08	3E-08	2E-07
8.2	Swan Isl	8E-06	4E-07	4E-07	2E-07	1E-07	1E-07	6E-08	2E-07

**Table J2.2-2a**

**RAO 1 Rolling River Mile Risk Estimates - Arsenic**

Portland Harbor Superfund Site

Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
8.3	Swan Isl	8E-06	4E-07	4E-07	2E-07	1E-07	1E-07	7E-08	2E-07
8.4	Swan Isl	8E-06	5E-07	4E-07	3E-07	2E-07	2E-07	1E-07	3E-07
8.5	Swan Isl	8E-06	5E-07	5E-07	4E-07	3E-07	3E-07	3E-07	4E-07
8.6	Swan Isl	7E-06	6E-07	4E-07	4E-07	3E-07	3E-07	3E-07	4E-07
8.7	Swan Isl	7E-06	7E-07	4E-07	3E-07	3E-07	3E-07	3E-07	3E-07
8.8	Swan Isl	6E-06	7E-07	4E-07	3E-07	3E-07	3E-07	3E-07	3E-07
8.9	Swan Isl	6E-06	1E-06	8E-07	7E-07	3E-07	3E-07	3E-07	1E-06
9	Swan Isl	6E-06	1E-06	9E-07	8E-07	3E-07	3E-07	2E-07	1E-06
9.1	Swan Isl	5E-06	2E-06	1E-06	1E-06	3E-07	3E-07	2E-07	2E-06
9.2	Swan Isl	5E-06	2E-06	2E-06	2E-06	4E-07	4E-07	3E-07	2E-06
9.3	Swan Isl	4E-06	3E-06	2E-06	2E-06	5E-07	5E-07	4E-07	3E-06
9.4	Swan Isl	2E-06	2E-06	2E-06	2E-06	2E-06	2E-06	2E-06	2E-06

**Table J2.2-2b**

**RAO 1 Rolling River Mile Risk Estimates - PCBs**

Portland Harbor Superfund Site

Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
1.8	East	1E-07	1E-07	1E-07	1E-07	1E-07	1E-07	1E-07	1E-07
1.9	East	3E-07	2E-07	1E-07	1E-07	1E-07	1E-07	9E-08	1E-07
2	East	5E-07	2E-07	1E-07	1E-07	8E-08	8E-08	7E-08	1E-07
2.1	East	6E-07	2E-07	1E-07	8E-08	6E-08	6E-08	5E-08	8E-08
2.2	East	9E-07	2E-07	1E-07	7E-08	4E-08	4E-08	4E-08	7E-08
2.3	East	9E-07	2E-07	1E-07	8E-08	4E-08	4E-08	4E-08	8E-08
2.4	East	8E-07	2E-07	1E-07	9E-08	4E-08	4E-08	3E-08	9E-08
2.5	East	7E-07	2E-07	1E-07	1E-07	5E-08	5E-08	4E-08	1E-07
2.6	East	6E-07	1E-07	1E-07	1E-07	5E-08	5E-08	4E-08	1E-07
2.7	East	2E-07	1E-07	1E-07	1E-07	6E-08	6E-08	4E-08	1E-07
2.8	East	1E-07	1E-07	9E-08	9E-08	7E-08	7E-08	5E-08	9E-08
2.9	East	9E-08	9E-08	8E-08	8E-08	7E-08	7E-08	6E-08	8E-08
3	East	8E-08	8E-08	7E-08	7E-08	6E-08	6E-08	6E-08	7E-08
3.1	East	6E-08	6E-08	6E-08	6E-08	6E-08	6E-08	6E-08	6E-08
3.2	East	6E-08	6E-08	6E-08	6E-08	6E-08	6E-08	6E-08	6E-08
3.3	East	6E-08	6E-08	6E-08	6E-08	5E-08	5E-08	5E-08	6E-08
3.4	East	6E-08	6E-08	6E-08	6E-08	6E-08	6E-08	6E-08	6E-08
3.5	East	1E-07	1E-07	1E-07	1E-07	7E-08	7E-08	5E-08	1E-07
3.6	East	5E-07	2E-07	1E-07	1E-07	6E-08	6E-08	4E-08	1E-07
3.7	East	5E-07	2E-07	2E-07	1E-07	6E-08	6E-08	4E-08	1E-07
3.8	East	6E-07	3E-07	2E-07	1E-07	6E-08	6E-08	3E-08	1E-07
3.9	East	7E-07	3E-07	2E-07	1E-07	5E-08	5E-08	2E-08	1E-07
4	East	8E-07	4E-07	3E-07	1E-07	5E-08	5E-08	2E-08	1E-07
4.1	East	4E-07	3E-07	3E-07	1E-07	6E-08	6E-08	3E-08	1E-07
4.2	East	4E-07	4E-07	3E-07	2E-07	5E-08	5E-08	2E-08	2E-07
4.3	East	4E-07	3E-07	3E-07	1E-07	5E-08	5E-08	2E-08	1E-07
4.4	East	3E-07	2E-07	2E-07	1E-07	5E-08	5E-08	2E-08	1E-07
4.5	East	2E-07	2E-07	2E-07	1E-07	5E-08	5E-08	2E-08	1E-07
4.6	East	2E-07	2E-07	1E-07	1E-07	4E-08	4E-08	1E-08	1E-07
4.7	East	1E-07	1E-07	9E-08	7E-08	5E-08	5E-08	2E-08	7E-08
4.8	East	9E-08	9E-08	7E-08	6E-08	4E-08	4E-08	2E-08	6E-08
4.9	East	9E-08	9E-08	7E-08	6E-08	5E-08	5E-08	4E-08	6E-08
5	East	7E-08	7E-08	7E-08	7E-08	7E-08	7E-08	6E-08	7E-08
5.1	East	6E-08	6E-08	6E-08	6E-08	6E-08	6E-08	5E-08	6E-08
5.2	East	5E-08	5E-08	5E-08	5E-08	5E-08	5E-08	5E-08	5E-08
5.3	East	6E-08	6E-08	6E-08	6E-08	5E-08	5E-08	4E-08	5E-08
5.4	East	1E-07	1E-07	1E-07	1E-07	5E-08	5E-08	3E-08	5E-08
5.5	East	2E-07	2E-07	2E-07	1E-07	5E-08	5E-08	2E-08	5E-08
5.6	East	2E-07	2E-07	2E-07	2E-07	5E-08	5E-08	1E-08	5E-08
5.7	East	2E-07	2E-07	2E-07	2E-07	7E-08	7E-08	2E-08	7E-08
5.8	East	2E-07	2E-07	2E-07	2E-07	6E-08	6E-08	2E-08	9E-08

**Table J2.2-2b**

**RAO 1 Rolling River Mile Risk Estimates - PCBs**

Portland Harbor Superfund Site

Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
5.9	East	2E-07	2E-07	2E-07	2E-07	6E-08	6E-08	3E-08	1E-07
6	East	2E-07	2E-07	2E-07	2E-07	6E-08	6E-08	3E-08	1E-07
6.1	East	1E-07	1E-07	1E-07	1E-07	6E-08	6E-08	3E-08	1E-07
6.2	East	1E-07	1E-07	1E-07	1E-07	4E-08	4E-08	3E-08	1E-07
6.3	East	9E-08	9E-08	9E-08	8E-08	4E-08	4E-08	3E-08	8E-08
6.4	East	6E-08	6E-08	6E-08	6E-08	4E-08	4E-08	4E-08	6E-08
6.5	East	6E-08	5E-08	4E-08	4E-08	4E-08	4E-08	3E-08	5E-08
6.6	East	3E-07	6E-08	5E-08	5E-08	3E-08	3E-08	2E-08	6E-08
6.7	East	3E-07	6E-08	5E-08	5E-08	3E-08	3E-08	2E-08	6E-08
6.8	East	3E-07	5E-08	4E-08	4E-08	3E-08	3E-08	2E-08	5E-08
6.9	East	3E-07	5E-08	4E-08	4E-08	2E-08	2E-08	2E-08	5E-08
7	East	3E-07	5E-08	4E-08	4E-08	3E-08	3E-08	2E-08	5E-08
7.1	East	4E-08	4E-08	3E-08	3E-08	3E-08	3E-08	3E-08	4E-08
7.2	East	5E-08	5E-08	4E-08	4E-08	3E-08	3E-08	3E-08	5E-08
7.3	East	6E-08	6E-08	5E-08	5E-08	4E-08	4E-08	4E-08	6E-08
7.4	East	7E-08	7E-08	6E-08	6E-08	6E-08	6E-08	5E-08	7E-08
7.5	East	8E-08	8E-08	7E-08	7E-08	7E-08	7E-08	6E-08	8E-08
7.6	East	9E-08	9E-08	8E-08	8E-08	8E-08	8E-08	7E-08	9E-08
7.7	East	9E-08	9E-08	9E-08	9E-08	9E-08	9E-08	8E-08	9E-08
7.8	East	1E-07	1E-07	1E-07	1E-07	1E-07	1E-07	7E-08	1E-07
7.9	East	1E-07	7E-08	7E-08	7E-08	7E-08	7E-08	4E-08	7E-08
8	East	9E-08	5E-08	5E-08	5E-08	5E-08	5E-08	2E-08	5E-08
8.1	East	9E-08	5E-08	5E-08	5E-08	4E-08	4E-08	3E-08	5E-08
8.2	East	8E-08	4E-08	4E-08	4E-08	4E-08	4E-08	2E-08	4E-08
8.3	East	7E-08	3E-08	3E-08	3E-08	2E-08	2E-08	2E-08	3E-08
8.4	East	7E-08	4E-08	4E-08	4E-08	4E-08	4E-08	4E-08	4E-08
8.5	East	7E-08	7E-08	7E-08	7E-08	7E-08	7E-08	7E-08	7E-08
8.6	East	7E-08	7E-08	7E-08	7E-08	7E-08	7E-08	7E-08	7E-08
8.7	East	8E-08	8E-08	8E-08	8E-08	8E-08	8E-08	8E-08	8E-08
8.8	East	1E-07	1E-07	1E-07	1E-07	1E-07	1E-07	8E-08	1E-07
8.9	East	1E-07	1E-07	1E-07	1E-07	1E-07	1E-07	7E-08	1E-07
9	East	1E-07	1E-07	1E-07	1E-07	1E-07	1E-07	6E-08	1E-07
9.1	East	1E-07	1E-07	1E-07	1E-07	1E-07	1E-07	6E-08	1E-07
9.2	East	1E-07	1E-07	1E-07	1E-07	1E-07	1E-07	5E-08	1E-07
9.3	East	1E-07	1E-07	1E-07	1E-07	9E-08	9E-08	5E-08	1E-07
9.4	East	1E-07	1E-07	1E-07	1E-07	8E-08	8E-08	5E-08	1E-07
9.5	East	1E-07	1E-07	1E-07	1E-07	8E-08	8E-08	5E-08	1E-07
9.6	East	1E-07	1E-07	1E-07	1E-07	8E-08	8E-08	5E-08	1E-07
9.7	East	1E-07	1E-07	1E-07	1E-07	8E-08	8E-08	5E-08	1E-07
9.8	East	1E-07	1E-07	1E-07	1E-07	7E-08	7E-08	5E-08	1E-07
9.9	East	1E-07	1E-07	1E-07	9E-08	8E-08	8E-08	5E-08	9E-08

**Table J2.2-2b**

**RAO 1 Rolling River Mile Risk Estimates - PCBs**

Portland Harbor Superfund Site

Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
10	East	1E-07	1E-07	1E-07	8E-08	7E-08	7E-08	6E-08	8E-08
10.1	East	1E-07	1E-07	1E-07	8E-08	6E-08	6E-08	5E-08	8E-08
10.2	East	1E-07	1E-07	1E-07	9E-08	7E-08	7E-08	5E-08	9E-08
10.3	East	1E-07	1E-07	1E-07	1E-07	8E-08	8E-08	6E-08	1E-07
10.4	East	1E-07	1E-07	1E-07	1E-07	8E-08	8E-08	6E-08	1E-07
10.5	East	2E-07	2E-07	2E-07	1E-07	7E-08	7E-08	6E-08	1E-07
10.6	East	2E-07	2E-07	2E-07	1E-07	6E-08	6E-08	5E-08	1E-07
10.7	East	3E-07	3E-07	3E-07	2E-07	6E-08	6E-08	4E-08	2E-07
10.8	East	3E-07	3E-07	3E-07	2E-07	6E-08	6E-08	3E-08	2E-07
10.9	East	3E-07	3E-07	3E-07	2E-07	6E-08	6E-08	3E-08	2E-07
11	East	6E-07	4E-07	3E-07	1E-07	6E-08	6E-08	2E-08	1E-07
11.1	East	1E-06	4E-07	2E-07	1E-07	5E-08	5E-08	1E-08	1E-07
11.2	East	2E-06	5E-07	2E-07	1E-07	4E-08	4E-08	9E-09	1E-07
11.3	East	2E-06	6E-07	2E-07	7E-08	3E-08	3E-08	8E-09	7E-08
11.4	East	2E-06	6E-07	3E-07	8E-08	3E-08	3E-08	5E-09	8E-08
11.5	East	2E-06	6E-07	3E-07	9E-08	3E-08	3E-08	7E-09	9E-08
11.6	East	1E-06	5E-07	3E-07	1E-07	4E-08	4E-08	8E-09	1E-07
11.7	East	8E-07	5E-07	3E-07	1E-07	6E-08	6E-08	1E-08	1E-07
1.8	West	4E-08	4E-08	4E-08	4E-08	4E-08	4E-08	4E-08	4E-08
1.9	West	4E-08	4E-08	4E-08	4E-08	4E-08	4E-08	4E-08	4E-08
2	West	4E-08	4E-08	4E-08	4E-08	4E-08	4E-08	4E-08	4E-08
2.1	West	4E-08	4E-08	4E-08	4E-08	4E-08	4E-08	4E-08	4E-08
2.2	West	4E-08	4E-08	4E-08	4E-08	4E-08	4E-08	4E-08	4E-08
2.3	West	3E-08	3E-08	3E-08	3E-08	3E-08	3E-08	3E-08	3E-08
2.4	West	3E-08	3E-08	3E-08	3E-08	3E-08	3E-08	3E-08	3E-08
2.5	West	2E-08	2E-08	2E-08	2E-08	2E-08	2E-08	2E-08	2E-08
2.6	West	2E-08	2E-08	2E-08	2E-08	2E-08	2E-08	2E-08	2E-08
2.7	West	3E-08	3E-08	3E-08	3E-08	3E-08	3E-08	2E-08	3E-08
2.8	West	4E-08	4E-08	4E-08	4E-08	4E-08	4E-08	2E-08	4E-08
2.9	West	4E-08	4E-08	4E-08	4E-08	4E-08	4E-08	2E-08	4E-08
3	West	4E-08	4E-08	4E-08	4E-08	4E-08	4E-08	3E-08	4E-08
3.1	West	5E-08	5E-08	5E-08	5E-08	5E-08	5E-08	3E-08	5E-08
3.2	West	5E-08	5E-08	5E-08	5E-08	5E-08	5E-08	3E-08	5E-08
3.3	West	4E-08	4E-08	4E-08	4E-08	4E-08	4E-08	4E-08	4E-08
3.4	West	5E-08	5E-08	5E-08	5E-08	5E-08	5E-08	4E-08	5E-08
3.5	West	5E-08	5E-08	5E-08	5E-08	5E-08	5E-08	4E-08	5E-08
3.6	West	5E-08	5E-08	5E-08	5E-08	5E-08	5E-08	5E-08	5E-08
3.7	West	6E-08	6E-08	6E-08	6E-08	5E-08	5E-08	5E-08	6E-08
3.8	West	6E-08	6E-08	6E-08	6E-08	6E-08	6E-08	5E-08	6E-08
3.9	West	7E-08	7E-08	7E-08	7E-08	6E-08	6E-08	4E-08	7E-08
4	West	8E-08	8E-08	8E-08	8E-08	6E-08	6E-08	3E-08	8E-08

**Table J2.2-2b**

**RAO 1 Rolling River Mile Risk Estimates - PCBs**

Portland Harbor Superfund Site

Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
4.1	West	8E-08	8E-08	8E-08	8E-08	5E-08	5E-08	2E-08	8E-08
4.2	West	8E-08	8E-08	8E-08	8E-08	6E-08	6E-08	3E-08	8E-08
4.3	West	8E-08	8E-08	8E-08	8E-08	6E-08	6E-08	3E-08	8E-08
4.4	West	9E-08	9E-08	9E-08	9E-08	6E-08	6E-08	2E-08	9E-08
4.5	West	8E-08	8E-08	8E-08	8E-08	6E-08	6E-08	3E-08	8E-08
4.6	West	9E-08	9E-08	9E-08	9E-08	6E-08	6E-08	3E-08	9E-08
4.7	West	9E-08	9E-08	9E-08	9E-08	5E-08	5E-08	3E-08	9E-08
4.8	West	8E-08	8E-08	8E-08	8E-08	5E-08	5E-08	3E-08	8E-08
4.9	West	6E-08	6E-08	6E-08	6E-08	5E-08	5E-08	4E-08	6E-08
5	West	5E-08	5E-08	5E-08	5E-08	4E-08	4E-08	3E-08	5E-08
5.1	West	5E-08	5E-08	4E-08	4E-08	4E-08	4E-08	3E-08	4E-08
5.2	West	5E-08	5E-08	4E-08	4E-08	4E-08	4E-08	2E-08	4E-08
5.3	West	6E-08	6E-08	5E-08	4E-08	4E-08	4E-08	1E-08	4E-08
5.4	West	7E-08	7E-08	5E-08	5E-08	4E-08	4E-08	1E-08	5E-08
5.5	West	7E-08	7E-08	6E-08	5E-08	4E-08	4E-08	1E-08	5E-08
5.6	West	7E-08	6E-08	5E-08	5E-08	4E-08	4E-08	1E-08	5E-08
5.7	West	7E-08	7E-08	6E-08	6E-08	4E-08	4E-08	2E-08	6E-08
5.8	West	8E-08	8E-08	7E-08	7E-08	5E-08	5E-08	2E-08	7E-08
5.9	West	9E-08	8E-08	7E-08	6E-08	4E-08	4E-08	2E-08	7E-08
6	West	1E-07	7E-08	6E-08	5E-08	3E-08	3E-08	1E-08	6E-08
6.1	West	1E-07	6E-08	5E-08	5E-08	3E-08	3E-08	1E-08	5E-08
6.2	West	1E-07	5E-08	4E-08	4E-08	2E-08	2E-08	6E-09	4E-08
6.3	West	1E-07	2E-08	1E-08	1E-08	2E-09	2E-09	0E+00	1E-08
6.4	West	1E-07	2E-08	2E-08	1E-08	3E-09	3E-09	5E-10	3E-09
6.5	West	1E-07	5E-08	5E-08	4E-08	6E-09	6E-09	6E-10	6E-09
6.6	West	2E-07	1E-07	1E-07	7E-08	1E-08	1E-08	1E-09	1E-08
6.7	West	3E-07	2E-07	1E-07	6E-08	9E-09	9E-09	1E-09	9E-09
6.8	West	4E-07	2E-07	1E-07	6E-08	9E-09	9E-09	1E-09	9E-09
6.9	West	5E-07	3E-07	1E-07	5E-08	6E-09	6E-09	9E-10	6E-09
7	West	6E-07	2E-07	1E-07	3E-08	4E-09	4E-09	8E-10	4E-09
7.1	West	7E-07	2E-07	7E-08	1E-08	2E-09	2E-09	8E-10	2E-09
7.2	West	7E-07	1E-07	5E-08	2E-08	2E-09	2E-09	0E+00	2E-09
7.3	West	8E-07	2E-07	7E-08	3E-08	1E-08	1E-08	3E-09	1E-08
7.4	West	5E-07	1E-07	8E-08	5E-08	4E-08	4E-08	2E-08	4E-08
7.5	West	4E-07	2E-07	1E-07	9E-08	6E-08	6E-08	2E-08	6E-08
7.6	West	3E-07	2E-07	1E-07	1E-07	8E-08	8E-08	3E-08	8E-08
7.7	West	3E-07	2E-07	2E-07	1E-07	8E-08	8E-08	3E-08	8E-08
7.8	West	2E-07	2E-07	1E-07	1E-07	9E-08	9E-08	3E-08	1E-07
7.9	West	2E-07	2E-07	2E-07	2E-07	1E-07	1E-07	2E-08	1E-07
8	West	2E-07	2E-07	2E-07	2E-07	1E-07	1E-07	2E-08	2E-07
8.1	West	3E-07	3E-07	3E-07	2E-07	6E-08	6E-08	5E-09	2E-07



**Table J2.2-2b**

**RAO 1 Rolling River Mile Risk Estimates - PCBs**

Portland Harbor Superfund Site

Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
8.2	West	2E-07	2E-07	2E-07	2E-07	7E-08	7E-08	1E-08	2E-07
8.3	West	2E-07	2E-07	2E-07	2E-07	6E-08	6E-08	2E-08	2E-07
8.4	West	2E-07	2E-07	2E-07	2E-07	5E-08	5E-08	2E-08	2E-07
8.5	West	2E-07	2E-07	2E-07	1E-07	4E-08	4E-08	2E-08	1E-07
8.6	West	9E-07	3E-07	2E-07	1E-07	5E-08	5E-08	2E-08	1E-07
8.7	West	1E-06	3E-07	2E-07	9E-08	3E-08	3E-08	2E-08	9E-08
8.8	West	2E-06	4E-07	3E-07	7E-08	1E-08	1E-08	3E-09	7E-08
8.9	West	3E-06	4E-07	2E-07	3E-08	0E+00	0E+00	0E+00	3E-08
9	West	3E-06	6E-07	2E-07	2E-08	0E+00	0E+00	0E+00	2E-08
9.1	West	1E-06	5E-07	2E-07	7E-08	3E-08	3E-08	2E-08	7E-08
9.2	West	1E-06	4E-07	2E-07	1E-07	4E-08	4E-08	3E-08	1E-07
9.3	West	7E-07	3E-07	2E-07	2E-07	5E-08	5E-08	3E-08	2E-07
9.4	West	5E-07	3E-07	3E-07	2E-07	5E-08	5E-08	3E-08	2E-07
9.5	West	4E-07	4E-07	3E-07	2E-07	4E-08	4E-08	3E-08	2E-07
9.6	West	4E-07	4E-07	3E-07	2E-07	4E-08	4E-08	3E-08	2E-07
9.7	West	5E-07	5E-07	3E-07	1E-07	3E-08	3E-08	2E-08	1E-07
9.8	West	6E-07	5E-07	3E-07	9E-08	3E-08	3E-08	2E-08	9E-08
9.9	West	7E-07	6E-07	3E-07	6E-08	2E-08	2E-08	2E-08	6E-08
10	West	2E-07	2E-07	2E-07	2E-07	9E-08	9E-08	6E-08	2E-07
10.1	West	3E-07	3E-07	3E-07	2E-07	8E-08	8E-08	4E-08	2E-07
10.2	West	3E-07	3E-07	3E-07	2E-07	9E-08	9E-08	4E-08	2E-07
10.3	West	2E-07	2E-07	2E-07	2E-07	8E-08	8E-08	4E-08	2E-07
10.4	West	2E-07	2E-07	2E-07	2E-07	7E-08	7E-08	4E-08	2E-07
10.5	West	1E-07	1E-07	1E-07	1E-07	1E-07	1E-07	5E-08	1E-07
10.6	West	1E-07	1E-07	1E-07	1E-07	1E-07	1E-07	6E-08	1E-07
10.7	West	1E-07	1E-07	1E-07	1E-07	1E-07	1E-07	7E-08	1E-07
10.8	West	1E-07	1E-07	1E-07	1E-07	1E-07	1E-07	7E-08	1E-07
10.9	West	9E-08	9E-08	9E-08	9E-08	9E-08	9E-08	7E-08	9E-08
11	West	8E-08	8E-08	8E-08	8E-08	8E-08	8E-08	8E-08	8E-08
11.1	West	8E-08	8E-08	8E-08	8E-08	8E-08	8E-08	8E-08	8E-08
11.2	West	7E-08	7E-08	7E-08	7E-08	7E-08	7E-08	7E-08	7E-08
11.3	West	8E-08	8E-08	8E-08	8E-08	8E-08	8E-08	8E-08	8E-08
11.4	West	8E-08	8E-08	8E-08	8E-08	8E-08	8E-08	8E-08	8E-08
11.5	West	8E-08	8E-08	8E-08	8E-08	8E-08	8E-08	8E-08	8E-08
11.6	West	8E-08	8E-08	8E-08	8E-08	8E-08	8E-08	8E-08	8E-08
11.7	West	7E-08	7E-08	7E-08	7E-08	7E-08	7E-08	7E-08	7E-08
7.8	Swan Isl	4E-07	5E-08	5E-08	4E-09	2E-09	2E-09	3E-10	4E-09
7.9	Swan Isl	4E-07	2E-08	2E-08	1E-08	2E-09	2E-09	6E-10	1E-08
8	Swan Isl	6E-07	3E-08	3E-08	1E-08	1E-09	1E-09	5E-10	1E-08
8.1	Swan Isl	8E-07	3E-08	3E-08	1E-08	2E-09	2E-09	6E-10	1E-08
8.2	Swan Isl	2E-06	3E-08	2E-08	1E-08	2E-09	2E-09	9E-10	1E-08

**Table J2.2-2b**

**RAO 1 Rolling River Mile Risk Estimates - PCBs**

Portland Harbor Superfund Site

Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
8.3	Swan Isl	2E-06	3E-08	2E-08	1E-08	2E-09	2E-09	1E-09	1E-08
8.4	Swan Isl	3E-06	4E-08	2E-08	9E-09	4E-09	4E-09	2E-09	9E-09
8.5	Swan Isl	4E-06	3E-08	2E-08	9E-09	7E-09	7E-09	5E-09	9E-09
8.6	Swan Isl	3E-06	4E-08	2E-08	1E-08	7E-09	7E-09	6E-09	1E-08
8.7	Swan Isl	1E-06	5E-08	2E-08	1E-08	8E-09	8E-09	6E-09	1E-08
8.8	Swan Isl	7E-07	5E-08	2E-08	1E-08	8E-09	8E-09	7E-09	1E-08
8.9	Swan Isl	5E-07	9E-08	4E-08	4E-08	9E-09	9E-09	7E-09	5E-08
9	Swan Isl	5E-07	1E-07	5E-08	4E-08	9E-09	9E-09	7E-09	6E-08
9.1	Swan Isl	4E-07	1E-07	6E-08	6E-08	1E-08	1E-08	7E-09	8E-08
9.2	Swan Isl	3E-07	1E-07	1E-07	9E-08	1E-08	1E-08	9E-09	1E-07
9.3	Swan Isl	2E-07	2E-07	1E-07	1E-07	2E-08	2E-08	1E-08	2E-07
9.4	Swan Isl	3E-08	3E-08	3E-08	3E-08	3E-08	3E-08	3E-08	3E-08

**Table J2.2-2c**

**RAO 1 Rolling River Mile Risk Estimates - cPAHs**

Portland Harbor Superfund Site

Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
1.8	East	3E-06	3E-06	3E-06	3E-06	3E-06	3E-06	3E-06	3E-06
1.9	East	2E-06	2E-06	2E-06	2E-06	2E-06	2E-06	2E-06	2E-06
2	East	1E-06	9E-07	9E-07	9E-07	8E-07	8E-07	8E-07	9E-07
2.1	East	7E-07	5E-07	5E-07	4E-07	4E-07	4E-07	4E-07	4E-07
2.2	East	6E-07	4E-07	4E-07	3E-07	3E-07	3E-07	3E-07	3E-07
2.3	East	6E-07	4E-07	4E-07	4E-07	3E-07	3E-07	3E-07	4E-07
2.4	East	7E-07	5E-07	5E-07	4E-07	4E-07	4E-07	3E-07	4E-07
2.5	East	9E-07	9E-07	8E-07	7E-07	5E-07	5E-07	4E-07	7E-07
2.6	East	2E-06	2E-06	1E-06	8E-07	6E-07	6E-07	4E-07	8E-07
2.7	East	3E-06	3E-06	1E-06	1E-06	6E-07	6E-07	5E-07	1E-06
2.8	East	3E-06	3E-06	2E-06	1E-06	8E-07	8E-07	6E-07	1E-06
2.9	East	3E-06	3E-06	2E-06	1E-06	9E-07	9E-07	7E-07	1E-06
3	East	4E-06	3E-06	2E-06	1E-06	1E-06	1E-06	1E-06	1E-06
3.1	East	1E-06	1E-06	1E-06	1E-06	1E-06	1E-06	1E-06	1E-06
3.2	East	1E-06	1E-06	1E-06	1E-06	1E-06	1E-06	1E-06	1E-06
3.3	East	1E-06	1E-06	1E-06	1E-06	1E-06	1E-06	1E-06	1E-06
3.4	East	1E-06	1E-06	1E-06	1E-06	1E-06	1E-06	1E-06	1E-06
3.5	East	1E-06	1E-06	1E-06	9E-07	9E-07	9E-07	8E-07	9E-07
3.6	East	2E-06	9E-07	8E-07	7E-07	6E-07	6E-07	5E-07	7E-07
3.7	East	2E-06	9E-07	8E-07	8E-07	6E-07	6E-07	4E-07	8E-07
3.8	East	2E-06	9E-07	8E-07	7E-07	5E-07	5E-07	3E-07	7E-07
3.9	East	2E-06	1E-06	9E-07	7E-07	4E-07	4E-07	2E-07	7E-07
4	East	2E-06	1E-06	1E-06	8E-07	4E-07	4E-07	2E-07	8E-07
4.1	East	7E-06	7E-06	7E-06	5E-06	2E-06	2E-06	5E-07	5E-06
4.2	East	1E-05	1E-05	1E-05	9E-06	2E-06	2E-06	4E-07	9E-06
4.3	East	2E-05	2E-05	1E-05	9E-06	2E-06	2E-06	6E-07	9E-06
4.4	East	3E-05	3E-05	2E-05	1E-05	2E-06	2E-06	6E-07	1E-05
4.5	East	4E-05	3E-05	2E-05	1E-05	3E-06	3E-06	6E-07	1E-05
4.6	East	4E-05	4E-05	2E-05	1E-05	3E-06	3E-06	6E-07	1E-05
4.7	East	5E-05	4E-05	2E-05	9E-06	3E-06	3E-06	9E-07	9E-06
4.8	East	5E-05	4E-05	2E-05	8E-06	3E-06	3E-06	9E-07	8E-06
4.9	East	3E-05	3E-05	1E-05	5E-06	3E-06	3E-06	1E-06	5E-06
5	East	3E-06	3E-06	3E-06	3E-06	3E-06	3E-06	2E-06	3E-06
5.1	East	4E-06	4E-06	4E-06	4E-06	4E-06	4E-06	2E-06	4E-06
5.2	East	4E-06	4E-06	4E-06	4E-06	4E-06	4E-06	2E-06	4E-06
5.3	East	5E-06	5E-06	5E-06	5E-06	4E-06	4E-06	2E-06	4E-06
5.4	East	6E-06	6E-06	6E-06	6E-06	4E-06	4E-06	2E-06	4E-06
5.5	East	7E-06	7E-06	7E-06	7E-06	4E-06	4E-06	1E-06	4E-06
5.6	East	7E-06	7E-06	7E-06	6E-06	3E-06	3E-06	9E-07	3E-06
5.7	East	7E-06	7E-06	7E-06	6E-06	4E-06	4E-06	1E-06	4E-06
5.8	East	7E-06	7E-06	7E-06	7E-06	4E-06	4E-06	1E-06	4E-06

**Table J2.2-2c**

**RAO 1 Rolling River Mile Risk Estimates - cPAHs**

Portland Harbor Superfund Site

Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
5.9	East	7E-06	7E-06	7E-06	6E-06	4E-06	4E-06	2E-06	5E-06
6	East	6E-06	6E-06	6E-06	6E-06	5E-06	5E-06	3E-06	5E-06
6.1	East	7E-06	7E-06	7E-06	6E-06	5E-06	5E-06	3E-06	7E-06
6.2	East	7E-06	7E-06	6E-06	5E-06	4E-06	4E-06	3E-06	7E-06
6.3	East	6E-06	6E-06	5E-06	4E-06	3E-06	3E-06	3E-06	6E-06
6.4	East	5E-06	5E-06	4E-06	3E-06	3E-06	3E-06	2E-06	5E-06
6.5	East	4E-06	4E-06	3E-06	2E-06	2E-06	2E-06	1E-06	4E-06
6.6	East	2E-06	2E-06	1E-06	1E-06	1E-06	1E-06	7E-07	1E-06
6.7	East	8E-07	7E-07	5E-07	5E-07	5E-07	5E-07	4E-07	6E-07
6.8	East	6E-07	5E-07	4E-07	3E-07	3E-07	3E-07	3E-07	5E-07
6.9	East	5E-07	4E-07	3E-07	3E-07	3E-07	3E-07	3E-07	4E-07
7	East	6E-07	4E-07	3E-07	3E-07	3E-07	3E-07	3E-07	5E-07
7.1	East	8E-07	6E-07	4E-07	4E-07	4E-07	4E-07	4E-07	8E-07
7.2	East	9E-07	7E-07	5E-07	5E-07	4E-07	4E-07	4E-07	9E-07
7.3	East	9E-07	7E-07	5E-07	5E-07	5E-07	5E-07	5E-07	9E-07
7.4	East	9E-07	7E-07	5E-07	5E-07	4E-07	4E-07	4E-07	9E-07
7.5	East	8E-07	7E-07	5E-07	5E-07	4E-07	4E-07	4E-07	8E-07
7.6	East	6E-07	6E-07	5E-07	5E-07	4E-07	4E-07	4E-07	5E-07
7.7	East	4E-07	4E-07	4E-07	4E-07	4E-07	4E-07	4E-07	4E-07
7.8	East	5E-07	5E-07	5E-07	5E-07	5E-07	5E-07	3E-07	5E-07
7.9	East	6E-07	4E-07	4E-07	4E-07	4E-07	4E-07	2E-07	4E-07
8	East	6E-07	3E-07	3E-07	3E-07	3E-07	3E-07	1E-07	3E-07
8.1	East	6E-07	3E-07	3E-07	3E-07	3E-07	3E-07	2E-07	3E-07
8.2	East	5E-07	3E-07	3E-07	3E-07	2E-07	2E-07	1E-07	3E-07
8.3	East	5E-07	1E-07	1E-07	1E-07	1E-07	1E-07	1E-07	1E-07
8.4	East	4E-07	2E-07	2E-07	2E-07	2E-07	2E-07	2E-07	2E-07
8.5	East	3E-07	3E-07	3E-07	3E-07	3E-07	3E-07	3E-07	3E-07
8.6	East	3E-07	3E-07	3E-07	3E-07	3E-07	3E-07	3E-07	3E-07
8.7	East	4E-07	4E-07	4E-07	4E-07	4E-07	4E-07	4E-07	4E-07
8.8	East	4E-07	4E-07	4E-07	4E-07	4E-07	4E-07	3E-07	4E-07
8.9	East	3E-07	3E-07	3E-07	3E-07	3E-07	3E-07	3E-07	3E-07
9	East	3E-07	3E-07	3E-07	3E-07	3E-07	3E-07	2E-07	3E-07
9.1	East	3E-07	3E-07	3E-07	3E-07	2E-07	2E-07	2E-07	3E-07
9.2	East	2E-07	2E-07	2E-07	2E-07	2E-07	2E-07	1E-07	2E-07
9.3	East	2E-07	2E-07	2E-07	2E-07	2E-07	2E-07	1E-07	2E-07
9.4	East	2E-07	2E-07	2E-07	2E-07	2E-07	2E-07	1E-07	2E-07
9.5	East	2E-07	2E-07	2E-07	2E-07	2E-07	2E-07	1E-07	2E-07
9.6	East	3E-07	3E-07	3E-07	3E-07	2E-07	2E-07	1E-07	3E-07
9.7	East	3E-07	3E-07	3E-07	3E-07	2E-07	2E-07	2E-07	3E-07
9.8	East	5E-07	5E-07	5E-07	5E-07	4E-07	4E-07	3E-07	5E-07
9.9	East	1E-06	1E-06	1E-06	1E-06	6E-07	6E-07	4E-07	1E-06

**Table J2.2-2c**

**RAO 1 Rolling River Mile Risk Estimates - cPAHs**

Portland Harbor Superfund Site

Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
10	East	2E-06	2E-06	2E-06	2E-06	1E-06	1E-06	7E-07	2E-06
10.1	East	3E-06	3E-06	3E-06	3E-06	2E-06	2E-06	1E-06	3E-06
10.2	East	4E-06	4E-06	4E-06	3E-06	2E-06	2E-06	1E-06	4E-06
10.3	East	4E-06	4E-06	4E-06	4E-06	2E-06	2E-06	2E-06	4E-06
10.4	East	2E-06	2E-06	2E-06	2E-06	2E-06	2E-06	2E-06	2E-06
10.5	East	1E-06	1E-06	1E-06	1E-06	1E-06	1E-06	9E-07	1E-06
10.6	East	6E-07	6E-07	6E-07	5E-07	3E-07	3E-07	3E-07	5E-07
10.7	East	5E-07	5E-07	5E-07	4E-07	3E-07	3E-07	2E-07	4E-07
10.8	East	6E-07	6E-07	6E-07	5E-07	3E-07	3E-07	1E-07	5E-07
10.9	East	7E-07	7E-07	7E-07	6E-07	3E-07	3E-07	1E-07	6E-07
11	East	7E-07	7E-07	6E-07	5E-07	3E-07	3E-07	1E-07	5E-07
11.1	East	8E-07	7E-07	6E-07	5E-07	3E-07	3E-07	1E-07	5E-07
11.2	East	8E-07	6E-07	4E-07	4E-07	2E-07	2E-07	7E-08	4E-07
11.3	East	7E-07	4E-07	3E-07	2E-07	1E-07	1E-07	5E-08	2E-07
11.4	East	6E-07	3E-07	2E-07	1E-07	7E-08	7E-08	1E-08	1E-07
11.5	East	6E-07	3E-07	2E-07	1E-07	6E-08	6E-08	2E-08	1E-07
11.6	East	5E-07	2E-07	2E-07	1E-07	6E-08	6E-08	2E-08	1E-07
11.7	East	3E-07	2E-07	2E-07	2E-07	1E-07	1E-07	3E-08	2E-07
1.8	West	6E-07	6E-07	6E-07	6E-07	6E-07	6E-07	6E-07	6E-07
1.9	West	6E-07	6E-07	6E-07	6E-07	6E-07	6E-07	6E-07	6E-07
2	West	7E-07	7E-07	7E-07	7E-07	7E-07	7E-07	7E-07	7E-07
2.1	West	8E-07	8E-07	8E-07	8E-07	8E-07	8E-07	8E-07	8E-07
2.2	West	1E-06	1E-06	1E-06	1E-06	1E-06	1E-06	1E-06	1E-06
2.3	West	2E-06	2E-06	2E-06	2E-06	2E-06	2E-06	2E-06	2E-06
2.4	West	2E-06	2E-06	2E-06	2E-06	2E-06	2E-06	2E-06	2E-06
2.5	West	2E-06	2E-06	2E-06	2E-06	2E-06	2E-06	2E-06	2E-06
2.6	West	3E-06	3E-06	3E-06	3E-06	3E-06	3E-06	3E-06	3E-06
2.7	West	4E-06	4E-06	4E-06	4E-06	4E-06	4E-06	3E-06	4E-06
2.8	West	5E-06	5E-06	5E-06	5E-06	5E-06	5E-06	3E-06	5E-06
2.9	West	5E-06	5E-06	5E-06	5E-06	5E-06	5E-06	4E-06	5E-06
3	West	6E-06	6E-06	6E-06	6E-06	6E-06	6E-06	4E-06	6E-06
3.1	West	6E-06	6E-06	6E-06	6E-06	6E-06	6E-06	4E-06	6E-06
3.2	West	6E-06	6E-06	6E-06	6E-06	6E-06	6E-06	4E-06	6E-06
3.3	West	5E-06	5E-06	5E-06	5E-06	5E-06	5E-06	3E-06	5E-06
3.4	West	5E-06	5E-06	5E-06	5E-06	5E-06	5E-06	3E-06	5E-06
3.5	West	4E-06	4E-06	4E-06	4E-06	4E-06	4E-06	3E-06	4E-06
3.6	West	3E-06	3E-06	3E-06	3E-06	3E-06	3E-06	2E-06	3E-06
3.7	West	4E-06	4E-06	4E-06	3E-06	2E-06	2E-06	2E-06	3E-06
3.8	West	4E-06	4E-06	4E-06	4E-06	3E-06	3E-06	2E-06	4E-06
3.9	West	5E-06	5E-06	5E-06	4E-06	3E-06	3E-06	2E-06	4E-06
4	West	6E-06	6E-06	6E-06	6E-06	4E-06	4E-06	2E-06	6E-06

**Table J2.2-2c**

**RAO 1 Rolling River Mile Risk Estimates - cPAHs**

Portland Harbor Superfund Site

Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
4.1	West	8E-06	8E-06	8E-06	7E-06	5E-06	5E-06	1E-06	7E-06
4.2	West	6E-06	6E-06	6E-06	6E-06	5E-06	5E-06	1E-06	6E-06
4.3	West	7E-06	7E-06	7E-06	7E-06	5E-06	5E-06	1E-06	7E-06
4.4	West	8E-06	8E-06	8E-06	8E-06	5E-06	5E-06	9E-07	8E-06
4.5	West	7E-06	7E-06	7E-06	7E-06	5E-06	5E-06	1E-06	7E-06
4.6	West	6E-06	6E-06	6E-06	6E-06	4E-06	4E-06	1E-06	6E-06
4.7	West	7E-06	7E-06	7E-06	6E-06	3E-06	3E-06	2E-06	6E-06
4.8	West	7E-06	7E-06	6E-06	6E-06	3E-06	3E-06	2E-06	6E-06
4.9	West	7E-06	7E-06	7E-06	6E-06	3E-06	3E-06	2E-06	6E-06
5	West	9E-06	9E-06	8E-06	6E-06	3E-06	3E-06	2E-06	6E-06
5.1	West	1E-05	1E-05	9E-06	6E-06	3E-06	3E-06	2E-06	6E-06
5.2	West	2E-05	2E-05	9E-06	5E-06	3E-06	3E-06	1E-06	5E-06
5.3	West	3E-05	3E-05	1E-05	6E-06	3E-06	3E-06	6E-07	6E-06
5.4	West	3E-05	3E-05	1E-05	6E-06	4E-06	4E-06	6E-07	6E-06
5.5	West	3E-05	3E-05	1E-05	7E-06	4E-06	4E-06	7E-07	7E-06
5.6	West	2E-05	2E-05	1E-05	8E-06	5E-06	5E-06	1E-06	8E-06
5.7	West	2E-05	2E-05	1E-05	9E-06	5E-06	5E-06	2E-06	1E-05
5.8	West	2E-05	2E-05	1E-05	1E-05	5E-06	5E-06	2E-06	1E-05
5.9	West	6E-05	2E-05	1E-05	1E-05	4E-06	4E-06	1E-06	1E-05
6	West	1E-04	2E-05	1E-05	9E-06	3E-06	3E-06	1E-06	1E-05
6.1	West	2E-04	2E-05	1E-05	7E-06	2E-06	2E-06	8E-07	1E-05
6.2	West	3E-04	2E-05	7E-06	6E-06	2E-06	2E-06	4E-07	7E-06
6.3	West	4E-04	1E-05	3E-06	2E-06	2E-07	2E-07	0E+00	3E-06
6.4	West	4E-04	3E-06	2E-06	2E-06	4E-07	4E-07	1E-07	5E-07
6.5	West	2E-04	6E-06	5E-06	4E-06	8E-07	8E-07	1E-07	9E-07
6.6	West	1E-04	9E-06	8E-06	6E-06	1E-06	1E-06	1E-07	1E-06
6.7	West	3E-05	8E-06	6E-06	5E-06	1E-06	1E-06	1E-07	1E-06
6.8	West	9E-06	7E-06	6E-06	4E-06	8E-07	8E-07	1E-07	8E-07
6.9	West	5E-06	4E-06	4E-06	3E-06	5E-07	5E-07	4E-08	5E-07
7	West	4E-06	3E-06	2E-06	1E-06	2E-07	2E-07	3E-08	2E-07
7.1	West	4E-06	9E-07	4E-07	7E-08	1E-08	1E-08	1E-08	1E-08
7.2	West	3E-06	3E-07	2E-07	6E-08	1E-08	1E-08	0E+00	1E-08
7.3	West	3E-06	3E-07	2E-07	1E-07	8E-08	8E-08	4E-08	8E-08
7.4	West	2E-06	4E-07	3E-07	3E-07	3E-07	3E-07	2E-07	3E-07
7.5	West	2E-06	5E-07	5E-07	4E-07	3E-07	3E-07	2E-07	3E-07
7.6	West	7E-07	6E-07	6E-07	6E-07	5E-07	5E-07	3E-07	5E-07
7.7	West	6E-07	6E-07	6E-07	6E-07	5E-07	5E-07	3E-07	5E-07
7.8	West	6E-07	6E-07	6E-07	6E-07	5E-07	5E-07	3E-07	5E-07
7.9	West	7E-07	7E-07	7E-07	6E-07	4E-07	4E-07	2E-07	5E-07
8	West	8E-07	8E-07	8E-07	7E-07	4E-07	4E-07	2E-07	6E-07
8.1	West	1E-06	1E-06	1E-06	1E-06	1E-07	1E-07	3E-08	1E-06

**Table J2.2-2c**

**RAO 1 Rolling River Mile Risk Estimates - cPAHs**

Portland Harbor Superfund Site

Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
8.2	West	2E-06	2E-06	2E-06	1E-06	4E-07	4E-07	8E-08	1E-06
8.3	West	2E-06	2E-06	2E-06	1E-06	4E-07	4E-07	2E-07	1E-06
8.4	West	2E-06	2E-06	2E-06	1E-06	4E-07	4E-07	2E-07	1E-06
8.5	West	1E-06	1E-06	1E-06	1E-06	4E-07	4E-07	2E-07	1E-06
8.6	West	1E-06	1E-06	1E-06	7E-07	4E-07	4E-07	2E-07	7E-07
8.7	West	1E-06	9E-07	7E-07	4E-07	2E-07	2E-07	2E-07	4E-07
8.8	West	1E-06	8E-07	6E-07	1E-07	2E-08	2E-08	5E-09	1E-07
8.9	West	2E-06	7E-07	3E-07	5E-08	0E+00	0E+00	0E+00	5E-08
9	West	2E-06	8E-07	2E-07	4E-08	0E+00	0E+00	0E+00	4E-08
9.1	West	2E-06	6E-07	2E-07	1E-07	4E-08	4E-08	3E-08	1E-07
9.2	West	1E-06	6E-07	3E-07	2E-07	1E-07	1E-07	6E-08	2E-07
9.3	West	8E-07	6E-07	4E-07	3E-07	1E-07	1E-07	7E-08	3E-07
9.4	West	1E-06	7E-07	6E-07	3E-07	1E-07	1E-07	8E-08	3E-07
9.5	West	1E-06	1E-06	8E-07	3E-07	1E-07	1E-07	7E-08	3E-07
9.6	West	2E-06	1E-06	8E-07	3E-07	1E-07	1E-07	7E-08	3E-07
9.7	West	2E-06	2E-06	1E-06	3E-07	7E-08	7E-08	5E-08	3E-07
9.8	West	3E-06	2E-06	1E-06	2E-07	8E-08	8E-08	7E-08	2E-07
9.9	West	3E-06	3E-06	1E-06	3E-07	2E-07	2E-07	1E-07	3E-07
10	West	1E-06	1E-06	1E-06	1E-06	9E-07	9E-07	4E-07	1E-06
10.1	West	1E-06	1E-06	1E-06	1E-06	8E-07	8E-07	3E-07	1E-06
10.2	West	3E-06	3E-06	3E-06	3E-06	2E-06	2E-06	1E-06	3E-06
10.3	West	3E-06	3E-06	3E-06	3E-06	3E-06	3E-06	2E-06	3E-06
10.4	West	3E-06	3E-06	3E-06	3E-06	3E-06	3E-06	2E-06	3E-06
10.5	West	2E-06	2E-06	2E-06	2E-06	2E-06	2E-06	1E-06	2E-06
10.6	West	1E-06	1E-06	1E-06	1E-06	1E-06	1E-06	9E-07	1E-06
10.7	West	9E-07	9E-07	9E-07	9E-07	9E-07	9E-07	7E-07	9E-07
10.8	West	7E-07	7E-07	7E-07	7E-07	7E-07	7E-07	5E-07	7E-07
10.9	West	6E-07	6E-07	6E-07	6E-07	6E-07	6E-07	5E-07	6E-07
11	West	6E-07	6E-07	6E-07	6E-07	6E-07	6E-07	6E-07	6E-07
11.1	West	7E-07	7E-07	7E-07	7E-07	7E-07	7E-07	7E-07	7E-07
11.2	West	9E-07	9E-07	9E-07	9E-07	9E-07	9E-07	9E-07	9E-07
11.3	West	8E-07	8E-07	8E-07	8E-07	8E-07	8E-07	8E-07	8E-07
11.4	West	7E-07	7E-07	7E-07	7E-07	7E-07	7E-07	7E-07	7E-07
11.5	West	8E-07	8E-07	8E-07	8E-07	8E-07	8E-07	8E-07	8E-07
11.6	West	7E-07	7E-07	7E-07	7E-07	7E-07	7E-07	7E-07	7E-07
11.7	West	5E-07	5E-07	5E-07	5E-07	5E-07	5E-07	5E-07	5E-07
7.8	Swan Isl	3E-06	3E-07	3E-07	4E-08	2E-08	2E-08	3E-09	4E-08
7.9	Swan Isl	2E-06	1E-07	1E-07	7E-08	2E-08	2E-08	7E-09	7E-08
8	Swan Isl	2E-06	2E-07	2E-07	9E-08	4E-08	4E-08	9E-09	9E-08
8.1	Swan Isl	3E-06	2E-07	2E-07	1E-07	6E-08	6E-08	1E-08	1E-07
8.2	Swan Isl	3E-06	2E-07	2E-07	1E-07	6E-08	6E-08	2E-08	1E-07

**Table J2.2-2c****RAO 1 Rolling River Mile Risk Estimates - cPAHs**

Portland Harbor Superfund Site

Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
8.3	Swan Isl	3E-06	2E-07	2E-07	1E-07	6E-08	6E-08	2E-08	1E-07
8.4	Swan Isl	4E-06	2E-07	2E-07	1E-07	8E-08	8E-08	3E-08	1E-07
8.5	Swan Isl	4E-06	2E-07	1E-07	1E-07	9E-08	9E-08	5E-08	1E-07
8.6	Swan Isl	3E-06	2E-07	1E-07	7E-08	6E-08	6E-08	5E-08	7E-08
8.7	Swan Isl	3E-06	2E-07	8E-08	5E-08	4E-08	4E-08	4E-08	5E-08
8.8	Swan Isl	2E-06	3E-07	8E-08	5E-08	4E-08	4E-08	3E-08	5E-08
8.9	Swan Isl	3E-06	1E-06	6E-07	4E-07	6E-08	6E-08	4E-08	8E-07
9	Swan Isl	3E-06	1E-06	7E-07	5E-07	7E-08	7E-08	4E-08	1E-06
9.1	Swan Isl	3E-06	2E-06	1E-06	6E-07	8E-08	8E-08	5E-08	1E-06
9.2	Swan Isl	4E-06	2E-06	2E-06	1E-06	1E-07	1E-07	8E-08	2E-06
9.3	Swan Isl	4E-06	3E-06	2E-06	2E-06	2E-07	2E-07	1E-07	3E-06
9.4	Swan Isl	6E-07	6E-07	6E-07	6E-07	6E-07	6E-07	6E-07	6E-07



**Table J2.2-2d**

**RAO 1 Rolling River Mile Risk Estimates - 2,3,7,8-TCDD eq**

Portland Harbor Superfund Site

Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
1.8	East	5E-08	5E-08	5E-08	5E-08	5E-08	5E-08	5E-08	5E-08
1.9	East	4E-08	4E-08	4E-08	4E-08	4E-08	4E-08	4E-08	4E-08
2	East	4E-08	3E-08	3E-08	3E-08	3E-08	3E-08	3E-08	3E-08
2.1	East	4E-08	3E-08	3E-08	2E-08	2E-08	2E-08	2E-08	2E-08
2.2	East	5E-08	3E-08	3E-08	2E-08	2E-08	2E-08	2E-08	2E-08
2.3	East	6E-08	4E-08	4E-08	3E-08	2E-08	2E-08	2E-08	3E-08
2.4	East	7E-08	5E-08	5E-08	4E-08	2E-08	2E-08	2E-08	4E-08
2.5	East	8E-08	6E-08	6E-08	5E-08	3E-08	3E-08	2E-08	5E-08
2.6	East	8E-08	6E-08	6E-08	5E-08	3E-08	3E-08	2E-08	5E-08
2.7	East	6E-08	6E-08	6E-08	6E-08	4E-08	4E-08	3E-08	6E-08
2.8	East	5E-08	5E-08	5E-08	5E-08	4E-08	4E-08	3E-08	5E-08
2.9	East	5E-08	5E-08	5E-08	5E-08	4E-08	4E-08	4E-08	5E-08
3	East	5E-08	5E-08	5E-08	5E-08	5E-08	5E-08	5E-08	5E-08
3.1	East	6E-08	6E-08	6E-08	6E-08	6E-08	6E-08	6E-08	6E-08
3.2	East	1E-07	1E-07	1E-07	1E-07	1E-07	1E-07	1E-07	1E-07
3.3	East	2E-07	2E-07	2E-07	2E-07	2E-07	2E-07	2E-07	2E-07
3.4	East	2E-07	2E-07	2E-07	2E-07	2E-07	2E-07	2E-07	2E-07
3.5	East	2E-07	2E-07	2E-07	2E-07	2E-07	2E-07	2E-07	2E-07
3.6	East	3E-07	2E-07	2E-07	2E-07	1E-07	1E-07	1E-07	2E-07
3.7	East	2E-07	2E-07	1E-07	1E-07	1E-07	1E-07	9E-08	1E-07
3.8	East	2E-07	2E-07	1E-07	1E-07	8E-08	8E-08	6E-08	1E-07
3.9	East	2E-07	2E-07	1E-07	7E-08	5E-08	5E-08	3E-08	7E-08
4	East	3E-07	2E-07	1E-07	7E-08	4E-08	4E-08	2E-08	7E-08
4.1	East	2E-07	2E-07	2E-07	2E-07	9E-08	9E-08	5E-08	2E-07
4.2	East	4E-07	4E-07	3E-07	3E-07	1E-07	1E-07	4E-08	3E-07
4.3	East	4E-07	4E-07	3E-07	3E-07	1E-07	1E-07	5E-08	3E-07
4.4	East	4E-07	3E-07	3E-07	3E-07	1E-07	1E-07	4E-08	3E-07
4.5	East	4E-07	4E-07	3E-07	2E-07	9E-08	9E-08	4E-08	2E-07
4.6	East	4E-07	4E-07	3E-07	2E-07	8E-08	8E-08	3E-08	2E-07
4.7	East	3E-07	3E-07	2E-07	1E-07	8E-08	8E-08	4E-08	1E-07
4.8	East	3E-07	3E-07	2E-07	1E-07	8E-08	8E-08	5E-08	1E-07
4.9	East	3E-07	3E-07	2E-07	2E-07	2E-07	2E-07	2E-07	2E-07
5	East	3E-07	3E-07	3E-07	3E-07	3E-07	3E-07	3E-07	3E-07
5.1	East	4E-07	4E-07	4E-07	4E-07	4E-07	4E-07	4E-07	4E-07
5.2	East	5E-07	5E-07	5E-07	5E-07	5E-07	5E-07	4E-07	5E-07
5.3	East	6E-07	6E-07	6E-07	6E-07	5E-07	5E-07	4E-07	5E-07
5.4	East	6E-07	6E-07	6E-07	6E-07	5E-07	5E-07	3E-07	5E-07
5.5	East	5E-07	5E-07	5E-07	5E-07	4E-07	4E-07	2E-07	4E-07
5.6	East	4E-07	4E-07	4E-07	4E-07	3E-07	3E-07	1E-07	3E-07
5.7	East	4E-07	4E-07	4E-07	4E-07	2E-07	2E-07	9E-08	2E-07
5.8	East	3E-07	3E-07	3E-07	3E-07	2E-07	2E-07	6E-08	2E-07

**Table J2.2-2d**

**RAO 1 Rolling River Mile Risk Estimates - 2,3,7,8-TCDD eq**

Portland Harbor Superfund Site

Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
5.9	East	3E-07	3E-07	3E-07	3E-07	2E-07	2E-07	9E-08	2E-07
6	East	3E-07	3E-07	3E-07	3E-07	2E-07	2E-07	1E-07	3E-07
6.1	East	3E-07	3E-07	3E-07	3E-07	2E-07	2E-07	2E-07	3E-07
6.2	East	3E-07	3E-07	3E-07	3E-07	2E-07	2E-07	2E-07	3E-07
6.3	East	3E-07	3E-07	3E-07	3E-07	2E-07	2E-07	2E-07	3E-07
6.4	East	3E-07	3E-07	2E-07	2E-07	2E-07	2E-07	2E-07	3E-07
6.5	East	5E-07	3E-07	2E-07	2E-07	2E-07	2E-07	1E-07	3E-07
6.6	East	6E-07	3E-07	1E-07	1E-07	1E-07	1E-07	9E-08	2E-07
6.7	East	5E-07	2E-07	9E-08	9E-08	8E-08	8E-08	7E-08	2E-07
6.8	East	5E-07	2E-07	7E-08	7E-08	6E-08	6E-08	5E-08	2E-07
6.9	East	5E-07	2E-07	6E-08	6E-08	6E-08	6E-08	5E-08	2E-07
7	East	4E-07	1E-07	7E-08	7E-08	7E-08	7E-08	6E-08	3E-07
7.1	East	3E-07	2E-07	9E-08	9E-08	9E-08	9E-08	9E-08	3E-07
7.2	East	4E-07	2E-07	1E-07	1E-07	1E-07	1E-07	1E-07	4E-07
7.3	East	4E-07	2E-07	2E-07	2E-07	1E-07	1E-07	1E-07	4E-07
7.4	East	4E-07	3E-07	2E-07	2E-07	2E-07	2E-07	2E-07	4E-07
7.5	East	3E-07	2E-07	2E-07	2E-07	2E-07	2E-07	2E-07	3E-07
7.6	East	3E-07	3E-07	2E-07	2E-07	2E-07	2E-07	2E-07	3E-07
7.7	East	3E-07	3E-07	3E-07	3E-07	3E-07	3E-07	2E-07	3E-07
7.8	East	3E-07	3E-07	3E-07	3E-07	3E-07	3E-07	2E-07	3E-07
7.9	East	3E-07	2E-07	2E-07	2E-07	2E-07	2E-07	1E-07	2E-07
8	East	3E-07	2E-07	2E-07	2E-07	2E-07	2E-07	9E-08	2E-07
8.1	East	3E-07	1E-07	1E-07	1E-07	1E-07	1E-07	9E-08	1E-07
8.2	East	3E-07	1E-07	1E-07	1E-07	1E-07	1E-07	7E-08	1E-07
8.3	East	2E-07	4E-08	4E-08	4E-08	3E-08	3E-08	3E-08	4E-08
8.4	East	2E-07	5E-08	5E-08	5E-08	5E-08	5E-08	5E-08	5E-08
8.5	East	6E-08	6E-08	6E-08	6E-08	6E-08	6E-08	6E-08	6E-08
8.6	East	6E-08	6E-08	6E-08	6E-08	6E-08	6E-08	6E-08	6E-08
8.7	East	6E-08	6E-08	6E-08	6E-08	6E-08	6E-08	6E-08	6E-08
8.8	East	6E-08	6E-08	6E-08	6E-08	6E-08	6E-08	5E-08	6E-08
8.9	East	5E-08	5E-08	5E-08	5E-08	5E-08	5E-08	4E-08	5E-08
9	East	5E-08	5E-08	5E-08	5E-08	5E-08	5E-08	3E-08	5E-08
9.1	East	5E-08	5E-08	5E-08	5E-08	4E-08	4E-08	3E-08	5E-08
9.2	East	5E-08	5E-08	5E-08	5E-08	4E-08	4E-08	3E-08	5E-08
9.3	East	5E-08	5E-08	5E-08	5E-08	4E-08	4E-08	3E-08	5E-08
9.4	East	5E-08	5E-08	5E-08	5E-08	4E-08	4E-08	3E-08	5E-08
9.5	East	6E-08	6E-08	6E-08	6E-08	4E-08	4E-08	3E-08	6E-08
9.6	East	7E-08	7E-08	7E-08	7E-08	5E-08	5E-08	4E-08	7E-08
9.7	East	8E-08	8E-08	8E-08	8E-08	6E-08	6E-08	5E-08	8E-08
9.8	East	8E-08	8E-08	8E-08	8E-08	7E-08	7E-08	6E-08	8E-08
9.9	East	9E-08	9E-08	9E-08	9E-08	8E-08	8E-08	7E-08	9E-08

**Table J2.2-2d**

**RAO 1 Rolling River Mile Risk Estimates - 2,3,7,8-TCDD eq**

Portland Harbor Superfund Site

Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
10	East	1E-07	1E-07	1E-07	1E-07	9E-08	9E-08	8E-08	1E-07
10.1	East	1E-07	1E-07	1E-07	1E-07	1E-07	1E-07	9E-08	1E-07
10.2	East	1E-07	1E-07	1E-07	1E-07	1E-07	1E-07	1E-07	1E-07
10.3	East	2E-07	2E-07	2E-07	2E-07	1E-07	1E-07	1E-07	2E-07
10.4	East	2E-07	2E-07	2E-07	2E-07	2E-07	2E-07	1E-07	2E-07
10.5	East	2E-07	2E-07	2E-07	2E-07	2E-07	2E-07	1E-07	2E-07
10.6	East	2E-07	2E-07	2E-07	2E-07	1E-07	1E-07	1E-07	2E-07
10.7	East	2E-07	2E-07	2E-07	2E-07	1E-07	1E-07	9E-08	2E-07
10.8	East	2E-07	2E-07	2E-07	2E-07	1E-07	1E-07	8E-08	2E-07
10.9	East	3E-07	2E-07	2E-07	2E-07	1E-07	1E-07	8E-08	2E-07
11	East	3E-07	2E-07	2E-07	2E-07	1E-07	1E-07	6E-08	2E-07
11.1	East	2E-07	2E-07	2E-07	2E-07	1E-07	1E-07	4E-08	2E-07
11.2	East	4E-07	2E-07	2E-07	1E-07	7E-08	7E-08	2E-08	1E-07
11.3	East	5E-07	3E-07	2E-07	1E-07	6E-08	6E-08	2E-08	1E-07
11.4	East	5E-07	3E-07	2E-07	1E-07	4E-08	4E-08	1E-08	1E-07
11.5	East	5E-07	3E-07	2E-07	1E-07	4E-08	4E-08	2E-08	1E-07
11.6	East	6E-07	4E-07	3E-07	1E-07	5E-08	5E-08	2E-08	1E-07
11.7	East	6E-07	4E-07	3E-07	2E-07	8E-08	8E-08	3E-08	2E-07
1.8	West	2E-08	2E-08	2E-08	2E-08	2E-08	2E-08	2E-08	2E-08
1.9	West	2E-08	2E-08	2E-08	2E-08	2E-08	2E-08	2E-08	2E-08
2	West	3E-08	3E-08	3E-08	3E-08	3E-08	3E-08	3E-08	3E-08
2.1	West	4E-08	4E-08	4E-08	4E-08	4E-08	4E-08	4E-08	4E-08
2.2	West	5E-08	5E-08	5E-08	5E-08	5E-08	5E-08	5E-08	5E-08
2.3	West	6E-08	6E-08	6E-08	6E-08	6E-08	6E-08	6E-08	6E-08
2.4	West	6E-08	6E-08	6E-08	6E-08	6E-08	6E-08	6E-08	6E-08
2.5	West	6E-08	6E-08	6E-08	6E-08	6E-08	6E-08	6E-08	6E-08
2.6	West	4E-08	4E-08	4E-08	4E-08	4E-08	4E-08	4E-08	4E-08
2.7	West	3E-08	3E-08	3E-08	3E-08	3E-08	3E-08	2E-08	3E-08
2.8	West	2E-08	2E-08	2E-08	2E-08	2E-08	2E-08	2E-08	2E-08
2.9	West	2E-08	2E-08	2E-08	2E-08	2E-08	2E-08	2E-08	2E-08
3	West	2E-08	2E-08	2E-08	2E-08	2E-08	2E-08	2E-08	2E-08
3.1	West	3E-08	3E-08	3E-08	3E-08	3E-08	3E-08	2E-08	3E-08
3.2	West	3E-08	3E-08	3E-08	3E-08	3E-08	3E-08	3E-08	3E-08
3.3	West	4E-08	4E-08	4E-08	4E-08	4E-08	4E-08	3E-08	4E-08
3.4	West	5E-08	5E-08	5E-08	5E-08	5E-08	5E-08	4E-08	5E-08
3.5	West	6E-08	6E-08	6E-08	6E-08	6E-08	6E-08	5E-08	6E-08
3.6	West	8E-08	8E-08	8E-08	8E-08	8E-08	8E-08	7E-08	8E-08
3.7	West	1E-07	1E-07	1E-07	1E-07	9E-08	9E-08	8E-08	1E-07
3.8	West	1E-07	1E-07	1E-07	1E-07	1E-07	1E-07	9E-08	1E-07
3.9	West	1E-07	1E-07	1E-07	1E-07	1E-07	1E-07	9E-08	1E-07
4	West	1E-07	1E-07	1E-07	1E-07	1E-07	1E-07	8E-08	1E-07

**Table J2.2-2d**

**RAO 1 Rolling River Mile Risk Estimates - 2,3,7,8-TCDD eq**

Portland Harbor Superfund Site

Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
4.1	West	1E-07	1E-07	1E-07	1E-07	1E-07	1E-07	6E-08	1E-07
4.2	West	1E-07	1E-07	1E-07	1E-07	1E-07	1E-07	7E-08	1E-07
4.3	West	1E-07	1E-07	1E-07	1E-07	1E-07	1E-07	7E-08	1E-07
4.4	West	2E-07	2E-07	2E-07	2E-07	1E-07	1E-07	6E-08	2E-07
4.5	West	2E-07	2E-07	2E-07	2E-07	2E-07	2E-07	9E-08	2E-07
4.6	West	2E-07	2E-07	2E-07	2E-07	2E-07	2E-07	1E-07	2E-07
4.7	West	2E-07	2E-07	2E-07	2E-07	2E-07	2E-07	1E-07	2E-07
4.8	West	2E-07	2E-07	2E-07	2E-07	1E-07	1E-07	1E-07	2E-07
4.9	West	2E-07	2E-07	2E-07	2E-07	1E-07	1E-07	1E-07	2E-07
5	West	2E-07	2E-07	2E-07	2E-07	1E-07	1E-07	1E-07	2E-07
5.1	West	2E-07	2E-07	2E-07	2E-07	1E-07	1E-07	8E-08	2E-07
5.2	West	2E-07	2E-07	2E-07	2E-07	1E-07	1E-07	7E-08	2E-07
5.3	West	3E-07	2E-07	2E-07	2E-07	1E-07	1E-07	5E-08	2E-07
5.4	West	3E-07	3E-07	2E-07	2E-07	1E-07	1E-07	5E-08	2E-07
5.5	West	2E-07	2E-07	2E-07	2E-07	1E-07	1E-07	4E-08	2E-07
5.6	West	2E-07	2E-07	2E-07	1E-07	1E-07	1E-07	5E-08	1E-07
5.7	West	2E-07	2E-07	1E-07	1E-07	1E-07	1E-07	6E-08	1E-07
5.8	West	1E-07	1E-07	1E-07	1E-07	1E-07	1E-07	5E-08	1E-07
5.9	West	1E-07	1E-07	1E-07	1E-07	7E-08	7E-08	4E-08	1E-07
6	West	1E-07	1E-07	9E-08	8E-08	6E-08	6E-08	3E-08	9E-08
6.1	West	1E-07	8E-08	7E-08	6E-08	4E-08	4E-08	2E-08	7E-08
6.2	West	1E-07	6E-08	5E-08	4E-08	3E-08	3E-08	1E-08	5E-08
6.3	West	2E-07	2E-08	1E-08	1E-08	2E-09	2E-09	0E+00	1E-08
6.4	West	2E-07	5E-08	4E-08	4E-08	2E-08	2E-08	3E-09	2E-08
6.5	West	2E-07	1E-07	1E-07	9E-08	3E-08	3E-08	3E-09	3E-08
6.6	West	4E-07	2E-07	2E-07	2E-07	5E-08	5E-08	6E-09	5E-08
6.7	West	1E-06	5E-07	3E-07	2E-07	4E-08	4E-08	6E-09	4E-08
6.8	West	2E-06	1E-06	6E-07	2E-07	4E-08	4E-08	5E-09	4E-08
6.9	West	2E-06	1E-06	7E-07	2E-07	3E-08	3E-08	4E-09	3E-08
7	West	1E-05	1E-06	6E-07	2E-07	2E-08	2E-08	4E-09	2E-08
7.1	West	7E-05	1E-06	5E-07	2E-07	2E-08	2E-08	2E-09	2E-08
7.2	West	1E-04	1E-06	5E-07	2E-07	3E-08	3E-08	0E+00	3E-08
7.3	West	9E-05	3E-06	3E-06	7E-07	3E-07	3E-07	2E-08	3E-07
7.4	West	7E-05	2E-06	2E-06	6E-07	3E-07	3E-07	6E-08	3E-07
7.5	West	5E-05	2E-06	2E-06	6E-07	3E-07	3E-07	6E-08	3E-07
7.6	West	9E-06	2E-06	1E-06	5E-07	3E-07	3E-07	5E-08	3E-07
7.7	West	2E-06	2E-06	1E-06	5E-07	3E-07	3E-07	5E-08	3E-07
7.8	West	2E-07	2E-07	2E-07	2E-07	2E-07	2E-07	5E-08	2E-07
7.9	West	1E-07	1E-07	1E-07	1E-07	1E-07	1E-07	1E-08	1E-07
8	West	2E-07	2E-07	2E-07	2E-07	1E-07	1E-07	6E-09	1E-07
8.1	West	2E-07	2E-07	2E-07	2E-07	9E-08	9E-08	2E-09	2E-07

**Table J2.2-2d**

**RAO 1 Rolling River Mile Risk Estimates - 2,3,7,8-TCDD eq**

Portland Harbor Superfund Site

Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
8.2	West	2E-07	2E-07	2E-07	2E-07	8E-08	8E-08	1E-08	2E-07
8.3	West	2E-07	2E-07	2E-07	1E-07	7E-08	7E-08	3E-08	1E-07
8.4	West	2E-07	2E-07	2E-07	1E-07	6E-08	6E-08	3E-08	1E-07
8.5	West	2E-07	2E-07	2E-07	1E-07	5E-08	5E-08	3E-08	1E-07
8.6	West	3E-07	2E-07	2E-07	9E-08	5E-08	5E-08	3E-08	9E-08
8.7	West	4E-07	2E-07	2E-07	7E-08	3E-08	3E-08	3E-08	7E-08
8.8	West	6E-07	3E-07	2E-07	5E-08	9E-09	9E-09	3E-09	5E-08
8.9	West	8E-07	3E-07	2E-07	2E-08	0E+00	0E+00	0E+00	2E-08
9	West	9E-07	3E-07	1E-07	1E-08	0E+00	0E+00	0E+00	1E-08
9.1	West	6E-07	3E-07	2E-07	1E-07	7E-08	7E-08	5E-08	1E-07
9.2	West	4E-07	3E-07	2E-07	2E-07	1E-07	1E-07	8E-08	2E-07
9.3	West	3E-07	3E-07	2E-07	2E-07	1E-07	1E-07	9E-08	2E-07
9.4	West	3E-07	2E-07	2E-07	2E-07	1E-07	1E-07	9E-08	2E-07
9.5	West	3E-07	3E-07	2E-07	2E-07	1E-07	1E-07	8E-08	2E-07
9.6	West	3E-07	3E-07	2E-07	1E-07	8E-08	8E-08	7E-08	1E-07
9.7	West	4E-07	3E-07	2E-07	1E-07	7E-08	7E-08	6E-08	1E-07
9.8	West	5E-07	4E-07	2E-07	1E-07	1E-07	1E-07	8E-08	1E-07
9.9	West	7E-07	6E-07	3E-07	2E-07	2E-07	2E-07	1E-07	2E-07
10	West	7E-07	7E-07	7E-07	7E-07	6E-07	6E-07	4E-07	7E-07
10.1	West	7E-07	7E-07	7E-07	6E-07	5E-07	5E-07	3E-07	6E-07
10.2	West	6E-07	6E-07	6E-07	6E-07	5E-07	5E-07	3E-07	6E-07
10.3	West	6E-07	6E-07	6E-07	6E-07	4E-07	4E-07	2E-07	6E-07
10.4	West	5E-07	5E-07	5E-07	5E-07	4E-07	4E-07	2E-07	5E-07
10.5	West	5E-07	5E-07	5E-07	5E-07	5E-07	5E-07	3E-07	5E-07
10.6	West	5E-07	5E-07	5E-07	5E-07	5E-07	5E-07	4E-07	5E-07
10.7	West	5E-07	5E-07	5E-07	5E-07	5E-07	5E-07	4E-07	5E-07
10.8	West	4E-07	4E-07	4E-07	4E-07	4E-07	4E-07	4E-07	4E-07
10.9	West	4E-07	4E-07	4E-07	4E-07	4E-07	4E-07	4E-07	4E-07
11	West	4E-07	4E-07	4E-07	4E-07	4E-07	4E-07	4E-07	4E-07
11.1	West	3E-07	3E-07	3E-07	3E-07	3E-07	3E-07	3E-07	3E-07
11.2	West	3E-07	3E-07	3E-07	3E-07	3E-07	3E-07	3E-07	3E-07
11.3	West	3E-07	3E-07	3E-07	3E-07	3E-07	3E-07	3E-07	3E-07
11.4	West	2E-07	2E-07	2E-07	2E-07	2E-07	2E-07	2E-07	2E-07
11.5	West	2E-07	2E-07	2E-07	2E-07	2E-07	2E-07	2E-07	2E-07
11.6	West	2E-07	2E-07	2E-07	2E-07	2E-07	2E-07	2E-07	2E-07
11.7	West	2E-07	2E-07	2E-07	2E-07	2E-07	2E-07	2E-07	2E-07
7.8	Swan Isl	1E-07	1E-08	1E-08	2E-09	6E-10	6E-10	1E-10	2E-09
7.9	Swan Isl	1E-07	9E-09	9E-09	6E-09	1E-09	1E-09	5E-10	6E-09
8	Swan Isl	1E-07	1E-08	1E-08	8E-09	2E-09	2E-09	6E-10	8E-09
8.1	Swan Isl	1E-07	1E-08	1E-08	7E-09	2E-09	2E-09	6E-10	7E-09
8.2	Swan Isl	2E-07	1E-08	1E-08	7E-09	2E-09	2E-09	1E-09	7E-09

**Table J2.2-2d**

**RAO 1 Rolling River Mile Risk Estimates - 2,3,7,8-TCDD eq**

Portland Harbor Superfund Site

Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
8.3	Swan Isl	2E-07	1E-08	1E-08	8E-09	3E-09	3E-09	1E-09	8E-09
8.4	Swan Isl	2E-07	1E-08	1E-08	9E-09	5E-09	5E-09	3E-09	9E-09
8.5	Swan Isl	4E-07	2E-08	2E-08	1E-08	9E-09	9E-09	7E-09	1E-08
8.6	Swan Isl	6E-07	5E-08	2E-08	1E-08	1E-08	1E-08	9E-09	1E-08
8.7	Swan Isl	7E-07	8E-08	2E-08	1E-08	1E-08	1E-08	9E-09	1E-08
8.8	Swan Isl	8E-07	1E-07	2E-08	1E-08	1E-08	1E-08	9E-09	1E-08
8.9	Swan Isl	1E-06	4E-07	2E-07	2E-07	5E-08	5E-08	3E-08	3E-07
9	Swan Isl	1E-06	5E-07	3E-07	3E-07	8E-08	8E-08	6E-08	5E-07
9.1	Swan Isl	1E-06	7E-07	4E-07	4E-07	1E-07	1E-07	9E-08	6E-07
9.2	Swan Isl	2E-06	1E-06	7E-07	6E-07	2E-07	2E-07	1E-07	1E-06
9.3	Swan Isl	2E-06	2E-06	1E-06	9E-07	2E-07	2E-07	2E-07	2E-06
9.4	Swan Isl	2E-06	2E-06	2E-06	2E-06	2E-06	2E-06	2E-06	2E-06

**Table J2.2-2e**

**RAO 1 Rolling River Mile Risk Estimates - Total**

Portland Harbor Superfund Site

Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
1.8	East	7E-06	7E-06	7E-06	7E-06	7E-06	7E-06	7E-06	7E-06
1.9	East	7E-06	6E-06	6E-06	6E-06	6E-06	6E-06	6E-06	6E-06
2	East	6E-06	5E-06	5E-06	5E-06	5E-06	5E-06	5E-06	5E-06
2.1	East	6E-06	5E-06	4E-06	4E-06	4E-06	4E-06	4E-06	4E-06
2.2	East	6E-06	4E-06	4E-06	4E-06	3E-06	3E-06	3E-06	4E-06
2.3	East	6E-06	4E-06	4E-06	4E-06	3E-06	3E-06	3E-06	4E-06
2.4	East	6E-06	4E-06	4E-06	4E-06	3E-06	3E-06	3E-06	4E-06
2.5	East	5E-06	5E-06	4E-06	4E-06	3E-06	3E-06	3E-06	4E-06
2.6	East	7E-06	6E-06	5E-06	4E-06	3E-06	3E-06	3E-06	4E-06
2.7	East	7E-06	7E-06	6E-06	5E-06	4E-06	4E-06	3E-06	5E-06
2.8	East	8E-06	7E-06	6E-06	5E-06	5E-06	5E-06	4E-06	6E-06
2.9	East	8E-06	8E-06	6E-06	6E-06	5E-06	5E-06	4E-06	6E-06
3	East	8E-06	8E-06	6E-06	6E-06	5E-06	5E-06	5E-06	6E-06
3.1	East	6E-06	6E-06	6E-06	6E-06	6E-06	6E-06	6E-06	6E-06
3.2	East	6E-06	6E-06	5E-06	5E-06	5E-06	5E-06	5E-06	5E-06
3.3	East	6E-06	6E-06	5E-06	5E-06	5E-06	5E-06	5E-06	5E-06
3.4	East	6E-06	6E-06	5E-06	5E-06	5E-06	5E-06	5E-06	5E-06
3.5	East	5E-06	5E-06	5E-06	5E-06	4E-06	4E-06	4E-06	5E-06
3.6	East	6E-06	5E-06	4E-06	4E-06	3E-06	3E-06	3E-06	4E-06
3.7	East	6E-06	5E-06	4E-06	4E-06	3E-06	3E-06	2E-06	4E-06
3.8	East	6E-06	4E-06	4E-06	4E-06	3E-06	3E-06	2E-06	4E-06
3.9	East	7E-06	5E-06	4E-06	3E-06	2E-06	2E-06	1E-06	3E-06
4	East	8E-06	5E-06	4E-06	3E-06	2E-06	2E-06	9E-07	3E-06
4.1	East	1E-05	1E-05	1E-05	8E-06	4E-06	4E-06	2E-06	8E-06
4.2	East	2E-05	2E-05	2E-05	1E-05	3E-06	3E-06	1E-06	1E-05
4.3	East	2E-05	2E-05	2E-05	1E-05	4E-06	4E-06	1E-06	1E-05
4.4	East	3E-05	3E-05	2E-05	1E-05	4E-06	4E-06	1E-06	1E-05
4.5	East	4E-05	4E-05	2E-05	1E-05	4E-06	4E-06	1E-06	1E-05
4.6	East	4E-05	4E-05	2E-05	1E-05	4E-06	4E-06	1E-06	1E-05
4.7	East	5E-05	5E-05	2E-05	1E-05	5E-06	5E-06	2E-06	1E-05
4.8	East	5E-05	5E-05	2E-05	1E-05	5E-06	5E-06	2E-06	1E-05
4.9	East	3E-05	3E-05	1E-05	8E-06	6E-06	6E-06	4E-06	8E-06
5	East	7E-06	7E-06	7E-06	7E-06	7E-06	7E-06	6E-06	7E-06
5.1	East	8E-06	8E-06	8E-06	8E-06	8E-06	8E-06	6E-06	8E-06
5.2	East	8E-06	8E-06	8E-06	8E-06	8E-06	8E-06	6E-06	8E-06
5.3	East	9E-06	9E-06	9E-06	9E-06	8E-06	8E-06	5E-06	8E-06
5.4	East	1E-05	1E-05	1E-05	1E-05	8E-06	8E-06	4E-06	8E-06
5.5	East	1E-05	1E-05	1E-05	1E-05	7E-06	7E-06	3E-06	7E-06
5.6	East	1E-05	1E-05	1E-05	1E-05	5E-06	5E-06	2E-06	5E-06
5.7	East	1E-05	1E-05	1E-05	1E-05	6E-06	6E-06	2E-06	6E-06
5.8	East	1E-05	1E-05	1E-05	1E-05	7E-06	7E-06	2E-06	8E-06

**Table J2.2-2e**

**RAO 1 Rolling River Mile Risk Estimates - Total**

Portland Harbor Superfund Site

Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
5.9	East	1E-05	1E-05	1E-05	1E-05	7E-06	7E-06	3E-06	9E-06
6	East	1E-05	1E-05	1E-05	1E-05	8E-06	8E-06	5E-06	1E-05
6.1	East	1E-05	1E-05	1E-05	1E-05	8E-06	8E-06	6E-06	1E-05
6.2	East	1E-05	1E-05	1E-05	1E-05	8E-06	8E-06	6E-06	1E-05
6.3	East	1E-05	1E-05	1E-05	9E-06	7E-06	7E-06	6E-06	1E-05
6.4	East	9E-06	9E-06	8E-06	7E-06	6E-06	6E-06	5E-06	9E-06
6.5	East	8E-06	7E-06	6E-06	5E-06	5E-06	5E-06	4E-06	7E-06
6.6	East	6E-06	5E-06	4E-06	4E-06	3E-06	3E-06	3E-06	4E-06
6.7	East	5E-06	3E-06	3E-06	3E-06	2E-06	2E-06	2E-06	3E-06
6.8	East	4E-06	3E-06	2E-06	2E-06	2E-06	2E-06	2E-06	3E-06
6.9	East	4E-06	2E-06	2E-06	2E-06	2E-06	2E-06	1E-06	2E-06
7	East	4E-06	3E-06	2E-06	2E-06	2E-06	2E-06	2E-06	4E-06
7.1	East	4E-06	3E-06	2E-06	2E-06	2E-06	2E-06	2E-06	4E-06
7.2	East	5E-06	4E-06	3E-06	3E-06	3E-06	3E-06	3E-06	5E-06
7.3	East	6E-06	5E-06	3E-06	3E-06	3E-06	3E-06	3E-06	6E-06
7.4	East	6E-06	5E-06	4E-06	4E-06	4E-06	4E-06	4E-06	6E-06
7.5	East	5E-06	5E-06	4E-06	4E-06	4E-06	4E-06	4E-06	5E-06
7.6	East	5E-06	5E-06	5E-06	5E-06	4E-06	4E-06	4E-06	5E-06
7.7	East	5E-06	5E-06	5E-06	5E-06	5E-06	5E-06	4E-06	5E-06
7.8	East	5E-06	5E-06	5E-06	5E-06	5E-06	5E-06	4E-06	5E-06
7.9	East	5E-06	4E-06	4E-06	4E-06	4E-06	4E-06	2E-06	4E-06
8	East	5E-06	3E-06	3E-06	3E-06	3E-06	3E-06	2E-06	3E-06
8.1	East	5E-06	3E-06	3E-06	3E-06	3E-06	3E-06	2E-06	3E-06
8.2	East	5E-06	3E-06	3E-06	3E-06	3E-06	3E-06	2E-06	3E-06
8.3	East	5E-06	2E-06	2E-06	2E-06	2E-06	2E-06	2E-06	2E-06
8.4	East	5E-06	3E-06	3E-06	3E-06	3E-06	3E-06	3E-06	3E-06
8.5	East	4E-06	4E-06	4E-06	4E-06	4E-06	4E-06	4E-06	4E-06
8.6	East	4E-06	4E-06	4E-06	4E-06	4E-06	4E-06	4E-06	4E-06
8.7	East	4E-06	4E-06	4E-06	4E-06	4E-06	4E-06	4E-06	4E-06
8.8	East	4E-06	4E-06	4E-06	4E-06	4E-06	4E-06	3E-06	4E-06
8.9	East	4E-06	4E-06	4E-06	4E-06	3E-06	3E-06	3E-06	4E-06
9	East	4E-06	4E-06	4E-06	4E-06	3E-06	3E-06	2E-06	4E-06
9.1	East	4E-06	4E-06	4E-06	4E-06	3E-06	3E-06	2E-06	4E-06
9.2	East	4E-06	4E-06	4E-06	4E-06	3E-06	3E-06	2E-06	4E-06
9.3	East	4E-06	4E-06	4E-06	4E-06	3E-06	3E-06	2E-06	4E-06
9.4	East	4E-06	4E-06	4E-06	4E-06	3E-06	3E-06	2E-06	4E-06
9.5	East	3E-06	3E-06	3E-06	3E-06	3E-06	3E-06	2E-06	3E-06
9.6	East	3E-06	3E-06	3E-06	3E-06	3E-06	3E-06	2E-06	3E-06
9.7	East	3E-06	3E-06	3E-06	3E-06	3E-06	3E-06	2E-06	3E-06
9.8	East	4E-06	4E-06	4E-06	4E-06	3E-06	3E-06	3E-06	4E-06
9.9	East	5E-06	5E-06	5E-06	5E-06	4E-06	4E-06	3E-06	5E-06



**Table J2.2-2e**

**RAO 1 Rolling River Mile Risk Estimates - Total**

Portland Harbor Superfund Site

Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
10	East	5E-06	5E-06	5E-06	5E-06	4E-06	4E-06	4E-06	5E-06
10.1	East	6E-06	6E-06	6E-06	6E-06	5E-06	5E-06	4E-06	6E-06
10.2	East	7E-06	7E-06	7E-06	7E-06	5E-06	5E-06	4E-06	7E-06
10.3	East	7E-06	7E-06	7E-06	7E-06	5E-06	5E-06	4E-06	7E-06
10.4	East	5E-06	5E-06	5E-06	5E-06	5E-06	5E-06	4E-06	5E-06
10.5	East	5E-06	5E-06	5E-06	4E-06	4E-06	4E-06	3E-06	4E-06
10.6	East	4E-06	4E-06	4E-06	3E-06	2E-06	2E-06	2E-06	3E-06
10.7	East	4E-06	4E-06	4E-06	3E-06	2E-06	2E-06	2E-06	3E-06
10.8	East	4E-06	4E-06	4E-06	4E-06	2E-06	2E-06	1E-06	4E-06
10.9	East	4E-06	4E-06	4E-06	3E-06	2E-06	2E-06	1E-06	3E-06
11	East	4E-06	4E-06	4E-06	3E-06	2E-06	2E-06	8E-07	3E-06
11.1	East	5E-06	4E-06	3E-06	2E-06	2E-06	2E-06	5E-07	2E-06
11.2	East	6E-06	3E-06	2E-06	2E-06	1E-06	1E-06	4E-07	2E-06
11.3	East	6E-06	3E-06	2E-06	1E-06	7E-07	7E-07	3E-07	1E-06
11.4	East	6E-06	3E-06	2E-06	1E-06	5E-07	5E-07	1E-07	1E-06
11.5	East	6E-06	3E-06	2E-06	1E-06	6E-07	6E-07	2E-07	1E-06
11.6	East	5E-06	3E-06	2E-06	1E-06	7E-07	7E-07	2E-07	1E-06
11.7	East	4E-06	3E-06	2E-06	2E-06	1E-06	1E-06	3E-07	2E-06
1.8	West	4E-06	4E-06	4E-06	4E-06	4E-06	4E-06	4E-06	4E-06
1.9	West	4E-06	4E-06	4E-06	4E-06	4E-06	4E-06	4E-06	4E-06
2	West	4E-06	4E-06	4E-06	4E-06	4E-06	4E-06	4E-06	4E-06
2.1	West	4E-06	4E-06	4E-06	4E-06	4E-06	4E-06	4E-06	4E-06
2.2	West	5E-06	5E-06	5E-06	5E-06	5E-06	5E-06	5E-06	5E-06
2.3	West	5E-06	5E-06	5E-06	5E-06	5E-06	5E-06	5E-06	5E-06
2.4	West	6E-06	6E-06	6E-06	6E-06	6E-06	6E-06	6E-06	6E-06
2.5	West	6E-06	6E-06	6E-06	6E-06	6E-06	6E-06	6E-06	6E-06
2.6	West	7E-06	7E-06	7E-06	7E-06	7E-06	7E-06	6E-06	7E-06
2.7	West	8E-06	8E-06	8E-06	8E-06	8E-06	8E-06	6E-06	8E-06
2.8	West	9E-06	9E-06	9E-06	9E-06	9E-06	9E-06	7E-06	9E-06
2.9	West	9E-06	9E-06	9E-06	9E-06	9E-06	9E-06	7E-06	9E-06
3	West	9E-06	9E-06	9E-06	9E-06	9E-06	9E-06	7E-06	9E-06
3.1	West	1E-05	1E-05	1E-05	1E-05	1E-05	1E-05	7E-06	1E-05
3.2	West	1E-05	1E-05	1E-05	1E-05	1E-05	1E-05	7E-06	1E-05
3.3	West	9E-06	9E-06	9E-06	9E-06	9E-06	9E-06	6E-06	9E-06
3.4	West	9E-06	9E-06	9E-06	9E-06	9E-06	9E-06	6E-06	9E-06
3.5	West	9E-06	9E-06	9E-06	9E-06	8E-06	8E-06	6E-06	9E-06
3.6	West	8E-06	8E-06	8E-06	8E-06	8E-06	8E-06	7E-06	8E-06
3.7	West	9E-06	9E-06	9E-06	9E-06	8E-06	8E-06	7E-06	9E-06
3.8	West	1E-05	1E-05	1E-05	1E-05	8E-06	8E-06	7E-06	1E-05
3.9	West	1E-05	1E-05	1E-05	1E-05	8E-06	8E-06	6E-06	1E-05
4	West	1E-05	1E-05	1E-05	1E-05	8E-06	8E-06	5E-06	1E-05

**Table J2.2-2e**

**RAO 1 Rolling River Mile Risk Estimates - Total**

Portland Harbor Superfund Site

Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
4.1	West	1E-05	1E-05	1E-05	1E-05	8E-06	8E-06	3E-06	1E-05
4.2	West	1E-05	1E-05	1E-05	1E-05	9E-06	9E-06	3E-06	1E-05
4.3	West	1E-05	1E-05	1E-05	1E-05	9E-06	9E-06	3E-06	1E-05
4.4	West	1E-05	1E-05	1E-05	1E-05	9E-06	9E-06	2E-06	1E-05
4.5	West	1E-05	1E-05	1E-05	1E-05	8E-06	8E-06	3E-06	1E-05
4.6	West	1E-05	1E-05	1E-05	1E-05	7E-06	7E-06	3E-06	1E-05
4.7	West	1E-05	1E-05	1E-05	1E-05	6E-06	6E-06	4E-06	1E-05
4.8	West	1E-05	1E-05	1E-05	1E-05	6E-06	6E-06	4E-06	1E-05
4.9	West	1E-05	1E-05	1E-05	1E-05	6E-06	6E-06	5E-06	1E-05
5	West	1E-05	1E-05	1E-05	1E-05	6E-06	6E-06	5E-06	1E-05
5.1	West	2E-05	2E-05	1E-05	1E-05	6E-06	6E-06	4E-06	1E-05
5.2	West	3E-05	2E-05	1E-05	8E-06	5E-06	5E-06	3E-06	8E-06
5.3	West	3E-05	3E-05	1E-05	9E-06	5E-06	5E-06	2E-06	9E-06
5.4	West	3E-05	3E-05	1E-05	9E-06	6E-06	6E-06	1E-06	9E-06
5.5	West	3E-05	3E-05	1E-05	1E-05	7E-06	7E-06	2E-06	1E-05
5.6	West	3E-05	3E-05	1E-05	1E-05	8E-06	8E-06	3E-06	1E-05
5.7	West	2E-05	2E-05	2E-05	1E-05	8E-06	8E-06	4E-06	2E-05
5.8	West	3E-05	2E-05	2E-05	1E-05	8E-06	8E-06	3E-06	2E-05
5.9	West	6E-05	3E-05	2E-05	1E-05	7E-06	7E-06	3E-06	2E-05
6	West	1E-04	2E-05	1E-05	1E-05	5E-06	5E-06	2E-06	1E-05
6.1	West	2E-04	2E-05	1E-05	1E-05	4E-06	4E-06	2E-06	1E-05
6.2	West	3E-04	2E-05	9E-06	8E-06	3E-06	3E-06	8E-07	9E-06
6.3	West	4E-04	1E-05	3E-06	2E-06	3E-07	3E-07	0E+00	3E-06
6.4	West	4E-04	4E-06	3E-06	2E-06	7E-07	7E-07	2E-07	7E-07
6.5	West	2E-04	8E-06	7E-06	5E-06	1E-06	1E-06	2E-07	1E-06
6.6	West	1E-04	1E-05	1E-05	1E-05	2E-06	2E-06	3E-07	2E-06
6.7	West	4E-05	2E-05	1E-05	8E-06	2E-06	2E-06	2E-07	2E-06
6.8	West	2E-05	2E-05	1E-05	7E-06	2E-06	2E-06	2E-07	2E-06
6.9	West	2E-05	1E-05	9E-06	5E-06	1E-06	1E-06	9E-08	1E-06
7	West	2E-05	9E-06	6E-06	3E-06	7E-07	7E-07	6E-08	7E-07
7.1	West	8E-05	6E-06	4E-06	9E-07	1E-07	1E-07	4E-08	1E-07
7.2	West	1E-04	3E-06	2E-06	9E-07	2E-07	2E-07	0E+00	2E-07
7.3	West	1E-04	5E-06	4E-06	2E-06	8E-07	8E-07	2E-07	8E-07
7.4	West	8E-05	5E-06	5E-06	3E-06	2E-06	2E-06	1E-06	2E-06
7.5	West	6E-05	6E-06	5E-06	4E-06	3E-06	3E-06	2E-06	3E-06
7.6	West	1E-05	6E-06	6E-06	5E-06	4E-06	4E-06	2E-06	4E-06
7.7	West	7E-06	6E-06	6E-06	5E-06	4E-06	4E-06	2E-06	4E-06
7.8	West	5E-06	5E-06	5E-06	5E-06	4E-06	4E-06	2E-06	4E-06
7.9	West	5E-06	5E-06	5E-06	5E-06	4E-06	4E-06	1E-06	4E-06
8	West	6E-06	6E-06	6E-06	5E-06	3E-06	3E-06	1E-06	5E-06
8.1	West	7E-06	7E-06	7E-06	6E-06	2E-06	2E-06	3E-07	6E-06

**Table J2.2-2e**

**RAO 1 Rolling River Mile Risk Estimates - Total**

Portland Harbor Superfund Site

Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
8.2	West	7E-06	7E-06	7E-06	6E-06	2E-06	2E-06	5E-07	6E-06
8.3	West	7E-06	7E-06	7E-06	6E-06	2E-06	2E-06	1E-06	6E-06
8.4	West	8E-06	8E-06	8E-06	5E-06	2E-06	2E-06	1E-06	5E-06
8.5	West	9E-06	9E-06	9E-06	5E-06	2E-06	2E-06	1E-06	5E-06
8.6	West	1E-05	9E-06	8E-06	4E-06	2E-06	2E-06	1E-06	4E-06
8.7	West	1E-05	9E-06	8E-06	3E-06	1E-06	1E-06	1E-06	3E-06
8.8	West	2E-05	1E-05	8E-06	2E-06	3E-07	3E-07	9E-08	2E-06
8.9	West	2E-05	8E-06	5E-06	6E-07	0E+00	0E+00	0E+00	6E-07
9	West	2E-05	6E-06	2E-06	3E-07	0E+00	0E+00	0E+00	3E-07
9.1	West	1E-05	6E-06	3E-06	2E-06	1E-06	1E-06	8E-07	2E-06
9.2	West	9E-06	6E-06	3E-06	3E-06	2E-06	2E-06	1E-06	3E-06
9.3	West	6E-06	5E-06	4E-06	3E-06	2E-06	2E-06	1E-06	3E-06
9.4	West	6E-06	5E-06	4E-06	4E-06	2E-06	2E-06	1E-06	4E-06
9.5	West	6E-06	5E-06	4E-06	3E-06	2E-06	2E-06	1E-06	3E-06
9.6	West	6E-06	5E-06	4E-06	3E-06	1E-06	1E-06	1E-06	3E-06
9.7	West	7E-06	6E-06	4E-06	3E-06	1E-06	1E-06	8E-07	3E-06
9.8	West	7E-06	6E-06	4E-06	2E-06	1E-06	1E-06	9E-07	2E-06
9.9	West	8E-06	8E-06	4E-06	2E-06	1E-06	1E-06	1E-06	2E-06
10	West	9E-06	9E-06	9E-06	8E-06	7E-06	7E-06	3E-06	8E-06
10.1	West	1E-05	1E-05	1E-05	1E-05	7E-06	7E-06	3E-06	1E-05
10.2	West	1E-05	1E-05	1E-05	1E-05	9E-06	9E-06	4E-06	1E-05
10.3	West	1E-05	1E-05	1E-05	1E-05	1E-05	1E-05	5E-06	1E-05
10.4	West	1E-05	1E-05	1E-05	1E-05	9E-06	9E-06	6E-06	1E-05
10.5	West	8E-06	8E-06	8E-06	8E-06	7E-06	7E-06	4E-06	8E-06
10.6	West	7E-06	7E-06	7E-06	7E-06	7E-06	7E-06	5E-06	7E-06
10.7	West	6E-06	6E-06	6E-06	6E-06	6E-06	6E-06	5E-06	6E-06
10.8	West	6E-06	6E-06	6E-06	6E-06	6E-06	6E-06	5E-06	6E-06
10.9	West	6E-06	6E-06	6E-06	6E-06	6E-06	6E-06	5E-06	6E-06
11	West	6E-06	6E-06	6E-06	6E-06	6E-06	6E-06	6E-06	6E-06
11.1	West	6E-06	6E-06	6E-06	6E-06	6E-06	6E-06	6E-06	6E-06
11.2	West	6E-06	6E-06	6E-06	6E-06	6E-06	6E-06	6E-06	6E-06
11.3	West	5E-06	5E-06	5E-06	5E-06	5E-06	5E-06	5E-06	5E-06
11.4	West	4E-06	4E-06	4E-06	4E-06	4E-06	4E-06	4E-06	4E-06
11.5	West	4E-06	4E-06	4E-06	4E-06	4E-06	4E-06	4E-06	4E-06
11.6	West	4E-06	4E-06	4E-06	4E-06	4E-06	4E-06	4E-06	4E-06
11.7	West	4E-06	4E-06	4E-06	4E-06	4E-06	4E-06	4E-06	4E-06
7.8	Swan Isl	9E-06	8E-07	8E-07	1E-07	8E-08	8E-08	1E-08	1E-07
7.9	Swan Isl	9E-06	5E-07	4E-07	3E-07	7E-08	7E-08	3E-08	3E-07
8	Swan Isl	1E-05	6E-07	6E-07	3E-07	1E-07	1E-07	3E-08	3E-07
8.1	Swan Isl	1E-05	7E-07	6E-07	3E-07	1E-07	1E-07	4E-08	3E-07
8.2	Swan Isl	1E-05	6E-07	6E-07	3E-07	2E-07	2E-07	8E-08	3E-07

**Table J2.2-2e**  
**RAO 1 Rolling River Mile Risk Estimates - Total**  
 Portland Harbor Superfund Site  
 Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
8.3	Swan Isl	1E-05	6E-07	5E-07	4E-07	2E-07	2E-07	9E-08	4E-07
8.4	Swan Isl	2E-05	7E-07	6E-07	4E-07	3E-07	3E-07	2E-07	4E-07
8.5	Swan Isl	2E-05	8E-07	6E-07	5E-07	4E-07	4E-07	3E-07	5E-07
8.6	Swan Isl	1E-05	9E-07	6E-07	5E-07	4E-07	4E-07	4E-07	5E-07
8.7	Swan Isl	1E-05	1E-06	5E-07	4E-07	4E-07	4E-07	3E-07	4E-07
8.8	Swan Isl	1E-05	1E-06	5E-07	4E-07	3E-07	3E-07	3E-07	4E-07
8.9	Swan Isl	1E-05	3E-06	2E-06	1E-06	4E-07	4E-07	3E-07	2E-06
9	Swan Isl	1E-05	3E-06	2E-06	2E-06	4E-07	4E-07	4E-07	3E-06
9.1	Swan Isl	1E-05	4E-06	3E-06	2E-06	5E-07	5E-07	4E-07	4E-06
9.2	Swan Isl	1E-05	6E-06	4E-06	3E-06	7E-07	7E-07	5E-07	6E-06
9.3	Swan Isl	1E-05	9E-06	6E-06	5E-06	9E-07	9E-07	7E-07	9E-06
9.4	Swan Isl	4E-06	4E-06	4E-06	4E-06	4E-06	4E-06	4E-06	4E-06

**Table J2.3-2a**

**Rolling River Mile Average Concentrations - Aldrin (µg/kg) - 1 Mile Increments**

Portland Harbor Superfund Site

Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
1.8	East	0.75	0.71	0.70	0.69	0.68	0.68	0.67	0.69
1.9	East	0.86	0.80	0.78	0.75	0.73	0.73	0.72	0.75
2	East	0.86	0.80	0.78	0.75	0.71	0.71	0.70	0.75
2.1	East	0.84	0.78	0.76	0.73	0.68	0.68	0.66	0.73
2.2	East	0.69	0.63	0.61	0.58	0.53	0.53	0.50	0.58
2.3	East	0.59	0.52	0.50	0.47	0.41	0.41	0.37	0.47
2.4	East	0.57	0.50	0.48	0.44	0.37	0.37	0.33	0.44
2.5	East	0.61	0.53	0.51	0.47	0.40	0.40	0.36	0.47
2.6	East	0.62	0.55	0.52	0.48	0.42	0.42	0.37	0.48
2.7	East	0.65	0.57	0.54	0.50	0.43	0.43	0.39	0.50
2.8	East	0.60	0.56	0.54	0.50	0.43	0.43	0.39	0.51
2.9	East	0.47	0.46	0.44	0.43	0.38	0.38	0.34	0.43
3	East	0.46	0.46	0.44	0.43	0.38	0.38	0.35	0.43
3.1	East	0.46	0.45	0.43	0.42	0.40	0.40	0.37	0.43
3.2	East	0.46	0.46	0.44	0.42	0.41	0.41	0.38	0.43
3.3	East	0.47	0.45	0.42	0.40	0.37	0.37	0.34	0.41
3.4	East	0.46	0.43	0.41	0.40	0.35	0.35	0.32	0.40
3.5	East	0.43	0.40	0.37	0.35	0.30	0.30	0.26	0.35
3.6	East	0.44	0.40	0.37	0.33	0.27	0.27	0.23	0.33
3.7	East	0.46	0.42	0.38	0.34	0.27	0.27	0.21	0.34
3.8	East	0.49	0.44	0.41	0.36	0.29	0.29	0.23	0.36
3.9	East	0.56	0.52	0.47	0.40	0.27	0.27	0.19	0.40
4	East	0.95	0.91	0.87	0.79	0.57	0.57	0.32	0.79
4.1	East	2.21	2.16	1.88	1.63	1.07	1.07	0.53	1.63
4.2	East	3.95	3.86	3.09	2.34	1.33	1.33	0.59	2.34
4.3	East	5.02	4.93	3.95	2.99	1.71	1.71	0.71	2.99
4.4	East	5.33	5.24	4.19	3.17	1.82	1.82	0.76	3.17
4.5	East	5.43	5.34	4.27	3.23	1.86	1.86	0.78	3.23
4.6	East	5.40	5.32	4.26	3.25	1.88	1.88	0.80	3.25
4.7	East	5.47	5.39	4.32	3.30	1.92	1.92	0.84	3.30
4.8	East	5.58	5.50	4.41	3.37	1.97	1.97	0.87	3.37
4.9	East	6.49	6.39	5.11	3.91	2.32	2.32	1.04	3.91
5	East	6.86	6.75	5.23	3.84	2.15	2.15	0.93	3.84
5.1	East	4.87	4.76	3.59	2.41	1.25	1.25	0.50	2.38
5.2	East	0.72	0.72	0.71	0.70	0.55	0.55	0.30	0.58
5.3	East	0.54	0.54	0.54	0.53	0.38	0.38	0.28	0.38
5.4	East	0.49	0.49	0.49	0.48	0.35	0.35	0.23	0.35
5.5	East	0.49	0.49	0.49	0.49	0.34	0.34	0.21	0.36
5.6	East	0.50	0.50	0.50	0.49	0.31	0.31	0.19	0.37
5.7	East	0.50	0.50	0.50	0.49	0.31	0.31	0.20	0.38
5.8	East	0.50	0.50	0.50	0.49	0.33	0.33	0.23	0.40
5.9	East	0.56	0.56	0.55	0.54	0.37	0.37	0.27	0.46
6	East	0.58	0.58	0.57	0.56	0.41	0.41	0.31	0.49

**Table J2.3-2a**

**Rolling River Mile Average Concentrations - Aldrin (µg/kg) - 1 Mile Increments**

Portland Harbor Superfund Site

Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
6.1	East	0.54	0.54	0.53	0.52	0.39	0.39	0.32	0.48
6.2	East	0.48	0.47	0.46	0.45	0.37	0.37	0.31	0.44
6.3	East	0.42	0.41	0.39	0.39	0.32	0.32	0.27	0.40
6.4	East	0.38	0.37	0.35	0.34	0.28	0.28	0.25	0.36
6.5	East	0.34	0.32	0.31	0.30	0.26	0.26	0.24	0.32
6.6	East	0.30	0.28	0.27	0.26	0.24	0.24	0.22	0.28
6.7	East	0.31	0.27	0.24	0.24	0.23	0.23	0.21	0.29
6.8	East	0.31	0.27	0.23	0.23	0.22	0.22	0.20	0.30
6.9	East	0.32	0.27	0.23	0.23	0.22	0.22	0.22	0.30
7	East	0.32	0.28	0.24	0.24	0.23	0.23	0.23	0.31
7.1	East	0.34	0.30	0.26	0.26	0.25	0.25	0.25	0.33
7.2	East	0.36	0.31	0.28	0.28	0.27	0.27	0.26	0.34
7.3	East	0.39	0.34	0.31	0.31	0.30	0.30	0.30	0.38
7.4	East	0.43	0.39	0.35	0.35	0.34	0.34	0.34	0.43
7.5	East	0.46	0.42	0.38	0.38	0.37	0.37	0.36	0.46
7.6	East	0.49	0.43	0.39	0.39	0.38	0.38	0.37	0.48
7.7	East	0.46	0.42	0.39	0.39	0.38	0.38	0.36	0.43
7.8	East	0.42	0.39	0.37	0.37	0.36	0.36	0.34	0.39
7.9	East	0.35	0.32	0.31	0.31	0.31	0.31	0.29	0.32
8	East	0.28	0.23	0.23	0.23	0.23	0.23	0.21	0.23
8.1	East	0.20	0.16	0.16	0.16	0.16	0.16	0.13	0.16
8.2	East	0.21	0.16	0.16	0.16	0.16	0.16	0.13	0.16
8.3	East	0.20	0.16	0.16	0.16	0.16	0.16	0.13	0.16
8.4	East	0.22	0.17	0.17	0.17	0.17	0.17	0.15	0.17
8.5	East	0.21	0.17	0.17	0.17	0.16	0.16	0.14	0.17
8.6	East	0.23	0.18	0.18	0.18	0.18	0.18	0.15	0.18
8.7	East	0.25	0.23	0.23	0.23	0.22	0.22	0.17	0.23
8.8	East	0.30	0.30	0.30	0.30	0.29	0.29	0.24	0.30
8.9	East	0.33	0.33	0.33	0.33	0.32	0.32	0.28	0.33
9	East	0.33	0.33	0.33	0.33	0.32	0.32	0.27	0.33
9.1	East	0.31	0.31	0.31	0.31	0.30	0.30	0.25	0.31
9.2	East	0.33	0.33	0.33	0.33	0.31	0.31	0.25	0.33
9.3	East	0.42	0.42	0.42	0.42	0.40	0.40	0.33	0.42
9.4	East	0.47	0.47	0.47	0.47	0.46	0.46	0.39	0.47
9.5	East	0.47	0.47	0.47	0.47	0.45	0.45	0.39	0.47
9.6	East	0.45	0.45	0.45	0.45	0.44	0.44	0.39	0.45
9.7	East	0.44	0.44	0.44	0.44	0.43	0.43	0.40	0.44
9.8	East	0.42	0.42	0.42	0.42	0.41	0.41	0.37	0.42
9.9	East	0.43	0.43	0.43	0.43	0.42	0.42	0.38	0.43
10	East	0.54	0.54	0.54	0.54	0.52	0.52	0.48	0.54
10.1	East	0.62	0.62	0.62	0.62	0.60	0.60	0.55	0.62
10.2	East	0.62	0.62	0.62	0.62	0.60	0.60	0.57	0.62

**Table J2.3-2a**

**Rolling River Mile Average Concentrations - Aldrin (µg/kg) - 1 Mile Increments**

Portland Harbor Superfund Site

Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
10.3	East	0.53	0.53	0.53	0.53	0.50	0.50	0.47	0.53
10.4	East	0.44	0.44	0.44	0.43	0.39	0.39	0.36	0.43
10.5	East	0.48	0.48	0.48	0.47	0.42	0.42	0.37	0.47
10.6	East	0.52	0.52	0.52	0.51	0.45	0.45	0.39	0.51
10.7	East	0.54	0.53	0.53	0.51	0.45	0.45	0.39	0.51
10.8	East	0.52	0.51	0.49	0.47	0.40	0.40	0.34	0.47
10.9	East	0.45	0.43	0.40	0.37	0.30	0.30	0.24	0.37
11	East	0.32	0.29	0.26	0.22	0.16	0.16	0.11	0.22
11.1	East	0.26	0.23	0.20	0.16	0.10	0.10	0.06	0.16
11.2	East	0.26	0.23	0.20	0.16	0.10	0.10	0.04	0.16
11.3	East	0.26	0.23	0.19	0.15	0.09	0.09	0.03	0.15
11.4	East	0.26	0.23	0.19	0.14	0.09	0.09	0.02	0.14
11.5	East	0.26	0.22	0.17	0.13	0.08	0.08	0.03	0.13
11.6	East	0.26	0.22	0.17	0.12	0.07	0.07	0.02	0.12
11.7	East	0.27	0.22	0.18	0.13	0.07	0.07	0.02	0.13
1.8	Nav Channel	0.39	0.39	0.39	0.39	0.39	0.39	0.37	0.39
1.9	Nav Channel	0.43	0.43	0.43	0.43	0.43	0.43	0.36	0.43
2	Nav Channel	0.48	0.48	0.48	0.48	0.48	0.48	0.40	0.48
2.1	Nav Channel	0.55	0.55	0.55	0.55	0.55	0.55	0.47	0.55
2.2	Nav Channel	0.61	0.61	0.61	0.61	0.61	0.61	0.54	0.61
2.3	Nav Channel	0.67	0.67	0.67	0.67	0.67	0.67	0.59	0.67
2.4	Nav Channel	0.72	0.72	0.72	0.72	0.72	0.72	0.64	0.72
2.5	Nav Channel	0.76	0.76	0.76	0.76	0.76	0.76	0.68	0.76
2.6	Nav Channel	0.79	0.79	0.79	0.79	0.79	0.79	0.71	0.79
2.7	Nav Channel	0.78	0.78	0.78	0.78	0.78	0.78	0.71	0.78
2.8	Nav Channel	0.76	0.76	0.76	0.76	0.76	0.76	0.71	0.76
2.9	Nav Channel	0.73	0.73	0.73	0.73	0.73	0.73	0.71	0.73
3	Nav Channel	0.71	0.71	0.71	0.71	0.71	0.70	0.65	0.71
3.1	Nav Channel	0.68	0.68	0.68	0.68	0.68	0.65	0.55	0.68
3.2	Nav Channel	0.67	0.67	0.67	0.67	0.67	0.63	0.45	0.67
3.3	Nav Channel	0.63	0.63	0.63	0.63	0.63	0.58	0.39	0.63
3.4	Nav Channel	0.59	0.59	0.59	0.59	0.59	0.55	0.36	0.59
3.5	Nav Channel	0.56	0.56	0.56	0.55	0.55	0.51	0.34	0.55
3.6	Nav Channel	0.52	0.52	0.52	0.52	0.52	0.48	0.31	0.52
3.7	Nav Channel	0.50	0.50	0.50	0.50	0.50	0.46	0.30	0.50
3.8	Nav Channel	0.48	0.48	0.48	0.48	0.48	0.44	0.29	0.48
3.9	Nav Channel	0.45	0.45	0.45	0.45	0.45	0.41	0.28	0.45
4	Nav Channel	0.42	0.42	0.42	0.42	0.42	0.39	0.27	0.42
4.1	Nav Channel	0.40	0.40	0.40	0.40	0.40	0.39	0.30	0.40
4.2	Nav Channel	0.40	0.40	0.40	0.40	0.40	0.39	0.36	0.40
4.3	Nav Channel	0.40	0.40	0.40	0.40	0.40	0.40	0.38	0.40
4.4	Nav Channel	0.39	0.39	0.39	0.39	0.39	0.38	0.37	0.39

**Table J2.3-2a**

**Rolling River Mile Average Concentrations - Aldrin (µg/kg) - 1 Mile Increments**

Portland Harbor Superfund Site

Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
4.5	Nav Channel	0.38	0.38	0.38	0.38	0.38	0.37	0.36	0.38
4.6	Nav Channel	0.41	0.41	0.39	0.38	0.41	0.37	0.35	0.41
4.7	Nav Channel	0.45	0.42	0.37	0.35	0.42	0.34	0.31	0.42
4.8	Nav Channel	0.50	0.46	0.39	0.35	0.46	0.32	0.30	0.46
4.9	Nav Channel	0.55	0.48	0.39	0.35	0.48	0.32	0.29	0.48
5	Nav Channel	0.60	0.50	0.40	0.35	0.50	0.31	0.28	0.50
5.1	Nav Channel	0.60	0.50	0.39	0.34	0.50	0.28	0.24	0.50
5.2	Nav Channel	0.60	0.45	0.33	0.28	0.45	0.21	0.17	0.45
5.3	Nav Channel	0.73	0.41	0.29	0.23	0.41	0.16	0.12	0.41
5.4	Nav Channel	0.80	0.45	0.33	0.27	0.45	0.13	0.08	0.45
5.5	Nav Channel	0.93	0.56	0.43	0.35	0.56	0.19	0.07	0.56
5.6	Nav Channel	0.99	0.60	0.48	0.38	0.60	0.19	0.06	0.60
5.7	Nav Channel	1.17	0.77	0.59	0.45	0.77	0.22	0.06	0.72
5.8	Nav Channel	1.46	0.88	0.67	0.53	0.88	0.27	0.09	0.80
5.9	Nav Channel	1.64	1.00	0.80	0.65	1.00	0.36	0.15	0.91
6	Nav Channel	1.79	1.08	0.88	0.73	1.08	0.44	0.22	0.98
6.1	Nav Channel	1.96	1.19	0.93	0.74	1.18	0.46	0.25	1.08
6.2	Nav Channel	1.98	1.25	0.98	0.78	1.24	0.47	0.25	1.13
6.3	Nav Channel	1.78	1.31	1.03	0.81	1.30	0.48	0.25	1.18
6.4	Nav Channel	1.72	1.24	0.95	0.74	1.23	0.49	0.26	1.11
6.5	Nav Channel	1.55	1.07	0.79	0.59	1.06	0.38	0.26	0.94
6.6	Nav Channel	1.43	0.96	0.69	0.54	0.95	0.37	0.28	0.84
6.7	Nav Channel	1.17	0.76	0.62	0.53	0.75	0.41	0.33	0.71
6.8	Nav Channel	0.98	0.77	0.69	0.64	0.76	0.56	0.33	0.75
6.9	Nav Channel	0.92	0.81	0.74	0.71	0.80	0.64	0.33	0.80
7	Nav Channel	0.77	0.74	0.68	0.64	0.73	0.56	0.26	0.73
7.1	Nav Channel	0.62	0.62	0.61	0.60	0.61	0.54	0.25	0.61
7.2	Nav Channel	0.59	0.59	0.59	0.59	0.59	0.54	0.27	0.59
7.3	Nav Channel	0.63	0.62	0.62	0.62	0.62	0.58	0.33	0.62
7.4	Nav Channel	0.65	0.65	0.65	0.65	0.65	0.61	0.40	0.65
7.5	Nav Channel	0.67	0.67	0.67	0.67	0.67	0.64	0.45	0.67
7.6	Nav Channel	0.66	0.66	0.66	0.66	0.66	0.63	0.45	0.66
7.7	Nav Channel	0.62	0.62	0.62	0.62	0.62	0.59	0.43	0.62
7.8	Nav Channel	0.52	0.52	0.52	0.52	0.52	0.49	0.41	0.52
7.9	Nav Channel	0.43	0.43	0.43	0.43	0.43	0.41	0.38	0.43
8	Nav Channel	0.42	0.42	0.42	0.42	0.42	0.41	0.39	0.42
8.1	Nav Channel	0.41	0.41	0.41	0.41	0.41	0.40	0.39	0.41
8.2	Nav Channel	0.40	0.40	0.40	0.40	0.40	0.40	0.39	0.40
8.3	Nav Channel	0.37	0.37	0.37	0.37	0.37	0.37	0.37	0.37
8.4	Nav Channel	0.34	0.34	0.34	0.34	0.34	0.33	0.33	0.34
8.5	Nav Channel	0.29	0.29	0.29	0.29	0.29	0.28	0.27	0.29
8.6	Nav Channel	0.28	0.28	0.28	0.28	0.28	0.26	0.25	0.28



**Table J2.3-2a**

**Rolling River Mile Average Concentrations - Aldrin (µg/kg) - 1 Mile Increments**

Portland Harbor Superfund Site

Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
8.7	Nav Channel	0.29	0.29	0.29	0.29	0.29	0.26	0.24	0.29
8.8	Nav Channel	0.31	0.30	0.30	0.30	0.30	0.25	0.24	0.30
8.9	Nav Channel	0.31	0.31	0.31	0.31	0.31	0.26	0.24	0.31
9	Nav Channel	0.32	0.32	0.32	0.31	0.32	0.26	0.24	0.32
9.1	Nav Channel	0.36	0.36	0.36	0.36	0.36	0.30	0.28	0.36
9.2	Nav Channel	0.38	0.38	0.38	0.38	0.38	0.32	0.30	0.38
9.3	Nav Channel	0.40	0.40	0.39	0.39	0.39	0.33	0.31	0.39
9.4	Nav Channel	0.46	0.46	0.46	0.46	0.46	0.40	0.36	0.46
9.5	Nav Channel	0.48	0.48	0.48	0.48	0.48	0.42	0.37	0.48
9.6	Nav Channel	0.47	0.47	0.47	0.47	0.47	0.42	0.37	0.47
9.7	Nav Channel	0.50	0.50	0.50	0.50	0.50	0.46	0.41	0.50
9.8	Nav Channel	0.56	0.56	0.56	0.56	0.56	0.49	0.41	0.56
9.9	Nav Channel	0.61	0.61	0.61	0.61	0.61	0.49	0.39	0.61
10	Nav Channel	0.64	0.64	0.64	0.64	0.64	0.51	0.40	0.64
10.1	Nav Channel	0.62	0.62	0.62	0.62	0.62	0.49	0.38	0.62
10.2	Nav Channel	0.66	0.66	0.66	0.66	0.66	0.51	0.39	0.66
10.3	Nav Channel	0.76	0.76	0.76	0.76	0.76	0.60	0.46	0.76
10.4	Nav Channel	0.78	0.78	0.78	0.78	0.78	0.61	0.43	0.78
10.5	Nav Channel	0.82	0.82	0.82	0.82	0.82	0.65	0.46	0.82
10.6	Nav Channel	0.89	0.89	0.89	0.89	0.89	0.71	0.51	0.89
10.7	Nav Channel	0.88	0.88	0.88	0.87	0.87	0.69	0.49	0.87
10.8	Nav Channel	0.81	0.80	0.80	0.80	0.80	0.66	0.51	0.80
10.9	Nav Channel	0.77	0.76	0.76	0.75	0.75	0.69	0.54	0.75
11	Nav Channel	0.76	0.75	0.75	0.74	0.74	0.69	0.56	0.74
11.1	Nav Channel	0.76	0.75	0.74	0.74	0.74	0.69	0.56	0.74
11.2	Nav Channel	0.76	0.74	0.74	0.74	0.74	0.70	0.56	0.74
11.3	Nav Channel	0.65	0.64	0.63	0.63	0.63	0.60	0.47	0.63
11.4	Nav Channel	0.57	0.55	0.55	0.54	0.54	0.53	0.47	0.54
11.5	Nav Channel	0.52	0.50	0.49	0.49	0.49	0.48	0.45	0.49
11.6	Nav Channel	0.50	0.47	0.47	0.46	0.46	0.46	0.43	0.46
11.7	Nav Channel	0.52	0.50	0.50	0.49	0.49	0.48	0.45	0.49
1.8	West	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19
1.9	West	0.18	0.18	0.18	0.18	0.18	0.18	0.18	0.18
2	West	0.18	0.18	0.18	0.18	0.18	0.18	0.18	0.18
2.1	West	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17
2.2	West	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15
2.3	West	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14
2.4	West	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13
2.5	West	0.14	0.14	0.14	0.14	0.14	0.14	0.13	0.14
2.6	West	0.15	0.15	0.15	0.15	0.15	0.15	0.13	0.15
2.7	West	0.19	0.19	0.19	0.19	0.19	0.19	0.15	0.19
2.8	West	0.25	0.25	0.25	0.25	0.25	0.25	0.16	0.25

**Table J2.3-2a**

**Rolling River Mile Average Concentrations - Aldrin (µg/kg) - 1 Mile Increments**

Portland Harbor Superfund Site

Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
2.9	West	0.28	0.28	0.28	0.28	0.28	0.28	0.18	0.28
3	West	0.31	0.31	0.31	0.31	0.31	0.31	0.20	0.31
3.1	West	0.33	0.33	0.33	0.33	0.32	0.32	0.21	0.33
3.2	West	0.34	0.34	0.34	0.34	0.34	0.34	0.22	0.34
3.3	West	0.36	0.36	0.36	0.36	0.36	0.36	0.24	0.36
3.4	West	0.39	0.39	0.39	0.39	0.38	0.38	0.26	0.39
3.5	West	0.42	0.42	0.42	0.42	0.41	0.41	0.27	0.42
3.6	West	0.50	0.50	0.50	0.50	0.47	0.47	0.30	0.50
3.7	West	0.64	0.64	0.64	0.64	0.54	0.54	0.31	0.64
3.8	West	0.71	0.71	0.71	0.70	0.49	0.49	0.32	0.70
3.9	West	0.75	0.75	0.75	0.73	0.49	0.49	0.29	0.73
4	West	0.78	0.78	0.78	0.76	0.49	0.49	0.26	0.76
4.1	West	0.85	0.85	0.85	0.82	0.51	0.51	0.23	0.82
4.2	West	0.90	0.90	0.90	0.87	0.51	0.51	0.22	0.87
4.3	West	0.89	0.89	0.89	0.86	0.50	0.50	0.19	0.86
4.4	West	0.88	0.88	0.88	0.85	0.49	0.49	0.19	0.85
4.5	West	0.88	0.88	0.88	0.85	0.47	0.47	0.18	0.85
4.6	West	0.79	0.79	0.79	0.76	0.44	0.44	0.18	0.76
4.7	West	0.56	0.56	0.56	0.52	0.32	0.32	0.16	0.52
4.8	West	0.32	0.32	0.32	0.32	0.28	0.28	0.15	0.32
4.9	West	0.32	0.32	0.32	0.31	0.27	0.27	0.15	0.31
5	West	0.35	0.34	0.33	0.31	0.27	0.27	0.14	0.31
5.1	West	0.35	0.35	0.33	0.31	0.26	0.26	0.12	0.31
5.2	West	0.36	0.35	0.33	0.32	0.28	0.28	0.13	0.32
5.3	West	0.42	0.41	0.39	0.37	0.34	0.34	0.16	0.37
5.4	West	0.53	0.53	0.51	0.49	0.44	0.44	0.24	0.49
5.5	West	0.56	0.55	0.53	0.51	0.43	0.43	0.24	0.52
5.6	West	0.63	0.57	0.52	0.48	0.38	0.38	0.19	0.51
5.7	West	1.01	0.59	0.48	0.45	0.36	0.36	0.17	0.47
5.8	West	1.08	0.54	0.44	0.41	0.32	0.32	0.16	0.43
5.9	West	1.08	0.48	0.38	0.36	0.27	0.27	0.15	0.38
6	West	1.08	0.44	0.36	0.33	0.26	0.26	0.15	0.35
6.1	West	1.10	0.45	0.36	0.32	0.24	0.24	0.15	0.33
6.2	West	1.13	0.49	0.40	0.35	0.24	0.24	0.14	0.33
6.3	West	1.12	0.48	0.39	0.34	0.20	0.20	0.11	0.28
6.4	West	1.65	0.74	0.41	0.30	0.12	0.12	0.05	0.19
6.5	West	3.16	1.56	0.61	0.26	0.07	0.07	0.01	0.11
6.6	West	4.94	2.87	1.24	0.49	0.07	0.07	0.01	0.08
6.7	West	6.07	2.78	1.20	0.46	0.07	0.07	0.01	0.07
6.8	West	7.66	2.72	1.18	0.45	0.07	0.07	0.01	0.07
6.9	West	8.91	2.77	1.21	0.46	0.07	0.07	0.01	0.07
7	West	9.52	2.85	1.26	0.49	0.09	0.09	0.01	0.09

**Table J2.3-2a**

**Rolling River Mile Average Concentrations - Aldrin (µg/kg) - 1 Mile Increments**

Portland Harbor Superfund Site

Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
7.1	West	8.41	2.78	1.38	0.70	0.33	0.33	0.11	0.33
7.2	West	7.41	2.70	1.52	0.94	0.54	0.54	0.30	0.54
7.3	West	6.60	2.54	1.52	1.02	0.65	0.65	0.33	0.65
7.4	West	6.26	2.36	1.48	1.02	0.67	0.67	0.34	0.67
7.5	West	5.64	1.96	1.39	1.04	0.70	0.70	0.35	0.70
7.6	West	4.72	1.23	1.04	0.92	0.70	0.70	0.36	0.71
7.7	West	3.72	1.18	1.05	0.95	0.72	0.72	0.37	0.73
7.8	West	2.56	1.19	1.06	0.96	0.72	0.72	0.37	0.74
7.9	West	1.71	1.19	1.07	0.98	0.69	0.69	0.35	0.79
8	West	1.16	1.08	1.01	0.94	0.68	0.68	0.36	0.77
8.1	West	1.17	1.17	1.17	1.02	0.62	0.62	0.31	0.88
8.2	West	1.34	1.34	1.34	0.98	0.43	0.43	0.16	0.93
8.3	West	1.43	1.37	1.32	0.85	0.27	0.27	0.10	0.85
8.4	West	2.24	1.43	1.37	0.87	0.25	0.25	0.09	0.87
8.5	West	2.33	1.46	1.39	0.88	0.25	0.25	0.09	0.88
8.6	West	2.38	1.49	1.40	0.89	0.26	0.26	0.09	0.89
8.7	West	2.58	1.58	1.45	0.92	0.26	0.26	0.09	0.92
8.8	West	2.61	1.63	1.48	0.92	0.27	0.27	0.10	0.92
8.9	West	2.58	1.57	1.42	0.84	0.27	0.27	0.12	0.84
9	West	2.68	1.61	1.45	0.85	0.23	0.23	0.08	0.85
9.1	West	2.32	1.15	0.97	0.49	0.09	0.09	0.07	0.49
9.2	West	1.78	0.60	0.39	0.18	0.10	0.10	0.07	0.18
9.3	West	1.72	0.57	0.30	0.17	0.10	0.10	0.08	0.17
9.4	West	0.78	0.58	0.32	0.18	0.10	0.10	0.08	0.18
9.5	West	0.74	0.59	0.34	0.20	0.12	0.12	0.09	0.20
9.6	West	0.76	0.63	0.36	0.22	0.13	0.13	0.10	0.22
9.7	West	0.64	0.59	0.38	0.23	0.14	0.14	0.11	0.23
9.8	West	0.59	0.53	0.33	0.23	0.14	0.14	0.11	0.23
9.9	West	0.72	0.65	0.40	0.27	0.18	0.18	0.12	0.27
10	West	0.93	0.84	0.53	0.37	0.29	0.29	0.21	0.37
10.1	West	1.18	1.06	0.64	0.44	0.37	0.37	0.29	0.44
10.2	West	1.12	1.10	0.66	0.63	0.56	0.56	0.42	0.63
10.3	West	0.73	0.73	0.73	0.72	0.67	0.67	0.47	0.72
10.4	West	0.71	0.71	0.71	0.70	0.66	0.66	0.49	0.70
10.5	West	0.75	0.75	0.75	0.74	0.70	0.70	0.55	0.74
10.6	West	0.76	0.76	0.76	0.75	0.72	0.72	0.58	0.75
10.7	West	0.74	0.74	0.74	0.74	0.71	0.71	0.58	0.74
10.8	West	0.73	0.73	0.73	0.73	0.73	0.73	0.60	0.73
10.9	West	0.69	0.69	0.69	0.69	0.69	0.69	0.60	0.69
11	West	0.58	0.58	0.58	0.58	0.58	0.58	0.51	0.58
11.1	West	0.54	0.54	0.54	0.54	0.54	0.54	0.47	0.54
11.2	West	0.51	0.51	0.51	0.51	0.51	0.51	0.46	0.51

**Table J2.3-2a**

**Rolling River Mile Average Concentrations - Aldrin (µg/kg) - 1 Mile Increments**

Portland Harbor Superfund Site

Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
11.3	West	0.52	0.52	0.52	0.52	0.52	0.52	0.51	0.52
11.4	West	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50
11.5	West	0.42	0.42	0.42	0.42	0.42	0.42	0.42	0.42
11.6	West	0.35	0.35	0.35	0.35	0.35	0.35	0.34	0.35
11.7	West	0.33	0.33	0.33	0.33	0.33	0.33	0.33	0.33
7.6	Swan Isl	0.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00
7.7	Swan Isl	0.12	0.01	0.01	0.01	0.00	0.00	0.00	0.01
7.8	Swan Isl	0.21	0.02	0.02	0.01	0.00	0.00	0.00	0.01
7.9	Swan Isl	0.34	0.02	0.02	0.01	0.01	0.01	0.00	0.01
8	Swan Isl	0.55	0.03	0.02	0.02	0.01	0.01	0.01	0.02
8.1	Swan Isl	0.58	0.03	0.03	0.02	0.01	0.01	0.01	0.02
8.2	Swan Isl	0.57	0.04	0.04	0.03	0.03	0.03	0.02	0.03
8.3	Swan Isl	0.55	0.05	0.04	0.04	0.03	0.03	0.03	0.04
8.4	Swan Isl	0.54	0.05	0.04	0.04	0.03	0.03	0.03	0.04
8.5	Swan Isl	0.52	0.05	0.04	0.04	0.03	0.03	0.03	0.04
8.6	Swan Isl	0.62	0.09	0.07	0.07	0.04	0.04	0.03	0.08
8.7	Swan Isl	0.83	0.21	0.18	0.17	0.07	0.07	0.06	0.20
8.8	Swan Isl	0.90	0.24	0.21	0.19	0.08	0.08	0.07	0.24
8.9	Swan Isl	0.86	0.27	0.24	0.22	0.09	0.09	0.07	0.27
9	Swan Isl	0.65	0.31	0.26	0.24	0.09	0.09	0.08	0.30
9.1	Swan Isl	0.60	0.32	0.28	0.26	0.10	0.10	0.08	0.32
9.2	Swan Isl	0.63	0.37	0.31	0.29	0.09	0.09	0.08	0.36
9.3	Swan Isl	0.72	0.46	0.39	0.35	0.10	0.10	0.07	0.45
9.4	Swan Isl	0.88	0.66	0.56	0.51	0.12	0.12	0.09	0.65
9.5	Swan Isl	1.29	1.09	0.92	0.84	0.19	0.19	0.14	1.08
9.6	Swan Isl	1.66	1.66	1.45	1.26	0.35	0.35	0.28	1.66

**Table J2.3-2b**

**Rolling River Mile Average Concentrations - Chlordanes (µg/kg) - 1 Mile Increments**

Portland Harbor Superfund Site

Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
1.8	East	2.16	2.07	2.04	2.01	1.99	1.99	1.97	2.01
1.9	East	2.22	2.08	2.04	1.98	1.94	1.94	1.92	1.98
2	East	2.09	1.95	1.91	1.85	1.79	1.79	1.77	1.85
2.1	East	1.98	1.84	1.79	1.73	1.64	1.64	1.60	1.73
2.2	East	1.60	1.46	1.42	1.36	1.26	1.26	1.20	1.36
2.3	East	1.35	1.21	1.15	1.07	0.94	0.94	0.86	1.07
2.4	East	1.33	1.16	1.03	0.92	0.77	0.77	0.69	0.93
2.5	East	1.29	1.12	0.99	0.88	0.73	0.73	0.65	0.89
2.6	East	1.27	1.10	0.96	0.86	0.71	0.71	0.63	0.87
2.7	East	1.30	1.13	0.99	0.89	0.74	0.74	0.65	0.90
2.8	East	1.21	1.11	0.99	0.90	0.74	0.74	0.65	0.91
2.9	East	1.08	1.04	0.93	0.87	0.73	0.73	0.64	0.88
3	East	1.06	1.04	0.91	0.85	0.72	0.72	0.63	0.87
3.1	East	1.02	1.00	0.86	0.80	0.72	0.72	0.64	0.81
3.2	East	0.98	0.94	0.80	0.73	0.66	0.66	0.60	0.75
3.3	East	1.01	0.83	0.68	0.61	0.52	0.52	0.46	0.62
3.4	East	0.97	0.66	0.61	0.57	0.47	0.47	0.41	0.57
3.5	East	0.98	0.66	0.59	0.54	0.43	0.43	0.34	0.54
3.6	East	1.02	0.68	0.61	0.53	0.40	0.40	0.30	0.53
3.7	East	1.09	0.74	0.66	0.55	0.39	0.39	0.28	0.55
3.8	East	1.15	0.80	0.72	0.60	0.43	0.43	0.30	0.60
3.9	East	1.32	0.99	0.89	0.73	0.44	0.44	0.27	0.73
4	East	1.83	1.53	1.43	1.26	0.77	0.77	0.40	1.26
4.1	East	3.05	2.75	2.42	2.08	1.25	1.25	0.59	2.08
4.2	East	4.80	4.47	3.62	2.78	1.52	1.52	0.64	2.78
4.3	East	5.89	5.65	4.61	3.57	2.00	2.00	0.82	3.57
4.4	East	6.06	5.98	4.87	3.76	2.11	2.11	0.88	3.76
4.5	East	6.18	6.09	4.96	3.84	2.17	2.17	0.92	3.84
4.6	East	6.18	6.10	4.98	3.89	2.23	2.23	0.98	3.89
4.7	East	6.26	6.18	5.05	3.98	2.33	2.33	1.07	3.98
4.8	East	6.39	6.31	5.16	4.07	2.39	2.39	1.12	4.07
4.9	East	7.27	7.17	5.84	4.61	2.81	2.81	1.34	4.61
5	East	7.50	7.39	5.82	4.40	2.68	2.68	1.31	4.39
5.1	East	5.85	5.73	4.51	3.31	2.00	2.00	0.95	3.15
5.2	East	2.41	2.41	2.40	2.33	1.47	1.47	0.83	1.51
5.3	East	2.30	2.30	2.30	2.16	1.19	1.19	0.76	1.19
5.4	East	2.06	2.06	2.06	1.95	1.12	1.12	0.64	1.12
5.5	East	2.03	2.03	2.03	1.92	1.10	1.10	0.57	1.15
5.6	East	1.97	1.97	1.97	1.86	1.01	1.01	0.52	1.15
5.7	East	1.84	1.84	1.84	1.74	0.92	0.92	0.46	1.11
5.8	East	1.72	1.72	1.71	1.63	0.88	0.88	0.46	1.06
5.9	East	1.64	1.64	1.62	1.52	0.81	0.81	0.43	1.02
6	East	1.54	1.54	1.52	1.43	0.77	0.77	0.43	0.98

**Table J2.3-2b**

**Rolling River Mile Average Concentrations - Chlordanes (µg/kg) - 1 Mile Increments**

Portland Harbor Superfund Site

Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
6.1	East	1.38	1.38	1.34	1.26	0.73	0.73	0.47	0.93
6.2	East	1.07	1.06	1.02	0.97	0.71	0.71	0.50	0.91
6.3	East	1.01	0.95	0.87	0.85	0.65	0.65	0.45	0.90
6.4	East	0.95	0.85	0.77	0.75	0.56	0.56	0.41	0.82
6.5	East	0.83	0.74	0.65	0.64	0.50	0.50	0.40	0.73
6.6	East	0.72	0.63	0.55	0.55	0.45	0.45	0.38	0.63
6.7	East	0.75	0.61	0.51	0.51	0.45	0.45	0.38	0.67
6.8	East	0.78	0.62	0.50	0.49	0.44	0.44	0.38	0.70
6.9	East	0.82	0.67	0.54	0.54	0.48	0.48	0.43	0.74
7	East	0.86	0.71	0.59	0.59	0.54	0.54	0.49	0.78
7.1	East	0.88	0.73	0.61	0.61	0.56	0.56	0.53	0.80
7.2	East	0.91	0.76	0.64	0.64	0.59	0.59	0.56	0.83
7.3	East	0.90	0.77	0.68	0.68	0.65	0.65	0.62	0.86
7.4	East	0.96	0.85	0.76	0.76	0.74	0.74	0.71	0.95
7.5	East	1.06	0.95	0.85	0.85	0.84	0.84	0.79	1.05
7.6	East	1.16	1.01	0.91	0.91	0.89	0.89	0.82	1.12
7.7	East	1.12	0.98	0.90	0.90	0.88	0.88	0.80	1.01
7.8	East	1.10	0.95	0.91	0.91	0.89	0.89	0.80	0.95
7.9	East	1.06	0.89	0.89	0.89	0.89	0.89	0.78	0.89
8	East	1.02	0.83	0.83	0.83	0.82	0.82	0.70	0.83
8.1	East	0.93	0.70	0.70	0.69	0.69	0.69	0.55	0.69
8.2	East	0.87	0.64	0.64	0.64	0.63	0.63	0.49	0.64
8.3	East	0.84	0.62	0.62	0.62	0.62	0.62	0.51	0.62
8.4	East	0.79	0.59	0.59	0.59	0.58	0.58	0.51	0.59
8.5	East	0.75	0.53	0.53	0.53	0.52	0.52	0.45	0.53
8.6	East	0.75	0.57	0.57	0.57	0.56	0.56	0.47	0.57
8.7	East	0.79	0.73	0.73	0.73	0.70	0.70	0.53	0.73
8.8	East	0.89	0.89	0.89	0.89	0.86	0.86	0.69	0.89
8.9	East	0.96	0.96	0.96	0.96	0.93	0.93	0.76	0.96
9	East	0.94	0.94	0.94	0.94	0.91	0.91	0.75	0.94
9.1	East	0.93	0.93	0.93	0.93	0.88	0.88	0.70	0.93
9.2	East	0.96	0.96	0.96	0.96	0.88	0.88	0.65	0.96
9.3	East	1.00	1.00	1.00	1.00	0.92	0.92	0.67	1.00
9.4	East	1.00	1.00	1.00	1.00	0.92	0.92	0.68	1.00
9.5	East	0.96	0.96	0.96	0.96	0.89	0.89	0.68	0.96
9.6	East	0.95	0.95	0.95	0.94	0.86	0.86	0.70	0.94
9.7	East	0.95	0.95	0.95	0.94	0.86	0.86	0.75	0.94
9.8	East	0.91	0.91	0.91	0.90	0.82	0.82	0.69	0.90
9.9	East	0.94	0.94	0.94	0.93	0.84	0.84	0.71	0.93
10	East	1.26	1.26	1.26	1.25	1.15	1.15	0.97	1.25
10.1	East	1.48	1.48	1.48	1.47	1.36	1.36	1.18	1.47
10.2	East	1.57	1.57	1.57	1.55	1.44	1.44	1.29	1.55

**Table J2.3-2b**

**Rolling River Mile Average Concentrations - Chlordanes (µg/kg) - 1 Mile Increments**

Portland Harbor Superfund Site

Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
10.3	East	1.67	1.67	1.67	1.60	1.44	1.44	1.31	1.60
10.4	East	1.79	1.79	1.79	1.68	1.45	1.45	1.30	1.68
10.5	East	2.00	2.00	2.00	1.88	1.56	1.56	1.33	1.88
10.6	East	2.22	2.22	2.21	2.06	1.74	1.74	1.40	2.07
10.7	East	2.46	2.29	2.18	2.00	1.66	1.66	1.34	2.00
10.8	East	4.22	3.74	3.28	2.65	1.95	1.95	1.18	2.65
10.9	East	7.86	4.68	3.29	2.35	1.60	1.60	0.88	2.35
11	East	8.90	4.67	3.16	1.99	1.08	1.08	0.44	1.99
11.1	East	8.96	4.72	3.19	1.97	0.97	0.97	0.30	1.97
11.2	East	8.63	4.54	3.07	1.87	0.93	0.93	0.23	1.87
11.3	East	9.51	4.92	3.28	1.99	0.99	0.99	0.21	1.99
11.4	East	10.57	5.40	3.54	2.14	1.06	1.06	0.20	2.14
11.5	East	11.44	5.77	3.73	2.20	1.09	1.09	0.22	2.20
11.6	East	12.79	6.29	3.97	2.26	1.02	1.02	0.18	2.26
11.7	East	14.44	7.10	4.53	2.58	1.16	1.16	0.19	2.58
1.8	Nav Channel	1.02	1.02	1.02	1.02	1.02	1.02	0.97	1.02
1.9	Nav Channel	1.04	1.04	1.04	1.04	1.04	1.04	0.92	1.04
2	Nav Channel	1.06	1.06	1.06	1.06	1.06	1.06	0.93	1.06
2.1	Nav Channel	1.08	1.08	1.08	1.08	1.08	1.08	0.95	1.08
2.2	Nav Channel	1.11	1.11	1.11	1.11	1.11	1.11	0.98	1.11
2.3	Nav Channel	1.12	1.12	1.12	1.12	1.12	1.12	0.99	1.12
2.4	Nav Channel	1.14	1.14	1.14	1.14	1.14	1.14	1.01	1.14
2.5	Nav Channel	1.17	1.17	1.17	1.17	1.17	1.17	1.04	1.17
2.6	Nav Channel	1.22	1.22	1.22	1.22	1.22	1.22	1.09	1.22
2.7	Nav Channel	1.26	1.26	1.26	1.26	1.26	1.26	1.13	1.26
2.8	Nav Channel	1.26	1.26	1.26	1.26	1.26	1.26	1.18	1.26
2.9	Nav Channel	1.25	1.25	1.25	1.25	1.25	1.25	1.21	1.25
3	Nav Channel	1.30	1.30	1.30	1.30	1.30	1.20	1.12	1.30
3.1	Nav Channel	1.49	1.49	1.49	1.47	1.47	1.11	0.98	1.47
3.2	Nav Channel	1.57	1.57	1.57	1.55	1.55	1.02	0.83	1.55
3.3	Nav Channel	1.56	1.56	1.56	1.54	1.54	0.98	0.76	1.54
3.4	Nav Channel	1.53	1.53	1.53	1.51	1.51	0.99	0.78	1.51
3.5	Nav Channel	1.47	1.47	1.47	1.46	1.46	0.97	0.76	1.46
3.6	Nav Channel	1.40	1.40	1.40	1.38	1.38	0.92	0.72	1.38
3.7	Nav Channel	1.32	1.32	1.32	1.30	1.30	0.87	0.68	1.30
3.8	Nav Channel	1.25	1.25	1.25	1.24	1.24	0.83	0.65	1.24
3.9	Nav Channel	1.20	1.20	1.20	1.19	1.19	0.80	0.65	1.19
4	Nav Channel	1.17	1.17	1.17	1.16	1.16	0.83	0.69	1.16
4.1	Nav Channel	1.08	1.08	1.08	1.08	1.08	0.90	0.76	1.08
4.2	Nav Channel	1.02	1.02	1.02	1.02	1.02	0.96	0.86	1.02
4.3	Nav Channel	1.00	1.00	1.00	1.00	1.00	0.98	0.91	1.00
4.4	Nav Channel	0.98	0.98	0.98	0.98	0.98	0.96	0.89	0.98

**Table J2.3-2b**

**Rolling River Mile Average Concentrations - Chlordanes (µg/kg) - 1 Mile Increments**

Portland Harbor Superfund Site

Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
4.5	Nav Channel	0.96	0.96	0.96	0.96	0.96	0.93	0.87	0.96
4.6	Nav Channel	0.97	0.97	0.94	0.93	0.97	0.89	0.83	0.97
4.7	Nav Channel	1.00	0.96	0.91	0.88	0.96	0.84	0.77	0.96
4.8	Nav Channel	1.03	0.98	0.88	0.84	0.98	0.79	0.71	0.98
4.9	Nav Channel	1.17	1.00	0.86	0.80	1.00	0.74	0.66	1.00
5	Nav Channel	1.23	0.96	0.78	0.71	0.96	0.65	0.59	0.96
5.1	Nav Channel	1.16	0.87	0.68	0.61	0.87	0.54	0.49	0.87
5.2	Nav Channel	1.16	0.78	0.58	0.51	0.78	0.43	0.38	0.78
5.3	Nav Channel	1.13	0.70	0.49	0.42	0.70	0.33	0.27	0.70
5.4	Nav Channel	1.12	0.67	0.44	0.36	0.67	0.23	0.17	0.67
5.5	Nav Channel	1.23	0.76	0.52	0.40	0.76	0.24	0.11	0.76
5.6	Nav Channel	1.37	0.86	0.64	0.46	0.86	0.25	0.09	0.86
5.7	Nav Channel	1.99	1.39	0.86	0.58	1.39	0.30	0.10	1.14
5.8	Nav Channel	2.62	1.63	1.03	0.70	1.63	0.34	0.12	1.32
5.9	Nav Channel	2.86	1.78	1.21	0.86	1.78	0.45	0.19	1.44
6	Nav Channel	3.04	1.86	1.31	0.95	1.86	0.53	0.25	1.51
6.1	Nav Channel	3.44	2.19	1.48	1.03	2.16	0.56	0.28	1.79
6.2	Nav Channel	3.67	2.49	1.69	1.16	2.40	0.56	0.27	2.01
6.3	Nav Channel	3.88	2.70	1.86	1.32	2.60	0.59	0.26	2.19
6.4	Nav Channel	3.93	2.74	1.88	1.33	2.64	0.64	0.28	2.22
6.5	Nav Channel	3.74	2.55	1.70	1.19	2.45	0.55	0.30	2.03
6.6	Nav Channel	3.50	2.33	1.50	1.10	2.23	0.54	0.34	1.82
6.7	Nav Channel	2.67	1.68	1.31	1.05	1.58	0.60	0.43	1.50
6.8	Nav Channel	2.25	1.70	1.47	1.29	1.60	0.94	0.62	1.59
6.9	Nav Channel	2.11	1.85	1.64	1.51	1.75	1.20	0.75	1.75
7	Nav Channel	1.88	1.85	1.66	1.53	1.76	1.20	0.73	1.76
7.1	Nav Channel	1.67	1.66	1.61	1.55	1.60	1.20	0.72	1.60
7.2	Nav Channel	1.61	1.61	1.61	1.61	1.60	1.35	0.81	1.61
7.3	Nav Channel	1.56	1.56	1.56	1.55	1.55	1.38	0.91	1.55
7.4	Nav Channel	1.52	1.51	1.51	1.51	1.51	1.37	0.97	1.51
7.5	Nav Channel	1.49	1.49	1.49	1.49	1.49	1.37	1.02	1.49
7.6	Nav Channel	1.48	1.48	1.48	1.48	1.48	1.37	1.04	1.48
7.7	Nav Channel	1.48	1.48	1.48	1.48	1.48	1.37	1.06	1.48
7.8	Nav Channel	1.33	1.33	1.33	1.33	1.33	1.22	1.00	1.33
7.9	Nav Channel	1.17	1.17	1.17	1.17	1.17	1.08	0.94	1.17
8	Nav Channel	1.13	1.13	1.13	1.13	1.13	1.06	0.96	1.13
8.1	Nav Channel	1.08	1.08	1.08	1.08	1.08	1.06	0.99	1.08
8.2	Nav Channel	0.99	0.99	0.99	0.99	0.99	0.99	0.97	0.99
8.3	Nav Channel	0.93	0.93	0.93	0.93	0.93	0.93	0.92	0.93
8.4	Nav Channel	0.91	0.90	0.90	0.90	0.90	0.89	0.88	0.90
8.5	Nav Channel	0.89	0.88	0.88	0.88	0.88	0.85	0.83	0.88
8.6	Nav Channel	0.88	0.88	0.88	0.88	0.88	0.84	0.82	0.88



**Table J2.3-2b**

**Rolling River Mile Average Concentrations - Chlordanes (µg/kg) - 1 Mile Increments**

Portland Harbor Superfund Site

Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
8.7	Nav Channel	0.86	0.85	0.85	0.85	0.85	0.79	0.76	0.85
8.8	Nav Channel	0.85	0.84	0.84	0.84	0.84	0.74	0.71	0.84
8.9	Nav Channel	0.84	0.83	0.83	0.83	0.83	0.73	0.68	0.83
9	Nav Channel	0.83	0.82	0.82	0.82	0.82	0.71	0.66	0.82
9.1	Nav Channel	0.85	0.84	0.84	0.84	0.84	0.73	0.67	0.84
9.2	Nav Channel	0.87	0.86	0.86	0.86	0.86	0.74	0.67	0.86
9.3	Nav Channel	0.91	0.91	0.91	0.91	0.91	0.77	0.71	0.91
9.4	Nav Channel	0.98	0.98	0.98	0.97	0.97	0.84	0.76	0.97
9.5	Nav Channel	1.02	1.02	1.02	1.02	1.02	0.88	0.78	1.02
9.6	Nav Channel	1.05	1.05	1.05	1.04	1.04	0.92	0.82	1.04
9.7	Nav Channel	1.10	1.10	1.10	1.10	1.10	1.01	0.89	1.10
9.8	Nav Channel	1.26	1.26	1.26	1.26	1.26	1.10	0.90	1.26
9.9	Nav Channel	1.47	1.47	1.47	1.47	1.47	1.13	0.88	1.47
10	Nav Channel	1.69	1.69	1.69	1.69	1.69	1.30	0.95	1.69
10.1	Nav Channel	1.70	1.70	1.70	1.70	1.70	1.30	0.95	1.70
10.2	Nav Channel	1.73	1.73	1.73	1.73	1.73	1.32	0.97	1.73
10.3	Nav Channel	1.79	1.79	1.79	1.79	1.79	1.37	1.00	1.79
10.4	Nav Channel	1.87	1.87	1.87	1.87	1.87	1.41	0.97	1.87
10.5	Nav Channel	2.01	2.01	2.01	2.01	2.01	1.51	1.00	2.01
10.6	Nav Channel	2.25	2.25	2.25	2.25	2.25	1.72	1.11	2.25
10.7	Nav Channel	2.81	2.60	2.48	2.42	2.42	1.85	1.18	2.42
10.8	Nav Channel	4.19	2.71	2.49	2.37	2.37	1.87	1.28	2.37
10.9	Nav Channel	5.79	3.49	2.70	2.25	2.25	1.96	1.42	2.25
11	Nav Channel	5.67	3.38	2.59	2.14	2.14	1.89	1.47	2.14
11.1	Nav Channel	5.74	3.43	2.63	2.18	2.18	1.93	1.51	2.18
11.2	Nav Channel	6.10	3.61	2.75	2.26	2.26	2.01	1.56	2.26
11.3	Nav Channel	6.65	3.86	2.89	2.35	2.35	2.08	1.59	2.35
11.4	Nav Channel	7.23	4.07	2.97	2.36	2.36	2.11	1.67	2.36
11.5	Nav Channel	7.89	4.28	3.03	2.33	2.33	2.12	1.77	2.33
11.6	Nav Channel	8.66	4.44	2.98	2.16	2.16	1.91	1.64	2.16
11.7	Nav Channel	9.05	4.38	2.87	2.00	2.00	1.76	1.56	2.00
1.8	West	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60
1.9	West	0.57	0.57	0.57	0.57	0.57	0.57	0.57	0.57
2	West	0.56	0.56	0.56	0.56	0.56	0.56	0.56	0.56
2.1	West	0.55	0.55	0.55	0.55	0.55	0.55	0.55	0.55
2.2	West	0.56	0.56	0.56	0.56	0.56	0.56	0.56	0.56
2.3	West	0.59	0.59	0.59	0.59	0.59	0.59	0.58	0.59
2.4	West	0.58	0.58	0.58	0.58	0.58	0.58	0.55	0.58
2.5	West	0.56	0.56	0.56	0.56	0.56	0.56	0.50	0.56
2.6	West	0.55	0.55	0.55	0.55	0.55	0.55	0.47	0.55
2.7	West	0.58	0.58	0.58	0.58	0.58	0.58	0.48	0.58
2.8	West	0.69	0.69	0.69	0.69	0.69	0.69	0.48	0.69

**Table J2.3-2b**

**Rolling River Mile Average Concentrations - Chlordanes (µg/kg) - 1 Mile Increments**

Portland Harbor Superfund Site

Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
2.9	West	0.70	0.70	0.70	0.70	0.70	0.70	0.48	0.70
3	West	0.72	0.72	0.72	0.72	0.72	0.72	0.49	0.72
3.1	West	0.76	0.76	0.76	0.76	0.75	0.75	0.52	0.76
3.2	West	0.76	0.76	0.76	0.76	0.76	0.76	0.53	0.76
3.3	West	0.76	0.76	0.76	0.76	0.76	0.76	0.51	0.76
3.4	West	0.81	0.81	0.81	0.81	0.80	0.80	0.54	0.81
3.5	West	0.86	0.86	0.86	0.86	0.85	0.85	0.58	0.86
3.6	West	0.99	0.99	0.99	0.99	0.95	0.95	0.65	0.99
3.7	West	1.17	1.17	1.17	1.17	1.06	1.06	0.69	1.17
3.8	West	1.25	1.25	1.25	1.23	0.99	0.99	0.72	1.23
3.9	West	1.54	1.54	1.54	1.52	1.23	1.23	0.76	1.52
4	West	1.74	1.74	1.74	1.72	1.40	1.40	0.78	1.72
4.1	West	1.85	1.85	1.85	1.82	1.44	1.44	0.70	1.82
4.2	West	1.95	1.95	1.95	1.92	1.42	1.42	0.60	1.92
4.3	West	1.96	1.96	1.96	1.93	1.41	1.41	0.58	1.93
4.4	West	1.91	1.91	1.91	1.88	1.36	1.36	0.55	1.88
4.5	West	1.94	1.94	1.94	1.91	1.37	1.37	0.55	1.91
4.6	West	1.86	1.86	1.86	1.83	1.35	1.35	0.54	1.83
4.7	West	1.69	1.69	1.67	1.61	1.21	1.21	0.49	1.61
4.8	West	1.40	1.40	1.38	1.34	1.12	1.12	0.50	1.34
4.9	West	1.09	1.09	1.06	1.02	0.81	0.81	0.43	1.02
5	West	0.96	0.96	0.92	0.86	0.63	0.63	0.38	0.86
5.1	West	0.92	0.91	0.87	0.81	0.57	0.57	0.33	0.81
5.2	West	0.82	0.82	0.77	0.71	0.58	0.58	0.34	0.71
5.3	West	0.96	0.95	0.90	0.83	0.71	0.71	0.40	0.83
5.4	West	1.49	1.49	1.43	1.34	1.09	1.09	0.64	1.37
5.5	West	1.61	1.61	1.51	1.39	1.10	1.10	0.64	1.46
5.6	West	2.01	1.74	1.55	1.40	1.01	1.01	0.54	1.50
5.7	West	3.15	1.72	1.42	1.30	0.95	0.95	0.50	1.40
5.8	West	3.64	1.61	1.31	1.21	0.88	0.88	0.48	1.30
5.9	West	4.05	1.53	1.24	1.14	0.83	0.83	0.46	1.24
6	West	4.37	1.47	1.20	1.10	0.80	0.80	0.46	1.19
6.1	West	5.77	1.80	1.41	1.19	0.78	0.78	0.45	1.17
6.2	West	6.31	2.39	2.01	1.76	0.89	0.89	0.43	1.28
6.3	West	6.67	2.70	2.32	1.98	0.74	0.74	0.32	1.11
6.4	West	7.68	3.40	2.35	1.72	0.45	0.45	0.12	0.70
6.5	West	10.41	5.05	3.24	1.70	0.32	0.32	0.03	0.48
6.6	West	12.12	6.37	3.89	1.91	0.29	0.29	0.01	0.31
6.7	West	12.41	6.01	3.69	1.79	0.27	0.27	0.01	0.29
6.8	West	14.89	5.88	3.61	1.76	0.27	0.27	0.01	0.28
6.9	West	17.05	5.95	3.67	1.79	0.28	0.28	0.01	0.29
7	West	17.99	6.07	3.71	1.81	0.30	0.30	0.01	0.31

**Table J2.3-2b**

**Rolling River Mile Average Concentrations - Chlordanes (µg/kg) - 1 Mile Increments**

Portland Harbor Superfund Site

Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
7.1	West	14.70	5.40	3.34	1.79	0.58	0.58	0.17	0.58
7.2	West	12.36	4.56	2.84	1.54	0.70	0.70	0.36	0.70
7.3	West	10.77	4.11	2.63	1.53	0.93	0.93	0.41	0.93
7.4	West	9.93	3.52	2.42	1.51	0.99	0.99	0.45	0.99
7.5	West	8.82	2.68	1.96	1.53	1.05	1.05	0.47	1.06
7.6	West	7.85	1.89	1.59	1.41	1.09	1.09	0.48	1.12
7.7	West	6.75	1.90	1.65	1.48	1.12	1.12	0.49	1.19
7.8	West	4.79	2.04	1.80	1.62	1.13	1.13	0.49	1.32
7.9	West	4.43	3.41	3.18	2.97	1.27	1.27	0.46	2.71
8	West	3.42	3.26	3.12	2.93	1.38	1.38	0.55	2.71
8.1	West	3.80	3.79	3.79	3.38	1.44	1.44	0.55	3.19
8.2	West	4.64	4.63	4.62	3.70	1.30	1.30	0.41	3.59
8.3	West	5.39	5.20	5.08	3.73	1.09	1.09	0.34	3.72
8.4	West	8.94	5.48	5.31	3.85	1.05	1.05	0.32	3.85
8.5	West	9.30	5.59	5.36	3.88	1.04	1.04	0.32	3.88
8.6	West	9.61	5.70	5.40	3.89	1.03	1.03	0.32	3.89
8.7	West	10.18	5.94	5.55	3.99	1.06	1.06	0.34	3.99
8.8	West	10.07	5.88	5.45	3.85	1.06	1.06	0.35	3.85
8.9	West	8.45	4.13	3.69	2.11	0.91	0.91	0.46	2.11
9	West	8.73	4.14	3.68	2.04	0.68	0.68	0.33	2.04
9.1	West	8.17	3.13	2.62	1.24	0.34	0.34	0.25	1.24
9.2	West	7.00	2.04	1.45	0.73	0.35	0.35	0.26	0.73
9.3	West	6.59	1.71	1.04	0.71	0.36	0.36	0.27	0.71
9.4	West	2.45	1.73	1.07	0.75	0.38	0.38	0.28	0.75
9.5	West	2.25	1.73	1.13	0.80	0.42	0.42	0.31	0.80
9.6	West	2.08	1.76	1.21	0.88	0.47	0.47	0.36	0.88
9.7	West	1.84	1.77	1.30	0.96	0.53	0.53	0.38	0.96
9.8	West	1.93	1.85	1.41	1.08	0.56	0.56	0.39	1.08
9.9	West	2.14	2.04	1.51	1.11	0.51	0.51	0.31	1.11
10	West	2.45	2.32	1.64	1.14	0.61	0.61	0.40	1.14
10.1	West	2.79	2.64	1.73	1.12	0.71	0.71	0.48	1.12
10.2	West	2.83	2.80	1.93	1.59	1.15	1.15	0.76	1.59
10.3	West	2.09	2.09	2.09	1.87	1.54	1.54	0.98	1.88
10.4	West	1.99	1.99	1.99	1.81	1.53	1.53	1.06	1.81
10.5	West	1.94	1.94	1.93	1.77	1.53	1.53	1.11	1.78
10.6	West	1.87	1.87	1.87	1.72	1.50	1.50	1.12	1.73
10.7	West	1.79	1.79	1.79	1.65	1.45	1.45	1.15	1.65
10.8	West	1.54	1.54	1.54	1.54	1.52	1.52	1.24	1.54
10.9	West	1.50	1.50	1.50	1.50	1.50	1.50	1.28	1.50
11	West	1.45	1.45	1.45	1.45	1.45	1.45	1.25	1.45
11.1	West	1.42	1.42	1.42	1.42	1.42	1.42	1.23	1.42
11.2	West	1.40	1.40	1.40	1.40	1.40	1.40	1.27	1.40

**Table J2.3-2b****Rolling River Mile Average Concentrations - Chlordanes ( $\mu\text{g}/\text{kg}$ ) - 1 Mile Increments**

Portland Harbor Superfund Site

Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
11.3	West	1.38	1.38	1.38	1.38	1.38	1.38	1.38	1.38
11.4	West	1.37	1.37	1.37	1.37	1.37	1.37	1.36	1.37
11.5	West	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35
11.6	West	1.37	1.37	1.37	1.37	1.37	1.37	1.36	1.37
11.7	West	1.41	1.41	1.41	1.41	1.41	1.41	1.40	1.41
7.6	Swan Isl	1.27	0.08	0.08	0.04	0.01	0.01	0.01	0.04
7.7	Swan Isl	1.84	0.09	0.09	0.04	0.01	0.01	0.00	0.04
7.8	Swan Isl	2.34	0.14	0.11	0.05	0.02	0.02	0.00	0.05
7.9	Swan Isl	2.34	0.14	0.11	0.06	0.03	0.03	0.02	0.06
8	Swan Isl	2.62	0.16	0.14	0.08	0.05	0.05	0.03	0.08
8.1	Swan Isl	2.61	0.17	0.15	0.09	0.06	0.06	0.04	0.09
8.2	Swan Isl	2.46	0.19	0.17	0.12	0.09	0.09	0.07	0.12
8.3	Swan Isl	2.38	0.21	0.18	0.13	0.10	0.10	0.08	0.13
8.4	Swan Isl	2.40	0.22	0.17	0.13	0.10	0.10	0.09	0.13
8.5	Swan Isl	2.43	0.22	0.17	0.13	0.10	0.10	0.09	0.13
8.6	Swan Isl	2.65	0.34	0.25	0.21	0.12	0.12	0.10	0.24
8.7	Swan Isl	2.90	0.67	0.53	0.46	0.21	0.21	0.16	0.57
8.8	Swan Isl	2.71	0.74	0.59	0.53	0.24	0.24	0.20	0.67
8.9	Swan Isl	2.75	0.83	0.66	0.59	0.26	0.26	0.21	0.75
9	Swan Isl	2.42	0.91	0.71	0.64	0.27	0.27	0.22	0.82
9.1	Swan Isl	2.42	0.96	0.75	0.67	0.27	0.27	0.22	0.87
9.2	Swan Isl	2.71	1.09	0.83	0.73	0.24	0.24	0.19	0.98
9.3	Swan Isl	3.07	1.33	1.02	0.91	0.26	0.26	0.19	1.23
9.4	Swan Isl	3.30	1.84	1.46	1.30	0.33	0.33	0.23	1.79
9.5	Swan Isl	3.57	2.92	2.35	2.08	0.48	0.48	0.35	2.90
9.6	Swan Isl	4.41	4.41	3.75	3.17	0.84	0.84	0.66	4.41

**Table J2.3-2c**

**Rolling River Mile Average Concentrations - cPAHs (µg/kg) - 1 Mile Increments**

Portland Harbor Superfund Site

Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
1.8	East	170.23	161.66	159.14	157.04	154.92	154.92	154.06	157.04
1.9	East	172.41	162.32	159.52	156.67	154.00	154.00	152.97	156.67
2	East	169.06	157.71	154.83	151.85	148.38	148.38	146.82	151.85
2.1	East	158.63	147.24	144.35	141.36	136.36	136.36	134.43	141.36
2.2	East	110.79	99.65	96.82	93.89	88.43	88.43	85.27	93.89
2.3	East	101.63	90.05	78.99	67.53	54.30	54.30	47.11	67.53
2.4	East	172.25	148.66	93.87	67.78	46.47	46.47	36.39	73.69
2.5	East	178.14	154.01	97.97	71.91	50.59	50.59	40.53	77.95
2.6	East	188.39	163.65	105.97	79.45	57.81	57.81	47.63	85.69
2.7	East	203.00	180.79	119.08	91.02	68.61	68.61	57.87	97.75
2.8	East	215.89	197.37	133.32	103.92	80.39	80.39	69.07	111.15
2.9	East	219.75	202.63	137.36	108.16	84.72	84.72	73.27	115.56
3	East	238.23	221.87	150.07	118.66	94.32	94.32	82.67	126.70
3.1	East	259.12	241.63	164.86	131.29	107.50	107.50	93.56	139.89
3.2	East	271.66	252.84	170.22	134.09	109.36	109.36	95.82	143.34
3.3	East	220.33	191.47	128.73	106.58	88.19	88.19	78.44	114.22
3.4	East	151.80	106.96	99.22	95.79	85.64	85.64	77.82	95.79
3.5	East	158.87	110.93	102.67	97.89	85.61	85.61	75.40	97.89
3.6	East	162.77	112.06	102.49	95.08	80.37	80.37	67.33	95.08
3.7	East	169.27	117.17	106.87	94.00	73.96	73.96	56.67	94.00
3.8	East	180.16	126.87	116.33	103.17	79.16	79.16	55.25	103.17
3.9	East	494.16	446.02	417.16	298.48	104.80	104.80	49.36	298.48
4	East	694.35	649.29	623.26	487.80	135.70	135.70	47.34	487.80
4.1	East	1217.16	1159.29	794.93	559.68	150.12	150.12	43.89	559.68
4.2	East	2184.60	2012.37	1089.33	640.50	165.79	165.79	42.24	640.50
4.3	East	2816.17	2609.88	1415.93	840.02	231.40	231.40	54.83	840.02
4.4	East	2970.07	2787.37	1513.33	898.06	250.11	250.11	63.32	898.06
4.5	East	3036.49	2850.03	1549.21	922.27	262.39	262.39	70.63	922.27
4.6	East	3036.03	2850.47	1554.22	931.61	275.67	275.67	81.65	931.61
4.7	East	3065.94	2878.32	1568.22	944.39	286.61	286.61	94.74	944.39
4.8	East	3124.12	2932.80	1596.87	960.74	293.84	293.84	101.97	960.74
4.9	East	3307.20	3078.17	1506.89	900.53	352.36	352.36	125.39	900.53
5	East	3509.67	3239.03	1382.43	710.43	373.97	373.97	154.20	708.98
5.1	East	2795.42	2525.53	1180.10	655.21	396.93	396.93	168.76	619.99
5.2	East	628.53	628.53	607.69	582.07	426.14	426.14	194.63	438.86
5.3	East	611.50	610.59	610.59	552.79	357.73	357.73	177.51	357.73
5.4	East	614.06	613.01	613.01	564.96	388.69	388.69	157.66	388.69
5.5	East	668.16	667.24	667.24	624.85	441.83	441.83	161.14	451.90
5.6	East	686.31	685.47	685.47	644.41	462.45	462.45	189.79	487.65
5.7	East	680.47	679.72	679.72	642.60	462.21	462.21	213.14	501.74
5.8	East	670.21	669.53	667.07	633.34	463.45	463.45	233.60	507.83
5.9	East	770.25	769.62	733.57	635.88	425.40	425.40	229.32	620.80
6	East	721.24	720.66	685.73	595.40	401.61	401.61	226.69	583.92

**Table J2.3-2c**

**Rolling River Mile Average Concentrations - cPAHs (µg/kg) - 1 Mile Increments**

Portland Harbor Superfund Site

Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
6.1	East	639.58	639.04	606.12	522.90	361.03	361.03	214.22	529.65
6.2	East	548.26	546.25	514.40	446.76	334.68	334.68	205.75	490.12
6.3	East	459.68	451.93	418.35	371.10	291.61	291.61	179.70	433.48
6.4	East	377.23	367.77	335.97	293.19	226.96	226.96	155.95	358.08
6.5	East	306.61	297.54	267.13	226.22	173.97	173.97	138.89	295.31
6.6	East	253.96	245.39	216.66	179.13	136.54	136.54	113.48	244.39
6.7	East	212.55	203.31	175.72	140.53	107.91	107.91	88.05	203.66
6.8	East	194.66	174.52	140.78	107.01	78.50	78.50	62.46	186.12
6.9	East	99.41	79.66	60.42	60.31	57.72	57.72	51.81	90.35
7	East	84.51	65.63	47.96	47.86	45.29	45.29	41.71	75.85
7.1	East	78.81	60.03	42.87	42.76	40.24	40.24	37.63	70.27
7.2	East	75.96	57.05	39.95	39.84	37.19	37.19	35.06	68.28
7.3	East	73.49	57.41	43.02	42.95	40.80	40.80	38.87	70.24
7.4	East	79.50	63.55	48.16	48.16	46.12	46.12	43.74	78.39
7.5	East	84.90	68.00	51.68	51.68	49.52	49.52	46.08	83.74
7.6	East	87.87	66.76	49.44	49.33	46.95	46.95	41.42	83.35
7.7	East	89.18	62.96	44.70	44.58	41.95	41.95	35.84	79.51
7.8	East	61.90	48.97	43.01	42.87	39.53	39.53	32.61	47.96
7.9	East	54.84	40.62	40.44	40.28	39.47	39.47	32.09	40.46
8	East	50.08	32.80	32.80	32.60	31.92	31.92	23.50	32.60
8.1	East	53.57	33.50	33.50	33.27	32.48	32.48	22.71	33.27
8.2	East	53.31	33.49	33.49	33.26	32.48	32.48	22.83	33.26
8.3	East	51.97	33.36	33.36	33.15	32.44	32.44	24.32	33.15
8.4	East	50.70	32.73	32.73	32.52	31.75	31.75	25.23	32.52
8.5	East	47.99	29.24	29.24	29.03	28.14	28.14	22.34	29.03
8.6	East	41.93	27.63	27.63	27.63	26.21	26.21	23.25	27.63
8.7	East	38.36	32.72	32.72	32.72	30.67	30.67	26.09	32.72
8.8	East	33.70	33.70	33.70	33.70	32.22	32.22	27.79	33.70
8.9	East	31.88	31.88	31.88	31.88	30.46	30.46	26.20	31.88
9	East	30.22	30.22	30.22	30.22	28.83	28.83	24.50	30.22
9.1	East	31.09	31.09	31.09	31.09	27.24	27.24	21.59	31.09
9.2	East	29.93	29.93	29.93	29.93	24.58	24.58	17.77	29.93
9.3	East	28.24	28.24	28.24	28.24	22.98	22.98	15.88	28.24
9.4	East	28.13	28.13	28.13	28.13	23.14	23.14	16.28	28.13
9.5	East	28.91	28.91	28.91	28.91	24.04	24.04	18.27	28.91
9.6	East	62.38	62.32	62.27	60.96	35.43	35.43	22.18	60.96
9.7	East	104.83	104.77	104.72	100.74	54.27	54.27	33.81	103.37
9.8	East	130.98	130.92	130.87	126.66	77.67	77.67	52.03	129.44
9.9	East	148.72	148.66	148.60	144.02	90.73	90.73	62.83	147.05
10	East	162.94	162.87	162.80	157.83	99.75	99.75	68.95	161.12
10.1	East	170.90	170.83	170.76	165.46	105.93	105.93	74.40	168.96
10.2	East	182.19	182.11	182.04	176.27	112.82	112.82	80.14	180.03

**Table J2.3-2c**

**Rolling River Mile Average Concentrations - cPAHs (µg/kg) - 1 Mile Increments**

Portland Harbor Superfund Site

Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
10.3	East	200.22	200.13	200.05	191.66	120.46	120.46	85.04	195.79
10.4	East	221.95	221.85	221.76	210.89	129.81	129.81	89.26	215.53
10.5	East	246.52	246.42	246.32	234.27	139.03	139.03	90.78	239.41
10.6	East	196.02	196.02	195.66	184.86	126.79	126.79	89.95	190.31
10.7	East	116.09	114.32	112.30	105.90	89.24	89.24	68.38	105.90
10.8	East	78.41	75.20	70.68	62.57	44.70	44.70	30.05	62.57
10.9	East	75.56	60.91	54.44	45.32	28.15	28.15	14.55	45.32
11	East	71.48	54.92	47.98	38.41	21.95	21.95	10.08	38.41
11.1	East	68.99	52.36	45.23	35.43	19.74	19.74	8.51	35.43
11.2	East	65.87	49.86	42.99	33.34	19.57	19.57	7.44	33.34
11.3	East	67.99	50.03	42.33	34.04	20.36	20.36	6.95	34.04
11.4	East	70.13	49.88	41.19	33.64	19.76	19.76	5.67	33.64
11.5	East	65.73	43.54	34.02	25.75	17.18	17.18	5.83	25.75
11.6	East	61.04	35.61	25.17	16.78	9.92	9.92	3.55	16.78
11.7	East	60.14	33.05	23.36	14.96	8.64	8.64	1.70	14.96
1.8	Nav Channel	94.48	94.48	94.48	94.48	94.48	94.48	92.12	94.48
1.9	Nav Channel	112.50	112.50	112.50	112.50	112.50	112.50	103.72	112.50
2	Nav Channel	131.41	131.41	131.41	131.41	131.41	131.41	121.23	131.41
2.1	Nav Channel	145.46	145.46	145.46	145.46	145.46	145.46	135.41	145.46
2.2	Nav Channel	156.94	156.94	156.94	156.94	156.94	156.94	147.02	156.94
2.3	Nav Channel	173.97	173.97	173.97	173.97	173.97	173.97	164.00	173.97
2.4	Nav Channel	192.46	192.46	192.46	192.46	192.46	192.46	182.45	192.46
2.5	Nav Channel	210.15	210.15	210.15	210.15	210.15	210.15	200.04	210.15
2.6	Nav Channel	231.11	231.11	231.11	231.11	231.11	231.11	220.92	231.11
2.7	Nav Channel	258.78	258.78	258.78	258.78	258.78	258.78	248.60	258.78
2.8	Nav Channel	290.00	290.00	290.00	290.00	290.00	290.00	281.65	290.00
2.9	Nav Channel	322.06	322.06	322.06	322.06	322.06	321.87	309.26	322.06
3	Nav Channel	364.72	364.72	364.72	364.72	364.72	356.78	312.24	364.72
3.1	Nav Channel	417.32	417.32	417.32	417.13	417.13	398.68	300.28	417.13
3.2	Nav Channel	472.55	472.55	472.55	472.36	472.36	450.06	285.53	472.36
3.3	Nav Channel	486.41	486.41	486.41	486.23	486.23	464.12	293.92	486.23
3.4	Nav Channel	489.12	489.12	489.12	488.95	488.95	468.31	309.22	488.95
3.5	Nav Channel	474.63	474.63	474.63	474.47	474.47	455.05	303.44	474.47
3.6	Nav Channel	463.41	463.41	463.41	463.26	463.26	444.97	295.83	463.26
3.7	Nav Channel	434.03	434.03	434.03	433.89	433.89	416.73	276.66	433.89
3.8	Nav Channel	391.64	391.64	391.64	391.50	391.50	375.34	243.65	391.50
3.9	Nav Channel	358.24	358.24	358.24	358.11	358.11	342.89	224.05	358.11
4	Nav Channel	342.93	342.93	342.93	342.81	342.81	330.75	222.84	342.81
4.1	Nav Channel	333.09	333.09	333.09	333.08	333.08	325.58	234.08	333.08
4.2	Nav Channel	289.35	289.35	289.35	289.35	289.35	284.77	236.81	289.35
4.3	Nav Channel	271.09	271.09	271.09	271.09	271.09	267.24	229.26	271.09
4.4	Nav Channel	282.20	282.20	282.20	282.20	282.20	278.33	235.60	282.20

**Table J2.3-2c**

**Rolling River Mile Average Concentrations - cPAHs (µg/kg) - 1 Mile Increments**

Portland Harbor Superfund Site

Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
4.5	Nav Channel	287.39	287.39	287.39	287.39	287.39	283.49	241.83	287.39
4.6	Nav Channel	682.48	658.06	397.84	314.19	658.06	272.63	226.36	658.06
4.7	Nav Channel	1997.84	1130.63	493.08	336.21	1130.63	265.31	210.03	1130.63
4.8	Nav Channel	2572.56	1612.45	647.39	386.05	1612.45	271.63	206.75	1612.45
4.9	Nav Channel	3654.45	1958.26	716.35	403.80	1958.26	263.92	195.20	1958.26
5	Nav Channel	4652.32	2270.01	823.76	451.79	2270.01	242.25	175.64	2270.01
5.1	Nav Channel	4998.01	2480.52	926.65	519.04	2480.52	231.84	153.23	2480.52
5.2	Nav Channel	8019.66	2685.73	982.16	538.37	2685.73	231.51	145.21	2685.73
5.3	Nav Channel	16026.23	2796.09	1008.55	543.11	2796.09	216.91	126.40	2796.09
5.4	Nav Channel	17092.79	3074.01	1162.89	655.31	3074.01	181.52	82.36	3074.01
5.5	Nav Channel	18145.66	3305.32	1279.19	705.89	3305.32	182.77	54.60	3305.32
5.6	Nav Channel	18886.15	3052.44	1274.50	716.85	3052.44	185.61	51.74	3052.44
5.7	Nav Channel	18510.04	2776.98	1290.94	749.09	2776.98	195.76	56.04	2674.45
5.8	Nav Channel	19403.38	2306.39	1169.30	738.02	2306.39	200.11	59.76	2176.00
5.9	Nav Channel	18902.95	1947.23	1145.53	754.37	1947.23	219.48	71.23	1806.82
6	Nav Channel	18526.53	1576.87	997.51	666.64	1576.87	215.58	75.02	1429.20
6.1	Nav Channel	19050.57	1384.77	849.05	528.61	1383.14	168.89	72.24	1228.75
6.2	Nav Channel	15202.90	1251.99	839.51	531.60	1247.35	158.18	62.09	1085.37
6.3	Nav Channel	2712.53	1244.25	852.89	541.16	1239.41	162.00	59.65	1070.19
6.4	Nav Channel	2391.94	972.88	611.93	319.87	967.93	144.71	54.77	794.97
6.5	Nav Channel	2236.51	827.81	474.15	240.16	822.90	99.70	46.16	651.21
6.6	Nav Channel	2029.97	655.04	306.83	174.90	650.20	76.54	39.05	481.17
6.7	Nav Channel	1450.71	289.98	171.23	118.38	285.22	62.18	38.12	253.30
6.8	Nav Channel	684.69	151.77	114.89	86.39	147.10	53.14	34.10	141.76
6.9	Nav Channel	345.53	99.11	80.83	64.72	94.54	41.29	25.47	93.96
7	Nav Channel	99.43	88.94	74.91	60.24	84.53	38.07	23.42	84.55
7.1	Nav Channel	58.82	58.64	57.44	52.03	55.98	36.51	23.30	56.00
7.2	Nav Channel	42.34	42.18	42.18	42.12	42.10	35.81	24.17	42.11
7.3	Nav Channel	36.63	36.49	36.49	36.43	36.42	33.01	24.98	36.43
7.4	Nav Channel	35.16	35.07	35.07	35.02	35.00	32.37	26.23	35.01
7.5	Nav Channel	36.70	36.62	36.62	36.58	36.56	34.26	28.90	36.57
7.6	Nav Channel	37.30	37.24	37.24	37.21	37.19	35.05	29.41	37.19
7.7	Nav Channel	35.66	35.60	35.60	35.57	35.56	33.51	28.21	35.56
7.8	Nav Channel	36.28	36.24	36.24	36.22	36.21	34.24	30.06	36.21
7.9	Nav Channel	42.34	42.31	42.31	42.30	42.30	40.61	37.57	42.30
8	Nav Channel	42.40	42.40	42.40	42.40	42.40	41.21	38.83	42.40
8.1	Nav Channel	41.36	41.36	41.36	41.35	41.36	40.96	39.18	41.36
8.2	Nav Channel	40.36	40.36	40.36	40.34	40.36	40.27	39.47	40.36
8.3	Nav Channel	40.44	40.43	40.43	40.41	40.43	40.40	39.67	40.43
8.4	Nav Channel	40.50	40.47	40.47	40.45	40.47	40.01	38.99	40.47
8.5	Nav Channel	39.26	39.20	39.20	39.18	39.20	37.33	35.98	39.20
8.6	Nav Channel	38.04	37.99	37.98	37.95	37.98	34.75	33.89	37.98



**Table J2.3-2c**

**Rolling River Mile Average Concentrations - cPAHs (µg/kg) - 1 Mile Increments**

Portland Harbor Superfund Site

Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
8.7	Nav Channel	40.45	40.40	40.39	40.28	40.31	34.27	33.03	40.31
8.8	Nav Channel	42.72	42.67	42.65	42.53	42.57	32.68	30.12	42.57
8.9	Nav Channel	38.10	38.04	38.02	37.91	37.94	27.28	23.44	37.94
9	Nav Channel	37.08	37.02	37.00	36.89	36.92	25.94	21.87	36.92
9.1	Nav Channel	37.92	37.86	37.84	37.73	37.75	26.38	22.03	37.75
9.2	Nav Channel	39.92	39.86	39.83	39.73	39.75	27.64	22.95	39.75
9.3	Nav Channel	42.69	42.63	42.61	42.51	42.53	29.85	25.14	42.53
9.4	Nav Channel	46.49	46.47	46.45	46.34	46.36	33.91	28.18	46.36
9.5	Nav Channel	53.32	53.32	53.30	53.19	53.21	38.34	30.43	53.21
9.6	Nav Channel	54.88	54.88	54.86	54.76	54.77	41.59	33.33	54.77
9.7	Nav Channel	53.05	53.05	53.04	53.04	53.04	43.08	34.74	53.04
9.8	Nav Channel	49.60	49.60	49.60	49.60	49.60	42.58	33.88	49.60
9.9	Nav Channel	47.97	47.97	47.97	47.97	47.97	38.72	30.14	47.97
10	Nav Channel	51.73	51.73	51.73	51.73	51.73	42.06	32.82	51.73
10.1	Nav Channel	53.10	53.10	53.10	53.10	53.10	43.30	34.08	53.10
10.2	Nav Channel	62.51	62.51	62.51	62.51	62.51	52.82	42.60	62.51
10.3	Nav Channel	62.70	62.70	62.70	62.70	62.70	52.86	42.27	62.70
10.4	Nav Channel	60.82	60.82	60.82	60.82	60.82	50.47	39.35	60.82
10.5	Nav Channel	54.87	54.87	54.87	54.87	54.87	48.25	38.34	54.87
10.6	Nav Channel	54.75	54.75	54.75	54.75	54.75	47.71	37.71	54.75
10.7	Nav Channel	55.12	55.07	55.03	55.00	55.00	47.76	38.00	55.00
10.8	Nav Channel	52.74	52.52	52.46	52.41	52.41	46.91	39.40	52.41
10.9	Nav Channel	51.32	50.89	50.57	50.13	50.13	47.80	41.26	50.13
11	Nav Channel	47.75	47.32	46.99	46.56	46.56	44.70	38.64	46.56
11.1	Nav Channel	47.09	46.66	46.33	45.88	45.88	44.11	38.08	45.88
11.2	Nav Channel	35.67	35.20	34.84	34.37	34.37	32.69	27.64	34.37
11.3	Nav Channel	34.38	33.86	33.46	32.93	32.93	31.33	26.00	32.93
11.4	Nav Channel	33.75	33.16	32.71	32.11	32.11	30.75	27.20	32.11
11.5	Nav Channel	33.20	32.53	32.01	31.33	31.33	30.63	28.57	31.33
11.6	Nav Channel	33.47	32.68	32.08	31.27	31.27	30.46	28.24	31.27
11.7	Nav Channel	35.66	34.82	34.17	33.24	33.24	32.26	29.63	33.24
1.8	West	84.35	84.35	84.35	84.35	84.35	84.35	84.35	84.35
1.9	West	88.66	88.66	88.66	88.66	88.66	88.66	88.66	88.66
2	West	97.01	97.01	97.01	97.01	97.01	97.01	97.01	97.01
2.1	West	121.43	121.43	121.43	121.43	121.43	121.43	121.43	121.43
2.2	West	142.65	142.65	142.65	142.65	142.65	142.65	140.28	142.65
2.3	West	167.05	167.05	167.05	167.05	167.05	167.05	159.40	167.05
2.4	West	218.75	218.75	218.75	218.75	218.75	218.75	189.19	218.75
2.5	West	303.33	303.33	303.33	303.33	303.33	303.33	234.03	303.33
2.6	West	369.79	369.79	369.79	369.79	369.79	369.79	280.01	369.79
2.7	West	419.68	419.68	419.68	419.68	419.68	419.68	323.31	419.68
2.8	West	488.64	488.64	488.64	488.64	488.64	488.64	341.37	488.64

**Table J2.3-2c**

**Rolling River Mile Average Concentrations - cPAHs (µg/kg) - 1 Mile Increments**

Portland Harbor Superfund Site

Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
2.9	West	531.15	531.15	531.15	531.15	531.15	531.15	364.85	531.15
3	West	538.15	538.15	538.15	538.15	537.71	537.71	367.29	538.15
3.1	West	525.22	525.22	525.22	525.22	524.77	524.77	351.88	525.22
3.2	West	522.51	522.51	522.51	522.51	522.05	522.05	347.86	522.51
3.3	West	538.98	538.98	538.98	538.98	538.49	538.49	356.51	538.98
3.4	West	543.79	543.79	543.79	543.15	532.48	532.48	352.85	543.15
3.5	West	525.92	525.92	525.92	519.45	490.43	490.43	330.77	519.45
3.6	West	511.00	511.00	511.00	503.57	468.39	468.39	308.70	503.57
3.7	West	503.13	503.13	503.13	494.16	447.33	447.33	265.76	494.16
3.8	West	481.36	481.36	481.36	469.37	386.93	386.93	242.66	469.37
3.9	West	483.38	483.38	483.38	469.56	363.81	363.81	196.15	469.56
4	West	516.74	516.74	516.74	500.86	380.59	380.59	170.96	500.86
4.1	West	586.41	586.41	586.41	568.01	422.00	422.00	167.40	568.01
4.2	West	694.55	694.55	694.55	674.89	440.27	440.27	155.45	674.89
4.3	West	706.23	706.23	706.23	686.10	439.66	439.66	144.32	686.10
4.4	West	702.30	702.30	702.30	677.29	438.19	438.19	148.28	677.29
4.5	West	712.03	712.03	708.26	678.08	441.91	441.91	154.41	678.08
4.6	West	726.69	726.69	722.77	691.37	445.62	445.62	158.44	691.37
4.7	West	833.47	833.47	808.05	724.84	423.50	423.50	146.96	724.84
4.8	West	839.14	839.14	773.19	643.78	371.84	371.84	151.61	643.78
4.9	West	1112.13	1066.07	772.93	611.02	327.32	327.32	148.44	611.02
5	West	1582.87	1436.42	835.86	615.65	293.96	293.96	138.48	615.65
5.1	West	1766.71	1602.05	912.32	664.41	308.37	308.37	132.96	664.41
5.2	West	1795.88	1620.32	884.88	620.50	353.17	353.17	143.60	620.50
5.3	West	1925.91	1739.46	958.40	677.65	389.89	389.89	143.55	677.65
5.4	West	2050.80	1872.79	1116.44	781.43	403.26	403.26	140.48	858.02
5.5	West	2278.56	2104.70	1196.09	842.08	416.88	416.88	143.52	999.54
5.6	West	3487.52	2341.84	1341.62	965.70	409.96	409.96	117.58	1166.77
5.7	West	8409.98	2441.84	1199.76	876.49	391.59	391.59	108.98	1077.71
5.8	West	13479.96	2245.89	1084.94	813.57	356.82	356.82	100.56	1007.20
5.9	West	17086.82	1968.50	1010.51	762.87	324.49	324.49	95.35	951.73
6	West	18580.34	1663.38	931.32	723.73	306.53	306.53	94.76	912.81
6.1	West	18714.22	1572.02	884.14	685.43	276.85	276.85	92.25	848.53
6.2	West	18527.99	1605.75	919.27	715.74	262.58	262.58	83.79	825.50
6.3	West	18272.10	1648.95	974.94	750.59	222.09	222.09	68.82	766.93
6.4	West	17468.68	1498.82	826.02	627.47	173.03	173.03	45.49	562.05
6.5	West	17750.77	1105.63	606.87	464.71	102.49	102.49	14.36	324.71
6.6	West	16532.02	684.54	347.68	255.50	51.67	51.67	7.41	57.11
6.7	West	11153.42	394.57	321.92	239.40	48.13	48.13	6.76	48.60
6.8	West	6241.05	386.20	315.25	234.82	47.76	47.76	6.99	48.21
6.9	West	2577.95	388.41	317.18	236.12	48.39	48.39	7.35	48.85
7	West	936.36	382.17	312.07	232.24	47.31	47.31	7.32	47.76

**Table J2.3-2c**

**Rolling River Mile Average Concentrations - cPAHs (µg/kg) - 1 Mile Increments**

Portland Harbor Superfund Site

Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
7.1	West	454.78	282.72	240.09	180.29	44.41	44.41	10.58	44.41
7.2	West	335.21	190.91	159.59	113.52	28.70	28.70	12.74	28.70
7.3	West	234.87	114.52	87.42	60.71	33.65	33.65	14.36	33.65
7.4	West	164.68	59.06	50.59	42.03	33.28	33.28	18.62	33.28
7.5	West	153.69	53.02	48.82	44.74	35.55	35.55	19.42	35.80
7.6	West	152.87	52.07	50.25	48.03	37.46	37.46	19.97	39.68
7.7	West	147.05	59.20	57.96	53.13	38.95	38.95	20.41	44.60
7.8	West	102.37	69.28	68.09	61.38	39.35	39.35	20.47	52.82
7.9	West	110.08	107.81	106.48	96.78	42.73	42.73	19.13	89.24
8	West	108.74	108.50	107.46	98.16	48.20	48.20	24.18	91.49
8.1	West	116.86	116.36	115.91	100.62	45.92	45.92	22.79	94.59
8.2	West	122.14	121.60	121.10	101.08	42.19	42.19	19.46	97.19
8.3	West	132.01	130.59	127.05	99.22	36.02	36.02	18.07	98.99
8.4	West	146.55	132.70	126.30	96.58	29.42	29.42	13.32	96.38
8.5	West	155.92	134.86	126.82	96.57	28.68	28.68	13.43	96.57
8.6	West	172.41	137.26	125.65	94.53	27.95	27.95	13.61	94.53
8.7	West	180.09	137.58	122.65	93.42	28.30	28.30	14.16	93.42
8.8	West	173.97	131.93	113.87	84.53	27.98	27.98	14.20	84.53
8.9	West	123.61	80.18	62.11	36.80	22.55	22.55	15.90	36.80
9	West	122.12	76.03	56.85	30.79	11.49	11.49	7.97	30.79
9.1	West	117.19	65.87	44.78	24.63	7.32	7.32	4.85	24.63
9.2	West	161.20	97.83	66.72	24.84	7.72	7.72	5.09	24.84
9.3	West	177.63	112.34	62.59	25.53	7.97	7.97	5.26	25.53
9.4	West	167.70	115.23	66.09	27.04	8.43	8.43	5.56	27.04
9.5	West	163.19	118.38	69.48	28.95	9.65	9.65	6.67	28.95
9.6	West	149.80	122.07	74.99	32.50	11.95	11.95	8.74	32.50
9.7	West	146.52	126.26	81.32	37.34	15.63	15.63	9.25	37.34
9.8	West	155.61	133.41	89.08	43.75	17.93	17.93	9.80	43.90
9.9	West	195.02	168.02	114.11	59.24	29.60	29.60	13.53	59.41
10	West	259.23	224.97	156.55	86.90	61.11	61.11	39.51	87.12
10.1	West	333.66	291.73	199.52	113.75	91.70	91.70	63.43	114.05
10.2	West	248.95	244.94	161.96	153.66	131.87	131.87	87.68	154.07
10.3	West	158.57	158.57	158.20	154.95	138.08	138.08	84.80	155.32
10.4	West	142.60	142.60	142.29	139.56	125.46	125.46	80.91	139.87
10.5	West	138.48	138.48	138.21	135.78	123.25	123.25	83.71	136.05
10.6	West	132.47	132.47	132.22	130.00	118.59	118.59	82.67	130.25
10.7	West	123.04	123.04	122.80	120.69	110.38	110.38	81.65	120.93
10.8	West	114.53	114.53	114.53	114.53	111.94	111.94	85.72	114.53
10.9	West	104.91	104.91	104.91	104.91	104.91	104.91	88.10	104.91
11	West	82.45	82.45	82.45	82.45	82.45	82.45	70.01	82.45
11.1	West	74.06	74.06	74.06	74.06	74.06	74.06	62.17	74.06
11.2	West	72.24	72.24	72.24	72.24	72.24	72.24	63.98	72.24

**Table J2.3-2c**

**Rolling River Mile Average Concentrations - cPAHs (µg/kg) - 1 Mile Increments**

Portland Harbor Superfund Site

Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
11.3	West	75.88	75.88	75.88	75.88	75.88	75.88	75.28	75.88
11.4	West	78.07	78.07	78.07	78.07	78.07	78.07	77.39	78.07
11.5	West	75.05	75.05	75.05	75.05	75.05	75.05	74.22	75.05
11.6	West	74.42	74.42	74.42	74.42	74.42	74.42	73.39	74.42
11.7	West	80.62	80.62	80.62	80.62	80.62	80.62	79.37	80.62
7.6	Swan Isl	178.81	19.25	19.16	8.29	1.31	1.31	0.50	8.29
7.7	Swan Isl	209.75	15.78	15.53	8.60	2.73	2.73	0.89	8.60
7.8	Swan Isl	248.67	21.05	19.43	11.23	5.28	5.28	1.02	11.23
7.9	Swan Isl	284.82	20.78	19.17	11.65	6.09	6.09	1.77	11.65
8	Swan Isl	321.18	19.62	18.12	11.32	6.20	6.20	2.22	11.32
8.1	Swan Isl	318.91	19.10	17.58	11.06	6.15	6.15	2.27	11.06
8.2	Swan Isl	300.52	18.27	16.88	10.84	6.29	6.29	2.78	10.84
8.3	Swan Isl	302.60	19.99	16.46	10.19	5.97	5.97	2.78	10.19
8.4	Swan Isl	304.56	21.83	15.48	9.58	5.64	5.64	2.71	9.58
8.5	Swan Isl	297.70	22.15	14.75	9.19	5.36	5.36	2.61	9.19
8.6	Swan Isl	321.10	31.87	16.98	12.68	5.91	5.91	2.90	18.80
8.7	Swan Isl	361.34	67.44	42.34	27.91	8.33	8.33	4.58	52.62
8.8	Swan Isl	359.68	73.57	44.62	29.74	7.59	7.59	5.44	59.39
8.9	Swan Isl	336.06	81.49	48.55	31.97	7.01	7.01	5.25	65.92
9	Swan Isl	292.09	92.82	54.73	35.66	6.90	6.90	5.05	75.03
9.1	Swan Isl	293.54	99.30	58.41	37.94	6.98	6.98	5.14	80.35
9.2	Swan Isl	328.60	119.38	69.24	44.49	6.63	6.63	4.44	96.61
9.3	Swan Isl	330.90	146.35	87.43	57.41	7.79	7.79	4.96	126.24
9.4	Swan Isl	334.75	201.17	129.01	84.83	10.53	10.53	6.45	188.80
9.5	Swan Isl	423.17	320.11	213.30	139.69	16.65	16.65	9.96	314.24
9.6	Swan Isl	500.60	500.60	395.86	232.65	32.54	32.54	20.06	500.60

**Table J2.3-2d**

**Rolling River Mile Average Concentrations - DDx (µg/kg) - 1 Mile Increments**

Portland Harbor Superfund Site

Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
1.8	East	8.31	7.71	7.46	7.23	7.04	7.04	6.95	7.23
1.9	East	8.65	7.93	7.66	7.38	7.13	7.13	7.03	7.38
2	East	8.69	7.87	7.59	7.29	6.95	6.95	6.79	7.29
2.1	East	8.68	7.86	7.58	7.28	6.69	6.69	6.47	7.28
2.2	East	7.79	6.98	6.72	6.42	5.71	5.71	5.36	6.42
2.3	East	7.37	6.53	6.21	5.84	5.01	5.01	4.45	5.84
2.4	East	7.53	6.63	6.10	5.64	4.73	4.73	4.10	5.67
2.5	East	7.68	6.76	6.21	5.77	4.87	4.87	4.25	5.80
2.6	East	7.71	6.76	6.26	5.91	5.04	5.04	4.41	5.95
2.7	East	7.54	6.91	6.47	6.15	5.28	5.28	4.64	6.19
2.8	East	7.38	7.01	6.65	6.37	5.49	5.49	4.82	6.41
2.9	East	7.07	6.84	6.50	6.27	5.44	5.44	4.77	6.31
3	East	7.01	6.94	6.53	6.32	5.56	5.56	4.91	6.37
3.1	East	7.34	7.26	6.82	6.60	6.15	6.15	5.49	6.65
3.2	East	7.19	7.10	6.63	6.40	6.12	6.12	5.59	6.45
3.3	East	7.76	6.74	6.08	5.61	4.83	4.83	4.44	5.65
3.4	East	8.01	6.59	6.18	5.80	4.75	4.75	4.22	5.80
3.5	East	8.23	6.71	6.27	5.77	4.56	4.56	3.88	5.77
3.6	East	8.44	6.81	6.27	5.58	4.20	4.20	3.36	5.58
3.7	East	8.82	7.14	6.55	5.61	3.94	3.94	2.86	5.61
3.8	East	9.28	7.56	6.95	5.99	4.25	4.25	2.97	5.99
3.9	East	11.45	9.90	8.27	6.49	4.04	4.04	2.51	6.49
4	East	12.42	10.97	9.47	7.68	4.31	4.31	2.34	7.68
4.1	East	12.23	10.82	9.23	7.40	3.91	3.91	1.78	7.40
4.2	East	13.47	12.14	10.01	7.72	4.03	4.03	1.57	7.72
4.3	East	14.52	13.95	11.58	9.07	5.08	5.08	1.96	9.07
4.4	East	14.31	14.22	11.70	9.01	5.15	5.15	2.10	9.01
4.5	East	14.44	14.35	11.78	9.15	5.32	5.32	2.30	9.15
4.6	East	14.28	14.23	11.75	9.31	5.62	5.62	2.68	9.31
4.7	East	13.75	13.71	11.25	9.04	5.57	5.57	2.85	9.04
4.8	East	13.52	13.48	10.97	8.72	5.22	5.22	2.62	8.72
4.9	East	11.53	11.47	10.03	8.66	5.75	5.75	3.01	8.66
5	East	10.36	10.29	8.65	7.25	5.72	5.72	3.31	7.18
5.1	East	11.69	11.62	10.11	8.78	6.81	6.81	3.80	7.91
5.2	East	13.37	13.37	13.33	13.04	6.78	6.78	4.15	6.85
5.3	East	13.52	13.51	13.51	12.82	5.91	5.91	3.75	5.91
5.4	East	12.58	12.56	12.56	12.00	6.17	6.17	3.25	6.17
5.5	East	12.59	12.58	12.58	12.09	6.45	6.45	2.97	6.62
5.6	East	12.54	12.53	12.53	11.97	6.38	6.38	2.98	7.01
5.7	East	12.55	12.54	12.54	12.02	6.55	6.55	3.40	7.57
5.8	East	12.43	12.42	12.39	11.92	6.93	6.93	4.03	7.91
5.9	East	12.61	12.60	12.52	11.98	7.18	7.18	4.43	8.45
6	East	12.43	12.43	12.32	11.83	7.42	7.42	4.94	8.62

**Table J2.3-2d**

**Rolling River Mile Average Concentrations - DDx (µg/kg) - 1 Mile Increments**

Portland Harbor Superfund Site

Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
6.1	East	12.03	12.02	11.89	11.43	7.77	7.77	5.60	8.91
6.2	East	10.10	10.06	9.88	9.57	8.07	8.07	6.13	9.16
6.3	East	9.16	8.82	8.39	8.26	7.13	7.13	5.40	8.49
6.4	East	10.45	8.80	7.32	7.18	6.13	6.13	4.88	8.57
6.5	East	9.39	7.81	6.39	6.26	5.45	5.45	4.64	7.72
6.6	East	8.44	6.95	5.61	5.53	4.97	4.97	4.32	6.91
6.7	East	8.66	6.72	5.21	5.14	4.81	4.81	4.24	7.23
6.8	East	8.69	6.54	4.90	4.84	4.53	4.53	4.01	7.31
6.9	East	8.20	6.14	4.54	4.53	4.31	4.31	3.90	6.87
7	East	7.85	5.87	4.36	4.34	4.14	4.14	3.76	6.57
7.1	East	7.28	5.31	3.83	3.82	3.61	3.61	3.42	6.02
7.2	East	7.16	5.10	3.57	3.55	3.34	3.34	3.18	5.86
7.3	East	7.42	5.37	3.87	3.85	3.73	3.73	3.54	6.22
7.4	East	5.98	4.97	4.36	4.36	4.32	4.32	4.08	5.96
7.5	East	7.68	6.62	5.96	5.96	5.93	5.93	5.11	7.66
7.6	East	10.74	9.49	8.79	8.79	8.75	8.75	5.50	10.59
7.7	East	10.11	9.21	8.81	8.81	8.76	8.76	5.18	9.63
7.8	East	10.00	9.31	9.22	9.22	9.15	9.15	5.09	9.30
7.9	East	10.93	10.14	10.14	10.14	10.11	10.11	5.41	10.14
8	East	12.73	11.77	11.77	11.77	11.74	11.74	6.05	11.77
8.1	East	14.70	13.59	13.59	13.58	13.55	13.55	6.94	13.58
8.2	East	15.35	14.25	14.25	14.24	14.20	14.20	7.68	14.24
8.3	East	14.85	13.81	13.81	13.81	13.78	13.78	7.79	13.81
8.4	East	14.04	13.05	13.05	13.04	13.01	13.01	7.52	13.04
8.5	East	11.82	10.78	10.78	10.77	10.74	10.74	6.10	10.77
8.6	East	7.35	6.47	6.47	6.47	6.36	6.36	5.99	6.47
8.7	East	7.76	7.47	7.47	7.47	7.28	7.28	6.63	7.47
8.8	East	7.62	7.62	7.62	7.62	7.45	7.45	6.79	7.62
8.9	East	6.93	6.93	6.93	6.93	6.77	6.77	6.14	6.93
9	East	5.76	5.76	5.76	5.76	5.60	5.60	4.98	5.76
9.1	East	4.67	4.67	4.67	4.67	4.40	4.40	3.70	4.67
9.2	East	3.58	3.58	3.58	3.58	3.18	3.18	2.35	3.58
9.3	East	3.23	3.23	3.23	3.23	2.83	2.83	1.95	3.23
9.4	East	3.35	3.35	3.35	3.35	2.97	2.97	2.12	3.35
9.5	East	3.36	3.36	3.36	3.36	2.98	2.98	2.27	3.36
9.6	East	3.32	3.32	3.32	3.28	2.90	2.90	2.35	3.28
9.7	East	3.36	3.35	3.35	3.31	2.94	2.94	2.55	3.32
9.8	East	3.43	3.43	3.43	3.39	3.00	3.00	2.57	3.39
9.9	East	3.54	3.54	3.54	3.49	3.07	3.07	2.59	3.50
10	East	3.79	3.78	3.78	3.74	3.27	3.27	2.73	3.74
10.1	East	3.94	3.94	3.93	3.88	3.48	3.48	2.98	3.89
10.2	East	4.05	4.04	4.04	3.98	3.60	3.60	3.19	3.99

**Table J2.3-2d**

**Rolling River Mile Average Concentrations - DDx (µg/kg) - 1 Mile Increments**

Portland Harbor Superfund Site

Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
10.3	East	4.12	4.11	4.11	3.87	3.31	3.31	2.95	3.87
10.4	East	4.21	4.21	4.21	3.80	3.02	3.02	2.53	3.81
10.5	East	4.88	4.87	4.87	4.42	2.87	2.87	2.09	4.43
10.6	East	6.49	6.49	6.35	5.72	3.74	3.74	2.19	5.73
10.7	East	8.43	7.19	6.55	5.67	3.41	3.41	1.88	5.67
10.8	East	13.03	11.25	9.56	7.64	4.46	4.46	1.51	7.64
10.9	East	20.30	12.81	9.59	7.12	3.96	3.96	1.22	7.12
11	East	22.99	13.30	9.88	6.95	3.52	3.52	0.96	6.95
11.1	East	23.58	13.85	10.39	7.32	3.62	3.62	0.99	7.32
11.2	East	22.98	13.61	10.28	7.29	3.75	3.75	0.90	7.29
11.3	East	25.20	14.69	10.95	7.81	4.01	4.01	0.83	7.81
11.4	East	27.72	15.87	11.65	8.29	4.18	4.18	0.71	8.29
11.5	East	29.22	16.24	11.62	7.93	4.27	4.27	0.76	7.93
11.6	East	30.93	16.06	10.94	7.01	3.51	3.51	0.61	7.01
11.7	East	32.44	16.91	11.68	7.46	3.88	3.88	0.58	7.46
1.8	Nav Channel	5.55	5.55	5.55	5.55	5.55	5.55	5.29	5.55
1.9	Nav Channel	5.75	5.75	5.75	5.75	5.75	5.75	5.08	5.75
2	Nav Channel	5.67	5.67	5.67	5.67	5.67	5.67	4.92	5.67
2.1	Nav Channel	5.40	5.40	5.40	5.40	5.40	5.40	4.66	5.40
2.2	Nav Channel	5.36	5.36	5.36	5.36	5.36	5.36	4.63	5.36
2.3	Nav Channel	5.48	5.48	5.48	5.48	5.48	5.48	4.75	5.48
2.4	Nav Channel	5.70	5.70	5.70	5.70	5.70	5.70	4.97	5.70
2.5	Nav Channel	5.99	5.99	5.99	5.99	5.99	5.99	5.26	5.99
2.6	Nav Channel	6.29	6.29	6.29	6.29	6.29	6.29	5.56	6.29
2.7	Nav Channel	6.44	6.44	6.44	6.44	6.44	6.44	5.71	6.44
2.8	Nav Channel	6.53	6.53	6.53	6.53	6.53	6.53	6.04	6.53
2.9	Nav Channel	6.54	6.54	6.54	6.54	6.54	6.54	6.33	6.54
3	Nav Channel	6.76	6.76	6.76	6.76	6.76	6.39	6.00	6.76
3.1	Nav Channel	7.25	7.25	7.25	7.20	7.20	6.06	5.44	7.20
3.2	Nav Channel	7.48	7.48	7.48	7.43	7.43	5.78	4.84	7.43
3.3	Nav Channel	7.30	7.30	7.30	7.25	7.25	5.55	4.51	7.25
3.4	Nav Channel	7.33	7.33	7.33	7.28	7.28	5.69	4.71	7.28
3.5	Nav Channel	8.73	8.73	8.73	8.69	8.69	7.20	5.75	8.69
3.6	Nav Channel	9.06	9.06	9.06	9.01	9.01	7.61	6.02	9.01
3.7	Nav Channel	8.62	8.62	8.62	8.58	8.58	7.26	5.77	8.58
3.8	Nav Channel	8.26	8.26	8.26	8.22	8.22	6.98	5.58	8.22
3.9	Nav Channel	8.03	8.03	8.03	7.99	7.99	6.82	5.56	7.99
4	Nav Channel	8.06	8.06	8.06	8.03	8.03	7.05	5.81	8.03
4.1	Nav Channel	8.13	8.13	8.13	8.13	8.13	7.56	6.29	8.13
4.2	Nav Channel	8.14	8.14	8.14	8.14	8.14	7.92	6.87	8.14
4.3	Nav Channel	8.35	8.35	8.35	8.35	8.35	8.23	7.28	8.35
4.4	Nav Channel	8.43	8.43	8.43	8.43	8.43	8.30	7.33	8.43

**Table J2.3-2d**

**Rolling River Mile Average Concentrations - DDx (µg/kg) - 1 Mile Increments**

Portland Harbor Superfund Site

Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
4.5	Nav Channel	7.42	7.42	7.42	7.42	7.42	7.29	6.69	7.42
4.6	Nav Channel	7.05	7.04	6.90	6.81	7.04	6.59	6.11	7.04
4.7	Nav Channel	7.33	7.10	6.76	6.58	7.10	6.28	5.74	7.10
4.8	Nav Channel	7.55	7.30	6.74	6.44	7.30	6.01	5.40	7.30
4.9	Nav Channel	8.09	7.39	6.58	6.19	7.39	5.67	5.01	7.39
5	Nav Channel	8.30	7.18	6.19	5.71	7.18	5.07	4.51	7.18
5.1	Nav Channel	8.27	7.07	5.97	5.43	7.07	4.53	3.91	7.07
5.2	Nav Channel	9.10	6.65	5.43	4.83	6.65	3.87	3.20	6.65
5.3	Nav Channel	11.58	6.18	4.88	4.25	6.18	3.19	2.48	6.18
5.4	Nav Channel	11.85	6.11	4.71	3.99	6.11	2.47	1.73	6.11
5.5	Nav Channel	12.30	6.22	4.73	3.80	6.22	2.05	1.03	6.22
5.6	Nav Channel	13.11	6.61	5.23	3.99	6.61	1.97	0.84	6.61
5.7	Nav Channel	14.24	7.39	5.67	4.23	7.39	2.05	0.87	6.97
5.8	Nav Channel	15.26	7.27	5.66	4.25	7.27	2.05	0.87	6.75
5.9	Nav Channel	15.34	7.22	5.89	4.51	7.22	2.30	1.05	6.66
6	Nav Channel	16.09	7.29	6.14	4.81	7.29	2.73	1.45	6.71
6.1	Nav Channel	18.47	8.55	6.97	5.13	8.46	2.67	1.54	7.86
6.2	Nav Channel	18.46	10.08	8.33	6.05	9.64	2.72	1.37	9.00
6.3	Nav Channel	15.14	11.28	9.50	7.15	10.81	3.11	1.36	10.15
6.4	Nav Channel	15.04	11.14	9.37	7.05	10.67	3.51	1.56	9.99
6.5	Nav Channel	15.06	11.18	9.44	7.40	10.71	4.10	2.52	10.04
6.6	Nav Channel	14.72	10.91	9.19	7.72	10.44	4.87	3.48	9.79
6.7	Nav Channel	14.60	11.15	10.20	9.08	10.69	6.45	5.00	10.61
6.8	Nav Channel	16.37	13.86	13.08	12.03	13.37	9.56	6.32	13.37
6.9	Nav Channel	17.95	16.05	15.32	14.27	15.49	11.84	7.42	15.50
7	Nav Channel	17.53	16.64	15.96	14.96	16.08	12.29	7.65	16.09
7.1	Nav Channel	15.12	15.00	14.80	14.35	14.54	12.14	7.63	14.56
7.2	Nav Channel	13.57	13.46	13.46	13.37	13.33	11.86	7.55	13.34
7.3	Nav Channel	12.18	12.08	12.08	12.00	11.97	11.08	7.45	11.98
7.4	Nav Channel	11.25	11.17	11.17	11.10	11.07	10.35	7.30	11.08
7.5	Nav Channel	10.23	10.16	10.16	10.10	10.08	9.44	6.77	10.08
7.6	Nav Channel	9.56	9.51	9.51	9.46	9.43	8.84	6.33	9.43
7.7	Nav Channel	8.91	8.86	8.86	8.81	8.79	8.23	5.90	8.79
7.8	Nav Channel	7.52	7.50	7.50	7.47	7.45	6.91	5.50	7.45
7.9	Nav Channel	6.31	6.30	6.30	6.29	6.28	5.80	5.03	6.28
8	Nav Channel	5.65	5.65	5.65	5.64	5.65	5.34	4.82	5.65
8.1	Nav Channel	5.21	5.21	5.21	5.20	5.21	5.09	4.76	5.21
8.2	Nav Channel	4.77	4.77	4.77	4.76	4.77	4.74	4.66	4.77
8.3	Nav Channel	4.50	4.49	4.49	4.48	4.49	4.48	4.44	4.49
8.4	Nav Channel	4.28	4.26	4.26	4.25	4.26	4.24	4.19	4.26
8.5	Nav Channel	4.03	4.01	4.01	3.99	4.01	3.93	3.85	4.01
8.6	Nav Channel	3.87	3.85	3.85	3.83	3.85	3.73	3.67	3.85



**Table J2.3-2d**

**Rolling River Mile Average Concentrations - DDx (µg/kg) - 1 Mile Increments**

Portland Harbor Superfund Site

Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
8.7	Nav Channel	3.59	3.57	3.57	3.55	3.57	3.39	3.31	3.57
8.8	Nav Channel	3.35	3.33	3.32	3.31	3.32	3.06	2.95	3.32
8.9	Nav Channel	3.18	3.15	3.15	3.14	3.15	2.87	2.71	3.15
9	Nav Channel	3.06	3.04	3.03	3.02	3.03	2.75	2.57	3.03
9.1	Nav Channel	3.00	2.97	2.97	2.96	2.97	2.67	2.47	2.97
9.2	Nav Channel	3.09	3.06	3.06	3.05	3.06	2.70	2.46	3.06
9.3	Nav Channel	3.22	3.20	3.20	3.20	3.20	2.80	2.54	3.20
9.4	Nav Channel	3.27	3.26	3.26	3.25	3.26	2.86	2.58	3.26
9.5	Nav Channel	3.35	3.35	3.34	3.34	3.34	2.94	2.63	3.34
9.6	Nav Channel	3.45	3.45	3.45	3.45	3.45	3.09	2.78	3.45
9.7	Nav Channel	3.59	3.59	3.59	3.59	3.59	3.29	2.95	3.59
9.8	Nav Channel	3.81	3.81	3.81	3.81	3.81	3.44	2.92	3.81
9.9	Nav Channel	4.07	4.07	4.07	4.07	4.07	3.36	2.78	4.07
10	Nav Channel	4.22	4.22	4.22	4.22	4.22	3.45	2.77	4.22
10.1	Nav Channel	4.36	4.36	4.36	4.36	4.36	3.57	2.89	4.36
10.2	Nav Channel	4.32	4.32	4.32	4.32	4.32	3.55	2.89	4.32
10.3	Nav Channel	4.41	4.41	4.41	4.41	4.41	3.63	2.95	4.41
10.4	Nav Channel	4.70	4.70	4.70	4.70	4.70	3.84	2.92	4.70
10.5	Nav Channel	4.96	4.96	4.96	4.96	4.96	4.03	2.93	4.96
10.6	Nav Channel	5.22	5.22	5.22	5.22	5.22	4.23	3.01	5.22
10.7	Nav Channel	5.62	5.43	5.32	5.27	5.27	4.22	2.97	5.27
10.8	Nav Channel	6.64	5.34	5.14	5.03	5.03	4.16	3.14	5.03
10.9	Nav Channel	7.72	5.98	5.59	5.30	5.30	4.77	3.76	5.30
11	Nav Channel	8.32	6.58	6.19	5.90	5.90	5.39	4.45	5.90
11.1	Nav Channel	8.67	6.92	6.52	6.23	6.23	5.73	4.79	6.23
11.2	Nav Channel	9.15	7.26	6.84	6.52	6.52	6.01	5.03	6.52
11.3	Nav Channel	9.66	7.54	7.07	6.71	6.71	6.19	5.12	6.71
11.4	Nav Channel	10.02	7.63	7.09	6.69	6.69	6.19	5.38	6.69
11.5	Nav Channel	10.60	7.86	7.25	6.79	6.79	6.41	5.82	6.79
11.6	Nav Channel	11.37	8.16	7.45	6.91	6.91	6.47	5.92	6.91
11.7	Nav Channel	12.08	8.60	7.98	7.44	7.44	6.96	6.43	7.44
1.8	West	5.87	5.87	5.87	5.87	5.87	5.87	5.87	5.87
1.9	West	6.22	6.22	6.22	6.22	6.22	6.22	6.22	6.22
2	West	6.51	6.51	6.51	6.51	6.51	6.51	6.51	6.51
2.1	West	7.21	7.21	7.21	7.21	7.21	7.21	7.21	7.21
2.2	West	7.89	7.89	7.89	7.89	7.89	7.89	7.81	7.89
2.3	West	8.16	8.16	8.16	8.16	8.16	8.16	7.96	8.16
2.4	West	8.50	8.50	8.50	8.50	8.50	8.50	8.03	8.50
2.5	West	8.54	8.54	8.54	8.54	8.54	8.54	7.73	8.54
2.6	West	8.23	8.23	8.23	8.23	8.23	8.23	7.25	8.23
2.7	West	9.11	9.11	9.11	9.11	9.11	9.11	7.49	9.11
2.8	West	11.85	11.85	11.85	11.85	11.85	11.85	7.15	11.85

**Table J2.3-2d**

**Rolling River Mile Average Concentrations - DDx (µg/kg) - 1 Mile Increments**

Portland Harbor Superfund Site

Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
2.9	West	11.68	11.68	11.68	11.68	11.68	11.68	6.74	11.68
3	West	12.60	12.60	12.60	12.60	12.37	12.37	6.76	12.60
3.1	West	12.53	12.53	12.53	12.53	12.29	12.29	6.43	12.53
3.2	West	12.44	12.44	12.44	12.44	12.20	12.20	6.29	12.44
3.3	West	13.35	13.35	13.35	13.35	13.10	13.10	6.82	13.35
3.4	West	14.31	14.31	14.31	14.30	13.94	13.94	7.24	14.30
3.5	West	15.54	15.54	15.54	15.53	15.05	15.05	7.82	15.53
3.6	West	17.84	17.84	17.84	17.82	17.17	17.17	8.57	17.82
3.7	West	18.21	18.21	18.21	18.19	17.34	17.34	8.09	18.19
3.8	West	14.30	14.30	14.30	14.27	12.94	12.94	7.96	14.27
3.9	West	18.18	18.18	18.18	18.14	16.39	16.39	8.42	18.14
4	West	18.20	18.20	18.20	18.15	16.80	16.80	8.28	18.15
4.1	West	19.58	19.58	19.58	19.53	17.82	17.82	8.18	19.53
4.2	West	21.33	21.33	21.33	21.27	18.49	18.49	7.67	21.27
4.3	West	20.34	20.34	20.34	20.28	17.35	17.35	6.51	20.28
4.4	West	19.01	19.01	19.01	18.96	16.23	16.23	5.97	18.96
4.5	West	18.70	18.70	18.70	18.65	15.89	15.89	5.62	18.65
4.6	West	17.61	17.61	17.61	17.56	14.95	14.95	5.63	17.56
4.7	West	18.78	18.78	18.49	17.99	15.06	15.06	5.71	17.99
4.8	West	19.17	19.17	18.83	18.28	15.72	15.72	6.03	18.28
4.9	West	16.76	16.75	16.31	15.68	13.28	13.28	5.74	15.68
5	West	14.70	14.68	14.09	13.34	10.73	10.73	4.71	13.34
5.1	West	13.71	13.68	13.05	12.29	9.69	9.69	3.90	12.29
5.2	West	12.64	12.61	11.94	11.12	9.71	9.71	3.86	11.12
5.3	West	14.56	14.53	13.83	12.96	11.27	11.27	4.20	12.96
5.4	West	22.59	22.56	21.73	19.47	14.13	14.13	4.69	20.91
5.5	West	26.71	26.61	24.73	21.89	15.11	15.11	5.14	24.05
5.6	West	31.77	28.87	26.04	22.85	13.91	13.91	4.28	25.44
5.7	West	41.86	28.17	24.11	21.38	13.06	13.06	3.77	23.94
5.8	West	60.26	25.52	21.64	19.07	11.18	11.18	3.44	21.53
5.9	West	75.98	22.95	19.21	16.73	9.06	9.06	3.23	19.13
6	West	82.78	22.38	18.74	16.33	8.74	8.74	3.21	18.73
6.1	West	94.57	25.85	21.34	17.68	8.73	8.73	3.17	18.60
6.2	West	99.78	31.94	27.46	23.18	10.31	10.31	3.03	20.03
6.3	West	101.53	34.32	29.92	24.69	8.81	8.81	2.27	18.14
6.4	West	130.16	53.17	33.27	23.00	6.64	6.64	1.44	12.23
6.5	West	184.17	88.94	52.39	21.85	4.32	4.32	0.39	7.58
6.6	West	236.98	126.70	70.31	26.35	4.10	4.10	0.26	4.22
6.7	West	335.96	127.69	68.02	24.69	3.82	3.82	0.24	3.90
6.8	West	810.43	125.52	66.61	24.22	3.79	3.79	0.25	3.87
6.9	West	1185.44	128.94	69.27	25.50	3.89	3.89	0.26	3.98
7	West	1265.01	133.13	72.12	27.39	5.35	5.35	0.26	5.43

**Table J2.3-2d**

**Rolling River Mile Average Concentrations - DDx (µg/kg) - 1 Mile Increments**

Portland Harbor Superfund Site

Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
7.1	West	1046.28	116.81	66.09	29.19	9.96	9.96	2.05	9.96
7.2	West	874.61	96.58	54.15	23.56	9.36	9.36	3.04	9.36
7.3	West	755.26	84.66	47.99	21.78	10.47	10.47	3.17	10.47
7.4	West	735.86	70.86	42.95	20.14	10.80	10.80	3.47	10.80
7.5	West	732.26	51.66	32.07	19.87	11.38	11.38	3.61	11.41
7.6	West	718.47	29.30	21.02	16.39	11.60	11.60	3.70	11.81
7.7	West	658.02	24.15	20.70	17.11	11.95	11.95	3.78	12.43
7.8	West	342.55	25.32	22.22	18.37	12.09	12.09	3.80	13.67
7.9	West	91.30	26.67	24.22	20.45	12.17	12.17	3.54	16.76
8	West	23.42	22.72	21.93	19.02	11.78	11.78	4.23	16.14
8.1	West	22.91	22.74	22.64	17.58	9.05	9.05	3.47	16.16
8.2	West	26.48	26.30	26.19	18.21	7.82	7.82	2.57	17.21
8.3	West	27.96	27.10	26.64	16.85	5.97	5.97	2.26	16.81
8.4	West	46.63	27.99	27.40	16.97	5.40	5.40	2.00	16.93
8.5	West	48.22	28.51	27.59	16.96	5.26	5.26	2.02	16.96
8.6	West	50.60	29.14	27.69	16.85	5.18	5.18	2.05	16.85
8.7	West	53.61	29.99	28.19	17.10	5.29	5.29	2.13	17.10
8.8	West	52.58	29.25	27.10	16.01	5.21	5.21	2.18	16.01
8.9	West	48.05	23.99	21.78	11.66	4.54	4.54	2.59	11.66
9	West	48.46	22.92	20.58	10.61	2.92	2.92	1.44	10.61
9.1	West	42.88	15.01	12.43	6.01	1.58	1.58	1.13	6.01
9.2	West	37.52	9.98	7.21	3.83	1.68	1.68	1.20	3.83
9.3	West	35.66	8.13	5.54	3.70	1.74	1.74	1.23	3.70
9.4	West	13.50	8.43	5.81	3.91	1.84	1.84	1.30	3.91
9.5	West	12.63	8.37	6.11	4.15	1.99	1.99	1.44	4.15
9.6	West	10.61	8.20	6.54	4.52	2.22	2.22	1.63	4.52
9.7	West	8.86	8.24	6.96	4.90	2.46	2.46	1.71	4.90
9.8	West	8.04	7.39	6.58	4.80	2.56	2.56	1.76	4.80
9.9	West	8.71	7.93	6.94	4.79	2.37	2.37	1.51	4.80
10	West	9.71	8.71	7.47	4.73	2.46	2.46	1.57	4.74
10.1	West	9.86	8.74	7.07	3.81	2.37	2.37	1.46	3.82
10.2	West	7.33	7.26	5.96	5.02	3.67	3.67	2.39	5.03
10.3	West	6.81	6.81	6.79	6.17	5.11	5.11	3.24	6.19
10.4	West	6.92	6.92	6.90	6.39	5.50	5.50	3.95	6.40
10.5	West	7.45	7.45	7.44	6.99	6.20	6.20	4.82	7.00
10.6	West	7.62	7.62	7.61	7.19	6.48	6.48	5.23	7.20
10.7	West	7.39	7.39	7.38	6.99	6.37	6.37	5.42	7.00
10.8	West	6.66	6.66	6.66	6.66	6.57	6.57	5.73	6.66
10.9	West	6.49	6.49	6.49	6.49	6.49	6.49	5.79	6.49
11	West	6.33	6.33	6.33	6.33	6.33	6.33	5.68	6.33
11.1	West	6.15	6.15	6.15	6.15	6.15	6.15	5.54	6.15
11.2	West	5.94	5.94	5.94	5.94	5.94	5.94	5.52	5.94

**Table J2.3-2d**

**Rolling River Mile Average Concentrations - DDx (µg/kg) - 1 Mile Increments**

Portland Harbor Superfund Site

Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
11.3	West	6.15	6.15	6.15	6.15	6.15	6.15	6.14	6.15
11.4	West	5.92	5.92	5.92	5.92	5.92	5.92	5.92	5.92
11.5	West	5.06	5.06	5.06	5.06	5.06	5.06	5.05	5.06
11.6	West	4.28	4.28	4.28	4.28	4.28	4.28	4.27	4.28
11.7	West	3.96	3.96	3.96	3.96	3.96	3.96	3.95	3.96
7.6	Swan Isl	8.73	0.84	0.84	0.44	0.06	0.06	0.02	0.44
7.7	Swan Isl	10.32	0.72	0.71	0.43	0.07	0.07	0.03	0.43
7.8	Swan Isl	14.36	1.29	1.01	0.47	0.07	0.07	0.03	0.47
7.9	Swan Isl	14.38	1.15	0.90	0.42	0.08	0.08	0.03	0.42
8	Swan Isl	14.90	1.07	0.84	0.41	0.10	0.10	0.05	0.41
8.1	Swan Isl	14.87	1.04	0.82	0.41	0.11	0.11	0.06	0.41
8.2	Swan Isl	14.22	0.99	0.79	0.41	0.14	0.14	0.09	0.41
8.3	Swan Isl	15.06	1.07	0.81	0.43	0.17	0.17	0.12	0.43
8.4	Swan Isl	16.48	1.14	0.80	0.44	0.18	0.18	0.13	0.44
8.5	Swan Isl	15.98	1.12	0.77	0.42	0.18	0.18	0.13	0.42
8.6	Swan Isl	16.65	1.33	0.87	0.55	0.20	0.20	0.14	0.63
8.7	Swan Isl	17.71	1.89	1.26	0.88	0.29	0.29	0.22	1.08
8.8	Swan Isl	15.84	1.66	1.12	0.95	0.34	0.34	0.26	1.19
8.9	Swan Isl	16.03	1.87	1.26	1.06	0.37	0.37	0.28	1.34
9	Swan Isl	15.56	2.11	1.40	1.18	0.39	0.39	0.30	1.50
9.1	Swan Isl	15.65	2.23	1.48	1.24	0.39	0.39	0.31	1.59
9.2	Swan Isl	17.28	2.60	1.68	1.41	0.38	0.38	0.28	1.84
9.3	Swan Isl	15.52	2.87	1.91	1.68	0.36	0.36	0.25	2.24
9.4	Swan Isl	8.02	3.39	2.53	2.29	0.42	0.42	0.29	3.15
9.5	Swan Isl	7.16	5.18	4.05	3.68	0.63	0.63	0.42	5.11
9.6	Swan Isl	6.78	6.78	5.81	4.99	1.00	1.00	0.75	6.78

**Table J2.3-2e**

**Rolling River Mile Average Concentrations - Dieldrin (µg/kg) - 1 Mile Increments**

Portland Harbor Superfund Site

Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
1.8	East	1.03	0.93	0.89	0.85	0.83	0.83	0.82	0.85
1.9	East	1.11	0.97	0.92	0.85	0.82	0.82	0.81	0.85
2	East	1.06	0.92	0.87	0.81	0.77	0.77	0.76	0.81
2.1	East	1.01	0.88	0.82	0.76	0.72	0.72	0.71	0.76
2.2	East	0.85	0.72	0.67	0.60	0.56	0.56	0.55	0.60
2.3	East	0.75	0.61	0.56	0.49	0.44	0.44	0.42	0.49
2.4	East	0.72	0.57	0.50	0.43	0.38	0.38	0.35	0.43
2.5	East	0.68	0.54	0.46	0.39	0.34	0.34	0.32	0.39
2.6	East	0.62	0.47	0.40	0.35	0.31	0.31	0.29	0.35
2.7	East	0.58	0.44	0.38	0.33	0.29	0.29	0.27	0.33
2.8	East	0.44	0.38	0.35	0.31	0.27	0.27	0.25	0.31
2.9	East	0.33	0.32	0.30	0.28	0.26	0.26	0.25	0.29
3	East	0.34	0.33	0.30	0.29	0.27	0.27	0.26	0.29
3.1	East	0.33	0.33	0.30	0.28	0.27	0.27	0.26	0.29
3.2	East	0.34	0.33	0.30	0.29	0.27	0.27	0.26	0.29
3.3	East	0.31	0.29	0.26	0.25	0.23	0.23	0.20	0.25
3.4	East	0.26	0.24	0.23	0.23	0.21	0.21	0.18	0.23
3.5	East	0.26	0.24	0.23	0.23	0.20	0.20	0.16	0.23
3.6	East	0.27	0.25	0.24	0.22	0.19	0.19	0.14	0.22
3.7	East	0.32	0.29	0.28	0.23	0.19	0.19	0.13	0.23
3.8	East	0.39	0.36	0.35	0.30	0.25	0.25	0.17	0.30
3.9	East	0.58	0.56	0.52	0.43	0.28	0.28	0.16	0.43
4	East	0.99	0.97	0.94	0.83	0.59	0.59	0.31	0.83
4.1	East	2.29	2.26	1.99	1.71	1.13	1.13	0.55	1.71
4.2	East	4.05	3.97	3.21	2.44	1.41	1.41	0.62	2.44
4.3	East	5.24	5.16	4.17	3.18	1.86	1.86	0.79	3.18
4.4	East	5.59	5.51	4.46	3.41	1.99	1.99	0.85	3.41
4.5	East	5.71	5.63	4.56	3.48	2.05	2.05	0.89	3.48
4.6	East	5.71	5.63	4.56	3.50	2.07	2.07	0.92	3.50
4.7	East	5.74	5.66	4.59	3.54	2.11	2.11	0.96	3.54
4.8	East	5.81	5.73	4.63	3.57	2.11	2.11	0.95	3.57
4.9	East	6.61	6.52	5.24	4.04	2.44	2.44	1.11	4.04
5	East	7.00	6.89	5.38	3.99	2.29	2.29	1.03	3.99
5.1	East	5.01	4.90	3.74	2.56	1.39	1.39	0.60	2.53
5.2	East	0.94	0.94	0.93	0.86	0.68	0.68	0.40	0.71
5.3	East	0.85	0.84	0.84	0.70	0.48	0.48	0.35	0.48
5.4	East	0.72	0.72	0.72	0.61	0.41	0.41	0.27	0.41
5.5	East	0.73	0.73	0.73	0.63	0.38	0.38	0.22	0.40
5.6	East	0.68	0.67	0.67	0.58	0.33	0.33	0.19	0.37
5.7	East	0.61	0.61	0.61	0.53	0.29	0.29	0.15	0.34
5.8	East	0.56	0.56	0.55	0.48	0.26	0.26	0.14	0.31
5.9	East	0.54	0.54	0.53	0.46	0.25	0.25	0.13	0.31
6	East	0.50	0.50	0.49	0.43	0.23	0.23	0.13	0.29

**Table J2.3-2e**

**Rolling River Mile Average Concentrations - Dieldrin ( $\mu\text{g}/\text{kg}$ ) - 1 Mile Increments**

Portland Harbor Superfund Site

Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
6.1	East	0.45	0.45	0.44	0.37	0.21	0.21	0.13	0.27
6.2	East	0.35	0.35	0.33	0.30	0.19	0.19	0.13	0.25
6.3	East	0.28	0.26	0.25	0.24	0.17	0.17	0.12	0.23
6.4	East	0.28	0.25	0.22	0.22	0.15	0.15	0.11	0.22
6.5	East	0.23	0.19	0.17	0.17	0.14	0.14	0.11	0.19
6.6	East	0.21	0.18	0.16	0.15	0.14	0.14	0.12	0.17
6.7	East	0.24	0.19	0.17	0.16	0.15	0.15	0.14	0.21
6.8	East	0.29	0.23	0.19	0.19	0.18	0.18	0.17	0.26
6.9	East	0.34	0.28	0.24	0.24	0.23	0.23	0.22	0.31
7	East	0.38	0.32	0.28	0.28	0.27	0.27	0.26	0.35
7.1	East	0.41	0.36	0.32	0.32	0.31	0.31	0.30	0.38
7.2	East	0.44	0.38	0.34	0.34	0.33	0.33	0.32	0.40
7.3	East	0.46	0.41	0.38	0.37	0.36	0.36	0.36	0.44
7.4	East	0.49	0.45	0.42	0.42	0.41	0.41	0.40	0.48
7.5	East	0.53	0.49	0.46	0.46	0.45	0.45	0.43	0.53
7.6	East	0.59	0.54	0.50	0.50	0.49	0.49	0.44	0.57
7.7	East	0.57	0.52	0.49	0.49	0.48	0.48	0.43	0.54
7.8	East	0.54	0.49	0.47	0.47	0.46	0.46	0.40	0.48
7.9	East	0.46	0.41	0.41	0.41	0.40	0.40	0.34	0.41
8	East	0.40	0.33	0.33	0.33	0.33	0.33	0.25	0.33
8.1	East	0.35	0.27	0.27	0.27	0.27	0.27	0.17	0.27
8.2	East	0.39	0.31	0.31	0.31	0.31	0.31	0.22	0.31
8.3	East	0.38	0.31	0.31	0.31	0.31	0.31	0.23	0.31
8.4	East	0.39	0.32	0.32	0.32	0.32	0.32	0.25	0.32
8.5	East	0.38	0.30	0.30	0.30	0.30	0.30	0.23	0.30
8.6	East	0.35	0.29	0.29	0.29	0.28	0.28	0.25	0.29
8.7	East	0.38	0.35	0.35	0.35	0.33	0.33	0.27	0.35
8.8	East	0.40	0.40	0.40	0.40	0.39	0.39	0.33	0.40
8.9	East	0.42	0.42	0.42	0.42	0.41	0.41	0.35	0.42
9	East	0.42	0.42	0.42	0.42	0.40	0.40	0.34	0.42
9.1	East	0.39	0.39	0.39	0.39	0.37	0.37	0.30	0.39
9.2	East	0.39	0.39	0.39	0.39	0.35	0.35	0.27	0.39
9.3	East	0.49	0.49	0.49	0.49	0.46	0.46	0.36	0.49
9.4	East	0.54	0.54	0.54	0.54	0.50	0.50	0.41	0.54
9.5	East	0.51	0.51	0.51	0.51	0.48	0.48	0.40	0.51
9.6	East	0.49	0.49	0.49	0.49	0.46	0.46	0.40	0.49
9.7	East	0.48	0.48	0.48	0.48	0.45	0.45	0.41	0.48
9.8	East	0.47	0.47	0.47	0.47	0.45	0.45	0.40	0.47
9.9	East	0.50	0.50	0.50	0.50	0.47	0.47	0.42	0.50
10	East	0.60	0.60	0.60	0.60	0.57	0.57	0.51	0.60
10.1	East	0.67	0.67	0.67	0.67	0.64	0.64	0.58	0.67
10.2	East	0.66	0.66	0.66	0.66	0.64	0.64	0.60	0.66

**Table J2.3-2e**

**Rolling River Mile Average Concentrations - Dieldrin ( $\mu\text{g}/\text{kg}$ ) - 1 Mile Increments**

Portland Harbor Superfund Site

Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
10.3	East	0.57	0.57	0.57	0.55	0.51	0.51	0.48	0.55
10.4	East	0.51	0.51	0.51	0.47	0.41	0.41	0.37	0.47
10.5	East	0.59	0.59	0.59	0.55	0.44	0.44	0.38	0.55
10.6	East	0.68	0.68	0.68	0.63	0.50	0.50	0.41	0.63
10.7	East	0.75	0.72	0.69	0.63	0.50	0.50	0.41	0.63
10.8	East	0.81	0.72	0.67	0.60	0.46	0.46	0.36	0.60
10.9	East	1.15	0.65	0.56	0.49	0.35	0.35	0.26	0.49
11	East	1.77	0.56	0.43	0.33	0.20	0.20	0.13	0.33
11.1	East	1.72	0.49	0.36	0.26	0.14	0.14	0.07	0.26
11.2	East	1.64	0.45	0.32	0.22	0.12	0.12	0.05	0.22
11.3	East	1.78	0.45	0.31	0.21	0.11	0.11	0.04	0.21
11.4	East	1.94	0.44	0.28	0.19	0.10	0.10	0.02	0.19
11.5	East	2.06	0.41	0.24	0.14	0.09	0.09	0.02	0.14
11.6	East	2.27	0.38	0.18	0.08	0.04	0.04	0.01	0.08
11.7	East	2.55	0.38	0.18	0.08	0.04	0.04	0.01	0.08
1.8	Nav Channel	0.99	0.99	0.99	0.99	0.99	0.99	0.98	0.99
1.9	Nav Channel	1.01	1.01	1.01	1.01	1.01	1.01	0.98	1.01
2	Nav Channel	1.01	1.01	1.01	1.01	1.01	1.01	0.97	1.01
2.1	Nav Channel	0.99	0.99	0.99	0.99	0.99	0.99	0.95	0.99
2.2	Nav Channel	0.92	0.92	0.92	0.92	0.92	0.92	0.89	0.92
2.3	Nav Channel	0.85	0.85	0.85	0.85	0.85	0.85	0.81	0.85
2.4	Nav Channel	0.80	0.80	0.80	0.80	0.80	0.80	0.77	0.80
2.5	Nav Channel	0.77	0.77	0.77	0.77	0.77	0.77	0.73	0.77
2.6	Nav Channel	0.70	0.70	0.70	0.70	0.70	0.70	0.66	0.70
2.7	Nav Channel	0.66	0.66	0.66	0.66	0.66	0.66	0.62	0.66
2.8	Nav Channel	0.62	0.62	0.62	0.62	0.62	0.62	0.59	0.62
2.9	Nav Channel	0.61	0.61	0.61	0.61	0.61	0.61	0.59	0.61
3	Nav Channel	0.62	0.62	0.62	0.62	0.62	0.61	0.56	0.62
3.1	Nav Channel	0.63	0.63	0.63	0.63	0.63	0.61	0.49	0.63
3.2	Nav Channel	0.67	0.67	0.67	0.66	0.66	0.63	0.43	0.66
3.3	Nav Channel	0.65	0.65	0.65	0.64	0.64	0.61	0.40	0.64
3.4	Nav Channel	0.60	0.60	0.60	0.60	0.60	0.57	0.37	0.60
3.5	Nav Channel	0.56	0.56	0.56	0.56	0.56	0.52	0.34	0.56
3.6	Nav Channel	0.55	0.55	0.55	0.55	0.55	0.52	0.33	0.55
3.7	Nav Channel	0.56	0.56	0.56	0.56	0.56	0.53	0.36	0.56
3.8	Nav Channel	0.54	0.54	0.54	0.54	0.54	0.51	0.35	0.54
3.9	Nav Channel	0.47	0.47	0.47	0.47	0.47	0.45	0.30	0.47
4	Nav Channel	0.41	0.41	0.41	0.41	0.41	0.39	0.27	0.41
4.1	Nav Channel	0.40	0.40	0.40	0.40	0.40	0.38	0.29	0.40
4.2	Nav Channel	0.38	0.38	0.38	0.38	0.38	0.37	0.33	0.38
4.3	Nav Channel	0.36	0.36	0.36	0.36	0.36	0.36	0.33	0.36
4.4	Nav Channel	0.37	0.37	0.37	0.37	0.37	0.36	0.34	0.37

**Table J2.3-2e**

**Rolling River Mile Average Concentrations - Dieldrin (µg/kg) - 1 Mile Increments**

Portland Harbor Superfund Site

Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
4.5	Nav Channel	0.39	0.39	0.39	0.39	0.39	0.39	0.36	0.39
4.6	Nav Channel	0.42	0.42	0.41	0.39	0.42	0.38	0.35	0.42
4.7	Nav Channel	0.43	0.41	0.37	0.35	0.41	0.33	0.30	0.41
4.8	Nav Channel	0.44	0.42	0.37	0.34	0.42	0.32	0.28	0.42
4.9	Nav Channel	0.49	0.44	0.38	0.34	0.44	0.31	0.28	0.44
5	Nav Channel	0.53	0.46	0.38	0.34	0.46	0.31	0.27	0.46
5.1	Nav Channel	0.51	0.43	0.35	0.31	0.43	0.26	0.24	0.43
5.2	Nav Channel	0.51	0.38	0.29	0.25	0.38	0.20	0.17	0.38
5.3	Nav Channel	0.62	0.36	0.27	0.22	0.36	0.17	0.14	0.36
5.4	Nav Channel	0.64	0.36	0.26	0.21	0.36	0.14	0.11	0.36
5.5	Nav Channel	0.66	0.37	0.26	0.19	0.37	0.11	0.07	0.37
5.6	Nav Channel	0.73	0.42	0.33	0.21	0.42	0.11	0.05	0.42
5.7	Nav Channel	1.17	0.78	0.52	0.30	0.78	0.13	0.05	0.66
5.8	Nav Channel	1.58	0.96	0.62	0.37	0.96	0.16	0.07	0.78
5.9	Nav Channel	1.94	1.12	0.77	0.49	1.12	0.23	0.12	0.93
6	Nav Channel	2.22	1.21	0.86	0.56	1.21	0.30	0.17	1.01
6.1	Nav Channel	2.50	1.43	0.97	0.62	1.42	0.34	0.20	1.21
6.2	Nav Channel	2.54	1.51	1.03	0.65	1.50	0.35	0.20	1.28
6.3	Nav Channel	2.44	1.58	1.08	0.68	1.57	0.36	0.21	1.34
6.4	Nav Channel	2.46	1.59	1.08	0.68	1.57	0.37	0.21	1.34
6.5	Nav Channel	2.39	1.52	1.02	0.65	1.51	0.35	0.22	1.28
6.6	Nav Channel	2.22	1.36	0.86	0.59	1.35	0.35	0.25	1.12
6.7	Nav Channel	1.65	0.90	0.68	0.54	0.89	0.39	0.29	0.81
6.8	Nav Channel	1.53	1.05	0.92	0.83	1.04	0.74	0.34	1.02
6.9	Nav Channel	1.40	1.18	1.08	1.02	1.17	0.96	0.41	1.17
7	Nav Channel	1.16	1.14	1.04	0.99	1.12	0.92	0.39	1.12
7.1	Nav Channel	0.94	0.94	0.94	0.92	0.93	0.87	0.37	0.93
7.2	Nav Channel	0.93	0.93	0.93	0.93	0.93	0.89	0.42	0.93
7.3	Nav Channel	1.00	1.00	1.00	1.00	0.99	0.96	0.54	0.99
7.4	Nav Channel	1.05	1.04	1.04	1.04	1.04	1.01	0.65	1.04
7.5	Nav Channel	1.05	1.05	1.05	1.05	1.05	1.02	0.70	1.05
7.6	Nav Channel	1.02	1.02	1.02	1.02	1.02	0.99	0.69	1.02
7.7	Nav Channel	0.98	0.98	0.98	0.98	0.97	0.95	0.67	0.97
7.8	Nav Channel	0.79	0.79	0.79	0.79	0.79	0.77	0.64	0.79
7.9	Nav Channel	0.64	0.64	0.64	0.64	0.64	0.62	0.58	0.64
8	Nav Channel	0.61	0.61	0.61	0.61	0.61	0.60	0.57	0.61
8.1	Nav Channel	0.60	0.60	0.60	0.60	0.60	0.59	0.57	0.60
8.2	Nav Channel	0.56	0.56	0.56	0.56	0.56	0.56	0.55	0.56
8.3	Nav Channel	0.49	0.49	0.49	0.49	0.49	0.49	0.48	0.49
8.4	Nav Channel	0.41	0.41	0.41	0.41	0.41	0.40	0.39	0.41
8.5	Nav Channel	0.35	0.34	0.34	0.34	0.34	0.32	0.31	0.34
8.6	Nav Channel	0.34	0.33	0.33	0.33	0.33	0.29	0.28	0.33



**Table J2.3-2e**

**Rolling River Mile Average Concentrations - Dieldrin (µg/kg) - 1 Mile Increments**

Portland Harbor Superfund Site

Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
8.7	Nav Channel	0.35	0.35	0.35	0.34	0.34	0.28	0.26	0.34
8.8	Nav Channel	0.36	0.36	0.36	0.36	0.36	0.26	0.24	0.36
8.9	Nav Channel	0.37	0.36	0.36	0.36	0.36	0.26	0.23	0.36
9	Nav Channel	0.36	0.36	0.36	0.36	0.36	0.26	0.22	0.36
9.1	Nav Channel	0.41	0.41	0.41	0.41	0.41	0.30	0.27	0.41
9.2	Nav Channel	0.44	0.43	0.43	0.43	0.43	0.32	0.28	0.43
9.3	Nav Channel	0.46	0.46	0.46	0.46	0.46	0.34	0.31	0.46
9.4	Nav Channel	0.53	0.53	0.53	0.52	0.52	0.41	0.36	0.52
9.5	Nav Channel	0.53	0.53	0.53	0.53	0.53	0.43	0.38	0.53
9.6	Nav Channel	0.50	0.50	0.50	0.50	0.50	0.41	0.36	0.50
9.7	Nav Channel	0.48	0.48	0.48	0.48	0.48	0.42	0.37	0.48
9.8	Nav Channel	0.51	0.51	0.51	0.51	0.51	0.45	0.37	0.51
9.9	Nav Channel	0.56	0.56	0.56	0.56	0.56	0.45	0.36	0.56
10	Nav Channel	0.60	0.60	0.60	0.60	0.60	0.47	0.38	0.60
10.1	Nav Channel	0.57	0.57	0.57	0.57	0.57	0.45	0.35	0.57
10.2	Nav Channel	0.59	0.59	0.59	0.59	0.59	0.46	0.35	0.59
10.3	Nav Channel	0.70	0.70	0.70	0.70	0.70	0.55	0.43	0.70
10.4	Nav Channel	0.75	0.75	0.75	0.75	0.75	0.58	0.40	0.75
10.5	Nav Channel	0.82	0.82	0.82	0.82	0.82	0.64	0.44	0.82
10.6	Nav Channel	0.92	0.92	0.92	0.92	0.92	0.73	0.51	0.92
10.7	Nav Channel	1.01	0.98	0.96	0.95	0.95	0.75	0.52	0.95
10.8	Nav Channel	1.16	0.94	0.91	0.89	0.89	0.73	0.54	0.89
10.9	Nav Channel	1.26	0.98	0.94	0.90	0.90	0.80	0.61	0.90
11	Nav Channel	1.25	0.97	0.92	0.89	0.89	0.80	0.62	0.89
11.1	Nav Channel	1.25	0.97	0.92	0.89	0.89	0.81	0.63	0.89
11.2	Nav Channel	1.29	0.99	0.94	0.90	0.90	0.82	0.64	0.90
11.3	Nav Channel	1.23	0.89	0.84	0.79	0.79	0.73	0.53	0.79
11.4	Nav Channel	1.18	0.80	0.74	0.69	0.69	0.64	0.52	0.69
11.5	Nav Channel	1.19	0.75	0.69	0.63	0.63	0.59	0.51	0.63
11.6	Nav Channel	1.25	0.74	0.66	0.59	0.59	0.54	0.47	0.59
11.7	Nav Channel	1.30	0.74	0.68	0.62	0.62	0.57	0.50	0.62
1.8	West	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31
1.9	West	0.29	0.29	0.29	0.29	0.29	0.29	0.29	0.29
2	West	0.27	0.27	0.27	0.27	0.27	0.27	0.27	0.27
2.1	West	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25
2.2	West	0.22	0.22	0.22	0.22	0.22	0.22	0.22	0.22
2.3	West	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19
2.4	West	0.18	0.18	0.18	0.18	0.18	0.18	0.17	0.18
2.5	West	0.20	0.20	0.20	0.20	0.20	0.20	0.17	0.20
2.6	West	0.22	0.22	0.22	0.22	0.22	0.22	0.17	0.22
2.7	West	0.27	0.27	0.27	0.27	0.27	0.27	0.20	0.27
2.8	West	0.39	0.39	0.39	0.39	0.39	0.39	0.21	0.39

**Table J2.3-2e**

**Rolling River Mile Average Concentrations - Dieldrin (µg/kg) - 1 Mile Increments**

Portland Harbor Superfund Site

Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
2.9	West	0.41	0.41	0.41	0.41	0.41	0.41	0.22	0.41
3	West	0.42	0.42	0.42	0.42	0.42	0.42	0.22	0.42
3.1	West	0.42	0.42	0.42	0.42	0.42	0.42	0.22	0.42
3.2	West	0.43	0.43	0.43	0.43	0.43	0.43	0.22	0.43
3.3	West	0.47	0.47	0.47	0.47	0.47	0.47	0.25	0.47
3.4	West	0.49	0.49	0.49	0.49	0.49	0.49	0.26	0.49
3.5	West	0.49	0.49	0.49	0.49	0.49	0.49	0.26	0.49
3.6	West	0.55	0.55	0.55	0.55	0.52	0.52	0.27	0.55
3.7	West	0.65	0.65	0.65	0.65	0.56	0.56	0.25	0.65
3.8	West	0.62	0.62	0.62	0.60	0.40	0.40	0.23	0.60
3.9	West	0.66	0.66	0.66	0.64	0.40	0.40	0.21	0.64
4	West	0.72	0.72	0.72	0.70	0.43	0.43	0.21	0.70
4.1	West	0.83	0.83	0.83	0.81	0.49	0.49	0.24	0.81
4.2	West	0.91	0.91	0.91	0.88	0.52	0.52	0.24	0.88
4.3	West	0.89	0.89	0.89	0.86	0.49	0.49	0.20	0.86
4.4	West	0.91	0.91	0.91	0.88	0.51	0.51	0.22	0.88
4.5	West	0.94	0.94	0.94	0.91	0.52	0.52	0.23	0.91
4.6	West	0.88	0.88	0.88	0.85	0.51	0.51	0.24	0.85
4.7	West	0.67	0.67	0.67	0.63	0.40	0.40	0.23	0.63
4.8	West	0.45	0.45	0.45	0.44	0.37	0.37	0.23	0.44
4.9	West	0.42	0.42	0.42	0.41	0.35	0.35	0.23	0.41
5	West	0.41	0.40	0.40	0.38	0.32	0.32	0.22	0.38
5.1	West	0.40	0.39	0.39	0.37	0.30	0.30	0.19	0.37
5.2	West	0.41	0.41	0.40	0.39	0.34	0.34	0.20	0.39
5.3	West	0.45	0.45	0.44	0.42	0.36	0.36	0.20	0.42
5.4	West	0.44	0.43	0.42	0.41	0.34	0.34	0.17	0.41
5.5	West	0.50	0.50	0.48	0.46	0.36	0.36	0.19	0.47
5.6	West	0.58	0.52	0.46	0.43	0.31	0.31	0.14	0.45
5.7	West	0.91	0.54	0.41	0.37	0.28	0.28	0.11	0.40
5.8	West	1.11	0.49	0.36	0.33	0.24	0.24	0.10	0.36
5.9	West	1.45	0.46	0.34	0.31	0.22	0.22	0.10	0.34
6	West	1.53	0.45	0.33	0.30	0.22	0.22	0.10	0.33
6.1	West	1.60	0.46	0.34	0.29	0.20	0.20	0.10	0.31
6.2	West	1.60	0.48	0.36	0.30	0.18	0.18	0.09	0.28
6.3	West	1.60	0.49	0.37	0.30	0.15	0.15	0.08	0.25
6.4	West	2.04	0.89	0.51	0.36	0.16	0.16	0.07	0.24
6.5	West	4.86	2.40	0.82	0.30	0.08	0.08	0.01	0.13
6.6	West	7.99	4.64	1.79	0.56	0.09	0.09	0.01	0.10
6.7	West	9.68	4.38	1.71	0.52	0.09	0.09	0.01	0.09
6.8	West	12.08	4.29	1.68	0.51	0.09	0.09	0.01	0.09
6.9	West	13.50	4.34	1.72	0.53	0.09	0.09	0.01	0.09
7	West	14.39	4.44	1.77	0.57	0.11	0.11	0.01	0.11

**Table J2.3-2e**

**Rolling River Mile Average Concentrations - Dieldrin (µg/kg) - 1 Mile Increments**

Portland Harbor Superfund Site

Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
7.1	West	12.51	4.11	1.73	0.69	0.27	0.27	0.08	0.27
7.2	West	10.79	3.75	1.76	0.87	0.44	0.44	0.23	0.44
7.3	West	9.49	3.42	1.70	0.94	0.55	0.55	0.27	0.55
7.4	West	9.23	3.20	1.63	0.92	0.56	0.56	0.28	0.56
7.5	West	7.99	2.44	1.47	0.94	0.58	0.58	0.29	0.59
7.6	West	6.35	1.19	0.94	0.80	0.59	0.59	0.30	0.60
7.7	West	4.95	1.17	0.95	0.83	0.61	0.61	0.31	0.62
7.8	West	3.19	1.22	1.00	0.88	0.61	0.61	0.31	0.67
7.9	West	2.49	1.67	1.48	1.35	0.65	0.65	0.29	1.16
8	West	1.72	1.56	1.44	1.34	0.71	0.71	0.34	1.18
8.1	West	1.63	1.62	1.62	1.43	0.67	0.67	0.31	1.31
8.2	West	1.76	1.76	1.76	1.41	0.53	0.53	0.19	1.36
8.3	West	1.81	1.77	1.76	1.35	0.40	0.40	0.14	1.35
8.4	West	3.41	1.84	1.83	1.39	0.39	0.39	0.13	1.39
8.5	West	3.50	1.87	1.85	1.41	0.39	0.39	0.13	1.41
8.6	West	3.57	1.90	1.87	1.42	0.39	0.39	0.13	1.42
8.7	West	3.90	2.05	1.94	1.47	0.41	0.41	0.14	1.47
8.8	West	3.88	2.05	1.92	1.41	0.40	0.40	0.14	1.41
8.9	West	3.26	1.38	1.24	0.74	0.32	0.32	0.15	0.74
9	West	3.30	1.30	1.15	0.64	0.16	0.16	0.05	0.64
9.1	West	3.04	0.85	0.69	0.34	0.07	0.07	0.05	0.34
9.2	West	2.62	0.48	0.28	0.16	0.08	0.08	0.05	0.16
9.3	West	2.72	0.56	0.26	0.17	0.08	0.08	0.05	0.17
9.4	West	0.81	0.59	0.28	0.18	0.08	0.08	0.06	0.18
9.5	West	0.79	0.61	0.29	0.19	0.09	0.09	0.06	0.19
9.6	West	0.81	0.64	0.31	0.20	0.10	0.10	0.07	0.20
9.7	West	0.55	0.53	0.31	0.22	0.11	0.11	0.07	0.22
9.8	West	0.49	0.48	0.28	0.24	0.11	0.11	0.08	0.24
9.9	West	0.61	0.59	0.34	0.30	0.15	0.15	0.09	0.30
10	West	0.78	0.75	0.44	0.39	0.27	0.27	0.19	0.39
10.1	West	0.97	0.94	0.52	0.46	0.36	0.36	0.26	0.46
10.2	West	1.09	1.07	0.66	0.64	0.54	0.54	0.38	0.64
10.3	West	0.78	0.78	0.78	0.76	0.68	0.68	0.43	0.76
10.4	West	0.75	0.75	0.75	0.73	0.66	0.66	0.45	0.73
10.5	West	0.79	0.79	0.79	0.77	0.71	0.71	0.53	0.77
10.6	West	0.80	0.80	0.80	0.79	0.74	0.74	0.57	0.79
10.7	West	0.79	0.79	0.79	0.78	0.73	0.73	0.58	0.78
10.8	West	0.80	0.80	0.80	0.80	0.79	0.79	0.63	0.80
10.9	West	0.79	0.79	0.79	0.79	0.79	0.79	0.67	0.79
11	West	0.73	0.73	0.73	0.73	0.73	0.73	0.64	0.73
11.1	West	0.73	0.73	0.73	0.73	0.73	0.73	0.64	0.73
11.2	West	0.75	0.75	0.75	0.75	0.75	0.75	0.69	0.75

**Table J2.3-2e**

**Rolling River Mile Average Concentrations - Dieldrin (µg/kg) - 1 Mile Increments**

Portland Harbor Superfund Site

Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
11.3	West	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80
11.4	West	0.84	0.84	0.84	0.84	0.84	0.84	0.83	0.84
11.5	West	0.83	0.83	0.83	0.83	0.83	0.83	0.82	0.83
11.6	West	0.85	0.85	0.85	0.85	0.85	0.85	0.84	0.85
11.7	West	0.92	0.92	0.92	0.92	0.92	0.92	0.91	0.92
7.6	Swan Isl	0.23	0.01	0.01	0.01	0.00	0.00	0.00	0.01
7.7	Swan Isl	0.84	0.03	0.03	0.02	0.00	0.00	0.00	0.02
7.8	Swan Isl	1.07	0.07	0.06	0.03	0.00	0.00	0.00	0.03
7.9	Swan Isl	1.19	0.07	0.06	0.03	0.01	0.01	0.01	0.03
8	Swan Isl	1.43	0.08	0.07	0.04	0.03	0.03	0.02	0.04
8.1	Swan Isl	1.46	0.09	0.07	0.05	0.03	0.03	0.03	0.05
8.2	Swan Isl	1.42	0.14	0.13	0.11	0.09	0.09	0.09	0.11
8.3	Swan Isl	1.39	0.18	0.17	0.15	0.14	0.14	0.13	0.15
8.4	Swan Isl	1.41	0.21	0.19	0.17	0.16	0.16	0.16	0.17
8.5	Swan Isl	1.36	0.20	0.18	0.16	0.15	0.15	0.15	0.16
8.6	Swan Isl	1.54	0.27	0.23	0.21	0.17	0.17	0.16	0.22
8.7	Swan Isl	1.65	0.43	0.36	0.33	0.23	0.23	0.22	0.37
8.8	Swan Isl	1.62	0.47	0.41	0.39	0.27	0.27	0.26	0.44
8.9	Swan Isl	1.57	0.53	0.46	0.44	0.30	0.30	0.29	0.49
9	Swan Isl	1.28	0.59	0.51	0.49	0.33	0.33	0.32	0.55
9.1	Swan Isl	1.22	0.62	0.54	0.51	0.34	0.34	0.33	0.58
9.2	Swan Isl	1.25	0.63	0.52	0.49	0.29	0.29	0.27	0.58
9.3	Swan Isl	1.31	0.64	0.51	0.48	0.20	0.20	0.18	0.59
9.4	Swan Isl	1.14	0.71	0.57	0.52	0.10	0.10	0.07	0.69
9.5	Swan Isl	1.42	1.15	0.94	0.86	0.17	0.17	0.12	1.14
9.6	Swan Isl	1.60	1.60	1.39	1.22	0.28	0.28	0.21	1.60

**Table J2.3-2f**

**Rolling River Mile Average Concentrations - PCBs (µg/kg) - 1 Mile Increments**

Portland Harbor Superfund Site

Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
1.8	East	129.99	67.37	52.76	42.90	38.81	38.81	37.81	42.90
1.9	East	161.56	70.74	55.16	43.60	38.78	38.78	37.64	43.60
2	East	208.98	66.48	49.73	37.48	30.97	30.97	29.39	37.48
2.1	East	208.73	65.89	49.11	36.77	26.26	26.26	24.31	36.77
2.2	East	204.76	65.05	48.63	36.57	24.93	24.93	21.99	36.57
2.3	East	210.08	64.84	47.61	34.80	22.23	22.23	18.23	34.80
2.4	East	208.82	63.30	45.40	32.27	19.41	19.41	15.14	32.39
2.5	East	208.62	59.77	41.65	31.51	19.41	19.41	15.34	31.63
2.6	East	206.05	53.50	38.39	31.30	19.72	19.72	15.79	31.43
2.7	East	170.63	48.89	37.06	31.36	20.44	20.44	16.44	31.49
2.8	East	142.66	40.22	35.97	31.83	21.03	21.03	17.00	31.97
2.9	East	107.40	37.03	33.80	31.62	21.44	21.44	17.47	31.77
3	East	33.00	32.80	31.51	30.65	22.13	22.13	18.49	30.81
3.1	East	29.27	29.06	27.68	26.84	23.61	23.61	20.11	27.01
3.2	East	27.93	27.70	26.22	25.32	24.01	24.01	21.45	25.50
3.3	East	79.57	49.69	38.35	31.91	21.96	21.96	18.35	32.06
3.4	East	113.47	52.54	40.28	33.88	22.10	22.10	17.56	33.88
3.5	East	123.64	58.45	45.37	35.74	21.84	21.84	16.23	35.74
3.6	East	143.19	71.18	52.60	36.59	20.92	20.92	14.45	36.59
3.7	East	155.19	81.22	60.89	39.19	20.80	20.80	13.29	39.19
3.8	East	159.95	84.29	63.49	41.29	22.20	22.20	13.74	41.29
3.9	East	176.23	107.79	75.74	45.72	21.40	21.40	11.74	45.72
4	East	175.46	111.30	81.05	51.63	21.73	21.73	10.42	51.63
4.1	East	170.47	108.67	78.70	49.92	20.47	20.47	8.81	49.92
4.2	East	161.98	104.33	74.68	46.48	18.11	18.11	6.70	46.48
4.3	East	136.62	98.46	72.77	43.72	18.62	18.62	6.74	43.72
4.4	East	104.52	100.21	74.19	43.20	18.39	18.39	7.03	43.20
4.5	East	101.11	96.90	70.33	41.99	18.23	18.23	7.48	41.99
4.6	East	84.42	84.18	63.11	41.44	18.96	18.96	8.76	41.44
4.7	East	75.47	75.23	55.29	39.18	18.97	18.97	9.61	39.18
4.8	East	74.93	74.68	54.35	37.92	17.61	17.61	8.85	37.92
4.9	East	42.61	42.32	37.22	32.01	17.95	17.95	9.85	32.01
5	East	30.52	30.17	24.83	21.03	17.23	17.23	11.24	20.72
5.1	East	33.09	32.75	28.60	25.32	18.79	18.79	12.09	21.21
5.2	East	45.34	45.34	45.25	40.93	21.21	21.21	13.53	21.41
5.3	East	58.52	58.33	58.33	47.88	18.96	18.96	12.19	18.96
5.4	East	59.91	59.66	59.66	50.79	21.88	21.88	11.32	21.88
5.5	East	60.59	60.37	60.37	52.54	22.75	22.75	10.59	24.87
5.6	East	65.93	65.74	65.74	56.76	21.50	21.50	9.80	31.68
5.7	East	67.86	67.68	67.68	59.47	21.10	21.10	9.81	36.93
5.8	East	63.64	63.48	63.33	55.86	20.95	20.95	10.49	35.54
5.9	East	60.52	60.37	59.91	52.54	19.78	19.78	10.16	34.66
6	East	56.36	56.22	55.70	48.88	18.76	18.76	10.09	32.62

**Table J2.3-2f**

**Rolling River Mile Average Concentrations - PCBs (µg/kg) - 1 Mile Increments**

Portland Harbor Superfund Site

Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
6.1	East	51.92	51.79	51.20	44.91	18.98	18.98	11.15	31.91
6.2	East	42.23	41.82	40.97	36.79	18.24	18.24	11.66	30.32
6.3	East	72.85	36.23	33.59	31.95	16.91	16.91	10.65	31.22
6.4	East	87.60	32.04	28.38	26.91	14.41	14.41	9.86	29.46
6.5	East	81.32	28.16	24.67	23.26	13.03	13.03	9.79	26.57
6.6	East	72.29	22.08	18.78	18.23	12.05	12.05	9.30	21.36
6.7	East	66.02	18.24	14.84	14.39	11.52	11.52	9.28	18.21
6.8	East	64.29	18.05	14.39	13.96	11.23	11.23	9.21	18.40
6.9	East	63.92	19.25	14.96	14.79	11.75	11.75	9.87	19.35
7	East	63.08	20.39	16.31	16.15	13.22	13.22	11.41	20.49
7.1	East	63.08	20.62	16.63	16.47	13.58	13.58	12.22	20.73
7.2	East	66.77	22.02	17.98	17.81	14.79	14.79	13.42	22.20
7.3	East	41.76	20.98	17.99	17.88	16.30	16.30	14.91	21.56
7.4	East	22.58	21.15	18.99	18.99	17.99	17.99	16.53	22.02
7.5	East	24.73	23.24	20.94	20.94	19.89	19.89	18.02	24.15
7.6	East	28.46	25.29	22.86	22.80	21.65	21.65	18.58	26.21
7.7	East	30.49	25.35	23.09	23.03	21.76	21.76	18.37	25.51
7.8	East	32.24	25.90	24.17	24.10	22.46	22.46	18.55	25.40
7.9	East	31.25	24.29	24.24	24.15	23.75	23.75	19.52	24.21
8	East	32.05	23.59	23.59	23.49	23.11	23.11	18.12	23.49
8.1	East	32.14	22.31	22.31	22.19	21.75	21.75	16.00	22.19
8.2	East	30.67	20.97	20.97	20.85	20.42	20.42	14.73	20.85
8.3	East	30.50	21.39	21.39	21.29	20.91	20.91	16.59	21.29
8.4	East	29.98	21.18	21.18	21.07	20.62	20.62	17.66	21.07
8.5	East	30.98	21.80	21.80	21.69	21.13	21.13	17.17	21.69
8.6	East	32.82	25.87	25.87	25.87	23.73	23.73	18.31	25.87
8.7	East	36.55	34.27	34.27	34.27	30.40	30.40	21.01	34.27
8.8	East	37.22	37.22	37.22	37.22	33.60	33.60	24.14	37.22
8.9	East	36.84	36.84	36.84	36.84	33.36	33.36	24.29	36.84
9	East	37.04	37.04	37.04	37.04	33.64	33.64	24.41	37.04
9.1	East	41.93	41.93	41.93	41.93	33.87	33.87	22.87	41.93
9.2	East	46.51	46.51	46.51	46.51	34.39	34.39	20.79	46.51
9.3	East	46.50	46.50	46.50	46.50	34.57	34.57	19.77	46.50
9.4	East	44.93	44.93	44.93	44.93	33.49	33.49	19.19	44.93
9.5	East	42.13	42.13	42.13	42.13	30.86	30.86	18.51	42.13
9.6	East	43.72	43.55	43.33	40.65	29.18	29.18	19.36	40.65
9.7	East	41.55	41.38	41.15	38.38	27.48	27.48	20.06	38.40
9.8	East	41.43	41.24	41.01	38.09	26.69	26.69	18.69	38.10
9.9	East	43.54	43.34	43.08	39.90	27.53	27.53	18.83	39.92
10	East	45.69	45.47	45.19	41.73	28.15	28.15	18.70	41.75
10.1	East	42.38	42.14	41.85	38.16	28.51	28.51	20.41	38.18
10.2	East	40.78	40.53	40.21	36.03	27.55	27.55	21.67	36.05

**Table J2.3-2f**

**Rolling River Mile Average Concentrations - PCBs (µg/kg) - 1 Mile Increments**

Portland Harbor Superfund Site

Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
10.3	East	50.84	50.57	50.22	37.64	24.13	24.13	19.55	37.67
10.4	East	63.03	62.73	62.33	42.11	23.78	23.78	17.72	42.14
10.5	East	73.98	73.64	73.20	50.80	25.20	25.20	16.48	50.83
10.6	East	76.22	76.22	73.60	52.53	26.75	26.75	16.27	52.56
10.7	East	138.80	93.06	78.38	52.45	24.86	24.86	14.85	52.45
10.8	East	181.13	118.62	87.30	53.30	23.41	23.41	12.15	53.30
10.9	East	341.20	140.96	88.16	48.71	19.33	19.33	8.91	48.71
11	East	413.50	161.32	92.44	45.26	15.79	15.79	6.56	45.26
11.1	East	431.49	172.86	96.15	44.98	14.47	14.47	5.60	44.98
11.2	East	420.57	171.44	97.55	44.66	17.31	17.31	5.20	44.66
11.3	East	455.39	175.83	92.92	43.39	17.89	17.89	4.70	43.39
11.4	East	499.08	183.83	90.32	42.06	17.23	17.23	3.51	42.06
11.5	East	537.85	192.40	89.93	37.03	16.32	16.32	3.74	37.03
11.6	East	600.09	204.33	90.39	33.76	13.38	13.38	2.92	33.76
11.7	East	602.59	208.86	93.74	34.25	14.05	14.05	2.39	34.25
1.8	Nav Channel	27.14	27.14	27.14	27.14	27.14	27.14	25.29	27.14
1.9	Nav Channel	29.92	29.92	29.92	29.92	29.92	29.92	25.13	29.92
2	Nav Channel	31.69	31.69	31.69	31.69	31.69	31.69	26.42	31.69
2.1	Nav Channel	31.82	31.82	31.82	31.82	31.82	31.82	26.61	31.82
2.2	Nav Channel	31.20	31.20	31.20	31.20	31.20	31.20	26.06	31.20
2.3	Nav Channel	30.17	30.17	30.17	30.17	30.17	30.17	25.02	30.17
2.4	Nav Channel	29.65	29.65	29.65	29.65	29.65	29.65	24.50	29.65
2.5	Nav Channel	29.25	29.25	29.25	29.25	29.25	29.25	24.11	29.25
2.6	Nav Channel	28.19	28.19	28.19	28.19	28.19	28.19	23.05	28.19
2.7	Nav Channel	26.77	26.77	26.77	26.77	26.77	26.77	21.63	26.77
2.8	Nav Channel	24.41	24.41	24.41	24.41	24.41	24.41	20.97	24.41
2.9	Nav Channel	22.33	22.33	22.33	22.33	22.33	22.29	21.22	22.33
3	Nav Channel	23.16	23.16	23.16	23.16	23.16	20.93	19.08	23.16
3.1	Nav Channel	28.61	28.61	28.61	28.22	28.22	20.50	16.74	28.22
3.2	Nav Channel	33.35	33.35	33.35	32.94	32.94	21.39	15.00	32.94
3.3	Nav Channel	33.90	33.90	33.90	33.51	33.51	21.62	14.58	33.51
3.4	Nav Channel	32.25	32.25	32.25	31.89	31.89	20.78	14.12	31.89
3.5	Nav Channel	31.14	31.14	31.14	30.80	30.80	20.35	13.91	30.80
3.6	Nav Channel	30.97	30.97	30.97	30.64	30.64	20.80	14.26	30.64
3.7	Nav Channel	30.42	30.42	30.42	30.12	30.12	20.89	14.75	30.12
3.8	Nav Channel	29.09	29.09	29.09	28.81	28.81	20.11	14.36	28.81
3.9	Nav Channel	27.37	27.37	27.37	27.10	27.10	18.86	13.68	27.10
4	Nav Channel	27.29	27.29	27.29	27.04	27.04	20.02	14.71	27.04
4.1	Nav Channel	25.35	25.35	25.35	25.33	25.33	21.41	16.28	25.33
4.2	Nav Channel	22.00	22.00	22.00	22.00	22.00	20.63	17.26	22.00
4.3	Nav Channel	20.70	20.70	20.70	20.70	20.70	19.98	17.27	20.70
4.4	Nav Channel	21.03	21.03	21.03	21.03	21.03	20.31	17.61	21.03

**Table J2.3-2f**

**Rolling River Mile Average Concentrations - PCBs (µg/kg) - 1 Mile Increments**

Portland Harbor Superfund Site

Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
4.5	Nav Channel	21.61	21.61	21.61	21.61	21.61	20.88	18.28	21.61
4.6	Nav Channel	21.11	21.09	20.73	20.50	21.09	19.56	17.18	21.09
4.7	Nav Channel	21.16	20.58	19.70	19.23	20.58	18.05	15.50	20.58
4.8	Nav Channel	21.90	21.24	19.92	19.12	21.24	17.55	14.73	21.24
4.9	Nav Channel	22.90	21.58	19.78	18.78	21.58	16.94	13.98	21.58
5	Nav Channel	21.03	19.13	17.00	15.81	19.13	13.90	11.77	19.13
5.1	Nav Channel	19.23	17.21	14.90	13.58	17.21	11.20	9.48	17.21
5.2	Nav Channel	18.52	15.96	13.48	12.08	15.96	9.57	7.70	15.96
5.3	Nav Channel	18.74	15.09	12.49	11.01	15.09	8.33	6.38	15.09
5.4	Nav Channel	18.79	14.88	12.09	10.44	14.88	6.79	4.75	14.88
5.5	Nav Channel	18.62	14.48	11.51	9.53	14.48	5.36	2.59	14.48
5.6	Nav Channel	18.85	14.45	11.81	9.61	14.45	5.09	2.13	14.45
5.7	Nav Channel	18.58	14.62	12.10	9.87	14.62	5.23	2.20	14.25
5.8	Nav Channel	18.32	13.45	11.30	9.36	13.45	4.91	1.98	12.98
5.9	Nav Channel	18.15	13.43	11.85	10.06	13.43	5.65	2.52	12.93
6	Nav Channel	19.35	13.92	12.67	11.04	13.92	6.74	3.24	13.39
6.1	Nav Channel	25.99	19.77	15.47	11.82	18.52	6.01	3.34	17.97
6.2	Nav Channel	39.21	33.46	25.55	18.36	28.22	5.89	2.96	27.64
6.3	Nav Channel	47.96	43.66	35.47	27.99	38.19	7.87	3.21	37.58
6.4	Nav Channel	51.40	47.06	38.77	31.26	41.47	11.10	4.69	40.85
6.5	Nav Channel	50.75	46.44	38.21	31.13	40.89	11.60	6.12	40.27
6.6	Nav Channel	49.81	45.56	37.46	31.08	40.09	12.38	7.27	39.50
6.7	Nav Channel	48.76	44.77	37.46	31.51	39.39	13.35	8.36	39.29
6.8	Nav Channel	48.12	45.14	38.21	32.50	39.88	14.90	9.59	39.87
6.9	Nav Channel	49.21	47.07	40.42	34.95	41.97	17.25	10.75	41.98
7	Nav Channel	51.16	50.49	44.14	38.90	45.59	19.15	11.28	45.60
7.1	Nav Channel	48.36	48.30	45.19	42.16	44.81	21.61	12.09	44.82
7.2	Nav Channel	40.26	40.20	40.20	40.18	40.17	25.43	13.86	40.18
7.3	Nav Channel	34.23	34.17	34.17	34.16	34.15	25.67	15.79	34.16
7.4	Nav Channel	31.49	31.45	31.45	31.44	31.43	24.59	16.94	31.44
7.5	Nav Channel	31.06	31.04	31.04	31.03	31.02	25.03	18.32	31.02
7.6	Nav Channel	31.80	31.79	31.79	31.78	31.77	26.19	19.56	31.77
7.7	Nav Channel	31.77	31.75	31.75	31.75	31.74	26.41	20.09	31.74
7.8	Nav Channel	31.56	31.55	31.55	31.54	31.55	26.43	20.59	31.55
7.9	Nav Channel	30.62	30.62	30.62	30.60	30.61	26.02	21.09	30.61
8	Nav Channel	28.28	28.28	28.28	28.26	28.28	25.25	21.49	28.28
8.1	Nav Channel	25.56	25.56	25.56	25.53	25.56	24.57	22.02	25.56
8.2	Nav Channel	23.53	23.53	23.53	23.48	23.53	23.29	22.44	23.53
8.3	Nav Channel	23.14	23.06	23.05	22.98	23.03	22.97	22.47	23.03
8.4	Nav Channel	23.83	23.59	23.58	23.50	23.56	23.04	22.26	23.56
8.5	Nav Channel	26.58	26.25	26.24	26.16	26.22	23.24	21.52	26.22
8.6	Nav Channel	28.02	27.67	27.65	27.56	27.64	22.77	21.12	27.64



**Table J2.3-2f**

**Rolling River Mile Average Concentrations - PCBs (µg/kg) - 1 Mile Increments**

Portland Harbor Superfund Site

Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
8.7	Nav Channel	31.37	31.02	30.94	30.75	30.84	22.76	20.70	30.84
8.8	Nav Channel	35.34	34.99	34.87	34.67	34.76	22.85	19.94	34.76
8.9	Nav Channel	37.11	36.75	36.62	36.43	36.51	23.74	19.82	36.51
9	Nav Channel	38.54	38.17	38.04	37.84	37.92	24.76	20.57	37.92
9.1	Nav Channel	39.02	38.64	38.50	38.31	38.38	24.76	20.26	38.38
9.2	Nav Channel	40.02	39.63	39.49	39.32	39.36	24.87	19.97	39.36
9.3	Nav Channel	40.64	40.34	40.20	40.06	40.10	24.89	19.91	40.10
9.4	Nav Channel	40.76	40.66	40.52	40.38	40.42	25.46	19.98	40.42
9.5	Nav Channel	40.03	40.02	39.89	39.74	39.78	25.67	20.13	39.78
9.6	Nav Channel	37.77	37.77	37.65	37.52	37.53	25.72	20.33	37.53
9.7	Nav Channel	35.07	35.07	35.02	35.01	35.01	26.92	21.33	35.01
9.8	Nav Channel	34.76	34.76	34.76	34.76	34.76	28.13	21.04	34.76
9.9	Nav Channel	39.22	39.22	39.22	39.22	39.22	26.48	19.27	39.22
10	Nav Channel	40.33	40.33	40.33	40.33	40.33	26.63	18.28	40.33
10.1	Nav Channel	41.39	41.39	41.39	41.39	41.39	27.41	19.05	41.39
10.2	Nav Channel	41.89	41.89	41.89	41.89	41.89	27.86	19.48	41.89
10.3	Nav Channel	43.30	43.30	43.30	43.30	43.30	28.91	20.27	43.30
10.4	Nav Channel	45.37	45.37	45.37	45.37	45.37	30.08	20.17	45.37
10.5	Nav Channel	45.13	45.13	45.13	45.13	45.13	30.67	20.06	45.13
10.6	Nav Channel	46.26	46.26	46.26	46.26	46.26	30.91	19.76	46.26
10.7	Nav Channel	49.43	46.34	45.17	44.88	44.88	29.02	18.36	44.88
10.8	Nav Channel	69.96	43.59	41.43	40.31	40.31	27.36	19.52	40.31
10.9	Nav Channel	77.24	42.50	37.66	34.37	34.37	29.00	21.92	34.37
11	Nav Channel	75.88	41.22	36.39	33.10	33.10	28.46	22.50	33.10
11.1	Nav Channel	77.22	42.18	37.30	33.96	33.96	29.54	23.69	33.96
11.2	Nav Channel	81.14	43.43	38.18	34.60	34.60	30.33	24.24	34.60
11.3	Nav Channel	86.42	44.14	38.25	34.23	34.23	30.00	23.47	34.23
11.4	Nav Channel	91.50	43.72	37.07	32.52	32.52	28.46	23.93	32.52
11.5	Nav Channel	98.14	43.56	35.96	30.77	30.77	27.47	24.95	30.77
11.6	Nav Channel	110.64	46.76	37.86	31.78	31.78	27.94	25.19	31.78
11.7	Nav Channel	121.85	50.76	42.51	35.76	35.76	31.20	27.89	35.76
1.8	West	14.62	14.62	14.62	14.62	14.62	14.62	14.62	14.62
1.9	West	14.03	14.03	14.03	14.03	14.03	14.03	14.03	14.03
2	West	13.39	13.39	13.39	13.39	13.39	13.39	13.39	13.39
2.1	West	12.67	12.67	12.67	12.67	12.67	12.67	12.67	12.67
2.2	West	12.08	12.08	12.08	12.08	12.08	12.08	12.03	12.08
2.3	West	11.48	11.48	11.48	11.48	11.48	11.48	11.32	11.48
2.4	West	11.40	11.40	11.40	11.40	11.40	11.40	10.67	11.40
2.5	West	12.22	12.22	12.22	12.22	12.22	12.22	10.12	12.22
2.6	West	12.28	12.28	12.28	12.28	12.28	12.28	9.42	12.28
2.7	West	12.12	12.12	12.12	12.12	12.12	12.12	9.29	12.12
2.8	West	12.70	12.70	12.70	12.70	12.70	12.70	9.19	12.70

**Table J2.3-2f**

**Rolling River Mile Average Concentrations - PCBs (µg/kg) - 1 Mile Increments**

Portland Harbor Superfund Site

Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
2.9	West	13.68	13.68	13.68	13.68	13.68	13.68	9.83	13.68
3	West	14.54	14.54	14.54	14.54	14.51	14.51	10.51	14.54
3.1	West	15.35	15.35	15.35	15.35	15.32	15.32	11.23	15.35
3.2	West	16.00	16.00	16.00	16.00	15.97	15.97	11.84	16.00
3.3	West	17.39	17.39	17.39	17.39	17.36	17.36	12.99	17.39
3.4	West	18.20	18.20	18.20	18.19	17.99	17.99	13.59	18.19
3.5	West	18.18	18.18	18.18	18.12	17.63	17.63	14.07	18.12
3.6	West	19.28	19.28	19.28	19.20	18.04	18.04	14.62	19.20
3.7	West	21.26	21.26	21.26	21.17	19.38	19.38	15.10	21.17
3.8	West	22.74	22.74	22.74	22.52	19.57	19.57	15.47	22.52
3.9	West	23.64	23.64	23.64	23.38	19.92	19.92	14.82	23.38
4	West	24.88	24.88	24.88	24.59	20.69	20.69	14.31	24.59
4.1	West	27.09	27.09	27.09	26.75	21.31	21.31	13.34	26.75
4.2	West	30.65	30.65	30.65	30.28	21.40	21.40	11.94	30.28
4.3	West	31.10	31.10	31.10	30.73	20.93	20.93	10.86	30.73
4.4	West	30.33	30.33	30.33	29.96	20.41	20.41	10.85	29.96
4.5	West	29.83	29.83	29.83	29.56	20.07	20.07	10.86	29.56
4.6	West	27.92	27.92	27.92	27.65	19.34	19.34	10.81	27.65
4.7	West	26.71	26.71	26.69	26.32	18.55	18.55	10.55	26.32
4.8	West	26.05	26.05	25.96	25.74	19.18	19.18	11.03	25.74
4.9	West	26.54	26.46	25.92	25.58	18.48	18.48	10.87	25.58
5	West	27.13	26.85	25.31	24.60	16.85	16.85	10.04	24.60
5.1	West	25.74	25.45	23.60	22.69	15.75	15.75	9.15	22.69
5.2	West	22.31	22.00	20.03	19.06	16.11	16.11	9.35	19.06
5.3	West	20.82	20.49	18.39	17.36	15.02	15.02	7.80	17.36
5.4	West	21.74	21.42	19.32	17.76	14.16	14.16	6.79	18.36
5.5	West	25.21	24.92	22.66	20.69	15.68	15.68	7.75	21.88
5.6	West	28.57	27.14	24.47	22.22	15.16	15.16	6.36	23.78
5.7	West	34.03	26.15	22.76	20.64	13.90	13.90	5.43	22.18
5.8	West	35.14	23.63	20.42	18.44	12.07	12.07	4.85	19.92
5.9	West	36.06	21.66	18.89	17.03	10.89	10.89	4.63	18.47
6	West	37.49	19.88	17.85	16.26	10.42	10.42	4.60	17.71
6.1	West	39.99	19.87	17.80	15.74	9.71	9.71	4.43	16.63
6.2	West	40.88	21.01	18.94	16.58	8.92	8.92	3.82	15.72
6.3	West	46.00	24.82	22.72	18.19	7.66	7.66	3.31	14.16
6.4	West	56.95	31.34	25.96	19.02	6.77	6.77	2.63	11.60
6.5	West	91.71	49.27	29.77	15.26	3.51	3.51	0.56	6.29
6.6	West	120.08	65.56	32.46	13.43	1.85	1.85	0.26	1.89
6.7	West	152.10	62.84	30.89	12.59	1.73	1.73	0.24	1.75
6.8	West	175.23	61.73	30.25	12.34	1.71	1.71	0.24	1.74
6.9	West	193.04	62.29	30.71	12.58	1.74	1.74	0.26	1.77
7	West	211.32	65.81	32.41	13.44	2.51	2.51	0.25	2.53

**Table J2.3-2f**

**Rolling River Mile Average Concentrations - PCBs (µg/kg) - 1 Mile Increments**

Portland Harbor Superfund Site

Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
7.1	West	197.02	72.61	36.68	15.97	5.90	5.90	2.44	5.90
7.2	West	176.20	72.01	41.90	22.45	10.54	10.54	4.49	10.54
7.3	West	159.47	70.49	44.42	28.24	15.81	15.81	5.30	15.81
7.4	West	155.24	69.05	44.85	30.30	19.54	19.54	6.70	19.54
7.5	West	142.49	61.98	44.84	34.11	22.33	22.33	7.16	22.88
7.6	West	131.95	56.63	47.06	38.83	24.97	24.97	7.42	28.46
7.7	West	114.94	64.97	56.17	45.60	26.89	26.89	7.58	35.01
7.8	West	103.07	71.93	63.25	51.16	27.55	27.55	7.61	40.54
7.9	West	95.07	78.09	69.73	56.07	27.33	27.33	7.08	46.30
8	West	78.39	74.26	67.96	55.25	28.70	28.70	9.13	46.47
8.1	West	74.80	74.42	73.89	59.10	28.89	28.89	9.20	51.24
8.2	West	80.90	80.49	79.98	59.04	26.57	26.57	7.95	54.46
8.3	West	101.75	94.22	90.15	55.83	22.14	22.14	7.32	55.21
8.4	West	264.96	96.38	90.82	54.15	18.44	18.44	5.99	53.60
8.5	West	284.54	100.99	88.69	51.33	16.21	16.21	5.83	51.33
8.6	West	333.09	108.59	84.90	46.06	13.89	13.89	5.84	46.06
8.7	West	386.18	113.50	78.86	40.62	12.77	12.77	6.08	40.62
8.8	West	392.84	123.29	81.17	37.79	12.90	12.90	6.60	37.79
8.9	West	397.54	119.49	76.49	35.02	14.68	14.68	9.23	35.02
9	West	425.70	130.60	84.97	42.26	11.94	11.94	7.27	42.26
9.1	West	461.62	136.80	86.68	46.30	11.28	11.28	7.25	46.30
9.2	West	477.34	152.37	95.26	43.35	11.96	11.96	7.63	43.35
9.3	West	478.71	152.52	84.47	44.25	12.35	12.35	7.87	44.25
9.4	West	287.14	159.66	89.21	46.86	13.06	13.06	8.32	46.86
9.5	West	272.93	157.12	93.24	49.29	14.21	14.21	9.30	49.29
9.6	West	218.56	150.50	98.67	53.19	15.83	15.83	10.58	53.19
9.7	West	156.29	142.44	102.93	56.69	17.41	17.41	11.10	56.69
9.8	West	146.99	132.59	101.91	59.74	17.92	17.92	11.26	59.77
9.9	West	165.50	147.99	110.68	59.60	15.80	15.80	9.32	59.64
10	West	184.79	162.54	115.14	50.05	15.51	15.51	9.53	50.10
10.1	West	205.08	179.00	114.92	35.42	14.94	14.94	9.06	35.48
10.2	West	117.66	115.59	61.45	43.77	24.72	24.72	14.64	43.86
10.3	West	56.66	56.66	56.58	48.10	36.48	36.48	19.94	48.18
10.4	West	53.09	53.09	53.02	45.95	36.27	36.27	22.46	46.02
10.5	West	49.96	49.96	49.90	43.63	35.04	35.04	22.77	43.69
10.6	West	47.31	47.31	47.25	41.54	33.72	33.72	22.58	41.60
10.7	West	44.75	44.75	44.69	39.29	32.40	32.40	23.33	39.34
10.8	West	34.27	34.27	34.27	34.27	33.61	33.61	25.25	34.27
10.9	West	33.32	33.32	33.32	33.32	33.32	33.32	26.05	33.32
11	West	33.05	33.05	33.05	33.05	33.05	33.05	26.25	33.05
11.1	West	32.88	32.88	32.88	32.88	32.88	32.88	26.38	32.88
11.2	West	31.17	31.17	31.17	31.17	31.17	31.17	26.77	31.17

**Table J2.3-2f**

**Rolling River Mile Average Concentrations - PCBs (µg/kg) - 1 Mile Increments**

Portland Harbor Superfund Site

Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
11.3	West	28.79	28.79	28.79	28.79	28.79	28.79	28.70	28.79
11.4	West	27.66	27.66	27.66	27.66	27.66	27.66	27.59	27.66
11.5	West	27.37	27.37	27.37	27.37	27.37	27.37	27.29	27.37
11.6	West	27.76	27.76	27.76	27.76	27.76	27.76	27.66	27.76
11.7	West	28.44	28.44	28.44	28.44	28.44	28.44	28.31	28.44
7.6	Swan Isl	121.40	11.64	11.49	4.97	0.53	0.53	0.21	4.97
7.7	Swan Isl	177.88	9.46	9.04	4.04	0.54	0.54	0.20	4.04
7.8	Swan Isl	232.65	12.89	9.72	3.87	0.62	0.62	0.20	3.87
7.9	Swan Isl	433.81	12.02	8.83	3.55	0.69	0.69	0.25	3.55
8	Swan Isl	752.83	11.48	8.43	3.54	0.83	0.83	0.37	3.54
8.1	Swan Isl	762.18	11.42	8.30	3.53	0.94	0.94	0.42	3.53
8.2	Swan Isl	704.35	11.18	8.32	3.74	1.31	1.31	0.81	3.74
8.3	Swan Isl	658.40	12.78	8.46	3.72	1.45	1.45	0.98	3.72
8.4	Swan Isl	619.59	14.33	8.08	3.61	1.48	1.48	1.03	3.61
8.5	Swan Isl	586.99	14.28	7.89	3.68	1.55	1.55	1.09	3.68
8.6	Swan Isl	634.45	16.86	8.81	5.27	1.91	1.91	1.32	6.19
8.7	Swan Isl	732.06	23.00	12.31	8.88	2.66	2.66	1.93	11.12
8.8	Swan Isl	798.86	22.97	12.47	10.03	3.02	3.02	2.29	12.72
8.9	Swan Isl	659.98	25.37	13.84	11.27	3.29	3.29	2.53	14.35
9	Swan Isl	238.50	28.26	15.20	12.52	3.51	3.51	2.73	16.09
9.1	Swan Isl	183.68	29.65	15.93	13.22	3.55	3.55	2.83	17.06
9.2	Swan Isl	179.99	34.30	17.60	14.95	3.30	3.30	2.50	19.67
9.3	Swan Isl	160.40	36.57	20.13	18.62	3.50	3.50	2.49	24.85
9.4	Swan Isl	115.91	40.50	28.18	26.84	4.39	4.39	2.97	36.27
9.5	Swan Isl	93.29	58.94	43.81	41.96	5.66	5.66	3.75	57.81
9.6	Swan Isl	70.29	70.29	57.25	53.15	7.04	7.04	5.26	70.29

**Table J2.3-2g**

**Rolling River Mile Average Concentrations - 1,2,3,4,7,8-HxCDF (µg/kg) - 1 Mile Increments**

Portland Harbor Superfund Site

Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
1.8	East	0.00034	0.00032	0.00031	0.00029	0.00027	0.00027	0.00025	0.00029
1.9	East	0.00038	0.00033	0.00032	0.00030	0.00027	0.00027	0.00025	0.00030
2	East	0.00043	0.00036	0.00034	0.00032	0.00027	0.00027	0.00024	0.00032
2.1	East	0.00046	0.00039	0.00037	0.00035	0.00026	0.00026	0.00024	0.00035
2.2	East	0.00046	0.00038	0.00037	0.00034	0.00026	0.00026	0.00022	0.00034
2.3	East	0.00046	0.00039	0.00037	0.00034	0.00025	0.00025	0.00021	0.00034
2.4	East	0.00046	0.00039	0.00037	0.00034	0.00024	0.00024	0.00020	0.00034
2.5	East	0.00038	0.00030	0.00028	0.00025	0.00017	0.00017	0.00014	0.00025
2.6	East	0.00037	0.00029	0.00027	0.00025	0.00017	0.00017	0.00014	0.00025
2.7	East	0.00039	0.00031	0.00029	0.00027	0.00019	0.00019	0.00016	0.00027
2.8	East	0.00039	0.00033	0.00032	0.00030	0.00021	0.00021	0.00018	0.00030
2.9	East	0.00037	0.00033	0.00032	0.00031	0.00023	0.00023	0.00020	0.00031
3	East	0.00037	0.00037	0.00034	0.00034	0.00028	0.00028	0.00025	0.00034
3.1	East	0.00038	0.00038	0.00035	0.00035	0.00033	0.00033	0.00031	0.00035
3.2	East	0.00041	0.00041	0.00039	0.00038	0.00037	0.00037	0.00035	0.00038
3.3	East	0.00064	0.00056	0.00042	0.00040	0.00036	0.00036	0.00032	0.00040
3.4	East	0.00084	0.00064	0.00045	0.00044	0.00037	0.00037	0.00033	0.00044
3.5	East	0.00090	0.00069	0.00049	0.00046	0.00038	0.00038	0.00032	0.00046
3.6	East	0.00097	0.00075	0.00053	0.00046	0.00038	0.00038	0.00032	0.00046
3.7	East	0.00105	0.00082	0.00059	0.00048	0.00038	0.00038	0.00031	0.00048
3.8	East	0.00116	0.00092	0.00068	0.00058	0.00046	0.00046	0.00036	0.00058
3.9	East	0.00189	0.00167	0.00135	0.00107	0.00055	0.00055	0.00033	0.00107
4	East	0.00280	0.00260	0.00230	0.00198	0.00071	0.00071	0.00031	0.00198
4.1	East	0.00303	0.00283	0.00239	0.00201	0.00069	0.00069	0.00027	0.00201
4.2	East	0.00417	0.00393	0.00290	0.00212	0.00067	0.00067	0.00023	0.00212
4.3	East	0.00502	0.00481	0.00361	0.00263	0.00081	0.00081	0.00026	0.00263
4.4	East	0.00517	0.00508	0.00386	0.00280	0.00087	0.00087	0.00030	0.00280
4.5	East	0.00534	0.00525	0.00401	0.00294	0.00098	0.00098	0.00040	0.00294
4.6	East	0.00556	0.00547	0.00424	0.00321	0.00126	0.00126	0.00067	0.00321
4.7	East	0.00594	0.00585	0.00460	0.00361	0.00166	0.00166	0.00108	0.00361
4.8	East	0.00647	0.00638	0.00511	0.00410	0.00213	0.00213	0.00151	0.00410
4.9	East	0.00710	0.00699	0.00563	0.00468	0.00292	0.00292	0.00192	0.00468
5	East	0.00729	0.00716	0.00557	0.00456	0.00384	0.00384	0.00267	0.00447
5.1	East	0.00849	0.00836	0.00694	0.00597	0.00461	0.00461	0.00315	0.00513
5.2	East	0.00794	0.00794	0.00792	0.00788	0.00565	0.00565	0.00389	0.00565
5.3	East	0.00790	0.00790	0.00790	0.00779	0.00543	0.00543	0.00372	0.00543
5.4	East	0.00717	0.00717	0.00717	0.00708	0.00511	0.00511	0.00314	0.00511
5.5	East	0.00661	0.00661	0.00661	0.00653	0.00475	0.00475	0.00285	0.00477
5.6	East	0.00590	0.00590	0.00590	0.00581	0.00414	0.00414	0.00240	0.00422
5.7	East	0.00514	0.00514	0.00514	0.00506	0.00346	0.00346	0.00186	0.00363
5.8	East	0.00456	0.00456	0.00449	0.00442	0.00296	0.00296	0.00153	0.00319
5.9	East	0.00403	0.00403	0.00387	0.00378	0.00238	0.00238	0.00135	0.00276
6	East	0.00345	0.00345	0.00319	0.00311	0.00186	0.00186	0.00110	0.00234

**Table J2.3-2g**

**Rolling River Mile Average Concentrations - 1,2,3,4,7,8-HxCDF (µg/kg) - 1 Mile Increments**

Portland Harbor Superfund Site

Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
6.1	East	0.00295	0.00295	0.00247	0.00240	0.00162	0.00162	0.00102	0.00224
6.2	East	0.00346	0.00276	0.00191	0.00185	0.00156	0.00156	0.00104	0.00232
6.3	East	0.00680	0.00276	0.00160	0.00158	0.00139	0.00139	0.00092	0.00246
6.4	East	0.00624	0.00236	0.00122	0.00120	0.00104	0.00104	0.00082	0.00210
6.5	East	0.00582	0.00211	0.00102	0.00101	0.00087	0.00087	0.00073	0.00187
6.6	East	0.00543	0.00193	0.00090	0.00089	0.00079	0.00079	0.00067	0.00170
6.7	East	0.00538	0.00182	0.00080	0.00079	0.00074	0.00074	0.00065	0.00187
6.8	East	0.00529	0.00174	0.00071	0.00069	0.00065	0.00065	0.00057	0.00193
6.9	East	0.00514	0.00171	0.00072	0.00072	0.00068	0.00068	0.00063	0.00189
7	East	0.00501	0.00174	0.00084	0.00084	0.00081	0.00081	0.00076	0.00191
7.1	East	0.00494	0.00168	0.00092	0.00092	0.00089	0.00089	0.00085	0.00188
7.2	East	0.00455	0.00154	0.00099	0.00099	0.00096	0.00096	0.00093	0.00189
7.3	East	0.00198	0.00138	0.00111	0.00111	0.00108	0.00108	0.00104	0.00180
7.4	East	0.00200	0.00151	0.00127	0.00127	0.00125	0.00125	0.00117	0.00199
7.5	East	0.00224	0.00172	0.00147	0.00147	0.00144	0.00144	0.00134	0.00223
7.6	East	0.00247	0.00189	0.00162	0.00162	0.00159	0.00159	0.00140	0.00242
7.7	East	0.00227	0.00189	0.00167	0.00167	0.00164	0.00164	0.00144	0.00210
7.8	East	0.00212	0.00184	0.00175	0.00174	0.00171	0.00171	0.00147	0.00183
7.9	East	0.00209	0.00178	0.00178	0.00178	0.00176	0.00176	0.00149	0.00178
8	East	0.00192	0.00154	0.00154	0.00154	0.00153	0.00153	0.00121	0.00154
8.1	East	0.00177	0.00133	0.00133	0.00133	0.00132	0.00132	0.00095	0.00133
8.2	East	0.00153	0.00109	0.00109	0.00109	0.00108	0.00108	0.00071	0.00109
8.3	East	0.00136	0.00095	0.00095	0.00095	0.00094	0.00094	0.00066	0.00095
8.4	East	0.00121	0.00081	0.00081	0.00081	0.00080	0.00080	0.00060	0.00081
8.5	East	0.00097	0.00055	0.00055	0.00055	0.00054	0.00054	0.00038	0.00055
8.6	East	0.00079	0.00039	0.00039	0.00039	0.00038	0.00038	0.00034	0.00039
8.7	East	0.00064	0.00046	0.00046	0.00046	0.00043	0.00043	0.00038	0.00046
8.8	East	0.00043	0.00043	0.00043	0.00043	0.00042	0.00042	0.00037	0.00043
8.9	East	0.00038	0.00038	0.00038	0.00038	0.00037	0.00037	0.00032	0.00038
9	East	0.00035	0.00035	0.00035	0.00035	0.00034	0.00034	0.00029	0.00035
9.1	East	0.00034	0.00034	0.00034	0.00034	0.00031	0.00031	0.00026	0.00034
9.2	East	0.00032	0.00032	0.00032	0.00032	0.00028	0.00028	0.00021	0.00032
9.3	East	0.00030	0.00030	0.00030	0.00030	0.00026	0.00026	0.00019	0.00030
9.4	East	0.00029	0.00029	0.00029	0.00029	0.00025	0.00025	0.00018	0.00029
9.5	East	0.00029	0.00029	0.00029	0.00029	0.00025	0.00025	0.00019	0.00029
9.6	East	0.00029	0.00029	0.00029	0.00028	0.00025	0.00025	0.00020	0.00028
9.7	East	0.00030	0.00030	0.00030	0.00029	0.00025	0.00025	0.00021	0.00029
9.8	East	0.00032	0.00032	0.00032	0.00032	0.00028	0.00028	0.00023	0.00032
9.9	East	0.00035	0.00035	0.00035	0.00035	0.00030	0.00030	0.00025	0.00035
10	East	0.00038	0.00038	0.00038	0.00038	0.00033	0.00033	0.00027	0.00038
10.1	East	0.00041	0.00041	0.00041	0.00040	0.00036	0.00036	0.00030	0.00040
10.2	East	0.00045	0.00045	0.00045	0.00045	0.00039	0.00039	0.00034	0.00045

**Table J2.3-2g**

**Rolling River Mile Average Concentrations - 1,2,3,4,7,8-HxCDF (µg/kg) - 1 Mile Increments**

Portland Harbor Superfund Site

Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
10.3	East	0.00054	0.00054	0.00053	0.00050	0.00041	0.00041	0.00036	0.00050
10.4	East	0.00064	0.00064	0.00064	0.00058	0.00046	0.00046	0.00038	0.00058
10.5	East	0.00074	0.00074	0.00074	0.00067	0.00049	0.00049	0.00038	0.00067
10.6	East	0.00084	0.00084	0.00084	0.00076	0.00056	0.00056	0.00040	0.00076
10.7	East	0.00091	0.00088	0.00086	0.00077	0.00055	0.00055	0.00039	0.00077
10.8	East	0.00095	0.00091	0.00085	0.00074	0.00051	0.00051	0.00033	0.00074
10.9	East	0.00098	0.00087	0.00078	0.00065	0.00042	0.00042	0.00025	0.00065
11	East	0.00117	0.00094	0.00078	0.00059	0.00035	0.00035	0.00020	0.00059
11.1	East	0.00124	0.00098	0.00079	0.00057	0.00033	0.00033	0.00018	0.00057
11.2	East	0.00120	0.00095	0.00077	0.00054	0.00032	0.00032	0.00015	0.00054
11.3	East	0.00123	0.00095	0.00074	0.00053	0.00031	0.00031	0.00013	0.00053
11.4	East	0.00126	0.00094	0.00071	0.00049	0.00029	0.00029	0.00009	0.00049
11.5	East	0.00128	0.00093	0.00068	0.00045	0.00027	0.00027	0.00010	0.00045
11.6	East	0.00132	0.00092	0.00064	0.00038	0.00021	0.00021	0.00008	0.00038
11.7	East	0.00137	0.00094	0.00064	0.00036	0.00019	0.00019	0.00005	0.00036
1.8	Nav Channel	0.00008	0.00008	0.00008	0.00008	0.00008	0.00008	0.00007	0.00008
1.9	Nav Channel	0.00008	0.00008	0.00008	0.00008	0.00008	0.00008	0.00007	0.00008
2	Nav Channel	0.00009	0.00009	0.00009	0.00009	0.00009	0.00009	0.00008	0.00009
2.1	Nav Channel	0.00010	0.00010	0.00010	0.00010	0.00010	0.00010	0.00009	0.00010
2.2	Nav Channel	0.00012	0.00012	0.00012	0.00012	0.00012	0.00012	0.00011	0.00012
2.3	Nav Channel	0.00014	0.00014	0.00014	0.00014	0.00014	0.00014	0.00012	0.00014
2.4	Nav Channel	0.00016	0.00016	0.00016	0.00016	0.00016	0.00016	0.00014	0.00016
2.5	Nav Channel	0.00018	0.00018	0.00018	0.00018	0.00018	0.00018	0.00016	0.00018
2.6	Nav Channel	0.00019	0.00019	0.00019	0.00019	0.00019	0.00019	0.00018	0.00019
2.7	Nav Channel	0.00021	0.00021	0.00021	0.00021	0.00021	0.00021	0.00020	0.00021
2.8	Nav Channel	0.00023	0.00023	0.00023	0.00023	0.00023	0.00023	0.00022	0.00023
2.9	Nav Channel	0.00024	0.00024	0.00024	0.00024	0.00024	0.00024	0.00024	0.00024
3	Nav Channel	0.00026	0.00026	0.00026	0.00026	0.00026	0.00025	0.00023	0.00026
3.1	Nav Channel	0.00027	0.00027	0.00027	0.00027	0.00027	0.00025	0.00022	0.00027
3.2	Nav Channel	0.00027	0.00027	0.00027	0.00027	0.00027	0.00025	0.00020	0.00027
3.3	Nav Channel	0.00028	0.00028	0.00028	0.00027	0.00027	0.00025	0.00020	0.00027
3.4	Nav Channel	0.00027	0.00027	0.00027	0.00027	0.00027	0.00025	0.00020	0.00027
3.5	Nav Channel	0.00027	0.00027	0.00027	0.00027	0.00027	0.00025	0.00020	0.00027
3.6	Nav Channel	0.00026	0.00026	0.00026	0.00026	0.00026	0.00024	0.00019	0.00026
3.7	Nav Channel	0.00026	0.00026	0.00026	0.00026	0.00026	0.00023	0.00019	0.00026
3.8	Nav Channel	0.00024	0.00024	0.00024	0.00024	0.00024	0.00022	0.00018	0.00024
3.9	Nav Channel	0.00023	0.00023	0.00023	0.00023	0.00023	0.00021	0.00017	0.00023
4	Nav Channel	0.00022	0.00022	0.00022	0.00022	0.00022	0.00020	0.00017	0.00022
4.1	Nav Channel	0.00022	0.00022	0.00022	0.00022	0.00022	0.00021	0.00018	0.00022
4.2	Nav Channel	0.00023	0.00023	0.00023	0.00023	0.00023	0.00022	0.00020	0.00023
4.3	Nav Channel	0.00024	0.00024	0.00024	0.00024	0.00024	0.00023	0.00022	0.00024
4.4	Nav Channel	0.00025	0.00025	0.00025	0.00025	0.00025	0.00025	0.00023	0.00025

**Table J2.3-2g**

**Rolling River Mile Average Concentrations - 1,2,3,4,7,8-HxCDF (µg/kg) - 1 Mile Increments**

Portland Harbor Superfund Site

Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
4.5	Nav Channel	0.00027	0.00027	0.00027	0.00027	0.00027	0.00027	0.00026	0.00027
4.6	Nav Channel	0.00031	0.00031	0.00030	0.00029	0.00031	0.00028	0.00026	0.00031
4.7	Nav Channel	0.00036	0.00034	0.00031	0.00029	0.00034	0.00027	0.00025	0.00034
4.8	Nav Channel	0.00043	0.00040	0.00035	0.00031	0.00040	0.00028	0.00024	0.00040
4.9	Nav Channel	0.00051	0.00045	0.00037	0.00032	0.00045	0.00027	0.00024	0.00045
5	Nav Channel	0.00060	0.00051	0.00041	0.00035	0.00051	0.00028	0.00024	0.00051
5.1	Nav Channel	0.00069	0.00060	0.00049	0.00042	0.00060	0.00031	0.00023	0.00060
5.2	Nav Channel	0.00081	0.00065	0.00052	0.00044	0.00065	0.00031	0.00023	0.00065
5.3	Nav Channel	0.00094	0.00067	0.00053	0.00045	0.00067	0.00031	0.00022	0.00067
5.4	Nav Channel	0.00109	0.00079	0.00064	0.00054	0.00079	0.00031	0.00020	0.00079
5.5	Nav Channel	0.00125	0.00094	0.00077	0.00066	0.00094	0.00038	0.00020	0.00094
5.6	Nav Channel	0.00148	0.00115	0.00099	0.00084	0.00115	0.00051	0.00029	0.00115
5.7	Nav Channel	0.00184	0.00148	0.00123	0.00102	0.00148	0.00061	0.00033	0.00141
5.8	Nav Channel	0.00232	0.00174	0.00145	0.00121	0.00174	0.00074	0.00042	0.00164
5.9	Nav Channel	0.00285	0.00208	0.00180	0.00154	0.00208	0.00102	0.00064	0.00197
6	Nav Channel	0.00342	0.00237	0.00209	0.00183	0.00237	0.00130	0.00089	0.00225
6.1	Nav Channel	0.00394	0.00276	0.00235	0.00200	0.00274	0.00140	0.00098	0.00261
6.2	Nav Channel	0.00422	0.00310	0.00266	0.00224	0.00304	0.00148	0.00098	0.00291
6.3	Nav Channel	0.00451	0.00352	0.00307	0.00263	0.00346	0.00169	0.00103	0.00332
6.4	Nav Channel	0.00474	0.00373	0.00327	0.00284	0.00366	0.00197	0.00117	0.00352
6.5	Nav Channel	0.00493	0.00393	0.00348	0.00308	0.00387	0.00225	0.00155	0.00373
6.6	Nav Channel	0.00491	0.00391	0.00347	0.00313	0.00385	0.00238	0.00176	0.00372
6.7	Nav Channel	0.00461	0.00369	0.00341	0.00315	0.00363	0.00250	0.00194	0.00359
6.8	Nav Channel	0.00419	0.00350	0.00330	0.00309	0.00343	0.00253	0.00194	0.00342
6.9	Nav Channel	0.00366	0.00323	0.00306	0.00287	0.00315	0.00237	0.00177	0.00315
7	Nav Channel	0.00312	0.00300	0.00284	0.00266	0.00291	0.00214	0.00154	0.00291
7.1	Nav Channel	0.00264	0.00260	0.00257	0.00248	0.00254	0.00202	0.00143	0.00254
7.2	Nav Channel	0.00235	0.00231	0.00231	0.00229	0.00228	0.00198	0.00143	0.00229
7.3	Nav Channel	0.00206	0.00203	0.00203	0.00201	0.00201	0.00184	0.00145	0.00201
7.4	Nav Channel	0.00181	0.00179	0.00179	0.00178	0.00177	0.00166	0.00139	0.00177
7.5	Nav Channel	0.00157	0.00155	0.00155	0.00154	0.00153	0.00143	0.00120	0.00153
7.6	Nav Channel	0.00142	0.00140	0.00140	0.00139	0.00139	0.00129	0.00107	0.00139
7.7	Nav Channel	0.00133	0.00132	0.00132	0.00130	0.00130	0.00121	0.00100	0.00130
7.8	Nav Channel	0.00125	0.00124	0.00124	0.00124	0.00123	0.00115	0.00099	0.00123
7.9	Nav Channel	0.00119	0.00119	0.00119	0.00118	0.00118	0.00111	0.00098	0.00118
8	Nav Channel	0.00115	0.00115	0.00115	0.00114	0.00115	0.00110	0.00101	0.00115
8.1	Nav Channel	0.00112	0.00112	0.00112	0.00112	0.00112	0.00111	0.00105	0.00112
8.2	Nav Channel	0.00109	0.00109	0.00109	0.00109	0.00109	0.00109	0.00107	0.00109
8.3	Nav Channel	0.00108	0.00108	0.00108	0.00107	0.00108	0.00107	0.00106	0.00108
8.4	Nav Channel	0.00107	0.00107	0.00107	0.00107	0.00107	0.00106	0.00104	0.00107
8.5	Nav Channel	0.00107	0.00107	0.00107	0.00106	0.00107	0.00103	0.00099	0.00107
8.6	Nav Channel	0.00108	0.00107	0.00107	0.00107	0.00107	0.00103	0.00099	0.00107



**Table J2.3-2g**

**Rolling River Mile Average Concentrations - 1,2,3,4,7,8-HxCDF (µg/kg) - 1 Mile Increments**

Portland Harbor Superfund Site

Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
8.7	Nav Channel	0.00108	0.00108	0.00108	0.00108	0.00108	0.00101	0.00097	0.00108
8.8	Nav Channel	0.00108	0.00108	0.00107	0.00107	0.00107	0.00098	0.00093	0.00107
8.9	Nav Channel	0.00106	0.00106	0.00105	0.00105	0.00105	0.00095	0.00089	0.00105
9	Nav Channel	0.00102	0.00102	0.00102	0.00101	0.00102	0.00091	0.00084	0.00102
9.1	Nav Channel	0.00097	0.00097	0.00097	0.00096	0.00097	0.00086	0.00079	0.00097
9.2	Nav Channel	0.00090	0.00089	0.00089	0.00089	0.00089	0.00078	0.00070	0.00089
9.3	Nav Channel	0.00080	0.00080	0.00080	0.00080	0.00080	0.00068	0.00061	0.00080
9.4	Nav Channel	0.00070	0.00070	0.00070	0.00069	0.00070	0.00058	0.00051	0.00070
9.5	Nav Channel	0.00059	0.00059	0.00059	0.00059	0.00059	0.00050	0.00044	0.00059
9.6	Nav Channel	0.00050	0.00050	0.00050	0.00050	0.00050	0.00043	0.00037	0.00050
9.7	Nav Channel	0.00044	0.00044	0.00044	0.00044	0.00044	0.00038	0.00033	0.00044
9.8	Nav Channel	0.00039	0.00039	0.00039	0.00039	0.00039	0.00036	0.00030	0.00039
9.9	Nav Channel	0.00038	0.00038	0.00038	0.00038	0.00038	0.00032	0.00026	0.00038
10	Nav Channel	0.00038	0.00038	0.00038	0.00038	0.00038	0.00031	0.00025	0.00038
10.1	Nav Channel	0.00039	0.00039	0.00039	0.00039	0.00039	0.00033	0.00026	0.00039
10.2	Nav Channel	0.00042	0.00042	0.00042	0.00042	0.00042	0.00035	0.00028	0.00042
10.3	Nav Channel	0.00044	0.00044	0.00044	0.00044	0.00044	0.00037	0.00030	0.00044
10.4	Nav Channel	0.00047	0.00047	0.00047	0.00047	0.00047	0.00039	0.00029	0.00047
10.5	Nav Channel	0.00049	0.00049	0.00049	0.00049	0.00049	0.00040	0.00029	0.00049
10.6	Nav Channel	0.00050	0.00050	0.00050	0.00050	0.00050	0.00041	0.00028	0.00050
10.7	Nav Channel	0.00050	0.00050	0.00050	0.00049	0.00049	0.00040	0.00028	0.00049
10.8	Nav Channel	0.00051	0.00049	0.00048	0.00048	0.00048	0.00040	0.00030	0.00048
10.9	Nav Channel	0.00054	0.00051	0.00050	0.00048	0.00048	0.00042	0.00033	0.00048
11	Nav Channel	0.00056	0.00053	0.00052	0.00050	0.00050	0.00044	0.00036	0.00050
11.1	Nav Channel	0.00056	0.00053	0.00052	0.00050	0.00050	0.00044	0.00036	0.00050
11.2	Nav Channel	0.00056	0.00053	0.00051	0.00049	0.00049	0.00044	0.00035	0.00049
11.3	Nav Channel	0.00056	0.00052	0.00051	0.00048	0.00048	0.00043	0.00034	0.00048
11.4	Nav Channel	0.00056	0.00052	0.00050	0.00048	0.00048	0.00042	0.00036	0.00048
11.5	Nav Channel	0.00057	0.00052	0.00050	0.00047	0.00047	0.00043	0.00040	0.00047
11.6	Nav Channel	0.00059	0.00054	0.00051	0.00048	0.00048	0.00043	0.00040	0.00048
11.7	Nav Channel	0.00062	0.00056	0.00054	0.00050	0.00050	0.00044	0.00041	0.00050
1.8	West	0.00043	0.00043	0.00043	0.00043	0.00043	0.00043	0.00043	0.00043
1.9	West	0.00059	0.00059	0.00059	0.00059	0.00059	0.00059	0.00059	0.00059
2	West	0.00067	0.00067	0.00067	0.00067	0.00067	0.00067	0.00067	0.00067
2.1	West	0.00070	0.00070	0.00070	0.00070	0.00070	0.00070	0.00070	0.00070
2.2	West	0.00072	0.00072	0.00072	0.00072	0.00072	0.00072	0.00072	0.00072
2.3	West	0.00073	0.00073	0.00073	0.00073	0.00073	0.00073	0.00072	0.00073
2.4	West	0.00074	0.00074	0.00074	0.00074	0.00074	0.00074	0.00073	0.00074
2.5	West	0.00072	0.00072	0.00072	0.00072	0.00072	0.00072	0.00070	0.00072
2.6	West	0.00068	0.00068	0.00068	0.00068	0.00068	0.00068	0.00066	0.00068
2.7	West	0.00061	0.00061	0.00061	0.00061	0.00061	0.00061	0.00058	0.00061
2.8	West	0.00051	0.00051	0.00051	0.00051	0.00051	0.00051	0.00047	0.00051

**Table J2.3-2g**

**Rolling River Mile Average Concentrations - 1,2,3,4,7,8-HxCDF (µg/kg) - 1 Mile Increments**

Portland Harbor Superfund Site

Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
2.9	West	0.00035	0.00035	0.00035	0.00035	0.00035	0.00035	0.00031	0.00035
3	West	0.00028	0.00028	0.00028	0.00028	0.00028	0.00028	0.00023	0.00028
3.1	West	0.00027	0.00027	0.00027	0.00027	0.00027	0.00027	0.00022	0.00027
3.2	West	0.00029	0.00029	0.00029	0.00029	0.00029	0.00029	0.00024	0.00029
3.3	West	0.00033	0.00033	0.00033	0.00033	0.00033	0.00033	0.00028	0.00033
3.4	West	0.00037	0.00037	0.00037	0.00037	0.00036	0.00036	0.00030	0.00037
3.5	West	0.00044	0.00044	0.00044	0.00044	0.00042	0.00042	0.00035	0.00044
3.6	West	0.00053	0.00053	0.00053	0.00052	0.00049	0.00049	0.00040	0.00052
3.7	West	0.00063	0.00063	0.00063	0.00062	0.00058	0.00058	0.00046	0.00062
3.8	West	0.00073	0.00073	0.00073	0.00073	0.00067	0.00067	0.00051	0.00073
3.9	West	0.00091	0.00091	0.00091	0.00090	0.00082	0.00082	0.00057	0.00090
4	West	0.00113	0.00113	0.00113	0.00112	0.00103	0.00103	0.00068	0.00112
4.1	West	0.00136	0.00136	0.00136	0.00135	0.00121	0.00121	0.00076	0.00135
4.2	West	0.00168	0.00168	0.00168	0.00168	0.00137	0.00137	0.00084	0.00168
4.3	West	0.00204	0.00204	0.00204	0.00203	0.00169	0.00169	0.00109	0.00203
4.4	West	0.00230	0.00230	0.00230	0.00229	0.00192	0.00192	0.00128	0.00229
4.5	West	0.00240	0.00240	0.00240	0.00239	0.00199	0.00199	0.00134	0.00239
4.6	West	0.00245	0.00245	0.00245	0.00244	0.00204	0.00204	0.00140	0.00244
4.7	West	0.00257	0.00257	0.00256	0.00251	0.00206	0.00206	0.00143	0.00251
4.8	West	0.00278	0.00278	0.00276	0.00267	0.00221	0.00221	0.00153	0.00267
4.9	West	0.00300	0.00299	0.00289	0.00279	0.00229	0.00229	0.00159	0.00279
5	West	0.00301	0.00298	0.00280	0.00266	0.00212	0.00212	0.00145	0.00266
5.1	West	0.00299	0.00296	0.00274	0.00259	0.00205	0.00205	0.00138	0.00259
5.2	West	0.00302	0.00298	0.00276	0.00259	0.00224	0.00224	0.00147	0.00259
5.3	West	0.00290	0.00286	0.00262	0.00245	0.00208	0.00208	0.00124	0.00245
5.4	West	0.00272	0.00269	0.00245	0.00226	0.00183	0.00183	0.00101	0.00229
5.5	West	0.00262	0.00259	0.00235	0.00217	0.00176	0.00176	0.00096	0.00223
5.6	West	0.00261	0.00253	0.00229	0.00210	0.00160	0.00160	0.00079	0.00218
5.7	West	0.00260	0.00234	0.00207	0.00191	0.00148	0.00148	0.00070	0.00199
5.8	West	0.00257	0.00204	0.00180	0.00168	0.00128	0.00128	0.00062	0.00175
5.9	West	0.00263	0.00180	0.00161	0.00151	0.00113	0.00113	0.00059	0.00158
6	West	0.00279	0.00166	0.00154	0.00145	0.00110	0.00110	0.00059	0.00152
6.1	West	0.00301	0.00167	0.00155	0.00145	0.00104	0.00104	0.00057	0.00144
6.2	West	0.00321	0.00189	0.00176	0.00165	0.00100	0.00100	0.00045	0.00139
6.3	West	0.00383	0.00222	0.00209	0.00178	0.00080	0.00080	0.00032	0.00116
6.4	West	0.00845	0.00486	0.00301	0.00218	0.00079	0.00079	0.00024	0.00102
6.5	West	0.02046	0.01175	0.00695	0.00247	0.00058	0.00058	0.00010	0.00072
6.6	West	0.04008	0.02612	0.01442	0.00531	0.00071	0.00071	0.00009	0.00071
6.7	West	0.07670	0.02716	0.01413	0.00498	0.00066	0.00066	0.00008	0.00066
6.8	West	1.26719	0.02680	0.01384	0.00488	0.00066	0.00066	0.00009	0.00066
6.9	West	2.51093	0.02753	0.01440	0.00515	0.00069	0.00069	0.00009	0.00069
7	West	2.53347	0.05399	0.03117	0.00590	0.00135	0.00135	0.00009	0.00135

**Table J2.3-2g**

**Rolling River Mile Average Concentrations - 1,2,3,4,7,8-HxCDF (µg/kg) - 1 Mile Increments**

Portland Harbor Superfund Site

Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
7.1	West	2.13674	0.08960	0.06767	0.02007	0.00855	0.00855	0.00103	0.00855
7.2	West	1.78906	0.07566	0.05728	0.01750	0.00774	0.00774	0.00102	0.00774
7.3	West	1.54268	0.06543	0.04957	0.01540	0.00703	0.00703	0.00090	0.00703
7.4	West	1.54343	0.06419	0.04927	0.01534	0.00724	0.00724	0.00090	0.00724
7.5	West	1.59268	0.06281	0.04896	0.01583	0.00766	0.00766	0.00094	0.00769
7.6	West	1.62445	0.05638	0.04609	0.01472	0.00787	0.00787	0.00096	0.00795
7.7	West	1.63658	0.05608	0.04686	0.01517	0.00813	0.00813	0.00099	0.00826
7.8	West	0.88248	0.05622	0.04711	0.01532	0.00819	0.00819	0.00099	0.00839
7.9	West	0.08366	0.05201	0.04364	0.01420	0.00763	0.00763	0.00092	0.00788
8	West	0.03300	0.03294	0.03079	0.01264	0.00671	0.00671	0.00088	0.00695
8.1	West	0.00262	0.00262	0.00262	0.00245	0.00177	0.00177	0.00026	0.00204
8.2	West	0.00202	0.00202	0.00202	0.00179	0.00125	0.00125	0.00012	0.00157
8.3	West	0.00174	0.00172	0.00170	0.00138	0.00097	0.00097	0.00010	0.00133
8.4	West	0.00164	0.00143	0.00141	0.00107	0.00064	0.00064	0.00008	0.00102
8.5	West	0.00158	0.00121	0.00115	0.00080	0.00045	0.00045	0.00008	0.00080
8.6	West	0.00163	0.00113	0.00097	0.00059	0.00030	0.00030	0.00008	0.00059
8.7	West	0.00171	0.00107	0.00085	0.00045	0.00019	0.00019	0.00009	0.00045
8.8	West	0.00177	0.00114	0.00088	0.00044	0.00020	0.00020	0.00012	0.00044
8.9	West	0.00180	0.00114	0.00088	0.00049	0.00030	0.00030	0.00022	0.00049
9	West	0.00188	0.00118	0.00090	0.00055	0.00030	0.00030	0.00023	0.00055
9.1	West	0.00200	0.00124	0.00093	0.00063	0.00036	0.00036	0.00028	0.00063
9.2	West	0.00214	0.00136	0.00097	0.00063	0.00038	0.00038	0.00029	0.00063
9.3	West	0.00238	0.00160	0.00095	0.00066	0.00039	0.00039	0.00030	0.00066
9.4	West	0.00226	0.00169	0.00100	0.00069	0.00041	0.00041	0.00032	0.00069
9.5	West	0.00214	0.00175	0.00110	0.00078	0.00048	0.00048	0.00039	0.00078
9.6	West	0.00199	0.00176	0.00121	0.00090	0.00059	0.00059	0.00049	0.00090
9.7	West	0.00190	0.00183	0.00133	0.00102	0.00069	0.00069	0.00051	0.00102
9.8	West	0.00183	0.00176	0.00127	0.00103	0.00071	0.00071	0.00052	0.00103
9.9	West	0.00196	0.00187	0.00128	0.00099	0.00067	0.00067	0.00045	0.00099
10	West	0.00230	0.00219	0.00144	0.00107	0.00079	0.00079	0.00054	0.00107
10.1	West	0.00291	0.00277	0.00176	0.00127	0.00100	0.00100	0.00069	0.00128
10.2	West	0.00330	0.00325	0.00223	0.00205	0.00175	0.00175	0.00121	0.00206
10.3	West	0.00268	0.00268	0.00268	0.00260	0.00237	0.00237	0.00161	0.00260
10.4	West	0.00258	0.00258	0.00257	0.00251	0.00232	0.00232	0.00168	0.00251
10.5	West	0.00245	0.00245	0.00244	0.00238	0.00221	0.00221	0.00165	0.00239
10.6	West	0.00230	0.00230	0.00230	0.00224	0.00209	0.00209	0.00157	0.00225
10.7	West	0.00216	0.00216	0.00216	0.00211	0.00198	0.00198	0.00161	0.00211
10.8	West	0.00206	0.00206	0.00206	0.00206	0.00204	0.00204	0.00171	0.00206
10.9	West	0.00200	0.00200	0.00200	0.00200	0.00200	0.00200	0.00172	0.00200
11	West	0.00191	0.00191	0.00191	0.00191	0.00191	0.00191	0.00166	0.00191
11.1	West	0.00183	0.00183	0.00183	0.00183	0.00183	0.00183	0.00158	0.00183
11.2	West	0.00166	0.00166	0.00166	0.00166	0.00166	0.00166	0.00149	0.00166

**Table J2.3-2g**

**Rolling River Mile Average Concentrations - 1,2,3,4,7,8-HxCDF (µg/kg) - 1 Mile Increments**

Portland Harbor Superfund Site

Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
11.3	West	0.00150	0.00150	0.00150	0.00150	0.00150	0.00150	0.00150	0.00150
11.4	West	0.00140	0.00140	0.00140	0.00140	0.00140	0.00140	0.00140	0.00140
11.5	West	0.00130	0.00130	0.00130	0.00130	0.00130	0.00130	0.00129	0.00130
11.6	West	0.00119	0.00119	0.00119	0.00119	0.00119	0.00119	0.00118	0.00119
11.7	West	0.00111	0.00111	0.00111	0.00111	0.00111	0.00111	0.00110	0.00111
7.6	Swan Isl	0.00059	0.00006	0.00006	0.00004	0.00000	0.00000	0.00000	0.00004
7.7	Swan Isl	0.00083	0.00006	0.00006	0.00004	0.00001	0.00001	0.00000	0.00004
7.8	Swan Isl	0.00105	0.00008	0.00007	0.00005	0.00002	0.00002	0.00000	0.00005
7.9	Swan Isl	0.00126	0.00008	0.00007	0.00005	0.00002	0.00002	0.00001	0.00005
8	Swan Isl	0.00156	0.00009	0.00008	0.00005	0.00003	0.00003	0.00001	0.00005
8.1	Swan Isl	0.00175	0.00009	0.00008	0.00006	0.00003	0.00003	0.00002	0.00006
8.2	Swan Isl	0.00218	0.00012	0.00011	0.00008	0.00005	0.00005	0.00004	0.00008
8.3	Swan Isl	0.00258	0.00017	0.00013	0.00009	0.00006	0.00006	0.00005	0.00009
8.4	Swan Isl	0.00288	0.00022	0.00013	0.00010	0.00007	0.00007	0.00005	0.00010
8.5	Swan Isl	0.00299	0.00025	0.00013	0.00010	0.00007	0.00007	0.00005	0.00010
8.6	Swan Isl	0.00368	0.00051	0.00026	0.00022	0.00008	0.00008	0.00006	0.00033
8.7	Swan Isl	0.00475	0.00108	0.00063	0.00056	0.00021	0.00021	0.00017	0.00086
8.8	Swan Isl	0.00536	0.00127	0.00074	0.00066	0.00024	0.00024	0.00020	0.00102
8.9	Swan Isl	0.00577	0.00144	0.00083	0.00075	0.00027	0.00027	0.00023	0.00116
9	Swan Isl	0.00605	0.00165	0.00095	0.00085	0.00030	0.00030	0.00026	0.00133
9.1	Swan Isl	0.00609	0.00176	0.00101	0.00091	0.00032	0.00032	0.00027	0.00142
9.2	Swan Isl	0.00613	0.00208	0.00116	0.00105	0.00033	0.00033	0.00028	0.00167
9.3	Swan Isl	0.00611	0.00253	0.00142	0.00132	0.00039	0.00039	0.00032	0.00215
9.4	Swan Isl	0.00628	0.00347	0.00207	0.00194	0.00055	0.00055	0.00045	0.00319
9.5	Swan Isl	0.00752	0.00541	0.00338	0.00318	0.00087	0.00087	0.00072	0.00528
9.6	Swan Isl	0.00718	0.00718	0.00518	0.00472	0.00179	0.00179	0.00150	0.00718

**Table J2.3-2h**

**Rolling River Mile Average Concentrations - 1,2,3,7,8-PeCDD (µg/kg) - 1 Mile Increments**

Portland Harbor Superfund Site

Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
1.8	East	0.000053	0.000050	0.000049	0.000048	0.000047	0.000047	0.000046	0.000048
1.9	East	0.000056	0.000050	0.000049	0.000046	0.000044	0.000044	0.000043	0.000046
2	East	0.000066	0.000054	0.000052	0.000049	0.000043	0.000043	0.000041	0.000049
2.1	East	0.000070	0.000059	0.000057	0.000053	0.000041	0.000041	0.000039	0.000053
2.2	East	0.000067	0.000056	0.000054	0.000051	0.000038	0.000038	0.000034	0.000051
2.3	East	0.000066	0.000055	0.000052	0.000049	0.000035	0.000035	0.000029	0.000049
2.4	East	0.000067	0.000055	0.000052	0.000048	0.000034	0.000034	0.000028	0.000048
2.5	East	0.000069	0.000057	0.000054	0.000050	0.000035	0.000035	0.000029	0.000050
2.6	East	0.000071	0.000059	0.000056	0.000052	0.000037	0.000037	0.000031	0.000052
2.7	East	0.000075	0.000063	0.000061	0.000056	0.000041	0.000041	0.000035	0.000057
2.8	East	0.000079	0.000068	0.000066	0.000062	0.000045	0.000045	0.000039	0.000062
2.9	East	0.000080	0.000074	0.000072	0.000070	0.000055	0.000055	0.000048	0.000070
3	East	0.000101	0.000101	0.000091	0.000090	0.000079	0.000079	0.000074	0.000090
3.1	East	0.000116	0.000116	0.000106	0.000105	0.000102	0.000102	0.000096	0.000105
3.2	East	0.000129	0.000129	0.000118	0.000117	0.000115	0.000115	0.000110	0.000117
3.3	East	0.000174	0.000155	0.000117	0.000114	0.000107	0.000107	0.000098	0.000114
3.4	East	0.000216	0.000171	0.000122	0.000119	0.000110	0.000110	0.000100	0.000119
3.5	East	0.000229	0.000181	0.000128	0.000124	0.000113	0.000113	0.000101	0.000124
3.6	East	0.000243	0.000191	0.000135	0.000125	0.000113	0.000113	0.000101	0.000125
3.7	East	0.000255	0.000202	0.000144	0.000127	0.000112	0.000112	0.000098	0.000127
3.8	East	0.000262	0.000208	0.000149	0.000132	0.000115	0.000115	0.000099	0.000132
3.9	East	0.000262	0.000214	0.000157	0.000135	0.000099	0.000099	0.000079	0.000135
4	East	0.000242	0.000196	0.000151	0.000129	0.000076	0.000076	0.000050	0.000129
4.1	East	0.000217	0.000173	0.000129	0.000107	0.000055	0.000055	0.000031	0.000107
4.2	East	0.000210	0.000169	0.000117	0.000092	0.000042	0.000042	0.000019	0.000092
4.3	East	0.000184	0.000154	0.000122	0.000093	0.000037	0.000037	0.000014	0.000093
4.4	East	0.000150	0.000148	0.000126	0.000096	0.000038	0.000038	0.000015	0.000096
4.5	East	0.000151	0.000149	0.000127	0.000098	0.000040	0.000040	0.000018	0.000098
4.6	East	0.000151	0.000150	0.000129	0.000106	0.000049	0.000049	0.000026	0.000106
4.7	East	0.000152	0.000151	0.000130	0.000114	0.000060	0.000060	0.000038	0.000114
4.8	East	0.000163	0.000162	0.000140	0.000124	0.000070	0.000070	0.000049	0.000124
4.9	East	0.000158	0.000157	0.000136	0.000125	0.000090	0.000090	0.000064	0.000125
5	East	0.000156	0.000155	0.000131	0.000121	0.000115	0.000115	0.000091	0.000120
5.1	East	0.000192	0.000191	0.000166	0.000156	0.000143	0.000143	0.000108	0.000147
5.2	East	0.000224	0.000224	0.000223	0.000220	0.000183	0.000183	0.000134	0.000183
5.3	East	0.000232	0.000232	0.000232	0.000224	0.000175	0.000175	0.000127	0.000175
5.4	East	0.000235	0.000235	0.000235	0.000228	0.000180	0.000180	0.000118	0.000180
5.5	East	0.000242	0.000242	0.000242	0.000236	0.000183	0.000183	0.000111	0.000188
5.6	East	0.000255	0.000254	0.000254	0.000246	0.000181	0.000181	0.000109	0.000203
5.7	East	0.000270	0.000270	0.000270	0.000262	0.000184	0.000184	0.000114	0.000223
5.8	East	0.000289	0.000289	0.000284	0.000277	0.000205	0.000205	0.000139	0.000247
5.9	East	0.000296	0.000296	0.000285	0.000274	0.000200	0.000200	0.000140	0.000257
6	East	0.000294	0.000294	0.000277	0.000268	0.000200	0.000200	0.000145	0.000259

**Table J2.3-2h**

**Rolling River Mile Average Concentrations - 1,2,3,7,8-PeCDD (µg/kg) - 1 Mile Increments**

Portland Harbor Superfund Site

Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
6.1	East	0.000291	0.000291	0.000264	0.000255	0.000195	0.000195	0.000148	0.000260
6.2	East	0.000325	0.000292	0.000244	0.000237	0.000192	0.000192	0.000149	0.000263
6.3	East	0.000571	0.000325	0.000215	0.000211	0.000174	0.000174	0.000133	0.000304
6.4	East	0.000629	0.000323	0.000195	0.000190	0.000159	0.000159	0.000127	0.000307
6.5	East	0.000595	0.000301	0.000178	0.000174	0.000148	0.000148	0.000125	0.000288
6.6	East	0.000556	0.000278	0.000162	0.000159	0.000142	0.000142	0.000123	0.000267
6.7	East	0.000659	0.000282	0.000150	0.000148	0.000140	0.000140	0.000125	0.000387
6.8	East	0.000720	0.000297	0.000140	0.000137	0.000130	0.000130	0.000117	0.000460
6.9	East	0.000700	0.000291	0.000132	0.000132	0.000126	0.000126	0.000116	0.000447
7	East	0.000669	0.000278	0.000129	0.000128	0.000123	0.000123	0.000114	0.000426
7.1	East	0.000657	0.000268	0.000126	0.000126	0.000121	0.000121	0.000113	0.000417
7.2	East	0.000656	0.000265	0.000129	0.000129	0.000124	0.000124	0.000117	0.000430
7.3	East	0.000499	0.000238	0.000140	0.000140	0.000135	0.000135	0.000130	0.000423
7.4	East	0.000451	0.000233	0.000149	0.000149	0.000146	0.000146	0.000139	0.000446
7.5	East	0.000481	0.000250	0.000162	0.000162	0.000158	0.000158	0.000149	0.000477
7.6	East	0.000510	0.000259	0.000166	0.000166	0.000162	0.000162	0.000146	0.000500
7.7	East	0.000340	0.000221	0.000151	0.000151	0.000147	0.000147	0.000129	0.000314
7.8	East	0.000195	0.000158	0.000137	0.000137	0.000131	0.000131	0.000111	0.000155
7.9	East	0.000171	0.000131	0.000130	0.000130	0.000129	0.000129	0.000106	0.000131
8	East	0.000165	0.000116	0.000116	0.000116	0.000115	0.000115	0.000089	0.000116
8.1	East	0.000167	0.000110	0.000110	0.000110	0.000109	0.000109	0.000078	0.000110
8.2	East	0.000157	0.000101	0.000101	0.000101	0.000099	0.000099	0.000069	0.000101
8.3	East	0.000147	0.000095	0.000095	0.000095	0.000094	0.000094	0.000069	0.000095
8.4	East	0.000139	0.000088	0.000088	0.000088	0.000087	0.000087	0.000069	0.000088
8.5	East	0.000125	0.000072	0.000072	0.000072	0.000071	0.000071	0.000054	0.000072
8.6	East	0.000111	0.000065	0.000065	0.000065	0.000062	0.000062	0.000054	0.000065
8.7	East	0.000097	0.000078	0.000078	0.000078	0.000074	0.000074	0.000061	0.000078
8.8	East	0.000081	0.000081	0.000081	0.000081	0.000078	0.000078	0.000065	0.000081
8.9	East	0.000081	0.000081	0.000081	0.000081	0.000078	0.000078	0.000066	0.000081
9	East	0.000082	0.000082	0.000082	0.000082	0.000079	0.000079	0.000067	0.000082
9.1	East	0.000085	0.000085	0.000085	0.000085	0.000077	0.000077	0.000062	0.000085
9.2	East	0.000090	0.000090	0.000090	0.000090	0.000076	0.000076	0.000055	0.000090
9.3	East	0.000097	0.000097	0.000097	0.000097	0.000084	0.000084	0.000060	0.000097
9.4	East	0.000107	0.000107	0.000107	0.000107	0.000095	0.000095	0.000071	0.000107
9.5	East	0.000118	0.000118	0.000118	0.000118	0.000105	0.000105	0.000085	0.000118
9.6	East	0.000126	0.000126	0.000126	0.000124	0.000110	0.000110	0.000091	0.000124
9.7	East	0.000137	0.000137	0.000136	0.000135	0.000119	0.000119	0.000102	0.000135
9.8	East	0.000152	0.000152	0.000152	0.000151	0.000134	0.000134	0.000113	0.000151
9.9	East	0.000170	0.000169	0.000169	0.000167	0.000149	0.000149	0.000127	0.000168
10	East	0.000188	0.000188	0.000188	0.000186	0.000166	0.000166	0.000139	0.000186
10.1	East	0.000206	0.000206	0.000206	0.000204	0.000184	0.000184	0.000157	0.000204
10.2	East	0.000229	0.000229	0.000229	0.000226	0.000201	0.000201	0.000177	0.000226

**Table J2.3-2h**

**Rolling River Mile Average Concentrations - 1,2,3,7,8-PeCDD (µg/kg) - 1 Mile Increments**

Portland Harbor Superfund Site

Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
10.3	East	0.000266	0.000266	0.000266	0.000250	0.000209	0.000209	0.000186	0.000250
10.4	East	0.000306	0.000306	0.000306	0.000279	0.000222	0.000222	0.000189	0.000279
10.5	East	0.000339	0.000339	0.000339	0.000308	0.000226	0.000226	0.000174	0.000309
10.6	East	0.000381	0.000381	0.000379	0.000345	0.000254	0.000254	0.000181	0.000345
10.7	East	0.000416	0.000403	0.000388	0.000346	0.000249	0.000249	0.000176	0.000346
10.8	East	0.000428	0.000411	0.000383	0.000334	0.000229	0.000229	0.000147	0.000334
10.9	East	0.000453	0.000406	0.000350	0.000292	0.000190	0.000190	0.000114	0.000292
11	East	0.000490	0.000396	0.000329	0.000259	0.000157	0.000157	0.000089	0.000259
11.1	East	0.000485	0.000388	0.000318	0.000245	0.000143	0.000143	0.000077	0.000245
11.2	East	0.000472	0.000379	0.000312	0.000238	0.000147	0.000147	0.000067	0.000238
11.3	East	0.000477	0.000372	0.000297	0.000230	0.000143	0.000143	0.000057	0.000230
11.4	East	0.000480	0.000362	0.000277	0.000214	0.000130	0.000130	0.000041	0.000214
11.5	East	0.000482	0.000353	0.000260	0.000190	0.000123	0.000123	0.000044	0.000190
11.6	East	0.000483	0.000335	0.000230	0.000157	0.000094	0.000094	0.000035	0.000157
11.7	East	0.000475	0.000322	0.000220	0.000145	0.000085	0.000085	0.000020	0.000145
1.8	Nav Channel	0.000022	0.000022	0.000022	0.000022	0.000022	0.000022	0.000021	0.000022
1.9	Nav Channel	0.000022	0.000022	0.000022	0.000022	0.000022	0.000022	0.000019	0.000022
2	Nav Channel	0.000023	0.000023	0.000023	0.000023	0.000023	0.000023	0.000020	0.000023
2.1	Nav Channel	0.000026	0.000026	0.000026	0.000026	0.000026	0.000026	0.000023	0.000026
2.2	Nav Channel	0.000028	0.000028	0.000028	0.000028	0.000028	0.000028	0.000026	0.000028
2.3	Nav Channel	0.000031	0.000031	0.000031	0.000031	0.000031	0.000031	0.000028	0.000031
2.4	Nav Channel	0.000034	0.000034	0.000034	0.000034	0.000034	0.000034	0.000031	0.000034
2.5	Nav Channel	0.000037	0.000037	0.000037	0.000037	0.000037	0.000037	0.000034	0.000037
2.6	Nav Channel	0.000040	0.000040	0.000040	0.000040	0.000040	0.000040	0.000038	0.000040
2.7	Nav Channel	0.000043	0.000043	0.000043	0.000043	0.000043	0.000043	0.000040	0.000043
2.8	Nav Channel	0.000046	0.000046	0.000046	0.000046	0.000046	0.000046	0.000044	0.000046
2.9	Nav Channel	0.000048	0.000048	0.000048	0.000048	0.000048	0.000048	0.000047	0.000048
3	Nav Channel	0.000051	0.000051	0.000051	0.000051	0.000051	0.000049	0.000046	0.000051
3.1	Nav Channel	0.000053	0.000053	0.000053	0.000052	0.000052	0.000048	0.000043	0.000052
3.2	Nav Channel	0.000054	0.000054	0.000054	0.000054	0.000054	0.000048	0.000039	0.000054
3.3	Nav Channel	0.000056	0.000056	0.000056	0.000056	0.000056	0.000049	0.000039	0.000056
3.4	Nav Channel	0.000057	0.000057	0.000057	0.000057	0.000057	0.000051	0.000041	0.000057
3.5	Nav Channel	0.000058	0.000058	0.000058	0.000058	0.000058	0.000052	0.000043	0.000058
3.6	Nav Channel	0.000059	0.000059	0.000059	0.000059	0.000059	0.000054	0.000044	0.000059
3.7	Nav Channel	0.000060	0.000060	0.000060	0.000060	0.000060	0.000055	0.000046	0.000060
3.8	Nav Channel	0.000059	0.000059	0.000059	0.000058	0.000058	0.000054	0.000045	0.000058
3.9	Nav Channel	0.000055	0.000055	0.000055	0.000055	0.000055	0.000051	0.000043	0.000055
4	Nav Channel	0.000052	0.000052	0.000052	0.000052	0.000052	0.000048	0.000042	0.000052
4.1	Nav Channel	0.000050	0.000050	0.000050	0.000050	0.000050	0.000048	0.000043	0.000050
4.2	Nav Channel	0.000051	0.000051	0.000051	0.000051	0.000051	0.000050	0.000047	0.000051
4.3	Nav Channel	0.000053	0.000053	0.000053	0.000053	0.000053	0.000052	0.000050	0.000053
4.4	Nav Channel	0.000054	0.000054	0.000054	0.000054	0.000054	0.000054	0.000052	0.000054

**Table J2.3-2h**

**Rolling River Mile Average Concentrations - 1,2,3,7,8-PeCDD (µg/kg) - 1 Mile Increments**

Portland Harbor Superfund Site

Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
4.5	Nav Channel	0.000056	0.000056	0.000056	0.000056	0.000056	0.000056	0.000054	0.000056
4.6	Nav Channel	0.000058	0.000058	0.000056	0.000055	0.000058	0.000054	0.000051	0.000058
4.7	Nav Channel	0.000061	0.000059	0.000055	0.000052	0.000059	0.000049	0.000046	0.000059
4.8	Nav Channel	0.000066	0.000063	0.000057	0.000053	0.000063	0.000048	0.000044	0.000063
4.9	Nav Channel	0.000073	0.000068	0.000059	0.000053	0.000068	0.000048	0.000043	0.000068
5	Nav Channel	0.000083	0.000075	0.000064	0.000057	0.000075	0.000048	0.000043	0.000075
5.1	Nav Channel	0.000091	0.000083	0.000070	0.000063	0.000083	0.000050	0.000041	0.000083
5.2	Nav Channel	0.000098	0.000084	0.000070	0.000062	0.000084	0.000048	0.000038	0.000084
5.3	Nav Channel	0.000106	0.000084	0.000068	0.000059	0.000084	0.000044	0.000034	0.000084
5.4	Nav Channel	0.000112	0.000089	0.000072	0.000062	0.000089	0.000041	0.000030	0.000089
5.5	Nav Channel	0.000120	0.000095	0.000078	0.000066	0.000095	0.000043	0.000027	0.000095
5.6	Nav Channel	0.000130	0.000104	0.000087	0.000076	0.000104	0.000051	0.000032	0.000104
5.7	Nav Channel	0.000143	0.000117	0.000100	0.000087	0.000117	0.000059	0.000037	0.000116
5.8	Nav Channel	0.000162	0.000129	0.000114	0.000102	0.000129	0.000071	0.000047	0.000128
5.9	Nav Channel	0.000188	0.000156	0.000143	0.000131	0.000156	0.000100	0.000071	0.000154
6	Nav Channel	0.000225	0.000189	0.000178	0.000167	0.000189	0.000135	0.000101	0.000187
6.1	Nav Channel	0.000272	0.000233	0.000205	0.000189	0.000229	0.000145	0.000112	0.000227
6.2	Nav Channel	0.000318	0.000286	0.000241	0.000216	0.000271	0.000146	0.000111	0.000269
6.3	Nav Channel	0.000345	0.000324	0.000278	0.000252	0.000308	0.000155	0.000111	0.000306
6.4	Nav Channel	0.000362	0.000342	0.000296	0.000270	0.000325	0.000174	0.000123	0.000323
6.5	Nav Channel	0.000370	0.000350	0.000304	0.000279	0.000334	0.000187	0.000142	0.000332
6.6	Nav Channel	0.000370	0.000350	0.000305	0.000282	0.000334	0.000194	0.000152	0.000332
6.7	Nav Channel	0.000364	0.000346	0.000306	0.000287	0.000331	0.000204	0.000168	0.000330
6.8	Nav Channel	0.000349	0.000337	0.000300	0.000283	0.000322	0.000206	0.000169	0.000322
6.9	Nav Channel	0.000323	0.000316	0.000280	0.000264	0.000301	0.000190	0.000152	0.000301
7	Nav Channel	0.000287	0.000286	0.000252	0.000237	0.000272	0.000162	0.000125	0.000272
7.1	Nav Channel	0.000244	0.000244	0.000228	0.000220	0.000233	0.000155	0.000117	0.000233
7.2	Nav Channel	0.000204	0.000203	0.000203	0.000203	0.000203	0.000163	0.000122	0.000203
7.3	Nav Channel	0.000183	0.000183	0.000183	0.000183	0.000183	0.000164	0.000131	0.000183
7.4	Nav Channel	0.000168	0.000168	0.000168	0.000168	0.000168	0.000155	0.000131	0.000168
7.5	Nav Channel	0.000157	0.000157	0.000157	0.000157	0.000157	0.000145	0.000124	0.000157
7.6	Nav Channel	0.000148	0.000148	0.000148	0.000148	0.000148	0.000137	0.000117	0.000148
7.7	Nav Channel	0.000141	0.000141	0.000141	0.000141	0.000141	0.000130	0.000111	0.000141
7.8	Nav Channel	0.000134	0.000134	0.000134	0.000134	0.000134	0.000124	0.000107	0.000134
7.9	Nav Channel	0.000127	0.000127	0.000127	0.000127	0.000127	0.000118	0.000105	0.000127
8	Nav Channel	0.000121	0.000121	0.000121	0.000121	0.000121	0.000116	0.000106	0.000121
8.1	Nav Channel	0.000116	0.000116	0.000116	0.000115	0.000116	0.000114	0.000108	0.000116
8.2	Nav Channel	0.000109	0.000109	0.000109	0.000109	0.000109	0.000108	0.000107	0.000109
8.3	Nav Channel	0.000103	0.000103	0.000103	0.000103	0.000103	0.000103	0.000102	0.000103
8.4	Nav Channel	0.000099	0.000099	0.000099	0.000098	0.000099	0.000098	0.000096	0.000099
8.5	Nav Channel	0.000095	0.000094	0.000094	0.000094	0.000094	0.000092	0.000089	0.000094
8.6	Nav Channel	0.000094	0.000093	0.000093	0.000093	0.000093	0.000089	0.000087	0.000093



**Table J2.3-2h**

**Rolling River Mile Average Concentrations - 1,2,3,7,8-PeCDD (µg/kg) - 1 Mile Increments**

Portland Harbor Superfund Site

Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
8.7	Nav Channel	0.000094	0.000094	0.000094	0.000093	0.000094	0.000088	0.000085	0.000094
8.8	Nav Channel	0.000094	0.000094	0.000094	0.000093	0.000094	0.000085	0.000081	0.000094
8.9	Nav Channel	0.000094	0.000094	0.000094	0.000093	0.000094	0.000084	0.000078	0.000094
9	Nav Channel	0.000095	0.000094	0.000094	0.000093	0.000094	0.000084	0.000078	0.000094
9.1	Nav Channel	0.000095	0.000095	0.000095	0.000094	0.000095	0.000084	0.000078	0.000095
9.2	Nav Channel	0.000097	0.000096	0.000096	0.000096	0.000096	0.000085	0.000077	0.000096
9.3	Nav Channel	0.000098	0.000097	0.000097	0.000097	0.000097	0.000085	0.000077	0.000097
9.4	Nav Channel	0.000098	0.000098	0.000098	0.000098	0.000098	0.000086	0.000077	0.000098
9.5	Nav Channel	0.000101	0.000101	0.000101	0.000101	0.000101	0.000088	0.000078	0.000101
9.6	Nav Channel	0.000106	0.000106	0.000106	0.000105	0.000106	0.000094	0.000084	0.000106
9.7	Nav Channel	0.000110	0.000110	0.000110	0.000110	0.000110	0.000101	0.000090	0.000110
9.8	Nav Channel	0.000115	0.000115	0.000115	0.000115	0.000115	0.000104	0.000088	0.000115
9.9	Nav Channel	0.000121	0.000121	0.000121	0.000121	0.000121	0.000102	0.000084	0.000121
10	Nav Channel	0.000127	0.000127	0.000127	0.000127	0.000127	0.000106	0.000085	0.000127
10.1	Nav Channel	0.000133	0.000133	0.000133	0.000133	0.000133	0.000111	0.000090	0.000133
10.2	Nav Channel	0.000139	0.000139	0.000139	0.000139	0.000139	0.000117	0.000095	0.000139
10.3	Nav Channel	0.000145	0.000145	0.000145	0.000145	0.000145	0.000121	0.000098	0.000145
10.4	Nav Channel	0.000150	0.000150	0.000150	0.000150	0.000150	0.000124	0.000094	0.000150
10.5	Nav Channel	0.000152	0.000152	0.000152	0.000152	0.000152	0.000125	0.000092	0.000152
10.6	Nav Channel	0.000151	0.000151	0.000151	0.000151	0.000151	0.000123	0.000087	0.000151
10.7	Nav Channel	0.000150	0.000149	0.000148	0.000147	0.000147	0.000118	0.000084	0.000147
10.8	Nav Channel	0.000151	0.000145	0.000144	0.000142	0.000142	0.000118	0.000090	0.000142
10.9	Nav Channel	0.000161	0.000153	0.000149	0.000143	0.000143	0.000127	0.000100	0.000143
11	Nav Channel	0.000168	0.000160	0.000156	0.000151	0.000151	0.000135	0.000111	0.000151
11.1	Nav Channel	0.000169	0.000160	0.000157	0.000151	0.000151	0.000136	0.000113	0.000151
11.2	Nav Channel	0.000169	0.000160	0.000156	0.000150	0.000150	0.000134	0.000111	0.000150
11.3	Nav Channel	0.000170	0.000160	0.000155	0.000149	0.000149	0.000133	0.000108	0.000149
11.4	Nav Channel	0.000173	0.000161	0.000156	0.000148	0.000148	0.000133	0.000117	0.000148
11.5	Nav Channel	0.000177	0.000164	0.000158	0.000150	0.000150	0.000138	0.000128	0.000150
11.6	Nav Channel	0.000186	0.000170	0.000163	0.000153	0.000153	0.000140	0.000130	0.000153
11.7	Nav Channel	0.000196	0.000179	0.000172	0.000161	0.000161	0.000145	0.000134	0.000161
1.8	West	0.000029	0.000029	0.000029	0.000029	0.000029	0.000029	0.000029	0.000029
1.9	West	0.000027	0.000027	0.000027	0.000027	0.000027	0.000027	0.000027	0.000027
2	West	0.000024	0.000024	0.000024	0.000024	0.000024	0.000024	0.000024	0.000024
2.1	West	0.000023	0.000023	0.000023	0.000023	0.000023	0.000023	0.000023	0.000023
2.2	West	0.000022	0.000022	0.000022	0.000022	0.000022	0.000022	0.000022	0.000022
2.3	West	0.000023	0.000023	0.000023	0.000023	0.000023	0.000023	0.000023	0.000023
2.4	West	0.000024	0.000024	0.000024	0.000024	0.000024	0.000024	0.000023	0.000024
2.5	West	0.000024	0.000024	0.000024	0.000024	0.000024	0.000024	0.000023	0.000024
2.6	West	0.000025	0.000025	0.000025	0.000025	0.000025	0.000025	0.000022	0.000025
2.7	West	0.000025	0.000025	0.000025	0.000025	0.000025	0.000025	0.000023	0.000025
2.8	West	0.000026	0.000026	0.000026	0.000026	0.000026	0.000026	0.000022	0.000026

**Table J2.3-2h**

**Rolling River Mile Average Concentrations - 1,2,3,7,8-PeCDD (µg/kg) - 1 Mile Increments**

Portland Harbor Superfund Site

Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
2.9	West	0.000027	0.000027	0.000027	0.000027	0.000027	0.000027	0.000023	0.000027
3	West	0.000029	0.000029	0.000029	0.000029	0.000029	0.000029	0.000024	0.000029
3.1	West	0.000033	0.000033	0.000033	0.000033	0.000033	0.000033	0.000028	0.000033
3.2	West	0.000038	0.000038	0.000038	0.000038	0.000038	0.000038	0.000033	0.000038
3.3	West	0.000044	0.000044	0.000044	0.000044	0.000043	0.000043	0.000038	0.000044
3.4	West	0.000050	0.000050	0.000050	0.000050	0.000049	0.000049	0.000042	0.000050
3.5	West	0.000060	0.000060	0.000060	0.000060	0.000057	0.000057	0.000049	0.000060
3.6	West	0.000072	0.000072	0.000072	0.000071	0.000067	0.000067	0.000056	0.000071
3.7	West	0.000087	0.000087	0.000087	0.000086	0.000081	0.000081	0.000066	0.000086
3.8	West	0.000103	0.000103	0.000103	0.000102	0.000094	0.000094	0.000073	0.000102
3.9	West	0.000121	0.000121	0.000121	0.000121	0.000110	0.000110	0.000079	0.000121
4	West	0.000138	0.000138	0.000138	0.000137	0.000125	0.000125	0.000085	0.000137
4.1	West	0.000156	0.000156	0.000156	0.000155	0.000137	0.000137	0.000088	0.000155
4.2	West	0.000166	0.000166	0.000166	0.000165	0.000138	0.000138	0.000081	0.000165
4.3	West	0.000170	0.000170	0.000170	0.000169	0.000140	0.000140	0.000082	0.000169
4.4	West	0.000167	0.000167	0.000167	0.000166	0.000139	0.000139	0.000083	0.000166
4.5	West	0.000160	0.000160	0.000160	0.000160	0.000133	0.000133	0.000079	0.000160
4.6	West	0.000154	0.000154	0.000154	0.000153	0.000128	0.000128	0.000077	0.000153
4.7	West	0.000152	0.000152	0.000151	0.000148	0.000121	0.000121	0.000072	0.000148
4.8	West	0.000155	0.000155	0.000154	0.000149	0.000123	0.000123	0.000077	0.000149
4.9	West	0.000161	0.000160	0.000154	0.000148	0.000120	0.000120	0.000079	0.000148
5	West	0.000162	0.000161	0.000149	0.000140	0.000110	0.000110	0.000073	0.000140
5.1	West	0.000156	0.000154	0.000140	0.000131	0.000102	0.000102	0.000066	0.000131
5.2	West	0.000151	0.000149	0.000134	0.000125	0.000106	0.000106	0.000067	0.000125
5.3	West	0.000145	0.000143	0.000128	0.000117	0.000098	0.000098	0.000056	0.000117
5.4	West	0.000142	0.000140	0.000125	0.000114	0.000091	0.000091	0.000048	0.000116
5.5	West	0.000139	0.000137	0.000123	0.000111	0.000088	0.000088	0.000047	0.000115
5.6	West	0.000134	0.000130	0.000116	0.000105	0.000078	0.000078	0.000037	0.000109
5.7	West	0.000128	0.000118	0.000103	0.000094	0.000071	0.000071	0.000031	0.000098
5.8	West	0.000116	0.000101	0.000087	0.000081	0.000060	0.000060	0.000027	0.000084
5.9	West	0.000106	0.000086	0.000076	0.000070	0.000051	0.000051	0.000025	0.000074
6	West	0.000100	0.000076	0.000070	0.000066	0.000048	0.000048	0.000025	0.000070
6.1	West	0.000097	0.000070	0.000066	0.000061	0.000045	0.000045	0.000024	0.000064
6.2	West	0.000092	0.000065	0.000061	0.000056	0.000038	0.000038	0.000020	0.000057
6.3	West	0.000095	0.000068	0.000063	0.000054	0.000031	0.000031	0.000016	0.000049
6.4	West	0.000253	0.000094	0.000060	0.000048	0.000024	0.000024	0.000012	0.000036
6.5	West	0.000494	0.000103	0.000057	0.000034	0.000011	0.000011	0.000004	0.000018
6.6	West	0.000523	0.000113	0.000060	0.000030	0.000007	0.000007	0.000003	0.000007
6.7	West	0.000518	0.000110	0.000058	0.000028	0.000006	0.000006	0.000002	0.000006
6.8	West	0.000582	0.000108	0.000057	0.000028	0.000006	0.000006	0.000003	0.000006
6.9	West	0.000647	0.000109	0.000058	0.000028	0.000006	0.000006	0.000003	0.000006
7	West	0.000640	0.000111	0.000060	0.000030	0.000008	0.000008	0.000003	0.000008

**Table J2.3-2h**

**Rolling River Mile Average Concentrations - 1,2,3,7,8-PeCDD (µg/kg) - 1 Mile Increments**

Portland Harbor Superfund Site

Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
7.1	West	0.000557	0.000122	0.000079	0.000052	0.000031	0.000031	0.000011	0.000031
7.2	West	0.000489	0.000124	0.000088	0.000065	0.000044	0.000044	0.000024	0.000044
7.3	West	0.000427	0.000114	0.000083	0.000065	0.000048	0.000048	0.000023	0.000048
7.4	West	0.000335	0.000095	0.000080	0.000065	0.000051	0.000051	0.000025	0.000051
7.5	West	0.000210	0.000088	0.000079	0.000070	0.000055	0.000055	0.000026	0.000056
7.6	West	0.000198	0.000083	0.000079	0.000073	0.000060	0.000060	0.000026	0.000063
7.7	West	0.000190	0.000090	0.000088	0.000083	0.000066	0.000066	0.000027	0.000072
7.8	West	0.000152	0.000103	0.000102	0.000094	0.000068	0.000068	0.000027	0.000083
7.9	West	0.000126	0.000121	0.000120	0.000106	0.000067	0.000067	0.000025	0.000096
8	West	0.000130	0.000130	0.000129	0.000109	0.000074	0.000074	0.000032	0.000100
8.1	West	0.000143	0.000142	0.000142	0.000109	0.000067	0.000067	0.000032	0.000103
8.2	West	0.000163	0.000162	0.000162	0.000107	0.000057	0.000057	0.000023	0.000104
8.3	West	0.000207	0.000201	0.000196	0.000109	0.000053	0.000053	0.000022	0.000109
8.4	West	0.000265	0.000209	0.000203	0.000110	0.000050	0.000050	0.000021	0.000109
8.5	West	0.000304	0.000216	0.000202	0.000107	0.000048	0.000048	0.000021	0.000107
8.6	West	0.000344	0.000234	0.000202	0.000102	0.000044	0.000044	0.000022	0.000102
8.7	West	0.000371	0.000241	0.000201	0.000097	0.000040	0.000040	0.000023	0.000097
8.8	West	0.000385	0.000256	0.000211	0.000099	0.000045	0.000045	0.000028	0.000099
8.9	West	0.000393	0.000260	0.000215	0.000109	0.000066	0.000066	0.000049	0.000109
9	West	0.000413	0.000272	0.000223	0.000122	0.000065	0.000065	0.000049	0.000122
9.1	West	0.000426	0.000271	0.000218	0.000130	0.000071	0.000071	0.000055	0.000130
9.2	West	0.000443	0.000285	0.000203	0.000126	0.000075	0.000075	0.000058	0.000126
9.3	West	0.000505	0.000346	0.000179	0.000129	0.000077	0.000077	0.000060	0.000129
9.4	West	0.000466	0.000364	0.000189	0.000137	0.000082	0.000082	0.000063	0.000137
9.5	West	0.000440	0.000376	0.000206	0.000152	0.000095	0.000095	0.000075	0.000152
9.6	West	0.000419	0.000382	0.000226	0.000174	0.000113	0.000113	0.000092	0.000174
9.7	West	0.000415	0.000399	0.000246	0.000195	0.000129	0.000129	0.000097	0.000195
9.8	West	0.000425	0.000407	0.000246	0.000202	0.000134	0.000134	0.000098	0.000202
9.9	West	0.000467	0.000446	0.000250	0.000197	0.000125	0.000125	0.000085	0.000197
10	West	0.000549	0.000522	0.000272	0.000205	0.000143	0.000143	0.000098	0.000205
10.1	West	0.000683	0.000650	0.000313	0.000228	0.000176	0.000176	0.000124	0.000229
10.2	West	0.000776	0.000758	0.000424	0.000389	0.000334	0.000334	0.000232	0.000390
10.3	West	0.000543	0.000543	0.000542	0.000528	0.000489	0.000489	0.000323	0.000529
10.4	West	0.000526	0.000526	0.000526	0.000514	0.000481	0.000481	0.000342	0.000515
10.5	West	0.000505	0.000505	0.000505	0.000494	0.000465	0.000465	0.000342	0.000495
10.6	West	0.000481	0.000481	0.000480	0.000471	0.000444	0.000444	0.000332	0.000471
10.7	West	0.000458	0.000458	0.000458	0.000449	0.000427	0.000427	0.000339	0.000449
10.8	West	0.000441	0.000441	0.000441	0.000441	0.000438	0.000438	0.000357	0.000441
10.9	West	0.000431	0.000431	0.000431	0.000431	0.000431	0.000431	0.000358	0.000431
11	West	0.000412	0.000412	0.000412	0.000412	0.000412	0.000412	0.000344	0.000412
11.1	West	0.000391	0.000391	0.000391	0.000391	0.000391	0.000391	0.000326	0.000391
11.2	West	0.000345	0.000345	0.000345	0.000345	0.000345	0.000345	0.000301	0.000345

**Table J2.3-2h**

**Rolling River Mile Average Concentrations - 1,2,3,7,8-PeCDD (µg/kg) - 1 Mile Increments**

Portland Harbor Superfund Site

Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
11.3	West	0.000295	0.000295	0.000295	0.000295	0.000295	0.000295	0.000295	0.000295
11.4	West	0.000270	0.000270	0.000270	0.000270	0.000270	0.000270	0.000269	0.000270
11.5	West	0.000242	0.000242	0.000242	0.000242	0.000242	0.000242	0.000241	0.000242
11.6	West	0.000214	0.000214	0.000214	0.000214	0.000214	0.000214	0.000213	0.000214
11.7	West	0.000193	0.000193	0.000193	0.000193	0.000193	0.000193	0.000193	0.000193
7.6	Swan Isl	0.000128	0.000010	0.000010	0.000006	0.000001	0.000001	0.000000	0.000006
7.7	Swan Isl	0.000150	0.000010	0.000010	0.000006	0.000001	0.000001	0.000001	0.000006
7.8	Swan Isl	0.000154	0.000012	0.000010	0.000006	0.000002	0.000002	0.000001	0.000006
7.9	Swan Isl	0.000149	0.000010	0.000009	0.000006	0.000002	0.000002	0.000001	0.000006
8	Swan Isl	0.000146	0.000010	0.000009	0.000006	0.000002	0.000002	0.000001	0.000006
8.1	Swan Isl	0.000147	0.000010	0.000009	0.000006	0.000002	0.000002	0.000001	0.000006
8.2	Swan Isl	0.000154	0.000011	0.000010	0.000007	0.000003	0.000003	0.000002	0.000007
8.3	Swan Isl	0.000169	0.000013	0.000011	0.000007	0.000004	0.000004	0.000003	0.000007
8.4	Swan Isl	0.000189	0.000017	0.000011	0.000007	0.000004	0.000004	0.000003	0.000007
8.5	Swan Isl	0.000203	0.000019	0.000011	0.000008	0.000004	0.000004	0.000003	0.000008
8.6	Swan Isl	0.000239	0.000037	0.000019	0.000016	0.000005	0.000005	0.000004	0.000024
8.7	Swan Isl	0.000280	0.000075	0.000045	0.000040	0.000015	0.000015	0.000012	0.000061
8.8	Swan Isl	0.000303	0.000087	0.000051	0.000047	0.000017	0.000017	0.000014	0.000072
8.9	Swan Isl	0.000330	0.000099	0.000058	0.000053	0.000019	0.000019	0.000016	0.000081
9	Swan Isl	0.000363	0.000114	0.000067	0.000061	0.000022	0.000022	0.000018	0.000094
9.1	Swan Isl	0.000378	0.000122	0.000071	0.000065	0.000023	0.000023	0.000020	0.000101
9.2	Swan Isl	0.000416	0.000147	0.000084	0.000077	0.000026	0.000026	0.000021	0.000120
9.3	Swan Isl	0.000450	0.000181	0.000105	0.000098	0.000031	0.000031	0.000025	0.000155
9.4	Swan Isl	0.000490	0.000250	0.000153	0.000143	0.000043	0.000043	0.000035	0.000230
9.5	Swan Isl	0.000549	0.000388	0.000247	0.000232	0.000067	0.000067	0.000055	0.000379
9.6	Swan Isl	0.000513	0.000513	0.000374	0.000341	0.000131	0.000131	0.000110	0.000513

**Table J2.3-2i**

**Rolling River Mile Average Concentrations - 1,2,3,7,8-PeCDF (µg/kg) - 1 Mile Increments**

Portland Harbor Superfund Site

Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
1.8	East	0.00014	0.00011	0.00009	0.00009	0.00008	0.00008	0.00007	0.00009
1.9	East	0.00017	0.00012	0.00011	0.00009	0.00008	0.00008	0.00007	0.00009
2	East	0.00022	0.00015	0.00014	0.00012	0.00009	0.00009	0.00008	0.00012
2.1	East	0.00025	0.00018	0.00017	0.00015	0.00009	0.00009	0.00008	0.00015
2.2	East	0.00026	0.00019	0.00017	0.00015	0.00009	0.00009	0.00008	0.00015
2.3	East	0.00027	0.00020	0.00018	0.00016	0.00009	0.00009	0.00007	0.00016
2.4	East	0.00028	0.00020	0.00018	0.00016	0.00010	0.00010	0.00007	0.00016
2.5	East	0.00027	0.00020	0.00018	0.00016	0.00009	0.00009	0.00007	0.00016
2.6	East	0.00028	0.00020	0.00018	0.00016	0.00010	0.00010	0.00007	0.00016
2.7	East	0.00028	0.00021	0.00019	0.00017	0.00011	0.00011	0.00008	0.00017
2.8	East	0.00026	0.00021	0.00020	0.00018	0.00011	0.00011	0.00009	0.00018
2.9	East	0.00024	0.00020	0.00020	0.00019	0.00012	0.00012	0.00010	0.00019
3	East	0.00019	0.00019	0.00019	0.00018	0.00014	0.00014	0.00012	0.00018
3.1	East	0.00017	0.00017	0.00017	0.00016	0.00015	0.00015	0.00013	0.00016
3.2	East	0.00018	0.00018	0.00017	0.00016	0.00016	0.00016	0.00014	0.00016
3.3	East	0.00026	0.00023	0.00017	0.00016	0.00014	0.00014	0.00013	0.00016
3.4	East	0.00033	0.00025	0.00017	0.00016	0.00014	0.00014	0.00012	0.00016
3.5	East	0.00035	0.00026	0.00018	0.00017	0.00014	0.00014	0.00012	0.00017
3.6	East	0.00037	0.00028	0.00018	0.00017	0.00014	0.00014	0.00011	0.00017
3.7	East	0.00040	0.00030	0.00020	0.00017	0.00013	0.00013	0.00011	0.00017
3.8	East	0.00042	0.00032	0.00022	0.00019	0.00015	0.00015	0.00012	0.00019
3.9	East	0.00055	0.00046	0.00035	0.00028	0.00015	0.00015	0.00010	0.00028
4	East	0.00073	0.00065	0.00055	0.00047	0.00017	0.00017	0.00008	0.00047
4.1	East	0.00076	0.00068	0.00055	0.00046	0.00016	0.00016	0.00006	0.00046
4.2	East	0.00102	0.00093	0.00066	0.00048	0.00014	0.00014	0.00005	0.00048
4.3	East	0.00116	0.00109	0.00080	0.00058	0.00016	0.00016	0.00005	0.00058
4.4	East	0.00116	0.00113	0.00085	0.00061	0.00018	0.00018	0.00006	0.00061
4.5	East	0.00119	0.00117	0.00089	0.00064	0.00020	0.00020	0.00008	0.00064
4.6	East	0.00125	0.00122	0.00094	0.00071	0.00027	0.00027	0.00015	0.00071
4.7	East	0.00133	0.00131	0.00103	0.00081	0.00037	0.00037	0.00025	0.00081
4.8	East	0.00147	0.00145	0.00116	0.00093	0.00049	0.00049	0.00036	0.00093
4.9	East	0.00164	0.00161	0.00130	0.00108	0.00069	0.00069	0.00046	0.00108
5	East	0.00172	0.00169	0.00132	0.00109	0.00093	0.00093	0.00066	0.00107
5.1	East	0.00205	0.00202	0.00169	0.00146	0.00114	0.00114	0.00078	0.00126
5.2	East	0.00197	0.00197	0.00197	0.00196	0.00140	0.00140	0.00097	0.00140
5.3	East	0.00197	0.00197	0.00197	0.00194	0.00135	0.00135	0.00092	0.00135
5.4	East	0.00181	0.00181	0.00181	0.00178	0.00129	0.00129	0.00079	0.00129
5.5	East	0.00169	0.00169	0.00169	0.00167	0.00122	0.00122	0.00072	0.00123
5.6	East	0.00156	0.00156	0.00156	0.00153	0.00109	0.00109	0.00063	0.00113
5.7	East	0.00142	0.00142	0.00142	0.00140	0.00095	0.00095	0.00053	0.00103
5.8	East	0.00135	0.00135	0.00132	0.00130	0.00090	0.00090	0.00051	0.00099
5.9	East	0.00128	0.00128	0.00123	0.00119	0.00079	0.00079	0.00049	0.00096
6	East	0.00121	0.00121	0.00113	0.00110	0.00073	0.00073	0.00049	0.00093

**Table J2.3-2i**

**Rolling River Mile Average Concentrations - 1,2,3,7,8-PeCDF (µg/kg) - 1 Mile Increments**

Portland Harbor Superfund Site

Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
6.1	East	0.00114	0.00114	0.00100	0.00097	0.00073	0.00073	0.00052	0.00096
6.2	East	0.00126	0.00108	0.00085	0.00083	0.00071	0.00071	0.00052	0.00097
6.3	East	0.00209	0.00104	0.00073	0.00071	0.00063	0.00063	0.00046	0.00096
6.4	East	0.00204	0.00095	0.00062	0.00060	0.00053	0.00053	0.00043	0.00088
6.5	East	0.00192	0.00087	0.00055	0.00054	0.00047	0.00047	0.00040	0.00081
6.6	East	0.00179	0.00080	0.00050	0.00049	0.00044	0.00044	0.00038	0.00075
6.7	East	0.00195	0.00079	0.00046	0.00045	0.00043	0.00043	0.00038	0.00097
6.8	East	0.00203	0.00079	0.00041	0.00041	0.00038	0.00038	0.00034	0.00109
6.9	East	0.00195	0.00075	0.00038	0.00038	0.00036	0.00036	0.00033	0.00103
7	East	0.00183	0.00069	0.00035	0.00035	0.00033	0.00033	0.00031	0.00096
7.1	East	0.00176	0.00062	0.00032	0.00032	0.00030	0.00030	0.00029	0.00090
7.2	East	0.00167	0.00058	0.00032	0.00032	0.00031	0.00031	0.00029	0.00091
7.3	East	0.00105	0.00055	0.00036	0.00035	0.00034	0.00034	0.00033	0.00093
7.4	East	0.00101	0.00056	0.00039	0.00039	0.00038	0.00038	0.00036	0.00100
7.5	East	0.00109	0.00062	0.00044	0.00044	0.00043	0.00043	0.00040	0.00108
7.6	East	0.00116	0.00066	0.00046	0.00046	0.00045	0.00045	0.00040	0.00115
7.7	East	0.00083	0.00059	0.00044	0.00044	0.00043	0.00043	0.00037	0.00078
7.8	East	0.00055	0.00047	0.00042	0.00042	0.00041	0.00041	0.00034	0.00047
7.9	East	0.00050	0.00042	0.00042	0.00042	0.00041	0.00041	0.00034	0.00042
8	East	0.00046	0.00036	0.00036	0.00036	0.00036	0.00036	0.00027	0.00036
8.1	East	0.00045	0.00034	0.00034	0.00034	0.00033	0.00033	0.00023	0.00034
8.2	East	0.00040	0.00029	0.00029	0.00029	0.00028	0.00028	0.00018	0.00029
8.3	East	0.00035	0.00025	0.00025	0.00025	0.00025	0.00025	0.00017	0.00025
8.4	East	0.00032	0.00022	0.00022	0.00022	0.00021	0.00021	0.00015	0.00022
8.5	East	0.00025	0.00014	0.00014	0.00014	0.00014	0.00014	0.00009	0.00014
8.6	East	0.00020	0.00009	0.00009	0.00009	0.00009	0.00009	0.00008	0.00009
8.7	East	0.00016	0.00011	0.00011	0.00011	0.00011	0.00011	0.00009	0.00011
8.8	East	0.00011	0.00011	0.00011	0.00011	0.00011	0.00011	0.00009	0.00011
8.9	East	0.00010	0.00010	0.00010	0.00010	0.00010	0.00010	0.00009	0.00010
9	East	0.00010	0.00010	0.00010	0.00010	0.00010	0.00010	0.00008	0.00010
9.1	East	0.00010	0.00010	0.00010	0.00010	0.00009	0.00009	0.00008	0.00010
9.2	East	0.00010	0.00010	0.00010	0.00010	0.00009	0.00009	0.00007	0.00010
9.3	East	0.00010	0.00010	0.00010	0.00010	0.00009	0.00009	0.00007	0.00010
9.4	East	0.00011	0.00011	0.00011	0.00011	0.00010	0.00010	0.00007	0.00011
9.5	East	0.00011	0.00011	0.00011	0.00011	0.00010	0.00010	0.00008	0.00011
9.6	East	0.00012	0.00012	0.00012	0.00012	0.00010	0.00010	0.00008	0.00012
9.7	East	0.00012	0.00012	0.00012	0.00012	0.00011	0.00011	0.00009	0.00012
9.8	East	0.00013	0.00013	0.00013	0.00013	0.00011	0.00011	0.00009	0.00013
9.9	East	0.00013	0.00013	0.00013	0.00013	0.00012	0.00012	0.00010	0.00013
10	East	0.00014	0.00014	0.00014	0.00014	0.00012	0.00012	0.00010	0.00014
10.1	East	0.00015	0.00015	0.00015	0.00015	0.00013	0.00013	0.00011	0.00015
10.2	East	0.00016	0.00016	0.00016	0.00016	0.00014	0.00014	0.00013	0.00016

**Table J2.3-2i**

**Rolling River Mile Average Concentrations - 1,2,3,7,8-PeCDF (µg/kg) - 1 Mile Increments**

Portland Harbor Superfund Site

Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
10.3	East	0.00018	0.00018	0.00018	0.00017	0.00014	0.00014	0.00013	0.00017
10.4	East	0.00020	0.00020	0.00020	0.00018	0.00014	0.00014	0.00012	0.00018
10.5	East	0.00021	0.00021	0.00021	0.00019	0.00014	0.00014	0.00011	0.00019
10.6	East	0.00023	0.00023	0.00023	0.00021	0.00016	0.00016	0.00011	0.00021
10.7	East	0.00025	0.00024	0.00023	0.00021	0.00015	0.00015	0.00011	0.00021
10.8	East	0.00029	0.00027	0.00025	0.00022	0.00015	0.00015	0.00009	0.00022
10.9	East	0.00031	0.00027	0.00023	0.00019	0.00012	0.00012	0.00007	0.00019
11	East	0.00035	0.00028	0.00023	0.00017	0.00010	0.00010	0.00005	0.00017
11.1	East	0.00036	0.00028	0.00023	0.00017	0.00010	0.00010	0.00005	0.00017
11.2	East	0.00035	0.00028	0.00022	0.00016	0.00010	0.00010	0.00004	0.00016
11.3	East	0.00036	0.00028	0.00022	0.00016	0.00010	0.00010	0.00004	0.00016
11.4	East	0.00037	0.00028	0.00021	0.00016	0.00009	0.00009	0.00003	0.00016
11.5	East	0.00038	0.00028	0.00021	0.00014	0.00009	0.00009	0.00003	0.00014
11.6	East	0.00039	0.00027	0.00019	0.00012	0.00007	0.00007	0.00002	0.00012
11.7	East	0.00040	0.00028	0.00020	0.00012	0.00007	0.00007	0.00002	0.00012
1.8	Nav Channel	0.00003	0.00003	0.00003	0.00003	0.00003	0.00003	0.00003	0.00003
1.9	Nav Channel	0.00003	0.00003	0.00003	0.00003	0.00003	0.00003	0.00003	0.00003
2	Nav Channel	0.00004	0.00004	0.00004	0.00004	0.00004	0.00004	0.00003	0.00004
2.1	Nav Channel	0.00004	0.00004	0.00004	0.00004	0.00004	0.00004	0.00004	0.00004
2.2	Nav Channel	0.00005	0.00005	0.00005	0.00005	0.00005	0.00005	0.00004	0.00005
2.3	Nav Channel	0.00005	0.00005	0.00005	0.00005	0.00005	0.00005	0.00005	0.00005
2.4	Nav Channel	0.00006	0.00006	0.00006	0.00006	0.00006	0.00006	0.00006	0.00006
2.5	Nav Channel	0.00007	0.00007	0.00007	0.00007	0.00007	0.00007	0.00006	0.00007
2.6	Nav Channel	0.00007	0.00007	0.00007	0.00007	0.00007	0.00007	0.00007	0.00007
2.7	Nav Channel	0.00008	0.00008	0.00008	0.00008	0.00008	0.00008	0.00007	0.00008
2.8	Nav Channel	0.00009	0.00009	0.00009	0.00009	0.00009	0.00009	0.00008	0.00009
2.9	Nav Channel	0.00009	0.00009	0.00009	0.00009	0.00009	0.00009	0.00009	0.00009
3	Nav Channel	0.00010	0.00010	0.00010	0.00010	0.00010	0.00009	0.00009	0.00010
3.1	Nav Channel	0.00010	0.00010	0.00010	0.00010	0.00010	0.00009	0.00008	0.00010
3.2	Nav Channel	0.00010	0.00010	0.00010	0.00010	0.00010	0.00009	0.00007	0.00010
3.3	Nav Channel	0.00010	0.00010	0.00010	0.00010	0.00010	0.00009	0.00007	0.00010
3.4	Nav Channel	0.00010	0.00010	0.00010	0.00010	0.00010	0.00009	0.00007	0.00010
3.5	Nav Channel	0.00010	0.00010	0.00010	0.00010	0.00010	0.00009	0.00007	0.00010
3.6	Nav Channel	0.00009	0.00009	0.00009	0.00009	0.00009	0.00009	0.00007	0.00009
3.7	Nav Channel	0.00009	0.00009	0.00009	0.00009	0.00009	0.00008	0.00006	0.00009
3.8	Nav Channel	0.00008	0.00008	0.00008	0.00008	0.00008	0.00008	0.00006	0.00008
3.9	Nav Channel	0.00008	0.00008	0.00008	0.00008	0.00008	0.00007	0.00006	0.00008
4	Nav Channel	0.00008	0.00008	0.00008	0.00008	0.00008	0.00007	0.00006	0.00008
4.1	Nav Channel	0.00007	0.00007	0.00007	0.00007	0.00007	0.00007	0.00006	0.00007
4.2	Nav Channel	0.00007	0.00007	0.00007	0.00007	0.00007	0.00007	0.00007	0.00007
4.3	Nav Channel	0.00008	0.00008	0.00008	0.00008	0.00008	0.00008	0.00007	0.00008
4.4	Nav Channel	0.00008	0.00008	0.00008	0.00008	0.00008	0.00008	0.00008	0.00008

**Table J2.3-2i**

**Rolling River Mile Average Concentrations - 1,2,3,7,8-PeCDF (µg/kg) - 1 Mile Increments**

Portland Harbor Superfund Site

Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
4.5	Nav Channel	0.00010	0.00010	0.00010	0.00010	0.00010	0.00010	0.00009	0.00010
4.6	Nav Channel	0.00013	0.00013	0.00012	0.00011	0.00013	0.00011	0.00010	0.00013
4.7	Nav Channel	0.00018	0.00016	0.00013	0.00012	0.00016	0.00011	0.00010	0.00016
4.8	Nav Channel	0.00025	0.00022	0.00017	0.00014	0.00022	0.00011	0.00010	0.00022
4.9	Nav Channel	0.00032	0.00026	0.00019	0.00015	0.00026	0.00011	0.00010	0.00026
5	Nav Channel	0.00042	0.00033	0.00023	0.00019	0.00033	0.00012	0.00010	0.00033
5.1	Nav Channel	0.00053	0.00043	0.00033	0.00027	0.00043	0.00017	0.00011	0.00043
5.2	Nav Channel	0.00066	0.00048	0.00036	0.00030	0.00048	0.00018	0.00012	0.00048
5.3	Nav Channel	0.00078	0.00051	0.00038	0.00031	0.00051	0.00019	0.00012	0.00051
5.4	Nav Channel	0.00088	0.00059	0.00045	0.00037	0.00059	0.00019	0.00011	0.00059
5.5	Nav Channel	0.00096	0.00066	0.00050	0.00042	0.00066	0.00021	0.00010	0.00066
5.6	Nav Channel	0.00105	0.00072	0.00058	0.00048	0.00072	0.00025	0.00012	0.00072
5.7	Nav Channel	0.00117	0.00084	0.00066	0.00054	0.00084	0.00029	0.00014	0.00081
5.8	Nav Channel	0.00131	0.00090	0.00073	0.00061	0.00090	0.00033	0.00018	0.00086
5.9	Nav Channel	0.00147	0.00100	0.00085	0.00073	0.00100	0.00044	0.00026	0.00096
6	Nav Channel	0.00162	0.00106	0.00093	0.00081	0.00106	0.00054	0.00035	0.00101
6.1	Nav Channel	0.00171	0.00110	0.00093	0.00079	0.00109	0.00053	0.00037	0.00104
6.2	Nav Channel	0.00168	0.00117	0.00101	0.00085	0.00115	0.00054	0.00036	0.00110
6.3	Nav Channel	0.00167	0.00128	0.00112	0.00095	0.00126	0.00059	0.00037	0.00121
6.4	Nav Channel	0.00167	0.00128	0.00111	0.00095	0.00125	0.00066	0.00041	0.00120
6.5	Nav Channel	0.00170	0.00130	0.00114	0.00099	0.00128	0.00072	0.00051	0.00123
6.6	Nav Channel	0.00166	0.00127	0.00111	0.00099	0.00125	0.00074	0.00056	0.00120
6.7	Nav Channel	0.00154	0.00117	0.00107	0.00098	0.00115	0.00077	0.00060	0.00113
6.8	Nav Channel	0.00135	0.00108	0.00101	0.00094	0.00106	0.00076	0.00059	0.00105
6.9	Nav Channel	0.00112	0.00096	0.00090	0.00083	0.00093	0.00068	0.00052	0.00093
7	Nav Channel	0.00089	0.00085	0.00080	0.00074	0.00083	0.00058	0.00042	0.00083
7.1	Nav Channel	0.00071	0.00070	0.00069	0.00066	0.00068	0.00054	0.00039	0.00068
7.2	Nav Channel	0.00061	0.00060	0.00060	0.00060	0.00060	0.00052	0.00038	0.00060
7.3	Nav Channel	0.00052	0.00052	0.00052	0.00052	0.00051	0.00047	0.00038	0.00052
7.4	Nav Channel	0.00045	0.00045	0.00045	0.00045	0.00045	0.00042	0.00035	0.00045
7.5	Nav Channel	0.00038	0.00037	0.00037	0.00037	0.00037	0.00035	0.00029	0.00037
7.6	Nav Channel	0.00033	0.00033	0.00033	0.00033	0.00032	0.00030	0.00025	0.00032
7.7	Nav Channel	0.00030	0.00030	0.00030	0.00029	0.00029	0.00027	0.00022	0.00029
7.8	Nav Channel	0.00027	0.00027	0.00027	0.00027	0.00027	0.00025	0.00021	0.00027
7.9	Nav Channel	0.00025	0.00025	0.00025	0.00025	0.00025	0.00023	0.00020	0.00025
8	Nav Channel	0.00023	0.00023	0.00023	0.00023	0.00023	0.00022	0.00020	0.00023
8.1	Nav Channel	0.00022	0.00022	0.00022	0.00022	0.00022	0.00021	0.00020	0.00022
8.2	Nav Channel	0.00020	0.00020	0.00020	0.00020	0.00020	0.00020	0.00019	0.00020
8.3	Nav Channel	0.00019	0.00019	0.00019	0.00018	0.00019	0.00018	0.00018	0.00019
8.4	Nav Channel	0.00017	0.00017	0.00017	0.00017	0.00017	0.00017	0.00017	0.00017
8.5	Nav Channel	0.00016	0.00016	0.00016	0.00016	0.00016	0.00015	0.00015	0.00016
8.6	Nav Channel	0.00015	0.00015	0.00015	0.00015	0.00015	0.00014	0.00014	0.00015



**Table J2.3-2i**

**Rolling River Mile Average Concentrations - 1,2,3,7,8-PeCDF (µg/kg) - 1 Mile Increments**

Portland Harbor Superfund Site

Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
8.7	Nav Channel	0.00015	0.00015	0.00015	0.00015	0.00015	0.00014	0.00013	0.00015
8.8	Nav Channel	0.00015	0.00015	0.00015	0.00014	0.00015	0.00013	0.00012	0.00015
8.9	Nav Channel	0.00014	0.00014	0.00014	0.00014	0.00014	0.00013	0.00012	0.00014
9	Nav Channel	0.00014	0.00014	0.00014	0.00014	0.00014	0.00012	0.00011	0.00014
9.1	Nav Channel	0.00014	0.00013	0.00013	0.00013	0.00013	0.00012	0.00011	0.00013
9.2	Nav Channel	0.00013	0.00013	0.00013	0.00013	0.00013	0.00011	0.00010	0.00013
9.3	Nav Channel	0.00012	0.00012	0.00012	0.00012	0.00012	0.00010	0.00009	0.00012
9.4	Nav Channel	0.00011	0.00011	0.00011	0.00011	0.00011	0.00009	0.00008	0.00011
9.5	Nav Channel	0.00011	0.00011	0.00010	0.00010	0.00010	0.00009	0.00008	0.00010
9.6	Nav Channel	0.00010	0.00010	0.00010	0.00010	0.00010	0.00009	0.00008	0.00010
9.7	Nav Channel	0.00009	0.00009	0.00009	0.00009	0.00009	0.00008	0.00007	0.00009
9.8	Nav Channel	0.00009	0.00009	0.00009	0.00009	0.00009	0.00008	0.00007	0.00009
9.9	Nav Channel	0.00009	0.00009	0.00009	0.00009	0.00009	0.00008	0.00006	0.00009
10	Nav Channel	0.00009	0.00009	0.00009	0.00009	0.00009	0.00008	0.00006	0.00009
10.1	Nav Channel	0.00009	0.00009	0.00009	0.00009	0.00009	0.00008	0.00006	0.00009
10.2	Nav Channel	0.00009	0.00009	0.00009	0.00009	0.00009	0.00008	0.00006	0.00009
10.3	Nav Channel	0.00010	0.00010	0.00010	0.00010	0.00010	0.00008	0.00006	0.00010
10.4	Nav Channel	0.00010	0.00010	0.00010	0.00010	0.00010	0.00008	0.00006	0.00010
10.5	Nav Channel	0.00010	0.00010	0.00010	0.00010	0.00010	0.00008	0.00006	0.00010
10.6	Nav Channel	0.00010	0.00010	0.00010	0.00010	0.00010	0.00008	0.00006	0.00010
10.7	Nav Channel	0.00010	0.00010	0.00010	0.00010	0.00010	0.00008	0.00005	0.00010
10.8	Nav Channel	0.00011	0.00010	0.00010	0.00010	0.00010	0.00008	0.00006	0.00010
10.9	Nav Channel	0.00012	0.00011	0.00011	0.00010	0.00010	0.00009	0.00007	0.00010
11	Nav Channel	0.00013	0.00012	0.00012	0.00011	0.00011	0.00010	0.00008	0.00011
11.1	Nav Channel	0.00013	0.00013	0.00012	0.00012	0.00012	0.00010	0.00008	0.00012
11.2	Nav Channel	0.00014	0.00013	0.00012	0.00012	0.00012	0.00011	0.00009	0.00012
11.3	Nav Channel	0.00014	0.00013	0.00013	0.00012	0.00012	0.00011	0.00009	0.00012
11.4	Nav Channel	0.00014	0.00013	0.00013	0.00012	0.00012	0.00011	0.00009	0.00012
11.5	Nav Channel	0.00015	0.00014	0.00013	0.00012	0.00012	0.00011	0.00010	0.00012
11.6	Nav Channel	0.00016	0.00014	0.00014	0.00013	0.00013	0.00011	0.00011	0.00013
11.7	Nav Channel	0.00017	0.00015	0.00015	0.00014	0.00014	0.00012	0.00011	0.00014
1.8	West	0.00017	0.00017	0.00017	0.00017	0.00017	0.00017	0.00017	0.00017
1.9	West	0.00025	0.00025	0.00025	0.00025	0.00025	0.00025	0.00025	0.00025
2	West	0.00029	0.00029	0.00029	0.00029	0.00029	0.00029	0.00029	0.00029
2.1	West	0.00030	0.00030	0.00030	0.00030	0.00030	0.00030	0.00030	0.00030
2.2	West	0.00031	0.00031	0.00031	0.00031	0.00031	0.00031	0.00031	0.00031
2.3	West	0.00031	0.00031	0.00031	0.00031	0.00031	0.00031	0.00031	0.00031
2.4	West	0.00032	0.00032	0.00032	0.00032	0.00032	0.00032	0.00032	0.00032
2.5	West	0.00031	0.00031	0.00031	0.00031	0.00031	0.00031	0.00030	0.00031
2.6	West	0.00029	0.00029	0.00029	0.00029	0.00029	0.00029	0.00029	0.00029
2.7	West	0.00026	0.00026	0.00026	0.00026	0.00026	0.00026	0.00025	0.00026
2.8	West	0.00021	0.00021	0.00021	0.00021	0.00021	0.00021	0.00020	0.00021

**Table J2.3-2i**

**Rolling River Mile Average Concentrations - 1,2,3,7,8-PeCDF (µg/kg) - 1 Mile Increments**

Portland Harbor Superfund Site

Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
2.9	West	0.00014	0.00014	0.00014	0.00014	0.00014	0.00014	0.00013	0.00014
3	West	0.00011	0.00011	0.00011	0.00011	0.00011	0.00011	0.00009	0.00011
3.1	West	0.00010	0.00010	0.00010	0.00010	0.00010	0.00010	0.00008	0.00010
3.2	West	0.00011	0.00011	0.00011	0.00011	0.00011	0.00011	0.00009	0.00011
3.3	West	0.00012	0.00012	0.00012	0.00012	0.00012	0.00012	0.00010	0.00012
3.4	West	0.00014	0.00014	0.00014	0.00014	0.00014	0.00014	0.00011	0.00014
3.5	West	0.00016	0.00016	0.00016	0.00016	0.00016	0.00016	0.00013	0.00016
3.6	West	0.00018	0.00018	0.00018	0.00018	0.00017	0.00017	0.00014	0.00018
3.7	West	0.00021	0.00021	0.00021	0.00021	0.00020	0.00020	0.00016	0.00021
3.8	West	0.00023	0.00023	0.00023	0.00023	0.00022	0.00022	0.00017	0.00023
3.9	West	0.00027	0.00027	0.00027	0.00027	0.00025	0.00025	0.00018	0.00027
4	West	0.00032	0.00032	0.00032	0.00032	0.00029	0.00029	0.00021	0.00032
4.1	West	0.00038	0.00038	0.00038	0.00038	0.00034	0.00034	0.00023	0.00038
4.2	West	0.00046	0.00046	0.00046	0.00046	0.00038	0.00038	0.00024	0.00046
4.3	West	0.00052	0.00052	0.00052	0.00052	0.00043	0.00043	0.00028	0.00052
4.4	West	0.00055	0.00055	0.00055	0.00054	0.00045	0.00045	0.00031	0.00054
4.5	West	0.00056	0.00056	0.00056	0.00056	0.00047	0.00047	0.00032	0.00056
4.6	West	0.00059	0.00059	0.00059	0.00059	0.00050	0.00050	0.00036	0.00059
4.7	West	0.00066	0.00066	0.00066	0.00064	0.00052	0.00052	0.00038	0.00064
4.8	West	0.00076	0.00076	0.00075	0.00072	0.00059	0.00059	0.00042	0.00072
4.9	West	0.00085	0.00085	0.00081	0.00077	0.00063	0.00063	0.00043	0.00077
5	West	0.00087	0.00086	0.00079	0.00074	0.00059	0.00059	0.00039	0.00074
5.1	West	0.00084	0.00083	0.00076	0.00071	0.00056	0.00056	0.00037	0.00071
5.2	West	0.00082	0.00081	0.00073	0.00068	0.00058	0.00058	0.00037	0.00068
5.3	West	0.00080	0.00079	0.00071	0.00065	0.00054	0.00054	0.00031	0.00065
5.4	West	0.00077	0.00076	0.00068	0.00062	0.00050	0.00050	0.00027	0.00063
5.5	West	0.00073	0.00072	0.00064	0.00058	0.00046	0.00046	0.00025	0.00060
5.6	West	0.00071	0.00068	0.00060	0.00054	0.00040	0.00040	0.00019	0.00056
5.7	West	0.00067	0.00060	0.00051	0.00047	0.00036	0.00036	0.00015	0.00049
5.8	West	0.00064	0.00050	0.00042	0.00039	0.00029	0.00029	0.00012	0.00041
5.9	West	0.00064	0.00041	0.00036	0.00033	0.00023	0.00023	0.00011	0.00035
6	West	0.00068	0.00036	0.00033	0.00031	0.00022	0.00022	0.00011	0.00033
6.1	West	0.00078	0.00039	0.00036	0.00033	0.00021	0.00021	0.00011	0.00031
6.2	West	0.00092	0.00053	0.00050	0.00046	0.00026	0.00026	0.00009	0.00035
6.3	West	0.00109	0.00061	0.00057	0.00050	0.00022	0.00022	0.00007	0.00031
6.4	West	0.00218	0.00122	0.00079	0.00060	0.00022	0.00022	0.00005	0.00028
6.5	West	0.00436	0.00249	0.00157	0.00066	0.00017	0.00017	0.00002	0.00021
6.6	West	0.00788	0.00514	0.00303	0.00126	0.00020	0.00020	0.00002	0.00020
6.7	West	0.01478	0.00541	0.00297	0.00118	0.00019	0.00019	0.00002	0.00019
6.8	West	0.18712	0.00535	0.00291	0.00116	0.00019	0.00019	0.00002	0.00019
6.9	West	0.36385	0.00548	0.00301	0.00121	0.00019	0.00019	0.00002	0.00019
7	West	0.36694	0.00925	0.00542	0.00135	0.00032	0.00032	0.00002	0.00032

**Table J2.3-2i**

**Rolling River Mile Average Concentrations - 1,2,3,7,8-PeCDF (µg/kg) - 1 Mile Increments**

Portland Harbor Superfund Site

Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
7.1	West	0.30951	0.01422	0.01061	0.00345	0.00147	0.00147	0.00020	0.00147
7.2	West	0.25915	0.01199	0.00897	0.00299	0.00133	0.00133	0.00021	0.00133
7.3	West	0.22344	0.01038	0.00778	0.00264	0.00123	0.00123	0.00019	0.00123
7.4	West	0.22333	0.01009	0.00770	0.00262	0.00128	0.00128	0.00019	0.00128
7.5	West	0.23024	0.00979	0.00758	0.00272	0.00137	0.00137	0.00020	0.00138
7.6	West	0.23446	0.00858	0.00699	0.00249	0.00142	0.00142	0.00021	0.00145
7.7	West	0.23517	0.00847	0.00713	0.00261	0.00149	0.00149	0.00021	0.00155
7.8	West	0.12600	0.00855	0.00725	0.00270	0.00151	0.00151	0.00021	0.00164
7.9	West	0.01251	0.00798	0.00678	0.00256	0.00142	0.00142	0.00020	0.00159
8	West	0.00525	0.00524	0.00493	0.00230	0.00127	0.00127	0.00020	0.00143
8.1	West	0.00083	0.00083	0.00083	0.00073	0.00047	0.00047	0.00009	0.00065
8.2	West	0.00075	0.00075	0.00074	0.00062	0.00038	0.00038	0.00005	0.00058
8.3	West	0.00075	0.00074	0.00074	0.00057	0.00033	0.00033	0.00005	0.00056
8.4	West	0.00077	0.00070	0.00069	0.00051	0.00026	0.00026	0.00005	0.00050
8.5	West	0.00080	0.00065	0.00062	0.00044	0.00021	0.00021	0.00005	0.00044
8.6	West	0.00087	0.00065	0.00056	0.00037	0.00016	0.00016	0.00005	0.00037
8.7	West	0.00094	0.00062	0.00050	0.00030	0.00012	0.00012	0.00005	0.00030
8.8	West	0.00095	0.00064	0.00049	0.00026	0.00011	0.00011	0.00007	0.00026
8.9	West	0.00092	0.00060	0.00045	0.00025	0.00015	0.00015	0.00011	0.00025
9	West	0.00094	0.00060	0.00044	0.00027	0.00014	0.00014	0.00011	0.00027
9.1	West	0.00101	0.00063	0.00046	0.00031	0.00017	0.00017	0.00013	0.00031
9.2	West	0.00103	0.00065	0.00046	0.00032	0.00018	0.00018	0.00014	0.00032
9.3	West	0.00110	0.00071	0.00044	0.00033	0.00019	0.00019	0.00015	0.00033
9.4	West	0.00106	0.00075	0.00047	0.00035	0.00020	0.00020	0.00015	0.00035
9.5	West	0.00102	0.00079	0.00053	0.00040	0.00024	0.00024	0.00020	0.00040
9.6	West	0.00093	0.00080	0.00060	0.00048	0.00031	0.00031	0.00026	0.00048
9.7	West	0.00086	0.00084	0.00067	0.00056	0.00038	0.00038	0.00028	0.00056
9.8	West	0.00079	0.00076	0.00063	0.00056	0.00040	0.00040	0.00029	0.00056
9.9	West	0.00083	0.00080	0.00063	0.00055	0.00040	0.00040	0.00027	0.00055
10	West	0.00097	0.00094	0.00072	0.00062	0.00048	0.00048	0.00032	0.00062
10.1	West	0.00120	0.00116	0.00087	0.00074	0.00060	0.00060	0.00040	0.00074
10.2	West	0.00148	0.00147	0.00118	0.00111	0.00095	0.00095	0.00065	0.00111
10.3	West	0.00135	0.00135	0.00135	0.00131	0.00119	0.00119	0.00080	0.00131
10.4	West	0.00127	0.00127	0.00127	0.00123	0.00114	0.00114	0.00081	0.00124
10.5	West	0.00116	0.00116	0.00116	0.00113	0.00104	0.00104	0.00075	0.00113
10.6	West	0.00105	0.00105	0.00105	0.00102	0.00094	0.00094	0.00068	0.00102
10.7	West	0.00094	0.00094	0.00094	0.00092	0.00086	0.00086	0.00069	0.00092
10.8	West	0.00088	0.00088	0.00088	0.00088	0.00087	0.00087	0.00073	0.00088
10.9	West	0.00085	0.00085	0.00085	0.00085	0.00085	0.00085	0.00073	0.00085
11	West	0.00081	0.00081	0.00081	0.00081	0.00081	0.00081	0.00071	0.00081
11.1	West	0.00078	0.00078	0.00078	0.00078	0.00078	0.00078	0.00067	0.00078
11.2	West	0.00071	0.00071	0.00071	0.00071	0.00071	0.00071	0.00064	0.00071

**Table J2.3-2i**

**Rolling River Mile Average Concentrations - 1,2,3,7,8-PeCDF (µg/kg) - 1 Mile Increments**

Portland Harbor Superfund Site

Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
11.3	West	0.00064	0.00064	0.00064	0.00064	0.00064	0.00064	0.00064	0.00064
11.4	West	0.00060	0.00060	0.00060	0.00060	0.00060	0.00060	0.00060	0.00060
11.5	West	0.00055	0.00055	0.00055	0.00055	0.00055	0.00055	0.00055	0.00055
11.6	West	0.00050	0.00050	0.00050	0.00050	0.00050	0.00050	0.00050	0.00050
11.7	West	0.00047	0.00047	0.00047	0.00047	0.00047	0.00047	0.00047	0.00047
7.6	Swan Isl	0.00014	0.00001	0.00001	0.00001	0.00000	0.00000	0.00000	0.00001
7.7	Swan Isl	0.00019	0.00001	0.00001	0.00001	0.00000	0.00000	0.00000	0.00001
7.8	Swan Isl	0.00022	0.00002	0.00002	0.00001	0.00000	0.00000	0.00000	0.00001
7.9	Swan Isl	0.00022	0.00002	0.00002	0.00001	0.00000	0.00000	0.00000	0.00001
8	Swan Isl	0.00024	0.00002	0.00002	0.00001	0.00000	0.00000	0.00000	0.00001
8.1	Swan Isl	0.00026	0.00002	0.00002	0.00001	0.00000	0.00000	0.00000	0.00001
8.2	Swan Isl	0.00032	0.00002	0.00002	0.00001	0.00001	0.00001	0.00001	0.00001
8.3	Swan Isl	0.00039	0.00003	0.00002	0.00001	0.00001	0.00001	0.00001	0.00001
8.4	Swan Isl	0.00047	0.00004	0.00002	0.00002	0.00001	0.00001	0.00001	0.00002
8.5	Swan Isl	0.00051	0.00005	0.00002	0.00002	0.00001	0.00001	0.00001	0.00002
8.6	Swan Isl	0.00066	0.00012	0.00005	0.00005	0.00001	0.00001	0.00001	0.00008
8.7	Swan Isl	0.00087	0.00026	0.00015	0.00013	0.00004	0.00004	0.00004	0.00021
8.8	Swan Isl	0.00099	0.00030	0.00017	0.00016	0.00005	0.00005	0.00004	0.00025
8.9	Swan Isl	0.00109	0.00035	0.00020	0.00018	0.00006	0.00006	0.00005	0.00028
9	Swan Isl	0.00120	0.00040	0.00022	0.00020	0.00006	0.00006	0.00005	0.00033
9.1	Swan Isl	0.00125	0.00043	0.00024	0.00022	0.00007	0.00007	0.00006	0.00035
9.2	Swan Isl	0.00135	0.00052	0.00028	0.00026	0.00008	0.00008	0.00006	0.00042
9.3	Swan Isl	0.00144	0.00064	0.00036	0.00033	0.00010	0.00010	0.00008	0.00055
9.4	Swan Isl	0.00157	0.00089	0.00053	0.00049	0.00014	0.00014	0.00011	0.00082
9.5	Swan Isl	0.00194	0.00139	0.00087	0.00081	0.00022	0.00022	0.00018	0.00136
9.6	Swan Isl	0.00184	0.00184	0.00132	0.00121	0.00045	0.00045	0.00038	0.00184

**Table J2.3-2j**

**Rolling River Mile Average Concentrations - 2,3,7,8-TCDD (µg/kg) - 1 Mile Increments**

Portland Harbor Superfund Site

Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
1.8	East	0.000029	0.000028	0.000028	0.000027	0.000027	0.000027	0.000027	0.000027
1.9	East	0.000030	0.000028	0.000028	0.000026	0.000026	0.000026	0.000025	0.000026
2	East	0.000034	0.000029	0.000029	0.000027	0.000025	0.000025	0.000024	0.000027
2.1	East	0.000035	0.000031	0.000030	0.000029	0.000024	0.000024	0.000023	0.000029
2.2	East	0.000033	0.000029	0.000028	0.000027	0.000022	0.000022	0.000020	0.000027
2.3	East	0.000031	0.000027	0.000026	0.000025	0.000019	0.000019	0.000017	0.000025
2.4	East	0.000030	0.000026	0.000025	0.000023	0.000017	0.000017	0.000015	0.000023
2.5	East	0.000029	0.000025	0.000024	0.000022	0.000017	0.000017	0.000014	0.000022
2.6	East	0.000029	0.000025	0.000024	0.000022	0.000016	0.000016	0.000014	0.000022
2.7	East	0.000030	0.000025	0.000024	0.000023	0.000016	0.000016	0.000014	0.000023
2.8	East	0.000030	0.000026	0.000025	0.000023	0.000017	0.000017	0.000014	0.000023
2.9	East	0.000027	0.000025	0.000024	0.000023	0.000017	0.000017	0.000015	0.000023
3	East	0.000026	0.000026	0.000024	0.000024	0.000019	0.000019	0.000017	0.000024
3.1	East	0.000026	0.000026	0.000024	0.000023	0.000022	0.000022	0.000021	0.000023
3.2	East	0.000027	0.000027	0.000025	0.000025	0.000024	0.000024	0.000023	0.000025
3.3	East	0.000039	0.000034	0.000026	0.000025	0.000023	0.000023	0.000020	0.000025
3.4	East	0.000049	0.000038	0.000027	0.000026	0.000023	0.000023	0.000021	0.000026
3.5	East	0.000051	0.000040	0.000028	0.000027	0.000023	0.000023	0.000020	0.000027
3.6	East	0.000055	0.000043	0.000030	0.000027	0.000023	0.000023	0.000020	0.000027
3.7	East	0.000061	0.000048	0.000034	0.000028	0.000023	0.000023	0.000019	0.000028
3.8	East	0.000062	0.000049	0.000035	0.000029	0.000024	0.000024	0.000019	0.000029
3.9	East	0.000060	0.000048	0.000035	0.000029	0.000021	0.000021	0.000016	0.000029
4	East	0.000055	0.000044	0.000033	0.000027	0.000017	0.000017	0.000012	0.000027
4.1	East	0.000051	0.000040	0.000029	0.000023	0.000014	0.000014	0.000008	0.000023
4.2	East	0.000048	0.000038	0.000026	0.000019	0.000010	0.000010	0.000005	0.000019
4.3	East	0.000039	0.000032	0.000026	0.000018	0.000009	0.000009	0.000004	0.000018
4.4	East	0.000031	0.000030	0.000027	0.000018	0.000009	0.000009	0.000004	0.000018
4.5	East	0.000031	0.000030	0.000027	0.000018	0.000009	0.000009	0.000004	0.000018
4.6	East	0.000030	0.000030	0.000026	0.000020	0.000011	0.000011	0.000007	0.000020
4.7	East	0.000027	0.000027	0.000024	0.000021	0.000014	0.000014	0.000010	0.000021
4.8	East	0.000030	0.000030	0.000027	0.000024	0.000016	0.000016	0.000012	0.000024
4.9	East	0.000032	0.000032	0.000029	0.000027	0.000022	0.000022	0.000016	0.000027
5	East	0.000037	0.000037	0.000033	0.000031	0.000029	0.000029	0.000023	0.000031
5.1	East	0.000044	0.000044	0.000041	0.000039	0.000036	0.000036	0.000027	0.000037
5.2	East	0.000052	0.000052	0.000052	0.000051	0.000045	0.000045	0.000034	0.000046
5.3	East	0.000051	0.000051	0.000051	0.000050	0.000043	0.000043	0.000032	0.000043
5.4	East	0.000043	0.000043	0.000043	0.000042	0.000036	0.000036	0.000026	0.000036
5.5	East	0.000038	0.000038	0.000038	0.000038	0.000032	0.000032	0.000023	0.000032
5.6	East	0.000033	0.000033	0.000033	0.000033	0.000027	0.000027	0.000018	0.000028
5.7	East	0.000029	0.000029	0.000029	0.000028	0.000022	0.000022	0.000014	0.000024
5.8	East	0.000025	0.000025	0.000025	0.000024	0.000019	0.000019	0.000012	0.000021
5.9	East	0.000022	0.000022	0.000021	0.000021	0.000015	0.000015	0.000010	0.000018
6	East	0.000019	0.000019	0.000017	0.000017	0.000012	0.000012	0.000008	0.000015

**Table J2.3-2j**

**Rolling River Mile Average Concentrations - 2,3,7,8-TCDD (µg/kg) - 1 Mile Increments**

Portland Harbor Superfund Site

Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
6.1	East	0.000017	0.000017	0.000014	0.000014	0.000010	0.000010	0.000007	0.000014
6.2	East	0.000023	0.000019	0.000013	0.000013	0.000010	0.000010	0.000008	0.000016
6.3	East	0.000063	0.000030	0.000013	0.000013	0.000011	0.000011	0.000008	0.000027
6.4	East	0.000084	0.000036	0.000015	0.000014	0.000012	0.000012	0.000009	0.000034
6.5	East	0.000081	0.000035	0.000015	0.000015	0.000013	0.000013	0.000010	0.000034
6.6	East	0.000079	0.000035	0.000016	0.000016	0.000014	0.000014	0.000012	0.000034
6.7	East	0.000099	0.000040	0.000018	0.000018	0.000016	0.000016	0.000014	0.000057
6.8	East	0.000113	0.000046	0.000019	0.000019	0.000018	0.000018	0.000016	0.000072
6.9	East	0.000113	0.000048	0.000021	0.000021	0.000019	0.000019	0.000017	0.000073
7	East	0.000110	0.000048	0.000022	0.000022	0.000021	0.000021	0.000019	0.000072
7.1	East	0.000109	0.000047	0.000022	0.000022	0.000021	0.000021	0.000019	0.000071
7.2	East	0.000110	0.000048	0.000023	0.000023	0.000022	0.000022	0.000021	0.000074
7.3	East	0.000089	0.000043	0.000025	0.000025	0.000024	0.000024	0.000023	0.000073
7.4	East	0.000075	0.000040	0.000026	0.000026	0.000025	0.000025	0.000024	0.000075
7.5	East	0.000081	0.000044	0.000029	0.000029	0.000028	0.000028	0.000026	0.000080
7.6	East	0.000088	0.000046	0.000030	0.000030	0.000029	0.000029	0.000025	0.000085
7.7	East	0.000064	0.000040	0.000028	0.000028	0.000027	0.000027	0.000023	0.000055
7.8	East	0.000042	0.000030	0.000026	0.000026	0.000024	0.000024	0.000020	0.000029
7.9	East	0.000039	0.000025	0.000025	0.000025	0.000024	0.000024	0.000019	0.000025
8	East	0.000041	0.000023	0.000023	0.000023	0.000023	0.000023	0.000017	0.000023
8.1	East	0.000045	0.000025	0.000025	0.000025	0.000024	0.000024	0.000017	0.000025
8.2	East	0.000044	0.000024	0.000024	0.000024	0.000024	0.000024	0.000017	0.000024
8.3	East	0.000043	0.000024	0.000024	0.000024	0.000023	0.000023	0.000018	0.000024
8.4	East	0.000041	0.000023	0.000023	0.000023	0.000023	0.000023	0.000018	0.000023
8.5	East	0.000039	0.000020	0.000020	0.000020	0.000019	0.000019	0.000015	0.000020
8.6	East	0.000034	0.000018	0.000018	0.000018	0.000018	0.000018	0.000015	0.000018
8.7	East	0.000028	0.000022	0.000022	0.000022	0.000021	0.000021	0.000017	0.000022
8.8	East	0.000024	0.000024	0.000024	0.000024	0.000022	0.000022	0.000019	0.000024
8.9	East	0.000024	0.000024	0.000024	0.000024	0.000023	0.000023	0.000019	0.000024
9	East	0.000025	0.000025	0.000025	0.000025	0.000024	0.000024	0.000020	0.000025
9.1	East	0.000025	0.000025	0.000025	0.000025	0.000023	0.000023	0.000018	0.000025
9.2	East	0.000027	0.000027	0.000027	0.000027	0.000023	0.000023	0.000016	0.000027
9.3	East	0.000029	0.000029	0.000029	0.000029	0.000025	0.000025	0.000018	0.000029
9.4	East	0.000033	0.000033	0.000033	0.000033	0.000029	0.000029	0.000022	0.000033
9.5	East	0.000036	0.000036	0.000036	0.000036	0.000033	0.000033	0.000026	0.000036
9.6	East	0.000039	0.000039	0.000039	0.000038	0.000034	0.000034	0.000029	0.000038
9.7	East	0.000042	0.000041	0.000041	0.000041	0.000036	0.000036	0.000031	0.000041
9.8	East	0.000045	0.000045	0.000045	0.000045	0.000040	0.000040	0.000034	0.000045
9.9	East	0.000049	0.000049	0.000049	0.000049	0.000044	0.000044	0.000037	0.000049
10	East	0.000054	0.000054	0.000054	0.000053	0.000047	0.000047	0.000040	0.000053
10.1	East	0.000058	0.000058	0.000058	0.000057	0.000052	0.000052	0.000044	0.000057
10.2	East	0.000062	0.000062	0.000062	0.000061	0.000055	0.000055	0.000049	0.000061

**Table J2.3-2j**

**Rolling River Mile Average Concentrations - 2,3,7,8-TCDD (µg/kg) - 1 Mile Increments**

Portland Harbor Superfund Site

Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
10.3	East	0.000068	0.000068	0.000068	0.000065	0.000055	0.000055	0.000050	0.000065
10.4	East	0.000074	0.000074	0.000074	0.000068	0.000055	0.000055	0.000047	0.000068
10.5	East	0.000078	0.000078	0.000078	0.000071	0.000052	0.000052	0.000040	0.000071
10.6	East	0.000085	0.000085	0.000084	0.000077	0.000057	0.000057	0.000040	0.000077
10.7	East	0.000093	0.000090	0.000086	0.000077	0.000055	0.000055	0.000038	0.000077
10.8	East	0.000106	0.000101	0.000092	0.000079	0.000053	0.000053	0.000032	0.000079
10.9	East	0.000123	0.000107	0.000087	0.000070	0.000044	0.000044	0.000025	0.000070
11	East	0.000135	0.000105	0.000083	0.000063	0.000037	0.000037	0.000020	0.000063
11.1	East	0.000133	0.000103	0.000081	0.000060	0.000034	0.000034	0.000017	0.000060
11.2	East	0.000128	0.000100	0.000078	0.000057	0.000035	0.000035	0.000015	0.000057
11.3	East	0.000133	0.000101	0.000076	0.000056	0.000034	0.000034	0.000013	0.000056
11.4	East	0.000137	0.000101	0.000074	0.000054	0.000032	0.000032	0.000010	0.000054
11.5	East	0.000140	0.000101	0.000071	0.000049	0.000031	0.000031	0.000011	0.000049
11.6	East	0.000145	0.000100	0.000066	0.000043	0.000025	0.000025	0.000009	0.000043
11.7	East	0.000148	0.000100	0.000066	0.000041	0.000023	0.000023	0.000005	0.000041
1.8	Nav Channel	0.000013	0.000013	0.000013	0.000013	0.000013	0.000013	0.000012	0.000013
1.9	Nav Channel	0.000013	0.000013	0.000013	0.000013	0.000013	0.000013	0.000011	0.000013
2	Nav Channel	0.000013	0.000013	0.000013	0.000013	0.000013	0.000013	0.000012	0.000013
2.1	Nav Channel	0.000014	0.000014	0.000014	0.000014	0.000014	0.000014	0.000012	0.000014
2.2	Nav Channel	0.000014	0.000014	0.000014	0.000014	0.000014	0.000014	0.000013	0.000014
2.3	Nav Channel	0.000015	0.000015	0.000015	0.000015	0.000015	0.000015	0.000013	0.000015
2.4	Nav Channel	0.000015	0.000015	0.000015	0.000015	0.000015	0.000015	0.000014	0.000015
2.5	Nav Channel	0.000016	0.000016	0.000016	0.000016	0.000016	0.000016	0.000014	0.000016
2.6	Nav Channel	0.000016	0.000016	0.000016	0.000016	0.000016	0.000016	0.000015	0.000016
2.7	Nav Channel	0.000017	0.000017	0.000017	0.000017	0.000017	0.000017	0.000016	0.000017
2.8	Nav Channel	0.000018	0.000018	0.000018	0.000018	0.000018	0.000018	0.000017	0.000018
2.9	Nav Channel	0.000018	0.000018	0.000018	0.000018	0.000018	0.000018	0.000018	0.000018
3	Nav Channel	0.000019	0.000019	0.000019	0.000019	0.000019	0.000019	0.000018	0.000019
3.1	Nav Channel	0.000020	0.000020	0.000020	0.000020	0.000020	0.000019	0.000016	0.000020
3.2	Nav Channel	0.000021	0.000021	0.000021	0.000021	0.000021	0.000019	0.000015	0.000021
3.3	Nav Channel	0.000021	0.000021	0.000021	0.000021	0.000021	0.000019	0.000015	0.000021
3.4	Nav Channel	0.000021	0.000021	0.000021	0.000021	0.000021	0.000020	0.000016	0.000021
3.5	Nav Channel	0.000022	0.000022	0.000022	0.000022	0.000022	0.000020	0.000016	0.000022
3.6	Nav Channel	0.000022	0.000022	0.000022	0.000022	0.000022	0.000020	0.000016	0.000022
3.7	Nav Channel	0.000021	0.000021	0.000021	0.000021	0.000021	0.000020	0.000016	0.000021
3.8	Nav Channel	0.000021	0.000021	0.000021	0.000021	0.000021	0.000020	0.000016	0.000021
3.9	Nav Channel	0.000021	0.000021	0.000021	0.000021	0.000021	0.000019	0.000016	0.000021
4	Nav Channel	0.000020	0.000020	0.000020	0.000020	0.000020	0.000019	0.000016	0.000020
4.1	Nav Channel	0.000020	0.000020	0.000020	0.000020	0.000020	0.000019	0.000017	0.000020
4.2	Nav Channel	0.000019	0.000019	0.000019	0.000019	0.000019	0.000019	0.000017	0.000019
4.3	Nav Channel	0.000018	0.000018	0.000018	0.000018	0.000018	0.000018	0.000017	0.000018
4.4	Nav Channel	0.000018	0.000018	0.000018	0.000018	0.000018	0.000018	0.000016	0.000018

**Table J2.3-2j**

**Rolling River Mile Average Concentrations - 2,3,7,8-TCDD (µg/kg) - 1 Mile Increments**

Portland Harbor Superfund Site

Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
4.5	Nav Channel	0.000017	0.000017	0.000017	0.000017	0.000017	0.000017	0.000016	0.000017
4.6	Nav Channel	0.000017	0.000017	0.000016	0.000016	0.000017	0.000016	0.000015	0.000017
4.7	Nav Channel	0.000017	0.000016	0.000015	0.000015	0.000016	0.000014	0.000013	0.000016
4.8	Nav Channel	0.000017	0.000016	0.000015	0.000014	0.000016	0.000013	0.000012	0.000016
4.9	Nav Channel	0.000017	0.000016	0.000014	0.000013	0.000016	0.000012	0.000010	0.000016
5	Nav Channel	0.000017	0.000015	0.000013	0.000012	0.000015	0.000010	0.000009	0.000015
5.1	Nav Channel	0.000017	0.000016	0.000013	0.000012	0.000016	0.000010	0.000008	0.000016
5.2	Nav Channel	0.000018	0.000015	0.000013	0.000011	0.000015	0.000009	0.000007	0.000015
5.3	Nav Channel	0.000020	0.000015	0.000012	0.000011	0.000015	0.000008	0.000006	0.000015
5.4	Nav Channel	0.000022	0.000017	0.000013	0.000012	0.000017	0.000008	0.000006	0.000017
5.5	Nav Channel	0.000024	0.000018	0.000015	0.000013	0.000018	0.000008	0.000005	0.000018
5.6	Nav Channel	0.000027	0.000021	0.000018	0.000016	0.000021	0.000011	0.000007	0.000021
5.7	Nav Channel	0.000030	0.000025	0.000022	0.000019	0.000025	0.000013	0.000008	0.000025
5.8	Nav Channel	0.000037	0.000030	0.000026	0.000024	0.000030	0.000017	0.000012	0.000029
5.9	Nav Channel	0.000046	0.000038	0.000036	0.000033	0.000038	0.000026	0.000019	0.000038
6	Nav Channel	0.000059	0.000051	0.000048	0.000046	0.000051	0.000038	0.000029	0.000050
6.1	Nav Channel	0.000078	0.000069	0.000060	0.000055	0.000067	0.000042	0.000032	0.000067
6.2	Nav Channel	0.000100	0.000092	0.000077	0.000069	0.000087	0.000044	0.000033	0.000086
6.3	Nav Channel	0.000123	0.000117	0.000102	0.000094	0.000112	0.000052	0.000034	0.000111
6.4	Nav Channel	0.000143	0.000137	0.000122	0.000113	0.000132	0.000069	0.000044	0.000131
6.5	Nav Channel	0.000157	0.000151	0.000136	0.000127	0.000145	0.000083	0.000060	0.000145
6.6	Nav Channel	0.000166	0.000159	0.000144	0.000136	0.000154	0.000093	0.000071	0.000154
6.7	Nav Channel	0.000169	0.000163	0.000149	0.000142	0.000158	0.000101	0.000080	0.000158
6.8	Nav Channel	0.000167	0.000163	0.000150	0.000143	0.000157	0.000105	0.000083	0.000158
6.9	Nav Channel	0.000160	0.000156	0.000144	0.000138	0.000151	0.000100	0.000078	0.000152
7	Nav Channel	0.000147	0.000145	0.000133	0.000128	0.000140	0.000090	0.000069	0.000141
7.1	Nav Channel	0.000128	0.000127	0.000122	0.000118	0.000124	0.000086	0.000064	0.000124
7.2	Nav Channel	0.000107	0.000106	0.000106	0.000106	0.000106	0.000085	0.000064	0.000106
7.3	Nav Channel	0.000088	0.000087	0.000087	0.000087	0.000087	0.000079	0.000064	0.000088
7.4	Nav Channel	0.000073	0.000073	0.000073	0.000073	0.000073	0.000068	0.000059	0.000073
7.5	Nav Channel	0.000063	0.000063	0.000063	0.000063	0.000063	0.000059	0.000051	0.000063
7.6	Nav Channel	0.000056	0.000056	0.000056	0.000056	0.000056	0.000052	0.000045	0.000056
7.7	Nav Channel	0.000051	0.000051	0.000051	0.000051	0.000051	0.000048	0.000040	0.000051
7.8	Nav Channel	0.000048	0.000048	0.000048	0.000048	0.000048	0.000044	0.000038	0.000048
7.9	Nav Channel	0.000045	0.000045	0.000045	0.000045	0.000045	0.000041	0.000037	0.000045
8	Nav Channel	0.000043	0.000043	0.000043	0.000042	0.000043	0.000040	0.000037	0.000043
8.1	Nav Channel	0.000041	0.000041	0.000041	0.000040	0.000041	0.000040	0.000038	0.000041
8.2	Nav Channel	0.000039	0.000039	0.000039	0.000038	0.000039	0.000038	0.000038	0.000039
8.3	Nav Channel	0.000038	0.000038	0.000038	0.000037	0.000037	0.000037	0.000036	0.000037
8.4	Nav Channel	0.000037	0.000036	0.000036	0.000036	0.000036	0.000035	0.000035	0.000036
8.5	Nav Channel	0.000037	0.000035	0.000035	0.000034	0.000035	0.000033	0.000032	0.000035
8.6	Nav Channel	0.000038	0.000036	0.000036	0.000035	0.000036	0.000033	0.000032	0.000036



**Table J2.3-2j**

**Rolling River Mile Average Concentrations - 2,3,7,8-TCDD (µg/kg) - 1 Mile Increments**

Portland Harbor Superfund Site

Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
8.7	Nav Channel	0.000039	0.000038	0.000037	0.000036	0.000037	0.000033	0.000032	0.000037
8.8	Nav Channel	0.000041	0.000040	0.000039	0.000038	0.000039	0.000033	0.000031	0.000039
8.9	Nav Channel	0.000043	0.000042	0.000041	0.000040	0.000041	0.000035	0.000032	0.000041
9	Nav Channel	0.000046	0.000044	0.000044	0.000043	0.000044	0.000037	0.000034	0.000044
9.1	Nav Channel	0.000049	0.000047	0.000047	0.000046	0.000047	0.000040	0.000036	0.000047
9.2	Nav Channel	0.000051	0.000050	0.000049	0.000049	0.000049	0.000042	0.000039	0.000049
9.3	Nav Channel	0.000053	0.000052	0.000052	0.000051	0.000052	0.000044	0.000040	0.000052
9.4	Nav Channel	0.000055	0.000054	0.000054	0.000053	0.000054	0.000047	0.000042	0.000054
9.5	Nav Channel	0.000057	0.000057	0.000057	0.000056	0.000057	0.000049	0.000044	0.000057
9.6	Nav Channel	0.000060	0.000060	0.000059	0.000059	0.000059	0.000053	0.000047	0.000059
9.7	Nav Channel	0.000062	0.000062	0.000062	0.000062	0.000062	0.000057	0.000051	0.000062
9.8	Nav Channel	0.000063	0.000063	0.000063	0.000063	0.000063	0.000058	0.000050	0.000063
9.9	Nav Channel	0.000063	0.000063	0.000063	0.000063	0.000063	0.000055	0.000047	0.000063
10	Nav Channel	0.000063	0.000063	0.000063	0.000063	0.000063	0.000054	0.000044	0.000063
10.1	Nav Channel	0.000063	0.000063	0.000063	0.000063	0.000063	0.000053	0.000044	0.000063
10.2	Nav Channel	0.000063	0.000063	0.000063	0.000063	0.000063	0.000053	0.000044	0.000063
10.3	Nav Channel	0.000065	0.000065	0.000065	0.000065	0.000065	0.000054	0.000044	0.000065
10.4	Nav Channel	0.000066	0.000066	0.000066	0.000066	0.000066	0.000055	0.000041	0.000066
10.5	Nav Channel	0.000068	0.000068	0.000068	0.000068	0.000068	0.000056	0.000040	0.000068
10.6	Nav Channel	0.000070	0.000070	0.000070	0.000070	0.000070	0.000057	0.000040	0.000070
10.7	Nav Channel	0.000074	0.000073	0.000073	0.000073	0.000073	0.000060	0.000043	0.000073
10.8	Nav Channel	0.000080	0.000077	0.000076	0.000075	0.000075	0.000064	0.000049	0.000075
10.9	Nav Channel	0.000089	0.000085	0.000083	0.000079	0.000079	0.000071	0.000056	0.000079
11	Nav Channel	0.000096	0.000092	0.000090	0.000086	0.000086	0.000077	0.000064	0.000086
11.1	Nav Channel	0.000100	0.000095	0.000093	0.000090	0.000090	0.000081	0.000068	0.000090
11.2	Nav Channel	0.000103	0.000098	0.000095	0.000092	0.000092	0.000083	0.000069	0.000092
11.3	Nav Channel	0.000106	0.000101	0.000098	0.000095	0.000095	0.000086	0.000071	0.000095
11.4	Nav Channel	0.000110	0.000104	0.000101	0.000097	0.000097	0.000088	0.000077	0.000097
11.5	Nav Channel	0.000114	0.000106	0.000103	0.000098	0.000098	0.000091	0.000085	0.000098
11.6	Nav Channel	0.000117	0.000108	0.000105	0.000099	0.000099	0.000091	0.000084	0.000099
11.7	Nav Channel	0.000119	0.000110	0.000106	0.000099	0.000099	0.000090	0.000082	0.000099
1.8	West	0.000016	0.000016	0.000016	0.000016	0.000016	0.000016	0.000016	0.000016
1.9	West	0.000015	0.000015	0.000015	0.000015	0.000015	0.000015	0.000015	0.000015
2	West	0.000014	0.000014	0.000014	0.000014	0.000014	0.000014	0.000014	0.000014
2.1	West	0.000014	0.000014	0.000014	0.000014	0.000014	0.000014	0.000014	0.000014
2.2	West	0.000013	0.000013	0.000013	0.000013	0.000013	0.000013	0.000013	0.000013
2.3	West	0.000014	0.000014	0.000014	0.000014	0.000014	0.000014	0.000014	0.000014
2.4	West	0.000015	0.000015	0.000015	0.000015	0.000015	0.000015	0.000014	0.000015
2.5	West	0.000016	0.000016	0.000016	0.000016	0.000016	0.000016	0.000015	0.000016
2.6	West	0.000018	0.000018	0.000018	0.000018	0.000018	0.000018	0.000016	0.000018
2.7	West	0.000019	0.000019	0.000019	0.000019	0.000019	0.000019	0.000017	0.000019
2.8	West	0.000020	0.000020	0.000020	0.000020	0.000020	0.000020	0.000017	0.000020

**Table J2.3-2j**

**Rolling River Mile Average Concentrations - 2,3,7,8-TCDD (µg/kg) - 1 Mile Increments**

Portland Harbor Superfund Site

Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
2.9	West	0.000022	0.000022	0.000022	0.000022	0.000022	0.000022	0.000018	0.000022
3	West	0.000024	0.000024	0.000024	0.000024	0.000024	0.000024	0.000020	0.000024
3.1	West	0.000027	0.000027	0.000027	0.000027	0.000027	0.000027	0.000023	0.000027
3.2	West	0.000030	0.000030	0.000030	0.000030	0.000030	0.000030	0.000026	0.000030
3.3	West	0.000034	0.000034	0.000034	0.000034	0.000034	0.000034	0.000029	0.000034
3.4	West	0.000037	0.000037	0.000037	0.000037	0.000037	0.000037	0.000031	0.000037
3.5	West	0.000042	0.000042	0.000042	0.000042	0.000040	0.000040	0.000034	0.000042
3.6	West	0.000047	0.000047	0.000047	0.000047	0.000045	0.000045	0.000038	0.000047
3.7	West	0.000055	0.000055	0.000055	0.000055	0.000052	0.000052	0.000043	0.000055
3.8	West	0.000065	0.000065	0.000065	0.000065	0.000060	0.000060	0.000047	0.000065
3.9	West	0.000082	0.000082	0.000082	0.000082	0.000075	0.000075	0.000049	0.000082
4	West	0.000100	0.000100	0.000100	0.000100	0.000093	0.000093	0.000054	0.000100
4.1	West	0.000121	0.000121	0.000121	0.000120	0.000109	0.000109	0.000059	0.000120
4.2	West	0.000143	0.000143	0.000143	0.000143	0.000119	0.000119	0.000060	0.000143
4.3	West	0.000154	0.000154	0.000154	0.000153	0.000127	0.000127	0.000064	0.000153
4.4	West	0.000154	0.000154	0.000154	0.000154	0.000128	0.000128	0.000066	0.000154
4.5	West	0.000154	0.000154	0.000154	0.000154	0.000128	0.000128	0.000066	0.000154
4.6	West	0.000153	0.000153	0.000153	0.000153	0.000128	0.000128	0.000064	0.000153
4.7	West	0.000151	0.000151	0.000150	0.000149	0.000124	0.000124	0.000062	0.000149
4.8	West	0.000148	0.000148	0.000148	0.000146	0.000122	0.000122	0.000065	0.000146
4.9	West	0.000137	0.000137	0.000135	0.000133	0.000108	0.000108	0.000065	0.000133
5	West	0.000119	0.000119	0.000115	0.000113	0.000086	0.000086	0.000057	0.000113
5.1	West	0.000100	0.000099	0.000095	0.000092	0.000068	0.000068	0.000047	0.000092
5.2	West	0.000072	0.000071	0.000067	0.000064	0.000055	0.000055	0.000040	0.000064
5.3	West	0.000054	0.000054	0.000049	0.000046	0.000039	0.000039	0.000025	0.000046
5.4	West	0.000051	0.000050	0.000046	0.000042	0.000033	0.000033	0.000019	0.000043
5.5	West	0.000053	0.000052	0.000048	0.000044	0.000035	0.000035	0.000020	0.000045
5.6	West	0.000053	0.000052	0.000047	0.000043	0.000032	0.000032	0.000016	0.000045
5.7	West	0.000052	0.000047	0.000042	0.000039	0.000029	0.000029	0.000014	0.000041
5.8	West	0.000050	0.000042	0.000037	0.000034	0.000026	0.000026	0.000012	0.000036
5.9	West	0.000049	0.000037	0.000033	0.000031	0.000023	0.000023	0.000012	0.000033
6	West	0.000050	0.000034	0.000031	0.000030	0.000022	0.000022	0.000012	0.000031
6.1	West	0.000053	0.000034	0.000032	0.000030	0.000021	0.000021	0.000011	0.000030
6.2	West	0.000058	0.000039	0.000036	0.000034	0.000022	0.000022	0.000010	0.000030
6.3	West	0.000073	0.000051	0.000048	0.000038	0.000019	0.000019	0.000008	0.000027
6.4	West	0.000358	0.000072	0.000049	0.000037	0.000016	0.000016	0.000007	0.000022
6.5	West	0.001473	0.000077	0.000048	0.000031	0.000010	0.000010	0.000003	0.000013
6.6	West	0.001563	0.000085	0.000052	0.000029	0.000008	0.000008	0.000002	0.000008
6.7	West	0.001492	0.000082	0.000049	0.000027	0.000007	0.000007	0.000002	0.000007
6.8	West	0.001571	0.000081	0.000048	0.000027	0.000007	0.000007	0.000002	0.000007
6.9	West	0.001675	0.000082	0.000049	0.000027	0.000007	0.000007	0.000002	0.000007
7	West	0.001644	0.000085	0.000052	0.000028	0.000008	0.000008	0.000002	0.000008

**Table J2.3-2j**

**Rolling River Mile Average Concentrations - 2,3,7,8-TCDD (µg/kg) - 1 Mile Increments**

Portland Harbor Superfund Site

Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
7.1	West	0.001374	0.000088	0.000060	0.000038	0.000020	0.000020	0.000006	0.000020
7.2	West	0.001159	0.000083	0.000059	0.000041	0.000025	0.000025	0.000013	0.000025
7.3	West	0.000998	0.000072	0.000052	0.000039	0.000029	0.000029	0.000013	0.000029
7.4	West	0.000839	0.000059	0.000050	0.000040	0.000031	0.000031	0.000013	0.000031
7.5	West	0.000257	0.000059	0.000053	0.000045	0.000036	0.000036	0.000014	0.000037
7.6	West	0.000219	0.000060	0.000057	0.000052	0.000042	0.000042	0.000014	0.000045
7.7	West	0.000217	0.000070	0.000069	0.000064	0.000051	0.000051	0.000014	0.000057
7.8	West	0.000160	0.000087	0.000085	0.000078	0.000056	0.000056	0.000014	0.000071
7.9	West	0.000106	0.000102	0.000101	0.000081	0.000054	0.000054	0.000013	0.000075
8	West	0.000119	0.000119	0.000118	0.000084	0.000059	0.000059	0.000020	0.000079
8.1	West	0.000167	0.000167	0.000166	0.000102	0.000063	0.000063	0.000025	0.000099
8.2	West	0.000223	0.000222	0.000222	0.000114	0.000061	0.000061	0.000021	0.000112
8.3	West	0.000323	0.000307	0.000297	0.000124	0.000061	0.000061	0.000022	0.000124
8.4	West	0.000470	0.000325	0.000312	0.000127	0.000060	0.000060	0.000022	0.000127
8.5	West	0.000560	0.000342	0.000312	0.000124	0.000057	0.000057	0.000023	0.000124
8.6	West	0.000633	0.000379	0.000316	0.000117	0.000051	0.000051	0.000023	0.000117
8.7	West	0.000674	0.000393	0.000318	0.000108	0.000043	0.000043	0.000024	0.000108
8.8	West	0.000684	0.000407	0.000329	0.000110	0.000049	0.000049	0.000032	0.000110
8.9	West	0.000713	0.000427	0.000346	0.000137	0.000078	0.000078	0.000060	0.000137
9	West	0.000737	0.000433	0.000348	0.000153	0.000083	0.000083	0.000063	0.000153
9.1	West	0.000721	0.000389	0.000295	0.000134	0.000077	0.000077	0.000062	0.000134
9.2	West	0.000643	0.000317	0.000220	0.000114	0.000076	0.000076	0.000062	0.000114
9.3	West	0.000572	0.000255	0.000152	0.000112	0.000079	0.000079	0.000064	0.000112
9.4	West	0.000427	0.000265	0.000159	0.000118	0.000083	0.000083	0.000068	0.000118
9.5	West	0.000323	0.000254	0.000166	0.000124	0.000087	0.000087	0.000071	0.000124
9.6	West	0.000238	0.000212	0.000166	0.000132	0.000094	0.000094	0.000076	0.000132
9.7	West	0.000207	0.000203	0.000169	0.000139	0.000099	0.000099	0.000080	0.000139
9.8	West	0.000168	0.000164	0.000134	0.000123	0.000090	0.000090	0.000074	0.000123
9.9	West	0.000137	0.000132	0.000095	0.000082	0.000050	0.000050	0.000039	0.000082
10	West	0.000124	0.000117	0.000070	0.000054	0.000034	0.000034	0.000026	0.000054
10.1	West	0.000128	0.000120	0.000056	0.000037	0.000027	0.000027	0.000020	0.000037
10.2	West	0.000132	0.000129	0.000067	0.000061	0.000051	0.000051	0.000037	0.000061
10.3	West	0.000092	0.000092	0.000092	0.000090	0.000083	0.000083	0.000056	0.000090
10.4	West	0.000091	0.000091	0.000091	0.000089	0.000084	0.000084	0.000061	0.000089
10.5	West	0.000091	0.000091	0.000091	0.000089	0.000084	0.000084	0.000064	0.000089
10.6	West	0.000090	0.000090	0.000090	0.000089	0.000084	0.000084	0.000066	0.000089
10.7	West	0.000089	0.000089	0.000089	0.000088	0.000084	0.000084	0.000067	0.000088
10.8	West	0.000087	0.000087	0.000087	0.000087	0.000087	0.000087	0.000071	0.000087
10.9	West	0.000085	0.000085	0.000085	0.000085	0.000085	0.000085	0.000071	0.000085
11	West	0.000081	0.000081	0.000081	0.000081	0.000081	0.000081	0.000069	0.000081
11.1	West	0.000077	0.000077	0.000077	0.000077	0.000077	0.000077	0.000065	0.000077
11.2	West	0.000069	0.000069	0.000069	0.000069	0.000069	0.000069	0.000060	0.000069

**Table J2.3-2j**

**Rolling River Mile Average Concentrations - 2,3,7,8-TCDD (µg/kg) - 1 Mile Increments**

Portland Harbor Superfund Site

Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
11.3	West	0.000060	0.000060	0.000060	0.000060	0.000060	0.000060	0.000059	0.000060
11.4	West	0.000055	0.000055	0.000055	0.000055	0.000055	0.000055	0.000055	0.000055
11.5	West	0.000049	0.000049	0.000049	0.000049	0.000049	0.000049	0.000049	0.000049
11.6	West	0.000044	0.000044	0.000044	0.000044	0.000044	0.000044	0.000044	0.000044
11.7	West	0.000040	0.000040	0.000040	0.000040	0.000040	0.000040	0.000040	0.000040
7.6	Swan Isl	0.000063	0.000004	0.000004	0.000003	0.000001	0.000001	0.000000	0.000003
7.7	Swan Isl	0.000069	0.000004	0.000004	0.000003	0.000001	0.000001	0.000000	0.000003
7.8	Swan Isl	0.000069	0.000005	0.000004	0.000003	0.000001	0.000001	0.000000	0.000003
7.9	Swan Isl	0.000065	0.000004	0.000004	0.000002	0.000001	0.000001	0.000000	0.000002
8	Swan Isl	0.000062	0.000004	0.000004	0.000002	0.000001	0.000001	0.000000	0.000002
8.1	Swan Isl	0.000062	0.000004	0.000004	0.000002	0.000001	0.000001	0.000000	0.000002
8.2	Swan Isl	0.000062	0.000004	0.000004	0.000003	0.000001	0.000001	0.000001	0.000003
8.3	Swan Isl	0.000064	0.000005	0.000004	0.000003	0.000001	0.000001	0.000001	0.000003
8.4	Swan Isl	0.000067	0.000005	0.000004	0.000003	0.000001	0.000001	0.000001	0.000003
8.5	Swan Isl	0.000070	0.000006	0.000004	0.000003	0.000001	0.000001	0.000001	0.000003
8.6	Swan Isl	0.000074	0.000009	0.000005	0.000004	0.000002	0.000002	0.000001	0.000006
8.7	Swan Isl	0.000075	0.000015	0.000010	0.000008	0.000004	0.000004	0.000003	0.000012
8.8	Swan Isl	0.000076	0.000017	0.000011	0.000010	0.000004	0.000004	0.000003	0.000014
8.9	Swan Isl	0.000082	0.000019	0.000012	0.000011	0.000005	0.000005	0.000004	0.000016
9	Swan Isl	0.000089	0.000022	0.000014	0.000012	0.000005	0.000005	0.000004	0.000018
9.1	Swan Isl	0.000092	0.000024	0.000014	0.000013	0.000005	0.000005	0.000005	0.000019
9.2	Swan Isl	0.000098	0.000028	0.000016	0.000015	0.000006	0.000006	0.000005	0.000022
9.3	Swan Isl	0.000102	0.000033	0.000020	0.000019	0.000006	0.000006	0.000005	0.000029
9.4	Swan Isl	0.000106	0.000045	0.000029	0.000027	0.000009	0.000009	0.000007	0.000042
9.5	Swan Isl	0.000101	0.000069	0.000045	0.000042	0.000013	0.000013	0.000011	0.000068
9.6	Swan Isl	0.000091	0.000091	0.000067	0.000061	0.000024	0.000024	0.000020	0.000091

**Table J2.3-2k**

**Rolling River Mile Average Concentrations - 2,3,7,8-TCDF (µg/kg) - 1 Mile Increments**

Portland Harbor Superfund Site

Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
1.8	East	0.000366	0.000326	0.000311	0.000300	0.000290	0.000290	0.000287	0.000300
1.9	East	0.000381	0.000323	0.000305	0.000285	0.000271	0.000271	0.000267	0.000285
2	East	0.000409	0.000325	0.000305	0.000281	0.000247	0.000247	0.000237	0.000281
2.1	East	0.000411	0.000327	0.000307	0.000282	0.000220	0.000220	0.000207	0.000282
2.2	East	0.000392	0.000311	0.000290	0.000267	0.000198	0.000198	0.000176	0.000267
2.3	East	0.000392	0.000307	0.000284	0.000256	0.000179	0.000179	0.000142	0.000256
2.4	East	0.000398	0.000312	0.000283	0.000251	0.000170	0.000170	0.000128	0.000253
2.5	East	0.000407	0.000319	0.000290	0.000260	0.000179	0.000179	0.000138	0.000262
2.6	East	0.000419	0.000329	0.000301	0.000274	0.000191	0.000191	0.000149	0.000275
2.7	East	0.000431	0.000352	0.000325	0.000298	0.000212	0.000212	0.000167	0.000300
2.8	East	0.000420	0.000362	0.000346	0.000320	0.000232	0.000232	0.000185	0.000322
2.9	East	0.000396	0.000361	0.000346	0.000331	0.000246	0.000246	0.000199	0.000333
3	East	0.000358	0.000356	0.000343	0.000333	0.000268	0.000268	0.000225	0.000335
3.1	East	0.000342	0.000340	0.000326	0.000315	0.000288	0.000288	0.000246	0.000318
3.2	East	0.000337	0.000335	0.000320	0.000308	0.000292	0.000292	0.000258	0.000311
3.3	East	0.000430	0.000373	0.000279	0.000267	0.000239	0.000239	0.000217	0.000269
3.4	East	0.000520	0.000380	0.000260	0.000252	0.000223	0.000223	0.000200	0.000252
3.5	East	0.000530	0.000380	0.000253	0.000237	0.000202	0.000202	0.000175	0.000237
3.6	East	0.000548	0.000389	0.000252	0.000223	0.000185	0.000185	0.000156	0.000223
3.7	East	0.000563	0.000400	0.000258	0.000215	0.000170	0.000170	0.000139	0.000215
3.8	East	0.000562	0.000396	0.000251	0.000206	0.000160	0.000160	0.000126	0.000206
3.9	East	0.000519	0.000368	0.000234	0.000189	0.000130	0.000130	0.000095	0.000189
4	East	0.000483	0.000342	0.000219	0.000175	0.000105	0.000105	0.000066	0.000175
4.1	East	0.000461	0.000324	0.000203	0.000159	0.000088	0.000088	0.000048	0.000159
4.2	East	0.000447	0.000319	0.000192	0.000141	0.000069	0.000069	0.000030	0.000141
4.3	East	0.000345	0.000248	0.000184	0.000127	0.000061	0.000061	0.000023	0.000127
4.4	East	0.000226	0.000222	0.000189	0.000129	0.000065	0.000065	0.000032	0.000129
4.5	East	0.000236	0.000233	0.000199	0.000146	0.000085	0.000085	0.000053	0.000146
4.6	East	0.000273	0.000271	0.000241	0.000202	0.000143	0.000143	0.000109	0.000202
4.7	East	0.000335	0.000334	0.000304	0.000280	0.000226	0.000226	0.000194	0.000280
4.8	East	0.000449	0.000447	0.000417	0.000393	0.000339	0.000339	0.000298	0.000393
4.9	East	0.000626	0.000624	0.000592	0.000571	0.000530	0.000530	0.000388	0.000571
5	East	0.000900	0.000898	0.000861	0.000837	0.000798	0.000798	0.000567	0.000818
5.1	East	0.001249	0.001247	0.001213	0.001191	0.000986	0.000986	0.000677	0.001000
5.2	East	0.001757	0.001757	0.001757	0.001745	0.001233	0.001233	0.000840	0.001234
5.3	East	0.001763	0.001762	0.001762	0.001732	0.001186	0.001186	0.000801	0.001186
5.4	East	0.001626	0.001626	0.001626	0.001601	0.001140	0.001140	0.000683	0.001140
5.5	East	0.001529	0.001529	0.001529	0.001507	0.001084	0.001084	0.000628	0.001091
5.6	East	0.001411	0.001411	0.001411	0.001386	0.000973	0.000973	0.000551	0.001010
5.7	East	0.001273	0.001273	0.001273	0.001250	0.000845	0.000845	0.000455	0.000912
5.8	East	0.001153	0.001153	0.001144	0.001123	0.000753	0.000753	0.000403	0.000825
5.9	East	0.001043	0.001043	0.001021	0.000994	0.000638	0.000638	0.000380	0.000741
6	East	0.000914	0.000914	0.000881	0.000856	0.000538	0.000538	0.000339	0.000647

**Table J2.3-2k**

**Rolling River Mile Average Concentrations - 2,3,7,8-TCDF (µg/kg) - 1 Mile Increments**

Portland Harbor Superfund Site

Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
6.1	East	0.000774	0.000773	0.000719	0.000696	0.000487	0.000487	0.000326	0.000607
6.2	East	0.000733	0.000668	0.000578	0.000561	0.000468	0.000468	0.000325	0.000597
6.3	East	0.001015	0.000630	0.000488	0.000480	0.000414	0.000414	0.000288	0.000590
6.4	East	0.000924	0.000535	0.000387	0.000380	0.000324	0.000324	0.000260	0.000505
6.5	East	0.000840	0.000467	0.000326	0.000318	0.000272	0.000272	0.000232	0.000442
6.6	East	0.000759	0.000407	0.000274	0.000269	0.000237	0.000237	0.000205	0.000385
6.7	East	0.000736	0.000362	0.000227	0.000223	0.000208	0.000208	0.000182	0.000384
6.8	East	0.000707	0.000325	0.000186	0.000181	0.000168	0.000168	0.000147	0.000370
6.9	East	0.000662	0.000294	0.000161	0.000160	0.000153	0.000153	0.000139	0.000336
7	East	0.000619	0.000267	0.000146	0.000146	0.000139	0.000139	0.000127	0.000308
7.1	East	0.000593	0.000243	0.000136	0.000135	0.000129	0.000129	0.000120	0.000286
7.2	East	0.000552	0.000222	0.000134	0.000133	0.000127	0.000127	0.000119	0.000281
7.3	East	0.000293	0.000188	0.000141	0.000141	0.000137	0.000137	0.000130	0.000257
7.4	East	0.000265	0.000183	0.000147	0.000147	0.000144	0.000144	0.000137	0.000263
7.5	East	0.000288	0.000202	0.000163	0.000163	0.000161	0.000161	0.000151	0.000286
7.6	East	0.000318	0.000216	0.000175	0.000175	0.000172	0.000172	0.000154	0.000305
7.7	East	0.000284	0.000206	0.000174	0.000174	0.000171	0.000171	0.000151	0.000241
7.8	East	0.000252	0.000187	0.000176	0.000176	0.000171	0.000171	0.000148	0.000185
7.9	East	0.000250	0.000176	0.000175	0.000175	0.000174	0.000174	0.000147	0.000176
8	East	0.000248	0.000157	0.000157	0.000157	0.000155	0.000155	0.000124	0.000157
8.1	East	0.000246	0.000140	0.000140	0.000140	0.000138	0.000138	0.000103	0.000140
8.2	East	0.000230	0.000126	0.000126	0.000126	0.000124	0.000124	0.000089	0.000126
8.3	East	0.000217	0.000119	0.000119	0.000119	0.000118	0.000118	0.000090	0.000119
8.4	East	0.000207	0.000112	0.000112	0.000112	0.000111	0.000111	0.000090	0.000112
8.5	East	0.000195	0.000097	0.000097	0.000097	0.000095	0.000095	0.000075	0.000097
8.6	East	0.000180	0.000093	0.000093	0.000093	0.000088	0.000088	0.000076	0.000093
8.7	East	0.000146	0.000113	0.000113	0.000113	0.000106	0.000106	0.000085	0.000113
8.8	East	0.000120	0.000120	0.000120	0.000120	0.000115	0.000115	0.000095	0.000120
8.9	East	0.000123	0.000123	0.000123	0.000123	0.000118	0.000118	0.000099	0.000123
9	East	0.000128	0.000128	0.000128	0.000128	0.000123	0.000123	0.000103	0.000128
9.1	East	0.000135	0.000135	0.000135	0.000135	0.000121	0.000121	0.000096	0.000135
9.2	East	0.000143	0.000143	0.000143	0.000143	0.000121	0.000121	0.000089	0.000143
9.3	East	0.000152	0.000152	0.000152	0.000152	0.000130	0.000130	0.000094	0.000152
9.4	East	0.000160	0.000160	0.000160	0.000160	0.000140	0.000140	0.000105	0.000160
9.5	East	0.000168	0.000168	0.000168	0.000168	0.000147	0.000147	0.000117	0.000168
9.6	East	0.000176	0.000176	0.000176	0.000174	0.000152	0.000152	0.000124	0.000174
9.7	East	0.000182	0.000182	0.000182	0.000180	0.000157	0.000157	0.000133	0.000180
9.8	East	0.000189	0.000189	0.000189	0.000186	0.000162	0.000162	0.000136	0.000186
9.9	East	0.000195	0.000195	0.000195	0.000192	0.000166	0.000166	0.000138	0.000192
10	East	0.000200	0.000199	0.000199	0.000196	0.000168	0.000168	0.000136	0.000197
10.1	East	0.000201	0.000201	0.000201	0.000198	0.000176	0.000176	0.000148	0.000198
10.2	East	0.000201	0.000201	0.000201	0.000197	0.000179	0.000179	0.000158	0.000197

**Table J2.3-2k**

**Rolling River Mile Average Concentrations - 2,3,7,8-TCDF (µg/kg) - 1 Mile Increments**

Portland Harbor Superfund Site

Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
10.3	East	0.000200	0.000200	0.000199	0.000191	0.000166	0.000166	0.000148	0.000191
10.4	East	0.000197	0.000197	0.000197	0.000183	0.000150	0.000150	0.000128	0.000183
10.5	East	0.000194	0.000194	0.000193	0.000178	0.000135	0.000135	0.000104	0.000179
10.6	East	0.000184	0.000184	0.000183	0.000170	0.000130	0.000130	0.000097	0.000171
10.7	East	0.000179	0.000174	0.000169	0.000153	0.000113	0.000113	0.000083	0.000153
10.8	East	0.000201	0.000192	0.000174	0.000152	0.000105	0.000105	0.000064	0.000152
10.9	East	0.000224	0.000188	0.000160	0.000130	0.000084	0.000084	0.000047	0.000130
11	East	0.000288	0.000213	0.000166	0.000118	0.000068	0.000068	0.000035	0.000118
11.1	East	0.000311	0.000228	0.000172	0.000119	0.000065	0.000065	0.000032	0.000119
11.2	East	0.000303	0.000223	0.000169	0.000114	0.000065	0.000065	0.000027	0.000114
11.3	East	0.000319	0.000230	0.000169	0.000112	0.000064	0.000064	0.000023	0.000112
11.4	East	0.000338	0.000237	0.000169	0.000110	0.000061	0.000061	0.000018	0.000110
11.5	East	0.000354	0.000244	0.000169	0.000104	0.000060	0.000060	0.000019	0.000104
11.6	East	0.000381	0.000255	0.000170	0.000098	0.000052	0.000052	0.000017	0.000098
11.7	East	0.000415	0.000275	0.000183	0.000102	0.000053	0.000053	0.000014	0.000102
1.8	Nav Channel	0.000290	0.000290	0.000290	0.000290	0.000290	0.000290	0.000282	0.000290
1.9	Nav Channel	0.000278	0.000278	0.000278	0.000278	0.000278	0.000278	0.000258	0.000278
2	Nav Channel	0.000273	0.000273	0.000273	0.000273	0.000273	0.000273	0.000251	0.000273
2.1	Nav Channel	0.000272	0.000272	0.000272	0.000272	0.000272	0.000272	0.000250	0.000272
2.2	Nav Channel	0.000269	0.000269	0.000269	0.000269	0.000269	0.000269	0.000247	0.000269
2.3	Nav Channel	0.000252	0.000252	0.000252	0.000252	0.000252	0.000252	0.000231	0.000252
2.4	Nav Channel	0.000227	0.000227	0.000227	0.000227	0.000227	0.000227	0.000205	0.000227
2.5	Nav Channel	0.000214	0.000214	0.000214	0.000214	0.000214	0.000214	0.000193	0.000214
2.6	Nav Channel	0.000209	0.000209	0.000209	0.000209	0.000209	0.000209	0.000188	0.000209
2.7	Nav Channel	0.000205	0.000205	0.000205	0.000205	0.000205	0.000205	0.000184	0.000205
2.8	Nav Channel	0.000203	0.000203	0.000203	0.000203	0.000203	0.000203	0.000189	0.000203
2.9	Nav Channel	0.000202	0.000202	0.000202	0.000202	0.000202	0.000202	0.000196	0.000202
3	Nav Channel	0.000202	0.000202	0.000202	0.000202	0.000202	0.000198	0.000186	0.000202
3.1	Nav Channel	0.000205	0.000205	0.000205	0.000204	0.000204	0.000192	0.000168	0.000204
3.2	Nav Channel	0.000208	0.000208	0.000208	0.000208	0.000208	0.000190	0.000150	0.000208
3.3	Nav Channel	0.000212	0.000212	0.000212	0.000212	0.000212	0.000193	0.000150	0.000212
3.4	Nav Channel	0.000216	0.000216	0.000216	0.000216	0.000216	0.000198	0.000158	0.000216
3.5	Nav Channel	0.000221	0.000221	0.000221	0.000220	0.000220	0.000204	0.000163	0.000220
3.6	Nav Channel	0.000224	0.000224	0.000224	0.000223	0.000223	0.000208	0.000165	0.000223
3.7	Nav Channel	0.000224	0.000224	0.000224	0.000223	0.000223	0.000209	0.000169	0.000223
3.8	Nav Channel	0.000220	0.000220	0.000220	0.000220	0.000220	0.000206	0.000168	0.000220
3.9	Nav Channel	0.000214	0.000214	0.000214	0.000213	0.000213	0.000200	0.000167	0.000213
4	Nav Channel	0.000208	0.000208	0.000208	0.000208	0.000208	0.000197	0.000167	0.000208
4.1	Nav Channel	0.000206	0.000206	0.000206	0.000206	0.000206	0.000199	0.000173	0.000206
4.2	Nav Channel	0.000206	0.000206	0.000206	0.000206	0.000206	0.000204	0.000188	0.000206
4.3	Nav Channel	0.000207	0.000207	0.000207	0.000207	0.000207	0.000206	0.000194	0.000207
4.4	Nav Channel	0.000219	0.000219	0.000219	0.000219	0.000219	0.000218	0.000204	0.000219

**Table J2.3-2k**

**Rolling River Mile Average Concentrations - 2,3,7,8-TCDF (µg/kg) - 1 Mile Increments**

Portland Harbor Superfund Site

Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
4.5	Nav Channel	0.000256	0.000256	0.000256	0.000256	0.000256	0.000255	0.000243	0.000256
4.6	Nav Channel	0.000331	0.000329	0.000301	0.000286	0.000329	0.000271	0.000254	0.000329
4.7	Nav Channel	0.000445	0.000389	0.000323	0.000293	0.000389	0.000265	0.000238	0.000389
4.8	Nav Channel	0.000597	0.000532	0.000397	0.000331	0.000532	0.000270	0.000232	0.000532
4.9	Nav Channel	0.000783	0.000635	0.000444	0.000359	0.000635	0.000267	0.000226	0.000635
5	Nav Channel	0.001017	0.000793	0.000556	0.000445	0.000793	0.000290	0.000231	0.000793
5.1	Nav Channel	0.001301	0.001058	0.000790	0.000657	0.001058	0.000406	0.000264	0.001058
5.2	Nav Channel	0.001624	0.001179	0.000868	0.000714	0.001179	0.000441	0.000280	0.001179
5.3	Nav Channel	0.001904	0.001243	0.000912	0.000748	0.001243	0.000448	0.000278	0.001243
5.4	Nav Channel	0.002144	0.001439	0.001081	0.000897	0.001439	0.000454	0.000266	0.001439
5.5	Nav Channel	0.002320	0.001572	0.001194	0.000980	0.001572	0.000486	0.000231	0.001572
5.6	Nav Channel	0.002467	0.001671	0.001308	0.001076	0.001671	0.000542	0.000257	0.001671
5.7	Nav Channel	0.002611	0.001824	0.001440	0.001183	0.001824	0.000600	0.000288	0.001791
5.8	Nav Channel	0.002741	0.001826	0.001497	0.001264	0.001826	0.000664	0.000333	0.001777
5.9	Nav Channel	0.002825	0.001903	0.001634	0.001406	0.001903	0.000805	0.000441	0.001849
6	Nav Channel	0.002860	0.001878	0.001656	0.001454	0.001878	0.000915	0.000548	0.001820
6.1	Nav Channel	0.002800	0.001750	0.001492	0.001267	0.001739	0.000798	0.000535	0.001679
6.2	Nav Channel	0.002585	0.001809	0.001578	0.001332	0.001780	0.000793	0.000506	0.001717
6.3	Nav Channel	0.002423	0.001953	0.001725	0.001476	0.001923	0.000878	0.000516	0.001857
6.4	Nav Channel	0.002302	0.001834	0.001614	0.001378	0.001803	0.000954	0.000557	0.001736
6.5	Nav Channel	0.002255	0.001788	0.001571	0.001365	0.001758	0.000983	0.000672	0.001692
6.6	Nav Channel	0.002193	0.001730	0.001516	0.001349	0.001700	0.001011	0.000739	0.001636
6.7	Nav Channel	0.002045	0.001617	0.001480	0.001356	0.001587	0.001066	0.000824	0.001568
6.8	Nav Channel	0.001848	0.001536	0.001439	0.001337	0.001504	0.001093	0.000834	0.001502
6.9	Nav Channel	0.001620	0.001425	0.001341	0.001253	0.001389	0.001032	0.000766	0.001391
7	Nav Channel	0.001386	0.001335	0.001259	0.001176	0.001300	0.000937	0.000668	0.001302
7.1	Nav Channel	0.001173	0.001161	0.001147	0.001108	0.001138	0.000895	0.000630	0.001140
7.2	Nav Channel	0.001043	0.001032	0.001032	0.001026	0.001025	0.000881	0.000634	0.001026
7.3	Nav Channel	0.000928	0.000919	0.000919	0.000913	0.000912	0.000828	0.000648	0.000913
7.4	Nav Channel	0.000839	0.000832	0.000832	0.000827	0.000826	0.000764	0.000632	0.000827
7.5	Nav Channel	0.000740	0.000734	0.000734	0.000730	0.000729	0.000675	0.000560	0.000730
7.6	Nav Channel	0.000669	0.000665	0.000665	0.000662	0.000660	0.000611	0.000500	0.000660
7.7	Nav Channel	0.000618	0.000615	0.000615	0.000611	0.000610	0.000562	0.000459	0.000610
7.8	Nav Channel	0.000567	0.000566	0.000566	0.000564	0.000563	0.000517	0.000436	0.000563
7.9	Nav Channel	0.000519	0.000518	0.000518	0.000518	0.000517	0.000477	0.000416	0.000517
8	Nav Channel	0.000477	0.000477	0.000477	0.000476	0.000477	0.000452	0.000408	0.000477
8.1	Nav Channel	0.000438	0.000438	0.000438	0.000437	0.000438	0.000433	0.000404	0.000438
8.2	Nav Channel	0.000397	0.000397	0.000397	0.000396	0.000397	0.000395	0.000386	0.000397
8.3	Nav Channel	0.000355	0.000355	0.000355	0.000354	0.000355	0.000354	0.000348	0.000355
8.4	Nav Channel	0.000313	0.000313	0.000313	0.000311	0.000313	0.000310	0.000304	0.000313
8.5	Nav Channel	0.000269	0.000268	0.000268	0.000267	0.000268	0.000261	0.000253	0.000268
8.6	Nav Channel	0.000238	0.000237	0.000237	0.000236	0.000237	0.000228	0.000222	0.000237



**Table J2.3-2k**

**Rolling River Mile Average Concentrations - 2,3,7,8-TCDF (µg/kg) - 1 Mile Increments**

Portland Harbor Superfund Site

Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
8.7	Nav Channel	0.000217	0.000216	0.000215	0.000214	0.000215	0.000202	0.000196	0.000215
8.8	Nav Channel	0.000199	0.000198	0.000197	0.000196	0.000197	0.000179	0.000171	0.000197
8.9	Nav Channel	0.000184	0.000183	0.000182	0.000181	0.000182	0.000163	0.000152	0.000182
9	Nav Channel	0.000173	0.000172	0.000172	0.000171	0.000172	0.000152	0.000141	0.000172
9.1	Nav Channel	0.000169	0.000168	0.000167	0.000166	0.000167	0.000147	0.000135	0.000167
9.2	Nav Channel	0.000171	0.000170	0.000170	0.000169	0.000170	0.000148	0.000135	0.000170
9.3	Nav Channel	0.000183	0.000182	0.000182	0.000181	0.000182	0.000159	0.000146	0.000182
9.4	Nav Channel	0.000205	0.000204	0.000204	0.000203	0.000204	0.000182	0.000165	0.000204
9.5	Nav Channel	0.000235	0.000235	0.000235	0.000234	0.000235	0.000210	0.000189	0.000235
9.6	Nav Channel	0.000273	0.000273	0.000273	0.000272	0.000273	0.000251	0.000229	0.000273
9.7	Nav Channel	0.000313	0.000313	0.000313	0.000313	0.000313	0.000296	0.000269	0.000313
9.8	Nav Channel	0.000355	0.000355	0.000355	0.000355	0.000355	0.000325	0.000277	0.000355
9.9	Nav Channel	0.000397	0.000397	0.000397	0.000397	0.000397	0.000331	0.000274	0.000397
10	Nav Channel	0.000441	0.000441	0.000441	0.000441	0.000441	0.000368	0.000297	0.000441
10.1	Nav Channel	0.000481	0.000481	0.000481	0.000481	0.000481	0.000407	0.000335	0.000481
10.2	Nav Channel	0.000518	0.000518	0.000518	0.000518	0.000518	0.000441	0.000367	0.000518
10.3	Nav Channel	0.000546	0.000546	0.000546	0.000546	0.000546	0.000465	0.000388	0.000546
10.4	Nav Channel	0.000563	0.000563	0.000563	0.000563	0.000563	0.000477	0.000386	0.000563
10.5	Nav Channel	0.000571	0.000571	0.000571	0.000571	0.000571	0.000486	0.000387	0.000571
10.6	Nav Channel	0.000566	0.000566	0.000566	0.000566	0.000566	0.000476	0.000372	0.000566
10.7	Nav Channel	0.000543	0.000542	0.000542	0.000542	0.000542	0.000449	0.000349	0.000542
10.8	Nav Channel	0.000505	0.000502	0.000502	0.000501	0.000501	0.000429	0.000358	0.000501
10.9	Nav Channel	0.000456	0.000453	0.000452	0.000450	0.000450	0.000426	0.000367	0.000450
11	Nav Channel	0.000404	0.000401	0.000400	0.000399	0.000399	0.000382	0.000338	0.000399
11.1	Nav Channel	0.000354	0.000351	0.000350	0.000348	0.000348	0.000333	0.000290	0.000348
11.2	Nav Channel	0.000315	0.000312	0.000311	0.000309	0.000309	0.000295	0.000251	0.000309
11.3	Nav Channel	0.000282	0.000279	0.000277	0.000275	0.000275	0.000262	0.000217	0.000275
11.4	Nav Channel	0.000252	0.000248	0.000246	0.000244	0.000244	0.000234	0.000208	0.000244
11.5	Nav Channel	0.000227	0.000222	0.000220	0.000218	0.000218	0.000214	0.000204	0.000218
11.6	Nav Channel	0.000207	0.000201	0.000199	0.000196	0.000196	0.000191	0.000181	0.000196
11.7	Nav Channel	0.000191	0.000186	0.000184	0.000181	0.000181	0.000175	0.000164	0.000181
1.8	West	0.000254	0.000254	0.000254	0.000254	0.000254	0.000254	0.000254	0.000254
1.9	West	0.000301	0.000301	0.000301	0.000301	0.000301	0.000301	0.000301	0.000301
2	West	0.000323	0.000323	0.000323	0.000323	0.000323	0.000323	0.000323	0.000323
2.1	West	0.000324	0.000324	0.000324	0.000324	0.000324	0.000324	0.000324	0.000324
2.2	West	0.000322	0.000322	0.000322	0.000322	0.000322	0.000322	0.000322	0.000322
2.3	West	0.000314	0.000314	0.000314	0.000314	0.000314	0.000314	0.000312	0.000314
2.4	West	0.000314	0.000314	0.000314	0.000314	0.000314	0.000314	0.000307	0.000314
2.5	West	0.000308	0.000308	0.000308	0.000308	0.000308	0.000308	0.000295	0.000308
2.6	West	0.000305	0.000305	0.000305	0.000305	0.000305	0.000305	0.000287	0.000305
2.7	West	0.000294	0.000294	0.000294	0.000294	0.000294	0.000294	0.000274	0.000294
2.8	West	0.000278	0.000278	0.000278	0.000278	0.000278	0.000278	0.000244	0.000278

**Table J2.3-2k**

**Rolling River Mile Average Concentrations - 2,3,7,8-TCDF (µg/kg) - 1 Mile Increments**

Portland Harbor Superfund Site

Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
2.9	West	0.000251	0.000251	0.000251	0.000251	0.000251	0.000251	0.000207	0.000251
3	West	0.000256	0.000256	0.000256	0.000256	0.000255	0.000255	0.000204	0.000256
3.1	West	0.000266	0.000266	0.000266	0.000266	0.000265	0.000265	0.000213	0.000266
3.2	West	0.000286	0.000286	0.000286	0.000286	0.000286	0.000286	0.000233	0.000286
3.3	West	0.000318	0.000318	0.000318	0.000318	0.000317	0.000317	0.000260	0.000318
3.4	West	0.000351	0.000351	0.000351	0.000351	0.000347	0.000347	0.000281	0.000351
3.5	West	0.000397	0.000397	0.000397	0.000396	0.000384	0.000384	0.000311	0.000396
3.6	West	0.000444	0.000444	0.000444	0.000442	0.000425	0.000425	0.000340	0.000442
3.7	West	0.000498	0.000498	0.000498	0.000496	0.000473	0.000473	0.000369	0.000496
3.8	West	0.000546	0.000546	0.000546	0.000544	0.000508	0.000508	0.000396	0.000544
3.9	West	0.000597	0.000597	0.000597	0.000594	0.000550	0.000550	0.000402	0.000594
4	West	0.000638	0.000638	0.000638	0.000635	0.000585	0.000585	0.000402	0.000635
4.1	West	0.000730	0.000730	0.000730	0.000727	0.000652	0.000652	0.000418	0.000727
4.2	West	0.000824	0.000824	0.000824	0.000820	0.000684	0.000684	0.000409	0.000820
4.3	West	0.000875	0.000875	0.000875	0.000871	0.000724	0.000724	0.000438	0.000871
4.4	West	0.000884	0.000884	0.000884	0.000880	0.000736	0.000736	0.000457	0.000880
4.5	West	0.000888	0.000888	0.000888	0.000885	0.000741	0.000741	0.000466	0.000885
4.6	West	0.000918	0.000918	0.000918	0.000914	0.000773	0.000773	0.000505	0.000914
4.7	West	0.000998	0.000998	0.000993	0.000968	0.000792	0.000792	0.000527	0.000968
4.8	West	0.001108	0.001108	0.001094	0.001049	0.000868	0.000868	0.000576	0.001049
4.9	West	0.001203	0.001199	0.001148	0.001092	0.000897	0.000897	0.000597	0.001092
5	West	0.001203	0.001191	0.001106	0.001038	0.000825	0.000825	0.000547	0.001038
5.1	West	0.001158	0.001145	0.001049	0.000976	0.000773	0.000773	0.000506	0.000976
5.2	West	0.001121	0.001107	0.001005	0.000927	0.000792	0.000792	0.000512	0.000927
5.3	West	0.001109	0.001094	0.000987	0.000904	0.000761	0.000761	0.000448	0.000904
5.4	West	0.001114	0.001100	0.000996	0.000903	0.000722	0.000722	0.000402	0.000918
5.5	West	0.001134	0.001120	0.001005	0.000909	0.000713	0.000713	0.000391	0.000941
5.6	West	0.001142	0.001094	0.000975	0.000877	0.000630	0.000630	0.000296	0.000918
5.7	West	0.001123	0.000979	0.000843	0.000767	0.000561	0.000561	0.000243	0.000808
5.8	West	0.001102	0.000827	0.000705	0.000649	0.000461	0.000461	0.000205	0.000688
5.9	West	0.001132	0.000709	0.000618	0.000569	0.000391	0.000391	0.000191	0.000607
6	West	0.001253	0.000651	0.000584	0.000542	0.000373	0.000373	0.000189	0.000580
6.1	West	0.001467	0.000722	0.000649	0.000592	0.000366	0.000366	0.000185	0.000565
6.2	West	0.001710	0.000973	0.000897	0.000828	0.000460	0.000460	0.000168	0.000654
6.3	West	0.001865	0.001047	0.000973	0.000877	0.000404	0.000404	0.000136	0.000588
6.4	West	0.004524	0.002404	0.001441	0.001072	0.000420	0.000420	0.000110	0.000550
6.5	West	0.010501	0.004558	0.002874	0.001180	0.000329	0.000329	0.000048	0.000404
6.6	West	0.015733	0.008570	0.005358	0.002334	0.000388	0.000388	0.000042	0.000389
6.7	West	0.026155	0.009239	0.005297	0.002187	0.000361	0.000361	0.000038	0.000362
6.8	West	0.284892	0.009187	0.005188	0.002145	0.000358	0.000358	0.000040	0.000359
6.9	West	0.549283	0.009374	0.005333	0.002217	0.000369	0.000369	0.000042	0.000370
7	West	0.553702	0.014973	0.008898	0.002386	0.000528	0.000528	0.000042	0.000528

**Table J2.3-2k**

**Rolling River Mile Average Concentrations - 2,3,7,8-TCDF (µg/kg) - 1 Mile Increments**

Portland Harbor Superfund Site

Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
7.1	West	0.466988	0.022256	0.016584	0.005519	0.002277	0.002277	0.000323	0.002277
7.2	West	0.390977	0.018744	0.013991	0.004749	0.002051	0.002051	0.000350	0.002051
7.3	West	0.337157	0.016241	0.012141	0.004192	0.001882	0.001882	0.000314	0.001882
7.4	West	0.336384	0.015535	0.011924	0.004120	0.001933	0.001933	0.000318	0.001933
7.5	West	0.345286	0.014933	0.011583	0.004233	0.002060	0.002060	0.000331	0.002075
7.6	West	0.351625	0.013076	0.010514	0.003730	0.002126	0.002126	0.000341	0.002170
7.7	West	0.352468	0.012710	0.010677	0.003909	0.002224	0.002224	0.000348	0.002315
7.8	West	0.188489	0.012786	0.010841	0.004038	0.002252	0.002252	0.000349	0.002440
7.9	West	0.018668	0.011920	0.010134	0.003813	0.002116	0.002116	0.000325	0.002361
8	West	0.007840	0.007823	0.007365	0.003430	0.001900	0.001900	0.000330	0.002126
8.1	West	0.001158	0.001157	0.001157	0.001038	0.000675	0.000675	0.000149	0.000915
8.2	West	0.001012	0.001011	0.001011	0.000860	0.000519	0.000519	0.000081	0.000792
8.3	West	0.000982	0.000975	0.000970	0.000775	0.000446	0.000446	0.000075	0.000757
8.4	West	0.000981	0.000908	0.000902	0.000694	0.000347	0.000347	0.000067	0.000678
8.5	West	0.000975	0.000840	0.000811	0.000600	0.000281	0.000281	0.000066	0.000600
8.6	West	0.001015	0.000804	0.000723	0.000497	0.000208	0.000208	0.000066	0.000497
8.7	West	0.001042	0.000742	0.000630	0.000396	0.000153	0.000153	0.000069	0.000396
8.8	West	0.000996	0.000700	0.000561	0.000310	0.000143	0.000143	0.000081	0.000310
8.9	West	0.000921	0.000615	0.000473	0.000264	0.000166	0.000166	0.000125	0.000264
9	West	0.000899	0.000574	0.000423	0.000252	0.000130	0.000130	0.000100	0.000252
9.1	West	0.000913	0.000557	0.000391	0.000251	0.000124	0.000124	0.000097	0.000251
9.2	West	0.000881	0.000531	0.000352	0.000237	0.000123	0.000123	0.000096	0.000237
9.3	West	0.000908	0.000553	0.000329	0.000242	0.000127	0.000127	0.000099	0.000242
9.4	West	0.000871	0.000583	0.000347	0.000256	0.000135	0.000135	0.000105	0.000256
9.5	West	0.000791	0.000578	0.000363	0.000268	0.000142	0.000142	0.000111	0.000268
9.6	West	0.000647	0.000526	0.000374	0.000289	0.000155	0.000155	0.000122	0.000289
9.7	West	0.000513	0.000503	0.000385	0.000305	0.000164	0.000164	0.000127	0.000305
9.8	West	0.000369	0.000360	0.000275	0.000246	0.000152	0.000152	0.000119	0.000246
9.9	West	0.000317	0.000307	0.000202	0.000169	0.000095	0.000095	0.000067	0.000169
10	West	0.000329	0.000315	0.000182	0.000141	0.000089	0.000089	0.000063	0.000141
10.1	West	0.000399	0.000383	0.000203	0.000153	0.000112	0.000112	0.000082	0.000153
10.2	West	0.000510	0.000501	0.000325	0.000302	0.000254	0.000254	0.000183	0.000302
10.3	West	0.000460	0.000460	0.000460	0.000446	0.000407	0.000407	0.000280	0.000447
10.4	West	0.000459	0.000459	0.000459	0.000448	0.000415	0.000415	0.000308	0.000448
10.5	West	0.000464	0.000464	0.000464	0.000454	0.000425	0.000425	0.000330	0.000454
10.6	West	0.000464	0.000464	0.000463	0.000454	0.000428	0.000428	0.000342	0.000455
10.7	West	0.000462	0.000462	0.000461	0.000453	0.000429	0.000429	0.000352	0.000453
10.8	West	0.000450	0.000450	0.000450	0.000450	0.000446	0.000446	0.000372	0.000450
10.9	West	0.000438	0.000438	0.000438	0.000438	0.000438	0.000438	0.000374	0.000438
11	West	0.000419	0.000419	0.000419	0.000419	0.000419	0.000419	0.000360	0.000419
11.1	West	0.000400	0.000400	0.000400	0.000400	0.000400	0.000400	0.000344	0.000400
11.2	West	0.000361	0.000361	0.000361	0.000361	0.000361	0.000361	0.000324	0.000361

**Table J2.3-2k**

**Rolling River Mile Average Concentrations - 2,3,7,8-TCDF (µg/kg) - 1 Mile Increments**

Portland Harbor Superfund Site

Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
11.3	West	0.000324	0.000324	0.000324	0.000324	0.000324	0.000324	0.000324	0.000324
11.4	West	0.000302	0.000302	0.000302	0.000302	0.000302	0.000302	0.000302	0.000302
11.5	West	0.000277	0.000277	0.000277	0.000277	0.000277	0.000277	0.000277	0.000277
11.6	West	0.000253	0.000253	0.000253	0.000253	0.000253	0.000253	0.000252	0.000253
11.7	West	0.000235	0.000235	0.000235	0.000235	0.000235	0.000235	0.000234	0.000235
7.6	Swan Isl	0.000216	0.000016	0.000016	0.000010	0.000002	0.000002	0.000001	0.000010
7.7	Swan Isl	0.000240	0.000015	0.000014	0.000010	0.000002	0.000002	0.000001	0.000010
7.8	Swan Isl	0.000233	0.000016	0.000015	0.000009	0.000002	0.000002	0.000001	0.000009
7.9	Swan Isl	0.000221	0.000015	0.000013	0.000008	0.000002	0.000002	0.000001	0.000008
8	Swan Isl	0.000218	0.000013	0.000012	0.000008	0.000002	0.000002	0.000001	0.000008
8.1	Swan Isl	0.000222	0.000013	0.000012	0.000008	0.000002	0.000002	0.000001	0.000008
8.2	Swan Isl	0.000236	0.000014	0.000013	0.000008	0.000003	0.000003	0.000002	0.000008
8.3	Swan Isl	0.000260	0.000018	0.000014	0.000009	0.000004	0.000004	0.000003	0.000009
8.4	Swan Isl	0.000288	0.000023	0.000014	0.000009	0.000004	0.000004	0.000003	0.000009
8.5	Swan Isl	0.000310	0.000026	0.000014	0.000009	0.000004	0.000004	0.000003	0.000009
8.6	Swan Isl	0.000357	0.000050	0.000024	0.000020	0.000005	0.000005	0.000003	0.000032
8.7	Swan Isl	0.000412	0.000104	0.000059	0.000052	0.000017	0.000017	0.000014	0.000082
8.8	Swan Isl	0.000453	0.000121	0.000068	0.000061	0.000020	0.000020	0.000016	0.000097
8.9	Swan Isl	0.000498	0.000138	0.000077	0.000070	0.000022	0.000022	0.000018	0.000111
9	Swan Isl	0.000546	0.000159	0.000089	0.000080	0.000025	0.000025	0.000021	0.000128
9.1	Swan Isl	0.000566	0.000171	0.000096	0.000086	0.000027	0.000027	0.000022	0.000137
9.2	Swan Isl	0.000613	0.000205	0.000113	0.000102	0.000030	0.000030	0.000025	0.000166
9.3	Swan Isl	0.000655	0.000254	0.000142	0.000132	0.000038	0.000038	0.000031	0.000215
9.4	Swan Isl	0.000706	0.000349	0.000208	0.000195	0.000054	0.000054	0.000044	0.000321
9.5	Swan Isl	0.000772	0.000543	0.000339	0.000318	0.000087	0.000087	0.000071	0.000530
9.6	Swan Isl	0.000719	0.000719	0.000517	0.000472	0.000178	0.000178	0.000150	0.000719

**Table J2.3-3a**

**RAO 2 Rolling River Mile Risk Estimates - Aldrin**

Portland Harbor Superfund Site

Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
1.8	East	1E-07	1E-07	1E-07	1E-07	1E-07	1E-07	1E-07	1E-07
1.9	East	2E-07	1E-07	1E-07	1E-07	1E-07	1E-07	1E-07	1E-07
2	East	2E-07	1E-07	1E-07	1E-07	1E-07	1E-07	1E-07	1E-07
2.1	East	2E-07	1E-07	1E-07	1E-07	1E-07	1E-07	1E-07	1E-07
2.2	East	1E-07	1E-07	1E-07	1E-07	1E-07	1E-07	9E-08	1E-07
2.3	East	1E-07	9E-08	9E-08	8E-08	7E-08	7E-08	7E-08	8E-08
2.4	East	1E-07	9E-08	9E-08	8E-08	7E-08	7E-08	6E-08	8E-08
2.5	East	1E-07	1E-07	9E-08	8E-08	7E-08	7E-08	7E-08	9E-08
2.6	East	1E-07	1E-07	9E-08	9E-08	8E-08	8E-08	7E-08	9E-08
2.7	East	1E-07	1E-07	1E-07	9E-08	8E-08	8E-08	7E-08	9E-08
2.8	East	1E-07	1E-07	1E-07	9E-08	8E-08	8E-08	7E-08	9E-08
2.9	East	9E-08	8E-08	8E-08	8E-08	7E-08	7E-08	6E-08	8E-08
3	East	8E-08	8E-08	8E-08	8E-08	7E-08	7E-08	6E-08	8E-08
3.1	East	8E-08	8E-08	8E-08	8E-08	7E-08	7E-08	7E-08	8E-08
3.2	East	8E-08	8E-08	8E-08	8E-08	7E-08	7E-08	7E-08	8E-08
3.3	East	9E-08	8E-08	8E-08	7E-08	7E-08	7E-08	6E-08	7E-08
3.4	East	8E-08	8E-08	7E-08	7E-08	6E-08	6E-08	6E-08	7E-08
3.5	East	8E-08	7E-08	7E-08	6E-08	5E-08	5E-08	5E-08	6E-08
3.6	East	8E-08	7E-08	7E-08	6E-08	5E-08	5E-08	4E-08	6E-08
3.7	East	8E-08	8E-08	7E-08	6E-08	5E-08	5E-08	4E-08	6E-08
3.8	East	9E-08	8E-08	7E-08	7E-08	5E-08	5E-08	4E-08	7E-08
3.9	East	1E-07	1E-07	9E-08	7E-08	5E-08	5E-08	3E-08	7E-08
4	East	2E-07	2E-07	2E-07	1E-07	1E-07	1E-07	6E-08	1E-07
4.1	East	4E-07	4E-07	3E-07	3E-07	2E-07	2E-07	1E-07	3E-07
4.2	East	7E-07	7E-07	6E-07	4E-07	2E-07	2E-07	1E-07	4E-07
4.3	East	9E-07	9E-07	7E-07	5E-07	3E-07	3E-07	1E-07	5E-07
4.4	East	1E-06	1E-06	8E-07	6E-07	3E-07	3E-07	1E-07	6E-07
4.5	East	1E-06	1E-06	8E-07	6E-07	3E-07	3E-07	1E-07	6E-07
4.6	East	1E-06	1E-06	8E-07	6E-07	3E-07	3E-07	1E-07	6E-07
4.7	East	1E-06	1E-06	8E-07	6E-07	3E-07	3E-07	2E-07	6E-07
4.8	East	1E-06	1E-06	8E-07	6E-07	4E-07	4E-07	2E-07	6E-07
4.9	East	1E-06	1E-06	9E-07	7E-07	4E-07	4E-07	2E-07	7E-07
5	East	1E-06	1E-06	1E-06	7E-07	4E-07	4E-07	2E-07	7E-07
5.1	East	9E-07	9E-07	7E-07	4E-07	2E-07	2E-07	9E-08	4E-07
5.2	East	1E-07	1E-07	1E-07	1E-07	1E-07	1E-07	5E-08	1E-07
5.3	East	1E-07	1E-07	1E-07	1E-07	7E-08	7E-08	5E-08	7E-08
5.4	East	9E-08	9E-08	9E-08	9E-08	6E-08	6E-08	4E-08	6E-08
5.5	East	9E-08	9E-08	9E-08	9E-08	6E-08	6E-08	4E-08	7E-08
5.6	East	9E-08	9E-08	9E-08	9E-08	6E-08	6E-08	4E-08	7E-08
5.7	East	9E-08	9E-08	9E-08	9E-08	6E-08	6E-08	4E-08	7E-08
5.8	East	9E-08	9E-08	9E-08	9E-08	6E-08	6E-08	4E-08	7E-08
5.9	East	1E-07	1E-07	1E-07	1E-07	7E-08	7E-08	5E-08	8E-08
6	East	1E-07	1E-07	1E-07	1E-07	7E-08	7E-08	6E-08	9E-08

**Table J2.3-3a**  
**RAO 2 Rolling River Mile Risk Estimates - Aldrin**  
 Portland Harbor Superfund Site  
 Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
6.1	East	1E-07	1E-07	1E-07	9E-08	7E-08	7E-08	6E-08	9E-08
6.2	East	9E-08	9E-08	8E-08	8E-08	7E-08	7E-08	6E-08	8E-08
6.3	East	8E-08	7E-08	7E-08	7E-08	6E-08	6E-08	5E-08	7E-08
6.4	East	7E-08	7E-08	6E-08	6E-08	5E-08	5E-08	4E-08	6E-08
6.5	East	6E-08	6E-08	6E-08	5E-08	5E-08	5E-08	4E-08	6E-08
6.6	East	5E-08	5E-08	5E-08	5E-08	4E-08	4E-08	4E-08	5E-08
6.7	East	6E-08	5E-08	4E-08	4E-08	4E-08	4E-08	4E-08	5E-08
6.8	East	6E-08	5E-08	4E-08	4E-08	4E-08	4E-08	4E-08	5E-08
6.9	East	6E-08	5E-08	4E-08	4E-08	4E-08	4E-08	4E-08	6E-08
7	East	6E-08	5E-08	4E-08	4E-08	4E-08	4E-08	4E-08	6E-08
7.1	East	6E-08	5E-08	5E-08	5E-08	5E-08	5E-08	5E-08	6E-08
7.2	East	7E-08	6E-08	5E-08	5E-08	5E-08	5E-08	5E-08	6E-08
7.3	East	7E-08	6E-08	6E-08	6E-08	5E-08	5E-08	5E-08	7E-08
7.4	East	8E-08	7E-08	6E-08	6E-08	6E-08	6E-08	6E-08	8E-08
7.5	East	8E-08	8E-08	7E-08	7E-08	7E-08	7E-08	7E-08	8E-08
7.6	East	9E-08	8E-08	7E-08	7E-08	7E-08	7E-08	7E-08	9E-08
7.7	East	8E-08	8E-08	7E-08	7E-08	7E-08	7E-08	7E-08	8E-08
7.8	East	8E-08	7E-08	7E-08	7E-08	7E-08	7E-08	6E-08	7E-08
7.9	East	6E-08	6E-08	6E-08	6E-08	6E-08	6E-08	5E-08	6E-08
8	East	5E-08	4E-08	4E-08	4E-08	4E-08	4E-08	4E-08	4E-08
8.1	East	4E-08	3E-08	3E-08	3E-08	3E-08	3E-08	2E-08	3E-08
8.2	East	4E-08	3E-08	3E-08	3E-08	3E-08	3E-08	2E-08	3E-08
8.3	East	4E-08	3E-08	3E-08	3E-08	3E-08	3E-08	2E-08	3E-08
8.4	East	4E-08	3E-08	3E-08	3E-08	3E-08	3E-08	3E-08	3E-08
8.5	East	4E-08	3E-08	3E-08	3E-08	3E-08	3E-08	3E-08	3E-08
8.6	East	4E-08	3E-08	3E-08	3E-08	3E-08	3E-08	3E-08	3E-08
8.7	East	5E-08	4E-08	4E-08	4E-08	4E-08	4E-08	3E-08	4E-08
8.8	East	5E-08	5E-08	5E-08	5E-08	5E-08	5E-08	4E-08	5E-08
8.9	East	6E-08	6E-08	6E-08	6E-08	6E-08	6E-08	5E-08	6E-08
9	East	6E-08	6E-08	6E-08	6E-08	6E-08	6E-08	5E-08	6E-08
9.1	East	6E-08	6E-08	6E-08	6E-08	5E-08	5E-08	5E-08	6E-08
9.2	East	6E-08	6E-08	6E-08	6E-08	6E-08	6E-08	4E-08	6E-08
9.3	East	8E-08	8E-08	8E-08	8E-08	7E-08	7E-08	6E-08	8E-08
9.4	East	9E-08	9E-08	9E-08	9E-08	8E-08	8E-08	7E-08	9E-08
9.5	East	8E-08	8E-08	8E-08	8E-08	8E-08	8E-08	7E-08	8E-08
9.6	East	8E-08	8E-08	8E-08	8E-08	8E-08	8E-08	7E-08	8E-08
9.7	East	8E-08	8E-08	8E-08	8E-08	8E-08	8E-08	7E-08	8E-08
9.8	East	8E-08	8E-08	8E-08	8E-08	7E-08	7E-08	7E-08	8E-08
9.9	East	8E-08	8E-08	8E-08	8E-08	8E-08	8E-08	7E-08	8E-08
10	East	1E-07	1E-07	1E-07	1E-07	1E-07	1E-07	9E-08	1E-07
10.1	East	1E-07	1E-07	1E-07	1E-07	1E-07	1E-07	1E-07	1E-07
10.2	East	1E-07	1E-07	1E-07	1E-07	1E-07	1E-07	1E-07	1E-07

**Table J2.3-3a**  
**RAO 2 Rolling River Mile Risk Estimates - Aldrin**  
 Portland Harbor Superfund Site  
 Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
10.3	East	1E-07	1E-07	1E-07	1E-07	9E-08	9E-08	9E-08	1E-07
10.4	East	8E-08	8E-08	8E-08	8E-08	7E-08	7E-08	7E-08	8E-08
10.5	East	9E-08	9E-08	9E-08	9E-08	8E-08	8E-08	7E-08	9E-08
10.6	East	1E-07	1E-07	9E-08	9E-08	8E-08	8E-08	7E-08	9E-08
10.7	East	1E-07	1E-07	1E-07	9E-08	8E-08	8E-08	7E-08	9E-08
10.8	East	9E-08	9E-08	9E-08	9E-08	7E-08	7E-08	6E-08	9E-08
10.9	East	8E-08	8E-08	7E-08	7E-08	5E-08	5E-08	4E-08	7E-08
11	East	6E-08	5E-08	5E-08	4E-08	3E-08	3E-08	2E-08	4E-08
11.1	East	5E-08	4E-08	4E-08	3E-08	2E-08	2E-08	1E-08	3E-08
11.2	East	5E-08	4E-08	4E-08	3E-08	2E-08	2E-08	7E-09	3E-08
11.3	East	5E-08	4E-08	4E-08	3E-08	2E-08	2E-08	6E-09	3E-08
11.4	East	5E-08	4E-08	3E-08	3E-08	2E-08	2E-08	4E-09	3E-08
11.5	East	5E-08	4E-08	3E-08	2E-08	1E-08	1E-08	5E-09	2E-08
11.6	East	5E-08	4E-08	3E-08	2E-08	1E-08	1E-08	4E-09	2E-08
11.7	East	5E-08	4E-08	3E-08	2E-08	1E-08	1E-08	3E-09	2E-08
1.8	Nav Channel	7E-08	7E-08	7E-08	7E-08	7E-08	7E-08	7E-08	7E-08
1.9	Nav Channel	8E-08	8E-08	8E-08	8E-08	8E-08	8E-08	7E-08	8E-08
2	Nav Channel	9E-08	9E-08	9E-08	9E-08	9E-08	9E-08	7E-08	9E-08
2.1	Nav Channel	1E-07	1E-07	1E-07	1E-07	1E-07	1E-07	9E-08	1E-07
2.2	Nav Channel	1E-07	1E-07	1E-07	1E-07	1E-07	1E-07	1E-07	1E-07
2.3	Nav Channel	1E-07	1E-07	1E-07	1E-07	1E-07	1E-07	1E-07	1E-07
2.4	Nav Channel	1E-07	1E-07	1E-07	1E-07	1E-07	1E-07	1E-07	1E-07
2.5	Nav Channel	1E-07	1E-07	1E-07	1E-07	1E-07	1E-07	1E-07	1E-07
2.6	Nav Channel	1E-07	1E-07	1E-07	1E-07	1E-07	1E-07	1E-07	1E-07
2.7	Nav Channel	1E-07	1E-07	1E-07	1E-07	1E-07	1E-07	1E-07	1E-07
2.8	Nav Channel	1E-07	1E-07	1E-07	1E-07	1E-07	1E-07	1E-07	1E-07
2.9	Nav Channel	1E-07	1E-07	1E-07	1E-07	1E-07	1E-07	1E-07	1E-07
3	Nav Channel	1E-07	1E-07	1E-07	1E-07	1E-07	1E-07	1E-07	1E-07
3.1	Nav Channel	1E-07	1E-07	1E-07	1E-07	1E-07	1E-07	1E-07	1E-07
3.2	Nav Channel	1E-07	1E-07	1E-07	1E-07	1E-07	1E-07	8E-08	1E-07
3.3	Nav Channel	1E-07	1E-07	1E-07	1E-07	1E-07	1E-07	7E-08	1E-07
3.4	Nav Channel	1E-07	1E-07	1E-07	1E-07	1E-07	1E-07	7E-08	1E-07
3.5	Nav Channel	1E-07	1E-07	1E-07	1E-07	1E-07	9E-08	6E-08	1E-07
3.6	Nav Channel	9E-08	9E-08	9E-08	9E-08	9E-08	9E-08	6E-08	9E-08
3.7	Nav Channel	9E-08	9E-08	9E-08	9E-08	9E-08	8E-08	6E-08	9E-08
3.8	Nav Channel	9E-08	9E-08	9E-08	9E-08	9E-08	8E-08	5E-08	9E-08
3.9	Nav Channel	8E-08	8E-08	8E-08	8E-08	8E-08	8E-08	5E-08	8E-08
4	Nav Channel	8E-08	8E-08	8E-08	8E-08	8E-08	7E-08	5E-08	8E-08
4.1	Nav Channel	7E-08	7E-08	7E-08	7E-08	7E-08	7E-08	6E-08	7E-08
4.2	Nav Channel	7E-08	7E-08	7E-08	7E-08	7E-08	7E-08	6E-08	7E-08
4.3	Nav Channel	7E-08	7E-08	7E-08	7E-08	7E-08	7E-08	7E-08	7E-08
4.4	Nav Channel	7E-08	7E-08	7E-08	7E-08	7E-08	7E-08	7E-08	7E-08

**Table J2.3-3a**  
**RAO 2 Rolling River Mile Risk Estimates - Aldrin**  
 Portland Harbor Superfund Site  
 Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
4.5	Nav Channel	7E-08	7E-08	7E-08	7E-08	7E-08	7E-08	6E-08	7E-08
4.6	Nav Channel	7E-08	7E-08	7E-08	7E-08	7E-08	7E-08	6E-08	7E-08
4.7	Nav Channel	8E-08	8E-08	7E-08	6E-08	8E-08	6E-08	6E-08	8E-08
4.8	Nav Channel	9E-08	8E-08	7E-08	6E-08	8E-08	6E-08	5E-08	8E-08
4.9	Nav Channel	1E-07	9E-08	7E-08	6E-08	9E-08	6E-08	5E-08	9E-08
5	Nav Channel	1E-07	9E-08	7E-08	6E-08	9E-08	6E-08	5E-08	9E-08
5.1	Nav Channel	1E-07	9E-08	7E-08	6E-08	9E-08	5E-08	4E-08	9E-08
5.2	Nav Channel	1E-07	8E-08	6E-08	5E-08	8E-08	4E-08	3E-08	8E-08
5.3	Nav Channel	1E-07	7E-08	5E-08	4E-08	7E-08	3E-08	2E-08	7E-08
5.4	Nav Channel	1E-07	8E-08	6E-08	5E-08	8E-08	2E-08	2E-08	8E-08
5.5	Nav Channel	2E-07	1E-07	8E-08	6E-08	1E-07	3E-08	1E-08	1E-07
5.6	Nav Channel	2E-07	1E-07	9E-08	7E-08	1E-07	4E-08	1E-08	1E-07
5.7	Nav Channel	2E-07	1E-07	1E-07	8E-08	1E-07	4E-08	1E-08	1E-07
5.8	Nav Channel	3E-07	2E-07	1E-07	1E-07	2E-07	5E-08	2E-08	1E-07
5.9	Nav Channel	3E-07	2E-07	1E-07	1E-07	2E-07	6E-08	3E-08	2E-07
6	Nav Channel	3E-07	2E-07	2E-07	1E-07	2E-07	8E-08	4E-08	2E-07
6.1	Nav Channel	4E-07	2E-07	2E-07	1E-07	2E-07	8E-08	5E-08	2E-07
6.2	Nav Channel	4E-07	2E-07	2E-07	1E-07	2E-07	8E-08	5E-08	2E-07
6.3	Nav Channel	3E-07	2E-07	2E-07	1E-07	2E-07	9E-08	5E-08	2E-07
6.4	Nav Channel	3E-07	2E-07	2E-07	1E-07	2E-07	9E-08	5E-08	2E-07
6.5	Nav Channel	3E-07	2E-07	1E-07	1E-07	2E-07	7E-08	5E-08	2E-07
6.6	Nav Channel	3E-07	2E-07	1E-07	1E-07	2E-07	7E-08	5E-08	2E-07
6.7	Nav Channel	2E-07	1E-07	1E-07	1E-07	1E-07	8E-08	6E-08	1E-07
6.8	Nav Channel	2E-07	1E-07	1E-07	1E-07	1E-07	1E-07	6E-08	1E-07
6.9	Nav Channel	2E-07	1E-07	1E-07	1E-07	1E-07	1E-07	6E-08	1E-07
7	Nav Channel	1E-07	1E-07	1E-07	1E-07	1E-07	1E-07	5E-08	1E-07
7.1	Nav Channel	1E-07	1E-07	1E-07	1E-07	1E-07	1E-07	5E-08	1E-07
7.2	Nav Channel	1E-07	1E-07	1E-07	1E-07	1E-07	1E-07	5E-08	1E-07
7.3	Nav Channel	1E-07	1E-07	1E-07	1E-07	1E-07	1E-07	6E-08	1E-07
7.4	Nav Channel	1E-07	1E-07	1E-07	1E-07	1E-07	1E-07	7E-08	1E-07
7.5	Nav Channel	1E-07	1E-07	1E-07	1E-07	1E-07	1E-07	8E-08	1E-07
7.6	Nav Channel	1E-07	1E-07	1E-07	1E-07	1E-07	1E-07	8E-08	1E-07
7.7	Nav Channel	1E-07	1E-07	1E-07	1E-07	1E-07	1E-07	8E-08	1E-07
7.8	Nav Channel	9E-08	9E-08	9E-08	9E-08	9E-08	9E-08	7E-08	9E-08
7.9	Nav Channel	8E-08	8E-08	8E-08	8E-08	8E-08	7E-08	7E-08	8E-08
8	Nav Channel	8E-08	8E-08	8E-08	8E-08	8E-08	7E-08	7E-08	8E-08
8.1	Nav Channel	7E-08	7E-08	7E-08	7E-08	7E-08	7E-08	7E-08	7E-08
8.2	Nav Channel	7E-08	7E-08	7E-08	7E-08	7E-08	7E-08	7E-08	7E-08
8.3	Nav Channel	7E-08	7E-08	7E-08	7E-08	7E-08	7E-08	7E-08	7E-08
8.4	Nav Channel	6E-08	6E-08	6E-08	6E-08	6E-08	6E-08	6E-08	6E-08
8.5	Nav Channel	5E-08	5E-08	5E-08	5E-08	5E-08	5E-08	5E-08	5E-08
8.6	Nav Channel	5E-08	5E-08	5E-08	5E-08	5E-08	5E-08	5E-08	5E-08



**Table J2.3-3a**

**RAO 2 Rolling River Mile Risk Estimates - Aldrin**

Portland Harbor Superfund Site

Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
8.7	Nav Channel	5E-08	5E-08	5E-08	5E-08	5E-08	5E-08	4E-08	5E-08
8.8	Nav Channel	6E-08	6E-08	5E-08	5E-08	5E-08	5E-08	4E-08	5E-08
8.9	Nav Channel	6E-08	6E-08	6E-08	6E-08	6E-08	5E-08	4E-08	6E-08
9	Nav Channel	6E-08	6E-08	6E-08	6E-08	6E-08	5E-08	4E-08	6E-08
9.1	Nav Channel	7E-08	7E-08	7E-08	7E-08	7E-08	6E-08	5E-08	7E-08
9.2	Nav Channel	7E-08	7E-08	7E-08	7E-08	7E-08	6E-08	5E-08	7E-08
9.3	Nav Channel	7E-08	7E-08	7E-08	7E-08	7E-08	6E-08	6E-08	7E-08
9.4	Nav Channel	8E-08	8E-08	8E-08	8E-08	8E-08	7E-08	7E-08	8E-08
9.5	Nav Channel	9E-08	9E-08	9E-08	9E-08	9E-08	8E-08	7E-08	9E-08
9.6	Nav Channel	9E-08	9E-08	9E-08	9E-08	9E-08	8E-08	7E-08	9E-08
9.7	Nav Channel	9E-08	9E-08	9E-08	9E-08	9E-08	8E-08	7E-08	9E-08
9.8	Nav Channel	1E-07	1E-07	1E-07	1E-07	1E-07	9E-08	7E-08	1E-07
9.9	Nav Channel	1E-07	1E-07	1E-07	1E-07	1E-07	9E-08	7E-08	1E-07
10	Nav Channel	1E-07	1E-07	1E-07	1E-07	1E-07	9E-08	7E-08	1E-07
10.1	Nav Channel	1E-07	1E-07	1E-07	1E-07	1E-07	9E-08	7E-08	1E-07
10.2	Nav Channel	1E-07	1E-07	1E-07	1E-07	1E-07	9E-08	7E-08	1E-07
10.3	Nav Channel	1E-07	1E-07	1E-07	1E-07	1E-07	1E-07	8E-08	1E-07
10.4	Nav Channel	1E-07	1E-07	1E-07	1E-07	1E-07	1E-07	8E-08	1E-07
10.5	Nav Channel	1E-07	1E-07	1E-07	1E-07	1E-07	1E-07	8E-08	1E-07
10.6	Nav Channel	2E-07	2E-07	2E-07	2E-07	2E-07	1E-07	9E-08	2E-07
10.7	Nav Channel	2E-07	2E-07	2E-07	2E-07	2E-07	1E-07	9E-08	2E-07
10.8	Nav Channel	1E-07	1E-07	1E-07	1E-07	1E-07	1E-07	9E-08	1E-07
10.9	Nav Channel	1E-07	1E-07	1E-07	1E-07	1E-07	1E-07	1E-07	1E-07
11	Nav Channel	1E-07	1E-07	1E-07	1E-07	1E-07	1E-07	1E-07	1E-07
11.1	Nav Channel	1E-07	1E-07	1E-07	1E-07	1E-07	1E-07	1E-07	1E-07
11.2	Nav Channel	1E-07	1E-07	1E-07	1E-07	1E-07	1E-07	1E-07	1E-07
11.3	Nav Channel	1E-07	1E-07	1E-07	1E-07	1E-07	1E-07	9E-08	1E-07
11.4	Nav Channel	1E-07	1E-07	1E-07	1E-07	1E-07	1E-07	9E-08	1E-07
11.5	Nav Channel	9E-08	9E-08	9E-08	9E-08	9E-08	9E-08	8E-08	9E-08
11.6	Nav Channel	9E-08	9E-08	8E-08	8E-08	8E-08	8E-08	8E-08	8E-08
11.7	Nav Channel	1E-07	9E-08	9E-08	9E-08	9E-08	9E-08	8E-08	9E-08
1.8	West	3E-08	3E-08	3E-08	3E-08	3E-08	3E-08	3E-08	3E-08
1.9	West	3E-08	3E-08	3E-08	3E-08	3E-08	3E-08	3E-08	3E-08
2	West	3E-08	3E-08	3E-08	3E-08	3E-08	3E-08	3E-08	3E-08
2.1	West	3E-08	3E-08	3E-08	3E-08	3E-08	3E-08	3E-08	3E-08
2.2	West	3E-08	3E-08	3E-08	3E-08	3E-08	3E-08	3E-08	3E-08
2.3	West	3E-08	3E-08	3E-08	3E-08	3E-08	3E-08	3E-08	3E-08
2.4	West	2E-08	2E-08	2E-08	2E-08	2E-08	2E-08	2E-08	2E-08
2.5	West	3E-08	3E-08	3E-08	3E-08	3E-08	3E-08	2E-08	3E-08
2.6	West	3E-08	3E-08	3E-08	3E-08	3E-08	3E-08	2E-08	3E-08
2.7	West	3E-08	3E-08	3E-08	3E-08	3E-08	3E-08	3E-08	3E-08
2.8	West	5E-08	5E-08	5E-08	5E-08	5E-08	5E-08	3E-08	5E-08

**Table J2.3-3a**

**RAO 2 Rolling River Mile Risk Estimates - Aldrin**

Portland Harbor Superfund Site

Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
2.9	West	5E-08	5E-08	5E-08	5E-08	5E-08	5E-08	3E-08	5E-08
3	West	6E-08	6E-08	6E-08	6E-08	6E-08	6E-08	4E-08	6E-08
3.1	West	6E-08	6E-08	6E-08	6E-08	6E-08	6E-08	4E-08	6E-08
3.2	West	6E-08	6E-08	6E-08	6E-08	6E-08	6E-08	4E-08	6E-08
3.3	West	7E-08	7E-08	7E-08	7E-08	7E-08	7E-08	4E-08	7E-08
3.4	West	7E-08	7E-08	7E-08	7E-08	7E-08	7E-08	5E-08	7E-08
3.5	West	8E-08	8E-08	8E-08	8E-08	7E-08	7E-08	5E-08	8E-08
3.6	West	9E-08	9E-08	9E-08	9E-08	8E-08	8E-08	5E-08	9E-08
3.7	West	1E-07	1E-07	1E-07	1E-07	1E-07	1E-07	6E-08	1E-07
3.8	West	1E-07	1E-07	1E-07	1E-07	9E-08	9E-08	6E-08	1E-07
3.9	West	1E-07	1E-07	1E-07	1E-07	9E-08	9E-08	5E-08	1E-07
4	West	1E-07	1E-07	1E-07	1E-07	9E-08	9E-08	5E-08	1E-07
4.1	West	2E-07	2E-07	2E-07	1E-07	9E-08	9E-08	4E-08	1E-07
4.2	West	2E-07	2E-07	2E-07	2E-07	9E-08	9E-08	4E-08	2E-07
4.3	West	2E-07	2E-07	2E-07	2E-07	9E-08	9E-08	4E-08	2E-07
4.4	West	2E-07	2E-07	2E-07	2E-07	9E-08	9E-08	3E-08	2E-07
4.5	West	2E-07	2E-07	2E-07	2E-07	9E-08	9E-08	3E-08	2E-07
4.6	West	1E-07	1E-07	1E-07	1E-07	8E-08	8E-08	3E-08	1E-07
4.7	West	1E-07	1E-07	1E-07	9E-08	6E-08	6E-08	3E-08	9E-08
4.8	West	6E-08	6E-08	6E-08	6E-08	5E-08	5E-08	3E-08	6E-08
4.9	West	6E-08	6E-08	6E-08	6E-08	5E-08	5E-08	3E-08	6E-08
5	West	6E-08	6E-08	6E-08	6E-08	5E-08	5E-08	2E-08	6E-08
5.1	West	6E-08	6E-08	6E-08	6E-08	5E-08	5E-08	2E-08	6E-08
5.2	West	6E-08	6E-08	6E-08	6E-08	5E-08	5E-08	2E-08	6E-08
5.3	West	8E-08	8E-08	7E-08	7E-08	6E-08	6E-08	3E-08	7E-08
5.4	West	1E-07	1E-07	9E-08	9E-08	8E-08	8E-08	4E-08	9E-08
5.5	West	1E-07	1E-07	1E-07	9E-08	8E-08	8E-08	4E-08	9E-08
5.6	West	1E-07	1E-07	9E-08	9E-08	7E-08	7E-08	3E-08	9E-08
5.7	West	2E-07	1E-07	9E-08	8E-08	7E-08	7E-08	3E-08	9E-08
5.8	West	2E-07	1E-07	8E-08	7E-08	6E-08	6E-08	3E-08	8E-08
5.9	West	2E-07	9E-08	7E-08	7E-08	5E-08	5E-08	3E-08	7E-08
6	West	2E-07	8E-08	6E-08	6E-08	5E-08	5E-08	3E-08	6E-08
6.1	West	2E-07	8E-08	6E-08	6E-08	4E-08	4E-08	3E-08	6E-08
6.2	West	2E-07	9E-08	7E-08	6E-08	4E-08	4E-08	3E-08	6E-08
6.3	West	2E-07	9E-08	7E-08	6E-08	4E-08	4E-08	2E-08	5E-08
6.4	West	3E-07	1E-07	8E-08	5E-08	2E-08	2E-08	9E-09	3E-08
6.5	West	6E-07	3E-07	1E-07	5E-08	1E-08	1E-08	2E-09	2E-08
6.6	West	9E-07	5E-07	2E-07	9E-08	1E-08	1E-08	1E-09	1E-08
6.7	West	1E-06	5E-07	2E-07	8E-08	1E-08	1E-08	1E-09	1E-08
6.8	West	1E-06	5E-07	2E-07	8E-08	1E-08	1E-08	1E-09	1E-08
6.9	West	2E-06	5E-07	2E-07	8E-08	1E-08	1E-08	1E-09	1E-08
7	West	2E-06	5E-07	2E-07	9E-08	2E-08	2E-08	1E-09	2E-08

**Table J2.3-3a**  
**RAO 2 Rolling River Mile Risk Estimates - Aldrin**  
 Portland Harbor Superfund Site  
 Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
7.1	West	2E-06	5E-07	3E-07	1E-07	6E-08	6E-08	2E-08	6E-08
7.2	West	1E-06	5E-07	3E-07	2E-07	1E-07	1E-07	5E-08	1E-07
7.3	West	1E-06	5E-07	3E-07	2E-07	1E-07	1E-07	6E-08	1E-07
7.4	West	1E-06	4E-07	3E-07	2E-07	1E-07	1E-07	6E-08	1E-07
7.5	West	1E-06	4E-07	3E-07	2E-07	1E-07	1E-07	6E-08	1E-07
7.6	West	9E-07	2E-07	2E-07	2E-07	1E-07	1E-07	7E-08	1E-07
7.7	West	7E-07	2E-07	2E-07	2E-07	1E-07	1E-07	7E-08	1E-07
7.8	West	5E-07	2E-07	2E-07	2E-07	1E-07	1E-07	7E-08	1E-07
7.9	West	3E-07	2E-07	2E-07	2E-07	1E-07	1E-07	6E-08	1E-07
8	West	2E-07	2E-07	2E-07	2E-07	1E-07	1E-07	7E-08	1E-07
8.1	West	2E-07	2E-07	2E-07	2E-07	1E-07	1E-07	6E-08	2E-07
8.2	West	2E-07	2E-07	2E-07	2E-07	8E-08	8E-08	3E-08	2E-07
8.3	West	3E-07	2E-07	2E-07	2E-07	5E-08	5E-08	2E-08	2E-07
8.4	West	4E-07	3E-07	2E-07	2E-07	5E-08	5E-08	2E-08	2E-07
8.5	West	4E-07	3E-07	3E-07	2E-07	5E-08	5E-08	2E-08	2E-07
8.6	West	4E-07	3E-07	3E-07	2E-07	5E-08	5E-08	2E-08	2E-07
8.7	West	5E-07	3E-07	3E-07	2E-07	5E-08	5E-08	2E-08	2E-07
8.8	West	5E-07	3E-07	3E-07	2E-07	5E-08	5E-08	2E-08	2E-07
8.9	West	5E-07	3E-07	3E-07	2E-07	5E-08	5E-08	2E-08	2E-07
9	West	5E-07	3E-07	3E-07	2E-07	4E-08	4E-08	1E-08	2E-07
9.1	West	4E-07	2E-07	2E-07	9E-08	2E-08	2E-08	1E-08	9E-08
9.2	West	3E-07	1E-07	7E-08	3E-08	2E-08	2E-08	1E-08	3E-08
9.3	West	3E-07	1E-07	6E-08	3E-08	2E-08	2E-08	1E-08	3E-08
9.4	West	1E-07	1E-07	6E-08	3E-08	2E-08	2E-08	1E-08	3E-08
9.5	West	1E-07	1E-07	6E-08	4E-08	2E-08	2E-08	2E-08	4E-08
9.6	West	1E-07	1E-07	7E-08	4E-08	2E-08	2E-08	2E-08	4E-08
9.7	West	1E-07	1E-07	7E-08	4E-08	3E-08	3E-08	2E-08	4E-08
9.8	West	1E-07	1E-07	6E-08	4E-08	3E-08	3E-08	2E-08	4E-08
9.9	West	1E-07	1E-07	7E-08	5E-08	3E-08	3E-08	2E-08	5E-08
10	West	2E-07	2E-07	1E-07	7E-08	5E-08	5E-08	4E-08	7E-08
10.1	West	2E-07	2E-07	1E-07	8E-08	7E-08	7E-08	5E-08	8E-08
10.2	West	2E-07	2E-07	1E-07	1E-07	1E-07	1E-07	8E-08	1E-07
10.3	West	1E-07	1E-07	1E-07	1E-07	1E-07	1E-07	8E-08	1E-07
10.4	West	1E-07	1E-07	1E-07	1E-07	1E-07	1E-07	9E-08	1E-07
10.5	West	1E-07	1E-07	1E-07	1E-07	1E-07	1E-07	1E-07	1E-07
10.6	West	1E-07	1E-07	1E-07	1E-07	1E-07	1E-07	1E-07	1E-07
10.7	West	1E-07	1E-07	1E-07	1E-07	1E-07	1E-07	1E-07	1E-07
10.8	West	1E-07	1E-07	1E-07	1E-07	1E-07	1E-07	1E-07	1E-07
10.9	West	1E-07	1E-07	1E-07	1E-07	1E-07	1E-07	1E-07	1E-07
11	West	1E-07	1E-07	1E-07	1E-07	1E-07	1E-07	9E-08	1E-07
11.1	West	1E-07	1E-07	1E-07	1E-07	1E-07	1E-07	8E-08	1E-07
11.2	West	9E-08	9E-08	9E-08	9E-08	9E-08	9E-08	8E-08	9E-08

**Table J2.3-3a**  
**RAO 2 Rolling River Mile Risk Estimates - Aldrin**  
 Portland Harbor Superfund Site  
 Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
11.3	West	9E-08	9E-08	9E-08	9E-08	9E-08	9E-08	9E-08	9E-08
11.4	West	9E-08	9E-08	9E-08	9E-08	9E-08	9E-08	9E-08	9E-08
11.5	West	8E-08	8E-08	8E-08	8E-08	8E-08	8E-08	8E-08	8E-08
11.6	West	6E-08	6E-08	6E-08	6E-08	6E-08	6E-08	6E-08	6E-08
11.7	West	6E-08	6E-08	6E-08	6E-08	6E-08	6E-08	6E-08	6E-08
7.6	Swan Isl	2E-08	8E-10	8E-10	6E-10	2E-10	2E-10	1E-10	6E-10
7.7	Swan Isl	2E-08	1E-09	1E-09	1E-09	3E-10	3E-10	1E-10	1E-09
7.8	Swan Isl	4E-08	4E-09	3E-09	2E-09	7E-10	7E-10	1E-10	2E-09
7.9	Swan Isl	6E-08	4E-09	3E-09	2E-09	1E-09	1E-09	7E-10	2E-09
8	Swan Isl	1E-07	5E-09	4E-09	3E-09	2E-09	2E-09	2E-09	3E-09
8.1	Swan Isl	1E-07	5E-09	5E-09	4E-09	3E-09	3E-09	2E-09	4E-09
8.2	Swan Isl	1E-07	7E-09	7E-09	6E-09	5E-09	5E-09	4E-09	6E-09
8.3	Swan Isl	1E-07	8E-09	8E-09	7E-09	6E-09	6E-09	5E-09	7E-09
8.4	Swan Isl	1E-07	9E-09	8E-09	7E-09	6E-09	6E-09	5E-09	7E-09
8.5	Swan Isl	9E-08	8E-09	7E-09	7E-09	6E-09	6E-09	5E-09	7E-09
8.6	Swan Isl	1E-07	2E-08	1E-08	1E-08	7E-09	7E-09	6E-09	1E-08
8.7	Swan Isl	2E-07	4E-08	3E-08	3E-08	1E-08	1E-08	1E-08	4E-08
8.8	Swan Isl	2E-07	4E-08	4E-08	4E-08	1E-08	1E-08	1E-08	4E-08
8.9	Swan Isl	2E-07	5E-08	4E-08	4E-08	2E-08	2E-08	1E-08	5E-08
9	Swan Isl	1E-07	6E-08	5E-08	4E-08	2E-08	2E-08	1E-08	5E-08
9.1	Swan Isl	1E-07	6E-08	5E-08	5E-08	2E-08	2E-08	2E-08	6E-08
9.2	Swan Isl	1E-07	7E-08	6E-08	5E-08	2E-08	2E-08	1E-08	7E-08
9.3	Swan Isl	1E-07	8E-08	7E-08	6E-08	2E-08	2E-08	1E-08	8E-08
9.4	Swan Isl	2E-07	1E-07	1E-07	9E-08	2E-08	2E-08	2E-08	1E-07
9.5	Swan Isl	2E-07	2E-07	2E-07	2E-07	3E-08	3E-08	3E-08	2E-07
9.6	Swan Isl	3E-07	3E-07	3E-07	2E-07	6E-08	6E-08	5E-08	3E-07

**Table J2.3-3b**  
**RAO 2 Rolling River Mile Risk Estimates - Chlordanes**  
 Portland Harbor Superfund Site  
 Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
1.8	East	2E-07	2E-07	2E-07	2E-07	2E-07	2E-07	2E-07	2E-07
1.9	East	2E-07	2E-07	2E-07	2E-07	2E-07	2E-07	2E-07	2E-07
2	East	2E-07	2E-07	2E-07	2E-07	2E-07	2E-07	2E-07	2E-07
2.1	East	2E-07	2E-07	2E-07	2E-07	2E-07	2E-07	2E-07	2E-07
2.2	East	2E-07	2E-07	2E-07	2E-07	1E-07	1E-07	1E-07	2E-07
2.3	East	2E-07	1E-07	1E-07	1E-07	1E-07	1E-07	1E-07	1E-07
2.4	East	1E-07	1E-07	1E-07	1E-07	9E-08	9E-08	8E-08	1E-07
2.5	East	1E-07	1E-07	1E-07	1E-07	8E-08	8E-08	7E-08	1E-07
2.6	East	1E-07	1E-07	1E-07	1E-07	8E-08	8E-08	7E-08	1E-07
2.7	East	1E-07	1E-07	1E-07	1E-07	8E-08	8E-08	7E-08	1E-07
2.8	East	1E-07	1E-07	1E-07	1E-07	8E-08	8E-08	7E-08	1E-07
2.9	East	1E-07	1E-07	1E-07	1E-07	8E-08	8E-08	7E-08	1E-07
3	East	1E-07	1E-07	1E-07	9E-08	8E-08	8E-08	7E-08	1E-07
3.1	East	1E-07	1E-07	1E-07	9E-08	8E-08	8E-08	7E-08	9E-08
3.2	East	1E-07	1E-07	9E-08	8E-08	7E-08	7E-08	7E-08	8E-08
3.3	East	1E-07	9E-08	8E-08	7E-08	6E-08	6E-08	5E-08	7E-08
3.4	East	1E-07	7E-08	7E-08	6E-08	5E-08	5E-08	5E-08	6E-08
3.5	East	1E-07	7E-08	7E-08	6E-08	5E-08	5E-08	4E-08	6E-08
3.6	East	1E-07	8E-08	7E-08	6E-08	4E-08	4E-08	3E-08	6E-08
3.7	East	1E-07	8E-08	7E-08	6E-08	4E-08	4E-08	3E-08	6E-08
3.8	East	1E-07	9E-08	8E-08	7E-08	5E-08	5E-08	3E-08	7E-08
3.9	East	1E-07	1E-07	1E-07	8E-08	5E-08	5E-08	3E-08	8E-08
4	East	2E-07	2E-07	2E-07	1E-07	9E-08	9E-08	4E-08	1E-07
4.1	East	3E-07	3E-07	3E-07	2E-07	1E-07	1E-07	7E-08	2E-07
4.2	East	5E-07	5E-07	4E-07	3E-07	2E-07	2E-07	7E-08	3E-07
4.3	East	7E-07	6E-07	5E-07	4E-07	2E-07	2E-07	9E-08	4E-07
4.4	East	7E-07	7E-07	5E-07	4E-07	2E-07	2E-07	1E-07	4E-07
4.5	East	7E-07	7E-07	6E-07	4E-07	2E-07	2E-07	1E-07	4E-07
4.6	East	7E-07	7E-07	6E-07	4E-07	2E-07	2E-07	1E-07	4E-07
4.7	East	7E-07	7E-07	6E-07	4E-07	3E-07	3E-07	1E-07	4E-07
4.8	East	7E-07	7E-07	6E-07	5E-07	3E-07	3E-07	1E-07	5E-07
4.9	East	8E-07	8E-07	6E-07	5E-07	3E-07	3E-07	1E-07	5E-07
5	East	8E-07	8E-07	6E-07	5E-07	3E-07	3E-07	1E-07	5E-07
5.1	East	6E-07	6E-07	5E-07	4E-07	2E-07	2E-07	1E-07	4E-07
5.2	East	3E-07	3E-07	3E-07	3E-07	2E-07	2E-07	9E-08	2E-07
5.3	East	3E-07	3E-07	3E-07	2E-07	1E-07	1E-07	8E-08	1E-07
5.4	East	2E-07	2E-07	2E-07	2E-07	1E-07	1E-07	7E-08	1E-07
5.5	East	2E-07	2E-07	2E-07	2E-07	1E-07	1E-07	6E-08	1E-07
5.6	East	2E-07	2E-07	2E-07	2E-07	1E-07	1E-07	6E-08	1E-07
5.7	East	2E-07	2E-07	2E-07	2E-07	1E-07	1E-07	5E-08	1E-07
5.8	East	2E-07	2E-07	2E-07	2E-07	1E-07	1E-07	5E-08	1E-07
5.9	East	2E-07	2E-07	2E-07	2E-07	9E-08	9E-08	5E-08	1E-07
6	East	2E-07	2E-07	2E-07	2E-07	9E-08	9E-08	5E-08	1E-07

**Table J2.3-3b**

**RAO 2 Rolling River Mile Risk Estimates - Chlordanes**

Portland Harbor Superfund Site

Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
6.1	East	2E-07	2E-07	1E-07	1E-07	8E-08	8E-08	5E-08	1E-07
6.2	East	1E-07	1E-07	1E-07	1E-07	8E-08	8E-08	6E-08	1E-07
6.3	East	1E-07	1E-07	1E-07	9E-08	7E-08	7E-08	5E-08	1E-07
6.4	East	1E-07	9E-08	9E-08	8E-08	6E-08	6E-08	5E-08	9E-08
6.5	East	9E-08	8E-08	7E-08	7E-08	6E-08	6E-08	4E-08	8E-08
6.6	East	8E-08	7E-08	6E-08	6E-08	5E-08	5E-08	4E-08	7E-08
6.7	East	8E-08	7E-08	6E-08	6E-08	5E-08	5E-08	4E-08	7E-08
6.8	East	9E-08	7E-08	6E-08	5E-08	5E-08	5E-08	4E-08	8E-08
6.9	East	9E-08	7E-08	6E-08	6E-08	5E-08	5E-08	5E-08	8E-08
7	East	1E-07	8E-08	7E-08	7E-08	6E-08	6E-08	5E-08	9E-08
7.1	East	1E-07	8E-08	7E-08	7E-08	6E-08	6E-08	6E-08	9E-08
7.2	East	1E-07	8E-08	7E-08	7E-08	7E-08	7E-08	6E-08	9E-08
7.3	East	1E-07	9E-08	8E-08	8E-08	7E-08	7E-08	7E-08	1E-07
7.4	East	1E-07	9E-08	8E-08	8E-08	8E-08	8E-08	8E-08	1E-07
7.5	East	1E-07	1E-07	9E-08	9E-08	9E-08	9E-08	9E-08	1E-07
7.6	East	1E-07	1E-07	1E-07	1E-07	1E-07	1E-07	9E-08	1E-07
7.7	East	1E-07	1E-07	1E-07	1E-07	1E-07	1E-07	9E-08	1E-07
7.8	East	1E-07	1E-07	1E-07	1E-07	1E-07	1E-07	9E-08	1E-07
7.9	East	1E-07	1E-07	1E-07	1E-07	1E-07	1E-07	9E-08	1E-07
8	East	1E-07	9E-08	9E-08	9E-08	9E-08	9E-08	8E-08	9E-08
8.1	East	1E-07	8E-08	8E-08	8E-08	8E-08	8E-08	6E-08	8E-08
8.2	East	1E-07	7E-08	7E-08	7E-08	7E-08	7E-08	5E-08	7E-08
8.3	East	9E-08	7E-08	7E-08	7E-08	7E-08	7E-08	6E-08	7E-08
8.4	East	9E-08	7E-08	7E-08	7E-08	6E-08	6E-08	6E-08	7E-08
8.5	East	8E-08	6E-08	6E-08	6E-08	6E-08	6E-08	5E-08	6E-08
8.6	East	8E-08	6E-08	6E-08	6E-08	6E-08	6E-08	5E-08	6E-08
8.7	East	9E-08	8E-08	8E-08	8E-08	8E-08	8E-08	6E-08	8E-08
8.8	East	1E-07	1E-07	1E-07	1E-07	1E-07	1E-07	8E-08	1E-07
8.9	East	1E-07	1E-07	1E-07	1E-07	1E-07	1E-07	8E-08	1E-07
9	East	1E-07	1E-07	1E-07	1E-07	1E-07	1E-07	8E-08	1E-07
9.1	East	1E-07	1E-07	1E-07	1E-07	1E-07	1E-07	8E-08	1E-07
9.2	East	1E-07	1E-07	1E-07	1E-07	1E-07	1E-07	7E-08	1E-07
9.3	East	1E-07	1E-07	1E-07	1E-07	1E-07	1E-07	7E-08	1E-07
9.4	East	1E-07	1E-07	1E-07	1E-07	1E-07	1E-07	8E-08	1E-07
9.5	East	1E-07	1E-07	1E-07	1E-07	1E-07	1E-07	8E-08	1E-07
9.6	East	1E-07	1E-07	1E-07	1E-07	1E-07	1E-07	8E-08	1E-07
9.7	East	1E-07	1E-07	1E-07	1E-07	1E-07	1E-07	8E-08	1E-07
9.8	East	1E-07	1E-07	1E-07	1E-07	9E-08	9E-08	8E-08	1E-07
9.9	East	1E-07	1E-07	1E-07	1E-07	9E-08	9E-08	8E-08	1E-07
10	East	1E-07	1E-07	1E-07	1E-07	1E-07	1E-07	1E-07	1E-07
10.1	East	2E-07	2E-07	2E-07	2E-07	2E-07	2E-07	1E-07	2E-07
10.2	East	2E-07	2E-07	2E-07	2E-07	2E-07	2E-07	1E-07	2E-07

**Table J2.3-3b**

**RAO 2 Rolling River Mile Risk Estimates - Chlordanes**

Portland Harbor Superfund Site

Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
10.3	East	2E-07	2E-07	2E-07	2E-07	2E-07	2E-07	1E-07	2E-07
10.4	East	2E-07	2E-07	2E-07	2E-07	2E-07	2E-07	1E-07	2E-07
10.5	East	2E-07	2E-07	2E-07	2E-07	2E-07	2E-07	1E-07	2E-07
10.6	East	2E-07	2E-07	2E-07	2E-07	2E-07	2E-07	2E-07	2E-07
10.7	East	3E-07	3E-07	2E-07	2E-07	2E-07	2E-07	1E-07	2E-07
10.8	East	5E-07	4E-07	4E-07	3E-07	2E-07	2E-07	1E-07	3E-07
10.9	East	9E-07	5E-07	4E-07	3E-07	2E-07	2E-07	1E-07	3E-07
11	East	1E-06	5E-07	4E-07	2E-07	1E-07	1E-07	5E-08	2E-07
11.1	East	1E-06	5E-07	4E-07	2E-07	1E-07	1E-07	3E-08	2E-07
11.2	East	1E-06	5E-07	3E-07	2E-07	1E-07	1E-07	3E-08	2E-07
11.3	East	1E-06	5E-07	4E-07	2E-07	1E-07	1E-07	2E-08	2E-07
11.4	East	1E-06	6E-07	4E-07	2E-07	1E-07	1E-07	2E-08	2E-07
11.5	East	1E-06	6E-07	4E-07	2E-07	1E-07	1E-07	2E-08	2E-07
11.6	East	1E-06	7E-07	4E-07	3E-07	1E-07	1E-07	2E-08	3E-07
11.7	East	2E-06	8E-07	5E-07	3E-07	1E-07	1E-07	2E-08	3E-07
1.8	Nav Channel	1E-07	1E-07	1E-07	1E-07	1E-07	1E-07	1E-07	1E-07
1.9	Nav Channel	1E-07	1E-07	1E-07	1E-07	1E-07	1E-07	1E-07	1E-07
2	Nav Channel	1E-07	1E-07	1E-07	1E-07	1E-07	1E-07	1E-07	1E-07
2.1	Nav Channel	1E-07	1E-07	1E-07	1E-07	1E-07	1E-07	1E-07	1E-07
2.2	Nav Channel	1E-07	1E-07	1E-07	1E-07	1E-07	1E-07	1E-07	1E-07
2.3	Nav Channel	1E-07	1E-07	1E-07	1E-07	1E-07	1E-07	1E-07	1E-07
2.4	Nav Channel	1E-07	1E-07	1E-07	1E-07	1E-07	1E-07	1E-07	1E-07
2.5	Nav Channel	1E-07	1E-07	1E-07	1E-07	1E-07	1E-07	1E-07	1E-07
2.6	Nav Channel	1E-07	1E-07	1E-07	1E-07	1E-07	1E-07	1E-07	1E-07
2.7	Nav Channel	1E-07	1E-07	1E-07	1E-07	1E-07	1E-07	1E-07	1E-07
2.8	Nav Channel	1E-07	1E-07	1E-07	1E-07	1E-07	1E-07	1E-07	1E-07
2.9	Nav Channel	1E-07	1E-07	1E-07	1E-07	1E-07	1E-07	1E-07	1E-07
3	Nav Channel	1E-07	1E-07	1E-07	1E-07	1E-07	1E-07	1E-07	1E-07
3.1	Nav Channel	2E-07	2E-07	2E-07	2E-07	2E-07	1E-07	1E-07	2E-07
3.2	Nav Channel	2E-07	2E-07	2E-07	2E-07	2E-07	1E-07	9E-08	2E-07
3.3	Nav Channel	2E-07	2E-07	2E-07	2E-07	2E-07	1E-07	8E-08	2E-07
3.4	Nav Channel	2E-07	2E-07	2E-07	2E-07	2E-07	1E-07	9E-08	2E-07
3.5	Nav Channel	2E-07	2E-07	2E-07	2E-07	2E-07	1E-07	8E-08	2E-07
3.6	Nav Channel	2E-07	2E-07	2E-07	2E-07	2E-07	1E-07	8E-08	2E-07
3.7	Nav Channel	1E-07	1E-07	1E-07	1E-07	1E-07	1E-07	8E-08	1E-07
3.8	Nav Channel	1E-07	1E-07	1E-07	1E-07	1E-07	9E-08	7E-08	1E-07
3.9	Nav Channel	1E-07	1E-07	1E-07	1E-07	1E-07	9E-08	7E-08	1E-07
4	Nav Channel	1E-07	1E-07	1E-07	1E-07	1E-07	9E-08	8E-08	1E-07
4.1	Nav Channel	1E-07	1E-07	1E-07	1E-07	1E-07	1E-07	8E-08	1E-07
4.2	Nav Channel	1E-07	1E-07	1E-07	1E-07	1E-07	1E-07	1E-07	1E-07
4.3	Nav Channel	1E-07	1E-07	1E-07	1E-07	1E-07	1E-07	1E-07	1E-07
4.4	Nav Channel	1E-07	1E-07	1E-07	1E-07	1E-07	1E-07	1E-07	1E-07

**Table J2.3-3b**  
**RAO 2 Rolling River Mile Risk Estimates - Chlordanes**  
 Portland Harbor Superfund Site  
 Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
4.5	Nav Channel	1E-07	1E-07	1E-07	1E-07	1E-07	1E-07	1E-07	1E-07
4.6	Nav Channel	1E-07	1E-07	1E-07	1E-07	1E-07	1E-07	9E-08	1E-07
4.7	Nav Channel	1E-07	1E-07	1E-07	1E-07	1E-07	9E-08	9E-08	1E-07
4.8	Nav Channel	1E-07	1E-07	1E-07	9E-08	1E-07	9E-08	8E-08	1E-07
4.9	Nav Channel	1E-07	1E-07	1E-07	9E-08	1E-07	8E-08	7E-08	1E-07
5	Nav Channel	1E-07	1E-07	9E-08	8E-08	1E-07	7E-08	7E-08	1E-07
5.1	Nav Channel	1E-07	1E-07	8E-08	7E-08	1E-07	6E-08	5E-08	1E-07
5.2	Nav Channel	1E-07	9E-08	6E-08	6E-08	9E-08	5E-08	4E-08	9E-08
5.3	Nav Channel	1E-07	8E-08	5E-08	5E-08	8E-08	4E-08	3E-08	8E-08
5.4	Nav Channel	1E-07	7E-08	5E-08	4E-08	7E-08	3E-08	2E-08	7E-08
5.5	Nav Channel	1E-07	8E-08	6E-08	4E-08	8E-08	3E-08	1E-08	8E-08
5.6	Nav Channel	2E-07	1E-07	7E-08	5E-08	1E-07	3E-08	1E-08	1E-07
5.7	Nav Channel	2E-07	2E-07	1E-07	6E-08	2E-07	3E-08	1E-08	1E-07
5.8	Nav Channel	3E-07	2E-07	1E-07	8E-08	2E-07	4E-08	1E-08	1E-07
5.9	Nav Channel	3E-07	2E-07	1E-07	1E-07	2E-07	5E-08	2E-08	2E-07
6	Nav Channel	3E-07	2E-07	1E-07	1E-07	2E-07	6E-08	3E-08	2E-07
6.1	Nav Channel	4E-07	2E-07	2E-07	1E-07	2E-07	6E-08	3E-08	2E-07
6.2	Nav Channel	4E-07	3E-07	2E-07	1E-07	3E-07	6E-08	3E-08	2E-07
6.3	Nav Channel	4E-07	3E-07	2E-07	1E-07	3E-07	7E-08	3E-08	2E-07
6.4	Nav Channel	4E-07	3E-07	2E-07	1E-07	3E-07	7E-08	3E-08	2E-07
6.5	Nav Channel	4E-07	3E-07	2E-07	1E-07	3E-07	6E-08	3E-08	2E-07
6.6	Nav Channel	4E-07	3E-07	2E-07	1E-07	2E-07	6E-08	4E-08	2E-07
6.7	Nav Channel	3E-07	2E-07	1E-07	1E-07	2E-07	7E-08	5E-08	2E-07
6.8	Nav Channel	2E-07	2E-07	2E-07	1E-07	2E-07	1E-07	7E-08	2E-07
6.9	Nav Channel	2E-07	2E-07	2E-07	2E-07	2E-07	1E-07	8E-08	2E-07
7	Nav Channel	2E-07	2E-07	2E-07	2E-07	2E-07	1E-07	8E-08	2E-07
7.1	Nav Channel	2E-07	2E-07	2E-07	2E-07	2E-07	1E-07	8E-08	2E-07
7.2	Nav Channel	2E-07	2E-07	2E-07	2E-07	2E-07	1E-07	9E-08	2E-07
7.3	Nav Channel	2E-07	2E-07	2E-07	2E-07	2E-07	2E-07	1E-07	2E-07
7.4	Nav Channel	2E-07	2E-07	2E-07	2E-07	2E-07	2E-07	1E-07	2E-07
7.5	Nav Channel	2E-07	2E-07	2E-07	2E-07	2E-07	2E-07	1E-07	2E-07
7.6	Nav Channel	2E-07	2E-07	2E-07	2E-07	2E-07	2E-07	1E-07	2E-07
7.7	Nav Channel	2E-07	2E-07	2E-07	2E-07	2E-07	2E-07	1E-07	2E-07
7.8	Nav Channel	1E-07	1E-07	1E-07	1E-07	1E-07	1E-07	1E-07	1E-07
7.9	Nav Channel	1E-07	1E-07	1E-07	1E-07	1E-07	1E-07	1E-07	1E-07
8	Nav Channel	1E-07	1E-07	1E-07	1E-07	1E-07	1E-07	1E-07	1E-07
8.1	Nav Channel	1E-07	1E-07	1E-07	1E-07	1E-07	1E-07	1E-07	1E-07
8.2	Nav Channel	1E-07	1E-07	1E-07	1E-07	1E-07	1E-07	1E-07	1E-07
8.3	Nav Channel	1E-07	1E-07	1E-07	1E-07	1E-07	1E-07	1E-07	1E-07
8.4	Nav Channel	1E-07	1E-07	1E-07	1E-07	1E-07	1E-07	1E-07	1E-07
8.5	Nav Channel	1E-07	1E-07	1E-07	1E-07	1E-07	9E-08	9E-08	1E-07
8.6	Nav Channel	1E-07	1E-07	1E-07	1E-07	1E-07	9E-08	9E-08	1E-07



**Table J2.3-3b**  
**RAO 2 Rolling River Mile Risk Estimates - Chlordanes**  
 Portland Harbor Superfund Site  
 Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
8.7	Nav Channel	1E-07	9E-08	9E-08	9E-08	9E-08	9E-08	8E-08	9E-08
8.8	Nav Channel	9E-08	9E-08	9E-08	9E-08	9E-08	8E-08	8E-08	9E-08
8.9	Nav Channel	9E-08	9E-08	9E-08	9E-08	9E-08	8E-08	8E-08	9E-08
9	Nav Channel	9E-08	9E-08	9E-08	9E-08	9E-08	8E-08	7E-08	9E-08
9.1	Nav Channel	9E-08	9E-08	9E-08	9E-08	9E-08	8E-08	7E-08	9E-08
9.2	Nav Channel	1E-07	1E-07	1E-07	1E-07	1E-07	8E-08	7E-08	1E-07
9.3	Nav Channel	1E-07	1E-07	1E-07	1E-07	1E-07	9E-08	8E-08	1E-07
9.4	Nav Channel	1E-07	1E-07	1E-07	1E-07	1E-07	9E-08	8E-08	1E-07
9.5	Nav Channel	1E-07	1E-07	1E-07	1E-07	1E-07	1E-07	9E-08	1E-07
9.6	Nav Channel	1E-07	1E-07	1E-07	1E-07	1E-07	1E-07	9E-08	1E-07
9.7	Nav Channel	1E-07	1E-07	1E-07	1E-07	1E-07	1E-07	1E-07	1E-07
9.8	Nav Channel	1E-07	1E-07	1E-07	1E-07	1E-07	1E-07	1E-07	1E-07
9.9	Nav Channel	2E-07	2E-07	2E-07	2E-07	2E-07	1E-07	1E-07	2E-07
10	Nav Channel	2E-07	2E-07	2E-07	2E-07	2E-07	1E-07	1E-07	2E-07
10.1	Nav Channel	2E-07	2E-07	2E-07	2E-07	2E-07	1E-07	1E-07	2E-07
10.2	Nav Channel	2E-07	2E-07	2E-07	2E-07	2E-07	1E-07	1E-07	2E-07
10.3	Nav Channel	2E-07	2E-07	2E-07	2E-07	2E-07	2E-07	1E-07	2E-07
10.4	Nav Channel	2E-07	2E-07	2E-07	2E-07	2E-07	2E-07	1E-07	2E-07
10.5	Nav Channel	2E-07	2E-07	2E-07	2E-07	2E-07	2E-07	1E-07	2E-07
10.6	Nav Channel	3E-07	3E-07	3E-07	3E-07	3E-07	2E-07	1E-07	3E-07
10.7	Nav Channel	3E-07	3E-07	3E-07	3E-07	3E-07	2E-07	1E-07	3E-07
10.8	Nav Channel	5E-07	3E-07	3E-07	3E-07	3E-07	2E-07	1E-07	3E-07
10.9	Nav Channel	6E-07	4E-07	3E-07	3E-07	3E-07	2E-07	2E-07	3E-07
11	Nav Channel	6E-07	4E-07	3E-07	2E-07	2E-07	2E-07	2E-07	2E-07
11.1	Nav Channel	6E-07	4E-07	3E-07	2E-07	2E-07	2E-07	2E-07	2E-07
11.2	Nav Channel	7E-07	4E-07	3E-07	3E-07	3E-07	2E-07	2E-07	3E-07
11.3	Nav Channel	7E-07	4E-07	3E-07	3E-07	3E-07	2E-07	2E-07	3E-07
11.4	Nav Channel	8E-07	5E-07	3E-07	3E-07	3E-07	2E-07	2E-07	3E-07
11.5	Nav Channel	9E-07	5E-07	3E-07	3E-07	3E-07	2E-07	2E-07	3E-07
11.6	Nav Channel	1E-06	5E-07	3E-07	2E-07	2E-07	2E-07	2E-07	2E-07
11.7	Nav Channel	1E-06	5E-07	3E-07	2E-07	2E-07	2E-07	2E-07	2E-07
1.8	West	7E-08	7E-08	7E-08	7E-08	7E-08	7E-08	7E-08	7E-08
1.9	West	6E-08	6E-08	6E-08	6E-08	6E-08	6E-08	6E-08	6E-08
2	West	6E-08	6E-08	6E-08	6E-08	6E-08	6E-08	6E-08	6E-08
2.1	West	6E-08	6E-08	6E-08	6E-08	6E-08	6E-08	6E-08	6E-08
2.2	West	6E-08	6E-08	6E-08	6E-08	6E-08	6E-08	6E-08	6E-08
2.3	West	7E-08	7E-08	7E-08	7E-08	7E-08	7E-08	6E-08	7E-08
2.4	West	6E-08	6E-08	6E-08	6E-08	6E-08	6E-08	6E-08	6E-08
2.5	West	6E-08	6E-08	6E-08	6E-08	6E-08	6E-08	6E-08	6E-08
2.6	West	6E-08	6E-08	6E-08	6E-08	6E-08	6E-08	5E-08	6E-08
2.7	West	6E-08	6E-08	6E-08	6E-08	6E-08	6E-08	5E-08	6E-08
2.8	West	8E-08	8E-08	8E-08	8E-08	8E-08	8E-08	5E-08	8E-08

**Table J2.3-3b**

**RAO 2 Rolling River Mile Risk Estimates - Chlordanes**

Portland Harbor Superfund Site

Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
2.9	West	8E-08	8E-08	8E-08	8E-08	8E-08	8E-08	5E-08	8E-08
3	West	8E-08	8E-08	8E-08	8E-08	8E-08	8E-08	5E-08	8E-08
3.1	West	8E-08	8E-08	8E-08	8E-08	8E-08	8E-08	6E-08	8E-08
3.2	West	8E-08	8E-08	8E-08	8E-08	8E-08	8E-08	6E-08	8E-08
3.3	West	8E-08	8E-08	8E-08	8E-08	8E-08	8E-08	6E-08	8E-08
3.4	West	9E-08	9E-08	9E-08	9E-08	9E-08	9E-08	6E-08	9E-08
3.5	West	1E-07	1E-07	1E-07	1E-07	9E-08	9E-08	6E-08	1E-07
3.6	West	1E-07	1E-07	1E-07	1E-07	1E-07	1E-07	7E-08	1E-07
3.7	West	1E-07	1E-07	1E-07	1E-07	1E-07	1E-07	8E-08	1E-07
3.8	West	1E-07	1E-07	1E-07	1E-07	1E-07	1E-07	8E-08	1E-07
3.9	West	2E-07	2E-07	2E-07	2E-07	1E-07	1E-07	8E-08	2E-07
4	West	2E-07	2E-07	2E-07	2E-07	2E-07	2E-07	9E-08	2E-07
4.1	West	2E-07	2E-07	2E-07	2E-07	2E-07	2E-07	8E-08	2E-07
4.2	West	2E-07	2E-07	2E-07	2E-07	2E-07	2E-07	7E-08	2E-07
4.3	West	2E-07	2E-07	2E-07	2E-07	2E-07	2E-07	6E-08	2E-07
4.4	West	2E-07	2E-07	2E-07	2E-07	2E-07	2E-07	6E-08	2E-07
4.5	West	2E-07	2E-07	2E-07	2E-07	2E-07	2E-07	6E-08	2E-07
4.6	West	2E-07	2E-07	2E-07	2E-07	1E-07	1E-07	6E-08	2E-07
4.7	West	2E-07	2E-07	2E-07	2E-07	1E-07	1E-07	5E-08	2E-07
4.8	West	2E-07	2E-07	2E-07	1E-07	1E-07	1E-07	6E-08	1E-07
4.9	West	1E-07	1E-07	1E-07	1E-07	9E-08	9E-08	5E-08	1E-07
5	West	1E-07	1E-07	1E-07	1E-07	7E-08	7E-08	4E-08	1E-07
5.1	West	1E-07	1E-07	1E-07	9E-08	6E-08	6E-08	4E-08	9E-08
5.2	West	9E-08	9E-08	9E-08	8E-08	6E-08	6E-08	4E-08	8E-08
5.3	West	1E-07	1E-07	1E-07	9E-08	8E-08	8E-08	4E-08	9E-08
5.4	West	2E-07	2E-07	2E-07	1E-07	1E-07	1E-07	7E-08	2E-07
5.5	West	2E-07	2E-07	2E-07	2E-07	1E-07	1E-07	7E-08	2E-07
5.6	West	2E-07	2E-07	2E-07	2E-07	1E-07	1E-07	6E-08	2E-07
5.7	West	4E-07	2E-07	2E-07	1E-07	1E-07	1E-07	6E-08	2E-07
5.8	West	4E-07	2E-07	1E-07	1E-07	1E-07	1E-07	5E-08	1E-07
5.9	West	5E-07	2E-07	1E-07	1E-07	9E-08	9E-08	5E-08	1E-07
6	West	5E-07	2E-07	1E-07	1E-07	9E-08	9E-08	5E-08	1E-07
6.1	West	6E-07	2E-07	2E-07	1E-07	9E-08	9E-08	5E-08	1E-07
6.2	West	7E-07	3E-07	2E-07	2E-07	1E-07	1E-07	5E-08	1E-07
6.3	West	7E-07	3E-07	3E-07	2E-07	8E-08	8E-08	4E-08	1E-07
6.4	West	9E-07	4E-07	3E-07	2E-07	5E-08	5E-08	1E-08	8E-08
6.5	West	1E-06	6E-07	4E-07	2E-07	4E-08	4E-08	3E-09	5E-08
6.6	West	1E-06	7E-07	4E-07	2E-07	3E-08	3E-08	2E-09	3E-08
6.7	West	1E-06	7E-07	4E-07	2E-07	3E-08	3E-08	1E-09	3E-08
6.8	West	2E-06	7E-07	4E-07	2E-07	3E-08	3E-08	2E-09	3E-08
6.9	West	2E-06	7E-07	4E-07	2E-07	3E-08	3E-08	2E-09	3E-08
7	West	2E-06	7E-07	4E-07	2E-07	3E-08	3E-08	2E-09	3E-08

**Table J2.3-3b**

**RAO 2 Rolling River Mile Risk Estimates - Chlordanes**

Portland Harbor Superfund Site

Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
7.1	West	2E-06	6E-07	4E-07	2E-07	6E-08	6E-08	2E-08	6E-08
7.2	West	1E-06	5E-07	3E-07	2E-07	8E-08	8E-08	4E-08	8E-08
7.3	West	1E-06	5E-07	3E-07	2E-07	1E-07	1E-07	5E-08	1E-07
7.4	West	1E-06	4E-07	3E-07	2E-07	1E-07	1E-07	5E-08	1E-07
7.5	West	1E-06	3E-07	2E-07	2E-07	1E-07	1E-07	5E-08	1E-07
7.6	West	9E-07	2E-07	2E-07	2E-07	1E-07	1E-07	5E-08	1E-07
7.7	West	7E-07	2E-07	2E-07	2E-07	1E-07	1E-07	5E-08	1E-07
7.8	West	5E-07	2E-07	2E-07	2E-07	1E-07	1E-07	5E-08	1E-07
7.9	West	5E-07	4E-07	4E-07	3E-07	1E-07	1E-07	5E-08	3E-07
8	West	4E-07	4E-07	3E-07	3E-07	2E-07	2E-07	6E-08	3E-07
8.1	West	4E-07	4E-07	4E-07	4E-07	2E-07	2E-07	6E-08	4E-07
8.2	West	5E-07	5E-07	5E-07	4E-07	1E-07	1E-07	5E-08	4E-07
8.3	West	6E-07	6E-07	6E-07	4E-07	1E-07	1E-07	4E-08	4E-07
8.4	West	1E-06	6E-07	6E-07	4E-07	1E-07	1E-07	4E-08	4E-07
8.5	West	1E-06	6E-07	6E-07	4E-07	1E-07	1E-07	4E-08	4E-07
8.6	West	1E-06	6E-07	6E-07	4E-07	1E-07	1E-07	4E-08	4E-07
8.7	West	1E-06	7E-07	6E-07	4E-07	1E-07	1E-07	4E-08	4E-07
8.8	West	1E-06	7E-07	6E-07	4E-07	1E-07	1E-07	4E-08	4E-07
8.9	West	9E-07	5E-07	4E-07	2E-07	1E-07	1E-07	5E-08	2E-07
9	West	1E-06	5E-07	4E-07	2E-07	8E-08	8E-08	4E-08	2E-07
9.1	West	9E-07	3E-07	3E-07	1E-07	4E-08	4E-08	3E-08	1E-07
9.2	West	8E-07	2E-07	2E-07	8E-08	4E-08	4E-08	3E-08	8E-08
9.3	West	7E-07	2E-07	1E-07	8E-08	4E-08	4E-08	3E-08	8E-08
9.4	West	3E-07	2E-07	1E-07	8E-08	4E-08	4E-08	3E-08	8E-08
9.5	West	2E-07	2E-07	1E-07	9E-08	5E-08	5E-08	3E-08	9E-08
9.6	West	2E-07	2E-07	1E-07	1E-07	5E-08	5E-08	4E-08	1E-07
9.7	West	2E-07	2E-07	1E-07	1E-07	6E-08	6E-08	4E-08	1E-07
9.8	West	2E-07	2E-07	2E-07	1E-07	6E-08	6E-08	4E-08	1E-07
9.9	West	2E-07	2E-07	2E-07	1E-07	6E-08	6E-08	3E-08	1E-07
10	West	3E-07	3E-07	2E-07	1E-07	7E-08	7E-08	4E-08	1E-07
10.1	West	3E-07	3E-07	2E-07	1E-07	8E-08	8E-08	5E-08	1E-07
10.2	West	3E-07	3E-07	2E-07	2E-07	1E-07	1E-07	8E-08	2E-07
10.3	West	2E-07	2E-07	2E-07	2E-07	2E-07	2E-07	1E-07	2E-07
10.4	West	2E-07	2E-07	2E-07	2E-07	2E-07	2E-07	1E-07	2E-07
10.5	West	2E-07	2E-07	2E-07	2E-07	2E-07	2E-07	1E-07	2E-07
10.6	West	2E-07	2E-07	2E-07	2E-07	2E-07	2E-07	1E-07	2E-07
10.7	West	2E-07	2E-07	2E-07	2E-07	2E-07	2E-07	1E-07	2E-07
10.8	West	2E-07	2E-07	2E-07	2E-07	2E-07	2E-07	1E-07	2E-07
10.9	West	2E-07	2E-07	2E-07	2E-07	2E-07	2E-07	1E-07	2E-07
11	West	2E-07	2E-07	2E-07	2E-07	2E-07	2E-07	1E-07	2E-07
11.1	West	2E-07	2E-07	2E-07	2E-07	2E-07	2E-07	1E-07	2E-07
11.2	West	2E-07	2E-07	2E-07	2E-07	2E-07	2E-07	1E-07	2E-07

**Table J2.3-3b**

**RAO 2 Rolling River Mile Risk Estimates - Chlordanes**

Portland Harbor Superfund Site

Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
11.3	West	2E-07	2E-07	2E-07	2E-07	2E-07	2E-07	2E-07	2E-07
11.4	West	2E-07	2E-07	2E-07	2E-07	2E-07	2E-07	2E-07	2E-07
11.5	West	2E-07	2E-07	2E-07	2E-07	2E-07	2E-07	1E-07	2E-07
11.6	West	2E-07	2E-07	2E-07	2E-07	2E-07	2E-07	2E-07	2E-07
11.7	West	2E-07	2E-07	2E-07	2E-07	2E-07	2E-07	2E-07	2E-07
7.6	Swan Isl	1E-07	9E-09	9E-09	4E-09	1E-09	1E-09	6E-10	4E-09
7.7	Swan Isl	2E-07	1E-08	1E-08	5E-09	9E-10	9E-10	4E-10	5E-09
7.8	Swan Isl	3E-07	2E-08	1E-08	5E-09	2E-09	2E-09	3E-10	5E-09
7.9	Swan Isl	3E-07	2E-08	1E-08	6E-09	3E-09	3E-09	2E-09	6E-09
8	Swan Isl	3E-07	2E-08	2E-08	9E-09	6E-09	6E-09	4E-09	9E-09
8.1	Swan Isl	3E-07	2E-08	2E-08	1E-08	7E-09	7E-09	4E-09	1E-08
8.2	Swan Isl	3E-07	2E-08	2E-08	1E-08	1E-08	1E-08	8E-09	1E-08
8.3	Swan Isl	3E-07	2E-08	2E-08	1E-08	1E-08	1E-08	9E-09	1E-08
8.4	Swan Isl	3E-07	2E-08	2E-08	1E-08	1E-08	1E-08	1E-08	1E-08
8.5	Swan Isl	3E-07	2E-08	2E-08	1E-08	1E-08	1E-08	1E-08	1E-08
8.6	Swan Isl	3E-07	4E-08	3E-08	2E-08	1E-08	1E-08	1E-08	3E-08
8.7	Swan Isl	3E-07	7E-08	6E-08	5E-08	2E-08	2E-08	2E-08	6E-08
8.8	Swan Isl	3E-07	8E-08	7E-08	6E-08	3E-08	3E-08	2E-08	7E-08
8.9	Swan Isl	3E-07	9E-08	7E-08	7E-08	3E-08	3E-08	2E-08	8E-08
9	Swan Isl	3E-07	1E-07	8E-08	7E-08	3E-08	3E-08	2E-08	9E-08
9.1	Swan Isl	3E-07	1E-07	8E-08	7E-08	3E-08	3E-08	2E-08	1E-07
9.2	Swan Isl	3E-07	1E-07	9E-08	8E-08	3E-08	3E-08	2E-08	1E-07
9.3	Swan Isl	3E-07	1E-07	1E-07	1E-07	3E-08	3E-08	2E-08	1E-07
9.4	Swan Isl	4E-07	2E-07	2E-07	1E-07	4E-08	4E-08	3E-08	2E-07
9.5	Swan Isl	4E-07	3E-07	3E-07	2E-07	5E-08	5E-08	4E-08	3E-07
9.6	Swan Isl	5E-07	5E-07	4E-07	4E-07	9E-08	9E-08	7E-08	5E-07

**Table J2.3-3c**

**RAO 2 Rolling River Mile Risk Estimates - cPAHs**

Portland Harbor Superfund Site

Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
1.8	East	4E-08	4E-08	4E-08	4E-08	4E-08	4E-08	4E-08	4E-08
1.9	East	4E-08	4E-08	4E-08	4E-08	4E-08	4E-08	4E-08	4E-08
2	East	4E-08	4E-08	4E-08	4E-08	4E-08	4E-08	4E-08	4E-08
2.1	East	4E-08	4E-08	4E-08	4E-08	3E-08	3E-08	3E-08	4E-08
2.2	East	3E-08	3E-08	2E-08	2E-08	2E-08	2E-08	2E-08	2E-08
2.3	East	3E-08	2E-08	2E-08	2E-08	1E-08	1E-08	1E-08	2E-08
2.4	East	4E-08	4E-08	2E-08	2E-08	1E-08	1E-08	9E-09	2E-08
2.5	East	5E-08	4E-08	2E-08	2E-08	1E-08	1E-08	1E-08	2E-08
2.6	East	5E-08	4E-08	3E-08	2E-08	1E-08	1E-08	1E-08	2E-08
2.7	East	5E-08	5E-08	3E-08	2E-08	2E-08	2E-08	1E-08	2E-08
2.8	East	5E-08	5E-08	3E-08	3E-08	2E-08	2E-08	2E-08	3E-08
2.9	East	6E-08	5E-08	3E-08	3E-08	2E-08	2E-08	2E-08	3E-08
3	East	6E-08	6E-08	4E-08	3E-08	2E-08	2E-08	2E-08	3E-08
3.1	East	7E-08	6E-08	4E-08	3E-08	3E-08	3E-08	2E-08	4E-08
3.2	East	7E-08	6E-08	4E-08	3E-08	3E-08	3E-08	2E-08	4E-08
3.3	East	6E-08	5E-08	3E-08	3E-08	2E-08	2E-08	2E-08	3E-08
3.4	East	4E-08	3E-08	3E-08	2E-08	2E-08	2E-08	2E-08	2E-08
3.5	East	4E-08	3E-08	3E-08	2E-08	2E-08	2E-08	2E-08	2E-08
3.6	East	4E-08	3E-08	3E-08	2E-08	2E-08	2E-08	2E-08	2E-08
3.7	East	4E-08	3E-08	3E-08	2E-08	2E-08	2E-08	1E-08	2E-08
3.8	East	5E-08	3E-08	3E-08	3E-08	2E-08	2E-08	1E-08	3E-08
3.9	East	1E-07	1E-07	1E-07	8E-08	3E-08	3E-08	1E-08	8E-08
4	East	2E-07	2E-07	2E-07	1E-07	3E-08	3E-08	1E-08	1E-07
4.1	East	3E-07	3E-07	2E-07	1E-07	4E-08	4E-08	1E-08	1E-07
4.2	East	6E-07	5E-07	3E-07	2E-07	4E-08	4E-08	1E-08	2E-07
4.3	East	7E-07	7E-07	4E-07	2E-07	6E-08	6E-08	1E-08	2E-07
4.4	East	8E-07	7E-07	4E-07	2E-07	6E-08	6E-08	2E-08	2E-07
4.5	East	8E-07	7E-07	4E-07	2E-07	7E-08	7E-08	2E-08	2E-07
4.6	East	8E-07	7E-07	4E-07	2E-07	7E-08	7E-08	2E-08	2E-07
4.7	East	8E-07	7E-07	4E-07	2E-07	7E-08	7E-08	2E-08	2E-07
4.8	East	8E-07	7E-07	4E-07	2E-07	7E-08	7E-08	3E-08	2E-07
4.9	East	8E-07	8E-07	4E-07	2E-07	9E-08	9E-08	3E-08	2E-07
5	East	9E-07	8E-07	3E-07	2E-07	9E-08	9E-08	4E-08	2E-07
5.1	East	7E-07	6E-07	3E-07	2E-07	1E-07	1E-07	4E-08	2E-07
5.2	East	2E-07	2E-07	2E-07	1E-07	1E-07	1E-07	5E-08	1E-07
5.3	East	2E-07	2E-07	2E-07	1E-07	9E-08	9E-08	4E-08	9E-08
5.4	East	2E-07	2E-07	2E-07	1E-07	1E-07	1E-07	4E-08	1E-07
5.5	East	2E-07	2E-07	2E-07	2E-07	1E-07	1E-07	4E-08	1E-07
5.6	East	2E-07	2E-07	2E-07	2E-07	1E-07	1E-07	5E-08	1E-07
5.7	East	2E-07	2E-07	2E-07	2E-07	1E-07	1E-07	5E-08	1E-07
5.8	East	2E-07	2E-07	2E-07	2E-07	1E-07	1E-07	6E-08	1E-07
5.9	East	2E-07	2E-07	2E-07	2E-07	1E-07	1E-07	6E-08	2E-07
6	East	2E-07	2E-07	2E-07	2E-07	1E-07	1E-07	6E-08	1E-07

**Table J2.3-3c**

**RAO 2 Rolling River Mile Risk Estimates - cPAHs**

Portland Harbor Superfund Site

Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
6.1	East	2E-07	2E-07	2E-07	1E-07	9E-08	9E-08	5E-08	1E-07
6.2	East	1E-07	1E-07	1E-07	1E-07	8E-08	8E-08	5E-08	1E-07
6.3	East	1E-07	1E-07	1E-07	9E-08	7E-08	7E-08	5E-08	1E-07
6.4	East	1E-07	9E-08	9E-08	7E-08	6E-08	6E-08	4E-08	9E-08
6.5	East	8E-08	8E-08	7E-08	6E-08	4E-08	4E-08	4E-08	7E-08
6.6	East	6E-08	6E-08	5E-08	5E-08	3E-08	3E-08	3E-08	6E-08
6.7	East	5E-08	5E-08	4E-08	4E-08	3E-08	3E-08	2E-08	5E-08
6.8	East	5E-08	4E-08	4E-08	3E-08	2E-08	2E-08	2E-08	5E-08
6.9	East	3E-08	2E-08	2E-08	2E-08	1E-08	1E-08	1E-08	2E-08
7	East	2E-08	2E-08	1E-08	1E-08	1E-08	1E-08	1E-08	2E-08
7.1	East	2E-08	2E-08	1E-08	1E-08	1E-08	1E-08	1E-08	2E-08
7.2	East	2E-08	1E-08	1E-08	1E-08	9E-09	9E-09	9E-09	2E-08
7.3	East	2E-08	1E-08	1E-08	1E-08	1E-08	1E-08	1E-08	2E-08
7.4	East	2E-08	2E-08	1E-08	1E-08	1E-08	1E-08	1E-08	2E-08
7.5	East	2E-08	2E-08	1E-08	1E-08	1E-08	1E-08	1E-08	2E-08
7.6	East	2E-08	2E-08	1E-08	1E-08	1E-08	1E-08	1E-08	2E-08
7.7	East	2E-08	2E-08	1E-08	1E-08	1E-08	1E-08	9E-09	2E-08
7.8	East	2E-08	1E-08	1E-08	1E-08	1E-08	1E-08	8E-09	1E-08
7.9	East	1E-08	1E-08	1E-08	1E-08	1E-08	1E-08	8E-09	1E-08
8	East	1E-08	8E-09	8E-09	8E-09	8E-09	8E-09	6E-09	8E-09
8.1	East	1E-08	8E-09	8E-09	8E-09	8E-09	8E-09	6E-09	8E-09
8.2	East	1E-08	8E-09	8E-09	8E-09	8E-09	8E-09	6E-09	8E-09
8.3	East	1E-08	8E-09	8E-09	8E-09	8E-09	8E-09	6E-09	8E-09
8.4	East	1E-08	8E-09	8E-09	8E-09	8E-09	8E-09	6E-09	8E-09
8.5	East	1E-08	7E-09	7E-09	7E-09	7E-09	7E-09	6E-09	7E-09
8.6	East	1E-08	7E-09	7E-09	7E-09	7E-09	7E-09	6E-09	7E-09
8.7	East	1E-08	8E-09	8E-09	8E-09	8E-09	8E-09	7E-09	8E-09
8.8	East	9E-09	9E-09	9E-09	9E-09	8E-09	8E-09	7E-09	9E-09
8.9	East	8E-09	8E-09	8E-09	8E-09	8E-09	8E-09	7E-09	8E-09
9	East	8E-09	8E-09	8E-09	8E-09	7E-09	7E-09	6E-09	8E-09
9.1	East	8E-09	8E-09	8E-09	8E-09	7E-09	7E-09	5E-09	8E-09
9.2	East	8E-09	8E-09	8E-09	8E-09	6E-09	6E-09	4E-09	8E-09
9.3	East	7E-09	7E-09	7E-09	7E-09	6E-09	6E-09	4E-09	7E-09
9.4	East	7E-09	7E-09	7E-09	7E-09	6E-09	6E-09	4E-09	7E-09
9.5	East	7E-09	7E-09	7E-09	7E-09	6E-09	6E-09	5E-09	7E-09
9.6	East	2E-08	2E-08	2E-08	2E-08	9E-09	9E-09	6E-09	2E-08
9.7	East	3E-08	3E-08	3E-08	3E-08	1E-08	1E-08	9E-09	3E-08
9.8	East	3E-08	3E-08	3E-08	3E-08	2E-08	2E-08	1E-08	3E-08
9.9	East	4E-08	4E-08	4E-08	4E-08	2E-08	2E-08	2E-08	4E-08
10	East	4E-08	4E-08	4E-08	4E-08	3E-08	3E-08	2E-08	4E-08
10.1	East	4E-08	4E-08	4E-08	4E-08	3E-08	3E-08	2E-08	4E-08
10.2	East	5E-08	5E-08	5E-08	4E-08	3E-08	3E-08	2E-08	5E-08

**Table J2.3-3c**  
**RAO 2 Rolling River Mile Risk Estimates - cPAHs**  
 Portland Harbor Superfund Site  
 Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
10.3	East	5E-08	5E-08	5E-08	5E-08	3E-08	3E-08	2E-08	5E-08
10.4	East	6E-08	6E-08	6E-08	5E-08	3E-08	3E-08	2E-08	5E-08
10.5	East	6E-08	6E-08	6E-08	6E-08	4E-08	4E-08	2E-08	6E-08
10.6	East	5E-08	5E-08	5E-08	5E-08	3E-08	3E-08	2E-08	5E-08
10.7	East	3E-08	3E-08	3E-08	3E-08	2E-08	2E-08	2E-08	3E-08
10.8	East	2E-08	2E-08	2E-08	2E-08	1E-08	1E-08	8E-09	2E-08
10.9	East	2E-08	2E-08	1E-08	1E-08	7E-09	7E-09	4E-09	1E-08
11	East	2E-08	1E-08	1E-08	1E-08	6E-09	6E-09	3E-09	1E-08
11.1	East	2E-08	1E-08	1E-08	9E-09	5E-09	5E-09	2E-09	9E-09
11.2	East	2E-08	1E-08	1E-08	8E-09	5E-09	5E-09	2E-09	8E-09
11.3	East	2E-08	1E-08	1E-08	9E-09	5E-09	5E-09	2E-09	9E-09
11.4	East	2E-08	1E-08	1E-08	9E-09	5E-09	5E-09	1E-09	9E-09
11.5	East	2E-08	1E-08	9E-09	7E-09	4E-09	4E-09	1E-09	7E-09
11.6	East	2E-08	9E-09	6E-09	4E-09	3E-09	3E-09	9E-10	4E-09
11.7	East	2E-08	8E-09	6E-09	4E-09	2E-09	2E-09	4E-10	4E-09
1.8	Nav Channel	2E-08	2E-08	2E-08	2E-08	2E-08	2E-08	2E-08	2E-08
1.9	Nav Channel	3E-08	3E-08	3E-08	3E-08	3E-08	3E-08	3E-08	3E-08
2	Nav Channel	3E-08	3E-08	3E-08	3E-08	3E-08	3E-08	3E-08	3E-08
2.1	Nav Channel	4E-08	4E-08	4E-08	4E-08	4E-08	4E-08	3E-08	4E-08
2.2	Nav Channel	4E-08	4E-08	4E-08	4E-08	4E-08	4E-08	4E-08	4E-08
2.3	Nav Channel	4E-08	4E-08	4E-08	4E-08	4E-08	4E-08	4E-08	4E-08
2.4	Nav Channel	5E-08	5E-08	5E-08	5E-08	5E-08	5E-08	5E-08	5E-08
2.5	Nav Channel	5E-08	5E-08	5E-08	5E-08	5E-08	5E-08	5E-08	5E-08
2.6	Nav Channel	6E-08	6E-08	6E-08	6E-08	6E-08	6E-08	6E-08	6E-08
2.7	Nav Channel	7E-08	7E-08	7E-08	7E-08	7E-08	7E-08	6E-08	7E-08
2.8	Nav Channel	7E-08	7E-08	7E-08	7E-08	7E-08	7E-08	7E-08	7E-08
2.9	Nav Channel	8E-08	8E-08	8E-08	8E-08	8E-08	8E-08	8E-08	8E-08
3	Nav Channel	9E-08	9E-08	9E-08	9E-08	9E-08	9E-08	8E-08	9E-08
3.1	Nav Channel	1E-07	1E-07	1E-07	1E-07	1E-07	1E-07	8E-08	1E-07
3.2	Nav Channel	1E-07	1E-07	1E-07	1E-07	1E-07	1E-07	7E-08	1E-07
3.3	Nav Channel	1E-07	1E-07	1E-07	1E-07	1E-07	1E-07	7E-08	1E-07
3.4	Nav Channel	1E-07	1E-07	1E-07	1E-07	1E-07	1E-07	8E-08	1E-07
3.5	Nav Channel	1E-07	1E-07	1E-07	1E-07	1E-07	1E-07	8E-08	1E-07
3.6	Nav Channel	1E-07	1E-07	1E-07	1E-07	1E-07	1E-07	7E-08	1E-07
3.7	Nav Channel	1E-07	1E-07	1E-07	1E-07	1E-07	1E-07	7E-08	1E-07
3.8	Nav Channel	1E-07	1E-07	1E-07	1E-07	1E-07	1E-07	6E-08	1E-07
3.9	Nav Channel	9E-08	9E-08	9E-08	9E-08	9E-08	9E-08	6E-08	9E-08
4	Nav Channel	9E-08	9E-08	9E-08	9E-08	9E-08	8E-08	6E-08	9E-08
4.1	Nav Channel	8E-08	8E-08	8E-08	8E-08	8E-08	8E-08	6E-08	8E-08
4.2	Nav Channel	7E-08	7E-08	7E-08	7E-08	7E-08	7E-08	6E-08	7E-08
4.3	Nav Channel	7E-08	7E-08	7E-08	7E-08	7E-08	7E-08	6E-08	7E-08
4.4	Nav Channel	7E-08	7E-08	7E-08	7E-08	7E-08	7E-08	6E-08	7E-08

**Table J2.3-3c**

**RAO 2 Rolling River Mile Risk Estimates - cPAHs**

Portland Harbor Superfund Site

Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
4.5	Nav Channel	7E-08	7E-08	7E-08	7E-08	7E-08	7E-08	6E-08	7E-08
4.6	Nav Channel	2E-07	2E-07	1E-07	8E-08	2E-07	7E-08	6E-08	2E-07
4.7	Nav Channel	5E-07	3E-07	1E-07	9E-08	3E-07	7E-08	5E-08	3E-07
4.8	Nav Channel	7E-07	4E-07	2E-07	1E-07	4E-07	7E-08	5E-08	4E-07
4.9	Nav Channel	9E-07	5E-07	2E-07	1E-07	5E-07	7E-08	5E-08	5E-07
5	Nav Channel	1E-06	6E-07	2E-07	1E-07	6E-07	6E-08	4E-08	6E-07
5.1	Nav Channel	1E-06	6E-07	2E-07	1E-07	6E-07	6E-08	4E-08	6E-07
5.2	Nav Channel	2E-06	7E-07	2E-07	1E-07	7E-07	6E-08	4E-08	7E-07
5.3	Nav Channel	4E-06	7E-07	3E-07	1E-07	7E-07	5E-08	3E-08	7E-07
5.4	Nav Channel	4E-06	8E-07	3E-07	2E-07	8E-07	5E-08	2E-08	8E-07
5.5	Nav Channel	5E-06	8E-07	3E-07	2E-07	8E-07	5E-08	1E-08	8E-07
5.6	Nav Channel	5E-06	8E-07	3E-07	2E-07	8E-07	5E-08	1E-08	8E-07
5.7	Nav Channel	5E-06	7E-07	3E-07	2E-07	7E-07	5E-08	1E-08	7E-07
5.8	Nav Channel	5E-06	6E-07	3E-07	2E-07	6E-07	5E-08	2E-08	6E-07
5.9	Nav Channel	5E-06	5E-07	3E-07	2E-07	5E-07	6E-08	2E-08	5E-07
6	Nav Channel	5E-06	4E-07	3E-07	2E-07	4E-07	5E-08	2E-08	4E-07
6.1	Nav Channel	5E-06	4E-07	2E-07	1E-07	4E-07	4E-08	2E-08	3E-07
6.2	Nav Channel	4E-06	3E-07	2E-07	1E-07	3E-07	4E-08	2E-08	3E-07
6.3	Nav Channel	7E-07	3E-07	2E-07	1E-07	3E-07	4E-08	2E-08	3E-07
6.4	Nav Channel	6E-07	2E-07	2E-07	8E-08	2E-07	4E-08	1E-08	2E-07
6.5	Nav Channel	6E-07	2E-07	1E-07	6E-08	2E-07	3E-08	1E-08	2E-07
6.6	Nav Channel	5E-07	2E-07	8E-08	4E-08	2E-07	2E-08	1E-08	1E-07
6.7	Nav Channel	4E-07	7E-08	4E-08	3E-08	7E-08	2E-08	1E-08	6E-08
6.8	Nav Channel	2E-07	4E-08	3E-08	2E-08	4E-08	1E-08	9E-09	4E-08
6.9	Nav Channel	9E-08	3E-08	2E-08	2E-08	2E-08	1E-08	6E-09	2E-08
7	Nav Channel	3E-08	2E-08	2E-08	2E-08	2E-08	1E-08	6E-09	2E-08
7.1	Nav Channel	1E-08	1E-08	1E-08	1E-08	1E-08	9E-09	6E-09	1E-08
7.2	Nav Channel	1E-08	1E-08	1E-08	1E-08	1E-08	9E-09	6E-09	1E-08
7.3	Nav Channel	9E-09	9E-09	9E-09	9E-09	9E-09	8E-09	6E-09	9E-09
7.4	Nav Channel	9E-09	9E-09	9E-09	9E-09	9E-09	8E-09	7E-09	9E-09
7.5	Nav Channel	9E-09	9E-09	9E-09	9E-09	9E-09	9E-09	7E-09	9E-09
7.6	Nav Channel	9E-09	9E-09	9E-09	9E-09	9E-09	9E-09	7E-09	9E-09
7.7	Nav Channel	9E-09	9E-09	9E-09	9E-09	9E-09	8E-09	7E-09	9E-09
7.8	Nav Channel	9E-09	9E-09	9E-09	9E-09	9E-09	9E-09	8E-09	9E-09
7.9	Nav Channel	1E-08	1E-08	1E-08	1E-08	1E-08	1E-08	1E-08	1E-08
8	Nav Channel	1E-08	1E-08	1E-08	1E-08	1E-08	1E-08	1E-08	1E-08
8.1	Nav Channel	1E-08	1E-08	1E-08	1E-08	1E-08	1E-08	1E-08	1E-08
8.2	Nav Channel	1E-08	1E-08	1E-08	1E-08	1E-08	1E-08	1E-08	1E-08
8.3	Nav Channel	1E-08	1E-08	1E-08	1E-08	1E-08	1E-08	1E-08	1E-08
8.4	Nav Channel	1E-08	1E-08	1E-08	1E-08	1E-08	1E-08	1E-08	1E-08
8.5	Nav Channel	1E-08	1E-08	1E-08	1E-08	1E-08	9E-09	9E-09	1E-08
8.6	Nav Channel	1E-08	1E-08	1E-08	1E-08	1E-08	9E-09	9E-09	1E-08



**Table J2.3-3c**

**RAO 2 Rolling River Mile Risk Estimates - cPAHs**

Portland Harbor Superfund Site

Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
8.7	Nav Channel	1E-08	1E-08	1E-08	1E-08	1E-08	9E-09	8E-09	1E-08
8.8	Nav Channel	1E-08	1E-08	1E-08	1E-08	1E-08	8E-09	8E-09	1E-08
8.9	Nav Channel	1E-08	1E-08	1E-08	1E-08	1E-08	7E-09	6E-09	1E-08
9	Nav Channel	9E-09	9E-09	9E-09	9E-09	9E-09	7E-09	6E-09	9E-09
9.1	Nav Channel	1E-08	1E-08	1E-08	1E-08	1E-08	7E-09	6E-09	1E-08
9.2	Nav Channel	1E-08	1E-08	1E-08	1E-08	1E-08	7E-09	6E-09	1E-08
9.3	Nav Channel	1E-08	1E-08	1E-08	1E-08	1E-08	8E-09	6E-09	1E-08
9.4	Nav Channel	1E-08	1E-08	1E-08	1E-08	1E-08	9E-09	7E-09	1E-08
9.5	Nav Channel	1E-08	1E-08	1E-08	1E-08	1E-08	1E-08	8E-09	1E-08
9.6	Nav Channel	1E-08	1E-08	1E-08	1E-08	1E-08	1E-08	8E-09	1E-08
9.7	Nav Channel	1E-08	1E-08	1E-08	1E-08	1E-08	1E-08	9E-09	1E-08
9.8	Nav Channel	1E-08	1E-08	1E-08	1E-08	1E-08	1E-08	9E-09	1E-08
9.9	Nav Channel	1E-08	1E-08	1E-08	1E-08	1E-08	1E-08	8E-09	1E-08
10	Nav Channel	1E-08	1E-08	1E-08	1E-08	1E-08	1E-08	8E-09	1E-08
10.1	Nav Channel	1E-08	1E-08	1E-08	1E-08	1E-08	1E-08	9E-09	1E-08
10.2	Nav Channel	2E-08	2E-08	2E-08	2E-08	2E-08	1E-08	1E-08	2E-08
10.3	Nav Channel	2E-08	2E-08	2E-08	2E-08	2E-08	1E-08	1E-08	2E-08
10.4	Nav Channel	2E-08	2E-08	2E-08	2E-08	2E-08	1E-08	1E-08	2E-08
10.5	Nav Channel	1E-08	1E-08	1E-08	1E-08	1E-08	1E-08	1E-08	1E-08
10.6	Nav Channel	1E-08	1E-08	1E-08	1E-08	1E-08	1E-08	1E-08	1E-08
10.7	Nav Channel	1E-08	1E-08	1E-08	1E-08	1E-08	1E-08	1E-08	1E-08
10.8	Nav Channel	1E-08	1E-08	1E-08	1E-08	1E-08	1E-08	1E-08	1E-08
10.9	Nav Channel	1E-08	1E-08	1E-08	1E-08	1E-08	1E-08	1E-08	1E-08
11	Nav Channel	1E-08	1E-08	1E-08	1E-08	1E-08	1E-08	1E-08	1E-08
11.1	Nav Channel	1E-08	1E-08	1E-08	1E-08	1E-08	1E-08	1E-08	1E-08
11.2	Nav Channel	9E-09	9E-09	9E-09	9E-09	9E-09	8E-09	7E-09	9E-09
11.3	Nav Channel	9E-09	9E-09	8E-09	8E-09	8E-09	8E-09	7E-09	8E-09
11.4	Nav Channel	9E-09	8E-09	8E-09	8E-09	8E-09	8E-09	7E-09	8E-09
11.5	Nav Channel	8E-09	8E-09	8E-09	8E-09	8E-09	8E-09	7E-09	8E-09
11.6	Nav Channel	8E-09	8E-09	8E-09	8E-09	8E-09	8E-09	7E-09	8E-09
11.7	Nav Channel	9E-09	9E-09	9E-09	8E-09	8E-09	8E-09	8E-09	8E-09
1.8	West	2E-08	2E-08	2E-08	2E-08	2E-08	2E-08	2E-08	2E-08
1.9	West	2E-08	2E-08	2E-08	2E-08	2E-08	2E-08	2E-08	2E-08
2	West	2E-08	2E-08	2E-08	2E-08	2E-08	2E-08	2E-08	2E-08
2.1	West	3E-08	3E-08	3E-08	3E-08	3E-08	3E-08	3E-08	3E-08
2.2	West	4E-08	4E-08	4E-08	4E-08	4E-08	4E-08	4E-08	4E-08
2.3	West	4E-08	4E-08	4E-08	4E-08	4E-08	4E-08	4E-08	4E-08
2.4	West	6E-08	6E-08	6E-08	6E-08	6E-08	6E-08	5E-08	6E-08
2.5	West	8E-08	8E-08	8E-08	8E-08	8E-08	8E-08	6E-08	8E-08
2.6	West	9E-08	9E-08	9E-08	9E-08	9E-08	9E-08	7E-08	9E-08
2.7	West	1E-07	1E-07	1E-07	1E-07	1E-07	1E-07	8E-08	1E-07
2.8	West	1E-07	1E-07	1E-07	1E-07	1E-07	1E-07	9E-08	1E-07

**Table J2.3-3c**  
**RAO 2 Rolling River Mile Risk Estimates - cPAHs**  
 Portland Harbor Superfund Site  
 Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
2.9	West	1E-07	1E-07	1E-07	1E-07	1E-07	1E-07	9E-08	1E-07
3	West	1E-07	1E-07	1E-07	1E-07	1E-07	1E-07	9E-08	1E-07
3.1	West	1E-07	1E-07	1E-07	1E-07	1E-07	1E-07	9E-08	1E-07
3.2	West	1E-07	1E-07	1E-07	1E-07	1E-07	1E-07	9E-08	1E-07
3.3	West	1E-07	1E-07	1E-07	1E-07	1E-07	1E-07	9E-08	1E-07
3.4	West	1E-07	1E-07	1E-07	1E-07	1E-07	1E-07	9E-08	1E-07
3.5	West	1E-07	1E-07	1E-07	1E-07	1E-07	1E-07	8E-08	1E-07
3.6	West	1E-07	1E-07	1E-07	1E-07	1E-07	1E-07	8E-08	1E-07
3.7	West	1E-07	1E-07	1E-07	1E-07	1E-07	1E-07	7E-08	1E-07
3.8	West	1E-07	1E-07	1E-07	1E-07	1E-07	1E-07	6E-08	1E-07
3.9	West	1E-07	1E-07	1E-07	1E-07	9E-08	9E-08	5E-08	1E-07
4	West	1E-07	1E-07	1E-07	1E-07	1E-07	1E-07	4E-08	1E-07
4.1	West	1E-07	1E-07	1E-07	1E-07	1E-07	1E-07	4E-08	1E-07
4.2	West	2E-07	2E-07	2E-07	2E-07	1E-07	1E-07	4E-08	2E-07
4.3	West	2E-07	2E-07	2E-07	2E-07	1E-07	1E-07	4E-08	2E-07
4.4	West	2E-07	2E-07	2E-07	2E-07	1E-07	1E-07	4E-08	2E-07
4.5	West	2E-07	2E-07	2E-07	2E-07	1E-07	1E-07	4E-08	2E-07
4.6	West	2E-07	2E-07	2E-07	2E-07	1E-07	1E-07	4E-08	2E-07
4.7	West	2E-07	2E-07	2E-07	2E-07	1E-07	1E-07	4E-08	2E-07
4.8	West	2E-07	2E-07	2E-07	2E-07	9E-08	9E-08	4E-08	2E-07
4.9	West	3E-07	3E-07	2E-07	2E-07	8E-08	8E-08	4E-08	2E-07
5	West	4E-07	4E-07	2E-07	2E-07	7E-08	7E-08	4E-08	2E-07
5.1	West	4E-07	4E-07	2E-07	2E-07	8E-08	8E-08	3E-08	2E-07
5.2	West	5E-07	4E-07	2E-07	2E-07	9E-08	9E-08	4E-08	2E-07
5.3	West	5E-07	4E-07	2E-07	2E-07	1E-07	1E-07	4E-08	2E-07
5.4	West	5E-07	5E-07	3E-07	2E-07	1E-07	1E-07	4E-08	2E-07
5.5	West	6E-07	5E-07	3E-07	2E-07	1E-07	1E-07	4E-08	3E-07
5.6	West	9E-07	6E-07	3E-07	2E-07	1E-07	1E-07	3E-08	3E-07
5.7	West	2E-06	6E-07	3E-07	2E-07	1E-07	1E-07	3E-08	3E-07
5.8	West	3E-06	6E-07	3E-07	2E-07	9E-08	9E-08	3E-08	3E-07
5.9	West	4E-06	5E-07	3E-07	2E-07	8E-08	8E-08	2E-08	2E-07
6	West	5E-06	4E-07	2E-07	2E-07	8E-08	8E-08	2E-08	2E-07
6.1	West	5E-06	4E-07	2E-07	2E-07	7E-08	7E-08	2E-08	2E-07
6.2	West	5E-06	4E-07	2E-07	2E-07	7E-08	7E-08	2E-08	2E-07
6.3	West	5E-06	4E-07	2E-07	2E-07	6E-08	6E-08	2E-08	2E-07
6.4	West	4E-06	4E-07	2E-07	2E-07	4E-08	4E-08	1E-08	1E-07
6.5	West	4E-06	3E-07	2E-07	1E-07	3E-08	3E-08	4E-09	8E-08
6.6	West	4E-06	2E-07	9E-08	6E-08	1E-08	1E-08	2E-09	1E-08
6.7	West	3E-06	1E-07	8E-08	6E-08	1E-08	1E-08	2E-09	1E-08
6.8	West	2E-06	1E-07	8E-08	6E-08	1E-08	1E-08	2E-09	1E-08
6.9	West	7E-07	1E-07	8E-08	6E-08	1E-08	1E-08	2E-09	1E-08
7	West	2E-07	1E-07	8E-08	6E-08	1E-08	1E-08	2E-09	1E-08

**Table J2.3-3c**  
**RAO 2 Rolling River Mile Risk Estimates - cPAHs**  
 Portland Harbor Superfund Site  
 Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
7.1	West	1E-07	7E-08	6E-08	5E-08	1E-08	1E-08	3E-09	1E-08
7.2	West	8E-08	5E-08	4E-08	3E-08	7E-09	7E-09	3E-09	7E-09
7.3	West	6E-08	3E-08	2E-08	2E-08	9E-09	9E-09	4E-09	9E-09
7.4	West	4E-08	1E-08	1E-08	1E-08	8E-09	8E-09	5E-09	8E-09
7.5	West	4E-08	1E-08	1E-08	1E-08	9E-09	9E-09	5E-09	9E-09
7.6	West	4E-08	1E-08	1E-08	1E-08	9E-09	9E-09	5E-09	1E-08
7.7	West	4E-08	1E-08	1E-08	1E-08	1E-08	1E-08	5E-09	1E-08
7.8	West	3E-08	2E-08	2E-08	2E-08	1E-08	1E-08	5E-09	1E-08
7.9	West	3E-08	3E-08	3E-08	2E-08	1E-08	1E-08	5E-09	2E-08
8	West	3E-08	3E-08	3E-08	2E-08	1E-08	1E-08	6E-09	2E-08
8.1	West	3E-08	3E-08	3E-08	3E-08	1E-08	1E-08	6E-09	2E-08
8.2	West	3E-08	3E-08	3E-08	3E-08	1E-08	1E-08	5E-09	2E-08
8.3	West	3E-08	3E-08	3E-08	3E-08	9E-09	9E-09	5E-09	3E-08
8.4	West	4E-08	3E-08	3E-08	2E-08	7E-09	7E-09	3E-09	2E-08
8.5	West	4E-08	3E-08	3E-08	2E-08	7E-09	7E-09	3E-09	2E-08
8.6	West	4E-08	3E-08	3E-08	2E-08	7E-09	7E-09	3E-09	2E-08
8.7	West	5E-08	3E-08	3E-08	2E-08	7E-09	7E-09	4E-09	2E-08
8.8	West	4E-08	3E-08	3E-08	2E-08	7E-09	7E-09	4E-09	2E-08
8.9	West	3E-08	2E-08	2E-08	9E-09	6E-09	6E-09	4E-09	9E-09
9	West	3E-08	2E-08	1E-08	8E-09	3E-09	3E-09	2E-09	8E-09
9.1	West	3E-08	2E-08	1E-08	6E-09	2E-09	2E-09	1E-09	6E-09
9.2	West	4E-08	2E-08	2E-08	6E-09	2E-09	2E-09	1E-09	6E-09
9.3	West	4E-08	3E-08	2E-08	6E-09	2E-09	2E-09	1E-09	6E-09
9.4	West	4E-08	3E-08	2E-08	7E-09	2E-09	2E-09	1E-09	7E-09
9.5	West	4E-08	3E-08	2E-08	7E-09	2E-09	2E-09	2E-09	7E-09
9.6	West	4E-08	3E-08	2E-08	8E-09	3E-09	3E-09	2E-09	8E-09
9.7	West	4E-08	3E-08	2E-08	9E-09	4E-09	4E-09	2E-09	9E-09
9.8	West	4E-08	3E-08	2E-08	1E-08	5E-09	5E-09	2E-09	1E-08
9.9	West	5E-08	4E-08	3E-08	1E-08	7E-09	7E-09	3E-09	2E-08
10	West	7E-08	6E-08	4E-08	2E-08	2E-08	2E-08	1E-08	2E-08
10.1	West	8E-08	7E-08	5E-08	3E-08	2E-08	2E-08	2E-08	3E-08
10.2	West	6E-08	6E-08	4E-08	4E-08	3E-08	3E-08	2E-08	4E-08
10.3	West	4E-08	4E-08	4E-08	4E-08	3E-08	3E-08	2E-08	4E-08
10.4	West	4E-08	4E-08	4E-08	4E-08	3E-08	3E-08	2E-08	4E-08
10.5	West	4E-08	4E-08	3E-08	3E-08	3E-08	3E-08	2E-08	3E-08
10.6	West	3E-08	3E-08	3E-08	3E-08	3E-08	3E-08	2E-08	3E-08
10.7	West	3E-08	3E-08	3E-08	3E-08	3E-08	3E-08	2E-08	3E-08
10.8	West	3E-08	3E-08	3E-08	3E-08	3E-08	3E-08	2E-08	3E-08
10.9	West	3E-08	3E-08	3E-08	3E-08	3E-08	3E-08	2E-08	3E-08
11	West	2E-08	2E-08	2E-08	2E-08	2E-08	2E-08	2E-08	2E-08
11.1	West	2E-08	2E-08	2E-08	2E-08	2E-08	2E-08	2E-08	2E-08
11.2	West	2E-08	2E-08	2E-08	2E-08	2E-08	2E-08	2E-08	2E-08

**Table J2.3-3c**

**RAO 2 Rolling River Mile Risk Estimates - cPAHs**

Portland Harbor Superfund Site

Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
11.3	West	2E-08	2E-08	2E-08	2E-08	2E-08	2E-08	2E-08	2E-08
11.4	West	2E-08	2E-08	2E-08	2E-08	2E-08	2E-08	2E-08	2E-08
11.5	West	2E-08	2E-08	2E-08	2E-08	2E-08	2E-08	2E-08	2E-08
11.6	West	2E-08	2E-08	2E-08	2E-08	2E-08	2E-08	2E-08	2E-08
11.7	West	2E-08	2E-08	2E-08	2E-08	2E-08	2E-08	2E-08	2E-08
7.6	Swan Isl	5E-08	5E-09	5E-09	2E-09	3E-10	3E-10	1E-10	2E-09
7.7	Swan Isl	5E-08	4E-09	4E-09	2E-09	7E-10	7E-10	2E-10	2E-09
7.8	Swan Isl	6E-08	5E-09	5E-09	3E-09	1E-09	1E-09	3E-10	3E-09
7.9	Swan Isl	7E-08	5E-09	5E-09	3E-09	2E-09	2E-09	4E-10	3E-09
8	Swan Isl	8E-08	5E-09	5E-09	3E-09	2E-09	2E-09	6E-10	3E-09
8.1	Swan Isl	8E-08	5E-09	4E-09	3E-09	2E-09	2E-09	6E-10	3E-09
8.2	Swan Isl	8E-08	5E-09	4E-09	3E-09	2E-09	2E-09	7E-10	3E-09
8.3	Swan Isl	8E-08	5E-09	4E-09	3E-09	2E-09	2E-09	7E-10	3E-09
8.4	Swan Isl	8E-08	6E-09	4E-09	2E-09	1E-09	1E-09	7E-10	2E-09
8.5	Swan Isl	8E-08	6E-09	4E-09	2E-09	1E-09	1E-09	7E-10	2E-09
8.6	Swan Isl	8E-08	8E-09	4E-09	3E-09	1E-09	1E-09	7E-10	5E-09
8.7	Swan Isl	9E-08	2E-08	1E-08	7E-09	2E-09	2E-09	1E-09	1E-08
8.8	Swan Isl	9E-08	2E-08	1E-08	8E-09	2E-09	2E-09	1E-09	2E-08
8.9	Swan Isl	9E-08	2E-08	1E-08	8E-09	2E-09	2E-09	1E-09	2E-08
9	Swan Isl	7E-08	2E-08	1E-08	9E-09	2E-09	2E-09	1E-09	2E-08
9.1	Swan Isl	7E-08	3E-08	1E-08	1E-08	2E-09	2E-09	1E-09	2E-08
9.2	Swan Isl	8E-08	3E-08	2E-08	1E-08	2E-09	2E-09	1E-09	2E-08
9.3	Swan Isl	8E-08	4E-08	2E-08	1E-08	2E-09	2E-09	1E-09	3E-08
9.4	Swan Isl	8E-08	5E-08	3E-08	2E-08	3E-09	3E-09	2E-09	5E-08
9.5	Swan Isl	1E-07	8E-08	5E-08	4E-08	4E-09	4E-09	3E-09	8E-08
9.6	Swan Isl	1E-07	1E-07	1E-07	6E-08	8E-09	8E-09	5E-09	1E-07

**Table J2.3-3d**

**RAO 2 Rolling River Mile Risk Estimates - DDx**

Portland Harbor Superfund Site

Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
1.8	East	4E-07	4E-07	4E-07	4E-07	3E-07	3E-07	3E-07	4E-07
1.9	East	4E-07	4E-07	4E-07	4E-07	4E-07	4E-07	3E-07	4E-07
2	East	4E-07	4E-07	4E-07	4E-07	3E-07	3E-07	3E-07	4E-07
2.1	East	4E-07	4E-07	4E-07	4E-07	3E-07	3E-07	3E-07	4E-07
2.2	East	4E-07	3E-07	3E-07	3E-07	3E-07	3E-07	3E-07	3E-07
2.3	East	4E-07	3E-07	3E-07	3E-07	2E-07	2E-07	2E-07	3E-07
2.4	East	4E-07	3E-07	3E-07	3E-07	2E-07	2E-07	2E-07	3E-07
2.5	East	4E-07	3E-07	3E-07	3E-07	2E-07	2E-07	2E-07	3E-07
2.6	East	4E-07	3E-07	3E-07	3E-07	2E-07	2E-07	2E-07	3E-07
2.7	East	4E-07	3E-07	3E-07	3E-07	3E-07	3E-07	2E-07	3E-07
2.8	East	4E-07	3E-07	3E-07	3E-07	3E-07	3E-07	2E-07	3E-07
2.9	East	3E-07	3E-07	3E-07	3E-07	3E-07	3E-07	2E-07	3E-07
3	East	3E-07	3E-07	3E-07	3E-07	3E-07	3E-07	2E-07	3E-07
3.1	East	4E-07	4E-07	3E-07	3E-07	3E-07	3E-07	3E-07	3E-07
3.2	East	4E-07	3E-07	3E-07	3E-07	3E-07	3E-07	3E-07	3E-07
3.3	East	4E-07	3E-07	3E-07	3E-07	2E-07	2E-07	2E-07	3E-07
3.4	East	4E-07	3E-07	3E-07	3E-07	2E-07	2E-07	2E-07	3E-07
3.5	East	4E-07	3E-07	3E-07	3E-07	2E-07	2E-07	2E-07	3E-07
3.6	East	4E-07	3E-07	3E-07	3E-07	2E-07	2E-07	2E-07	3E-07
3.7	East	4E-07	4E-07	3E-07	3E-07	2E-07	2E-07	1E-07	3E-07
3.8	East	5E-07	4E-07	3E-07	3E-07	2E-07	2E-07	1E-07	3E-07
3.9	East	6E-07	5E-07	4E-07	3E-07	2E-07	2E-07	1E-07	3E-07
4	East	6E-07	5E-07	5E-07	4E-07	2E-07	2E-07	1E-07	4E-07
4.1	East	6E-07	5E-07	5E-07	4E-07	2E-07	2E-07	9E-08	4E-07
4.2	East	7E-07	6E-07	5E-07	4E-07	2E-07	2E-07	8E-08	4E-07
4.3	East	7E-07	7E-07	6E-07	4E-07	3E-07	3E-07	1E-07	4E-07
4.4	East	7E-07	7E-07	6E-07	4E-07	3E-07	3E-07	1E-07	4E-07
4.5	East	7E-07	7E-07	6E-07	5E-07	3E-07	3E-07	1E-07	5E-07
4.6	East	7E-07	7E-07	6E-07	5E-07	3E-07	3E-07	1E-07	5E-07
4.7	East	7E-07	7E-07	6E-07	4E-07	3E-07	3E-07	1E-07	4E-07
4.8	East	7E-07	7E-07	5E-07	4E-07	3E-07	3E-07	1E-07	4E-07
4.9	East	6E-07	6E-07	5E-07	4E-07	3E-07	3E-07	1E-07	4E-07
5	East	5E-07	5E-07	4E-07	4E-07	3E-07	3E-07	2E-07	4E-07
5.1	East	6E-07	6E-07	5E-07	4E-07	3E-07	3E-07	2E-07	4E-07
5.2	East	7E-07	7E-07	7E-07	6E-07	3E-07	3E-07	2E-07	3E-07
5.3	East	7E-07	7E-07	7E-07	6E-07	3E-07	3E-07	2E-07	3E-07
5.4	East	6E-07	6E-07	6E-07	6E-07	3E-07	3E-07	2E-07	3E-07
5.5	East	6E-07	6E-07	6E-07	6E-07	3E-07	3E-07	1E-07	3E-07
5.6	East	6E-07	6E-07	6E-07	6E-07	3E-07	3E-07	1E-07	3E-07
5.7	East	6E-07	6E-07	6E-07	6E-07	3E-07	3E-07	2E-07	4E-07
5.8	East	6E-07	6E-07	6E-07	6E-07	3E-07	3E-07	2E-07	4E-07
5.9	East	6E-07	6E-07	6E-07	6E-07	4E-07	4E-07	2E-07	4E-07
6	East	6E-07	6E-07	6E-07	6E-07	4E-07	4E-07	2E-07	4E-07

**Table J2.3-3d**

**RAO 2 Rolling River Mile Risk Estimates - DDx**

Portland Harbor Superfund Site

Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
6.1	East	6E-07	6E-07	6E-07	6E-07	4E-07	4E-07	3E-07	4E-07
6.2	East	5E-07	5E-07	5E-07	5E-07	4E-07	4E-07	3E-07	5E-07
6.3	East	5E-07	4E-07	4E-07	4E-07	4E-07	4E-07	3E-07	4E-07
6.4	East	5E-07	4E-07	4E-07	4E-07	3E-07	3E-07	2E-07	4E-07
6.5	East	5E-07	4E-07	3E-07	3E-07	3E-07	3E-07	2E-07	4E-07
6.6	East	4E-07	3E-07	3E-07	3E-07	2E-07	2E-07	2E-07	3E-07
6.7	East	4E-07	3E-07	3E-07	3E-07	2E-07	2E-07	2E-07	4E-07
6.8	East	4E-07	3E-07	2E-07	2E-07	2E-07	2E-07	2E-07	4E-07
6.9	East	4E-07	3E-07	2E-07	2E-07	2E-07	2E-07	2E-07	3E-07
7	East	4E-07	3E-07	2E-07	2E-07	2E-07	2E-07	2E-07	3E-07
7.1	East	4E-07	3E-07	2E-07	2E-07	2E-07	2E-07	2E-07	3E-07
7.2	East	4E-07	3E-07	2E-07	2E-07	2E-07	2E-07	2E-07	3E-07
7.3	East	4E-07	3E-07	2E-07	2E-07	2E-07	2E-07	2E-07	3E-07
7.4	East	3E-07	2E-07	2E-07	2E-07	2E-07	2E-07	2E-07	3E-07
7.5	East	4E-07	3E-07	3E-07	3E-07	3E-07	3E-07	3E-07	4E-07
7.6	East	5E-07	5E-07	4E-07	4E-07	4E-07	4E-07	3E-07	5E-07
7.7	East	5E-07	5E-07	4E-07	4E-07	4E-07	4E-07	3E-07	5E-07
7.8	East	5E-07	5E-07	5E-07	5E-07	5E-07	5E-07	3E-07	5E-07
7.9	East	5E-07	5E-07	5E-07	5E-07	5E-07	5E-07	3E-07	5E-07
8	East	6E-07	6E-07	6E-07	6E-07	6E-07	6E-07	3E-07	6E-07
8.1	East	7E-07	7E-07	7E-07	7E-07	7E-07	7E-07	3E-07	7E-07
8.2	East	8E-07	7E-07	7E-07	7E-07	7E-07	7E-07	4E-07	7E-07
8.3	East	7E-07	7E-07	7E-07	7E-07	7E-07	7E-07	4E-07	7E-07
8.4	East	7E-07	6E-07	6E-07	6E-07	6E-07	6E-07	4E-07	6E-07
8.5	East	6E-07	5E-07	5E-07	5E-07	5E-07	5E-07	3E-07	5E-07
8.6	East	4E-07	3E-07	3E-07	3E-07	3E-07	3E-07	3E-07	3E-07
8.7	East	4E-07	4E-07	4E-07	4E-07	4E-07	4E-07	3E-07	4E-07
8.8	East	4E-07	4E-07	4E-07	4E-07	4E-07	4E-07	3E-07	4E-07
8.9	East	3E-07	3E-07	3E-07	3E-07	3E-07	3E-07	3E-07	3E-07
9	East	3E-07	3E-07	3E-07	3E-07	3E-07	3E-07	2E-07	3E-07
9.1	East	2E-07	2E-07	2E-07	2E-07	2E-07	2E-07	2E-07	2E-07
9.2	East	2E-07	2E-07	2E-07	2E-07	2E-07	2E-07	1E-07	2E-07
9.3	East	2E-07	2E-07	2E-07	2E-07	1E-07	1E-07	1E-07	2E-07
9.4	East	2E-07	2E-07	2E-07	2E-07	1E-07	1E-07	1E-07	2E-07
9.5	East	2E-07	2E-07	2E-07	2E-07	1E-07	1E-07	1E-07	2E-07
9.6	East	2E-07	2E-07	2E-07	2E-07	1E-07	1E-07	1E-07	2E-07
9.7	East	2E-07	2E-07	2E-07	2E-07	1E-07	1E-07	1E-07	2E-07
9.8	East	2E-07	2E-07	2E-07	2E-07	1E-07	1E-07	1E-07	2E-07
9.9	East	2E-07	2E-07	2E-07	2E-07	2E-07	2E-07	1E-07	2E-07
10	East	2E-07	2E-07	2E-07	2E-07	2E-07	2E-07	1E-07	2E-07
10.1	East	2E-07	2E-07	2E-07	2E-07	2E-07	2E-07	1E-07	2E-07
10.2	East	2E-07	2E-07	2E-07	2E-07	2E-07	2E-07	2E-07	2E-07

**Table J2.3-3d**

**RAO 2 Rolling River Mile Risk Estimates - DDx**

Portland Harbor Superfund Site

Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
10.3	East	2E-07	2E-07	2E-07	2E-07	2E-07	2E-07	1E-07	2E-07
10.4	East	2E-07	2E-07	2E-07	2E-07	1E-07	1E-07	1E-07	2E-07
10.5	East	2E-07	2E-07	2E-07	2E-07	1E-07	1E-07	1E-07	2E-07
10.6	East	3E-07	3E-07	3E-07	3E-07	2E-07	2E-07	1E-07	3E-07
10.7	East	4E-07	4E-07	3E-07	3E-07	2E-07	2E-07	9E-08	3E-07
10.8	East	6E-07	6E-07	5E-07	4E-07	2E-07	2E-07	7E-08	4E-07
10.9	East	1E-06	6E-07	5E-07	4E-07	2E-07	2E-07	6E-08	4E-07
11	East	1E-06	7E-07	5E-07	3E-07	2E-07	2E-07	5E-08	3E-07
11.1	East	1E-06	7E-07	5E-07	4E-07	2E-07	2E-07	5E-08	4E-07
11.2	East	1E-06	7E-07	5E-07	4E-07	2E-07	2E-07	4E-08	4E-07
11.3	East	1E-06	7E-07	5E-07	4E-07	2E-07	2E-07	4E-08	4E-07
11.4	East	1E-06	8E-07	6E-07	4E-07	2E-07	2E-07	4E-08	4E-07
11.5	East	1E-06	8E-07	6E-07	4E-07	2E-07	2E-07	4E-08	4E-07
11.6	East	2E-06	8E-07	5E-07	3E-07	2E-07	2E-07	3E-08	3E-07
11.7	East	2E-06	8E-07	6E-07	4E-07	2E-07	2E-07	3E-08	4E-07
1.8	Nav Channel	3E-07	3E-07	3E-07	3E-07	3E-07	3E-07	3E-07	3E-07
1.9	Nav Channel	3E-07	3E-07	3E-07	3E-07	3E-07	3E-07	3E-07	3E-07
2	Nav Channel	3E-07	3E-07	3E-07	3E-07	3E-07	3E-07	2E-07	3E-07
2.1	Nav Channel	3E-07	3E-07	3E-07	3E-07	3E-07	3E-07	2E-07	3E-07
2.2	Nav Channel	3E-07	3E-07	3E-07	3E-07	3E-07	3E-07	2E-07	3E-07
2.3	Nav Channel	3E-07	3E-07	3E-07	3E-07	3E-07	3E-07	2E-07	3E-07
2.4	Nav Channel	3E-07	3E-07	3E-07	3E-07	3E-07	3E-07	2E-07	3E-07
2.5	Nav Channel	3E-07	3E-07	3E-07	3E-07	3E-07	3E-07	3E-07	3E-07
2.6	Nav Channel	3E-07	3E-07	3E-07	3E-07	3E-07	3E-07	3E-07	3E-07
2.7	Nav Channel	3E-07	3E-07	3E-07	3E-07	3E-07	3E-07	3E-07	3E-07
2.8	Nav Channel	3E-07	3E-07	3E-07	3E-07	3E-07	3E-07	3E-07	3E-07
2.9	Nav Channel	3E-07	3E-07	3E-07	3E-07	3E-07	3E-07	3E-07	3E-07
3	Nav Channel	3E-07	3E-07	3E-07	3E-07	3E-07	3E-07	3E-07	3E-07
3.1	Nav Channel	4E-07	4E-07	4E-07	4E-07	4E-07	3E-07	3E-07	4E-07
3.2	Nav Channel	4E-07	4E-07	4E-07	4E-07	4E-07	3E-07	2E-07	4E-07
3.3	Nav Channel	4E-07	4E-07	4E-07	4E-07	4E-07	3E-07	2E-07	4E-07
3.4	Nav Channel	4E-07	4E-07	4E-07	4E-07	4E-07	3E-07	2E-07	4E-07
3.5	Nav Channel	4E-07	4E-07	4E-07	4E-07	4E-07	4E-07	3E-07	4E-07
3.6	Nav Channel	4E-07	4E-07	4E-07	4E-07	4E-07	4E-07	3E-07	4E-07
3.7	Nav Channel	4E-07	4E-07	4E-07	4E-07	4E-07	4E-07	3E-07	4E-07
3.8	Nav Channel	4E-07	4E-07	4E-07	4E-07	4E-07	3E-07	3E-07	4E-07
3.9	Nav Channel	4E-07	4E-07	4E-07	4E-07	4E-07	3E-07	3E-07	4E-07
4	Nav Channel	4E-07	4E-07	4E-07	4E-07	4E-07	3E-07	3E-07	4E-07
4.1	Nav Channel	4E-07	4E-07	4E-07	4E-07	4E-07	4E-07	3E-07	4E-07
4.2	Nav Channel	4E-07	4E-07	4E-07	4E-07	4E-07	4E-07	3E-07	4E-07
4.3	Nav Channel	4E-07	4E-07	4E-07	4E-07	4E-07	4E-07	4E-07	4E-07
4.4	Nav Channel	4E-07	4E-07	4E-07	4E-07	4E-07	4E-07	4E-07	4E-07

**Table J2.3-3d**

**RAO 2 Rolling River Mile Risk Estimates - DDx**

Portland Harbor Superfund Site

Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
4.5	Nav Channel	4E-07	4E-07	4E-07	4E-07	4E-07	4E-07	3E-07	4E-07
4.6	Nav Channel	3E-07	3E-07	3E-07	3E-07	3E-07	3E-07	3E-07	3E-07
4.7	Nav Channel	4E-07	3E-07	3E-07	3E-07	3E-07	3E-07	3E-07	3E-07
4.8	Nav Channel	4E-07	4E-07	3E-07	3E-07	4E-07	3E-07	3E-07	4E-07
4.9	Nav Channel	4E-07	4E-07	3E-07	3E-07	4E-07	3E-07	2E-07	4E-07
5	Nav Channel	4E-07	4E-07	3E-07	3E-07	4E-07	2E-07	2E-07	4E-07
5.1	Nav Channel	4E-07	3E-07	3E-07	3E-07	3E-07	2E-07	2E-07	3E-07
5.2	Nav Channel	4E-07	3E-07	3E-07	2E-07	3E-07	2E-07	2E-07	3E-07
5.3	Nav Channel	6E-07	3E-07	2E-07	2E-07	3E-07	2E-07	1E-07	3E-07
5.4	Nav Channel	6E-07	3E-07	2E-07	2E-07	3E-07	1E-07	9E-08	3E-07
5.5	Nav Channel	6E-07	3E-07	2E-07	2E-07	3E-07	1E-07	5E-08	3E-07
5.6	Nav Channel	6E-07	3E-07	3E-07	2E-07	3E-07	1E-07	4E-08	3E-07
5.7	Nav Channel	7E-07	4E-07	3E-07	2E-07	4E-07	1E-07	4E-08	3E-07
5.8	Nav Channel	8E-07	4E-07	3E-07	2E-07	4E-07	1E-07	4E-08	3E-07
5.9	Nav Channel	8E-07	4E-07	3E-07	2E-07	4E-07	1E-07	5E-08	3E-07
6	Nav Channel	8E-07	4E-07	3E-07	2E-07	4E-07	1E-07	7E-08	3E-07
6.1	Nav Channel	9E-07	4E-07	3E-07	3E-07	4E-07	1E-07	8E-08	4E-07
6.2	Nav Channel	9E-07	5E-07	4E-07	3E-07	5E-07	1E-07	7E-08	4E-07
6.3	Nav Channel	7E-07	6E-07	5E-07	4E-07	5E-07	2E-07	7E-08	5E-07
6.4	Nav Channel	7E-07	5E-07	5E-07	3E-07	5E-07	2E-07	8E-08	5E-07
6.5	Nav Channel	7E-07	6E-07	5E-07	4E-07	5E-07	2E-07	1E-07	5E-07
6.6	Nav Channel	7E-07	5E-07	5E-07	4E-07	5E-07	2E-07	2E-07	5E-07
6.7	Nav Channel	7E-07	5E-07	5E-07	4E-07	5E-07	3E-07	2E-07	5E-07
6.8	Nav Channel	8E-07	7E-07	6E-07	6E-07	7E-07	5E-07	3E-07	7E-07
6.9	Nav Channel	9E-07	8E-07	8E-07	7E-07	8E-07	6E-07	4E-07	8E-07
7	Nav Channel	9E-07	8E-07	8E-07	7E-07	8E-07	6E-07	4E-07	8E-07
7.1	Nav Channel	7E-07	7E-07	7E-07	7E-07	7E-07	6E-07	4E-07	7E-07
7.2	Nav Channel	7E-07	7E-07	7E-07	7E-07	7E-07	6E-07	4E-07	7E-07
7.3	Nav Channel	6E-07	6E-07	6E-07	6E-07	6E-07	5E-07	4E-07	6E-07
7.4	Nav Channel	6E-07	6E-07	6E-07	5E-07	5E-07	5E-07	4E-07	5E-07
7.5	Nav Channel	5E-07	5E-07	5E-07	5E-07	5E-07	5E-07	3E-07	5E-07
7.6	Nav Channel	5E-07	5E-07	5E-07	5E-07	5E-07	4E-07	3E-07	5E-07
7.7	Nav Channel	4E-07	4E-07	4E-07	4E-07	4E-07	4E-07	3E-07	4E-07
7.8	Nav Channel	4E-07	4E-07	4E-07	4E-07	4E-07	3E-07	3E-07	4E-07
7.9	Nav Channel	3E-07	3E-07	3E-07	3E-07	3E-07	3E-07	2E-07	3E-07
8	Nav Channel	3E-07	3E-07	3E-07	3E-07	3E-07	3E-07	2E-07	3E-07
8.1	Nav Channel	3E-07	3E-07	3E-07	3E-07	3E-07	3E-07	2E-07	3E-07
8.2	Nav Channel	2E-07	2E-07	2E-07	2E-07	2E-07	2E-07	2E-07	2E-07
8.3	Nav Channel	2E-07	2E-07	2E-07	2E-07	2E-07	2E-07	2E-07	2E-07
8.4	Nav Channel	2E-07	2E-07	2E-07	2E-07	2E-07	2E-07	2E-07	2E-07
8.5	Nav Channel	2E-07	2E-07	2E-07	2E-07	2E-07	2E-07	2E-07	2E-07
8.6	Nav Channel	2E-07	2E-07	2E-07	2E-07	2E-07	2E-07	2E-07	2E-07



**Table J2.3-3d**

**RAO 2 Rolling River Mile Risk Estimates - DDx**

Portland Harbor Superfund Site

Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
8.7	Nav Channel	2E-07	2E-07	2E-07	2E-07	2E-07	2E-07	2E-07	2E-07
8.8	Nav Channel	2E-07	2E-07	2E-07	2E-07	2E-07	2E-07	1E-07	2E-07
8.9	Nav Channel	2E-07	2E-07	2E-07	2E-07	2E-07	1E-07	1E-07	2E-07
9	Nav Channel	2E-07	1E-07	1E-07	1E-07	1E-07	1E-07	1E-07	1E-07
9.1	Nav Channel	1E-07	1E-07	1E-07	1E-07	1E-07	1E-07	1E-07	1E-07
9.2	Nav Channel	2E-07	2E-07	2E-07	2E-07	2E-07	1E-07	1E-07	2E-07
9.3	Nav Channel	2E-07	2E-07	2E-07	2E-07	2E-07	1E-07	1E-07	2E-07
9.4	Nav Channel	2E-07	2E-07	2E-07	2E-07	2E-07	1E-07	1E-07	2E-07
9.5	Nav Channel	2E-07	2E-07	2E-07	2E-07	2E-07	1E-07	1E-07	2E-07
9.6	Nav Channel	2E-07	2E-07	2E-07	2E-07	2E-07	2E-07	1E-07	2E-07
9.7	Nav Channel	2E-07	2E-07	2E-07	2E-07	2E-07	2E-07	1E-07	2E-07
9.8	Nav Channel	2E-07	2E-07	2E-07	2E-07	2E-07	2E-07	1E-07	2E-07
9.9	Nav Channel	2E-07	2E-07	2E-07	2E-07	2E-07	2E-07	1E-07	2E-07
10	Nav Channel	2E-07	2E-07	2E-07	2E-07	2E-07	2E-07	1E-07	2E-07
10.1	Nav Channel	2E-07	2E-07	2E-07	2E-07	2E-07	2E-07	1E-07	2E-07
10.2	Nav Channel	2E-07	2E-07	2E-07	2E-07	2E-07	2E-07	1E-07	2E-07
10.3	Nav Channel	2E-07	2E-07	2E-07	2E-07	2E-07	2E-07	1E-07	2E-07
10.4	Nav Channel	2E-07	2E-07	2E-07	2E-07	2E-07	2E-07	1E-07	2E-07
10.5	Nav Channel	2E-07	2E-07	2E-07	2E-07	2E-07	2E-07	1E-07	2E-07
10.6	Nav Channel	3E-07	3E-07	3E-07	3E-07	3E-07	2E-07	1E-07	3E-07
10.7	Nav Channel	3E-07	3E-07	3E-07	3E-07	3E-07	2E-07	1E-07	3E-07
10.8	Nav Channel	3E-07	3E-07	3E-07	2E-07	2E-07	2E-07	2E-07	2E-07
10.9	Nav Channel	4E-07	3E-07	3E-07	3E-07	3E-07	2E-07	2E-07	3E-07
11	Nav Channel	4E-07	3E-07	3E-07	3E-07	3E-07	3E-07	2E-07	3E-07
11.1	Nav Channel	4E-07	3E-07	3E-07	3E-07	3E-07	3E-07	2E-07	3E-07
11.2	Nav Channel	5E-07	4E-07	3E-07	3E-07	3E-07	3E-07	2E-07	3E-07
11.3	Nav Channel	5E-07	4E-07	3E-07	3E-07	3E-07	3E-07	3E-07	3E-07
11.4	Nav Channel	5E-07	4E-07	3E-07	3E-07	3E-07	3E-07	3E-07	3E-07
11.5	Nav Channel	5E-07	4E-07	4E-07	3E-07	3E-07	3E-07	3E-07	3E-07
11.6	Nav Channel	6E-07	4E-07	4E-07	3E-07	3E-07	3E-07	3E-07	3E-07
11.7	Nav Channel	6E-07	4E-07	4E-07	4E-07	4E-07	3E-07	3E-07	4E-07
1.8	West	3E-07	3E-07	3E-07	3E-07	3E-07	3E-07	3E-07	3E-07
1.9	West	3E-07	3E-07	3E-07	3E-07	3E-07	3E-07	3E-07	3E-07
2	West	3E-07	3E-07	3E-07	3E-07	3E-07	3E-07	3E-07	3E-07
2.1	West	4E-07	4E-07	4E-07	4E-07	4E-07	4E-07	4E-07	4E-07
2.2	West	4E-07	4E-07	4E-07	4E-07	4E-07	4E-07	4E-07	4E-07
2.3	West	4E-07	4E-07	4E-07	4E-07	4E-07	4E-07	4E-07	4E-07
2.4	West	4E-07	4E-07	4E-07	4E-07	4E-07	4E-07	4E-07	4E-07
2.5	West	4E-07	4E-07	4E-07	4E-07	4E-07	4E-07	4E-07	4E-07
2.6	West	4E-07	4E-07	4E-07	4E-07	4E-07	4E-07	4E-07	4E-07
2.7	West	4E-07	4E-07	4E-07	4E-07	4E-07	4E-07	4E-07	4E-07
2.8	West	6E-07	6E-07	6E-07	6E-07	6E-07	6E-07	4E-07	6E-07

**Table J2.3-3d**

**RAO 2 Rolling River Mile Risk Estimates - DDx**

Portland Harbor Superfund Site

Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
2.9	West	6E-07	6E-07	6E-07	6E-07	6E-07	6E-07	3E-07	6E-07
3	West	6E-07	6E-07	6E-07	6E-07	6E-07	6E-07	3E-07	6E-07
3.1	West	6E-07	6E-07	6E-07	6E-07	6E-07	6E-07	3E-07	6E-07
3.2	West	6E-07	6E-07	6E-07	6E-07	6E-07	6E-07	3E-07	6E-07
3.3	West	7E-07	7E-07	7E-07	7E-07	6E-07	6E-07	3E-07	7E-07
3.4	West	7E-07	7E-07	7E-07	7E-07	7E-07	7E-07	4E-07	7E-07
3.5	West	8E-07	8E-07	8E-07	8E-07	7E-07	7E-07	4E-07	8E-07
3.6	West	9E-07	9E-07	9E-07	9E-07	8E-07	8E-07	4E-07	9E-07
3.7	West	9E-07	9E-07	9E-07	9E-07	9E-07	9E-07	4E-07	9E-07
3.8	West	7E-07	7E-07	7E-07	7E-07	6E-07	6E-07	4E-07	7E-07
3.9	West	9E-07	9E-07	9E-07	9E-07	8E-07	8E-07	4E-07	9E-07
4	West	9E-07	9E-07	9E-07	9E-07	8E-07	8E-07	4E-07	9E-07
4.1	West	1E-06	1E-06	1E-06	1E-06	9E-07	9E-07	4E-07	1E-06
4.2	West	1E-06	1E-06	1E-06	1E-06	9E-07	9E-07	4E-07	1E-06
4.3	West	1E-06	1E-06	1E-06	1E-06	9E-07	9E-07	3E-07	1E-06
4.4	West	9E-07	9E-07	9E-07	9E-07	8E-07	8E-07	3E-07	9E-07
4.5	West	9E-07	9E-07	9E-07	9E-07	8E-07	8E-07	3E-07	9E-07
4.6	West	9E-07	9E-07	9E-07	9E-07	7E-07	7E-07	3E-07	9E-07
4.7	West	9E-07	9E-07	9E-07	9E-07	7E-07	7E-07	3E-07	9E-07
4.8	West	9E-07	9E-07	9E-07	9E-07	8E-07	8E-07	3E-07	9E-07
4.9	West	8E-07	8E-07	8E-07	8E-07	7E-07	7E-07	3E-07	8E-07
5	West	7E-07	7E-07	7E-07	7E-07	5E-07	5E-07	2E-07	7E-07
5.1	West	7E-07	7E-07	6E-07	6E-07	5E-07	5E-07	2E-07	6E-07
5.2	West	6E-07	6E-07	6E-07	5E-07	5E-07	5E-07	2E-07	5E-07
5.3	West	7E-07	7E-07	7E-07	6E-07	6E-07	6E-07	2E-07	6E-07
5.4	West	1E-06	1E-06	1E-06	1E-06	7E-07	7E-07	2E-07	1E-06
5.5	West	1E-06	1E-06	1E-06	1E-06	7E-07	7E-07	3E-07	1E-06
5.6	West	2E-06	1E-06	1E-06	1E-06	7E-07	7E-07	2E-07	1E-06
5.7	West	2E-06	1E-06	1E-06	1E-06	6E-07	6E-07	2E-07	1E-06
5.8	West	3E-06	1E-06	1E-06	9E-07	6E-07	6E-07	2E-07	1E-06
5.9	West	4E-06	1E-06	9E-07	8E-07	4E-07	4E-07	2E-07	9E-07
6	West	4E-06	1E-06	9E-07	8E-07	4E-07	4E-07	2E-07	9E-07
6.1	West	5E-06	1E-06	1E-06	9E-07	4E-07	4E-07	2E-07	9E-07
6.2	West	5E-06	2E-06	1E-06	1E-06	5E-07	5E-07	1E-07	1E-06
6.3	West	5E-06	2E-06	1E-06	1E-06	4E-07	4E-07	1E-07	9E-07
6.4	West	6E-06	3E-06	2E-06	1E-06	3E-07	3E-07	7E-08	6E-07
6.5	West	9E-06	4E-06	3E-06	1E-06	2E-07	2E-07	2E-08	4E-07
6.6	West	1E-05	6E-06	3E-06	1E-06	2E-07	2E-07	1E-08	2E-07
6.7	West	2E-05	6E-06	3E-06	1E-06	2E-07	2E-07	1E-08	2E-07
6.8	West	4E-05	6E-06	3E-06	1E-06	2E-07	2E-07	1E-08	2E-07
6.9	West	6E-05	6E-06	3E-06	1E-06	2E-07	2E-07	1E-08	2E-07
7	West	6E-05	7E-06	4E-06	1E-06	3E-07	3E-07	1E-08	3E-07

**Table J2.3-3d**

**RAO 2 Rolling River Mile Risk Estimates - DDx**

Portland Harbor Superfund Site

Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
7.1	West	5E-05	6E-06	3E-06	1E-06	5E-07	5E-07	1E-07	5E-07
7.2	West	4E-05	5E-06	3E-06	1E-06	5E-07	5E-07	1E-07	5E-07
7.3	West	4E-05	4E-06	2E-06	1E-06	5E-07	5E-07	2E-07	5E-07
7.4	West	4E-05	3E-06	2E-06	1E-06	5E-07	5E-07	2E-07	5E-07
7.5	West	4E-05	3E-06	2E-06	1E-06	6E-07	6E-07	2E-07	6E-07
7.6	West	4E-05	1E-06	1E-06	8E-07	6E-07	6E-07	2E-07	6E-07
7.7	West	3E-05	1E-06	1E-06	8E-07	6E-07	6E-07	2E-07	6E-07
7.8	West	2E-05	1E-06	1E-06	9E-07	6E-07	6E-07	2E-07	7E-07
7.9	West	4E-06	1E-06	1E-06	1E-06	6E-07	6E-07	2E-07	8E-07
8	West	1E-06	1E-06	1E-06	9E-07	6E-07	6E-07	2E-07	8E-07
8.1	West	1E-06	1E-06	1E-06	9E-07	4E-07	4E-07	2E-07	8E-07
8.2	West	1E-06	1E-06	1E-06	9E-07	4E-07	4E-07	1E-07	8E-07
8.3	West	1E-06	1E-06	1E-06	8E-07	3E-07	3E-07	1E-07	8E-07
8.4	West	2E-06	1E-06	1E-06	8E-07	3E-07	3E-07	1E-07	8E-07
8.5	West	2E-06	1E-06	1E-06	8E-07	3E-07	3E-07	1E-07	8E-07
8.6	West	2E-06	1E-06	1E-06	8E-07	3E-07	3E-07	1E-07	8E-07
8.7	West	3E-06	1E-06	1E-06	8E-07	3E-07	3E-07	1E-07	8E-07
8.8	West	3E-06	1E-06	1E-06	8E-07	3E-07	3E-07	1E-07	8E-07
8.9	West	2E-06	1E-06	1E-06	6E-07	2E-07	2E-07	1E-07	6E-07
9	West	2E-06	1E-06	1E-06	5E-07	1E-07	1E-07	7E-08	5E-07
9.1	West	2E-06	7E-07	6E-07	3E-07	8E-08	8E-08	6E-08	3E-07
9.2	West	2E-06	5E-07	4E-07	2E-07	8E-08	8E-08	6E-08	2E-07
9.3	West	2E-06	4E-07	3E-07	2E-07	9E-08	9E-08	6E-08	2E-07
9.4	West	7E-07	4E-07	3E-07	2E-07	9E-08	9E-08	6E-08	2E-07
9.5	West	6E-07	4E-07	3E-07	2E-07	1E-07	1E-07	7E-08	2E-07
9.6	West	5E-07	4E-07	3E-07	2E-07	1E-07	1E-07	8E-08	2E-07
9.7	West	4E-07	4E-07	3E-07	2E-07	1E-07	1E-07	8E-08	2E-07
9.8	West	4E-07	4E-07	3E-07	2E-07	1E-07	1E-07	9E-08	2E-07
9.9	West	4E-07	4E-07	3E-07	2E-07	1E-07	1E-07	7E-08	2E-07
10	West	5E-07	4E-07	4E-07	2E-07	1E-07	1E-07	8E-08	2E-07
10.1	West	5E-07	4E-07	3E-07	2E-07	1E-07	1E-07	7E-08	2E-07
10.2	West	4E-07	4E-07	3E-07	2E-07	2E-07	2E-07	1E-07	2E-07
10.3	West	3E-07	3E-07	3E-07	3E-07	3E-07	3E-07	2E-07	3E-07
10.4	West	3E-07	3E-07	3E-07	3E-07	3E-07	3E-07	2E-07	3E-07
10.5	West	4E-07	4E-07	4E-07	3E-07	3E-07	3E-07	2E-07	3E-07
10.6	West	4E-07	4E-07	4E-07	4E-07	3E-07	3E-07	3E-07	4E-07
10.7	West	4E-07	4E-07	4E-07	3E-07	3E-07	3E-07	3E-07	3E-07
10.8	West	3E-07	3E-07	3E-07	3E-07	3E-07	3E-07	3E-07	3E-07
10.9	West	3E-07	3E-07	3E-07	3E-07	3E-07	3E-07	3E-07	3E-07
11	West	3E-07	3E-07	3E-07	3E-07	3E-07	3E-07	3E-07	3E-07
11.1	West	3E-07	3E-07	3E-07	3E-07	3E-07	3E-07	3E-07	3E-07
11.2	West	3E-07	3E-07	3E-07	3E-07	3E-07	3E-07	3E-07	3E-07

**Table J2.3-3d**

**RAO 2 Rolling River Mile Risk Estimates - DDx**

Portland Harbor Superfund Site

Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
11.3	West	3E-07	3E-07	3E-07	3E-07	3E-07	3E-07	3E-07	3E-07
11.4	West	3E-07	3E-07	3E-07	3E-07	3E-07	3E-07	3E-07	3E-07
11.5	West	2E-07	2E-07	2E-07	2E-07	2E-07	2E-07	2E-07	2E-07
11.6	West	2E-07	2E-07	2E-07	2E-07	2E-07	2E-07	2E-07	2E-07
11.7	West	2E-07	2E-07	2E-07	2E-07	2E-07	2E-07	2E-07	2E-07
7.6	Swan Isl	4E-07	4E-08	4E-08	2E-08	3E-09	3E-09	1E-09	2E-08
7.7	Swan Isl	5E-07	4E-08	3E-08	2E-08	3E-09	3E-09	1E-09	2E-08
7.8	Swan Isl	7E-07	6E-08	5E-08	2E-08	4E-09	4E-09	1E-09	2E-08
7.9	Swan Isl	7E-07	6E-08	4E-08	2E-08	4E-09	4E-09	2E-09	2E-08
8	Swan Isl	7E-07	5E-08	4E-08	2E-08	5E-09	5E-09	3E-09	2E-08
8.1	Swan Isl	7E-07	5E-08	4E-08	2E-08	5E-09	5E-09	3E-09	2E-08
8.2	Swan Isl	7E-07	5E-08	4E-08	2E-08	7E-09	7E-09	5E-09	2E-08
8.3	Swan Isl	7E-07	5E-08	4E-08	2E-08	8E-09	8E-09	6E-09	2E-08
8.4	Swan Isl	8E-07	6E-08	4E-08	2E-08	9E-09	9E-09	6E-09	2E-08
8.5	Swan Isl	8E-07	6E-08	4E-08	2E-08	9E-09	9E-09	6E-09	2E-08
8.6	Swan Isl	8E-07	7E-08	4E-08	3E-08	1E-08	1E-08	7E-09	3E-08
8.7	Swan Isl	9E-07	9E-08	6E-08	4E-08	1E-08	1E-08	1E-08	5E-08
8.8	Swan Isl	8E-07	8E-08	6E-08	5E-08	2E-08	2E-08	1E-08	6E-08
8.9	Swan Isl	8E-07	9E-08	6E-08	5E-08	2E-08	2E-08	1E-08	7E-08
9	Swan Isl	8E-07	1E-07	7E-08	6E-08	2E-08	2E-08	1E-08	7E-08
9.1	Swan Isl	8E-07	1E-07	7E-08	6E-08	2E-08	2E-08	2E-08	8E-08
9.2	Swan Isl	9E-07	1E-07	8E-08	7E-08	2E-08	2E-08	1E-08	9E-08
9.3	Swan Isl	8E-07	1E-07	9E-08	8E-08	2E-08	2E-08	1E-08	1E-07
9.4	Swan Isl	4E-07	2E-07	1E-07	1E-07	2E-08	2E-08	1E-08	2E-07
9.5	Swan Isl	4E-07	3E-07	2E-07	2E-07	3E-08	3E-08	2E-08	3E-07
9.6	Swan Isl	3E-07	3E-07	3E-07	2E-07	5E-08	5E-08	4E-08	3E-07

**Table J2.3-3e**  
**RAO 2 Rolling River Mile Risk Estimates - Dieldrin**  
 Portland Harbor Superfund Site  
 Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
1.8	East	3E-06	2E-06	2E-06	2E-06	2E-06	2E-06	2E-06	2E-06
1.9	East	3E-06	2E-06	2E-06	2E-06	2E-06	2E-06	2E-06	2E-06
2	East	3E-06	2E-06	2E-06	2E-06	2E-06	2E-06	2E-06	2E-06
2.1	East	3E-06	2E-06	2E-06	2E-06	2E-06	2E-06	2E-06	2E-06
2.2	East	2E-06	2E-06	2E-06	2E-06	1E-06	1E-06	1E-06	2E-06
2.3	East	2E-06	2E-06	1E-06	1E-06	1E-06	1E-06	1E-06	1E-06
2.4	East	2E-06	1E-06	1E-06	1E-06	9E-07	9E-07	9E-07	1E-06
2.5	East	2E-06	1E-06	1E-06	1E-06	9E-07	9E-07	8E-07	1E-06
2.6	East	2E-06	1E-06	1E-06	9E-07	8E-07	8E-07	7E-07	9E-07
2.7	East	1E-06	1E-06	1E-06	8E-07	7E-07	7E-07	7E-07	8E-07
2.8	East	1E-06	1E-06	9E-07	8E-07	7E-07	7E-07	6E-07	8E-07
2.9	East	8E-07	8E-07	7E-07	7E-07	7E-07	7E-07	6E-07	7E-07
3	East	8E-07	8E-07	8E-07	7E-07	7E-07	7E-07	6E-07	7E-07
3.1	East	8E-07	8E-07	7E-07	7E-07	7E-07	7E-07	6E-07	7E-07
3.2	East	8E-07	8E-07	8E-07	7E-07	7E-07	7E-07	6E-07	7E-07
3.3	East	8E-07	7E-07	7E-07	6E-07	6E-07	6E-07	5E-07	6E-07
3.4	East	6E-07	6E-07	6E-07	6E-07	5E-07	5E-07	4E-07	6E-07
3.5	East	7E-07	6E-07	6E-07	6E-07	5E-07	5E-07	4E-07	6E-07
3.6	East	7E-07	6E-07	6E-07	6E-07	5E-07	5E-07	4E-07	6E-07
3.7	East	8E-07	7E-07	7E-07	6E-07	5E-07	5E-07	3E-07	6E-07
3.8	East	1E-06	9E-07	9E-07	8E-07	6E-07	6E-07	4E-07	8E-07
3.9	East	1E-06	1E-06	1E-06	1E-06	7E-07	7E-07	4E-07	1E-06
4	East	2E-06	2E-06	2E-06	2E-06	1E-06	1E-06	8E-07	2E-06
4.1	East	6E-06	6E-06	5E-06	4E-06	3E-06	3E-06	1E-06	4E-06
4.2	East	1E-05	1E-05	8E-06	6E-06	4E-06	4E-06	2E-06	6E-06
4.3	East	1E-05	1E-05	1E-05	8E-06	5E-06	5E-06	2E-06	8E-06
4.4	East	1E-05	1E-05	1E-05	9E-06	5E-06	5E-06	2E-06	9E-06
4.5	East	1E-05	1E-05	1E-05	9E-06	5E-06	5E-06	2E-06	9E-06
4.6	East	1E-05	1E-05	1E-05	9E-06	5E-06	5E-06	2E-06	9E-06
4.7	East	1E-05	1E-05	1E-05	9E-06	5E-06	5E-06	2E-06	9E-06
4.8	East	1E-05	1E-05	1E-05	9E-06	5E-06	5E-06	2E-06	9E-06
4.9	East	2E-05	2E-05	1E-05	1E-05	6E-06	6E-06	3E-06	1E-05
5	East	2E-05	2E-05	1E-05	1E-05	6E-06	6E-06	3E-06	1E-05
5.1	East	1E-05	1E-05	9E-06	6E-06	3E-06	3E-06	1E-06	6E-06
5.2	East	2E-06	2E-06	2E-06	2E-06	2E-06	2E-06	1E-06	2E-06
5.3	East	2E-06	2E-06	2E-06	2E-06	1E-06	1E-06	9E-07	1E-06
5.4	East	2E-06	2E-06	2E-06	2E-06	1E-06	1E-06	7E-07	1E-06
5.5	East	2E-06	2E-06	2E-06	2E-06	1E-06	1E-06	6E-07	1E-06
5.6	East	2E-06	2E-06	2E-06	1E-06	8E-07	8E-07	5E-07	9E-07
5.7	East	2E-06	2E-06	2E-06	1E-06	7E-07	7E-07	4E-07	9E-07
5.8	East	1E-06	1E-06	1E-06	1E-06	6E-07	6E-07	3E-07	8E-07
5.9	East	1E-06	1E-06	1E-06	1E-06	6E-07	6E-07	3E-07	8E-07
6	East	1E-06	1E-06	1E-06	1E-06	6E-07	6E-07	3E-07	7E-07

**Table J2.3-3e**  
**RAO 2 Rolling River Mile Risk Estimates - Dieltrin**  
 Portland Harbor Superfund Site  
 Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
6.1	East	1E-06	1E-06	1E-06	9E-07	5E-07	5E-07	3E-07	7E-07
6.2	East	9E-07	9E-07	8E-07	8E-07	5E-07	5E-07	3E-07	6E-07
6.3	East	7E-07	7E-07	6E-07	6E-07	4E-07	4E-07	3E-07	6E-07
6.4	East	7E-07	6E-07	6E-07	5E-07	4E-07	4E-07	3E-07	5E-07
6.5	East	6E-07	5E-07	4E-07	4E-07	3E-07	3E-07	3E-07	5E-07
6.6	East	5E-07	4E-07	4E-07	4E-07	3E-07	3E-07	3E-07	4E-07
6.7	East	6E-07	5E-07	4E-07	4E-07	4E-07	4E-07	3E-07	5E-07
6.8	East	7E-07	6E-07	5E-07	5E-07	5E-07	5E-07	4E-07	6E-07
6.9	East	9E-07	7E-07	6E-07	6E-07	6E-07	6E-07	5E-07	8E-07
7	East	9E-07	8E-07	7E-07	7E-07	7E-07	7E-07	7E-07	9E-07
7.1	East	1E-06	9E-07	8E-07	8E-07	8E-07	8E-07	8E-07	1E-06
7.2	East	1E-06	9E-07	9E-07	8E-07	8E-07	8E-07	8E-07	1E-06
7.3	East	1E-06	1E-06	9E-07	9E-07	9E-07	9E-07	9E-07	1E-06
7.4	East	1E-06	1E-06	1E-06	1E-06	1E-06	1E-06	1E-06	1E-06
7.5	East	1E-06	1E-06	1E-06	1E-06	1E-06	1E-06	1E-06	1E-06
7.6	East	1E-06	1E-06	1E-06	1E-06	1E-06	1E-06	1E-06	1E-06
7.7	East	1E-06	1E-06	1E-06	1E-06	1E-06	1E-06	1E-06	1E-06
7.8	East	1E-06	1E-06	1E-06	1E-06	1E-06	1E-06	1E-06	1E-06
7.9	East	1E-06	1E-06	1E-06	1E-06	1E-06	1E-06	8E-07	1E-06
8	East	1E-06	8E-07	8E-07	8E-07	8E-07	8E-07	6E-07	8E-07
8.1	East	9E-07	7E-07	7E-07	7E-07	7E-07	7E-07	4E-07	7E-07
8.2	East	1E-06	8E-07	8E-07	8E-07	8E-07	8E-07	6E-07	8E-07
8.3	East	1E-06	8E-07	8E-07	8E-07	8E-07	8E-07	6E-07	8E-07
8.4	East	1E-06	8E-07	8E-07	8E-07	8E-07	8E-07	6E-07	8E-07
8.5	East	9E-07	8E-07	8E-07	8E-07	7E-07	7E-07	6E-07	8E-07
8.6	East	9E-07	7E-07	7E-07	7E-07	7E-07	7E-07	6E-07	7E-07
8.7	East	1E-06	9E-07	9E-07	9E-07	8E-07	8E-07	7E-07	9E-07
8.8	East	1E-06	1E-06	1E-06	1E-06	1E-06	1E-06	8E-07	1E-06
8.9	East	1E-06	1E-06	1E-06	1E-06	1E-06	1E-06	9E-07	1E-06
9	East	1E-06	1E-06	1E-06	1E-06	1E-06	1E-06	9E-07	1E-06
9.1	East	1E-06	1E-06	1E-06	1E-06	9E-07	9E-07	8E-07	1E-06
9.2	East	1E-06	1E-06	1E-06	1E-06	9E-07	9E-07	7E-07	1E-06
9.3	East	1E-06	1E-06	1E-06	1E-06	1E-06	1E-06	9E-07	1E-06
9.4	East	1E-06	1E-06	1E-06	1E-06	1E-06	1E-06	1E-06	1E-06
9.5	East	1E-06	1E-06	1E-06	1E-06	1E-06	1E-06	1E-06	1E-06
9.6	East	1E-06	1E-06	1E-06	1E-06	1E-06	1E-06	1E-06	1E-06
9.7	East	1E-06	1E-06	1E-06	1E-06	1E-06	1E-06	1E-06	1E-06
9.8	East	1E-06	1E-06	1E-06	1E-06	1E-06	1E-06	1E-06	1E-06
9.9	East	1E-06	1E-06	1E-06	1E-06	1E-06	1E-06	1E-06	1E-06
10	East	2E-06	2E-06	2E-06	2E-06	1E-06	1E-06	1E-06	2E-06
10.1	East	2E-06	2E-06	2E-06	2E-06	2E-06	2E-06	1E-06	2E-06
10.2	East	2E-06	2E-06	2E-06	2E-06	2E-06	2E-06	1E-06	2E-06

**Table J2.3-3e**

**RAO 2 Rolling River Mile Risk Estimates - Dieltrin**

Portland Harbor Superfund Site

Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
10.3	East	1E-06	1E-06	1E-06	1E-06	1E-06	1E-06	1E-06	1E-06
10.4	East	1E-06	1E-06	1E-06	1E-06	1E-06	1E-06	9E-07	1E-06
10.5	East	1E-06	1E-06	1E-06	1E-06	1E-06	1E-06	9E-07	1E-06
10.6	East	2E-06	2E-06	2E-06	2E-06	1E-06	1E-06	1E-06	2E-06
10.7	East	2E-06	2E-06	2E-06	2E-06	1E-06	1E-06	1E-06	2E-06
10.8	East	2E-06	2E-06	2E-06	2E-06	1E-06	1E-06	9E-07	2E-06
10.9	East	3E-06	2E-06	1E-06	1E-06	9E-07	9E-07	7E-07	1E-06
11	East	4E-06	1E-06	1E-06	8E-07	5E-07	5E-07	3E-07	8E-07
11.1	East	4E-06	1E-06	9E-07	7E-07	4E-07	4E-07	2E-07	7E-07
11.2	East	4E-06	1E-06	8E-07	6E-07	3E-07	3E-07	1E-07	6E-07
11.3	East	4E-06	1E-06	8E-07	5E-07	3E-07	3E-07	9E-08	5E-07
11.4	East	5E-06	1E-06	7E-07	5E-07	2E-07	2E-07	5E-08	5E-07
11.5	East	5E-06	1E-06	6E-07	4E-07	2E-07	2E-07	5E-08	4E-07
11.6	East	6E-06	9E-07	5E-07	2E-07	1E-07	1E-07	2E-08	2E-07
11.7	East	6E-06	9E-07	5E-07	2E-07	1E-07	1E-07	2E-08	2E-07
1.8	Nav Channel	2E-06	2E-06	2E-06	2E-06	2E-06	2E-06	2E-06	2E-06
1.9	Nav Channel	3E-06	3E-06	3E-06	3E-06	3E-06	3E-06	2E-06	3E-06
2	Nav Channel	3E-06	3E-06	3E-06	3E-06	3E-06	3E-06	2E-06	3E-06
2.1	Nav Channel	2E-06	2E-06	2E-06	2E-06	2E-06	2E-06	2E-06	2E-06
2.2	Nav Channel	2E-06	2E-06	2E-06	2E-06	2E-06	2E-06	2E-06	2E-06
2.3	Nav Channel	2E-06	2E-06	2E-06	2E-06	2E-06	2E-06	2E-06	2E-06
2.4	Nav Channel	2E-06	2E-06	2E-06	2E-06	2E-06	2E-06	2E-06	2E-06
2.5	Nav Channel	2E-06	2E-06	2E-06	2E-06	2E-06	2E-06	2E-06	2E-06
2.6	Nav Channel	2E-06	2E-06	2E-06	2E-06	2E-06	2E-06	2E-06	2E-06
2.7	Nav Channel	2E-06	2E-06	2E-06	2E-06	2E-06	2E-06	2E-06	2E-06
2.8	Nav Channel	2E-06	2E-06	2E-06	2E-06	2E-06	2E-06	1E-06	2E-06
2.9	Nav Channel	2E-06	2E-06	2E-06	2E-06	2E-06	2E-06	1E-06	2E-06
3	Nav Channel	2E-06	2E-06	2E-06	2E-06	2E-06	2E-06	1E-06	2E-06
3.1	Nav Channel	2E-06	2E-06	2E-06	2E-06	2E-06	2E-06	1E-06	2E-06
3.2	Nav Channel	2E-06	2E-06	2E-06	2E-06	2E-06	2E-06	1E-06	2E-06
3.3	Nav Channel	2E-06	2E-06	2E-06	2E-06	2E-06	2E-06	1E-06	2E-06
3.4	Nav Channel	2E-06	2E-06	2E-06	2E-06	2E-06	1E-06	9E-07	2E-06
3.5	Nav Channel	1E-06	1E-06	1E-06	1E-06	1E-06	1E-06	8E-07	1E-06
3.6	Nav Channel	1E-06	1E-06	1E-06	1E-06	1E-06	1E-06	8E-07	1E-06
3.7	Nav Channel	1E-06	1E-06	1E-06	1E-06	1E-06	1E-06	9E-07	1E-06
3.8	Nav Channel	1E-06	1E-06	1E-06	1E-06	1E-06	1E-06	9E-07	1E-06
3.9	Nav Channel	1E-06	1E-06	1E-06	1E-06	1E-06	1E-06	7E-07	1E-06
4	Nav Channel	1E-06	1E-06	1E-06	1E-06	1E-06	1E-06	7E-07	1E-06
4.1	Nav Channel	1E-06	1E-06	1E-06	1E-06	1E-06	1E-06	7E-07	1E-06
4.2	Nav Channel	9E-07	9E-07	9E-07	9E-07	9E-07	9E-07	8E-07	9E-07
4.3	Nav Channel	9E-07	9E-07	9E-07	9E-07	9E-07	9E-07	8E-07	9E-07
4.4	Nav Channel	9E-07	9E-07	9E-07	9E-07	9E-07	9E-07	8E-07	9E-07

**Table J2.3-3e**  
**RAO 2 Rolling River Mile Risk Estimates - Dielddrin**  
 Portland Harbor Superfund Site  
 Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
4.5	Nav Channel	1E-06	1E-06	1E-06	1E-06	1E-06	1E-06	9E-07	1E-06
4.6	Nav Channel	1E-06	1E-06	1E-06	1E-06	1E-06	9E-07	9E-07	1E-06
4.7	Nav Channel	1E-06	1E-06	9E-07	9E-07	1E-06	8E-07	8E-07	1E-06
4.8	Nav Channel	1E-06	1E-06	9E-07	9E-07	1E-06	8E-07	7E-07	1E-06
4.9	Nav Channel	1E-06	1E-06	9E-07	9E-07	1E-06	8E-07	7E-07	1E-06
5	Nav Channel	1E-06	1E-06	9E-07	9E-07	1E-06	8E-07	7E-07	1E-06
5.1	Nav Channel	1E-06	1E-06	9E-07	8E-07	1E-06	7E-07	6E-07	1E-06
5.2	Nav Channel	1E-06	9E-07	7E-07	6E-07	9E-07	5E-07	4E-07	9E-07
5.3	Nav Channel	2E-06	9E-07	7E-07	5E-07	9E-07	4E-07	4E-07	9E-07
5.4	Nav Channel	2E-06	9E-07	6E-07	5E-07	9E-07	4E-07	3E-07	9E-07
5.5	Nav Channel	2E-06	9E-07	7E-07	5E-07	9E-07	3E-07	2E-07	9E-07
5.6	Nav Channel	2E-06	1E-06	8E-07	5E-07	1E-06	3E-07	1E-07	1E-06
5.7	Nav Channel	3E-06	2E-06	1E-06	8E-07	2E-06	3E-07	1E-07	2E-06
5.8	Nav Channel	4E-06	2E-06	2E-06	9E-07	2E-06	4E-07	2E-07	2E-06
5.9	Nav Channel	5E-06	3E-06	2E-06	1E-06	3E-06	6E-07	3E-07	2E-06
6	Nav Channel	6E-06	3E-06	2E-06	1E-06	3E-06	8E-07	4E-07	3E-06
6.1	Nav Channel	6E-06	4E-06	2E-06	2E-06	4E-06	8E-07	5E-07	3E-06
6.2	Nav Channel	6E-06	4E-06	3E-06	2E-06	4E-06	9E-07	5E-07	3E-06
6.3	Nav Channel	6E-06	4E-06	3E-06	2E-06	4E-06	9E-07	5E-07	3E-06
6.4	Nav Channel	6E-06	4E-06	3E-06	2E-06	4E-06	9E-07	5E-07	3E-06
6.5	Nav Channel	6E-06	4E-06	3E-06	2E-06	4E-06	9E-07	5E-07	3E-06
6.6	Nav Channel	6E-06	3E-06	2E-06	1E-06	3E-06	9E-07	6E-07	3E-06
6.7	Nav Channel	4E-06	2E-06	2E-06	1E-06	2E-06	1E-06	7E-07	2E-06
6.8	Nav Channel	4E-06	3E-06	2E-06	2E-06	3E-06	2E-06	9E-07	3E-06
6.9	Nav Channel	4E-06	3E-06	3E-06	3E-06	3E-06	2E-06	1E-06	3E-06
7	Nav Channel	3E-06	3E-06	3E-06	2E-06	3E-06	2E-06	1E-06	3E-06
7.1	Nav Channel	2E-06	2E-06	2E-06	2E-06	2E-06	2E-06	9E-07	2E-06
7.2	Nav Channel	2E-06	2E-06	2E-06	2E-06	2E-06	2E-06	1E-06	2E-06
7.3	Nav Channel	3E-06	2E-06	2E-06	2E-06	2E-06	2E-06	1E-06	2E-06
7.4	Nav Channel	3E-06	3E-06	3E-06	3E-06	3E-06	3E-06	2E-06	3E-06
7.5	Nav Channel	3E-06	3E-06	3E-06	3E-06	3E-06	3E-06	2E-06	3E-06
7.6	Nav Channel	3E-06	3E-06	3E-06	3E-06	3E-06	2E-06	2E-06	3E-06
7.7	Nav Channel	2E-06	2E-06	2E-06	2E-06	2E-06	2E-06	2E-06	2E-06
7.8	Nav Channel	2E-06	2E-06	2E-06	2E-06	2E-06	2E-06	2E-06	2E-06
7.9	Nav Channel	2E-06	2E-06	2E-06	2E-06	2E-06	2E-06	1E-06	2E-06
8	Nav Channel	2E-06	2E-06	2E-06	2E-06	2E-06	1E-06	1E-06	2E-06
8.1	Nav Channel	1E-06	1E-06	1E-06	1E-06	1E-06	1E-06	1E-06	1E-06
8.2	Nav Channel	1E-06	1E-06	1E-06	1E-06	1E-06	1E-06	1E-06	1E-06
8.3	Nav Channel	1E-06	1E-06	1E-06	1E-06	1E-06	1E-06	1E-06	1E-06
8.4	Nav Channel	1E-06	1E-06	1E-06	1E-06	1E-06	1E-06	1E-06	1E-06
8.5	Nav Channel	9E-07	9E-07	9E-07	9E-07	9E-07	8E-07	8E-07	9E-07
8.6	Nav Channel	8E-07	8E-07	8E-07	8E-07	8E-07	7E-07	7E-07	8E-07



**Table J2.3-3e**  
**RAO 2 Rolling River Mile Risk Estimates - Dieltrin**  
 Portland Harbor Superfund Site  
 Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
8.7	Nav Channel	9E-07	9E-07	9E-07	9E-07	9E-07	7E-07	7E-07	9E-07
8.8	Nav Channel	9E-07	9E-07	9E-07	9E-07	9E-07	7E-07	6E-07	9E-07
8.9	Nav Channel	9E-07	9E-07	9E-07	9E-07	9E-07	6E-07	6E-07	9E-07
9	Nav Channel	9E-07	9E-07	9E-07	9E-07	9E-07	6E-07	6E-07	9E-07
9.1	Nav Channel	1E-06	1E-06	1E-06	1E-06	1E-06	8E-07	7E-07	1E-06
9.2	Nav Channel	1E-06	1E-06	1E-06	1E-06	1E-06	8E-07	7E-07	1E-06
9.3	Nav Channel	1E-06	1E-06	1E-06	1E-06	1E-06	9E-07	8E-07	1E-06
9.4	Nav Channel	1E-06	1E-06	1E-06	1E-06	1E-06	1E-06	9E-07	1E-06
9.5	Nav Channel	1E-06	1E-06	1E-06	1E-06	1E-06	1E-06	9E-07	1E-06
9.6	Nav Channel	1E-06	1E-06	1E-06	1E-06	1E-06	1E-06	9E-07	1E-06
9.7	Nav Channel	1E-06	1E-06	1E-06	1E-06	1E-06	1E-06	9E-07	1E-06
9.8	Nav Channel	1E-06	1E-06	1E-06	1E-06	1E-06	1E-06	9E-07	1E-06
9.9	Nav Channel	1E-06	1E-06	1E-06	1E-06	1E-06	1E-06	9E-07	1E-06
10	Nav Channel	1E-06	1E-06	1E-06	1E-06	1E-06	1E-06	9E-07	1E-06
10.1	Nav Channel	1E-06	1E-06	1E-06	1E-06	1E-06	1E-06	9E-07	1E-06
10.2	Nav Channel	1E-06	1E-06	1E-06	1E-06	1E-06	1E-06	9E-07	1E-06
10.3	Nav Channel	2E-06	2E-06	2E-06	2E-06	2E-06	1E-06	1E-06	2E-06
10.4	Nav Channel	2E-06	2E-06	2E-06	2E-06	2E-06	1E-06	1E-06	2E-06
10.5	Nav Channel	2E-06	2E-06	2E-06	2E-06	2E-06	2E-06	1E-06	2E-06
10.6	Nav Channel	2E-06	2E-06	2E-06	2E-06	2E-06	2E-06	1E-06	2E-06
10.7	Nav Channel	3E-06	2E-06	2E-06	2E-06	2E-06	2E-06	1E-06	2E-06
10.8	Nav Channel	3E-06	2E-06	2E-06	2E-06	2E-06	2E-06	1E-06	2E-06
10.9	Nav Channel	3E-06	2E-06	2E-06	2E-06	2E-06	2E-06	2E-06	2E-06
11	Nav Channel	3E-06	2E-06	2E-06	2E-06	2E-06	2E-06	2E-06	2E-06
11.1	Nav Channel	3E-06	2E-06	2E-06	2E-06	2E-06	2E-06	2E-06	2E-06
11.2	Nav Channel	3E-06	2E-06	2E-06	2E-06	2E-06	2E-06	2E-06	2E-06
11.3	Nav Channel	3E-06	2E-06	2E-06	2E-06	2E-06	2E-06	1E-06	2E-06
11.4	Nav Channel	3E-06	2E-06	2E-06	2E-06	2E-06	2E-06	1E-06	2E-06
11.5	Nav Channel	3E-06	2E-06	2E-06	2E-06	2E-06	1E-06	1E-06	2E-06
11.6	Nav Channel	3E-06	2E-06	2E-06	1E-06	1E-06	1E-06	1E-06	1E-06
11.7	Nav Channel	3E-06	2E-06	2E-06	2E-06	2E-06	1E-06	1E-06	2E-06
1.8	West	8E-07	8E-07	8E-07	8E-07	8E-07	8E-07	8E-07	8E-07
1.9	West	7E-07	7E-07	7E-07	7E-07	7E-07	7E-07	7E-07	7E-07
2	West	7E-07	7E-07	7E-07	7E-07	7E-07	7E-07	7E-07	7E-07
2.1	West	6E-07	6E-07	6E-07	6E-07	6E-07	6E-07	6E-07	6E-07
2.2	West	6E-07	6E-07	6E-07	6E-07	6E-07	6E-07	6E-07	6E-07
2.3	West	5E-07	5E-07	5E-07	5E-07	5E-07	5E-07	5E-07	5E-07
2.4	West	4E-07	4E-07	4E-07	4E-07	4E-07	4E-07	4E-07	4E-07
2.5	West	5E-07	5E-07	5E-07	5E-07	5E-07	5E-07	4E-07	5E-07
2.6	West	6E-07	6E-07	6E-07	6E-07	6E-07	6E-07	4E-07	6E-07
2.7	West	7E-07	7E-07	7E-07	7E-07	7E-07	7E-07	5E-07	7E-07
2.8	West	1E-06	1E-06	1E-06	1E-06	1E-06	1E-06	5E-07	1E-06

**Table J2.3-3e**

**RAO 2 Rolling River Mile Risk Estimates - Dieltrin**

Portland Harbor Superfund Site

Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
2.9	West	1E-06	1E-06	1E-06	1E-06	1E-06	1E-06	5E-07	1E-06
3	West	1E-06	1E-06	1E-06	1E-06	1E-06	1E-06	6E-07	1E-06
3.1	West	1E-06	1E-06	1E-06	1E-06	1E-06	1E-06	6E-07	1E-06
3.2	West	1E-06	1E-06	1E-06	1E-06	1E-06	1E-06	6E-07	1E-06
3.3	West	1E-06	1E-06	1E-06	1E-06	1E-06	1E-06	6E-07	1E-06
3.4	West	1E-06	1E-06	1E-06	1E-06	1E-06	1E-06	7E-07	1E-06
3.5	West	1E-06	1E-06	1E-06	1E-06	1E-06	1E-06	7E-07	1E-06
3.6	West	1E-06	1E-06	1E-06	1E-06	1E-06	1E-06	7E-07	1E-06
3.7	West	2E-06	2E-06	2E-06	2E-06	1E-06	1E-06	6E-07	2E-06
3.8	West	2E-06	2E-06	2E-06	2E-06	1E-06	1E-06	6E-07	2E-06
3.9	West	2E-06	2E-06	2E-06	2E-06	1E-06	1E-06	5E-07	2E-06
4	West	2E-06	2E-06	2E-06	2E-06	1E-06	1E-06	5E-07	2E-06
4.1	West	2E-06	2E-06	2E-06	2E-06	1E-06	1E-06	6E-07	2E-06
4.2	West	2E-06	2E-06	2E-06	2E-06	1E-06	1E-06	6E-07	2E-06
4.3	West	2E-06	2E-06	2E-06	2E-06	1E-06	1E-06	5E-07	2E-06
4.4	West	2E-06	2E-06	2E-06	2E-06	1E-06	1E-06	5E-07	2E-06
4.5	West	2E-06	2E-06	2E-06	2E-06	1E-06	1E-06	6E-07	2E-06
4.6	West	2E-06	2E-06	2E-06	2E-06	1E-06	1E-06	6E-07	2E-06
4.7	West	2E-06	2E-06	2E-06	2E-06	1E-06	1E-06	6E-07	2E-06
4.8	West	1E-06	1E-06	1E-06	1E-06	9E-07	9E-07	6E-07	1E-06
4.9	West	1E-06	1E-06	1E-06	1E-06	9E-07	9E-07	6E-07	1E-06
5	West	1E-06	1E-06	1E-06	1E-06	8E-07	8E-07	5E-07	1E-06
5.1	West	1E-06	1E-06	1E-06	9E-07	7E-07	7E-07	5E-07	9E-07
5.2	West	1E-06	1E-06	1E-06	1E-06	8E-07	8E-07	5E-07	1E-06
5.3	West	1E-06	1E-06	1E-06	1E-06	9E-07	9E-07	5E-07	1E-06
5.4	West	1E-06	1E-06	1E-06	1E-06	8E-07	8E-07	4E-07	1E-06
5.5	West	1E-06	1E-06	1E-06	1E-06	9E-07	9E-07	5E-07	1E-06
5.6	West	1E-06	1E-06	1E-06	1E-06	8E-07	8E-07	4E-07	1E-06
5.7	West	2E-06	1E-06	1E-06	9E-07	7E-07	7E-07	3E-07	1E-06
5.8	West	3E-06	1E-06	9E-07	8E-07	6E-07	6E-07	3E-07	9E-07
5.9	West	4E-06	1E-06	8E-07	8E-07	5E-07	5E-07	3E-07	8E-07
6	West	4E-06	1E-06	8E-07	8E-07	5E-07	5E-07	3E-07	8E-07
6.1	West	4E-06	1E-06	8E-07	7E-07	5E-07	5E-07	2E-07	8E-07
6.2	West	4E-06	1E-06	9E-07	7E-07	4E-07	4E-07	2E-07	7E-07
6.3	West	4E-06	1E-06	9E-07	8E-07	4E-07	4E-07	2E-07	6E-07
6.4	West	5E-06	2E-06	1E-06	9E-07	4E-07	4E-07	2E-07	6E-07
6.5	West	1E-05	6E-06	2E-06	8E-07	2E-07	2E-07	3E-08	3E-07
6.6	West	2E-05	1E-05	4E-06	1E-06	2E-07	2E-07	2E-08	2E-07
6.7	West	2E-05	1E-05	4E-06	1E-06	2E-07	2E-07	2E-08	2E-07
6.8	West	3E-05	1E-05	4E-06	1E-06	2E-07	2E-07	2E-08	2E-07
6.9	West	3E-05	1E-05	4E-06	1E-06	2E-07	2E-07	2E-08	2E-07
7	West	4E-05	1E-05	4E-06	1E-06	3E-07	3E-07	2E-08	3E-07

**Table J2.3-3e**  
**RAO 2 Rolling River Mile Risk Estimates - Dieltrin**  
 Portland Harbor Superfund Site  
 Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
7.1	West	3E-05	1E-05	4E-06	2E-06	7E-07	7E-07	2E-07	7E-07
7.2	West	3E-05	9E-06	4E-06	2E-06	1E-06	1E-06	6E-07	1E-06
7.3	West	2E-05	9E-06	4E-06	2E-06	1E-06	1E-06	7E-07	1E-06
7.4	West	2E-05	8E-06	4E-06	2E-06	1E-06	1E-06	7E-07	1E-06
7.5	West	2E-05	6E-06	4E-06	2E-06	1E-06	1E-06	7E-07	1E-06
7.6	West	2E-05	3E-06	2E-06	2E-06	1E-06	1E-06	8E-07	1E-06
7.7	West	1E-05	3E-06	2E-06	2E-06	2E-06	2E-06	8E-07	2E-06
7.8	West	8E-06	3E-06	3E-06	2E-06	2E-06	2E-06	8E-07	2E-06
7.9	West	6E-06	4E-06	4E-06	3E-06	2E-06	2E-06	7E-07	3E-06
8	West	4E-06	4E-06	4E-06	3E-06	2E-06	2E-06	8E-07	3E-06
8.1	West	4E-06	4E-06	4E-06	4E-06	2E-06	2E-06	8E-07	3E-06
8.2	West	4E-06	4E-06	4E-06	4E-06	1E-06	1E-06	5E-07	3E-06
8.3	West	5E-06	4E-06	4E-06	3E-06	1E-06	1E-06	3E-07	3E-06
8.4	West	9E-06	5E-06	5E-06	3E-06	1E-06	1E-06	3E-07	3E-06
8.5	West	9E-06	5E-06	5E-06	4E-06	1E-06	1E-06	3E-07	4E-06
8.6	West	9E-06	5E-06	5E-06	4E-06	1E-06	1E-06	3E-07	4E-06
8.7	West	1E-05	5E-06	5E-06	4E-06	1E-06	1E-06	3E-07	4E-06
8.8	West	1E-05	5E-06	5E-06	4E-06	1E-06	1E-06	3E-07	4E-06
8.9	West	8E-06	3E-06	3E-06	2E-06	8E-07	8E-07	4E-07	2E-06
9	West	8E-06	3E-06	3E-06	2E-06	4E-07	4E-07	1E-07	2E-06
9.1	West	8E-06	2E-06	2E-06	8E-07	2E-07	2E-07	1E-07	8E-07
9.2	West	7E-06	1E-06	7E-07	4E-07	2E-07	2E-07	1E-07	4E-07
9.3	West	7E-06	1E-06	7E-07	4E-07	2E-07	2E-07	1E-07	4E-07
9.4	West	2E-06	1E-06	7E-07	4E-07	2E-07	2E-07	1E-07	4E-07
9.5	West	2E-06	2E-06	7E-07	5E-07	2E-07	2E-07	2E-07	5E-07
9.6	West	2E-06	2E-06	8E-07	5E-07	3E-07	3E-07	2E-07	5E-07
9.7	West	1E-06	1E-06	8E-07	5E-07	3E-07	3E-07	2E-07	5E-07
9.8	West	1E-06	1E-06	7E-07	6E-07	3E-07	3E-07	2E-07	6E-07
9.9	West	2E-06	1E-06	9E-07	7E-07	4E-07	4E-07	2E-07	7E-07
10	West	2E-06	2E-06	1E-06	1E-06	7E-07	7E-07	5E-07	1E-06
10.1	West	2E-06	2E-06	1E-06	1E-06	9E-07	9E-07	6E-07	1E-06
10.2	West	3E-06	3E-06	2E-06	2E-06	1E-06	1E-06	9E-07	2E-06
10.3	West	2E-06	2E-06	2E-06	2E-06	2E-06	2E-06	1E-06	2E-06
10.4	West	2E-06	2E-06	2E-06	2E-06	2E-06	2E-06	1E-06	2E-06
10.5	West	2E-06	2E-06	2E-06	2E-06	2E-06	2E-06	1E-06	2E-06
10.6	West	2E-06	2E-06	2E-06	2E-06	2E-06	2E-06	1E-06	2E-06
10.7	West	2E-06	2E-06	2E-06	2E-06	2E-06	2E-06	1E-06	2E-06
10.8	West	2E-06	2E-06	2E-06	2E-06	2E-06	2E-06	2E-06	2E-06
10.9	West	2E-06	2E-06	2E-06	2E-06	2E-06	2E-06	2E-06	2E-06
11	West	2E-06	2E-06	2E-06	2E-06	2E-06	2E-06	2E-06	2E-06
11.1	West	2E-06	2E-06	2E-06	2E-06	2E-06	2E-06	2E-06	2E-06
11.2	West	2E-06	2E-06	2E-06	2E-06	2E-06	2E-06	2E-06	2E-06

**Table J2.3-3e**

**RAO 2 Rolling River Mile Risk Estimates - Dieldrin**

Portland Harbor Superfund Site

Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
11.3	West	2E-06	2E-06	2E-06	2E-06	2E-06	2E-06	2E-06	2E-06
11.4	West	2E-06	2E-06	2E-06	2E-06	2E-06	2E-06	2E-06	2E-06
11.5	West	2E-06	2E-06	2E-06	2E-06	2E-06	2E-06	2E-06	2E-06
11.6	West	2E-06	2E-06	2E-06	2E-06	2E-06	2E-06	2E-06	2E-06
11.7	West	2E-06	2E-06	2E-06	2E-06	2E-06	2E-06	2E-06	2E-06
7.6	Swan Isl	6E-07	2E-08	2E-08	2E-08	5E-09	5E-09	3E-09	2E-08
7.7	Swan Isl	2E-06	8E-08	8E-08	5E-08	4E-09	4E-09	2E-09	5E-08
7.8	Swan Isl	3E-06	2E-07	1E-07	7E-08	1E-08	1E-08	2E-09	7E-08
7.9	Swan Isl	3E-06	2E-07	2E-07	8E-08	3E-08	3E-08	3E-08	8E-08
8	Swan Isl	4E-06	2E-07	2E-07	1E-07	6E-08	6E-08	5E-08	1E-07
8.1	Swan Isl	4E-06	2E-07	2E-07	1E-07	8E-08	8E-08	7E-08	1E-07
8.2	Swan Isl	4E-06	3E-07	3E-07	3E-07	2E-07	2E-07	2E-07	3E-07
8.3	Swan Isl	3E-06	5E-07	4E-07	4E-07	3E-07	3E-07	3E-07	4E-07
8.4	Swan Isl	4E-06	5E-07	5E-07	4E-07	4E-07	4E-07	4E-07	4E-07
8.5	Swan Isl	3E-06	5E-07	5E-07	4E-07	4E-07	4E-07	4E-07	4E-07
8.6	Swan Isl	4E-06	7E-07	6E-07	5E-07	4E-07	4E-07	4E-07	6E-07
8.7	Swan Isl	4E-06	1E-06	9E-07	8E-07	6E-07	6E-07	5E-07	9E-07
8.8	Swan Isl	4E-06	1E-06	1E-06	1E-06	7E-07	7E-07	6E-07	1E-06
8.9	Swan Isl	4E-06	1E-06	1E-06	1E-06	7E-07	7E-07	7E-07	1E-06
9	Swan Isl	3E-06	1E-06	1E-06	1E-06	8E-07	8E-07	8E-07	1E-06
9.1	Swan Isl	3E-06	2E-06	1E-06	1E-06	9E-07	9E-07	8E-07	1E-06
9.2	Swan Isl	3E-06	2E-06	1E-06	1E-06	7E-07	7E-07	7E-07	1E-06
9.3	Swan Isl	3E-06	2E-06	1E-06	1E-06	5E-07	5E-07	5E-07	1E-06
9.4	Swan Isl	3E-06	2E-06	1E-06	1E-06	3E-07	3E-07	2E-07	2E-06
9.5	Swan Isl	4E-06	3E-06	2E-06	2E-06	4E-07	4E-07	3E-07	3E-06
9.6	Swan Isl	4E-06	4E-06	3E-06	3E-06	7E-07	7E-07	5E-07	4E-06

**Table J2.3-3f**

**RAO 2 Rolling River Mile Risk Estimates - PCBs**

Portland Harbor Superfund Site

Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
1.8	East	4E-04	2E-04	2E-04	1E-04	1E-04	1E-04	1E-04	1E-04
1.9	East	5E-04	2E-04	2E-04	1E-04	1E-04	1E-04	1E-04	1E-04
2	East	7E-04	2E-04	2E-04	1E-04	1E-04	1E-04	9E-05	1E-04
2.1	East	7E-04	2E-04	2E-04	1E-04	8E-05	8E-05	8E-05	1E-04
2.2	East	7E-04	2E-04	2E-04	1E-04	8E-05	8E-05	7E-05	1E-04
2.3	East	7E-04	2E-04	2E-04	1E-04	7E-05	7E-05	6E-05	1E-04
2.4	East	7E-04	2E-04	1E-04	1E-04	6E-05	6E-05	5E-05	1E-04
2.5	East	7E-04	2E-04	1E-04	1E-04	6E-05	6E-05	5E-05	1E-04
2.6	East	7E-04	2E-04	1E-04	1E-04	6E-05	6E-05	5E-05	1E-04
2.7	East	6E-04	2E-04	1E-04	1E-04	7E-05	7E-05	5E-05	1E-04
2.8	East	5E-04	1E-04	1E-04	1E-04	7E-05	7E-05	5E-05	1E-04
2.9	East	3E-04	1E-04	1E-04	1E-04	7E-05	7E-05	6E-05	1E-04
3	East	1E-04	1E-04	1E-04	1E-04	7E-05	7E-05	6E-05	1E-04
3.1	East	9E-05	9E-05	9E-05	9E-05	8E-05	8E-05	6E-05	9E-05
3.2	East	9E-05	9E-05	8E-05	8E-05	8E-05	8E-05	7E-05	8E-05
3.3	East	3E-04	2E-04	1E-04	1E-04	7E-05	7E-05	6E-05	1E-04
3.4	East	4E-04	2E-04	1E-04	1E-04	7E-05	7E-05	6E-05	1E-04
3.5	East	4E-04	2E-04	1E-04	1E-04	7E-05	7E-05	5E-05	1E-04
3.6	East	5E-04	2E-04	2E-04	1E-04	7E-05	7E-05	5E-05	1E-04
3.7	East	5E-04	3E-04	2E-04	1E-04	7E-05	7E-05	4E-05	1E-04
3.8	East	5E-04	3E-04	2E-04	1E-04	7E-05	7E-05	4E-05	1E-04
3.9	East	6E-04	3E-04	2E-04	1E-04	7E-05	7E-05	4E-05	1E-04
4	East	6E-04	4E-04	3E-04	2E-04	7E-05	7E-05	3E-05	2E-04
4.1	East	5E-04	4E-04	3E-04	2E-04	7E-05	7E-05	3E-05	2E-04
4.2	East	5E-04	3E-04	2E-04	1E-04	6E-05	6E-05	2E-05	1E-04
4.3	East	4E-04	3E-04	2E-04	1E-04	6E-05	6E-05	2E-05	1E-04
4.4	East	3E-04	3E-04	2E-04	1E-04	6E-05	6E-05	2E-05	1E-04
4.5	East	3E-04	3E-04	2E-04	1E-04	6E-05	6E-05	2E-05	1E-04
4.6	East	3E-04	3E-04	2E-04	1E-04	6E-05	6E-05	3E-05	1E-04
4.7	East	2E-04	2E-04	2E-04	1E-04	6E-05	6E-05	3E-05	1E-04
4.8	East	2E-04	2E-04	2E-04	1E-04	6E-05	6E-05	3E-05	1E-04
4.9	East	1E-04	1E-04	1E-04	1E-04	6E-05	6E-05	3E-05	1E-04
5	East	1E-04	1E-04	8E-05	7E-05	6E-05	6E-05	4E-05	7E-05
5.1	East	1E-04	1E-04	9E-05	8E-05	6E-05	6E-05	4E-05	7E-05
5.2	East	1E-04	1E-04	1E-04	1E-04	7E-05	7E-05	4E-05	7E-05
5.3	East	2E-04	2E-04	2E-04	2E-04	6E-05	6E-05	4E-05	6E-05
5.4	East	2E-04	2E-04	2E-04	2E-04	7E-05	7E-05	4E-05	7E-05
5.5	East	2E-04	2E-04	2E-04	2E-04	7E-05	7E-05	3E-05	8E-05
5.6	East	2E-04	2E-04	2E-04	2E-04	7E-05	7E-05	3E-05	1E-04
5.7	East	2E-04	2E-04	2E-04	2E-04	7E-05	7E-05	3E-05	1E-04
5.8	East	2E-04	2E-04	2E-04	2E-04	7E-05	7E-05	3E-05	1E-04
5.9	East	2E-04	2E-04	2E-04	2E-04	6E-05	6E-05	3E-05	1E-04
6	East	2E-04	2E-04	2E-04	2E-04	6E-05	6E-05	3E-05	1E-04

**Table J2.3-3f**  
**RAO 2 Rolling River Mile Risk Estimates - PCBs**  
 Portland Harbor Superfund Site  
 Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
6.1	East	2E-04	2E-04	2E-04	1E-04	6E-05	6E-05	4E-05	1E-04
6.2	East	1E-04	1E-04	1E-04	1E-04	6E-05	6E-05	4E-05	1E-04
6.3	East	2E-04	1E-04	1E-04	1E-04	5E-05	5E-05	3E-05	1E-04
6.4	East	3E-04	1E-04	9E-05	9E-05	5E-05	5E-05	3E-05	1E-04
6.5	East	3E-04	9E-05	8E-05	8E-05	4E-05	4E-05	3E-05	9E-05
6.6	East	2E-04	7E-05	6E-05	6E-05	4E-05	4E-05	3E-05	7E-05
6.7	East	2E-04	6E-05	5E-05	5E-05	4E-05	4E-05	3E-05	6E-05
6.8	East	2E-04	6E-05	5E-05	5E-05	4E-05	4E-05	3E-05	6E-05
6.9	East	2E-04	6E-05	5E-05	5E-05	4E-05	4E-05	3E-05	6E-05
7	East	2E-04	7E-05	5E-05	5E-05	4E-05	4E-05	4E-05	7E-05
7.1	East	2E-04	7E-05	5E-05	5E-05	4E-05	4E-05	4E-05	7E-05
7.2	East	2E-04	7E-05	6E-05	6E-05	5E-05	5E-05	4E-05	7E-05
7.3	East	1E-04	7E-05	6E-05	6E-05	5E-05	5E-05	5E-05	7E-05
7.4	East	7E-05	7E-05	6E-05	6E-05	6E-05	6E-05	5E-05	7E-05
7.5	East	8E-05	7E-05	7E-05	7E-05	6E-05	6E-05	6E-05	8E-05
7.6	East	9E-05	8E-05	7E-05	7E-05	7E-05	7E-05	6E-05	8E-05
7.7	East	1E-04	8E-05	7E-05	7E-05	7E-05	7E-05	6E-05	8E-05
7.8	East	1E-04	8E-05	8E-05	8E-05	7E-05	7E-05	6E-05	8E-05
7.9	East	1E-04	8E-05	8E-05	8E-05	8E-05	8E-05	6E-05	8E-05
8	East	1E-04	8E-05	8E-05	8E-05	7E-05	7E-05	6E-05	8E-05
8.1	East	1E-04	7E-05	7E-05	7E-05	7E-05	7E-05	5E-05	7E-05
8.2	East	1E-04	7E-05	7E-05	7E-05	7E-05	7E-05	5E-05	7E-05
8.3	East	1E-04	7E-05	7E-05	7E-05	7E-05	7E-05	5E-05	7E-05
8.4	East	1E-04	7E-05	7E-05	7E-05	7E-05	7E-05	6E-05	7E-05
8.5	East	1E-04	7E-05	7E-05	7E-05	7E-05	7E-05	6E-05	7E-05
8.6	East	1E-04	8E-05	8E-05	8E-05	8E-05	8E-05	6E-05	8E-05
8.7	East	1E-04	1E-04	1E-04	1E-04	1E-04	1E-04	7E-05	1E-04
8.8	East	1E-04	1E-04	1E-04	1E-04	1E-04	1E-04	8E-05	1E-04
8.9	East	1E-04	1E-04	1E-04	1E-04	1E-04	1E-04	8E-05	1E-04
9	East	1E-04	1E-04	1E-04	1E-04	1E-04	1E-04	8E-05	1E-04
9.1	East	1E-04	1E-04	1E-04	1E-04	1E-04	1E-04	7E-05	1E-04
9.2	East	2E-04	2E-04	2E-04	2E-04	1E-04	1E-04	7E-05	2E-04
9.3	East	2E-04	2E-04	2E-04	2E-04	1E-04	1E-04	6E-05	2E-04
9.4	East	1E-04	1E-04	1E-04	1E-04	1E-04	1E-04	6E-05	1E-04
9.5	East	1E-04	1E-04	1E-04	1E-04	1E-04	1E-04	6E-05	1E-04
9.6	East	1E-04	1E-04	1E-04	1E-04	9E-05	9E-05	6E-05	1E-04
9.7	East	1E-04	1E-04	1E-04	1E-04	9E-05	9E-05	6E-05	1E-04
9.8	East	1E-04	1E-04	1E-04	1E-04	9E-05	9E-05	6E-05	1E-04
9.9	East	1E-04	1E-04	1E-04	1E-04	9E-05	9E-05	6E-05	1E-04
10	East	1E-04	1E-04	1E-04	1E-04	9E-05	9E-05	6E-05	1E-04
10.1	East	1E-04	1E-04	1E-04	1E-04	9E-05	9E-05	7E-05	1E-04
10.2	East	1E-04	1E-04	1E-04	1E-04	9E-05	9E-05	7E-05	1E-04

**Table J2.3-3f**

**RAO 2 Rolling River Mile Risk Estimates - PCBs**

Portland Harbor Superfund Site

Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
10.3	East	2E-04	2E-04	2E-04	1E-04	8E-05	8E-05	6E-05	1E-04
10.4	East	2E-04	2E-04	2E-04	1E-04	8E-05	8E-05	6E-05	1E-04
10.5	East	2E-04	2E-04	2E-04	2E-04	8E-05	8E-05	5E-05	2E-04
10.6	East	2E-04	2E-04	2E-04	2E-04	9E-05	9E-05	5E-05	2E-04
10.7	East	4E-04	3E-04	3E-04	2E-04	8E-05	8E-05	5E-05	2E-04
10.8	East	6E-04	4E-04	3E-04	2E-04	8E-05	8E-05	4E-05	2E-04
10.9	East	1E-03	5E-04	3E-04	2E-04	6E-05	6E-05	3E-05	2E-04
11	East	1E-03	5E-04	3E-04	1E-04	5E-05	5E-05	2E-05	1E-04
11.1	East	1E-03	6E-04	3E-04	1E-04	5E-05	5E-05	2E-05	1E-04
11.2	East	1E-03	6E-04	3E-04	1E-04	6E-05	6E-05	2E-05	1E-04
11.3	East	1E-03	6E-04	3E-04	1E-04	6E-05	6E-05	2E-05	1E-04
11.4	East	2E-03	6E-04	3E-04	1E-04	6E-05	6E-05	1E-05	1E-04
11.5	East	2E-03	6E-04	3E-04	1E-04	5E-05	5E-05	1E-05	1E-04
11.6	East	2E-03	7E-04	3E-04	1E-04	4E-05	4E-05	9E-06	1E-04
11.7	East	2E-03	7E-04	3E-04	1E-04	5E-05	5E-05	8E-06	1E-04
1.8	Nav Channel	9E-05	9E-05	9E-05	9E-05	9E-05	9E-05	8E-05	9E-05
1.9	Nav Channel	1E-04	1E-04	1E-04	1E-04	1E-04	1E-04	8E-05	1E-04
2	Nav Channel	1E-04	1E-04	1E-04	1E-04	1E-04	1E-04	9E-05	1E-04
2.1	Nav Channel	1E-04	1E-04	1E-04	1E-04	1E-04	1E-04	9E-05	1E-04
2.2	Nav Channel	1E-04	1E-04	1E-04	1E-04	1E-04	1E-04	8E-05	1E-04
2.3	Nav Channel	1E-04	1E-04	1E-04	1E-04	1E-04	1E-04	8E-05	1E-04
2.4	Nav Channel	1E-04	1E-04	1E-04	1E-04	1E-04	1E-04	8E-05	1E-04
2.5	Nav Channel	9E-05	9E-05	9E-05	9E-05	9E-05	9E-05	8E-05	9E-05
2.6	Nav Channel	9E-05	9E-05	9E-05	9E-05	9E-05	9E-05	7E-05	9E-05
2.7	Nav Channel	9E-05	9E-05	9E-05	9E-05	9E-05	9E-05	7E-05	9E-05
2.8	Nav Channel	8E-05	8E-05	8E-05	8E-05	8E-05	8E-05	7E-05	8E-05
2.9	Nav Channel	7E-05	7E-05	7E-05	7E-05	7E-05	7E-05	7E-05	7E-05
3	Nav Channel	7E-05	7E-05	7E-05	7E-05	7E-05	7E-05	6E-05	7E-05
3.1	Nav Channel	9E-05	9E-05	9E-05	9E-05	9E-05	7E-05	5E-05	9E-05
3.2	Nav Channel	1E-04	1E-04	1E-04	1E-04	1E-04	7E-05	5E-05	1E-04
3.3	Nav Channel	1E-04	1E-04	1E-04	1E-04	1E-04	7E-05	5E-05	1E-04
3.4	Nav Channel	1E-04	1E-04	1E-04	1E-04	1E-04	7E-05	5E-05	1E-04
3.5	Nav Channel	1E-04	1E-04	1E-04	1E-04	1E-04	7E-05	4E-05	1E-04
3.6	Nav Channel	1E-04	1E-04	1E-04	1E-04	1E-04	7E-05	5E-05	1E-04
3.7	Nav Channel	1E-04	1E-04	1E-04	1E-04	1E-04	7E-05	5E-05	1E-04
3.8	Nav Channel	9E-05	9E-05	9E-05	9E-05	9E-05	6E-05	5E-05	9E-05
3.9	Nav Channel	9E-05	9E-05	9E-05	9E-05	9E-05	6E-05	4E-05	9E-05
4	Nav Channel	9E-05	9E-05	9E-05	9E-05	9E-05	6E-05	5E-05	9E-05
4.1	Nav Channel	8E-05	8E-05	8E-05	8E-05	8E-05	7E-05	5E-05	8E-05
4.2	Nav Channel	7E-05	7E-05	7E-05	7E-05	7E-05	7E-05	6E-05	7E-05
4.3	Nav Channel	7E-05	7E-05	7E-05	7E-05	7E-05	6E-05	6E-05	7E-05
4.4	Nav Channel	7E-05	7E-05	7E-05	7E-05	7E-05	7E-05	6E-05	7E-05

**Table J2.3-3f**

**RAO 2 Rolling River Mile Risk Estimates - PCBs**

Portland Harbor Superfund Site

Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
4.5	Nav Channel	7E-05	7E-05	7E-05	7E-05	7E-05	7E-05	6E-05	7E-05
4.6	Nav Channel	7E-05	7E-05	7E-05	7E-05	7E-05	6E-05	6E-05	7E-05
4.7	Nav Channel	7E-05	7E-05	6E-05	6E-05	7E-05	6E-05	5E-05	7E-05
4.8	Nav Channel	7E-05	7E-05	6E-05	6E-05	7E-05	6E-05	5E-05	7E-05
4.9	Nav Channel	7E-05	7E-05	6E-05	6E-05	7E-05	5E-05	5E-05	7E-05
5	Nav Channel	7E-05	6E-05	5E-05	5E-05	6E-05	4E-05	4E-05	6E-05
5.1	Nav Channel	6E-05	6E-05	5E-05	4E-05	6E-05	4E-05	3E-05	6E-05
5.2	Nav Channel	6E-05	5E-05	4E-05	4E-05	5E-05	3E-05	2E-05	5E-05
5.3	Nav Channel	6E-05	5E-05	4E-05	4E-05	5E-05	3E-05	2E-05	5E-05
5.4	Nav Channel	6E-05	5E-05	4E-05	3E-05	5E-05	2E-05	2E-05	5E-05
5.5	Nav Channel	6E-05	5E-05	4E-05	3E-05	5E-05	2E-05	8E-06	5E-05
5.6	Nav Channel	6E-05	5E-05	4E-05	3E-05	5E-05	2E-05	7E-06	5E-05
5.7	Nav Channel	6E-05	5E-05	4E-05	3E-05	5E-05	2E-05	7E-06	5E-05
5.8	Nav Channel	6E-05	4E-05	4E-05	3E-05	4E-05	2E-05	6E-06	4E-05
5.9	Nav Channel	6E-05	4E-05	4E-05	3E-05	4E-05	2E-05	8E-06	4E-05
6	Nav Channel	6E-05	4E-05	4E-05	4E-05	4E-05	2E-05	1E-05	4E-05
6.1	Nav Channel	8E-05	6E-05	5E-05	4E-05	6E-05	2E-05	1E-05	6E-05
6.2	Nav Channel	1E-04	1E-04	8E-05	6E-05	9E-05	2E-05	1E-05	9E-05
6.3	Nav Channel	2E-04	1E-04	1E-04	9E-05	1E-04	3E-05	1E-05	1E-04
6.4	Nav Channel	2E-04	2E-04	1E-04	1E-04	1E-04	4E-05	2E-05	1E-04
6.5	Nav Channel	2E-04	1E-04	1E-04	1E-04	1E-04	4E-05	2E-05	1E-04
6.6	Nav Channel	2E-04	1E-04	1E-04	1E-04	1E-04	4E-05	2E-05	1E-04
6.7	Nav Channel	2E-04	1E-04	1E-04	1E-04	1E-04	4E-05	3E-05	1E-04
6.8	Nav Channel	2E-04	1E-04	1E-04	1E-04	1E-04	5E-05	3E-05	1E-04
6.9	Nav Channel	2E-04	2E-04	1E-04	1E-04	1E-04	6E-05	3E-05	1E-04
7	Nav Channel	2E-04	2E-04	1E-04	1E-04	1E-04	6E-05	4E-05	1E-04
7.1	Nav Channel	2E-04	2E-04	1E-04	1E-04	1E-04	7E-05	4E-05	1E-04
7.2	Nav Channel	1E-04	1E-04	1E-04	1E-04	1E-04	8E-05	4E-05	1E-04
7.3	Nav Channel	1E-04	1E-04	1E-04	1E-04	1E-04	8E-05	5E-05	1E-04
7.4	Nav Channel	1E-04	1E-04	1E-04	1E-04	1E-04	8E-05	5E-05	1E-04
7.5	Nav Channel	1E-04	1E-04	1E-04	1E-04	1E-04	8E-05	6E-05	1E-04
7.6	Nav Channel	1E-04	1E-04	1E-04	1E-04	1E-04	8E-05	6E-05	1E-04
7.7	Nav Channel	1E-04	1E-04	1E-04	1E-04	1E-04	9E-05	6E-05	1E-04
7.8	Nav Channel	1E-04	1E-04	1E-04	1E-04	1E-04	9E-05	7E-05	1E-04
7.9	Nav Channel	1E-04	1E-04	1E-04	1E-04	1E-04	8E-05	7E-05	1E-04
8	Nav Channel	9E-05	9E-05	9E-05	9E-05	9E-05	8E-05	7E-05	9E-05
8.1	Nav Channel	8E-05	8E-05	8E-05	8E-05	8E-05	8E-05	7E-05	8E-05
8.2	Nav Channel	8E-05	8E-05	8E-05	8E-05	8E-05	8E-05	7E-05	8E-05
8.3	Nav Channel	7E-05	7E-05	7E-05	7E-05	7E-05	7E-05	7E-05	7E-05
8.4	Nav Channel	8E-05	8E-05	8E-05	8E-05	8E-05	7E-05	7E-05	8E-05
8.5	Nav Channel	9E-05	8E-05	8E-05	8E-05	8E-05	7E-05	7E-05	8E-05
8.6	Nav Channel	9E-05	9E-05	9E-05	9E-05	9E-05	7E-05	7E-05	9E-05



**Table J2.3-3f**

**RAO 2 Rolling River Mile Risk Estimates - PCBs**

Portland Harbor Superfund Site

Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
8.7	Nav Channel	1E-04	1E-04	1E-04	1E-04	1E-04	7E-05	7E-05	1E-04
8.8	Nav Channel	1E-04	1E-04	1E-04	1E-04	1E-04	7E-05	6E-05	1E-04
8.9	Nav Channel	1E-04	1E-04	1E-04	1E-04	1E-04	8E-05	6E-05	1E-04
9	Nav Channel	1E-04	1E-04	1E-04	1E-04	1E-04	8E-05	7E-05	1E-04
9.1	Nav Channel	1E-04	1E-04	1E-04	1E-04	1E-04	8E-05	7E-05	1E-04
9.2	Nav Channel	1E-04	1E-04	1E-04	1E-04	1E-04	8E-05	6E-05	1E-04
9.3	Nav Channel	1E-04	1E-04	1E-04	1E-04	1E-04	8E-05	6E-05	1E-04
9.4	Nav Channel	1E-04	1E-04	1E-04	1E-04	1E-04	8E-05	6E-05	1E-04
9.5	Nav Channel	1E-04	1E-04	1E-04	1E-04	1E-04	8E-05	6E-05	1E-04
9.6	Nav Channel	1E-04	1E-04	1E-04	1E-04	1E-04	8E-05	7E-05	1E-04
9.7	Nav Channel	1E-04	1E-04	1E-04	1E-04	1E-04	9E-05	7E-05	1E-04
9.8	Nav Channel	1E-04	1E-04	1E-04	1E-04	1E-04	9E-05	7E-05	1E-04
9.9	Nav Channel	1E-04	1E-04	1E-04	1E-04	1E-04	9E-05	6E-05	1E-04
10	Nav Channel	1E-04	1E-04	1E-04	1E-04	1E-04	9E-05	6E-05	1E-04
10.1	Nav Channel	1E-04	1E-04	1E-04	1E-04	1E-04	9E-05	6E-05	1E-04
10.2	Nav Channel	1E-04	1E-04	1E-04	1E-04	1E-04	9E-05	6E-05	1E-04
10.3	Nav Channel	1E-04	1E-04	1E-04	1E-04	1E-04	9E-05	7E-05	1E-04
10.4	Nav Channel	1E-04	1E-04	1E-04	1E-04	1E-04	1E-04	7E-05	1E-04
10.5	Nav Channel	1E-04	1E-04	1E-04	1E-04	1E-04	1E-04	6E-05	1E-04
10.6	Nav Channel	1E-04	1E-04	1E-04	1E-04	1E-04	1E-04	6E-05	1E-04
10.7	Nav Channel	2E-04	1E-04	1E-04	1E-04	1E-04	9E-05	6E-05	1E-04
10.8	Nav Channel	2E-04	1E-04	1E-04	1E-04	1E-04	9E-05	6E-05	1E-04
10.9	Nav Channel	2E-04	1E-04	1E-04	1E-04	1E-04	9E-05	7E-05	1E-04
11	Nav Channel	2E-04	1E-04	1E-04	1E-04	1E-04	9E-05	7E-05	1E-04
11.1	Nav Channel	2E-04	1E-04	1E-04	1E-04	1E-04	1E-04	8E-05	1E-04
11.2	Nav Channel	3E-04	1E-04	1E-04	1E-04	1E-04	1E-04	8E-05	1E-04
11.3	Nav Channel	3E-04	1E-04	1E-04	1E-04	1E-04	1E-04	8E-05	1E-04
11.4	Nav Channel	3E-04	1E-04	1E-04	1E-04	1E-04	9E-05	8E-05	1E-04
11.5	Nav Channel	3E-04	1E-04	1E-04	1E-04	1E-04	9E-05	8E-05	1E-04
11.6	Nav Channel	4E-04	2E-04	1E-04	1E-04	1E-04	9E-05	8E-05	1E-04
11.7	Nav Channel	4E-04	2E-04	1E-04	1E-04	1E-04	1E-04	9E-05	1E-04
1.8	West	5E-05	5E-05	5E-05	5E-05	5E-05	5E-05	5E-05	5E-05
1.9	West	5E-05	5E-05	5E-05	5E-05	5E-05	5E-05	5E-05	5E-05
2	West	4E-05	4E-05	4E-05	4E-05	4E-05	4E-05	4E-05	4E-05
2.1	West	4E-05	4E-05	4E-05	4E-05	4E-05	4E-05	4E-05	4E-05
2.2	West	4E-05	4E-05	4E-05	4E-05	4E-05	4E-05	4E-05	4E-05
2.3	West	4E-05	4E-05	4E-05	4E-05	4E-05	4E-05	4E-05	4E-05
2.4	West	4E-05	4E-05	4E-05	4E-05	4E-05	4E-05	3E-05	4E-05
2.5	West	4E-05	4E-05	4E-05	4E-05	4E-05	4E-05	3E-05	4E-05
2.6	West	4E-05	4E-05	4E-05	4E-05	4E-05	4E-05	3E-05	4E-05
2.7	West	4E-05	4E-05	4E-05	4E-05	4E-05	4E-05	3E-05	4E-05
2.8	West	4E-05	4E-05	4E-05	4E-05	4E-05	4E-05	3E-05	4E-05

**Table J2.3-3f**

**RAO 2 Rolling River Mile Risk Estimates - PCBs**

Portland Harbor Superfund Site

Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
2.9	West	4E-05	4E-05	4E-05	4E-05	4E-05	4E-05	3E-05	4E-05
3	West	5E-05	5E-05	5E-05	5E-05	5E-05	5E-05	3E-05	5E-05
3.1	West	5E-05	5E-05	5E-05	5E-05	5E-05	5E-05	4E-05	5E-05
3.2	West	5E-05	5E-05	5E-05	5E-05	5E-05	5E-05	4E-05	5E-05
3.3	West	6E-05	6E-05	6E-05	6E-05	6E-05	6E-05	4E-05	6E-05
3.4	West	6E-05	6E-05	6E-05	6E-05	6E-05	6E-05	4E-05	6E-05
3.5	West	6E-05	6E-05	6E-05	6E-05	6E-05	6E-05	5E-05	6E-05
3.6	West	6E-05	6E-05	6E-05	6E-05	6E-05	6E-05	5E-05	6E-05
3.7	West	7E-05	7E-05	7E-05	7E-05	6E-05	6E-05	5E-05	7E-05
3.8	West	7E-05	7E-05	7E-05	7E-05	6E-05	6E-05	5E-05	7E-05
3.9	West	8E-05	8E-05	8E-05	8E-05	6E-05	6E-05	5E-05	8E-05
4	West	8E-05	8E-05	8E-05	8E-05	7E-05	7E-05	5E-05	8E-05
4.1	West	9E-05	9E-05	9E-05	9E-05	7E-05	7E-05	4E-05	9E-05
4.2	West	1E-04	1E-04	1E-04	1E-04	7E-05	7E-05	4E-05	1E-04
4.3	West	1E-04	1E-04	1E-04	1E-04	7E-05	7E-05	4E-05	1E-04
4.4	West	1E-04	1E-04	1E-04	1E-04	7E-05	7E-05	4E-05	1E-04
4.5	West	1E-04	1E-04	1E-04	1E-04	6E-05	6E-05	4E-05	1E-04
4.6	West	9E-05	9E-05	9E-05	9E-05	6E-05	6E-05	3E-05	9E-05
4.7	West	9E-05	9E-05	9E-05	8E-05	6E-05	6E-05	3E-05	8E-05
4.8	West	8E-05	8E-05	8E-05	8E-05	6E-05	6E-05	4E-05	8E-05
4.9	West	9E-05	9E-05	8E-05	8E-05	6E-05	6E-05	4E-05	8E-05
5	West	9E-05	9E-05	8E-05	8E-05	5E-05	5E-05	3E-05	8E-05
5.1	West	8E-05	8E-05	8E-05	7E-05	5E-05	5E-05	3E-05	7E-05
5.2	West	7E-05	7E-05	6E-05	6E-05	5E-05	5E-05	3E-05	6E-05
5.3	West	7E-05	7E-05	6E-05	6E-05	5E-05	5E-05	3E-05	6E-05
5.4	West	7E-05	7E-05	6E-05	6E-05	5E-05	5E-05	2E-05	6E-05
5.5	West	8E-05	8E-05	7E-05	7E-05	5E-05	5E-05	3E-05	7E-05
5.6	West	9E-05	9E-05	8E-05	7E-05	5E-05	5E-05	2E-05	8E-05
5.7	West	1E-04	8E-05	7E-05	7E-05	4E-05	4E-05	2E-05	7E-05
5.8	West	1E-04	8E-05	7E-05	6E-05	4E-05	4E-05	2E-05	6E-05
5.9	West	1E-04	7E-05	6E-05	5E-05	4E-05	4E-05	1E-05	6E-05
6	West	1E-04	6E-05	6E-05	5E-05	3E-05	3E-05	1E-05	6E-05
6.1	West	1E-04	6E-05	6E-05	5E-05	3E-05	3E-05	1E-05	5E-05
6.2	West	1E-04	7E-05	6E-05	5E-05	3E-05	3E-05	1E-05	5E-05
6.3	West	1E-04	8E-05	7E-05	6E-05	2E-05	2E-05	1E-05	5E-05
6.4	West	2E-04	1E-04	8E-05	6E-05	2E-05	2E-05	8E-06	4E-05
6.5	West	3E-04	2E-04	1E-04	5E-05	1E-05	1E-05	2E-06	2E-05
6.6	West	4E-04	2E-04	1E-04	4E-05	6E-06	6E-06	8E-07	6E-06
6.7	West	5E-04	2E-04	1E-04	4E-05	6E-06	6E-06	8E-07	6E-06
6.8	West	6E-04	2E-04	1E-04	4E-05	6E-06	6E-06	8E-07	6E-06
6.9	West	6E-04	2E-04	1E-04	4E-05	6E-06	6E-06	8E-07	6E-06
7	West	7E-04	2E-04	1E-04	4E-05	8E-06	8E-06	8E-07	8E-06

**Table J2.3-3f**  
**RAO 2 Rolling River Mile Risk Estimates - PCBs**  
 Portland Harbor Superfund Site  
 Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
7.1	West	6E-04	2E-04	1E-04	5E-05	2E-05	2E-05	8E-06	2E-05
7.2	West	6E-04	2E-04	1E-04	7E-05	3E-05	3E-05	1E-05	3E-05
7.3	West	5E-04	2E-04	1E-04	9E-05	5E-05	5E-05	2E-05	5E-05
7.4	West	5E-04	2E-04	1E-04	1E-04	6E-05	6E-05	2E-05	6E-05
7.5	West	5E-04	2E-04	1E-04	1E-04	7E-05	7E-05	2E-05	7E-05
7.6	West	4E-04	2E-04	2E-04	1E-04	8E-05	8E-05	2E-05	9E-05
7.7	West	4E-04	2E-04	2E-04	1E-04	9E-05	9E-05	2E-05	1E-04
7.8	West	3E-04	2E-04	2E-04	2E-04	9E-05	9E-05	2E-05	1E-04
7.9	West	3E-04	3E-04	2E-04	2E-04	9E-05	9E-05	2E-05	1E-04
8	West	3E-04	2E-04	2E-04	2E-04	9E-05	9E-05	3E-05	1E-04
8.1	West	2E-04	2E-04	2E-04	2E-04	9E-05	9E-05	3E-05	2E-04
8.2	West	3E-04	3E-04	3E-04	2E-04	9E-05	9E-05	3E-05	2E-04
8.3	West	3E-04	3E-04	3E-04	2E-04	7E-05	7E-05	2E-05	2E-04
8.4	West	9E-04	3E-04	3E-04	2E-04	6E-05	6E-05	2E-05	2E-04
8.5	West	9E-04	3E-04	3E-04	2E-04	5E-05	5E-05	2E-05	2E-04
8.6	West	1E-03	4E-04	3E-04	1E-04	4E-05	4E-05	2E-05	1E-04
8.7	West	1E-03	4E-04	3E-04	1E-04	4E-05	4E-05	2E-05	1E-04
8.8	West	1E-03	4E-04	3E-04	1E-04	4E-05	4E-05	2E-05	1E-04
8.9	West	1E-03	4E-04	2E-04	1E-04	5E-05	5E-05	3E-05	1E-04
9	West	1E-03	4E-04	3E-04	1E-04	4E-05	4E-05	2E-05	1E-04
9.1	West	1E-03	4E-04	3E-04	1E-04	4E-05	4E-05	2E-05	1E-04
9.2	West	2E-03	5E-04	3E-04	1E-04	4E-05	4E-05	2E-05	1E-04
9.3	West	2E-03	5E-04	3E-04	1E-04	4E-05	4E-05	3E-05	1E-04
9.4	West	9E-04	5E-04	3E-04	2E-04	4E-05	4E-05	3E-05	2E-04
9.5	West	9E-04	5E-04	3E-04	2E-04	5E-05	5E-05	3E-05	2E-04
9.6	West	7E-04	5E-04	3E-04	2E-04	5E-05	5E-05	3E-05	2E-04
9.7	West	5E-04	5E-04	3E-04	2E-04	6E-05	6E-05	4E-05	2E-04
9.8	West	5E-04	4E-04	3E-04	2E-04	6E-05	6E-05	4E-05	2E-04
9.9	West	5E-04	5E-04	4E-04	2E-04	5E-05	5E-05	3E-05	2E-04
10	West	6E-04	5E-04	4E-04	2E-04	5E-05	5E-05	3E-05	2E-04
10.1	West	7E-04	6E-04	4E-04	1E-04	5E-05	5E-05	3E-05	1E-04
10.2	West	4E-04	4E-04	2E-04	1E-04	8E-05	8E-05	5E-05	1E-04
10.3	West	2E-04	2E-04	2E-04	2E-04	1E-04	1E-04	6E-05	2E-04
10.4	West	2E-04	2E-04	2E-04	1E-04	1E-04	1E-04	7E-05	1E-04
10.5	West	2E-04	2E-04	2E-04	1E-04	1E-04	1E-04	7E-05	1E-04
10.6	West	2E-04	2E-04	2E-04	1E-04	1E-04	1E-04	7E-05	1E-04
10.7	West	1E-04	1E-04	1E-04	1E-04	1E-04	1E-04	8E-05	1E-04
10.8	West	1E-04	1E-04	1E-04	1E-04	1E-04	1E-04	8E-05	1E-04
10.9	West	1E-04	1E-04	1E-04	1E-04	1E-04	1E-04	8E-05	1E-04
11	West	1E-04	1E-04	1E-04	1E-04	1E-04	1E-04	8E-05	1E-04
11.1	West	1E-04	1E-04	1E-04	1E-04	1E-04	1E-04	9E-05	1E-04
11.2	West	1E-04	1E-04	1E-04	1E-04	1E-04	1E-04	9E-05	1E-04

**Table J2.3-3f**  
**RAO 2 Rolling River Mile Risk Estimates - PCBs**  
 Portland Harbor Superfund Site  
 Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
11.3	West	9E-05	9E-05	9E-05	9E-05	9E-05	9E-05	9E-05	9E-05
11.4	West	9E-05	9E-05	9E-05	9E-05	9E-05	9E-05	9E-05	9E-05
11.5	West	9E-05	9E-05	9E-05	9E-05	9E-05	9E-05	9E-05	9E-05
11.6	West	9E-05	9E-05	9E-05	9E-05	9E-05	9E-05	9E-05	9E-05
11.7	West	9E-05	9E-05	9E-05	9E-05	9E-05	9E-05	9E-05	9E-05
7.6	Swan Isl	4E-04	4E-05	4E-05	2E-05	2E-06	2E-06	7E-07	2E-05
7.7	Swan Isl	6E-04	3E-05	3E-05	1E-05	2E-06	2E-06	6E-07	1E-05
7.8	Swan Isl	8E-04	4E-05	3E-05	1E-05	2E-06	2E-06	6E-07	1E-05
7.9	Swan Isl	1E-03	4E-05	3E-05	1E-05	2E-06	2E-06	8E-07	1E-05
8	Swan Isl	2E-03	4E-05	3E-05	1E-05	3E-06	3E-06	1E-06	1E-05
8.1	Swan Isl	2E-03	4E-05	3E-05	1E-05	3E-06	3E-06	1E-06	1E-05
8.2	Swan Isl	2E-03	4E-05	3E-05	1E-05	4E-06	4E-06	3E-06	1E-05
8.3	Swan Isl	2E-03	4E-05	3E-05	1E-05	5E-06	5E-06	3E-06	1E-05
8.4	Swan Isl	2E-03	5E-05	3E-05	1E-05	5E-06	5E-06	3E-06	1E-05
8.5	Swan Isl	2E-03	5E-05	3E-05	1E-05	5E-06	5E-06	4E-06	1E-05
8.6	Swan Isl	2E-03	5E-05	3E-05	2E-05	6E-06	6E-06	4E-06	2E-05
8.7	Swan Isl	2E-03	7E-05	4E-05	3E-05	9E-06	9E-06	6E-06	4E-05
8.8	Swan Isl	3E-03	7E-05	4E-05	3E-05	1E-05	1E-05	7E-06	4E-05
8.9	Swan Isl	2E-03	8E-05	4E-05	4E-05	1E-05	1E-05	8E-06	5E-05
9	Swan Isl	8E-04	9E-05	5E-05	4E-05	1E-05	1E-05	9E-06	5E-05
9.1	Swan Isl	6E-04	1E-04	5E-05	4E-05	1E-05	1E-05	9E-06	6E-05
9.2	Swan Isl	6E-04	1E-04	6E-05	5E-05	1E-05	1E-05	8E-06	6E-05
9.3	Swan Isl	5E-04	1E-04	6E-05	6E-05	1E-05	1E-05	8E-06	8E-05
9.4	Swan Isl	4E-04	1E-04	9E-05	9E-05	1E-05	1E-05	1E-05	1E-04
9.5	Swan Isl	3E-04	2E-04	1E-04	1E-04	2E-05	2E-05	1E-05	2E-04
9.6	Swan Isl	2E-04	2E-04	2E-04	2E-04	2E-05	2E-05	2E-05	2E-04

**Table J2.3-3g**

**RAO 2 Rolling River Mile Risk Estimates - 1,2,3,4,7,8-HxCDF**

Portland Harbor Superfund Site

Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
1.8	East	5E-06	5E-06	4E-06	4E-06	4E-06	4E-06	4E-06	4E-06
1.9	East	5E-06	5E-06	5E-06	4E-06	4E-06	4E-06	4E-06	4E-06
2	East	6E-06	5E-06	5E-06	5E-06	4E-06	4E-06	3E-06	5E-06
2.1	East	7E-06	6E-06	5E-06	5E-06	4E-06	4E-06	3E-06	5E-06
2.2	East	7E-06	5E-06	5E-06	5E-06	4E-06	4E-06	3E-06	5E-06
2.3	East	7E-06	6E-06	5E-06	5E-06	4E-06	4E-06	3E-06	5E-06
2.4	East	7E-06	6E-06	5E-06	5E-06	3E-06	3E-06	3E-06	5E-06
2.5	East	5E-06	4E-06	4E-06	4E-06	2E-06	2E-06	2E-06	4E-06
2.6	East	5E-06	4E-06	4E-06	4E-06	2E-06	2E-06	2E-06	4E-06
2.7	East	6E-06	4E-06	4E-06	4E-06	3E-06	3E-06	2E-06	4E-06
2.8	East	6E-06	5E-06	5E-06	4E-06	3E-06	3E-06	3E-06	4E-06
2.9	East	5E-06	5E-06	5E-06	4E-06	3E-06	3E-06	3E-06	4E-06
3	East	5E-06	5E-06	5E-06	5E-06	4E-06	4E-06	4E-06	5E-06
3.1	East	5E-06	5E-06	5E-06	5E-06	5E-06	5E-06	4E-06	5E-06
3.2	East	6E-06	6E-06	6E-06	5E-06	5E-06	5E-06	5E-06	5E-06
3.3	East	9E-06	8E-06	6E-06	6E-06	5E-06	5E-06	5E-06	6E-06
3.4	East	1E-05	9E-06	6E-06	6E-06	5E-06	5E-06	5E-06	6E-06
3.5	East	1E-05	1E-05	7E-06	7E-06	5E-06	5E-06	5E-06	7E-06
3.6	East	1E-05	1E-05	8E-06	7E-06	5E-06	5E-06	5E-06	7E-06
3.7	East	2E-05	1E-05	8E-06	7E-06	5E-06	5E-06	4E-06	7E-06
3.8	East	2E-05	1E-05	1E-05	8E-06	7E-06	7E-06	5E-06	8E-06
3.9	East	3E-05	2E-05	2E-05	2E-05	8E-06	8E-06	5E-06	2E-05
4	East	4E-05	4E-05	3E-05	3E-05	1E-05	1E-05	4E-06	3E-05
4.1	East	4E-05	4E-05	3E-05	3E-05	1E-05	1E-05	4E-06	3E-05
4.2	East	6E-05	6E-05	4E-05	3E-05	1E-05	1E-05	3E-06	3E-05
4.3	East	7E-05	7E-05	5E-05	4E-05	1E-05	1E-05	4E-06	4E-05
4.4	East	7E-05	7E-05	6E-05	4E-05	1E-05	1E-05	4E-06	4E-05
4.5	East	8E-05	7E-05	6E-05	4E-05	1E-05	1E-05	6E-06	4E-05
4.6	East	8E-05	8E-05	6E-05	5E-05	2E-05	2E-05	1E-05	5E-05
4.7	East	8E-05	8E-05	7E-05	5E-05	2E-05	2E-05	2E-05	5E-05
4.8	East	9E-05	9E-05	7E-05	6E-05	3E-05	3E-05	2E-05	6E-05
4.9	East	1E-04	1E-04	8E-05	7E-05	4E-05	4E-05	3E-05	7E-05
5	East	1E-04	1E-04	8E-05	7E-05	5E-05	5E-05	4E-05	6E-05
5.1	East	1E-04	1E-04	1E-04	9E-05	7E-05	7E-05	5E-05	7E-05
5.2	East	1E-04	1E-04	1E-04	1E-04	8E-05	8E-05	6E-05	8E-05
5.3	East	1E-04	1E-04	1E-04	1E-04	8E-05	8E-05	5E-05	8E-05
5.4	East	1E-04	1E-04	1E-04	1E-04	7E-05	7E-05	4E-05	7E-05
5.5	East	9E-05	9E-05	9E-05	9E-05	7E-05	7E-05	4E-05	7E-05
5.6	East	8E-05	8E-05	8E-05	8E-05	6E-05	6E-05	3E-05	6E-05
5.7	East	7E-05	7E-05	7E-05	7E-05	5E-05	5E-05	3E-05	5E-05
5.8	East	7E-05	7E-05	6E-05	6E-05	4E-05	4E-05	2E-05	5E-05
5.9	East	6E-05	6E-05	6E-05	5E-05	3E-05	3E-05	2E-05	4E-05
6	East	5E-05	5E-05	5E-05	4E-05	3E-05	3E-05	2E-05	3E-05

**Table J2.3-3g**  
**RAO 2 Rolling River Mile Risk Estimates - 1,2,3,4,7,8-HxCDF**  
 Portland Harbor Superfund Site  
 Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
6.1	East	4E-05	4E-05	4E-05	3E-05	2E-05	2E-05	1E-05	3E-05
6.2	East	5E-05	4E-05	3E-05	3E-05	2E-05	2E-05	1E-05	3E-05
6.3	East	1E-04	4E-05	2E-05	2E-05	2E-05	2E-05	1E-05	4E-05
6.4	East	9E-05	3E-05	2E-05	2E-05	1E-05	1E-05	1E-05	3E-05
6.5	East	8E-05	3E-05	1E-05	1E-05	1E-05	1E-05	1E-05	3E-05
6.6	East	8E-05	3E-05	1E-05	1E-05	1E-05	1E-05	1E-05	2E-05
6.7	East	8E-05	3E-05	1E-05	1E-05	1E-05	1E-05	9E-06	3E-05
6.8	East	8E-05	2E-05	1E-05	1E-05	9E-06	9E-06	8E-06	3E-05
6.9	East	7E-05	2E-05	1E-05	1E-05	1E-05	1E-05	9E-06	3E-05
7	East	7E-05	2E-05	1E-05	1E-05	1E-05	1E-05	1E-05	3E-05
7.1	East	7E-05	2E-05	1E-05	1E-05	1E-05	1E-05	1E-05	3E-05
7.2	East	6E-05	2E-05	1E-05	1E-05	1E-05	1E-05	1E-05	3E-05
7.3	East	3E-05	2E-05	2E-05	2E-05	2E-05	2E-05	1E-05	3E-05
7.4	East	3E-05	2E-05	2E-05	2E-05	2E-05	2E-05	2E-05	3E-05
7.5	East	3E-05	2E-05	2E-05	2E-05	2E-05	2E-05	2E-05	3E-05
7.6	East	4E-05	3E-05	2E-05	2E-05	2E-05	2E-05	2E-05	3E-05
7.7	East	3E-05	3E-05	2E-05	2E-05	2E-05	2E-05	2E-05	3E-05
7.8	East	3E-05	3E-05	2E-05	2E-05	2E-05	2E-05	2E-05	3E-05
7.9	East	3E-05	3E-05	3E-05	3E-05	3E-05	3E-05	2E-05	3E-05
8	East	3E-05	2E-05	2E-05	2E-05	2E-05	2E-05	2E-05	2E-05
8.1	East	3E-05	2E-05	2E-05	2E-05	2E-05	2E-05	1E-05	2E-05
8.2	East	2E-05	2E-05	2E-05	2E-05	2E-05	2E-05	1E-05	2E-05
8.3	East	2E-05	1E-05	1E-05	1E-05	1E-05	1E-05	9E-06	1E-05
8.4	East	2E-05	1E-05	1E-05	1E-05	1E-05	1E-05	9E-06	1E-05
8.5	East	1E-05	8E-06	8E-06	8E-06	8E-06	8E-06	5E-06	8E-06
8.6	East	1E-05	6E-06	6E-06	6E-06	5E-06	5E-06	5E-06	6E-06
8.7	East	9E-06	7E-06	7E-06	7E-06	6E-06	6E-06	5E-06	7E-06
8.8	East	6E-06	6E-06	6E-06	6E-06	6E-06	6E-06	5E-06	6E-06
8.9	East	5E-06	5E-06	5E-06	5E-06	5E-06	5E-06	5E-06	5E-06
9	East	5E-06	5E-06	5E-06	5E-06	5E-06	5E-06	4E-06	5E-06
9.1	East	5E-06	5E-06	5E-06	5E-06	4E-06	4E-06	4E-06	5E-06
9.2	East	5E-06	5E-06	5E-06	5E-06	4E-06	4E-06	3E-06	5E-06
9.3	East	4E-06	4E-06	4E-06	4E-06	4E-06	4E-06	3E-06	4E-06
9.4	East	4E-06	4E-06	4E-06	4E-06	4E-06	4E-06	3E-06	4E-06
9.5	East	4E-06	4E-06	4E-06	4E-06	4E-06	4E-06	3E-06	4E-06
9.6	East	4E-06	4E-06	4E-06	4E-06	4E-06	4E-06	3E-06	4E-06
9.7	East	4E-06	4E-06	4E-06	4E-06	4E-06	4E-06	3E-06	4E-06
9.8	East	5E-06	5E-06	5E-06	5E-06	4E-06	4E-06	3E-06	5E-06
9.9	East	5E-06	5E-06	5E-06	5E-06	4E-06	4E-06	4E-06	5E-06
10	East	5E-06	5E-06	5E-06	5E-06	5E-06	5E-06	4E-06	5E-06
10.1	East	6E-06	6E-06	6E-06	6E-06	5E-06	5E-06	4E-06	6E-06
10.2	East	6E-06	6E-06	6E-06	6E-06	6E-06	6E-06	5E-06	6E-06

**Table J2.3-3g**

**RAO 2 Rolling River Mile Risk Estimates - 1,2,3,4,7,8-HxCDF**

Portland Harbor Superfund Site

Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
10.3	East	8E-06	8E-06	8E-06	7E-06	6E-06	6E-06	5E-06	7E-06
10.4	East	9E-06	9E-06	9E-06	8E-06	7E-06	7E-06	5E-06	8E-06
10.5	East	1E-05	1E-05	1E-05	1E-05	7E-06	7E-06	5E-06	1E-05
10.6	East	1E-05	1E-05	1E-05	1E-05	8E-06	8E-06	6E-06	1E-05
10.7	East	1E-05	1E-05	1E-05	1E-05	8E-06	8E-06	6E-06	1E-05
10.8	East	1E-05	1E-05	1E-05	1E-05	7E-06	7E-06	5E-06	1E-05
10.9	East	1E-05	1E-05	1E-05	9E-06	6E-06	6E-06	4E-06	9E-06
11	East	2E-05	1E-05	1E-05	8E-06	5E-06	5E-06	3E-06	8E-06
11.1	East	2E-05	1E-05	1E-05	8E-06	5E-06	5E-06	3E-06	8E-06
11.2	East	2E-05	1E-05	1E-05	8E-06	5E-06	5E-06	2E-06	8E-06
11.3	East	2E-05	1E-05	1E-05	8E-06	4E-06	4E-06	2E-06	8E-06
11.4	East	2E-05	1E-05	1E-05	7E-06	4E-06	4E-06	1E-06	7E-06
11.5	East	2E-05	1E-05	1E-05	6E-06	4E-06	4E-06	1E-06	6E-06
11.6	East	2E-05	1E-05	9E-06	5E-06	3E-06	3E-06	1E-06	5E-06
11.7	East	2E-05	1E-05	9E-06	5E-06	3E-06	3E-06	7E-07	5E-06
1.8	Nav Channel	1E-06	1E-06	1E-06	1E-06	1E-06	1E-06	1E-06	1E-06
1.9	Nav Channel	1E-06	1E-06	1E-06	1E-06	1E-06	1E-06	1E-06	1E-06
2	Nav Channel	1E-06	1E-06	1E-06	1E-06	1E-06	1E-06	1E-06	1E-06
2.1	Nav Channel	1E-06	1E-06	1E-06	1E-06	1E-06	1E-06	1E-06	1E-06
2.2	Nav Channel	2E-06	2E-06	2E-06	2E-06	2E-06	2E-06	2E-06	2E-06
2.3	Nav Channel	2E-06	2E-06	2E-06	2E-06	2E-06	2E-06	2E-06	2E-06
2.4	Nav Channel	2E-06	2E-06	2E-06	2E-06	2E-06	2E-06	2E-06	2E-06
2.5	Nav Channel	3E-06	3E-06	3E-06	3E-06	3E-06	3E-06	2E-06	3E-06
2.6	Nav Channel	3E-06	3E-06	3E-06	3E-06	3E-06	3E-06	3E-06	3E-06
2.7	Nav Channel	3E-06	3E-06	3E-06	3E-06	3E-06	3E-06	3E-06	3E-06
2.8	Nav Channel	3E-06	3E-06	3E-06	3E-06	3E-06	3E-06	3E-06	3E-06
2.9	Nav Channel	3E-06	3E-06	3E-06	3E-06	3E-06	3E-06	3E-06	3E-06
3	Nav Channel	4E-06	4E-06	4E-06	4E-06	4E-06	4E-06	3E-06	4E-06
3.1	Nav Channel	4E-06	4E-06	4E-06	4E-06	4E-06	4E-06	3E-06	4E-06
3.2	Nav Channel	4E-06	4E-06	4E-06	4E-06	4E-06	4E-06	3E-06	4E-06
3.3	Nav Channel	4E-06	4E-06	4E-06	4E-06	4E-06	4E-06	3E-06	4E-06
3.4	Nav Channel	4E-06	4E-06	4E-06	4E-06	4E-06	4E-06	3E-06	4E-06
3.5	Nav Channel	4E-06	4E-06	4E-06	4E-06	4E-06	4E-06	3E-06	4E-06
3.6	Nav Channel	4E-06	4E-06	4E-06	4E-06	4E-06	3E-06	3E-06	4E-06
3.7	Nav Channel	4E-06	4E-06	4E-06	4E-06	4E-06	3E-06	3E-06	4E-06
3.8	Nav Channel	3E-06	3E-06	3E-06	3E-06	3E-06	3E-06	3E-06	3E-06
3.9	Nav Channel	3E-06	3E-06	3E-06	3E-06	3E-06	3E-06	2E-06	3E-06
4	Nav Channel	3E-06	3E-06	3E-06	3E-06	3E-06	3E-06	2E-06	3E-06
4.1	Nav Channel	3E-06	3E-06	3E-06	3E-06	3E-06	3E-06	3E-06	3E-06
4.2	Nav Channel	3E-06	3E-06	3E-06	3E-06	3E-06	3E-06	3E-06	3E-06
4.3	Nav Channel	3E-06	3E-06	3E-06	3E-06	3E-06	3E-06	3E-06	3E-06
4.4	Nav Channel	4E-06	4E-06	4E-06	4E-06	4E-06	4E-06	3E-06	4E-06

**Table J2.3-3g**

**RAO 2 Rolling River Mile Risk Estimates - 1,2,3,4,7,8-HxCDF**

Portland Harbor Superfund Site

Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
4.5	Nav Channel	4E-06	4E-06	4E-06	4E-06	4E-06	4E-06	4E-06	4E-06
4.6	Nav Channel	4E-06	4E-06	4E-06	4E-06	4E-06	4E-06	4E-06	4E-06
4.7	Nav Channel	5E-06	5E-06	4E-06	4E-06	5E-06	4E-06	4E-06	5E-06
4.8	Nav Channel	6E-06	6E-06	5E-06	4E-06	6E-06	4E-06	3E-06	6E-06
4.9	Nav Channel	7E-06	6E-06	5E-06	5E-06	6E-06	4E-06	3E-06	6E-06
5	Nav Channel	9E-06	7E-06	6E-06	5E-06	7E-06	4E-06	3E-06	7E-06
5.1	Nav Channel	1E-05	9E-06	7E-06	6E-06	9E-06	4E-06	3E-06	9E-06
5.2	Nav Channel	1E-05	9E-06	7E-06	6E-06	9E-06	4E-06	3E-06	9E-06
5.3	Nav Channel	1E-05	1E-05	8E-06	6E-06	1E-05	4E-06	3E-06	1E-05
5.4	Nav Channel	2E-05	1E-05	9E-06	8E-06	1E-05	4E-06	3E-06	1E-05
5.5	Nav Channel	2E-05	1E-05	1E-05	9E-06	1E-05	5E-06	3E-06	1E-05
5.6	Nav Channel	2E-05	2E-05	1E-05	1E-05	2E-05	7E-06	4E-06	2E-05
5.7	Nav Channel	3E-05	2E-05	2E-05	1E-05	2E-05	9E-06	5E-06	2E-05
5.8	Nav Channel	3E-05	2E-05	2E-05	2E-05	2E-05	1E-05	6E-06	2E-05
5.9	Nav Channel	4E-05	3E-05	3E-05	2E-05	3E-05	1E-05	9E-06	3E-05
6	Nav Channel	5E-05	3E-05	3E-05	3E-05	3E-05	2E-05	1E-05	3E-05
6.1	Nav Channel	6E-05	4E-05	3E-05	3E-05	4E-05	2E-05	1E-05	4E-05
6.2	Nav Channel	6E-05	4E-05	4E-05	3E-05	4E-05	2E-05	1E-05	4E-05
6.3	Nav Channel	6E-05	5E-05	4E-05	4E-05	5E-05	2E-05	1E-05	5E-05
6.4	Nav Channel	7E-05	5E-05	5E-05	4E-05	5E-05	3E-05	2E-05	5E-05
6.5	Nav Channel	7E-05	6E-05	5E-05	4E-05	6E-05	3E-05	2E-05	5E-05
6.6	Nav Channel	7E-05	6E-05	5E-05	4E-05	5E-05	3E-05	3E-05	5E-05
6.7	Nav Channel	7E-05	5E-05	5E-05	5E-05	5E-05	4E-05	3E-05	5E-05
6.8	Nav Channel	6E-05	5E-05	5E-05	4E-05	5E-05	4E-05	3E-05	5E-05
6.9	Nav Channel	5E-05	5E-05	4E-05	4E-05	4E-05	3E-05	3E-05	4E-05
7	Nav Channel	4E-05	4E-05	4E-05	4E-05	4E-05	3E-05	2E-05	4E-05
7.1	Nav Channel	4E-05	4E-05	4E-05	4E-05	4E-05	3E-05	2E-05	4E-05
7.2	Nav Channel	3E-05	3E-05	3E-05	3E-05	3E-05	3E-05	2E-05	3E-05
7.3	Nav Channel	3E-05	3E-05	3E-05	3E-05	3E-05	3E-05	2E-05	3E-05
7.4	Nav Channel	3E-05	3E-05	3E-05	3E-05	3E-05	2E-05	2E-05	3E-05
7.5	Nav Channel	2E-05	2E-05	2E-05	2E-05	2E-05	2E-05	2E-05	2E-05
7.6	Nav Channel	2E-05	2E-05	2E-05	2E-05	2E-05	2E-05	2E-05	2E-05
7.7	Nav Channel	2E-05	2E-05	2E-05	2E-05	2E-05	2E-05	1E-05	2E-05
7.8	Nav Channel	2E-05	2E-05	2E-05	2E-05	2E-05	2E-05	1E-05	2E-05
7.9	Nav Channel	2E-05	2E-05	2E-05	2E-05	2E-05	2E-05	1E-05	2E-05
8	Nav Channel	2E-05	2E-05	2E-05	2E-05	2E-05	2E-05	1E-05	2E-05
8.1	Nav Channel	2E-05	2E-05	2E-05	2E-05	2E-05	2E-05	1E-05	2E-05
8.2	Nav Channel	2E-05	2E-05	2E-05	2E-05	2E-05	2E-05	2E-05	2E-05
8.3	Nav Channel	2E-05	2E-05	2E-05	2E-05	2E-05	2E-05	2E-05	2E-05
8.4	Nav Channel	2E-05	2E-05	2E-05	2E-05	2E-05	2E-05	1E-05	2E-05
8.5	Nav Channel	2E-05	2E-05	2E-05	2E-05	2E-05	1E-05	1E-05	2E-05
8.6	Nav Channel	2E-05	2E-05	2E-05	2E-05	2E-05	1E-05	1E-05	2E-05



**Table J2.3-3g**

**RAO 2 Rolling River Mile Risk Estimates - 1,2,3,4,7,8-HxCDF**

Portland Harbor Superfund Site

Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
8.7	Nav Channel	2E-05	2E-05	2E-05	2E-05	2E-05	1E-05	1E-05	2E-05
8.8	Nav Channel	2E-05	2E-05	2E-05	2E-05	2E-05	1E-05	1E-05	2E-05
8.9	Nav Channel	2E-05	2E-05	2E-05	2E-05	2E-05	1E-05	1E-05	2E-05
9	Nav Channel	1E-05	1E-05	1E-05	1E-05	1E-05	1E-05	1E-05	1E-05
9.1	Nav Channel	1E-05	1E-05	1E-05	1E-05	1E-05	1E-05	1E-05	1E-05
9.2	Nav Channel	1E-05	1E-05	1E-05	1E-05	1E-05	1E-05	1E-05	1E-05
9.3	Nav Channel	1E-05	1E-05	1E-05	1E-05	1E-05	1E-05	9E-06	1E-05
9.4	Nav Channel	1E-05	1E-05	1E-05	1E-05	1E-05	8E-06	7E-06	1E-05
9.5	Nav Channel	8E-06	8E-06	8E-06	8E-06	8E-06	7E-06	6E-06	8E-06
9.6	Nav Channel	7E-06	7E-06	7E-06	7E-06	7E-06	6E-06	5E-06	7E-06
9.7	Nav Channel	6E-06	6E-06	6E-06	6E-06	6E-06	5E-06	5E-06	6E-06
9.8	Nav Channel	6E-06	6E-06	6E-06	6E-06	6E-06	5E-06	4E-06	6E-06
9.9	Nav Channel	5E-06	5E-06	5E-06	5E-06	5E-06	5E-06	4E-06	5E-06
10	Nav Channel	5E-06	5E-06	5E-06	5E-06	5E-06	4E-06	4E-06	5E-06
10.1	Nav Channel	6E-06	6E-06	6E-06	6E-06	6E-06	5E-06	4E-06	6E-06
10.2	Nav Channel	6E-06	6E-06	6E-06	6E-06	6E-06	5E-06	4E-06	6E-06
10.3	Nav Channel	6E-06	6E-06	6E-06	6E-06	6E-06	5E-06	4E-06	6E-06
10.4	Nav Channel	7E-06	7E-06	7E-06	7E-06	7E-06	6E-06	4E-06	7E-06
10.5	Nav Channel	7E-06	7E-06	7E-06	7E-06	7E-06	6E-06	4E-06	7E-06
10.6	Nav Channel	7E-06	7E-06	7E-06	7E-06	7E-06	6E-06	4E-06	7E-06
10.7	Nav Channel	7E-06	7E-06	7E-06	7E-06	7E-06	6E-06	4E-06	7E-06
10.8	Nav Channel	7E-06	7E-06	7E-06	7E-06	7E-06	6E-06	4E-06	7E-06
10.9	Nav Channel	8E-06	7E-06	7E-06	7E-06	7E-06	6E-06	5E-06	7E-06
11	Nav Channel	8E-06	8E-06	7E-06	7E-06	7E-06	6E-06	5E-06	7E-06
11.1	Nav Channel	8E-06	8E-06	7E-06	7E-06	7E-06	6E-06	5E-06	7E-06
11.2	Nav Channel	8E-06	8E-06	7E-06	7E-06	7E-06	6E-06	5E-06	7E-06
11.3	Nav Channel	8E-06	7E-06	7E-06	7E-06	7E-06	6E-06	5E-06	7E-06
11.4	Nav Channel	8E-06	7E-06	7E-06	7E-06	7E-06	6E-06	5E-06	7E-06
11.5	Nav Channel	8E-06	7E-06	7E-06	7E-06	7E-06	6E-06	6E-06	7E-06
11.6	Nav Channel	8E-06	8E-06	7E-06	7E-06	7E-06	6E-06	6E-06	7E-06
11.7	Nav Channel	9E-06	8E-06	8E-06	7E-06	7E-06	6E-06	6E-06	7E-06
1.8	West	6E-06	6E-06	6E-06	6E-06	6E-06	6E-06	6E-06	6E-06
1.9	West	8E-06	8E-06	8E-06	8E-06	8E-06	8E-06	8E-06	8E-06
2	West	1E-05	1E-05	1E-05	1E-05	1E-05	1E-05	1E-05	1E-05
2.1	West	1E-05	1E-05	1E-05	1E-05	1E-05	1E-05	1E-05	1E-05
2.2	West	1E-05	1E-05	1E-05	1E-05	1E-05	1E-05	1E-05	1E-05
2.3	West	1E-05	1E-05	1E-05	1E-05	1E-05	1E-05	1E-05	1E-05
2.4	West	1E-05	1E-05	1E-05	1E-05	1E-05	1E-05	1E-05	1E-05
2.5	West	1E-05	1E-05	1E-05	1E-05	1E-05	1E-05	1E-05	1E-05
2.6	West	1E-05	1E-05	1E-05	1E-05	1E-05	1E-05	9E-06	1E-05
2.7	West	9E-06	9E-06	9E-06	9E-06	9E-06	9E-06	8E-06	9E-06
2.8	West	7E-06	7E-06	7E-06	7E-06	7E-06	7E-06	7E-06	7E-06

**Table J2.3-3g**  
**RAO 2 Rolling River Mile Risk Estimates - 1,2,3,4,7,8-HxCDF**  
 Portland Harbor Superfund Site  
 Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
2.9	West	5E-06	5E-06	5E-06	5E-06	5E-06	5E-06	4E-06	5E-06
3	West	4E-06	4E-06	4E-06	4E-06	4E-06	4E-06	3E-06	4E-06
3.1	West	4E-06	4E-06	4E-06	4E-06	4E-06	4E-06	3E-06	4E-06
3.2	West	4E-06	4E-06	4E-06	4E-06	4E-06	4E-06	3E-06	4E-06
3.3	West	5E-06	5E-06	5E-06	5E-06	5E-06	5E-06	4E-06	5E-06
3.4	West	5E-06	5E-06	5E-06	5E-06	5E-06	5E-06	4E-06	5E-06
3.5	West	6E-06	6E-06	6E-06	6E-06	6E-06	6E-06	5E-06	6E-06
3.6	West	8E-06	8E-06	8E-06	7E-06	7E-06	7E-06	6E-06	7E-06
3.7	West	9E-06	9E-06	9E-06	9E-06	8E-06	8E-06	7E-06	9E-06
3.8	West	1E-05	1E-05	1E-05	1E-05	1E-05	1E-05	7E-06	1E-05
3.9	West	1E-05	1E-05	1E-05	1E-05	1E-05	1E-05	8E-06	1E-05
4	West	2E-05	2E-05	2E-05	2E-05	1E-05	1E-05	1E-05	2E-05
4.1	West	2E-05	2E-05	2E-05	2E-05	2E-05	2E-05	1E-05	2E-05
4.2	West	2E-05	2E-05	2E-05	2E-05	2E-05	2E-05	1E-05	2E-05
4.3	West	3E-05	3E-05	3E-05	3E-05	2E-05	2E-05	2E-05	3E-05
4.4	West	3E-05	3E-05	3E-05	3E-05	3E-05	3E-05	2E-05	3E-05
4.5	West	3E-05	3E-05	3E-05	3E-05	3E-05	3E-05	2E-05	3E-05
4.6	West	4E-05	4E-05	4E-05	3E-05	3E-05	3E-05	2E-05	3E-05
4.7	West	4E-05	4E-05	4E-05	4E-05	3E-05	3E-05	2E-05	4E-05
4.8	West	4E-05	4E-05	4E-05	4E-05	3E-05	3E-05	2E-05	4E-05
4.9	West	4E-05	4E-05	4E-05	4E-05	3E-05	3E-05	2E-05	4E-05
5	West	4E-05	4E-05	4E-05	4E-05	3E-05	3E-05	2E-05	4E-05
5.1	West	4E-05	4E-05	4E-05	4E-05	3E-05	3E-05	2E-05	4E-05
5.2	West	4E-05	4E-05	4E-05	4E-05	3E-05	3E-05	2E-05	4E-05
5.3	West	4E-05	4E-05	4E-05	3E-05	3E-05	3E-05	2E-05	3E-05
5.4	West	4E-05	4E-05	4E-05	3E-05	3E-05	3E-05	1E-05	3E-05
5.5	West	4E-05	4E-05	3E-05	3E-05	3E-05	3E-05	1E-05	3E-05
5.6	West	4E-05	4E-05	3E-05	3E-05	2E-05	2E-05	1E-05	3E-05
5.7	West	4E-05	3E-05	3E-05	3E-05	2E-05	2E-05	1E-05	3E-05
5.8	West	4E-05	3E-05	3E-05	2E-05	2E-05	2E-05	9E-06	3E-05
5.9	West	4E-05	3E-05	2E-05	2E-05	2E-05	2E-05	8E-06	2E-05
6	West	4E-05	2E-05	2E-05	2E-05	2E-05	2E-05	8E-06	2E-05
6.1	West	4E-05	2E-05	2E-05	2E-05	1E-05	1E-05	8E-06	2E-05
6.2	West	5E-05	3E-05	3E-05	2E-05	1E-05	1E-05	6E-06	2E-05
6.3	West	5E-05	3E-05	3E-05	3E-05	1E-05	1E-05	5E-06	2E-05
6.4	West	1E-04	7E-05	4E-05	3E-05	1E-05	1E-05	3E-06	1E-05
6.5	West	3E-04	2E-04	1E-04	4E-05	8E-06	8E-06	1E-06	1E-05
6.6	West	6E-04	4E-04	2E-04	8E-05	1E-05	1E-05	1E-06	1E-05
6.7	West	1E-03	4E-04	2E-04	7E-05	9E-06	9E-06	1E-06	9E-06
6.8	West	2E-02	4E-04	2E-04	7E-05	9E-06	9E-06	1E-06	9E-06
6.9	West	4E-02	4E-04	2E-04	7E-05	1E-05	1E-05	1E-06	1E-05
7	West	4E-02	8E-04	4E-04	8E-05	2E-05	2E-05	1E-06	2E-05

**Table J2.3-3g**

**RAO 2 Rolling River Mile Risk Estimates - 1,2,3,4,7,8-HxCDF**

Portland Harbor Superfund Site

Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
7.1	West	3E-02	1E-03	1E-03	3E-04	1E-04	1E-04	1E-05	1E-04
7.2	West	3E-02	1E-03	8E-04	2E-04	1E-04	1E-04	1E-05	1E-04
7.3	West	2E-02	9E-04	7E-04	2E-04	1E-04	1E-04	1E-05	1E-04
7.4	West	2E-02	9E-04	7E-04	2E-04	1E-04	1E-04	1E-05	1E-04
7.5	West	2E-02	9E-04	7E-04	2E-04	1E-04	1E-04	1E-05	1E-04
7.6	West	2E-02	8E-04	7E-04	2E-04	1E-04	1E-04	1E-05	1E-04
7.7	West	2E-02	8E-04	7E-04	2E-04	1E-04	1E-04	1E-05	1E-04
7.8	West	1E-02	8E-04	7E-04	2E-04	1E-04	1E-04	1E-05	1E-04
7.9	West	1E-03	7E-04	6E-04	2E-04	1E-04	1E-04	1E-05	1E-04
8	West	5E-04	5E-04	4E-04	2E-04	1E-04	1E-04	1E-05	1E-04
8.1	West	4E-05	4E-05	4E-05	4E-05	3E-05	3E-05	4E-06	3E-05
8.2	West	3E-05	3E-05	3E-05	3E-05	2E-05	2E-05	2E-06	2E-05
8.3	West	2E-05	2E-05	2E-05	2E-05	1E-05	1E-05	1E-06	2E-05
8.4	West	2E-05	2E-05	2E-05	2E-05	9E-06	9E-06	1E-06	1E-05
8.5	West	2E-05	2E-05	2E-05	1E-05	6E-06	6E-06	1E-06	1E-05
8.6	West	2E-05	2E-05	1E-05	8E-06	4E-06	4E-06	1E-06	8E-06
8.7	West	2E-05	2E-05	1E-05	6E-06	3E-06	3E-06	1E-06	6E-06
8.8	West	3E-05	2E-05	1E-05	6E-06	3E-06	3E-06	2E-06	6E-06
8.9	West	3E-05	2E-05	1E-05	7E-06	4E-06	4E-06	3E-06	7E-06
9	West	3E-05	2E-05	1E-05	8E-06	4E-06	4E-06	3E-06	8E-06
9.1	West	3E-05	2E-05	1E-05	9E-06	5E-06	5E-06	4E-06	9E-06
9.2	West	3E-05	2E-05	1E-05	9E-06	5E-06	5E-06	4E-06	9E-06
9.3	West	3E-05	2E-05	1E-05	9E-06	6E-06	6E-06	4E-06	9E-06
9.4	West	3E-05	2E-05	1E-05	1E-05	6E-06	6E-06	5E-06	1E-05
9.5	West	3E-05	2E-05	2E-05	1E-05	7E-06	7E-06	6E-06	1E-05
9.6	West	3E-05	3E-05	2E-05	1E-05	8E-06	8E-06	7E-06	1E-05
9.7	West	3E-05	3E-05	2E-05	1E-05	1E-05	1E-05	7E-06	1E-05
9.8	West	3E-05	3E-05	2E-05	1E-05	1E-05	1E-05	7E-06	1E-05
9.9	West	3E-05	3E-05	2E-05	1E-05	1E-05	1E-05	6E-06	1E-05
10	West	3E-05	3E-05	2E-05	2E-05	1E-05	1E-05	8E-06	2E-05
10.1	West	4E-05	4E-05	3E-05	2E-05	1E-05	1E-05	1E-05	2E-05
10.2	West	5E-05	5E-05	3E-05	3E-05	2E-05	2E-05	2E-05	3E-05
10.3	West	4E-05	4E-05	4E-05	4E-05	3E-05	3E-05	2E-05	4E-05
10.4	West	4E-05	4E-05	4E-05	4E-05	3E-05	3E-05	2E-05	4E-05
10.5	West	3E-05	3E-05	3E-05	3E-05	3E-05	3E-05	2E-05	3E-05
10.6	West	3E-05	3E-05	3E-05	3E-05	3E-05	3E-05	2E-05	3E-05
10.7	West	3E-05	3E-05	3E-05	3E-05	3E-05	3E-05	2E-05	3E-05
10.8	West	3E-05	3E-05	3E-05	3E-05	3E-05	3E-05	2E-05	3E-05
10.9	West	3E-05	3E-05	3E-05	3E-05	3E-05	3E-05	2E-05	3E-05
11	West	3E-05	3E-05	3E-05	3E-05	3E-05	3E-05	2E-05	3E-05
11.1	West	3E-05	3E-05	3E-05	3E-05	3E-05	3E-05	2E-05	3E-05
11.2	West	2E-05	2E-05	2E-05	2E-05	2E-05	2E-05	2E-05	2E-05

**Table J2.3-3g**

**RAO 2 Rolling River Mile Risk Estimates - 1,2,3,4,7,8-HxCDF**

Portland Harbor Superfund Site

Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
11.3	West	2E-05	2E-05	2E-05	2E-05	2E-05	2E-05	2E-05	2E-05
11.4	West	2E-05	2E-05	2E-05	2E-05	2E-05	2E-05	2E-05	2E-05
11.5	West	2E-05	2E-05	2E-05	2E-05	2E-05	2E-05	2E-05	2E-05
11.6	West	2E-05	2E-05	2E-05	2E-05	2E-05	2E-05	2E-05	2E-05
11.7	West	2E-05	2E-05	2E-05	2E-05	2E-05	2E-05	2E-05	2E-05
7.6	Swan Isl	8E-06	9E-07	9E-07	5E-07	5E-08	5E-08	3E-08	5E-07
7.7	Swan Isl	1E-05	8E-07	8E-07	6E-07	1E-07	1E-07	5E-08	6E-07
7.8	Swan Isl	2E-05	1E-06	1E-06	7E-07	2E-07	2E-07	5E-08	7E-07
7.9	Swan Isl	2E-05	1E-06	1E-06	7E-07	3E-07	3E-07	1E-07	7E-07
8	Swan Isl	2E-05	1E-06	1E-06	8E-07	4E-07	4E-07	2E-07	8E-07
8.1	Swan Isl	3E-05	1E-06	1E-06	8E-07	4E-07	4E-07	2E-07	8E-07
8.2	Swan Isl	3E-05	2E-06	2E-06	1E-06	8E-07	8E-07	6E-07	1E-06
8.3	Swan Isl	4E-05	2E-06	2E-06	1E-06	9E-07	9E-07	7E-07	1E-06
8.4	Swan Isl	4E-05	3E-06	2E-06	1E-06	9E-07	9E-07	7E-07	1E-06
8.5	Swan Isl	4E-05	4E-06	2E-06	1E-06	9E-07	9E-07	7E-07	1E-06
8.6	Swan Isl	5E-05	7E-06	4E-06	3E-06	1E-06	1E-06	9E-07	5E-06
8.7	Swan Isl	7E-05	2E-05	9E-06	8E-06	3E-06	3E-06	2E-06	1E-05
8.8	Swan Isl	8E-05	2E-05	1E-05	9E-06	3E-06	3E-06	3E-06	1E-05
8.9	Swan Isl	8E-05	2E-05	1E-05	1E-05	4E-06	4E-06	3E-06	2E-05
9	Swan Isl	9E-05	2E-05	1E-05	1E-05	4E-06	4E-06	4E-06	2E-05
9.1	Swan Isl	9E-05	3E-05	1E-05	1E-05	5E-06	5E-06	4E-06	2E-05
9.2	Swan Isl	9E-05	3E-05	2E-05	1E-05	5E-06	5E-06	4E-06	2E-05
9.3	Swan Isl	9E-05	4E-05	2E-05	2E-05	6E-06	6E-06	5E-06	3E-05
9.4	Swan Isl	9E-05	5E-05	3E-05	3E-05	8E-06	8E-06	6E-06	5E-05
9.5	Swan Isl	1E-04	8E-05	5E-05	5E-05	1E-05	1E-05	1E-05	8E-05
9.6	Swan Isl	1E-04	1E-04	7E-05	7E-05	3E-05	3E-05	2E-05	1E-04

**Table J2.3-3h**  
**RAO 2 Rolling River Mile Risk Estimates - 1,2,3,7,8-PeCDD**  
 Portland Harbor Superfund Site  
 Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
1.8	East	5E-06	5E-06	5E-06	5E-06	5E-06	5E-06	5E-06	5E-06
1.9	East	6E-06	5E-06	5E-06	5E-06	4E-06	4E-06	4E-06	5E-06
2	East	7E-06	5E-06	5E-06	5E-06	4E-06	4E-06	4E-06	5E-06
2.1	East	7E-06	6E-06	6E-06	5E-06	4E-06	4E-06	4E-06	5E-06
2.2	East	7E-06	6E-06	5E-06	5E-06	4E-06	4E-06	3E-06	5E-06
2.3	East	7E-06	5E-06	5E-06	5E-06	3E-06	3E-06	3E-06	5E-06
2.4	East	7E-06	6E-06	5E-06	5E-06	3E-06	3E-06	3E-06	5E-06
2.5	East	7E-06	6E-06	5E-06	5E-06	4E-06	4E-06	3E-06	5E-06
2.6	East	7E-06	6E-06	6E-06	5E-06	4E-06	4E-06	3E-06	5E-06
2.7	East	8E-06	6E-06	6E-06	6E-06	4E-06	4E-06	3E-06	6E-06
2.8	East	8E-06	7E-06	7E-06	6E-06	5E-06	5E-06	4E-06	6E-06
2.9	East	8E-06	7E-06	7E-06	7E-06	5E-06	5E-06	5E-06	7E-06
3	East	1E-05	1E-05	9E-06	9E-06	8E-06	8E-06	7E-06	9E-06
3.1	East	1E-05	1E-05	1E-05	1E-05	1E-05	1E-05	1E-05	1E-05
3.2	East	1E-05	1E-05	1E-05	1E-05	1E-05	1E-05	1E-05	1E-05
3.3	East	2E-05	2E-05	1E-05	1E-05	1E-05	1E-05	1E-05	1E-05
3.4	East	2E-05	2E-05	1E-05	1E-05	1E-05	1E-05	1E-05	1E-05
3.5	East	2E-05	2E-05	1E-05	1E-05	1E-05	1E-05	1E-05	1E-05
3.6	East	2E-05	2E-05	1E-05	1E-05	1E-05	1E-05	1E-05	1E-05
3.7	East	3E-05	2E-05	1E-05	1E-05	1E-05	1E-05	1E-05	1E-05
3.8	East	3E-05	2E-05	1E-05	1E-05	1E-05	1E-05	1E-05	1E-05
3.9	East	3E-05	2E-05	2E-05	1E-05	1E-05	1E-05	8E-06	1E-05
4	East	2E-05	2E-05	2E-05	1E-05	8E-06	8E-06	5E-06	1E-05
4.1	East	2E-05	2E-05	1E-05	1E-05	6E-06	6E-06	3E-06	1E-05
4.2	East	2E-05	2E-05	1E-05	9E-06	4E-06	4E-06	2E-06	9E-06
4.3	East	2E-05	2E-05	1E-05	9E-06	4E-06	4E-06	1E-06	9E-06
4.4	East	1E-05	1E-05	1E-05	1E-05	4E-06	4E-06	1E-06	1E-05
4.5	East	2E-05	1E-05	1E-05	1E-05	4E-06	4E-06	2E-06	1E-05
4.6	East	2E-05	2E-05	1E-05	1E-05	5E-06	5E-06	3E-06	1E-05
4.7	East	2E-05	2E-05	1E-05	1E-05	6E-06	6E-06	4E-06	1E-05
4.8	East	2E-05	2E-05	1E-05	1E-05	7E-06	7E-06	5E-06	1E-05
4.9	East	2E-05	2E-05	1E-05	1E-05	9E-06	9E-06	6E-06	1E-05
5	East	2E-05	2E-05	1E-05	1E-05	1E-05	1E-05	9E-06	1E-05
5.1	East	2E-05	2E-05	2E-05	2E-05	1E-05	1E-05	1E-05	1E-05
5.2	East	2E-05	2E-05	2E-05	2E-05	2E-05	2E-05	1E-05	2E-05
5.3	East	2E-05	2E-05	2E-05	2E-05	2E-05	2E-05	1E-05	2E-05
5.4	East	2E-05	2E-05	2E-05	2E-05	2E-05	2E-05	1E-05	2E-05
5.5	East	2E-05	2E-05	2E-05	2E-05	2E-05	2E-05	1E-05	2E-05
5.6	East	3E-05	3E-05	3E-05	2E-05	2E-05	2E-05	1E-05	2E-05
5.7	East	3E-05	3E-05	3E-05	3E-05	2E-05	2E-05	1E-05	2E-05
5.8	East	3E-05	3E-05	3E-05	3E-05	2E-05	2E-05	1E-05	2E-05
5.9	East	3E-05	3E-05	3E-05	3E-05	2E-05	2E-05	1E-05	3E-05
6	East	3E-05	3E-05	3E-05	3E-05	2E-05	2E-05	1E-05	3E-05

**Table J2.3-3h**

**RAO 2 Rolling River Mile Risk Estimates - 1,2,3,7,8-PeCDD**

Portland Harbor Superfund Site

Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
6.1	East	3E-05	3E-05	3E-05	3E-05	2E-05	2E-05	1E-05	3E-05
6.2	East	3E-05	3E-05	2E-05	2E-05	2E-05	2E-05	1E-05	3E-05
6.3	East	6E-05	3E-05	2E-05	2E-05	2E-05	2E-05	1E-05	3E-05
6.4	East	6E-05	3E-05	2E-05	2E-05	2E-05	2E-05	1E-05	3E-05
6.5	East	6E-05	3E-05	2E-05	2E-05	1E-05	1E-05	1E-05	3E-05
6.6	East	6E-05	3E-05	2E-05	2E-05	1E-05	1E-05	1E-05	3E-05
6.7	East	7E-05	3E-05	2E-05	1E-05	1E-05	1E-05	1E-05	4E-05
6.8	East	7E-05	3E-05	1E-05	1E-05	1E-05	1E-05	1E-05	5E-05
6.9	East	7E-05	3E-05	1E-05	1E-05	1E-05	1E-05	1E-05	4E-05
7	East	7E-05	3E-05	1E-05	1E-05	1E-05	1E-05	1E-05	4E-05
7.1	East	7E-05	3E-05	1E-05	1E-05	1E-05	1E-05	1E-05	4E-05
7.2	East	7E-05	3E-05	1E-05	1E-05	1E-05	1E-05	1E-05	4E-05
7.3	East	5E-05	2E-05	1E-05	1E-05	1E-05	1E-05	1E-05	4E-05
7.4	East	5E-05	2E-05	1E-05	1E-05	1E-05	1E-05	1E-05	4E-05
7.5	East	5E-05	3E-05	2E-05	2E-05	2E-05	2E-05	1E-05	5E-05
7.6	East	5E-05	3E-05	2E-05	2E-05	2E-05	2E-05	1E-05	5E-05
7.7	East	3E-05	2E-05	2E-05	2E-05	1E-05	1E-05	1E-05	3E-05
7.8	East	2E-05	2E-05	1E-05	1E-05	1E-05	1E-05	1E-05	2E-05
7.9	East	2E-05	1E-05	1E-05	1E-05	1E-05	1E-05	1E-05	1E-05
8	East	2E-05	1E-05	1E-05	1E-05	1E-05	1E-05	9E-06	1E-05
8.1	East	2E-05	1E-05	1E-05	1E-05	1E-05	1E-05	8E-06	1E-05
8.2	East	2E-05	1E-05	1E-05	1E-05	1E-05	1E-05	7E-06	1E-05
8.3	East	1E-05	9E-06	9E-06	9E-06	9E-06	9E-06	7E-06	9E-06
8.4	East	1E-05	9E-06	9E-06	9E-06	9E-06	9E-06	7E-06	9E-06
8.5	East	1E-05	7E-06	7E-06	7E-06	7E-06	7E-06	5E-06	7E-06
8.6	East	1E-05	6E-06	6E-06	6E-06	6E-06	6E-06	5E-06	6E-06
8.7	East	1E-05	8E-06	8E-06	8E-06	7E-06	7E-06	6E-06	8E-06
8.8	East	8E-06	8E-06	8E-06	8E-06	8E-06	8E-06	7E-06	8E-06
8.9	East	8E-06	8E-06	8E-06	8E-06	8E-06	8E-06	7E-06	8E-06
9	East	8E-06	8E-06	8E-06	8E-06	8E-06	8E-06	7E-06	8E-06
9.1	East	9E-06	9E-06	9E-06	9E-06	8E-06	8E-06	6E-06	9E-06
9.2	East	9E-06	9E-06	9E-06	9E-06	8E-06	8E-06	6E-06	9E-06
9.3	East	1E-05	1E-05	1E-05	1E-05	8E-06	8E-06	6E-06	1E-05
9.4	East	1E-05	1E-05	1E-05	1E-05	9E-06	9E-06	7E-06	1E-05
9.5	East	1E-05	1E-05	1E-05	1E-05	1E-05	1E-05	8E-06	1E-05
9.6	East	1E-05	1E-05	1E-05	1E-05	1E-05	1E-05	9E-06	1E-05
9.7	East	1E-05	1E-05	1E-05	1E-05	1E-05	1E-05	1E-05	1E-05
9.8	East	2E-05	2E-05	2E-05	2E-05	1E-05	1E-05	1E-05	2E-05
9.9	East	2E-05	2E-05	2E-05	2E-05	1E-05	1E-05	1E-05	2E-05
10	East	2E-05	2E-05	2E-05	2E-05	2E-05	2E-05	1E-05	2E-05
10.1	East	2E-05	2E-05	2E-05	2E-05	2E-05	2E-05	2E-05	2E-05
10.2	East	2E-05	2E-05	2E-05	2E-05	2E-05	2E-05	2E-05	2E-05

**Table J2.3-3h**

**RAO 2 Rolling River Mile Risk Estimates - 1,2,3,7,8-PeCDD**

Portland Harbor Superfund Site

Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
10.3	East	3E-05	3E-05	3E-05	2E-05	2E-05	2E-05	2E-05	2E-05
10.4	East	3E-05	3E-05	3E-05	3E-05	2E-05	2E-05	2E-05	3E-05
10.5	East	3E-05	3E-05	3E-05	3E-05	2E-05	2E-05	2E-05	3E-05
10.6	East	4E-05	4E-05	4E-05	3E-05	3E-05	3E-05	2E-05	3E-05
10.7	East	4E-05	4E-05	4E-05	3E-05	2E-05	2E-05	2E-05	3E-05
10.8	East	4E-05	4E-05	4E-05	3E-05	2E-05	2E-05	1E-05	3E-05
10.9	East	5E-05	4E-05	4E-05	3E-05	2E-05	2E-05	1E-05	3E-05
11	East	5E-05	4E-05	3E-05	3E-05	2E-05	2E-05	9E-06	3E-05
11.1	East	5E-05	4E-05	3E-05	2E-05	1E-05	1E-05	8E-06	2E-05
11.2	East	5E-05	4E-05	3E-05	2E-05	1E-05	1E-05	7E-06	2E-05
11.3	East	5E-05	4E-05	3E-05	2E-05	1E-05	1E-05	6E-06	2E-05
11.4	East	5E-05	4E-05	3E-05	2E-05	1E-05	1E-05	4E-06	2E-05
11.5	East	5E-05	4E-05	3E-05	2E-05	1E-05	1E-05	4E-06	2E-05
11.6	East	5E-05	3E-05	2E-05	2E-05	9E-06	9E-06	3E-06	2E-05
11.7	East	5E-05	3E-05	2E-05	1E-05	8E-06	8E-06	2E-06	1E-05
1.8	Nav Channel	2E-06	2E-06	2E-06	2E-06	2E-06	2E-06	2E-06	2E-06
1.9	Nav Channel	2E-06	2E-06	2E-06	2E-06	2E-06	2E-06	2E-06	2E-06
2	Nav Channel	2E-06	2E-06	2E-06	2E-06	2E-06	2E-06	2E-06	2E-06
2.1	Nav Channel	3E-06	3E-06	3E-06	3E-06	3E-06	3E-06	2E-06	3E-06
2.2	Nav Channel	3E-06	3E-06	3E-06	3E-06	3E-06	3E-06	3E-06	3E-06
2.3	Nav Channel	3E-06	3E-06	3E-06	3E-06	3E-06	3E-06	3E-06	3E-06
2.4	Nav Channel	3E-06	3E-06	3E-06	3E-06	3E-06	3E-06	3E-06	3E-06
2.5	Nav Channel	4E-06	4E-06	4E-06	4E-06	4E-06	4E-06	3E-06	4E-06
2.6	Nav Channel	4E-06	4E-06	4E-06	4E-06	4E-06	4E-06	4E-06	4E-06
2.7	Nav Channel	4E-06	4E-06	4E-06	4E-06	4E-06	4E-06	4E-06	4E-06
2.8	Nav Channel	5E-06	5E-06	5E-06	5E-06	5E-06	5E-06	4E-06	5E-06
2.9	Nav Channel	5E-06	5E-06	5E-06	5E-06	5E-06	5E-06	5E-06	5E-06
3	Nav Channel	5E-06	5E-06	5E-06	5E-06	5E-06	5E-06	5E-06	5E-06
3.1	Nav Channel	5E-06	5E-06	5E-06	5E-06	5E-06	5E-06	4E-06	5E-06
3.2	Nav Channel	5E-06	5E-06	5E-06	5E-06	5E-06	5E-06	4E-06	5E-06
3.3	Nav Channel	6E-06	6E-06	6E-06	6E-06	6E-06	5E-06	4E-06	6E-06
3.4	Nav Channel	6E-06	6E-06	6E-06	6E-06	6E-06	5E-06	4E-06	6E-06
3.5	Nav Channel	6E-06	6E-06	6E-06	6E-06	6E-06	5E-06	4E-06	6E-06
3.6	Nav Channel	6E-06	6E-06	6E-06	6E-06	6E-06	5E-06	4E-06	6E-06
3.7	Nav Channel	6E-06	6E-06	6E-06	6E-06	6E-06	5E-06	5E-06	6E-06
3.8	Nav Channel	6E-06	6E-06	6E-06	6E-06	6E-06	5E-06	5E-06	6E-06
3.9	Nav Channel	6E-06	6E-06	6E-06	6E-06	6E-06	5E-06	4E-06	6E-06
4	Nav Channel	5E-06	5E-06	5E-06	5E-06	5E-06	5E-06	4E-06	5E-06
4.1	Nav Channel	5E-06	5E-06	5E-06	5E-06	5E-06	5E-06	4E-06	5E-06
4.2	Nav Channel	5E-06	5E-06	5E-06	5E-06	5E-06	5E-06	5E-06	5E-06
4.3	Nav Channel	5E-06	5E-06	5E-06	5E-06	5E-06	5E-06	5E-06	5E-06
4.4	Nav Channel	5E-06	5E-06	5E-06	5E-06	5E-06	5E-06	5E-06	5E-06

**Table J2.3-3h**  
**RAO 2 Rolling River Mile Risk Estimates - 1,2,3,7,8-PeCDD**  
 Portland Harbor Superfund Site  
 Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
4.5	Nav Channel	6E-06	6E-06	6E-06	6E-06	6E-06	6E-06	5E-06	6E-06
4.6	Nav Channel	6E-06	6E-06	6E-06	6E-06	6E-06	5E-06	5E-06	6E-06
4.7	Nav Channel	6E-06	6E-06	5E-06	5E-06	6E-06	5E-06	5E-06	6E-06
4.8	Nav Channel	7E-06	6E-06	6E-06	5E-06	6E-06	5E-06	4E-06	6E-06
4.9	Nav Channel	7E-06	7E-06	6E-06	5E-06	7E-06	5E-06	4E-06	7E-06
5	Nav Channel	8E-06	7E-06	6E-06	6E-06	7E-06	5E-06	4E-06	7E-06
5.1	Nav Channel	9E-06	8E-06	7E-06	6E-06	8E-06	5E-06	4E-06	8E-06
5.2	Nav Channel	1E-05	8E-06	7E-06	6E-06	8E-06	5E-06	4E-06	8E-06
5.3	Nav Channel	1E-05	8E-06	7E-06	6E-06	8E-06	4E-06	3E-06	8E-06
5.4	Nav Channel	1E-05	9E-06	7E-06	6E-06	9E-06	4E-06	3E-06	9E-06
5.5	Nav Channel	1E-05	9E-06	8E-06	7E-06	9E-06	4E-06	3E-06	9E-06
5.6	Nav Channel	1E-05	1E-05	9E-06	8E-06	1E-05	5E-06	3E-06	1E-05
5.7	Nav Channel	1E-05	1E-05	1E-05	9E-06	1E-05	6E-06	4E-06	1E-05
5.8	Nav Channel	2E-05	1E-05	1E-05	1E-05	1E-05	7E-06	5E-06	1E-05
5.9	Nav Channel	2E-05	2E-05	1E-05	1E-05	2E-05	1E-05	7E-06	2E-05
6	Nav Channel	2E-05	2E-05	2E-05	2E-05	2E-05	1E-05	1E-05	2E-05
6.1	Nav Channel	3E-05	2E-05	2E-05	2E-05	2E-05	1E-05	1E-05	2E-05
6.2	Nav Channel	3E-05	3E-05	2E-05	2E-05	3E-05	1E-05	1E-05	3E-05
6.3	Nav Channel	3E-05	3E-05	3E-05	3E-05	3E-05	2E-05	1E-05	3E-05
6.4	Nav Channel	4E-05	3E-05	3E-05	3E-05	3E-05	2E-05	1E-05	3E-05
6.5	Nav Channel	4E-05	4E-05	3E-05	3E-05	3E-05	2E-05	1E-05	3E-05
6.6	Nav Channel	4E-05	4E-05	3E-05	3E-05	3E-05	2E-05	2E-05	3E-05
6.7	Nav Channel	4E-05	3E-05	3E-05	3E-05	3E-05	2E-05	2E-05	3E-05
6.8	Nav Channel	3E-05	3E-05	3E-05	3E-05	3E-05	2E-05	2E-05	3E-05
6.9	Nav Channel	3E-05	3E-05	3E-05	3E-05	3E-05	2E-05	2E-05	3E-05
7	Nav Channel	3E-05	3E-05	3E-05	2E-05	3E-05	2E-05	1E-05	3E-05
7.1	Nav Channel	2E-05	2E-05	2E-05	2E-05	2E-05	2E-05	1E-05	2E-05
7.2	Nav Channel	2E-05	2E-05	2E-05	2E-05	2E-05	2E-05	1E-05	2E-05
7.3	Nav Channel	2E-05	2E-05	2E-05	2E-05	2E-05	2E-05	1E-05	2E-05
7.4	Nav Channel	2E-05	2E-05	2E-05	2E-05	2E-05	2E-05	1E-05	2E-05
7.5	Nav Channel	2E-05	2E-05	2E-05	2E-05	2E-05	1E-05	1E-05	2E-05
7.6	Nav Channel	1E-05	1E-05	1E-05	1E-05	1E-05	1E-05	1E-05	1E-05
7.7	Nav Channel	1E-05	1E-05	1E-05	1E-05	1E-05	1E-05	1E-05	1E-05
7.8	Nav Channel	1E-05	1E-05	1E-05	1E-05	1E-05	1E-05	1E-05	1E-05
7.9	Nav Channel	1E-05	1E-05	1E-05	1E-05	1E-05	1E-05	1E-05	1E-05
8	Nav Channel	1E-05	1E-05	1E-05	1E-05	1E-05	1E-05	1E-05	1E-05
8.1	Nav Channel	1E-05	1E-05	1E-05	1E-05	1E-05	1E-05	1E-05	1E-05
8.2	Nav Channel	1E-05	1E-05	1E-05	1E-05	1E-05	1E-05	1E-05	1E-05
8.3	Nav Channel	1E-05	1E-05	1E-05	1E-05	1E-05	1E-05	1E-05	1E-05
8.4	Nav Channel	1E-05	1E-05	1E-05	1E-05	1E-05	1E-05	1E-05	1E-05
8.5	Nav Channel	9E-06	9E-06	9E-06	9E-06	9E-06	9E-06	9E-06	9E-06
8.6	Nav Channel	9E-06	9E-06	9E-06	9E-06	9E-06	9E-06	9E-06	9E-06



**Table J2.3-3h**  
**RAO 2 Rolling River Mile Risk Estimates - 1,2,3,7,8-PeCDD**  
 Portland Harbor Superfund Site  
 Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
8.7	Nav Channel	9E-06	9E-06	9E-06	9E-06	9E-06	9E-06	8E-06	9E-06
8.8	Nav Channel	9E-06	9E-06	9E-06	9E-06	9E-06	8E-06	8E-06	9E-06
8.9	Nav Channel	9E-06	9E-06	9E-06	9E-06	9E-06	8E-06	8E-06	9E-06
9	Nav Channel	9E-06	9E-06	9E-06	9E-06	9E-06	8E-06	8E-06	9E-06
9.1	Nav Channel	1E-05	9E-06	9E-06	9E-06	9E-06	8E-06	8E-06	9E-06
9.2	Nav Channel	1E-05	1E-05	1E-05	1E-05	1E-05	8E-06	8E-06	1E-05
9.3	Nav Channel	1E-05	1E-05	1E-05	1E-05	1E-05	8E-06	8E-06	1E-05
9.4	Nav Channel	1E-05	1E-05	1E-05	1E-05	1E-05	9E-06	8E-06	1E-05
9.5	Nav Channel	1E-05	1E-05	1E-05	1E-05	1E-05	9E-06	8E-06	1E-05
9.6	Nav Channel	1E-05	1E-05	1E-05	1E-05	1E-05	9E-06	8E-06	1E-05
9.7	Nav Channel	1E-05	1E-05	1E-05	1E-05	1E-05	1E-05	9E-06	1E-05
9.8	Nav Channel	1E-05	1E-05	1E-05	1E-05	1E-05	1E-05	9E-06	1E-05
9.9	Nav Channel	1E-05	1E-05	1E-05	1E-05	1E-05	1E-05	8E-06	1E-05
10	Nav Channel	1E-05	1E-05	1E-05	1E-05	1E-05	1E-05	8E-06	1E-05
10.1	Nav Channel	1E-05	1E-05	1E-05	1E-05	1E-05	1E-05	9E-06	1E-05
10.2	Nav Channel	1E-05	1E-05	1E-05	1E-05	1E-05	1E-05	9E-06	1E-05
10.3	Nav Channel	1E-05	1E-05	1E-05	1E-05	1E-05	1E-05	1E-05	1E-05
10.4	Nav Channel	1E-05	1E-05	1E-05	1E-05	1E-05	1E-05	9E-06	1E-05
10.5	Nav Channel	2E-05	2E-05	2E-05	2E-05	2E-05	1E-05	9E-06	2E-05
10.6	Nav Channel	2E-05	2E-05	2E-05	2E-05	2E-05	1E-05	9E-06	2E-05
10.7	Nav Channel	1E-05	1E-05	1E-05	1E-05	1E-05	1E-05	8E-06	1E-05
10.8	Nav Channel	2E-05	1E-05	1E-05	1E-05	1E-05	1E-05	9E-06	1E-05
10.9	Nav Channel	2E-05	2E-05	1E-05	1E-05	1E-05	1E-05	1E-05	1E-05
11	Nav Channel	2E-05	2E-05	2E-05	2E-05	2E-05	1E-05	1E-05	2E-05
11.1	Nav Channel	2E-05	2E-05	2E-05	2E-05	2E-05	1E-05	1E-05	2E-05
11.2	Nav Channel	2E-05	2E-05	2E-05	1E-05	1E-05	1E-05	1E-05	1E-05
11.3	Nav Channel	2E-05	2E-05	2E-05	1E-05	1E-05	1E-05	1E-05	1E-05
11.4	Nav Channel	2E-05	2E-05	2E-05	1E-05	1E-05	1E-05	1E-05	1E-05
11.5	Nav Channel	2E-05	2E-05	2E-05	1E-05	1E-05	1E-05	1E-05	1E-05
11.6	Nav Channel	2E-05	2E-05	2E-05	2E-05	2E-05	1E-05	1E-05	2E-05
11.7	Nav Channel	2E-05	2E-05	2E-05	2E-05	2E-05	1E-05	1E-05	2E-05
1.8	West	3E-06	3E-06	3E-06	3E-06	3E-06	3E-06	3E-06	3E-06
1.9	West	3E-06	3E-06	3E-06	3E-06	3E-06	3E-06	3E-06	3E-06
2	West	2E-06	2E-06	2E-06	2E-06	2E-06	2E-06	2E-06	2E-06
2.1	West	2E-06	2E-06	2E-06	2E-06	2E-06	2E-06	2E-06	2E-06
2.2	West	2E-06	2E-06	2E-06	2E-06	2E-06	2E-06	2E-06	2E-06
2.3	West	2E-06	2E-06	2E-06	2E-06	2E-06	2E-06	2E-06	2E-06
2.4	West	2E-06	2E-06	2E-06	2E-06	2E-06	2E-06	2E-06	2E-06
2.5	West	2E-06	2E-06	2E-06	2E-06	2E-06	2E-06	2E-06	2E-06
2.6	West	2E-06	2E-06	2E-06	2E-06	2E-06	2E-06	2E-06	2E-06
2.7	West	2E-06	2E-06	2E-06	2E-06	2E-06	2E-06	2E-06	2E-06
2.8	West	3E-06	3E-06	3E-06	3E-06	3E-06	3E-06	2E-06	3E-06

**Table J2.3-3h**  
**RAO 2 Rolling River Mile Risk Estimates - 1,2,3,7,8-PeCDD**  
 Portland Harbor Superfund Site  
 Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
2.9	West	3E-06	3E-06	3E-06	3E-06	3E-06	3E-06	2E-06	3E-06
3	West	3E-06	3E-06	3E-06	3E-06	3E-06	3E-06	2E-06	3E-06
3.1	West	3E-06	3E-06	3E-06	3E-06	3E-06	3E-06	3E-06	3E-06
3.2	West	4E-06	4E-06	4E-06	4E-06	4E-06	4E-06	3E-06	4E-06
3.3	West	4E-06	4E-06	4E-06	4E-06	4E-06	4E-06	4E-06	4E-06
3.4	West	5E-06	5E-06	5E-06	5E-06	5E-06	5E-06	4E-06	5E-06
3.5	West	6E-06	6E-06	6E-06	6E-06	6E-06	6E-06	5E-06	6E-06
3.6	West	7E-06	7E-06	7E-06	7E-06	7E-06	7E-06	6E-06	7E-06
3.7	West	9E-06	9E-06	9E-06	9E-06	8E-06	8E-06	7E-06	9E-06
3.8	West	1E-05	1E-05	1E-05	1E-05	9E-06	9E-06	7E-06	1E-05
3.9	West	1E-05	1E-05	1E-05	1E-05	1E-05	1E-05	8E-06	1E-05
4	West	1E-05	1E-05	1E-05	1E-05	1E-05	1E-05	8E-06	1E-05
4.1	West	2E-05	2E-05	2E-05	2E-05	1E-05	1E-05	9E-06	2E-05
4.2	West	2E-05	2E-05	2E-05	2E-05	1E-05	1E-05	8E-06	2E-05
4.3	West	2E-05	2E-05	2E-05	2E-05	1E-05	1E-05	8E-06	2E-05
4.4	West	2E-05	2E-05	2E-05	2E-05	1E-05	1E-05	8E-06	2E-05
4.5	West	2E-05	2E-05	2E-05	2E-05	1E-05	1E-05	8E-06	2E-05
4.6	West	2E-05	2E-05	2E-05	2E-05	1E-05	1E-05	8E-06	2E-05
4.7	West	2E-05	2E-05	2E-05	1E-05	1E-05	1E-05	7E-06	1E-05
4.8	West	2E-05	2E-05	2E-05	1E-05	1E-05	1E-05	8E-06	1E-05
4.9	West	2E-05	2E-05	2E-05	1E-05	1E-05	1E-05	8E-06	1E-05
5	West	2E-05	2E-05	1E-05	1E-05	1E-05	1E-05	7E-06	1E-05
5.1	West	2E-05	2E-05	1E-05	1E-05	1E-05	1E-05	7E-06	1E-05
5.2	West	2E-05	1E-05	1E-05	1E-05	1E-05	1E-05	7E-06	1E-05
5.3	West	1E-05	1E-05	1E-05	1E-05	1E-05	1E-05	6E-06	1E-05
5.4	West	1E-05	1E-05	1E-05	1E-05	9E-06	9E-06	5E-06	1E-05
5.5	West	1E-05	1E-05	1E-05	1E-05	9E-06	9E-06	5E-06	1E-05
5.6	West	1E-05	1E-05	1E-05	1E-05	8E-06	8E-06	4E-06	1E-05
5.7	West	1E-05	1E-05	1E-05	9E-06	7E-06	7E-06	3E-06	1E-05
5.8	West	1E-05	1E-05	9E-06	8E-06	6E-06	6E-06	3E-06	8E-06
5.9	West	1E-05	9E-06	8E-06	7E-06	5E-06	5E-06	3E-06	7E-06
6	West	1E-05	8E-06	7E-06	7E-06	5E-06	5E-06	3E-06	7E-06
6.1	West	1E-05	7E-06	7E-06	6E-06	4E-06	4E-06	2E-06	6E-06
6.2	West	9E-06	7E-06	6E-06	6E-06	4E-06	4E-06	2E-06	6E-06
6.3	West	1E-05	7E-06	6E-06	5E-06	3E-06	3E-06	2E-06	5E-06
6.4	West	3E-05	9E-06	6E-06	5E-06	2E-06	2E-06	1E-06	4E-06
6.5	West	5E-05	1E-05	6E-06	3E-06	1E-06	1E-06	4E-07	2E-06
6.6	West	5E-05	1E-05	6E-06	3E-06	7E-07	7E-07	3E-07	7E-07
6.7	West	5E-05	1E-05	6E-06	3E-06	6E-07	6E-07	2E-07	6E-07
6.8	West	6E-05	1E-05	6E-06	3E-06	6E-07	6E-07	3E-07	6E-07
6.9	West	6E-05	1E-05	6E-06	3E-06	6E-07	6E-07	3E-07	6E-07
7	West	6E-05	1E-05	6E-06	3E-06	8E-07	8E-07	3E-07	8E-07

**Table J2.3-3h**

**RAO 2 Rolling River Mile Risk Estimates - 1,2,3,7,8-PeCDD**

Portland Harbor Superfund Site

Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
7.1	West	6E-05	1E-05	8E-06	5E-06	3E-06	3E-06	1E-06	3E-06
7.2	West	5E-05	1E-05	9E-06	6E-06	4E-06	4E-06	2E-06	4E-06
7.3	West	4E-05	1E-05	8E-06	6E-06	5E-06	5E-06	2E-06	5E-06
7.4	West	3E-05	9E-06	8E-06	6E-06	5E-06	5E-06	2E-06	5E-06
7.5	West	2E-05	9E-06	8E-06	7E-06	6E-06	6E-06	3E-06	6E-06
7.6	West	2E-05	8E-06	8E-06	7E-06	6E-06	6E-06	3E-06	6E-06
7.7	West	2E-05	9E-06	9E-06	8E-06	7E-06	7E-06	3E-06	7E-06
7.8	West	2E-05	1E-05	1E-05	9E-06	7E-06	7E-06	3E-06	8E-06
7.9	West	1E-05	1E-05	1E-05	1E-05	7E-06	7E-06	3E-06	1E-05
8	West	1E-05	1E-05	1E-05	1E-05	7E-06	7E-06	3E-06	1E-05
8.1	West	1E-05	1E-05	1E-05	1E-05	7E-06	7E-06	3E-06	1E-05
8.2	West	2E-05	2E-05	2E-05	1E-05	6E-06	6E-06	2E-06	1E-05
8.3	West	2E-05	2E-05	2E-05	1E-05	5E-06	5E-06	2E-06	1E-05
8.4	West	3E-05	2E-05	2E-05	1E-05	5E-06	5E-06	2E-06	1E-05
8.5	West	3E-05	2E-05	2E-05	1E-05	5E-06	5E-06	2E-06	1E-05
8.6	West	3E-05	2E-05	2E-05	1E-05	4E-06	4E-06	2E-06	1E-05
8.7	West	4E-05	2E-05	2E-05	1E-05	4E-06	4E-06	2E-06	1E-05
8.8	West	4E-05	3E-05	2E-05	1E-05	4E-06	4E-06	3E-06	1E-05
8.9	West	4E-05	3E-05	2E-05	1E-05	7E-06	7E-06	5E-06	1E-05
9	West	4E-05	3E-05	2E-05	1E-05	7E-06	7E-06	5E-06	1E-05
9.1	West	4E-05	3E-05	2E-05	1E-05	7E-06	7E-06	6E-06	1E-05
9.2	West	4E-05	3E-05	2E-05	1E-05	7E-06	7E-06	6E-06	1E-05
9.3	West	5E-05	3E-05	2E-05	1E-05	8E-06	8E-06	6E-06	1E-05
9.4	West	5E-05	4E-05	2E-05	1E-05	8E-06	8E-06	6E-06	1E-05
9.5	West	4E-05	4E-05	2E-05	2E-05	9E-06	9E-06	8E-06	2E-05
9.6	West	4E-05	4E-05	2E-05	2E-05	1E-05	1E-05	9E-06	2E-05
9.7	West	4E-05	4E-05	2E-05	2E-05	1E-05	1E-05	1E-05	2E-05
9.8	West	4E-05	4E-05	2E-05	2E-05	1E-05	1E-05	1E-05	2E-05
9.9	West	5E-05	4E-05	3E-05	2E-05	1E-05	1E-05	9E-06	2E-05
10	West	5E-05	5E-05	3E-05	2E-05	1E-05	1E-05	1E-05	2E-05
10.1	West	7E-05	7E-05	3E-05	2E-05	2E-05	2E-05	1E-05	2E-05
10.2	West	8E-05	8E-05	4E-05	4E-05	3E-05	3E-05	2E-05	4E-05
10.3	West	5E-05	5E-05	5E-05	5E-05	5E-05	5E-05	3E-05	5E-05
10.4	West	5E-05	5E-05	5E-05	5E-05	5E-05	5E-05	3E-05	5E-05
10.5	West	5E-05	5E-05	5E-05	5E-05	5E-05	5E-05	3E-05	5E-05
10.6	West	5E-05	5E-05	5E-05	5E-05	4E-05	4E-05	3E-05	5E-05
10.7	West	5E-05	5E-05	5E-05	4E-05	4E-05	4E-05	3E-05	4E-05
10.8	West	4E-05	4E-05	4E-05	4E-05	4E-05	4E-05	4E-05	4E-05
10.9	West	4E-05	4E-05	4E-05	4E-05	4E-05	4E-05	4E-05	4E-05
11	West	4E-05	4E-05	4E-05	4E-05	4E-05	4E-05	3E-05	4E-05
11.1	West	4E-05	4E-05	4E-05	4E-05	4E-05	4E-05	3E-05	4E-05
11.2	West	3E-05	3E-05	3E-05	3E-05	3E-05	3E-05	3E-05	3E-05

**Table J2.3-3h**

**RAO 2 Rolling River Mile Risk Estimates - 1,2,3,7,8-PeCDD**

Portland Harbor Superfund Site

Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
11.3	West	3E-05	3E-05	3E-05	3E-05	3E-05	3E-05	3E-05	3E-05
11.4	West	3E-05	3E-05	3E-05	3E-05	3E-05	3E-05	3E-05	3E-05
11.5	West	2E-05	2E-05	2E-05	2E-05	2E-05	2E-05	2E-05	2E-05
11.6	West	2E-05	2E-05	2E-05	2E-05	2E-05	2E-05	2E-05	2E-05
11.7	West	2E-05	2E-05	2E-05	2E-05	2E-05	2E-05	2E-05	2E-05
7.6	Swan Isl	1E-05	1E-06	1E-06	6E-07	1E-07	1E-07	5E-08	6E-07
7.7	Swan Isl	2E-05	1E-06	1E-06	6E-07	1E-07	1E-07	5E-08	6E-07
7.8	Swan Isl	2E-05	1E-06	1E-06	6E-07	2E-07	2E-07	5E-08	6E-07
7.9	Swan Isl	1E-05	1E-06	9E-07	6E-07	2E-07	2E-07	7E-08	6E-07
8	Swan Isl	1E-05	1E-06	9E-07	6E-07	2E-07	2E-07	9E-08	6E-07
8.1	Swan Isl	1E-05	1E-06	9E-07	6E-07	2E-07	2E-07	1E-07	6E-07
8.2	Swan Isl	2E-05	1E-06	1E-06	7E-07	3E-07	3E-07	2E-07	7E-07
8.3	Swan Isl	2E-05	1E-06	1E-06	7E-07	4E-07	4E-07	3E-07	7E-07
8.4	Swan Isl	2E-05	2E-06	1E-06	7E-07	4E-07	4E-07	3E-07	7E-07
8.5	Swan Isl	2E-05	2E-06	1E-06	8E-07	4E-07	4E-07	3E-07	8E-07
8.6	Swan Isl	2E-05	4E-06	2E-06	2E-06	5E-07	5E-07	4E-07	2E-06
8.7	Swan Isl	3E-05	8E-06	4E-06	4E-06	1E-06	1E-06	1E-06	6E-06
8.8	Swan Isl	3E-05	9E-06	5E-06	5E-06	2E-06	2E-06	1E-06	7E-06
8.9	Swan Isl	3E-05	1E-05	6E-06	5E-06	2E-06	2E-06	2E-06	8E-06
9	Swan Isl	4E-05	1E-05	7E-06	6E-06	2E-06	2E-06	2E-06	9E-06
9.1	Swan Isl	4E-05	1E-05	7E-06	7E-06	2E-06	2E-06	2E-06	1E-05
9.2	Swan Isl	4E-05	1E-05	8E-06	8E-06	3E-06	3E-06	2E-06	1E-05
9.3	Swan Isl	5E-05	2E-05	1E-05	1E-05	3E-06	3E-06	3E-06	2E-05
9.4	Swan Isl	5E-05	2E-05	2E-05	1E-05	4E-06	4E-06	4E-06	2E-05
9.5	Swan Isl	5E-05	4E-05	2E-05	2E-05	7E-06	7E-06	5E-06	4E-05
9.6	Swan Isl	5E-05	5E-05	4E-05	3E-05	1E-05	1E-05	1E-05	5E-05

**Table J2.3-3i**  
**RAO 2 Rolling River Mile Risk Estimates - 1,2,3,7,8-PeCDF**  
 Portland Harbor Superfund Site  
 Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
1.8	East	3E-07	2E-07	2E-07	2E-07	2E-07	2E-07	1E-07	2E-07
1.9	East	3E-07	2E-07	2E-07	2E-07	2E-07	2E-07	1E-07	2E-07
2	East	4E-07	3E-07	3E-07	2E-07	2E-07	2E-07	2E-07	2E-07
2.1	East	5E-07	4E-07	3E-07	3E-07	2E-07	2E-07	2E-07	3E-07
2.2	East	5E-07	4E-07	3E-07	3E-07	2E-07	2E-07	2E-07	3E-07
2.3	East	5E-07	4E-07	4E-07	3E-07	2E-07	2E-07	1E-07	3E-07
2.4	East	6E-07	4E-07	4E-07	3E-07	2E-07	2E-07	1E-07	3E-07
2.5	East	5E-07	4E-07	4E-07	3E-07	2E-07	2E-07	1E-07	3E-07
2.6	East	6E-07	4E-07	4E-07	3E-07	2E-07	2E-07	1E-07	3E-07
2.7	East	6E-07	4E-07	4E-07	3E-07	2E-07	2E-07	2E-07	3E-07
2.8	East	5E-07	4E-07	4E-07	4E-07	2E-07	2E-07	2E-07	4E-07
2.9	East	5E-07	4E-07	4E-07	4E-07	2E-07	2E-07	2E-07	4E-07
3	East	4E-07	4E-07	4E-07	4E-07	3E-07	3E-07	2E-07	4E-07
3.1	East	3E-07	3E-07	3E-07	3E-07	3E-07	3E-07	3E-07	3E-07
3.2	East	4E-07	4E-07	3E-07	3E-07	3E-07	3E-07	3E-07	3E-07
3.3	East	5E-07	5E-07	3E-07	3E-07	3E-07	3E-07	3E-07	3E-07
3.4	East	7E-07	5E-07	3E-07	3E-07	3E-07	3E-07	2E-07	3E-07
3.5	East	7E-07	5E-07	4E-07	3E-07	3E-07	3E-07	2E-07	3E-07
3.6	East	7E-07	6E-07	4E-07	3E-07	3E-07	3E-07	2E-07	3E-07
3.7	East	8E-07	6E-07	4E-07	3E-07	3E-07	3E-07	2E-07	3E-07
3.8	East	8E-07	6E-07	4E-07	4E-07	3E-07	3E-07	2E-07	4E-07
3.9	East	1E-06	9E-07	7E-07	6E-07	3E-07	3E-07	2E-07	6E-07
4	East	1E-06	1E-06	1E-06	9E-07	3E-07	3E-07	2E-07	9E-07
4.1	East	2E-06	1E-06	1E-06	9E-07	3E-07	3E-07	1E-07	9E-07
4.2	East	2E-06	2E-06	1E-06	1E-06	3E-07	3E-07	9E-08	1E-06
4.3	East	2E-06	2E-06	2E-06	1E-06	3E-07	3E-07	1E-07	1E-06
4.4	East	2E-06	2E-06	2E-06	1E-06	4E-07	4E-07	1E-07	1E-06
4.5	East	2E-06	2E-06	2E-06	1E-06	4E-07	4E-07	2E-07	1E-06
4.6	East	2E-06	2E-06	2E-06	1E-06	5E-07	5E-07	3E-07	1E-06
4.7	East	3E-06	3E-06	2E-06	2E-06	7E-07	7E-07	5E-07	2E-06
4.8	East	3E-06	3E-06	2E-06	2E-06	1E-06	1E-06	7E-07	2E-06
4.9	East	3E-06	3E-06	3E-06	2E-06	1E-06	1E-06	9E-07	2E-06
5	East	3E-06	3E-06	3E-06	2E-06	2E-06	2E-06	1E-06	2E-06
5.1	East	4E-06	4E-06	3E-06	3E-06	2E-06	2E-06	2E-06	3E-06
5.2	East	4E-06	4E-06	4E-06	4E-06	3E-06	3E-06	2E-06	3E-06
5.3	East	4E-06	4E-06	4E-06	4E-06	3E-06	3E-06	2E-06	3E-06
5.4	East	4E-06	4E-06	4E-06	4E-06	3E-06	3E-06	2E-06	3E-06
5.5	East	3E-06	3E-06	3E-06	3E-06	2E-06	2E-06	1E-06	2E-06
5.6	East	3E-06	3E-06	3E-06	3E-06	2E-06	2E-06	1E-06	2E-06
5.7	East	3E-06	3E-06	3E-06	3E-06	2E-06	2E-06	1E-06	2E-06
5.8	East	3E-06	3E-06	3E-06	3E-06	2E-06	2E-06	1E-06	2E-06
5.9	East	3E-06	3E-06	2E-06	2E-06	2E-06	2E-06	1E-06	2E-06
6	East	2E-06	2E-06	2E-06	2E-06	1E-06	1E-06	1E-06	2E-06

**Table J2.3-3i**

**RAO 2 Rolling River Mile Risk Estimates - 1,2,3,7,8-PeCDF**

Portland Harbor Superfund Site

Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
6.1	East	2E-06	2E-06	2E-06	2E-06	1E-06	1E-06	1E-06	2E-06
6.2	East	3E-06	2E-06	2E-06	2E-06	1E-06	1E-06	1E-06	2E-06
6.3	East	4E-06	2E-06	1E-06	1E-06	1E-06	1E-06	9E-07	2E-06
6.4	East	4E-06	2E-06	1E-06	1E-06	1E-06	1E-06	9E-07	2E-06
6.5	East	4E-06	2E-06	1E-06	1E-06	9E-07	9E-07	8E-07	2E-06
6.6	East	4E-06	2E-06	1E-06	1E-06	9E-07	9E-07	8E-07	1E-06
6.7	East	4E-06	2E-06	9E-07	9E-07	9E-07	9E-07	8E-07	2E-06
6.8	East	4E-06	2E-06	8E-07	8E-07	8E-07	8E-07	7E-07	2E-06
6.9	East	4E-06	1E-06	8E-07	8E-07	7E-07	7E-07	7E-07	2E-06
7	East	4E-06	1E-06	7E-07	7E-07	7E-07	7E-07	6E-07	2E-06
7.1	East	4E-06	1E-06	6E-07	6E-07	6E-07	6E-07	6E-07	2E-06
7.2	East	3E-06	1E-06	6E-07	6E-07	6E-07	6E-07	6E-07	2E-06
7.3	East	2E-06	1E-06	7E-07	7E-07	7E-07	7E-07	7E-07	2E-06
7.4	East	2E-06	1E-06	8E-07	8E-07	8E-07	8E-07	7E-07	2E-06
7.5	East	2E-06	1E-06	9E-07	9E-07	9E-07	9E-07	8E-07	2E-06
7.6	East	2E-06	1E-06	9E-07	9E-07	9E-07	9E-07	8E-07	2E-06
7.7	East	2E-06	1E-06	9E-07	9E-07	9E-07	9E-07	7E-07	2E-06
7.8	East	1E-06	9E-07	8E-07	8E-07	8E-07	8E-07	7E-07	9E-07
7.9	East	1E-06	8E-07	8E-07	8E-07	8E-07	8E-07	7E-07	8E-07
8	East	9E-07	7E-07	7E-07	7E-07	7E-07	7E-07	5E-07	7E-07
8.1	East	9E-07	7E-07	7E-07	7E-07	7E-07	7E-07	5E-07	7E-07
8.2	East	8E-07	6E-07	6E-07	6E-07	6E-07	6E-07	4E-07	6E-07
8.3	East	7E-07	5E-07	5E-07	5E-07	5E-07	5E-07	3E-07	5E-07
8.4	East	6E-07	4E-07	4E-07	4E-07	4E-07	4E-07	3E-07	4E-07
8.5	East	5E-07	3E-07	3E-07	3E-07	3E-07	3E-07	2E-07	3E-07
8.6	East	4E-07	2E-07	2E-07	2E-07	2E-07	2E-07	2E-07	2E-07
8.7	East	3E-07	2E-07	2E-07	2E-07	2E-07	2E-07	2E-07	2E-07
8.8	East	2E-07	2E-07	2E-07	2E-07	2E-07	2E-07	2E-07	2E-07
8.9	East	2E-07	2E-07	2E-07	2E-07	2E-07	2E-07	2E-07	2E-07
9	East	2E-07	2E-07	2E-07	2E-07	2E-07	2E-07	2E-07	2E-07
9.1	East	2E-07	2E-07	2E-07	2E-07	2E-07	2E-07	2E-07	2E-07
9.2	East	2E-07	2E-07	2E-07	2E-07	2E-07	2E-07	1E-07	2E-07
9.3	East	2E-07	2E-07	2E-07	2E-07	2E-07	2E-07	1E-07	2E-07
9.4	East	2E-07	2E-07	2E-07	2E-07	2E-07	2E-07	1E-07	2E-07
9.5	East	2E-07	2E-07	2E-07	2E-07	2E-07	2E-07	2E-07	2E-07
9.6	East	2E-07	2E-07	2E-07	2E-07	2E-07	2E-07	2E-07	2E-07
9.7	East	2E-07	2E-07	2E-07	2E-07	2E-07	2E-07	2E-07	2E-07
9.8	East	3E-07	3E-07	3E-07	3E-07	2E-07	2E-07	2E-07	3E-07
9.9	East	3E-07	3E-07	3E-07	3E-07	2E-07	2E-07	2E-07	3E-07
10	East	3E-07	3E-07	3E-07	3E-07	2E-07	2E-07	2E-07	3E-07
10.1	East	3E-07	3E-07	3E-07	3E-07	3E-07	3E-07	2E-07	3E-07
10.2	East	3E-07	3E-07	3E-07	3E-07	3E-07	3E-07	3E-07	3E-07

**Table J2.3-3i**  
**RAO 2 Rolling River Mile Risk Estimates - 1,2,3,7,8-PeCDF**  
 Portland Harbor Superfund Site  
 Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
10.3	East	4E-07	4E-07	4E-07	3E-07	3E-07	3E-07	3E-07	3E-07
10.4	East	4E-07	4E-07	4E-07	4E-07	3E-07	3E-07	2E-07	4E-07
10.5	East	4E-07	4E-07	4E-07	4E-07	3E-07	3E-07	2E-07	4E-07
10.6	East	5E-07	5E-07	5E-07	4E-07	3E-07	3E-07	2E-07	4E-07
10.7	East	5E-07	5E-07	5E-07	4E-07	3E-07	3E-07	2E-07	4E-07
10.8	East	6E-07	5E-07	5E-07	4E-07	3E-07	3E-07	2E-07	4E-07
10.9	East	6E-07	5E-07	5E-07	4E-07	2E-07	2E-07	1E-07	4E-07
11	East	7E-07	6E-07	5E-07	3E-07	2E-07	2E-07	1E-07	3E-07
11.1	East	7E-07	6E-07	5E-07	3E-07	2E-07	2E-07	1E-07	3E-07
11.2	East	7E-07	6E-07	4E-07	3E-07	2E-07	2E-07	8E-08	3E-07
11.3	East	7E-07	6E-07	4E-07	3E-07	2E-07	2E-07	7E-08	3E-07
11.4	East	7E-07	6E-07	4E-07	3E-07	2E-07	2E-07	6E-08	3E-07
11.5	East	8E-07	6E-07	4E-07	3E-07	2E-07	2E-07	6E-08	3E-07
11.6	East	8E-07	5E-07	4E-07	2E-07	1E-07	1E-07	5E-08	2E-07
11.7	East	8E-07	6E-07	4E-07	2E-07	1E-07	1E-07	3E-08	2E-07
1.8	Nav Channel	6E-08	6E-08	6E-08	6E-08	6E-08	6E-08	6E-08	6E-08
1.9	Nav Channel	7E-08	7E-08	7E-08	7E-08	7E-08	7E-08	6E-08	7E-08
2	Nav Channel	7E-08	7E-08	7E-08	7E-08	7E-08	7E-08	6E-08	7E-08
2.1	Nav Channel	9E-08	9E-08	9E-08	9E-08	9E-08	9E-08	7E-08	9E-08
2.2	Nav Channel	1E-07	1E-07	1E-07	1E-07	1E-07	1E-07	9E-08	1E-07
2.3	Nav Channel	1E-07	1E-07	1E-07	1E-07	1E-07	1E-07	1E-07	1E-07
2.4	Nav Channel	1E-07	1E-07	1E-07	1E-07	1E-07	1E-07	1E-07	1E-07
2.5	Nav Channel	1E-07	1E-07	1E-07	1E-07	1E-07	1E-07	1E-07	1E-07
2.6	Nav Channel	1E-07	1E-07	1E-07	1E-07	1E-07	1E-07	1E-07	1E-07
2.7	Nav Channel	2E-07	2E-07	2E-07	2E-07	2E-07	2E-07	1E-07	2E-07
2.8	Nav Channel	2E-07	2E-07	2E-07	2E-07	2E-07	2E-07	2E-07	2E-07
2.9	Nav Channel	2E-07	2E-07	2E-07	2E-07	2E-07	2E-07	2E-07	2E-07
3	Nav Channel	2E-07	2E-07	2E-07	2E-07	2E-07	2E-07	2E-07	2E-07
3.1	Nav Channel	2E-07	2E-07	2E-07	2E-07	2E-07	2E-07	2E-07	2E-07
3.2	Nav Channel	2E-07	2E-07	2E-07	2E-07	2E-07	2E-07	1E-07	2E-07
3.3	Nav Channel	2E-07	2E-07	2E-07	2E-07	2E-07	2E-07	1E-07	2E-07
3.4	Nav Channel	2E-07	2E-07	2E-07	2E-07	2E-07	2E-07	1E-07	2E-07
3.5	Nav Channel	2E-07	2E-07	2E-07	2E-07	2E-07	2E-07	1E-07	2E-07
3.6	Nav Channel	2E-07	2E-07	2E-07	2E-07	2E-07	2E-07	1E-07	2E-07
3.7	Nav Channel	2E-07	2E-07	2E-07	2E-07	2E-07	2E-07	1E-07	2E-07
3.8	Nav Channel	2E-07	2E-07	2E-07	2E-07	2E-07	2E-07	1E-07	2E-07
3.9	Nav Channel	2E-07	2E-07	2E-07	2E-07	2E-07	1E-07	1E-07	2E-07
4	Nav Channel	2E-07	2E-07	2E-07	2E-07	2E-07	1E-07	1E-07	2E-07
4.1	Nav Channel	1E-07	1E-07	1E-07	1E-07	1E-07	1E-07	1E-07	1E-07
4.2	Nav Channel	1E-07	1E-07	1E-07	1E-07	1E-07	1E-07	1E-07	1E-07
4.3	Nav Channel	2E-07	2E-07	2E-07	2E-07	2E-07	2E-07	1E-07	2E-07
4.4	Nav Channel	2E-07	2E-07	2E-07	2E-07	2E-07	2E-07	2E-07	2E-07

**Table J2.3-3i**  
**RAO 2 Rolling River Mile Risk Estimates - 1,2,3,7,8-PeCDF**  
 Portland Harbor Superfund Site  
 Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
4.5	Nav Channel	2E-07	2E-07	2E-07	2E-07	2E-07	2E-07	2E-07	2E-07
4.6	Nav Channel	3E-07	3E-07	2E-07	2E-07	3E-07	2E-07	2E-07	3E-07
4.7	Nav Channel	4E-07	3E-07	3E-07	2E-07	3E-07	2E-07	2E-07	3E-07
4.8	Nav Channel	5E-07	4E-07	3E-07	3E-07	4E-07	2E-07	2E-07	4E-07
4.9	Nav Channel	6E-07	5E-07	4E-07	3E-07	5E-07	2E-07	2E-07	5E-07
5	Nav Channel	8E-07	7E-07	5E-07	4E-07	7E-07	2E-07	2E-07	7E-07
5.1	Nav Channel	1E-06	9E-07	7E-07	5E-07	9E-07	3E-07	2E-07	9E-07
5.2	Nav Channel	1E-06	1E-06	7E-07	6E-07	1E-06	4E-07	2E-07	1E-06
5.3	Nav Channel	2E-06	1E-06	8E-07	6E-07	1E-06	4E-07	2E-07	1E-06
5.4	Nav Channel	2E-06	1E-06	9E-07	7E-07	1E-06	4E-07	2E-07	1E-06
5.5	Nav Channel	2E-06	1E-06	1E-06	8E-07	1E-06	4E-07	2E-07	1E-06
5.6	Nav Channel	2E-06	1E-06	1E-06	1E-06	1E-06	5E-07	2E-07	1E-06
5.7	Nav Channel	2E-06	2E-06	1E-06	1E-06	2E-06	6E-07	3E-07	2E-06
5.8	Nav Channel	3E-06	2E-06	1E-06	1E-06	2E-06	7E-07	4E-07	2E-06
5.9	Nav Channel	3E-06	2E-06	2E-06	1E-06	2E-06	9E-07	5E-07	2E-06
6	Nav Channel	3E-06	2E-06	2E-06	2E-06	2E-06	1E-06	7E-07	2E-06
6.1	Nav Channel	3E-06	2E-06	2E-06	2E-06	2E-06	1E-06	7E-07	2E-06
6.2	Nav Channel	3E-06	2E-06	2E-06	2E-06	2E-06	1E-06	7E-07	2E-06
6.3	Nav Channel	3E-06	3E-06	2E-06	2E-06	3E-06	1E-06	7E-07	2E-06
6.4	Nav Channel	3E-06	3E-06	2E-06	2E-06	3E-06	1E-06	8E-07	2E-06
6.5	Nav Channel	3E-06	3E-06	2E-06	2E-06	3E-06	1E-06	1E-06	2E-06
6.6	Nav Channel	3E-06	3E-06	2E-06	2E-06	3E-06	1E-06	1E-06	2E-06
6.7	Nav Channel	3E-06	2E-06	2E-06	2E-06	2E-06	2E-06	1E-06	2E-06
6.8	Nav Channel	3E-06	2E-06	2E-06	2E-06	2E-06	2E-06	1E-06	2E-06
6.9	Nav Channel	2E-06	2E-06	2E-06	2E-06	2E-06	1E-06	1E-06	2E-06
7	Nav Channel	2E-06	2E-06	2E-06	1E-06	2E-06	1E-06	8E-07	2E-06
7.1	Nav Channel	1E-06	1E-06	1E-06	1E-06	1E-06	1E-06	8E-07	1E-06
7.2	Nav Channel	1E-06	1E-06	1E-06	1E-06	1E-06	1E-06	8E-07	1E-06
7.3	Nav Channel	1E-06	1E-06	1E-06	1E-06	1E-06	9E-07	8E-07	1E-06
7.4	Nav Channel	9E-07	9E-07	9E-07	9E-07	9E-07	8E-07	7E-07	9E-07
7.5	Nav Channel	8E-07	7E-07	7E-07	7E-07	7E-07	7E-07	6E-07	7E-07
7.6	Nav Channel	7E-07	7E-07	7E-07	7E-07	6E-07	6E-07	5E-07	6E-07
7.7	Nav Channel	6E-07	6E-07	6E-07	6E-07	6E-07	5E-07	4E-07	6E-07
7.8	Nav Channel	5E-07	5E-07	5E-07	5E-07	5E-07	5E-07	4E-07	5E-07
7.9	Nav Channel	5E-07	5E-07	5E-07	5E-07	5E-07	5E-07	4E-07	5E-07
8	Nav Channel	5E-07	5E-07	5E-07	5E-07	5E-07	4E-07	4E-07	5E-07
8.1	Nav Channel	4E-07	4E-07	4E-07	4E-07	4E-07	4E-07	4E-07	4E-07
8.2	Nav Channel	4E-07	4E-07	4E-07	4E-07	4E-07	4E-07	4E-07	4E-07
8.3	Nav Channel	4E-07	4E-07	4E-07	4E-07	4E-07	4E-07	4E-07	4E-07
8.4	Nav Channel	3E-07	3E-07	3E-07	3E-07	3E-07	3E-07	3E-07	3E-07
8.5	Nav Channel	3E-07	3E-07	3E-07	3E-07	3E-07	3E-07	3E-07	3E-07
8.6	Nav Channel	3E-07	3E-07	3E-07	3E-07	3E-07	3E-07	3E-07	3E-07



**Table J2.3-3i**  
**RAO 2 Rolling River Mile Risk Estimates - 1,2,3,7,8-PeCDF**  
 Portland Harbor Superfund Site  
 Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
8.7	Nav Channel	3E-07	3E-07	3E-07	3E-07	3E-07	3E-07	3E-07	3E-07
8.8	Nav Channel	3E-07	3E-07	3E-07	3E-07	3E-07	3E-07	2E-07	3E-07
8.9	Nav Channel	3E-07	3E-07	3E-07	3E-07	3E-07	3E-07	2E-07	3E-07
9	Nav Channel	3E-07	3E-07	3E-07	3E-07	3E-07	2E-07	2E-07	3E-07
9.1	Nav Channel	3E-07	3E-07	3E-07	3E-07	3E-07	2E-07	2E-07	3E-07
9.2	Nav Channel	3E-07	3E-07	3E-07	3E-07	3E-07	2E-07	2E-07	3E-07
9.3	Nav Channel	2E-07	2E-07	2E-07	2E-07	2E-07	2E-07	2E-07	2E-07
9.4	Nav Channel	2E-07	2E-07	2E-07	2E-07	2E-07	2E-07	2E-07	2E-07
9.5	Nav Channel	2E-07	2E-07	2E-07	2E-07	2E-07	2E-07	2E-07	2E-07
9.6	Nav Channel	2E-07	2E-07	2E-07	2E-07	2E-07	2E-07	2E-07	2E-07
9.7	Nav Channel	2E-07	2E-07	2E-07	2E-07	2E-07	2E-07	1E-07	2E-07
9.8	Nav Channel	2E-07	2E-07	2E-07	2E-07	2E-07	2E-07	1E-07	2E-07
9.9	Nav Channel	2E-07	2E-07	2E-07	2E-07	2E-07	2E-07	1E-07	2E-07
10	Nav Channel	2E-07	2E-07	2E-07	2E-07	2E-07	2E-07	1E-07	2E-07
10.1	Nav Channel	2E-07	2E-07	2E-07	2E-07	2E-07	2E-07	1E-07	2E-07
10.2	Nav Channel	2E-07	2E-07	2E-07	2E-07	2E-07	2E-07	1E-07	2E-07
10.3	Nav Channel	2E-07	2E-07	2E-07	2E-07	2E-07	2E-07	1E-07	2E-07
10.4	Nav Channel	2E-07	2E-07	2E-07	2E-07	2E-07	2E-07	1E-07	2E-07
10.5	Nav Channel	2E-07	2E-07	2E-07	2E-07	2E-07	2E-07	1E-07	2E-07
10.6	Nav Channel	2E-07	2E-07	2E-07	2E-07	2E-07	2E-07	1E-07	2E-07
10.7	Nav Channel	2E-07	2E-07	2E-07	2E-07	2E-07	2E-07	1E-07	2E-07
10.8	Nav Channel	2E-07	2E-07	2E-07	2E-07	2E-07	2E-07	1E-07	2E-07
10.9	Nav Channel	2E-07	2E-07	2E-07	2E-07	2E-07	2E-07	1E-07	2E-07
11	Nav Channel	3E-07	2E-07	2E-07	2E-07	2E-07	2E-07	2E-07	2E-07
11.1	Nav Channel	3E-07	3E-07	2E-07	2E-07	2E-07	2E-07	2E-07	2E-07
11.2	Nav Channel	3E-07	3E-07	2E-07	2E-07	2E-07	2E-07	2E-07	2E-07
11.3	Nav Channel	3E-07	3E-07	3E-07	2E-07	2E-07	2E-07	2E-07	2E-07
11.4	Nav Channel	3E-07	3E-07	3E-07	2E-07	2E-07	2E-07	2E-07	2E-07
11.5	Nav Channel	3E-07	3E-07	3E-07	2E-07	2E-07	2E-07	2E-07	2E-07
11.6	Nav Channel	3E-07	3E-07	3E-07	3E-07	3E-07	2E-07	2E-07	3E-07
11.7	Nav Channel	3E-07	3E-07	3E-07	3E-07	3E-07	2E-07	2E-07	3E-07
1.8	West	3E-07	3E-07	3E-07	3E-07	3E-07	3E-07	3E-07	3E-07
1.9	West	5E-07	5E-07	5E-07	5E-07	5E-07	5E-07	5E-07	5E-07
2	West	6E-07	6E-07	6E-07	6E-07	6E-07	6E-07	6E-07	6E-07
2.1	West	6E-07	6E-07	6E-07	6E-07	6E-07	6E-07	6E-07	6E-07
2.2	West	6E-07	6E-07	6E-07	6E-07	6E-07	6E-07	6E-07	6E-07
2.3	West	6E-07	6E-07	6E-07	6E-07	6E-07	6E-07	6E-07	6E-07
2.4	West	6E-07	6E-07	6E-07	6E-07	6E-07	6E-07	6E-07	6E-07
2.5	West	6E-07	6E-07	6E-07	6E-07	6E-07	6E-07	6E-07	6E-07
2.6	West	6E-07	6E-07	6E-07	6E-07	6E-07	6E-07	6E-07	6E-07
2.7	West	5E-07	5E-07	5E-07	5E-07	5E-07	5E-07	5E-07	5E-07
2.8	West	4E-07	4E-07	4E-07	4E-07	4E-07	4E-07	4E-07	4E-07

**Table J2.3-3i**

**RAO 2 Rolling River Mile Risk Estimates - 1,2,3,7,8-PeCDF**

Portland Harbor Superfund Site

Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
2.9	West	3E-07	3E-07	3E-07	3E-07	3E-07	3E-07	3E-07	3E-07
3	West	2E-07	2E-07	2E-07	2E-07	2E-07	2E-07	2E-07	2E-07
3.1	West	2E-07	2E-07	2E-07	2E-07	2E-07	2E-07	2E-07	2E-07
3.2	West	2E-07	2E-07	2E-07	2E-07	2E-07	2E-07	2E-07	2E-07
3.3	West	2E-07	2E-07	2E-07	2E-07	2E-07	2E-07	2E-07	2E-07
3.4	West	3E-07	3E-07	3E-07	3E-07	3E-07	3E-07	2E-07	3E-07
3.5	West	3E-07	3E-07	3E-07	3E-07	3E-07	3E-07	3E-07	3E-07
3.6	West	4E-07	4E-07	4E-07	4E-07	3E-07	3E-07	3E-07	4E-07
3.7	West	4E-07	4E-07	4E-07	4E-07	4E-07	4E-07	3E-07	4E-07
3.8	West	5E-07	5E-07	5E-07	5E-07	4E-07	4E-07	3E-07	5E-07
3.9	West	5E-07	5E-07	5E-07	5E-07	5E-07	5E-07	4E-07	5E-07
4	West	6E-07	6E-07	6E-07	6E-07	6E-07	6E-07	4E-07	6E-07
4.1	West	8E-07	8E-07	8E-07	8E-07	7E-07	7E-07	5E-07	8E-07
4.2	West	9E-07	9E-07	9E-07	9E-07	8E-07	8E-07	5E-07	9E-07
4.3	West	1E-06	1E-06	1E-06	1E-06	9E-07	9E-07	6E-07	1E-06
4.4	West	1E-06	1E-06	1E-06	1E-06	9E-07	9E-07	6E-07	1E-06
4.5	West	1E-06	1E-06	1E-06	1E-06	9E-07	9E-07	6E-07	1E-06
4.6	West	1E-06	1E-06	1E-06	1E-06	1E-06	1E-06	7E-07	1E-06
4.7	West	1E-06	1E-06	1E-06	1E-06	1E-06	1E-06	8E-07	1E-06
4.8	West	2E-06	2E-06	1E-06	1E-06	1E-06	1E-06	8E-07	1E-06
4.9	West	2E-06	2E-06	2E-06	2E-06	1E-06	1E-06	9E-07	2E-06
5	West	2E-06	2E-06	2E-06	1E-06	1E-06	1E-06	8E-07	1E-06
5.1	West	2E-06	2E-06	2E-06	1E-06	1E-06	1E-06	7E-07	1E-06
5.2	West	2E-06	2E-06	1E-06	1E-06	1E-06	1E-06	7E-07	1E-06
5.3	West	2E-06	2E-06	1E-06	1E-06	1E-06	1E-06	6E-07	1E-06
5.4	West	2E-06	2E-06	1E-06	1E-06	1E-06	1E-06	5E-07	1E-06
5.5	West	1E-06	1E-06	1E-06	1E-06	9E-07	9E-07	5E-07	1E-06
5.6	West	1E-06	1E-06	1E-06	1E-06	8E-07	8E-07	4E-07	1E-06
5.7	West	1E-06	1E-06	1E-06	9E-07	7E-07	7E-07	3E-07	1E-06
5.8	West	1E-06	1E-06	8E-07	8E-07	6E-07	6E-07	2E-07	8E-07
5.9	West	1E-06	8E-07	7E-07	7E-07	5E-07	5E-07	2E-07	7E-07
6	West	1E-06	7E-07	7E-07	6E-07	4E-07	4E-07	2E-07	7E-07
6.1	West	2E-06	8E-07	7E-07	7E-07	4E-07	4E-07	2E-07	6E-07
6.2	West	2E-06	1E-06	1E-06	9E-07	5E-07	5E-07	2E-07	7E-07
6.3	West	2E-06	1E-06	1E-06	1E-06	4E-07	4E-07	1E-07	6E-07
6.4	West	4E-06	2E-06	2E-06	1E-06	4E-07	4E-07	1E-07	6E-07
6.5	West	9E-06	5E-06	3E-06	1E-06	3E-07	3E-07	4E-08	4E-07
6.6	West	2E-05	1E-05	6E-06	3E-06	4E-07	4E-07	4E-08	4E-07
6.7	West	3E-05	1E-05	6E-06	2E-06	4E-07	4E-07	3E-08	4E-07
6.8	West	4E-04	1E-05	6E-06	2E-06	4E-07	4E-07	3E-08	4E-07
6.9	West	7E-04	1E-05	6E-06	2E-06	4E-07	4E-07	4E-08	4E-07
7	West	7E-04	2E-05	1E-05	3E-06	6E-07	6E-07	3E-08	6E-07

**Table J2.3-3i**

**RAO 2 Rolling River Mile Risk Estimates - 1,2,3,7,8-PeCDF**

Portland Harbor Superfund Site

Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
7.1	West	6E-04	3E-05	2E-05	7E-06	3E-06	3E-06	4E-07	3E-06
7.2	West	5E-04	2E-05	2E-05	6E-06	3E-06	3E-06	4E-07	3E-06
7.3	West	4E-04	2E-05	2E-05	5E-06	2E-06	2E-06	4E-07	2E-06
7.4	West	4E-04	2E-05	2E-05	5E-06	3E-06	3E-06	4E-07	3E-06
7.5	West	5E-04	2E-05	2E-05	5E-06	3E-06	3E-06	4E-07	3E-06
7.6	West	5E-04	2E-05	1E-05	5E-06	3E-06	3E-06	4E-07	3E-06
7.7	West	5E-04	2E-05	1E-05	5E-06	3E-06	3E-06	4E-07	3E-06
7.8	West	3E-04	2E-05	1E-05	5E-06	3E-06	3E-06	4E-07	3E-06
7.9	West	3E-05	2E-05	1E-05	5E-06	3E-06	3E-06	4E-07	3E-06
8	West	1E-05	1E-05	1E-05	5E-06	3E-06	3E-06	4E-07	3E-06
8.1	West	2E-06	2E-06	2E-06	1E-06	9E-07	9E-07	2E-07	1E-06
8.2	West	1E-06	1E-06	1E-06	1E-06	8E-07	8E-07	1E-07	1E-06
8.3	West	1E-06	1E-06	1E-06	1E-06	7E-07	7E-07	1E-07	1E-06
8.4	West	2E-06	1E-06	1E-06	1E-06	5E-07	5E-07	1E-07	1E-06
8.5	West	2E-06	1E-06	1E-06	9E-07	4E-07	4E-07	1E-07	9E-07
8.6	West	2E-06	1E-06	1E-06	7E-07	3E-07	3E-07	1E-07	7E-07
8.7	West	2E-06	1E-06	1E-06	6E-07	2E-07	2E-07	1E-07	6E-07
8.8	West	2E-06	1E-06	1E-06	5E-07	2E-07	2E-07	1E-07	5E-07
8.9	West	2E-06	1E-06	9E-07	5E-07	3E-07	3E-07	2E-07	5E-07
9	West	2E-06	1E-06	9E-07	5E-07	3E-07	3E-07	2E-07	5E-07
9.1	West	2E-06	1E-06	9E-07	6E-07	3E-07	3E-07	3E-07	6E-07
9.2	West	2E-06	1E-06	9E-07	6E-07	4E-07	4E-07	3E-07	6E-07
9.3	West	2E-06	1E-06	9E-07	7E-07	4E-07	4E-07	3E-07	7E-07
9.4	West	2E-06	2E-06	9E-07	7E-07	4E-07	4E-07	3E-07	7E-07
9.5	West	2E-06	2E-06	1E-06	8E-07	5E-07	5E-07	4E-07	8E-07
9.6	West	2E-06	2E-06	1E-06	1E-06	6E-07	6E-07	5E-07	1E-06
9.7	West	2E-06	2E-06	1E-06	1E-06	8E-07	8E-07	6E-07	1E-06
9.8	West	2E-06	2E-06	1E-06	1E-06	8E-07	8E-07	6E-07	1E-06
9.9	West	2E-06	2E-06	1E-06	1E-06	8E-07	8E-07	5E-07	1E-06
10	West	2E-06	2E-06	1E-06	1E-06	1E-06	1E-06	6E-07	1E-06
10.1	West	2E-06	2E-06	2E-06	1E-06	1E-06	1E-06	8E-07	1E-06
10.2	West	3E-06	3E-06	2E-06	2E-06	2E-06	2E-06	1E-06	2E-06
10.3	West	3E-06	3E-06	3E-06	3E-06	2E-06	2E-06	2E-06	3E-06
10.4	West	3E-06	3E-06	3E-06	2E-06	2E-06	2E-06	2E-06	2E-06
10.5	West	2E-06	2E-06	2E-06	2E-06	2E-06	2E-06	2E-06	2E-06
10.6	West	2E-06	2E-06	2E-06	2E-06	2E-06	2E-06	1E-06	2E-06
10.7	West	2E-06	2E-06	2E-06	2E-06	2E-06	2E-06	1E-06	2E-06
10.8	West	2E-06	2E-06	2E-06	2E-06	2E-06	2E-06	1E-06	2E-06
10.9	West	2E-06	2E-06	2E-06	2E-06	2E-06	2E-06	1E-06	2E-06
11	West	2E-06	2E-06	2E-06	2E-06	2E-06	2E-06	1E-06	2E-06
11.1	West	2E-06	2E-06	2E-06	2E-06	2E-06	2E-06	1E-06	2E-06
11.2	West	1E-06	1E-06	1E-06	1E-06	1E-06	1E-06	1E-06	1E-06

**Table J2.3-3i**

**RAO 2 Rolling River Mile Risk Estimates - 1,2,3,7,8-PeCDF**

Portland Harbor Superfund Site

Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
11.3	West	1E-06	1E-06	1E-06	1E-06	1E-06	1E-06	1E-06	1E-06
11.4	West	1E-06	1E-06	1E-06	1E-06	1E-06	1E-06	1E-06	1E-06
11.5	West	1E-06	1E-06	1E-06	1E-06	1E-06	1E-06	1E-06	1E-06
11.6	West	1E-06	1E-06	1E-06	1E-06	1E-06	1E-06	1E-06	1E-06
11.7	West	9E-07	9E-07	9E-07	9E-07	9E-07	9E-07	9E-07	9E-07
7.6	Swan Isl	3E-07	3E-08	3E-08	2E-08	2E-09	2E-09	8E-10	2E-08
7.7	Swan Isl	4E-07	3E-08	3E-08	2E-08	4E-09	4E-09	1E-09	2E-08
7.8	Swan Isl	4E-07	4E-08	3E-08	2E-08	6E-09	6E-09	2E-09	2E-08
7.9	Swan Isl	4E-07	3E-08	3E-08	2E-08	7E-09	7E-09	3E-09	2E-08
8	Swan Isl	5E-07	3E-08	3E-08	2E-08	8E-09	8E-09	4E-09	2E-08
8.1	Swan Isl	5E-07	3E-08	3E-08	2E-08	9E-09	9E-09	5E-09	2E-08
8.2	Swan Isl	6E-07	4E-08	4E-08	3E-08	1E-08	1E-08	1E-08	3E-08
8.3	Swan Isl	8E-07	6E-08	4E-08	3E-08	2E-08	2E-08	1E-08	3E-08
8.4	Swan Isl	9E-07	9E-08	5E-08	3E-08	2E-08	2E-08	1E-08	3E-08
8.5	Swan Isl	1E-06	1E-07	5E-08	3E-08	2E-08	2E-08	1E-08	3E-08
8.6	Swan Isl	1E-06	2E-07	1E-07	9E-08	2E-08	2E-08	2E-08	2E-07
8.7	Swan Isl	2E-06	5E-07	3E-07	3E-07	9E-08	9E-08	7E-08	4E-07
8.8	Swan Isl	2E-06	6E-07	3E-07	3E-07	1E-07	1E-07	8E-08	5E-07
8.9	Swan Isl	2E-06	7E-07	4E-07	4E-07	1E-07	1E-07	1E-07	6E-07
9	Swan Isl	2E-06	8E-07	4E-07	4E-07	1E-07	1E-07	1E-07	7E-07
9.1	Swan Isl	2E-06	9E-07	5E-07	4E-07	1E-07	1E-07	1E-07	7E-07
9.2	Swan Isl	3E-06	1E-06	6E-07	5E-07	2E-07	2E-07	1E-07	8E-07
9.3	Swan Isl	3E-06	1E-06	7E-07	7E-07	2E-07	2E-07	2E-07	1E-06
9.4	Swan Isl	3E-06	2E-06	1E-06	1E-06	3E-07	3E-07	2E-07	2E-06
9.5	Swan Isl	4E-06	3E-06	2E-06	2E-06	4E-07	4E-07	4E-07	3E-06
9.6	Swan Isl	4E-06	4E-06	3E-06	2E-06	9E-07	9E-07	8E-07	4E-06

**Table J2.3-3j**  
**RAO 2 Rolling River Mile Risk Estimates - 2,3,7,8-TCDD**  
 Portland Harbor Superfund Site  
 Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
1.8	East	2E-06	2E-06	2E-06	2E-06	2E-06	2E-06	2E-06	2E-06
1.9	East	2E-06	2E-06	2E-06	2E-06	2E-06	2E-06	2E-06	2E-06
2	East	3E-06	2E-06	2E-06	2E-06	2E-06	2E-06	2E-06	2E-06
2.1	East	3E-06	2E-06	2E-06	2E-06	2E-06	2E-06	2E-06	2E-06
2.2	East	3E-06	2E-06	2E-06	2E-06	2E-06	2E-06	2E-06	2E-06
2.3	East	2E-06	2E-06	2E-06	2E-06	1E-06	1E-06	1E-06	2E-06
2.4	East	2E-06	2E-06	2E-06	2E-06	1E-06	1E-06	1E-06	2E-06
2.5	East	2E-06	2E-06	2E-06	2E-06	1E-06	1E-06	1E-06	2E-06
2.6	East	2E-06	2E-06	2E-06	2E-06	1E-06	1E-06	1E-06	2E-06
2.7	East	2E-06	2E-06	2E-06	2E-06	1E-06	1E-06	1E-06	2E-06
2.8	East	2E-06	2E-06	2E-06	2E-06	1E-06	1E-06	1E-06	2E-06
2.9	East	2E-06	2E-06	2E-06	2E-06	1E-06	1E-06	1E-06	2E-06
3	East	2E-06	2E-06	2E-06	2E-06	1E-06	1E-06	1E-06	2E-06
3.1	East	2E-06	2E-06	2E-06	2E-06	2E-06	2E-06	2E-06	2E-06
3.2	East	2E-06	2E-06	2E-06	2E-06	2E-06	2E-06	2E-06	2E-06
3.3	East	3E-06	3E-06	2E-06	2E-06	2E-06	2E-06	2E-06	2E-06
3.4	East	4E-06	3E-06	2E-06	2E-06	2E-06	2E-06	2E-06	2E-06
3.5	East	4E-06	3E-06	2E-06	2E-06	2E-06	2E-06	2E-06	2E-06
3.6	East	4E-06	3E-06	2E-06	2E-06	2E-06	2E-06	2E-06	2E-06
3.7	East	5E-06	4E-06	3E-06	2E-06	2E-06	2E-06	1E-06	2E-06
3.8	East	5E-06	4E-06	3E-06	2E-06	2E-06	2E-06	1E-06	2E-06
3.9	East	5E-06	4E-06	3E-06	2E-06	2E-06	2E-06	1E-06	2E-06
4	East	4E-06	3E-06	3E-06	2E-06	1E-06	1E-06	9E-07	2E-06
4.1	East	4E-06	3E-06	2E-06	2E-06	1E-06	1E-06	6E-07	2E-06
4.2	East	4E-06	3E-06	2E-06	1E-06	8E-07	8E-07	4E-07	1E-06
4.3	East	3E-06	2E-06	2E-06	1E-06	7E-07	7E-07	3E-07	1E-06
4.4	East	2E-06	2E-06	2E-06	1E-06	7E-07	7E-07	3E-07	1E-06
4.5	East	2E-06	2E-06	2E-06	1E-06	7E-07	7E-07	3E-07	1E-06
4.6	East	2E-06	2E-06	2E-06	2E-06	9E-07	9E-07	5E-07	2E-06
4.7	East	2E-06	2E-06	2E-06	2E-06	1E-06	1E-06	7E-07	2E-06
4.8	East	2E-06	2E-06	2E-06	2E-06	1E-06	1E-06	9E-07	2E-06
4.9	East	2E-06	2E-06	2E-06	2E-06	2E-06	2E-06	1E-06	2E-06
5	East	3E-06	3E-06	3E-06	2E-06	2E-06	2E-06	2E-06	2E-06
5.1	East	3E-06	3E-06	3E-06	3E-06	3E-06	3E-06	2E-06	3E-06
5.2	East	4E-06	4E-06	4E-06	4E-06	3E-06	3E-06	3E-06	4E-06
5.3	East	4E-06	4E-06	4E-06	4E-06	3E-06	3E-06	2E-06	3E-06
5.4	East	3E-06	3E-06	3E-06	3E-06	3E-06	3E-06	2E-06	3E-06
5.5	East	3E-06	3E-06	3E-06	3E-06	2E-06	2E-06	2E-06	2E-06
5.6	East	3E-06	3E-06	3E-06	3E-06	2E-06	2E-06	1E-06	2E-06
5.7	East	2E-06	2E-06	2E-06	2E-06	2E-06	2E-06	1E-06	2E-06
5.8	East	2E-06	2E-06	2E-06	2E-06	1E-06	1E-06	9E-07	2E-06
5.9	East	2E-06	2E-06	2E-06	2E-06	1E-06	1E-06	8E-07	1E-06
6	East	1E-06	1E-06	1E-06	1E-06	9E-07	9E-07	6E-07	1E-06

**Table J2.3-3j**  
**RAO 2 Rolling River Mile Risk Estimates - 2,3,7,8-TCDD**  
 Portland Harbor Superfund Site  
 Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
6.1	East	1E-06	1E-06	1E-06	1E-06	8E-07	8E-07	5E-07	1E-06
6.2	East	2E-06	1E-06	1E-06	1E-06	8E-07	8E-07	6E-07	1E-06
6.3	East	5E-06	2E-06	1E-06	1E-06	8E-07	8E-07	6E-07	2E-06
6.4	East	6E-06	3E-06	1E-06	1E-06	1E-06	1E-06	7E-07	3E-06
6.5	East	6E-06	3E-06	1E-06	1E-06	1E-06	1E-06	8E-07	3E-06
6.6	East	6E-06	3E-06	1E-06	1E-06	1E-06	1E-06	9E-07	3E-06
6.7	East	8E-06	3E-06	1E-06	1E-06	1E-06	1E-06	1E-06	4E-06
6.8	East	9E-06	4E-06	1E-06	1E-06	1E-06	1E-06	1E-06	6E-06
6.9	East	9E-06	4E-06	2E-06	2E-06	1E-06	1E-06	1E-06	6E-06
7	East	8E-06	4E-06	2E-06	2E-06	2E-06	2E-06	1E-06	6E-06
7.1	East	8E-06	4E-06	2E-06	2E-06	2E-06	2E-06	1E-06	5E-06
7.2	East	8E-06	4E-06	2E-06	2E-06	2E-06	2E-06	2E-06	6E-06
7.3	East	7E-06	3E-06	2E-06	2E-06	2E-06	2E-06	2E-06	6E-06
7.4	East	6E-06	3E-06	2E-06	2E-06	2E-06	2E-06	2E-06	6E-06
7.5	East	6E-06	3E-06	2E-06	2E-06	2E-06	2E-06	2E-06	6E-06
7.6	East	7E-06	4E-06	2E-06	2E-06	2E-06	2E-06	2E-06	7E-06
7.7	East	5E-06	3E-06	2E-06	2E-06	2E-06	2E-06	2E-06	4E-06
7.8	East	3E-06	2E-06	2E-06	2E-06	2E-06	2E-06	2E-06	2E-06
7.9	East	3E-06	2E-06	2E-06	2E-06	2E-06	2E-06	1E-06	2E-06
8	East	3E-06	2E-06	2E-06	2E-06	2E-06	2E-06	1E-06	2E-06
8.1	East	3E-06	2E-06	2E-06	2E-06	2E-06	2E-06	1E-06	2E-06
8.2	East	3E-06	2E-06	2E-06	2E-06	2E-06	2E-06	1E-06	2E-06
8.3	East	3E-06	2E-06	2E-06	2E-06	2E-06	2E-06	1E-06	2E-06
8.4	East	3E-06	2E-06	2E-06	2E-06	2E-06	2E-06	1E-06	2E-06
8.5	East	3E-06	2E-06	2E-06	2E-06	1E-06	1E-06	1E-06	2E-06
8.6	East	3E-06	1E-06	1E-06	1E-06	1E-06	1E-06	1E-06	1E-06
8.7	East	2E-06	2E-06	2E-06	2E-06	2E-06	2E-06	1E-06	2E-06
8.8	East	2E-06	2E-06	2E-06	2E-06	2E-06	2E-06	1E-06	2E-06
8.9	East	2E-06	2E-06	2E-06	2E-06	2E-06	2E-06	1E-06	2E-06
9	East	2E-06	2E-06	2E-06	2E-06	2E-06	2E-06	2E-06	2E-06
9.1	East	2E-06	2E-06	2E-06	2E-06	2E-06	2E-06	1E-06	2E-06
9.2	East	2E-06	2E-06	2E-06	2E-06	2E-06	2E-06	1E-06	2E-06
9.3	East	2E-06	2E-06	2E-06	2E-06	2E-06	2E-06	1E-06	2E-06
9.4	East	3E-06	3E-06	3E-06	3E-06	2E-06	2E-06	2E-06	3E-06
9.5	East	3E-06	3E-06	3E-06	3E-06	3E-06	3E-06	2E-06	3E-06
9.6	East	3E-06	3E-06	3E-06	3E-06	3E-06	3E-06	2E-06	3E-06
9.7	East	3E-06	3E-06	3E-06	3E-06	3E-06	3E-06	2E-06	3E-06
9.8	East	3E-06	3E-06	3E-06	3E-06	3E-06	3E-06	3E-06	3E-06
9.9	East	4E-06	4E-06	4E-06	4E-06	3E-06	3E-06	3E-06	4E-06
10	East	4E-06	4E-06	4E-06	4E-06	4E-06	4E-06	3E-06	4E-06
10.1	East	4E-06	4E-06	4E-06	4E-06	4E-06	4E-06	3E-06	4E-06
10.2	East	5E-06	5E-06	5E-06	5E-06	4E-06	4E-06	4E-06	5E-06

**Table J2.3-3j**  
**RAO 2 Rolling River Mile Risk Estimates - 2,3,7,8-TCDD**  
 Portland Harbor Superfund Site  
 Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
10.3	East	5E-06	5E-06	5E-06	5E-06	4E-06	4E-06	4E-06	5E-06
10.4	East	6E-06	6E-06	6E-06	5E-06	4E-06	4E-06	4E-06	5E-06
10.5	East	6E-06	6E-06	6E-06	5E-06	4E-06	4E-06	3E-06	5E-06
10.6	East	7E-06	7E-06	6E-06	6E-06	4E-06	4E-06	3E-06	6E-06
10.7	East	7E-06	7E-06	7E-06	6E-06	4E-06	4E-06	3E-06	6E-06
10.8	East	8E-06	8E-06	7E-06	6E-06	4E-06	4E-06	2E-06	6E-06
10.9	East	9E-06	8E-06	7E-06	5E-06	3E-06	3E-06	2E-06	5E-06
11	East	1E-05	8E-06	6E-06	5E-06	3E-06	3E-06	2E-06	5E-06
11.1	East	1E-05	8E-06	6E-06	5E-06	3E-06	3E-06	1E-06	5E-06
11.2	East	1E-05	8E-06	6E-06	4E-06	3E-06	3E-06	1E-06	4E-06
11.3	East	1E-05	8E-06	6E-06	4E-06	3E-06	3E-06	1E-06	4E-06
11.4	East	1E-05	8E-06	6E-06	4E-06	2E-06	2E-06	8E-07	4E-06
11.5	East	1E-05	8E-06	5E-06	4E-06	2E-06	2E-06	8E-07	4E-06
11.6	East	1E-05	8E-06	5E-06	3E-06	2E-06	2E-06	7E-07	3E-06
11.7	East	1E-05	8E-06	5E-06	3E-06	2E-06	2E-06	4E-07	3E-06
1.8	Nav Channel	1E-06	1E-06	1E-06	1E-06	1E-06	1E-06	9E-07	1E-06
1.9	Nav Channel	1E-06	1E-06	1E-06	1E-06	1E-06	1E-06	9E-07	1E-06
2	Nav Channel	1E-06	1E-06	1E-06	1E-06	1E-06	1E-06	9E-07	1E-06
2.1	Nav Channel	1E-06	1E-06	1E-06	1E-06	1E-06	1E-06	9E-07	1E-06
2.2	Nav Channel	1E-06	1E-06	1E-06	1E-06	1E-06	1E-06	1E-06	1E-06
2.3	Nav Channel	1E-06	1E-06	1E-06	1E-06	1E-06	1E-06	1E-06	1E-06
2.4	Nav Channel	1E-06	1E-06	1E-06	1E-06	1E-06	1E-06	1E-06	1E-06
2.5	Nav Channel	1E-06	1E-06	1E-06	1E-06	1E-06	1E-06	1E-06	1E-06
2.6	Nav Channel	1E-06	1E-06	1E-06	1E-06	1E-06	1E-06	1E-06	1E-06
2.7	Nav Channel	1E-06	1E-06	1E-06	1E-06	1E-06	1E-06	1E-06	1E-06
2.8	Nav Channel	1E-06	1E-06	1E-06	1E-06	1E-06	1E-06	1E-06	1E-06
2.9	Nav Channel	1E-06	1E-06	1E-06	1E-06	1E-06	1E-06	1E-06	1E-06
3	Nav Channel	1E-06	1E-06	1E-06	1E-06	1E-06	1E-06	1E-06	1E-06
3.1	Nav Channel	2E-06	2E-06	2E-06	2E-06	2E-06	1E-06	1E-06	2E-06
3.2	Nav Channel	2E-06	2E-06	2E-06	2E-06	2E-06	1E-06	1E-06	2E-06
3.3	Nav Channel	2E-06	2E-06	2E-06	2E-06	2E-06	1E-06	1E-06	2E-06
3.4	Nav Channel	2E-06	2E-06	2E-06	2E-06	2E-06	2E-06	1E-06	2E-06
3.5	Nav Channel	2E-06	2E-06	2E-06	2E-06	2E-06	2E-06	1E-06	2E-06
3.6	Nav Channel	2E-06	2E-06	2E-06	2E-06	2E-06	2E-06	1E-06	2E-06
3.7	Nav Channel	2E-06	2E-06	2E-06	2E-06	2E-06	2E-06	1E-06	2E-06
3.8	Nav Channel	2E-06	2E-06	2E-06	2E-06	2E-06	2E-06	1E-06	2E-06
3.9	Nav Channel	2E-06	2E-06	2E-06	2E-06	2E-06	1E-06	1E-06	2E-06
4	Nav Channel	2E-06	2E-06	2E-06	2E-06	2E-06	1E-06	1E-06	2E-06
4.1	Nav Channel	2E-06	2E-06	2E-06	2E-06	2E-06	1E-06	1E-06	2E-06
4.2	Nav Channel	1E-06	1E-06	1E-06	1E-06	1E-06	1E-06	1E-06	1E-06
4.3	Nav Channel	1E-06	1E-06	1E-06	1E-06	1E-06	1E-06	1E-06	1E-06
4.4	Nav Channel	1E-06	1E-06	1E-06	1E-06	1E-06	1E-06	1E-06	1E-06

**Table J2.3-3j**  
**RAO 2 Rolling River Mile Risk Estimates - 2,3,7,8-TCDD**  
 Portland Harbor Superfund Site  
 Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
4.5	Nav Channel	1E-06	1E-06	1E-06	1E-06	1E-06	1E-06	1E-06	1E-06
4.6	Nav Channel	1E-06	1E-06	1E-06	1E-06	1E-06	1E-06	1E-06	1E-06
4.7	Nav Channel	1E-06	1E-06	1E-06	1E-06	1E-06	1E-06	1E-06	1E-06
4.8	Nav Channel	1E-06	1E-06	1E-06	1E-06	1E-06	1E-06	9E-07	1E-06
4.9	Nav Channel	1E-06	1E-06	1E-06	1E-06	1E-06	9E-07	8E-07	1E-06
5	Nav Channel	1E-06	1E-06	1E-06	9E-07	1E-06	8E-07	7E-07	1E-06
5.1	Nav Channel	1E-06	1E-06	1E-06	9E-07	1E-06	7E-07	6E-07	1E-06
5.2	Nav Channel	1E-06	1E-06	1E-06	9E-07	1E-06	7E-07	5E-07	1E-06
5.3	Nav Channel	2E-06	1E-06	1E-06	8E-07	1E-06	6E-07	5E-07	1E-06
5.4	Nav Channel	2E-06	1E-06	1E-06	9E-07	1E-06	6E-07	4E-07	1E-06
5.5	Nav Channel	2E-06	1E-06	1E-06	1E-06	1E-06	6E-07	4E-07	1E-06
5.6	Nav Channel	2E-06	2E-06	1E-06	1E-06	2E-06	8E-07	6E-07	2E-06
5.7	Nav Channel	2E-06	2E-06	2E-06	1E-06	2E-06	1E-06	6E-07	2E-06
5.8	Nav Channel	3E-06	2E-06	2E-06	2E-06	2E-06	1E-06	9E-07	2E-06
5.9	Nav Channel	4E-06	3E-06	3E-06	3E-06	3E-06	2E-06	1E-06	3E-06
6	Nav Channel	5E-06	4E-06	4E-06	4E-06	4E-06	3E-06	2E-06	4E-06
6.1	Nav Channel	6E-06	5E-06	5E-06	4E-06	5E-06	3E-06	2E-06	5E-06
6.2	Nav Channel	8E-06	7E-06	6E-06	5E-06	7E-06	3E-06	3E-06	7E-06
6.3	Nav Channel	9E-06	9E-06	8E-06	7E-06	9E-06	4E-06	3E-06	9E-06
6.4	Nav Channel	1E-05	1E-05	9E-06	9E-06	1E-05	5E-06	3E-06	1E-05
6.5	Nav Channel	1E-05	1E-05	1E-05	1E-05	1E-05	6E-06	5E-06	1E-05
6.6	Nav Channel	1E-05	1E-05	1E-05	1E-05	1E-05	7E-06	5E-06	1E-05
6.7	Nav Channel	1E-05	1E-05	1E-05	1E-05	1E-05	8E-06	6E-06	1E-05
6.8	Nav Channel	1E-05	1E-05	1E-05	1E-05	1E-05	8E-06	6E-06	1E-05
6.9	Nav Channel	1E-05	1E-05	1E-05	1E-05	1E-05	8E-06	6E-06	1E-05
7	Nav Channel	1E-05	1E-05	1E-05	1E-05	1E-05	7E-06	5E-06	1E-05
7.1	Nav Channel	1E-05	1E-05	9E-06	9E-06	1E-05	7E-06	5E-06	1E-05
7.2	Nav Channel	8E-06	8E-06	8E-06	8E-06	8E-06	7E-06	5E-06	8E-06
7.3	Nav Channel	7E-06	7E-06	7E-06	7E-06	7E-06	6E-06	5E-06	7E-06
7.4	Nav Channel	6E-06	6E-06	6E-06	6E-06	6E-06	5E-06	5E-06	6E-06
7.5	Nav Channel	5E-06	5E-06	5E-06	5E-06	5E-06	5E-06	4E-06	5E-06
7.6	Nav Channel	4E-06	4E-06	4E-06	4E-06	4E-06	4E-06	3E-06	4E-06
7.7	Nav Channel	4E-06	4E-06	4E-06	4E-06	4E-06	4E-06	3E-06	4E-06
7.8	Nav Channel	4E-06	4E-06	4E-06	4E-06	4E-06	3E-06	3E-06	4E-06
7.9	Nav Channel	3E-06	3E-06	3E-06	3E-06	3E-06	3E-06	3E-06	3E-06
8	Nav Channel	3E-06	3E-06	3E-06	3E-06	3E-06	3E-06	3E-06	3E-06
8.1	Nav Channel	3E-06	3E-06	3E-06	3E-06	3E-06	3E-06	3E-06	3E-06
8.2	Nav Channel	3E-06	3E-06	3E-06	3E-06	3E-06	3E-06	3E-06	3E-06
8.3	Nav Channel	3E-06	3E-06	3E-06	3E-06	3E-06	3E-06	3E-06	3E-06
8.4	Nav Channel	3E-06	3E-06	3E-06	3E-06	3E-06	3E-06	3E-06	3E-06
8.5	Nav Channel	3E-06	3E-06	3E-06	3E-06	3E-06	3E-06	2E-06	3E-06
8.6	Nav Channel	3E-06	3E-06	3E-06	3E-06	3E-06	3E-06	2E-06	3E-06



**Table J2.3-3j**  
**RAO 2 Rolling River Mile Risk Estimates - 2,3,7,8-TCDD**  
 Portland Harbor Superfund Site  
 Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
8.7	Nav Channel	3E-06	3E-06	3E-06	3E-06	3E-06	3E-06	2E-06	3E-06
8.8	Nav Channel	3E-06	3E-06	3E-06	3E-06	3E-06	3E-06	2E-06	3E-06
8.9	Nav Channel	3E-06	3E-06	3E-06	3E-06	3E-06	3E-06	2E-06	3E-06
9	Nav Channel	4E-06	3E-06	3E-06	3E-06	3E-06	3E-06	3E-06	3E-06
9.1	Nav Channel	4E-06	4E-06	4E-06	4E-06	4E-06	3E-06	3E-06	4E-06
9.2	Nav Channel	4E-06	4E-06	4E-06	4E-06	4E-06	3E-06	3E-06	4E-06
9.3	Nav Channel	4E-06	4E-06	4E-06	4E-06	4E-06	3E-06	3E-06	4E-06
9.4	Nav Channel	4E-06	4E-06	4E-06	4E-06	4E-06	4E-06	3E-06	4E-06
9.5	Nav Channel	4E-06	4E-06	4E-06	4E-06	4E-06	4E-06	3E-06	4E-06
9.6	Nav Channel	5E-06	5E-06	5E-06	5E-06	5E-06	4E-06	4E-06	5E-06
9.7	Nav Channel	5E-06	5E-06	5E-06	5E-06	5E-06	4E-06	4E-06	5E-06
9.8	Nav Channel	5E-06	5E-06	5E-06	5E-06	5E-06	4E-06	4E-06	5E-06
9.9	Nav Channel	5E-06	5E-06	5E-06	5E-06	5E-06	4E-06	4E-06	5E-06
10	Nav Channel	5E-06	5E-06	5E-06	5E-06	5E-06	4E-06	3E-06	5E-06
10.1	Nav Channel	5E-06	5E-06	5E-06	5E-06	5E-06	4E-06	3E-06	5E-06
10.2	Nav Channel	5E-06	5E-06	5E-06	5E-06	5E-06	4E-06	3E-06	5E-06
10.3	Nav Channel	5E-06	5E-06	5E-06	5E-06	5E-06	4E-06	3E-06	5E-06
10.4	Nav Channel	5E-06	5E-06	5E-06	5E-06	5E-06	4E-06	3E-06	5E-06
10.5	Nav Channel	5E-06	5E-06	5E-06	5E-06	5E-06	4E-06	3E-06	5E-06
10.6	Nav Channel	5E-06	5E-06	5E-06	5E-06	5E-06	4E-06	3E-06	5E-06
10.7	Nav Channel	6E-06	6E-06	6E-06	6E-06	6E-06	5E-06	3E-06	6E-06
10.8	Nav Channel	6E-06	6E-06	6E-06	6E-06	6E-06	5E-06	4E-06	6E-06
10.9	Nav Channel	7E-06	7E-06	6E-06	6E-06	6E-06	5E-06	4E-06	6E-06
11	Nav Channel	7E-06	7E-06	7E-06	7E-06	7E-06	6E-06	5E-06	7E-06
11.1	Nav Channel	8E-06	7E-06	7E-06	7E-06	7E-06	6E-06	5E-06	7E-06
11.2	Nav Channel	8E-06	8E-06	7E-06	7E-06	7E-06	6E-06	5E-06	7E-06
11.3	Nav Channel	8E-06	8E-06	8E-06	7E-06	7E-06	7E-06	5E-06	7E-06
11.4	Nav Channel	8E-06	8E-06	8E-06	7E-06	7E-06	7E-06	6E-06	7E-06
11.5	Nav Channel	9E-06	8E-06	8E-06	8E-06	8E-06	7E-06	7E-06	8E-06
11.6	Nav Channel	9E-06	8E-06	8E-06	8E-06	8E-06	7E-06	6E-06	8E-06
11.7	Nav Channel	9E-06	8E-06	8E-06	8E-06	8E-06	7E-06	6E-06	8E-06
1.8	West	1E-06	1E-06	1E-06	1E-06	1E-06	1E-06	1E-06	1E-06
1.9	West	1E-06	1E-06	1E-06	1E-06	1E-06	1E-06	1E-06	1E-06
2	West	1E-06	1E-06	1E-06	1E-06	1E-06	1E-06	1E-06	1E-06
2.1	West	1E-06	1E-06	1E-06	1E-06	1E-06	1E-06	1E-06	1E-06
2.2	West	1E-06	1E-06	1E-06	1E-06	1E-06	1E-06	1E-06	1E-06
2.3	West	1E-06	1E-06	1E-06	1E-06	1E-06	1E-06	1E-06	1E-06
2.4	West	1E-06	1E-06	1E-06	1E-06	1E-06	1E-06	1E-06	1E-06
2.5	West	1E-06	1E-06	1E-06	1E-06	1E-06	1E-06	1E-06	1E-06
2.6	West	1E-06	1E-06	1E-06	1E-06	1E-06	1E-06	1E-06	1E-06
2.7	West	1E-06	1E-06	1E-06	1E-06	1E-06	1E-06	1E-06	1E-06
2.8	West	2E-06	2E-06	2E-06	2E-06	2E-06	2E-06	1E-06	2E-06

**Table J2.3-3j**  
**RAO 2 Rolling River Mile Risk Estimates - 2,3,7,8-TCDD**  
 Portland Harbor Superfund Site  
 Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
2.9	West	2E-06	2E-06	2E-06	2E-06	2E-06	2E-06	1E-06	2E-06
3	West	2E-06	2E-06	2E-06	2E-06	2E-06	2E-06	2E-06	2E-06
3.1	West	2E-06	2E-06	2E-06	2E-06	2E-06	2E-06	2E-06	2E-06
3.2	West	2E-06	2E-06	2E-06	2E-06	2E-06	2E-06	2E-06	2E-06
3.3	West	3E-06	3E-06	3E-06	3E-06	3E-06	3E-06	2E-06	3E-06
3.4	West	3E-06	3E-06	3E-06	3E-06	3E-06	3E-06	2E-06	3E-06
3.5	West	3E-06	3E-06	3E-06	3E-06	3E-06	3E-06	3E-06	3E-06
3.6	West	4E-06	4E-06	4E-06	4E-06	3E-06	3E-06	3E-06	4E-06
3.7	West	4E-06	4E-06	4E-06	4E-06	4E-06	4E-06	3E-06	4E-06
3.8	West	5E-06	5E-06	5E-06	5E-06	5E-06	5E-06	4E-06	5E-06
3.9	West	6E-06	6E-06	6E-06	6E-06	6E-06	6E-06	4E-06	6E-06
4	West	8E-06	8E-06	8E-06	8E-06	7E-06	7E-06	4E-06	8E-06
4.1	West	9E-06	9E-06	9E-06	9E-06	8E-06	8E-06	5E-06	9E-06
4.2	West	1E-05	1E-05	1E-05	1E-05	9E-06	9E-06	5E-06	1E-05
4.3	West	1E-05	1E-05	1E-05	1E-05	1E-05	1E-05	5E-06	1E-05
4.4	West	1E-05	1E-05	1E-05	1E-05	1E-05	1E-05	5E-06	1E-05
4.5	West	1E-05	1E-05	1E-05	1E-05	1E-05	1E-05	5E-06	1E-05
4.6	West	1E-05	1E-05	1E-05	1E-05	1E-05	1E-05	5E-06	1E-05
4.7	West	1E-05	1E-05	1E-05	1E-05	1E-05	1E-05	5E-06	1E-05
4.8	West	1E-05	1E-05	1E-05	1E-05	9E-06	9E-06	5E-06	1E-05
4.9	West	1E-05	1E-05	1E-05	1E-05	8E-06	8E-06	5E-06	1E-05
5	West	9E-06	9E-06	9E-06	9E-06	7E-06	7E-06	4E-06	9E-06
5.1	West	8E-06	8E-06	7E-06	7E-06	5E-06	5E-06	4E-06	7E-06
5.2	West	6E-06	5E-06	5E-06	5E-06	4E-06	4E-06	3E-06	5E-06
5.3	West	4E-06	4E-06	4E-06	4E-06	3E-06	3E-06	2E-06	4E-06
5.4	West	4E-06	4E-06	4E-06	3E-06	3E-06	3E-06	1E-06	3E-06
5.5	West	4E-06	4E-06	4E-06	3E-06	3E-06	3E-06	2E-06	3E-06
5.6	West	4E-06	4E-06	4E-06	3E-06	2E-06	2E-06	1E-06	3E-06
5.7	West	4E-06	4E-06	3E-06	3E-06	2E-06	2E-06	1E-06	3E-06
5.8	West	4E-06	3E-06	3E-06	3E-06	2E-06	2E-06	1E-06	3E-06
5.9	West	4E-06	3E-06	3E-06	2E-06	2E-06	2E-06	9E-07	3E-06
6	West	4E-06	3E-06	2E-06	2E-06	2E-06	2E-06	9E-07	2E-06
6.1	West	4E-06	3E-06	2E-06	2E-06	2E-06	2E-06	9E-07	2E-06
6.2	West	4E-06	3E-06	3E-06	3E-06	2E-06	2E-06	8E-07	2E-06
6.3	West	6E-06	4E-06	4E-06	3E-06	1E-06	1E-06	6E-07	2E-06
6.4	West	3E-05	6E-06	4E-06	3E-06	1E-06	1E-06	5E-07	2E-06
6.5	West	1E-04	6E-06	4E-06	2E-06	8E-07	8E-07	2E-07	1E-06
6.6	West	1E-04	7E-06	4E-06	2E-06	6E-07	6E-07	2E-07	6E-07
6.7	West	1E-04	6E-06	4E-06	2E-06	5E-07	5E-07	2E-07	5E-07
6.8	West	1E-04	6E-06	4E-06	2E-06	5E-07	5E-07	2E-07	5E-07
6.9	West	1E-04	6E-06	4E-06	2E-06	6E-07	6E-07	2E-07	6E-07
7	West	1E-04	7E-06	4E-06	2E-06	6E-07	6E-07	2E-07	6E-07

**Table J2.3-3j**  
**RAO 2 Rolling River Mile Risk Estimates - 2,3,7,8-TCDD**  
 Portland Harbor Superfund Site  
 Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
7.1	West	1E-04	7E-06	5E-06	3E-06	2E-06	2E-06	5E-07	2E-06
7.2	West	9E-05	6E-06	5E-06	3E-06	2E-06	2E-06	1E-06	2E-06
7.3	West	8E-05	6E-06	4E-06	3E-06	2E-06	2E-06	1E-06	2E-06
7.4	West	6E-05	5E-06	4E-06	3E-06	2E-06	2E-06	1E-06	2E-06
7.5	West	2E-05	5E-06	4E-06	3E-06	3E-06	3E-06	1E-06	3E-06
7.6	West	2E-05	5E-06	4E-06	4E-06	3E-06	3E-06	1E-06	3E-06
7.7	West	2E-05	5E-06	5E-06	5E-06	4E-06	4E-06	1E-06	4E-06
7.8	West	1E-05	7E-06	7E-06	6E-06	4E-06	4E-06	1E-06	5E-06
7.9	West	8E-06	8E-06	8E-06	6E-06	4E-06	4E-06	1E-06	6E-06
8	West	9E-06	9E-06	9E-06	6E-06	5E-06	5E-06	2E-06	6E-06
8.1	West	1E-05	1E-05	1E-05	8E-06	5E-06	5E-06	2E-06	8E-06
8.2	West	2E-05	2E-05	2E-05	9E-06	5E-06	5E-06	2E-06	9E-06
8.3	West	2E-05	2E-05	2E-05	1E-05	5E-06	5E-06	2E-06	1E-05
8.4	West	4E-05	2E-05	2E-05	1E-05	5E-06	5E-06	2E-06	1E-05
8.5	West	4E-05	3E-05	2E-05	1E-05	4E-06	4E-06	2E-06	1E-05
8.6	West	5E-05	3E-05	2E-05	9E-06	4E-06	4E-06	2E-06	9E-06
8.7	West	5E-05	3E-05	2E-05	8E-06	3E-06	3E-06	2E-06	8E-06
8.8	West	5E-05	3E-05	3E-05	8E-06	4E-06	4E-06	2E-06	8E-06
8.9	West	5E-05	3E-05	3E-05	1E-05	6E-06	6E-06	5E-06	1E-05
9	West	6E-05	3E-05	3E-05	1E-05	6E-06	6E-06	5E-06	1E-05
9.1	West	6E-05	3E-05	2E-05	1E-05	6E-06	6E-06	5E-06	1E-05
9.2	West	5E-05	2E-05	2E-05	9E-06	6E-06	6E-06	5E-06	9E-06
9.3	West	4E-05	2E-05	1E-05	9E-06	6E-06	6E-06	5E-06	9E-06
9.4	West	3E-05	2E-05	1E-05	9E-06	6E-06	6E-06	5E-06	9E-06
9.5	West	2E-05	2E-05	1E-05	1E-05	7E-06	7E-06	5E-06	1E-05
9.6	West	2E-05	2E-05	1E-05	1E-05	7E-06	7E-06	6E-06	1E-05
9.7	West	2E-05	2E-05	1E-05	1E-05	8E-06	8E-06	6E-06	1E-05
9.8	West	1E-05	1E-05	1E-05	9E-06	7E-06	7E-06	6E-06	9E-06
9.9	West	1E-05	1E-05	7E-06	6E-06	4E-06	4E-06	3E-06	6E-06
10	West	1E-05	9E-06	5E-06	4E-06	3E-06	3E-06	2E-06	4E-06
10.1	West	1E-05	9E-06	4E-06	3E-06	2E-06	2E-06	2E-06	3E-06
10.2	West	1E-05	1E-05	5E-06	5E-06	4E-06	4E-06	3E-06	5E-06
10.3	West	7E-06	7E-06	7E-06	7E-06	6E-06	6E-06	4E-06	7E-06
10.4	West	7E-06	7E-06	7E-06	7E-06	6E-06	6E-06	5E-06	7E-06
10.5	West	7E-06	7E-06	7E-06	7E-06	6E-06	6E-06	5E-06	7E-06
10.6	West	7E-06	7E-06	7E-06	7E-06	6E-06	6E-06	5E-06	7E-06
10.7	West	7E-06	7E-06	7E-06	7E-06	6E-06	6E-06	5E-06	7E-06
10.8	West	7E-06	7E-06	7E-06	7E-06	7E-06	7E-06	5E-06	7E-06
10.9	West	7E-06	7E-06	7E-06	7E-06	7E-06	7E-06	5E-06	7E-06
11	West	6E-06	6E-06	6E-06	6E-06	6E-06	6E-06	5E-06	6E-06
11.1	West	6E-06	6E-06	6E-06	6E-06	6E-06	6E-06	5E-06	6E-06
11.2	West	5E-06	5E-06	5E-06	5E-06	5E-06	5E-06	5E-06	5E-06

**Table J2.3-3j**  
**RAO 2 Rolling River Mile Risk Estimates - 2,3,7,8-TCDD**  
 Portland Harbor Superfund Site  
 Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
11.3	West	5E-06	5E-06	5E-06	5E-06	5E-06	5E-06	5E-06	5E-06
11.4	West	4E-06	4E-06	4E-06	4E-06	4E-06	4E-06	4E-06	4E-06
11.5	West	4E-06	4E-06	4E-06	4E-06	4E-06	4E-06	4E-06	4E-06
11.6	West	3E-06	3E-06	3E-06	3E-06	3E-06	3E-06	3E-06	3E-06
11.7	West	3E-06	3E-06	3E-06	3E-06	3E-06	3E-06	3E-06	3E-06
7.6	Swan Isl	5E-06	3E-07	3E-07	2E-07	4E-08	4E-08	2E-08	2E-07
7.7	Swan Isl	5E-06	3E-07	3E-07	2E-07	4E-08	4E-08	2E-08	2E-07
7.8	Swan Isl	5E-06	4E-07	3E-07	2E-07	5E-08	5E-08	2E-08	2E-07
7.9	Swan Isl	5E-06	3E-07	3E-07	2E-07	6E-08	6E-08	2E-08	2E-07
8	Swan Isl	5E-06	3E-07	3E-07	2E-07	6E-08	6E-08	3E-08	2E-07
8.1	Swan Isl	5E-06	3E-07	3E-07	2E-07	6E-08	6E-08	3E-08	2E-07
8.2	Swan Isl	5E-06	3E-07	3E-07	2E-07	9E-08	9E-08	6E-08	2E-07
8.3	Swan Isl	5E-06	4E-07	3E-07	2E-07	1E-07	1E-07	7E-08	2E-07
8.4	Swan Isl	5E-06	4E-07	3E-07	2E-07	1E-07	1E-07	8E-08	2E-07
8.5	Swan Isl	5E-06	4E-07	3E-07	2E-07	1E-07	1E-07	8E-08	2E-07
8.6	Swan Isl	6E-06	7E-07	4E-07	3E-07	1E-07	1E-07	1E-07	4E-07
8.7	Swan Isl	6E-06	1E-06	7E-07	6E-07	3E-07	3E-07	2E-07	9E-07
8.8	Swan Isl	6E-06	1E-06	8E-07	7E-07	3E-07	3E-07	3E-07	1E-06
8.9	Swan Isl	6E-06	1E-06	9E-07	8E-07	3E-07	3E-07	3E-07	1E-06
9	Swan Isl	7E-06	2E-06	1E-06	9E-07	4E-07	4E-07	3E-07	1E-06
9.1	Swan Isl	7E-06	2E-06	1E-06	1E-06	4E-07	4E-07	3E-07	1E-06
9.2	Swan Isl	8E-06	2E-06	1E-06	1E-06	4E-07	4E-07	4E-07	2E-06
9.3	Swan Isl	8E-06	3E-06	2E-06	1E-06	5E-07	5E-07	4E-07	2E-06
9.4	Swan Isl	8E-06	3E-06	2E-06	2E-06	7E-07	7E-07	5E-07	3E-06
9.5	Swan Isl	8E-06	5E-06	3E-06	3E-06	1E-06	1E-06	8E-07	5E-06
9.6	Swan Isl	7E-06	7E-06	5E-06	5E-06	2E-06	2E-06	2E-06	7E-06

**Table J2.3-3k**  
**RAO 2 Rolling River Mile Risk Estimates - 2,3,7,8-TCDF**  
 Portland Harbor Superfund Site  
 Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
1.8	East	3E-07	2E-07	2E-07	2E-07	2E-07	2E-07	2E-07	2E-07
1.9	East	3E-07	2E-07	2E-07	2E-07	2E-07	2E-07	2E-07	2E-07
2	East	3E-07	2E-07	2E-07	2E-07	2E-07	2E-07	2E-07	2E-07
2.1	East	3E-07	2E-07	2E-07	2E-07	2E-07	2E-07	1E-07	2E-07
2.2	East	3E-07	2E-07	2E-07	2E-07	1E-07	1E-07	1E-07	2E-07
2.3	East	3E-07	2E-07	2E-07	2E-07	1E-07	1E-07	1E-07	2E-07
2.4	East	3E-07	2E-07	2E-07	2E-07	1E-07	1E-07	9E-08	2E-07
2.5	East	3E-07	2E-07	2E-07	2E-07	1E-07	1E-07	1E-07	2E-07
2.6	East	3E-07	2E-07	2E-07	2E-07	1E-07	1E-07	1E-07	2E-07
2.7	East	3E-07	3E-07	2E-07	2E-07	2E-07	2E-07	1E-07	2E-07
2.8	East	3E-07	3E-07	2E-07	2E-07	2E-07	2E-07	1E-07	2E-07
2.9	East	3E-07	3E-07	2E-07	2E-07	2E-07	2E-07	1E-07	2E-07
3	East	3E-07	3E-07	2E-07	2E-07	2E-07	2E-07	2E-07	2E-07
3.1	East	2E-07	2E-07	2E-07	2E-07	2E-07	2E-07	2E-07	2E-07
3.2	East	2E-07	2E-07	2E-07	2E-07	2E-07	2E-07	2E-07	2E-07
3.3	East	3E-07	3E-07	2E-07	2E-07	2E-07	2E-07	2E-07	2E-07
3.4	East	4E-07	3E-07	2E-07	2E-07	2E-07	2E-07	1E-07	2E-07
3.5	East	4E-07	3E-07	2E-07	2E-07	1E-07	1E-07	1E-07	2E-07
3.6	East	4E-07	3E-07	2E-07	2E-07	1E-07	1E-07	1E-07	2E-07
3.7	East	4E-07	3E-07	2E-07	2E-07	1E-07	1E-07	1E-07	2E-07
3.8	East	4E-07	3E-07	2E-07	1E-07	1E-07	1E-07	9E-08	1E-07
3.9	East	4E-07	3E-07	2E-07	1E-07	9E-08	9E-08	7E-08	1E-07
4	East	3E-07	2E-07	2E-07	1E-07	8E-08	8E-08	5E-08	1E-07
4.1	East	3E-07	2E-07	1E-07	1E-07	6E-08	6E-08	3E-08	1E-07
4.2	East	3E-07	2E-07	1E-07	1E-07	5E-08	5E-08	2E-08	1E-07
4.3	East	2E-07	2E-07	1E-07	9E-08	4E-08	4E-08	2E-08	9E-08
4.4	East	2E-07	2E-07	1E-07	9E-08	5E-08	5E-08	2E-08	9E-08
4.5	East	2E-07	2E-07	1E-07	1E-07	6E-08	6E-08	4E-08	1E-07
4.6	East	2E-07	2E-07	2E-07	1E-07	1E-07	1E-07	8E-08	1E-07
4.7	East	2E-07	2E-07	2E-07	2E-07	2E-07	2E-07	1E-07	2E-07
4.8	East	3E-07	3E-07	3E-07	3E-07	2E-07	2E-07	2E-07	3E-07
4.9	East	4E-07	4E-07	4E-07	4E-07	4E-07	4E-07	3E-07	4E-07
5	East	6E-07	6E-07	6E-07	6E-07	6E-07	6E-07	4E-07	6E-07
5.1	East	9E-07	9E-07	9E-07	9E-07	7E-07	7E-07	5E-07	7E-07
5.2	East	1E-06	1E-06	1E-06	1E-06	9E-07	9E-07	6E-07	9E-07
5.3	East	1E-06	1E-06	1E-06	1E-06	8E-07	8E-07	6E-07	8E-07
5.4	East	1E-06	1E-06	1E-06	1E-06	8E-07	8E-07	5E-07	8E-07
5.5	East	1E-06	1E-06	1E-06	1E-06	8E-07	8E-07	4E-07	8E-07
5.6	East	1E-06	1E-06	1E-06	1E-06	7E-07	7E-07	4E-07	7E-07
5.7	East	9E-07	9E-07	9E-07	9E-07	6E-07	6E-07	3E-07	7E-07
5.8	East	8E-07	8E-07	8E-07	8E-07	5E-07	5E-07	3E-07	6E-07
5.9	East	7E-07	7E-07	7E-07	7E-07	5E-07	5E-07	3E-07	5E-07
6	East	7E-07	7E-07	6E-07	6E-07	4E-07	4E-07	2E-07	5E-07

**Table J2.3-3k**  
**RAO 2 Rolling River Mile Risk Estimates - 2,3,7,8-TCDF**  
 Portland Harbor Superfund Site  
 Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
6.1	East	6E-07	6E-07	5E-07	5E-07	3E-07	3E-07	2E-07	4E-07
6.2	East	5E-07	5E-07	4E-07	4E-07	3E-07	3E-07	2E-07	4E-07
6.3	East	7E-07	5E-07	3E-07	3E-07	3E-07	3E-07	2E-07	4E-07
6.4	East	7E-07	4E-07	3E-07	3E-07	2E-07	2E-07	2E-07	4E-07
6.5	East	6E-07	3E-07	2E-07	2E-07	2E-07	2E-07	2E-07	3E-07
6.6	East	5E-07	3E-07	2E-07	2E-07	2E-07	2E-07	1E-07	3E-07
6.7	East	5E-07	3E-07	2E-07	2E-07	1E-07	1E-07	1E-07	3E-07
6.8	East	5E-07	2E-07	1E-07	1E-07	1E-07	1E-07	1E-07	3E-07
6.9	East	5E-07	2E-07	1E-07	1E-07	1E-07	1E-07	1E-07	2E-07
7	East	4E-07	2E-07	1E-07	1E-07	1E-07	1E-07	9E-08	2E-07
7.1	East	4E-07	2E-07	1E-07	1E-07	9E-08	9E-08	9E-08	2E-07
7.2	East	4E-07	2E-07	1E-07	1E-07	9E-08	9E-08	8E-08	2E-07
7.3	East	2E-07	1E-07	1E-07	1E-07	1E-07	1E-07	9E-08	2E-07
7.4	East	2E-07	1E-07	1E-07	1E-07	1E-07	1E-07	1E-07	2E-07
7.5	East	2E-07	1E-07	1E-07	1E-07	1E-07	1E-07	1E-07	2E-07
7.6	East	2E-07	2E-07	1E-07	1E-07	1E-07	1E-07	1E-07	2E-07
7.7	East	2E-07	1E-07	1E-07	1E-07	1E-07	1E-07	1E-07	2E-07
7.8	East	2E-07	1E-07	1E-07	1E-07	1E-07	1E-07	1E-07	1E-07
7.9	East	2E-07	1E-07	1E-07	1E-07	1E-07	1E-07	1E-07	1E-07
8	East	2E-07	1E-07	1E-07	1E-07	1E-07	1E-07	9E-08	1E-07
8.1	East	2E-07	1E-07	1E-07	1E-07	1E-07	1E-07	7E-08	1E-07
8.2	East	2E-07	9E-08	9E-08	9E-08	9E-08	9E-08	6E-08	9E-08
8.3	East	2E-07	9E-08	9E-08	9E-08	8E-08	8E-08	6E-08	9E-08
8.4	East	1E-07	8E-08	8E-08	8E-08	8E-08	8E-08	6E-08	8E-08
8.5	East	1E-07	7E-08	7E-08	7E-08	7E-08	7E-08	5E-08	7E-08
8.6	East	1E-07	7E-08	7E-08	7E-08	6E-08	6E-08	5E-08	7E-08
8.7	East	1E-07	8E-08	8E-08	8E-08	8E-08	8E-08	6E-08	8E-08
8.8	East	9E-08	9E-08	9E-08	9E-08	8E-08	8E-08	7E-08	9E-08
8.9	East	9E-08	9E-08	9E-08	9E-08	8E-08	8E-08	7E-08	9E-08
9	East	9E-08	9E-08	9E-08	9E-08	9E-08	9E-08	7E-08	9E-08
9.1	East	1E-07	1E-07	1E-07	1E-07	9E-08	9E-08	7E-08	1E-07
9.2	East	1E-07	1E-07	1E-07	1E-07	9E-08	9E-08	6E-08	1E-07
9.3	East	1E-07	1E-07	1E-07	1E-07	9E-08	9E-08	7E-08	1E-07
9.4	East	1E-07	1E-07	1E-07	1E-07	1E-07	1E-07	7E-08	1E-07
9.5	East	1E-07	1E-07	1E-07	1E-07	1E-07	1E-07	8E-08	1E-07
9.6	East	1E-07	1E-07	1E-07	1E-07	1E-07	1E-07	9E-08	1E-07
9.7	East	1E-07	1E-07	1E-07	1E-07	1E-07	1E-07	1E-07	1E-07
9.8	East	1E-07	1E-07	1E-07	1E-07	1E-07	1E-07	1E-07	1E-07
9.9	East	1E-07	1E-07	1E-07	1E-07	1E-07	1E-07	1E-07	1E-07
10	East	1E-07	1E-07	1E-07	1E-07	1E-07	1E-07	1E-07	1E-07
10.1	East	1E-07	1E-07	1E-07	1E-07	1E-07	1E-07	1E-07	1E-07
10.2	East	1E-07	1E-07	1E-07	1E-07	1E-07	1E-07	1E-07	1E-07

**Table J2.3-3k**  
**RAO 2 Rolling River Mile Risk Estimates - 2,3,7,8-TCDF**  
 Portland Harbor Superfund Site  
 Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
10.3	East	1E-07	1E-07	1E-07	1E-07	1E-07	1E-07	1E-07	1E-07
10.4	East	1E-07	1E-07	1E-07	1E-07	1E-07	1E-07	9E-08	1E-07
10.5	East	1E-07	1E-07	1E-07	1E-07	1E-07	1E-07	7E-08	1E-07
10.6	East	1E-07	1E-07	1E-07	1E-07	9E-08	9E-08	7E-08	1E-07
10.7	East	1E-07	1E-07	1E-07	1E-07	8E-08	8E-08	6E-08	1E-07
10.8	East	1E-07	1E-07	1E-07	1E-07	7E-08	7E-08	5E-08	1E-07
10.9	East	2E-07	1E-07	1E-07	9E-08	6E-08	6E-08	3E-08	9E-08
11	East	2E-07	2E-07	1E-07	8E-08	5E-08	5E-08	2E-08	8E-08
11.1	East	2E-07	2E-07	1E-07	8E-08	5E-08	5E-08	2E-08	8E-08
11.2	East	2E-07	2E-07	1E-07	8E-08	5E-08	5E-08	2E-08	8E-08
11.3	East	2E-07	2E-07	1E-07	8E-08	5E-08	5E-08	2E-08	8E-08
11.4	East	2E-07	2E-07	1E-07	8E-08	4E-08	4E-08	1E-08	8E-08
11.5	East	3E-07	2E-07	1E-07	7E-08	4E-08	4E-08	1E-08	7E-08
11.6	East	3E-07	2E-07	1E-07	7E-08	4E-08	4E-08	1E-08	7E-08
11.7	East	3E-07	2E-07	1E-07	7E-08	4E-08	4E-08	1E-08	7E-08
1.8	Nav Channel	2E-07	2E-07	2E-07	2E-07	2E-07	2E-07	2E-07	2E-07
1.9	Nav Channel	2E-07	2E-07	2E-07	2E-07	2E-07	2E-07	2E-07	2E-07
2	Nav Channel	2E-07	2E-07	2E-07	2E-07	2E-07	2E-07	2E-07	2E-07
2.1	Nav Channel	2E-07	2E-07	2E-07	2E-07	2E-07	2E-07	2E-07	2E-07
2.2	Nav Channel	2E-07	2E-07	2E-07	2E-07	2E-07	2E-07	2E-07	2E-07
2.3	Nav Channel	2E-07	2E-07	2E-07	2E-07	2E-07	2E-07	2E-07	2E-07
2.4	Nav Channel	2E-07	2E-07	2E-07	2E-07	2E-07	2E-07	1E-07	2E-07
2.5	Nav Channel	2E-07	2E-07	2E-07	2E-07	2E-07	2E-07	1E-07	2E-07
2.6	Nav Channel	1E-07	1E-07	1E-07	1E-07	1E-07	1E-07	1E-07	1E-07
2.7	Nav Channel	1E-07	1E-07	1E-07	1E-07	1E-07	1E-07	1E-07	1E-07
2.8	Nav Channel	1E-07	1E-07	1E-07	1E-07	1E-07	1E-07	1E-07	1E-07
2.9	Nav Channel	1E-07	1E-07	1E-07	1E-07	1E-07	1E-07	1E-07	1E-07
3	Nav Channel	1E-07	1E-07	1E-07	1E-07	1E-07	1E-07	1E-07	1E-07
3.1	Nav Channel	1E-07	1E-07	1E-07	1E-07	1E-07	1E-07	1E-07	1E-07
3.2	Nav Channel	1E-07	1E-07	1E-07	1E-07	1E-07	1E-07	1E-07	1E-07
3.3	Nav Channel	2E-07	2E-07	2E-07	2E-07	2E-07	1E-07	1E-07	2E-07
3.4	Nav Channel	2E-07	2E-07	2E-07	2E-07	2E-07	1E-07	1E-07	2E-07
3.5	Nav Channel	2E-07	2E-07	2E-07	2E-07	2E-07	1E-07	1E-07	2E-07
3.6	Nav Channel	2E-07	2E-07	2E-07	2E-07	2E-07	1E-07	1E-07	2E-07
3.7	Nav Channel	2E-07	2E-07	2E-07	2E-07	2E-07	1E-07	1E-07	2E-07
3.8	Nav Channel	2E-07	2E-07	2E-07	2E-07	2E-07	1E-07	1E-07	2E-07
3.9	Nav Channel	2E-07	2E-07	2E-07	2E-07	2E-07	1E-07	1E-07	2E-07
4	Nav Channel	1E-07	1E-07	1E-07	1E-07	1E-07	1E-07	1E-07	1E-07
4.1	Nav Channel	1E-07	1E-07	1E-07	1E-07	1E-07	1E-07	1E-07	1E-07
4.2	Nav Channel	1E-07	1E-07	1E-07	1E-07	1E-07	1E-07	1E-07	1E-07
4.3	Nav Channel	1E-07	1E-07	1E-07	1E-07	1E-07	1E-07	1E-07	1E-07
4.4	Nav Channel	2E-07	2E-07	2E-07	2E-07	2E-07	2E-07	1E-07	2E-07

**Table J2.3-3k**

**RAO 2 Rolling River Mile Risk Estimates - 2,3,7,8-TCDF**

Portland Harbor Superfund Site

Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
4.5	Nav Channel	2E-07	2E-07	2E-07	2E-07	2E-07	2E-07	2E-07	2E-07
4.6	Nav Channel	2E-07	2E-07	2E-07	2E-07	2E-07	2E-07	2E-07	2E-07
4.7	Nav Channel	3E-07	3E-07	2E-07	2E-07	3E-07	2E-07	2E-07	3E-07
4.8	Nav Channel	4E-07	4E-07	3E-07	2E-07	4E-07	2E-07	2E-07	4E-07
4.9	Nav Channel	6E-07	5E-07	3E-07	3E-07	5E-07	2E-07	2E-07	5E-07
5	Nav Channel	7E-07	6E-07	4E-07	3E-07	6E-07	2E-07	2E-07	6E-07
5.1	Nav Channel	9E-07	8E-07	6E-07	5E-07	8E-07	3E-07	2E-07	8E-07
5.2	Nav Channel	1E-06	8E-07	6E-07	5E-07	8E-07	3E-07	2E-07	8E-07
5.3	Nav Channel	1E-06	9E-07	7E-07	5E-07	9E-07	3E-07	2E-07	9E-07
5.4	Nav Channel	2E-06	1E-06	8E-07	6E-07	1E-06	3E-07	2E-07	1E-06
5.5	Nav Channel	2E-06	1E-06	9E-07	7E-07	1E-06	3E-07	2E-07	1E-06
5.6	Nav Channel	2E-06	1E-06	9E-07	8E-07	1E-06	4E-07	2E-07	1E-06
5.7	Nav Channel	2E-06	1E-06	1E-06	8E-07	1E-06	4E-07	2E-07	1E-06
5.8	Nav Channel	2E-06	1E-06	1E-06	9E-07	1E-06	5E-07	2E-07	1E-06
5.9	Nav Channel	2E-06	1E-06	1E-06	1E-06	1E-06	6E-07	3E-07	1E-06
6	Nav Channel	2E-06	1E-06	1E-06	1E-06	1E-06	7E-07	4E-07	1E-06
6.1	Nav Channel	2E-06	1E-06	1E-06	9E-07	1E-06	6E-07	4E-07	1E-06
6.2	Nav Channel	2E-06	1E-06	1E-06	1E-06	1E-06	6E-07	4E-07	1E-06
6.3	Nav Channel	2E-06	1E-06	1E-06	1E-06	1E-06	6E-07	4E-07	1E-06
6.4	Nav Channel	2E-06	1E-06	1E-06	1E-06	1E-06	7E-07	4E-07	1E-06
6.5	Nav Channel	2E-06	1E-06	1E-06	1E-06	1E-06	7E-07	5E-07	1E-06
6.6	Nav Channel	2E-06	1E-06	1E-06	1E-06	1E-06	7E-07	5E-07	1E-06
6.7	Nav Channel	1E-06	1E-06	1E-06	1E-06	1E-06	8E-07	6E-07	1E-06
6.8	Nav Channel	1E-06	1E-06	1E-06	1E-06	1E-06	8E-07	6E-07	1E-06
6.9	Nav Channel	1E-06	1E-06	1E-06	9E-07	1E-06	7E-07	5E-07	1E-06
7	Nav Channel	1E-06	1E-06	9E-07	8E-07	9E-07	7E-07	5E-07	9E-07
7.1	Nav Channel	8E-07	8E-07	8E-07	8E-07	8E-07	6E-07	4E-07	8E-07
7.2	Nav Channel	7E-07	7E-07	7E-07	7E-07	7E-07	6E-07	5E-07	7E-07
7.3	Nav Channel	7E-07	7E-07	7E-07	7E-07	7E-07	6E-07	5E-07	7E-07
7.4	Nav Channel	6E-07	6E-07	6E-07	6E-07	6E-07	5E-07	5E-07	6E-07
7.5	Nav Channel	5E-07	5E-07	5E-07	5E-07	5E-07	5E-07	4E-07	5E-07
7.6	Nav Channel	5E-07	5E-07	5E-07	5E-07	5E-07	4E-07	4E-07	5E-07
7.7	Nav Channel	4E-07	4E-07	4E-07	4E-07	4E-07	4E-07	3E-07	4E-07
7.8	Nav Channel	4E-07	4E-07	4E-07	4E-07	4E-07	4E-07	3E-07	4E-07
7.9	Nav Channel	4E-07	4E-07	4E-07	4E-07	4E-07	3E-07	3E-07	4E-07
8	Nav Channel	3E-07	3E-07	3E-07	3E-07	3E-07	3E-07	3E-07	3E-07
8.1	Nav Channel	3E-07	3E-07	3E-07	3E-07	3E-07	3E-07	3E-07	3E-07
8.2	Nav Channel	3E-07	3E-07	3E-07	3E-07	3E-07	3E-07	3E-07	3E-07
8.3	Nav Channel	3E-07	3E-07	3E-07	3E-07	3E-07	3E-07	2E-07	3E-07
8.4	Nav Channel	2E-07	2E-07	2E-07	2E-07	2E-07	2E-07	2E-07	2E-07
8.5	Nav Channel	2E-07	2E-07	2E-07	2E-07	2E-07	2E-07	2E-07	2E-07
8.6	Nav Channel	2E-07	2E-07	2E-07	2E-07	2E-07	2E-07	2E-07	2E-07



**Table J2.3-3k**  
**RAO 2 Rolling River Mile Risk Estimates - 2,3,7,8-TCDF**  
 Portland Harbor Superfund Site  
 Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
8.7	Nav Channel	2E-07	2E-07	2E-07	2E-07	2E-07	1E-07	1E-07	2E-07
8.8	Nav Channel	1E-07	1E-07	1E-07	1E-07	1E-07	1E-07	1E-07	1E-07
8.9	Nav Channel	1E-07	1E-07	1E-07	1E-07	1E-07	1E-07	1E-07	1E-07
9	Nav Channel	1E-07	1E-07	1E-07	1E-07	1E-07	1E-07	1E-07	1E-07
9.1	Nav Channel	1E-07	1E-07	1E-07	1E-07	1E-07	1E-07	1E-07	1E-07
9.2	Nav Channel	1E-07	1E-07	1E-07	1E-07	1E-07	1E-07	1E-07	1E-07
9.3	Nav Channel	1E-07	1E-07	1E-07	1E-07	1E-07	1E-07	1E-07	1E-07
9.4	Nav Channel	1E-07	1E-07	1E-07	1E-07	1E-07	1E-07	1E-07	1E-07
9.5	Nav Channel	2E-07	2E-07	2E-07	2E-07	2E-07	1E-07	1E-07	2E-07
9.6	Nav Channel	2E-07	2E-07	2E-07	2E-07	2E-07	2E-07	2E-07	2E-07
9.7	Nav Channel	2E-07	2E-07	2E-07	2E-07	2E-07	2E-07	2E-07	2E-07
9.8	Nav Channel	3E-07	3E-07	3E-07	3E-07	3E-07	2E-07	2E-07	3E-07
9.9	Nav Channel	3E-07	3E-07	3E-07	3E-07	3E-07	2E-07	2E-07	3E-07
10	Nav Channel	3E-07	3E-07	3E-07	3E-07	3E-07	3E-07	2E-07	3E-07
10.1	Nav Channel	3E-07	3E-07	3E-07	3E-07	3E-07	3E-07	2E-07	3E-07
10.2	Nav Channel	4E-07	4E-07	4E-07	4E-07	4E-07	3E-07	3E-07	4E-07
10.3	Nav Channel	4E-07	4E-07	4E-07	4E-07	4E-07	3E-07	3E-07	4E-07
10.4	Nav Channel	4E-07	4E-07	4E-07	4E-07	4E-07	3E-07	3E-07	4E-07
10.5	Nav Channel	4E-07	4E-07	4E-07	4E-07	4E-07	3E-07	3E-07	4E-07
10.6	Nav Channel	4E-07	4E-07	4E-07	4E-07	4E-07	3E-07	3E-07	4E-07
10.7	Nav Channel	4E-07	4E-07	4E-07	4E-07	4E-07	3E-07	2E-07	4E-07
10.8	Nav Channel	4E-07	4E-07	4E-07	4E-07	4E-07	3E-07	3E-07	4E-07
10.9	Nav Channel	3E-07	3E-07	3E-07	3E-07	3E-07	3E-07	3E-07	3E-07
11	Nav Channel	3E-07	3E-07	3E-07	3E-07	3E-07	3E-07	2E-07	3E-07
11.1	Nav Channel	3E-07	3E-07	3E-07	2E-07	2E-07	2E-07	2E-07	2E-07
11.2	Nav Channel	2E-07	2E-07	2E-07	2E-07	2E-07	2E-07	2E-07	2E-07
11.3	Nav Channel	2E-07	2E-07	2E-07	2E-07	2E-07	2E-07	2E-07	2E-07
11.4	Nav Channel	2E-07	2E-07	2E-07	2E-07	2E-07	2E-07	1E-07	2E-07
11.5	Nav Channel	2E-07	2E-07	2E-07	2E-07	2E-07	2E-07	1E-07	2E-07
11.6	Nav Channel	1E-07	1E-07	1E-07	1E-07	1E-07	1E-07	1E-07	1E-07
11.7	Nav Channel	1E-07	1E-07	1E-07	1E-07	1E-07	1E-07	1E-07	1E-07
1.8	West	2E-07	2E-07	2E-07	2E-07	2E-07	2E-07	2E-07	2E-07
1.9	West	2E-07	2E-07	2E-07	2E-07	2E-07	2E-07	2E-07	2E-07
2	West	2E-07	2E-07	2E-07	2E-07	2E-07	2E-07	2E-07	2E-07
2.1	West	2E-07	2E-07	2E-07	2E-07	2E-07	2E-07	2E-07	2E-07
2.2	West	2E-07	2E-07	2E-07	2E-07	2E-07	2E-07	2E-07	2E-07
2.3	West	2E-07	2E-07	2E-07	2E-07	2E-07	2E-07	2E-07	2E-07
2.4	West	2E-07	2E-07	2E-07	2E-07	2E-07	2E-07	2E-07	2E-07
2.5	West	2E-07	2E-07	2E-07	2E-07	2E-07	2E-07	2E-07	2E-07
2.6	West	2E-07	2E-07	2E-07	2E-07	2E-07	2E-07	2E-07	2E-07
2.7	West	2E-07	2E-07	2E-07	2E-07	2E-07	2E-07	2E-07	2E-07
2.8	West	2E-07	2E-07	2E-07	2E-07	2E-07	2E-07	2E-07	2E-07

**Table J2.3-3k**  
**RAO 2 Rolling River Mile Risk Estimates - 2,3,7,8-TCDF**  
 Portland Harbor Superfund Site  
 Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
2.9	West	2E-07	2E-07	2E-07	2E-07	2E-07	2E-07	1E-07	2E-07
3	West	2E-07	2E-07	2E-07	2E-07	2E-07	2E-07	1E-07	2E-07
3.1	West	2E-07	2E-07	2E-07	2E-07	2E-07	2E-07	2E-07	2E-07
3.2	West	2E-07	2E-07	2E-07	2E-07	2E-07	2E-07	2E-07	2E-07
3.3	West	2E-07	2E-07	2E-07	2E-07	2E-07	2E-07	2E-07	2E-07
3.4	West	3E-07	3E-07	3E-07	3E-07	2E-07	2E-07	2E-07	3E-07
3.5	West	3E-07	3E-07	3E-07	3E-07	3E-07	3E-07	2E-07	3E-07
3.6	West	3E-07	3E-07	3E-07	3E-07	3E-07	3E-07	2E-07	3E-07
3.7	West	4E-07	4E-07	4E-07	4E-07	3E-07	3E-07	3E-07	4E-07
3.8	West	4E-07	4E-07	4E-07	4E-07	4E-07	4E-07	3E-07	4E-07
3.9	West	4E-07	4E-07	4E-07	4E-07	4E-07	4E-07	3E-07	4E-07
4	West	5E-07	5E-07	5E-07	5E-07	4E-07	4E-07	3E-07	5E-07
4.1	West	5E-07	5E-07	5E-07	5E-07	5E-07	5E-07	3E-07	5E-07
4.2	West	6E-07	6E-07	6E-07	6E-07	5E-07	5E-07	3E-07	6E-07
4.3	West	6E-07	6E-07	6E-07	6E-07	5E-07	5E-07	3E-07	6E-07
4.4	West	6E-07	6E-07	6E-07	6E-07	5E-07	5E-07	3E-07	6E-07
4.5	West	6E-07	6E-07	6E-07	6E-07	5E-07	5E-07	3E-07	6E-07
4.6	West	7E-07	7E-07	7E-07	7E-07	6E-07	6E-07	4E-07	7E-07
4.7	West	7E-07	7E-07	7E-07	7E-07	6E-07	6E-07	4E-07	7E-07
4.8	West	8E-07	8E-07	8E-07	7E-07	6E-07	6E-07	4E-07	7E-07
4.9	West	9E-07	9E-07	8E-07	8E-07	6E-07	6E-07	4E-07	8E-07
5	West	9E-07	9E-07	8E-07	7E-07	6E-07	6E-07	4E-07	7E-07
5.1	West	8E-07	8E-07	7E-07	7E-07	6E-07	6E-07	4E-07	7E-07
5.2	West	8E-07	8E-07	7E-07	7E-07	6E-07	6E-07	4E-07	7E-07
5.3	West	8E-07	8E-07	7E-07	6E-07	5E-07	5E-07	3E-07	6E-07
5.4	West	8E-07	8E-07	7E-07	6E-07	5E-07	5E-07	3E-07	7E-07
5.5	West	8E-07	8E-07	7E-07	6E-07	5E-07	5E-07	3E-07	7E-07
5.6	West	8E-07	8E-07	7E-07	6E-07	4E-07	4E-07	2E-07	7E-07
5.7	West	8E-07	7E-07	6E-07	5E-07	4E-07	4E-07	2E-07	6E-07
5.8	West	8E-07	6E-07	5E-07	5E-07	3E-07	3E-07	1E-07	5E-07
5.9	West	8E-07	5E-07	4E-07	4E-07	3E-07	3E-07	1E-07	4E-07
6	West	9E-07	5E-07	4E-07	4E-07	3E-07	3E-07	1E-07	4E-07
6.1	West	1E-06	5E-07	5E-07	4E-07	3E-07	3E-07	1E-07	4E-07
6.2	West	1E-06	7E-07	6E-07	6E-07	3E-07	3E-07	1E-07	5E-07
6.3	West	1E-06	7E-07	7E-07	6E-07	3E-07	3E-07	1E-07	4E-07
6.4	West	3E-06	2E-06	1E-06	8E-07	3E-07	3E-07	8E-08	4E-07
6.5	West	8E-06	3E-06	2E-06	8E-07	2E-07	2E-07	3E-08	3E-07
6.6	West	1E-05	6E-06	4E-06	2E-06	3E-07	3E-07	3E-08	3E-07
6.7	West	2E-05	7E-06	4E-06	2E-06	3E-07	3E-07	3E-08	3E-07
6.8	West	2E-04	7E-06	4E-06	2E-06	3E-07	3E-07	3E-08	3E-07
6.9	West	4E-04	7E-06	4E-06	2E-06	3E-07	3E-07	3E-08	3E-07
7	West	4E-04	1E-05	6E-06	2E-06	4E-07	4E-07	3E-08	4E-07

**Table J2.3-3k**

**RAO 2 Rolling River Mile Risk Estimates - 2,3,7,8-TCDF**

Portland Harbor Superfund Site

Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
7.1	West	3E-04	2E-05	1E-05	4E-06	2E-06	2E-06	2E-07	2E-06
7.2	West	3E-04	1E-05	1E-05	3E-06	1E-06	1E-06	2E-07	1E-06
7.3	West	2E-04	1E-05	9E-06	3E-06	1E-06	1E-06	2E-07	1E-06
7.4	West	2E-04	1E-05	9E-06	3E-06	1E-06	1E-06	2E-07	1E-06
7.5	West	2E-04	1E-05	8E-06	3E-06	1E-06	1E-06	2E-07	1E-06
7.6	West	3E-04	9E-06	8E-06	3E-06	2E-06	2E-06	2E-07	2E-06
7.7	West	3E-04	9E-06	8E-06	3E-06	2E-06	2E-06	2E-07	2E-06
7.8	West	1E-04	9E-06	8E-06	3E-06	2E-06	2E-06	2E-07	2E-06
7.9	West	1E-05	9E-06	7E-06	3E-06	2E-06	2E-06	2E-07	2E-06
8	West	6E-06	6E-06	5E-06	2E-06	1E-06	1E-06	2E-07	2E-06
8.1	West	8E-07	8E-07	8E-07	7E-07	5E-07	5E-07	1E-07	7E-07
8.2	West	7E-07	7E-07	7E-07	6E-07	4E-07	4E-07	6E-08	6E-07
8.3	West	7E-07	7E-07	7E-07	6E-07	3E-07	3E-07	5E-08	5E-07
8.4	West	7E-07	6E-07	6E-07	5E-07	2E-07	2E-07	5E-08	5E-07
8.5	West	7E-07	6E-07	6E-07	4E-07	2E-07	2E-07	5E-08	4E-07
8.6	West	7E-07	6E-07	5E-07	4E-07	1E-07	1E-07	5E-08	4E-07
8.7	West	7E-07	5E-07	5E-07	3E-07	1E-07	1E-07	5E-08	3E-07
8.8	West	7E-07	5E-07	4E-07	2E-07	1E-07	1E-07	6E-08	2E-07
8.9	West	7E-07	4E-07	3E-07	2E-07	1E-07	1E-07	9E-08	2E-07
9	West	6E-07	4E-07	3E-07	2E-07	9E-08	9E-08	7E-08	2E-07
9.1	West	7E-07	4E-07	3E-07	2E-07	9E-08	9E-08	7E-08	2E-07
9.2	West	6E-07	4E-07	3E-07	2E-07	9E-08	9E-08	7E-08	2E-07
9.3	West	6E-07	4E-07	2E-07	2E-07	9E-08	9E-08	7E-08	2E-07
9.4	West	6E-07	4E-07	2E-07	2E-07	1E-07	1E-07	7E-08	2E-07
9.5	West	6E-07	4E-07	3E-07	2E-07	1E-07	1E-07	8E-08	2E-07
9.6	West	5E-07	4E-07	3E-07	2E-07	1E-07	1E-07	9E-08	2E-07
9.7	West	4E-07	4E-07	3E-07	2E-07	1E-07	1E-07	9E-08	2E-07
9.8	West	3E-07	3E-07	2E-07	2E-07	1E-07	1E-07	8E-08	2E-07
9.9	West	2E-07	2E-07	1E-07	1E-07	7E-08	7E-08	5E-08	1E-07
10	West	2E-07	2E-07	1E-07	1E-07	6E-08	6E-08	4E-08	1E-07
10.1	West	3E-07	3E-07	1E-07	1E-07	8E-08	8E-08	6E-08	1E-07
10.2	West	4E-07	4E-07	2E-07	2E-07	2E-07	2E-07	1E-07	2E-07
10.3	West	3E-07	3E-07	3E-07	3E-07	3E-07	3E-07	2E-07	3E-07
10.4	West	3E-07	3E-07	3E-07	3E-07	3E-07	3E-07	2E-07	3E-07
10.5	West	3E-07	3E-07	3E-07	3E-07	3E-07	3E-07	2E-07	3E-07
10.6	West	3E-07	3E-07	3E-07	3E-07	3E-07	3E-07	2E-07	3E-07
10.7	West	3E-07	3E-07	3E-07	3E-07	3E-07	3E-07	3E-07	3E-07
10.8	West	3E-07	3E-07	3E-07	3E-07	3E-07	3E-07	3E-07	3E-07
10.9	West	3E-07	3E-07	3E-07	3E-07	3E-07	3E-07	3E-07	3E-07
11	West	3E-07	3E-07	3E-07	3E-07	3E-07	3E-07	3E-07	3E-07
11.1	West	3E-07	3E-07	3E-07	3E-07	3E-07	3E-07	2E-07	3E-07
11.2	West	3E-07	3E-07	3E-07	3E-07	3E-07	3E-07	2E-07	3E-07

**Table J2.3-3k**  
**RAO 2 Rolling River Mile Risk Estimates - 2,3,7,8-TCDF**  
 Portland Harbor Superfund Site  
 Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
11.3	West	2E-07	2E-07	2E-07	2E-07	2E-07	2E-07	2E-07	2E-07
11.4	West	2E-07	2E-07	2E-07	2E-07	2E-07	2E-07	2E-07	2E-07
11.5	West	2E-07	2E-07	2E-07	2E-07	2E-07	2E-07	2E-07	2E-07
11.6	West	2E-07	2E-07	2E-07	2E-07	2E-07	2E-07	2E-07	2E-07
11.7	West	2E-07	2E-07	2E-07	2E-07	2E-07	2E-07	2E-07	2E-07
7.6	Swan Isl	2E-07	1E-08	1E-08	7E-09	1E-09	1E-09	8E-10	7E-09
7.7	Swan Isl	2E-07	1E-08	1E-08	7E-09	1E-09	1E-09	7E-10	7E-09
7.8	Swan Isl	2E-07	1E-08	1E-08	7E-09	1E-09	1E-09	6E-10	7E-09
7.9	Swan Isl	2E-07	1E-08	9E-09	6E-09	1E-09	1E-09	6E-10	6E-09
8	Swan Isl	2E-07	1E-08	9E-09	6E-09	1E-09	1E-09	7E-10	6E-09
8.1	Swan Isl	2E-07	9E-09	8E-09	5E-09	1E-09	1E-09	8E-10	5E-09
8.2	Swan Isl	2E-07	1E-08	9E-09	6E-09	2E-09	2E-09	2E-09	6E-09
8.3	Swan Isl	2E-07	1E-08	1E-08	6E-09	3E-09	3E-09	2E-09	6E-09
8.4	Swan Isl	2E-07	2E-08	1E-08	6E-09	3E-09	3E-09	2E-09	6E-09
8.5	Swan Isl	2E-07	2E-08	1E-08	6E-09	3E-09	3E-09	2E-09	6E-09
8.6	Swan Isl	3E-07	4E-08	2E-08	1E-08	3E-09	3E-09	2E-09	2E-08
8.7	Swan Isl	3E-07	7E-08	4E-08	4E-08	1E-08	1E-08	1E-08	6E-08
8.8	Swan Isl	3E-07	9E-08	5E-08	4E-08	1E-08	1E-08	1E-08	7E-08
8.9	Swan Isl	4E-07	1E-07	6E-08	5E-08	2E-08	2E-08	1E-08	8E-08
9	Swan Isl	4E-07	1E-07	6E-08	6E-08	2E-08	2E-08	2E-08	9E-08
9.1	Swan Isl	4E-07	1E-07	7E-08	6E-08	2E-08	2E-08	2E-08	1E-07
9.2	Swan Isl	4E-07	1E-07	8E-08	7E-08	2E-08	2E-08	2E-08	1E-07
9.3	Swan Isl	5E-07	2E-07	1E-07	9E-08	3E-08	3E-08	2E-08	2E-07
9.4	Swan Isl	5E-07	2E-07	1E-07	1E-07	4E-08	4E-08	3E-08	2E-07
9.5	Swan Isl	6E-07	4E-07	2E-07	2E-07	6E-08	6E-08	5E-08	4E-07
9.6	Swan Isl	5E-07	5E-07	4E-07	3E-07	1E-07	1E-07	1E-07	5E-07

**Table J2.3-4a**

**RAO 2 Rolling River Mile HI Estimates - Aldrin**

Portland Harbor Superfund Site

Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
1.8	East	0.0010	0.0009	0.0009	0.0009	0.0009	0.0009	0.0009	0.0009
1.9	East	0.0011	0.0011	0.0010	0.0010	0.0010	0.0010	0.0009	0.0010
2	East	0.0011	0.0011	0.0010	0.0010	0.0009	0.0009	0.0009	0.0010
2.1	East	0.0011	0.0010	0.0010	0.0010	0.0009	0.0009	0.0009	0.0010
2.2	East	0.0009	0.0008	0.0008	0.0008	0.0007	0.0007	0.0007	0.0008
2.3	East	0.0008	0.0007	0.0007	0.0006	0.0005	0.0005	0.0005	0.0006
2.4	East	0.0008	0.0007	0.0006	0.0006	0.0005	0.0005	0.0004	0.0006
2.5	East	0.0008	0.0007	0.0007	0.0006	0.0005	0.0005	0.0005	0.0006
2.6	East	0.0008	0.0007	0.0007	0.0006	0.0005	0.0005	0.0005	0.0006
2.7	East	0.0009	0.0008	0.0007	0.0007	0.0006	0.0006	0.0005	0.0007
2.8	East	0.0008	0.0007	0.0007	0.0007	0.0006	0.0006	0.0005	0.0007
2.9	East	0.0006	0.0006	0.0006	0.0006	0.0005	0.0005	0.0005	0.0006
3	East	0.0006	0.0006	0.0006	0.0006	0.0005	0.0005	0.0005	0.0006
3.1	East	0.0006	0.0006	0.0006	0.0006	0.0005	0.0005	0.0005	0.0006
3.2	East	0.0006	0.0006	0.0006	0.0006	0.0005	0.0005	0.0005	0.0006
3.3	East	0.0006	0.0006	0.0006	0.0005	0.0005	0.0005	0.0004	0.0005
3.4	East	0.0006	0.0006	0.0005	0.0005	0.0005	0.0005	0.0004	0.0005
3.5	East	0.0006	0.0005	0.0005	0.0005	0.0004	0.0004	0.0003	0.0005
3.6	East	0.0006	0.0005	0.0005	0.0004	0.0004	0.0004	0.0003	0.0004
3.7	East	0.0006	0.0006	0.0005	0.0004	0.0004	0.0004	0.0003	0.0004
3.8	East	0.0006	0.0006	0.0005	0.0005	0.0004	0.0004	0.0003	0.0005
3.9	East	0.0007	0.0007	0.0006	0.0005	0.0004	0.0004	0.0002	0.0005
4	East	0.0013	0.0012	0.0011	0.0010	0.0007	0.0007	0.0004	0.0010
4.1	East	0.0029	0.0029	0.0025	0.0022	0.0014	0.0014	0.0007	0.0022
4.2	East	0.0052	0.0051	0.0041	0.0031	0.0018	0.0018	0.0008	0.0031
4.3	East	0.0066	0.0065	0.0052	0.0040	0.0023	0.0023	0.0009	0.0040
4.4	East	0.0070	0.0069	0.0055	0.0042	0.0024	0.0024	0.0010	0.0042
4.5	East	0.0072	0.0071	0.0056	0.0043	0.0025	0.0025	0.0010	0.0043
4.6	East	0.0071	0.0070	0.0056	0.0043	0.0025	0.0025	0.0011	0.0043
4.7	East	0.0072	0.0071	0.0057	0.0044	0.0025	0.0025	0.0011	0.0044
4.8	East	0.0074	0.0073	0.0058	0.0044	0.0026	0.0026	0.0011	0.0044
4.9	East	0.0086	0.0084	0.0067	0.0052	0.0031	0.0031	0.0014	0.0052
5	East	0.0091	0.0089	0.0069	0.0051	0.0028	0.0028	0.0012	0.0051
5.1	East	0.0064	0.0063	0.0047	0.0032	0.0017	0.0017	0.0007	0.0031
5.2	East	0.0009	0.0009	0.0009	0.0009	0.0007	0.0007	0.0004	0.0008
5.3	East	0.0007	0.0007	0.0007	0.0007	0.0005	0.0005	0.0004	0.0005
5.4	East	0.0006	0.0006	0.0006	0.0006	0.0005	0.0005	0.0003	0.0005
5.5	East	0.0007	0.0007	0.0007	0.0006	0.0004	0.0004	0.0003	0.0005
5.6	East	0.0007	0.0007	0.0007	0.0006	0.0004	0.0004	0.0003	0.0005
5.7	East	0.0007	0.0007	0.0007	0.0006	0.0004	0.0004	0.0003	0.0005
5.8	East	0.0007	0.0007	0.0007	0.0006	0.0004	0.0004	0.0003	0.0005
5.9	East	0.0007	0.0007	0.0007	0.0007	0.0005	0.0005	0.0004	0.0006
6	East	0.0008	0.0008	0.0008	0.0007	0.0005	0.0005	0.0004	0.0007
6.1	East	0.0007	0.0007	0.0007	0.0007	0.0005	0.0005	0.0004	0.0006
6.2	East	0.0006	0.0006	0.0006	0.0006	0.0005	0.0005	0.0004	0.0006
6.3	East	0.0006	0.0005	0.0005	0.0005	0.0004	0.0004	0.0004	0.0005

**Table J2.3-4a**

**RAO 2 Rolling River Mile HI Estimates - Aldrin**

Portland Harbor Superfund Site

Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
6.4	East	0.0005	0.0005	0.0005	0.0004	0.0004	0.0004	0.0003	0.0005
6.5	East	0.0004	0.0004	0.0004	0.0004	0.0003	0.0003	0.0003	0.0004
6.6	East	0.0004	0.0004	0.0004	0.0003	0.0003	0.0003	0.0003	0.0004
6.7	East	0.0004	0.0004	0.0003	0.0003	0.0003	0.0003	0.0003	0.0004
6.8	East	0.0004	0.0004	0.0003	0.0003	0.0003	0.0003	0.0003	0.0004
6.9	East	0.0004	0.0004	0.0003	0.0003	0.0003	0.0003	0.0003	0.0004
7	East	0.0004	0.0004	0.0003	0.0003	0.0003	0.0003	0.0003	0.0004
7.1	East	0.0005	0.0004	0.0003	0.0003	0.0003	0.0003	0.0003	0.0004
7.2	East	0.0005	0.0004	0.0004	0.0004	0.0004	0.0004	0.0003	0.0005
7.3	East	0.0005	0.0005	0.0004	0.0004	0.0004	0.0004	0.0004	0.0005
7.4	East	0.0006	0.0005	0.0005	0.0005	0.0005	0.0005	0.0004	0.0006
7.5	East	0.0006	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0006
7.6	East	0.0006	0.0006	0.0005	0.0005	0.0005	0.0005	0.0005	0.0006
7.7	East	0.0006	0.0006	0.0005	0.0005	0.0005	0.0005	0.0005	0.0006
7.8	East	0.0006	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005
7.9	East	0.0005	0.0004	0.0004	0.0004	0.0004	0.0004	0.0004	0.0004
8	East	0.0004	0.0003	0.0003	0.0003	0.0003	0.0003	0.0003	0.0003
8.1	East	0.0003	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002
8.2	East	0.0003	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002
8.3	East	0.0003	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002
8.4	East	0.0003	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002
8.5	East	0.0003	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002
8.6	East	0.0003	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002
8.7	East	0.0003	0.0003	0.0003	0.0003	0.0003	0.0003	0.0002	0.0003
8.8	East	0.0004	0.0004	0.0004	0.0004	0.0004	0.0004	0.0003	0.0004
8.9	East	0.0004	0.0004	0.0004	0.0004	0.0004	0.0004	0.0004	0.0004
9	East	0.0004	0.0004	0.0004	0.0004	0.0004	0.0004	0.0004	0.0004
9.1	East	0.0004	0.0004	0.0004	0.0004	0.0004	0.0004	0.0003	0.0004
9.2	East	0.0004	0.0004	0.0004	0.0004	0.0004	0.0004	0.0003	0.0004
9.3	East	0.0006	0.0006	0.0006	0.0006	0.0005	0.0005	0.0004	0.0006
9.4	East	0.0006	0.0006	0.0006	0.0006	0.0006	0.0006	0.0005	0.0006
9.5	East	0.0006	0.0006	0.0006	0.0006	0.0006	0.0006	0.0005	0.0006
9.6	East	0.0006	0.0006	0.0006	0.0006	0.0006	0.0006	0.0005	0.0006
9.7	East	0.0006	0.0006	0.0006	0.0006	0.0006	0.0006	0.0005	0.0006
9.8	East	0.0006	0.0006	0.0006	0.0006	0.0005	0.0005	0.0005	0.0006
9.9	East	0.0006	0.0006	0.0006	0.0006	0.0006	0.0006	0.0005	0.0006
10	East	0.0007	0.0007	0.0007	0.0007	0.0007	0.0007	0.0006	0.0007
10.1	East	0.0008	0.0008	0.0008	0.0008	0.0008	0.0008	0.0007	0.0008
10.2	East	0.0008	0.0008	0.0008	0.0008	0.0008	0.0008	0.0007	0.0008
10.3	East	0.0007	0.0007	0.0007	0.0007	0.0007	0.0007	0.0006	0.0007
10.4	East	0.0006	0.0006	0.0006	0.0006	0.0005	0.0005	0.0005	0.0006
10.5	East	0.0006	0.0006	0.0006	0.0006	0.0006	0.0006	0.0005	0.0006
10.6	East	0.0007	0.0007	0.0007	0.0007	0.0006	0.0006	0.0005	0.0007
10.7	East	0.0007	0.0007	0.0007	0.0007	0.0006	0.0006	0.0005	0.0007
10.8	East	0.0007	0.0007	0.0007	0.0006	0.0005	0.0005	0.0005	0.0006
10.9	East	0.0006	0.0006	0.0005	0.0005	0.0004	0.0004	0.0003	0.0005

**Table J2.3-4a**

**RAO 2 Rolling River Mile HI Estimates - Aldrin**

Portland Harbor Superfund Site

Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
11	East	0.0004	0.0004	0.0003	0.0003	0.0002	0.0002	0.0001	0.0003
11.1	East	0.0003	0.0003	0.0003	0.0002	0.0001	0.0001	0.0001	0.0002
11.2	East	0.0003	0.0003	0.0003	0.0002	0.0001	0.0001	0.0001	0.0002
11.3	East	0.0003	0.0003	0.0003	0.0002	0.0001	0.0001	0.0000	0.0002
11.4	East	0.0003	0.0003	0.0002	0.0002	0.0001	0.0001	0.0000	0.0002
11.5	East	0.0003	0.0003	0.0002	0.0002	0.0001	0.0001	0.0000	0.0002
11.6	East	0.0003	0.0003	0.0002	0.0002	0.0001	0.0001	0.0000	0.0002
11.7	East	0.0004	0.0003	0.0002	0.0002	0.0001	0.0001	0.0000	0.0002
1.8	Nav Channel	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005
1.9	Nav Channel	0.0006	0.0006	0.0006	0.0006	0.0006	0.0006	0.0005	0.0006
2	Nav Channel	0.0006	0.0006	0.0006	0.0006	0.0006	0.0006	0.0005	0.0006
2.1	Nav Channel	0.0007	0.0007	0.0007	0.0007	0.0007	0.0007	0.0006	0.0007
2.2	Nav Channel	0.0008	0.0008	0.0008	0.0008	0.0008	0.0008	0.0007	0.0008
2.3	Nav Channel	0.0009	0.0009	0.0009	0.0009	0.0009	0.0009	0.0008	0.0009
2.4	Nav Channel	0.0009	0.0009	0.0009	0.0009	0.0009	0.0009	0.0008	0.0009
2.5	Nav Channel	0.0010	0.0010	0.0010	0.0010	0.0010	0.0010	0.0009	0.0010
2.6	Nav Channel	0.0010	0.0010	0.0010	0.0010	0.0010	0.0010	0.0009	0.0010
2.7	Nav Channel	0.0010	0.0010	0.0010	0.0010	0.0010	0.0010	0.0009	0.0010
2.8	Nav Channel	0.0010	0.0010	0.0010	0.0010	0.0010	0.0010	0.0009	0.0010
2.9	Nav Channel	0.0010	0.0010	0.0010	0.0010	0.0010	0.0010	0.0009	0.0010
3	Nav Channel	0.0009	0.0009	0.0009	0.0009	0.0009	0.0009	0.0009	0.0009
3.1	Nav Channel	0.0009	0.0009	0.0009	0.0009	0.0009	0.0009	0.0007	0.0009
3.2	Nav Channel	0.0009	0.0009	0.0009	0.0009	0.0009	0.0008	0.0006	0.0009
3.3	Nav Channel	0.0008	0.0008	0.0008	0.0008	0.0008	0.0008	0.0005	0.0008
3.4	Nav Channel	0.0008	0.0008	0.0008	0.0008	0.0008	0.0007	0.0005	0.0008
3.5	Nav Channel	0.0007	0.0007	0.0007	0.0007	0.0007	0.0007	0.0004	0.0007
3.6	Nav Channel	0.0007	0.0007	0.0007	0.0007	0.0007	0.0006	0.0004	0.0007
3.7	Nav Channel	0.0007	0.0007	0.0007	0.0007	0.0007	0.0006	0.0004	0.0007
3.8	Nav Channel	0.0006	0.0006	0.0006	0.0006	0.0006	0.0006	0.0004	0.0006
3.9	Nav Channel	0.0006	0.0006	0.0006	0.0006	0.0006	0.0005	0.0004	0.0006
4	Nav Channel	0.0006	0.0006	0.0006	0.0005	0.0005	0.0005	0.0004	0.0005
4.1	Nav Channel	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0004	0.0005
4.2	Nav Channel	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005
4.3	Nav Channel	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005
4.4	Nav Channel	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005
4.5	Nav Channel	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005
4.6	Nav Channel	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005
4.7	Nav Channel	0.0006	0.0006	0.0005	0.0005	0.0006	0.0004	0.0004	0.0006
4.8	Nav Channel	0.0007	0.0006	0.0005	0.0005	0.0006	0.0004	0.0004	0.0006
4.9	Nav Channel	0.0007	0.0006	0.0005	0.0005	0.0006	0.0004	0.0004	0.0006
5	Nav Channel	0.0008	0.0007	0.0005	0.0005	0.0007	0.0004	0.0004	0.0007
5.1	Nav Channel	0.0008	0.0007	0.0005	0.0005	0.0007	0.0004	0.0003	0.0007
5.2	Nav Channel	0.0008	0.0006	0.0004	0.0004	0.0006	0.0003	0.0002	0.0006
5.3	Nav Channel	0.0010	0.0005	0.0004	0.0003	0.0005	0.0002	0.0002	0.0005
5.4	Nav Channel	0.0011	0.0006	0.0004	0.0004	0.0006	0.0002	0.0001	0.0006
5.5	Nav Channel	0.0012	0.0007	0.0006	0.0005	0.0007	0.0002	0.0001	0.0007

**Table J2.3-4a**

**RAO 2 Rolling River Mile HI Estimates - Aldrin**

Portland Harbor Superfund Site

Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
5.6	Nav Channel	0.0013	0.0008	0.0006	0.0005	0.0008	0.0003	0.0001	0.0008
5.7	Nav Channel	0.0015	0.0010	0.0008	0.0006	0.0010	0.0003	0.0001	0.0009
5.8	Nav Channel	0.0019	0.0012	0.0009	0.0007	0.0012	0.0004	0.0001	0.0011
5.9	Nav Channel	0.0022	0.0013	0.0011	0.0009	0.0013	0.0005	0.0002	0.0012
6	Nav Channel	0.0024	0.0014	0.0012	0.0010	0.0014	0.0006	0.0003	0.0013
6.1	Nav Channel	0.0026	0.0016	0.0012	0.0010	0.0016	0.0006	0.0003	0.0014
6.2	Nav Channel	0.0026	0.0017	0.0013	0.0010	0.0016	0.0006	0.0003	0.0015
6.3	Nav Channel	0.0023	0.0017	0.0014	0.0011	0.0017	0.0006	0.0003	0.0016
6.4	Nav Channel	0.0023	0.0016	0.0013	0.0010	0.0016	0.0006	0.0003	0.0015
6.5	Nav Channel	0.0020	0.0014	0.0010	0.0008	0.0014	0.0005	0.0003	0.0012
6.6	Nav Channel	0.0019	0.0013	0.0009	0.0007	0.0013	0.0005	0.0004	0.0011
6.7	Nav Channel	0.0015	0.0010	0.0008	0.0007	0.0010	0.0005	0.0004	0.0009
6.8	Nav Channel	0.0013	0.0010	0.0009	0.0008	0.0010	0.0007	0.0004	0.0010
6.9	Nav Channel	0.0012	0.0011	0.0010	0.0009	0.0011	0.0008	0.0004	0.0011
7	Nav Channel	0.0010	0.0010	0.0009	0.0009	0.0010	0.0007	0.0003	0.0010
7.1	Nav Channel	0.0008	0.0008	0.0008	0.0008	0.0008	0.0007	0.0003	0.0008
7.2	Nav Channel	0.0008	0.0008	0.0008	0.0008	0.0008	0.0007	0.0004	0.0008
7.3	Nav Channel	0.0008	0.0008	0.0008	0.0008	0.0008	0.0008	0.0004	0.0008
7.4	Nav Channel	0.0009	0.0009	0.0009	0.0009	0.0009	0.0008	0.0005	0.0009
7.5	Nav Channel	0.0009	0.0009	0.0009	0.0009	0.0009	0.0008	0.0006	0.0009
7.6	Nav Channel	0.0009	0.0009	0.0009	0.0009	0.0009	0.0008	0.0006	0.0009
7.7	Nav Channel	0.0008	0.0008	0.0008	0.0008	0.0008	0.0008	0.0006	0.0008
7.8	Nav Channel	0.0007	0.0007	0.0007	0.0007	0.0007	0.0007	0.0005	0.0007
7.9	Nav Channel	0.0006	0.0006	0.0006	0.0006	0.0006	0.0005	0.0005	0.0006
8	Nav Channel	0.0006	0.0006	0.0006	0.0006	0.0006	0.0005	0.0005	0.0006
8.1	Nav Channel	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005
8.2	Nav Channel	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005
8.3	Nav Channel	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005
8.4	Nav Channel	0.0004	0.0004	0.0004	0.0004	0.0004	0.0004	0.0004	0.0004
8.5	Nav Channel	0.0004	0.0004	0.0004	0.0004	0.0004	0.0004	0.0004	0.0004
8.6	Nav Channel	0.0004	0.0004	0.0004	0.0004	0.0004	0.0003	0.0003	0.0004
8.7	Nav Channel	0.0004	0.0004	0.0004	0.0004	0.0004	0.0003	0.0003	0.0004
8.8	Nav Channel	0.0004	0.0004	0.0004	0.0004	0.0004	0.0003	0.0003	0.0004
8.9	Nav Channel	0.0004	0.0004	0.0004	0.0004	0.0004	0.0003	0.0003	0.0004
9	Nav Channel	0.0004	0.0004	0.0004	0.0004	0.0004	0.0003	0.0003	0.0004
9.1	Nav Channel	0.0005	0.0005	0.0005	0.0005	0.0005	0.0004	0.0004	0.0005
9.2	Nav Channel	0.0005	0.0005	0.0005	0.0005	0.0005	0.0004	0.0004	0.0005
9.3	Nav Channel	0.0005	0.0005	0.0005	0.0005	0.0005	0.0004	0.0004	0.0005
9.4	Nav Channel	0.0006	0.0006	0.0006	0.0006	0.0006	0.0005	0.0005	0.0006
9.5	Nav Channel	0.0006	0.0006	0.0006	0.0006	0.0006	0.0006	0.0005	0.0006
9.6	Nav Channel	0.0006	0.0006	0.0006	0.0006	0.0006	0.0006	0.0005	0.0006
9.7	Nav Channel	0.0007	0.0007	0.0007	0.0007	0.0007	0.0006	0.0005	0.0007
9.8	Nav Channel	0.0007	0.0007	0.0007	0.0007	0.0007	0.0007	0.0005	0.0007
9.9	Nav Channel	0.0008	0.0008	0.0008	0.0008	0.0008	0.0006	0.0005	0.0008
10	Nav Channel	0.0008	0.0008	0.0008	0.0008	0.0008	0.0007	0.0005	0.0008
10.1	Nav Channel	0.0008	0.0008	0.0008	0.0008	0.0008	0.0006	0.0005	0.0008



**Table J2.3-4a**

**RAO 2 Rolling River Mile HI Estimates - Aldrin**

Portland Harbor Superfund Site

Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
10.2	Nav Channel	0.0009	0.0009	0.0009	0.0009	0.0009	0.0007	0.0005	0.0009
10.3	Nav Channel	0.0010	0.0010	0.0010	0.0010	0.0010	0.0008	0.0006	0.0010
10.4	Nav Channel	0.0010	0.0010	0.0010	0.0010	0.0010	0.0008	0.0006	0.0010
10.5	Nav Channel	0.0011	0.0011	0.0011	0.0011	0.0011	0.0009	0.0006	0.0011
10.6	Nav Channel	0.0012	0.0012	0.0012	0.0012	0.0012	0.0009	0.0007	0.0012
10.7	Nav Channel	0.0012	0.0012	0.0012	0.0012	0.0012	0.0009	0.0006	0.0012
10.8	Nav Channel	0.0011	0.0011	0.0011	0.0011	0.0011	0.0009	0.0007	0.0011
10.9	Nav Channel	0.0010	0.0010	0.0010	0.0010	0.0010	0.0009	0.0007	0.0010
11	Nav Channel	0.0010	0.0010	0.0010	0.0010	0.0010	0.0009	0.0007	0.0010
11.1	Nav Channel	0.0010	0.0010	0.0010	0.0010	0.0010	0.0009	0.0007	0.0010
11.2	Nav Channel	0.0010	0.0010	0.0010	0.0010	0.0010	0.0009	0.0007	0.0010
11.3	Nav Channel	0.0009	0.0008	0.0008	0.0008	0.0008	0.0008	0.0006	0.0008
11.4	Nav Channel	0.0008	0.0007	0.0007	0.0007	0.0007	0.0007	0.0006	0.0007
11.5	Nav Channel	0.0007	0.0007	0.0006	0.0006	0.0006	0.0006	0.0006	0.0006
11.6	Nav Channel	0.0007	0.0006	0.0006	0.0006	0.0006	0.0006	0.0006	0.0006
11.7	Nav Channel	0.0007	0.0007	0.0007	0.0006	0.0006	0.0006	0.0006	0.0006
1.8	West	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002
1.9	West	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002
2	West	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002
2.1	West	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002
2.2	West	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002
2.3	West	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002
2.4	West	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002
2.5	West	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002
2.6	West	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002
2.7	West	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002
2.8	West	0.0003	0.0003	0.0003	0.0003	0.0003	0.0003	0.0002	0.0003
2.9	West	0.0004	0.0004	0.0004	0.0004	0.0004	0.0004	0.0002	0.0004
3	West	0.0004	0.0004	0.0004	0.0004	0.0004	0.0004	0.0003	0.0004
3.1	West	0.0004	0.0004	0.0004	0.0004	0.0004	0.0004	0.0003	0.0004
3.2	West	0.0004	0.0004	0.0004	0.0004	0.0004	0.0004	0.0003	0.0004
3.3	West	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0003	0.0005
3.4	West	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0003	0.0005
3.5	West	0.0006	0.0006	0.0006	0.0005	0.0005	0.0005	0.0004	0.0005
3.6	West	0.0007	0.0007	0.0007	0.0007	0.0006	0.0006	0.0004	0.0007
3.7	West	0.0008	0.0008	0.0008	0.0008	0.0007	0.0007	0.0004	0.0008
3.8	West	0.0009	0.0009	0.0009	0.0009	0.0007	0.0007	0.0004	0.0009
3.9	West	0.0010	0.0010	0.0010	0.0010	0.0007	0.0007	0.0004	0.0010
4	West	0.0010	0.0010	0.0010	0.0010	0.0006	0.0006	0.0003	0.0010
4.1	West	0.0011	0.0011	0.0011	0.0011	0.0007	0.0007	0.0003	0.0011
4.2	West	0.0012	0.0012	0.0012	0.0011	0.0007	0.0007	0.0003	0.0011
4.3	West	0.0012	0.0012	0.0012	0.0011	0.0007	0.0007	0.0003	0.0011
4.4	West	0.0012	0.0012	0.0012	0.0011	0.0006	0.0006	0.0003	0.0011
4.5	West	0.0012	0.0012	0.0012	0.0011	0.0006	0.0006	0.0002	0.0011
4.6	West	0.0010	0.0010	0.0010	0.0010	0.0006	0.0006	0.0002	0.0010
4.7	West	0.0007	0.0007	0.0007	0.0007	0.0004	0.0004	0.0002	0.0007

**Table J2.3-4a**

**RAO 2 Rolling River Mile HI Estimates - Aldrin**

Portland Harbor Superfund Site

Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
4.8	West	0.0004	0.0004	0.0004	0.0004	0.0004	0.0004	0.0002	0.0004
4.9	West	0.0004	0.0004	0.0004	0.0004	0.0004	0.0004	0.0002	0.0004
5	West	0.0005	0.0005	0.0004	0.0004	0.0004	0.0004	0.0002	0.0004
5.1	West	0.0005	0.0005	0.0004	0.0004	0.0003	0.0003	0.0002	0.0004
5.2	West	0.0005	0.0005	0.0004	0.0004	0.0004	0.0004	0.0002	0.0004
5.3	West	0.0005	0.0005	0.0005	0.0005	0.0004	0.0004	0.0002	0.0005
5.4	West	0.0007	0.0007	0.0007	0.0006	0.0006	0.0006	0.0003	0.0006
5.5	West	0.0007	0.0007	0.0007	0.0007	0.0006	0.0006	0.0003	0.0007
5.6	West	0.0008	0.0007	0.0007	0.0006	0.0005	0.0005	0.0003	0.0007
5.7	West	0.0013	0.0008	0.0006	0.0006	0.0005	0.0005	0.0002	0.0006
5.8	West	0.0014	0.0007	0.0006	0.0005	0.0004	0.0004	0.0002	0.0006
5.9	West	0.0014	0.0006	0.0005	0.0005	0.0004	0.0004	0.0002	0.0005
6	West	0.0014	0.0006	0.0005	0.0004	0.0003	0.0003	0.0002	0.0005
6.1	West	0.0015	0.0006	0.0005	0.0004	0.0003	0.0003	0.0002	0.0004
6.2	West	0.0015	0.0006	0.0005	0.0005	0.0003	0.0003	0.0002	0.0004
6.3	West	0.0015	0.0006	0.0005	0.0004	0.0003	0.0003	0.0001	0.0004
6.4	West	0.0022	0.0010	0.0005	0.0004	0.0002	0.0002	0.0001	0.0003
6.5	West	0.0042	0.0021	0.0008	0.0003	0.0001	0.0001	0.0000	0.0001
6.6	West	0.0065	0.0038	0.0016	0.0006	0.0001	0.0001	0.0000	0.0001
6.7	West	0.0080	0.0037	0.0016	0.0006	0.0001	0.0001	0.0000	0.0001
6.8	West	0.0101	0.0036	0.0016	0.0006	0.0001	0.0001	0.0000	0.0001
6.9	West	0.0118	0.0037	0.0016	0.0006	0.0001	0.0001	0.0000	0.0001
7	West	0.0126	0.0038	0.0017	0.0006	0.0001	0.0001	0.0000	0.0001
7.1	West	0.0111	0.0037	0.0018	0.0009	0.0004	0.0004	0.0001	0.0004
7.2	West	0.0098	0.0036	0.0020	0.0012	0.0007	0.0007	0.0004	0.0007
7.3	West	0.0087	0.0034	0.0020	0.0014	0.0009	0.0009	0.0004	0.0009
7.4	West	0.0083	0.0031	0.0020	0.0013	0.0009	0.0009	0.0005	0.0009
7.5	West	0.0075	0.0026	0.0018	0.0014	0.0009	0.0009	0.0005	0.0009
7.6	West	0.0062	0.0016	0.0014	0.0012	0.0009	0.0009	0.0005	0.0009
7.7	West	0.0049	0.0016	0.0014	0.0012	0.0010	0.0010	0.0005	0.0010
7.8	West	0.0034	0.0016	0.0014	0.0013	0.0010	0.0010	0.0005	0.0010
7.9	West	0.0023	0.0016	0.0014	0.0013	0.0009	0.0009	0.0005	0.0010
8	West	0.0015	0.0014	0.0013	0.0012	0.0009	0.0009	0.0005	0.0010
8.1	West	0.0015	0.0015	0.0015	0.0013	0.0008	0.0008	0.0004	0.0012
8.2	West	0.0018	0.0018	0.0018	0.0013	0.0006	0.0006	0.0002	0.0012
8.3	West	0.0019	0.0018	0.0017	0.0011	0.0004	0.0004	0.0001	0.0011
8.4	West	0.0030	0.0019	0.0018	0.0011	0.0003	0.0003	0.0001	0.0011
8.5	West	0.0031	0.0019	0.0018	0.0012	0.0003	0.0003	0.0001	0.0012
8.6	West	0.0031	0.0020	0.0019	0.0012	0.0003	0.0003	0.0001	0.0012
8.7	West	0.0034	0.0021	0.0019	0.0012	0.0003	0.0003	0.0001	0.0012
8.8	West	0.0034	0.0022	0.0020	0.0012	0.0004	0.0004	0.0001	0.0012
8.9	West	0.0034	0.0021	0.0019	0.0011	0.0004	0.0004	0.0002	0.0011
9	West	0.0035	0.0021	0.0019	0.0011	0.0003	0.0003	0.0001	0.0011
9.1	West	0.0031	0.0015	0.0013	0.0007	0.0001	0.0001	0.0001	0.0007
9.2	West	0.0024	0.0008	0.0005	0.0002	0.0001	0.0001	0.0001	0.0002
9.3	West	0.0023	0.0007	0.0004	0.0002	0.0001	0.0001	0.0001	0.0002

**Table J2.3-4a**

**RAO 2 Rolling River Mile HI Estimates - Aldrin**

Portland Harbor Superfund Site

Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
9.4	West	0.0010	0.0008	0.0004	0.0002	0.0001	0.0001	0.0001	0.0002
9.5	West	0.0010	0.0008	0.0004	0.0003	0.0002	0.0002	0.0001	0.0003
9.6	West	0.0010	0.0008	0.0005	0.0003	0.0002	0.0002	0.0001	0.0003
9.7	West	0.0008	0.0008	0.0005	0.0003	0.0002	0.0002	0.0001	0.0003
9.8	West	0.0008	0.0007	0.0004	0.0003	0.0002	0.0002	0.0001	0.0003
9.9	West	0.0009	0.0009	0.0005	0.0004	0.0002	0.0002	0.0002	0.0004
10	West	0.0012	0.0011	0.0007	0.0005	0.0004	0.0004	0.0003	0.0005
10.1	West	0.0016	0.0014	0.0008	0.0006	0.0005	0.0005	0.0004	0.0006
10.2	West	0.0015	0.0015	0.0009	0.0008	0.0007	0.0007	0.0006	0.0008
10.3	West	0.0010	0.0010	0.0010	0.0010	0.0009	0.0009	0.0006	0.0010
10.4	West	0.0009	0.0009	0.0009	0.0009	0.0009	0.0009	0.0006	0.0009
10.5	West	0.0010	0.0010	0.0010	0.0010	0.0009	0.0009	0.0007	0.0010
10.6	West	0.0010	0.0010	0.0010	0.0010	0.0009	0.0009	0.0008	0.0010
10.7	West	0.0010	0.0010	0.0010	0.0010	0.0009	0.0009	0.0008	0.0010
10.8	West	0.0010	0.0010	0.0010	0.0010	0.0010	0.0010	0.0008	0.0010
10.9	West	0.0009	0.0009	0.0009	0.0009	0.0009	0.0009	0.0008	0.0009
11	West	0.0008	0.0008	0.0008	0.0008	0.0008	0.0008	0.0007	0.0008
11.1	West	0.0007	0.0007	0.0007	0.0007	0.0007	0.0007	0.0006	0.0007
11.2	West	0.0007	0.0007	0.0007	0.0007	0.0007	0.0007	0.0006	0.0007
11.3	West	0.0007	0.0007	0.0007	0.0007	0.0007	0.0007	0.0007	0.0007
11.4	West	0.0007	0.0007	0.0007	0.0007	0.0007	0.0007	0.0007	0.0007
11.5	West	0.0006	0.0006	0.0006	0.0006	0.0006	0.0006	0.0006	0.0006
11.6	West	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005
11.7	West	0.0004	0.0004	0.0004	0.0004	0.0004	0.0004	0.0004	0.0004
7.6	Swan Isl	0.0001	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7.7	Swan Isl	0.0002	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7.8	Swan Isl	0.0003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7.9	Swan Isl	0.0005	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8	Swan Isl	0.0007	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8.1	Swan Isl	0.0008	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8.2	Swan Isl	0.0008	0.0001	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8.3	Swan Isl	0.0007	0.0001	0.0001	0.0000	0.0000	0.0000	0.0000	0.0000
8.4	Swan Isl	0.0007	0.0001	0.0001	0.0001	0.0000	0.0000	0.0000	0.0001
8.5	Swan Isl	0.0007	0.0001	0.0001	0.0000	0.0000	0.0000	0.0000	0.0000
8.6	Swan Isl	0.0008	0.0001	0.0001	0.0001	0.0001	0.0001	0.0000	0.0001
8.7	Swan Isl	0.0011	0.0003	0.0002	0.0002	0.0001	0.0001	0.0001	0.0003
8.8	Swan Isl	0.0012	0.0003	0.0003	0.0003	0.0001	0.0001	0.0001	0.0003
8.9	Swan Isl	0.0011	0.0004	0.0003	0.0003	0.0001	0.0001	0.0001	0.0004
9	Swan Isl	0.0009	0.0004	0.0003	0.0003	0.0001	0.0001	0.0001	0.0004
9.1	Swan Isl	0.0008	0.0004	0.0004	0.0003	0.0001	0.0001	0.0001	0.0004
9.2	Swan Isl	0.0008	0.0005	0.0004	0.0004	0.0001	0.0001	0.0001	0.0005
9.3	Swan Isl	0.0010	0.0006	0.0005	0.0005	0.0001	0.0001	0.0001	0.0006
9.4	Swan Isl	0.0012	0.0009	0.0007	0.0007	0.0002	0.0002	0.0001	0.0009
9.5	Swan Isl	0.0017	0.0014	0.0012	0.0011	0.0003	0.0003	0.0002	0.0014
9.6	Swan Isl	0.0022	0.0022	0.0019	0.0017	0.0005	0.0005	0.0004	0.0022

**Table J2.3-4b**

**RAO 2 Rolling River Mile HI Estimates - Chlordanes**

Portland Harbor Superfund Site

Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
1.8	East	0.0041	0.0040	0.0039	0.0038	0.0038	0.0038	0.0038	0.0038
1.9	East	0.0042	0.0040	0.0039	0.0038	0.0037	0.0037	0.0037	0.0038
2	East	0.0040	0.0037	0.0036	0.0035	0.0034	0.0034	0.0034	0.0035
2.1	East	0.0038	0.0035	0.0034	0.0033	0.0031	0.0031	0.0031	0.0033
2.2	East	0.0031	0.0028	0.0027	0.0026	0.0024	0.0024	0.0023	0.0026
2.3	East	0.0026	0.0023	0.0022	0.0020	0.0018	0.0018	0.0016	0.0020
2.4	East	0.0025	0.0022	0.0020	0.0018	0.0015	0.0015	0.0013	0.0018
2.5	East	0.0025	0.0021	0.0019	0.0017	0.0014	0.0014	0.0012	0.0017
2.6	East	0.0024	0.0021	0.0018	0.0016	0.0014	0.0014	0.0012	0.0017
2.7	East	0.0025	0.0022	0.0019	0.0017	0.0014	0.0014	0.0012	0.0017
2.8	East	0.0023	0.0021	0.0019	0.0017	0.0014	0.0014	0.0012	0.0017
2.9	East	0.0021	0.0020	0.0018	0.0017	0.0014	0.0014	0.0012	0.0017
3	East	0.0020	0.0020	0.0017	0.0016	0.0014	0.0014	0.0012	0.0017
3.1	East	0.0020	0.0019	0.0016	0.0015	0.0014	0.0014	0.0012	0.0016
3.2	East	0.0019	0.0018	0.0015	0.0014	0.0013	0.0013	0.0011	0.0014
3.3	East	0.0019	0.0016	0.0013	0.0012	0.0010	0.0010	0.0009	0.0012
3.4	East	0.0018	0.0013	0.0012	0.0011	0.0009	0.0009	0.0008	0.0011
3.5	East	0.0019	0.0013	0.0011	0.0010	0.0008	0.0008	0.0007	0.0010
3.6	East	0.0020	0.0013	0.0012	0.0010	0.0008	0.0008	0.0006	0.0010
3.7	East	0.0021	0.0014	0.0013	0.0010	0.0007	0.0007	0.0005	0.0010
3.8	East	0.0022	0.0015	0.0014	0.0011	0.0008	0.0008	0.0006	0.0011
3.9	East	0.0025	0.0019	0.0017	0.0014	0.0008	0.0008	0.0005	0.0014
4	East	0.0035	0.0029	0.0027	0.0024	0.0015	0.0015	0.0008	0.0024
4.1	East	0.0058	0.0053	0.0046	0.0040	0.0024	0.0024	0.0011	0.0040
4.2	East	0.0092	0.0085	0.0069	0.0053	0.0029	0.0029	0.0012	0.0053
4.3	East	0.0112	0.0108	0.0088	0.0068	0.0038	0.0038	0.0016	0.0068
4.4	East	0.0116	0.0114	0.0093	0.0072	0.0040	0.0040	0.0017	0.0072
4.5	East	0.0118	0.0116	0.0095	0.0073	0.0041	0.0041	0.0018	0.0073
4.6	East	0.0118	0.0116	0.0095	0.0074	0.0043	0.0043	0.0019	0.0074
4.7	East	0.0119	0.0118	0.0096	0.0076	0.0044	0.0044	0.0021	0.0076
4.8	East	0.0122	0.0120	0.0098	0.0078	0.0046	0.0046	0.0021	0.0078
4.9	East	0.0139	0.0137	0.0111	0.0088	0.0054	0.0054	0.0026	0.0088
5	East	0.0143	0.0141	0.0111	0.0084	0.0051	0.0051	0.0025	0.0084
5.1	East	0.0112	0.0109	0.0086	0.0063	0.0038	0.0038	0.0018	0.0060
5.2	East	0.0046	0.0046	0.0046	0.0045	0.0028	0.0028	0.0016	0.0029
5.3	East	0.0044	0.0044	0.0044	0.0041	0.0023	0.0023	0.0015	0.0023
5.4	East	0.0039	0.0039	0.0039	0.0037	0.0021	0.0021	0.0012	0.0021
5.5	East	0.0039	0.0039	0.0039	0.0037	0.0021	0.0021	0.0011	0.0022
5.6	East	0.0038	0.0038	0.0038	0.0035	0.0019	0.0019	0.0010	0.0022
5.7	East	0.0035	0.0035	0.0035	0.0033	0.0018	0.0018	0.0009	0.0021
5.8	East	0.0033	0.0033	0.0033	0.0031	0.0017	0.0017	0.0009	0.0020
5.9	East	0.0031	0.0031	0.0031	0.0029	0.0015	0.0015	0.0008	0.0020
6	East	0.0029	0.0029	0.0029	0.0027	0.0015	0.0015	0.0008	0.0019

**Table J2.3-4b**  
**RAO 2 Rolling River Mile HI Estimates - Chlordanes**  
 Portland Harbor Superfund Site  
 Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
6.1	East	0.0026	0.0026	0.0026	0.0024	0.0014	0.0014	0.0009	0.0018
6.2	East	0.0020	0.0020	0.0019	0.0019	0.0014	0.0014	0.0010	0.0017
6.3	East	0.0019	0.0018	0.0017	0.0016	0.0012	0.0012	0.0009	0.0017
6.4	East	0.0018	0.0016	0.0015	0.0014	0.0011	0.0011	0.0008	0.0016
6.5	East	0.0016	0.0014	0.0012	0.0012	0.0010	0.0010	0.0008	0.0014
6.6	East	0.0014	0.0012	0.0011	0.0010	0.0009	0.0009	0.0007	0.0012
6.7	East	0.0014	0.0012	0.0010	0.0010	0.0009	0.0009	0.0007	0.0013
6.8	East	0.0015	0.0012	0.0010	0.0009	0.0008	0.0008	0.0007	0.0013
6.9	East	0.0016	0.0013	0.0010	0.0010	0.0009	0.0009	0.0008	0.0014
7	East	0.0016	0.0014	0.0011	0.0011	0.0010	0.0010	0.0009	0.0015
7.1	East	0.0017	0.0014	0.0012	0.0012	0.0011	0.0011	0.0010	0.0015
7.2	East	0.0017	0.0014	0.0012	0.0012	0.0011	0.0011	0.0011	0.0016
7.3	East	0.0017	0.0015	0.0013	0.0013	0.0012	0.0012	0.0012	0.0016
7.4	East	0.0018	0.0016	0.0014	0.0014	0.0014	0.0014	0.0014	0.0018
7.5	East	0.0020	0.0018	0.0016	0.0016	0.0016	0.0016	0.0015	0.0020
7.6	East	0.0022	0.0019	0.0017	0.0017	0.0017	0.0017	0.0016	0.0021
7.7	East	0.0021	0.0019	0.0017	0.0017	0.0017	0.0017	0.0015	0.0019
7.8	East	0.0021	0.0018	0.0017	0.0017	0.0017	0.0017	0.0015	0.0018
7.9	East	0.0020	0.0017	0.0017	0.0017	0.0017	0.0017	0.0015	0.0017
8	East	0.0020	0.0016	0.0016	0.0016	0.0016	0.0016	0.0013	0.0016
8.1	East	0.0018	0.0013	0.0013	0.0013	0.0013	0.0013	0.0010	0.0013
8.2	East	0.0017	0.0012	0.0012	0.0012	0.0012	0.0012	0.0009	0.0012
8.3	East	0.0016	0.0012	0.0012	0.0012	0.0012	0.0012	0.0010	0.0012
8.4	East	0.0015	0.0011	0.0011	0.0011	0.0011	0.0011	0.0010	0.0011
8.5	East	0.0014	0.0010	0.0010	0.0010	0.0010	0.0010	0.0009	0.0010
8.6	East	0.0014	0.0011	0.0011	0.0011	0.0011	0.0011	0.0009	0.0011
8.7	East	0.0015	0.0014	0.0014	0.0014	0.0013	0.0013	0.0010	0.0014
8.8	East	0.0017	0.0017	0.0017	0.0017	0.0016	0.0016	0.0013	0.0017
8.9	East	0.0018	0.0018	0.0018	0.0018	0.0018	0.0018	0.0015	0.0018
9	East	0.0018	0.0018	0.0018	0.0018	0.0017	0.0017	0.0014	0.0018
9.1	East	0.0018	0.0018	0.0018	0.0018	0.0017	0.0017	0.0013	0.0018
9.2	East	0.0018	0.0018	0.0018	0.0018	0.0017	0.0017	0.0012	0.0018
9.3	East	0.0019	0.0019	0.0019	0.0019	0.0017	0.0017	0.0013	0.0019
9.4	East	0.0019	0.0019	0.0019	0.0019	0.0018	0.0018	0.0013	0.0019
9.5	East	0.0018	0.0018	0.0018	0.0018	0.0017	0.0017	0.0013	0.0018
9.6	East	0.0018	0.0018	0.0018	0.0018	0.0017	0.0017	0.0013	0.0018
9.7	East	0.0018	0.0018	0.0018	0.0018	0.0016	0.0016	0.0014	0.0018
9.8	East	0.0017	0.0017	0.0017	0.0017	0.0016	0.0016	0.0013	0.0017
9.9	East	0.0018	0.0018	0.0018	0.0018	0.0016	0.0016	0.0013	0.0018
10	East	0.0024	0.0024	0.0024	0.0024	0.0022	0.0022	0.0019	0.0024
10.1	East	0.0028	0.0028	0.0028	0.0028	0.0026	0.0026	0.0022	0.0028
10.2	East	0.0030	0.0030	0.0030	0.0030	0.0027	0.0027	0.0025	0.0030

**Table J2.3-4b**

**RAO 2 Rolling River Mile HI Estimates - Chlordanes**

Portland Harbor Superfund Site

Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
10.3	East	0.0032	0.0032	0.0032	0.0031	0.0027	0.0027	0.0025	0.0031
10.4	East	0.0034	0.0034	0.0034	0.0032	0.0028	0.0028	0.0025	0.0032
10.5	East	0.0038	0.0038	0.0038	0.0036	0.0030	0.0030	0.0025	0.0036
10.6	East	0.0042	0.0042	0.0042	0.0039	0.0033	0.0033	0.0027	0.0039
10.7	East	0.0047	0.0044	0.0042	0.0038	0.0032	0.0032	0.0025	0.0038
10.8	East	0.0080	0.0071	0.0063	0.0051	0.0037	0.0037	0.0022	0.0051
10.9	East	0.0150	0.0089	0.0063	0.0045	0.0031	0.0031	0.0017	0.0045
11	East	0.0170	0.0089	0.0060	0.0038	0.0021	0.0021	0.0008	0.0038
11.1	East	0.0171	0.0090	0.0061	0.0038	0.0019	0.0019	0.0006	0.0038
11.2	East	0.0165	0.0087	0.0059	0.0036	0.0018	0.0018	0.0004	0.0036
11.3	East	0.0182	0.0094	0.0063	0.0038	0.0019	0.0019	0.0004	0.0038
11.4	East	0.0202	0.0103	0.0068	0.0041	0.0020	0.0020	0.0004	0.0041
11.5	East	0.0218	0.0110	0.0071	0.0042	0.0021	0.0021	0.0004	0.0042
11.6	East	0.0244	0.0120	0.0076	0.0043	0.0020	0.0020	0.0004	0.0043
11.7	East	0.0276	0.0135	0.0087	0.0049	0.0022	0.0022	0.0004	0.0049
1.8	Nav Channel	0.0019	0.0019	0.0019	0.0019	0.0019	0.0019	0.0018	0.0019
1.9	Nav Channel	0.0020	0.0020	0.0020	0.0020	0.0020	0.0020	0.0017	0.0020
2	Nav Channel	0.0020	0.0020	0.0020	0.0020	0.0020	0.0020	0.0018	0.0020
2.1	Nav Channel	0.0021	0.0021	0.0021	0.0021	0.0021	0.0021	0.0018	0.0021
2.2	Nav Channel	0.0021	0.0021	0.0021	0.0021	0.0021	0.0021	0.0019	0.0021
2.3	Nav Channel	0.0021	0.0021	0.0021	0.0021	0.0021	0.0021	0.0019	0.0021
2.4	Nav Channel	0.0022	0.0022	0.0022	0.0022	0.0022	0.0022	0.0019	0.0022
2.5	Nav Channel	0.0022	0.0022	0.0022	0.0022	0.0022	0.0022	0.0020	0.0022
2.6	Nav Channel	0.0023	0.0023	0.0023	0.0023	0.0023	0.0023	0.0021	0.0023
2.7	Nav Channel	0.0024	0.0024	0.0024	0.0024	0.0024	0.0024	0.0021	0.0024
2.8	Nav Channel	0.0024	0.0024	0.0024	0.0024	0.0024	0.0024	0.0022	0.0024
2.9	Nav Channel	0.0024	0.0024	0.0024	0.0024	0.0024	0.0024	0.0023	0.0024
3	Nav Channel	0.0025	0.0025	0.0025	0.0025	0.0025	0.0023	0.0021	0.0025
3.1	Nav Channel	0.0028	0.0028	0.0028	0.0028	0.0028	0.0021	0.0019	0.0028
3.2	Nav Channel	0.0030	0.0030	0.0030	0.0030	0.0030	0.0019	0.0016	0.0030
3.3	Nav Channel	0.0030	0.0030	0.0030	0.0029	0.0029	0.0019	0.0015	0.0029
3.4	Nav Channel	0.0029	0.0029	0.0029	0.0029	0.0029	0.0019	0.0015	0.0029
3.5	Nav Channel	0.0028	0.0028	0.0028	0.0028	0.0028	0.0018	0.0015	0.0028
3.6	Nav Channel	0.0027	0.0027	0.0027	0.0026	0.0026	0.0018	0.0014	0.0026
3.7	Nav Channel	0.0025	0.0025	0.0025	0.0025	0.0025	0.0017	0.0013	0.0025
3.8	Nav Channel	0.0024	0.0024	0.0024	0.0024	0.0024	0.0016	0.0012	0.0024
3.9	Nav Channel	0.0023	0.0023	0.0023	0.0023	0.0023	0.0015	0.0012	0.0023
4	Nav Channel	0.0022	0.0022	0.0022	0.0022	0.0022	0.0016	0.0013	0.0022
4.1	Nav Channel	0.0021	0.0021	0.0021	0.0021	0.0021	0.0017	0.0015	0.0021
4.2	Nav Channel	0.0019	0.0019	0.0019	0.0019	0.0019	0.0018	0.0016	0.0019
4.3	Nav Channel	0.0019	0.0019	0.0019	0.0019	0.0019	0.0019	0.0017	0.0019
4.4	Nav Channel	0.0019	0.0019	0.0019	0.0019	0.0019	0.0018	0.0017	0.0019

**Table J2.3-4b**  
**RAO 2 Rolling River Mile HI Estimates - Chlordanes**  
 Portland Harbor Superfund Site  
 Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
4.5	Nav Channel	0.0018	0.0018	0.0018	0.0018	0.0018	0.0018	0.0017	0.0018
4.6	Nav Channel	0.0018	0.0018	0.0018	0.0018	0.0018	0.0017	0.0016	0.0018
4.7	Nav Channel	0.0019	0.0018	0.0017	0.0017	0.0018	0.0016	0.0015	0.0018
4.8	Nav Channel	0.0020	0.0019	0.0017	0.0016	0.0019	0.0015	0.0014	0.0019
4.9	Nav Channel	0.0022	0.0019	0.0016	0.0015	0.0019	0.0014	0.0013	0.0019
5	Nav Channel	0.0023	0.0018	0.0015	0.0014	0.0018	0.0012	0.0011	0.0018
5.1	Nav Channel	0.0022	0.0017	0.0013	0.0012	0.0017	0.0010	0.0009	0.0017
5.2	Nav Channel	0.0022	0.0015	0.0011	0.0010	0.0015	0.0008	0.0007	0.0015
5.3	Nav Channel	0.0022	0.0013	0.0009	0.0008	0.0013	0.0006	0.0005	0.0013
5.4	Nav Channel	0.0021	0.0013	0.0008	0.0007	0.0013	0.0004	0.0003	0.0013
5.5	Nav Channel	0.0024	0.0014	0.0010	0.0008	0.0014	0.0005	0.0002	0.0014
5.6	Nav Channel	0.0026	0.0016	0.0012	0.0009	0.0016	0.0005	0.0002	0.0016
5.7	Nav Channel	0.0038	0.0027	0.0016	0.0011	0.0027	0.0006	0.0002	0.0022
5.8	Nav Channel	0.0050	0.0031	0.0020	0.0013	0.0031	0.0006	0.0002	0.0025
5.9	Nav Channel	0.0055	0.0034	0.0023	0.0016	0.0034	0.0009	0.0004	0.0028
6	Nav Channel	0.0058	0.0036	0.0025	0.0018	0.0036	0.0010	0.0005	0.0029
6.1	Nav Channel	0.0066	0.0042	0.0028	0.0020	0.0041	0.0011	0.0005	0.0034
6.2	Nav Channel	0.0070	0.0048	0.0032	0.0022	0.0046	0.0011	0.0005	0.0038
6.3	Nav Channel	0.0074	0.0052	0.0036	0.0025	0.0050	0.0011	0.0005	0.0042
6.4	Nav Channel	0.0075	0.0052	0.0036	0.0025	0.0050	0.0012	0.0005	0.0042
6.5	Nav Channel	0.0071	0.0049	0.0032	0.0023	0.0047	0.0011	0.0006	0.0039
6.6	Nav Channel	0.0067	0.0044	0.0029	0.0021	0.0043	0.0010	0.0006	0.0035
6.7	Nav Channel	0.0051	0.0032	0.0025	0.0020	0.0030	0.0012	0.0008	0.0029
6.8	Nav Channel	0.0043	0.0032	0.0028	0.0025	0.0031	0.0018	0.0012	0.0030
6.9	Nav Channel	0.0040	0.0035	0.0031	0.0029	0.0033	0.0023	0.0014	0.0033
7	Nav Channel	0.0036	0.0035	0.0032	0.0029	0.0034	0.0023	0.0014	0.0034
7.1	Nav Channel	0.0032	0.0032	0.0031	0.0030	0.0031	0.0023	0.0014	0.0031
7.2	Nav Channel	0.0031	0.0031	0.0031	0.0031	0.0031	0.0026	0.0015	0.0031
7.3	Nav Channel	0.0030	0.0030	0.0030	0.0030	0.0030	0.0026	0.0017	0.0030
7.4	Nav Channel	0.0029	0.0029	0.0029	0.0029	0.0029	0.0026	0.0019	0.0029
7.5	Nav Channel	0.0028	0.0028	0.0028	0.0028	0.0028	0.0026	0.0019	0.0028
7.6	Nav Channel	0.0028	0.0028	0.0028	0.0028	0.0028	0.0026	0.0020	0.0028
7.7	Nav Channel	0.0028	0.0028	0.0028	0.0028	0.0028	0.0026	0.0020	0.0028
7.8	Nav Channel	0.0025	0.0025	0.0025	0.0025	0.0025	0.0023	0.0019	0.0025
7.9	Nav Channel	0.0022	0.0022	0.0022	0.0022	0.0022	0.0021	0.0018	0.0022
8	Nav Channel	0.0022	0.0022	0.0022	0.0022	0.0022	0.0020	0.0018	0.0022
8.1	Nav Channel	0.0021	0.0021	0.0021	0.0021	0.0021	0.0020	0.0019	0.0021
8.2	Nav Channel	0.0019	0.0019	0.0019	0.0019	0.0019	0.0019	0.0018	0.0019
8.3	Nav Channel	0.0018	0.0018	0.0018	0.0018	0.0018	0.0018	0.0018	0.0018
8.4	Nav Channel	0.0017	0.0017	0.0017	0.0017	0.0017	0.0017	0.0017	0.0017
8.5	Nav Channel	0.0017	0.0017	0.0017	0.0017	0.0017	0.0016	0.0016	0.0017
8.6	Nav Channel	0.0017	0.0017	0.0017	0.0017	0.0017	0.0016	0.0016	0.0017

**Table J2.3-4b**

**RAO 2 Rolling River Mile HI Estimates - Chlordanes**

Portland Harbor Superfund Site

Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
8.7	Nav Channel	0.0016	0.0016	0.0016	0.0016	0.0016	0.0015	0.0015	0.0016
8.8	Nav Channel	0.0016	0.0016	0.0016	0.0016	0.0016	0.0014	0.0014	0.0016
8.9	Nav Channel	0.0016	0.0016	0.0016	0.0016	0.0016	0.0014	0.0013	0.0016
9	Nav Channel	0.0016	0.0016	0.0016	0.0016	0.0016	0.0014	0.0013	0.0016
9.1	Nav Channel	0.0016	0.0016	0.0016	0.0016	0.0016	0.0014	0.0013	0.0016
9.2	Nav Channel	0.0017	0.0016	0.0016	0.0016	0.0016	0.0014	0.0013	0.0016
9.3	Nav Channel	0.0017	0.0017	0.0017	0.0017	0.0017	0.0015	0.0013	0.0017
9.4	Nav Channel	0.0019	0.0019	0.0019	0.0019	0.0019	0.0016	0.0014	0.0019
9.5	Nav Channel	0.0020	0.0020	0.0019	0.0019	0.0019	0.0017	0.0015	0.0019
9.6	Nav Channel	0.0020	0.0020	0.0020	0.0020	0.0020	0.0018	0.0016	0.0020
9.7	Nav Channel	0.0021	0.0021	0.0021	0.0021	0.0021	0.0019	0.0017	0.0021
9.8	Nav Channel	0.0024	0.0024	0.0024	0.0024	0.0024	0.0021	0.0017	0.0024
9.9	Nav Channel	0.0028	0.0028	0.0028	0.0028	0.0028	0.0021	0.0017	0.0028
10	Nav Channel	0.0032	0.0032	0.0032	0.0032	0.0032	0.0025	0.0018	0.0032
10.1	Nav Channel	0.0033	0.0033	0.0033	0.0033	0.0033	0.0025	0.0018	0.0033
10.2	Nav Channel	0.0033	0.0033	0.0033	0.0033	0.0033	0.0025	0.0019	0.0033
10.3	Nav Channel	0.0034	0.0034	0.0034	0.0034	0.0034	0.0026	0.0019	0.0034
10.4	Nav Channel	0.0036	0.0036	0.0036	0.0036	0.0036	0.0027	0.0019	0.0036
10.5	Nav Channel	0.0038	0.0038	0.0038	0.0038	0.0038	0.0029	0.0019	0.0038
10.6	Nav Channel	0.0043	0.0043	0.0043	0.0043	0.0043	0.0033	0.0021	0.0043
10.7	Nav Channel	0.0054	0.0050	0.0047	0.0046	0.0046	0.0035	0.0023	0.0046
10.8	Nav Channel	0.0080	0.0052	0.0048	0.0045	0.0045	0.0036	0.0025	0.0045
10.9	Nav Channel	0.0110	0.0067	0.0051	0.0043	0.0043	0.0037	0.0027	0.0043
11	Nav Channel	0.0108	0.0065	0.0049	0.0041	0.0041	0.0036	0.0028	0.0041
11.1	Nav Channel	0.0110	0.0065	0.0050	0.0042	0.0042	0.0037	0.0029	0.0042
11.2	Nav Channel	0.0116	0.0069	0.0052	0.0043	0.0043	0.0038	0.0030	0.0043
11.3	Nav Channel	0.0127	0.0074	0.0055	0.0045	0.0045	0.0040	0.0030	0.0045
11.4	Nav Channel	0.0138	0.0078	0.0057	0.0045	0.0045	0.0040	0.0032	0.0045
11.5	Nav Channel	0.0151	0.0082	0.0058	0.0045	0.0045	0.0040	0.0034	0.0045
11.6	Nav Channel	0.0165	0.0085	0.0057	0.0041	0.0041	0.0037	0.0031	0.0041
11.7	Nav Channel	0.0173	0.0084	0.0055	0.0038	0.0038	0.0034	0.0030	0.0038
1.8	West	0.0011	0.0011	0.0011	0.0011	0.0011	0.0011	0.0011	0.0011
1.9	West	0.0011	0.0011	0.0011	0.0011	0.0011	0.0011	0.0011	0.0011
2	West	0.0011	0.0011	0.0011	0.0011	0.0011	0.0011	0.0011	0.0011
2.1	West	0.0010	0.0010	0.0010	0.0010	0.0010	0.0010	0.0010	0.0010
2.2	West	0.0011	0.0011	0.0011	0.0011	0.0011	0.0011	0.0011	0.0011
2.3	West	0.0011	0.0011	0.0011	0.0011	0.0011	0.0011	0.0011	0.0011
2.4	West	0.0011	0.0011	0.0011	0.0011	0.0011	0.0011	0.0010	0.0011
2.5	West	0.0011	0.0011	0.0011	0.0011	0.0011	0.0011	0.0010	0.0011
2.6	West	0.0010	0.0010	0.0010	0.0010	0.0010	0.0010	0.0009	0.0010
2.7	West	0.0011	0.0011	0.0011	0.0011	0.0011	0.0011	0.0009	0.0011
2.8	West	0.0013	0.0013	0.0013	0.0013	0.0013	0.0013	0.0009	0.0013



**Table J2.3-4b**  
**RAO 2 Rolling River Mile HI Estimates - Chlordanes**  
 Portland Harbor Superfund Site  
 Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
2.9	West	0.0013	0.0013	0.0013	0.0013	0.0013	0.0013	0.0009	0.0013
3	West	0.0014	0.0014	0.0014	0.0014	0.0014	0.0014	0.0009	0.0014
3.1	West	0.0014	0.0014	0.0014	0.0014	0.0014	0.0014	0.0010	0.0014
3.2	West	0.0015	0.0015	0.0015	0.0015	0.0015	0.0015	0.0010	0.0015
3.3	West	0.0015	0.0015	0.0015	0.0015	0.0014	0.0014	0.0010	0.0015
3.4	West	0.0015	0.0015	0.0015	0.0015	0.0015	0.0015	0.0010	0.0015
3.5	West	0.0016	0.0016	0.0016	0.0016	0.0016	0.0016	0.0011	0.0016
3.6	West	0.0019	0.0019	0.0019	0.0019	0.0018	0.0018	0.0012	0.0019
3.7	West	0.0022	0.0022	0.0022	0.0022	0.0020	0.0020	0.0013	0.0022
3.8	West	0.0024	0.0024	0.0024	0.0023	0.0019	0.0019	0.0014	0.0023
3.9	West	0.0029	0.0029	0.0029	0.0029	0.0024	0.0024	0.0015	0.0029
4	West	0.0033	0.0033	0.0033	0.0033	0.0027	0.0027	0.0015	0.0033
4.1	West	0.0035	0.0035	0.0035	0.0035	0.0027	0.0027	0.0013	0.0035
4.2	West	0.0037	0.0037	0.0037	0.0037	0.0027	0.0027	0.0011	0.0037
4.3	West	0.0037	0.0037	0.0037	0.0037	0.0027	0.0027	0.0011	0.0037
4.4	West	0.0037	0.0037	0.0037	0.0036	0.0026	0.0026	0.0010	0.0036
4.5	West	0.0037	0.0037	0.0037	0.0036	0.0026	0.0026	0.0010	0.0036
4.6	West	0.0036	0.0036	0.0036	0.0035	0.0026	0.0026	0.0010	0.0035
4.7	West	0.0032	0.0032	0.0032	0.0031	0.0023	0.0023	0.0009	0.0031
4.8	West	0.0027	0.0027	0.0026	0.0026	0.0021	0.0021	0.0009	0.0026
4.9	West	0.0021	0.0021	0.0020	0.0019	0.0015	0.0015	0.0008	0.0019
5	West	0.0018	0.0018	0.0018	0.0016	0.0012	0.0012	0.0007	0.0016
5.1	West	0.0017	0.0017	0.0017	0.0015	0.0011	0.0011	0.0006	0.0015
5.2	West	0.0016	0.0016	0.0015	0.0014	0.0011	0.0011	0.0006	0.0014
5.3	West	0.0018	0.0018	0.0017	0.0016	0.0014	0.0014	0.0008	0.0016
5.4	West	0.0028	0.0028	0.0027	0.0025	0.0021	0.0021	0.0012	0.0026
5.5	West	0.0031	0.0031	0.0029	0.0027	0.0021	0.0021	0.0012	0.0028
5.6	West	0.0038	0.0033	0.0029	0.0027	0.0019	0.0019	0.0010	0.0029
5.7	West	0.0060	0.0033	0.0027	0.0025	0.0018	0.0018	0.0010	0.0027
5.8	West	0.0069	0.0031	0.0025	0.0023	0.0017	0.0017	0.0009	0.0025
5.9	West	0.0077	0.0029	0.0024	0.0022	0.0016	0.0016	0.0009	0.0024
6	West	0.0083	0.0028	0.0023	0.0021	0.0015	0.0015	0.0009	0.0023
6.1	West	0.0110	0.0034	0.0027	0.0023	0.0015	0.0015	0.0009	0.0022
6.2	West	0.0120	0.0046	0.0038	0.0034	0.0017	0.0017	0.0008	0.0024
6.3	West	0.0127	0.0051	0.0044	0.0038	0.0014	0.0014	0.0006	0.0021
6.4	West	0.0147	0.0065	0.0045	0.0033	0.0009	0.0009	0.0002	0.0013
6.5	West	0.0199	0.0096	0.0062	0.0032	0.0006	0.0006	0.0000	0.0009
6.6	West	0.0231	0.0122	0.0074	0.0036	0.0006	0.0006	0.0000	0.0006
6.7	West	0.0237	0.0115	0.0070	0.0034	0.0005	0.0005	0.0000	0.0005
6.8	West	0.0284	0.0112	0.0069	0.0034	0.0005	0.0005	0.0000	0.0005
6.9	West	0.0325	0.0113	0.0070	0.0034	0.0005	0.0005	0.0000	0.0006
7	West	0.0343	0.0116	0.0071	0.0035	0.0006	0.0006	0.0000	0.0006

**Table J2.3-4b**  
**RAO 2 Rolling River Mile HI Estimates - Chlordanes**  
 Portland Harbor Superfund Site  
 Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
7.1	West	0.0281	0.0103	0.0064	0.0034	0.0011	0.0011	0.0003	0.0011
7.2	West	0.0236	0.0087	0.0054	0.0029	0.0013	0.0013	0.0007	0.0013
7.3	West	0.0205	0.0078	0.0050	0.0029	0.0018	0.0018	0.0008	0.0018
7.4	West	0.0189	0.0067	0.0046	0.0029	0.0019	0.0019	0.0009	0.0019
7.5	West	0.0168	0.0051	0.0037	0.0029	0.0020	0.0020	0.0009	0.0020
7.6	West	0.0150	0.0036	0.0030	0.0027	0.0021	0.0021	0.0009	0.0021
7.7	West	0.0129	0.0036	0.0032	0.0028	0.0021	0.0021	0.0009	0.0023
7.8	West	0.0091	0.0039	0.0034	0.0031	0.0022	0.0022	0.0009	0.0025
7.9	West	0.0084	0.0065	0.0061	0.0057	0.0024	0.0024	0.0009	0.0052
8	West	0.0065	0.0062	0.0060	0.0056	0.0026	0.0026	0.0011	0.0052
8.1	West	0.0072	0.0072	0.0072	0.0064	0.0027	0.0027	0.0010	0.0061
8.2	West	0.0088	0.0088	0.0088	0.0071	0.0025	0.0025	0.0008	0.0069
8.3	West	0.0103	0.0099	0.0097	0.0071	0.0021	0.0021	0.0007	0.0071
8.4	West	0.0171	0.0105	0.0101	0.0074	0.0020	0.0020	0.0006	0.0073
8.5	West	0.0177	0.0107	0.0102	0.0074	0.0020	0.0020	0.0006	0.0074
8.6	West	0.0183	0.0109	0.0103	0.0074	0.0020	0.0020	0.0006	0.0074
8.7	West	0.0194	0.0113	0.0106	0.0076	0.0020	0.0020	0.0006	0.0076
8.8	West	0.0192	0.0112	0.0104	0.0073	0.0020	0.0020	0.0007	0.0073
8.9	West	0.0161	0.0079	0.0070	0.0040	0.0017	0.0017	0.0009	0.0040
9	West	0.0167	0.0079	0.0070	0.0039	0.0013	0.0013	0.0006	0.0039
9.1	West	0.0156	0.0060	0.0050	0.0024	0.0006	0.0006	0.0005	0.0024
9.2	West	0.0134	0.0039	0.0028	0.0014	0.0007	0.0007	0.0005	0.0014
9.3	West	0.0126	0.0033	0.0020	0.0014	0.0007	0.0007	0.0005	0.0014
9.4	West	0.0047	0.0033	0.0020	0.0014	0.0007	0.0007	0.0005	0.0014
9.5	West	0.0043	0.0033	0.0022	0.0015	0.0008	0.0008	0.0006	0.0015
9.6	West	0.0040	0.0034	0.0023	0.0017	0.0009	0.0009	0.0007	0.0017
9.7	West	0.0035	0.0034	0.0025	0.0018	0.0010	0.0010	0.0007	0.0018
9.8	West	0.0037	0.0035	0.0027	0.0021	0.0011	0.0011	0.0007	0.0021
9.9	West	0.0041	0.0039	0.0029	0.0021	0.0010	0.0010	0.0006	0.0021
10	West	0.0047	0.0044	0.0031	0.0022	0.0012	0.0012	0.0008	0.0022
10.1	West	0.0053	0.0050	0.0033	0.0021	0.0014	0.0014	0.0009	0.0021
10.2	West	0.0054	0.0053	0.0037	0.0030	0.0022	0.0022	0.0015	0.0030
10.3	West	0.0040	0.0040	0.0040	0.0036	0.0029	0.0029	0.0019	0.0036
10.4	West	0.0038	0.0038	0.0038	0.0035	0.0029	0.0029	0.0020	0.0035
10.5	West	0.0037	0.0037	0.0037	0.0034	0.0029	0.0029	0.0021	0.0034
10.6	West	0.0036	0.0036	0.0036	0.0033	0.0029	0.0029	0.0021	0.0033
10.7	West	0.0034	0.0034	0.0034	0.0031	0.0028	0.0028	0.0022	0.0031
10.8	West	0.0029	0.0029	0.0029	0.0029	0.0029	0.0029	0.0024	0.0029
10.9	West	0.0029	0.0029	0.0029	0.0029	0.0029	0.0029	0.0024	0.0029
11	West	0.0028	0.0028	0.0028	0.0028	0.0028	0.0028	0.0024	0.0028
11.1	West	0.0027	0.0027	0.0027	0.0027	0.0027	0.0027	0.0024	0.0027
11.2	West	0.0027	0.0027	0.0027	0.0027	0.0027	0.0027	0.0024	0.0027

**Table J2.3-4b**  
**RAO 2 Rolling River Mile HI Estimates - Chlordanes**  
 Portland Harbor Superfund Site  
 Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
11.3	West	0.0026	0.0026	0.0026	0.0026	0.0026	0.0026	0.0026	0.0026
11.4	West	0.0026	0.0026	0.0026	0.0026	0.0026	0.0026	0.0026	0.0026
11.5	West	0.0026	0.0026	0.0026	0.0026	0.0026	0.0026	0.0026	0.0026
11.6	West	0.0026	0.0026	0.0026	0.0026	0.0026	0.0026	0.0026	0.0026
11.7	West	0.0027	0.0027	0.0027	0.0027	0.0027	0.0027	0.0027	0.0027
7.6	Swan Isl	0.0024	0.0002	0.0002	0.0001	0.0000	0.0000	0.0000	0.0001
7.7	Swan Isl	0.0035	0.0002	0.0002	0.0001	0.0000	0.0000	0.0000	0.0001
7.8	Swan Isl	0.0045	0.0003	0.0002	0.0001	0.0000	0.0000	0.0000	0.0001
7.9	Swan Isl	0.0045	0.0003	0.0002	0.0001	0.0001	0.0001	0.0000	0.0001
8	Swan Isl	0.0050	0.0003	0.0003	0.0002	0.0001	0.0001	0.0001	0.0002
8.1	Swan Isl	0.0050	0.0003	0.0003	0.0002	0.0001	0.0001	0.0001	0.0002
8.2	Swan Isl	0.0047	0.0004	0.0003	0.0002	0.0002	0.0002	0.0001	0.0002
8.3	Swan Isl	0.0045	0.0004	0.0003	0.0002	0.0002	0.0002	0.0002	0.0002
8.4	Swan Isl	0.0046	0.0004	0.0003	0.0002	0.0002	0.0002	0.0002	0.0002
8.5	Swan Isl	0.0046	0.0004	0.0003	0.0003	0.0002	0.0002	0.0002	0.0003
8.6	Swan Isl	0.0051	0.0006	0.0005	0.0004	0.0002	0.0002	0.0002	0.0005
8.7	Swan Isl	0.0055	0.0013	0.0010	0.0009	0.0004	0.0004	0.0003	0.0011
8.8	Swan Isl	0.0052	0.0014	0.0011	0.0010	0.0005	0.0005	0.0004	0.0013
8.9	Swan Isl	0.0053	0.0016	0.0013	0.0011	0.0005	0.0005	0.0004	0.0014
9	Swan Isl	0.0046	0.0017	0.0014	0.0012	0.0005	0.0005	0.0004	0.0016
9.1	Swan Isl	0.0046	0.0018	0.0014	0.0013	0.0005	0.0005	0.0004	0.0017
9.2	Swan Isl	0.0052	0.0021	0.0016	0.0014	0.0005	0.0005	0.0004	0.0019
9.3	Swan Isl	0.0059	0.0025	0.0019	0.0017	0.0005	0.0005	0.0004	0.0023
9.4	Swan Isl	0.0063	0.0035	0.0028	0.0025	0.0006	0.0006	0.0004	0.0034
9.5	Swan Isl	0.0068	0.0056	0.0045	0.0040	0.0009	0.0009	0.0007	0.0055
9.6	Swan Isl	0.0084	0.0084	0.0072	0.0060	0.0016	0.0016	0.0013	0.0084

**Table J2.3-4c**  
**RAO 2 Rolling River Mile HI Estimates - DDx**  
 Portland Harbor Superfund Site  
 Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
1.8	East	0.0093	0.0086	0.0084	0.0081	0.0079	0.0079	0.0078	0.0081
1.9	East	0.0097	0.0089	0.0086	0.0083	0.0080	0.0080	0.0079	0.0083
2	East	0.0097	0.0088	0.0085	0.0082	0.0078	0.0078	0.0076	0.0082
2.1	East	0.0097	0.0088	0.0085	0.0082	0.0075	0.0075	0.0072	0.0082
2.2	East	0.0087	0.0078	0.0075	0.0072	0.0064	0.0064	0.0060	0.0072
2.3	East	0.0083	0.0073	0.0070	0.0065	0.0056	0.0056	0.0050	0.0065
2.4	East	0.0084	0.0074	0.0068	0.0063	0.0053	0.0053	0.0046	0.0063
2.5	East	0.0086	0.0076	0.0070	0.0065	0.0055	0.0055	0.0048	0.0065
2.6	East	0.0086	0.0076	0.0070	0.0066	0.0056	0.0056	0.0049	0.0067
2.7	East	0.0084	0.0077	0.0072	0.0069	0.0059	0.0059	0.0052	0.0069
2.8	East	0.0083	0.0079	0.0075	0.0071	0.0061	0.0061	0.0054	0.0072
2.9	East	0.0079	0.0077	0.0073	0.0070	0.0061	0.0061	0.0053	0.0071
3	East	0.0079	0.0078	0.0073	0.0071	0.0062	0.0062	0.0055	0.0071
3.1	East	0.0082	0.0081	0.0076	0.0074	0.0069	0.0069	0.0062	0.0074
3.2	East	0.0080	0.0080	0.0074	0.0072	0.0069	0.0069	0.0063	0.0072
3.3	East	0.0087	0.0075	0.0068	0.0063	0.0054	0.0054	0.0050	0.0063
3.4	East	0.0090	0.0074	0.0069	0.0065	0.0053	0.0053	0.0047	0.0065
3.5	East	0.0092	0.0075	0.0070	0.0065	0.0051	0.0051	0.0043	0.0065
3.6	East	0.0095	0.0076	0.0070	0.0062	0.0047	0.0047	0.0038	0.0062
3.7	East	0.0099	0.0080	0.0073	0.0063	0.0044	0.0044	0.0032	0.0063
3.8	East	0.0104	0.0085	0.0078	0.0067	0.0048	0.0048	0.0033	0.0067
3.9	East	0.0128	0.0111	0.0093	0.0073	0.0045	0.0045	0.0028	0.0073
4	East	0.0139	0.0123	0.0106	0.0086	0.0048	0.0048	0.0026	0.0086
4.1	East	0.0137	0.0121	0.0103	0.0083	0.0044	0.0044	0.0020	0.0083
4.2	East	0.0151	0.0136	0.0112	0.0086	0.0045	0.0045	0.0018	0.0086
4.3	East	0.0163	0.0156	0.0130	0.0102	0.0057	0.0057	0.0022	0.0102
4.4	East	0.0160	0.0159	0.0131	0.0101	0.0058	0.0058	0.0023	0.0101
4.5	East	0.0162	0.0161	0.0132	0.0102	0.0060	0.0060	0.0026	0.0102
4.6	East	0.0160	0.0159	0.0132	0.0104	0.0063	0.0063	0.0030	0.0104
4.7	East	0.0154	0.0153	0.0126	0.0101	0.0062	0.0062	0.0032	0.0101
4.8	East	0.0151	0.0151	0.0123	0.0098	0.0058	0.0058	0.0029	0.0098
4.9	East	0.0129	0.0128	0.0112	0.0097	0.0064	0.0064	0.0034	0.0097
5	East	0.0116	0.0115	0.0097	0.0081	0.0064	0.0064	0.0037	0.0080
5.1	East	0.0131	0.0130	0.0113	0.0098	0.0076	0.0076	0.0043	0.0089
5.2	East	0.0150	0.0150	0.0149	0.0146	0.0076	0.0076	0.0046	0.0077
5.3	East	0.0151	0.0151	0.0151	0.0144	0.0066	0.0066	0.0042	0.0066
5.4	East	0.0141	0.0141	0.0141	0.0134	0.0069	0.0069	0.0036	0.0069
5.5	East	0.0141	0.0141	0.0141	0.0135	0.0072	0.0072	0.0033	0.0074
5.6	East	0.0140	0.0140	0.0140	0.0134	0.0071	0.0071	0.0033	0.0079
5.7	East	0.0140	0.0140	0.0140	0.0135	0.0073	0.0073	0.0038	0.0085
5.8	East	0.0139	0.0139	0.0139	0.0133	0.0078	0.0078	0.0045	0.0089
5.9	East	0.0141	0.0141	0.0140	0.0134	0.0080	0.0080	0.0050	0.0095
6	East	0.0139	0.0139	0.0138	0.0132	0.0083	0.0083	0.0055	0.0097

**Table J2.3-4c**

**RAO 2 Rolling River Mile HI Estimates - DDx**

Portland Harbor Superfund Site

Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
6.1	East	0.0135	0.0135	0.0133	0.0128	0.0087	0.0087	0.0063	0.0100
6.2	East	0.0113	0.0113	0.0111	0.0107	0.0090	0.0090	0.0069	0.0103
6.3	East	0.0103	0.0099	0.0094	0.0092	0.0080	0.0080	0.0061	0.0095
6.4	East	0.0117	0.0099	0.0082	0.0080	0.0069	0.0069	0.0055	0.0096
6.5	East	0.0105	0.0088	0.0072	0.0070	0.0061	0.0061	0.0052	0.0086
6.6	East	0.0094	0.0078	0.0063	0.0062	0.0056	0.0056	0.0048	0.0077
6.7	East	0.0097	0.0075	0.0058	0.0058	0.0054	0.0054	0.0047	0.0081
6.8	East	0.0097	0.0073	0.0055	0.0054	0.0051	0.0051	0.0045	0.0082
6.9	East	0.0092	0.0069	0.0051	0.0051	0.0048	0.0048	0.0044	0.0077
7	East	0.0088	0.0066	0.0049	0.0049	0.0046	0.0046	0.0042	0.0074
7.1	East	0.0082	0.0060	0.0043	0.0043	0.0040	0.0040	0.0038	0.0067
7.2	East	0.0080	0.0057	0.0040	0.0040	0.0037	0.0037	0.0036	0.0066
7.3	East	0.0083	0.0060	0.0043	0.0043	0.0042	0.0042	0.0040	0.0070
7.4	East	0.0067	0.0056	0.0049	0.0049	0.0048	0.0048	0.0046	0.0067
7.5	East	0.0086	0.0074	0.0067	0.0067	0.0066	0.0066	0.0057	0.0086
7.6	East	0.0120	0.0106	0.0098	0.0098	0.0098	0.0098	0.0062	0.0119
7.7	East	0.0113	0.0103	0.0099	0.0099	0.0098	0.0098	0.0058	0.0108
7.8	East	0.0112	0.0104	0.0103	0.0103	0.0102	0.0102	0.0057	0.0104
7.9	East	0.0122	0.0114	0.0114	0.0113	0.0113	0.0113	0.0061	0.0114
8	East	0.0143	0.0132	0.0132	0.0132	0.0131	0.0131	0.0068	0.0132
8.1	East	0.0165	0.0152	0.0152	0.0152	0.0152	0.0152	0.0078	0.0152
8.2	East	0.0172	0.0160	0.0160	0.0159	0.0159	0.0159	0.0086	0.0159
8.3	East	0.0166	0.0155	0.0155	0.0155	0.0154	0.0154	0.0087	0.0155
8.4	East	0.0157	0.0146	0.0146	0.0146	0.0146	0.0146	0.0084	0.0146
8.5	East	0.0132	0.0121	0.0121	0.0121	0.0120	0.0120	0.0068	0.0121
8.6	East	0.0082	0.0072	0.0072	0.0072	0.0071	0.0071	0.0067	0.0072
8.7	East	0.0087	0.0084	0.0084	0.0084	0.0082	0.0082	0.0074	0.0084
8.8	East	0.0085	0.0085	0.0085	0.0085	0.0083	0.0083	0.0076	0.0085
8.9	East	0.0078	0.0078	0.0078	0.0078	0.0076	0.0076	0.0069	0.0078
9	East	0.0064	0.0064	0.0064	0.0064	0.0063	0.0063	0.0056	0.0064
9.1	East	0.0052	0.0052	0.0052	0.0052	0.0049	0.0049	0.0041	0.0052
9.2	East	0.0040	0.0040	0.0040	0.0040	0.0036	0.0036	0.0026	0.0040
9.3	East	0.0036	0.0036	0.0036	0.0036	0.0032	0.0032	0.0022	0.0036
9.4	East	0.0038	0.0038	0.0038	0.0038	0.0033	0.0033	0.0024	0.0038
9.5	East	0.0038	0.0038	0.0038	0.0038	0.0033	0.0033	0.0025	0.0038
9.6	East	0.0037	0.0037	0.0037	0.0037	0.0032	0.0032	0.0026	0.0037
9.7	East	0.0038	0.0038	0.0038	0.0037	0.0033	0.0033	0.0029	0.0037
9.8	East	0.0038	0.0038	0.0038	0.0038	0.0034	0.0034	0.0029	0.0038
9.9	East	0.0040	0.0040	0.0040	0.0039	0.0034	0.0034	0.0029	0.0039
10	East	0.0042	0.0042	0.0042	0.0042	0.0037	0.0037	0.0031	0.0042
10.1	East	0.0044	0.0044	0.0044	0.0043	0.0039	0.0039	0.0033	0.0044
10.2	East	0.0045	0.0045	0.0045	0.0045	0.0040	0.0040	0.0036	0.0045

**Table J2.3-4c**

**RAO 2 Rolling River Mile HI Estimates - DDx**

Portland Harbor Superfund Site

Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
10.3	East	0.0046	0.0046	0.0046	0.0043	0.0037	0.0037	0.0033	0.0043
10.4	East	0.0047	0.0047	0.0047	0.0043	0.0034	0.0034	0.0028	0.0043
10.5	East	0.0055	0.0055	0.0055	0.0050	0.0032	0.0032	0.0023	0.0050
10.6	East	0.0073	0.0073	0.0071	0.0064	0.0042	0.0042	0.0024	0.0064
10.7	East	0.0094	0.0081	0.0073	0.0063	0.0038	0.0038	0.0021	0.0063
10.8	East	0.0146	0.0126	0.0107	0.0086	0.0050	0.0050	0.0017	0.0086
10.9	East	0.0227	0.0143	0.0107	0.0080	0.0044	0.0044	0.0014	0.0080
11	East	0.0257	0.0149	0.0111	0.0078	0.0039	0.0039	0.0011	0.0078
11.1	East	0.0264	0.0155	0.0116	0.0082	0.0041	0.0041	0.0011	0.0082
11.2	East	0.0257	0.0152	0.0115	0.0082	0.0042	0.0042	0.0010	0.0082
11.3	East	0.0282	0.0164	0.0123	0.0088	0.0045	0.0045	0.0009	0.0088
11.4	East	0.0310	0.0178	0.0131	0.0093	0.0047	0.0047	0.0008	0.0093
11.5	East	0.0327	0.0182	0.0130	0.0089	0.0048	0.0048	0.0009	0.0089
11.6	East	0.0346	0.0180	0.0123	0.0079	0.0039	0.0039	0.0007	0.0079
11.7	East	0.0363	0.0189	0.0131	0.0084	0.0043	0.0043	0.0007	0.0084
1.8	Nav Channel	0.0062	0.0062	0.0062	0.0062	0.0062	0.0062	0.0059	0.0062
1.9	Nav Channel	0.0064	0.0064	0.0064	0.0064	0.0064	0.0064	0.0057	0.0064
2	Nav Channel	0.0063	0.0063	0.0063	0.0063	0.0063	0.0063	0.0055	0.0063
2.1	Nav Channel	0.0060	0.0060	0.0060	0.0060	0.0060	0.0060	0.0052	0.0060
2.2	Nav Channel	0.0060	0.0060	0.0060	0.0060	0.0060	0.0060	0.0052	0.0060
2.3	Nav Channel	0.0061	0.0061	0.0061	0.0061	0.0061	0.0061	0.0053	0.0061
2.4	Nav Channel	0.0064	0.0064	0.0064	0.0064	0.0064	0.0064	0.0056	0.0064
2.5	Nav Channel	0.0067	0.0067	0.0067	0.0067	0.0067	0.0067	0.0059	0.0067
2.6	Nav Channel	0.0070	0.0070	0.0070	0.0070	0.0070	0.0070	0.0062	0.0070
2.7	Nav Channel	0.0072	0.0072	0.0072	0.0072	0.0072	0.0072	0.0064	0.0072
2.8	Nav Channel	0.0073	0.0073	0.0073	0.0073	0.0073	0.0073	0.0068	0.0073
2.9	Nav Channel	0.0073	0.0073	0.0073	0.0073	0.0073	0.0073	0.0071	0.0073
3	Nav Channel	0.0076	0.0076	0.0076	0.0076	0.0076	0.0072	0.0067	0.0076
3.1	Nav Channel	0.0081	0.0081	0.0081	0.0081	0.0081	0.0068	0.0061	0.0081
3.2	Nav Channel	0.0084	0.0084	0.0084	0.0083	0.0083	0.0065	0.0054	0.0083
3.3	Nav Channel	0.0082	0.0082	0.0082	0.0081	0.0081	0.0062	0.0051	0.0081
3.4	Nav Channel	0.0082	0.0082	0.0082	0.0082	0.0082	0.0064	0.0053	0.0082
3.5	Nav Channel	0.0098	0.0098	0.0098	0.0097	0.0097	0.0081	0.0064	0.0097
3.6	Nav Channel	0.0101	0.0101	0.0101	0.0101	0.0101	0.0085	0.0067	0.0101
3.7	Nav Channel	0.0096	0.0096	0.0096	0.0096	0.0096	0.0081	0.0065	0.0096
3.8	Nav Channel	0.0092	0.0092	0.0092	0.0092	0.0092	0.0078	0.0063	0.0092
3.9	Nav Channel	0.0090	0.0090	0.0090	0.0089	0.0089	0.0076	0.0062	0.0089
4	Nav Channel	0.0090	0.0090	0.0090	0.0090	0.0090	0.0079	0.0065	0.0090
4.1	Nav Channel	0.0091	0.0091	0.0091	0.0091	0.0091	0.0085	0.0070	0.0091
4.2	Nav Channel	0.0091	0.0091	0.0091	0.0091	0.0091	0.0089	0.0077	0.0091
4.3	Nav Channel	0.0094	0.0094	0.0094	0.0094	0.0094	0.0092	0.0082	0.0094
4.4	Nav Channel	0.0094	0.0094	0.0094	0.0094	0.0094	0.0093	0.0082	0.0094

**Table J2.3-4c**

**RAO 2 Rolling River Mile HI Estimates - DDx**

Portland Harbor Superfund Site

Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
4.5	Nav Channel	0.0083	0.0083	0.0083	0.0083	0.0083	0.0082	0.0075	0.0083
4.6	Nav Channel	0.0079	0.0079	0.0077	0.0076	0.0079	0.0074	0.0068	0.0079
4.7	Nav Channel	0.0082	0.0080	0.0076	0.0074	0.0080	0.0070	0.0064	0.0080
4.8	Nav Channel	0.0085	0.0082	0.0075	0.0072	0.0082	0.0067	0.0060	0.0082
4.9	Nav Channel	0.0091	0.0083	0.0074	0.0069	0.0083	0.0063	0.0056	0.0083
5	Nav Channel	0.0093	0.0080	0.0069	0.0064	0.0080	0.0057	0.0051	0.0080
5.1	Nav Channel	0.0093	0.0079	0.0067	0.0061	0.0079	0.0051	0.0044	0.0079
5.2	Nav Channel	0.0102	0.0075	0.0061	0.0054	0.0075	0.0043	0.0036	0.0075
5.3	Nav Channel	0.0130	0.0069	0.0055	0.0048	0.0069	0.0036	0.0028	0.0069
5.4	Nav Channel	0.0133	0.0068	0.0053	0.0045	0.0068	0.0028	0.0019	0.0068
5.5	Nav Channel	0.0138	0.0070	0.0053	0.0043	0.0070	0.0023	0.0012	0.0070
5.6	Nav Channel	0.0147	0.0074	0.0059	0.0045	0.0074	0.0022	0.0009	0.0074
5.7	Nav Channel	0.0159	0.0083	0.0063	0.0047	0.0083	0.0023	0.0010	0.0078
5.8	Nav Channel	0.0171	0.0081	0.0063	0.0048	0.0081	0.0023	0.0010	0.0076
5.9	Nav Channel	0.0172	0.0081	0.0066	0.0050	0.0081	0.0026	0.0012	0.0075
6	Nav Channel	0.0180	0.0082	0.0069	0.0054	0.0082	0.0031	0.0016	0.0075
6.1	Nav Channel	0.0207	0.0096	0.0078	0.0057	0.0095	0.0030	0.0017	0.0088
6.2	Nav Channel	0.0207	0.0113	0.0093	0.0068	0.0108	0.0030	0.0015	0.0101
6.3	Nav Channel	0.0170	0.0126	0.0106	0.0080	0.0121	0.0035	0.0015	0.0114
6.4	Nav Channel	0.0168	0.0125	0.0105	0.0079	0.0119	0.0039	0.0017	0.0112
6.5	Nav Channel	0.0169	0.0125	0.0106	0.0083	0.0120	0.0046	0.0028	0.0112
6.6	Nav Channel	0.0165	0.0122	0.0103	0.0086	0.0117	0.0054	0.0039	0.0110
6.7	Nav Channel	0.0163	0.0125	0.0114	0.0102	0.0120	0.0072	0.0056	0.0119
6.8	Nav Channel	0.0183	0.0155	0.0146	0.0135	0.0150	0.0107	0.0071	0.0150
6.9	Nav Channel	0.0201	0.0180	0.0172	0.0160	0.0173	0.0133	0.0083	0.0174
7	Nav Channel	0.0196	0.0186	0.0179	0.0168	0.0180	0.0138	0.0086	0.0180
7.1	Nav Channel	0.0169	0.0168	0.0166	0.0161	0.0163	0.0136	0.0085	0.0163
7.2	Nav Channel	0.0152	0.0151	0.0151	0.0150	0.0149	0.0133	0.0085	0.0149
7.3	Nav Channel	0.0136	0.0135	0.0135	0.0134	0.0134	0.0124	0.0083	0.0134
7.4	Nav Channel	0.0126	0.0125	0.0125	0.0124	0.0124	0.0116	0.0082	0.0124
7.5	Nav Channel	0.0115	0.0114	0.0114	0.0113	0.0113	0.0106	0.0076	0.0113
7.6	Nav Channel	0.0107	0.0106	0.0106	0.0106	0.0106	0.0099	0.0071	0.0106
7.7	Nav Channel	0.0100	0.0099	0.0099	0.0099	0.0098	0.0092	0.0066	0.0098
7.8	Nav Channel	0.0084	0.0084	0.0084	0.0084	0.0083	0.0077	0.0062	0.0083
7.9	Nav Channel	0.0071	0.0071	0.0071	0.0070	0.0070	0.0065	0.0056	0.0070
8	Nav Channel	0.0063	0.0063	0.0063	0.0063	0.0063	0.0060	0.0054	0.0063
8.1	Nav Channel	0.0058	0.0058	0.0058	0.0058	0.0058	0.0057	0.0053	0.0058
8.2	Nav Channel	0.0053	0.0053	0.0053	0.0053	0.0053	0.0053	0.0052	0.0053
8.3	Nav Channel	0.0050	0.0050	0.0050	0.0050	0.0050	0.0050	0.0050	0.0050
8.4	Nav Channel	0.0048	0.0048	0.0048	0.0048	0.0048	0.0047	0.0047	0.0048
8.5	Nav Channel	0.0045	0.0045	0.0045	0.0045	0.0045	0.0044	0.0043	0.0045
8.6	Nav Channel	0.0043	0.0043	0.0043	0.0043	0.0043	0.0042	0.0041	0.0043

**Table J2.3-4c**

**RAO 2 Rolling River Mile HI Estimates - DDx**

Portland Harbor Superfund Site

Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
8.7	Nav Channel	0.0040	0.0040	0.0040	0.0040	0.0040	0.0038	0.0037	0.0040
8.8	Nav Channel	0.0038	0.0037	0.0037	0.0037	0.0037	0.0034	0.0033	0.0037
8.9	Nav Channel	0.0036	0.0035	0.0035	0.0035	0.0035	0.0032	0.0030	0.0035
9	Nav Channel	0.0034	0.0034	0.0034	0.0034	0.0034	0.0031	0.0029	0.0034
9.1	Nav Channel	0.0034	0.0033	0.0033	0.0033	0.0033	0.0030	0.0028	0.0033
9.2	Nav Channel	0.0035	0.0034	0.0034	0.0034	0.0034	0.0030	0.0028	0.0034
9.3	Nav Channel	0.0036	0.0036	0.0036	0.0036	0.0036	0.0031	0.0028	0.0036
9.4	Nav Channel	0.0037	0.0037	0.0036	0.0036	0.0036	0.0032	0.0029	0.0036
9.5	Nav Channel	0.0037	0.0037	0.0037	0.0037	0.0037	0.0033	0.0030	0.0037
9.6	Nav Channel	0.0039	0.0039	0.0039	0.0039	0.0039	0.0035	0.0031	0.0039
9.7	Nav Channel	0.0040	0.0040	0.0040	0.0040	0.0040	0.0037	0.0033	0.0040
9.8	Nav Channel	0.0043	0.0043	0.0043	0.0043	0.0043	0.0039	0.0033	0.0043
9.9	Nav Channel	0.0046	0.0046	0.0046	0.0046	0.0046	0.0038	0.0031	0.0046
10	Nav Channel	0.0047	0.0047	0.0047	0.0047	0.0047	0.0039	0.0031	0.0047
10.1	Nav Channel	0.0049	0.0049	0.0049	0.0049	0.0049	0.0040	0.0032	0.0049
10.2	Nav Channel	0.0048	0.0048	0.0048	0.0048	0.0048	0.0040	0.0032	0.0048
10.3	Nav Channel	0.0049	0.0049	0.0049	0.0049	0.0049	0.0041	0.0033	0.0049
10.4	Nav Channel	0.0053	0.0053	0.0053	0.0053	0.0053	0.0043	0.0033	0.0053
10.5	Nav Channel	0.0056	0.0056	0.0056	0.0056	0.0056	0.0045	0.0033	0.0056
10.6	Nav Channel	0.0058	0.0058	0.0058	0.0058	0.0058	0.0047	0.0034	0.0058
10.7	Nav Channel	0.0063	0.0061	0.0060	0.0059	0.0059	0.0047	0.0033	0.0059
10.8	Nav Channel	0.0074	0.0060	0.0058	0.0056	0.0056	0.0047	0.0035	0.0056
10.9	Nav Channel	0.0086	0.0067	0.0063	0.0059	0.0059	0.0053	0.0042	0.0059
11	Nav Channel	0.0093	0.0074	0.0069	0.0066	0.0066	0.0060	0.0050	0.0066
11.1	Nav Channel	0.0097	0.0077	0.0073	0.0070	0.0070	0.0064	0.0054	0.0070
11.2	Nav Channel	0.0102	0.0081	0.0077	0.0073	0.0073	0.0067	0.0056	0.0073
11.3	Nav Channel	0.0108	0.0084	0.0079	0.0075	0.0075	0.0069	0.0057	0.0075
11.4	Nav Channel	0.0112	0.0085	0.0079	0.0075	0.0075	0.0069	0.0060	0.0075
11.5	Nav Channel	0.0119	0.0088	0.0081	0.0076	0.0076	0.0072	0.0065	0.0076
11.6	Nav Channel	0.0127	0.0091	0.0083	0.0077	0.0077	0.0072	0.0066	0.0077
11.7	Nav Channel	0.0135	0.0096	0.0089	0.0083	0.0083	0.0078	0.0072	0.0083
1.8	West	0.0066	0.0066	0.0066	0.0066	0.0066	0.0066	0.0066	0.0066
1.9	West	0.0070	0.0070	0.0070	0.0070	0.0070	0.0070	0.0070	0.0070
2	West	0.0073	0.0073	0.0073	0.0073	0.0073	0.0073	0.0073	0.0073
2.1	West	0.0081	0.0081	0.0081	0.0081	0.0081	0.0081	0.0081	0.0081
2.2	West	0.0088	0.0088	0.0088	0.0088	0.0088	0.0088	0.0087	0.0088
2.3	West	0.0091	0.0091	0.0091	0.0091	0.0091	0.0091	0.0089	0.0091
2.4	West	0.0095	0.0095	0.0095	0.0095	0.0095	0.0095	0.0090	0.0095
2.5	West	0.0096	0.0096	0.0096	0.0096	0.0096	0.0096	0.0087	0.0096
2.6	West	0.0092	0.0092	0.0092	0.0092	0.0092	0.0092	0.0081	0.0092
2.7	West	0.0102	0.0102	0.0102	0.0102	0.0102	0.0102	0.0084	0.0102
2.8	West	0.0133	0.0133	0.0133	0.0133	0.0133	0.0133	0.0080	0.0133



**Table J2.3-4c**

**RAO 2 Rolling River Mile HI Estimates - DDx**

Portland Harbor Superfund Site

Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
2.9	West	0.0131	0.0131	0.0131	0.0131	0.0131	0.0131	0.0076	0.0131
3	West	0.0141	0.0141	0.0141	0.0141	0.0138	0.0138	0.0076	0.0141
3.1	West	0.0140	0.0140	0.0140	0.0140	0.0138	0.0138	0.0072	0.0140
3.2	West	0.0139	0.0139	0.0139	0.0139	0.0137	0.0137	0.0070	0.0139
3.3	West	0.0150	0.0150	0.0150	0.0150	0.0147	0.0147	0.0076	0.0150
3.4	West	0.0160	0.0160	0.0160	0.0160	0.0156	0.0156	0.0081	0.0160
3.5	West	0.0174	0.0174	0.0174	0.0174	0.0169	0.0169	0.0088	0.0174
3.6	West	0.0200	0.0200	0.0200	0.0200	0.0192	0.0192	0.0096	0.0200
3.7	West	0.0204	0.0204	0.0204	0.0204	0.0194	0.0194	0.0091	0.0204
3.8	West	0.0160	0.0160	0.0160	0.0160	0.0145	0.0145	0.0089	0.0160
3.9	West	0.0204	0.0204	0.0204	0.0203	0.0184	0.0184	0.0094	0.0203
4	West	0.0204	0.0204	0.0204	0.0203	0.0188	0.0188	0.0093	0.0203
4.1	West	0.0219	0.0219	0.0219	0.0219	0.0200	0.0200	0.0092	0.0219
4.2	West	0.0239	0.0239	0.0239	0.0238	0.0207	0.0207	0.0086	0.0238
4.3	West	0.0228	0.0228	0.0228	0.0227	0.0194	0.0194	0.0073	0.0227
4.4	West	0.0213	0.0213	0.0213	0.0212	0.0182	0.0182	0.0067	0.0212
4.5	West	0.0209	0.0209	0.0209	0.0209	0.0178	0.0178	0.0063	0.0209
4.6	West	0.0197	0.0197	0.0197	0.0197	0.0167	0.0167	0.0063	0.0197
4.7	West	0.0210	0.0210	0.0207	0.0201	0.0169	0.0169	0.0064	0.0201
4.8	West	0.0215	0.0215	0.0211	0.0205	0.0176	0.0176	0.0068	0.0205
4.9	West	0.0188	0.0188	0.0183	0.0176	0.0149	0.0149	0.0064	0.0176
5	West	0.0165	0.0164	0.0158	0.0149	0.0120	0.0120	0.0053	0.0149
5.1	West	0.0154	0.0153	0.0146	0.0138	0.0108	0.0108	0.0044	0.0138
5.2	West	0.0142	0.0141	0.0134	0.0125	0.0109	0.0109	0.0043	0.0125
5.3	West	0.0163	0.0163	0.0155	0.0145	0.0126	0.0126	0.0047	0.0145
5.4	West	0.0253	0.0253	0.0243	0.0218	0.0158	0.0158	0.0053	0.0234
5.5	West	0.0299	0.0298	0.0277	0.0245	0.0169	0.0169	0.0058	0.0269
5.6	West	0.0356	0.0323	0.0292	0.0256	0.0156	0.0156	0.0048	0.0285
5.7	West	0.0469	0.0315	0.0270	0.0239	0.0146	0.0146	0.0042	0.0268
5.8	West	0.0675	0.0286	0.0242	0.0214	0.0125	0.0125	0.0039	0.0241
5.9	West	0.0851	0.0257	0.0215	0.0187	0.0101	0.0101	0.0036	0.0214
6	West	0.0927	0.0251	0.0210	0.0183	0.0098	0.0098	0.0036	0.0210
6.1	West	0.1059	0.0290	0.0239	0.0198	0.0098	0.0098	0.0036	0.0208
6.2	West	0.1117	0.0358	0.0307	0.0260	0.0115	0.0115	0.0034	0.0224
6.3	West	0.1137	0.0384	0.0335	0.0276	0.0099	0.0099	0.0025	0.0203
6.4	West	0.1458	0.0595	0.0373	0.0258	0.0074	0.0074	0.0016	0.0137
6.5	West	0.2062	0.0996	0.0587	0.0245	0.0048	0.0048	0.0004	0.0085
6.6	West	0.2654	0.1419	0.0787	0.0295	0.0046	0.0046	0.0003	0.0047
6.7	West	0.3762	0.1430	0.0762	0.0277	0.0043	0.0043	0.0003	0.0044
6.8	West	0.9075	0.1406	0.0746	0.0271	0.0042	0.0042	0.0003	0.0043
6.9	West	1.3275	0.1444	0.0776	0.0286	0.0044	0.0044	0.0003	0.0045
7	West	1.4166	0.1491	0.0808	0.0307	0.0060	0.0060	0.0003	0.0061

**Table J2.3-4c**

**RAO 2 Rolling River Mile HI Estimates - DDx**

Portland Harbor Superfund Site

Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
7.1	West	1.1716	0.1308	0.0740	0.0327	0.0112	0.0112	0.0023	0.0112
7.2	West	0.9794	0.1081	0.0606	0.0264	0.0105	0.0105	0.0034	0.0105
7.3	West	0.8458	0.0948	0.0537	0.0244	0.0117	0.0117	0.0035	0.0117
7.4	West	0.8240	0.0794	0.0481	0.0226	0.0121	0.0121	0.0039	0.0121
7.5	West	0.8200	0.0579	0.0359	0.0223	0.0127	0.0127	0.0040	0.0128
7.6	West	0.8046	0.0328	0.0235	0.0184	0.0130	0.0130	0.0041	0.0132
7.7	West	0.7369	0.0270	0.0232	0.0192	0.0134	0.0134	0.0042	0.0139
7.8	West	0.3836	0.0284	0.0249	0.0206	0.0135	0.0135	0.0043	0.0153
7.9	West	0.1022	0.0299	0.0271	0.0229	0.0136	0.0136	0.0040	0.0188
8	West	0.0262	0.0254	0.0246	0.0213	0.0132	0.0132	0.0047	0.0181
8.1	West	0.0257	0.0255	0.0253	0.0197	0.0101	0.0101	0.0039	0.0181
8.2	West	0.0297	0.0295	0.0293	0.0204	0.0088	0.0088	0.0029	0.0193
8.3	West	0.0313	0.0303	0.0298	0.0189	0.0067	0.0067	0.0025	0.0188
8.4	West	0.0522	0.0313	0.0307	0.0190	0.0061	0.0061	0.0022	0.0190
8.5	West	0.0540	0.0319	0.0309	0.0190	0.0059	0.0059	0.0023	0.0190
8.6	West	0.0567	0.0326	0.0310	0.0189	0.0058	0.0058	0.0023	0.0189
8.7	West	0.0600	0.0336	0.0316	0.0191	0.0059	0.0059	0.0024	0.0191
8.8	West	0.0589	0.0328	0.0303	0.0179	0.0058	0.0058	0.0024	0.0179
8.9	West	0.0538	0.0269	0.0244	0.0131	0.0051	0.0051	0.0029	0.0131
9	West	0.0543	0.0257	0.0230	0.0119	0.0033	0.0033	0.0016	0.0119
9.1	West	0.0480	0.0168	0.0139	0.0067	0.0018	0.0018	0.0013	0.0067
9.2	West	0.0420	0.0112	0.0081	0.0043	0.0019	0.0019	0.0013	0.0043
9.3	West	0.0399	0.0091	0.0062	0.0041	0.0019	0.0019	0.0014	0.0041
9.4	West	0.0151	0.0094	0.0065	0.0044	0.0021	0.0021	0.0015	0.0044
9.5	West	0.0141	0.0094	0.0068	0.0046	0.0022	0.0022	0.0016	0.0046
9.6	West	0.0119	0.0092	0.0073	0.0051	0.0025	0.0025	0.0018	0.0051
9.7	West	0.0099	0.0092	0.0078	0.0055	0.0028	0.0028	0.0019	0.0055
9.8	West	0.0090	0.0083	0.0074	0.0054	0.0029	0.0029	0.0020	0.0054
9.9	West	0.0098	0.0089	0.0078	0.0054	0.0026	0.0026	0.0017	0.0054
10	West	0.0109	0.0098	0.0084	0.0053	0.0028	0.0028	0.0018	0.0053
10.1	West	0.0110	0.0098	0.0079	0.0043	0.0027	0.0027	0.0016	0.0043
10.2	West	0.0082	0.0081	0.0067	0.0056	0.0041	0.0041	0.0027	0.0056
10.3	West	0.0076	0.0076	0.0076	0.0069	0.0057	0.0057	0.0036	0.0069
10.4	West	0.0077	0.0077	0.0077	0.0072	0.0062	0.0062	0.0044	0.0072
10.5	West	0.0083	0.0083	0.0083	0.0078	0.0069	0.0069	0.0054	0.0078
10.6	West	0.0085	0.0085	0.0085	0.0081	0.0073	0.0073	0.0059	0.0081
10.7	West	0.0083	0.0083	0.0083	0.0078	0.0071	0.0071	0.0061	0.0078
10.8	West	0.0075	0.0075	0.0075	0.0075	0.0074	0.0074	0.0064	0.0075
10.9	West	0.0073	0.0073	0.0073	0.0073	0.0073	0.0073	0.0065	0.0073
11	West	0.0071	0.0071	0.0071	0.0071	0.0071	0.0071	0.0064	0.0071
11.1	West	0.0069	0.0069	0.0069	0.0069	0.0069	0.0069	0.0062	0.0069
11.2	West	0.0066	0.0066	0.0066	0.0066	0.0066	0.0066	0.0062	0.0066

**Table J2.3-4c**

**RAO 2 Rolling River Mile HI Estimates - DDx**

Portland Harbor Superfund Site

Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
11.3	West	0.0069	0.0069	0.0069	0.0069	0.0069	0.0069	0.0069	0.0069
11.4	West	0.0066	0.0066	0.0066	0.0066	0.0066	0.0066	0.0066	0.0066
11.5	West	0.0057	0.0057	0.0057	0.0057	0.0057	0.0057	0.0057	0.0057
11.6	West	0.0048	0.0048	0.0048	0.0048	0.0048	0.0048	0.0048	0.0048
11.7	West	0.0044	0.0044	0.0044	0.0044	0.0044	0.0044	0.0044	0.0044
7.6	Swan Isl	0.0098	0.0009	0.0009	0.0005	0.0001	0.0001	0.0000	0.0005
7.7	Swan Isl	0.0116	0.0008	0.0008	0.0005	0.0001	0.0001	0.0000	0.0005
7.8	Swan Isl	0.0161	0.0014	0.0011	0.0005	0.0001	0.0001	0.0000	0.0005
7.9	Swan Isl	0.0161	0.0013	0.0010	0.0005	0.0001	0.0001	0.0000	0.0005
8	Swan Isl	0.0167	0.0012	0.0009	0.0005	0.0001	0.0001	0.0001	0.0005
8.1	Swan Isl	0.0167	0.0012	0.0009	0.0005	0.0001	0.0001	0.0001	0.0005
8.2	Swan Isl	0.0159	0.0011	0.0009	0.0005	0.0002	0.0002	0.0001	0.0005
8.3	Swan Isl	0.0169	0.0012	0.0009	0.0005	0.0002	0.0002	0.0001	0.0005
8.4	Swan Isl	0.0185	0.0013	0.0009	0.0005	0.0002	0.0002	0.0001	0.0005
8.5	Swan Isl	0.0179	0.0013	0.0009	0.0005	0.0002	0.0002	0.0001	0.0005
8.6	Swan Isl	0.0186	0.0015	0.0010	0.0006	0.0002	0.0002	0.0002	0.0007
8.7	Swan Isl	0.0198	0.0021	0.0014	0.0010	0.0003	0.0003	0.0002	0.0012
8.8	Swan Isl	0.0177	0.0019	0.0013	0.0011	0.0004	0.0004	0.0003	0.0013
8.9	Swan Isl	0.0180	0.0021	0.0014	0.0012	0.0004	0.0004	0.0003	0.0015
9	Swan Isl	0.0174	0.0024	0.0016	0.0013	0.0004	0.0004	0.0003	0.0017
9.1	Swan Isl	0.0175	0.0025	0.0017	0.0014	0.0004	0.0004	0.0003	0.0018
9.2	Swan Isl	0.0194	0.0029	0.0019	0.0016	0.0004	0.0004	0.0003	0.0021
9.3	Swan Isl	0.0174	0.0032	0.0021	0.0019	0.0004	0.0004	0.0003	0.0025
9.4	Swan Isl	0.0090	0.0038	0.0028	0.0026	0.0005	0.0005	0.0003	0.0035
9.5	Swan Isl	0.0080	0.0058	0.0045	0.0041	0.0007	0.0007	0.0005	0.0057
9.6	Swan Isl	0.0076	0.0076	0.0065	0.0056	0.0011	0.0011	0.0008	0.0076

**Table J2.3-4d**

**RAO 2 Rolling River Mile HI Estimates - Dieldrin**

Portland Harbor Superfund Site

Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
1.8	East	0.0087	0.0079	0.0076	0.0072	0.0070	0.0070	0.0069	0.0072
1.9	East	0.0094	0.0082	0.0078	0.0072	0.0069	0.0069	0.0068	0.0072
2	East	0.0090	0.0078	0.0074	0.0068	0.0065	0.0065	0.0064	0.0068
2.1	East	0.0086	0.0074	0.0070	0.0064	0.0061	0.0061	0.0060	0.0064
2.2	East	0.0072	0.0061	0.0056	0.0051	0.0048	0.0048	0.0046	0.0051
2.3	East	0.0064	0.0052	0.0047	0.0041	0.0037	0.0037	0.0035	0.0041
2.4	East	0.0061	0.0049	0.0042	0.0036	0.0032	0.0032	0.0030	0.0036
2.5	East	0.0058	0.0045	0.0039	0.0033	0.0029	0.0029	0.0027	0.0033
2.6	East	0.0053	0.0040	0.0034	0.0029	0.0026	0.0026	0.0024	0.0030
2.7	East	0.0049	0.0038	0.0032	0.0028	0.0025	0.0025	0.0023	0.0028
2.8	East	0.0038	0.0032	0.0029	0.0026	0.0023	0.0023	0.0021	0.0026
2.9	East	0.0028	0.0027	0.0025	0.0024	0.0022	0.0022	0.0021	0.0024
3	East	0.0028	0.0028	0.0026	0.0025	0.0023	0.0023	0.0022	0.0025
3.1	East	0.0028	0.0028	0.0025	0.0024	0.0023	0.0023	0.0022	0.0024
3.2	East	0.0029	0.0028	0.0025	0.0024	0.0023	0.0023	0.0022	0.0025
3.3	East	0.0026	0.0024	0.0022	0.0021	0.0019	0.0019	0.0017	0.0021
3.4	East	0.0022	0.0020	0.0020	0.0019	0.0018	0.0018	0.0015	0.0019
3.5	East	0.0022	0.0020	0.0020	0.0019	0.0017	0.0017	0.0014	0.0019
3.6	East	0.0023	0.0021	0.0020	0.0019	0.0016	0.0016	0.0012	0.0019
3.7	East	0.0027	0.0025	0.0024	0.0020	0.0016	0.0016	0.0011	0.0020
3.8	East	0.0033	0.0031	0.0030	0.0026	0.0021	0.0021	0.0015	0.0026
3.9	East	0.0049	0.0047	0.0044	0.0036	0.0024	0.0024	0.0014	0.0036
4	East	0.0084	0.0082	0.0079	0.0071	0.0050	0.0050	0.0026	0.0071
4.1	East	0.0194	0.0192	0.0168	0.0145	0.0096	0.0096	0.0047	0.0145
4.2	East	0.0343	0.0337	0.0272	0.0207	0.0120	0.0120	0.0052	0.0207
4.3	East	0.0444	0.0437	0.0354	0.0270	0.0158	0.0158	0.0067	0.0270
4.4	East	0.0474	0.0467	0.0378	0.0289	0.0169	0.0169	0.0072	0.0289
4.5	East	0.0484	0.0478	0.0387	0.0295	0.0173	0.0173	0.0075	0.0295
4.6	East	0.0484	0.0477	0.0387	0.0297	0.0175	0.0175	0.0078	0.0297
4.7	East	0.0487	0.0480	0.0389	0.0300	0.0179	0.0179	0.0081	0.0300
4.8	East	0.0492	0.0485	0.0392	0.0302	0.0179	0.0179	0.0080	0.0302
4.9	East	0.0561	0.0552	0.0444	0.0342	0.0207	0.0207	0.0094	0.0342
5	East	0.0593	0.0584	0.0456	0.0338	0.0194	0.0194	0.0087	0.0338
5.1	East	0.0425	0.0415	0.0317	0.0217	0.0118	0.0118	0.0051	0.0215
5.2	East	0.0080	0.0080	0.0079	0.0073	0.0057	0.0057	0.0034	0.0060
5.3	East	0.0072	0.0072	0.0072	0.0060	0.0041	0.0041	0.0030	0.0041
5.4	East	0.0061	0.0061	0.0061	0.0052	0.0035	0.0035	0.0023	0.0035
5.5	East	0.0062	0.0062	0.0062	0.0053	0.0033	0.0033	0.0019	0.0034
5.6	East	0.0057	0.0057	0.0057	0.0049	0.0028	0.0028	0.0016	0.0032
5.7	East	0.0052	0.0052	0.0052	0.0045	0.0024	0.0024	0.0013	0.0029
5.8	East	0.0047	0.0047	0.0047	0.0041	0.0022	0.0022	0.0012	0.0026
5.9	East	0.0045	0.0045	0.0045	0.0039	0.0021	0.0021	0.0011	0.0026
6	East	0.0043	0.0043	0.0042	0.0036	0.0020	0.0020	0.0011	0.0025

**Table J2.3-4d**  
**RAO 2 Rolling River Mile HI Estimates - Dieldrin**  
 Portland Harbor Superfund Site  
 Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
6.1	East	0.0038	0.0038	0.0037	0.0032	0.0018	0.0018	0.0011	0.0023
6.2	East	0.0030	0.0029	0.0028	0.0026	0.0016	0.0016	0.0011	0.0021
6.3	East	0.0024	0.0022	0.0021	0.0021	0.0015	0.0015	0.0010	0.0019
6.4	East	0.0024	0.0021	0.0019	0.0018	0.0013	0.0013	0.0010	0.0019
6.5	East	0.0020	0.0016	0.0014	0.0014	0.0011	0.0011	0.0010	0.0016
6.6	East	0.0018	0.0015	0.0013	0.0013	0.0011	0.0011	0.0010	0.0015
6.7	East	0.0021	0.0016	0.0014	0.0014	0.0013	0.0013	0.0012	0.0018
6.8	East	0.0025	0.0020	0.0016	0.0016	0.0015	0.0015	0.0014	0.0022
6.9	East	0.0029	0.0024	0.0020	0.0020	0.0020	0.0020	0.0019	0.0026
7	East	0.0032	0.0027	0.0024	0.0024	0.0023	0.0023	0.0022	0.0029
7.1	East	0.0035	0.0030	0.0027	0.0027	0.0026	0.0026	0.0026	0.0032
7.2	East	0.0037	0.0032	0.0029	0.0029	0.0028	0.0028	0.0027	0.0034
7.3	East	0.0039	0.0035	0.0032	0.0032	0.0031	0.0031	0.0030	0.0037
7.4	East	0.0041	0.0038	0.0035	0.0035	0.0035	0.0035	0.0034	0.0041
7.5	East	0.0045	0.0042	0.0039	0.0039	0.0038	0.0038	0.0037	0.0045
7.6	East	0.0050	0.0045	0.0042	0.0042	0.0042	0.0042	0.0038	0.0049
7.7	East	0.0048	0.0044	0.0042	0.0042	0.0041	0.0041	0.0037	0.0045
7.8	East	0.0046	0.0041	0.0040	0.0040	0.0039	0.0039	0.0034	0.0041
7.9	East	0.0039	0.0035	0.0034	0.0034	0.0034	0.0034	0.0029	0.0035
8	East	0.0034	0.0028	0.0028	0.0028	0.0028	0.0028	0.0021	0.0028
8.1	East	0.0029	0.0023	0.0023	0.0023	0.0022	0.0022	0.0015	0.0023
8.2	East	0.0033	0.0027	0.0027	0.0027	0.0026	0.0026	0.0019	0.0027
8.3	East	0.0032	0.0026	0.0026	0.0026	0.0026	0.0026	0.0019	0.0026
8.4	East	0.0033	0.0027	0.0027	0.0027	0.0027	0.0027	0.0021	0.0027
8.5	East	0.0032	0.0026	0.0026	0.0026	0.0025	0.0025	0.0020	0.0026
8.6	East	0.0030	0.0025	0.0025	0.0025	0.0024	0.0024	0.0021	0.0025
8.7	East	0.0032	0.0030	0.0030	0.0030	0.0028	0.0028	0.0023	0.0030
8.8	East	0.0034	0.0034	0.0034	0.0034	0.0033	0.0033	0.0028	0.0034
8.9	East	0.0036	0.0036	0.0036	0.0036	0.0034	0.0034	0.0029	0.0036
9	East	0.0035	0.0035	0.0035	0.0035	0.0034	0.0034	0.0029	0.0035
9.1	East	0.0033	0.0033	0.0033	0.0033	0.0031	0.0031	0.0026	0.0033
9.2	East	0.0033	0.0033	0.0033	0.0033	0.0030	0.0030	0.0022	0.0033
9.3	East	0.0042	0.0042	0.0042	0.0042	0.0039	0.0039	0.0031	0.0042
9.4	East	0.0046	0.0046	0.0046	0.0046	0.0043	0.0043	0.0035	0.0046
9.5	East	0.0044	0.0044	0.0044	0.0044	0.0041	0.0041	0.0034	0.0044
9.6	East	0.0042	0.0042	0.0042	0.0042	0.0039	0.0039	0.0034	0.0042
9.7	East	0.0040	0.0040	0.0040	0.0040	0.0038	0.0038	0.0035	0.0040
9.8	East	0.0040	0.0040	0.0040	0.0040	0.0038	0.0038	0.0034	0.0040
9.9	East	0.0042	0.0042	0.0042	0.0042	0.0040	0.0040	0.0035	0.0042
10	East	0.0051	0.0051	0.0051	0.0051	0.0048	0.0048	0.0043	0.0051
10.1	East	0.0057	0.0057	0.0057	0.0057	0.0055	0.0055	0.0049	0.0057
10.2	East	0.0056	0.0056	0.0056	0.0056	0.0054	0.0054	0.0050	0.0056

**Table J2.3-4d**  
**RAO 2 Rolling River Mile HI Estimates - Dieldrin**  
 Portland Harbor Superfund Site  
 Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
10.3	East	0.0048	0.0048	0.0048	0.0047	0.0043	0.0043	0.0041	0.0047
10.4	East	0.0043	0.0043	0.0043	0.0040	0.0034	0.0034	0.0031	0.0040
10.5	East	0.0050	0.0050	0.0050	0.0047	0.0037	0.0037	0.0032	0.0047
10.6	East	0.0057	0.0057	0.0057	0.0053	0.0042	0.0042	0.0034	0.0053
10.7	East	0.0063	0.0061	0.0059	0.0054	0.0042	0.0042	0.0034	0.0054
10.8	East	0.0068	0.0061	0.0057	0.0051	0.0039	0.0039	0.0031	0.0051
10.9	East	0.0097	0.0055	0.0048	0.0041	0.0030	0.0030	0.0022	0.0041
11	East	0.0150	0.0047	0.0036	0.0028	0.0017	0.0017	0.0011	0.0028
11.1	East	0.0146	0.0041	0.0030	0.0022	0.0012	0.0012	0.0006	0.0022
11.2	East	0.0139	0.0038	0.0028	0.0019	0.0010	0.0010	0.0004	0.0019
11.3	East	0.0151	0.0038	0.0026	0.0018	0.0010	0.0010	0.0003	0.0018
11.4	East	0.0165	0.0037	0.0024	0.0016	0.0008	0.0008	0.0002	0.0016
11.5	East	0.0175	0.0035	0.0020	0.0012	0.0007	0.0007	0.0002	0.0012
11.6	East	0.0192	0.0032	0.0015	0.0007	0.0003	0.0003	0.0001	0.0007
11.7	East	0.0216	0.0032	0.0016	0.0007	0.0004	0.0004	0.0001	0.0007
1.8	Nav Channel	0.0084	0.0084	0.0084	0.0084	0.0084	0.0084	0.0083	0.0084
1.9	Nav Channel	0.0086	0.0086	0.0086	0.0086	0.0086	0.0086	0.0083	0.0086
2	Nav Channel	0.0086	0.0086	0.0086	0.0086	0.0086	0.0086	0.0083	0.0086
2.1	Nav Channel	0.0084	0.0084	0.0084	0.0084	0.0084	0.0084	0.0080	0.0084
2.2	Nav Channel	0.0078	0.0078	0.0078	0.0078	0.0078	0.0078	0.0075	0.0078
2.3	Nav Channel	0.0072	0.0072	0.0072	0.0072	0.0072	0.0072	0.0069	0.0072
2.4	Nav Channel	0.0068	0.0068	0.0068	0.0068	0.0068	0.0068	0.0065	0.0068
2.5	Nav Channel	0.0065	0.0065	0.0065	0.0065	0.0065	0.0065	0.0062	0.0065
2.6	Nav Channel	0.0059	0.0059	0.0059	0.0059	0.0059	0.0059	0.0056	0.0059
2.7	Nav Channel	0.0056	0.0056	0.0056	0.0056	0.0056	0.0056	0.0052	0.0056
2.8	Nav Channel	0.0052	0.0052	0.0052	0.0052	0.0052	0.0052	0.0050	0.0052
2.9	Nav Channel	0.0052	0.0052	0.0052	0.0052	0.0052	0.0052	0.0050	0.0052
3	Nav Channel	0.0052	0.0052	0.0052	0.0052	0.0052	0.0052	0.0047	0.0052
3.1	Nav Channel	0.0054	0.0054	0.0054	0.0054	0.0054	0.0052	0.0041	0.0054
3.2	Nav Channel	0.0056	0.0056	0.0056	0.0056	0.0056	0.0053	0.0036	0.0056
3.3	Nav Channel	0.0055	0.0055	0.0055	0.0055	0.0055	0.0051	0.0034	0.0055
3.4	Nav Channel	0.0051	0.0051	0.0051	0.0051	0.0051	0.0048	0.0031	0.0051
3.5	Nav Channel	0.0047	0.0047	0.0047	0.0047	0.0047	0.0044	0.0029	0.0047
3.6	Nav Channel	0.0047	0.0047	0.0047	0.0047	0.0047	0.0044	0.0028	0.0047
3.7	Nav Channel	0.0048	0.0048	0.0048	0.0048	0.0048	0.0045	0.0030	0.0048
3.8	Nav Channel	0.0046	0.0046	0.0046	0.0046	0.0046	0.0043	0.0029	0.0046
3.9	Nav Channel	0.0040	0.0040	0.0040	0.0040	0.0040	0.0038	0.0025	0.0040
4	Nav Channel	0.0035	0.0035	0.0035	0.0035	0.0035	0.0033	0.0023	0.0035
4.1	Nav Channel	0.0034	0.0034	0.0034	0.0034	0.0034	0.0033	0.0025	0.0034
4.2	Nav Channel	0.0032	0.0032	0.0032	0.0032	0.0032	0.0032	0.0028	0.0032
4.3	Nav Channel	0.0031	0.0031	0.0031	0.0031	0.0031	0.0031	0.0028	0.0031
4.4	Nav Channel	0.0031	0.0031	0.0031	0.0031	0.0031	0.0031	0.0028	0.0031

**Table J2.3-4d**

**RAO 2 Rolling River Mile HI Estimates - Dieldrin**

Portland Harbor Superfund Site

Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
4.5	Nav Channel	0.0033	0.0033	0.0033	0.0033	0.0033	0.0033	0.0031	0.0033
4.6	Nav Channel	0.0036	0.0036	0.0034	0.0033	0.0036	0.0032	0.0030	0.0036
4.7	Nav Channel	0.0036	0.0035	0.0031	0.0030	0.0035	0.0028	0.0026	0.0035
4.8	Nav Channel	0.0038	0.0036	0.0031	0.0029	0.0036	0.0027	0.0024	0.0036
4.9	Nav Channel	0.0042	0.0038	0.0032	0.0029	0.0038	0.0027	0.0024	0.0038
5	Nav Channel	0.0045	0.0039	0.0032	0.0029	0.0039	0.0026	0.0023	0.0039
5.1	Nav Channel	0.0043	0.0036	0.0029	0.0026	0.0036	0.0022	0.0020	0.0036
5.2	Nav Channel	0.0044	0.0032	0.0025	0.0021	0.0032	0.0017	0.0015	0.0032
5.3	Nav Channel	0.0053	0.0030	0.0022	0.0019	0.0030	0.0014	0.0012	0.0030
5.4	Nav Channel	0.0054	0.0030	0.0022	0.0018	0.0030	0.0012	0.0010	0.0030
5.5	Nav Channel	0.0056	0.0031	0.0022	0.0016	0.0031	0.0009	0.0006	0.0031
5.6	Nav Channel	0.0062	0.0035	0.0028	0.0018	0.0035	0.0009	0.0004	0.0035
5.7	Nav Channel	0.0099	0.0066	0.0044	0.0026	0.0066	0.0011	0.0004	0.0056
5.8	Nav Channel	0.0134	0.0081	0.0053	0.0031	0.0081	0.0014	0.0006	0.0066
5.9	Nav Channel	0.0164	0.0095	0.0065	0.0041	0.0095	0.0020	0.0010	0.0079
6	Nav Channel	0.0188	0.0103	0.0073	0.0048	0.0103	0.0025	0.0015	0.0086
6.1	Nav Channel	0.0212	0.0121	0.0082	0.0053	0.0121	0.0029	0.0017	0.0103
6.2	Nav Channel	0.0215	0.0128	0.0087	0.0055	0.0127	0.0029	0.0017	0.0109
6.3	Nav Channel	0.0207	0.0134	0.0091	0.0058	0.0133	0.0030	0.0018	0.0113
6.4	Nav Channel	0.0209	0.0135	0.0091	0.0058	0.0133	0.0031	0.0018	0.0114
6.5	Nav Channel	0.0203	0.0129	0.0086	0.0055	0.0128	0.0030	0.0019	0.0108
6.6	Nav Channel	0.0188	0.0115	0.0073	0.0050	0.0114	0.0030	0.0021	0.0095
6.7	Nav Channel	0.0140	0.0076	0.0057	0.0045	0.0075	0.0033	0.0025	0.0069
6.8	Nav Channel	0.0129	0.0089	0.0078	0.0070	0.0088	0.0062	0.0029	0.0087
6.9	Nav Channel	0.0119	0.0100	0.0091	0.0087	0.0099	0.0082	0.0035	0.0099
7	Nav Channel	0.0099	0.0096	0.0088	0.0084	0.0095	0.0078	0.0033	0.0095
7.1	Nav Channel	0.0080	0.0080	0.0079	0.0078	0.0079	0.0074	0.0031	0.0079
7.2	Nav Channel	0.0079	0.0079	0.0079	0.0079	0.0078	0.0075	0.0035	0.0078
7.3	Nav Channel	0.0085	0.0084	0.0084	0.0084	0.0084	0.0081	0.0046	0.0084
7.4	Nav Channel	0.0089	0.0088	0.0088	0.0088	0.0088	0.0086	0.0055	0.0088
7.5	Nav Channel	0.0089	0.0089	0.0089	0.0089	0.0089	0.0087	0.0060	0.0089
7.6	Nav Channel	0.0086	0.0086	0.0086	0.0086	0.0086	0.0084	0.0058	0.0086
7.7	Nav Channel	0.0083	0.0083	0.0083	0.0083	0.0083	0.0081	0.0057	0.0083
7.8	Nav Channel	0.0067	0.0067	0.0067	0.0067	0.0067	0.0065	0.0054	0.0067
7.9	Nav Channel	0.0054	0.0054	0.0054	0.0054	0.0054	0.0053	0.0049	0.0054
8	Nav Channel	0.0052	0.0052	0.0052	0.0052	0.0052	0.0051	0.0048	0.0052
8.1	Nav Channel	0.0050	0.0050	0.0050	0.0050	0.0050	0.0050	0.0048	0.0050
8.2	Nav Channel	0.0048	0.0048	0.0048	0.0048	0.0048	0.0048	0.0047	0.0048
8.3	Nav Channel	0.0041	0.0041	0.0041	0.0041	0.0041	0.0041	0.0041	0.0041
8.4	Nav Channel	0.0035	0.0034	0.0034	0.0034	0.0034	0.0034	0.0033	0.0034
8.5	Nav Channel	0.0029	0.0029	0.0029	0.0029	0.0029	0.0027	0.0026	0.0029
8.6	Nav Channel	0.0029	0.0028	0.0028	0.0028	0.0028	0.0025	0.0024	0.0028

**Table J2.3-4d**  
**RAO 2 Rolling River Mile HI Estimates - Dieldrin**  
 Portland Harbor Superfund Site  
 Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
8.7	Nav Channel	0.0030	0.0029	0.0029	0.0029	0.0029	0.0024	0.0022	0.0029
8.8	Nav Channel	0.0031	0.0031	0.0031	0.0030	0.0031	0.0022	0.0020	0.0031
8.9	Nav Channel	0.0031	0.0031	0.0031	0.0030	0.0031	0.0022	0.0019	0.0031
9	Nav Channel	0.0031	0.0031	0.0031	0.0030	0.0031	0.0022	0.0019	0.0031
9.1	Nav Channel	0.0035	0.0035	0.0035	0.0035	0.0035	0.0026	0.0023	0.0035
9.2	Nav Channel	0.0037	0.0037	0.0037	0.0037	0.0037	0.0027	0.0024	0.0037
9.3	Nav Channel	0.0039	0.0039	0.0039	0.0039	0.0039	0.0029	0.0026	0.0039
9.4	Nav Channel	0.0045	0.0045	0.0045	0.0044	0.0044	0.0035	0.0031	0.0044
9.5	Nav Channel	0.0045	0.0045	0.0045	0.0045	0.0045	0.0036	0.0032	0.0045
9.6	Nav Channel	0.0042	0.0042	0.0042	0.0042	0.0042	0.0035	0.0031	0.0042
9.7	Nav Channel	0.0041	0.0041	0.0041	0.0041	0.0041	0.0036	0.0031	0.0041
9.8	Nav Channel	0.0043	0.0043	0.0043	0.0043	0.0043	0.0038	0.0031	0.0043
9.9	Nav Channel	0.0047	0.0047	0.0047	0.0047	0.0047	0.0038	0.0031	0.0047
10	Nav Channel	0.0051	0.0051	0.0051	0.0051	0.0051	0.0040	0.0032	0.0051
10.1	Nav Channel	0.0049	0.0049	0.0049	0.0049	0.0049	0.0038	0.0029	0.0049
10.2	Nav Channel	0.0050	0.0050	0.0050	0.0050	0.0050	0.0039	0.0030	0.0050
10.3	Nav Channel	0.0059	0.0059	0.0059	0.0059	0.0059	0.0046	0.0036	0.0059
10.4	Nav Channel	0.0063	0.0063	0.0063	0.0063	0.0063	0.0049	0.0034	0.0063
10.5	Nav Channel	0.0069	0.0069	0.0069	0.0069	0.0069	0.0054	0.0037	0.0069
10.6	Nav Channel	0.0078	0.0078	0.0078	0.0078	0.0078	0.0062	0.0043	0.0078
10.7	Nav Channel	0.0085	0.0083	0.0081	0.0080	0.0080	0.0063	0.0044	0.0080
10.8	Nav Channel	0.0098	0.0080	0.0077	0.0075	0.0075	0.0062	0.0046	0.0075
10.9	Nav Channel	0.0107	0.0083	0.0079	0.0076	0.0076	0.0068	0.0051	0.0076
11	Nav Channel	0.0106	0.0082	0.0078	0.0075	0.0075	0.0068	0.0052	0.0075
11.1	Nav Channel	0.0106	0.0082	0.0078	0.0075	0.0075	0.0068	0.0053	0.0075
11.2	Nav Channel	0.0109	0.0084	0.0080	0.0076	0.0076	0.0070	0.0054	0.0076
11.3	Nav Channel	0.0104	0.0075	0.0071	0.0067	0.0067	0.0062	0.0045	0.0067
11.4	Nav Channel	0.0100	0.0068	0.0063	0.0058	0.0058	0.0054	0.0044	0.0058
11.5	Nav Channel	0.0101	0.0064	0.0058	0.0053	0.0053	0.0050	0.0043	0.0053
11.6	Nav Channel	0.0106	0.0062	0.0056	0.0050	0.0050	0.0046	0.0040	0.0050
11.7	Nav Channel	0.0110	0.0063	0.0058	0.0053	0.0053	0.0049	0.0042	0.0053
1.8	West	0.0026	0.0026	0.0026	0.0026	0.0026	0.0026	0.0026	0.0026
1.9	West	0.0024	0.0024	0.0024	0.0024	0.0024	0.0024	0.0024	0.0024
2	West	0.0023	0.0023	0.0023	0.0023	0.0023	0.0023	0.0023	0.0023
2.1	West	0.0021	0.0021	0.0021	0.0021	0.0021	0.0021	0.0021	0.0021
2.2	West	0.0019	0.0019	0.0019	0.0019	0.0019	0.0019	0.0019	0.0019
2.3	West	0.0016	0.0016	0.0016	0.0016	0.0016	0.0016	0.0016	0.0016
2.4	West	0.0015	0.0015	0.0015	0.0015	0.0015	0.0015	0.0014	0.0015
2.5	West	0.0017	0.0017	0.0017	0.0017	0.0017	0.0017	0.0014	0.0017
2.6	West	0.0019	0.0019	0.0019	0.0019	0.0019	0.0019	0.0015	0.0019
2.7	West	0.0023	0.0023	0.0023	0.0023	0.0023	0.0023	0.0017	0.0023
2.8	West	0.0033	0.0033	0.0033	0.0033	0.0033	0.0033	0.0018	0.0033



**Table J2.3-4d**

**RAO 2 Rolling River Mile HI Estimates - Dieldrin**

Portland Harbor Superfund Site

Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
2.9	West	0.0035	0.0035	0.0035	0.0035	0.0035	0.0035	0.0018	0.0035
3	West	0.0036	0.0036	0.0036	0.0036	0.0036	0.0036	0.0019	0.0036
3.1	West	0.0036	0.0036	0.0036	0.0036	0.0036	0.0036	0.0019	0.0036
3.2	West	0.0036	0.0036	0.0036	0.0036	0.0036	0.0036	0.0019	0.0036
3.3	West	0.0040	0.0040	0.0040	0.0040	0.0040	0.0040	0.0021	0.0040
3.4	West	0.0041	0.0041	0.0041	0.0041	0.0041	0.0041	0.0022	0.0041
3.5	West	0.0042	0.0042	0.0042	0.0042	0.0041	0.0041	0.0022	0.0042
3.6	West	0.0047	0.0047	0.0047	0.0047	0.0044	0.0044	0.0022	0.0047
3.7	West	0.0055	0.0055	0.0055	0.0055	0.0047	0.0047	0.0021	0.0055
3.8	West	0.0053	0.0053	0.0053	0.0051	0.0034	0.0034	0.0020	0.0051
3.9	West	0.0056	0.0056	0.0056	0.0054	0.0034	0.0034	0.0018	0.0054
4	West	0.0061	0.0061	0.0061	0.0059	0.0036	0.0036	0.0018	0.0059
4.1	West	0.0071	0.0071	0.0071	0.0068	0.0042	0.0042	0.0020	0.0068
4.2	West	0.0077	0.0077	0.0077	0.0075	0.0044	0.0044	0.0020	0.0075
4.3	West	0.0075	0.0075	0.0075	0.0073	0.0042	0.0042	0.0017	0.0073
4.4	West	0.0077	0.0077	0.0077	0.0075	0.0043	0.0043	0.0018	0.0075
4.5	West	0.0080	0.0080	0.0080	0.0077	0.0044	0.0044	0.0019	0.0077
4.6	West	0.0075	0.0075	0.0075	0.0072	0.0044	0.0044	0.0020	0.0072
4.7	West	0.0057	0.0057	0.0057	0.0053	0.0034	0.0034	0.0019	0.0053
4.8	West	0.0038	0.0038	0.0038	0.0037	0.0032	0.0032	0.0019	0.0037
4.9	West	0.0036	0.0036	0.0036	0.0035	0.0029	0.0029	0.0020	0.0035
5	West	0.0034	0.0034	0.0034	0.0033	0.0027	0.0027	0.0019	0.0033
5.1	West	0.0034	0.0033	0.0033	0.0032	0.0025	0.0025	0.0017	0.0032
5.2	West	0.0035	0.0035	0.0034	0.0033	0.0029	0.0029	0.0017	0.0033
5.3	West	0.0038	0.0038	0.0037	0.0036	0.0031	0.0031	0.0017	0.0036
5.4	West	0.0037	0.0037	0.0036	0.0034	0.0028	0.0028	0.0014	0.0035
5.5	West	0.0042	0.0042	0.0041	0.0039	0.0031	0.0031	0.0016	0.0040
5.6	West	0.0049	0.0044	0.0039	0.0036	0.0026	0.0026	0.0012	0.0038
5.7	West	0.0077	0.0046	0.0034	0.0032	0.0023	0.0023	0.0010	0.0034
5.8	West	0.0094	0.0041	0.0031	0.0028	0.0020	0.0020	0.0009	0.0031
5.9	West	0.0123	0.0039	0.0029	0.0026	0.0019	0.0019	0.0009	0.0029
6	West	0.0130	0.0038	0.0028	0.0026	0.0018	0.0018	0.0009	0.0028
6.1	West	0.0135	0.0039	0.0029	0.0024	0.0017	0.0017	0.0008	0.0026
6.2	West	0.0136	0.0041	0.0030	0.0025	0.0015	0.0015	0.0008	0.0024
6.3	West	0.0135	0.0042	0.0032	0.0026	0.0013	0.0013	0.0006	0.0021
6.4	West	0.0173	0.0075	0.0043	0.0031	0.0013	0.0013	0.0006	0.0020
6.5	West	0.0412	0.0203	0.0070	0.0026	0.0007	0.0007	0.0001	0.0011
6.6	West	0.0677	0.0393	0.0152	0.0047	0.0008	0.0008	0.0001	0.0008
6.7	West	0.0820	0.0371	0.0145	0.0044	0.0007	0.0007	0.0001	0.0008
6.8	West	0.1024	0.0363	0.0142	0.0044	0.0007	0.0007	0.0001	0.0007
6.9	West	0.1144	0.0368	0.0145	0.0045	0.0008	0.0008	0.0001	0.0008
7	West	0.1219	0.0376	0.0150	0.0048	0.0009	0.0009	0.0001	0.0009

**Table J2.3-4d**

**RAO 2 Rolling River Mile HI Estimates - Dieldrin**

Portland Harbor Superfund Site

Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
7.1	West	0.1060	0.0348	0.0146	0.0058	0.0023	0.0023	0.0007	0.0023
7.2	West	0.0914	0.0317	0.0149	0.0074	0.0038	0.0038	0.0020	0.0038
7.3	West	0.0804	0.0290	0.0144	0.0080	0.0046	0.0046	0.0023	0.0046
7.4	West	0.0782	0.0272	0.0138	0.0078	0.0047	0.0047	0.0024	0.0047
7.5	West	0.0677	0.0207	0.0125	0.0079	0.0050	0.0050	0.0025	0.0050
7.6	West	0.0538	0.0101	0.0079	0.0068	0.0050	0.0050	0.0026	0.0050
7.7	West	0.0420	0.0099	0.0081	0.0070	0.0051	0.0051	0.0026	0.0053
7.8	West	0.0271	0.0103	0.0085	0.0074	0.0052	0.0052	0.0026	0.0056
7.9	West	0.0211	0.0142	0.0125	0.0114	0.0055	0.0055	0.0024	0.0098
8	West	0.0146	0.0132	0.0122	0.0113	0.0060	0.0060	0.0029	0.0100
8.1	West	0.0138	0.0137	0.0137	0.0121	0.0056	0.0056	0.0026	0.0111
8.2	West	0.0149	0.0149	0.0149	0.0119	0.0045	0.0045	0.0016	0.0115
8.3	West	0.0153	0.0150	0.0149	0.0114	0.0034	0.0034	0.0012	0.0114
8.4	West	0.0289	0.0156	0.0155	0.0118	0.0033	0.0033	0.0011	0.0118
8.5	West	0.0297	0.0159	0.0157	0.0120	0.0033	0.0033	0.0011	0.0120
8.6	West	0.0303	0.0161	0.0159	0.0121	0.0033	0.0033	0.0011	0.0121
8.7	West	0.0331	0.0174	0.0165	0.0124	0.0034	0.0034	0.0012	0.0124
8.8	West	0.0329	0.0174	0.0163	0.0119	0.0034	0.0034	0.0012	0.0119
8.9	West	0.0277	0.0117	0.0105	0.0063	0.0027	0.0027	0.0013	0.0063
9	West	0.0280	0.0110	0.0098	0.0054	0.0014	0.0014	0.0005	0.0054
9.1	West	0.0257	0.0072	0.0058	0.0029	0.0006	0.0006	0.0004	0.0029
9.2	West	0.0222	0.0041	0.0024	0.0014	0.0007	0.0007	0.0004	0.0014
9.3	West	0.0230	0.0047	0.0022	0.0014	0.0007	0.0007	0.0005	0.0014
9.4	West	0.0069	0.0050	0.0023	0.0015	0.0007	0.0007	0.0005	0.0015
9.5	West	0.0067	0.0052	0.0025	0.0016	0.0008	0.0008	0.0005	0.0016
9.6	West	0.0069	0.0054	0.0026	0.0017	0.0009	0.0009	0.0006	0.0017
9.7	West	0.0047	0.0045	0.0027	0.0018	0.0009	0.0009	0.0006	0.0018
9.8	West	0.0042	0.0041	0.0024	0.0020	0.0010	0.0010	0.0007	0.0020
9.9	West	0.0051	0.0050	0.0029	0.0025	0.0013	0.0013	0.0008	0.0025
10	West	0.0066	0.0064	0.0038	0.0033	0.0023	0.0023	0.0016	0.0033
10.1	West	0.0083	0.0080	0.0044	0.0039	0.0030	0.0030	0.0022	0.0039
10.2	West	0.0092	0.0091	0.0056	0.0054	0.0046	0.0046	0.0032	0.0054
10.3	West	0.0066	0.0066	0.0066	0.0064	0.0057	0.0057	0.0036	0.0064
10.4	West	0.0063	0.0063	0.0063	0.0062	0.0056	0.0056	0.0038	0.0062
10.5	West	0.0067	0.0067	0.0067	0.0066	0.0061	0.0061	0.0045	0.0066
10.6	West	0.0068	0.0068	0.0068	0.0067	0.0062	0.0062	0.0048	0.0067
10.7	West	0.0067	0.0067	0.0067	0.0066	0.0062	0.0062	0.0049	0.0066
10.8	West	0.0068	0.0068	0.0068	0.0068	0.0067	0.0067	0.0054	0.0068
10.9	West	0.0067	0.0067	0.0067	0.0067	0.0067	0.0067	0.0057	0.0067
11	West	0.0062	0.0062	0.0062	0.0062	0.0062	0.0062	0.0054	0.0062
11.1	West	0.0062	0.0062	0.0062	0.0062	0.0062	0.0062	0.0054	0.0062
11.2	West	0.0064	0.0064	0.0064	0.0064	0.0064	0.0064	0.0058	0.0064

**Table J2.3-4d**  
**RAO 2 Rolling River Mile HI Estimates - Dieldrin**  
 Portland Harbor Superfund Site  
 Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
11.3	West	0.0068	0.0068	0.0068	0.0068	0.0068	0.0068	0.0068	0.0068
11.4	West	0.0071	0.0071	0.0071	0.0071	0.0071	0.0071	0.0071	0.0071
11.5	West	0.0070	0.0070	0.0070	0.0070	0.0070	0.0070	0.0070	0.0070
11.6	West	0.0072	0.0072	0.0072	0.0072	0.0072	0.0072	0.0071	0.0072
11.7	West	0.0078	0.0078	0.0078	0.0078	0.0078	0.0078	0.0077	0.0078
7.6	Swan Isl	0.0020	0.0001	0.0001	0.0001	0.0000	0.0000	0.0000	0.0001
7.7	Swan Isl	0.0071	0.0003	0.0003	0.0002	0.0000	0.0000	0.0000	0.0002
7.8	Swan Isl	0.0091	0.0006	0.0005	0.0002	0.0000	0.0000	0.0000	0.0002
7.9	Swan Isl	0.0101	0.0006	0.0005	0.0003	0.0001	0.0001	0.0001	0.0003
8	Swan Isl	0.0121	0.0007	0.0006	0.0004	0.0002	0.0002	0.0002	0.0004
8.1	Swan Isl	0.0124	0.0007	0.0006	0.0004	0.0003	0.0003	0.0002	0.0004
8.2	Swan Isl	0.0121	0.0012	0.0011	0.0009	0.0008	0.0008	0.0007	0.0009
8.3	Swan Isl	0.0118	0.0016	0.0014	0.0013	0.0011	0.0011	0.0011	0.0013
8.4	Swan Isl	0.0120	0.0018	0.0016	0.0015	0.0014	0.0014	0.0013	0.0015
8.5	Swan Isl	0.0116	0.0017	0.0015	0.0014	0.0013	0.0013	0.0012	0.0014
8.6	Swan Isl	0.0131	0.0023	0.0020	0.0018	0.0014	0.0014	0.0014	0.0019
8.7	Swan Isl	0.0140	0.0036	0.0031	0.0028	0.0019	0.0019	0.0018	0.0032
8.8	Swan Isl	0.0137	0.0040	0.0035	0.0033	0.0023	0.0023	0.0022	0.0037
8.9	Swan Isl	0.0133	0.0045	0.0039	0.0037	0.0025	0.0025	0.0024	0.0042
9	Swan Isl	0.0109	0.0050	0.0043	0.0041	0.0028	0.0028	0.0027	0.0046
9.1	Swan Isl	0.0103	0.0053	0.0046	0.0043	0.0029	0.0029	0.0028	0.0049
9.2	Swan Isl	0.0106	0.0053	0.0044	0.0042	0.0024	0.0024	0.0023	0.0049
9.3	Swan Isl	0.0111	0.0054	0.0043	0.0040	0.0017	0.0017	0.0015	0.0050
9.4	Swan Isl	0.0096	0.0061	0.0048	0.0044	0.0009	0.0009	0.0006	0.0058
9.5	Swan Isl	0.0121	0.0097	0.0079	0.0073	0.0014	0.0014	0.0010	0.0097
9.6	Swan Isl	0.0136	0.0136	0.0118	0.0103	0.0023	0.0023	0.0018	0.0136

**Table J2.3-4e**

**RAO 2 Rolling River Mile HI Estimates - PCBs**

Portland Harbor Superfund Site

Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
1.8	East	22	12	9	7	7	7	7	7
1.9	East	28	12	10	8	7	7	6	8
2	East	36	11	9	6	5	5	5	6
2.1	East	36	11	8	6	5	5	4	6
2.2	East	35	11	8	6	4	4	4	6
2.3	East	36	11	8	6	4	4	3	6
2.4	East	36	11	8	6	3	3	3	6
2.5	East	36	10	7	5	3	3	3	5
2.6	East	36	9	7	5	3	3	3	5
2.7	East	29	8	6	5	4	4	3	5
2.8	East	25	7	6	5	4	4	3	6
2.9	East	19	6	6	5	4	4	3	5
3	East	6	6	5	5	4	4	3	5
3.1	East	5	5	5	5	4	4	3	5
3.2	East	5	5	5	4	4	4	4	4
3.3	East	14	9	7	6	4	4	3	6
3.4	East	20	9	7	6	4	4	3	6
3.5	East	21	10	8	6	4	4	3	6
3.6	East	25	12	9	6	4	4	2	6
3.7	East	27	14	10	7	4	4	2	7
3.8	East	28	15	11	7	4	4	2	7
3.9	East	30	19	13	8	4	4	2	8
4	East	30	19	14	9	4	4	2	9
4.1	East	29	19	14	9	4	4	2	9
4.2	East	28	18	13	8	3	3	1	8
4.3	East	24	17	13	8	3	3	1	8
4.4	East	18	17	13	7	3	3	1	7
4.5	East	17	17	12	7	3	3	1	7
4.6	East	15	15	11	7	3	3	2	7
4.7	East	13	13	10	7	3	3	2	7
4.8	East	13	13	9	7	3	3	2	7
4.9	East	7	7	6	6	3	3	2	6
5	East	5	5	4	4	3	3	2	4
5.1	East	6	6	5	4	3	3	2	4
5.2	East	8	8	8	7	4	4	2	4
5.3	East	10	10	10	8	3	3	2	3
5.4	East	10	10	10	9	4	4	2	4
5.5	East	10	10	10	9	4	4	2	4
5.6	East	11	11	11	10	4	4	2	5
5.7	East	12	12	12	10	4	4	2	6
5.8	East	11	11	11	10	4	4	2	6
5.9	East	10	10	10	9	3	3	2	6
6	East	10	10	10	8	3	3	2	6

**Table J2.3-4e**  
**RAO 2 Rolling River Mile HI Estimates - PCBs**  
 Portland Harbor Superfund Site  
 Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
6.1	East	9	9	9	8	3	3	2	6
6.2	East	7	7	7	6	3	3	2	5
6.3	East	13	6	6	6	3	3	2	5
6.4	East	15	6	5	5	2	2	2	5
6.5	East	14	5	4	4	2	2	2	5
6.6	East	12	4	3	3	2	2	2	4
6.7	East	11	3	3	2	2	2	2	3
6.8	East	11	3	2	2	2	2	2	3
6.9	East	11	3	3	3	2	2	2	3
7	East	11	4	3	3	2	2	2	4
7.1	East	11	4	3	3	2	2	2	4
7.2	East	12	4	3	3	3	3	2	4
7.3	East	7	4	3	3	3	3	3	4
7.4	East	4	4	3	3	3	3	3	4
7.5	East	4	4	4	4	3	3	3	4
7.6	East	5	4	4	4	4	4	3	5
7.7	East	5	4	4	4	4	4	3	4
7.8	East	6	4	4	4	4	4	3	4
7.9	East	5	4	4	4	4	4	3	4
8	East	6	4	4	4	4	4	3	4
8.1	East	6	4	4	4	4	4	3	4
8.2	East	5	4	4	4	4	4	3	4
8.3	East	5	4	4	4	4	4	3	4
8.4	East	5	4	4	4	4	4	3	4
8.5	East	5	4	4	4	4	4	3	4
8.6	East	6	4	4	4	4	4	3	4
8.7	East	6	6	6	6	5	5	4	6
8.8	East	6	6	6	6	6	6	4	6
8.9	East	6	6	6	6	6	6	4	6
9	East	6	6	6	6	6	6	4	6
9.1	East	7	7	7	7	6	6	4	7
9.2	East	8	8	8	8	6	6	4	8
9.3	East	8	8	8	8	6	6	3	8
9.4	East	8	8	8	8	6	6	3	8
9.5	East	7	7	7	7	5	5	3	7
9.6	East	8	8	7	7	5	5	3	7
9.7	East	7	7	7	7	5	5	3	7
9.8	East	7	7	7	7	5	5	3	7
9.9	East	8	7	7	7	5	5	3	7
10	East	8	8	8	7	5	5	3	7
10.1	East	7	7	7	7	5	5	4	7
10.2	East	7	7	7	6	5	5	4	6

**Table J2.3-4e**

**RAO 2 Rolling River Mile HI Estimates - PCBs**

Portland Harbor Superfund Site

Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
10.3	East	9	9	9	6	4	4	3	6
10.4	East	11	11	11	7	4	4	3	7
10.5	East	13	13	13	9	4	4	3	9
10.6	East	13	13	13	9	5	5	3	9
10.7	East	24	16	14	9	4	4	3	9
10.8	East	31	20	15	9	4	4	2	9
10.9	East	59	24	15	8	3	3	2	8
11	East	71	28	16	8	3	3	1	8
11.1	East	74	30	17	8	2	2	1	8
11.2	East	73	30	17	8	3	3	1	8
11.3	East	79	30	16	7	3	3	1	7
11.4	East	86	32	16	7	3	3	1	7
11.5	East	93	33	16	6	3	3	1	6
11.6	East	103	35	16	6	2	2	1	6
11.7	East	104	36	16	6	2	2	0	6
1.8	Nav Channel	5	5	5	5	5	5	4	5
1.9	Nav Channel	5	5	5	5	5	5	4	5
2	Nav Channel	5	5	5	5	5	5	5	5
2.1	Nav Channel	5	5	5	5	5	5	5	5
2.2	Nav Channel	5	5	5	5	5	5	4	5
2.3	Nav Channel	5	5	5	5	5	5	4	5
2.4	Nav Channel	5	5	5	5	5	5	4	5
2.5	Nav Channel	5	5	5	5	5	5	4	5
2.6	Nav Channel	5	5	5	5	5	5	4	5
2.7	Nav Channel	5	5	5	5	5	5	4	5
2.8	Nav Channel	4	4	4	4	4	4	4	4
2.9	Nav Channel	4	4	4	4	4	4	4	4
3	Nav Channel	4	4	4	4	4	4	3	4
3.1	Nav Channel	5	5	5	5	5	4	3	5
3.2	Nav Channel	6	6	6	6	6	4	3	6
3.3	Nav Channel	6	6	6	6	6	4	3	6
3.4	Nav Channel	6	6	6	5	5	4	2	5
3.5	Nav Channel	5	5	5	5	5	4	2	5
3.6	Nav Channel	5	5	5	5	5	4	2	5
3.7	Nav Channel	5	5	5	5	5	4	3	5
3.8	Nav Channel	5	5	5	5	5	3	2	5
3.9	Nav Channel	5	5	5	5	5	3	2	5
4	Nav Channel	5	5	5	5	5	3	3	5
4.1	Nav Channel	4	4	4	4	4	4	3	4
4.2	Nav Channel	4	4	4	4	4	4	3	4
4.3	Nav Channel	4	4	4	4	4	3	3	4
4.4	Nav Channel	4	4	4	4	4	4	3	4

**Table J2.3-4e**

**RAO 2 Rolling River Mile HI Estimates - PCBs**

Portland Harbor Superfund Site

Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
4.5	Nav Channel	4	4	4	4	4	4	3	4
4.6	Nav Channel	4	4	4	4	4	3	3	4
4.7	Nav Channel	4	4	3	3	4	3	3	4
4.8	Nav Channel	4	4	3	3	4	3	3	4
4.9	Nav Channel	4	4	3	3	4	3	2	4
5	Nav Channel	4	3	3	3	3	2	2	3
5.1	Nav Channel	3	3	3	2	3	2	2	3
5.2	Nav Channel	3	3	2	2	3	2	1	3
5.3	Nav Channel	3	3	2	2	3	1	1	3
5.4	Nav Channel	3	3	2	2	3	1	1	3
5.5	Nav Channel	3	2	2	2	2	1	0	2
5.6	Nav Channel	3	2	2	2	2	1	0	2
5.7	Nav Channel	3	3	2	2	3	1	0	2
5.8	Nav Channel	3	2	2	2	2	1	0	2
5.9	Nav Channel	3	2	2	2	2	1	0	2
6	Nav Channel	3	2	2	2	2	1	1	2
6.1	Nav Channel	4	3	3	2	3	1	1	3
6.2	Nav Channel	7	6	4	3	5	1	1	5
6.3	Nav Channel	8	8	6	5	7	1	1	6
6.4	Nav Channel	9	8	7	5	7	2	1	7
6.5	Nav Channel	9	8	7	5	7	2	1	7
6.6	Nav Channel	9	8	6	5	7	2	1	7
6.7	Nav Channel	8	8	6	5	7	2	1	7
6.8	Nav Channel	8	8	7	6	7	3	2	7
6.9	Nav Channel	8	8	7	6	7	3	2	7
7	Nav Channel	9	9	8	7	8	3	2	8
7.1	Nav Channel	8	8	8	7	8	4	2	8
7.2	Nav Channel	7	7	7	7	7	4	2	7
7.3	Nav Channel	6	6	6	6	6	4	3	6
7.4	Nav Channel	5	5	5	5	5	4	3	5
7.5	Nav Channel	5	5	5	5	5	4	3	5
7.6	Nav Channel	5	5	5	5	5	5	3	5
7.7	Nav Channel	5	5	5	5	5	5	3	5
7.8	Nav Channel	5	5	5	5	5	5	4	5
7.9	Nav Channel	5	5	5	5	5	4	4	5
8	Nav Channel	5	5	5	5	5	4	4	5
8.1	Nav Channel	4	4	4	4	4	4	4	4
8.2	Nav Channel	4	4	4	4	4	4	4	4
8.3	Nav Channel	4	4	4	4	4	4	4	4
8.4	Nav Channel	4	4	4	4	4	4	4	4
8.5	Nav Channel	5	5	5	5	5	4	4	5
8.6	Nav Channel	5	5	5	5	5	4	4	5

**Table J2.3-4e**  
**RAO 2 Rolling River Mile HI Estimates - PCBs**  
 Portland Harbor Superfund Site  
 Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
8.7	Nav Channel	5	5	5	5	5	4	4	5
8.8	Nav Channel	6	6	6	6	6	4	3	6
8.9	Nav Channel	6	6	6	6	6	4	3	6
9	Nav Channel	7	7	7	7	7	4	4	7
9.1	Nav Channel	7	7	7	7	7	4	3	7
9.2	Nav Channel	7	7	7	7	7	4	3	7
9.3	Nav Channel	7	7	7	7	7	4	3	7
9.4	Nav Channel	7	7	7	7	7	4	3	7
9.5	Nav Channel	7	7	7	7	7	4	3	7
9.6	Nav Channel	7	7	6	6	6	4	4	6
9.7	Nav Channel	6	6	6	6	6	5	4	6
9.8	Nav Channel	6	6	6	6	6	5	4	6
9.9	Nav Channel	7	7	7	7	7	5	3	7
10	Nav Channel	7	7	7	7	7	5	3	7
10.1	Nav Channel	7	7	7	7	7	5	3	7
10.2	Nav Channel	7	7	7	7	7	5	3	7
10.3	Nav Channel	7	7	7	7	7	5	3	7
10.4	Nav Channel	8	8	8	8	8	5	3	8
10.5	Nav Channel	8	8	8	8	8	5	3	8
10.6	Nav Channel	8	8	8	8	8	5	3	8
10.7	Nav Channel	9	8	8	8	8	5	3	8
10.8	Nav Channel	12	8	7	7	7	5	3	7
10.9	Nav Channel	13	7	6	6	6	5	4	6
11	Nav Channel	13	7	6	6	6	5	4	6
11.1	Nav Channel	13	7	6	6	6	5	4	6
11.2	Nav Channel	14	7	7	6	6	5	4	6
11.3	Nav Channel	15	8	7	6	6	5	4	6
11.4	Nav Channel	16	8	6	6	6	5	4	6
11.5	Nav Channel	17	8	6	5	5	5	4	5
11.6	Nav Channel	19	8	7	5	5	5	4	5
11.7	Nav Channel	21	9	7	6	6	5	5	6
1.8	West	3	3	3	3	3	3	3	3
1.9	West	2	2	2	2	2	2	2	2
2	West	2	2	2	2	2	2	2	2
2.1	West	2	2	2	2	2	2	2	2
2.2	West	2	2	2	2	2	2	2	2
2.3	West	2	2	2	2	2	2	2	2
2.4	West	2	2	2	2	2	2	2	2
2.5	West	2	2	2	2	2	2	2	2
2.6	West	2	2	2	2	2	2	2	2
2.7	West	2	2	2	2	2	2	2	2
2.8	West	2	2	2	2	2	2	2	2



**Table J2.3-4e**

**RAO 2 Rolling River Mile HI Estimates - PCBs**

Portland Harbor Superfund Site

Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
2.9	West	2	2	2	2	2	2	2	2
3	West	3	3	3	3	3	3	2	3
3.1	West	3	3	3	3	3	3	2	3
3.2	West	3	3	3	3	3	3	2	3
3.3	West	3	3	3	3	3	3	2	3
3.4	West	3	3	3	3	3	3	2	3
3.5	West	3	3	3	3	3	3	2	3
3.6	West	3	3	3	3	3	3	3	3
3.7	West	4	4	4	4	3	3	3	4
3.8	West	4	4	4	4	3	3	3	4
3.9	West	4	4	4	4	3	3	3	4
4	West	4	4	4	4	4	4	2	4
4.1	West	5	5	5	5	4	4	2	5
4.2	West	5	5	5	5	4	4	2	5
4.3	West	5	5	5	5	4	4	2	5
4.4	West	5	5	5	5	4	4	2	5
4.5	West	5	5	5	5	3	3	2	5
4.6	West	5	5	5	5	3	3	2	5
4.7	West	5	5	5	5	3	3	2	5
4.8	West	4	4	4	4	3	3	2	4
4.9	West	5	5	4	4	3	3	2	4
5	West	5	5	4	4	3	3	2	4
5.1	West	4	4	4	4	3	3	2	4
5.2	West	4	4	3	3	3	3	2	3
5.3	West	4	4	3	3	3	3	1	3
5.4	West	4	4	3	3	2	2	1	3
5.5	West	4	4	4	4	3	3	1	4
5.6	West	5	5	4	4	3	3	1	4
5.7	West	6	5	4	4	2	2	1	4
5.8	West	6	4	4	3	2	2	1	3
5.9	West	6	4	3	3	2	2	1	3
6	West	6	3	3	3	2	2	1	3
6.1	West	7	3	3	3	2	2	1	3
6.2	West	7	4	3	3	2	2	1	3
6.3	West	8	4	4	3	1	1	1	2
6.4	West	10	5	4	3	1	1	0	2
6.5	West	16	8	5	3	1	1	0	1
6.6	West	21	11	6	2	0	0	0	0
6.7	West	26	11	5	2	0	0	0	0
6.8	West	30	11	5	2	0	0	0	0
6.9	West	33	11	5	2	0	0	0	0
7	West	36	11	6	2	0	0	0	0

**Table J2.3-4e**

**RAO 2 Rolling River Mile HI Estimates - PCBs**

Portland Harbor Superfund Site

Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
7.1	West	34	13	6	3	1	1	0	1
7.2	West	30	12	7	4	2	2	1	2
7.3	West	27	12	8	5	3	3	1	3
7.4	West	27	12	8	5	3	3	1	3
7.5	West	25	11	8	6	4	4	1	4
7.6	West	23	10	8	7	4	4	1	5
7.7	West	20	11	10	8	5	5	1	6
7.8	West	18	12	11	9	5	5	1	7
7.9	West	16	13	12	10	5	5	1	8
8	West	14	13	12	10	5	5	2	8
8.1	West	13	13	13	10	5	5	2	9
8.2	West	14	14	14	10	5	5	1	9
8.3	West	18	16	16	10	4	4	1	10
8.4	West	46	17	16	9	3	3	1	9
8.5	West	49	17	15	9	3	3	1	9
8.6	West	57	19	15	8	2	2	1	8
8.7	West	67	20	14	7	2	2	1	7
8.8	West	68	21	14	7	2	2	1	7
8.9	West	69	21	13	6	3	3	2	6
9	West	73	23	15	7	2	2	1	7
9.1	West	80	24	15	8	2	2	1	8
9.2	West	82	26	16	7	2	2	1	7
9.3	West	83	26	15	8	2	2	1	8
9.4	West	50	28	15	8	2	2	1	8
9.5	West	47	27	16	8	2	2	2	8
9.6	West	38	26	17	9	3	3	2	9
9.7	West	27	25	18	10	3	3	2	10
9.8	West	25	23	18	10	3	3	2	10
9.9	West	29	26	19	10	3	3	2	10
10	West	32	28	20	9	3	3	2	9
10.1	West	35	31	20	6	3	3	2	6
10.2	West	20	20	11	8	4	4	3	8
10.3	West	10	10	10	8	6	6	3	8
10.4	West	9	9	9	8	6	6	4	8
10.5	West	9	9	9	8	6	6	4	8
10.6	West	8	8	8	7	6	6	4	7
10.7	West	8	8	8	7	6	6	4	7
10.8	West	6	6	6	6	6	6	4	6
10.9	West	6	6	6	6	6	6	4	6
11	West	6	6	6	6	6	6	5	6
11.1	West	6	6	6	6	6	6	5	6
11.2	West	5	5	5	5	5	5	5	5

**Table J2.3-4e**

**RAO 2 Rolling River Mile HI Estimates - PCBs**

Portland Harbor Superfund Site

Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
11.3	West	5	5	5	5	5	5	5	5
11.4	West	5	5	5	5	5	5	5	5
11.5	West	5	5	5	5	5	5	5	5
11.6	West	5	5	5	5	5	5	5	5
11.7	West	5	5	5	5	5	5	5	5
7.6	Swan Isl	21	2	2	1	0	0	0	1
7.7	Swan Isl	31	2	2	1	0	0	0	1
7.8	Swan Isl	40	2	2	1	0	0	0	1
7.9	Swan Isl	75	2	2	1	0	0	0	1
8	Swan Isl	130	2	1	1	0	0	0	1
8.1	Swan Isl	131	2	1	1	0	0	0	1
8.2	Swan Isl	121	2	1	1	0	0	0	1
8.3	Swan Isl	114	2	1	1	0	0	0	1
8.4	Swan Isl	107	2	1	1	0	0	0	1
8.5	Swan Isl	101	2	1	1	0	0	0	1
8.6	Swan Isl	109	3	2	1	0	0	0	1
8.7	Swan Isl	126	4	2	2	0	0	0	2
8.8	Swan Isl	138	4	2	2	1	1	0	2
8.9	Swan Isl	114	4	2	2	1	1	0	2
9	Swan Isl	41	5	3	2	1	1	0	3
9.1	Swan Isl	32	5	3	2	1	1	0	3
9.2	Swan Isl	31	6	3	3	1	1	0	3
9.3	Swan Isl	28	6	3	3	1	1	0	4
9.4	Swan Isl	20	7	5	5	1	1	1	6
9.5	Swan Isl	16	10	8	7	1	1	1	10
9.6	Swan Isl	12	12	10	9	1	1	1	12

**Table J2.3-4f**

**RAO 2 Rolling River Mile HI Estimates - 1,2,3,4,7,8-HxCDF**

Portland Harbor Superfund Site

Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
1.8	East	0.11	0.11	0.10	0.10	0.09	0.09	0.08	0.10
1.9	East	0.13	0.11	0.11	0.10	0.09	0.09	0.08	0.10
2	East	0.14	0.12	0.11	0.11	0.09	0.09	0.08	0.11
2.1	East	0.15	0.13	0.12	0.12	0.09	0.09	0.08	0.12
2.2	East	0.15	0.13	0.12	0.11	0.09	0.09	0.07	0.11
2.3	East	0.15	0.13	0.12	0.11	0.08	0.08	0.07	0.11
2.4	East	0.15	0.13	0.12	0.11	0.08	0.08	0.07	0.11
2.5	East	0.13	0.10	0.09	0.08	0.06	0.06	0.05	0.08
2.6	East	0.12	0.10	0.09	0.08	0.06	0.06	0.05	0.08
2.7	East	0.13	0.10	0.10	0.09	0.06	0.06	0.05	0.09
2.8	East	0.13	0.11	0.11	0.10	0.07	0.07	0.06	0.10
2.9	East	0.12	0.11	0.11	0.10	0.08	0.08	0.07	0.10
3	East	0.12	0.12	0.11	0.11	0.09	0.09	0.08	0.11
3.1	East	0.13	0.13	0.12	0.12	0.11	0.11	0.10	0.12
3.2	East	0.14	0.14	0.13	0.13	0.12	0.12	0.12	0.13
3.3	East	0.21	0.19	0.14	0.13	0.12	0.12	0.11	0.13
3.4	East	0.28	0.21	0.15	0.15	0.12	0.12	0.11	0.15
3.5	East	0.30	0.23	0.16	0.15	0.13	0.13	0.11	0.15
3.6	East	0.32	0.25	0.18	0.15	0.13	0.13	0.11	0.15
3.7	East	0.35	0.27	0.20	0.16	0.13	0.13	0.10	0.16
3.8	East	0.39	0.31	0.23	0.19	0.15	0.15	0.12	0.19
3.9	East	0.63	0.56	0.45	0.36	0.18	0.18	0.11	0.36
4	East	0.93	0.87	0.77	0.66	0.24	0.24	0.10	0.66
4.1	East	1.01	0.94	0.80	0.67	0.23	0.23	0.09	0.67
4.2	East	1.39	1.31	0.97	0.71	0.22	0.22	0.08	0.71
4.3	East	1.67	1.60	1.20	0.88	0.27	0.27	0.09	0.88
4.4	East	1.72	1.69	1.29	0.93	0.29	0.29	0.10	0.93
4.5	East	1.78	1.75	1.34	0.98	0.33	0.33	0.13	0.98
4.6	East	1.85	1.82	1.41	1.07	0.42	0.42	0.22	1.07
4.7	East	1.98	1.95	1.53	1.20	0.55	0.55	0.36	1.20
4.8	East	2.16	2.13	1.70	1.37	0.71	0.71	0.50	1.37
4.9	East	2.37	2.33	1.88	1.56	0.97	0.97	0.64	1.56
5	East	2.43	2.39	1.86	1.52	1.28	1.28	0.89	1.49
5.1	East	2.83	2.79	2.31	1.99	1.54	1.54	1.05	1.71
5.2	East	2.65	2.65	2.64	2.63	1.88	1.88	1.30	1.88
5.3	East	2.63	2.63	2.63	2.60	1.81	1.81	1.24	1.81
5.4	East	2.39	2.39	2.39	2.36	1.70	1.70	1.05	1.70
5.5	East	2.20	2.20	2.20	2.18	1.58	1.58	0.95	1.59
5.6	East	1.97	1.97	1.97	1.94	1.38	1.38	0.80	1.41
5.7	East	1.71	1.71	1.71	1.69	1.15	1.15	0.62	1.21
5.8	East	1.52	1.52	1.50	1.47	0.99	0.99	0.51	1.06
5.9	East	1.34	1.34	1.29	1.26	0.79	0.79	0.45	0.92
6	East	1.15	1.15	1.06	1.04	0.62	0.62	0.37	0.78

**Table J2.3-4f**

**RAO 2 Rolling River Mile HI Estimates - 1,2,3,4,7,8-HxCDF**

Portland Harbor Superfund Site

Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
6.1	East	0.98	0.98	0.82	0.80	0.54	0.54	0.34	0.75
6.2	East	1.15	0.92	0.64	0.62	0.52	0.52	0.35	0.77
6.3	East	2.27	0.92	0.53	0.53	0.46	0.46	0.31	0.82
6.4	East	2.08	0.79	0.41	0.40	0.35	0.35	0.27	0.70
6.5	East	1.94	0.70	0.34	0.34	0.29	0.29	0.24	0.62
6.6	East	1.81	0.64	0.30	0.30	0.26	0.26	0.22	0.57
6.7	East	1.79	0.61	0.27	0.26	0.25	0.25	0.22	0.62
6.8	East	1.76	0.58	0.24	0.23	0.22	0.22	0.19	0.64
6.9	East	1.71	0.57	0.24	0.24	0.23	0.23	0.21	0.63
7	East	1.67	0.58	0.28	0.28	0.27	0.27	0.25	0.64
7.1	East	1.65	0.56	0.31	0.31	0.30	0.30	0.28	0.63
7.2	East	1.52	0.51	0.33	0.33	0.32	0.32	0.31	0.63
7.3	East	0.66	0.46	0.37	0.37	0.36	0.36	0.35	0.60
7.4	East	0.67	0.50	0.42	0.42	0.42	0.42	0.39	0.66
7.5	East	0.75	0.57	0.49	0.49	0.48	0.48	0.45	0.74
7.6	East	0.82	0.63	0.54	0.54	0.53	0.53	0.47	0.81
7.7	East	0.76	0.63	0.56	0.56	0.55	0.55	0.48	0.70
7.8	East	0.71	0.61	0.58	0.58	0.57	0.57	0.49	0.61
7.9	East	0.70	0.59	0.59	0.59	0.59	0.59	0.50	0.59
8	East	0.64	0.51	0.51	0.51	0.51	0.51	0.40	0.51
8.1	East	0.59	0.44	0.44	0.44	0.44	0.44	0.32	0.44
8.2	East	0.51	0.36	0.36	0.36	0.36	0.36	0.24	0.36
8.3	East	0.45	0.32	0.32	0.32	0.31	0.31	0.22	0.32
8.4	East	0.40	0.27	0.27	0.27	0.27	0.27	0.20	0.27
8.5	East	0.32	0.18	0.18	0.18	0.18	0.18	0.13	0.18
8.6	East	0.26	0.13	0.13	0.13	0.13	0.13	0.11	0.13
8.7	East	0.21	0.15	0.15	0.15	0.14	0.14	0.13	0.15
8.8	East	0.14	0.14	0.14	0.14	0.14	0.14	0.12	0.14
8.9	East	0.13	0.13	0.13	0.13	0.12	0.12	0.11	0.13
9	East	0.12	0.12	0.12	0.12	0.11	0.11	0.10	0.12
9.1	East	0.11	0.11	0.11	0.11	0.10	0.10	0.09	0.11
9.2	East	0.11	0.11	0.11	0.11	0.09	0.09	0.07	0.11
9.3	East	0.10	0.10	0.10	0.10	0.09	0.09	0.06	0.10
9.4	East	0.10	0.10	0.10	0.10	0.08	0.08	0.06	0.10
9.5	East	0.10	0.10	0.10	0.10	0.08	0.08	0.06	0.10
9.6	East	0.10	0.10	0.10	0.09	0.08	0.08	0.07	0.09
9.7	East	0.10	0.10	0.10	0.10	0.08	0.08	0.07	0.10
9.8	East	0.11	0.11	0.11	0.11	0.09	0.09	0.08	0.11
9.9	East	0.12	0.12	0.12	0.12	0.10	0.10	0.08	0.12
10	East	0.13	0.13	0.13	0.13	0.11	0.11	0.09	0.13
10.1	East	0.14	0.14	0.14	0.13	0.12	0.12	0.10	0.13
10.2	East	0.15	0.15	0.15	0.15	0.13	0.13	0.11	0.15

**Table J2.3-4f**  
**RAO 2 Rolling River Mile HI Estimates - 1,2,3,4,7,8-HxCDF**  
 Portland Harbor Superfund Site  
 Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
10.3	East	0.18	0.18	0.18	0.17	0.14	0.14	0.12	0.17
10.4	East	0.21	0.21	0.21	0.19	0.15	0.15	0.13	0.19
10.5	East	0.25	0.25	0.25	0.22	0.16	0.16	0.13	0.22
10.6	East	0.28	0.28	0.28	0.25	0.19	0.19	0.13	0.25
10.7	East	0.30	0.29	0.29	0.26	0.18	0.18	0.13	0.26
10.8	East	0.32	0.30	0.28	0.25	0.17	0.17	0.11	0.25
10.9	East	0.33	0.29	0.26	0.22	0.14	0.14	0.08	0.22
11	East	0.39	0.31	0.26	0.20	0.12	0.12	0.07	0.20
11.1	East	0.41	0.33	0.26	0.19	0.11	0.11	0.06	0.19
11.2	East	0.40	0.32	0.26	0.18	0.11	0.11	0.05	0.18
11.3	East	0.41	0.32	0.25	0.18	0.10	0.10	0.04	0.18
11.4	East	0.42	0.31	0.24	0.16	0.10	0.10	0.03	0.16
11.5	East	0.43	0.31	0.23	0.15	0.09	0.09	0.03	0.15
11.6	East	0.44	0.31	0.21	0.13	0.07	0.07	0.03	0.13
11.7	East	0.46	0.31	0.21	0.12	0.06	0.06	0.02	0.12
1.8	Nav Channel	0.03	0.03	0.03	0.03	0.03	0.03	0.02	0.03
1.9	Nav Channel	0.03	0.03	0.03	0.03	0.03	0.03	0.02	0.03
2	Nav Channel	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03
2.1	Nav Channel	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03
2.2	Nav Channel	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
2.3	Nav Channel	0.05	0.05	0.05	0.05	0.05	0.05	0.04	0.05
2.4	Nav Channel	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
2.5	Nav Channel	0.06	0.06	0.06	0.06	0.06	0.06	0.05	0.06
2.6	Nav Channel	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06
2.7	Nav Channel	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07
2.8	Nav Channel	0.08	0.08	0.08	0.08	0.08	0.08	0.07	0.08
2.9	Nav Channel	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08
3	Nav Channel	0.09	0.09	0.09	0.09	0.09	0.08	0.08	0.09
3.1	Nav Channel	0.09	0.09	0.09	0.09	0.09	0.08	0.07	0.09
3.2	Nav Channel	0.09	0.09	0.09	0.09	0.09	0.08	0.07	0.09
3.3	Nav Channel	0.09	0.09	0.09	0.09	0.09	0.08	0.07	0.09
3.4	Nav Channel	0.09	0.09	0.09	0.09	0.09	0.08	0.07	0.09
3.5	Nav Channel	0.09	0.09	0.09	0.09	0.09	0.08	0.07	0.09
3.6	Nav Channel	0.09	0.09	0.09	0.09	0.09	0.08	0.06	0.09
3.7	Nav Channel	0.09	0.09	0.09	0.09	0.09	0.08	0.06	0.09
3.8	Nav Channel	0.08	0.08	0.08	0.08	0.08	0.07	0.06	0.08
3.9	Nav Channel	0.08	0.08	0.08	0.08	0.08	0.07	0.06	0.08
4	Nav Channel	0.07	0.07	0.07	0.07	0.07	0.07	0.06	0.07
4.1	Nav Channel	0.07	0.07	0.07	0.07	0.07	0.07	0.06	0.07
4.2	Nav Channel	0.08	0.08	0.08	0.08	0.08	0.07	0.07	0.08
4.3	Nav Channel	0.08	0.08	0.08	0.08	0.08	0.08	0.07	0.08
4.4	Nav Channel	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08

**Table J2.3-4f**

**RAO 2 Rolling River Mile HI Estimates - 1,2,3,4,7,8-HxCDF**

Portland Harbor Superfund Site

Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
4.5	Nav Channel	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09
4.6	Nav Channel	0.10	0.10	0.10	0.10	0.10	0.09	0.09	0.10
4.7	Nav Channel	0.12	0.11	0.10	0.10	0.11	0.09	0.08	0.11
4.8	Nav Channel	0.14	0.13	0.12	0.10	0.13	0.09	0.08	0.13
4.9	Nav Channel	0.17	0.15	0.12	0.11	0.15	0.09	0.08	0.15
5	Nav Channel	0.20	0.17	0.14	0.12	0.17	0.09	0.08	0.17
5.1	Nav Channel	0.23	0.20	0.16	0.14	0.20	0.10	0.08	0.20
5.2	Nav Channel	0.27	0.22	0.17	0.15	0.22	0.10	0.08	0.22
5.3	Nav Channel	0.31	0.22	0.18	0.15	0.22	0.10	0.07	0.22
5.4	Nav Channel	0.36	0.26	0.21	0.18	0.26	0.10	0.07	0.26
5.5	Nav Channel	0.42	0.31	0.26	0.22	0.31	0.13	0.07	0.31
5.6	Nav Channel	0.49	0.38	0.33	0.28	0.38	0.17	0.10	0.38
5.7	Nav Channel	0.61	0.49	0.41	0.34	0.49	0.20	0.11	0.47
5.8	Nav Channel	0.77	0.58	0.48	0.40	0.58	0.25	0.14	0.55
5.9	Nav Channel	0.95	0.69	0.60	0.51	0.69	0.34	0.21	0.66
6	Nav Channel	1.14	0.79	0.70	0.61	0.79	0.43	0.30	0.75
6.1	Nav Channel	1.31	0.92	0.78	0.67	0.91	0.47	0.33	0.87
6.2	Nav Channel	1.41	1.03	0.89	0.75	1.01	0.49	0.33	0.97
6.3	Nav Channel	1.50	1.17	1.02	0.88	1.15	0.56	0.34	1.11
6.4	Nav Channel	1.58	1.24	1.09	0.95	1.22	0.66	0.39	1.17
6.5	Nav Channel	1.64	1.31	1.16	1.03	1.29	0.75	0.52	1.24
6.6	Nav Channel	1.64	1.30	1.16	1.04	1.28	0.79	0.59	1.24
6.7	Nav Channel	1.54	1.23	1.14	1.05	1.21	0.83	0.65	1.20
6.8	Nav Channel	1.40	1.17	1.10	1.03	1.14	0.84	0.65	1.14
6.9	Nav Channel	1.22	1.08	1.02	0.96	1.05	0.79	0.59	1.05
7	Nav Channel	1.04	1.00	0.95	0.89	0.97	0.71	0.51	0.97
7.1	Nav Channel	0.88	0.87	0.86	0.83	0.85	0.67	0.48	0.85
7.2	Nav Channel	0.78	0.77	0.77	0.76	0.76	0.66	0.48	0.76
7.3	Nav Channel	0.69	0.68	0.68	0.67	0.67	0.61	0.48	0.67
7.4	Nav Channel	0.60	0.60	0.60	0.59	0.59	0.55	0.46	0.59
7.5	Nav Channel	0.52	0.52	0.52	0.51	0.51	0.48	0.40	0.51
7.6	Nav Channel	0.47	0.47	0.47	0.46	0.46	0.43	0.36	0.46
7.7	Nav Channel	0.44	0.44	0.44	0.43	0.43	0.40	0.33	0.43
7.8	Nav Channel	0.42	0.41	0.41	0.41	0.41	0.38	0.33	0.41
7.9	Nav Channel	0.40	0.40	0.40	0.39	0.39	0.37	0.33	0.39
8	Nav Channel	0.38	0.38	0.38	0.38	0.38	0.37	0.34	0.38
8.1	Nav Channel	0.37	0.37	0.37	0.37	0.37	0.37	0.35	0.37
8.2	Nav Channel	0.36	0.36	0.36	0.36	0.36	0.36	0.36	0.36
8.3	Nav Channel	0.36	0.36	0.36	0.36	0.36	0.36	0.35	0.36
8.4	Nav Channel	0.36	0.36	0.36	0.36	0.36	0.35	0.35	0.36
8.5	Nav Channel	0.36	0.36	0.36	0.35	0.36	0.34	0.33	0.36
8.6	Nav Channel	0.36	0.36	0.36	0.36	0.36	0.34	0.33	0.36

**Table J2.3-4f**

**RAO 2 Rolling River Mile HI Estimates - 1,2,3,4,7,8-HxCDF**

Portland Harbor Superfund Site

Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
8.7	Nav Channel	0.36	0.36	0.36	0.36	0.36	0.34	0.32	0.36
8.8	Nav Channel	0.36	0.36	0.36	0.36	0.36	0.33	0.31	0.36
8.9	Nav Channel	0.35	0.35	0.35	0.35	0.35	0.32	0.30	0.35
9	Nav Channel	0.34	0.34	0.34	0.34	0.34	0.30	0.28	0.34
9.1	Nav Channel	0.32	0.32	0.32	0.32	0.32	0.29	0.26	0.32
9.2	Nav Channel	0.30	0.30	0.30	0.30	0.30	0.26	0.23	0.30
9.3	Nav Channel	0.27	0.27	0.27	0.27	0.27	0.23	0.20	0.27
9.4	Nav Channel	0.23	0.23	0.23	0.23	0.23	0.19	0.17	0.23
9.5	Nav Channel	0.20	0.20	0.20	0.20	0.20	0.17	0.15	0.20
9.6	Nav Channel	0.17	0.17	0.17	0.17	0.17	0.14	0.12	0.17
9.7	Nav Channel	0.15	0.15	0.15	0.15	0.15	0.13	0.11	0.15
9.8	Nav Channel	0.13	0.13	0.13	0.13	0.13	0.12	0.10	0.13
9.9	Nav Channel	0.13	0.13	0.13	0.13	0.13	0.11	0.09	0.13
10	Nav Channel	0.13	0.13	0.13	0.13	0.13	0.10	0.08	0.13
10.1	Nav Channel	0.13	0.13	0.13	0.13	0.13	0.11	0.09	0.13
10.2	Nav Channel	0.14	0.14	0.14	0.14	0.14	0.12	0.09	0.14
10.3	Nav Channel	0.15	0.15	0.15	0.15	0.15	0.12	0.10	0.15
10.4	Nav Channel	0.16	0.16	0.16	0.16	0.16	0.13	0.10	0.16
10.5	Nav Channel	0.16	0.16	0.16	0.16	0.16	0.13	0.10	0.16
10.6	Nav Channel	0.17	0.17	0.17	0.17	0.17	0.14	0.09	0.17
10.7	Nav Channel	0.17	0.17	0.17	0.16	0.16	0.13	0.09	0.16
10.8	Nav Channel	0.17	0.16	0.16	0.16	0.16	0.13	0.10	0.16
10.9	Nav Channel	0.18	0.17	0.17	0.16	0.16	0.14	0.11	0.16
11	Nav Channel	0.19	0.18	0.17	0.17	0.17	0.15	0.12	0.17
11.1	Nav Channel	0.19	0.18	0.17	0.17	0.17	0.15	0.12	0.17
11.2	Nav Channel	0.19	0.18	0.17	0.16	0.16	0.15	0.12	0.16
11.3	Nav Channel	0.19	0.17	0.17	0.16	0.16	0.14	0.11	0.16
11.4	Nav Channel	0.19	0.17	0.17	0.16	0.16	0.14	0.12	0.16
11.5	Nav Channel	0.19	0.17	0.17	0.16	0.16	0.14	0.13	0.16
11.6	Nav Channel	0.20	0.18	0.17	0.16	0.16	0.14	0.13	0.16
11.7	Nav Channel	0.21	0.19	0.18	0.17	0.17	0.15	0.14	0.17
1.8	West	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14
1.9	West	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20
2	West	0.22	0.22	0.22	0.22	0.22	0.22	0.22	0.22
2.1	West	0.23	0.23	0.23	0.23	0.23	0.23	0.23	0.23
2.2	West	0.24	0.24	0.24	0.24	0.24	0.24	0.24	0.24
2.3	West	0.24	0.24	0.24	0.24	0.24	0.24	0.24	0.24
2.4	West	0.25	0.25	0.25	0.25	0.25	0.25	0.24	0.25
2.5	West	0.24	0.24	0.24	0.24	0.24	0.24	0.23	0.24
2.6	West	0.23	0.23	0.23	0.23	0.23	0.23	0.22	0.23
2.7	West	0.20	0.20	0.20	0.20	0.20	0.20	0.19	0.20
2.8	West	0.17	0.17	0.17	0.17	0.17	0.17	0.16	0.17



**Table J2.3-4f**

**RAO 2 Rolling River Mile HI Estimates - 1,2,3,4,7,8-HxCDF**

Portland Harbor Superfund Site

Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
2.9	West	0.12	0.12	0.12	0.12	0.12	0.12	0.10	0.12
3	West	0.09	0.09	0.09	0.09	0.09	0.09	0.08	0.09
3.1	West	0.09	0.09	0.09	0.09	0.09	0.09	0.07	0.09
3.2	West	0.10	0.10	0.10	0.10	0.10	0.10	0.08	0.10
3.3	West	0.11	0.11	0.11	0.11	0.11	0.11	0.09	0.11
3.4	West	0.12	0.12	0.12	0.12	0.12	0.12	0.10	0.12
3.5	West	0.15	0.15	0.15	0.15	0.14	0.14	0.12	0.15
3.6	West	0.18	0.18	0.18	0.17	0.16	0.16	0.13	0.17
3.7	West	0.21	0.21	0.21	0.21	0.19	0.19	0.15	0.21
3.8	West	0.24	0.24	0.24	0.24	0.22	0.22	0.17	0.24
3.9	West	0.30	0.30	0.30	0.30	0.27	0.27	0.19	0.30
4	West	0.38	0.38	0.38	0.37	0.34	0.34	0.23	0.37
4.1	West	0.45	0.45	0.45	0.45	0.40	0.40	0.25	0.45
4.2	West	0.56	0.56	0.56	0.56	0.46	0.46	0.28	0.56
4.3	West	0.68	0.68	0.68	0.68	0.56	0.56	0.36	0.68
4.4	West	0.77	0.77	0.77	0.76	0.64	0.64	0.43	0.76
4.5	West	0.80	0.80	0.80	0.80	0.66	0.66	0.45	0.80
4.6	West	0.82	0.82	0.82	0.81	0.68	0.68	0.47	0.81
4.7	West	0.86	0.86	0.85	0.84	0.69	0.69	0.48	0.84
4.8	West	0.93	0.93	0.92	0.89	0.74	0.74	0.51	0.89
4.9	West	1.00	1.00	0.96	0.93	0.76	0.76	0.53	0.93
5	West	1.00	0.99	0.93	0.89	0.71	0.71	0.48	0.89
5.1	West	1.00	0.99	0.91	0.86	0.68	0.68	0.46	0.86
5.2	West	1.01	0.99	0.92	0.86	0.75	0.75	0.49	0.86
5.3	West	0.97	0.95	0.87	0.82	0.69	0.69	0.41	0.82
5.4	West	0.91	0.90	0.82	0.75	0.61	0.61	0.34	0.76
5.5	West	0.87	0.86	0.78	0.72	0.59	0.59	0.32	0.74
5.6	West	0.87	0.84	0.76	0.70	0.53	0.53	0.26	0.73
5.7	West	0.87	0.78	0.69	0.64	0.49	0.49	0.23	0.66
5.8	West	0.86	0.68	0.60	0.56	0.43	0.43	0.21	0.58
5.9	West	0.88	0.60	0.54	0.50	0.38	0.38	0.20	0.53
6	West	0.93	0.55	0.51	0.48	0.37	0.37	0.20	0.51
6.1	West	1.00	0.56	0.52	0.48	0.35	0.35	0.19	0.48
6.2	West	1.07	0.63	0.59	0.55	0.33	0.33	0.15	0.46
6.3	West	1.28	0.74	0.70	0.59	0.27	0.27	0.11	0.39
6.4	West	2.82	1.62	1.00	0.73	0.26	0.26	0.08	0.34
6.5	West	6.82	3.92	2.32	0.82	0.19	0.19	0.03	0.24
6.6	West	13.36	8.71	4.81	1.77	0.24	0.24	0.03	0.24
6.7	West	25.57	9.05	4.71	1.66	0.22	0.22	0.03	0.22
6.8	West	422.40	8.93	4.61	1.63	0.22	0.22	0.03	0.22
6.9	West	836.98	9.18	4.80	1.72	0.23	0.23	0.03	0.23
7	West	844.49	18.00	10.39	1.97	0.45	0.45	0.03	0.45

**Table J2.3-4f**

**RAO 2 Rolling River Mile HI Estimates - 1,2,3,4,7,8-HxCDF**

Portland Harbor Superfund Site

Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
7.1	West	712.25	29.87	22.56	6.69	2.85	2.85	0.34	2.85
7.2	West	596.35	25.22	19.09	5.83	2.58	2.58	0.34	2.58
7.3	West	514.23	21.81	16.52	5.13	2.34	2.34	0.30	2.34
7.4	West	514.48	21.40	16.42	5.11	2.41	2.41	0.30	2.41
7.5	West	530.89	20.94	16.32	5.28	2.55	2.55	0.31	2.56
7.6	West	541.48	18.79	15.36	4.91	2.62	2.62	0.32	2.65
7.7	West	545.53	18.69	15.62	5.06	2.71	2.71	0.33	2.75
7.8	West	294.16	18.74	15.70	5.11	2.73	2.73	0.33	2.80
7.9	West	27.89	17.34	14.55	4.73	2.54	2.54	0.31	2.63
8	West	11.00	10.98	10.26	4.21	2.24	2.24	0.29	2.32
8.1	West	0.87	0.87	0.87	0.82	0.59	0.59	0.09	0.68
8.2	West	0.67	0.67	0.67	0.60	0.42	0.42	0.04	0.52
8.3	West	0.58	0.57	0.57	0.46	0.32	0.32	0.03	0.44
8.4	West	0.55	0.48	0.47	0.36	0.21	0.21	0.03	0.34
8.5	West	0.53	0.40	0.38	0.27	0.15	0.15	0.03	0.27
8.6	West	0.54	0.38	0.32	0.20	0.10	0.10	0.03	0.20
8.7	West	0.57	0.36	0.28	0.15	0.06	0.06	0.03	0.15
8.8	West	0.59	0.38	0.29	0.15	0.07	0.07	0.04	0.15
8.9	West	0.60	0.38	0.29	0.16	0.10	0.10	0.07	0.16
9	West	0.63	0.39	0.30	0.18	0.10	0.10	0.08	0.18
9.1	West	0.67	0.41	0.31	0.21	0.12	0.12	0.09	0.21
9.2	West	0.71	0.45	0.32	0.21	0.13	0.13	0.10	0.21
9.3	West	0.79	0.53	0.32	0.22	0.13	0.13	0.10	0.22
9.4	West	0.75	0.56	0.33	0.23	0.14	0.14	0.11	0.23
9.5	West	0.71	0.58	0.37	0.26	0.16	0.16	0.13	0.26
9.6	West	0.66	0.59	0.40	0.30	0.20	0.20	0.16	0.30
9.7	West	0.63	0.61	0.44	0.34	0.23	0.23	0.17	0.34
9.8	West	0.61	0.59	0.42	0.34	0.24	0.24	0.17	0.34
9.9	West	0.65	0.62	0.43	0.33	0.22	0.22	0.15	0.33
10	West	0.77	0.73	0.48	0.36	0.26	0.26	0.18	0.36
10.1	West	0.97	0.92	0.59	0.42	0.33	0.33	0.23	0.43
10.2	West	1.10	1.08	0.74	0.68	0.58	0.58	0.40	0.69
10.3	West	0.89	0.89	0.89	0.87	0.79	0.79	0.54	0.87
10.4	West	0.86	0.86	0.86	0.84	0.77	0.77	0.56	0.84
10.5	West	0.82	0.82	0.81	0.79	0.74	0.74	0.55	0.80
10.6	West	0.77	0.77	0.77	0.75	0.70	0.70	0.52	0.75
10.7	West	0.72	0.72	0.72	0.70	0.66	0.66	0.54	0.70
10.8	West	0.69	0.69	0.69	0.69	0.68	0.68	0.57	0.69
10.9	West	0.67	0.67	0.67	0.67	0.67	0.67	0.57	0.67
11	West	0.64	0.64	0.64	0.64	0.64	0.64	0.55	0.64
11.1	West	0.61	0.61	0.61	0.61	0.61	0.61	0.53	0.61
11.2	West	0.55	0.55	0.55	0.55	0.55	0.55	0.50	0.55

**Table J2.3-4f**

**RAO 2 Rolling River Mile HI Estimates - 1,2,3,4,7,8-HxCDF**

Portland Harbor Superfund Site

Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
11.3	West	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50
11.4	West	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.47
11.5	West	0.43	0.43	0.43	0.43	0.43	0.43	0.43	0.43
11.6	West	0.40	0.40	0.40	0.40	0.40	0.40	0.39	0.40
11.7	West	0.37	0.37	0.37	0.37	0.37	0.37	0.37	0.37
7.6	Swan Isl	0.20	0.02	0.02	0.01	0.00	0.00	0.00	0.01
7.7	Swan Isl	0.28	0.02	0.02	0.01	0.00	0.00	0.00	0.01
7.8	Swan Isl	0.35	0.03	0.02	0.02	0.01	0.01	0.00	0.02
7.9	Swan Isl	0.42	0.03	0.02	0.02	0.01	0.01	0.00	0.02
8	Swan Isl	0.52	0.03	0.03	0.02	0.01	0.01	0.00	0.02
8.1	Swan Isl	0.58	0.03	0.03	0.02	0.01	0.01	0.01	0.02
8.2	Swan Isl	0.73	0.04	0.04	0.03	0.02	0.02	0.01	0.03
8.3	Swan Isl	0.86	0.06	0.04	0.03	0.02	0.02	0.02	0.03
8.4	Swan Isl	0.96	0.07	0.04	0.03	0.02	0.02	0.02	0.03
8.5	Swan Isl	1.00	0.08	0.04	0.03	0.02	0.02	0.02	0.03
8.6	Swan Isl	1.23	0.17	0.09	0.07	0.03	0.03	0.02	0.11
8.7	Swan Isl	1.58	0.36	0.21	0.19	0.07	0.07	0.06	0.29
8.8	Swan Isl	1.79	0.42	0.25	0.22	0.08	0.08	0.07	0.34
8.9	Swan Isl	1.92	0.48	0.28	0.25	0.09	0.09	0.08	0.39
9	Swan Isl	2.02	0.55	0.32	0.28	0.10	0.10	0.09	0.44
9.1	Swan Isl	2.03	0.59	0.34	0.30	0.11	0.11	0.09	0.47
9.2	Swan Isl	2.04	0.69	0.39	0.35	0.11	0.11	0.09	0.56
9.3	Swan Isl	2.04	0.84	0.47	0.44	0.13	0.13	0.11	0.72
9.4	Swan Isl	2.09	1.16	0.69	0.65	0.18	0.18	0.15	1.06
9.5	Swan Isl	2.51	1.80	1.13	1.06	0.29	0.29	0.24	1.76
9.6	Swan Isl	2.39	2.39	1.73	1.57	0.60	0.60	0.50	2.39

**Table J2.3-4g**

**RAO 2 Rolling River Mile HI Estimates - 1,2,3,7,8-PeCDD**

Portland Harbor Superfund Site

Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
1.8	East	0.018	0.017	0.016	0.016	0.016	0.016	0.015	0.016
1.9	East	0.019	0.017	0.016	0.015	0.015	0.015	0.014	0.015
2	East	0.022	0.018	0.017	0.016	0.014	0.014	0.014	0.016
2.1	East	0.023	0.020	0.019	0.018	0.014	0.014	0.013	0.018
2.2	East	0.022	0.019	0.018	0.017	0.013	0.013	0.011	0.017
2.3	East	0.022	0.018	0.017	0.016	0.012	0.012	0.010	0.016
2.4	East	0.022	0.018	0.017	0.016	0.011	0.011	0.009	0.016
2.5	East	0.023	0.019	0.018	0.017	0.012	0.012	0.010	0.017
2.6	East	0.024	0.020	0.019	0.017	0.012	0.012	0.010	0.017
2.7	East	0.025	0.021	0.020	0.019	0.014	0.014	0.012	0.019
2.8	East	0.026	0.023	0.022	0.021	0.015	0.015	0.013	0.021
2.9	East	0.027	0.025	0.024	0.023	0.018	0.018	0.016	0.023
3	East	0.034	0.034	0.030	0.030	0.026	0.026	0.025	0.030
3.1	East	0.039	0.039	0.035	0.035	0.034	0.034	0.032	0.035
3.2	East	0.043	0.043	0.039	0.039	0.038	0.038	0.037	0.039
3.3	East	0.058	0.052	0.039	0.038	0.036	0.036	0.033	0.038
3.4	East	0.072	0.057	0.041	0.040	0.037	0.037	0.033	0.040
3.5	East	0.076	0.060	0.043	0.041	0.038	0.038	0.034	0.041
3.6	East	0.081	0.064	0.045	0.042	0.038	0.038	0.034	0.042
3.7	East	0.085	0.067	0.048	0.042	0.037	0.037	0.033	0.042
3.8	East	0.087	0.069	0.050	0.044	0.038	0.038	0.033	0.044
3.9	East	0.087	0.071	0.052	0.045	0.033	0.033	0.026	0.045
4	East	0.081	0.065	0.050	0.043	0.025	0.025	0.017	0.043
4.1	East	0.072	0.058	0.043	0.036	0.018	0.018	0.010	0.036
4.2	East	0.070	0.056	0.039	0.031	0.014	0.014	0.006	0.031
4.3	East	0.061	0.051	0.041	0.031	0.012	0.012	0.005	0.031
4.4	East	0.050	0.049	0.042	0.032	0.013	0.013	0.005	0.032
4.5	East	0.050	0.050	0.042	0.033	0.013	0.013	0.006	0.033
4.6	East	0.050	0.050	0.043	0.035	0.016	0.016	0.009	0.035
4.7	East	0.051	0.050	0.043	0.038	0.020	0.020	0.013	0.038
4.8	East	0.054	0.054	0.047	0.041	0.023	0.023	0.016	0.041
4.9	East	0.053	0.052	0.045	0.042	0.030	0.030	0.021	0.042
5	East	0.052	0.052	0.044	0.040	0.038	0.038	0.030	0.040
5.1	East	0.064	0.064	0.055	0.052	0.048	0.048	0.036	0.049
5.2	East	0.075	0.075	0.074	0.073	0.061	0.061	0.045	0.061
5.3	East	0.077	0.077	0.077	0.075	0.058	0.058	0.042	0.058
5.4	East	0.078	0.078	0.078	0.076	0.060	0.060	0.039	0.060
5.5	East	0.081	0.081	0.081	0.079	0.061	0.061	0.037	0.063
5.6	East	0.085	0.085	0.085	0.082	0.060	0.060	0.036	0.068
5.7	East	0.090	0.090	0.090	0.087	0.061	0.061	0.038	0.074
5.8	East	0.096	0.096	0.095	0.092	0.068	0.068	0.046	0.082
5.9	East	0.099	0.099	0.095	0.091	0.067	0.067	0.047	0.086
6	East	0.098	0.098	0.092	0.089	0.067	0.067	0.048	0.086

**Table J2.3-4g**

**RAO 2 Rolling River Mile HI Estimates - 1,2,3,7,8-PeCDD**

Portland Harbor Superfund Site

Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
6.1	East	0.097	0.097	0.088	0.085	0.065	0.065	0.049	0.087
6.2	East	0.108	0.097	0.081	0.079	0.064	0.064	0.050	0.088
6.3	East	0.190	0.108	0.072	0.070	0.058	0.058	0.044	0.101
6.4	East	0.210	0.108	0.065	0.063	0.053	0.053	0.042	0.102
6.5	East	0.198	0.100	0.059	0.058	0.049	0.049	0.042	0.096
6.6	East	0.185	0.093	0.054	0.053	0.047	0.047	0.041	0.089
6.7	East	0.220	0.094	0.050	0.049	0.047	0.047	0.042	0.129
6.8	East	0.240	0.099	0.047	0.046	0.043	0.043	0.039	0.153
6.9	East	0.233	0.097	0.044	0.044	0.042	0.042	0.039	0.149
7	East	0.223	0.093	0.043	0.043	0.041	0.041	0.038	0.142
7.1	East	0.219	0.089	0.042	0.042	0.040	0.040	0.038	0.139
7.2	East	0.219	0.088	0.043	0.043	0.041	0.041	0.039	0.143
7.3	East	0.166	0.079	0.047	0.047	0.045	0.045	0.043	0.141
7.4	East	0.150	0.078	0.050	0.050	0.049	0.049	0.046	0.149
7.5	East	0.160	0.083	0.054	0.054	0.053	0.053	0.050	0.159
7.6	East	0.170	0.086	0.055	0.055	0.054	0.054	0.049	0.167
7.7	East	0.113	0.074	0.050	0.050	0.049	0.049	0.043	0.105
7.8	East	0.065	0.053	0.046	0.046	0.044	0.044	0.037	0.052
7.9	East	0.057	0.044	0.043	0.043	0.043	0.043	0.035	0.044
8	East	0.055	0.039	0.039	0.039	0.038	0.038	0.030	0.039
8.1	East	0.056	0.037	0.037	0.037	0.036	0.036	0.026	0.037
8.2	East	0.052	0.034	0.034	0.034	0.033	0.033	0.023	0.034
8.3	East	0.049	0.032	0.032	0.032	0.031	0.031	0.023	0.032
8.4	East	0.046	0.029	0.029	0.029	0.029	0.029	0.023	0.029
8.5	East	0.042	0.024	0.024	0.024	0.024	0.024	0.018	0.024
8.6	East	0.037	0.022	0.022	0.022	0.021	0.021	0.018	0.022
8.7	East	0.032	0.026	0.026	0.026	0.025	0.025	0.020	0.026
8.8	East	0.027	0.027	0.027	0.027	0.026	0.026	0.022	0.027
8.9	East	0.027	0.027	0.027	0.027	0.026	0.026	0.022	0.027
9	East	0.027	0.027	0.027	0.027	0.026	0.026	0.022	0.027
9.1	East	0.028	0.028	0.028	0.028	0.026	0.026	0.021	0.028
9.2	East	0.030	0.030	0.030	0.030	0.025	0.025	0.018	0.030
9.3	East	0.032	0.032	0.032	0.032	0.028	0.028	0.020	0.032
9.4	East	0.036	0.036	0.036	0.036	0.032	0.032	0.024	0.036
9.5	East	0.039	0.039	0.039	0.039	0.035	0.035	0.028	0.039
9.6	East	0.042	0.042	0.042	0.041	0.037	0.037	0.030	0.041
9.7	East	0.046	0.046	0.045	0.045	0.040	0.040	0.034	0.045
9.8	East	0.051	0.051	0.051	0.050	0.045	0.045	0.038	0.050
9.9	East	0.057	0.056	0.056	0.056	0.050	0.050	0.042	0.056
10	East	0.063	0.063	0.063	0.062	0.055	0.055	0.046	0.062
10.1	East	0.069	0.069	0.069	0.068	0.061	0.061	0.052	0.068
10.2	East	0.076	0.076	0.076	0.075	0.067	0.067	0.059	0.075

**Table J2.3-4g**

**RAO 2 Rolling River Mile HI Estimates - 1,2,3,7,8-PeCDD**

Portland Harbor Superfund Site

Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
10.3	East	0.089	0.089	0.089	0.083	0.070	0.070	0.062	0.083
10.4	East	0.102	0.102	0.102	0.093	0.074	0.074	0.063	0.093
10.5	East	0.113	0.113	0.113	0.103	0.075	0.075	0.058	0.103
10.6	East	0.127	0.127	0.126	0.115	0.085	0.085	0.060	0.115
10.7	East	0.139	0.134	0.129	0.115	0.083	0.083	0.059	0.115
10.8	East	0.143	0.137	0.128	0.111	0.076	0.076	0.049	0.111
10.9	East	0.151	0.135	0.117	0.097	0.063	0.063	0.038	0.097
11	East	0.163	0.132	0.110	0.086	0.052	0.052	0.030	0.086
11.1	East	0.162	0.129	0.106	0.082	0.048	0.048	0.026	0.082
11.2	East	0.157	0.126	0.104	0.079	0.049	0.049	0.022	0.079
11.3	East	0.159	0.124	0.099	0.077	0.048	0.048	0.019	0.077
11.4	East	0.160	0.121	0.092	0.071	0.043	0.043	0.014	0.071
11.5	East	0.161	0.118	0.087	0.063	0.041	0.041	0.015	0.063
11.6	East	0.161	0.112	0.077	0.052	0.031	0.031	0.012	0.052
11.7	East	0.158	0.107	0.073	0.048	0.028	0.028	0.007	0.048
1.8	Nav Channel	0.007	0.007	0.007	0.007	0.007	0.007	0.007	0.007
1.9	Nav Channel	0.007	0.007	0.007	0.007	0.007	0.007	0.006	0.007
2	Nav Channel	0.008	0.008	0.008	0.008	0.008	0.008	0.007	0.008
2.1	Nav Channel	0.009	0.009	0.009	0.009	0.009	0.009	0.008	0.009
2.2	Nav Channel	0.009	0.009	0.009	0.009	0.009	0.009	0.009	0.009
2.3	Nav Channel	0.010	0.010	0.010	0.010	0.010	0.010	0.009	0.010
2.4	Nav Channel	0.011	0.011	0.011	0.011	0.011	0.011	0.010	0.011
2.5	Nav Channel	0.012	0.012	0.012	0.012	0.012	0.012	0.011	0.012
2.6	Nav Channel	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013
2.7	Nav Channel	0.014	0.014	0.014	0.014	0.014	0.014	0.013	0.014
2.8	Nav Channel	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015
2.9	Nav Channel	0.016	0.016	0.016	0.016	0.016	0.016	0.016	0.016
3	Nav Channel	0.017	0.017	0.017	0.017	0.017	0.016	0.015	0.017
3.1	Nav Channel	0.018	0.018	0.018	0.017	0.017	0.016	0.014	0.017
3.2	Nav Channel	0.018	0.018	0.018	0.018	0.018	0.016	0.013	0.018
3.3	Nav Channel	0.019	0.019	0.019	0.019	0.019	0.016	0.013	0.019
3.4	Nav Channel	0.019	0.019	0.019	0.019	0.019	0.017	0.014	0.019
3.5	Nav Channel	0.019	0.019	0.019	0.019	0.019	0.017	0.014	0.019
3.6	Nav Channel	0.020	0.020	0.020	0.020	0.020	0.018	0.015	0.020
3.7	Nav Channel	0.020	0.020	0.020	0.020	0.020	0.018	0.015	0.020
3.8	Nav Channel	0.020	0.020	0.020	0.019	0.019	0.018	0.015	0.019
3.9	Nav Channel	0.018	0.018	0.018	0.018	0.018	0.017	0.014	0.018
4	Nav Channel	0.017	0.017	0.017	0.017	0.017	0.016	0.014	0.017
4.1	Nav Channel	0.017	0.017	0.017	0.017	0.017	0.016	0.014	0.017
4.2	Nav Channel	0.017	0.017	0.017	0.017	0.017	0.017	0.016	0.017
4.3	Nav Channel	0.018	0.018	0.018	0.018	0.018	0.017	0.017	0.018
4.4	Nav Channel	0.018	0.018	0.018	0.018	0.018	0.018	0.017	0.018

**Table J2.3-4g**

**RAO 2 Rolling River Mile HI Estimates - 1,2,3,7,8-PeCDD**

Portland Harbor Superfund Site

Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
4.5	Nav Channel	0.019	0.019	0.019	0.019	0.019	0.019	0.018	0.019
4.6	Nav Channel	0.019	0.019	0.019	0.018	0.019	0.018	0.017	0.019
4.7	Nav Channel	0.020	0.020	0.018	0.017	0.020	0.016	0.015	0.020
4.8	Nav Channel	0.022	0.021	0.019	0.018	0.021	0.016	0.015	0.021
4.9	Nav Channel	0.024	0.023	0.020	0.018	0.023	0.016	0.014	0.023
5	Nav Channel	0.028	0.025	0.021	0.019	0.025	0.016	0.014	0.025
5.1	Nav Channel	0.030	0.028	0.023	0.021	0.028	0.017	0.014	0.028
5.2	Nav Channel	0.033	0.028	0.023	0.021	0.028	0.016	0.013	0.028
5.3	Nav Channel	0.035	0.028	0.023	0.020	0.028	0.015	0.011	0.028
5.4	Nav Channel	0.037	0.030	0.024	0.021	0.030	0.014	0.010	0.030
5.5	Nav Channel	0.040	0.032	0.026	0.022	0.032	0.014	0.009	0.032
5.6	Nav Channel	0.043	0.035	0.029	0.025	0.035	0.017	0.011	0.035
5.7	Nav Channel	0.048	0.039	0.033	0.029	0.039	0.020	0.012	0.039
5.8	Nav Channel	0.054	0.043	0.038	0.034	0.043	0.024	0.016	0.043
5.9	Nav Channel	0.063	0.052	0.048	0.044	0.052	0.033	0.024	0.051
6	Nav Channel	0.075	0.063	0.059	0.056	0.063	0.045	0.034	0.062
6.1	Nav Channel	0.091	0.078	0.068	0.063	0.076	0.048	0.037	0.076
6.2	Nav Channel	0.106	0.095	0.080	0.072	0.090	0.049	0.037	0.090
6.3	Nav Channel	0.115	0.108	0.093	0.084	0.103	0.052	0.037	0.102
6.4	Nav Channel	0.121	0.114	0.099	0.090	0.108	0.058	0.041	0.108
6.5	Nav Channel	0.123	0.117	0.101	0.093	0.111	0.062	0.047	0.111
6.6	Nav Channel	0.123	0.117	0.102	0.094	0.111	0.065	0.051	0.111
6.7	Nav Channel	0.121	0.115	0.102	0.096	0.110	0.068	0.056	0.110
6.8	Nav Channel	0.116	0.112	0.100	0.094	0.107	0.069	0.056	0.107
6.9	Nav Channel	0.108	0.105	0.093	0.088	0.100	0.063	0.051	0.100
7	Nav Channel	0.096	0.095	0.084	0.079	0.091	0.054	0.042	0.091
7.1	Nav Channel	0.081	0.081	0.076	0.073	0.078	0.052	0.039	0.078
7.2	Nav Channel	0.068	0.068	0.068	0.068	0.068	0.054	0.041	0.068
7.3	Nav Channel	0.061	0.061	0.061	0.061	0.061	0.055	0.044	0.061
7.4	Nav Channel	0.056	0.056	0.056	0.056	0.056	0.052	0.044	0.056
7.5	Nav Channel	0.052	0.052	0.052	0.052	0.052	0.048	0.041	0.052
7.6	Nav Channel	0.049	0.049	0.049	0.049	0.049	0.046	0.039	0.049
7.7	Nav Channel	0.047	0.047	0.047	0.047	0.047	0.043	0.037	0.047
7.8	Nav Channel	0.045	0.045	0.045	0.045	0.045	0.041	0.036	0.045
7.9	Nav Channel	0.042	0.042	0.042	0.042	0.042	0.039	0.035	0.042
8	Nav Channel	0.040	0.040	0.040	0.040	0.040	0.039	0.035	0.040
8.1	Nav Channel	0.039	0.039	0.039	0.038	0.039	0.038	0.036	0.039
8.2	Nav Channel	0.036	0.036	0.036	0.036	0.036	0.036	0.036	0.036
8.3	Nav Channel	0.034	0.034	0.034	0.034	0.034	0.034	0.034	0.034
8.4	Nav Channel	0.033	0.033	0.033	0.033	0.033	0.033	0.032	0.033
8.5	Nav Channel	0.032	0.031	0.031	0.031	0.031	0.031	0.030	0.031
8.6	Nav Channel	0.031	0.031	0.031	0.031	0.031	0.030	0.029	0.031

**Table J2.3-4g**

**RAO 2 Rolling River Mile HI Estimates - 1,2,3,7,8-PeCDD**

Portland Harbor Superfund Site

Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
8.7	Nav Channel	0.031	0.031	0.031	0.031	0.031	0.029	0.028	0.031
8.8	Nav Channel	0.031	0.031	0.031	0.031	0.031	0.028	0.027	0.031
8.9	Nav Channel	0.031	0.031	0.031	0.031	0.031	0.028	0.026	0.031
9	Nav Channel	0.032	0.031	0.031	0.031	0.031	0.028	0.026	0.031
9.1	Nav Channel	0.032	0.032	0.032	0.031	0.032	0.028	0.026	0.032
9.2	Nav Channel	0.032	0.032	0.032	0.032	0.032	0.028	0.026	0.032
9.3	Nav Channel	0.033	0.032	0.032	0.032	0.032	0.028	0.026	0.032
9.4	Nav Channel	0.033	0.033	0.033	0.033	0.033	0.029	0.026	0.033
9.5	Nav Channel	0.034	0.034	0.034	0.034	0.034	0.029	0.026	0.034
9.6	Nav Channel	0.035	0.035	0.035	0.035	0.035	0.031	0.028	0.035
9.7	Nav Channel	0.037	0.037	0.037	0.037	0.037	0.034	0.030	0.037
9.8	Nav Channel	0.038	0.038	0.038	0.038	0.038	0.035	0.029	0.038
9.9	Nav Channel	0.040	0.040	0.040	0.040	0.040	0.034	0.028	0.040
10	Nav Channel	0.042	0.042	0.042	0.042	0.042	0.035	0.028	0.042
10.1	Nav Channel	0.044	0.044	0.044	0.044	0.044	0.037	0.030	0.044
10.2	Nav Channel	0.046	0.046	0.046	0.046	0.046	0.039	0.032	0.046
10.3	Nav Channel	0.048	0.048	0.048	0.048	0.048	0.040	0.033	0.048
10.4	Nav Channel	0.050	0.050	0.050	0.050	0.050	0.041	0.031	0.050
10.5	Nav Channel	0.051	0.051	0.051	0.051	0.051	0.042	0.031	0.051
10.6	Nav Channel	0.050	0.050	0.050	0.050	0.050	0.041	0.029	0.050
10.7	Nav Channel	0.050	0.050	0.049	0.049	0.049	0.039	0.028	0.049
10.8	Nav Channel	0.050	0.048	0.048	0.047	0.047	0.039	0.030	0.047
10.9	Nav Channel	0.054	0.051	0.050	0.048	0.048	0.042	0.033	0.048
11	Nav Channel	0.056	0.053	0.052	0.050	0.050	0.045	0.037	0.050
11.1	Nav Channel	0.056	0.053	0.052	0.050	0.050	0.045	0.038	0.050
11.2	Nav Channel	0.056	0.053	0.052	0.050	0.050	0.045	0.037	0.050
11.3	Nav Channel	0.057	0.053	0.052	0.050	0.050	0.044	0.036	0.050
11.4	Nav Channel	0.058	0.054	0.052	0.049	0.049	0.044	0.039	0.049
11.5	Nav Channel	0.059	0.055	0.053	0.050	0.050	0.046	0.043	0.050
11.6	Nav Channel	0.062	0.057	0.054	0.051	0.051	0.047	0.043	0.051
11.7	Nav Channel	0.065	0.060	0.057	0.054	0.054	0.048	0.045	0.054
1.8	West	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010
1.9	West	0.009	0.009	0.009	0.009	0.009	0.009	0.009	0.009
2	West	0.008	0.008	0.008	0.008	0.008	0.008	0.008	0.008
2.1	West	0.008	0.008	0.008	0.008	0.008	0.008	0.008	0.008
2.2	West	0.007	0.007	0.007	0.007	0.007	0.007	0.007	0.007
2.3	West	0.008	0.008	0.008	0.008	0.008	0.008	0.008	0.008
2.4	West	0.008	0.008	0.008	0.008	0.008	0.008	0.008	0.008
2.5	West	0.008	0.008	0.008	0.008	0.008	0.008	0.008	0.008
2.6	West	0.008	0.008	0.008	0.008	0.008	0.008	0.007	0.008
2.7	West	0.008	0.008	0.008	0.008	0.008	0.008	0.008	0.008
2.8	West	0.009	0.009	0.009	0.009	0.009	0.009	0.007	0.009



**Table J2.3-4g**

**RAO 2 Rolling River Mile HI Estimates - 1,2,3,7,8-PeCDD**

Portland Harbor Superfund Site

Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
2.9	West	0.009	0.009	0.009	0.009	0.009	0.009	0.008	0.009
3	West	0.010	0.010	0.010	0.010	0.010	0.010	0.008	0.010
3.1	West	0.011	0.011	0.011	0.011	0.011	0.011	0.009	0.011
3.2	West	0.013	0.013	0.013	0.013	0.013	0.013	0.011	0.013
3.3	West	0.015	0.015	0.015	0.015	0.014	0.014	0.013	0.015
3.4	West	0.017	0.017	0.017	0.017	0.016	0.016	0.014	0.017
3.5	West	0.020	0.020	0.020	0.020	0.019	0.019	0.016	0.020
3.6	West	0.024	0.024	0.024	0.024	0.022	0.022	0.019	0.024
3.7	West	0.029	0.029	0.029	0.029	0.027	0.027	0.022	0.029
3.8	West	0.034	0.034	0.034	0.034	0.031	0.031	0.024	0.034
3.9	West	0.040	0.040	0.040	0.040	0.037	0.037	0.026	0.040
4	West	0.046	0.046	0.046	0.046	0.042	0.042	0.028	0.046
4.1	West	0.052	0.052	0.052	0.052	0.046	0.046	0.029	0.052
4.2	West	0.055	0.055	0.055	0.055	0.046	0.046	0.027	0.055
4.3	West	0.057	0.057	0.057	0.056	0.047	0.047	0.027	0.056
4.4	West	0.056	0.056	0.056	0.055	0.046	0.046	0.028	0.055
4.5	West	0.053	0.053	0.053	0.053	0.044	0.044	0.026	0.053
4.6	West	0.051	0.051	0.051	0.051	0.043	0.043	0.026	0.051
4.7	West	0.051	0.051	0.050	0.049	0.040	0.040	0.024	0.049
4.8	West	0.052	0.052	0.051	0.050	0.041	0.041	0.026	0.050
4.9	West	0.054	0.053	0.051	0.049	0.040	0.040	0.026	0.049
5	West	0.054	0.054	0.050	0.047	0.037	0.037	0.024	0.047
5.1	West	0.052	0.051	0.047	0.044	0.034	0.034	0.022	0.044
5.2	West	0.050	0.050	0.045	0.042	0.035	0.035	0.022	0.042
5.3	West	0.048	0.048	0.043	0.039	0.033	0.033	0.019	0.039
5.4	West	0.047	0.047	0.042	0.038	0.030	0.030	0.016	0.039
5.5	West	0.046	0.046	0.041	0.037	0.029	0.029	0.016	0.038
5.6	West	0.045	0.043	0.039	0.035	0.026	0.026	0.012	0.036
5.7	West	0.043	0.039	0.034	0.031	0.024	0.024	0.010	0.033
5.8	West	0.039	0.034	0.029	0.027	0.020	0.020	0.009	0.028
5.9	West	0.035	0.029	0.025	0.023	0.017	0.017	0.008	0.025
6	West	0.033	0.025	0.023	0.022	0.016	0.016	0.008	0.023
6.1	West	0.032	0.023	0.022	0.020	0.015	0.015	0.008	0.021
6.2	West	0.031	0.022	0.020	0.019	0.013	0.013	0.007	0.019
6.3	West	0.032	0.023	0.021	0.018	0.010	0.010	0.005	0.016
6.4	West	0.084	0.031	0.020	0.016	0.008	0.008	0.004	0.012
6.5	West	0.165	0.034	0.019	0.011	0.004	0.004	0.001	0.006
6.6	West	0.174	0.038	0.020	0.010	0.002	0.002	0.001	0.002
6.7	West	0.173	0.037	0.019	0.009	0.002	0.002	0.001	0.002
6.8	West	0.194	0.036	0.019	0.009	0.002	0.002	0.001	0.002
6.9	West	0.216	0.036	0.019	0.009	0.002	0.002	0.001	0.002
7	West	0.213	0.037	0.020	0.010	0.003	0.003	0.001	0.003

**Table J2.3-4g**

**RAO 2 Rolling River Mile HI Estimates - 1,2,3,7,8-PeCDD**

Portland Harbor Superfund Site

Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
7.1	West	0.186	0.041	0.026	0.017	0.010	0.010	0.004	0.010
7.2	West	0.163	0.041	0.029	0.022	0.015	0.015	0.008	0.015
7.3	West	0.142	0.038	0.028	0.022	0.016	0.016	0.008	0.016
7.4	West	0.112	0.032	0.027	0.022	0.017	0.017	0.008	0.017
7.5	West	0.070	0.029	0.026	0.023	0.018	0.018	0.009	0.019
7.6	West	0.066	0.028	0.026	0.024	0.020	0.020	0.009	0.021
7.7	West	0.063	0.030	0.029	0.028	0.022	0.022	0.009	0.024
7.8	West	0.051	0.034	0.034	0.031	0.023	0.023	0.009	0.028
7.9	West	0.042	0.040	0.040	0.035	0.022	0.022	0.008	0.032
8	West	0.043	0.043	0.043	0.036	0.025	0.025	0.011	0.033
8.1	West	0.048	0.047	0.047	0.036	0.022	0.022	0.011	0.034
8.2	West	0.054	0.054	0.054	0.036	0.019	0.019	0.008	0.035
8.3	West	0.069	0.067	0.065	0.036	0.018	0.018	0.007	0.036
8.4	West	0.088	0.070	0.068	0.037	0.017	0.017	0.007	0.036
8.5	West	0.101	0.072	0.067	0.036	0.016	0.016	0.007	0.036
8.6	West	0.115	0.078	0.067	0.034	0.015	0.015	0.007	0.034
8.7	West	0.124	0.080	0.067	0.032	0.013	0.013	0.008	0.032
8.8	West	0.128	0.085	0.070	0.033	0.015	0.015	0.009	0.033
8.9	West	0.131	0.087	0.072	0.036	0.022	0.022	0.016	0.036
9	West	0.138	0.091	0.074	0.041	0.022	0.022	0.016	0.041
9.1	West	0.142	0.090	0.073	0.043	0.024	0.024	0.018	0.043
9.2	West	0.148	0.095	0.068	0.042	0.025	0.025	0.019	0.042
9.3	West	0.168	0.115	0.060	0.043	0.026	0.026	0.020	0.043
9.4	West	0.155	0.121	0.063	0.046	0.027	0.027	0.021	0.046
9.5	West	0.147	0.125	0.069	0.051	0.032	0.032	0.025	0.051
9.6	West	0.140	0.127	0.075	0.058	0.038	0.038	0.031	0.058
9.7	West	0.138	0.133	0.082	0.065	0.043	0.043	0.032	0.065
9.8	West	0.142	0.136	0.082	0.067	0.045	0.045	0.033	0.067
9.9	West	0.156	0.149	0.083	0.066	0.042	0.042	0.028	0.066
10	West	0.183	0.174	0.091	0.068	0.048	0.048	0.033	0.068
10.1	West	0.228	0.217	0.104	0.076	0.059	0.059	0.041	0.076
10.2	West	0.259	0.253	0.141	0.130	0.111	0.111	0.077	0.130
10.3	West	0.181	0.181	0.181	0.176	0.163	0.163	0.108	0.176
10.4	West	0.175	0.175	0.175	0.171	0.160	0.160	0.114	0.172
10.5	West	0.168	0.168	0.168	0.165	0.155	0.155	0.114	0.165
10.6	West	0.160	0.160	0.160	0.157	0.148	0.148	0.111	0.157
10.7	West	0.153	0.153	0.153	0.150	0.142	0.142	0.113	0.150
10.8	West	0.147	0.147	0.147	0.147	0.146	0.146	0.119	0.147
10.9	West	0.144	0.144	0.144	0.144	0.144	0.144	0.119	0.144
11	West	0.137	0.137	0.137	0.137	0.137	0.137	0.115	0.137
11.1	West	0.130	0.130	0.130	0.130	0.130	0.130	0.109	0.130
11.2	West	0.115	0.115	0.115	0.115	0.115	0.115	0.100	0.115

**Table J2.3-4g**  
**RAO 2 Rolling River Mile HI Estimates - 1,2,3,7,8-PeCDD**  
 Portland Harbor Superfund Site  
 Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
11.3	West	0.098	0.098	0.098	0.098	0.098	0.098	0.098	0.098
11.4	West	0.090	0.090	0.090	0.090	0.090	0.090	0.090	0.090
11.5	West	0.081	0.081	0.081	0.081	0.081	0.081	0.080	0.081
11.6	West	0.071	0.071	0.071	0.071	0.071	0.071	0.071	0.071
11.7	West	0.064	0.064	0.064	0.064	0.064	0.064	0.064	0.064
7.6	Swan Isl	0.043	0.003	0.003	0.002	0.000	0.000	0.000	0.002
7.7	Swan Isl	0.050	0.003	0.003	0.002	0.000	0.000	0.000	0.002
7.8	Swan Isl	0.051	0.004	0.003	0.002	0.001	0.001	0.000	0.002
7.9	Swan Isl	0.050	0.003	0.003	0.002	0.001	0.001	0.000	0.002
8	Swan Isl	0.049	0.003	0.003	0.002	0.001	0.001	0.000	0.002
8.1	Swan Isl	0.049	0.003	0.003	0.002	0.001	0.001	0.000	0.002
8.2	Swan Isl	0.051	0.004	0.003	0.002	0.001	0.001	0.001	0.002
8.3	Swan Isl	0.056	0.004	0.004	0.002	0.001	0.001	0.001	0.002
8.4	Swan Isl	0.063	0.006	0.004	0.002	0.001	0.001	0.001	0.002
8.5	Swan Isl	0.068	0.006	0.004	0.003	0.001	0.001	0.001	0.003
8.6	Swan Isl	0.080	0.012	0.006	0.005	0.002	0.002	0.001	0.008
8.7	Swan Isl	0.093	0.025	0.015	0.013	0.005	0.005	0.004	0.020
8.8	Swan Isl	0.101	0.029	0.017	0.016	0.006	0.006	0.005	0.024
8.9	Swan Isl	0.110	0.033	0.019	0.018	0.006	0.006	0.005	0.027
9	Swan Isl	0.121	0.038	0.022	0.020	0.007	0.007	0.006	0.031
9.1	Swan Isl	0.126	0.041	0.024	0.022	0.008	0.008	0.007	0.034
9.2	Swan Isl	0.139	0.049	0.028	0.026	0.009	0.009	0.007	0.040
9.3	Swan Isl	0.150	0.060	0.035	0.033	0.010	0.010	0.008	0.052
9.4	Swan Isl	0.163	0.083	0.051	0.048	0.014	0.014	0.012	0.077
9.5	Swan Isl	0.183	0.129	0.082	0.077	0.022	0.022	0.018	0.126
9.6	Swan Isl	0.171	0.171	0.125	0.114	0.044	0.044	0.037	0.171

**Table J2.3-4h**

**RAO 2 Rolling River Mile HI Estimates - 1,2,3,7,8-PeCDF**

Portland Harbor Superfund Site

Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
1.8	East	0.014	0.011	0.009	0.009	0.008	0.008	0.007	0.009
1.9	East	0.017	0.012	0.011	0.009	0.008	0.008	0.007	0.009
2	East	0.022	0.015	0.014	0.012	0.009	0.009	0.008	0.012
2.1	East	0.025	0.018	0.017	0.015	0.009	0.009	0.008	0.015
2.2	East	0.026	0.019	0.017	0.015	0.009	0.009	0.008	0.015
2.3	East	0.027	0.020	0.018	0.016	0.009	0.009	0.007	0.016
2.4	East	0.028	0.020	0.018	0.016	0.010	0.010	0.007	0.016
2.5	East	0.027	0.020	0.018	0.016	0.009	0.009	0.007	0.016
2.6	East	0.028	0.020	0.018	0.016	0.010	0.010	0.007	0.016
2.7	East	0.028	0.021	0.019	0.017	0.011	0.011	0.008	0.017
2.8	East	0.026	0.021	0.020	0.018	0.011	0.011	0.009	0.018
2.9	East	0.024	0.020	0.020	0.019	0.012	0.012	0.010	0.019
3	East	0.019	0.019	0.019	0.018	0.014	0.014	0.012	0.018
3.1	East	0.017	0.017	0.017	0.016	0.015	0.015	0.013	0.016
3.2	East	0.018	0.018	0.017	0.016	0.016	0.016	0.014	0.016
3.3	East	0.026	0.023	0.017	0.016	0.014	0.014	0.013	0.016
3.4	East	0.033	0.025	0.017	0.016	0.014	0.014	0.012	0.016
3.5	East	0.035	0.026	0.018	0.017	0.014	0.014	0.012	0.017
3.6	East	0.037	0.028	0.018	0.017	0.014	0.014	0.011	0.017
3.7	East	0.040	0.030	0.020	0.017	0.013	0.013	0.011	0.017
3.8	East	0.042	0.032	0.022	0.019	0.015	0.015	0.012	0.019
3.9	East	0.055	0.046	0.035	0.028	0.015	0.015	0.010	0.028
4	East	0.073	0.065	0.055	0.047	0.017	0.017	0.008	0.047
4.1	East	0.076	0.068	0.055	0.046	0.016	0.016	0.006	0.046
4.2	East	0.102	0.093	0.066	0.048	0.014	0.014	0.005	0.048
4.3	East	0.116	0.109	0.080	0.058	0.016	0.016	0.005	0.058
4.4	East	0.116	0.113	0.085	0.061	0.018	0.018	0.006	0.061
4.5	East	0.119	0.117	0.089	0.064	0.020	0.020	0.008	0.064
4.6	East	0.125	0.122	0.094	0.071	0.027	0.027	0.015	0.071
4.7	East	0.133	0.131	0.103	0.081	0.037	0.037	0.025	0.081
4.8	East	0.147	0.145	0.116	0.093	0.049	0.049	0.036	0.093
4.9	East	0.164	0.161	0.130	0.108	0.069	0.069	0.046	0.108
5	East	0.172	0.169	0.132	0.109	0.093	0.093	0.066	0.107
5.1	East	0.205	0.202	0.169	0.146	0.114	0.114	0.078	0.126
5.2	East	0.197	0.197	0.197	0.196	0.140	0.140	0.097	0.140
5.3	East	0.197	0.197	0.197	0.194	0.135	0.135	0.092	0.135
5.4	East	0.181	0.181	0.181	0.178	0.129	0.129	0.079	0.129
5.5	East	0.169	0.169	0.169	0.167	0.122	0.122	0.072	0.123
5.6	East	0.156	0.156	0.156	0.153	0.109	0.109	0.063	0.113
5.7	East	0.142	0.142	0.142	0.140	0.095	0.095	0.053	0.103
5.8	East	0.135	0.135	0.132	0.130	0.090	0.090	0.051	0.099
5.9	East	0.128	0.128	0.123	0.119	0.079	0.079	0.049	0.096
6	East	0.121	0.121	0.113	0.110	0.073	0.073	0.049	0.093

**Table J2.3-4h**

**RAO 2 Rolling River Mile HI Estimates - 1,2,3,7,8-PeCDF**

Portland Harbor Superfund Site

Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
6.1	East	0.114	0.114	0.100	0.097	0.073	0.073	0.052	0.096
6.2	East	0.126	0.108	0.085	0.083	0.071	0.071	0.052	0.097
6.3	East	0.209	0.104	0.073	0.071	0.063	0.063	0.046	0.096
6.4	East	0.204	0.095	0.062	0.060	0.053	0.053	0.043	0.088
6.5	East	0.192	0.087	0.055	0.054	0.047	0.047	0.040	0.081
6.6	East	0.179	0.080	0.050	0.049	0.044	0.044	0.038	0.075
6.7	East	0.195	0.079	0.046	0.045	0.043	0.043	0.038	0.097
6.8	East	0.203	0.079	0.041	0.041	0.038	0.038	0.034	0.109
6.9	East	0.195	0.075	0.038	0.038	0.036	0.036	0.033	0.103
7	East	0.183	0.069	0.035	0.035	0.033	0.033	0.031	0.096
7.1	East	0.176	0.062	0.032	0.032	0.030	0.030	0.029	0.090
7.2	East	0.167	0.058	0.032	0.032	0.031	0.031	0.029	0.091
7.3	East	0.105	0.055	0.036	0.035	0.034	0.034	0.033	0.093
7.4	East	0.101	0.056	0.039	0.039	0.038	0.038	0.036	0.100
7.5	East	0.109	0.062	0.044	0.044	0.043	0.043	0.040	0.108
7.6	East	0.116	0.066	0.046	0.046	0.045	0.045	0.040	0.115
7.7	East	0.083	0.059	0.044	0.044	0.043	0.043	0.037	0.078
7.8	East	0.055	0.047	0.042	0.042	0.041	0.041	0.034	0.047
7.9	East	0.050	0.042	0.042	0.042	0.041	0.041	0.034	0.042
8	East	0.046	0.036	0.036	0.036	0.036	0.036	0.027	0.036
8.1	East	0.045	0.034	0.034	0.034	0.033	0.033	0.023	0.034
8.2	East	0.040	0.029	0.029	0.029	0.028	0.028	0.018	0.029
8.3	East	0.035	0.025	0.025	0.025	0.025	0.025	0.017	0.025
8.4	East	0.032	0.022	0.022	0.022	0.021	0.021	0.015	0.022
8.5	East	0.025	0.014	0.014	0.014	0.014	0.014	0.009	0.014
8.6	East	0.020	0.009	0.009	0.009	0.009	0.009	0.008	0.009
8.7	East	0.016	0.011	0.011	0.011	0.011	0.011	0.009	0.011
8.8	East	0.011	0.011	0.011	0.011	0.011	0.011	0.009	0.011
8.9	East	0.010	0.010	0.010	0.010	0.010	0.010	0.009	0.010
9	East	0.010	0.010	0.010	0.010	0.010	0.010	0.008	0.010
9.1	East	0.010	0.010	0.010	0.010	0.009	0.009	0.008	0.010
9.2	East	0.010	0.010	0.010	0.010	0.009	0.009	0.007	0.010
9.3	East	0.010	0.010	0.010	0.010	0.009	0.009	0.007	0.010
9.4	East	0.011	0.011	0.011	0.011	0.010	0.010	0.007	0.011
9.5	East	0.011	0.011	0.011	0.011	0.010	0.010	0.008	0.011
9.6	East	0.012	0.012	0.012	0.012	0.010	0.010	0.008	0.012
9.7	East	0.012	0.012	0.012	0.012	0.011	0.011	0.009	0.012
9.8	East	0.013	0.013	0.013	0.013	0.011	0.011	0.009	0.013
9.9	East	0.013	0.013	0.013	0.013	0.012	0.012	0.010	0.013
10	East	0.014	0.014	0.014	0.014	0.012	0.012	0.010	0.014
10.1	East	0.015	0.015	0.015	0.015	0.013	0.013	0.011	0.015
10.2	East	0.016	0.016	0.016	0.016	0.014	0.014	0.013	0.016

**Table J2.3-4h**

**RAO 2 Rolling River Mile HI Estimates - 1,2,3,7,8-PeCDF**

Portland Harbor Superfund Site

Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
10.3	East	0.018	0.018	0.018	0.017	0.014	0.014	0.013	0.017
10.4	East	0.020	0.020	0.020	0.018	0.014	0.014	0.012	0.018
10.5	East	0.021	0.021	0.021	0.019	0.014	0.014	0.011	0.019
10.6	East	0.023	0.023	0.023	0.021	0.016	0.016	0.011	0.021
10.7	East	0.025	0.024	0.023	0.021	0.015	0.015	0.011	0.021
10.8	East	0.029	0.027	0.025	0.022	0.015	0.015	0.009	0.022
10.9	East	0.031	0.027	0.023	0.019	0.012	0.012	0.007	0.019
11	East	0.035	0.028	0.023	0.017	0.010	0.010	0.005	0.017
11.1	East	0.036	0.028	0.023	0.017	0.010	0.010	0.005	0.017
11.2	East	0.035	0.028	0.022	0.016	0.010	0.010	0.004	0.016
11.3	East	0.036	0.028	0.022	0.016	0.010	0.010	0.004	0.016
11.4	East	0.037	0.028	0.021	0.016	0.009	0.009	0.003	0.016
11.5	East	0.038	0.028	0.021	0.014	0.009	0.009	0.003	0.014
11.6	East	0.039	0.027	0.019	0.012	0.007	0.007	0.002	0.012
11.7	East	0.040	0.028	0.020	0.012	0.007	0.007	0.002	0.012
1.8	Nav Channel	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003
1.9	Nav Channel	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003
2	Nav Channel	0.004	0.004	0.004	0.004	0.004	0.004	0.003	0.004
2.1	Nav Channel	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004
2.2	Nav Channel	0.005	0.005	0.005	0.005	0.005	0.005	0.004	0.005
2.3	Nav Channel	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005
2.4	Nav Channel	0.006	0.006	0.006	0.006	0.006	0.006	0.006	0.006
2.5	Nav Channel	0.007	0.007	0.007	0.007	0.007	0.007	0.006	0.007
2.6	Nav Channel	0.007	0.007	0.007	0.007	0.007	0.007	0.007	0.007
2.7	Nav Channel	0.008	0.008	0.008	0.008	0.008	0.008	0.007	0.008
2.8	Nav Channel	0.009	0.009	0.009	0.009	0.009	0.009	0.008	0.009
2.9	Nav Channel	0.009	0.009	0.009	0.009	0.009	0.009	0.009	0.009
3	Nav Channel	0.010	0.010	0.010	0.010	0.010	0.009	0.009	0.010
3.1	Nav Channel	0.010	0.010	0.010	0.010	0.010	0.009	0.008	0.010
3.2	Nav Channel	0.010	0.010	0.010	0.010	0.010	0.009	0.007	0.010
3.3	Nav Channel	0.010	0.010	0.010	0.010	0.010	0.009	0.007	0.010
3.4	Nav Channel	0.010	0.010	0.010	0.010	0.010	0.009	0.007	0.010
3.5	Nav Channel	0.010	0.010	0.010	0.010	0.010	0.009	0.007	0.010
3.6	Nav Channel	0.009	0.009	0.009	0.009	0.009	0.009	0.007	0.009
3.7	Nav Channel	0.009	0.009	0.009	0.009	0.009	0.008	0.006	0.009
3.8	Nav Channel	0.008	0.008	0.008	0.008	0.008	0.008	0.006	0.008
3.9	Nav Channel	0.008	0.008	0.008	0.008	0.008	0.007	0.006	0.008
4	Nav Channel	0.008	0.008	0.008	0.008	0.008	0.007	0.006	0.008
4.1	Nav Channel	0.007	0.007	0.007	0.007	0.007	0.007	0.006	0.007
4.2	Nav Channel	0.007	0.007	0.007	0.007	0.007	0.007	0.007	0.007
4.3	Nav Channel	0.008	0.008	0.008	0.008	0.008	0.008	0.007	0.008
4.4	Nav Channel	0.008	0.008	0.008	0.008	0.008	0.008	0.008	0.008

**Table J2.3-4h**

**RAO 2 Rolling River Mile HI Estimates - 1,2,3,7,8-PeCDF**

Portland Harbor Superfund Site

Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
4.5	Nav Channel	0.010	0.010	0.010	0.010	0.010	0.010	0.009	0.010
4.6	Nav Channel	0.013	0.013	0.012	0.011	0.013	0.011	0.010	0.013
4.7	Nav Channel	0.018	0.016	0.013	0.012	0.016	0.011	0.010	0.016
4.8	Nav Channel	0.025	0.022	0.017	0.014	0.022	0.011	0.010	0.022
4.9	Nav Channel	0.032	0.026	0.019	0.015	0.026	0.011	0.010	0.026
5	Nav Channel	0.042	0.033	0.023	0.019	0.033	0.012	0.010	0.033
5.1	Nav Channel	0.053	0.043	0.033	0.027	0.043	0.017	0.011	0.043
5.2	Nav Channel	0.066	0.048	0.036	0.030	0.048	0.018	0.012	0.048
5.3	Nav Channel	0.078	0.051	0.038	0.031	0.051	0.019	0.012	0.051
5.4	Nav Channel	0.088	0.059	0.045	0.037	0.059	0.019	0.011	0.059
5.5	Nav Channel	0.096	0.066	0.050	0.042	0.066	0.021	0.010	0.066
5.6	Nav Channel	0.105	0.072	0.058	0.048	0.072	0.025	0.012	0.072
5.7	Nav Channel	0.117	0.084	0.066	0.054	0.084	0.029	0.014	0.081
5.8	Nav Channel	0.131	0.090	0.073	0.061	0.090	0.033	0.018	0.086
5.9	Nav Channel	0.147	0.100	0.085	0.073	0.100	0.044	0.026	0.096
6	Nav Channel	0.162	0.106	0.093	0.081	0.106	0.054	0.035	0.101
6.1	Nav Channel	0.171	0.110	0.093	0.079	0.109	0.053	0.037	0.104
6.2	Nav Channel	0.168	0.117	0.101	0.085	0.115	0.054	0.036	0.110
6.3	Nav Channel	0.167	0.128	0.112	0.095	0.126	0.059	0.037	0.121
6.4	Nav Channel	0.167	0.128	0.111	0.095	0.125	0.066	0.041	0.120
6.5	Nav Channel	0.170	0.130	0.114	0.099	0.128	0.072	0.051	0.123
6.6	Nav Channel	0.166	0.127	0.111	0.099	0.125	0.074	0.056	0.120
6.7	Nav Channel	0.154	0.117	0.107	0.098	0.115	0.077	0.060	0.113
6.8	Nav Channel	0.135	0.108	0.101	0.094	0.106	0.076	0.059	0.105
6.9	Nav Channel	0.112	0.096	0.090	0.083	0.093	0.068	0.052	0.093
7	Nav Channel	0.089	0.085	0.080	0.074	0.083	0.058	0.042	0.083
7.1	Nav Channel	0.071	0.070	0.069	0.066	0.068	0.054	0.039	0.068
7.2	Nav Channel	0.061	0.060	0.060	0.060	0.060	0.052	0.038	0.060
7.3	Nav Channel	0.052	0.052	0.052	0.052	0.051	0.047	0.038	0.052
7.4	Nav Channel	0.045	0.045	0.045	0.045	0.045	0.042	0.035	0.045
7.5	Nav Channel	0.038	0.037	0.037	0.037	0.037	0.035	0.029	0.037
7.6	Nav Channel	0.033	0.033	0.033	0.033	0.032	0.030	0.025	0.032
7.7	Nav Channel	0.030	0.030	0.030	0.029	0.029	0.027	0.022	0.029
7.8	Nav Channel	0.027	0.027	0.027	0.027	0.027	0.025	0.021	0.027
7.9	Nav Channel	0.025	0.025	0.025	0.025	0.025	0.023	0.020	0.025
8	Nav Channel	0.023	0.023	0.023	0.023	0.023	0.022	0.020	0.023
8.1	Nav Channel	0.022	0.022	0.022	0.022	0.022	0.021	0.020	0.022
8.2	Nav Channel	0.020	0.020	0.020	0.020	0.020	0.020	0.019	0.020
8.3	Nav Channel	0.019	0.019	0.019	0.018	0.019	0.018	0.018	0.019
8.4	Nav Channel	0.017	0.017	0.017	0.017	0.017	0.017	0.017	0.017
8.5	Nav Channel	0.016	0.016	0.016	0.016	0.016	0.015	0.015	0.016
8.6	Nav Channel	0.015	0.015	0.015	0.015	0.015	0.014	0.014	0.015

**Table J2.3-4h**  
**RAO 2 Rolling River Mile HI Estimates - 1,2,3,7,8-PeCDF**  
 Portland Harbor Superfund Site  
 Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
8.7	Nav Channel	0.015	0.015	0.015	0.015	0.015	0.014	0.013	0.015
8.8	Nav Channel	0.015	0.015	0.015	0.014	0.015	0.013	0.012	0.015
8.9	Nav Channel	0.014	0.014	0.014	0.014	0.014	0.013	0.012	0.014
9	Nav Channel	0.014	0.014	0.014	0.014	0.014	0.012	0.011	0.014
9.1	Nav Channel	0.014	0.013	0.013	0.013	0.013	0.012	0.011	0.013
9.2	Nav Channel	0.013	0.013	0.013	0.013	0.013	0.011	0.010	0.013
9.3	Nav Channel	0.012	0.012	0.012	0.012	0.012	0.010	0.009	0.012
9.4	Nav Channel	0.011	0.011	0.011	0.011	0.011	0.009	0.008	0.011
9.5	Nav Channel	0.011	0.011	0.010	0.010	0.010	0.009	0.008	0.010
9.6	Nav Channel	0.010	0.010	0.010	0.010	0.010	0.009	0.008	0.010
9.7	Nav Channel	0.009	0.009	0.009	0.009	0.009	0.008	0.007	0.009
9.8	Nav Channel	0.009	0.009	0.009	0.009	0.009	0.008	0.007	0.009
9.9	Nav Channel	0.009	0.009	0.009	0.009	0.009	0.008	0.006	0.009
10	Nav Channel	0.009	0.009	0.009	0.009	0.009	0.008	0.006	0.009
10.1	Nav Channel	0.009	0.009	0.009	0.009	0.009	0.008	0.006	0.009
10.2	Nav Channel	0.009	0.009	0.009	0.009	0.009	0.008	0.006	0.009
10.3	Nav Channel	0.010	0.010	0.010	0.010	0.010	0.008	0.006	0.010
10.4	Nav Channel	0.010	0.010	0.010	0.010	0.010	0.008	0.006	0.010
10.5	Nav Channel	0.010	0.010	0.010	0.010	0.010	0.008	0.006	0.010
10.6	Nav Channel	0.010	0.010	0.010	0.010	0.010	0.008	0.006	0.010
10.7	Nav Channel	0.010	0.010	0.010	0.010	0.010	0.008	0.005	0.010
10.8	Nav Channel	0.011	0.010	0.010	0.010	0.010	0.008	0.006	0.010
10.9	Nav Channel	0.012	0.011	0.011	0.010	0.010	0.009	0.007	0.010
11	Nav Channel	0.013	0.012	0.012	0.011	0.011	0.010	0.008	0.011
11.1	Nav Channel	0.013	0.013	0.012	0.012	0.012	0.010	0.008	0.012
11.2	Nav Channel	0.014	0.013	0.012	0.012	0.012	0.011	0.009	0.012
11.3	Nav Channel	0.014	0.013	0.013	0.012	0.012	0.011	0.009	0.012
11.4	Nav Channel	0.014	0.013	0.013	0.012	0.012	0.011	0.009	0.012
11.5	Nav Channel	0.015	0.014	0.013	0.012	0.012	0.011	0.010	0.012
11.6	Nav Channel	0.016	0.014	0.014	0.013	0.013	0.011	0.011	0.013
11.7	Nav Channel	0.017	0.015	0.015	0.014	0.014	0.012	0.011	0.014
1.8	West	0.017	0.017	0.017	0.017	0.017	0.017	0.017	0.017
1.9	West	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025
2	West	0.029	0.029	0.029	0.029	0.029	0.029	0.029	0.029
2.1	West	0.030	0.030	0.030	0.030	0.030	0.030	0.030	0.030
2.2	West	0.031	0.031	0.031	0.031	0.031	0.031	0.031	0.031
2.3	West	0.031	0.031	0.031	0.031	0.031	0.031	0.031	0.031
2.4	West	0.032	0.032	0.032	0.032	0.032	0.032	0.032	0.032
2.5	West	0.031	0.031	0.031	0.031	0.031	0.031	0.030	0.031
2.6	West	0.029	0.029	0.029	0.029	0.029	0.029	0.029	0.029
2.7	West	0.026	0.026	0.026	0.026	0.026	0.026	0.025	0.026
2.8	West	0.021	0.021	0.021	0.021	0.021	0.021	0.020	0.021



**Table J2.3-4h**

**RAO 2 Rolling River Mile HI Estimates - 1,2,3,7,8-PeCDF**

Portland Harbor Superfund Site

Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
2.9	West	0.014	0.014	0.014	0.014	0.014	0.014	0.013	0.014
3	West	0.011	0.011	0.011	0.011	0.011	0.011	0.009	0.011
3.1	West	0.010	0.010	0.010	0.010	0.010	0.010	0.008	0.010
3.2	West	0.011	0.011	0.011	0.011	0.011	0.011	0.009	0.011
3.3	West	0.012	0.012	0.012	0.012	0.012	0.012	0.010	0.012
3.4	West	0.014	0.014	0.014	0.014	0.014	0.014	0.011	0.014
3.5	West	0.016	0.016	0.016	0.016	0.016	0.016	0.013	0.016
3.6	West	0.018	0.018	0.018	0.018	0.017	0.017	0.014	0.018
3.7	West	0.021	0.021	0.021	0.021	0.020	0.020	0.016	0.021
3.8	West	0.023	0.023	0.023	0.023	0.022	0.022	0.017	0.023
3.9	West	0.027	0.027	0.027	0.027	0.025	0.025	0.018	0.027
4	West	0.032	0.032	0.032	0.032	0.029	0.029	0.021	0.032
4.1	West	0.038	0.038	0.038	0.038	0.034	0.034	0.023	0.038
4.2	West	0.046	0.046	0.046	0.046	0.038	0.038	0.024	0.046
4.3	West	0.052	0.052	0.052	0.052	0.043	0.043	0.028	0.052
4.4	West	0.055	0.055	0.055	0.054	0.045	0.045	0.031	0.054
4.5	West	0.056	0.056	0.056	0.056	0.047	0.047	0.032	0.056
4.6	West	0.059	0.059	0.059	0.059	0.050	0.050	0.036	0.059
4.7	West	0.066	0.066	0.066	0.064	0.052	0.052	0.038	0.064
4.8	West	0.076	0.076	0.075	0.072	0.059	0.059	0.042	0.072
4.9	West	0.085	0.085	0.081	0.077	0.063	0.063	0.043	0.077
5	West	0.087	0.086	0.079	0.074	0.059	0.059	0.039	0.074
5.1	West	0.084	0.083	0.076	0.071	0.056	0.056	0.037	0.071
5.2	West	0.082	0.081	0.073	0.068	0.058	0.058	0.037	0.068
5.3	West	0.080	0.079	0.071	0.065	0.054	0.054	0.031	0.065
5.4	West	0.077	0.076	0.068	0.062	0.050	0.050	0.027	0.063
5.5	West	0.073	0.072	0.064	0.058	0.046	0.046	0.025	0.060
5.6	West	0.071	0.068	0.060	0.054	0.040	0.040	0.019	0.056
5.7	West	0.067	0.060	0.051	0.047	0.036	0.036	0.015	0.049
5.8	West	0.064	0.050	0.042	0.039	0.029	0.029	0.012	0.041
5.9	West	0.064	0.041	0.036	0.033	0.023	0.023	0.011	0.035
6	West	0.068	0.036	0.033	0.031	0.022	0.022	0.011	0.033
6.1	West	0.078	0.039	0.036	0.033	0.021	0.021	0.011	0.031
6.2	West	0.092	0.053	0.050	0.046	0.026	0.026	0.009	0.035
6.3	West	0.109	0.061	0.057	0.050	0.022	0.022	0.007	0.031
6.4	West	0.218	0.122	0.079	0.060	0.022	0.022	0.005	0.028
6.5	West	0.436	0.249	0.157	0.066	0.017	0.017	0.002	0.021
6.6	West	0.788	0.514	0.303	0.126	0.020	0.020	0.002	0.020
6.7	West	1.478	0.541	0.297	0.118	0.019	0.019	0.002	0.019
6.8	West	18.712	0.535	0.291	0.116	0.019	0.019	0.002	0.019
6.9	West	36.385	0.548	0.301	0.121	0.019	0.019	0.002	0.019
7	West	36.694	0.925	0.542	0.135	0.032	0.032	0.002	0.032

**Table J2.3-4h**

**RAO 2 Rolling River Mile HI Estimates - 1,2,3,7,8-PeCDF**

Portland Harbor Superfund Site

Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
7.1	West	30.951	1.422	1.061	0.345	0.147	0.147	0.020	0.147
7.2	West	25.915	1.199	0.897	0.299	0.133	0.133	0.021	0.133
7.3	West	22.344	1.038	0.778	0.264	0.123	0.123	0.019	0.123
7.4	West	22.333	1.009	0.770	0.262	0.128	0.128	0.019	0.128
7.5	West	23.024	0.979	0.758	0.272	0.137	0.137	0.020	0.138
7.6	West	23.446	0.858	0.699	0.249	0.142	0.142	0.021	0.145
7.7	West	23.517	0.847	0.713	0.261	0.149	0.149	0.021	0.155
7.8	West	12.600	0.855	0.725	0.270	0.151	0.151	0.021	0.164
7.9	West	1.251	0.798	0.678	0.256	0.142	0.142	0.020	0.159
8	West	0.525	0.524	0.493	0.230	0.127	0.127	0.020	0.143
8.1	West	0.083	0.083	0.083	0.073	0.047	0.047	0.009	0.065
8.2	West	0.075	0.075	0.074	0.062	0.038	0.038	0.005	0.058
8.3	West	0.075	0.074	0.074	0.057	0.033	0.033	0.005	0.056
8.4	West	0.077	0.070	0.069	0.051	0.026	0.026	0.005	0.050
8.5	West	0.080	0.065	0.062	0.044	0.021	0.021	0.005	0.044
8.6	West	0.087	0.065	0.056	0.037	0.016	0.016	0.005	0.037
8.7	West	0.094	0.062	0.050	0.030	0.012	0.012	0.005	0.030
8.8	West	0.095	0.064	0.049	0.026	0.011	0.011	0.007	0.026
8.9	West	0.092	0.060	0.045	0.025	0.015	0.015	0.011	0.025
9	West	0.094	0.060	0.044	0.027	0.014	0.014	0.011	0.027
9.1	West	0.101	0.063	0.046	0.031	0.017	0.017	0.013	0.031
9.2	West	0.103	0.065	0.046	0.032	0.018	0.018	0.014	0.032
9.3	West	0.110	0.071	0.044	0.033	0.019	0.019	0.015	0.033
9.4	West	0.106	0.075	0.047	0.035	0.020	0.020	0.015	0.035
9.5	West	0.102	0.079	0.053	0.040	0.024	0.024	0.020	0.040
9.6	West	0.093	0.080	0.060	0.048	0.031	0.031	0.026	0.048
9.7	West	0.086	0.084	0.067	0.056	0.038	0.038	0.028	0.056
9.8	West	0.079	0.076	0.063	0.056	0.040	0.040	0.029	0.056
9.9	West	0.083	0.080	0.063	0.055	0.040	0.040	0.027	0.055
10	West	0.097	0.094	0.072	0.062	0.048	0.048	0.032	0.062
10.1	West	0.120	0.116	0.087	0.074	0.060	0.060	0.040	0.074
10.2	West	0.148	0.147	0.118	0.111	0.095	0.095	0.065	0.111
10.3	West	0.135	0.135	0.135	0.131	0.119	0.119	0.080	0.131
10.4	West	0.127	0.127	0.127	0.123	0.114	0.114	0.081	0.124
10.5	West	0.116	0.116	0.116	0.113	0.104	0.104	0.075	0.113
10.6	West	0.105	0.105	0.105	0.102	0.094	0.094	0.068	0.102
10.7	West	0.094	0.094	0.094	0.092	0.086	0.086	0.069	0.092
10.8	West	0.088	0.088	0.088	0.088	0.087	0.087	0.073	0.088
10.9	West	0.085	0.085	0.085	0.085	0.085	0.085	0.073	0.085
11	West	0.081	0.081	0.081	0.081	0.081	0.081	0.071	0.081
11.1	West	0.078	0.078	0.078	0.078	0.078	0.078	0.067	0.078
11.2	West	0.071	0.071	0.071	0.071	0.071	0.071	0.064	0.071

**Table J2.3-4h**  
**RAO 2 Rolling River Mile HI Estimates - 1,2,3,7,8-PeCDF**  
 Portland Harbor Superfund Site  
 Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
11.3	West	0.064	0.064	0.064	0.064	0.064	0.064	0.064	0.064
11.4	West	0.060	0.060	0.060	0.060	0.060	0.060	0.060	0.060
11.5	West	0.055	0.055	0.055	0.055	0.055	0.055	0.055	0.055
11.6	West	0.050	0.050	0.050	0.050	0.050	0.050	0.050	0.050
11.7	West	0.047	0.047	0.047	0.047	0.047	0.047	0.047	0.047
7.6	Swan Isl	0.014	0.001	0.001	0.001	0.000	0.000	0.000	0.001
7.7	Swan Isl	0.019	0.001	0.001	0.001	0.000	0.000	0.000	0.001
7.8	Swan Isl	0.022	0.002	0.002	0.001	0.000	0.000	0.000	0.001
7.9	Swan Isl	0.022	0.002	0.002	0.001	0.000	0.000	0.000	0.001
8	Swan Isl	0.024	0.002	0.002	0.001	0.000	0.000	0.000	0.001
8.1	Swan Isl	0.026	0.002	0.002	0.001	0.000	0.000	0.000	0.001
8.2	Swan Isl	0.032	0.002	0.002	0.001	0.001	0.001	0.001	0.001
8.3	Swan Isl	0.039	0.003	0.002	0.001	0.001	0.001	0.001	0.001
8.4	Swan Isl	0.047	0.004	0.002	0.002	0.001	0.001	0.001	0.002
8.5	Swan Isl	0.051	0.005	0.002	0.002	0.001	0.001	0.001	0.002
8.6	Swan Isl	0.066	0.012	0.005	0.005	0.001	0.001	0.001	0.008
8.7	Swan Isl	0.087	0.026	0.015	0.013	0.004	0.004	0.004	0.021
8.8	Swan Isl	0.099	0.030	0.017	0.016	0.005	0.005	0.004	0.025
8.9	Swan Isl	0.109	0.035	0.020	0.018	0.006	0.006	0.005	0.028
9	Swan Isl	0.120	0.040	0.022	0.020	0.006	0.006	0.005	0.033
9.1	Swan Isl	0.125	0.043	0.024	0.022	0.007	0.007	0.006	0.035
9.2	Swan Isl	0.135	0.052	0.028	0.026	0.008	0.008	0.006	0.042
9.3	Swan Isl	0.144	0.064	0.036	0.033	0.010	0.010	0.008	0.055
9.4	Swan Isl	0.157	0.089	0.053	0.049	0.014	0.014	0.011	0.082
9.5	Swan Isl	0.194	0.139	0.087	0.081	0.022	0.022	0.018	0.136
9.6	Swan Isl	0.184	0.184	0.132	0.121	0.045	0.045	0.038	0.184

**Table J2.3-4i**  
**RAO 2 Rolling River Mile HI Estimates - 2,3,7,8-TCDD**  
 Portland Harbor Superfund Site  
 Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
1.8	East	0.0036	0.0035	0.0035	0.0034	0.0034	0.0034	0.0033	0.0034
1.9	East	0.0038	0.0035	0.0035	0.0033	0.0032	0.0032	0.0031	0.0033
2	East	0.0042	0.0037	0.0036	0.0034	0.0031	0.0031	0.0030	0.0034
2.1	East	0.0044	0.0039	0.0038	0.0036	0.0030	0.0030	0.0028	0.0036
2.2	East	0.0041	0.0036	0.0035	0.0033	0.0027	0.0027	0.0025	0.0033
2.3	East	0.0039	0.0034	0.0033	0.0031	0.0024	0.0024	0.0021	0.0031
2.4	East	0.0038	0.0032	0.0031	0.0029	0.0021	0.0021	0.0019	0.0029
2.5	East	0.0037	0.0031	0.0030	0.0028	0.0021	0.0021	0.0018	0.0028
2.6	East	0.0036	0.0031	0.0030	0.0028	0.0020	0.0020	0.0017	0.0028
2.7	East	0.0037	0.0031	0.0030	0.0028	0.0021	0.0021	0.0018	0.0028
2.8	East	0.0037	0.0032	0.0031	0.0029	0.0021	0.0021	0.0018	0.0029
2.9	East	0.0034	0.0031	0.0030	0.0029	0.0022	0.0022	0.0018	0.0029
3	East	0.0032	0.0032	0.0030	0.0030	0.0024	0.0024	0.0022	0.0030
3.1	East	0.0032	0.0032	0.0030	0.0029	0.0028	0.0028	0.0026	0.0029
3.2	East	0.0034	0.0034	0.0031	0.0031	0.0030	0.0030	0.0028	0.0031
3.3	East	0.0049	0.0043	0.0032	0.0031	0.0028	0.0028	0.0026	0.0031
3.4	East	0.0061	0.0047	0.0033	0.0032	0.0029	0.0029	0.0026	0.0032
3.5	East	0.0064	0.0050	0.0035	0.0033	0.0029	0.0029	0.0025	0.0033
3.6	East	0.0069	0.0054	0.0037	0.0034	0.0029	0.0029	0.0025	0.0034
3.7	East	0.0076	0.0060	0.0043	0.0035	0.0029	0.0029	0.0024	0.0035
3.8	East	0.0078	0.0062	0.0044	0.0036	0.0030	0.0030	0.0024	0.0036
3.9	East	0.0075	0.0061	0.0044	0.0036	0.0026	0.0026	0.0020	0.0036
4	East	0.0069	0.0055	0.0041	0.0033	0.0022	0.0022	0.0015	0.0033
4.1	East	0.0063	0.0050	0.0037	0.0029	0.0017	0.0017	0.0010	0.0029
4.2	East	0.0059	0.0047	0.0033	0.0024	0.0013	0.0013	0.0006	0.0024
4.3	East	0.0049	0.0040	0.0032	0.0023	0.0011	0.0011	0.0004	0.0023
4.4	East	0.0038	0.0038	0.0033	0.0023	0.0011	0.0011	0.0005	0.0023
4.5	East	0.0039	0.0038	0.0033	0.0023	0.0011	0.0011	0.0006	0.0023
4.6	East	0.0037	0.0037	0.0033	0.0025	0.0014	0.0014	0.0008	0.0025
4.7	East	0.0034	0.0034	0.0030	0.0027	0.0017	0.0017	0.0012	0.0027
4.8	East	0.0037	0.0037	0.0033	0.0030	0.0020	0.0020	0.0015	0.0030
4.9	East	0.0040	0.0040	0.0036	0.0033	0.0027	0.0027	0.0020	0.0033
5	East	0.0046	0.0046	0.0041	0.0039	0.0037	0.0037	0.0029	0.0039
5.1	East	0.0056	0.0055	0.0051	0.0049	0.0045	0.0045	0.0034	0.0047
5.2	East	0.0065	0.0065	0.0065	0.0064	0.0057	0.0057	0.0042	0.0057
5.3	East	0.0063	0.0063	0.0063	0.0062	0.0054	0.0054	0.0040	0.0054
5.4	East	0.0054	0.0054	0.0054	0.0053	0.0045	0.0045	0.0033	0.0045
5.5	East	0.0048	0.0048	0.0048	0.0047	0.0040	0.0040	0.0028	0.0040
5.6	East	0.0042	0.0042	0.0042	0.0041	0.0034	0.0034	0.0023	0.0034
5.7	East	0.0036	0.0036	0.0036	0.0035	0.0028	0.0028	0.0018	0.0029
5.8	East	0.0032	0.0032	0.0031	0.0030	0.0024	0.0024	0.0015	0.0026
5.9	East	0.0028	0.0028	0.0026	0.0026	0.0019	0.0019	0.0012	0.0022
6	East	0.0024	0.0024	0.0022	0.0021	0.0015	0.0015	0.0009	0.0019

**Table J2.3-4i**

**RAO 2 Rolling River Mile HI Estimates - 2,3,7,8-TCDD**

Portland Harbor Superfund Site

Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
6.1	East	0.0022	0.0022	0.0018	0.0017	0.0012	0.0012	0.0009	0.0018
6.2	East	0.0029	0.0024	0.0016	0.0016	0.0013	0.0013	0.0010	0.0020
6.3	East	0.0079	0.0037	0.0016	0.0016	0.0013	0.0013	0.0009	0.0034
6.4	East	0.0105	0.0045	0.0018	0.0018	0.0016	0.0016	0.0012	0.0043
6.5	East	0.0102	0.0044	0.0019	0.0018	0.0016	0.0016	0.0013	0.0042
6.6	East	0.0098	0.0044	0.0020	0.0020	0.0018	0.0018	0.0015	0.0042
6.7	East	0.0124	0.0050	0.0022	0.0022	0.0021	0.0021	0.0018	0.0071
6.8	East	0.0141	0.0057	0.0024	0.0024	0.0023	0.0023	0.0020	0.0091
6.9	East	0.0141	0.0060	0.0026	0.0026	0.0024	0.0024	0.0022	0.0091
7	East	0.0137	0.0060	0.0027	0.0027	0.0026	0.0026	0.0024	0.0090
7.1	East	0.0136	0.0059	0.0028	0.0028	0.0026	0.0026	0.0024	0.0089
7.2	East	0.0138	0.0059	0.0029	0.0029	0.0027	0.0027	0.0026	0.0093
7.3	East	0.0111	0.0054	0.0031	0.0031	0.0030	0.0030	0.0028	0.0091
7.4	East	0.0094	0.0050	0.0032	0.0032	0.0031	0.0031	0.0030	0.0093
7.5	East	0.0101	0.0055	0.0036	0.0036	0.0035	0.0035	0.0032	0.0100
7.6	East	0.0110	0.0058	0.0037	0.0037	0.0036	0.0036	0.0032	0.0106
7.7	East	0.0080	0.0050	0.0035	0.0035	0.0033	0.0033	0.0028	0.0069
7.8	East	0.0053	0.0037	0.0032	0.0032	0.0031	0.0031	0.0025	0.0036
7.9	East	0.0049	0.0031	0.0031	0.0031	0.0031	0.0031	0.0024	0.0031
8	East	0.0051	0.0029	0.0029	0.0029	0.0029	0.0029	0.0021	0.0029
8.1	East	0.0056	0.0031	0.0031	0.0031	0.0030	0.0030	0.0021	0.0031
8.2	East	0.0055	0.0030	0.0030	0.0030	0.0030	0.0030	0.0021	0.0030
8.3	East	0.0053	0.0030	0.0030	0.0030	0.0029	0.0029	0.0022	0.0030
8.4	East	0.0051	0.0029	0.0029	0.0029	0.0028	0.0028	0.0023	0.0029
8.5	East	0.0048	0.0025	0.0025	0.0025	0.0024	0.0024	0.0019	0.0025
8.6	East	0.0043	0.0023	0.0023	0.0023	0.0022	0.0022	0.0019	0.0023
8.7	East	0.0035	0.0028	0.0028	0.0028	0.0026	0.0026	0.0021	0.0028
8.8	East	0.0029	0.0029	0.0029	0.0029	0.0028	0.0028	0.0023	0.0029
8.9	East	0.0030	0.0030	0.0030	0.0030	0.0028	0.0028	0.0024	0.0030
9	East	0.0031	0.0031	0.0031	0.0031	0.0029	0.0029	0.0025	0.0031
9.1	East	0.0032	0.0032	0.0032	0.0032	0.0029	0.0029	0.0023	0.0032
9.2	East	0.0033	0.0033	0.0033	0.0033	0.0028	0.0028	0.0021	0.0033
9.3	East	0.0037	0.0037	0.0037	0.0037	0.0032	0.0032	0.0022	0.0037
9.4	East	0.0041	0.0041	0.0041	0.0041	0.0036	0.0036	0.0027	0.0041
9.5	East	0.0046	0.0046	0.0046	0.0046	0.0041	0.0041	0.0033	0.0046
9.6	East	0.0049	0.0049	0.0049	0.0048	0.0043	0.0043	0.0036	0.0048
9.7	East	0.0052	0.0052	0.0052	0.0051	0.0046	0.0046	0.0039	0.0051
9.8	East	0.0057	0.0056	0.0056	0.0056	0.0050	0.0050	0.0043	0.0056
9.9	East	0.0062	0.0062	0.0062	0.0061	0.0055	0.0055	0.0047	0.0061
10	East	0.0067	0.0067	0.0067	0.0066	0.0059	0.0059	0.0050	0.0066
10.1	East	0.0072	0.0072	0.0072	0.0071	0.0065	0.0065	0.0055	0.0071
10.2	East	0.0078	0.0078	0.0078	0.0077	0.0069	0.0069	0.0061	0.0077

**Table J2.3-4i**  
**RAO 2 Rolling River Mile HI Estimates - 2,3,7,8-TCDD**  
 Portland Harbor Superfund Site  
 Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
10.3	East	0.0086	0.0085	0.0085	0.0081	0.0069	0.0069	0.0062	0.0081
10.4	East	0.0093	0.0093	0.0093	0.0085	0.0069	0.0069	0.0059	0.0085
10.5	East	0.0097	0.0097	0.0097	0.0089	0.0065	0.0065	0.0050	0.0089
10.6	East	0.0106	0.0106	0.0105	0.0096	0.0071	0.0071	0.0050	0.0096
10.7	East	0.0116	0.0112	0.0107	0.0096	0.0068	0.0068	0.0048	0.0096
10.8	East	0.0133	0.0127	0.0115	0.0098	0.0067	0.0067	0.0040	0.0098
10.9	East	0.0154	0.0133	0.0109	0.0087	0.0055	0.0055	0.0031	0.0087
11	East	0.0168	0.0132	0.0104	0.0078	0.0047	0.0047	0.0025	0.0078
11.1	East	0.0166	0.0129	0.0101	0.0074	0.0043	0.0043	0.0022	0.0074
11.2	East	0.0160	0.0125	0.0098	0.0072	0.0043	0.0043	0.0019	0.0072
11.3	East	0.0166	0.0126	0.0096	0.0070	0.0043	0.0043	0.0016	0.0070
11.4	East	0.0171	0.0126	0.0092	0.0067	0.0040	0.0040	0.0012	0.0067
11.5	East	0.0176	0.0126	0.0089	0.0061	0.0038	0.0038	0.0013	0.0061
11.6	East	0.0182	0.0125	0.0083	0.0053	0.0031	0.0031	0.0011	0.0053
11.7	East	0.0185	0.0125	0.0082	0.0051	0.0029	0.0029	0.0007	0.0051
1.8	Nav Channel	0.0016	0.0016	0.0016	0.0016	0.0016	0.0016	0.0015	0.0016
1.9	Nav Channel	0.0016	0.0016	0.0016	0.0016	0.0016	0.0016	0.0014	0.0016
2	Nav Channel	0.0016	0.0016	0.0016	0.0016	0.0016	0.0016	0.0015	0.0016
2.1	Nav Channel	0.0017	0.0017	0.0017	0.0017	0.0017	0.0017	0.0015	0.0017
2.2	Nav Channel	0.0018	0.0018	0.0018	0.0018	0.0018	0.0018	0.0016	0.0018
2.3	Nav Channel	0.0018	0.0018	0.0018	0.0018	0.0018	0.0018	0.0017	0.0018
2.4	Nav Channel	0.0019	0.0019	0.0019	0.0019	0.0019	0.0019	0.0017	0.0019
2.5	Nav Channel	0.0020	0.0020	0.0020	0.0020	0.0020	0.0020	0.0018	0.0020
2.6	Nav Channel	0.0020	0.0020	0.0020	0.0020	0.0020	0.0020	0.0019	0.0020
2.7	Nav Channel	0.0021	0.0021	0.0021	0.0021	0.0021	0.0021	0.0020	0.0021
2.8	Nav Channel	0.0022	0.0022	0.0022	0.0022	0.0022	0.0022	0.0021	0.0022
2.9	Nav Channel	0.0023	0.0023	0.0023	0.0023	0.0023	0.0023	0.0022	0.0023
3	Nav Channel	0.0024	0.0024	0.0024	0.0024	0.0024	0.0023	0.0022	0.0024
3.1	Nav Channel	0.0025	0.0025	0.0025	0.0025	0.0025	0.0023	0.0020	0.0025
3.2	Nav Channel	0.0026	0.0026	0.0026	0.0026	0.0026	0.0023	0.0018	0.0026
3.3	Nav Channel	0.0026	0.0026	0.0026	0.0026	0.0026	0.0024	0.0018	0.0026
3.4	Nav Channel	0.0027	0.0027	0.0027	0.0027	0.0027	0.0024	0.0019	0.0027
3.5	Nav Channel	0.0027	0.0027	0.0027	0.0027	0.0027	0.0025	0.0020	0.0027
3.6	Nav Channel	0.0027	0.0027	0.0027	0.0027	0.0027	0.0025	0.0020	0.0027
3.7	Nav Channel	0.0027	0.0027	0.0027	0.0027	0.0027	0.0025	0.0020	0.0027
3.8	Nav Channel	0.0026	0.0026	0.0026	0.0026	0.0026	0.0025	0.0020	0.0026
3.9	Nav Channel	0.0026	0.0026	0.0026	0.0026	0.0026	0.0024	0.0020	0.0026
4	Nav Channel	0.0025	0.0025	0.0025	0.0025	0.0025	0.0024	0.0020	0.0025
4.1	Nav Channel	0.0025	0.0025	0.0025	0.0025	0.0025	0.0024	0.0021	0.0025
4.2	Nav Channel	0.0024	0.0024	0.0024	0.0024	0.0024	0.0023	0.0022	0.0024
4.3	Nav Channel	0.0023	0.0023	0.0023	0.0023	0.0023	0.0023	0.0021	0.0023
4.4	Nav Channel	0.0022	0.0022	0.0022	0.0022	0.0022	0.0022	0.0020	0.0022

**Table J2.3-4i**  
**RAO 2 Rolling River Mile HI Estimates - 2,3,7,8-TCDD**  
 Portland Harbor Superfund Site  
 Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
4.5	Nav Channel	0.0021	0.0021	0.0021	0.0021	0.0021	0.0021	0.0020	0.0021
4.6	Nav Channel	0.0021	0.0021	0.0020	0.0020	0.0021	0.0020	0.0019	0.0021
4.7	Nav Channel	0.0021	0.0020	0.0019	0.0019	0.0020	0.0018	0.0017	0.0020
4.8	Nav Channel	0.0021	0.0020	0.0018	0.0017	0.0020	0.0016	0.0015	0.0020
4.9	Nav Channel	0.0021	0.0019	0.0017	0.0016	0.0019	0.0014	0.0013	0.0019
5	Nav Channel	0.0021	0.0019	0.0016	0.0015	0.0019	0.0013	0.0011	0.0019
5.1	Nav Channel	0.0022	0.0019	0.0016	0.0015	0.0019	0.0012	0.0010	0.0019
5.2	Nav Channel	0.0023	0.0019	0.0016	0.0014	0.0019	0.0011	0.0009	0.0019
5.3	Nav Channel	0.0025	0.0019	0.0016	0.0014	0.0019	0.0010	0.0008	0.0019
5.4	Nav Channel	0.0027	0.0021	0.0017	0.0015	0.0021	0.0010	0.0007	0.0021
5.5	Nav Channel	0.0030	0.0023	0.0019	0.0016	0.0023	0.0011	0.0007	0.0023
5.6	Nav Channel	0.0033	0.0026	0.0022	0.0020	0.0026	0.0014	0.0009	0.0026
5.7	Nav Channel	0.0038	0.0031	0.0027	0.0024	0.0031	0.0016	0.0011	0.0031
5.8	Nav Channel	0.0046	0.0037	0.0033	0.0030	0.0037	0.0022	0.0015	0.0037
5.9	Nav Channel	0.0057	0.0048	0.0045	0.0041	0.0048	0.0033	0.0024	0.0048
6	Nav Channel	0.0074	0.0063	0.0060	0.0057	0.0063	0.0047	0.0036	0.0063
6.1	Nav Channel	0.0097	0.0086	0.0075	0.0069	0.0084	0.0052	0.0040	0.0084
6.2	Nav Channel	0.0125	0.0115	0.0097	0.0086	0.0109	0.0054	0.0041	0.0108
6.3	Nav Channel	0.0154	0.0147	0.0128	0.0117	0.0140	0.0064	0.0043	0.0139
6.4	Nav Channel	0.0179	0.0172	0.0153	0.0142	0.0165	0.0086	0.0055	0.0164
6.5	Nav Channel	0.0196	0.0189	0.0170	0.0159	0.0182	0.0104	0.0075	0.0181
6.6	Nav Channel	0.0207	0.0199	0.0180	0.0170	0.0192	0.0117	0.0089	0.0192
6.7	Nav Channel	0.0211	0.0204	0.0187	0.0178	0.0197	0.0127	0.0101	0.0197
6.8	Nav Channel	0.0209	0.0203	0.0187	0.0179	0.0197	0.0131	0.0103	0.0197
6.9	Nav Channel	0.0200	0.0195	0.0180	0.0172	0.0189	0.0125	0.0097	0.0189
7	Nav Channel	0.0183	0.0181	0.0167	0.0159	0.0175	0.0113	0.0086	0.0176
7.1	Nav Channel	0.0160	0.0159	0.0152	0.0148	0.0154	0.0108	0.0080	0.0155
7.2	Nav Channel	0.0133	0.0132	0.0132	0.0132	0.0132	0.0106	0.0080	0.0133
7.3	Nav Channel	0.0110	0.0109	0.0109	0.0109	0.0109	0.0099	0.0080	0.0110
7.4	Nav Channel	0.0092	0.0091	0.0091	0.0091	0.0091	0.0085	0.0074	0.0091
7.5	Nav Channel	0.0079	0.0079	0.0079	0.0079	0.0079	0.0073	0.0064	0.0079
7.6	Nav Channel	0.0070	0.0070	0.0070	0.0070	0.0070	0.0065	0.0056	0.0070
7.7	Nav Channel	0.0064	0.0064	0.0064	0.0064	0.0064	0.0060	0.0051	0.0064
7.8	Nav Channel	0.0060	0.0060	0.0060	0.0059	0.0060	0.0055	0.0048	0.0060
7.9	Nav Channel	0.0056	0.0056	0.0056	0.0056	0.0056	0.0052	0.0046	0.0056
8	Nav Channel	0.0053	0.0053	0.0053	0.0053	0.0053	0.0051	0.0047	0.0053
8.1	Nav Channel	0.0051	0.0051	0.0051	0.0051	0.0051	0.0050	0.0048	0.0051
8.2	Nav Channel	0.0049	0.0049	0.0049	0.0048	0.0049	0.0048	0.0047	0.0049
8.3	Nav Channel	0.0047	0.0047	0.0047	0.0046	0.0047	0.0046	0.0045	0.0047
8.4	Nav Channel	0.0047	0.0046	0.0045	0.0044	0.0045	0.0044	0.0043	0.0045
8.5	Nav Channel	0.0046	0.0044	0.0044	0.0043	0.0044	0.0041	0.0040	0.0044
8.6	Nav Channel	0.0047	0.0045	0.0045	0.0044	0.0045	0.0041	0.0040	0.0045

**Table J2.3-4i**  
**RAO 2 Rolling River Mile HI Estimates - 2,3,7,8-TCDD**  
 Portland Harbor Superfund Site  
 Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
8.7	Nav Channel	0.0049	0.0047	0.0047	0.0045	0.0047	0.0041	0.0040	0.0047
8.8	Nav Channel	0.0051	0.0049	0.0049	0.0047	0.0049	0.0041	0.0039	0.0049
8.9	Nav Channel	0.0054	0.0052	0.0052	0.0050	0.0052	0.0043	0.0040	0.0052
9	Nav Channel	0.0057	0.0055	0.0055	0.0054	0.0055	0.0046	0.0042	0.0055
9.1	Nav Channel	0.0061	0.0059	0.0058	0.0057	0.0058	0.0050	0.0046	0.0058
9.2	Nav Channel	0.0064	0.0062	0.0062	0.0061	0.0062	0.0053	0.0048	0.0062
9.3	Nav Channel	0.0067	0.0065	0.0064	0.0064	0.0065	0.0056	0.0051	0.0065
9.4	Nav Channel	0.0068	0.0068	0.0067	0.0067	0.0067	0.0058	0.0053	0.0067
9.5	Nav Channel	0.0071	0.0071	0.0071	0.0070	0.0071	0.0061	0.0054	0.0071
9.6	Nav Channel	0.0075	0.0075	0.0074	0.0074	0.0074	0.0066	0.0059	0.0074
9.7	Nav Channel	0.0077	0.0077	0.0077	0.0077	0.0077	0.0071	0.0063	0.0077
9.8	Nav Channel	0.0078	0.0078	0.0078	0.0078	0.0078	0.0072	0.0063	0.0078
9.9	Nav Channel	0.0079	0.0079	0.0079	0.0079	0.0079	0.0068	0.0059	0.0079
10	Nav Channel	0.0079	0.0079	0.0079	0.0079	0.0079	0.0067	0.0056	0.0079
10.1	Nav Channel	0.0079	0.0079	0.0079	0.0079	0.0079	0.0067	0.0055	0.0079
10.2	Nav Channel	0.0079	0.0079	0.0079	0.0079	0.0079	0.0067	0.0055	0.0079
10.3	Nav Channel	0.0081	0.0081	0.0081	0.0081	0.0081	0.0068	0.0055	0.0081
10.4	Nav Channel	0.0083	0.0083	0.0083	0.0083	0.0083	0.0068	0.0051	0.0083
10.5	Nav Channel	0.0085	0.0085	0.0085	0.0085	0.0085	0.0070	0.0050	0.0085
10.6	Nav Channel	0.0087	0.0087	0.0087	0.0087	0.0087	0.0072	0.0050	0.0087
10.7	Nav Channel	0.0092	0.0092	0.0091	0.0091	0.0091	0.0075	0.0053	0.0091
10.8	Nav Channel	0.0100	0.0096	0.0095	0.0094	0.0094	0.0080	0.0061	0.0094
10.9	Nav Channel	0.0111	0.0106	0.0103	0.0099	0.0099	0.0088	0.0069	0.0099
11	Nav Channel	0.0120	0.0114	0.0112	0.0108	0.0108	0.0097	0.0080	0.0108
11.1	Nav Channel	0.0125	0.0119	0.0116	0.0112	0.0112	0.0101	0.0085	0.0112
11.2	Nav Channel	0.0128	0.0122	0.0119	0.0115	0.0115	0.0104	0.0087	0.0115
11.3	Nav Channel	0.0133	0.0126	0.0123	0.0118	0.0118	0.0107	0.0088	0.0118
11.4	Nav Channel	0.0138	0.0130	0.0126	0.0121	0.0121	0.0110	0.0096	0.0121
11.5	Nav Channel	0.0142	0.0133	0.0129	0.0123	0.0123	0.0114	0.0106	0.0123
11.6	Nav Channel	0.0146	0.0136	0.0131	0.0124	0.0124	0.0113	0.0105	0.0124
11.7	Nav Channel	0.0148	0.0137	0.0132	0.0124	0.0124	0.0112	0.0103	0.0124
1.8	West	0.0020	0.0020	0.0020	0.0020	0.0020	0.0020	0.0020	0.0020
1.9	West	0.0019	0.0019	0.0019	0.0019	0.0019	0.0019	0.0019	0.0019
2	West	0.0018	0.0018	0.0018	0.0018	0.0018	0.0018	0.0018	0.0018
2.1	West	0.0017	0.0017	0.0017	0.0017	0.0017	0.0017	0.0017	0.0017
2.2	West	0.0017	0.0017	0.0017	0.0017	0.0017	0.0017	0.0017	0.0017
2.3	West	0.0018	0.0018	0.0018	0.0018	0.0018	0.0018	0.0017	0.0018
2.4	West	0.0019	0.0019	0.0019	0.0019	0.0019	0.0019	0.0018	0.0019
2.5	West	0.0020	0.0020	0.0020	0.0020	0.0020	0.0020	0.0018	0.0020
2.6	West	0.0022	0.0022	0.0022	0.0022	0.0022	0.0022	0.0019	0.0022
2.7	West	0.0024	0.0024	0.0024	0.0024	0.0024	0.0024	0.0021	0.0024
2.8	West	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0021	0.0025



**Table J2.3-4i**  
**RAO 2 Rolling River Mile HI Estimates - 2,3,7,8-TCDD**  
 Portland Harbor Superfund Site  
 Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
2.9	West	0.0028	0.0028	0.0028	0.0028	0.0028	0.0028	0.0023	0.0028
3	West	0.0031	0.0031	0.0031	0.0031	0.0031	0.0031	0.0025	0.0031
3.1	West	0.0034	0.0034	0.0034	0.0034	0.0034	0.0034	0.0029	0.0034
3.2	West	0.0038	0.0038	0.0038	0.0038	0.0038	0.0038	0.0032	0.0038
3.3	West	0.0042	0.0042	0.0042	0.0042	0.0042	0.0042	0.0036	0.0042
3.4	West	0.0046	0.0046	0.0046	0.0046	0.0046	0.0046	0.0039	0.0046
3.5	West	0.0052	0.0052	0.0052	0.0052	0.0050	0.0050	0.0043	0.0052
3.6	West	0.0059	0.0059	0.0059	0.0059	0.0057	0.0057	0.0048	0.0059
3.7	West	0.0069	0.0069	0.0069	0.0069	0.0065	0.0065	0.0054	0.0069
3.8	West	0.0081	0.0081	0.0081	0.0081	0.0075	0.0075	0.0058	0.0081
3.9	West	0.0103	0.0103	0.0103	0.0102	0.0094	0.0094	0.0062	0.0102
4	West	0.0125	0.0125	0.0125	0.0125	0.0116	0.0116	0.0068	0.0125
4.1	West	0.0151	0.0151	0.0151	0.0150	0.0137	0.0137	0.0074	0.0150
4.2	West	0.0179	0.0179	0.0179	0.0178	0.0149	0.0149	0.0074	0.0178
4.3	West	0.0192	0.0192	0.0192	0.0191	0.0159	0.0159	0.0080	0.0191
4.4	West	0.0193	0.0193	0.0193	0.0192	0.0161	0.0161	0.0083	0.0192
4.5	West	0.0192	0.0192	0.0192	0.0192	0.0161	0.0161	0.0082	0.0192
4.6	West	0.0191	0.0191	0.0191	0.0191	0.0159	0.0159	0.0080	0.0191
4.7	West	0.0188	0.0188	0.0188	0.0187	0.0154	0.0154	0.0077	0.0187
4.8	West	0.0185	0.0185	0.0185	0.0183	0.0152	0.0152	0.0081	0.0183
4.9	West	0.0171	0.0171	0.0169	0.0166	0.0135	0.0135	0.0081	0.0166
5	West	0.0149	0.0149	0.0144	0.0141	0.0108	0.0108	0.0071	0.0141
5.1	West	0.0125	0.0124	0.0119	0.0115	0.0085	0.0085	0.0058	0.0115
5.2	West	0.0090	0.0089	0.0084	0.0080	0.0069	0.0069	0.0049	0.0080
5.3	West	0.0068	0.0067	0.0061	0.0057	0.0049	0.0049	0.0032	0.0057
5.4	West	0.0064	0.0063	0.0057	0.0052	0.0042	0.0042	0.0024	0.0053
5.5	West	0.0066	0.0065	0.0059	0.0055	0.0044	0.0044	0.0025	0.0056
5.6	West	0.0066	0.0064	0.0059	0.0054	0.0040	0.0040	0.0020	0.0056
5.7	West	0.0065	0.0059	0.0053	0.0049	0.0037	0.0037	0.0017	0.0051
5.8	West	0.0062	0.0052	0.0046	0.0043	0.0032	0.0032	0.0016	0.0045
5.9	West	0.0061	0.0046	0.0041	0.0039	0.0028	0.0028	0.0015	0.0041
6	West	0.0063	0.0042	0.0039	0.0037	0.0027	0.0027	0.0015	0.0039
6.1	West	0.0067	0.0042	0.0040	0.0037	0.0026	0.0026	0.0014	0.0037
6.2	West	0.0072	0.0048	0.0045	0.0043	0.0027	0.0027	0.0013	0.0038
6.3	West	0.0091	0.0063	0.0060	0.0048	0.0024	0.0024	0.0010	0.0034
6.4	West	0.0447	0.0090	0.0062	0.0047	0.0021	0.0021	0.0009	0.0027
6.5	West	0.1841	0.0097	0.0060	0.0038	0.0012	0.0012	0.0003	0.0017
6.6	West	0.1954	0.0106	0.0065	0.0036	0.0010	0.0010	0.0003	0.0010
6.7	West	0.1865	0.0103	0.0062	0.0034	0.0009	0.0009	0.0003	0.0009
6.8	West	0.1963	0.0101	0.0061	0.0034	0.0009	0.0009	0.0003	0.0009
6.9	West	0.2093	0.0103	0.0062	0.0034	0.0009	0.0009	0.0003	0.0009
7	West	0.2056	0.0106	0.0064	0.0035	0.0010	0.0010	0.0003	0.0010

**Table J2.3-4i**  
**RAO 2 Rolling River Mile HI Estimates - 2,3,7,8-TCDD**  
 Portland Harbor Superfund Site  
 Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
7.1	West	0.1717	0.0110	0.0075	0.0048	0.0025	0.0025	0.0008	0.0025
7.2	West	0.1449	0.0104	0.0074	0.0051	0.0032	0.0032	0.0016	0.0032
7.3	West	0.1248	0.0090	0.0065	0.0049	0.0036	0.0036	0.0016	0.0036
7.4	West	0.1049	0.0074	0.0063	0.0050	0.0039	0.0039	0.0016	0.0039
7.5	West	0.0321	0.0073	0.0066	0.0057	0.0045	0.0045	0.0017	0.0046
7.6	West	0.0274	0.0075	0.0071	0.0065	0.0053	0.0053	0.0017	0.0056
7.7	West	0.0272	0.0088	0.0086	0.0080	0.0064	0.0064	0.0018	0.0071
7.8	West	0.0200	0.0108	0.0107	0.0097	0.0069	0.0069	0.0018	0.0089
7.9	West	0.0133	0.0127	0.0126	0.0102	0.0068	0.0068	0.0017	0.0094
8	West	0.0149	0.0148	0.0148	0.0105	0.0074	0.0074	0.0025	0.0099
8.1	West	0.0209	0.0208	0.0208	0.0128	0.0079	0.0079	0.0031	0.0123
8.2	West	0.0279	0.0278	0.0278	0.0143	0.0076	0.0076	0.0026	0.0140
8.3	West	0.0404	0.0383	0.0372	0.0155	0.0076	0.0076	0.0027	0.0155
8.4	West	0.0588	0.0406	0.0390	0.0159	0.0074	0.0074	0.0028	0.0158
8.5	West	0.0700	0.0427	0.0391	0.0155	0.0071	0.0071	0.0028	0.0155
8.6	West	0.0791	0.0473	0.0395	0.0146	0.0064	0.0064	0.0029	0.0146
8.7	West	0.0842	0.0491	0.0398	0.0135	0.0054	0.0054	0.0030	0.0135
8.8	West	0.0855	0.0508	0.0411	0.0137	0.0061	0.0061	0.0040	0.0137
8.9	West	0.0891	0.0533	0.0433	0.0172	0.0098	0.0098	0.0075	0.0172
9	West	0.0921	0.0542	0.0435	0.0191	0.0104	0.0104	0.0079	0.0191
9.1	West	0.0901	0.0486	0.0369	0.0167	0.0096	0.0096	0.0078	0.0167
9.2	West	0.0804	0.0396	0.0275	0.0143	0.0096	0.0096	0.0077	0.0143
9.3	West	0.0714	0.0319	0.0189	0.0140	0.0099	0.0099	0.0080	0.0140
9.4	West	0.0534	0.0332	0.0199	0.0148	0.0104	0.0104	0.0084	0.0148
9.5	West	0.0404	0.0317	0.0208	0.0154	0.0109	0.0109	0.0089	0.0154
9.6	West	0.0298	0.0265	0.0208	0.0166	0.0117	0.0117	0.0095	0.0166
9.7	West	0.0259	0.0254	0.0211	0.0174	0.0123	0.0123	0.0100	0.0174
9.8	West	0.0211	0.0205	0.0167	0.0154	0.0113	0.0113	0.0092	0.0154
9.9	West	0.0171	0.0164	0.0119	0.0103	0.0063	0.0063	0.0048	0.0103
10	West	0.0154	0.0146	0.0088	0.0067	0.0042	0.0042	0.0032	0.0067
10.1	West	0.0160	0.0150	0.0070	0.0047	0.0033	0.0033	0.0025	0.0047
10.2	West	0.0165	0.0161	0.0084	0.0076	0.0064	0.0064	0.0046	0.0076
10.3	West	0.0115	0.0115	0.0115	0.0112	0.0104	0.0104	0.0070	0.0112
10.4	West	0.0114	0.0114	0.0114	0.0112	0.0105	0.0105	0.0077	0.0112
10.5	West	0.0114	0.0114	0.0114	0.0112	0.0106	0.0106	0.0080	0.0112
10.6	West	0.0112	0.0112	0.0112	0.0111	0.0105	0.0105	0.0082	0.0111
10.7	West	0.0111	0.0111	0.0111	0.0110	0.0105	0.0105	0.0084	0.0110
10.8	West	0.0109	0.0109	0.0109	0.0109	0.0108	0.0108	0.0089	0.0109
10.9	West	0.0106	0.0106	0.0106	0.0106	0.0106	0.0106	0.0089	0.0106
11	West	0.0102	0.0102	0.0102	0.0102	0.0102	0.0102	0.0086	0.0102
11.1	West	0.0097	0.0097	0.0097	0.0097	0.0097	0.0097	0.0081	0.0097
11.2	West	0.0086	0.0086	0.0086	0.0086	0.0086	0.0086	0.0076	0.0086

**Table J2.3-4i**  
**RAO 2 Rolling River Mile HI Estimates - 2,3,7,8-TCDD**  
 Portland Harbor Superfund Site  
 Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
11.3	West	0.0074	0.0074	0.0074	0.0074	0.0074	0.0074	0.0074	0.0074
11.4	West	0.0068	0.0068	0.0068	0.0068	0.0068	0.0068	0.0068	0.0068
11.5	West	0.0062	0.0062	0.0062	0.0062	0.0062	0.0062	0.0062	0.0062
11.6	West	0.0055	0.0055	0.0055	0.0055	0.0055	0.0055	0.0055	0.0055
11.7	West	0.0050	0.0050	0.0050	0.0050	0.0050	0.0050	0.0050	0.0050
7.6	Swan Isl	0.0079	0.0005	0.0005	0.0003	0.0001	0.0001	0.0000	0.0003
7.7	Swan Isl	0.0086	0.0005	0.0005	0.0003	0.0001	0.0001	0.0000	0.0003
7.8	Swan Isl	0.0086	0.0006	0.0005	0.0003	0.0001	0.0001	0.0000	0.0003
7.9	Swan Isl	0.0081	0.0005	0.0005	0.0003	0.0001	0.0001	0.0000	0.0003
8	Swan Isl	0.0077	0.0005	0.0004	0.0003	0.0001	0.0001	0.0000	0.0003
8.1	Swan Isl	0.0077	0.0005	0.0004	0.0003	0.0001	0.0001	0.0000	0.0003
8.2	Swan Isl	0.0077	0.0005	0.0005	0.0003	0.0001	0.0001	0.0001	0.0003
8.3	Swan Isl	0.0080	0.0006	0.0005	0.0003	0.0002	0.0002	0.0001	0.0003
8.4	Swan Isl	0.0084	0.0006	0.0005	0.0003	0.0002	0.0002	0.0001	0.0003
8.5	Swan Isl	0.0088	0.0007	0.0005	0.0003	0.0002	0.0002	0.0001	0.0003
8.6	Swan Isl	0.0092	0.0011	0.0007	0.0005	0.0002	0.0002	0.0002	0.0007
8.7	Swan Isl	0.0094	0.0019	0.0012	0.0010	0.0004	0.0004	0.0004	0.0015
8.8	Swan Isl	0.0096	0.0021	0.0013	0.0012	0.0005	0.0005	0.0004	0.0017
8.9	Swan Isl	0.0103	0.0024	0.0015	0.0013	0.0006	0.0006	0.0005	0.0020
9	Swan Isl	0.0111	0.0028	0.0017	0.0015	0.0006	0.0006	0.0005	0.0022
9.1	Swan Isl	0.0115	0.0029	0.0018	0.0016	0.0007	0.0007	0.0006	0.0024
9.2	Swan Isl	0.0122	0.0035	0.0021	0.0019	0.0007	0.0007	0.0006	0.0028
9.3	Swan Isl	0.0128	0.0042	0.0025	0.0023	0.0008	0.0008	0.0007	0.0036
9.4	Swan Isl	0.0133	0.0057	0.0036	0.0034	0.0011	0.0011	0.0009	0.0052
9.5	Swan Isl	0.0127	0.0086	0.0056	0.0053	0.0016	0.0016	0.0013	0.0085
9.6	Swan Isl	0.0114	0.0114	0.0084	0.0076	0.0030	0.0030	0.0025	0.0114

**Table J2.3-4j**  
**RAO 2 Rolling River Mile HI Estimates - 2,3,7,8-TCDF**  
 Portland Harbor Superfund Site  
 Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
1.8	East	0.0091	0.0082	0.0078	0.0075	0.0073	0.0073	0.0072	0.0075
1.9	East	0.0095	0.0081	0.0076	0.0071	0.0068	0.0068	0.0067	0.0071
2	East	0.0102	0.0081	0.0076	0.0070	0.0062	0.0062	0.0059	0.0070
2.1	East	0.0103	0.0082	0.0077	0.0071	0.0055	0.0055	0.0052	0.0071
2.2	East	0.0098	0.0078	0.0073	0.0067	0.0049	0.0049	0.0044	0.0067
2.3	East	0.0098	0.0077	0.0071	0.0064	0.0045	0.0045	0.0036	0.0064
2.4	East	0.0099	0.0078	0.0071	0.0063	0.0042	0.0042	0.0032	0.0063
2.5	East	0.0102	0.0080	0.0073	0.0065	0.0045	0.0045	0.0034	0.0065
2.6	East	0.0105	0.0082	0.0075	0.0068	0.0048	0.0048	0.0037	0.0069
2.7	East	0.0108	0.0088	0.0081	0.0074	0.0053	0.0053	0.0042	0.0075
2.8	East	0.0105	0.0091	0.0086	0.0080	0.0058	0.0058	0.0046	0.0081
2.9	East	0.0099	0.0090	0.0087	0.0083	0.0062	0.0062	0.0050	0.0083
3	East	0.0089	0.0089	0.0086	0.0083	0.0067	0.0067	0.0056	0.0084
3.1	East	0.0085	0.0085	0.0081	0.0079	0.0072	0.0072	0.0062	0.0079
3.2	East	0.0084	0.0084	0.0080	0.0077	0.0073	0.0073	0.0065	0.0078
3.3	East	0.0107	0.0093	0.0070	0.0067	0.0060	0.0060	0.0054	0.0067
3.4	East	0.0130	0.0095	0.0065	0.0063	0.0056	0.0056	0.0050	0.0063
3.5	East	0.0133	0.0095	0.0063	0.0059	0.0050	0.0050	0.0044	0.0059
3.6	East	0.0137	0.0097	0.0063	0.0056	0.0046	0.0046	0.0039	0.0056
3.7	East	0.0141	0.0100	0.0065	0.0054	0.0043	0.0043	0.0035	0.0054
3.8	East	0.0141	0.0099	0.0063	0.0052	0.0040	0.0040	0.0031	0.0052
3.9	East	0.0130	0.0092	0.0059	0.0047	0.0033	0.0033	0.0024	0.0047
4	East	0.0121	0.0085	0.0055	0.0044	0.0026	0.0026	0.0016	0.0044
4.1	East	0.0115	0.0081	0.0051	0.0040	0.0022	0.0022	0.0012	0.0040
4.2	East	0.0112	0.0080	0.0048	0.0035	0.0017	0.0017	0.0007	0.0035
4.3	East	0.0086	0.0062	0.0046	0.0032	0.0015	0.0015	0.0006	0.0032
4.4	East	0.0056	0.0055	0.0047	0.0032	0.0016	0.0016	0.0008	0.0032
4.5	East	0.0059	0.0058	0.0050	0.0036	0.0021	0.0021	0.0013	0.0036
4.6	East	0.0068	0.0068	0.0060	0.0051	0.0036	0.0036	0.0027	0.0051
4.7	East	0.0084	0.0083	0.0076	0.0070	0.0057	0.0057	0.0049	0.0070
4.8	East	0.0112	0.0112	0.0104	0.0098	0.0085	0.0085	0.0074	0.0098
4.9	East	0.0157	0.0156	0.0148	0.0143	0.0133	0.0133	0.0097	0.0143
5	East	0.0225	0.0224	0.0215	0.0209	0.0200	0.0200	0.0142	0.0205
5.1	East	0.0312	0.0312	0.0303	0.0298	0.0246	0.0246	0.0169	0.0250
5.2	East	0.0439	0.0439	0.0439	0.0436	0.0308	0.0308	0.0210	0.0308
5.3	East	0.0441	0.0441	0.0441	0.0433	0.0296	0.0296	0.0200	0.0296
5.4	East	0.0406	0.0406	0.0406	0.0400	0.0285	0.0285	0.0171	0.0285
5.5	East	0.0382	0.0382	0.0382	0.0377	0.0271	0.0271	0.0157	0.0273
5.6	East	0.0353	0.0353	0.0353	0.0346	0.0243	0.0243	0.0138	0.0252
5.7	East	0.0318	0.0318	0.0318	0.0313	0.0211	0.0211	0.0114	0.0228
5.8	East	0.0288	0.0288	0.0286	0.0281	0.0188	0.0188	0.0101	0.0206
5.9	East	0.0261	0.0261	0.0255	0.0249	0.0160	0.0160	0.0095	0.0185
6	East	0.0229	0.0229	0.0220	0.0214	0.0135	0.0135	0.0085	0.0162

**Table J2.3-4j**  
**RAO 2 Rolling River Mile HI Estimates - 2,3,7,8-TCDF**  
 Portland Harbor Superfund Site  
 Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
6.1	East	0.0193	0.0193	0.0180	0.0174	0.0122	0.0122	0.0082	0.0152
6.2	East	0.0183	0.0167	0.0144	0.0140	0.0117	0.0117	0.0081	0.0149
6.3	East	0.0254	0.0158	0.0122	0.0120	0.0103	0.0103	0.0072	0.0148
6.4	East	0.0231	0.0134	0.0097	0.0095	0.0081	0.0081	0.0065	0.0126
6.5	East	0.0210	0.0117	0.0081	0.0080	0.0068	0.0068	0.0058	0.0110
6.6	East	0.0190	0.0102	0.0068	0.0067	0.0059	0.0059	0.0051	0.0096
6.7	East	0.0184	0.0090	0.0057	0.0056	0.0052	0.0052	0.0046	0.0096
6.8	East	0.0177	0.0081	0.0046	0.0045	0.0042	0.0042	0.0037	0.0092
6.9	East	0.0166	0.0073	0.0040	0.0040	0.0038	0.0038	0.0035	0.0084
7	East	0.0155	0.0067	0.0037	0.0036	0.0035	0.0035	0.0032	0.0077
7.1	East	0.0148	0.0061	0.0034	0.0034	0.0032	0.0032	0.0030	0.0072
7.2	East	0.0138	0.0055	0.0033	0.0033	0.0032	0.0032	0.0030	0.0070
7.3	East	0.0073	0.0047	0.0035	0.0035	0.0034	0.0034	0.0033	0.0064
7.4	East	0.0066	0.0046	0.0037	0.0037	0.0036	0.0036	0.0034	0.0066
7.5	East	0.0072	0.0050	0.0041	0.0041	0.0040	0.0040	0.0038	0.0072
7.6	East	0.0080	0.0054	0.0044	0.0044	0.0043	0.0043	0.0038	0.0076
7.7	East	0.0071	0.0051	0.0044	0.0044	0.0043	0.0043	0.0038	0.0060
7.8	East	0.0063	0.0047	0.0044	0.0044	0.0043	0.0043	0.0037	0.0046
7.9	East	0.0063	0.0044	0.0044	0.0044	0.0043	0.0043	0.0037	0.0044
8	East	0.0062	0.0039	0.0039	0.0039	0.0039	0.0039	0.0031	0.0039
8.1	East	0.0061	0.0035	0.0035	0.0035	0.0035	0.0035	0.0026	0.0035
8.2	East	0.0057	0.0031	0.0031	0.0031	0.0031	0.0031	0.0022	0.0031
8.3	East	0.0054	0.0030	0.0030	0.0030	0.0029	0.0029	0.0022	0.0030
8.4	East	0.0052	0.0028	0.0028	0.0028	0.0028	0.0028	0.0022	0.0028
8.5	East	0.0049	0.0024	0.0024	0.0024	0.0024	0.0024	0.0019	0.0024
8.6	East	0.0045	0.0023	0.0023	0.0023	0.0022	0.0022	0.0019	0.0023
8.7	East	0.0037	0.0028	0.0028	0.0028	0.0026	0.0026	0.0021	0.0028
8.8	East	0.0030	0.0030	0.0030	0.0030	0.0029	0.0029	0.0024	0.0030
8.9	East	0.0031	0.0031	0.0031	0.0031	0.0029	0.0029	0.0025	0.0031
9	East	0.0032	0.0032	0.0032	0.0032	0.0031	0.0031	0.0026	0.0032
9.1	East	0.0034	0.0034	0.0034	0.0034	0.0030	0.0030	0.0024	0.0034
9.2	East	0.0036	0.0036	0.0036	0.0036	0.0030	0.0030	0.0022	0.0036
9.3	East	0.0038	0.0038	0.0038	0.0038	0.0033	0.0033	0.0024	0.0038
9.4	East	0.0040	0.0040	0.0040	0.0040	0.0035	0.0035	0.0026	0.0040
9.5	East	0.0042	0.0042	0.0042	0.0042	0.0037	0.0037	0.0029	0.0042
9.6	East	0.0044	0.0044	0.0044	0.0043	0.0038	0.0038	0.0031	0.0043
9.7	East	0.0046	0.0046	0.0046	0.0045	0.0039	0.0039	0.0033	0.0045
9.8	East	0.0047	0.0047	0.0047	0.0047	0.0041	0.0041	0.0034	0.0047
9.9	East	0.0049	0.0049	0.0049	0.0048	0.0042	0.0042	0.0034	0.0048
10	East	0.0050	0.0050	0.0050	0.0049	0.0042	0.0042	0.0034	0.0049
10.1	East	0.0050	0.0050	0.0050	0.0049	0.0044	0.0044	0.0037	0.0049
10.2	East	0.0050	0.0050	0.0050	0.0049	0.0045	0.0045	0.0039	0.0049

**Table J2.3-4j**  
**RAO 2 Rolling River Mile HI Estimates - 2,3,7,8-TCDF**  
 Portland Harbor Superfund Site  
 Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
10.3	East	0.0050	0.0050	0.0050	0.0048	0.0041	0.0041	0.0037	0.0048
10.4	East	0.0049	0.0049	0.0049	0.0046	0.0038	0.0038	0.0032	0.0046
10.5	East	0.0048	0.0048	0.0048	0.0045	0.0034	0.0034	0.0026	0.0045
10.6	East	0.0046	0.0046	0.0046	0.0043	0.0032	0.0032	0.0024	0.0043
10.7	East	0.0045	0.0043	0.0042	0.0038	0.0028	0.0028	0.0021	0.0038
10.8	East	0.0050	0.0048	0.0043	0.0038	0.0026	0.0026	0.0016	0.0038
10.9	East	0.0056	0.0047	0.0040	0.0033	0.0021	0.0021	0.0012	0.0033
11	East	0.0072	0.0053	0.0042	0.0030	0.0017	0.0017	0.0009	0.0030
11.1	East	0.0078	0.0057	0.0043	0.0030	0.0016	0.0016	0.0008	0.0030
11.2	East	0.0076	0.0056	0.0042	0.0028	0.0016	0.0016	0.0007	0.0028
11.3	East	0.0080	0.0057	0.0042	0.0028	0.0016	0.0016	0.0006	0.0028
11.4	East	0.0085	0.0059	0.0042	0.0027	0.0015	0.0015	0.0005	0.0027
11.5	East	0.0089	0.0061	0.0042	0.0026	0.0015	0.0015	0.0005	0.0026
11.6	East	0.0095	0.0064	0.0043	0.0024	0.0013	0.0013	0.0004	0.0024
11.7	East	0.0104	0.0069	0.0046	0.0025	0.0013	0.0013	0.0003	0.0025
1.8	Nav Channel	0.0073	0.0073	0.0073	0.0073	0.0073	0.0073	0.0071	0.0073
1.9	Nav Channel	0.0069	0.0069	0.0069	0.0069	0.0069	0.0069	0.0064	0.0069
2	Nav Channel	0.0068	0.0068	0.0068	0.0068	0.0068	0.0068	0.0063	0.0068
2.1	Nav Channel	0.0068	0.0068	0.0068	0.0068	0.0068	0.0068	0.0063	0.0068
2.2	Nav Channel	0.0067	0.0067	0.0067	0.0067	0.0067	0.0067	0.0062	0.0067
2.3	Nav Channel	0.0063	0.0063	0.0063	0.0063	0.0063	0.0063	0.0058	0.0063
2.4	Nav Channel	0.0057	0.0057	0.0057	0.0057	0.0057	0.0057	0.0051	0.0057
2.5	Nav Channel	0.0054	0.0054	0.0054	0.0054	0.0054	0.0054	0.0048	0.0054
2.6	Nav Channel	0.0052	0.0052	0.0052	0.0052	0.0052	0.0052	0.0047	0.0052
2.7	Nav Channel	0.0051	0.0051	0.0051	0.0051	0.0051	0.0051	0.0046	0.0051
2.8	Nav Channel	0.0051	0.0051	0.0051	0.0051	0.0051	0.0051	0.0047	0.0051
2.9	Nav Channel	0.0050	0.0050	0.0050	0.0050	0.0050	0.0050	0.0049	0.0050
3	Nav Channel	0.0051	0.0051	0.0051	0.0051	0.0051	0.0050	0.0047	0.0051
3.1	Nav Channel	0.0051	0.0051	0.0051	0.0051	0.0051	0.0048	0.0042	0.0051
3.2	Nav Channel	0.0052	0.0052	0.0052	0.0052	0.0052	0.0047	0.0037	0.0052
3.3	Nav Channel	0.0053	0.0053	0.0053	0.0053	0.0053	0.0048	0.0037	0.0053
3.4	Nav Channel	0.0054	0.0054	0.0054	0.0054	0.0054	0.0050	0.0039	0.0054
3.5	Nav Channel	0.0055	0.0055	0.0055	0.0055	0.0055	0.0051	0.0041	0.0055
3.6	Nav Channel	0.0056	0.0056	0.0056	0.0056	0.0056	0.0052	0.0041	0.0056
3.7	Nav Channel	0.0056	0.0056	0.0056	0.0056	0.0056	0.0052	0.0042	0.0056
3.8	Nav Channel	0.0055	0.0055	0.0055	0.0055	0.0055	0.0051	0.0042	0.0055
3.9	Nav Channel	0.0053	0.0053	0.0053	0.0053	0.0053	0.0050	0.0042	0.0053
4	Nav Channel	0.0052	0.0052	0.0052	0.0052	0.0052	0.0049	0.0042	0.0052
4.1	Nav Channel	0.0051	0.0051	0.0051	0.0051	0.0051	0.0050	0.0043	0.0051
4.2	Nav Channel	0.0052	0.0052	0.0052	0.0052	0.0052	0.0051	0.0047	0.0052
4.3	Nav Channel	0.0052	0.0052	0.0052	0.0052	0.0052	0.0052	0.0048	0.0052
4.4	Nav Channel	0.0055	0.0055	0.0055	0.0055	0.0055	0.0054	0.0051	0.0055

**Table J2.3-4j**  
**RAO 2 Rolling River Mile HI Estimates - 2,3,7,8-TCDF**  
 Portland Harbor Superfund Site  
 Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
4.5	Nav Channel	0.0064	0.0064	0.0064	0.0064	0.0064	0.0064	0.0061	0.0064
4.6	Nav Channel	0.0083	0.0082	0.0075	0.0071	0.0082	0.0068	0.0064	0.0082
4.7	Nav Channel	0.0111	0.0097	0.0081	0.0073	0.0097	0.0066	0.0060	0.0097
4.8	Nav Channel	0.0149	0.0133	0.0099	0.0083	0.0133	0.0068	0.0058	0.0133
4.9	Nav Channel	0.0196	0.0159	0.0111	0.0090	0.0159	0.0067	0.0056	0.0159
5	Nav Channel	0.0254	0.0198	0.0139	0.0111	0.0198	0.0073	0.0058	0.0198
5.1	Nav Channel	0.0325	0.0265	0.0198	0.0164	0.0265	0.0102	0.0066	0.0265
5.2	Nav Channel	0.0406	0.0295	0.0217	0.0179	0.0295	0.0110	0.0070	0.0295
5.3	Nav Channel	0.0476	0.0311	0.0228	0.0187	0.0311	0.0112	0.0069	0.0311
5.4	Nav Channel	0.0536	0.0360	0.0270	0.0224	0.0360	0.0114	0.0067	0.0360
5.5	Nav Channel	0.0580	0.0393	0.0298	0.0245	0.0393	0.0122	0.0058	0.0393
5.6	Nav Channel	0.0617	0.0418	0.0327	0.0269	0.0418	0.0135	0.0064	0.0418
5.7	Nav Channel	0.0653	0.0456	0.0360	0.0296	0.0456	0.0150	0.0072	0.0448
5.8	Nav Channel	0.0685	0.0456	0.0374	0.0316	0.0456	0.0166	0.0083	0.0444
5.9	Nav Channel	0.0706	0.0476	0.0409	0.0351	0.0476	0.0201	0.0110	0.0462
6	Nav Channel	0.0715	0.0469	0.0414	0.0363	0.0469	0.0229	0.0137	0.0455
6.1	Nav Channel	0.0700	0.0438	0.0373	0.0317	0.0435	0.0199	0.0134	0.0420
6.2	Nav Channel	0.0646	0.0452	0.0395	0.0333	0.0445	0.0198	0.0126	0.0429
6.3	Nav Channel	0.0606	0.0488	0.0431	0.0369	0.0481	0.0219	0.0129	0.0464
6.4	Nav Channel	0.0576	0.0458	0.0404	0.0344	0.0451	0.0239	0.0139	0.0434
6.5	Nav Channel	0.0564	0.0447	0.0393	0.0341	0.0439	0.0246	0.0168	0.0423
6.6	Nav Channel	0.0548	0.0432	0.0379	0.0337	0.0425	0.0253	0.0185	0.0409
6.7	Nav Channel	0.0511	0.0404	0.0370	0.0339	0.0397	0.0267	0.0206	0.0392
6.8	Nav Channel	0.0462	0.0384	0.0360	0.0334	0.0376	0.0273	0.0209	0.0375
6.9	Nav Channel	0.0405	0.0356	0.0335	0.0313	0.0347	0.0258	0.0192	0.0348
7	Nav Channel	0.0347	0.0334	0.0315	0.0294	0.0325	0.0234	0.0167	0.0325
7.1	Nav Channel	0.0293	0.0290	0.0287	0.0277	0.0284	0.0224	0.0157	0.0285
7.2	Nav Channel	0.0261	0.0258	0.0258	0.0256	0.0256	0.0220	0.0159	0.0257
7.3	Nav Channel	0.0232	0.0230	0.0230	0.0228	0.0228	0.0207	0.0162	0.0228
7.4	Nav Channel	0.0210	0.0208	0.0208	0.0207	0.0206	0.0191	0.0158	0.0207
7.5	Nav Channel	0.0185	0.0184	0.0184	0.0183	0.0182	0.0169	0.0140	0.0182
7.6	Nav Channel	0.0167	0.0166	0.0166	0.0166	0.0165	0.0153	0.0125	0.0165
7.7	Nav Channel	0.0154	0.0154	0.0154	0.0153	0.0153	0.0141	0.0115	0.0153
7.8	Nav Channel	0.0142	0.0141	0.0141	0.0141	0.0141	0.0129	0.0109	0.0141
7.9	Nav Channel	0.0130	0.0130	0.0130	0.0129	0.0129	0.0119	0.0104	0.0129
8	Nav Channel	0.0119	0.0119	0.0119	0.0119	0.0119	0.0113	0.0102	0.0119
8.1	Nav Channel	0.0110	0.0110	0.0110	0.0109	0.0110	0.0108	0.0101	0.0110
8.2	Nav Channel	0.0099	0.0099	0.0099	0.0099	0.0099	0.0099	0.0096	0.0099
8.3	Nav Channel	0.0089	0.0089	0.0089	0.0088	0.0089	0.0088	0.0087	0.0089
8.4	Nav Channel	0.0078	0.0078	0.0078	0.0078	0.0078	0.0078	0.0076	0.0078
8.5	Nav Channel	0.0067	0.0067	0.0067	0.0067	0.0067	0.0065	0.0063	0.0067
8.6	Nav Channel	0.0060	0.0059	0.0059	0.0059	0.0059	0.0057	0.0055	0.0059

**Table J2.3-4j**  
**RAO 2 Rolling River Mile HI Estimates - 2,3,7,8-TCDF**  
 Portland Harbor Superfund Site  
 Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
8.7	Nav Channel	0.0054	0.0054	0.0054	0.0053	0.0054	0.0051	0.0049	0.0054
8.8	Nav Channel	0.0050	0.0049	0.0049	0.0049	0.0049	0.0045	0.0043	0.0049
8.9	Nav Channel	0.0046	0.0046	0.0046	0.0045	0.0046	0.0041	0.0038	0.0046
9	Nav Channel	0.0043	0.0043	0.0043	0.0043	0.0043	0.0038	0.0035	0.0043
9.1	Nav Channel	0.0042	0.0042	0.0042	0.0042	0.0042	0.0037	0.0034	0.0042
9.2	Nav Channel	0.0043	0.0043	0.0042	0.0042	0.0042	0.0037	0.0034	0.0042
9.3	Nav Channel	0.0046	0.0046	0.0045	0.0045	0.0045	0.0040	0.0037	0.0045
9.4	Nav Channel	0.0051	0.0051	0.0051	0.0051	0.0051	0.0045	0.0041	0.0051
9.5	Nav Channel	0.0059	0.0059	0.0059	0.0059	0.0059	0.0052	0.0047	0.0059
9.6	Nav Channel	0.0068	0.0068	0.0068	0.0068	0.0068	0.0063	0.0057	0.0068
9.7	Nav Channel	0.0078	0.0078	0.0078	0.0078	0.0078	0.0074	0.0067	0.0078
9.8	Nav Channel	0.0089	0.0089	0.0089	0.0089	0.0089	0.0081	0.0069	0.0089
9.9	Nav Channel	0.0099	0.0099	0.0099	0.0099	0.0099	0.0083	0.0068	0.0099
10	Nav Channel	0.0110	0.0110	0.0110	0.0110	0.0110	0.0092	0.0074	0.0110
10.1	Nav Channel	0.0120	0.0120	0.0120	0.0120	0.0120	0.0102	0.0084	0.0120
10.2	Nav Channel	0.0129	0.0129	0.0129	0.0129	0.0129	0.0110	0.0092	0.0129
10.3	Nav Channel	0.0136	0.0136	0.0136	0.0136	0.0136	0.0116	0.0097	0.0136
10.4	Nav Channel	0.0141	0.0141	0.0141	0.0141	0.0141	0.0119	0.0097	0.0141
10.5	Nav Channel	0.0143	0.0143	0.0143	0.0143	0.0143	0.0121	0.0097	0.0143
10.6	Nav Channel	0.0142	0.0142	0.0142	0.0142	0.0142	0.0119	0.0093	0.0142
10.7	Nav Channel	0.0136	0.0136	0.0135	0.0135	0.0135	0.0112	0.0087	0.0135
10.8	Nav Channel	0.0126	0.0126	0.0125	0.0125	0.0125	0.0107	0.0090	0.0125
10.9	Nav Channel	0.0114	0.0113	0.0113	0.0113	0.0113	0.0106	0.0092	0.0113
11	Nav Channel	0.0101	0.0100	0.0100	0.0100	0.0100	0.0095	0.0085	0.0100
11.1	Nav Channel	0.0089	0.0088	0.0088	0.0087	0.0087	0.0083	0.0073	0.0087
11.2	Nav Channel	0.0079	0.0078	0.0078	0.0077	0.0077	0.0074	0.0063	0.0077
11.3	Nav Channel	0.0071	0.0070	0.0069	0.0069	0.0069	0.0066	0.0054	0.0069
11.4	Nav Channel	0.0063	0.0062	0.0062	0.0061	0.0061	0.0058	0.0052	0.0061
11.5	Nav Channel	0.0057	0.0056	0.0055	0.0054	0.0054	0.0053	0.0051	0.0054
11.6	Nav Channel	0.0052	0.0050	0.0050	0.0049	0.0049	0.0048	0.0045	0.0049
11.7	Nav Channel	0.0048	0.0046	0.0046	0.0045	0.0045	0.0044	0.0041	0.0045
1.8	West	0.0063	0.0063	0.0063	0.0063	0.0063	0.0063	0.0063	0.0063
1.9	West	0.0075	0.0075	0.0075	0.0075	0.0075	0.0075	0.0075	0.0075
2	West	0.0081	0.0081	0.0081	0.0081	0.0081	0.0081	0.0081	0.0081
2.1	West	0.0081	0.0081	0.0081	0.0081	0.0081	0.0081	0.0081	0.0081
2.2	West	0.0081	0.0081	0.0081	0.0081	0.0081	0.0081	0.0080	0.0081
2.3	West	0.0079	0.0079	0.0079	0.0079	0.0079	0.0079	0.0078	0.0079
2.4	West	0.0078	0.0078	0.0078	0.0078	0.0078	0.0078	0.0077	0.0078
2.5	West	0.0077	0.0077	0.0077	0.0077	0.0077	0.0077	0.0074	0.0077
2.6	West	0.0076	0.0076	0.0076	0.0076	0.0076	0.0076	0.0072	0.0076
2.7	West	0.0074	0.0074	0.0074	0.0074	0.0074	0.0074	0.0068	0.0074
2.8	West	0.0070	0.0070	0.0070	0.0070	0.0070	0.0070	0.0061	0.0070



**Table J2.3-4j**  
**RAO 2 Rolling River Mile HI Estimates - 2,3,7,8-TCDF**  
 Portland Harbor Superfund Site  
 Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
2.9	West	0.0063	0.0063	0.0063	0.0063	0.0063	0.0063	0.0052	0.0063
3	West	0.0064	0.0064	0.0064	0.0064	0.0064	0.0064	0.0051	0.0064
3.1	West	0.0066	0.0066	0.0066	0.0066	0.0066	0.0066	0.0053	0.0066
3.2	West	0.0072	0.0072	0.0072	0.0072	0.0071	0.0071	0.0058	0.0072
3.3	West	0.0079	0.0079	0.0079	0.0079	0.0079	0.0079	0.0065	0.0079
3.4	West	0.0088	0.0088	0.0088	0.0088	0.0087	0.0087	0.0070	0.0088
3.5	West	0.0099	0.0099	0.0099	0.0099	0.0096	0.0096	0.0078	0.0099
3.6	West	0.0111	0.0111	0.0111	0.0111	0.0106	0.0106	0.0085	0.0111
3.7	West	0.0124	0.0124	0.0124	0.0124	0.0118	0.0118	0.0092	0.0124
3.8	West	0.0137	0.0137	0.0137	0.0136	0.0127	0.0127	0.0099	0.0136
3.9	West	0.0149	0.0149	0.0149	0.0149	0.0137	0.0137	0.0101	0.0149
4	West	0.0160	0.0160	0.0160	0.0159	0.0146	0.0146	0.0100	0.0159
4.1	West	0.0183	0.0183	0.0183	0.0182	0.0163	0.0163	0.0105	0.0182
4.2	West	0.0206	0.0206	0.0206	0.0205	0.0171	0.0171	0.0102	0.0205
4.3	West	0.0219	0.0219	0.0219	0.0218	0.0181	0.0181	0.0109	0.0218
4.4	West	0.0221	0.0221	0.0221	0.0220	0.0184	0.0184	0.0114	0.0220
4.5	West	0.0222	0.0222	0.0222	0.0221	0.0185	0.0185	0.0116	0.0221
4.6	West	0.0230	0.0230	0.0230	0.0229	0.0193	0.0193	0.0126	0.0229
4.7	West	0.0249	0.0249	0.0248	0.0242	0.0198	0.0198	0.0132	0.0242
4.8	West	0.0277	0.0277	0.0273	0.0262	0.0217	0.0217	0.0144	0.0262
4.9	West	0.0301	0.0300	0.0287	0.0273	0.0224	0.0224	0.0149	0.0273
5	West	0.0301	0.0298	0.0276	0.0260	0.0206	0.0206	0.0137	0.0260
5.1	West	0.0289	0.0286	0.0262	0.0244	0.0193	0.0193	0.0126	0.0244
5.2	West	0.0280	0.0277	0.0251	0.0232	0.0198	0.0198	0.0128	0.0232
5.3	West	0.0277	0.0274	0.0247	0.0226	0.0190	0.0190	0.0112	0.0226
5.4	West	0.0279	0.0275	0.0249	0.0226	0.0181	0.0181	0.0100	0.0230
5.5	West	0.0283	0.0280	0.0251	0.0227	0.0178	0.0178	0.0098	0.0235
5.6	West	0.0285	0.0274	0.0244	0.0219	0.0157	0.0157	0.0074	0.0229
5.7	West	0.0281	0.0245	0.0211	0.0192	0.0140	0.0140	0.0061	0.0202
5.8	West	0.0276	0.0207	0.0176	0.0162	0.0115	0.0115	0.0051	0.0172
5.9	West	0.0283	0.0177	0.0154	0.0142	0.0098	0.0098	0.0048	0.0152
6	West	0.0313	0.0163	0.0146	0.0136	0.0093	0.0093	0.0047	0.0145
6.1	West	0.0367	0.0180	0.0162	0.0148	0.0092	0.0092	0.0046	0.0141
6.2	West	0.0428	0.0243	0.0224	0.0207	0.0115	0.0115	0.0042	0.0164
6.3	West	0.0466	0.0262	0.0243	0.0219	0.0101	0.0101	0.0034	0.0147
6.4	West	0.1131	0.0601	0.0360	0.0268	0.0105	0.0105	0.0028	0.0138
6.5	West	0.2625	0.1140	0.0719	0.0295	0.0082	0.0082	0.0012	0.0101
6.6	West	0.3933	0.2142	0.1340	0.0584	0.0097	0.0097	0.0011	0.0097
6.7	West	0.6539	0.2310	0.1324	0.0547	0.0090	0.0090	0.0010	0.0090
6.8	West	7.1223	0.2297	0.1297	0.0536	0.0090	0.0090	0.0010	0.0090
6.9	West	13.7321	0.2344	0.1333	0.0554	0.0092	0.0092	0.0010	0.0092
7	West	13.8425	0.3743	0.2224	0.0596	0.0132	0.0132	0.0010	0.0132

**Table J2.3-4j**  
**RAO 2 Rolling River Mile HI Estimates - 2,3,7,8-TCDF**  
 Portland Harbor Superfund Site  
 Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
7.1	West	11.6747	0.5564	0.4146	0.1380	0.0569	0.0569	0.0081	0.0569
7.2	West	9.7744	0.4686	0.3498	0.1187	0.0513	0.0513	0.0087	0.0513
7.3	West	8.4289	0.4060	0.3035	0.1048	0.0470	0.0470	0.0079	0.0470
7.4	West	8.4096	0.3884	0.2981	0.1030	0.0483	0.0483	0.0079	0.0483
7.5	West	8.6321	0.3733	0.2896	0.1058	0.0515	0.0515	0.0083	0.0519
7.6	West	8.7906	0.3269	0.2628	0.0932	0.0532	0.0532	0.0085	0.0543
7.7	West	8.8117	0.3177	0.2669	0.0977	0.0556	0.0556	0.0087	0.0579
7.8	West	4.7122	0.3197	0.2710	0.1009	0.0563	0.0563	0.0087	0.0610
7.9	West	0.4667	0.2980	0.2534	0.0953	0.0529	0.0529	0.0081	0.0590
8	West	0.1960	0.1956	0.1841	0.0858	0.0475	0.0475	0.0083	0.0532
8.1	West	0.0289	0.0289	0.0289	0.0260	0.0169	0.0169	0.0037	0.0229
8.2	West	0.0253	0.0253	0.0253	0.0215	0.0130	0.0130	0.0020	0.0198
8.3	West	0.0246	0.0244	0.0243	0.0194	0.0111	0.0111	0.0019	0.0189
8.4	West	0.0245	0.0227	0.0225	0.0173	0.0087	0.0087	0.0017	0.0170
8.5	West	0.0244	0.0210	0.0203	0.0150	0.0070	0.0070	0.0017	0.0150
8.6	West	0.0254	0.0201	0.0181	0.0124	0.0052	0.0052	0.0017	0.0124
8.7	West	0.0260	0.0186	0.0158	0.0099	0.0038	0.0038	0.0017	0.0099
8.8	West	0.0249	0.0175	0.0140	0.0078	0.0036	0.0036	0.0020	0.0078
8.9	West	0.0230	0.0154	0.0118	0.0066	0.0041	0.0041	0.0031	0.0066
9	West	0.0225	0.0144	0.0106	0.0063	0.0032	0.0032	0.0025	0.0063
9.1	West	0.0228	0.0139	0.0098	0.0063	0.0031	0.0031	0.0024	0.0063
9.2	West	0.0220	0.0133	0.0088	0.0059	0.0031	0.0031	0.0024	0.0059
9.3	West	0.0227	0.0138	0.0082	0.0060	0.0032	0.0032	0.0025	0.0060
9.4	West	0.0218	0.0146	0.0087	0.0064	0.0034	0.0034	0.0026	0.0064
9.5	West	0.0198	0.0144	0.0091	0.0067	0.0036	0.0036	0.0028	0.0067
9.6	West	0.0162	0.0132	0.0093	0.0072	0.0039	0.0039	0.0030	0.0072
9.7	West	0.0128	0.0126	0.0096	0.0076	0.0041	0.0041	0.0032	0.0076
9.8	West	0.0092	0.0090	0.0069	0.0062	0.0038	0.0038	0.0030	0.0062
9.9	West	0.0079	0.0077	0.0051	0.0042	0.0024	0.0024	0.0017	0.0042
10	West	0.0082	0.0079	0.0046	0.0035	0.0022	0.0022	0.0016	0.0035
10.1	West	0.0100	0.0096	0.0051	0.0038	0.0028	0.0028	0.0021	0.0038
10.2	West	0.0128	0.0125	0.0081	0.0075	0.0064	0.0064	0.0046	0.0075
10.3	West	0.0115	0.0115	0.0115	0.0112	0.0102	0.0102	0.0070	0.0112
10.4	West	0.0115	0.0115	0.0115	0.0112	0.0104	0.0104	0.0077	0.0112
10.5	West	0.0116	0.0116	0.0116	0.0114	0.0106	0.0106	0.0083	0.0114
10.6	West	0.0116	0.0116	0.0116	0.0114	0.0107	0.0107	0.0085	0.0114
10.7	West	0.0115	0.0115	0.0115	0.0113	0.0107	0.0107	0.0088	0.0113
10.8	West	0.0113	0.0113	0.0113	0.0113	0.0111	0.0111	0.0093	0.0113
10.9	West	0.0109	0.0109	0.0109	0.0109	0.0109	0.0109	0.0094	0.0109
11	West	0.0105	0.0105	0.0105	0.0105	0.0105	0.0105	0.0090	0.0105
11.1	West	0.0100	0.0100	0.0100	0.0100	0.0100	0.0100	0.0086	0.0100
11.2	West	0.0090	0.0090	0.0090	0.0090	0.0090	0.0090	0.0081	0.0090

**Table J2.3-4j**  
**RAO 2 Rolling River Mile HI Estimates - 2,3,7,8-TCDF**  
 Portland Harbor Superfund Site  
 Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
11.3	West	0.0081	0.0081	0.0081	0.0081	0.0081	0.0081	0.0081	0.0081
11.4	West	0.0076	0.0076	0.0076	0.0076	0.0076	0.0076	0.0075	0.0076
11.5	West	0.0069	0.0069	0.0069	0.0069	0.0069	0.0069	0.0069	0.0069
11.6	West	0.0063	0.0063	0.0063	0.0063	0.0063	0.0063	0.0063	0.0063
11.7	West	0.0059	0.0059	0.0059	0.0059	0.0059	0.0059	0.0058	0.0059
7.6	Swan Isl	0.0054	0.0004	0.0004	0.0003	0.0000	0.0000	0.0000	0.0003
7.7	Swan Isl	0.0060	0.0004	0.0004	0.0002	0.0000	0.0000	0.0000	0.0002
7.8	Swan Isl	0.0058	0.0004	0.0004	0.0002	0.0000	0.0000	0.0000	0.0002
7.9	Swan Isl	0.0055	0.0004	0.0003	0.0002	0.0000	0.0000	0.0000	0.0002
8	Swan Isl	0.0055	0.0003	0.0003	0.0002	0.0000	0.0000	0.0000	0.0002
8.1	Swan Isl	0.0055	0.0003	0.0003	0.0002	0.0001	0.0001	0.0000	0.0002
8.2	Swan Isl	0.0059	0.0003	0.0003	0.0002	0.0001	0.0001	0.0001	0.0002
8.3	Swan Isl	0.0065	0.0004	0.0003	0.0002	0.0001	0.0001	0.0001	0.0002
8.4	Swan Isl	0.0072	0.0006	0.0003	0.0002	0.0001	0.0001	0.0001	0.0002
8.5	Swan Isl	0.0078	0.0006	0.0003	0.0002	0.0001	0.0001	0.0001	0.0002
8.6	Swan Isl	0.0089	0.0013	0.0006	0.0005	0.0001	0.0001	0.0001	0.0008
8.7	Swan Isl	0.0103	0.0026	0.0015	0.0013	0.0004	0.0004	0.0003	0.0021
8.8	Swan Isl	0.0113	0.0030	0.0017	0.0015	0.0005	0.0005	0.0004	0.0024
8.9	Swan Isl	0.0125	0.0034	0.0019	0.0017	0.0006	0.0006	0.0005	0.0028
9	Swan Isl	0.0136	0.0040	0.0022	0.0020	0.0006	0.0006	0.0005	0.0032
9.1	Swan Isl	0.0141	0.0043	0.0024	0.0021	0.0007	0.0007	0.0006	0.0034
9.2	Swan Isl	0.0153	0.0051	0.0028	0.0026	0.0008	0.0008	0.0006	0.0041
9.3	Swan Isl	0.0164	0.0064	0.0035	0.0033	0.0009	0.0009	0.0008	0.0054
9.4	Swan Isl	0.0177	0.0087	0.0052	0.0049	0.0014	0.0014	0.0011	0.0080
9.5	Swan Isl	0.0193	0.0136	0.0085	0.0080	0.0022	0.0022	0.0018	0.0133
9.6	Swan Isl	0.0180	0.0180	0.0129	0.0118	0.0045	0.0045	0.0037	0.0180

**Table J2.3-5a**  
**RAO 2 Rolling River Mile Risk Estimates Infant - DDx**  
 Portland Harbor Superfund Site  
 Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
1.8	East	0.014	0.013	0.012	0.012	0.012	0.012	0.011	0.012
1.9	East	0.014	0.013	0.013	0.012	0.012	0.012	0.012	0.012
2	East	0.014	0.013	0.013	0.012	0.011	0.011	0.011	0.012
2.1	East	0.014	0.013	0.013	0.012	0.011	0.011	0.011	0.012
2.2	East	0.013	0.012	0.011	0.011	0.009	0.009	0.009	0.011
2.3	East	0.012	0.011	0.010	0.010	0.008	0.008	0.007	0.010
2.4	East	0.012	0.011	0.010	0.009	0.008	0.008	0.007	0.009
2.5	East	0.013	0.011	0.010	0.010	0.008	0.008	0.007	0.010
2.6	East	0.013	0.011	0.010	0.010	0.008	0.008	0.007	0.010
2.7	East	0.012	0.011	0.011	0.010	0.009	0.009	0.008	0.010
2.8	East	0.012	0.012	0.011	0.011	0.009	0.009	0.008	0.011
2.9	East	0.012	0.011	0.011	0.010	0.009	0.009	0.008	0.010
3	East	0.012	0.011	0.011	0.010	0.009	0.009	0.008	0.011
3.1	East	0.012	0.012	0.011	0.011	0.010	0.010	0.009	0.011
3.2	East	0.012	0.012	0.011	0.011	0.010	0.010	0.009	0.011
3.3	East	0.013	0.011	0.010	0.009	0.008	0.008	0.007	0.009
3.4	East	0.013	0.011	0.010	0.010	0.008	0.008	0.007	0.010
3.5	East	0.014	0.011	0.010	0.010	0.008	0.008	0.006	0.010
3.6	East	0.014	0.011	0.010	0.009	0.007	0.007	0.006	0.009
3.7	East	0.015	0.012	0.011	0.009	0.006	0.006	0.005	0.009
3.8	East	0.015	0.012	0.011	0.010	0.007	0.007	0.005	0.010
3.9	East	0.019	0.016	0.014	0.011	0.007	0.007	0.004	0.011
4	East	0.021	0.018	0.016	0.013	0.007	0.007	0.004	0.013
4.1	East	0.020	0.018	0.015	0.012	0.006	0.006	0.003	0.012
4.2	East	0.022	0.020	0.017	0.013	0.007	0.007	0.003	0.013
4.3	East	0.024	0.023	0.019	0.015	0.008	0.008	0.003	0.015
4.4	East	0.024	0.023	0.019	0.015	0.009	0.009	0.003	0.015
4.5	East	0.024	0.024	0.019	0.015	0.009	0.009	0.004	0.015
4.6	East	0.024	0.023	0.019	0.015	0.009	0.009	0.004	0.015
4.7	East	0.023	0.023	0.019	0.015	0.009	0.009	0.005	0.015
4.8	East	0.022	0.022	0.018	0.014	0.009	0.009	0.004	0.014
4.9	East	0.019	0.019	0.017	0.014	0.009	0.009	0.005	0.014
5	East	0.017	0.017	0.014	0.012	0.009	0.009	0.005	0.012
5.1	East	0.019	0.019	0.017	0.014	0.011	0.011	0.006	0.013
5.2	East	0.022	0.022	0.022	0.022	0.011	0.011	0.007	0.011
5.3	East	0.022	0.022	0.022	0.021	0.010	0.010	0.006	0.010
5.4	East	0.021	0.021	0.021	0.020	0.010	0.010	0.005	0.010
5.5	East	0.021	0.021	0.021	0.020	0.011	0.011	0.005	0.011
5.6	East	0.021	0.021	0.021	0.020	0.011	0.011	0.005	0.012
5.7	East	0.021	0.021	0.021	0.020	0.011	0.011	0.006	0.012
5.8	East	0.021	0.020	0.020	0.020	0.011	0.011	0.007	0.013
5.9	East	0.021	0.021	0.021	0.020	0.012	0.012	0.007	0.014
6	East	0.021	0.021	0.020	0.020	0.012	0.012	0.008	0.014

**Table J2.3-5a**  
**RAO 2 Rolling River Mile Risk Estimates Infant - DDx**  
 Portland Harbor Superfund Site  
 Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
6.1	East	0.020	0.020	0.020	0.019	0.013	0.013	0.009	0.015
6.2	East	0.017	0.017	0.016	0.016	0.013	0.013	0.010	0.015
6.3	East	0.015	0.015	0.014	0.014	0.012	0.012	0.009	0.014
6.4	East	0.017	0.015	0.012	0.012	0.010	0.010	0.008	0.014
6.5	East	0.015	0.013	0.011	0.010	0.009	0.009	0.008	0.013
6.6	East	0.014	0.011	0.009	0.009	0.008	0.008	0.007	0.011
6.7	East	0.014	0.011	0.009	0.008	0.008	0.008	0.007	0.012
6.8	East	0.014	0.011	0.008	0.008	0.007	0.007	0.007	0.012
6.9	East	0.014	0.010	0.007	0.007	0.007	0.007	0.006	0.011
7	East	0.013	0.010	0.007	0.007	0.007	0.007	0.006	0.011
7.1	East	0.012	0.009	0.006	0.006	0.006	0.006	0.006	0.010
7.2	East	0.012	0.008	0.006	0.006	0.006	0.006	0.005	0.010
7.3	East	0.012	0.009	0.006	0.006	0.006	0.006	0.006	0.010
7.4	East	0.010	0.008	0.007	0.007	0.007	0.007	0.007	0.010
7.5	East	0.013	0.011	0.010	0.010	0.010	0.010	0.008	0.013
7.6	East	0.018	0.016	0.015	0.015	0.014	0.014	0.009	0.017
7.7	East	0.017	0.015	0.015	0.015	0.014	0.014	0.009	0.016
7.8	East	0.017	0.015	0.015	0.015	0.015	0.015	0.008	0.015
7.9	East	0.018	0.017	0.017	0.017	0.017	0.017	0.009	0.017
8	East	0.021	0.019	0.019	0.019	0.019	0.019	0.010	0.019
8.1	East	0.024	0.022	0.022	0.022	0.022	0.022	0.011	0.022
8.2	East	0.025	0.024	0.024	0.023	0.023	0.023	0.013	0.023
8.3	East	0.025	0.023	0.023	0.023	0.023	0.023	0.013	0.023
8.4	East	0.023	0.022	0.022	0.022	0.021	0.021	0.012	0.022
8.5	East	0.020	0.018	0.018	0.018	0.018	0.018	0.010	0.018
8.6	East	0.012	0.011	0.011	0.011	0.010	0.010	0.010	0.011
8.7	East	0.013	0.012	0.012	0.012	0.012	0.012	0.011	0.012
8.8	East	0.013	0.013	0.013	0.013	0.012	0.012	0.011	0.013
8.9	East	0.011	0.011	0.011	0.011	0.011	0.011	0.010	0.011
9	East	0.010	0.010	0.010	0.010	0.009	0.009	0.008	0.010
9.1	East	0.008	0.008	0.008	0.008	0.007	0.007	0.006	0.008
9.2	East	0.006	0.006	0.006	0.006	0.005	0.005	0.004	0.006
9.3	East	0.005	0.005	0.005	0.005	0.005	0.005	0.003	0.005
9.4	East	0.006	0.006	0.006	0.006	0.005	0.005	0.003	0.006
9.5	East	0.006	0.006	0.006	0.006	0.005	0.005	0.004	0.006
9.6	East	0.005	0.005	0.005	0.005	0.005	0.005	0.004	0.005
9.7	East	0.006	0.006	0.006	0.005	0.005	0.005	0.004	0.005
9.8	East	0.006	0.006	0.006	0.006	0.005	0.005	0.004	0.006
9.9	East	0.006	0.006	0.006	0.006	0.005	0.005	0.004	0.006
10	East	0.006	0.006	0.006	0.006	0.005	0.005	0.005	0.006
10.1	East	0.007	0.006	0.006	0.006	0.006	0.006	0.005	0.006
10.2	East	0.007	0.007	0.007	0.007	0.006	0.006	0.005	0.007

**Table J2.3-5a**

**RAO 2 Rolling River Mile Risk Estimates Infant - DDx**

Portland Harbor Superfund Site

Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
10.3	East	0.007	0.007	0.007	0.006	0.005	0.005	0.005	0.006
10.4	East	0.007	0.007	0.007	0.006	0.005	0.005	0.004	0.006
10.5	East	0.008	0.008	0.008	0.007	0.005	0.005	0.003	0.007
10.6	East	0.011	0.011	0.010	0.009	0.006	0.006	0.004	0.009
10.7	East	0.014	0.012	0.011	0.009	0.006	0.006	0.003	0.009
10.8	East	0.021	0.019	0.016	0.013	0.007	0.007	0.002	0.013
10.9	East	0.033	0.021	0.016	0.012	0.007	0.007	0.002	0.012
11	East	0.038	0.022	0.016	0.011	0.006	0.006	0.002	0.011
11.1	East	0.039	0.023	0.017	0.012	0.006	0.006	0.002	0.012
11.2	East	0.038	0.022	0.017	0.012	0.006	0.006	0.001	0.012
11.3	East	0.042	0.024	0.018	0.013	0.007	0.007	0.001	0.013
11.4	East	0.046	0.026	0.019	0.014	0.007	0.007	0.001	0.014
11.5	East	0.048	0.027	0.019	0.013	0.007	0.007	0.001	0.013
11.6	East	0.051	0.026	0.018	0.012	0.006	0.006	0.001	0.012
11.7	East	0.054	0.028	0.019	0.012	0.006	0.006	0.001	0.012
1.8	Nav Channel	0.009	0.009	0.009	0.009	0.009	0.009	0.009	0.009
1.9	Nav Channel	0.009	0.009	0.009	0.009	0.009	0.009	0.008	0.009
2	Nav Channel	0.009	0.009	0.009	0.009	0.009	0.009	0.008	0.009
2.1	Nav Channel	0.009	0.009	0.009	0.009	0.009	0.009	0.008	0.009
2.2	Nav Channel	0.009	0.009	0.009	0.009	0.009	0.009	0.008	0.009
2.3	Nav Channel	0.009	0.009	0.009	0.009	0.009	0.009	0.008	0.009
2.4	Nav Channel	0.009	0.009	0.009	0.009	0.009	0.009	0.008	0.009
2.5	Nav Channel	0.010	0.010	0.010	0.010	0.010	0.010	0.009	0.010
2.6	Nav Channel	0.010	0.010	0.010	0.010	0.010	0.010	0.009	0.010
2.7	Nav Channel	0.011	0.011	0.011	0.011	0.011	0.011	0.009	0.011
2.8	Nav Channel	0.011	0.011	0.011	0.011	0.011	0.011	0.010	0.011
2.9	Nav Channel	0.011	0.011	0.011	0.011	0.011	0.011	0.010	0.011
3	Nav Channel	0.011	0.011	0.011	0.011	0.011	0.011	0.010	0.011
3.1	Nav Channel	0.012	0.012	0.012	0.012	0.012	0.010	0.009	0.012
3.2	Nav Channel	0.012	0.012	0.012	0.012	0.012	0.010	0.008	0.012
3.3	Nav Channel	0.012	0.012	0.012	0.012	0.012	0.009	0.007	0.012
3.4	Nav Channel	0.012	0.012	0.012	0.012	0.012	0.009	0.008	0.012
3.5	Nav Channel	0.014	0.014	0.014	0.014	0.014	0.012	0.009	0.014
3.6	Nav Channel	0.015	0.015	0.015	0.015	0.015	0.013	0.010	0.015
3.7	Nav Channel	0.014	0.014	0.014	0.014	0.014	0.012	0.010	0.014
3.8	Nav Channel	0.014	0.014	0.014	0.014	0.014	0.012	0.009	0.014
3.9	Nav Channel	0.013	0.013	0.013	0.013	0.013	0.011	0.009	0.013
4	Nav Channel	0.013	0.013	0.013	0.013	0.013	0.012	0.010	0.013
4.1	Nav Channel	0.013	0.013	0.013	0.013	0.013	0.012	0.010	0.013
4.2	Nav Channel	0.013	0.013	0.013	0.013	0.013	0.013	0.011	0.013
4.3	Nav Channel	0.014	0.014	0.014	0.014	0.014	0.014	0.012	0.014
4.4	Nav Channel	0.014	0.014	0.014	0.014	0.014	0.014	0.012	0.014

**Table J2.3-5a**

**RAO 2 Rolling River Mile Risk Estimates Infant - DDx**

Portland Harbor Superfund Site

Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
4.5	Nav Channel	0.012	0.012	0.012	0.012	0.012	0.012	0.011	0.012
4.6	Nav Channel	0.012	0.012	0.011	0.011	0.012	0.011	0.010	0.012
4.7	Nav Channel	0.012	0.012	0.011	0.011	0.012	0.010	0.009	0.012
4.8	Nav Channel	0.012	0.012	0.011	0.011	0.012	0.010	0.009	0.012
4.9	Nav Channel	0.013	0.012	0.011	0.010	0.012	0.009	0.008	0.012
5	Nav Channel	0.014	0.012	0.010	0.009	0.012	0.008	0.007	0.012
5.1	Nav Channel	0.014	0.012	0.010	0.009	0.012	0.007	0.006	0.012
5.2	Nav Channel	0.015	0.011	0.009	0.008	0.011	0.006	0.005	0.011
5.3	Nav Channel	0.019	0.010	0.008	0.007	0.010	0.005	0.004	0.010
5.4	Nav Channel	0.020	0.010	0.008	0.007	0.010	0.004	0.003	0.010
5.5	Nav Channel	0.020	0.010	0.008	0.006	0.010	0.003	0.002	0.010
5.6	Nav Channel	0.022	0.011	0.009	0.007	0.011	0.003	0.001	0.011
5.7	Nav Channel	0.023	0.012	0.009	0.007	0.012	0.003	0.001	0.011
5.8	Nav Channel	0.025	0.012	0.009	0.007	0.012	0.003	0.001	0.011
5.9	Nav Channel	0.025	0.012	0.010	0.007	0.012	0.004	0.002	0.011
6	Nav Channel	0.027	0.012	0.010	0.008	0.012	0.005	0.002	0.011
6.1	Nav Channel	0.030	0.014	0.012	0.008	0.014	0.004	0.003	0.013
6.2	Nav Channel	0.030	0.017	0.014	0.010	0.016	0.004	0.002	0.015
6.3	Nav Channel	0.025	0.019	0.016	0.012	0.018	0.005	0.002	0.017
6.4	Nav Channel	0.025	0.018	0.015	0.012	0.018	0.006	0.003	0.016
6.5	Nav Channel	0.025	0.018	0.016	0.012	0.018	0.007	0.004	0.017
6.6	Nav Channel	0.024	0.018	0.015	0.013	0.017	0.008	0.006	0.016
6.7	Nav Channel	0.024	0.018	0.017	0.015	0.018	0.011	0.008	0.018
6.8	Nav Channel	0.027	0.023	0.022	0.020	0.022	0.016	0.010	0.022
6.9	Nav Channel	0.030	0.026	0.025	0.024	0.026	0.020	0.012	0.026
7	Nav Channel	0.029	0.027	0.026	0.025	0.027	0.020	0.013	0.027
7.1	Nav Channel	0.025	0.025	0.024	0.024	0.024	0.020	0.013	0.024
7.2	Nav Channel	0.022	0.022	0.022	0.022	0.022	0.020	0.012	0.022
7.3	Nav Channel	0.020	0.020	0.020	0.020	0.020	0.018	0.012	0.020
7.4	Nav Channel	0.019	0.018	0.018	0.018	0.018	0.017	0.012	0.018
7.5	Nav Channel	0.017	0.017	0.017	0.017	0.017	0.016	0.011	0.017
7.6	Nav Channel	0.016	0.016	0.016	0.016	0.016	0.015	0.010	0.016
7.7	Nav Channel	0.015	0.015	0.015	0.015	0.015	0.014	0.010	0.015
7.8	Nav Channel	0.012	0.012	0.012	0.012	0.012	0.011	0.009	0.012
7.9	Nav Channel	0.010	0.010	0.010	0.010	0.010	0.010	0.008	0.010
8	Nav Channel	0.009	0.009	0.009	0.009	0.009	0.009	0.008	0.009
8.1	Nav Channel	0.009	0.009	0.009	0.009	0.009	0.008	0.008	0.009
8.2	Nav Channel	0.008	0.008	0.008	0.008	0.008	0.008	0.008	0.008
8.3	Nav Channel	0.007	0.007	0.007	0.007	0.007	0.007	0.007	0.007
8.4	Nav Channel	0.007	0.007	0.007	0.007	0.007	0.007	0.007	0.007
8.5	Nav Channel	0.007	0.007	0.007	0.007	0.007	0.006	0.006	0.007
8.6	Nav Channel	0.006	0.006	0.006	0.006	0.006	0.006	0.006	0.006

**Table J2.3-5a**

**RAO 2 Rolling River Mile Risk Estimates Infant - DDx**

Portland Harbor Superfund Site

Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
8.7	Nav Channel	0.006	0.006	0.006	0.006	0.006	0.006	0.005	0.006
8.8	Nav Channel	0.006	0.005	0.005	0.005	0.005	0.005	0.005	0.005
8.9	Nav Channel	0.005	0.005	0.005	0.005	0.005	0.005	0.004	0.005
9	Nav Channel	0.005	0.005	0.005	0.005	0.005	0.005	0.004	0.005
9.1	Nav Channel	0.005	0.005	0.005	0.005	0.005	0.004	0.004	0.005
9.2	Nav Channel	0.005	0.005	0.005	0.005	0.005	0.004	0.004	0.005
9.3	Nav Channel	0.005	0.005	0.005	0.005	0.005	0.005	0.004	0.005
9.4	Nav Channel	0.005	0.005	0.005	0.005	0.005	0.005	0.004	0.005
9.5	Nav Channel	0.006	0.006	0.006	0.006	0.006	0.005	0.004	0.006
9.6	Nav Channel	0.006	0.006	0.006	0.006	0.006	0.005	0.005	0.006
9.7	Nav Channel	0.006	0.006	0.006	0.006	0.006	0.005	0.005	0.006
9.8	Nav Channel	0.006	0.006	0.006	0.006	0.006	0.006	0.005	0.006
9.9	Nav Channel	0.007	0.007	0.007	0.007	0.007	0.006	0.005	0.007
10	Nav Channel	0.007	0.007	0.007	0.007	0.007	0.006	0.005	0.007
10.1	Nav Channel	0.007	0.007	0.007	0.007	0.007	0.006	0.005	0.007
10.2	Nav Channel	0.007	0.007	0.007	0.007	0.007	0.006	0.005	0.007
10.3	Nav Channel	0.007	0.007	0.007	0.007	0.007	0.006	0.005	0.007
10.4	Nav Channel	0.008	0.008	0.008	0.008	0.008	0.006	0.005	0.008
10.5	Nav Channel	0.008	0.008	0.008	0.008	0.008	0.007	0.005	0.008
10.6	Nav Channel	0.009	0.009	0.009	0.009	0.009	0.007	0.005	0.009
10.7	Nav Channel	0.009	0.009	0.009	0.009	0.009	0.007	0.005	0.009
10.8	Nav Channel	0.011	0.009	0.008	0.008	0.008	0.007	0.005	0.008
10.9	Nav Channel	0.013	0.010	0.009	0.009	0.009	0.008	0.006	0.009
11	Nav Channel	0.014	0.011	0.010	0.010	0.010	0.009	0.007	0.010
11.1	Nav Channel	0.014	0.011	0.011	0.010	0.010	0.009	0.008	0.010
11.2	Nav Channel	0.015	0.012	0.011	0.011	0.011	0.010	0.008	0.011
11.3	Nav Channel	0.016	0.012	0.012	0.011	0.011	0.010	0.008	0.011
11.4	Nav Channel	0.017	0.013	0.012	0.011	0.011	0.010	0.009	0.011
11.5	Nav Channel	0.017	0.013	0.012	0.011	0.011	0.011	0.010	0.011
11.6	Nav Channel	0.019	0.013	0.012	0.011	0.011	0.011	0.010	0.011
11.7	Nav Channel	0.020	0.014	0.013	0.012	0.012	0.011	0.011	0.012
1.8	West	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010
1.9	West	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010
2	West	0.011	0.011	0.011	0.011	0.011	0.011	0.011	0.011
2.1	West	0.012	0.012	0.012	0.012	0.012	0.012	0.012	0.012
2.2	West	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013
2.3	West	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013
2.4	West	0.014	0.014	0.014	0.014	0.014	0.014	0.013	0.014
2.5	West	0.014	0.014	0.014	0.014	0.014	0.014	0.013	0.014
2.6	West	0.014	0.014	0.014	0.014	0.014	0.014	0.012	0.014
2.7	West	0.015	0.015	0.015	0.015	0.015	0.015	0.012	0.015
2.8	West	0.020	0.020	0.020	0.020	0.020	0.020	0.012	0.020



**Table J2.3-5a**  
**RAO 2 Rolling River Mile Risk Estimates Infant - DDx**  
 Portland Harbor Superfund Site  
 Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
2.9	West	0.019	0.019	0.019	0.019	0.019	0.019	0.011	0.019
3	West	0.021	0.021	0.021	0.021	0.020	0.020	0.011	0.021
3.1	West	0.021	0.021	0.021	0.021	0.020	0.020	0.011	0.021
3.2	West	0.021	0.021	0.021	0.021	0.020	0.020	0.010	0.021
3.3	West	0.022	0.022	0.022	0.022	0.022	0.022	0.011	0.022
3.4	West	0.024	0.024	0.024	0.024	0.023	0.023	0.012	0.024
3.5	West	0.026	0.026	0.026	0.026	0.025	0.025	0.013	0.026
3.6	West	0.029	0.029	0.029	0.029	0.028	0.028	0.014	0.029
3.7	West	0.030	0.030	0.030	0.030	0.029	0.029	0.013	0.030
3.8	West	0.024	0.024	0.024	0.024	0.021	0.021	0.013	0.024
3.9	West	0.030	0.030	0.030	0.030	0.027	0.027	0.014	0.030
4	West	0.030	0.030	0.030	0.030	0.028	0.028	0.014	0.030
4.1	West	0.032	0.032	0.032	0.032	0.029	0.029	0.013	0.032
4.2	West	0.035	0.035	0.035	0.035	0.031	0.031	0.013	0.035
4.3	West	0.034	0.034	0.034	0.033	0.029	0.029	0.011	0.033
4.4	West	0.031	0.031	0.031	0.031	0.027	0.027	0.010	0.031
4.5	West	0.031	0.031	0.031	0.031	0.026	0.026	0.009	0.031
4.6	West	0.029	0.029	0.029	0.029	0.025	0.025	0.009	0.029
4.7	West	0.031	0.031	0.031	0.030	0.025	0.025	0.009	0.030
4.8	West	0.032	0.032	0.031	0.030	0.026	0.026	0.010	0.030
4.9	West	0.028	0.028	0.027	0.026	0.022	0.022	0.009	0.026
5	West	0.024	0.024	0.023	0.022	0.018	0.018	0.008	0.022
5.1	West	0.023	0.023	0.022	0.020	0.016	0.016	0.006	0.020
5.2	West	0.021	0.021	0.020	0.018	0.016	0.016	0.006	0.018
5.3	West	0.024	0.024	0.023	0.021	0.019	0.019	0.007	0.021
5.4	West	0.037	0.037	0.036	0.032	0.023	0.023	0.008	0.035
5.5	West	0.044	0.044	0.041	0.036	0.025	0.025	0.008	0.040
5.6	West	0.052	0.048	0.043	0.038	0.023	0.023	0.007	0.042
5.7	West	0.069	0.046	0.040	0.035	0.022	0.022	0.006	0.040
5.8	West	0.099	0.042	0.036	0.031	0.018	0.018	0.006	0.036
5.9	West	0.125	0.038	0.032	0.028	0.015	0.015	0.005	0.032
6	West	0.137	0.037	0.031	0.027	0.014	0.014	0.005	0.031
6.1	West	0.156	0.043	0.035	0.029	0.014	0.014	0.005	0.031
6.2	West	0.165	0.053	0.045	0.038	0.017	0.017	0.005	0.033
6.3	West	0.168	0.057	0.049	0.041	0.015	0.015	0.004	0.030
6.4	West	0.215	0.088	0.055	0.038	0.011	0.011	0.002	0.020
6.5	West	0.304	0.147	0.086	0.036	0.007	0.007	0.001	0.013
6.6	West	0.391	0.209	0.116	0.043	0.007	0.007	0.000	0.007
6.7	West	0.554	0.211	0.112	0.041	0.006	0.006	0.000	0.006
6.8	West	1.337	0.207	0.110	0.040	0.006	0.006	0.000	0.006
6.9	West	1.956	0.213	0.114	0.042	0.006	0.006	0.000	0.007
7	West	2.087	0.220	0.119	0.045	0.009	0.009	0.000	0.009

**Table J2.3-5a**

**RAO 2 Rolling River Mile Risk Estimates Infant - DDx**

Portland Harbor Superfund Site

Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
7.1	West	1.727	0.193	0.109	0.048	0.016	0.016	0.003	0.016
7.2	West	1.443	0.159	0.089	0.039	0.015	0.015	0.005	0.015
7.3	West	1.246	0.140	0.079	0.036	0.017	0.017	0.005	0.017
7.4	West	1.214	0.117	0.071	0.033	0.018	0.018	0.006	0.018
7.5	West	1.208	0.085	0.053	0.033	0.019	0.019	0.006	0.019
7.6	West	1.186	0.048	0.035	0.027	0.019	0.019	0.006	0.019
7.7	West	1.086	0.040	0.034	0.028	0.020	0.020	0.006	0.021
7.8	West	0.565	0.042	0.037	0.030	0.020	0.020	0.006	0.023
7.9	West	0.151	0.044	0.040	0.034	0.020	0.020	0.006	0.028
8	West	0.039	0.037	0.036	0.031	0.019	0.019	0.007	0.027
8.1	West	0.038	0.038	0.037	0.029	0.015	0.015	0.006	0.027
8.2	West	0.044	0.043	0.043	0.030	0.013	0.013	0.004	0.028
8.3	West	0.046	0.045	0.044	0.028	0.010	0.010	0.004	0.028
8.4	West	0.077	0.046	0.045	0.028	0.009	0.009	0.003	0.028
8.5	West	0.080	0.047	0.046	0.028	0.009	0.009	0.003	0.028
8.6	West	0.084	0.048	0.046	0.028	0.009	0.009	0.003	0.028
8.7	West	0.088	0.049	0.047	0.028	0.009	0.009	0.004	0.028
8.8	West	0.087	0.048	0.045	0.026	0.009	0.009	0.004	0.026
8.9	West	0.079	0.040	0.036	0.019	0.007	0.007	0.004	0.019
9	West	0.080	0.038	0.034	0.018	0.005	0.005	0.002	0.018
9.1	West	0.071	0.025	0.021	0.010	0.003	0.003	0.002	0.010
9.2	West	0.062	0.016	0.012	0.006	0.003	0.003	0.002	0.006
9.3	West	0.059	0.013	0.009	0.006	0.003	0.003	0.002	0.006
9.4	West	0.022	0.014	0.010	0.006	0.003	0.003	0.002	0.006
9.5	West	0.021	0.014	0.010	0.007	0.003	0.003	0.002	0.007
9.6	West	0.018	0.014	0.011	0.007	0.004	0.004	0.003	0.007
9.7	West	0.015	0.014	0.011	0.008	0.004	0.004	0.003	0.008
9.8	West	0.013	0.012	0.011	0.008	0.004	0.004	0.003	0.008
9.9	West	0.014	0.013	0.011	0.008	0.004	0.004	0.002	0.008
10	West	0.016	0.014	0.012	0.008	0.004	0.004	0.003	0.008
10.1	West	0.016	0.014	0.012	0.006	0.004	0.004	0.002	0.006
10.2	West	0.012	0.012	0.010	0.008	0.006	0.006	0.004	0.008
10.3	West	0.011	0.011	0.011	0.010	0.008	0.008	0.005	0.010
10.4	West	0.011	0.011	0.011	0.011	0.009	0.009	0.007	0.011
10.5	West	0.012	0.012	0.012	0.012	0.010	0.010	0.008	0.012
10.6	West	0.013	0.013	0.013	0.012	0.011	0.011	0.009	0.012
10.7	West	0.012	0.012	0.012	0.012	0.011	0.011	0.009	0.012
10.8	West	0.011	0.011	0.011	0.011	0.011	0.011	0.009	0.011
10.9	West	0.011	0.011	0.011	0.011	0.011	0.011	0.010	0.011
11	West	0.010	0.010	0.010	0.010	0.010	0.010	0.009	0.010
11.1	West	0.010	0.010	0.010	0.010	0.010	0.010	0.009	0.010
11.2	West	0.010	0.010	0.010	0.010	0.010	0.010	0.009	0.010

**Table J2.3-5a**  
**RAO 2 Rolling River Mile Risk Estimates Infant - DDx**  
 Portland Harbor Superfund Site  
 Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
11.3	West	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010
11.4	West	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010
11.5	West	0.008	0.008	0.008	0.008	0.008	0.008	0.008	0.008
11.6	West	0.007	0.007	0.007	0.007	0.007	0.007	0.007	0.007
11.7	West	0.007	0.007	0.007	0.007	0.007	0.007	0.007	0.007
7.6	Swan Isl	0.014	0.001	0.001	0.001	0.000	0.000	0.000	0.001
7.7	Swan Isl	0.017	0.001	0.001	0.001	0.000	0.000	0.000	0.001
7.8	Swan Isl	0.024	0.002	0.002	0.001	0.000	0.000	0.000	0.001
7.9	Swan Isl	0.024	0.002	0.001	0.001	0.000	0.000	0.000	0.001
8	Swan Isl	0.025	0.002	0.001	0.001	0.000	0.000	0.000	0.001
8.1	Swan Isl	0.025	0.002	0.001	0.001	0.000	0.000	0.000	0.001
8.2	Swan Isl	0.023	0.002	0.001	0.001	0.000	0.000	0.000	0.001
8.3	Swan Isl	0.025	0.002	0.001	0.001	0.000	0.000	0.000	0.001
8.4	Swan Isl	0.027	0.002	0.001	0.001	0.000	0.000	0.000	0.001
8.5	Swan Isl	0.026	0.002	0.001	0.001	0.000	0.000	0.000	0.001
8.6	Swan Isl	0.027	0.002	0.001	0.001	0.000	0.000	0.000	0.001
8.7	Swan Isl	0.029	0.003	0.002	0.001	0.000	0.000	0.000	0.002
8.8	Swan Isl	0.026	0.003	0.002	0.002	0.001	0.001	0.000	0.002
8.9	Swan Isl	0.026	0.003	0.002	0.002	0.001	0.001	0.000	0.002
9	Swan Isl	0.026	0.003	0.002	0.002	0.001	0.001	0.000	0.002
9.1	Swan Isl	0.026	0.004	0.002	0.002	0.001	0.001	0.001	0.003
9.2	Swan Isl	0.029	0.004	0.003	0.002	0.001	0.001	0.000	0.003
9.3	Swan Isl	0.026	0.005	0.003	0.003	0.001	0.001	0.000	0.004
9.4	Swan Isl	0.013	0.006	0.004	0.004	0.001	0.001	0.000	0.005
9.5	Swan Isl	0.012	0.009	0.007	0.006	0.001	0.001	0.001	0.008
9.6	Swan Isl	0.011	0.011	0.010	0.008	0.002	0.002	0.001	0.011

**Table J2.3-5b**  
**RAO 2 Rolling River Mile Risk Estimates Infant - PCBs**  
 Portland Harbor Superfund Site  
 Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
1.8	East	448	232	182	148	134	134	130	148
1.9	East	557	244	190	150	134	134	130	150
2	East	721	229	171	129	107	107	101	129
2.1	East	720	227	169	127	91	91	84	127
2.2	East	706	224	168	126	86	86	76	126
2.3	East	724	224	164	120	77	77	63	120
2.4	East	720	218	157	111	67	67	52	112
2.5	East	719	206	144	109	67	67	53	109
2.6	East	711	184	132	108	68	68	54	108
2.7	East	588	169	128	108	70	70	57	109
2.8	East	492	139	124	110	73	73	59	110
2.9	East	370	128	117	109	74	74	60	110
3	East	114	113	109	106	76	76	64	106
3.1	East	101	100	95	93	81	81	69	93
3.2	East	96	96	90	87	83	83	74	88
3.3	East	274	171	132	110	76	76	63	111
3.4	East	391	181	139	117	76	76	61	117
3.5	East	426	202	156	123	75	75	56	123
3.6	East	494	245	181	126	72	72	50	126
3.7	East	535	280	210	135	72	72	46	135
3.8	East	552	291	219	142	77	77	47	142
3.9	East	608	372	261	158	74	74	40	158
4	East	605	384	279	178	75	75	36	178
4.1	East	588	375	271	172	71	71	30	172
4.2	East	559	360	258	160	62	62	23	160
4.3	East	471	340	251	151	64	64	23	151
4.4	East	360	346	256	149	63	63	24	149
4.5	East	349	334	243	145	63	63	26	145
4.6	East	291	290	218	143	65	65	30	143
4.7	East	260	259	191	135	65	65	33	135
4.8	East	258	258	187	131	61	61	31	131
4.9	East	147	146	128	110	62	62	34	110
5	East	105	104	86	73	59	59	39	71
5.1	East	114	113	99	87	65	65	42	73
5.2	East	156	156	156	141	73	73	47	74
5.3	East	202	201	201	165	65	65	42	65
5.4	East	207	206	206	175	75	75	39	75
5.5	East	209	208	208	181	78	78	37	86
5.6	East	227	227	227	196	74	74	34	109
5.7	East	234	233	233	205	73	73	34	127
5.8	East	219	219	218	193	72	72	36	123
5.9	East	209	208	207	181	68	68	35	120
6	East	194	194	192	169	65	65	35	112

**Table J2.3-5b**

**RAO 2 Rolling River Mile Risk Estimates Infant - PCBs**

Portland Harbor Superfund Site

Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
6.1	East	179	179	177	155	65	65	38	110
6.2	East	146	144	141	127	63	63	40	105
6.3	East	251	125	116	110	58	58	37	108
6.4	East	302	110	98	93	50	50	34	102
6.5	East	280	97	85	80	45	45	34	92
6.6	East	249	76	65	63	42	42	32	74
6.7	East	228	63	51	50	40	40	32	63
6.8	East	222	62	50	48	39	39	32	63
6.9	East	220	66	52	51	41	41	34	67
7	East	218	70	56	56	46	46	39	71
7.1	East	218	71	57	57	47	47	42	71
7.2	East	230	76	62	61	51	51	46	77
7.3	East	144	72	62	62	56	56	51	74
7.4	East	78	73	65	65	62	62	57	76
7.5	East	85	80	72	72	69	69	62	83
7.6	East	98	87	79	79	75	75	64	90
7.7	East	105	87	80	79	75	75	63	88
7.8	East	111	89	83	83	77	77	64	88
7.9	East	108	84	84	83	82	82	67	83
8	East	111	81	81	81	80	80	62	81
8.1	East	111	77	77	77	75	75	55	77
8.2	East	106	72	72	72	70	70	51	72
8.3	East	105	74	74	73	72	72	57	73
8.4	East	103	73	73	73	71	71	61	73
8.5	East	107	75	75	75	73	73	59	75
8.6	East	113	89	89	89	82	82	63	89
8.7	East	126	118	118	118	105	105	72	118
8.8	East	128	128	128	128	116	116	83	128
8.9	East	127	127	127	127	115	115	84	127
9	East	128	128	128	128	116	116	84	128
9.1	East	145	145	145	145	117	117	79	145
9.2	East	160	160	160	160	119	119	72	160
9.3	East	160	160	160	160	119	119	68	160
9.4	East	155	155	155	155	115	115	66	155
9.5	East	145	145	145	145	106	106	64	145
9.6	East	151	150	149	140	101	101	67	140
9.7	East	143	143	142	132	95	95	69	132
9.8	East	143	142	141	131	92	92	64	131
9.9	East	150	149	149	138	95	95	65	138
10	East	158	157	156	144	97	97	64	144
10.1	East	146	145	144	132	98	98	70	132
10.2	East	141	140	139	124	95	95	75	124

**Table J2.3-5b**

**RAO 2 Rolling River Mile Risk Estimates Infant - PCBs**

Portland Harbor Superfund Site

Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
10.3	East	175	174	173	130	83	83	67	130
10.4	East	217	216	215	145	82	82	61	145
10.5	East	255	254	252	175	87	87	57	175
10.6	East	263	263	254	181	92	92	56	181
10.7	East	479	321	270	181	86	86	51	181
10.8	East	625	409	301	184	81	81	42	184
10.9	East	1,177	486	304	168	67	67	31	168
11	East	1,426	556	319	156	54	54	23	156
11.1	East	1,488	596	332	155	50	50	19	155
11.2	East	1,450	591	336	154	60	60	18	154
11.3	East	1,570	606	320	150	62	62	16	150
11.4	East	1,721	634	311	145	59	59	12	145
11.5	East	1,855	663	310	128	56	56	13	128
11.6	East	2,069	705	312	116	46	46	10	116
11.7	East	2,078	720	323	118	48	48	8	118
1.8	Nav Channel	94	94	94	94	94	94	87	94
1.9	Nav Channel	103	103	103	103	103	103	87	103
2	Nav Channel	109	109	109	109	109	109	91	109
2.1	Nav Channel	110	110	110	110	110	110	92	110
2.2	Nav Channel	108	108	108	108	108	108	90	108
2.3	Nav Channel	104	104	104	104	104	104	86	104
2.4	Nav Channel	102	102	102	102	102	102	84	102
2.5	Nav Channel	101	101	101	101	101	101	83	101
2.6	Nav Channel	97	97	97	97	97	97	79	97
2.7	Nav Channel	92	92	92	92	92	92	75	92
2.8	Nav Channel	84	84	84	84	84	84	72	84
2.9	Nav Channel	77	77	77	77	77	77	73	77
3	Nav Channel	80	80	80	80	80	72	66	80
3.1	Nav Channel	99	99	99	97	97	71	58	97
3.2	Nav Channel	115	115	115	114	114	74	52	114
3.3	Nav Channel	117	117	117	116	116	75	50	116
3.4	Nav Channel	111	111	111	110	110	72	49	110
3.5	Nav Channel	107	107	107	106	106	70	48	106
3.6	Nav Channel	107	107	107	106	106	72	49	106
3.7	Nav Channel	105	105	105	104	104	72	51	104
3.8	Nav Channel	100	100	100	99	99	69	50	99
3.9	Nav Channel	94	94	94	93	93	65	47	93
4	Nav Channel	94	94	94	93	93	69	51	93
4.1	Nav Channel	87	87	87	87	87	74	56	87
4.2	Nav Channel	76	76	76	76	76	71	60	76
4.3	Nav Channel	71	71	71	71	71	69	60	71
4.4	Nav Channel	73	73	73	73	73	70	61	73

**Table J2.3-5b**  
**RAO 2 Rolling River Mile Risk Estimates Infant - PCBs**  
 Portland Harbor Superfund Site  
 Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
4.5	Nav Channel	75	75	75	75	75	72	63	75
4.6	Nav Channel	73	73	71	71	73	67	59	73
4.7	Nav Channel	73	71	68	66	71	62	53	71
4.8	Nav Channel	76	73	69	66	73	61	51	73
4.9	Nav Channel	79	74	68	65	74	58	48	74
5	Nav Channel	73	66	59	55	66	48	41	66
5.1	Nav Channel	66	59	51	47	59	39	33	59
5.2	Nav Channel	64	55	46	42	55	33	27	55
5.3	Nav Channel	65	52	43	38	52	29	22	52
5.4	Nav Channel	65	51	42	36	51	23	16	51
5.5	Nav Channel	64	50	40	33	50	18	9	50
5.6	Nav Channel	65	50	41	33	50	18	7	50
5.7	Nav Channel	64	50	42	34	50	18	8	49
5.8	Nav Channel	63	46	39	32	46	17	7	45
5.9	Nav Channel	63	46	41	35	46	19	9	45
6	Nav Channel	67	48	44	38	48	23	11	46
6.1	Nav Channel	90	68	53	41	64	21	12	62
6.2	Nav Channel	135	115	88	63	97	20	10	95
6.3	Nav Channel	165	151	122	97	132	27	11	130
6.4	Nav Channel	177	162	134	108	143	38	16	141
6.5	Nav Channel	175	160	132	107	141	40	21	139
6.6	Nav Channel	172	157	129	107	138	43	25	136
6.7	Nav Channel	168	154	129	109	136	46	29	135
6.8	Nav Channel	166	156	132	112	138	51	33	137
6.9	Nav Channel	170	162	139	121	145	59	37	145
7	Nav Channel	176	174	152	134	157	66	39	157
7.1	Nav Channel	167	167	156	145	155	75	42	155
7.2	Nav Channel	139	139	139	139	139	88	48	139
7.3	Nav Channel	118	118	118	118	118	89	54	118
7.4	Nav Channel	109	108	108	108	108	85	58	108
7.5	Nav Channel	107	107	107	107	107	86	63	107
7.6	Nav Channel	110	110	110	110	110	90	67	110
7.7	Nav Channel	110	109	109	109	109	91	69	109
7.8	Nav Channel	109	109	109	109	109	91	71	109
7.9	Nav Channel	106	106	106	106	106	90	73	106
8	Nav Channel	98	98	98	97	98	87	74	98
8.1	Nav Channel	88	88	88	88	88	85	76	88
8.2	Nav Channel	81	81	81	81	81	80	77	81
8.3	Nav Channel	80	80	79	79	79	79	77	79
8.4	Nav Channel	82	81	81	81	81	79	77	81
8.5	Nav Channel	92	91	90	90	90	80	74	90
8.6	Nav Channel	97	95	95	95	95	79	73	95

**Table J2.3-5b**  
**RAO 2 Rolling River Mile Risk Estimates Infant - PCBs**  
 Portland Harbor Superfund Site  
 Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
8.7	Nav Channel	108	107	107	106	106	78	71	106
8.8	Nav Channel	122	121	120	120	120	79	69	120
8.9	Nav Channel	128	127	126	126	126	82	68	126
9	Nav Channel	133	132	131	130	131	85	71	131
9.1	Nav Channel	135	133	133	132	132	85	70	132
9.2	Nav Channel	138	137	136	136	136	86	69	136
9.3	Nav Channel	140	139	139	138	138	86	69	138
9.4	Nav Channel	141	140	140	139	139	88	69	139
9.5	Nav Channel	138	138	138	137	137	89	69	137
9.6	Nav Channel	130	130	130	129	129	89	70	129
9.7	Nav Channel	121	121	121	121	121	93	74	121
9.8	Nav Channel	120	120	120	120	120	97	73	120
9.9	Nav Channel	135	135	135	135	135	91	66	135
10	Nav Channel	139	139	139	139	139	92	63	139
10.1	Nav Channel	143	143	143	143	143	95	66	143
10.2	Nav Channel	144	144	144	144	144	96	67	144
10.3	Nav Channel	149	149	149	149	149	100	70	149
10.4	Nav Channel	156	156	156	156	156	104	70	156
10.5	Nav Channel	156	156	156	156	156	106	69	156
10.6	Nav Channel	160	160	160	160	160	107	68	160
10.7	Nav Channel	170	160	156	155	155	100	63	155
10.8	Nav Channel	241	150	143	139	139	94	67	139
10.9	Nav Channel	266	147	130	119	119	100	76	119
11	Nav Channel	262	142	125	114	114	98	78	114
11.1	Nav Channel	266	145	129	117	117	102	82	117
11.2	Nav Channel	280	150	132	119	119	105	84	119
11.3	Nav Channel	298	152	132	118	118	103	81	118
11.4	Nav Channel	316	151	128	112	112	98	83	112
11.5	Nav Channel	338	150	124	106	106	95	86	106
11.6	Nav Channel	382	161	131	110	110	96	87	110
11.7	Nav Channel	420	175	147	123	123	108	96	123
1.8	West	50	50	50	50	50	50	50	50
1.9	West	48	48	48	48	48	48	48	48
2	West	46	46	46	46	46	46	46	46
2.1	West	44	44	44	44	44	44	44	44
2.2	West	42	42	42	42	42	42	41	42
2.3	West	40	40	40	40	40	40	39	40
2.4	West	39	39	39	39	39	39	37	39
2.5	West	42	42	42	42	42	42	35	42
2.6	West	42	42	42	42	42	42	32	42
2.7	West	42	42	42	42	42	42	32	42
2.8	West	44	44	44	44	44	44	32	44



**Table J2.3-5b**

**RAO 2 Rolling River Mile Risk Estimates Infant - PCBs**

Portland Harbor Superfund Site

Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
2.9	West	47	47	47	47	47	47	34	47
3	West	50	50	50	50	50	50	36	50
3.1	West	53	53	53	53	53	53	39	53
3.2	West	55	55	55	55	55	55	41	55
3.3	West	60	60	60	60	60	60	45	60
3.4	West	63	63	63	63	62	62	47	63
3.5	West	63	63	63	62	61	61	49	62
3.6	West	66	66	66	66	62	62	50	66
3.7	West	73	73	73	73	67	67	52	73
3.8	West	78	78	78	78	67	67	53	78
3.9	West	82	82	82	81	69	69	51	81
4	West	86	86	86	85	71	71	49	85
4.1	West	93	93	93	92	73	73	46	92
4.2	West	106	106	106	104	74	74	41	104
4.3	West	107	107	107	106	72	72	37	106
4.4	West	105	105	105	103	70	70	37	103
4.5	West	103	103	103	102	69	69	37	102
4.6	West	96	96	96	95	67	67	37	95
4.7	West	92	92	92	91	64	64	36	91
4.8	West	90	90	90	89	66	66	38	89
4.9	West	92	91	89	88	64	64	37	88
5	West	94	93	87	85	58	58	35	85
5.1	West	89	88	81	78	54	54	32	78
5.2	West	77	76	69	66	56	56	32	66
5.3	West	72	71	63	60	52	52	27	60
5.4	West	75	74	67	61	49	49	23	63
5.5	West	87	86	78	71	54	54	27	75
5.6	West	99	94	84	77	52	52	22	82
5.7	West	117	90	78	71	48	48	19	76
5.8	West	121	81	70	64	42	42	17	69
5.9	West	124	75	65	59	38	38	16	64
6	West	129	69	62	56	36	36	16	61
6.1	West	138	69	61	54	33	33	15	57
6.2	West	141	72	65	57	31	31	13	54
6.3	West	159	86	78	63	26	26	11	49
6.4	West	196	108	90	66	23	23	9	40
6.5	West	316	170	103	53	12	12	2	22
6.6	West	414	226	112	46	6	6	1	7
6.7	West	524	217	107	43	6	6	1	6
6.8	West	604	213	104	43	6	6	1	6
6.9	West	666	215	106	43	6	6	1	6
7	West	729	227	112	46	9	9	1	9

**Table J2.3-5b**

**RAO 2 Rolling River Mile Risk Estimates Infant - PCBs**

Portland Harbor Superfund Site

Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
7.1	West	679	250	126	55	20	20	8	20
7.2	West	608	248	144	77	36	36	15	36
7.3	West	550	243	153	97	55	55	18	55
7.4	West	535	238	155	104	67	67	23	67
7.5	West	491	214	155	118	77	77	25	79
7.6	West	455	195	162	134	86	86	26	98
7.7	West	396	224	194	157	93	93	26	121
7.8	West	355	248	218	176	95	95	26	140
7.9	West	328	269	240	193	94	94	24	160
8	West	270	256	234	191	99	99	31	160
8.1	West	258	257	255	204	100	100	32	177
8.2	West	279	278	276	204	92	92	27	188
8.3	West	351	325	311	193	76	76	25	190
8.4	West	914	332	313	187	64	64	21	185
8.5	West	981	348	306	177	56	56	20	177
8.6	West	1,149	374	293	159	48	48	20	159
8.7	West	1,332	391	272	140	44	44	21	140
8.8	West	1,355	425	280	130	44	44	23	130
8.9	West	1,371	412	264	121	51	51	32	121
9	West	1,468	450	293	146	41	41	25	146
9.1	West	1,592	472	299	160	39	39	25	160
9.2	West	1,646	525	328	149	41	41	26	149
9.3	West	1,651	526	291	153	43	43	27	153
9.4	West	990	551	308	162	45	45	29	162
9.5	West	941	542	322	170	49	49	32	170
9.6	West	754	519	340	183	55	55	36	183
9.7	West	539	491	355	195	60	60	38	195
9.8	West	507	457	351	206	62	62	39	206
9.9	West	571	510	382	206	54	54	32	206
10	West	637	560	397	173	53	53	33	173
10.1	West	707	617	396	122	52	52	31	122
10.2	West	406	399	212	151	85	85	50	151
10.3	West	195	195	195	166	126	126	69	166
10.4	West	183	183	183	158	125	125	77	159
10.5	West	172	172	172	150	121	121	79	151
10.6	West	163	163	163	143	116	116	78	143
10.7	West	154	154	154	135	112	112	80	136
10.8	West	118	118	118	118	116	116	87	118
10.9	West	115	115	115	115	115	115	90	115
11	West	114	114	114	114	114	114	91	114
11.1	West	113	113	113	113	113	113	91	113
11.2	West	107	107	107	107	107	107	92	107

**Table J2.3-5b**  
**RAO 2 Rolling River Mile Risk Estimates Infant - PCBs**  
 Portland Harbor Superfund Site  
 Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
11.3	West	99	99	99	99	99	99	99	99
11.4	West	95	95	95	95	95	95	95	95
11.5	West	94	94	94	94	94	94	94	94
11.6	West	96	96	96	96	96	96	95	96
11.7	West	98	98	98	98	98	98	98	98
7.6	Swan Isl	419	40	40	17	2	2	1	17
7.7	Swan Isl	613	33	31	14	2	2	1	14
7.8	Swan Isl	802	44	34	13	2	2	1	13
7.9	Swan Isl	1,496	41	30	12	2	2	1	12
8	Swan Isl	2,596	40	29	12	3	3	1	12
8.1	Swan Isl	2,628	39	29	12	3	3	1	12
8.2	Swan Isl	2,429	39	29	13	5	5	3	13
8.3	Swan Isl	2,270	44	29	13	5	5	3	13
8.4	Swan Isl	2,137	49	28	12	5	5	4	12
8.5	Swan Isl	2,024	49	27	13	5	5	4	13
8.6	Swan Isl	2,188	58	30	18	7	7	5	21
8.7	Swan Isl	2,524	79	42	31	9	9	7	38
8.8	Swan Isl	2,755	79	43	35	10	10	8	44
8.9	Swan Isl	2,276	87	48	39	11	11	9	49
9	Swan Isl	822	97	52	43	12	12	9	55
9.1	Swan Isl	633	102	55	46	12	12	10	59
9.2	Swan Isl	621	118	61	52	11	11	9	68
9.3	Swan Isl	553	126	69	64	12	12	9	86
9.4	Swan Isl	400	140	97	93	15	15	10	125
9.5	Swan Isl	322	203	151	145	20	20	13	199
9.6	Swan Isl	242	242	197	183	24	24	18	242

**Table J2.3-5c**  
**RAO 2 Rolling River Mile Risk Estimates Infant - 1,2,3,4,7,8-HxCDF**  
 Portland Harbor Superfund Site  
 Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
1.8	East	5.74	5.27	5.09	4.92	4.54	4.54	4.25	4.92
1.9	East	6.29	5.50	5.28	4.94	4.46	4.46	4.15	4.94
2	East	7.22	5.97	5.69	5.27	4.44	4.44	4.03	5.27
2.1	East	7.72	6.46	6.18	5.76	4.41	4.41	3.93	5.76
2.2	East	7.63	6.40	6.13	5.71	4.30	4.30	3.74	5.71
2.3	East	7.73	6.45	6.15	5.70	4.19	4.19	3.51	5.70
2.4	East	7.72	6.43	6.09	5.61	4.06	4.06	3.35	5.62
2.5	East	6.34	5.02	4.68	4.23	2.84	2.84	2.32	4.24
2.6	East	6.22	4.87	4.54	4.14	2.80	2.80	2.33	4.16
2.7	East	6.48	5.22	4.91	4.51	3.12	3.12	2.62	4.53
2.8	East	6.50	5.49	5.29	4.92	3.48	3.48	2.96	4.93
2.9	East	6.16	5.53	5.37	5.19	3.83	3.83	3.32	5.21
3	East	6.09	6.09	5.68	5.61	4.64	4.64	4.25	5.62
3.1	East	6.27	6.26	5.83	5.76	5.49	5.49	5.12	5.77
3.2	East	6.91	6.90	6.43	6.36	6.23	6.23	5.89	6.37
3.3	East	10.73	9.40	6.98	6.70	5.92	5.92	5.31	6.72
3.4	East	14.02	10.74	7.51	7.26	6.24	6.24	5.42	7.26
3.5	East	15.05	11.54	8.09	7.61	6.40	6.40	5.39	7.61
3.6	East	16.24	12.50	8.75	7.75	6.40	6.40	5.26	7.75
3.7	East	17.53	13.69	9.81	8.08	6.39	6.39	5.09	8.08
3.8	East	19.31	15.39	11.41	9.64	7.69	7.69	5.93	9.64
3.9	East	31.43	27.88	22.43	17.84	9.25	9.25	5.50	17.84
4	East	46.62	43.30	38.38	33.08	11.87	11.87	5.24	33.08
4.1	East	50.54	47.23	39.83	33.48	11.58	11.58	4.57	33.48
4.2	East	69.55	65.51	48.29	35.31	11.15	11.15	3.79	35.31
4.3	East	83.71	80.10	60.25	43.77	13.45	13.45	4.28	43.77
4.4	East	86.14	84.60	64.29	46.68	14.58	14.58	5.06	46.68
4.5	East	89.05	87.50	66.76	49.03	16.41	16.41	6.71	49.03
4.6	East	92.67	91.17	70.63	53.51	21.08	21.08	11.22	53.51
4.7	East	98.96	97.45	76.72	60.18	27.74	27.74	17.92	60.18
4.8	East	107.88	106.34	85.21	68.35	35.52	35.52	25.21	68.35
4.9	East	118.26	116.42	93.81	77.96	48.61	48.61	31.97	77.96
5	East	121.47	119.28	92.83	75.95	63.96	63.96	44.47	74.55
5.1	East	141.54	139.36	115.61	99.47	76.83	76.83	52.55	85.50
5.2	East	132.34	132.34	132.04	131.26	94.11	94.11	64.86	94.22
5.3	East	131.73	131.72	131.72	129.75	90.50	90.50	61.95	90.50
5.4	East	119.57	119.56	119.56	117.94	85.15	85.15	52.34	85.15
5.5	East	110.23	110.22	110.22	108.79	79.23	79.23	47.43	79.51
5.6	East	98.38	98.37	98.37	96.91	68.97	68.97	39.95	70.37
5.7	East	85.68	85.66	85.66	84.34	57.65	57.65	30.95	60.49
5.8	East	76.06	76.05	74.88	73.67	49.32	49.32	25.45	53.18
5.9	East	67.13	67.12	64.49	63.04	39.62	39.62	22.54	46.07
6	East	57.57	57.56	53.22	51.88	31.05	31.05	18.25	38.93

**Table J2.3-5c**  
**RAO 2 Rolling River Mile Risk Estimates Infant - 1,2,3,4,7,8-HxCDF**  
 Portland Harbor Superfund Site  
 Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
6.1	East	49.13	49.12	41.23	39.99	26.94	26.94	16.98	37.34
6.2	East	57.59	45.96	31.76	30.90	26.06	26.06	17.27	38.69
6.3	East	113.33	46.04	26.65	26.30	23.11	23.11	15.40	40.93
6.4	East	103.95	39.28	20.34	20.02	17.35	17.35	13.72	34.96
6.5	East	97.07	35.18	17.07	16.77	14.47	14.47	12.22	31.19
6.6	East	90.56	32.10	15.00	14.78	13.08	13.08	11.17	28.40
6.7	East	89.60	30.33	13.37	13.17	12.28	12.28	10.76	31.16
6.8	East	88.19	28.95	11.77	11.58	10.77	10.77	9.50	32.12
6.9	East	85.62	28.55	11.96	11.94	11.41	11.41	10.50	31.51
7	East	83.49	28.95	14.03	14.01	13.47	13.47	12.69	31.78
7.1	East	82.31	28.07	15.34	15.32	14.80	14.80	14.12	31.31
7.2	East	75.80	25.68	16.57	16.56	16.02	16.02	15.42	31.54
7.3	East	33.03	23.04	18.52	18.51	18.08	18.08	17.32	29.94
7.4	East	33.34	25.12	21.17	21.17	20.80	20.80	19.54	33.09
7.5	East	37.34	28.66	24.47	24.47	24.08	24.08	22.30	37.11
7.6	East	41.17	31.42	26.98	26.97	26.56	26.56	23.40	40.39
7.7	East	37.82	31.47	27.87	27.87	27.41	27.41	23.92	34.99
7.8	East	35.29	30.63	29.09	29.08	28.47	28.47	24.48	30.45
7.9	East	34.91	29.65	29.59	29.59	29.39	29.39	24.89	29.64
8	East	32.07	25.68	25.68	25.67	25.52	25.52	20.23	25.67
8.1	East	29.53	22.10	22.10	22.10	21.92	21.92	15.80	22.10
8.2	East	25.45	18.12	18.12	18.11	17.94	17.94	11.89	18.11
8.3	East	22.66	15.78	15.78	15.77	15.63	15.63	10.92	15.77
8.4	East	20.14	13.49	13.49	13.49	13.33	13.33	9.97	13.49
8.5	East	16.13	9.20	9.20	9.19	9.02	9.02	6.32	9.19
8.6	East	13.24	6.57	6.57	6.57	6.28	6.28	5.73	6.57
8.7	East	10.72	7.62	7.62	7.62	7.22	7.22	6.36	7.62
8.8	East	7.19	7.19	7.19	7.19	6.95	6.95	6.16	7.19
8.9	East	6.34	6.34	6.34	6.34	6.10	6.10	5.34	6.34
9	East	5.86	5.86	5.86	5.86	5.63	5.63	4.87	5.86
9.1	East	5.69	5.69	5.69	5.69	5.21	5.21	4.29	5.69
9.2	East	5.39	5.39	5.39	5.39	4.67	4.67	3.54	5.39
9.3	East	5.08	5.08	5.08	5.08	4.37	4.37	3.16	5.08
9.4	East	4.88	4.88	4.88	4.88	4.21	4.21	3.04	4.88
9.5	East	4.78	4.78	4.78	4.78	4.13	4.13	3.14	4.78
9.6	East	4.79	4.79	4.79	4.74	4.08	4.08	3.29	4.74
9.7	East	4.95	4.94	4.94	4.89	4.23	4.23	3.56	4.90
9.8	East	5.37	5.36	5.36	5.31	4.62	4.62	3.84	5.31
9.9	East	5.84	5.83	5.83	5.77	5.02	5.02	4.18	5.78
10	East	6.33	6.33	6.33	6.26	5.42	5.42	4.44	6.27
10.1	East	6.81	6.81	6.81	6.74	6.00	6.00	5.04	6.75
10.2	East	7.53	7.52	7.52	7.43	6.53	6.53	5.67	7.44

**Table J2.3-5c**  
**RAO 2 Rolling River Mile Risk Estimates Infant - 1,2,3,4,7,8-HxCDF**  
 Portland Harbor Superfund Site  
 Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
10.3	East	8.92	8.92	8.91	8.34	6.85	6.85	6.01	8.35
10.4	East	10.70	10.69	10.69	9.68	7.59	7.59	6.38	9.69
10.5	East	12.30	12.29	12.29	11.17	8.14	8.14	6.26	11.18
10.6	East	14.05	14.05	13.98	12.72	9.37	9.37	6.67	12.72
10.7	East	15.16	14.70	14.27	12.76	9.18	9.18	6.52	12.76
10.8	East	15.80	15.13	14.14	12.33	8.48	8.48	5.44	12.33
10.9	East	16.38	14.54	12.98	10.78	7.01	7.01	4.18	10.78
11	East	19.54	15.67	13.01	9.77	5.80	5.80	3.26	9.77
11.1	East	20.63	16.31	13.14	9.56	5.43	5.43	2.92	9.56
11.2	East	19.98	15.82	12.78	9.06	5.36	5.36	2.50	9.06
11.3	East	20.45	15.78	12.36	8.78	5.23	5.23	2.12	8.78
11.4	East	20.93	15.66	11.81	8.23	4.75	4.75	1.56	8.23
11.5	East	21.35	15.58	11.36	7.43	4.49	4.49	1.67	7.43
11.6	East	21.95	15.34	10.59	6.32	3.44	3.44	1.35	6.32
11.7	East	22.77	15.72	10.72	6.07	3.16	3.16	0.87	6.07
1.8	Nav Channel	1.27	1.27	1.27	1.27	1.27	1.27	1.20	1.27
1.9	Nav Channel	1.35	1.35	1.35	1.35	1.35	1.35	1.16	1.35
2	Nav Channel	1.52	1.52	1.52	1.52	1.52	1.52	1.30	1.52
2.1	Nav Channel	1.74	1.74	1.74	1.74	1.74	1.74	1.53	1.74
2.2	Nav Channel	2.01	2.01	2.01	2.01	2.01	2.01	1.79	2.01
2.3	Nav Channel	2.30	2.30	2.30	2.30	2.30	2.30	2.08	2.30
2.4	Nav Channel	2.60	2.60	2.60	2.60	2.60	2.60	2.39	2.60
2.5	Nav Channel	2.93	2.93	2.93	2.93	2.93	2.93	2.71	2.93
2.6	Nav Channel	3.25	3.25	3.25	3.25	3.25	3.25	3.03	3.25
2.7	Nav Channel	3.54	3.54	3.54	3.54	3.54	3.54	3.33	3.54
2.8	Nav Channel	3.81	3.81	3.81	3.81	3.81	3.81	3.66	3.81
2.9	Nav Channel	4.06	4.06	4.06	4.06	4.06	4.05	3.95	4.06
3	Nav Channel	4.28	4.28	4.28	4.28	4.28	4.17	3.91	4.28
3.1	Nav Channel	4.44	4.44	4.44	4.43	4.43	4.12	3.62	4.43
3.2	Nav Channel	4.55	4.55	4.55	4.54	4.54	4.08	3.29	4.54
3.3	Nav Channel	4.59	4.59	4.59	4.58	4.58	4.10	3.26	4.58
3.4	Nav Channel	4.57	4.57	4.57	4.57	4.57	4.12	3.32	4.57
3.5	Nav Channel	4.51	4.51	4.51	4.50	4.50	4.09	3.29	4.50
3.6	Nav Channel	4.41	4.41	4.41	4.40	4.40	4.01	3.22	4.40
3.7	Nav Channel	4.26	4.26	4.26	4.26	4.26	3.89	3.14	4.26
3.8	Nav Channel	4.06	4.06	4.06	4.05	4.05	3.71	3.01	4.05
3.9	Nav Channel	3.84	3.84	3.84	3.84	3.84	3.51	2.88	3.84
4	Nav Channel	3.70	3.70	3.70	3.69	3.69	3.41	2.85	3.69
4.1	Nav Channel	3.69	3.69	3.69	3.69	3.69	3.52	3.01	3.69
4.2	Nav Channel	3.78	3.78	3.78	3.78	3.78	3.70	3.38	3.78
4.3	Nav Channel	3.92	3.92	3.92	3.92	3.92	3.87	3.62	3.92
4.4	Nav Channel	4.17	4.17	4.17	4.17	4.17	4.12	3.84	4.17

**Table J2.3-5c**  
**RAO 2 Rolling River Mile Risk Estimates Infant - 1,2,3,4,7,8-HxCDF**  
 Portland Harbor Superfund Site  
 Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
4.5	Nav Channel	4.56	4.56	4.56	4.56	4.56	4.51	4.25	4.56
4.6	Nav Channel	5.19	5.18	4.97	4.82	5.18	4.63	4.32	5.18
4.7	Nav Channel	6.06	5.69	5.14	4.84	5.69	4.51	4.10	5.69
4.8	Nav Channel	7.16	6.75	5.75	5.19	6.75	4.59	4.05	6.75
4.9	Nav Channel	8.44	7.50	6.10	5.37	7.50	4.57	3.97	7.50
5	Nav Channel	9.92	8.54	6.81	5.88	8.54	4.63	3.92	8.54
5.1	Nav Channel	11.55	10.07	8.14	7.06	10.07	5.12	3.91	10.07
5.2	Nav Channel	13.50	10.83	8.60	7.36	10.83	5.25	3.87	10.83
5.3	Nav Channel	15.74	11.19	8.79	7.46	11.19	5.14	3.68	11.19
5.4	Nav Channel	18.15	13.25	10.61	9.08	13.25	5.12	3.41	13.25
5.5	Nav Channel	20.84	15.65	12.86	10.95	15.65	6.36	3.40	15.65
5.6	Nav Channel	24.74	19.21	16.53	14.01	19.21	8.54	4.76	19.21
5.7	Nav Channel	30.74	24.65	20.42	16.94	24.65	10.22	5.55	23.53
5.8	Nav Channel	38.61	28.99	24.12	20.21	28.99	12.33	7.02	27.30
5.9	Nav Channel	47.53	34.74	29.94	25.62	34.74	16.93	10.66	32.86
6	Nav Channel	57.05	39.45	34.75	30.46	39.45	21.74	14.82	37.46
6.1	Nav Channel	65.63	45.99	39.12	33.34	45.59	23.32	16.31	43.51
6.2	Nav Channel	70.39	51.67	44.30	37.25	50.69	24.59	16.35	48.50
6.3	Nav Channel	75.22	58.70	51.15	43.87	57.67	28.19	17.10	55.39
6.4	Nav Channel	78.92	62.13	54.58	47.35	61.08	32.85	19.51	58.75
6.5	Nav Channel	82.22	65.52	58.03	51.29	64.47	37.50	25.89	62.19
6.6	Nav Channel	81.76	65.20	57.82	52.14	64.16	39.67	29.29	61.95
6.7	Nav Channel	76.90	61.55	56.80	52.54	60.51	41.68	32.28	59.79
6.8	Nav Channel	69.75	58.38	55.03	51.46	57.17	42.23	32.27	57.08
6.9	Nav Channel	61.07	53.90	51.02	47.84	52.43	39.46	29.49	52.46
7	Nav Channel	51.96	50.04	47.40	44.41	48.52	35.60	25.62	48.57
7.1	Nav Channel	43.94	43.35	42.85	41.38	42.29	33.66	23.88	42.34
7.2	Nav Channel	39.10	38.58	38.58	38.19	38.08	32.92	23.82	38.12
7.3	Nav Channel	34.36	33.90	33.90	33.57	33.47	30.67	24.15	33.51
7.4	Nav Channel	30.25	29.89	29.89	29.60	29.51	27.62	23.22	29.54
7.5	Nav Channel	26.14	25.84	25.84	25.59	25.51	23.85	20.04	25.52
7.6	Nav Channel	23.61	23.39	23.39	23.18	23.08	21.57	17.84	23.08
7.7	Nav Channel	22.11	21.92	21.92	21.71	21.63	20.18	16.71	21.63
7.8	Nav Channel	20.80	20.73	20.73	20.61	20.55	19.15	16.45	20.55
7.9	Nav Channel	19.76	19.75	19.75	19.74	19.71	18.46	16.40	19.71
8	Nav Channel	19.09	19.09	19.09	19.08	19.09	18.35	16.82	19.09
8.1	Nav Channel	18.63	18.63	18.63	18.61	18.63	18.48	17.48	18.63
8.2	Nav Channel	18.22	18.22	18.22	18.19	18.22	18.17	17.81	18.22
8.3	Nav Channel	17.95	17.94	17.94	17.91	17.94	17.91	17.64	17.94
8.4	Nav Channel	17.85	17.83	17.83	17.79	17.83	17.70	17.38	17.83
8.5	Nav Channel	17.79	17.76	17.76	17.72	17.75	17.21	16.58	17.75
8.6	Nav Channel	17.95	17.91	17.90	17.86	17.90	17.12	16.57	17.90

**Table J2.3-5c**

**RAO 2 Rolling River Mile Risk Estimates Infant - 1,2,3,4,7,8-HxCDF**

Portland Harbor Superfund Site

Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
8.7	Nav Channel	18.03	18.00	17.98	17.93	17.98	16.84	16.18	17.98
8.8	Nav Channel	17.96	17.92	17.90	17.85	17.90	16.30	15.43	17.90
8.9	Nav Channel	17.64	17.60	17.58	17.53	17.57	15.87	14.81	17.57
9	Nav Channel	17.01	16.97	16.96	16.91	16.95	15.20	14.08	16.95
9.1	Nav Channel	16.17	16.13	16.11	16.08	16.11	14.31	13.12	16.11
9.2	Nav Channel	14.93	14.88	14.87	14.84	14.86	12.98	11.74	14.86
9.3	Nav Channel	13.39	13.35	13.33	13.31	13.33	11.38	10.16	13.33
9.4	Nav Channel	11.63	11.61	11.60	11.57	11.59	9.72	8.50	11.59
9.5	Nav Channel	9.88	9.87	9.86	9.83	9.85	8.30	7.32	9.85
9.6	Nav Channel	8.39	8.39	8.38	8.37	8.37	7.10	6.19	8.37
9.7	Nav Channel	7.27	7.27	7.26	7.26	7.26	6.40	5.53	7.26
9.8	Nav Channel	6.57	6.57	6.57	6.57	6.57	5.96	5.04	6.57
9.9	Nav Channel	6.28	6.28	6.28	6.28	6.28	5.29	4.40	6.28
10	Nav Channel	6.32	6.32	6.32	6.32	6.32	5.22	4.14	6.32
10.1	Nav Channel	6.58	6.58	6.58	6.58	6.58	5.44	4.34	6.58
10.2	Nav Channel	6.97	6.97	6.97	6.97	6.97	5.79	4.65	6.97
10.3	Nav Channel	7.41	7.41	7.41	7.41	7.41	6.17	4.95	7.41
10.4	Nav Channel	7.85	7.85	7.85	7.85	7.85	6.47	4.85	7.85
10.5	Nav Channel	8.15	8.15	8.15	8.15	8.15	6.72	4.83	8.15
10.6	Nav Channel	8.30	8.30	8.30	8.30	8.30	6.78	4.75	8.30
10.7	Nav Channel	8.37	8.31	8.26	8.23	8.23	6.66	4.67	8.23
10.8	Nav Channel	8.49	8.12	8.04	7.96	7.96	6.60	4.92	7.96
10.9	Nav Channel	9.03	8.52	8.30	7.97	7.97	7.03	5.43	7.97
11	Nav Channel	9.40	8.88	8.66	8.34	8.34	7.39	5.99	8.34
11.1	Nav Channel	9.39	8.87	8.65	8.32	8.32	7.41	6.03	8.32
11.2	Nav Channel	9.34	8.79	8.54	8.19	8.19	7.29	5.86	8.19
11.3	Nav Channel	9.37	8.75	8.48	8.08	8.08	7.16	5.65	8.08
11.4	Nav Channel	9.40	8.70	8.39	7.95	7.95	7.07	6.08	7.95
11.5	Nav Channel	9.55	8.74	8.39	7.88	7.88	7.21	6.65	7.88
11.6	Nav Channel	9.87	8.93	8.52	7.93	7.93	7.14	6.61	7.93
11.7	Nav Channel	10.34	9.33	8.93	8.26	8.26	7.34	6.76	8.26
1.8	West	7.20	7.20	7.20	7.20	7.20	7.20	7.20	7.20
1.9	West	9.91	9.91	9.91	9.91	9.91	9.91	9.91	9.91
2	West	11.16	11.16	11.16	11.16	11.16	11.16	11.16	11.16
2.1	West	11.61	11.61	11.61	11.61	11.61	11.61	11.61	11.61
2.2	West	12.05	12.05	12.05	12.05	12.05	12.05	12.02	12.05
2.3	West	12.09	12.09	12.09	12.09	12.09	12.09	12.03	12.09
2.4	West	12.34	12.34	12.34	12.34	12.34	12.34	12.20	12.34
2.5	West	11.94	11.94	11.94	11.94	11.94	11.94	11.68	11.94
2.6	West	11.36	11.36	11.36	11.36	11.36	11.36	11.02	11.36
2.7	West	10.12	10.12	10.12	10.12	10.12	10.12	9.74	10.12
2.8	West	8.48	8.48	8.48	8.48	8.48	8.48	7.89	8.48



**Table J2.3-5c**  
**RAO 2 Rolling River Mile Risk Estimates Infant - 1,2,3,4,7,8-HxCDF**  
 Portland Harbor Superfund Site  
 Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
2.9	West	5.88	5.88	5.88	5.88	5.88	5.88	5.19	5.88
3	West	4.66	4.66	4.66	4.66	4.65	4.65	3.91	4.66
3.1	West	4.47	4.47	4.47	4.47	4.46	4.46	3.70	4.47
3.2	West	4.82	4.82	4.82	4.82	4.81	4.81	4.06	4.82
3.3	West	5.44	5.44	5.44	5.44	5.43	5.43	4.61	5.44
3.4	West	6.19	6.19	6.19	6.19	6.08	6.08	5.08	6.19
3.5	West	7.41	7.41	7.41	7.37	7.07	7.07	5.87	7.37
3.6	West	8.77	8.77	8.77	8.72	8.24	8.24	6.72	8.72
3.7	West	10.42	10.42	10.42	10.37	9.70	9.70	7.72	10.37
3.8	West	12.24	12.24	12.24	12.17	11.11	11.11	8.49	12.17
3.9	West	15.15	15.15	15.15	15.07	13.73	13.73	9.50	15.07
4	West	18.76	18.76	18.76	18.67	17.15	17.15	11.39	18.67
4.1	West	22.59	22.59	22.59	22.48	20.13	20.13	12.73	22.48
4.2	West	28.07	28.07	28.07	27.96	22.89	22.89	13.95	27.96
4.3	West	33.94	33.94	33.94	33.83	28.11	28.11	18.20	33.83
4.4	West	38.27	38.27	38.27	38.08	31.93	31.93	21.27	38.08
4.5	West	40.03	40.03	40.02	39.75	33.14	33.14	22.30	39.75
4.6	West	40.91	40.91	40.90	40.62	34.01	34.01	23.34	40.62
4.7	West	42.82	42.82	42.68	41.83	34.30	34.30	23.81	41.83
4.8	West	46.39	46.39	45.96	44.56	36.87	36.87	25.58	44.56
4.9	West	49.92	49.77	48.19	46.43	38.09	38.09	26.45	46.43
5	West	50.12	49.65	46.61	44.38	35.31	35.31	24.25	44.38
5.1	West	49.81	49.31	45.73	43.19	34.25	34.25	22.98	43.19
5.2	West	50.27	49.75	45.93	43.23	37.31	37.31	24.54	43.23
5.3	West	48.28	47.72	43.67	40.80	34.66	34.66	20.61	40.80
5.4	West	45.33	44.80	40.87	37.60	30.55	30.55	16.88	38.23
5.5	West	43.64	43.16	39.18	36.12	29.35	29.35	15.97	37.12
5.6	West	43.44	42.14	38.12	35.01	26.69	26.69	13.12	36.28
5.7	West	43.33	38.97	34.43	31.91	24.73	24.73	11.66	33.17
5.8	West	42.82	34.06	29.93	27.98	21.38	21.38	10.40	29.19
5.9	West	43.76	30.02	26.87	25.16	18.90	18.90	9.82	26.35
6	West	46.43	27.68	25.60	24.21	18.28	18.28	9.78	25.40
6.1	West	50.15	27.90	25.86	24.24	17.33	17.33	9.49	23.93
6.2	West	53.49	31.47	29.33	27.42	16.67	16.67	7.49	23.11
6.3	West	63.85	37.04	34.85	29.72	13.35	13.35	5.41	19.26
6.4	West	140.80	81.00	50.10	36.31	13.13	13.13	4.01	16.97
6.5	West	341.04	195.86	115.76	41.08	9.60	9.60	1.73	11.95
6.6	West	668.06	435.34	240.38	88.56	11.85	11.85	1.53	11.88
6.7	West	1278.34	452.74	235.47	82.98	11.04	11.04	1.39	11.05
6.8	West	21119.82	446.63	230.59	81.39	10.95	10.95	1.44	10.97
6.9	West	41848.84	458.87	240.00	85.81	11.50	11.50	1.52	11.52
7	West	42224.42	899.82	519.57	98.31	22.55	22.55	1.51	22.56

**Table J2.3-5c**

**RAO 2 Rolling River Mile Risk Estimates Infant - 1,2,3,4,7,8-HxCDF**

Portland Harbor Superfund Site

Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
7.1	West	35612.26	1493.33	1127.83	334.43	142.42	142.42	17.17	142.42
7.2	West	29817.74	1260.94	954.60	291.65	129.07	129.07	17.04	129.07
7.3	West	25711.33	1090.45	826.20	256.74	117.18	117.18	15.06	117.18
7.4	West	25723.89	1069.88	821.10	255.71	120.67	120.67	15.06	120.67
7.5	West	26544.64	1046.87	816.00	263.91	127.60	127.60	15.65	128.18
7.6	West	27074.11	939.71	768.14	245.29	131.13	131.13	16.07	132.57
7.7	West	27276.37	934.69	780.94	252.83	135.56	135.56	16.43	137.64
7.8	West	14708.05	937.01	785.11	255.28	136.51	136.51	16.47	139.76
7.9	West	1394.39	866.90	727.26	236.64	127.12	127.12	15.32	131.41
8	West	549.98	548.94	513.24	210.60	111.85	111.85	14.69	115.84
8.1	West	43.66	43.64	43.63	40.89	29.45	29.45	4.39	33.96
8.2	West	33.65	33.62	33.60	29.81	20.88	20.88	1.94	26.16
8.3	West	28.99	28.62	28.40	23.06	16.13	16.13	1.70	22.20
8.4	West	27.41	23.79	23.49	17.79	10.60	10.60	1.42	17.07
8.5	West	26.28	20.20	19.18	13.37	7.51	7.51	1.38	13.37
8.6	West	27.17	18.88	16.18	9.88	4.98	4.98	1.39	9.88
8.7	West	28.49	17.79	14.19	7.57	3.24	3.24	1.45	7.57
8.8	West	29.53	18.95	14.68	7.29	3.25	3.25	1.95	7.29
8.9	West	29.94	19.02	14.63	8.11	5.00	5.00	3.74	8.11
9	West	31.32	19.74	15.08	9.20	5.08	5.08	3.90	9.20
9.1	West	33.36	20.64	15.53	10.43	5.93	5.93	4.68	10.43
9.2	West	35.66	22.67	16.22	10.51	6.27	6.27	4.88	10.51
9.3	West	39.74	26.62	15.78	10.92	6.47	6.47	5.04	10.92
9.4	West	37.63	28.10	16.71	11.58	6.85	6.85	5.33	11.58
9.5	West	35.69	29.13	18.29	12.97	8.07	8.07	6.49	12.97
9.6	West	33.20	29.28	20.15	15.04	9.82	9.82	8.13	15.04
9.7	West	31.58	30.50	22.14	17.08	11.44	11.44	8.57	17.08
9.8	West	30.43	29.29	21.19	17.12	11.85	11.85	8.62	17.15
9.9	West	32.61	31.22	21.36	16.45	11.19	11.19	7.51	16.50
10	West	38.32	36.57	24.04	17.83	13.19	13.19	8.93	17.89
10.1	West	48.43	46.18	29.27	21.25	16.73	16.73	11.52	21.33
10.2	West	54.92	54.19	37.21	34.17	29.13	29.13	20.19	34.28
10.3	West	44.69	44.69	44.59	43.29	39.47	39.47	26.76	43.39
10.4	West	42.97	42.97	42.89	41.80	38.60	38.60	27.96	41.88
10.5	West	40.76	40.76	40.69	39.72	36.88	36.88	27.42	39.79
10.6	West	38.32	38.32	38.26	37.37	34.78	34.78	26.20	37.44
10.7	West	36.05	36.05	35.99	35.14	33.07	33.07	26.87	35.21
10.8	West	34.28	34.28	34.28	34.28	33.94	33.94	28.46	34.28
10.9	West	33.29	33.29	33.29	33.29	33.29	33.29	28.63	33.29
11	West	31.89	31.89	31.89	31.89	31.89	31.89	27.59	31.89
11.1	West	30.45	30.45	30.45	30.45	30.45	30.45	26.33	30.45
11.2	West	27.65	27.65	27.65	27.65	27.65	27.65	24.91	27.65

**Table J2.3-5c**  
**RAO 2 Rolling River Mile Risk Estimates Infant - 1,2,3,4,7,8-HxCDF**  
 Portland Harbor Superfund Site  
 Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
11.3	West	25.02	25.02	25.02	25.02	25.02	25.02	24.97	25.02
11.4	West	23.39	23.39	23.39	23.39	23.39	23.39	23.36	23.39
11.5	West	21.58	21.58	21.58	21.58	21.58	21.58	21.54	21.58
11.6	West	19.79	19.79	19.79	19.79	19.79	19.79	19.74	19.79
11.7	West	18.43	18.43	18.43	18.43	18.43	18.43	18.36	18.43
7.6	Swan Isl	9.82	1.03	1.03	0.64	0.06	0.06	0.03	0.64
7.7	Swan Isl	13.91	0.99	0.97	0.65	0.15	0.15	0.06	0.65
7.8	Swan Isl	17.53	1.36	1.21	0.79	0.27	0.27	0.06	0.79
7.9	Swan Isl	20.92	1.35	1.19	0.80	0.33	0.33	0.13	0.80
8	Swan Isl	26.04	1.44	1.28	0.90	0.44	0.44	0.23	0.90
8.1	Swan Isl	29.17	1.52	1.33	0.95	0.51	0.51	0.27	0.95
8.2	Swan Isl	36.29	2.03	1.84	1.37	0.89	0.89	0.65	1.37
8.3	Swan Isl	42.93	2.91	2.21	1.57	1.06	1.06	0.83	1.57
8.4	Swan Isl	47.97	3.75	2.24	1.59	1.09	1.09	0.87	1.59
8.5	Swan Isl	49.79	4.20	2.23	1.60	1.10	1.10	0.87	1.60
8.6	Swan Isl	61.31	8.56	4.28	3.65	1.32	1.32	1.02	5.54
8.7	Swan Isl	79.17	18.01	10.56	9.37	3.49	3.49	2.86	14.33
8.8	Swan Isl	89.40	21.10	12.28	11.00	4.06	4.06	3.40	16.95
8.9	Swan Isl	96.10	23.98	13.91	12.47	4.53	4.53	3.82	19.28
9	Swan Isl	100.79	27.47	15.82	14.19	5.06	5.06	4.28	22.10
9.1	Swan Isl	101.48	29.34	16.85	15.13	5.31	5.31	4.53	23.65
9.2	Swan Isl	102.18	34.60	19.29	17.46	5.58	5.58	4.68	27.91
9.3	Swan Isl	101.80	42.22	23.68	22.00	6.53	6.53	5.39	35.81
9.4	Swan Isl	104.61	57.80	34.48	32.31	9.17	9.17	7.51	53.18
9.5	Swan Isl	125.39	90.15	56.40	52.97	14.57	14.57	11.94	88.04
9.6	Swan Isl	119.63	119.63	86.30	78.69	29.78	29.78	25.02	119.63

**Table J2.3-5d**  
**RAO 2 Rolling River Mile Risk Estimates Infant - 1,2,3,7,8-PeCDD**  
 Portland Harbor Superfund Site  
 Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
1.8	East	5.28	4.98	4.88	4.78	4.68	4.68	4.64	4.78
1.9	East	5.64	5.01	4.86	4.59	4.38	4.38	4.32	4.59
2	East	6.55	5.43	5.22	4.86	4.25	4.25	4.06	4.86
2.1	East	7.03	5.90	5.69	5.32	4.14	4.14	3.87	5.32
2.2	East	6.74	5.64	5.43	5.08	3.79	3.79	3.40	5.08
2.3	East	6.63	5.48	5.25	4.86	3.47	3.47	2.93	4.86
2.4	East	6.68	5.52	5.24	4.81	3.38	3.38	2.80	4.82
2.5	East	6.85	5.67	5.38	4.96	3.52	3.52	2.94	4.98
2.6	East	7.10	5.89	5.61	5.20	3.72	3.72	3.13	5.22
2.7	East	7.53	6.34	6.06	5.65	4.09	4.09	3.46	5.66
2.8	East	7.85	6.80	6.59	6.18	4.54	4.54	3.88	6.19
2.9	East	8.05	7.38	7.20	7.00	5.46	5.46	4.81	7.02
3	East	10.06	10.05	9.10	9.01	7.89	7.89	7.37	9.03
3.1	East	11.62	11.60	10.58	10.49	10.15	10.15	9.59	10.51
3.2	East	12.89	12.88	11.77	11.68	11.53	11.53	11.00	11.70
3.3	East	17.40	15.50	11.72	11.42	10.65	10.65	9.84	11.44
3.4	East	21.64	17.11	12.19	11.92	10.98	10.98	10.03	11.92
3.5	East	22.94	18.09	12.84	12.36	11.25	11.25	10.14	12.36
3.6	East	24.28	19.14	13.51	12.52	11.29	11.29	10.06	12.52
3.7	East	25.52	20.25	14.43	12.74	11.20	11.20	9.82	12.74
3.8	East	26.23	20.84	14.88	13.16	11.49	11.49	9.89	13.16
3.9	East	26.24	21.36	15.66	13.48	9.92	9.92	7.88	13.48
4	East	24.19	19.62	15.10	12.93	7.60	7.60	5.04	12.93
4.1	East	21.70	17.29	12.86	10.72	5.52	5.52	3.08	10.72
4.2	East	21.03	16.88	11.68	9.24	4.21	4.21	1.94	9.24
4.3	East	18.44	15.39	12.18	9.34	3.70	3.70	1.36	9.34
4.4	East	14.96	14.82	12.62	9.59	3.79	3.79	1.48	9.59
4.5	East	15.07	14.94	12.70	9.83	4.04	4.04	1.76	9.83
4.6	East	15.09	15.01	12.91	10.59	4.89	4.89	2.61	10.59
4.7	East	15.18	15.10	13.01	11.41	5.96	5.96	3.78	11.41
4.8	East	16.26	16.18	14.05	12.41	6.96	6.96	4.86	12.41
4.9	East	15.78	15.68	13.58	12.52	8.98	8.98	6.45	12.52
5	East	15.63	15.51	13.11	12.09	11.48	11.48	9.07	12.01
5.1	East	19.18	19.06	16.60	15.56	14.29	14.29	10.82	14.74
5.2	East	22.37	22.37	22.32	21.98	18.28	18.28	13.36	18.30
5.3	East	23.19	23.18	23.18	22.36	17.47	17.47	12.75	17.47
5.4	East	23.52	23.51	23.51	22.81	17.98	17.98	11.78	17.98
5.5	East	24.22	24.20	24.20	23.59	18.34	18.34	11.08	18.79
5.6	East	25.46	25.45	25.45	24.61	18.11	18.11	10.94	20.26
5.7	East	27.03	27.01	27.01	26.24	18.42	18.42	11.44	22.33
5.8	East	28.93	28.92	28.43	27.73	20.52	20.52	13.92	24.67
5.9	East	29.58	29.57	28.45	27.42	20.00	20.00	13.98	25.65
6	East	29.43	29.42	27.74	26.78	19.95	19.95	14.53	25.85

**Table J2.3-5d**  
**RAO 2 Rolling River Mile Risk Estimates Infant - 1,2,3,7,8-PeCDD**  
 Portland Harbor Superfund Site  
 Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
6.1	East	29.13	29.12	26.37	25.49	19.52	19.52	14.80	25.96
6.2	East	32.48	29.18	24.42	23.74	19.20	19.20	14.90	26.26
6.3	East	57.14	32.47	21.53	21.08	17.42	17.42	13.33	30.39
6.4	East	62.90	32.32	19.45	19.04	15.86	15.86	12.75	30.67
6.5	East	59.49	30.15	17.84	17.44	14.80	14.80	12.55	28.78
6.6	East	55.55	27.83	16.21	15.95	14.18	14.18	12.31	26.66
6.7	East	65.86	28.19	15.00	14.77	13.99	13.99	12.46	38.71
6.8	East	72.03	29.68	13.96	13.74	13.03	13.03	11.72	45.97
6.9	East	70.00	29.15	13.19	13.16	12.64	12.64	11.64	44.66
7	East	66.86	27.82	12.87	12.84	12.32	12.32	11.44	42.65
7.1	East	65.67	26.84	12.63	12.60	12.10	12.10	11.33	41.71
7.2	East	65.56	26.53	12.89	12.86	12.36	12.36	11.72	42.97
7.3	East	49.86	23.77	13.99	13.97	13.54	13.54	12.97	42.28
7.4	East	45.09	23.26	14.93	14.93	14.59	14.59	13.94	44.62
7.5	East	48.06	25.03	16.20	16.20	15.84	15.84	14.94	47.69
7.6	East	50.98	25.95	16.57	16.57	16.19	16.19	14.57	49.99
7.7	East	34.01	22.10	15.10	15.10	14.68	14.68	12.89	31.42
7.8	East	19.50	15.84	13.68	13.68	13.14	13.14	11.10	15.55
7.9	East	17.08	13.08	13.02	13.02	12.87	12.87	10.60	13.08
8	East	16.48	11.62	11.62	11.61	11.51	11.51	8.85	11.61
8.1	East	16.66	11.01	11.01	11.00	10.89	10.89	7.81	11.00
8.2	East	15.65	10.07	10.07	10.07	9.95	9.95	6.91	10.07
8.3	East	14.72	9.48	9.48	9.47	9.37	9.37	6.94	9.47
8.4	East	13.87	8.81	8.81	8.81	8.70	8.70	6.89	8.81
8.5	East	12.47	7.20	7.20	7.19	7.07	7.07	5.43	7.19
8.6	East	11.15	6.45	6.45	6.45	6.19	6.19	5.41	6.45
8.7	East	9.71	7.78	7.78	7.78	7.35	7.35	6.07	7.78
8.8	East	8.12	8.12	8.12	8.12	7.80	7.80	6.55	8.12
8.9	East	8.08	8.08	8.08	8.08	7.77	7.77	6.57	8.08
9	East	8.25	8.25	8.25	8.25	7.95	7.95	6.71	8.25
9.1	East	8.53	8.53	8.53	8.53	7.70	7.70	6.16	8.53
9.2	East	8.96	8.96	8.96	8.96	7.60	7.60	5.54	8.96
9.3	East	9.74	9.74	9.74	9.74	8.39	8.39	5.99	9.74
9.4	East	10.74	10.74	10.74	10.74	9.46	9.46	7.13	10.74
9.5	East	11.77	11.77	11.77	11.77	10.50	10.50	8.46	11.77
9.6	East	12.58	12.57	12.57	12.42	10.97	10.97	9.11	12.42
9.7	East	13.67	13.66	13.65	13.49	11.92	11.92	10.15	13.50
9.8	East	15.24	15.23	15.22	15.05	13.39	13.39	11.32	15.06
9.9	East	16.96	16.94	16.94	16.75	14.95	14.95	12.68	16.76
10	East	18.81	18.79	18.79	18.58	16.57	16.57	13.92	18.60
10.1	East	20.62	20.60	20.59	20.38	18.44	18.44	15.73	20.39
10.2	East	22.92	22.90	22.89	22.61	20.15	20.15	17.66	22.63

**Table J2.3-5d**  
**RAO 2 Rolling River Mile Risk Estimates Infant - 1,2,3,7,8-PeCDD**  
 Portland Harbor Superfund Site  
 Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
10.3	East	26.58	26.56	26.55	24.97	20.94	20.94	18.58	24.99
10.4	East	30.65	30.63	30.62	27.86	22.22	22.22	18.86	27.87
10.5	East	33.93	33.91	33.89	30.83	22.61	22.61	17.38	30.85
10.6	East	38.08	38.08	37.90	34.49	25.43	25.43	18.06	34.51
10.7	East	41.63	40.33	38.79	34.63	24.91	24.91	17.63	34.63
10.8	East	42.84	41.07	38.29	33.35	22.90	22.90	14.69	33.35
10.9	East	45.27	40.60	35.02	29.17	18.97	18.97	11.35	29.17
11	East	49.04	39.59	32.87	25.93	15.73	15.73	8.89	25.93
11.1	East	48.47	38.81	31.81	24.50	14.30	14.30	7.72	24.50
11.2	East	47.22	37.92	31.18	23.79	14.66	14.66	6.69	23.79
11.3	East	47.68	37.25	29.68	22.96	14.33	14.33	5.67	22.96
11.4	East	48.01	36.24	27.71	21.36	13.02	13.02	4.11	21.36
11.5	East	48.22	35.32	25.98	19.02	12.30	12.30	4.39	19.02
11.6	East	48.28	33.50	23.03	15.70	9.36	9.36	3.46	15.70
11.7	East	47.54	32.23	22.03	14.50	8.49	8.49	2.03	14.50
1.8	Nav Channel	2.18	2.18	2.18	2.18	2.18	2.18	2.08	2.18
1.9	Nav Channel	2.20	2.20	2.20	2.20	2.20	2.20	1.93	2.20
2	Nav Channel	2.34	2.34	2.34	2.34	2.34	2.34	2.04	2.34
2.1	Nav Channel	2.57	2.57	2.57	2.57	2.57	2.57	2.27	2.57
2.2	Nav Channel	2.84	2.84	2.84	2.84	2.84	2.84	2.55	2.84
2.3	Nav Channel	3.13	3.13	3.13	3.13	3.13	3.13	2.84	3.13
2.4	Nav Channel	3.42	3.42	3.42	3.42	3.42	3.42	3.13	3.42
2.5	Nav Channel	3.73	3.73	3.73	3.73	3.73	3.73	3.44	3.73
2.6	Nav Channel	4.04	4.04	4.04	4.04	4.04	4.04	3.75	4.04
2.7	Nav Channel	4.33	4.33	4.33	4.33	4.33	4.33	4.04	4.33
2.8	Nav Channel	4.59	4.59	4.59	4.59	4.59	4.59	4.39	4.59
2.9	Nav Channel	4.83	4.83	4.83	4.83	4.83	4.83	4.70	4.83
3	Nav Channel	5.06	5.06	5.06	5.06	5.06	4.92	4.62	5.06
3.1	Nav Channel	5.25	5.25	5.25	5.24	5.24	4.83	4.25	5.24
3.2	Nav Channel	5.42	5.42	5.42	5.41	5.41	4.80	3.87	5.41
3.3	Nav Channel	5.58	5.58	5.58	5.57	5.57	4.91	3.90	5.57
3.4	Nav Channel	5.72	5.72	5.72	5.70	5.70	5.09	4.14	5.70
3.5	Nav Channel	5.82	5.82	5.82	5.81	5.81	5.23	4.29	5.81
3.6	Nav Channel	5.94	5.94	5.94	5.93	5.93	5.38	4.44	5.93
3.7	Nav Channel	6.00	6.00	6.00	5.99	5.99	5.48	4.60	5.99
3.8	Nav Channel	5.86	5.86	5.86	5.85	5.85	5.37	4.54	5.85
3.9	Nav Channel	5.53	5.53	5.53	5.52	5.52	5.07	4.33	5.52
4	Nav Channel	5.16	5.16	5.16	5.15	5.15	4.78	4.16	5.15
4.1	Nav Channel	5.02	5.02	5.02	5.01	5.01	4.80	4.28	5.01
4.2	Nav Channel	5.12	5.12	5.12	5.12	5.12	5.04	4.74	5.12
4.3	Nav Channel	5.28	5.28	5.28	5.28	5.28	5.25	5.04	5.28
4.4	Nav Channel	5.44	5.44	5.44	5.44	5.44	5.41	5.16	5.44

**Table J2.3-5d**

**RAO 2 Rolling River Mile Risk Estimates Infant - 1,2,3,7,8-PeCDD**

Portland Harbor Superfund Site

Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
4.5	Nav Channel	5.60	5.60	5.60	5.60	5.60	5.57	5.35	5.60
4.6	Nav Channel	5.80	5.79	5.65	5.53	5.79	5.37	5.12	5.79
4.7	Nav Channel	6.09	5.87	5.46	5.21	5.87	4.94	4.62	5.87
4.8	Nav Channel	6.60	6.35	5.68	5.26	6.35	4.81	4.38	6.35
4.9	Nav Channel	7.34	6.80	5.87	5.32	6.80	4.75	4.28	6.80
5	Nav Channel	8.26	7.49	6.35	5.68	7.49	4.82	4.26	7.49
5.1	Nav Channel	9.10	8.27	7.02	6.27	8.27	4.97	4.13	8.27
5.2	Nav Channel	9.80	8.43	7.01	6.15	8.43	4.75	3.81	8.43
5.3	Nav Channel	10.55	8.35	6.83	5.92	8.35	4.41	3.42	8.35
5.4	Nav Channel	11.23	8.87	7.22	6.21	8.87	4.08	2.96	8.87
5.5	Nav Channel	12.00	9.50	7.75	6.62	9.50	4.26	2.65	9.50
5.6	Nav Channel	13.03	10.37	8.72	7.57	10.37	5.06	3.22	10.37
5.7	Nav Channel	14.30	11.66	10.01	8.73	11.66	5.87	3.67	11.55
5.8	Nav Channel	16.16	12.95	11.40	10.19	12.95	7.12	4.72	12.79
5.9	Nav Channel	18.80	15.56	14.29	13.13	15.56	9.95	7.14	15.39
6	Nav Channel	22.49	18.88	17.79	16.74	18.88	13.52	10.06	18.69
6.1	Nav Channel	27.16	23.29	20.49	18.86	22.91	14.51	11.15	22.72
6.2	Nav Channel	31.82	28.62	24.14	21.59	27.08	14.65	11.11	26.88
6.3	Nav Channel	34.45	32.44	27.85	25.23	30.83	15.50	11.12	30.62
6.4	Nav Channel	36.19	34.19	29.57	26.96	32.54	17.45	12.29	32.33
6.5	Nav Channel	36.99	35.01	30.42	27.94	33.37	18.67	14.16	33.16
6.6	Nav Channel	37.00	35.04	30.52	28.23	33.42	19.35	15.24	33.23
6.7	Nav Channel	36.41	34.64	30.59	28.67	33.06	20.40	16.78	33.00
6.8	Nav Channel	34.88	33.71	29.99	28.26	32.16	20.56	16.92	32.15
6.9	Nav Channel	32.34	31.57	28.03	26.44	30.07	18.97	15.17	30.07
7	Nav Channel	28.75	28.59	25.24	23.72	27.15	16.19	12.55	27.16
7.1	Nav Channel	24.38	24.35	22.81	21.96	23.34	15.51	11.71	23.35
7.2	Nav Channel	20.36	20.33	20.33	20.33	20.33	16.32	12.22	20.34
7.3	Nav Channel	18.29	18.27	18.27	18.26	18.27	16.40	13.14	18.27
7.4	Nav Channel	16.85	16.83	16.83	16.83	16.83	15.46	13.13	16.83
7.5	Nav Channel	15.69	15.68	15.68	15.68	15.68	14.48	12.44	15.68
7.6	Nav Channel	14.81	14.81	14.81	14.80	14.80	13.69	11.70	14.80
7.7	Nav Channel	14.09	14.09	14.09	14.09	14.08	13.02	11.14	14.08
7.8	Nav Channel	13.41	13.40	13.40	13.40	13.40	12.38	10.74	13.40
7.9	Nav Channel	12.74	12.74	12.74	12.73	12.74	11.83	10.54	12.74
8	Nav Channel	12.13	12.13	12.13	12.12	12.13	11.58	10.65	12.13
8.1	Nav Channel	11.55	11.55	11.55	11.53	11.55	11.41	10.81	11.55
8.2	Nav Channel	10.90	10.90	10.90	10.87	10.90	10.85	10.67	10.90
8.3	Nav Channel	10.34	10.33	10.33	10.30	10.33	10.30	10.19	10.33
8.4	Nav Channel	9.91	9.87	9.87	9.84	9.87	9.79	9.64	9.87
8.5	Nav Channel	9.49	9.44	9.44	9.40	9.44	9.15	8.87	9.44
8.6	Nav Channel	9.39	9.33	9.33	9.28	9.33	8.91	8.67	9.33

**Table J2.3-5d**  
**RAO 2 Rolling River Mile Risk Estimates Infant - 1,2,3,7,8-PeCDD**  
 Portland Harbor Superfund Site  
 Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
8.7	Nav Channel	9.44	9.39	9.37	9.32	9.37	8.75	8.46	9.37
8.8	Nav Channel	9.45	9.39	9.38	9.32	9.37	8.47	8.07	9.37
8.9	Nav Channel	9.43	9.38	9.36	9.31	9.36	8.38	7.85	9.36
9	Nav Channel	9.46	9.40	9.38	9.33	9.38	8.38	7.79	9.38
9.1	Nav Channel	9.55	9.49	9.47	9.43	9.46	8.44	7.80	9.46
9.2	Nav Channel	9.70	9.63	9.62	9.59	9.61	8.47	7.74	9.61
9.3	Nav Channel	9.77	9.72	9.70	9.67	9.70	8.46	7.71	9.70
9.4	Nav Channel	9.84	9.81	9.79	9.77	9.79	8.58	7.71	9.79
9.5	Nav Channel	10.11	10.11	10.09	10.06	10.09	8.78	7.80	10.09
9.6	Nav Channel	10.57	10.57	10.56	10.55	10.55	9.40	8.42	10.55
9.7	Nav Channel	11.02	11.02	11.02	11.01	11.02	10.09	8.97	11.02
9.8	Nav Channel	11.52	11.52	11.52	11.52	11.52	10.41	8.83	11.52
9.9	Nav Channel	12.11	12.11	12.11	12.11	12.11	10.17	8.41	12.11
10	Nav Channel	12.71	12.71	12.71	12.71	12.71	10.58	8.46	12.71
10.1	Nav Channel	13.31	13.31	13.31	13.31	13.31	11.11	8.96	13.31
10.2	Nav Channel	13.89	13.89	13.89	13.89	13.89	11.65	9.47	13.89
10.3	Nav Channel	14.46	14.46	14.46	14.46	14.46	12.13	9.82	14.46
10.4	Nav Channel	14.96	14.96	14.96	14.96	14.96	12.40	9.43	14.96
10.5	Nav Channel	15.17	15.17	15.17	15.17	15.17	12.54	9.21	15.17
10.6	Nav Channel	15.08	15.08	15.08	15.08	15.08	12.29	8.72	15.08
10.7	Nav Channel	14.97	14.86	14.79	14.74	14.74	11.85	8.37	14.74
10.8	Nav Channel	15.12	14.49	14.37	14.24	14.24	11.82	8.99	14.24
10.9	Nav Channel	16.12	15.25	14.88	14.35	14.35	12.72	10.04	14.35
11	Nav Channel	16.84	15.98	15.61	15.07	15.07	13.46	11.12	15.07
11.1	Nav Channel	16.91	16.04	15.67	15.12	15.12	13.58	11.28	15.12
11.2	Nav Channel	16.89	15.95	15.55	14.96	14.96	13.44	11.05	14.96
11.3	Nav Channel	17.03	15.98	15.53	14.87	14.87	13.32	10.80	14.87
11.4	Nav Channel	17.25	16.07	15.56	14.81	14.81	13.32	11.66	14.81
11.5	Nav Channel	17.75	16.39	15.81	14.96	14.96	13.81	12.79	14.96
11.6	Nav Channel	18.57	16.98	16.30	15.31	15.31	13.97	12.97	15.31
11.7	Nav Channel	19.61	17.91	17.24	16.13	16.13	14.54	13.45	16.13
1.8	West	2.88	2.88	2.88	2.88	2.88	2.88	2.88	2.88
1.9	West	2.66	2.66	2.66	2.66	2.66	2.66	2.66	2.66
2	West	2.41	2.41	2.41	2.41	2.41	2.41	2.41	2.41
2.1	West	2.27	2.27	2.27	2.27	2.27	2.27	2.27	2.27
2.2	West	2.25	2.25	2.25	2.25	2.25	2.25	2.24	2.25
2.3	West	2.29	2.29	2.29	2.29	2.29	2.29	2.27	2.29
2.4	West	2.36	2.36	2.36	2.36	2.36	2.36	2.29	2.36
2.5	West	2.42	2.42	2.42	2.42	2.42	2.42	2.26	2.42
2.6	West	2.46	2.46	2.46	2.46	2.46	2.46	2.23	2.46
2.7	West	2.50	2.50	2.50	2.50	2.50	2.50	2.25	2.50
2.8	West	2.55	2.55	2.55	2.55	2.55	2.55	2.20	2.55



**Table J2.3-5d**  
**RAO 2 Rolling River Mile Risk Estimates Infant - 1,2,3,7,8-PeCDD**  
 Portland Harbor Superfund Site  
 Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
2.9	West	2.66	2.66	2.66	2.66	2.66	2.66	2.26	2.66
3	West	2.88	2.88	2.88	2.88	2.88	2.88	2.45	2.88
3.1	West	3.28	3.28	3.28	3.28	3.27	3.27	2.83	3.28
3.2	West	3.76	3.76	3.76	3.76	3.76	3.76	3.31	3.76
3.3	West	4.35	4.35	4.35	4.35	4.35	4.35	3.83	4.35
3.4	West	5.01	5.01	5.01	5.01	4.91	4.91	4.22	5.01
3.5	West	6.00	6.00	6.00	5.97	5.72	5.72	4.86	5.97
3.6	West	7.16	7.16	7.16	7.13	6.72	6.72	5.64	7.13
3.7	West	8.66	8.66	8.66	8.62	8.06	8.06	6.61	8.62
3.8	West	10.29	10.29	10.29	10.23	9.35	9.35	7.33	10.23
3.9	West	12.13	12.13	12.13	12.06	10.98	10.98	7.89	12.06
4	West	13.80	13.80	13.80	13.72	12.48	12.48	8.46	13.72
4.1	West	15.60	15.60	15.60	15.51	13.74	13.74	8.75	15.51
4.2	West	16.63	16.63	16.63	16.53	13.81	13.81	8.15	16.53
4.3	West	16.99	16.99	16.99	16.89	14.00	14.00	8.16	16.89
4.4	West	16.73	16.73	16.73	16.63	13.85	13.85	8.27	16.63
4.5	West	16.02	16.02	16.02	15.95	13.30	13.30	7.90	15.95
4.6	West	15.36	15.36	15.35	15.29	12.78	12.78	7.66	15.29
4.7	West	15.16	15.16	15.12	14.84	12.07	12.07	7.23	14.84
4.8	West	15.55	15.55	15.39	14.91	12.32	12.32	7.70	14.91
4.9	West	16.11	16.04	15.42	14.80	12.05	12.05	7.85	14.80
5	West	16.24	16.06	14.88	14.05	10.99	10.99	7.26	14.05
5.1	West	15.57	15.38	14.02	13.10	10.24	10.24	6.62	13.10
5.2	West	15.08	14.88	13.44	12.45	10.58	10.58	6.75	12.45
5.3	West	14.54	14.32	12.79	11.74	9.81	9.81	5.61	11.74
5.4	West	14.24	14.03	12.55	11.37	9.06	9.06	4.80	11.56
5.5	West	13.91	13.72	12.25	11.13	8.81	8.81	4.65	11.45
5.6	West	13.44	13.03	11.60	10.50	7.82	7.82	3.67	10.88
5.7	West	12.77	11.79	10.28	9.40	7.14	7.14	3.15	9.78
5.8	West	11.65	10.09	8.74	8.07	6.01	6.01	2.73	8.44
5.9	West	10.58	8.58	7.62	7.05	5.11	5.11	2.54	7.41
6	West	9.95	7.60	7.04	6.61	4.83	4.83	2.53	6.97
6.1	West	9.68	7.03	6.56	6.14	4.48	4.48	2.45	6.41
6.2	West	9.16	6.55	6.07	5.63	3.83	3.83	2.04	5.72
6.3	West	9.52	6.84	6.35	5.44	3.11	3.11	1.61	4.88
6.4	West	25.26	9.42	6.01	4.84	2.43	2.43	1.18	3.59
6.5	West	49.38	10.27	5.67	3.38	1.14	1.14	0.35	1.80
6.6	West	52.35	11.32	6.05	3.02	0.68	0.68	0.27	0.69
6.7	West	51.82	10.99	5.79	2.83	0.63	0.63	0.25	0.64
6.8	West	58.18	10.79	5.67	2.78	0.63	0.63	0.26	0.63
6.9	West	64.69	10.90	5.77	2.83	0.64	0.64	0.27	0.64
7	West	63.98	11.10	5.98	2.98	0.78	0.78	0.27	0.78

**Table J2.3-5d**  
**RAO 2 Rolling River Mile Risk Estimates Infant - 1,2,3,7,8-PeCDD**  
 Portland Harbor Superfund Site  
 Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
7.1	West	55.71	12.21	7.90	5.18	3.08	3.08	1.13	3.08
7.2	West	48.85	12.43	8.83	6.47	4.41	4.41	2.38	4.41
7.3	West	42.73	11.38	8.28	6.49	4.78	4.78	2.35	4.78
7.4	West	33.48	9.49	8.03	6.47	5.09	5.09	2.45	5.09
7.5	West	21.04	8.77	7.93	6.98	5.53	5.53	2.56	5.59
7.6	West	19.77	8.28	7.86	7.34	6.02	6.02	2.63	6.29
7.7	West	19.02	9.04	8.84	8.28	6.57	6.57	2.69	7.20
7.8	West	15.22	10.33	10.16	9.39	6.82	6.82	2.70	8.31
7.9	West	12.60	12.14	11.97	10.56	6.74	6.74	2.51	9.58
8	West	13.02	12.98	12.88	10.92	7.38	7.38	3.22	10.05
8.1	West	14.28	14.22	14.20	10.93	6.70	6.70	3.22	10.29
8.2	West	16.25	16.19	16.17	10.71	5.69	5.69	2.26	10.37
8.3	West	20.74	20.06	19.63	10.92	5.27	5.27	2.20	10.86
8.4	West	26.54	20.88	20.28	10.97	4.98	4.98	2.12	10.92
8.5	West	30.44	21.64	20.22	10.73	4.77	4.77	2.15	10.73
8.6	West	34.43	23.40	20.22	10.20	4.39	4.39	2.18	10.20
8.7	West	37.14	24.11	20.14	9.66	4.05	4.05	2.26	9.66
8.8	West	38.45	25.58	21.13	9.93	4.49	4.49	2.79	9.93
8.9	West	39.31	26.03	21.47	10.87	6.55	6.55	4.86	10.87
9	West	41.26	27.17	22.34	12.24	6.50	6.50	4.88	12.24
9.1	West	42.56	27.08	21.76	12.99	7.08	7.08	5.53	12.99
9.2	West	44.28	28.51	20.28	12.58	7.50	7.50	5.78	12.58
9.3	West	50.48	34.58	17.88	12.90	7.74	7.74	5.96	12.90
9.4	West	46.56	36.40	18.90	13.68	8.19	8.19	6.31	13.68
9.5	West	43.95	37.62	20.59	15.18	9.49	9.49	7.54	15.18
9.6	West	41.92	38.20	22.56	17.38	11.32	11.32	9.23	17.38
9.7	West	41.54	39.93	24.59	19.46	12.95	12.95	9.72	19.46
9.8	West	42.46	40.72	24.61	20.19	13.41	13.41	9.83	20.23
9.9	West	46.74	44.64	25.02	19.68	12.48	12.48	8.50	19.73
10	West	54.85	52.19	27.23	20.48	14.27	14.27	9.85	20.53
10.1	West	68.33	65.03	31.25	22.79	17.60	17.60	12.43	22.86
10.2	West	77.62	75.79	42.38	38.86	33.36	33.36	23.17	38.96
10.3	West	54.32	54.32	54.23	52.84	48.91	48.91	32.32	52.93
10.4	West	52.64	52.64	52.57	51.40	48.11	48.11	34.23	51.47
10.5	West	50.53	50.53	50.47	49.43	46.51	46.51	34.18	49.50
10.6	West	48.09	48.09	48.03	47.08	44.42	44.42	33.22	47.14
10.7	West	45.82	45.82	45.76	44.86	42.69	42.69	33.91	44.92
10.8	West	44.08	44.08	44.08	44.08	43.76	43.76	35.68	44.08
10.9	West	43.05	43.05	43.05	43.05	43.05	43.05	35.81	43.05
11	West	41.17	41.17	41.17	41.17	41.17	41.17	34.41	41.17
11.1	West	39.11	39.11	39.11	39.11	39.11	39.11	32.64	39.11
11.2	West	34.48	34.48	34.48	34.48	34.48	34.48	30.14	34.48

**Table J2.3-5d**  
**RAO 2 Rolling River Mile Risk Estimates Infant - 1,2,3,7,8-PeCDD**  
 Portland Harbor Superfund Site  
 Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
11.3	West	29.52	29.52	29.52	29.52	29.52	29.52	29.47	29.52
11.4	West	26.98	26.98	26.98	26.98	26.98	26.98	26.94	26.98
11.5	West	24.15	24.15	24.15	24.15	24.15	24.15	24.11	24.15
11.6	West	21.36	21.36	21.36	21.36	21.36	21.36	21.30	21.36
11.7	West	19.33	19.33	19.33	19.33	19.33	19.33	19.26	19.33
7.6	Swan Isl	12.83	1.04	1.04	0.63	0.10	0.10	0.05	0.63
7.7	Swan Isl	15.00	0.99	0.97	0.64	0.13	0.13	0.05	0.64
7.8	Swan Isl	15.41	1.16	1.04	0.65	0.15	0.15	0.05	0.65
7.9	Swan Isl	14.86	1.05	0.95	0.60	0.17	0.17	0.07	0.60
8	Swan Isl	14.59	0.99	0.90	0.58	0.19	0.19	0.09	0.58
8.1	Swan Isl	14.69	0.98	0.89	0.58	0.20	0.20	0.10	0.58
8.2	Swan Isl	15.37	1.06	0.97	0.67	0.32	0.32	0.22	0.67
8.3	Swan Isl	16.93	1.34	1.06	0.72	0.38	0.38	0.28	0.72
8.4	Swan Isl	18.85	1.66	1.06	0.72	0.40	0.40	0.31	0.72
8.5	Swan Isl	20.34	1.87	1.08	0.76	0.42	0.42	0.33	0.76
8.6	Swan Isl	23.88	3.66	1.91	1.62	0.54	0.54	0.41	2.41
8.7	Swan Isl	27.98	7.54	4.48	4.00	1.47	1.47	1.21	6.07
8.8	Swan Isl	30.27	8.71	5.13	4.67	1.72	1.72	1.44	7.15
8.9	Swan Isl	33.04	9.92	5.83	5.30	1.93	1.93	1.62	8.15
9	Swan Isl	36.32	11.42	6.68	6.08	2.18	2.18	1.83	9.38
9.1	Swan Isl	37.84	12.24	7.15	6.50	2.31	2.31	1.95	10.06
9.2	Swan Isl	41.62	14.65	8.40	7.66	2.55	2.55	2.13	12.03
9.3	Swan Isl	45.02	18.13	10.49	9.76	3.07	3.07	2.52	15.53
9.4	Swan Isl	48.99	24.96	15.28	14.33	4.31	4.31	3.51	23.05
9.5	Swan Isl	54.92	38.76	24.74	23.23	6.74	6.74	5.50	37.88
9.6	Swan Isl	51.32	51.32	37.42	34.08	13.10	13.10	11.03	51.32

**Table J2.3-5e**  
**RAO 2 Rolling River Mile Risk Estimates Infant - 1,2,3,7,8-PeCDF**  
 Portland Harbor Superfund Site  
 Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
1.8	East	0.35	0.27	0.24	0.22	0.20	0.20	0.19	0.22
1.9	East	0.43	0.30	0.27	0.23	0.20	0.20	0.19	0.23
2	East	0.56	0.38	0.34	0.29	0.22	0.22	0.19	0.29
2.1	East	0.63	0.45	0.41	0.36	0.23	0.23	0.19	0.36
2.2	East	0.64	0.47	0.43	0.38	0.23	0.23	0.19	0.38
2.3	East	0.67	0.49	0.45	0.39	0.23	0.23	0.18	0.39
2.4	East	0.69	0.51	0.46	0.40	0.24	0.24	0.18	0.40
2.5	East	0.68	0.49	0.44	0.39	0.23	0.23	0.17	0.39
2.6	East	0.69	0.50	0.45	0.40	0.24	0.24	0.19	0.40
2.7	East	0.69	0.52	0.48	0.43	0.27	0.27	0.21	0.43
2.8	East	0.65	0.53	0.50	0.46	0.28	0.28	0.22	0.46
2.9	East	0.59	0.51	0.49	0.47	0.30	0.30	0.24	0.47
3	East	0.48	0.48	0.46	0.45	0.34	0.34	0.29	0.46
3.1	East	0.44	0.44	0.41	0.40	0.37	0.37	0.33	0.41
3.2	East	0.44	0.44	0.42	0.41	0.39	0.39	0.36	0.41
3.3	East	0.65	0.57	0.42	0.40	0.35	0.35	0.32	0.40
3.4	East	0.83	0.62	0.42	0.41	0.35	0.35	0.31	0.41
3.5	East	0.88	0.65	0.44	0.41	0.35	0.35	0.30	0.41
3.6	East	0.93	0.69	0.46	0.41	0.34	0.34	0.28	0.41
3.7	East	0.99	0.74	0.51	0.42	0.34	0.34	0.27	0.42
3.8	East	1.04	0.79	0.55	0.46	0.37	0.37	0.29	0.46
3.9	East	1.38	1.15	0.87	0.71	0.39	0.39	0.25	0.71
4	East	1.83	1.62	1.36	1.17	0.43	0.43	0.20	1.17
4.1	East	1.91	1.70	1.37	1.15	0.39	0.39	0.16	1.15
4.2	East	2.54	2.32	1.64	1.19	0.35	0.35	0.12	1.19
4.3	East	2.91	2.71	2.01	1.44	0.41	0.41	0.12	1.44
4.4	East	2.89	2.84	2.14	1.53	0.44	0.44	0.15	1.53
4.5	East	2.99	2.93	2.22	1.61	0.51	0.51	0.21	1.61
4.6	East	3.11	3.06	2.36	1.78	0.68	0.68	0.37	1.78
4.7	East	3.33	3.28	2.57	2.02	0.92	0.92	0.62	2.02
4.8	East	3.68	3.62	2.90	2.34	1.23	1.23	0.90	2.34
4.9	East	4.10	4.03	3.25	2.70	1.72	1.72	1.16	2.70
5	East	4.30	4.23	3.31	2.73	2.33	2.33	1.64	2.68
5.1	East	5.13	5.05	4.22	3.66	2.84	2.84	1.95	3.14
5.2	East	4.93	4.93	4.92	4.89	3.51	3.51	2.41	3.51
5.3	East	4.92	4.92	4.92	4.84	3.37	3.37	2.30	3.37
5.4	East	4.52	4.52	4.52	4.46	3.22	3.22	1.97	3.22
5.5	East	4.24	4.24	4.24	4.18	3.04	3.04	1.80	3.06
5.6	East	3.90	3.89	3.89	3.83	2.72	2.72	1.57	2.82
5.7	East	3.56	3.55	3.55	3.50	2.39	2.39	1.32	2.59
5.8	East	3.36	3.36	3.31	3.26	2.24	2.24	1.27	2.48
5.9	East	3.20	3.20	3.07	2.99	1.97	1.97	1.22	2.39
6	East	3.04	3.04	2.83	2.75	1.84	1.84	1.24	2.32

**Table J2.3-5e**  
**RAO 2 Rolling River Mile Risk Estimates Infant - 1,2,3,7,8-PeCDF**  
 Portland Harbor Superfund Site  
 Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
6.1	East	2.86	2.86	2.50	2.43	1.82	1.82	1.30	2.39
6.2	East	3.14	2.71	2.12	2.06	1.77	1.77	1.31	2.42
6.3	East	5.23	2.60	1.82	1.78	1.57	1.57	1.16	2.39
6.4	East	5.10	2.38	1.54	1.51	1.32	1.32	1.08	2.20
6.5	East	4.79	2.18	1.38	1.35	1.18	1.18	1.01	2.02
6.6	East	4.48	2.01	1.25	1.23	1.11	1.11	0.96	1.87
6.7	East	4.89	1.98	1.15	1.13	1.07	1.07	0.94	2.43
6.8	East	5.08	1.97	1.03	1.01	0.96	0.96	0.85	2.72
6.9	East	4.87	1.87	0.94	0.94	0.91	0.91	0.83	2.59
7	East	4.58	1.72	0.87	0.87	0.84	0.84	0.78	2.40
7.1	East	4.39	1.55	0.79	0.79	0.76	0.76	0.72	2.24
7.2	East	4.18	1.44	0.80	0.80	0.77	0.77	0.74	2.27
7.3	East	2.63	1.38	0.89	0.89	0.86	0.86	0.82	2.32
7.4	East	2.52	1.41	0.97	0.97	0.95	0.95	0.89	2.49
7.5	East	2.72	1.56	1.09	1.09	1.07	1.07	0.99	2.70
7.6	East	2.91	1.65	1.15	1.15	1.13	1.13	0.99	2.87
7.7	East	2.07	1.48	1.10	1.10	1.07	1.07	0.93	1.95
7.8	East	1.37	1.18	1.06	1.06	1.02	1.02	0.85	1.17
7.9	East	1.24	1.04	1.04	1.04	1.03	1.03	0.84	1.04
8	East	1.15	0.91	0.91	0.91	0.91	0.91	0.68	0.91
8.1	East	1.12	0.84	0.84	0.84	0.83	0.83	0.57	0.84
8.2	East	0.99	0.72	0.72	0.72	0.71	0.71	0.45	0.72
8.3	East	0.89	0.63	0.63	0.63	0.62	0.62	0.42	0.63
8.4	East	0.79	0.54	0.54	0.54	0.53	0.53	0.38	0.54
8.5	East	0.62	0.36	0.36	0.36	0.35	0.35	0.23	0.36
8.6	East	0.49	0.24	0.24	0.24	0.23	0.23	0.20	0.24
8.7	East	0.40	0.28	0.28	0.28	0.26	0.26	0.22	0.28
8.8	East	0.28	0.28	0.28	0.28	0.27	0.27	0.23	0.28
8.9	East	0.26	0.26	0.26	0.26	0.25	0.25	0.22	0.26
9	East	0.26	0.26	0.26	0.26	0.25	0.25	0.21	0.26
9.1	East	0.26	0.26	0.26	0.26	0.24	0.24	0.19	0.26
9.2	East	0.26	0.26	0.26	0.26	0.22	0.22	0.17	0.26
9.3	East	0.26	0.26	0.26	0.26	0.23	0.23	0.16	0.26
9.4	East	0.27	0.27	0.27	0.27	0.24	0.24	0.18	0.27
9.5	East	0.28	0.28	0.28	0.28	0.25	0.25	0.20	0.28
9.6	East	0.29	0.29	0.29	0.29	0.26	0.26	0.21	0.29
9.7	East	0.30	0.30	0.30	0.30	0.26	0.26	0.23	0.30
9.8	East	0.32	0.32	0.32	0.31	0.28	0.28	0.24	0.31
9.9	East	0.34	0.34	0.34	0.33	0.29	0.29	0.25	0.33
10	East	0.36	0.36	0.36	0.35	0.31	0.31	0.26	0.35
10.1	East	0.38	0.38	0.38	0.37	0.34	0.34	0.29	0.37
10.2	East	0.40	0.40	0.40	0.40	0.36	0.36	0.32	0.40

**Table J2.3-5e**  
**RAO 2 Rolling River Mile Risk Estimates Infant - 1,2,3,7,8-PeCDF**  
 Portland Harbor Superfund Site  
 Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
10.3	East	0.44	0.44	0.44	0.42	0.36	0.36	0.32	0.42
10.4	East	0.49	0.49	0.49	0.45	0.36	0.36	0.31	0.45
10.5	East	0.52	0.52	0.52	0.48	0.35	0.35	0.27	0.48
10.6	East	0.58	0.58	0.58	0.53	0.39	0.39	0.27	0.53
10.7	East	0.63	0.61	0.59	0.53	0.38	0.38	0.26	0.53
10.8	East	0.71	0.68	0.62	0.54	0.37	0.37	0.22	0.54
10.9	East	0.78	0.67	0.58	0.48	0.31	0.31	0.17	0.48
11	East	0.87	0.69	0.57	0.44	0.26	0.26	0.14	0.44
11.1	East	0.90	0.70	0.57	0.43	0.25	0.25	0.12	0.43
11.2	East	0.87	0.69	0.56	0.41	0.25	0.25	0.11	0.41
11.3	East	0.90	0.69	0.55	0.41	0.25	0.25	0.09	0.41
11.4	East	0.93	0.69	0.53	0.39	0.23	0.23	0.07	0.39
11.5	East	0.95	0.69	0.51	0.36	0.22	0.22	0.07	0.36
11.6	East	0.97	0.68	0.48	0.31	0.18	0.18	0.06	0.31
11.7	East	1.01	0.70	0.49	0.31	0.17	0.17	0.04	0.31
1.8	Nav Channel	0.08	0.08	0.08	0.08	0.08	0.08	0.07	0.08
1.9	Nav Channel	0.08	0.08	0.08	0.08	0.08	0.08	0.07	0.08
2	Nav Channel	0.09	0.09	0.09	0.09	0.09	0.09	0.08	0.09
2.1	Nav Channel	0.11	0.11	0.11	0.11	0.11	0.11	0.09	0.11
2.2	Nav Channel	0.12	0.12	0.12	0.12	0.12	0.12	0.11	0.12
2.3	Nav Channel	0.14	0.14	0.14	0.14	0.14	0.14	0.12	0.14
2.4	Nav Channel	0.15	0.15	0.15	0.15	0.15	0.15	0.14	0.15
2.5	Nav Channel	0.17	0.17	0.17	0.17	0.17	0.17	0.16	0.17
2.6	Nav Channel	0.18	0.18	0.18	0.18	0.18	0.18	0.17	0.18
2.7	Nav Channel	0.20	0.20	0.20	0.20	0.20	0.20	0.19	0.20
2.8	Nav Channel	0.21	0.21	0.21	0.21	0.21	0.21	0.20	0.21
2.9	Nav Channel	0.23	0.23	0.23	0.23	0.23	0.23	0.22	0.23
3	Nav Channel	0.24	0.24	0.24	0.24	0.24	0.23	0.22	0.24
3.1	Nav Channel	0.25	0.25	0.25	0.25	0.25	0.23	0.20	0.25
3.2	Nav Channel	0.25	0.25	0.25	0.25	0.25	0.23	0.18	0.25
3.3	Nav Channel	0.25	0.25	0.25	0.25	0.25	0.23	0.18	0.25
3.4	Nav Channel	0.25	0.25	0.25	0.25	0.25	0.23	0.18	0.25
3.5	Nav Channel	0.24	0.24	0.24	0.24	0.24	0.22	0.18	0.24
3.6	Nav Channel	0.23	0.23	0.23	0.23	0.23	0.21	0.17	0.23
3.7	Nav Channel	0.22	0.22	0.22	0.22	0.22	0.20	0.16	0.22
3.8	Nav Channel	0.21	0.21	0.21	0.21	0.21	0.19	0.15	0.21
3.9	Nav Channel	0.20	0.20	0.20	0.20	0.20	0.18	0.15	0.20
4	Nav Channel	0.19	0.19	0.19	0.19	0.19	0.18	0.14	0.19
4.1	Nav Channel	0.19	0.19	0.19	0.19	0.19	0.18	0.15	0.19
4.2	Nav Channel	0.19	0.19	0.19	0.19	0.19	0.18	0.17	0.19
4.3	Nav Channel	0.19	0.19	0.19	0.19	0.19	0.19	0.18	0.19
4.4	Nav Channel	0.21	0.21	0.21	0.21	0.21	0.20	0.19	0.21

**Table J2.3-5e**

**RAO 2 Rolling River Mile Risk Estimates Infant - 1,2,3,7,8-PeCDF**

Portland Harbor Superfund Site

Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
4.5	Nav Channel	0.25	0.25	0.25	0.25	0.25	0.25	0.23	0.25
4.6	Nav Channel	0.33	0.33	0.30	0.29	0.33	0.27	0.25	0.33
4.7	Nav Channel	0.45	0.40	0.33	0.30	0.40	0.27	0.24	0.40
4.8	Nav Channel	0.61	0.55	0.41	0.35	0.55	0.28	0.24	0.55
4.9	Nav Channel	0.80	0.66	0.46	0.38	0.66	0.28	0.24	0.66
5	Nav Channel	1.04	0.82	0.58	0.47	0.82	0.31	0.24	0.82
5.1	Nav Channel	1.33	1.09	0.82	0.68	1.09	0.42	0.28	1.09
5.2	Nav Channel	1.66	1.21	0.90	0.74	1.21	0.46	0.29	1.21
5.3	Nav Channel	1.95	1.28	0.94	0.77	1.28	0.47	0.29	1.28
5.4	Nav Channel	2.20	1.48	1.12	0.94	1.48	0.48	0.28	1.48
5.5	Nav Channel	2.40	1.64	1.26	1.04	1.64	0.53	0.26	1.64
5.6	Nav Channel	2.62	1.81	1.44	1.19	1.81	0.62	0.31	1.81
5.7	Nav Channel	2.91	2.09	1.66	1.36	2.09	0.72	0.36	2.03
5.8	Nav Channel	3.29	2.24	1.83	1.53	2.24	0.84	0.44	2.15
5.9	Nav Channel	3.68	2.50	2.13	1.82	2.50	1.10	0.65	2.40
6	Nav Channel	4.05	2.65	2.32	2.03	2.65	1.36	0.88	2.53
6.1	Nav Channel	4.28	2.75	2.32	1.97	2.73	1.32	0.92	2.61
6.2	Nav Channel	4.21	2.93	2.52	2.12	2.88	1.34	0.90	2.76
6.3	Nav Channel	4.19	3.21	2.79	2.38	3.15	1.48	0.93	3.02
6.4	Nav Channel	4.18	3.19	2.78	2.38	3.14	1.65	1.02	3.00
6.5	Nav Channel	4.24	3.26	2.85	2.48	3.20	1.80	1.27	3.07
6.6	Nav Channel	4.16	3.19	2.78	2.47	3.13	1.86	1.39	3.00
6.7	Nav Channel	3.84	2.94	2.68	2.45	2.88	1.92	1.50	2.84
6.8	Nav Channel	3.37	2.70	2.52	2.34	2.64	1.90	1.47	2.64
6.9	Nav Channel	2.80	2.39	2.24	2.09	2.33	1.70	1.29	2.33
7	Nav Channel	2.23	2.14	2.00	1.85	2.07	1.46	1.06	2.07
7.1	Nav Channel	1.76	1.75	1.72	1.66	1.71	1.34	0.97	1.71
7.2	Nav Channel	1.52	1.51	1.51	1.50	1.50	1.29	0.95	1.50
7.3	Nav Channel	1.31	1.30	1.30	1.29	1.29	1.18	0.94	1.29
7.4	Nav Channel	1.14	1.13	1.13	1.12	1.12	1.05	0.88	1.12
7.5	Nav Channel	0.94	0.94	0.94	0.93	0.93	0.87	0.72	0.93
7.6	Nav Channel	0.82	0.82	0.82	0.81	0.81	0.75	0.62	0.81
7.7	Nav Channel	0.75	0.74	0.74	0.74	0.73	0.68	0.55	0.73
7.8	Nav Channel	0.68	0.68	0.68	0.68	0.67	0.62	0.52	0.67
7.9	Nav Channel	0.62	0.62	0.62	0.62	0.62	0.58	0.50	0.62
8	Nav Channel	0.58	0.58	0.58	0.58	0.58	0.55	0.50	0.58
8.1	Nav Channel	0.54	0.54	0.54	0.54	0.54	0.53	0.50	0.54
8.2	Nav Channel	0.50	0.50	0.50	0.50	0.50	0.50	0.49	0.50
8.3	Nav Channel	0.46	0.46	0.46	0.46	0.46	0.46	0.45	0.46
8.4	Nav Channel	0.43	0.43	0.43	0.43	0.43	0.43	0.42	0.43
8.5	Nav Channel	0.40	0.40	0.40	0.39	0.40	0.38	0.37	0.40
8.6	Nav Channel	0.38	0.38	0.38	0.38	0.38	0.36	0.35	0.38

**Table J2.3-5e**

**RAO 2 Rolling River Mile Risk Estimates Infant - 1,2,3,7,8-PeCDF**

Portland Harbor Superfund Site

Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
8.7	Nav Channel	0.38	0.37	0.37	0.37	0.37	0.34	0.33	0.37
8.8	Nav Channel	0.37	0.37	0.36	0.36	0.36	0.33	0.31	0.36
8.9	Nav Channel	0.36	0.36	0.36	0.35	0.36	0.32	0.29	0.36
9	Nav Channel	0.35	0.35	0.35	0.34	0.35	0.30	0.28	0.35
9.1	Nav Channel	0.34	0.34	0.34	0.33	0.34	0.29	0.27	0.34
9.2	Nav Channel	0.32	0.32	0.32	0.32	0.32	0.28	0.25	0.32
9.3	Nav Channel	0.31	0.30	0.30	0.30	0.30	0.26	0.23	0.30
9.4	Nav Channel	0.28	0.28	0.28	0.28	0.28	0.24	0.21	0.28
9.5	Nav Channel	0.26	0.26	0.26	0.26	0.26	0.22	0.20	0.26
9.6	Nav Channel	0.25	0.25	0.25	0.25	0.25	0.21	0.19	0.25
9.7	Nav Channel	0.24	0.24	0.24	0.24	0.24	0.21	0.19	0.24
9.8	Nav Channel	0.23	0.23	0.23	0.23	0.23	0.21	0.18	0.23
9.9	Nav Channel	0.23	0.23	0.23	0.23	0.23	0.19	0.16	0.23
10	Nav Channel	0.23	0.23	0.23	0.23	0.23	0.19	0.15	0.23
10.1	Nav Channel	0.23	0.23	0.23	0.23	0.23	0.19	0.15	0.23
10.2	Nav Channel	0.23	0.23	0.23	0.23	0.23	0.20	0.16	0.23
10.3	Nav Channel	0.24	0.24	0.24	0.24	0.24	0.20	0.16	0.24
10.4	Nav Channel	0.25	0.25	0.25	0.25	0.25	0.21	0.15	0.25
10.5	Nav Channel	0.25	0.25	0.25	0.25	0.25	0.21	0.15	0.25
10.6	Nav Channel	0.25	0.25	0.25	0.25	0.25	0.21	0.14	0.25
10.7	Nav Channel	0.25	0.25	0.25	0.25	0.25	0.20	0.14	0.25
10.8	Nav Channel	0.26	0.25	0.25	0.24	0.24	0.20	0.15	0.24
10.9	Nav Channel	0.29	0.27	0.27	0.25	0.25	0.22	0.17	0.25
11	Nav Channel	0.32	0.30	0.29	0.28	0.28	0.25	0.20	0.28
11.1	Nav Channel	0.33	0.31	0.30	0.29	0.29	0.26	0.21	0.29
11.2	Nav Channel	0.34	0.32	0.31	0.30	0.30	0.26	0.21	0.30
11.3	Nav Channel	0.35	0.32	0.31	0.30	0.30	0.27	0.21	0.30
11.4	Nav Channel	0.36	0.33	0.32	0.30	0.30	0.27	0.23	0.30
11.5	Nav Channel	0.37	0.34	0.33	0.31	0.31	0.28	0.26	0.31
11.6	Nav Channel	0.39	0.36	0.34	0.32	0.32	0.29	0.27	0.32
11.7	Nav Channel	0.42	0.38	0.36	0.34	0.34	0.30	0.28	0.34
1.8	West	0.42	0.42	0.42	0.42	0.42	0.42	0.42	0.42
1.9	West	0.62	0.62	0.62	0.62	0.62	0.62	0.62	0.62
2	West	0.72	0.72	0.72	0.72	0.72	0.72	0.72	0.72
2.1	West	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75
2.2	West	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78
2.3	West	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78
2.4	West	0.80	0.80	0.80	0.80	0.80	0.80	0.79	0.80
2.5	West	0.77	0.77	0.77	0.77	0.77	0.77	0.76	0.77
2.6	West	0.73	0.73	0.73	0.73	0.73	0.73	0.71	0.73
2.7	West	0.65	0.65	0.65	0.65	0.65	0.65	0.63	0.65
2.8	West	0.54	0.54	0.54	0.54	0.54	0.54	0.50	0.54



**Table J2.3-5e**  
**RAO 2 Rolling River Mile Risk Estimates Infant - 1,2,3,7,8-PeCDF**  
 Portland Harbor Superfund Site  
 Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
2.9	West	0.36	0.36	0.36	0.36	0.36	0.36	0.32	0.36
3	West	0.28	0.28	0.28	0.28	0.28	0.28	0.23	0.28
3.1	West	0.26	0.26	0.26	0.26	0.26	0.26	0.21	0.26
3.2	West	0.27	0.27	0.27	0.27	0.27	0.27	0.23	0.27
3.3	West	0.31	0.31	0.31	0.31	0.31	0.31	0.26	0.31
3.4	West	0.35	0.35	0.35	0.35	0.34	0.34	0.28	0.35
3.5	West	0.41	0.41	0.41	0.40	0.39	0.39	0.32	0.40
3.6	West	0.46	0.46	0.46	0.46	0.44	0.44	0.35	0.46
3.7	West	0.53	0.53	0.53	0.52	0.49	0.49	0.39	0.52
3.8	West	0.59	0.59	0.59	0.58	0.54	0.54	0.43	0.58
3.9	West	0.68	0.68	0.68	0.68	0.62	0.62	0.46	0.68
4	West	0.80	0.80	0.80	0.80	0.74	0.74	0.52	0.80
4.1	West	0.96	0.96	0.96	0.96	0.86	0.86	0.57	0.96
4.2	West	1.16	1.16	1.16	1.15	0.95	0.95	0.60	1.15
4.3	West	1.30	1.30	1.30	1.29	1.07	1.07	0.71	1.29
4.4	West	1.36	1.36	1.36	1.36	1.13	1.13	0.77	1.36
4.5	West	1.41	1.41	1.41	1.40	1.17	1.17	0.81	1.40
4.6	West	1.49	1.49	1.49	1.48	1.25	1.25	0.89	1.48
4.7	West	1.66	1.66	1.65	1.61	1.31	1.31	0.95	1.61
4.8	West	1.90	1.90	1.87	1.79	1.48	1.48	1.04	1.79
4.9	West	2.13	2.12	2.02	1.93	1.58	1.58	1.09	1.93
5	West	2.16	2.14	1.98	1.85	1.47	1.47	0.98	1.85
5.1	West	2.11	2.08	1.90	1.77	1.40	1.40	0.92	1.77
5.2	West	2.05	2.03	1.83	1.69	1.44	1.44	0.93	1.69
5.3	West	2.01	1.98	1.77	1.62	1.36	1.36	0.78	1.62
5.4	West	1.93	1.91	1.71	1.54	1.24	1.24	0.68	1.56
5.5	West	1.83	1.81	1.61	1.46	1.16	1.16	0.62	1.49
5.6	West	1.77	1.71	1.51	1.36	1.01	1.01	0.46	1.40
5.7	West	1.69	1.50	1.29	1.17	0.89	0.89	0.37	1.22
5.8	West	1.60	1.24	1.05	0.97	0.72	0.72	0.31	1.01
5.9	West	1.59	1.03	0.89	0.82	0.59	0.59	0.28	0.87
6	West	1.71	0.91	0.82	0.77	0.55	0.55	0.28	0.81
6.1	West	1.96	0.97	0.89	0.82	0.53	0.53	0.27	0.77
6.2	West	2.30	1.33	1.24	1.16	0.64	0.64	0.23	0.88
6.3	West	2.73	1.52	1.43	1.26	0.55	0.55	0.18	0.77
6.4	West	5.44	3.06	1.97	1.50	0.55	0.55	0.13	0.70
6.5	West	10.89	6.23	3.93	1.65	0.44	0.44	0.05	0.53
6.6	West	19.69	12.84	7.57	3.16	0.51	0.51	0.04	0.51
6.7	West	36.94	13.53	7.43	2.96	0.47	0.47	0.04	0.47
6.8	West	467.80	13.38	7.28	2.90	0.47	0.47	0.04	0.47
6.9	West	909.62	13.69	7.53	3.02	0.49	0.49	0.04	0.49
7	West	917.34	23.12	13.54	3.36	0.79	0.79	0.04	0.79

**Table J2.3-5e**

**RAO 2 Rolling River Mile Risk Estimates Infant - 1,2,3,7,8-PeCDF**

Portland Harbor Superfund Site

Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
7.1	West	773.77	35.54	26.53	8.62	3.67	3.67	0.51	3.67
7.2	West	647.86	29.98	22.42	7.46	3.33	3.33	0.53	3.33
7.3	West	558.61	25.96	19.44	6.60	3.07	3.07	0.47	3.07
7.4	West	558.32	25.22	19.25	6.56	3.19	3.19	0.48	3.19
7.5	West	575.60	24.47	18.94	6.80	3.41	3.41	0.50	3.44
7.6	West	586.15	21.45	17.47	6.23	3.55	3.55	0.52	3.63
7.7	West	587.92	21.16	17.83	6.53	3.72	3.72	0.53	3.88
7.8	West	315.00	21.37	18.11	6.76	3.77	3.77	0.53	4.10
7.9	West	31.26	19.95	16.96	6.40	3.55	3.55	0.49	3.99
8	West	13.13	13.10	12.33	5.75	3.18	3.18	0.51	3.58
8.1	West	2.07	2.07	2.06	1.84	1.19	1.19	0.22	1.62
8.2	West	1.86	1.86	1.86	1.56	0.94	0.94	0.14	1.44
8.3	West	1.87	1.85	1.84	1.43	0.82	0.82	0.13	1.39
8.4	West	1.93	1.74	1.72	1.28	0.64	0.64	0.13	1.25
8.5	West	1.99	1.63	1.56	1.11	0.52	0.52	0.12	1.11
8.6	West	2.18	1.62	1.41	0.93	0.39	0.39	0.13	0.93
8.7	West	2.34	1.56	1.26	0.75	0.29	0.29	0.13	0.75
8.8	West	2.37	1.59	1.23	0.66	0.29	0.29	0.16	0.66
8.9	West	2.31	1.50	1.13	0.64	0.38	0.38	0.28	0.64
9	West	2.36	1.50	1.11	0.68	0.35	0.35	0.27	0.68
9.1	West	2.52	1.58	1.15	0.78	0.42	0.42	0.33	0.78
9.2	West	2.57	1.63	1.14	0.79	0.45	0.45	0.35	0.79
9.3	West	2.74	1.78	1.11	0.83	0.47	0.47	0.36	0.83
9.4	West	2.66	1.88	1.18	0.88	0.49	0.49	0.38	0.88
9.5	West	2.56	1.97	1.32	1.01	0.61	0.61	0.50	1.01
9.6	West	2.33	1.99	1.49	1.20	0.78	0.78	0.66	1.20
9.7	West	2.15	2.09	1.68	1.40	0.94	0.94	0.70	1.40
9.8	West	1.96	1.91	1.57	1.39	1.00	1.00	0.71	1.40
9.9	West	2.07	2.00	1.59	1.38	1.01	1.01	0.68	1.38
10	West	2.42	2.34	1.81	1.55	1.20	1.20	0.81	1.55
10.1	West	2.99	2.89	2.18	1.85	1.50	1.50	1.01	1.86
10.2	West	3.70	3.66	2.95	2.76	2.38	2.38	1.62	2.77
10.3	West	3.38	3.38	3.37	3.26	2.97	2.97	2.00	3.28
10.4	West	3.18	3.18	3.17	3.09	2.84	2.84	2.02	3.09
10.5	West	2.90	2.90	2.89	2.82	2.60	2.60	1.88	2.83
10.6	West	2.62	2.62	2.61	2.54	2.35	2.35	1.69	2.55
10.7	West	2.36	2.36	2.35	2.29	2.14	2.14	1.72	2.29
10.8	West	2.19	2.19	2.19	2.19	2.17	2.17	1.83	2.19
10.9	West	2.13	2.13	2.13	2.13	2.13	2.13	1.84	2.13
11	West	2.04	2.04	2.04	2.04	2.04	2.04	1.77	2.04
11.1	West	1.94	1.94	1.94	1.94	1.94	1.94	1.68	1.94
11.2	West	1.76	1.76	1.76	1.76	1.76	1.76	1.59	1.76

**Table J2.3-5e**  
**RAO 2 Rolling River Mile Risk Estimates Infant - 1,2,3,7,8-PeCDF**  
 Portland Harbor Superfund Site  
 Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
11.3	West	1.60	1.60	1.60	1.60	1.60	1.60	1.60	1.60
11.4	West	1.49	1.49	1.49	1.49	1.49	1.49	1.49	1.49
11.5	West	1.38	1.38	1.38	1.38	1.38	1.38	1.37	1.38
11.6	West	1.26	1.26	1.26	1.26	1.26	1.26	1.26	1.26
11.7	West	1.17	1.17	1.17	1.17	1.17	1.17	1.17	1.17
7.6	Swan Isl	0.35	0.04	0.04	0.02	0.00	0.00	0.00	0.02
7.7	Swan Isl	0.48	0.03	0.03	0.02	0.00	0.00	0.00	0.02
7.8	Swan Isl	0.54	0.04	0.04	0.03	0.01	0.01	0.00	0.03
7.9	Swan Isl	0.56	0.04	0.04	0.03	0.01	0.01	0.00	0.03
8	Swan Isl	0.61	0.04	0.04	0.03	0.01	0.01	0.00	0.03
8.1	Swan Isl	0.66	0.04	0.04	0.03	0.01	0.01	0.01	0.03
8.2	Swan Isl	0.79	0.05	0.05	0.03	0.02	0.02	0.01	0.03
8.3	Swan Isl	0.98	0.08	0.06	0.04	0.02	0.02	0.02	0.04
8.4	Swan Isl	1.17	0.11	0.06	0.04	0.02	0.02	0.02	0.04
8.5	Swan Isl	1.27	0.13	0.06	0.04	0.02	0.02	0.02	0.04
8.6	Swan Isl	1.65	0.29	0.13	0.12	0.03	0.03	0.02	0.19
8.7	Swan Isl	2.18	0.65	0.37	0.33	0.11	0.11	0.09	0.52
8.8	Swan Isl	2.48	0.76	0.43	0.39	0.13	0.13	0.11	0.62
8.9	Swan Isl	2.73	0.87	0.49	0.44	0.14	0.14	0.12	0.71
9	Swan Isl	3.01	1.00	0.56	0.51	0.16	0.16	0.14	0.81
9.1	Swan Isl	3.12	1.07	0.60	0.54	0.17	0.17	0.14	0.87
9.2	Swan Isl	3.37	1.29	0.71	0.65	0.19	0.19	0.16	1.05
9.3	Swan Isl	3.60	1.61	0.89	0.83	0.24	0.24	0.20	1.37
9.4	Swan Isl	3.94	2.22	1.32	1.23	0.34	0.34	0.28	2.04
9.5	Swan Isl	4.84	3.47	2.16	2.03	0.55	0.55	0.45	3.39
9.6	Swan Isl	4.60	4.60	3.31	3.02	1.14	1.14	0.95	4.60

**Table J2.3-5f**  
**RAO 2 Rolling River Mile Risk Estimates Infant - 2,3,7,8-TCDD**  
 Portland Harbor Superfund Site  
 Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
1.8	East	2E-06	2E-06	2E-06	2E-06	2E-06	2E-06	2E-06	2E-06
1.9	East	2E-06	2E-06	2E-06	2E-06	2E-06	2E-06	2E-06	2E-06
2	East	3E-06	2E-06	2E-06	2E-06	2E-06	2E-06	2E-06	2E-06
2.1	East	3E-06	2E-06	2E-06	2E-06	2E-06	2E-06	2E-06	2E-06
2.2	East	3E-06	2E-06	2E-06	2E-06	2E-06	2E-06	2E-06	2E-06
2.3	East	2E-06	2E-06	2E-06	2E-06	1E-06	1E-06	1E-06	2E-06
2.4	East	2E-06	2E-06	2E-06	2E-06	1E-06	1E-06	1E-06	2E-06
2.5	East	2E-06	2E-06	2E-06	2E-06	1E-06	1E-06	1E-06	2E-06
2.6	East	2E-06	2E-06	2E-06	2E-06	1E-06	1E-06	1E-06	2E-06
2.7	East	2E-06	2E-06	2E-06	2E-06	1E-06	1E-06	1E-06	2E-06
2.8	East	2E-06	2E-06	2E-06	2E-06	1E-06	1E-06	1E-06	2E-06
2.9	East	2E-06	2E-06	2E-06	2E-06	1E-06	1E-06	1E-06	2E-06
3	East	2E-06	2E-06	2E-06	2E-06	1E-06	1E-06	1E-06	2E-06
3.1	East	2E-06	2E-06	2E-06	2E-06	2E-06	2E-06	2E-06	2E-06
3.2	East	2E-06	2E-06	2E-06	2E-06	2E-06	2E-06	2E-06	2E-06
3.3	East	3E-06	3E-06	2E-06	2E-06	2E-06	2E-06	2E-06	2E-06
3.4	East	4E-06	3E-06	2E-06	2E-06	2E-06	2E-06	2E-06	2E-06
3.5	East	4E-06	3E-06	2E-06	2E-06	2E-06	2E-06	2E-06	2E-06
3.6	East	4E-06	3E-06	2E-06	2E-06	2E-06	2E-06	2E-06	2E-06
3.7	East	5E-06	4E-06	3E-06	2E-06	2E-06	2E-06	1E-06	2E-06
3.8	East	5E-06	4E-06	3E-06	2E-06	2E-06	2E-06	1E-06	2E-06
3.9	East	5E-06	4E-06	3E-06	2E-06	2E-06	2E-06	1E-06	2E-06
4	East	4E-06	3E-06	3E-06	2E-06	1E-06	1E-06	9E-07	2E-06
4.1	East	4E-06	3E-06	2E-06	2E-06	1E-06	1E-06	6E-07	2E-06
4.2	East	4E-06	3E-06	2E-06	1E-06	8E-07	8E-07	4E-07	1E-06
4.3	East	3E-06	2E-06	2E-06	1E-06	7E-07	7E-07	3E-07	1E-06
4.4	East	2E-06	2E-06	2E-06	1E-06	7E-07	7E-07	3E-07	1E-06
4.5	East	2E-06	2E-06	2E-06	1E-06	7E-07	7E-07	3E-07	1E-06
4.6	East	2E-06	2E-06	2E-06	2E-06	9E-07	9E-07	5E-07	2E-06
4.7	East	2E-06	2E-06	2E-06	2E-06	1E-06	1E-06	7E-07	2E-06
4.8	East	2E-06	2E-06	2E-06	2E-06	1E-06	1E-06	9E-07	2E-06
4.9	East	2E-06	2E-06	2E-06	2E-06	2E-06	2E-06	1E-06	2E-06
5	East	3E-06	3E-06	3E-06	2E-06	2E-06	2E-06	2E-06	2E-06
5.1	East	3E-06	3E-06	3E-06	3E-06	3E-06	3E-06	2E-06	3E-06
5.2	East	4E-06	4E-06	4E-06	4E-06	3E-06	3E-06	3E-06	4E-06
5.3	East	4E-06	4E-06	4E-06	4E-06	3E-06	3E-06	2E-06	3E-06
5.4	East	3E-06	3E-06	3E-06	3E-06	3E-06	3E-06	2E-06	3E-06
5.5	East	3E-06	3E-06	3E-06	3E-06	2E-06	2E-06	2E-06	2E-06
5.6	East	3E-06	3E-06	3E-06	3E-06	2E-06	2E-06	1E-06	2E-06
5.7	East	2E-06	2E-06	2E-06	2E-06	2E-06	2E-06	1E-06	2E-06
5.8	East	2E-06	2E-06	2E-06	2E-06	1E-06	1E-06	9E-07	2E-06
5.9	East	2E-06	2E-06	2E-06	2E-06	1E-06	1E-06	8E-07	1E-06
6	East	1E-06	1E-06	1E-06	1E-06	9E-07	9E-07	6E-07	1E-06

**Table J2.3-5f**  
**RAO 2 Rolling River Mile Risk Estimates Infant - 2,3,7,8-TCDD**  
 Portland Harbor Superfund Site  
 Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
6.1	East	1E-06	1E-06	1E-06	1E-06	8E-07	8E-07	5E-07	1E-06
6.2	East	2E-06	1E-06	1E-06	1E-06	8E-07	8E-07	6E-07	1E-06
6.3	East	5E-06	2E-06	1E-06	1E-06	8E-07	8E-07	6E-07	2E-06
6.4	East	6E-06	3E-06	1E-06	1E-06	1E-06	1E-06	7E-07	3E-06
6.5	East	6E-06	3E-06	1E-06	1E-06	1E-06	1E-06	8E-07	3E-06
6.6	East	6E-06	3E-06	1E-06	1E-06	1E-06	1E-06	9E-07	3E-06
6.7	East	8E-06	3E-06	1E-06	1E-06	1E-06	1E-06	1E-06	4E-06
6.8	East	9E-06	4E-06	1E-06	1E-06	1E-06	1E-06	1E-06	6E-06
6.9	East	9E-06	4E-06	2E-06	2E-06	1E-06	1E-06	1E-06	6E-06
7	East	8E-06	4E-06	2E-06	2E-06	2E-06	2E-06	1E-06	6E-06
7.1	East	8E-06	4E-06	2E-06	2E-06	2E-06	2E-06	1E-06	5E-06
7.2	East	8E-06	4E-06	2E-06	2E-06	2E-06	2E-06	2E-06	6E-06
7.3	East	7E-06	3E-06	2E-06	2E-06	2E-06	2E-06	2E-06	6E-06
7.4	East	6E-06	3E-06	2E-06	2E-06	2E-06	2E-06	2E-06	6E-06
7.5	East	6E-06	3E-06	2E-06	2E-06	2E-06	2E-06	2E-06	6E-06
7.6	East	7E-06	4E-06	2E-06	2E-06	2E-06	2E-06	2E-06	7E-06
7.7	East	5E-06	3E-06	2E-06	2E-06	2E-06	2E-06	2E-06	4E-06
7.8	East	3E-06	2E-06	2E-06	2E-06	2E-06	2E-06	2E-06	2E-06
7.9	East	3E-06	2E-06	2E-06	2E-06	2E-06	2E-06	1E-06	2E-06
8	East	3E-06	2E-06	2E-06	2E-06	2E-06	2E-06	1E-06	2E-06
8.1	East	3E-06	2E-06	2E-06	2E-06	2E-06	2E-06	1E-06	2E-06
8.2	East	3E-06	2E-06	2E-06	2E-06	2E-06	2E-06	1E-06	2E-06
8.3	East	3E-06	2E-06	2E-06	2E-06	2E-06	2E-06	1E-06	2E-06
8.4	East	3E-06	2E-06	2E-06	2E-06	2E-06	2E-06	1E-06	2E-06
8.5	East	3E-06	2E-06	2E-06	2E-06	1E-06	1E-06	1E-06	2E-06
8.6	East	3E-06	1E-06	1E-06	1E-06	1E-06	1E-06	1E-06	1E-06
8.7	East	2E-06	2E-06	2E-06	2E-06	2E-06	2E-06	1E-06	2E-06
8.8	East	2E-06	2E-06	2E-06	2E-06	2E-06	2E-06	1E-06	2E-06
8.9	East	2E-06	2E-06	2E-06	2E-06	2E-06	2E-06	1E-06	2E-06
9	East	2E-06	2E-06	2E-06	2E-06	2E-06	2E-06	2E-06	2E-06
9.1	East	2E-06	2E-06	2E-06	2E-06	2E-06	2E-06	1E-06	2E-06
9.2	East	2E-06	2E-06	2E-06	2E-06	2E-06	2E-06	1E-06	2E-06
9.3	East	2E-06	2E-06	2E-06	2E-06	2E-06	2E-06	1E-06	2E-06
9.4	East	3E-06	3E-06	3E-06	3E-06	2E-06	2E-06	2E-06	3E-06
9.5	East	3E-06	3E-06	3E-06	3E-06	3E-06	3E-06	2E-06	3E-06
9.6	East	3E-06	3E-06	3E-06	3E-06	3E-06	3E-06	2E-06	3E-06
9.7	East	3E-06	3E-06	3E-06	3E-06	3E-06	3E-06	2E-06	3E-06
9.8	East	3E-06	3E-06	3E-06	3E-06	3E-06	3E-06	3E-06	3E-06
9.9	East	4E-06	4E-06	4E-06	4E-06	3E-06	3E-06	3E-06	4E-06
10	East	4E-06	4E-06	4E-06	4E-06	4E-06	4E-06	3E-06	4E-06
10.1	East	4E-06	4E-06	4E-06	4E-06	4E-06	4E-06	3E-06	4E-06
10.2	East	5E-06	5E-06	5E-06	5E-06	4E-06	4E-06	4E-06	5E-06

**Table J2.3-5f**  
**RAO 2 Rolling River Mile Risk Estimates Infant - 2,3,7,8-TCDD**  
 Portland Harbor Superfund Site  
 Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
10.3	East	5E-06	5E-06	5E-06	5E-06	4E-06	4E-06	4E-06	5E-06
10.4	East	6E-06	6E-06	6E-06	5E-06	4E-06	4E-06	4E-06	5E-06
10.5	East	6E-06	6E-06	6E-06	5E-06	4E-06	4E-06	3E-06	5E-06
10.6	East	7E-06	7E-06	6E-06	6E-06	4E-06	4E-06	3E-06	6E-06
10.7	East	7E-06	7E-06	7E-06	6E-06	4E-06	4E-06	3E-06	6E-06
10.8	East	8E-06	8E-06	7E-06	6E-06	4E-06	4E-06	2E-06	6E-06
10.9	East	9E-06	8E-06	7E-06	5E-06	3E-06	3E-06	2E-06	5E-06
11	East	1E-05	8E-06	6E-06	5E-06	3E-06	3E-06	2E-06	5E-06
11.1	East	1E-05	8E-06	6E-06	5E-06	3E-06	3E-06	1E-06	5E-06
11.2	East	1E-05	8E-06	6E-06	4E-06	3E-06	3E-06	1E-06	4E-06
11.3	East	1E-05	8E-06	6E-06	4E-06	3E-06	3E-06	1E-06	4E-06
11.4	East	1E-05	8E-06	6E-06	4E-06	2E-06	2E-06	8E-07	4E-06
11.5	East	1E-05	8E-06	5E-06	4E-06	2E-06	2E-06	8E-07	4E-06
11.6	East	1E-05	8E-06	5E-06	3E-06	2E-06	2E-06	7E-07	3E-06
11.7	East	1E-05	8E-06	5E-06	3E-06	2E-06	2E-06	4E-07	3E-06
1.8	Nav Channel	1E-06	1E-06	1E-06	1E-06	1E-06	1E-06	9E-07	1E-06
1.9	Nav Channel	1E-06	1E-06	1E-06	1E-06	1E-06	1E-06	9E-07	1E-06
2	Nav Channel	1E-06	1E-06	1E-06	1E-06	1E-06	1E-06	9E-07	1E-06
2.1	Nav Channel	1E-06	1E-06	1E-06	1E-06	1E-06	1E-06	9E-07	1E-06
2.2	Nav Channel	1E-06	1E-06	1E-06	1E-06	1E-06	1E-06	1E-06	1E-06
2.3	Nav Channel	1E-06	1E-06	1E-06	1E-06	1E-06	1E-06	1E-06	1E-06
2.4	Nav Channel	1E-06	1E-06	1E-06	1E-06	1E-06	1E-06	1E-06	1E-06
2.5	Nav Channel	1E-06	1E-06	1E-06	1E-06	1E-06	1E-06	1E-06	1E-06
2.6	Nav Channel	1E-06	1E-06	1E-06	1E-06	1E-06	1E-06	1E-06	1E-06
2.7	Nav Channel	1E-06	1E-06	1E-06	1E-06	1E-06	1E-06	1E-06	1E-06
2.8	Nav Channel	1E-06	1E-06	1E-06	1E-06	1E-06	1E-06	1E-06	1E-06
2.9	Nav Channel	1E-06	1E-06	1E-06	1E-06	1E-06	1E-06	1E-06	1E-06
3	Nav Channel	1E-06	1E-06	1E-06	1E-06	1E-06	1E-06	1E-06	1E-06
3.1	Nav Channel	2E-06	2E-06	2E-06	2E-06	2E-06	1E-06	1E-06	2E-06
3.2	Nav Channel	2E-06	2E-06	2E-06	2E-06	2E-06	1E-06	1E-06	2E-06
3.3	Nav Channel	2E-06	2E-06	2E-06	2E-06	2E-06	1E-06	1E-06	2E-06
3.4	Nav Channel	2E-06	2E-06	2E-06	2E-06	2E-06	2E-06	1E-06	2E-06
3.5	Nav Channel	2E-06	2E-06	2E-06	2E-06	2E-06	2E-06	1E-06	2E-06
3.6	Nav Channel	2E-06	2E-06	2E-06	2E-06	2E-06	2E-06	1E-06	2E-06
3.7	Nav Channel	2E-06	2E-06	2E-06	2E-06	2E-06	2E-06	1E-06	2E-06
3.8	Nav Channel	2E-06	2E-06	2E-06	2E-06	2E-06	2E-06	1E-06	2E-06
3.9	Nav Channel	2E-06	2E-06	2E-06	2E-06	2E-06	1E-06	1E-06	2E-06
4	Nav Channel	2E-06	2E-06	2E-06	2E-06	2E-06	1E-06	1E-06	2E-06
4.1	Nav Channel	2E-06	2E-06	2E-06	2E-06	2E-06	1E-06	1E-06	2E-06
4.2	Nav Channel	1E-06	1E-06	1E-06	1E-06	1E-06	1E-06	1E-06	1E-06
4.3	Nav Channel	1E-06	1E-06	1E-06	1E-06	1E-06	1E-06	1E-06	1E-06
4.4	Nav Channel	1E-06	1E-06	1E-06	1E-06	1E-06	1E-06	1E-06	1E-06

**Table J2.3-5f**  
**RAO 2 Rolling River Mile Risk Estimates Infant - 2,3,7,8-TCDD**  
 Portland Harbor Superfund Site  
 Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
4.5	Nav Channel	1E-06	1E-06	1E-06	1E-06	1E-06	1E-06	1E-06	1E-06
4.6	Nav Channel	1E-06	1E-06	1E-06	1E-06	1E-06	1E-06	1E-06	1E-06
4.7	Nav Channel	1E-06	1E-06	1E-06	1E-06	1E-06	1E-06	1E-06	1E-06
4.8	Nav Channel	1E-06	1E-06	1E-06	1E-06	1E-06	1E-06	9E-07	1E-06
4.9	Nav Channel	1E-06	1E-06	1E-06	1E-06	1E-06	9E-07	8E-07	1E-06
5	Nav Channel	1E-06	1E-06	1E-06	9E-07	1E-06	8E-07	7E-07	1E-06
5.1	Nav Channel	1E-06	1E-06	1E-06	9E-07	1E-06	7E-07	6E-07	1E-06
5.2	Nav Channel	1E-06	1E-06	1E-06	9E-07	1E-06	7E-07	5E-07	1E-06
5.3	Nav Channel	2E-06	1E-06	1E-06	8E-07	1E-06	6E-07	5E-07	1E-06
5.4	Nav Channel	2E-06	1E-06	1E-06	9E-07	1E-06	6E-07	4E-07	1E-06
5.5	Nav Channel	2E-06	1E-06	1E-06	1E-06	1E-06	6E-07	4E-07	1E-06
5.6	Nav Channel	2E-06	2E-06	1E-06	1E-06	2E-06	8E-07	6E-07	2E-06
5.7	Nav Channel	2E-06	2E-06	2E-06	1E-06	2E-06	1E-06	6E-07	2E-06
5.8	Nav Channel	3E-06	2E-06	2E-06	2E-06	2E-06	1E-06	9E-07	2E-06
5.9	Nav Channel	4E-06	3E-06	3E-06	3E-06	3E-06	2E-06	1E-06	3E-06
6	Nav Channel	5E-06	4E-06	4E-06	4E-06	4E-06	3E-06	2E-06	4E-06
6.1	Nav Channel	6E-06	5E-06	5E-06	4E-06	5E-06	3E-06	2E-06	5E-06
6.2	Nav Channel	8E-06	7E-06	6E-06	5E-06	7E-06	3E-06	3E-06	7E-06
6.3	Nav Channel	9E-06	9E-06	8E-06	7E-06	9E-06	4E-06	3E-06	9E-06
6.4	Nav Channel	1E-05	1E-05	9E-06	9E-06	1E-05	5E-06	3E-06	1E-05
6.5	Nav Channel	1E-05	1E-05	1E-05	1E-05	1E-05	6E-06	5E-06	1E-05
6.6	Nav Channel	1E-05	1E-05	1E-05	1E-05	1E-05	7E-06	5E-06	1E-05
6.7	Nav Channel	1E-05	1E-05	1E-05	1E-05	1E-05	8E-06	6E-06	1E-05
6.8	Nav Channel	1E-05	1E-05	1E-05	1E-05	1E-05	8E-06	6E-06	1E-05
6.9	Nav Channel	1E-05	1E-05	1E-05	1E-05	1E-05	8E-06	6E-06	1E-05
7	Nav Channel	1E-05	1E-05	1E-05	1E-05	1E-05	7E-06	5E-06	1E-05
7.1	Nav Channel	1E-05	1E-05	9E-06	9E-06	1E-05	7E-06	5E-06	1E-05
7.2	Nav Channel	8E-06	8E-06	8E-06	8E-06	8E-06	7E-06	5E-06	8E-06
7.3	Nav Channel	7E-06	7E-06	7E-06	7E-06	7E-06	6E-06	5E-06	7E-06
7.4	Nav Channel	6E-06	6E-06	6E-06	6E-06	6E-06	5E-06	5E-06	6E-06
7.5	Nav Channel	5E-06	5E-06	5E-06	5E-06	5E-06	5E-06	4E-06	5E-06
7.6	Nav Channel	4E-06	4E-06	4E-06	4E-06	4E-06	4E-06	3E-06	4E-06
7.7	Nav Channel	4E-06	4E-06	4E-06	4E-06	4E-06	4E-06	3E-06	4E-06
7.8	Nav Channel	4E-06	4E-06	4E-06	4E-06	4E-06	3E-06	3E-06	4E-06
7.9	Nav Channel	3E-06	3E-06	3E-06	3E-06	3E-06	3E-06	3E-06	3E-06
8	Nav Channel	3E-06	3E-06	3E-06	3E-06	3E-06	3E-06	3E-06	3E-06
8.1	Nav Channel	3E-06	3E-06	3E-06	3E-06	3E-06	3E-06	3E-06	3E-06
8.2	Nav Channel	3E-06	3E-06	3E-06	3E-06	3E-06	3E-06	3E-06	3E-06
8.3	Nav Channel	3E-06	3E-06	3E-06	3E-06	3E-06	3E-06	3E-06	3E-06
8.4	Nav Channel	3E-06	3E-06	3E-06	3E-06	3E-06	3E-06	3E-06	3E-06
8.5	Nav Channel	3E-06	3E-06	3E-06	3E-06	3E-06	3E-06	2E-06	3E-06
8.6	Nav Channel	3E-06	3E-06	3E-06	3E-06	3E-06	3E-06	2E-06	3E-06

**Table J2.3-5f**  
**RAO 2 Rolling River Mile Risk Estimates Infant - 2,3,7,8-TCDD**  
 Portland Harbor Superfund Site  
 Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
8.7	Nav Channel	3E-06	3E-06	3E-06	3E-06	3E-06	3E-06	2E-06	3E-06
8.8	Nav Channel	3E-06	3E-06	3E-06	3E-06	3E-06	3E-06	2E-06	3E-06
8.9	Nav Channel	3E-06	3E-06	3E-06	3E-06	3E-06	3E-06	2E-06	3E-06
9	Nav Channel	4E-06	3E-06	3E-06	3E-06	3E-06	3E-06	3E-06	3E-06
9.1	Nav Channel	4E-06	4E-06	4E-06	4E-06	4E-06	3E-06	3E-06	4E-06
9.2	Nav Channel	4E-06	4E-06	4E-06	4E-06	4E-06	3E-06	3E-06	4E-06
9.3	Nav Channel	4E-06	4E-06	4E-06	4E-06	4E-06	3E-06	3E-06	4E-06
9.4	Nav Channel	4E-06	4E-06	4E-06	4E-06	4E-06	4E-06	3E-06	4E-06
9.5	Nav Channel	4E-06	4E-06	4E-06	4E-06	4E-06	4E-06	3E-06	4E-06
9.6	Nav Channel	5E-06	5E-06	5E-06	5E-06	5E-06	4E-06	4E-06	5E-06
9.7	Nav Channel	5E-06	5E-06	5E-06	5E-06	5E-06	4E-06	4E-06	5E-06
9.8	Nav Channel	5E-06	5E-06	5E-06	5E-06	5E-06	4E-06	4E-06	5E-06
9.9	Nav Channel	5E-06	5E-06	5E-06	5E-06	5E-06	4E-06	4E-06	5E-06
10	Nav Channel	5E-06	5E-06	5E-06	5E-06	5E-06	4E-06	3E-06	5E-06
10.1	Nav Channel	5E-06	5E-06	5E-06	5E-06	5E-06	4E-06	3E-06	5E-06
10.2	Nav Channel	5E-06	5E-06	5E-06	5E-06	5E-06	4E-06	3E-06	5E-06
10.3	Nav Channel	5E-06	5E-06	5E-06	5E-06	5E-06	4E-06	3E-06	5E-06
10.4	Nav Channel	5E-06	5E-06	5E-06	5E-06	5E-06	4E-06	3E-06	5E-06
10.5	Nav Channel	5E-06	5E-06	5E-06	5E-06	5E-06	4E-06	3E-06	5E-06
10.6	Nav Channel	5E-06	5E-06	5E-06	5E-06	5E-06	4E-06	3E-06	5E-06
10.7	Nav Channel	6E-06	6E-06	6E-06	6E-06	6E-06	5E-06	3E-06	6E-06
10.8	Nav Channel	6E-06	6E-06	6E-06	6E-06	6E-06	5E-06	4E-06	6E-06
10.9	Nav Channel	7E-06	7E-06	6E-06	6E-06	6E-06	5E-06	4E-06	6E-06
11	Nav Channel	7E-06	7E-06	7E-06	7E-06	7E-06	6E-06	5E-06	7E-06
11.1	Nav Channel	8E-06	7E-06	7E-06	7E-06	7E-06	6E-06	5E-06	7E-06
11.2	Nav Channel	8E-06	8E-06	7E-06	7E-06	7E-06	6E-06	5E-06	7E-06
11.3	Nav Channel	8E-06	8E-06	8E-06	7E-06	7E-06	7E-06	5E-06	7E-06
11.4	Nav Channel	8E-06	8E-06	8E-06	7E-06	7E-06	7E-06	6E-06	7E-06
11.5	Nav Channel	9E-06	8E-06	8E-06	8E-06	8E-06	7E-06	7E-06	8E-06
11.6	Nav Channel	9E-06	8E-06	8E-06	8E-06	8E-06	7E-06	6E-06	8E-06
11.7	Nav Channel	9E-06	8E-06	8E-06	8E-06	8E-06	7E-06	6E-06	8E-06
1.8	West	1E-06	1E-06	1E-06	1E-06	1E-06	1E-06	1E-06	1E-06
1.9	West	1E-06	1E-06	1E-06	1E-06	1E-06	1E-06	1E-06	1E-06
2	West	1E-06	1E-06	1E-06	1E-06	1E-06	1E-06	1E-06	1E-06
2.1	West	1E-06	1E-06	1E-06	1E-06	1E-06	1E-06	1E-06	1E-06
2.2	West	1E-06	1E-06	1E-06	1E-06	1E-06	1E-06	1E-06	1E-06
2.3	West	1E-06	1E-06	1E-06	1E-06	1E-06	1E-06	1E-06	1E-06
2.4	West	1E-06	1E-06	1E-06	1E-06	1E-06	1E-06	1E-06	1E-06
2.5	West	1E-06	1E-06	1E-06	1E-06	1E-06	1E-06	1E-06	1E-06
2.6	West	1E-06	1E-06	1E-06	1E-06	1E-06	1E-06	1E-06	1E-06
2.7	West	1E-06	1E-06	1E-06	1E-06	1E-06	1E-06	1E-06	1E-06
2.8	West	2E-06	2E-06	2E-06	2E-06	2E-06	2E-06	1E-06	2E-06



**Table J2.3-5f**  
**RAO 2 Rolling River Mile Risk Estimates Infant - 2,3,7,8-TCDD**  
 Portland Harbor Superfund Site  
 Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
2.9	West	2E-06	2E-06	2E-06	2E-06	2E-06	2E-06	1E-06	2E-06
3	West	2E-06	2E-06	2E-06	2E-06	2E-06	2E-06	2E-06	2E-06
3.1	West	2E-06	2E-06	2E-06	2E-06	2E-06	2E-06	2E-06	2E-06
3.2	West	2E-06	2E-06	2E-06	2E-06	2E-06	2E-06	2E-06	2E-06
3.3	West	3E-06	3E-06	3E-06	3E-06	3E-06	3E-06	2E-06	3E-06
3.4	West	3E-06	3E-06	3E-06	3E-06	3E-06	3E-06	2E-06	3E-06
3.5	West	3E-06	3E-06	3E-06	3E-06	3E-06	3E-06	3E-06	3E-06
3.6	West	4E-06	4E-06	4E-06	4E-06	3E-06	3E-06	3E-06	4E-06
3.7	West	4E-06	4E-06	4E-06	4E-06	4E-06	4E-06	3E-06	4E-06
3.8	West	5E-06	5E-06	5E-06	5E-06	5E-06	5E-06	4E-06	5E-06
3.9	West	6E-06	6E-06	6E-06	6E-06	6E-06	6E-06	4E-06	6E-06
4	West	8E-06	8E-06	8E-06	8E-06	7E-06	7E-06	4E-06	8E-06
4.1	West	9E-06	9E-06	9E-06	9E-06	8E-06	8E-06	5E-06	9E-06
4.2	West	1E-05	1E-05	1E-05	1E-05	9E-06	9E-06	5E-06	1E-05
4.3	West	1E-05	1E-05	1E-05	1E-05	1E-05	1E-05	5E-06	1E-05
4.4	West	1E-05	1E-05	1E-05	1E-05	1E-05	1E-05	5E-06	1E-05
4.5	West	1E-05	1E-05	1E-05	1E-05	1E-05	1E-05	5E-06	1E-05
4.6	West	1E-05	1E-05	1E-05	1E-05	1E-05	1E-05	5E-06	1E-05
4.7	West	1E-05	1E-05	1E-05	1E-05	1E-05	1E-05	5E-06	1E-05
4.8	West	1E-05	1E-05	1E-05	1E-05	9E-06	9E-06	5E-06	1E-05
4.9	West	1E-05	1E-05	1E-05	1E-05	8E-06	8E-06	5E-06	1E-05
5	West	9E-06	9E-06	9E-06	9E-06	7E-06	7E-06	4E-06	9E-06
5.1	West	8E-06	8E-06	7E-06	7E-06	5E-06	5E-06	4E-06	7E-06
5.2	West	6E-06	5E-06	5E-06	5E-06	4E-06	4E-06	3E-06	5E-06
5.3	West	4E-06	4E-06	4E-06	4E-06	3E-06	3E-06	2E-06	4E-06
5.4	West	4E-06	4E-06	4E-06	3E-06	3E-06	3E-06	1E-06	3E-06
5.5	West	4E-06	4E-06	4E-06	3E-06	3E-06	3E-06	2E-06	3E-06
5.6	West	4E-06	4E-06	4E-06	3E-06	2E-06	2E-06	1E-06	3E-06
5.7	West	4E-06	4E-06	3E-06	3E-06	2E-06	2E-06	1E-06	3E-06
5.8	West	4E-06	3E-06	3E-06	3E-06	2E-06	2E-06	1E-06	3E-06
5.9	West	4E-06	3E-06	3E-06	2E-06	2E-06	2E-06	9E-07	3E-06
6	West	4E-06	3E-06	2E-06	2E-06	2E-06	2E-06	9E-07	2E-06
6.1	West	4E-06	3E-06	2E-06	2E-06	2E-06	2E-06	9E-07	2E-06
6.2	West	4E-06	3E-06	3E-06	3E-06	2E-06	2E-06	8E-07	2E-06
6.3	West	6E-06	4E-06	4E-06	3E-06	1E-06	1E-06	6E-07	2E-06
6.4	West	3E-05	6E-06	4E-06	3E-06	1E-06	1E-06	5E-07	2E-06
6.5	West	1E-04	6E-06	4E-06	2E-06	8E-07	8E-07	2E-07	1E-06
6.6	West	1E-04	7E-06	4E-06	2E-06	6E-07	6E-07	2E-07	6E-07
6.7	West	1E-04	6E-06	4E-06	2E-06	5E-07	5E-07	2E-07	5E-07
6.8	West	1E-04	6E-06	4E-06	2E-06	5E-07	5E-07	2E-07	5E-07
6.9	West	1E-04	6E-06	4E-06	2E-06	6E-07	6E-07	2E-07	6E-07
7	West	1E-04	7E-06	4E-06	2E-06	6E-07	6E-07	2E-07	6E-07

**Table J2.3-5f**  
**RAO 2 Rolling River Mile Risk Estimates Infant - 2,3,7,8-TCDD**  
 Portland Harbor Superfund Site  
 Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
7.1	West	1E-04	7E-06	5E-06	3E-06	2E-06	2E-06	5E-07	2E-06
7.2	West	9E-05	6E-06	5E-06	3E-06	2E-06	2E-06	1E-06	2E-06
7.3	West	8E-05	6E-06	4E-06	3E-06	2E-06	2E-06	1E-06	2E-06
7.4	West	6E-05	5E-06	4E-06	3E-06	2E-06	2E-06	1E-06	2E-06
7.5	West	2E-05	5E-06	4E-06	3E-06	3E-06	3E-06	1E-06	3E-06
7.6	West	2E-05	5E-06	4E-06	4E-06	3E-06	3E-06	1E-06	3E-06
7.7	West	2E-05	5E-06	5E-06	5E-06	4E-06	4E-06	1E-06	4E-06
7.8	West	1E-05	7E-06	7E-06	6E-06	4E-06	4E-06	1E-06	5E-06
7.9	West	8E-06	8E-06	8E-06	6E-06	4E-06	4E-06	1E-06	6E-06
8	West	9E-06	9E-06	9E-06	6E-06	5E-06	5E-06	2E-06	6E-06
8.1	West	1E-05	1E-05	1E-05	8E-06	5E-06	5E-06	2E-06	8E-06
8.2	West	2E-05	2E-05	2E-05	9E-06	5E-06	5E-06	2E-06	9E-06
8.3	West	2E-05	2E-05	2E-05	1E-05	5E-06	5E-06	2E-06	1E-05
8.4	West	4E-05	2E-05	2E-05	1E-05	5E-06	5E-06	2E-06	1E-05
8.5	West	4E-05	3E-05	2E-05	1E-05	4E-06	4E-06	2E-06	1E-05
8.6	West	5E-05	3E-05	2E-05	9E-06	4E-06	4E-06	2E-06	9E-06
8.7	West	5E-05	3E-05	2E-05	8E-06	3E-06	3E-06	2E-06	8E-06
8.8	West	5E-05	3E-05	3E-05	8E-06	4E-06	4E-06	2E-06	8E-06
8.9	West	5E-05	3E-05	3E-05	1E-05	6E-06	6E-06	5E-06	1E-05
9	West	6E-05	3E-05	3E-05	1E-05	6E-06	6E-06	5E-06	1E-05
9.1	West	6E-05	3E-05	2E-05	1E-05	6E-06	6E-06	5E-06	1E-05
9.2	West	5E-05	2E-05	2E-05	9E-06	6E-06	6E-06	5E-06	9E-06
9.3	West	4E-05	2E-05	1E-05	9E-06	6E-06	6E-06	5E-06	9E-06
9.4	West	3E-05	2E-05	1E-05	9E-06	6E-06	6E-06	5E-06	9E-06
9.5	West	2E-05	2E-05	1E-05	1E-05	7E-06	7E-06	5E-06	1E-05
9.6	West	2E-05	2E-05	1E-05	1E-05	7E-06	7E-06	6E-06	1E-05
9.7	West	2E-05	2E-05	1E-05	1E-05	8E-06	8E-06	6E-06	1E-05
9.8	West	1E-05	1E-05	1E-05	9E-06	7E-06	7E-06	6E-06	9E-06
9.9	West	1E-05	1E-05	7E-06	6E-06	4E-06	4E-06	3E-06	6E-06
10	West	1E-05	9E-06	5E-06	4E-06	3E-06	3E-06	2E-06	4E-06
10.1	West	1E-05	9E-06	4E-06	3E-06	2E-06	2E-06	2E-06	3E-06
10.2	West	1E-05	1E-05	5E-06	5E-06	4E-06	4E-06	3E-06	5E-06
10.3	West	7E-06	7E-06	7E-06	7E-06	6E-06	6E-06	4E-06	7E-06
10.4	West	7E-06	7E-06	7E-06	7E-06	6E-06	6E-06	5E-06	7E-06
10.5	West	7E-06	7E-06	7E-06	7E-06	6E-06	6E-06	5E-06	7E-06
10.6	West	7E-06	7E-06	7E-06	7E-06	6E-06	6E-06	5E-06	7E-06
10.7	West	7E-06	7E-06	7E-06	7E-06	6E-06	6E-06	5E-06	7E-06
10.8	West	7E-06	7E-06	7E-06	7E-06	7E-06	7E-06	5E-06	7E-06
10.9	West	7E-06	7E-06	7E-06	7E-06	7E-06	7E-06	5E-06	7E-06
11	West	6E-06	6E-06	6E-06	6E-06	6E-06	6E-06	5E-06	6E-06
11.1	West	6E-06	6E-06	6E-06	6E-06	6E-06	6E-06	5E-06	6E-06
11.2	West	5E-06	5E-06	5E-06	5E-06	5E-06	5E-06	5E-06	5E-06

**Table J2.3-5f**  
**RAO 2 Rolling River Mile Risk Estimates Infant - 2,3,7,8-TCDD**  
 Portland Harbor Superfund Site  
 Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
11.3	West	5E-06	5E-06	5E-06	5E-06	5E-06	5E-06	5E-06	5E-06
11.4	West	4E-06	4E-06	4E-06	4E-06	4E-06	4E-06	4E-06	4E-06
11.5	West	4E-06	4E-06	4E-06	4E-06	4E-06	4E-06	4E-06	4E-06
11.6	West	3E-06	3E-06	3E-06	3E-06	3E-06	3E-06	3E-06	3E-06
11.7	West	3E-06	3E-06	3E-06	3E-06	3E-06	3E-06	3E-06	3E-06
7.6	Swan Isl	5E-06	3E-07	3E-07	2E-07	4E-08	4E-08	2E-08	2E-07
7.7	Swan Isl	5E-06	3E-07	3E-07	2E-07	4E-08	4E-08	2E-08	2E-07
7.8	Swan Isl	5E-06	4E-07	3E-07	2E-07	5E-08	5E-08	2E-08	2E-07
7.9	Swan Isl	5E-06	3E-07	3E-07	2E-07	6E-08	6E-08	2E-08	2E-07
8	Swan Isl	5E-06	3E-07	3E-07	2E-07	6E-08	6E-08	3E-08	2E-07
8.1	Swan Isl	5E-06	3E-07	3E-07	2E-07	6E-08	6E-08	3E-08	2E-07
8.2	Swan Isl	5E-06	3E-07	3E-07	2E-07	9E-08	9E-08	6E-08	2E-07
8.3	Swan Isl	5E-06	4E-07	3E-07	2E-07	1E-07	1E-07	7E-08	2E-07
8.4	Swan Isl	5E-06	4E-07	3E-07	2E-07	1E-07	1E-07	8E-08	2E-07
8.5	Swan Isl	5E-06	4E-07	3E-07	2E-07	1E-07	1E-07	8E-08	2E-07
8.6	Swan Isl	6E-06	7E-07	4E-07	3E-07	1E-07	1E-07	1E-07	4E-07
8.7	Swan Isl	6E-06	1E-06	7E-07	6E-07	3E-07	3E-07	2E-07	9E-07
8.8	Swan Isl	6E-06	1E-06	8E-07	7E-07	3E-07	3E-07	3E-07	1E-06
8.9	Swan Isl	6E-06	1E-06	9E-07	8E-07	3E-07	3E-07	3E-07	1E-06
9	Swan Isl	7E-06	2E-06	1E-06	9E-07	4E-07	4E-07	3E-07	1E-06
9.1	Swan Isl	7E-06	2E-06	1E-06	1E-06	4E-07	4E-07	3E-07	1E-06
9.2	Swan Isl	8E-06	2E-06	1E-06	1E-06	4E-07	4E-07	4E-07	2E-06
9.3	Swan Isl	8E-06	3E-06	2E-06	1E-06	5E-07	5E-07	4E-07	2E-06
9.4	Swan Isl	8E-06	3E-06	2E-06	2E-06	7E-07	7E-07	5E-07	3E-06
9.5	Swan Isl	8E-06	5E-06	3E-06	3E-06	1E-06	1E-06	8E-07	5E-06
9.6	Swan Isl	7E-06	7E-06	5E-06	5E-06	2E-06	2E-06	2E-06	7E-06

**Table J2.3-5g**  
**RAO 2 Rolling River Mile Risk Estimates Infant - 2,3,7,8-TCDF**  
 Portland Harbor Superfund Site  
 Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
1.8	East	0.28	0.25	0.24	0.23	0.22	0.22	0.22	0.23
1.9	East	0.29	0.25	0.23	0.22	0.21	0.21	0.21	0.22
2	East	0.31	0.25	0.23	0.22	0.19	0.19	0.18	0.22
2.1	East	0.32	0.25	0.24	0.22	0.17	0.17	0.16	0.22
2.2	East	0.30	0.24	0.22	0.21	0.15	0.15	0.14	0.21
2.3	East	0.30	0.24	0.22	0.20	0.14	0.14	0.11	0.20
2.4	East	0.31	0.24	0.22	0.19	0.13	0.13	0.10	0.19
2.5	East	0.31	0.25	0.22	0.20	0.14	0.14	0.11	0.20
2.6	East	0.32	0.25	0.23	0.21	0.15	0.15	0.11	0.21
2.7	East	0.33	0.27	0.25	0.23	0.16	0.16	0.13	0.23
2.8	East	0.32	0.28	0.27	0.25	0.18	0.18	0.14	0.25
2.9	East	0.30	0.28	0.27	0.25	0.19	0.19	0.15	0.26
3	East	0.28	0.27	0.26	0.26	0.21	0.21	0.17	0.26
3.1	East	0.26	0.26	0.25	0.24	0.22	0.22	0.19	0.24
3.2	East	0.26	0.26	0.25	0.24	0.22	0.22	0.20	0.24
3.3	East	0.33	0.29	0.21	0.21	0.18	0.18	0.17	0.21
3.4	East	0.40	0.29	0.20	0.19	0.17	0.17	0.15	0.19
3.5	East	0.41	0.29	0.19	0.18	0.16	0.16	0.13	0.18
3.6	East	0.42	0.30	0.19	0.17	0.14	0.14	0.12	0.17
3.7	East	0.43	0.31	0.20	0.17	0.13	0.13	0.11	0.17
3.8	East	0.43	0.30	0.19	0.16	0.12	0.12	0.10	0.16
3.9	East	0.40	0.28	0.18	0.15	0.10	0.10	0.07	0.15
4	East	0.37	0.26	0.17	0.13	0.08	0.08	0.05	0.13
4.1	East	0.35	0.25	0.16	0.12	0.07	0.07	0.04	0.12
4.2	East	0.34	0.25	0.15	0.11	0.05	0.05	0.02	0.11
4.3	East	0.27	0.19	0.14	0.10	0.05	0.05	0.02	0.10
4.4	East	0.17	0.17	0.15	0.10	0.05	0.05	0.02	0.10
4.5	East	0.18	0.18	0.15	0.11	0.07	0.07	0.04	0.11
4.6	East	0.21	0.21	0.19	0.16	0.11	0.11	0.08	0.16
4.7	East	0.26	0.26	0.23	0.22	0.17	0.17	0.15	0.22
4.8	East	0.35	0.34	0.32	0.30	0.26	0.26	0.23	0.30
4.9	East	0.48	0.48	0.46	0.44	0.41	0.41	0.30	0.44
5	East	0.69	0.69	0.66	0.64	0.61	0.61	0.44	0.63
5.1	East	0.96	0.96	0.93	0.92	0.76	0.76	0.52	0.77
5.2	East	1.35	1.35	1.35	1.34	0.95	0.95	0.65	0.95
5.3	East	1.36	1.36	1.36	1.33	0.91	0.91	0.62	0.91
5.4	East	1.25	1.25	1.25	1.23	0.88	0.88	0.53	0.88
5.5	East	1.18	1.18	1.18	1.16	0.83	0.83	0.48	0.84
5.6	East	1.09	1.09	1.09	1.07	0.75	0.75	0.42	0.78
5.7	East	0.98	0.98	0.98	0.96	0.65	0.65	0.35	0.70
5.8	East	0.89	0.89	0.88	0.86	0.58	0.58	0.31	0.63
5.9	East	0.80	0.80	0.79	0.76	0.49	0.49	0.29	0.57
6	East	0.70	0.70	0.68	0.66	0.41	0.41	0.26	0.50

**Table J2.3-5g**  
**RAO 2 Rolling River Mile Risk Estimates Infant - 2,3,7,8-TCDF**  
 Portland Harbor Superfund Site  
 Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
6.1	East	0.60	0.59	0.55	0.54	0.37	0.37	0.25	0.47
6.2	East	0.56	0.51	0.44	0.43	0.36	0.36	0.25	0.46
6.3	East	0.78	0.48	0.38	0.37	0.32	0.32	0.22	0.45
6.4	East	0.71	0.41	0.30	0.29	0.25	0.25	0.20	0.39
6.5	East	0.65	0.36	0.25	0.24	0.21	0.21	0.18	0.34
6.6	East	0.58	0.31	0.21	0.21	0.18	0.18	0.16	0.30
6.7	East	0.57	0.28	0.17	0.17	0.16	0.16	0.14	0.30
6.8	East	0.54	0.25	0.14	0.14	0.13	0.13	0.11	0.28
6.9	East	0.51	0.23	0.12	0.12	0.12	0.12	0.11	0.26
7	East	0.48	0.21	0.11	0.11	0.11	0.11	0.10	0.24
7.1	East	0.46	0.19	0.10	0.10	0.10	0.10	0.09	0.22
7.2	East	0.42	0.17	0.10	0.10	0.10	0.10	0.09	0.22
7.3	East	0.23	0.14	0.11	0.11	0.11	0.11	0.10	0.20
7.4	East	0.20	0.14	0.11	0.11	0.11	0.11	0.11	0.20
7.5	East	0.22	0.16	0.13	0.13	0.12	0.12	0.12	0.22
7.6	East	0.24	0.17	0.13	0.13	0.13	0.13	0.12	0.23
7.7	East	0.22	0.16	0.13	0.13	0.13	0.13	0.12	0.19
7.8	East	0.19	0.14	0.14	0.14	0.13	0.13	0.11	0.14
7.9	East	0.19	0.14	0.13	0.13	0.13	0.13	0.11	0.14
8	East	0.19	0.12	0.12	0.12	0.12	0.12	0.10	0.12
8.1	East	0.19	0.11	0.11	0.11	0.11	0.11	0.08	0.11
8.2	East	0.18	0.10	0.10	0.10	0.10	0.10	0.07	0.10
8.3	East	0.17	0.09	0.09	0.09	0.09	0.09	0.07	0.09
8.4	East	0.16	0.09	0.09	0.09	0.09	0.09	0.07	0.09
8.5	East	0.15	0.07	0.07	0.07	0.07	0.07	0.06	0.07
8.6	East	0.14	0.07	0.07	0.07	0.07	0.07	0.06	0.07
8.7	East	0.11	0.09	0.09	0.09	0.08	0.08	0.07	0.09
8.8	East	0.09	0.09	0.09	0.09	0.09	0.09	0.07	0.09
8.9	East	0.09	0.09	0.09	0.09	0.09	0.09	0.08	0.09
9	East	0.10	0.10	0.10	0.10	0.09	0.09	0.08	0.10
9.1	East	0.10	0.10	0.10	0.10	0.09	0.09	0.07	0.10
9.2	East	0.11	0.11	0.11	0.11	0.09	0.09	0.07	0.11
9.3	East	0.12	0.12	0.12	0.12	0.10	0.10	0.07	0.12
9.4	East	0.12	0.12	0.12	0.12	0.11	0.11	0.08	0.12
9.5	East	0.13	0.13	0.13	0.13	0.11	0.11	0.09	0.13
9.6	East	0.14	0.14	0.14	0.13	0.12	0.12	0.10	0.13
9.7	East	0.14	0.14	0.14	0.14	0.12	0.12	0.10	0.14
9.8	East	0.15	0.15	0.15	0.14	0.12	0.12	0.10	0.14
9.9	East	0.15	0.15	0.15	0.15	0.13	0.13	0.11	0.15
10	East	0.15	0.15	0.15	0.15	0.13	0.13	0.10	0.15
10.1	East	0.15	0.15	0.15	0.15	0.14	0.14	0.11	0.15
10.2	East	0.15	0.15	0.15	0.15	0.14	0.14	0.12	0.15

**Table J2.3-5g**  
**RAO 2 Rolling River Mile Risk Estimates Infant - 2,3,7,8-TCDF**  
 Portland Harbor Superfund Site  
 Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
10.3	East	0.15	0.15	0.15	0.15	0.13	0.13	0.11	0.15
10.4	East	0.15	0.15	0.15	0.14	0.12	0.12	0.10	0.14
10.5	East	0.15	0.15	0.15	0.14	0.10	0.10	0.08	0.14
10.6	East	0.14	0.14	0.14	0.13	0.10	0.10	0.07	0.13
10.7	East	0.14	0.13	0.13	0.12	0.09	0.09	0.06	0.12
10.8	East	0.15	0.15	0.13	0.12	0.08	0.08	0.05	0.12
10.9	East	0.17	0.14	0.12	0.10	0.06	0.06	0.04	0.10
11	East	0.22	0.16	0.13	0.09	0.05	0.05	0.03	0.09
11.1	East	0.24	0.18	0.13	0.09	0.05	0.05	0.02	0.09
11.2	East	0.23	0.17	0.13	0.09	0.05	0.05	0.02	0.09
11.3	East	0.25	0.18	0.13	0.09	0.05	0.05	0.02	0.09
11.4	East	0.26	0.18	0.13	0.08	0.05	0.05	0.01	0.08
11.5	East	0.27	0.19	0.13	0.08	0.05	0.05	0.01	0.08
11.6	East	0.29	0.20	0.13	0.08	0.04	0.04	0.01	0.08
11.7	East	0.32	0.21	0.14	0.08	0.04	0.04	0.01	0.08
1.8	Nav Channel	0.22	0.22	0.22	0.22	0.22	0.22	0.22	0.22
1.9	Nav Channel	0.21	0.21	0.21	0.21	0.21	0.21	0.20	0.21
2	Nav Channel	0.21	0.21	0.21	0.21	0.21	0.21	0.19	0.21
2.1	Nav Channel	0.21	0.21	0.21	0.21	0.21	0.21	0.19	0.21
2.2	Nav Channel	0.21	0.21	0.21	0.21	0.21	0.21	0.19	0.21
2.3	Nav Channel	0.19	0.19	0.19	0.19	0.19	0.19	0.18	0.19
2.4	Nav Channel	0.17	0.17	0.17	0.17	0.17	0.17	0.16	0.17
2.5	Nav Channel	0.16	0.16	0.16	0.16	0.16	0.16	0.15	0.16
2.6	Nav Channel	0.16	0.16	0.16	0.16	0.16	0.16	0.14	0.16
2.7	Nav Channel	0.16	0.16	0.16	0.16	0.16	0.16	0.14	0.16
2.8	Nav Channel	0.16	0.16	0.16	0.16	0.16	0.16	0.15	0.16
2.9	Nav Channel	0.16	0.16	0.16	0.16	0.16	0.16	0.15	0.16
3	Nav Channel	0.16	0.16	0.16	0.16	0.16	0.15	0.14	0.16
3.1	Nav Channel	0.16	0.16	0.16	0.16	0.16	0.15	0.13	0.16
3.2	Nav Channel	0.16	0.16	0.16	0.16	0.16	0.15	0.12	0.16
3.3	Nav Channel	0.16	0.16	0.16	0.16	0.16	0.15	0.12	0.16
3.4	Nav Channel	0.17	0.17	0.17	0.17	0.17	0.15	0.12	0.17
3.5	Nav Channel	0.17	0.17	0.17	0.17	0.17	0.16	0.13	0.17
3.6	Nav Channel	0.17	0.17	0.17	0.17	0.17	0.16	0.13	0.17
3.7	Nav Channel	0.17	0.17	0.17	0.17	0.17	0.16	0.13	0.17
3.8	Nav Channel	0.17	0.17	0.17	0.17	0.17	0.16	0.13	0.17
3.9	Nav Channel	0.16	0.16	0.16	0.16	0.16	0.15	0.13	0.16
4	Nav Channel	0.16	0.16	0.16	0.16	0.16	0.15	0.13	0.16
4.1	Nav Channel	0.16	0.16	0.16	0.16	0.16	0.15	0.13	0.16
4.2	Nav Channel	0.16	0.16	0.16	0.16	0.16	0.16	0.14	0.16
4.3	Nav Channel	0.16	0.16	0.16	0.16	0.16	0.16	0.15	0.16
4.4	Nav Channel	0.17	0.17	0.17	0.17	0.17	0.17	0.16	0.17

**Table J2.3-5g**  
**RAO 2 Rolling River Mile Risk Estimates Infant - 2,3,7,8-TCDF**  
 Portland Harbor Superfund Site  
 Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
4.5	Nav Channel	0.20	0.20	0.20	0.20	0.20	0.20	0.19	0.20
4.6	Nav Channel	0.25	0.25	0.23	0.22	0.25	0.21	0.20	0.25
4.7	Nav Channel	0.34	0.30	0.25	0.23	0.30	0.20	0.18	0.30
4.8	Nav Channel	0.46	0.41	0.31	0.25	0.41	0.21	0.18	0.41
4.9	Nav Channel	0.60	0.49	0.34	0.28	0.49	0.21	0.17	0.49
5	Nav Channel	0.78	0.61	0.43	0.34	0.61	0.22	0.18	0.61
5.1	Nav Channel	1.00	0.81	0.61	0.51	0.81	0.31	0.20	0.81
5.2	Nav Channel	1.25	0.91	0.67	0.55	0.91	0.34	0.22	0.91
5.3	Nav Channel	1.46	0.96	0.70	0.58	0.96	0.34	0.21	0.96
5.4	Nav Channel	1.65	1.11	0.83	0.69	1.11	0.35	0.20	1.11
5.5	Nav Channel	1.78	1.21	0.92	0.75	1.21	0.37	0.18	1.21
5.6	Nav Channel	1.90	1.29	1.01	0.83	1.29	0.42	0.20	1.29
5.7	Nav Channel	2.01	1.40	1.11	0.91	1.40	0.46	0.22	1.38
5.8	Nav Channel	2.11	1.40	1.15	0.97	1.40	0.51	0.26	1.37
5.9	Nav Channel	2.17	1.46	1.26	1.08	1.46	0.62	0.34	1.42
6	Nav Channel	2.20	1.44	1.27	1.12	1.44	0.70	0.42	1.40
6.1	Nav Channel	2.15	1.35	1.15	0.97	1.34	0.61	0.41	1.29
6.2	Nav Channel	1.99	1.39	1.21	1.02	1.37	0.61	0.39	1.32
6.3	Nav Channel	1.86	1.50	1.33	1.14	1.48	0.68	0.40	1.43
6.4	Nav Channel	1.77	1.41	1.24	1.06	1.39	0.73	0.43	1.34
6.5	Nav Channel	1.73	1.38	1.21	1.05	1.35	0.76	0.52	1.30
6.6	Nav Channel	1.69	1.33	1.17	1.04	1.31	0.78	0.57	1.26
6.7	Nav Channel	1.57	1.24	1.14	1.04	1.22	0.82	0.63	1.21
6.8	Nav Channel	1.42	1.18	1.11	1.03	1.16	0.84	0.64	1.16
6.9	Nav Channel	1.25	1.10	1.03	0.96	1.07	0.79	0.59	1.07
7	Nav Channel	1.07	1.03	0.97	0.90	1.00	0.72	0.51	1.00
7.1	Nav Channel	0.90	0.89	0.88	0.85	0.88	0.69	0.48	0.88
7.2	Nav Channel	0.80	0.79	0.79	0.79	0.79	0.68	0.49	0.79
7.3	Nav Channel	0.71	0.71	0.71	0.70	0.70	0.64	0.50	0.70
7.4	Nav Channel	0.65	0.64	0.64	0.64	0.64	0.59	0.49	0.64
7.5	Nav Channel	0.57	0.56	0.56	0.56	0.56	0.52	0.43	0.56
7.6	Nav Channel	0.51	0.51	0.51	0.51	0.51	0.47	0.38	0.51
7.7	Nav Channel	0.48	0.47	0.47	0.47	0.47	0.43	0.35	0.47
7.8	Nav Channel	0.44	0.44	0.44	0.43	0.43	0.40	0.34	0.43
7.9	Nav Channel	0.40	0.40	0.40	0.40	0.40	0.37	0.32	0.40
8	Nav Channel	0.37	0.37	0.37	0.37	0.37	0.35	0.31	0.37
8.1	Nav Channel	0.34	0.34	0.34	0.34	0.34	0.33	0.31	0.34
8.2	Nav Channel	0.31	0.31	0.31	0.30	0.31	0.30	0.30	0.31
8.3	Nav Channel	0.27	0.27	0.27	0.27	0.27	0.27	0.27	0.27
8.4	Nav Channel	0.24	0.24	0.24	0.24	0.24	0.24	0.23	0.24
8.5	Nav Channel	0.21	0.21	0.21	0.21	0.21	0.20	0.19	0.21
8.6	Nav Channel	0.18	0.18	0.18	0.18	0.18	0.18	0.17	0.18

**Table J2.3-5g**  
**RAO 2 Rolling River Mile Risk Estimates Infant - 2,3,7,8-TCDF**  
 Portland Harbor Superfund Site  
 Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
8.7	Nav Channel	0.17	0.17	0.17	0.16	0.17	0.16	0.15	0.17
8.8	Nav Channel	0.15	0.15	0.15	0.15	0.15	0.14	0.13	0.15
8.9	Nav Channel	0.14	0.14	0.14	0.14	0.14	0.13	0.12	0.14
9	Nav Channel	0.13	0.13	0.13	0.13	0.13	0.12	0.11	0.13
9.1	Nav Channel	0.13	0.13	0.13	0.13	0.13	0.11	0.10	0.13
9.2	Nav Channel	0.13	0.13	0.13	0.13	0.13	0.11	0.10	0.13
9.3	Nav Channel	0.14	0.14	0.14	0.14	0.14	0.12	0.11	0.14
9.4	Nav Channel	0.16	0.16	0.16	0.16	0.16	0.14	0.13	0.16
9.5	Nav Channel	0.18	0.18	0.18	0.18	0.18	0.16	0.15	0.18
9.6	Nav Channel	0.21	0.21	0.21	0.21	0.21	0.19	0.18	0.21
9.7	Nav Channel	0.24	0.24	0.24	0.24	0.24	0.23	0.21	0.24
9.8	Nav Channel	0.27	0.27	0.27	0.27	0.27	0.25	0.21	0.27
9.9	Nav Channel	0.31	0.31	0.31	0.31	0.31	0.25	0.21	0.31
10	Nav Channel	0.34	0.34	0.34	0.34	0.34	0.28	0.23	0.34
10.1	Nav Channel	0.37	0.37	0.37	0.37	0.37	0.31	0.26	0.37
10.2	Nav Channel	0.40	0.40	0.40	0.40	0.40	0.34	0.28	0.40
10.3	Nav Channel	0.42	0.42	0.42	0.42	0.42	0.36	0.30	0.42
10.4	Nav Channel	0.43	0.43	0.43	0.43	0.43	0.37	0.30	0.43
10.5	Nav Channel	0.44	0.44	0.44	0.44	0.44	0.37	0.30	0.44
10.6	Nav Channel	0.44	0.44	0.44	0.44	0.44	0.37	0.29	0.44
10.7	Nav Channel	0.42	0.42	0.42	0.42	0.42	0.35	0.27	0.42
10.8	Nav Channel	0.39	0.39	0.39	0.39	0.39	0.33	0.28	0.39
10.9	Nav Channel	0.35	0.35	0.35	0.35	0.35	0.33	0.28	0.35
11	Nav Channel	0.31	0.31	0.31	0.31	0.31	0.29	0.26	0.31
11.1	Nav Channel	0.27	0.27	0.27	0.27	0.27	0.26	0.22	0.27
11.2	Nav Channel	0.24	0.24	0.24	0.24	0.24	0.23	0.19	0.24
11.3	Nav Channel	0.22	0.21	0.21	0.21	0.21	0.20	0.17	0.21
11.4	Nav Channel	0.19	0.19	0.19	0.19	0.19	0.18	0.16	0.19
11.5	Nav Channel	0.17	0.17	0.17	0.17	0.17	0.16	0.16	0.17
11.6	Nav Channel	0.16	0.15	0.15	0.15	0.15	0.15	0.14	0.15
11.7	Nav Channel	0.15	0.14	0.14	0.14	0.14	0.13	0.13	0.14
1.8	West	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20
1.9	West	0.23	0.23	0.23	0.23	0.23	0.23	0.23	0.23
2	West	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25
2.1	West	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25
2.2	West	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25
2.3	West	0.24	0.24	0.24	0.24	0.24	0.24	0.24	0.24
2.4	West	0.24	0.24	0.24	0.24	0.24	0.24	0.24	0.24
2.5	West	0.24	0.24	0.24	0.24	0.24	0.24	0.23	0.24
2.6	West	0.23	0.23	0.23	0.23	0.23	0.23	0.22	0.23
2.7	West	0.23	0.23	0.23	0.23	0.23	0.23	0.21	0.23
2.8	West	0.21	0.21	0.21	0.21	0.21	0.21	0.19	0.21



**Table J2.3-5g**  
**RAO 2 Rolling River Mile Risk Estimates Infant - 2,3,7,8-TCDF**  
 Portland Harbor Superfund Site  
 Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
2.9	West	0.19	0.19	0.19	0.19	0.19	0.19	0.16	0.19
3	West	0.20	0.20	0.20	0.20	0.20	0.20	0.16	0.20
3.1	West	0.20	0.20	0.20	0.20	0.20	0.20	0.16	0.20
3.2	West	0.22	0.22	0.22	0.22	0.22	0.22	0.18	0.22
3.3	West	0.24	0.24	0.24	0.24	0.24	0.24	0.20	0.24
3.4	West	0.27	0.27	0.27	0.27	0.27	0.27	0.22	0.27
3.5	West	0.31	0.31	0.31	0.30	0.30	0.30	0.24	0.30
3.6	West	0.34	0.34	0.34	0.34	0.33	0.33	0.26	0.34
3.7	West	0.38	0.38	0.38	0.38	0.36	0.36	0.28	0.38
3.8	West	0.42	0.42	0.42	0.42	0.39	0.39	0.30	0.42
3.9	West	0.46	0.46	0.46	0.46	0.42	0.42	0.31	0.46
4	West	0.49	0.49	0.49	0.49	0.45	0.45	0.31	0.49
4.1	West	0.56	0.56	0.56	0.56	0.50	0.50	0.32	0.56
4.2	West	0.63	0.63	0.63	0.63	0.53	0.53	0.31	0.63
4.3	West	0.67	0.67	0.67	0.67	0.56	0.56	0.34	0.67
4.4	West	0.68	0.68	0.68	0.68	0.57	0.57	0.35	0.68
4.5	West	0.68	0.68	0.68	0.68	0.57	0.57	0.36	0.68
4.6	West	0.71	0.71	0.71	0.70	0.59	0.59	0.39	0.70
4.7	West	0.77	0.77	0.76	0.74	0.61	0.61	0.41	0.74
4.8	West	0.85	0.85	0.84	0.81	0.67	0.67	0.44	0.81
4.9	West	0.93	0.92	0.88	0.84	0.69	0.69	0.46	0.84
5	West	0.93	0.92	0.85	0.80	0.63	0.63	0.42	0.80
5.1	West	0.89	0.88	0.81	0.75	0.59	0.59	0.39	0.75
5.2	West	0.86	0.85	0.77	0.71	0.61	0.61	0.39	0.71
5.3	West	0.85	0.84	0.76	0.70	0.59	0.59	0.34	0.70
5.4	West	0.86	0.85	0.77	0.69	0.56	0.56	0.31	0.71
5.5	West	0.87	0.86	0.77	0.70	0.55	0.55	0.30	0.72
5.6	West	0.88	0.84	0.75	0.67	0.48	0.48	0.23	0.71
5.7	West	0.86	0.75	0.65	0.59	0.43	0.43	0.19	0.62
5.8	West	0.85	0.64	0.54	0.50	0.35	0.35	0.16	0.53
5.9	West	0.87	0.55	0.48	0.44	0.30	0.30	0.15	0.47
6	West	0.96	0.50	0.45	0.42	0.29	0.29	0.15	0.45
6.1	West	1.13	0.56	0.50	0.46	0.28	0.28	0.14	0.43
6.2	West	1.32	0.75	0.69	0.64	0.35	0.35	0.13	0.50
6.3	West	1.43	0.81	0.75	0.67	0.31	0.31	0.10	0.45
6.4	West	3.48	1.85	1.11	0.82	0.32	0.32	0.08	0.42
6.5	West	8.08	3.51	2.21	0.91	0.25	0.25	0.04	0.31
6.6	West	12.10	6.59	4.12	1.80	0.30	0.30	0.03	0.30
6.7	West	20.12	7.11	4.07	1.68	0.28	0.28	0.03	0.28
6.8	West	219.15	7.07	3.99	1.65	0.28	0.28	0.03	0.28
6.9	West	422.53	7.21	4.10	1.71	0.28	0.28	0.03	0.28
7	West	425.92	11.52	6.84	1.84	0.41	0.41	0.03	0.41

**Table J2.3-5g**  
**RAO 2 Rolling River Mile Risk Estimates Infant - 2,3,7,8-TCDF**  
 Portland Harbor Superfund Site  
 Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
7.1	West	359.22	17.12	12.76	4.25	1.75	1.75	0.25	1.75
7.2	West	300.75	14.42	10.76	3.65	1.58	1.58	0.27	1.58
7.3	West	259.35	12.49	9.34	3.22	1.45	1.45	0.24	1.45
7.4	West	258.76	11.95	9.17	3.17	1.49	1.49	0.24	1.49
7.5	West	265.60	11.49	8.91	3.26	1.58	1.58	0.25	1.60
7.6	West	270.48	10.06	8.09	2.87	1.64	1.64	0.26	1.67
7.7	West	271.13	9.78	8.21	3.01	1.71	1.71	0.27	1.78
7.8	West	144.99	9.84	8.34	3.11	1.73	1.73	0.27	1.88
7.9	West	14.36	9.17	7.80	2.93	1.63	1.63	0.25	1.82
8	West	6.03	6.02	5.67	2.64	1.46	1.46	0.25	1.64
8.1	West	0.89	0.89	0.89	0.80	0.52	0.52	0.11	0.70
8.2	West	0.78	0.78	0.78	0.66	0.40	0.40	0.06	0.61
8.3	West	0.76	0.75	0.75	0.60	0.34	0.34	0.06	0.58
8.4	West	0.75	0.70	0.69	0.53	0.27	0.27	0.05	0.52
8.5	West	0.75	0.65	0.62	0.46	0.22	0.22	0.05	0.46
8.6	West	0.78	0.62	0.56	0.38	0.16	0.16	0.05	0.38
8.7	West	0.80	0.57	0.48	0.30	0.12	0.12	0.05	0.30
8.8	West	0.77	0.54	0.43	0.24	0.11	0.11	0.06	0.24
8.9	West	0.71	0.47	0.36	0.20	0.13	0.13	0.10	0.20
9	West	0.69	0.44	0.33	0.19	0.10	0.10	0.08	0.19
9.1	West	0.70	0.43	0.30	0.19	0.10	0.10	0.07	0.19
9.2	West	0.68	0.41	0.27	0.18	0.09	0.09	0.07	0.18
9.3	West	0.70	0.43	0.25	0.19	0.10	0.10	0.08	0.19
9.4	West	0.67	0.45	0.27	0.20	0.10	0.10	0.08	0.20
9.5	West	0.61	0.44	0.28	0.21	0.11	0.11	0.09	0.21
9.6	West	0.50	0.40	0.29	0.22	0.12	0.12	0.09	0.22
9.7	West	0.39	0.39	0.30	0.23	0.13	0.13	0.10	0.23
9.8	West	0.28	0.28	0.21	0.19	0.12	0.12	0.09	0.19
9.9	West	0.24	0.24	0.16	0.13	0.07	0.07	0.05	0.13
10	West	0.25	0.24	0.14	0.11	0.07	0.07	0.05	0.11
10.1	West	0.31	0.29	0.16	0.12	0.09	0.09	0.06	0.12
10.2	West	0.39	0.39	0.25	0.23	0.20	0.20	0.14	0.23
10.3	West	0.35	0.35	0.35	0.34	0.31	0.31	0.22	0.34
10.4	West	0.35	0.35	0.35	0.34	0.32	0.32	0.24	0.34
10.5	West	0.36	0.36	0.36	0.35	0.33	0.33	0.25	0.35
10.6	West	0.36	0.36	0.36	0.35	0.33	0.33	0.26	0.35
10.7	West	0.36	0.36	0.35	0.35	0.33	0.33	0.27	0.35
10.8	West	0.35	0.35	0.35	0.35	0.34	0.34	0.29	0.35
10.9	West	0.34	0.34	0.34	0.34	0.34	0.34	0.29	0.34
11	West	0.32	0.32	0.32	0.32	0.32	0.32	0.28	0.32
11.1	West	0.31	0.31	0.31	0.31	0.31	0.31	0.26	0.31
11.2	West	0.28	0.28	0.28	0.28	0.28	0.28	0.25	0.28

**Table J2.3-5g**  
**RAO 2 Rolling River Mile Risk Estimates Infant - 2,3,7,8-TCDF**  
 Portland Harbor Superfund Site  
 Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
11.3	West	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25
11.4	West	0.23	0.23	0.23	0.23	0.23	0.23	0.23	0.23
11.5	West	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.21
11.6	West	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19
11.7	West	0.18	0.18	0.18	0.18	0.18	0.18	0.18	0.18
7.6	Swan Isl	0.17	0.01	0.01	0.01	0.00	0.00	0.00	0.01
7.7	Swan Isl	0.18	0.01	0.01	0.01	0.00	0.00	0.00	0.01
7.8	Swan Isl	0.18	0.01	0.01	0.01	0.00	0.00	0.00	0.01
7.9	Swan Isl	0.17	0.01	0.01	0.01	0.00	0.00	0.00	0.01
8	Swan Isl	0.17	0.01	0.01	0.01	0.00	0.00	0.00	0.01
8.1	Swan Isl	0.17	0.01	0.01	0.01	0.00	0.00	0.00	0.01
8.2	Swan Isl	0.18	0.01	0.01	0.01	0.00	0.00	0.00	0.01
8.3	Swan Isl	0.20	0.01	0.01	0.01	0.00	0.00	0.00	0.01
8.4	Swan Isl	0.22	0.02	0.01	0.01	0.00	0.00	0.00	0.01
8.5	Swan Isl	0.24	0.02	0.01	0.01	0.00	0.00	0.00	0.01
8.6	Swan Isl	0.27	0.04	0.02	0.02	0.00	0.00	0.00	0.02
8.7	Swan Isl	0.32	0.08	0.05	0.04	0.01	0.01	0.01	0.06
8.8	Swan Isl	0.35	0.09	0.05	0.05	0.02	0.02	0.01	0.07
8.9	Swan Isl	0.38	0.11	0.06	0.05	0.02	0.02	0.01	0.09
9	Swan Isl	0.42	0.12	0.07	0.06	0.02	0.02	0.02	0.10
9.1	Swan Isl	0.44	0.13	0.07	0.07	0.02	0.02	0.02	0.11
9.2	Swan Isl	0.47	0.16	0.09	0.08	0.02	0.02	0.02	0.13
9.3	Swan Isl	0.50	0.20	0.11	0.10	0.03	0.03	0.02	0.17
9.4	Swan Isl	0.54	0.27	0.16	0.15	0.04	0.04	0.03	0.25
9.5	Swan Isl	0.59	0.42	0.26	0.24	0.07	0.07	0.05	0.41
9.6	Swan Isl	0.55	0.55	0.40	0.36	0.14	0.14	0.12	0.55

**Table J2.3-6a**  
**RAO 2 Rolling River Mile Cancer Risk Estimates**  
 Portland Harbor Superfund Site  
 Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
1.8	East	4E-04	2E-04	2E-04	2E-04	1E-04	1E-04	1E-04	2E-04
1.9	East	5E-04	2E-04	2E-04	2E-04	1E-04	1E-04	1E-04	2E-04
2	East	7E-04	2E-04	2E-04	1E-04	1E-04	1E-04	1E-04	1E-04
2.1	East	7E-04	2E-04	2E-04	1E-04	1E-04	1E-04	9E-05	1E-04
2.2	East	7E-04	2E-04	2E-04	1E-04	9E-05	9E-05	8E-05	1E-04
2.3	East	7E-04	2E-04	2E-04	1E-04	8E-05	8E-05	7E-05	1E-04
2.4	East	7E-04	2E-04	2E-04	1E-04	7E-05	7E-05	6E-05	1E-04
2.5	East	7E-04	2E-04	1E-04	1E-04	7E-05	7E-05	6E-05	1E-04
2.6	East	7E-04	2E-04	1E-04	1E-04	7E-05	7E-05	6E-05	1E-04
2.7	East	6E-04	2E-04	1E-04	1E-04	8E-05	8E-05	6E-05	1E-04
2.8	East	5E-04	1E-04	1E-04	1E-04	8E-05	8E-05	6E-05	1E-04
2.9	East	4E-04	1E-04	1E-04	1E-04	8E-05	8E-05	7E-05	1E-04
3	East	1E-04	1E-04	1E-04	1E-04	9E-05	9E-05	7E-05	1E-04
3.1	East	1E-04	1E-04	1E-04	1E-04	9E-05	9E-05	8E-05	1E-04
3.2	East	1E-04	1E-04	1E-04	1E-04	1E-04	1E-04	9E-05	1E-04
3.3	East	3E-04	2E-04	1E-04	1E-04	9E-05	9E-05	8E-05	1E-04
3.4	East	4E-04	2E-04	2E-04	1E-04	9E-05	9E-05	7E-05	1E-04
3.5	East	4E-04	2E-04	2E-04	1E-04	9E-05	9E-05	7E-05	1E-04
3.6	East	5E-04	3E-04	2E-04	1E-04	9E-05	9E-05	6E-05	1E-04
3.7	East	5E-04	3E-04	2E-04	1E-04	9E-05	9E-05	6E-05	1E-04
3.8	East	6E-04	3E-04	2E-04	2E-04	9E-05	9E-05	6E-05	2E-04
3.9	East	6E-04	4E-04	3E-04	2E-04	9E-05	9E-05	5E-05	2E-04
4	East	6E-04	4E-04	3E-04	2E-04	9E-05	9E-05	5E-05	2E-04
4.1	East	6E-04	4E-04	3E-04	2E-04	9E-05	9E-05	4E-05	2E-04
4.2	East	6E-04	4E-04	3E-04	2E-04	8E-05	8E-05	3E-05	2E-04
4.3	East	6E-04	4E-04	3E-04	2E-04	8E-05	8E-05	3E-05	2E-04
4.4	East	4E-04	4E-04	3E-04	2E-04	8E-05	8E-05	3E-05	2E-04
4.5	East	4E-04	4E-04	3E-04	2E-04	8E-05	8E-05	3E-05	2E-04
4.6	East	4E-04	4E-04	3E-04	2E-04	9E-05	9E-05	4E-05	2E-04
4.7	East	4E-04	4E-04	3E-04	2E-04	1E-04	1E-04	5E-05	2E-04
4.8	East	4E-04	4E-04	3E-04	2E-04	1E-04	1E-04	6E-05	2E-04
4.9	East	3E-04	3E-04	2E-04	2E-04	1E-04	1E-04	7E-05	2E-04
5	East	2E-04	2E-04	2E-04	2E-04	1E-04	1E-04	9E-05	2E-04
5.1	East	3E-04	3E-04	2E-04	2E-04	2E-04	2E-04	1E-04	2E-04
5.2	East	3E-04	3E-04	3E-04	3E-04	2E-04	2E-04	1E-04	2E-04
5.3	East	3E-04	3E-04	3E-04	3E-04	2E-04	2E-04	1E-04	2E-04
5.4	East	3E-04	3E-04	3E-04	3E-04	2E-04	2E-04	1E-04	2E-04
5.5	East	3E-04	3E-04	3E-04	3E-04	2E-04	2E-04	9E-05	2E-04
5.6	East	3E-04	3E-04	3E-04	3E-04	2E-04	2E-04	8E-05	2E-04
5.7	East	3E-04	3E-04	3E-04	3E-04	1E-04	1E-04	7E-05	2E-04
5.8	East	3E-04	3E-04	3E-04	3E-04	1E-04	1E-04	7E-05	2E-04
5.9	East	3E-04	3E-04	3E-04	3E-04	1E-04	1E-04	7E-05	2E-04
6	East	3E-04	3E-04	3E-04	2E-04	1E-04	1E-04	7E-05	2E-04

**Table J2.3-6a**  
**RAO 2 Rolling River Mile Cancer Risk Estimates**  
 Portland Harbor Superfund Site  
 Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
6.1	East	2E-04	2E-04	2E-04	2E-04	1E-04	1E-04	7E-05	2E-04
6.2	East	2E-04	2E-04	2E-04	2E-04	1E-04	1E-04	7E-05	2E-04
6.3	East	4E-04	2E-04	2E-04	2E-04	1E-04	1E-04	6E-05	2E-04
6.4	East	4E-04	2E-04	1E-04	1E-04	8E-05	8E-05	6E-05	2E-04
6.5	East	4E-04	2E-04	1E-04	1E-04	7E-05	7E-05	6E-05	1E-04
6.6	East	4E-04	1E-04	9E-05	9E-05	7E-05	7E-05	5E-05	1E-04
6.7	East	4E-04	1E-04	8E-05	8E-05	6E-05	6E-05	5E-05	1E-04
6.8	East	4E-04	1E-04	7E-05	7E-05	6E-05	6E-05	5E-05	1E-04
6.9	East	4E-04	1E-04	8E-05	7E-05	6E-05	6E-05	6E-05	1E-04
7	East	4E-04	1E-04	8E-05	8E-05	7E-05	7E-05	6E-05	1E-04
7.1	East	4E-04	1E-04	8E-05	8E-05	7E-05	7E-05	7E-05	1E-04
7.2	East	4E-04	1E-04	9E-05	9E-05	8E-05	8E-05	7E-05	2E-04
7.3	East	2E-04	1E-04	9E-05	9E-05	9E-05	9E-05	8E-05	1E-04
7.4	East	2E-04	1E-04	1E-04	1E-04	9E-05	9E-05	9E-05	2E-04
7.5	East	2E-04	1E-04	1E-04	1E-04	1E-04	1E-04	1E-04	2E-04
7.6	East	2E-04	1E-04	1E-04	1E-04	1E-04	1E-04	1E-04	2E-04
7.7	East	2E-04	1E-04	1E-04	1E-04	1E-04	1E-04	1E-04	2E-04
7.8	East	2E-04	1E-04	1E-04	1E-04	1E-04	1E-04	1E-04	1E-04
7.9	East	2E-04	1E-04	1E-04	1E-04	1E-04	1E-04	1E-04	1E-04
8	East	2E-04	1E-04	1E-04	1E-04	1E-04	1E-04	9E-05	1E-04
8.1	East	2E-04	1E-04	1E-04	1E-04	1E-04	1E-04	8E-05	1E-04
8.2	East	1E-04	1E-04	1E-04	1E-04	1E-04	1E-04	7E-05	1E-04
8.3	East	1E-04	1E-04	1E-04	1E-04	9E-05	9E-05	7E-05	1E-04
8.4	East	1E-04	9E-05	9E-05	9E-05	9E-05	9E-05	8E-05	9E-05
8.5	East	1E-04	9E-05	9E-05	9E-05	9E-05	9E-05	7E-05	9E-05
8.6	East	1E-04	1E-04	1E-04	1E-04	9E-05	9E-05	7E-05	1E-04
8.7	East	1E-04	1E-04	1E-04	1E-04	1E-04	1E-04	8E-05	1E-04
8.8	East	1E-04	1E-04	1E-04	1E-04	1E-04	1E-04	9E-05	1E-04
8.9	East	1E-04	1E-04	1E-04	1E-04	1E-04	1E-04	9E-05	1E-04
9	East	1E-04	1E-04	1E-04	1E-04	1E-04	1E-04	9E-05	1E-04
9.1	East	2E-04	2E-04	2E-04	2E-04	1E-04	1E-04	9E-05	2E-04
9.2	East	2E-04	2E-04	2E-04	2E-04	1E-04	1E-04	8E-05	2E-04
9.3	East	2E-04	2E-04	2E-04	2E-04	1E-04	1E-04	8E-05	2E-04
9.4	East	2E-04	2E-04	2E-04	2E-04	1E-04	1E-04	7E-05	2E-04
9.5	East	2E-04	2E-04	2E-04	2E-04	1E-04	1E-04	7E-05	2E-04
9.6	East	2E-04	2E-04	2E-04	2E-04	1E-04	1E-04	8E-05	2E-04
9.7	East	2E-04	2E-04	2E-04	1E-04	1E-04	1E-04	8E-05	1E-04
9.8	East	2E-04	2E-04	2E-04	1E-04	1E-04	1E-04	8E-05	1E-04
9.9	East	2E-04	2E-04	2E-04	2E-04	1E-04	1E-04	8E-05	2E-04
10	East	2E-04	2E-04	2E-04	2E-04	1E-04	1E-04	8E-05	2E-04
10.1	East	2E-04	2E-04	2E-04	2E-04	1E-04	1E-04	9E-05	2E-04
10.2	East	2E-04	2E-04	2E-04	2E-04	1E-04	1E-04	1E-04	2E-04

**Table J2.3-6a**  
**RAO 2 Rolling River Mile Cancer Risk Estimates**  
 Portland Harbor Superfund Site  
 Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
10.3	East	2E-04	2E-04	2E-04	2E-04	1E-04	1E-04	9E-05	2E-04
10.4	East	3E-04	3E-04	2E-04	2E-04	1E-04	1E-04	9E-05	2E-04
10.5	East	3E-04	3E-04	3E-04	2E-04	1E-04	1E-04	8E-05	2E-04
10.6	East	3E-04	3E-04	3E-04	2E-04	1E-04	1E-04	8E-05	2E-04
10.7	East	5E-04	4E-04	3E-04	2E-04	1E-04	1E-04	8E-05	2E-04
10.8	East	7E-04	4E-04	3E-04	2E-04	1E-04	1E-04	6E-05	2E-04
10.9	East	1E-03	5E-04	3E-04	2E-04	9E-05	9E-05	5E-05	2E-04
11	East	1E-03	6E-04	4E-04	2E-04	8E-05	8E-05	3E-05	2E-04
11.1	East	1E-03	6E-04	4E-04	2E-04	7E-05	7E-05	3E-05	2E-04
11.2	East	1E-03	6E-04	4E-04	2E-04	8E-05	8E-05	3E-05	2E-04
11.3	East	2E-03	6E-04	3E-04	2E-04	8E-05	8E-05	2E-05	2E-04
11.4	East	2E-03	7E-04	3E-04	2E-04	8E-05	8E-05	2E-05	2E-04
11.5	East	2E-03	7E-04	3E-04	1E-04	7E-05	7E-05	2E-05	1E-04
11.6	East	2E-03	7E-04	3E-04	1E-04	6E-05	6E-05	1E-05	1E-04
11.7	East	2E-03	7E-04	3E-04	1E-04	6E-05	6E-05	1E-05	1E-04
1.8	Nav Channel	1E-04	1E-04	1E-04	1E-04	1E-04	1E-04	9E-05	1E-04
1.9	Nav Channel	1E-04	1E-04	1E-04	1E-04	1E-04	1E-04	9E-05	1E-04
2	Nav Channel	1E-04	1E-04	1E-04	1E-04	1E-04	1E-04	9E-05	1E-04
2.1	Nav Channel	1E-04	1E-04	1E-04	1E-04	1E-04	1E-04	9E-05	1E-04
2.2	Nav Channel	1E-04	1E-04	1E-04	1E-04	1E-04	1E-04	9E-05	1E-04
2.3	Nav Channel	1E-04	1E-04	1E-04	1E-04	1E-04	1E-04	9E-05	1E-04
2.4	Nav Channel	1E-04	1E-04	1E-04	1E-04	1E-04	1E-04	9E-05	1E-04
2.5	Nav Channel	1E-04	1E-04	1E-04	1E-04	1E-04	1E-04	9E-05	1E-04
2.6	Nav Channel	1E-04	1E-04	1E-04	1E-04	1E-04	1E-04	8E-05	1E-04
2.7	Nav Channel	1E-04	1E-04	1E-04	1E-04	1E-04	1E-04	8E-05	1E-04
2.8	Nav Channel	9E-05	9E-05	9E-05	9E-05	9E-05	9E-05	8E-05	9E-05
2.9	Nav Channel	8E-05	8E-05	8E-05	8E-05	8E-05	8E-05	8E-05	8E-05
3	Nav Channel	9E-05	9E-05	9E-05	9E-05	9E-05	8E-05	7E-05	9E-05
3.1	Nav Channel	1E-04	1E-04	1E-04	1E-04	1E-04	8E-05	6E-05	1E-04
3.2	Nav Channel	1E-04	1E-04	1E-04	1E-04	1E-04	8E-05	6E-05	1E-04
3.3	Nav Channel	1E-04	1E-04	1E-04	1E-04	1E-04	8E-05	6E-05	1E-04
3.4	Nav Channel	1E-04	1E-04	1E-04	1E-04	1E-04	8E-05	6E-05	1E-04
3.5	Nav Channel	1E-04	1E-04	1E-04	1E-04	1E-04	8E-05	5E-05	1E-04
3.6	Nav Channel	1E-04	1E-04	1E-04	1E-04	1E-04	8E-05	6E-05	1E-04
3.7	Nav Channel	1E-04	1E-04	1E-04	1E-04	1E-04	8E-05	6E-05	1E-04
3.8	Nav Channel	1E-04	1E-04	1E-04	1E-04	1E-04	8E-05	6E-05	1E-04
3.9	Nav Channel	1E-04	1E-04	1E-04	1E-04	1E-04	7E-05	5E-05	1E-04
4	Nav Channel	1E-04	1E-04	1E-04	1E-04	1E-04	8E-05	6E-05	1E-04
4.1	Nav Channel	9E-05	9E-05	9E-05	9E-05	9E-05	8E-05	6E-05	9E-05
4.2	Nav Channel	8E-05	8E-05	8E-05	8E-05	8E-05	8E-05	7E-05	8E-05
4.3	Nav Channel	8E-05	8E-05	8E-05	8E-05	8E-05	8E-05	7E-05	8E-05
4.4	Nav Channel	8E-05	8E-05	8E-05	8E-05	8E-05	8E-05	7E-05	8E-05

**Table J2.3-6a**  
**RAO 2 Rolling River Mile Cancer Risk Estimates**  
 Portland Harbor Superfund Site  
 Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
4.5	Nav Channel	8E-05	8E-05	8E-05	8E-05	8E-05	8E-05	7E-05	8E-05
4.6	Nav Channel	8E-05	8E-05	8E-05	8E-05	8E-05	8E-05	7E-05	8E-05
4.7	Nav Channel	8E-05	8E-05	8E-05	7E-05	8E-05	7E-05	6E-05	8E-05
4.8	Nav Channel	9E-05	8E-05	8E-05	7E-05	8E-05	7E-05	6E-05	8E-05
4.9	Nav Channel	9E-05	9E-05	8E-05	7E-05	9E-05	7E-05	6E-05	9E-05
5	Nav Channel	9E-05	8E-05	7E-05	6E-05	8E-05	6E-05	5E-05	8E-05
5.1	Nav Channel	9E-05	8E-05	7E-05	6E-05	8E-05	5E-05	4E-05	8E-05
5.2	Nav Channel	9E-05	7E-05	6E-05	5E-05	7E-05	4E-05	3E-05	7E-05
5.3	Nav Channel	1E-04	7E-05	6E-05	5E-05	7E-05	4E-05	3E-05	7E-05
5.4	Nav Channel	1E-04	7E-05	6E-05	5E-05	7E-05	3E-05	2E-05	7E-05
5.5	Nav Channel	1E-04	8E-05	6E-05	5E-05	8E-05	3E-05	1E-05	8E-05
5.6	Nav Channel	1E-04	8E-05	7E-05	5E-05	8E-05	3E-05	2E-05	8E-05
5.7	Nav Channel	1E-04	9E-05	7E-05	6E-05	9E-05	3E-05	2E-05	9E-05
5.8	Nav Channel	1E-04	9E-05	8E-05	6E-05	9E-05	4E-05	2E-05	9E-05
5.9	Nav Channel	1E-04	1E-04	9E-05	7E-05	1E-04	5E-05	3E-05	9E-05
6	Nav Channel	2E-04	1E-04	1E-04	9E-05	1E-04	6E-05	4E-05	1E-04
6.1	Nav Channel	2E-04	1E-04	1E-04	9E-05	1E-04	6E-05	4E-05	1E-04
6.2	Nav Channel	2E-04	2E-04	2E-04	1E-04	2E-04	6E-05	4E-05	2E-04
6.3	Nav Channel	3E-04	2E-04	2E-04	2E-04	2E-04	7E-05	4E-05	2E-04
6.4	Nav Channel	3E-04	3E-04	2E-04	2E-04	2E-04	9E-05	5E-05	2E-04
6.5	Nav Channel	3E-04	3E-04	2E-04	2E-04	2E-04	1E-04	6E-05	2E-04
6.6	Nav Channel	3E-04	3E-04	2E-04	2E-04	2E-04	1E-04	7E-05	2E-04
6.7	Nav Channel	3E-04	3E-04	2E-04	2E-04	2E-04	1E-04	8E-05	2E-04
6.8	Nav Channel	3E-04	2E-04	2E-04	2E-04	2E-04	1E-04	8E-05	2E-04
6.9	Nav Channel	3E-04	2E-04	2E-04	2E-04	2E-04	1E-04	8E-05	2E-04
7	Nav Channel	3E-04	3E-04	2E-04	2E-04	2E-04	1E-04	8E-05	2E-04
7.1	Nav Channel	2E-04	2E-04	2E-04	2E-04	2E-04	1E-04	8E-05	2E-04
7.2	Nav Channel	2E-04	2E-04	2E-04	2E-04	2E-04	1E-04	9E-05	2E-04
7.3	Nav Channel	2E-04	2E-04	2E-04	2E-04	2E-04	1E-04	9E-05	2E-04
7.4	Nav Channel	2E-04	2E-04	2E-04	2E-04	2E-04	1E-04	1E-04	2E-04
7.5	Nav Channel	1E-04	1E-04	1E-04	1E-04	1E-04	1E-04	1E-04	1E-04
7.6	Nav Channel	1E-04	1E-04	1E-04	1E-04	1E-04	1E-04	1E-04	1E-04
7.7	Nav Channel	1E-04	1E-04	1E-04	1E-04	1E-04	1E-04	1E-04	1E-04
7.8	Nav Channel	1E-04	1E-04	1E-04	1E-04	1E-04	1E-04	1E-04	1E-04
7.9	Nav Channel	1E-04	1E-04	1E-04	1E-04	1E-04	1E-04	1E-04	1E-04
8	Nav Channel	1E-04	1E-04	1E-04	1E-04	1E-04	1E-04	1E-04	1E-04
8.1	Nav Channel	1E-04	1E-04	1E-04	1E-04	1E-04	1E-04	1E-04	1E-04
8.2	Nav Channel	1E-04	1E-04	1E-04	1E-04	1E-04	1E-04	1E-04	1E-04
8.3	Nav Channel	1E-04	1E-04	1E-04	1E-04	1E-04	1E-04	1E-04	1E-04
8.4	Nav Channel	1E-04	1E-04	1E-04	1E-04	1E-04	1E-04	1E-04	1E-04
8.5	Nav Channel	1E-04	1E-04	1E-04	1E-04	1E-04	1E-04	1E-04	1E-04
8.6	Nav Channel	1E-04	1E-04	1E-04	1E-04	1E-04	1E-04	9E-05	1E-04

**Table J2.3-6a**  
**RAO 2 Rolling River Mile Cancer Risk Estimates**  
 Portland Harbor Superfund Site  
 Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
8.7	Nav Channel	1E-04	1E-04	1E-04	1E-04	1E-04	1E-04	9E-05	1E-04
8.8	Nav Channel	1E-04	1E-04	1E-04	1E-04	1E-04	1E-04	9E-05	1E-04
8.9	Nav Channel	1E-04	1E-04	1E-04	1E-04	1E-04	1E-04	9E-05	1E-04
9	Nav Channel	2E-04	2E-04	2E-04	2E-04	2E-04	1E-04	9E-05	2E-04
9.1	Nav Channel	2E-04	2E-04	2E-04	2E-04	2E-04	1E-04	9E-05	2E-04
9.2	Nav Channel	2E-04	2E-04	2E-04	2E-04	2E-04	1E-04	9E-05	2E-04
9.3	Nav Channel	2E-04	2E-04	2E-04	2E-04	2E-04	1E-04	9E-05	2E-04
9.4	Nav Channel	2E-04	2E-04	2E-04	2E-04	2E-04	1E-04	8E-05	2E-04
9.5	Nav Channel	2E-04	2E-04	2E-04	2E-04	2E-04	1E-04	8E-05	2E-04
9.6	Nav Channel	1E-04	1E-04	1E-04	1E-04	1E-04	1E-04	8E-05	1E-04
9.7	Nav Channel	1E-04	1E-04	1E-04	1E-04	1E-04	1E-04	9E-05	1E-04
9.8	Nav Channel	1E-04	1E-04	1E-04	1E-04	1E-04	1E-04	9E-05	1E-04
9.9	Nav Channel	2E-04	2E-04	2E-04	2E-04	2E-04	1E-04	8E-05	2E-04
10	Nav Channel	2E-04	2E-04	2E-04	2E-04	2E-04	1E-04	8E-05	2E-04
10.1	Nav Channel	2E-04	2E-04	2E-04	2E-04	2E-04	1E-04	8E-05	2E-04
10.2	Nav Channel	2E-04	2E-04	2E-04	2E-04	2E-04	1E-04	8E-05	2E-04
10.3	Nav Channel	2E-04	2E-04	2E-04	2E-04	2E-04	1E-04	8E-05	2E-04
10.4	Nav Channel	2E-04	2E-04	2E-04	2E-04	2E-04	1E-04	8E-05	2E-04
10.5	Nav Channel	2E-04	2E-04	2E-04	2E-04	2E-04	1E-04	8E-05	2E-04
10.6	Nav Channel	2E-04	2E-04	2E-04	2E-04	2E-04	1E-04	8E-05	2E-04
10.7	Nav Channel	2E-04	2E-04	2E-04	2E-04	2E-04	1E-04	8E-05	2E-04
10.8	Nav Channel	3E-04	2E-04	2E-04	2E-04	2E-04	1E-04	8E-05	2E-04
10.9	Nav Channel	3E-04	2E-04	2E-04	1E-04	1E-04	1E-04	9E-05	1E-04
11	Nav Channel	3E-04	2E-04	2E-04	1E-04	1E-04	1E-04	1E-04	1E-04
11.1	Nav Channel	3E-04	2E-04	2E-04	1E-04	1E-04	1E-04	1E-04	1E-04
11.2	Nav Channel	3E-04	2E-04	2E-04	1E-04	1E-04	1E-04	1E-04	1E-04
11.3	Nav Channel	3E-04	2E-04	2E-04	1E-04	1E-04	1E-04	1E-04	1E-04
11.4	Nav Channel	3E-04	2E-04	2E-04	1E-04	1E-04	1E-04	1E-04	1E-04
11.5	Nav Channel	4E-04	2E-04	1E-04	1E-04	1E-04	1E-04	1E-04	1E-04
11.6	Nav Channel	4E-04	2E-04	2E-04	1E-04	1E-04	1E-04	1E-04	1E-04
11.7	Nav Channel	4E-04	2E-04	2E-04	1E-04	1E-04	1E-04	1E-04	1E-04
1.8	West	6E-05	6E-05	6E-05	6E-05	6E-05	6E-05	6E-05	6E-05
1.9	West	6E-05	6E-05	6E-05	6E-05	6E-05	6E-05	6E-05	6E-05
2	West	6E-05	6E-05	6E-05	6E-05	6E-05	6E-05	6E-05	6E-05
2.1	West	6E-05	6E-05	6E-05	6E-05	6E-05	6E-05	6E-05	6E-05
2.2	West	5E-05	5E-05	5E-05	5E-05	5E-05	5E-05	5E-05	5E-05
2.3	West	5E-05	5E-05	5E-05	5E-05	5E-05	5E-05	5E-05	5E-05
2.4	West	5E-05	5E-05	5E-05	5E-05	5E-05	5E-05	5E-05	5E-05
2.5	West	6E-05	6E-05	6E-05	6E-05	6E-05	6E-05	5E-05	6E-05
2.6	West	6E-05	6E-05	6E-05	6E-05	6E-05	6E-05	4E-05	6E-05
2.7	West	5E-05	5E-05	5E-05	5E-05	5E-05	5E-05	4E-05	5E-05
2.8	West	5E-05	5E-05	5E-05	5E-05	5E-05	5E-05	4E-05	5E-05



**Table J2.3-6a**  
**RAO 2 Rolling River Mile Cancer Risk Estimates**  
 Portland Harbor Superfund Site  
 Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
2.9	West	6E-05	6E-05	6E-05	6E-05	6E-05	6E-05	4E-05	6E-05
3	West	6E-05	6E-05	6E-05	6E-05	6E-05	6E-05	4E-05	6E-05
3.1	West	6E-05	6E-05	6E-05	6E-05	6E-05	6E-05	5E-05	6E-05
3.2	West	6E-05	6E-05	6E-05	6E-05	6E-05	6E-05	5E-05	6E-05
3.3	West	7E-05	7E-05	7E-05	7E-05	7E-05	7E-05	5E-05	7E-05
3.4	West	7E-05	7E-05	7E-05	7E-05	7E-05	7E-05	6E-05	7E-05
3.5	West	8E-05	8E-05	8E-05	8E-05	7E-05	7E-05	6E-05	8E-05
3.6	West	8E-05	8E-05	8E-05	8E-05	8E-05	8E-05	6E-05	8E-05
3.7	West	9E-05	9E-05	9E-05	9E-05	9E-05	9E-05	7E-05	9E-05
3.8	West	1E-04	1E-04	1E-04	1E-04	9E-05	9E-05	7E-05	1E-04
3.9	West	1E-04	1E-04	1E-04	1E-04	1E-04	1E-04	7E-05	1E-04
4	West	1E-04	1E-04	1E-04	1E-04	1E-04	1E-04	7E-05	1E-04
4.1	West	1E-04	1E-04	1E-04	1E-04	1E-04	1E-04	7E-05	1E-04
4.2	West	2E-04	2E-04	2E-04	2E-04	1E-04	1E-04	7E-05	2E-04
4.3	West	2E-04	2E-04	2E-04	2E-04	1E-04	1E-04	7E-05	2E-04
4.4	West	2E-04	2E-04	2E-04	2E-04	1E-04	1E-04	7E-05	2E-04
4.5	West	2E-04	2E-04	2E-04	2E-04	1E-04	1E-04	7E-05	2E-04
4.6	West	2E-04	2E-04	2E-04	2E-04	1E-04	1E-04	7E-05	2E-04
4.7	West	2E-04	2E-04	2E-04	2E-04	1E-04	1E-04	7E-05	2E-04
4.8	West	2E-04	2E-04	2E-04	2E-04	1E-04	1E-04	7E-05	2E-04
4.9	West	2E-04	2E-04	2E-04	2E-04	1E-04	1E-04	7E-05	2E-04
5	West	2E-04	2E-04	1E-04	1E-04	1E-04	1E-04	7E-05	1E-04
5.1	West	2E-04	2E-04	1E-04	1E-04	1E-04	1E-04	6E-05	1E-04
5.2	West	1E-04	1E-04	1E-04	1E-04	1E-04	1E-04	6E-05	1E-04
5.3	West	1E-04	1E-04	1E-04	1E-04	9E-05	9E-05	5E-05	1E-04
5.4	West	1E-04	1E-04	1E-04	1E-04	9E-05	9E-05	4E-05	1E-04
5.5	West	1E-04	1E-04	1E-04	1E-04	9E-05	9E-05	5E-05	1E-04
5.6	West	2E-04	1E-04	1E-04	1E-04	9E-05	9E-05	4E-05	1E-04
5.7	West	2E-04	1E-04	1E-04	1E-04	8E-05	8E-05	3E-05	1E-04
5.8	West	2E-04	1E-04	1E-04	1E-04	7E-05	7E-05	3E-05	1E-04
5.9	West	2E-04	1E-04	1E-04	9E-05	6E-05	6E-05	3E-05	1E-04
6	West	2E-04	1E-04	9E-05	9E-05	6E-05	6E-05	3E-05	9E-05
6.1	West	2E-04	1E-04	9E-05	8E-05	5E-05	5E-05	3E-05	9E-05
6.2	West	2E-04	1E-04	1E-04	9E-05	5E-05	5E-05	2E-05	8E-05
6.3	West	2E-04	1E-04	1E-04	1E-04	4E-05	4E-05	2E-05	7E-05
6.4	West	4E-04	2E-04	1E-04	1E-04	4E-05	4E-05	1E-05	6E-05
6.5	West	8E-04	4E-04	2E-04	9E-05	2E-05	2E-05	4E-06	3E-05
6.6	West	1E-03	6E-04	3E-04	1E-04	2E-05	2E-05	3E-06	2E-05
6.7	West	2E-03	6E-04	3E-04	1E-04	2E-05	2E-05	2E-06	2E-05
6.8	West	2E-02	6E-04	3E-04	1E-04	2E-05	2E-05	3E-06	2E-05
6.9	West	4E-02	6E-04	3E-04	1E-04	2E-05	2E-05	3E-06	2E-05
7	West	4E-02	1E-03	6E-04	1E-04	3E-05	3E-05	3E-06	3E-05

**Table J2.3-6a**  
**RAO 2 Rolling River Mile Cancer Risk Estimates**  
 Portland Harbor Superfund Site  
 Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
7.1	West	3E-02	2E-03	1E-03	4E-04	2E-04	2E-04	3E-05	2E-04
7.2	West	3E-02	1E-03	1E-03	3E-04	2E-04	2E-04	3E-05	2E-04
7.3	West	2E-02	1E-03	9E-04	3E-04	2E-04	2E-04	3E-05	2E-04
7.4	West	2E-02	1E-03	9E-04	3E-04	2E-04	2E-04	4E-05	2E-04
7.5	West	2E-02	1E-03	9E-04	4E-04	2E-04	2E-04	4E-05	2E-04
7.6	West	2E-02	1E-03	8E-04	4E-04	2E-04	2E-04	4E-05	2E-04
7.7	West	2E-02	1E-03	9E-04	4E-04	2E-04	2E-04	4E-05	2E-04
7.8	West	1E-02	1E-03	9E-04	4E-04	2E-04	2E-04	4E-05	3E-04
7.9	West	2E-03	1E-03	9E-04	4E-04	2E-04	2E-04	4E-05	3E-04
8	West	8E-04	8E-04	7E-04	4E-04	2E-04	2E-04	5E-05	3E-04
8.1	West	3E-04	3E-04	3E-04	3E-04	1E-04	1E-04	4E-05	2E-04
8.2	West	3E-04	3E-04	3E-04	2E-04	1E-04	1E-04	3E-05	2E-04
8.3	West	4E-04	4E-04	4E-04	2E-04	1E-04	1E-04	3E-05	2E-04
8.4	West	1E-03	4E-04	4E-04	2E-04	8E-05	8E-05	2E-05	2E-04
8.5	West	1E-03	4E-04	4E-04	2E-04	7E-05	7E-05	2E-05	2E-04
8.6	West	1E-03	4E-04	3E-04	2E-04	6E-05	6E-05	2E-05	2E-04
8.7	West	1E-03	4E-04	3E-04	2E-04	5E-05	5E-05	3E-05	2E-04
8.8	West	1E-03	5E-04	3E-04	2E-04	5E-05	5E-05	3E-05	2E-04
8.9	West	1E-03	5E-04	3E-04	1E-04	7E-05	7E-05	4E-05	1E-04
9	West	2E-03	5E-04	3E-04	2E-04	6E-05	6E-05	4E-05	2E-04
9.1	West	2E-03	5E-04	3E-04	2E-04	6E-05	6E-05	4E-05	2E-04
9.2	West	2E-03	6E-04	4E-04	2E-04	6E-05	6E-05	4E-05	2E-04
9.3	West	2E-03	6E-04	3E-04	2E-04	6E-05	6E-05	4E-05	2E-04
9.4	West	1E-03	6E-04	3E-04	2E-04	6E-05	6E-05	4E-05	2E-04
9.5	West	1E-03	6E-04	4E-04	2E-04	7E-05	7E-05	5E-05	2E-04
9.6	West	8E-04	6E-04	4E-04	2E-04	8E-05	8E-05	6E-05	2E-04
9.7	West	6E-04	5E-04	4E-04	2E-04	9E-05	9E-05	6E-05	2E-04
9.8	West	6E-04	5E-04	4E-04	2E-04	9E-05	9E-05	6E-05	2E-04
9.9	West	6E-04	6E-04	4E-04	2E-04	8E-05	8E-05	5E-05	2E-04
10	West	7E-04	6E-04	4E-04	2E-04	8E-05	8E-05	5E-05	2E-04
10.1	West	8E-04	7E-04	4E-04	2E-04	8E-05	8E-05	5E-05	2E-04
10.2	West	5E-04	5E-04	3E-04	2E-04	1E-04	1E-04	9E-05	2E-04
10.3	West	3E-04	3E-04	3E-04	3E-04	2E-04	2E-04	1E-04	3E-04
10.4	West	3E-04	3E-04	3E-04	2E-04	2E-04	2E-04	1E-04	2E-04
10.5	West	3E-04	3E-04	3E-04	2E-04	2E-04	2E-04	1E-04	2E-04
10.6	West	2E-04	2E-04	2E-04	2E-04	2E-04	2E-04	1E-04	2E-04
10.7	West	2E-04	2E-04	2E-04	2E-04	2E-04	2E-04	1E-04	2E-04
10.8	West	2E-04	2E-04	2E-04	2E-04	2E-04	2E-04	2E-04	2E-04
10.9	West	2E-04	2E-04	2E-04	2E-04	2E-04	2E-04	2E-04	2E-04
11	West	2E-04	2E-04	2E-04	2E-04	2E-04	2E-04	2E-04	2E-04
11.1	West	2E-04	2E-04	2E-04	2E-04	2E-04	2E-04	1E-04	2E-04
11.2	West	2E-04	2E-04	2E-04	2E-04	2E-04	2E-04	1E-04	2E-04

**Table J2.3-6a**  
**RAO 2 Rolling River Mile Cancer Risk Estimates**  
 Portland Harbor Superfund Site  
 Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
11.3	West	2E-04	2E-04	2E-04	2E-04	2E-04	2E-04	2E-04	2E-04
11.4	West	1E-04	1E-04	1E-04	1E-04	1E-04	1E-04	1E-04	1E-04
11.5	West	1E-04	1E-04	1E-04	1E-04	1E-04	1E-04	1E-04	1E-04
11.6	West	1E-04	1E-04	1E-04	1E-04	1E-04	1E-04	1E-04	1E-04
11.7	West	1E-04	1E-04	1E-04	1E-04	1E-04	1E-04	1E-04	1E-04
7.6	Swan Isl	4E-04	4E-05	4E-05	2E-05	2E-06	2E-06	8E-07	2E-05
7.7	Swan Isl	6E-04	3E-05	3E-05	1E-05	2E-06	2E-06	8E-07	1E-05
7.8	Swan Isl	8E-04	4E-05	3E-05	1E-05	2E-06	2E-06	8E-07	1E-05
7.9	Swan Isl	1E-03	4E-05	3E-05	1E-05	3E-06	3E-06	1E-06	1E-05
8	Swan Isl	2E-03	4E-05	3E-05	1E-05	3E-06	3E-06	2E-06	1E-05
8.1	Swan Isl	3E-03	4E-05	3E-05	1E-05	4E-06	4E-06	2E-06	1E-05
8.2	Swan Isl	2E-03	4E-05	3E-05	1E-05	6E-06	6E-06	4E-06	1E-05
8.3	Swan Isl	2E-03	5E-05	3E-05	1E-05	6E-06	6E-06	5E-06	1E-05
8.4	Swan Isl	2E-03	5E-05	3E-05	1E-05	7E-06	7E-06	5E-06	1E-05
8.5	Swan Isl	2E-03	5E-05	3E-05	1E-05	7E-06	7E-06	5E-06	1E-05
8.6	Swan Isl	2E-03	7E-05	4E-05	2E-05	8E-06	8E-06	6E-06	3E-05
8.7	Swan Isl	2E-03	1E-04	6E-05	4E-05	1E-05	1E-05	1E-05	6E-05
8.8	Swan Isl	3E-03	1E-04	6E-05	5E-05	2E-05	2E-05	1E-05	7E-05
8.9	Swan Isl	2E-03	1E-04	7E-05	5E-05	2E-05	2E-05	1E-05	7E-05
9	Swan Isl	9E-04	1E-04	7E-05	6E-05	2E-05	2E-05	2E-05	8E-05
9.1	Swan Isl	7E-04	1E-04	8E-05	7E-05	2E-05	2E-05	2E-05	9E-05
9.2	Swan Isl	7E-04	2E-04	9E-05	7E-05	2E-05	2E-05	2E-05	1E-04
9.3	Swan Isl	7E-04	2E-04	1E-04	9E-05	2E-05	2E-05	2E-05	1E-04
9.4	Swan Isl	5E-04	2E-04	1E-04	1E-04	3E-05	3E-05	2E-05	2E-04
9.5	Swan Isl	5E-04	3E-04	2E-04	2E-04	4E-05	4E-05	3E-05	3E-04
9.6	Swan Isl	4E-04	4E-04	3E-04	3E-04	7E-05	7E-05	5E-05	4E-04

**Table J2.3-6b**  
**RAO 2 Rolling River Mile HI Estimates - Total [Child]**  
 Portland Harbor Superfund Site  
 Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
1.8	East	23	12	9	8	7	7	7	8
1.9	East	28	12	10	8	7	7	7	8
2	East	36	12	9	7	5	5	5	7
2.1	East	36	12	9	7	5	5	4	7
2.2	East	36	11	9	6	4	4	4	6
2.3	East	36	11	8	6	4	4	3	6
2.4	East	36	11	8	6	3	3	3	6
2.5	East	36	10	7	6	3	3	3	6
2.6	East	36	9	7	6	3	3	3	6
2.7	East	30	9	7	6	4	4	3	6
2.8	East	25	7	6	6	4	4	3	6
2.9	East	19	7	6	6	4	4	3	6
3	East	6	6	6	5	4	4	3	5
3.1	East	5	5	5	5	4	4	4	5
3.2	East	5	5	5	5	4	4	4	5
3.3	East	14	9	7	6	4	4	3	6
3.4	East	20	9	7	6	4	4	3	6
3.5	East	22	10	8	6	4	4	3	6
3.6	East	25	13	9	7	4	4	3	7
3.7	East	27	14	11	7	4	4	2	7
3.8	East	28	15	11	7	4	4	3	7
3.9	East	31	19	14	8	4	4	2	8
4	East	31	20	15	10	4	4	2	10
4.1	East	31	20	15	9	4	4	2	9
4.2	East	30	20	14	9	3	3	1	9
4.3	East	25	19	14	9	4	4	1	9
4.4	East	20	19	14	9	4	4	1	9
4.5	East	19	19	14	8	4	4	1	8
4.6	East	17	17	13	8	4	4	2	8
4.7	East	15	15	11	8	4	4	2	8
4.8	East	15	15	11	8	4	4	2	8
4.9	East	10	10	9	7	4	4	2	7
5	East	8	8	6	5	4	4	3	5
5.1	East	9	9	8	7	5	5	3	6
5.2	East	11	11	11	10	6	6	4	6
5.3	East	13	13	13	11	5	5	4	5
5.4	East	13	13	13	11	6	6	3	6
5.5	East	13	13	13	12	6	6	3	6
5.6	East	14	14	14	12	5	5	3	7
5.7	East	14	14	14	12	5	5	2	8
5.8	East	13	13	13	11	5	5	2	7
5.9	East	12	12	12	11	4	4	2	7
6	East	11	11	11	10	4	4	2	7

**Table J2.3-6b**  
**RAO 2 Rolling River Mile HI Estimates - Total [Child]**  
 Portland Harbor Superfund Site  
 Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
6.1	East	10	10	10	9	4	4	2	6
6.2	East	9	8	8	7	4	4	2	6
6.3	East	15	7	6	6	4	4	2	6
6.4	East	18	7	5	5	3	3	2	6
6.5	East	16	6	5	4	3	3	2	5
6.6	East	15	5	4	4	2	2	2	4
6.7	East	14	4	3	3	2	2	2	4
6.8	East	13	4	3	3	2	2	2	4
6.9	East	13	4	3	3	2	2	2	4
7	East	13	4	3	3	3	3	2	4
7.1	East	13	4	3	3	3	3	2	4
7.2	East	13	4	4	3	3	3	3	5
7.3	East	8	4	4	4	3	3	3	5
7.4	East	5	4	4	4	4	4	3	5
7.5	East	5	5	4	4	4	4	4	5
7.6	East	6	5	5	5	4	4	4	6
7.7	East	6	5	5	5	4	4	4	5
7.8	East	6	5	5	5	5	5	4	5
7.9	East	6	5	5	5	5	5	4	5
8	East	6	5	5	5	5	5	4	5
8.1	East	6	4	4	4	4	4	3	4
8.2	East	6	4	4	4	4	4	3	4
8.3	East	6	4	4	4	4	4	3	4
8.4	East	6	4	4	4	4	4	3	4
8.5	East	6	4	4	4	4	4	3	4
8.6	East	6	5	5	5	4	4	3	5
8.7	East	7	6	6	6	5	5	4	6
8.8	East	7	7	7	7	6	6	4	7
8.9	East	7	7	7	7	6	6	4	7
9	East	7	7	7	7	6	6	4	7
9.1	East	7	7	7	7	6	6	4	7
9.2	East	8	8	8	8	6	6	4	8
9.3	East	8	8	8	8	6	6	4	8
9.4	East	8	8	8	8	6	6	3	8
9.5	East	7	7	7	7	5	5	3	7
9.6	East	8	8	8	7	5	5	3	7
9.7	East	7	7	7	7	5	5	4	7
9.8	East	7	7	7	7	5	5	3	7
9.9	East	8	8	8	7	5	5	3	7
10	East	8	8	8	7	5	5	3	7
10.1	East	8	8	7	7	5	5	4	7
10.2	East	7	7	7	6	5	5	4	6

**Table J2.3-6b**

**RAO 2 Rolling River Mile HI Estimates - Total [Child]**

Portland Harbor Superfund Site

Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
10.3	East	9	9	9	7	4	4	4	7
10.4	East	11	11	11	8	4	4	3	8
10.5	East	13	13	13	9	5	5	3	9
10.6	East	14	14	13	9	5	5	3	9
10.7	East	24	17	14	9	5	5	3	9
10.8	East	32	21	16	10	4	4	2	10
10.9	East	59	25	16	9	4	4	2	9
11	East	72	28	16	8	3	3	1	8
11.1	East	75	30	17	8	3	3	1	8
11.2	East	73	30	17	8	3	3	1	8
11.3	East	79	31	16	8	3	3	1	8
11.4	East	87	32	16	8	3	3	1	8
11.5	East	93	34	16	7	3	3	1	7
11.6	East	104	36	16	6	2	2	1	6
11.7	East	105	37	17	6	3	3	0	6
1.8	Nav Channel	5	5	5	5	5	5	4	5
1.9	Nav Channel	5	5	5	5	5	5	4	5
2	Nav Channel	6	6	6	6	6	6	5	6
2.1	Nav Channel	6	6	6	6	6	6	5	6
2.2	Nav Channel	5	5	5	5	5	5	5	5
2.3	Nav Channel	5	5	5	5	5	5	4	5
2.4	Nav Channel	5	5	5	5	5	5	4	5
2.5	Nav Channel	5	5	5	5	5	5	4	5
2.6	Nav Channel	5	5	5	5	5	5	4	5
2.7	Nav Channel	5	5	5	5	5	5	4	5
2.8	Nav Channel	4	4	4	4	4	4	4	4
2.9	Nav Channel	4	4	4	4	4	4	4	4
3	Nav Channel	4	4	4	4	4	4	3	4
3.1	Nav Channel	5	5	5	5	5	4	3	5
3.2	Nav Channel	6	6	6	6	6	4	3	6
3.3	Nav Channel	6	6	6	6	6	4	3	6
3.4	Nav Channel	6	6	6	6	6	4	3	6
3.5	Nav Channel	6	6	6	5	5	4	3	5
3.6	Nav Channel	5	5	5	5	5	4	3	5
3.7	Nav Channel	5	5	5	5	5	4	3	5
3.8	Nav Channel	5	5	5	5	5	4	3	5
3.9	Nav Channel	5	5	5	5	5	3	2	5
4	Nav Channel	5	5	5	5	5	4	3	5
4.1	Nav Channel	4	4	4	4	4	4	3	4
4.2	Nav Channel	4	4	4	4	4	4	3	4
4.3	Nav Channel	4	4	4	4	4	4	3	4
4.4	Nav Channel	4	4	4	4	4	4	3	4

**Table J2.3-6b**

**RAO 2 Rolling River Mile HI Estimates - Total [Child]**

Portland Harbor Superfund Site

Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
4.5	Nav Channel	4	4	4	4	4	4	3	4
4.6	Nav Channel	4	4	4	4	4	4	3	4
4.7	Nav Channel	4	4	4	3	4	3	3	4
4.8	Nav Channel	4	4	4	3	4	3	3	4
4.9	Nav Channel	4	4	4	3	4	3	3	4
5	Nav Channel	4	4	3	3	4	3	2	4
5.1	Nav Channel	4	3	3	3	3	2	2	3
5.2	Nav Channel	4	3	3	2	3	2	1	3
5.3	Nav Channel	4	3	2	2	3	2	1	3
5.4	Nav Channel	4	3	2	2	3	1	1	3
5.5	Nav Channel	4	3	2	2	3	1	1	3
5.6	Nav Channel	4	3	2	2	3	1	0	3
5.7	Nav Channel	4	3	3	2	3	1	1	3
5.8	Nav Channel	4	3	3	2	3	1	1	3
5.9	Nav Channel	4	3	3	2	3	1	1	3
6	Nav Channel	5	3	3	3	3	2	1	3
6.1	Nav Channel	6	5	4	3	4	2	1	4
6.2	Nav Channel	9	7	6	4	6	2	1	6
6.3	Nav Channel	10	9	7	6	8	2	1	8
6.4	Nav Channel	11	10	8	7	9	3	1	9
6.5	Nav Channel	11	10	8	7	9	3	2	9
6.6	Nav Channel	11	9	8	7	9	3	2	8
6.7	Nav Channel	10	9	8	7	8	3	2	8
6.8	Nav Channel	10	9	8	7	8	4	2	8
6.9	Nav Channel	10	9	8	7	9	4	3	9
7	Nav Channel	10	10	9	8	9	4	3	9
7.1	Nav Channel	9	9	9	8	9	5	3	9
7.2	Nav Channel	8	8	8	8	8	5	3	8
7.3	Nav Channel	7	7	7	7	7	5	3	7
7.4	Nav Channel	6	6	6	6	6	5	4	6
7.5	Nav Channel	6	6	6	6	6	5	4	6
7.6	Nav Channel	6	6	6	6	6	5	4	6
7.7	Nav Channel	6	6	6	6	6	5	4	6
7.8	Nav Channel	6	6	6	6	6	5	4	6
7.9	Nav Channel	6	6	6	6	6	5	4	6
8	Nav Channel	5	5	5	5	5	5	4	5
8.1	Nav Channel	5	5	5	5	5	5	4	5
8.2	Nav Channel	5	5	5	4	5	4	4	5
8.3	Nav Channel	4	4	4	4	4	4	4	4
8.4	Nav Channel	5	4	4	4	4	4	4	4
8.5	Nav Channel	5	5	5	5	5	4	4	5
8.6	Nav Channel	5	5	5	5	5	4	4	5

**Table J2.3-6b**

**RAO 2 Rolling River Mile HI Estimates - Total [Child]**

Portland Harbor Superfund Site

Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
8.7	Nav Channel	6	6	6	6	6	4	4	6
8.8	Nav Channel	7	6	6	6	6	4	4	6
8.9	Nav Channel	7	7	7	7	7	4	4	7
9	Nav Channel	7	7	7	7	7	5	4	7
9.1	Nav Channel	7	7	7	7	7	5	4	7
9.2	Nav Channel	7	7	7	7	7	5	4	7
9.3	Nav Channel	7	7	7	7	7	5	4	7
9.4	Nav Channel	7	7	7	7	7	5	4	7
9.5	Nav Channel	7	7	7	7	7	5	4	7
9.6	Nav Channel	7	7	7	7	7	5	4	7
9.7	Nav Channel	6	6	6	6	6	5	4	6
9.8	Nav Channel	6	6	6	6	6	5	4	6
9.9	Nav Channel	7	7	7	7	7	5	3	7
10	Nav Channel	7	7	7	7	7	5	3	7
10.1	Nav Channel	7	7	7	7	7	5	3	7
10.2	Nav Channel	7	7	7	7	7	5	4	7
10.3	Nav Channel	8	8	8	8	8	5	4	8
10.4	Nav Channel	8	8	8	8	8	5	4	8
10.5	Nav Channel	8	8	8	8	8	6	4	8
10.6	Nav Channel	8	8	8	8	8	6	4	8
10.7	Nav Channel	9	8	8	8	8	5	3	8
10.8	Nav Channel	12	8	7	7	7	5	4	7
10.9	Nav Channel	14	8	7	6	6	5	4	6
11	Nav Channel	13	7	7	6	6	5	4	6
11.1	Nav Channel	14	8	7	6	6	5	4	6
11.2	Nav Channel	14	8	7	6	6	5	4	6
11.3	Nav Channel	15	8	7	6	6	5	4	6
11.4	Nav Channel	16	8	7	6	6	5	4	6
11.5	Nav Channel	17	8	6	6	6	5	5	6
11.6	Nav Channel	19	8	7	6	6	5	5	6
11.7	Nav Channel	21	9	8	6	6	6	5	6
1.8	West	3	3	3	3	3	3	3	3
1.9	West	3	3	3	3	3	3	3	3
2	West	3	3	3	3	3	3	3	3
2.1	West	2	2	2	2	2	2	2	2
2.2	West	2	2	2	2	2	2	2	2
2.3	West	2	2	2	2	2	2	2	2
2.4	West	2	2	2	2	2	2	2	2
2.5	West	2	2	2	2	2	2	2	2
2.6	West	2	2	2	2	2	2	2	2
2.7	West	2	2	2	2	2	2	2	2
2.8	West	2	2	2	2	2	2	2	2



**Table J2.3-6b**  
**RAO 2 Rolling River Mile HI Estimates - Total [Child]**  
 Portland Harbor Superfund Site  
 Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
2.9	West	3	3	3	3	3	3	2	3
3	West	3	3	3	3	3	3	2	3
3.1	West	3	3	3	3	3	3	2	3
3.2	West	3	3	3	3	3	3	2	3
3.3	West	3	3	3	3	3	3	2	3
3.4	West	3	3	3	3	3	3	2	3
3.5	West	3	3	3	3	3	3	3	3
3.6	West	4	4	4	4	3	3	3	4
3.7	West	4	4	4	4	4	4	3	4
3.8	West	4	4	4	4	4	4	3	4
3.9	West	5	5	5	4	4	4	3	4
4	West	5	5	5	5	4	4	3	5
4.1	West	5	5	5	5	4	4	3	5
4.2	West	6	6	6	6	4	4	2	6
4.3	West	6	6	6	6	4	4	2	6
4.4	West	6	6	6	6	4	4	2	6
4.5	West	6	6	6	6	4	4	2	6
4.6	West	6	6	6	6	4	4	2	6
4.7	West	6	6	6	6	4	4	2	6
4.8	West	6	6	6	6	4	4	3	6
4.9	West	6	6	6	6	4	4	3	6
5	West	6	6	5	5	4	4	2	5
5.1	West	6	6	5	5	4	4	2	5
5.2	West	5	5	5	4	4	4	2	4
5.3	West	5	5	4	4	3	3	2	4
5.4	West	5	5	4	4	3	3	2	4
5.5	West	5	5	5	4	3	3	2	5
5.6	West	6	6	5	5	3	3	1	5
5.7	West	7	5	5	4	3	3	1	5
5.8	West	7	5	4	4	3	3	1	4
5.9	West	7	4	4	4	2	2	1	4
6	West	8	4	4	3	2	2	1	4
6.1	West	8	4	4	3	2	2	1	3
6.2	West	8	4	4	4	2	2	1	3
6.3	West	10	5	5	4	2	2	1	3
6.4	West	13	7	6	4	1	1	1	2
6.5	West	24	13	8	4	1	1	0	1
6.6	West	36	21	11	4	1	1	0	1
6.7	West	55	21	11	4	1	1	0	1
6.8	West	480	21	10	4	1	1	0	1
6.9	West	922	21	11	4	1	1	0	1
7	West	933	31	17	5	1	1	0	1

**Table J2.3-6b**

**RAO 2 Rolling River Mile HI Estimates - Total [Child]**

Portland Harbor Superfund Site

Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
7.1	West	791	45	30	10	4	4	1	4
7.2	West	664	40	28	10	5	5	1	5
7.3	West	574	36	25	10	5	5	1	5
7.4	West	573	35	25	11	6	6	2	6
7.5	West	588	33	25	12	7	7	2	7
7.6	West	597	30	25	12	7	7	2	8
7.7	West	599	31	26	13	8	8	2	9
7.8	West	330	32	28	14	8	8	2	10
7.9	West	46	32	28	15	8	8	2	11
8	West	25	25	23	14	7	7	2	11
8.1	West	14	14	14	11	6	6	2	10
8.2	West	15	15	15	11	5	5	1	10
8.3	West	18	17	16	10	4	4	1	10
8.4	West	47	17	16	10	3	3	1	10
8.5	West	50	18	16	9	3	3	1	9
8.6	West	58	19	15	8	3	3	1	8
8.7	West	68	20	14	7	2	2	1	7
8.8	West	69	22	15	7	2	2	1	7
8.9	West	70	21	14	6	3	3	2	6
9	West	74	23	15	8	2	2	1	8
9.1	West	81	24	15	8	2	2	1	8
9.2	West	83	27	17	8	2	2	1	8
9.3	West	84	27	15	8	2	2	2	8
9.4	West	51	28	16	8	2	2	2	8
9.5	West	48	28	17	9	3	3	2	9
9.6	West	39	27	18	10	3	3	2	10
9.7	West	28	25	18	10	3	3	2	10
9.8	West	26	24	18	11	3	3	2	11
9.9	West	29	26	20	11	3	3	2	11
10	West	33	29	21	9	3	3	2	9
10.1	West	37	32	21	7	3	3	2	7
10.2	West	22	21	12	8	5	5	3	9
10.3	West	11	11	11	10	7	7	4	10
10.4	West	10	10	10	9	7	7	5	9
10.5	West	10	10	10	9	7	7	5	9
10.6	West	9	9	9	8	7	7	5	8
10.7	West	9	9	9	8	7	7	5	8
10.8	West	7	7	7	7	7	7	5	7
10.9	West	7	7	7	7	7	7	5	7
11	West	7	7	7	7	7	7	5	7
11.1	West	7	7	7	7	7	7	5	7
11.2	West	6	6	6	6	6	6	5	6

**Table J2.3-6b**  
**RAO 2 Rolling River Mile HI Estimates - Total [Child]**  
 Portland Harbor Superfund Site  
 Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
11.3	West	6	6	6	6	6	6	6	6
11.4	West	5	5	5	5	5	5	5	5
11.5	West	5	5	5	5	5	5	5	5
11.6	West	5	5	5	5	5	5	5	5
11.7	West	5	5	5	5	5	5	5	5
7.6	Swan Isl	21	2	2	1	0	0	0	1
7.7	Swan Isl	31	2	2	1	0	0	0	1
7.8	Swan Isl	41	2	2	1	0	0	0	1
7.9	Swan Isl	75	2	2	1	0	0	0	1
8	Swan Isl	130	2	1	1	0	0	0	1
8.1	Swan Isl	132	2	1	1	0	0	0	1
8.2	Swan Isl	122	2	1	1	0	0	0	1
8.3	Swan Isl	115	2	2	1	0	0	0	1
8.4	Swan Isl	108	3	1	1	0	0	0	1
8.5	Swan Isl	102	3	1	1	0	0	0	1
8.6	Swan Isl	111	3	2	1	0	0	0	1
8.7	Swan Isl	128	4	2	2	1	1	0	2
8.8	Swan Isl	140	4	2	2	1	1	0	3
8.9	Swan Isl	116	5	3	2	1	1	1	3
9	Swan Isl	43	6	3	2	1	1	1	3
9.1	Swan Isl	34	6	3	3	1	1	1	3
9.2	Swan Isl	33	7	3	3	1	1	1	4
9.3	Swan Isl	30	7	4	4	1	1	1	5
9.4	Swan Isl	22	8	6	5	1	1	1	8
9.5	Swan Isl	19	12	9	8	1	1	1	12
9.6	Swan Isl	15	15	12	11	2	2	1	15

**Table J2.3-6c**

**RAO 2 Rolling River Mile HI Estimates - Total [Infant]**

Portland Harbor Superfund Site

Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
1.8	East	460	243	192	158	143	143	140	158
1.9	East	570	255	201	160	143	143	139	160
2	East	735	241	183	140	116	116	110	140
2.1	East	735	240	182	138	100	100	92	138
2.2	East	721	237	180	137	94	94	83	137
2.3	East	740	236	176	131	85	85	70	131
2.4	East	735	231	169	122	75	75	59	123
2.5	East	734	218	154	118	74	74	58	119
2.6	East	725	196	143	118	75	75	60	118
2.7	East	603	181	139	119	78	78	63	119
2.8	East	507	152	137	122	81	81	66	122
2.9	East	385	141	130	122	84	84	69	123
3	East	131	130	124	121	89	89	76	122
3.1	East	120	119	113	109	98	98	85	110
3.2	East	117	116	109	106	101	101	91	107
3.3	East	303	197	152	129	93	93	79	129
3.4	East	428	210	159	137	94	94	76	137
3.5	East	466	232	178	144	93	93	72	144
3.6	East	536	278	204	147	90	90	66	147
3.7	East	580	315	235	157	90	90	61	157
3.8	East	599	328	246	166	96	96	64	166
3.9	East	667	422	300	190	93	93	54	190
4	East	678	449	335	225	95	95	46	225
4.1	East	662	441	326	218	88	88	38	218
4.2	East	652	445	319	206	78	78	29	206
4.3	East	576	438	326	205	82	82	29	205
4.4	East	465	448	335	207	82	82	31	207
4.5	East	456	440	324	205	84	84	35	205
4.6	East	402	400	304	209	92	92	44	209
4.7	East	378	376	283	209	100	100	56	209
4.8	East	387	384	290	214	105	105	62	214
4.9	East	286	283	239	204	122	122	74	204
5	East	247	244	196	164	138	138	94	161
5.1	East	281	277	236	207	160	160	108	177
5.2	East	317	317	317	301	190	190	128	191
5.3	East	363	362	362	323	178	178	120	178
5.4	East	355	355	355	322	183	183	106	183
5.5	East	349	348	348	319	180	180	97	188
5.6	East	356	355	355	322	165	165	87	203
5.7	East	351	351	351	320	152	152	78	213
5.8	East	329	328	326	298	145	145	77	204
5.9	East	309	309	303	275	130	130	73	194
6	East	285	285	277	251	118	118	69	180

**Table J2.3-6c**

**RAO 2 Rolling River Mile HI Estimates - Total [Infant]**

Portland Harbor Superfund Site

Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
6.1	East	261	260	247	223	114	114	72	176
6.2	East	239	223	200	184	110	110	74	172
6.3	East	428	207	166	160	101	101	67	182
6.4	East	475	185	140	134	84	84	62	170
6.5	East	442	165	122	116	76	76	60	154
6.6	East	400	138	97	95	70	70	57	131
6.7	East	389	124	81	79	67	67	56	135
6.8	East	388	123	77	75	64	64	54	145
6.9	East	381	126	78	77	66	66	57	146
7	East	373	129	84	84	72	72	64	148
7.1	East	370	128	86	86	75	75	68	147
7.2	East	376	130	92	92	80	80	74	154
7.3	East	230	121	96	95	89	89	83	149
7.4	East	159	123	103	103	99	99	91	156
7.5	East	174	136	114	114	110	110	100	171
7.6	East	193	146	124	123	119	119	103	184
7.7	East	179	143	124	124	118	118	101	157
7.8	East	168	137	127	127	120	120	101	135
7.9	East	161	128	127	127	125	125	104	127
8	East	160	120	120	119	118	118	92	119
8.1	East	158	111	111	111	109	109	79	111
8.2	East	148	101	101	101	99	99	70	101
8.3	East	144	100	100	99	98	98	76	99
8.4	East	138	96	96	96	94	94	78	96
8.5	East	136	92	92	92	89	89	71	92
8.6	East	138	103	103	103	95	95	75	103
8.7	East	147	134	134	134	120	120	85	134
8.8	East	144	144	144	144	131	131	96	144
8.9	East	142	142	142	142	129	129	96	142
9	East	142	142	142	142	130	130	96	142
9.1	East	159	159	159	159	130	130	90	159
9.2	East	175	175	175	175	131	131	81	175
9.3	East	176	176	176	176	132	132	78	176
9.4	East	171	171	171	171	130	130	77	171
9.5	East	162	162	162	162	121	121	76	162
9.6	East	169	168	167	158	116	116	79	158
9.7	East	162	162	161	151	111	111	83	151
9.8	East	164	163	162	152	110	110	80	152
9.9	East	173	173	172	161	115	115	82	161
10	East	183	182	181	169	119	119	83	169
10.1	East	174	173	172	159	123	123	92	159
10.2	East	172	171	170	155	122	122	98	155

**Table J2.3-6c**

**RAO 2 Rolling River Mile HI Estimates - Total [Infant]**

Portland Harbor Superfund Site

Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
10.3	East	211	210	209	164	111	111	92	164
10.4	East	259	258	257	183	112	112	87	183
10.5	East	302	301	299	218	118	118	81	218
10.6	East	316	316	306	229	128	128	81	229
10.7	East	536	377	324	229	120	120	76	229
10.8	East	684	466	354	230	113	113	62	230
10.9	East	1,239	542	353	209	93	93	46	209
11	East	1,496	612	365	192	76	76	35	192
11.1	East	1,558	652	377	190	70	70	30	190
11.2	East	1,519	646	381	187	80	80	27	187
11.3	East	1,640	660	363	182	82	82	24	182
11.4	East	1,791	687	352	175	77	77	18	175
11.5	East	1,925	715	348	155	73	73	19	155
11.6	East	2,141	754	346	139	59	59	15	139
11.7	East	2,150	769	357	139	60	60	11	139
1.8	Nav Channel	97	97	97	97	97	97	91	97
1.9	Nav Channel	107	107	107	107	107	107	90	107
2	Nav Channel	113	113	113	113	113	113	95	113
2.1	Nav Channel	114	114	114	114	114	114	96	114
2.2	Nav Channel	113	113	113	113	113	113	95	113
2.3	Nav Channel	110	110	110	110	110	110	92	110
2.4	Nav Channel	109	109	109	109	109	109	90	109
2.5	Nav Channel	108	108	108	108	108	108	90	108
2.6	Nav Channel	105	105	105	105	105	105	87	105
2.7	Nav Channel	101	101	101	101	101	101	82	101
2.8	Nav Channel	93	93	93	93	93	93	81	93
2.9	Nav Channel	86	86	86	86	86	86	82	86
3	Nav Channel	90	90	90	90	90	82	75	90
3.1	Nav Channel	109	109	109	107	107	80	66	107
3.2	Nav Channel	125	125	125	124	124	83	59	124
3.3	Nav Channel	128	128	128	126	126	84	58	126
3.4	Nav Channel	122	122	122	121	121	81	56	121
3.5	Nav Channel	118	118	118	117	117	80	56	117
3.6	Nav Channel	118	118	118	116	116	81	57	116
3.7	Nav Channel	116	116	116	115	115	82	59	115
3.8	Nav Channel	111	111	111	110	110	79	57	110
3.9	Nav Channel	104	104	104	103	103	74	55	103
4	Nav Channel	103	103	103	102	102	78	58	102
4.1	Nav Channel	96	96	96	96	96	82	64	96
4.2	Nav Channel	85	85	85	85	85	80	68	85
4.3	Nav Channel	81	81	81	81	81	78	69	81
4.4	Nav Channel	83	83	83	83	83	80	70	83

**Table J2.3-6c**

**RAO 2 Rolling River Mile HI Estimates - Total [Infant]**

Portland Harbor Superfund Site

Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
4.5	Nav Channel	85	85	85	85	85	83	73	85
4.6	Nav Channel	84	84	83	82	84	78	69	84
4.7	Nav Channel	86	83	79	77	83	72	63	83
4.8	Nav Channel	90	87	81	77	87	70	60	87
4.9	Nav Channel	96	90	81	76	90	68	57	90
5	Nav Channel	93	83	73	67	83	58	49	83
5.1	Nav Channel	89	80	68	61	80	49	41	80
5.2	Nav Channel	90	76	64	56	76	44	35	76
5.3	Nav Channel	94	74	60	53	74	39	30	74
5.4	Nav Channel	98	76	61	53	76	33	23	76
5.5	Nav Channel	101	78	62	52	78	30	15	78
5.6	Nav Channel	107	83	68	57	83	32	16	83
5.7	Nav Channel	114	90	75	62	90	35	17	88
5.8	Nav Channel	123	92	77	65	92	38	19	88
5.9	Nav Channel	135	101	88	76	101	48	27	97
6	Nav Channel	153	110	100	88	110	61	37	106
6.1	Nav Channel	189	142	116	96	136	60	40	132
6.2	Nav Channel	244	200	160	125	179	62	39	175
6.3	Nav Channel	281	246	205	169	225	73	41	220
6.4	Nav Channel	298	263	222	186	241	91	49	236
6.5	Nav Channel	300	265	224	190	243	99	63	239
6.6	Nav Channel	296	262	221	191	240	104	72	236
6.7	Nav Channel	287	255	220	193	234	111	80	232
6.8	Nav Channel	275	252	220	195	231	117	84	231
6.9	Nav Channel	267	251	222	198	231	120	84	231
7	Nav Channel	260	256	228	205	236	120	79	236
7.1	Nav Channel	238	237	224	211	223	126	79	223
7.2	Nav Channel	201	200	200	199	199	139	85	199
7.3	Nav Channel	173	172	172	172	172	137	93	172
7.4	Nav Channel	157	157	157	157	157	130	96	157
7.5	Nav Channel	150	150	150	150	150	126	97	150
7.6	Nav Channel	149	149	149	149	149	127	98	149
7.7	Nav Channel	147	147	147	146	146	125	98	146
7.8	Nav Channel	144	144	144	144	144	124	99	144
7.9	Nav Channel	139	139	139	139	139	121	101	139
8	Nav Channel	130	130	130	130	130	118	102	130
8.1	Nav Channel	119	119	119	119	119	116	105	119
8.2	Nav Channel	111	111	111	111	111	110	107	111
8.3	Nav Channel	109	109	109	108	108	108	106	108
8.4	Nav Channel	111	110	110	109	110	108	104	110
8.5	Nav Channel	120	118	118	118	118	107	100	118
8.6	Nav Channel	125	123	123	123	123	105	99	123

**Table J2.3-6c**

**RAO 2 Rolling River Mile HI Estimates - Total [Infant]**

Portland Harbor Superfund Site

Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
8.7	Nav Channel	136	135	135	134	134	105	97	134
8.8	Nav Channel	150	148	148	147	148	104	93	148
8.9	Nav Channel	156	154	154	153	153	107	91	153
9	Nav Channel	160	158	158	157	158	109	93	158
9.1	Nav Channel	161	159	159	158	158	109	91	158
9.2	Nav Channel	163	162	161	160	161	108	89	161
9.3	Nav Channel	164	163	162	162	162	106	87	162
9.4	Nav Channel	162	162	162	161	161	106	85	161
9.5	Nav Channel	158	158	158	157	158	106	85	158
9.6	Nav Channel	150	150	149	149	149	106	85	149
9.7	Nav Channel	140	140	140	139	139	110	88	139
9.8	Nav Channel	138	138	138	138	138	114	87	138
9.9	Nav Channel	154	154	154	154	154	107	80	154
10	Nav Channel	159	159	159	159	159	108	76	159
10.1	Nav Channel	163	163	163	163	163	112	79	163
10.2	Nav Channel	166	166	166	166	166	114	82	166
10.3	Nav Channel	172	172	172	172	172	119	85	172
10.4	Nav Channel	180	180	180	180	180	123	84	180
10.5	Nav Channel	180	180	180	180	180	126	84	180
10.6	Nav Channel	184	184	184	184	184	126	82	184
10.7	Nav Channel	194	184	179	178	178	119	77	178
10.8	Nav Channel	266	174	166	162	162	113	82	162
10.9	Nav Channel	292	171	154	141	141	120	92	141
11	Nav Channel	289	168	150	138	138	120	95	138
11.1	Nav Channel	293	171	154	141	141	123	99	141
11.2	Nav Channel	307	175	156	143	143	126	101	143
11.3	Nav Channel	325	177	156	142	142	124	98	142
11.4	Nav Channel	343	176	152	135	135	119	101	135
11.5	Nav Channel	366	176	149	129	129	116	106	129
11.6	Nav Channel	411	188	156	133	133	118	107	133
11.7	Nav Channel	451	203	173	148	148	130	117	148
1.8	West	61	61	61	61	61	61	61	61
1.9	West	62	62	62	62	62	62	62	62
2	West	61	61	61	61	61	61	61	61
2.1	West	59	59	59	59	59	59	59	59
2.2	West	57	57	57	57	57	57	57	57
2.3	West	55	55	55	55	55	55	54	55
2.4	West	55	55	55	55	55	55	52	55
2.5	West	58	58	58	58	58	58	50	58
2.6	West	57	57	57	57	57	57	47	57
2.7	West	55	55	55	55	55	55	45	55
2.8	West	56	56	56	56	56	56	42	56



**Table J2.3-6c**

**RAO 2 Rolling River Mile HI Estimates - Total [Infant]**

Portland Harbor Superfund Site

Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
2.9	West	56	56	56	56	56	56	42	56
3	West	58	58	58	58	58	58	43	58
3.1	West	61	61	61	61	61	61	46	61
3.2	West	64	64	64	64	64	64	49	64
3.3	West	70	70	70	70	70	70	54	70
3.4	West	75	75	75	75	74	74	57	75
3.5	West	77	77	77	77	74	74	60	77
3.6	West	83	83	83	83	78	78	63	83
3.7	West	93	93	93	93	85	85	67	93
3.8	West	102	102	102	101	89	89	70	101
3.9	West	110	110	110	109	94	94	69	109
4	West	120	120	120	118	102	102	70	118
4.1	West	133	133	133	132	109	109	68	132
4.2	West	152	152	152	151	112	112	64	151
4.3	West	160	160	160	159	116	116	65	159
4.4	West	162	162	162	160	118	118	68	160
4.5	West	161	161	161	160	117	117	69	160
4.6	West	155	155	155	153	115	115	70	153
4.7	West	153	153	152	150	112	112	69	150
4.8	West	155	155	154	151	117	117	73	151
4.9	West	161	160	156	152	116	116	73	152
5	West	163	161	152	146	107	107	68	146
5.1	West	157	155	144	137	101	101	62	137
5.2	West	145	143	131	124	106	106	65	124
5.3	West	138	136	122	115	98	98	54	115
5.4	West	137	135	123	112	90	90	46	115
5.5	West	147	146	132	121	94	94	48	126
5.6	West	158	151	136	124	88	88	39	131
5.7	West	176	143	125	114	81	81	34	121
5.8	West	178	128	111	101	70	70	30	108
5.9	West	181	115	101	92	62	62	29	99
6	West	188	105	95	88	60	60	29	95
6.1	West	201	105	95	86	56	56	28	89
6.2	West	207	113	103	92	52	52	23	84
6.3	West	236	132	122	100	44	44	19	74
6.4	West	372	204	149	109	40	40	14	62
6.5	West	726	386	230	100	24	24	4	36
6.6	West	1,167	692	370	143	20	20	3	20
6.7	West	1,912	701	359	134	18	18	3	18
6.8	West	22,471	691	352	131	18	18	3	18
6.9	West	43,913	706	363	137	19	19	3	19
7	West	44,362	1,173	658	153	33	33	3	33

**Table J2.3-6c**

**RAO 2 Rolling River Mile HI Estimates - Total [Infant]**

Portland Harbor Superfund Site

Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
7.1	West	37,482	1,809	1,302	408	171	171	27	171
7.2	West	31,424	1,566	1,141	387	175	175	36	175
7.3	West	27,123	1,384	1,017	370	181	181	36	181
7.4	West	27,111	1,355	1,012	376	198	198	41	198
7.5	West	27,899	1,305	1,006	399	215	215	44	218
7.6	West	28,407	1,175	964	396	228	228	45	242
7.7	West	28,552	1,199	1,010	428	240	240	46	271
7.8	West	15,539	1,227	1,040	451	244	244	46	294
7.9	West	1,781	1,177	1,004	450	233	233	43	306
8	West	853	837	779	420	223	223	50	291
8.1	West	319	317	316	258	137	137	40	223
8.2	West	332	330	328	246	120	120	32	226
8.3	West	403	376	362	229	99	99	29	225
8.4	West	970	380	359	217	80	80	24	215
8.5	West	1,041	392	347	203	69	69	24	203
8.6	West	1,213	419	331	180	58	58	24	180
8.7	West	1,401	435	308	158	52	52	25	158
8.8	West	1,426	472	317	148	53	53	28	148
8.9	West	1,443	459	301	141	63	63	41	141
9	West	1,544	499	332	168	53	53	34	168
9.1	West	1,671	521	338	184	52	52	36	184
9.2	West	1,729	579	366	174	56	56	37	174
9.3	West	1,744	589	326	177	57	57	39	177
9.4	West	1,078	617	345	188	61	61	41	188
9.5	West	1,024	611	362	199	67	67	47	199
9.6	West	832	589	385	217	77	77	55	217
9.7	West	615	564	404	234	85	85	57	234
9.8	West	582	529	399	245	88	88	58	245
9.9	West	652	588	430	243	79	79	49	243
10	West	733	652	450	213	82	82	53	213
10.1	West	827	732	459	168	87	87	56	169
10.2	West	542	533	295	227	150	150	96	227
10.3	West	298	298	298	266	217	217	130	266
10.4	West	282	282	282	255	215	215	142	255
10.5	West	267	267	266	243	207	207	142	243
10.6	West	253	253	252	231	198	198	139	231
10.7	West	239	239	239	218	190	190	143	218
10.8	West	199	199	199	199	196	196	153	199
10.9	West	194	194	194	194	194	194	156	194
11	West	189	189	189	189	189	189	155	189
11.1	West	185	185	185	185	185	185	152	185
11.2	West	172	172	172	172	172	172	149	172

**Table J2.3-6c**  
**RAO 2 Rolling River Mile HI Estimates - Total [Infant]**  
 Portland Harbor Superfund Site  
 Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
11.3	West	156	156	156	156	156	156	155	156
11.4	West	147	147	147	147	147	147	147	147
11.5	West	142	142	142	142	142	142	141	142
11.6	West	138	138	138	138	138	138	138	138
11.7	West	137	137	137	137	137	137	137	137
7.6	Swan Isl	442	42	42	18	2	2	1	18
7.7	Swan Isl	643	35	33	15	2	2	1	15
7.8	Swan Isl	836	47	36	15	3	3	1	15
7.9	Swan Isl	1,532	44	33	14	3	3	1	14
8	Swan Isl	2,637	42	31	14	4	4	2	14
8.1	Swan Isl	2,673	42	31	14	4	4	2	14
8.2	Swan Isl	2,481	42	32	15	6	6	4	15
8.3	Swan Isl	2,331	48	33	15	6	6	4	15
8.4	Swan Isl	2,205	55	31	15	7	7	5	15
8.5	Swan Isl	2,096	55	31	15	7	7	5	15
8.6	Swan Isl	2,275	71	37	24	8	8	6	30
8.7	Swan Isl	2,634	106	58	44	14	14	11	59
8.8	Swan Isl	2,877	110	61	51	16	16	13	69
8.9	Swan Isl	2,408	122	68	57	18	18	14	78
9	Swan Isl	963	137	76	64	20	20	16	88
9.1	Swan Isl	776	145	80	68	20	20	16	94
9.2	Swan Isl	768	169	89	77	20	20	16	109
9.3	Swan Isl	704	188	105	97	22	22	17	139
9.4	Swan Isl	558	225	148	141	29	29	22	204
9.5	Swan Isl	507	336	235	223	41	41	31	329
9.6	Swan Isl	418	418	325	299	68	68	55	418

**Table J2.3-7****Post-Construction COC Concentrations - SDU Scale**

Portland Harbor Superfund Site

Portland, Oregon

SDU	Alternative							
	A	B	D	E	F Mod	F	G	I
Aldrin (µg/kg)								
Outside SDU	0.49	0.49	0.49	0.48	0.48	0.45	0.37	0.49
RM2E	0.57	0.50	0.47	0.43	0.36	0.36	0.32	0.43
RM3.5E	0.45	0.41	0.37	0.33	0.27	0.27	0.22	0.33
RM4.5E	5.74	5.65	4.52	3.45	1.99	1.99	0.84	3.45
RM5.5E	0.48	0.48	0.48	0.47	0.33	0.33	0.21	0.33
RM6.5E	0.34	0.32	0.30	0.30	0.25	0.25	0.23	0.32
SwanIs	0.49	0.04	0.04	0.03	0.03	0.03	0.03	0.03
RM11E	0.30	0.23	0.21	0.17	0.12	0.11	0.07	0.17
RM3.9W	0.71	0.71	0.71	0.69	0.49	0.49	0.29	0.69
RM5W	0.34	0.34	0.32	0.31	0.26	0.26	0.13	0.31
RM6Nav	1.10	0.77	0.59	0.48	0.77	0.28	0.14	0.77
RM6W	1.96	0.79	0.50	0.34	0.65	0.20	0.12	0.50
RM7W	5.58	2.20	1.35	0.92	0.58	0.58	0.29	0.58
RM9W	1.86	1.22	1.05	0.66	0.21	0.21	0.10	0.66
Sitewide	0.86	0.66	0.58	0.52	0.47	0.41	0.31	0.53
Arsenic (mg/kg)								
Outside SDU	3.65	3.63	3.58	3.57	3.52	3.36	2.99	3.64
RM2E	4.11	3.74	3.52	3.34	2.93	2.93	2.63	3.34
RM3.5E	4.00	3.68	3.41	3.10	2.61	2.61	2.16	3.10
RM4.5E	4.32	4.28	3.66	3.12	1.87	1.87	0.97	3.12
RM5.5E	4.44	4.43	4.43	4.29	2.62	2.62	1.44	2.62
RM6.5E	3.53	3.17	2.87	2.82	2.21	2.21	1.89	3.12
SwanIs	6.95	0.47	0.36	0.26	0.17	0.17	0.13	0.26
RM11E	2.63	2.14	1.89	1.49	1.02	0.91	0.55	1.49
RM3.9W	4.64	4.64	4.64	4.63	4.40	4.40	3.45	4.63
RM5W	3.83	3.80	3.56	3.36	2.66	2.66	1.86	3.36
RM6Nav	3.47	2.85	2.27	1.85	2.80	1.06	0.63	2.80
RM6W	5.34	3.03	2.49	2.12	2.16	1.49	0.81	2.49
RM7W	5.18	4.07	3.51	2.75	1.85	1.85	0.83	1.85
RM9W	6.29	5.24	4.53	2.52	1.20	1.20	0.81	2.52
Sitewide	4.03	3.48	3.31	3.14	2.98	2.75	2.33	3.22

**Table J2.3-7**

**Post-Construction COC Concentrations - SDU Scale**

Portland Harbor Superfund Site

Portland, Oregon

SDU	Alternative							
	A	B	D	E	F Mod	F	G	I
BEHP (µg/kg)								
Outside SDU	189.1	188.8	186.8	184.7	174.7	162.8	142.4	188.4
RM2E	111.7	99.7	93.9	87.5	75.7	75.7	67.8	87.5
RM3.5E	1,071.9	786.7	682.4	410.9	122.0	122.0	53.2	410.9
RM4.5E	223.2	220.2	191.0	166.5	67.0	67.0	29.2	166.5
RM5.5E	171.1	170.9	170.9	160.5	99.8	99.8	48.2	99.8
RM6.5E	87.6	79.7	72.2	70.0	52.8	52.8	43.5	77.4
SwanIs	1,820.1	79.3	50.5	26.2	12.1	12.1	9.1	26.2
RM11E	136.8	121.8	108.7	88.5	62.0	58.5	36.0	88.5
RM3.9W	553.1	553.1	553.1	544.2	425.1	425.1	170.1	544.2
RM5W	69.8	69.4	66.1	62.5	46.9	46.9	29.3	62.5
RM6Nav	245.3	179.3	120.3	83.7	178.7	39.7	20.7	178.7
RM6W	315.0	139.9	107.9	66.3	60.4	29.0	12.7	107.9
RM7W	348.0	300.0	284.6	257.2	187.0	187.0	98.9	187.0
RM9W	1,146.6	897.8	582.4	182.4	47.7	47.7	26.1	182.4
Sitewide	337.4	219.8	198.4	171.6	150.7	133.4	105.6	178.3
Chlordanes (µg/kg)								
Outside SDU	1.22	1.21	1.20	1.19	1.17	1.04	0.87	1.21
RM2E	1.33	1.15	1.02	0.91	0.77	0.77	0.68	0.91
RM3.5E	1.06	0.72	0.64	0.53	0.39	0.39	0.28	0.53
RM4.5E	6.50	6.42	5.23	4.10	2.34	2.34	1.01	4.10
RM5.5E	2.06	2.06	2.06	1.95	1.09	1.09	0.56	1.09
RM6.5E	0.82	0.73	0.66	0.64	0.49	0.49	0.39	0.72
SwanIs	2.27	0.20	0.16	0.12	0.10	0.10	0.08	0.12
RM11E	19.79	8.51	4.78	2.45	1.80	1.37	0.71	2.45
RM3.9W	1.46	1.46	1.46	1.44	1.20	1.20	0.72	1.44
RM5W	0.99	0.98	0.94	0.89	0.67	0.67	0.38	0.89
RM6Nav	1.80	1.36	0.98	0.73	1.31	0.36	0.17	1.31
RM6W	7.11	2.41	1.41	1.00	1.89	0.62	0.35	1.41
RM7W	9.91	4.18	2.89	1.88	0.94	0.94	0.38	0.94
RM9W	7.05	4.38	3.94	2.83	0.84	0.84	0.35	2.83
Sitewide	2.22	1.56	1.37	1.21	1.08	0.91	0.69	1.23

**Table J2.3-7****Post-Construction COC Concentrations - SDU Scale**

Portland Harbor Superfund Site

Portland, Oregon

SDU	Alternative							
	A	B	D	E	F Mod	F	G	I
cPAHs (µg/kg)								
Outside SDU	169.3	168.4	166.7	163.8	162.7	154.0	119.4	169.0
RM2E	166.3	141.6	85.1	63.0	44.5	44.5	35.0	63.0
RM3.5E	166.6	115.5	105.3	93.0	76.1	76.1	61.2	93.0
RM4.5E	3,224.5	3,026.3	1,642.9	983.7	285.9	285.9	81.5	983.7
RM5.5E	665.9	664.9	664.9	618.0	426.9	426.9	151.8	426.9
RM6.5E	304.5	296.1	268.0	230.3	178.4	178.4	136.5	294.0
SwanIs	277.0	20.5	13.5	8.6	5.0	5.0	2.5	8.6
RM11E	53.8	41.8	36.2	28.3	17.7	16.2	8.0	28.3
RM3.9W	492.4	492.4	492.4	480.4	388.6	388.6	207.1	480.4
RM5W	1,612.8	1,464.9	845.5	622.9	306.2	306.2	136.0	622.9
RM6Nav	13,958.6	2,661.9	1,063.7	590.4	2,659.5	165.9	52.1	2,659.5
RM6W	16,708.2	1,762.3	924.2	581.3	797.5	229.1	72.0	924.2
RM7W	358.5	222.4	187.3	146.1	49.0	49.0	17.7	49.0
RM9W	168.6	133.6	105.2	69.1	21.4	21.4	11.4	69.1
Sitewide	1,489.1	442.7	279.8	218.4	330.4	147.7	98.1	363.5
DDE (µg/kg)								
Outside SDU	2.05	2.04	2.02	2.02	1.99	1.89	1.60	2.04
RM2E	2.65	2.36	2.20	2.05	1.70	1.70	1.49	2.05
RM3.5E	2.28	1.85	1.69	1.44	1.10	1.10	0.83	1.44
RM4.5E	3.11	3.09	2.82	2.50	1.57	1.57	0.78	2.50
RM5.5E	2.78	2.78	2.78	2.51	1.58	1.58	0.86	1.58
RM6.5E	1.78	1.60	1.44	1.41	1.13	1.13	0.96	1.58
SwanIs	3.34	0.25	0.21	0.16	0.10	0.10	0.08	0.16
RM11E	2.01	1.18	1.02	0.82	0.60	0.52	0.35	0.82
RM3.9W	3.18	3.18	3.18	3.16	2.86	2.86	2.05	3.16
RM5W	2.69	2.68	2.62	2.54	1.85	1.85	1.08	2.54
RM6Nav	2.76	2.02	1.60	1.26	1.94	0.59	0.29	1.94
RM6W	15.15	2.89	2.08	1.58	1.76	0.82	0.38	2.08
RM7W	49.14	13.64	8.17	4.22	2.00	2.00	0.74	2.00
RM9W	15.45	6.98	6.34	4.06	1.32	1.32	0.65	4.06
Sitewide	4.36	2.51	2.24	1.99	1.78	1.61	1.26	1.98

**Table J2.3-7**

**Post-Construction COC Concentrations - SDU Scale**

Portland Harbor Superfund Site

Portland, Oregon

SDU	Alternative							
	A	B	D	E	F Mod	F	G	I
DDx (µg/kg)								
Outside SDU	7.03	6.96	6.91	6.88	6.81	6.45	5.15	6.98
RM2E	7.55	6.61	6.06	5.60	4.68	4.68	4.03	5.60
RM3.5E	8.62	6.97	6.39	5.47	3.97	3.97	3.03	5.47
RM4.5E	14.51	14.46	11.86	9.52	5.71	5.71	2.70	9.52
RM5.5E	12.77	12.76	12.76	12.21	6.17	6.17	2.69	6.17
RM6.5E	9.00	7.54	6.24	6.11	5.31	5.31	4.44	7.46
SwanIs	14.53	1.01	0.70	0.40	0.17	0.17	0.12	0.40
RM11E	26.08	13.48	10.06	7.14	4.72	3.93	1.85	7.14
RM3.9W	17.49	17.49	17.49	17.45	15.93	15.93	8.07	17.45
RM5W	14.70	14.67	14.11	13.42	10.96	10.96	4.92	13.42
RM6Nav	12.39	7.72	6.10	4.84	7.49	2.42	1.14	7.49
RM6W	79.17	21.31	17.24	13.82	10.83	6.80	2.46	17.24
RM7W	636.39	77.88	47.00	23.94	10.55	10.55	2.98	10.55
RM9W	36.64	21.69	20.03	12.30	4.10	4.10	1.95	12.30
Sitewide	30.53	10.26	8.83	7.55	6.59	5.95	4.22	7.41
Dieldrin (µg/kg)								
Outside SDU	0.58	0.57	0.57	0.57	0.56	0.52	0.42	0.57
RM2E	0.73	0.58	0.50	0.43	0.38	0.38	0.35	0.43
RM3.5E	0.30	0.28	0.27	0.22	0.18	0.18	0.13	0.22
RM4.5E	6.03	5.95	4.81	3.71	2.19	2.19	0.96	3.71
RM5.5E	0.74	0.74	0.74	0.63	0.37	0.37	0.22	0.37
RM6.5E	0.23	0.20	0.18	0.17	0.14	0.14	0.11	0.19
SwanIs	1.25	0.18	0.16	0.15	0.13	0.13	0.13	0.15
RM11E	2.59	0.76	0.55	0.37	0.29	0.21	0.13	0.37
RM3.9W	0.61	0.61	0.61	0.59	0.39	0.39	0.21	0.59
RM5W	0.40	0.40	0.39	0.38	0.31	0.31	0.21	0.38
RM6Nav	1.02	0.73	0.52	0.37	0.73	0.21	0.12	0.73
RM6W	3.48	1.22	0.69	0.38	1.05	0.18	0.08	0.69
RM7W	7.99	2.94	1.51	0.86	0.49	0.49	0.24	0.49
RM9W	2.65	1.49	1.33	0.99	0.29	0.29	0.11	0.99
Sitewide	1.11	0.77	0.66	0.58	0.53	0.46	0.34	0.60

**Table J2.3-7**

**Post-Construction COC Concentrations - SDU Scale**

Portland Harbor Superfund Site

Portland, Oregon

SDU	Alternative							
	A	B	D	E	F Mod	F	G	I
PCBs (µg/kg)								
Outside SDU	30.5	30.4	30.1	29.7	28.6	23.7	18.7	30.1
RM2E	217.4	64.9	46.1	32.5	19.1	19.1	14.7	32.5
RM3.5E	151.0	78.4	58.5	37.3	20.6	20.6	13.7	37.3
RM4.5E	80.4	80.2	59.1	41.9	19.0	19.0	8.6	41.9
RM5.5E	62.1	61.8	61.8	53.2	22.6	22.6	10.2	22.6
RM6.5E	76.6	27.6	24.4	23.1	12.9	12.9	9.6	26.2
SwanIs	520.8	13.0	7.3	3.6	1.6	1.6	1.1	3.6
RM11E	445.3	153.3	89.1	42.8	21.8	14.4	5.7	42.8
RM3.9W	22.9	22.9	22.9	22.7	19.7	19.7	14.5	22.7
RM5W	26.8	26.5	24.9	24.0	16.7	16.7	9.8	24.0
RM6Nav	30.3	26.9	21.0	16.6	24.2	6.0	2.7	24.2
RM6W	40.5	18.3	15.8	13.3	11.5	7.9	3.5	15.8
RM7W	142.5	67.7	45.9	31.0	17.8	17.8	5.8	17.8
RM9W	302.7	127.4	89.0	46.3	13.9	13.9	7.8	46.3
Sitewide	86.6	38.2	32.9	28.2	23.9	19.5	14.4	28.3
1,2,3,4,7,8-HxCDF (µg/kg)								
Outside SDU	8.47E-04	8.16E-04	7.88E-04	7.83E-04	7.55E-04	7.14E-04	6.14E-04	8.40E-04
RM2E	4.73E-04	3.92E-04	3.71E-04	3.41E-04	2.45E-04	2.45E-04	2.01E-04	3.41E-04
RM3.5E	1.02E-03	7.95E-04	5.66E-04	4.67E-04	3.80E-04	3.80E-04	3.08E-04	4.67E-04
RM4.5E	5.71E-03	5.61E-03	4.30E-03	3.25E-03	1.18E-03	1.18E-03	5.53E-04	3.25E-03
RM5.5E	6.95E-03	6.95E-03	6.95E-03	6.86E-03	4.92E-03	4.92E-03	2.88E-03	4.92E-03
RM6.5E	5.44E-03	2.02E-03	1.02E-03	9.99E-04	8.65E-04	8.65E-04	7.25E-04	1.80E-03
SwanIs	2.96E-03	2.45E-04	1.30E-04	9.64E-05	6.52E-05	6.52E-05	5.15E-05	9.64E-05
RM11E	1.32E-03	1.04E-03	8.80E-04	6.64E-04	4.95E-04	4.05E-04	2.66E-04	6.64E-04
RM3.9W	8.96E-04	8.96E-04	8.96E-04	8.92E-04	8.22E-04	8.22E-04	5.62E-04	8.92E-04
RM5W	2.96E-03	2.93E-03	2.74E-03	2.60E-03	2.09E-03	2.09E-03	1.43E-03	2.60E-03
RM6Nav	2.24E-03	1.92E-03	1.64E-03	1.42E-03	1.89E-03	9.16E-04	5.67E-04	1.89E-03
RM6W	4.39E-03	1.87E-03	1.53E-03	1.26E-03	1.47E-03	8.49E-04	4.44E-04	1.53E-03
RM7W	1.28E+00	5.53E-02	4.21E-02	1.36E-02	6.28E-03	6.28E-03	7.81E-04	6.28E-03
RM9W	1.72E-03	1.30E-03	9.49E-04	5.76E-04	2.96E-04	2.96E-04	2.09E-04	5.76E-04
Sitewide	4.15E-02	2.83E-03	2.28E-03	1.33E-03	1.02E-03	9.18E-04	5.87E-04	1.18E-03



**Table J2.3-7**

**Post-Construction COC Concentrations - SDU Scale**

Portland Harbor Superfund Site

Portland, Oregon

SDU	Alternative							
	A	B	D	E	F Mod	F	G	I
<b>1,2,3,7,8-PeCDD (µg/kg)</b>								
Outside SDU	1.22E-04	1.10E-04	1.04E-04	1.04E-04	1.01E-04	9.46E-05	8.20E-05	1.22E-04
RM2E	6.73E-05	5.52E-05	5.22E-05	4.79E-05	3.31E-05	3.31E-05	2.71E-05	4.79E-05
RM3.5E	2.50E-04	1.98E-04	1.41E-04	1.25E-04	1.12E-04	1.12E-04	9.87E-05	1.25E-04
RM4.5E	1.47E-04	1.46E-04	1.24E-04	1.06E-04	4.64E-05	4.64E-05	2.27E-05	1.06E-04
RM5.5E	2.44E-04	2.44E-04	2.44E-04	2.37E-04	1.84E-04	1.84E-04	1.11E-04	1.84E-04
RM6.5E	5.60E-04	2.89E-04	1.76E-04	1.72E-04	1.46E-04	1.46E-04	1.23E-04	2.76E-04
SwanIs	2.11E-04	1.86E-05	1.09E-05	8.05E-06	4.68E-06	4.68E-06	3.64E-06	8.05E-06
RM11E	4.65E-04	3.72E-04	3.16E-04	2.48E-04	1.78E-04	1.52E-04	9.46E-05	2.48E-04
RM3.9W	1.14E-04	1.14E-04	1.14E-04	1.14E-04	1.04E-04	1.04E-04	7.41E-05	1.14E-04
RM5W	1.61E-04	1.59E-04	1.47E-04	1.39E-04	1.09E-04	1.09E-04	7.15E-05	1.39E-04
RM6Nav	2.21E-04	1.99E-04	1.64E-04	1.45E-04	1.91E-04	9.10E-05	6.47E-05	1.91E-04
RM6W	1.10E-04	6.81E-05	6.07E-05	5.35E-05	4.92E-05	3.70E-05	1.91E-05	6.07E-05
RM7W	3.69E-04	1.08E-04	8.19E-05	6.44E-05	4.58E-05	4.58E-05	2.13E-05	4.58E-05
RM9W	3.87E-04	2.99E-04	2.09E-04	1.23E-04	6.34E-05	6.34E-05	4.47E-05	1.23E-04
Sitewide	1.75E-04	1.30E-04	1.13E-04	1.06E-04	9.92E-05	8.79E-05	7.18E-05	1.23E-04
<b>1,2,3,7,8-PeCDF (µg/kg)</b>								
Outside SDU	2.52E-04	2.27E-04	2.13E-04	2.11E-04	2.02E-04	1.92E-04	1.64E-04	2.50E-04
RM2E	2.82E-04	2.05E-04	1.85E-04	1.62E-04	9.47E-05	9.47E-05	7.06E-05	1.62E-04
RM3.5E	3.87E-04	2.90E-04	1.97E-04	1.65E-04	1.35E-04	1.35E-04	1.11E-04	1.65E-04
RM4.5E	1.27E-03	1.25E-03	9.49E-04	7.15E-04	2.48E-04	2.48E-04	1.19E-04	7.15E-04
RM5.5E	1.77E-03	1.77E-03	1.77E-03	1.75E-03	1.25E-03	1.25E-03	7.26E-04	1.25E-03
RM6.5E	1.80E-03	8.33E-04	5.37E-04	5.26E-04	4.62E-04	4.62E-04	3.93E-04	7.75E-04
SwanIs	5.31E-04	5.05E-05	2.31E-05	1.66E-05	1.02E-05	1.02E-05	7.85E-06	1.66E-05
RM11E	3.66E-04	2.89E-04	2.44E-04	1.87E-04	1.38E-04	1.15E-04	7.22E-05	1.87E-04
RM3.9W	2.71E-04	2.71E-04	2.71E-04	2.70E-04	2.51E-04	2.51E-04	1.81E-04	2.70E-04
RM5W	8.49E-04	8.40E-04	7.74E-04	7.26E-04	5.82E-04	5.82E-04	3.90E-04	7.26E-04
RM6Nav	1.17E-03	9.10E-04	7.43E-04	6.28E-04	8.99E-04	3.78E-04	2.26E-04	8.99E-04
RM6W	1.41E-03	5.07E-04	3.87E-04	2.94E-04	4.09E-04	1.74E-04	8.52E-05	3.87E-04
RM7W	1.86E-01	8.88E-03	6.71E-03	2.42E-03	1.14E-03	1.14E-03	1.66E-04	1.14E-03
RM9W	8.45E-04	6.40E-04	4.96E-04	3.25E-04	1.56E-04	1.56E-04	1.07E-04	3.25E-04
Sitewide	6.27E-03	6.26E-04	5.09E-04	3.50E-04	2.95E-04	2.50E-04	1.70E-04	3.58E-04

**Table J2.3-7**

**Post-Construction COC Concentrations - SDU Scale**

Portland Harbor Superfund Site

Portland, Oregon

SDU	Alternative							
	A	B	D	E	F Mod	F	G	I
<b>2,3,7,8-TCDD (µg/kg)</b>								
Outside SDU	4.61E-05	4.38E-05	4.28E-05	4.25E-05	4.19E-05	3.86E-05	3.26E-05	4.57E-05
RM2E	3.06E-05	2.62E-05	2.51E-05	2.33E-05	1.73E-05	1.73E-05	1.49E-05	2.33E-05
RM3.5E	5.88E-05	4.63E-05	3.29E-05	2.69E-05	2.31E-05	2.31E-05	1.93E-05	2.69E-05
RM4.5E	2.62E-05	2.61E-05	2.27E-05	1.97E-05	1.06E-05	1.06E-05	5.77E-06	1.97E-05
RM5.5E	4.00E-05	4.00E-05	4.00E-05	3.93E-05	3.31E-05	3.31E-05	2.33E-05	3.31E-05
RM6.5E	7.63E-05	3.39E-05	1.50E-05	1.47E-05	1.31E-05	1.31E-05	1.06E-05	3.22E-05
SwanIs	7.07E-05	5.40E-06	3.81E-06	2.81E-06	1.59E-06	1.59E-06	1.20E-06	2.81E-06
RM11E	1.71E-04	1.35E-04	1.14E-04	8.92E-05	7.20E-05	5.61E-05	3.83E-05	8.92E-05
RM3.9W	8.14E-05	8.14E-05	8.14E-05	8.11E-05	7.54E-05	7.54E-05	4.76E-05	8.11E-05
RM5W	1.22E-04	1.21E-04	1.17E-04	1.15E-04	9.04E-05	9.04E-05	5.81E-05	1.15E-04
RM6Nav	6.52E-05	6.02E-05	5.05E-05	4.53E-05	5.75E-05	2.59E-05	1.81E-05	5.75E-05
RM6W	4.95E-05	2.84E-05	2.60E-05	2.37E-05	1.99E-05	1.68E-05	8.93E-06	2.60E-05
RM7W	8.47E-04	7.61E-05	5.92E-05	4.52E-05	3.03E-05	3.03E-05	1.16E-05	3.03E-05
RM9W	5.00E-04	3.23E-04	2.63E-04	1.19E-04	6.42E-05	6.42E-05	4.77E-05	1.19E-04
Sitewide	9.16E-05	5.38E-05	4.85E-05	4.24E-05	3.92E-05	3.48E-05	2.76E-05	4.54E-05
<b>2,3,7,8-TCDF (µg/kg)</b>								
Outside SDU	3.65E-04	3.60E-04	3.56E-04	3.54E-04	3.47E-04	3.25E-04	2.77E-04	3.63E-04
RM2E	3.96E-04	3.06E-04	2.76E-04	2.44E-04	1.61E-04	1.61E-04	1.19E-04	2.44E-04
RM3.5E	5.58E-04	3.98E-04	2.59E-04	2.16E-04	1.76E-04	1.76E-04	1.46E-04	2.16E-04
RM4.5E	2.37E-04	2.36E-04	2.05E-04	1.78E-04	1.17E-04	1.17E-04	8.21E-05	1.78E-04
RM5.5E	1.60E-03	1.60E-03	1.60E-03	1.58E-03	1.12E-03	1.12E-03	6.32E-04	1.12E-03
RM6.5E	7.94E-04	4.51E-04	3.20E-04	3.13E-04	2.67E-04	2.67E-04	2.26E-04	4.27E-04
SwanIs	3.26E-04	2.56E-05	1.40E-05	9.75E-06	4.66E-06	4.66E-06	3.57E-06	9.75E-06
RM11E	2.58E-04	1.96E-04	1.57E-04	1.15E-04	7.87E-05	6.95E-05	4.20E-05	1.15E-04
RM3.9W	5.96E-04	5.96E-04	5.96E-04	5.93E-04	5.55E-04	5.55E-04	3.94E-04	5.93E-04
RM5W	1.18E-03	1.17E-03	1.08E-03	1.02E-03	8.15E-04	8.15E-04	5.38E-04	1.02E-03
RM6Nav	2.33E-03	1.73E-03	1.38E-03	1.15E-03	1.72E-03	6.50E-04	3.56E-04	1.72E-03
RM6W	2.07E-03	8.01E-04	6.30E-04	4.91E-04	6.00E-04	2.92E-04	1.44E-04	6.30E-04
RM7W	2.81E-01	1.39E-02	1.05E-02	3.83E-03	1.75E-03	1.75E-03	2.78E-04	1.75E-03
RM9W	8.10E-04	6.20E-04	5.00E-04	3.24E-04	1.45E-04	1.45E-04	9.37E-05	3.24E-04
Sitewide	9.33E-03	9.01E-04	7.49E-04	5.13E-04	4.61E-04	3.70E-04	2.53E-04	4.93E-04

**Table J2.3-8a**

**RAO 2 Post-Construction Risk Estimates - SDU Scale**

Portland Harbor Superfund Site

Portland, Oregon

SDU	Alternative							
	A	B	D	E	F Mod	F	G	I
Aldrin								
Outside SDU	9E-08	9E-08	9E-08	9E-08	9E-08	8E-08	7E-08	9E-08
RM2E	1E-07	9E-08	8E-08	8E-08	7E-08	7E-08	6E-08	8E-08
RM3.5E	8E-08	7E-08	7E-08	6E-08	5E-08	5E-08	4E-08	6E-08
RM4.5E	1E-06	1E-06	8E-07	6E-07	4E-07	4E-07	2E-07	6E-07
RM5.5E	9E-08	9E-08	9E-08	9E-08	6E-08	6E-08	4E-08	6E-08
RM6.5E	6E-08	6E-08	6E-08	5E-08	5E-08	5E-08	4E-08	6E-08
SwanIs	9E-08	8E-09	7E-09	6E-09	5E-09	5E-09	5E-09	6E-09
RM11E	5E-08	4E-08	4E-08	3E-08	2E-08	2E-08	1E-08	3E-08
RM3.9W	1E-07	1E-07	1E-07	1E-07	9E-08	9E-08	5E-08	1E-07
RM5W	6E-08	6E-08	6E-08	6E-08	5E-08	5E-08	2E-08	6E-08
RM6Nav	2E-07	1E-07	1E-07	9E-08	1E-07	5E-08	3E-08	1E-07
RM6W	4E-07	1E-07	9E-08	6E-08	1E-07	4E-08	2E-08	9E-08
RM7W	1E-06	4E-07	2E-07	2E-07	1E-07	1E-07	5E-08	1E-07
RM9W	3E-07	2E-07	2E-07	1E-07	4E-08	4E-08	2E-08	1E-07
Sitewide	2E-07	1E-07	1E-07	9E-08	9E-08	8E-08	6E-08	1E-07
Chlordanes								
Outside SDU	1E-07	1E-07	1E-07	1E-07	1E-07	1E-07	1E-07	1E-07
RM2E	1E-07	1E-07	1E-07	1E-07	9E-08	9E-08	8E-08	1E-07
RM3.5E	1E-07	8E-08	7E-08	6E-08	4E-08	4E-08	3E-08	6E-08
RM4.5E	7E-07	7E-07	6E-07	5E-07	3E-07	3E-07	1E-07	5E-07
RM5.5E	2E-07	2E-07	2E-07	2E-07	1E-07	1E-07	6E-08	1E-07
RM6.5E	9E-08	8E-08	7E-08	7E-08	5E-08	5E-08	4E-08	8E-08
SwanIs	3E-07	2E-08	2E-08	1E-08	1E-08	1E-08	9E-09	1E-08
RM11E	2E-06	9E-07	5E-07	3E-07	2E-07	2E-07	8E-08	3E-07
RM3.9W	2E-07	2E-07	2E-07	2E-07	1E-07	1E-07	8E-08	2E-07
RM5W	1E-07	1E-07	1E-07	1E-07	7E-08	7E-08	4E-08	1E-07
RM6Nav	2E-07	2E-07	1E-07	8E-08	1E-07	4E-08	2E-08	1E-07
RM6W	8E-07	3E-07	2E-07	1E-07	2E-07	7E-08	4E-08	2E-07
RM7W	1E-06	5E-07	3E-07	2E-07	1E-07	1E-07	4E-08	1E-07
RM9W	8E-07	5E-07	4E-07	3E-07	9E-08	9E-08	4E-08	3E-07
Sitewide	2E-07	2E-07	2E-07	1E-07	1E-07	1E-07	8E-08	1E-07

**Table J2.3-8a**

**RAO 2 Post-Construction Risk Estimates - SDU Scale**

Portland Harbor Superfund Site

Portland, Oregon

SDU	Alternative							
	A	B	D	E	F Mod	F	G	I
cPAHs								
Outside SDU	4E-08	4E-08	4E-08	4E-08	4E-08	4E-08	3E-08	4E-08
RM2E	4E-08	4E-08	2E-08	2E-08	1E-08	1E-08	9E-09	2E-08
RM3.5E	4E-08	3E-08	3E-08	2E-08	2E-08	2E-08	2E-08	2E-08
RM4.5E	8E-07	8E-07	4E-07	2E-07	7E-08	7E-08	2E-08	2E-07
RM5.5E	2E-07	2E-07	2E-07	2E-07	1E-07	1E-07	4E-08	1E-07
RM6.5E	8E-08	7E-08	7E-08	6E-08	5E-08	5E-08	3E-08	7E-08
SwanIs	7E-08	5E-09	3E-09	2E-09	1E-09	1E-09	6E-10	2E-09
RM11E	1E-08	1E-08	9E-09	7E-09	4E-09	4E-09	2E-09	7E-09
RM3.9W	1E-07	1E-07	1E-07	1E-07	1E-07	1E-07	5E-08	1E-07
RM5W	4E-07	4E-07	2E-07	2E-07	8E-08	8E-08	3E-08	2E-07
RM6Nav	4E-06	7E-07	3E-07	1E-07	7E-07	4E-08	1E-08	7E-07
RM6W	4E-06	4E-07	2E-07	1E-07	2E-07	6E-08	2E-08	2E-07
RM7W	9E-08	6E-08	5E-08	4E-08	1E-08	1E-08	4E-09	1E-08
RM9W	4E-08	3E-08	3E-08	2E-08	5E-09	5E-09	3E-09	2E-08
Sitewide	4E-07	1E-07	7E-08	6E-08	8E-08	4E-08	2E-08	9E-08
DDx								
Outside SDU	3E-07	3E-07	3E-07	3E-07	3E-07	3E-07	3E-07	3E-07
RM2E	4E-07	3E-07	3E-07	3E-07	2E-07	2E-07	2E-07	3E-07
RM3.5E	4E-07	3E-07	3E-07	3E-07	2E-07	2E-07	1E-07	3E-07
RM4.5E	7E-07	7E-07	6E-07	5E-07	3E-07	3E-07	1E-07	5E-07
RM5.5E	6E-07	6E-07	6E-07	6E-07	3E-07	3E-07	1E-07	3E-07
RM6.5E	4E-07	4E-07	3E-07	3E-07	3E-07	3E-07	2E-07	4E-07
SwanIs	7E-07	5E-08	3E-08	2E-08	8E-09	8E-09	6E-09	2E-08
RM11E	1E-06	7E-07	5E-07	4E-07	2E-07	2E-07	9E-08	4E-07
RM3.9W	9E-07	9E-07	9E-07	9E-07	8E-07	8E-07	4E-07	9E-07
RM5W	7E-07	7E-07	7E-07	7E-07	5E-07	5E-07	2E-07	7E-07
RM6Nav	6E-07	4E-07	3E-07	2E-07	4E-07	1E-07	6E-08	4E-07
RM6W	4E-06	1E-06	8E-07	7E-07	5E-07	3E-07	1E-07	8E-07
RM7W	3E-05	4E-06	2E-06	1E-06	5E-07	5E-07	1E-07	5E-07
RM9W	2E-06	1E-06	1E-06	6E-07	2E-07	2E-07	1E-07	6E-07
Sitewide	2E-06	5E-07	4E-07	4E-07	3E-07	3E-07	2E-07	4E-07

**Table J2.3-8a**

**RAO 2 Post-Construction Risk Estimates - SDU Scale**

Portland Harbor Superfund Site

Portland, Oregon

SDU	Alternative							
	A	B	D	E	F Mod	F	G	I
<b>Dieldrin</b>								
Outside SDU	1E-06	1E-06	1E-06	1E-06	1E-06	1E-06	1E-06	1E-06
RM2E	2E-06	1E-06	1E-06	1E-06	9E-07	9E-07	9E-07	1E-06
RM3.5E	8E-07	7E-07	7E-07	6E-07	5E-07	5E-07	3E-07	6E-07
RM4.5E	2E-05	1E-05	1E-05	9E-06	5E-06	5E-06	2E-06	9E-06
RM5.5E	2E-06	2E-06	2E-06	2E-06	9E-07	9E-07	5E-07	9E-07
RM6.5E	6E-07	5E-07	4E-07	4E-07	3E-07	3E-07	3E-07	5E-07
SwanIs	3E-06	5E-07	4E-07	4E-07	3E-07	3E-07	3E-07	4E-07
RM11E	6E-06	2E-06	1E-06	9E-07	7E-07	5E-07	3E-07	9E-07
RM3.9W	2E-06	2E-06	2E-06	1E-06	1E-06	1E-06	5E-07	1E-06
RM5W	1E-06	1E-06	1E-06	1E-06	8E-07	8E-07	5E-07	1E-06
RM6Nav	3E-06	2E-06	1E-06	9E-07	2E-06	5E-07	3E-07	2E-06
RM6W	9E-06	3E-06	2E-06	9E-07	3E-06	4E-07	2E-07	2E-06
RM7W	2E-05	7E-06	4E-06	2E-06	1E-06	1E-06	6E-07	1E-06
RM9W	7E-06	4E-06	3E-06	2E-06	7E-07	7E-07	3E-07	2E-06
Sitewide	3E-06	2E-06	2E-06	1E-06	1E-06	1E-06	8E-07	2E-06
<b>PCBs</b>								
Outside SDU	1E-04	1E-04	1E-04	1E-04	9E-05	8E-05	6E-05	1E-04
RM2E	7E-04	2E-04	1E-04	1E-04	6E-05	6E-05	5E-05	1E-04
RM3.5E	5E-04	3E-04	2E-04	1E-04	7E-05	7E-05	4E-05	1E-04
RM4.5E	3E-04	3E-04	2E-04	1E-04	6E-05	6E-05	3E-05	1E-04
RM5.5E	2E-04	2E-04	2E-04	2E-04	7E-05	7E-05	3E-05	7E-05
RM6.5E	2E-04	9E-05	8E-05	7E-05	4E-05	4E-05	3E-05	8E-05
SwanIs	2E-03	4E-05	2E-05	1E-05	5E-06	5E-06	4E-06	1E-05
RM11E	1E-03	5E-04	3E-04	1E-04	7E-05	5E-05	2E-05	1E-04
RM3.9W	7E-05	7E-05	7E-05	7E-05	6E-05	6E-05	5E-05	7E-05
RM5W	9E-05	9E-05	8E-05	8E-05	5E-05	5E-05	3E-05	8E-05
RM6Nav	1E-04	9E-05	7E-05	5E-05	8E-05	2E-05	9E-06	8E-05
RM6W	1E-04	6E-05	5E-05	4E-05	4E-05	3E-05	1E-05	5E-05
RM7W	5E-04	2E-04	1E-04	1E-04	6E-05	6E-05	2E-05	6E-05
RM9W	1E-03	4E-04	3E-04	1E-04	4E-05	4E-05	3E-05	1E-04
Sitewide	3E-04	1E-04	1E-04	9E-05	8E-05	6E-05	5E-05	9E-05

**Table J2.3-8a**

**RAO 2 Post-Construction Risk Estimates - SDU Scale**

Portland Harbor Superfund Site

Portland, Oregon

SDU	Alternative							
	A	B	D	E	F Mod	F	G	I
<b>1,2,3,4,7,8-HxCDF</b>								
Outside SDU	1E-05	1E-05	1E-05	1E-05	1E-05	1E-05	9E-06	1E-05
RM2E	7E-06	6E-06	5E-06	5E-06	3E-06	3E-06	3E-06	5E-06
RM3.5E	1E-05	1E-05	8E-06	7E-06	5E-06	5E-06	4E-06	7E-06
RM4.5E	8E-05	8E-05	6E-05	5E-05	2E-05	2E-05	8E-06	5E-05
RM5.5E	1E-04	1E-04	1E-04	1E-04	7E-05	7E-05	4E-05	7E-05
RM6.5E	8E-05	3E-05	1E-05	1E-05	1E-05	1E-05	1E-05	3E-05
SwanIs	4E-05	3E-06	2E-06	1E-06	9E-07	9E-07	7E-07	1E-06
RM11E	2E-05	1E-05	1E-05	9E-06	7E-06	6E-06	4E-06	9E-06
RM3.9W	1E-05	1E-05	1E-05	1E-05	1E-05	1E-05	8E-06	1E-05
RM5W	4E-05	4E-05	4E-05	4E-05	3E-05	3E-05	2E-05	4E-05
RM6Nav	3E-05	3E-05	2E-05	2E-05	3E-05	1E-05	8E-06	3E-05
RM6W	6E-05	3E-05	2E-05	2E-05	2E-05	1E-05	6E-06	2E-05
RM7W	2E-02	8E-04	6E-04	2E-04	9E-05	9E-05	1E-05	9E-05
RM9W	2E-05	2E-05	1E-05	8E-06	4E-06	4E-06	3E-06	8E-06
Sitewide	6E-04	4E-05	3E-05	2E-05	1E-05	1E-05	8E-06	2E-05
<b>1,2,3,7,8-PeCDD</b>								
Outside SDU	1E-05	1E-05	1E-05	1E-05	1E-05	9E-06	8E-06	1E-05
RM2E	7E-06	6E-06	5E-06	5E-06	3E-06	3E-06	3E-06	5E-06
RM3.5E	2E-05	2E-05	1E-05	1E-05	1E-05	1E-05	1E-05	1E-05
RM4.5E	1E-05	1E-05	1E-05	1E-05	5E-06	5E-06	2E-06	1E-05
RM5.5E	2E-05	2E-05	2E-05	2E-05	2E-05	2E-05	1E-05	2E-05
RM6.5E	6E-05	3E-05	2E-05	2E-05	1E-05	1E-05	1E-05	3E-05
SwanIs	2E-05	2E-06	1E-06	8E-07	5E-07	5E-07	4E-07	8E-07
RM11E	5E-05	4E-05	3E-05	2E-05	2E-05	2E-05	9E-06	2E-05
RM3.9W	1E-05	1E-05	1E-05	1E-05	1E-05	1E-05	7E-06	1E-05
RM5W	2E-05	2E-05	1E-05	1E-05	1E-05	1E-05	7E-06	1E-05
RM6Nav	2E-05	2E-05	2E-05	1E-05	2E-05	9E-06	6E-06	2E-05
RM6W	1E-05	7E-06	6E-06	5E-06	5E-06	4E-06	2E-06	6E-06
RM7W	4E-05	1E-05	8E-06	6E-06	5E-06	5E-06	2E-06	5E-06
RM9W	4E-05	3E-05	2E-05	1E-05	6E-06	6E-06	4E-06	1E-05
Sitewide	2E-05	1E-05	1E-05	1E-05	1E-05	9E-06	7E-06	1E-05

**Table J2.3-8a**

**RAO 2 Post-Construction Risk Estimates - SDU Scale**

Portland Harbor Superfund Site

Portland, Oregon

SDU	Alternative							
	A	B	D	E	F Mod	F	G	I
<b>1,2,3,7,8-PeCDF</b>								
Outside SDU	5E-07	5E-07	4E-07	4E-07	4E-07	4E-07	3E-07	5E-07
RM2E	6E-07	4E-07	4E-07	3E-07	2E-07	2E-07	1E-07	3E-07
RM3.5E	8E-07	6E-07	4E-07	3E-07	3E-07	3E-07	2E-07	3E-07
RM4.5E	3E-06	2E-06	2E-06	1E-06	5E-07	5E-07	2E-07	1E-06
RM5.5E	4E-06	4E-06	4E-06	3E-06	3E-06	3E-06	1E-06	3E-06
RM6.5E	4E-06	2E-06	1E-06	1E-06	9E-07	9E-07	8E-07	2E-06
SwanIs	1E-06	1E-07	5E-08	3E-08	2E-08	2E-08	2E-08	3E-08
RM11E	7E-07	6E-07	5E-07	4E-07	3E-07	2E-07	1E-07	4E-07
RM3.9W	5E-07	5E-07	5E-07	5E-07	5E-07	5E-07	4E-07	5E-07
RM5W	2E-06	2E-06	2E-06	1E-06	1E-06	1E-06	8E-07	1E-06
RM6Nav	2E-06	2E-06	1E-06	1E-06	2E-06	8E-07	5E-07	2E-06
RM6W	3E-06	1E-06	8E-07	6E-07	8E-07	3E-07	2E-07	8E-07
RM7W	4E-04	2E-05	1E-05	5E-06	2E-06	2E-06	3E-07	2E-06
RM9W	2E-06	1E-06	1E-06	7E-07	3E-07	3E-07	2E-07	7E-07
Sitewide	1E-05	1E-06	1E-06	7E-07	6E-07	5E-07	3E-07	7E-07
<b>2,3,7,8-TCDD</b>								
Outside SDU	4E-06	3E-06	3E-06	3E-06	3E-06	3E-06	3E-06	4E-06
RM2E	2E-06	2E-06	2E-06	2E-06	1E-06	1E-06	1E-06	2E-06
RM3.5E	5E-06	4E-06	3E-06	2E-06	2E-06	2E-06	1E-06	2E-06
RM4.5E	2E-06	2E-06	2E-06	2E-06	8E-07	8E-07	4E-07	2E-06
RM5.5E	3E-06	3E-06	3E-06	3E-06	3E-06	3E-06	2E-06	3E-06
RM6.5E	6E-06	3E-06	1E-06	1E-06	1E-06	1E-06	8E-07	2E-06
SwanIs	5E-06	4E-07	3E-07	2E-07	1E-07	1E-07	9E-08	2E-07
RM11E	1E-05	1E-05	9E-06	7E-06	6E-06	4E-06	3E-06	7E-06
RM3.9W	6E-06	6E-06	6E-06	6E-06	6E-06	6E-06	4E-06	6E-06
RM5W	9E-06	9E-06	9E-06	9E-06	7E-06	7E-06	4E-06	9E-06
RM6Nav	5E-06	5E-06	4E-06	3E-06	4E-06	2E-06	1E-06	4E-06
RM6W	4E-06	2E-06	2E-06	2E-06	2E-06	1E-06	7E-07	2E-06
RM7W	7E-05	6E-06	5E-06	3E-06	2E-06	2E-06	9E-07	2E-06
RM9W	4E-05	2E-05	2E-05	9E-06	5E-06	5E-06	4E-06	9E-06
Sitewide	7E-06	4E-06	4E-06	3E-06	3E-06	3E-06	2E-06	3E-06

**Table J2.3-8a**

**RAO 2 Post-Construction Risk Estimates - SDU Scale**

Portland Harbor Superfund Site

Portland, Oregon

SDU	Alternative							
	A	B	D	E	F Mod	F	G	I
2,3,7,8-TCDF								
Outside SDU	3E-07	3E-07	3E-07	3E-07	2E-07	2E-07	2E-07	3E-07
RM2E	3E-07	2E-07	2E-07	2E-07	1E-07	1E-07	8E-08	2E-07
RM3.5E	4E-07	3E-07	2E-07	2E-07	1E-07	1E-07	1E-07	2E-07
RM4.5E	2E-07	2E-07	1E-07	1E-07	8E-08	8E-08	6E-08	1E-07
RM5.5E	1E-06	1E-06	1E-06	1E-06	8E-07	8E-07	5E-07	8E-07
RM6.5E	6E-07	3E-07	2E-07	2E-07	2E-07	2E-07	2E-07	3E-07
SwanIs	2E-07	2E-08	1E-08	7E-09	3E-09	3E-09	3E-09	7E-09
RM11E	2E-07	1E-07	1E-07	8E-08	6E-08	5E-08	3E-08	8E-08
RM3.9W	4E-07	4E-07	4E-07	4E-07	4E-07	4E-07	3E-07	4E-07
RM5W	8E-07	8E-07	8E-07	7E-07	6E-07	6E-07	4E-07	7E-07
RM6Nav	2E-06	1E-06	1E-06	8E-07	1E-06	5E-07	3E-07	1E-06
RM6W	1E-06	6E-07	4E-07	4E-07	4E-07	2E-07	1E-07	4E-07
RM7W	2E-04	1E-05	7E-06	3E-06	1E-06	1E-06	2E-07	1E-06
RM9W	6E-07	4E-07	4E-07	2E-07	1E-07	1E-07	7E-08	2E-07
Sitewide	7E-06	6E-07	5E-07	4E-07	3E-07	3E-07	2E-07	4E-07



**Table J2.3-8b****RAO 2 Post-Construction Risk Estimates - SDU Scale - Total**

Portland Harbor Superfund Site

Portland, Oregon

SDU	Alternative							
	A	B	D	E	F Mod	F	G	I
Outside SDU	1E-04	1E-04	1E-04	1E-04	1E-04	1E-04	8E-05	1E-04
RM2E	7E-04	2E-04	2E-04	1E-04	7E-05	7E-05	6E-05	1E-04
RM3.5E	5E-04	3E-04	2E-04	1E-04	9E-05	9E-05	6E-05	1E-04
RM4.5E	4E-04	4E-04	3E-04	2E-04	9E-05	9E-05	4E-05	2E-04
RM5.5E	3E-04	3E-04	3E-04	3E-04	2E-04	2E-04	9E-05	2E-04
RM6.5E	4E-04	2E-04	1E-04	1E-04	7E-05	7E-05	6E-05	1E-04
SwanIs	2E-03	5E-05	3E-05	1E-05	7E-06	7E-06	5E-06	1E-05
RM11E	2E-03	6E-04	3E-04	2E-04	1E-04	7E-05	4E-05	2E-04
RM3.9W	1E-04	1E-04	1E-04	1E-04	9E-05	9E-05	7E-05	1E-04
RM5W	2E-04	2E-04	1E-04	1E-04	1E-04	1E-04	7E-05	1E-04
RM6Nav	2E-04	1E-04	1E-04	1E-04	1E-04	5E-05	3E-05	1E-04
RM6W	2E-04	1E-04	9E-05	7E-05	7E-05	4E-05	2E-05	9E-05
RM7W	2E-02	1E-03	8E-04	3E-04	2E-04	2E-04	3E-05	2E-04
RM9W	1E-03	5E-04	3E-04	2E-04	6E-05	6E-05	4E-05	2E-04
Sitewide	9E-04	2E-04	2E-04	1E-04	1E-04	9E-05	7E-05	1E-04

**Table J2.3-9a**  
**RAO 2 Post-Construction HI Estimates - Child - SDU Scale**  
 Portland Harbor Superfund Site  
 Portland, Oregon

SDU	Alternative							
	A	B	D	E	F Mod	F	G	I
Aldrin								
Outside SDU	0.0007	0.0006	0.0006	0.0006	0.0006	0.0006	0.0005	0.0006
RM2E	0.0008	0.0007	0.0006	0.0006	0.0005	0.0005	0.0004	0.0006
RM3.5E	0.0006	0.0005	0.0005	0.0004	0.0004	0.0004	0.0003	0.0004
RM4.5E	0.0076	0.0075	0.0060	0.0046	0.0026	0.0026	0.0011	0.0046
RM5.5E	0.0006	0.0006	0.0006	0.0006	0.0004	0.0004	0.0003	0.0004
RM6.5E	0.0004	0.0004	0.0004	0.0004	0.0003	0.0003	0.0003	0.0004
SwanIs	0.0006	0.0001	0.0001	0.0000	0.0000	0.0000	0.0000	0.0000
RM11E	0.0004	0.0003	0.0003	0.0002	0.0002	0.0001	0.0001	0.0002
RM3.9W	0.0009	0.0009	0.0009	0.0009	0.0006	0.0006	0.0004	0.0009
RM5W	0.0005	0.0004	0.0004	0.0004	0.0003	0.0003	0.0002	0.0004
RM6Nav	0.0015	0.0010	0.0008	0.0006	0.0010	0.0004	0.0002	0.0010
RM6W	0.0026	0.0010	0.0007	0.0004	0.0009	0.0003	0.0002	0.0007
RM7W	0.0074	0.0029	0.0018	0.0012	0.0008	0.0008	0.0004	0.0008
RM9W	0.0025	0.0016	0.0014	0.0009	0.0003	0.0003	0.0001	0.0009
Sitewide	0.0011	0.0009	0.0008	0.0007	0.0006	0.0005	0.0004	0.0007
Chlordanes								
Outside SDU	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002
RM2E	0.003	0.002	0.002	0.002	0.001	0.001	0.001	0.002
RM3.5E	0.002	0.001	0.001	0.001	0.001	0.001	0.001	0.001
RM4.5E	0.012	0.012	0.010	0.008	0.004	0.004	0.002	0.008
RM5.5E	0.004	0.004	0.004	0.004	0.002	0.002	0.001	0.002
RM6.5E	0.002	0.001	0.001	0.001	0.001	0.001	0.001	0.001
SwanIs	0.004	0.000	0.000	0.000	0.000	0.000	0.000	0.000
RM11E	0.038	0.016	0.009	0.005	0.003	0.003	0.001	0.005
RM3.9W	0.003	0.003	0.003	0.003	0.002	0.002	0.001	0.003
RM5W	0.002	0.002	0.002	0.002	0.001	0.001	0.001	0.002
RM6Nav	0.003	0.003	0.002	0.001	0.003	0.001	0.000	0.003
RM6W	0.014	0.005	0.003	0.002	0.004	0.001	0.001	0.003
RM7W	0.019	0.008	0.006	0.004	0.002	0.002	0.001	0.002
RM9W	0.013	0.008	0.008	0.005	0.002	0.002	0.001	0.005
Sitewide	0.004	0.003	0.003	0.002	0.002	0.002	0.001	0.002

**Table J2.3-9a**

**RAO 2 Post-Construction HI Estimates - Child - SDU Scale**

Portland Harbor Superfund Site

Portland, Oregon

SDU	Alternative							
	A	B	D	E	F Mod	F	G	I
DDx								
Outside SDU	0.008	0.008	0.008	0.008	0.008	0.007	0.006	0.008
RM2E	0.008	0.007	0.007	0.006	0.005	0.005	0.005	0.006
RM3.5E	0.010	0.008	0.007	0.006	0.004	0.004	0.003	0.006
RM4.5E	0.016	0.016	0.013	0.011	0.006	0.006	0.003	0.011
RM5.5E	0.014	0.014	0.014	0.014	0.007	0.007	0.003	0.007
RM6.5E	0.010	0.008	0.007	0.007	0.006	0.006	0.005	0.008
SwanIs	0.016	0.001	0.001	0.000	0.000	0.000	0.000	0.000
RM11E	0.029	0.015	0.011	0.008	0.005	0.004	0.002	0.008
RM3.9W	0.020	0.020	0.020	0.020	0.018	0.018	0.009	0.020
RM5W	0.016	0.016	0.016	0.015	0.012	0.012	0.006	0.015
RM6Nav	0.014	0.009	0.007	0.005	0.008	0.003	0.001	0.008
RM6W	0.089	0.024	0.019	0.015	0.012	0.008	0.003	0.019
RM7W	0.713	0.087	0.053	0.027	0.012	0.012	0.003	0.012
RM9W	0.041	0.024	0.022	0.014	0.005	0.005	0.002	0.014
Sitewide	0.034	0.011	0.010	0.008	0.007	0.007	0.005	0.008
Dieldrin								
Outside SDU	0.005	0.005	0.005	0.005	0.005	0.004	0.004	0.005
RM2E	0.006	0.005	0.004	0.004	0.003	0.003	0.003	0.004
RM3.5E	0.003	0.002	0.002	0.002	0.002	0.002	0.001	0.002
RM4.5E	0.051	0.050	0.041	0.031	0.019	0.019	0.008	0.031
RM5.5E	0.006	0.006	0.006	0.005	0.003	0.003	0.002	0.003
RM6.5E	0.002	0.002	0.001	0.001	0.001	0.001	0.001	0.002
SwanIs	0.011	0.002	0.001	0.001	0.001	0.001	0.001	0.001
RM11E	0.022	0.006	0.005	0.003	0.002	0.002	0.001	0.003
RM3.9W	0.005	0.005	0.005	0.005	0.003	0.003	0.002	0.005
RM5W	0.003	0.003	0.003	0.003	0.003	0.003	0.002	0.003
RM6Nav	0.009	0.006	0.004	0.003	0.006	0.002	0.001	0.006
RM6W	0.030	0.010	0.006	0.003	0.009	0.002	0.001	0.006
RM7W	0.068	0.025	0.013	0.007	0.004	0.004	0.002	0.004
RM9W	0.022	0.013	0.011	0.008	0.002	0.002	0.001	0.008
Sitewide	0.009	0.006	0.006	0.005	0.005	0.004	0.003	0.005

**Table J2.3-9a**  
**RAO 2 Post-Construction HI Estimates - Child - SDU Scale**  
 Portland Harbor Superfund Site  
 Portland, Oregon

SDU	Alternative							
	A	B	D	E	F Mod	F	G	I
PCBs								
Outside SDU	5	5	5	5	5	4	3	5
RM2E	37	11	8	6	3	3	3	6
RM3.5E	26	14	10	6	4	4	2	6
RM4.5E	14	14	10	7	3	3	1	7
RM5.5E	11	11	11	9	4	4	2	4
RM6.5E	13	5	4	4	2	2	2	5
SwanIs	90	2	1	1	0	0	0	1
RM11E	77	26	15	7	4	2	1	7
RM3.9W	4	4	4	4	3	3	3	4
RM5W	5	5	4	4	3	3	2	4
RM6Nav	5	5	4	3	4	1	0	4
RM6W	7	3	3	2	2	1	1	3
RM7W	25	12	8	5	3	3	1	3
RM9W	52	22	15	8	2	2	1	8
Sitewide	15	7	6	5	4	3	2	5
1,2,3,4,7,8-HxCDF								
Outside SDU	0.28	0.27	0.26	0.26	0.25	0.24	0.20	0.28
RM2E	0.16	0.13	0.12	0.11	0.08	0.08	0.07	0.11
RM3.5E	0.34	0.27	0.19	0.16	0.13	0.13	0.10	0.16
RM4.5E	1.90	1.87	1.43	1.08	0.39	0.39	0.18	1.08
RM5.5E	2.32	2.32	2.32	2.29	1.64	1.64	0.96	1.64
RM6.5E	1.81	0.67	0.34	0.33	0.29	0.29	0.24	0.60
SwanIs	0.99	0.08	0.04	0.03	0.02	0.02	0.02	0.03
RM11E	0.44	0.35	0.29	0.22	0.16	0.13	0.09	0.22
RM3.9W	0.30	0.30	0.30	0.30	0.27	0.27	0.19	0.30
RM5W	0.99	0.98	0.91	0.87	0.70	0.70	0.48	0.87
RM6Nav	0.75	0.64	0.55	0.47	0.63	0.31	0.19	0.63
RM6W	1.46	0.62	0.51	0.42	0.49	0.28	0.15	0.51
RM7W	427.57	18.42	14.03	4.53	2.09	2.09	0.26	2.09
RM9W	0.57	0.43	0.32	0.19	0.10	0.10	0.07	0.19
Sitewide	13.84	0.94	0.76	0.44	0.34	0.31	0.20	0.39

**Table J2.3-9a**

**RAO 2 Post-Construction HI Estimates - Child - SDU Scale**

Portland Harbor Superfund Site

Portland, Oregon

SDU	Alternative							
	A	B	D	E	F Mod	F	G	I
<b>1,2,3,7,8-PeCDD</b>								
Outside SDU	0.04	0.04	0.03	0.03	0.03	0.03	0.03	0.04
RM2E	0.02	0.02	0.02	0.02	0.01	0.01	0.01	0.02
RM3.5E	0.08	0.07	0.05	0.04	0.04	0.04	0.03	0.04
RM4.5E	0.05	0.05	0.04	0.04	0.02	0.02	0.01	0.04
RM5.5E	0.08	0.08	0.08	0.08	0.06	0.06	0.04	0.06
RM6.5E	0.19	0.10	0.06	0.06	0.05	0.05	0.04	0.09
SwanIs	0.07	0.01	0.00	0.00	0.00	0.00	0.00	0.00
RM11E	0.15	0.12	0.11	0.08	0.06	0.05	0.03	0.08
RM3.9W	0.04	0.04	0.04	0.04	0.03	0.03	0.02	0.04
RM5W	0.05	0.05	0.05	0.05	0.04	0.04	0.02	0.05
RM6Nav	0.07	0.07	0.05	0.05	0.06	0.03	0.02	0.06
RM6W	0.04	0.02	0.02	0.02	0.02	0.01	0.01	0.02
RM7W	0.12	0.04	0.03	0.02	0.02	0.02	0.01	0.02
RM9W	0.13	0.10	0.07	0.04	0.02	0.02	0.01	0.04
Sitewide	0.06	0.04	0.04	0.04	0.03	0.03	0.02	0.04
<b>1,2,3,7,8-PeCDF</b>								
Outside SDU	0.03	0.02	0.02	0.02	0.02	0.02	0.02	0.03
RM2E	0.03	0.02	0.02	0.02	0.01	0.01	0.01	0.02
RM3.5E	0.04	0.03	0.02	0.02	0.01	0.01	0.01	0.02
RM4.5E	0.13	0.12	0.09	0.07	0.02	0.02	0.01	0.07
RM5.5E	0.18	0.18	0.18	0.17	0.13	0.13	0.07	0.13
RM6.5E	0.18	0.08	0.05	0.05	0.05	0.05	0.04	0.08
SwanIs	0.05	0.01	0.00	0.00	0.00	0.00	0.00	0.00
RM11E	0.04	0.03	0.02	0.02	0.01	0.01	0.01	0.02
RM3.9W	0.03	0.03	0.03	0.03	0.03	0.03	0.02	0.03
RM5W	0.08	0.08	0.08	0.07	0.06	0.06	0.04	0.07
RM6Nav	0.12	0.09	0.07	0.06	0.09	0.04	0.02	0.09
RM6W	0.14	0.05	0.04	0.03	0.04	0.02	0.01	0.04
RM7W	18.59	0.89	0.67	0.24	0.11	0.11	0.02	0.11
RM9W	0.08	0.06	0.05	0.03	0.02	0.02	0.01	0.03
Sitewide	0.63	0.06	0.05	0.04	0.03	0.02	0.02	0.04

**Table J2.3-9a**

**RAO 2 Post-Construction HI Estimates - Child - SDU Scale**

Portland Harbor Superfund Site

Portland, Oregon

SDU	Alternative							
	A	B	D	E	F Mod	F	G	I
<b>2,3,7,8-TCDD</b>								
Outside SDU	0.006	0.005	0.005	0.005	0.005	0.005	0.004	0.006
RM2E	0.004	0.003	0.003	0.003	0.002	0.002	0.002	0.003
RM3.5E	0.007	0.006	0.004	0.003	0.003	0.003	0.002	0.003
RM4.5E	0.003	0.003	0.003	0.002	0.001	0.001	0.001	0.002
RM5.5E	0.005	0.005	0.005	0.005	0.004	0.004	0.003	0.004
RM6.5E	0.010	0.004	0.002	0.002	0.002	0.002	0.001	0.004
SwanIs	0.009	0.001	0.000	0.000	0.000	0.000	0.000	0.000
RM11E	0.021	0.017	0.014	0.011	0.009	0.007	0.005	0.011
RM3.9W	0.010	0.010	0.010	0.010	0.009	0.009	0.006	0.010
RM5W	0.015	0.015	0.015	0.014	0.011	0.011	0.007	0.014
RM6Nav	0.008	0.008	0.006	0.006	0.007	0.003	0.002	0.007
RM6W	0.006	0.004	0.003	0.003	0.002	0.002	0.001	0.003
RM7W	0.106	0.010	0.007	0.006	0.004	0.004	0.001	0.004
RM9W	0.062	0.040	0.033	0.015	0.008	0.008	0.006	0.015
Sitewide	0.011	0.007	0.006	0.005	0.005	0.004	0.003	0.006
<b>2,3,7,8-TCDF</b>								
Outside SDU	0.009	0.009	0.009	0.009	0.009	0.008	0.007	0.009
RM2E	0.010	0.008	0.007	0.006	0.004	0.004	0.003	0.006
RM3.5E	0.014	0.010	0.006	0.005	0.004	0.004	0.004	0.005
RM4.5E	0.006	0.006	0.005	0.004	0.003	0.003	0.002	0.004
RM5.5E	0.040	0.040	0.040	0.039	0.028	0.028	0.016	0.028
RM6.5E	0.020	0.011	0.008	0.008	0.007	0.007	0.006	0.011
SwanIs	0.008	0.001	0.000	0.000	0.000	0.000	0.000	0.000
RM11E	0.006	0.005	0.004	0.003	0.002	0.002	0.001	0.003
RM3.9W	0.015	0.015	0.015	0.015	0.014	0.014	0.010	0.015
RM5W	0.029	0.029	0.027	0.025	0.020	0.020	0.013	0.025
RM6Nav	0.058	0.043	0.035	0.029	0.043	0.016	0.009	0.043
RM6W	0.052	0.020	0.016	0.012	0.015	0.007	0.004	0.016
RM7W	7.013	0.347	0.261	0.096	0.044	0.044	0.007	0.044
RM9W	0.020	0.015	0.012	0.008	0.004	0.004	0.002	0.008
Sitewide	0.233	0.023	0.019	0.013	0.012	0.009	0.006	0.012

**Table J2.3-9b****RAO 2 Post-Construction HI Estimates - Child - SDU Scale - Total**

Portland Harbor Superfund Site

Portland, Oregon

SDU	Alternative							
	A	B	D	E	F Mod	F	G	I
Outside SDU	6	6	6	5	5	4	4	6
RM2E	38	11	8	6	3	3	3	6
RM3.5E	27	14	10	7	4	4	3	7
RM4.5E	16	16	12	8	4	4	2	8
RM5.5E	13	13	13	12	6	6	3	6
RM6.5E	15	6	5	4	3	3	2	5
SwanIs	91	2	1	1	0	0	0	1
RM11E	78	27	16	8	4	3	1	8
RM3.9W	4	4	4	4	4	4	3	4
RM5W	6	6	5	5	4	4	2	5
RM6Nav	6	6	4	3	5	1	1	5
RM6W	9	4	3	3	3	2	1	3
RM7W	479	31	23	10	5	5	1	5
RM9W	53	23	16	8	3	3	1	8
Sitewide	30	8	7	5	5	4	3	5

**Table J2.3-10a**

**RAO 2 Post-Construction HI Estimates - Infant - SDU Scale**

Portland Harbor Superfund Site

Portland, Oregon

SDU	Alternative							
	A	B	D	E	F Mod	F	G	I
DDx								
Outside SDU	0.012	0.011	0.011	0.011	0.011	0.011	0.008	0.012
RM2E	0.012	0.011	0.010	0.009	0.008	0.008	0.007	0.009
RM3.5E	0.014	0.012	0.011	0.009	0.007	0.007	0.005	0.009
RM4.5E	0.024	0.024	0.020	0.016	0.009	0.009	0.004	0.016
RM5.5E	0.021	0.021	0.021	0.020	0.010	0.010	0.004	0.010
RM6.5E	0.015	0.012	0.010	0.010	0.009	0.009	0.007	0.012
SwanIs	0.024	0.002	0.001	0.001	0.000	0.000	0.000	0.001
RM11E	0.043	0.022	0.017	0.012	0.008	0.006	0.003	0.012
RM3.9W	0.029	0.029	0.029	0.029	0.026	0.026	0.013	0.029
RM5W	0.024	0.024	0.023	0.022	0.018	0.018	0.008	0.022
RM6Nav	0.020	0.013	0.010	0.008	0.012	0.004	0.002	0.012
RM6W	0.131	0.035	0.028	0.023	0.018	0.011	0.004	0.028
RM7W	1.050	0.129	0.078	0.040	0.017	0.017	0.005	0.017
RM9W	0.060	0.036	0.033	0.020	0.007	0.007	0.003	0.020
Sitewide	0.050	0.017	0.015	0.012	0.011	0.010	0.007	0.012
PCBs								
Outside SDU	105	105	104	103	99	82	65	104
RM2E	750	224	159	112	66	66	51	112
RM3.5E	521	270	202	129	71	71	47	129
RM4.5E	277	276	204	144	65	65	30	144
RM5.5E	214	213	213	183	78	78	35	78
RM6.5E	264	95	84	80	44	44	33	90
SwanIs	1,796	45	25	12	5	5	4	12
RM11E	1,536	528	307	148	75	50	20	148
RM3.9W	79	79	79	78	68	68	50	78
RM5W	92	91	86	83	58	58	34	83
RM6Nav	104	93	73	57	84	21	9	84
RM6W	140	63	54	46	40	27	12	54
RM7W	492	233	158	107	62	62	20	62
RM9W	1,044	439	307	160	48	48	27	160
Sitewide	299	132	113	97	82	67	50	98



**Table J2.3-10a**

**RAO 2 Post-Construction HI Estimates - Infant - SDU Scale**

Portland Harbor Superfund Site

Portland, Oregon

SDU	Alternative							
	A	B	D	E	F Mod	F	G	I
<b>1,2,3,4,7,8-HxCDF</b>								
Outside SDU	14.11	13.60	13.13	13.05	12.58	11.90	10.24	14.00
RM2E	7.88	6.53	6.18	5.69	4.08	4.08	3.34	5.69
RM3.5E	17.02	13.25	9.44	7.78	6.33	6.33	5.13	7.78
RM4.5E	95.18	93.58	71.69	54.18	19.65	19.65	9.22	54.18
RM5.5E	115.87	115.85	115.85	114.28	81.92	81.92	47.94	81.92
RM6.5E	90.70	33.63	16.94	16.65	14.42	14.42	12.08	29.95
SwanIs	49.31	4.08	2.16	1.61	1.09	1.09	0.86	1.61
RM11E	22.02	17.40	14.66	11.07	8.25	6.74	4.44	11.07
RM3.9W	14.93	14.93	14.93	14.86	13.70	13.70	9.37	14.86
RM5W	49.30	48.86	45.63	43.35	34.76	34.76	23.84	43.35
RM6Nav	37.27	31.95	27.37	23.64	31.45	15.27	9.45	31.45
RM6W	73.22	31.10	25.47	21.01	24.55	14.15	7.41	25.47
RM7W	21378.55	921.09	701.28	226.39	104.73	104.73	13.02	104.73
RM9W	28.72	21.62	15.82	9.60	4.94	4.94	3.49	9.60
Sitewide	691.75	47.20	38.08	22.16	17.02	15.31	9.79	19.65
<b>1,2,3,7,8-PeCDD</b>								
Outside SDU	12.25	11.00	10.42	10.37	10.12	9.46	8.20	12.19
RM2E	6.73	5.52	5.22	4.79	3.31	3.31	2.71	4.79
RM3.5E	24.99	19.81	14.09	12.47	11.16	11.16	9.87	12.47
RM4.5E	14.66	14.58	12.37	10.63	4.64	4.64	2.27	10.63
RM5.5E	24.42	24.41	24.41	23.73	18.43	18.43	11.15	18.43
RM6.5E	55.97	28.91	17.56	17.19	14.59	14.59	12.28	27.65
SwanIs	21.11	1.86	1.09	0.81	0.47	0.47	0.36	0.81
RM11E	46.48	37.23	31.59	24.81	17.78	15.23	9.46	24.81
RM3.9W	11.44	11.44	11.44	11.38	10.44	10.44	7.41	11.38
RM5W	16.09	15.92	14.70	13.87	10.94	10.94	7.15	13.87
RM6Nav	22.09	19.85	16.44	14.53	19.06	9.10	6.47	19.06
RM6W	11.05	6.81	6.07	5.35	4.92	3.70	1.91	6.07
RM7W	36.91	10.79	8.19	6.44	4.58	4.58	2.13	4.58
RM9W	38.72	29.94	20.94	12.29	6.34	6.34	4.47	12.29
Sitewide	17.53	13.02	11.28	10.56	9.92	8.79	7.18	12.30

**Table J2.3-10a**

**RAO 2 Post-Construction HI Estimates - Infant - SDU Scale**

Portland Harbor Superfund Site

Portland, Oregon

SDU	Alternative							
	A	B	D	E	F Mod	F	G	I
<b>1,2,3,7,8-PeCDF</b>								
Outside SDU	0.63	0.57	0.53	0.53	0.50	0.48	0.41	0.63
RM2E	0.71	0.51	0.46	0.40	0.24	0.24	0.18	0.40
RM3.5E	0.97	0.72	0.49	0.41	0.34	0.34	0.28	0.41
RM4.5E	3.18	3.12	2.37	1.79	0.62	0.62	0.30	1.79
RM5.5E	4.43	4.43	4.43	4.37	3.13	3.13	1.81	3.13
RM6.5E	4.49	2.08	1.34	1.31	1.16	1.16	0.98	1.94
SwanIs	1.33	0.13	0.06	0.04	0.03	0.03	0.02	0.04
RM11E	0.91	0.72	0.61	0.47	0.35	0.29	0.18	0.47
RM3.9W	0.68	0.68	0.68	0.67	0.63	0.63	0.45	0.67
RM5W	2.12	2.10	1.94	1.81	1.45	1.45	0.97	1.81
RM6Nav	2.93	2.28	1.86	1.57	2.25	0.94	0.56	2.25
RM6W	3.51	1.27	0.97	0.74	1.02	0.44	0.21	0.97
RM7W	464.85	22.20	16.78	6.05	2.85	2.85	0.41	2.85
RM9W	2.11	1.60	1.24	0.81	0.39	0.39	0.27	0.81
Sitewide	15.69	1.57	1.27	0.88	0.74	0.62	0.42	0.90
<b>2,3,7,8-TCDD</b>								
Outside SDU	7.676	7.303	7.130	7.086	6.981	6.440	5.439	7.616
RM2E	5.103	4.361	4.186	3.882	2.879	2.879	2.487	3.882
RM3.5E	9.793	7.710	5.486	4.480	3.842	3.842	3.211	4.480
RM4.5E	4.367	4.343	3.789	3.288	1.761	1.761	0.962	3.288
RM5.5E	6.667	6.665	6.665	6.558	5.524	5.524	3.883	5.524
RM6.5E	12.709	5.650	2.494	2.458	2.175	2.175	1.762	5.370
SwanIs	11.789	0.900	0.635	0.469	0.265	0.265	0.200	0.469
RM11E	28.492	22.548	19.045	14.869	12.006	9.345	6.380	14.869
RM3.9W	13.563	13.563	13.563	13.514	12.571	12.571	7.941	13.514
RM5W	20.258	20.172	19.568	19.125	15.062	15.062	9.688	19.125
RM6Nav	10.867	10.035	8.416	7.546	9.577	4.313	3.015	9.577
RM6W	8.250	4.736	4.335	3.946	3.324	2.806	1.488	4.335
RM7W	141.217	12.679	9.863	7.536	5.057	5.057	1.931	5.057
RM9W	83.293	53.894	43.797	19.869	10.702	10.702	7.949	19.869
Sitewide	15.264	8.972	8.083	7.059	6.537	5.803	4.599	7.558

**Table J2.3-10a**  
**RAO 2 Post-Construction HI Estimates - Infant - SDU Scale**  
 Portland Harbor Superfund Site  
 Portland, Oregon

SDU	Alternative							
	A	B	D	E	F Mod	F	G	I
2,3,7,8-TCDF								
Outside SDU	0.281	0.277	0.274	0.272	0.267	0.250	0.213	0.279
RM2E	0.305	0.235	0.212	0.188	0.124	0.124	0.091	0.188
RM3.5E	0.429	0.306	0.199	0.167	0.136	0.136	0.113	0.167
RM4.5E	0.183	0.181	0.157	0.137	0.090	0.090	0.063	0.137
RM5.5E	1.231	1.230	1.230	1.212	0.859	0.859	0.486	0.859
RM6.5E	0.611	0.347	0.246	0.241	0.206	0.206	0.174	0.329
SwanIs	0.251	0.020	0.011	0.007	0.004	0.004	0.003	0.007
RM11E	0.198	0.151	0.121	0.089	0.061	0.053	0.032	0.089
RM3.9W	0.458	0.458	0.458	0.456	0.427	0.427	0.303	0.456
RM5W	0.907	0.898	0.832	0.781	0.627	0.627	0.414	0.781
RM6Nav	1.795	1.335	1.062	0.887	1.323	0.500	0.274	1.323
RM6W	1.589	0.616	0.484	0.378	0.461	0.224	0.111	0.484
RM7W	215.799	10.669	8.043	2.943	1.345	1.345	0.214	1.345
RM9W	0.623	0.477	0.384	0.250	0.111	0.111	0.072	0.250
Sitewide	7.174	0.693	0.576	0.395	0.355	0.285	0.194	0.379

**Table J2.3-10b**  
**RAO 2 Post-Construction HI Estimates - Infant - SDU Scale - Total**  
 Portland Harbor Superfund Site  
 Portland, Oregon

SDU	Alternative							
	A	B	D	E	F Mod	F	G	I
Outside SDU	140	138	135	134	129	110	89	138
RM2E	770	241	175	127	77	77	60	127
RM3.5E	574	312	231	154	93	93	66	154
RM4.5E	395	392	294	214	92	92	42	214
RM5.5E	367	366	366	334	188	188	100	188
RM6.5E	429	166	123	118	77	77	60	155
SwanIs	1,880	52	29	15	7	7	5	15
RM11E	1,634	607	373	199	114	81	40	199
RM3.9W	120	120	120	119	106	106	76	119
RM5W	181	179	168	162	121	121	76	162
RM6Nav	179	158	128	105	147	51	29	147
RM6W	237	108	92	77	74	49	23	92
RM7W	22,730	1,211	902	356	180	180	38	180
RM9W	1,197	547	389	202	70	70	43	202
Sitewide	1,046	203	173	138	117	98	72	138

**Table J2.5-1a**

**RAO 6 Rolling River Mile HQ Estimates - BEHP**

Portland Harbor Superfund Site

Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
1.8	Site	0.50	0.49	0.48	0.47	0.46	0.46	0.45	0.47
1.9	Site	0.52	0.49	0.49	0.47	0.47	0.47	0.44	0.47
2	Site	0.53	0.50	0.49	0.48	0.47	0.47	0.44	0.48
2.1	Site	0.53	0.51	0.50	0.48	0.47	0.47	0.44	0.48
2.2	Site	0.55	0.52	0.51	0.50	0.48	0.48	0.45	0.50
2.3	Site	0.55	0.53	0.52	0.51	0.48	0.48	0.44	0.51
2.4	Site	0.55	0.52	0.51	0.50	0.47	0.47	0.42	0.50
2.5	Site	0.53	0.50	0.49	0.48	0.45	0.45	0.40	0.48
2.6	Site	0.51	0.48	0.47	0.47	0.44	0.44	0.39	0.47
2.7	Site	0.48	0.47	0.46	0.45	0.43	0.43	0.37	0.45
2.8	Site	0.46	0.45	0.45	0.45	0.43	0.43	0.36	0.45
2.9	Site	0.45	0.45	0.44	0.44	0.42	0.42	0.37	0.44
3	Site	0.45	0.45	0.45	0.44	0.43	0.42	0.36	0.44
3.1	Site	0.46	0.46	0.45	0.45	0.44	0.42	0.35	0.45
3.2	Site	0.46	0.46	0.45	0.45	0.44	0.41	0.34	0.45
3.3	Site	1.13	0.87	0.80	0.69	0.48	0.45	0.33	0.69
3.4	Site	1.51	1.13	1.05	0.94	0.55	0.51	0.35	0.94
3.5	Site	1.62	1.22	1.14	1.00	0.58	0.55	0.38	1.00
3.6	Site	2.02	1.57	1.42	1.16	0.70	0.66	0.48	1.16
3.7	Site	2.64	2.18	2.01	1.56	0.97	0.93	0.57	1.56
3.8	Site	3.00	2.53	2.36	1.89	1.19	1.15	0.60	1.89
3.9	Site	3.03	2.57	2.40	1.94	1.21	1.17	0.61	1.94
4	Site	3.04	2.60	2.43	1.98	1.23	1.20	0.63	1.98
4.1	Site	3.08	2.63	2.46	2.01	1.27	1.25	0.67	2.01
4.2	Site	3.11	2.67	2.48	2.02	1.28	1.27	0.71	2.02
4.3	Site	2.57	2.38	2.26	1.89	1.32	1.31	0.76	1.89
4.4	Site	2.20	2.15	2.03	1.65	1.27	1.27	0.77	1.65
4.5	Site	2.17	2.12	1.99	1.64	1.26	1.26	0.76	1.64
4.6	Site	1.82	1.82	1.74	1.51	1.19	1.15	0.66	1.53
4.7	Site	1.30	1.26	1.17	1.11	0.96	0.87	0.54	1.18
4.8	Site	1.25	1.20	1.00	0.87	1.02	0.68	0.52	1.13
4.9	Site	1.43	1.26	0.96	0.81	1.12	0.63	0.50	1.19
5	Site	1.43	1.22	0.90	0.73	1.11	0.58	0.46	1.15
5.1	Site	1.41	1.19	0.86	0.68	1.09	0.51	0.39	1.12
5.2	Site	1.41	1.14	0.82	0.65	1.08	0.46	0.33	1.09
5.3	Site	1.52	1.15	0.82	0.63	1.06	0.41	0.27	1.06
5.4	Site	1.64	1.27	0.93	0.69	1.08	0.42	0.26	1.17
5.5	Site	1.67	1.29	0.95	0.71	1.08	0.41	0.22	1.18
5.6	Site	1.70	1.32	0.99	0.73	1.05	0.39	0.20	1.19
5.7	Site	1.96	1.52	1.16	0.86	1.22	0.42	0.20	1.36
5.8	Site	1.65	1.15	0.91	0.72	0.85	0.36	0.18	0.99
5.9	Site	1.45	1.01	0.88	0.71	0.70	0.35	0.19	0.85
6	Site	1.46	0.98	0.86	0.69	0.68	0.35	0.19	0.82

**Table J2.5-1a**

**RAO 6 Rolling River Mile HQ Estimates - BEHP**

Portland Harbor Superfund Site

Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
6.1	Site	1.45	0.95	0.83	0.66	0.65	0.33	0.20	0.80
6.2	Site	1.37	0.92	0.80	0.63	0.64	0.32	0.19	0.79
6.3	Site	1.25	0.89	0.75	0.60	0.62	0.30	0.17	0.77
6.4	Site	1.11	0.75	0.62	0.52	0.56	0.27	0.16	0.65
6.5	Site	1.09	0.72	0.59	0.49	0.55	0.27	0.19	0.62
6.6	Site	1.08	0.73	0.60	0.52	0.59	0.34	0.27	0.63
6.7	Site	0.84	0.55	0.49	0.46	0.44	0.38	0.34	0.49
6.8	Site	0.83	0.59	0.53	0.50	0.48	0.44	0.38	0.54
6.9	Site	0.83	0.64	0.58	0.55	0.52	0.49	0.42	0.58
7	Site	0.88	0.72	0.66	0.64	0.61	0.57	0.50	0.67
7.1	Site	0.97	0.83	0.76	0.71	0.67	0.64	0.55	0.73
7.2	Site	1.32	1.18	1.12	1.07	0.95	0.92	0.76	1.01
7.3	Site	1.45	1.34	1.29	1.24	1.11	1.08	0.85	1.15
7.4	Site	1.55	1.45	1.41	1.36	1.24	1.22	0.97	1.27
7.5	Site	1.73	1.64	1.60	1.56	1.45	1.42	1.17	1.47
7.6	Site	3.54	1.68	1.63	1.56	1.44	1.42	1.16	1.48
7.7	Site	3.94	1.59	1.56	1.47	1.33	1.31	1.07	1.39
7.8	Site	4.20	1.61	1.57	1.47	1.31	1.29	1.06	1.38
7.9	Site	4.51	1.75	1.71	1.60	1.35	1.34	1.11	1.51
8	Site	5.10	1.75	1.71	1.60	1.37	1.35	1.13	1.52
8.1	Site	5.26	1.78	1.75	1.61	1.37	1.36	1.16	1.53
8.2	Site	5.35	1.71	1.68	1.39	1.20	1.20	1.05	1.37
8.3	Site	5.74	1.91	1.82	1.31	1.14	1.14	1.06	1.31
8.4	Site	5.98	1.94	1.80	1.28	1.11	1.11	1.03	1.28
8.5	Site	6.15	1.85	1.68	1.16	0.99	0.95	0.87	1.16
8.6	Site	5.03	1.92	1.72	1.20	0.96	0.92	0.84	1.23
8.7	Site	5.28	2.38	2.05	1.47	1.04	0.98	0.89	1.56
8.8	Site	5.33	2.67	2.17	1.48	1.03	0.96	0.87	1.59
8.9	Site	5.03	2.58	2.06	1.35	0.95	0.88	0.80	1.46
9	Site	4.30	2.61	2.07	1.33	0.89	0.81	0.73	1.44
9.1	Site	4.18	2.62	2.05	1.34	0.89	0.80	0.71	1.46
9.2	Site	3.96	2.59	1.96	1.41	0.94	0.84	0.74	1.53
9.3	Site	3.58	2.44	1.72	1.47	0.98	0.87	0.76	1.60
9.4	Site	3.35	2.51	1.85	1.59	1.07	0.97	0.81	1.73
9.5	Site	3.51	2.97	2.32	2.06	1.52	1.29	1.07	2.20
9.6	Site	3.59	3.27	2.66	2.39	1.95	1.73	1.50	2.49
9.7	Site	3.06	3.04	2.59	2.38	2.22	2.01	1.75	2.38
9.8	Site	2.84	2.81	2.60	2.53	2.41	2.15	1.81	2.53
9.9	Site	2.98	2.96	2.74	2.67	2.61	2.25	1.86	2.67
10	Site	3.16	3.13	2.90	2.83	2.79	2.40	1.96	2.83
10.1	Site	3.29	3.27	3.03	2.96	2.94	2.53	2.09	2.96
10.2	Site	3.28	3.27	3.09	3.07	3.05	2.63	2.16	3.07

**Table J2.5-1a**

**RAO 6 Rolling River Mile HQ Estimates - BEHP**

Portland Harbor Superfund Site

Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
10.3	Site	3.23	3.23	3.23	3.23	3.21	2.77	2.25	3.23
10.4	Site	3.26	3.26	3.26	3.25	3.23	2.77	2.22	3.25
10.5	Site	2.88	2.88	2.88	2.87	2.84	2.58	2.04	2.87
10.6	Site	2.49	2.49	2.49	2.48	2.45	2.17	1.62	2.48
10.7	Site	2.27	2.26	2.25	2.23	2.20	1.92	1.40	2.23
10.8	Site	2.13	2.11	2.10	2.08	2.05	1.85	1.44	2.08
10.9	Site	2.00	1.99	1.97	1.95	1.91	1.83	1.47	1.95
11	Site	1.90	1.88	1.86	1.84	1.80	1.74	1.42	1.84
11.1	Site	1.80	1.78	1.76	1.73	1.70	1.64	1.32	1.73
11.2	Site	1.77	1.75	1.73	1.70	1.66	1.60	1.28	1.70
11.3	Site	1.64	1.61	1.59	1.56	1.52	1.46	1.15	1.56
11.4	Site	1.52	1.49	1.47	1.43	1.39	1.34	1.14	1.43
11.5	Site	1.32	1.29	1.26	1.22	1.18	1.17	1.07	1.22
11.6	Site	1.20	1.16	1.12	1.08	1.04	1.03	0.94	1.08
11.7	Site	1.15	1.12	1.09	1.05	1.02	1.01	0.91	1.05
1.8	East	0.76	0.71	0.68	0.65	0.62	0.62	0.61	0.65
1.9	East	0.78	0.71	0.68	0.65	0.62	0.62	0.60	0.65
2	East	0.78	0.70	0.66	0.63	0.59	0.59	0.57	0.63
2.1	East	0.78	0.70	0.66	0.63	0.57	0.57	0.54	0.63
2.2	East	0.81	0.73	0.69	0.66	0.59	0.59	0.55	0.66
2.3	East	0.83	0.75	0.71	0.67	0.59	0.59	0.54	0.67
2.4	East	0.81	0.72	0.68	0.64	0.55	0.55	0.50	0.64
2.5	East	0.78	0.70	0.66	0.62	0.54	0.54	0.48	0.62
2.6	East	0.78	0.69	0.65	0.62	0.54	0.54	0.49	0.63
2.7	East	0.75	0.69	0.65	0.63	0.56	0.56	0.50	0.63
2.8	East	0.69	0.65	0.64	0.62	0.55	0.55	0.49	0.62
2.9	East	0.67	0.64	0.63	0.61	0.54	0.54	0.49	0.61
3	East	0.66	0.66	0.64	0.63	0.57	0.57	0.52	0.63
3.1	East	0.67	0.67	0.65	0.64	0.60	0.60	0.55	0.64
3.2	East	0.63	0.63	0.61	0.60	0.58	0.58	0.54	0.60
3.3	East	3.34	2.26	1.93	1.50	0.64	0.64	0.46	1.50
3.4	East	5.11	3.42	3.07	2.61	0.91	0.91	0.49	2.61
3.5	East	5.61	3.80	3.43	2.80	0.94	0.94	0.48	2.80
3.6	East	6.97	4.88	4.19	2.96	0.92	0.92	0.43	2.96
3.7	East	8.35	6.20	5.41	3.32	0.93	0.93	0.38	3.32
3.8	East	8.63	6.43	5.63	3.49	1.02	1.02	0.41	3.49
3.9	East	8.03	6.04	5.31	3.35	0.94	0.94	0.35	3.35
4	East	7.66	5.80	5.11	3.27	0.90	0.90	0.29	3.27
4.1	East	7.42	5.63	4.93	3.15	0.84	0.84	0.25	3.15
4.2	East	7.11	5.42	4.67	2.96	0.78	0.78	0.21	2.96
4.3	East	5.66	4.80	4.22	2.54	0.75	0.75	0.21	2.54
4.4	East	4.03	3.79	3.17	1.38	0.47	0.47	0.18	1.38

**Table J2.5-1a**

**RAO 6 Rolling River Mile HQ Estimates - BEHP**

Portland Harbor Superfund Site

Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
4.5	East	3.89	3.66	3.02	1.35	0.48	0.48	0.19	1.35
4.6	East	2.61	2.59	2.30	1.27	0.49	0.49	0.21	1.27
4.7	East	1.29	1.27	1.06	0.93	0.47	0.47	0.23	0.93
4.8	East	1.19	1.17	0.96	0.83	0.39	0.39	0.19	0.83
4.9	East	1.09	1.06	0.82	0.70	0.41	0.41	0.23	0.70
5	East	1.01	0.98	0.70	0.57	0.44	0.44	0.29	0.57
5.1	East	1.06	1.03	0.78	0.67	0.53	0.53	0.34	0.63
5.2	East	1.01	1.01	1.00	0.96	0.66	0.66	0.39	0.67
5.3	East	1.12	1.12	1.12	1.03	0.60	0.60	0.36	0.60
5.4	East	1.19	1.19	1.19	1.11	0.71	0.71	0.39	0.71
5.5	East	1.23	1.23	1.23	1.16	0.72	0.72	0.35	0.75
5.6	East	1.28	1.28	1.28	1.18	0.67	0.67	0.33	0.82
5.7	East	1.28	1.28	1.28	1.19	0.64	0.64	0.31	0.86
5.8	East	1.21	1.20	1.20	1.12	0.62	0.62	0.32	0.83
5.9	East	1.13	1.12	1.11	1.04	0.57	0.57	0.30	0.78
6	East	1.03	1.03	1.02	0.95	0.52	0.52	0.28	0.71
6.1	East	0.94	0.94	0.93	0.86	0.48	0.48	0.28	0.66
6.2	East	0.79	0.79	0.77	0.72	0.46	0.46	0.31	0.64
6.3	East	0.75	0.69	0.63	0.61	0.42	0.42	0.28	0.62
6.4	East	0.66	0.60	0.53	0.51	0.35	0.35	0.25	0.55
6.5	East	0.63	0.56	0.50	0.48	0.36	0.36	0.29	0.54
6.6	East	0.68	0.62	0.57	0.56	0.49	0.49	0.43	0.62
6.7	East	0.74	0.66	0.59	0.59	0.57	0.57	0.52	0.68
6.8	East	0.79	0.71	0.63	0.63	0.61	0.61	0.56	0.74
6.9	East	0.87	0.79	0.71	0.70	0.68	0.68	0.64	0.81
7	East	1.00	0.92	0.84	0.84	0.82	0.82	0.78	0.94
7.1	East	1.07	0.99	0.91	0.91	0.89	0.89	0.85	1.01
7.2	East	1.25	1.17	1.09	1.09	1.07	1.07	1.04	1.20
7.3	East	1.31	1.26	1.22	1.21	1.20	1.20	1.16	1.30
7.4	East	1.43	1.39	1.35	1.35	1.34	1.34	1.31	1.43
7.5	East	1.54	1.50	1.45	1.45	1.44	1.44	1.39	1.54
7.6	East	1.83	1.47	1.42	1.42	1.41	1.41	1.29	1.52
7.7	East	2.26	1.42	1.38	1.38	1.37	1.37	1.23	1.44
7.8	East	2.61	1.48	1.46	1.46	1.43	1.43	1.26	1.48
7.9	East	2.86	1.55	1.54	1.54	1.51	1.51	1.33	1.54
8	East	3.07	1.47	1.47	1.47	1.44	1.44	1.22	1.47
8.1	East	3.32	1.47	1.47	1.46	1.43	1.43	1.17	1.46
8.2	East	2.91	1.09	1.09	1.08	1.05	1.05	0.80	1.08
8.3	East	2.75	1.04	1.04	1.03	1.00	1.00	0.78	1.03
8.4	East	2.67	1.02	1.02	1.01	0.98	0.98	0.79	1.01
8.5	East	2.60	0.87	0.87	0.87	0.83	0.83	0.68	0.87
8.6	East	2.07	0.79	0.79	0.79	0.75	0.75	0.70	0.79



**Table J2.5-1a**

**RAO 6 Rolling River Mile HQ Estimates - BEHP**

Portland Harbor Superfund Site

Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
8.7	East	1.27	0.88	0.88	0.88	0.83	0.83	0.76	0.88
8.8	East	0.80	0.80	0.80	0.80	0.78	0.78	0.72	0.80
8.9	East	0.73	0.73	0.73	0.73	0.71	0.71	0.66	0.73
9	East	0.67	0.67	0.67	0.67	0.65	0.65	0.59	0.67
9.1	East	0.69	0.69	0.69	0.69	0.64	0.64	0.52	0.69
9.2	East	0.67	0.67	0.67	0.67	0.58	0.58	0.42	0.67
9.3	East	0.70	0.70	0.70	0.70	0.61	0.61	0.44	0.70
9.4	East	0.73	0.73	0.73	0.73	0.65	0.65	0.48	0.73
9.5	East	0.77	0.77	0.77	0.77	0.69	0.69	0.54	0.77
9.6	East	0.81	0.81	0.81	0.80	0.71	0.71	0.57	0.80
9.7	East	0.86	0.85	0.85	0.85	0.75	0.75	0.61	0.85
9.8	East	0.94	0.94	0.93	0.93	0.83	0.83	0.67	0.93
9.9	East	0.96	0.96	0.96	0.95	0.84	0.84	0.66	0.95
10	East	1.05	1.05	1.05	1.04	0.92	0.92	0.73	1.04
10.1	East	1.03	1.03	1.03	1.02	0.94	0.94	0.81	1.02
10.2	East	1.02	1.02	1.02	1.01	0.95	0.95	0.86	1.01
10.3	East	1.02	1.02	1.02	0.99	0.91	0.91	0.83	0.99
10.4	East	1.02	1.02	1.02	0.96	0.85	0.85	0.75	0.97
10.5	East	1.04	1.04	1.04	0.98	0.81	0.81	0.67	0.98
10.6	East	1.12	1.12	1.12	1.05	0.87	0.87	0.68	1.05
10.7	East	1.45	1.39	1.32	1.20	0.96	0.96	0.76	1.20
10.8	East	1.44	1.37	1.27	1.12	0.85	0.85	0.63	1.12
10.9	East	1.34	1.23	1.12	0.96	0.70	0.70	0.49	0.96
11	East	1.21	1.07	0.95	0.78	0.52	0.52	0.34	0.78
11.1	East	1.20	1.06	0.93	0.74	0.46	0.46	0.28	0.74
11.2	East	1.29	1.16	1.03	0.83	0.54	0.54	0.27	0.83
11.3	East	1.37	1.22	1.07	0.87	0.58	0.58	0.27	0.87
11.4	East	1.44	1.27	1.10	0.90	0.60	0.60	0.27	0.90
11.5	East	1.48	1.30	1.12	0.90	0.62	0.62	0.29	0.90
11.6	East	1.46	1.25	1.05	0.83	0.55	0.55	0.27	0.83
11.7	East	1.08	0.92	0.78	0.59	0.38	0.38	0.09	0.59
1.8	Nav Channel	0.49	0.49	0.49	0.49	0.49	0.49	0.47	0.49
1.9	Nav Channel	0.53	0.53	0.53	0.53	0.53	0.53	0.47	0.53
2	Nav Channel	0.57	0.57	0.57	0.57	0.57	0.57	0.50	0.57
2.1	Nav Channel	0.60	0.60	0.60	0.60	0.60	0.60	0.53	0.60
2.2	Nav Channel	0.62	0.62	0.62	0.62	0.62	0.62	0.55	0.62
2.3	Nav Channel	0.63	0.63	0.63	0.63	0.63	0.63	0.55	0.63
2.4	Nav Channel	0.62	0.62	0.62	0.62	0.62	0.62	0.55	0.62
2.5	Nav Channel	0.61	0.61	0.61	0.61	0.61	0.61	0.54	0.61
2.6	Nav Channel	0.60	0.60	0.60	0.60	0.60	0.60	0.53	0.60
2.7	Nav Channel	0.58	0.58	0.58	0.58	0.58	0.58	0.51	0.58
2.8	Nav Channel	0.55	0.55	0.55	0.55	0.55	0.55	0.51	0.55

**Table J2.5-1a**

**RAO 6 Rolling River Mile HQ Estimates - BEHP**

Portland Harbor Superfund Site

Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
2.9	Nav Channel	0.53	0.53	0.53	0.53	0.53	0.53	0.51	0.53
3	Nav Channel	0.51	0.51	0.51	0.51	0.51	0.49	0.46	0.51
3.1	Nav Channel	0.50	0.50	0.50	0.50	0.50	0.44	0.40	0.50
3.2	Nav Channel	0.51	0.51	0.51	0.50	0.50	0.42	0.34	0.50
3.3	Nav Channel	0.53	0.53	0.53	0.52	0.52	0.43	0.35	0.52
3.4	Nav Channel	0.52	0.52	0.52	0.52	0.52	0.43	0.35	0.52
3.5	Nav Channel	0.52	0.52	0.52	0.52	0.52	0.44	0.36	0.52
3.6	Nav Channel	0.53	0.53	0.53	0.53	0.53	0.46	0.37	0.53
3.7	Nav Channel	0.56	0.56	0.56	0.56	0.56	0.49	0.41	0.56
3.8	Nav Channel	0.58	0.58	0.58	0.58	0.58	0.51	0.44	0.58
3.9	Nav Channel	0.60	0.60	0.60	0.60	0.60	0.54	0.47	0.60
4	Nav Channel	0.66	0.66	0.66	0.66	0.66	0.60	0.53	0.66
4.1	Nav Channel	0.73	0.73	0.73	0.73	0.73	0.70	0.62	0.73
4.2	Nav Channel	0.79	0.79	0.79	0.79	0.79	0.78	0.71	0.79
4.3	Nav Channel	0.81	0.81	0.81	0.81	0.81	0.80	0.75	0.81
4.4	Nav Channel	0.81	0.81	0.81	0.81	0.81	0.80	0.75	0.81
4.5	Nav Channel	0.82	0.82	0.82	0.82	0.82	0.81	0.75	0.82
4.6	Nav Channel	0.85	0.85	0.83	0.81	0.85	0.79	0.74	0.85
4.7	Nav Channel	0.93	0.88	0.81	0.77	0.88	0.74	0.68	0.88
4.8	Nav Channel	1.35	1.28	1.05	0.90	1.28	0.77	0.66	1.28
4.9	Nav Channel	1.66	1.43	1.07	0.88	1.43	0.73	0.61	1.43
5	Nav Channel	1.68	1.39	1.01	0.81	1.39	0.64	0.54	1.39
5.1	Nav Channel	1.63	1.34	0.93	0.73	1.34	0.54	0.44	1.34
5.2	Nav Channel	1.64	1.28	0.86	0.64	1.28	0.44	0.33	1.28
5.3	Nav Channel	1.76	1.25	0.81	0.59	1.25	0.38	0.27	1.25
5.4	Nav Channel	1.83	1.30	0.83	0.59	1.30	0.35	0.23	1.30
5.5	Nav Channel	1.90	1.33	0.84	0.57	1.33	0.32	0.18	1.33
5.6	Nav Channel	1.96	1.36	0.86	0.57	1.36	0.30	0.16	1.36
5.7	Nav Channel	2.38	1.71	1.14	0.77	1.71	0.35	0.18	1.68
5.8	Nav Channel	1.87	1.12	0.76	0.54	1.12	0.24	0.13	1.08
5.9	Nav Channel	1.47	0.92	0.73	0.55	0.92	0.25	0.14	0.87
6	Nav Channel	1.46	0.92	0.74	0.56	0.92	0.27	0.16	0.87
6.1	Nav Channel	1.50	0.92	0.73	0.54	0.92	0.25	0.16	0.87
6.2	Nav Channel	1.46	0.95	0.76	0.55	0.94	0.23	0.13	0.89
6.3	Nav Channel	1.30	0.99	0.79	0.57	0.98	0.22	0.10	0.92
6.4	Nav Channel	1.30	0.98	0.78	0.56	0.97	0.23	0.11	0.91
6.5	Nav Channel	1.29	0.97	0.77	0.57	0.96	0.25	0.14	0.90
6.6	Nav Channel	1.26	0.95	0.75	0.59	0.94	0.29	0.19	0.88
6.7	Nav Channel	0.64	0.47	0.43	0.39	0.46	0.31	0.25	0.44
6.8	Nav Channel	0.60	0.50	0.48	0.46	0.50	0.39	0.30	0.49
6.9	Nav Channel	0.57	0.53	0.52	0.50	0.52	0.43	0.32	0.52
7	Nav Channel	0.58	0.57	0.56	0.54	0.56	0.46	0.33	0.56

**Table J2.5-1a**

**RAO 6 Rolling River Mile HQ Estimates - BEHP**

Portland Harbor Superfund Site

Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
7.1	Nav Channel	0.61	0.61	0.61	0.60	0.61	0.50	0.36	0.61
7.2	Nav Channel	0.74	0.74	0.74	0.74	0.74	0.66	0.48	0.74
7.3	Nav Channel	0.87	0.87	0.87	0.87	0.87	0.80	0.63	0.87
7.4	Nav Channel	1.02	1.02	1.02	1.02	1.02	0.96	0.82	1.02
7.5	Nav Channel	1.35	1.35	1.35	1.35	1.35	1.30	1.17	1.35
7.6	Nav Channel	1.47	1.47	1.47	1.47	1.47	1.43	1.30	1.47
7.7	Nav Channel	1.46	1.46	1.46	1.46	1.46	1.42	1.30	1.46
7.8	Nav Channel	1.49	1.49	1.49	1.49	1.49	1.45	1.35	1.49
7.9	Nav Channel	1.60	1.60	1.60	1.60	1.60	1.56	1.48	1.60
8	Nav Channel	1.68	1.68	1.68	1.68	1.68	1.65	1.59	1.68
8.1	Nav Channel	1.74	1.74	1.74	1.74	1.74	1.72	1.67	1.74
8.2	Nav Channel	1.74	1.74	1.74	1.73	1.74	1.73	1.70	1.74
8.3	Nav Channel	1.79	1.79	1.79	1.79	1.79	1.79	1.77	1.79
8.4	Nav Channel	1.85	1.85	1.85	1.85	1.85	1.83	1.81	1.85
8.5	Nav Channel	1.71	1.71	1.71	1.71	1.71	1.64	1.58	1.71
8.6	Nav Channel	1.63	1.63	1.63	1.63	1.63	1.53	1.47	1.63
8.7	Nav Channel	1.61	1.61	1.61	1.61	1.61	1.50	1.43	1.61
8.8	Nav Channel	1.54	1.54	1.54	1.54	1.54	1.41	1.34	1.54
8.9	Nav Channel	1.40	1.40	1.40	1.40	1.40	1.26	1.18	1.40
9	Nav Channel	1.31	1.30	1.30	1.30	1.30	1.16	1.08	1.30
9.1	Nav Channel	1.29	1.29	1.29	1.29	1.29	1.14	1.05	1.29
9.2	Nav Channel	1.36	1.35	1.35	1.35	1.35	1.19	1.09	1.35
9.3	Nav Channel	1.37	1.37	1.37	1.37	1.37	1.20	1.10	1.37
9.4	Nav Channel	1.45	1.45	1.45	1.45	1.45	1.28	1.12	1.45
9.5	Nav Channel	2.06	2.06	2.06	2.06	2.06	1.71	1.45	2.06
9.6	Nav Channel	2.62	2.62	2.62	2.62	2.62	2.30	2.03	2.62
9.7	Nav Channel	2.97	2.97	2.97	2.97	2.97	2.66	2.34	2.97
9.8	Nav Channel	3.16	3.16	3.16	3.16	3.16	2.79	2.37	3.16
9.9	Nav Channel	3.33	3.33	3.33	3.33	3.33	2.84	2.36	3.33
10	Nav Channel	3.45	3.45	3.45	3.45	3.45	2.93	2.41	3.45
10.1	Nav Channel	3.52	3.52	3.52	3.52	3.52	3.00	2.47	3.52
10.2	Nav Channel	3.56	3.56	3.56	3.56	3.56	3.03	2.49	3.56
10.3	Nav Channel	3.70	3.70	3.70	3.70	3.70	3.16	2.59	3.70
10.4	Nav Channel	3.76	3.76	3.76	3.76	3.76	3.18	2.56	3.76
10.5	Nav Channel	3.30	3.30	3.30	3.30	3.30	2.97	2.37	3.30
10.6	Nav Channel	2.81	2.81	2.81	2.81	2.81	2.46	1.85	2.81
10.7	Nav Channel	2.49	2.49	2.49	2.49	2.49	2.13	1.56	2.49
10.8	Nav Channel	2.32	2.32	2.31	2.31	2.31	2.05	1.61	2.31
10.9	Nav Channel	2.17	2.16	2.16	2.15	2.15	2.04	1.67	2.15
11	Nav Channel	2.06	2.05	2.04	2.04	2.04	1.95	1.62	2.04
11.1	Nav Channel	1.94	1.93	1.93	1.92	1.92	1.84	1.51	1.92
11.2	Nav Channel	1.91	1.90	1.89	1.89	1.89	1.81	1.47	1.89

**Table J2.5-1a**

**RAO 6 Rolling River Mile HQ Estimates - BEHP**

Portland Harbor Superfund Site

Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
11.3	Nav Channel	1.72	1.71	1.71	1.70	1.70	1.63	1.27	1.70
11.4	Nav Channel	1.55	1.54	1.53	1.52	1.52	1.46	1.25	1.52
11.5	Nav Channel	1.25	1.24	1.23	1.22	1.22	1.21	1.14	1.22
11.6	Nav Channel	1.09	1.07	1.07	1.06	1.06	1.04	0.98	1.06
11.7	Nav Channel	1.09	1.08	1.07	1.06	1.06	1.04	0.97	1.06
1.8	West	0.28	0.28	0.28	0.28	0.28	0.28	0.28	0.28
1.9	West	0.29	0.29	0.29	0.29	0.29	0.29	0.29	0.29
2	West	0.28	0.28	0.28	0.28	0.28	0.28	0.28	0.28
2.1	West	0.27	0.27	0.27	0.27	0.27	0.27	0.27	0.27
2.2	West	0.27	0.27	0.27	0.27	0.27	0.27	0.27	0.27
2.3	West	0.26	0.26	0.26	0.26	0.26	0.26	0.26	0.26
2.4	West	0.27	0.27	0.27	0.27	0.27	0.27	0.25	0.27
2.5	West	0.25	0.25	0.25	0.25	0.25	0.25	0.22	0.25
2.6	West	0.23	0.23	0.23	0.23	0.23	0.23	0.19	0.23
2.7	West	0.23	0.23	0.23	0.23	0.23	0.23	0.18	0.23
2.8	West	0.25	0.25	0.25	0.25	0.25	0.25	0.17	0.25
2.9	West	0.26	0.26	0.26	0.26	0.26	0.26	0.18	0.26
3	West	0.28	0.28	0.28	0.28	0.28	0.28	0.19	0.28
3.1	West	0.31	0.31	0.31	0.31	0.31	0.31	0.21	0.31
3.2	West	0.32	0.32	0.32	0.32	0.32	0.32	0.23	0.32
3.3	West	0.34	0.34	0.34	0.34	0.34	0.34	0.24	0.34
3.4	West	0.35	0.35	0.35	0.35	0.35	0.35	0.25	0.35
3.5	West	0.44	0.44	0.44	0.44	0.43	0.43	0.33	0.44
3.6	West	0.88	0.88	0.88	0.88	0.81	0.81	0.69	0.88
3.7	West	2.22	2.22	2.22	2.22	1.89	1.89	1.10	2.22
3.8	West	3.95	3.95	3.95	3.88	3.02	3.02	1.25	3.88
3.9	West	4.65	4.65	4.65	4.58	3.56	3.56	1.41	4.58
4	West	5.29	5.29	5.29	5.20	4.04	4.04	1.55	5.20
4.1	West	6.06	6.06	6.06	5.96	4.60	4.60	1.72	5.96
4.2	West	6.49	6.49	6.49	6.38	4.89	4.89	1.79	6.38
4.3	West	6.62	6.62	6.62	6.51	4.98	4.98	1.81	6.51
4.4	West	6.70	6.70	6.70	6.59	5.04	5.04	1.84	6.59
4.5	West	6.82	6.82	6.82	6.70	5.08	5.08	1.73	6.70
4.6	West	6.06	6.06	6.06	5.94	4.41	4.41	0.97	5.94
4.7	West	3.48	3.48	3.48	3.35	2.32	2.32	0.29	3.35
4.8	West	0.79	0.79	0.78	0.76	0.62	0.62	0.29	0.76
4.9	West	0.53	0.53	0.52	0.49	0.39	0.39	0.25	0.49
5	West	0.52	0.52	0.49	0.46	0.34	0.34	0.22	0.46
5.1	West	0.51	0.50	0.48	0.45	0.32	0.32	0.20	0.45
5.2	West	0.46	0.46	0.43	0.40	0.33	0.33	0.20	0.40
5.3	West	0.50	0.50	0.46	0.43	0.35	0.35	0.19	0.43
5.4	West	1.21	1.21	1.08	0.69	0.37	0.37	0.18	1.05

**Table J2.5-1a**

**RAO 6 Rolling River Mile HQ Estimates - BEHP**

Portland Harbor Superfund Site

Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
5.5	West	1.21	1.20	1.06	0.71	0.40	0.40	0.20	1.04
5.6	West	1.30	1.24	1.08	0.74	0.38	0.38	0.16	1.06
5.7	West	1.50	1.22	1.02	0.69	0.35	0.35	0.14	1.01
5.8	West	1.64	1.15	0.95	0.65	0.32	0.32	0.13	0.95
5.9	West	1.94	1.09	0.91	0.61	0.30	0.30	0.12	0.90
6	West	2.25	1.06	0.88	0.59	0.28	0.28	0.12	0.88
6.1	West	2.33	1.07	0.90	0.61	0.27	0.27	0.12	0.86
6.2	West	2.37	1.12	0.96	0.67	0.27	0.27	0.11	0.86
6.3	West	2.34	1.11	0.95	0.65	0.23	0.23	0.09	0.79
6.4	West	1.82	0.62	0.50	0.43	0.17	0.17	0.06	0.31
6.5	West	1.87	0.58	0.43	0.33	0.09	0.09	0.01	0.19
6.6	West	1.79	0.49	0.34	0.23	0.05	0.05	0.00	0.05
6.7	West	1.58	0.43	0.32	0.21	0.04	0.04	0.00	0.04
6.8	West	1.47	0.43	0.31	0.21	0.04	0.04	0.00	0.04
6.9	West	1.33	0.44	0.32	0.21	0.04	0.04	0.00	0.04
7	West	1.25	0.49	0.35	0.22	0.05	0.05	0.00	0.05
7.1	West	1.45	0.86	0.67	0.44	0.27	0.27	0.15	0.27
7.2	West	2.59	2.10	1.94	1.67	1.15	1.15	0.75	1.15
7.3	West	2.79	2.37	2.24	2.00	1.45	1.45	0.78	1.45
7.4	West	2.92	2.51	2.39	2.17	1.63	1.63	0.87	1.63
7.5	West	3.00	2.60	2.50	2.28	1.72	1.72	0.91	1.72
7.6	West	3.09	2.71	2.63	2.43	1.79	1.79	0.93	1.86
7.7	West	3.27	2.94	2.87	2.58	1.84	1.84	0.96	2.00
7.8	West	3.34	3.10	3.02	2.69	1.85	1.85	0.96	2.11
7.9	West	3.74	3.62	3.54	3.16	1.83	1.83	0.89	2.62
8	West	3.44	3.43	3.37	3.03	1.81	1.81	0.91	2.54
8.1	West	3.52	3.51	3.50	2.97	1.73	1.73	0.87	2.51
8.2	West	3.68	3.68	3.67	2.09	1.07	1.07	0.41	1.96
8.3	West	5.50	5.43	5.07	1.70	0.66	0.66	0.30	1.70
8.4	West	6.67	5.90	5.19	1.59	0.49	0.49	0.20	1.59
8.5	West	7.14	6.05	5.24	1.57	0.45	0.45	0.20	1.57
8.6	West	7.42	6.07	5.21	1.48	0.43	0.43	0.20	1.48
8.7	West	9.71	6.85	5.20	1.42	0.43	0.43	0.21	1.42
8.8	West	11.43	8.61	5.87	1.50	0.43	0.43	0.21	1.50
8.9	West	11.14	8.23	5.41	0.96	0.32	0.32	0.24	0.96
9	West	11.77	8.68	5.69	0.98	0.20	0.20	0.15	0.98
9.1	West	12.40	9.01	5.72	0.99	0.16	0.16	0.12	0.99
9.2	West	11.12	7.73	4.24	0.96	0.17	0.17	0.12	0.96
9.3	West	9.66	6.22	2.22	0.97	0.17	0.17	0.13	0.97
9.4	West	8.83	6.12	2.33	1.03	0.18	0.18	0.13	1.03
9.5	West	8.63	6.25	2.43	1.08	0.21	0.21	0.16	1.08
9.6	West	8.81	6.62	2.60	1.17	0.24	0.24	0.19	1.17

**Table J2.5-1a**

**RAO 6 Rolling River Mile HQ Estimates - BEHP**

Portland Harbor Superfund Site

Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
9.7	West	5.98	5.82	2.73	1.25	0.27	0.27	0.20	1.25
9.8	West	3.35	3.19	1.60	1.05	0.29	0.29	0.21	1.05
9.9	West	3.43	3.23	1.30	0.73	0.31	0.31	0.20	0.73
10	West	4.04	3.79	1.34	0.61	0.33	0.33	0.23	0.61
10.1	West	5.23	4.91	1.58	0.65	0.43	0.43	0.32	0.65
10.2	West	4.82	4.69	1.35	1.14	0.92	0.92	0.58	1.14
10.3	West	1.65	1.65	1.65	1.61	1.48	1.48	0.77	1.61
10.4	West	1.56	1.56	1.56	1.53	1.42	1.42	0.82	1.53
10.5	West	1.47	1.47	1.47	1.44	1.34	1.34	0.82	1.44
10.6	West	1.49	1.49	1.49	1.47	1.38	1.38	0.90	1.47
10.7	West	1.49	1.49	1.49	1.46	1.39	1.39	0.97	1.46
10.8	West	1.48	1.48	1.48	1.48	1.47	1.47	1.07	1.48
10.9	West	1.58	1.58	1.58	1.58	1.58	1.58	1.20	1.58
11	West	1.64	1.64	1.64	1.64	1.64	1.64	1.28	1.64
11.1	West	1.59	1.59	1.59	1.59	1.59	1.59	1.24	1.59
11.2	West	1.52	1.52	1.52	1.52	1.52	1.52	1.28	1.52
11.3	West	1.44	1.44	1.44	1.44	1.44	1.44	1.43	1.44
11.4	West	1.50	1.50	1.50	1.50	1.50	1.50	1.48	1.50
11.5	West	1.64	1.64	1.64	1.64	1.64	1.64	1.63	1.64
11.6	West	1.65	1.65	1.65	1.65	1.65	1.65	1.64	1.65
11.7	West	1.71	1.71	1.71	1.71	1.71	1.71	1.69	1.71
7.6	Swan Isl	33.90	1.10	0.74	0.18	0.06	0.06	0.03	0.18
7.7	Swan Isl	17.95	0.64	0.50	0.19	0.04	0.04	0.02	0.19
7.8	Swan Isl	15.74	0.66	0.50	0.20	0.04	0.04	0.02	0.20
7.9	Swan Isl	15.29	0.60	0.45	0.19	0.05	0.05	0.02	0.19
8	Swan Isl	17.23	0.58	0.44	0.18	0.05	0.05	0.03	0.18
8.1	Swan Isl	17.20	0.57	0.43	0.18	0.06	0.06	0.03	0.18
8.2	Swan Isl	16.36	0.55	0.43	0.19	0.07	0.07	0.05	0.19
8.3	Swan Isl	15.62	0.58	0.43	0.19	0.08	0.08	0.06	0.19
8.4	Swan Isl	14.73	0.60	0.40	0.18	0.08	0.08	0.06	0.18
8.5	Swan Isl	14.35	0.62	0.39	0.18	0.08	0.08	0.06	0.18
8.6	Swan Isl	11.06	0.91	0.59	0.46	0.10	0.10	0.07	0.57
8.7	Swan Isl	12.66	2.22	1.75	1.44	0.20	0.20	0.12	1.84
8.8	Swan Isl	13.43	2.52	1.99	1.68	0.23	0.23	0.14	2.17
8.9	Swan Isl	13.58	2.86	2.26	1.91	0.25	0.25	0.15	2.47
9	Swan Isl	10.52	3.25	2.56	2.19	0.28	0.28	0.16	2.84
9.1	Swan Isl	10.05	3.48	2.75	2.35	0.29	0.29	0.17	3.05
9.2	Swan Isl	10.29	4.18	3.30	2.83	0.31	0.31	0.17	3.69
9.3	Swan Isl	10.75	5.25	4.21	3.67	0.36	0.36	0.18	4.81
9.4	Swan Isl	13.09	7.52	6.27	5.47	0.49	0.49	0.22	7.19
9.5	Swan Isl	15.72	12.09	10.37	9.05	0.80	0.80	0.34	11.94
9.6	Swan Isl	18.79	18.79	17.48	14.55	1.31	1.31	0.65	18.79

**Table J2.5-1b**

**RAO 6 Rolling River Mile HQ Estimates - DDE**

Portland Harbor Superfund Site

Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
1.8	Site	0.009	0.009	0.008	0.008	0.008	0.008	0.008	0.008
1.9	Site	0.009	0.009	0.009	0.009	0.008	0.008	0.008	0.009
2	Site	0.009	0.009	0.009	0.009	0.008	0.008	0.008	0.009
2.1	Site	0.009	0.009	0.009	0.009	0.009	0.009	0.008	0.009
2.2	Site	0.010	0.009	0.009	0.009	0.009	0.009	0.008	0.009
2.3	Site	0.010	0.009	0.009	0.009	0.009	0.009	0.008	0.009
2.4	Site	0.010	0.010	0.010	0.009	0.009	0.009	0.008	0.009
2.5	Site	0.010	0.010	0.010	0.009	0.009	0.009	0.008	0.009
2.6	Site	0.010	0.010	0.009	0.009	0.009	0.009	0.008	0.009
2.7	Site	0.010	0.010	0.010	0.009	0.009	0.009	0.008	0.009
2.8	Site	0.010	0.010	0.010	0.010	0.010	0.010	0.008	0.010
2.9	Site	0.010	0.010	0.010	0.010	0.009	0.009	0.008	0.010
3	Site	0.010	0.010	0.010	0.010	0.009	0.009	0.008	0.010
3.1	Site	0.010	0.010	0.010	0.010	0.009	0.009	0.007	0.010
3.2	Site	0.010	0.010	0.009	0.009	0.009	0.009	0.007	0.009
3.3	Site	0.010	0.009	0.009	0.009	0.009	0.008	0.006	0.009
3.4	Site	0.010	0.009	0.009	0.009	0.009	0.008	0.006	0.009
3.5	Site	0.010	0.009	0.009	0.009	0.009	0.008	0.006	0.009
3.6	Site	0.010	0.009	0.009	0.009	0.009	0.008	0.006	0.009
3.7	Site	0.010	0.009	0.009	0.009	0.008	0.008	0.006	0.009
3.8	Site	0.009	0.009	0.009	0.009	0.008	0.008	0.006	0.009
3.9	Site	0.010	0.009	0.009	0.009	0.008	0.008	0.006	0.009
4	Site	0.010	0.010	0.010	0.009	0.008	0.008	0.006	0.009
4.1	Site	0.011	0.010	0.010	0.010	0.008	0.008	0.006	0.010
4.2	Site	0.011	0.011	0.010	0.010	0.008	0.008	0.006	0.010
4.3	Site	0.011	0.011	0.011	0.010	0.009	0.009	0.007	0.010
4.4	Site	0.011	0.011	0.011	0.010	0.009	0.009	0.007	0.010
4.5	Site	0.011	0.011	0.011	0.010	0.009	0.009	0.007	0.010
4.6	Site	0.011	0.011	0.011	0.010	0.009	0.009	0.007	0.011
4.7	Site	0.011	0.011	0.010	0.010	0.009	0.008	0.007	0.010
4.8	Site	0.011	0.011	0.010	0.010	0.009	0.008	0.006	0.010
4.9	Site	0.010	0.010	0.009	0.009	0.009	0.008	0.006	0.010
5	Site	0.010	0.009	0.008	0.008	0.008	0.007	0.006	0.009
5.1	Site	0.009	0.009	0.008	0.007	0.008	0.006	0.005	0.008
5.2	Site	0.009	0.008	0.007	0.007	0.007	0.006	0.004	0.008
5.3	Site	0.011	0.008	0.007	0.006	0.007	0.005	0.004	0.007
5.4	Site	0.011	0.008	0.007	0.006	0.007	0.004	0.003	0.007
5.5	Site	0.011	0.008	0.007	0.006	0.007	0.004	0.002	0.007
5.6	Site	0.012	0.009	0.008	0.007	0.006	0.004	0.002	0.007
5.7	Site	0.014	0.010	0.008	0.007	0.007	0.004	0.002	0.008
5.8	Site	0.020	0.010	0.009	0.007	0.007	0.004	0.002	0.008
5.9	Site	0.023	0.010	0.009	0.008	0.008	0.004	0.003	0.009
6	Site	0.025	0.010	0.009	0.008	0.008	0.005	0.003	0.009

**Table J2.5-1b**

**RAO 6 Rolling River Mile HQ Estimates - DDE**

Portland Harbor Superfund Site

Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
6.1	Site	0.026	0.011	0.009	0.008	0.008	0.005	0.003	0.009
6.2	Site	0.026	0.012	0.010	0.008	0.009	0.005	0.003	0.010
6.3	Site	0.025	0.013	0.011	0.009	0.009	0.005	0.003	0.010
6.4	Site	0.035	0.018	0.012	0.009	0.009	0.005	0.003	0.010
6.5	Site	0.039	0.021	0.014	0.009	0.008	0.004	0.003	0.009
6.6	Site	0.042	0.024	0.015	0.009	0.008	0.004	0.003	0.008
6.7	Site	0.048	0.023	0.015	0.009	0.007	0.005	0.004	0.008
6.8	Site	0.056	0.024	0.015	0.010	0.008	0.006	0.004	0.009
6.9	Site	0.065	0.024	0.016	0.010	0.008	0.007	0.005	0.009
7	Site	0.074	0.025	0.016	0.011	0.009	0.007	0.005	0.010
7.1	Site	0.071	0.024	0.017	0.012	0.009	0.008	0.005	0.010
7.2	Site	0.068	0.024	0.017	0.012	0.010	0.009	0.006	0.010
7.3	Site	0.065	0.023	0.017	0.012	0.010	0.010	0.007	0.011
7.4	Site	0.057	0.020	0.016	0.013	0.011	0.010	0.007	0.011
7.5	Site	0.052	0.017	0.015	0.013	0.011	0.011	0.008	0.012
7.6	Site	0.047	0.014	0.013	0.012	0.011	0.011	0.008	0.012
7.7	Site	0.039	0.012	0.012	0.011	0.011	0.010	0.007	0.011
7.8	Site	0.030	0.011	0.011	0.010	0.010	0.009	0.007	0.010
7.9	Site	0.021	0.011	0.011	0.010	0.009	0.008	0.006	0.010
8	Site	0.014	0.010	0.010	0.010	0.008	0.008	0.006	0.009
8.1	Site	0.014	0.011	0.011	0.010	0.008	0.008	0.006	0.010
8.2	Site	0.015	0.011	0.011	0.010	0.007	0.007	0.006	0.010
8.3	Site	0.015	0.011	0.011	0.009	0.007	0.007	0.005	0.009
8.4	Site	0.021	0.010	0.010	0.008	0.006	0.006	0.005	0.008
8.5	Site	0.021	0.010	0.009	0.008	0.005	0.005	0.004	0.008
8.6	Site	0.021	0.010	0.009	0.007	0.005	0.005	0.004	0.007
8.7	Site	0.021	0.011	0.010	0.008	0.005	0.005	0.004	0.008
8.8	Site	0.022	0.011	0.011	0.008	0.006	0.005	0.004	0.008
8.9	Site	0.022	0.011	0.010	0.008	0.006	0.005	0.004	0.008
9	Site	0.022	0.011	0.010	0.008	0.005	0.005	0.004	0.008
9.1	Site	0.020	0.009	0.008	0.007	0.005	0.004	0.004	0.007
9.2	Site	0.019	0.008	0.007	0.006	0.005	0.005	0.004	0.006
9.3	Site	0.019	0.007	0.007	0.006	0.005	0.005	0.004	0.006
9.4	Site	0.009	0.008	0.007	0.007	0.006	0.005	0.004	0.007
9.5	Site	0.009	0.008	0.007	0.007	0.006	0.005	0.005	0.007
9.6	Site	0.008	0.008	0.007	0.007	0.006	0.006	0.005	0.007
9.7	Site	0.008	0.008	0.007	0.007	0.006	0.006	0.005	0.007
9.8	Site	0.007	0.007	0.007	0.007	0.007	0.006	0.005	0.007
9.9	Site	0.008	0.008	0.007	0.007	0.007	0.006	0.005	0.007
10	Site	0.008	0.008	0.008	0.007	0.007	0.006	0.005	0.007
10.1	Site	0.008	0.008	0.008	0.007	0.007	0.006	0.005	0.007
10.2	Site	0.008	0.008	0.008	0.007	0.007	0.006	0.005	0.007



**Table J2.5-1b**

**RAO 6 Rolling River Mile HQ Estimates - DDE**

Portland Harbor Superfund Site

Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
10.3	Site	0.008	0.008	0.008	0.008	0.007	0.006	0.005	0.008
10.4	Site	0.008	0.008	0.008	0.008	0.007	0.006	0.005	0.008
10.5	Site	0.008	0.008	0.008	0.008	0.008	0.006	0.005	0.008
10.6	Site	0.008	0.008	0.008	0.008	0.008	0.007	0.005	0.008
10.7	Site	0.008	0.008	0.008	0.008	0.008	0.006	0.005	0.008
10.8	Site	0.008	0.008	0.007	0.007	0.007	0.006	0.005	0.007
10.9	Site	0.008	0.007	0.007	0.007	0.007	0.006	0.005	0.007
11	Site	0.008	0.007	0.007	0.007	0.007	0.006	0.005	0.007
11.1	Site	0.008	0.007	0.007	0.007	0.007	0.006	0.005	0.007
11.2	Site	0.008	0.007	0.007	0.007	0.007	0.006	0.005	0.007
11.3	Site	0.008	0.007	0.007	0.007	0.007	0.006	0.005	0.007
11.4	Site	0.008	0.007	0.006	0.006	0.006	0.006	0.005	0.006
11.5	Site	0.008	0.006	0.006	0.006	0.006	0.006	0.005	0.006
11.6	Site	0.008	0.006	0.006	0.006	0.006	0.005	0.005	0.006
11.7	Site	0.008	0.006	0.006	0.006	0.006	0.006	0.005	0.006
1.8	East	0.009	0.009	0.008	0.008	0.008	0.008	0.008	0.008
1.9	East	0.010	0.009	0.009	0.008	0.008	0.008	0.008	0.008
2	East	0.010	0.009	0.009	0.009	0.008	0.008	0.008	0.009
2.1	East	0.011	0.010	0.010	0.009	0.008	0.008	0.008	0.009
2.2	East	0.011	0.010	0.010	0.009	0.008	0.008	0.007	0.009
2.3	East	0.011	0.010	0.010	0.009	0.008	0.008	0.007	0.009
2.4	East	0.012	0.010	0.010	0.009	0.007	0.007	0.007	0.009
2.5	East	0.012	0.010	0.010	0.009	0.008	0.008	0.007	0.009
2.6	East	0.012	0.011	0.010	0.009	0.008	0.008	0.007	0.009
2.7	East	0.012	0.011	0.010	0.010	0.008	0.008	0.007	0.010
2.8	East	0.011	0.011	0.010	0.010	0.008	0.008	0.008	0.010
2.9	East	0.011	0.010	0.010	0.010	0.008	0.008	0.007	0.010
3	East	0.010	0.010	0.010	0.009	0.008	0.008	0.007	0.010
3.1	East	0.010	0.010	0.009	0.009	0.008	0.008	0.007	0.009
3.2	East	0.009	0.009	0.008	0.008	0.008	0.008	0.007	0.008
3.3	East	0.009	0.008	0.007	0.007	0.006	0.006	0.006	0.007
3.4	East	0.010	0.008	0.007	0.007	0.006	0.006	0.005	0.007
3.5	East	0.010	0.008	0.008	0.007	0.006	0.006	0.005	0.007
3.6	East	0.010	0.008	0.007	0.007	0.005	0.005	0.004	0.007
3.7	East	0.010	0.008	0.008	0.006	0.005	0.005	0.003	0.006
3.8	East	0.011	0.009	0.008	0.007	0.005	0.005	0.004	0.007
3.9	East	0.012	0.010	0.009	0.008	0.005	0.005	0.003	0.008
4	East	0.013	0.011	0.011	0.009	0.006	0.006	0.003	0.009
4.1	East	0.013	0.011	0.011	0.009	0.005	0.005	0.002	0.009
4.2	East	0.014	0.012	0.011	0.009	0.005	0.005	0.002	0.009
4.3	East	0.014	0.014	0.013	0.011	0.006	0.006	0.003	0.011
4.4	East	0.014	0.014	0.013	0.011	0.006	0.006	0.003	0.011

**Table J2.5-1b**

**RAO 6 Rolling River Mile HQ Estimates - DDE**

Portland Harbor Superfund Site

Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
4.5	East	0.014	0.014	0.013	0.011	0.007	0.007	0.003	0.011
4.6	East	0.014	0.014	0.013	0.011	0.007	0.007	0.004	0.011
4.7	East	0.013	0.013	0.012	0.011	0.007	0.007	0.004	0.011
4.8	East	0.013	0.013	0.012	0.011	0.007	0.007	0.004	0.011
4.9	East	0.013	0.013	0.012	0.011	0.008	0.008	0.004	0.011
5	East	0.011	0.011	0.009	0.008	0.007	0.007	0.005	0.008
5.1	East	0.012	0.012	0.011	0.010	0.008	0.008	0.005	0.009
5.2	East	0.013	0.013	0.013	0.012	0.008	0.008	0.006	0.008
5.3	East	0.013	0.013	0.013	0.012	0.007	0.007	0.005	0.007
5.4	East	0.012	0.012	0.012	0.011	0.007	0.007	0.005	0.007
5.5	East	0.012	0.012	0.012	0.011	0.007	0.007	0.004	0.008
5.6	East	0.013	0.013	0.013	0.011	0.007	0.007	0.004	0.008
5.7	East	0.012	0.012	0.012	0.011	0.007	0.007	0.004	0.008
5.8	East	0.013	0.013	0.012	0.012	0.007	0.007	0.005	0.009
5.9	East	0.013	0.013	0.012	0.012	0.007	0.007	0.005	0.009
6	East	0.012	0.012	0.012	0.011	0.007	0.007	0.005	0.009
6.1	East	0.012	0.012	0.011	0.011	0.007	0.007	0.006	0.009
6.2	East	0.010	0.010	0.010	0.009	0.007	0.007	0.006	0.009
6.3	East	0.010	0.009	0.008	0.008	0.007	0.007	0.005	0.009
6.4	East	0.009	0.008	0.007	0.007	0.006	0.006	0.005	0.008
6.5	East	0.008	0.007	0.006	0.006	0.005	0.005	0.004	0.007
6.6	East	0.007	0.006	0.006	0.005	0.005	0.005	0.004	0.006
6.7	East	0.007	0.006	0.005	0.005	0.005	0.005	0.004	0.006
6.8	East	0.007	0.006	0.005	0.005	0.005	0.005	0.004	0.007
6.9	East	0.007	0.006	0.005	0.005	0.005	0.005	0.005	0.007
7	East	0.008	0.006	0.005	0.005	0.005	0.005	0.005	0.007
7.1	East	0.008	0.007	0.006	0.006	0.005	0.005	0.005	0.007
7.2	East	0.008	0.007	0.006	0.006	0.006	0.006	0.005	0.007
7.3	East	0.008	0.007	0.006	0.006	0.006	0.006	0.006	0.008
7.4	East	0.009	0.008	0.007	0.007	0.007	0.007	0.007	0.009
7.5	East	0.010	0.010	0.009	0.009	0.009	0.009	0.008	0.010
7.6	East	0.013	0.012	0.011	0.011	0.011	0.011	0.009	0.013
7.7	East	0.013	0.012	0.011	0.011	0.011	0.011	0.008	0.012
7.8	East	0.013	0.012	0.011	0.011	0.011	0.011	0.008	0.012
7.9	East	0.013	0.012	0.012	0.012	0.012	0.012	0.008	0.012
8	East	0.014	0.012	0.012	0.012	0.012	0.012	0.008	0.012
8.1	East	0.014	0.013	0.013	0.013	0.013	0.013	0.007	0.013
8.2	East	0.014	0.013	0.013	0.013	0.013	0.013	0.007	0.013
8.3	East	0.014	0.012	0.012	0.012	0.012	0.012	0.007	0.012
8.4	East	0.013	0.012	0.012	0.012	0.012	0.012	0.007	0.012
8.5	East	0.011	0.010	0.010	0.010	0.010	0.010	0.006	0.010
8.6	East	0.008	0.007	0.007	0.007	0.006	0.006	0.006	0.007

**Table J2.5-1b**

**RAO 6 Rolling River Mile HQ Estimates - DDE**

Portland Harbor Superfund Site

Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
8.7	East	0.008	0.008	0.008	0.008	0.008	0.008	0.007	0.008
8.8	East	0.009	0.009	0.009	0.009	0.008	0.008	0.007	0.009
8.9	East	0.008	0.008	0.008	0.008	0.008	0.008	0.007	0.008
9	East	0.007	0.007	0.007	0.007	0.007	0.007	0.006	0.007
9.1	East	0.007	0.007	0.007	0.007	0.006	0.006	0.005	0.007
9.2	East	0.006	0.006	0.006	0.006	0.006	0.006	0.004	0.006
9.3	East	0.006	0.006	0.006	0.006	0.005	0.005	0.004	0.006
9.4	East	0.006	0.006	0.006	0.006	0.006	0.006	0.004	0.006
9.5	East	0.006	0.006	0.006	0.006	0.005	0.005	0.004	0.006
9.6	East	0.006	0.006	0.006	0.006	0.005	0.005	0.004	0.006
9.7	East	0.006	0.006	0.006	0.006	0.006	0.006	0.005	0.006
9.8	East	0.006	0.006	0.006	0.006	0.005	0.005	0.005	0.006
9.9	East	0.006	0.006	0.006	0.006	0.005	0.005	0.005	0.006
10	East	0.007	0.007	0.007	0.007	0.006	0.006	0.005	0.007
10.1	East	0.007	0.007	0.007	0.007	0.007	0.007	0.005	0.007
10.2	East	0.008	0.008	0.008	0.008	0.007	0.007	0.006	0.008
10.3	East	0.008	0.008	0.008	0.008	0.006	0.006	0.006	0.008
10.4	East	0.008	0.008	0.008	0.008	0.006	0.006	0.005	0.008
10.5	East	0.009	0.009	0.009	0.008	0.006	0.006	0.005	0.008
10.6	East	0.009	0.009	0.009	0.008	0.006	0.006	0.005	0.008
10.7	East	0.008	0.008	0.008	0.007	0.005	0.005	0.004	0.007
10.8	East	0.007	0.007	0.007	0.006	0.004	0.004	0.003	0.006
10.9	East	0.008	0.006	0.006	0.005	0.003	0.003	0.002	0.005
11	East	0.008	0.005	0.005	0.004	0.002	0.002	0.002	0.004
11.1	East	0.007	0.005	0.004	0.003	0.002	0.002	0.001	0.003
11.2	East	0.007	0.004	0.004	0.003	0.002	0.002	0.001	0.003
11.3	East	0.006	0.004	0.003	0.003	0.002	0.002	0.001	0.003
11.4	East	0.006	0.003	0.003	0.002	0.001	0.001	0.000	0.002
11.5	East	0.006	0.003	0.002	0.002	0.001	0.001	0.000	0.002
11.6	East	0.006	0.003	0.002	0.001	0.001	0.001	0.000	0.001
11.7	East	0.007	0.003	0.002	0.001	0.001	0.001	0.000	0.001
1.8	Nav Channel	0.010	0.010	0.010	0.010	0.010	0.010	0.009	0.010
1.9	Nav Channel	0.010	0.010	0.010	0.010	0.010	0.010	0.009	0.010
2	Nav Channel	0.009	0.009	0.009	0.009	0.009	0.009	0.008	0.009
2.1	Nav Channel	0.009	0.009	0.009	0.009	0.009	0.009	0.008	0.009
2.2	Nav Channel	0.009	0.009	0.009	0.009	0.009	0.009	0.008	0.009
2.3	Nav Channel	0.009	0.009	0.009	0.009	0.009	0.009	0.008	0.009
2.4	Nav Channel	0.009	0.009	0.009	0.009	0.009	0.009	0.008	0.009
2.5	Nav Channel	0.009	0.009	0.009	0.009	0.009	0.009	0.008	0.009
2.6	Nav Channel	0.010	0.010	0.010	0.010	0.010	0.010	0.009	0.010
2.7	Nav Channel	0.010	0.010	0.010	0.010	0.010	0.010	0.009	0.010
2.8	Nav Channel	0.010	0.010	0.010	0.010	0.010	0.010	0.009	0.010

**Table J2.5-1b**

**RAO 6 Rolling River Mile HQ Estimates - DDE**

Portland Harbor Superfund Site

Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
2.9	Nav Channel	0.010	0.010	0.010	0.010	0.010	0.010	0.009	0.010
3	Nav Channel	0.009	0.009	0.009	0.009	0.009	0.009	0.009	0.009
3.1	Nav Channel	0.009	0.009	0.009	0.009	0.009	0.009	0.008	0.009
3.2	Nav Channel	0.009	0.009	0.009	0.009	0.009	0.008	0.007	0.009
3.3	Nav Channel	0.008	0.008	0.008	0.008	0.008	0.007	0.006	0.008
3.4	Nav Channel	0.008	0.008	0.008	0.008	0.008	0.007	0.006	0.008
3.5	Nav Channel	0.008	0.008	0.008	0.008	0.008	0.007	0.006	0.008
3.6	Nav Channel	0.008	0.008	0.008	0.008	0.008	0.007	0.006	0.008
3.7	Nav Channel	0.008	0.008	0.008	0.008	0.008	0.007	0.006	0.008
3.8	Nav Channel	0.008	0.008	0.008	0.008	0.008	0.007	0.006	0.008
3.9	Nav Channel	0.008	0.008	0.008	0.008	0.008	0.007	0.006	0.008
4	Nav Channel	0.008	0.008	0.008	0.008	0.008	0.007	0.006	0.008
4.1	Nav Channel	0.009	0.009	0.009	0.009	0.009	0.008	0.007	0.009
4.2	Nav Channel	0.009	0.009	0.009	0.009	0.009	0.009	0.008	0.009
4.3	Nav Channel	0.009	0.009	0.009	0.009	0.009	0.009	0.008	0.009
4.4	Nav Channel	0.009	0.009	0.009	0.009	0.009	0.009	0.009	0.009
4.5	Nav Channel	0.009	0.009	0.009	0.009	0.009	0.009	0.009	0.009
4.6	Nav Channel	0.010	0.010	0.009	0.009	0.010	0.009	0.008	0.010
4.7	Nav Channel	0.010	0.009	0.009	0.009	0.009	0.008	0.008	0.009
4.8	Nav Channel	0.010	0.009	0.009	0.008	0.009	0.008	0.007	0.009
4.9	Nav Channel	0.009	0.009	0.008	0.008	0.009	0.007	0.007	0.009
5	Nav Channel	0.009	0.008	0.008	0.007	0.008	0.006	0.006	0.008
5.1	Nav Channel	0.008	0.008	0.007	0.006	0.008	0.006	0.005	0.008
5.2	Nav Channel	0.009	0.007	0.006	0.006	0.007	0.005	0.004	0.007
5.3	Nav Channel	0.010	0.007	0.006	0.005	0.007	0.004	0.003	0.007
5.4	Nav Channel	0.010	0.006	0.005	0.004	0.006	0.003	0.002	0.006
5.5	Nav Channel	0.010	0.006	0.005	0.004	0.006	0.002	0.001	0.006
5.6	Nav Channel	0.010	0.006	0.005	0.004	0.006	0.002	0.001	0.006
5.7	Nav Channel	0.012	0.008	0.006	0.004	0.008	0.002	0.001	0.007
5.8	Nav Channel	0.014	0.008	0.006	0.005	0.008	0.002	0.001	0.007
5.9	Nav Channel	0.016	0.009	0.007	0.005	0.009	0.003	0.001	0.008
6	Nav Channel	0.017	0.009	0.007	0.006	0.009	0.003	0.002	0.008
6.1	Nav Channel	0.019	0.010	0.008	0.006	0.010	0.003	0.002	0.009
6.2	Nav Channel	0.020	0.012	0.009	0.007	0.012	0.003	0.002	0.011
6.3	Nav Channel	0.019	0.014	0.011	0.009	0.014	0.003	0.002	0.013
6.4	Nav Channel	0.019	0.015	0.011	0.009	0.014	0.004	0.002	0.013
6.5	Nav Channel	0.019	0.014	0.011	0.009	0.014	0.004	0.002	0.013
6.6	Nav Channel	0.018	0.014	0.011	0.009	0.013	0.005	0.003	0.012
6.7	Nav Channel	0.017	0.013	0.011	0.009	0.012	0.006	0.004	0.012
6.8	Nav Channel	0.017	0.015	0.013	0.012	0.014	0.009	0.006	0.014
6.9	Nav Channel	0.018	0.016	0.015	0.014	0.016	0.011	0.007	0.016
7	Nav Channel	0.017	0.017	0.016	0.015	0.016	0.012	0.007	0.016

**Table J2.5-1b**

**RAO 6 Rolling River Mile HQ Estimates - DDE**

Portland Harbor Superfund Site

Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
7.1	Nav Channel	0.016	0.016	0.016	0.015	0.016	0.012	0.008	0.016
7.2	Nav Channel	0.015	0.015	0.015	0.015	0.015	0.013	0.008	0.015
7.3	Nav Channel	0.014	0.014	0.014	0.014	0.014	0.013	0.009	0.014
7.4	Nav Channel	0.014	0.014	0.014	0.014	0.014	0.013	0.009	0.014
7.5	Nav Channel	0.013	0.013	0.013	0.013	0.013	0.012	0.009	0.013
7.6	Nav Channel	0.013	0.013	0.013	0.013	0.013	0.012	0.009	0.013
7.7	Nav Channel	0.013	0.013	0.013	0.013	0.013	0.012	0.009	0.013
7.8	Nav Channel	0.011	0.011	0.011	0.011	0.011	0.011	0.009	0.011
7.9	Nav Channel	0.010	0.010	0.010	0.010	0.010	0.010	0.008	0.010
8	Nav Channel	0.010	0.010	0.010	0.010	0.010	0.009	0.008	0.010
8.1	Nav Channel	0.009	0.009	0.009	0.009	0.009	0.009	0.008	0.009
8.2	Nav Channel	0.009	0.009	0.009	0.009	0.009	0.008	0.008	0.009
8.3	Nav Channel	0.008	0.008	0.008	0.008	0.008	0.008	0.008	0.008
8.4	Nav Channel	0.008	0.008	0.008	0.008	0.008	0.007	0.007	0.008
8.5	Nav Channel	0.007	0.007	0.007	0.007	0.007	0.007	0.007	0.007
8.6	Nav Channel	0.007	0.007	0.007	0.007	0.007	0.007	0.006	0.007
8.7	Nav Channel	0.007	0.007	0.007	0.007	0.007	0.006	0.006	0.007
8.8	Nav Channel	0.007	0.006	0.006	0.006	0.006	0.006	0.006	0.006
8.9	Nav Channel	0.006	0.006	0.006	0.006	0.006	0.006	0.005	0.006
9	Nav Channel	0.006	0.006	0.006	0.006	0.006	0.006	0.005	0.006
9.1	Nav Channel	0.006	0.006	0.006	0.006	0.006	0.005	0.005	0.006
9.2	Nav Channel	0.006	0.006	0.006	0.006	0.006	0.006	0.005	0.006
9.3	Nav Channel	0.007	0.007	0.007	0.007	0.007	0.006	0.005	0.007
9.4	Nav Channel	0.007	0.007	0.007	0.007	0.007	0.006	0.006	0.007
9.5	Nav Channel	0.007	0.007	0.007	0.007	0.007	0.006	0.006	0.007
9.6	Nav Channel	0.007	0.007	0.007	0.007	0.007	0.006	0.006	0.007
9.7	Nav Channel	0.007	0.007	0.007	0.007	0.007	0.006	0.006	0.007
9.8	Nav Channel	0.007	0.007	0.007	0.007	0.007	0.007	0.006	0.007
9.9	Nav Channel	0.008	0.008	0.008	0.008	0.008	0.006	0.005	0.008
10	Nav Channel	0.008	0.008	0.008	0.008	0.008	0.006	0.005	0.008
10.1	Nav Channel	0.008	0.008	0.008	0.008	0.008	0.006	0.005	0.008
10.2	Nav Channel	0.007	0.007	0.007	0.007	0.007	0.006	0.005	0.007
10.3	Nav Channel	0.007	0.007	0.007	0.007	0.007	0.006	0.005	0.007
10.4	Nav Channel	0.007	0.007	0.007	0.007	0.007	0.006	0.004	0.007
10.5	Nav Channel	0.007	0.007	0.007	0.007	0.007	0.006	0.004	0.007
10.6	Nav Channel	0.008	0.008	0.008	0.008	0.008	0.006	0.005	0.008
10.7	Nav Channel	0.008	0.008	0.008	0.008	0.008	0.006	0.004	0.008
10.8	Nav Channel	0.008	0.007	0.007	0.007	0.007	0.006	0.005	0.007
10.9	Nav Channel	0.007	0.007	0.007	0.007	0.007	0.006	0.005	0.007
11	Nav Channel	0.008	0.007	0.007	0.007	0.007	0.006	0.006	0.007
11.1	Nav Channel	0.008	0.007	0.007	0.007	0.007	0.007	0.006	0.007
11.2	Nav Channel	0.008	0.007	0.007	0.007	0.007	0.007	0.006	0.007

**Table J2.5-1b**

**RAO 6 Rolling River Mile HQ Estimates - DDE**

Portland Harbor Superfund Site

Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
11.3	Nav Channel	0.008	0.007	0.007	0.007	0.007	0.007	0.006	0.007
11.4	Nav Channel	0.008	0.007	0.007	0.007	0.007	0.006	0.006	0.007
11.5	Nav Channel	0.008	0.007	0.007	0.007	0.007	0.006	0.006	0.007
11.6	Nav Channel	0.008	0.007	0.007	0.006	0.006	0.006	0.006	0.006
11.7	Nav Channel	0.008	0.007	0.007	0.007	0.007	0.007	0.006	0.007
1.8	West	0.007	0.007	0.007	0.007	0.007	0.007	0.007	0.007
1.9	West	0.008	0.008	0.008	0.008	0.008	0.008	0.008	0.008
2	West	0.008	0.008	0.008	0.008	0.008	0.008	0.008	0.008
2.1	West	0.008	0.008	0.008	0.008	0.008	0.008	0.008	0.008
2.2	West	0.009	0.009	0.009	0.009	0.009	0.009	0.009	0.009
2.3	West	0.009	0.009	0.009	0.009	0.009	0.009	0.009	0.009
2.4	West	0.010	0.010	0.010	0.010	0.010	0.010	0.009	0.010
2.5	West	0.009	0.009	0.009	0.009	0.009	0.009	0.008	0.009
2.6	West	0.009	0.009	0.009	0.009	0.009	0.009	0.007	0.009
2.7	West	0.009	0.009	0.009	0.009	0.009	0.009	0.007	0.009
2.8	West	0.010	0.010	0.010	0.010	0.010	0.010	0.007	0.010
2.9	West	0.010	0.010	0.010	0.010	0.010	0.010	0.007	0.010
3	West	0.010	0.010	0.010	0.010	0.010	0.010	0.007	0.010
3.1	West	0.010	0.010	0.010	0.010	0.010	0.010	0.007	0.010
3.2	West	0.010	0.010	0.010	0.010	0.010	0.010	0.007	0.010
3.3	West	0.011	0.011	0.011	0.011	0.011	0.011	0.007	0.011
3.4	West	0.011	0.011	0.011	0.011	0.011	0.011	0.007	0.011
3.5	West	0.012	0.012	0.012	0.012	0.011	0.011	0.008	0.012
3.6	West	0.013	0.013	0.013	0.013	0.013	0.013	0.009	0.013
3.7	West	0.014	0.014	0.014	0.014	0.013	0.013	0.009	0.014
3.8	West	0.013	0.013	0.013	0.013	0.012	0.012	0.009	0.013
3.9	West	0.015	0.015	0.015	0.015	0.013	0.013	0.010	0.015
4	West	0.015	0.015	0.015	0.015	0.014	0.014	0.009	0.015
4.1	West	0.015	0.015	0.015	0.015	0.013	0.013	0.008	0.015
4.2	West	0.016	0.016	0.016	0.016	0.012	0.012	0.006	0.016
4.3	West	0.016	0.016	0.016	0.015	0.011	0.011	0.005	0.015
4.4	West	0.015	0.015	0.015	0.015	0.011	0.011	0.005	0.015
4.5	West	0.016	0.016	0.016	0.015	0.011	0.011	0.005	0.015
4.6	West	0.016	0.016	0.016	0.016	0.012	0.012	0.006	0.016
4.7	West	0.015	0.015	0.015	0.015	0.011	0.011	0.005	0.015
4.8	West	0.014	0.014	0.014	0.014	0.011	0.011	0.006	0.014
4.9	West	0.013	0.013	0.013	0.013	0.010	0.010	0.005	0.013
5	West	0.012	0.012	0.012	0.011	0.008	0.008	0.005	0.011
5.1	West	0.011	0.011	0.011	0.010	0.007	0.007	0.004	0.010
5.2	West	0.009	0.009	0.008	0.008	0.007	0.007	0.004	0.008
5.3	West	0.009	0.009	0.009	0.008	0.007	0.007	0.004	0.008
5.4	West	0.011	0.011	0.011	0.010	0.008	0.008	0.004	0.010

**Table J2.5-1b**

**RAO 6 Rolling River Mile HQ Estimates - DDE**

Portland Harbor Superfund Site

Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
5.5	West	0.013	0.012	0.011	0.010	0.008	0.008	0.004	0.011
5.6	West	0.015	0.014	0.012	0.011	0.007	0.007	0.003	0.012
5.7	West	0.025	0.014	0.011	0.010	0.006	0.006	0.003	0.011
5.8	West	0.050	0.012	0.010	0.009	0.005	0.005	0.002	0.010
5.9	West	0.064	0.012	0.009	0.008	0.005	0.005	0.002	0.009
6	West	0.070	0.011	0.009	0.008	0.005	0.005	0.002	0.009
6.1	West	0.073	0.013	0.010	0.009	0.005	0.005	0.002	0.009
6.2	West	0.075	0.015	0.013	0.011	0.005	0.005	0.002	0.009
6.3	West	0.076	0.017	0.014	0.012	0.004	0.004	0.002	0.008
6.4	West	0.134	0.050	0.025	0.014	0.004	0.004	0.001	0.007
6.5	West	0.170	0.074	0.039	0.015	0.003	0.003	0.000	0.005
6.6	West	0.200	0.097	0.053	0.019	0.003	0.003	0.000	0.003
6.7	West	0.236	0.098	0.051	0.018	0.003	0.003	0.000	0.003
6.8	West	0.284	0.096	0.050	0.018	0.003	0.003	0.000	0.003
6.9	West	0.353	0.097	0.051	0.018	0.003	0.003	0.000	0.003
7	West	0.418	0.100	0.053	0.019	0.003	0.003	0.000	0.003
7.1	West	0.348	0.087	0.047	0.019	0.006	0.006	0.002	0.006
7.2	West	0.294	0.075	0.041	0.018	0.007	0.007	0.003	0.007
7.3	West	0.256	0.067	0.039	0.018	0.009	0.009	0.003	0.009
7.4	West	0.222	0.048	0.032	0.017	0.009	0.009	0.004	0.009
7.5	West	0.212	0.037	0.025	0.017	0.010	0.010	0.004	0.010
7.6	West	0.199	0.023	0.017	0.014	0.010	0.010	0.004	0.011
7.7	West	0.169	0.020	0.017	0.015	0.011	0.011	0.004	0.011
7.8	West	0.121	0.021	0.018	0.015	0.011	0.011	0.004	0.012
7.9	West	0.068	0.023	0.021	0.018	0.011	0.011	0.004	0.015
8	West	0.021	0.020	0.019	0.017	0.011	0.011	0.005	0.015
8.1	West	0.026	0.026	0.026	0.022	0.011	0.011	0.005	0.020
8.2	West	0.034	0.034	0.034	0.025	0.010	0.010	0.004	0.023
8.3	West	0.039	0.037	0.036	0.024	0.008	0.008	0.003	0.024
8.4	West	0.091	0.039	0.038	0.024	0.007	0.007	0.003	0.024
8.5	West	0.094	0.040	0.038	0.024	0.007	0.007	0.003	0.024
8.6	West	0.097	0.040	0.038	0.024	0.007	0.007	0.003	0.024
8.7	West	0.102	0.042	0.039	0.024	0.007	0.007	0.003	0.024
8.8	West	0.102	0.043	0.040	0.024	0.007	0.007	0.003	0.024
8.9	West	0.101	0.040	0.036	0.021	0.007	0.007	0.004	0.021
9	West	0.106	0.041	0.037	0.021	0.006	0.006	0.003	0.021
9.1	West	0.100	0.029	0.025	0.013	0.003	0.003	0.002	0.013
9.2	West	0.086	0.017	0.012	0.007	0.003	0.003	0.002	0.007
9.3	West	0.082	0.013	0.009	0.006	0.003	0.003	0.002	0.006
9.4	West	0.019	0.013	0.009	0.007	0.003	0.003	0.002	0.007
9.5	West	0.017	0.013	0.010	0.007	0.003	0.003	0.002	0.007
9.6	West	0.016	0.013	0.010	0.008	0.004	0.004	0.003	0.008

**Table J2.5-1b**

**RAO 6 Rolling River Mile HQ Estimates - DDE**

Portland Harbor Superfund Site

Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
9.7	West	0.013	0.013	0.011	0.008	0.004	0.004	0.003	0.008
9.8	West	0.010	0.009	0.008	0.007	0.004	0.004	0.003	0.007
9.9	West	0.010	0.009	0.008	0.006	0.003	0.003	0.002	0.006
10	West	0.011	0.010	0.008	0.006	0.004	0.004	0.003	0.006
10.1	West	0.011	0.010	0.007	0.005	0.004	0.004	0.003	0.005
10.2	West	0.011	0.011	0.008	0.007	0.007	0.007	0.005	0.008
10.3	West	0.010	0.010	0.010	0.010	0.009	0.009	0.007	0.010
10.4	West	0.010	0.010	0.010	0.010	0.010	0.010	0.008	0.010
10.5	West	0.011	0.011	0.011	0.011	0.010	0.010	0.008	0.011
10.6	West	0.011	0.011	0.011	0.011	0.010	0.010	0.009	0.011
10.7	West	0.011	0.011	0.011	0.011	0.010	0.010	0.009	0.011
10.8	West	0.011	0.011	0.011	0.011	0.011	0.011	0.009	0.011
10.9	West	0.010	0.010	0.010	0.010	0.010	0.010	0.009	0.010
11	West	0.010	0.010	0.010	0.010	0.010	0.010	0.009	0.010
11.1	West	0.010	0.010	0.010	0.010	0.010	0.010	0.009	0.010
11.2	West	0.009	0.009	0.009	0.009	0.009	0.009	0.008	0.009
11.3	West	0.009	0.009	0.009	0.009	0.009	0.009	0.009	0.009
11.4	West	0.008	0.008	0.008	0.008	0.008	0.008	0.008	0.008
11.5	West	0.007	0.007	0.007	0.007	0.007	0.007	0.007	0.007
11.6	West	0.006	0.006	0.006	0.006	0.006	0.006	0.006	0.006
11.7	West	0.006	0.006	0.006	0.006	0.006	0.006	0.006	0.006
7.6	Swan Isl	0.013	0.001	0.001	0.001	0.000	0.000	0.000	0.001
7.7	Swan Isl	0.019	0.001	0.001	0.001	0.000	0.000	0.000	0.001
7.8	Swan Isl	0.018	0.001	0.001	0.001	0.000	0.000	0.000	0.001
7.9	Swan Isl	0.017	0.001	0.001	0.001	0.000	0.000	0.000	0.001
8	Swan Isl	0.018	0.001	0.001	0.001	0.000	0.000	0.000	0.001
8.1	Swan Isl	0.017	0.001	0.001	0.001	0.000	0.000	0.000	0.001
8.2	Swan Isl	0.017	0.001	0.001	0.001	0.000	0.000	0.000	0.001
8.3	Swan Isl	0.016	0.001	0.001	0.001	0.000	0.000	0.000	0.001
8.4	Swan Isl	0.016	0.001	0.001	0.001	0.000	0.000	0.000	0.001
8.5	Swan Isl	0.016	0.001	0.001	0.001	0.000	0.000	0.000	0.001
8.6	Swan Isl	0.016	0.002	0.001	0.001	0.001	0.001	0.000	0.001
8.7	Swan Isl	0.015	0.003	0.002	0.002	0.001	0.001	0.001	0.003
8.8	Swan Isl	0.014	0.003	0.003	0.002	0.001	0.001	0.001	0.003
8.9	Swan Isl	0.014	0.004	0.003	0.003	0.001	0.001	0.001	0.003
9	Swan Isl	0.014	0.004	0.003	0.003	0.001	0.001	0.001	0.004
9.1	Swan Isl	0.014	0.005	0.003	0.003	0.001	0.001	0.001	0.004
9.2	Swan Isl	0.015	0.005	0.004	0.003	0.001	0.001	0.001	0.005
9.3	Swan Isl	0.015	0.006	0.004	0.004	0.001	0.001	0.001	0.006
9.4	Swan Isl	0.016	0.009	0.006	0.006	0.001	0.001	0.001	0.008
9.5	Swan Isl	0.019	0.014	0.010	0.010	0.002	0.002	0.001	0.014
9.6	Swan Isl	0.018	0.018	0.015	0.013	0.004	0.004	0.003	0.018



**Table J2.5-1c**

**RAO 6 Rolling River Mile HQ Estimates - DDx**

Portland Harbor Superfund Site

Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
1.8	Site	0.009	0.008	0.008	0.008	0.008	0.008	0.008	0.008
1.9	Site	0.009	0.009	0.009	0.008	0.008	0.008	0.008	0.008
2	Site	0.009	0.009	0.009	0.009	0.008	0.008	0.008	0.009
2.1	Site	0.009	0.009	0.009	0.009	0.009	0.009	0.008	0.009
2.2	Site	0.009	0.009	0.009	0.009	0.008	0.008	0.008	0.009
2.3	Site	0.009	0.009	0.009	0.009	0.008	0.008	0.008	0.009
2.4	Site	0.010	0.009	0.009	0.009	0.008	0.008	0.008	0.009
2.5	Site	0.010	0.009	0.009	0.009	0.009	0.009	0.008	0.009
2.6	Site	0.010	0.009	0.009	0.009	0.009	0.009	0.008	0.009
2.7	Site	0.010	0.010	0.010	0.010	0.009	0.009	0.008	0.010
2.8	Site	0.012	0.012	0.012	0.011	0.011	0.011	0.008	0.011
2.9	Site	0.012	0.012	0.011	0.011	0.011	0.011	0.008	0.011
3	Site	0.012	0.012	0.012	0.012	0.012	0.011	0.008	0.012
3.1	Site	0.012	0.012	0.012	0.012	0.012	0.011	0.008	0.012
3.2	Site	0.012	0.012	0.012	0.012	0.012	0.011	0.007	0.012
3.3	Site	0.013	0.012	0.012	0.012	0.012	0.011	0.007	0.012
3.4	Site	0.013	0.013	0.013	0.012	0.012	0.011	0.007	0.012
3.5	Site	0.014	0.014	0.014	0.014	0.013	0.012	0.008	0.014
3.6	Site	0.015	0.015	0.014	0.014	0.014	0.013	0.008	0.014
3.7	Site	0.015	0.014	0.014	0.014	0.013	0.012	0.008	0.014
3.8	Site	0.013	0.012	0.012	0.012	0.011	0.010	0.007	0.012
3.9	Site	0.014	0.014	0.013	0.012	0.011	0.010	0.007	0.012
4	Site	0.014	0.014	0.013	0.012	0.011	0.010	0.007	0.012
4.1	Site	0.014	0.014	0.013	0.012	0.011	0.011	0.007	0.012
4.2	Site	0.015	0.014	0.013	0.013	0.011	0.011	0.007	0.013
4.3	Site	0.015	0.015	0.014	0.013	0.012	0.011	0.008	0.013
4.4	Site	0.014	0.014	0.014	0.013	0.011	0.011	0.008	0.013
4.5	Site	0.013	0.013	0.013	0.012	0.011	0.010	0.007	0.012
4.6	Site	0.013	0.013	0.012	0.011	0.010	0.010	0.007	0.012
4.7	Site	0.013	0.013	0.012	0.011	0.010	0.009	0.007	0.012
4.8	Site	0.013	0.013	0.012	0.011	0.010	0.009	0.006	0.012
4.9	Site	0.013	0.012	0.011	0.010	0.010	0.009	0.006	0.011
5	Site	0.012	0.011	0.010	0.009	0.010	0.008	0.006	0.010
5.1	Site	0.012	0.011	0.010	0.009	0.010	0.007	0.005	0.010
5.2	Site	0.013	0.011	0.010	0.009	0.009	0.007	0.004	0.009
5.3	Site	0.016	0.011	0.009	0.009	0.009	0.006	0.004	0.009
5.4	Site	0.017	0.012	0.011	0.010	0.009	0.006	0.003	0.010
5.5	Site	0.019	0.014	0.012	0.011	0.010	0.006	0.003	0.012
5.6	Site	0.021	0.015	0.013	0.012	0.010	0.006	0.002	0.013
5.7	Site	0.024	0.016	0.014	0.012	0.011	0.007	0.003	0.013
5.8	Site	0.029	0.016	0.014	0.012	0.010	0.007	0.003	0.013
5.9	Site	0.033	0.015	0.013	0.012	0.010	0.006	0.003	0.012
6	Site	0.035	0.015	0.014	0.012	0.010	0.007	0.004	0.012

**Table J2.5-1c**

**RAO 6 Rolling River Mile HQ Estimates - DDx**

Portland Harbor Superfund Site

Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
6.1	Site	0.039	0.017	0.015	0.013	0.011	0.007	0.004	0.013
6.2	Site	0.039	0.018	0.016	0.014	0.012	0.008	0.005	0.014
6.3	Site	0.036	0.019	0.017	0.014	0.012	0.008	0.004	0.014
6.4	Site	0.044	0.023	0.017	0.013	0.010	0.007	0.004	0.013
6.5	Site	0.053	0.030	0.020	0.012	0.010	0.006	0.004	0.011
6.6	Site	0.062	0.036	0.023	0.013	0.009	0.006	0.004	0.010
6.7	Site	0.084	0.037	0.023	0.013	0.009	0.007	0.005	0.010
6.8	Site	0.185	0.037	0.023	0.014	0.010	0.008	0.006	0.012
6.9	Site	0.257	0.038	0.024	0.015	0.011	0.009	0.006	0.013
7	Site	0.269	0.038	0.025	0.015	0.011	0.010	0.006	0.013
7.1	Site	0.254	0.037	0.025	0.016	0.011	0.010	0.006	0.013
7.2	Site	0.240	0.035	0.023	0.015	0.011	0.010	0.006	0.012
7.3	Site	0.230	0.034	0.023	0.015	0.012	0.011	0.007	0.013
7.4	Site	0.219	0.029	0.021	0.015	0.012	0.011	0.007	0.012
7.5	Site	0.202	0.023	0.018	0.014	0.012	0.012	0.007	0.013
7.6	Site	0.182	0.017	0.014	0.013	0.012	0.012	0.007	0.013
7.7	Site	0.152	0.014	0.013	0.012	0.011	0.010	0.006	0.011
7.8	Site	0.081	0.013	0.012	0.011	0.010	0.009	0.006	0.010
7.9	Site	0.029	0.012	0.012	0.011	0.009	0.008	0.005	0.010
8	Site	0.015	0.011	0.011	0.010	0.008	0.008	0.005	0.009
8.1	Site	0.015	0.011	0.011	0.009	0.007	0.007	0.005	0.009
8.2	Site	0.015	0.011	0.011	0.009	0.007	0.007	0.005	0.009
8.3	Site	0.015	0.010	0.010	0.008	0.006	0.006	0.005	0.008
8.4	Site	0.018	0.010	0.009	0.008	0.006	0.006	0.004	0.008
8.5	Site	0.018	0.009	0.009	0.007	0.005	0.005	0.004	0.007
8.6	Site	0.018	0.009	0.008	0.006	0.004	0.004	0.004	0.006
8.7	Site	0.018	0.009	0.009	0.007	0.004	0.004	0.004	0.007
8.8	Site	0.018	0.009	0.009	0.007	0.004	0.004	0.003	0.007
8.9	Site	0.016	0.008	0.008	0.006	0.004	0.004	0.003	0.006
9	Site	0.016	0.008	0.007	0.005	0.004	0.004	0.003	0.005
9.1	Site	0.014	0.006	0.006	0.004	0.003	0.003	0.003	0.004
9.2	Site	0.013	0.005	0.005	0.004	0.003	0.003	0.003	0.004
9.3	Site	0.012	0.005	0.004	0.004	0.003	0.003	0.003	0.004
9.4	Site	0.007	0.005	0.005	0.004	0.004	0.003	0.003	0.004
9.5	Site	0.006	0.006	0.005	0.005	0.004	0.004	0.003	0.005
9.6	Site	0.006	0.006	0.005	0.005	0.004	0.004	0.003	0.005
9.7	Site	0.006	0.006	0.005	0.005	0.004	0.004	0.004	0.005
9.8	Site	0.006	0.006	0.005	0.005	0.005	0.004	0.004	0.005
9.9	Site	0.006	0.006	0.006	0.005	0.005	0.004	0.003	0.005
10	Site	0.006	0.006	0.006	0.006	0.005	0.004	0.003	0.006
10.1	Site	0.006	0.006	0.006	0.006	0.005	0.005	0.004	0.006
10.2	Site	0.006	0.006	0.006	0.006	0.006	0.005	0.004	0.006

**Table J2.5-1c**

**RAO 6 Rolling River Mile HQ Estimates - DDx**

Portland Harbor Superfund Site

Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
10.3	Site	0.006	0.006	0.006	0.006	0.006	0.005	0.004	0.006
10.4	Site	0.006	0.006	0.006	0.006	0.006	0.005	0.004	0.006
10.5	Site	0.007	0.007	0.007	0.007	0.006	0.005	0.004	0.007
10.6	Site	0.007	0.007	0.007	0.007	0.007	0.006	0.004	0.007
10.7	Site	0.008	0.008	0.007	0.007	0.007	0.006	0.004	0.007
10.8	Site	0.010	0.008	0.008	0.007	0.007	0.006	0.004	0.007
10.9	Site	0.012	0.009	0.008	0.007	0.007	0.006	0.005	0.007
11	Site	0.013	0.010	0.009	0.008	0.007	0.007	0.005	0.008
11.1	Site	0.013	0.010	0.009	0.008	0.008	0.007	0.006	0.008
11.2	Site	0.014	0.010	0.009	0.009	0.008	0.007	0.006	0.009
11.3	Site	0.015	0.011	0.010	0.009	0.008	0.008	0.006	0.009
11.4	Site	0.016	0.011	0.010	0.009	0.008	0.008	0.006	0.009
11.5	Site	0.017	0.012	0.010	0.009	0.008	0.008	0.007	0.009
11.6	Site	0.018	0.012	0.010	0.009	0.008	0.008	0.007	0.009
11.7	Site	0.019	0.012	0.011	0.009	0.009	0.008	0.007	0.009
1.8	East	0.011	0.010	0.010	0.010	0.009	0.009	0.009	0.010
1.9	East	0.011	0.010	0.010	0.010	0.009	0.009	0.009	0.010
2	East	0.011	0.010	0.010	0.010	0.009	0.009	0.009	0.010
2.1	East	0.011	0.010	0.010	0.010	0.009	0.009	0.009	0.010
2.2	East	0.010	0.009	0.009	0.008	0.008	0.008	0.007	0.008
2.3	East	0.010	0.009	0.008	0.008	0.007	0.007	0.006	0.008
2.4	East	0.010	0.009	0.008	0.007	0.006	0.006	0.005	0.007
2.5	East	0.010	0.009	0.008	0.008	0.006	0.006	0.006	0.008
2.6	East	0.010	0.009	0.008	0.008	0.007	0.007	0.006	0.008
2.7	East	0.010	0.009	0.009	0.008	0.007	0.007	0.006	0.008
2.8	East	0.010	0.009	0.009	0.008	0.007	0.007	0.006	0.008
2.9	East	0.009	0.009	0.009	0.008	0.007	0.007	0.006	0.008
3	East	0.009	0.009	0.009	0.008	0.007	0.007	0.006	0.008
3.1	East	0.010	0.010	0.009	0.009	0.008	0.008	0.007	0.009
3.2	East	0.009	0.009	0.009	0.008	0.008	0.008	0.007	0.008
3.3	East	0.010	0.009	0.008	0.007	0.006	0.006	0.006	0.007
3.4	East	0.011	0.009	0.008	0.008	0.006	0.006	0.006	0.008
3.5	East	0.011	0.009	0.008	0.008	0.006	0.006	0.005	0.008
3.6	East	0.011	0.009	0.008	0.007	0.006	0.006	0.004	0.007
3.7	East	0.012	0.009	0.009	0.007	0.005	0.005	0.004	0.007
3.8	East	0.012	0.010	0.009	0.008	0.006	0.006	0.004	0.008
3.9	East	0.015	0.013	0.011	0.009	0.005	0.005	0.003	0.009
4	East	0.016	0.014	0.012	0.010	0.006	0.006	0.003	0.010
4.1	East	0.016	0.014	0.012	0.010	0.005	0.005	0.002	0.010
4.2	East	0.018	0.016	0.013	0.010	0.005	0.005	0.002	0.010
4.3	East	0.019	0.018	0.015	0.012	0.007	0.007	0.003	0.012
4.4	East	0.019	0.019	0.015	0.012	0.007	0.007	0.003	0.012

**Table J2.5-1c**  
**RAO 6 Rolling River Mile HQ Estimates - DDx**  
Portland Harbor Superfund Site  
Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
4.5	East	0.019	0.019	0.016	0.012	0.007	0.007	0.003	0.012
4.6	East	0.019	0.019	0.015	0.012	0.007	0.007	0.004	0.012
4.7	East	0.018	0.018	0.015	0.012	0.007	0.007	0.004	0.012
4.8	East	0.018	0.018	0.014	0.011	0.007	0.007	0.003	0.011
4.9	East	0.015	0.015	0.013	0.011	0.008	0.008	0.004	0.011
5	East	0.014	0.014	0.011	0.010	0.008	0.008	0.004	0.009
5.1	East	0.015	0.015	0.013	0.012	0.009	0.009	0.005	0.010
5.2	East	0.018	0.018	0.018	0.017	0.009	0.009	0.005	0.009
5.3	East	0.018	0.018	0.018	0.017	0.008	0.008	0.005	0.008
5.4	East	0.017	0.017	0.017	0.016	0.008	0.008	0.004	0.008
5.5	East	0.017	0.017	0.017	0.016	0.008	0.008	0.004	0.009
5.6	East	0.017	0.016	0.016	0.016	0.008	0.008	0.004	0.009
5.7	East	0.017	0.016	0.016	0.016	0.009	0.009	0.004	0.010
5.8	East	0.016	0.016	0.016	0.016	0.009	0.009	0.005	0.010
5.9	East	0.017	0.017	0.016	0.016	0.009	0.009	0.006	0.011
6	East	0.016	0.016	0.016	0.016	0.010	0.010	0.007	0.011
6.1	East	0.016	0.016	0.016	0.015	0.010	0.010	0.007	0.012
6.2	East	0.013	0.013	0.013	0.013	0.011	0.011	0.008	0.012
6.3	East	0.012	0.012	0.011	0.011	0.009	0.009	0.007	0.011
6.4	East	0.014	0.012	0.010	0.009	0.008	0.008	0.006	0.011
6.5	East	0.012	0.010	0.008	0.008	0.007	0.007	0.006	0.010
6.6	East	0.011	0.009	0.007	0.007	0.007	0.007	0.006	0.009
6.7	East	0.011	0.009	0.007	0.007	0.006	0.006	0.006	0.010
6.8	East	0.011	0.009	0.006	0.006	0.006	0.006	0.005	0.010
6.9	East	0.011	0.008	0.006	0.006	0.006	0.006	0.005	0.009
7	East	0.010	0.008	0.006	0.006	0.005	0.005	0.005	0.009
7.1	East	0.010	0.007	0.005	0.005	0.005	0.005	0.004	0.008
7.2	East	0.009	0.007	0.005	0.005	0.004	0.004	0.004	0.008
7.3	East	0.010	0.007	0.005	0.005	0.005	0.005	0.005	0.008
7.4	East	0.008	0.007	0.006	0.006	0.006	0.006	0.005	0.008
7.5	East	0.010	0.009	0.008	0.008	0.008	0.008	0.007	0.010
7.6	East	0.014	0.012	0.012	0.012	0.012	0.012	0.007	0.014
7.7	East	0.013	0.012	0.012	0.012	0.012	0.012	0.007	0.013
7.8	East	0.013	0.012	0.012	0.012	0.012	0.012	0.007	0.012
7.9	East	0.014	0.013	0.013	0.013	0.013	0.013	0.007	0.013
8	East	0.017	0.015	0.015	0.015	0.015	0.015	0.008	0.015
8.1	East	0.019	0.018	0.018	0.018	0.018	0.018	0.009	0.018
8.2	East	0.020	0.019	0.019	0.019	0.019	0.019	0.010	0.019
8.3	East	0.020	0.018	0.018	0.018	0.018	0.018	0.010	0.018
8.4	East	0.018	0.017	0.017	0.017	0.017	0.017	0.010	0.017
8.5	East	0.016	0.014	0.014	0.014	0.014	0.014	0.008	0.014
8.6	East	0.010	0.009	0.009	0.009	0.008	0.008	0.008	0.009

**Table J2.5-1c**  
**RAO 6 Rolling River Mile HQ Estimates - DDx**  
 Portland Harbor Superfund Site  
 Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
8.7	East	0.010	0.010	0.010	0.010	0.010	0.010	0.009	0.010
8.8	East	0.010	0.010	0.010	0.010	0.010	0.010	0.009	0.010
8.9	East	0.009	0.009	0.009	0.009	0.009	0.009	0.008	0.009
9	East	0.008	0.008	0.008	0.008	0.007	0.007	0.007	0.008
9.1	East	0.006	0.006	0.006	0.006	0.006	0.006	0.005	0.006
9.2	East	0.005	0.005	0.005	0.005	0.004	0.004	0.003	0.005
9.3	East	0.004	0.004	0.004	0.004	0.004	0.004	0.003	0.004
9.4	East	0.004	0.004	0.004	0.004	0.004	0.004	0.003	0.004
9.5	East	0.004	0.004	0.004	0.004	0.004	0.004	0.003	0.004
9.6	East	0.004	0.004	0.004	0.004	0.004	0.004	0.003	0.004
9.7	East	0.004	0.004	0.004	0.004	0.004	0.004	0.003	0.004
9.8	East	0.005	0.005	0.005	0.004	0.004	0.004	0.003	0.004
9.9	East	0.005	0.005	0.005	0.005	0.004	0.004	0.003	0.005
10	East	0.005	0.005	0.005	0.005	0.004	0.004	0.004	0.005
10.1	East	0.005	0.005	0.005	0.005	0.005	0.005	0.004	0.005
10.2	East	0.005	0.005	0.005	0.005	0.005	0.005	0.004	0.005
10.3	East	0.005	0.005	0.005	0.005	0.004	0.004	0.004	0.005
10.4	East	0.006	0.006	0.006	0.005	0.004	0.004	0.003	0.005
10.5	East	0.006	0.006	0.006	0.006	0.004	0.004	0.003	0.006
10.6	East	0.009	0.009	0.008	0.008	0.005	0.005	0.003	0.008
10.7	East	0.011	0.009	0.009	0.007	0.004	0.004	0.002	0.007
10.8	East	0.017	0.015	0.013	0.010	0.006	0.006	0.002	0.010
10.9	East	0.027	0.017	0.013	0.009	0.005	0.005	0.002	0.009
11	East	0.030	0.018	0.013	0.009	0.005	0.005	0.001	0.009
11.1	East	0.031	0.018	0.014	0.010	0.005	0.005	0.001	0.010
11.2	East	0.030	0.018	0.014	0.010	0.005	0.005	0.001	0.010
11.3	East	0.033	0.019	0.014	0.010	0.005	0.005	0.001	0.010
11.4	East	0.036	0.021	0.015	0.011	0.006	0.006	0.001	0.011
11.5	East	0.038	0.021	0.015	0.010	0.006	0.006	0.001	0.010
11.6	East	0.041	0.021	0.014	0.009	0.005	0.005	0.001	0.009
11.7	East	0.043	0.022	0.015	0.010	0.005	0.005	0.001	0.010
1.8	Nav Channel	0.007	0.007	0.007	0.007	0.007	0.007	0.007	0.007
1.9	Nav Channel	0.008	0.008	0.008	0.008	0.008	0.008	0.007	0.008
2	Nav Channel	0.007	0.007	0.007	0.007	0.007	0.007	0.006	0.007
2.1	Nav Channel	0.007	0.007	0.007	0.007	0.007	0.007	0.006	0.007
2.2	Nav Channel	0.007	0.007	0.007	0.007	0.007	0.007	0.006	0.007
2.3	Nav Channel	0.007	0.007	0.007	0.007	0.007	0.007	0.006	0.007
2.4	Nav Channel	0.007	0.007	0.007	0.007	0.007	0.007	0.007	0.007
2.5	Nav Channel	0.008	0.008	0.008	0.008	0.008	0.008	0.007	0.008
2.6	Nav Channel	0.008	0.008	0.008	0.008	0.008	0.008	0.007	0.008
2.7	Nav Channel	0.008	0.008	0.008	0.008	0.008	0.008	0.008	0.008
2.8	Nav Channel	0.009	0.009	0.009	0.009	0.009	0.009	0.008	0.009

**Table J2.5-1c**

**RAO 6 Rolling River Mile HQ Estimates - DDx**

Portland Harbor Superfund Site

Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
2.9	Nav Channel	0.009	0.009	0.009	0.009	0.009	0.009	0.008	0.009
3	Nav Channel	0.009	0.009	0.009	0.009	0.009	0.008	0.008	0.009
3.1	Nav Channel	0.010	0.010	0.010	0.009	0.009	0.008	0.007	0.009
3.2	Nav Channel	0.010	0.010	0.010	0.010	0.010	0.008	0.006	0.010
3.3	Nav Channel	0.010	0.010	0.010	0.010	0.010	0.007	0.006	0.010
3.4	Nav Channel	0.010	0.010	0.010	0.010	0.010	0.007	0.006	0.010
3.5	Nav Channel	0.011	0.011	0.011	0.011	0.011	0.009	0.008	0.011
3.6	Nav Channel	0.012	0.012	0.012	0.012	0.012	0.010	0.008	0.012
3.7	Nav Channel	0.011	0.011	0.011	0.011	0.011	0.010	0.008	0.011
3.8	Nav Channel	0.011	0.011	0.011	0.011	0.011	0.009	0.007	0.011
3.9	Nav Channel	0.011	0.011	0.011	0.011	0.011	0.009	0.007	0.011
4	Nav Channel	0.011	0.011	0.011	0.011	0.011	0.009	0.008	0.011
4.1	Nav Channel	0.011	0.011	0.011	0.011	0.011	0.010	0.008	0.011
4.2	Nav Channel	0.011	0.011	0.011	0.011	0.011	0.010	0.009	0.011
4.3	Nav Channel	0.011	0.011	0.011	0.011	0.011	0.011	0.010	0.011
4.4	Nav Channel	0.011	0.011	0.011	0.011	0.011	0.011	0.010	0.011
4.5	Nav Channel	0.010	0.010	0.010	0.010	0.010	0.010	0.009	0.010
4.6	Nav Channel	0.009	0.009	0.009	0.009	0.009	0.009	0.008	0.009
4.7	Nav Channel	0.010	0.009	0.009	0.009	0.009	0.008	0.008	0.009
4.8	Nav Channel	0.010	0.010	0.009	0.008	0.010	0.008	0.007	0.010
4.9	Nav Channel	0.011	0.010	0.009	0.008	0.010	0.007	0.007	0.010
5	Nav Channel	0.011	0.009	0.008	0.008	0.009	0.007	0.006	0.009
5.1	Nav Channel	0.011	0.009	0.008	0.007	0.009	0.006	0.005	0.009
5.2	Nav Channel	0.012	0.009	0.007	0.006	0.009	0.005	0.004	0.009
5.3	Nav Channel	0.015	0.008	0.006	0.006	0.008	0.004	0.003	0.008
5.4	Nav Channel	0.016	0.008	0.006	0.005	0.008	0.003	0.002	0.008
5.5	Nav Channel	0.016	0.008	0.006	0.005	0.008	0.003	0.001	0.008
5.6	Nav Channel	0.017	0.009	0.007	0.005	0.009	0.003	0.001	0.009
5.7	Nav Channel	0.019	0.010	0.007	0.006	0.010	0.003	0.001	0.009
5.8	Nav Channel	0.020	0.010	0.007	0.006	0.010	0.003	0.001	0.009
5.9	Nav Channel	0.020	0.009	0.008	0.006	0.009	0.003	0.001	0.009
6	Nav Channel	0.021	0.010	0.008	0.006	0.010	0.004	0.002	0.009
6.1	Nav Channel	0.024	0.011	0.009	0.007	0.011	0.004	0.002	0.010
6.2	Nav Channel	0.024	0.013	0.011	0.008	0.013	0.004	0.002	0.012
6.3	Nav Channel	0.020	0.015	0.012	0.009	0.014	0.004	0.002	0.013
6.4	Nav Channel	0.020	0.015	0.012	0.009	0.014	0.005	0.002	0.013
6.5	Nav Channel	0.020	0.015	0.012	0.010	0.014	0.005	0.003	0.013
6.6	Nav Channel	0.019	0.014	0.012	0.010	0.014	0.006	0.005	0.013
6.7	Nav Channel	0.019	0.015	0.013	0.012	0.014	0.008	0.007	0.014
6.8	Nav Channel	0.022	0.018	0.017	0.016	0.018	0.013	0.008	0.018
6.9	Nav Channel	0.024	0.021	0.020	0.019	0.020	0.016	0.010	0.020
7	Nav Channel	0.023	0.022	0.021	0.020	0.021	0.016	0.010	0.021

**Table J2.5-1c**  
**RAO 6 Rolling River Mile HQ Estimates - DDx**  
 Portland Harbor Superfund Site  
 Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
7.1	Nav Channel	0.020	0.020	0.019	0.019	0.019	0.016	0.010	0.019
7.2	Nav Channel	0.018	0.018	0.018	0.018	0.018	0.016	0.010	0.018
7.3	Nav Channel	0.016	0.016	0.016	0.016	0.016	0.015	0.010	0.016
7.4	Nav Channel	0.015	0.015	0.015	0.015	0.015	0.014	0.010	0.015
7.5	Nav Channel	0.013	0.013	0.013	0.013	0.013	0.012	0.009	0.013
7.6	Nav Channel	0.013	0.013	0.013	0.012	0.012	0.012	0.008	0.012
7.7	Nav Channel	0.012	0.012	0.012	0.012	0.012	0.011	0.008	0.012
7.8	Nav Channel	0.010	0.010	0.010	0.010	0.010	0.009	0.007	0.010
7.9	Nav Channel	0.008	0.008	0.008	0.008	0.008	0.008	0.007	0.008
8	Nav Channel	0.007	0.007	0.007	0.007	0.007	0.007	0.006	0.007
8.1	Nav Channel	0.007	0.007	0.007	0.007	0.007	0.007	0.006	0.007
8.2	Nav Channel	0.006	0.006	0.006	0.006	0.006	0.006	0.006	0.006
8.3	Nav Channel	0.006	0.006	0.006	0.006	0.006	0.006	0.006	0.006
8.4	Nav Channel	0.006	0.006	0.006	0.006	0.006	0.006	0.006	0.006
8.5	Nav Channel	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005
8.6	Nav Channel	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005
8.7	Nav Channel	0.005	0.005	0.005	0.005	0.005	0.004	0.004	0.005
8.8	Nav Channel	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004
8.9	Nav Channel	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004
9	Nav Channel	0.004	0.004	0.004	0.004	0.004	0.004	0.003	0.004
9.1	Nav Channel	0.004	0.004	0.004	0.004	0.004	0.004	0.003	0.004
9.2	Nav Channel	0.004	0.004	0.004	0.004	0.004	0.004	0.003	0.004
9.3	Nav Channel	0.004	0.004	0.004	0.004	0.004	0.004	0.003	0.004
9.4	Nav Channel	0.004	0.004	0.004	0.004	0.004	0.004	0.003	0.004
9.5	Nav Channel	0.004	0.004	0.004	0.004	0.004	0.004	0.003	0.004
9.6	Nav Channel	0.005	0.005	0.005	0.005	0.005	0.004	0.004	0.005
9.7	Nav Channel	0.005	0.005	0.005	0.005	0.005	0.004	0.004	0.005
9.8	Nav Channel	0.005	0.005	0.005	0.005	0.005	0.005	0.004	0.005
9.9	Nav Channel	0.005	0.005	0.005	0.005	0.005	0.004	0.004	0.005
10	Nav Channel	0.006	0.006	0.006	0.006	0.006	0.005	0.004	0.006
10.1	Nav Channel	0.006	0.006	0.006	0.006	0.006	0.005	0.004	0.006
10.2	Nav Channel	0.006	0.006	0.006	0.006	0.006	0.005	0.004	0.006
10.3	Nav Channel	0.006	0.006	0.006	0.006	0.006	0.005	0.004	0.006
10.4	Nav Channel	0.006	0.006	0.006	0.006	0.006	0.005	0.004	0.006
10.5	Nav Channel	0.007	0.007	0.007	0.007	0.007	0.005	0.004	0.007
10.6	Nav Channel	0.007	0.007	0.007	0.007	0.007	0.006	0.004	0.007
10.7	Nav Channel	0.007	0.007	0.007	0.007	0.007	0.006	0.004	0.007
10.8	Nav Channel	0.009	0.007	0.007	0.007	0.007	0.005	0.004	0.007
10.9	Nav Channel	0.010	0.008	0.007	0.007	0.007	0.006	0.005	0.007
11	Nav Channel	0.011	0.009	0.008	0.008	0.008	0.007	0.006	0.008
11.1	Nav Channel	0.011	0.009	0.009	0.008	0.008	0.008	0.006	0.008
11.2	Nav Channel	0.012	0.010	0.009	0.009	0.009	0.008	0.007	0.009

**Table J2.5-1c**

**RAO 6 Rolling River Mile HQ Estimates - DDx**

Portland Harbor Superfund Site

Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
11.3	Nav Channel	0.013	0.010	0.009	0.009	0.009	0.008	0.007	0.009
11.4	Nav Channel	0.013	0.010	0.009	0.009	0.009	0.008	0.007	0.009
11.5	Nav Channel	0.014	0.010	0.010	0.009	0.009	0.008	0.008	0.009
11.6	Nav Channel	0.015	0.011	0.010	0.009	0.009	0.009	0.008	0.009
11.7	Nav Channel	0.016	0.011	0.010	0.010	0.010	0.009	0.008	0.010
1.8	West	0.008	0.008	0.008	0.008	0.008	0.008	0.008	0.008
1.9	West	0.008	0.008	0.008	0.008	0.008	0.008	0.008	0.008
2	West	0.009	0.009	0.009	0.009	0.009	0.009	0.009	0.009
2.1	West	0.009	0.009	0.009	0.009	0.009	0.009	0.009	0.009
2.2	West	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010
2.3	West	0.011	0.011	0.011	0.011	0.011	0.011	0.010	0.011
2.4	West	0.011	0.011	0.011	0.011	0.011	0.011	0.011	0.011
2.5	West	0.011	0.011	0.011	0.011	0.011	0.011	0.010	0.011
2.6	West	0.011	0.011	0.011	0.011	0.011	0.011	0.010	0.011
2.7	West	0.012	0.012	0.012	0.012	0.012	0.012	0.010	0.012
2.8	West	0.016	0.016	0.016	0.016	0.016	0.016	0.009	0.016
2.9	West	0.015	0.015	0.015	0.015	0.015	0.015	0.009	0.015
3	West	0.017	0.017	0.017	0.017	0.016	0.016	0.009	0.017
3.1	West	0.016	0.016	0.016	0.016	0.016	0.016	0.008	0.016
3.2	West	0.016	0.016	0.016	0.016	0.016	0.016	0.008	0.016
3.3	West	0.018	0.018	0.018	0.018	0.017	0.017	0.009	0.018
3.4	West	0.019	0.019	0.019	0.019	0.018	0.018	0.010	0.019
3.5	West	0.020	0.020	0.020	0.020	0.020	0.020	0.010	0.020
3.6	West	0.023	0.023	0.023	0.023	0.023	0.023	0.011	0.023
3.7	West	0.024	0.024	0.024	0.024	0.023	0.023	0.011	0.024
3.8	West	0.019	0.019	0.019	0.019	0.017	0.017	0.010	0.019
3.9	West	0.024	0.024	0.024	0.024	0.022	0.022	0.011	0.024
4	West	0.024	0.024	0.024	0.024	0.022	0.022	0.011	0.024
4.1	West	0.026	0.026	0.026	0.026	0.023	0.023	0.011	0.026
4.2	West	0.028	0.028	0.028	0.028	0.024	0.024	0.010	0.028
4.3	West	0.027	0.027	0.027	0.027	0.023	0.023	0.009	0.027
4.4	West	0.025	0.025	0.025	0.025	0.021	0.021	0.008	0.025
4.5	West	0.025	0.025	0.025	0.025	0.021	0.021	0.007	0.025
4.6	West	0.023	0.023	0.023	0.023	0.020	0.020	0.007	0.023
4.7	West	0.025	0.025	0.024	0.024	0.020	0.020	0.008	0.024
4.8	West	0.025	0.025	0.025	0.024	0.021	0.021	0.008	0.024
4.9	West	0.022	0.022	0.021	0.021	0.017	0.017	0.008	0.021
5	West	0.019	0.019	0.019	0.018	0.014	0.014	0.006	0.018
5.1	West	0.018	0.018	0.017	0.016	0.013	0.013	0.005	0.016
5.2	West	0.017	0.017	0.016	0.015	0.013	0.013	0.005	0.015
5.3	West	0.019	0.019	0.018	0.017	0.015	0.015	0.006	0.017
5.4	West	0.030	0.030	0.029	0.026	0.019	0.019	0.006	0.028



**Table J2.5-1c**

**RAO 6 Rolling River Mile HQ Estimates - DDx**

Portland Harbor Superfund Site

Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
5.5	West	0.035	0.035	0.033	0.029	0.020	0.020	0.007	0.032
5.6	West	0.042	0.038	0.034	0.030	0.018	0.018	0.006	0.033
5.7	West	0.055	0.037	0.032	0.028	0.017	0.017	0.005	0.031
5.8	West	0.079	0.034	0.028	0.025	0.015	0.015	0.005	0.028
5.9	West	0.100	0.030	0.025	0.022	0.012	0.012	0.004	0.025
6	West	0.109	0.029	0.025	0.021	0.012	0.012	0.004	0.025
6.1	West	0.124	0.034	0.028	0.023	0.011	0.011	0.004	0.024
6.2	West	0.131	0.042	0.036	0.031	0.014	0.014	0.004	0.026
6.3	West	0.134	0.045	0.039	0.032	0.012	0.012	0.003	0.024
6.4	West	0.171	0.070	0.044	0.030	0.009	0.009	0.002	0.016
6.5	West	0.242	0.117	0.069	0.029	0.006	0.006	0.001	0.010
6.6	West	0.312	0.167	0.093	0.035	0.005	0.005	0.000	0.006
6.7	West	0.442	0.168	0.089	0.032	0.005	0.005	0.000	0.005
6.8	West	1.066	0.165	0.088	0.032	0.005	0.005	0.000	0.005
6.9	West	1.560	0.170	0.091	0.034	0.005	0.005	0.000	0.005
7	West	1.664	0.175	0.095	0.036	0.007	0.007	0.000	0.007
7.1	West	1.377	0.154	0.087	0.038	0.013	0.013	0.003	0.013
7.2	West	1.151	0.127	0.071	0.031	0.012	0.012	0.004	0.012
7.3	West	0.994	0.111	0.063	0.029	0.014	0.014	0.004	0.014
7.4	West	0.968	0.093	0.057	0.027	0.014	0.014	0.005	0.014
7.5	West	0.964	0.068	0.042	0.026	0.015	0.015	0.005	0.015
7.6	West	0.945	0.039	0.028	0.022	0.015	0.015	0.005	0.016
7.7	West	0.866	0.032	0.027	0.023	0.016	0.016	0.005	0.016
7.8	West	0.451	0.033	0.029	0.024	0.016	0.016	0.005	0.018
7.9	West	0.120	0.035	0.032	0.027	0.016	0.016	0.005	0.022
8	West	0.031	0.030	0.029	0.025	0.016	0.016	0.006	0.021
8.1	West	0.030	0.030	0.030	0.023	0.012	0.012	0.005	0.021
8.2	West	0.035	0.035	0.034	0.024	0.010	0.010	0.003	0.023
8.3	West	0.037	0.036	0.035	0.022	0.008	0.008	0.003	0.022
8.4	West	0.061	0.037	0.036	0.022	0.007	0.007	0.003	0.022
8.5	West	0.063	0.038	0.036	0.022	0.007	0.007	0.003	0.022
8.6	West	0.067	0.038	0.036	0.022	0.007	0.007	0.003	0.022
8.7	West	0.071	0.039	0.037	0.022	0.007	0.007	0.003	0.022
8.8	West	0.069	0.038	0.036	0.021	0.007	0.007	0.003	0.021
8.9	West	0.063	0.032	0.029	0.015	0.006	0.006	0.003	0.015
9	West	0.064	0.030	0.027	0.014	0.004	0.004	0.002	0.014
9.1	West	0.056	0.020	0.016	0.008	0.002	0.002	0.001	0.008
9.2	West	0.049	0.013	0.009	0.005	0.002	0.002	0.002	0.005
9.3	West	0.047	0.011	0.007	0.005	0.002	0.002	0.002	0.005
9.4	West	0.018	0.011	0.008	0.005	0.002	0.002	0.002	0.005
9.5	West	0.017	0.011	0.008	0.005	0.003	0.003	0.002	0.005
9.6	West	0.014	0.011	0.009	0.006	0.003	0.003	0.002	0.006

**Table J2.5-1c**

**RAO 6 Rolling River Mile HQ Estimates - DDx**

Portland Harbor Superfund Site

Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
9.7	West	0.012	0.011	0.009	0.006	0.003	0.003	0.002	0.006
9.8	West	0.011	0.010	0.009	0.006	0.003	0.003	0.002	0.006
9.9	West	0.011	0.010	0.009	0.006	0.003	0.003	0.002	0.006
10	West	0.013	0.011	0.010	0.006	0.003	0.003	0.002	0.006
10.1	West	0.013	0.012	0.009	0.005	0.003	0.003	0.002	0.005
10.2	West	0.010	0.010	0.008	0.007	0.005	0.005	0.003	0.007
10.3	West	0.009	0.009	0.009	0.008	0.007	0.007	0.004	0.008
10.4	West	0.009	0.009	0.009	0.008	0.007	0.007	0.005	0.008
10.5	West	0.010	0.010	0.010	0.009	0.008	0.008	0.006	0.009
10.6	West	0.010	0.010	0.010	0.009	0.009	0.009	0.007	0.009
10.7	West	0.010	0.010	0.010	0.009	0.008	0.008	0.007	0.009
10.8	West	0.009	0.009	0.009	0.009	0.009	0.009	0.008	0.009
10.9	West	0.009	0.009	0.009	0.009	0.009	0.009	0.008	0.009
11	West	0.008	0.008	0.008	0.008	0.008	0.008	0.007	0.008
11.1	West	0.008	0.008	0.008	0.008	0.008	0.008	0.007	0.008
11.2	West	0.008	0.008	0.008	0.008	0.008	0.008	0.007	0.008
11.3	West	0.008	0.008	0.008	0.008	0.008	0.008	0.008	0.008
11.4	West	0.008	0.008	0.008	0.008	0.008	0.008	0.008	0.008
11.5	West	0.007	0.007	0.007	0.007	0.007	0.007	0.007	0.007
11.6	West	0.006	0.006	0.006	0.006	0.006	0.006	0.006	0.006
11.7	West	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005
7.6	Swan Isl	0.011	0.001	0.001	0.001	0.000	0.000	0.000	0.001
7.7	Swan Isl	0.014	0.001	0.001	0.001	0.000	0.000	0.000	0.001
7.8	Swan Isl	0.019	0.002	0.001	0.001	0.000	0.000	0.000	0.001
7.9	Swan Isl	0.019	0.002	0.001	0.001	0.000	0.000	0.000	0.001
8	Swan Isl	0.020	0.001	0.001	0.001	0.000	0.000	0.000	0.001
8.1	Swan Isl	0.020	0.001	0.001	0.001	0.000	0.000	0.000	0.001
8.2	Swan Isl	0.019	0.001	0.001	0.001	0.000	0.000	0.000	0.001
8.3	Swan Isl	0.020	0.001	0.001	0.001	0.000	0.000	0.000	0.001
8.4	Swan Isl	0.022	0.002	0.001	0.001	0.000	0.000	0.000	0.001
8.5	Swan Isl	0.021	0.001	0.001	0.001	0.000	0.000	0.000	0.001
8.6	Swan Isl	0.022	0.002	0.001	0.001	0.000	0.000	0.000	0.001
8.7	Swan Isl	0.023	0.002	0.002	0.001	0.000	0.000	0.000	0.001
8.8	Swan Isl	0.021	0.002	0.001	0.001	0.000	0.000	0.000	0.002
8.9	Swan Isl	0.021	0.002	0.002	0.001	0.000	0.000	0.000	0.002
9	Swan Isl	0.020	0.003	0.002	0.002	0.001	0.001	0.000	0.002
9.1	Swan Isl	0.021	0.003	0.002	0.002	0.001	0.001	0.000	0.002
9.2	Swan Isl	0.023	0.003	0.002	0.002	0.001	0.001	0.000	0.002
9.3	Swan Isl	0.020	0.004	0.003	0.002	0.000	0.000	0.000	0.003
9.4	Swan Isl	0.011	0.004	0.003	0.003	0.001	0.001	0.000	0.004
9.5	Swan Isl	0.009	0.007	0.005	0.005	0.001	0.001	0.001	0.007
9.6	Swan Isl	0.009	0.009	0.008	0.007	0.001	0.001	0.001	0.009

**Table J2.5-1d**

**RAO 6 Rolling River Mile HQ Estimates - PCBs**

Portland Harbor Superfund Site

Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
1.8	Site	1.5	1.0	0.9	0.8	0.7	0.7	0.7	0.8
1.9	Site	1.8	1.0	0.9	0.8	0.7	0.7	0.7	0.8
2	Site	2.2	1.0	0.8	0.7	0.7	0.7	0.6	0.7
2.1	Site	2.2	1.0	0.8	0.7	0.6	0.6	0.6	0.7
2.2	Site	2.2	1.0	0.8	0.7	0.6	0.6	0.5	0.7
2.3	Site	2.2	0.9	0.8	0.7	0.6	0.6	0.5	0.7
2.4	Site	2.2	0.9	0.8	0.7	0.5	0.5	0.5	0.7
2.5	Site	2.1	0.9	0.7	0.7	0.6	0.6	0.5	0.7
2.6	Site	2.1	0.8	0.7	0.6	0.5	0.5	0.4	0.6
2.7	Site	1.7	0.7	0.7	0.6	0.5	0.5	0.4	0.6
2.8	Site	1.4	0.7	0.6	0.6	0.5	0.5	0.4	0.6
2.9	Site	1.1	0.6	0.6	0.6	0.5	0.5	0.4	0.6
3	Site	0.6	0.6	0.6	0.6	0.5	0.5	0.4	0.6
3.1	Site	0.6	0.6	0.6	0.6	0.6	0.5	0.4	0.6
3.2	Site	0.7	0.7	0.7	0.7	0.7	0.5	0.4	0.7
3.3	Site	1.1	0.9	0.8	0.8	0.7	0.6	0.4	0.8
3.4	Site	1.3	0.9	0.8	0.8	0.7	0.6	0.4	0.8
3.5	Site	1.3	0.9	0.8	0.8	0.7	0.5	0.4	0.8
3.6	Site	1.4	1.0	0.9	0.8	0.7	0.6	0.4	0.8
3.7	Site	1.5	1.1	1.0	0.8	0.7	0.6	0.4	0.8
3.8	Site	1.5	1.1	1.0	0.8	0.7	0.6	0.4	0.8
3.9	Site	1.7	1.3	1.0	0.9	0.7	0.5	0.4	0.9
4	Site	1.7	1.3	1.1	0.9	0.7	0.6	0.4	0.9
4.1	Site	1.7	1.3	1.1	0.9	0.7	0.6	0.4	0.9
4.2	Site	1.6	1.2	1.0	0.8	0.6	0.6	0.4	0.8
4.3	Site	1.3	1.1	0.9	0.7	0.6	0.5	0.4	0.7
4.4	Site	1.1	1.1	0.9	0.7	0.6	0.6	0.4	0.7
4.5	Site	1.1	1.1	0.9	0.7	0.6	0.6	0.4	0.7
4.6	Site	1.0	1.0	0.8	0.7	0.6	0.5	0.4	0.7
4.7	Site	0.9	0.9	0.8	0.7	0.6	0.5	0.4	0.7
4.8	Site	0.9	0.9	0.8	0.7	0.6	0.5	0.4	0.7
4.9	Site	0.7	0.7	0.7	0.6	0.6	0.5	0.4	0.7
5	Site	0.6	0.6	0.5	0.5	0.5	0.4	0.3	0.6
5.1	Site	0.6	0.6	0.5	0.5	0.5	0.4	0.3	0.5
5.2	Site	0.6	0.6	0.5	0.5	0.5	0.3	0.2	0.5
5.3	Site	0.7	0.6	0.5	0.5	0.4	0.3	0.2	0.4
5.4	Site	0.7	0.7	0.6	0.5	0.4	0.3	0.2	0.5
5.5	Site	0.8	0.7	0.6	0.5	0.5	0.3	0.1	0.5
5.6	Site	0.9	0.8	0.7	0.6	0.4	0.3	0.1	0.5
5.7	Site	0.9	0.8	0.8	0.7	0.4	0.3	0.1	0.6
5.8	Site	0.9	0.8	0.8	0.7	0.4	0.3	0.1	0.6
5.9	Site	0.9	0.8	0.8	0.7	0.4	0.3	0.1	0.6
6	Site	1.0	0.8	0.8	0.7	0.4	0.3	0.2	0.6

**Table J2.5-1d**

**RAO 6 Rolling River Mile HQ Estimates - PCBs**

Portland Harbor Superfund Site

Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
6.1	Site	1.0	0.9	0.8	0.7	0.5	0.3	0.2	0.6
6.2	Site	1.1	1.0	0.8	0.7	0.6	0.3	0.2	0.7
6.3	Site	1.6	1.0	0.9	0.8	0.7	0.3	0.2	0.9
6.4	Site	1.9	1.0	0.9	0.8	0.7	0.3	0.2	0.9
6.5	Site	2.0	1.1	0.9	0.7	0.6	0.3	0.2	0.8
6.6	Site	2.0	1.1	0.8	0.6	0.6	0.3	0.2	0.7
6.7	Site	2.0	1.0	0.7	0.6	0.6	0.3	0.2	0.6
6.8	Site	2.1	1.0	0.7	0.6	0.6	0.3	0.2	0.7
6.9	Site	2.2	1.0	0.7	0.6	0.6	0.3	0.2	0.7
7	Site	2.3	1.1	0.8	0.7	0.7	0.4	0.3	0.7
7.1	Site	2.3	1.1	0.9	0.7	0.7	0.4	0.3	0.8
7.2	Site	2.2	1.1	0.9	0.8	0.7	0.5	0.3	0.7
7.3	Site	1.8	1.0	0.9	0.8	0.7	0.6	0.4	0.7
7.4	Site	1.5	1.0	0.9	0.8	0.7	0.6	0.4	0.7
7.5	Site	1.4	1.0	0.9	0.8	0.7	0.6	0.4	0.8
7.6	Site	1.5	0.9	0.9	0.8	0.7	0.7	0.4	0.8
7.7	Site	1.8	0.9	0.9	0.8	0.7	0.6	0.4	0.8
7.8	Site	2.1	0.9	0.9	0.8	0.7	0.6	0.4	0.8
7.9	Site	3.1	1.0	0.9	0.8	0.7	0.6	0.4	0.8
8	Site	4.9	0.9	0.9	0.8	0.6	0.6	0.4	0.7
8.1	Site	5.0	0.9	0.8	0.7	0.6	0.6	0.4	0.7
8.2	Site	5.1	0.8	0.8	0.7	0.5	0.5	0.4	0.7
8.3	Site	5.2	0.8	0.8	0.6	0.5	0.5	0.4	0.6
8.4	Site	5.9	0.8	0.8	0.6	0.5	0.5	0.4	0.6
8.5	Site	6.2	0.9	0.8	0.6	0.5	0.4	0.4	0.6
8.6	Site	6.5	1.0	0.8	0.7	0.5	0.4	0.4	0.7
8.7	Site	6.8	1.1	0.9	0.8	0.6	0.5	0.4	0.8
8.8	Site	6.8	1.3	1.0	0.8	0.7	0.5	0.4	0.9
8.9	Site	5.7	1.3	1.1	0.9	0.7	0.5	0.4	0.9
9	Site	3.5	1.4	1.1	0.9	0.8	0.6	0.4	1.0
9.1	Site	3.4	1.4	1.2	1.0	0.8	0.6	0.4	1.0
9.2	Site	3.5	1.6	1.3	1.0	0.8	0.6	0.4	1.1
9.3	Site	3.3	1.6	1.3	1.1	0.9	0.6	0.4	1.1
9.4	Site	2.3	1.6	1.3	1.1	0.9	0.6	0.5	1.2
9.5	Site	2.2	1.6	1.3	1.2	0.9	0.7	0.5	1.2
9.6	Site	1.8	1.5	1.3	1.1	0.9	0.7	0.5	1.1
9.7	Site	1.5	1.4	1.3	1.1	0.9	0.7	0.5	1.1
9.8	Site	1.4	1.4	1.2	1.1	0.9	0.7	0.5	1.1
9.9	Site	1.5	1.5	1.3	1.2	1.0	0.7	0.5	1.2
10	Site	1.5	1.5	1.3	1.1	1.0	0.7	0.5	1.2
10.1	Site	1.5	1.4	1.3	1.1	1.0	0.7	0.5	1.1
10.2	Site	1.3	1.3	1.2	1.1	1.1	0.8	0.5	1.1

**Table J2.5-1d**

**RAO 6 Rolling River Mile HQ Estimates - PCBs**

Portland Harbor Superfund Site

Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
10.3	Site	1.3	1.3	1.3	1.2	1.1	0.8	0.6	1.2
10.4	Site	1.3	1.3	1.3	1.3	1.2	0.8	0.6	1.3
10.5	Site	1.4	1.4	1.4	1.3	1.2	0.8	0.6	1.3
10.6	Site	1.4	1.4	1.4	1.3	1.2	0.9	0.5	1.3
10.7	Site	1.6	1.4	1.4	1.3	1.1	0.8	0.5	1.3
10.8	Site	2.2	1.4	1.3	1.1	1.0	0.8	0.5	1.1
10.9	Site	2.9	1.5	1.2	1.0	0.9	0.8	0.6	1.0
11	Site	3.1	1.5	1.2	1.0	0.9	0.8	0.6	1.0
11.1	Site	3.2	1.6	1.2	1.0	0.9	0.8	0.6	1.0
11.2	Site	3.4	1.6	1.3	1.0	0.9	0.8	0.6	1.0
11.3	Site	3.6	1.7	1.2	1.0	0.9	0.8	0.6	1.0
11.4	Site	3.9	1.7	1.2	0.9	0.8	0.7	0.6	0.9
11.5	Site	4.3	1.8	1.2	0.9	0.8	0.7	0.6	0.9
11.6	Site	4.9	1.9	1.2	0.9	0.8	0.7	0.6	0.9
11.7	Site	5.2	2.0	1.4	1.0	0.9	0.8	0.7	1.0
1.8	East	3.6	1.9	1.5	1.2	1.1	1.1	1.1	1.2
1.9	East	4.5	2.0	1.5	1.2	1.1	1.1	1.0	1.2
2	East	5.8	1.8	1.4	1.0	0.9	0.9	0.8	1.0
2.1	East	5.8	1.8	1.4	1.0	0.7	0.7	0.7	1.0
2.2	East	5.7	1.8	1.4	1.0	0.7	0.7	0.6	1.0
2.3	East	5.8	1.8	1.3	1.0	0.6	0.6	0.5	1.0
2.4	East	5.8	1.8	1.3	0.9	0.5	0.5	0.4	0.9
2.5	East	5.8	1.7	1.2	0.9	0.5	0.5	0.4	0.9
2.6	East	5.7	1.5	1.1	0.9	0.5	0.5	0.4	0.9
2.7	East	4.7	1.4	1.0	0.9	0.6	0.6	0.5	0.9
2.8	East	4.0	1.1	1.0	0.9	0.6	0.6	0.5	0.9
2.9	East	3.0	1.0	0.9	0.9	0.6	0.6	0.5	0.9
3	East	0.9	0.9	0.9	0.9	0.6	0.6	0.5	0.9
3.1	East	0.8	0.8	0.8	0.7	0.7	0.7	0.6	0.8
3.2	East	0.8	0.8	0.7	0.7	0.7	0.7	0.6	0.7
3.3	East	2.2	1.4	1.1	0.9	0.6	0.6	0.5	0.9
3.4	East	3.2	1.5	1.1	0.9	0.6	0.6	0.5	0.9
3.5	East	3.4	1.6	1.3	1.0	0.6	0.6	0.5	1.0
3.6	East	4.0	2.0	1.5	1.0	0.6	0.6	0.4	1.0
3.7	East	4.3	2.3	1.7	1.1	0.6	0.6	0.4	1.1
3.8	East	4.4	2.3	1.8	1.1	0.6	0.6	0.4	1.1
3.9	East	4.9	3.0	2.1	1.3	0.6	0.6	0.3	1.3
4	East	4.9	3.1	2.3	1.4	0.6	0.6	0.3	1.4
4.1	East	4.7	3.0	2.2	1.4	0.6	0.6	0.2	1.4
4.2	East	4.5	2.9	2.1	1.3	0.5	0.5	0.2	1.3
4.3	East	3.8	2.7	2.0	1.2	0.5	0.5	0.2	1.2
4.4	East	2.9	2.8	2.1	1.2	0.5	0.5	0.2	1.2

**Table J2.5-1d**

**RAO 6 Rolling River Mile HQ Estimates - PCBs**

Portland Harbor Superfund Site

Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
4.5	East	2.8	2.7	2.0	1.2	0.5	0.5	0.2	1.2
4.6	East	2.3	2.3	1.8	1.2	0.5	0.5	0.2	1.2
4.7	East	2.1	2.1	1.5	1.1	0.5	0.5	0.3	1.1
4.8	East	2.1	2.1	1.5	1.1	0.5	0.5	0.2	1.1
4.9	East	1.2	1.2	1.0	0.9	0.5	0.5	0.3	0.9
5	East	0.8	0.8	0.7	0.6	0.5	0.5	0.3	0.6
5.1	East	0.9	0.9	0.8	0.7	0.5	0.5	0.3	0.6
5.2	East	1.3	1.3	1.3	1.1	0.6	0.6	0.4	0.6
5.3	East	1.6	1.6	1.6	1.3	0.5	0.5	0.3	0.5
5.4	East	1.7	1.7	1.7	1.4	0.6	0.6	0.3	0.6
5.5	East	1.7	1.7	1.7	1.5	0.6	0.6	0.3	0.7
5.6	East	1.8	1.8	1.8	1.6	0.6	0.6	0.3	0.9
5.7	East	1.9	1.9	1.9	1.7	0.6	0.6	0.3	1.0
5.8	East	1.8	1.8	1.8	1.6	0.6	0.6	0.3	1.0
5.9	East	1.7	1.7	1.7	1.5	0.5	0.5	0.3	1.0
6	East	1.6	1.6	1.5	1.4	0.5	0.5	0.3	0.9
6.1	East	1.4	1.4	1.4	1.2	0.5	0.5	0.3	0.9
6.2	East	1.2	1.2	1.1	1.0	0.5	0.5	0.3	0.8
6.3	East	2.0	1.0	0.9	0.9	0.5	0.5	0.3	0.9
6.4	East	2.4	0.9	0.8	0.7	0.4	0.4	0.3	0.8
6.5	East	2.3	0.8	0.7	0.6	0.4	0.4	0.3	0.7
6.6	East	2.0	0.6	0.5	0.5	0.3	0.3	0.3	0.6
6.7	East	1.8	0.5	0.4	0.4	0.3	0.3	0.3	0.5
6.8	East	1.8	0.5	0.4	0.4	0.3	0.3	0.3	0.5
6.9	East	1.8	0.5	0.4	0.4	0.3	0.3	0.3	0.5
7	East	1.8	0.6	0.5	0.4	0.4	0.4	0.3	0.6
7.1	East	1.8	0.6	0.5	0.5	0.4	0.4	0.3	0.6
7.2	East	1.9	0.6	0.5	0.5	0.4	0.4	0.4	0.6
7.3	East	1.2	0.6	0.5	0.5	0.5	0.5	0.4	0.6
7.4	East	0.6	0.6	0.5	0.5	0.5	0.5	0.5	0.6
7.5	East	0.7	0.6	0.6	0.6	0.6	0.6	0.5	0.7
7.6	East	0.8	0.7	0.6	0.6	0.6	0.6	0.5	0.7
7.7	East	0.8	0.7	0.6	0.6	0.6	0.6	0.5	0.7
7.8	East	0.9	0.7	0.7	0.7	0.6	0.6	0.5	0.7
7.9	East	0.9	0.7	0.7	0.7	0.7	0.7	0.5	0.7
8	East	0.9	0.7	0.7	0.7	0.6	0.6	0.5	0.7
8.1	East	0.9	0.6	0.6	0.6	0.6	0.6	0.4	0.6
8.2	East	0.9	0.6	0.6	0.6	0.6	0.6	0.4	0.6
8.3	East	0.8	0.6	0.6	0.6	0.6	0.6	0.5	0.6
8.4	East	0.8	0.6	0.6	0.6	0.6	0.6	0.5	0.6
8.5	East	0.9	0.6	0.6	0.6	0.6	0.6	0.5	0.6
8.6	East	0.9	0.7	0.7	0.7	0.7	0.7	0.5	0.7

**Table J2.5-1d**

**RAO 6 Rolling River Mile HQ Estimates - PCBs**

Portland Harbor Superfund Site

Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
8.7	East	1.0	1.0	1.0	1.0	0.8	0.8	0.6	1.0
8.8	East	1.0	1.0	1.0	1.0	0.9	0.9	0.7	1.0
8.9	East	1.0	1.0	1.0	1.0	0.9	0.9	0.7	1.0
9	East	1.0	1.0	1.0	1.0	0.9	0.9	0.7	1.0
9.1	East	1.2	1.2	1.2	1.2	0.9	0.9	0.6	1.2
9.2	East	1.3	1.3	1.3	1.3	1.0	1.0	0.6	1.3
9.3	East	1.3	1.3	1.3	1.3	1.0	1.0	0.5	1.3
9.4	East	1.2	1.2	1.2	1.2	0.9	0.9	0.5	1.2
9.5	East	1.2	1.2	1.2	1.2	0.9	0.9	0.5	1.2
9.6	East	1.2	1.2	1.2	1.1	0.8	0.8	0.5	1.1
9.7	East	1.2	1.1	1.1	1.1	0.8	0.8	0.6	1.1
9.8	East	1.2	1.1	1.1	1.1	0.7	0.7	0.5	1.1
9.9	East	1.2	1.2	1.2	1.1	0.8	0.8	0.5	1.1
10	East	1.3	1.3	1.3	1.2	0.8	0.8	0.5	1.2
10.1	East	1.2	1.2	1.2	1.1	0.8	0.8	0.6	1.1
10.2	East	1.1	1.1	1.1	1.0	0.8	0.8	0.6	1.0
10.3	East	1.4	1.4	1.4	1.0	0.7	0.7	0.5	1.0
10.4	East	1.8	1.7	1.7	1.2	0.7	0.7	0.5	1.2
10.5	East	2.1	2.0	2.0	1.4	0.7	0.7	0.5	1.4
10.6	East	2.1	2.1	2.0	1.5	0.7	0.7	0.5	1.5
10.7	East	3.9	2.6	2.2	1.5	0.7	0.7	0.4	1.5
10.8	East	5.0	3.3	2.4	1.5	0.7	0.7	0.3	1.5
10.9	East	9.5	3.9	2.4	1.4	0.5	0.5	0.2	1.4
11	East	11.5	4.5	2.6	1.3	0.4	0.4	0.2	1.3
11.1	East	12.0	4.8	2.7	1.2	0.4	0.4	0.2	1.2
11.2	East	11.7	4.8	2.7	1.2	0.5	0.5	0.1	1.2
11.3	East	12.6	4.9	2.6	1.2	0.5	0.5	0.1	1.2
11.4	East	13.9	5.1	2.5	1.2	0.5	0.5	0.1	1.2
11.5	East	14.9	5.3	2.5	1.0	0.5	0.5	0.1	1.0
11.6	East	16.7	5.7	2.5	0.9	0.4	0.4	0.1	0.9
11.7	East	16.7	5.8	2.6	1.0	0.4	0.4	0.1	1.0
1.8	Nav Channel	0.8	0.8	0.8	0.8	0.8	0.8	0.7	0.8
1.9	Nav Channel	0.8	0.8	0.8	0.8	0.8	0.8	0.7	0.8
2	Nav Channel	0.9	0.9	0.9	0.9	0.9	0.9	0.7	0.9
2.1	Nav Channel	0.9	0.9	0.9	0.9	0.9	0.9	0.7	0.9
2.2	Nav Channel	0.9	0.9	0.9	0.9	0.9	0.9	0.7	0.9
2.3	Nav Channel	0.8	0.8	0.8	0.8	0.8	0.8	0.7	0.8
2.4	Nav Channel	0.8	0.8	0.8	0.8	0.8	0.8	0.7	0.8
2.5	Nav Channel	0.8	0.8	0.8	0.8	0.8	0.8	0.7	0.8
2.6	Nav Channel	0.8	0.8	0.8	0.8	0.8	0.8	0.6	0.8
2.7	Nav Channel	0.7	0.7	0.7	0.7	0.7	0.7	0.6	0.7
2.8	Nav Channel	0.7	0.7	0.7	0.7	0.7	0.7	0.6	0.7

**Table J2.5-1d**

**RAO 6 Rolling River Mile HQ Estimates - PCBs**

Portland Harbor Superfund Site

Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
2.9	Nav Channel	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6
3	Nav Channel	0.6	0.6	0.6	0.6	0.6	0.6	0.5	0.6
3.1	Nav Channel	0.8	0.8	0.8	0.8	0.8	0.6	0.5	0.8
3.2	Nav Channel	0.9	0.9	0.9	0.9	0.9	0.6	0.4	0.9
3.3	Nav Channel	0.9	0.9	0.9	0.9	0.9	0.6	0.4	0.9
3.4	Nav Channel	0.9	0.9	0.9	0.9	0.9	0.6	0.4	0.9
3.5	Nav Channel	0.9	0.9	0.9	0.9	0.9	0.6	0.4	0.9
3.6	Nav Channel	0.9	0.9	0.9	0.9	0.9	0.6	0.4	0.9
3.7	Nav Channel	0.8	0.8	0.8	0.8	0.8	0.6	0.4	0.8
3.8	Nav Channel	0.8	0.8	0.8	0.8	0.8	0.6	0.4	0.8
3.9	Nav Channel	0.8	0.8	0.8	0.8	0.8	0.5	0.4	0.8
4	Nav Channel	0.8	0.8	0.8	0.8	0.8	0.6	0.4	0.8
4.1	Nav Channel	0.7	0.7	0.7	0.7	0.7	0.6	0.5	0.7
4.2	Nav Channel	0.6	0.6	0.6	0.6	0.6	0.6	0.5	0.6
4.3	Nav Channel	0.6	0.6	0.6	0.6	0.6	0.6	0.5	0.6
4.4	Nav Channel	0.6	0.6	0.6	0.6	0.6	0.6	0.5	0.6
4.5	Nav Channel	0.6	0.6	0.6	0.6	0.6	0.6	0.5	0.6
4.6	Nav Channel	0.6	0.6	0.6	0.6	0.6	0.5	0.5	0.6
4.7	Nav Channel	0.6	0.6	0.5	0.5	0.6	0.5	0.4	0.6
4.8	Nav Channel	0.6	0.6	0.6	0.5	0.6	0.5	0.4	0.6
4.9	Nav Channel	0.6	0.6	0.5	0.5	0.6	0.5	0.4	0.6
5	Nav Channel	0.6	0.5	0.5	0.4	0.5	0.4	0.3	0.5
5.1	Nav Channel	0.5	0.5	0.4	0.4	0.5	0.3	0.3	0.5
5.2	Nav Channel	0.5	0.4	0.4	0.3	0.4	0.3	0.2	0.4
5.3	Nav Channel	0.5	0.4	0.3	0.3	0.4	0.2	0.2	0.4
5.4	Nav Channel	0.5	0.4	0.3	0.3	0.4	0.2	0.1	0.4
5.5	Nav Channel	0.5	0.4	0.3	0.3	0.4	0.1	0.1	0.4
5.6	Nav Channel	0.5	0.4	0.3	0.3	0.4	0.1	0.1	0.4
5.7	Nav Channel	0.5	0.4	0.3	0.3	0.4	0.1	0.1	0.4
5.8	Nav Channel	0.5	0.4	0.3	0.3	0.4	0.1	0.1	0.4
5.9	Nav Channel	0.5	0.4	0.3	0.3	0.4	0.2	0.1	0.4
6	Nav Channel	0.5	0.4	0.4	0.3	0.4	0.2	0.1	0.4
6.1	Nav Channel	0.7	0.5	0.4	0.3	0.5	0.2	0.1	0.5
6.2	Nav Channel	1.1	0.9	0.7	0.5	0.8	0.2	0.1	0.8
6.3	Nav Channel	1.3	1.2	1.0	0.8	1.1	0.2	0.1	1.0
6.4	Nav Channel	1.4	1.3	1.1	0.9	1.2	0.3	0.1	1.1
6.5	Nav Channel	1.4	1.3	1.1	0.9	1.1	0.3	0.2	1.1
6.6	Nav Channel	1.4	1.3	1.0	0.9	1.1	0.3	0.2	1.1
6.7	Nav Channel	1.4	1.2	1.0	0.9	1.1	0.4	0.2	1.1
6.8	Nav Channel	1.3	1.3	1.1	0.9	1.1	0.4	0.3	1.1
6.9	Nav Channel	1.4	1.3	1.1	1.0	1.2	0.5	0.3	1.2
7	Nav Channel	1.4	1.4	1.2	1.1	1.3	0.5	0.3	1.3



**Table J2.5-1d**

**RAO 6 Rolling River Mile HQ Estimates - PCBs**

Portland Harbor Superfund Site

Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
7.1	Nav Channel	1.3	1.3	1.3	1.2	1.2	0.6	0.3	1.2
7.2	Nav Channel	1.1	1.1	1.1	1.1	1.1	0.7	0.4	1.1
7.3	Nav Channel	1.0	0.9	0.9	0.9	0.9	0.7	0.4	0.9
7.4	Nav Channel	0.9	0.9	0.9	0.9	0.9	0.7	0.5	0.9
7.5	Nav Channel	0.9	0.9	0.9	0.9	0.9	0.7	0.5	0.9
7.6	Nav Channel	0.9	0.9	0.9	0.9	0.9	0.7	0.5	0.9
7.7	Nav Channel	0.9	0.9	0.9	0.9	0.9	0.7	0.6	0.9
7.8	Nav Channel	0.9	0.9	0.9	0.9	0.9	0.7	0.6	0.9
7.9	Nav Channel	0.9	0.9	0.9	0.9	0.9	0.7	0.6	0.9
8	Nav Channel	0.8	0.8	0.8	0.8	0.8	0.7	0.6	0.8
8.1	Nav Channel	0.7	0.7	0.7	0.7	0.7	0.7	0.6	0.7
8.2	Nav Channel	0.7	0.7	0.7	0.7	0.7	0.6	0.6	0.7
8.3	Nav Channel	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6
8.4	Nav Channel	0.7	0.7	0.7	0.7	0.7	0.6	0.6	0.7
8.5	Nav Channel	0.7	0.7	0.7	0.7	0.7	0.6	0.6	0.7
8.6	Nav Channel	0.8	0.8	0.8	0.8	0.8	0.6	0.6	0.8
8.7	Nav Channel	0.9	0.9	0.9	0.9	0.9	0.6	0.6	0.9
8.8	Nav Channel	1.0	1.0	1.0	1.0	1.0	0.6	0.6	1.0
8.9	Nav Channel	1.0	1.0	1.0	1.0	1.0	0.7	0.6	1.0
9	Nav Channel	1.1	1.1	1.1	1.1	1.1	0.7	0.6	1.1
9.1	Nav Channel	1.1	1.1	1.1	1.1	1.1	0.7	0.6	1.1
9.2	Nav Channel	1.1	1.1	1.1	1.1	1.1	0.7	0.6	1.1
9.3	Nav Channel	1.1	1.1	1.1	1.1	1.1	0.7	0.6	1.1
9.4	Nav Channel	1.1	1.1	1.1	1.1	1.1	0.7	0.6	1.1
9.5	Nav Channel	1.1	1.1	1.1	1.1	1.1	0.7	0.6	1.1
9.6	Nav Channel	1.0	1.0	1.0	1.0	1.0	0.7	0.6	1.0
9.7	Nav Channel	1.0	1.0	1.0	1.0	1.0	0.7	0.6	1.0
9.8	Nav Channel	1.0	1.0	1.0	1.0	1.0	0.8	0.6	1.0
9.9	Nav Channel	1.1	1.1	1.1	1.1	1.1	0.7	0.5	1.1
10	Nav Channel	1.1	1.1	1.1	1.1	1.1	0.7	0.5	1.1
10.1	Nav Channel	1.1	1.1	1.1	1.1	1.1	0.8	0.5	1.1
10.2	Nav Channel	1.2	1.2	1.2	1.2	1.2	0.8	0.5	1.2
10.3	Nav Channel	1.2	1.2	1.2	1.2	1.2	0.8	0.6	1.2
10.4	Nav Channel	1.3	1.3	1.3	1.3	1.3	0.8	0.6	1.3
10.5	Nav Channel	1.3	1.3	1.3	1.3	1.3	0.9	0.6	1.3
10.6	Nav Channel	1.3	1.3	1.3	1.3	1.3	0.9	0.5	1.3
10.7	Nav Channel	1.4	1.3	1.3	1.2	1.2	0.8	0.5	1.2
10.8	Nav Channel	1.9	1.2	1.2	1.1	1.1	0.8	0.5	1.1
10.9	Nav Channel	2.1	1.2	1.0	1.0	1.0	0.8	0.6	1.0
11	Nav Channel	2.1	1.1	1.0	0.9	0.9	0.8	0.6	0.9
11.1	Nav Channel	2.1	1.2	1.0	0.9	0.9	0.8	0.7	0.9
11.2	Nav Channel	2.3	1.2	1.1	1.0	1.0	0.8	0.7	1.0

**Table J2.5-1d**

**RAO 6 Rolling River Mile HQ Estimates - PCBs**

Portland Harbor Superfund Site

Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
11.3	Nav Channel	2.4	1.2	1.1	1.0	1.0	0.8	0.7	1.0
11.4	Nav Channel	2.5	1.2	1.0	0.9	0.9	0.8	0.7	0.9
11.5	Nav Channel	2.7	1.2	1.0	0.9	0.9	0.8	0.7	0.9
11.6	Nav Channel	3.1	1.3	1.1	0.9	0.9	0.8	0.7	0.9
11.7	Nav Channel	3.4	1.4	1.2	1.0	1.0	0.9	0.8	1.0
1.8	West	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
1.9	West	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
2	West	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
2.1	West	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
2.2	West	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3
2.3	West	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3
2.4	West	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3
2.5	West	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3
2.6	West	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3
2.7	West	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3
2.8	West	0.4	0.4	0.4	0.4	0.4	0.4	0.3	0.4
2.9	West	0.4	0.4	0.4	0.4	0.4	0.4	0.3	0.4
3	West	0.4	0.4	0.4	0.4	0.4	0.4	0.3	0.4
3.1	West	0.4	0.4	0.4	0.4	0.4	0.4	0.3	0.4
3.2	West	0.4	0.4	0.4	0.4	0.4	0.4	0.3	0.4
3.3	West	0.5	0.5	0.5	0.5	0.5	0.5	0.4	0.5
3.4	West	0.5	0.5	0.5	0.5	0.5	0.5	0.4	0.5
3.5	West	0.5	0.5	0.5	0.5	0.5	0.5	0.4	0.5
3.6	West	0.5	0.5	0.5	0.5	0.5	0.5	0.4	0.5
3.7	West	0.6	0.6	0.6	0.6	0.5	0.5	0.4	0.6
3.8	West	0.6	0.6	0.6	0.6	0.5	0.5	0.4	0.6
3.9	West	0.7	0.7	0.7	0.6	0.6	0.6	0.4	0.6
4	West	0.7	0.7	0.7	0.7	0.6	0.6	0.4	0.7
4.1	West	0.8	0.8	0.8	0.7	0.6	0.6	0.4	0.7
4.2	West	0.9	0.9	0.9	0.8	0.6	0.6	0.3	0.8
4.3	West	0.9	0.9	0.9	0.9	0.6	0.6	0.3	0.9
4.4	West	0.8	0.8	0.8	0.8	0.6	0.6	0.3	0.8
4.5	West	0.8	0.8	0.8	0.8	0.6	0.6	0.3	0.8
4.6	West	0.8	0.8	0.8	0.8	0.5	0.5	0.3	0.8
4.7	West	0.7	0.7	0.7	0.7	0.5	0.5	0.3	0.7
4.8	West	0.7	0.7	0.7	0.7	0.5	0.5	0.3	0.7
4.9	West	0.7	0.7	0.7	0.7	0.5	0.5	0.3	0.7
5	West	0.8	0.7	0.7	0.7	0.5	0.5	0.3	0.7
5.1	West	0.7	0.7	0.7	0.6	0.4	0.4	0.3	0.6
5.2	West	0.6	0.6	0.6	0.5	0.4	0.4	0.3	0.5
5.3	West	0.6	0.6	0.5	0.5	0.4	0.4	0.2	0.5
5.4	West	0.6	0.6	0.5	0.5	0.4	0.4	0.2	0.5

**Table J2.5-1d**

**RAO 6 Rolling River Mile HQ Estimates - PCBs**

Portland Harbor Superfund Site

Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
5.5	West	0.7	0.7	0.6	0.6	0.4	0.4	0.2	0.6
5.6	West	0.8	0.8	0.7	0.6	0.4	0.4	0.2	0.7
5.7	West	0.9	0.7	0.6	0.6	0.4	0.4	0.2	0.6
5.8	West	1.0	0.7	0.6	0.5	0.3	0.3	0.1	0.6
5.9	West	1.0	0.6	0.5	0.5	0.3	0.3	0.1	0.5
6	West	1.0	0.6	0.5	0.5	0.3	0.3	0.1	0.5
6.1	West	1.1	0.6	0.5	0.4	0.3	0.3	0.1	0.5
6.2	West	1.1	0.6	0.5	0.5	0.2	0.2	0.1	0.4
6.3	West	1.3	0.7	0.6	0.5	0.2	0.2	0.1	0.4
6.4	West	1.6	0.9	0.7	0.5	0.2	0.2	0.1	0.3
6.5	West	2.5	1.4	0.8	0.4	0.1	0.1	0.0	0.2
6.6	West	3.3	1.8	0.9	0.4	0.1	0.1	0.0	0.1
6.7	West	4.2	1.7	0.9	0.3	0.0	0.0	0.0	0.0
6.8	West	4.9	1.7	0.8	0.3	0.0	0.0	0.0	0.0
6.9	West	5.4	1.7	0.9	0.3	0.0	0.0	0.0	0.0
7	West	5.9	1.8	0.9	0.4	0.1	0.1	0.0	0.1
7.1	West	5.5	2.0	1.0	0.4	0.2	0.2	0.1	0.2
7.2	West	4.9	2.0	1.2	0.6	0.3	0.3	0.1	0.3
7.3	West	4.4	2.0	1.2	0.8	0.4	0.4	0.1	0.4
7.4	West	4.3	1.9	1.2	0.8	0.5	0.5	0.2	0.5
7.5	West	4.0	1.7	1.2	0.9	0.6	0.6	0.2	0.6
7.6	West	3.7	1.6	1.3	1.1	0.7	0.7	0.2	0.8
7.7	West	3.2	1.8	1.6	1.3	0.7	0.7	0.2	1.0
7.8	West	2.9	2.0	1.8	1.4	0.8	0.8	0.2	1.1
7.9	West	2.6	2.2	1.9	1.6	0.8	0.8	0.2	1.3
8	West	2.2	2.1	1.9	1.5	0.8	0.8	0.3	1.3
8.1	West	2.1	2.1	2.1	1.6	0.8	0.8	0.3	1.4
8.2	West	2.2	2.2	2.2	1.6	0.7	0.7	0.2	1.5
8.3	West	2.8	2.6	2.5	1.6	0.6	0.6	0.2	1.5
8.4	West	7.4	2.7	2.5	1.5	0.5	0.5	0.2	1.5
8.5	West	7.9	2.8	2.5	1.4	0.5	0.5	0.2	1.4
8.6	West	9.3	3.0	2.4	1.3	0.4	0.4	0.2	1.3
8.7	West	10.7	3.2	2.2	1.1	0.4	0.4	0.2	1.1
8.8	West	10.9	3.4	2.3	1.0	0.4	0.4	0.2	1.0
8.9	West	11.0	3.3	2.1	1.0	0.4	0.4	0.3	1.0
9	West	11.8	3.6	2.4	1.2	0.3	0.3	0.2	1.2
9.1	West	12.8	3.8	2.4	1.3	0.3	0.3	0.2	1.3
9.2	West	13.3	4.2	2.6	1.2	0.3	0.3	0.2	1.2
9.3	West	13.3	4.2	2.3	1.2	0.3	0.3	0.2	1.2
9.4	West	8.0	4.4	2.5	1.3	0.4	0.4	0.2	1.3
9.5	West	7.6	4.4	2.6	1.4	0.4	0.4	0.3	1.4
9.6	West	6.1	4.2	2.7	1.5	0.4	0.4	0.3	1.5

**Table J2.5-1d**

**RAO 6 Rolling River Mile HQ Estimates - PCBs**

Portland Harbor Superfund Site

Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
9.7	West	4.3	4.0	2.9	1.6	0.5	0.5	0.3	1.6
9.8	West	4.1	3.7	2.8	1.7	0.5	0.5	0.3	1.7
9.9	West	4.6	4.1	3.1	1.7	0.4	0.4	0.3	1.7
10	West	5.1	4.5	3.2	1.4	0.4	0.4	0.3	1.4
10.1	West	5.7	5.0	3.2	1.0	0.4	0.4	0.3	1.0
10.2	West	3.3	3.2	1.7	1.2	0.7	0.7	0.4	1.2
10.3	West	1.6	1.6	1.6	1.3	1.0	1.0	0.6	1.3
10.4	West	1.5	1.5	1.5	1.3	1.0	1.0	0.6	1.3
10.5	West	1.4	1.4	1.4	1.2	1.0	1.0	0.6	1.2
10.6	West	1.3	1.3	1.3	1.2	0.9	0.9	0.6	1.2
10.7	West	1.2	1.2	1.2	1.1	0.9	0.9	0.6	1.1
10.8	West	1.0	1.0	1.0	1.0	0.9	0.9	0.7	1.0
10.9	West	0.9	0.9	0.9	0.9	0.9	0.9	0.7	0.9
11	West	0.9	0.9	0.9	0.9	0.9	0.9	0.7	0.9
11.1	West	0.9	0.9	0.9	0.9	0.9	0.9	0.7	0.9
11.2	West	0.9	0.9	0.9	0.9	0.9	0.9	0.7	0.9
11.3	West	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8
11.4	West	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8
11.5	West	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8
11.6	West	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8
11.7	West	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8
7.6	Swan Isl	3.4	0.3	0.3	0.1	0.0	0.0	0.0	0.1
7.7	Swan Isl	4.9	0.3	0.3	0.1	0.0	0.0	0.0	0.1
7.8	Swan Isl	6.5	0.4	0.3	0.1	0.0	0.0	0.0	0.1
7.9	Swan Isl	12.1	0.3	0.2	0.1	0.0	0.0	0.0	0.1
8	Swan Isl	20.9	0.3	0.2	0.1	0.0	0.0	0.0	0.1
8.1	Swan Isl	21.2	0.3	0.2	0.1	0.0	0.0	0.0	0.1
8.2	Swan Isl	19.6	0.3	0.2	0.1	0.0	0.0	0.0	0.1
8.3	Swan Isl	18.3	0.4	0.2	0.1	0.0	0.0	0.0	0.1
8.4	Swan Isl	17.2	0.4	0.2	0.1	0.0	0.0	0.0	0.1
8.5	Swan Isl	16.3	0.4	0.2	0.1	0.0	0.0	0.0	0.1
8.6	Swan Isl	17.6	0.5	0.2	0.1	0.1	0.1	0.0	0.2
8.7	Swan Isl	20.3	0.6	0.3	0.2	0.1	0.1	0.1	0.3
8.8	Swan Isl	22.2	0.6	0.3	0.3	0.1	0.1	0.1	0.4
8.9	Swan Isl	18.3	0.7	0.4	0.3	0.1	0.1	0.1	0.4
9	Swan Isl	6.6	0.8	0.4	0.3	0.1	0.1	0.1	0.4
9.1	Swan Isl	5.1	0.8	0.4	0.4	0.1	0.1	0.1	0.5
9.2	Swan Isl	5.0	1.0	0.5	0.4	0.1	0.1	0.1	0.5
9.3	Swan Isl	4.5	1.0	0.6	0.5	0.1	0.1	0.1	0.7
9.4	Swan Isl	3.2	1.1	0.8	0.7	0.1	0.1	0.1	1.0
9.5	Swan Isl	2.6	1.6	1.2	1.2	0.2	0.2	0.1	1.6
9.6	Swan Isl	2.0	2.0	1.6	1.5	0.2	0.2	0.1	2.0

**Table J2.5-1e**  
**RAO 6 Rolling River Mile HQ Estimates - 1,2,3,4,7,8-HxCDF**  
 Portland Harbor Superfund Site  
 Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
1.8	Site	0.010	0.009	0.009	0.009	0.009	0.009	0.009	0.009
1.9	Site	0.012	0.012	0.012	0.011	0.011	0.011	0.011	0.011
2	Site	0.014	0.013	0.013	0.013	0.012	0.012	0.012	0.013
2.1	Site	0.015	0.014	0.014	0.013	0.013	0.013	0.012	0.013
2.2	Site	0.015	0.014	0.014	0.014	0.013	0.013	0.012	0.014
2.3	Site	0.015	0.014	0.014	0.014	0.013	0.013	0.012	0.014
2.4	Site	0.016	0.015	0.014	0.014	0.013	0.013	0.013	0.014
2.5	Site	0.015	0.014	0.014	0.013	0.013	0.013	0.012	0.013
2.6	Site	0.014	0.014	0.013	0.013	0.012	0.012	0.012	0.013
2.7	Site	0.014	0.013	0.013	0.013	0.012	0.012	0.011	0.013
2.8	Site	0.013	0.012	0.012	0.012	0.011	0.011	0.010	0.012
2.9	Site	0.011	0.010	0.010	0.010	0.010	0.010	0.009	0.010
3	Site	0.010	0.010	0.010	0.010	0.009	0.009	0.008	0.010
3.1	Site	0.010	0.010	0.010	0.009	0.009	0.009	0.008	0.009
3.2	Site	0.010	0.010	0.010	0.010	0.010	0.010	0.008	0.010
3.3	Site	0.013	0.012	0.011	0.011	0.010	0.010	0.009	0.011
3.4	Site	0.015	0.013	0.012	0.012	0.011	0.011	0.009	0.012
3.5	Site	0.016	0.014	0.012	0.012	0.012	0.011	0.009	0.012
3.6	Site	0.016	0.015	0.013	0.013	0.012	0.012	0.009	0.013
3.7	Site	0.017	0.016	0.014	0.013	0.012	0.012	0.009	0.013
3.8	Site	0.018	0.016	0.015	0.014	0.013	0.012	0.010	0.014
3.9	Site	0.024	0.023	0.020	0.018	0.014	0.013	0.009	0.018
4	Site	0.033	0.031	0.029	0.026	0.015	0.015	0.009	0.026
4.1	Site	0.035	0.034	0.030	0.027	0.016	0.015	0.009	0.027
4.2	Site	0.047	0.045	0.036	0.030	0.016	0.016	0.009	0.030
4.3	Site	0.049	0.048	0.039	0.032	0.018	0.018	0.011	0.032
4.4	Site	0.050	0.050	0.041	0.034	0.019	0.019	0.012	0.034
4.5	Site	0.052	0.051	0.043	0.036	0.021	0.021	0.014	0.036
4.6	Site	0.055	0.054	0.045	0.038	0.024	0.023	0.016	0.038
4.7	Site	0.059	0.058	0.048	0.041	0.027	0.025	0.018	0.042
4.8	Site	0.065	0.064	0.054	0.045	0.032	0.029	0.022	0.048
4.9	Site	0.067	0.065	0.054	0.047	0.037	0.033	0.023	0.050
5	Site	0.066	0.063	0.051	0.044	0.042	0.036	0.026	0.047
5.1	Site	0.073	0.070	0.059	0.052	0.047	0.040	0.028	0.052
5.2	Site	0.068	0.064	0.059	0.057	0.050	0.042	0.029	0.052
5.3	Site	0.072	0.065	0.061	0.058	0.051	0.042	0.028	0.052
5.4	Site	0.079	0.072	0.067	0.064	0.056	0.045	0.027	0.058
5.5	Site	0.084	0.077	0.072	0.068	0.061	0.048	0.028	0.063
5.6	Site	0.088	0.081	0.076	0.071	0.063	0.050	0.028	0.066
5.7	Site	0.093	0.084	0.078	0.072	0.066	0.049	0.026	0.069
5.8	Site	0.099	0.086	0.078	0.072	0.066	0.048	0.025	0.069
5.9	Site	0.105	0.087	0.079	0.073	0.067	0.048	0.028	0.071
6	Site	0.111	0.086	0.078	0.072	0.066	0.048	0.030	0.072

**Table J2.5-1e**

**RAO 6 Rolling River Mile HQ Estimates - 1,2,3,4,7,8-HxCDF**

Portland Harbor Superfund Site

Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
6.1	Site	0.114	0.088	0.075	0.068	0.068	0.047	0.031	0.076
6.2	Site	0.125	0.092	0.074	0.066	0.071	0.047	0.030	0.081
6.3	Site	0.178	0.099	0.076	0.068	0.071	0.047	0.029	0.086
6.4	Site	0.201	0.111	0.078	0.067	0.067	0.045	0.029	0.082
6.5	Site	0.263	0.147	0.098	0.068	0.066	0.045	0.031	0.080
6.6	Site	0.358	0.217	0.134	0.081	0.064	0.046	0.033	0.077
6.7	Site	0.555	0.220	0.130	0.078	0.060	0.046	0.034	0.077
6.8	Site	6.926	0.213	0.125	0.074	0.055	0.044	0.033	0.075
6.9	Site	13.184	0.209	0.123	0.073	0.053	0.043	0.032	0.072
7	Site	13.062	0.339	0.206	0.076	0.055	0.045	0.031	0.073
7.1	Site	12.617	0.580	0.440	0.161	0.094	0.087	0.036	0.109
7.2	Site	11.955	0.552	0.422	0.159	0.094	0.090	0.038	0.107
7.3	Site	11.400	0.526	0.406	0.155	0.093	0.090	0.039	0.101
7.4	Site	11.160	0.505	0.396	0.152	0.093	0.091	0.041	0.100
7.5	Site	10.647	0.460	0.366	0.146	0.091	0.089	0.039	0.098
7.6	Site	9.837	0.379	0.315	0.126	0.084	0.083	0.036	0.091
7.7	Site	8.989	0.342	0.290	0.116	0.078	0.076	0.032	0.081
7.8	Site	4.671	0.327	0.279	0.112	0.074	0.072	0.030	0.076
7.9	Site	0.495	0.313	0.268	0.107	0.070	0.069	0.029	0.072
8	Site	0.227	0.216	0.204	0.099	0.065	0.064	0.027	0.066
8.1	Site	0.052	0.040	0.040	0.038	0.034	0.034	0.023	0.036
8.2	Site	0.050	0.034	0.034	0.033	0.030	0.030	0.022	0.031
8.3	Site	0.052	0.031	0.031	0.029	0.027	0.027	0.021	0.029
8.4	Site	0.055	0.029	0.028	0.026	0.024	0.024	0.020	0.026
8.5	Site	0.056	0.026	0.025	0.023	0.021	0.021	0.018	0.023
8.6	Site	0.061	0.029	0.026	0.024	0.021	0.020	0.019	0.025
8.7	Site	0.066	0.034	0.029	0.027	0.023	0.022	0.020	0.029
8.8	Site	0.067	0.035	0.030	0.028	0.024	0.022	0.020	0.030
8.9	Site	0.066	0.036	0.030	0.028	0.024	0.022	0.020	0.031
9	Site	0.064	0.036	0.030	0.028	0.024	0.022	0.020	0.031
9.1	Site	0.063	0.035	0.030	0.028	0.023	0.021	0.019	0.031
9.2	Site	0.058	0.035	0.029	0.027	0.022	0.020	0.017	0.030
9.3	Site	0.052	0.035	0.027	0.026	0.021	0.018	0.016	0.029
9.4	Site	0.044	0.033	0.026	0.024	0.019	0.017	0.014	0.028
9.5	Site	0.037	0.032	0.025	0.023	0.018	0.016	0.014	0.027
9.6	Site	0.028	0.027	0.022	0.021	0.017	0.015	0.013	0.022
9.7	Site	0.021	0.020	0.018	0.017	0.015	0.014	0.011	0.017
9.8	Site	0.019	0.019	0.017	0.016	0.014	0.013	0.011	0.016
9.9	Site	0.018	0.018	0.016	0.015	0.013	0.012	0.009	0.015
10	Site	0.019	0.018	0.016	0.015	0.014	0.012	0.009	0.015
10.1	Site	0.019	0.019	0.016	0.015	0.014	0.013	0.010	0.015
10.2	Site	0.019	0.019	0.017	0.017	0.016	0.014	0.011	0.017

**Table J2.5-1e**

**RAO 6 Rolling River Mile HQ Estimates - 1,2,3,4,7,8-HxCDF**

Portland Harbor Superfund Site

Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
10.3	Site	0.020	0.020	0.020	0.020	0.019	0.017	0.013	0.020
10.4	Site	0.022	0.022	0.022	0.021	0.020	0.018	0.014	0.021
10.5	Site	0.023	0.023	0.023	0.023	0.022	0.019	0.014	0.023
10.6	Site	0.024	0.024	0.024	0.024	0.022	0.020	0.014	0.024
10.7	Site	0.025	0.024	0.024	0.024	0.022	0.020	0.015	0.024
10.8	Site	0.025	0.024	0.024	0.023	0.022	0.020	0.015	0.023
10.9	Site	0.025	0.024	0.023	0.022	0.022	0.020	0.016	0.022
11	Site	0.027	0.025	0.024	0.023	0.022	0.020	0.016	0.023
11.1	Site	0.027	0.025	0.024	0.022	0.021	0.020	0.016	0.022
11.2	Site	0.026	0.024	0.023	0.022	0.021	0.019	0.016	0.022
11.3	Site	0.025	0.023	0.022	0.020	0.019	0.018	0.015	0.020
11.4	Site	0.025	0.023	0.021	0.019	0.018	0.017	0.015	0.019
11.5	Site	0.025	0.022	0.020	0.019	0.018	0.017	0.015	0.019
11.6	Site	0.025	0.022	0.020	0.018	0.017	0.016	0.014	0.018
11.7	Site	0.026	0.022	0.020	0.018	0.017	0.016	0.014	0.018
1.8	East	0.011	0.011	0.010	0.010	0.009	0.009	0.008	0.010
1.9	East	0.013	0.011	0.011	0.010	0.009	0.009	0.008	0.010
2	East	0.014	0.012	0.011	0.011	0.009	0.009	0.008	0.011
2.1	East	0.015	0.013	0.012	0.012	0.009	0.009	0.008	0.012
2.2	East	0.015	0.013	0.012	0.011	0.009	0.009	0.007	0.011
2.3	East	0.015	0.013	0.012	0.011	0.008	0.008	0.007	0.011
2.4	East	0.015	0.013	0.012	0.011	0.008	0.008	0.007	0.011
2.5	East	0.013	0.010	0.009	0.008	0.006	0.006	0.005	0.008
2.6	East	0.012	0.010	0.009	0.008	0.006	0.006	0.005	0.008
2.7	East	0.013	0.010	0.010	0.009	0.006	0.006	0.005	0.009
2.8	East	0.013	0.011	0.011	0.010	0.007	0.007	0.006	0.010
2.9	East	0.012	0.011	0.011	0.010	0.008	0.008	0.007	0.010
3	East	0.012	0.012	0.011	0.011	0.009	0.009	0.008	0.011
3.1	East	0.013	0.013	0.012	0.012	0.011	0.011	0.010	0.012
3.2	East	0.014	0.014	0.013	0.013	0.012	0.012	0.012	0.013
3.3	East	0.021	0.019	0.014	0.013	0.012	0.012	0.011	0.013
3.4	East	0.028	0.021	0.015	0.015	0.012	0.012	0.011	0.015
3.5	East	0.030	0.023	0.016	0.015	0.013	0.013	0.011	0.015
3.6	East	0.032	0.025	0.018	0.015	0.013	0.013	0.011	0.015
3.7	East	0.035	0.027	0.020	0.016	0.013	0.013	0.010	0.016
3.8	East	0.039	0.031	0.023	0.019	0.015	0.015	0.012	0.019
3.9	East	0.063	0.056	0.045	0.036	0.018	0.018	0.011	0.036
4	East	0.093	0.087	0.077	0.066	0.024	0.024	0.010	0.066
4.1	East	0.101	0.094	0.080	0.067	0.023	0.023	0.009	0.067
4.2	East	0.139	0.131	0.097	0.071	0.022	0.022	0.008	0.071
4.3	East	0.167	0.160	0.120	0.088	0.027	0.027	0.009	0.088
4.4	East	0.172	0.169	0.129	0.093	0.029	0.029	0.010	0.093

**Table J2.5-1e**

**RAO 6 Rolling River Mile HQ Estimates - 1,2,3,4,7,8-HxCDF**

Portland Harbor Superfund Site

Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
4.5	East	0.178	0.175	0.134	0.098	0.033	0.033	0.013	0.098
4.6	East	0.185	0.182	0.141	0.107	0.042	0.042	0.022	0.107
4.7	East	0.198	0.195	0.153	0.120	0.055	0.055	0.036	0.120
4.8	East	0.216	0.213	0.170	0.137	0.071	0.071	0.050	0.137
4.9	East	0.237	0.233	0.188	0.156	0.097	0.097	0.064	0.156
5	East	0.243	0.239	0.186	0.152	0.128	0.128	0.089	0.149
5.1	East	0.283	0.279	0.231	0.199	0.154	0.154	0.105	0.171
5.2	East	0.265	0.265	0.264	0.263	0.188	0.188	0.130	0.188
5.3	East	0.263	0.263	0.263	0.260	0.181	0.181	0.124	0.181
5.4	East	0.239	0.239	0.239	0.236	0.170	0.170	0.105	0.170
5.5	East	0.220	0.220	0.220	0.218	0.158	0.158	0.095	0.159
5.6	East	0.197	0.197	0.197	0.194	0.138	0.138	0.080	0.141
5.7	East	0.171	0.171	0.171	0.169	0.115	0.115	0.062	0.121
5.8	East	0.152	0.152	0.150	0.147	0.099	0.099	0.051	0.106
5.9	East	0.134	0.134	0.129	0.126	0.079	0.079	0.045	0.092
6	East	0.115	0.115	0.106	0.104	0.062	0.062	0.037	0.078
6.1	East	0.098	0.098	0.082	0.080	0.054	0.054	0.034	0.075
6.2	East	0.115	0.092	0.064	0.062	0.052	0.052	0.035	0.077
6.3	East	0.227	0.092	0.053	0.053	0.046	0.046	0.031	0.082
6.4	East	0.208	0.079	0.041	0.040	0.035	0.035	0.027	0.070
6.5	East	0.194	0.070	0.034	0.034	0.029	0.029	0.024	0.062
6.6	East	0.181	0.064	0.030	0.030	0.026	0.026	0.022	0.057
6.7	East	0.179	0.061	0.027	0.026	0.025	0.025	0.022	0.062
6.8	East	0.176	0.058	0.024	0.023	0.022	0.022	0.019	0.064
6.9	East	0.171	0.057	0.024	0.024	0.023	0.023	0.021	0.063
7	East	0.167	0.058	0.028	0.028	0.027	0.027	0.025	0.064
7.1	East	0.165	0.056	0.031	0.031	0.030	0.030	0.028	0.063
7.2	East	0.152	0.051	0.033	0.033	0.032	0.032	0.031	0.063
7.3	East	0.066	0.046	0.037	0.037	0.036	0.036	0.035	0.060
7.4	East	0.067	0.050	0.042	0.042	0.042	0.042	0.039	0.066
7.5	East	0.075	0.057	0.049	0.049	0.048	0.048	0.045	0.074
7.6	East	0.082	0.063	0.054	0.054	0.053	0.053	0.047	0.081
7.7	East	0.076	0.063	0.056	0.056	0.055	0.055	0.048	0.070
7.8	East	0.071	0.061	0.058	0.058	0.057	0.057	0.049	0.061
7.9	East	0.070	0.059	0.059	0.059	0.059	0.059	0.050	0.059
8	East	0.064	0.051	0.051	0.051	0.051	0.051	0.040	0.051
8.1	East	0.059	0.044	0.044	0.044	0.044	0.044	0.032	0.044
8.2	East	0.051	0.036	0.036	0.036	0.036	0.036	0.024	0.036
8.3	East	0.045	0.032	0.032	0.032	0.031	0.031	0.022	0.032
8.4	East	0.040	0.027	0.027	0.027	0.027	0.027	0.020	0.027
8.5	East	0.032	0.018	0.018	0.018	0.018	0.018	0.013	0.018
8.6	East	0.026	0.013	0.013	0.013	0.013	0.013	0.011	0.013



**Table J2.5-1e**  
**RAO 6 Rolling River Mile HQ Estimates - 1,2,3,4,7,8-HxCDF**  
 Portland Harbor Superfund Site  
 Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
8.7	East	0.021	0.015	0.015	0.015	0.014	0.014	0.013	0.015
8.8	East	0.014	0.014	0.014	0.014	0.014	0.014	0.012	0.014
8.9	East	0.013	0.013	0.013	0.013	0.012	0.012	0.011	0.013
9	East	0.012	0.012	0.012	0.012	0.011	0.011	0.010	0.012
9.1	East	0.011	0.011	0.011	0.011	0.010	0.010	0.009	0.011
9.2	East	0.011	0.011	0.011	0.011	0.009	0.009	0.007	0.011
9.3	East	0.010	0.010	0.010	0.010	0.009	0.009	0.006	0.010
9.4	East	0.010	0.010	0.010	0.010	0.008	0.008	0.006	0.010
9.5	East	0.010	0.010	0.010	0.010	0.008	0.008	0.006	0.010
9.6	East	0.010	0.010	0.010	0.009	0.008	0.008	0.007	0.009
9.7	East	0.010	0.010	0.010	0.010	0.008	0.008	0.007	0.010
9.8	East	0.011	0.011	0.011	0.011	0.009	0.009	0.008	0.011
9.9	East	0.012	0.012	0.012	0.012	0.010	0.010	0.008	0.012
10	East	0.013	0.013	0.013	0.013	0.011	0.011	0.009	0.013
10.1	East	0.014	0.014	0.014	0.013	0.012	0.012	0.010	0.013
10.2	East	0.015	0.015	0.015	0.015	0.013	0.013	0.011	0.015
10.3	East	0.018	0.018	0.018	0.017	0.014	0.014	0.012	0.017
10.4	East	0.021	0.021	0.021	0.019	0.015	0.015	0.013	0.019
10.5	East	0.025	0.025	0.025	0.022	0.016	0.016	0.013	0.022
10.6	East	0.028	0.028	0.028	0.025	0.019	0.019	0.013	0.025
10.7	East	0.030	0.029	0.029	0.026	0.018	0.018	0.013	0.026
10.8	East	0.032	0.030	0.028	0.025	0.017	0.017	0.011	0.025
10.9	East	0.033	0.029	0.026	0.022	0.014	0.014	0.008	0.022
11	East	0.039	0.031	0.026	0.020	0.012	0.012	0.007	0.020
11.1	East	0.041	0.033	0.026	0.019	0.011	0.011	0.006	0.019
11.2	East	0.040	0.032	0.026	0.018	0.011	0.011	0.005	0.018
11.3	East	0.041	0.032	0.025	0.018	0.010	0.010	0.004	0.018
11.4	East	0.042	0.031	0.024	0.016	0.010	0.010	0.003	0.016
11.5	East	0.043	0.031	0.023	0.015	0.009	0.009	0.003	0.015
11.6	East	0.044	0.031	0.021	0.013	0.007	0.007	0.003	0.013
11.7	East	0.046	0.031	0.021	0.012	0.006	0.006	0.002	0.012
1.8	Nav Channel	0.003	0.003	0.003	0.003	0.003	0.003	0.002	0.003
1.9	Nav Channel	0.003	0.003	0.003	0.003	0.003	0.003	0.002	0.003
2	Nav Channel	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003
2.1	Nav Channel	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003
2.2	Nav Channel	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004
2.3	Nav Channel	0.005	0.005	0.005	0.005	0.005	0.005	0.004	0.005
2.4	Nav Channel	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005
2.5	Nav Channel	0.006	0.006	0.006	0.006	0.006	0.006	0.005	0.006
2.6	Nav Channel	0.006	0.006	0.006	0.006	0.006	0.006	0.006	0.006
2.7	Nav Channel	0.007	0.007	0.007	0.007	0.007	0.007	0.007	0.007
2.8	Nav Channel	0.008	0.008	0.008	0.008	0.008	0.008	0.007	0.008

**Table J2.5-1e**

**RAO 6 Rolling River Mile HQ Estimates - 1,2,3,4,7,8-HxCDF**

Portland Harbor Superfund Site

Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
2.9	Nav Channel	0.008	0.008	0.008	0.008	0.008	0.008	0.008	0.008
3	Nav Channel	0.009	0.009	0.009	0.009	0.009	0.008	0.008	0.009
3.1	Nav Channel	0.009	0.009	0.009	0.009	0.009	0.008	0.007	0.009
3.2	Nav Channel	0.009	0.009	0.009	0.009	0.009	0.008	0.007	0.009
3.3	Nav Channel	0.009	0.009	0.009	0.009	0.009	0.008	0.007	0.009
3.4	Nav Channel	0.009	0.009	0.009	0.009	0.009	0.008	0.007	0.009
3.5	Nav Channel	0.009	0.009	0.009	0.009	0.009	0.008	0.007	0.009
3.6	Nav Channel	0.009	0.009	0.009	0.009	0.009	0.008	0.006	0.009
3.7	Nav Channel	0.009	0.009	0.009	0.009	0.009	0.008	0.006	0.009
3.8	Nav Channel	0.008	0.008	0.008	0.008	0.008	0.007	0.006	0.008
3.9	Nav Channel	0.008	0.008	0.008	0.008	0.008	0.007	0.006	0.008
4	Nav Channel	0.007	0.007	0.007	0.007	0.007	0.007	0.006	0.007
4.1	Nav Channel	0.007	0.007	0.007	0.007	0.007	0.007	0.006	0.007
4.2	Nav Channel	0.008	0.008	0.008	0.008	0.008	0.007	0.007	0.008
4.3	Nav Channel	0.008	0.008	0.008	0.008	0.008	0.008	0.007	0.008
4.4	Nav Channel	0.008	0.008	0.008	0.008	0.008	0.008	0.008	0.008
4.5	Nav Channel	0.009	0.009	0.009	0.009	0.009	0.009	0.009	0.009
4.6	Nav Channel	0.010	0.010	0.010	0.010	0.010	0.009	0.009	0.010
4.7	Nav Channel	0.012	0.011	0.010	0.010	0.011	0.009	0.008	0.011
4.8	Nav Channel	0.014	0.013	0.012	0.010	0.013	0.009	0.008	0.013
4.9	Nav Channel	0.017	0.015	0.012	0.011	0.015	0.009	0.008	0.015
5	Nav Channel	0.020	0.017	0.014	0.012	0.017	0.009	0.008	0.017
5.1	Nav Channel	0.023	0.020	0.016	0.014	0.020	0.010	0.008	0.020
5.2	Nav Channel	0.027	0.022	0.017	0.015	0.022	0.010	0.008	0.022
5.3	Nav Channel	0.031	0.022	0.018	0.015	0.022	0.010	0.007	0.022
5.4	Nav Channel	0.036	0.026	0.021	0.018	0.026	0.010	0.007	0.026
5.5	Nav Channel	0.042	0.031	0.026	0.022	0.031	0.013	0.007	0.031
5.6	Nav Channel	0.049	0.038	0.033	0.028	0.038	0.017	0.010	0.038
5.7	Nav Channel	0.061	0.049	0.041	0.034	0.049	0.020	0.011	0.047
5.8	Nav Channel	0.077	0.058	0.048	0.040	0.058	0.025	0.014	0.055
5.9	Nav Channel	0.095	0.069	0.060	0.051	0.069	0.034	0.021	0.066
6	Nav Channel	0.114	0.079	0.070	0.061	0.079	0.043	0.030	0.075
6.1	Nav Channel	0.131	0.092	0.078	0.067	0.091	0.047	0.033	0.087
6.2	Nav Channel	0.141	0.103	0.089	0.075	0.101	0.049	0.033	0.097
6.3	Nav Channel	0.150	0.117	0.102	0.088	0.115	0.056	0.034	0.111
6.4	Nav Channel	0.158	0.124	0.109	0.095	0.122	0.066	0.039	0.117
6.5	Nav Channel	0.164	0.131	0.116	0.103	0.129	0.075	0.052	0.124
6.6	Nav Channel	0.164	0.130	0.116	0.104	0.128	0.079	0.059	0.124
6.7	Nav Channel	0.154	0.123	0.114	0.105	0.121	0.083	0.065	0.120
6.8	Nav Channel	0.140	0.117	0.110	0.103	0.114	0.084	0.065	0.114
6.9	Nav Channel	0.122	0.108	0.102	0.096	0.105	0.079	0.059	0.105
7	Nav Channel	0.104	0.100	0.095	0.089	0.097	0.071	0.051	0.097

**Table J2.5-1e**

**RAO 6 Rolling River Mile HQ Estimates - 1,2,3,4,7,8-HxCDF**

Portland Harbor Superfund Site

Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
7.1	Nav Channel	0.088	0.087	0.086	0.083	0.085	0.067	0.048	0.085
7.2	Nav Channel	0.078	0.077	0.077	0.076	0.076	0.066	0.048	0.076
7.3	Nav Channel	0.069	0.068	0.068	0.067	0.067	0.061	0.048	0.067
7.4	Nav Channel	0.060	0.060	0.060	0.059	0.059	0.055	0.046	0.059
7.5	Nav Channel	0.052	0.052	0.052	0.051	0.051	0.048	0.040	0.051
7.6	Nav Channel	0.047	0.047	0.047	0.046	0.046	0.043	0.036	0.046
7.7	Nav Channel	0.044	0.044	0.044	0.043	0.043	0.040	0.033	0.043
7.8	Nav Channel	0.042	0.041	0.041	0.041	0.041	0.038	0.033	0.041
7.9	Nav Channel	0.040	0.040	0.040	0.039	0.039	0.037	0.033	0.039
8	Nav Channel	0.038	0.038	0.038	0.038	0.038	0.037	0.034	0.038
8.1	Nav Channel	0.037	0.037	0.037	0.037	0.037	0.037	0.035	0.037
8.2	Nav Channel	0.036	0.036	0.036	0.036	0.036	0.036	0.036	0.036
8.3	Nav Channel	0.036	0.036	0.036	0.036	0.036	0.036	0.035	0.036
8.4	Nav Channel	0.036	0.036	0.036	0.036	0.036	0.035	0.035	0.036
8.5	Nav Channel	0.036	0.036	0.036	0.035	0.036	0.034	0.033	0.036
8.6	Nav Channel	0.036	0.036	0.036	0.036	0.036	0.034	0.033	0.036
8.7	Nav Channel	0.036	0.036	0.036	0.036	0.036	0.034	0.032	0.036
8.8	Nav Channel	0.036	0.036	0.036	0.036	0.036	0.033	0.031	0.036
8.9	Nav Channel	0.035	0.035	0.035	0.035	0.035	0.032	0.030	0.035
9	Nav Channel	0.034	0.034	0.034	0.034	0.034	0.030	0.028	0.034
9.1	Nav Channel	0.032	0.032	0.032	0.032	0.032	0.029	0.026	0.032
9.2	Nav Channel	0.030	0.030	0.030	0.030	0.030	0.026	0.023	0.030
9.3	Nav Channel	0.027	0.027	0.027	0.027	0.027	0.023	0.020	0.027
9.4	Nav Channel	0.023	0.023	0.023	0.023	0.023	0.019	0.017	0.023
9.5	Nav Channel	0.020	0.020	0.020	0.020	0.020	0.017	0.015	0.020
9.6	Nav Channel	0.017	0.017	0.017	0.017	0.017	0.014	0.012	0.017
9.7	Nav Channel	0.015	0.015	0.015	0.015	0.015	0.013	0.011	0.015
9.8	Nav Channel	0.013	0.013	0.013	0.013	0.013	0.012	0.010	0.013
9.9	Nav Channel	0.013	0.013	0.013	0.013	0.013	0.011	0.009	0.013
10	Nav Channel	0.013	0.013	0.013	0.013	0.013	0.010	0.008	0.013
10.1	Nav Channel	0.013	0.013	0.013	0.013	0.013	0.011	0.009	0.013
10.2	Nav Channel	0.014	0.014	0.014	0.014	0.014	0.012	0.009	0.014
10.3	Nav Channel	0.015	0.015	0.015	0.015	0.015	0.012	0.010	0.015
10.4	Nav Channel	0.016	0.016	0.016	0.016	0.016	0.013	0.010	0.016
10.5	Nav Channel	0.016	0.016	0.016	0.016	0.016	0.013	0.010	0.016
10.6	Nav Channel	0.017	0.017	0.017	0.017	0.017	0.014	0.009	0.017
10.7	Nav Channel	0.017	0.017	0.017	0.016	0.016	0.013	0.009	0.016
10.8	Nav Channel	0.017	0.016	0.016	0.016	0.016	0.013	0.010	0.016
10.9	Nav Channel	0.018	0.017	0.017	0.016	0.016	0.014	0.011	0.016
11	Nav Channel	0.019	0.018	0.017	0.017	0.017	0.015	0.012	0.017
11.1	Nav Channel	0.019	0.018	0.017	0.017	0.017	0.015	0.012	0.017
11.2	Nav Channel	0.019	0.018	0.017	0.016	0.016	0.015	0.012	0.016

**Table J2.5-1e**

**RAO 6 Rolling River Mile HQ Estimates - 1,2,3,4,7,8-HxCDF**

Portland Harbor Superfund Site

Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
11.3	Nav Channel	0.019	0.017	0.017	0.016	0.016	0.014	0.011	0.016
11.4	Nav Channel	0.019	0.017	0.017	0.016	0.016	0.014	0.012	0.016
11.5	Nav Channel	0.019	0.017	0.017	0.016	0.016	0.014	0.013	0.016
11.6	Nav Channel	0.020	0.018	0.017	0.016	0.016	0.014	0.013	0.016
11.7	Nav Channel	0.021	0.019	0.018	0.017	0.017	0.015	0.014	0.017
1.8	West	0.014	0.014	0.014	0.014	0.014	0.014	0.014	0.014
1.9	West	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020
2	West	0.022	0.022	0.022	0.022	0.022	0.022	0.022	0.022
2.1	West	0.023	0.023	0.023	0.023	0.023	0.023	0.023	0.023
2.2	West	0.024	0.024	0.024	0.024	0.024	0.024	0.024	0.024
2.3	West	0.024	0.024	0.024	0.024	0.024	0.024	0.024	0.024
2.4	West	0.025	0.025	0.025	0.025	0.025	0.025	0.024	0.025
2.5	West	0.024	0.024	0.024	0.024	0.024	0.024	0.023	0.024
2.6	West	0.023	0.023	0.023	0.023	0.023	0.023	0.022	0.023
2.7	West	0.020	0.020	0.020	0.020	0.020	0.020	0.019	0.020
2.8	West	0.017	0.017	0.017	0.017	0.017	0.017	0.016	0.017
2.9	West	0.012	0.012	0.012	0.012	0.012	0.012	0.010	0.012
3	West	0.009	0.009	0.009	0.009	0.009	0.009	0.008	0.009
3.1	West	0.009	0.009	0.009	0.009	0.009	0.009	0.007	0.009
3.2	West	0.010	0.010	0.010	0.010	0.010	0.010	0.008	0.010
3.3	West	0.011	0.011	0.011	0.011	0.011	0.011	0.009	0.011
3.4	West	0.012	0.012	0.012	0.012	0.012	0.012	0.010	0.012
3.5	West	0.015	0.015	0.015	0.015	0.014	0.014	0.012	0.015
3.6	West	0.018	0.018	0.018	0.017	0.016	0.016	0.013	0.017
3.7	West	0.021	0.021	0.021	0.021	0.019	0.019	0.015	0.021
3.8	West	0.024	0.024	0.024	0.024	0.022	0.022	0.017	0.024
3.9	West	0.030	0.030	0.030	0.030	0.027	0.027	0.019	0.030
4	West	0.038	0.038	0.038	0.037	0.034	0.034	0.023	0.037
4.1	West	0.045	0.045	0.045	0.045	0.040	0.040	0.025	0.045
4.2	West	0.056	0.056	0.056	0.056	0.046	0.046	0.028	0.056
4.3	West	0.068	0.068	0.068	0.068	0.056	0.056	0.036	0.068
4.4	West	0.077	0.077	0.077	0.076	0.064	0.064	0.043	0.076
4.5	West	0.080	0.080	0.080	0.080	0.066	0.066	0.045	0.080
4.6	West	0.082	0.082	0.082	0.081	0.068	0.068	0.047	0.081
4.7	West	0.086	0.086	0.085	0.084	0.069	0.069	0.048	0.084
4.8	West	0.093	0.093	0.092	0.089	0.074	0.074	0.051	0.089
4.9	West	0.100	0.100	0.096	0.093	0.076	0.076	0.053	0.093
5	West	0.100	0.099	0.093	0.089	0.071	0.071	0.048	0.089
5.1	West	0.100	0.099	0.091	0.086	0.068	0.068	0.046	0.086
5.2	West	0.101	0.099	0.092	0.086	0.075	0.075	0.049	0.086
5.3	West	0.097	0.095	0.087	0.082	0.069	0.069	0.041	0.082
5.4	West	0.091	0.090	0.082	0.075	0.061	0.061	0.034	0.076

**Table J2.5-1e**  
**RAO 6 Rolling River Mile HQ Estimates - 1,2,3,4,7,8-HxCDF**  
 Portland Harbor Superfund Site  
 Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
5.5	West	0.087	0.086	0.078	0.072	0.059	0.059	0.032	0.074
5.6	West	0.087	0.084	0.076	0.070	0.053	0.053	0.026	0.073
5.7	West	0.087	0.078	0.069	0.064	0.049	0.049	0.023	0.066
5.8	West	0.086	0.068	0.060	0.056	0.043	0.043	0.021	0.058
5.9	West	0.088	0.060	0.054	0.050	0.038	0.038	0.020	0.053
6	West	0.093	0.055	0.051	0.048	0.037	0.037	0.020	0.051
6.1	West	0.100	0.056	0.052	0.048	0.035	0.035	0.019	0.048
6.2	West	0.107	0.063	0.059	0.055	0.033	0.033	0.015	0.046
6.3	West	0.128	0.074	0.070	0.059	0.027	0.027	0.011	0.039
6.4	West	0.282	0.162	0.100	0.073	0.026	0.026	0.008	0.034
6.5	West	0.682	0.392	0.232	0.082	0.019	0.019	0.003	0.024
6.6	West	1.336	0.871	0.481	0.177	0.024	0.024	0.003	0.024
6.7	West	2.557	0.905	0.471	0.166	0.022	0.022	0.003	0.022
6.8	West	42.240	0.893	0.461	0.163	0.022	0.022	0.003	0.022
6.9	West	83.698	0.918	0.480	0.172	0.023	0.023	0.003	0.023
7	West	84.449	1.800	1.039	0.197	0.045	0.045	0.003	0.045
7.1	West	71.225	2.987	2.256	0.669	0.285	0.285	0.034	0.285
7.2	West	59.635	2.522	1.909	0.583	0.258	0.258	0.034	0.258
7.3	West	51.423	2.181	1.652	0.513	0.234	0.234	0.030	0.234
7.4	West	51.448	2.140	1.642	0.511	0.241	0.241	0.030	0.241
7.5	West	53.089	2.094	1.632	0.528	0.255	0.255	0.031	0.256
7.6	West	54.148	1.879	1.536	0.491	0.262	0.262	0.032	0.265
7.7	West	54.553	1.869	1.562	0.506	0.271	0.271	0.033	0.275
7.8	West	29.416	1.874	1.570	0.511	0.273	0.273	0.033	0.280
7.9	West	2.789	1.734	1.455	0.473	0.254	0.254	0.031	0.263
8	West	1.100	1.098	1.026	0.421	0.224	0.224	0.029	0.232
8.1	West	0.087	0.087	0.087	0.082	0.059	0.059	0.009	0.068
8.2	West	0.067	0.067	0.067	0.060	0.042	0.042	0.004	0.052
8.3	West	0.058	0.057	0.057	0.046	0.032	0.032	0.003	0.044
8.4	West	0.055	0.048	0.047	0.036	0.021	0.021	0.003	0.034
8.5	West	0.053	0.040	0.038	0.027	0.015	0.015	0.003	0.027
8.6	West	0.054	0.038	0.032	0.020	0.010	0.010	0.003	0.020
8.7	West	0.057	0.036	0.028	0.015	0.006	0.006	0.003	0.015
8.8	West	0.059	0.038	0.029	0.015	0.007	0.007	0.004	0.015
8.9	West	0.060	0.038	0.029	0.016	0.010	0.010	0.007	0.016
9	West	0.063	0.039	0.030	0.018	0.010	0.010	0.008	0.018
9.1	West	0.067	0.041	0.031	0.021	0.012	0.012	0.009	0.021
9.2	West	0.071	0.045	0.032	0.021	0.013	0.013	0.010	0.021
9.3	West	0.079	0.053	0.032	0.022	0.013	0.013	0.010	0.022
9.4	West	0.075	0.056	0.033	0.023	0.014	0.014	0.011	0.023
9.5	West	0.071	0.058	0.037	0.026	0.016	0.016	0.013	0.026
9.6	West	0.066	0.059	0.040	0.030	0.020	0.020	0.016	0.030

**Table J2.5-1e**

**RAO 6 Rolling River Mile HQ Estimates - 1,2,3,4,7,8-HxCDF**

Portland Harbor Superfund Site

Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
9.7	West	0.063	0.061	0.044	0.034	0.023	0.023	0.017	0.034
9.8	West	0.061	0.059	0.042	0.034	0.024	0.024	0.017	0.034
9.9	West	0.065	0.062	0.043	0.033	0.022	0.022	0.015	0.033
10	West	0.077	0.073	0.048	0.036	0.026	0.026	0.018	0.036
10.1	West	0.097	0.092	0.059	0.042	0.033	0.033	0.023	0.043
10.2	West	0.110	0.108	0.074	0.068	0.058	0.058	0.040	0.069
10.3	West	0.089	0.089	0.089	0.087	0.079	0.079	0.054	0.087
10.4	West	0.086	0.086	0.086	0.084	0.077	0.077	0.056	0.084
10.5	West	0.082	0.082	0.081	0.079	0.074	0.074	0.055	0.080
10.6	West	0.077	0.077	0.077	0.075	0.070	0.070	0.052	0.075
10.7	West	0.072	0.072	0.072	0.070	0.066	0.066	0.054	0.070
10.8	West	0.069	0.069	0.069	0.069	0.068	0.068	0.057	0.069
10.9	West	0.067	0.067	0.067	0.067	0.067	0.067	0.057	0.067
11	West	0.064	0.064	0.064	0.064	0.064	0.064	0.055	0.064
11.1	West	0.061	0.061	0.061	0.061	0.061	0.061	0.053	0.061
11.2	West	0.055	0.055	0.055	0.055	0.055	0.055	0.050	0.055
11.3	West	0.050	0.050	0.050	0.050	0.050	0.050	0.050	0.050
11.4	West	0.047	0.047	0.047	0.047	0.047	0.047	0.047	0.047
11.5	West	0.043	0.043	0.043	0.043	0.043	0.043	0.043	0.043
11.6	West	0.040	0.040	0.040	0.040	0.040	0.040	0.039	0.040
11.7	West	0.037	0.037	0.037	0.037	0.037	0.037	0.037	0.037
7.6	Swan Isl	0.020	0.002	0.002	0.001	0.000	0.000	0.000	0.001
7.7	Swan Isl	0.028	0.002	0.002	0.001	0.000	0.000	0.000	0.001
7.8	Swan Isl	0.035	0.003	0.002	0.002	0.001	0.001	0.000	0.002
7.9	Swan Isl	0.042	0.003	0.002	0.002	0.001	0.001	0.000	0.002
8	Swan Isl	0.052	0.003	0.003	0.002	0.001	0.001	0.000	0.002
8.1	Swan Isl	0.058	0.003	0.003	0.002	0.001	0.001	0.001	0.002
8.2	Swan Isl	0.073	0.004	0.004	0.003	0.002	0.002	0.001	0.003
8.3	Swan Isl	0.086	0.006	0.004	0.003	0.002	0.002	0.002	0.003
8.4	Swan Isl	0.096	0.007	0.004	0.003	0.002	0.002	0.002	0.003
8.5	Swan Isl	0.100	0.008	0.004	0.003	0.002	0.002	0.002	0.003
8.6	Swan Isl	0.123	0.017	0.009	0.007	0.003	0.003	0.002	0.011
8.7	Swan Isl	0.158	0.036	0.021	0.019	0.007	0.007	0.006	0.029
8.8	Swan Isl	0.179	0.042	0.025	0.022	0.008	0.008	0.007	0.034
8.9	Swan Isl	0.192	0.048	0.028	0.025	0.009	0.009	0.008	0.039
9	Swan Isl	0.202	0.055	0.032	0.028	0.010	0.010	0.009	0.044
9.1	Swan Isl	0.203	0.059	0.034	0.030	0.011	0.011	0.009	0.047
9.2	Swan Isl	0.204	0.069	0.039	0.035	0.011	0.011	0.009	0.056
9.3	Swan Isl	0.204	0.084	0.047	0.044	0.013	0.013	0.011	0.072
9.4	Swan Isl	0.209	0.116	0.069	0.065	0.018	0.018	0.015	0.106
9.5	Swan Isl	0.251	0.180	0.113	0.106	0.029	0.029	0.024	0.176
9.6	Swan Isl	0.239	0.239	0.173	0.157	0.060	0.060	0.050	0.239

**Table J2.5-1f**  
**RAO 6 Rolling River Mile HQ Estimates - 1,2,3,7,8-PeCDD**  
 Portland Harbor Superfund Site  
 Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
1.8	Site	0.034	0.033	0.033	0.033	0.032	0.032	0.032	0.033
1.9	Site	0.034	0.032	0.032	0.031	0.030	0.030	0.029	0.031
2	Site	0.037	0.033	0.033	0.032	0.030	0.030	0.028	0.032
2.1	Site	0.038	0.035	0.034	0.033	0.029	0.029	0.028	0.033
2.2	Site	0.039	0.035	0.034	0.033	0.029	0.029	0.027	0.033
2.3	Site	0.039	0.035	0.035	0.033	0.029	0.029	0.027	0.033
2.4	Site	0.040	0.037	0.036	0.035	0.030	0.030	0.027	0.035
2.5	Site	0.042	0.038	0.037	0.036	0.032	0.032	0.028	0.036
2.6	Site	0.043	0.040	0.039	0.038	0.033	0.033	0.030	0.038
2.7	Site	0.045	0.041	0.041	0.040	0.035	0.035	0.032	0.040
2.8	Site	0.046	0.043	0.043	0.041	0.037	0.037	0.033	0.042
2.9	Site	0.047	0.046	0.045	0.045	0.041	0.041	0.037	0.045
3	Site	0.053	0.053	0.051	0.051	0.048	0.048	0.043	0.051
3.1	Site	0.058	0.058	0.056	0.056	0.055	0.053	0.048	0.056
3.2	Site	0.063	0.063	0.060	0.060	0.060	0.058	0.051	0.060
3.3	Site	0.080	0.075	0.066	0.065	0.063	0.061	0.053	0.065
3.4	Site	0.091	0.081	0.070	0.069	0.066	0.064	0.055	0.069
3.5	Site	0.097	0.086	0.074	0.073	0.070	0.067	0.058	0.073
3.6	Site	0.102	0.091	0.079	0.077	0.073	0.070	0.060	0.077
3.7	Site	0.108	0.097	0.085	0.081	0.076	0.073	0.062	0.081
3.8	Site	0.111	0.100	0.087	0.083	0.078	0.075	0.063	0.083
3.9	Site	0.114	0.103	0.090	0.085	0.075	0.072	0.058	0.085
4	Site	0.110	0.099	0.089	0.083	0.069	0.066	0.050	0.083
4.1	Site	0.105	0.094	0.083	0.078	0.063	0.061	0.046	0.078
4.2	Site	0.106	0.095	0.082	0.075	0.059	0.059	0.044	0.075
4.3	Site	0.095	0.089	0.082	0.076	0.060	0.060	0.046	0.076
4.4	Site	0.088	0.088	0.083	0.077	0.062	0.061	0.048	0.077
4.5	Site	0.088	0.087	0.083	0.077	0.062	0.062	0.049	0.077
4.6	Site	0.088	0.088	0.083	0.077	0.064	0.061	0.049	0.079
4.7	Site	0.090	0.089	0.081	0.076	0.066	0.060	0.047	0.081
4.8	Site	0.096	0.094	0.085	0.078	0.072	0.061	0.049	0.086
4.9	Site	0.099	0.095	0.084	0.077	0.078	0.064	0.051	0.088
5	Site	0.104	0.098	0.085	0.077	0.086	0.066	0.054	0.090
5.1	Site	0.114	0.108	0.094	0.085	0.094	0.071	0.055	0.099
5.2	Site	0.121	0.111	0.098	0.090	0.100	0.073	0.054	0.102
5.3	Site	0.128	0.112	0.099	0.090	0.098	0.069	0.050	0.101
5.4	Site	0.138	0.121	0.108	0.098	0.105	0.072	0.047	0.108
5.5	Site	0.147	0.130	0.117	0.106	0.112	0.077	0.046	0.116
5.6	Site	0.158	0.141	0.129	0.118	0.117	0.084	0.050	0.126
5.7	Site	0.172	0.155	0.143	0.132	0.126	0.092	0.055	0.139
5.8	Site	0.189	0.168	0.156	0.146	0.138	0.106	0.069	0.153
5.9	Site	0.205	0.185	0.173	0.163	0.150	0.121	0.084	0.170
6	Site	0.225	0.203	0.191	0.182	0.167	0.141	0.102	0.189

**Table J2.5-1f**

**RAO 6 Rolling River Mile HQ Estimates - 1,2,3,7,8-PeCDD**

Portland Harbor Superfund Site

Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
6.1	Site	0.247	0.224	0.201	0.189	0.185	0.145	0.109	0.209
6.2	Site	0.280	0.249	0.210	0.196	0.200	0.144	0.109	0.229
6.3	Site	0.395	0.280	0.215	0.201	0.205	0.141	0.104	0.260
6.4	Site	0.459	0.290	0.210	0.196	0.200	0.141	0.106	0.266
6.5	Site	0.491	0.287	0.207	0.192	0.197	0.140	0.112	0.260
6.6	Site	0.480	0.279	0.200	0.186	0.194	0.140	0.115	0.250
6.7	Site	0.527	0.278	0.193	0.180	0.189	0.142	0.121	0.304
6.8	Site	0.562	0.281	0.185	0.173	0.181	0.138	0.118	0.336
6.9	Site	0.553	0.272	0.175	0.164	0.172	0.131	0.112	0.324
7	Site	0.524	0.255	0.164	0.153	0.160	0.120	0.101	0.305
7.1	Site	0.487	0.233	0.156	0.148	0.147	0.118	0.097	0.281
7.2	Site	0.444	0.213	0.150	0.145	0.139	0.123	0.101	0.264
7.3	Site	0.347	0.187	0.146	0.142	0.136	0.128	0.107	0.237
7.4	Site	0.288	0.172	0.144	0.140	0.136	0.130	0.111	0.226
7.5	Site	0.254	0.168	0.143	0.141	0.137	0.131	0.111	0.223
7.6	Site	0.241	0.155	0.132	0.131	0.128	0.122	0.101	0.208
7.7	Site	0.189	0.132	0.118	0.117	0.113	0.107	0.087	0.147
7.8	Site	0.150	0.114	0.110	0.108	0.102	0.097	0.079	0.110
7.9	Site	0.137	0.106	0.106	0.103	0.096	0.091	0.074	0.102
8	Site	0.132	0.101	0.101	0.097	0.090	0.087	0.071	0.095
8.1	Site	0.131	0.099	0.098	0.092	0.084	0.083	0.071	0.091
8.2	Site	0.132	0.095	0.094	0.085	0.077	0.077	0.067	0.085
8.3	Site	0.138	0.094	0.092	0.080	0.071	0.071	0.064	0.080
8.4	Site	0.148	0.090	0.087	0.074	0.066	0.066	0.059	0.074
8.5	Site	0.156	0.085	0.081	0.068	0.060	0.058	0.052	0.068
8.6	Site	0.168	0.093	0.084	0.070	0.059	0.057	0.052	0.072
8.7	Site	0.176	0.108	0.095	0.079	0.066	0.063	0.057	0.085
8.8	Site	0.178	0.114	0.100	0.083	0.069	0.064	0.058	0.088
8.9	Site	0.180	0.117	0.103	0.086	0.074	0.068	0.061	0.092
9	Site	0.184	0.121	0.106	0.090	0.076	0.070	0.062	0.096
9.1	Site	0.186	0.122	0.106	0.093	0.077	0.071	0.063	0.099
9.2	Site	0.192	0.130	0.109	0.096	0.080	0.074	0.064	0.103
9.3	Site	0.198	0.144	0.110	0.101	0.085	0.077	0.066	0.108
9.4	Site	0.185	0.151	0.117	0.108	0.090	0.083	0.071	0.115
9.5	Site	0.176	0.158	0.126	0.117	0.099	0.090	0.077	0.124
9.6	Site	0.163	0.158	0.132	0.123	0.108	0.100	0.087	0.127
9.7	Site	0.158	0.156	0.134	0.126	0.114	0.108	0.092	0.126
9.8	Site	0.163	0.160	0.139	0.132	0.120	0.113	0.093	0.132
9.9	Site	0.168	0.166	0.143	0.137	0.125	0.111	0.090	0.137
10	Site	0.175	0.173	0.149	0.143	0.134	0.118	0.093	0.143
10.1	Site	0.183	0.180	0.156	0.149	0.143	0.126	0.101	0.150
10.2	Site	0.187	0.186	0.167	0.164	0.158	0.140	0.113	0.165



**Table J2.5-1f**

**RAO 6 Rolling River Mile HQ Estimates - 1,2,3,7,8-PeCDD**

Portland Harbor Superfund Site

Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
10.3	Site	0.185	0.185	0.185	0.182	0.175	0.156	0.123	0.182
10.4	Site	0.198	0.198	0.197	0.193	0.184	0.163	0.125	0.193
10.5	Site	0.205	0.205	0.205	0.201	0.189	0.168	0.124	0.201
10.6	Site	0.211	0.211	0.211	0.206	0.193	0.171	0.123	0.206
10.7	Site	0.214	0.212	0.209	0.203	0.190	0.168	0.123	0.203
10.8	Site	0.215	0.209	0.205	0.198	0.186	0.167	0.127	0.198
10.9	Site	0.227	0.215	0.205	0.194	0.182	0.170	0.132	0.194
11	Site	0.237	0.219	0.208	0.195	0.183	0.170	0.136	0.195
11.1	Site	0.236	0.217	0.206	0.193	0.180	0.168	0.135	0.193
11.2	Site	0.233	0.213	0.201	0.187	0.174	0.163	0.129	0.187
11.3	Site	0.227	0.205	0.191	0.177	0.165	0.153	0.123	0.177
11.4	Site	0.226	0.201	0.185	0.171	0.159	0.148	0.123	0.171
11.5	Site	0.228	0.200	0.182	0.165	0.155	0.147	0.128	0.165
11.6	Site	0.233	0.199	0.178	0.160	0.150	0.140	0.124	0.160
11.7	Site	0.239	0.203	0.182	0.162	0.153	0.141	0.123	0.162
1.8	East	0.053	0.050	0.049	0.048	0.047	0.047	0.046	0.048
1.9	East	0.056	0.050	0.049	0.046	0.044	0.044	0.043	0.046
2	East	0.066	0.054	0.052	0.049	0.043	0.043	0.041	0.049
2.1	East	0.070	0.059	0.057	0.053	0.041	0.041	0.039	0.053
2.2	East	0.067	0.056	0.054	0.051	0.038	0.038	0.034	0.051
2.3	East	0.066	0.055	0.052	0.049	0.035	0.035	0.029	0.049
2.4	East	0.067	0.055	0.052	0.048	0.034	0.034	0.028	0.048
2.5	East	0.069	0.057	0.054	0.050	0.035	0.035	0.029	0.050
2.6	East	0.071	0.059	0.056	0.052	0.037	0.037	0.031	0.052
2.7	East	0.075	0.063	0.061	0.056	0.041	0.041	0.035	0.057
2.8	East	0.079	0.068	0.066	0.062	0.045	0.045	0.039	0.062
2.9	East	0.080	0.074	0.072	0.070	0.055	0.055	0.048	0.070
3	East	0.101	0.101	0.091	0.090	0.079	0.079	0.074	0.090
3.1	East	0.116	0.116	0.106	0.105	0.102	0.102	0.096	0.105
3.2	East	0.129	0.129	0.118	0.117	0.115	0.115	0.110	0.117
3.3	East	0.174	0.155	0.117	0.114	0.107	0.107	0.098	0.114
3.4	East	0.216	0.171	0.122	0.119	0.110	0.110	0.100	0.119
3.5	East	0.229	0.181	0.128	0.124	0.113	0.113	0.101	0.124
3.6	East	0.243	0.191	0.135	0.125	0.113	0.113	0.101	0.125
3.7	East	0.255	0.202	0.144	0.127	0.112	0.112	0.098	0.127
3.8	East	0.262	0.208	0.149	0.132	0.115	0.115	0.099	0.132
3.9	East	0.262	0.214	0.157	0.135	0.099	0.099	0.079	0.135
4	East	0.242	0.196	0.151	0.129	0.076	0.076	0.050	0.129
4.1	East	0.217	0.173	0.129	0.107	0.055	0.055	0.031	0.107
4.2	East	0.210	0.169	0.117	0.092	0.042	0.042	0.019	0.092
4.3	East	0.184	0.154	0.122	0.093	0.037	0.037	0.014	0.093
4.4	East	0.150	0.148	0.126	0.096	0.038	0.038	0.015	0.096

**Table J2.5-1f**  
**RAO 6 Rolling River Mile HQ Estimates - 1,2,3,7,8-PeCDD**  
 Portland Harbor Superfund Site  
 Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
4.5	East	0.151	0.149	0.127	0.098	0.040	0.040	0.018	0.098
4.6	East	0.151	0.150	0.129	0.106	0.049	0.049	0.026	0.106
4.7	East	0.152	0.151	0.130	0.114	0.060	0.060	0.038	0.114
4.8	East	0.163	0.162	0.140	0.124	0.070	0.070	0.049	0.124
4.9	East	0.158	0.157	0.136	0.125	0.090	0.090	0.064	0.125
5	East	0.156	0.155	0.131	0.121	0.115	0.115	0.091	0.120
5.1	East	0.192	0.191	0.166	0.156	0.143	0.143	0.108	0.147
5.2	East	0.224	0.224	0.223	0.220	0.183	0.183	0.134	0.183
5.3	East	0.232	0.232	0.232	0.224	0.175	0.175	0.127	0.175
5.4	East	0.235	0.235	0.235	0.228	0.180	0.180	0.118	0.180
5.5	East	0.242	0.242	0.242	0.236	0.183	0.183	0.111	0.188
5.6	East	0.255	0.254	0.254	0.246	0.181	0.181	0.109	0.203
5.7	East	0.270	0.270	0.270	0.262	0.184	0.184	0.114	0.223
5.8	East	0.289	0.289	0.284	0.277	0.205	0.205	0.139	0.247
5.9	East	0.296	0.296	0.285	0.274	0.200	0.200	0.140	0.257
6	East	0.294	0.294	0.277	0.268	0.200	0.200	0.145	0.259
6.1	East	0.291	0.291	0.264	0.255	0.195	0.195	0.148	0.260
6.2	East	0.325	0.292	0.244	0.237	0.192	0.192	0.149	0.263
6.3	East	0.571	0.325	0.215	0.211	0.174	0.174	0.133	0.304
6.4	East	0.629	0.323	0.195	0.190	0.159	0.159	0.127	0.307
6.5	East	0.595	0.301	0.178	0.174	0.148	0.148	0.125	0.288
6.6	East	0.556	0.278	0.162	0.159	0.142	0.142	0.123	0.267
6.7	East	0.659	0.282	0.150	0.148	0.140	0.140	0.125	0.387
6.8	East	0.720	0.297	0.140	0.137	0.130	0.130	0.117	0.460
6.9	East	0.700	0.291	0.132	0.132	0.126	0.126	0.116	0.447
7	East	0.669	0.278	0.129	0.128	0.123	0.123	0.114	0.426
7.1	East	0.657	0.268	0.126	0.126	0.121	0.121	0.113	0.417
7.2	East	0.656	0.265	0.129	0.129	0.124	0.124	0.117	0.430
7.3	East	0.499	0.238	0.140	0.140	0.135	0.135	0.130	0.423
7.4	East	0.451	0.233	0.149	0.149	0.146	0.146	0.139	0.446
7.5	East	0.481	0.250	0.162	0.162	0.158	0.158	0.149	0.477
7.6	East	0.510	0.259	0.166	0.166	0.162	0.162	0.146	0.500
7.7	East	0.340	0.221	0.151	0.151	0.147	0.147	0.129	0.314
7.8	East	0.195	0.158	0.137	0.137	0.131	0.131	0.111	0.155
7.9	East	0.171	0.131	0.130	0.130	0.129	0.129	0.106	0.131
8	East	0.165	0.116	0.116	0.116	0.115	0.115	0.089	0.116
8.1	East	0.167	0.110	0.110	0.110	0.109	0.109	0.078	0.110
8.2	East	0.157	0.101	0.101	0.101	0.099	0.099	0.069	0.101
8.3	East	0.147	0.095	0.095	0.095	0.094	0.094	0.069	0.095
8.4	East	0.139	0.088	0.088	0.088	0.087	0.087	0.069	0.088
8.5	East	0.125	0.072	0.072	0.072	0.071	0.071	0.054	0.072
8.6	East	0.111	0.065	0.065	0.065	0.062	0.062	0.054	0.065

**Table J2.5-1f**

**RAO 6 Rolling River Mile HQ Estimates - 1,2,3,7,8-PeCDD**

Portland Harbor Superfund Site

Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
8.7	East	0.097	0.078	0.078	0.078	0.074	0.074	0.061	0.078
8.8	East	0.081	0.081	0.081	0.081	0.078	0.078	0.065	0.081
8.9	East	0.081	0.081	0.081	0.081	0.078	0.078	0.066	0.081
9	East	0.082	0.082	0.082	0.082	0.079	0.079	0.067	0.082
9.1	East	0.085	0.085	0.085	0.085	0.077	0.077	0.062	0.085
9.2	East	0.090	0.090	0.090	0.090	0.076	0.076	0.055	0.090
9.3	East	0.097	0.097	0.097	0.097	0.084	0.084	0.060	0.097
9.4	East	0.107	0.107	0.107	0.107	0.095	0.095	0.071	0.107
9.5	East	0.118	0.118	0.118	0.118	0.105	0.105	0.085	0.118
9.6	East	0.126	0.126	0.126	0.124	0.110	0.110	0.091	0.124
9.7	East	0.137	0.137	0.136	0.135	0.119	0.119	0.102	0.135
9.8	East	0.152	0.152	0.152	0.151	0.134	0.134	0.113	0.151
9.9	East	0.170	0.169	0.169	0.167	0.149	0.149	0.127	0.168
10	East	0.188	0.188	0.188	0.186	0.166	0.166	0.139	0.186
10.1	East	0.206	0.206	0.206	0.204	0.184	0.184	0.157	0.204
10.2	East	0.229	0.229	0.229	0.226	0.201	0.201	0.177	0.226
10.3	East	0.266	0.266	0.266	0.250	0.209	0.209	0.186	0.250
10.4	East	0.306	0.306	0.306	0.279	0.222	0.222	0.189	0.279
10.5	East	0.339	0.339	0.339	0.308	0.226	0.226	0.174	0.309
10.6	East	0.381	0.381	0.379	0.345	0.254	0.254	0.181	0.345
10.7	East	0.416	0.403	0.388	0.346	0.249	0.249	0.176	0.346
10.8	East	0.428	0.411	0.383	0.334	0.229	0.229	0.147	0.334
10.9	East	0.453	0.406	0.350	0.292	0.190	0.190	0.114	0.292
11	East	0.490	0.396	0.329	0.259	0.157	0.157	0.089	0.259
11.1	East	0.485	0.388	0.318	0.245	0.143	0.143	0.077	0.245
11.2	East	0.472	0.379	0.312	0.238	0.147	0.147	0.067	0.238
11.3	East	0.477	0.372	0.297	0.230	0.143	0.143	0.057	0.230
11.4	East	0.480	0.362	0.277	0.214	0.130	0.130	0.041	0.214
11.5	East	0.482	0.353	0.260	0.190	0.123	0.123	0.044	0.190
11.6	East	0.483	0.335	0.230	0.157	0.094	0.094	0.035	0.157
11.7	East	0.475	0.322	0.220	0.145	0.085	0.085	0.020	0.145
1.8	Nav Channel	0.022	0.022	0.022	0.022	0.022	0.022	0.021	0.022
1.9	Nav Channel	0.022	0.022	0.022	0.022	0.022	0.022	0.019	0.022
2	Nav Channel	0.023	0.023	0.023	0.023	0.023	0.023	0.020	0.023
2.1	Nav Channel	0.026	0.026	0.026	0.026	0.026	0.026	0.023	0.026
2.2	Nav Channel	0.028	0.028	0.028	0.028	0.028	0.028	0.026	0.028
2.3	Nav Channel	0.031	0.031	0.031	0.031	0.031	0.031	0.028	0.031
2.4	Nav Channel	0.034	0.034	0.034	0.034	0.034	0.034	0.031	0.034
2.5	Nav Channel	0.037	0.037	0.037	0.037	0.037	0.037	0.034	0.037
2.6	Nav Channel	0.040	0.040	0.040	0.040	0.040	0.040	0.038	0.040
2.7	Nav Channel	0.043	0.043	0.043	0.043	0.043	0.043	0.040	0.043
2.8	Nav Channel	0.046	0.046	0.046	0.046	0.046	0.046	0.044	0.046

**Table J2.5-1f**

**RAO 6 Rolling River Mile HQ Estimates - 1,2,3,7,8-PeCDD**

Portland Harbor Superfund Site

Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
2.9	Nav Channel	0.048	0.048	0.048	0.048	0.048	0.048	0.047	0.048
3	Nav Channel	0.051	0.051	0.051	0.051	0.051	0.049	0.046	0.051
3.1	Nav Channel	0.053	0.053	0.053	0.052	0.052	0.048	0.043	0.052
3.2	Nav Channel	0.054	0.054	0.054	0.054	0.054	0.048	0.039	0.054
3.3	Nav Channel	0.056	0.056	0.056	0.056	0.056	0.049	0.039	0.056
3.4	Nav Channel	0.057	0.057	0.057	0.057	0.057	0.051	0.041	0.057
3.5	Nav Channel	0.058	0.058	0.058	0.058	0.058	0.052	0.043	0.058
3.6	Nav Channel	0.059	0.059	0.059	0.059	0.059	0.054	0.044	0.059
3.7	Nav Channel	0.060	0.060	0.060	0.060	0.060	0.055	0.046	0.060
3.8	Nav Channel	0.059	0.059	0.059	0.058	0.058	0.054	0.045	0.058
3.9	Nav Channel	0.055	0.055	0.055	0.055	0.055	0.051	0.043	0.055
4	Nav Channel	0.052	0.052	0.052	0.052	0.052	0.048	0.042	0.052
4.1	Nav Channel	0.050	0.050	0.050	0.050	0.050	0.048	0.043	0.050
4.2	Nav Channel	0.051	0.051	0.051	0.051	0.051	0.050	0.047	0.051
4.3	Nav Channel	0.053	0.053	0.053	0.053	0.053	0.052	0.050	0.053
4.4	Nav Channel	0.054	0.054	0.054	0.054	0.054	0.054	0.052	0.054
4.5	Nav Channel	0.056	0.056	0.056	0.056	0.056	0.056	0.054	0.056
4.6	Nav Channel	0.058	0.058	0.056	0.055	0.058	0.054	0.051	0.058
4.7	Nav Channel	0.061	0.059	0.055	0.052	0.059	0.049	0.046	0.059
4.8	Nav Channel	0.066	0.063	0.057	0.053	0.063	0.048	0.044	0.063
4.9	Nav Channel	0.073	0.068	0.059	0.053	0.068	0.048	0.043	0.068
5	Nav Channel	0.083	0.075	0.064	0.057	0.075	0.048	0.043	0.075
5.1	Nav Channel	0.091	0.083	0.070	0.063	0.083	0.050	0.041	0.083
5.2	Nav Channel	0.098	0.084	0.070	0.062	0.084	0.048	0.038	0.084
5.3	Nav Channel	0.106	0.084	0.068	0.059	0.084	0.044	0.034	0.084
5.4	Nav Channel	0.112	0.089	0.072	0.062	0.089	0.041	0.030	0.089
5.5	Nav Channel	0.120	0.095	0.078	0.066	0.095	0.043	0.027	0.095
5.6	Nav Channel	0.130	0.104	0.087	0.076	0.104	0.051	0.032	0.104
5.7	Nav Channel	0.143	0.117	0.100	0.087	0.117	0.059	0.037	0.116
5.8	Nav Channel	0.162	0.129	0.114	0.102	0.129	0.071	0.047	0.128
5.9	Nav Channel	0.188	0.156	0.143	0.131	0.156	0.100	0.071	0.154
6	Nav Channel	0.225	0.189	0.178	0.167	0.189	0.135	0.101	0.187
6.1	Nav Channel	0.272	0.233	0.205	0.189	0.229	0.145	0.112	0.227
6.2	Nav Channel	0.318	0.286	0.241	0.216	0.271	0.146	0.111	0.269
6.3	Nav Channel	0.345	0.324	0.278	0.252	0.308	0.155	0.111	0.306
6.4	Nav Channel	0.362	0.342	0.296	0.270	0.325	0.174	0.123	0.323
6.5	Nav Channel	0.370	0.350	0.304	0.279	0.334	0.187	0.142	0.332
6.6	Nav Channel	0.370	0.350	0.305	0.282	0.334	0.194	0.152	0.332
6.7	Nav Channel	0.364	0.346	0.306	0.287	0.331	0.204	0.168	0.330
6.8	Nav Channel	0.349	0.337	0.300	0.283	0.322	0.206	0.169	0.322
6.9	Nav Channel	0.323	0.316	0.280	0.264	0.301	0.190	0.152	0.301
7	Nav Channel	0.287	0.286	0.252	0.237	0.272	0.162	0.125	0.272

**Table J2.5-1f**

**RAO 6 Rolling River Mile HQ Estimates - 1,2,3,7,8-PeCDD**

Portland Harbor Superfund Site

Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
7.1	Nav Channel	0.244	0.244	0.228	0.220	0.233	0.155	0.117	0.233
7.2	Nav Channel	0.204	0.203	0.203	0.203	0.203	0.163	0.122	0.203
7.3	Nav Channel	0.183	0.183	0.183	0.183	0.183	0.164	0.131	0.183
7.4	Nav Channel	0.168	0.168	0.168	0.168	0.168	0.155	0.131	0.168
7.5	Nav Channel	0.157	0.157	0.157	0.157	0.157	0.145	0.124	0.157
7.6	Nav Channel	0.148	0.148	0.148	0.148	0.148	0.137	0.117	0.148
7.7	Nav Channel	0.141	0.141	0.141	0.141	0.141	0.130	0.111	0.141
7.8	Nav Channel	0.134	0.134	0.134	0.134	0.134	0.124	0.107	0.134
7.9	Nav Channel	0.127	0.127	0.127	0.127	0.127	0.118	0.105	0.127
8	Nav Channel	0.121	0.121	0.121	0.121	0.121	0.116	0.106	0.121
8.1	Nav Channel	0.116	0.116	0.116	0.115	0.116	0.114	0.108	0.116
8.2	Nav Channel	0.109	0.109	0.109	0.109	0.109	0.108	0.107	0.109
8.3	Nav Channel	0.103	0.103	0.103	0.103	0.103	0.103	0.102	0.103
8.4	Nav Channel	0.099	0.099	0.099	0.098	0.099	0.098	0.096	0.099
8.5	Nav Channel	0.095	0.094	0.094	0.094	0.094	0.092	0.089	0.094
8.6	Nav Channel	0.094	0.093	0.093	0.093	0.093	0.089	0.087	0.093
8.7	Nav Channel	0.094	0.094	0.094	0.093	0.094	0.088	0.085	0.094
8.8	Nav Channel	0.094	0.094	0.094	0.093	0.094	0.085	0.081	0.094
8.9	Nav Channel	0.094	0.094	0.094	0.093	0.094	0.084	0.078	0.094
9	Nav Channel	0.095	0.094	0.094	0.093	0.094	0.084	0.078	0.094
9.1	Nav Channel	0.095	0.095	0.095	0.094	0.095	0.084	0.078	0.095
9.2	Nav Channel	0.097	0.096	0.096	0.096	0.096	0.085	0.077	0.096
9.3	Nav Channel	0.098	0.097	0.097	0.097	0.097	0.085	0.077	0.097
9.4	Nav Channel	0.098	0.098	0.098	0.098	0.098	0.086	0.077	0.098
9.5	Nav Channel	0.101	0.101	0.101	0.101	0.101	0.088	0.078	0.101
9.6	Nav Channel	0.106	0.106	0.106	0.105	0.106	0.094	0.084	0.106
9.7	Nav Channel	0.110	0.110	0.110	0.110	0.110	0.101	0.090	0.110
9.8	Nav Channel	0.115	0.115	0.115	0.115	0.115	0.104	0.088	0.115
9.9	Nav Channel	0.121	0.121	0.121	0.121	0.121	0.102	0.084	0.121
10	Nav Channel	0.127	0.127	0.127	0.127	0.127	0.106	0.085	0.127
10.1	Nav Channel	0.133	0.133	0.133	0.133	0.133	0.111	0.090	0.133
10.2	Nav Channel	0.139	0.139	0.139	0.139	0.139	0.117	0.095	0.139
10.3	Nav Channel	0.145	0.145	0.145	0.145	0.145	0.121	0.098	0.145
10.4	Nav Channel	0.150	0.150	0.150	0.150	0.150	0.124	0.094	0.150
10.5	Nav Channel	0.152	0.152	0.152	0.152	0.152	0.125	0.092	0.152
10.6	Nav Channel	0.151	0.151	0.151	0.151	0.151	0.123	0.087	0.151
10.7	Nav Channel	0.150	0.149	0.148	0.147	0.147	0.118	0.084	0.147
10.8	Nav Channel	0.151	0.145	0.144	0.142	0.142	0.118	0.090	0.142
10.9	Nav Channel	0.161	0.153	0.149	0.143	0.143	0.127	0.100	0.143
11	Nav Channel	0.168	0.160	0.156	0.151	0.151	0.135	0.111	0.151
11.1	Nav Channel	0.169	0.160	0.157	0.151	0.151	0.136	0.113	0.151
11.2	Nav Channel	0.169	0.160	0.156	0.150	0.150	0.134	0.111	0.150

**Table J2.5-1f**

**RAO 6 Rolling River Mile HQ Estimates - 1,2,3,7,8-PeCDD**

Portland Harbor Superfund Site

Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
11.3	Nav Channel	0.170	0.160	0.155	0.149	0.149	0.133	0.108	0.149
11.4	Nav Channel	0.173	0.161	0.156	0.148	0.148	0.133	0.117	0.148
11.5	Nav Channel	0.177	0.164	0.158	0.150	0.150	0.138	0.128	0.150
11.6	Nav Channel	0.186	0.170	0.163	0.153	0.153	0.140	0.130	0.153
11.7	Nav Channel	0.196	0.179	0.172	0.161	0.161	0.145	0.134	0.161
1.8	West	0.029	0.029	0.029	0.029	0.029	0.029	0.029	0.029
1.9	West	0.027	0.027	0.027	0.027	0.027	0.027	0.027	0.027
2	West	0.024	0.024	0.024	0.024	0.024	0.024	0.024	0.024
2.1	West	0.023	0.023	0.023	0.023	0.023	0.023	0.023	0.023
2.2	West	0.022	0.022	0.022	0.022	0.022	0.022	0.022	0.022
2.3	West	0.023	0.023	0.023	0.023	0.023	0.023	0.023	0.023
2.4	West	0.024	0.024	0.024	0.024	0.024	0.024	0.023	0.024
2.5	West	0.024	0.024	0.024	0.024	0.024	0.024	0.023	0.024
2.6	West	0.025	0.025	0.025	0.025	0.025	0.025	0.022	0.025
2.7	West	0.025	0.025	0.025	0.025	0.025	0.025	0.023	0.025
2.8	West	0.026	0.026	0.026	0.026	0.026	0.026	0.022	0.026
2.9	West	0.027	0.027	0.027	0.027	0.027	0.027	0.023	0.027
3	West	0.029	0.029	0.029	0.029	0.029	0.029	0.024	0.029
3.1	West	0.033	0.033	0.033	0.033	0.033	0.033	0.028	0.033
3.2	West	0.038	0.038	0.038	0.038	0.038	0.038	0.033	0.038
3.3	West	0.044	0.044	0.044	0.044	0.043	0.043	0.038	0.044
3.4	West	0.050	0.050	0.050	0.050	0.049	0.049	0.042	0.050
3.5	West	0.060	0.060	0.060	0.060	0.057	0.057	0.049	0.060
3.6	West	0.072	0.072	0.072	0.071	0.067	0.067	0.056	0.071
3.7	West	0.087	0.087	0.087	0.086	0.081	0.081	0.066	0.086
3.8	West	0.103	0.103	0.103	0.102	0.094	0.094	0.073	0.102
3.9	West	0.121	0.121	0.121	0.121	0.110	0.110	0.079	0.121
4	West	0.138	0.138	0.138	0.137	0.125	0.125	0.085	0.137
4.1	West	0.156	0.156	0.156	0.155	0.137	0.137	0.088	0.155
4.2	West	0.166	0.166	0.166	0.165	0.138	0.138	0.081	0.165
4.3	West	0.170	0.170	0.170	0.169	0.140	0.140	0.082	0.169
4.4	West	0.167	0.167	0.167	0.166	0.139	0.139	0.083	0.166
4.5	West	0.160	0.160	0.160	0.160	0.133	0.133	0.079	0.160
4.6	West	0.154	0.154	0.154	0.153	0.128	0.128	0.077	0.153
4.7	West	0.152	0.152	0.151	0.148	0.121	0.121	0.072	0.148
4.8	West	0.155	0.155	0.154	0.149	0.123	0.123	0.077	0.149
4.9	West	0.161	0.160	0.154	0.148	0.120	0.120	0.079	0.148
5	West	0.162	0.161	0.149	0.140	0.110	0.110	0.073	0.140
5.1	West	0.156	0.154	0.140	0.131	0.102	0.102	0.066	0.131
5.2	West	0.151	0.149	0.134	0.125	0.106	0.106	0.067	0.125
5.3	West	0.145	0.143	0.128	0.117	0.098	0.098	0.056	0.117
5.4	West	0.142	0.140	0.125	0.114	0.091	0.091	0.048	0.116

**Table J2.5-1f**

**RAO 6 Rolling River Mile HQ Estimates - 1,2,3,7,8-PeCDD**

Portland Harbor Superfund Site

Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
5.5	West	0.139	0.137	0.123	0.111	0.088	0.088	0.047	0.115
5.6	West	0.134	0.130	0.116	0.105	0.078	0.078	0.037	0.109
5.7	West	0.128	0.118	0.103	0.094	0.071	0.071	0.031	0.098
5.8	West	0.116	0.101	0.087	0.081	0.060	0.060	0.027	0.084
5.9	West	0.106	0.086	0.076	0.070	0.051	0.051	0.025	0.074
6	West	0.100	0.076	0.070	0.066	0.048	0.048	0.025	0.070
6.1	West	0.097	0.070	0.066	0.061	0.045	0.045	0.024	0.064
6.2	West	0.092	0.065	0.061	0.056	0.038	0.038	0.020	0.057
6.3	West	0.095	0.068	0.063	0.054	0.031	0.031	0.016	0.049
6.4	West	0.253	0.094	0.060	0.048	0.024	0.024	0.012	0.036
6.5	West	0.494	0.103	0.057	0.034	0.011	0.011	0.004	0.018
6.6	West	0.523	0.113	0.060	0.030	0.007	0.007	0.003	0.007
6.7	West	0.518	0.110	0.058	0.028	0.006	0.006	0.002	0.006
6.8	West	0.582	0.108	0.057	0.028	0.006	0.006	0.003	0.006
6.9	West	0.647	0.109	0.058	0.028	0.006	0.006	0.003	0.006
7	West	0.640	0.111	0.060	0.030	0.008	0.008	0.003	0.008
7.1	West	0.557	0.122	0.079	0.052	0.031	0.031	0.011	0.031
7.2	West	0.489	0.124	0.088	0.065	0.044	0.044	0.024	0.044
7.3	West	0.427	0.114	0.083	0.065	0.048	0.048	0.023	0.048
7.4	West	0.335	0.095	0.080	0.065	0.051	0.051	0.025	0.051
7.5	West	0.210	0.088	0.079	0.070	0.055	0.055	0.026	0.056
7.6	West	0.198	0.083	0.079	0.073	0.060	0.060	0.026	0.063
7.7	West	0.190	0.090	0.088	0.083	0.066	0.066	0.027	0.072
7.8	West	0.152	0.103	0.102	0.094	0.068	0.068	0.027	0.083
7.9	West	0.126	0.121	0.120	0.106	0.067	0.067	0.025	0.096
8	West	0.130	0.130	0.129	0.109	0.074	0.074	0.032	0.100
8.1	West	0.143	0.142	0.142	0.109	0.067	0.067	0.032	0.103
8.2	West	0.163	0.162	0.162	0.107	0.057	0.057	0.023	0.104
8.3	West	0.207	0.201	0.196	0.109	0.053	0.053	0.022	0.109
8.4	West	0.265	0.209	0.203	0.110	0.050	0.050	0.021	0.109
8.5	West	0.304	0.216	0.202	0.107	0.048	0.048	0.021	0.107
8.6	West	0.344	0.234	0.202	0.102	0.044	0.044	0.022	0.102
8.7	West	0.371	0.241	0.201	0.097	0.040	0.040	0.023	0.097
8.8	West	0.385	0.256	0.211	0.099	0.045	0.045	0.028	0.099
8.9	West	0.393	0.260	0.215	0.109	0.066	0.066	0.049	0.109
9	West	0.413	0.272	0.223	0.122	0.065	0.065	0.049	0.122
9.1	West	0.426	0.271	0.218	0.130	0.071	0.071	0.055	0.130
9.2	West	0.443	0.285	0.203	0.126	0.075	0.075	0.058	0.126
9.3	West	0.505	0.346	0.179	0.129	0.077	0.077	0.060	0.129
9.4	West	0.466	0.364	0.189	0.137	0.082	0.082	0.063	0.137
9.5	West	0.440	0.376	0.206	0.152	0.095	0.095	0.075	0.152
9.6	West	0.419	0.382	0.226	0.174	0.113	0.113	0.092	0.174

**Table J2.5-1f**

**RAO 6 Rolling River Mile HQ Estimates - 1,2,3,7,8-PeCDD**

Portland Harbor Superfund Site

Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
9.7	West	0.415	0.399	0.246	0.195	0.129	0.129	0.097	0.195
9.8	West	0.425	0.407	0.246	0.202	0.134	0.134	0.098	0.202
9.9	West	0.467	0.446	0.250	0.197	0.125	0.125	0.085	0.197
10	West	0.549	0.522	0.272	0.205	0.143	0.143	0.098	0.205
10.1	West	0.683	0.650	0.313	0.228	0.176	0.176	0.124	0.229
10.2	West	0.776	0.758	0.424	0.389	0.334	0.334	0.232	0.390
10.3	West	0.543	0.543	0.542	0.528	0.489	0.489	0.323	0.529
10.4	West	0.526	0.526	0.526	0.514	0.481	0.481	0.342	0.515
10.5	West	0.505	0.505	0.505	0.494	0.465	0.465	0.342	0.495
10.6	West	0.481	0.481	0.480	0.471	0.444	0.444	0.332	0.471
10.7	West	0.458	0.458	0.458	0.449	0.427	0.427	0.339	0.449
10.8	West	0.441	0.441	0.441	0.441	0.438	0.438	0.357	0.441
10.9	West	0.431	0.431	0.431	0.431	0.431	0.431	0.358	0.431
11	West	0.412	0.412	0.412	0.412	0.412	0.412	0.344	0.412
11.1	West	0.391	0.391	0.391	0.391	0.391	0.391	0.326	0.391
11.2	West	0.345	0.345	0.345	0.345	0.345	0.345	0.301	0.345
11.3	West	0.295	0.295	0.295	0.295	0.295	0.295	0.295	0.295
11.4	West	0.270	0.270	0.270	0.270	0.270	0.270	0.269	0.270
11.5	West	0.242	0.242	0.242	0.242	0.242	0.242	0.241	0.242
11.6	West	0.214	0.214	0.214	0.214	0.214	0.214	0.213	0.214
11.7	West	0.193	0.193	0.193	0.193	0.193	0.193	0.193	0.193
7.6	Swan Isl	0.128	0.010	0.010	0.006	0.001	0.001	0.000	0.006
7.7	Swan Isl	0.150	0.010	0.010	0.006	0.001	0.001	0.001	0.006
7.8	Swan Isl	0.154	0.012	0.010	0.006	0.002	0.002	0.001	0.006
7.9	Swan Isl	0.149	0.010	0.009	0.006	0.002	0.002	0.001	0.006
8	Swan Isl	0.146	0.010	0.009	0.006	0.002	0.002	0.001	0.006
8.1	Swan Isl	0.147	0.010	0.009	0.006	0.002	0.002	0.001	0.006
8.2	Swan Isl	0.154	0.011	0.010	0.007	0.003	0.003	0.002	0.007
8.3	Swan Isl	0.169	0.013	0.011	0.007	0.004	0.004	0.003	0.007
8.4	Swan Isl	0.189	0.017	0.011	0.007	0.004	0.004	0.003	0.007
8.5	Swan Isl	0.203	0.019	0.011	0.008	0.004	0.004	0.003	0.008
8.6	Swan Isl	0.239	0.037	0.019	0.016	0.005	0.005	0.004	0.024
8.7	Swan Isl	0.280	0.075	0.045	0.040	0.015	0.015	0.012	0.061
8.8	Swan Isl	0.303	0.087	0.051	0.047	0.017	0.017	0.014	0.072
8.9	Swan Isl	0.330	0.099	0.058	0.053	0.019	0.019	0.016	0.081
9	Swan Isl	0.363	0.114	0.067	0.061	0.022	0.022	0.018	0.094
9.1	Swan Isl	0.378	0.122	0.071	0.065	0.023	0.023	0.020	0.101
9.2	Swan Isl	0.416	0.147	0.084	0.077	0.026	0.026	0.021	0.120
9.3	Swan Isl	0.450	0.181	0.105	0.098	0.031	0.031	0.025	0.155
9.4	Swan Isl	0.490	0.250	0.153	0.143	0.043	0.043	0.035	0.230
9.5	Swan Isl	0.549	0.388	0.247	0.232	0.067	0.067	0.055	0.379
9.6	Swan Isl	0.513	0.513	0.374	0.341	0.131	0.131	0.110	0.513



**Table J2.5-1g**  
**RAO 6 Rolling River Mile HQ Estimates - 1,2,3,7,8-PeCDF**  
 Portland Harbor Superfund Site  
 Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
1.8	Site	0.029	0.026	0.025	0.025	0.024	0.024	0.023	0.025
1.9	Site	0.039	0.035	0.034	0.033	0.032	0.032	0.031	0.033
2	Site	0.047	0.042	0.040	0.039	0.036	0.036	0.035	0.039
2.1	Site	0.051	0.046	0.044	0.043	0.039	0.039	0.037	0.043
2.2	Site	0.053	0.047	0.046	0.044	0.040	0.040	0.038	0.044
2.3	Site	0.054	0.049	0.047	0.046	0.041	0.041	0.038	0.046
2.4	Site	0.056	0.050	0.048	0.047	0.042	0.042	0.039	0.047
2.5	Site	0.055	0.049	0.048	0.046	0.041	0.041	0.039	0.046
2.6	Site	0.054	0.049	0.047	0.046	0.041	0.041	0.038	0.046
2.7	Site	0.051	0.047	0.046	0.044	0.040	0.040	0.037	0.044
2.8	Site	0.046	0.043	0.042	0.041	0.037	0.037	0.033	0.041
2.9	Site	0.037	0.035	0.035	0.034	0.030	0.030	0.027	0.034
3	Site	0.031	0.031	0.031	0.031	0.028	0.028	0.024	0.031
3.1	Site	0.029	0.029	0.029	0.029	0.028	0.027	0.023	0.029
3.2	Site	0.030	0.030	0.029	0.029	0.029	0.028	0.024	0.029
3.3	Site	0.037	0.035	0.031	0.031	0.030	0.029	0.024	0.031
3.4	Site	0.042	0.037	0.032	0.032	0.031	0.030	0.025	0.032
3.5	Site	0.044	0.039	0.034	0.033	0.031	0.030	0.025	0.033
3.6	Site	0.045	0.040	0.035	0.034	0.032	0.031	0.025	0.034
3.7	Site	0.046	0.041	0.036	0.034	0.031	0.030	0.024	0.034
3.8	Site	0.047	0.041	0.036	0.034	0.031	0.030	0.024	0.034
3.9	Site	0.055	0.050	0.044	0.040	0.032	0.031	0.022	0.040
4	Site	0.068	0.062	0.056	0.052	0.033	0.032	0.021	0.052
4.1	Site	0.071	0.066	0.058	0.052	0.032	0.032	0.021	0.052
4.2	Site	0.091	0.085	0.068	0.056	0.032	0.032	0.021	0.056
4.3	Site	0.091	0.087	0.071	0.059	0.035	0.034	0.023	0.059
4.4	Site	0.090	0.088	0.074	0.062	0.037	0.037	0.025	0.062
4.5	Site	0.094	0.093	0.079	0.066	0.041	0.041	0.030	0.066
4.6	Site	0.104	0.102	0.086	0.073	0.051	0.047	0.035	0.076
4.7	Site	0.119	0.114	0.095	0.081	0.061	0.053	0.040	0.087
4.8	Site	0.139	0.134	0.109	0.092	0.080	0.061	0.047	0.106
4.9	Site	0.156	0.144	0.115	0.098	0.096	0.069	0.050	0.118
5	Site	0.171	0.154	0.119	0.100	0.114	0.078	0.056	0.124
5.1	Site	0.202	0.182	0.148	0.127	0.140	0.092	0.061	0.149
5.2	Site	0.214	0.181	0.155	0.141	0.154	0.099	0.065	0.157
5.3	Site	0.238	0.188	0.161	0.146	0.158	0.099	0.064	0.162
5.4	Site	0.258	0.207	0.180	0.163	0.176	0.106	0.063	0.180
5.5	Site	0.269	0.218	0.190	0.173	0.185	0.112	0.062	0.191
5.6	Site	0.276	0.225	0.199	0.180	0.188	0.115	0.061	0.197
5.7	Site	0.287	0.236	0.207	0.186	0.197	0.116	0.060	0.204
5.8	Site	0.302	0.238	0.210	0.190	0.198	0.120	0.065	0.204
5.9	Site	0.317	0.245	0.219	0.199	0.201	0.127	0.075	0.212
6	Site	0.331	0.246	0.221	0.204	0.202	0.137	0.089	0.216

**Table J2.5-1g**  
**RAO 6 Rolling River Mile HQ Estimates - 1,2,3,7,8-PeCDF**  
 Portland Harbor Superfund Site  
 Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
6.1	Site	0.337	0.247	0.213	0.193	0.202	0.135	0.094	0.221
6.2	Site	0.347	0.256	0.214	0.193	0.207	0.138	0.093	0.229
6.3	Site	0.437	0.266	0.215	0.194	0.205	0.136	0.089	0.237
6.4	Site	0.480	0.281	0.210	0.184	0.189	0.131	0.089	0.225
6.5	Site	0.558	0.326	0.236	0.183	0.184	0.130	0.095	0.218
6.6	Site	0.678	0.418	0.283	0.200	0.178	0.129	0.098	0.208
6.7	Site	0.970	0.420	0.273	0.191	0.164	0.128	0.100	0.226
6.8	Site	7.885	0.406	0.257	0.179	0.149	0.122	0.095	0.232
6.9	Site	14.525	0.390	0.244	0.168	0.136	0.113	0.088	0.216
7	Site	14.362	0.513	0.321	0.160	0.127	0.105	0.077	0.202
7.1	Site	13.856	0.757	0.563	0.247	0.161	0.147	0.077	0.228
7.2	Site	13.118	0.713	0.537	0.239	0.156	0.148	0.078	0.217
7.3	Site	12.475	0.676	0.515	0.232	0.153	0.148	0.080	0.204
7.4	Site	12.188	0.641	0.499	0.225	0.151	0.148	0.080	0.197
7.5	Site	11.615	0.579	0.457	0.214	0.146	0.143	0.075	0.190
7.6	Site	10.713	0.470	0.386	0.183	0.134	0.131	0.065	0.176
7.7	Site	9.728	0.415	0.353	0.167	0.120	0.117	0.055	0.140
7.8	Site	5.027	0.392	0.339	0.160	0.111	0.109	0.050	0.119
7.9	Site	0.572	0.375	0.326	0.152	0.105	0.103	0.046	0.113
8	Site	0.282	0.268	0.255	0.140	0.096	0.094	0.043	0.103
8.1	Site	0.088	0.073	0.073	0.069	0.057	0.057	0.036	0.065
8.2	Site	0.082	0.063	0.063	0.058	0.048	0.048	0.033	0.056
8.3	Site	0.082	0.057	0.057	0.051	0.042	0.042	0.030	0.050
8.4	Site	0.085	0.052	0.051	0.044	0.036	0.036	0.027	0.044
8.5	Site	0.087	0.047	0.044	0.038	0.030	0.029	0.022	0.038
8.6	Site	0.098	0.050	0.043	0.036	0.027	0.026	0.022	0.038
8.7	Site	0.107	0.059	0.048	0.040	0.029	0.027	0.024	0.045
8.8	Site	0.108	0.061	0.049	0.040	0.029	0.027	0.024	0.045
8.9	Site	0.108	0.061	0.048	0.040	0.031	0.028	0.025	0.045
9	Site	0.108	0.061	0.048	0.041	0.030	0.028	0.025	0.046
9.1	Site	0.109	0.062	0.048	0.042	0.031	0.028	0.025	0.047
9.2	Site	0.108	0.064	0.049	0.043	0.031	0.028	0.024	0.048
9.3	Site	0.103	0.066	0.048	0.043	0.031	0.028	0.023	0.049
9.4	Site	0.092	0.067	0.049	0.044	0.031	0.028	0.023	0.050
9.5	Site	0.083	0.068	0.051	0.046	0.032	0.030	0.025	0.053
9.6	Site	0.065	0.060	0.050	0.045	0.034	0.032	0.028	0.049
9.7	Site	0.052	0.051	0.045	0.041	0.034	0.032	0.026	0.041
9.8	Site	0.048	0.047	0.042	0.040	0.034	0.032	0.026	0.040
9.9	Site	0.045	0.045	0.040	0.037	0.032	0.030	0.023	0.037
10	Site	0.045	0.044	0.039	0.037	0.033	0.030	0.023	0.037
10.1	Site	0.045	0.044	0.039	0.036	0.033	0.030	0.023	0.036
10.2	Site	0.045	0.045	0.041	0.039	0.037	0.034	0.026	0.040

**Table J2.5-1g**  
**RAO 6 Rolling River Mile HQ Estimates - 1,2,3,7,8-PeCDF**  
 Portland Harbor Superfund Site  
 Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
10.3	Site	0.047	0.047	0.047	0.046	0.043	0.040	0.030	0.046
10.4	Site	0.051	0.051	0.051	0.050	0.047	0.043	0.032	0.050
10.5	Site	0.053	0.053	0.053	0.052	0.048	0.044	0.032	0.052
10.6	Site	0.054	0.054	0.054	0.053	0.049	0.045	0.032	0.053
10.7	Site	0.054	0.053	0.053	0.051	0.048	0.044	0.033	0.051
10.8	Site	0.054	0.052	0.051	0.050	0.048	0.045	0.035	0.050
10.9	Site	0.056	0.054	0.052	0.050	0.048	0.045	0.036	0.050
11	Site	0.059	0.055	0.053	0.051	0.049	0.046	0.038	0.051
11.1	Site	0.060	0.056	0.054	0.051	0.049	0.047	0.038	0.051
11.2	Site	0.060	0.056	0.053	0.050	0.048	0.045	0.038	0.050
11.3	Site	0.057	0.052	0.050	0.047	0.044	0.042	0.036	0.047
11.4	Site	0.056	0.051	0.048	0.045	0.043	0.040	0.035	0.045
11.5	Site	0.056	0.050	0.047	0.043	0.041	0.039	0.035	0.043
11.6	Site	0.057	0.049	0.045	0.041	0.039	0.037	0.034	0.041
11.7	Site	0.058	0.051	0.047	0.042	0.040	0.037	0.033	0.042
1.8	East	0.035	0.027	0.024	0.022	0.020	0.020	0.019	0.022
1.9	East	0.043	0.030	0.027	0.023	0.020	0.020	0.019	0.023
2	East	0.056	0.038	0.034	0.029	0.022	0.022	0.019	0.029
2.1	East	0.063	0.045	0.041	0.036	0.023	0.023	0.019	0.036
2.2	East	0.064	0.047	0.043	0.038	0.023	0.023	0.019	0.038
2.3	East	0.067	0.049	0.045	0.039	0.023	0.023	0.018	0.039
2.4	East	0.069	0.051	0.046	0.040	0.024	0.024	0.018	0.040
2.5	East	0.068	0.049	0.044	0.039	0.023	0.023	0.017	0.039
2.6	East	0.069	0.050	0.045	0.040	0.024	0.024	0.019	0.040
2.7	East	0.069	0.052	0.048	0.043	0.027	0.027	0.021	0.043
2.8	East	0.065	0.053	0.050	0.046	0.028	0.028	0.022	0.046
2.9	East	0.059	0.051	0.049	0.047	0.030	0.030	0.024	0.047
3	East	0.048	0.048	0.046	0.045	0.034	0.034	0.029	0.046
3.1	East	0.044	0.044	0.041	0.040	0.037	0.037	0.033	0.041
3.2	East	0.044	0.044	0.042	0.041	0.039	0.039	0.036	0.041
3.3	East	0.065	0.057	0.042	0.040	0.035	0.035	0.032	0.040
3.4	East	0.083	0.062	0.042	0.041	0.035	0.035	0.031	0.041
3.5	East	0.088	0.065	0.044	0.041	0.035	0.035	0.030	0.041
3.6	East	0.093	0.069	0.046	0.041	0.034	0.034	0.028	0.041
3.7	East	0.099	0.074	0.051	0.042	0.034	0.034	0.027	0.042
3.8	East	0.104	0.079	0.055	0.046	0.037	0.037	0.029	0.046
3.9	East	0.138	0.115	0.087	0.071	0.039	0.039	0.025	0.071
4	East	0.183	0.162	0.136	0.117	0.043	0.043	0.020	0.117
4.1	East	0.191	0.170	0.137	0.115	0.039	0.039	0.016	0.115
4.2	East	0.254	0.232	0.164	0.119	0.035	0.035	0.012	0.119
4.3	East	0.291	0.271	0.201	0.144	0.041	0.041	0.012	0.144
4.4	East	0.289	0.284	0.214	0.153	0.044	0.044	0.015	0.153

**Table J2.5-1g**  
**RAO 6 Rolling River Mile HQ Estimates - 1,2,3,7,8-PeCDF**  
 Portland Harbor Superfund Site  
 Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
4.5	East	0.299	0.293	0.222	0.161	0.051	0.051	0.021	0.161
4.6	East	0.311	0.306	0.236	0.178	0.068	0.068	0.037	0.178
4.7	East	0.333	0.328	0.257	0.202	0.092	0.092	0.062	0.202
4.8	East	0.368	0.362	0.290	0.234	0.123	0.123	0.090	0.234
4.9	East	0.410	0.403	0.325	0.270	0.172	0.172	0.116	0.270
5	East	0.430	0.423	0.331	0.273	0.233	0.233	0.164	0.268
5.1	East	0.513	0.505	0.422	0.366	0.284	0.284	0.195	0.314
5.2	East	0.493	0.493	0.492	0.489	0.351	0.351	0.241	0.351
5.3	East	0.492	0.492	0.492	0.484	0.337	0.337	0.230	0.337
5.4	East	0.452	0.452	0.452	0.446	0.322	0.322	0.197	0.322
5.5	East	0.424	0.424	0.424	0.418	0.304	0.304	0.180	0.306
5.6	East	0.390	0.389	0.389	0.383	0.272	0.272	0.157	0.282
5.7	East	0.356	0.355	0.355	0.350	0.239	0.239	0.132	0.259
5.8	East	0.336	0.336	0.331	0.326	0.224	0.224	0.127	0.248
5.9	East	0.320	0.320	0.307	0.299	0.197	0.197	0.122	0.239
6	East	0.304	0.304	0.283	0.275	0.184	0.184	0.124	0.232
6.1	East	0.286	0.286	0.250	0.243	0.182	0.182	0.130	0.239
6.2	East	0.314	0.271	0.212	0.206	0.177	0.177	0.131	0.242
6.3	East	0.523	0.260	0.182	0.178	0.157	0.157	0.116	0.239
6.4	East	0.510	0.238	0.154	0.151	0.132	0.132	0.108	0.220
6.5	East	0.479	0.218	0.138	0.135	0.118	0.118	0.101	0.202
6.6	East	0.448	0.201	0.125	0.123	0.111	0.111	0.096	0.187
6.7	East	0.489	0.198	0.115	0.113	0.107	0.107	0.094	0.243
6.8	East	0.508	0.197	0.103	0.101	0.096	0.096	0.085	0.272
6.9	East	0.487	0.187	0.094	0.094	0.091	0.091	0.083	0.259
7	East	0.458	0.172	0.087	0.087	0.084	0.084	0.078	0.240
7.1	East	0.439	0.155	0.079	0.079	0.076	0.076	0.072	0.224
7.2	East	0.418	0.144	0.080	0.080	0.077	0.077	0.074	0.227
7.3	East	0.263	0.138	0.089	0.089	0.086	0.086	0.082	0.232
7.4	East	0.252	0.141	0.097	0.097	0.095	0.095	0.089	0.249
7.5	East	0.272	0.156	0.109	0.109	0.107	0.107	0.099	0.270
7.6	East	0.291	0.165	0.115	0.115	0.113	0.113	0.099	0.287
7.7	East	0.207	0.148	0.110	0.110	0.107	0.107	0.093	0.195
7.8	East	0.137	0.118	0.106	0.106	0.102	0.102	0.085	0.117
7.9	East	0.124	0.104	0.104	0.104	0.103	0.103	0.084	0.104
8	East	0.115	0.091	0.091	0.091	0.091	0.091	0.068	0.091
8.1	East	0.112	0.084	0.084	0.084	0.083	0.083	0.057	0.084
8.2	East	0.099	0.072	0.072	0.072	0.071	0.071	0.045	0.072
8.3	East	0.089	0.063	0.063	0.063	0.062	0.062	0.042	0.063
8.4	East	0.079	0.054	0.054	0.054	0.053	0.053	0.038	0.054
8.5	East	0.062	0.036	0.036	0.036	0.035	0.035	0.023	0.036
8.6	East	0.049	0.024	0.024	0.024	0.023	0.023	0.020	0.024

**Table J2.5-1g**  
**RAO 6 Rolling River Mile HQ Estimates - 1,2,3,7,8-PeCDF**  
 Portland Harbor Superfund Site  
 Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
8.7	East	0.040	0.028	0.028	0.028	0.026	0.026	0.022	0.028
8.8	East	0.028	0.028	0.028	0.028	0.027	0.027	0.023	0.028
8.9	East	0.026	0.026	0.026	0.026	0.025	0.025	0.022	0.026
9	East	0.026	0.026	0.026	0.026	0.025	0.025	0.021	0.026
9.1	East	0.026	0.026	0.026	0.026	0.024	0.024	0.019	0.026
9.2	East	0.026	0.026	0.026	0.026	0.022	0.022	0.017	0.026
9.3	East	0.026	0.026	0.026	0.026	0.023	0.023	0.016	0.026
9.4	East	0.027	0.027	0.027	0.027	0.024	0.024	0.018	0.027
9.5	East	0.028	0.028	0.028	0.028	0.025	0.025	0.020	0.028
9.6	East	0.029	0.029	0.029	0.029	0.026	0.026	0.021	0.029
9.7	East	0.030	0.030	0.030	0.030	0.026	0.026	0.023	0.030
9.8	East	0.032	0.032	0.032	0.031	0.028	0.028	0.024	0.031
9.9	East	0.034	0.034	0.034	0.033	0.029	0.029	0.025	0.033
10	East	0.036	0.036	0.036	0.035	0.031	0.031	0.026	0.035
10.1	East	0.038	0.038	0.038	0.037	0.034	0.034	0.029	0.037
10.2	East	0.040	0.040	0.040	0.040	0.036	0.036	0.032	0.040
10.3	East	0.044	0.044	0.044	0.042	0.036	0.036	0.032	0.042
10.4	East	0.049	0.049	0.049	0.045	0.036	0.036	0.031	0.045
10.5	East	0.052	0.052	0.052	0.048	0.035	0.035	0.027	0.048
10.6	East	0.058	0.058	0.058	0.053	0.039	0.039	0.027	0.053
10.7	East	0.063	0.061	0.059	0.053	0.038	0.038	0.026	0.053
10.8	East	0.071	0.068	0.062	0.054	0.037	0.037	0.022	0.054
10.9	East	0.078	0.067	0.058	0.048	0.031	0.031	0.017	0.048
11	East	0.087	0.069	0.057	0.044	0.026	0.026	0.014	0.044
11.1	East	0.090	0.070	0.057	0.043	0.025	0.025	0.012	0.043
11.2	East	0.087	0.069	0.056	0.041	0.025	0.025	0.011	0.041
11.3	East	0.090	0.069	0.055	0.041	0.025	0.025	0.009	0.041
11.4	East	0.093	0.069	0.053	0.039	0.023	0.023	0.007	0.039
11.5	East	0.095	0.069	0.051	0.036	0.022	0.022	0.007	0.036
11.6	East	0.097	0.068	0.048	0.031	0.018	0.018	0.006	0.031
11.7	East	0.101	0.070	0.049	0.031	0.017	0.017	0.004	0.031
1.8	Nav Channel	0.008	0.008	0.008	0.008	0.008	0.008	0.007	0.008
1.9	Nav Channel	0.008	0.008	0.008	0.008	0.008	0.008	0.007	0.008
2	Nav Channel	0.009	0.009	0.009	0.009	0.009	0.009	0.008	0.009
2.1	Nav Channel	0.011	0.011	0.011	0.011	0.011	0.011	0.009	0.011
2.2	Nav Channel	0.012	0.012	0.012	0.012	0.012	0.012	0.011	0.012
2.3	Nav Channel	0.014	0.014	0.014	0.014	0.014	0.014	0.012	0.014
2.4	Nav Channel	0.015	0.015	0.015	0.015	0.015	0.015	0.014	0.015
2.5	Nav Channel	0.017	0.017	0.017	0.017	0.017	0.017	0.016	0.017
2.6	Nav Channel	0.018	0.018	0.018	0.018	0.018	0.018	0.017	0.018
2.7	Nav Channel	0.020	0.020	0.020	0.020	0.020	0.020	0.019	0.020
2.8	Nav Channel	0.021	0.021	0.021	0.021	0.021	0.021	0.020	0.021

**Table J2.5-1g**

**RAO 6 Rolling River Mile HQ Estimates - 1,2,3,7,8-PeCDF**

Portland Harbor Superfund Site

Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
2.9	Nav Channel	0.023	0.023	0.023	0.023	0.023	0.023	0.022	0.023
3	Nav Channel	0.024	0.024	0.024	0.024	0.024	0.023	0.022	0.024
3.1	Nav Channel	0.025	0.025	0.025	0.025	0.025	0.023	0.020	0.025
3.2	Nav Channel	0.025	0.025	0.025	0.025	0.025	0.023	0.018	0.025
3.3	Nav Channel	0.025	0.025	0.025	0.025	0.025	0.023	0.018	0.025
3.4	Nav Channel	0.025	0.025	0.025	0.025	0.025	0.023	0.018	0.025
3.5	Nav Channel	0.024	0.024	0.024	0.024	0.024	0.022	0.018	0.024
3.6	Nav Channel	0.023	0.023	0.023	0.023	0.023	0.021	0.017	0.023
3.7	Nav Channel	0.022	0.022	0.022	0.022	0.022	0.020	0.016	0.022
3.8	Nav Channel	0.021	0.021	0.021	0.021	0.021	0.019	0.015	0.021
3.9	Nav Channel	0.020	0.020	0.020	0.020	0.020	0.018	0.015	0.020
4	Nav Channel	0.019	0.019	0.019	0.019	0.019	0.018	0.014	0.019
4.1	Nav Channel	0.019	0.019	0.019	0.019	0.019	0.018	0.015	0.019
4.2	Nav Channel	0.019	0.019	0.019	0.019	0.019	0.018	0.017	0.019
4.3	Nav Channel	0.019	0.019	0.019	0.019	0.019	0.019	0.018	0.019
4.4	Nav Channel	0.021	0.021	0.021	0.021	0.021	0.020	0.019	0.021
4.5	Nav Channel	0.025	0.025	0.025	0.025	0.025	0.025	0.023	0.025
4.6	Nav Channel	0.033	0.033	0.030	0.029	0.033	0.027	0.025	0.033
4.7	Nav Channel	0.045	0.040	0.033	0.030	0.040	0.027	0.024	0.040
4.8	Nav Channel	0.061	0.055	0.041	0.035	0.055	0.028	0.024	0.055
4.9	Nav Channel	0.080	0.066	0.046	0.038	0.066	0.028	0.024	0.066
5	Nav Channel	0.104	0.082	0.058	0.047	0.082	0.031	0.024	0.082
5.1	Nav Channel	0.133	0.109	0.082	0.068	0.109	0.042	0.028	0.109
5.2	Nav Channel	0.166	0.121	0.090	0.074	0.121	0.046	0.029	0.121
5.3	Nav Channel	0.195	0.128	0.094	0.077	0.128	0.047	0.029	0.128
5.4	Nav Channel	0.220	0.148	0.112	0.094	0.148	0.048	0.028	0.148
5.5	Nav Channel	0.240	0.164	0.126	0.104	0.164	0.053	0.026	0.164
5.6	Nav Channel	0.262	0.181	0.144	0.119	0.181	0.062	0.031	0.181
5.7	Nav Channel	0.291	0.209	0.166	0.136	0.209	0.072	0.036	0.203
5.8	Nav Channel	0.329	0.224	0.183	0.153	0.224	0.084	0.044	0.215
5.9	Nav Channel	0.368	0.250	0.213	0.182	0.250	0.110	0.065	0.240
6	Nav Channel	0.405	0.265	0.232	0.203	0.265	0.136	0.088	0.253
6.1	Nav Channel	0.428	0.275	0.232	0.197	0.273	0.132	0.092	0.261
6.2	Nav Channel	0.421	0.293	0.252	0.212	0.288	0.134	0.090	0.276
6.3	Nav Channel	0.419	0.321	0.279	0.238	0.315	0.148	0.093	0.302
6.4	Nav Channel	0.418	0.319	0.278	0.238	0.314	0.165	0.102	0.300
6.5	Nav Channel	0.424	0.326	0.285	0.248	0.320	0.180	0.127	0.307
6.6	Nav Channel	0.416	0.319	0.278	0.247	0.313	0.186	0.139	0.300
6.7	Nav Channel	0.384	0.294	0.268	0.245	0.288	0.192	0.150	0.284
6.8	Nav Channel	0.337	0.270	0.252	0.234	0.264	0.190	0.147	0.264
6.9	Nav Channel	0.280	0.239	0.224	0.209	0.233	0.170	0.129	0.233
7	Nav Channel	0.223	0.214	0.200	0.185	0.207	0.146	0.106	0.207

**Table J2.5-1g**  
**RAO 6 Rolling River Mile HQ Estimates - 1,2,3,7,8-PeCDF**  
 Portland Harbor Superfund Site  
 Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
7.1	Nav Channel	0.176	0.175	0.172	0.166	0.171	0.134	0.097	0.171
7.2	Nav Channel	0.152	0.151	0.151	0.150	0.150	0.129	0.095	0.150
7.3	Nav Channel	0.131	0.130	0.130	0.129	0.129	0.118	0.094	0.129
7.4	Nav Channel	0.114	0.113	0.113	0.112	0.112	0.105	0.088	0.112
7.5	Nav Channel	0.094	0.094	0.094	0.093	0.093	0.087	0.072	0.093
7.6	Nav Channel	0.082	0.082	0.082	0.081	0.081	0.075	0.062	0.081
7.7	Nav Channel	0.075	0.074	0.074	0.074	0.073	0.068	0.055	0.073
7.8	Nav Channel	0.068	0.068	0.068	0.068	0.067	0.062	0.052	0.067
7.9	Nav Channel	0.062	0.062	0.062	0.062	0.062	0.058	0.050	0.062
8	Nav Channel	0.058	0.058	0.058	0.058	0.058	0.055	0.050	0.058
8.1	Nav Channel	0.054	0.054	0.054	0.054	0.054	0.053	0.050	0.054
8.2	Nav Channel	0.050	0.050	0.050	0.050	0.050	0.050	0.049	0.050
8.3	Nav Channel	0.046	0.046	0.046	0.046	0.046	0.046	0.045	0.046
8.4	Nav Channel	0.043	0.043	0.043	0.043	0.043	0.043	0.042	0.043
8.5	Nav Channel	0.040	0.040	0.040	0.039	0.040	0.038	0.037	0.040
8.6	Nav Channel	0.038	0.038	0.038	0.038	0.038	0.036	0.035	0.038
8.7	Nav Channel	0.038	0.037	0.037	0.037	0.037	0.034	0.033	0.037
8.8	Nav Channel	0.037	0.037	0.036	0.036	0.036	0.033	0.031	0.036
8.9	Nav Channel	0.036	0.036	0.036	0.035	0.036	0.032	0.029	0.036
9	Nav Channel	0.035	0.035	0.035	0.034	0.035	0.030	0.028	0.035
9.1	Nav Channel	0.034	0.034	0.034	0.033	0.034	0.029	0.027	0.034
9.2	Nav Channel	0.032	0.032	0.032	0.032	0.032	0.028	0.025	0.032
9.3	Nav Channel	0.031	0.030	0.030	0.030	0.030	0.026	0.023	0.030
9.4	Nav Channel	0.028	0.028	0.028	0.028	0.028	0.024	0.021	0.028
9.5	Nav Channel	0.026	0.026	0.026	0.026	0.026	0.022	0.020	0.026
9.6	Nav Channel	0.025	0.025	0.025	0.025	0.025	0.021	0.019	0.025
9.7	Nav Channel	0.024	0.024	0.024	0.024	0.024	0.021	0.019	0.024
9.8	Nav Channel	0.023	0.023	0.023	0.023	0.023	0.021	0.018	0.023
9.9	Nav Channel	0.023	0.023	0.023	0.023	0.023	0.019	0.016	0.023
10	Nav Channel	0.023	0.023	0.023	0.023	0.023	0.019	0.015	0.023
10.1	Nav Channel	0.023	0.023	0.023	0.023	0.023	0.019	0.015	0.023
10.2	Nav Channel	0.023	0.023	0.023	0.023	0.023	0.020	0.016	0.023
10.3	Nav Channel	0.024	0.024	0.024	0.024	0.024	0.020	0.016	0.024
10.4	Nav Channel	0.025	0.025	0.025	0.025	0.025	0.021	0.015	0.025
10.5	Nav Channel	0.025	0.025	0.025	0.025	0.025	0.021	0.015	0.025
10.6	Nav Channel	0.025	0.025	0.025	0.025	0.025	0.021	0.014	0.025
10.7	Nav Channel	0.025	0.025	0.025	0.025	0.025	0.020	0.014	0.025
10.8	Nav Channel	0.026	0.025	0.025	0.024	0.024	0.020	0.015	0.024
10.9	Nav Channel	0.029	0.027	0.027	0.025	0.025	0.022	0.017	0.025
11	Nav Channel	0.032	0.030	0.029	0.028	0.028	0.025	0.020	0.028
11.1	Nav Channel	0.033	0.031	0.030	0.029	0.029	0.026	0.021	0.029
11.2	Nav Channel	0.034	0.032	0.031	0.030	0.030	0.026	0.021	0.030

**Table J2.5-1g**  
**RAO 6 Rolling River Mile HQ Estimates - 1,2,3,7,8-PeCDF**  
 Portland Harbor Superfund Site  
 Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
11.3	Nav Channel	0.035	0.032	0.031	0.030	0.030	0.027	0.021	0.030
11.4	Nav Channel	0.036	0.033	0.032	0.030	0.030	0.027	0.023	0.030
11.5	Nav Channel	0.037	0.034	0.033	0.031	0.031	0.028	0.026	0.031
11.6	Nav Channel	0.039	0.036	0.034	0.032	0.032	0.029	0.027	0.032
11.7	Nav Channel	0.042	0.038	0.036	0.034	0.034	0.030	0.028	0.034
1.8	West	0.042	0.042	0.042	0.042	0.042	0.042	0.042	0.042
1.9	West	0.062	0.062	0.062	0.062	0.062	0.062	0.062	0.062
2	West	0.072	0.072	0.072	0.072	0.072	0.072	0.072	0.072
2.1	West	0.075	0.075	0.075	0.075	0.075	0.075	0.075	0.075
2.2	West	0.078	0.078	0.078	0.078	0.078	0.078	0.078	0.078
2.3	West	0.078	0.078	0.078	0.078	0.078	0.078	0.078	0.078
2.4	West	0.080	0.080	0.080	0.080	0.080	0.080	0.079	0.080
2.5	West	0.077	0.077	0.077	0.077	0.077	0.077	0.076	0.077
2.6	West	0.073	0.073	0.073	0.073	0.073	0.073	0.071	0.073
2.7	West	0.065	0.065	0.065	0.065	0.065	0.065	0.063	0.065
2.8	West	0.054	0.054	0.054	0.054	0.054	0.054	0.050	0.054
2.9	West	0.036	0.036	0.036	0.036	0.036	0.036	0.032	0.036
3	West	0.028	0.028	0.028	0.028	0.028	0.028	0.023	0.028
3.1	West	0.026	0.026	0.026	0.026	0.026	0.026	0.021	0.026
3.2	West	0.027	0.027	0.027	0.027	0.027	0.027	0.023	0.027
3.3	West	0.031	0.031	0.031	0.031	0.031	0.031	0.026	0.031
3.4	West	0.035	0.035	0.035	0.035	0.034	0.034	0.028	0.035
3.5	West	0.041	0.041	0.041	0.040	0.039	0.039	0.032	0.040
3.6	West	0.046	0.046	0.046	0.046	0.044	0.044	0.035	0.046
3.7	West	0.053	0.053	0.053	0.052	0.049	0.049	0.039	0.052
3.8	West	0.059	0.059	0.059	0.058	0.054	0.054	0.043	0.058
3.9	West	0.068	0.068	0.068	0.068	0.062	0.062	0.046	0.068
4	West	0.080	0.080	0.080	0.080	0.074	0.074	0.052	0.080
4.1	West	0.096	0.096	0.096	0.096	0.086	0.086	0.057	0.096
4.2	West	0.116	0.116	0.116	0.115	0.095	0.095	0.060	0.115
4.3	West	0.130	0.130	0.130	0.129	0.107	0.107	0.071	0.129
4.4	West	0.136	0.136	0.136	0.136	0.113	0.113	0.077	0.136
4.5	West	0.141	0.141	0.141	0.140	0.117	0.117	0.081	0.140
4.6	West	0.149	0.149	0.149	0.148	0.125	0.125	0.089	0.148
4.7	West	0.166	0.166	0.165	0.161	0.131	0.131	0.095	0.161
4.8	West	0.190	0.190	0.187	0.179	0.148	0.148	0.104	0.179
4.9	West	0.213	0.212	0.202	0.193	0.158	0.158	0.109	0.193
5	West	0.216	0.214	0.198	0.185	0.147	0.147	0.098	0.185
5.1	West	0.211	0.208	0.190	0.177	0.140	0.140	0.092	0.177
5.2	West	0.205	0.203	0.183	0.169	0.144	0.144	0.093	0.169
5.3	West	0.201	0.198	0.177	0.162	0.136	0.136	0.078	0.162
5.4	West	0.193	0.191	0.171	0.154	0.124	0.124	0.068	0.156



**Table J2.5-1g**

**RAO 6 Rolling River Mile HQ Estimates - 1,2,3,7,8-PeCDF**

Portland Harbor Superfund Site

Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
5.5	West	0.183	0.181	0.161	0.146	0.116	0.116	0.062	0.149
5.6	West	0.177	0.171	0.151	0.136	0.101	0.101	0.046	0.140
5.7	West	0.169	0.150	0.129	0.117	0.089	0.089	0.037	0.122
5.8	West	0.160	0.124	0.105	0.097	0.072	0.072	0.031	0.101
5.9	West	0.159	0.103	0.089	0.082	0.059	0.059	0.028	0.087
6	West	0.171	0.091	0.082	0.077	0.055	0.055	0.028	0.081
6.1	West	0.196	0.097	0.089	0.082	0.053	0.053	0.027	0.077
6.2	West	0.230	0.133	0.124	0.116	0.064	0.064	0.023	0.088
6.3	West	0.273	0.152	0.143	0.126	0.055	0.055	0.018	0.077
6.4	West	0.544	0.306	0.197	0.150	0.055	0.055	0.013	0.070
6.5	West	1.089	0.623	0.393	0.165	0.044	0.044	0.005	0.053
6.6	West	1.969	1.284	0.757	0.316	0.051	0.051	0.004	0.051
6.7	West	3.694	1.353	0.743	0.296	0.047	0.047	0.004	0.047
6.8	West	46.780	1.338	0.728	0.290	0.047	0.047	0.004	0.047
6.9	West	90.962	1.369	0.753	0.302	0.049	0.049	0.004	0.049
7	West	91.734	2.312	1.354	0.336	0.079	0.079	0.004	0.079
7.1	West	77.377	3.554	2.653	0.862	0.367	0.367	0.051	0.367
7.2	West	64.786	2.998	2.242	0.746	0.333	0.333	0.053	0.333
7.3	West	55.861	2.596	1.944	0.660	0.307	0.307	0.047	0.307
7.4	West	55.832	2.522	1.925	0.656	0.319	0.319	0.048	0.319
7.5	West	57.560	2.447	1.894	0.680	0.341	0.341	0.050	0.344
7.6	West	58.615	2.145	1.747	0.623	0.355	0.355	0.052	0.363
7.7	West	58.792	2.116	1.783	0.653	0.372	0.372	0.053	0.388
7.8	West	31.500	2.137	1.811	0.676	0.377	0.377	0.053	0.410
7.9	West	3.126	1.995	1.696	0.640	0.355	0.355	0.049	0.399
8	West	1.313	1.310	1.233	0.575	0.318	0.318	0.051	0.358
8.1	West	0.207	0.207	0.206	0.184	0.119	0.119	0.022	0.162
8.2	West	0.186	0.186	0.186	0.156	0.094	0.094	0.014	0.144
8.3	West	0.187	0.185	0.184	0.143	0.082	0.082	0.013	0.139
8.4	West	0.193	0.174	0.172	0.128	0.064	0.064	0.013	0.125
8.5	West	0.199	0.163	0.156	0.111	0.052	0.052	0.012	0.111
8.6	West	0.218	0.162	0.141	0.093	0.039	0.039	0.013	0.093
8.7	West	0.234	0.156	0.126	0.075	0.029	0.029	0.013	0.075
8.8	West	0.237	0.159	0.123	0.066	0.029	0.029	0.016	0.066
8.9	West	0.231	0.150	0.113	0.064	0.038	0.038	0.028	0.064
9	West	0.236	0.150	0.111	0.068	0.035	0.035	0.027	0.068
9.1	West	0.252	0.158	0.115	0.078	0.042	0.042	0.033	0.078
9.2	West	0.257	0.163	0.114	0.079	0.045	0.045	0.035	0.079
9.3	West	0.274	0.178	0.111	0.083	0.047	0.047	0.036	0.083
9.4	West	0.266	0.188	0.118	0.088	0.049	0.049	0.038	0.088
9.5	West	0.256	0.197	0.132	0.101	0.061	0.061	0.050	0.101
9.6	West	0.233	0.199	0.149	0.120	0.078	0.078	0.066	0.120

**Table J2.5-1g**

**RAO 6 Rolling River Mile HQ Estimates - 1,2,3,7,8-PeCDF**

Portland Harbor Superfund Site

Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
9.7	West	0.215	0.209	0.168	0.140	0.094	0.094	0.070	0.140
9.8	West	0.196	0.191	0.157	0.139	0.100	0.100	0.071	0.140
9.9	West	0.207	0.200	0.159	0.138	0.101	0.101	0.068	0.138
10	West	0.242	0.234	0.181	0.155	0.120	0.120	0.081	0.155
10.1	West	0.299	0.289	0.218	0.185	0.150	0.150	0.101	0.186
10.2	West	0.370	0.366	0.295	0.276	0.238	0.238	0.162	0.277
10.3	West	0.338	0.338	0.337	0.326	0.297	0.297	0.200	0.328
10.4	West	0.318	0.318	0.317	0.309	0.284	0.284	0.202	0.309
10.5	West	0.290	0.290	0.289	0.282	0.260	0.260	0.188	0.283
10.6	West	0.262	0.262	0.261	0.254	0.235	0.235	0.169	0.255
10.7	West	0.236	0.236	0.235	0.229	0.214	0.214	0.172	0.229
10.8	West	0.219	0.219	0.219	0.219	0.217	0.217	0.183	0.219
10.9	West	0.213	0.213	0.213	0.213	0.213	0.213	0.184	0.213
11	West	0.204	0.204	0.204	0.204	0.204	0.204	0.177	0.204
11.1	West	0.194	0.194	0.194	0.194	0.194	0.194	0.168	0.194
11.2	West	0.176	0.176	0.176	0.176	0.176	0.176	0.159	0.176
11.3	West	0.160	0.160	0.160	0.160	0.160	0.160	0.160	0.160
11.4	West	0.149	0.149	0.149	0.149	0.149	0.149	0.149	0.149
11.5	West	0.138	0.138	0.138	0.138	0.138	0.138	0.137	0.138
11.6	West	0.126	0.126	0.126	0.126	0.126	0.126	0.126	0.126
11.7	West	0.117	0.117	0.117	0.117	0.117	0.117	0.117	0.117
7.6	Swan Isl	0.035	0.004	0.004	0.002	0.000	0.000	0.000	0.002
7.7	Swan Isl	0.048	0.003	0.003	0.002	0.000	0.000	0.000	0.002
7.8	Swan Isl	0.054	0.004	0.004	0.003	0.001	0.001	0.000	0.003
7.9	Swan Isl	0.056	0.004	0.004	0.003	0.001	0.001	0.000	0.003
8	Swan Isl	0.061	0.004	0.004	0.003	0.001	0.001	0.000	0.003
8.1	Swan Isl	0.066	0.004	0.004	0.003	0.001	0.001	0.001	0.003
8.2	Swan Isl	0.079	0.005	0.005	0.003	0.002	0.002	0.001	0.003
8.3	Swan Isl	0.098	0.008	0.006	0.004	0.002	0.002	0.002	0.004
8.4	Swan Isl	0.117	0.011	0.006	0.004	0.002	0.002	0.002	0.004
8.5	Swan Isl	0.127	0.013	0.006	0.004	0.002	0.002	0.002	0.004
8.6	Swan Isl	0.165	0.029	0.013	0.012	0.003	0.003	0.002	0.019
8.7	Swan Isl	0.218	0.065	0.037	0.033	0.011	0.011	0.009	0.052
8.8	Swan Isl	0.248	0.076	0.043	0.039	0.013	0.013	0.011	0.062
8.9	Swan Isl	0.273	0.087	0.049	0.044	0.014	0.014	0.012	0.071
9	Swan Isl	0.301	0.100	0.056	0.051	0.016	0.016	0.014	0.081
9.1	Swan Isl	0.312	0.107	0.060	0.054	0.017	0.017	0.014	0.087
9.2	Swan Isl	0.337	0.129	0.071	0.065	0.019	0.019	0.016	0.105
9.3	Swan Isl	0.360	0.161	0.089	0.083	0.024	0.024	0.020	0.137
9.4	Swan Isl	0.394	0.222	0.132	0.123	0.034	0.034	0.028	0.204
9.5	Swan Isl	0.484	0.347	0.216	0.203	0.055	0.055	0.045	0.339
9.6	Swan Isl	0.460	0.460	0.331	0.302	0.114	0.114	0.095	0.460

**Table J2.5-1h**  
**RAO 6 Rolling River Mile HQ Estimates - 2,3,7,8-TCDD**  
Portland Harbor Superfund Site  
Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
1.8	Site	0.024	0.024	0.024	0.023	0.023	0.023	0.023	0.023
1.9	Site	0.024	0.023	0.023	0.023	0.022	0.022	0.022	0.023
2	Site	0.025	0.023	0.023	0.022	0.021	0.021	0.021	0.022
2.1	Site	0.025	0.024	0.024	0.023	0.021	0.021	0.020	0.023
2.2	Site	0.025	0.023	0.023	0.022	0.020	0.020	0.019	0.022
2.3	Site	0.024	0.023	0.023	0.022	0.020	0.020	0.018	0.022
2.4	Site	0.025	0.023	0.023	0.022	0.020	0.020	0.018	0.022
2.5	Site	0.025	0.023	0.023	0.022	0.020	0.020	0.018	0.022
2.6	Site	0.026	0.024	0.024	0.023	0.021	0.021	0.019	0.023
2.7	Site	0.027	0.025	0.025	0.024	0.022	0.022	0.020	0.024
2.8	Site	0.027	0.026	0.026	0.025	0.023	0.023	0.020	0.025
2.9	Site	0.028	0.027	0.027	0.027	0.025	0.025	0.022	0.027
3	Site	0.029	0.029	0.028	0.028	0.027	0.027	0.023	0.028
3.1	Site	0.030	0.030	0.030	0.030	0.029	0.029	0.025	0.030
3.2	Site	0.032	0.032	0.032	0.032	0.032	0.031	0.026	0.032
3.3	Site	0.038	0.036	0.034	0.033	0.033	0.032	0.027	0.033
3.4	Site	0.042	0.038	0.035	0.035	0.034	0.033	0.028	0.035
3.5	Site	0.043	0.040	0.037	0.037	0.035	0.034	0.029	0.037
3.6	Site	0.045	0.042	0.039	0.038	0.036	0.035	0.029	0.038
3.7	Site	0.048	0.044	0.041	0.039	0.037	0.036	0.029	0.039
3.8	Site	0.049	0.045	0.042	0.040	0.037	0.036	0.029	0.040
3.9	Site	0.051	0.048	0.044	0.042	0.038	0.037	0.028	0.042
4	Site	0.051	0.048	0.045	0.043	0.038	0.037	0.026	0.043
4.1	Site	0.051	0.047	0.044	0.042	0.038	0.037	0.025	0.042
4.2	Site	0.052	0.048	0.045	0.042	0.036	0.036	0.024	0.042
4.3	Site	0.050	0.048	0.046	0.044	0.037	0.037	0.025	0.044
4.4	Site	0.047	0.047	0.046	0.044	0.037	0.037	0.025	0.044
4.5	Site	0.046	0.046	0.045	0.042	0.036	0.036	0.025	0.042
4.6	Site	0.044	0.044	0.043	0.041	0.036	0.035	0.024	0.042
4.7	Site	0.043	0.043	0.041	0.040	0.035	0.034	0.023	0.041
4.8	Site	0.043	0.043	0.041	0.039	0.035	0.033	0.022	0.041
4.9	Site	0.041	0.040	0.038	0.036	0.034	0.030	0.022	0.039
5	Site	0.040	0.039	0.035	0.033	0.032	0.028	0.021	0.036
5.1	Site	0.039	0.038	0.034	0.032	0.031	0.026	0.020	0.035
5.2	Site	0.037	0.034	0.031	0.029	0.030	0.024	0.018	0.032
5.3	Site	0.035	0.031	0.028	0.026	0.028	0.021	0.015	0.029
5.4	Site	0.036	0.032	0.028	0.026	0.028	0.020	0.014	0.029
5.5	Site	0.038	0.034	0.030	0.028	0.029	0.021	0.014	0.031
5.6	Site	0.040	0.036	0.032	0.030	0.030	0.022	0.014	0.033
5.7	Site	0.042	0.037	0.033	0.031	0.031	0.023	0.014	0.034
5.8	Site	0.045	0.038	0.035	0.032	0.032	0.024	0.015	0.035
5.9	Site	0.049	0.042	0.039	0.036	0.036	0.028	0.019	0.039
6	Site	0.056	0.047	0.044	0.042	0.041	0.033	0.024	0.045

**Table J2.5-1h**

**RAO 6 Rolling River Mile HQ Estimates - 2,3,7,8-TCDD**

Portland Harbor Superfund Site

Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
6.1	Site	0.066	0.056	0.049	0.046	0.049	0.034	0.025	0.053
6.2	Site	0.080	0.069	0.058	0.052	0.058	0.034	0.024	0.063
6.3	Site	0.112	0.087	0.070	0.063	0.067	0.036	0.023	0.078
6.4	Site	0.194	0.102	0.078	0.071	0.075	0.044	0.028	0.087
6.5	Site	0.425	0.109	0.084	0.076	0.079	0.050	0.035	0.092
6.6	Site	0.435	0.113	0.088	0.080	0.083	0.054	0.041	0.094
6.7	Site	0.439	0.115	0.089	0.082	0.084	0.058	0.046	0.108
6.8	Site	0.459	0.118	0.090	0.082	0.084	0.060	0.048	0.116
6.9	Site	0.467	0.116	0.088	0.081	0.082	0.059	0.046	0.115
7	Site	0.448	0.112	0.084	0.077	0.078	0.055	0.043	0.109
7.1	Site	0.423	0.105	0.082	0.076	0.073	0.056	0.042	0.102
7.2	Site	0.397	0.097	0.079	0.074	0.070	0.059	0.045	0.096
7.3	Site	0.361	0.085	0.072	0.069	0.065	0.061	0.048	0.087
7.4	Site	0.299	0.075	0.068	0.065	0.062	0.059	0.048	0.081
7.5	Site	0.133	0.071	0.065	0.063	0.060	0.057	0.046	0.078
7.6	Site	0.117	0.065	0.059	0.058	0.055	0.053	0.040	0.073
7.7	Site	0.104	0.058	0.055	0.053	0.050	0.048	0.035	0.059
7.8	Site	0.085	0.055	0.054	0.052	0.047	0.045	0.032	0.051
7.9	Site	0.072	0.055	0.055	0.051	0.045	0.043	0.030	0.049
8	Site	0.074	0.058	0.058	0.050	0.044	0.043	0.031	0.049
8.1	Site	0.084	0.067	0.067	0.052	0.044	0.043	0.033	0.052
8.2	Site	0.091	0.072	0.072	0.051	0.041	0.040	0.031	0.051
8.3	Site	0.104	0.081	0.079	0.049	0.038	0.037	0.030	0.049
8.4	Site	0.125	0.079	0.076	0.046	0.035	0.035	0.028	0.047
8.5	Site	0.140	0.079	0.074	0.044	0.033	0.032	0.025	0.044
8.6	Site	0.156	0.089	0.078	0.044	0.033	0.031	0.026	0.045
8.7	Site	0.165	0.098	0.084	0.047	0.036	0.033	0.028	0.049
8.8	Site	0.173	0.107	0.091	0.051	0.039	0.035	0.030	0.053
8.9	Site	0.181	0.114	0.097	0.058	0.047	0.042	0.036	0.060
9	Site	0.187	0.117	0.100	0.064	0.050	0.046	0.039	0.066
9.1	Site	0.180	0.109	0.091	0.062	0.051	0.046	0.040	0.064
9.2	Site	0.177	0.103	0.083	0.063	0.054	0.049	0.043	0.065
9.3	Site	0.166	0.096	0.075	0.067	0.059	0.053	0.046	0.069
9.4	Site	0.139	0.102	0.080	0.072	0.064	0.058	0.050	0.074
9.5	Site	0.120	0.105	0.086	0.078	0.069	0.063	0.054	0.080
9.6	Site	0.103	0.099	0.090	0.083	0.074	0.069	0.060	0.084
9.7	Site	0.099	0.098	0.092	0.087	0.078	0.074	0.064	0.087
9.8	Site	0.093	0.092	0.087	0.085	0.078	0.074	0.063	0.085
9.9	Site	0.087	0.086	0.081	0.079	0.073	0.066	0.055	0.079
10	Site	0.084	0.083	0.078	0.076	0.072	0.064	0.052	0.076
10.1	Site	0.083	0.083	0.077	0.075	0.073	0.064	0.053	0.075
10.2	Site	0.084	0.083	0.079	0.079	0.077	0.067	0.055	0.079

**Table J2.5-1h**

**RAO 6 Rolling River Mile HQ Estimates - 2,3,7,8-TCDD**

Portland Harbor Superfund Site

Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
10.3	Site	0.083	0.083	0.083	0.083	0.081	0.070	0.057	0.083
10.4	Site	0.086	0.086	0.086	0.085	0.083	0.071	0.054	0.085
10.5	Site	0.089	0.089	0.089	0.088	0.085	0.073	0.053	0.088
10.6	Site	0.092	0.092	0.092	0.091	0.088	0.075	0.054	0.091
10.7	Site	0.097	0.096	0.095	0.094	0.090	0.077	0.056	0.094
10.8	Site	0.105	0.101	0.099	0.096	0.093	0.081	0.062	0.096
10.9	Site	0.116	0.109	0.104	0.099	0.095	0.086	0.067	0.099
11	Site	0.124	0.115	0.110	0.104	0.100	0.091	0.074	0.104
11.1	Site	0.126	0.117	0.112	0.106	0.102	0.094	0.076	0.106
11.2	Site	0.127	0.118	0.112	0.105	0.101	0.093	0.076	0.105
11.3	Site	0.131	0.120	0.114	0.106	0.103	0.094	0.077	0.106
11.4	Site	0.134	0.122	0.115	0.107	0.104	0.095	0.082	0.107
11.5	Site	0.138	0.124	0.116	0.107	0.104	0.097	0.088	0.107
11.6	Site	0.142	0.126	0.116	0.106	0.103	0.095	0.086	0.106
11.7	Site	0.144	0.126	0.116	0.106	0.102	0.093	0.083	0.106
1.8	East	0.036	0.035	0.035	0.034	0.034	0.034	0.033	0.034
1.9	East	0.038	0.035	0.035	0.033	0.032	0.032	0.031	0.033
2	East	0.042	0.037	0.036	0.034	0.031	0.031	0.030	0.034
2.1	East	0.044	0.039	0.038	0.036	0.030	0.030	0.028	0.036
2.2	East	0.041	0.036	0.035	0.033	0.027	0.027	0.025	0.033
2.3	East	0.039	0.034	0.033	0.031	0.024	0.024	0.021	0.031
2.4	East	0.038	0.032	0.031	0.029	0.021	0.021	0.019	0.029
2.5	East	0.037	0.031	0.030	0.028	0.021	0.021	0.018	0.028
2.6	East	0.036	0.031	0.030	0.028	0.020	0.020	0.017	0.028
2.7	East	0.037	0.031	0.030	0.028	0.021	0.021	0.018	0.028
2.8	East	0.037	0.032	0.031	0.029	0.021	0.021	0.018	0.029
2.9	East	0.034	0.031	0.030	0.029	0.022	0.022	0.018	0.029
3	East	0.032	0.032	0.030	0.030	0.024	0.024	0.022	0.030
3.1	East	0.032	0.032	0.030	0.029	0.028	0.028	0.026	0.029
3.2	East	0.034	0.034	0.031	0.031	0.030	0.030	0.028	0.031
3.3	East	0.049	0.043	0.032	0.031	0.028	0.028	0.026	0.031
3.4	East	0.061	0.047	0.033	0.032	0.029	0.029	0.026	0.032
3.5	East	0.064	0.050	0.035	0.033	0.029	0.029	0.025	0.033
3.6	East	0.069	0.054	0.037	0.034	0.029	0.029	0.025	0.034
3.7	East	0.076	0.060	0.043	0.035	0.029	0.029	0.024	0.035
3.8	East	0.078	0.062	0.044	0.036	0.030	0.030	0.024	0.036
3.9	East	0.075	0.061	0.044	0.036	0.026	0.026	0.020	0.036
4	East	0.069	0.055	0.041	0.033	0.022	0.022	0.015	0.033
4.1	East	0.063	0.050	0.037	0.029	0.017	0.017	0.010	0.029
4.2	East	0.059	0.047	0.033	0.024	0.013	0.013	0.006	0.024
4.3	East	0.049	0.040	0.032	0.023	0.011	0.011	0.004	0.023
4.4	East	0.038	0.038	0.033	0.023	0.011	0.011	0.005	0.023

**Table J2.5-1h**

**RAO 6 Rolling River Mile HQ Estimates - 2,3,7,8-TCDD**

Portland Harbor Superfund Site

Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
4.5	East	0.039	0.038	0.033	0.023	0.011	0.011	0.006	0.023
4.6	East	0.037	0.037	0.033	0.025	0.014	0.014	0.008	0.025
4.7	East	0.034	0.034	0.030	0.027	0.017	0.017	0.012	0.027
4.8	East	0.037	0.037	0.033	0.030	0.020	0.020	0.015	0.030
4.9	East	0.040	0.040	0.036	0.033	0.027	0.027	0.020	0.033
5	East	0.046	0.046	0.041	0.039	0.037	0.037	0.029	0.039
5.1	East	0.056	0.055	0.051	0.049	0.045	0.045	0.034	0.047
5.2	East	0.065	0.065	0.065	0.064	0.057	0.057	0.042	0.057
5.3	East	0.063	0.063	0.063	0.062	0.054	0.054	0.040	0.054
5.4	East	0.054	0.054	0.054	0.053	0.045	0.045	0.033	0.045
5.5	East	0.048	0.048	0.048	0.047	0.040	0.040	0.028	0.040
5.6	East	0.042	0.042	0.042	0.041	0.034	0.034	0.023	0.034
5.7	East	0.036	0.036	0.036	0.035	0.028	0.028	0.018	0.029
5.8	East	0.032	0.032	0.031	0.030	0.024	0.024	0.015	0.026
5.9	East	0.028	0.028	0.026	0.026	0.019	0.019	0.012	0.022
6	East	0.024	0.024	0.022	0.021	0.015	0.015	0.009	0.019
6.1	East	0.022	0.022	0.018	0.017	0.012	0.012	0.009	0.018
6.2	East	0.029	0.024	0.016	0.016	0.013	0.013	0.010	0.020
6.3	East	0.079	0.037	0.016	0.016	0.013	0.013	0.009	0.034
6.4	East	0.105	0.045	0.018	0.018	0.016	0.016	0.012	0.043
6.5	East	0.102	0.044	0.019	0.018	0.016	0.016	0.013	0.042
6.6	East	0.098	0.044	0.020	0.020	0.018	0.018	0.015	0.042
6.7	East	0.124	0.050	0.022	0.022	0.021	0.021	0.018	0.071
6.8	East	0.141	0.057	0.024	0.024	0.023	0.023	0.020	0.091
6.9	East	0.141	0.060	0.026	0.026	0.024	0.024	0.022	0.091
7	East	0.137	0.060	0.027	0.027	0.026	0.026	0.024	0.090
7.1	East	0.136	0.059	0.028	0.028	0.026	0.026	0.024	0.089
7.2	East	0.138	0.059	0.029	0.029	0.027	0.027	0.026	0.093
7.3	East	0.111	0.054	0.031	0.031	0.030	0.030	0.028	0.091
7.4	East	0.094	0.050	0.032	0.032	0.031	0.031	0.030	0.093
7.5	East	0.101	0.055	0.036	0.036	0.035	0.035	0.032	0.100
7.6	East	0.110	0.058	0.037	0.037	0.036	0.036	0.032	0.106
7.7	East	0.080	0.050	0.035	0.035	0.033	0.033	0.028	0.069
7.8	East	0.053	0.037	0.032	0.032	0.031	0.031	0.025	0.036
7.9	East	0.049	0.031	0.031	0.031	0.031	0.031	0.024	0.031
8	East	0.051	0.029	0.029	0.029	0.029	0.029	0.021	0.029
8.1	East	0.056	0.031	0.031	0.031	0.030	0.030	0.021	0.031
8.2	East	0.055	0.030	0.030	0.030	0.030	0.030	0.021	0.030
8.3	East	0.053	0.030	0.030	0.030	0.029	0.029	0.022	0.030
8.4	East	0.051	0.029	0.029	0.029	0.028	0.028	0.023	0.029
8.5	East	0.048	0.025	0.025	0.025	0.024	0.024	0.019	0.025
8.6	East	0.043	0.023	0.023	0.023	0.022	0.022	0.019	0.023

**Table J2.5-1h**  
**RAO 6 Rolling River Mile HQ Estimates - 2,3,7,8-TCDD**  
 Portland Harbor Superfund Site  
 Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
8.7	East	0.035	0.028	0.028	0.028	0.026	0.026	0.021	0.028
8.8	East	0.029	0.029	0.029	0.029	0.028	0.028	0.023	0.029
8.9	East	0.030	0.030	0.030	0.030	0.028	0.028	0.024	0.030
9	East	0.031	0.031	0.031	0.031	0.029	0.029	0.025	0.031
9.1	East	0.032	0.032	0.032	0.032	0.029	0.029	0.023	0.032
9.2	East	0.033	0.033	0.033	0.033	0.028	0.028	0.021	0.033
9.3	East	0.037	0.037	0.037	0.037	0.032	0.032	0.022	0.037
9.4	East	0.041	0.041	0.041	0.041	0.036	0.036	0.027	0.041
9.5	East	0.046	0.046	0.046	0.046	0.041	0.041	0.033	0.046
9.6	East	0.049	0.049	0.049	0.048	0.043	0.043	0.036	0.048
9.7	East	0.052	0.052	0.052	0.051	0.046	0.046	0.039	0.051
9.8	East	0.057	0.056	0.056	0.056	0.050	0.050	0.043	0.056
9.9	East	0.062	0.062	0.062	0.061	0.055	0.055	0.047	0.061
10	East	0.067	0.067	0.067	0.066	0.059	0.059	0.050	0.066
10.1	East	0.072	0.072	0.072	0.071	0.065	0.065	0.055	0.071
10.2	East	0.078	0.078	0.078	0.077	0.069	0.069	0.061	0.077
10.3	East	0.086	0.085	0.085	0.081	0.069	0.069	0.062	0.081
10.4	East	0.093	0.093	0.093	0.085	0.069	0.069	0.059	0.085
10.5	East	0.097	0.097	0.097	0.089	0.065	0.065	0.050	0.089
10.6	East	0.106	0.106	0.105	0.096	0.071	0.071	0.050	0.096
10.7	East	0.116	0.112	0.107	0.096	0.068	0.068	0.048	0.096
10.8	East	0.133	0.127	0.115	0.098	0.067	0.067	0.040	0.098
10.9	East	0.154	0.133	0.109	0.087	0.055	0.055	0.031	0.087
11	East	0.168	0.132	0.104	0.078	0.047	0.047	0.025	0.078
11.1	East	0.166	0.129	0.101	0.074	0.043	0.043	0.022	0.074
11.2	East	0.160	0.125	0.098	0.072	0.043	0.043	0.019	0.072
11.3	East	0.166	0.126	0.096	0.070	0.043	0.043	0.016	0.070
11.4	East	0.171	0.126	0.092	0.067	0.040	0.040	0.012	0.067
11.5	East	0.176	0.126	0.089	0.061	0.038	0.038	0.013	0.061
11.6	East	0.182	0.125	0.083	0.053	0.031	0.031	0.011	0.053
11.7	East	0.185	0.125	0.082	0.051	0.029	0.029	0.007	0.051
1.8	Nav Channel	0.016	0.016	0.016	0.016	0.016	0.016	0.015	0.016
1.9	Nav Channel	0.016	0.016	0.016	0.016	0.016	0.016	0.014	0.016
2	Nav Channel	0.016	0.016	0.016	0.016	0.016	0.016	0.015	0.016
2.1	Nav Channel	0.017	0.017	0.017	0.017	0.017	0.017	0.015	0.017
2.2	Nav Channel	0.018	0.018	0.018	0.018	0.018	0.018	0.016	0.018
2.3	Nav Channel	0.018	0.018	0.018	0.018	0.018	0.018	0.017	0.018
2.4	Nav Channel	0.019	0.019	0.019	0.019	0.019	0.019	0.017	0.019
2.5	Nav Channel	0.020	0.020	0.020	0.020	0.020	0.020	0.018	0.020
2.6	Nav Channel	0.020	0.020	0.020	0.020	0.020	0.020	0.019	0.020
2.7	Nav Channel	0.021	0.021	0.021	0.021	0.021	0.021	0.020	0.021
2.8	Nav Channel	0.022	0.022	0.022	0.022	0.022	0.022	0.021	0.022

**Table J2.5-1h**

**RAO 6 Rolling River Mile HQ Estimates - 2,3,7,8-TCDD**

Portland Harbor Superfund Site

Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
2.9	Nav Channel	0.023	0.023	0.023	0.023	0.023	0.023	0.022	0.023
3	Nav Channel	0.024	0.024	0.024	0.024	0.024	0.024	0.022	0.024
3.1	Nav Channel	0.025	0.025	0.025	0.025	0.025	0.023	0.020	0.025
3.2	Nav Channel	0.026	0.026	0.026	0.026	0.026	0.023	0.018	0.026
3.3	Nav Channel	0.026	0.026	0.026	0.026	0.026	0.024	0.018	0.026
3.4	Nav Channel	0.027	0.027	0.027	0.027	0.027	0.024	0.019	0.027
3.5	Nav Channel	0.027	0.027	0.027	0.027	0.027	0.025	0.020	0.027
3.6	Nav Channel	0.027	0.027	0.027	0.027	0.027	0.025	0.020	0.027
3.7	Nav Channel	0.027	0.027	0.027	0.027	0.027	0.025	0.020	0.027
3.8	Nav Channel	0.026	0.026	0.026	0.026	0.026	0.025	0.020	0.026
3.9	Nav Channel	0.026	0.026	0.026	0.026	0.026	0.024	0.020	0.026
4	Nav Channel	0.025	0.025	0.025	0.025	0.025	0.024	0.020	0.025
4.1	Nav Channel	0.025	0.025	0.025	0.025	0.025	0.024	0.021	0.025
4.2	Nav Channel	0.024	0.024	0.024	0.024	0.024	0.023	0.022	0.024
4.3	Nav Channel	0.023	0.023	0.023	0.023	0.023	0.023	0.021	0.023
4.4	Nav Channel	0.022	0.022	0.022	0.022	0.022	0.022	0.020	0.022
4.5	Nav Channel	0.021	0.021	0.021	0.021	0.021	0.021	0.020	0.021
4.6	Nav Channel	0.021	0.021	0.020	0.020	0.021	0.020	0.019	0.021
4.7	Nav Channel	0.021	0.020	0.019	0.019	0.020	0.018	0.017	0.020
4.8	Nav Channel	0.021	0.020	0.018	0.017	0.020	0.016	0.015	0.020
4.9	Nav Channel	0.021	0.019	0.017	0.016	0.019	0.014	0.013	0.019
5	Nav Channel	0.021	0.019	0.016	0.015	0.019	0.013	0.011	0.019
5.1	Nav Channel	0.022	0.019	0.016	0.015	0.019	0.012	0.010	0.019
5.2	Nav Channel	0.023	0.019	0.016	0.014	0.019	0.011	0.009	0.019
5.3	Nav Channel	0.025	0.019	0.016	0.014	0.019	0.010	0.008	0.019
5.4	Nav Channel	0.027	0.021	0.017	0.015	0.021	0.010	0.007	0.021
5.5	Nav Channel	0.030	0.023	0.019	0.016	0.023	0.011	0.007	0.023
5.6	Nav Channel	0.033	0.026	0.022	0.020	0.026	0.014	0.009	0.026
5.7	Nav Channel	0.038	0.031	0.027	0.024	0.031	0.016	0.011	0.031
5.8	Nav Channel	0.046	0.037	0.033	0.030	0.037	0.022	0.015	0.037
5.9	Nav Channel	0.057	0.048	0.045	0.041	0.048	0.033	0.024	0.048
6	Nav Channel	0.074	0.063	0.060	0.057	0.063	0.047	0.036	0.063
6.1	Nav Channel	0.097	0.086	0.075	0.069	0.084	0.052	0.040	0.084
6.2	Nav Channel	0.125	0.115	0.097	0.086	0.109	0.054	0.041	0.108
6.3	Nav Channel	0.154	0.147	0.128	0.117	0.140	0.064	0.043	0.139
6.4	Nav Channel	0.179	0.172	0.153	0.142	0.165	0.086	0.055	0.164
6.5	Nav Channel	0.196	0.189	0.170	0.159	0.182	0.104	0.075	0.181
6.6	Nav Channel	0.207	0.199	0.180	0.170	0.192	0.117	0.089	0.192
6.7	Nav Channel	0.211	0.204	0.187	0.178	0.197	0.127	0.101	0.197
6.8	Nav Channel	0.209	0.203	0.187	0.179	0.197	0.131	0.103	0.197
6.9	Nav Channel	0.200	0.195	0.180	0.172	0.189	0.125	0.097	0.189
7	Nav Channel	0.183	0.181	0.167	0.159	0.175	0.113	0.086	0.176



**Table J2.5-1h**  
**RAO 6 Rolling River Mile HQ Estimates - 2,3,7,8-TCDD**  
 Portland Harbor Superfund Site  
 Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
7.1	Nav Channel	0.160	0.159	0.152	0.148	0.154	0.108	0.080	0.155
7.2	Nav Channel	0.133	0.132	0.132	0.132	0.132	0.106	0.080	0.133
7.3	Nav Channel	0.110	0.109	0.109	0.109	0.109	0.099	0.080	0.110
7.4	Nav Channel	0.092	0.091	0.091	0.091	0.091	0.085	0.074	0.091
7.5	Nav Channel	0.079	0.079	0.079	0.079	0.079	0.073	0.064	0.079
7.6	Nav Channel	0.070	0.070	0.070	0.070	0.070	0.065	0.056	0.070
7.7	Nav Channel	0.064	0.064	0.064	0.064	0.064	0.060	0.051	0.064
7.8	Nav Channel	0.060	0.060	0.060	0.059	0.060	0.055	0.048	0.060
7.9	Nav Channel	0.056	0.056	0.056	0.056	0.056	0.052	0.046	0.056
8	Nav Channel	0.053	0.053	0.053	0.053	0.053	0.051	0.047	0.053
8.1	Nav Channel	0.051	0.051	0.051	0.051	0.051	0.050	0.048	0.051
8.2	Nav Channel	0.049	0.049	0.049	0.048	0.049	0.048	0.047	0.049
8.3	Nav Channel	0.047	0.047	0.047	0.046	0.047	0.046	0.045	0.047
8.4	Nav Channel	0.047	0.046	0.045	0.044	0.045	0.044	0.043	0.045
8.5	Nav Channel	0.046	0.044	0.044	0.043	0.044	0.041	0.040	0.044
8.6	Nav Channel	0.047	0.045	0.045	0.044	0.045	0.041	0.040	0.045
8.7	Nav Channel	0.049	0.047	0.047	0.045	0.047	0.041	0.040	0.047
8.8	Nav Channel	0.051	0.049	0.049	0.047	0.049	0.041	0.039	0.049
8.9	Nav Channel	0.054	0.052	0.052	0.050	0.052	0.043	0.040	0.052
9	Nav Channel	0.057	0.055	0.055	0.054	0.055	0.046	0.042	0.055
9.1	Nav Channel	0.061	0.059	0.058	0.057	0.058	0.050	0.046	0.058
9.2	Nav Channel	0.064	0.062	0.062	0.061	0.062	0.053	0.048	0.062
9.3	Nav Channel	0.067	0.065	0.064	0.064	0.065	0.056	0.051	0.065
9.4	Nav Channel	0.068	0.068	0.067	0.067	0.067	0.058	0.053	0.067
9.5	Nav Channel	0.071	0.071	0.071	0.070	0.071	0.061	0.054	0.071
9.6	Nav Channel	0.075	0.075	0.074	0.074	0.074	0.066	0.059	0.074
9.7	Nav Channel	0.077	0.077	0.077	0.077	0.077	0.071	0.063	0.077
9.8	Nav Channel	0.078	0.078	0.078	0.078	0.078	0.072	0.063	0.078
9.9	Nav Channel	0.079	0.079	0.079	0.079	0.079	0.068	0.059	0.079
10	Nav Channel	0.079	0.079	0.079	0.079	0.079	0.067	0.056	0.079
10.1	Nav Channel	0.079	0.079	0.079	0.079	0.079	0.067	0.055	0.079
10.2	Nav Channel	0.079	0.079	0.079	0.079	0.079	0.067	0.055	0.079
10.3	Nav Channel	0.081	0.081	0.081	0.081	0.081	0.068	0.055	0.081
10.4	Nav Channel	0.083	0.083	0.083	0.083	0.083	0.068	0.051	0.083
10.5	Nav Channel	0.085	0.085	0.085	0.085	0.085	0.070	0.050	0.085
10.6	Nav Channel	0.087	0.087	0.087	0.087	0.087	0.072	0.050	0.087
10.7	Nav Channel	0.092	0.092	0.091	0.091	0.091	0.075	0.053	0.091
10.8	Nav Channel	0.100	0.096	0.095	0.094	0.094	0.080	0.061	0.094
10.9	Nav Channel	0.111	0.106	0.103	0.099	0.099	0.088	0.069	0.099
11	Nav Channel	0.120	0.114	0.112	0.108	0.108	0.097	0.080	0.108
11.1	Nav Channel	0.125	0.119	0.116	0.112	0.112	0.101	0.085	0.112
11.2	Nav Channel	0.128	0.122	0.119	0.115	0.115	0.104	0.087	0.115

**Table J2.5-1h**

**RAO 6 Rolling River Mile HQ Estimates - 2,3,7,8-TCDD**

Portland Harbor Superfund Site

Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
11.3	Nav Channel	0.133	0.126	0.123	0.118	0.118	0.107	0.088	0.118
11.4	Nav Channel	0.138	0.130	0.126	0.121	0.121	0.110	0.096	0.121
11.5	Nav Channel	0.142	0.133	0.129	0.123	0.123	0.114	0.106	0.123
11.6	Nav Channel	0.146	0.136	0.131	0.124	0.124	0.113	0.105	0.124
11.7	Nav Channel	0.148	0.137	0.132	0.124	0.124	0.112	0.103	0.124
1.8	West	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020
1.9	West	0.019	0.019	0.019	0.019	0.019	0.019	0.019	0.019
2	West	0.018	0.018	0.018	0.018	0.018	0.018	0.018	0.018
2.1	West	0.017	0.017	0.017	0.017	0.017	0.017	0.017	0.017
2.2	West	0.017	0.017	0.017	0.017	0.017	0.017	0.017	0.017
2.3	West	0.018	0.018	0.018	0.018	0.018	0.018	0.017	0.018
2.4	West	0.019	0.019	0.019	0.019	0.019	0.019	0.018	0.019
2.5	West	0.020	0.020	0.020	0.020	0.020	0.020	0.018	0.020
2.6	West	0.022	0.022	0.022	0.022	0.022	0.022	0.019	0.022
2.7	West	0.024	0.024	0.024	0.024	0.024	0.024	0.021	0.024
2.8	West	0.025	0.025	0.025	0.025	0.025	0.025	0.021	0.025
2.9	West	0.028	0.028	0.028	0.028	0.028	0.028	0.023	0.028
3	West	0.031	0.031	0.031	0.031	0.031	0.031	0.025	0.031
3.1	West	0.034	0.034	0.034	0.034	0.034	0.034	0.029	0.034
3.2	West	0.038	0.038	0.038	0.038	0.038	0.038	0.032	0.038
3.3	West	0.042	0.042	0.042	0.042	0.042	0.042	0.036	0.042
3.4	West	0.046	0.046	0.046	0.046	0.046	0.046	0.039	0.046
3.5	West	0.052	0.052	0.052	0.052	0.050	0.050	0.043	0.052
3.6	West	0.059	0.059	0.059	0.059	0.057	0.057	0.048	0.059
3.7	West	0.069	0.069	0.069	0.069	0.065	0.065	0.054	0.069
3.8	West	0.081	0.081	0.081	0.081	0.075	0.075	0.058	0.081
3.9	West	0.103	0.103	0.103	0.102	0.094	0.094	0.062	0.102
4	West	0.125	0.125	0.125	0.125	0.116	0.116	0.068	0.125
4.1	West	0.151	0.151	0.151	0.150	0.137	0.137	0.074	0.150
4.2	West	0.179	0.179	0.179	0.178	0.149	0.149	0.074	0.178
4.3	West	0.192	0.192	0.192	0.191	0.159	0.159	0.080	0.191
4.4	West	0.193	0.193	0.193	0.192	0.161	0.161	0.083	0.192
4.5	West	0.192	0.192	0.192	0.192	0.161	0.161	0.082	0.192
4.6	West	0.191	0.191	0.191	0.191	0.159	0.159	0.080	0.191
4.7	West	0.188	0.188	0.188	0.187	0.154	0.154	0.077	0.187
4.8	West	0.185	0.185	0.185	0.183	0.152	0.152	0.081	0.183
4.9	West	0.171	0.171	0.169	0.166	0.135	0.135	0.081	0.166
5	West	0.149	0.149	0.144	0.141	0.108	0.108	0.071	0.141
5.1	West	0.125	0.124	0.119	0.115	0.085	0.085	0.058	0.115
5.2	West	0.090	0.089	0.084	0.080	0.069	0.069	0.049	0.080
5.3	West	0.068	0.067	0.061	0.057	0.049	0.049	0.032	0.057
5.4	West	0.064	0.063	0.057	0.052	0.042	0.042	0.024	0.053

**Table J2.5-1h**

**RAO 6 Rolling River Mile HQ Estimates - 2,3,7,8-TCDD**

Portland Harbor Superfund Site

Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
5.5	West	0.066	0.065	0.059	0.055	0.044	0.044	0.025	0.056
5.6	West	0.066	0.064	0.059	0.054	0.040	0.040	0.020	0.056
5.7	West	0.065	0.059	0.053	0.049	0.037	0.037	0.017	0.051
5.8	West	0.062	0.052	0.046	0.043	0.032	0.032	0.016	0.045
5.9	West	0.061	0.046	0.041	0.039	0.028	0.028	0.015	0.041
6	West	0.063	0.042	0.039	0.037	0.027	0.027	0.015	0.039
6.1	West	0.067	0.042	0.040	0.037	0.026	0.026	0.014	0.037
6.2	West	0.072	0.048	0.045	0.043	0.027	0.027	0.013	0.038
6.3	West	0.091	0.063	0.060	0.048	0.024	0.024	0.010	0.034
6.4	West	0.447	0.090	0.062	0.047	0.021	0.021	0.009	0.027
6.5	West	1.841	0.097	0.060	0.038	0.012	0.012	0.003	0.017
6.6	West	1.954	0.106	0.065	0.036	0.010	0.010	0.003	0.010
6.7	West	1.865	0.103	0.062	0.034	0.009	0.009	0.003	0.009
6.8	West	1.963	0.101	0.061	0.034	0.009	0.009	0.003	0.009
6.9	West	2.093	0.103	0.062	0.034	0.009	0.009	0.003	0.009
7	West	2.056	0.106	0.064	0.035	0.010	0.010	0.003	0.010
7.1	West	1.717	0.110	0.075	0.048	0.025	0.025	0.008	0.025
7.2	West	1.449	0.104	0.074	0.051	0.032	0.032	0.016	0.032
7.3	West	1.248	0.090	0.065	0.049	0.036	0.036	0.016	0.036
7.4	West	1.049	0.074	0.063	0.050	0.039	0.039	0.016	0.039
7.5	West	0.321	0.073	0.066	0.057	0.045	0.045	0.017	0.046
7.6	West	0.274	0.075	0.071	0.065	0.053	0.053	0.017	0.056
7.7	West	0.272	0.088	0.086	0.080	0.064	0.064	0.018	0.071
7.8	West	0.200	0.108	0.107	0.097	0.069	0.069	0.018	0.089
7.9	West	0.133	0.127	0.126	0.102	0.068	0.068	0.017	0.094
8	West	0.149	0.148	0.148	0.105	0.074	0.074	0.025	0.099
8.1	West	0.209	0.208	0.208	0.128	0.079	0.079	0.031	0.123
8.2	West	0.279	0.278	0.278	0.143	0.076	0.076	0.026	0.140
8.3	West	0.404	0.383	0.372	0.155	0.076	0.076	0.027	0.155
8.4	West	0.588	0.406	0.390	0.159	0.074	0.074	0.028	0.158
8.5	West	0.700	0.427	0.391	0.155	0.071	0.071	0.028	0.155
8.6	West	0.791	0.473	0.395	0.146	0.064	0.064	0.029	0.146
8.7	West	0.842	0.491	0.398	0.135	0.054	0.054	0.030	0.135
8.8	West	0.855	0.508	0.411	0.137	0.061	0.061	0.040	0.137
8.9	West	0.891	0.533	0.433	0.172	0.098	0.098	0.075	0.172
9	West	0.921	0.542	0.435	0.191	0.104	0.104	0.079	0.191
9.1	West	0.901	0.486	0.369	0.167	0.096	0.096	0.078	0.167
9.2	West	0.804	0.396	0.275	0.143	0.096	0.096	0.077	0.143
9.3	West	0.714	0.319	0.189	0.140	0.099	0.099	0.080	0.140
9.4	West	0.534	0.332	0.199	0.148	0.104	0.104	0.084	0.148
9.5	West	0.404	0.317	0.208	0.154	0.109	0.109	0.089	0.154
9.6	West	0.298	0.265	0.208	0.166	0.117	0.117	0.095	0.166

**Table J2.5-1h**

**RAO 6 Rolling River Mile HQ Estimates - 2,3,7,8-TCDD**

Portland Harbor Superfund Site

Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
9.7	West	0.259	0.254	0.211	0.174	0.123	0.123	0.100	0.174
9.8	West	0.211	0.205	0.167	0.154	0.113	0.113	0.092	0.154
9.9	West	0.171	0.164	0.119	0.103	0.063	0.063	0.048	0.103
10	West	0.154	0.146	0.088	0.067	0.042	0.042	0.032	0.067
10.1	West	0.160	0.150	0.070	0.047	0.033	0.033	0.025	0.047
10.2	West	0.165	0.161	0.084	0.076	0.064	0.064	0.046	0.076
10.3	West	0.115	0.115	0.115	0.112	0.104	0.104	0.070	0.112
10.4	West	0.114	0.114	0.114	0.112	0.105	0.105	0.077	0.112
10.5	West	0.114	0.114	0.114	0.112	0.106	0.106	0.080	0.112
10.6	West	0.112	0.112	0.112	0.111	0.105	0.105	0.082	0.111
10.7	West	0.111	0.111	0.111	0.110	0.105	0.105	0.084	0.110
10.8	West	0.109	0.109	0.109	0.109	0.108	0.108	0.089	0.109
10.9	West	0.106	0.106	0.106	0.106	0.106	0.106	0.089	0.106
11	West	0.102	0.102	0.102	0.102	0.102	0.102	0.086	0.102
11.1	West	0.097	0.097	0.097	0.097	0.097	0.097	0.081	0.097
11.2	West	0.086	0.086	0.086	0.086	0.086	0.086	0.076	0.086
11.3	West	0.074	0.074	0.074	0.074	0.074	0.074	0.074	0.074
11.4	West	0.068	0.068	0.068	0.068	0.068	0.068	0.068	0.068
11.5	West	0.062	0.062	0.062	0.062	0.062	0.062	0.062	0.062
11.6	West	0.055	0.055	0.055	0.055	0.055	0.055	0.055	0.055
11.7	West	0.050	0.050	0.050	0.050	0.050	0.050	0.050	0.050
7.6	Swan Isl	0.079	0.005	0.005	0.003	0.001	0.001	0.000	0.003
7.7	Swan Isl	0.086	0.005	0.005	0.003	0.001	0.001	0.000	0.003
7.8	Swan Isl	0.086	0.006	0.005	0.003	0.001	0.001	0.000	0.003
7.9	Swan Isl	0.081	0.005	0.005	0.003	0.001	0.001	0.000	0.003
8	Swan Isl	0.077	0.005	0.004	0.003	0.001	0.001	0.000	0.003
8.1	Swan Isl	0.077	0.005	0.004	0.003	0.001	0.001	0.000	0.003
8.2	Swan Isl	0.077	0.005	0.005	0.003	0.001	0.001	0.001	0.003
8.3	Swan Isl	0.080	0.006	0.005	0.003	0.002	0.002	0.001	0.003
8.4	Swan Isl	0.084	0.006	0.005	0.003	0.002	0.002	0.001	0.003
8.5	Swan Isl	0.088	0.007	0.005	0.003	0.002	0.002	0.001	0.003
8.6	Swan Isl	0.092	0.011	0.007	0.005	0.002	0.002	0.002	0.007
8.7	Swan Isl	0.094	0.019	0.012	0.010	0.004	0.004	0.004	0.015
8.8	Swan Isl	0.096	0.021	0.013	0.012	0.005	0.005	0.004	0.017
8.9	Swan Isl	0.103	0.024	0.015	0.013	0.006	0.006	0.005	0.020
9	Swan Isl	0.111	0.028	0.017	0.015	0.006	0.006	0.005	0.022
9.1	Swan Isl	0.115	0.029	0.018	0.016	0.007	0.007	0.006	0.024
9.2	Swan Isl	0.122	0.035	0.021	0.019	0.007	0.007	0.006	0.028
9.3	Swan Isl	0.128	0.042	0.025	0.023	0.008	0.008	0.007	0.036
9.4	Swan Isl	0.133	0.057	0.036	0.034	0.011	0.011	0.009	0.052
9.5	Swan Isl	0.127	0.086	0.056	0.053	0.016	0.016	0.013	0.085
9.6	Swan Isl	0.114	0.114	0.084	0.076	0.030	0.030	0.025	0.114

**Table J2.5-1i**

**RAO 6 Rolling River Mile HQ Estimates - 2,3,7,8-TCDF**

Portland Harbor Superfund Site

Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
1.8	Site	0.075	0.072	0.071	0.070	0.069	0.069	0.068	0.070
1.9	Site	0.080	0.075	0.074	0.072	0.071	0.071	0.069	0.072
2	Site	0.083	0.077	0.075	0.073	0.071	0.071	0.068	0.073
2.1	Site	0.084	0.077	0.076	0.074	0.069	0.069	0.066	0.074
2.2	Site	0.082	0.075	0.074	0.072	0.067	0.067	0.063	0.072
2.3	Site	0.080	0.073	0.071	0.069	0.063	0.063	0.058	0.069
2.4	Site	0.078	0.071	0.069	0.067	0.060	0.060	0.055	0.067
2.5	Site	0.077	0.070	0.068	0.066	0.060	0.060	0.054	0.066
2.6	Site	0.077	0.070	0.068	0.066	0.060	0.060	0.054	0.066
2.7	Site	0.076	0.070	0.068	0.067	0.061	0.061	0.054	0.067
2.8	Site	0.072	0.069	0.068	0.066	0.060	0.060	0.053	0.066
2.9	Site	0.068	0.066	0.065	0.064	0.058	0.058	0.050	0.064
3	Site	0.065	0.065	0.064	0.064	0.060	0.060	0.051	0.064
3.1	Site	0.065	0.065	0.064	0.064	0.062	0.061	0.051	0.064
3.2	Site	0.067	0.067	0.066	0.065	0.064	0.063	0.052	0.065
3.3	Site	0.076	0.073	0.067	0.066	0.065	0.063	0.052	0.066
3.4	Site	0.083	0.075	0.069	0.068	0.066	0.064	0.053	0.068
3.5	Site	0.087	0.078	0.071	0.070	0.067	0.066	0.053	0.070
3.6	Site	0.089	0.081	0.073	0.072	0.068	0.067	0.054	0.072
3.7	Site	0.091	0.082	0.075	0.072	0.068	0.066	0.053	0.072
3.8	Site	0.090	0.082	0.074	0.071	0.067	0.065	0.052	0.071
3.9	Site	0.088	0.079	0.072	0.069	0.064	0.062	0.048	0.069
4	Site	0.085	0.076	0.069	0.066	0.060	0.059	0.045	0.066
4.1	Site	0.084	0.076	0.068	0.066	0.059	0.058	0.044	0.066
4.2	Site	0.086	0.077	0.069	0.066	0.057	0.057	0.043	0.066
4.3	Site	0.080	0.075	0.071	0.068	0.060	0.060	0.047	0.068
4.4	Site	0.076	0.076	0.074	0.071	0.063	0.063	0.050	0.071
4.5	Site	0.082	0.082	0.080	0.077	0.070	0.070	0.058	0.077
4.6	Site	0.097	0.097	0.090	0.086	0.086	0.076	0.063	0.093
4.7	Site	0.122	0.112	0.099	0.092	0.101	0.080	0.066	0.109
4.8	Site	0.156	0.145	0.120	0.107	0.133	0.088	0.071	0.141
4.9	Site	0.200	0.174	0.138	0.120	0.161	0.097	0.074	0.169
5	Site	0.255	0.214	0.168	0.145	0.199	0.109	0.081	0.206
5.1	Site	0.319	0.275	0.222	0.195	0.253	0.135	0.089	0.260
5.2	Site	0.395	0.312	0.251	0.219	0.285	0.147	0.096	0.289
5.3	Site	0.448	0.325	0.261	0.227	0.295	0.148	0.093	0.299
5.4	Site	0.482	0.358	0.292	0.256	0.325	0.152	0.089	0.331
5.5	Site	0.498	0.375	0.309	0.269	0.338	0.160	0.083	0.347
5.6	Site	0.505	0.380	0.319	0.278	0.337	0.163	0.082	0.351
5.7	Site	0.508	0.387	0.325	0.283	0.343	0.164	0.081	0.352
5.8	Site	0.505	0.367	0.316	0.280	0.324	0.163	0.083	0.332
5.9	Site	0.499	0.359	0.318	0.284	0.315	0.171	0.095	0.325
6	Site	0.488	0.338	0.304	0.275	0.295	0.175	0.104	0.306

**Table J2.5-1i**

**RAO 6 Rolling River Mile HQ Estimates - 2,3,7,8-TCDF**

Portland Harbor Superfund Site

Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
6.1	Site	0.466	0.308	0.269	0.237	0.266	0.153	0.100	0.278
6.2	Site	0.435	0.309	0.271	0.239	0.264	0.153	0.095	0.278
6.3	Site	0.436	0.312	0.271	0.240	0.259	0.151	0.089	0.278
6.4	Site	0.523	0.342	0.262	0.222	0.229	0.146	0.087	0.248
6.5	Site	0.745	0.413	0.306	0.216	0.213	0.139	0.093	0.229
6.6	Site	0.922	0.551	0.387	0.251	0.203	0.138	0.095	0.214
6.7	Site	1.335	0.565	0.377	0.239	0.185	0.136	0.099	0.203
6.8	Site	11.705	0.547	0.361	0.229	0.171	0.133	0.095	0.195
6.9	Site	21.651	0.530	0.348	0.219	0.159	0.126	0.088	0.181
7	Site	21.419	0.725	0.471	0.215	0.155	0.122	0.078	0.175
7.1	Site	20.681	1.109	0.846	0.358	0.218	0.196	0.085	0.236
7.2	Site	19.602	1.054	0.809	0.350	0.215	0.201	0.092	0.231
7.3	Site	18.726	1.010	0.780	0.341	0.213	0.204	0.098	0.224
7.4	Site	18.284	0.952	0.755	0.333	0.215	0.208	0.104	0.224
7.5	Site	17.351	0.856	0.686	0.319	0.210	0.203	0.101	0.219
7.6	Site	16.006	0.692	0.574	0.267	0.194	0.187	0.091	0.204
7.7	Site	14.554	0.611	0.526	0.248	0.178	0.172	0.081	0.186
7.8	Site	7.513	0.585	0.508	0.240	0.169	0.163	0.076	0.177
7.9	Site	0.851	0.563	0.489	0.230	0.160	0.155	0.073	0.171
8	Site	0.419	0.406	0.386	0.216	0.149	0.146	0.071	0.159
8.1	Site	0.125	0.112	0.112	0.106	0.091	0.090	0.063	0.101
8.2	Site	0.110	0.095	0.095	0.089	0.076	0.075	0.057	0.086
8.3	Site	0.101	0.083	0.083	0.076	0.064	0.064	0.050	0.075
8.4	Site	0.095	0.072	0.072	0.064	0.053	0.053	0.043	0.064
8.5	Site	0.091	0.063	0.061	0.054	0.044	0.043	0.035	0.054
8.6	Site	0.092	0.061	0.057	0.049	0.039	0.037	0.032	0.050
8.7	Site	0.092	0.063	0.056	0.048	0.037	0.036	0.031	0.050
8.8	Site	0.089	0.061	0.054	0.044	0.036	0.034	0.030	0.046
8.9	Site	0.086	0.058	0.049	0.041	0.036	0.033	0.029	0.043
9	Site	0.084	0.056	0.047	0.040	0.034	0.031	0.027	0.043
9.1	Site	0.083	0.054	0.045	0.040	0.033	0.030	0.026	0.042
9.2	Site	0.084	0.056	0.046	0.041	0.034	0.031	0.027	0.044
9.3	Site	0.085	0.060	0.049	0.045	0.038	0.034	0.030	0.048
9.4	Site	0.084	0.066	0.055	0.051	0.043	0.040	0.034	0.054
9.5	Site	0.083	0.073	0.062	0.058	0.050	0.046	0.040	0.061
9.6	Site	0.080	0.076	0.069	0.066	0.058	0.055	0.049	0.067
9.7	Site	0.080	0.080	0.076	0.073	0.067	0.064	0.057	0.073
9.8	Site	0.083	0.082	0.079	0.078	0.074	0.069	0.058	0.078
9.9	Site	0.089	0.089	0.086	0.085	0.082	0.070	0.057	0.085
10	Site	0.099	0.099	0.095	0.094	0.092	0.078	0.063	0.094
10.1	Site	0.109	0.109	0.105	0.104	0.103	0.088	0.073	0.104
10.2	Site	0.119	0.118	0.116	0.115	0.114	0.099	0.082	0.116

**Table J2.5-1i**

**RAO 6 Rolling River Mile HQ Estimates - 2,3,7,8-TCDF**

Portland Harbor Superfund Site

Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
10.3	Site	0.124	0.124	0.124	0.124	0.122	0.106	0.088	0.124
10.4	Site	0.128	0.128	0.128	0.127	0.126	0.109	0.087	0.127
10.5	Site	0.130	0.130	0.130	0.129	0.127	0.110	0.088	0.129
10.6	Site	0.128	0.128	0.128	0.128	0.126	0.108	0.085	0.128
10.7	Site	0.123	0.123	0.123	0.122	0.121	0.103	0.080	0.122
10.8	Site	0.116	0.115	0.115	0.114	0.113	0.099	0.082	0.114
10.9	Site	0.107	0.105	0.104	0.103	0.101	0.097	0.083	0.103
11	Site	0.098	0.095	0.093	0.092	0.090	0.087	0.076	0.092
11.1	Site	0.089	0.085	0.084	0.082	0.080	0.077	0.066	0.082
11.2	Site	0.080	0.077	0.075	0.072	0.071	0.068	0.058	0.072
11.3	Site	0.073	0.069	0.067	0.065	0.063	0.061	0.051	0.065
11.4	Site	0.067	0.063	0.060	0.058	0.056	0.054	0.048	0.058
11.5	Site	0.063	0.058	0.055	0.052	0.050	0.050	0.046	0.052
11.6	Site	0.059	0.054	0.050	0.047	0.045	0.044	0.041	0.047
11.7	Site	0.057	0.051	0.047	0.044	0.042	0.041	0.037	0.044
1.8	East	0.091	0.082	0.078	0.075	0.073	0.073	0.072	0.075
1.9	East	0.095	0.081	0.076	0.071	0.068	0.068	0.067	0.071
2	East	0.102	0.081	0.076	0.070	0.062	0.062	0.059	0.070
2.1	East	0.103	0.082	0.077	0.071	0.055	0.055	0.052	0.071
2.2	East	0.098	0.078	0.073	0.067	0.049	0.049	0.044	0.067
2.3	East	0.098	0.077	0.071	0.064	0.045	0.045	0.036	0.064
2.4	East	0.099	0.078	0.071	0.063	0.042	0.042	0.032	0.063
2.5	East	0.102	0.080	0.073	0.065	0.045	0.045	0.034	0.065
2.6	East	0.105	0.082	0.075	0.068	0.048	0.048	0.037	0.069
2.7	East	0.108	0.088	0.081	0.074	0.053	0.053	0.042	0.075
2.8	East	0.105	0.091	0.086	0.080	0.058	0.058	0.046	0.081
2.9	East	0.099	0.090	0.087	0.083	0.062	0.062	0.050	0.083
3	East	0.089	0.089	0.086	0.083	0.067	0.067	0.056	0.084
3.1	East	0.085	0.085	0.081	0.079	0.072	0.072	0.062	0.079
3.2	East	0.084	0.084	0.080	0.077	0.073	0.073	0.065	0.078
3.3	East	0.107	0.093	0.070	0.067	0.060	0.060	0.054	0.067
3.4	East	0.130	0.095	0.065	0.063	0.056	0.056	0.050	0.063
3.5	East	0.133	0.095	0.063	0.059	0.050	0.050	0.044	0.059
3.6	East	0.137	0.097	0.063	0.056	0.046	0.046	0.039	0.056
3.7	East	0.141	0.100	0.065	0.054	0.043	0.043	0.035	0.054
3.8	East	0.141	0.099	0.063	0.052	0.040	0.040	0.031	0.052
3.9	East	0.130	0.092	0.059	0.047	0.033	0.033	0.024	0.047
4	East	0.121	0.085	0.055	0.044	0.026	0.026	0.016	0.044
4.1	East	0.115	0.081	0.051	0.040	0.022	0.022	0.012	0.040
4.2	East	0.112	0.080	0.048	0.035	0.017	0.017	0.007	0.035
4.3	East	0.086	0.062	0.046	0.032	0.015	0.015	0.006	0.032
4.4	East	0.056	0.055	0.047	0.032	0.016	0.016	0.008	0.032

**Table J2.5-1i**

**RAO 6 Rolling River Mile HQ Estimates - 2,3,7,8-TCDF**

Portland Harbor Superfund Site

Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
4.5	East	0.059	0.058	0.050	0.036	0.021	0.021	0.013	0.036
4.6	East	0.068	0.068	0.060	0.051	0.036	0.036	0.027	0.051
4.7	East	0.084	0.083	0.076	0.070	0.057	0.057	0.049	0.070
4.8	East	0.112	0.112	0.104	0.098	0.085	0.085	0.074	0.098
4.9	East	0.157	0.156	0.148	0.143	0.133	0.133	0.097	0.143
5	East	0.225	0.224	0.215	0.209	0.200	0.200	0.142	0.205
5.1	East	0.312	0.312	0.303	0.298	0.246	0.246	0.169	0.250
5.2	East	0.439	0.439	0.439	0.436	0.308	0.308	0.210	0.308
5.3	East	0.441	0.441	0.441	0.433	0.296	0.296	0.200	0.296
5.4	East	0.406	0.406	0.406	0.400	0.285	0.285	0.171	0.285
5.5	East	0.382	0.382	0.382	0.377	0.271	0.271	0.157	0.273
5.6	East	0.353	0.353	0.353	0.346	0.243	0.243	0.138	0.252
5.7	East	0.318	0.318	0.318	0.313	0.211	0.211	0.114	0.228
5.8	East	0.288	0.288	0.286	0.281	0.188	0.188	0.101	0.206
5.9	East	0.261	0.261	0.255	0.249	0.160	0.160	0.095	0.185
6	East	0.229	0.229	0.220	0.214	0.135	0.135	0.085	0.162
6.1	East	0.193	0.193	0.180	0.174	0.122	0.122	0.082	0.152
6.2	East	0.183	0.167	0.144	0.140	0.117	0.117	0.081	0.149
6.3	East	0.254	0.158	0.122	0.120	0.103	0.103	0.072	0.148
6.4	East	0.231	0.134	0.097	0.095	0.081	0.081	0.065	0.126
6.5	East	0.210	0.117	0.081	0.080	0.068	0.068	0.058	0.110
6.6	East	0.190	0.102	0.068	0.067	0.059	0.059	0.051	0.096
6.7	East	0.184	0.090	0.057	0.056	0.052	0.052	0.046	0.096
6.8	East	0.177	0.081	0.046	0.045	0.042	0.042	0.037	0.092
6.9	East	0.166	0.073	0.040	0.040	0.038	0.038	0.035	0.084
7	East	0.155	0.067	0.037	0.036	0.035	0.035	0.032	0.077
7.1	East	0.148	0.061	0.034	0.034	0.032	0.032	0.030	0.072
7.2	East	0.138	0.055	0.033	0.033	0.032	0.032	0.030	0.070
7.3	East	0.073	0.047	0.035	0.035	0.034	0.034	0.033	0.064
7.4	East	0.066	0.046	0.037	0.037	0.036	0.036	0.034	0.066
7.5	East	0.072	0.050	0.041	0.041	0.040	0.040	0.038	0.072
7.6	East	0.080	0.054	0.044	0.044	0.043	0.043	0.038	0.076
7.7	East	0.071	0.051	0.044	0.044	0.043	0.043	0.038	0.060
7.8	East	0.063	0.047	0.044	0.044	0.043	0.043	0.037	0.046
7.9	East	0.063	0.044	0.044	0.044	0.043	0.043	0.037	0.044
8	East	0.062	0.039	0.039	0.039	0.039	0.039	0.031	0.039
8.1	East	0.061	0.035	0.035	0.035	0.035	0.035	0.026	0.035
8.2	East	0.057	0.031	0.031	0.031	0.031	0.031	0.022	0.031
8.3	East	0.054	0.030	0.030	0.030	0.029	0.029	0.022	0.030
8.4	East	0.052	0.028	0.028	0.028	0.028	0.028	0.022	0.028
8.5	East	0.049	0.024	0.024	0.024	0.024	0.024	0.019	0.024
8.6	East	0.045	0.023	0.023	0.023	0.022	0.022	0.019	0.023



**Table J2.5-1i**

**RAO 6 Rolling River Mile HQ Estimates - 2,3,7,8-TCDF**

Portland Harbor Superfund Site

Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
8.7	East	0.037	0.028	0.028	0.028	0.026	0.026	0.021	0.028
8.8	East	0.030	0.030	0.030	0.030	0.029	0.029	0.024	0.030
8.9	East	0.031	0.031	0.031	0.031	0.029	0.029	0.025	0.031
9	East	0.032	0.032	0.032	0.032	0.031	0.031	0.026	0.032
9.1	East	0.034	0.034	0.034	0.034	0.030	0.030	0.024	0.034
9.2	East	0.036	0.036	0.036	0.036	0.030	0.030	0.022	0.036
9.3	East	0.038	0.038	0.038	0.038	0.033	0.033	0.024	0.038
9.4	East	0.040	0.040	0.040	0.040	0.035	0.035	0.026	0.040
9.5	East	0.042	0.042	0.042	0.042	0.037	0.037	0.029	0.042
9.6	East	0.044	0.044	0.044	0.043	0.038	0.038	0.031	0.043
9.7	East	0.046	0.046	0.046	0.045	0.039	0.039	0.033	0.045
9.8	East	0.047	0.047	0.047	0.047	0.041	0.041	0.034	0.047
9.9	East	0.049	0.049	0.049	0.048	0.042	0.042	0.034	0.048
10	East	0.050	0.050	0.050	0.049	0.042	0.042	0.034	0.049
10.1	East	0.050	0.050	0.050	0.049	0.044	0.044	0.037	0.049
10.2	East	0.050	0.050	0.050	0.049	0.045	0.045	0.039	0.049
10.3	East	0.050	0.050	0.050	0.048	0.041	0.041	0.037	0.048
10.4	East	0.049	0.049	0.049	0.046	0.038	0.038	0.032	0.046
10.5	East	0.048	0.048	0.048	0.045	0.034	0.034	0.026	0.045
10.6	East	0.046	0.046	0.046	0.043	0.032	0.032	0.024	0.043
10.7	East	0.045	0.043	0.042	0.038	0.028	0.028	0.021	0.038
10.8	East	0.050	0.048	0.043	0.038	0.026	0.026	0.016	0.038
10.9	East	0.056	0.047	0.040	0.033	0.021	0.021	0.012	0.033
11	East	0.072	0.053	0.042	0.030	0.017	0.017	0.009	0.030
11.1	East	0.078	0.057	0.043	0.030	0.016	0.016	0.008	0.030
11.2	East	0.076	0.056	0.042	0.028	0.016	0.016	0.007	0.028
11.3	East	0.080	0.057	0.042	0.028	0.016	0.016	0.006	0.028
11.4	East	0.085	0.059	0.042	0.027	0.015	0.015	0.005	0.027
11.5	East	0.089	0.061	0.042	0.026	0.015	0.015	0.005	0.026
11.6	East	0.095	0.064	0.043	0.024	0.013	0.013	0.004	0.024
11.7	East	0.104	0.069	0.046	0.025	0.013	0.013	0.003	0.025
1.8	Nav Channel	0.073	0.073	0.073	0.073	0.073	0.073	0.071	0.073
1.9	Nav Channel	0.069	0.069	0.069	0.069	0.069	0.069	0.064	0.069
2	Nav Channel	0.068	0.068	0.068	0.068	0.068	0.068	0.063	0.068
2.1	Nav Channel	0.068	0.068	0.068	0.068	0.068	0.068	0.063	0.068
2.2	Nav Channel	0.067	0.067	0.067	0.067	0.067	0.067	0.062	0.067
2.3	Nav Channel	0.063	0.063	0.063	0.063	0.063	0.063	0.058	0.063
2.4	Nav Channel	0.057	0.057	0.057	0.057	0.057	0.057	0.051	0.057
2.5	Nav Channel	0.054	0.054	0.054	0.054	0.054	0.054	0.048	0.054
2.6	Nav Channel	0.052	0.052	0.052	0.052	0.052	0.052	0.047	0.052
2.7	Nav Channel	0.051	0.051	0.051	0.051	0.051	0.051	0.046	0.051
2.8	Nav Channel	0.051	0.051	0.051	0.051	0.051	0.051	0.047	0.051

**Table J2.5-1i**

**RAO 6 Rolling River Mile HQ Estimates - 2,3,7,8-TCDF**

Portland Harbor Superfund Site

Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
2.9	Nav Channel	0.050	0.050	0.050	0.050	0.050	0.050	0.049	0.050
3	Nav Channel	0.051	0.051	0.051	0.051	0.051	0.050	0.047	0.051
3.1	Nav Channel	0.051	0.051	0.051	0.051	0.051	0.048	0.042	0.051
3.2	Nav Channel	0.052	0.052	0.052	0.052	0.052	0.047	0.037	0.052
3.3	Nav Channel	0.053	0.053	0.053	0.053	0.053	0.048	0.037	0.053
3.4	Nav Channel	0.054	0.054	0.054	0.054	0.054	0.050	0.039	0.054
3.5	Nav Channel	0.055	0.055	0.055	0.055	0.055	0.051	0.041	0.055
3.6	Nav Channel	0.056	0.056	0.056	0.056	0.056	0.052	0.041	0.056
3.7	Nav Channel	0.056	0.056	0.056	0.056	0.056	0.052	0.042	0.056
3.8	Nav Channel	0.055	0.055	0.055	0.055	0.055	0.051	0.042	0.055
3.9	Nav Channel	0.053	0.053	0.053	0.053	0.053	0.050	0.042	0.053
4	Nav Channel	0.052	0.052	0.052	0.052	0.052	0.049	0.042	0.052
4.1	Nav Channel	0.051	0.051	0.051	0.051	0.051	0.050	0.043	0.051
4.2	Nav Channel	0.052	0.052	0.052	0.052	0.052	0.051	0.047	0.052
4.3	Nav Channel	0.052	0.052	0.052	0.052	0.052	0.052	0.048	0.052
4.4	Nav Channel	0.055	0.055	0.055	0.055	0.055	0.054	0.051	0.055
4.5	Nav Channel	0.064	0.064	0.064	0.064	0.064	0.064	0.061	0.064
4.6	Nav Channel	0.083	0.082	0.075	0.071	0.082	0.068	0.064	0.082
4.7	Nav Channel	0.111	0.097	0.081	0.073	0.097	0.066	0.060	0.097
4.8	Nav Channel	0.149	0.133	0.099	0.083	0.133	0.068	0.058	0.133
4.9	Nav Channel	0.196	0.159	0.111	0.090	0.159	0.067	0.056	0.159
5	Nav Channel	0.254	0.198	0.139	0.111	0.198	0.073	0.058	0.198
5.1	Nav Channel	0.325	0.265	0.198	0.164	0.265	0.102	0.066	0.265
5.2	Nav Channel	0.406	0.295	0.217	0.179	0.295	0.110	0.070	0.295
5.3	Nav Channel	0.476	0.311	0.228	0.187	0.311	0.112	0.069	0.311
5.4	Nav Channel	0.536	0.360	0.270	0.224	0.360	0.114	0.067	0.360
5.5	Nav Channel	0.580	0.393	0.298	0.245	0.393	0.122	0.058	0.393
5.6	Nav Channel	0.617	0.418	0.327	0.269	0.418	0.135	0.064	0.418
5.7	Nav Channel	0.653	0.456	0.360	0.296	0.456	0.150	0.072	0.448
5.8	Nav Channel	0.685	0.456	0.374	0.316	0.456	0.166	0.083	0.444
5.9	Nav Channel	0.706	0.476	0.409	0.351	0.476	0.201	0.110	0.462
6	Nav Channel	0.715	0.469	0.414	0.363	0.469	0.229	0.137	0.455
6.1	Nav Channel	0.700	0.438	0.373	0.317	0.435	0.199	0.134	0.420
6.2	Nav Channel	0.646	0.452	0.395	0.333	0.445	0.198	0.126	0.429
6.3	Nav Channel	0.606	0.488	0.431	0.369	0.481	0.219	0.129	0.464
6.4	Nav Channel	0.576	0.458	0.404	0.344	0.451	0.239	0.139	0.434
6.5	Nav Channel	0.564	0.447	0.393	0.341	0.439	0.246	0.168	0.423
6.6	Nav Channel	0.548	0.432	0.379	0.337	0.425	0.253	0.185	0.409
6.7	Nav Channel	0.511	0.404	0.370	0.339	0.397	0.267	0.206	0.392
6.8	Nav Channel	0.462	0.384	0.360	0.334	0.376	0.273	0.209	0.375
6.9	Nav Channel	0.405	0.356	0.335	0.313	0.347	0.258	0.192	0.348
7	Nav Channel	0.347	0.334	0.315	0.294	0.325	0.234	0.167	0.325

**Table J2.5-1i**

**RAO 6 Rolling River Mile HQ Estimates - 2,3,7,8-TCDF**

Portland Harbor Superfund Site

Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
7.1	Nav Channel	0.293	0.290	0.287	0.277	0.284	0.224	0.157	0.285
7.2	Nav Channel	0.261	0.258	0.258	0.256	0.256	0.220	0.159	0.257
7.3	Nav Channel	0.232	0.230	0.230	0.228	0.228	0.207	0.162	0.228
7.4	Nav Channel	0.210	0.208	0.208	0.207	0.206	0.191	0.158	0.207
7.5	Nav Channel	0.185	0.184	0.184	0.183	0.182	0.169	0.140	0.182
7.6	Nav Channel	0.167	0.166	0.166	0.166	0.165	0.153	0.125	0.165
7.7	Nav Channel	0.154	0.154	0.154	0.153	0.153	0.141	0.115	0.153
7.8	Nav Channel	0.142	0.141	0.141	0.141	0.141	0.129	0.109	0.141
7.9	Nav Channel	0.130	0.130	0.130	0.129	0.129	0.119	0.104	0.129
8	Nav Channel	0.119	0.119	0.119	0.119	0.119	0.113	0.102	0.119
8.1	Nav Channel	0.110	0.110	0.110	0.109	0.110	0.108	0.101	0.110
8.2	Nav Channel	0.099	0.099	0.099	0.099	0.099	0.099	0.096	0.099
8.3	Nav Channel	0.089	0.089	0.089	0.088	0.089	0.088	0.087	0.089
8.4	Nav Channel	0.078	0.078	0.078	0.078	0.078	0.078	0.076	0.078
8.5	Nav Channel	0.067	0.067	0.067	0.067	0.067	0.065	0.063	0.067
8.6	Nav Channel	0.060	0.059	0.059	0.059	0.059	0.057	0.055	0.059
8.7	Nav Channel	0.054	0.054	0.054	0.053	0.054	0.051	0.049	0.054
8.8	Nav Channel	0.050	0.049	0.049	0.049	0.049	0.045	0.043	0.049
8.9	Nav Channel	0.046	0.046	0.046	0.045	0.046	0.041	0.038	0.046
9	Nav Channel	0.043	0.043	0.043	0.043	0.043	0.038	0.035	0.043
9.1	Nav Channel	0.042	0.042	0.042	0.042	0.042	0.037	0.034	0.042
9.2	Nav Channel	0.043	0.043	0.042	0.042	0.042	0.037	0.034	0.042
9.3	Nav Channel	0.046	0.046	0.045	0.045	0.045	0.040	0.037	0.045
9.4	Nav Channel	0.051	0.051	0.051	0.051	0.051	0.045	0.041	0.051
9.5	Nav Channel	0.059	0.059	0.059	0.059	0.059	0.052	0.047	0.059
9.6	Nav Channel	0.068	0.068	0.068	0.068	0.068	0.063	0.057	0.068
9.7	Nav Channel	0.078	0.078	0.078	0.078	0.078	0.074	0.067	0.078
9.8	Nav Channel	0.089	0.089	0.089	0.089	0.089	0.081	0.069	0.089
9.9	Nav Channel	0.099	0.099	0.099	0.099	0.099	0.083	0.068	0.099
10	Nav Channel	0.110	0.110	0.110	0.110	0.110	0.092	0.074	0.110
10.1	Nav Channel	0.120	0.120	0.120	0.120	0.120	0.102	0.084	0.120
10.2	Nav Channel	0.129	0.129	0.129	0.129	0.129	0.110	0.092	0.129
10.3	Nav Channel	0.136	0.136	0.136	0.136	0.136	0.116	0.097	0.136
10.4	Nav Channel	0.141	0.141	0.141	0.141	0.141	0.119	0.097	0.141
10.5	Nav Channel	0.143	0.143	0.143	0.143	0.143	0.121	0.097	0.143
10.6	Nav Channel	0.142	0.142	0.142	0.142	0.142	0.119	0.093	0.142
10.7	Nav Channel	0.136	0.136	0.135	0.135	0.135	0.112	0.087	0.135
10.8	Nav Channel	0.126	0.126	0.125	0.125	0.125	0.107	0.090	0.125
10.9	Nav Channel	0.114	0.113	0.113	0.113	0.113	0.106	0.092	0.113
11	Nav Channel	0.101	0.100	0.100	0.100	0.100	0.095	0.085	0.100
11.1	Nav Channel	0.089	0.088	0.088	0.087	0.087	0.083	0.073	0.087
11.2	Nav Channel	0.079	0.078	0.078	0.077	0.077	0.074	0.063	0.077

**Table J2.5-1i**

**RAO 6 Rolling River Mile HQ Estimates - 2,3,7,8-TCDF**

Portland Harbor Superfund Site

Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
11.3	Nav Channel	0.071	0.070	0.069	0.069	0.069	0.066	0.054	0.069
11.4	Nav Channel	0.063	0.062	0.062	0.061	0.061	0.058	0.052	0.061
11.5	Nav Channel	0.057	0.056	0.055	0.054	0.054	0.053	0.051	0.054
11.6	Nav Channel	0.052	0.050	0.050	0.049	0.049	0.048	0.045	0.049
11.7	Nav Channel	0.048	0.046	0.046	0.045	0.045	0.044	0.041	0.045
1.8	West	0.063	0.063	0.063	0.063	0.063	0.063	0.063	0.063
1.9	West	0.075	0.075	0.075	0.075	0.075	0.075	0.075	0.075
2	West	0.081	0.081	0.081	0.081	0.081	0.081	0.081	0.081
2.1	West	0.081	0.081	0.081	0.081	0.081	0.081	0.081	0.081
2.2	West	0.081	0.081	0.081	0.081	0.081	0.081	0.080	0.081
2.3	West	0.079	0.079	0.079	0.079	0.079	0.079	0.078	0.079
2.4	West	0.078	0.078	0.078	0.078	0.078	0.078	0.077	0.078
2.5	West	0.077	0.077	0.077	0.077	0.077	0.077	0.074	0.077
2.6	West	0.076	0.076	0.076	0.076	0.076	0.076	0.072	0.076
2.7	West	0.074	0.074	0.074	0.074	0.074	0.074	0.068	0.074
2.8	West	0.070	0.070	0.070	0.070	0.070	0.070	0.061	0.070
2.9	West	0.063	0.063	0.063	0.063	0.063	0.063	0.052	0.063
3	West	0.064	0.064	0.064	0.064	0.064	0.064	0.051	0.064
3.1	West	0.066	0.066	0.066	0.066	0.066	0.066	0.053	0.066
3.2	West	0.072	0.072	0.072	0.072	0.071	0.071	0.058	0.072
3.3	West	0.079	0.079	0.079	0.079	0.079	0.079	0.065	0.079
3.4	West	0.088	0.088	0.088	0.088	0.087	0.087	0.070	0.088
3.5	West	0.099	0.099	0.099	0.099	0.096	0.096	0.078	0.099
3.6	West	0.111	0.111	0.111	0.111	0.106	0.106	0.085	0.111
3.7	West	0.124	0.124	0.124	0.124	0.118	0.118	0.092	0.124
3.8	West	0.137	0.137	0.137	0.136	0.127	0.127	0.099	0.136
3.9	West	0.149	0.149	0.149	0.149	0.137	0.137	0.101	0.149
4	West	0.160	0.160	0.160	0.159	0.146	0.146	0.100	0.159
4.1	West	0.183	0.183	0.183	0.182	0.163	0.163	0.105	0.182
4.2	West	0.206	0.206	0.206	0.205	0.171	0.171	0.102	0.205
4.3	West	0.219	0.219	0.219	0.218	0.181	0.181	0.109	0.218
4.4	West	0.221	0.221	0.221	0.220	0.184	0.184	0.114	0.220
4.5	West	0.222	0.222	0.222	0.221	0.185	0.185	0.116	0.221
4.6	West	0.230	0.230	0.230	0.229	0.193	0.193	0.126	0.229
4.7	West	0.249	0.249	0.248	0.242	0.198	0.198	0.132	0.242
4.8	West	0.277	0.277	0.273	0.262	0.217	0.217	0.144	0.262
4.9	West	0.301	0.300	0.287	0.273	0.224	0.224	0.149	0.273
5	West	0.301	0.298	0.276	0.260	0.206	0.206	0.137	0.260
5.1	West	0.289	0.286	0.262	0.244	0.193	0.193	0.126	0.244
5.2	West	0.280	0.277	0.251	0.232	0.198	0.198	0.128	0.232
5.3	West	0.277	0.274	0.247	0.226	0.190	0.190	0.112	0.226
5.4	West	0.279	0.275	0.249	0.226	0.181	0.181	0.100	0.230

**Table J2.5-1i**

**RAO 6 Rolling River Mile HQ Estimates - 2,3,7,8-TCDF**

Portland Harbor Superfund Site

Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
5.5	West	0.283	0.280	0.251	0.227	0.178	0.178	0.098	0.235
5.6	West	0.285	0.274	0.244	0.219	0.157	0.157	0.074	0.229
5.7	West	0.281	0.245	0.211	0.192	0.140	0.140	0.061	0.202
5.8	West	0.276	0.207	0.176	0.162	0.115	0.115	0.051	0.172
5.9	West	0.283	0.177	0.154	0.142	0.098	0.098	0.048	0.152
6	West	0.313	0.163	0.146	0.136	0.093	0.093	0.047	0.145
6.1	West	0.367	0.180	0.162	0.148	0.092	0.092	0.046	0.141
6.2	West	0.428	0.243	0.224	0.207	0.115	0.115	0.042	0.164
6.3	West	0.466	0.262	0.243	0.219	0.101	0.101	0.034	0.147
6.4	West	1.131	0.601	0.360	0.268	0.105	0.105	0.028	0.138
6.5	West	2.625	1.140	0.719	0.295	0.082	0.082	0.012	0.101
6.6	West	3.933	2.142	1.340	0.584	0.097	0.097	0.011	0.097
6.7	West	6.539	2.310	1.324	0.547	0.090	0.090	0.010	0.090
6.8	West	71.223	2.297	1.297	0.536	0.090	0.090	0.010	0.090
6.9	West	137.321	2.344	1.333	0.554	0.092	0.092	0.010	0.092
7	West	138.425	3.743	2.224	0.596	0.132	0.132	0.010	0.132
7.1	West	116.747	5.564	4.146	1.380	0.569	0.569	0.081	0.569
7.2	West	97.744	4.686	3.498	1.187	0.513	0.513	0.087	0.513
7.3	West	84.289	4.060	3.035	1.048	0.470	0.470	0.079	0.470
7.4	West	84.096	3.884	2.981	1.030	0.483	0.483	0.079	0.483
7.5	West	86.321	3.733	2.896	1.058	0.515	0.515	0.083	0.519
7.6	West	87.906	3.269	2.628	0.932	0.532	0.532	0.085	0.543
7.7	West	88.117	3.177	2.669	0.977	0.556	0.556	0.087	0.579
7.8	West	47.122	3.197	2.710	1.009	0.563	0.563	0.087	0.610
7.9	West	4.667	2.980	2.534	0.953	0.529	0.529	0.081	0.590
8	West	1.960	1.956	1.841	0.858	0.475	0.475	0.083	0.532
8.1	West	0.289	0.289	0.289	0.260	0.169	0.169	0.037	0.229
8.2	West	0.253	0.253	0.253	0.215	0.130	0.130	0.020	0.198
8.3	West	0.246	0.244	0.243	0.194	0.111	0.111	0.019	0.189
8.4	West	0.245	0.227	0.225	0.173	0.087	0.087	0.017	0.170
8.5	West	0.244	0.210	0.203	0.150	0.070	0.070	0.017	0.150
8.6	West	0.254	0.201	0.181	0.124	0.052	0.052	0.017	0.124
8.7	West	0.260	0.186	0.158	0.099	0.038	0.038	0.017	0.099
8.8	West	0.249	0.175	0.140	0.078	0.036	0.036	0.020	0.078
8.9	West	0.230	0.154	0.118	0.066	0.041	0.041	0.031	0.066
9	West	0.225	0.144	0.106	0.063	0.032	0.032	0.025	0.063
9.1	West	0.228	0.139	0.098	0.063	0.031	0.031	0.024	0.063
9.2	West	0.220	0.133	0.088	0.059	0.031	0.031	0.024	0.059
9.3	West	0.227	0.138	0.082	0.060	0.032	0.032	0.025	0.060
9.4	West	0.218	0.146	0.087	0.064	0.034	0.034	0.026	0.064
9.5	West	0.198	0.144	0.091	0.067	0.036	0.036	0.028	0.067
9.6	West	0.162	0.132	0.093	0.072	0.039	0.039	0.030	0.072

**Table J2.5-1i**

**RAO 6 Rolling River Mile HQ Estimates - 2,3,7,8-TCDF**

Portland Harbor Superfund Site

Portland, Oregon

River Mile	Segment	Alternative							
		A	B	D	E	F Mod	F	G	I
9.7	West	0.128	0.126	0.096	0.076	0.041	0.041	0.032	0.076
9.8	West	0.092	0.090	0.069	0.062	0.038	0.038	0.030	0.062
9.9	West	0.079	0.077	0.051	0.042	0.024	0.024	0.017	0.042
10	West	0.082	0.079	0.046	0.035	0.022	0.022	0.016	0.035
10.1	West	0.100	0.096	0.051	0.038	0.028	0.028	0.021	0.038
10.2	West	0.128	0.125	0.081	0.075	0.064	0.064	0.046	0.075
10.3	West	0.115	0.115	0.115	0.112	0.102	0.102	0.070	0.112
10.4	West	0.115	0.115	0.115	0.112	0.104	0.104	0.077	0.112
10.5	West	0.116	0.116	0.116	0.114	0.106	0.106	0.083	0.114
10.6	West	0.116	0.116	0.116	0.114	0.107	0.107	0.085	0.114
10.7	West	0.115	0.115	0.115	0.113	0.107	0.107	0.088	0.113
10.8	West	0.113	0.113	0.113	0.113	0.111	0.111	0.093	0.113
10.9	West	0.109	0.109	0.109	0.109	0.109	0.109	0.094	0.109
11	West	0.105	0.105	0.105	0.105	0.105	0.105	0.090	0.105
11.1	West	0.100	0.100	0.100	0.100	0.100	0.100	0.086	0.100
11.2	West	0.090	0.090	0.090	0.090	0.090	0.090	0.081	0.090
11.3	West	0.081	0.081	0.081	0.081	0.081	0.081	0.081	0.081
11.4	West	0.076	0.076	0.076	0.076	0.076	0.076	0.075	0.076
11.5	West	0.069	0.069	0.069	0.069	0.069	0.069	0.069	0.069
11.6	West	0.063	0.063	0.063	0.063	0.063	0.063	0.063	0.063
11.7	West	0.059	0.059	0.059	0.059	0.059	0.059	0.058	0.059
7.6	Swan Isl	0.054	0.004	0.004	0.003	0.000	0.000	0.000	0.003
7.7	Swan Isl	0.060	0.004	0.004	0.002	0.000	0.000	0.000	0.002
7.8	Swan Isl	0.058	0.004	0.004	0.002	0.000	0.000	0.000	0.002
7.9	Swan Isl	0.055	0.004	0.003	0.002	0.000	0.000	0.000	0.002
8	Swan Isl	0.055	0.003	0.003	0.002	0.000	0.000	0.000	0.002
8.1	Swan Isl	0.055	0.003	0.003	0.002	0.001	0.001	0.000	0.002
8.2	Swan Isl	0.059	0.003	0.003	0.002	0.001	0.001	0.001	0.002
8.3	Swan Isl	0.065	0.004	0.003	0.002	0.001	0.001	0.001	0.002
8.4	Swan Isl	0.072	0.006	0.003	0.002	0.001	0.001	0.001	0.002
8.5	Swan Isl	0.078	0.006	0.003	0.002	0.001	0.001	0.001	0.002
8.6	Swan Isl	0.089	0.013	0.006	0.005	0.001	0.001	0.001	0.008
8.7	Swan Isl	0.103	0.026	0.015	0.013	0.004	0.004	0.003	0.021
8.8	Swan Isl	0.113	0.030	0.017	0.015	0.005	0.005	0.004	0.024
8.9	Swan Isl	0.125	0.034	0.019	0.017	0.006	0.006	0.005	0.028
9	Swan Isl	0.136	0.040	0.022	0.020	0.006	0.006	0.005	0.032
9.1	Swan Isl	0.141	0.043	0.024	0.021	0.007	0.007	0.006	0.034
9.2	Swan Isl	0.153	0.051	0.028	0.026	0.008	0.008	0.006	0.041
9.3	Swan Isl	0.164	0.064	0.035	0.033	0.009	0.009	0.008	0.054
9.4	Swan Isl	0.177	0.087	0.052	0.049	0.014	0.014	0.011	0.080
9.5	Swan Isl	0.193	0.136	0.085	0.080	0.022	0.022	0.018	0.133
9.6	Swan Isl	0.180	0.180	0.129	0.118	0.045	0.045	0.037	0.180

**Table J2.5-2**  
**RAO 6 HQ Estimates - SDU Scale**  
 Portland Harbor Superfund Site  
 Portland, Oregon

SDU	Alternative							
	A	B	D	E	F Mod	F	G	I
BEHP								
Outside SDU	1.40	1.40	1.38	1.37	1.29	1.21	1.06	1.40
RM2E	0.83	0.74	0.70	0.65	0.56	0.56	0.50	0.65
RM3.5E	7.94	5.83	5.05	3.04	0.90	0.90	0.39	3.04
RM4.5E	1.65	1.63	1.42	1.23	0.50	0.50	0.22	1.23
RM5.5E	1.27	1.27	1.27	1.19	0.74	0.74	0.36	0.74
RM6.5E	0.65	0.59	0.53	0.52	0.39	0.39	0.32	0.57
SwanIs	13.48	0.59	0.37	0.19	0.09	0.09	0.07	0.19
RM11E	1.01	0.90	0.81	0.66	0.46	0.43	0.27	0.66
RM3.9W	4.10	4.10	4.10	4.03	3.15	3.15	1.26	4.03
RM5W	0.52	0.51	0.49	0.46	0.35	0.35	0.22	0.46
RM6Nav	1.82	1.33	0.89	0.62	1.32	0.29	0.15	1.32
RM6W	2.33	1.04	0.80	0.49	0.45	0.21	0.09	0.80
RM7W	2.58	2.22	2.11	1.91	1.38	1.38	0.73	1.38
RM9W	8.49	6.65	4.31	1.35	0.35	0.35	0.19	1.35
Sitewide	2.50	1.63	1.47	1.27	1.12	0.99	0.78	1.32
DDE								
Outside SDU	0.009	0.009	0.009	0.009	0.009	0.008	0.007	0.009
RM2E	0.012	0.010	0.010	0.009	0.008	0.008	0.007	0.009
RM3.5E	0.010	0.008	0.007	0.006	0.005	0.005	0.004	0.006
RM4.5E	0.014	0.014	0.012	0.011	0.007	0.007	0.003	0.011
RM5.5E	0.012	0.012	0.012	0.011	0.007	0.007	0.004	0.007
RM6.5E	0.008	0.007	0.006	0.006	0.005	0.005	0.004	0.007
SwanIs	0.015	0.001	0.001	0.001	0.000	0.000	0.000	0.001
RM11E	0.009	0.005	0.005	0.004	0.003	0.002	0.002	0.004
RM3.9W	0.014	0.014	0.014	0.014	0.013	0.013	0.009	0.014
RM5W	0.012	0.012	0.012	0.011	0.008	0.008	0.005	0.011
RM6Nav	0.012	0.009	0.007	0.006	0.009	0.003	0.001	0.009
RM6W	0.067	0.013	0.009	0.007	0.008	0.004	0.002	0.009
RM7W	0.217	0.060	0.036	0.019	0.009	0.009	0.003	0.009
RM9W	0.068	0.031	0.028	0.018	0.006	0.006	0.003	0.018
Sitewide	0.019	0.011	0.010	0.009	0.008	0.007	0.006	0.009

**Table J2.5-2**  
**RAO 6 HQ Estimates - SDU Scale**  
 Portland Harbor Superfund Site  
 Portland, Oregon

SDU	Alternative							
	A	B	D	E	F Mod	F	G	I
DDx								
Outside SDU	0.009	0.009	0.009	0.009	0.009	0.008	0.007	0.009
RM2E	0.010	0.009	0.008	0.007	0.006	0.006	0.005	0.007
RM3.5E	0.011	0.009	0.008	0.007	0.005	0.005	0.004	0.007
RM4.5E	0.019	0.019	0.016	0.013	0.008	0.008	0.004	0.013
RM5.5E	0.017	0.017	0.017	0.016	0.008	0.008	0.004	0.008
RM6.5E	0.012	0.010	0.008	0.008	0.007	0.007	0.006	0.010
SwanIs	0.019	0.001	0.001	0.001	0.000	0.000	0.000	0.001
RM11E	0.034	0.018	0.013	0.009	0.006	0.005	0.002	0.009
RM3.9W	0.023	0.023	0.023	0.023	0.021	0.021	0.011	0.023
RM5W	0.019	0.019	0.019	0.018	0.014	0.014	0.006	0.018
RM6Nav	0.016	0.010	0.008	0.006	0.010	0.003	0.001	0.010
RM6W	0.104	0.028	0.023	0.018	0.014	0.009	0.003	0.023
RM7W	0.837	0.102	0.062	0.031	0.014	0.014	0.004	0.014
RM9W	0.048	0.029	0.026	0.016	0.005	0.005	0.003	0.016
Sitewide	0.040	0.014	0.012	0.010	0.009	0.008	0.006	0.010
PCBs								
Outside SDU	0.85	0.84	0.84	0.83	0.79	0.66	0.52	0.83
RM2E	6.04	1.80	1.28	0.90	0.53	0.53	0.41	0.90
RM3.5E	4.20	2.18	1.62	1.04	0.57	0.57	0.38	1.04
RM4.5E	2.23	2.23	1.64	1.16	0.53	0.53	0.24	1.16
RM5.5E	1.72	1.72	1.72	1.48	0.63	0.63	0.28	0.63
RM6.5E	2.13	0.77	0.68	0.64	0.36	0.36	0.27	0.73
SwanIs	14.47	0.36	0.20	0.10	0.04	0.04	0.03	0.10
RM11E	12.37	4.26	2.48	1.19	0.61	0.40	0.16	1.19
RM3.9W	0.64	0.64	0.64	0.63	0.55	0.55	0.40	0.63
RM5W	0.74	0.74	0.69	0.67	0.46	0.46	0.27	0.67
RM6Nav	0.84	0.75	0.58	0.46	0.67	0.17	0.07	0.67
RM6W	1.12	0.51	0.44	0.37	0.32	0.22	0.10	0.44
RM7W	3.96	1.88	1.27	0.86	0.50	0.50	0.16	0.50
RM9W	8.41	3.54	2.47	1.28	0.38	0.38	0.22	1.28
Sitewide	2.41	1.06	0.91	0.78	0.66	0.54	0.40	0.79



**Table J2.5-2**

**RAO 6 HQ Estimates - SDU Scale**

Portland Harbor Superfund Site

Portland, Oregon

SDU	Alternative							
	A	B	D	E	F Mod	F	G	I
<b>1,2,3,4,7,8-HxCDF</b>								
Outside SDU	0.028	0.027	0.026	0.026	0.025	0.024	0.020	0.028
RM2E	0.016	0.013	0.012	0.011	0.008	0.008	0.007	0.011
RM3.5E	0.034	0.027	0.019	0.016	0.013	0.013	0.010	0.016
RM4.5E	0.190	0.187	0.143	0.108	0.039	0.039	0.018	0.108
RM5.5E	0.232	0.232	0.232	0.229	0.164	0.164	0.096	0.164
RM6.5E	0.181	0.067	0.034	0.033	0.029	0.029	0.024	0.060
SwanIs	0.099	0.008	0.004	0.003	0.002	0.002	0.002	0.003
RM11E	0.044	0.035	0.029	0.022	0.016	0.013	0.009	0.022
RM3.9W	0.030	0.030	0.030	0.030	0.027	0.027	0.019	0.030
RM5W	0.099	0.098	0.091	0.087	0.070	0.070	0.048	0.087
RM6Nav	0.075	0.064	0.055	0.047	0.063	0.031	0.019	0.063
RM6W	0.146	0.062	0.051	0.042	0.049	0.028	0.015	0.051
RM7W	42.76	1.842	1.403	0.453	0.209	0.209	0.026	0.209
RM9W	0.057	0.043	0.032	0.019	0.010	0.010	0.007	0.019
Sitewide	1.384	0.094	0.076	0.044	0.034	0.031	0.020	0.039
<b>1,2,3,7,8-PeCDD</b>								
Outside SDU	0.122	0.110	0.104	0.104	0.101	0.095	0.082	0.122
RM2E	0.067	0.055	0.052	0.048	0.033	0.033	0.027	0.048
RM3.5E	0.250	0.198	0.141	0.125	0.112	0.112	0.099	0.125
RM4.5E	0.147	0.146	0.124	0.106	0.046	0.046	0.023	0.106
RM5.5E	0.244	0.244	0.244	0.237	0.184	0.184	0.111	0.184
RM6.5E	0.560	0.289	0.176	0.172	0.146	0.146	0.123	0.276
SwanIs	0.211	0.019	0.011	0.008	0.005	0.005	0.004	0.008
RM11E	0.465	0.372	0.316	0.248	0.178	0.152	0.095	0.248
RM3.9W	0.114	0.114	0.114	0.114	0.104	0.104	0.074	0.114
RM5W	0.161	0.159	0.147	0.139	0.109	0.109	0.071	0.139
RM6Nav	0.221	0.199	0.164	0.145	0.191	0.091	0.065	0.191
RM6W	0.110	0.068	0.061	0.054	0.049	0.037	0.019	0.061
RM7W	0.369	0.108	0.082	0.064	0.046	0.046	0.021	0.046
RM9W	0.387	0.299	0.209	0.123	0.063	0.063	0.045	0.123
Sitewide	0.175	0.130	0.113	0.106	0.099	0.088	0.072	0.123

**Table J2.5-2**

**RAO 6 HQ Estimates - SDU Scale**

Portland Harbor Superfund Site

Portland, Oregon

SDU	Alternative							
	A	B	D	E	F Mod	F	G	I
<b>1,2,3,7,8-PeCDF</b>								
Outside SDU	0.063	0.057	0.053	0.053	0.050	0.048	0.041	0.063
RM2E	0.071	0.051	0.046	0.040	0.024	0.024	0.018	0.040
RM3.5E	0.097	0.072	0.049	0.041	0.034	0.034	0.028	0.041
RM4.5E	0.318	0.312	0.237	0.179	0.062	0.062	0.030	0.179
RM5.5E	0.443	0.443	0.443	0.437	0.313	0.313	0.181	0.313
RM6.5E	0.449	0.208	0.134	0.131	0.116	0.116	0.098	0.194
SwanIs	0.133	0.013	0.006	0.004	0.003	0.003	0.002	0.004
RM11E	0.091	0.072	0.061	0.047	0.035	0.029	0.018	0.047
RM3.9W	0.068	0.068	0.068	0.067	0.063	0.063	0.045	0.067
RM5W	0.212	0.210	0.194	0.181	0.145	0.145	0.097	0.181
RM6Nav	0.293	0.228	0.186	0.157	0.225	0.094	0.056	0.225
RM6W	0.351	0.127	0.097	0.074	0.102	0.044	0.021	0.097
RM7W	46.48	2.220	1.678	0.605	0.285	0.285	0.041	0.285
RM9W	0.211	0.160	0.124	0.081	0.039	0.039	0.027	0.081
Sitewide	1.569	0.157	0.127	0.088	0.074	0.062	0.042	0.090
<b>2,3,7,8-TCDD</b>								
Outside SDU	0.058	0.055	0.053	0.053	0.052	0.048	0.041	0.057
RM2E	0.038	0.033	0.031	0.029	0.022	0.022	0.019	0.029
RM3.5E	0.073	0.058	0.041	0.034	0.029	0.029	0.024	0.034
RM4.5E	0.033	0.033	0.028	0.025	0.013	0.013	0.007	0.025
RM5.5E	0.050	0.050	0.050	0.049	0.041	0.041	0.029	0.041
RM6.5E	0.095	0.042	0.019	0.018	0.016	0.016	0.013	0.040
SwanIs	0.088	0.007	0.005	0.004	0.002	0.002	0.001	0.004
RM11E	0.214	0.169	0.143	0.112	0.090	0.070	0.048	0.112
RM3.9W	0.102	0.102	0.102	0.101	0.094	0.094	0.060	0.101
RM5W	0.152	0.151	0.147	0.143	0.113	0.113	0.073	0.143
RM6Nav	0.081	0.075	0.063	0.057	0.072	0.032	0.023	0.072
RM6W	0.062	0.036	0.033	0.030	0.025	0.021	0.011	0.033
RM7W	1.059	0.095	0.074	0.057	0.038	0.038	0.014	0.038
RM9W	0.625	0.404	0.328	0.149	0.080	0.080	0.060	0.149
Sitewide	0.114	0.067	0.061	0.053	0.049	0.044	0.034	0.057

**Table J2.5-2**  
**RAO 6 HQ Estimates - SDU Scale**  
 Portland Harbor Superfund Site  
 Portland, Oregon

SDU	Alternative							
	A	B	D	E	F Mod	F	G	I
2,3,7,8-TCDF								
Outside SDU	0.091	0.090	0.089	0.089	0.087	0.081	0.069	0.091
RM2E	0.099	0.076	0.069	0.061	0.040	0.040	0.030	0.061
RM3.5E	0.139	0.099	0.065	0.054	0.044	0.044	0.037	0.054
RM4.5E	0.059	0.059	0.051	0.045	0.029	0.029	0.021	0.045
RM5.5E	0.400	0.400	0.400	0.394	0.279	0.279	0.158	0.279
RM6.5E	0.199	0.113	0.080	0.078	0.067	0.067	0.057	0.107
SwanIs	0.081	0.006	0.003	0.002	0.001	0.001	0.001	0.002
RM11E	0.064	0.049	0.039	0.029	0.020	0.017	0.010	0.029
RM3.9W	0.149	0.149	0.149	0.148	0.139	0.139	0.098	0.148
RM5W	0.295	0.292	0.270	0.254	0.204	0.204	0.135	0.254
RM6Nav	0.583	0.434	0.345	0.288	0.430	0.162	0.089	0.430
RM6W	0.516	0.200	0.157	0.123	0.150	0.073	0.036	0.157
RM7W	70.13	3.467	2.614	0.956	0.437	0.437	0.070	0.437
RM9W	0.203	0.155	0.125	0.081	0.036	0.036	0.023	0.081
Sitewide	2.332	0.225	0.187	0.128	0.115	0.093	0.063	0.123

PORTLAND HARBOR RI/FS  
**APPENDIX K - UPDATE**  
**Surface Water Evaluation**

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Figure K-1      Average Annual Discharge for Water Years 1973 to 2007

## K1. SURFACE WATER QUALITY CRITERIA

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Surface water COCs include:

- Aldrin
- Arsenic
- BEHP
- Chlordanes
- Chromium
- Copper
- DDD, DDE, DDT, and DDx
- Ethylbenzene
- Hexachlorobenzene
- MCPP
- Pentachlorophenol
- PCBs
- cPAHs
- PAHs [benzo(a)anthracene, benzo(a)pyrene, naphthalene]
- TBT
- 2,4,7,8-TCDD eq

Surface water quality criteria for these COCs are based on protection of human health or the aquatic environment. The water quality criteria for these COCs are presented in **Table K1-1**.

Since the presence of some of these COCs are due to upland or upriver sources, they were not included in this evaluation. These include: chromium, ethylbenzene, hexachlorobenzene, MCPP, and pentachlorophenol. Aldrin was not able to be evaluated due to insufficient data. Other COCs were not evaluated due to insufficient detections. These include: BEHP, PAHs, and TBT. Lastly, some COCs do not exceed water quality criteria on a Site-wide scale. These include: arsenic, chlordanes, copper, DDx, PCBs (aquatic life only), and zinc. The remaining COCs are all related to protection of human health; thus, protection of aquatic life cannot be evaluated with the existing data set. Therefore, this analysis was performed for the following COCs: DDE, DDD, DDT, PCBs, cPAHs, and 2,3,7,8-TCDD eq.



## **K2. SURFACE WATER DATA**

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Surface water transect data was used to determine reductions in Site-wide surface water expected from reductions in sediment concentrations from construction of each of the alternatives. Based on the methodology used to collect and analyze surface water samples on a smaller spatial scale, it is not possible to conduct an analysis of future reductions in surface water from construction of each of the alternatives.

The transect data were collected during three flow events: low flow, storm water-influenced flow, and high flow. Surface water samples used in this evaluation were collected during the Round 3A RI sampling event at six transect locations: RM 16, RM 11, RM 6.3, RM 4, RM 2 and at the entrance to Multnomah Channel because only this data set analyzed all COCs at all transects. Therefore, this evaluation is limited by a single sampling event conducted over three seasons.

Two different sampling approaches were utilized to collect the surface water transect samples. At RM 2 and 11, transects were subdivided into three lateral segments across the river – east shoreline, navigation channel and west shoreline – and vertically integrated surface water samples collected. At RM 16, RM 6.3, RM 3.9 and the entrance to Multnomah Channel, cross-sectional near-bottom and near-surface surface water samples were collected. Surface water data utilized in this analysis were collected using an Infiltrax 300 system connected to XAD-2 resin columns to collect hydrophobic organic compounds for analysis by ultra-low analytical methods. The total surface water concentrations was used in this analysis.

The three specific flow conditions used for this analysis include:

**September 2006 Low-flow Event:** Low flow conditions were monitored in September 2006. Willamette River flow as measured at the Morrison Bridge USGS gauge was 8730 cfs. Surface water samples were collected September 4–13.

**November 2006 Storm water Event:** A water runoff monitoring event was conducted November 2006 evaluate the contribution of storm water to surface water during relatively low flow Willamette River conditions (23,000 cfs as measured at the Morrison Bridge). Surface water samples were collected between Surface water samples were collected November 2–5 during a storm water runoff event.

**Winter 2007 High-flow Event:** High flow conditions were monitoring in January and February 2007. Willamette River flow conditions were 59,800 cfs in January and 60,900 cfs in February as measured at the Morrison Bridge. The high-flow surface water sampling event was split into two phases because of a sudden drop in precipitation after the first 3 days of sampling. The first phase took place January 15–18, 2007 while the second phase took place February 21 through March 10, 2007.

Surface water sampling for each event is described further in Section 2.1.4.1.1 of the RI Report and the field sampling reports. The data used in the analysis is provided in **Tables K1-1 through K1-3**.

### **K3. REDUCTIONS IN SURFACE WATER CONCENTRATIONS**

---

The evaluation of estimate reductions in surface water concentrations following remediation (t=0) was conducted only on a Site-wide scale. Reductions on smaller spatial scales or associated with watershed efforts or source control were not included for the purpose of this analysis, although current watershed (upstream) and upriver (downtown) contributions are conducted as part of this analysis.

#### **K3.1 APPROACH**

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The approach was to determine the reductions in Site-wide sediment concentrations and apply that reduction to the surface water concentrations for each COC.

#### **K3.2 REDUCTION IN SITE-WIDE SEDIMENT CONCENTRATIONS**

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The approach used to develop weighted Site-wide sediment SWACs in Appendix J was used to determine the current Site-wide sediment SWAC (PreSWAC) for each COC. This approach was also used to determine the post remedial sediment SWAC (Post SWAC) for each COC by alternative. These values are provided in **Table K3-1**. The percent SWAC reduction was calculated using these values in the following equation:

$$\text{Percent SWAC Reduction} = \left[ 1 - \left( \frac{\text{Post SWAC}}{\text{Pre SWAC}} \right) \right] \quad \text{Equation K1-1}$$

The resulting percent SWAC reduction for each COC by alternative is presented in **Table K3-2**.

#### **K3.3 INITIAL SURFACE WATER CONCENTRATIONS**

---

The current upstream surface water concentration for each COC was calculated from weighted transect surface water data at RM 16. A weight of 3 was given to the low flow, 1 was given to stormwater-influenced flow, and 8 was given to high flow. This weighting was developed from the average annual hydrograph for the lower Willamette River (**Figure K3-1**). This average annual flow represents the surface water concentration from the broader watershed (**Tables K3-3a-f** and **K3-4a-f**).

In order to calculate the contribution of contamination in the downtown reach, the current surface water concentrations at RM 11W and RM 11M for all three flow conditions were used since transect data is not available immediately above the upper Site boundary. RM 11E was not used since there is a known source in that area and sediment concentrations are elevated; thus, it is not representative of concentrations entering the Site. The current surface water concentration for each COC entering the Site was also calculated as a weighted average (**Tables K3-3a-f**). The concentration from upstream was then subtracted from the concentration entering the site to obtain the average annual

concentration from the downtown reach. These values are all presented in **Tables K3-4a-f**.

The current Site-wide weighted surface water concentration (**Tables K3-3a-f**) was calculated using the weighted transect surface water concentration for each COC using the data from transects RM 11, 6.3, 3.9, 2 and Multnomah Channel in each river flow event (**Tables K3-5a-f**). The same weighting was given to each flow event as was used for upstream and entering the Site. The weighted transect data was then averaged to obtain the total annual average Site-wide surface water concentration (**Tables K3-4a-f**). The concentration entering the Site was then subtracted from the average Site concentration to obtain the average annual concentration from the downtown reach. These values are all presented in **Tables K3-4a-f**.

The water quality criterion for each COC is also presented in these tables for comparative purposes.

### **K3.4 POST-CONSTRUCTION SURFACE WATER CONCENTRATIONS**

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This analysis assumed that the upstream and downtown surface water concentrations would remain unchanged following implementation of the sediment remediation. For the reduction in surface water concentration associated with construction of each alternative it is assumed that the remedy only addresses Site surface water contributions (Site minus upstream and downtown).

The Site surface water contribution is assumed to be reduced by a percentage equal to the Site-wide surface sediment SWAC reduction for each alternative (**Table K3-2**). These percentage reduction values were applied to current Site surface water contributions to estimate the reduction in surface water concentrations within the Site for each alternative. Thus, the estimated post-construction surface water concentration for each alternative was obtained using the following equation:

$$C_{post-const} = C_{Siteinitial} (1 - \%SWAC\ reduction) \quad \text{Equation K3-1}$$

The net reduction was then calculated using the following equation:

$$Net\ Reduction\ (\%) = \left[ 1 - \frac{C_{post-const}}{C_{Siteinitial}} \right] \quad \text{Equation K3-2}$$

where:

$C_{post-cont}$  = post-construction contaminant concentration ( $\mu\text{g/L}$ )

$C_{initial}$  = initial contaminant concentration ( $\mu\text{g/L}$ )

## **Tables**

**Table K1-1****Surface Water Quality Criteria**

Portland Harbor Superfund Site

Portland, OR

<b>COC</b>	<b>Human Health (µg/L)</b>	<b>Aquatic Life (µg/L)</b>
Aldrin	0.0000008	
Arsenic	0.2	
BEHP	0.2	3
Chlordanes	0.00008	
Chromium	100	
Copper		3
DDD	0.00003	
DDE	0.00002	
DDT	0.00002	
DDx		0.01
Ethylbenzene		7
Hexachlorobenzene	0.00003	
MCCP	16	
Pentachlorophenol	0.03	
PCBs	0.000006	0.2
cPAH	0.0001	
PAHs		
Benzo(a)Anthracene		0.03
Benzo(a)Pyrene		0.01
Naphthalene		12
TBT		0.06
2,3,7,8-TCDD EQ	5.00E-10	
Zinc		36.5

**Table K2-1a****Surface Water Transect Data for September 2006 Sampling Event**

Portland Harbor Superfund Site

Portland, OR

Station	ID	RM	Arsenic (µg/L)		Copper (µg/L)		TBT (µg/L)		Zinc (µg/L)	
			Value	Qualifiers	Value	Qualifiers	Value	Qualifiers	Value	Qualifiers
W005	NB	3.9	0.51		1.55		0.0006	U	4.2	
W005	NS	3.9	0.46		1.1		0.0006	UJ	3.4	
W011	NB	6.3	0.455		1.3		0.0006	U	3.7	
W011	NS	6.3	0.457		0.88		0.0006	U	2.6	
W023	E	11	0.47		1.12		0.0006	U	4.5	
W023	M	11	0.46		0.84		0.0006	U	3.2	
W023	W	11	0.48		1.01		0.0006	U	6.1	
W024	NB	16	0.427		0.705		0.0006	U	2.4	
W024	NS	16	0.418		0.68		0.0006	U	2.5	
W025	E	2	0.64		1.22		0.0006	U	3.35	
W025	M	2	0.61		1.09		0.0006	U	2.6	
W025	W	2	0.56		1.08		0.0006	U	3	
W027	NB	MC	0.5		1.3		0.0006	U	3.5	
W027	NS	MC	0.49		1.24		0.0006	U	3.4	

**Table K2-1b****Surface Water Transect Data for September 2006 Sampling Event**

Portland Harbor Superfund Site

Portland, OR

Station	ID	RM	BEHP (µg/L)		Chlordane (µg/L)		DDD (µg/L)		DDE (µg/L)	
			Value	Qualifiers	Value	Qualifiers	Value	Qualifiers	Value	Qualifiers
W005	NB	3.9	0.7		0.00006	J	0.00034	J	0.00013	J
W005	NS	3.9	0.47	U	0.00005	J	0.00027	J	0.00007	J
W011	NB	6.3	0.15	U	0.00004	J	0.00025		0.00010	J
W011	NS	6.3	0.24	U	0.00005	J	0.00018	J	0.00006	J
W023	E	11	0.36	U	0.00004	J	0.00005	J	0.00004	J
W023	M	11	0.21	U	0.00003	J	0.00004	J	0.00003	J
W023	W	11	0.21	U	0.00004	J	0.00006	J	0.00003	J
W024	NB	16	0.14	U	0.00002	J	0.00003	J	0.00003	J
W024	NS	16	0.4	U	0.00002	J	0.00003	J	0.00002	J
W025	E	2	1.5		0.00003	J	0.00022	J	0.00005	J
W025	M	2	0.26	U	0.00003	J	0.00020	J	0.00005	J
W025	W	2	1.2		0.00004	J	0.00026	J	0.00005	J
W027	NB	MC	0.12	U	0.00004	J	0.0003187		0.00009	J
W027	NS	MC	1.3		0.00004	J	0.0003557		0.00009	J



**Table K2-1c****Surface Water Transect Data for September 2006 Sampling Event**

Portland Harbor Superfund Site

Portland, OR

Station	ID	RM	DDT (µg/L)		DDx (µg/L)		PCBs (µg/L)		cPAH (µg/L)	
			Value	Qualifiers	Value	Qualifiers	Value	Qualifiers	Value	Qualifiers
W005	NB	3.9	0.00008	J	0.00055	J	0.000951	J	0.0042	J
W005	NS	3.9	0.00003	J	0.00038	J	0.000668	J	0.0014	J
W011	NB	6.3	0.00008	J	0.00044	J	0.000948	J	0.0035	J
W011	NS	6.3	0.00005	J	0.00029	J	0.000674	J	0.0014	J
W023	E	11	0.00001	J	0.00010	J	0.000951	J	0.0008	J
W023	M	11	0.00001	J	0.00009	J	0.000278	J	0.0004	J
W023	W	11	0.00001	J	0.00010	J	0.000275	J	0.0003	J
W024	NB	16	0.00001	J	0.00007	J	0.000174	J	0.0002	J
W024	NS	16	0.00001	J	0.00006	J	0.000159	J	0.0001	J
W025	E	2	0.00001	J	0.00028	J	0.000433	J	0.0002	J
W025	M	2	0.00001	J	0.00026	J	0.000377	J	0.0003	J
W025	W	2	0.00001	J	0.00032	J	0.000430	J	0.0002	J
W027	NB	MC	0.00005	J	0.00045	J	0.000657	J	0.002463	J
W027	NS	MC	0.00005	J	0.00050	J	0.000665	J	0.002024	J

**Table K2-1d****Surface Water Transect Data for September 2006 Sampling Event**

Portland Harbor Superfund Site

Portland, OR

Station	ID	RM	Benzo(a)anthracene (µg/L)		Benzo(a)pyrene (µg/L)		Naphthalene (µg/L)		TCDD TEQ (µg/L)	
			Value	Qualifiers	Value	Qualifiers	Value	Qualifiers	Value	Qualifiers
W005	NB	3.9	0.0078	U	0.0086	U	0.013	U	2.05972E-07	J
W005	NS	3.9	0.0078	U	0.0086	U	0.013	U	7.39499E-08	J
W011	NB	6.3	0.0078	U	0.0086	U	0.013	U	1.61612E-07	J
W011	NS	6.3	0.0078	U	0.0086	U	0.013	U	6.8325E-08	J
W023	E	11	0.0078	U	0.0086	U	0.013	U	6.89067E-08	J
W023	M	11	0.0078	U	0.0086	U	0.013	U	4.86301E-08	J
W023	W	11	0.0078	U	0.0086	U	0.013	U	4.86655E-08	J
W024	NB	16	0.0078	U	0.0086	U	0.013	U	3.158E-08	J
W024	NS	16	0.0078	U	0.0086	U	0.013	U	2.71E-08	J
W025	E	2	0.0078	U	0.0086	U	0.013	U	3.0181E-08	J
W025	M	2	0.0078	U	0.0086	U	0.013	U	3.16778E-08	J
W025	W	2	0.0078	U	0.0086	U	0.013	U	2.96422E-08	J
W027	NB	MC	0.0078	U	0.0086	U	0.013	U	9.704E-08	J
W027	NS	MC	0.0078	U	0.0086	U	0.013	U	9.576E-08	J

**Table K2-2a****Surface Water Transect Data for November 2006 Sampling Event**

Portland Harbor Superfund Site

Portland, OR

Station	ID	RM	Arsenic (µg/L)		Copper (µg/L)		TBT (µg/L)		Zinc (µg/L)	
			Value	Qualifiers	Value	Qualifiers	Value	Qualifiers	Value	Qualifiers
W005	NB	3.9			1.02		0.0006	U	3.8	U
W005	NS	3.9	0.446	J	0.96		0.0006	U	3.6	U
W011	NB	6.3	0.447	UJ	0.85		0.001	J	4	U
W011	NS	6.3	0.422	UJ	0.72		0.0006	UJ	4.1	U
W023	E	11	0.419	UJ	0.94		0.0006	UJ	4	U
W023	M	11	0.41	UJ	0.65		0.0006	UJ	2.7	U
W023	W	11	0.394	UJ	0.75		0.0006	UJ	2.6	U
W024	NB	16	0.406	UJ	0.83		0.011	J	4.5	UJ
W024	NS	16	0.42	UJ	1.1		0.0006	U	5.4	U
W025	E	2	0.436	UJ	0.84		0.0006	UJ	4.5	U
W025	M	2	0.442	UJ	0.86		0.0006	UJ	3.6	U
W025	W	2	0.647	UJ	0.87		0.0006	UJ	3.6	U
W027	NB	MC	0.457	J	0.89		0.0006	U	3.4	U
W027	NS	MC	0.439	J	0.86		0.0006	U	3.3	U

**Table K2-2b****Surface Water Transect Data for November 2006 Sampling Event**

Portland Harbor Superfund Site

Portland, OR

Station	ID	RM	BEHP (µg/L)		Chlordane (µg/L)		DDD (µg/L)		DDE (µg/L)	
			Value	Qualifiers	Value	Qualifiers	Value	Qualifiers	Value	Qualifiers
W005	NB	3.9	0.64	UJ	0.00003	J	0.00008	J	0.00004	J
W005	NS	3.9	6.8	J	0.00003	J	0.00007	J	0.00004	J
W011	NB	6.3	1.2	UJ	0.00003	J	0.00011	J	0.00006	J
W011	NS	6.3	1.9	UJ	0.00003	J	0.00006	J	0.00004	J
W023	E	11	1.2	U	0.00003	J	0.00002	J	0.00004	J
W023	M	11	0.78	U	0.00002	J	0.00002	J	0.00001	J
W023	W	11	1.8	U	0.00003	J	0.00002	J	0.00004	J
W024	NB	16	0.26	UJ	0.00004	J	0.00004	J	0.00004	J
W024	NS	16	1.9	UJ	0.00004	J	0.00004	J	0.00003	J
W025	E	2	1.1	UJ	0.00003	J	0.00006	J	0.00004	J
W025	M	2	0.59	U	0.00003	J	0.00011	J	0.00004	J
W025	W	2	0.14	U	0.00002	J	0.00009	J	0.00004	J
W027	NB	MC	0.29	UJ	0.00004	J	0.00007	J	0.00004	J
W027	NS	MC	0.23	UJ	0.00004	J	0.00008	J	0.00004	J

**Table K2-2c****Surface Water Transect Data for November 2006 Sampling Event**

Portland Harbor Superfund Site

Portland, OR

Station	ID	RM	DDT (µg/L)		DDx (µg/L)		PCBs (µg/L)		cPAH (µg/L)	
			Value	Qualifiers	Value	Qualifiers	Value	Qualifiers	Value	Qualifiers
W005	NB	3.9	0.00004	J	0.00016	J	0.000444	J	0.0028	J
W005	NS	3.9	0.00003	J	0.00014	J	0.000461	J	0.0023	J
W011	NB	6.3	0.00003	J	0.00020	J	0.000285	J	0.0027	J
W011	NS	6.3	0.00003	J	0.00013	J	0.000242	J	0.0016	J
W023	E	11	0.00004	J	0.00010	J	0.000558	J	0.0023	J
W023	M	11	0.00001	J	0.00004	J	0.000128	J	0.0007	J
W023	W	11	0.00004	J	0.00010	J	0.000229	J	0.0009	J
W024	NB	16	0.00001	J	0.00009	J	0.000205	J	0.0000	J
W024	NS	16	0.00001	J	0.00006	J	0.000149	J	0.0001	J
W025	E	2	0.00002	J	0.00012	J	0.001300	J	0.0019	J
W025	M	2	0.00003	J	0.00018	J	0.000394	J	0.0026	J
W025	W	2	0.00001	J	0.00015	J	0.000240	J	0.0018	J
W027	NB	MC	0.00003	J	0.00014	J	0.000311	J	0.00321	J
W027	NS	MC	0.00003	J	0.00015	J	0.000332	J	0.00328	J

**Table K2-2d****Surface Water Transect Data for November 2006 Sampling Event**

Portland Harbor Superfund Site

Portland, OR

Station	ID	RM	Benzo(a)anthracene (µg/L)		Benzo(a)pyrene (µg/L)		Naphthalene (µg/L)		TCDD TEQ (µg/L)	
			Value	Qualifiers	Value	Qualifiers	Value	Qualifiers	Value	Qualifiers
W005	NB	3.9	0.0078	U	0.0086	U	0.013	U	1.31716E-07	J
W005	NS	3.9	0.0039	U	0.0043	U	0.0065	U	8.94219E-08	J
W011	NB	6.3	0.0078	U	0.0086	U	0.022	U	1.43098E-07	J
W011	NS	6.3	0.0078	U	0.0086	U	0.018	U	6.65693E-08	J
W023	E	11	0.0078	U	0.0086	U	0.027	U	2.8844E-07	J
W023	M	11	0.0078	U	0.0086	U	0.027	U	5.35505E-08	J
W023	W	11	0.0078	U	0.0086	U	0.036	U	1.0104E-07	J
W024	NB	16	0.0078	U	0.0086	U	0.019	U	4.061E-08	J
W024	NS	16	0.0078	U	0.0086	U	0.039	U	8.215E-08	J
W025	E	2	0.0078	U	0.0086	U	0.029	U	8.81467E-08	J
W025	M	2	0.0078	U	0.0086	U	0.024	U	6.75962E-08	J
W025	W	2	0.0078	U	0.0086	U	0.042	U	6.27337E-08	J
W027	NB	MC	0.0079	J	0.0043	U	0.0065	U	1.095E-07	J
W027	NS	MC	0.0078	U	0.0086	U	0.013	U	1.385E-07	J

**Table K2-3a****Surface Water Transect Data for January-March 2007 Sampling Event**

Portland Harbor Superfund Site

Portland, OR

Station	ID	RM	Arsenic (µg/L)		Copper (µg/L)		TBT (µg/L)		Zinc (µg/L)	
			Value	Qualifiers	Value	Qualifiers	Value	Qualifiers	Value	Qualifiers
W005	NB	3.9	0.309		1.86		0.0006	U	5.6	
W005	NS	3.9	0.324		1.76		0.0006	U	4.2	
W011	NB	6.3	0.356	J	2.12		0.0006	U	3.9	
W011	NS	6.3	0.317	J	1.94		0.0006	U	4.2	
W023	E	11	0.329		1.79		0.0006	U	4	
W023	M	11	0.307		1.52		0.0006	U	3.475	
W023	W	11	0.334		2.05		0.0006	U	4	
W024	NB	16	0.254		1.16		0.0006	U	2.45	
W024	NS	16	0.459		1.19		0.0006	U	2.3	
W025	E	2	0.299		1.33		0.0006	U	3.5	
W025	M	2	0.26		1.16		0.0006	U	2.05	
W025	W	2	0.267		1.1		0.0006	U	1.85	
W027	NB	MC	0.402	J	2.93		0.0006	U	6	
W027	NS	MC	0.353	J	2.56		0.0006	U	4.9	

**Table K2-3b****Surface Water Transect Data for January-March 2007 Sampling Event**

Portland Harbor Superfund Site

Portland, OR

Station	ID	RM	BEHP (µg/L)		Chlordane (µg/L)		DDD (µg/L)		DDE (µg/L)	
			Value	Qualifiers	Value	Qualifiers	Value	Qualifiers	Value	Qualifiers
W005	NB	3.9	0.27	U	0.00009	J	0.00011	J	0.00018	J
W005	NS	3.9	1.3	J	0.00009	J	0.00009	J	0.00017	J
W011	NB	6.3	2.2	J	0.00007	J	0.00009	J	0.00017	J
W011	NS	6.3	0.41	U	0.00007	J	0.00009	J	0.00017	J
W023	E	11	0.82	U	0.00009	J	0.00012	J	0.00020	J
W023	M	11	1.1	J	0.00005	J	0.00007	J	0.00011	J
W023	W	11	0.42	U	0.00007	J	0.00009	J	0.00016	J
W024	NB	16	0.76	UJ	0.00005	J	0.00007	J	0.00012	J
W024	NS	16	2.1	J	0.00004	J	0.00007	J	0.00010	J
W025	E	2	1.6	J	0.00004	J	0.00005	J	0.00009	J
W025	M	2	0.525	UJ	0.00004	J	0.00005	J	0.00008	J
W025	W	2	0.16	U	0.00004	J	0.00006	J	0.00009	J
W027	NB	MC	1.4	U	0.00006	J	0.00010	J	0.00016	J
W027	NS	MC	0.66	U	0.00006	J	0.00008	J	0.00014	J



**Table K2-3c****Surface Water Transect Data for January-March 2007 Sampling Event**

Portland Harbor Superfund Site

Portland, OR

Station	ID	RM	DDT (µg/L)		DDx (µg/L)		PCBs (µg/L)		cPAH (µg/L)	
			Value	Qualifiers	Value	Qualifiers	Value	Qualifiers	Value	Qualifiers
W005	NB	3.9	0.00029	J	0.00058	J	0.000392	J	0.00089	J
W005	NS	3.9	0.00027	J	0.00054	J	0.000140	J	0.00049	J
W011	NB	6.3	0.00022	J	0.00048	J	0.000138	J	0.00060	J
W011	NS	6.3	0.00025	J	0.00050	J	0.000133	J	0.00048	J
W023	E	11	0.00029	J	0.00062	J	0.000170	J	0.00062	J
W023	M	11	0.00019	J	0.00038	J	0.000077	J	0.00034	J
W023	W	11	0.00022	J	0.00047	J	0.000137	J	0.00067	J
W024	NB	16	0.00003	J	0.00042	J	0.000071	J	0.00002	J
W024	NS	16	0.00001	J	0.00035	J	0.000078	J	0.00009	J
W025	E	2	0.00011	J	0.00025	J	0.000166	J	0.00058	J
W025	M	2	0.00010	J	0.00022	J	0.000118	J	0.00033	J
W025	W	2	0.00011	J	0.00026	J	0.000111	J	0.00042	J
W027	NB	MC	0.00011	J	0.00038	J	0.000276	J	0.000744	J
W027	NS	MC	0.00014	J	0.00036	J	0.000250	J	0.000711	J

**Table K2-3d****Surface Water Transect Data for January-March 2007 Sampling Event**

Portland Harbor Superfund Site

Portland, OR

Station	ID	RM	Benzo(a)anthracene (µg/L)		Benzo(a)pyrene (µg/L)		Naphthalene (µg/L)		TCDD TEQ (µg/L)	
			Value	Qualifiers	Value	Qualifiers	Value	Qualifiers	Value	Qualifiers
W005	NB	3.9	0.0078	U	0.0086	U	0.013	U	7.35177E-08	J
W005	NS	3.9	0.0078	U	0.0086	U	0.013	U	5.34013E-08	J
W011	NB	6.3	0.0078	U	0.0086	U	0.013	U	5.12222E-08	J
W011	NS	6.3	0.0078	U	0.0086	U	0.013	U	4.26227E-08	J
W023	E	11	0.0078	U	0.0086	U	0.013	U	7.08501E-08	J
W023	M	11	0.0078	U	0.0086	U	0.013	U	3.8118E-08	J
W023	W	11	0.0078	U	0.0086	U	0.013	U	5.76929E-08	J
W024	NB	16	0.0078	U	0.0086	U	0.018		1.743E-08	J
W024	NS	16	0.0078	U	0.0086	U	0.014	J	2.41E-08	J
W025	E	2	0.0078	U	0.0086	U	0.013	U	4.51585E-08	J
W025	M	2	0.0078	U	0.0086	U	0.013	U	3.4693E-08	J
W025	W	2	0.0078	U	0.0086	U	0.013	U	2.98415E-08	J
W027	NB	MC	0.0078	U	0.0086	U	0.013	U	7.086E-08	J
W027	NS	MC	0.0078	U	0.0086	U	0.013	U	7.035E-08	J

**Table K3-1****Surface Sediment Site-wide weighted SWACs**

Portland Harbor Superfund Site

Portland, OR

Focused COC	PreSWAC	Post SWAC							Units
		Alternative B	Alternative D	Alternative E	Alternative F Mod	Alternative F	Alternative G	Alternative I	
PCB	86.52	38.16	32.86	28.22	23.92	19.51	14.39	28.27	µg/kg
cPAH	1488.2	442.5	279.6	218.3	330.5	147.6	98.1	363.5	µg/kg
DDD	7.57	3.71	3.23	2.75	2.42	2.14	1.59	2.71	µg/kg
DDE	4.35	2.51	2.24	1.98	1.78	1.61	1.26	1.98	µg/kg
DDT	19.24	4.62	3.87	3.29	2.88	2.6	1.71	3.23	µg/kg
TCDD TEQ	1.00E-02	1.60E-03	1.30E-03	1.00E-03	9.00E-04	8.00E-04	6.00E-04	1.10E-03	µg/kg
Arsenic	4.03	3.48	3.31	3.14	2.98	2.75	2.33	3.22	µg/kg
BEHP	337.0	219.5	198.3	171.5	150.6	133.3	105.6	178.2	µg/kg
Chlordanes	2.21	1.56	1.37	1.21	1.08	0.91	0.68	1.23	µg/kg

**Table K3-2****Percent Reduction in Surface Sediment Site-wide weighted SWACs**

Portland Harbor Superfund Site

Portland, OR

Focused COC	PreSWAC	Percent Reduction (Site Wide)						
		Alternative B	Alternative D	Alternative E	Alternative F Mod	Alternative F	Alternative G	Alternative I
PCB	87	56%	62%	67%	72%	77%	83%	67%
cPAH	1488	70%	81%	85%	78%	90%	93%	76%
DDD	8	51%	57%	64%	68%	72%	79%	64%
DDE	4	42%	48%	54%	59%	63%	71%	54%
DDT	19	76%	80%	83%	85%	86%	91%	83%
TCDD TEQ	0.010	84%	87%	90%	91%	92%	94%	89%
Arsenic	4.0	14%	18%	22%	26%	32%	42%	20%
BEHP	337	35%	41%	49%	55%	60%	69%	47%
Chlordanes	2.2	30%	38%	45%	51%	59%	69%	45%

**Table K3-3a****Weighted Surface Water Concentrations for cPAHs**

Portland Harbor Superfund Site

Portland, OR

	cPAH concentrations (µg/L)			
	Sept 2006	Nov 2006	High Flow	Weighted Average
Average Upstream	0.0002	0.0000	0.0001	0.0001
Average Entering Site	0.0003	0.0008	0.0005	0.0005
Average Site	0.0011	0.0022	0.0006	0.0008
Site Minus Upstream	0.0009	0.0021	0.0005	0.0008
Criterion	0.0001	0.0001	0.0001	0.0001

**Table K3-3b****Weighted Surface Water Concentrations for DDD**

Portland Harbor Superfund Site

Portland, OR

	DDD concentrations (µg/L)			
	Sept 2006	Nov 2006	High Flow	Weighted Average
Average Upstream	0.00003	0.00004	0.00007	0.00006
Average Entering Site	0.00005	0.00002	0.00008	0.00007
Average Site	0.00021	0.00007	0.00008	0.00011
Site Minus Upstream	0.00018	0.00003	0.00001	0.00006
Criterion	0.00003	0.00003	0.00003	0.00003

**Table K3-3c****Weighted Surface Water Concentrations for DDE**

Portland Harbor Superfund Site

Portland, OR

	DDE concentrations (µg/L)			
	Sept 2006	Nov 2006	High Flow	Weighted Average
Average Upstream	0.00002	0.00004	0.00011	0.00008
Average Entering Site	0.00003	0.00003	0.00013	0.00010
Average Site	0.00007	0.00004	0.00014	0.00012
Site Minus Upstream	0.00004	0.000002	0.00003	0.00003
Criterion	0.00002	0.00002	0.00002	0.00002

**Table K3-3d**  
**Weighted Surface Water Concentrations for DDT**  
 Portland Harbor Superfund Site  
 Portland, OR

	DDT concentrations (µg/L)			
	Sept 2006	Nov 2006	High Flow	Weighted Average
Average Upstream	0.00001	0.00001	0.00002	0.00002
Average Entering Site	0.00001	0.00002	0.00021	0.00014
Average Site	0.00003	0.00003	0.00019	0.00014
Site Minus Upstream	0.00002	0.00002	0.00017	0.00012
Criterion	0.00002	0.00002	0.00002	0.00002

**Table K3-3e**  
**Weighted Surface Water Concentrations for PCBs**  
 Portland Harbor Superfund Site  
 Portland, OR

	PCB concentrations (µg/L)			
	Sept 2006	Nov 2006	High Flow	Weighted Average
Average Upstream	0.000166	0.000177	0.000074	0.000106
Average Entering Site	0.000277	0.000179	0.000107	0.000155
Average Site	0.000675	0.000457	0.000189	0.000333
Site Minus Upstream	0.000509	0.000280	0.000115	0.000227
Criterion	0.000006	0.000006	0.000006	0.000006

**Table K3-3f**  
**Weighted Surface Water Concentrations for 2,3,7,8-TCDD eq**  
 Portland Harbor Superfund Site  
 Portland, OR

	2,3,7,8-TCDD EQ concentrations (µg/L)			
	Sept 2006	Nov 2006	High Flow	Weighted Average
Average Upstream	2.93E-08	6.14E-08	2.08E-08	2.63E-08
Average Entering Site	4.86E-08	7.73E-08	4.79E-08	5.05E-08
Average Site	8.63E-08	1.19E-07	5.43E-08	6.76E-08
Site Minus Upstream	5.70E-08	5.72E-08	3.35E-08	4.13E-08
Criterion	5.00E-10	5.00E-10	5.00E-10	5.00E-10

**Table K3-4a**  
**Surface Water Concentrations and Net Reduction for cPAHs**  
 Portland Harbor Superfund Site  
 Portland, OR

Alternative	Average Site (µg/L)	Average Downtown (µg/L)	Average Upstream (µg/L)	PRG (µg/L)	Net Reduction (%)
A	0.0008	0.0004	0.0001	0.0001	0%
B	0.0002	0.0004	0.0001	0.0001	70%
D	0.0001	0.0004	0.0001	0.0001	81%
E	0.0001	0.0004	0.0001	0.0001	85%
F Mod	0.0002	0.0004	0.0001	0.0001	78%
F	0.0001	0.0004	0.0001	0.0001	90%
G	0.00005	0.0004	0.0001	0.0001	93%
I	0.0002	0.0004	0.0001	0.0001	76%

**Table K3-4b**  
**Surface Water Concentrations and Net Reduction for DDD**  
 Portland Harbor Superfund Site  
 Portland, OR

Alternative	Average Site (µg/L)	Average Downtown (µg/L)	Average Upstream (µg/L)	PRG (µg/L)	Net Reduction (%)
A	0.00006	0.00001	0.00006	0.00003	0%
B	0.00003	0.00001	0.00006	0.00003	51%
D	0.00002	0.00001	0.00006	0.00003	57%
E	0.00002	0.00001	0.00006	0.00003	64%
F Mod	0.00002	0.00001	0.00006	0.00003	68%
F	0.000016	0.00001	0.00006	0.00003	72%
G	0.000012	0.00001	0.00006	0.00003	79%
I	0.00002	0.00001	0.00006	0.00003	64%

**Table K3-4c****Surface Water Concentrations and Net Reduction for DDE**

Portland Harbor Superfund Site

Portland, OR

Alternative	Average Site (µg/L)	Average Downtown (µg/L)	Average Upstream (µg/L)	PRG (µg/L)	Net Reduction (%)
A	0.00003	0.00002	0.00008	0.00002	0%
B	0.00002	0.00002	0.00008	0.00002	42%
D	0.00002	0.00002	0.00008	0.00002	48%
E	0.00002	0.00002	0.00008	0.00002	54%
F Mod	0.00001	0.00002	0.00008	0.00002	59%
F	0.000013	0.00002	0.00008	0.00002	63%
G	0.000010	0.00002	0.00008	0.00002	71%
I	0.00002	0.00002	0.00008	0.00002	54%

**Table K3-4d****Surface Water Concentrations and Net Reduction for DDT**

Portland Harbor Superfund Site

Portland, OR

Alternative	Average Site (µg/L)	Average Downtown (µg/L)	Average Upstream (µg/L)	PRG (µg/L)	Net Reduction (%)
A	0.00012	0.00013	0.00002	0.00002	0%
B	0.00003	0.00013	0.00002	0.00002	76%
D	0.00002	0.00013	0.00002	0.00002	80%
E	0.00002	0.00013	0.00002	0.00002	83%
F Mod	0.00002	0.00013	0.00002	0.00002	85%
F	0.000017	0.00013	0.00002	0.00002	86%
G	0.000011	0.00013	0.00002	0.00002	91%
I	0.00002	0.00013	0.00002	0.00002	83%



**Table K3-4e****Surface Water Concentrations and Net Reduction for PCBs**

Portland Harbor Superfund Site

Portland, OR

Alternative	Average Site (µg/L)	Average Downtown (µg/L)	Average Upstream (µg/L)	PRG (µg/L)	Net Reduction (%)
A	0.000227	0.000050	0.000106	0.000006	0%
B	0.000100	0.000050	0.000106	0.000006	56%
D	0.000086	0.000050	0.000106	0.000006	62%
E	0.000074	0.000050	0.000106	0.000006	67%
F Mod	0.000063	0.000050	0.000106	0.000006	72%
F	0.000051	0.000050	0.000106	0.000006	77%
G	0.000038	0.000050	0.000106	0.000006	83%
I	0.000074	0.000050	0.000106	0.000006	67%

**Table K3-4f****Surface Water Concentrations and Net Reduction for 2,3,7,8-TCDD eq**

Portland Harbor Superfund Site

Portland, OR

Alternative	Average Site (µg/L)	Average Downtown (µg/L)	Average Upstream (µg/L)	PRG (µg/L)	Net Reduction (%)
A	4.1E-08	2.4E-08	2.6E-08	5.0E-10	0%
B	6.6E-09	2.4E-08	2.6E-08	5.0E-10	84%
D	5.4E-09	2.4E-08	2.6E-08	5.0E-10	87%
E	4.1E-09	2.4E-08	2.6E-08	5.0E-10	90%
F Mod	3.7E-09	2.4E-08	2.6E-08	5.0E-10	91%
F	3.3E-09	2.4E-08	2.6E-08	5.0E-10	92%
G	2.5E-09	2.4E-08	2.6E-08	5.0E-10	94%
I	4.5E-09	2.4E-08	2.6E-08	5.0E-10	89%

**Table K3-5a****Site Transect Weighted Surface Water Concentrations for cPAHs**

Portland Harbor Superfund Site

Portland, OR

Transect	cPAH concentrations (µg/L)			
	Sept 2006	Nov 2006	High Flow	Weighted Average
RM 11M	0.0004	0.0007	0.0003	0.0004
RM 11W	0.0003	0.0009	0.0007	0.0006
RM 11 E	0.0008	0.0023	0.0006	0.0008
RM 6.3 NS	0.0014	0.0016	0.0005	0.0008
RM 6.3 NB	0.0035	0.0027	0.0006	0.0015
RM 3.9 NS	0.0014	0.0023	0.0005	0.0009
RM 3.9 NB	0.0042	0.0028	0.0009	0.0019
Multnomah NS	0.0001	0.0033	0.0007	0.0008
Multnomah NB	0.0002	0.0032	0.0007	0.0008
RM 2 E	0.0002	0.0019	0.0006	0.0006
RM 2 M	0.0003	0.0026	0.0003	0.0005
RM 2 W	0.0002	0.0018	0.0004	0.0005

**Table K3-5b****Site Transect Weighted Surface Water Concentrations for DDD**

Portland Harbor Superfund Site

Portland, OR

Transect	DDD concentrations (µg/L)			
	Sept 2006	Nov 2006	High Flow	Weighted Average
RM 11M	0.00004	0.00002	0.00007	0.00006
RM 11W	0.00006	0.00002	0.00009	0.00008
RM 11 E	0.00005	0.00002	0.00012	0.00010
RM 6.3 NS	0.00018	0.00006	0.00009	0.00011
RM 6.3 NB	0.00025	0.00011	0.00009	0.00013
RM 3.9 NS	0.00027	0.00007	0.00009	0.00014
RM 3.9 NB	0.00034	0.00008	0.00011	0.00016
Multnomah NS	0.00036	0.00008	0.00008	0.00015
Multnomah NB	0.00032	0.00007	0.00010	0.00015
RM 2 E	0.00022	0.00006	0.00005	0.00009
RM 2 M	0.00020	0.00011	0.00005	0.00009
RM 2 W	0.00026	0.00009	0.00006	0.00011

**Table K3-5c****Site Transect Weighted Surface Water Concentrations for DDE**

Portland Harbor Superfund Site

Portland, OR

Transect	DDE concentrations (µg/L)			
	Sept 2006	Nov 2006	High Flow	Weighted Average
RM 11M	0.00003	0.00001	0.00011	0.00008
RM 11W	0.00003	0.00004	0.00016	0.00012
RM 11 E	0.00004	0.00004	0.00020	0.00015
RM 6.3 NS	0.00006	0.00004	0.00017	0.00013
RM 6.3 NB	0.00010	0.00006	0.00017	0.00015
RM 3.9 NS	0.00007	0.00004	0.00017	0.00014
RM 3.9 NB	0.00013	0.00004	0.00018	0.00016
Multnomah NS	0.00009	0.00004	0.00014	0.00012
Multnomah NB	0.00009	0.00004	0.00016	0.00013
RM 2 E	0.00005	0.00004	0.00009	0.00008
RM 2 M	0.00005	0.00004	0.00008	0.00007
RM 2 W	0.00005	0.00004	0.00009	0.00007

**Table K3-5d****Site Transect Weighted Surface Water Concentrations for DDT**

Portland Harbor Superfund Site

Portland, OR

Transect	DDT concentrations (µg/L)			
	Sept 2006	Nov 2006	High Flow	Weighted Average
RM 11M	0.00001	0.00001	0.00019	0.00013
RM 11W	0.00001	0.00004	0.00022	0.00015
RM 11 E	0.00001	0.00004	0.00029	0.00020
RM 6.3 NS	0.00005	0.00003	0.00025	0.00018
RM 6.3 NB	0.00008	0.00003	0.00022	0.00017
RM 3.9 NS	0.00003	0.00003	0.00027	0.00019
RM 3.9 NB	0.00008	0.00004	0.00029	0.00022
Multnomah NS	0.00005	0.00003	0.00014	0.00011
Multnomah NB	0.00005	0.00003	0.00011	0.00009
RM 2 E	0.00001	0.00002	0.00011	0.00008
RM 2 M	0.00001	0.00003	0.00010	0.00007
RM 2 W	0.00001	0.00001	0.00011	0.00008

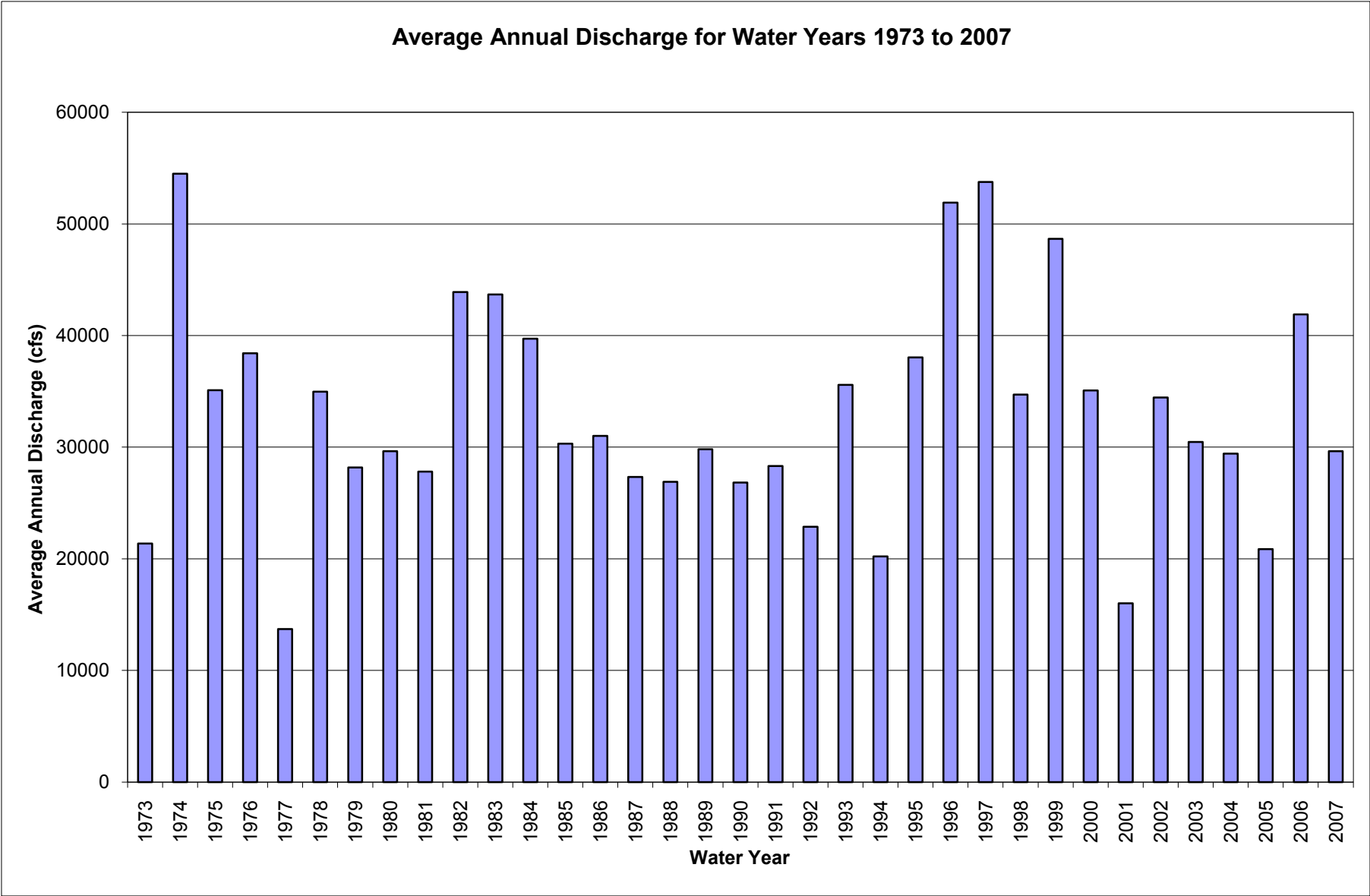
**Table K3-5e**  
**Site Transect Weighted Surface Water Concentrations for PCBs**  
 Portland Harbor Superfund Site  
 Portland, OR

Transect	PCB concentrations (µg/L)			
	Sept 2006	Nov 2006	High Flow	Weighted Average
RM 11M	0.00028	0.00013	0.00008	0.00013
RM 11W	0.00028	0.00023	0.00014	0.00018
RM 11 E	0.00095	0.00056	0.00017	0.00040
RM 6.3 NS	0.00067	0.00024	0.00013	0.00028
RM 6.3 NB	0.00095	0.00029	0.00014	0.00035
RM 3.9 NS	0.00067	0.00046	0.00014	0.00030
RM 3.9 NB	0.00095	0.00044	0.00039	0.00054
Multnomah NS	0.00067	0.00033	0.00025	0.00036
Multnomah NB	0.00066	0.00031	0.00028	0.00037
RM 2 E	0.00043	0.00130	0.00017	0.00033
RM 2 M	0.00038	0.00039	0.00012	0.00021
RM 2 W	0.00043	0.00024	0.00011	0.00020

**Table K3-5f**  
**Site Transect Weighted Surface Water Concentrations for 2,3,7,8-TCDD ea**  
 Portland Harbor Superfund Site  
 Portland, OR

Transect	2,3,7,8-TCDD EQ concentrations (µg/L)			
	Sept 2006	Nov 2006	High Flow	Weighted Average
RM 11M	4.9E-08	5.4E-08	3.8E-08	4.2E-08
RM 11W	4.9E-08	1.0E-07	5.8E-08	5.9E-08
RM 11 E	6.9E-08	2.9E-07	7.1E-08	8.8E-08
RM 6.3 NS	6.8E-08	6.7E-08	4.3E-08	5.1E-08
RM 6.3 NB	1.6E-07	1.4E-07	5.1E-08	8.6E-08
RM 3.9 NS	7.4E-08	8.9E-08	5.3E-08	6.2E-08
RM 3.9 NB	2.1E-07	1.3E-07	7.4E-08	1.1E-07
Multnomah NS	9.6E-08	1.4E-07	7.0E-08	8.2E-08
Multnomah NB	9.7E-08	1.1E-07	7.1E-08	8.1E-08
RM 2 E	3.0E-08	8.8E-08	4.5E-08	4.5E-08
RM 2 M	3.2E-08	6.8E-08	3.5E-08	3.7E-08
RM 2 W	3.0E-08	6.3E-08	3.0E-08	3.3E-08

## **Figures**



**Figure K3-1**  
Average Annual Discharge for Water Years 1973 to 2007

PORTLAND HARBOR RI/FS  
**APPENDIX P - UPDATE**  
**Flood Rise Evaluation**

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P1. FLOOD RISE EVALUATION ..... P-1

## LIST OF TABLES

Table P-1 Estimation of Net Volume of Material Removed - Site-Wide



## **P1. FLOOD RISE EVALUATION**

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An assessment of impacts on water surface elevation during high flow events was conducted to evaluate compliance with ARARs. Balancing the amount of material dredged and placed in the river was considered during the development and evaluation alternatives to minimize the potential for unacceptable flood rise following remedy implementation and comply with federal and state floodplain management ARARs.

The Executive Order for Floodplain Management (Executive Order 11988) requires federal agencies carrying out their responsibilities to take action to reduce the risk of flood loss, to minimize the impact of floods on human safety, health, and welfare, and to restore and preserve the natural and beneficial values served by floodplains. Agencies are to evaluate the potential effects of any actions they may take in a floodplain to ensure that their planning programs and budget requests reflect consideration of flood hazards and floodplain management, including the restoration and preservation of such land areas as natural, undeveloped floodplains. The order emphasizes the importance of evaluating alternatives to avoid impacts and incompatible development in floodplains, minimizing the potential harm to floodplains if the only practicable alternative requires siting an action in a floodplain, and providing early and adequate opportunities for public review of plans and proposals involving actions in floodplains. Under this concept, the special flood hazard area (commonly referred to as the 100-year flood plain) is divided into floodway and floodway fringe. If a proposed channel modification affects the floodway such that the river stage is increased for the base flood condition, such a conveyance reduction would constitute a floodway encroachment. If a proposed floodway action such as construction of a sediment cap results in a regulatory floodway encroachment, then either:

- The encroachment must be mitigated (offset) such that there is no net increase in river stage; or
- The floodway is realigned or adjusted in consultation with the requisite authorities.

A simplified evaluation was conducted for each alternative by comparing estimated volumes of capping and dredging throughout the site. This evaluation did not consider uncertainties associated with changes in waterway use, changes in management of reservoirs within the Willamette River watershed and the effects of global climate change that may result in changes to the flood rise elevation. Uncertainties associated with potential channel deepening were also not considered. In addition, this evaluation does not consider construction of an in-water CDF. While a CDF could impact flood rise on a local scale, it would be designed to minimize potential impacts, and it is excluded from this simplified evaluation.

Although there are uncertainties associated with the extent of contamination in the riverbanks that will lessen excavation and capping volumes, this evaluation assumed removal and capping over the full extent of riverbank. Volumes of material to be removed during dredging were calculated on a site-wide basis. Estimated volumes of materials placed are based on the total volume of the following:

- Sand
- Armor material
- AquaGate
- AquaBlok™
- Beach mix
- Organoclay

Quantities of fill materials and dredged volumes are summarized in **Table P-1**. Evaluated on a Site-wide scale, the volume of fill for each alternative is less than the total volume removed, resulting in a net cut volume. In addition, the volume of material removed relative to the volume of fill placed increases as the size of the remedial footprint increases. While this is not entirely balanced with respect to dredging and placement of fill material, it does indicate that there is no net increase in channel depth, minimizing potential increase to flood rise levels due to the application of technology assignments, fulfilling the requirements for protection of human health and the environment and compliance with ARARs with respect to flood rise. In addition, the uncertainty of flood rise impacts on a site-wide scale is lessened with increasing net dredged volumes.

## **Tables**

**Table P-1**

**Cut and Fill Comparison Estimates by Alternative**

Portland Harbor Superfund Site  
Portland, Oregon

	Units	Alt. B	Alt. D	Alt. E	Alt. F Mod	Alt. F	Alt. G	Alt. I
Riverbank Excavation Volume <sup>a</sup>	(CY)	50,769	73,192	96,086	122,827	122,827	138,942	102,624
Dredge Volume <sup>a, b</sup>	(CY)	576,883	1,108,046	1,928,136	2,894,362	4,462,574	7,257,656	1,649,750
<b>TOTAL CUT</b>	<b>(CY)</b>	<b>627,652</b>	<b>1,181,238</b>	<b>2,024,222</b>	<b>3,017,189</b>	<b>4,585,401</b>	<b>7,396,598</b>	<b>1,752,374</b>
Sand Material Volume, Including Low Permeability Sand <sup>a, c, d</sup>	(CY)	342,033	475,860	665,248	914,382	1,119,996	1,634,210	598,578
Armor Material Volume <sup>a, c</sup>	(CY)	29,533	53,344	79,256	151,909	151,909	245,586	80,297
AquaGate Reactive Layer Volume <sup>a, d, e</sup>	(CY)	103,881	161,797	159,489	198,332	218,384	281,466	166,437
AquaBlok™ Material Volume <sup>a</sup>	(CY)	1,425	3,215	4,951	4,951	4,951	4,951	4,951
Beachmix Material Volume <sup>a, c</sup>	(CY)	18,563	32,441	48,189	69,511	69,510	90,647	49,511
Organoclay Mat Material Volume <sup>a, c, f</sup>	(CY)	496	496	496	502	496	496	496
<b>TOTAL FILL</b>	<b>(CY)</b>	<b>495,931</b>	<b>727,153</b>	<b>957,629</b>	<b>1,339,587</b>	<b>1,565,246</b>	<b>2,257,356</b>	<b>900,270</b>
<b>DIFFERENCE (CUT-FILL)</b>	<b>(CY)</b>	<b>131,721</b>	<b>454,085</b>	<b>1,066,593</b>	<b>1,677,602</b>	<b>3,020,155</b>	<b>5,139,242</b>	<b>852,104</b>

Notes:

<sup>a</sup> Total Quantities above are rounded up to the nearest whole number. In addition a portion of the excavated volume and/or capping or restoration materials attributed to the upper river bank may not directly contribute to flood rise impacts if above the base flood elevation but for purposes of this cursory evaluation are assumed to negligible.

<sup>b</sup> Dredge volumes represent an average of the estimated Low and High Volumes with Overdredge. Neat volumes are multiplied by an overdredge factor of 1.5 to estimate the "Low Volume with Overdredge" and multiplied by an overdredge factor of 2.0 to estimate the "High Volume with Overdredge".

<sup>c</sup> Volume includes Riverbank material quantities.

<sup>d</sup> Volume of sand for mixing of the AquaGate reactive layers is not included.

<sup>e</sup> Volume includes sand for mixing. Per Vendor Information provided on 7/21/2015, AquaGate+PAC10% constitutes 48.6% of the total volume.

<sup>f</sup> Assumes 1" Organoclay Mat for Significantly Augmented Reactive Cap.

<sup>g</sup> Difference is fill volume subtracted from cut volume. If cut volumes exceed fill volumes, they are indicated in bold black font. If fill volumes exceed cut volumes, they are indicated in bold red font.

**APPENDIX V**  
**STATE OF OREGON**  
**LETTER OF CONCURRENCE**



# Oregon

Kate Brown, Governor

Department of Environmental Quality

Agency Headquarters

700 NE Multnomah Street, Suite 600

Portland, OR 97232

(503) 229-5696

FAX (503) 229-6124

TTY 711

December 22, 2016

Dennis McLerran, Regional Administrator  
U. S. Environmental Protection Agency Region 10  
1200 Sixth Avenue, Suite 900  
Seattle, Washington 98101-3140

**RE: State Concurrence with EPA's Record of Decision for the Portland Harbor Superfund Site**

Dear Mr. McLerran:

The Oregon Department of Environmental Quality (DEQ), on behalf of the State of Oregon (State), has reviewed the United States Environmental Protection Agency (EPA) Record of Decision (ROD) for the Portland Harbor Superfund Site (the Harbor) located in Portland, Oregon to determine whether to concur with the ROD. EPA's decision comes after 16 years of work to identify contamination, assess risks to people and the environment, and develop cleanup options for this important stretch of the lower Willamette River.

The State believes strongly that it is time for action. The risks to human health are too great for further delay in issuing the ROD and work must begin to protect people from exposure to contamination in resident fish and sediment in the lower Willamette River. Further, with every year of delay, the Portland metropolitan region loses opportunities for economic, social and cultural revitalization in this key part of the region.

EPA's ROD selects a modified version of the "preferred" alternative described in EPA's Proposed Plan that was issued earlier this year. EPA received thousands of public comments on the Proposed Plan during the 90-day public comment period. The overwhelming majority of the comments raised concerns about whether the Proposed Plan would meet cleanup objectives within a reasonable timeframe. Many comments requested that EPA select a remedy that more aggressively targets the primary risk drivers – polychlorinated biphenyls (PCBs), polycyclic aromatic hydrocarbons (PAHs), pesticides and dioxins/furans – through active remediation instead of relying so heavily on monitored natural recovery. Other comments provided suggestions concerning ways to ensure that the remedy is cost-effective and that it is feasible to implement. Based on all of these comments, EPA has developed a modified version of Alternative F as its selected remedy for the Harbor.

The selected remedy applies Alternative B remedial action levels (RALs) in the federal navigation channel, Alternative F RALs landward of the navigation channel, and actively remediates all Principal Threat Waste (PTW) through capping or dredging. The selected remedy more aggressively targets contamination in nearshore areas of the Harbor where fish and other ecological receptors are more likely to feed and reside, where bioaccumulation is more likely to occur, and where people are more likely to encounter contaminated sediments. The ROD requires that all excavated wastes be disposed of offsite and eliminates the option for waste to be disposed of at an onsite confined disposal facility. The ROD also provides greater flexibility in applying cleanup technologies during remedial design, states a preference

for transport of wastes by barge or rail instead of trucking, and encourages use of offsite landfills with the shortest haul distance from the Site.

In order to help ensure successful implementation of the selected remedy, DEQ and EPA have memorialized key expectations in a letter from EPA dated December 7, 2016. These expectations are important to the State in its decision regarding whether to concur with EPA's ROD. Several of these key expectations are described below.

- Controlling sources of contamination to the river will remain a priority for DEQ. EPA acknowledges the significant progress that the DEQ Source Control Program has made in removing or otherwise controlling upland and upriver sources of contamination, including implementation of removal and control measures at most upland sites, abatement of combined sewer overflows, comprehensive stormwater evaluation and treatment, and in-river sediment cleanup in the Downtown Reach. Final achievement of the remedial action objectives identified in the ROD relies upon timely and successful completion of upland and upstream source control actions. The State recognizes that EPA retains the discretion to use its federal authorities to complete those actions.
- EPA and DEQ are committed to developing a comprehensive strategy for identifying and addressing additional sources of toxics within the Willamette River watershed, upstream of the Harbor. This approach is intended to build upon existing, ongoing efforts to achieve broader environmental improvements beyond the actions specified in the ROD. EPA and DEQ will engage the Tribes and other key stakeholders in compiling watershed data, identifying data gaps, and identifying new strategies to reduce contaminant loading in the watershed. Our goal is to work together with EPA to prepare and implement a program for the Willamette Basin that is modeled on EPA's toxics reduction effort in the Columbia Basin (the Columbia River Basin Toxics Reduction Action Plan). DEQ and EPA will continue cross-program coordination between our agencies to ensure the success of these efforts.
- EPA anticipates managing the in-river cleanup by dividing the Harbor into work areas for purposes of design and construction activities based on factors such as prioritization of significant source areas, logistics, and efficiency. Additionally, in order to maximize resources and achieve cleanup as soon as possible, DEQ may perform certain oversight functions, in coordination with EPA, at specified areas of the in-river portion of the Site. Any oversight functions performed, whether performed by EPA or DEQ, will comply with the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), the National Contingency Plan (NCP), the ROD, any CERCLA agreements reached between the agencies and performing parties, and EPA policy and guidance regarding CERCLA cleanup actions.

DEQ and the State readily acknowledge that implementation of the selected remedy presents financial, technical, and administrative challenges. To minimize delays in getting cleanup actions underway, EPA should provide legal and administrative incentives to encourage potentially responsible parties to promptly enter into performance agreements consistent with CERCLA, the NCP, and EPA policy and guidance. EPA must also support innovative engineering solutions and flexibility during remedy design and construction. A comprehensive long-term monitoring plan and data management system will be necessary to assess remedy effectiveness, which may not be measureable for some time. Recognizing that people are at risk now and that it may take many decades before all remedial action objectives are achieved, EPA must implement a comprehensive (updated) fish advisory and community outreach program immediately following issuance of the ROD.

The remedy will be implemented in large part on land held by the State in trust for the public. It is the State's expectation that EPA will recognize and uphold the State's proprietary land management authority and responsibilities and further recognize the importance of protecting public trust values and public infrastructure improvements in the Harbor, to the greatest extent possible, during remedy implementation.

Implementing this complex remedy will require significant Federal and State agency resources and close coordination with Tribal governments, key stakeholders, and the community in order to meet the construction schedule, efficiently manage project costs, and secure support of all actions taken consistent with the remedy.

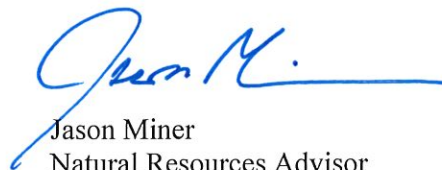
The State, on behalf of the citizens of Oregon and as a performing party, intends to work closely with EPA and other partners to identify and implement time-critical elements of the ROD. These may include developing the long-term performance monitoring plan, evaluating potential infrastructure needs such as transload or local disposal facilities, and initiating remedial design at one or more work areas within the Harbor.

With these understandings, the State of Oregon concurs with EPA's selected remedy for the Harbor. We look forward to a continued partnership with EPA in addressing the risks to people and the environment, and restoring the Harbor to its fullest potential.

Sincerely,



Richard Whitman  
Interim Director  
Oregon Department of Environmental Quality



Jason Miner  
Natural Resources Advisor  
Office of Governor Kate Brown



Appendix VI  
Administrative Record Index

Document ID	Document Date	Title	File Size (KB)	Page Count	Resource Type	Author	Addressee	Media Type	Program Information
100036118	7/24/2016	REDACTED EPA Portland Harbor Proposed Plan Public Meeting Sign-In Sheet - City of Portland Building.	16,496	100	FRM / Form	R10: (EPA)	R10: (Unknown)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT
100036119	7/20/2016	REDACTED EPA Portland Harbor Proposed Plan Public Meeting Sign-In Sheet - Ambridge Center.	71,816	110	FRM / Form	R10: (EPA)	R10: (Unknown)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT
100036120	7/11/2016	REDACTED EPA Portland Harbor Proposed Plan Public Meeting Sign-In Sheet - University Place.	20,506	100	FRM / Form	R10: (EPA)	R10: (Unknown)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT
100036128	7/29/2016	REDACTED EPA Portland Harbor Proposed Plan Public Meeting Sign-In Sheet - Portland Expo Center.	25,958	100	FRM / Form	R10: (EPA)	R10: (Unknown)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT
100019881	10/13/2009	Downtown Portland - Willamette River Sediment Evaluation - Preliminary Identification of Locations of Interest.	2,519	47	RPT / Report	R10: (Oregon Dept. of Environmental Quality)		ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities
100019883	7/25/2011	Portland - Willamette River Sediment Evaluation Downtown Reach- Phase II Follow-up Summary.	5,694	34	RPT / Report	R10: (Oregon Dept. of Environmental Quality)		ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities
100019872	5/1/2012	Community Perspectives on the Future of the Portland Harbor and the Willamette River.	801	56	RPT / Report	R10: Rome, Emily (Portland State University), R10: Bell, Joshua (Portland State University)		ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities
100019873	9/27/2012	Letter to concerned citizens regarding cleanup of Portland Harbor Superfund Site cleanup.	286	2	RPT / Report	R10: Humphrey, Chip (EPA)		ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities
100020073	10/22/2012	REDACTED Email regarding Portland Harbor Community Coalition Meeting Oct 24th location.	59	3	EML / Email	R10: Conley, Alanna (EPA)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA), R10: Allen, Elizabeth (EPA)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities
100013522	1/10/2013	REDACTED Email re Portland Harbor - meetings with elected officials.	33	2	EML / Email	R10: Cohen, Lori, G (EPA)	R10: Schuster, Cindy, C (EPA), R10: Yamamoto, Deb (EPA)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities
100017999	11/12/2013	REDACTED Agenda for Portland Harbor Memorandum of Understanding (MOU) Partners Meeting (Site Support: Tribal Involvement).	2,224	7	FRM / Form	R10: Robinson, Deborah, G (EPA)		ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities
100014499	5/14/2014	REDACTED Email regarding Review of deFur comments.	70	1	EML / Email	R10: Koch, Kristine, M (EPA)	R10: Quinn, Barbara (Portland Harbor Community Advisory Group)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities
100014636	6/17/2014	REDACTED Email regarding Portland Harbor Question.	95	3	EML / Email	R10: Koch, Kristine, M (EPA)	R10: Spadaro, Philip (The Intelligence Group)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities
100016960	9/10/2014	Letter Referring to Challenges With Portland Harbor Superfund Project and DEQ Taking Opportunity to Provide Clarity of its Concerns (Site Support: State Involvement).	2,024	11	LTR / Letter	R10: Pedersen, Dick (Oregon Dept. of Environmental Quality)	R10: McLerran, Dennis, J (EPA)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities
100016995	9/10/2014	Letters Compiled by Debbie Robinson Referring to Challenges With Portland Harbor Superfund Project and DEQ Taking Opportunity to Provide Clarity of its Concerns (Site Support: State Involvement).	3,033	11	LTR / Letter	R10: Pedersen, Dick (Oregon Dept. of Environmental Quality)	R10: McLerran, Dennis, J (EPA)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities
100016493	11/19/2014	REDACTED Email regarding Portland Harbor Community Partners/EPA Update meeting, Monday, December 8, 5:20pm.	63	1	EML / Email	R10: Conley, Alanna (EPA)	R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities
100016917	1/9/2015	Table of Key Issues for DEQ's Determination of State Concurrence (Site Support: State Involvement).	257	2	CHT / Chart/Table	R10: (Oregon Dept. of Environmental Quality)	Robert (NOAA), R10: Buck, Jeremy (U. S. Fish and Wildlife Service), R10: Madden, Erin (Unknown), R10: Cabral, Rita (Industrial Economics, Incorporated), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Cunninghame, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Ridolfi, Callie (Ridolfi Engineers, Inc.), R10: Downey, Tom (Confederated Tribes of the Siletz Indians), R10: Partridge, Holly (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Karnosh, Michael (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Sheldrake, Sean, A (EPA), R10: Fuentes, Rene, C (EPA), R10: Robinson, Deborah, G (EPA), R10: Blischke, Eric, L (EPA), R10: Conley, Alanna (EPA), R10: Christopher, Anne (EPA), R10: Allen, Elizabeth (EPA), R10: Muza, Richard (EPA), R10: Moses, Gabriel (Nez Perce Tribe), R10: Liverman, Alex (Oregon Dept. of Environmental Quality), R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality), R10: McClincy, Matt (Oregon Dept. of Environmental Quality), R10: Poulsen, Mike (Oregon Dept. of Environmental Quality), R10: Gainer, Tom (Oregon Dept. of Environmental Quality), R10: Fricano, Gail (Industrial Economics, Inc.), R10: Delvecchio, Rachel (Industrial Economics, Inc.), R10: Callahan, Kristin (Ridolfi, Inc.), R10: Gustavson, Karl	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities
100016496	1/28/2015	REDACTED Email regarding City of Portland City-Wide Summit.	105	2	EML / Email	R10: Koch, Kristine, M (EPA)		ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities
100016925	2/6/2015	Table of DEQ/EPA Strategic Relationship for Portland Harbor In-Water Remedy Selection (DEQ Staff Roles and Responsibilities) (Site Support: State Involvement).	330	3	CHT / Chart/Table	R10: (EPA), R10: (Oregon Dept. of Environmental Quality)		ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities
100016953	2/11/2015	Final DEQ/EPA Monthly Team Meeting Agenda (Site Support: State Involvement).	210	1	MTG / Meeting Document	R10: Ross, Bill (Ross Strategic), R10: (EPA), R10: (Oregon Dept. of Environmental Quality)		ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities
100017000	2/11/2015	Final DEQ/EPA Monthly Team Meeting Agenda at EPA Oregon Operations Office (Site Support: State Involvement).	158	1	MTG / Meeting Document	R10: (EPA), R10: (Oregon Dept. of Environmental Quality)		ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities
100018000	3/11/2015	REDACTED Final Agenda for DEQ/EPA Meeting at EPA Oregon Operations Office (Site Support: State Involvement).	204	1	CHT / Chart/Table	R10: Ross, William, O (EPA)		ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities
100018001	4/8/2015	REDACTED Draft Agenda for the DEQ/EPA Meeting at the EPA Oregon Operations Office (Site Support: State Involvement).	218	2	MTG / Meeting Document	R10: Robinson, Deborah, G (EPA)		ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities
100018009	4/17/2015	REDACTED Agenda for Dick/Dennis Monthly Call (Site Support: State Involvement).	199	1	MTG / Meeting Document	R10: Ross, Bill (Ross Strategic)		ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities
100016956	5/8/2015	Portland Harbor Recontamination Strategy to Date and Going Forward: (Site Support: State Involvement).	210	2	MTG / Meeting Document	R10: Ross, Bill (Ross Strategic), R10: (EPA), R10: (Oregon Dept. of Environmental Quality)		ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities
100016937	5/12/2015	Draft Issues for State Acceptance and Concurrence (Portland Harbor) (Site Support: State Involvement).	177	1	MTG / Meeting Document	R10: (EPA), R10: (Oregon Dept. of Environmental Quality)		ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities
100018028	5/12/2015	REDACTED List of Draft Issues for State Acceptance and Concurrence (Site Support: State Involvement).	231	2	MTG / Meeting Document	R10: (EPA), R10: (Oregon Dept. of Environmental Quality)		ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities
100018014	6/17/2015	REDACTED Draft Agenda for EPA/DEQ Staff-Meeting As of June 17, 2015 for Review (Site Support: State Involvement).	320	2	MTG / Meeting Document	R10: (EPA), R10: (Oregon Dept. of Environmental Quality)		ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities
100016820	6/28/2015	Source Control Talking Points June 2015.	104	1	OTH / Other	R10: (Oregon Dept. of Environmental Quality)	R10: (Unknown)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities
100018046	7/8/2015	REDACTED Draft Agenda for EPA/ODEQ Staff/Management Meeting As of July 5, 2015: (Site Support: State Involvement).	362	1	MTG / Meeting Document	R10: (EPA), R10: (Oregon Dept. of Environmental Quality)		ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities
100017015	7/9/2015	Extended Briefing for Dick, Dennis and Jim (Facilitated By Bill Ross) (Site Support: State Involvement).	260	1	MTG / Meeting Document	R10: (EPA), R10: (Oregon Dept. of Environmental Quality)		ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities
100016826	8/4/2015	Portland Harbor Listserv Message - Portland Harbor Update.	84	2	OTH / Other	R10: (EPA)	R10: (Unknown)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities
100017014	8/7/2015	Agenda for the August 7 Workshop on the Portland Harbor Cleanup (Site Support: State Involvement).	180	2	MTG / Meeting Document	R10: (EPA), R10: (Oregon Dept. of Environmental Quality)		ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities

						Genevieve (NOAA), R10: Neeley, Robert (NOAA), R10: Buck, Jeremy (U. S. Fish and Wildlife Service), R10: Madden, Erin (Unknown), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Cunninghame, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Ridolfi, Callie (Ridolfi Engineers, Inc.), R10: Downey, Tom (Confederated Tribes of the Siletz Indians), R10: Partridge, Holly (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Karnosh, Michael (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Sheldrake, Sean, A (EPA), R10: Fuentes, Rene, C (EPA), R10: Conley, Alanna (EPA), R10: Shephard, Burt (EPA), R10: Allen, Elizabeth (EPA), R10: Muza, Richard (EPA), R10: Moses, Gabriel (Nez Perce Tribe), R10: Liverman, Alex (Oregon Dept. of Environmental Quality), R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality), R10: Mcclincy, Matt (Oregon Dept. of Environmental Quality), R10: Poulsen, Mike (Oregon Dept. of Environmental Quality), R10: Gainer, Tom (Oregon Dept. of Environmental Quality), R10: Fricano, Gail (Industrial Economics, Inc.), R10: Delvecchio, Rachel (Industrial Economics, Inc.), R10: Sudbury, Ryan (Grand Ronde Tribe), R10: Longoria, Rose (Yakama Nation), R10: Coffey, Scott (CDM Smith), R10: King, Todd (CDM Smith), R10: Quinn, Barbara (Portland Harbor Community Advisory Group), R10: Sheldrake, Sean, A (EPA), R10: Conley, Alanna (EPA), R10: Allen, Elizabeth (EPA)		
100016461	REDACTED Email regarding Willamette Speaks event, Aug. 23, 6:30pm.	67	1 EML / Email	R10: Koch, Kristine, M (EPA)		ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities	
100013523	REDACTED Email responding to question and request regarding heavy metals as COCs.	69	1 EML / Email	R10: Koch, Kristine, M (EPA)		ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities	
100016829	Presentation Regarding Portland Harbor for NW Environmental Law.	2,696	12 MTG / Meeting Document	R10: Grandinetti, Carmela (Cami), L (EPA)	R10: (Environmental Law Northwest)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities	
100016667	REDACTED Email transmitting revised PHCAG newsletter. WInesletternew 10-15.	22	2 EML / Email	R10: Quinn, Barbara (Portland Harbor Community Advisory Group)	R10: Conley, Alanna (EPA)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities	
100019904	Letter regarding Input for the National Remedy Review Board Meeting on the Portland Harbor Superfund Site from the RM11E Group.	6,676	23 CORR / Correspondence	R10: Wetzsteon, Jacqueline, T (PacifiCorp)	R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities	
100019876	Letter regarding The City of Portland's Position Regarding the Lower Willamette Group's Comments to the National Remedy Review Board.	307	1 CORR / Correspondence	R10: Jordan, Michael (City of Portland, Bureau of Environmental Services)	R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities	
100018116	REDACTED Agenda for EPA/DEQ Staff/Managers Meeting (Site Support: State Involvement).	222	1 MTG / Meeting Document	R10: (EPA), R10: (Oregon Dept. of Environmental Quality)		ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities	
100018113	REDACTED Agenda for EPA/DEQ Staff/Managers Meeting (Teleconference) (Site Support: State Involvement).	211	1 MTG / Meeting Document	R10: (EPA), R10: (Oregon Dept. of Environmental Quality)		ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities	
100017011	Agenda for EPA/DEQ Monthly Meetings (Topics for Full Group and Managers) (Site Support: State Involvement).	414	2 MTG / Meeting Document	R10: (EPA), R10: (Oregon Dept. of Environmental Quality)		ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities	
100016844	Presentation Regarding Bridge to the Portland Harbor Cleanup.	7,444	17 MTG / Meeting Document	R10: Koch, Kristine, M (EPA), R10: Conley, Alanna (EPA), R10: Christopher, Anne (EPA), R10: Allen, Elizabeth (EPA)	R10: (Unknown)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities	
100020075	REDACTED Email regarding February CAG Meeting.	12	1 EML / Email	R10: Robison, Jim (Portland Harbor Community Advisory Group)	R10: Koch, Kristine, M (EPA), R10: Conley, Alanna (EPA)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities	
100017009	EPA/DEQ Staff/Management Meeting Agenda (Final) (Site Support: State Involvement).	137	1 MTG / Meeting Document	R10: (EPA), R10: (Oregon Dept. of Environmental Quality)		ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities	
100016768	Portland Harbor Executives Memorandum of Understanding (MOU) Partners Follow-Up Meeting Agenda (Site Support: Tribal Involvement).	203	1 MTG / Meeting Document	R10: McLerran, Dennis, J (EPA)		ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities	
100016852	Portland Harbor Community Partners Meeting Agenda.	79	1 MTG / Meeting Document	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities	
100016854	Attendance List for the Portland Harbor MOU Partners and Portland Harbor Community Partners Meetings on February 19, 2016.	45	2 MTG / Meeting Document	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities	
100016868	Portland Harbor Meeting Sign-In Sheets: Memorandum of Understanding (MOU); Partners and Community Partners (Site Support: Tribal Involvement).	45	2 FRM / Form	R10: (EPA)		ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities	
100016861	Agenda for the Metro Council Work Session Meeting on February 23, 2016.	398	2 MTG / Meeting Document	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities	
100016845	Presentation Regarding Portland Harbor Superfund Site for a Community Information Session.	13,388	13 MTG / Meeting Document	R10: (EPA)	R10: (Unknown)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities	
100014515	REDACTED Email regarding Thank you for helping us inform the public about the Harbor Superfund.	100	3 EML / Email	R10: Noel, Margaret (Unknown)	R10: Koch, Kristine, M (EPA), R10: Conley, Alanna (EPA), R10: Mcclincy, Matt (Oregon Dept. of Environmental Quality), R10: Sallinger, Robert (Audobon Society of Portland), R10: Longoria, Rose (Yakama Nation), R10: Thompson, Janice (Unknown), R10: (Unknown)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities	
100016985	Agenda for EPA/DEQ Staff Management Meeting (Will Be Held By Telephone) (Site Support: State Involvement).	301	1 MTG / Meeting Document	R10: (EPA), R10: (Oregon Dept. of Environmental Quality)		ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities	
100017007	Agenda for EPA/DEQ Staff/Management Meeting (Management Team Portion of the Meeting) (Site Support: State Involvement).	126	1 MTG / Meeting Document	R10: (EPA), R10: (Oregon Dept. of Environmental Quality)		ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities	
100018111	REDACTED Agenda for EPA/DEQ Directors' Call (Site Support: State Involvement).	189	1 MTG / Meeting Document	R10: Ross, Bill (Ross Strategic), R10: (EPA), R10: (Oregon Dept. of Environmental Quality)		ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities	
100017976	REDACTED Attendee List for March 30, 2016 Meeting with Business Associations (as of 3/24/2016).	29	3 MTG / Meeting Document	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities	
100016841	DRAFT Agenda Topics for Meeting with Portland Business Associations on March 30, 2016.	55	1 MTG / Meeting Document	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities	
100016842	DRAFT Agenda Topics for Meetings with Congress, State Legislators on March 30, 2016.	55	1 MTG / Meeting Document	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities	
100016819	Portland Harbor Memorandum of Understanding (MOU) Partners Sign-In Sheet (Site Support: Tribal Involvement).	315	2 FRM / Form	R10: (EPA)		ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities	
100016848	Portland Harbor Executives' Memorandum of Understanding (MOU) Partners' Meeting Follow-Up Agenda (Site Support: Tribal Involvement).	163	1 FRM / Form	R10: McLerran, Dennis, J (EPA)		ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities	
100016859	Portland Harbor Community Partners Meeting Agenda.	45	1 MTG / Meeting Document	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities	
100016878	Sign-In Sheet for Portland Harbor Memorandum of Understanding (MOU) Partners Meeting With Remedial Action Attendees (Site Support: Tribal Involvement).	170	2 FRM / Form	R10: (EPA)		ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities	
100018106	REDACTED Draft Agenda Topics for EPA/DEQ Staff Management Meeting (Site Support: State Involvement).	372	1 MTG / Meeting Document	R10: (EPA), R10: (Oregon Dept. of Environmental Quality)		ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities	

100018022	5/12/2016	REDACTED Draft Agenda Topics for EPA/DEQ Staff Management Meeting (Site Support: State Involvement).	372	1	MTG / Meeting Document	R10: (EPA), R10: (Oregon Dept. of Environmental Quality)		ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities
100003219	1/25/2008	Email regarding new fact sheet posted on Portland Harbor website.	18	1	EML / Email	R10: Smith, Judy, R (EPA)	R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities
100003152	5/22/2009	Portland Harbor Superfund Process and Milestones- Portland Harbor superfund process and milestones.	2,878	7	CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities
100003151	9/30/2009	Introduction to Portland Harbor Superfund Site - PH Overview 02042011 draft.	7,283	25	CORR / Correspondence	R10: Blischke, Eric, L (EPA)	R10: (Unknown)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities
100003148	9/21/2011	Portland Harbor Superfund Site Potential Audiences and Venues - Audience list.	52	1	CORR / Correspondence	R10: Wray, Rachel (Port of Portland)	R10: (Unknown)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities
100003149	10/13/2011	Information Meeting on the Portland Harbor Draft Feasibility Study - FS Agenda 2.	109	2	CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities
100003137	1/17/2012	Portland Harbor Partnership Calendar (as of 1/16/12) Calendar of Events.	55	1	CORR / Correspondence	R10: Koehl, Krista (Port of Portland)	R10: (Unknown)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities
100003131	1/20/2012	A River Runs Through Us - Handout DC.	6,482	9	CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities
100003147	1/24/2012	Email regarding Portland Harbor Materials - follow up from 1/24.	48	3	EML / Email	R10: Conley, Alanna (EPA)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA), R10: Penoyar, Susan, J (CDM)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities
100003150	1/24/2012	Portland Harbor FAQs - PH 20questions.	75	4	CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities
100003153	1/24/2012	Email regarding Handout DC.pdf.	32	1	EML / Email	R10: Opalski, Daniel, D (EPA)	R10: (Unknown)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities
100003134	1/25/2012	Email regarding Portland Harbor Partnership. Information Meeting on the Portland Harbor Draft Feasibility Study - FS Agenda.	33	2	EML / Email	R10: Opalski, Daniel, D (EPA)	R10: Cohen, Lori, G (EPA), R10: Koch, Kristine, M (EPA), R10: Grandinetti, Cami (EPA), R10: Humphrey, Chip (EPA), R10: Yamamoto, Deb (EPA), R10: Wilson, Wenona (EPA)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities
100003138	1/31/2012	Draft Feasibility Study - FS Agenda. Short Term Prioritization plan for engaging with public, LWG and Partnership - PH short term priorities for external engaging.	97	1	CORR / Correspondence	R10: Phalen, Dan (EPA)	R10: (Unknown)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities
100003139	2/1/2012	Letter regarding Technologies for Environmental Justice Communities and Other Vulnerable Populations - NACEPT.	106	1	CORR / Correspondence	R10: Conley, Alanna (EPA) R10: Johnson, James, H (Unknown), R10: Dewitt, John (Unknown), R10: Mitchell, Mark, A (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities
100005214	2/15/2012	Email regarding Community Outreach for Portland Harbor - New event added on March 22. (Jim/Marcia, please let me know if you plan to attend any pre -FS meetings).	2,151	45	CORR / Correspondence	R10: Jackson, Lisa, P (EPA)	R10: (Unknown)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities
100003161	3/7/2012	Draft Public Announcement: Public Information Sessions for Portland Harbor Feasibility Study - Draft Public Announcement.	32	1	EML / Email	R10: Conley, Alanna (EPA)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities
100003162	3/12/2012	Questions Posed at 1st Public Information Session / Cag Meeting - QUESTIONS POSED AT 1ST PUBLIC INFORMATION SESSION.	107	2	CORR / Correspondence	R10: Conley, Alanna (EPA)	R10: Koch, Kristine, M (EPA), R10: Smith, Judy, R (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities
100003184	4/11/2012	Email regarding Notes / Questions from PH CAG Informational Session.	42	2	CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities
100003167	4/12/2012	Questions Posed at 3rd Public Information Session / Cag Meeting - QUESTIONS POSED AT 3RD PUBLIC INFORMATION SESSION.	35	1	EML / Email	R10: Muza, Richard (EPA)	R10: Conley, Alanna (EPA)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities
100003186	4/18/2012	Email regarding Notes / Questions from 3rd PH Info Session.	42	2	CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities
100003185	4/19/2012	Email regarding Focus Group schedule for PH Fish Advisory Signs.	34	1	EML / Email	R10: Muza, Richard (EPA)	R10: Conley, Alanna (EPA) R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA), R10: Phalen, Dan (EPA), R10: Wilson, Wenona (EPA)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities
100003187	5/9/2012	Community Perspectives on the future of the Portland Harbor and Willamette River - Portland Harbor Superfund Site CI Highlights 7 24.	28	1	EML / Email	R10: Conley, Alanna (EPA)	R10: (Unknown)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities
100003191	7/24/2012	Email regarding Next PHP/EPA coordination meeting.	68	2	CORR / Correspondence	R10: Zaragoza, Larry (EPA)	R10: (Unknown)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities
100003192	8/22/2012	Portland Harbor Questions - DRAFT PORTLAND HARBOR MESSAGES FOR ALANNA 2-1-13.	104	2	EML / Email	R10: Conley, Alanna (EPA)	R10: Koehl, Krista (Port of Portland)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities
100003210	2/1/2013	Table 1 - Feasibility Study List of Proposed Figures - 2014-12-02 Proposed Final Portland Harbor FS Section 1 - List of Figures.	55	3	EML / Email	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities
100005201	2/7/2014	Email regarding Questions about Final Draft of Portland Harbor Feasibility Study.	109	2	CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities
100005182	8/18/2014	Portland Harbor RI/FS Draft Final Feasibility Study Report Section 1 - 2014-12-02 Proposed Final Portland Harbor FS Section 1.	126	2	EML / Email	R10: Koch, Kristine, M (EPA)	R10: Jackie, Calder	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities
100005203	10/7/2014	Portland Harbor RI/FS Appendix A: Sediment Database Description Draft Final Feasibility Study - 2014-12-02 Proposed Final Portland Harbor FS Appendix A.	360	29	EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: (Unknown)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities
100005200	10/14/2014	Email regarding Portland Harbor - Draft Final FS Section 1 and Appendix A.	190	19	EML / Email	R10: (Anchor QEA, LLC)	R10: (The Lower Willamette Group)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities
100005188	12/18/2014	Email regarding Portland Harbor - Draft Final FS Section 1 and Appendix A.	68	2	EML / Email	R10: Koch, Kristine, M (EPA)	R10: Conley, Alanna (EPA), R10: Cohen, Cassie (EPA), R10: Defur, Peter, L (Unknown), R10: Williams, Travis (Willamette Riverkeeper), R10: Conley, Alanna (EPA), R10: Coffey, Scott (CDM Smith), R10: Robinson, Jim	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities
100005189	12/18/2014	Email regarding CAG FS process.	70	2	EML / Email	R10: Koch, Kristine, M (EPA)	R10: Smith, Barbara (Harris Smith Public Affairs), R10: Conley, Alanna (EPA)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities
100005205	12/19/2014	Email regarding KK - 3/11 presentation for CAG meeting, (pls review).	78	2	EML / Email	R10: Conley, Alanna (EPA)	R10: Sheldrake, Sean, A (EPA), R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities
100005204	3/9/2015	Portland Harbor Superfund Site In-Situ Capping Presentation to the Portland Harbor Community Advisory Group - 3-2-15 CAG	79	2	EML / Email	R10: Conley, Alanna (EPA)	R10: (Portland Harbor Community Advisory Group)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities
100005207	3/11/2015	Portland Harbor Capping.	981	16	CORR / Correspondence	R10: (EPA Region 10)	R10: (Portland Harbor Community Advisory Group)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities
100005208	3/25/2015	Email regarding Portland Harbor Community Partners/EPA Update meeting, Tuesday, April 21, 4:30pm.	42	1	EML / Email	R10: Conley, Alanna (EPA)	R10: Koch, Kristine, M (EPA) R10: (Portland Harbor Community Advisory Group)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities
100003470	5/13/2015	Presentation: Monitoring at Superfund Sites.	1,176	30	MTG / Meeting Document	R10: Koch, Kristine, M (EPA)	R10: Smith, Barbara (Harris Smith Public Affairs), R10: Sheldrake, Sean, A (EPA), R10: Conley, Alanna (EPA)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities
100003469	5/15/2015	Email transmitting EPA presentation to CAG. 2015-05-13 CAG Monitoring.	73	1	EML / Email	R10: Koch, Kristine, M (EPA)	R10: Koch, Kristine, M (EPA), R10: Grandinetti, Cami (EPA)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities
100003480	6/12/2015	Email transmitting final LWG summer handout. Final Lower Willamette Group summer handout.	74	1	EML / Email	R10: Conley, Alanna (EPA)	R10: Defur, Peter, L (Unknown), R10: Williams, Travis (Willamette Riverkeeper), R10: Robinson, Jim	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities
100003481	6/12/2015	Email regarding Portland Harbor FS Section 4. The Willamette River Insider, October 2015, Issue 2.	137	2	OTH / Other	R10: (Lower Willamette Group)	R10: (Portland Harbor Community Advisory Group)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities
100003482	8/18/2015	Email regarding Portland Harbor FS Section 4. The Willamette River Insider, October 2015, Issue 2.	105	3	EML / Email	R10: Koch, Kristine, M (EPA) R10: (Portland Harbor Community Advisory Group)	R10: (Portland Harbor Community Advisory Group)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities
100004590	10/1/2015	Notes from 10/14/15 CAG meeting.	320	2	PUB / Publication	R10: (Portland Harbor Community Advisory Group)	R10: Koch, Kristine, M (EPA), R10: Conley, Alanna (EPA), R10: Allen, Elizabeth (EPA)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities
100004558	10/14/2015	Email transmitting 10/14/15 CAG notes. 2015 10 14 CAG notes.	1,718	6	MTG / Meeting Document	R10: (Portland Harbor Community Advisory Group)	R10: Koch, Kristine, M (EPA), R10: Conley, Alanna (EPA), R10: Allen, Elizabeth (EPA)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities
100004556	10/15/2015	The Willamette Speaks Storytelling.	46	1	EML / Email	R10: Christopher, Anne (EPA)	R10: (Unknown)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities
100005184	11/5/2015		473	1	CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities

100005210	Email regarding Cement-Lock Introduction: Portland Harbor Community Advisory Group. Cement-Lock Presentation - Cement-Lock 2016	76	2 EML / Email	R10: Lynch, Kira, P (EPA)	R10: Koch, Kristine, M (EPA), R10: Conley, Alanna (EPA), R10: Zhen, Davis (EPA)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities
100005212	1/28/2016 Presentation.	1,519	20 CORR / Correspondence	R10: (Volcano Partners LLC)	R10: (Unknown)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities
100005250	Email regarding (Updated) Upcoming EPA Community Information Sessions   Portland Harbor.	99	2 EML / Email	R10: (EPA)	R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities
100005209	Email regarding (Latest Update) Upcoming EPA Community Information Sessions   Portland Harbor.	100	2 EML / Email	R10: (EPA)	R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities
100023246	7/14/2016 Fact Sheet - Spanish.	1,434	4 MTG / Meeting Document		R10: (EPA)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities
100023258	7/14/2016 Glossary and COC - Chinese.	731	14 MTG / Meeting Document		R10: (EPA)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities
100023260	7/14/2016 Fact Sheet - Chinese.	1,151	4 MTG / Meeting Document		R10: (EPA)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities
100023261	7/14/2016 Fact Sheet.	1,055	4 MTG / Meeting Document		R10: (EPA)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities
100023262	7/14/2016 COC and Glossary - Russian.	867	19 MTG / Meeting Document		R10: (EPA)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities
100023263	7/14/2016 Fact Sheet - Russian.	1,200	4 MTG / Meeting Document		R10: (EPA)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities
100023264	7/14/2016 COC and Glossary - Spanish.	832	18 MTG / Meeting Document		R10: (EPA)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities
100023265	7/14/2016 COC and Glossary - Vietnamese.	685	17 MTG / Meeting Document		R10: (EPA)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities
100023266	7/14/2016 Fact Sheet - Vietnamese.	1,315	4 MTG / Meeting Document		R10: (EPA)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities
100032219	Email Regarding OR House Speaker Kotek Update.	65	2 EML / Email	R10: Conley, Alanna (EPA)	R10: Schuster, Cindy, C (EPA)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities
100032232	Email Regarding Portland Harbor Call for Senator Merkley's Office, Email 2.	63	2 EML / Email	R10: Schuster, Cindy, C (EPA)	R10: Deveny, Adrian (U. S. Senate)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities
100032234	Email Regarding Portland Harbor Call for Senator Merkley's Office, Email 4.	150	4 EML / Email	R10: Schuster, Cindy, C (EPA)	R10: Narby, Peter	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities
100032252	Email Regarding Response for Speaker Kotek on Portland Harbor/Duwamish Comparison.	18	2 EML / Email	R10: Schuster, Cindy, C (EPA)	R10: Kotek, Rep (State of Oregon)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities
					R10: Kuse, Suzanne (U. S. House of Representatives), R10: Gautreaux, Mary (Office of Senator Ron Wyden), R10: Brown, Timothy, R10: Deveny, Adrian (U. S. Senate), R10: Egler, Jacob, R10: Brumfield, Liv, R10: Round, Sarah, R10: Oken-berg, Jake (U. S. Senate), R10: Bittleman, Sarah, R10: Phillips, Stephanie, R10: Haggerty, Phylcia, R10: Debates, Megan, R10: Batz, Nick, R10: Huckleberry, Chris, R10: Stevens, Jessica (Office of Senator Jeff Merkley), R10: Fauerbach, Erin (Office of Senator Ron Wyden), R10: Baumann, Jeremiah (Office of Senator Jeff Merkley), R10: Smith, Willie (Unknown), R10: Pomeroy, Julia, R10: Smith, Allison (Unknown), R10: Baessler, Sarah (Unknown), R10: Cooney, Liz (Unknown), R10: Mckibben, Megan, R10: Stratton, Grace		051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities
100032346	Email Regarding Portland Harbor Proposed Plan Fact Sheet with Live Links.	1,079	1 EML / Email	R10: Schuster, Cindy, C (EPA)		ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities
100033312	REDACTED Email Regarding R10 Participants for Wed HQ/City Meeting on PH.	116	2 EML / Email	R10: Barber, Anthony (EPA)	R10: Schuster, Cindy, C (EPA)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities
1436947	EPA DEQ Portland Harbor Community Involvement Plan.	17,309	23 RPT / Report	R10: (EPA), R10: (Oregon Dept. of Environmental Quality)	R10: (Unknown)	PAPER DOCUMENT	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/001-Community Involvement Plan
100008187	2/1/2002 Portland Harbor Community Involvement Plan. EPA Community Involvement Plan, Terminal 4 Sediment Cleanup, Portland Harbor Superfund	258	24 RPT / Report	R10: (EPA), R10: (Oregon Dept. of Environmental Quality)	R10: (Unknown)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/001-Community Involvement Plan
1436946	4/1/2004 Site. Community Involvement Plan: Terminal 4 Sediment Cleanup Portland Harbor Superfund	3,752	6 RPT / Report	R10: (EPA)	R10: (Unknown)	PAPER DOCUMENT	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/001-Community Involvement Plan
100008185	4/1/2004 Site - Portland, Oregon.	80	6 RPT / Report	R10: (EPA)	R10: (Unknown)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/001-Community Involvement Plan
100008184	Community Involvement Plan for Portland Harbor.	173	26 RPT / Report	R10: (EPA)	R10: (Unknown)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/001-Community Involvement Plan
100015840	4/6/2016 Portland Harbor Community Involvement Plan.	16,747	36 OTH / Other	R10: (EPA)	R10: (Unknown)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/001-Community Involvement Plan
1436983	DRAFT Memorandum: Status Report on Portland Harbor.	188	3 RPT / Report	R10: Mullane, Neil, J (Oregon Dept. of Environmental Quality)	R10: Messerle, Ken (Oregon State House of Representatives), R10: Ferrioli, Ted (Oregon State Senate), R10: Morgan, Susan (Oregon State House of Representatives), R10: (Stream Restoration and Species Recovery Committee)	PAPER DOCUMENT	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/002-Community Involvement Plan (General)
1436970	Letter to James John School Inviting Someone to Participate in a Small Discussion Group for the Portland Harbor Superfund Site (With Fax Transmittal Sticker Attached).	4,871	2 LTR / Letter	R10: Smith, Judy, R (EPA)	R10: (James John School)	PAPER DOCUMENT	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/002-Community Involvement Plan (General)
1436971	Letter to Environmental Middle School Inviting Someone to Participate in a Small Discussion Group for the Portland Harbor Superfund Site (With Fax Transmittal Sticker Attached).	4,797	2 LTR / Letter	R10: Smith, Judy, R (EPA)	R10: (Environmental Middle School)	PAPER DOCUMENT	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/002-Community Involvement Plan (General)
100016672	REDACTED List of Invitees/Attendees for Small Discussion Group: Focus, Neighborhood (With Handwritten Notes).	4,127	1 LST / List/Index	R10: (Unknown)	R10: (Unknown)	PAPER DOCUMENT	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/002-Community Involvement Plan (General)
100016686	REDACTED List of Invitees/Attendees for Small Discussion Group: Focus, Neighborhood (With Handwritten Notes).	4,979	1 LST / List/Index	R10: (Unknown)	R10: (Unknown)	PAPER DOCUMENT	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/002-Community Involvement Plan (General)
100016688	REDACTED List of Invitees/Attendees for Small Discussion Group: Focus, Environmental (With Handwritten Notes).	6,076	1 LST / List/Index	R10: (Unknown)	R10: (Unknown)	PAPER DOCUMENT	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/002-Community Involvement Plan (General)
100016679	REDACTED List of Invitees/Attendees for Small Discussion Group: Focus, Recreational/Citizens (With Handwritten Notes).	149	1 LST / List/Index	R10: (Unknown)	R10: (Unknown)	PAPER DOCUMENT	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/002-Community Involvement Plan (General)
100016681	REDACTED List of Invitees/Attendees for Small Discussion Group: Focus, Recreational/Citizens (With Handwritten Notes).	5,329	1 LST / List/Index	R10: (Unknown)	R10: (Unknown)	PAPER DOCUMENT	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/002-Community Involvement Plan (General)
100016697	REDACTED List of Invitees/Attendees for Small Discussion Group: Focus, Business (With Handwritten Notes).	4,896	1 LST / List/Index	R10: (Unknown)	R10: (Unknown)	PAPER DOCUMENT	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/002-Community Involvement Plan (General)
1436984	Fax Transmittal of Letter Regarding Management of Cultural Resources in the Portland Harbor and the National Historic Preservation Act (NHPA) (With Handwritten Note).	80	1 CORR / Correspondence	R10: Brunoe, Robert (Branch of Natural Resources)	R10: Reid, Wallace, A (EPA)	PAPER DOCUMENT	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/002-Community Involvement Plan (General)
1436987	Letter Containing Comments From Willamette Riverkeeper on 06/07/2002 Volume 1 and Appendices A-E of the Portland Harbor Remedial Investigation/Feasibility Study (RI/FS) Workplan.	3,694	6 LTR / Letter	R10: Williams, Travis (Willamette Riverkeeper)	R10: Humphrey, Chip (EPA)	PAPER DOCUMENT	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/002-Community Involvement Plan (General)



1436988	10/9/2002	Letter Transmittal of Lower Willamette Group's Responses to Willamette Riverkeeper Comments on DRAFT Portland Harbor Remedial Investigation/Feasibility Study (RI/FS) Workplan.	655	10 LTR / Letter	R10: Harbert, Trey (Lower Willamette Group)	R10: Skarzynskas, Regina (Willamette Riverkeeper), R10: Williams, Travis (Willamette Riverkeeper)	PAPER DOCUMENT	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/002-Community Involvement Plan (General)
1436966	11/27/2002	Letter Regarding DRAFT Work Plan and Round 1 Field Sampling Plan, Portland Harbor Remedial Investigation/Feasibility Study (RI/FS) With Portland Harbor Citizen Advisory Group (PHCAG) Comments Attached (With Handwritten Notes).	225	4 LTR / Letter	R10: Williams, Travis (Portland Harbor Citizen Advisory Group)	R10: Reid, Wallace, A (EPA)	PAPER DOCUMENT	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/002-Community Involvement Plan (General)
100016675	12/6/2002	REDACTED Email Response to High School Student's Questions Regarding Portland Harbor For a School Project (With Handwritten Notes and Highlighted Text).	13,086	4 EML / Email	R10: Reid, Wallace, A (EPA)		PAPER DOCUMENT	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/002-Community Involvement Plan (General)
100011700	5/14/2003	Tide Cycle During May 2003 ADCP Survey.	359	1 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/002-Community Involvement Plan (General)
1436985	6/8/2003	Letter Containing Comments From Willamette Riverkeeper on the Programmatic Workplan for Portland Harbor.	246	4 LTR / Letter	R10: (Willamette Riverkeeper)	R10: (Portland Harbor Community Advisory Group)	PAPER DOCUMENT	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/002-Community Involvement Plan (General)
1436986	6/8/2003	Letter Containing Comments From Willamette Riverkeeper on the Programmatic Workplan for Portland Harbor (With Handwritten Notes and Highlighted Text).	2,146	4 LTR / Letter	R10: (Willamette Riverkeeper)	R10: (Portland Harbor Community Advisory Group)	PAPER DOCUMENT	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/002-Community Involvement Plan (General)
100016700	7/7/2003	REDACTED Email Memo Containing Willamette Riverkeeper's Responses to Round 2A Field Sampling Plan (With Highlighted Text).	6,764	3 EML / Email	R10:	R10: Smith, Judy, R (EPA)	PAPER DOCUMENT	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/002-Community Involvement Plan (General)
1436989	7/9/2003	Letter Containing Lower Willamette Group's Responses to Willamette Riverkeeper's 06/08/2003 Comments on the 03/31/2003 Programmatic Workplan for the Portland Harbor Remedial Investigation/Feasibility Study (RI/FS).	858	11 LTR / Letter	R10: Wyatt, Bob (Lower Willamette Group), R10: Mckenna, Jim (Lower Willamette Group)	R10: Williams, Travis (Willamette Riverkeeper)	PAPER DOCUMENT	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/002-Community Involvement Plan (General)
1436990	8/6/2003	Letter Containing Lower Willamette Group's Responses to Willamette Riverkeeper's 06/25/2003 Comments on the 04/17/2003 DRAFT Round 2A Field Sampline Plan for the Portland Harbor Remedial Investigation/Feasibility Study (RI/FS).	600	9 LTR / Letter	R10: Wyatt, Bob (Lower Willamette Group), R10: Mckenna, Jim (Lower Willamette Group)	R10: Williams, Travis (Willamette Riverkeeper)	PAPER DOCUMENT	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/002-Community Involvement Plan (General)
1436996	8/25/2003	Letter Containing Portland Harbor Community Advisory Group's (CAG) Comments on the Round 2 Work Plan: Portland Harbor Superfund Site Submitted by the Lower Willamette Group (LWG) on 03/31/2003.	3,347	6 RPT / Report	R10: Plance, Robin, G (Portland Harbor Community Advisory Group)	R10: Humphrey, Chip (EPA)	PAPER DOCUMENT	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/002-Community Involvement Plan (General)
1436961	8/29/2003	EPA DEQ Compiled Customer Survey Results for Summer 2003 Portland Harbor Newsletter, From 12 Responses Received as of 08/29/2003 (With Handwritten Notes, 14 Survey Responses Attached).	26,891	30 RPT / Report	R10: (EPA), R10: (Oregon Dept. of Environmental Quality)	R10: (Unknown)	PAPER DOCUMENT	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/002-Community Involvement Plan (General)
1436962	8/29/2003	Letter Regarding RI/FS (Remedial Investigation/Feasibility Study) Programmatic Work Plan, Portland Harbor Superfund Site With Community Advisory Group (CAG) Comments Attached (With Handwritten Date and Notes).	468	8 LTR / Letter	R10: Plance, Robin, G (Portland Harbor Community Advisory Group)	R10: Humphrey, Chip (EPA)	PAPER DOCUMENT	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/002-Community Involvement Plan (General)
1436963	8/29/2003	Letter Regarding RI/FS (Remedial Investigation/Feasibility Study) Programmatic Work Plan, Portland Harbor Superfund Site With Community Advisory Group (CAG) Comments Attached (With Handwritten Date and Notes, Highlighted Text).	17,726	8 LTR / Letter	R10: Plance, Robin, G (Portland Harbor Community Advisory Group)	R10: Humphrey, Chip (EPA)	PAPER DOCUMENT	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/002-Community Involvement Plan (General)
1436991	9/10/2003	Letter Transmittal of Lower Willamette Group's Responses to Portland Harbor Community Advisory Group's (CAG) Comments on the 03/31/2003 Revised DRAFT Programmatic Work Plan for the Portland Harbor Remedial Investigation/Feasibility Study (RI/FS).	980	12 LTR / Letter	R10: Wyatt, Bob (Lower Willamette Group), R10: Mckenna, Jim (Lower Willamette Group)	R10: Plance, Robin, G (Portland Harbor Community Advisory Group)	PAPER DOCUMENT	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/002-Community Involvement Plan (General)
1436992	9/10/2003	Letter Transmittal of Lower Willamette Group's Responses to Portland Harbor Community Advisory Group's (CAG) Comments on the 03/31/2003 Revised DRAFT Programmatic Work Plan for the Remedial Investigation/Feasibility Study (RI/FS) (With Highlighted Text).	3,198	12 LTR / Letter	R10: Wyatt, Bob (Lower Willamette Group), R10: Mckenna, Jim (Lower Willamette Group)	R10: Plance, Robin, G (Portland Harbor Community Advisory Group)	PAPER DOCUMENT	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/002-Community Involvement Plan (General)
1436993	10/8/2003	Letter Containing Lower Willamette Group's Responses to Willamette Riverkeeper's 06/08/2003 Comments on the Programmatic Workplan for the Portland Harbor Remedial Investigation/Feasibility Study (RI/FS).	851	11 LTR / Letter	R10: Wyatt, Bob (Lower Willamette Group), R10: Mckenna, Jim (Lower Willamette Group)	R10: Williams, Travis (Willamette Riverkeeper)	PAPER DOCUMENT	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/002-Community Involvement Plan (General)
1436982	1/14/2004	EPA 2003 Work Summary, Portland Harbor Superfund Site.	144	2 RPT / Report	R10: (EPA)	R10: (Unknown)	PAPER DOCUMENT	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/002-Community Involvement Plan (General)
100012793	9/1/2005	Letter Regarding Portland Harbor Joint Source Control Strategy (JSCS).	162	2 LTR / Letter	R10: Opalski, Daniel, D (EPA), R10: Pedersen, Dick (Oregon Dept. of Environmental Quality)	R10: (Portland Harbor Superfund Project Stakeholders)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/002-Community Involvement Plan (General)
100012784	10/6/2005	City of Portland Comments on the Portland Harbor Joint Source Control Strategy (JSCS).	147	4 CORR / Correspondence	R10: (City of Portland)	R10: (Unknown)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/002-Community Involvement Plan (General)
100012788	10/10/2005	Letter Regarding Lower Willamette Group (LWG) Comments on the Interim Final DEQ/EPA Joint Source Control Strategy (JSCS).	40	1 LTR / Letter	R10: Mckenna, James (Port of Portland)	R10: Anderson, James, M (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/002-Community Involvement Plan (General)
100012789	10/10/2005	LWG (Lower Willamette Group) Comments on the Interim Final DEQ/EPA Joint Source Control Strategy (JSCS).	80	33 CORR / Correspondence	R10: (Lower Willamette Group)	R10: (EPA), R10: (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/002-Community Involvement Plan (General)
100012790	10/10/2005	Letter Regarding Port of Portland Comments on the Interim Final DEQ/EPA Joint Source Control Strategy (JSCS).	1,143	5 LTR / Letter	R10: Koshuta, Cheryl, R (Port of Portland)	R10: Anderson, James, M (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/002-Community Involvement Plan (General)
100012791	10/10/2005	Letter Regarding Anchor Environmental (on Behalf of McCall Oil and Brix Maritime) Comments on Interim Final Portland Harbor Joint Source Control Strategy (JSCS).	270	9 LTR / Letter	R10: Edwards, John (Anchor QEA, LLC), R10: Thornburg, Todd (Anchor QEA, LLC)	R10: Anderson, James, M (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/002-Community Involvement Plan (General)
100012792	10/10/2005	Letter Regarding Oregon Metals Industry Council (OMIC) Comments on Portland Harbor Joint Source Control Strategy (JSCS).	42	1 LTR / Letter	R10: Nelson, Mark (Oregon Metals Industry Council)	R10: Anderson, James, M (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/002-Community Involvement Plan (General)
100012794	10/10/2005	Letter Regarding AOI (Associated Oregon Industry) Comments on Interim Final Version of the Portland Harbor Joint Source Control Strategy (JSCS).	119	5 LTR / Letter	R10: Ledger, John (AOI (Associated Oregon Industries))	R10: Anderson, James, M (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/002-Community Involvement Plan (General)
100012799	11/2/2005	Letter Regarding Revised Source Control Decision (SCD), Calbag Metals Site.	17	2 LTR / Letter	R10: Koch, Kristine, M (EPA)	R10: Anderson, James, M (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/002-Community Involvement Plan (General)
1436979	12/5/2005	Portland Harbor 2006 Community Involvement Activities, Notes from 12/05/2005 Meeting.	100	2 MTG / Meeting Document	R10: (Unknown)	R10: (Unknown)	PAPER DOCUMENT	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/002-Community Involvement Plan (General)

100012766	2/1/2006	Supplemental Table 4 MW GW Data. Letter Regarding Portland Harbor Joint Source Control Strategy (JSCS) Milestone Report, March 2006 - PH JSCS	1,697	96 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/002-Community Involvement Plan (General)
100012796	4/6/2006	March 2006. Enclosure 1: EPA Comments on the Portland Harbor Joint Source Control Strategy (JSCS) Milestone Report. March 2006 - PH JSCS	258	11 LTR / Letter	R10: Koch, Kristine	R10: Anderson, James, M (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/002-Community Involvement Plan (General)
100012797	4/6/2006	Milestone Report comments 4-6-06.	47	7 CORR / Correspondence	R10: (EPA)	R10: (Unknown)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/002-Community Involvement Plan (General)
100012798	4/6/2006	PH JSCS Milestone Report Example 4-6-06. Enclosure 2: Example Milestone Report Tables -	12	3 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/002-Community Involvement Plan (General)
100012810	4/7/2006	Letter Regarding Source Control Decision (SCD), Ro-Mar Site.	34	4 LTR / Letter	R10: Koch, Kristine, M (EPA)	R10: Anderson, James, M (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/002-Community Involvement Plan (General)
1436969	5/1/2006	Letter Regarding Portland Harbor Fact Sheet and Cleanup Approaches.	100	2 LTR / Letter	R10: Calder, Jackie (Unknown)	R10: Opalski, Daniel, D (EPA)	PAPER DOCUMENT	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/002-Community Involvement Plan (General)
100012767	7/21/2006	Memorandum: Groundwater Pathway Assessment at OSM (Oregon Steel Mills) and TZW (Transition Zone Water) Monitoring.	393	7 MEMO / Memorandum	R10: Baker, Linda (RETEC Group, Inc.), R10: Coover, Merv (RETEC Group, Inc.)	R10: Locke, William, W (Integral Consulting, Inc.), R10: McClincy, Matt (Oregon Dept. of Environmental Quality), R10: (Oregon Steel Mills, Inc.)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/002-Community Involvement Plan (General)
100012806	10/13/2006	Letter Regarding Source Control Decision (SCD), PGE Substation E.	261	1 LTR / Letter	R10: Koch, Kristine, M (EPA)	R10: Anderson, James, M (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/002-Community Involvement Plan (General)
100012787	1/1/2007	Revised Figure 4, North Yard MH2 Sampling Equipment Detail, Storm Water Monitoring Work Plan - Revised_SWMP_Figure 4.	505	1 FIG / Figure/Map/ Drawing	R10: (AMEC Earth & Environmental, Inc.)	R10: (Unknown)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/002-Community Involvement Plan (General)
100012786	1/5/2007	Storm Water Monitoring Work Plan (Revision No. 1), GE Energy - Energy Services, Portland Inspection & Repair Service (I&RS) Center. Letter Regarding EPA Comments on Assessment of McCall Oil and Chemical Site Impacts to the Willamette River (September 2006).	5,129	71 RPT / Report	R10: Farr, Jr., Leonard, C (AMEC Earth & Environmental, Inc.), R10: Hersey, J. Andrew (AMEC Earth & Environmental, Inc.)	R10: Gainer, Tom (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/002-Community Involvement Plan (General)
100012804	1/22/2007	Letter Regarding City of Portland Comments on Stormwater Monitoring Work Plan (Revision No. 1), Prepared for GE Energy Portland Inspection & Repair Services Center.	306	5 LTR / Letter	R10: Koch, Kristine, M (EPA)	R10: Gainer, Tom (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/002-Community Involvement Plan (General)
100012772	1/29/2007	Letter Regarding Oregon DEQ (Dept. of Environmental Quality) Comments on Revised Storm Water Plan, Portland Inspection & Repair Service Center.	102	3 LTR / Letter	R10: Scheffler, Linda (City of Portland, Bureau of Environmental Services)	R10: Antonoff, Tom (General Electric Power Systems)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/002-Community Involvement Plan (General)
100012783	2/5/2007	Letter Regarding EPA Comments on Pilot Study Work Plan for End-of-Pipe Stormwater Treatment, Oregon Steel Mills, Inc., 02/02/2007.	480	4 LTR / Letter	R10: Koch, Kristine, M (EPA)	R10: Parrett, Kevin (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/002-Community Involvement Plan (General)
100012768	2/8/2007	Letter Regarding EPA Comments on the January 2007 Storm Water Monitoring Work Plan (Revision No. 1) for GE Energy - GE Services Portland Inspection & Repair Service (I&RS) Center.	455	8 LTR / Letter	R10: Koch, Kristine, M (EPA)	R10: Gainer, Tom (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/002-Community Involvement Plan (General)
100012803	8/30/2007	Letter Regarding Source Control Decision (SCD), Former Marine Finance Site.	21	3 LTR / Letter	R10: Koch, Kristine, M (EPA)	R10: Anderson, James, M (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/002-Community Involvement Plan (General)
100012805	9/4/2007	Letter Regarding Source Control Decision (SCD), Paco Pumps.	16	2 LTR / Letter	R10: Koch, Kristine, M (EPA)	R10: Anderson, James, M (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/002-Community Involvement Plan (General)
100012800	10/30/2007	Letter Regarding EPA Comments on Riverbank Stabilization at EOSM: An Interim Remedial Measure for Source Control (July 2007).	23	2 LTR / Letter	R10: Koch, Kristine, M (EPA)	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/002-Community Involvement Plan (General)
100012807	12/21/2007	Letter Regarding Source Control Decision (SCD), Operable Unit 3, Portland Shipyard.	31	4 LTR / Letter	R10: Koch, Kristine, M (EPA)	R10: Anderson, James, M (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/002-Community Involvement Plan (General)
100012769	2/8/2008	Letter Regarding Gasco Groundwater/DNAPL Source Control Focused Feasibility Study (FFS), November 2007.	44	6 LTR / Letter	R10: Yamamoto, Deb (EPA)	R10: Anderson, James, M (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/002-Community Involvement Plan (General)
100012801	5/19/2008	Letter Regarding Source Control Decision (SCD), Former Mar Com North Parcel.	21	2 LTR / Letter	R10: Koch, Kristine, M (EPA)	R10: Anderson, James, M (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/002-Community Involvement Plan (General)
100012771	6/25/2008	Letter Regarding Gasco Vibration Analysis.	551	2 LTR / Letter	R10: Yamamoto, Deb (EPA)	R10: Anderson, James, M (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/002-Community Involvement Plan (General)
100012809	4/15/2010	Remedial Investigation (RI) and Source Control Evaluation (SCE), Figures 1, 2, 4, 5, 10, 13.	2,577	6 FIG / Figure/Map/ Drawing	R10: (SLR International Corporation)	R10: (Unknown)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/002-Community Involvement Plan (General)
100012802	4/20/2011	Letter Regarding RI-SCE (Remedial Investigation and Source Control Evaluation) Addendum, Former Mar Com Site (South) 2007 PGE Transformers Removal and Cleanup.	1,684	28 LTR / Letter	R10: Coracci, Megan (SLR International Corporation)	R10: Romero, Michael (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/002-Community Involvement Plan (General)
100012808	4/28/2011	Comments on DRAFT Source Control Decision (SCD) Document, for the General Electric (GE) Portland Inspection and Repair Service Center.	87	3 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/002-Community Involvement Plan (General)
100011180	8/20/2014	Email Regarding Preliminary Draft Matrix for Section 1 CAG (Community Advisory Group) Discussion (With Highlighted Text).	92	2 EML / Email	R10: Smith, Barbara (Harris Smith Public Affairs)	R10: Koch, Kristine, M (EPA), R10: Conley, Alanna (EPA)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/002-Community Involvement Plan (General)
100011181	9/10/2014	Portland Harbor Superfund Site Feasibility Study, Section 1 - CAG Presentation on 09/10/2014.	129	6 RPT / Report	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/002-Community Involvement Plan (General)
100011745	11/25/2014	Memo Regarding Derivation of Final Manganese PRG to Replace the Suter and Tsao (1996) Tier II Value in the Portland Harbor Feasibility Study - 2015-07-29 Attachment B1.	650	23 MEMO / Memorandum	R10: Deforest, David, K (Windward Environmental, LLC.), R10: Toll, John (Windward Environmental, LLC.), R10: Church, Brian (Windward Environmental, LLC.)	R10: (Lower Willamette Group)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/002-Community Involvement Plan (General)
100011744	7/6/2015	Email Regarding LWG (Lower Willamette Group) CAG (Community Advisory Group) Presentation for 07/08/2015.	74	2 EML / Email	R10: Koch, Kristine, M (EPA)	R10: Conley, Alanna (EPA), R10: Smith, Barbara (Lower Willamette Group)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/002-Community Involvement Plan (General)
100011746	7/20/2015	Portland Harbor Draft Final Figure 2.2-2, Areas that Exceed Preliminary Remediation Goals (PRGs) - 2015-07-29 Portland Harbor Draft Final Figure 2.2-2.	629	1 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/002-Community Involvement Plan (General)
100011747	7/29/2015	Portland Harbor RI/FS (Remedial Investigation/Feasibility Study), DRAFT Final Feasibility Study Report - 2015-07-29 Portland Harbor Draft Final FS Section 2.	349	33 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/002-Community Involvement Plan (General)
100011749	7/29/2015	Portland Harbor DRAFT Final FS (Feasibility Study) Section 2.2 Tables - 2015-07-29 Portland Harbor Draft Final FS Section 2.2 Tables.	383	16 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/002-Community Involvement Plan (General)
100011818	7/29/2015	Portland Harbor DRAFT Final Table - 2015-07-29 Portland Harbor Draft Final Table 2.4-02 Portland Harbor DRAFT Final Tables - 2015-07-29 Portland Harbor Draft Final Tables 2.1-1 through 2.1-3 ARAR.	143	6 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/002-Community Involvement Plan (General)
100011819	7/29/2015	through 2.1-3 ARAR.	191	8 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/002-Community Involvement Plan (General)

100017479	7/29/2015	REDACTED Email Regarding Portland Harbor DRAFT Final FS (Feasibility Study) Section 3 and Updates to Section 2 - FS Section 3 and updates to Section 2.	95	4 EML / Email	R10: Koch, Kristine, M (EPA)	R10: Defur, Peter, L (Unknown), R10: Robison, Jim (Portland Harbor Community Advisory Group), R10: Williams, Travis (Willamette Riverkeeper)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/002-Community Involvement Plan (General)
100017555	9/9/2015	REDACTED PHCAG (Portland Harbor Community Advisory Group) General Meeting Notes - PHCAG 9-9-15 Notes.	156	5 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/002-Community Involvement Plan (General)
100017553	9/12/2015	REDACTED Email Regarding 09/09/2015 PHCAG (Portland Harbor Community Advisory Group) General Meeting Notes.	22	3 EML / Email	R10: Quinn, Barbara (Portland Harbor Community Advisory Group)	R10: Myers, Renee (Unknown), R10: (Portland Harbor Community Advisory Group)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/002-Community Involvement Plan (General)
100017561	9/18/2015	REDACTED Email Regarding Portland Harbor Update.	59	2 EML / Email	R10: Koch, Kristine, M (EPA)	R10: Defur, Peter, L (Unknown), R10: Robison, Jim (Portland Harbor Community Advisory Group), R10: Williams, Travis (Willamette Riverkeeper)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/002-Community Involvement Plan (General)
100011834	4/6/2016	Email Regarding Audubon Seeking Confirmation of Release Date for DRAFT Superfund Clean-Up Plan.	12	2 EML / Email	R10: Sallinger, Robert (Audobon Society of Portland)	R10: Conley, Alanna (EPA)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/002-Community Involvement Plan (General)
1436964	Undated	Letter Regarding RI/FS (Remedial Investigation/Feasibility Study) Programmatic Work Plan, Portland Harbor Superfund Site With Community Advisory Group (CAG) Comments Attached (With Handwritten Notes).	491	8 LTR / Letter	R10: Plance, Robin, G (Portland Harbor Community Advisory Group)	R10: Humphrey, Chip (EPA)	PAPER DOCUMENT	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/002-Community Involvement Plan (General)
1436965	Undated	Letter Regarding RI/FS (Remedial Investigation/Feasibility Study) Programmatic Work Plan, Portland Harbor Superfund Site With Community Advisory Group (CAG) Comments Attached (With Handwritten Notes).	3,214	8 LTR / Letter	R10: Plance, Robin, G (Portland Harbor Community Advisory Group)	R10: Humphrey, Chip (EPA)	PAPER DOCUMENT	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/002-Community Involvement Plan (General)
1436968	Undated	Letter Responding to Portland Harbor Fact Sheet and Cleanup Approaches (With Comments in Blue Print).	2,344	3 LTR / Letter	R10: Calder, Jackie (Unknown)	R10: Smith, Judy, R (EPA)	PAPER DOCUMENT	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/002-Community Involvement Plan (General)
1436972	Undated	Portland Public Schools District Map (With Handwritten Notes).	3,249	1 FIG / Figure/Map/ Drawing	R10: (Unknown)	R10: (Unknown)	PAPER DOCUMENT	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/002-Community Involvement Plan (General)
1436980	Undated	List of Community Involvement Activities in 2001.	61	1 LST / List/Index	R10: (Unknown)	R10: (Unknown)	PAPER DOCUMENT	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/002-Community Involvement Plan (General)
1436981	Undated	Portland Harbor Superfund Site, EPA DEQ Community Involvement Activities in 2005.	86	1 LST / List/Index	R10: (Unknown)	R10: (Unknown)	PAPER DOCUMENT	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/002-Community Involvement Plan (General)
1436995	Undated	Memorandum of Understanding (MOU) for Portland Harbor Superfund Site.	781	14 RPT / Report	R10: (Unknown)	R10: (Unknown)	PAPER DOCUMENT	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/002-Community Involvement Plan (General)
100011182	Undated	Figure 3.1, River Stages vs Average Annual Values.	175	1 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/002-Community Involvement Plan (General)
100012770	Undated	Letter Regarding DRAFT Gasco Groundwater/DNAPL Source Control Focused Feasibility Study (FFS), November 2007.	37	7 LTR / Letter	R10: Koch, Kristine, M (EPA)	R10: Anderson, James, M (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/002-Community Involvement Plan (General)
100012795	Undated	AOI (Associated Oregon Industry) Comments on Appendix E - Framework for Portland Harbor Storm Water Screening Evaluations (August 2005) Regarding Sampling Protocols.	69	4 CORR / Correspondence	R10: (AOI (Associated Oregon Industries))	R10: (Unknown)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/002-Community Involvement Plan (General)
100004896	1/22/2015	Portland Harbor Superfund Site Presentation.	13,393	13 CORR / Correspondence	R10: Conley, Alanna (EPA)	R10: (Unknown)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/002-Community Involvement Plan (General)
100004886	3/25/2015	EPA Statement Regarding Portland Harbor Cleanup Background Dispute Resolution.	128	1 CORR / Correspondence	R10: Opalski, Daniel, D (EPA)	R10: (Unknown)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/002-Community Involvement Plan (General)
100004894	6/8/2015	Portland Harbor Brain Benders.	3,615	12 CORR / Correspondence	R10: (EPA)		ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/002-Community Involvement Plan (General)
100004887	6/28/2015	DEQ Source Control Talking Points June 2015.	103	1 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/002-Community Involvement Plan (General)
100004888	8/4/2015	Portland Harbor Update.	83	2 CORR / Correspondence	R10: Grandinetti, Cami (EPA)	R10: (Unknown)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/002-Community Involvement Plan (General)
100004884	8/18/2015	Portland Harbor Desk Statement.	129	1 CORR / Correspondence	R10: Robison, Deborah, G (EPA)	R10: (Unknown)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/002-Community Involvement Plan (General)
100004889	8/19/2015	Suggested Talking Points EPA Draft FS August 2015.	83	1 CORR / Correspondence	R10: Smith, Barbara (Unknown)		ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/002-Community Involvement Plan (General)
100004885	9/15/2015	Crafting an Effective Cleanup Plan for Portland Harbor Op-Ed.	197	2 CORR / Correspondence	R10: McLerran, Dennis, J (EPA)	R10: (Unknown)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/002-Community Involvement Plan (General)
100004890	9/18/2015	Portland Harbor Presentation.	2,697	12 CORR / Correspondence	R10: Grandinetti, Cami (EPA)	R10: (Unknown)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/002-Community Involvement Plan (General)
100004891	10/20/2015	In Our Opinion: Community deserves Superfund cleanup based on science to reduce risks.	63	2 CORR / Correspondence	R10: (Port of Portland), R10: (NW Natural), R10: (Greenbrier Companies)	R10: (Unknown)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/002-Community Involvement Plan (General)
100004901	2/15/2016	Email regarding EPA Attendance of 2/18 and 2/24 Legislative Briefings.	62	1 CORR / Correspondence	R10: Robison, Deborah, G (EPA)	R10: Parrett, Kevin (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/002-Community Involvement Plan (General)
100004895	2/16/2016	Email regarding 15 min for EPA presentation on 2/18 -- Fwd: EPA Attendance of 2/18 and 2/24 Legislative Briefings.	64	2 CORR / Correspondence	R10: Robison, Deborah, G (EPA)	R10: Grandinetti, Cami (EPA)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/002-Community Involvement Plan (General)
100004899	2/16/2016	Email regarding Agenda House Committee On Energy and Environment - 2016-02-18-08-30.	21	1 CORR / Correspondence	R10: Robison, Deborah, G (EPA)	R10: Schuster, Cindy, C (EPA), R10: Woolford, James, E (EPA), R10: Grandinetti, Cami (EPA), R10: Zhen, Davis (EPA), R10: Tyler, Kendra (EPA), R10: Holsman, Marianne (EPA), R10: Magorrian, Matthew (EPA)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/002-Community Involvement Plan (General)
100004900	2/16/2016	Email regarding Agenda House Committee On Energy and Environment - 2016-02-18-08-30.	20	1 CORR / Correspondence	R10: Robison, Deborah, G (EPA)	R10: Roick, Thomas, E (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/002-Community Involvement Plan (General)
100004892	2/18/2016	Bridge to the Portland Harbor Cleanup Presentation.	7,405	17 CORR / Correspondence	R10: Koch, Kristine, M (EPA), R10: Conley, Alanna (EPA), R10: Christopher, Anne (EPA), R10: Allen, Elizabeth (EPA)	R10: (Unknown)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/002-Community Involvement Plan (General)
100004893	2/18/2016	Portland Harbor Superfund Site Oregon State Legislators Presentation.	5,441	10 CORR / Correspondence	R10: (EPA)	R10: (Unknown)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/002-Community Involvement Plan (General)
100004898	2/22/2016	Email regarding Portland Harbor - Corrected presentation.	11,712	2 CORR / Correspondence	R10: Robison, Deborah, G (EPA)	R10: , Annie, Vonburg (City of Portland)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/002-Community Involvement Plan (General)
100035967	10/26/2016	E-Mail Regarding Follow-Up From October 25, 2016 Phone Conversation Concerning 85% Reduction In Risk By Comparing Alternative A (Current Site-Wide Risk) With Alternative I's Site-Wide Post-Construction Risk In Three Figures From Feasibility Study.	132	2 EML / Email	R10: Knudsen, Laura (EPA)	R10: Quinn, Barbara (Portland Harbor Community Advisory Group)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/002-Community Involvement Plan (General)
100035978	7/11/2016	A Brief History of Environmental Health Assessment Program (EHAP's) and Oregon Health Authority's (OHA's) Environmental Justice Activities at Portland Harbor (2002-2015).	316	4 EML / Email	R10: (Unknown)		ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/002-Community Involvement Plan (General)



100036027	7/19/2016	Request That EPA Extend the Current Comment Period to 120 Days and that the EPA Schedule an Additional Hearing at the End of August and That It is Organized In a Different Format From the Initial Public Hearings.	69	2 LTR / Letter	R10: (Portland Harbor Community Coalition (PHCC))	R10: McLerran, Dennis, J. (EPA)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/002-Community Involvement Plan (General)
100036038	9/22/2016	E-Mail Regarding Credit for Figure In Portland Harbor Proposed Plan: Link to Our Fact Sheet Where the Figure First Appeared.	182	3 EML / Email	R10: Senkyr, Lauren (NOAA)	R10: Knudsen, Laura (EPA)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/002-Community Involvement Plan (General)
100036051	8/23/2016	E-Mail Update On Media Inquiry: KUNP-TV in Portland, Oregon: Laura Will Be Giving a Taped Interview at the KUNP Studio This Morning. REDACTED E-Mail Regarding 85% Discussion (City of Portland Response): Brief Explanation of What Data Is Included In EPA's Risk Assessment.	130	1 EML / Email	R10: Smith, Judy, R. (EPA)	R10: Zhen, Davis (EPA)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/002-Community Involvement Plan (General)
100036121	10/19/2016	REDACTED E-Mail Regarding 85% Discussion (Dept. of Environmental Quality (DEQ) Response): Concerns Several Figures Including the Figure the EPA Used In Explaining Site-Wide Risk Reduction for Alternative I.	173	2 EML / Email	R10: Von Burg, Annie (City of Portland, Oregon)	R10: Quinn, Barbara (Portland Harbor Community Advisory Group)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/002-Community Involvement Plan (General)
100036122	10/16/2016	REDACTED E-Mail Referring to Request for Extension On Portland Harbor Superfund Comment Period From 90 to 120 Days and Additional Public Hearing for August.	664	2 EML / Email	R10: Parrett, Kevin, G. (Oregon Dept. of Environmental Quality)	R10: Knudsen, Laura (EPA), R10: Quinn, Barbara (Portland Harbor Community Advisory Group), R10: Von Burg, Annie (City of Portland)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/002-Community Involvement Plan (General)
100036123	7/29/2016	REDACTED E-Mail Regarding Sauvie Island Community Groups Response to the EPA's McLerran Letter.	131	2 EML / Email	R10: Zhen, Davis (EPA)	R10: (Unknown)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/002-Community Involvement Plan (General)
100036124	10/12/2016	REDACTED E-Mail Regarding Portland Harbor Community Coalition Comments: EPA Does Not Accept Late Comments.	174	5 EML / Email	R10: Philip, Jeffrey, M. (EPA)	R10: (Unknown)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/002-Community Involvement Plan (General)
100036130	9/22/2016	REDACTED E-Mail Regarding 56 Days to Comment On the Willamette River Superfund Plan: Additional Request of One Interpreter for Each Language.	766	17 EML / Email	R10: Knudsen, Laura (EPA)	R10: (Portland Harbor Community Coalition (PHCC))	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/002-Community Involvement Plan (General)
100036131	7/14/2016	REDACTED E-Mail Regarding the 56 Days to Comment On Willamette River Superfund Plan. REDACTED E-Mail Stating That Based On Our Discussion, We Are Going to Recraft Our Public Meeting For July 20 With the 6:00 p.m. EPA Presentation and Public Comment to Be Held In the Same Room.	235	10 EML / Email	R10: Buri, Justin (Portland Harbor Community Coalition (PHCC))	R10: Conley, Alanna (EPA) R10: Fleming, Sheila, M. (Ridolfi Engineers and Associates, Inc.), R10: Knudsen, Laura (EPA), R10: Grandinetti, Carmela (Cami), L. (EPA), R10: Zhen, Davis (EPA)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/002-Community Involvement Plan (General)
100036132	7/20/2016	REDACTED E-Mail Indicating That One More Meeting Has Merit, Especially With the Better Format We Proposed and Used Most Recently. REDACTED E-Mail Referring to Last Public Forum On August 31, 2016: Question On Delivering a Box of Materials.	223	8 EML / Email	R10: Conley, Alanna (EPA)	R10: Williams, Travis (Portland Harbor Citizen Advisory Group)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/002-Community Involvement Plan (General)
100036133	7/14/2016	REDACTED E-Mail Regarding Comment Submission Question On Video Link; We Will Also Put Links/URLs In Our Official Comment Letter Which Will Be a PDF.	181	3 EML / Email	R10: Zhen, Davis (EPA)	R10: Williams, Travis (Portland Harbor Citizen Advisory Group)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/002-Community Involvement Plan (General)
100036134	7/29/2016	REDACTED E-Mail Regarding Letter From Sauvie Island, Oregon, Community Groups Regarding the Portland Harbor Superfund Site. DRAFT Key Messages for Legislative Briefing on 01/30/2002 on Portland Harbor Superfund Cleanup.	146	3 EML / Email	R10: Williams, Travis (Willamette Riverkeeper)	R10: Zhen, Davis (EPA)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/002-Community Involvement Plan (General)
100036135	8/24/2016	REDACTED E-Mail Regarding Comment Submission Question On Video Link; We Will Also Put Links/URLs In Our Official Comment Letter Which Will Be a PDF.	282	5 EML / Email	R10: Knudsen, Laura (EPA)	R10: Quinn, Barbara (Portland Harbor Community Advisory Group)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/002-Community Involvement Plan (General)
100036136	9/6/2016	REDACTED E-Mail Concerning Printed Versions of the Feasibility Study and the Clean-Up Plan.	217	4 EML / Email	R10: Goodling, Erin (Portland Harbor Community Advisory Group)	R10: Knudsen, Laura (EPA)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/002-Community Involvement Plan (General)
100036138	8/8/2016	REDACTED E-Mail Regarding Letter From Sauvie Island, Oregon, Community Groups Regarding the Portland Harbor Superfund Site. DRAFT Key Messages for Legislative Briefing on 01/30/2002 on Portland Harbor Superfund Cleanup.	176	3 EML / Email	R10: Knudsen, Laura (EPA)	R10: Zhen, Davis (EPA), R10: Sallinger, Robert (Audobon Society of Portland)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/002-Community Involvement Plan (General)
100036139	8/18/2016	REDACTED E-Mail Regarding Letter From Sauvie Island, Oregon, Community Groups Regarding the Portland Harbor Superfund Site. DRAFT Key Messages for Legislative Briefing on 01/30/2002 on Portland Harbor Superfund Cleanup.	169	1 EML / Email	R10: Knudsen, Laura (EPA)	R10: Horter, P. "Lacem" (Multnomah County, Oregon)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/002-Community Involvement Plan (General)
1436948	1/30/2002	Portland Harbor Superfund Site Briefing Paper.	85	1 CORR / Correspondence	R10: (EPA), R10: (Oregon Dept. of Environmental Quality)	R10: (Unknown)	PAPER DOCUMENT	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/003-Congressional Involvement (General)
100008110	11/13/2009	Portland Harbor RI/FS Congressional Briefing.	61	1 OTH / Other	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA), R10: Yamamoto, Deb (EPA)	R10: Blumenauer, Earl (U. S. House of Representatives) R10: Wu, David (U. S. House of Representatives), R10: Blumenauer, Earl (U. S. House of Representatives), R10: Merkley, Jeff (U. S. Senate)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/003-Congressional Involvement (General)
100008107	1/25/2010	Email regarding Attendees/ Portland Harbor Stakeholders Meeting on 5.1.	58	1 OTH / Other	R10: Opalski, Daniel, D (EPA), R10: Smith, Judy, R (EPA), R10: Humphrey, Chip (EPA), R10: Yamamoto, Deb (EPA)	R10: Blumenauer, Earl (U. S. House of Representatives), R10: Merkley, Jeff (U. S. Senate)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/003-Congressional Involvement (General)
100016305	3/13/2013	Email regarding RA meeting w/Members of Congress on May 1.	35	1 EML / Email	R10: Schuster, Cindy, C (EPA)	R10: Macintyre, Mark, A (EPA)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/003-Congressional Involvement (General)
100016051	4/30/2013	Portland Harbor Stakeholders Meeting Agenda.	71	1 EML / Email	R10: Schuster, Cindy, C (EPA)	R10: Holsman, Marianne (EPA)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/003-Congressional Involvement (General)
100016308	4/30/2013	Letter regarding Portland Harbor Superfund Site.	35	1 EML / Email	R10: Schuster, Cindy, C (EPA)	R10: Gardner, Monee (EPA)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/003-Congressional Involvement (General)
100016052	5/1/2013	Letter regarding Portland Harbor Superfund Site.	51	1 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/003-Congressional Involvement (General)
100016054	7/9/2013	Letter regarding Portland Harbor Superfund Site.	271	2 CORR / Correspondence	R10: Perciasepe, Robert (EPA)	R10: Merkley, Jeff (U. S. Senate)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/003-Congressional Involvement (General)
100016244	7/9/2013	Letter regarding Portland Harbor Superfund Site.	310	2 CORR / Correspondence	R10: Perciasepe, Robert (EPA)	R10: Blumenauer, Earl (U. S. House of Representatives)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/003-Congressional Involvement (General)
100016245	7/9/2013	Letter regarding Portland Harbor Superfund Site.	287	2 CORR / Correspondence	R10: Perciasepe, Robert (EPA)	R10: Bonamici, Suzanne (Unknown)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/003-Congressional Involvement (General)
100016246	7/9/2013	Letter regarding Portland Harbor Superfund Site.	271	2 CORR / Correspondence	R10: Perciasepe, Robert (EPA)	R10: Merkley, Jeff (U. S. Senate)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/003-Congressional Involvement (General)
100016247	7/9/2013	Letter Regarding EPA Processes Concerning Portland Harbor Cleanup.	275	2 CORR / Correspondence	R10: Perciasepe, Robert (EPA)	R10: Wyden, Ron (U. S. Senate)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/003-Congressional Involvement (General)
100016731	7/9/2013	Email regarding Portland Harbor letter to Sen. Merkley.	956	5 LTR / Letter	R10: Perciasepe, Robert (EPA)	R10: Blumenauer, Earl (U. S. House of Representatives)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/003-Congressional Involvement (General)
100016243	7/24/2013	Email regarding Portland Harbor Stipulated Penalty Dispute Resolution.	1,537	2 EML / Email	R10: Schuster, Cindy, C (EPA)	R10: Levine, Carolyn (EPA) R10: Barbour, Hillary (U. S. House of Representatives), R10: Kunse, Suzanne (U. S. House of Representatives), R10: Berick, Dave (U. S. Senate), R10: Gautreaux, Mary (Office of Senator Ron Wyden), R10: Deveny, Adrian (U. S. Senate), R10: Oken-berg, Jake (U. S. Senate), R10: Bornstein, Rachael (Unknown), R10: Tibbs, Abby (Unknown), R10: Mann, Ryan (Unknown)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/003-Congressional Involvement (General)
100016057	9/30/2013	Letter regarding Combined Notice of Objection to and Request for Dispute Resolution of EPA's Notice of Demand for Payment of Stipulated Penalties Regarding Baseline Human Health Risk Assessment and Request for Determination.	410	1 EML / Email	R10: Schuster, Cindy, C (EPA)	R10: (Unknown)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/003-Congressional Involvement (General)
100016058	9/30/2013	EPA Decision Regarding Portland Harbor Superfund Site.	268	7 CORR / Correspondence	R10: Albright, Richard, G (EPA)	R10: Wyatt, Bob (Lower Willamette Group)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/003-Congressional Involvement (General)
100016059	9/30/2013		75	1 CORR / Correspondence	R10: (EPA)	R10: (Lower Willamette Group)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/003-Congressional Involvement (General)

100016334	Email regarding Portland Harbor Stipulated Penalty Dispute Resolution.	39	1 EML / Email	R10: Schuster, Cindy, C (EPA)	R10: Berick, Dave (U. S. Senate)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/003-Congressional Involvement (General)
100016306	Email regarding Portland Harbor update for 11/14/2013 OR delegation staff.	66	2 EML / Email	R10: Schuster, Cindy, C (EPA)	R10: Janifer, Pamela (EPA)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/003-Congressional Involvement (General)
100017975	REDACTED Email regarding 12/3 Briefing for 12/2/2013 Sen. Merkley staff RE: Portland Harbor Update.	78	1 EML / Email	R10: Levine, Carolyn (EPA)	R10: Albright, Rick (Unknown), R10: Schuster, Cindy, C (EPA), R10: Woolford, James, E (EPA), R10: Cohen, Lori, G (EPA), R10: Dunbar, Bill (EPA), R10: Holsman, Marianne (EPA), R10: Deitz, Randy (EPA)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/003-Congressional Involvement (General)
100016262	Email regarding followup to December 3 12/5/2013 meeting re: Portland Harbor Superfund site.	46	1 EML / Email	R10: Levine, Carolyn (EPA)	R10: Barbour, Hillary (U. S. House of Representatives), R10: Deveny, Adrian (U. S. Senate), R10: Oken-berg, Jake (U. S. Senate), R10: Phillips, Stephanie, R10: Nakazawa, Andre (Office of Senator Ron Wyden), R10: Ffitch, Eric (Unknown)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/003-Congressional Involvement (General)
100016075	5/8/2014 Portland Harbor Project Timeline.	456	1 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/003-Congressional Involvement (General)
100016079	5/8/2014 Portland Harbor Project Timeline.	456	1 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/003-Congressional Involvement (General)
100016253	5/8/2014 Portland Harbor Project Timeline.	456	1 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/003-Congressional Involvement (General)
100016078	5/15/2014 Email regarding PH schedule.	312	1 EML / Email	R10: Cohen, Lori, G (EPA)	R10: Schuster, Cindy, C (EPA)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/003-Congressional Involvement (General)
100016335	Email regarding Portland Harbor Superfund site update.	86	2 EML / Email	R10: Oken-berg, Jake (U. S. Senate)	R10: Levine, Carolyn (EPA)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/003-Congressional Involvement (General)
100016074	Email regarding Portland Harbor Superfund site update.	363	2 EML / Email	R10: Schuster, Cindy, C (EPA)	R10: Cohen, Lori, G (EPA)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/003-Congressional Involvement (General)
100016745	Agenda and Notes for Portland Harbor Superfund Stakeholder's Meeting on 11/24/2014 November 24, 2014 (With Marginalia).	9,170	57 MTG / Meeting Document	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/003-Congressional Involvement (General)
100016235	3/18/2015 Rolling Averages All COCs Graphs.	605	29 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/003-Congressional Involvement (General)
100016315	Email regarding follow up to yesterday's 3/18/2015 meeting on Portland Harbor.	83	1 EML / Email	R10: Deveny, Adrian (U. S. Senate)	R10: Levine, Carolyn (EPA), R10: Baumann, Jeremiah (Office of Senator Jeff Merkley)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/003-Congressional Involvement (General)
100016251	Letter regarding Settlement Agreement and Administrative Order on Consent for Remedial Investigation and Feasibility Study.	345	3 CORR / Correspondence	R10: Koch, Kristine, M (EPA)	R10: Wyatt, Bob (Lower Willamette Group)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/003-Congressional Involvement (General)
100017934	REDACTED Email regarding Portland Harbor update/Tues 4/28 conference call.	396	2 EML / Email	R10: Schuster, Cindy, C (EPA)	R10: Kunse, Suzanne (U. S. House of Representatives), R10: Gautreaux, Mary (Office of Senator Ron Wyden), R10: Deveny, Adrian (U. S. Senate), R10: Egler, Jacob, R10: Oken-berg, Jake (U. S. Senate), R10: Mann, Ryan (Unknown), R10: Bittleman, Sarah, R10: Phillips, Stephanie, R10: Stevens, Jessica (Office of Senator Jeff Merkley), R10: Fauerbach, Erin (Office of Senator Ron Wyden), R10: Baumann, Jeremiah (Office of Senator Jeff Merkley), R10: Neal, Grace (Office of Senator Ron Wyden), R10: Smith, Willie (Unknown), R10: Pomeroy, Julia, R10: Kelley, Russ, R10: Rasmussen, Kristin, R10: Horvath, Kelli	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/003-Congressional Involvement (General)
100018086	REDACTED Email regarding Portland Harbor update/Tues 4/28 conference call.	76	2 EML / Email	R10: Gautreaux, Mary (Office of Senator Ron Wyden)	R10: Kunse, Suzanne (U. S. House of Representatives), R10: Schuster, Cindy, C (EPA), R10: Deveny, Adrian (U. S. Senate), R10: Egler, Jacob, R10: Oken-berg, Jake (U. S. Senate), R10: Mann, Ryan (Unknown), R10: Bittleman, Sarah, R10: Phillips, Stephanie, R10: Stevens, Jessica (Office of Senator Jeff Merkley), R10: Fauerbach, Erin (Office of Senator Ron Wyden), R10: Baumann, Jeremiah (Office of Senator Jeff Merkley), R10: Neal, Grace (Office of Senator Ron Wyden), R10: Smith, Willie (Unknown), R10: Pomeroy, Julia, R10: Kelley, Russ, R10: Rasmussen, Kristin, R10: Horvath, Kelli	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/003-Congressional Involvement (General)
100016332	Email regarding Portland Harbor RA meetings 5/19/2015 on 7/29 & 9/16.	67	1 EML / Email	R10: Schuster, Cindy, C (EPA)	R10: Holsman, Marianne (EPA)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/003-Congressional Involvement (General)
100016261	Email regarding EPA Portland Harbor mailing 6/5/2015 list.	37	1 EML / Email	R10: Schuster, Cindy, C (EPA)	R10: Egler, Jacob	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/003-Congressional Involvement (General)
100016232	7/22/2015 Email regarding PH meetings.	38	1 EML / Email	R10: Schuster, Cindy, C (EPA)	R10: Grandinetti, Cami (EPA), R10: Zhen, Davis (EPA)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/003-Congressional Involvement (General)
100017937	REDACTED Email regarding August 5 EPA call on Portland Harbor.	65	1 EML / Email	R10: Schuster, Cindy, C (EPA)	R10: Deveny, Adrian (U. S. Senate), R10: Egler, Jacob, R10: Brumfield, Liv, R10: Round, Sarah, R10: Oken-berg, Jake (U. S. Senate), R10: Bittleman, Sarah, R10: Huckleberry, Chris, R10: Fauerbach, Erin (Office of Senator Ron Wyden)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/003-Congressional Involvement (General)
100017943	REDACTED Email regarding EPA Update and Reminder: Call today on Portland Harbor.	95	3 EML / Email	R10: Schuster, Cindy, C (EPA)	R10: Deveny, Adrian (U. S. Senate)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/003-Congressional Involvement (General)
100017965	REDACTED Email Regarding EPA Update and Reminder: Call Today on Portland Harbor.	95	3 EML / Email	R10: Schuster, Cindy, C (EPA)	R10: Robinson, Deborah, G (EPA)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/003-Congressional Involvement (General)
100016065	Figure 4.1-2 Sediment Decision Unites and Key COCs.	434	1 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/003-Congressional Involvement (General)
100016077	Figure 4.1-2 Sediment Decision Unites and Key COCs.	434	1 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/003-Congressional Involvement (General)
100016237	Figures 4.2-1a-b Residual Human Health Cancer Risk for RAO1.	560	2 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/003-Congressional Involvement (General)
100016238	8/17/2015 Figure 4.2-2a-b Residual Cancer Risk for RAO2.	551	2 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/003-Congressional Involvement (General)
100016239	Figures 4.2 3a-3J(2) Residual human Health Non-Cancer Risk for RAO 2 for Child (Year 0)- 8/17/2015 TCDF.	925	20 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/003-Congressional Involvement (General)
100016240	Figure 4.2-4a-g Residual Human Health Non-Cancer for RAO2 for Infant (Year 0) -DDx.	867	14 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/003-Congressional Involvement (General)
100016241	Figure 4.2- 5a-k Residual Ecological Risk for RAO 5 (Year 0) - BEHP.	889	22 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/003-Congressional Involvement (General)
100016242	Figures 4.2-6a-i Residual Ecological Risk for RAO 6 (Year 0) - DDx.	898	18 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/003-Congressional Involvement (General)
100016236	Figure 4. 1-3 Comparison of Measured and Predicted Changes in Portland Harbor Sediment Bed Elevation on an SDU Basis.	51	1 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/003-Congressional Involvement (General)

100016273	9/9/2015	Email regarding PH congressional outreach.	37	1 EML / Email	R10: Schuster, Cindy, C (EPA)	R10: Macintyre, Mark, A (EPA)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/003-Congressional Involvement (General)
100016323	9/14/2015	Email regarding PH Hill visits 9/16. Presentation Regarding Congressional Update on Portland Harbor - Initial Evaluation of Alternatives.	89	2 EML / Email	R10: Levine, Carolyn (EPA)	R10: Schuster, Cindy, C (EPA)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/003-Congressional Involvement (General)
100016764	9/16/2015	Email regarding Response to Rep. Blumenauer inquiry on Portland Harbor.	2,169	12 MTG / Meeting Document	R10: (EPA)	R10: (Unknown)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/003-Congressional Involvement (General)
100016267	9/29/2015	Email regarding National Remedy Review Board.	94	3 EML / Email	R10: Schuster, Cindy, C (EPA)	R10: Robinson, Deborah, G (EPA)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/003-Congressional Involvement (General)
100016320	10/20/2015	Figure 11-X Selected Technology Assignments, Site-Wide.	70	2 EML / Email	R10: Round, Sarah	R10: Holsman, Marianne (EPA)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/003-Congressional Involvement (General)
100016070	10/23/2015	REDACTED Email regarding PH Feasibility Study.	435	1 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/003-Congressional Involvement (General)
100017959	10/27/2015	Email regarding need a congressional call this week on portland harbor.	97	3 EML / Email	R10: Schuster, Cindy, C (EPA)	R10: Oken-berg, Jake (U. S. Senate)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/003-Congressional Involvement (General)
100016321	11/10/2015	Email regarding Portland Harbor site comparison.	74	2 EML / Email	R10: Schuster, Cindy, C (EPA)	R10: Gautreaux, Mary (Office of Senator Ron Wyden), R10: Brumfield, Liv	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/003-Congressional Involvement (General)
100016333	11/10/2015	Information for Merkley's Information Request.	82	2 EML / Email	R10: Oken-berg, Jake (U. S. Senate)	R10: Schuster, Cindy, C (EPA), R10: Brown, Timothy	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/003-Congressional Involvement (General)
100016752	11/10/2015	Email regarding Portland Harbor congressional call 11.16.15 notes.	497	12 OTH / Other	R10: (Unknown)	R10: Merkley, Jeff (U. S. Senate)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/003-Congressional Involvement (General)
100016330	11/16/2015	REDACTED Email regarding Portland Harbor call soon!.	68	3 EML / Email	R10: Holsman, Marianne (EPA)	R10: Schuster, Cindy, C (EPA)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/003-Congressional Involvement (General)
100018091	11/16/2015	Email regarding Nov 18 Portland Harbor Congressional Call: Outline & Figures-- updated.	66	1 EML / Email	R10: Schuster, Cindy, C (EPA)	R10: Kunse, Suzanne (U. S. House of Representatives), R10: Gautreaux, Mary (Office of Senator Ron Wyden), R10: Deveny, Adrian (U. S. Senate), R10: Egler, Jacob, R10: Brumfield, Liv, R10: Round, Sarah, R10: Oken-berg, Jake (U. S. Senate), R10: Bittleman, Sarah, R10: Phillips, Stephanie, R10: Haggerty, Phylcia, R10: Batz, Nick, R10: Huckleberry, Chris, R10: Stevens, Jessica (Office of Senator Jeff Merkley), R10: Fauerbach, Erin (Office of Senator Ron Wyden), R10: Baumann, Jeremiah (Office of Senator Jeff Merkley), R10: Neal, Grace (Office of Senator Ron Wyden), R10: Smith, Willie (Unknown), R10: Pomeroy, Julia, R10: Kelley, Russ, R10: Baessler, Sarah (Unknown), R10: Gaona, Elvia (Unknown)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/003-Congressional Involvement (General)
100016071	11/17/2015	Portland Harbor Remedial Investigation Presentation to the CSTAG/NRRB.	2,839	2 EML / Email	R10: Schuster, Cindy, C (EPA)	R10: Batz, Nick	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/003-Congressional Involvement (General)
100016063	11/18/2015	Portland Harbor Feasibility Study Presentation.	7,517	90 CORR / Correspondence	R10: Koch, Kristine, M (EPA)	R10: (National Remedy Review Board)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/003-Congressional Involvement (General)
100016067	11/18/2015	Portland Harbor Preferred Alternative Presentation.	7,263	116 CORR / Correspondence	R10: Koch, Kristine, M (EPA)	R10: (National Remedy Review Board)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/003-Congressional Involvement (General)
100016069	11/18/2015	Portland Harbor Congressional Briefing Outline.	5,121	51 CORR / Correspondence	R10: Koch, Kristine, M (EPA)	R10: (National Remedy Review Board)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/003-Congressional Involvement (General)
100016072	11/18/2015	Portland Harbor Congressional Briefing Presentation.	61	1 CORR / Correspondence	R10: Robinson, Deborah, G (EPA)	R10: (Unknown)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/003-Congressional Involvement (General)
100016073	11/18/2015	Email regarding PH materials--and participating offices.	3,225	12 CORR / Correspondence	R10: Zhen, Davis (EPA)	R10: (Unknown)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/003-Congressional Involvement (General)
100016324	11/18/2015	Congressional Briefing on Portland Harbor.	60	1 EML / Email	R10: Schuster, Cindy, C (EPA)	R10: Grandinetti, Cami (EPA), R10: Zhen, Davis (EPA)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/003-Congressional Involvement (General)
100016766	11/18/2015	Portland Harbor Congressional Briefing Presentation Regarding Congressional Briefing on Portland Harbor - Evaluation of Alternatives.	1,176	12 MTG / Meeting Document	R10: (EPA)	R10: (Unknown)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/003-Congressional Involvement (General)
100016255	11/25/2015	REDACTED Email regarding Power Point presentation for today's call.	3,365	16 CORR / Correspondence	R10: (EPA)	R10: (U. S. Congress)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/003-Congressional Involvement (General)
100016756	11/25/2015	Email regarding Office of Congresswoman Bonamicci question regarding Portland Harbor Superfund Site.	2,241	20 MTG / Meeting Document	R10: (EPA)	R10: (Unknown)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/003-Congressional Involvement (General)
100017927	11/25/2015	REDACTED Email regarding Portland Harbor call with Sen. Merkley's office.	2,769	6 EML / Email	R10: Holsman, Marianne (EPA)	R10: Schuster, Cindy, C (EPA), R10: Little, Jason (Unknown), R10: Binkley, Wayne (Office of Senator Ron Wyden)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/003-Congressional Involvement (General)
100016322	12/2/2015	Email regarding Follow-up information for November Portland Harbor calls, part 1 of 3.	61	2 EML / Email	R10: Schuster, Cindy, C (EPA)	R10: Haggerty, Phylcia	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/003-Congressional Involvement (General)
100016062	12/15/2015	Email regarding Follow-up information for November Portland Harbor calls, part 2 of 3.	7,230	1 EML / Email	R10: Schuster, Cindy, C (EPA)	R10: Brown, Timothy, R10: Fauerbach, Erin, R10: Egler, Jacob, R10: Brumfield, Liv, R10: Round, Sarah, R10: Oken-berg, Jake (U. S. Senate), R10: Bittleman, Sarah, R10: Phillips, Stephanie, R10: Haggerty, Phylcia, R10: Debates, Megan, R10: Batz, Nick, R10: Huckleberry, Chris	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/003-Congressional Involvement (General)
100016066	12/15/2015	Email regarding Follow-up information for November Portland Harbor calls, part 3 of 3.	6,010	1 EML / Email	R10: Schuster, Cindy, C (EPA)	R10: Brown, Timothy, R10: Fauerbach, Erin, R10: Egler, Jacob, R10: Brumfield, Liv, R10: Round, Sarah, R10: Oken-berg, Jake (U. S. Senate), R10: Bittleman, Sarah, R10: Phillips, Stephanie, R10: Haggerty, Phylcia, R10: Debates, Megan, R10: Batz, Nick, R10: Huckleberry, Chris	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/003-Congressional Involvement (General)
100016068	12/15/2015	Email regarding Follow-up information for November Portland Harbor calls, part 2 of 3 [Sen. Merkley office inquiry].	4,935	1 EML / Email	R10: Schuster, Cindy, C (EPA)	R10: Schuster, Cindy, C (EPA)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/003-Congressional Involvement (General)
100016064	1/6/2016	REDACTED Email regarding January 29 Portland Harbor call with Sen. Merkley's office.	437	2 EML / Email	R10: Schuster, Cindy, C (EPA)	R10: Oken-berg, Jake (U. S. Senate)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/003-Congressional Involvement (General)
100017954	1/27/2016	Email regarding January 29 Portland Harbor call with Sen. Merkley's office.	71	4 EML / Email	R10: Schuster, Cindy, C (EPA)	R10: Oken-berg, Jake (U. S. Senate)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/003-Congressional Involvement (General)
100016076	1/28/2016	Email regarding follow up to January 15 call re: Portland Harbor SF site.	435	1 EML / Email	R10: Schuster, Cindy, C (EPA)	R10: Koch, Kristine, M (EPA), R10: Grandinetti, Cami (EPA), R10: Allen, Elizabeth (EPA)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/003-Congressional Involvement (General)
100016314	1/29/2016	Email regarding Portland Harbor figures from FS for Senator Merkley's office.	88	2 EML / Email	R10: Schuster, Cindy, C (EPA)	R10: Dunbar, Bill (EPA), R10: Levine, Carolyn (EPA), R10: Holsman, Marianne (EPA)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/003-Congressional Involvement (General)
100016080	1/29/2016	Email regarding PH call notes 1.29.16.	9,722	1 EML / Email	R10: Schuster, Cindy, C (EPA)	R10: Brown, Timothy, R10: Oken-berg, Jake (U. S. Senate)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/003-Congressional Involvement (General)
100016271	1/29/2016		38	1 EML / Email	R10: Schuster, Cindy, C (EPA)	R10: Levine, Carolyn (EPA), R10: Holsman, Marianne (EPA)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/003-Congressional Involvement (General)

100018081	REDACTED Email regarding January 29 Portland Harbor call with Sen. Merkley's office.	77	5 EML / Email	R10: Schuster, Cindy, C (EPA)	R10: Oken-berg, Jake (U. S. Senate)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/003-Congressional Involvement (General)
100016061	Letter regarding Administrative Order on Consent for Remedial Investigation and Feasibility Study.	164	3 CORR / Correspondence	R10: Grandinetti, Cami (EPA)	R10: Wyatt, Bob (Lower Willamette Group)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/003-Congressional Involvement (General)
100016268	Email regarding Info for Dennis on 2/16 - RE: OR House Energy and Environment Committee briefing on Portland Harbor.	61	2 EML / Email	R10: Robinson, Deborah, G (EPA)	R10: Schuster, Cindy, C (EPA)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/003-Congressional Involvement (General)
100016270	Email regarding OR House Energy and Environment Committee briefing on Portland Harbor.	39	1 EML / Email	R10: Schuster, Cindy, C (EPA)	R10: Patrino, Beth (Unknown)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/003-Congressional Involvement (General)
100016313	Email regarding February 18 presentation to Oregon House Committee on Energy and Environment.	14	1 EML / Email	R10: McLerran, Dennis, J (EPA)	R10: Robinson, Deborah, G (EPA)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/003-Congressional Involvement (General)
100016781	Email Regarding OR House Energy and Environment Committee Briefing on Portland Harbor.	59	1 EML / Email	R10: Schuster, Cindy, C (EPA)	R10: Robinson, Deborah, G (EPA)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/003-Congressional Involvement (General)
100016757	Presentation for Oregon State Legislators Regarding Portland Harbor Superfund Site.	5,512	10 MTG / Meeting Document	R10: (EPA)	R10: (Unknown)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/003-Congressional Involvement (General)
100016259	Email regarding EPA & ODEQ Request Mar 30 Congressional Meeting on Portland Harbor.	38	1 EML / Email	R10: Schuster, Cindy, C (EPA)	R10: Little, Jason (Unknown), R10: Peebles, Tricia (Office of Senator Jeff Merkley), R10: Warner, Mackenzie (Unknown), R10: Allen, Barbara (Unknown), R10: Markgraf, Teresa, R10: Cornwall, Vanessa (Unknown)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/003-Congressional Involvement (General)
100016258	Email regarding EPA & ODEQ Mar 30 & 31 Congressional Meetings on Portland Harbor.	165	4 EML / Email	R10: Schuster, Cindy, C (EPA)	R10: Little, Jason (Unknown), R10: Peebles, Tricia (Office of Senator Jeff Merkley), R10: Warner, Mackenzie (Unknown), R10: Allen, Barbara (Unknown), R10: Markgraf, Teresa, R10: Cornwall, Vanessa (Unknown)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/003-Congressional Involvement (General)
100016311	Email regarding EPA & ODEQ Mar 30 & 31 Congressional Meetings on Portland Harbor.	112	4 EML / Email	R10: Haggerty, Phylicia	R10: Schuster, Cindy, C (EPA)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/003-Congressional Involvement (General)
100016318	Email regarding Inquiry from Congresswoman Bonamici's office on Portland Harbor map.	113	4 EML / Email	R10: Haggerty, Phylicia	R10: Schuster, Cindy, C (EPA)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/003-Congressional Involvement (General)
100016248	Email regarding Portland Harbor map for Congresswoman Bonamici's office.	2,199	1 EML / Email	R10: Schuster, Cindy, C (EPA)	R10: Haggerty, Phylicia	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/003-Congressional Involvement (General)
100016249	Study Area to Portland Harbor Remedial Investigation Feasibility Study.	2,078	1 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/003-Congressional Involvement (General)
100016331	Email regarding Portland Harbor map for Congresswoman Bonamici's office.	57	1 EML / Email	R10: Schuster, Cindy, C (EPA)	R10: Haggerty, Phylicia	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/003-Congressional Involvement (General)
100016303	3/17/2016 Email regarding PH outreach.	38	1 EML / Email	R10: Schuster, Cindy, C (EPA)	R10: Levine, Carolyn (EPA)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/003-Congressional Involvement (General)
100017930	REDACTED Email regarding EPA & State of OR Mar 30 & 31 Congressional Meetings on Portland Harbor.	64	1 EML / Email	R10: Schuster, Cindy, C (EPA)	R10: Little, Jason (Unknown), R10: Peebles, Tricia (Office of Senator Jeff Merkley), R10: Warner, Mackenzie (Unknown), R10: Allen, Barbara (Unknown), R10: Markgraf, Teresa, R10: Cornwall, Vanessa (Unknown)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/003-Congressional Involvement (General)
100016789	Email Regarding Portland Harbor Superfund Update.	96	1 EML / Email	R10: Holsman, Marianne (EPA)	R10: Robinson, Deborah, G (EPA), R10: Grandinetti, Cami (EPA)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/003-Congressional Involvement (General)
100016791	Email Regarding Request for List of Legislators Expected on 3/31.	1,569	1 EML / Email	R10: Holsman, Marianne (EPA)	R10: Robinson, Deborah, G (EPA), R10: Grandinetti, Cami (EPA)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/003-Congressional Involvement (General)
100016770	Presentation for Congress and Lower Willamette Group Executives Regarding Portland Harbor.	5,672	10 MTG / Meeting Document	R10: (EPA)	R10: (Unknown)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/003-Congressional Involvement (General)
100016339	Email regarding Who is attending meetings with elected officials on 3/30-31.	71	2 EML / Email	R10: Schuster, Cindy, C (EPA)	R10: Robinson, Deborah, G (EPA), R10: Holsman, Marianne (EPA)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/003-Congressional Involvement (General)
100016773	Agenda and Attendees for Portland Harbor Superfund Legislators Update.	2,247	13 MTG / Meeting Document	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/003-Congressional Involvement (General)
100016774	Attendee List for Portland Harbor Superfund Site Meeting with Congressional Delegation.	135	2 MTG / Meeting Document	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/003-Congressional Involvement (General)
100016782	Email Regarding Who is Attending Meetings with Elected Officials on 3/30-31.	68	1 EML / Email	R10: Schuster, Cindy, C (EPA)	R10: Robinson, Deborah, G (EPA), R10: Holsman, Marianne (EPA)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/003-Congressional Involvement (General)
100016783	Agenda for Portland Harbor Superfund Legislators Update.	69	1 MTG / Meeting Document	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/003-Congressional Involvement (General)
100016803	Agenda for Portland Harbor Superfund Legislators Update.	69	1 MTG / Meeting Document	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/003-Congressional Involvement (General)
100016307	Email regarding Quick Portland Harbor call on 4/6/2016 4/7 or 4/8.	39	1 EML / Email	R10: Schuster, Cindy, C (EPA)	R10: Kunse, Suzanne (U. S. House of Representatives), R10: Gautreaux, Mary (Office of Senator Ron Wyden), R10: Phillips, Christine, M (EPA), R10: Brown, Timothy, R10: Deveny, Adrian (U. S. Senate), R10: Fauerback, Erin, R10: Egler, Jacob, R10: Brumfield, Liv, R10: Round, Sarah, R10: Oken-berg, Jake (U. S. Senate), R10: Bittleman, Sarah, R10: Haggerty, Phylicia, R10: Batz, Nick, R10: Huckleberry, Chris, R10: Stevens, Jessica (Office of Senator Jeff Merkley), R10: Baumann, Jeremiah (Office of Senator Jeff Merkley), R10: Neal, Grace (Office of Senator Ron Wyden), R10: Smith, Willie (Unknown), R10: Pomeroy, Julia, R10: Vander Zanden, Alison (Unknown), R10: Smith, Allison (Unknown), R10: Baessler, Sarah (Unknown), R10: Cooney, Liz (Unknown)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/003-Congressional Involvement (General)
100016272	4/8/2016 Email regarding PH congressional call.	37	1 EML / Email	R10: Schuster, Cindy, C (EPA)	R10: Levine, Carolyn (EPA), R10: Holsman, Marianne (EPA)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/003-Congressional Involvement (General)
100005905	Portland Harbor Superfund Site Briefing Paper 8/8/2008 for Congressional Visits.	26	3 CORR / Correspondence	R10: Opalski, Daniel, D (EPA)	R10: (Unknown)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/003-Congressional Involvement (General)
100005900	11/10/2009 Portland Harbor Superfund Site Update.	77	3 CORR / Correspondence	R10: Smith, Judy, R (EPA)	R10: (Unknown)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/003-Congressional Involvement (General)
100005904	11/24/2009 Portland Harbor Superfund Site Briefing Paper.	31	3 CORR / Correspondence	R10: Blischke, Eric, L (EPA)	R10: (Unknown)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/003-Congressional Involvement (General)
100005908	Letter regarding Portland Superfund Site Update.	852	2 CORR / Correspondence	R10: Wyatt, Bill (Port of Portland)	R10: Merkley, Jeff (U. S. Senate)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/003-Congressional Involvement (General)
100005906	Portland Harbor Superfund Site Congressional Update.	24	2 CORR / Correspondence	R10: (EPA)	R10: Defazio, Peter (U. S. House of Representatives), R10: Merkley, Jeff (U. S. Senate)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/003-Congressional Involvement (General)
100004806	Portland Harbor Initial Evaluation of Alternatives Congressional Update.	2,170	12 CORR / Correspondence	R10: (EPA Region 10)	R10: (Unknown)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/003-Congressional Involvement (General)
100004809	Table 5. Sediment Quality Values Representing the Sediment Cleanup Objectives Related to Environmental Risks.	497	12 CHT / Chart/Table	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/003-Congressional Involvement (General)



100004807	11/18/2015	Portland Harbor Congressional Briefing.	448	12 CORR / Correspondence	R10: (EPA Region 10)	R10: (Unknown)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/003-Congressional Involvement (General)
1412924	11/25/2015	Presentation from Congressional Briefing.	9,967	6 LTR / Letter	R10: (EPA)		PAPER DOCUMENT	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/003-Congressional Involvement (General)
100004808	11/25/2015	Portland Harbor Evaluation of Alternatives.	2,224	20 CORR / Correspondence	R10: (EPA Region 10)	R10: (Unknown)		051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/003-Congressional Involvement (General)
100005901	Undated	Portland Harbor Superfund Site Update.	81	4 CORR / Correspondence	R10: Smith, Judy, R (EPA)	R10: (Unknown)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/003-Congressional Involvement (General)
100005903	Undated	Portland Harbor Superfund Site January 2007 Briefing Paper.	26	3 CORR / Correspondence	R10: Cora, Lori, H (EPA)	R10: (Unknown)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/003-Congressional Involvement (General)
100005907	Undated	Portland Harbor Superfund Site Congressional Update.	19	2 CORR / Correspondence	R10: (EPA)	R10: Blumenauer, Earl (U. S. House of Representatives), R10: Merkley, Jeff (U. S. Senate)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/003-Congressional Involvement (General)
1436931	2/1/1999	EPA Fact Sheet: Portland Harbor, Portland, Oregon, February 1999.	362	4 RPT / Report	R10: (EPA)	R10: (Unknown)	PAPER DOCUMENT	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/004-Fact Sheet (General)
1436930	4/1/1999	EPA Fact Sheet: Portland Harbor, Portland, Oregon, April 1999.	3,136	8 RPT / Report	R10: (EPA)	R10: (Unknown)	PAPER DOCUMENT	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/004-Fact Sheet (General)
1436935	8/1/2000	EPA Fact Sheet: Portland Harbor Site, Portland, Oregon, EPA Proposes Portland Harbor to National Priorities List, August 2000.	5,997	4 RPT / Report	R10: (EPA)	R10: (Unknown)	PAPER DOCUMENT	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/004-Fact Sheet (General)
1436933	4/24/2001	EPA Fact Sheet: Recent Activity for the Portland Harbor Superfund Site, Working Together to Clean Up the Harbor, What is MOU, Preliminary Public Health Assessment, Understanding Technical Information.	217	4 RPT / Report	R10: (EPA)	R10: (Unknown)	PAPER DOCUMENT	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/004-Fact Sheet (General)
1436936	5/1/2001	EPA DEQ Portland Harbor Superfund Fact Sheet: Working Together to Clean Up Portland Harbor, A Memorandum of Understanding is Signed, May 2001.	5,747	4 RPT / Report	R10: (EPA), R10: (Oregon Dept. of Environmental Quality)	R10: (Unknown)	PAPER DOCUMENT	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/004-Fact Sheet (General)
1436938	10/16/2001	EPA DEQ Portland Harbor Superfund Fact Sheet: EPA and Lower Willamette Group Members Sign Cleanup Agreement, October 2001.	211	3 RPT / Report	R10: (EPA), R10: (Oregon Dept. of Environmental Quality)	R10: (Unknown)	PAPER DOCUMENT	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/004-Fact Sheet (General)
1436937	2/1/2002	EPA DEQ Portland Harbor Superfund Fact Sheet: Launching the Investigation for Portland Harbor, February 2002.	2,981	6 RPT / Report	R10: (EPA), R10: (Oregon Dept. of Environmental Quality)	R10: (Unknown)	PAPER DOCUMENT	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/004-Fact Sheet (General)
1436941	2/2/2002	EPA DEQ Portland Harbor Superfund Fact Sheet: Launching the Investigation for Portland Harbor, What We Heard at the Community Forum, Community Involvement Plan Released, February 2002.	3,207	6 RPT / Report	R10: (EPA), R10: (Oregon Dept. of Environmental Quality)	R10: (Unknown)	PAPER DOCUMENT	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/004-Fact Sheet (General)
100008642	3/21/2003	Fact Sheet: Project Update Newsletter.	1,068	8 OTH / Other	R10: (EPA), R10: (Oregon Dept. of Environmental Quality)	R10: (Unknown)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/004-Fact Sheet (General)
1436942	6/1/2003	EPA DEQ Portland Harbor Project Newsletter: EPA Completes Review of Draft Work Plan, Site Background, Uplands Update, Summer 2003.	553	8 RPT / Report	R10: (EPA), R10: (Oregon Dept. of Environmental Quality)	R10: (Unknown)	PAPER DOCUMENT	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/004-Fact Sheet (General)
100008637	6/21/2003	Fact Sheet: Project Newsletter.	481	8 OTH / Other	R10: (EPA), R10: (Oregon Dept. of Environmental Quality)	R10: (Unknown)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/004-Fact Sheet (General)
100008640	6/21/2003	Fact Sheet: Project Newsletter.	483	8 OTH / Other	R10: (EPA), R10: (Oregon Dept. of Environmental Quality)	R10: (Unknown)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/004-Fact Sheet (General)
1436927	10/1/2003	EPA Port of Portland Environmental Fact Sheet: Port Initiates Terminal 4 Sediment Cleanup, October 2003 (With Highlighted Passages and Handwritten Notes).	6,892	3 RPT / Report	R10: (EPA)	R10: (Unknown)	PAPER DOCUMENT	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/004-Fact Sheet (General)
1436943	10/1/2003	EPA Portland Harbor Brownfields Fact Sheet: The Portland Harbor Superfund Site and Brownfields, October 2003.	202	4 RPT / Report	R10: (EPA)	R10: (Unknown)	PAPER DOCUMENT	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/004-Fact Sheet (General)
100008656	10/6/2003	Fact Sheet: Port Initiates Terminal 4 Sediment Cleanup.	1,418	4 OTH / Other	R10: (Port of Portland), R10: (EPA)	R10: (Unknown)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/004-Fact Sheet (General)
1436928	4/1/2004	EPA Community Involvement Plan, Terminal 4 Sediment Cleanup, Portland Harbor Superfund Site, April 2004.	3,183	6 RPT / Report	R10: (EPA)	R10: (Unknown)	PAPER DOCUMENT	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/004-Fact Sheet (General)
1436934	4/1/2004	EPA Fact Sheet: The Portland Harbor Crossword Puzzle, April 2004.	32	1 RPT / Report	R10: (EPA)	R10: (Unknown)	PAPER DOCUMENT	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/004-Fact Sheet (General)
100008771	4/30/2004	Fact Sheet: Portland Harbor Superfund Cleanup.	57	2 OTH / Other	R10: (Oregon Dept. of Environmental Quality)	R10: (Unknown)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/004-Fact Sheet (General)
100008615	5/11/2004	Fact Sheet: GASCO Removal Action - NW Natural Gas Will Remove Sediment Contamination.	305	4 OTH / Other	R10: (EPA), R10: (Oregon Dept. of Environmental Quality)	R10: (Unknown)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/004-Fact Sheet (General)
100008619	6/29/2004	Fact Sheet: Cleanup Newsletter.	252	8 OTH / Other	R10: (EPA), R10: (Oregon Dept. of Environmental Quality)	R10: (Unknown)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/004-Fact Sheet (General)
1436926	1/1/2005	Brochure: Cleaning Up the Portland Harbor Superfund Site, January 2005.	5,925	2 RPT / Report	R10: (EPA), R10: (Oregon Dept. of Environmental Quality)	R10: (Unknown)	PAPER DOCUMENT	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/004-Fact Sheet (General)
100008634	3/21/2005	Fact Sheet: Cleanup Newsletter.	433	8 OTH / Other	R10: (EPA), R10: (Oregon Dept. of Environmental Quality)	R10: (Unknown)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/004-Fact Sheet (General)
100008621	5/1/2005	Fact Sheet: GASCO Removal Action - Engineering Evaluation and Cost Analysis (EE/CA) Available for Review.	134	4 OTH / Other	R10: (EPA), R10: (Oregon Dept. of Environmental Quality)	R10: (Unknown)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/004-Fact Sheet (General)
1436939	6/1/2005	EPA DEQ Portland Harbor, Arkema Removal Action, Arkema to Clean Up Sediments and Riverbank, June 2005.	5,245	3 RPT / Report	R10: (EPA), R10: (Oregon Dept. of Environmental Quality)	R10: (Unknown)	PAPER DOCUMENT	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/004-Fact Sheet (General)
1436945	6/1/2005	EPA DEQ Portland Harbor Terminal 4 Early Action Cleanup: Sediment Cleanup Alternatives Available for Public Review, Comment Period, Site Background, June 2005.	5,427	4 RPT / Report	R10: (EPA), R10: (Oregon Dept. of Environmental Quality)	R10: (Unknown)	PAPER DOCUMENT	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/004-Fact Sheet (General)
100008636	3/21/2006	Fact Sheet: Cleanup Newsletter.	309	8 OTH / Other	R10: (EPA), R10: (Oregon Dept. of Environmental Quality)	R10: (Unknown)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/004-Fact Sheet (General)
1436940	5/1/2006	EPA DEQ Portland Harbor Fact Sheet: Terminal 4 Early Action Cleanup Information With Letter to Stakeholders, May 2006.	5,156	6 RPT / Report	R10: (EPA), R10: (Oregon Dept. of Environmental Quality)	R10: (Unknown)	PAPER DOCUMENT	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/004-Fact Sheet (General)
100008622	5/1/2006	Fact Sheet: Terminal 4 Early Action - Cleanup Decision for Terminal 4 Early Action Area.	174	6 OTH / Other	R10: (EPA), R10: (Oregon Dept. of Environmental Quality)	R10: (Unknown)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/004-Fact Sheet (General)
100008788	5/1/2006	Fact Sheet: Terminal 4 Early Action Cleanup - Cleanup Decision for Terminal 4 Early Action Area.	203	6 OTH / Other	R10: (EPA), R10: (Oregon Dept. of Environmental Quality)	R10: (Unknown)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/004-Fact Sheet (General)
1436924	6/1/2006	Update Sheet from Lower Willamette Group (LWG): Evaluation of Innovative Remediation Technologies for the Portland Harbor Superfund Site, June 2006.	6,656	2 RPT / Report	R10: (Lower Willamette Group)	R10: (Unknown)	PAPER DOCUMENT	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/004-Fact Sheet (General)

1436944	5/1/2007	EPA DEQ Portland Harbor Clean Up Newsletter: Portland Harbor Round 2 Report, What Are the Key Parts of the Round 2 Comprehensive Report?, Site Updates, May 2007.	10,068	8 RPT / Report	R10: (EPA), R10: (Oregon Dept. of Environmental Quality)	R10: (Unknown)	PAPER DOCUMENT	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/004-Fact Sheet (General)
100008638	5/1/2007	Fact Sheet: Cleanup Newsletter.	181	8 OTH / Other	R10: (EPA), R10: (Oregon Dept. of Environmental Quality)	R10: (Unknown)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/004-Fact Sheet (General)
1436932	11/15/2007	EPA Fact Sheet: EPA Grants Port of Portland's Request to Delay Cleanup at Terminal 4.	2,841	1 RPT / Report	R10: (EPA)	R10: (Unknown)	PAPER DOCUMENT	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/004-Fact Sheet (General)
100008653	11/15/2007	Fact Sheet: EPA Grants Port of Portland's Request to Delay Cleanup at Terminal 4.	27	1 OTH / Other	R10: (EPA)	R10: (Unknown)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/004-Fact Sheet (General)
1436929	1/1/2008	EPA Environmental Fact Sheet: EPA Requests Information from Businesses Near the Portland Harbor Superfund Site, January 2008.	67	1 RPT / Report	R10: (EPA)	R10: (Unknown)	PAPER DOCUMENT	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/004-Fact Sheet (General)
100008652	1/1/2008	Fact Sheet: EPA Requests Information from Businesses Near the Portland Harbor Superfund Site.	19	1 OTH / Other	R10: (EPA)	R10: (Unknown)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/004-Fact Sheet (General)
100008740	7/1/2008	Portland Harbor Superfund Site Update - For Lower Columbia Basin PCB Workshop July 2008	131	3 OTH / Other	R10: (EPA)	R10: (Unknown)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/004-Fact Sheet (General)
1436925	8/1/2008	Brochure: Cleaning Up the Portland Harbor Superfund Site, August 2008.	5,484	2 RPT / Report	R10: (EPA), R10: (Oregon Dept. of Environmental Quality)	R10: (Unknown)	PAPER DOCUMENT	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/004-Fact Sheet (General)
100008648	12/10/2008	Fact Sheet: Portland Harbor Superfund Site Update - Portland Harbor Community Advisory Group Meeting - December 10, 2008.	31	2 OTH / Other	R10: (EPA)	R10: (Unknown)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/004-Fact Sheet (General)
100008650	2/11/2009	Fact Sheet: Superfund Risk Assessment for Portland Harbor - Portland Harbor Community Advisory Group Meeting - February 11, 2009.	89	2 OTH / Other	R10: (EPA)	R10: (Unknown)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/004-Fact Sheet (General)
100008753	10/1/2009	Portland Harbor Superfund Site Update - October 2009.	131	3 OTH / Other	R10: (EPA)	R10: (Unknown)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/004-Fact Sheet (General)
100008756	1/1/2011	Portland Harbor Superfund Site - Update Summer 2011.	229	2 OTH / Other	R10: (Lower Willamette Group)	R10: (Unknown)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/004-Fact Sheet (General)
100008773	1/1/2011	Fact Sheet: Portland Harbor Superfund Site - Recreational User Health Assessment Completed.	564	4 OTH / Other	R10: (Oregon Dept. of Human Services)	R10: (Unknown)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/004-Fact Sheet (General)
100008785	11/9/2011	Fact Sheet: Useful Terms.	161	1 OTH / Other	R10: (EPA)	R10: (Unknown)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/004-Fact Sheet (General)
100008769	5/1/2012	Making Your Voice Heard - Step-by-Step Tips for Writing Effective Public Comments.	1,505	4 OTH / Other	R10: (Environmental Law Institute)	R10: (Unknown)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/004-Fact Sheet (General)
100008660	1/14/2013	Fact Sheet: Portland Harbor Superfund Site - Frequently Asked Questions (FAQs) on Confined Disposal Facilities (CDFs).	102	19 OTH / Other	R10: (EPA)	R10: (Unknown)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/004-Fact Sheet (General)
100008747	8/1/2013	Fact Sheet: Portland Harbor Human Health Risk Assessment Summary.	794	4 OTH / Other	R10: (EPA)	R10: (Unknown)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/004-Fact Sheet (General)
100008662	9/17/2013	Fact Sheet: Portland Harbor Cleanup: Community Questions on Confined Disposal Facilities (CDFs).	619	2 OTH / Other	R10: (EPA)	R10: (Unknown)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/004-Fact Sheet (General)
100008673	12/1/2013	Fact Sheet: Portland Harbor Superfund Site - Frequently Asked Questions (FAQs) on Confined Disposal Facilities (CDFs) (Revised December 2013).	142	20 OTH / Other	R10: (EPA)	R10: (Unknown)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/004-Fact Sheet (General)
100008783	3/1/2014	Fact Sheet: Portland Harbor Superfund Site.	1,358	2 OTH / Other	R10: (City of Portland, Bureau of Environmental Services)	R10: (Unknown)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/004-Fact Sheet (General)
100008752	1/1/2015	Portland Harbor Cleanup Community Information Card (Spanish).	748	2 OTH / Other	R10: (EPA)	R10: (Unknown)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/004-Fact Sheet (General)
100008755	1/1/2015	Portland Harbor Cleanup Community Information Card.	762	2 OTH / Other	R10: (EPA)	R10: (Unknown)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/004-Fact Sheet (General)
100008763	1/1/2015	Portland Harbor Cleanup Community Information Card (Chinese).	865	2 OTH / Other	R10: (EPA)	R10: (Unknown)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/004-Fact Sheet (General)
100008766	1/1/2015	Portland Harbor Cleanup Community Information Card (Russian).	671	2 OTH / Other	R10: (EPA)	R10: (Unknown)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/004-Fact Sheet (General)
100008767	1/1/2015	Portland Harbor Cleanup Community Information Card (Vietnamese).	803	2 OTH / Other	R10: (EPA)	R10: (Unknown)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/004-Fact Sheet (General)
100008632	Undated	Activity Book - Portland Harbor Brain Benders.	3,660	12 OTH / Other	R10: (EPA)	R10: (Unknown)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/004-Fact Sheet (General)
100008664	Undated	Collection of Superfund Process Diagrams.	2,575	10 OTH / Other	R10: (EPA)	R10: (Unknown)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/004-Fact Sheet (General)
100008666	Undated	Fact Strips (With Comments).	59	2 OTH / Other	R10: (EPA)	R10: (Unknown)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/004-Fact Sheet (General)
100008760	Undated	Fact Sheet: Portland Harbor Frequently Asked Questions (FAQs).	76	4 OTH / Other	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/004-Fact Sheet (General)
100008778	Undated	Portland Harbor Superfund Site Trifold Display.	1,613	1 OTH / Other	R10: (EPA)	R10: (Unknown)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/004-Fact Sheet (General)
100020213	6/8/2016	Proposed Cleanup Plan Community Fact Sheet.	1,190	4 EML / Email	R10: (EPA)	R10: (Unknown)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/004-Fact Sheet (General)
100008147	11/27/2006	Federal Register Notice for Public Comment for Portland Harbor: Triangle Park.	47	1 OTH / Other	R10: (Federal Register)	R10: (Unknown)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/005-Federal Register Notice of Public Comment Period
1436923	11/17/2014	Email Regarding Federal Register Notice: Public Comment on Linnton Plywood Cost Recovery Settlement.	83	2 EML / Email	R10: Conley, Alanna (EPA)	R10: (EPA)	PAPER DOCUMENT	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/005-Federal Register Notice of Public Comment Period
1436895	8/14/1998	Fax of 2 Articles from Business Journal: Port's Channel Plans Too Deep for Some and River Wide, Channel Too Deep? and 3 Articles from Oregonian: Polluters Must Clean Up River, River Sediment Hazardous, Phase Out Toxic Releases (With Handwritten Notes).	13,427	4 PUB / Publication	R10: (Oregon Dept. of Environmental Quality)	R10: (Unknown)	PAPER DOCUMENT	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/006-News Article
1436872	10/29/1998	Fax Transmittal of Article: Our Troubled River, Years of Complacency Have Brought the Willamette to a Crisis Point. Can We Muster the Political Will to Act?	33,378	4 PUB / Publication	R10: (Oregon Dept. of Environmental Quality)	R10: (Oregon Dept. of Environmental Quality)	PAPER DOCUMENT	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/006-News Article
1436869	1/1/1999	Eight Different Newsletters from Northwest Environmental Advocates (Undated): Cleaning Up Our Toxic River, With Request For Comment Mailer (05/19/1999) and 2 Flyers for May 1999 Town Meetings.	59,612	20 PUB / Publication	R10: (Northwest Environmental Advocates)	R10: (Unknown)	PAPER DOCUMENT	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/006-News Article

1436893	3/13/2001	Article from Portland Tribune: Legal Pollutants Foul River, Experts Want Urban Dwellers to Think Twice When Using Such Things as Everyday Garden Products.	15,202	2 PUB / Publication	R10: Jacket, Ben (The Portland Tribune)	R10: (Unknown)	PAPER DOCUMENT	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/006-News Article
1436892	3/30/2001	Fax Transmittal of Article from Portland Tribune: Tribes Play Key Role in Harbor Cleanup, Six Nations Are Involved in the Superfund's Willamette River Site (With Highlighting).	14,112	3 PUB / Publication	R10: Cox, Kim, E (Oregon Dept. of Environmental Quality)	R10: Smith, Judy, R (EPA)	PAPER DOCUMENT	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/006-News Article
1436890	5/1/2001	Fax Transmittal of Article from Portland Tribune: Backers of Bill Remain A Mystery, Critics of Controversial Harbor Bill Lament Loss of Property Tax Revenue.	14,838	4 PUB / Publication	R10: Cox, Kim, E (Oregon Dept. of Environmental Quality)	R10: Smith, Judy, R (EPA)	PAPER DOCUMENT	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/006-News Article
1436891	5/1/2001	Article from Portland Tribune: Backers of Bill Remain A Mystery, Critics of Controversial Harbor Bill Lament Loss of Property Tax Revenue.	17,280	2 PUB / Publication	R10: Jacket, Ben (The Portland Tribune)	R10: (Unknown)	PAPER DOCUMENT	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/006-News Article
100017157	6/25/2001	REDACTED Letter With Questions Regarding the Site and Cleanup (With Handwritten Responses; Envelope Attached).	8,309	2 PUB / Publication	R10: Lindley, Will (Unknown)	R10: Smith, Judy, R (EPA)	PAPER DOCUMENT	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/006-News Article
1436874	9/25/2001	Email Transmittal of Article from The Oregonian: Businesses, City Agree on Willamette Superfund Study.	2,563	2 PUB / Publication	R10: Smith, Barbara (Harris Smith Public Affairs)	R10: Smith, Judy, R (EPA)	PAPER DOCUMENT	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/006-News Article
1436901	9/25/2001	Article from The Oregonian: Analysis First Step in Cleanup of Harbor, Businesses, the Port and Portland Have Negotiated an Agreement on Studying the Willamette River Superfund Site.	103	1 PUB / Publication	R10: Brinckman, Jonathan (The Oregonian)	R10: (Unknown)	PAPER DOCUMENT	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/006-News Article
1436857	11/20/2001	News Release: Agencies Issue Consolidated Advisory for Consumers of Willamette River Fish.	87	1 PUB / Publication	R10: (Oregon Health Division)	R10: (Unknown)	PAPER DOCUMENT	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/006-News Article
1436870	2/8/2002	Article from Business Journal: Army Corps May Be Enlisted in Struggle to Cleanse River (With Handwritten Comments).	4,929	3 PUB / Publication	R10: Back, Brian (The Business Journal)	R10: (Unknown)	PAPER DOCUMENT	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/006-News Article
1436889	12/13/2002	Article from PortlandTribune.com: Superfund Work Looks More Like Superfight, Federal Agency Warns Willamette Group that 'Defiance' Won't Work, Pages 1 and 2 of 3.	5,318	2 PUB / Publication	R10: Jacket, Ben (The Portland Tribune)	R10: (Unknown)	PAPER DOCUMENT	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/006-News Article
1436882	8/15/2003	Article from PortlandTribune.com: Superfund Cleanup Nearing Pivotal Stage, No Option Ideal for Mitigating Toxic Risk on Willamette.	8,202	3 PUB / Publication	R10: Anderson, Jennifer (The Portland Tribune)	R10: (Unknown)	PAPER DOCUMENT	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/006-News Article
1436834	4/29/2004	EPA News Release: EPA, Northwest Natural Agree on Tar Clean-Up in Portland Harbor, Tar-Laden Sediment Will Be Removed from the Willamette River Site This Summer.	2,330	2 PUB / Publication	R10: (EPA)	R10: (Unknown)	PAPER DOCUMENT	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/006-News Article
100008158	1/3/2012	Economic Impacts of Remediating the Portland Harbor Superfund Site.	2,416	29 RPT / Report	R10: Sunding, David (The Brattle Group), R10: Buck, Steven (The Brattle Group)	R10: (Unknown)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/006-News Article
1436898	2/7/2012	Article from BizJournals.com/Portland: Study, Portland Harbor Superfund Costs Could Reach \$2B.	2,628	3 PUB / Publication	R10: Giegerich, Andy (Portland Business Journal)	R10: (Unknown)	PAPER DOCUMENT	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/006-News Article
1436902	4/16/2012	Article from The Oregonian: Portland Harbor Superfund Site, Harbor Cleanup Must Extend to the Columbia (With Handwritten Notes).	3,633	1 PUB / Publication	R10: Lewis, Virgil (The Oregonian)	R10: (Unknown)	PAPER DOCUMENT	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/006-News Article
1436853	4/30/2012	News Release: Cleanup Efforts Resume at the Arkema Inc. Site; This Week Arkema Inc. Resumes Cleanup Actions Specifically Focused on the Uplands to Prevent Chemicals from Getting into the Willamette River.	83	2 PUB / Publication	R10: (Oregon Dept. of Environmental Quality)	R10: (Unknown)	PAPER DOCUMENT	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/006-News Article
1436887	6/21/2012	Article from PortlandTribune.com: Growing Enrollment Prompts UP Campus Expansion Plan, School Works with Neighbors in Early Stages of Planning.	2,716	2 PUB / Publication	R10: Frazier, Laura (The Portland Tribune)	R10: (Unknown)	PAPER DOCUMENT	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/006-News Article
1436854	6/28/2012	News Release: New Study Shows Portland Harbor Superfund Cleanup Will Support the Local Economy.	72	1 PUB / Publication	R10: (Portland Oregon Office of Healthy Working Rivers)	R10: (Unknown)	PAPER DOCUMENT	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/006-News Article
1436888	8/29/2012	Article from PortlandTribune.com: Time to Do What is Right for the Willamette, My View, Portland Harbors Superfund Cleanup Demands Action, Commitment.	5,275	2 PUB / Publication	R10: Williams, Travis (Willamette Riverkeeper)	R10: (Unknown)	PAPER DOCUMENT	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/006-News Article
1436897	10/26/2012	Email Regarding Article from Portland Business Journal: Businesses Question EPA Over Willamette Fish Study.	89	2 PUB / Publication	R10: Humphrey, Chip (EPA)	R10: Macintyre, Mark, A (EPA), R10: Sheldrake, Sean, A (EPA), R10: Cohen, Lori, G (EPA), R10: Koch, Kristine, M (EPA), R10: Conley, Alanna (EPA), R10: Grandinetti, Cami (EPA), R10: Yamamoto, Deb (EPA)	PAPER DOCUMENT	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/006-News Article
1436899	10/29/2012	Article from BizJournals.com/Portland: Superfund Study Gets EPA's, River Keeper's Attention.	2,800	4 PUB / Publication	R10: Giegerich, Andy (Portland Business Journal)	R10: (Unknown)	PAPER DOCUMENT	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/006-News Article
1436877	2/28/2013	Email Regarding Changing Wording Related to Portland Harbor in Stewardship News Newsletter, March 2013 (With Highlighted Text and Handwritten Notes, Copy of Newsletter Attached).	6,739	4 PUB / Publication	R10: Conley, Alanna (EPA)	R10: (Stewardship News)	PAPER DOCUMENT	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/006-News Article
1436913	4/9/2013	Article from The Oregonian: Pre-Cleanup PCB Plan is Agreed To.	5,195	1 PUB / Publication	R10: Learn, Scott (The Oregonian)	R10: (Unknown)	PAPER DOCUMENT	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/006-News Article
1436873	8/14/2013	Letter to the Editor of St. Johns Review Regarding EPA Portland Harbor Community Information Session to Be Held 08/22/2014 (Copies of 07/26/2013 and 08/09/2013 St. Johns Review, With Handwritten Notes, Attached).	41,732	11 PUB / Publication	R10: Conley, Alanna (EPA)	R10: (St. Johns Review)	PAPER DOCUMENT	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/006-News Article
1436879	8/15/2013	Email Regarding Latest Community Advisory Group (CAG) Meeting and the Questions Asked.	2,370	1 PUB / Publication	R10: Conley, Alanna (EPA)	R10: Madalinski, Kelly (EPA)	PAPER DOCUMENT	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/006-News Article
1436881	4/25/2014	Article from St. Johns Review: Taxpayers May Be on Hook for More Than the Superfund Feasibility Study.	11,306	3 PUB / Publication	R10: Quinn, Barbara (St. Johns Review)	R10: (Unknown)	PAPER DOCUMENT	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/006-News Article
1436884	5/13/2014	Article from PortlandTribune.com: EPA Delays Cleanup for Portland Harbor Superfund Site, Staff Cuts, Retirements Mean Final Action Plan Not Expected Unti 2017 or Later.	4,477	2 PUB / Publication	R10: Law, Steve (Portland Tribune)	R10: (Unknown)	PAPER DOCUMENT	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/006-News Article
1436896	5/13/2014	Article from Portland Business Journal: Coming Up, How Super, Really, Is the Superfund?	2,225	1 PUB / Publication	R10: Giegerich, Andy (Portland Business Journal)	R10: (Unknown)	PAPER DOCUMENT	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/006-News Article
1436900	5/15/2014	Article from BizJournals.com/Portland: Superfund, EPA Bosses Could Shift Resources to Finalize Portland Harbor Plans.	2,776	2 PUB / Publication	R10: Giegerich, Andy (Portland Business Journal)	R10: (Unknown)	PAPER DOCUMENT	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/006-News Article
100008151	7/15/2014	Email: KOIN Interview with SEAN CDF.	66	1 EML / Email	R10: Conley, Alanna (EPA)	R10: Conley, Alanna (EPA)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/006-News Article
1436883	8/7/2014	Article from Portland Tribune: Brownfields' Buried in Bureaucracy, City Prepares for First Complete Inventory of Dirty Little Secrets.	11,303	2 PUB / Publication	R10: Anderson, Jennifer (The Portland Tribune)	R10: (Unknown)	PAPER DOCUMENT	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/006-News Article
100008157	3/9/2015	Newsletter: EPA & Community Involvement for Portland Harbor.	364	3 OTH / Other	R10: (EPA)	R10: (Unknown)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/006-News Article

1436894	4/2/2015	Article from Portland Tribune: Cleanup Confidential, City Mum on How Sewer Ratepayer Funds Spent, Suit Seeks to Identify Who's Liable for Harbor Superfund Cleanup.	22,147	2 PUB / Publication	R10: Redden, Jim (Portland Tribune)	R10: (Unknown)	PAPER DOCUMENT	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/006-News Article
1436886	12/17/2015	Article from PortlandTribune.com: Question Remains Who Will Pay for Willamette River Cleanup.	5,160	2 PUB / Publication	R10: Gallivan, Joseph (The Portland Tribune)	R10: (Unknown)	PAPER DOCUMENT	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/006-News Article
1436885	1/21/2016	Article from PortlandTribune.com: EPA and Others Hold Public Forums in Advance of Willamette River Superfund Cleanup Plan Release.	4,379	2 PUB / Publication	R10: Law, Steve (Portland Tribune)	R10: (Unknown)	PAPER DOCUMENT	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/006-News Article
100008150	2/8/2016	Email: KBOO Radio Recording - Please Listen. Article from St. Johns Review: Superfund Forums Kick Off in St. Johns, Community Forum 2, Willamette Superfund, Tuesday, February 23, 2016.	66	1 EML / Email	R10: Conley, Alanna (EPA)	R10: Grandinetti, Carmela (Cami), L (EPA)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/006-News Article
1436880	2/12/2016	Information Regarding "One River, Many Voices" Podcast With Stories of the Willamette River.	9,074	1 PUB / Publication	R10: Quinn, Barbara (St. Johns Review)	R10: (Unknown)	PAPER DOCUMENT	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/006-News Article
1436794	Undated	No Toxic Waste Dump in North Portland Petition and Signature Form (No Signatures on This Form).	1,822	2 PUB / Publication	R10: (Port of Portland)	R10: (Unknown)	PAPER DOCUMENT	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/006-News Article
1436849	Undated	Action Alert: No Toxic Waste at T-4 in St. Johns or Swan Island and Officials' Contact Information (With Handwritten Notes).	59	2 PUB / Publication	R10: Feldman, L (Unknown)	R10: (Unknown)	PAPER DOCUMENT	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/006-News Article
1436850	Undated	Article: Despite Toxics, Fish Still Lure Fishermen.	1,881	2 PUB / Publication	R10: (Unknown)	R10: (Unknown)	PAPER DOCUMENT	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/006-News Article
1436871	Undated	Article: Oregon Insider - Portland Harbor Update.	3,512	1 PUB / Publication	R10: Sherman, Christopher (The Associated Press)	R10: (Unknown)	PAPER DOCUMENT	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/006-News Article
100008173	6/1/2001	Article: Oregon Insider - Portland Harbor Update.	60	2 OTH / Other	R10: Smith, Judy, R (EPA), R10: Cox, Kim, E (Oregon Dept. of Environmental Quality)	R10: (Unknown)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/007-Press Release
100008162	8/1/2001	Article: Oregon Insider - Portland Harbor Update.	61	2 OTH / Other	R10: Smith, Judy, R (EPA), R10: Cox, Kim, E (Oregon Dept. of Environmental Quality)	R10: (Unknown)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/007-Press Release
100008152	12/10/2001	Article: Oregon Insider - Portland Harbor Update.	49	1 OTH / Other	R10: Smith, Judy, R (EPA), R10: Cox, Kim, E (Oregon Dept. of Environmental Quality)	R10: (Unknown)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/007-Press Release
1436791	5/1/2004	Portland Harbor GASCO Removal Action Newsletter, May 2004.	9,524	4 PUB / Publication	R10: (EPA), R10: (Oregon Department of Environmental Quality)	R10: (Unknown)	PAPER DOCUMENT	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/007-Press Release
1436786	3/1/2005	Portland Harbor Cleanup Newsletter, Spring 2005.	11,689	8 PUB / Publication	R10: (EPA), R10: (Oregon Department of Environmental Quality)	R10: (Unknown)	PAPER DOCUMENT	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/007-Press Release
1436787	3/1/2006	Portland Harbor Cleanup Newsletter, Spring 2006 (With Customer Survey Form).	13,067	10 PUB / Publication	R10: (EPA), R10: (Oregon Department of Environmental Quality)	R10: (Unknown)	PAPER DOCUMENT	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/007-Press Release
100008174	5/17/2006	Article: EPA Announces Terminal 4 Cleanup Decision.	35	2 OTH / Other	R10: Macintyre, Mark, A (EPA), R10: Smith, Judy, R (EPA)	R10: (Unknown)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/007-Press Release
1436768	6/1/2006	Portland Harbor Cleanup Newsletter, June 2005 (With Handwritten Note).	1,980	4 PUB / Publication	R10: (EPA), R10: (Oregon Department of Environmental Quality)	R10: (Unknown)	PAPER DOCUMENT	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/007-Press Release
1436793	5/1/2007	Portland Harbor Cleanup Newsletter, May 2007.	5,795	8 PUB / Publication	R10: (EPA), R10: (Oregon Department of Environmental Quality)	R10: (Unknown)	PAPER DOCUMENT	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/007-Press Release
100008175	1/22/2013	Email: EPA Comments on Draft Feasibility Study Submitted by Lower Willamette Group. Letter to the Editor: Community Information Session on Portland Harbor Cleanup, August 22, 5pm (Signed).	47	2 EML / Email	R10: (EPA)	R10: Conley, Alanna (EPA)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/007-Press Release
100008164	8/1/2013	Letter to the Editor: Community Information Session on Portland Harbor Cleanup, August 22, 5pm (Signed).	24	1 OTH / Other	R10: Conley, Alanna (EPA)	R10: (St. Johns Review)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/007-Press Release
100008165	8/14/2013	Letter to the Editor: Community Information Session on Portland Harbor Cleanup, August 22, 5pm (Signed).	28	1 OTH / Other	R10: Conley, Alanna (EPA)	R10: (St. Johns Review)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/007-Press Release
100008431	8/14/2013	Letter to the Editor: Community Information Session on Portland Harbor Cleanup, August 22, 5pm.	108	1 OTH / Other	R10: Conley, Alanna (EPA)	R10: (St. Johns Review)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/007-Press Release
100008160	6/29/2015	Flyer: Portland Harbor Community Café St John's Community Center - Community Meeting.	180	1 OTH / Other	R10: (EPA)	R10: (Unknown)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/007-Press Release
100008159	6/30/2015	Email: Invitation to Portland Harbor Community Café - July 16 (Less Attachment).	50	1 EML / Email	R10: Conley, Alanna (EPA)	R10: Bean, Martha, C (Collaborative Focus)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/007-Press Release
100018123	4/6/2016	REDACTED Email regarding Portland Harbor Superfund Site Schedule Update.	50	1 EML / Email	R10: Conley, Alanna (EPA)	R10: R10: Williams, Travis (Willamette Riverkeeper), R10: Sallinger, Robert (Audobon Society of Portland), R10: Tallmadge, Maggie (Coalition of Communities of Color), R10: Jones, Sam, R10: Jacob, Greg, R10: Williams, Jeri (City of Portland), R10: Hill, Edward (Groundwork Portland), R10: Hogan, Marj, R10: Poe, Ben, R10: Robbins, April, R10: Freeberg, Amyl, R10: Lawrence, Rhett, R10: Rubio, Carmen, R10: Junkeer, Zeenia, R10: Mclean, Kadi, R10: Hoop, Brian (Unknown), R10: Taylor, Sarah, R10: Shaw, John, R10: Mubarak, Ibrahim, R10: Mclean, Ivan, R10: Wagner, Art, R10: Aiona, Debbie, R10: Robison, Jim (Forward Support Inc.), R10: Jones, Edward, R10: Streeter, Amira, R10: Goldstein, Steve, R10: (OPAL Environmental Justice Oregon)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/007-Press Release
1436739	8/12/1997	Community Advisory Group Services, EPA and the Community Working Together.	5,807	3 MTG / Meeting Document	R10: (Unknown)	R10: (Unknown)	PAPER DOCUMENT	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/008-Public Meeting (General)
100017119	3/14/2000	REDACTED Portland Harbor Mailing List (Contains Personal and Handwritten Information).	14,187	3 MTG / Meeting Document	R10: (Unknown)	R10: (Unknown)	PAPER DOCUMENT	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/008-Public Meeting (General)
1436789	12/1/2000	Portland Harbor Site, Portland, Oregon Information Mailer, December 2000. Agenda for 03/14/2001 Portland State University American Institute of Hydrology Student Chapter "Portland Harbor Superfund: Where Do We Go From Here?" Panel Discussion.	217	4 PUB / Publication	R10: (EPA), R10: (Oregon Department of Environmental Quality)	R10: (Unknown)	PAPER DOCUMENT	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/008-Public Meeting (General)
1436724	3/14/2001	REDACTED Email Regarding Community Interviews (With Handwritten Notes).	9,239	2 MTG / Meeting Document	R10: (Portland State University)	R10: (Unknown)	PAPER DOCUMENT	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/008-Public Meeting (General)
100016899	7/12/2001	EPA News Release: EPA and Eight Members of Lower Willamette Group Sign Binding Agreement to Launch Portland Harbor Cleanup.	4,009	1 EML / Email	R10: Smith, Judy, R (EPA)	R10: Smith, Judy, R (EPA)	PAPER DOCUMENT	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/008-Public Meeting (General)
1436785	10/1/2001	Portland Harbor Citizen Advisory Group - Meeting Notes on the Citizen Advisory Committee Meeting on March 25, 2002.	101	2 PUB / Publication	R10: (EPA)	R10: (Unknown)	PAPER DOCUMENT	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/008-Public Meeting (General)
100015986	3/25/2002	Portland Harbor Citizen Advisory Group - Draft CAG Minutes for April 16th, 2002.	89	3 MTG / Meeting Document	R10: (Portland Harbor Citizen Advisory Group)	R10: (Unknown)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/008-Public Meeting (General)
100015865	4/16/2002	REDACTED DRAFT Minutes for 04/16/2002 Portland Harbor Community Advisory Group (CAG) Meeting (Contains Attendee Information).	100	3 MTG / Meeting Document	R10: (Portland Harbor Citizen Advisory Group)	R10: (Unknown)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/008-Public Meeting (General)
100017019	4/16/2002	Portland Harbor Citizen Advisory Group - Draft CAG Minutes for April 16th, 2002.	295	3 MTG / Meeting Document	R10: (Unknown)	R10: (Unknown)	PAPER DOCUMENT	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/008-Public Meeting (General)



100017665	REDACTED Focus Group or Small Discussion Group Participants (Circa May 2002).	84	5 OTH / Other	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/008-Public Meeting (General)
100015867	Portland Harbor Citizen Advisory Group - Draft CAG Minutes for May 8th, 2002.	80	3 MTG / Meeting Document	R10: (Portland Harbor Citizen Advisory Group)	R10: (Unknown)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/008-Public Meeting (General)
100008279	Letter: Portland Harbor Focus Groups - Memo and Summary (With Attachments).	75	9 LTR / Letter	R10: Smith, Judy, R (EPA)	R10: (Unknown)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/008-Public Meeting (General)
1436723	Power Point Slides for 06/27/2002 Portland Harbor Public Involvement Meeting.	4,938	3 MTG / Meeting Document	R10: Cox, Kim, E (Oregon Dept. of Environmental Quality)	R10: (Unknown)	PAPER DOCUMENT	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/008-Public Meeting (General)
100015896	Portland Harbor Citizen Advisory Group - Draft CAG Minutes for July 10th, 2002.	77	3 MTG / Meeting Document	R10: (Portland Harbor Citizen Advisory Group)	R10: (Unknown)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/008-Public Meeting (General)
1436675	Email Regarding Agenda for 08/14/2002 Community Advisory Group (CAG) Meeting and Transmittal of Minutes from 07/10/2002 CAG Meeting (No Attachment).	70	1 EML / Email	R10: Libby, Mcculley (Willamette Riverkeeper)	R10: (Portland Harbor Community Advisory Group)	PAPER DOCUMENT	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/008-Public Meeting (General)
1436733	Agenda for 08/14/2002 Portland Harbor Community Advisory Group (CAG) Meeting (With Handwritten Notes).	2,745	2 MTG / Meeting Document	R10: (Portland Harbor Community Advisory Group)	R10: (Unknown)	PAPER DOCUMENT	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/008-Public Meeting (General)
100018097	REDACTED Portland Harbor Citizen Advisory Group - Draft CAG Minutes for August 14th, 2002.	76	6 MTG / Meeting Document	R10: (Portland Harbor Citizen Advisory Group)	R10: (Unknown)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/008-Public Meeting (General)
1436722	Power Point Slides for 09/2002 Portland Harbor Superfund Site, St. John's Neighborhood Association Briefing.	2,746	17 MTG / Meeting Document	R10: (Unknown)	R10: (Unknown)	PAPER DOCUMENT	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/008-Public Meeting (General)
1436734	Agenda for 09/17/2002 Portland Harbor CAG (Community Advisory Group) Meeting (With Handwritten Notes).	1,721	1 MTG / Meeting Document	R10: (Portland Harbor Community Advisory Group)	R10: (Unknown)		051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/008-Public Meeting (General)
100018099	REDACTED Portland Harbor Citizen Advisory Group - Final CAG Minutes for September 17th, 2002.	94	5 MTG / Meeting Document	R10: (Portland Harbor Citizen Advisory Group)	R10: (Unknown)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/008-Public Meeting (General)
1436757	DRAFT Minutes for 10/09/2002 Portland Harbor Citizen Advisory Group Meeting (Contains Attendee Information).	280	6 MTG / Meeting Document	R10: (Unknown)	R10: (Unknown)	PAPER DOCUMENT	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/008-Public Meeting (General)
100018121	REDACTED Portland Harbor Citizen Advisory Group - Draft CAG Minutes for October 9th, 2002.	115	6 MTG / Meeting Document	R10: (Portland Harbor Citizen Advisory Group)	R10: (Unknown)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/008-Public Meeting (General)
1436730	Agenda for 11/13/2002 Portland Harbor Citizen Advisory Group Meeting (With Handwritten Notes).	1,649	1 MTG / Meeting Document	R10: (Portland Harbor Citizen Advisory Group)	R10: (Unknown)	PAPER DOCUMENT	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/008-Public Meeting (General)
100018126	REDACTED Portland Harbor Citizen Advisory Group - Draft CAG Minutes for November 13th, 2002.	109	4 MTG / Meeting Document	R10: (Portland Harbor Citizen Advisory Group)	R10: (Unknown)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/008-Public Meeting (General)
100018131	REDACTED Portland Harbor Citizen Advisory Group - DRAFT CAG Minutes for December 11th, 2002.	117	3 MTG / Meeting Document	R10: (Portland Harbor Citizen Advisory Group)	R10: (Unknown)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/008-Public Meeting (General)
100018127	REDACTED Portland Harbor Citizen Advisory Group - DRAFT CAG Minutes for January 8, 2003.	107	4 MTG / Meeting Document	R10: (Portland Harbor Citizen Advisory Group)	R10: (Unknown)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/008-Public Meeting (General)
100018163	REDACTED Portland Harbor Citizen Advisory Group - Draft CAG Minutes for February 12, 2003.	92	5 MTG / Meeting Document	R10: Richmond, Georgia, R10: (Portland Harbor Citizen Advisory Group)	R10: (Unknown)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/008-Public Meeting (General)
100015860	Portland Harbor Citizen Advisory Group - Draft CAG Minutes for March 12th, 2003.	31	4 MTG / Meeting Document	R10: (Portland Harbor Citizen Advisory Group)	R10: (Unknown)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/008-Public Meeting (General)
1436721	Power Point Slides for 04/09/2003 Portland Harbor 101 Citizens Advisory Group (CAG) Meeting.	10,028	7 MTG / Meeting Document	R10: (Citizens Advisory Group)	R10: (Unknown)	PAPER DOCUMENT	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/008-Public Meeting (General)
100015861	Portland Harbor Citizen Advisory Group - Draft CAG Minutes for April 9th, 2003.	45	5 MTG / Meeting Document	R10: (Portland Harbor Citizen Advisory Group)	R10: (Unknown)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/008-Public Meeting (General)
100018171	REDACTED Portland Harbor Citizen Advisory Group - Draft CAG Minutes for May 14th, 2003.	34	5 MTG / Meeting Document	R10: (Portland Harbor Citizen Advisory Group)	R10: (Unknown)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/008-Public Meeting (General)
100015890	Portland Harbor Citizen Advisory Group - Draft CAG Minutes for June 5th, 2003.	72	3 MTG / Meeting Document	R10: (Portland Harbor Citizen Advisory Group)	R10: (Unknown)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/008-Public Meeting (General)
100017006	REDACTED DRAFT Minutes for 06/11/2003 Portland Harbor Community Advisory Group (CAG) Meeting (Contains Attendee Information).	257	4 MTG / Meeting Document	R10: (Unknown)	R10: (Unknown)	PAPER DOCUMENT	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/008-Public Meeting (General)
1436729	Agenda for 07/09/2003 Portland Harbor Community Advisory Group (PHCAG) Meeting (With Handwritten Notes).	3,440	2 MTG / Meeting Document	R10: (Portland Harbor Community Advisory Group)	R10: (Unknown)	PAPER DOCUMENT	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/008-Public Meeting (General)
100018176	REDACTED Portland Harbor Citizen Advisory Group - Final CAG Minutes for July 9th, 2003.	26	4 MTG / Meeting Document	R10: (Portland Harbor Citizen Advisory Group)	R10: (Unknown)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/008-Public Meeting (General)
100016990	REDACTED Minutes for 08/09/2003 Portland Harbor Community Advisory Group (CAG) Meeting (Contains Attendee Information).	302	4 MTG / Meeting Document	R10: Shoemaker, Dorothy (The Sierra Club)	R10: (Unknown)	PAPER DOCUMENT	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/008-Public Meeting (General)
100018082	REDACTED Portland Harbor Citizen Advisory Group - CAG Minutes for August 9th, 2003.	37	5 MTG / Meeting Document	R10: (Portland Harbor Citizen Advisory Group)	R10: (Unknown)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/008-Public Meeting (General)
100018098	REDACTED Portland Harbor Citizen Advisory Group - Final CAG Minutes for September 10th, 2003.	43	5 MTG / Meeting Document	R10: Calder, Jackie (Unknown), R10: (Portland Harbor Citizen Advisory Group)	R10: (Unknown)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/008-Public Meeting (General)
1436751	Minutes for 09/11/2003 Portland Harbor Community Advisory Group (CAG) Meeting (Contains Attendee Information).	157	3 MTG / Meeting Document	R10: Calder, Jackie (Unknown)	R10: (Unknown)	PAPER DOCUMENT	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/008-Public Meeting (General)
100017020	REDACTED Minutes for 09/11/2003 Portland Harbor Community Advisory Group (CAG) Meeting (Contains Attendee Information).	204	3 MTG / Meeting Document	R10: Calder, Jackie (Unknown)	R10: (Unknown)	PAPER DOCUMENT	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/008-Public Meeting (General)
1436732	Agenda for 10/08/2003 Portland Harbor Community Advisory Group (PHCAG) Meeting.	58	1 MTG / Meeting Document	R10: (Portland Harbor Community Advisory Group)	R10: (Unknown)	PAPER DOCUMENT	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/008-Public Meeting (General)
100018118	REDACTED Portland Harbor Citizen Advisory Group - Final CAG Minutes for October 8th, 2003.	30	3 MTG / Meeting Document	R10: (Portland Harbor Citizen Advisory Group)	R10: (Unknown)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/008-Public Meeting (General)
1436719	Schedule for 10/28/2003 Press Conference and Boat Tour of McCormick and Baxter, and Portland Harbor Superfund Sites (List of Attendees and Affiliations Included).	164	2 MTG / Meeting Document	R10: (Unknown)	R10: (Unknown)	PAPER DOCUMENT	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/008-Public Meeting (General)
100016994	REDACTED Suggested Agenda for 02/13/2002 Quarterly Joint Communications Meeting, Portland Harbor Superfund Site (With Handwritten Notes).	4,277	1 MTG / Meeting Document	R10: (Schwabe, Williamson & Wyatt, P.C.)	R10: (Unknown)	PAPER DOCUMENT	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/008-Public Meeting (General)
100016998	REDACTED DRAFT Minutes for 08/14/2002 Portland Harbor Community Advisory Group (CAG) Meeting (With Handwritten Notes; Contains Attendee Information).	18,872	6 MTG / Meeting Document	R10: (Portland Harbor Community Advisory Group)	R10: (Unknown)	PAPER DOCUMENT	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/008-Public Meeting (General)
1436728	Agenda for 11/12/2003 Portland Harbor Community Advisory Group (PHCAG) Meeting (With Handwritten Notes).	1,027	1 MTG / Meeting Document		R10: (Unknown)	PAPER DOCUMENT	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/008-Public Meeting (General)
100018128	REDACTED Portland Harbor Citizen Advisory Group - Draft CAG Minutes for November 12th, 2003.	31	4 MTG / Meeting Document	R10: Shoemaker, Dorothy (The Sierra Club), R10: (Portland Harbor Citizen Advisory Group)	R10: (Unknown)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/008-Public Meeting (General)
1436758	Minutes for 12/10/2003 Portland Harbor Citizen Advisory Group (CAG) Meeting (Contains Attendee Information).	149	3 MTG / Meeting Document	R10: Gunther, Steve (Progressive Products and Services)	R10: (Unknown)	PAPER DOCUMENT	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/008-Public Meeting (General)

100015974	12/10/2003	Portland Harbor Citizen Advisory Group - Draft CAG Minutes for December 10th, 2003.	18	3	MTG / Meeting Document	R10: Gunther, Steve (Progressive Products and Services), R10: (Portland Harbor Citizen Advisory Group)	R10: (Unknown)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/008-Public Meeting (General)
100016905	1/2/2004	REDACTED Email Regarding Note Sent Out As Public Record Which Omits Average Amount EPA's Spent Per Month on Process.	270	4	EML / Email	R10: Gunther, Stephen, M (Unknown)	R10: Robin, Plance (Unknown)	PAPER DOCUMENT	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/008-Public Meeting (General)
1436727	1/14/2004	Agenda for 01/14/2004 Portland Harbor Community Advisory Group (PHCAG) Meeting. REDACTED Minutes for 01/14/2004 Portland Harbor Community Advisory Group (CAG) Meeting (With Handwritten Notes; Contains Attendee Information).	1,535	1	MTG / Meeting Document	R10: (Portland Harbor Community Advisory Group)	R10: (Unknown)	PAPER DOCUMENT	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/008-Public Meeting (General)
100017016	1/14/2004	REDACTED Portland Harbor Citizen Advisory Group - Final CAG Minutes for January 14, 2004.	3,733	4	MTG / Meeting Document	R10: Shoemaker, Dorothy (The Sierra Club), R10: (Portland Harbor Citizen Advisory Group)	R10: (Unknown)	PAPER DOCUMENT	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/008-Public Meeting (General)
100018135	1/14/2004	2004.	40	4	MTG / Meeting Document	R10: Shoemaker, Dorothy (The Sierra Club), R10: (Portland Harbor Citizen Advisory Group)	R10: (Unknown)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/008-Public Meeting (General)
1436737	2/11/2004	Concept Proposal: Vision, Goals and Workplan. REDACTED Portland Harbor Citizen Advisory Group - Draft CAG Minutes for February 11, 2004.	117	2	MTG / Meeting Document	R10: Gunther, Steve (Unknown)	R10: (Portland Harbor Community Advisory Group)	PAPER DOCUMENT	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/008-Public Meeting (General)
100018143	2/11/2004	2004.	35	5	MTG / Meeting Document	R10: Shoemaker, Dorothy (The Sierra Club), R10: (Portland Harbor Citizen Advisory Group)	R10: (Unknown)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/008-Public Meeting (General)
1436726	3/10/2004	Agenda for 03/10/2004 Portland Harbor Community Advisory Group (PHCAG) Meeting (With Handwritten Notes).	3,270	2	MTG / Meeting Document	R10: (Portland Harbor Community Advisory Group)	R10: (Unknown)	PAPER DOCUMENT	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/008-Public Meeting (General)
100018144	3/10/2004	REDACTED Portland Harbor Citizen Advisory Group - Final CAG Minutes for March 10th, 2004.	37	4	MTG / Meeting Document	R10: Shoemaker, Dorothy (The Sierra Club), R10: (Portland Harbor Citizen Advisory Group)	R10: (Unknown)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/008-Public Meeting (General)
100018166	5/12/2004	REDACTED Portland Harbor Citizen Advisory Group - Final CAG Minutes for May 12th, 2004.	32	5	MTG / Meeting Document	R10: Chisolm, Tom, R10: (Portland Harbor Citizen Advisory Group)	R10: (Unknown)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/008-Public Meeting (General)
100015976	5/28/2004	Portland Harbor Citizen Advisory Group - Evaluation Committee Minutes for May 28th, 2004.	14	2	MTG / Meeting Document	R10: (Portland Harbor Citizen Advisory Group)	R10: (Unknown)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/008-Public Meeting (General)
1436790	6/1/2004	Portland Harbor Cleanup Newsletter, Summer 2004 (With Handwritten Notes).	17,207	8	PUB / Publication	R10: (EPA), R10: (Oregon Department of Environmental Quality)	R10: (Unknown)	PAPER DOCUMENT	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/008-Public Meeting (General)
100018174	6/9/2004	REDACTED Portland Harbor Citizen Advisory Group - Final CAG Minutes for June 9th, 2004.	35	4	MTG / Meeting Document	R10: Shoemaker, Dorothy (The Sierra Club), R10: (Portland Harbor Citizen Advisory Group)	R10: (Unknown)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/008-Public Meeting (General)
100017090	7/12/2004	REDACTED EPA Portland Harbor Mailing List (Contains Personal and Handwritten Information).	7,446	1	MTG / Meeting Document	R10: (EPA)	R10: (Unknown)	PAPER DOCUMENT	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/008-Public Meeting (General)
1436782	7/13/2004	Agenda for 07/13/2004 Friends of Cathedral Park Neighborhood Association (FCPNA) Meeting.	106	2	MTG / Meeting Document	R10: (Friends of Cathedral Park Neighborhood Association (FCPNA))	R10: (Unknown)	PAPER DOCUMENT	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/008-Public Meeting (General)
100018078	7/14/2004	REDACTED Portland Harbor Citizen Advisory Group - Final CAG Minutes for July 14th, 2004.	35	4	MTG / Meeting Document	R10: Shoemaker, Dorothy (The Sierra Club), R10: (Portland Harbor Citizen Advisory Group)	R10: (Unknown)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/008-Public Meeting (General)
100018093	8/11/2004	REDACTED Portland Harbor Citizen Advisory Group - Final CAG Minutes for August 11th, 2004.	36	4	MTG / Meeting Document	R10: Shoemaker, Dorothy (The Sierra Club), R10: (Portland Harbor Citizen Advisory Group)	R10: (Unknown)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/008-Public Meeting (General)
100018109	9/8/2004	REDACTED Portland Harbor Citizen Advisory Group - Final CAG Minutes for September 8th, 2004.	39	4	MTG / Meeting Document	R10: Shoemaker, Dorothy (The Sierra Club), R10: (Portland Harbor Citizen Advisory Group)	R10: (Unknown)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/008-Public Meeting (General)
100008281	9/18/2004	Flyer: The Portland Harbor Superfund Field Day at Cathedral Park.	38	1	OTH / Other	R10: (Lower Willamette Group), R10: (Willamette Riverkeeper), R10: (Portland Harbor Community Advisory Group), R10: (EPA), R10: (Oregon Dept. of Human Services), R10: (Oregon Dept. of Environmental Quality)	R10: (Unknown)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/008-Public Meeting (General)
100008269	9/29/2004	Flyer: The Portland Harbor Superfund Field Day at Cathedral Park.	764	1	OTH / Other	R10: (Lower Willamette Group), R10: (Portland Harbor Community Advisory Group), R10: (EPA), R10: (Oregon Dept. of Human Services), R10: (Oregon Dept. of Environmental Quality)	R10: (Unknown)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/008-Public Meeting (General)
100018070	10/13/2004	REDACTED Portland Harbor Citizen Advisory Group - Final CAG Minutes for October 13th, 2004.	44	4	MTG / Meeting Document	R10: Shoemaker, Dorothy (The Sierra Club), R10: (Portland Harbor Citizen Advisory Group)	R10: (Unknown)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/008-Public Meeting (General)
100018040	11/10/2004	REDACTED Portland Harbor Citizen Advisory Group - Final CAG Minutes for November 10th, 2004.	41	4	MTG / Meeting Document	R10: Williams, Travis (Willamette Riverkeeper), R10: (Portland Harbor Citizen Advisory Group)	R10: (Unknown)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/008-Public Meeting (General)
100017154	11/18/2004	REDACTED Agenda for 11/18/2004 Port of Portland Terminal 4 Quarterly Status Meeting. REDACTED Portland Harbor Citizen Advisory Group - Final CAG Minutes for December 10th, 2004.	5,002	2	MTG / Meeting Document	R10: (Unknown)	R10: (Unknown)	PAPER DOCUMENT	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/008-Public Meeting (General)
100018130	12/10/2004	Minutes for 01/12/2005 Community Advisory Group (CAG) Meeting (Contains Attendee Information).	27	3	MTG / Meeting Document	R10: Gunther, Steve (Progressive Products and Services), R10: (Portland Harbor Citizen Advisory Group)	R10: (Unknown)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/008-Public Meeting (General)
1436747	1/12/2005	REDACTED Final Minutes for 01/12/2005 Portland Harbor Community Advisory Group (CAG) Meeting (Contains Attendee Information).	207	5	MTG / Meeting Document	R10: (Portland Harbor Community Advisory Group)	R10: (Unknown)	PAPER DOCUMENT	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/008-Public Meeting (General)
100017004	1/12/2005	REDACTED Portland Harbor Citizen Advisory Group - Final CAG Minutes for January 12, 2005.	409	5	MTG / Meeting Document	R10: Shoemaker, Dorothy (The Sierra Club), R10: Gunther, Steve (Progressive Products and Services)	R10: (Unknown)	PAPER DOCUMENT	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/008-Public Meeting (General)
100018129	1/12/2005	2005.	38	5	MTG / Meeting Document	R10: Gunther, Steve (Unknown), R10: (Portland Harbor Citizen Advisory Group)	R10: (Unknown)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/008-Public Meeting (General)
100018037	2/1/2005	REDACTED Pacific Northwest Sportsman Show Information for Booth Staff.	58	2	MTG / Meeting Document	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/008-Public Meeting (General)
100017003	2/9/2005	REDACTED Final Minutes for 02/09/2005 Portland Harbor Community Advisory Group (CAG) Meeting (Contains Attendee Information).	337	5	MTG / Meeting Document	R10: Shoemaker, Dorothy (The Sierra Club), R10: Gunther, Steve (Progressive Products and Services)	R10: (Unknown)	PAPER DOCUMENT	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/008-Public Meeting (General)
100018132	2/9/2005	REDACTED Portland Harbor Citizen Advisory Group - Final CAG Minutes for February 9, 2005.	50	5	MTG / Meeting Document	R10: Gunther, Steve (Progressive Products and Services), R10: (Portland Harbor Citizen Advisory Group)	R10: (Unknown)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/008-Public Meeting (General)
100017001	3/9/2005	REDACTED Final Minutes for 03/09/2005 Portland Harbor Community Advisory Group (CAG) Meeting (Contains Attendee Information).	293	4	MTG / Meeting Document	R10: Shoemaker, Dorothy (The Sierra Club)	R10: (Unknown)	PAPER DOCUMENT	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/008-Public Meeting (General)
100018155	3/9/2005	REDACTED Portland Harbor Citizen Advisory Group - Final CAG Minutes for March 9th, 2005.	34	4	MTG / Meeting Document	R10: Shoemaker, Dorothy (The Sierra Club), R10: (Portland Harbor Citizen Advisory Group)	R10: (Unknown)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/008-Public Meeting (General)
100018159	4/13/2005	REDACTED Portland Harbor Citizen Advisory Group - Final CAG Minutes for April 13th, 2005.	34	4	MTG / Meeting Document	R10: Shoemaker, Dorothy (The Sierra Club), R10: (Portland Harbor Citizen Advisory Group)	R10: (Unknown)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/008-Public Meeting (General)
100018169	5/11/2005	REDACTED Portland Harbor Citizen Advisory Group - Final CAG Minutes for May 11th, 2005.	42	5	MTG / Meeting Document	R10: Shoemaker, Dorothy (The Sierra Club), R10: (Portland Harbor Citizen Advisory Group)	R10: (Unknown)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/008-Public Meeting (General)
100017138	5/25/2005	REDACTED Sign-In Sheets for 05/26/2005 GASCO Public Meeting and Comment Opportunity (Contains Attendee and Handwritten Information).	16,739	3	MTG / Meeting Document	R10: (Unknown)	R10: (Unknown)	PAPER DOCUMENT	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/008-Public Meeting (General)
100016996	5/26/2005	REDACTED Original Copy of EPA Public Hearing on Removal Action - NW Natural Gasco Site, Public Comment Period (With Court Reporter Certificate, Word Index, Condensed Transcript and Voice/Text on CD).	14,353	36	MTG / Meeting Document	R10: Oh, Jea (Naegeli Reporting Corporation)	R10: (Unknown)	PAPER DOCUMENT	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/008-Public Meeting (General)
1436792	6/1/2005	Portland Harbor Arkema Removal Action Newsletter, June 2005.	1,248	4	PUB / Publication	R10: (EPA), R10: (Oregon Department of Environmental Quality)	R10: (Unknown)	PAPER DOCUMENT	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/008-Public Meeting (General)

1436689	Portland Harbor Terminal 4 Early Action Sediment Cleanup, Public Comment Invited.	3,621	2 PUB / Publication	R10: (EPA)	R10: (Unknown)	PAPER DOCUMENT	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/008-Public Meeting (General)
100008183	Letter: Concerns Over Preferred Action at Portland Harbor.	398	2 LTR / Letter	R10: Longley, Jean (Linnton Neighborhood Association)	R10: Sheldrake, Sean, A (EPA)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/008-Public Meeting (General)
100008594	Letter: Terminal 4 Early Action (Comments on the EE/CA).	242	5 LTR / Letter	R10: Williams, Travis (Willamette Riverkeeper)	R10: Sheldrake, Sean, A (EPA)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/008-Public Meeting (General)
1436741	Questions from Friends of Cathedral Park (Handwritten).	5,686	2 MTG / Meeting Document	R10: (Unknown)	R10: (Unknown)	PAPER DOCUMENT	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/008-Public Meeting (General)
1436742	Questions from Community Advisory Group (CAG) (Handwritten).	10,740	4 MTG / Meeting Document	R10: (Unknown)	R10: (Unknown)	PAPER DOCUMENT	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/008-Public Meeting (General)
100018085	REDACTED Portland Harbor Citizen Advisory Group - Final CAG Minutes for August 10th, 2005.	41	4 MTG / Meeting Document	R10: Shoemaker, Dorothy (The Sierra Club), R10: (Portland Harbor Citizen Advisory Group)	R10: (Unknown)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/008-Public Meeting (General)
100018114	REDACTED Portland Harbor Citizen Advisory Group - Final CAG Minutes for September 14th, 2005.	35	3 MTG / Meeting Document	R10: Shoemaker, Dorothy (The Sierra Club), R10: (Portland Harbor Citizen Advisory Group)	R10: (Unknown)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/008-Public Meeting (General)
1436731	Agenda for 10/12/2005 Portland Harbor Community Advisory Group (PHCAG) Meeting. REDACTED Portland Harbor Citizen Advisory Group - Final CAG Minutes for October 12th, 2005.	60	1 MTG / Meeting Document	R10: (Portland Harbor Community Advisory Group)	R10: (Unknown)	PAPER DOCUMENT	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/008-Public Meeting (General)
100018069	REDACTED Portland Harbor Citizen Advisory Group - Final CAG Minutes for October 12th, 2005.	36	5 MTG / Meeting Document	R10: Shoemaker, Dorothy (The Sierra Club), R10: (Portland Harbor Citizen Advisory Group)	R10: (Unknown)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/008-Public Meeting (General)
100018124	REDACTED Portland Harbor Citizen Advisory Group - CAG Minutes for November 9th, 2005.	18	3 MTG / Meeting Document	R10: Gunther, Steve (Progressive Products and Services), R10: (Portland Harbor Citizen Advisory Group)	R10: (Unknown)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/008-Public Meeting (General)
1436736	12/14/2005 Portland Harbor Community Advisory Group (CAG) Meeting, GASCO Review Brainstorming Session.	65	1 MTG / Meeting Document	R10: (Portland Harbor Community Advisory Group)	R10: (Unknown)	PAPER DOCUMENT	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/008-Public Meeting (General)
100018138	REDACTED Portland Harbor Citizen Advisory Group - Draft CAG Minutes for December 14th, 2005.	18	3 MTG / Meeting Document	R10: (Portland Harbor Citizen Advisory Group)	R10: (Unknown)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/008-Public Meeting (General)
100018273	REDACTED Portland Harbor Citizen Advisory Group - Final CAG Minutes for January 11, 2006.	53	7 MTG / Meeting Document	R10: Calder, Jackie (Unknown), R10: (Portland Harbor Citizen Advisory Group)	R10: (Unknown)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/008-Public Meeting (General)
100018274	REDACTED Portland Harbor Citizen Advisory Group - Final CAG Minutes for May 10th, 2006.	35	4 MTG / Meeting Document	R10: Shoemaker, Dorothy (The Sierra Club), R10: (Portland Harbor Citizen Advisory Group)	R10: (Unknown)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/008-Public Meeting (General)
1436738	DRAFT Agenda for 06/02/2006 Sediment Treatment Technologies Meeting.	62	1 MTG / Meeting Document	R10: (Unknown)	R10: (Unknown)	PAPER DOCUMENT	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/008-Public Meeting (General)
100008301	6/3/2006 Mailer for the Public Meeting on June 3, 2006.	41	1 MTG / Meeting Document	R10: (EPA)	R10: (Unknown)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/008-Public Meeting (General)
100008339	6/3/2006 Flyer: Public Meeting on June 3, 2006.	121	2 OTH / Other	R10: (EPA)	R10: (Unknown)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/008-Public Meeting (General)
100018275	REDACTED Portland Harbor Citizen Advisory Group - Final CAG Minutes for June 14th, 2006.	36	5 MTG / Meeting Document	R10: Shoemaker, Dorothy (The Sierra Club), R10: (Portland Harbor Citizen Advisory Group)	R10: (Unknown)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/008-Public Meeting (General)
100018066	REDACTED Portland Harbor Citizen Advisory Group - Draft CAG Minutes for July 12th, 2006. Email Regarding Terminal 4 Sediments Cleanup Open House (With Handwritten Notes).	42	5 MTG / Meeting Document	R10: Calder, Jackie (Unknown), R10: (Portland Harbor Citizen Advisory Group)	R10: (Unknown)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/008-Public Meeting (General)
1436783	REDACTED Sign-In Sheets, Pages 1-3 of 3, for 08/24/2006 Open House for the Terminal 4 Sediment Cleanup (Contains Attendee and Handwritten Information).	5,524	3 EML / Email	R10: Safford, Susan (Port of Portland)	R10: Smith, Judy, R (EPA)	PAPER DOCUMENT	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/008-Public Meeting (General)
100017086	8/24/2006 Presentation: Portland Harbor Superfund Site Overview/Status.	14,906	5 MTG / Meeting Document	R10: (EPA)	R10: (Unknown)	PAPER DOCUMENT	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/008-Public Meeting (General)
100008412	10/31/2006 Presentation: An Overview of Portland Harbor Ecological Risk Assessment Process and Screening Level Results - For the Portland Harbor Community Advisory Group.	25,027	41 MTG / Meeting Document	R10: (EPA)	R10: (Unknown)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/008-Public Meeting (General)
100008277	4/8/2009 Presentation on An Overview of Portland Harbor Ecological Risk Assessment Process and Screening Level Results for the Portland Harbor Community Advisory Group.	767	41 MTG / Meeting Document	R10: (EPA)	R10: (Portland Harbor Community Advisory Group)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/008-Public Meeting (General)
100015982	4/8/2009 Portland Harbor Superfund Site Update Information for Lower Columbia Basin PCB Workshop.	812	41 MTG / Meeting Document	R10: (EPA)	R10: (Portland Harbor Community Advisory Group)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/008-Public Meeting (General)
100008338	7/1/2009 Presentation: Draft Remedial Investigation Report - Portland Harbor CAG - Lower Willamette Group.	91	3 OTH / Other	R10: (EPA)	R10: (Unknown)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/008-Public Meeting (General)
100008355	11/11/2009 REDACTED Portland Harbor Community Advisory Group (PHCAG) Attendance List (January 2010).	2,706	52 MTG / Meeting Document	R10: Wyatt, Bob (Lower Willamette Group), R10: Mckenna, Jim (Lower Willamette Group)	R10: (Lower Willamette Group), R10: (Portland Harbor Community Advisory Group)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/008-Public Meeting (General)
100017666	1/1/2010 Presentation: Feasibility Study Review and Process - Portland Harbor CAG - Lower Willamette Group.	57	1 OTH / Other	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/008-Public Meeting (General)
100008297	2/10/2010 Presentation: River in Focus Brown Bag Session - Portland Harbor Superfund Site. Portland Harbor Community Outreach Contact List, Fiscal Year (FY) 2010 (Contains Personal and Handwritten Information).	4,454	27 MTG / Meeting Document	R10: Wyatt, Bob (Lower Willamette Group), R10: Mckenna, Jim (Lower Willamette Group)	R10: (Lower Willamette Group), R10: (Portland Harbor Community Advisory Group)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/008-Public Meeting (General)
100015995	3/16/2010 Portland Harbor Community Outreach: FY 2010 October 1, 2009 - September 30, 2010.	1,197	24 MTG / Meeting Document	R10: (EPA)	R10: (Unknown)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/008-Public Meeting (General)
1436777	9/30/2010 Program for "Earth Care Summit, Make a Positive Impact".	2,352	3 MTG / Meeting Document	R10: (Unknown)	R10: (Unknown)	PAPER DOCUMENT	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/008-Public Meeting (General)
100008343	1/30/2012 Earth Care Summit Co-Sponsorship Form (With Handwritten Information).	80	3 OTH / Other	R10: (EPA)	R10: (Unknown)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/008-Public Meeting (General)
1436714	2/9/2012 Program for League of Women Voters Presentation "Can Government Entities Work Together?" (With Handwritten Notes).	13,590	8 MTG / Meeting Document	R10: Unknown, Unknown (Ecumenical Ministries of Oregon), R10: Unknown, Unknown (Interfaith Network for Earth Concerns (INEC))	R10: (Unknown)	PAPER DOCUMENT	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/008-Public Meeting (General)
1436715	2/9/2012 Minutes for the Portland Harbor Outreach Conference Call on February 27th, 2012. REDACTED Agenda for the Oregon Environmental Justice Task Force Meeting on March 9, 2012.	2,380	1 FRM / Form	R10: (EPA)	R10: (Ecumenical Ministries of Oregon), R10: (Interfaith Network for Earth Concerns (INEC))	PAPER DOCUMENT	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/008-Public Meeting (General)
1436698	2/27/2012 Agenda for the Public Informational Session on the Portland Harbor Draft Feasibility Study. Agenda for 03/13/2012 Friends of Cathedral Park Neighborhood Association (FCPNA) Meeting.	6,068	4 MTG / Meeting Document	R10: (League of Women Voters)	R10: (Unknown)	PAPER DOCUMENT	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/008-Public Meeting (General)
100016011	3/9/2012 DRAFT Agenda for the Feasibility Study Meeting on April 11, 2012.	73	3 MTG / Meeting Document	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/008-Public Meeting (General)
100018071	3/12/2012 Text of the Portland Harbor Superfund Site Draft Feasibility Study by the LWG.	69	2 MTG / Meeting Document	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/008-Public Meeting (General)
100016024	3/13/2012 Agenda for 03/13/2012 Friends of Cathedral Park Neighborhood Association (FCPNA) Meeting.	155	2 MTG / Meeting Document	R10: (Lower Willamette Group), R10: (EPA), R10: (Oregon Dept. of Environmental Quality)	R10: (Unknown)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/008-Public Meeting (General)
1436740	3/19/2012 DRAFT Agenda for the Feasibility Study Meeting on April 11, 2012.	1,550	1 MTG / Meeting Document	R10: (Friends of Cathedral Park Neighborhood Association (FCPNA))	R10: (Unknown)	PAPER DOCUMENT	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/008-Public Meeting (General)
100008340	3/21/2012 Text of the Portland Harbor Superfund Site Draft Feasibility Study by the LWG.	198	5 MTG / Meeting Document	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/008-Public Meeting (General)
100008216	3/21/2012 Text of the Portland Harbor Superfund Site Draft Feasibility Study by the LWG.	40	4 MTG / Meeting Document	R10: (Lower Willamette Group)	R10: (Unknown)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/008-Public Meeting (General)



100008257	3/21/2012	Presentation: Portland Harbor Superfund Site Draft Feasibility Study.	2,068	19 MTG / Meeting Document	R10: Mckenna, Jim (Lower Willamette Group), R10: Wyatt, Robert (Lower Willamette Group), R10: (Lower Willamette Group)	R10: (Unknown)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/008-Public Meeting (General)
1436680	3/22/2012	Email Transmittal of Invitation to Latino Outreach Meeting with the Portland Harbor Partnership.	5,895	4 EML / Email	R10: (Unknown)	R10: Conley, Alanna (EPA)	PAPER DOCUMENT	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/008-Public Meeting (General)
100008255	4/1/2012	Presentation: Portland Harbor - EPA Public Information Session for the Draft Feasibility Study.	5,333	24 MTG / Meeting Document	R10: (EPA)	R10: (Unknown)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/008-Public Meeting (General)
100008303	4/1/2012	Fact Sheet: Portland Harbor - Planning for Cleanup.	610	4 OTH / Other	R10: (EPA)	R10: (Unknown)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/008-Public Meeting (General)
100017022	4/1/2012	REDACTED Notice Regarding EPA Holds Public Information Sessions for Portland Harbor DRAFT Feasibility Study on 04/11, 04/12, 04/18 and 05/10/2012 (Includes Sign-In Sheets With Attendee Information for Each Session).	41,295	10 MTG / Meeting Document	R10: (EPA)	R10: (Unknown)	PAPER DOCUMENT	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/008-Public Meeting (General)
1436687	4/4/2012	Email Regarding US EPA Holds Public Information Sessions for Portland Harbor DRAFT Feasibility Study (With Marginalia).	4,378	2 EML / Email	R10: Danab, Marcia (Oregon Dept. of Environmental Quality)	R10: Conley, Alanna (EPA)	PAPER DOCUMENT	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/008-Public Meeting (General)
100008284	4/11/2012	Questions from the First Public Draft Feasibility Study Information Session - April 11, 2012 St John's Community Center.	67	6 OTH / Other	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/008-Public Meeting (General)
100008424	4/11/2012	Questions Posed at the First Public Information Session / CAG Meeting on April 11, 2012.	46	3 MTG / Meeting Document	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/008-Public Meeting (General)
100008214	5/9/2012	Presentation: Portland Harbor Feasibility Study.	1,747	29 MTG / Meeting Document	R10: Defur, Peter, L (Environmental Stewardship Concepts), R10: Isaac, Leigh (Environmental Stewardship Concepts), R10: Williams, Laura (Environmental Stewardship Concepts)	R10: (Unknown)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/008-Public Meeting (General)
100008423	5/10/2012	Questions Posed at the Fourth Public Draft Feasibility Study Information Session on May 10, 2012.	41	2 MTG / Meeting Document	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/008-Public Meeting (General)
100017085	5/21/2012	REDACTED Sign-In Sheet for 05/21/2012 EPA Portland Harbor Superfund Site Meeting with Northeast Coalition of Neighborhoods (NECN) (Contains Attendee and Handwritten Information).	4,092	1 MTG / Meeting Document	R10: (EPA)	R10: (Unknown)	PAPER DOCUMENT	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/008-Public Meeting (General)
1436713	5/22/2012	Invitation to Participate in 07/08/2012 Portland Harbor Superfund Field Day at Cathedral Park.	2,175	1 LTR / Letter	R10: (Portland Harbor Community Advisory Group)	R10: (EPA)	PAPER DOCUMENT	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/008-Public Meeting (General)
100008302	6/1/2012	Presentation: Portland Harbor - Swan Island Business Association June 2012.	2,734	14 MTG / Meeting Document	R10: (EPA)	R10: (Unknown)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/008-Public Meeting (General)
100016981	6/28/2012	REDACTED Email Transmittal of Participation Form for EPA in Slavic Festival (No Attachment).	3,371	1 EML / Email	R10: Conley, Alanna (EPA)	R10: Conley, Alanna (EPA)	PAPER DOCUMENT	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/008-Public Meeting (General)
1436704	6/30/2012	Participation/Vendor Reservation Form for EPA in Slavic Festival (With Handwritten Information).	2,705	1 FRM / Form	R10: (EPA)	R10: Unknown, Unknown (Slavic Festival)	PAPER DOCUMENT	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/008-Public Meeting (General)
100008286	7/1/2012	Presentation: Portland Harbor Superfund Site Draft Feasibility Study - Sediment Management Area Development.	2,010	13 MTG / Meeting Document	R10: Mckenna, Jim (Lower Willamette Group), R10: Stivers, Carl (Lower Willamette Group), R10: (Lower Willamette Group)	R10: (Unknown)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/008-Public Meeting (General)
1436710	7/5/2012	Email Invitation for 07/08/2012 Portland Harbor Field Day at Cathedral Park.	1,918	1 EML / Email	R10: Conley, Alanna (EPA)	R10: (EPA)	PAPER DOCUMENT	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/008-Public Meeting (General)
1436709	7/6/2012	Email Invitation and Agenda for 07/11/2012 Portland Harbor Community Advisory Group (PHCAG) Meeting.	77	1 EML / Email	R10: Conley, Alanna (EPA)	R10: (EPA)	PAPER DOCUMENT	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/008-Public Meeting (General)
1436708	7/16/2012	Email Invitation for 07/17/2012 and 08/02/2012 Portland Harbor Natural Resources Trustee Council Public Meetings for the Restoration Plan and Environmental Impact Statement.	2,038	1 EML / Email	R10: Conley, Alanna (EPA)	R10: (EPA)	PAPER DOCUMENT	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/008-Public Meeting (General)
100008344	7/27/2012	Comments on the Portland Harbor Feasibility Study By Environmental Stewardship Concepts, LLC For the Willamette Riverkeeper and the Portland Harbor CAG (With Highlighting).	389	24 CORR / Correspondence	R10: (Environmental Stewardship Concepts)	R10: (Willamette Riverkeeper), R10: (Portland Harbor Community Advisory Group)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/008-Public Meeting (General)
100008345	7/27/2012	Comments on the Portland Harbor Feasibility Study By Environmental Stewardship Concepts, LLC For the Willamette Riverkeeper and the Portland Harbor CAG.	411	24 CORR / Correspondence	R10: (Environmental Stewardship Concepts)	R10: (Willamette Riverkeeper), R10: (Portland Harbor Community Advisory Group)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/008-Public Meeting (General)
100008346	7/27/2012	Comments on the Portland Harbor Feasibility Study By Environmental Stewardship Concepts, LLC For the Willamette Riverkeeper and the Portland Harbor CAG.	365	18 CORR / Correspondence	R10: (Environmental Stewardship Concepts)	R10: (Willamette Riverkeeper), R10: (Portland Harbor Community Advisory Group)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/008-Public Meeting (General)
100008347	7/27/2012	Confined Disposal Facilities: Portland Harbor Feasibility Study By Environmental Stewardship Concepts, LLC For the Willamette Riverkeeper and the Portland Harbor CAG (With Highlighting).	194	5 CORR / Correspondence	R10: (Environmental Stewardship Concepts)	R10: (Willamette Riverkeeper), R10: (Portland Harbor Community Advisory Group)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/008-Public Meeting (General)
100008348	7/27/2012	Sedimentation Comments on the Portland Harbor Feasibility Study By Environmental Stewardship Concepts, LLC For the Willamette Riverkeeper and the Portland Harbor CAG.	230	6 CORR / Correspondence	R10: (Environmental Stewardship Concepts)	R10: (Willamette Riverkeeper), R10: (Portland Harbor Community Advisory Group)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/008-Public Meeting (General)
100016993	8/1/2012	REDACTED Email Invitation and Agenda for 08/08/2012 Portland Harbor Community Advisory Group (PHCAG) Meeting.	219	2 EML / Email	R10: Conley, Alanna (EPA)	R10: (EPA)	PAPER DOCUMENT	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/008-Public Meeting (General)
100008258	9/12/2012	CAG Additional CDF Questions - From Jackie Caulder 10/1/2011.	85	5 OTH / Other	R10: Caulder, Jackie, R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/008-Public Meeting (General)
1436718	9/20/2012	Minutes for 09/20/2012 Flotilla 78 and Washington Fish and Wildlife Meeting (With Handwritten Notes).	1,952	1 MTG / Meeting Document	R10: (Washington State Dept. of Fish and Wildlife), R10: (Flotilla 78)	R10: (Unknown)	PAPER DOCUMENT	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/008-Public Meeting (General)
1436711	9/23/2012	Information Flyer for RiverFest 2012: River Fair at Cathedral Park (With Handwritten Notes).	3,118	1 PUB / Publication	R10: Unknown, Unknown (Portland RiverFest)	R10: (Unknown)	PAPER DOCUMENT	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/008-Public Meeting (General)
1436678	10/3/2012	Email Invitation for 10/09/2012 League of Women Voters Presentation of "Can Government Entities Work Together?".	4,125	2 EML / Email	R10: Conley, Alanna (EPA)	R10: Conley, Alanna (EPA)	PAPER DOCUMENT	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/008-Public Meeting (General)
1436706	10/3/2012	Email Invitation for 10/09/2012 League of Women Voters Presentation "Can Government Entities Work Together?".	2,264	2 EML / Email	R10: Conley, Alanna (EPA)	R10: (EPA)	PAPER DOCUMENT	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/008-Public Meeting (General)
100008270	10/9/2012	Public Notice: Can Government Entities Work Together? Problem Solving in the 21st Century.	59	1 OTH / Other	R10: (Portland Harbor Community Advisory Group)	R10: (Unknown)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/008-Public Meeting (General)
1436705	10/10/2012	Email Reminder and Agenda for 10/10/2012 Portland Harbor Community Advisory Group (CAG) Meeting.	2,571	2 EML / Email	R10: Conley, Alanna (EPA)	R10: (EPA)	PAPER DOCUMENT	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/008-Public Meeting (General)
100008290	10/10/2012	Email: CAG Meetings.	471	5 EML / Email	R10: Conley, Alanna (EPA), R10: (EPA)	R10: Conley, Alanna (EPA), R10: (EPA)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/008-Public Meeting (General)
100008365	2/26/2013	Agenda for the Oregon Trades Women: U.S EPA Presentation on Portland Harbor Superfund Site and General Contaminant Cleanup Considerations.	97	1 MTG / Meeting Document	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/008-Public Meeting (General)

100008462	3/12/2013	Email: Courtesy Invitation: Portland Harbor CAG meeting, Community Perspective Overview of Draft Feasibility Study.	16	1 EML / Email	R10: (EPA)	R10: Conley, Alanna (EPA)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/008-Public Meeting (General)
100008474	4/4/2013	Email: Portland Harbor CAG Meeting: EPA Discusses Human Health Risk Assessment & Draft Feasibility Study Comments, April 10, 6pm.	43	2 EML / Email	R10: (EPA)	R10: Conley, Alanna (EPA)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/008-Public Meeting (General)
100018073	4/12/2013	REDACTED Agenda for the Oregon Environmental Justice Task Force Meeting on April 12, 2013.	177	2 MTG / Meeting Document	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/008-Public Meeting (General)
100017637	6/12/2013	REDACTED Email: Local Contacts 2013. REDACTED Minutes for Portland Harbor Community Coalition and EPA Region 10 Meeting (With Highlighted Text and Handwritten Note; Contains Attendee Personal Information).	106	1 EML / Email	R10: Conley, Alanna (EPA)	R10: Conley, Alanna (EPA)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/008-Public Meeting (General)
100016952	7/23/2013	REDACTED Portland Harbor Community Coalition & EPA Region 10 Meeting - July 23rd, 2013.	5,818	10 MTG / Meeting Document	R10: (EPA), R10: (Portland Harbor Community Coalition (PHCC))	R10: (Unknown)	PAPER DOCUMENT	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/008-Public Meeting (General)
100018087	7/23/2013	REDACTED Portland Harbor Community Coalition & EPA Region 10 Meeting - July 23rd, 2013.	129	10 OTH / Other	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/008-Public Meeting (General)
100008430	8/14/2013	Email: EPA to Hold Community Information Session for Residents, Aug 22, 5pm (Less Attachment).	71	1 EML / Email	R10: Conley, Alanna (EPA)	R10: (St. Johns Review)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/008-Public Meeting (General)
100008418	8/19/2013	Email: Portland Harbor / Next Steps for Community Engagement with PHCC (Less Attachment).	44	2 EML / Email	R10: Cohen, Cassie (Groundwork Portland)	R10: Conley, Alanna (EPA)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/008-Public Meeting (General)
100008361	8/22/2013	Notes for the Portland Harbor Superfund Site Community Information Session on August 22, 2013.	132	6 MTG / Meeting Document	R10: Smith, Barbara (Lower Willamette Group)	R10: (Unknown)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/008-Public Meeting (General)
100017147	8/22/2013	REDACTED Sign-In Sheets for 08/22/2013 Portland Harbor Community Information Session (Contains Attendee and Handwritten Information).	31,986	12 MTG / Meeting Document	R10: (Unknown)	R10: (Unknown)	PAPER DOCUMENT	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/008-Public Meeting (General)
1436690	10/27/2013	Iraqi Society of Oregon Invitation to the Iraqi Cultural Festival, Mesopotamians on the Banks of the Willamette River.	2,831	1 CORR / Correspondence	R10: (Iraqi Society of Oregon)	R10: (Unknown)	PAPER DOCUMENT	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/008-Public Meeting (General)
1436700	11/3/2013	Email With Agenda for Friends of Cathedral Park Neighborhood Association (FCPNA) General Neighborhood Meeting on 11/12/2013.	1,518	1 EML / Email	R10: (Unknown)	R10: Conley, Alanna (EPA)	PAPER DOCUMENT	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/008-Public Meeting (General)
1436677	11/12/2013	Email Invitation and Agenda for 11/13/2013 Community Advisory Group (CAG) Meeting.	1,991	1 EML / Email	R10: (EPA)	R10: Conley, Alanna (EPA)	PAPER DOCUMENT	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/008-Public Meeting (General)
100008298	11/12/2013	Draft Agenda for the Portland Harbor MOU Partners Meeting on November 12, 2013.	86	1 MTG / Meeting Document	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/008-Public Meeting (General)
100008475	11/12/2013	Email: Portland Harbor CAG Meeting, Nov 13, 6pm.	101	1 EML / Email	R10: (EPA)	R10: Conley, Alanna (EPA)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/008-Public Meeting (General)
100008523	11/14/2013	Email: Portland Harbor / Next Steps for Community Engagement with PHCC.	92	3 EML / Email	R10: Cox, Kim, E (City of Portland, Oregon)	R10: Conley, Alanna (EPA)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/008-Public Meeting (General)
100008585	11/14/2013	Email: Portland Harbor / Next Steps for Community Engagement with PHCC.	92	3 EML / Email	R10: Cox, Kim, E (City of Portland, Oregon)	R10: Conley, Alanna (EPA)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/008-Public Meeting (General)
100017667	11/17/2013	REDACTED Email: Cathedral Park Neighborhood Meeting.	41	2 EML / Email	R10:	R10: Conley, Alanna (EPA)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/008-Public Meeting (General)
100008519	11/19/2013	Email: Tonight.	36	1 EML / Email	R10: Cohen, Cassie (Groundwork Portland)	R10: Conley, Alanna (EPA)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/008-Public Meeting (General)
1436691	12/3/2013	Email Regarding Invitation to Present at 12/07/2013 Czech Event "St. Nicholas Celebration" (With Handwritten Notes).	3,448	2 EML / Email	R10: Conley, Alanna (EPA)	R10: Bohrer-clancy, Ivana (Impact NW)	PAPER DOCUMENT	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/008-Public Meeting (General)
100008574	12/19/2013	Email: Opportunity for Portland Harbor MOU Partners to meet with EPA Regional Administrator Dennis McLerran and EPA Superfund Director Jim Woolford.	80	2 EML / Email	R10: Yamamoto, Deb (EPA)	R10: Madden, Erin (Cascadia Law Group)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/008-Public Meeting (General)
100008425	1/6/2014	Letter: Portland Harbor Superfund Cleanup (From the Yakama Nation).	51	1 LTR / Letter	R10: (Confederated Tribes and Bands of the Yakama Nation)	R10: Woolford, James, E (EPA), R10: McLerran, Dennis, J (EPA Regional Administrator)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/008-Public Meeting (General)
100008367	1/7/2014	Notes for Portland Harbor Meeting with Tribal and Community Stakeholders and the EPA.	82	2 MTG / Meeting Document	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/008-Public Meeting (General)
100008373	1/26/2014	Agenda for the Portland Harbor Community Coalition (PHCC) Meeting on January 26, 2014.	172	1 MTG / Meeting Document	R10: (Portland Harbor Community Coalition (PHCC))	R10: (Unknown)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/008-Public Meeting (General)
1436699	1/27/2014	Program for "The Fifth Annual Earth Care Summit, Breath of Life: Earth's Atmosphere".	5,709	2 MTG / Meeting Document	R10: Unknown, Unknown (Ecumenical Ministries of Oregon), R10: Unknown, Unknown (Interfaith Network for Earth Concerns (INEC)), R10: Unknown, Unknown (Oregon Interfaith Power and Light (OIPL))	R10: (Unknown)	PAPER DOCUMENT	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/008-Public Meeting (General)
1436716	1/28/2014	Program for "The Fourth Annual Earth Care Summit, Living Waters".	5,914	2 MTG / Meeting Document	R10: Unknown, Unknown (Ecumenical Ministries of Oregon), R10: Unknown, Unknown (Interfaith Network for Earth Concerns (INEC)), R10: Unknown, Unknown (Oregon Interfaith Power and Light (OIPL))	R10: (Unknown)	PAPER DOCUMENT	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/008-Public Meeting (General)
100008513	2/4/2014	Email: March Field Trip for Oregon Tradeswomen.	172	4 EML / Email	R10: Conley, Alanna (EPA)	R10: Conley, Alanna (EPA), R10: Neel, Kim (Oregon Tradeswomen) Genevieve (NOAA), R10: Neely, Robert (NOAA), R10: Ridolfi, Callie, A (Ridolfi Engineers and Associates, Inc.), R10: Buck, Jeremy (U. S. Fish and Wildlife Service), R10: Madden, Erin (Unknown), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Cunninghame, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Downey, Tom (Confederated Tribes of the Siletz Indians), R10: Karnosh, Michael (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Sheldrake, Sean, A (EPA), R10: Fuentes, Rene, C (EPA), R10: Conley, Alanna (EPA), R10: Shephard, Burt (EPA), R10: Humphrey, Chip (EPA), R10: Allen, Elizabeth (EPA), R10: Muza, Richard (EPA), R10: Liverman, Alex (Oregon Dept. of Environmental Quality), R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality), R10: McClincy, Matt (Oregon Dept. of Environmental Quality), R10: Poulsen, Michael (Oregon Dept. of Environmental Quality), R10: Gainer, Tom (Oregon Dept. of Environmental Quality), R10: Fricano, Gail (Industrial Economics, Inc.), R10: Delvecchio, Rachel (Industrial Economics, Inc.), R10: Humphreys, Brandy (Grand Ronde Tribe), R10: Penoyar, Susan, J (CDM), R10: Longoria, Rose (Yakama Nation), R10: Williams, J., D (Law Offices of J. D. Williams), R10: King, Todd (CDM Smith), R10: Johnson, Matt	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/008-Public Meeting (General)
100008264	2/21/2014	Email: Portland Harbor Resolutions (Less Attachment).	72	1 EML / Email	R10: Koch, Kristine, M (EPA)	R10: (Unknown)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/008-Public Meeting (General)
100008260	3/24/2014	EPA Response to Comments (by Peter DeFur) on the Feasibility Study for Portland Harbor.	112	2 CORR / Correspondence	R10: (EPA)	R10: (Unknown)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/008-Public Meeting (General)

100008516	4/10/2014	Email: Next Portland Harbor Tribal Partners Meeting - May 13.	114	2 EML / Email	R10: Murchie, Peter (EPA)	R10: Conley, Alanna (EPA)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/008-Public Meeting (General)	
100008460	7/3/2014	Email: CAG Meeting, July 9 @ 6pm. Topics: Ecological Risk Assessment & Environmental Justice.	86	1 EML / Email	R10: (EPA)	R10: Conley, Alanna (EPA)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/008-Public Meeting (General)	
1436688	7/17/2014	"The Dirty Side of Portland Bus Tour, Learn About Portland's Environmental Issues First-Hand, Stops Include Portland Harbor, Emerson St. Garden, East Portland Brownfields".	2,473	1 PUB / Publication	R10: (Groundwork Portland)	R10: (Unknown)	PAPER DOCUMENT	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/008-Public Meeting (General)	
100008586	8/19/2014	Email: Reminder: PHCC Meeting August 25, 6:00PM-8:00PM.	70	1 EML / Email	R10: Ali, Faduma (Groundwork Portland)	R10: Cohen, Cassie (Groundwork Portland)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/008-Public Meeting (General)	
100017638	11/20/2014	REDACTED Email: Portland Harbor Tribal Partners/EPA Meeting, Dec 8, 4:30pm (Change in Call In Number).	132	2 EML / Email	R10: Conley, Alanna (EPA)	R10: Moses, Gabriel (Unknown)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/008-Public Meeting (General)	
100008476	12/4/2014	Email: Portland Harbor CAG Meeting, Wed, December 10 at 6pm.	85	1 EML / Email	R10: (EPA)	R10: Conley, Alanna (EPA)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/008-Public Meeting (General)	
100017650	12/4/2014	REDACTED Email: Portland Harbor Community Partners/EPA Update Meeting, Monday, December 8, 5:20pm.	131	2 EML / Email	R10: Conley, Alanna (EPA)	R10: Conley, Alanna (EPA)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/008-Public Meeting (General)	
100017658	12/4/2014	REDACTED Email: Portland Harbor Tribal Partners/EPA Meeting, Dec 8, 4:30pm.	138	2 EML / Email	R10: Conley, Alanna (EPA)	R10: Madden, Erin (Unknown), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Cunningham, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Downey, Tom (Confederated Tribes of the Siletz Indians), R10: Karnosh, Michael (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Conley, Alanna (EPA), R10: Magorrian, Matthew (EPA), R10: Partridge, Holly (Grand Ronde Tribe), R10: Longoria, Rose (Yakama Nation), R10: Williams, J., D (Law Offices of J. D. Williams), R10: Johnson, Matt (WilliamsJohnson), R10: Weis, Julie (Haglund Kelley Jones & Wilder LLP), R10: Moses, Gabriel (Unknown)	R10: Conley, Alanna (EPA)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/008-Public Meeting (General)
100017664	12/4/2014	REDACTED Email: Invitation: Community Outreach Strategy Meeting With Alanna Conley at Weekly from 10am to 11:30am on Monday, Tuesday (Main Calendar).	79	3 EML / Email	R10: Ali, Faduma (Groundwork Portland)	R10: Conley, Alanna (EPA)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/008-Public Meeting (General)	
1436686	1/8/2015	Email Invitation and Agenda for 01/14/2015 Portland Harbor Community Advisory Group (CAG) Meeting.	2,196	1 EML / Email	R10: (EPA)	R10: Conley, Alanna (EPA)	PAPER DOCUMENT	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/008-Public Meeting (General)	
100008458	1/27/2015	Email: 2/9 - Special PHCC Meeting.	76	2 EML / Email	R10: Ali, Faduma (Groundwork Portland)	R10: Cohen, Cassie (Groundwork Portland)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/008-Public Meeting (General)	
100008572	1/27/2015	Email: 2/9 - Special PHCC Meeting.	44	2 EML / Email	R10: Ali, Faduma (Groundwork Portland)	R10: Conley, Alanna (EPA)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/008-Public Meeting (General)	
1436692	2/28/2015	Internet Information Regarding "In It Together Community Summit 2015".	9,663	12 PUB / Publication	R10: (City of Portland)	R10: (Unknown)	PAPER DOCUMENT	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/008-Public Meeting (General)	
1436681	3/5/2015	Email Regarding 03/12/2015 Question and Answer Session With EPA Officials.	2,217	1 EML / Email	R10: Ali, Faduma (Groundwork Portland)	R10: Cohen, Cassie (Groundwork Portland), R10: Ashbrook, Connie (EPA)	PAPER DOCUMENT	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/008-Public Meeting (General)	
100008578	3/5/2015	Email: Reminder: Q&A with EPA 3/12 From 6:00-8:00PM.	79	2 EML / Email	R10: Ali, Faduma (Groundwork Portland)	R10: Cohen, Cassie (Groundwork Portland), R10: Ashbrook, Connie (EPA)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/008-Public Meeting (General)	
1436685	3/9/2015	Email Invitation and Agenda for 03/11/2015 Portland Harbor Community Advisory Group (CAG) Meeting.	898	2 EML / Email	R10: (EPA)	R10: Smith, Judy, R (EPA), R10: Conley, Alanna (EPA), R10: Bert, Charles (EPA), R10: Gallaher, Jo (EPA), R10: Livingston, John (EPA), R10: Morrison, Kay (EPA)	PAPER DOCUMENT	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/008-Public Meeting (General)	
100008485	3/9/2015	Email: Courtesy Copy: Portland Harbor CAG meeting: Capping Technology and McCormick & Baxter Discussion, 3/11, 6pm.	85	1 EML / Email	R10: (EPA)	R10: Smith, Judy, R (EPA), R10: Conley, Alanna (EPA), R10: Bert, Charles (EPA), R10: Gallaher, Jo (EPA), R10: Livingston, John (EPA), R10: Morrison, Kay (EPA)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/008-Public Meeting (General)	
1436695	3/10/2015	Program for "Children's Clean Water Festival: Where Youth Are Making Waves".	13,366	16 PUB / Publication	R10: Unknown, Unknown (cleanwaterfestival.org)	R10: (Unknown)	PAPER DOCUMENT	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/008-Public Meeting (General)	
100008370	3/12/2015	Agenda for the Portland Harbor Community Coalition (PHCC) Meeting on March 12, 2015.	119	1 MTG / Meeting Document	R10: (Portland Harbor Community Coalition (PHCC))	R10: (Unknown)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/008-Public Meeting (General)	
100008448	3/12/2015	Email: Agenda For Tonight's Meeting (Less Attachment).	70	1 EML / Email	R10: Ali, Faduma (Groundwork Portland)	R10: Conley, Alanna (EPA)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/008-Public Meeting (General)	
100008452	3/12/2015	Portland Harbor Community Coalition (PHCC) Meeting Agenda.	172	1 OTH / Other	R10: (Portland Community College (PCC))	R10: (Unknown)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/008-Public Meeting (General)	
100008471	3/12/2015	Email: PHCC Meeting Tonight.	69	1 EML / Email	R10: Ali, Faduma (Groundwork Portland)	R10: Conley, Alanna (EPA)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/008-Public Meeting (General)	
100008520	3/12/2015	Email: PHCC Meeting Tonight.	69	1 EML / Email	R10: Ali, Faduma (Groundwork Portland)	R10: Conley, Alanna (EPA)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/008-Public Meeting (General)	
100008530	3/25/2015	Email: Portland Harbor Community Partners/EPA Update Meeting, Tuesday, April 21, 4:30pm.	68	1 EML / Email	R10: Conley, Alanna (EPA)	R10: (Unknown)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/008-Public Meeting (General)	
100008577	3/25/2015	Email: Portland Harbor Community Partners/EPA Update Meeting, Tuesday, April 21, 4:30pm.	38	2 EML / Email	R10: Hill, Edward (Groundwork Portland)	R10: Conley, Alanna (EPA)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/008-Public Meeting (General)	
100008580	3/25/2015	Email: Saturday: Community Workshop on Portland Harbor.	149	2 EML / Email	R10: (Groundwork Portland)	R10: Conley, Alanna (EPA)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/008-Public Meeting (General)	
100008414	3/28/2015	Flier: Community Workshop: Portland Harbor Future, A Cleaner River.	661	1 MTG / Meeting Document	R10: (EPA)	R10: (Unknown)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/008-Public Meeting (General)	
100018083	3/28/2015	REDACTED Handwritten Sign-In Sheet for Community Workshop: Portland Harbor Future, A Cleaner River.	3,437	2 MTG / Meeting Document	R10: (EPA)	R10: (Unknown)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/008-Public Meeting (General)	
1436684	4/2/2015	Email Invitation and Agenda for 04/08/2015 Portland Harbor Community Advisory Group (CAG) Meeting.	108	2 EML / Email	R10: (EPA)	R10: Smith, Judy, R (EPA), R10: Conley, Alanna (EPA), R10: Bert, Charles (EPA), R10: Gallaher, Jo (EPA), R10: Livingston, John (EPA), R10: Morrison, Kay (EPA)	PAPER DOCUMENT	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/008-Public Meeting (General)	
100008477	4/2/2015	Email: Portland Harbor CAG Meeting, Dredging and Haul Truck Emission Considerations, 4/8 at 6pm.	87	1 EML / Email	R10: (EPA)	R10: Conley, Alanna (EPA)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/008-Public Meeting (General)	
100008480	4/2/2015	Email: Courtesy Copy: Portland Harbor CAG Meeting: Dredging and Haul Truck Emission Considerations, 4/8 at 6pm.	85	1 EML / Email	R10: (EPA)	R10: Smith, Judy, R (EPA), R10: Conley, Alanna (EPA), R10: Bert, Charles (EPA), R10: Gallaher, Jo (EPA), R10: Livingston, John (EPA), R10: Morrison, Kay (EPA)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/008-Public Meeting (General)	
1436683	5/5/2015	Email Regarding 05/13/2015 Portland Harbor Community Advisory Group (CAG) Meeting.	2,057	1 EML / Email	R10: (EPA)	R10: Conley, Alanna (EPA)	PAPER DOCUMENT	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/008-Public Meeting (General)	
100008478	5/5/2015	Email: Portland Harbor CAG Meeting, Monitoring at Superfund Sites, 5/13 at 6pm.	85	1 EML / Email	R10: (EPA)	R10: Conley, Alanna (EPA)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/008-Public Meeting (General)	
100016914	5/19/2015	REDACTED Email Regarding Meetup with Portland/Vancouver Sierra Club Outings and Events.	7,814	3 EML / Email	R10: Conley, Alanna (EPA)	R10: Jacob, Greg (Sierra Club)	PAPER DOCUMENT	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/008-Public Meeting (General)	
100008356	5/21/2015	Presentation: Introduction to Superfund: A Public Awareness Workshop.	10,689	56 MTG / Meeting Document	R10: Koch, Kristine, M (EPA), R10: Conley, Alanna (EPA)	R10: (Unknown)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/008-Public Meeting (General)	

100017143	6/18/2015	REDACTED Sign-In Sheets for 06/18/2015 Portland Harbor Community Information Session (Contains Attendee and Handwritten Information).	5,187	2 MTG / Meeting Document	R10: (Unknown)	R10: (Unknown)	PAPER DOCUMENT	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/008-Public Meeting (General)
100008486	7/7/2015	Email: Courtesy Copy: Portland Harbor CAG Meeting: July 8 at 6pm.	89	2 EML / Email	R10: (EPA)	R10: Smith, Judy, R (EPA), R10: Conley, Alanna (EPA), R10: Bert, Charles (EPA), R10: Gallaher, Jo (EPA), R10: Livingston, John (EPA), R10: Morrison, Kay (EPA)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/008-Public Meeting (General)
100008522	7/15/2015	Email: Invitation to Portland Harbor Community Café and Potluck - July 16, 5:30pm, St. Johns Community Center.	146	2 EML / Email	R10: Conley, Alanna (EPA)	R10: (Unknown)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/008-Public Meeting (General)
100008294	7/16/2015	Open House and Interactive Map - St John's Community Café - July 16, 2015.	66	1 OTH / Other	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/008-Public Meeting (General)
100008427	7/16/2015	Flier: You Are Invited to the Portland Harbor Community Café.	836	2 OTH / Other	R10: (EPA)	R10: (Unknown)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/008-Public Meeting (General)
100017134	7/16/2015	REDACTED Community Cafe 07/16/2015 Value/Interest Sheets (Contains Personal and Handwritten Information).	12,932	3 MTG / Meeting Document	R10: (Unknown)	R10: (Unknown)	PAPER DOCUMENT	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/008-Public Meeting (General)
100016920	7/23/2015	REDACTED Email Regarding 08/11/2015 Community Advisory Group (CAG) Meeting (With Handwritten Notes).	136	2 EML / Email	R10: Conley, Alanna (EPA)	R10: Robison, Jim (Portland Harbor Community Advisory Group)	PAPER DOCUMENT	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/008-Public Meeting (General)
100008587	7/26/2015	Email: Report on Slavic Festival.	87	2 EML / Email	R10: Flynt, Jennifer (Oregon Dept. of Environmental Quality)	R10: Conley, Alanna (EPA), R10: Danab, Marcia (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/008-Public Meeting (General)
100017651	8/12/2015	REDACTED Email: Invitation: Portland Harbor Community Partners/EPA Update Meeting, Thursday, September 17th, 4:30pm.	92	1 EML / Email	R10: Conley, Alanna (EPA)	R10: Robison, Jim (Portland Harbor Community Advisory Group), R10: Williams, Travis (Willamette Riverkeeper), R10: Defur, Peter, L (Environmental Stewardship Concepts), R10: Sallinger, Robert (Audobon Society of Portland), R10: Ali, Faduma (Groundwork Portland), R10: James-neel, Amy, R10: Jones, Sam, R10: Feldman, Laura, R10: Jacob, Greg, R10: Williams, Jeri (City of Portland), R10: Hill, Edward (Groundwork Portland), R10: Hogan, Marj, R10: Poe, Ben, R10: Robbins, April, R10: Freeberg, Amyl, R10: Roberts, Crystal, R10: (Environmental Stewardship Concepts)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/008-Public Meeting (General)
100017629	8/19/2015	REDACTED Email: (Yes) Sept 8th, Invite to Cathedral Park Neighborhood Association.	105	3 EML / Email	R10: Conley, Alanna (EPA)	R10: Larson, Doug (Cathedral Park Neighborhood Association)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/008-Public Meeting (General)
100017645	9/21/2015	REDACTED Email: Portland Harbor CAG Special Meetings.	37	1 EML / Email	R10: Robison, Jim (Portland Harbor Community Advisory Group)	R10: Ali, Faduma (Groundwork Portland), R10: Hill, Edward (Groundwork Portland), R10: Mubarak, Ibrahim, R10: Myers, Renee	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/008-Public Meeting (General)
100017642	10/20/2015	REDACTED Email: Invitation: Portland Harbor Community Partners/EPA Update Meeting, Friday, November 13th, 3pm.	81	2 EML / Email	R10: Conley, Alanna (EPA)	R10: Robison, Jim (Portland Harbor Community Advisory Group), R10: Williams, Travis (Willamette Riverkeeper), R10: Defur, Peter, L (Environmental Stewardship Concepts), R10: Jones, Edward (EPA), R10: Sallinger, Robert (Audobon Society of Portland), R10: Ali, Faduma (Groundwork Portland), R10: Larson, Doug (Cathedral Park Neighborhood Association), R10: Calder, Jackie (Unknown), R10: James-neel, Amy, R10: Jones, Sam, R10: Feldman, Laura, R10: Jacob, Greg, R10: Williams, Jeri (City of Portland), R10: Hill, Edward (Groundwork Portland), R10: Taylor, Sarah, R10: Shaw, John, R10: Mubarak, Ibrahim, R10: Mclean, Ivan, R10: Wagner, Art, R10: (Environmental Stewardship Concepts), R10: (OPAL Environmental Justice Oregon)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/008-Public Meeting (General)
100008589	11/25/2015	Email: Weekly Report (For Next Week) Mark and Julie - Please Post This NEXT Week. Thanks.	72	1 EML / Email	R10: Conley, Alanna (EPA)	R10: Macintyre, Mark, A (EPA), R10: Congdon, Julie (EPA)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/008-Public Meeting (General)
100008292	12/4/2015	Portland Harbor Outreach Schedule.	96	2 OTH / Other	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/008-Public Meeting (General)
100008416	12/4/2015	Summary of Environmental Justice-Centered Outreach on Portland Harbor.	9,486	7 CORR / Correspondence	R10: Caldera, Stephanie (Oregon Dept. of Environmental Quality)	R10: (Unknown)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/008-Public Meeting (General)
100008428	12/4/2015	Email: EJTF: Document for EPA/DEQ Portland Harbor Information (Less Attachment).	74	1 EML / Email	R10: Caldera, Stephanie (Oregon Dept. of Environmental Quality)	R10: Goldfarb, Gabriela	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/008-Public Meeting (General)
100018077	12/4/2015	REDACTED Agenda for the Oregon Environmental Justice Task Force Meeting on December 4, 2015.	82	1 MTG / Meeting Document	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/008-Public Meeting (General)
100017628	12/28/2015	REDACTED Email: 2015 Draft Final Feasibility Study.	114	1 EML / Email	R10: Conley, Alanna (EPA)	R10: Angell, Sarah (Swan Island Business Association)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/008-Public Meeting (General)
100008507	12/29/2015	Email: January 2016 Update NECN Meeting.	144	2 EML / Email	R10: Turner, Damon, Isiah (Northeast Coalition of Neighborhoods (NECN))	R10: Conley, Alanna (EPA)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/008-Public Meeting (General)
100008515	12/29/2015	Email: Portland Harbor Community Outreach.	248	3 EML / Email	R10: Conley, Alanna (EPA)	R10: Griffin-valade, Tom (North Portland Neighborhood Services)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/008-Public Meeting (General)
100015979	12/29/2015	Email regarding January 2016 Update NECN Meeting.	63	2 EML / Email	R10: Turner, Damon, Isiah (Northeast Coalition of Neighborhoods (NECN))	R10: Conley, Alanna (EPA)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/008-Public Meeting (General)
100015980	12/29/2015	Email regarding Portland Harbor Community Outreach.	148	3 EML / Email	R10: Conley, Alanna (EPA)	R10: Griffin-valade, Tom (North Portland Neighborhood Services)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/008-Public Meeting (General)
100008353	1/1/2016	Partner Flier: Get Ready, Engaged, and Informed About Portland Harbor - US EPA Holds Community Information Sessions.	487	1 OTH / Other	R10: (EPA)	R10: (Unknown)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/008-Public Meeting (General)
100008354	1/1/2016	Flier: Get Ready, Engaged, and Informed - US EPA Holds Community Information Sessions on Portland Harbor.	170	3 OTH / Other	R10: (EPA)	R10: (Unknown)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/008-Public Meeting (General)
100008473	1/19/2016	Email: Get Engaged: US EPA holds Portland Harbor Community Information Session.	111	2 EML / Email	R10: (EPA)	R10: Conley, Alanna (EPA)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/008-Public Meeting (General)
100015988	1/19/2016	Email regarding Get Engaged: US EPA holds Portland Harbor Community Information Session.	111	2 EML / Email	R10: Conley, Alanna (EPA)	R10: Tallmadge, Maggie (Coalition of Communities of Color)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/008-Public Meeting (General)
100017630	1/20/2016	REDACTED Email: Possible Contacts Re: EPA Superfund Plan Briefing.	169	3 EML / Email	R10: Conley, Alanna (EPA)	R10: Tallmadge, Maggie (Coalition of Communities of Color)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/008-Public Meeting (General)
100018136	1/20/2016	REDACTED Email regarding Possible Contacts Re: EPA Superfund Plan Briefing.	67	3 EML / Email	R10: Tallmadge, Maggie (Coalition of Communities of Color)	R10: Conley, Alanna (EPA)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/008-Public Meeting (General)
100008442	1/22/2016	Syllabus for ESR 150: Environmental Studies Orientation (Winter 2016).	90	6 OTH / Other	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/008-Public Meeting (General)
100008447	1/22/2016	Week 9 Summary: EPA (ESR 150 Orientation to ESR).	49	1 OTH / Other	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/008-Public Meeting (General)
100017623	1/22/2016	REDACTED Email: Visit to PCC (Less Attachment).	37	1 EML / Email	R10: Brenneis, Valance (Portland Community College (PCC))	R10: Conley, Alanna (EPA)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/008-Public Meeting (General)
100008518	1/29/2016	Email: Declined: Environmental Justice Task Force Meeting.	86	2 EML / Email	R10: Conley, Alanna (EPA)	R10: Goldfarb, Gabriela	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/008-Public Meeting (General)



100015977	1/29/2016	Email regarding (Correction) Environmental Justice Task Force Meeting.	82	2 EML / Email	R10: Conley, Alanna (EPA)	R10: Goldfarb, Gabriela	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/008-Public Meeting (General)
100016950	1/31/2016	REDACTED Email Regarding Meeting Details for "Clean Up the Willamette, the Portland Harbor Superfund Site" and Transmittal of Plan/Timing Information (No Attachment).	94	1 EML / Email	R10: Debbie, Aiona (League of Women Voters)	R10: Smith, Barbara (Unknown), R10: Koch, Kristine, M (EPA), R10: Sallinger, Robert (Audobon Society of Portland)	PAPER DOCUMENT	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/008-Public Meeting (General)
100008349	2/1/2016	Flier: Get Ready, Engaged, and Informed - US EPA Holds Community Information Sessions on Portland Harbor.	497	1 OTH / Other	R10: (EPA)	R10: (Unknown)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/008-Public Meeting (General)
100008352	2/1/2016	Flier (2-Sided Card): Get Ready, Engaged, and Informed - US EPA Holds Community Information Sessions on Portland Harbor.	502	2 OTH / Other	R10: (EPA)	R10: (Unknown)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/008-Public Meeting (General)
100008411	2/1/2016	Flier: Get Ready, Engaged, and Informed - US EPA Holds Community Information Sessions on Portland Harbor.	785	1 OTH / Other	R10: (EPA)	R10: (Unknown)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/008-Public Meeting (General)
100008426	2/1/2016	Flier: Get Ready, Engaged, and Informed - US EPA Holds Community Information Sessions on Portland Harbor.	784	1 OTH / Other	R10: (EPA)	R10: (Unknown)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/008-Public Meeting (General)
100016018	2/1/2016	Flier: Get Ready, Engaged & Informed US EPA Holds Community Information Sessions on Portland Harbor.	784	1 OTH / Other	R10: (EPA)	R10: (Unknown)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/008-Public Meeting (General)
100016029	2/1/2016	Flier: Get Ready, Engaged & Informed US EPA Holds Community Information Sessions on Portland Harbor.	497	1 OTH / Other	R10: (EPA)	R10: (Unknown)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/008-Public Meeting (General)
100017647	2/2/2016	REDACTED Email: Portland Harbor Community Partners/EPA Update Meeting, Friday, February 19th, 4:30-5:15pm.	147	1 EML / Email	R10: Conley, Alanna (EPA)	R10: Knudsen, Laura (EPA), R10: Macintyre, Mark, A (EPA), R10: Sheldrake, Sean, A (EPA), R10: Woolford, James, E (EPA), R10: Robinson, Deborah, G (EPA), R10: Grandinetti, Carmela (Cami), L (EPA), R10: Koch, Kristine, M (EPA), R10: Smith, Judy, R (EPA), R10: Christopher, Anne (EPA), R10: Allen, Elizabeth (EPA), R10: Demaria, Eva (EPA)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/008-Public Meeting (General)
100016027	2/4/2016	Email regarding Environmental Justice Task Force Meeting.	555	2 EML / Email	R10: Conley, Alanna (EPA)	R10: Goldfarb, Gabriela	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/008-Public Meeting (General)
100017037	2/4/2016	REDACTED Sign-In Sheets, Pages 1, 2, 7 and 8 of 12, for 02/04/2016 Portland Harbor Community Information (Contains Attendee and Handwritten Information).	27,444	4 MTG / Meeting Document	R10: (EPA)	R10: (Unknown)	PAPER DOCUMENT	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/008-Public Meeting (General)
100017030	2/8/2016	REDACTED Sign-In Sheets, Pages 7 and 8 of 12, for 02/08/2016 Portland Harbor Community Information Session (Contains Attendee and Handwritten Information).	14,614	2 MTG / Meeting Document	R10: (EPA)	R10: (Unknown)	PAPER DOCUMENT	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/008-Public Meeting (General)
1436697	2/9/2016	Program for "Cleaning Up the Willamette, the Portland Harbor Superfund Site" Forum, With 2 Inserts: Feedback Questionnaire and Dates for Upcoming Information and Discussion Session (With Handwritten Notes).	9,741	7 MTG / Meeting Document	R10: (League of Women Voters)	R10: (Unknown)	PAPER DOCUMENT	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/008-Public Meeting (General)
100017081	2/11/2016	REDACTED Sign-In Sheets, Pages 1 and 2 of 12, for 02/11/2016 Portland Harbor Community Information Session (Contains Attendee and Handwritten Information).	8,501	2 MTG / Meeting Document	R10: (EPA)	R10: (Unknown)	PAPER DOCUMENT	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/008-Public Meeting (General)
100017644	2/16/2016	REDACTED Email: January 2016 Update NECN Meeting.	185	3 EML / Email	R10: Conley, Alanna (EPA)	R10: Turner, Damon, Isiah (Northeast Coalition of Neighborhoods (NECN))	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/008-Public Meeting (General)
1436696	2/17/2016	Letter With Confirmation of Classroom Presentation, Schedule and Map for "Children's Clean Water Festival: Where Youth Are Making Waves" on 03/08/2016 (With Handwritten Notes).	9,519	6 LTR / Letter	R10: Unknown, Unknown (Clean Water Festival )	R10: Conley, Alanna (EPA)	PAPER DOCUMENT	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/008-Public Meeting (General)
100018153	2/17/2016	REDACTED Email regarding Future Cleanup of Lower Willamette River - Learn More.	823	2 EML / Email	R10: Conley, Alanna (EPA)	R10: (Unknown)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/008-Public Meeting (General)
100017027	2/18/2016	REDACTED Sign-In Sheets, Pages 1, 2, 13 and 14 of 24, for 02/18/2016 Portland Harbor Community Information Session (Contains Attendee and Handwritten Information).	21,720	4 MTG / Meeting Document	R10: (EPA)	R10: (Unknown)	PAPER DOCUMENT	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/008-Public Meeting (General)
1436767	2/29/2016	Sign-In Sheets, Pages 1 and 2 of 12, for 02/29/2016 Portland Harbor Community Information Session (Contains Attendee and Handwritten Information).	5,718	2 MTG / Meeting Document	R10: (EPA)	R10: (Unknown)	PAPER DOCUMENT	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/008-Public Meeting (General)
100008306	3/1/2016	Flier: Get Ready and Informed - US EPA Holds Community Information Sessions on Portland Harbor.	859	1 OTH / Other	R10: (EPA)	R10: (Unknown)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/008-Public Meeting (General)
100017640	3/3/2016	REDACTED Email: Visit to PCC.	102	4 EML / Email	R10: Conley, Alanna (EPA)	R10: Christopher, Anne (EPA), R10: Brenneis, Valance (Portland Community College (PCC))	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/008-Public Meeting (General)
100018141	3/3/2016	REDACTED Attendee List for the March 3, 2016 EPA Portland Harbor Community Information Webinar.	151	2 MTG / Meeting Document	R10: (EPA)	R10: (Unknown)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/008-Public Meeting (General)
100015989	3/7/2016	Email regarding EPA Community Information Session - Schedule of Additional Sessions, Please Share.	35	1 EML / Email	R10: Tallmadge, Maggie (Coalition of Communities of Color)	R10: Conley, Alanna (EPA)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/008-Public Meeting (General)
100016947	3/7/2016	REDACTED Email Regarding North Portland Neighborhood Sevices (NPNS) Chairs Network Meeting (Agenda Included).	177	2 EML / Email	R10: Christopher, Anne (EPA)	R10: Conley, Alanna (EPA)	PAPER DOCUMENT	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/008-Public Meeting (General)
100008417	3/15/2016	Email: "Please Share" EPA Community Information Sessions - Portland Harbor Superfund Site.	124	2 EML / Email	R10: Knudsen, Laura (EPA)	R10: (Unknown)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/008-Public Meeting (General)
100017663	3/16/2016	REDACTED Email: Invitation: Portland Harbor Community Partners/EPA Update Meeting, Thursday, March 31, 4:30-5:15pm.	162	2 EML / Email	R10: Conley, Alanna (EPA)	R10: Adams, Doug (Unknown), R10: Robison, Jim (Portland Harbor Community Advisory Group), R10: Williams, Travis (Willamette Riverkeeper), R10: Jones, Edward (EPA), R10: Sallinger, Robert (Audobon Society of Portland), R10: Larson, Doug (Cathedral Park Neighborhood Association), R10: Tallmadge, Maggie (Coalition of Communities of Color), R10: Jones, Sam, R10: Jacob, Greg, R10: Williams, Jeri (City of Portland), R10: Hill, Edward (Groundwork Portland), R10: Hogan, Marj, R10: Poe, Ben, R10: Robbins, April, R10: Freeberg, Amyl, R10: Lawrence, Rhett, R10: Rubio, Carmen, R10: Junkeer, Zeenia, R10: Mclean, Kadi, R10: Hoop, Brian (Unknown), R10: Taylor, Sarah, R10: Shaw, John, R10: Mubarak, Ibrahim, R10: Mclean, Ivan, R10: Wagner, Art, R10: Aiona, Debbie, R10: (Latino Network), R10: (OPAL Environmental Justice Oregon)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/008-Public Meeting (General)
100017083	3/17/2016	REDACTED Sign-In Sheets, Pages 1-24 of 24, for 03/17/2016 Portland Harbor Community Information Session (Contains Attendee and Handwritten Information).	79,574	24 MTG / Meeting Document	R10: (EPA)	R10: (Unknown)	PAPER DOCUMENT	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/008-Public Meeting (General)
100008487	3/22/2016	Email: EPA Offers Portland Harbor Community Information Sessions in Spanish & Russian - Join Us!	111	2 EML / Email	R10: Conley, Alanna (EPA)	R10: (Unknown)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/008-Public Meeting (General)
100008525	3/22/2016	Email: Courtesy Copy: EPA Offers Portland Harbor Community Information Sessions in Spanish & Russian - Join Us!	110	2 EML / Email	R10: (EPA)	R10: Knudsen, Laura (EPA), R10: Smith, Judy, R (EPA), R10: Conley, Alanna (EPA), R10: Bert, Charles (EPA), R10: Gallaher, Jo (EPA), R10: Livingston, John (EPA), R10: Morrison, Kay (EPA)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/008-Public Meeting (General)



100017034	3/23/2016	REDACTED Portland Harbor 03/23/2016 Community Information Session Sign-In Sheets, Pages 1-24 of 24 (Contains Attendee and Handwritten Information).	37,728	12 MTG / Meeting Document	R10: (EPA)	R10: (Unknown)	PAPER DOCUMENT	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/008-Public Meeting (General)
100017028	3/26/2016	REDACTED Sign-In Sheets, Pages 1-12 of 12, for 03/26/2016 Portland Harbor Community Information Session (Contains Attendee and Handwritten Information).	42,996	12 MTG / Meeting Document	R10: (EPA)	R10: (Unknown)	PAPER DOCUMENT	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/008-Public Meeting (General)
100017155	3/31/2016	REDACTED Sign-In Sheet for 03/31/2016 EPA and Community Partners Meeting Briefing (Contains Attendee and Handwritten Information).	2,659	1 MTG / Meeting Document	R10: (EPA)	R10: (Unknown)	PAPER DOCUMENT	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/008-Public Meeting (General)
100018157	4/14/2016	REDACTED Email regarding Portland Harbor FS Planning Meeting - Tue March 13, 9am.	61	1 EML / Email	R10: Conley, Alanna (EPA)	R10: Conley, Alanna (EPA)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/008-Public Meeting (General)
1436717	Undated	Portland Harbor Superfund Site, Questions for Small-Group Discussions on 05/09/2002 and 05/10/2002.	78	1 MTG / Meeting Document	R10: (Unknown)	R10: (Unknown)	PAPER DOCUMENT	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/008-Public Meeting (General)
1436735	Undated	Portland Harbor Community Advisory Group (CAG) Assessment of 2003 Superfund Progress.	256	4 MTG / Meeting Document	R10: (Portland Harbor Community Advisory Group)	R10: (Unknown)	PAPER DOCUMENT	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/008-Public Meeting (General)
1436784	Undated	Power Point Slides for "Terminal 4 Early Action Sediments Cleanup".	13,234	4 EML / Email	R10: (Port of Portland)	R10: (Unknown)	PAPER DOCUMENT	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/008-Public Meeting (General)
100008271	Undated	2005 Community Outreach Summary.	43	1 OTH / Other	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/008-Public Meeting (General)
100008413	Undated	Agenda for the Information Meeting on the Portland Harbor Draft Feasibility Study.	111	2 MTG / Meeting Document	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/008-Public Meeting (General)
100015726	Undated	REDACTED Correspondence: No Toxic Waste Dump in North Portland.	55	1 CORR / Correspondence	R10: Feldman, L	R10: Kitzhaber, John, A (State of Oregon), R10: Wheeler, Ted (State of Oregon), R10: Brown, Katherine (Kate) (State of Oregon)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/008-Public Meeting (General)
100036055	7/1/2016	Notice: EPA Announces Release of Proposed Plan for Portland Harbor.	835	1 PUB / Publication	R10: (EPA)	R10: (Interested Citizens)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/008-Public Meeting (General)
100008168	1/1/2006	Public Notice: Public Comments Invited on Proposed Agreement Between EPA and University of Portland.	28	1 OTH / Other	R10: (EPA)	R10: (Unknown)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/009-Public Notice
100008182	8/12/2014	Email: Portland Harbor CAG Meeting: Aug 13, 6-8pm, EPA Overview of Project Timeline and Feasibility Study Outline.	86	1 EML / Email	R10: (EPA)	R10: Conley, Alanna (EPA)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/009-Public Notice
100008167	9/10/2014	Email: Portland Harbor CAG Meeting: September 10, 6-8pm, ODEQ Updates.	110	1 EML / Email	R10: (EPA)	R10: Conley, Alanna (EPA)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/009-Public Notice
100035391	7/7/2016	El Hispanic News Regarding Portland Harbor Ad Information (Article In Spanish).	637	3 PUB / Publication	R10: (The Hispanic News)	R10: (Interested Citizens)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/009-Public Notice
100035392	7/7/2016	REDACTED KAHOH, LLC News Regarding Portland Harbor Ad Information (Article In Russian).	3,954	4 PUB / Publication	R10: Knudsen, Laura (EPA), R10: Boyechko, Yuriy (KAHOH, LLC)	R10: (Interested Citizens)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/009-Public Notice
100035393	7/8/2016	Phuong Dong News Regarding Portland Harbor Ad Information (Article In Vietnamese).	1,436	3 PUB / Publication	R10: Knudsen, Laura (EPA), R10: (Phuong Dong News)	R10: (Interested Citizens)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/009-Public Notice
100036190	6/22/2016	REDACTED Public Notice: Portland Harbor Proposed Cleanup Plan and Public Comment Period From June 9, 2016 Until August 8, 2016.	682	5 PUB / Publication	R10: Knudsen, Laura (EPA), R10: Gustafson, Richard (The Skanner)	R10: (Interested Citizens)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/009-Public Notice
100036191	6/20/2016	REDACTED Asian Reporter Portland Harbor Ad Information: Proposed Cleanup Plan and Public Comment Period.	569	5 PUB / Publication	R10: (The Asian Reporter)	R10: (Interested Citizens)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/009-Public Notice
100036192	6/9/2016	REDACTED E-Mail Concerning Confirmation of EPA-Paid Advertisement for Friday, June 17th Edition of Street Roots.	567	4 EML / Email	R10: Bayer, Israel (Street Roots)	R10: Knudsen, Laura (EPA)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/009-Public Notice
100036193	6/15/2016	REDACTED Public Notice of Portland Harbor Proposed Cleanup Plan and Official Public Comment Period.	6,112	10 PUB / Publication	R10: Knudsen, Laura (EPA), R10: (The Oregonian)	R10: (Interested Parties)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/009-Public Notice
100016898	3/26/2001	REDACTED Letter Transmitting Willamette Riverkeeper Proposal and Application for EPA Technical Assistance Grant (TAG) (Handwritten Information on Application).	17,067	14 LTR / Letter	R10: Williams, Travis (Willamette Riverkeeper)	R10: Odell, Jeanne (EPA)	PAPER DOCUMENT	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/010-Technical Assistance Grants (TAG)
1436668	5/18/2001	Letter Regarding Application for Technical Assistance Grant (TAG) With Additions and Changes Requested.	120	2 LTR / Letter	R10: Smith, Judy, R (EPA)	R10: Williams, Travis (Willamette Riverkeeper)	PAPER DOCUMENT	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/010-Technical Assistance Grants (TAG)
100008593	3/30/2011	Letter: Advanced Post Award Monitoring Grant # 1-96059001.	51	2 LTR / Letter	R10: Smith, Judy, R (EPA)	R10: Williams, Travis (Willamette Riverkeeper)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/010-Technical Assistance Grants (TAG)
100013312	1/27/2015	Bacteria enlisted for Passaic River cleanup - Bacterial remediation 1-27-15.	129	3 CORR / Correspondence	R10: Fallon, Scott (NorthJersey.com)	R10: (Unknown)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/010-Technical Assistance Grants (TAG)
100013311	1/29/2015	Email regarding Pilot studies for bacterial remediation.	10	1 EML / Email	R10: Defur, Peter, L (Environmental Stewardship Concepts)	R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/010-Technical Assistance Grants (TAG)
1436670	Undated	Regional Guidance Technical Assistance Grant Program (Final DRAFT).	4,218	72 RPT / Report	R10: (EPA)	R10: (Unknown)	PAPER DOCUMENT	051-COMMUNITY INVOLVEMENT/0511-Community Involvement Activities/010-Technical Assistance Grants (TAG)
100019924	5/24/2016	Portland Harbor Community Involvement Plan.	2,175	37 CORR / Correspondence	R10: (EPA), R10: (Oregon Dept. of Environmental Quality)	R10: (Unknown)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/0512-Community Involvement Plan
100019913	11/13/2015	Letter regarding Portland Harbor Superfund Site- PRP Comments.	3,377	25 CORR / Correspondence	R10: (Atlantic Richfield Company), R10: (Shaver Transportation Company), R10: (BP West Coast Products, LLC.), R10: (BAE Systems San Diego Ship Repair Inc.), R10: (Schnitzer Industries), R10: (The Marine Group LLC), R10: (Air Liquide USA LLC), R10: (Exxon Mobil Corporation)	R10: Legare, Amy, R (EPA)	ELECTRONIC RECORD	051-COMMUNITY INVOLVEMENT/5123-PRP COMMUNITY INVOLVEMENT
1198486	1/14/2005	Letter responding to GASCO formal dispute regarding EPA comments on Draft Preliminary Design Submittal, Waste Material Disposal. (2nd AR Update)	282	4 CORR / Correspondence	R10: Sheldrake, Sean, A. (EPA)	R10: Wyatt, Robert, J (Northwest Natural Gas Company)	PAPER DOCUMENT	052-ENFORCEMENT
1412925	1/24/1934	Sales agreement related to Willamette Iron and Steel Corp. (related to Sulzer Bingham 104(e) response).	12,968	4 LGL / Legal Instrument	R10: (Equitable Trust Company)		PAPER DOCUMENT	052-ENFORCEMENT/0521-PRP Search/013-104(e) Response
100008169	9/15/2008	Letter: Portland Harbor Superfund Site; Administrative Order on Consent for Remedial Investigation and Feasibility Study; Docket No. CERCLA-10-2001-0240 - Commercial Diver Exposure Scenario for the Portland Harbor Risk Assessment (With Attachment).	1,058	9 LTR / Letter	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	R10: Wyatt, Robert (Lower Willamette Group)	ELECTRONIC RECORD	052-ENFORCEMENT/0521-PRP Search/015-PRP Correspondence (General)
100008188	9/19/2008	Letter: Portland Harbor Superfund Site; Administrative Order on Consent for Remedial Investigation and Feasibility Study; Docket No. CERCLA-10-2001-0240 - Response to EPA Comments on the Background Data Processing and Outlier Identification Memo.	275	4 LTR / Letter	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	R10: Wyatt, Robert (Lower Willamette Group)	ELECTRONIC RECORD	052-ENFORCEMENT/0521-PRP Search/015-PRP Correspondence (General)
100008199	5/14/2009	Letter: Portland Harbor Superfund Site; Administrative Order on Consent for Remedial Investigation and Feasibility Study; Docket No. CERCLA-10-2001-0240 - Sediment and Tissue Sample Disposal.	155	2 LTR / Letter	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	R10: Wyatt, Robert (Lower Willamette Group)	ELECTRONIC RECORD	052-ENFORCEMENT/0521-PRP Search/015-PRP Correspondence (General)

100008197	6/12/2009	Letter: Portland Harbor Superfund Site; Administrative Order on Consent for Remedial Investigation and Feasibility Study; Docket No. CERCLA-10-2001-0240 - EPA Comments on Portland Harbor Remedial Action Objectives.	144	2 LTR / Letter	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	R10: Wyatt, Robert (Lower Willamette Group)	ELECTRONIC RECORD	052-ENFORCEMENT/0521-PRP Search/015-PRP Correspondence (General)
100008198	6/23/2009	Letter: Portland Harbor Superfund Site; Administrative Order on Consent for Remedial Investigation and Feasibility Study; Docket No. CERCLA-10-2001-0240 - Areas of Potential Concern (With Attachment).	391	4 LTR / Letter	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	R10: Wyatt, Robert (Lower Willamette Group)	ELECTRONIC RECORD	052-ENFORCEMENT/0521-PRP Search/015-PRP Correspondence (General)
100008194	7/9/2009	Letter: Portland Harbor Superfund Site; Administrative Order on Consent for Remedial Investigation and Feasibility Study; Docket No. CERCLA-10-2001-0240 - Treatment Technology Screening Tables (With Comments Attached).	657	6 LTR / Letter	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	R10: Wyatt, Robert (Lower Willamette Group)	ELECTRONIC RECORD	052-ENFORCEMENT/0521-PRP Search/015-PRP Correspondence (General)
100008195	7/10/2009	Letter: Portland Harbor Superfund Site; Administrative Order on Consent for Remedial Investigation and Feasibility Study; Docket No. CERCLA-10-2001-0240 - Screening of Disposal Facilities for the Feasibility Study.	428	4 LTR / Letter	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	R10: Wyatt, Robert (Lower Willamette Group)	ELECTRONIC RECORD	052-ENFORCEMENT/0521-PRP Search/015-PRP Correspondence (General)
100008196	7/22/2009	Letter: Portland Harbor Superfund Site; AOC for Remedial Investigation and Feasibility Study; Docket No. CERCLA-10-2001-0240 - Revised Phase 2 Recalibration Results: Hydrodynamic Sedimentation Modeling for Lower Willamette River (With Attachment).	541	5 LTR / Letter	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	R10: Wyatt, Robert (Lower Willamette Group)	ELECTRONIC RECORD	052-ENFORCEMENT/0521-PRP Search/015-PRP Correspondence (General)
100008170	8/19/2009	Letter: Portland Harbor Superfund Site; Administrative Order on Consent for Remedial Investigation and Feasibility Study; Docket No. CERCLA-10-2001-0240 - Submittal of Baseline Ecological Risk Assessment.	125	2 LTR / Letter	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	R10: Wyatt, Robert (Lower Willamette Group)	ELECTRONIC RECORD	052-ENFORCEMENT/0521-PRP Search/015-PRP Correspondence (General)
100008171	8/20/2009	Letter: Portland Harbor Superfund Site; Administrative Order on Consent for Remedial Investigation and Feasibility Study; Docket No. CERCLA-10-2001-0240 - Portland Harbor Remedial Action Objectives.	129	2 LTR / Letter	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	R10: Wyatt, Robert (Lower Willamette Group)	ELECTRONIC RECORD	052-ENFORCEMENT/0521-PRP Search/015-PRP Correspondence (General)
100008200	9/30/2009	Letter: Portland Harbor Superfund Site; Administrative Order on Consent for Remedial Investigation and Feasibility Study; Docket No. CERCLA-10-2001-0240 - Portland Harbor Remedial Action Objectives (With Attachment).	1,559	13 LTR / Letter	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	R10: Wyatt, Robert (Lower Willamette Group)	ELECTRONIC RECORD	052-ENFORCEMENT/0521-PRP Search/015-PRP Correspondence (General)
100008192	11/24/2009	Letter: Portland Harbor Superfund Site; Administrative Order on Consent for Remedial Investigation and Feasibility Study; Docket No. CERCLA-10-2001-0240 - Contaminant Fate and Transport Modeling Approach.	180	2 LTR / Letter	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	R10: Wyatt, Robert (Lower Willamette Group)	ELECTRONIC RECORD	052-ENFORCEMENT/0521-PRP Search/015-PRP Correspondence (General)
100008172	12/18/2009	Letter: Portland Harbor Superfund Site; Administrative Order on Consent for Remedial Investigation and Feasibility Study; Docket No. CERCLA-10-2001-0240 - Remedial Action Alternatives Development and Screening Evaluation (With Comments Attached).	2,750	24 LTR / Letter	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	R10: Wyatt, Robert (Lower Willamette Group)	ELECTRONIC RECORD	052-ENFORCEMENT/0521-PRP Search/015-PRP Correspondence (General)
100008189	12/23/2009	Letter: Portland Harbor Superfund Site; Administrative Order on Consent for Remedial Investigation and Feasibility Study; Docket No. CERCLA-10-2001-0240 - Archived Sediment Samples for PBDE Analysis (With Attachment).	550	4 LTR / Letter	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	R10: Wyatt, Robert (Lower Willamette Group)	ELECTRONIC RECORD	052-ENFORCEMENT/0521-PRP Search/015-PRP Correspondence (General)
100008190	12/23/2009	Letter: Portland Harbor Superfund Site; Administrative Order on Consent for Remedial Investigation and Feasibility Study; Docket No. CERCLA-10-2001-0240 - Preliminary Comments on the Baseline Human Health and Ecological Risk Assessments (With Comments).	1,949	15 LTR / Letter	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	R10: Wyatt, Robert (Lower Willamette Group)	ELECTRONIC RECORD	052-ENFORCEMENT/0521-PRP Search/015-PRP Correspondence (General)
100008203	1/6/2010	Letter: Portland Harbor Superfund Site; AOC for Remedial Investigation and Feasibility Study; Docket No. CERCLA-10-2001-0240 - EPA's Preliminary Identification of ARARS at the Portland Harbor Site for Development of the Feasibility Study(With Attachment).	1,244	12 LTR / Letter	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	R10: Wyatt, Robert (Lower Willamette Group)	ELECTRONIC RECORD	052-ENFORCEMENT/0521-PRP Search/015-PRP Correspondence (General)
100008201	2/18/2010	Letter: Portland Harbor Superfund Site; AOC for Remedial Investigation and Feasibility Study; Docket No. CERCLA-10-2001-0240 - EPA Performance Standards for Confined Disposal Facilities for the Portland Harbor Feasibility Study (With Attachment).	631	6 LTR / Letter	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	R10: Wyatt, Robert (Lower Willamette Group)	ELECTRONIC RECORD	052-ENFORCEMENT/0521-PRP Search/015-PRP Correspondence (General)
100016882	9/24/2013	Letter Regarding Common Understanding of the Process for the Revisions to and Finalization of the Remedial Investigation (RI) Report.	7,624	44 LTR / Letter	R10: Cohen, Lori, G (EPA)	R10: Kirkpatrick, Margaret, D (Northwest Natural Gas Co.)	ELECTRONIC RECORD	052-ENFORCEMENT/0521-PRP Search/015-PRP Correspondence (General)
100017978	3/9/2015	REDACTED Agenda for the Portland Harbor Senior Manager/ Project Manager Meeting on March 9, 2015.	10,844	67 MTG / Meeting Document	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	052-ENFORCEMENT/0521-PRP Search/015-PRP Correspondence (General)
100016866	4/21/2015	Agenda for the Portland Harbor Executives Meeting on April 21, 2015.	90	2 MTG / Meeting Document	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	052-ENFORCEMENT/0521-PRP Search/015-PRP Correspondence (General)
100016877	6/16/2015	Email Regarding Draft LWG Sr Leaders Agenda.	36	1 EML / Email	R10: Grandinetti, Carmela (Cami), L (EPA)	R10: Cox, Kim, E (City of Portland, Oregon), R10: Hamilton, Jessica (Port of Portland), R10: Kirkpatrick, Margaret, D (Northwest Natural Gas Co.), R10: Robinson, Deborah, G (EPA)	ELECTRONIC RECORD	052-ENFORCEMENT/0521-PRP Search/015-PRP Correspondence (General)
100016873	6/17/2015	Email Regarding Action Items from SWG/EPA Sr. Leaders Meeting Today.	21	2 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Robinson, Deborah, G (EPA)	ELECTRONIC RECORD	052-ENFORCEMENT/0521-PRP Search/015-PRP Correspondence (General)
100016885	6/17/2015	Agenda for the EPA/LWG Senior Leaders Meeting on June 17, 2015.	54	1 MTG / Meeting Document	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	052-ENFORCEMENT/0521-PRP Search/015-PRP Correspondence (General)
100016876	7/27/2015	Email Regarding Please Send to People at Today's EPA/LWG Sr. Managers Meeting.	68	1 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Robinson, Deborah, G (EPA)	ELECTRONIC RECORD	052-ENFORCEMENT/0521-PRP Search/015-PRP Correspondence (General)
100016897	8/18/2015	Suggested Talking Points - EPA Draft Feasibility Study - August 2015.	84	1 OTH / Other	R10: (Lower Willamette Group)	R10: (Unknown)	ELECTRONIC RECORD	052-ENFORCEMENT/0521-PRP Search/015-PRP Correspondence (General)
100016883	8/31/2015	Email Regarding Actions from 8/31 LWG/EPA Sr. Leaders Meeting.	64	2 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Robinson, Deborah, G (EPA), R10: Grandinetti, Carmela (Cami), L (EPA), R10: Stalcup, Dana (EPA), R10: Zhen, Davis (EPA)	ELECTRONIC RECORD	052-ENFORCEMENT/0521-PRP Search/015-PRP Correspondence (General)
100016893	8/31/2015	Agenda for the EPA/LWG Senior Leaders Meeting on August 31, 2015.	86	1 MTG / Meeting Document	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	052-ENFORCEMENT/0521-PRP Search/015-PRP Correspondence (General)

100018003	8/31/2015	REDACTED Email Regarding Portland Harbor - Senior Managers Conference Call.	95	2 EML / Email	R10: Grandinetti, Carmela (Cami), L (EPA)	R10: Cox, Kim, E (City of Portland, Oregon), R10: Hamilton, Jessica (Port of Portland), R10: Kirkpatrick, Margaret, D (Northwest Natural Gas Co.), R10: Robinson, Deborah, G (EPA), R10: Stalcup, Dana (EPA), R10: Zhen, Davis (EPA), R10: Loutzenhiser, Doug (Legacy Site Services, LLC), R10: Woronets, Jennifer (Anchor QEA, LLC), R10: Wyatt, Robert, J (NW Natural), R10: Jordan, Michael (City of Portland, Bureau of Environmental Services), R10: Isselmann, Jack (Greenbriar Companies, Inc.), R10: Robinhold, Curtis (Port of Portland), R10: Imeson, Tom (NW Natural Gas Co.)	ELECTRONIC RECORD	052-ENFORCEMENT/0521-PRP Search/015-PRP Correspondence (General)
100016867	9/17/2015	Agenda for the Portland Harbor Executives Meeting on September 17, 2015.	97	2 MTG / Meeting Document	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	052-ENFORCEMENT/0521-PRP Search/015-PRP Correspondence (General)
100016869	11/13/2015	DRAFT Agenda for the Portland Harbor Executives Meeting on November 13, 2015.	115	2 MTG / Meeting Document	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	052-ENFORCEMENT/0521-PRP Search/015-PRP Correspondence (General)
100016871	2/19/2016	Final Agenda for the Portland Harbor Executives Meeting on February 19, 2016.	91	2 MTG / Meeting Document	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	052-ENFORCEMENT/0521-PRP Search/015-PRP Correspondence (General)
100016895	3/25/2016	Email Regarding Update on Our Schedule.	35	1 EML / Email	R10: Grandinetti, Carmela (Cami), L (EPA)	R10: Hamilton, Jessica (Port of Portland), R10: Woronets, Jennifer (Anchor QEA, LLC), R10: Mott, Jen (Anchor QEA, LLC), R10: Imeson, Tom (NW Natural Gas Co.)	ELECTRONIC RECORD	052-ENFORCEMENT/0521-PRP Search/015-PRP Correspondence (General)
100016872	3/31/2016	Final Agenda for the Portland Harbor Executives Meeting on March 31, 2016.	64	2 MTG / Meeting Document	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	052-ENFORCEMENT/0521-PRP Search/015-PRP Correspondence (General)
100016894	4/6/2016	Email Regarding Portland Harbor Schedule Update.	66	2 EML / Email	R10: Mott, Jen (Anchor QEA, LLC)	R10: Robinson, Deborah, G (EPA)	ELECTRONIC RECORD	052-ENFORCEMENT/0521-PRP Search/015-PRP Correspondence (General)
100007865	3/15/2016	Letter regarding Monthly Progress Report for February 2016 - FINAL_2016_02_Progress_Report .	277	14 CORR / Correspondence	R10: Mott, Jen (Anchor QEA, LLC)	R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	052-ENFORCEMENT/0525-Cost Recovery
100014209	3/15/2016	REDACTED Email regarding February 2016 Portland Harbor Monthly Progress Report.	62	1 EML / Email	R10: Mott, Jen (Anchor QEA, LLC)	R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	052-ENFORCEMENT/0525-Cost Recovery
1412917	9/16/2015	Groundwater Monitoring Report: Second Quarter 2015, Gunderson LLC.	190,522	250 LTR / Letter	R10: (APEX Companies LLC)	R10: (Gunderson)	PAPER DOCUMENT	052-ENFORCEMENT/0525-Cost Recovery
1412916	9/28/2015	Letter transmitting Gunderson's Second Quarter Monitoring Report.	1,585	1 LTR / Letter	R10: Harvey, David, J (Gunderson, Inc.)	R10: Liverman, Alex (Oregon Dept. of Environmental Quality)	PAPER DOCUMENT	052-ENFORCEMENT/0525-Cost Recovery
1412923	10/27/2015	CERCLA Notification of Work, NWP-1999-727-7, Gunderson LLC, Willamette River Mile 8.9 (6-inch sand cover over construction areas cover).	17,337	7 LTR / Letter	R10: Harvey, David, J (Gunderson, Inc.)	R10: (U. S. Army Corps of Engineers)	PAPER DOCUMENT	052-ENFORCEMENT/0525-Cost Recovery
100005885	10/15/2012	Letter regarding the Administrative Settlement Agreement and Order on Consent for Remedial Investigation/Feasibility Study.	209	2 CORR / Correspondence	R10: Grandinetti, Cami (EPA)	R10: Wyatt, Robert (Lower Willamette Group)	ELECTRONIC RECORD	052-ENFORCEMENT/0526-Enforcement Instruments/026-Administrative Order on Consent (AOC)
1185607	4/28/2004	Administrative Order on Consent for Removal Action in the matter of Portland Harbor Superfund Site, GASCO Facility.	3,525	64 LGL / Legal Instrument	R10: Gearheard, Michael (EPA)	R10: Unknown, Unknown (Northwest Natural Gas Company)	PAPER DOCUMENT	052-ENFORCEMENT/0526-Enforcement Instruments/026-Administrative Order on Consent (AOC)
100007874	1/4/2016	Email regarding Portland Harbor FS.	45	1 EML / Email	R10: Koch, Kristine, M (EPA)	R10: Wyatt, Bob (Northwest Natural Gas Company), R10: Mckenna, Jim (Verdant Solutions, LLC)	ELECTRONIC RECORD	052-ENFORCEMENT/0526-Enforcement Instruments/027-Administrative Order on Consent (AOC) (General)
100007875	1/4/2016	Letter regarding EPA Decision to Complete the Portland Harbor Superfund Site Feasibility Study - Decision to Complete PH SF FS.	311	2 CORR / Correspondence	R10: Grandinetti, Cami (EPA)	R10: Wyatt, Bob (Lower Willamette Group)	ELECTRONIC RECORD	052-ENFORCEMENT/0526-Enforcement Instruments/027-Administrative Order on Consent (AOC) (General)
100014208	1/5/2016	REDACTED Email regarding Portland Harbor FS.	74	2 EML / Email	R10: Koch, Kristine, M (EPA)	R10: Angle, Genevieve (NOAA), R10: Buck, Jeremy (U. S. Fish and Wildlife Service), R10: Johnson, Courtney (Unknown), R10: Cabral, Rita (Industrial Economics, Incorporated), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Cunninghame, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Ward, Elmer (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Ridolfi, Callie (Ridolfi Engineers, Inc.), R10: Downey, Tom (Confederated Tribes of the Siletz Indians), R10: Partridge, Holly (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Karnosh, Michael (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality), R10: Fricano, Gail (Industrial Economics, Inc.), R10: Delvecchio, Rachel (Industrial Economics, Inc.), R10: Humphreys, Brandy (Grand Ronde Tribe), R10: Longoria, Rose (Yakama Nation), R10: Coffey, Scott (CDM Smith), R10: Weis, Julie (Haglund Kelley Jones & Wilder LLP), R10: Bianco, Paul (Unknown), R10: Hagerman, Paul (Unknown), R10: Williams, Jd (Unknown), R10: Moses, Gabriel (Unknown)	ELECTRONIC RECORD	052-ENFORCEMENT/0526-Enforcement Instruments/027-Administrative Order on Consent (AOC) (General)
100007878	1/19/2016	Attachment A List of LWG Major Technical Issues Related to the Portland Harbor Feasibility Study - 2016-01-19 Attachment A to Dispute Resolution.	97	4 CORR / Correspondence	R10: Dost, Patty (Schwabe, Williamson & Wyatt, P.C.)	R10: (Unknown)	ELECTRONIC RECORD	052-ENFORCEMENT/0526-Enforcement Instruments/027-Administrative Order on Consent (AOC) (General)
100007879	1/19/2016	Letter regarding Request for Dispute Resolution on EPA January 4, 2016 Decision to Take Over Portland Harbor Feasibility Study - 2016-01-19 LWG Request For Dispute Resolution on EPA January 4 FS Decision.	240	14 CORR / Correspondence	R10: (The Lower Willamette Group)	R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	052-ENFORCEMENT/0526-Enforcement Instruments/027-Administrative Order on Consent (AOC) (General)
100007880	1/19/2016	Table of Contents January 19, 2015 Lower Willamette Group Request for Dispute Resolution - Dispute Resolution Documents	81	2 CORR / Correspondence	R10: Riddle, Sarah (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	052-ENFORCEMENT/0526-Enforcement Instruments/027-Administrative Order on Consent (AOC) (General)
100007881	1/19/2016	TAB Table of Contents.	81	2 CORR / Correspondence	R10: Riddle, Sarah (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	052-ENFORCEMENT/0526-Enforcement Instruments/027-Administrative Order on Consent (AOC) (General)
100007881	1/19/2016	Email regarding Lower Willamette Group Request for Dispute Resolution.	88	1 EML / Email	R10: Dost, Patty (Pearl Legal Group PC)	R10: Cora, Lori, H (EPA), R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	052-ENFORCEMENT/0526-Enforcement Instruments/027-Administrative Order on Consent (AOC) (General)
100007882	1/19/2016	Attachment A List of LWG Major Technical Issues Related to the Portland Harbor Feasibility Study - 2016-01-19 Attachment A to Dispute Resolution.	97	4 CORR / Correspondence	R10: Dost, Patty (Pearl Legal Group PC)	R10: (Unknown)	ELECTRONIC RECORD	052-ENFORCEMENT/0526-Enforcement Instruments/027-Administrative Order on Consent (AOC) (General)
100007883	1/19/2016	Letter regarding Request for Dispute Resolution on EPA January 4, 2016 Decision to Take Over Portland Harbor Feasibility Study - 2016-01-19 LWG Request For Dispute Resolution on EPA January 4 FS Decision.	240	14 CORR / Correspondence	R10: (The Lower Willamette Group)	R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	052-ENFORCEMENT/0526-Enforcement Instruments/027-Administrative Order on Consent (AOC) (General)
100007884	1/19/2016	Table of Contents - January 19, 2015 Lower Willamette Group Request for Dispute Resolution - Dispute Resolution Documents	81	2 CORR / Correspondence	R10: Riddle, Sarah (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	052-ENFORCEMENT/0526-Enforcement Instruments/027-Administrative Order on Consent (AOC) (General)
100007886	1/19/2016	TAB Table of Contents.	81	2 CORR / Correspondence	R10: Riddle, Sarah (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	052-ENFORCEMENT/0526-Enforcement Instruments/027-Administrative Order on Consent (AOC) (General)
100007886	1/19/2016	Attachment A List of LWG Major Technical Issues Related to the Portland Harbor Feasibility Study - 2016-01-19 Attachment A to Dispute Resolution.	97	4 CORR / Correspondence	R10: Dost, Patty (Pearl Legal Group PC)	R10: (Unknown)	ELECTRONIC RECORD	052-ENFORCEMENT/0526-Enforcement Instruments/027-Administrative Order on Consent (AOC) (General)
100007887	1/19/2016	Letter regarding Request for Dispute Resolution on EPA January 4, 2016 Decision to Take Over Portland Harbor Feasibility Study - 2016-01-19 LWG Request For Dispute Resolution on EPA January 4 FS Decision.	240	14 CORR / Correspondence	R10: (The Lower Willamette Group)	R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	052-ENFORCEMENT/0526-Enforcement Instruments/027-Administrative Order on Consent (AOC) (General)

Case Number	Date	Description	Page Count	Document Type	Author	Reviewer	Record Type	Notes
100007888	1/19/2016	Table of Contents January 19, 2015 Lower Willamette Group Request for Dispute Resolution - Dispute Resolution Documents TAB Table of Contents.	81	2 CORR / Correspondence	R10: Riddle, Sarah (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	052-ENFORCEMENT/0526-Enforcement Instruments/027-Administrative Order on Consent (AOC) (General)
100014207	1/19/2016	REDACTED Email regarding Lower Willamette Group Request for Dispute Resolution.	128	2 EML / Email	R10: Mott, Jen (Anchor QEA, LLC)	R10: Livesay, Dave (CH2M Hill, Inc.), R10: Cox, Kim, E (City of Portland, Oregon), R10: Neeley, Robert (NOAA), R10: Johnson, Courtney (Unknown), R10: Cabral, Rita (Industrial Economics, Incorporated), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Ward, Elmer (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Ridolfi, Callie (Ridolfi Engineers, Inc.), R10: Downey, Tom (Confederated Tribes of the Siletz Indians), R10: Wyatt, Bob (Northwest Natural Gas Company), R10: Partridge, Holly (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Karnosh, Michael (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Fricano, Gail (Industrial Economics, Inc.), R10: Kassakian, Jen (Industrial Economics, Inc.), R10: Delvecchio, Rachel (Industrial Economics, Inc.), R10: Humphreys, Brandy (Grand Ronde Tribe), R10: D'Aquila, Kim (Grand Ronde Tribe), R10: Longoria, Rose (Yakama Nation), R10: Weis, Julie (Haglund Kelley Jones & Wilder LLP), R10: Moses, Gabriel (Unknown), R10: Klasner Shira, Laura (Confederated Tribes and Bands of the Yakima Indian Nation)	ELECTRONIC RECORD	052-ENFORCEMENT/0526-Enforcement Instruments/027-Administrative Order on Consent (AOC) (General)
100014206	1/21/2016	REDACTED Email regarding Lower Willamette Group Request for Dispute Resolution.	97	2 EML / Email	R10: Koch, Kristine, M (EPA)	R10: Angle, Genevieve (NOAA), R10: Neeley, Robert (NOAA), R10: Buck, Jeremy (U. S. Fish and Wildlife Service), R10: Johnson, Courtney (Unknown), R10: Cabral, Rita (Industrial Economics, Incorporated), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Ward, Elmer (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Ridolfi, Callie (Ridolfi Engineers, Inc.), R10: Downey, Tom (Confederated Tribes of the Siletz Indians), R10: Partridge, Holly (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Karnosh, Michael (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Liverman, Alex (Oregon Dept. of Environmental Quality), R10: Fricano, Gail (Industrial Economics, Inc.), R10: Delvecchio, Rachel (Industrial Economics, Inc.), R10: Humphreys, Brandy (Grand Ronde Tribe), R10: Longoria, Rose (Yakama Nation), R10: Coffey, Scott (CDM Smith), R10: Weis, Julie (Haglund Kelley Jones & Wilder LLP), R10: Bianco, Paul (Unknown), R10: Hagerman, Paul (Unknown), R10: Williams, Jd (Unknown), R10: Moses, Gabriel (Unknown), R10: Klasner Shira, Laura (Confederated Tribes and Bands of the Yakima Indian Nation)	ELECTRONIC RECORD	052-ENFORCEMENT/0526-Enforcement Instruments/027-Administrative Order on Consent (AOC) (General)
100005276	4/9/2015	FINAL_2015_03_Progress Report.	272	13 CORR / Correspondence	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	052-ENFORCEMENT/0526-Enforcement Instruments/027-Administrative Order on Consent (AOC) (General)
1225148	9/7/2005	Amendment No. 1. Terminal 4 Administrative Order on Consent and Statement of Work, Docket Number CERCLA-10-2004-0009, signed.	298	24 LGL / Legal Instrument	R10: Bussell, Michael, A (EPA), R10: Kawabata, Sylvia (EPA)	R10: Unknown, Unknown (Port of Portland)	PAPER DOCUMENT	052-ENFORCEMENT/0526-Enforcement Instruments/029-Consent Agreement (General)
100019843	9/25/2003		36,813	69 EML / Email			ELECTRONIC RECORD	
1128576	9/1/2001	Administrative Order on Consent for Remedial Investigation/Feasibility Study.	3,022	60 LGL / Legal Instrument	R10: Unknown, Unknown (EPA)	R10: Unknown, Unknown (City of Portland, Oregon), R10: Unknown, Unknown (Port of Portland), R10: Unknown, Unknown (Gunderson, Inc.), R10: Unknown, Unknown (Chevron USA, Incorporated), R10: Unknown, Unknown (Northwest Natural Gas Co.)	PAPER DOCUMENT	052-ENFORCEMENT/0526-Enforcement Instruments/029-Consent Agreement (General)
711559	10/23/2001	Administrative Order on Consent (AOC) for Remedial Investigation/Feasibility Study.	1,313	30 RPT / Report	R10: Unknown, Unknown (EPA)		ELECTRONIC RECORD	052-ENFORCEMENT/0526-Enforcement Instruments/029-Consent Agreement (General)
711560	6/16/2003	Lower Willamette Group (LWG) Amendment to AOC - Administrative Order on Consent (AOC) for Remedial Investigation/Feasibility Study, signed.	183	13 RPT / Report	R10: Unknown, Unknown (EPA)		ELECTRONIC RECORD	052-ENFORCEMENT/0526-Enforcement Instruments/029-Consent Agreement (General)
1175377	6/16/2003	Amendment No. 1: Administrative Order on Consent for Remedial Investigation/Feasibility Study, Docket Number CERCLA 10-2001-0240.	245	13 LGL / Legal Instrument	R10: Unknown, Unknown (ConocoPhillips Company), R10: Unknown, Unknown (ATOFINA Chemicals, Inc.), R10: Kawabata, Sylvia (EPA)	R10: Kelley, M. Kathleen (EPA)	PAPER DOCUMENT	052-ENFORCEMENT/0526-Enforcement Instruments/029-Consent Agreement (General)
1223916	9/27/2005	Letter re Administrative Order on Consent for RI/FS.	146	3 CORR / Correspondence	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	R10: Mckenna, James (Port of Portland), R10: Wyatt, Robert, J (Northwest Natural Gas Company)	PAPER DOCUMENT	052-ENFORCEMENT/0526-Enforcement Instruments/029-Consent Agreement (General)
1225592	4/26/2006	Amendment No. 2: Administrative Order on Consent for Remedial Investigation/Feasibility Study, Docket Number CERCLA 10-2001-0240. With 6 additional authors.	269	13 LGL / Legal Instrument	R10: Saltzman, Dan (City of Portland, Oregon), R10: Sass, Thomas, J (Gunderson, Inc.), R10: Turi, Gordon (Chevron USA, Incorporated), R10: Ugoretz, Beth, S (Northwest Natural Gas Company), R10: Kawabata, Sylvia (EPA)	R10: Unknown, Unknown (EPA)	PAPER DOCUMENT	052-ENFORCEMENT/0526-Enforcement Instruments/029-Consent Agreement (General)
500019085	9/9/2009	Administrative Settlement Agreement and Order on Consent for Removal Action U.S. EPA Region 10 CERCLA Docket No. 10-2009-0255.	435	70 CORR / Correspondence	R10: Unknown, Unknown (Unknown)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	052-ENFORCEMENT/0526-Enforcement Instruments/029-Consent Agreement (General)
500003777	12/21/2010	Letter regarding Administrative Order on Consent for Remedial Investigation and Feasibility Study, Docket No. CERCLA-10-2001-0240 Portland Harbor Feasibility Study.	242	4 CORR / Correspondence	R10: Humphrey, Chip (EPA)	R10: Wyatt, Robert (Lower Willamette Group)	ELECTRONIC RECORD	052-ENFORCEMENT/0526-Enforcement Instruments/029-Consent Agreement (General)
693041	4/10/2013	EPA Response to LWG Dispute Exhibits: Exhibit 3 - Re: Notice of Assessment and Demand for Payment of Stipulated Penalties; Administrative Settlement Agreement and Order on Consent for Remedial Investigation and Feasibility Study.	323	3 CORR / Correspondence	R10: Cohen, Lori, G (EPA)	R10: Wyatt, Bob (Lower Willamette Group)	ELECTRONIC RECORD	052-ENFORCEMENT/0526-Enforcement Instruments/029-Consent Agreement (General)
711559	10/23/2001	Administrative Order on Consent (AOC) for Remedial Investigation/Feasibility Study.	1,313	30 RPT / Report	R10: Unknown, Unknown (EPA)		ELECTRONIC RECORD	052-ENFORCEMENT/0526-Enforcement Instruments/029-Consent Agreement (General)
686965	6/25/2013	Memorandum regarding Arkema Offshore NAPL Evaluation.	6,174	45 CORR / Correspondence	R10: Peterson, Lance, E (Camp, Dresser & McKee, Incorporated)	R10: Sheldrake, Sean, A. (EPA)	ELECTRONIC RECORD	053-REMEDIATION
692116	6/25/2013	Letter regarding Arkema Offshore NAPL Evaluation.	6,174	45 CORR / Correspondence	R10: Peterson, Lance (CDM)	R10: Sheldrake, Sean, A. (EPA)	ELECTRONIC RECORD	053-REMEDIATION



712866	4/26/2002	Request for Dispute Resolution Reference: Role of Background in CERCLA Cleanup Program (precede by 5/1/02 transmittal memo - OSWER 9285.6-07P).	57	15 LAWS / Laws/Regulations/Guidance	R10: Cook, Michael, B (EPA)	R10: Unknown, Unknown (Unknown)	OPTICAL STORAGE	053-REMEDIAL
712868	12/1/2005	Request for Dispute Resolution Reference: Contaminated Sediment Remediation Guidance for Hazardous Waste Sites (EPA-540-R-05-012 OSWER 9355.0-85).	2,315	236 LAWS / Laws/Regulations/Guidance	R10: Unknown, Unknown (EPA)	R10: Unknown, Unknown (Unknown)	OPTICAL STORAGE	053-REMEDIAL
500001131	8/26/2013	09_10_13 email attachment; 2013_ERDC_Production_FINAL.	81	2 EML / Email	R10: Unknown, Unknown (Unknown)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	053-REMEDIAL
500001132	8/26/2013	09_10_13 email attachment; 2013_ERDC_Residuals-Releases.	129	4 EML / Email	R10: Unknown, Unknown (Unknown)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	053-REMEDIAL
500011627	3/24/2015	EPA dispute decision - 2015-03-24_portland_harbor_dispute_decision_backgr_ound_ri.	3,822	20 CORR / Correspondence	R10: Albright, Richard, G. (EPA)	R10: Wyatt, Bob (Lower Willamette Group)	ELECTRONIC RECORD	053-REMEDIAL
100013066	8/20/2002	Letter regarding Endangered Species Act Section 7 Formal Consultation and Magnuson-Stevens Act Essential Fish Habitat Consultation for the Construction of a Barrier Wall at the McCormick and Baxter Creosoting Company Site, Portland, OR.	205	29 CORR / Correspondence	R10: Lohn, D. Robert (NOAA)	R10: Goodman, Alan, S (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100007984	9/26/2003	Map of Terminal 4 Removal Action Area.	299	1 FIG / Figure/Map/ Drawing	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100016146	2/11/2004	Letter Regarding Portland Harbor Superfund Site; Administrative Order on Consent for Remedial Investigation and Feasibility Study; Docket No. CERCLA-10-2001-0240 - RI/FS Work Plan.	87	2 LTR / Letter	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	R10: Mckenna, James (Port of Portland), R10: Wyatt, Robert, J (NW Natural)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100016167	2/11/2004	EPA Review Comments on Portland Harbor RI/FS Revised Draft Final Programmatic Work Plan.	197	28 CORR / Correspondence	R10: (EPA)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100016172	2/11/2004	Portland Harbor RI/FS - Summary of Fish Consumption Issues and Their Resolution.	77	4 CORR / Correspondence	R10: (EPA)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100017159	6/24/2004	REDACTED Round 2 Quality Assurance Project Plan for Portland Harbor Remedial Investigation/Feasibility Study (RI/FS).	982	162 WP / Work Plan	R10: Anderson, Helle (Windward Environmental, LLC.), R10: Tritt, Maja (Integral Consulting, Inc.)	R10: Unknown, Unknown (Lower Willamette Group)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100015076	9/17/2004	Response to EPA Comments Draft Conceptual Site Model Update.	68	11 CORR / Correspondence	R10: (Lower Willamette Group)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100015097	2/16/2005	List of updates to Database.	35	5 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100007986	5/31/2005	Appendix A: Summary of Area History and Current Uses.	1,276	33 RPT / Report	R10: Fabian, Kris (Blasland, Bouck & Lee, Incorporated), R10: Krause, Paul (Blasland, Bouck & Lee, Incorporated), R10: Lewis, Mark, D (NewFields), R10: Spadaro, Phillip, A (Blasland, Bouck, & Lee, Inc.)	R10: (Port of Portland)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100007987	5/31/2005	Appendix B: Technology Screening.	2,458	46 RPT / Report	R10: Fabian, Kris (Blasland, Bouck & Lee, Incorporated), R10: Krause, Paul (Blasland, Bouck & Lee, Incorporated), R10: Lewis, Mark, D (NewFields), R10: Spadaro, Phillip, A (Blasland, Bouck, & Lee, Inc.)	R10: (Port of Portland)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100007988	5/31/2005	Appendix F: Summary of Dredged Sediment Quality Characteristics.	4,026	37 RPT / Report	R10: Fabian, Kris (Blasland, Bouck & Lee, Incorporated), R10: Krause, Paul (Blasland, Bouck & Lee, Incorporated), R10: Lewis, Mark, D (NewFields), R10: Spadaro, Phillip, A (Blasland, Bouck, & Lee, Inc.)	R10: (Port of Portland)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100007989	5/31/2005	Appendix G: Summary of Hydraulics and Sedimentation Characteristics.	6,148	12 RPT / Report	R10: Fabian, Kris (Blasland, Bouck & Lee, Incorporated), R10: Krause, Paul (Blasland, Bouck & Lee, Incorporated), R10: Lewis, Mark, D (NewFields), R10: Spadaro, Phillip, A (Blasland, Bouck, & Lee, Inc.)	R10: (Port of Portland)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100007990	5/31/2005	Appendix I: Evaluation of Capping Technology.	608	9 RPT / Report	R10: Fabian, Kris (Blasland, Bouck & Lee, Incorporated), R10: Krause, Paul (Blasland, Bouck & Lee, Incorporated), R10: Lewis, Mark, D (NewFields), R10: Spadaro, Phillip, A (Blasland, Bouck, & Lee, Inc.)	R10: (Port of Portland)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100007991	5/31/2005	Appendix L: Potential Removal Action Monitoring.	287	6 RPT / Report	R10: Fabian, Kris (Blasland, Bouck & Lee, Incorporated), R10: Krause, Paul (Blasland, Bouck & Lee, Incorporated), R10: Lewis, Mark, D (NewFields), R10: Spadaro, Phillip, A (Blasland, Bouck, & Lee, Inc.)	R10: (Port of Portland)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100008023	5/31/2005	Engineering Evaluation/Cost Analysis (EE/CA) Report (Public Review Draft) for Terminal 4 Early Action.	11,092	140 RPT / Report	R10: Fabian, Kris (Blasland, Bouck & Lee, Incorporated), R10: Krause, Paul (Blasland, Bouck & Lee, Incorporated), R10: Lewis, Mark, D (NewFields), R10: Spadaro, Phillip, A (Blasland, Bouck, & Lee, Inc.)	R10: (Port of Portland)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100008024	5/31/2005	Appendix C: Summary of Engineering Characteristics.	4,889	15 RPT / Report	R10: Fabian, Kris (Blasland, Bouck & Lee, Incorporated), R10: Krause, Paul (Blasland, Bouck & Lee, Incorporated), R10: Lewis, Mark, D (NewFields), R10: Spadaro, Phillip, A (Blasland, Bouck, & Lee, Inc.)	R10: (Port of Portland)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100008025	5/31/2005	Appendix D: Summary of Hydrogeologic Characteristics.	10,082	17 RPT / Report	R10: Fabian, Kris (Blasland, Bouck & Lee, Incorporated), R10: Krause, Paul (Blasland, Bouck & Lee, Incorporated), R10: Lewis, Mark, D (NewFields), R10: Spadaro, Phillip, A (Blasland, Bouck, & Lee, Inc.)	R10: (Port of Portland)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100008026	5/31/2005	Appendix E: Summary of Sediment Quality Characteristics.	11,036	142 RPT / Report	R10: Fabian, Kris (Blasland, Bouck & Lee, Incorporated), R10: Krause, Paul (Blasland, Bouck & Lee, Incorporated), R10: Lewis, Mark, D (NewFields), R10: Spadaro, Phillip, A (Blasland, Bouck, & Lee, Inc.)	R10: (Port of Portland)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100008027	5/31/2005	Appendix H: Evaluation of Monitored Natural Recovery.	1,634	30 RPT / Report	R10: Fabian, Kris (Blasland, Bouck & Lee, Incorporated), R10: Krause, Paul (Blasland, Bouck & Lee, Incorporated), R10: Lewis, Mark, D (NewFields), R10: Spadaro, Phillip, A (Blasland, Bouck, & Lee, Inc.)	R10: (Port of Portland)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100008028	5/31/2005	Appendix J: Evaluation of Dredging Feasibility.	1,018	15 RPT / Report	R10: Fabian, Kris (Blasland, Bouck & Lee, Incorporated), R10: Krause, Paul (Blasland, Bouck & Lee, Incorporated), R10: Lewis, Mark, D (NewFields), R10: Spadaro, Phillip, A (Blasland, Bouck, & Lee, Inc.)	R10: (Port of Portland)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100008029	5/31/2005	Appendix K: Evaluation of Confined Disposal Facility (CDF) Feasibility.	8,917	78 RPT / Report	R10: Fabian, Kris (Blasland, Bouck & Lee, Incorporated), R10: Krause, Paul (Blasland, Bouck & Lee, Incorporated), R10: Lewis, Mark, D (NewFields), R10: Spadaro, Phillip, A (Blasland, Bouck, & Lee, Inc.)	R10: (Port of Portland)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100008030	5/31/2005	Appendix M: Streamlined Risk Evaluation.	3,206	12 RPT / Report	R10: Fabian, Kris (Blasland, Bouck & Lee, Incorporated), R10: Krause, Paul (Blasland, Bouck & Lee, Incorporated), R10: Lewis, Mark, D (NewFields), R10: Spadaro, Phillip, A (Blasland, Bouck, & Lee, Inc.)	R10: (Port of Portland)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100008031	5/31/2005	Appendix N: Recontamination Analysis.	10,335	35 RPT / Report	R10: Fabian, Kris (Blasland, Bouck & Lee, Incorporated), R10: Krause, Paul (Blasland, Bouck & Lee, Incorporated), R10: Lewis, Mark, D (NewFields), R10: Spadaro, Phillip, A (Blasland, Bouck, & Lee, Inc.)	R10: (Port of Portland)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100008032	5/31/2005	Appendix O: Cost Estimates.	527	15 RPT / Report	R10: Fabian, Kris (Blasland, Bouck & Lee, Incorporated), R10: Krause, Paul (Blasland, Bouck & Lee, Incorporated), R10: Lewis, Mark, D (NewFields), R10: Spadaro, Phillip, A (Blasland, Bouck, & Lee, Inc.)	R10: (Port of Portland)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100008033	5/31/2005	Appendix P: Preliminary Draft Biological Assessment.	9,350	81 RPT / Report	R10: Fabian, Kris (Blasland, Bouck & Lee, Incorporated), R10: Krause, Paul (Blasland, Bouck & Lee, Incorporated), R10: Lewis, Mark, D (NewFields), R10: Spadaro, Phillip, A (Blasland, Bouck, & Lee, Inc.)	R10: (Port of Portland)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization

100008034	5/31/2005	Appendix Q: Draft Clean Water Act Section 404(b)(1) Analysis Memorandum.	34,910	83	MEMO / Memorandum	R10: Fabian, Kris (Blasland, Bouck & Lee, Incorporated), R10: Krause, Paul (Blasland, Bouck & Lee, Incorporated), R10: Lewis, Mark, D (NewFields), R10: Spadaro, Philip, A (Blasland, Bouck, & Lee, Inc.)	R10: (Port of Portland)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100013012	8/19/2005	Letter regarding Endangered Species Act Section 7 Formal Consultation and Magnuson-Stevens Fishery Conservation and Management Act Essential Fish Habitat Consultation for the NW Natural Removal Action Area, Portland Harbor.	304	51	CORR / Correspondence	R10: Lohn, D. Robert (NOAA)	R10: Sheldrake, Sean, A (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100012387	8/31/2005	Email regarding upland access at Kinder Morgan Linnton Terminal.	27	2	EML / Email	R10: Wyatt, Robert (Lower Willamette Group)	R10: Locke, William, W (Integral Consulting, Inc.), R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100007977	9/7/2005	Proceeding Under Sections 104, 106(a), 107, and 122 of CERCLA In the Matter of Portland Harbor Superfund Site, Terminal 4 Removal Action Area, Portland, Oregon.	4,998	24	LGL / Legal Instrument	R10: Bussell, Michael, A (EPA), R10: Kawabata, Sylvia (EPA)	R10: (Port of Portland)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100011547	9/9/2005	Email regarding an upcoming conference call.	27	2	EML / Email	R10: Mckenna, Jim (Port of Portland)	R10: Revelas, Gene, C (Integral Consulting, Inc.), R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100011553	9/9/2005	Email regarding an upcoming conference call.	23	1	EML / Email	R10: Mckenna, Jim (Port of Portland)	R10: Revelas, Gene, C (Integral Consulting, Inc.), R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100011554	9/9/2005	Email regarding an upcoming conference call.	26	2	EML / Email	R10: Mckenna, Jim (Port of Portland)	R10: Revelas, Gene, C (Integral Consulting, Inc.), R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100010742	9/16/2005	Email regarding Meeting to Discuss Round 2 Transition Zone Water FSP Addendum # 2.	22	1	EML / Email	R10: Mckenna, Jim (Port of Portland)	R10: Pine, Keith, A (Integral Consulting, Inc.), R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100010823	9/16/2005	Email regarding Meeting to Discuss Round 2 Transition Zone Water FSP Addendum # 2.	24	2	EML / Email	R10: Wyatt, Robert, J (NW Natural)	R10: Mckenna, Jim (Port of Portland), R10: Pine, Keith, A (Integral Consulting, Inc.), R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100011894	9/26/2005	Email regarding round 2B sediment cores.	24	1	EML / Email	R10: Mckenna, Jim (Port of Portland)	R10: Blischke, Eric, L (EPA), R10: Wyatt, Robert, J (NW Natural), R10: Applegate, Rick (City of Portland)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100008639	9/27/2005	EPA Archive Samples Final Table.	223	8	CHT / Chart/Table	R10: Unknown, Unknown (Unknown)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100008635	9/29/2005	Email regarding revised archived core table.	30	2	EML / Email	R10: Blischke, Eric, L (EPA)	R10: Mckenna, Jim (Port of Portland), R10: Wyatt, Robert, J (NW Natural), R10: Revelas, Gene (Integral Corporation), R10: Applegate, Rick (City of Portland)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100011335	9/30/2005	Email regarding Round 2B GW Core Locations.	22	1	EML / Email	R10: Shorr, Benjamin (NOAA)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100012473	9/30/2005	Email regarding Benthic Approach Meeting Agenda and Material.	26	1	EML / Email	R10: Field, Jay (NOAA)	R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
4940681053	9/30/2005	Email regarding reply to LWG's understanding of the modifications to the Addendum 1 Transition Zone Water Sampling Plan (based on our 9/23/05 meeting).	49	6	EML / Email	R10: Humphrey, Chip (EPA)	R10: Mckenna, Jim (Port of Portland), R10: Martin, Todd (Integral Consulting, Inc.), R10: Wyatt, Robert, J (NW Natural), R10: Applegate, Rick (City of Portland)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100018094	10/4/2005	REDACTED Email Regarding Breast Milk Pathway and Source of Information.	51	3	EML / Email	R10: Davoli, Dana (EPA)	R10: Davoli, Dana (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100011789	10/5/2005	Email regarding extension of time for LWG response to Round 2B conditional approval.	25	1	EML / Email	R10: Mckenna, Jim (Port of Portland)	R10: Humphrey, Chip (EPA), R10: Wyatt, Robert, J (NW Natural), R10: Applegate, Rick (City of Portland)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100017364	10/5/2005	REDACTED Email regarding Benthic sampling.	19	1	EML / Email	R10: Mckenna, James (Port of Portland)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100018215	10/5/2005	REDACTED Email regarding Benthic sampling.	19	1	EML / Email		R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100011787	10/6/2005	Email regarding extension of time for LWG response to Round 2B conditional approval.	29	2	EML / Email	R10: Mckenna, Jim (Port of Portland)	R10: Oster, Valerie (Anchor Environmental, LLC), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100011804	10/6/2005	Email regarding extension of time for LWG response to Round 2B conditional approval.	28	2	EML / Email	R10: Mckenna, Jim (Port of Portland)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
4940680627	10/6/2005	Email regarding reply to Extension of time for LWG respond to Round 2B Conditional Approval.	26	2	EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Mckenna, James (Port of Portland), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
4940681051	10/6/2005	Email regarding Request for Additional Information re: Round 1 Biota/Sediment Sampling.	34	2	EML / Email	R10: Humphrey, Chip (EPA)	R10: Mckenna, Jim (Port of Portland)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100011261	10/7/2005	Letter Regarding Response to EPA Comments on DRAFT Conceptual Site Model (CSM) Update.	24	1	EML / Email	R10: Mckenna, Jim (Port of Portland)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100014346	10/10/2005	Response to EPA Comments DRAFT Conceptual Site Model (CSM) Update (Dated 09/17/2004).	68	11	CORR / Correspondence	R10: Wyatt, Bob (Lower Willamette Group), R10: Mckenna, Jim (Lower Willamette Group)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100014347	10/10/2005	Email Regarding LWG (Lower Willamette Group) Response to EPA Comments on DRAFT Conceptual Site Model (CSM).	45	1	EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100014910	10/10/2005	Email regarding LWG response to EPA comments on draft CSM.	45	1	EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100014911	10/10/2005	Letter regarding Portland Harbor Response to EPA Comments on Draft Conceptual Site Model Update.	53	2	CORR / Correspondence	R10: Mckenna, Jim (Lower Willamette Group), R10: Wyatt, Bob (Northwest Natural Gas Company)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
4940680591	10/10/2005	Email regarding LWG meeting tomorrow.	44	1	EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100015077	10/11/2005	Email regarding Agenda for PH Managers meeting tomorrow.	17	1	EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Mckenna, Jim (Port of Portland), R10: Wyatt, Bob (Northwest Natural Gas Company), R10: Pine, Keith, A (Integral Consulting, Inc.), R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality), R10: Applegate, Rick (City of Portland)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100012474	10/12/2005	Email regarding Benthic Approach Draft Memo.	18	1	EML / Email	R10: Neely, Robert (NOAA)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA), R10: Goulet, Joe (EPA), R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100012993	10/12/2005	Email regarding PDXH eco-csm partially revised.	19	1	EML / Email	R10: Neely, Robert (NOAA)	R10: Shepherd, Burt (EPA), R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality), R10: Thompson, Chris (Environment International, Ltd.), R10: Buck, Jeremy (U. S. Fish & Wildlife Service), R10: Finley, Brent (Environment International, Ltd.), R10: Christian, Joe (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100013001	10/12/2005	Email regarding benthic approach draft memo.	18	1	EML / Email	R10: Neely, Robert (NOAA)	R10: Field, Jay (NOAA), R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA), R10: Goulet, Joe (EPA), R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100017905	10/12/2005	REDACTED Portland Harbor Managers' Meeting.	40	3	CORR / Correspondence	R10: Mccrea, Rachel (Washington State Dept. of Ecology)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100011332	10/13/2005	Email regarding Food Web Model Request.	18	1	EML / Email	R10: Neely, Robert (NOAA)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100013002	10/13/2005	Memorandum regarding Benthic Interpretive Approach for the Lower Willamette River Ecological Risk Assessment.	58	3	MEMO / Memorandum	R10: Unknown, Unknown (EPA)	R10: Unknown, Unknown (Lower Willamette Group)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100008741	10/14/2005	Email regarding Portland Harbor Food Web Model.	19	1	EML / Email	R10: Blischke, Eric, L (EPA)	R10: Mckenna, Jim (Port of Portland), R10: Wyatt, Robert, J (NW Natural), R10: Applegate, Rick (City of Portland)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100011885	10/14/2005	Email regarding round 2B sediment cores and archived sediment analysis.	24	1	EML / Email	R10: Mckenna, Jim (Port of Portland)	R10: Blischke, Eric, L (EPA), R10: Wyatt, Robert, J (NW Natural), R10: Applegate, Rick (City of Portland)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization

4940680467	Email regarding reply to Round 2B Sediment Cores and Archived Sediment Analysis.	22	1 EML / Email	R10: Mckenna, James (Port of Portland)	R10: Blischke, Eric, L (EPA), R10: Wyatt, Robert, J (NW Natural), R10: Applegate, Rick (City of Portland)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100011150	Email regarding Portland Harbor Food Web Model.	25	1 EML / Email	R10: Mckenna, Jim (Port of Portland)	R10: Blischke, Eric, L (EPA), R10: Wyatt, Robert, J (NW Natural), R10: Applegate, Rick (City of Portland)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100011147	Email regarding Portland Harbor Food Web Model.	28	3 EML / Email	R10: Mckenna, Jim (Port of Portland)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
4940680322	Email regarding Lamprey sampling and analysis.	21	1 EML / Email	R10: Mckenna, James (Port of Portland)	R10: Lee, Valerie (Environment International, Ltd.)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
4940680440	Email regarding reply to Portland Harbor Food Web Model.	28	3 EML / Email	R10: Mckenna, James (Port of Portland)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
4940680586	Email regarding Lamprey sampling and analysis.	21	1 EML / Email		R10: (Environment International, Ltd.)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100008743	Email regarding Modifications to Round 2B Sediment Core Sampling Program.	18	1 EML / Email	R10: Blischke, Eric, L (EPA)	R10: Mckenna, Jim (Port of Portland), R10: Wyatt, Robert, J (NW Natural), R10: Applegate, Rick (City of Portland)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100013013	Email regarding benthic approach draft memo.	17	1 EML / Email	R10: Neely, Robert (NOAA)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100013015	Memorandum regarding Benthic Interpretive Approach for the Lower Willamette River Ecological Risk Assessment.	64	4 MEMO / Memorandum	R10: Unknown, Unknown (EPA)	R10: Unknown, Unknown (Lower Willamette Group)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100011550	Email regarding draft meeting agenda.	26	1 EML / Email	R10: Wyatt, Robert (Lower Willamette Group)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA), R10: Livesay, Dave (GSI Groundwater Solutions, Inc.)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100014350	Letter Regarding Round 2B Subsurface Addendum Coring.	96	2 LTR / Letter	R10: Wyatt, Bob (Lower Willamette Group), R10: Mckenna, Jim (Lower Willamette Group)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100015080	Letter regarding changes to the LWG's Round 2B Subsurface Addendum to the Round 2 Field Sampling Plan.	94	2 CORR / Correspondence	R10: Wyatt, Robert, J (Northwest Natural Gas Company), R10: Mckenna, James (Verdant Solutions, LLC)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100011320	Email regarding Request for Extension of Benthic Report Submittal Date.	22	1 EML / Email	R10: Mckenna, Jim (Port of Portland)	R10: Blischke, Eric, L (EPA), R10: Wyatt, Robert, J (NW Natural), R10: Applegate, Rick (City of Portland)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
4940680625	Email regarding reply to Draft Meeting Agenda.	46	1 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Blischke, Eric, L (EPA), R10: Livesay, Dave (GSI Groundwater Solutions, Inc.)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100014349	Email Regarding LWG (Lower Willamette Group) Letter on Agreements for Round 2B Subsurface Addendum.	50	1 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100015079	Email regarding LWG letter on agreements for Round 2B Subsurface Addendum.	50	1 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
4940680013	Email regarding Hydromodel FSP on LWG Portal for Review.	45	2 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Mckenna, Jim (Port of Portland), R10: Oster, Valerie (Anchor Environmental, LLC), R10: Wyatt, Bob (Northwest Natural Gas Company), R10: Blischke, Eric, L (EPA), R10: Applegate, Rick (City of Portland)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
4940681392	Email regarding LWG Response to EPA comments on draft CSM update.	61	1 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100016418	Email Regarding Combustion Guidance Website and Breast Milk Pathway.	30	1 EML / Email	R10: Bailey, Marcia, L (EPA), R10: Davoli, Dana (EPA)	R10: Davoli, Dana (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
4940680005	Email regarding Portland Harbor Existing Database Update.	109	2 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
4940680553	Email regarding Portland Harbor Existing Database Update.	109	2 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Blischke, Eric, L (EPA) (Columbia River Inter-Tribal Fish Commission), R10: Bridgen, Pamela, J (Environment International, Ltd.), R10: Downey, Tom (Confederated Tribes of the Siletz Indians), R10: Baker, Jeff (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Estensen, Lisa (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Sheldrake, Sean, A (EPA), R10: Fuentes, Rene, C (EPA), R10: Cora, Lori, H (EPA), R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA), R10: Smith, Judy, R (EPA), R10: Shephard, Burt (EPA), R10: Humphrey, Chip (EPA), R10: Black, Curt (EPA), R10: Davoli, Dana (EPA), R10: Grepo-grove, Gina (EPA), R10: Goulet, Joe (EPA), R10: Ivy, Kathy (EPA), R10: Madden, Erin (Nez Perce Tribe), R10: Toepel, Kathryn (Oregon Dept. of Human Services), R10: Struck, Rodney, G (Oregon Dept. of Environmental Quality), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality), R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality), R10: McClincy, Matt (Oregon Dept. of Environmental Quality), R10: Poulsen, Mike (Oregon Dept. of Environmental Quality), R10: Gainer, Tom (Oregon Dept. of Environmental Quality), R10: Lee, Jean, H (Environment International, Ltd.), R10: Lee, Valerie (Environment International, Ltd.), R10: Thompson, Chris (Environment International, Ltd.), R10: Buck, Jeremy (U. S. Fish & Wildlife)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100014641	Email regarding Integration Meeting Follow-up.	23	1 EML / Email	R10: O'mealy, Mikell (Oregon Dept. of Environmental Quality)	R10: Mckenna, Jim (Port of Portland), R10: Wyatt, Bob (Northwest Natural Gas Company), R10: Pine, Keith, A (Integral Consulting, Inc.), R10: Blischke, Eric, L (EPA), R10: McClincy, Matt (Oregon Dept. of Environmental Quality), R10: Lee, Jean, H (Environment International, Ltd.), R10: Applegate, Rick (City of Portland)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
4940680038	Email regarding December LWG-PH managers meetings.	45	1 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA), R10: Anderson, James, M (Oregon Dept. of Environmental Quality), R10: Lee, Jean, H (Environment International, Ltd.), R10: Wyatt, Robert, J (NW Natural), R10: Applegate, Rick (City of Portland)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
4940680518	Email regarding December LWG-PH managers meetings.	45	1 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
4940680624	Email regarding reply to December LWG-PH managers meetings.	26	2 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100014657	Letter regarding Groundwater Source Control, NW Natural - Gasco/Silttronic Facilities.	95	3 CORR / Correspondence	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	R10: Wyatt, Robert, J (NW Natural)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100008723	Email regarding Chemical analyses of Multi-Plate samples - EPA Approval.	18	1 EML / Email	R10: Blischke, Eric, L (EPA)	R10: Mckenna, Jim (Port of Portland), R10: Wyatt, Robert, J (NW Natural), R10: Applegate, Rick (City of Portland)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100012708	Summary of November 21, 2005 Benthic Meeting.	134	8 MEMO / Memorandum	R10: Anderson, Helle (Windward Environmental, LLC.), R10: Saban, Lisa (Windward Environmental, LLC.), R10: Johns, Mike (Windward Environmental, LLC.), R10: Michelsen, Teresa (Windward Environmental, LLC.), R10: Read, Lorraine (Windward Environmental, LLC.)	R10: (Lower Willamette Group), R10: (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100013010	Memorandum regarding Summary of November 21st Benthic Meeting.	250	8 MEMO / Memorandum	R10: Andersen, Helle (Windward Environmental, LLC.), R10: Saban, Lisa (Windward Environmental, LLC.), R10: Johns, Mike (Windward Environmental, LLC.), R10: Michelsen, Teresa (Windward Environmental, LLC.), R10: Read, Lorraine (Windward Environmental, LLC.)	R10: Unknown, Unknown (Lower Willamette Group), R10: Unknown, Unknown (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
4940680623	Email regarding reply to December 13th Meeting.	20	1 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100011563	Email regarding December 13th meeting.	27	2 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Mckenna, Jim (Port of Portland), R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization

4940680040	12/7/2005	Email regarding December 8 PHManagers meeting.	22	1 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Mckenna, Jim (Port of Portland), R10: Pine, Keith, A (Integral Consulting, Inc.), R10: Blischke, Eric, L (EPA), R10: Mcclincy, Matt (Oregon Dept. of Environmental Quality), R10: Lee, Jean, H (Environment International, Ltd.), R10: Applegate, Rick (City of Portland)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
4940680361	12/7/2005	Email regarding reply to December 13th Meeting.	25	2 EML / Email	R10: Mckenna, James (Port of Portland)	R10: Oster, Valerie (Anchor Environmental, LLC), R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
4940680622	12/7/2005	Email regarding reply to December 13th Meeting.	25	2 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Mckenna, James (Port of Portland), R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100011556	12/8/2005	Email regarding December 13 meeting location.	28	2 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Mckenna, Jim (Port of Portland), R10: Wyatt, Robert (Lower Willamette Group), R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality), R10: Mcclincy, Matt (Oregon Dept. of Environmental Quality), R10: Lee, Jean, H (Environment International, Ltd.), R10: Applegate, Rick (City of Portland), R10: Pine, Keith (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100013017	12/8/2005	Email regarding Summary of the November 21st Benthic Meeting.	27	3 EML / Email	R10: Field, Jay (NOAA)	R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100017456	12/8/2005	REDACTED Email regarding Summary of the November 21st Benthic Meeting(2).	29	3 EML / Email	R10: Field, Jay (NOAA)	R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100017458	12/8/2005	REDACTED Email regarding Summary of the November 21st Benthic Meeting(1).	30	4 EML / Email	R10: Field, Jay (NOAA)	R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
4940680516	12/8/2005	Email regarding December 13 meeting location.	23	1 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Pine, Keith, A (Integral Consulting, Inc.), R10: Blischke, Eric, L (EPA), R10: Anderson, James, M (Oregon Dept. of Environmental Quality), R10: Lee, Jean, H (Environment International, Ltd.), R10: Wyatt, Robert, J (NW Natural), R10: Applegate, Rick (City of Portland)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
4940680547	12/9/2005	Email regarding LWG Round 2 Chinook Tissue Data.	21	1 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100013055	12/12/2005	Email regarding Summary of the November 21st Benthic Meeting.	28	4 EML / Email	R10: Neely, Robert (NOAA)	R10: Field, Jay (NOAA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100017448	12/12/2005	REDACTED Email regarding Summary of the November 21st Benthic Meeting.	30	4 EML / Email	R10: Neely, Robert (NOAA)	R10: Field, Jay (NOAA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
4940680684	12/12/2005	Email regarding reply to Tuesday's Meeting. Meeting Minutes from Portland Harbor Data Gaps Clarification Meeting.	23	2 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Mckenna, James (Port of Portland), R10: Blischke, Eric, L (EPA), R10: Wyatt, Robert, J (NW Natural), R10: Applegate, Rick (City of Portland)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100014352	12/13/2005	Data Gaps clarification Meeting.	208	23 CORR / Correspondence	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100015082	12/13/2005	Portland Harbor Data Gaps Clarification Meeting Agenda.	57	4 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100015090	12/13/2005	Meeting Agenda.	204	23 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100008724	12/14/2005	Email regarding Data Base and GIS Questions.	18	1 EML / Email	R10: Blischke, Eric, L (EPA)	R10: Mckenna, Jim (Port of Portland), R10: Wyatt, Robert, J (NW Natural), R10: Applegate, Rick (City of Portland)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100015081	12/14/2005	Email regarding December 13 Data Gaps Clarification Questions.	25	1 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality), R10: Mcclincy, Matt (Oregon Dept. of Environmental Quality), R10: O'mealy, Mikell (Oregon Dept. of Environmental Quality), R10: Lee, Jean, H (Environment International, Ltd.)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100013011	12/15/2005	Response to Windward's summary of the Portland Harbor Benthic Predictive Approach meeting held on November 21, 2005 in Seattle.	65	3 CORR / Correspondence	R10: Unknown, Unknown (Unknown)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100013056	12/15/2005	Email regarding response to LWG benthic meeting summary.	18	1 EML / Email	R10: Neely, Robert (NOAA)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100010927	12/19/2005	Email regarding Notes from Managers Meeting.	24	1 EML / Email	R10: Mckenna, Jim (Port of Portland)	R10: Omealy, Mikell (Oregon Dept. of Environmental Quality), R10: Lee, Jean, H (Environment International, Ltd.)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100014632	12/19/2005	Letter regarding Preliminary Draft Offshore Groundwater Field Sampling Approach, Gasco/Siltronic Groundwater Source Evaluation.	116	5 CORR / Correspondence	R10: Mcclincy, Matt (Oregon Dept. of Environmental Quality)	R10: Wyatt, Robert, J (NW Natural)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100014656	12/19/2005	Memorandum regarding Preliminary Identification of Technologies and Alternatives for Groundwater Source Control, NW Natural Gasco Site, Portland, Oregon.	287	19 MEMO / Memorandum	R10: Edwards, John, E (Anchor Environmental, LLC)	R10: Mcclincy, Matt (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
4940680424	12/19/2005	Email regarding reply to Notes from managers meeting.	24	1 EML / Email	R10: Mckenna, James (Port of Portland)	R10: O'mealy, Mikell (Oregon Dept. of Environmental Quality), R10: Lee, Jean, H (Environment International, Ltd.)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100013060	12/20/2005	Email regarding Portland Harbor Biological Opinion.	22	2 EML / Email	R10: Neely, Robert (NOAA)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100013065	12/20/2005	Email regarding Portland Harbor Biological Opinion.	23	3 EML / Email	R10: Neely, Robert (NOAA)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100015083	12/20/2005	Email regarding draft agenda for 12/21 PH Managers meeting.	39	1 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Anderson, Jim, M (State of Oregon), R10: Wyatt, Robert, J (Northwest Natural Gas Company), R10: Pine, Keith, A (Integral Consulting, Inc.), R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA), R10: Mcclincy, Matt (Oregon Dept. of Environmental Quality), R10: Lee, Jean, H (Environment International, Ltd.), R10: Mckenna, James (Verdant Solutions, LLC), R10: Applegate, Rick (City of Portland)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
4940680077	12/20/2005	Email regarding Portland Harbor Managers meeting tomorrow (12/21).	45	1 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Mckenna, Jim (Port of Portland), R10: Wyatt, Bob (Northwest Natural Gas Company), R10: Pine, Keith, A (Integral Consulting, Inc.), R10: Blischke, Eric, L (EPA), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality), R10: Lee, Jean, H (Environment International, Ltd.), R10: Applegate, Rick (City of Portland)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100018024	12/21/2005	REDACTED Portland Harbor Managers' Meeting Agenda.	32	2 CORR / Correspondence	R10: Mccrea, Rachel (Washington State Dept. of Ecology)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100012602	1/5/2006	Email regarding upcoming meeting dates for Portland Harbor managers.	46	1 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Mckenna, Jim (Port of Portland), R10: Pine, Keith (Lower Willamette Group), R10: Wyatt, Robert (Lower Willamette Group), R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality), R10: Mcclincy, Matt (Oregon Dept. of Environmental Quality), R10: Lee, Jean, H (Environment International, Ltd.), R10: Applegate, Rick (City of Portland)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100012638	1/5/2006	Email regarding upcoming meeting dates for Portland Harbor managers.	46	1 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Mckenna, Jim (Port of Portland), R10: Pine, Keith (Lower Willamette Group), R10: Wyatt, Robert (Lower Willamette Group), R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality), R10: Mcclincy, Matt (Oregon Dept. of Environmental Quality), R10: Lee, Jean, H (Environment International, Ltd.), R10: Applegate, Rick (City of Portland)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization



4940680305	1/6/2006	Email regarding Bullets for Round 3.	21	1 EML / Email	R10: Mckenna, James (Port of Portland)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization
100015085	1/10/2006	Email regarding agenda for 1/11 PH Managers meeting.	17	1 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Wyatt, Bob (Northwest Natural Gas Company), R10: Pine, Keith, A (Integral Consulting, Inc.), R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality), R10: McClincy, Matt (Oregon Dept. of Environmental Quality), R10: Lee, Jean, H (Environment International, Ltd.), R10: Mckenna, Jim (Verdant Solutions, LLC), R10: Applegate, Rick (City of Portland)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization
100014628	1/11/2006	Email regarding agenda for 1/11 PH Managers meeting.	18	1 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Mckenna, Jim (Port of Portland), R10: Oster, Valerie (Anchor Environmental, LLC), R10: Pine, Keith, A (Integral Consulting, Inc.), R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality), R10: McClincy, Matt (Oregon Dept. of Environmental Quality), R10: Lee, Jean, H (Environment International, Ltd.), R10: Wyatt, Robert, J (NW Natural), R10: Applegate, Rick (City of Portland)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization
100014630	1/11/2006	Letter regarding Portland Harbor RI/FS Round 3 Data Gaps.	709	21 CORR / Correspondence	R10: Mckenna, Jim (Port of Portland), R10: Wyatt, Robert, J (NW Natural)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization
100018026	1/11/2006	REDACTED Portland Harbor Managers' Meeting Agenda.	34	2 CORR / Correspondence	R10: Mccrea, Rachel (Washington State Dept. of Ecology)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization
100012711	1/12/2006	Mapping and Analysis of potential riparian areas on the Lower Willamette River.	97	2 MEMO / Memorandum	R10: Shorr, Benjamin (NOAA)	R10: Neely, Robert (NOAA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization
100013075	1/12/2006	Memorandum regarding Mapping and Analysis of potential riparian areas on the Lower Willamette River.	125	2 MEMO / Memorandum	R10: Shorr, Benjamin (NOAA)	R10: Neely, Robert (NOAA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization
100014654	1/12/2006	Email regarding Gasco Meeting - Follow Up. Lower Willamette Group Sediment Survey	28	2 EML / Email	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	R10: Fuentes, Rene, C (EPA), R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality), R10: Blischke, Heidi (Oregon Dept. of Environmental Quality), R10: McClincy, Matt (Oregon Dept. of Environmental Quality), R10: Lee, Jean, H (Environment International, Ltd.)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization
100013069	1/19/2006	Inventory.	203	6 CHT / Chart/Table	R10: Unknown, Unknown (Lower Willamette Group)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization
100013073	1/19/2006	Email regarding Upstream Database.	21	2 EML / Email	R10: Neely, Robert (NOAA)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization
100011874	1/20/2006	Email regarding GIS sample locations for round 3 scope.	22	1 EML / Email	R10: Neely, Robert (NOAA)	R10: Wittman, Parker (Environment International, Ltd.)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization
100012344	1/20/2006	Email regarding surface water sampling FSP approval.	25	1 EML / Email	R10: Mckenna, Jim (Port of Portland)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization
4940680009	1/20/2006	Email regarding LWG Upstream data presentation available.	20	1 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization
4940680100	1/20/2006	Email regarding LWG Upstream data presentation available.	22	1 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization
4940680483	1/20/2006	Email regarding reply to Surface Water Sampling FSP Approval.	25	2 EML / Email	R10: Mckenna, James (Port of Portland)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization
4940680549	1/20/2006	Email regarding LWG Upstream data presentation available.	20	1 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization
4940680484	1/21/2006	Email regarding reply to Surface Water Sampling FSP Approval.	23	1 EML / Email	R10: Mckenna, James (Port of Portland)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization
100010758	1/23/2006	Email regarding LWG Upstream Data Presentation Available.	21	1 EML / Email	R10: Mckenna, Jim (Port of Portland)	R10: Oster, Valerie (Anchor Environmental, LLC), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization
100012996	1/23/2006	Email regarding PDXH data/studies/QM.	29	2 EML / Email	R10: Neely, Robert (NOAA)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization
100013932	1/23/2006	Email Regarding PDXH data/studies/QM.	22	2 EML / Email	R10: Neely, Robert (NOAA)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization
100013070	1/24/2006	Email regarding Riparian Areas - Next Steps Conference call Tuesday @ 10am.	22	1 EML / Email	R10: Neely, Robert (NOAA)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization
100015734	1/24/2006	REDACTED Email regarding PH Managers Jan 27 Conference Call.	46	2 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Mckenna, Jim (Port of Portland), R10: Oster, Valerie (Anchor Environmental, LLC), R10: Pine, Keith, A (Integral Consulting, Inc.), R10: Blischke, Eric, L (EPA), R10: Anderson, James, M (Oregon Dept. of Environmental Quality), R10: Lee, Jean, H (Environment International, Ltd.), R10: Wyatt, Robert, J (NW Natural), R10: Applegate, Rick (City of Portland)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization
100017274	1/24/2006	REDACTED Email regarding reply to PH Managers Jan 27 conference call.	46	2 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Mckenna, Jim (Port of Portland), R10: Oster, Valerie (Anchor Environmental, LLC), R10: Pine, Keith, A (Integral Consulting, Inc.), R10: Blischke, Eric, L (EPA), R10: Anderson, James, M (Oregon Dept. of Environmental Quality), R10: Lee, Jean, H (Environment International, Ltd.), R10: Wyatt, Robert, J (NW Natural), R10: Applegate, Rick (City of Portland)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization
100017460	1/24/2006	REDACTED Email regarding Riparian Areas - Next Steps Conference call Tuesday(4).	23	1 EML / Email	R10: Neely, Robert (NOAA)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization
100017654	1/24/2006	REDACTED Email regarding PH Managers Jan 27 conference call.	42	1 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Mckenna, Jim (Port of Portland), R10: Oster, Valerie (Anchor Environmental, LLC), R10: Pine, Keith, A (Integral Consulting, Inc.), R10: Blischke, Eric, L (EPA), R10: Anderson, James, M (Oregon Dept. of Environmental Quality), R10: Lee, Jean, H (Environment International, Ltd.), R10: Wyatt, Robert, J (NW Natural), R10: Applegate, Rick (City of Portland)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization
100011933	1/25/2006	Email regarding Upstream stations by study.	17	1 EML / Email	R10: Neely, Robert (NOAA)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization
100013077	1/25/2006	Email regarding Upstream stations by study.	19	1 EML / Email	R10: Neely, Robert (NOAA)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA), R10: Davoli, Dana (EPA), R10: Goulet, Joe (EPA), R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality), R10: Thompson, Chris (Environment International, Ltd.), R10: Buck, Jeremy (U. S. Fish & Wildlife Service)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization
100015807	1/25/2006	REDACTED Email regarding PH Managers Jan 27 Conference Call - Now at 9:30.	48	2 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Mckenna, Jim (Port of Portland), R10: Oster, Valerie (Anchor Environmental, LLC), R10: Pine, Keith, A (Integral Consulting, Inc.), R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality), R10: McClincy, Matt (Oregon Dept. of Environmental Quality), R10: Lee, Jean, H (Environment International, Ltd.), R10: Wyatt, Robert, J (NW Natural), R10: Applegate, Rick (City of Portland)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization
4940680564	1/31/2006	Email regarding Sediment PCB Congener Data.	111	2 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Neely, Robert (NOAA), R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization
100011936	2/6/2006	Email regarding Draft Round 3 Scope of Work. Letter regarding Portland Harbor RI/FS DRAFT Follow-up Questions Identification of Round 3	17	1 EML / Email	R10: Neely, Robert (NOAA)	R10: Gensemer, Robert, W (Parametrix, Inc.)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization
100015091	2/7/2006	Data Gaps.	215	10 CORR / Correspondence	R10: Wyatt, Bob (Northwest Natural Gas Company), R10: Mckenna, Jim (Verdant Solutions, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization

100015087	2/8/2006	Email regarding 2/8 PH Manager's meeting agenda.	17	1 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Wyatt, Bob (Northwest Natural Gas Company), R10: Pine, Keith, A (Integral Consulting, Inc.), R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality), R10: McClincy, Matt (Oregon Dept. of Environmental Quality), R10: Mckenna, Jim (Verdant Solutions, LLC), R10: Applegate, Rick (City of Portland)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100018029	2/8/2006	REDACTED Portland Harbor Managers' Meeting Agenda.	47	2 CORR / Correspondence	R10: Mccrea, Rachel (Washington State Dept. of Ecology)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
4940680693	2/8/2006	Email regarding set up time to talk about high flow sampling.	23	1 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Stivers, Carl (Anchor Environmental, LLC), R10: Pine, Keith, A (Integral Consulting, Inc.), R10: Blischke, Eric, L (EPA), R10: Jones, Laura (Integral Corporation)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100014354	2/9/2006	Letter Regarding Lower Willamette Group's (LWG) DRAFT Follow-Up Questions Regarding Identification of Round 3 Data Gaps for the Portland Harbor RI/FS (Remedial Investigation/Feasibility Study).	215	10 LTR / Letter	R10: Wyatt, Bob (Lower Willamette Group), R10: Mckenna, Jim (Lower Willamette Group)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100014351	2/10/2006	Email Regarding LWG (Lower Willamette Group) Minutes from Centralia Meeting and Additional Questions.	43	1 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100014353	2/10/2006	Letter Regarding Portland Harbor RI/FS (Remedial Investigation/Feasibility Study) Round 2 Quality Assurance Project Plan Addendum 6: Sampling of Benthic Invertebrate Tissue.	93	3 LTR / Letter	R10: Wyatt, Bob (Lower Willamette Group), R10: Mckenna, Jim (Lower Willamette Group)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100015089	2/10/2006	Email regarding LWG Minutes from Centralia meeting and additional questions.	43	1 CORR / Correspondence	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100015092	2/10/2006	Email regarding LWG response to EPA comments on QAPP 6 Benthic Tissue.	39	1 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100015093	2/10/2006	Letter regarding Portland Harbor RI/FS Round 2 Quality Assurance Project Plan Addendum 6: Sampling of Benthic Invertebrate Tissue.	77	3 CORR / Correspondence	R10: Wyatt, Bob (Northwest Natural Gas Company), R10: Mckenna, Jim (Verdant Solutions, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100013154	2/14/2006	Email regarding Portland Harbor watershed database and mapping project.	22	2 EML / Email	R10: Shorr, Benjamin (NOAA)	R10: Neely, Robert (NOAA), R10: Smith, Carrie, A (Parametrix, Inc.), R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100013200	2/14/2006	Spreadsheet showing Portland Harbor watershed database and mapping project.	17	2 CHT / Chart/Table	R10: Shorr, Benjamin (NOAA)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100015095	2/15/2006	Letter regarding Portland Harbor Natural Resource Damage Assessment.	85	2 CORR / Correspondence	R10: Mckenna, Jim (Port of Portland), R10: Cramer, Marty (Natural Resource Restoration Group)	R10: Pease, Katherine (NOAA), R10: Gouget, Ron (NOAA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100012556	2/16/2006	Email regarding Fate and Transport Segments.	23	2 EML / Email	R10: Shorr, Benjamin (NOAA)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100014355	2/16/2006	Email Updated Non-LWG (Lower Willamette Group) Data and Round 2A Archived Subsurface Data Posted on PH Portal.	44	2 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Neely, Robert (NOAA), R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA), R10: Schaffner, Catherine, M (Schwabe, Williamson & Wyatt, P.C.), R10: Gootherts, John, N (Schwabe, Williamson & Wyatt, P.C.), R10: Szumski, Michael, J (U. S. Fish and Wildlife Service), R10: Buerger, Ted (U. S. Fish and Wildlife Service), R10: Seger, Andrea (Unknown), R10: Madden, Erin (Unknown), R10: Wolf, Frederick (Unknown), R10: Gold, Tod (Unknown), R10: Joyce, William (Unknown), R10: Ashton, David (Port of Portland), R10: Sheila, David (Port of Portland), R10: Mckenna, Jim (Port of Portland), R10: Koehl, Krista (Port of Portland), R10: Snyder, Joan, P (Stoel, Rives, Boley, Jones & Grey), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Cunningham, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Sass, Thomas, J (Gunderson, Inc.), R10: Marriott, Dean, C (City of Portland, Oregon, Bureau of Environmental Services), R10: Saban, Lisa (Windward Environmental, LLC.), R10: Johns, Mike (Windward Environmental, LLC.), R10: Ward, Paul (Confederated Tribes and Bands of the Yakima Indian Nation), R10: Gilpin, Andrew, J (Oregon Steel Mills, Inc.), R10: Downey, Tom (Confederated Tribes of the Siletz Indians), R10: Wyatt, Bob (Northwest Natural Gas Company), R10: Powers, Claudia, K (Ater Wynne, LLP.), R10: Miller, Max, M (Tonkon Torp, LLP.), R10: Vallance, Derrick	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100015094	2/16/2006	Email regarding NRRG Letter re Portland Harbor Superfund Site and Lamprey.	46	2 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Neely, Robert (NOAA), R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100015096	2/16/2006	Email regarding Updated non-LWG Data and Round 2A Archived Subsurface Data Posted on PH Portal.	44	2 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Mckenna, Jim (Port of Portland), R10: Humphrey, Chip (EPA), R10: Applegate, Rick (City of Portland)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100011897	2/17/2006	Email regarding round 3 scope of work.	24	1 EML / Email	R10: Wyatt, Robert (Lower Willamette Group)	R10: Mckenna, Jim (Port of Portland), R10: Wyatt, Robert, J (NW Natural), R10: Applegate, Rick (City of Portland)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
4940681056	2/17/2006	Email regarding Round 3 Scope of Work figures.	16	1 EML / Email	R10: Humphrey, Chip (EPA)	R10: Neely, Robert (NOAA), R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
4940680567	2/22/2006	Email regarding Summer 2005 Surface Water SCRA Data Posted.	24	1 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Mckenna, Jim (Port of Portland), R10: Wyatt, Bob (Northwest Natural Gas Company), R10: Pine, Keith, A (Integral Consulting, Inc.), R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality), R10: McClincy, Matt (Oregon Dept. of Environmental Quality), R10: Lee, Jean, H (Environment International, Ltd.), R10: Applegate, Rick (City of Portland)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100015098	2/23/2006	Email regarding 2/24 PH Manager's draft agenda.	39	1 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100011939	2/24/2006	Email regarding fwm comments.	16	1 EML / Email	R10: Neely, Robert (NOAA)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100012674	2/24/2006	Email regarding Outstanding EPA Comments on LWG Deliverables.	18	1 EML / Email	R10: Neely, Robert (NOAA)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100012724	2/24/2006	NOAA Comments FWM Draft.	49	4 LTR / Letter	R10: Neely, Robert (NOAA)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100012725	2/24/2006	NOAA Comments FWM Draft.	49	4 LTR / Letter	R10: Neely, Robert (NOAA)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100013155	2/24/2006	NOAA's comments on the Food Web Modeling Report: Evaluating TrophicTrace and the Arnot and Gobas Models for Application to the Portland Harbor Superfund Site.	94	4 CORR / Correspondence	R10: Neely, Robert (NOAA)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100013159	2/24/2006	NOAA's comments on the document titled Food Web Modeling Report: Evaluating TrophicTrace and the Arnot and Gobas Models for application to the Portland Harbor Superfund Site.	93	4 CORR / Correspondence	R10: Neely, Robert (NOAA)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100013203	2/24/2006	Email regarding Food Web Modeling (FWM) comments.	17	1 EML / Email	R10: Neely, Robert (NOAA)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100018030	2/24/2006	REDACTED Portland Harbor Managers' Meeting Agenda.	40	2 CORR / Correspondence	R10: Mccrea, Rachel (Washington State Dept. of Ecology)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100010586	2/27/2006	Portland Harbor RI/FS Technical Memorandum: Approach to Determining Background (draft).	698	25 RPT / Report	R10: (Anchor Environmental, LLC), R10: (Windward Environmental, LLC.), R10: (Kennedy Jenks Consultants), R10: (Integral Consulting, Inc.)	R10: (Lower Willamette Group)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization

100012111	2/27/2006	Email regarding NOAA comments on draft Foodweb Model evaluation report for Portland Harbor RI/FS.	24	2 EML / Email	R10: Neely, Robert (NOAA)	R10: Hillman, Helen, E (NOAA), R10: Fritz, Alyce, T (NOAA), R10: Field, Jay (NOAA), R10: Pease, Katherine (NOAA), R10: Munn, Nancy (NOAA), R10: Iadanza, Nick (NOAA), R10: Buck, Jeremy (U. S. Fish and Wildlife Service), R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA), R10: Goulet, Joe (EPA), R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality), R10: Lee, Jean, H (Environment International, Ltd.), R10: Gouguet, Ron (NOAA), R10: Thompson, Chris (Environment International, Ltd.), R10: Dexter, Bob (Ridolfi, Inc.)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100013205	2/27/2006	Email regarding NOAA comments on draft Foodweb Model evaluation report for Portland Harbor RI/FS.	25	2 EML / Email	R10: Neely, Robert (NOAA)	R10: Hillman, Helen, E (NOAA), R10: Fritz, Alyce, T (NOAA), R10: Field, Jay (NOAA), R10: Pease, Katherine (NOAA), R10: Munn, Nancy (NOAA), R10: Iadanza, Nick (NOAA), R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA), R10: Goulet, Joe (EPA), R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality), R10: Lee, Jean, H (Environment International, Ltd.), R10: Gouguet, Ron (NOAA), R10: Thompson, Chris (Environment International, Ltd.), R10: Dexter, Bob (Ridolfi, Inc.), R10: Buck, Jeremy (U. S. Fish & Wildlife Service)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100014664	2/27/2006	Portland Harbor RI/FS Technical Memorandum: Approach to Determining Background.	720	25 RPT / Report	R10: Unknown, Unknown (Anchor Environmental, LLC), R10: Unknown, Unknown (Kennedy/Jenks Consultants), R10: Unknown, Unknown (Windward Environmental, LLC.), R10: Unknown, Unknown (Integral Consulting, Inc.)	R10: Unknown, Unknown (Lower Willamette Group)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100016955	2/28/2006	REDACTED Email Regarding TCT Meeting March 1st.	86	2 EML / Email	R10: Thompson, Chris (Unknown), R10: Shephard, Burt (EPA), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Humphrey, Chip (EPA)	PAPER DOCUMENT	053-REMEDIAL/0531-Remedy Characterization
100008765	3/1/2006	Email regarding Benthic tissue analysis.	35	2 EML / Email	R10: Blischke, Eric, L (EPA)	R10: Mckenna, Jim (Port of Portland), R10: Andersen, Helle (Windward Environmental, LLC.), R10: Wyatt, Robert, J (NW Natural), R10: Applegate, Rick (City of Portland)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100016106	3/2/2006	REDACTED Email regarding Reminder of PH Managers Call Today.	46	2 EML / Email	R10: Mckenna, Jim (Port of Portland)	R10: Oster, Valerie (Anchor Environmental, LLC), R10: Pine, Keith, A (Integral Consulting, Inc.), R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality), R10: McClincy, Matt (Oregon Dept. of Environmental Quality), R10: Lewis, Mark, D (NewFields), R10: Livesay, Dave (GSI Groundwater Solutions, Inc.), R10: Lee, Jean, H (Environment International, Ltd.), R10: Longoria, Rose (Yakama Nation), R10: Wyatt, Robert, J (NW Natural), R10: Applegate, Rick (City of Portland)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100016396	3/2/2006	REDACTED Email reminding of PH managers call today.	42	1 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Lewis, Mark (Unknown), R10: Mckenna, Jim (Port of Portland), R10: Wyatt, Robert (Lower Willamette Group), R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality), R10: McClincy, Matt (Oregon Dept. of Environmental Quality), R10: Livesay, Dave (GSI Groundwater Solutions, Inc.), R10: Lee, Jean, H (Environment International, Ltd.), R10: Longoria, Rose (Yakama Nation), R10: Applegate, Rick (City of Portland), R10: Pine, Keith (Unknown), R10: Barquin, W.	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100011266	3/3/2006	Email regarding Portland Harbor Milestones Meeting, 7 March 2006, 10 - 3:30.	34	2 EML / Email	R10: Mckenna, Jim (Port of Portland)	Erin (Unknown), R10: Koshuta, Cheryl, R (Port of Portland), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Cunninghame, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Marriott, Dean, C (City of Portland, Oregon, Bureau of Environmental Services), R10: Miller, Max, M (Tonkon Torp, LLP.), R10: Vallance, Derrick (ConocoPhillips Company), R10: Cramer, Martin (ConocoPhillips Company), R10: Bluelake, Lisa (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Young, Cyril (Oregon Dept. of State Lands), R10: Opalski, Daniel, D (EPA), R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA), R10: Dagseth, Renee (EPA), R10: Kawabata, Sylvia (EPA), R10: Loutzenhiser, Doug (ARKEMA, Inc.), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality), R10: Pederson, Dick (Oregon Dept. of Environmental Quality), R10: Johnson, Keith (Oregon Dept. of Environmental Quality), R10: Omealy, Mikell (Oregon Dept. of Environmental Quality), R10: Lee, Jean, H (Environment International, Ltd.), R10: Borok, Aron (Environment International, Ltd.), R10: Gilpin, Andrew (Evraz Inc.), R10: Wyatt, Robert, J (NW Natural), R10: Givens, Raymond, C (Givens Law), R10: Applegate, Rick (City of Portland), R10: Burford, Christopher (Confederated Tribes of Umatilla Indian	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
4940680561	3/6/2006	Email regarding Round 3 Sediment Trap FSP. LWG Response to EPA Comments Round 2 Groundwater Pathway Assessment Sampling and Analysis Plan: Attachment 2: Field Sampling Plan - Transitions Zone Water	49	2 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100015101	3/7/2006	Sampling.	125	16 CORR / Correspondence	R10: (Lower Willamette Group)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100010559	3/8/2006	Email transmitting agenda for Portland Harbor meeting.	28	1 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Longoria, Rose (Yakama Nation)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100011256	3/8/2006	Email regarding Portland Harbor Meetings.	24	1 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Longoria, Rose (Yakama Nation)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100015672	3/8/2006	REDACTED Lower Willamette Group: Portland Harbor Managers' Meeting Agenda.	45	2 MTG / Meeting Document	R10: (Lower Willamette Group)		ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
4940680670	3/8/2006	Email regarding reply to Portland Harbor meetings.	41	1 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Oster, Valerie (Anchor Environmental, LLC), R10: Longoria, Rose (Yakama Nation)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100012445	3/9/2006	Email regarding Rick's list and Portland Harbor meeting dates.	26	1 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Mckenna, Jim (Port of Portland), R10: Wyatt, Robert (Lower Willamette Group), R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality), R10: McClincy, Matt (Oregon Dept. of Environmental Quality), R10: Lee, Jean, H (Environment International, Ltd.), R10: Lee, Valerie (Environment International, Ltd.), R10: Longoria, Rose (Yakama Nation), R10: Gouguet, Ron (NOAA), R10: Applegate, Rick (City of Portland), R10: Pine, Keith (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization

100011869	3/10/2006	Email regarding food web model comments. Email transmitting Portland Harbor RI/FS Technical Memorandum: Approach to Determining Background (draft).	31	1	EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Mckenna, Jim (Port of Portland), R10: Wyatt, Robert (Lower Willamette Group), R10: Humphrey, Chip (EPA), R10: Applegate, Rick (City of Portland)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100010569	3/13/2006	3/13/2006 Email regarding LWG Background Tech Memo.	50	2	EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100014663	3/13/2006	3/13/2006 Email regarding Validated LWG TZW Sediment & Groundwater Data.	43	2	EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Oster, Valerie (Anchor Environmental, LLC), R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
4940680589	3/13/2006	3/13/2006 Email regarding Correction to TZW SCRA Database.	45	1	EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
4940680578	3/17/2006	3/17/2006 Email regarding Correction to TZW SCRA Database.	63	2	EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Oster, Valerie (Anchor Environmental, LLC), R10: Neely, Robert (NOAA), R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
4940680036	3/20/2006	3/20/2006 Email regarding Correction to TZW SCRA Database.	48	2	EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Neely, Robert (NOAA), R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
4940680524	3/20/2006	3/20/2006 Email regarding EPA Comments on PRE. Addenda documents.	48	2	EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
4940680313	3/24/2006	3/24/2006 Portland Harbor RI/FS Field Sampling Plan Addendum 1.	20	1	EML / Email	R10: Mckenna, James (Port of Portland)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100015100	3/27/2006	3/27/2006 Portland Harbor RI/FS Field Sampling Plan Addendum 2.	24	2	EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100015102	3/27/2006	3/27/2006 Portland Harbor RI/FS Round 2 Groundwater Pathway Assessment Sampling and Analysis Plan Attachment 2.	220	26	CORR / Correspondence	R10: (Integral Consulting, Inc.)	R10: (Lower Willamette Group)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100015103	3/27/2006	3/27/2006 Portland Harbor RI/FS Round 2 Groundwater Pathway Assessment Sampling and Analysis Plan Attachment 2.	249	36	CORR / Correspondence	R10: (Integral Consulting, Inc.)	R10: (Lower Willamette Group)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100015104	3/27/2006	3/27/2006 REDACTED Email regarding reply to Planning for April 11 ERA Framework meeting.	503	77	CORR / Correspondence	R10: (Integral Consulting, Inc.)	R10: (Lower Willamette Group), R10: Humphrey, Chip (EPA), R10: O'mealy, Mikell (Oregon Dept. of Environmental Quality), R10: Applegate, Rick (City of Portland)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100018192	3/31/2006	3/31/2006 Email regarding Revised Surface Water SCRA.	20	1	EML / Email	R10: Mckenna, James (Port of Portland)	R10: Neely, Robert (NOAA), R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
4940680001	3/31/2006	3/31/2006 Email regarding Revised Surface Water SCRA.	51	2	EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Neely, Robert (NOAA), R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
4940680558	3/31/2006	3/31/2006 Email regarding Revised Surface Water SCRA.	51	2	EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Neely, Robert (NOAA), R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100012612	4/3/2006	4/3/2006 Email regarding Upcoming lamprey meeting.	25	1	EML / Email	R10: Mckenna, Jim (Port of Portland)	R10: Lewis, Mark (Lower Willamette Group), R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality), R10: Wyatt, Robert, J (NW Natural), R10: Applegate, Rick (City of Portland)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
4940680499	4/3/2006	4/3/2006 Email regarding NOAA comments on Arkema SLVs for soils and sediments.	22	1	EML / Email	R10: Mckenna, James (Port of Portland)	R10: Humphrey, Chip (EPA), R10: Anderson, James, M (Oregon Dept. of Environmental Quality), R10: Anderson, James, M (Oregon Dept. of Environmental Quality), R10: Lewis, Mark, D (NewFields), R10: Wyatt, Robert, J (NW Natural), R10: Applegate, Rick (City of Portland)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100012112	4/4/2006	4/4/2006 NOAA Arkema Sediment Screeing Comments.	18	1	EML / Email	R10: Neely, Robert (NOAA)	R10: Sheldrake, Sean, A (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100012726	4/4/2006	4/4/2006 NOAA's comments on the sediment screening levels proposed by Arkema for use in the EE/CA to delineate risk at this site.	48	2	LTR / Letter	R10: Neely, Robert (NOAA)	R10: Sheldrake, Sean, A (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100013218	4/4/2006	4/4/2006 Email regarding NOAA comments on Arkema SLVs for soils and sediments.	93	2	CORR / Correspondence	R10: Neely, Robert (NOAA)	R10: Sheldrake, Sean, A (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100013224	4/4/2006	4/4/2006 REDACTED Email regarding Thursday meeting update and question.	19	1	EML / Email	R10: Neely, Robert (NOAA)	R10: Sheldrake, Sean, A (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100016527	4/4/2006	4/4/2006 Email regarding Surface Water Data. REDACTED Email regarding Re_Final_Thursday meeting update and question(2).	25	2	EML / Email	R10: Mckenna, Jim (Port of Portland)	R10: Oster, Valerie (Anchor Environmental, LLC), R10: Gouguet, Ron (NOAA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100008776	4/5/2006	4/5/2006 Email regarding final Thursday meeting update and question.	17	1	EML / Email	R10: Blischke, Eric, L (EPA)	R10: Mckenna, Jim (Port of Portland), R10: Wyatt, Robert, J (NW Natural), R10: Applegate, Rick (City of Portland)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100017580	4/5/2006	4/5/2006 REDACTED Email regarding final Thursday meeting update and question.	24	2	EML / Email	R10: Gouguet, Ron (NOAA)	R10: Gouguet, Ron (NOAA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100017585	4/5/2006	4/5/2006 Email regarding reply to Bathymetry Data -- May I release it to USGS?.	27	3	EML / Email	R10: Wyatt, Robert (Lower Willamette Group)	R10: Mckenna, Jim (Port of Portland), R10: Gouguet, Ron (NOAA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100017588	4/5/2006	4/5/2006 Email regarding LWG Surface Water Data - Raw Format.	28	3	EML / Email	R10: Mckenna, Jim (Port of Portland)	R10: Gouguet, Ron (NOAA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
4940680348	4/5/2006	4/5/2006 REDACTED Email regarding reply to LWG Surface Water Data - Raw Format.	22	1	EML / Email	R10: Mckenna, James (Port of Portland)	R10: Hillman, Helen, E (NOAA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100010756	4/6/2006	4/6/2006 REDACTED Email regarding reply to LWG Surface Water Data - Raw Format.	87	2	EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Neely, Robert (NOAA), R10: Browning, Sandy (Integral Consulting, Inc.), R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100017254	4/6/2006	4/6/2006 R10: Applegate, Richard (City of Portland, Oregon), R10: Mckenna, James (Port of Portland), R10: Wyatt, Bob (Northwest Natural Gas Company), R10: Pine, Keith, A (Integral Consulting, Inc.), R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality), R10: McClincy, Matt (Oregon Dept. of Environmental Quality), R10: Lewis, Mark, D (NewFields), R10: Livesay, Dave (GSI Groundwater Solutions, Inc.), R10: Lee, Jean, H (Environment International, Ltd.), R10: Lee, Valerie (Environment International, Ltd.), R10: Longoria, Rose (Yakama Nation)	81	2	EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Oster, Valerie (Anchor Environmental, LLC), R10: Neely, Robert (NOAA), R10: Browning, Sandy (Integral Consulting, Inc.), R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100015105	4/12/2006	4/12/2006 Email regarding April 12 PH managers agenda. Meeting Agenda.	17	1	EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Applegate, Richard (City of Portland, Oregon), R10: Mckenna, James (Port of Portland), R10: Wyatt, Bob (Northwest Natural Gas Company), R10: Pine, Keith, A (Integral Consulting, Inc.), R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality), R10: McClincy, Matt (Oregon Dept. of Environmental Quality), R10: Lewis, Mark, D (NewFields), R10: Livesay, Dave (GSI Groundwater Solutions, Inc.), R10: Lee, Jean, H (Environment International, Ltd.), R10: Lee, Valerie (Environment International, Ltd.), R10: Longoria, Rose (Yakama Nation)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100018016	4/12/2006	4/12/2006 Outline: Comprehensive Round 2 Site Characterization Summary and Data Gaps Report.	33	1	CORR / Correspondence	R10: Mccrea, Rachel (Washington State Dept. of Ecology)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100008575	4/14/2006	4/14/2006 Email regarding Planning for Tuesday's CSM Meeting.	189	8	CORR / Correspondence	R10: Unknown, Unknown (Unknown)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100011087	4/14/2006	4/14/2006 R10: Gardner, Sara (City of Portland, Oregon, Environmental Services), R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA), R10: Omealy, Mikell (Oregon Dept. of Environmental Quality), R10: Livesay, Dave (GSI Groundwater Solutions, Inc.), R10: Wyatt, Robert, J (NW Natural), R10: Applegate, Rick (City of Portland)	27	2	EML / Email	R10: Mckenna, Jim (Port of Portland)	R10: Gardner, Sara (City of Portland, Oregon, Environmental Services), R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA), R10: Omealy, Mikell (Oregon Dept. of Environmental Quality), R10: Livesay, Dave (GSI Groundwater Solutions, Inc.), R10: Wyatt, Robert, J (NW Natural), R10: Applegate, Rick (City of Portland)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100015107	4/14/2006	4/14/2006 R10: Applegate, Richard (City of Portland, Oregon), R10: Dost, Patricia, M (Schwabe, Williamson & Wyatt, P.C.), R10: Ashton, David (Port of Portland), R10: Mckenna, Jim (Port of Portland), R10: Wyatt, Bob (Northwest Natural Gas Company), R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA), R10: McClincy, Matt (Oregon Dept. of Environmental Quality), R10: O'mealy, Mikell (Oregon Dept. of Environmental Quality), R10: Lee, Jean, H (Environment International, Ltd.), R10: Lee, Valerie (Environment International, Ltd.), R10: Betz, Jan (City of Portland, Oregon), R10: Anderson, Jim (EPA)	43	1	EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Applegate, Richard (City of Portland, Oregon), R10: Dost, Patricia, M (Schwabe, Williamson & Wyatt, P.C.), R10: Ashton, David (Port of Portland), R10: Mckenna, Jim (Port of Portland), R10: Wyatt, Bob (Northwest Natural Gas Company), R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA), R10: McClincy, Matt (Oregon Dept. of Environmental Quality), R10: O'mealy, Mikell (Oregon Dept. of Environmental Quality), R10: Lee, Jean, H (Environment International, Ltd.), R10: Lee, Valerie (Environment International, Ltd.), R10: Betz, Jan (City of Portland, Oregon), R10: Anderson, Jim (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100015108	4/14/2006	4/14/2006 R10: Varnum, Nicholas (Integral Consulting, Inc.)	183	8	CORR / Correspondence	R10: Varnum, Nicholas (Integral Consulting, Inc.)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization



100015110	Outline Comprehensive Round 2 Site Characterization Summary and Data Gaps Report.	4/14/2006	188	8 CORR / Correspondence	R10: Pine, Keith, A (Integral Consulting, Inc.)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100016912	REDACTED Email regarding Planning for Tuesday's CSM meeting.	4/14/2006	23	2 EML / Email	R10: O'mealy, Mikell (Oregon Dept. of Environmental Quality)	R10: Mckenna, Jim (Port of Portland), R10: Gardner, Sara (City of Portland, Oregon, Environmental Services), R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA), R10: O'mealy, Mikell (Oregon Dept. of Environmental Quality), R10: Livesay, Dave (GSI Groundwater Solutions, Inc.), R10: Wyatt, Robert, J (NW Natural), R10: Applegate, Rick (City of Portland)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
4940680437	Email regarding reply to Planning for Tuesday's CSM meeting.	4/14/2006	27	2 EML / Email	R10: Mckenna, James (Port of Portland)	R10: Gardner, Sara (City of Portland, Oregon, Environmental Services), R10: Humphrey, Chip (EPA), R10: O'mealy, Mikell (Oregon Dept. of Environmental Quality), R10: Livesay, Dave (GSI Groundwater Solutions, Inc.), R10: Wyatt, Robert, J (NW Natural), R10: Applegate, Rick (City of Portland)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100011079	Email regarding PH Meeting Facilitation. Agenda for Meeting to discuss the Conceptual Site Model and Round 2 Site Characterization Summary Report.	4/18/2006	25	2 EML / Email	R10: Neely, Robert (NOAA)	R10: Cunninghame, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100014666	Summary Report.	4/18/2006	57	1 MTG / Meeting Document	R10: O'mealy, Mikell (Oregon Dept. of Environmental Quality)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
4940680340	Email regarding reply to Agenda for Tuesday's CSM meeting.	4/20/2006	30	3 EML / Email	R10: Mckenna, James (Port of Portland)	R10: Oster, Valerie (Anchor Environmental, LLC), R10: Blischke, Eric, L (EPA), R10: O'mealy, Mikell (Oregon Dept. of Environmental Quality), R10: Livesay, Dave (GSI Groundwater Solutions, Inc.), R10: Wyatt, Robert, J (NW Natural), R10: Applegate, Rick (City of Portland)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100018018	REDACTED Summary of OR Health Linnton Notes.	4/27/2006	54	4 NOTE / Notes	R10: (Linnton Community Center)		ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100008757	Email regarding Extension request for SW SL table.	4/28/2006	32	1 EML / Email	R10: Blischke, Eric, L (EPA)	R10: Mckenna, Jim (Port of Portland), R10: Wyatt, Robert, J (NW Natural), R10: Applegate, Rick (City of Portland)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100011808	Email regarding extension request for SW SL table.	4/28/2006	24	1 EML / Email	R10: Mckenna, Jim (Port of Portland)	R10: Blischke, Eric, L (EPA), R10: Wyatt, Robert, J (NW Natural), R10: Applegate, Rick (City of Portland)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
4940680359	Email regarding reply to Contaminant Fate and Transport Models.	4/28/2006	22	1 EML / Email	R10: Mckenna, James (Port of Portland)	R10: Blischke, Eric, L (EPA), R10: Wyatt, Robert, J (NW Natural), R10: Applegate, Rick (City of Portland)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
4940680385	Email regarding reply to Extension request for SW SL table.	4/28/2006	22	1 EML / Email	R10: Mckenna, James (Port of Portland)	R10: Blischke, Eric, L (EPA), R10: Wyatt, Robert, J (NW Natural), R10: Applegate, Rick (City of Portland)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
4940680574	Email regarding Validated LWG Round 2B Sediment Core Data.	4/28/2006	47	1 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Neely, Robert (NOAA), R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100015121	Memo Regarding Summary of the Linnton Community Center fish consumption survey and health education activities for the Portland Harbor Superfund Site.	5/3/2006	100	1 MEMO / Memorandum	R10: Toepel, Kathryn (Oregon Dept. of Human Services)	R10: Davoli, Dana (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100015248	LWG Response to EPA CSM Questions dated April 14, 2006.	5/5/2006	96	6 CORR / Correspondence	R10: (Lower Willamette Group)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
4940680617	Email regarding reply to Agenda for 5/9 Framework Meeting.	5/8/2006	21	1 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Marsh, John (Parametrix, Inc.)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100015109	Email regarding CSM Questions - LWG Response.	5/9/2006	17	1 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Mckenna, Jim (Port of Portland), R10: Wyatt, Bob (Northwest Natural Gas Company), R10: Pine, Keith, A (Integral Consulting, Inc.), R10: Revelas, Gene, C (Integral Consulting, Inc.), R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality), R10: McClincy, Matt (Oregon Dept. of Environmental Quality), R10: Lee, Jean, H (Environment International, Ltd.), R10: Longoria, Rose (Yakama Nation)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100015249	Email regarding draft 5/10 agenda. REDACTED Portland Harbor Managers' Meeting Agenda.	5/10/2006	17	1 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Mckenna, Jim (Port of Portland), R10: Wyatt, Bob (Northwest Natural Gas Company), R10: Pine, Keith, A (Integral Consulting, Inc.), R10: Revelas, Gene, C (Integral Consulting, Inc.), R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality), R10: McClincy, Matt (Oregon Dept. of Environmental Quality), R10: Lee, Jean, H (Environment International, Ltd.), R10: Longoria, Rose (Yakama Nation)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100017278	REDACTED DRAFT AGENDA Framework Issues Update and Next Steps.	5/10/2006	30	1 CORR / Correspondence	R10: Mccrea, Rachel (Washington State Dept. of Ecology)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100014634	Email regarding Validated LWG Round 2 Multiplate Tissue Data.	5/18/2006	46	1 CORR / Correspondence	R10: (Parametrix, Inc.)	R10: Neely, Robert (NOAA), R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
4940680573	Multiplate Tissue Data.	5/18/2006	48	2 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Lewis, Mark (Unknown), R10: Mckenna, Jim (Port of Portland), R10: Humphrey, Chip (EPA), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality), R10: McClincy, Matt (Oregon Dept. of Environmental Quality), R10: Livesay, Dave (GSI Groundwater Solutions, Inc.), R10: Lee, Jean, H (Environment International, Ltd.), R10: Longoria, Rose (Yakama Nation), R10: Wyatt, Robert, J (NW Natural)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100011570	Email regarding draft meeting agenda for May 23rd project management meeting.	5/22/2006	26	1 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
4940680000	Email regarding Round 2B Subsurface Sediment Data Report has been posted.	5/22/2006	75	2 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
4940680559	Email regarding Round 2B Subsurface Sediment Data Report has been posted.	5/22/2006	75	2 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
4940680044	Email regarding call to discuss LWG sediment trap FSP.	5/24/2006	46	1 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Mckenna, Jim (Port of Portland), R10: Hanzlick, Dennis (Anchor Environmental, LLC), R10: Wyatt, Bob (Northwest Natural Gas Company), R10: Pine, Keith, A (Integral Consulting, Inc.), R10: Blischke, Eric, L (EPA), R10: Applegate, Rick (City of Portland)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
4940680507	Email regarding call to discuss LWG sediment trap FSP.	5/24/2006	46	1 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Hanzlick, Dennis (Anchor Environmental, LLC), R10: Pine, Keith, A (Integral Consulting, Inc.), R10: Humphrey, Chip (EPA), R10: Wyatt, Robert, J (NW Natural), R10: Jones, Laura (Integral Corporation), R10: Applegate, Rick (City of Portland)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100008758	Email regarding Lamprey and Mussel Information.	5/25/2006	40	3 EML / Email	R10: Blischke, Eric, L (EPA)	R10: Mckenna, Jim (Port of Portland), R10: Wyatt, Robert, J (NW Natural), R10: Applegate, Rick (City of Portland)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100017243	REDACTED Email regarding reply to call to discuss LWG sediment trap FSP.	5/30/2006	23	3 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Mckenna, James (Port of Portland), R10: Hanzlick, Dennis (Anchor Environmental, LLC), R10: Pine, Keith, A (Integral Consulting, Inc.), R10: Blischke, Eric, L (EPA), R10: Wyatt, Robert, J (NW Natural), R10: Jones, Laura (Integral Corporation), R10: Applegate, Rick (City of Portland)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
4940680389	Email regarding reply to Food Web Model for Portland Harbor.	5/30/2006	25	3 EML / Email	R10: Mckenna, James (Port of Portland)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
4940680570	Email regarding Updated City of Portland GIS Outfall Layer.	5/30/2006	47	2 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Neely, Robert (NOAA), R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
4940680639	Email regarding reply to June 6 meeting location.	5/30/2006	22	2 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization

100008583	Email regarding EPA Comments on Round 2 6/2/2006 Report Outline.	16	1 EML / Email	R10: Blischke, Eric, L (EPA)	R10: Mckenna, Jim (Port of Portland), R10: Wyatt, Robert, J (NW Natural), R10: Applegate, Rick (City of Portland)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization
100014573	Letter Regarding Lamprey/Sturgeon Studies With DRAFT Lamprey/Sturgeon Data Quality Objectives for Ecological Risk Assessment 6/2/2006 Table.	755	6 LTR / Letter	R10: Wyatt, Bob (Lower Willamette Group), R10: Mckenna, Jim (Lower Willamette Group)	R10: Humphrey, Chip (EPA), R10: Madden, Erin (Portland Harbor Trustee Council)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization
100014572	Email Regarding LWG (Lower Willamette Group) Lamprey Sturgeon Proposed Studies. 6/5/2006	48	1 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Neely, Robert (NOAA), R10: Sleeper, Preston, A (U.S. Dept. of the Interior), R10: Buerger, Ted (U. S. Fish and Wildlife Service), R10: Madden, Erin (Unknown), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Baker, Jeff (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Bluelake, Lisa (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Blischke, Eric, L (EPA), R10: Davoli, Dana (EPA), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality), R10: Omealy, Mikell (Oregon Dept. of Environmental Quality), R10: Lee, Valerie (Environment International, Ltd.), R10: Longoria, Rose (Yakama Nation), R10: Gouguet, Ron (NOAA), R10: How, P (CRITFC), R10: D, Tom (CTSI), R10: Barquin, Billy (Haglund Kelley, LLP), R10: Kepler, Rick, J (State of Oregon), R10: Cunningham, E (gorge.net) (U. S. Fish and Wildlife Service), R10: Mckenna, James (Port of Portland), R10: Schadt, Tom (Anchor Environmental, LLC), R10: Oster, Valerie (Anchor Environmental, LLC), R10: Howard, Patti (Columbia River Inter-Tribal Fish Commission), R10: Saban, Lisa (Windward Environmental, LLC.), R10: Luxon, Matt (Windward Environmental, LLC.), R10: Johns, Mike (Windward Environmental, LLC.), R10: Snyder, Joan, P (Stoel Rives, LLP), R10: Downey, Tom (Confederated Tribes of the Siletz Indians), R10: Cramer, Martin (ConocoPhillips Company), R10: Baker, Jeff (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Prescott, Chris (City of Portland, Oregon, Endangered Species Act Program), R10: Blischke, Eric, L (EPA), R10: Shephard, Burt (EPA), R10: Humphrey, Chip (EPA), R10: Goulet, Joe (EPA), R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality), R10: Omealy, Mikell (Oregon Dept. of Environmental Quality), R10: Lewis, Mark, D (NewFields), R10: Lee, Jean, H (Environment International, Ltd.), R10: Lee, Valerie (Environment International, Ltd.), R10: Longoria, Rose (Yakama Nation), R10: Wyatt, Robert, J (NW Natural), R10: Thompson, Chris (Environment International, Ltd.), R10: Applegate, Rick (City of Portland), R10: Kepler, Rick, J (State of Oregon), R10: Van De Wetering, Stan (Confederated Tribes of Siletz (U. S. Fish and Wildlife Service), R10: Mckenna, Jim (Port of Portland), R10: Schadt, Tom (Anchor Environmental, LLC), R10: Oster, Valerie (Anchor Environmental, LLC), R10: Howard, Patti (Columbia River Inter-Tribal Fish Commission), R10: Saban, Lisa (Windward Environmental, LLC.), R10: Luxon, Matt (Windward Environmental, LLC.), R10: Johns, Mike (Windward Environmental, LLC.), R10: Snyder, Joan, P (Stoel Rives, LLP), R10: Downey, Tom (Confederated Tribes of the Siletz Indians), R10: Cramer, Martin (ConocoPhillips Company), R10: Baker, Jeff (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Blischke, Eric, L (EPA), R10: Shephard, Burt (EPA), R10: Humphrey, Chip (EPA), R10: Goulet, Joe (EPA), R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality), R10: O'mealy, Mikell (Oregon Dept. of Environmental Quality), R10: Lewis, Mark, D (NewFields), R10: Lee, Jean, H (Environment International, Ltd.), R10: Lee, Valerie (Environment International, Ltd.), R10: Longoria, Rose (Yakama Nation), R10: Wyatt, Robert, J (NW Natural), R10: Thompson, Chris (Environment International, Ltd.), R10: Applegate, Rick (City of Portland), R10: Kepler, Rick, J (State of Oregon), R10: Van De Wetering, Stan (Confederated Tribes of Siletz Indians), R10: Buck, Jeremy (U. S. Fish & Wildlife Service), R10: Dalton, Tim (State of	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization
100016529	REDACTED Email regarding Lamprey Sturgeon Task Team June 7 & 8 Portland OR. 6/5/2006	26	1 EML / Email	R10: Gouguet, Ron (NOAA)	R10: Mckenna, Jim (Port of Portland), R10: Schadt, Tom (Anchor Environmental, LLC), R10: Oster, Valerie (Anchor Environmental, LLC), R10: Howard, Patti (Columbia River Inter-Tribal Fish Commission), R10: Saban, Lisa (Windward Environmental, LLC.), R10: Luxon, Matt (Windward Environmental, LLC.), R10: Johns, Mike (Windward Environmental, LLC.), R10: Snyder, Joan, P (Stoel Rives, LLP), R10: Downey, Tom (Confederated Tribes of the Siletz Indians), R10: Cramer, Martin (ConocoPhillips Company), R10: Baker, Jeff (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Blischke, Eric, L (EPA), R10: Shephard, Burt (EPA), R10: Humphrey, Chip (EPA), R10: Goulet, Joe (EPA), R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality), R10: O'mealy, Mikell (Oregon Dept. of Environmental Quality), R10: Lewis, Mark, D (NewFields), R10: Lee, Jean, H (Environment International, Ltd.), R10: Lee, Valerie (Environment International, Ltd.), R10: Longoria, Rose (Yakama Nation), R10: Wyatt, Robert, J (NW Natural), R10: Thompson, Chris (Environment International, Ltd.), R10: Applegate, Rick (City of Portland), R10: Kepler, Rick, J (State of Oregon), R10: Van De Wetering, Stan (Confederated Tribes of Siletz Indians), R10: Buck, Jeremy (U. S. Fish & Wildlife Service), R10: Dalton, Tim (State of	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization
100016589	REDACTED Email regarding Lamprey Sturgeon Task Team June 7 & 8 Portland OR. 6/5/2006	27	1 EML / Email	R10: Gouguet, Ron (NOAA)	R10: Mckenna, Jim (Port of Portland), R10: Schadt, Tom (Anchor Environmental, LLC), R10: Oster, Valerie (Anchor Environmental, LLC), R10: Howard, Patti (Columbia River Inter-Tribal Fish Commission), R10: Saban, Lisa (Windward Environmental, LLC.), R10: Luxon, Matt (Windward Environmental, LLC.), R10: Johns, Mike (Windward Environmental, LLC.), R10: Snyder, Joan, P (Stoel Rives, LLP), R10: Downey, Tom (Confederated Tribes of the Siletz Indians), R10: Cramer, Martin (ConocoPhillips Company), R10: Baker, Jeff (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Blischke, Eric, L (EPA), R10: Shephard, Burt (EPA), R10: Humphrey, Chip (EPA), R10: Goulet, Joe (EPA), R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality), R10: O'mealy, Mikell (Oregon Dept. of Environmental Quality), R10: Lewis, Mark, D (NewFields), R10: Lee, Jean, H (Environment International, Ltd.), R10: Lee, Valerie (Environment International, Ltd.), R10: Longoria, Rose (Yakama Nation), R10: Wyatt, Robert, J (NW Natural), R10: Thompson, Chris (Environment International, Ltd.), R10: Applegate, Rick (City of Portland), R10: Kepler, Rick, J (State of Oregon), R10: Van De Wetering, Stan (Confederated Tribes of Siletz Indians), R10: Buck, Jeremy (U. S. Fish & Wildlife Service), R10: Dalton, Tim (State of	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization
100017396	REDACTED Email regarding reply to Tuesday's 6/6/6 agenda. 6/5/2006	20	1 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization
100011338	Email regarding Revised Modeling Objectives 6/8/2006 Matrix. 6/8/2006	32	3 EML / Email	R10: Mckenna, Jim (Port of Portland)	R10: Cunninghame, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Walton, Raymond (West Consultants, Inc.), R10: Stivers, Carl (Anchor Environmental, LLC), R10: Oster, Valerie (Anchor Environmental, LLC), R10: Toll, John (Windward Environmental, LLC.), R10: Saban, Lisa (Windward Environmental, LLC.), R10: Judd, Nancy (Windward Environmental, LLC.), R10: Pine, Keith, A (Integral Consulting, Inc.), R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA), R10: Hope, Bruce, K (Oregon Dept. of Environmental Quality), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality), R10: McClincy, Matt (Oregon Dept. of Environmental Quality), R10: Lee, Valerie (Environment International, Ltd.), R10: Longoria, Rose (Yakama Nation), R10: Wyatt, Robert, J (NW Natural), R10: Revelas, Gene (Integral Corporation), R10: Applegate, Rick (City of Portland), R10: Marsh, John (Parametrix, Inc.)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization

100017655	REDACTED Email regarding Next Meeting of 6/8/2006 Lamprey Strurgeon Task Team - June 28.	26	1 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Neely, Robert (NOAA), R10: Buerger, Ted (U. S. Fish and Wildlife Service), R10: Mckenna, Jim (Port of Portland), R10: Schadt, Tom (Anchor Environmental, LLC), R10: Saban, Lisa (Windward Environmental, LLC.), R10: Snyder, Joan, P (Stoel Rives, LLP), R10: Downey, Tom (Confederated Tribes of the Siletz Indians), R10: Wyatt, Bob (Northwest Natural Gas Company), R10: Cramer, Martin (ConocoPhillips Company), R10: Prescott, Chris (City of Portland, Oregon, Endangered Species Act Program), R10: Blischke, Eric, L (EPA), R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality), R10: Lewis, Mark, D (NewFields), R10: Lee, Valerie (Environment International, Ltd.), R10: Baker, Jeff (Grand Ronde Tribe), R10: Longoria, Rose (Yakama Nation), R10: Thompson, Chris (Environment International, Ltd.), R10: Applegate, Rick (City of Portland), R10: Van De Wetering, Stan (Confederated Tribes of Siletz Indians), R10: Buck, Jeremy (U. S. Fish & Wildlife Service), R10: Dalton, Tim (State of Oregon), R10: Mesa, Matthew, G (USGS)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
4940680456	Email regarding reply to Revised Modeling 6/8/2006 Objectives Matrix.	32	3 EML / Email	R10: Mckenna, James (Port of Portland)	R10: Cunninghame, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Walton, Raymond (West Consultants, Inc.), R10: Oster, Valerie (Anchor Environmental, LLC), R10: Judd, Nancy (Windward Environmental, LLC.), R10: Pine, Keith, A (Integral Consulting, Inc.), R10: Blischke, Eric, L (EPA), R10: Hope, Bruce, K (Oregon Dept. of Environmental Quality), R10: Lee, Jean, H (Environment International, Ltd.), R10: Longoria, Rose (Yakama Nation), R10: Wyatt, Robert, J (NW Natural), R10: Revelas, Gene (Integral Corporation), R10: Applegate, Rick (City of Portland)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100014574	Email Regarding Notes from 06/14/2006 6/14/2006 Benchmark/Deliverable Schedule Discussion.	18	1 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Wyatt, Bob (Lower Willamette Group), R10: Mckenna, Jim (Lower Willamette Group), R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality), R10: Lee, Valerie (Environment International, Ltd.), R10: Longoria, Rose (Yakama Nation), R10: Applegate, Rick (City of Portland), R10: Pine, Keith (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100014575	6/14/2006 Benchmark/Deliverable Schedule.	17	1 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100012342	6/22/2006 Email regarding June 28.	23	1 EML / Email	R10: Gouguet, Ron (NOAA)	R10: Neely, Robert (NOAA), R10: Blischke, Eric, L (EPA), R10: Shephard, Burt (EPA), R10: Humphrey, Chip (EPA), R10: Goulet, Joe (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100013229	6/22/2006 Email regarding June 28.	25	1 EML / Email	R10: Gouguet, Ron (NOAA)	R10: Neely, Robert (NOAA), R10: Blischke, Eric, L (EPA), R10: Shephard, Burt (EPA), R10: Humphrey, Chip (EPA), R10: Goulet, Joe (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100012480	Email regarding FEDERAL FAMILY - Any Input 6/26/2006 on This.	23	1 EML / Email	R10: Gouguet, Ron (NOAA)	R10: Neely, Robert (NOAA), R10: Blischke, Eric, L (EPA), R10: Shephard, Burt (EPA), R10: Humphrey, Chip (EPA), R10: Goulet, Joe (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100011258	Email regarding Portland Harbor RI/FS - 6/28/2006 Projected Schedule for Major Milestones.	24	2 EML / Email	R10: Wyatt, Robert, J (NW Natural)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
4940680011	Email regarding LWG Benthic Tissue (field and 6/28/2006 lab) and Co-located Sediment.	47	2 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Neely, Robert (NOAA), R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
4940680543	Email regarding LWG Benthic Tissue (field and 6/28/2006 lab) and Co-located Sediment.	47	2 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Neely, Robert (NOAA), R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100008744	Email regarding Outstanding Issues Relative to 6/30/2006 the Round 2 Report.	39	4 EML / Email	R10: Blischke, Eric, L (EPA)	R10: Mckenna, Jim (Port of Portland), R10: Saban, Lisa (Windward Environmental, LLC.), R10: Pine, Keith, A (Integral Consulting, Inc.), R10: Wyatt, Robert, J (NW Natural), R10: Applegate, Rick (City of Portland)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100012124	Email regarding NOAA draft comments on 6/30/2006 benthic approach report.	18	1 EML / Email	R10: Neely, Robert (NOAA)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100012764	6/30/2006 NOAA Comments LWG Benthic Report Draft.	75	10 LTR / Letter	R10: Neely, Robert (NOAA)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100011909	Email regarding NOAA draft comments on 7/3/2006 benthic approach report.	25	2 EML / Email	R10: Field, Jay (NOAA)	R10: Neely, Robert (NOAA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100012126	Email regarding NOAA draft comments on 7/3/2006 benthic approach report(1).	21	2 EML / Email	R10: Field, Jay (NOAA)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100012661	Email regarding NOAA Draft Comments on 7/3/2006 Benthic Approach Report.	25	2 EML / Email	R10: Field, Jay (NOAA)	R10: Neely, Robert (NOAA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
4940680101	7/5/2006 Email regarding LWG/EPA call on Friday.	46	1 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Mckenna, Jim (Port of Portland), R10: Wyatt, Bob (Northwest Natural Gas Company), R10: Pine, Keith, A (Integral Consulting, Inc.), R10: Humphrey, Chip (EPA), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality), R10: Applegate, Rick (City of Portland)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100012765	7/6/2006 EPA Predictive Model Comments Cover.	50	3 LTR / Letter	R10: Humphrey, Chip (EPA)	R10: Mckenna, Jim (Port of Portland), R10: Wyatt, Robert, J (NW Natural)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100012776	7/6/2006 NOAA Comments LWG Benthic Report.	74	10 LTR / Letter	R10: Neely, Robert (NOAA)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100012823	7/6/2006 Benthic cover letter 07-06-06.	50	3 LTR / Letter	R10: Humphrey, Chip (EPA)	R10: Mckenna, Jim (Port of Portland), R10: Wyatt, Robert, J (NW Natural)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100012824	EPA Comments Benthic Predictive Model 07- 7/6/2006 06-06.	93	15 RPT / Report	R10: (EPA)	R10: Mckenna, Jim (Port of Portland), R10: Wyatt, Robert, J (NW Natural)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100012826	7/6/2006 EPA TRV Clarification 07-06-06.	54	3 LTR / Letter	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	R10: Mckenna, Jim (Port of Portland), R10: Wyatt, Robert, J (NW Natural)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100012827	7/6/2006 EPC Exp Factor Approval 07-06-06.	43	2 LTR / Letter	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	R10: Mckenna, Jim (Port of Portland), R10: Wyatt, Robert, J (NW Natural)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100013254	NOAA's comments on the Portland Harbor Superfund Site Ecological Risk Assessment Interpretive report: Estimating Risk to Benthic Organisms Using Predictive Models Based on 7/6/2006 Sediment Toxicity Tests (Draft).	125	10 CORR / Correspondence	R10: Neely, Robert (NOAA)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100012157	Email regarding NOAA comments on benthic 7/7/2006 interpretive approach report for Portland Harbor.	18	1 EML / Email	R10: Neely, Robert (NOAA)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100012300	7/7/2006 Email regarding Bioassessment.	18	1 EML / Email	R10: Neely, Robert (NOAA)	R10: Neely, Robert (NOAA), R10: Blischke, Eric, L (EPA), R10: Shephard, Burt (EPA), R10: Humphrey, Chip (EPA), R10: Goulet, Joe (EPA), R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality), R10: Longoria, Rose (Yakama Nation), R10: Thompson, Chris (Environment International, Ltd.), R10: Buck, Jeremy (U. S. Fish & Wildlife Service)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100013004	Email regarding water eco screening level 7/7/2006 values.	30	2 EML / Email	R10: Neely, Robert (NOAA)	R10: Blischke, Eric, L (EPA), R10: Shephard, Burt (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100013263	Email regarding NOAA comments on benthic 7/7/2006 interpretive approach report for Portland Harbor.	20	1 EML / Email	R10: Neely, Robert (NOAA)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization

100013934	Email Regarding Water eco screening level 7/7/2006 values].	23	2 EML / Email	R10: Neely, Robert (NOAA)	R10: Blischke, Eric, L (EPA), R10: Shephard, Burt (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100015252	Initial Categorization – EPA Technical Memorandum: Approach to Determining Background Comments (dated June 5, 2006). Letter regarding Response to Comments on the Technical Memorandum: Approach to Determining Background.	202	21 CORR / Correspondence	R10: (Lower Willamette Group)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100015263	REDACTED Email regarding Background Tech Memo Response to Comments.	26	1 CORR / Correspondence	R10: Mckenna, Jim (Port of Portland), R10: Wyatt, Bob (Northwest Natural Gas Company)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100017279	REDACTED Email regarding Background Tech Memo Response to Comments.	30	2 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100016547	REDACTED Email reminding of conference call on Monday.	42	1 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Mckenna, Jim (Port of Portland), R10: Wyatt, Robert (Lower Willamette Group), R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality), R10: Lee, Valerie (Environment International, Ltd.), R10: Longoria, Rose (Yakama Nation), R10: Donoghue, Cinde (Environment International, Ltd.), R10: Applegate, Rick (City of Portland), R10: Pine, Keith (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100015891	REDACTED Email regarding Reminder - Conference Call on Monday (Rescheduled).	53	2 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Mckenna, Jim (Port of Portland), R10: Pine, Keith, A (Integral Consulting, Inc.), R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality), R10: Lee, Valerie (Environment International, Ltd.), R10: Longoria, Rose (Yakama Nation), R10: Wyatt, Robert, J (NW Natural), R10: Donoghue, Cinde (Environment International, Ltd.), R10: Applegate, Rick (City of Portland)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100012604	Email regarding surface water FSP call week of 7/18/2006 July 24.	48	1 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Mckenna, Jim (Port of Portland), R10: Stivers, Carl (Anchor Environmental, LLC), R10: Wyatt, Robert (Lower Willamette Group), R10: Jones, Laura (Integral Consulting, Inc.), R10: Hayter, Earl, J (EPA), R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA), R10: Hope, Bruce, K (Oregon Dept. of Environmental Quality), R10: Pine, Keith (Anchor Environmental, LLC), R10: Applegate, Rick (City of Portland)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100014577	Letter Regarding Request for Underlying EPA Cost Documentation.	66	1 LTR / Letter	R10: Wyatt, Bob (Lower Willamette Group), R10: Mckenna, Jim (Lower Willamette Group)	R10: Wood, James, V (EPA Cincinnati Finance Center)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100015267	Letter regarding Portland Harbor RI/FS Request for Underlying Backup Regarding EPA Bill.	64	1 CORR / Correspondence	R10: Mckenna, Jim (Port of Portland), R10: Wyatt, Bob (Northwest Natural Gas Company)	R10: Wood, James, V (EPA Cincinnati Finance Center)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
4940680696	Email regarding Surface Water FSP call week of 7/18/2006 July 24.	47	1 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Mckenna, James (Port of Portland), R10: Stivers, Carl (Anchor Environmental, LLC), R10: Pine, Keith, A (Integral Consulting, Inc.), R10: Humphrey, Chip (EPA), R10: Hope, Bruce, K (Oregon Dept. of Environmental Quality), R10: Wyatt, Robert, J (NW Natural), R10: Jones, Laura (Integral Corporation), R10: Applegate, Rick (City of Portland)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100014579	Letter Regarding Portland Harbor Superfund 7/19/2006 Site, USEPA Comment Letters.	86	2 LTR / Letter	R10: Wyatt, Bob (Lower Willamette Group), R10: Mckenna, Jim (Lower Willamette Group)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100015265	Letter regarding Portland Harbor Superfund Site; USEPA Comment Letters.	86	2 CORR / Correspondence	R10: Mckenna, Jim (Port of Portland), R10: Wyatt, Bob (Northwest Natural Gas Company)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100012812	NOAA Comments Water Screening Levels 7/20/2006 Table.	44	4 LTR / Letter	R10: Neely, Robert (NOAA)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100013266	NOAA's comments on the Portland Harbor Superfund Site Selected acute and chronic ecological screening levels (Eco SLs) for chemicals in water, Table 1, revised draft.	90	4 CORR / Correspondence	R10: Neely, Robert (NOAA)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100014576	Email Regarding LWG (Lower Willamette Group) Letter on EPA Comments and Directives.	47	1 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Cora, Lori, H (EPA), R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100014578	REDACTED Email regarding LWG Letter on EPA comments and directives.	48	1 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100017301	REDACTED Email regarding LWG Letter requesting EPA Cost documentation.	50	1 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100017304	REDACTED Email regarding PH LRM tables/maps.	49	1 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Cora, Lori, H (EPA), R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100017482	REDACTED Email regarding NOAA comments on Table 1 water SLs (draft).	20	1 EML / Email	R10: Field, Jay (NOAA)	R10: Read, Lorraine (Windward Environmental, LLC.)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100016560	REDACTED Email regarding NOAA comments on Table 1 water SLs (draft).	21	1 EML / Email	R10: Neely, Robert (NOAA)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100017578	REDACTED Email regarding NOAA comments on Table 1 water SLs (draft).	21	1 EML / Email	R10: Neely, Robert (NOAA)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
4940680504	Email regarding attendance at TZW meeting.	45	1 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Locke, William, W (Integral Consulting, Inc.), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
4940681052	Email regarding reply to Extension Request: R2 Groundwater Pathway Summary Report.	39	3 EML / Email	R10: Humphrey, Chip (EPA)	R10: Mckenna, Jim (Port of Portland), R10: Wyatt, Robert, J (NW Natural), R10: Locke, Bill (Integral Corporation), R10: Applegate, Rick (City of Portland)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100011812	Email regarding extension request for SW SL table.	31	2 EML / Email	R10: Mckenna, Jim (Port of Portland)	R10: Humphrey, Chip (EPA), R10: Wyatt, Robert, J (NW Natural), R10: Locke, Bill (Integral Corporation), R10: Applegate, Rick (City of Portland)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
4940680386	Email regarding reply to Extension Request: R2 Groundwater Pathway Summary Report.	29	2 EML / Email	R10: Mckenna, James (Port of Portland)	R10: Humphrey, Chip (EPA), R10: Locke, Adam, L (CDM), R10: Wyatt, Robert, J (NW Natural), R10: Applegate, Rick (City of Portland)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100008730	Email regarding GW Pathway Evaluation Meeting.	17	1 EML / Email	R10: Blischke, Eric, L (EPA)	R10: Mckenna, Jim (Port of Portland), R10: Wyatt, Robert, J (NW Natural), R10: Applegate, Rick (City of Portland)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization



100010667	Email transmitting a list of TZW meeting participants.	53	1 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Mckenna, Jim (Port of Portland), R10: Coover, Merv (Thermo RETEC Consulting Corporation), R10: Peale, James, G (Maul Foster & Alongi, Inc.), R10: Kennedy, Laura (Kennedy/Jenks Consultants), R10: Toll, John (Windward Environmental, LLC.), R10: Hurley, Kathleen (Windward Environmental, LLC.), R10: Arthur, Jennifer (Environment International, Ltd.), R10: Wyatt, Robert, J (Northwest Natural Gas Company), R10: Pine, Keith, A (Integral Consulting, Inc.), R10: Locke, William, W (Integral Consulting, Inc.), R10: Gormley, Sean, F (AMEC Earth & Environmental, Inc.), R10: Gresh, Roger, T (AMEC Earth & Environmental, Inc.), R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA), R10: Davoli, Dana (EPA), R10: Goulet, Joe (EPA), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality), R10: McClincy, Matt (Oregon Dept. of Environmental Quality), R10: Gensemer, Robert, W (Parametrix, Inc.), R10: Burt, Walter (GSI), R10: Hawley, Christine (Integral Corporation), R10: Applegate, Rick (City of Portland), R10: Pastorok, Robert (Integral Corporation), R10: Benedict, James (Bayer CropScience LP), R10: Koschal, Gerry (Chevron)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100010669	Meeting Participants: Transition Zone Water Summary Presentation and Discussion.	30	2 MTG / Meeting Document			ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100014668	7/26/2006 Email regarding TZW Meeting Participants.	46	1 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Mckenna, Jim (Port of Portland), R10: Peale, James, G (Maul Foster & Alongi, Inc.), R10: Kennedy, Laura (Kennedy/Jenks Consultants), R10: Toll, John (Windward Environmental, LLC.), R10: Hurley, Kathleen (Windward Environmental, LLC.), R10: Arthur, Jennifer (Environment International, Ltd.), R10: Pine, Keith, A (Integral Consulting, Inc.), R10: Locke, William, W (Integral Consulting, Inc.), R10: Gormley, Sean, F (AMEC Earth & Environmental, Inc.), R10: Gresh, Roger, T (AMEC Earth & Environmental, Inc.), R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA), R10: Davoli, Dana (EPA), R10: Goulet, Joe (EPA), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality), R10: McClincy, Matt (Oregon Dept. of Environmental Quality), R10: Gensemer, Robert, W (Parametrix, Inc.), R10: Burt, Walter (GSI), R10: Longoria, Rose (Yakama Nation), R10: Wyatt, Robert, J (NW Natural), R10: Hawley, Christine (Integral Corporation), R10: Donoghue, Cinde (Environment International, Ltd.), R10: Applegate, Rick (City of Portland), R10: Pastorok, Robert (Integral Corporation), R10: Benedict, James (Bayer CropScience LP), R10: Koschal, Gerry (Chevron), R10: Coover, Merv (RETEC Group, Inc.)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100014678	List of Meeting Participants: Transition Zone Water Summary Presentation and Discussion.	28	1 MTG / Meeting Document	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100012158	Email regarding Re_Lamprey and Sturgeon Studies for the PH RI_FS.	24	1 EML / Email	R10: Neely, Robert (NOAA)	R10: Opalski, Daniel, D (EPA), R10: Kawabata, Sylvia (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100012778	NOAA Comments EPA Lamprey Sturgeon.	45	3 LTR / Letter	R10: Neely, Robert (NOAA)	R10: Opalski, Daniel, D (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100013255	Email regarding Lamprey and Sturgeon Studies for the PH RI/FS.	25	1 EML / Email	R10: Neely, Robert (NOAA)	R10: Opalski, Daniel, D (EPA), R10: Kawabata, Sylvia (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100013313	NOAA's comments on EPA's preliminary decision regarding the Round 3 scope of work for Pacific lamprey and white sturgeon under the Portland Harbor Superfund Site Ecological Risk Assessment (EcoRA).	86	3 CORR / Correspondence	R10: Neely, Robert (NOAA)	R10: Opalski, Daniel, D (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100015271	Letter regarding Portland Harbor RI/FS EPA Bill No. 2700626S242.	75	2 CORR / Correspondence	R10: Mckenna, Jim (Port of Portland), R10: Wyatt, Bob (Northwest Natural Gas Company)	R10: Wood, James, V (EPA Cincinnati Finance Center)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100017653	REDACTED Email regarding Portland Harbor Lamprey/Sturgeon call - August 17.	26	2 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Neely, Robert (NOAA), R10: Mckenna, Jim (Port of Portland), R10: Oster, Valerie (Anchor Environmental, LLC), R10: Howard, Patti (Columbia River Inter-Tribal Fish Commission), R10: Saban, Lisa (Windward Environmental, LLC.), R10: Downey, Tom (Confederated Tribes of the Siletz Indians), R10: Wyatt, Bob (Northwest Natural Gas Company), R10: Pine, Keith, A (Integral Consulting, Inc.), R10: Prescott, Chris (City of Portland, Oregon, Endangered Species Act Program), R10: Blischke, Eric, L (EPA), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality), R10: Lewis, Mark, D (NewFields), R10: Lee, Valerie (Environment International, Ltd.), R10: Baker, Jeff (Grand Ronde Tribe), R10: Longoria, Rose (Yakama Nation), R10: Thompson, Chris (Environment International, Ltd.), R10: Applegate, Rick (City of Portland), R10: Van De Wetering, Stan (Confederated Tribes of Siletz Indians), R10: Fuji, Taku (Kennedy Jenks Consultants), R10: Buck, Jeremy (U. S. Fish & Wildlife Service), R10: Dalton, Tim (State of Oregon), R10: Mesa, Matthew, G (USGS)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization

100016604	8/7/2006	REDACTED Email regarding upcoming TZW meeting.	49	2 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Mckenna, Jim (Port of Portland), R10: Coover, Merv (Thermo RETEC Consulting Corporation), R10: Kennedy, Laura (Kennedy/Jenks Consultants), R10: Toll, John (Windward Environmental, LLC.), R10: Hurley, Kathleen (Windward Environmental, LLC.), R10: Arthur, Jennifer (Environment International, Ltd.), R10: Wyatt, Robert (Lower Willamette Group), R10: Pine, Keith, A (Integral Consulting, Inc.), R10: Locke, William, W (Integral Consulting, Inc.), R10: Gormley, Sean, F (AMEC Earth & Environmental, Inc.), R10: Fuentes, Rene, C (EPA), R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA), R10: Davoli, Dana (EPA), R10: Goulet, Joe (EPA), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality), R10: McClincy, Matt (Oregon Dept. of Environmental Quality), R10: Gensemer, Robert, W (Parametrix, Inc.), R10: Burt, Walter (GSI), R10: Longoria, Rose (Yakama Nation), R10: Hawley, Christine (Integral Corporation), R10: Donoghue, Cinde (Environment International, Ltd.), R10: Applegate, Rick (City of Portland), R10: Pastorok, Robert (Integral Corporation), R10: Koschal, Gerry, R10: Benedict, J., R10: Peale, James	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100008605	8/8/2006	Draft Assessment and Measurement Endpoints, Including LOEs.	82	8 CHT / Chart/Table	R10: Unknown, Unknown (Unknown)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100015268	8/8/2006	Email regarding draft 8/9 Portland Harbor Managers meeting.	40	1 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Mckenna, Jim (Port of Portland), R10: Wyatt, Bob (Northwest Natural Gas Company), R10: Pine, Keith, A (Integral Consulting, Inc.), R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality), R10: McClincy, Matt (Oregon Dept. of Environmental Quality), R10: Lee, Valerie (Environment International, Ltd.), R10: Longoria, Rose (Yakama Nation), R10: Donoghue, Cinde (Environment International, Ltd.), R10: Applegate, Rick (City of Portland)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
4940680569	8/8/2006	Email regarding Transition Zone Water Site Characterization.	107	2 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100017306	8/9/2006	REDACTED Portland Harbor Managers' Meeting Agenda.	35	1 CORR / Correspondence	R10: Mccrea, Rachel (Washington State Dept. of Ecology)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
4940680088	8/10/2006	Email regarding Portland Harbor Lamprey/Sturgeon call.	32	1 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Neely, Robert (NOAA), R10: Mckenna, Jim (Port of Portland), R10: Oster, Valerie (Anchor Environmental, LLC), R10: Howard, Patti (Columbia River Inter-Tribal Fish Commission), R10: Saban, Lisa (Windward Environmental, LLC.), R10: Downey, Tom (Confederated Tribes of the Siletz Indians), R10: Wyatt, Bob (Northwest Natural Gas Company), R10: Pine, Keith, A (Integral Consulting, Inc.), R10: Prescott, Chris (City of Portland, Oregon, Endangered Species Act Program), R10: Blischke, Eric, L (EPA), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality), R10: Lewis, Mark, D (NewFields), R10: Lee, Valerie (Environment International, Ltd.), R10: Baker, Jeff (Grand Ronde Tribe), R10: Longoria, Rose (Yakama Nation), R10: Thompson, Chris (Environment International, Ltd.), R10: Applegate, Rick (City of Portland), R10: Van De Wetering, Stan (Confederated Tribes of Siletz Indians), R10: Fuji, Taku (Kennedy Jenks Consultants), R10: Buck, Jeremy (U. S. Fish & Wildlife Service)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100015774	8/11/2006	REDACTED Email regarding Portland Harbor Lamprey/Sturgeon Call - August 17.	24	3 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100015803	8/12/2006	REDACTED Email regarding NOT an Agenda - Portland Harbor Lamprey/Sturgeon Call - August 17.	28	4 EML / Email	R10: Mckenna, Jim (Port of Portland)	R10: Gouguet, Ron (NOAA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100015801	8/14/2006	REDACTED Email regarding NOT an Agenda - Portland Harbor Lamprey/Sturgeon Call - August 17.	27	3 EML / Email	R10: Mckenna, Jim (Port of Portland)	R10: Gouguet, Ron (NOAA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100017987	8/14/2006	REDACTED Email regarding NOT an Agenda - Portland Harbor Lamprey/Sturgeon Call - August 17.	28	4 EML / Email	R10: Mckenna, Jim (Port of Portland)	R10: Gouguet, Ron (NOAA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100017988	8/14/2006	REDACTED Email regarding NOT an Agenda - Portland Harbor Lamprey/Sturgeon Call - August 17.	28	4 EML / Email	R10: Mckenna, Jim (Port of Portland)	R10: Gouguet, Ron (NOAA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100018217	8/14/2006	REDACTED Email regarding change in time of Portland Harbor Lamprey/Sturgeon call - 8/15 12:00-1:00.	34	4 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Gouguet, Ron (NOAA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100018228	8/14/2006	REDACTED Email regarding Heads up - Possible change in time of Portland Harbor Lamprey/Sturgeon call.	30	3 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Gouguet, Ron (NOAA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100008599	8/18/2006	Memorandum regarding a few additional questions/points of clarification for Portland Harbor TRVs.	145	5 MEMO / Memorandum	R10: Gensemer, Robert, W (Parametrix, Inc.)	R10: Buck, Jeremy (U. S. Fish and Wildlife Service), R10: Shephard, Burt (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100012131	8/18/2006	Email regarding NOAA comments on revised draft Arkema EECA workplan.	18	1 EML / Email	R10: Neely, Robert (NOAA)	R10: Sheldrake, Sean, A (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100012813	8/18/2006	NOAA Draft Revised Workplan Comments.	43	4 LTR / Letter	R10: Neely, Robert (NOAA)	R10: Sheldrake, Sean, A (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100013256	8/18/2006	Email regarding NOAA comments on revised draft Arkema EE/CA workplan.	20	1 EML / Email	R10: Neely, Robert (NOAA)	R10: Sheldrake, Sean, A (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100013257	8/18/2006	NOAA's comments on the Revised Draft Engineering Evaluation/Cost Analysis Work Plan for the Arkema Removal Action at the Portland Harbor Superfund Site, Portland, Oregon.	89	4 CORR / Correspondence	R10: Neely, Robert (NOAA)	R10: Sheldrake, Sean, A (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100012402	8/21/2006	Email regarding EPA Comments, Clarifications and Approvals.	19	1 EML / Email	R10: Neely, Robert (NOAA)	R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
4940680080	8/22/2006	Email regarding Portland Harbor meeting August 30?	46	1 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Neely, Robert (NOAA), R10: Mckenna, Jim (Port of Portland), R10: Pine, Keith, A (Integral Consulting, Inc.), R10: Blischke, Eric, L (EPA), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality), R10: Applegate, Rick (City of Portland)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100008596	8/24/2006	Email regarding Issue Summary and Status Table.	19	1 EML / Email	R10: Blischke, Eric, L (EPA)	R10: Mckenna, Jim (Port of Portland), R10: Wyatt, Robert, J (NW Natural), R10: Applegate, Rick (City of Portland)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100008602	8/24/2006	Framework Issue Summary, August 24, 2006.	112	8 CHT / Chart/Table	R10: Unknown, Unknown (Unknown)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100010709	8/24/2006	Email regarding Issue Summary and Status Table.	23	1 EML / Email	R10: Mckenna, James (Port of Portland)	R10: Blischke, Eric, L (EPA), R10: Wyatt, Robert, J (NW Natural), R10: Applegate, Rick (City of Portland)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100011263	8/24/2006	Email regarding Portland Harbor Meeting August 30.	48	2 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization

100012351	8/24/2006	Email regarding TZW meeting date.	26	2 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100012611	8/24/2006	Email regarding TZW meeting date.	47	1 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100012816	8/24/2006	Final NOAA Comments Draft O&M And 5 Year Review Reports.	78	8 LTR / Letter	R10: Neely, Robert (NOAA)	R10: Parrett, Kevin (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100012817	8/24/2006	NOAA Comments T4 30 Percent Design 08-24-06.	40	3 LTR / Letter	R10: Neely, Robert (NOAA)	R10: Sheldrake, Sean, A (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100013259	8/24/2006	NOAA's comments on the following documents for the McCormick & Baxter Superfund Site: 1) The Draft Operation and Maintenance Plan (OMP) dated July 26, 2006, and 2) the Draft Second Five-Year Review Report, dated September 2006.	126	8 CORR / Correspondence	R10: Neely, Robert (NOAA)	R10: Parrett, Kevin (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100013316	8/24/2006	NOAA's comments on the Design Analysis Report (Conceptual 30 Percent Design Deliverable), Terminal 4 Early Action, Port of Portland, Oregon and associated documents.	84	3 CORR / Correspondence	R10: Neely, Robert (NOAA)	R10: Sheldrake, Sean, A (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100016531	8/24/2006	REDACTED Email regarding NOAA's comments on McCormick & Baxter Draft OM Plan and Draft Second Five-Year Review Report.	21	1 EML / Email	R10: Neely, Robert (NOAA)	R10: Garman, Gayle (NOAA), R10: Parrett, Kevin (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100016562	8/24/2006	REDACTED Email regarding NOAA's comments on McCormick & Baxter Draft OM Plan and Draft Second Five-Year Review Report.	21	1 EML / Email	R10: Neely, Robert (NOAA)	R10: Garman, Gayle (NOAA), R10: Parrett, Kevin (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100017631	8/24/2006	REDACTED Email regarding Portland Harbor meeting - August 30.	46	1 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Madden, Erin (Unknown), R10: Mckenna, Jim (Port of Portland), R10: Cunninghame, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Downey, Tom (Confederated Tribes of the Siletz Indians), R10: Wyatt, Bob (Northwest Natural Gas Company), R10: Pine, Keith, A (Integral Consulting, Inc.), R10: Bluelake, Lisa (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Blischke, Eric, L (EPA), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality), R10: Lee, Valerie (Environment International, Ltd.), R10: Longoria, Rose (Yakama Nation), R10: Applegate, Rick (City of Portland), R10: Barquin, Billy (Haglund Kelley, LLP)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
4940680401	8/24/2006	Email regarding reply to Issue Summary and Status Table.	23	1 EML / Email	R10: Mckenna, James (Port of Portland)	R10: Blischke, Eric, L (EPA), R10: Wyatt, Robert, J (NW Natural), R10: Applegate, Rick (City of Portland)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
4940680701	8/24/2006	Email regarding TZW meeting date.	46	1 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100012353	8/25/2006	Email regarding TZW meeting date.	26	2 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100012410	8/25/2006	Email regarding t4 30% design comments.	17	1 EML / Email	R10: Neely, Robert (NOAA)	R10: Pease, Katherine (NOAA), R10: Baker, Mary (NOAA), R10: Munn, Nancy (NOAA), R10: Battuello, Peter (Parametrix, Inc.), R10: Sheldrake, Sean, A (EPA), R10: Fuentes, Rene, C (EPA), R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA), R10: Shorr, Benjamin (NOAA), R10: Gouguet, Ron (NOAA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100013315	8/25/2006	Email regarding T4 30% design comments.	19	1 EML / Email	R10: Neely, Robert (NOAA)	R10: Pease, Katherine (NOAA), R10: Baker, Mary (NOAA), R10: Munn, Nancy (NOAA), R10: Battuello, Peter (Parametrix, Inc.), R10: Sheldrake, Sean, A (EPA), R10: Fuentes, Rene, C (EPA), R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA), R10: Shorr, Benjamin (NOAA), R10: Gouguet, Ron (NOAA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100017309	8/26/2006	REDACTED Email regarding EPA Bill 27006265242.	49	1 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Lance, Morris, A (EPA), R10: Cora, Lori, H (EPA), R10: Haas, Susan, K (EPA), R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA), R10: Kershner, Lynne (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
4940680082	8/29/2006	Email regarding PH Managers meeting?.	23	1 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Mckenna, Jim (Port of Portland), R10: Wyatt, Bob (Northwest Natural Gas Company), R10: Humphrey, Chip (EPA), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality), R10: Applegate, Rick (City of Portland)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100011076	8/30/2006	Email regarding PH Managers Meeting.	28	2 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100012653	8/30/2006	Email regarding USFW funding.	25	1 EML / Email	R10: Mckenna, Jim (Port of Portland)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100017316	8/30/2006	REDACTED Portland Harbor Managers' Meeting Agenda.	45	2 CORR / Correspondence	R10: Mccrea, Rachel (Washington State Dept. of Ecology)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
4940680662	8/30/2006	Email regarding reply to PH Managers meeting.	28	2 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100013931	8/31/2006	Email Regarding field sampling for amms this fall in PH.	22	1 EML / Email	R10: Gouguet, Ron (NOAA)	R10: Shephard, Burt (EPA), R10: Humphrey, Chip (EPA), R10: Goulet, Joe (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100012748	9/1/2006	Email regarding Stan's Notes on the Ammonoete Sampling Plan.	28	1 EML / Email	R10: Gouguet, Ron (NOAA)	R10: Buerger, Ted (U. S. Fish and Wildlife Service), R10: Madden, Erin (Unknown), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Cunninghame, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Ward, Paul (Confederated Tribes and Bands of the Yakima Indian Nation), R10: Downey, Tom (Confederated Tribes of the Siletz Indians), R10: Baker, Jeff (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Bluelake, Lisa (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA), R10: Goulet, Joe (EPA), R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality), R10: Omealy, Mikell (Oregon Dept. of Environmental Quality), R10: Lee, Jean, H (Environment International, Ltd.), R10: Lee, Valerie (Environment International, Ltd.), R10: Longoria, Rose (Yakama Nation), R10: Gouguet, Ron (NOAA), R10: Givens, Raymond, C (Givens Law), R10: Thompson, Chris (Environment International, Ltd.), R10: Barquin, Billy (Haglund Kelley, LLP), R10: Kepler, Rick, J (State of Oregon), R10: Buck, Jeremy (U. S. Fish & Wildlife Service), R10: Dalton, Tim (State of Oregon)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
4940680086	9/1/2006	Email regarding Portland Harbor Final Round 3 Sediment Trap FSP.	72	2 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization

100012355	9/8/2006	Email regarding Lamprey Collection in ISA - Request for Schedule Information.	21	1	EML / Email	R10: Neely, Robert (NOAA)	R10: Neely, Robert (NOAA), R10: Cunninghame, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Howard, Patti (Columbia River Inter-Tribal Fish Commission), R10: Downey, Tom (Confederated Tribes of the Siletz Indians), R10: Baker, Jeff (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA), R10: Goulet, Joe (EPA), R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality), R10: Gouguet, Ron (NOAA), R10: Thompson, Chris (Environment International, Ltd.), R10: Van De Wetering, Stan (Confederated Tribes of Siletz Indians), R10: Buck, Jeremy (U. S. Fish & Wildlife Service), R10: Dalton, Tim (State of Oregon)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100013913	9/8/2006	Schedules_Sturgeon_JSA.	23	1	CHT / Chart/Table	R10: Neely, Robert (NOAA)		ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100013917	9/8/2006	Schedules_Sturgeon_JSA.	27	2	CHT / Chart/Table	R10: Neely, Robert (NOAA)		ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100015837	9/8/2006	REDACTED Email regarding Wastewater Treatment Plant Effluents.	38	4	EML / Email	R10: Neely, Robert (NOAA)	R10: Davoli, Dana (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100016119	9/8/2006	REDACTED Email regarding Wastewater Treatment Plant Effluents.	38	4	EML / Email	R10: Neely, Robert (NOAA)	R10: Davoli, Dana (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100012413	9/11/2006	Email regarding Comments, Ammocoete FSP.	21	1	EML / Email	R10: Gouguet, Ron (NOAA)	R10: Gouguet, Ron (NOAA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100012818	9/11/2006	Ammocoete bb 9-06 Review.	118	2	LTR / Letter	R10: Gouguet, Ron (NOAA)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100013261	9/11/2006	Email regarding Comments: Ammocoete FSP. Comments on the Portland Harbor RI/FS Field Sampling Plan: Round 3 Sampling for Lamprey (Lampetra sp.) Ammocoete Tissue.	23	1	EML / Email	R10: Gouguet, Ron (NOAA)	R10: Pease, Katherine (NOAA), R10: Callahan-grant, Megan (NOAA), R10: Neely, Robert (NOAA), R10: Buerger, Ted (U. S. Fish and Wildlife Service), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Cunninghame, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Howard, Patti (Columbia River Inter-Tribal Fish Commission), R10: Downey, Tom (Confederated Tribes of the Siletz Indians), R10: Baker, Jeff (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Bluelake, Lisa (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA), R10: Goulet, Joe (EPA), R10: Madden, Erin (Nez Perce Tribe), R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality), R10: O'mealy, Mikell (Oregon Dept. of Environmental Quality), R10: Lee, Jean, H (Environment International, Ltd.), R10: Lee, Valerie (Environment International, Ltd.), R10: Longoria, Rose (Yakama Nation), R10: Givens, Raymond, C (Givens Law), R10: Thompson, Chris (Environment International, Ltd.), R10: Ward, Paul (Yakama Nation), R10: Barquin, Billy (Haglund Kelley, LLP), R10: Kepler, Rick, J (State of Oregon), R10: Buck, Jeremy (U. S. Fish & Wildlife Service), R10: Dalton, Tim (State of Oregon)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100013323	9/11/2006	Email regarding Comments: Ammocoete FSP(1).	182	2	CORR / Correspondence	R10: Gouguet, Ron (NOAA)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100011857	9/12/2006	FSP(1).	26	2	EML / Email	R10: Gouguet, Ron (NOAA)	R10: Goulet, Joe (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100012490	9/12/2006	Email regarding Comments: Ammocoete FSP.	26	2	EML / Email	R10: Gouguet, Ron (NOAA)	R10: Goulet, Joe (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100017313	9/12/2006	REDACTED Email regarding 9/13 PH Managers meeting draft agenda.	46	1	EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Mckenna, Jim (Port of Portland), R10: Wyatt, Robert, J (Northwest Natural Gas Company), R10: Pine, Keith, A (Integral Consulting, Inc.), R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality), R10: Lee, Valerie (Environment International, Ltd.), R10: Longoria, Rose (Yakama Nation), R10: Donoghue, Cinde (Environment International, Ltd.), R10: Applegate, Rick (City of Portland)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
4940680315	9/12/2006	Email regarding Fate and Transport Modeling Schedule Status.	25	2	EML / Email	R10: Wyatt, Robert, J (NW Natural)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
4940680394	9/12/2006	Email regarding reply to Fate and Transport Modeling Schedule Status.	27	3	EML / Email	R10: Wyatt, Robert, J (NW Natural)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
4940680527	9/12/2006	Email regarding Fate and Transport Modeling Schedule Status.	25	2	EML / Email	R10: Wyatt, Robert, J (NW Natural)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100017584	9/13/2006	REDACTED Email regarding reply to 9/13 PH Managers meeting draft agenda.	49	2	EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Mckenna, Jim (Port of Portland), R10: Wyatt, Bob (Northwest Natural Gas Company), R10: Pine, Keith, A (Integral Consulting, Inc.), R10: Blischke, Eric, L (EPA), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality), R10: Lee, Valerie (Environment International, Ltd.), R10: Longoria, Rose (Yakama Nation), R10: Donoghue, Cinde (Environment International, Ltd.), R10: Applegate, Rick (City of Portland), R10: Katherine (NOAA), R10: Baker, Mary (NOAA), R10: Callahan-grant, Megan (NOAA), R10: Neely, Robert (NOAA), R10: Taylor, Robert (NOAA), R10: Buck, Jeremy (U. S. Fish and Wildlife Service), R10: Buerger, Ted (U. S. Fish and Wildlife Service), R10: Madden, Erin (Unknown), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Howard, Patti (Columbia River Inter-Tribal Fish Commission), R10: Downey, Tom (Confederated Tribes of the Siletz Indians), R10: Bluelake, Lisa (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Blischke, Eric, L (EPA), R10: Shephard, Burt (EPA), R10: Humphrey, Chip (EPA), R10: Goulet, Joe (EPA), R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality), R10: Omealy, Mikell (Oregon Dept. of Environmental Quality), R10: Lee, Jean, H (Environment International, Ltd.), R10: Lee, Valerie (Environment International, Ltd.), R10: Baker, Jeff (Grand Ronde Tribe), R10: Longoria, Rose (Yakama Nation), R10: Givens, Raymond, C (Givens Law), R10: Thompson, Chris (Environment International, Ltd.), R10: Ward, Paul (Yakama Nation), R10: Barquin, Billy (Haglund Kelley, LLP), R10: Kepler, Rick, J (State of Oregon), R10: Van De Wetering, Stan (Confederated Tribes of Siletz Indians), R10: Dalton, Tim (State of Oregon), R10: Mesa, Matthew, G (USGS), R10: Moser, Mary, L (EPA), R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100012417	9/15/2006	Email regarding Trustee Comments Round 3 Sampling for Lamprey Ammocoete Tissue.	22	1	EML / Email	R10: Gouguet, Ron (NOAA)		ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100012820	9/15/2006	Ammocoete Trustee Comments 9-14-06 final.	126	4	LTR / Letter	R10: Gouguet, Ron (NOAA)		ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization

									Katherine (NOAA), R10: Baker, Mary (NOAA), R10: Callahan-grant, Megan (NOAA), R10: Neely, Robert (NOAA), R10: Taylor, Robert (NOAA), R10: Buerger, Ted (U. S. Fish and Wildlife Service), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Cunninghame, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Howard, Patti (Columbia River Inter-Tribal Fish Commission), R10: Downey, Tom (Confederated Tribes of the Siletz Indians), R10: Baker, Jeff (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Bluelake, Lisa (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Blischke, Eric, L (EPA), R10: Shephard, Burt (EPA), R10: Humphrey, Chip (EPA), R10: Goulet, Joe (EPA), R10: Madden, Erin (Nez Perce Tribe), R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality), R10: O'mealy, Mikell (Oregon Dept. of Environmental Quality), R10: Lee, Jean, H (Environment International, Ltd.), R10: Lee, Valerie (Environment International, Ltd.), R10: Longoria, Rose (Yakama Nation), R10: Givens, Raymond, C (Givens Law), R10: Thompson, Chris (Environment International, Ltd.), R10: Ward, Paul (Yakama Nation), R10: Barquin, Billy (Haglund Kelley, LLP), R10: Kepler, Rick, J (State of Oregon), R10: Van De Wetering, Stan (Confederated Tribes of Siletz Indians), R10:
100013322	9/15/2006	Email regarding Trustee Comments: Round 3 Sampling for Lamprey (Lampetra sp.) Ammocete Tissue.	24	1	EML / Email	R10: Gouguet, Ron (NOAA)		ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100013338	9/15/2006	Comments on the Portland Harbor RI/FS Field Sampling Plan: Round 3 Sampling for Lamprey (Lampetra sp.) Ammocete Tissue.	126	4	CORR / Correspondence	R10: Gouguet, Ron (NOAA)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
4940680104	9/15/2006	Email regarding LWG-EPA-DEQ meeting on Stormwater.	47	1	EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Mckenna, Jim (Port of Portland), R10: Stivers, Carl (Anchor Environmental, LLC), R10: Snyder, Joan, P (Stoel Rives, LLP), R10: Pine, Keith, A (Integral Consulting, Inc.), R10: Humphrey, Chip (EPA), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality), R10: Applegate, Rick (City of Portland)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100011294	9/18/2006	Email regarding Portland Harbor RI/FS - Projected Schedule for Major Milestones.	22	1	EML / Email	R10: Wyatt, Robert, J (NW Natural)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
4940680645	9/18/2006	Email regarding reply to LWG-EPA-DEQ meeting on Stormwater.	50	2	EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Mckenna, James (Port of Portland), R10: Stivers, Carl (Anchor Environmental, LLC), R10: Snyder, Joan, P (Stoel Rives, LLP), R10: Pine, Keith, A (Integral Consulting, Inc.), R10: Blischke, Eric, L (EPA), R10: Anderson, James, M (Oregon Dept. of Environmental Quality), R10: Wyatt, Robert, J (NW Natural)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
4940681049	9/18/2006	Email regarding Portland Harbor RI/FS = Projected Schedule for Major Milestones.	19	1	EML / Email	R10: Humphrey, Chip (EPA)	R10: Wyatt, Robert, J (NW Natural)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100008774	9/19/2006	Email regarding Round 2 Report Issues.	27	4	EML / Email	R10: Blischke, Eric, L (EPA)	R10: Mckenna, Jim (Port of Portland), R10: Wyatt, Robert, J (NW Natural), R10: Applegate, Rick (City of Portland)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100011324	9/19/2006	Email regarding Round 2 Report Issues.	29	4	EML / Email	R10: Mckenna, Jim (Port of Portland)	R10: Blischke, Eric, L (EPA), R10: Wyatt, Robert, J (NW Natural), R10: Applegate, Rick (City of Portland)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100011802	9/19/2006	Email regarding EPA Draft of LWG Sturgeon FSP.	24	5	EML / Email	R10: Neely, Robert (NOAA)	R10: Dalton, Tim (State of Oregon)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100012441	9/19/2006	Email regarding EPA Draft of LWG Sturgeon FSP.	25	5	EML / Email	R10: Neely, Robert (NOAA)	R10: Dalton, Tim (State of Oregon)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100012972	9/19/2006	Email regarding EPA draft of LWG sturgeon FSP.	31	2	EML / Email	R10: Neely, Robert (NOAA)	R10: Thompson, Chris (Unknown), R10: Cunninghame, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Downey, Tom (Confederated Tribes of the Siletz Indians), R10: Baker, Jeff (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA), R10: Goulet, Joe (EPA), R10: Howard, Patti (Nez Perce Tribe), R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality), R10: Gouguet, Ron (NOAA), R10: Van De Wetering, Stan (Confederated Tribes of Siletz Indians), R10: Buck, Jeremy (U. S. Fish & Wildlife Service), R10: Dalton, Tim (State of Oregon)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100013933	9/19/2006	Email Regarding EPA Draft of LWG Sturgeon FSP.	24	2	EML / Email	R10: Neely, Robert (NOAA)	R10: Neely, Robert (NOAA), R10: Cunninghame, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Howard, Patti (Columbia River Inter-Tribal Fish Commission), R10: Downey, Tom (Confederated Tribes of the Siletz Indians), R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA), R10: Goulet, Joe (EPA), R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality), R10: Baker, Jeff (Grand Ronde Tribe), R10: Gouguet, Ron (NOAA), R10: Thompson, Chris (Environment International, Ltd.), R10: Van De Wetering, Stan (Confederated Tribes of Siletz Indians), R10: Buck, Jeremy (U. S. Fish & Wildlife Service), R10: Dalton, Tim (State of Oregon)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
4940680464	9/19/2006	Email regarding reply to Round 2 Report Issues.	29	4	EML / Email	R10: Mckenna, James (Port of Portland)	R10: Blischke, Eric, L (EPA), R10: Wyatt, Robert, J (NW Natural), R10: Applegate, Rick (City of Portland)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100010763	9/22/2006	Email regarding LWG/EPA/DEQ Meeting on Stormwater.	29	4	EML / Email	R10: Mckenna, Jim (Port of Portland)	R10: Oster, Valerie (Anchor Environmental, LLC), R10: Blischke, Eric, L (EPA), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100018189	9/22/2006	REDACTED Email regarding reply to LWG-EPA-DEQ meeting on Stormwater.	27	4	EML / Email	R10: Mckenna, James (Port of Portland)	R10: Oster, Valerie (Anchor Environmental, LLC), R10: Blischke, Eric, L (EPA), R10: Anderson, James, M (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
4940680108	9/22/2006	Email regarding Meet next week RE: Round 2 Report Issues.	54	4	EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Mckenna, Jim (Port of Portland), R10: Wyatt, Bob (Northwest Natural Gas Company), R10: Blischke, Eric, L (EPA), R10: Applegate, Rick (City of Portland)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
4940680646	9/22/2006	Email regarding reply to LWG-EPA-DEQ meeting on Stormwater.	28	2	EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Blischke, Eric, L (EPA), R10: Anderson, James, M (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
4940680700	9/22/2006	Email regarding TZW meeting - October 10.	47	1	EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
4940680651	9/25/2006	Email regarding reply to Meet next week regarding Round 2 Report Issues.	30	4	EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100010760	9/27/2006	Email regarding LWG/EPA/DEQ Meeting on Stormwater - October 26.	52	2	EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality), R10: McClincy, Matt (Oregon Dept. of Environmental Quality), R10: Applegate, Rick (City of Portland)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100015275	9/27/2006	Inorganic Analysis Data Sheet.	35	1	CORR / Correspondence	R10: (Columbia Analytical Services, Inc.)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization



4940680102	Email regarding LWG/EPA/DEQ meeting on 9/27/2006 stormwater - October 26.	46	1 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Mckenna, Jim (Port of Portland), R10: Wyatt, Bob (Northwest Natural Gas Company), R10: Humphrey, Chip (EPA), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality), R10: Applegate, Rick (City of Portland)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100008739	Email regarding Outstanding Round 2 Report 9/28/2006 Issues.	23	2 EML / Email	R10: Blischke, Eric, L (EPA)	R10: Mckenna, Jim (Port of Portland), R10: Wyatt, Robert, J (NW Natural), R10: Applegate, Rick (City of Portland)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100015274	Email regarding Revised Selenium Result - 9/29/2006 Clam Tissue Sample LW2-BTFC015.	52	2 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Neely, Robert (NOAA), R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100014764	Email regarding Next Stormwater Strategy meeting Oct 5.	20	1 EML / Email	R10: Tarnow, Karen, E (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA), R10: Sanders, Dawn (City of Portland, Bureau of Environmental Services), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality), R10: Tarnow, Karen, E (Oregon Dept. of Environmental Quality), R10: Johnson, Keith (Oregon Dept. of Environmental Quality), R10: McClincy, Matt (Oregon Dept. of Environmental Quality), R10: Livesay, Dave (GSI Groundwater Solutions, Inc.), R10: Applegate, Rick (City of Portland), R10: Roick, Tom (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100014772	Stormwater Evaluation Powerpoint Presentation.	190	12 MTG / Meeting Document	R10: Tarnow, Karen, E (Oregon Dept. of Environmental Quality)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100014778	Text of Stormwater Evaluation Powerpoint Presentation with comments by Dawn Sanders.	125	2 MTG / Meeting Document	R10: Sanders, Dawn (City of Portland, Bureau of Environmental Services)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
4940680321	Email regarding Lamprey ammocoete sampling.	22	1 EML / Email	R10: Mckenna, James (Port of Portland)	R10: Ashton, David (Port of Portland), R10: Oster, Valerie (Anchor Environmental, LLC), R10: Humphrey, Chip (EPA), R10: Wyatt, Robert, J (NW Natural), R10: Applegate, Rick (City of Portland)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
4940680584	Email regarding Lamprey ammocoete sampling.	22	1 EML / Email		R10: Ashton, David (Port of Portland), R10: Oster, Valerie (Anchor Environmental, LLC), R10: Humphrey, Chip (EPA), R10: Wyatt, Robert, J (NW Natural), R10: Applegate, Rick (City of Portland)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100011875	Email regarding Re_IMPORTANT - Scientific Management Decision Point: Ammocoete Sampling Adaptation.	503	1 EML / Email	R10: Gouguet, Ron (NOAA)	R10: Gouguet, Ron (NOAA) grant, Megan (NOAA), R10: Neely, Robert (NOAA), R10: Buerger, Ted (U. S. Fish and Wildlife Service), R10: Madden, Erin (Unknown), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Cunnigham, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Howard, Patti (Columbia River Inter-Tribal Fish Commission), R10: Ward, Paul (Confederated Tribes and Bands of the Yakima Indian Nation), R10: Downey, Tom (Confederated Tribes of the Siletz Indians), R10: Baker, Jeff (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Bluelake, Lisa (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Blischke, Eric, L (EPA), R10: Shephard, Burt (EPA), R10: Humphrey, Chip (EPA), R10: Goulet, Joe (EPA), R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality), R10: Omealy, Mikell (Oregon Dept. of Environmental Quality), R10: Lee, Jean, H (Environment International, Ltd.), R10: Lee, Valerie (Environment International, Ltd.), R10: Longoria, Rose (Yakama Nation), R10: Givens, Raymond, C (Givens Law), R10: Thompson, Chris (Environment International, Ltd.), R10: Barquin, Billy (Haglund Kelley, LLP), R10: Kepler, Rick, J (State of Oregon), R10: Van De Wetering, Stan (Confederated Tribes of Siletz Indians), R10: Buck, Jeremy (U. S. Fish &	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100012369	Email regarding IMPORTANT - Scientific Management Decision Point: Ammocoete Sampling Adaptation.	36	1 EML / Email	R10: Gouguet, Ron (NOAA)		ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100012627	Email regarding IMPORTANT - Scientific Management Decision Point: Ammocoete Sampling Adaptation.	503	1 EML / Email	R10: Gouguet, Ron (NOAA)	R10: Gouguet, Ron (NOAA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100013156	Email regarding ammocoete catch data plot.	495	1 EML / Email	R10: Gouguet, Ron (NOAA)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100013379	Email regarding Ammocoete catch data plotted.	492	1 EML / Email	R10: Gouguet, Ron (NOAA)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA), R10: Goulet, Joe (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100015888	REDACTED Email regarding Quick Call 1500 Today: IMPORTANT - Scientific Management Decision Point: Ammocoete Sampling Adaptation.	220	2 EML / Email	R10: Gouguet, Ron (NOAA)	R10: Gouguet, Ron (NOAA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100016664	REDACTED Email regarding Quick Call 1500 Today: IMPORTANT - Scientific Management Decision Point: Ammocoete Sampling Adaptation.	220	2 EML / Email	R10: Gouguet, Ron (NOAA)	R10: Gouguet, Ron (NOAA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100017948	REDACTED Email regarding Lamprey Sampling.	20	1 EML / Email	R10: Wyatt, Robert, J (NW Natural)	R10: Mckenna, Jim (Port of Portland), R10: Blischke, Eric, L (EPA), R10: Applegate, Rick (City of Portland)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100017950	REDACTED Email regarding Lamprey Sampling.	21	1 EML / Email	R10: Mckenna, Jim (Port of Portland)	R10: Blischke, Eric, L (EPA), R10: Wyatt, Robert, J (NW Natural), R10: Applegate, Rick (City of Portland)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100017957	REDACTED Email regarding Lamprey Sampling.	19	1 EML / Email	R10: Wyatt, Robert, J (NW Natural)	R10: Mckenna, Jim (Port of Portland), R10: Blischke, Eric, L (EPA), R10: Applegate, Rick (City of Portland)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100017961	REDACTED Email regarding Lamprey Sampling.	21	2 EML / Email	R10: Mckenna, Jim (Port of Portland)	R10: Blischke, Eric, L (EPA), R10: Wyatt, Robert, J (NW Natural), R10: Applegate, Rick (City of Portland)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100017963	REDACTED Email regarding Lamprey Sampling.	21	2 EML / Email	R10: Wyatt, Robert, J (NW Natural)	R10: Mckenna, Jim (Port of Portland), R10: Blischke, Eric, L (EPA), R10: Applegate, Rick (City of Portland)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100017964	REDACTED Email regarding Lamprey Sampling.	23	2 EML / Email	R10: Mckenna, Jim (Port of Portland)	R10: Blischke, Eric, L (EPA), R10: Wyatt, Robert, J (NW Natural), R10: Applegate, Rick (City of Portland)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
4940680685	Email regarding reply to TZW Meeting.	23	2 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
4940680686	Email regarding reply to TZW Meeting.	22	1 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100011908	Email regarding Siletz biologist - lamprey sampling.	28	2 EML / Email	R10: Mckenna, Jim (Port of Portland)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100011922	Email regarding Siletz biologist - lamprey sampling.	32	3 EML / Email	R10: Mckenna, Jim (Port of Portland)	R10: Rodriguez, Angelita, M (Windward Environmental, LLC), R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
4940680041	Email regarding Confirm TZW/PH Manager meeting switch.	46	1 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
4940680474	Email regarding reply to Siletz biologist - re: Lamprey Sampling.	31	3 EML / Email	R10: Mckenna, James (Port of Portland)	R10: Rodriguez, Angelita, M (Windward Environmental, LLC), R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
4940680513	Email regarding Confirm TZW/PH Manager meeting switch.	46	1 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
4940681055	Email regarding reply to Siletz biologist - re: Lamprey Sampling.	34	2 EML / Email	R10: Humphrey, Chip (EPA)	R10: Mckenna, Jim (Port of Portland)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization

4940681057	10/4/2006	Email regarding Siletz biologist - re: Lamprey Sampling.	16	1 EML / Email	R10: Humphrey, Chip (EPA)	R10: Mckenna, Jim (Port of Portland)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100012821	10/6/2006	NOAA Draft Comments Lamprey Toxicity FSP 10-06-06.	58	6 LTR / Letter	R10: Neely, Robert (NOAA)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100013331	10/6/2006	NOAA's comments, submitted in draft, on the Round 3 Lamprey Ammocete Toxicity Testing Field Sampling Plan Draft.	102	6 CORR / Correspondence	R10: Neely, Robert (NOAA)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100016398	10/6/2006	REDACTED Email regarding NOAA draft comments on Draft Round 3 Lamprey Ammocete Toxicity Testing FSP.	21	1 EML / Email	R10: Neely, Robert (NOAA)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100016578	10/6/2006	REDACTED Email regarding NOAA draft comments on Draft Round 3 Lamprey Ammocete Toxicity Testing FSP.	21	1 EML / Email	R10: Neely, Robert (NOAA)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100017317	10/9/2006	REDACTED Email regarding draft agenda for October 10 PH Managers meeting.	45	1 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Madden, Erin (Unknown), R10: Mckenna, James (Port of Portland), R10: Cunningham, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Downey, Tom (Confederated Tribes of the Siletz Indians), R10: Wyatt, Bob (Northwest Natural Gas Company), R10: Pine, Keith, A (Integral Consulting, Inc.), R10: Baker, Jeff (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Bluelake, Lisa (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Kelly, Stephen (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality), R10: McClincy, Matt (Oregon Dept. of Environmental Quality), R10: Lewis, Mark, D (NewFields), R10: Livesay, Dave (GSI Groundwater Solutions, Inc.), R10: Lee, Jean, H (Environment International, Ltd.), R10: Lee, Valerie (Environment International, Ltd.), R10: Longoria, Rose (Yakama Nation), R10: Applegate, Rick (City of Portland), R10: Barquin, W.	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100014583	10/10/2006	Integral Field Copy of Lamprey Daily Summary.	296	16 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100016601	10/10/2006	REDACTED Email regarding Issues with Termination of October Ammocete Sampling.	31	4 EML / Email	R10: Gouguet, Ron (NOAA)	R10: Van De Wetering, Stan (Confederated Tribes of Siletz Indians)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100017326	10/10/2006	REDACTED Portland Harbor Managers' Meeting Agenda.	45	2 CORR / Correspondence	R10: Mccrea, Rachel (Washington State Dept. of Ecology)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100017590	10/10/2006	REDACTED Email regarding Issues with termination of Oct ammocete sampling.	31	4 EML / Email	R10: Gouguet, Ron (NOAA)	R10: Van De Wetering, Stan (Confederated Tribes of Siletz Indians)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100014580	10/11/2006	Email Regarding Lamprey DRAFT Field Sampling Notes Summary.	18	1 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Blischke, Eric, L (EPA), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100014581	10/11/2006	Copy of DRAFT Ammocete Summary, 10/10/2006.	30	1 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100008726	10/12/2006	Email regarding Fate and Transport Modeling.	20	1 EML / Email	R10: Blischke, Eric, L (EPA)	R10: Mckenna, Jim (Port of Portland), R10: Wyatt, Robert, J (NW Natural), R10: Applegate, Rick (City of Portland)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100010727	10/12/2006	Email regarding Lamprey Discussion Today.	22	2 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
4940680585	10/12/2006	Email regarding Lamprey discussion today.	43	1 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
4940681050	10/12/2006	Email regarding reply to Completion of lamprey tissue sampling in the ISA.	17	1 EML / Email	R10: Humphrey, Chip (EPA)	R10: Mckenna, Jim (Port of Portland)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100010714	10/13/2006	Email regarding Integration of Upland Source Control Data and Information.	24	1 EML / Email	R10: Mckenna, James (Port of Portland)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100011017	10/13/2006	Email regarding completion of lamprey tissue sampling in ISA.	26	1 EML / Email	R10: Mckenna, Jim (Port of Portland)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
4940680400	10/13/2006	Email regarding reply to Integration of Upland Source Control Data and Information.	24	1 EML / Email	R10: Mckenna, James (Port of Portland)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
4940680587	10/16/2006	Email regarding Lamprey Update.	21	1 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC), R10: Saban, Lisa (Windward Environmental, LLC.), R10: Blischke, Eric, L (EPA), R10: Wyatt, Robert, J (NW Natural), R10: Applegate, Rick (City of Portland)	R10: Oster, Valerie (Anchor Environmental, LLC), R10: Humphrey, Chip (EPA), R10: Madden, Erin (Nez Perce Tribe), R10: Applegate, Rick (City of Portland)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100012015	10/19/2006	Email regarding stormwater managers meeting on Thursday.	25	1 EML / Email	R10: Mckenna, Jim (Port of Portland)	R10: Mckenna, Jim (Port of Portland), R10: Oster, Valerie (Anchor Environmental, LLC), R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA), R10: Sanders, Dawn (City of Portland, Bureau of Environmental Services), R10: Wyatt, Robert, J (NW Natural), R10: Applegate, Rick (City of Portland)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100014780	10/19/2006	Email regarding LWG/EPA/DEQ stormwater meeting.	32	1 EML / Email	R10: Johnson, Keith (Oregon Dept. of Environmental Quality)	R10: Oster, Valerie (Anchor Environmental, LLC)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
4940680071	10/19/2006	Email regarding Proposed date for Fate and Transport meeting.	46	1 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
4940680103	10/19/2006	Email regarding LWG/EPA/DEQ stormwater meeting.	50	1 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Madden, Erin (Unknown), R10: Humphrey, Chip (EPA), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100012383	10/20/2006	Email regarding update summary of lamprey collection in Willamette.	26	1 EML / Email	R10: Wyatt, Robert (Lower Willamette Group)	R10: Mckenna, Jim (Port of Portland), R10: Humphrey, Chip (EPA), R10: Applegate, Rick (City of Portland)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100012385	10/20/2006	Email regarding updated stormwater table.	40	4 EML / Email	R10: Mckenna, Jim (Port of Portland)	R10: Blischke, Eric, L (EPA), R10: Johnson, Keith (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100012439	10/20/2006	Email regarding NOAA comments on lamprey QAPP.	18	1 EML / Email	R10: Neely, Robert (NOAA)	R10: Fritz, Alyce, T (NOAA), R10: Pease, Katherine (NOAA), R10: Baker, Mary (NOAA), R10: Buerger, Ted (U. S. Fish and Wildlife Service), R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA), R10: Goulet, Joe (EPA), R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality), R10: Gouguet, Ron (NOAA), R10: Thompson, Chris (Environment International, Ltd.), R10: Anderson, Jim (EPA), R10: Dexter, Bob (Ridolfi, Inc.), R10: Buck, Jeremy (U. S. Fish & Wildlife Service), R10: Cunningham, Kristin (Ridolfi, Inc.)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100012833	10/20/2006	NOAA Comments Lamprey Toxicity QAPP 10-20-06.	63	7 LTR / Letter	R10: Neely, Robert (NOAA)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100013341	10/20/2006	Email regarding NOAA comments on lamprey QAPP.	20	1 EML / Email	R10: Neely, Robert (NOAA)	R10: Fritz, Alyce, T (NOAA), R10: Pease, Katherine (NOAA), R10: Baker, Mary (NOAA), R10: Buerger, Ted (U. S. Fish and Wildlife Service), R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA), R10: Goulet, Joe (EPA), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality), R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality), R10: Gouguet, Ron (NOAA), R10: Thompson, Chris (Environment International, Ltd.), R10: Dexter, Bob (Ridolfi, Inc.), R10: Buck, Jeremy (U. S. Fish & Wildlife Service), R10: Cunningham, Kristin (Ridolfi, Inc.)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization

100013343	NOAA's comments on the Round 3 Lamprey Ammocoete Toxicity Testing Quality Assurance Project Plan Draft.	10/20/2006	109	7 CORR / Correspondence	R10: Neely, Robert (NOAA)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
4940681058	Email regarding Update summary of lamprey collection in Willamette.	10/20/2006	18	1 EML / Email	R10: Humphrey, Chip (EPA)	R10: Mckenna, Jim (Port of Portland), R10: Wyatt, Robert, J (NW Natural), R10: Applegate, Rick (City of Portland)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
4940680671	Email regarding reply to Proposed date for Fate and Transport meeting.	10/23/2006	23	2 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
4940680037	Email regarding Fate and Transport...	10/24/2006	22	1 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
4940680548	Email regarding LWG Stormwater Info. for Oct. 26 Meeting.	10/24/2006	52	2 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Blischke, Eric, L (EPA), R10: Johnson, Keith (Oregon Dept. of Environmental Quality), Applegate, Richard (City of Portland, Oregon), R10: Koehl, Krista (Port of Portland), R10: Anderson, Nicole (Port of Portland), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Cunninghame, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Oster, Valerie (Anchor Environmental, LLC), R10: Toll, John (Windward Environmental, LLC.), R10: Johns, Mike (Windward Environmental, LLC.), R10: Snyder, Joan, P (Stoel Rives, LLP), R10: Barquin, Billy (Confederated Tribes of the Siletz Indians), R10: Pine, Keith, A (Integral Consulting, Inc.), R10: Baker, Jeff (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Kelly, Stephen (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA), R10: Madden, Erin (Nez Perce Tribe), R10: Hope, Bruce, K (Oregon Dept. of Environmental Quality), R10: Blischke, Eric, L (Oregon Dept. of Environmental Quality), R10: Anderson, James, M (Oregon Dept. of Environmental Quality), R10: Tarnow, Karen, E (Oregon Dept. of Environmental Quality), R10: Johnson, Keith (Oregon Dept. of Environmental Quality), R10: Lewis, Mark, D (NewFields), R10: Lee, Valerie Ann (Environment International, Ltd.), R10: Deetz Silva, Debbie (Evraz Oregon Steel Portland), R10: Koulermos, Andrew, C (Confederated Tribes of the Umatilla Indian Reservation), R10: Cunninghame, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Toll, John (Windward Environmental, LLC.), R10: Johns, Mike (Windward Environmental, LLC.), R10: Wyatt, Bob (Northwest Natural Gas Company), R10: Pine, Keith, A (Integral Consulting, Inc.), R10: Baker, Jeff (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Kelly, Stephen (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA), R10: Hope, Bruce, K (Oregon Dept. of Environmental Quality), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality), R10: Tarnow, Karen, E (Oregon Dept. of Environmental Quality), R10: Johnson, Keith (Oregon Dept. of Environmental Quality), R10: Lewis, Mark, D (NewFields), R10: Koulermos, Andrew, C (NewFields, Inc), R10: Livesay, Dave (GSI Groundwater Solutions, Inc.), R10: Lee, Valerie (Environment International, Ltd.), R10: Deetz Silva, Debbie (Evraz Oregon Steel Portland), R10: Longoria, Rose (Yakama Nation), R10: Applegate, Rick (City of Portland), R10:	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100016961	REDACTED 10_25_06 email; Draft agenda for 10/25/2006 10_26 meeting on stormwater.	10/25/2006	48	2 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Blischke, Eric, L (EPA), R10: Johnson, Keith (Oregon Dept. of Environmental Quality), Applegate, Richard (City of Portland, Oregon), R10: Koehl, Krista (Port of Portland), R10: Anderson, Nicole (Port of Portland), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Cunninghame, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Toll, John (Windward Environmental, LLC.), R10: Johns, Mike (Windward Environmental, LLC.), R10: Snyder, Joan, P (Stoel Rives, LLP), R10: Barquin, Billy (Confederated Tribes of the Siletz Indians), R10: Pine, Keith, A (Integral Consulting, Inc.), R10: Baker, Jeff (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Kelly, Stephen (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA), R10: Madden, Erin (Nez Perce Tribe), R10: Hope, Bruce, K (Oregon Dept. of Environmental Quality), R10: Blischke, Eric, L (Oregon Dept. of Environmental Quality), R10: Anderson, James, M (Oregon Dept. of Environmental Quality), R10: Tarnow, Karen, E (Oregon Dept. of Environmental Quality), R10: Johnson, Keith (Oregon Dept. of Environmental Quality), R10: Lewis, Mark, D (NewFields), R10: Lee, Valerie Ann (Environment International, Ltd.), R10: Deetz Silva, Debbie (Evraz Oregon Steel Portland), R10: Koulermos, Andrew, C (Confederated Tribes of the Umatilla Indian Reservation), R10: Cunninghame, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Toll, John (Windward Environmental, LLC.), R10: Johns, Mike (Windward Environmental, LLC.), R10: Wyatt, Bob (Northwest Natural Gas Company), R10: Pine, Keith, A (Integral Consulting, Inc.), R10: Baker, Jeff (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Kelly, Stephen (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA), R10: Hope, Bruce, K (Oregon Dept. of Environmental Quality), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality), R10: Tarnow, Karen, E (Oregon Dept. of Environmental Quality), R10: Johnson, Keith (Oregon Dept. of Environmental Quality), R10: Lewis, Mark, D (NewFields), R10: Koulermos, Andrew, C (NewFields, Inc), R10: Livesay, Dave (GSI Groundwater Solutions, Inc.), R10: Lee, Valerie (Environment International, Ltd.), R10: Deetz Silva, Debbie (Evraz Oregon Steel Portland), R10: Longoria, Rose (Yakama Nation), R10: Applegate, Rick (City of Portland), R10:	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100017319	REDACTED Email regarding Draft agenda for 10/25/2006 10/26 meeting on Stormwater.	10/25/2006	47	1 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA), R10: Hope, Bruce, K (Oregon Dept. of Environmental Quality), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality), R10: Tarnow, Karen, E (Oregon Dept. of Environmental Quality), R10: Johnson, Keith (Oregon Dept. of Environmental Quality), R10: Lewis, Mark, D (NewFields), R10: Koulermos, Andrew, C (NewFields, Inc), R10: Livesay, Dave (GSI Groundwater Solutions, Inc.), R10: Lee, Valerie (Environment International, Ltd.), R10: Deetz Silva, Debbie (Evraz Oregon Steel Portland), R10: Longoria, Rose (Yakama Nation), R10: Applegate, Rick (City of Portland), R10:	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100014782	Draft Agenda for DEQ/EPA/LWG Meeting on Stormwater in Portland Harbor.	10/26/2006	36	2 MTG / Meeting Document	R10: Unknown, Unknown (Unknown)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100017328	REDACTED DEQ/EPA/LWG Meeting on Stormwater in Portland Harbor Agendas.	10/26/2006	42	2 CORR / Correspondence	R10: Tarnow, Karen, E (Oregon Dept. of Environmental Quality)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100011823	Email regarding fate and transfer.	10/27/2006	26	2 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
4940680629	Email regarding reply to Fate and Transport.	10/27/2006	23	2 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
4940681047	Email regarding Mussel tissue analysis.	10/27/2006	23	2 EML / Email	R10: Humphrey, Chip (EPA)	R10: Mckenna, Jim (Port of Portland), R10: Wyatt, Robert, J (NW Natural), R10: Applegate, Rick (City of Portland)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100008754	Email regarding Portland Harbor Stormwater.	10/30/2006	26	3 EML / Email	R10: Blischke, Eric, L (EPA)	R10: Mckenna, Jim (Port of Portland), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality), R10: Johnson, Keith (Oregon Dept. of Environmental Quality), R10: Wyatt, Robert, J (NW Natural), R10: Applegate, Rick (City of Portland)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100011260	Email regarding Portland Harbor Stormwater.	10/31/2006	31	2 EML / Email	R10: Mckenna, Jim (Port of Portland)	R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA), R10: Sanders, Dawn (City of Portland, Bureau of Environmental Services), R10: McClincy, Matt (Oregon Dept. of Environmental Quality), R10: Wyatt, Robert, J (NW Natural), R10: Applegate, Rick (City of Portland)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100011296	Email regarding Portland Harbor Stormwater.	10/31/2006	32	3 EML / Email	R10: Mckenna, Jim (Port of Portland)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100017571	REDACTED Email regarding call with Lisa and Taku on lamprey - 3pm.	10/31/2006	43	1 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Andersen, Helle (Windward Environmental, LLC.), R10: Blischke, Eric, L (EPA), R10: Fuji, Taku (Kennedy Jenks Consultants)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
4940680443	Email regarding reply to Portland Harbor Stormwater.	10/31/2006	31	2 EML / Email	R10: Mckenna, James (Port of Portland)	R10: Blischke, Eric, L (EPA), R10: Sanders, Dawn (City of Portland, Bureau of Environmental Services), R10: McClincy, Matt (Oregon Dept. of Environmental Quality), R10: Wyatt, Robert, J (NW Natural), R10: Applegate, Rick (City of Portland)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
4940680444	Email regarding reply to Portland Harbor Stormwater.	10/31/2006	32	3 EML / Email	R10: Mckenna, James (Port of Portland)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100016399	REDACTED Email regarding 9:30 sturgeon tissue chat.	11/1/2006	19	1 EML / Email	R10: Gouguet, Ron (NOAA)	R10: Neely, Robert (NOAA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100010972	Email regarding Oversight Bill - EPA Lab (Manchester) Data.	11/2/2006	23	1 EML / Email	R10: Mckenna, Jim (Port of Portland)	R10: Humphrey, Chip (EPA), R10: Wyatt, Robert, J (NW Natural), R10: Applegate, Rick (City of Portland)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100011575	Email regarding approval of upstream/downstream FSP.	11/2/2006	25	1 EML / Email	R10: Mckenna, Jim (Port of Portland)	R10: Humphrey, Chip (EPA), R10: Wyatt, Robert, J (NW Natural), R10: Applegate, Rick (City of Portland)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization



100017399	REDACTED Email regarding reply to Agenda 11/2/2006 Items for today's 1pm meeting on stormwater.	46	2 EML / Email	R10: Mckenna, James (Port of Portland)	R10: Oster, Valerie (Anchor Environmental, LLC), R10: Blischke, Eric, L (EPA), R10: McClincy, Matt (Oregon Dept. of Environmental Quality), R10: Wyatt, Robert, J (NW Natural), R10: Applegate, Rick (City of Portland)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100017576	REDACTED Email regarding reply to Agenda 11/2/2006 Items for today's 1pm meeting on stormwater.	46	2 EML / Email	R10: Mckenna, Jim (Port of Portland)	R10: Oster, Valerie (Anchor Environmental, LLC), R10: Wyatt, Bob (Northwest Natural Gas Company), R10: Blischke, Eric, L (EPA), R10: McClincy, Matt (Oregon Dept. of Environmental Quality), R10: Applegate, Rick (City of Portland)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100018212	REDACTED Email regarding Agenda Items for today's 1pm meeting on stormwater.	44	1 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Mckenna, James (Port of Portland), R10: Humphrey, Chip (EPA), R10: McClincy, Matt (Oregon Dept. of Environmental Quality), R10: Wyatt, Robert, J (NW Natural), R10: Applegate, Rick (City of Portland)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
4940680371	Email regarding reply to EPA approval of Upstream/Downstream FSP.	22	1 EML / Email	R10: Mckenna, James (Port of Portland)	R10: Humphrey, Chip (EPA), R10: Wyatt, Robert, J (NW Natural), R10: Applegate, Rick (City of Portland)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100010676	A Review of Proposed TPH Sediment Quality Values and an Alternative Method to Define Hydrocarbon Values for Portland Harbor.	495	14 RPT / Report	R10: (Entrix, Inc.)	grant, Megan (NOAA), R10: Buck, Jeremy (U. S. Fish and Wildlife Service), R10: Buerger, Ted (U. S. Fish and Wildlife Service), R10: Thompson, Chris (Unknown), R10: Givens, Ray (Coeur d'Alene Tribe), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Cunninghame, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Oster, Valerie (Anchor Environmental, LLC), R10: Ward, Paul (Confederated Tribes and Bands of the Yakima Indian Nation), R10: Barquin, Billy (Confederated Tribes of the Siletz Indians), R10: Downey, Tom (Confederated Tribes of the Siletz Indians), R10: Baker, Jeff (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Bluelake, Lisa (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Blischke, Eric, L (EPA), R10: Shephard, Burt (EPA), R10: Humphrey, Chip (EPA), R10: Goulet, Joe (EPA), R10: Madden, Erin (Nez Perce Tribe), R10: Howard, Patti (Nez Perce Tribe), R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality), R10: Omealy, Mikell (Oregon Dept. of Environmental Quality), R10: Lee, Jean, H (Environment International, Ltd.), R10: Longoria, Rose (Yakama Nation), R10: Kepler, Rick, J (State of Oregon), R10: Van De Wetering, Stan (Confederated Tribes of Siletz Indians), R10: Buck, Jeremy (U. S. Fish &	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100013162	Email regarding scientific management decision point: ammocoete sampling adaption. A Review of Proposed TPH (Total Petroleum Hydrocarbons) Sediment Quality Values (SQV) and an Alternative Method to Define Hydrocarbon Values for Portland Harbor.	34	1 EML / Email	R10: Gouquet, Ron (NOAA)		ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100014585	Letter Regarding Transmittal of A Review of Proposed TPH (Total Petroleum Hydrocarbons) Sediment Quality Values (SQV) and an Alternative Method to Define Hydrocarbon Values for Portland Harbor.	63	8 CORR / Correspondence	R10: (Entrix Environmental Consultants)		ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100014586	Letter regarding response to June 20, 2006 letter from Confederated Tribes of the Grand Ronde to ODEQ.	85	2 LTR / Letter	R10: Wyatt, Bob (Lower Willamette Group), R10: Mckenna, Jim (Lower Willamette Group)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100014756	Agenda Development Notes for the Portland Harbor Managers' Meeting on November 8, 2006.	31	1 CORR / Correspondence	R10: Baker, Jeff (Confederated Tribes of the Grand Ronde Community of Oregon)	R10: Parrett, Kevin (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100015173	Letter regarding Transmittal of "A Review of Proposed TPH Sediment Quality Values and an Alternative Method to Define Hydrocarbon Values for Portland Harbor".	45	2 MTG / Meeting Document	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100015174	A Review of Proposed TPH Sediment Quality Values and an Alternative Method to Define Hydrocarbon Values for Portland Harbor.	82	2 LTR / Letter	R10: Mckenna, James (Port of Portland), R10: Wyatt, Robert, J (NW Natural)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100015175	A Review of Proposed TPH Sediment Quality Values and an Alternative Method to Define Hydrocarbon Values for Portland Harbor.	69	8 RPT / Report	R10: (Entrix Environmental Consultants)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100015158	Email regarding Draft Agenda 11/8 PH Managers' Meeting.	45	1 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Madden, Erin (Unknown), R10: Mckenna, James (Port of Portland), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Cunninghame, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Pine, Keith, A (Integral Consulting, Inc.), R10: Baker, Jeff (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA), R10: Anderson, James, M (Oregon Dept. of Environmental Quality), R10: McClincy, Matt (Oregon Dept. of Environmental Quality), R10: Lee, Jean, H (Environment International, Ltd.), R10: Lee, Valerie (Environment International, Ltd.), R10: Longoria, Rose (Yakama Nation), R10: Wyatt, Robert, J (NW Natural), R10: Applegate, Rick (City of Portland), R10: Barquin, Billy (Haglund Kelley, LLP)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100017033	REDACTED Email regarding McCormick and Baxter.	27	2 EML / Email	R10: Parrett, Kevin (Oregon Dept. of Environmental Quality)	R10: Baker, Jeff (Confederated Tribes of the Grand Ronde Community of Oregon)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100014584	Email Regarding LWG (Lower Willamette Group) Transmittal of Technical Review of SQV (Sediment Quality Values) for TPH (Total Petroleum Hydrocarbons).	43	1 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100015184	Email regarding LWG Transmittal of Technical Review of SQV for TPH.	44	1 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100012304	Email regarding Comments on Sturgeon FSP.	22	1 EML / Email	R10: Neely, Robert (NOAA)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA), R10: Goulet, Joe (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100013160	Email regarding comments on sturgeon FSP. REDACTED Draft Agenda for the Portland Harbor Managers' Meeting on November 8, 2006.	29	1 EML / Email	R10: Neely, Robert (NOAA)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA), R10: Goulet, Joe (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100017269	Email transmitting LWG technical review of SQV for TPH.	45	2 MTG / Meeting Document	R10: (Lower Willamette Group)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100010673	Email transmitting LWG technical review of SQV for TPH.	54	2 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization

4940681046	Email regarding Milestone Meeting Draft 11/9/2006 Agenda (November 15th 10:00am to 3pm).	28	2 EML / Email	R10: Humphrey, Chip (EPA)	R10: Buerger, Ted (U. S. Fish and Wildlife Service), R10: Mckenna, James (Port of Portland), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Cunninghame, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Howard, Patti (Columbia River Inter-Tribal Fish Commission), R10: Downey, Tom (Confederated Tribes of the Siletz Indians), R10: Bluelake, Lisa (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Kawabata, Sylvia (EPA), R10: Madden, Erin (Nez Perce Tribe), R10: Johnson, Keith (Oregon Dept. of Environmental Quality), R10: Lee, Valerie (Environment International, Ltd.), R10: Baker, Jeff (Grand Ronde Tribe), R10: Wyatt, Robert, J (NW Natural), R10: Pedersen, Dick (Oregon Department of Environmental Quality), R10: Gouguet, Ron (NOAA), R10: Givens, Raymond, C (Givens Law), R10: Applegate, Rick (City of Portland), R10: Ward, Paul (Yakama Nation), R10: Barquin, Billy (Haglund Kelley, LLP)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100015791	REDACTED Email regarding Meeting Notes 11/13/2006 from 10/8 Sampling Methodology Workgroup.	29	4 EML / Email	R10: Mckenna, Jim (Port of Portland)	R10: Blischke, Eric, L (EPA), R10: Johnson, Keith (Oregon Dept. of Environmental Quality), R10: Applegate, Rick (City of Portland)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
4940680551	Email regarding Milestone Meeting Draft 11/13/2006 Agenda (November 15th 10:00am to 3pm).	23	1 EML / Email		R10: Oster, Valerie (Anchor Environmental, LLC)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100012043	11/14/2006 Email regarding sturgeon FSP comments.	25	1 EML / Email	R10: Mckenna, Jim (Port of Portland)	R10: Blischke, Eric, L (EPA), R10: Wyatt, Robert, J (NW Natural), R10: Applegate, Rick (City of Portland)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100014588	Letter Regarding Round 3 Sampling for Lamprey (Lampetra sp.) Ammonoete Tissue. 11/14/2006 Letter regarding Portland Harbor Superfund Site; Administrative Order on Consent for Remedial Investigation and Feasibility Study; Docket No. CERCLA-10-2001-0240. Round 3 Sampling for Lamprey (Lampetra sp.)	202	4 LTR / Letter	R10: Wyatt, Bob (Lower Willamette Group), R10: Mckenna, Jim (Lower Willamette Group)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100015231	11/14/2006 Ammonoete Tissue.	199	4 LTR / Letter	R10: Mckenna, James (Port of Portland), R10: Wyatt, Robert, J (NW Natural)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100015766	REDACTED Email regarding Meeting Notes 11/14/2006 from 10/8 Sampling Methodology Workgroup.	30	5 EML / Email	R10: Mckenna, Jim (Port of Portland)	R10: Blischke, Eric, L (EPA), R10: Applegate, Rick (City of Portland)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100015113	11/16/2006 Email Regarding Draft Stormwater Matrix. DEQ/EPA/LWG Technical Stormwater Team	20	1 EML / Email	R10: Mckenna, Jim (Port of Portland)	R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100015114	11/16/2006 Sampling Methods Concepts Matrix.	67	2 CHT / Chart/Table	R10: Mckenna, Jim (Port of Portland)		ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100015176	11/16/2006 Email regarding Draft Stormwater Matrix.	20	1 EML / Email	R10: Mckenna, James (Port of Portland)	R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100015177	DRAFT DEQ/EPA/LWG Technical Stormwater 11/16/2006 Team Sampling Methods Concepts.	61	2 CHT / Chart/Table	R10: Mckenna, James (Port of Portland)	R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100012456	11/17/2006 Email regarding review of chinook data.	19	1 EML / Email	R10: Neely, Robert (NOAA)	R10: Johnson, Lyndal, L (NOAA), R10: Iadanza, Nick (NOAA), R10: Buck, Jeremy (U. S. Fish and Wildlife Service), R10: Blischke, Eric, L (EPA), R10: Shephard, Burt (EPA), R10: Humphrey, Chip (EPA), R10: Goulet, Joe (EPA), R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality), R10: Longoria, Rose (Yakama Nation), R10: Shorr, Benjamin (NOAA), R10: Gouguet, Ron (NOAA), R10: Thompson, Chris (Environment International, Ltd.)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100013352	11/17/2006 Email regarding review of chinook data.	20	1 EML / Email	R10: Neely, Robert (NOAA)	R10: Johnson, Lyndal, L (NOAA), R10: Iadanza, Nick (NOAA), R10: Blischke, Eric, L (EPA), R10: Shephard, Burt (EPA), R10: Humphrey, Chip (EPA), R10: Goulet, Joe (EPA), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality), R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality), R10: Longoria, Rose (Yakama Nation), R10: Shorr, Benjamin (NOAA), R10: Gouguet, Ron (NOAA), R10: Thompson, Chris (Environment International, Ltd.), R10: Buck, Jeremy (U. S. Fish & Wildlife Service)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100014587	Email Regarding LWG (Lower Willamette 11/17/2006 Group) Lamprey Tissue Analysis Proposal.	43	1 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100015229	Email regarding LWG Lamprey Tissue Analysis 11/17/2006 Proposal.	45	1 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100012567	Email regarding LWG Lamprey Tissue Analysis 11/20/2006 Proposal.	31	5 EML / Email	R10: Gouguet, Ron (NOAA)	R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100008777	11/21/2006 Email regarding Upcoming Meetings.	18	1 EML / Email	R10: Blischke, Eric, L (EPA)	R10: Mckenna, Jim (Port of Portland), R10: Applegate, Rick (City of Portland), R10: Wyatt, Robert, J (NW Natural), R10: Oster, Valerie (Anchor Environmental, LLC)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100012334	11/21/2006 Email regarding upcoming meetings.	25	1 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Blischke, Eric, L (EPA), R10: Applegate, Rick (City of Portland)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100016954	REDACTED Email regarding the Mitigation 11/22/2006 Adequacy Memorandum (less attachment; additional addressee).	108	2 EML / Email	R10: Sheldrake, Sean, A (EPA)	R10: Cora, Lori, H (EPA), R10: Humphrey, Chip (EPA), R10: Davoli, Dana (EPA), R10: Cyril, L. Alexander (Alex) (Oregon Dept. of Environmental Quality)	PAPER DOCUMENT	053-REMEDIAL/0531-Remedy Characterization
100011884	Email regarding Lamprey Tissue Analysis 11/27/2006 Proposal.	26	1 EML / Email	R10: Gouguet, Ron (NOAA)	R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100012581	Email regarding stormwater meeting 11/27/2006 tomorrow.	35	4 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Nusrala, James (Oregon Dept. of Environmental Quality), R10: Mckenna, Jim (Port of Portland), R10: Koehl, Krista (Port of Portland), R10: Anderson, Nicole (Port of Portland), R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality), R10: Spencer, Amanda (Oregon Dept. of Environmental Quality), R10: Tarnow, Karen, E (Oregon Dept. of Environmental Quality), R10: Johnson, Keith (Oregon Dept. of Environmental Quality), R10: McClincy, Matt (Oregon Dept. of Environmental Quality), R10: Koulermos, Andrew, C (Newfields, Inc), R10: Livesay, Dave (GSI Groundwater Solutions, Inc.), R10: Sanders, Dawn (Oregon Dept. of Environmental Quality), R10: Applegate, Rick (City of Portland), R10: Stivers, Carl (Lower Willamette Group), R10: Roick, Tom (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100012641	Email regarding Lamprey Tissue Analysis 11/27/2006 Proposal.	26	1 EML / Email	R10: Gouguet, Ron (NOAA)	R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization

100017389	REDACTED Email regarding reply to 11/27/2006 Stormwater meeting tomorrow.	29	4 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Koehl, Krista (Port of Portland), R10: Oster, Valerie (Anchor Environmental, LLC), R10: Blischke, Eric, L (EPA), R10: Johnson, Keith (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100017398	REDACTED Email regarding Stormwater meeting tomorrow.	29	4 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Koehl, Krista (Port of Portland), R10: Blischke, Eric, L (EPA), R10: Johnson, Keith (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100012483	Email regarding stormwater managers meeting on Thursday.	41	1 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Mckenna, Jim (Port of Portland), R10: Wyatt, Robert (Lower Willamette Group), R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA), R10: Madden, Erin (Nez Perce Tribe), R10: Johnson, Keith (Oregon Dept. of Environmental Quality), R10: Livesay, Dave (GSI Groundwater Solutions, Inc.), R10: Borok, Aron (Environment International, Ltd.), R10: Applegate, Rick (City of Portland)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100013371	11/28/2006 Email regarding Logistic Regression SQVs.	19	1 EML / Email	R10: Field, Jay (NOAA)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
4940680649	Email regarding reply to Managers meeting 11/28/2006 this afternoon.	24	2 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Oster, Valerie (Anchor Environmental, LLC), R10: Blischke, Eric, L (EPA), R10: Applegate, Rick (City of Portland)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
4940680694	Email regarding stormwater managers meeting on Thursday.	47	1 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Mckenna, James (Port of Portland), R10: Blischke, Eric, L (EPA), R10: Madden, Erin (Nez Perce Tribe), R10: Johnson, Keith (Oregon Dept. of Environmental Quality), R10: Livesay, Dave (GSI Groundwater Solutions, Inc.), R10: Borok, Aron (Environment International, Ltd.), R10: Wyatt, Robert, J (NW Natural), R10: Applegate, Rick (City of Portland)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100011955	Email regarding stormwater managers meeting on Thursday.	29	1 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Mckenna, Jim (Port of Portland), R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA), R10: Madden, Erin (Nez Perce Tribe), R10: Johnson, Keith (Oregon Dept. of Environmental Quality), R10: Livesay, Dave (GSI Groundwater Solutions, Inc.), R10: Borok, Aron (Environment International, Ltd.), R10: Wyatt, Robert, J (NW Natural), R10: Applegate, Rick (City of Portland)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100012469	Email regarding NOAA review of 2005 juvenile chinook data report.	18	1 EML / Email	R10: Neely, Robert (NOAA)	R10: Bottcher, Helen, R10: Johnson, Lyndal, L (NOAA), R10: Fritz, Alyce, T (NOAA), R10: Baker, Mary (NOAA), R10: Munn, Nancy (NOAA), R10: Buck, Jeremy (U. S. Fish and Wildlife Service), R10: Buerger, Ted (U. S. Fish and Wildlife Service), R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA), R10: Goulet, Joe (EPA), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality), R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality), R10: Longoria, Rose (Yakama Nation), R10: Gouguet, Ron (NOAA), R10: Thompson, Chris (Environment International, Ltd.)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100012839	NOAA Comments LWG 2005 Juv Salmon Data Report 11-29-06.	162	22 LTR / Letter	R10: Neely, Robert (NOAA)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100013346	NOAA's review of the Round 2 draft Round 2 Subyearling Chinook Tissue Data Report.	834	22 CORR / Correspondence	R10: Neely, Robert (NOAA)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100013354	Email regarding NOAA review of 2005 juvenile chinook data report.	20	1 EML / Email	R10: Neely, Robert (NOAA)	R10: Johnson, Lyndal, L (NOAA), R10: Fritz, Alyce, T (NOAA), R10: Baker, Mary (NOAA), R10: Munn, Nancy (NOAA), R10: Buerger, Ted (U. S. Fish and Wildlife Service), R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA), R10: Goulet, Joe (EPA), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality), R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality), R10: Longoria, Rose (Yakama Nation), R10: Gouguet, Ron (NOAA), R10: Thompson, Chris (Environment International, Ltd.), R10: Buck, Jeremy (U. S. Fish & Wildlife Service), R10: Bottcher, Helen (NOAA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100016176	REDACTED 11_29_06 email; Stormwater Outfall Summary and Meeting Agenda.	33	1 EML / Email	R10: Unknown, Unknown (Unknown)	R10: Livesay, Dave (CH2M Hill, Inc.), R10: Nusrala, James (Oregon Dept. of Environmental Quality), R10: Koehl, Krista (Port of Portland), R10: Anderson, Nicole (Freightliner Corporation), R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA), R10: Madden, Erin (Nez Perce Tribe), R10: Hope, Bruce, K (Oregon Dept. of Environmental Quality), R10: Koulermos, Andrew, C (Newfields, Inc), R10: Lee, Jean, H (Environment International, Ltd.), R10: Borok, Aron (Environment International, Ltd.)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
4940680680	Email regarding reply to stormwater managers meeting on Thursday.	27	1 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Mckenna, James (Port of Portland), R10: Oster, Valerie (Anchor Environmental, LLC), R10: Blischke, Eric, L (EPA), R10: Madden, Erin (Nez Perce Tribe), R10: Johnson, Keith (Oregon Dept. of Environmental Quality), R10: Livesay, Dave (GSI Groundwater Solutions, Inc.), R10: Borok, Aron (Environment International, Ltd.), R10: Wyatt, Robert, J (NW Natural), R10: Applegate, Rick (City of Portland)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100008663	Storm Water Outfall Summary: Outfalls Targeted for 2006/2007 Water Year.	84	3 CHT / Chart/Table	R10: Unknown, Unknown (Unknown)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100010717	Storm Water Outfall Summary: Outfalls Targeted for 2006/2007 Water Year (draft).	58	4 CHT / Chart/Table			ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
4940680008	Email regarding Notes from 11/29 Fate and Transport Model Meeting.	63	3 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Ashton, David (Port of Portland), R10: Walton, Raymond (West Consultants, Inc.), R10: Stivers, Carl (Anchor Environmental, LLC), R10: Peale, James, G (Maul Foster & Alongi, Inc.), R10: Toll, John (Windward Environmental, LLC), R10: Wyatt, Bob (Northwest Natural Gas Company), R10: Burt, Walt (Groundwater Solutions Inc), R10: Pine, Keith, A (Integral Consulting, Inc.), R10: Gormley, Sean, F (AMEC Earth & Environmental, Inc.), R10: Blischke, Eric, L (EPA), R10: George, Gerald, F (Pillsbury Winthrop Shaw Pittman, L.L.P.), R10: Hope, Bruce, K (Oregon Dept. of Environmental Quality), R10: Lee, Valerie (Environment International, Ltd.), R10: Davis, Andy (Geomega, Inc.), R10: Hawley, Christine (Integral Corporation), R10: Dost, Patty (Schwabe, Williamson & Wyatt, P.C.), R10: Betz, Jan (City of Portland, Oregon), R10: Applegate, Rick (City of Portland), R10: Wolf, Fred (Total)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization

4940680552	11/30/2006	Email regarding Notes from 11/29 Fate and Transport Model Meeting.	63	3 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Ashton, David (Port of Portland), R10: Walton, Raymond (West Consultants, Inc.), R10: Stivers, Carl (Anchor Environmental, LLC), R10: Peale, James, G (Maul Foster & Alongi, Inc.), R10: Toll, John (Windward Environmental, LLC.), R10: Pine, Keith, A (Integral Consulting, Inc.), R10: Baker, Linda (RETEC Group, Inc.), R10: Gormley, Sean, F (AMEC Earth & Environmental, Inc.), R10: Blischke, Eric, L (EPA), R10: George, Gerald, F (Pillsbury Winthrop Shaw Pittman, L.L.P.), R10: Hope, Bruce, K (Oregon Dept. of Environmental Quality), R10: Lewis, Mark, D (NewFields), R10: Burt, Walter (GSI), R10: Lee, Jean, H (Environment International, Ltd.), R10: Davis, Andy (Geomega, Inc.), R10: Wyatt, Robert, J (NW Natural), R10: Hawley, Christine (Integral Corporation), R10: Dost, Patty (Schwabe, Williamson & Wyatt, P.C.), R10: Betz, Jan (City of Portland, Oregon), R10: Applegate, Rick (City of Portland), R10: Wolf, Fred, G (Pacific Lutheran University)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100010704	12/1/2006	Email transmitting revised stormwater outfall summary table.	30	1 EML / Email	R10: Mckenna, Jim (Port of Portland)	R10: Nusrala, James (Oregon Dept. of Environmental Quality), R10: Koehl, Krista (Port of Portland), R10: Anderson, Nicole (Port of Portland), R10: Stivers, Carl (Anchor Environmental, LLC), R10: Wyatt, Robert, J (Northwest Natural Gas Company), R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA), R10: Madden, Erin (Nez Perce Tribe), R10: Wolf, Fred (Legacy Site Services, LLC), R10: Hope, Bruce, K (Oregon Dept. of Environmental Quality), R10: Tarnow, Karen, E (Oregon Dept. of Environmental Quality), R10: Johnson, Keith (Oregon Dept. of Environmental Quality), R10: Livesay, Dave (GSI Groundwater Solutions, Inc.), R10: Lee, Jean, H (Environment International, Ltd.), R10: Borok, Aron (Environment International, Ltd.), R10: Roick, Tom (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100014816	12/1/2006	Comments on the Comprehensive Round 2 Site Characterization Summary and Data Gaps Analysis Report Appendix H: Food Web Model - Attachment 3, Parameterization (Draft - December 2006).	82	2 CORR / Correspondence	R10: Unknown, Unknown (Unknown)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100015115	12/1/2006	Email Regarding Updated Stormwater Table. Storm Water Outfall Summary - Outfalls Targeted for 2006/2007 Water Year.	23	1 EML / Email	R10: Mckenna, Jim (Port of Portland)	R10: Wolf, Frederick, R10: Nusrala, James (Oregon Dept. of Environmental Quality), R10: Koehl, Krista (Port of Portland), R10: Anderson, Nicole (Port of Portland), R10: Stivers, Carl (Anchor Environmental, LLC), R10: Wyatt, Bob (Northwest Natural Gas Company), R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA), R10: Madden, Erin (Nez Perce Tribe), R10: Sanders, Dawn (City of Portland, Bureau of Environmental Services), R10: Hope, Bruce, K (Oregon Dept. of Environmental Quality), R10: Tarnow, Karen, E (Oregon Dept. of Environmental Quality), R10: Johnson, Keith (Oregon Dept. of Environmental Quality), R10: Koulermos, Andrew, C (NewFields, Inc), R10: Livesay, Dave (GSI Groundwater Solutions, Inc.), R10: Lee, Jean, H (Environment International, Ltd.), R10: Borok, Aron (Environment International, Ltd.), R10: Applegate, Rick (City of Portland), R10: Roick, Tom (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100015116	12/1/2006	Targeted for 2006/2007 Water Year.	74	4 CHT / Chart/Table	R10: Mckenna, Jim (Port of Portland)		ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100012378	12/4/2006	Email regarding PH Fate and Transport Segments.	24	1 EML / Email	R10: Shorr, Benjamin (NOAA)	R10: Smith, Carrie, A (Parametrix, Inc.), R10: Gensemer, Robert, W (Parametrix, Inc.)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
4940680490	12/4/2006	Email regarding reply to Updated Stormwater Table.	41	4 EML / Email	R10: Mckenna, James (Port of Portland)	R10: Blischke, Eric, L (EPA), R10: Johnson, Keith (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100011881	12/5/2006	Email regarding Key Next Steps.	31	4 EML / Email	R10: Shorr, Benjamin (NOAA)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100012561	12/5/2006	Email regarding Portland Harbor Fate & Transport segments-(1).	25	3 EML / Email	R10: Shorr, Benjamin (NOAA)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100012643	12/5/2006	Email regarding Key Next Steps.	26	3 EML / Email	R10: Shorr, Benjamin (NOAA)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100012649	12/5/2006	Email regarding Key Next Steps.	31	4 EML / Email	R10: Shorr, Benjamin (NOAA)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100012842	12/5/2006	PH fate transport segments revision 2006-12-05.	700	3 FIG / Figure/Map/ Drawing	R10: (NOAA)		ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100013877	12/5/2006	Email Regarding Portland Harbor Fate & Transport segments.	20	1 EML / Email	R10: Shorr, Benjamin (NOAA)	R10: Smith, Carrie, A (Parametrix, Inc.), R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100013878	12/5/2006	Fate and Transport Sections	51	2 RPT / Report	R10: Shorr, Benjamin (NOAA)		ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100013880	12/5/2006	Email Regarding Portland Harbor Fate & Transport segments.	26	3 EML / Email	R10: Shorr, Benjamin (NOAA)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100013881	12/5/2006	Fate & Transport Segments.	700	3 FIG / Figure/Map/ Drawing	R10: Shorr, Benjamin (NOAA)		ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100013879	12/6/2006	Fate & Transport Segments.	679	3 FIG / Figure/Map/ Drawing	R10: Shorr, Benjamin (NOAA)		ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100013882	12/6/2006	Email Regarding Spatial data.	20	1 EML / Email	R10: Shorr, Benjamin (NOAA)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100013883	12/6/2006	Portland Harbor: Spatial Data Outline.	54	3 EML / Email	R10: Shorr, Benjamin (NOAA)		ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100012692	12/7/2006	Email regarding SCRA vs. QM Data Bases.	26	2 EML / Email	R10: Field, Jay (NOAA)	R10: Davoli, Dana (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100013387	12/7/2006	Email regarding Chemical sums.	22	1 EML / Email	R10: Field, Jay (NOAA)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100013884	12/7/2006	Email Regarding SCRA vs. QM Data Bases.	29	8 EML / Email	R10: Field, Jay (NOAA)	R10: Davoli, Dana (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100008661	12/8/2006	Email regarding Outfall Sampling Proposal.	21	2 EML / Email	R10: Blischke, Eric, L (EPA)	R10: Mckenna, Jim (Port of Portland), R10: Wyatt, Robert, J (NW Natural), R10: Applegate, Rick (City of Portland)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100012678	12/8/2006	Email regarding QM and River Mile.	26	2 EML / Email	R10: Shorr, Benjamin (NOAA)	R10: Field, Jay (NOAA), R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100012679	12/8/2006	Email regarding QM and River Mile.	26	2 EML / Email	R10: Shorr, Benjamin (NOAA)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100013886	12/8/2006	Email Regarding QM and River Mile.	25	5 EML / Email	R10: Shorr, Benjamin (NOAA)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100013887	12/8/2006	Clam Total PAH Identity.	95	1 EML / Email	R10: Shorr, Benjamin (NOAA)		ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100012578	12/10/2006	Email regarding Spatial Data.	26	3 EML / Email	R10: Shorr, Benjamin (NOAA)	R10: Davoli, Dana (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization

100012677	12/11/2006	Email regarding QM and River Mile.	36	7 EML / Email	R10: Shorr, Benjamin (NOAA)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
4940680304	12/11/2006	Email regarding BSAF Meeting.	22	1 EML / Email	R10: Mckenna, James (Port of Portland)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
4940680506	12/11/2006	Email regarding BSAF Meeting.	22	1 EML / Email		R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100015753	12/12/2006	REDACTED Email transmitting agenda for 11/13/06 Lower Willamette Group management meeting.	46	1 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Neely, Robert (NOAA), R10: Gouget, Ron (NOAA), R10: Cunninghame, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Mckenna, Jim (Lower Willamette Group), R10: Barquin, Billy (Confederated Tribes of the Siletz Indians), R10: Downey, Tom (Confederated Tribes of the Siletz Indians), R10: Pine, Keith, A (Integral Consulting, Inc.), R10: Baker, Jeff (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Bluelake, Lisa (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA), R10: Madden, Erin (Nez Perce Tribe), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality), R10: McClincy, Matt (Oregon Dept. of Environmental Quality), R10: Lee, Valerie (Environment International, Ltd.), R10: Longoria, Rose (Yakama Nation), R10: Applegate, Rick (City of Portland)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100017036	12/12/2006	REDACTED Email regarding December 13 PH Managers Meeting.	45	1 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Neely, Robert (NOAA), R10: Mckenna, Jim (Port of Portland), R10: Cunninghame, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Oster, Valerie (Anchor Environmental, LLC), R10: Downey, Tom (Confederated Tribes of the Siletz Indians), R10: Pine, Keith, A (Integral Consulting, Inc.), R10: Baker, Jeff (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Bluelake, Lisa (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA), R10: Madden, Erin (Nez Perce Tribe), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality), R10: McClincy, Matt (Oregon Dept. of Environmental Quality), R10: Lee, Valerie (Environment International, Ltd.), R10: Longoria, Rose (Yakama Nation), R10: Wyatt, Robert, J (NW Natural), R10: Gouget, Ron (NOAA), R10: Applegate, Rick (City of Portland), R10: Barquin, Billy (Haglund Kelley, LLP)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100017557	12/12/2006	REDACTED Email regarding December 13 PH Managers Meeting.	21	1 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Neely, Robert (NOAA), R10: Madden, Erin (Unknown), R10: Mckenna, Jim (Port of Portland), R10: Cunninghame, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Downey, Tom (Confederated Tribes of the Siletz Indians), R10: Wyatt, Bob (Northwest Natural Gas Company), R10: Pine, Keith, A (Integral Consulting, Inc.), R10: Bluelake, Lisa (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Blischke, Eric, L (EPA), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality), R10: Lee, Valerie (Environment International, Ltd.), R10: Baker, Jeff (Grand Ronde Tribe), R10: Longoria, Rose (Yakama Nation), R10: Applegate, Rick (City of Portland), R10: Barquin, Billy (Haglund Kelley, LLP)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100018226	12/12/2006	REDACTED Email regarding December 13 PH Managers Meeting.	21	1 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Neely, Robert (NOAA), R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100012566	12/13/2006	Email regarding Spatial data request (GIS) to LWG.	19	1 EML / Email	R10: Shorr, Benjamin (NOAA)	R10: Neely, Robert (NOAA), R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100013888	12/13/2006	Email Regarding Spatial data request (GIS) to LWG.	20	1 EML / Email	R10: Shorr, Benjamin (NOAA)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100013889	12/13/2006	Spatial Data Layers (GIS) request.	36	1 LTR / Letter	R10: Shorr, Benjamin (NOAA)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100013919	12/13/2006	Spatial Data Layers (GIS) request.	36	1 LTR / Letter	R10: Shorr, Benjamin (NOAA)		ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100015243	12/13/2006	Email regarding Materials for Today's Managers Meeting.	44	1 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Madden, Erin (Unknown), R10: Mckenna, James (Port of Portland), R10: Cunninghame, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Pine, Keith, A (Integral Consulting, Inc.), R10: Baker, Jeff (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA), R10: Anderson, James, M (Oregon Dept. of Environmental Quality), R10: McClincy, Matt (Oregon Dept. of Environmental Quality), R10: Lee, Valerie (Environment International, Ltd.), R10: Longoria, Rose (Yakama Nation), R10: Wyatt, Robert, J (NW Natural), R10: Applegate, Rick (City of Portland), R10: Barquin, Billy (Haglund Kelley, LLP)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100015246	12/13/2006	Memo regarding Framework for Collecting Stormwater Data to Support the Portland Harbor RI/FS.	123	9 MEMO / Memorandum	R10: (Unknown)	R10: Stivers, Carl (Anchor Environmental, LLC), R10: Jones, Laura (Integral Consulting, Inc.), R10: Koch, Kristine, M (EPA), R10: Sanders, Dawn (City of Portland, Bureau of Environmental Services), R10: Scheffler, Linda (City of Portland, Bureau of Environmental Services), R10: Tarnow, Karen, E (Oregon Dept. of Environmental Quality), R10: Koulermos, Andrew, C (Newfields, Inc)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100015755	12/13/2006	REDACTED Portland Harbor Managers' Meeting Agenda.	66	1 MTG / Meeting Document	R10: (Lower Willamette Group)		ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100017035	12/13/2006	REDACTED Agenda for Portland Harbor Managers Meeting.	16	2 MTG / Meeting Document	R10: Unknown, Unknown (Lower Willamette Group)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization



100008665	12/14/2006	Email regarding GIS Data Layer Request.	16	1 EML / Email	R10: Blischke, Eric, L (EPA)	R10: Mckenna, Jim (Port of Portland), R10: Wyatt, Robert, J (NW Natural), R10: Applegate, Rick (City of Portland)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100008675	12/14/2006	Letter regarding Spatial Data Layers (GIS) Request.	42	1 CORR / Correspondence	R10: Shorr, Benjamin (NOAA)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100010707	12/15/2006	Email regarding GIS Data Layer Request.	23	1 EML / Email	R10: Mckenna, James (Port of Portland)	R10: Blischke, Eric, L (EPA), R10: Wyatt, Robert, J (NW Natural), R10: Applegate, Rick (City of Portland)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100010754	12/15/2006	Email regarding LWG Lamprey Field Sampling Report 1 of 2.	60	2 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Oster, Valerie (Anchor Environmental, LLC), R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100012597	12/15/2006	Email regarding stormwater tech subgroup.	27	1 EML / Email	R10: Mckenna, Jim (Port of Portland)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100014589	12/15/2006	Email Regarding LWG (Lower Willamette Group) Lamprey Field Sampling Report 1 of 2.	45	1 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100014590	12/15/2006	Round 3 Lamprey (Lampetra sp.) Sampling Locations.	512	1 CORR / Correspondence	R10: (Windward Environmental, LLC.)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100014591	12/15/2006	Portland Harbor RI/FS (Remedial Investigation/Feasibility Study) Round 3 Sampling for Lamprey (Lampetra sp.) Tissue Field Sampling Report, DRAFT.	157	19 CORR / Correspondence	R10: (Windward Environmental, LLC.)	R10: (Lower Willamette Group)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100015284	12/15/2006	Email regarding LWG Lamprey Field Sampling Report 1 of 2.	47	1 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100015288	12/15/2006	DRAFT Portland Harbor RI/FS: Round 3 Sampling for Lamprey (Lampetra sp.) Tissue Field Sampling Report.	232	19 RPT / Report	R10: (Windward Environmental, LLC.)	R10: (Lower Willamette Group)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100015294	12/15/2006	DRAFT Figure 2-1: Round 3 Lamprey (Lampetra sp.) Sampling Locations.	594	1 FIG / Figure/Map/ Drawing	R10: (Windward Environmental, LLC.)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100016946	12/15/2006	REDACTED 12_15_06 email; Stormwater Tech Subgroup.	39	4 CORR / Correspondence	R10: Mckenna, Jim (Lower Willamette Group)	R10: Koch, Kristine, M (EPA), R10: Blischke, Eric, L (Oregon Dept. of Environmental Quality), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100017489	12/15/2006	REDACTED Email regarding stormwater tech subgroup.	25	2 EML / Email	R10: Mckenna, Jim (Port of Portland)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100018200	12/15/2006	REDACTED Email regarding reply to Stormwater Tech Subgroup.	26	2 EML / Email	R10: Mckenna, James (Port of Portland)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
4940680397	12/15/2006	Email regarding reply to GIS Data Layer Request.	23	1 EML / Email	R10: Mckenna, James (Port of Portland)	R10: Blischke, Eric, L (EPA), R10: Wyatt, Robert, J (NW Natural), R10: Applegate, Rick (City of Portland)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
4940680495	12/15/2006	Email regarding Stormwater list.	26	1 EML / Email	R10: Mckenna, James (Port of Portland)	R10: Blischke, Eric, L (EPA), R10: Tarnow, Karen, E (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
4940680497	12/15/2006	Email regarding Stormwater Tech Subgroup.	25	1 EML / Email	R10: Mckenna, James (Port of Portland)	R10: Blischke, Eric, L (EPA), R10: Anderson, James, M (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100012392	12/18/2006	Email regarding PH LRM & FPM File.	24	1 EML / Email	R10: Field, Jay (NOAA)	R10: Neely, Robert (NOAA), R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100013891	12/18/2006	FPM SQV - Revised	25	1 CHT / Chart/Table	R10: Field, Jay (NOAA)		ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100017008	12/18/2006	REDACTED Email Regarding Revised Risk Screening Table.	25	3 EML / Email	R10: Field, Jay (NOAA)	R10: Blischke, Eric, L (EPA), R10: Gensemer, Robert, W (Parametrix, Inc.)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
4940680479	12/18/2006	Email regarding reply to Stormwater list.	28	2 EML / Email	R10: Mckenna, James (Port of Portland)	R10: Blischke, Eric, L (EPA), R10: Tarnow, Karen, E (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100016581	12/19/2006	REDACTED Email regarding Revised Risk Screening Table.	25	3 EML / Email	R10: Shorr, Benjamin (NOAA)	R10: Field, Jay (NOAA), R10: Blischke, Eric, L (EPA), R10: Gensemer, Robert, W (Parametrix, Inc.), R10: Koloszar, Jim (Parametrix, Inc.)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100011796	12/20/2006	Email regarding Rd. 2 Data Review - initial spatial analyses.	29	1 EML / Email	R10: Shorr, Benjamin (NOAA)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100012438	12/20/2006	Email regarding Rd. 2 Data Review - Initial Spatial Analyses.	29	1 EML / Email	R10: Shorr, Benjamin (NOAA)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100013893	12/20/2006	Portland Harbor: post project on ftp site Installer for ARDToolbar? UCL calculated how? Surface sediment contaminant distr.	44	2 EML / Email	R10: Shorr, Benjamin (NOAA)		ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100014671	12/20/2006	Email Regarding 12-20 Memo from Tech Team to Managers and Revised Outfall Summary Table.	46	2 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Neely, Robert (NOAA), R10: Cunninghame, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Downey, Tom (Confederated Tribes of the Siletz Indians), R10: Baker, Jeff (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Kelly, Stephen (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Longoria, Rose (Yakama Nation), R10: Gouguet, Ron (NOAA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100014672	12/20/2006	Revised Outfall Summary, DRAFT.	52	3 EML / Email			ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100015289	12/20/2006	Email regarding 12-20 Memo from Tech Team to Managers.	19	1 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Mckenna, James (Port of Portland), R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA), R10: Anderson, James, M (Oregon Dept. of Environmental Quality), R10: Johnson, Keith (Washington State Dept. of Ecology), R10: Wyatt, Robert, J (NW Natural), R10: Applegate, Rick (City of Portland)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100015297	12/20/2006	Memo regarding Feedback from Tech Team on Remaining Methodology Questions and the List of Sampling Sites.	49	3 MEMO / Memorandum	R10: (Unknown)	R10: Stivers, Carl (Anchor Environmental, LLC), R10: Jones, Laura (Integral Consulting, Inc.), R10: Koch, Kristine, M (EPA), R10: Sanders, Dawn (City of Portland, Bureau of Environmental Services), R10: Scheffler, Linda (City of Portland, Bureau of Environmental Services), R10: Tarnow, Karen, E (Oregon Dept. of Environmental Quality), R10: Koulermos, Andrew, C (Newfields, Inc)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100015762	12/20/2006	REDACTED Email regarding PH Managers Stormwater Meeting.	24	2 EML / Email	R10: Mckenna, Jim (Port of Portland)	R10: Oster, Valerie (Anchor Environmental, LLC), R10: Pine, Keith, A (Integral Consulting, Inc.), R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA), R10: Johnson, Keith (Oregon Dept. of Environmental Quality), R10: Wyatt, Robert, J (NW Natural), R10: Applegate, Rick (City of Portland)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100015763	12/20/2006	REDACTED Email regarding PH Managers Stormwater Meeting.	20	1 EML / Email	R10: Mckenna, Jim (Port of Portland)	R10: Oster, Valerie (Anchor Environmental, LLC), R10: Pine, Keith, A (Integral Consulting, Inc.), R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA), R10: Johnson, Keith (Oregon Dept. of Environmental Quality), R10: Wyatt, Robert, J (NW Natural), R10: Applegate, Rick (City of Portland)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization

100017641	REDACTED Email regarding PH Managers stormwater call.	43	1 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Mckenna, Jim (Port of Portland), R10: Cunninghame, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Downey, Tom (Confederated Tribes of the Siletz Indians), R10: Wyatt, Bob (Northwest Natural Gas Company), R10: Pine, Keith, A (Integral Consulting, Inc.), R10: Kelly, Stephen (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Johnson, Keith (Oregon Dept. of Environmental Quality), R10: Baker, Jeff (Grand Ronde Tribe), R10: Longoria, Rose (Yakama Nation), R10: Gouguet, Ron (NOAA), R10: Applegate, Rick (City of Portland), R10: Barquin, Billy (Haglund Kelley, LLP)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
4940680084	12/20/2006 Email regarding PH Managers stormwater call.	24	1 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Mckenna, Jim (Port of Portland), R10: Wyatt, Bob (Northwest Natural Gas Company), R10: Pine, Keith, A (Integral Consulting, Inc.), R10: Blischke, Eric, L (EPA), R10: Johnson, Keith (Oregon Dept. of Environmental Quality), R10: Applegate, Rick (City of Portland)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
4940680478	12/20/2006 Email regarding reply to Stormwater list.	36	4 EML / Email	R10: Mckenna, James (Port of Portland)	R10: Blischke, Eric, L (EPA), R10: Johnson, Keith (Oregon Dept. of Environmental Quality), R10: Applegate, Rick (City of Portland)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100015781	REDACTED Email regarding Rd. 2 Data Review- Initial Spatial Analyses.	28	4 EML / Email	R10: Shorr, Benjamin (NOAA)	R10: Smith, Carrie, A (Parametrix, Inc.)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100016668	REDACTED Email regarding Rd. 2 Data Review- Initial Spatial Analyses.	27	3 EML / Email	R10: Shorr, Benjamin (NOAA)	R10: Gensemer, Robert, W (Parametrix, Inc.)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100017010	REDACTED Email Regarding Rd. 2 Data Review- initial spatial analyses.	26	3 EML / Email	R10: Shorr, Benjamin (NOAA)	R10: Gensemer, Robert, W (Parametrix, Inc.)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100008676	Email regarding 2006/2007 Water Year Stormwater Sampling.	22	2 EML / Email	R10: Blischke, Eric, L (EPA)	R10: Mckenna, Jim (Port of Portland), R10: Wyatt, Robert, J (NW Natural), R10: Applegate, Rick (City of Portland)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100011572	Email regarding draft notes from 12/22 managers' meeting.	26	1 EML / Email	R10: Mckenna, Jim (Port of Portland)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA), R10: Madden, Erin (Nez Perce Tribe), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality), R10: Tarnow, Karen, E (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100012591	Email regarding stormwater meeting tomorrow.	26	1 EML / Email	R10: Mckenna, Jim (Port of Portland)	R10: Tarnow, Karen, E (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100015760	REDACTED Email regarding PH Managers Stormwater Call.	47	2 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Neely, Robert (NOAA), R10: Mckenna, Jim (Port of Portland), R10: Cunninghame, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Oster, Valerie (Anchor Environmental, LLC), R10: Downey, Tom (Confederated Tribes of the Siletz Indians), R10: Pine, Keith, A (Integral Consulting, Inc.), R10: Baker, Jeff (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Kelly, Stephen (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality), R10: Tarnow, Karen, E (Oregon Dept. of Environmental Quality), R10: Johnson, Keith (Oregon Dept. of Environmental Quality), R10: Longoria, Rose (Yakama Nation), R10: Wyatt, Robert, J (NW Natural), R10: Gouguet, Ron (NOAA), R10: Applegate, Rick (City of Portland), R10: Barquin, Billy (Haglund Kelley, LLP)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100017285	REDACTED Email regarding reply to PH Managers stormwater call.	47	2 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Mckenna, James (Port of Portland), R10: Cunninghame, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Oster, Valerie (Anchor Environmental, LLC), R10: Downey, Tom (Confederated Tribes of the Siletz Indians), R10: Pine, Keith, A (Integral Consulting, Inc.), R10: Baker, Jeff (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Johnson, Keith (Oregon Dept. of Environmental Quality), R10: Longoria, Rose (Yakama Nation), R10: Wyatt, Robert, J (NW Natural), R10: Gouguet, Ron (NOAA), R10: Applegate, Rick (City of Portland), R10: Barquin, Billy (Haglund Kelley, LLP)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
4940680496	12/22/2006 Email regarding Stormwater Sampling. Stormwater Sampling Sites as agreed to at 12-	24	1 EML / Email	R10: Mckenna, James (Port of Portland)	R10: Tarnow, Karen, E (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100008569	12/27/2006 22 PH Mgr Mtg. NOAA Comments T4 60 Percent Design 12-27-	84	3 CHT / Chart/Table	R10: Unknown, Unknown (Unknown)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100012917	12/27/2006 06. NOAA's comments on the Design Analysis Report (Conceptual 60 Percent Design Deliverable), Terminal 4 Early Action, Port of	56	6 LTR / Letter	R10: Neely, Robert (NOAA)	R10: Sheldrake, Sean, A (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100013895	12/27/2006 Portland, Oregon. Email regarding NW Natural, Offshore Final	88	6 LTR / Letter	R10: Neely, Robert (NOAA)	R10: Sheldrake, Sean, A (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100010932	12/28/2006 Phase I FSA Addendum and Boring G5-06. Email regarding NOAA T4 60 percent	28	1 EML / Email	R10: Wyatt, Robert, J (NW Natural)	R10: Bayuk, Dana (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100012583	12/28/2006 comments. Email Regarding NOAA T4 60 percent	18	1 EML / Email	R10: Neely, Robert (NOAA)	R10: Sheldrake, Sean, A (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100013894	12/28/2006 comments. Email regarding Conference Call re	20	1 EML / Email	R10: Neely, Robert (NOAA)	R10: Sheldrake, Sean, A (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
4940680309	1/3/2007 Stormwater. Email regarding Conference Call re	23	1 EML / Email	R10: Mckenna, James (Port of Portland)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
4940680512	1/3/2007 Stormwater.	23	1 EML / Email		R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100015117	1/4/2007 Email Regarding Draft email.	18	1 EML / Email	R10: Mckenna, Jim (Port of Portland)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100015118	Draft EPA Memo to LWG Regarding Stormwater Data (~\$aft EPA memo to LWG).	51	2 MEMO / Memorandum	R10: Mckenna, Jim (Port of Portland)		ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100016277	REDACTED Email regarding conference call on stormwater sampling.	20	1 EML / Email	R10: Wyatt, Robert (Lower Willamette Group)	R10: Dost, Patricia, M (Schwabe, Williamson & Wyatt, P.C.), R10: Mckenna, Jim (Port of Portland), R10: Applegate, Rick (City of Portland)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100016348	REDACTED Email providing number for conference call on stormwater sampling.	27	2 EML / Email	R10: Wyatt, Robert (Lower Willamette Group)	R10: Dost, Patricia, M (Schwabe, Williamson & Wyatt, P.C.), R10: Mckenna, Jim (Port of Portland), R10: Applegate, Rick (City of Portland)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100017161	REDACTED Email regarding Stormwater Tech Team FSP Meeting Jan 12th.	48	11 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Stivers, Carl (Anchor Environmental, LLC)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100017367	REDACTED Email regarding Conf Call Re Stormwater Sampling.	19	1 EML / Email	R10: Mckenna, James (Port of Portland)	R10: Wyatt, Robert, J (NW Natural), R10: Dost, Patty (Schwabe, Williamson & Wyatt, P.C.), R10: Applegate, Rick (City of Portland)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100017404	REDACTED Email regarding reply to Conf Call Re Stormwater Sampling.	20	1 EML / Email	R10: Wyatt, Robert, J (NW Natural)	R10: Mckenna, James (Port of Portland), R10: Dost, Patty (Schwabe, Williamson & Wyatt, P.C.), R10: Applegate, Rick (City of Portland)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100018220	REDACTED Email regarding Conf Call Re Stormwater Sampling.	20	1 EML / Email		R10: Wyatt, Robert, J (NW Natural), R10: Dost, Patty (Schwabe, Williamson & Wyatt, P.C.), R10: Applegate, Rick (City of Portland)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization

100010715	1/5/2007	Email regarding Lab complaints re: El. Email regarding White Sturgeon Age length	27	1 EML / Email	R10: Mckenna, James (Port of Portland)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100012594	1/5/2007	1/5/2007 Paper.	19	1 EML / Email	R10: Gouguet, Ron (NOAA)	R10: Gouguet, Ron (NOAA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100012595	1/5/2007	Email regarding Re_Value of collecting and analyzing individual tissues from sturgeons.	19	1 EML / Email	R10: Gouguet, Ron (NOAA)	R10: Thompson, Chris (Environment International, Ltd.)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
4940680403	1/5/2007	Email regarding reply to Lab complaints re: El.	27	1 EML / Email	R10: Mckenna, James (Port of Portland)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100016936	1/8/2007	REDACTED Email Regarding PH Managers' Meeting. Email regarding A Few Modifications to the	46	1 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Madden, Erin (Unknown), R10: Wyatt, Bob (Lower Willamette Group), R10: Mckenna, Jim (Lower Willamette Group), R10: Baker, Jeff (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Bluelake, Lisa (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality), R10: Mcclincy, Matt (Oregon Dept. of Environmental Quality), R10: Longoria, Rose (Yakama Nation), R10: Applegate, Rick (City of Portland), R10: D, Tom (CTS), R10: Barquin, Billy (Haglund Kelley, LLP), R10: Pine, Keith (Unknown), R10: Cunningham, E (gorge.net)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100012406	1/10/2007	Table.	29	2 EML / Email	R10: Shorr, Benjamin (NOAA)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100016945	1/10/2007	REDACTED Agenda for 01/10/2007 Portland Harbor Managers' Meeting.	18	2 CORR / Correspondence	R10: (Lower Willamette Group)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100013896	1/11/2007	Email Regarding FPM revised.	19	1 EML / Email	R10: Field, Jay (NOAA)	R10: Gensemer, Robert, W (Parametrix, Inc.)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100015314	1/11/2007	DRAFT Portland Harbor RI/FS Comprehensive Round 2 Report Table of Contents.	82	5 OTH / Other	R10: (Lower Willamette Group)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100016397	1/11/2007	REDACTED Email regarding A Few Modifications to the Table.	29	4 EML / Email	R10: Shorr, Benjamin (NOAA)	R10: Spence, Margaret (Parametrix, Inc.)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100016530	1/11/2007	REDACTED Email regarding NOAA FTP Site Access.	29	4 EML / Email	R10: Shorr, Benjamin (NOAA)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100017017	1/11/2007	REDACTED Email Regarding A few modifications to the table.	29	5 EML / Email	R10: Shorr, Benjamin (NOAA)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100008568	1/12/2007	Email regarding Stormwater Sampling at the Portland Harbor Site.	23	3 EML / Email	R10: Blischke, Eric, L (EPA)	R10: Mckenna, Jim (Port of Portland), R10: Wyatt, Robert, J (NW Natural), R10: Applegate, Rick (City of Portland)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
4940680481	1/12/2007	Email regarding reply to Stormwater Sampling at the Portland Harbor Site.	27	2 EML / Email	R10: Mckenna, James (Port of Portland)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
4940680480	1/16/2007	Email regarding reply to Stormwater Sampling at the Portland Harbor Site.	27	2 EML / Email	R10: Mckenna, James (Port of Portland)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100015300	1/19/2007	Email regarding Comprehensive Round 2 Report Table of Contents.	45	1 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Madden, Erin (Unknown), R10: Mckenna, James (Port of Portland), R10: Cunningham, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Pine, Keith, A (Integral Consulting, Inc.), R10: Bluelake, Lisa (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA), R10: Anderson, James, M (Oregon Dept. of Environmental Quality), R10: Mcclincy, Matt (Oregon Dept. of Environmental Quality), R10: Lee, Valerie (Environment International, Ltd.), R10: Longoria, Rose (Yakama Nation), R10: Wyatt, Robert, J (NW Natural), R10: Gouguet, Ron (NOAA), R10: Applegate, Rick (City of Portland), R10: Barquin, Billy (Haglund Kelley, LLP)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
4940680106	1/25/2007	Email regarding March Round 2 roll-out meetings.	51	1 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Madden, Erin (Unknown), R10: Mckenna, Jim (Port of Portland), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Cunningham, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Oster, Valerie (Anchor Environmental, LLC), R10: Wyatt, Bob (Northwest Natural Gas Company), R10: Pine, Keith, A (Integral Consulting, Inc.), R10: Bluelake, Lisa (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Blischke, Eric, L (EPA), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality), R10: Longoria, Rose (Yakama Nation), R10: Gouguet, Ron (NOAA), R10: Applegate, Rick (City of Portland), R10: Barquin, Billy (Haglund Kelley, LLP)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100011849	1/26/2007	Email regarding Follow-up to January 24, 2007 Data Meeting(1).	51	12 EML / Email	R10: Shorr, Benjamin (NOAA)	R10: Gensemer, Robert, W (Parametrix, Inc.)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100012482	1/26/2007	Email regarding Follow-Up to January 24, 2007 Data Meeting.	48	11 EML / Email	R10: Shorr, Benjamin (NOAA)	R10: Blischke, Eric, L (EPA), R10: Gensemer, Robert, W (Parametrix, Inc.)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100012592	1/26/2007	Email regarding _Rule of Five_ presentation.	22	1 EML / Email	R10: Gouguet, Ron (NOAA)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100013900	1/26/2007	Email Regarding "Rule of Five" presentation. Using the "Rule of Five" to Determine Ecologically Protective Clean-Up Goals at Superfund Sites.	24	1 EML / Email	R10: Gouguet, Ron (NOAA)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100013901	1/26/2007	Superfund Sites.	599	16 MTG / Meeting Document	R10: Greenberg, Marc, S (EPA), R10: Charters, David, W (EPA)		ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100013902	1/26/2007	Email Regarding Upstream Chemicals.	21	2 EML / Email	R10: Shorr, Benjamin (NOAA)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100013903	1/26/2007	Upstream Chemicals - Cumulative Distribution.	497	14 FIG / Figure/Map/ Drawing	R10: Shorr, Benjamin (NOAA)		ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100013904	1/26/2007	Email Regarding Upstream Chemicals. Chromium, total (PPM) - Surface Sediment Cumulative Distribution.	19	1 EML / Email	R10: Shorr, Benjamin (NOAA)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100013905	1/26/2007	Surface Sediment Cumulative Distribution.	38	1 FIG / Figure/Map/ Drawing	R10: Shorr, Benjamin (NOAA)		ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100013906	1/26/2007	Email Regarding Upstream Data. Total PCB (PPB) calculated - Surface Sediment Cumulative Distribution.	18	1 EML / Email	R10: Shorr, Benjamin (NOAA)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100013907	1/26/2007	Surface Sediment Cumulative Distribution.	41	1 FIG / Figure/Map/ Drawing	R10: Shorr, Benjamin (NOAA)		ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100013908	1/29/2007	Email Regarding Upstream Chemicals. Selected Upstream Chemicals: Surface	20	1 EML / Email	R10: Shorr, Benjamin (NOAA)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100013909	1/29/2007	Sediment.	26	1 CHT / Chart/Table	R10: Shorr, Benjamin (NOAA)		ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
4940680508	1/30/2007	Email regarding Change in date - March Round 2 roll-out meetings.	29	2 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Cunningham, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Pine, Keith, A (Integral Consulting, Inc.), R10: Bluelake, Lisa (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Blischke, Eric, L (EPA), R10: Madden, Erin (Nez Perce Tribe), R10: Anderson, James, M (Oregon Dept. of Environmental Quality), R10: Longoria, Rose (Yakama Nation), R10: Wyatt, Robert, J (NW Natural), R10: Gouguet, Ron (NOAA), R10: Applegate, Rick (City of Portland), R10: Barquin, Billy (Haglund Kelley, LLP)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization



100011297	Email regarding Projectors, Screens for Next 2/1/2007 Week.	27	2 EML / Email	R10: Shorr, Benjamin (NOAA)	R10: Koloszar, Jim (Parametrix, Inc.)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100013910	Email Regarding Projectors, screens for next week.	21	2 EML / Email	R10: Shorr, Benjamin (NOAA)	R10: Koloszar, Jim (Parametrix, Inc.)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100013911	Portland Harbor Round 2 Data Review: Surface and Ground Water Sampling Locations.	822	3 FIG / Figure/Map/ Drawing	R10: Shorr, Benjamin (NOAA)		ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100013912	Email Regarding sturgeon field work coordination/draft call for schedules	23	1 EML / Email	R10: Neely, Robert (NOAA) R10: Buck, Jeremy (U. S. Fish and Wildlife Service), R10: Gouguet, Ron (NOAA), R10: Thompson, Chris (Environment International, Ltd.)	R10: Howard, Patti (Columbia River Inter-Tribal Fish Commission), R10: Blischke, Eric, L (EPA), R10: Shephard, Burt (EPA), R10: Humphrey, Chip (EPA), R10: Goulet, Joe (EPA), R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality), R10: Longoria, Rose (Yakama Nation), R10: Gouguet, Ron (NOAA), R10: Thompson, Chris (Environment International, Ltd.), R10: Buck, Jeremy (U. S. Fish & Wildlife Service)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100012956	W sturgeon targeted tissue sample discussion v1.	48	5 MTG / Meeting Document	R10: Thompson, Chris (Environment International, Ltd.)		ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100013921	Justification for Collection and Potential Analysis of Individual Sturgeon Tissues: Relationship to assessment and measurement endpoints for maintenance of white sturgeon populations in the lower Willamette River.	76	5 RPT / Report	R10: Gouguet, Ron (NOAA), R10: Thompson, Chris (Environment International, Ltd.), R10: Buck, Jeremy (U. S. Fish & Wildlife Service)		ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
4940680107	Email regarding March Round 2 roll-out meetings.	30	2 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Madden, Erin (Unknown), R10: Mckenna, Jim (Port of Portland), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Cunninghame, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Wyatt, Bob (Northwest Natural Gas Company), R10: Pine, Keith, A (Integral Consulting, Inc.), R10: Bluelake, Lisa (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Blischke, Eric, L (EPA), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality), R10: Longoria, Rose (Yakama Nation), R10: Gouguet, Ron (NOAA), R10: Applegate, Rick (City of Portland), R10: Barquin, Billy (Haglund Kelley, LLP)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100013914	Email Regarding Presentation materials.	20	1 EML / Email	R10: Shorr, Benjamin (NOAA)	R10: Smith, Carrie, A (Parametrix, Inc.)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100013915	Portland Harbor Superfund Site Schematic - Potential Sources.	17	1 EML / Email	R10: Shorr, Benjamin (NOAA)		ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100013916	Email Regarding sturgeon field work coordination/draft call for schedules.	25	1 EML / Email	R10: Neely, Robert (NOAA)	R10: Neely, Robert (NOAA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100010739	Cover letter for Portland Harbor RI/FS Field Sampling Plan: Round 3 Sampling for Pre-Breeding White Sturgeon.	70	2 LTR / Letter	R10: Mckenna, Jim (Lower Willamette Group), R10: Wyatt, Robert (Lower Willamette Group)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100010740	Portland Harbor RI/FS Field Sampling Plan: Round 3 Sampling for Pre-Breeding White Acipenser Transmontanus Tissue (final draft).	245	37 RPT / Report	R10: (Windward Environmental, LLC.)	R10: (Lower Willamette Group)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100010773	Email transmitting revised final draft sturgeon field sampling plan.	70	1 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100012341	Email regarding Interesting Anecdotal Info Sturgeon Lower Willamette.	24	1 EML / Email	R10: Gouguet, Ron (NOAA)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100012598	Email regarding Spatial data request (GIS) to LWG.	20	2 EML / Email	R10: Shorr, Benjamin (NOAA)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100012603	Email regarding revised sturgeon FSP.	24	2 EML / Email	R10: Gouguet, Ron (NOAA)	R10: Baker, Mary (NOAA), R10: Madden, Erin (Unknown), R10: Blischke, Eric, L (EPA), R10: Greenberg, Marc, S (EPA), R10: Humphrey, Chip (EPA), R10: Goulet, Joe (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100012696	Email regarding Sturgeon Field Work Coordination/Draft Call for Schedules.	29	2 EML / Email	R10: Neely, Robert (NOAA)	R10: Shephard, Burt (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100013228	Email providing interesting information about lower Willamette sturgeon.	26	1 EML / Email	R10: Gouguet, Ron (NOAA)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100013918	Email Regarding Spatial data request (GIS) to LWG.	21	2 EML / Email	R10: Shorr, Benjamin (NOAA)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100013920	Email Regarding revised sturgeon FSP.	25	2 EML / Email	R10: Gouguet, Ron (NOAA)	R10: Baker, Mary (NOAA), R10: Blischke, Eric, L (EPA), R10: Greenberg, Marc, S (EPA), R10: Humphrey, Chip (EPA), R10: Goulet, Joe (EPA), R10: Madden, Erin (Nez Perce Tribe)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100014758	Email regarding Revised Sturgeon FSP.	63	1 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100014759	Letter regarding Portland Harbor RI/FS Field Sampling Plan: Round 3 Sampling for Pre-Breeding White Sturgeon (Acipenser transmontanus) Tissue.	69	2 CORR / Correspondence	R10: Mckenna, Jim (Port of Portland), R10: Wyatt, Robert, J (NW Natural)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100014798	Portland Harbor RI/FS Field Sampling Plan: Round 3 Sampling for Pre-Breeding White Sturgeon (Acipenser transmontanus) Tissue.	321	37 RPT / Report	R10: Unknown, Unknown (Windward Environmental, LLC.)	R10: Unknown, Unknown (Lower Willamette Group)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100015318	Email regarding 2/14 Portland Harbor Managers Meeting.	45	1 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Madden, Erin (Unknown), R10: Mckenna, James (Port of Portland), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Cunninghame, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Pine, Keith, A (Integral Consulting, Inc.), R10: Bluelake, Lisa (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA), R10: Anderson, James, M (Oregon Dept. of Environmental Quality), R10: Lee, Valerie (Environment International, Ltd.), R10: Wyatt, Robert, J (NW Natural), R10: Gouguet, Ron (NOAA), R10: Applegate, Rick (City of Portland), R10: Barquin, Billy (Haglund Kelley, LLP)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100008729	Email regarding GIS Data Layers.	23	2 EML / Email	R10: Blischke, Eric, L (EPA)	R10: Mckenna, Jim (Port of Portland), R10: Wyatt, Robert, J (NW Natural), R10: Applegate, Rick (City of Portland)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100010708	Email regarding GIS Data Layers.	27	2 EML / Email	R10: Mckenna, James (Port of Portland)	R10: Blischke, Eric, L (EPA), R10: Wyatt, Robert, J (NW Natural), R10: Applegate, Rick (City of Portland)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
4940680398	Email regarding reply to GIS Data Layers.	27	2 EML / Email	R10: Mckenna, James (Port of Portland)	R10: Blischke, Eric, L (EPA), R10: Wyatt, Robert, J (NW Natural), R10: Applegate, Rick (City of Portland)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization

100010814	2/13/2007	Email transmitting Portland Harbor Managers' Meeting Agenda.	52	1 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Mckenna, Jim (Lower Willamette Group), R10: Pine, Keith (Lower Willamette Group), R10: Wyatt, Robert (Lower Willamette Group), R10: Bluelake, Lisa (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA), R10: Madden, Erin (Nez Perce Tribe), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality), R10: McClincy, Matt (Oregon Dept. of Environmental Quality), R10: Lee, Valerie Ann (Environment International, Ltd.), R10: Longoria, Rose (Yakama Nation), R10: Gouguet, Ron (NOAA), R10: Cunningham, E, R10: Applegate, Rick (City of Portland), R10: Barquin, W.	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100013217	2/13/2007	REDACTED E-mail Regarding EPA and NWN Managers Meeting.	212	4 EML / Email	R10: Sheldrake, Sean, A (EPA), R10: Anderson, James, M (Oregon Dept. of Environmental Quality), R10: Bayuk, Dana (Oregon Dept. of Environmental Quality)	R10: Ader, Mark, A (EPA), R10: Cora, Lori, H (EPA), R10: Humphrey, Chip (EPA), R10: Bayuk, Dana (Oregon Dept. of Environmental Quality), R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	PAPER DOCUMENT	053-REMEDIAL/0531-Remedy Characterization
100014823	2/13/2007	Email regarding updated agenda 2/14 PH Managers.	45	1 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Mckenna, Jim (Port of Portland), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Cunninghame, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Pine, Keith, A (Integral Consulting, Inc.), R10: Bluelake, Lisa (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA), R10: Madden, Erin (Nez Perce Tribe), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality), R10: McClincy, Matt (Oregon Dept. of Environmental Quality), R10: Lee, Valerie (Environment International, Ltd.), R10: Longoria, Rose (Yakama Nation), R10: Wyatt, Robert, J (NW Natural), R10: Gouguet, Ron (NOAA), R10: Applegate, Rick (City of Portland), R10: Barquin, Billy (Haglund Kelley, LLP)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100015322	2/14/2007	Email regarding EPA Request for R2R List of Appendices.	19	1 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA), R10: Anderson, James, M (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100015793	2/14/2007	REDACTED Portland Harbor Managers' Meeting Agenda.	38	2 MTG / Meeting Document	R10: (Lower Willamette Group)		ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100017084	2/14/2007	REDACTED Agenda for Portland Harbor Managers Meeting.	16	2 MTG / Meeting Document	R10: Unknown, Unknown (Lower Willamette Group)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100017338	2/14/2007	REDACTED DRAFT Agenda for Portland Harbor Managers' Meeting on February 14, 2007.	38	2 MTG / Meeting Document	R10: (Lower Willamette Group)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100010688	2/16/2007	Email regarding EPA Request for R2R List of Appendices.	24	2 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Pine, Keith, A (Integral Consulting, Inc.), R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100012657	2/16/2007	Email regarding LWG GIS Layers. Appendix A, Procedure for Sampling Fish, Collecting Tissues, and Conducting an External	24	1 EML / Email	R10: Shorr, Benjamin (NOAA)	R10: Logan, Michael (Integral Corporation)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100014688	2/16/2007	Fish Health Assessment. REDACTED Email regarding Questions re	87	14 CORR / Correspondence	R10: (Lower Willamette Group)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100017393	2/16/2007	Sturgeon Sampling.	20	1 EML / Email	R10: Mckenna, James (Port of Portland)	R10: Neely, Robert (NOAA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
4940680633	2/16/2007	Email regarding reply to EPA Request for R2R List of Appendices.	24	2 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Pine, Keith, A (Integral Consulting, Inc.), R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100011938	2/20/2007	Email regarding stormwater FSP and QAPP approval.	29	2 EML / Email	R10: Mckenna, Jim (Port of Portland)	R10: Koch, Kristine, M (EPA), R10: Wyatt, Robert, J (NW Natural), R10: Applegate, Rick (City of Portland)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
4940680476	2/20/2007	Email regarding reply to Stormwater FSP & QAPP Approval.	28	2 EML / Email	R10: Mckenna, James (Port of Portland)	R10: Koch, Kristine, M (EPA), R10: Wyatt, Robert, J (NW Natural), R10: Applegate, Rick (City of Portland)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100015323	2/21/2007	Portland Harbor RI/FS Comprehensive Round 2 Report Table of Contents.	79	6 OTH / Other	R10: (Lower Willamette Group)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100017044	2/21/2007	REDACTED Portland Harbor RI/FS Comprehensive Round 2 Site Characterization Summary and Data Gaps Analysis Report, Volume 1: Text, Figures, and Tables (Sections 1-8).	97,501	693 RPT / Report	R10: Unknown, Unknown (Anchor Environmental, LLC), R10: Unknown, Unknown (Kennedy/Jenks Consultants), R10: Unknown, Unknown (Windward Environmental, LLC.), R10: Unknown, Unknown (Integral Consulting, Inc.)	R10: Unknown, Unknown (Lower Willamette Group)	PAPER DOCUMENT	053-REMEDIAL/0531-Remedy Characterization
100017053	2/21/2007	REDACTED Portland Harbor RI/FS Comprehensive Round 2 Site Characterization Summary and Data Gaps Analysis Report, Volume 3: Map Folio (1 of 2).	430,694	375 RPT / Report	R10: Unknown, Unknown (Anchor Environmental, LLC), R10: Unknown, Unknown (Kennedy/Jenks Consultants), R10: Unknown, Unknown (Windward Environmental, LLC.), R10: Unknown, Unknown (Integral Consulting, Inc.)	R10: Unknown, Unknown (Lower Willamette Group)	PAPER DOCUMENT	053-REMEDIAL/0531-Remedy Characterization
4940680498	2/21/2007	Email regarding Sturgeon Decision.	23	1 EML / Email	R10: Mckenna, James (Port of Portland)	R10: Blischke, Eric, L (EPA), R10: Buck, Jeremy (U. S. Fish & Wildlife Service)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100010698	2/22/2007	Email regarding GIS Files - Comprehensive Round 2 Data Report.	54	3 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Shorr, Benjamin (NOAA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100011303	2/22/2007	Email regarding Reminder - Meeting on Feb 23.	24	2 EML / Email	R10: Mckenna, Jim (Port of Portland)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality), R10: Wyatt, Robert, J (NW Natural), R10: Applegate, Rick (City of Portland)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100012423	2/22/2007	Email reminding of meeting on Feb. 23.	48	1 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Mckenna, Jim (Port of Portland), R10: Wyatt, Robert (Lower Willamette Group), R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality), R10: Applegate, Rick (City of Portland)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
4940680027	2/22/2007	Email regarding GIS Files - Comprehensive Round 2 Data Report.	50	2 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Neely, Robert (NOAA), R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
4940680541	2/22/2007	Email regarding GIS Files - Comprehensive Round 2 Data Report.	50	2 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Neely, Robert (NOAA), R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
4940680690	2/22/2007	Email regarding reminder - meeting on Feb 23.	46	1 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Mckenna, James (Port of Portland), R10: Humphrey, Chip (EPA), R10: Anderson, James, M (Oregon Dept. of Environmental Quality), R10: Wyatt, Robert, J (NW Natural), R10: Applegate, Rick (City of Portland)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100011323	2/27/2007	Email regarding Round 2 Report CD Copies.	23	2 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization

									R10: Pease, Katherine (NOAA), R10: Madden, Erin (Unknown), R10: Mckenna, James (Port of Portland), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Cunninghame, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Pine, Keith, A (Integral Consulting, Inc.), R10: Baker, Jeff (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Bluelake, Lisa (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA), R10: Anderson, James, M (Oregon Dept. of Environmental Quality), R10: McClincy, Matt (Oregon Dept. of Environmental Quality), R10: Lee, Valerie (Environment International, Ltd.), R10: Longoria, Rose (Yakama Nation), R10: Wyatt, Robert, J (NW Natural), R10: Gouguet, Ron (NOAA), R10: Applegate, Rick (City of Portland), R10: Barquin, Billy (Haglund Kelley, LLP), R10: Smith, Barbara (Harris and Smith)	
100015324	2/27/2007	Email regarding Location and Agenda for March 1 Round 2 Report Briefing.	40	1 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)				ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
4940680675	2/27/2007	Email regarding reply to Round 2 Report CD Copies.	24	2 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)		R10: Koch, Kristine, M (EPA)		ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100014686	3/1/2007	Erratum, Comprehensive Round 2 Report Appendix G – Ecological Risk Assessment (ERA) Portland Harbor RI/FS (Remedial Investigation/Feasibility Study).	120	5 CORR / Correspondence	R10: (Lower Willamette Group)		R10: (Unknown)		ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100015325	3/1/2007	Agenda for Comprehensive Round 2 Report Briefing Meeting on March 1, 2007.	49	2 MTG / Meeting Document	R10: (Lower Willamette Group)		R10: (Unknown)		ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100015831	3/2/2007	REDACTED Email regarding Roll-Out Meeting and Next Steps on Round 2 Report.	26	2 EML / Email	R10: Field, Jay (NOAA)		R10: Blischke, Eric, L (EPA)		ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100014685	3/6/2007	Email Regarding Erratum, Comprehensive Round 2 Report Appendix G – Ecological Risk Assessment (ERA) Portland Harbor RI/FS (Remedial Investigation/Feasibility Study).	38	1 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)		R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)		ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100010736	3/7/2007	Email regarding LWG Final Round 3A Stormwater FSP.	28	2 EML / Email	R10: Mckenna, Jim (Port of Portland)		R10: Koch, Kristine, M (EPA), R10: Wyatt, Robert, J (NW Natural), R10: Applegate, Rick (City of Portland)		ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100012694	3/12/2007	Email regarding Sediment Toxicity Results..	28	2 EML / Email	R10: Field, Jay (NOAA)		R10: Blischke, Eric, L (EPA)		ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100015311	3/12/2007	Email regarding Draft Agenda for Portland Harbor Managers Meeting.	42	1 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)		R10: Madden, Erin (Unknown), R10: Mckenna, James (Port of Portland), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Cunninghame, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Pine, Keith, A (Integral Consulting, Inc.), R10: Baker, Jeff (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Bluelake, Lisa (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA), R10: Anderson, James, M (Oregon Dept. of Environmental Quality), R10: McClincy, Matt (Oregon Dept. of Environmental Quality), R10: Lee, Valerie (Environment International, Ltd.), R10: Longoria, Rose (Yakama Nation), R10: Wyatt, Robert, J (NW Natural), R10: Gouguet, Ron (NOAA), R10: Applegate, Rick (City of Portland), R10: Barquin, Billy (Haglund Kelley, LLP)		ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100017374	3/13/2007	REDACTED Email regarding March 20 lamprey meeting location.	46	2 EML / Email	R10: Mckenna, James (Port of Portland)		R10: Humphrey, Chip (EPA), R10: Anderson, James, M (Oregon Dept. of Environmental Quality), R10: Longoria, Rose (Yakama Nation)		ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100018208	3/13/2007	REDACTED Email regarding March 20 lamprey meeting location.	46	2 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)		R10: Blischke, Eric, L (EPA), R10: Anderson, James, M (Oregon Dept. of Environmental Quality), R10: Longoria, Rose (Yakama Nation)		ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
4940680319	3/13/2007	Email regarding Shellfish Consumption.	28	2 EML / Email	R10: Mckenna, James (Port of Portland)		R10: Blischke, Eric, L (EPA)		ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100012440	3/14/2007	Email regarding First Cut at Spatial/Graphical Depiction of Benthic Risk.	30	3 EML / Email	R10: Shorr, Benjamin (NOAA)		R10: Blischke, Eric, L (EPA)		ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100013922	3/14/2007	Email Regarding first cut at spatial/graphical depiction of benthic risk.	20	1 EML / Email	R10: Shorr, Benjamin (NOAA)		R10: Blischke, Eric, L (EPA)		ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100013923	3/14/2007	Benthic Series_070314	1,713	10 FIG / Figure/Map/ Drawing	R10: Shorr, Benjamin (NOAA)				ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100013924	3/14/2007	PH_Benthic_Weight_070314	25	1 CHT / Chart/Table	R10: Shorr, Benjamin (NOAA)				ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100017340	3/14/2007	REDACTED Agenda for Portland Harbor Managers' Meeting on March 14, 2007.	39	2 MTG / Meeting Document	R10: (Lower Willamette Group)		R10: (Unknown)		ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100012650	3/15/2007	Email regarding updates to EPA partners and deliverable distribution list.	48	1 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)		R10: Mckenna, Jim (Port of Portland), R10: Wyatt, Robert (Lower Willamette Group), R10: Pine, Keith, A (Integral Consulting, Inc.), R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA), R10: Hawley, Christine (Integral Corporation), R10: Revelas, Gene (Integral Corporation), R10: Applegate, Rick (City of Portland)		ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100013208	3/15/2007	Email regarding benthic risk scaling draft.	32	2 EML / Email	R10: Shorr, Benjamin (NOAA)		R10: Field, Jay (NOAA), R10: Neely, Robert (NOAA), R10: Blischke, Eric, L (EPA), R10: Shephard, Burt (EPA), R10: Humphrey, Chip (EPA), R10: Goulet, Joe (EPA)		ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100013925	3/18/2007	Email Regarding preliminary comments.	19	1 EML / Email	R10: Field, Jay (NOAA)		R10: Blischke, Eric, L (EPA)		ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100013926	3/18/2007	PH_Prelimcomments_JF_070317	47	2 RPT / Report	R10: Field, Jay (NOAA)				ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100013928	3/18/2007	PH_prelimcomments_JF_070317.	47	2 RPT / Report	R10: Field, Jay (NOAA)				ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100017021	3/19/2007	REDACTED Email Regarding Project Update.	24	2 EML / Email	R10: Field, Jay (NOAA)		R10: Blischke, Eric, L (EPA)		ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
4940680631	3/19/2007	Email regarding reply to Fate and Transport/FWM Meeting Times.	23	1 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)		R10: Blischke, Eric, L (EPA)		ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100012331	3/21/2007	Email regarding sturgeon sampling.	25	1 EML / Email	R10: Wyatt, Robert (Lower Willamette Group)		R10: Mckenna, Jim (Port of Portland), R10: Buck, Jeremy (U. S. Fish & Wildlife Service)		ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100010699	3/22/2007	Email regarding Validated Data Posting.	25	2 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)		R10: Neely, Robert (NOAA)		ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100010700	3/22/2007	Email regarding Validated Data Posting.	25	2 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)		R10: Neely, Robert (NOAA)		ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100012343	3/22/2007	Email regarding sturgeon sampling.	25	1 EML / Email	R10: Mckenna, Jim (Port of Portland)		R10: Wyatt, Robert (Lower Willamette Group), R10: Buck, Jeremy (U. S. Fish & Wildlife Service)		ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100012965	3/22/2007	NOAA Integration of Lines of Evidence for Benthic Risk.	47	3 MEMO / Memorandum	R10: (NOAA)				ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
4940680065	3/22/2007	Email regarding reply to 5/16/07 Senior Mgrs Mtg.	50	2 EML / Email	R10: Mckenna, Jim (Port of Portland)		R10: Oster, Valerie (Anchor Environmental, LLC), R10: Blischke, Eric, L (EPA), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)		ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
4940680336	3/22/2007	Email regarding reply to 5/16/07 Senior Mgrs Mtg.	50	2 EML / Email	R10: Mckenna, James (Port of Portland)		R10: Anderson, Jim, M (State of Oregon), R10: Oster, Valerie (Anchor Environmental, LLC), R10: Humphrey, Chip (EPA)		ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization

4940680568	3/22/2007	Email regarding Validated Data Posting.	51	2 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Neely, Robert (NOAA), R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
4940680630	3/22/2007	Email regarding reply to Fate and Transport/FWM Meeting Times.	25	2 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
4940680637	3/22/2007	Email regarding reply to Validated Data Posting.	25	2 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Neely, Robert (NOAA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
4940680046	3/26/2007	Email regarding April 2 Fate and Transport/FWM Meeting.	49	1 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Smith, Carrie, A (Parametrix, Inc.), R10: Blischke, Eric, L (EPA), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
4940680503	3/26/2007	Email regarding April 2 Fate and Transport/FWM Meeting.	49	1 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Smith, Carrie, A (Parametrix, Inc.), R10: Shephard, Burt (EPA), R10: Anderson, James, M (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100012606	3/27/2007	Email regarding benthic risk, Areas of Potential Concern.	23	2 EML / Email	R10: Shorr, Benjamin (NOAA)	R10: Shorr, Benjamin (NOAA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100013158	3/27/2007	Email regarding benthic risk areas of potential concern.	30	2 EML / Email	R10: Shorr, Benjamin (NOAA)	R10: Neely, Robert (NOAA), R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100013383	3/27/2007	Email regarding Benthic Risk: Areas of Potential Concern.	29	2 EML / Email	R10: Shorr, Benjamin (NOAA)	R10: Neely, Robert (NOAA), R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100011259	3/28/2007	Email regarding Portland Harbor Round 2 Data Question.	24	1 EML / Email	R10: Mckenna, Jim (Port of Portland)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
4940680581	3/28/2007	Email regarding Validated Surface Water Data (November 2006).	48	2 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Neely, Robert (NOAA), R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
4940681054	3/28/2007	Email regarding reply to Portland Harbor Round 2 data question.	34	2 EML / Email	R10: Humphrey, Chip (EPA)	R10: Mckenna, Jim (Port of Portland)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
4940680032	4/3/2007	Email regarding Fate and Transport Meeting Action Items.	61	3 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Ashton, David (Port of Portland), R10: Smith, Carrie, A (Parametrix, Inc.), R10: Walton, Raymond (West Consultants, Inc.), R10: Stivers, Carl (Anchor Environmental, LLC), R10: Peale, James, G (Maul Foster & Alongi, Inc.), R10: Toll, John (Windward Environmental, LLC.), R10: Wyatt, Bob (Northwest Natural Gas Company), R10: Burt, Walt (Groundwater Solutions Inc.), R10: Revelas, Gene, C (Integral Consulting, Inc.), R10: Baker, Linda (RETEC Group, Inc.), R10: Gormley, Sean, F (AMEC Earth & Environmental, Inc.), R10: Koch, Kristine, M (EPA), R10: George, Gerald, F (Pillsbury Winthrop Shaw Pittman, L.L.P.), R10: Poulsen, Mike (Oregon Dept. of Environmental Quality), R10: Lewis, Mark, D (NewFields), R10: Davis, Andy (Geomega, Inc.), R10: Hawley, Christine (Integral Corporation), R10: Dost, Patty (Schwabe, Williamson & Wyatt, P.C.), R10: Betz, Jan (City of Portland, Oregon), R10: Applegate, Rick (City of Portland), R10: Wolf, Fred (Total), R10: Fuji, Taku (Kennedy Jenks Consultants)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
4940680064	4/5/2007	Email regarding reply to 5/16/07 Senior Mgrs Mtg.	23	2 EML / Email	R10: Mckenna, Jim (Port of Portland)	R10: Humphrey, Chip (EPA), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
4940680066	4/5/2007	Email regarding reply to 5/16/07 Senior Mgrs Mtg.	24	2 EML / Email	R10: Mckenna, Jim (Port of Portland)	R10: Humphrey, Chip (EPA), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
4940680337	4/5/2007	Email regarding reply to 5/16/07 Senior Mgrs Mtg.	24	2 EML / Email	R10: Mckenna, James (Port of Portland)	R10: Humphrey, Chip (EPA), R10: Anderson, James, M (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100015312	4/6/2007	Email regarding Draft 4/11 Portland Harbor Managers Meeting Agenda.	45	1 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Madden, Erin (Unknown), R10: Mckenna, James (Port of Portland), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Cunninghame, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Revelas, Gene, C (Integral Consulting, Inc.), R10: Baker, Jeff (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Bluelake, Lisa (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA), R10: Anderson, James, M (Oregon Dept. of Environmental Quality), R10: McClincy, Matt (Oregon Dept. of Environmental Quality), R10: Lee, Valerie (Environment International, Ltd.), R10: Longoria, Rose (Yakama Nation), R10: Wyatt, Robert, J (NW Natural), R10: Hawley, Christine (Integral Corporation), R10: Gouguet, Ron (NOAA), R10: Applegate, Rick (City of Portland), R10: Barquin, Billy (Haglund Kelley, LLP)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100011568	4/9/2007	Email regarding draft meeting agenda for 4/11 managers' meeting.	31	2 EML / Email	R10: Mckenna, Jim (Port of Portland)	R10: Oster, Valerie (Anchor Environmental, LLC), R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
4940680366	4/9/2007	Email regarding reply to draft 4/11 PH Managers meeting agenda.	30	2 EML / Email	R10: Mckenna, James (Port of Portland)	R10: Oster, Valerie (Anchor Environmental, LLC), R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100008570	4/10/2007	Email regarding Preliminary List of Round 2 Report Issues and Data Gaps.	17	1 EML / Email	R10: Blischke, Eric, L (EPA)	R10: Mckenna, Jim (Port of Portland), R10: Wyatt, Robert, J (NW Natural), R10: Applegate, Rick (City of Portland)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100008571	4/10/2007	Round 2 Report - EPA Preliminary Issues and Data Gaps.	41	5 CHT / Chart/Table	R10: Unknown, Unknown (Unknown)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100017197	4/10/2007	REDACTED Email regarding Stormwater Progress and Issues.	76	3 EML / Email	R10: Stivers, Carl (Anchor Environmental, LLC)	R10: Sanders, Dawn (City of Portland, Oregon), R10: Scheffler, Linda (City of Portland, Oregon), R10: Koch, Kristine, M (EPA), R10: Tarnow, Karen, E (Oregon Dept. of Environmental Quality), R10: Koulermos, Andrew, C (NewFields, Inc.), R10: Spencer, Amanda, L (Ash Creek Associates, Inc.), R10: Jones, Laura (Integral Corporation)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100017344	4/11/2007	REDACTED Agenda for Portland Harbor Managers' Meeting on April 11, 2007.	38	2 MTG / Meeting Document	R10: (Lower Willamette Group)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100012460	4/16/2007	Email regarding round 3A sediment trap quarter 1 field sampling report (less attachment).	50	1 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100017600	4/16/2007	REDACTED Email regarding Portland Harbor Managers conference call - April 18, 8:30am.	44	1 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Madden, Erin (Unknown), R10: Mckenna, Jim (Port of Portland), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Cunninghame, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Wyatt, Bob (Northwest Natural Gas Company), R10: Revelas, Gene, C (Integral Consulting, Inc.), R10: Bluelake, Lisa (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Blischke, Eric, L (EPA), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality), R10: Lee, Valerie (Environment International, Ltd.), R10: Baker, Jeff (Grand Ronde Tribe), R10: Longoria, Rose (Yakama Nation), R10: Hawley, Christine (Integral Corporation), R10: Applegate, Rick (City of Portland), R10: Barquin, Billy (Haglund Kelley, LLP)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization

100017289	REDACTED Email regarding reply to Portland Harbor Managers conference call - April 18, 4/17/2007 8:30am.	20	2 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100017293	REDACTED Email regarding reply to Portland Harbor Managers conference call - April 25 4/18/2007 12:30.	23	1 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Oster, Valerie (Anchor Environmental, LLC), R10: Blischke, Eric, L (EPA), R10: Anderson, James, M (Oregon Dept. of Environmental Quality), R10: Wyatt, Robert, J (NW Natural)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100008750	Email regarding Process for Round 3B Data Gap Identification. 4/19/2007	26	4 EML / Email	R10: Blischke, Eric, L (EPA)	R10: Mckenna, Jim (Port of Portland), R10: Wyatt, Robert, J (NW Natural), R10: Applegate, Rick (City of Portland)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100015913	REDACTED Email regarding Portland Harbor Managers Conference Call - April 25 12:30. 4/19/2007	25	2 EML / Email	R10: Mckenna, Jim (Port of Portland)	R10: Madden, Erin (Unknown), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Cunninghame, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Oster, Valerie (Anchor Environmental, LLC), R10: Revelas, Gene, C (Integral Consulting, Inc.), R10: Baker, Jeff (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Bluelake, Lisa (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality), R10: McClincy, Matt (Oregon Dept. of Environmental Quality), R10: Lee, Valerie (Environment International, Ltd.), R10: Longoria, Rose (Yakama Nation), R10: Wyatt, Robert, J (NW Natural), R10: Hawley, Christine (Integral Corporation), R10: Applegate, Rick (City of Portland), R10: Barquin, Billy (Haglund Kelley, LLP)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100015914	REDACTED Email regarding Portland Harbor Managers Conference Call - Now April 25 1:30. 4/19/2007	25	2 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Madden, Erin (Unknown), R10: Mckenna, Jim (Port of Portland), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Cunninghame, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Revelas, Gene, C (Integral Consulting, Inc.), R10: Baker, Jeff (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Bluelake, Lisa (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality), R10: McClincy, Matt (Oregon Dept. of Environmental Quality), R10: Lee, Valerie (Environment International, Ltd.), R10: Longoria, Rose (Yakama Nation), R10: Wyatt, Robert, J (NW Natural), R10: Hawley, Christine (Integral Corporation), R10: Applegate, Rick (City of Portland), R10: Barquin, Billy (Haglund Kelley, LLP)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100017297	REDACTED Email regarding reply to Portland Harbor Managers conference call - now April 4/19/2007 25 1:30.	25	2 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Mckenna, James (Port of Portland), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Cunninghame, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Bluelake, Lisa (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Blischke, Eric, L (EPA), R10: Madden, Erin (Nez Perce Tribe), R10: Anderson, James, M (Oregon Dept. of Environmental Quality), R10: Lee, Valerie (Environment International, Ltd.), R10: Longoria, Rose (Yakama Nation), R10: Wyatt, Robert, J (NW Natural), R10: Hawley, Christine (Integral Corporation), R10: Applegate, Rick (City of Portland), R10: Barquin, Billy (Haglund Kelley, LLP)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100018193	REDACTED Email regarding reply to Portland Harbor Managers conference call - April 25 4/19/2007 12:30.	25	2 EML / Email	R10: Mckenna, James (Port of Portland)	R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Cunninghame, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Oster, Valerie (Anchor Environmental, LLC), R10: Bluelake, Lisa (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Blischke, Eric, L (EPA), R10: Madden, Erin (Nez Perce Tribe), R10: Anderson, James, M (Oregon Dept. of Environmental Quality), R10: Lee, Valerie (Environment International, Ltd.), R10: Longoria, Rose (Yakama Nation), R10: Wyatt, Robert, J (NW Natural), R10: Hawley, Christine (Integral Corporation), R10: Applegate, Rick (City of Portland), R10: Barquin, Billy (Haglund Kelley, LLP)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100017239	REDACTED Email regarding reply to Fate and Transport Modeling Check-In. 4/20/2007	25	3 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Smith, Carrie, A (Parametrix, Inc.), R10: Blischke, Eric, L (EPA), R10: Revelas, Gene (Integral Corporation)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100016543	REDACTED Email reminding of Portland Harbor managers' conference call - April 25 1:30. 4/24/2007	26	3 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Mckenna, Jim (Port of Portland), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Wyatt, Robert (Lower Willamette Group), R10: Revelas, Gene, C (Integral Consulting, Inc.), R10: Bluelake, Lisa (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA), R10: Madden, Erin (Nez Perce Tribe), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality), R10: McClincy, Matt (Oregon Dept. of Environmental Quality), R10: Lee, Valerie (Environment International, Ltd.), R10: Baker, Jeff (Grand Ronde Tribe), R10: Longoria, Rose (Yakama Nation), R10: Hawley, Christine (Integral Corporation), R10: Cunningham, E, R10: Applegate, Rick (City of Portland), R10: Barquin, W.	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100017712	REDACTED Email regarding Stormwater Technical Team Conf. Call. 4/26/2007	38	4 EML / Email	R10: Stivers, Carl (Anchor Environmental, LLC)	R10: Sanders, Dawn (City of Portland, Oregon), R10: Scheffler, Linda (City of Portland, Oregon), R10: Jones, Laura (Integral Consulting, Inc.), R10: Koch, Kristine, M (EPA), R10: Tarnow, Karen, E (Oregon Dept. of Environmental Quality), R10: Koulermos, Andrew, C (Newfields, Inc.), R10: Spencer, Amanda, L (Ash Creek Associates, Inc.)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
4940680388	Email regarding reply to Fish consumption Advisory for freshwater clams in Columbia river. 4/27/2007	25	2 EML / Email	R10: Mckenna, James (Port of Portland)	R10: Blischke, Eric, L (EPA), R10: Wyatt, Robert, J (NW Natural), R10: Applegate, Rick (City of Portland)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization



100017191	4/30/2007	REDACTED Email regarding Stormwater Technical Team Conf. Call.	91	5 EML / Email	R10: Stivers, Carl (Anchor Environmental, LLC)	R10: Sanders, Dawn (City of Portland, Oregon), R10: Scheffler, Linda (City of Portland, Oregon), R10: Koch, Kristine, M (EPA), R10: Tarnow, Karen, E (Oregon Dept. of Environmental Quality), R10: Koulermos, Andrew, C (Newfields, Inc), R10: Spencer, Amanda, L (Ash Creek Associates, Inc.), R10: Jones, Laura (Integral Corporation)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100012424	5/1/2007	Email reminding of PH managers meeting tomorrow at 1 pm.	26	1 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Mckenna, Jim (Port of Portland), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Wyatt, Robert (Lower Willamette Group), R10: Revelas, Gene, C (Integral Consulting, Inc.), R10: Bluelake, Lisa (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA), R10: Madden, Erin (Nez Perce Tribe), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality), R10: Mcclincy, Matt (Oregon Dept. of Environmental Quality), R10: Lee, Valerie (Environment International, Ltd.), R10: Longoria, Rose (Yakama Nation), R10: Gouguet, Ron (NOAA), R10: Cunningham, E, R10: Applegate, Rick (City of Portland), R10: Barquin, W.	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100014687	5/1/2007	Email Regarding Portland Harbor RI/FS (Remedial Investigation/Feasibility Study) Round 3 Sampling of White Sturgeon Tissue, Field Sampling Report.	21	1 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100014689	5/1/2007	Appendix B, Natural Resource Trustees Supplemental Data Collection.	41	2 CORR / Correspondence	R10: (Lower Willamette Group)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100014691	5/1/2007	Portland Harbor RI/FS (Remedial Action/Feasibility Study) Round 3 Sampling of White Sturgeon Tissue Field Sampling Report.	879	28 CORR / Correspondence	R10: (Lower Willamette Group)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
4940680566	5/1/2007	Email regarding Sturgeon FSR.	31	1 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100011935	5/2/2007	Email regarding Siltronic property RI proposal - NW Natural and Siltronic properties source control work.	31	2 EML / Email	R10: Wyatt, Robert (Lower Willamette Group)	R10: Bayuk, Dana (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100013513	5/3/2007	Table showing benthic risk areas.	92	3 CHT / Chart/Table	R10: Unknown, Unknown (Unknown)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100016577	5/4/2007	REDACTED Email regarding Fate and Transport Modeling Check In Telecon : Monday May 7th at 2 to 4 pm.	251	3 EML / Email	R10: Stivers, Carl (Anchor Environmental, LLC)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100011832	5/7/2007	Email regarding benthic risk data gaps.	33	3 EML / Email	R10: Shorr, Benjamin (NOAA)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100012607	5/7/2007	Email regarding benthic risk data gaps-(1).	18	1 EML / Email	R10: Shorr, Benjamin (NOAA)	R10: Shephard, Burt (EPA), R10: Goulet, Joe (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100012973	5/7/2007	Portland Harbor benthic risk working.	19	2 RPT / Report	R10: (Unknown)	R10: Shephard, Burt (EPA), R10: Goulet, Joe (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100013510	5/7/2007	Email regarding Benthic Risk Data Gaps.	19	1 EML / Email	R10: Shorr, Benjamin (NOAA)	R10: Shephard, Burt (EPA), R10: Goulet, Joe (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100013511	5/7/2007	Notes regarding Portland Harbor benthic risk.	39	2 NOTE / Notes	R10: Unknown, Unknown (Unknown)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100013515	5/7/2007	Benthic Risk Lines of Evidence: Sediment Bioassay & Predictive Models.	1,077	1 FIG / Figure/Map/ Drawing	R10: Unknown, Unknown (NOAA), R10: Unknown, Unknown (EPA)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100013929	5/7/2007	Email Regarding benthic risk data gaps.	22	3 EML / Email	R10: Shorr, Benjamin (NOAA)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100013930	5/7/2007	Benthic Risk Lines of Evidence: Sediment Bioassay & Predictive Models.	1,070	1 FIG / Figure/Map/ Drawing	R10: Shorr, Benjamin (NOAA)		ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100013514	5/8/2007	Email regarding one-page weighted benthic risk areas.	18	1 EML / Email	R10: Shorr, Benjamin (NOAA)	R10: Shephard, Burt (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100015335	5/8/2007	Email regarding Draft 5/9 Portland Harbor Managers Meeting Agenda.	44	1 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Madden, Erin (Unknown), R10: Mckenna, James (Port of Portland), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Cunningham, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Revelas, Gene, C (Integral Consulting, Inc.), R10: Bluelake, Lisa (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Karnosh, Michael (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA), R10: Anderson, James, M (Oregon Dept. of Environmental Quality), R10: Mcclincy, Matt (Oregon Dept. of Environmental Quality), R10: Lee, Valerie (Environment International, Ltd.), R10: Longoria, Rose (Yakama Nation), R10: Wyatt, Robert, J (NW Natural), R10: Hawley, Christine (Integral Corporation), R10: Gouguet, Ron (NOAA), R10: Applegate, Rick (City of Portland), R10: Barquin, Billy (Haglund Kelley, LLP)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100017720	5/8/2007	REDACTED Email regarding Stormwater and Sediment Trap Update.	55	6 EML / Email	R10: Stivers, Carl (Anchor Environmental, LLC)	R10: Sanders, Dawn (City of Portland, Oregon), R10: Scheffler, Linda (City of Portland, Oregon), R10: Jones, Laura (Integral Consulting, Inc.), R10: Koch, Kristine, M (EPA), R10: Tarnow, Karen, E (Oregon Dept. of Environmental Quality), R10: Koulermos, Andrew, C (Newfields, Inc), R10: Spencer, Amanda, L (Ash Creek Associates, Inc.)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100011913	5/9/2007	Email regarding Re_MOU Partners - Is there a need for a conference call before the Milestone Meeting.	36	1 EML / Email	R10: Neely, Robert (NOAA)	R10: Yamamoto, Deb (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100017331	5/9/2007	REDACTED Agenda for Portland Harbor Managers' Meeting on May 9, 2007.	40	2 MTG / Meeting Document	R10: (Lower Willamette Group)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
4940680579	5/10/2007	Email regarding Validated Round 2 Lamprey Amocoetes data.	51	2 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Neely, Robert (NOAA), R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100008677	5/11/2007	Email regarding Agenda for Senior Management Meeting.	25	2 EML / Email	R10: Blischke, Eric, L (EPA)	R10: Neely, Robert (NOAA), R10: Mckenna, Jim (Port of Portland), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Cunningham, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Howard, Patti (Columbia River Inter-Tribal Fish Commission), R10: Karnosh, Michael (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA), R10: Madden, Erin (Nez Perce Tribe), R10: Barquin, Billy (Haglund, Kelley, Horngren, Jones & Wilder, LLP), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality), R10: Mcclincy, Matt (Oregon Dept. of Environmental Quality), R10: Lee, Jean, H (Environment International, Ltd.), R10: Longoria, Rose (Yakama Nation), R10: Wyatt, Robert, J (NW Natural), R10: Revelas, Gene (Integral Corporation), R10: Applegate, Rick (City of Portland)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization

100013410	Email regarding benthic risk documents - on public side of ftp site.	18	1 EML / Email	R10: Shorr, Benjamin (NOAA)	R10: Field, Jay (NOAA), R10: Neely, Robert (NOAA), R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100013518	5/14/2007 Accessing NOAA OR&R FTP Site (Public).	135	1 FIG / Figure/Map/ Drawing	R10: Shorr, Benjamin (NOAA)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100017721	REDACTED Email regarding Reply to Stormwater Technical Team Conf. Call.	35	1 EML / Email	R10: Stivers, Carl (Anchor Environmental, LLC)	R10: Sanders, Dawn (City of Portland, Oregon), R10: Scheffler, Linda (City of Portland, Oregon), R10: Jones, Laura (Integral Consulting, Inc.), R10: Koch, Kristine, M (EPA), R10: Tarnow, Karen, E (Oregon Dept. of Environmental Quality), R10: Koulermos, Andrew, C (Newfields, Inc), R10: Spencer, Amanda, L (Ash Creek Associates, Inc.)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100017723	REDACTED Email regarding Reply to Stormwater Technical Team Conf. Call.	37	2 EML / Email	R10: Stivers, Carl (Anchor Environmental, LLC)	R10: Sanders, Dawn (City of Portland, Oregon), R10: Scheffler, Linda (City of Portland, Oregon), R10: Stivers, Carl (Anchor Environmental, LLC), R10: Jones, Laura (Integral Consulting, Inc.), R10: Koch, Kristine, M (EPA), R10: Tarnow, Karen, E (Oregon Dept. of Environmental Quality), R10: Koulermos, Andrew, C (Newfields, Inc), R10: Spencer, Amanda, L (Ash Creek Associates, Inc.)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
4940680099	5/21/2007 Email regarding Next PH Managers meeting.	52	1 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Madden, Erin (Unknown), R10: Mckenna, Jim (Port of Portland), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Cunninghame, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Wyatt, Bob (Northwest Natural Gas Company), R10: Revelas, Gene, C (Integral Consulting, Inc.), R10: Bluelake, Lisa (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Blischke, Eric, L (EPA), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality), R10: Lee, Valerie (Environment International, Ltd.), R10: Longoria, Rose (Yakama Nation), R10: Hawley, Christine (Integral Corporation), R10: Gouguet, Ron (NOAA), R10: Applegate, Rick (City of Portland), R10: Barquin, Billy (Haglund Kelley, LLP)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100010920	5/22/2007 Email regarding Next PH Managers Meeting.	55	2 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Gouget, Ron (NOAA), R10: Madden, Erin (Unknown), R10: Mckenna, Jim (Port of Portland), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Cunninghame, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Revelas, Gene, C (Integral Consulting, Inc.), R10: Bluelake, Lisa (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Karnosh, Michael (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality), R10: McClincy, Matt (Oregon Dept. of Environmental Quality), R10: Lee, Valerie (Environment International, Ltd.), R10: Longoria, Rose (Yakama Nation), R10: Wyatt, Robert, J (NW Natural), R10: Hawley, Christine (Integral Corporation), R10: Applegate, Rick (City of Portland), R10: Barquin, Billy (Haglund Kelley, LLP)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
4940680659	Email regarding reply to Next PH Managers meeting.	55	2 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Mckenna, James (Port of Portland), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Cunninghame, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Bluelake, Lisa (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Blischke, Eric, L (EPA), R10: Madden, Erin (Nez Perce Tribe), R10: Anderson, James, M (Oregon Dept. of Environmental Quality), R10: Lee, Valerie (Environment International, Ltd.), R10: Longoria, Rose (Yakama Nation), R10: Wyatt, Robert, J (NW Natural), R10: Hawley, Christine (Integral Corporation), R10: Gouguet, Ron (NOAA), R10: Applegate, Rick (City of Portland), R10: Barquin, Billy (Haglund Kelley, LLP)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100010821	Email transmitting Portland Harbor Managers' Meeting Agenda.	32	2 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Mckenna, Jim (Lower Willamette Group), R10: Wyatt, Robert (Lower Willamette Group), R10: Revelas, Gene, C (Integral Consulting, Inc.), R10: Bluelake, Lisa (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Karnosh, Michael (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA), R10: Madden, Erin (Nez Perce Tribe), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality), R10: McClincy, Matt (Oregon Dept. of Environmental Quality), R10: Lee, Valerie Ann (Environment International, Ltd.), R10: Longoria, Rose (Yakama Nation), R10: Gouguet, Ron (NOAA), R10: Cunningham, E, R10: Barquin, W.	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100012656	Email regarding LWG "Areas of Potential Risk" Layer.	30	2 EML / Email	R10: Shorr, Benjamin (NOAA)	R10: Hurley, Kathleen (Windward Environmental, LLC.)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100015794	REDACTED Portland Harbor Managers' Meeting Agenda.	35	2 MTG / Meeting Document	R10: (Lower Willamette Group)		ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization

100010892	Email regarding Next PH Managers Meeting - 5/24/2007 May 30.	79	3 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Gouget, Ron (NOAA), R10: Madden, Erin (Unknown), R10: Mckenna, Jim (Port of Portland), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Cunninghame, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Oster, Valerie (Anchor Environmental, LLC), R10: Revelas, Gene, C (Integral Consulting, Inc.), R10: Bluelake, Lisa (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Karnosh, Michael (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality), R10: Mcclincy, Matt (Oregon Dept. of Environmental Quality), R10: Lee, Valerie (Environment International, Ltd.), R10: Longoria, Rose (Yakama Nation), R10: Wyatt, Robert, J (NW Natural), R10: Hawley, Christine (Integral Corporation), R10: Applegate, Rick (City of Portland), R10: Barquin, Billy (Haglund Kelley, LLP)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100012404	Email regarding Portland Harbor Query Manager Update.	24	1 EML / Email	R10: Neely, Robert (NOAA)	R10: Howard, Patti (Columbia River Inter-Tribal Fish Commission), R10: Bridgen, Pamela, J (Environment International, Ltd.), R10: Blischke, Eric, L (EPA), R10: Shephard, Burt (EPA), R10: Humphrey, Chip (EPA), R10: Goulet, Joe (EPA), R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality), R10: Longoria, Rose (Yakama Nation), R10: Thompson, Chris (Environment International, Ltd.), R10: Buck, Jeremy (U. S. Fish & Wildlife Service)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
4940680002	Email regarding Revised Round 2 Benthic Toxicity GIS File.	57	2 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Mckenna, Jim (Port of Portland), R10: Oster, Valerie (Anchor Environmental, LLC), R10: Wyatt, Bob (Northwest Natural Gas Company), R10: Blischke, Eric, L (EPA), R10: Applegate, Rick (City of Portland)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
4940680557	Email regarding Revised Round 2 Benthic Toxicity GIS File.	57	2 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Blischke, Eric, L (EPA), R10: Wyatt, Robert, J (NW Natural), R10: Applegate, Rick (City of Portland)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
4940680658	Email regarding reply to Next PH Managers meeting - May 30.	79	3 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Mckenna, James (Port of Portland), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Cunninghame, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Oster, Valerie (Anchor Environmental, LLC), R10: Bluelake, Lisa (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Blischke, Eric, L (EPA), R10: Madden, Erin (Nez Perce Tribe), R10: Anderson, James, M (Oregon Dept. of Environmental Quality), R10: Lee, Valerie (Environment International, Ltd.), R10: Longoria, Rose (Yakama Nation), R10: Wyatt, Robert, J (NW Natural), R10: Hawley, Christine (Integral Corporation), R10: Gouguet, Ron (NOAA), R10: Applegate, Rick (City of Portland), R10: Barquin, Billy (Haglund Kelley, LLP)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100008728	5/25/2007 Email regarding Framework for July 1, 2007.	20	2 EML / Email	R10: Blischke, Eric, L (EPA)	R10: Mckenna, Jim (Port of Portland), R10: Blischke, Eric, L (EPA), R10: Applegate, Rick (City of Portland)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100010683	5/25/2007 Email regarding Framework for July 1, 2007.	24	2 EML / Email	R10: Wyatt, Robert, J (NW Natural)	R10: Mckenna, Jim (Port of Portland), R10: Blischke, Eric, L (EPA), R10: Applegate, Rick (City of Portland)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100013520	5/25/2007 Areas of Potential Benthic Risk.	76	16 CHT / Chart/Table	R10: Unknown, Unknown (Unknown)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100017726	REDACTED Email regarding Potential Sediment Trap Modifications.	34	5 EML / Email	R10: Stivers, Carl (Anchor Environmental, LLC)	R10: Sanders, Dawn (City of Portland, Oregon), R10: Scheffler, Linda (City of Portland, Oregon), R10: Jones, Laura (Integral Consulting, Inc.), R10: Koch, Kristine, M (EPA), R10: Tarnow, Karen, E (Oregon Dept. of Environmental Quality), R10: Koulermos, Andrew, C (Newfields, Inc.), R10: Spencer, Amanda, L (Ash Creek Associates, Inc.)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
4940680392	Email regarding reply to Framework for July 1, 2007.	24	2 EML / Email	R10: Wyatt, Robert, J (NW Natural)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100010923	Email regarding Next PH Managers Meeting - 5/29/2007 May 30.	81	4 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Gouget, Ron (NOAA), R10: Madden, Erin (Unknown), R10: Mckenna, Jim (Port of Portland), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Cunninghame, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Oster, Valerie (Anchor Environmental, LLC), R10: Revelas, Gene, C (Integral Consulting, Inc.), R10: Bluelake, Lisa (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Karnosh, Michael (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality), R10: Mcclincy, Matt (Oregon Dept. of Environmental Quality), R10: Lee, Valerie (Environment International, Ltd.), R10: Longoria, Rose (Yakama Nation), R10: Wyatt, Robert, J (NW Natural), R10: Hawley, Christine (Integral Corporation), R10: Applegate, Rick (City of Portland), R10: Barquin, Billy (Haglund Kelley, LLP)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100012481	5/29/2007 Email regarding Follow Up.	35	6 EML / Email	R10: Shorr, Benjamin (NOAA)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100013519	5/29/2007 Email regarding follow up.	23	4 EML / Email	R10: Shorr, Benjamin (NOAA)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization



4940680657	5/29/2007	Email regarding reply to Next PH Managers meeting - May 30.	81	4 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Mckenna, James (Port of Portland), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Cunninghame, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Oster, Valerie (Anchor Environmental, LLC), R10: Bluelake, Lisa (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Blischke, Eric, L (EPA), R10: Madden, Erin (Nez Perce Tribe), R10: Anderson, James, M (Oregon Dept. of Environmental Quality), R10: Lee, Valerie (Environment International, Ltd.), R10: Longoria, Rose (Yakama Nation), R10: Wyatt, Robert, J (NW Natural), R10: Hawley, Christine (Integral Corporation), R10: Gouguet, Ron (NOAA), R10: Applegate, Rick (City of Portland), R10: Barquin, Billy (Haglund Kelley, LLP)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100013584	5/30/2007	Excel spreadsheet: EPA proposed.	65	4 CHT / Chart/Table	R10: Unknown, Unknown (Unknown)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100013385	5/31/2007	Email regarding Bioassay Data.	1,514	1 EML / Email	R10: Shorr, Benjamin (NOAA)	R10: Field, Jay (NOAA), R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100011321	6/1/2007	Email regarding Roll Out Meeting Date Change.	35	4 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100012975	6/1/2007	Draft Proposed Rd 3B: River Miles 9-10 Bioassay and Surface Sediment Sampling.	616	1 FIG / Figure/Map/ Drawing	R10: (NOAA)		ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100013568	6/1/2007	Draft Proposed Rd 3B: River Miles 9-10 Bioassay & Surface Sediment Sampling.	616	1 FIG / Figure/Map/ Drawing	R10: Unknown, Unknown (NOAA)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100013576	6/1/2007	Surface Sediment Samples.	56	1 CHT / Chart/Table	R10: Unknown, Unknown (Unknown)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100016836	6/1/2007	REDACTED Email regarding benthic risk proposed samples.	19	1 EML / Email	R10: Shorr, Benjamin (NOAA)	R10: Field, Jay (NOAA), R10: Neely, Robert (NOAA), R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
4940680028	6/1/2007	Email regarding FINAL R2 Report Errata Sheet.	56	2 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Madden, Erin (Unknown), R10: Mckenna, Jim (Port of Portland), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Cunninghame, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Wyatt, Bob (Northwest Natural Gas Company), R10: Revelas, Gene, C (Integral Consulting, Inc.), R10: Bluelake, Lisa (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Blischke, Eric, L (EPA), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality), R10: Lee, Valerie (Environment International, Ltd.), R10: Longoria, Rose (Yakama Nation), R10: Hawley, Christine (Integral Corporation), R10: Gouguet, Ron (NOAA), R10: Applegate, Rick (City of Portland), R10: Barquin, Billy (Haglund Kelley, LLP)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
4940680528	6/1/2007	Email regarding FINAL R2 Report Errata Sheet.	56	2 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Cunninghame, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Bluelake, Lisa (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Blischke, Eric, L (EPA), R10: Madden, Erin (Nez Perce Tribe), R10: Anderson, James, M (Oregon Dept. of Environmental Quality), R10: Lee, Valerie (Environment International, Ltd.), R10: Longoria, Rose (Yakama Nation), R10: Wyatt, Robert, J (NW Natural), R10: Hawley, Christine (Integral Corporation), R10: Gouguet, Ron (NOAA), R10: Applegate, Rick (City of Portland), R10: Barquin, Billy (Haglund Kelley, LLP)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
4940680632	6/1/2007	Email regarding reply to Framework for July 1, 2007.	24	2 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100016599	6/4/2007	REDACTED Email regarding benthic risk proposed samples.	24	2 EML / Email	R10: Shorr, Benjamin (NOAA)	R10: Neely, Robert (NOAA), R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100016858	6/4/2007	REDACTED Email regarding benthic risk proposed samples.	24	2 EML / Email	R10: Shorr, Benjamin (NOAA)	R10: Neely, Robert (NOAA), R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100017202	6/4/2007	REDACTED Email regarding PH Data question.	60	7 EML / Email	R10: Koch, Kristine, M (EPA)	R10: Grepogrove, Gina (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100012731	6/5/2007	Email regarding Surface & Subsurface Locations.	22	1 EML / Email	R10: Shorr, Benjamin (NOAA)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100012730	6/6/2007	Email regarding Sturgeon Analysis/Liver Update.	23	1 EML / Email	R10: Neely, Robert (NOAA)	R10: Shephard, Burt (EPA), R10: Humphrey, Chip (EPA), R10: Goulet, Joe (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100013571	6/7/2007	Email regarding benthic risk documents.	18	1 EML / Email	R10: Shorr, Benjamin (NOAA)	R10: Neely, Robert (NOAA), R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100013588	6/7/2007	Email regarding benthic risk - next steps.	24	5 EML / Email	R10: Shorr, Benjamin (NOAA)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100017727	6/7/2007	REDACTED Email regarding PH Data question.	71	7 EML / Email	R10: Koch, Kristine, M (EPA)	R10: Sanders, Dawn (City of Portland, Oregon), R10: Scheffler, Linda (City of Portland, Oregon), R10: Stivers, Carl (Anchor Environmental, LLC), R10: Jones, Laura (Integral Consulting, Inc.), R10: Tarnow, Karen, E (Oregon Dept. of Environmental Quality), R10: Koulermos, Andrew, C (Newfields, Inc)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100017730	6/7/2007	REDACTED Email regarding Reply to PH Data question.	53	13 EML / Email	R10: Jones, Laura (Integral Consulting, Inc.)	R10: Sanders, Dawn (City of Portland, Oregon), R10: Scheffler, Linda (City of Portland, Oregon), R10: Stivers, Carl (Anchor Environmental, LLC), R10: Koch, Kristine, M (EPA), R10: Tarnow, Karen, E (Oregon Dept. of Environmental Quality), R10: Koulermos, Andrew, C (Newfields, Inc)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
4940680580	6/7/2007	Email regarding Validated Round 3A Upstream/Downstream Data.	52	2 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Neely, Robert (NOAA), R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100015331	6/8/2007	Email regarding Progress Report.	46	2 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100015340	6/8/2007	Monthly Progress Report for May 2007 - Lower Willamette River, Portland Harbor Superfund Site - USEPA Docket No: CERCLA-10-2001-0240.	250	20 RPT / Report	R10: Revelas, Gene, C (Lower Willamette Group)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100017209	6/8/2007	REDACTED Email regarding PH Data question.	65	11 EML / Email	R10: Grepogrove, Gina (EPA)	R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100010775	6/12/2007	Email regarding Managers Meeting Tomorrow.	21	1 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Madden, Erin (Unknown), R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization

									R10: Madden, Erin (Unknown), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Revelas, Gene, C (Lower Willamette Group), R10: Wyatt, Bob (Lower Willamette Group), R10: Mckenna, Jim (Lower Willamette Group), R10: Bluelake, Lisa (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Karnosh, Michael (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality), R10: Lee, Valerie (Environment International, Ltd.), R10: Longoria, Rose (Yakama Nation), R10: Hawley, Christine (Integral Corporation), R10: Gouguet, Ron (NOAA), R10: Applegate, Rick (City of Portland), R10: Barquin, Billy (Haglund Kelley, LLP), R10: Cunningham, E (gorge.net)	
100017861	6/12/2007	REDACTED Email Regarding 06/13/2007 Portland Harbor Managers' Meeting.	20	1	EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)		ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization	
4940680650	6/12/2007	Email regarding reply to Manager's meeting tomorrow.	21	1	EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Blischke, Eric, L (EPA), R10: Madden, Erin (Nez Perce Tribe)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization	
100017873	6/13/2007	REDACTED Agenda for 06/13/2007 Portland Harbor Managers' Meeting.	32	2	CORR / Correspondence	R10: (Lower Willamette Group)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization	
4940680427	6/13/2007	Email regarding reply to NW Natural, Gasco Site Extraction Well Pilot Program.	28	2	EML / Email	R10: Wyatt, Robert, J (NW Natural)	R10: Bayuk, Dana (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization	
100013596	6/14/2007	Round 3B Data Gaps: Portland Harbor RI/FS.	4,595	20	MTG / Meeting Document	R10: Blischke, Eric, L (EPA)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization	
100015119	6/15/2007	Email Regarding Linnton survey.	18	1	EML / Email	R10: Mckenna, Jim (Port of Portland)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization	
100017242	6/15/2007	REDACTED Email regarding reply to Lamprey Call.	18	1	EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization	
4940680640	6/15/2007	Email regarding reply to June 14 Powerpoint presentation.	21	1	EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization	
100015343	6/16/2007	Stormwater Sample Matrix.	105	3	CHT / Chart/Table	R10: (Anchor Environmental, LLC)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization	
100017743	6/17/2007	REDACTED Email regarding June 18 SW Tech Team Call at 11:00 am.	46	8	EML / Email	R10: Stivers, Carl (Anchor Environmental, LLC)	R10: Lafranchise, Nicole, M (Port of Portland), R10: Stivers, Carl (Anchor Environmental, LLC), R10: Jones, Laura (Integral Consulting, Inc.), R10: Koch, Kristine, M (EPA), R10: Koulermos, Andrew, C (Newfields, Inc)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization	
100017746	6/18/2007	REDACTED Email regarding Reply to June 18 SW Tech Team Call - additional info.	63	6	EML / Email	R10: Stivers, Carl (Anchor Environmental, LLC)	R10: Lafranchise, Nicole, M (Port of Portland), R10: Koch, Kristine, M (EPA), R10: Koulermos, Andrew, C (Newfields, Inc), R10: Jones, Laura (Integral Corporation)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization	
4940680089	6/20/2007	Email regarding Permit for Fish Sampling.	22	1	EML / Email	R10: Mckenna, Jim (Port of Portland)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization	
4940680332	6/20/2007	Email regarding Permit for Fish Sampling.	22	1	EML / Email	R10: Mckenna, James (Port of Portland)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization	
100013594	6/21/2007	Email regarding R3 data gaps/issues for discussion with LWG.	19	1	EML / Email	R10: Neely, Robert (NOAA)	R10: Field, Jay (NOAA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization	
100014694	6/21/2007	Email Regarding Storm Sample, Matrix, Status of Stormwater Outfall Composite Water Samples.	44	2	EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Madden, Erin (Unknown), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Revelas, Gene, C (Lower Willamette Group), R10: Wyatt, Bob (Lower Willamette Group), R10: Bluelake, Lisa (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Karnosh, Michael (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality), R10: Mcclincy, Matt (Oregon Dept. of Environmental Quality), R10: Lee, Valerie (Environment International, Ltd.), R10: Longoria, Rose (Yakama Nation), R10: Hawley, Christine (Integral Corporation), R10: Gouguet, Ron (NOAA), R10: Applegate, Rick (City of Portland), R10: Barquin, Billy (Haglund Kelley, LLP), R10: Cunningham, E (gorge.net)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization	
100015332	6/21/2007	Email regarding Stormwater Sample Matrix.	46	2	EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Madden, Erin (Unknown), R10: Mckenna, James (Port of Portland), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Cunningham, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Revelas, Gene, C (Integral Consulting, Inc.), R10: Bluelake, Lisa (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Karnosh, Michael (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA), R10: Anderson, James, M (Oregon Dept. of Environmental Quality), R10: Mcclincy, Matt (Oregon Dept. of Environmental Quality), R10: Lee, Valerie (Environment International, Ltd.), R10: Longoria, Rose (Yakama Nation), R10: Wyatt, Robert, J (NW Natural), R10: Hawley, Christine (Integral Corporation), R10: Gouguet, Ron (NOAA), R10: Applegate, Rick (City of Portland), R10: Barquin, Billy (Haglund Kelley, LLP)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization	
100015341	6/22/2007	List of LWG Sediment Samples for Disposal.	174	33	CHT / Chart/Table	R10: (Integral Corporation)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization	
4940680575	6/26/2007	Email regarding Validated LWG Round 3 Lamprey Data.	28	2	EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Neely, Robert (NOAA), R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization	
4940680576	6/26/2007	Email regarding Validated LWG Round 3 Lamprey Data.	26	1	EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Neely, Robert (NOAA), R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization	
100015344	6/27/2007	Email regarding LWG Sediment Sample Disposal.	47	2	EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization	
100015736	6/27/2007	REDACTED Email regarding PH Managers Meeting - 6/28.	29	4	EML / Email	R10: Mckenna, Jim (Port of Portland)	R10: Oster, Valerie (Anchor Environmental, LLC), R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization	
100018191	6/27/2007	REDACTED Email regarding reply to PH Managers Meeting - 6/28.	30	4	EML / Email	R10: Mckenna, James (Port of Portland)	R10: Oster, Valerie (Anchor Environmental, LLC), R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization	
100008576	6/28/2007	Table 1: Round 3 Data Gap Summary Table.	66	4	CHT / Chart/Table	R10: Unknown, Unknown (Unknown)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization	
100010942	6/28/2007	Email regarding NW Natural, Phase 2 Offshore Field Sampling Approach.	29	2	EML / Email	R10: Wyatt, Robert, J (NW Natural)	R10: Bayuk, Dana (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization	
100008584	6/29/2007	Email regarding Round 3B Data Gaps.	28	3	EML / Email	R10: Blischke, Eric, L (EPA)	R10: Mckenna, Jim (Port of Portland), R10: Wyatt, Robert, J (NW Natural), R10: Applegate, Rick (City of Portland)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization	
100011904	6/29/2007	Email regarding round 3B data gaps.	35	2	EML / Email	R10: Mckenna, Jim (Port of Portland)	R10: Blischke, Eric, L (EPA), R10: Wyatt, Robert, J (NW Natural), R10: Applegate, Rick (City of Portland)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization	
4940680577	6/29/2007	Email regarding Validated LWG Stormwater Data - 1st Batch.	94	2	EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Neely, Robert (NOAA), R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization	
100014821	7/1/2007	City of Portland Outfall Project: Conceptual Remedial Investigation and Source Control Evaluation.	68	3	RPT / Report	R10: Unknown, Unknown (Unknown)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization	

100011867	7/2/2007	Email regarding ODFW's Take Permit.	26	2 EML / Email	R10: Neely, Robert (NOAA)	R10: Munn, Nancy (NOAA), R10: Schaeffer, Leslie (NOAA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100011336	7/3/2007	Email regarding Sturgeon Liver Analysis. Application for a Permit for Scientific Purposes Under the Endangered Species Act of 1973, Section 10(a)(1)(A).	23	1 EML / Email	R10: Neely, Robert (NOAA)	R10: Howard, Patti (Columbia River Inter-Tribal Fish Commission), R10: Longoria, Rose (Yakama Nation), R10: Thompson, Chris (Environment International, Ltd.), R10: Buck, Jeremy (U. S. Fish & Wildlife Service)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100015353	7/3/2007	Email regarding LWG Application for Section 10 Permit.	487	34 OTH / Other	R10: (Lower Willamette Group)	R10: (NOAA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100015342	7/5/2007	10 Permit.	19	1 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Neely, Robert (NOAA), R10: Schaeffer, Leslie (NOAA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100017217	7/9/2007	REDACTED Email regarding Sediment Trap Sampling Update.	95	6 EML / Email	R10: Stivers, Carl (Anchor Environmental, LLC)	R10: Lafranchise, Nicole, M (Port of Portland), R10: Stivers, Carl (Anchor Environmental, LLC), R10: Koch, Kristine, M (EPA), R10: Koulermos, Andrew, C (Newfields, Inc), R10: Jones, Laura (Integral Corporation)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
4940680542	7/9/2007	Email regarding June draft progress report.	213	2 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Cunninghame, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Pisano, Jessica, A (Anchor Environmental, LLC), R10: Bluelake, Lisa (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Blischke, Eric, L (EPA), R10: Madden, Erin (Nez Perce Tribe), R10: Anderson, James, M (Oregon Dept. of Environmental Quality), R10: Lee, Valerie (Environment International, Ltd.), R10: Longoria, Rose (Yakama Nation), R10: Wyatt, Robert, J (NW Natural), R10: Hawley, Christine (Integral Corporation), R10: Gouguet, Ron (NOAA), R10: Applegate, Rick (City of Portland), R10: Barquin, Billy (Haglund Kelley, LLP)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100011075	7/10/2007	Email regarding PH Managers Meeting.	22	2 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100017877	7/10/2007	REDACTED Email Regarding 07/11/2007 Portland Harbor Managers' Meeting.	45	1 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Madden, Erin (Unknown), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Revelas, Gene, C (Lower Willamette Group), R10: Wyatt, Bob (Lower Willamette Group), R10: McKenna, Jim (Lower Willamette Group), R10: Bluelake, Lisa (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Karnosh, Michael (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality), R10: McClincy, Matt (Oregon Dept. of Environmental Quality), R10: Lee, Valerie (Environment International, Ltd.), R10: Longoria, Rose (Yakama Nation), R10: Hawley, Christine (Integral Corporation), R10: Gouguet, Ron (NOAA), R10: Applegate, Rick (City of Portland), R10: Barquin, Billy (Haglund Kelley, LLP), R10: Cunningham, E (gorge.net)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
4940680663	7/10/2007	Email regarding reply to PH Managers meeting.	23	2 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100017892	7/11/2007	REDACTED Agenda for 07/11/2007 Portland Harbor Managers' Meeting.	32	2 CORR / Correspondence	R10: (Lower Willamette Group)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100016598	7/13/2007	REDACTED Email regarding GIS Data Request for Portland Harbor.	67	2 EML / Email	R10: Shorr, Benjamin (NOAA)	R10: Baker, Mary (NOAA), R10: Neely, Robert (NOAA), R10: Blischke, Eric, L (EPA), R10: Crosslin, Thomas (Integral Corporation)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100017350	7/16/2007	REDACTED Email regarding August 1 Lamprey Meeting.	22	1 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Madden, Erin (Unknown), R10: Ashton, David (Port of Portland), R10: McKenna, James (Port of Portland), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Cunninghame, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Pisano, Jessica, A (Anchor Environmental, LLC), R10: Saban, Lisa (Windward Environmental, LLC.), R10: Bluelake, Lisa (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Borok, Aron (Environment International, Ltd.), R10: Wyatt, Robert, J (NW Natural), R10: Revelas, Gene (Integral Corporation), R10: Dost, Patty (Schwabe, Williamson & Wyatt, P.C.), R10: Applegate, Rick (City of Portland), R10: Barquin, Billy (Haglund Kelley, LLP)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100017559	7/16/2007	REDACTED Email regarding August 1 lamprey meeting.	46	1 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Madden, Erin (Unknown), R10: McKenna, Jim (Port of Portland), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Cunninghame, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Pisano, Jessica, A (Anchor Environmental, LLC), R10: Saban, Lisa (Windward Environmental, LLC.), R10: Wyatt, Bob (Northwest Natural Gas Company), R10: Revelas, Gene, C (Integral Consulting, inc.), R10: Bluelake, Lisa (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Borok, Aron (Environment International, Ltd.), R10: Dost, Patty (Schwabe, Williamson & Wyatt, P.C.), R10: Applegate, Rick (City of Portland), R10: Barquin, Billy (Haglund Kelley, LLP)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100013381	7/17/2007	Email regarding aquatic toxicology.	21	1 EML / Email	R10: Shorr, Benjamin (NOAA)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100015833	7/17/2007	REDACTED Email regarding TCT Agenda and Time Change.	25	1 EML / Email	R10: Neely, Robert (NOAA)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100016092	7/17/2007	REDACTED Email regarding TCT Agenda and Time Change.	25	1 EML / Email	R10: Neely, Robert (NOAA)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100016596	7/17/2007	REDACTED Email regarding GIS Data Request for Portland Harbor.	82	3 EML / Email	R10: Shorr, Benjamin (NOAA)	R10: Blischke, Eric, L (EPA), R10: Revelas, Gene (Integral Corporation), R10: Crosslin, Thomas (Integral Corporation)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100015367	7/18/2007	Email regarding Fish Vicinity Map.	19	1 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Neely, Robert (NOAA), R10: Schaeffer, Leslie (NOAA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100012710	7/19/2007	Email regarding Willamette River Data to Add.	23	1 EML / Email	R10: Neely, Robert (NOAA)	R10: Neely, Robert (NOAA), R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100012712	7/20/2007	Email regarding Willamette River Data to Add.	25	2 EML / Email	R10: Neely, Robert (NOAA)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100015366	7/20/2007	Email regarding Fate and Transport Modeling Report to EPA.	23	2 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
4940680030	7/20/2007	Email regarding Fate and Transport Modeling Report to EPA.	57	2 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization

					R10: Unknown, Unknown (Anchor Environmental, LLC), R10: Unknown, Unknown (Kennedy/Jenks Consultants), R10: Unknown, Unknown (Windward Environmental, LLC.), R10: Unknown, Unknown (Integral Consulting, Inc.)			
100017047	7/21/2007	REDACTED Portland Harbor RI/FS Comprehensive Round 2 Site Characterization Summary and Data Gaps ANALYSIS REPORT.	255,596	1840 RPT / Report	R10: Unknown, Unknown (Lower Willamette Group)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization	
100017376	7/24/2007	REDACTED Email regarding Lamprey Tox Conf Call.	19	1 EML / Email	R10: Mckenna, James (Port of Portland)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization	
100011902	8/2/2007	Email regarding Mapping.	31	3 EML / Email	R10: Shorr, Benjamin (NOAA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization	
100011333	8/9/2007	Email regarding Table.	25	1 EML / Email	R10: Shorr, Benjamin (NOAA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization	
100011783	8/9/2007	Email regarding Rd 3b. Subsurface and additional surface sediment.	23	1 EML / Email	R10: Shorr, Benjamin (NOAA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization	
100012428	8/9/2007	Email regarding Rd 3b. Subsurface and Additional Surface Sediment Station Locations.	24	1 EML / Email	R10: Shorr, Benjamin (NOAA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization	
100008733	8/13/2007	Email regarding EPA Comments on Sediment Core FSP.	19	1 EML / Email	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization	
100011770	8/13/2007	Email regarding EPA comments on sediment core FSP.	25	1 EML / Email	R10: Mckenna, Jim (Port of Portland)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization	
100012492	8/13/2007	Email regarding EPA Comments on Sediment Core FSP.	36	3 EML / Email	R10: Shorr, Benjamin (NOAA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization	
100017747	8/13/2007	REDACTED Email regarding Reply to Stormwater Sediment Trap Sample Handling and Analysis Methods Conference Call Try #3 Monday August 13th 9-11.	39	4 EML / Email	R10: Stivers, Carl (Anchor Environmental, LLC)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization	
4940680377	8/13/2007	Email regarding reply to EPA Comments on Sediment Core FSP.	23	1 EML / Email	R10: Mckenna, James (Port of Portland)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization	
100016445	8/14/2007	REDACTED Email regarding round 3 biota sampling.	20	1 EML / Email	R10: Mckenna, Jim (Port of Portland)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization	
100018209	8/14/2007	REDACTED Email regarding Round 3 Biota Sampling.	21	1 EML / Email	R10: Mckenna, James (Port of Portland)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization	
100008579	8/17/2007	Email regarding Conditional Approval of Biota Tissue FSP and Lamprey Toxicity Testing FSP.	18	1 EML / Email	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization	
100008581	8/17/2007	Letter regarding Lamprey Toxicity Test Field Sampling Plan and QAPP Phase 2 Addenda.	89	5 LTR / Letter	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization	
100008588	8/17/2007	Letter regarding Round 3B Field Sampling Plan for Fish and Invertebrate Tissue and Collocated Surface Sediment.	64	10 LTR / Letter	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization	
100016275	8/17/2007	REDACTED Email regarding conditional approval of biota tissue FSP and lamprey toxicity testing FSP.	21	1 EML / Email	R10: Mckenna, Jim (Port of Portland), R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization	
100017406	8/17/2007	REDACTED Email regarding reply to Conditional Approval of Biota Tissue FSP and Lamprey Toxicity Testing FSP.	20	1 EML / Email	R10: Mckenna, James (Port of Portland), R10: Blischke, Eric, L (EPA), R10: Applegate, Rick (City of Portland)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization	
4940680328	8/21/2007	Email regarding Round 3B Biota Tissue FSP and sculpin and crayfish sampling.	23	1 EML / Email	R10: Mckenna, James (Port of Portland)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization	
4940680519	8/21/2007	Email regarding	23	1 EML / Email	R10: Shephard, Burt (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization	
100017775	8/22/2007	REDACTED Email regarding Reply to Stormwater Technical Team Call Thursday Aug. 23rd at 1 pm.	20	2 EML / Email	R10: Stivers, Carl (Anchor Environmental, LLC)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization	
100017226	8/24/2007	REDACTED Email regarding Stormwater Technical Team Call Thursday Aug. 23rd at 1 pm.	43	8 EML / Email	R10: Mckenna, Jim (Port of Portland)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization	
100017162	8/27/2007	REDACTED Email regarding Highlights Stormwater Technical Team Call Thursday Aug. 23rd at 1 pm.	79	4 EML / Email	R10: Stivers, Carl (Anchor Environmental, LLC)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization	
100012978	8/29/2007	Comments on the Lower Willamette Group's August 6, 2007 Permit Application Under the Endangered Species Act.	1,757	3 CORR / Correspondence	R10: Dragna, James (Bingham McCutchen LLP)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization	
100010938	8/30/2007	Email regarding NW Natural - Gasco Site, Surface Water Field Sampling Plan.	30	2 EML / Email	R10: Wyatt, Robert, J (NW Natural)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization	
100010840	9/3/2007	Email regarding Modification to FSP procedure, Round 3B Biota Sampling, Portland Harbor.	28	3 EML / Email	R10: Mckenna, Jim (Port of Portland)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization	
100016600	9/4/2007	REDACTED Email regarding comments on LWG permit application.	20	1 EML / Email	R10: Neely, Robert (NOAA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization	
100017550	9/4/2007	REDACTED Email regarding comments on LWG permit application.	22	2 EML / Email	R10: Schaeffer, Leslie (NOAA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization	
100012303	9/5/2007	Email regarding Comments on ESA Section 10 Permit Application #10021.	28	2 EML / Email	R10: Schaeffer, Leslie (NOAA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization	
100011029	9/6/2007	Email regarding comments on ESA section 10 permit application #10021.	30	2 EML / Email	R10: Mckenna, James (Port of Portland)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization	
100010930	9/14/2007	Email regarding NW Natural - Gasco Site Seepage Meter Deployment, TZW and Tidal Influence Study.	29	2 EML / Email	R10: Wyatt, Robert, J (NW Natural)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization	
100008647	9/17/2007	Summary of Proposed Smallmouth Bass for Composites.	89	3 CHT / Chart/Table	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization	
100017228	9/18/2007	REDACTED Email regarding Notes from Stormwater Tech Team Call Sept 14th at 1:15pm.	94	6 EML / Email	R10: Stivers, Carl (Anchor Environmental, LLC)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization	
100008614	9/20/2007	Email regarding EPA Comments on Sedflume Incorporation Memo and Gunderson Strat Core FSP.	17	1 EML / Email	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization	



100008624	9/20/2007	Letter regarding Round 3 Groundwater Pathway Assessment: Field Sampling Plan for Stratigraphic Coring and Bulk Sediment - Gunderson.	37	4 LTR / Letter	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	R10: Mckenna, Jim (Port of Portland), R10: Wyatt, Robert, J (NW Natural)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100008627	9/20/2007	Letter regarding Technical Memorandum: Sedflume Data Incorporation into Hydrodynamic/Sediment Transport Model.	25	3 LTR / Letter	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	R10: Mckenna, Jim (Port of Portland), R10: Wyatt, Robert, J (NW Natural)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100017174	9/20/2007	REDACTED Email regarding Notes from Stormwater Tech Team Call Sept 14th at 1:15pm.	54	11 EML / Email	R10: Tarnow, Karen, E (Oregon Dept. of Environmental Quality)	R10: Sanders, Dawn (City of Portland, Oregon), R10: Scheffler, Linda (City of Portland, Oregon), R10: Lafranchise, Nicole, M (Port of Portland), R10: Shellenberger, Amanda (Anchor Environmental, LLC), R10: Koch, Kristine, M (EPA), R10: Tarnow, Karen, E (Oregon Dept. of Environmental Quality), R10: Koulermos, Andrew, C (Newfields, Inc.), R10: Jones, Laura (Integral Corporation)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100017788	9/20/2007	REDACTED Email regarding Reply to Notes from Stormwater Tech Team Call Sept 14th at 1:15pm.	62	8 EML / Email	R10: Stivers, Carl (Anchor Environmental, LLC)	R10: Sanders, Dawn (City of Portland, Oregon), R10: Scheffler, Linda (City of Portland, Oregon), R10: Lafranchise, Nicole, M (Port of Portland), R10: Shellenberger, Amanda (Anchor Environmental, LLC), R10: Koch, Kristine, M (EPA), R10: Tarnow, Karen, E (Oregon Dept. of Environmental Quality), R10: Koulermos, Andrew, C (Newfields, Inc.), R10: Jones, Laura (Integral Corporation)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100008681	9/27/2007	Email regarding Biota Tissue Sampling.	17	1 EML / Email	R10: Blischke, Eric, L (EPA)	R10: Mckenna, Jim (Port of Portland), R10: Wyatt, Robert, J (NW Natural), R10: Applegate, Rick (City of Portland)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100012361	9/28/2007	Email regarding Local Interest Greenwire Article Today.	33	1 EML / Email	R10: Gouguet, Ron (NOAA)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100008736	10/2/2007	Email regarding NAS Site Visit.	19	1 EML / Email	R10: Blischke, Eric, L (EPA)	R10: Mckenna, Jim (Port of Portland), R10: Wyatt, Robert, J (NW Natural), R10: Applegate, Rick (City of Portland)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100010917	10/2/2007	Email regarding NAS Site Visit.	22	1 EML / Email	R10: Mckenna, Jim (Port of Portland)	R10: Blischke, Eric, L (EPA), R10: Wyatt, Robert, J (NW Natural), R10: Applegate, Rick (City of Portland)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100010929	10/2/2007	Email regarding NW Natural - Gasco Site Seepage Meter Deployment, TZW and Tidal Influence Study, and Surface Water Sampling.	29	2 EML / Email	R10: Wyatt, Robert, J (NW Natural)	R10: Bayuk, Dana (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100011850	10/2/2007	Email regarding Portland Harbor HH bass composites(1).	34	2 EML / Email	R10: Field, Jay (NOAA)	R10: Davoli, Dana (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100011852	10/2/2007	Email regarding Portland Harbor HH bass composites.	44	8 EML / Email	R10: Field, Jay (NOAA)	R10: Davoli, Dana (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100017087	10/2/2007	REDACTED Email regarding Hybrid Model Comments.	21	1 EML / Email	R10: Hope, Bruce, K (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100017229	10/2/2007	REDACTED Email regarding Stormwater Technical Team Call October 16 at 1:00 pm.	66	3 EML / Email	R10: Stivers, Carl (Anchor Environmental, LLC)	R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100016535	10/3/2007	REDACTED Email regarding Information for 3:00 Pacific: Gunderson TZW Conference Call.	253	3 CORR / Correspondence	R10: Pisano, Jessica, A (Anchor Environmental, LLC)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100016537	10/3/2007	REDACTED 2007-10-04 Gunderson TZW Response to Comments Agenda.	222	1 CORR / Correspondence	R10: Pisano, Jessica, A (Anchor Environmental, LLC)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100010918	10/5/2007	Email regarding Need to Sign Off.	22	1 EML / Email	R10: Mckenna, Jim (Port of Portland)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA), R10: Wyatt, Robert, J (NW Natural), R10: Applegate, Rick (City of Portland)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
4940680095	10/5/2007	Email regarding Need to sign off.	21	1 EML / Email	R10: Mckenna, Jim (Port of Portland)	R10: Wyatt, Bob (Northwest Natural Gas Company), R10: Blischke, Eric, L (EPA), R10: Applegate, Rick (City of Portland)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100013899	10/8/2007	Cumulative_Distribution_20071008.	19	1 OTH / Other	R10: Shorr, Benjamin (NOAA)		ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100015923	10/9/2007	REDACTED Email regarding Portland Harbor Manager's Meeting Agenda for 10/10/2007, 1:00-3:00.	23	2 EML / Email	R10: Mckenna, Jim (Port of Portland)	R10: Pisano, Jessica, A (Anchor Environmental, LLC), R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
4940680514	10/9/2007	Email regarding Coordination of Boat Tour for Elin Miller.	22	1 EML / Email		R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100017237	10/10/2007	REDACTED Email regarding Notes from Stormwater Tech Team Call Sept 14th at 1:15pm.	112	9 EML / Email	R10: Scheffler, Linda (City of Portland, Oregon)	R10: Sanders, Dawn (City of Portland, Oregon), R10: Scheffler, Linda (City of Portland, Oregon), R10: Lafranchise, Nicole, M (Port of Portland), R10: Shellenberger, Amanda (Anchor Environmental, LLC), R10: Stivers, Carl (Anchor Environmental, LLC), R10: Koch, Kristine, M (EPA), R10: Tarnow, Karen, E (Oregon Dept. of Environmental Quality), R10: Koulermos, Andrew, C (Newfields, Inc.), R10: Spencer, Amanda, L (Ash Creek Associates, Inc.), R10: Jones, Laura (Integral Corporation)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100017790	10/12/2007	REDACTED Email regarding Reply to Stormwater Technical Team Call October 16 at 1:00 pm.	44	4 EML / Email	R10: Stivers, Carl (Anchor Environmental, LLC)	R10: Sanders, Dawn (City of Portland, Oregon), R10: Scheffler, Linda (City of Portland, Oregon), R10: Lafranchise, Nicole, M (Port of Portland), R10: Shellenberger, Amanda (Anchor Environmental, LLC), R10: Stivers, Carl (Anchor Environmental, LLC), R10: Koch, Kristine, M (EPA), R10: Tarnow, Karen, E (Oregon Dept. of Environmental Quality), R10: Koulermos, Andrew, C (Newfields, Inc.), R10: Spencer, Amanda, L (Ash Creek Associates, Inc.), R10: Coover, Merv (AECOM), R10: Jones, Laura (Integral Corporation)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100017791	10/12/2007	REDACTED Email regarding Reply to Stormwater Technical Team Call October 16 at 1:00 pm.	46	5 EML / Email	R10: Stivers, Carl (Anchor Environmental, LLC)	R10: Sanders, Dawn (City of Portland, Oregon), R10: Scheffler, Linda (City of Portland, Oregon), R10: Lafranchise, Nicole, M (Port of Portland), R10: Shellenberger, Amanda (Anchor Environmental, LLC), R10: Stivers, Carl (Anchor Environmental, LLC), R10: Koch, Kristine, M (EPA), R10: Tarnow, Karen, E (Oregon Dept. of Environmental Quality), R10: Koulermos, Andrew, C (Newfields, Inc.), R10: Spencer, Amanda, L (Ash Creek Associates, Inc.), R10: Coover, Merv (AECOM), R10: Jones, Laura (Integral Corporation)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100008646	10/15/2007	Email regarding EPA's proposal for bass compositing.	20	2 EML / Email	R10: Blischke, Eric, L (EPA)	R10: Mckenna, Jim (Port of Portland), R10: Wyatt, Robert, J (NW Natural), R10: Applegate, Rick (City of Portland)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100011146	10/15/2007	Email regarding Port of Portland Tour: 10/24	25	2 EML / Email	R10: Wyatt, Robert, J (NW Natural)	R10: Pisano, Jessica, A (Anchor Environmental, LLC), R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100017176	10/16/2007	REDACTED Email regarding Stormwater Technical Team Call October 16 at 1:00 pm.	46	9 EML / Email	R10: Tarnow, Karen, E (Oregon Dept. of Environmental Quality)	R10: Stivers, Carl (Anchor Environmental, LLC), R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100017778	10/16/2007	REDACTED Email regarding Reply to Stormwater Technical Team Call October 16 at 1:00 pm.	47	9 EML / Email	R10: Shellenberger, Amanda (Anchor Environmental, LLC)	R10: Stivers, Carl (Anchor Environmental, LLC), R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
4940680409	10/22/2007	Email regarding reply to Leachate Testing to Support Portland Harbor FS.	29	4 EML / Email	R10: Wyatt, Robert, J (NW Natural)	R10: Mckenna, James (Port of Portland), R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100018214	10/24/2007	REDACTED Email regarding Sample Disposal Notification.	47	2 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
4940680560	10/24/2007	Email regarding Round 3 Gunderson TZW - Phase 2 Planning Meeting/Conf Call.	80	2 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100010745	10/29/2007	Email regarding Lindane Test.	29	2 EML / Email	R10: Mckenna, Jim (Port of Portland)	R10: Andersen, Helle (Windward Environmental, LLC.), R10: Shephard, Burt (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization

4940680410	10/29/2007	Email regarding reply to Lindane test.	29	2	EML / Email	R10: Mckenna, James (Port of Portland)	R10: Anderson, Helle (Windward Environmental, LLC.), R10: Shephard, Burt (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
4940680676	10/29/2007	Email regarding reply to Round 3 Gunderson TZW - Phase 2 Planning Meeting/Conf Call.	94	3	EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Oster, Valerie (Anchor Environmental, LLC), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100011888	10/30/2007	Email regarding round 3 Gunderson TZW Phase 2 planning meeting/conference call.	29	3	EML / Email	R10: Mckenna, Jim (Port of Portland)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100011890	10/30/2007	Email regarding round 3 Gunderson TZW Phase 2 planning meeting/conference call.	29	3	EML / Email	R10: Mckenna, Jim (Port of Portland)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100011891	10/30/2007	Email regarding round 3 Gunderson TZW Phase 2 planning meeting/conference call.	26	1	EML / Email	R10: Mckenna, Jim (Port of Portland)	R10: Oster, Valerie (Anchor Environmental, LLC), R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
4940680468	10/30/2007	Email regarding reply to Round 3 Gunderson TZW - Phase 2 Planning Meeting/Conf Call.	22	1	EML / Email	R10: Mckenna, James (Port of Portland)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
4940680469	10/30/2007	Email regarding reply to Round 3 Gunderson TZW - Phase 2 Planning Meeting/Conf Call.	24	1	EML / Email	R10: Mckenna, James (Port of Portland)	R10: Oster, Valerie (Anchor Environmental, LLC), R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100017232	11/1/2007	REDACTED Email regarding reply to Agenda Item for Project Managers Mtg.	22	2	EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Longoria, Rose (Yakama Nation)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100017390	11/1/2007	REDACTED Email regarding reply to Agenda Item for Project Managers Mtg.	24	1	EML / Email	R10: Mckenna, James (Port of Portland)	R10: Oster, Valerie (Anchor Environmental, LLC), R10: Longoria, Rose (Yakama Nation)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100017395	11/1/2007	REDACTED Email regarding reply to Agenda Item for Project Managers Mtg.	21	1	EML / Email	R10: Mckenna, James (Port of Portland)	R10: Oster, Valerie (Anchor Environmental, LLC), R10: Longoria, Rose (Yakama Nation)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
4940680057	11/1/2007	Email regarding reply to Agenda Item for Project Managers Mtg.	25	2	EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Longoria, Rose (Yakama Nation)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100008761	11/2/2007	Email regarding Round 3B Fish Compositing.	25	2	EML / Email	R10: Blischke, Eric, L (EPA)	R10: Mckenna, Jim (Port of Portland), R10: Wyatt, Robert, J (NW Natural), R10: Applegate, Rick (City of Portland)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100017779	11/2/2007	REDACTED Email regarding Stormwater FSP Addendum for Immediate Approval.	87	3	EML / Email	R10: Pisano, Jessica, A (Anchor Environmental, LLC)	R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100017793	11/2/2007	REDACTED Draft Round 3A Field Sampling Plan Addendum Stormwater Sampling - RD 3 SW FSP Addendum_11-2-07.	1,562	131	CORR / Correspondence	R10: Unknown, Unknown (Lower Willamette Group)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
4940680109	11/2/2007	Email regarding meeting to discuss schedule with LWG Management.	55	1	EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100010816	11/6/2007	Email regarding Meeting to Discuss Schedule with LWG Management.	23	2	EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100010824	11/6/2007	Email regarding Meeting to Discuss Schedule with LWG Management.	22	2	EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100011953	11/6/2007	Email regarding stormwater FSP and approval.	25	1	EML / Email	R10: Mckenna, Jim (Port of Portland)	R10: Koch, Kristine, M (EPA), R10: Wyatt, Robert, J (NW Natural)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100012680	11/6/2007	Email regarding Query Manager.	22	1	EML / Email	R10: Shorr, Benjamin (NOAA)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
4940680477	11/6/2007	Email regarding reply to Stormwater FSP Approval.	23	1	EML / Email	R10: Mckenna, James (Port of Portland)	R10: Koch, Kristine, M (EPA), R10: Wyatt, Robert, J (NW Natural)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
4940680653	11/6/2007	Email regarding reply to meeting to discuss schedule with LWG Management.	22	2	EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
4940680655	11/6/2007	Email regarding reply to meeting to discuss schedule with LWG Management.	23	2	EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
4940681048	11/7/2007	Email regarding Portland Harbor - Postponing Nov 15th Milestone Meeting.	20	1	EML / Email	R10: Humphrey, Chip (EPA)	R10: Mckenna, Jim (Port of Portland)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100013598	11/9/2007	Email regarding contaminant maps.	17	1	EML / Email	R10: Neely, Robert (NOAA)	R10: Blischke, Eric, L (EPA), R10: Goulet, Joe (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100013600	11/9/2007	Draft Portland Harbor R3 Upstream Bioassay. Lamprey Ammonoete Sediment Bioassay Recommendation: Portland Harbor Natural Resource Trustee Council Fish Committee.	1,044	7	FIG / Figure/Map/ Drawing	R10: Unknown, Unknown (NOAA)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100013623	11/9/2007	Email regarding October Progress Report for Transmittal to EPA.	99	9	RPT / Report	R10: Unknown, Unknown (Unknown)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100015354	11/9/2007	Monthly Progress Report for October 2007 - Lower Willamette River, Portland Harbor Superfund Site - USEPA Docket No: CERCLA-10-2001-0240.	19	1	EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100015355	11/9/2007	REDACTED Email regarding NRT lamprey proposal discussion materials.	386	22	RPT / Report	R10: Revelas, Gene, C (Lower Willamette Group)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100016762	11/9/2007	Email regarding reply to Portland Harbor - Postponing Nov 15th Milestone Meeting.	28	1	EML / Email	R10: Neely, Robert (NOAA)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
4940680438	11/9/2007	Email regarding reply to Portland Harbor - Postponing Nov 15th Milestone Meeting.	27	1	EML / Email	R10: Mckenna, James (Port of Portland)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
4940680439	11/9/2007	Email regarding Meeting to Discuss Schedule with LWG Management - 11/13.	24	3	EML / Email	R10: Mckenna, James (Port of Portland)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100010818	11/12/2007	REDACTED Email regarding Tomorrow's Stormwater Technical Team Meeting.	40	4	EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Oster, Valerie (Anchor Environmental, LLC), R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100017804	11/12/2007	REDACTED Email regarding Reply to Tomorrow's Stormwater Technical Team Meeting.	43	5	EML / Email	R10: Stivers, Carl (Anchor Environmental, LLC)	R10: Sanders, Dawn (City of Portland, Oregon), R10: Scheffler, Linda (City of Portland, Oregon), R10: Shellenberger, Amanda (Anchor Environmental, LLC), R10: Koch, Kristine, M (EPA), R10: Koulermos, Andrew, C (Newfields, Inc), R10: Spencer, Amanda, L (Ash Creek Associates, Inc.), R10: Coover, Merv (AECOM), R10: Jones, Laura (Integral Corporation)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
4940680654	11/12/2007	Email regarding reply to meeting to discuss schedule with LWG Management - 11/13.	24	3	EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100015345	11/13/2007	Email regarding 11/14 PH Managers Draft Agenda.	55	1	EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Neely, Robert (NOAA), R10: Madden, Erin (Unknown), R10: Mckenna, James (Port of Portland), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Cunnigham, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Pisano, Jessica, A (Anchor Environmental, LLC), R10: Oster, Valerie (Anchor Environmental, LLC), R10: Bluelake, Lisa (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Karnosh, Michael (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA), R10: Anderson, James, M (Oregon Dept. of Environmental Quality), R10: McClincy, Matt (Oregon Dept. of Environmental Quality), R10: Longoria, Rose (Yakama Nation), R10: Wyatt, Robert, J (NW Natural), R10: Hawley, Christine (Integral Corporation), R10: Revelas, Gene (Integral Corporation), R10: Applegate, Rick (City of Portland), R10: Barquin, Billy (Haglund Kelley, LLP)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
4940680062	11/13/2007	Email regarding reply to 11/14 PH Managers Draft Agenda.	30	2	EML / Email	R10: Mckenna, Jim (Port of Portland)	R10: Oster, Valerie (Anchor Environmental, LLC), R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
4940680338	11/13/2007	Email regarding reply to 11/14 PH Managers Draft Agenda.	30	2	EML / Email	R10: Mckenna, James (Port of Portland)	R10: Oster, Valerie (Anchor Environmental, LLC), R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100017348	11/14/2007	REDACTED Agenda for Portland Harbor Managers' Meeting on November 14, 2007.	34	1	MTG / Meeting Document	R10: (Lower Willamette Group)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization

4940681393	11/14/2007	Email regarding LWG Response to EPA Round 3B Sediment FSP.	41	1 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100017955	11/15/2007	REDACTED Email regarding Lamprey Ammonoete Sediment Bioassay Study - Technical Discussion.	21	2 EML / Email	R10: Mckenna, James (Port of Portland)	R10: Revelas, Gene, C (Integral Consulting, Inc.), R10: Longoria, Rose (Yakama Nation)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100018187	11/15/2007	REDACTED Email regarding reply to Lamprey Ammonoete Sediment Bioassay Study - Technical Discussion.	22	2 EML / Email	R10: Mckenna, James (Port of Portland)	R10: Longoria, Rose (Yakama Nation), R10: Revelas, Gene (Integral Corporation)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100016349	11/16/2007	REDACTED Email regarding a conference call about lamprey.	23	2 EML / Email	R10: Mckenna, Jim (Port of Portland)	R10: Shephard, Burt (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100017370	11/16/2007	REDACTED Email regarding Conference Call re Lamprey.	20	1 EML / Email	R10: Mckenna, James (Port of Portland)	R10: Humphrey, Chip (EPA), R10: Longoria, Rose (Yakama Nation)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100018223	11/16/2007	REDACTED Email regarding Conference Call re Lamprey.	20	1 EML / Email		R10: Humphrey, Chip (EPA), R10: Longoria, Rose (Yakama Nation)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100018195	11/20/2007	REDACTED Email regarding For EPA Approval - LWG Round 3B Surface Sediment Field Program Field Modification Requests.	60	2 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
4940680014	11/20/2007	Email regarding For EPA Approval - LWG Round 3B Surface Sediment Field Program Field Modification Requests.	66	2 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100018196	11/21/2007	REDACTED Email regarding For EPA Notification - Validated Q2 Sediment Trap Data.	57	2 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Neely, Robert (NOAA), R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
4940680015	11/21/2007	Email regarding For EPA Notification - Validated Q2 Sediment Trap Data.	63	2 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Neely, Robert (NOAA), R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100008775	11/27/2007	Email regarding Round 3B Clam Sampling.	25	2 EML / Email	R10: Blischke, Eric, L (EPA)	R10: Mckenna, Jim (Port of Portland), R10: Wyatt, Robert, J (NW Natural), R10: Applegate, Rick (City of Portland)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100016673	11/28/2007	REDACTED Email providing a call-in number. Letter Regarding LWG (Lower Willamette Group) Request on RSET (Regional Sediment Evaluation Test) Data	19	1 EML / Email	R10: Mckenna, Jim (Port of Portland)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100014699	11/30/2007	REDACTED Email regarding Notes from Stormwater Technical Team Meeting Nov. 27th at 12:30.	46	1 LTR / Letter	R10: Wyatt, Bob (Lower Willamette Group), R10: Mckenna, Jim (Lower Willamette Group)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100017238	11/30/2007	REDACTED Email regarding Notes from Stormwater Technical Team Meeting Nov. 27th at 12:30.	77	3 EML / Email	R10: Stivers, Carl (Anchor Environmental, LLC)	R10: Sanders, Dawn (City of Portland, Oregon), R10: Scheffler, Linda (City of Portland, Oregon), R10: Lafranchise, Nicole, M (Port of Portland), R10: Shellenberger, Amanda (Anchor Environmental, LLC), R10: Koch, Kristine, M (EPA), R10: Tarnow, Karen, E (Oregon Dept. of Environmental Quality), R10: Koulermos, Andrew, C (Newfields, Inc), R10: Spencer, Amanda, L (Ash Creek Associates, Inc.), R10: Coover, Merv (AECOM), R10: Jones, Laura (Integral Corporation)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100008631	12/3/2007	Email regarding Fish Tissue FSP and QAPP Approval.	16	1 EML / Email	R10: Blischke, Eric, L (EPA)	R10: Mckenna, Jim (Port of Portland), R10: Wyatt, Robert, J (NW Natural), R10: Applegate, Rick (City of Portland)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100008657	12/3/2007	Letter regarding Round 3B Field Sampling Plan for Fish and Invertebrate Tissue and Collocated Surface Sediment and Round 2 Quality Assurance Project Plan Addendum 9.	20	2 LTR / Letter	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	R10: Mckenna, Jim (Port of Portland), R10: Wyatt, Robert, J (NW Natural)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100014698	12/3/2007	Email Regarding LWG (Lower Willamette Group) Request on RSET (Regional Sediment Evaluation Test) Data.	49	1 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Oster, Valerie (Anchor Environmental, LLC), R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100015123	12/4/2007	Key Issues for Portland Harbor RI, BRA, and FS (adapted from E. Blischke's email of 11-27-2007).	76	1 CHT / Chart/Table	R10: Mckenna, Jim (Port of Portland)		ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100017179	12/4/2007	REDACTED Email regarding Notes from Stormwater Technical Team Meeting Nov. 27th at 12:30.	80	4 EML / Email	R10: Mckenna, Jim (Port of Portland)	R10: Sanders, Dawn (City of Portland, Oregon), R10: Scheffler, Linda (City of Portland, Oregon), R10: Lafranchise, Nicole, M (Port of Portland), R10: Shellenberger, Amanda (Anchor Environmental, LLC), R10: Stivers, Carl (Anchor Environmental, LLC), R10: Koch, Kristine, M (EPA), R10: Tarnow, Karen, E (Oregon Dept. of Environmental Quality), R10: Koulermos, Andrew, C (Newfields, Inc), R10: Spencer, Amanda, L (Ash Creek Associates, Inc.), R10: Coover, Merv (AECOM), R10: Jones, Laura (Integral Corporation)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
4940680111	12/4/2007	Email regarding meeting with LWG to discuss stormwater team.	53	1 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Blischke, Eric, L (EPA), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100017282	12/5/2007	REDACTED Email regarding Upland Stormwater Field Sampling Report.	65	2 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA), R10: Tarnow, Karen, E (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100018225	12/5/2007	REDACTED Email regarding Upland Stormwater Field Sampling Report.	59	2 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Blischke, Eric, L (EPA), R10: Tarnow, Karen, E (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100010820	12/6/2007	Email regarding Meeting with LWG to Discuss Stormwater Team.	23	1 EML / Email	R10: Mckenna, Jim (Port of Portland)	R10: Oster, Valerie (Anchor Environmental, LLC), R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
4940680420	12/6/2007	Email regarding reply to meeting with LWG to discuss stormwater team.	23	1 EML / Email	R10: Mckenna, James (Port of Portland)	R10: Oster, Valerie (Anchor Environmental, LLC), R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100010825	12/7/2007	Email regarding Meeting with LWG to Discuss Stormwater Team.	29	4 EML / Email	R10: Mckenna, Jim (Port of Portland)	R10: Blischke, Eric, L (EPA), R10: Applegate, Rick (City of Portland)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100010828	12/7/2007	Email regarding Meeting with LWG to Discuss Stormwater Team.	30	4 EML / Email	R10: Mckenna, Jim (Port of Portland)	R10: Blischke, Eric, L (EPA), R10: Applegate, Rick (City of Portland)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100017979	12/7/2007	REDACTED Email regarding Meeting with LWG to Discuss Stormwater Team.	25	3 EML / Email	R10: Mckenna, Jim (Port of Portland)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100018190	12/7/2007	REDACTED Email regarding reply to meeting with LWG to discuss stormwater team.	26	3 EML / Email	R10: Mckenna, James (Port of Portland)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
4940680421	12/7/2007	Email regarding reply to meeting with LWG to discuss stormwater team.	30	4 EML / Email	R10: Mckenna, James (Port of Portland)	R10: Blischke, Eric, L (EPA), R10: Applegate, Rick (City of Portland)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100015122	12/10/2007	Email Regarding Table of Key Issues and Priorities.	18	1 EML / Email	R10: Mckenna, Jim (Port of Portland)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100015357	12/10/2007	Monthly Progress Report for November 2007 - Lower Willamette River, Portland Harbor Superfund Site - USEPA Docket No: CERCLA-10-2001-0240.	271	23 RPT / Report	R10: Revelas, Gene, C (Lower Willamette Group)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100017251	12/10/2007	REDACTED Email regarding Sulzer Stormwater Installation.	45	8 EML / Email	R10: Tarnow, Karen, E (Oregon Dept. of Environmental Quality)	R10: Stivers, Carl (Anchor Environmental, LLC), R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100017345	12/10/2007	REDACTED Email regarding November 2007 Progress Report for Transmittal to EPA.	61	2 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
4940680626	12/10/2007	Email regarding reply to EPA/Trustee documents and distribution.	24	2 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization

100015360	12/11/2007	Email regarding Draft 12/12 PH Manager Agenda.	55	1 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Neely, Robert (NOAA), R10: Madden, Erin (Unknown), R10: Mckenna, James (Port of Portland), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Cunninghame, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Pisano, Jessica, A (Anchor Environmental, LLC), R10: Oster, Valerie (Anchor Environmental, LLC), R10: Bluelake, Lisa (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Karnosh, Michael (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA), R10: Anderson, James, M (Oregon Dept. of Environmental Quality), R10: Mcclincy, Matt (Oregon Dept. of Environmental Quality), R10: Longoria, Rose (Yakama Nation), R10: Wyatt, Robert, J (NW Natural), R10: Hawley, Christine (Integral Corporation), R10: Revelas, Gene (Integral Corporation), R10: Applegate, Rick (City of Portland), R10: Barquin, Billy (Haglund Kelley, LLP)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100017258	12/11/2007	REDACTED Email regarding Sulzer Stormwater Installation.	128	5 EML / Email	R10: Mckenna, Jim (Port of Portland)	R10: Sanders, Dawn (City of Portland, Oregon), R10: Scheffler, Linda (City of Portland, Oregon), R10: Lafranchise, Nicole, M (Port of Portland), R10: Shellenberger, Amanda (Anchor Environmental, LLC), R10: Stivers, Carl (Anchor Environmental, LLC), R10: Koch, Kristine, M (EPA), R10: Tarnow, Karen, E (Oregon Dept. of Environmental Quality), R10: Koulermos, Andrew, C (Newfields, Inc), R10: Spencer, Amanda, L (Ash Creek Associates, Inc.), R10: Coover, Merv (AECOM), R10: Jones, Laura (Integral Corporation)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100018198	12/11/2007	REDACTED Email regarding For EPA Review - Addendum 1 of the Round 3B Comprehensive Sediment and Bioassay FSP.	69	2 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
4940680017	12/11/2007	Email regarding For EPA Review - Addendum 1 of the Round 3B Comprehensive Sediment and Bioassay FSP.	77	2 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100014835	12/12/2007	Letter from LWG (Lower Willamette Group) to EPA and Trustees Regarding Lamprey Toxicity Proposal.	310	3 LTR / Letter	R10: Wyatt, Bob (Lower Willamette Group), R10: Mckenna, Jim (Lower Willamette Group)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA), R10: Barquin, Billy (Haglund, Kelley, Horngren, Jones & Wilder, LLP)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100015347	12/12/2007	Letter to EPA Regarding Lamprey Ammonoete Sediment Bioassay Recommendation, Portland Harbor Natural Resource Trustee Council Fish Committee, November 9, 2007 - Portland Harbor Superfund Site USEPA Docket No: CERCLA-10-2001-0240.	131	3 LTR / Letter	R10: Mckenna, James (Port of Portland), R10: Wyatt, Robert, J (NW Natural)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA), R10: Barquin, Billy (Haglund, Kelley, Horngren, Jones & Wilder, LLP)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100017332	12/12/2007	REDACTED Agenda for Portland Harbor Managers' Meeting on December 12, 2007.	33	1 MTG / Meeting Document	R10: (Lower Willamette Group)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
4940680098	12/12/2007	Email regarding Next PH Managers meeting.	62	1 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Neely, Robert (NOAA), R10: Madden, Erin (Unknown), R10: Mckenna, Jim (Port of Portland), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Cunninghame, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Pisano, Jessica, A (Anchor Environmental, LLC), R10: Wyatt, Bob (Northwest Natural Gas Company), R10: Revelas, Gene, C (Integral Consulting, Inc.), R10: Bluelake, Lisa (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Blischke, Eric, L (EPA), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality), R10: Longoria, Rose (Yakama Nation), R10: Hawley, Christine (Integral Corporation), R10: Applegate, Rick (City of Portland), R10: Barquin, Billy (Haglund Kelley, LLP)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100010786	12/13/2007	Email regarding March Backup Dates for Milestone Meeting.	29	1 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Neely, Robert (NOAA), R10: Madden, Erin (Unknown), R10: Mckenna, Jim (Port of Portland), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Cunninghame, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Pisano, Jessica, A (Anchor Environmental, LLC), R10: Revelas, Gene, C (Integral Consulting, Inc.), R10: Bluelake, Lisa (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Karnosh, Michael (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality), R10: Mcclincy, Matt (Oregon Dept. of Environmental Quality), R10: Longoria, Rose (Yakama Nation), R10: Wyatt, Robert, J (NW Natural), R10: Hawley, Christine (Integral Corporation), R10: Applegate, Rick (City of Portland), R10: Barquin, Billy (Haglund Kelley, LLP)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100014700	12/17/2007	Email Regarding LWG (Lower Willamette Group) Letter to EPA and Trustees Regarding Lamprey Toxicity Proposal.	47	1 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA), R10: Barquin, Billy (Haglund Kelley, LLP)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100014837	12/17/2007	Letter from LWG (Lower Willamette Group) on Round 3B Sediment Sampling Between River Miles 11 and 12.	48	2 LTR / Letter	R10: Wyatt, Bob (Lower Willamette Group), R10: Mckenna, Jim (Lower Willamette Group)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100015346	12/17/2007	Email regarding LWG Letter to EPA and Trustees re: Lamprey Toxicity Proposal.	49	1 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100015363	12/17/2007	Letter Regarding Round 3b Sediment Sampling Between River Miles 11 and 12.	51	2 LTR / Letter	R10: Mckenna, James (Port of Portland), R10: Wyatt, Robert, J (NW Natural)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100015364	12/17/2007	Q4 Sediment Trap Limited Volume Prioritization: Table.	51	1 CHT / Chart/Table	R10: (Anchor Environmental, LLC)	R10: (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100014836	12/18/2007	Email Regarding LWG (Lower Willamette Group) Letter on Round 3B Sediment Sampling Between River Miles 11 and 12.	46	1 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100015362	12/18/2007	Email regarding LWG Letter on Sampling above RM 11.	48	1 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100018199	12/18/2007	REDACTED Email regarding For EPA Review - QAPP Addendum 10 and Revised Pages of R3B Comprehensive Sediment and Bioassay Testing FSP.	23	1 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
4940680018	12/18/2007	Email regarding For EPA Review - QAPP Addendum 10 and Revised Pages of R3B Comprehensive Sediment and Bioassay Testing FSP.	27	1 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization



100007985	12/20/2007	Draft Biological Assessment for Phase I of the Terminal 4 Removal Action: Port of Portland, Oregon.	3,123	118 RPT / Report	R10: (Anchor Environmental, LLC), R10: (NewFields)	R10: (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100015348	12/20/2007	Email regarding Q4 Sediment Trap Limited Volume Prioritization.	19	1 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
4940680692	12/20/2007	Email regarding Server access request.	20	1 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100012652	12/21/2007	Email regarding LRM.	25	2 EML / Email	R10: Field, Jay (NOAA)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100017267	12/21/2007	REDACTED Email regarding Sample Equipment Orientation.	44	8 EML / Email	R10: Shellenberger, Amanda (Anchor Environmental, LLC)	R10: Scheffler, Linda (City of Portland, Oregon), R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100018201	12/21/2007	REDACTED Email regarding For EPA Review - Round 3 GWPA -Gunderson FSR.	22	2 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
4940680019	12/21/2007	Email regarding For EPA Review - Round 3 GWPA -Gunderson FSR.	25	2 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
4940680475	12/27/2007	Email regarding reply to Siletz Tribal Council Portland Harbor Day.	31	2 EML / Email	R10: Mckenna, James (Port of Portland)	R10: Neely, Robert (NOAA), R10: Buerger, Ted (U. S. Fish and Wildlife Service), R10: Gardner, Sara (City of Portland, Oregon, Environmental Services), R10: Humphrey, Chip (EPA), R10: O'mealy, Mikell (Oregon Dept. of Environmental Quality), R10: Applegate, Rick (City of Portland), R10: Barquin, Billy (Haglund Kelley, LLP), R10: Buck, Jeremy (U. S. Fish & Wildlife Service)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
4940680699	12/27/2007	Email regarding timing of Milestone meeting. Letter Regarding Portland Harbor Superfund Site RI/FS Trust Fund - Lower Willamette	56	1 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100015349	12/31/2007	Group.	47	3 LTR / Letter	R10: Mckenna, James (Port of Portland), R10: Wyatt, Robert, J (NW Natural)	R10: Cora, Lori, H (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100015365	12/31/2007	Email regarding LWG Trust Agreement.	51	1 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Cora, Lori, H (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100015165	1/1/2008	Portland Harbor RI/FS Round 3B Side-Scan Sonar Field Sampling Plan.	1,120	12 WP / Work Plan	R10: Unknown, Unknown (Anchor Environmental, LLC)	R10: Unknown, Unknown (Lower Willamette Group)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100018205	1/2/2008	REDACTED Email regarding LWG request on RSET data.	18	1 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100015059	1/8/2008	Lower Willamette Group (LWG) Responses to EPA's October 15, 2007 Comments on the Draft Chemical Fate and Transport Model Development and Data Gaps Identification Report.	270	38 CORR / Correspondence	R10: Unknown, Unknown (Lower Willamette Group)	R10: Unknown, Unknown (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100015058	1/9/2008	Email regarding LWG's Responses to EPA's Fate and Transport Model Comments.	19	1 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100017261	1/9/2008	REDACTED Email regarding Stormwater Technical Team meeting Jan. 10th (tomorrow) from 11 am to 2 pm.	84	12 EML / Email	R10: Stivers, Carl (Anchor Environmental, LLC)	R10: Sanders, Dawn (City of Portland, Oregon), R10: Scheffler, Linda (City of Portland, Oregon), R10: Lafranchise, Nicole, M (Port of Portland), R10: Shellenberger, Amanda (Anchor Environmental, LLC), R10: Tear, Lucinda (Windward Environmental, LLC.), R10: Koch, Kristine, M (EPA), R10: Tarnow, Karen, E (Oregon Dept. of Environmental Quality), R10: Koulermos, Andrew, C (Newfields, Inc), R10: Spencer, Amanda, L (Ash Creek Associates, Inc.), R10: Coover, Merv (AECOM), R10: Jones, Laura (Integral Corporation)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100018221	1/9/2008	REDACTED Email regarding For EPA Use Validated Round 3 Sturgeon Data.	76	2 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Neely, Robert (NOAA), R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
4940680025	1/9/2008	Email regarding For EPA Use Validated Round 3 Sturgeon Data.	83	2 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Neely, Robert (NOAA), R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100015062	1/11/2008	Email regarding Letter from LWG on Trust Agreement.	18	1 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Cora, Lori, H (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100015063	1/11/2008	Letter regarding Portland Harbor Superfund Site RI/FS Trust Fund Revised Trust Budget Estimate.	59	2 LTR / Letter	R10: Mckenna, Jim (Port of Portland), R10: Wyatt, Robert, J (NW Natural)	R10: Cora, Lori, H (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
4940680488	1/11/2008	Email regarding reply to timing of Milestone meeting?.	24	2 EML / Email	R10: Mckenna, James (Port of Portland)	R10: Oster, Valerie (Anchor Environmental, LLC), R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
4940680682	1/11/2008	Email regarding reply to timing of Milestone meeting.	23	1 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Oster, Valerie (Anchor Environmental, LLC), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100010711	1/14/2008	Email regarding January 16, 2008 Technical Team Meeting.	22	1 EML / Email	R10: Mckenna, James (Port of Portland)	R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA), R10: Yamamoto, Deb (EPA), R10: Sanders, Dawn (City of Portland, Bureau of Environmental Services), R10: Scheffler, Linda (City of Portland, Bureau of Environmental Services), R10: Tarnow, Karen, E (Oregon Dept. of Environmental Quality), R10: Applegate, Rick (City of Portland)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100014817	1/14/2008	Email regarding Materials for Jan 17 stormwater meeting.	20	1 EML / Email	R10: Tarnow, Karen, E (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA), R10: Yamamoto, Deb (EPA), R10: Sanders, Dawn (City of Portland, Bureau of Environmental Services), R10: Scheffler, Linda (City of Portland, Bureau of Environmental Services), R10: Tarnow, Karen, E (Oregon Dept. of Environmental Quality), R10: Applegate, Rick (City of Portland)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100014819	1/14/2008	DEQ's Comprehensive Strategy for Stormwater Source Control in Portland Harbor.	143	7 MTG / Meeting Document	R10: Unknown, Unknown (Oregon Dept. of Environmental Quality)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100017807	1/14/2008	REDACTED Email regarding Notes from Jan. 10th meeting.	61	13 EML / Email	R10: Stivers, Carl (Anchor Environmental, LLC)	R10: Sanders, Dawn (City of Portland, Oregon), R10: Scheffler, Linda (City of Portland, Oregon), R10: Lafranchise, Nicole, M (Port of Portland), R10: Shellenberger, Amanda (Anchor Environmental, LLC), R10: Tear, Lucinda (Windward Environmental, LLC.), R10: Koch, Kristine, M (EPA), R10: Tarnow, Karen, E (Oregon Dept. of Environmental Quality), R10: Koulermos, Andrew, C (Newfields, Inc), R10: Spencer, Amanda, L (Ash Creek Associates, Inc.), R10: Coover, Merv (AECOM), R10: Jones, Laura (Integral Corporation)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
4940680402	1/14/2008	Email regarding reply to January 16, 2008 Technical Team Meeting.	22	1 EML / Email	R10: Mckenna, James (Port of Portland)	R10: Blischke, Eric, L (EPA), R10: Wyatt, Robert, J (NW Natural), R10: Applegate, Rick (City of Portland)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
4940680487	1/14/2008	Email regarding reply to timing of Milestone meeting?.	27	2 EML / Email	R10: Mckenna, James (Port of Portland)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
4940680638	1/14/2008	Email regarding reply to January 16, 2008 Technical Team Meeting.	61	2 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Mckenna, James (Port of Portland), R10: Stivers, Carl (Anchor Environmental, LLC), R10: Blischke, Eric, L (EPA), R10: Wyatt, Robert, J (NW Natural), R10: Applegate, Rick (City of Portland)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization

100015065	Email regarding Draft 1/17/PH Managers 1/15/2008 Agenda.	55	1 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Neely, Robert (NOAA), R10: Mckenna, Jim (Port of Portland), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Cunninghame, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Pisano, Jessica, A (Anchor Environmental, LLC), R10: Oster, Valerie (Anchor Environmental, LLC), R10: Revelas, Gene, C (Integral Consulting, Inc.), R10: Bluelake, Lisa (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Karnosh, Michael (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality), R10: McClincy, Matt (Oregon Dept. of Environmental Quality), R10: Longoria, Rose (Yakama Nation), R10: Wyatt, Robert, J (NW Natural), R10: Hawley, Christine (Integral Corporation), R10: Applegate, Rick (City of Portland), R10: Barquin, Billy (Haglund Kelley, LLP)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100011579	Email regarding EPA comments on round 2 1/16/2008 comprehensive R2 report.	25	1 EML / Email	R10: Mckenna, Jim (Port of Portland)	R10: Humphrey, Chip (EPA), R10: Wyatt, Robert, J (NW Natural), R10: Applegate, Rick (City of Portland)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100012601	1/16/2008 Email regarding today's meeting.	22	1 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100017920	REDACTED Email regarding Draft 1/17/PH 1/16/2008 Managers Agenda.	25	2 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Neely, Robert (NOAA), R10: Mckenna, Jim (Port of Portland), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Cunninghame, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Pisano, Jessica, A (Anchor Environmental, LLC), R10: Oster, Valerie (Anchor Environmental, LLC), R10: Revelas, Gene, C (Integral Consulting, Inc.), R10: Bluelake, Lisa (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Karnosh, Michael (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality), R10: McClincy, Matt (Oregon Dept. of Environmental Quality), R10: Longoria, Rose (Yakama Nation), R10: Williams, J., D (Law Offices of J. D. Williams), R10: Wyatt, Robert, J (NW Natural), R10: Hawley, Christine (Integral Corporation), R10: Applegate, Rick (City of Portland), R10: Barquin, Billy (Haglund Kelley, LLP)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100014818	Agenda for DEQ-EPA Meeting on January 17, 1/17/2008 2008.	32	1 MTG / Meeting Document	R10: Unknown, Unknown (Oregon Dept. of Environmental Quality)	R10: Unknown, Unknown (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100014820	Email regarding Materials for Jan 17 1/17/2008 stormwater meeting.	24	2 EML / Email	R10: Johnson, Keith (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA), R10: Yamamoto, Deb (EPA), R10: Sanders, Dawn (City of Portland, Bureau of Environmental Services), R10: Scheffler, Linda (City of Portland, Bureau of Environmental Services), R10: Tarnow, Karen, E (Oregon Dept. of Environmental Quality), R10: Applegate, Rick (City of Portland)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100017916	REDACTED Agenda for Portland Harbor 1/17/2008 Managers Meeting, January 17, 2008.	39	2 MTG / Meeting Document	R10: Unknown, Unknown (Lower Willamette Group)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100017922	REDACTED Agenda for Portland Harbor 1/17/2008 Managers Meeting, January 17, 2008 - revised.	40	2 MTG / Meeting Document	R10: Unknown, Unknown (Lower Willamette Group)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100015164	1/21/2008 Email regarding Posting for LWG website.	19	1 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
4940680110	1/23/2008 Email regarding meeting today.	26	2 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Mckenna, Jim (Port of Portland), R10: Wyatt, Bob (Northwest Natural Gas Company), R10: Revelas, Gene, C (Integral Consulting, Inc.), R10: Blischke, Eric, L (EPA), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality), R10: Applegate, Rick (City of Portland)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100017566	REDACTED Email regarding Fate and Transport 1/28/2008 Meeting Jan. 30th 1 pm.	68	2 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
4940680072	Email regarding Q4 Sediment Trap Priority 1/28/2008 Analyses.	93	2 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
4940680526	Email regarding Fate and Transport Meeting 1/28/2008 Jan. 30th 1 pm.	92	2 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Humphrey, Chip (EPA) grant, Megan (NOAA), R10: Munn, Nancy (NOAA), R10: Neely, Robert (NOAA), R10: Fleming, Sheila (Ridolfi Engineers and Associates, Inc.), R10: Buerger, Ted (U. S. Fish and Wildlife Service), R10: Madden, Erin (Unknown), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Cunninghame, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Peers, Jennifer (Stratus Consulting, Inc.), R10: Howard, Patti (Columbia River Inter-Tribal Fish Commission), R10: Downey, Tom (Confederated Tribes of the Siletz Indians), R10: Baker, Jeff (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Bluelake, Lisa (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Karnosh, Michael (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Blischke, Eric, L (EPA), R10: Shephard, Burt (EPA), R10: Humphrey, Chip (EPA), R10: Goulet, Joe (EPA), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality), R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality), R10: Longoria, Rose (Yakama Nation), R10: Williams, J., D (Law Offices of J. D. Williams), R10: Givens, Raymond, C (Givens Law), R10: Allen, David (Stratus Consulting, Inc.), R10: Kepler, Rick, J (State of Oregon), R10: Buck, Jeremy (U. S. Fish & Wildlife Service), R10: Meade, Norman	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100016545	REDACTED Email regarding Query Manager 1/30/2008 Updates.	24	1 EML / Email	R10: Neely, Robert (NOAA)		ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization

100017388	1/31/2008	REDACTED Email regarding reply to 1/18 Greenway Meeting Notes and Scheduling for the Next Meeting.	43	2 EML / Email	R10: Mckenna, James (Port of Portland)	R10: Koteck, Tina (Oregon State House of Representatives), R10: Brooks, Suzanne, L (Port of Portland), R10: Desmond, Jim (Metro-Portland), R10: Humphrey, Chip (EPA), R10: Manzano, Scott (Oregon Dept. of Environmental Quality), R10: Theissen, Ken (Oregon Dept. of Environmental Health), R10: Bertelsen, April (Unknown), R10: Sperry, Arianne (City of Portland), R10: Schneider, Curt (npGREENWAY), R10: Dragoy, Astrid (Portland Parks & Recreation), R10: Quinn, Barbara (Friends of Cathedral Park), R10: Mcallister, David (City of Portland, Oregon)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100014827	2/1/2008	Calculation of Potential Risk from Consumption of Breast Milk.	61	1 ADD / Analytical Data Document	R10: Unknown, Unknown (Unknown)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
4940680413	2/1/2008	Email regarding reply to LWG request for extension of deadline to initiate dispute resolution on SLEA comments.	26	2 EML / Email	R10: Mckenna, James (Port of Portland)	R10: Oster, Valerie (Anchor Environmental, LLC), R10: Humphrey, Chip (EPA), R10: Wyatt, Robert, J (NW Natural), R10: Dost, Patty (Schwabe, Williamson & Wyatt, P.C.)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100020120	2/4/2008	REDACTED Email regarding LWG Quarter 4 Sediment Trap Field Report.	53	1 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100016190	2/5/2008	Presentation on Potential Risks to Infants from Breastfeeding.	3,541	28 MTG / Meeting Document	R10: Farrer, David, G (Oregon Dept. of Human Services), R10: Poulsen, Michael (Oregon Dept. of Environmental Quality)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100016211	2/5/2008	Presentation on Breast Milk Contamination: Considerations and Challenges.	5,162	40 MTG / Meeting Document	R10: Karr, Catherine, J (University of Washington)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
4940680048	2/5/2008	Email regarding 2/6 PH Managers Tech session.	25	1 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Blischke, Eric, L (EPA), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100017403	2/6/2008	REDACTED Email regarding Thursday PH Managers meeting.	23	1 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Neely, Robert (NOAA), R10: Mckenna, James (Port of Portland), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Cunninghame, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Pisano, Jessica, A (Anchor Environmental, LLC), R10: Kennedy, Laura (Kennedy/Jenks Consultants), R10: Toll, John (Windward Environmental, LLC.), R10: Bluelake, Lisa (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Blischke, Eric, L (EPA), R10: Madden, Erin (Nez Perce Tribe), R10: Mcclincy, Matt (Oregon Dept. of Environmental Quality), R10: Longoria, Rose (Yakama Nation), R10: Williams, J., D (Law Offices of J. D. Williams), R10: Wyatt, Robert, J (NW Natural), R10: Hawley, Christine (Integral Corporation), R10: Applegate, Rick (City of Portland), R10: Barquin, Billy (Haglund Kelley, LLP)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100014838	2/7/2008	Email Regarding Select List of Requested Clarifications from EPA's 01/15/2008 Round 2 Report Comments.	21	2 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100014839	2/7/2008	Select List of Requested Clarifications from EPA's 01/15/2008 Comments on the Round 2 Report.	106	4 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100014841	2/7/2008	Select List of Requested Clarifications from EPA's 01/15/2008 Comments on the Round 2 Report.	106	4 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100015167	2/7/2008	Email regarding Request for Verification of Completion of Round 3B Field Efforts.	24	3 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100015168	2/7/2008	Round 3B Completion Summary Supporting Tables.	23	2 CHT / Chart/Table	R10: Unknown, Unknown (Lower Willamette Group)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100015169	2/7/2008	Email regarding Select Points of Clarification on EPA's January 15 Round 2 Report Comments.	22	2 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100015170	2/7/2008	Select List of Requested Clarifications from EPA's January 15, 2008 Comments on the Round 2 Report.	110	4 CORR / Correspondence	R10: Unknown, Unknown (Unknown)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100016134	2/7/2008	REDACTED Email Letter regarding "Meet-Me-Line Info". Request for Conference Call.	52	1 CORR / Correspondence	R10: Townsend, Thomas (EPA)	R10: Yamamoto, Deborah, J (EPA), R10: Humphrey, Chip (EPA)	PAPER DOCUMENT	053-REMEDIAL/0531-Remedy Characterization
100017105	2/7/2008	REDACTED Email Regarding Select List of Requested Clarifications from EPA's 01/15/2008 Round 2 Report Comments.	25	2 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Neely, Robert (NOAA), R10: Madden, Erin (Unknown), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Pisano, Jessica, A (Anchor Environmental, LLC), R10: Revelas, Gene, C (Lower Willamette Group), R10: Wyatt, Bob (Lower Willamette Group), R10: Mckenna, Jim (Lower Willamette Group), R10: Bluelake, Lisa (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Karnosh, Michael (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality), R10: Mcclincy, Matt (Oregon Dept. of Environmental Quality), R10: Longoria, Rose (Yakama Nation), R10: Williams, J., D (Law Offices of J. D. Williams), R10: Hawley, Christine (Integral Corporation), R10: Applegate, Rick (City of Portland), R10: Barquin, Billy (Haglund Kelley, LLP), R10: Cunningham, E (gorge.net)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100017263	2/7/2008	REDACTED Email regarding Select Points of Clarification on EPA's January 15 Round 2 Report Comments.	25	2 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Neely, Robert (NOAA), R10: Mckenna, Jim (Port of Portland), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Cunninghame, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Pisano, Jessica, A (Anchor Environmental, LLC), R10: Revelas, Gene, C (Integral Consulting, Inc.), R10: Bluelake, Lisa (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Karnosh, Michael (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA), R10: Madden, Erin (Nez Perce Tribe), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality), R10: Mcclincy, Matt (Oregon Dept. of Environmental Quality), R10: Longoria, Rose (Yakama Nation), R10: Williams, J., D (Law Offices of J. D. Williams), R10: Wyatt, Robert, J (NW Natural), R10: Hawley, Christine (Integral Corporation), R10: Applegate, Rick (City of Portland), R10: Barquin, Billy (Haglund Kelley, LLP)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100017556	2/7/2008	REDACTED Email regarding Fate and Transport Jan. 30 2008 Meeting Notes.	33	3 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization

100017809	2/7/2008	REDACTED Email regarding Reply to Feb 7 call Starting at Noon - Stormwater Tech. Team -- Summary Tables Composite and Sediment Samples.	141	15 EML / Email	R10: Shellenberger, Amanda (Anchor Environmental, LLC)	R10: Sanders, Dawn (City of Portland, Oregon), R10: Scheffler, Linda (City of Portland, Oregon), R10: Lafranchise, Nicole, M (Port of Portland), R10: Stivers, Carl (Anchor Environmental, LLC), R10: Tarnow, Karen, E (Oregon Dept. of Environmental Quality), R10: Koulermos, Andrew, C (Newfields, Inc), R10: Spencer, Amanda, L (Ash Creek Associates, Inc.), R10: Coover, Merv (AECOM), R10: Jones, Laura (Integral Corporation)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
4940680525	2/7/2008	Email regarding Fate and Transport Jan. 30 2008 Meeting Notes.	49	3 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100015156	2/8/2008	Lower Willamette River, Portland Harbor Superfund Site: Monthly Progress Report for January 2008.	260	24 RPT / Report	R10: Revelas, Gene, C (Lower Willamette Group)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100017259	2/8/2008	REDACTED Email regarding January Progress Report - For Transmittal to EPA.	32	2 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100017795	2/11/2008	REDACTED Email regarding Feb 7 call Starting at Noon - Stormwater Tech. Team.	99	15 EML / Email	R10: Shellenberger, Amanda (Anchor Environmental, LLC)	R10: Sanders, Dawn (City of Portland, Oregon), R10: Scheffler, Linda (City of Portland, Oregon), R10: Lafranchise, Nicole, M (Port of Portland), R10: Stivers, Carl (Anchor Environmental, LLC), R10: Koch, Kristine, M (EPA), R10: Tarnow, Karen, E (Oregon Dept. of Environmental Quality), R10: Koulermos, Andrew, C (Newfields, Inc), R10: Spencer, Amanda, L (Ash Creek Associates, Inc.), R10: Coover, Merv (AECOM), R10: Jones, Laura (Integral Corporation)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100012397	2/12/2008	Email regarding Wednesday afternoon management meeting.	24	1 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Mckenna, Jim (Port of Portland), R10: Wyatt, Robert (Lower Willamette Group), R10: Blischke, Eric, L (EPA), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality), R10: Applegate, Rick (City of Portland)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
4940680689	2/12/2008	Email regarding reply to Wednesday Afternoon Management Meeting.	22	1 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Mckenna, James (Port of Portland), R10: Blischke, Eric, L (EPA), R10: Anderson, James, M (Oregon Dept. of Environmental Quality), R10: Wyatt, Robert, J (NW Natural), R10: Applegate, Rick (City of Portland)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100012390	2/13/2008	Email regarding Wednesday afternoon management meeting.	26	2 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Mckenna, Jim (Port of Portland), R10: Wyatt, Robert (Lower Willamette Group), R10: Blischke, Eric, L (EPA), R10: Applegate, Rick (City of Portland)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100014825	2/13/2008	Draft Questions and Answers during Arkema Presentation, Portland Harbor Community Advisory Group, February 13, 2008.	66	5 CORR / Correspondence	R10: Unknown, Unknown (Unknown)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
4940680688	2/13/2008	Email regarding reply to Wednesday Afternoon Management Meeting.	24	2 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Mckenna, James (Port of Portland), R10: Blischke, Eric, L (EPA), R10: Anderson, James, M (Oregon Dept. of Environmental Quality), R10: Wyatt, Robert, J (NW Natural), R10: Applegate, Rick (City of Portland)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100016121	2/15/2008	REDACTED Portland Harbor RI/FS Round 3B Fish and Invertebrate Tissue and Collocated Surface Sediment Field Sampling Report - Draft, CD and Transmittal Letter Attached.	54,834	319 RPT / Report	R10: Tritt, Maja (Integral Consulting, Inc.)	R10: Humphrey, Chip (EPA)	PAPER DOCUMENT	053-REMEDIAL/0531-Remedy Characterization
100016570	2/15/2008	REDACTED Round 3B Fish and Invertebrate Tissue and Collocated Surface Sediment Field Sampling Report - Appendices A Through G (Draft).	183,000	1161 RPT / Report	R10: Revelas, Gene, C (Integral Consulting, Inc.), R10: Stupakoff, Ian (Integral Consulting, Inc.), R10: Tritt, Maja (Integral Consulting, Inc.)	R10: Mckenna, Jim (Lower Willamette Group), R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100017552	2/15/2008	REDACTED Email regarding R3B Biota Field sampling report notification of transmittal to EPA.	28	2 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100018224	2/15/2008	REDACTED Email regarding R3B Biota Field sampling report notification of transmittal to EPA.	29	2 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
4940680446	2/15/2008	Email regarding reply to Problem Formulation for the Ecological Risk Assessment.	21	1 EML / Email	R10: Wyatt, Robert, J (NW Natural)	R10: Mckenna, James (Port of Portland), R10: Blischke, Eric, L (EPA), R10: Applegate, Rick (City of Portland)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100014822	2/19/2008	Email regarding Draft notes from last night.	18	1 EML / Email	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	R10: Sheldrake, Sean, A (EPA), R10: Smith, Judy, R (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100014826	2/19/2008	Email regarding Portland Harbor breastfeeding risk.	21	2 EML / Email	R10: Poulsen, Mike (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
4940680042	2/19/2008	Email regarding CSM Figure 1.	51	1 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100010841	2/20/2008	Email regarding Mobility Testing FSP Extension.	27	3 EML / Email	R10: Mckenna, Jim (Port of Portland)	R10: Stivers, Carl (Anchor Environmental, LLC), R10: Humphrey, Chip (EPA), R10: Wyatt, Robert, J (NW Natural), R10: Applegate, Rick (City of Portland)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100012600	2/20/2008	Email regarding Thursday managers meeting location.	25	1 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Betz, J. (Unknown), R10: Ashton, David (Port of Portland), R10: Mckenna, Jim (Port of Portland), R10: Wyatt, Robert (Lower Willamette Group), R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA), R10: Revelas, Gene (Integral Corporation), R10: Dost, Patty (Schwabe, Williamson & Wyatt, P.C.), R10: Applegate, Rick (City of Portland), R10: Wolff, G.	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
4940680491	2/21/2008	Email regarding reply to Wednesday Afternoon Management Meeting.	23	2 EML / Email	R10: Wyatt, Robert, J (NW Natural)	R10: Mckenna, James (Port of Portland), R10: Oster, Valerie (Anchor Environmental, LLC), R10: Blischke, Eric, L (EPA), R10: Anderson, James, M (Oregon Dept. of Environmental Quality), R10: Applegate, Rick (City of Portland)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100017643	2/26/2008	REDACTED Email regarding PH Tech meeting Weds.	20	1 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Blischke, Eric, L (EPA), R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100017814	2/26/2008	REDACTED Email regarding Reply to LWG Stormwater - REVISED Sediment Trap Prioritization.	111	17 EML / Email	R10: Jones, Laura (Integral Corporation)	R10: Sanders, Dawn (City of Portland, Oregon), R10: Scheffler, Linda (City of Portland, Oregon), R10: Lafranchise, Nicole, M (Port of Portland), R10: Shellenberger, Amanda (Anchor Environmental, LLC), R10: Stivers, Carl (Anchor Environmental, LLC), R10: Koch, Kristine, M (EPA), R10: Tarnow, Karen, E (Oregon Dept. of Environmental Quality), R10: Koulermos, Andrew, C (Newfields, Inc), R10: Spencer, Amanda, L (Ash Creek Associates, Inc.), R10: Coover, Merv (AECOM)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100017288	2/28/2008	REDACTED Email regarding LWG Stormwater - REVISED Sediment Trap Prioritization.	127	17 EML / Email	R10: Scheffler, Linda (City of Portland, Oregon)	R10: Sanders, Dawn (City of Portland, Oregon), R10: Lafranchise, Nicole, M (Port of Portland), R10: Shellenberger, Amanda (Anchor Environmental, LLC), R10: Stivers, Carl (Anchor Environmental, LLC), R10: Koch, Kristine, M (EPA), R10: Tarnow, Karen, E (Oregon Dept. of Environmental Quality), R10: Koulermos, Andrew, C (Newfields, Inc), R10: Spencer, Amanda, L (Ash Creek Associates, Inc.), R10: Coover, Merv (AECOM), R10: Jones, Laura (Integral Corporation)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization

									R10: Sanders, Dawn (City of Portland, Oregon), R10: Scheffler, Linda (City of Portland, Oregon), R10: Lafranchise, Nicole, M (Port of Portland), R10: Stivers, Carl (Anchor Environmental, LLC), R10: Koch, Kristine, M (EPA), R10: Tarnow, Karen, E (Oregon Dept. of Environmental Quality), R10: Koulermos, Andrew, C (Newfields, Inc), R10: Spencer, Amanda, L (Ash Creek Associates, Inc.), R10: Coover, Merv (AECOM), R10: Jones, Laura (Integral Corporation)			
100017800	2/28/2008	REDACTED Email regarding Reply to LWG Stormwater - REVISED Sediment Trap Prioritization.	88	18	EML / Email	R10: Shellenberger, Amanda (Anchor Environmental, LLC)					ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
4940680016	2/28/2008	Email regarding For EPA Notification Validated Willamette Cove Sediment Data.	22	2	EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)					ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
4940680531	2/28/2008	Email regarding For EPA Notification Validated Willamette Cove Sediment Data.	22	2	EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)					ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100014842	2/29/2008	Email Regarding Round 3 Pre-Breeding White Sturgeon (Acipenser transmontanus) Tissue Data Report.	64	2	EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)			R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)		ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100014843	2/29/2008	Memo Regarding Portland Harbor RI/FS (Remedial Investigation/Feasibility Study) Round 3 Pre-Breeding White Sturgeon (Acipenser transmontanus) Tissue Data Report, DRAFT.	63	1	CORR / Correspondence	R10: Do, Thai, N (Windward Environmental, LLC.)			R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)		ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100014845	2/29/2008	Portland Harbor RI/FS (Remedial Investigation/Feasibility Study) Round 3 Pre-Breeding White Sturgeon (Acipenser transmontanus) Tissue Data Report, DRAFT.	331	53	CORR / Correspondence	R10: (Windward Environmental, LLC.), R10: (Integral Consulting, Inc.)			R10: (The Lower Willamette Group)		ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100015157	2/29/2008	Email regarding Round 3 sturgeon tissue data report to EPA.	65	2	EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)			R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)		ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100015159	2/29/2008	Portland Harbor RI/FS Round 3 Pre-Breeding White Sturgeon (Acipenser Transmontanus) Tissue Data Report.	331	53	RPT / Report	R10: Unknown, Unknown (Windward Environmental, LLC.), R10: Unknown, Unknown (Integral Consulting, Inc.)			R10: Unknown, Unknown (Lower Willamette Group)		ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100015171	2/29/2008	Memorandum regarding Portland Harbor RI/FS Round 3 Pre-Breeding White Sturgeon (Acipenser Transmontanus) Tissue Data Report.	63	1	MEMO / Memorandum	R10: Do, Thai, N (Windward Environmental, LLC.)			R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)		ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100018213	2/29/2008	REDACTED Email regarding Round 3 sturgeon tissue data report to EPA.	65	3	EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)			R10: Blischke, Eric, L (EPA)		ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100007983	3/4/2008	Technical Memorandum Providing Supplemental Information for Biological Assessment for Phase I of the Terminal 4 Removal Action.	1,320	16	MEMO / Memorandum	R10: Wick, Ali (Anchor Environmental, LLC), R10: Hung, Ben (Anchor Environmental, LLC), R10: Schadt, Tom (Anchor Environmental, LLC)			R10: Munn, Nancy (National Marine Fisheries Service)		ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100014848	3/4/2008	LWG (Lower Willamette Group) Memo on Pacific Lamprey and EPA Eco-Risk Assessment Problem Formulation Document.	298	6	MEMO / Memorandum	R10: (Lower Willamette Group Legal Committee)			R10: (Lower Willamette Group Executive Committee)		ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100014919	3/5/2008	Discussion Materials from EPA Meeting on Feasibility Study.	33	2	MTG / Meeting Document	R10: Unknown, Unknown (Unknown)			R10: Unknown, Unknown (Unknown)		ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100015160	3/10/2008	Email regarding February Progress Report for Transmittal to EPA.	55	2	EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)			R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)		ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100015162	3/10/2008	Lower Willamette River, Portland Harbor Superfund Site: Monthly Progress Report for February 2008.	254	23	RPT / Report	R10: Revelas, Gene, C (Lower Willamette Group)			R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)		ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100015185	3/10/2008	Table 1. Sediment Trap Sample Prioritization Summary - Showing Target Detection Limit Factors.	35	2	CHT / Chart/Table	R10: Unknown, Unknown (Unknown)			R10: Unknown, Unknown (Unknown)		ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100017107	3/10/2008	REDACTED Email Regarding Fall Stormwater Sediment Trap Sample Prioritization Summary.	77	2	EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)			R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)		ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100017260	3/10/2008	REDACTED Email regarding Stormwater Items for EPA review and approval.	77	2	EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)			R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)		ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100017819	3/10/2008	REDACTED Email regarding Stormwater Items for EPA review and approval.	75	3	EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)			R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)		ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
									R10: Neely, Robert (NOAA), R10: Mckenna, Jim (Port of Portland), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Cunninghame, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Peers, Jennifer (Stratus Consulting, Inc.), R10: Revelas, Gene, C (Integral Consulting, Inc.), R10: Bluelake, Lisa (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Karnosh, Michael (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA), R10: Madden, Erin (Nez Perce Tribe), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality), R10: McClincy, Matt (Oregon Dept. of Environmental Quality), R10: Longoria, Rose (Yakama Nation), R10: Williams, J., D (Law Offices of J. D. Williams), R10: Wyatt, Robert, J (NW Natural), R10: Hawley, Christine (Integral Corporation), R10: Pine, Keith (Anchor Environmental, LLC), R10: Applegate, Rick (City of Portland), R10: Barquin, Billy (Haglund Kelley, LLP)			
100017283	3/12/2008	REDACTED Email regarding Draft 3/13/2008 Portland Harbor Managers Agenda.	21	1	EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)			R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)		ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100017286	3/13/2008	REDACTED Agenda for Portland Harbor Managers Meeting, March 13, 2008.	37	2	MTG / Meeting Document	R10: Unknown, Unknown (Lower Willamette Group)			R10: Unknown, Unknown (Unknown)		ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100014847	3/19/2008	Email Regarding LWG (Lower Willamette Group) Memo on Pacific Lamprey and EPA Eco-Risk Assessment Problem Formulation Document.	17	1	EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)			R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)		ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100010940	3/21/2008	Email regarding NW Natural, FFS Comments Letter.	31	2	EML / Email	R10: Wyatt, Robert, J (NW Natural)			R10: Bayuk, Dana (Oregon Dept. of Environmental Quality)		ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100015129	3/21/2008	PORTLAND HARBOR RI/FS: DRAFT ROUND 3B COMPREHENSIVE SEDIMENT AND BIOASSAY TESTING FIELD SAMPLING REPORT.	206	23	RPT / Report	R10: (Lower Willamette Group)					ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100017564	3/21/2008	REDACTED Email regarding For EPA Review Round 3B Sediment and Bioassay Testing FSR.	27	1	EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)			R10: Blischke, Eric, L (EPA)		ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100018202	3/21/2008	REDACTED Email regarding For EPA Review Round 3B Sediment and Bioassay Testing FSR.	27	1	EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)			R10: Blischke, Eric, L (EPA)		ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
4940680073	3/21/2008	Email regarding Presentation for this afternoon.	21	1	EML / Email	R10: Wyatt, Bob (Northwest Natural Gas Company)			R10: Sheldrake, Sean, A (EPA)		ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
4940680426	3/21/2008	Email regarding reply to NW Natural, FFS Comments Letter.	31	2	EML / Email	R10: Wyatt, Robert, J (NW Natural)			R10: Bayuk, Dana (Oregon Dept. of Environmental Quality)		ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100015212	3/28/2008	Email regarding Archived Sample PCB congener analysis letter - for transmittal to EPA.	19	1	EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)			R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)		ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100015234	3/28/2008	Letter regarding Archived PCB Congener Samples.	44	4	CORR / Correspondence	R10: Revelas, Gene, C (Lower Willamette Group)			R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)		ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100016602	4/1/2008	REDACTED Email regarding Draft agenda for meeting on Thursday.	25	2	EML / Email	R10: Neely, Robert (NOAA)			R10: Fuentes, Rene, C (EPA), R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)		ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization



100016786	REDACTED Email regarding Draft agenda for meeting on Thursday.	26	2 EML / Email	R10: Neely, Robert (NOAA)	R10: Fuentes, Rene, C (EPA), R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100016938	REDACTED 04_01_08 email; Draft agenda for meeting on Thursday.	37	2 EML / Email	R10: Neely, Robert (NOAA)	R10: Fuentes, Rene, C (EPA), R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA), R10: Blischke, Eric, L (Oregon Dept. of Environmental Quality), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100014850	LWG (Lower Willamette Group) Letter in Response to EPA's 03/10/2008 Email Requesting Chemical Analysis of Lamprey Ammocoetes.	54	2 EML / Email	R10: Wyatt, Bob (Lower Willamette Group), R10: Mckenna, Jim (Lower Willamette Group)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100015232	Status of Issues from March 12, 2008 EPA-DEQ-LWG Background Approach Technical Meeting, Revised April 3, 2008.	56	3 MTG / Meeting Document	R10: Unknown, Unknown (Unknown)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100015235	Email regarding PH Background Issue Resolution Status - Revised per April 3 Meeting.	18	1 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Mckenna, Jim (Port of Portland), R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality), R10: Wyatt, Robert, J (NW Natural), R10: Pine, Keith (Anchor Environmental, LLC), R10: Applegate, Rick (City of Portland)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100015241	LWG Response to EPA's March 10, 2008 email requesting chemical analysis of lamprey ammocoetes.	57	2 CORR / Correspondence	R10: Mckenna, Jim (Port of Portland), R10: Wyatt, Robert, J (NW Natural)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100016790	REDACTED Agenda for Portland Harbor NRDA and RI/FS Coordination: Preparing for Successful Habitat Restoration Meeting.	43	1 MTG / Meeting Document	R10: Unknown, Unknown (Unknown)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100017110	REDACTED Email Regarding LWG (Lower Willamette Group) Letter in Response to EPA's 03/10/2008 Email Requesting Chemical Analysis of Lamprey Ammocoetes.	26	1 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100017277	REDACTED Email regarding LWG response on Lamprey Tissue Chemistry.	26	1 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100018222	REDACTED Email regarding For EPA Use Validated Round 3A Stormwater Outfall Sediment Trap Data.	22	2 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Neely, Robert (NOAA), R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
4940680026	Email regarding For EPA Use Validated Round 3A Stormwater Outfall Sediment Trap Data.	27	2 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Neely, Robert (NOAA), R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100014855	Memorandum regarding Proposed Risk Assessment Approach for Evaluating Potential Risks from Consuming Breast Milk.	238	18 MEMO / Memorandum	R10: Davoli, Dana (EPA), R10: Farrer, David, G (Oregon Dept. of Human Services), R10: Poulsen, Mike (Oregon Dept. of Environmental Quality)	R10: Unknown, Unknown (Lower Willamette Group)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100014857	Request for Underlying Backup Regarding EPA Bill No. 27008265149 and Notice re Future Potential Invocation of Dispute Resolution regarding Charges.	38	2 CORR / Correspondence	R10: Mckenna, Jim (Port of Portland), R10: Wyatt, Robert, J (NW Natural)	R10: Cora, Lori, H (EPA), R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA), R10: Poetter, Joe (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100016412	Attachment 2, Memo Regarding DRAFT Proposed Risk Assessment Approach for Evaluating Potential Risks From Consuming Breast Milk.	239	18 MEMO / Memorandum	R10: Davoli, Dana (EPA), R10: Farrer, David, G (Oregon Dept. of Human Services), R10: Poulsen, Mike (Oregon Dept. of Environmental Quality)	R10: (Lower Willamette Group)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100017092	REDACTED Email regarding Portland Harbor breast milk.	25	2 EML / Email	R10: Poulsen, Mike (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100014856	Email regarding Request for Backup for EPA Invoice 27008265149.	18	1 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Cora, Lori, H (EPA), R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA), R10: Poetter, Joe (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100015244	Email regarding March 2008 Portland Harbor Monthly Progress Report.	19	1 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100015245	Lower Willamette River, Portland Harbor Superfund Site: Monthly Progress Report for March 2008.	249	22 RPT / Report	R10: Pine, Keith (Lower Willamette Group)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100016407	Methodology to Calculate Exposure to a Breast Feeding Infant (From Presentation to Region Fish Group).	32	1 RPT / Report	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100016408	Memo from Poulsen for ODEQ Managers Regarding Risk Assessment Evaluation of Breast Feeding Pathway.	67	3 MEMO / Memorandum	R10: Poulsen, Mike (Oregon Dept. of Environmental Quality)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
4940680619	Email regarding reply to Background meeting date proposal.	21	1 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Blischke, Eric, L (EPA), R10: Pine, Keith (Anchor Environmental, LLC)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
4940680311	Email regarding Draft PRG/RG Table.	20	1 EML / Email	R10: Mckenna, James (Port of Portland)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
4940680367	Email regarding reply to Draft PRG/RG Table.	22	1 EML / Email	R10: Mckenna, James (Port of Portland)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100014852	Letter from LWG (Lower Willamette Group) on Lamprey Literature Review.	55	2 LTR / Letter	R10: Wyatt, Bob (Lower Willamette Group), R10: Mckenna, Jim (Lower Willamette Group)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100014858	Email regarding TZW Risk Frameworks.	19	1 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Fleming, Sheila (Ridolfi Engineers and Associates, Inc.), R10: Ebbets, Allison (Stratus Consulting, Inc.), R10: Koch, Kristine, M (EPA), R10: Shephard, Burt (EPA), R10: Davoli, Dana (EPA), R10: Yamamoto, Deb (EPA), R10: Lewis, Mark, D (NewFields)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100016409	Memo from Davoli for Managers Regarding Risk Assessment Evaluation of Breast Feeding Pathway.	66	3 MEMO / Memorandum	R10: Davoli, Dana (EPA)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100017113	REDACTED Email Regarding Letter from LWG (Lower Willamette Group) on Lamprey Literature Review.	23	1 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100016410	Attachment 1, Breast Feeding Summary, Data Regarding Fish Contaminant Level.	19	1 CHT / Chart/Table	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100017377	REDACTED Email regarding Lamprey; individual vs. population.	19	1 EML / Email	R10: Mckenna, James (Port of Portland)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100018230	REDACTED Email regarding Lamprey; individual vs. population.	19	1 EML / Email		R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100016411	Attachment 1, Final Breast Feeding Summary, Data Regarding Fish Contaminant Level.	19	1 CHT / Chart/Table	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100016413	Memo Regarding Recommendation to Include Risk Evaluation of the Breast Feeding Pathway in the Portland Harbor Human Health Risk Assessment (HHRA) and RI/FS (Remedial Investigation/Feasibility Study).	107	4 MEMO / Memorandum	R10: Davoli, Dana (EPA), R10: Farrer, David, G (Oregon Dept. of Human Services), R10: Poulsen, Mike (Oregon Dept. of Environmental Quality)	R10: Yamamoto, Deb (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
4940680565	Email regarding Submittal of bioassay data report to EPA.	23	2 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
4940681394	Email regarding LWG Side Scan Sonar FSP for EPA review.	24	1 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
4940680652	Email regarding reply to Meeting Times and Locations.	20	1 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100015955	Article from CD Summary Newsletter Regarding The Scoop on Breasfeeding and PCBs.	479	2 PUB / Publication	R10: (Oregon Public Health Division)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
4940680023	Email regarding For EPA Use Validated Jan 2008 Stormwater Outfall Data & 3rd and 4th Quarter Sediment Trap Data.	62	2 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Neely, Robert (NOAA), R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
4940680537	Email regarding For EPA Use Validated Jan 2008 Stormwater Outfall Data & 3rd and 4th Quarter Sediment Trap Data.	62	2 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Neely, Robert (NOAA), R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization

100018219	REDACTED Email regarding For EPA Use Validated Nov. 2007 Stormwater Outfall Data.	56	2 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Neely, Robert (NOAA), R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
4940680024	5/7/2008 Email regarding For EPA Use Validated Nov. 2007 Stormwater Outfall Data.	64	2 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Neely, Robert (NOAA), R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
4940680656	5/7/2008 Email regarding reply to new PH data.	24	1 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Neely, Robert (NOAA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100016214	Breast Milk Pathway Comments of Peer Reviewers for the Human Health Risk Assessment (HHRA) of the Housatonic River.	71	4 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100016419	Data Regarding Poulsen Summary of Arnold Rice Studies, PCB Effects on Monkey Offspring.	83	4 CHT / Chart/Table	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100012452	Email regarding stormwater loading methods report.	25	1 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100012465	5/20/2008 Email regarding scheduling meetings.	25	1 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100012468	5/20/2008 Email regarding server access request	22	1 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
4940680691	5/20/2008 Email regarding scheduling meetings.	24	1 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100014951	BERA (Baseline Ecological Risk Assessment) Calculated Sum Components.	184	11 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100014952	Proposed Data Use Rules and Data Integration for Baseline Human Health Risk Assessment (BHHRA).	34	2 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100014963	BHHRA (Baseline Human Health Risk Assessment) Calculated Sum Components.	126	6 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100014964	Proposed Data Reduction Rules and Data Integration for BERA (Baseline Ecological Risk Assessment), DRAFT.	42	3 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
4940680678	5/23/2008 Email regarding reply to scheduling meetings.	22	2 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100014854	LWG (Lower Willamette Group) Letter to Request for Extension for Dispute Resolution, Lamprey Assessment.	46	1 LTR / Letter	R10: Wyatt, Bob (Lower Willamette Group), R10: Mckenna, Jim (Lower Willamette Group)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100017386	REDACTED Email regarding reply to scheduling meetings.	21	2 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100017407	REDACTED Email regarding reply to scheduling meetings.	23	3 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100014865	Fate and Transport Meeting Summary - May 28, 2008.	57	1 MTG / Meeting Document	R10: Unknown, Unknown (Unknown)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100014950	Email Regarding LWG (Lower Willamette Group) Data Use Rules.	18	1 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100014965	Table of Post SCRA Data Treatment Summary for the RI and BLRAs.	152	3 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100017116	REDACTED Email Regarding LWG (Lower Willamette Group) Letter to Request for Extension for Dispute Resolution, Lamprey Assessment.	27	1 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
4940680047	5/28/2008 Email regarding 5/28 FT call.	26	1 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
4940680501	5/28/2008 Email regarding 5/28 FT call.	26	1 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100016420	Letter Regarding DRAFT PCB in Breast Milk at Portland Harbor.	271	8 LTR / Letter	R10: Farrer, David, G (Oregon Dept. of Human Services)	R10: Mckenna, Jim (Lower Willamette Group), R10: Wyatt, Robert (Lower Willamette Group)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100015280	5/30/2008 Sed Bckgr Aroclors for EPA.	782	80 CHT / Chart/Table	R10: Unknown, Unknown (Unknown)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100016605	REDACTED Email regarding Re_Call about Hyalella bioassay hit levels for Portland Harbor.	20	1 EML / Email	R10: Field, Jay (NOAA)	R10: Goulet, Joe (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100016793	REDACTED Email regarding Call about Hyalella bioassay hit levels for Portland Harbor.	20	1 EML / Email	R10: Field, Jay (NOAA)	R10: Goulet, Joe (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100014867	6/4/2008 PRG Meeting Summary - June 4, 2008.	68	2 MTG / Meeting Document	R10: Unknown, Unknown (Unknown)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100014868	Stormwater Loading Methods Meeting Summary - June 5, 2008.	68	2 MTG / Meeting Document	R10: Unknown, Unknown (Unknown)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100015253	Email regarding Background sediment data/ revised Data Rules Summary for EPA.	19	1 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100015255	Table: Post SCRA Data Treatment Summary for the RI and BLRAs.	158	3 CHT / Chart/Table	R10: Unknown, Unknown (Unknown)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100018207	REDACTED Email regarding LWG Responses and Requests for Clarification to Selected EPA Comments on the Round 2 Report.	90	1 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100011915	Email regarding Number of growth-based low level hits in the round 2 report.	29	3 EML / Email	R10: Field, Jay (NOAA)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100012659	Email regarding Number of growth-based low level hits in the r(1).	143	2 EML / Email	R10: Field, Jay (NOAA)	R10: Gensemer, Robert, W (Parametrix, Inc.)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100012673	Email regarding Number of Growth-Based Low Level Hits in the Round 2 Report.	29	3 EML / Email	R10: Field, Jay (NOAA)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100013577	Round 2 Sediment toxicity test result summary.	21	1 CHT / Chart/Table	R10: Unknown, Unknown (Unknown)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100013631	Email regarding Number of growth-based low level hits in the round 2 report.	143	2 EML / Email	R10: Field, Jay (NOAA)	R10: Gensemer, Robert, W (Parametrix, Inc.)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100018218	REDACTED Email regarding For EPA Use Posted Validated Data.	21	2 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Neely, Robert (NOAA), R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
4940680022	Email regarding For EPA Use Posted Validated Data.	25	2 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Neely, Robert (NOAA), R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100018216	REDACTED Email regarding Updated Stormwater Outfall Data Station IDs.	21	2 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Neely, Robert (NOAA), R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100014864	Email regarding Recent Meeting Summary Notes.	18	1 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA), R10: Anderson, Jim (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100014967	Letter from LWG (Lower Willamette Group) on Individual Pacific Lamprey Assessment.	52	4 LTR / Letter	R10: Wyatt, Bob (Lower Willamette Group), R10: Mckenna, Jim (Lower Willamette Group)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100017224	REDACTED Email Regarding Letter from LWG (Lower Willamette Group) on Individual Pacific Lamprey Assessment.	23	1 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
4940680434	Email regarding reply to PH Meeting tomorrow - June 11.	26	3 EML / Email	R10: Mckenna, James (Port of Portland)	R10: Oster, Valerie (Anchor Environmental, LLC), R10: Blischke, Eric, L (EPA), R10: Applegate, Rick (City of Portland)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
4940680665	Email regarding reply to PH Meeting tomorrow - June 11.	26	2 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
4940680672	Email regarding reply to Request for managers meeting to discuss PRG issues.	23	1 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Blischke, Eric, L (EPA), R10: Pine, Keith (Anchor Environmental, LLC)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100017594	REDACTED Email regarding R3B Upland Stormwater Sampling Report.	23	1 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100017597	REDACTED Email regarding R3B Upland Stormwater Sampling Report.	23	1 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100010722	Email regarding Lamprey Letter - Dispute Deadline Extension.	22	1 EML / Email	R10: Wyatt, Robert, J (NW Natural)	R10: Mckenna, Jim (Port of Portland), R10: Humphrey, Chip (EPA), R10: Applegate, Rick (City of Portland)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
4940680407	Email regarding reply to Lamprey letter - dispute deadline extension.	22	1 EML / Email	R10: Wyatt, Robert, J (NW Natural)	R10: Mckenna, James (Port of Portland), R10: Humphrey, Chip (EPA), R10: Applegate, Rick (City of Portland)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
4940680060	Email regarding reply to Arkema CDF evaluation letter.	23	1 EML / Email	R10: Wyatt, Bob (Northwest Natural Gas Company)	R10: Sheldrake, Sean, A (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
4940680347	Email regarding reply to Arkema CDF evaluation letter.	23	1 EML / Email	R10: Wyatt, Robert, J (NW Natural)	R10: Sheldrake, Sean, A (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization

100015764	REDACTED Email regarding Gasco Sediments Scope of Work Meeting.	29	2 EML / Email	R10: Wyatt, Robert, J (NW Natural)	R10: Stivers, Carl (Anchor Environmental, LLC), R10: Sheldrake, Sean, A (EPA), R10: Fuentes, Rene, C (EPA), R10: Humphrey, Chip (EPA), R10: Bayuk, Dana (Oregon Dept. of Environmental Quality), R10: Mccue, Tom (Siltcon Corporation)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100017296	REDACTED Email regarding June 26 9 am Stormwater Tech Team Call.	37	4 EML / Email	R10: Stivers, Carl (Anchor Environmental, LLC)	R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100017299	REDACTED Email regarding DEQ comments RE: June 26 9 am Stormwater Tech Team Call.	42	6 EML / Email	R10: Tarnow, Karen, E (Oregon Dept. of Environmental Quality)	R10: Stivers, Carl (Anchor Environmental, LLC), R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100016213	Email Regarding Possible List of Reviewers for Breastmilk Scenario.	26	1 EML / Email	R10: Davoli, Dana (EPA)	R10: Cox, Michael, W (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100007976	Supplemental Section 404(b)(1) Evaluation: Terminal 4 Phase I Removal Action; Port of Portland, Portland, Oregon; Contract No. 68-S7-6/30/2008 03-04; Task Order No. 0003.	433	40 RPT / Report	R10: (Parametrix, Inc.)	R10: Sheldrake, Sean, A (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
4940680405	7/1/2008 Email regarding reply to Lamprey Clarification.	20	1 EML / Email	R10: Wyatt, Robert, J (NW Natural)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
4940680408	7/1/2008 Email regarding reply to Lamprey.	20	1 EML / Email	R10: Wyatt, Robert, J (NW Natural)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100012394	7/2/2008 Email regarding PH Round 3 Tox data.	21	1 EML / Email	R10: Field, Jay (NOAA)	R10: Shephard, Burt (EPA), R10: Goulet, Joe (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100017371	REDACTED Email regarding Reply to Reminder Stormwater Technical Team Call July 3 at 9 am.	44	6 EML / Email	R10: Stivers, Carl (Anchor Environmental, LLC)	R10: Sanders, Dawn (City of Portland, Oregon), R10: Scheffler, Linda (City of Portland, Oregon), R10: Shellenberger, Amanda (Anchor Environmental, LLC), R10: Jones, Laura (Integral Consulting, Inc.), R10: Koch, Kristine, M (EPA), R10: Mcclincy, Matt (Oregon Dept. of Environmental Quality), R10: Koulermos, Andrew, C (Newfields, Inc.), R10: Spencer, Amanda, L (Ash Creek Associates, Inc.)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
4940680406	7/2/2008 Email regarding reply to Lamprey Clarification.	20	1 EML / Email	R10: Wyatt, Robert, J (NW Natural)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100018229	REDACTED Email regarding Background Methods Tech Memo - for transmittal to EPA.	24	2 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100010771	Email regarding Managers Meeting Next Week.	21	1 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100017268	REDACTED Email regarding reply to Managers meeting next week.	19	1 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100017962	REDACTED Email regarding Managers Meeting Next Week.	18	1 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100017281	REDACTED Email regarding Portland Harbor Stormwater.	30	2 EML / Email	R10: Shellenberger, Amanda (Anchor Environmental, LLC)	R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100012475	7/14/2008 Email regarding Bioassay Evaluation.	27	2 EML / Email	R10: Field, Jay (NOAA)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100012642	7/14/2008 Email regarding Logistic Regression Model.	22	1 EML / Email	R10: Field, Jay (NOAA)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100012484	7/15/2008 Email regarding Bioassay Evaluation.	28	2 EML / Email	R10: Field, Jay (NOAA)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100017125	REDACTED Email regarding Managers meeting next week.	21	2 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100017984	REDACTED Email transmitting 7/16/08 Portland Harbor Managers' Meeting Agenda.	21	2 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100015796	REDACTED Portland Harbor Managers' Meeting Agenda.	35	1 MTG / Meeting Document	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100017130	REDACTED Agenda for Portland Harbor Managers Meeting, July 16, 2008.	13	1 MTG / Meeting Document	R10: Unknown, Unknown (Lower Willamette Group)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100017255	REDACTED Email regarding reply to Managers meeting next week.	25	3 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Blischke, Eric, L (EPA), R10: Madden, Erin (Nez Perce Tribe)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100017280	REDACTED Email regarding Managers meeting next week.	26	2 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Mckenna, Jim (Port of Portland), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Cunninghame, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Peers, Jennifer (Stratus Consulting, Inc.), R10: Bluelake, Lisa (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Karnosh, Michael (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA), R10: Madden, Erin (Nez Perce Tribe), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality), R10: Mcclincy, Matt (Oregon Dept. of Environmental Quality), R10: Longoria, Rose (Yakama Nation), R10: Williams, J., D. (Law Offices of J. D. Williams), R10: Wyatt, Robert, J (NW Natural), R10: Pine, Keith (Anchor Environmental, LLC), R10: Applegate, Rick (City of Portland), R10: Barquin, Billy (Haglund Kelley, LLP)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100017329	REDACTED Agenda for Portland Harbor Managers Meeting, July 16, 2008.	34	1 MTG / Meeting Document	R10: Unknown, Unknown (Lower Willamette Group)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100017974	REDACTED Email regarding Managers Meeting Next Week.	25	3 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Madden, Erin (Unknown), R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100018204	REDACTED Email regarding LWG In River Sediment Trap Data.	19	1 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
4940680012	Email regarding LWG In River Sediment Trap Data.	24	1 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100017947	REDACTED Email regarding Gasco Sediments Scope of Work Meeting.	22	2 EML / Email	R10: Wyatt, Robert, J (NW Natural)	R10: Stivers, Carl (Anchor Environmental, LLC), R10: Sheldrake, Sean, A (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100010750	Email regarding LWG In River Sediment Trap Data.	81	2 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Oster, Valerie (Anchor Environmental, LLC), R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100011027	7/21/2008 Email regarding chemical lists.	25	1 EML / Email	R10: Wyatt, Robert (Lower Willamette Group)	R10: Mckenna, Jim (Port of Portland), R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100017244	REDACTED Email regarding reply to LWG In River Sediment Trap Data.	71	2 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Oster, Valerie (Anchor Environmental, LLC), R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
4940680355	7/21/2008 Email regarding reply to Chemical Lists.	23	1 EML / Email	R10: Wyatt, Robert, J (NW Natural)	R10: Mckenna, James (Port of Portland), R10: Blischke, Eric, L (EPA), R10: Applegate, Rick (City of Portland)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100015296	7/24/2008 Email regarding Degradation Rate Summary. Degradation half lives for select chemicals in	55	2 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100015299	7/24/2008 soils, sediments and surface waters.	69	2 CHT / Chart/Table	R10: Unknown, Unknown (Unknown)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100017415	REDACTED Email regarding reply to Final Bioassay Evaluation Proposal	28	3 EML / Email	R10: Wyatt, Robert, J (NW Natural)	R10: Mckenna, James (Port of Portland), R10: Blischke, Eric, L (EPA), R10: Applegate, Rick (City of Portland)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100017583	REDACTED Email regarding final bioassay evaluation proposal.	28	3 EML / Email	R10: Wyatt, Robert (Lower Willamette Group)	R10: Blischke, Eric, L (EPA), R10: Applegate, Rick (City of Portland)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100018104	REDACTED Email Regarding Deb Rice Feedback on PCB Toxicity.	33	5 EML / Email	R10: Davoli, Dana (EPA), R10: Poulsen, Mike (Oregon Dept. of Environmental Quality)	R10: Rice, Deborah (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
4940680445	7/24/2008 Email regarding reply to PRG Process.	23	1 EML / Email	R10: Wyatt, Robert, J (NW Natural)	R10: Mckenna, James (Port of Portland), R10: Blischke, Eric, L (EPA), R10: Woronets, Jennifer (Anchor Environmental, LLC), R10: Applegate, Rick (City of Portland)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization



100015302	7/25/2008	Table 5.1-2: Upland Site Pathway Assessment Summary.	59	9 CHT / Chart/Table	R10: Unknown, Unknown (Lower Willamette Group)	R10: Unknown, Unknown (Unknown) R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100015304	7/25/2008	Email regarding LWG Response to EPA Comments on Upland Source Table.	22	2 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Unknown, Unknown (Lower Willamette Group)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100015305	7/25/2008	Response to January 15, 2008 EPA Comments 127-175.	144	22 CORR / Correspondence	R10: Unknown, Unknown (Lower Willamette Group)	R10: Unknown, Unknown (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100017551	7/26/2008	REDACTED Email regarding R2 Archived Sediment PCB Congener Data Report for Transmittal to EPA.	25	2 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100018210	7/26/2008	REDACTED Email regarding R2 Archived Sediment PCB Congener Data Report for Transmittal to EPA.	25	2 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Blischke, Eric, L (EPA), R10: Anderson, James, M (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100018211	7/26/2008	REDACTED Email regarding R2 Archived Sediment PCB Congener Data Report for Transmittal to EPA.	25	2 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Blischke, Eric, L (EPA), R10: Anderson, James, M (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100012693	7/28/2008	Email regarding NOAA comments on first batch of TRVs.	18	1 EML / Email	R10: Neely, Robert (NOAA)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100012984	7/28/2008	NOAA Comments to EPA TRVs Batch One Final.	28	3 LTR / Letter	R10: Neely, Robert (NOAA)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100016439	7/29/2008	REDACTED Email regarding August 8th Meeting at Arkema Portland Site.	37	5 EML / Email	R10: Munn, Nancy (NOAA)	R10: Sheldrake, Sean, A (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100017579	7/29/2008	REDACTED Email regarding August 8th Meeting at Arkema Portland Site.	36	5 EML / Email	R10: Munn, Nancy (NOAA)	R10: Sheldrake, Sean, A (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100012462	7/30/2008	Email regarding Additional Willamette River Data Sets.	22	1 EML / Email	R10: Neely, Robert (NOAA)	R10: Severn, Corinne, G (Premier Environmental Services)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100012720	7/30/2008	Email regarding Willamette River Watershed Database Posted - 07/30/08.	26	2 EML / Email	R10: Field, Jay (NOAA)	R10: Neely, Robert (NOAA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100017308	7/31/2008	REDACTED Email regarding Next Stormwater Technical Team Meeting Thursday July 31st 9am-noon.	41	6 EML / Email	R10: Shellenberger, Amanda (Anchor Environmental, LLC)	R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
4940680368	8/1/2008	Email regarding reply to Dredging at Port of Portland's Marine Terminal 2.	26	2 EML / Email	R10: Mckenna, James (Port of Portland)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100012695	8/4/2008	Email regarding NOAA comments on Cu and Cr TRVs.	18	1 EML / Email	R10: Neely, Robert (NOAA)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100012985	8/4/2008	NOAA Comments to EPA TRVs Cu & CR Final.	26	3 LTR / Letter	R10: Neely, Robert (NOAA)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
4940680489	8/5/2008	Email regarding reply to TRV Questions.	21	1 EML / Email	R10: Wyatt, Robert, J (NW Natural)	R10: Mckenna, James (Port of Portland), R10: Blischke, Eric, L (EPA), R10: Applegate, Rick (City of Portland)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100012697	8/7/2008	Email regarding NOAA comments on PCB, TBT and lead TRVs.	18	1 EML / Email	R10: Neely, Robert (NOAA)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100012986	8/7/2008	PH LRM tables maps.	83	6 LTR / Letter	R10: Neely, Robert (NOAA)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100012660	8/8/2008	Email transmitting NOAA comments on PCB, TBT and lead TRVs.	26	1 EML / Email	R10: Beckvar, Nancy (NOAA)	R10: Neely, Robert (NOAA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100012662	8/8/2008	NOAA comments on PCB, TBT and lead TRVs.	85	6 LTR / Letter	R10: Neely, Robert (NOAA)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100016215	8/11/2008	DRAFT Memo Regarding Proposed Risk Assessment Approach for Evaluating Potential Risks From Consuming Breast Milk.	242	14 MEMO / Memorandum	R10: Davoli, Dana (EPA), R10: Farrer, David, G (Oregon Dept. of Human Services), R10: Poulsen, Michael (Oregon Dept. of Environmental Quality)	R10: (Lower Willamette Group)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100016216	8/11/2008	Memo Regarding Review of the DRAFT Risk Assessment Approach for Evaluating Potential Risks From Consuming Breast Milk for the Portland Harbor Superfund Site.	94	3 MEMO / Memorandum	R10: Davoli, Dana (EPA)	R10: (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100012388	8/12/2008	Email regarding NOAA Comments on TRVs for DDT and Zinc.	18	1 EML / Email	R10: Neely, Robert (NOAA)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100016523	8/13/2008	REDACTED Email regarding Willamette River Watershed Database Posted - 07/30/08.	22	2 EML / Email	R10: Neely, Robert (NOAA)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
4940680326	8/13/2008	Email regarding LWG thoughts regarding 3rd party assistance with bioassay data.	57	2 EML / Email	R10: Mckenna, James (Port of Portland)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
4940680350	8/13/2008	Email regarding reply to Benthic Evaluation Task.	21	1 EML / Email	R10: Mckenna, James (Port of Portland)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100016437	8/14/2008	REDACTED Email regarding Additional Willamette River Data Sets.	24	3 EML / Email	R10: Neely, Robert (NOAA)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100016438	8/14/2008	REDACTED Email regarding Additional Willamette River Data Sets.	24	3 EML / Email	R10: Field, Jay (NOAA)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100016692	8/15/2008	REDACTED Email regarding Willamette River watershed database posted - 8/14/08.	21	2 EML / Email	R10: Neely, Robert (NOAA)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100012664	8/19/2008	Email transmitting NOAA comments on TRVs for DDT and Zinc (mercury, endrin, HCH, lindane).	26	1 EML / Email	R10: Neely, Robert (NOAA)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100012665	8/19/2008	NOAA comments on TRVs mercury, endrin, HCH and lindane.	28	3 EML / Email	R10: Neely, Robert (NOAA)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
4940680416	8/19/2008	Email regarding reply to LWG thoughts regarding 3rd party assistance with bioassay data.	58	2 EML / Email	R10: Mckenna, James (Port of Portland)	R10: Blischke, Eric, L (EPA) R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA), R10: Davoli, Dana (EPA), R10: Poulsen, Mike (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100016487	8/21/2008	Email Regarding Breast Feeding Clarifications to EHAP Letter.	120	4 EML / Email	R10: Farrer, David, G (Oregon Dept. of Human Services)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100012420	8/27/2008	Email regarding R3 Bioassay Calculations.	18	1 EML / Email	R10: Neely, Robert (NOAA)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100012491	8/28/2008	Email regarding Data in Query Manager Question.	18	1 EML / Email	R10: Neely, Robert (NOAA)	R10: Fuentes, Rene, C (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100012745	8/28/2008	Email regarding Total PAH in R3 Sediment Data.	18	1 EML / Email	R10: Neely, Robert (NOAA)	R10: Peers, Jennifer (Stratus Consulting, Inc.), R10: Blischke, Eric, L (EPA), R10: Shephard, Burt (EPA), R10: Humphrey, Chip (EPA), R10: Goulet, Joe (EPA), R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality), R10: Longoria, Rose (Yakama Nation), R10: Allen, David (Stratus Consulting, Inc.), R10: Buck, Jeremy (U. S. Fish & Wildlife Service)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100016485	9/2/2008	Reviewers Schedule.	12	1 CHT / Chart/Table	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100016435	9/3/2008	REDACTED Email regarding Additional Willamette River Data Sets.	25	3 EML / Email	R10: Neely, Robert (NOAA)	R10: Field, Jay (NOAA), R10: Blischke, Eric, L (EPA), R10: Severn, Corinne, G (Premier Environmental Services)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization

100011021	Email regarding PH Managers Meeting - 9/4/2008 Wednesday September 10th.	33	2 EML / Email	R10: Mckenna, Jim (Port of Portland)	R10: Neely, Robert (NOAA), R10: Fleming, Sheila (Ridolfi Engineers and Associates, Inc.), R10: Madden, Erin (Unknown), R10: Ashton, David (Port of Portland), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Cunninghame, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Peers, Jennifer (Stratus Consulting, Inc.), R10: Pine, Keith, A (Integral Consulting, Inc.), R10: Bluelake, Lisa (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Karnosh, Michael (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality), R10: McClincy, Matt (Oregon Dept. of Environmental Quality), R10: Fox, Julie (Anchor QEA, LLC), R10: Longoria, Rose (Yakama Nation), R10: Williams, J., D (Law Offices of J. D. Williams), R10: Wyatt, Robert, J (NW Natural), R10: Woronets, Jennifer (Anchor Environmental, LLC), R10: Dost, Patty (Schwabe, Williamson & Wyatt, P.C.), R10: Betz, Jan (City of Portland, Oregon), R10: Applegate, Rick (City of Portland), R10: Barquin, Billy (Haglund Kelley, LLP), R10: Weis, Julie (Haglund Kelley, LLP)	ELECTRONIC RECORD 053-REMEDIAL/0531-Remedy Characterization
100011073	Email regarding PH Managers Meeting - 9/4/2008 Wednesday September 10th.	85	2 EML / Email	R10: Mckenna, Jim (Port of Portland)	R10: Neely, Robert (NOAA), R10: Fleming, Sheila (Ridolfi Engineers and Associates, Inc.), R10: Madden, Erin (Unknown), R10: Ashton, David (Port of Portland), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Cunninghame, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Peers, Jennifer (Stratus Consulting, Inc.), R10: Pine, Keith, A (Integral Consulting, Inc.), R10: Bluelake, Lisa (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Karnosh, Michael (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality), R10: McClincy, Matt (Oregon Dept. of Environmental Quality), R10: Fox, Julie (Anchor QEA, LLC), R10: Longoria, Rose (Yakama Nation), R10: Williams, J., D (Law Offices of J. D. Williams), R10: Wyatt, Robert, J (NW Natural), R10: Woronets, Jennifer (Anchor Environmental, LLC), R10: Dost, Patty (Schwabe, Williamson & Wyatt, P.C.), R10: Betz, Jan (City of Portland, Oregon), R10: Applegate, Rick (City of Portland), R10: Barquin, Billy (Haglund Kelley, LLP), R10: Weis, Julie (Haglund Kelley, LLP)	ELECTRONIC RECORD 053-REMEDIAL/0531-Remedy Characterization
4940680432	Email regarding reply to PH Managers Meeting 9/4/2008 - Wednesday September 10th.	85	2 EML / Email	R10: Mckenna, James (Port of Portland)	R10: Neely, Robert (NOAA), R10: Fleming, Sheila (Ridolfi Engineers and Associates, Inc.), R10: Ashton, David (Port of Portland), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Cunninghame, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Peers, Jennifer (Stratus Consulting, Inc.), R10: Bluelake, Lisa (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Blischke, Eric, L (EPA), R10: Madden, Erin (Nez Perce Tribe), R10: Anderson, James, M (Oregon Dept. of Environmental Quality), R10: Fox, Julie (Anchor QEA, LLC), R10: Longoria, Rose (Yakama Nation), R10: Williams, J., D (Law Offices of J. D. Williams), R10: Wyatt, Robert, J (NW Natural), R10: Woronets, Jennifer (Anchor Environmental, LLC), R10: Dost, Patty (Schwabe, Williamson & Wyatt, P.C.), R10: Betz, Jan (City of Portland, Oregon), R10: Applegate, Rick (City of Portland), R10: Wolf, Fred, G (Pacific Lutheran University), R10: Weis, Julie (Haglund Kelley, LLP)	ELECTRONIC RECORD 053-REMEDIAL/0531-Remedy Characterization
4940680433	Email regarding reply to PH Managers Meeting 9/4/2008 - Wednesday September 10th.	33	2 EML / Email	R10: Mckenna, James (Port of Portland)	R10: Neely, Robert (NOAA), R10: Fleming, Sheila (Ridolfi Engineers and Associates, Inc.), R10: Ashton, David (Port of Portland), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Cunninghame, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Peers, Jennifer (Stratus Consulting, Inc.), R10: Bluelake, Lisa (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Blischke, Eric, L (EPA), R10: Madden, Erin (Nez Perce Tribe), R10: Anderson, James, M (Oregon Dept. of Environmental Quality), R10: Fox, Julie (Anchor QEA, LLC), R10: Longoria, Rose (Yakama Nation), R10: Williams, J., D (Law Offices of J. D. Williams), R10: Wyatt, Robert, J (NW Natural), R10: Woronets, Jennifer (Anchor Environmental, LLC), R10: Dost, Patty (Schwabe, Williamson & Wyatt, P.C.), R10: Betz, Jan (City of Portland, Oregon), R10: Applegate, Rick (City of Portland), R10: Wolf, Fred, G (Pacific Lutheran University), R10: Weis, Julie (Haglund Kelley, LLP)	ELECTRONIC RECORD 053-REMEDIAL/0531-Remedy Characterization
100016594	REDACTED Email regarding COE Question on Moorings Data Input to Query Manager.	21	2 EML / Email	R10: Field, Jay (NOAA)	R10: Neely, Robert (NOAA)	ELECTRONIC RECORD 053-REMEDIAL/0531-Remedy Characterization
100012579	9/9/2008 Email regarding Stats for Jay.	21	2 EML / Email	R10: Neely, Robert (NOAA)	R10: Field, Jay (NOAA)	ELECTRONIC RECORD 053-REMEDIAL/0531-Remedy Characterization
100011565	9/11/2008 Email regarding delivery of HCH and DDT TRVs.	24	1 EML / Email	R10: Wyatt, Robert (Lower Willamette Group)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD 053-REMEDIAL/0531-Remedy Characterization
100012663	9/11/2008 Email regarding Matching Sturgeon Analyses.	22	2 EML / Email	R10: Neely, Robert (NOAA)	R10: Severn, Corinne, G (Premier Environmental Services)	ELECTRONIC RECORD 053-REMEDIAL/0531-Remedy Characterization
4940680362	Email regarding reply to Delivery of HCH and 9/11/2008 DDT TRVs.	20	1 EML / Email	R10: Wyatt, Robert, J (NW Natural)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD 053-REMEDIAL/0531-Remedy Characterization

						R10: Meador, James, P (NOAA), R10: Dexter, Bob (NOAA), R10: Pease, Katherine (NOAA), R10: Baker, Mary (NOAA), R10: Beckvar, Nancy (NOAA), R10: Munn, Nancy (NOAA), R10: Deforest, David (Parametrix, Inc.), R10: Peers, Jennifer (Stratus Consulting, Inc.), R10: Blischke, Eric, L (EPA), R10: Shephard, Burt (EPA), R10: Humphrey, Chip (EPA), R10: Goulet, Joe (EPA), R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality), R10: Gensemer, Robert, W (Parametrix, Inc.), R10: Longoria, Rose (Yakama Nation), R10: Buck, Jeremy (U. S. Fish & Wildlife Service)			
100012666	9/23/2008	Email transmitting NOAA comments on TRVs for Cd and Cu.	27	1	EML / Email	R10: Neely, Robert (NOAA)		ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100012685	9/23/2008	NOAA comments on TRVs for copper and cadmium.	80	5	LTR / Letter	R10: Neely, Robert (NOAA)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
4940680092	10/1/2008	Email regarding Osprey Egg Analysis.	20	1	EML / Email	R10: Mckenna, Jim (Port of Portland)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100011196	10/2/2008	Email regarding Portland Harbor Managers Meeting - Wednesday October 8th.	32	2	EML / Email	R10: Mckenna, Jim (Port of Portland)	R10: Neely, Robert (NOAA), R10: Woronets, Jennifer (Anchor Environmental, LLC)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
4940680442	10/2/2008	Email regarding reply to Portland Harbor Managers Meeting - Wednesday October 8th.	32	2	EML / Email	R10: Mckenna, James (Port of Portland)	R10: Neely, Robert (NOAA), R10: Woronets, Jennifer (Anchor Environmental, LLC)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100010831	10/6/2008	Email regarding Milestone Meeting.	22	1	EML / Email	R10: Wyatt, Robert, J (NW Natural)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100011003	10/6/2008	Email regarding NW Natural, PCB Congener Detection Limits.	22	1	EML / Email	R10: Wyatt, Robert, J (NW Natural)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100010843	10/7/2008	Email regarding Milestone Meeting.	24	2	EML / Email	R10: Wyatt, Robert, J (NW Natural)	R10: Humphrey, Chip (EPA), R10: Woronets, Jennifer (Anchor Environmental, LLC)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100011799	10/7/2008	Email regarding EPA redline - Gasco/Siltronic SOW.	25	1	EML / Email	R10: Wyatt, Robert (Lower Willamette Group)	R10: Stivers, Carl (Anchor Environmental, LLC), R10: Peale, James, G (Maul Foster & Alongi, Inc.), R10: Sheldrake, Sean, A (EPA), R10: Fuentes, Rene, C (EPA), R10: Humphrey, Chip (EPA), R10: Mccue, Tom	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100012301	10/8/2008	Email regarding Portland Data Update Status.	21	1	EML / Email	R10: Neely, Robert (NOAA)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100016212	10/8/2008	Presentation on Potential Risks to Infants from Breastfeeding.	4,211	33	MTG / Meeting Document	R10: Farrer, David, G (Oregon Dept. of Human Services), R10: Poulsen, Michael (Oregon Dept. of Environmental Quality)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100011868	10/9/2008	Email regarding fish tissue TRVs for Cd and Cu.	25	1	EML / Email	R10: Wyatt, Robert (Lower Willamette Group)	R10: Mckenna, Jim (Port of Portland), R10: Blischke, Eric, L (EPA), R10: Applegate, Rick (City of Portland)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100010747	10/14/2008	Email regarding Location for Milestone Meeting - Wednesday November 12th.	24	2	EML / Email	R10: Wyatt, Robert, J (NW Natural)	R10: Humphrey, Chip (EPA), R10: Woronets, Jennifer (Anchor Environmental, LLC)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100012380	10/15/2008	Email regarding QM Update.	18	1	EML / Email	R10: Neely, Robert (NOAA)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100012381	10/15/2008	Email regarding QM Updates Available for PH.	17	1	EML / Email	R10: Neely, Robert (NOAA)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100010890	10/16/2008	Email regarding Next GASCO/Siltronic Meeting.	23	1	EML / Email	R10: Wyatt, Robert, J (NW Natural)	R10: Stivers, Carl (Anchor Environmental, LLC), R10: Peale, James, G (Maul Foster & Alongi, Inc.), R10: Sheldrake, Sean, A (EPA), R10: Fuentes, Rene, C (EPA), R10: Humphrey, Chip (EPA), R10: Bayuk, Dana (Oregon Dept. of Environmental Quality), R10: Mccue, Tom (Siltronic Corporation)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100012570	10/16/2008	Email regarding QM Updates Available for PH.	25	2	EML / Email	R10: Field, Jay (NOAA)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100016192	10/17/2008	DRAFT Memo Regarding Summary of Comments from EPA Reviewers on "Draft Risk Assessment Approach for Evaluating Potential Risks from Consuming Breast-Milk for the Portland Harbor Superfund Site".	104	6	MEMO / Memorandum	R10: Davoli, Dana (EPA)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100016217	10/17/2008	DRAFT Memo Regarding Summary of Comments from EPA Reviewers on "Draft Risk Assessment Approach for Evaluating Potential Risks from Consuming Breast-Milk for the Portland Harbor Superfund Site".	110	7	MEMO / Memorandum	R10: Davoli, Dana (EPA)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100016414	10/20/2008	Attachment 1, Modified Final, Breast Feeding Summary, Fish Contaminant Level.	18	1	CHT / Chart/Table	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100016219	10/21/2008	Draft Agenda for Human Milk Pathway Meeting On October 21, 2008.	51	2	MTG / Meeting Document	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100016488	10/21/2008	Data Regarding Evaluation of PCB Congeners in Fish Tissue, Poulsen BM Congeners Vesus PH Bass Congeners.	33	1	CHT / Chart/Table	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100016489	10/21/2008	Data Regarding Evaluation of PCB Congeners in Fish Tissue, Poulsen Dioxin Like Only BM Congeners.	34	1	CHT / Chart/Table	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100015124	10/30/2008	Email Regarding RI Resolutions.	19	1	EML / Email	R10: Wyatt, Bob (Northwest Natural Gas Company)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100015125	10/30/2008	Figure Regarding Proposed bioassay reference stations.	375	1	FIG / Figure/Map/ Drawing	R10: (Windward Environmental, LLC.)		ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100015126	10/30/2008	Memorandum Regarding Review of benthic behavioral studies and acceptance/rejection criteria.	147	3	MEMO / Memorandum	R10: (Lower Willamette Group)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100015127	10/30/2008	Memorandum Regarding Criteria for Identifying Reference Sediment Samples.	128	2	MEMO / Memorandum	R10: (Lower Willamette Group)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100017322	10/30/2008	REDACTED Email regarding 2:00 PM Call (PDT).	21	1	EML / Email	R10: Chappell, Richard (Camp, Dresser & McKee, Incorporated)	R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100016228	10/31/2008	DRAFT Memo Regarding Risk Assessment Approach for Evaluating Potential Risks From Consuming Human Milk (With Redline Edits).	67	3	MEMO / Memorandum	R10: Cox, Michael, W (EPA)	R10: (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100016283	10/31/2008	DRAFT Memo Regarding Risk Assessment Approach for Evaluating Potential Risks From Consuming Human Milk.	67	3	MEMO / Memorandum	R10: Cox, Michael, W (EPA)	R10: (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100016285	10/31/2008	DRAFT Memo Regarding Risk Assessment Approach for Evaluating Potential Risks From Consuming Human Milk.	230	19	MEMO / Memorandum	R10: (EPA)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
4940680459	10/31/2008	Email regarding reply to RI Resolutions.	28	4	EML / Email	R10: Wyatt, Robert, J (NW Natural)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
4940680460	10/31/2008	Email regarding reply to RI Resolutions.	27	4	EML / Email	R10: Wyatt, Robert, J (NW Natural)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
4940680461	10/31/2008	Email regarding reply to RI Resolutions.	24	2	EML / Email	R10: Wyatt, Robert, J (NW Natural)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
4940680462	10/31/2008	Email regarding reply to RI Resolutions.	23	2	EML / Email	R10: Wyatt, Robert, J (NW Natural)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
4940680463	10/31/2008	Email regarding reply to RI Resolutions.	24	2	EML / Email	R10: Wyatt, Robert, J (NW Natural)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100008731	11/3/2008	Email regarding report summarizing the Round 3B bioassay data.	17	1	EML / Email	R10: Blischke, Eric, L (EPA)	R10: Wyatt, Robert, J (NW Natural)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100015128	11/3/2008	Email Regarding R3B Bioassay Sampling FSR.	19	1	EML / Email	R10: Wyatt, Bob (Northwest Natural Gas Company)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100016230	11/14/2008	Email Regarding Web Site for Chemical Data.	69	1	EML / Email	R10: Bailey, Marcia, L (EPA)	R10: Davoli, Dana (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100012675	11/17/2008	Email regarding Portland Harbor Management Team Schedule Discussion.	18	1	EML / Email	R10: Neely, Robert (NOAA)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100014924	11/18/2008	Notes from Gasco Source Control Meeting - November 18, 2008.	71	6	MTG / Meeting Document	R10: Unknown, Unknown (Unknown)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100012571	11/19/2008	Email regarding Reference Stations.	26	2	EML / Email	R10: Field, Jay (NOAA)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization

4940680061	11/21/2008	Email regarding reply to Benthic Evaluation Reference Envelope and Stormwater Loading Methods.	21	1 EML / Email	R10: Wyatt, Bob (Northwest Natural Gas Company)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
4940680349	11/21/2008	Email regarding reply to Benthic Evaluation Reference Envelope and Stormwater Loading Methods.	21	1 EML / Email	R10: Wyatt, Robert, J (NW Natural)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100012669	11/23/2008	Email regarding reference stations.	31	2 EML / Email	R10: Field, Jay (NOAA)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100012701	11/23/2008	PH Tox Refstations.	30	2 CHT / Chart/Table	R10: (NOAA)		ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100013632	11/23/2008	Email regarding reference stations.	24	2 EML / Email	R10: Field, Jay (NOAA)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100013633	11/23/2008	Portland Harbor Toxicity Reference Stations.	40	1 CHT / Chart/Table	R10: Unknown, Unknown (Unknown)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100010928	11/25/2008	Email regarding Nov. 18 Meeting Notes - NWN, DEQ, EPA Gasco Meeting.	31	1 EML / Email	R10: Wyatt, Robert, J (NW Natural)	R10: Stivers, Carl (Anchor Environmental, LLC), R10: Bayuk, Dana (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100010937	11/26/2008	Email regarding Nov. 18 Meeting Notes - NWN, DEQ, EPA Gasco Meeting.	56	2 EML / Email	R10: Wyatt, Robert, J (NW Natural)	R10: Stivers, Carl (Anchor Environmental, LLC), R10: Bayuk, Dana (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
4940680425	11/26/2008	Email regarding reply to Nov. 18 Meeting Notes - NWN, DEQ, EPA Gasco Meeting.	56	2 EML / Email	R10: Wyatt, Robert, J (NW Natural)	R10: Stivers, Carl (Anchor Environmental, LLC), R10: Bayuk, Dana (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100010936	12/2/2008	Email regarding Nov. 18 Meeting Notes - NWN, DEQ, EPA Gasco Meeting.	28	2 EML / Email	R10: Wyatt, Robert, J (NW Natural)	R10: Stivers, Carl (Anchor Environmental, LLC), R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100014913	12/8/2008	Email regarding Nov. 18 Meeting Notes - NWN, DEQ, EPA Gasco Meeting.	22	2 EML / Email	R10: Bayuk, Dana (Oregon Dept. of Environmental Quality)	R10: Stivers, Carl (Anchor Environmental, LLC), R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100016415	12/16/2008	Attachment 1, Modified Final 2, Breast Feeding Summary, Fish Contaminant Level.	18	1 CHT / Chart/Table	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
4940680063	12/16/2008	Email regarding reply to 2005 EPA letter to LWG chairs regarding dive safety.	27	1 EML / Email	R10: Mckenna, Jim (Port of Portland)	R10: Longoria, Rose (Yakama Nation)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
4940680339	12/16/2008	Email regarding reply to 2005 EPA letter to LWG chairs regarding dive safety.	27	1 EML / Email	R10: Mckenna, James (Port of Portland)	R10: Sheldrake, Sean, A (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100016490	12/17/2008	Slide: Summary of Risks from Consuming Human Milk.	23	1 RPT / Report	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100010702	12/19/2008	Email regarding Gasco SOW Revised Draft.	27	2 EML / Email	R10: Wyatt, Robert, J (NW Natural)	R10: Stivers, Carl (Anchor Environmental, LLC), R10: Sheldrake, Sean, A (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100010705	12/19/2008	Email regarding Gasco SOW Revised Draft.	28	3 EML / Email	R10: Wyatt, Robert, J (NW Natural)	R10: Stivers, Carl (Anchor Environmental, LLC), R10: Sheldrake, Sean, A (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100010706	12/19/2008	Email regarding Gasco SOW Revised Draft.	29	3 EML / Email	R10: Wyatt, Robert, J (NW Natural)	R10: Sheldrake, Sean, A (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100016222	1/1/2009	DEQ Human Health Risk Assessment Guidance Appendix B: Risk Assessment Approach for Evaluating Potential Risks From Consuming Human Milk.	257	22 OTH / Other	R10: (Oregon Dept. of Environmental Quality)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100017375	1/7/2009	REDACTED Email regarding Initial review of EPA's response to fish tissue TRVs.	25	2 EML / Email	R10: Mckenna, James (Port of Portland)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
4940680447	1/14/2009	Email regarding reply to Quote for Chemical Analysis of Osprey Eggs Collected at Portland Harbor.	21	1 EML / Email	R10: Wyatt, Robert, J (NW Natural)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
4940680378	1/21/2009	Email regarding reply to EPA Comments on the LWG response to EPA Comments on Table 5.1-2.	23	2 EML / Email	R10: Wyatt, Robert, J (NW Natural)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
4940680379	1/21/2009	Email regarding reply to EPA Comments on the LWG response to EPA Comments on Table 5.1-2.	21	1 EML / Email	R10: Wyatt, Robert, J (NW Natural)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100016286	1/22/2009	Comparison Between the Yang Model and Our Results.	79	1 OTH / Other	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100012587	1/23/2009	Email regarding Portland Harbor Sample Disposal Letter.	23	3 EML / Email	R10: Neely, Robert (NOAA)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100016278	1/23/2009	DRAFT DEQ Human Health Risk Assessment Guidance Appendix B: Risk Assessment Approach for Evaluating Potential Risks From Consuming Human Milk (With Changes).	263	22 OTH / Other	R10: (Oregon Dept. of Environmental Quality)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
4940680372	1/23/2009	Email regarding reply to EPA Comments and Direction on Groundwater Pathway Outline and Fish Tissue-Residue TRVs.	22	1 EML / Email	R10: Wyatt, Robert, J (NW Natural)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
4940680470	1/29/2009	Email regarding reply to Sediment and Tissue Disposal.	21	1 EML / Email	R10: Wyatt, Robert, J (NW Natural)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100014926	2/1/2009	Risk Assessment Basics: February 2009 Presentation to the Portland Harbor Community Advisory Group.	173	2 MTG / Meeting Document	R10: Unknown, Unknown (EPA), R10: Unknown, Unknown (Oregon Dept. of Environmental Quality)	R10: Unknown, Unknown (Portland Harbor Community Advisory Group)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100014968	2/6/2009	Email Regarding LWG (Lower Willamette Group) Response to Comments on Comprehensive Round 2 Report, Table 5.1-2.	81	1 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100014969	2/6/2009	Response to EPA Comments on Comprehensive Round 2 Report, Table 5.1-2.	35	2 CORR / Correspondence	R10: Wyatt, Bob (Lower Willamette Group)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100014970	2/6/2009	Response to EPA Comments on Round 2 Report, Table 5.1-2 (EPA Letter Dated 01/21/2009).	48	11 CORR / Correspondence	R10: (Lower Willamette Group)	R10: (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100014915	2/10/2009	Email regarding Handouts for CAG meeting next Wednesday.	18	1 EML / Email	R10: Poulsen, Mike (Oregon Dept. of Environmental Quality)	R10: Smith, Judy, R (EPA), R10: Davoli, Dana (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100016542	2/11/2009	REDACTED Draft GIS Mapping Tool Meeting - February 17th.	303	2 CORR / Correspondence	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Wyatt, Robert (Lower Willamette Group), R10: Blischke, Eric, L (EPA), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100011301	2/12/2009	Email regarding Reducing Level of Validation for SBLT Mobility Tests for EPA.	35	4 EML / Email	R10: Wyatt, Robert, J (NW Natural)	R10: Mckenna, Jim (Port of Portland), R10: Humphrey, Chip (EPA), R10: Woronets, Jennifer (Anchor Environmental, LLC), R10: Applegate, Rick (City of Portland)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100017324	2/12/2009	REDACTED Email regarding reply to Reservation at Stoel Rives, Portland - Room availability for 5/27-28/09.	96	3 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Humphrey, Chip (EPA), R10: Anderson, James, M (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100017327	2/12/2009	REDACTED Email regarding reply to Room availability for 5/27-28/09.	92	2 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Humphrey, Chip (EPA), R10: Anderson, James, M (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
4940680687	2/13/2009	Email regarding reply to Web Meeting Details.	22	1 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100011794	2/18/2009	Email regarding EPA determination about invertebrate tissue residue TRVs.	25	1 EML / Email	R10: Wyatt, Robert (Lower Willamette Group)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
4940680380	2/18/2009	Email regarding reply to EPA Determination Regarding Invertebrate Tissue Residue TRVs.	21	1 EML / Email	R10: Wyatt, Robert, J (NW Natural)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100018194	3/2/2009	REDACTED Email regarding reply to reminder of PH Managers call today.	46	2 EML / Email	R10: Mckenna, James (Port of Portland)	R10: Oster, Valerie (Anchor Environmental, LLC), R10: Pine, Keith, A (Integral Consulting, Inc.), R10: Humphrey, Chip (EPA), R10: Anderson, James, M (Oregon Dept. of Environmental Quality), R10: Lewis, Mark, D (NewFields), R10: Livesay, Dave (GSI Groundwater Solutions, Inc.), R10: Lee, Jean, H (Environment International, Ltd.), R10: Longoria, Rose (Yakama Nation), R10: Wyatt, Robert, J (NW Natural), R10: Applegate, Rick (City of Portland)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100012713	3/3/2009	Email regarding Willamette River Database - Pending Additions.	21	3 EML / Email	R10: Neely, Robert (NOAA)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100012716	3/3/2009	Email regarding Willamette River Database - Pending Additions.	19	1 EML / Email	R10: Neely, Robert (NOAA)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100012727	3/3/2009	Email regarding Your LWG Database Questions.	20	3 EML / Email	R10: Neely, Robert (NOAA)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization



100012704	3/12/2009	Email regarding Tissue Samples.	19	1 EML / Email	R10: Neely, Robert (NOAA)	R10: Zylstra, Stephen, J (U. S. Fish and Wildlife Service)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100012717	3/17/2009	Email regarding Willamette River Updates - Remaining Question.	19	1 EML / Email	R10: Neely, Robert (NOAA)	R10: Severn, Corinne, G (Premier Environmental Services)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100012747	3/17/2009	Email regarding US Moorings Data Chem Classification.	21	4 EML / Email	R10: Neely, Robert (NOAA)	R10: Blischke, Eric, L (EPA), R10: Severn, Corinne, G (Premier Environmental Services)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
4940680010	3/26/2009	Email regarding LWG Stormwater Check-ins and Path Forward.	142	4 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100013382	3/30/2009	Email regarding archived LWG samples.	19	1 EML / Email	R10: Neely, Robert (NOAA)	R10: Revelas, Gene (Integral Corporation), R10: Pine, Keith (Anchor QEA, LLC)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100010970	4/2/2009	Email regarding NW Natural, Treatment System Discharge Limitations and Monitoring Requirements.	56	2 EML / Email	R10: Wyatt, Robert, J (NW Natural)	R10: Bayuk, Dana (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
4940680429	4/2/2009	Email regarding NW Natural, Treatment System Discharge Limitations and Monitoring Requirements.	56	2 EML / Email	R10: Wyatt, Robert, J (NW Natural)	R10: Bayuk, Dana (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100015809	4/3/2009	REDACTED Portland Harbor NRDA and RI/FS Coordination, Preparing for Successful Habitat Restoration.	20	1 MTG / Meeting Document	R10: (Unknown)		ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100016957	4/7/2009	REDACTED E-Mail Regarding GIS Tool and Training Session.	2,309	6 EML / Email	R10: Smith, Carrie, A (Parametrix, Inc.)	R10: Blischke, Eric, L (EPA)	PAPER DOCUMENT	053-REMEDIAL/0531-Remedy Characterization
100012991	4/8/2009	Email regarding archived LWG samples.	24	1 EML / Email	R10: Neely, Robert (NOAA)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
4940680345	4/10/2009	Email regarding reply to Agneda for Monday ARAR Meeting.	20	1 EML / Email	R10: Wyatt, Robert, J (NW Natural)	R10: Blischke, Eric, L (EPA), R10: Woronets, Jennifer (Anchor Environmental, LLC)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
4940680457	4/13/2009	Email regarding reply to Revised RAOs for Portland Harbor.	21	1 EML / Email	R10: Wyatt, Robert, J (NW Natural)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100012467	4/14/2009	Email regarding Archived LWG Samples.	22	2 EML / Email	R10: Neely, Robert (NOAA)	R10: Peers, Jennifer (Stratus Consulting, Inc.), R10: Downey, Tom (Confederated Tribes of the Siletz Indians), R10: Dexter, Robert (Ridolfi, Inc.), R10: Buck, Jeremy (U. S. Fish & Wildlife Service)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100012691	4/20/2009	Email regarding Sample Disposal.	17	1 EML / Email	R10: Neely, Robert (NOAA)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100012688	4/21/2009	Email regarding Revised Ecological PRGs for Mapping.	56	2 EML / Email	R10: Shorr, Benjamin (NOAA)	R10: Gensemer, Robert, W (Parametrix, Inc.)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100012686	4/23/2009	Email regarding Creating Additional COC Rasters.	28	3 EML / Email	R10: Shorr, Benjamin (NOAA)	R10: Jett, Steven (State of Oregon Department of Environmental Quality)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100016580	4/23/2009	REDACTED Email regarding Weir Discharge Evaluation - T4 CDF.	27	2 EML / Email	R10: Munn, Nancy (NOAA)	R10: Sheldrake, Sean, A (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100017589	4/23/2009	REDACTED Email regarding Weir discharge evaluation - T4 CDF.	27	2 EML / Email	R10: Munn, Nancy (NOAA)	R10: Sheldrake, Sean, A (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100017719	4/27/2009	REDACTED Email regarding Reply to Stormwater Technical Team Conf. Call.	44	4 EML / Email	R10: Stivers, Carl (Anchor Environmental, LLC)	R10: Sanders, Dawn (City of Portland, Oregon), R10: Scheffler, Linda (City of Portland, Oregon), R10: Jones, Laura (Integral Consulting, Inc.), R10: Koch, Kristine, M (EPA), R10: Tarnow, Karen, E (Oregon Dept. of Environmental Quality), R10: Koulermos, Andrew, C (Newfields, Inc.), R10: Spencer, Amanda, L (Ash Creek Associates, Inc.)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100012313	4/28/2009	Email regarding I Wouldn't Call This Pretty - But It Just Might Work.	22	1 EML / Email	R10: Shorr, Benjamin (NOAA)	R10: Spence, Margaret (Parametrix, Inc.), R10: Duminiak, Michael (CDM)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100013634	4/28/2009	Email regarding carcinogenic PAHs.	18	1 EML / Email	R10: Shorr, Benjamin (NOAA)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100016122	5/12/2009	REDACTED Email regarding WebEx Information for Tomorrow's AOPC Review Meeting.	27	2 EML / Email	R10: Shorr, Benjamin (NOAA)	R10: Spence, Margaret (Parametrix, Inc.)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100011901	5/14/2009	Email regarding sample disposal letter.	25	1 EML / Email	R10: Wyatt, Robert (Lower Willamette Group)	R10: Blischke, Eric, L (EPA), R10: Pine, Keith (Anchor Environmental, LLC)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100012389	5/14/2009	Email regarding PH Data Package with AOPC Layer.	22	1 EML / Email	R10: Shorr, Benjamin (NOAA)	R10: Smith, Carrie, A (Parametrix, Inc.), R10: Spence, Margaret (Parametrix, Inc.), R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
4940680344	5/18/2009	Email regarding reply to AOPC Meeting Agenda.	22	1 EML / Email	R10: Wyatt, Robert, J (NW Natural)	R10: Blischke, Eric, L (EPA), R10: Pine, Keith (Anchor Environmental, LLC)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100016520	5/20/2009	REDACTED Email regarding May 27th & 28th AOPC Meeting - Portland International Airport, St. Helens A & B.	304	2 CORR / Correspondence	R10: Woronets, Jennifer (Lower Willamette Group)	R10: Wyatt, Robert (Lower Willamette Group), R10: Blischke, Eric, L (EPA), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100011327	5/21/2009	Email regarding Shape Files for LWG.	22	1 EML / Email	R10: Shorr, Benjamin (NOAA)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100011914	5/21/2009	Email regarding shape files for LWG.	50	3 EML / Email	R10: Wyatt, Robert (Lower Willamette Group)	R10: Blischke, Eric, L (EPA), R10: Pine, Keith (Anchor Environmental, LLC), R10: Woronets, Jennifer (Anchor Environmental, LLC)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
4940680473	5/21/2009	Email regarding reply to Shape Files for LWG.	52	3 EML / Email	R10: Wyatt, Robert, J (NW Natural)	R10: Blischke, Eric, L (EPA), R10: Pine, Keith (Anchor Environmental, LLC)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100012629	5/29/2009	Email regarding Interpretation of Empirical Bioassay Data at Portland Harbor.	39	2 EML / Email	R10: Field, Jay (NOAA)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100012628	5/31/2009	Email regarding Interpretation of Empirical Bioassay Data at Portland Harbor.	42	2 EML / Email	R10: Field, Jay (NOAA)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100011880	6/3/2009	Email regarding round 2B bioaccumulation samples.	24	1 EML / Email	R10: Wyatt, Robert (Lower Willamette Group)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
4940680466	6/3/2009	Email regarding reply to Round 2B Bioaccumulation Samples.	21	1 EML / Email	R10: Wyatt, Robert, J (NW Natural)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100011854	6/5/2009	Email regarding Re_Bioassay Interpretation at Portland Harbor(1).	37	7 EML / Email	R10: Field, Jay (NOAA)	R10: Gensemer, Robert, W (Parametrix, Inc.)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100011847	6/8/2009	Email regarding Re_Bioassay Interpretation at Portland Harbor(2).	26	2 EML / Email	R10: Field, Jay (NOAA)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100012485	6/8/2009	Email regarding Bioassay Interpretation at Portland Harbor.	26	2 EML / Email	R10: Field, Jay (NOAA)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100012488	6/8/2009	Email regarding Bioassay Interpretation at Portland Harbor.	26	2 EML / Email	R10: Field, Jay (NOAA)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100012761	6/8/2009	Email transmitting PH ToxRef spreadsheet (Bioassay Interpretation at Portland Harbor).	28	2 EML / Email	R10: Field, Jay (NOAA)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100012762	6/8/2009	PH ToxRef spreadsheet.	176	14 CHT / Chart/Table			ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100013578	6/8/2009	Email regarding Bioassay Interpretation at Portland Harbor.	22	2 EML / Email	R10: Field, Jay (NOAA)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100013579	6/8/2009	Portland Harbor ToxRef Chart.	182	5 CHT / Chart/Table	R10: Unknown, Unknown (Unknown)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization

4940680669	Email regarding reply to Portland Harbor Managers Meeting - Proposed Date to follow.	98	2 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Parkinson, Steve (Groff & Murphy), R10: Neely, Robert (NOAA), R10: Fleming, Sheila (Ridolfi Engineers and Associates, Inc.), R10: Mckenna, James (Port of Portland), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Cunninghame, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Peers, Jennifer (Stratus Consulting, Inc.), R10: Bluelake, Lisa (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Blischke, Eric, L (EPA), R10: Madden, Erin (Nez Perce Tribe), R10: Anderson, James, M (Oregon Dept. of Environmental Quality), R10: Fox, Julie (Anchor QEA, LLC), R10: Sudbury, Ryan (Grand Ronde Tribe), R10: Longoria, Rose (Yakama Nation), R10: Williams, J., D (Law Offices of J. D. Williams), R10: Wyatt, Robert, J (NW Natural), R10: Woronets, Jennifer (Anchor Environmental, LLC), R10: Dost, Patty (Schwabe, Williamson & Wyatt, P.C.), R10: Betz, Jan (City of Portland, Oregon), R10: Applegate, Rick (City of Portland), R10: Wolf, Fred, G (Pacific Lutheran University), R10: Weis, Julie (Haglund Kelley, LLP), R10: Traeger, Karen (Total)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
4940680006	Email regarding Portland Harbor Managers Meeting - Proposed Date Wednesday, June 17th 10 am to noon.	101	2 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Parkinson, Steve (Groff & Murphy), R10: Neely, Robert (NOAA), R10: Fleming, Sheila (Ridolfi Engineers and Associates, Inc.), R10: Madden, Erin (Unknown), R10: Mckenna, Jim (Port of Portland), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Cunninghame, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Peers, Jennifer (Stratus Consulting, Inc.), R10: Wyatt, Bob (Northwest Natural Gas Company), R10: Bluelake, Lisa (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Humphrey, Chip (EPA), R10: McClincy, Matt (Oregon Dept. of Environmental Quality), R10: Fox, Julie (Anchor QEA, LLC), R10: Longoria, Rose (Yakama Nation), R10: Woronets, Jennifer (Anchor Environmental, LLC), R10: Dost, Patty (Schwabe, Williamson & Wyatt, P.C.), R10: Betz, Jan (City of Portland, Oregon), R10: Applegate, Rick (City of Portland), R10: Sudbury, Ryan, R10: Wolf, Fred, G (Pacific Lutheran University), R10: Weis, Julie (Haglund Kelley, LLP), R10: Traeger, Karen (Total)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
4940680007	Email regarding Portland Harbor Managers Meeting.	104	3 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Parkinson, Steve (Groff & Murphy), R10: Neely, Robert (NOAA), R10: Fleming, Sheila (Ridolfi Engineers and Associates, Inc.), R10: Madden, Erin (Unknown), R10: Mckenna, Jim (Port of Portland), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Cunninghame, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Peers, Jennifer (Stratus Consulting, Inc.), R10: Wyatt, Bob (Northwest Natural Gas Company), R10: Bluelake, Lisa (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Humphrey, Chip (EPA), R10: McClincy, Matt (Oregon Dept. of Environmental Quality), R10: Fox, Julie (Anchor QEA, LLC), R10: Longoria, Rose (Yakama Nation), R10: Woronets, Jennifer (Anchor Environmental, LLC), R10: Dost, Patty (Schwabe, Williamson & Wyatt, P.C.), R10: Applegate, Rick (City of Portland), R10: Sudbury, Ryan, R10: Weis, Julie (Haglund Kelley, LLP), R10: Traeger, Karen (Total)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
4940680643	Email regarding reply to LWG mailing list.	84	2 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100012811	Email regarding bioassay interpretation at Portland Harbor (PH ToxRef 090612 attached).	29	2 EML / Email	R10: Field, Jay (NOAA)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100012828	PH ToxRef 090612.	77	1 CHT / Chart/Table			ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100013666	Email regarding Bioassay Interpretation at Portland Harbor.	22	2 EML / Email	R10: Field, Jay (NOAA)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100013669	Portland Harbor ToxRef Chart.	262	22 CHT / Chart/Table	R10: Unknown, Unknown (Unknown)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
4940680635	Email regarding reply to May 2009 Portland Harbor Monthly Progress Report.	25	2 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100012486	Email regarding Bioassay Interpretation at Portland Harbor.	27	5 EML / Email	R10: Field, Jay (NOAA)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100012487	Email regarding Bioassay Interpretation at Portland Harbor.	37	7 EML / Email	R10: Field, Jay (NOAA)	R10: Gensemer, Robert, W (Parametrix, Inc.)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100012563	Email regarding Bioassay Interpretation at Portland Harbor.	32	5 EML / Email	R10: Field, Jay (NOAA)	R10: Gensemer, Robert, W (Parametrix, Inc.)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100012746	Email regarding Tox Significance.	21	1 EML / Email	R10: Field, Jay (NOAA)	R10: Shephard, Burt (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100016521	REDACTED Reply to Portland Harbor Managers Meeting Agenda - Friday, June 19th 9 - 11 am.	299	2 CORR / Correspondence	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Wyatt, Bob (Lower Willamette Group), R10: Blischke, Eric, L (EPA), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
4940680373	Email regarding reply to EPA Comments on Beneficial Use Market Survey.	22	1 EML / Email	R10: Wyatt, Robert, J (NW Natural)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100012489	Email regarding Bioassay Interpretation Information and Meeting.	45	11 EML / Email	R10: Field, Jay (NOAA)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
4940680620	Email regarding reply to Bioassay Information.	94	1 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100012564	Email regarding Final Statistical Significance of Difference from neg Control of Bioassay Data.	70	2 EML / Email	R10: Field, Jay (NOAA)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100012395	Email regarding Portland Harbor QM Update.	22	1 EML / Email	R10: Field, Jay (NOAA)	R10: Blischke, Eric, L (EPA), R10: Shephard, Burt (EPA), R10: Goulet, Joe (EPA), R10: Gensemer, Robert, W (Parametrix, Inc.)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100012759	Email transmitting edits for Project Review Group Technical Memorandum for the Sediment Characterization Report for the Federal Project Post Office.	26	1 EML / Email	R10: Gambetta, Daniel (NOAA)	R10: Cook, Marci (U.S. Army Corps of Engineers)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
4940680465	Email regarding reply to Round 2B Bioaccumulation Samples.	22	1 EML / Email	R10: Wyatt, Robert, J (NW Natural)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100015956	Chart Regarding DRAFT Risk Assessment Model, Calculation of Potential Risks from Consumption of Human Milk.	38	1 CHT / Chart/Table	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization

100016533	REDACTED Email regarding July 8th Portland Harbor Managers Meeting Agenda.	295	1 CORR / Correspondence	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Wyatt, Robert (Lower Willamette Group), R10: Blischke, Eric, L (EPA), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100015957	Notes from 07/07/2009 Phone Call Regarding Breast Milk Parameters and Considerations.	38	1 NOTE / Notes	R10: Farrer (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100016528	REDACTED August Portland Harbor Managers Meeting - Tuesday, August 18th 10 - 2.	294	1 CORR / Correspondence	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Wyatt, Robert (Lower Willamette Group), R10: Blischke, Eric, L (EPA), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100011262	Email regarding Summary of Sediment Bioassay Interpretation Resolution.	41	8 EML / Email	R10: Field, Jay (NOAA)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100011328	Email regarding Summary of Sediment Bioassay Interpretation Resolution.	49	3 EML / Email	R10: Field, Jay (NOAA)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100011329	Email regarding Summary of Sediment Bioassay Interpretation Resolution.	28	2 EML / Email	R10: Field, Jay (NOAA)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100012698	Email regarding Summary of Sediment Bioassay Interpretation Resolution.	49	3 EML / Email	R10: Field, Jay (NOAA)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100012699	Email regarding Summary of Sediment Bioassay Interpretation Resolution.	41	8 EML / Email	R10: Field, Jay (NOAA)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100012700	Email regarding Summary of Sediment Bioassay Interpretation Resolution.	28	2 EML / Email	R10: Field, Jay (NOAA)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100013580	Email regarding details of the LWG's interpretation of the Portland Harbor sediment bioassay results.	25	3 EML / Email	R10: Field, Jay (NOAA)	R10: Shephard, Burt (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100008732	Email Regarding Action Items from 07/20/2009 Meeting at Half-Life Citation for Model.	25	2 EML / Email	R10: Blischke, Eric, L (EPA)	R10: Toll, John (Windward Environmental, LLC.), R10: Wyatt, Robert, J (NW Natural)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100015958	Notes from 07/21/2009 Phone Call Regarding Oregon Breast Milk.	30	2 EML / Email	R10: Poulsen, Mike (Oregon Dept. of Environmental Quality)	R10: Davoli, Dana (EPA), R10: Farrer, David, G (Oregon Dept. of Human Services)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100015959	Data Regarding QM PCB 153 PCB 168 WB Bass Values.	38	1 NOTE / Notes	R10: Farrer (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100015960	Data Regarding QM PCB 153 PCB 168 WB Carp.	53	1 CHT / Chart/Table	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100015961	Email regarding reply to Benthic Interpretation.	35	1 CHT / Chart/Table	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
4940680353	Email regarding GIS Layer Request.	30	2 EML / Email	R10: Mckenna, James (Port of Portland)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100010713	Email regarding GIS Layer Request.	23	1 EML / Email	R10: Mckenna, James (Port of Portland)	R10: Blischke, Eric, L (EPA), R10: Wyatt, Robert, J (NW Natural)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100015962	Email Regarding Summary of PCB 153 WB Data Bass Carp.	24	1 EML / Email	R10: Davoli, Dana (EPA)	R10: Bailey, Marcia, L (EPA), R10: Farrer, David, G (Oregon Dept. of Human Services), R10: Poulsen, Mike (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100015963	Data Regarding SCRA PCB 153 PCB 168 WB Bass and Carp.	141	3 CHT / Chart/Table	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
4940680399	Email regarding reply to GIS Data Layer Request.	23	1 EML / Email	R10: Mckenna, James (Port of Portland)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100014972	LWG (Lower Willamette Group) Responses to EPA Comments on the Draft Treatment Beneficial Use Market Survey.	22	1 CORR / Correspondence	R10: (Lower Willamette Group)	R10: (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100014971	Email Regarding LWG (Lower Willamette Group) Responses to EPA Comments on the Draft Treatment Beneficial Use Market Survey.	121	1 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100016147	Data Regarding DRAFT Risk Assessment Model, Calculation of Potential Risks from Consumption of Human Milk.	38	1 CHT / Chart/Table	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
4940680055	Email regarding reply to Benthic Interpretation.	34	5 EML / Email	R10: Mckenna, Jim (Port of Portland)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
4940680351	Email regarding reply to Benthic Interpretation.	34	5 EML / Email	R10: Mckenna, James (Port of Portland)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100016532	REDACTED Email regarding Reply to Wednesday, August 5th 1 - 3 pm - LWG HST Modeling Meeting.	307	4 CORR / Correspondence	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Wyatt, Robert (Lower Willamette Group), R10: Blischke, Eric, L (EPA), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100012729	Email regarding Ref Envelope Values/Calculations.	21	1 EML / Email	R10: Field, Jay (NOAA)	R10: Shephard, Burt (EPA), R10: Gensemer, Robert, W (Parametrix, Inc.)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100016540	REDACTED Email regarding Reply to 8/5 LWG HST Modeling Meeting - Presentation.	312	5 CORR / Correspondence	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Wyatt, Robert (Lower Willamette Group), R10: Blischke, Eric, L (EPA), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
4940680352	Email regarding reply to Benthic Interpretation.	29	3 EML / Email	R10: Mckenna, James (Port of Portland)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100016148	Email Regarding DRAFT DEQ Breastfeeding Guidance.	44	1 EML / Email	R10: Davoli, Dana (EPA), R10: Poulsen, Mike (Oregon Dept. of Environmental Quality)	R10: Davoli, Dana (EPA), R10: Farrer, David, G (Oregon Dept. of Human Services)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100011907	Email regarding management goals and programmatic consultation(1).	27	2 EML / Email	R10: Munn, Nancy (NOAA)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100016541	REDACTED Email regarding Tuesday, August 18th - August Portland Harbor Managers Meeting NEW LOCATION.	300	2 CORR / Correspondence	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Wyatt, Robert (Lower Willamette Group), R10: Blischke, Eric, L (EPA), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100017405	REDACTED Email regarding Thursday, August 20th 9:00 - 10:00 am - Conference call to discuss EPA request for Round 3 data.	90	1 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Browning, Sandy (Integral Consulting, Inc.), R10: Blischke, Eric, L (EPA), R10: Ryals, Cindy (Kennedy Jenks Consultants), R10: Revelas, Gene (Integral Corporation)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100010919	Email regarding Neoprene Clad RSS Divers Near Steel Bridge.	26	1 EML / Email	R10: Wyatt, Robert, J (NW Natural)	R10: Sheldrake, Sean, A (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100016149	Email Regarding Simulation Results.	85	2 EML / Email	R10: Davoli, Dana (EPA), R10: Farrer, David, G (Oregon Dept. of Human Services)	R10: Bailey, Marcia, L (EPA), R10: Davoli, Dana (EPA), R10: Poulsen, Mike (Oregon Dept. of Environmental Quality), R10: Welsh, Clem (ATSDR), R10: Moffett, Daphne (State of Oregon)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100016150	Data Regarding Simulation Results.	23	2 CHT / Chart/Table	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100016525	REDACTED Email regarding T4 removal action letter requesting discussion of coordination of the CDF design process with harbor-wide FS and ROD.	23	2 EML / Email	R10: Mckenna, Jim (Port of Portland)	R10: Sheldrake, Sean, A (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100018203	REDACTED Email regarding reply to T4 Removal Action Letter re Request to Discuss Coordination of the CDF Design Process with the Harborwide. FS and ROD.	24	2 EML / Email	R10: Mckenna, James (Port of Portland)	R10: Sheldrake, Sean, A (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100016524	REDACTED Email regarding T4 removal action letter requesting discussion of coordination of the CDF design process with harbor-wide FS and ROD.	25	3 EML / Email	R10: Mckenna, Jim (Port of Portland)	R10: Sheldrake, Sean, A (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100016526	REDACTED Email regarding T4 removal action letter requesting discussion of coordination of the CDF design process with harbor-wide FS and ROD.	28	4 EML / Email	R10: Mckenna, Jim (Port of Portland)	R10: Sheldrake, Sean, A (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100018206	REDACTED Email regarding reply to T4 Removal Action Letter re Request to Discuss Coordination of the CDF Design Process with the Harborwide. FS and ROD.	27	3 EML / Email	R10: Mckenna, James (Port of Portland)	R10: Sheldrake, Sean, A (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization

4940680448	8/20/2009	Email regarding reply to RAO Extension Request.	21	1 EML / Email	R10: Wyatt, Robert, J (NW Natural)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100008770	8/21/2009	Email regarding Request for Nature and Extent of Contamination Information.	19	1 EML / Email	R10: Blischke, Eric, L (EPA)	R10: Wyatt, Robert, J (NW Natural) R10: Buck, Jeremy (U. S. Fish & Wildlife Service)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100010971	8/26/2009	Email regarding NWP-2007-195 SAP Draft Tech Memo.	29	3 EML / Email	R10: Gambetta, Daniel (NOAA)	R10: Parkinson, Stephen, T (Groff Murphy, PLLC)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100013686	8/27/2009	Letter regarding Portland Harbor Round 1 Tissue Samples.	111	2 CORR / Correspondence	R10: Pease, Katherine (NOAA)		ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100016153	8/27/2009	Yang Lactation Model Results.	80	6 CHT / Chart/Table	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100016154	8/27/2009	Yang Mother Loading Model Results.	52	2 CHT / Chart/Table	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100016155	9/1/2009	Data Regarding DRAFT Risk Assessment Model, Calculation of Potential Risks from Consumption of Human Milk, BF Exposure and Risk 09/2009.	43	1 CHT / Chart/Table	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100016157	9/1/2009	Model Results.	26	2 CHT / Chart/Table			ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100016160	9/10/2009	Data Regarding Breastfeeding Results.	240	8 CHT / Chart/Table	R10: (Unknown)	R10: (Unknown) R10: Bailey, Marcia, L (EPA), R10: Davoli, Dana (EPA), R10: Poulsen, Mike (Oregon Dept. of Environmental Quality), R10: Welsh, Clem (ATSDR)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100016151	9/11/2009	Email Regarding Simulation Results.	43	1 EML / Email	R10: Davoli, Dana (EPA), R10: Farrer, David, G (Oregon Dept. of Human Services)	R10: Bailey, Marcia, L (EPA), R10: Davoli, Dana (EPA), R10: Poulsen, Mike (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100016152	9/11/2009	Email Regarding Yang Model Results.	53	1 EML / Email	R10: Davoli, Dana (EPA), R10: Farrer, David, G (Oregon Dept. of Human Services)	R10: Bailey, Marcia, L (EPA), R10: Davoli, Dana (EPA), R10: Farrer, David, G (Oregon Dept. of Human Services)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100016156	9/11/2009	Email Regarding BF Exposure and Risk and Results Spreadsheets.	33	1 EML / Email	R10: Davoli, Dana (EPA), R10: Poulsen, Mike (Oregon Dept. of Environmental Quality)	R10: Bailey, Marcia, L (EPA), R10: Davoli, Dana (EPA), R10: Farrer, David, G (Oregon Dept. of Human Services)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100016158	9/11/2009	Email Regarding PCB Concentration in Milk Fat and Body Fat.	43	2 EML / Email	R10: Davoli, Dana (EPA), R10: Poulsen, Mike (Oregon Dept. of Environmental Quality)	R10: Bailey, Marcia, L (EPA), R10: Davoli, Dana (EPA), R10: Farrer, David, G (Oregon Dept. of Environmental Quality), R10: Welsh, Clem (ATSDR), R10: Haddad, Sami (University of Quebec), R10: Moffett, Daphne (State of Oregon)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100016159	9/11/2009	Email Regarding Half-Life Used for Simulation.	62	1 EML / Email	R10: Davoli, Dana (EPA), R10: Farrer, David, G (Oregon Dept. of Human Services)	R10: Bailey, Marcia, L (EPA), R10: Davoli, Dana (EPA), R10: Farrer, David, G (Oregon Dept. of Human Services), R10: Poulsen, Mike (Oregon Dept. of Environmental Quality), R10: Welsh, Clem (ATSDR), R10: Haddad, Sami (University of Quebec), R10: Moffett, Daphne (State of Oregon)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100016161	9/11/2009	Email Regarding Half-Life and Test Results.	37	1 EML / Email	R10: Davoli, Dana (EPA), R10: Poulsen, Mike (Oregon Dept. of Environmental Quality)	R10: Bailey, Marcia, L (EPA), R10: Davoli, Dana (EPA), R10: Poulsen, Mike (Oregon Dept. of Environmental Quality), R10: Welsh, Clem (ATSDR), R10: Moffett, Daphne (State of Oregon)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100016162	9/11/2009	Email Regarding Half-Life and Test Results.	27	1 EML / Email	R10: Davoli, Dana (EPA), R10: Farrer, David, G (Oregon Dept. of Human Services)	R10: Bailey, Marcia, L (EPA), R10: Davoli, Dana (EPA), R10: Farrer, David, G (Oregon Dept. of Human Services), R10: Poulsen, Mike (Oregon Dept. of Environmental Quality), R10: Welsh, Clem (ATSDR), R10: Haddad, Sami (University of Quebec), R10: Moffett, Daphne (State of Oregon)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100016163	9/11/2009	Abstract with Edits, Comparison of Estimated PCB-153 Concentrations in Human Milk Using Various Pharmacokinetic Models (With Highlighted and Strikethrough Text).	55	1 NOTE / Notes	R10: Bailey, Marcia, L (EPA), R10: Davoli, Dana (EPA), R10: Farrer, David, G (Oregon Dept. of Human Services), R10: Poulsen, Mike (Oregon Dept. of Environmental Quality), R10: Welsh, Clem (ATSDR), R10: Haddad, Sami (University of Quebec), R10: Moffett, Daphne (State of Oregon), R10: Yang (ATSDR)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
4940680334	9/16/2009	Email regarding RAO Response Extension.	21	1 EML / Email	R10: Wyatt, Robert, J (NW Natural)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
4940680390	9/21/2009	Email regarding reply to Formatting of Electronic Deliverables (Draft BERA).	24	1 EML / Email	R10: Wyatt, Robert, J (NW Natural)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
4940680391	9/21/2009	Email regarding reply to Formatting of Electronic Deliverables (Draft BERA).	23	2 EML / Email	R10: Wyatt, Robert, J (NW Natural)	R10: Blischke, Eric, L (EPA) R10: Bailey, Marcia, L (EPA), R10: Davoli, Dana (EPA), R10: Poulsen, Mike (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100016164	9/22/2009	Email Regarding Key to Shorthand and Units in Data Set, Measured Versus Simulations.	50	1 EML / Email	R10: Davoli, Dana (EPA), R10: Farrer, David, G (Oregon Dept. of Human Services)	R10: Bailey, Marcia, L (EPA), R10: Davoli, Dana (EPA), R10: Poulsen, Mike (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100016165	9/22/2009	Data Regarding Measured Versus Simulations (With Highlighted Text).	130	1 CHT / Chart/Table	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100016166	9/22/2009	Data Regarding NHANES (National Health and Nutrition Examination Survey) PCB Values.	13	1 CHT / Chart/Table	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100013682	9/23/2009	Email regarding Archived samples - copy of letter.	22	2 EML / Email	R10: Neely, Robert (NOAA)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100016363	9/23/2009	Data Regarding Selection of Runs.	87	1 CHT / Chart/Table	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100016364	9/25/2009	Email Regarding Selected Subjects for Runs SOT.	48	2 EML / Email	R10: Davoli, Dana (EPA), R10: Farrer, David, G (Oregon Dept. of Human Services)	R10: Bailey, Marcia, L (EPA), R10: Davoli, Dana (EPA), R10: Poulsen, Mike (Oregon Dept. of Environmental Quality), R10: Moffett, Daphne (ATSDR), R10: Welsh, Clem (ATSDR), R10: Haddad, Sami (University of Quebec)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100016371	9/25/2009	Data Regarding Selected Subjects for Runs SOT.	34	1 CHT / Chart/Table	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100016365	9/30/2009	Abstract with Edits, Comparison of Estimated PCB-153 Concentrations in Human Milk Using Various Pharmacokinetic Models (With Strikethrough Text).	61	2 NOTE / Notes	R10: Fowler, David (ATSDR), R10: Bailey, Marcia, L (EPA), R10: Davoli, Dana (EPA), R10: Farrer, David, G (Oregon Dept. of Human Services), R10: Poulsen, Mike (Oregon Dept. of Environmental Quality), R10: Moffett, Daphne (ATSDR), R10: Welsh, Clem (ATSDR), R10: Yang, Ray (Ray Yang Consulting, LLC), R10: Ayotte, Pierre (Centre Hospitalier Universitaire de Quebec), R10: Verner, Marc-andre (University of Quebec), R10: Muckle, Gina (Centre Hospitalier Universitaire de Quebec), R10: Haddad, Sami (University of Quebec)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100016366	9/30/2009	Model Comparison With Charts, DRAFT Risk Assessment, Calculation of Potential Risks from Consumption of Human Milk (With Highlighted Text).	107	5 CHT / Chart/Table	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100016367	9/30/2009	Model Comparison, DRAFT Risk Assessment, Calculation of Potential Risks from Consumption of Human Milk (With Highlighted Text).	157	5 CHT / Chart/Table	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
4940680412	9/30/2009	Email regarding reply to LWG Proposed Groundwater RAO.	78	3 EML / Email	R10: Wyatt, Robert, J (NW Natural)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
4940680458	10/2/2009	Email regarding reply to Revised RAOs with Groundwater RAO Inclusion.	22	1 EML / Email	R10: Wyatt, Robert, J (NW Natural)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100016376	10/7/2009	Abstract, Comparison of Estimated PCB 153 Concentrations in Human Milk Using Various Pharmacokinetic Models.	50	1 RPT / Report	R10: Fowler, David (ATSDR), R10: Bailey, Marcia, L (EPA), R10: Davoli, Dana (EPA), R10: Farrer, David, G (Oregon Dept. of Human Services), R10: Poulsen, Mike (Oregon Dept. of Environmental Quality), R10: Moffett, Daphne (ATSDR), R10: Welsh, Clem (ATSDR), R10: Yang, Ray (Ray Yang Consulting, LLC), R10: Ayotte, Pierre (Centre Hospitalier Universitaire de Quebec), R10: Verner, Marc-andre (University of Quebec), R10: Muckle, Gina (Centre Hospitalier Universitaire de Quebec), R10: Haddad, Sami (University of Quebec)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100010969	10/8/2009	Email regarding NW Natural, Segment 2 Test Plan In-Water Piezometer Drilling and Installation Comments.	56	2 EML / Email	R10: Wyatt, Robert, J (NW Natural)	R10: Bayuk, Dana (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization



100010968	10/9/2009	Email regarding NW Natural, Segment 2 Test Plan In-Water Piezometer Drilling and Installation Comments.	41	6 EML / Email	R10: Wyatt, Robert, J (NW Natural)	R10: Stivers, Carl (Anchor Environmental, LLC), R10: Barth, Ryan (Anchor Environmental, LLC), R10: Sheldrake, Sean, A (EPA), R10: Dost, Patty (Pearl Legal Group PC)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
4940680428	10/9/2009	Email regarding reply to NW Natural, Segment 2 Test Plan In-Water Piezometer Drilling and Installation Comments.	41	6 EML / Email	R10: Wyatt, Robert, J (NW Natural)	R10: Stivers, Carl (Anchor Environmental, LLC), R10: Sheldrake, Sean, A (EPA), R10: Barth, Ryan (Anchor Environmental, L. L. C.), R10: Dost, Patty (Schwabe, Williamson & Wyatt, P.C.)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100014973	10/16/2009	Email Regarding LWG (Lower Willamette Group) Archive Samples Letter.	80	1 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100014974	10/16/2009	Letter Regarding LWG (Lower Willamette Group) Disposal of Archive Samples.	31	1 LTR / Letter	R10: Wyatt, Bob (Lower Willamette Group)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100014975	10/16/2009	Letter Regarding LWG (Lower Willamette Group) Disposal of Archive Samples.	34	2 LTR / Letter	R10: Wyatt, Bob (Lower Willamette Group)	R10: Pease, Katherine (NOAA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100014976	10/16/2009	Email Regarding LWG (Lower Willamette Group) Archive Samples Letter.	80	1 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Pease, Katherine (NOAA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100014977	10/16/2009	Letter Regarding LWG (Lower Willamette Group) Disposal of Archive Samples.	34	2 LTR / Letter	R10: Wyatt, Bob (Lower Willamette Group)	R10: Pease, Katherine (NOAA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100016368	10/16/2009	Poster: Fish Consumption and Contaminants.	48	1 RPT / Report	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100016369	10/16/2009	Poster: Comparison of Estimated PCB-153 Concentrations in Human Milk Using Various Pharmacokinetic Models.	2,281	1 RPT / Report	R10: Fowler, David (ATSDR), R10: Bailey, Marcia, L (EPA), R10: Davoli, Dana (EPA), R10: Farrer, David, G (Oregon Dept. of Human Services), R10: Poulsen, Mike (Oregon Dept. of Environmental Quality), R10: Welsh, Clem (ATSDR), R10: Yang, Ray (Ray Yang Consulting, LLC), R10: Haddad, Sami (University of Quebec)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
4940680021	10/19/2009	Email regarding For EPA Use Existing Database Update (includes City RM 11 East Data).	102	2 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Neely, Robert (NOAA), R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100016370	10/21/2009	Email Regarding Recalculations Lipid Percent BF Exposure and Risk.	55	1 EML / Email	R10: Poulsen, Mike (Oregon Dept. of Environmental Quality)	R10: Welsh, Clem (ATSDR)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100016372	10/21/2009	Data Regarding Recalculations Lipid Percent BF Exposure and Risk.	46	1 CHT / Chart/Table	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100016373	10/23/2009	Poster: Comparison of Estimated PCB 153 Concentrations in Human Milk Using Various Pharmacokinetic Models.	1,473	1 RPT / Report	R10: Fowler, David (ATSDR), R10: Bailey, Marcia, L (EPA), R10: Davoli, Dana (EPA), R10: Farrer, David, G (Oregon Dept. of Human Services), R10: Poulsen, Mike (Oregon Dept. of Environmental Quality), R10: Moffett, Daphne (ATSDR), R10: Welsh, Clem (ATSDR), R10: Yang, Ray (Ray Yang Consulting, LLC), R10: Haddad, Sami (University of Quebec)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100012722	10/26/2009	Email regarding Willamette River Watershed Database Posted - 10/23/09.	19	1 EML / Email	R10: Neely, Robert (NOAA)	R10: Severn, Corinne, G (Premier Environmental Services)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100016554	10/30/2009	REDACTED Email regarding November 4th Portland Harbor Managers Meeting Agenda.	297	3 CORR / Correspondence	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Wyatt, Robert (Lower Willamette Group), R10: Blischke, Eric, L (EPA), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100016759	11/3/2009	REDACTED TCT Agenda for November 4, 2009.	236	1 CORR / Correspondence	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Shephard, Burt (EPA), R10: Humphrey, Chip (EPA), R10: Davoli, Dana (EPA), R10: Gainer, Tom (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100017136	11/3/2009	REDACTED Email regarding Materials for November 3rd FS Team Meeting.	25	2 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100016555	11/4/2009	REDACTED Email regarding Reply to November 4th Portland Harbor Managers Meeting Materials.	303	4 CORR / Correspondence	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Wyatt, Robert (Lower Willamette Group), R10: Blischke, Eric, L (EPA), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100017271	11/4/2009	REDACTED Email regarding reply to November 4th Portland Harbor Managers Meeting Materials.	38	3 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100017241	11/5/2009	REDACTED Email regarding reply to Head count for - November 17th Alternatives Analysis Meeting.	33	2 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100016291	11/12/2009	TEC-943A PBDEbiota Data.	164	47 OTH / Other	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100017392	11/13/2009	REDACTED Email regarding reply to Anchor QEA Response to EPA's November 5 Letter RE: Medical Monitoring Requirements.	32	3 EML / Email	R10: Wyatt, Robert, J (NW Natural)	R10: Sheldrake, Sean, A (EPA), R10: Barth, Ryan (Anchor Environmental, L. L. C.)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100017562	11/13/2009	REDACTED Email regarding reply to Anchor QEA Response to EPA's November 5 Letter RE: Medical Monitoring Requirements.	33	3 EML / Email	R10: Wyatt, Bob (Northwest Natural Gas Company)	R10: Sheldrake, Sean, A (EPA), R10: Barth, Ryan (Anchor QEA, LLC)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
4940680033	11/18/2009	Email regarding EPA PBDE Data - Request for Data Validation Reports.	90	1 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100016556	11/23/2009	REDACTED Email regarding Reply to Portland Harbor fate & transport modeling meeting followup.	243	2 CORR / Correspondence	R10: Winter, Jessica (NOAA)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100011298	11/24/2009	Email regarding QEAFAE Model Go Ahead.	22	1 EML / Email	R10: Wyatt, Robert, J (NW Natural)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100016557	12/2/2009	REDACTED Email regarding Portland Harbor Managers Meeting Agenda - Wednesday, December 9th 1 - 4 pm.	290	1 CORR / Correspondence	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100015761	12/14/2009	REDACTED Email regarding Gasco Siltronic Work Plan comments.	27	1 EML / Email	R10: Wyatt, Robert, J (NW Natural)	R10: Stivers, Carl (Anchor Environmental, LLC), R10: Barth, Ryan (Anchor Environmental, LLC), R10: Peale, James, G (Maul Foster & Alongi, Inc.), R10: Sheldrake, Sean, A (EPA), R10: Mccue, Tom (Siltronic Corporation), R10: Gladstone, Alan (Davis Rothwell Earle & Xochihua), R10: Eastwood, Hanne (Davis Rothwell Earle & Xochihua), R10: Dost, Patty (Pearl Legal Group PC)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100016280	12/29/2009	DEQ Human Health Risk Assessment Guidance Appendix C: Risk Assessment Approach for Evaluating Potential Risks From Consuming Human Milk.	322	22 OTH / Other	R10: (Oregon Dept. of Environmental Quality)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100014356	1/1/2010	Message Regarding Changes to Data Sets Posted on PH Portal.	35	5 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100011893	1/6/2010	Email regarding Extension Request - EPA Preliminary Comments on the Baseline Human Health and Ecological Risk Assessments.	22	1 EML / Email	R10: Mckenna, James (Port of Portland)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
4940680384	1/6/2010	Email regarding reply to Extension Request - EPA Preliminary Comments on the Baseline Human Health and Ecological Risk Assessments.	22	1 EML / Email	R10: Mckenna, James (Port of Portland)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100011714	1/12/2010	Email regarding Benthic Risk Evaluation.	28	2 EML / Email	R10: Wyatt, Robert, J (NW Natural)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
4940680354	1/12/2010	Email regarding reply to Benthic Risk Evaluation.	28	2 EML / Email	R10: Wyatt, Robert, J (NW Natural)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100016226	1/13/2010	Tables and Charts for DEQ Human Health Risk Assessment Guidance Appendix C: Evaluating Potential Risks to Infants from Consuming Human Milk.	154	4 OTH / Other	R10: (Oregon Dept. of Environmental Quality)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100016282	1/13/2010	DEQ Human Health Risk Assessment Guidance Appendix C: Evaluating Potential Risks to Infants from Consuming Human Milk.	360	25 OTH / Other	R10: (Oregon Dept. of Environmental Quality)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization

100011860	Email regarding EPA Response to LWG Letter - 1/20/2010 Dispute Deadline.	22	1 EML / Email	R10: Wyatt, Robert, J (NW Natural)	R10: Humphrey, Chip (EPA), R10: Woronets, Jennifer (Anchor Environmental, LLC)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100017501	REDACTED Email regarding Gasco Sediments Site Final Work Plan and Response to EPA's 1/31/2010 Draft Work Plan Comments.	34	3 EML / Email	R10: Wyatt, Robert, J (NW Natural)	R10: Barth, Ryan (Anchor Environmental, LLC), R10: Sheldrake, Sean, A (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100016549	REDACTED Reply to Tuesday, February 2nd 1:00 - 5:00 pm - Risk Management Framework Check-in.	301	3 CORR / Correspondence	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Mckenna, Jim (Lower Willamette Group), R10: Pine, Keith (Lower Willamette Group), R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA), R10: Stivers, Carl (Anchor QEA, LLC)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100017478	REDACTED Email regarding Gasco Capture 2/1/2010 Zone Field Test Plan, Response to Comments.	97	4 EML / Email	R10: Wyatt, Robert, J (NW Natural)	R10: Bayuk, Dana (Oregon Dept. of Environmental Quality), R10: Edwards, John (Anchor QEA, LLC)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
4940680316	Email regarding List of Topics for Tomorrow's 2/1/2010 Risk Management Meeting.	91	2 EML / Email	R10: Wyatt, Robert, J (NW Natural)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100013694	2/3/2010 Email regarding tox files.	17	1 EML / Email	R10: Field, Jay (NOAA)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100016552	REDACTED Portland Harbor Managers Meeting 2/5/2010 - Wednesday, February 10th 1- 3 pm.	293	1 CORR / Correspondence	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Wyatt, Robert (Lower Willamette Group), R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100011856	Email regarding EPA Response to LWG 2/9/2010 February 5 2010 Letter.	22	1 EML / Email	R10: Wyatt, Robert, J (NW Natural)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100011858	Email regarding EPA Response to LWG 2/11/2010 February 5 2010 Letter.	22	1 EML / Email	R10: Wyatt, Robert, J (NW Natural)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100012285	Email regarding Upstream Samples for PBDE 2/19/2010 Analysis.	23	1 EML / Email	R10: Wyatt, Robert, J (NW Natural)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100013698	Letter regarding February 18, 2010 EPA Performance Standards for Confined Disposal 2/24/2010 Facilities.	35	2 CORR / Correspondence	R10: Wyatt, Robert, J (NW Natural)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100013697	Email regarding LWG Extension Request EPA Performance Standards for Confined Disposal 3/2/2010 Facilities.	98	1 EML / Email	R10: Mckenna, Jim (Port of Portland)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100015987	Email regarding NDs Portland Harbor. 3/2/2010	34	1 EML / Email	R10: Allen, Elizabeth (EPA)	R10: Kennedy, Laura (Kennedy/Jenks Consultants)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100011689	Email regarding Objective for March 4th FS Meeting. 3/3/2010	25	1 EML / Email	R10: Mckenna, Jim (Port of Portland)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100012095	Email regarding LWG Extension Request EPA Performance Standards for Confined Disposal 3/3/2010 Facilities.	25	2 EML / Email	R10: Mckenna, James (Port of Portland)	R10: Humphrey, Chip (EPA), R10: Woronets, Jennifer (Anchor QEA, LLC), R10: Wyatt, Robert, J (NW Natural)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
4940680331	Email regarding Objective for March 4th FS Meeting. 3/3/2010	25	1 EML / Email	R10: Mckenna, James (Port of Portland)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100016563	REDACTED Wednesday, March 10th 1 - 3 pm - Portland Harbor Managers Meeting Revised Agenda and Web Meeting Information. 3/10/2010	296	3 CORR / Correspondence	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Wyatt, Robert (Lower Willamette Group), R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100011956	Email regarding River-in-Focus: March 16 3/11/2010 Brownbag.	1,217	3 EML / Email	R10: Mckenna, James (Verdant Solutions, LLC)	R10: Blischke, Eric, L (EPA), R10: Smith, Judy, R (EPA), R10: Applegate, Rick (City of Portland)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100012125	Email regarding Monday 9am Meeting to Discuss Table of PRGs from March 4th Meeting. 3/12/2010	34	2 EML / Email	R10: Mckenna, James (Port of Portland)	R10: Humphrey, Chip (EPA), R10: Woronets, Jennifer (Anchor QEA, LLC)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
4940680422	Email regarding reply to Monday 9am meeting to discuss table of PRGs from March 4th Meeting. 3/12/2010	34	2 EML / Email	R10: Mckenna, James (Port of Portland)	R10: Humphrey, Chip (EPA), R10: Woronets, Jennifer (Anchor QEA, LLC)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100012156	Email regarding Monday 9am Meeting to Discuss Table of PRGs from March 4th Meeting. 3/15/2010	36	2 EML / Email	R10: Mckenna, James (Port of Portland)	R10: Humphrey, Chip (EPA), R10: Woronets, Jennifer (Anchor QEA, LLC), R10: Applegate, Rick (City of Portland)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
4940680423	Email regarding reply to Monday 9am meeting to discuss table of PRGs from March 4th Meeting. 3/15/2010	36	2 EML / Email	R10: Mckenna, James (Port of Portland)	R10: Humphrey, Chip (EPA), R10: Woronets, Jennifer (Anchor QEA, LLC), R10: Applegate, Rick (City of Portland)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100012676	3/19/2010 Email regarding Portland PCB Modeling.	22	2 EML / Email	R10: Winter, Jessica (NOAA)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100011940	3/22/2010 Email regarding PH FS.	25	4 EML / Email	R10: Mckenna, James (Port of Portland)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
4940680430	3/22/2010 Email regarding reply to PH FS.	21	1 EML / Email	R10: Mckenna, James (Port of Portland)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100011937	3/24/2010 Email regarding PH FS.	26	5 EML / Email	R10: Mckenna, James (Port of Portland)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
4940680395	3/24/2010 Email regarding reply to PH FS.	26	5 EML / Email	R10: Mckenna, James (Port of Portland)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100012233	Email regarding Request for Extension to Dispute: CDF Performance Standards. 3/30/2010	24	2 EML / Email	R10: Mckenna, James (Port of Portland)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100012295	Email regarding Request for Extension to Dispute: CDF Performance Standards. 3/30/2010	21	1 EML / Email	R10: Mckenna, James (Port of Portland)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
4940680493	Email regarding Request for Extension to Dispute: CDF Performance Standards. 3/30/2010	21	1 EML / Email	R10: Mckenna, James (Port of Portland)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100016741	Best Management Practices to Minimize Adverse Effects to Pacific Lamprey (Entosphenus tridentatus). 4/1/2010	2,980	25 PUB / Publication	R10: (U. S. Fish & Wildlife Service)		ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100017577	REDACTED Email regarding Monday, April 4th 11 am to 12 pm - Conference Call to Discuss April 12th Alternatives Screening Presentation. 4/1/2010	79	1 EML / Email	R10: Mckenna, James (Verdant Solutions, LLC)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA), R10: Stivers, Carl (Anchor QEA, LLC), R10: Woronets, Jennifer (Anchor QEA, LLC), R10: Wyatt, Robert, J (NW Natural)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100012165	4/2/2010 Email regarding PCB Modeling.	22	1 EML / Email	R10: Mckenna, James (Port of Portland)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100011668	4/5/2010 Email regarding PRGs and CDF Performance.	35	3 EML / Email	R10: Mckenna, James (Verdant Solutions, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
4940680327	Email regarding Summary of understanding of paths forward on PRGs and CDF performance standards as a result of 03/29/2010 meeting. 4/5/2010	35	3 EML / Email	R10: Mckenna, James (Port of Portland)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100012236	4/15/2010 Email regarding Request for Files.	21	1 EML / Email	R10: Mckenna, James (Port of Portland)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100012105	Email regarding LWG Request for Extension to Dispute: CDF Performance Standards. 4/16/2010	21	1 EML / Email	R10: Mckenna, James (Port of Portland)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100011824	4/21/2010 Email regarding EPA Direction on PRGs.	21	1 EML / Email	R10: Mckenna, Jim (Port of Portland)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100012237	Email regarding Resolution of Risk Assessment Comment. 4/21/2010	22	2 EML / Email	R10: Mckenna, James (Port of Portland)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
4940680455	Email regarding reply to Resolution of risk assessment comment. 4/21/2010	22	2 EML / Email	R10: Mckenna, James (Port of Portland)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100011492	Email regarding COCs for Initiating the FS Process. 4/22/2010	23	1 EML / Email	R10: Mckenna, Jim (Port of Portland)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
4940680306	Email regarding COCs for initiating the FS Process. 4/22/2010	23	1 EML / Email	R10: Mckenna, James (Port of Portland)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization

100012398	5/3/2010	Email regarding Portland Harbor Query Manager Database Update.	21	1 EML / Email	R10: Neely, Robert (NOAA)	R10: Wolotira, Robert, J (NOAA), R10: Pease, Katherine (NOAA), R10: Baker, Mary (NOAA), R10: Callahan-grant, Megan (NOAA), R10: Neely, Robert (NOAA), R10: Taylor, Robert (NOAA), R10: Stein, Barry (U. S. Dept. of the Interior), R10: Buerger, Ted (U. S. Fish and Wildlife Service), R10: Madden, Erin (Unknown), R10: Cunninghame, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Peers, Jennifer (Stratus Consulting, Inc.), R10: Downey, Tom (Confederated Tribes of the Siletz Indians), R10: Daquila, Kim (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Bluelake, Lisa (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Karnosh, Michael (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Blischke, Eric, L (EPA), R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality), R10: Pyle, Donald, H (Oregon Department of Justice), R10: Johnson, Matt (WilliamsJohnson), R10: Allen, David (Stratus Consulting, Inc.), R10: Weis, Julie (Haglund Kelley, LLP), R10: Kepler, Rick, J (State of Oregon), R10: Buck, Jeremy (U. S. Fish & Wildlife Service), R10: Meade, Norman (NOAA), R10: Hughes, Jennifer (Parametrix, Inc.)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100012835	5/13/2010	Comments on Calibration and Sensitivity Analysis of Contaminant Fate and Transport Model for Portland Harbor.	44	3 MEMO / Memorandum	R10: Winter, Jessica (NOAA)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100015992	5/13/2010	REDACTED Email transmitting QEA Fate calibration presentation comments.	25	3 EML / Email	R10: Winter, Jessica (NOAA)	R10: Neely, Robert (NOAA), R10: Dexter, Robert (Unknown), R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA), R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100016205	5/13/2010	Email Regarding DEQ Draft HHRA Guidance, Breastfeeding Appendix.	30	1 EML / Email	R10: Allen, Elizabeth (EPA)	R10: Poulsen, Michael (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100016564	5/13/2010	REDACTED Email regarding Reply to QEA Fate Calibration Presentation Comments.	247	5 CORR / Correspondence	R10: Unknown, Unknown (Unknown)	R10: Neely, Robert (NOAA), R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA), R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100011648	5/26/2010	Email regarding June 7 Alt Screen Scoping Meeting.	22	1 EML / Email	R10: Mckenna, James (Verdant Solutions, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100011656	5/26/2010	Email regarding June 7 Alt Screen Scoping Meeting.	22	1 EML / Email	R10: Mckenna, James (Verdant Solutions, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100011848	5/26/2010	Email regarding EPA Comments on QEA Fate Presentation.	22	1 EML / Email	R10: Winter, Jessica (NOAA)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100011851	6/1/2010	Email regarding EPA Response to May 5, 2010 LWG Letter re: CDF Performance Standards.	25	1 EML / Email	R10: Wyatt, Robert, J (NW Natural)	R10: Humphrey, Chip (EPA), R10: Mckenna, James (Verdant Solutions, LLC)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100012838	6/1/2010	Email transmitting vigor draft response.	25	1 MEMO / Memorandum	R10: Gambetta, Daniel (NOAA)	R10: Freedman, Jonathan (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100012846	6/1/2010	Project Review Group Review of the Sediment Management Plan (SMP) for the Vigor Industrial LLC Dry Docks and 3 Maintenance Dredging at the Portland Ship Repair Yard, Oregon Regulatory Project No. NWP02007-195 (draft with edits).	217	5 MEMO / Memorandum	R10: Mcmillan, James, M (U.S. Army Corps of Engineers)	R10: Henry, Debra	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100011870	6/3/2010	Email regarding EPA Response to May 5, 2010 LWG Letter re: PRGs for the Portland Harbor FS.	25	1 EML / Email	R10: Mckenna, James (Verdant Solutions, LLC)	R10: Humphrey, Chip (EPA), R10: Wyatt, Robert, J (NW Natural)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100012182	6/16/2010	Email regarding QEA Fate Modeling Meeting.	23	1 EML / Email	R10: Mckenna, James (Verdant Solutions, LLC)	R10: Blischke, Eric, L (EPA), R10: Woronets, Jennifer (Anchor QEA, LLC)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100017444	6/17/2010	REDACTED Email regarding LWG Chemical Fate and Transport Model Summary.	26	3 EML / Email	R10: Winter, Jessica (NOAA)	R10: Hayter, Earl, J (U. S. Army Corps of Engineers)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100017536	6/17/2010	REDACTED Email regarding LWG Chemical Fate and Transport Model Summary of June 8th Conference Call with EPA.	24	2 EML / Email	R10: Mckenna, James (Verdant Solutions, LLC)	R10: Blischke, Eric, L (EPA), R10: Woronets, Jennifer (Anchor QEA, LLC)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100018188	6/17/2010	REDACTED Email regarding reply to LWG Chemical Fate and Transport Model Summary of June 8th Conference Call with EPA.	25	2 EML / Email	R10: Mckenna, James (Port of Portland)	R10: Blischke, Eric, L (EPA), R10: Woronets, Jennifer (Anchor QEA, LLC)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100017592	6/18/2010	REDACTED Email regarding Re_LWG Chemical Fate and Transport Model Summary (1).	28	4 EML / Email	R10: Winter, Jessica (NOAA)	R10: Dexter, Robert (Ridolfi, Inc.)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100012045	7/15/2010	Email regarding HEA Habitat Values for ESA Consultation.	25	1 EML / Email	R10: Wyatt, Robert, J (NW Natural)	R10: Angle, Genevieve (NOAA), R10: Appy, Elizabeth (Anchor QEA, LLC), R10: Mckenna, James (Verdant Solutions, LLC), R10: Schadt, Tom (Anchor QEA, LLC)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100011805	7/16/2010	Email regarding EPA Comments on the PH Draft RI and Baseline Risk Assessments.	23	1 EML / Email	R10: Wyatt, Robert, J (NW Natural)	R10: Humphrey, Chip (EPA), R10: Mckenna, James (Verdant Solutions, LLC), R10: Woronets, Jennifer (Anchor Environmental, LLC), R10: Applegate, Rick (City of Portland)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100011807	7/19/2010	Email regarding EPA Comments on the PH Draft RI and Baseline Risk Assessments.	21	1 EML / Email	R10: Mckenna, James (Verdant Solutions, LLC)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100012178	7/19/2010	Email regarding QEA Fate Model Calibration.	24	1 EML / Email	R10: Mckenna, James (Verdant Solutions, LLC)	R10: Blischke, Eric, L (EPA), R10: Wyatt, Robert, J (NW Natural), R10: Woronets, Jennifer (Anchor Environmental, LLC), R10: Applegate, Rick (City of Portland)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100012181	7/20/2010	Email regarding QEA Fate Model Calibration.	24	1 EML / Email	R10: Mckenna, James (Verdant Solutions, LLC)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100012292	7/20/2010	Email regarding Word Copy of EPA Comments.	21	1 EML / Email	R10: Mckenna, James (Verdant Solutions, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100012054	7/21/2010	Email regarding HEA Habitat Values for ESA Consultation.	26	1 EML / Email	R10: Wyatt, Robert, J (NW Natural)	R10: Angle, Genevieve (NOAA), R10: Appy, Elizabeth (Anchor QEA, LLC), R10: Mckenna, James (Verdant Solutions, LLC), R10: Schadt, Tom (Anchor QEA, LLC)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100012744	7/22/2010	Email regarding Thoughts on QEA Model Uncertainty Analysis Proposal.	21	1 EML / Email	R10: Winter, Jessica (NOAA)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100011635	7/27/2010	Email regarding Dispute Deadline Extension Request.	23	1 EML / Email	R10: Wyatt, Robert, J (NW Natural)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100011725	7/27/2010	Email regarding Dispute Deadline Extension Request.	22	1 EML / Email	R10: Wyatt, Robert, J (NW Natural)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100016777	7/27/2010	REDACTED Email regarding Reply to TCT Agenda - July 28, 2010.	247	2 EML / Email	R10: Tarnow, Karen, E (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100012289	8/5/2010	Email regarding Status of August 19th Check-In Meeting.	48	1 EML / Email	R10: Mckenna, James (Verdant Solutions, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100016482	8/5/2010	REDACTED Email regarding Small Technical Group Benthic Toxicity AOPCs Meeting Location - Thursday, August 19th 9 am to 1 pm.	26	3 EML / Email	R10: Mckenna, James (Verdant Solutions, LLC)	R10: Blischke, Eric, L (EPA), R10: Woronets, Jennifer (Anchor QEA, LLC)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100012703	8/6/2010	Email regarding Thoughts on QEA Model Uncertainty Analysis Proposal.	25	2 EML / Email	R10: Winter, Jessica (NOAA)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100011876	8/16/2010	Email regarding Extension of Dispute Deadline for EPA Directed Comments.	22	1 EML / Email	R10: Mckenna, James (Verdant Solutions, LLC)	R10: Humphrey, Chip (EPA), R10: Woronets, Jennifer (Anchor Environmental, LLC)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100011878	8/16/2010	Email regarding Extension of Dispute Deadline for EPA Directed Comments.	23	1 EML / Email	R10: Wyatt, Robert, J (NW Natural)	R10: Humphrey, Chip (EPA), R10: Mckenna, James (Verdant Solutions, LLC)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
4940680382	8/16/2010	Email regarding reply to Extension of dispute deadline for EPA directed comments.	23	1 EML / Email	R10: Wyatt, Robert, J (NW Natural)	R10: Mckenna, James (Port of Portland), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization

100012252	8/17/2010	Email regarding Stormwater Loading Comments.	23	1 EML / Email	R10: Wyatt, Robert, J (NW Natural)	R10: Blischke, Eric, L (EPA), R10: Mckenna, James (Verdant Solutions, LLC)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100013700	8/17/2010	Portland Harbor LRM Derivation.	26	1 RPT / Report	R10: Unknown, Unknown (Unknown)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100013688	8/18/2010	Email regarding Benthic Meeting - Time Change.	19	1 EML / Email	R10: Field, Jay (NOAA)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100013691	8/18/2010	Excel spreadsheet: ph model reliability.	66	1 CHT / Chart/Table	R10: Unknown, Unknown (Unknown)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100013692	8/18/2010	Excel spreadsheet: ph model adj.	57	2 CHT / Chart/Table	R10: Unknown, Unknown (Unknown)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100016903	8/19/2010	REDACTED Email regarding Agenda for tomorrow's meeting on EPA's directive comments on the RI and RA.	46	1 EML / Email	R10: Mckenna, James (Verdant Solutions, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100018021	8/19/2010	REDACTED Email Regarding Agenda for tomorrow's meeting on EPA's directive comments on the RI and RA.	21	1 EML / Email	R10: Mckenna, Jim (Port of Portland)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100016904	8/20/2010	REDACTED Agenda for EPA Directive BHHRA and BERA Comment Meeting.	67	1 MTG / Meeting Document	R10: Unknown, Unknown (Unknown)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100018045	8/20/2010	REDACTED EPA Directive BHHRA and BERA Comment Meeting - August 20, 2010.	84	1 MTG / Meeting Document	R10: (Lower Willamette Group)		ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100011920	8/24/2010	Email regarding FS Evaluation of Mitigation Costs.	22	1 EML / Email	R10: Mckenna, James (Verdant Solutions, LLC)	R10: Humphrey, Chip (EPA), R10: Wyatt, Robert, J (NW Natural)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100013711	8/24/2010	Email regarding Benthic Meeting - Followup.	18	1 EML / Email	R10: Field, Jay (NOAA)	R10: Shephard, Burt (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100013713	8/24/2010	Excel spreadsheet: ph models ppttoxic.	85	1 CHT / Chart/Table	R10: Unknown, Unknown (Unknown)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100017469	8/25/2010	REDACTED Email regarding Request to Cancel September Portland Harbor Managers Meeting.	87	1 EML / Email	R10: Mckenna, James (Verdant Solutions, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100018227	8/26/2010	REDACTED Email regarding Wednesday, September 22nd 1 to 5 pm - Small Technical Group Benthic Toxicity AOPCs Meeting.	95	2 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Humphrey, Chip (EPA) R10: Humphrey, Chip (EPA), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality), R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100017464	9/3/2010	REDACTED Email regarding Draft FS Source Control Tables and Table Instructions.	93	2 EML / Email	R10: Mckenna, James (Verdant Solutions, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100012296	9/7/2010	Email regarding Requested List of Attorneys	29	1 EML / Email	R10: Wyatt, Robert, J (NW Natural)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100017330	9/7/2010	REDACTED Email regarding 9/22/2010 benthic check-in materials.	92	2 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA) R10: Humphrey, Chip (EPA), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality), R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100017476	9/7/2010	REDACTED Email regarding Draft FS Source Control Tables and Table Instructions.	94	2 EML / Email	R10: Mckenna, James (Verdant Solutions, LLC)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100017485	9/7/2010	REDACTED Email regarding Draft FS Source Control Tables and Table Instructions.	24	2 EML / Email	R10: Mckenna, James (Verdant Solutions, LLC)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100012903	9/14/2010	Email regarding LRM mapping task (PH LRM BioassyStations 100914.DBF attached).	24	1 EML / Email	R10: Field, Jay (NOAA)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100012904	9/14/2010	PH LRM BioassyStations 100914.DBF attached.	60	1 OTH / Other			ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100013724	9/14/2010	Email regarding LRM Mapping Task.	18	1 EML / Email	R10: Field, Jay (NOAA)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100011882	9/15/2010	Email regarding Re_LRM Mapping Task(2).	27	2 EML / Email	R10: Field, Jay (NOAA)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100012651	9/15/2010	Email regarding LRM Mapping Task.	27	2 EML / Email	R10: Field, Jay (NOAA)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100013726	9/16/2010	Email regarding LRM output for individual chems.	17	1 EML / Email	R10: Field, Jay (NOAA)	R10: Blischke, Eric, L (EPA), R10: Shephard, Burt (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100016476	9/16/2010	REDACTED Email regarding September 29th Meeting.	19	1 EML / Email	R10: Wyatt, Robert, J (NW Natural)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100017574	9/16/2010	REDACTED Email regarding reply to Benthic toxicity AOPCs check in - Wednesday, September 29th 11 am to 2 pm.	43	6 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
4940680471	9/16/2010	Email regarding reply to September 29th Meeting.	22	1 EML / Email	R10: Wyatt, Robert, J (NW Natural)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
4940680472	9/16/2010	Email regarding reply to September 29th Meeting.	22	1 EML / Email	R10: Wyatt, Robert, J (NW Natural)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100012574	9/20/2010	Email regarding Logistic Regression Mapping Task.	25	2 EML / Email	R10: Field, Jay (NOAA)	R10: Blischke, Eric, L (EPA) R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100011587	9/22/2010	Email regarding Dispute Deadline.	21	1 EML / Email	R10: Mckenna, Jim (Port of Portland)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100011724	9/22/2010	Email regarding Dispute Deadline.	23	1 EML / Email	R10: Mckenna, James (Verdant Solutions, LLC)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100011726	9/22/2010	Email regarding Dispute Deadline.	21	1 EML / Email	R10: Mckenna, James (Verdant Solutions, LLC)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100014979	9/22/2010	Letter Regarding Portland Harbor Sediment and Tissue Disposal.	72	2 LTR / Letter	R10: Wyatt, Bob (Lower Willamette Group)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100015307	9/22/2010	Comprehensive Benthic Approach Supplemental Material: Hit Classification Uncertainty Analysis. For Benthic Toxicity Check-in, September 22, 2010.	1,132	6 MTG / Meeting Document	R10: Unknown, Unknown (Lower Willamette Group)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100017888	9/22/2010	REDACTED Email Regarding Portland Harbor Sediment and Tissue Disposal Letter.	83	1 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
4940680310	9/22/2010	Email regarding Dispute deadline.	21	1 EML / Email	R10: Mckenna, James (Port of Portland)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
4940680365	9/22/2010	Email regarding reply to Dispute deadline.	23	1 EML / Email	R10: Mckenna, James (Port of Portland)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
4940680363	9/23/2010	Email regarding reply to Dispute deadline.	21	1 EML / Email	R10: Mckenna, James (Port of Portland)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100012569	9/24/2010	Email regarding Pmax Map with AOPCs.	28	3 EML / Email	R10: Field, Jay (NOAA)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100013730	9/24/2010	Development of Logistic Regression Models for Portland Harbor.	55	2 RPT / Report	R10: Unknown, Unknown (Unknown)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100011782	9/27/2010	Email regarding EPA Comments on Benthic Approach.	22	1 EML / Email	R10: Wyatt, Robert, J (NW Natural)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100013727	9/27/2010	Email regarding LRM model derivation.	17	1 EML / Email	R10: Field, Jay (NOAA) R10: Unknown, Unknown (Lower Willamette Group)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100013735	9/28/2010	Non-Directive RI Comment Issues.	113	1 NOTE / Notes		R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100015134	9/28/2010	Non-Directive RI Comment Issues.	139	1 LST / List/Index	R10: (Lower Willamette Group)		ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100016353	9/28/2010	REDACTED Email regarding EPA comments on benthic approach.	32	2 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100016354	9/28/2010	REDACTED Email regarding EPA comments on benthic approach.	31	1 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100017410	9/28/2010	REDACTED Email regarding reply to EPA comments on Benthic Approach.	19	1 EML / Email	R10: Wyatt, Robert, J (NW Natural)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100017412	9/28/2010	REDACTED Email regarding reply to EPA comments on Benthic Approach.	19	1 EML / Email	R10: Mckenna, James (Port of Portland)	R10: Humphrey, Chip (EPA), R10: Wyatt, Robert, J (NW Natural)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100017538	9/28/2010	REDACTED Email regarding EPA Comments on Benthic Approach.	19	1 EML / Email	R10: Wyatt, Robert, J (NW Natural)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100017548	9/28/2010	REDACTED Email regarding EPA Comments on Benthic Approach.	19	1 EML / Email	R10: Mckenna, James (Verdant Solutions, LLC)	R10: Humphrey, Chip (EPA), R10: Wyatt, Robert, J (NW Natural)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100017586	9/28/2010	REDACTED Email regarding reply to Wednesday, September 29th 11 am to 2 pm - Benthic toxicity AOPCs check in.	44	7 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
4940680492	9/28/2010	Email regarding reply to Wednesday, September 29th 11 am to 2 pm - Benthic toxicity AOPCs check in.	25	1 EML / Email	R10: Mckenna, James (Port of Portland)	R10: Blischke, Eric, L (EPA), R10: Woronets, Jennifer (Anchor QEA, LLC), R10: Wyatt, Robert, J (NW Natural)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100015800	9/29/2010	REDACTED Email transmitting benthic AOPCs .zap file.	37	2 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100018231	9/29/2010	REDACTED Email regarding Benthic AOPC layers.	113	2 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100012575	9/30/2010	Email regarding LWG Benthic AOPC Files Available on FTP.	24	1 EML / Email	R10: Field, Jay (NOAA)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization



100016593	9/30/2010	REDACTED Email regarding LWG Benthic AOPC Files Available on FTP.	25	3 EML / Email	R10: Field, Jay (NOAA)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100016902	9/30/2010	REDACTED Email regarding EPA Non-Directed Comments on Draft Remedial Investigation: Categorization of Key Issues.	52	2 EML / Email	R10: Mckenna, James (Verdant Solutions, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100018048	9/30/2010	REDACTED Email Regarding EPA Non-Directed Comments on Draft Remedial Investigation: Categorization of Key Issues.	52	2 EML / Email	R10: Mckenna, Jim (Port of Portland)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100012654	10/1/2010	Email regarding LRM.	21	1 EML / Email	R10: Field, Jay (NOAA)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100013763	10/3/2010	Email regarding LRM.	21	3 EML / Email	R10: Field, Jay (NOAA)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100013766	10/3/2010	Excel Spreadsheet: PH pmax50.	31	1 CHT / Chart/Table	R10: Unknown, Unknown (Unknown)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100013768	10/3/2010	Excel Spreadsheet: PH pmax50_75.	26	1 CHT / Chart/Table	R10: Unknown, Unknown (Unknown)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100013875	10/3/2010	Excel Spreadsheet: PH pmax75.	27	1 CHT / Chart/Table	R10: Unknown, Unknown (Unknown)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100011589	10/4/2010	Email regarding EPA Benthic Risk Comments; Reliability Analysis.	56	1 EML / Email	R10: Mckenna, Jim (Port of Portland)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
4940680312	10/4/2010	Email regarding EPA Benthic Risk Comments; Reliability Analysis.	56	1 EML / Email	R10: Mckenna, James (Port of Portland)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100015321	10/5/2010	Letter regarding EPA Comments on Benthic Risk Evaluation.	33	2 CORR / Correspondence	R10: Wyatt, Robert, J (NW Natural)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100017335	10/5/2010	REDACTED Email regarding EPA Comments on Benthic Risk Evaluation Dispute Deadline.	93	1 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100012288	10/8/2010	Email regarding Request for Extension.	21	1 EML / Email	R10: Mckenna, James (Verdant Solutions, LLC)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100017414	10/8/2010	REDACTED Email regarding reply to EPA Comments on Benthic Risk Evaluation Dispute Deadline.	24	2 EML / Email	R10: Wyatt, Robert, J (NW Natural)	R10: Yamamoto, Deb (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100017545	10/8/2010	REDACTED Email regarding EPA Comments on Benthic Risk Evaluation Dispute Deadline.	24	2 EML / Email	R10: Wyatt, Robert, J (NW Natural)	R10: Yamamoto, Deb (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
4940680318	10/8/2010	Email regarding Request for extension.	21	1 EML / Email	R10: Mckenna, James (Port of Portland)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100011592	10/13/2010	Email regarding Extension Request.	20	1 EML / Email	R10: Mckenna, Jim (Port of Portland)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100012225	10/13/2010	Email regarding Request for Dispute Deadline Extension - Benthic Risk Evaluation Comments.	22	1 EML / Email	R10: Wyatt, Robert, J (NW Natural)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100012227	10/13/2010	Email regarding Request for Dispute Deadline Extension - Benthic Risk Evaluation Comments.	22	1 EML / Email	R10: Mckenna, James (Verdant Solutions, LLC)	R10: Humphrey, Chip (EPA), R10: Wyatt, Robert, J (NW Natural)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
4940680452	10/13/2010	Email regarding reply to Request for dispute deadline extension - benthic risk evaluation comments.	22	1 EML / Email	R10: Wyatt, Robert, J (NW Natural)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100011685	10/14/2010	Email regarding Meeting re LRM.	76	1 EML / Email	R10: Mckenna, James (Verdant Solutions, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100012055	10/14/2010	Email regarding Jay's Availability.	23	2 EML / Email	R10: Mckenna, James (Verdant Solutions, LLC)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100012108	10/14/2010	Email regarding Meeting re LRM.	22	1 EML / Email	R10: Mckenna, James (Verdant Solutions, LLC)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
4940680330	10/14/2010	Email regarding Meeting re LRM.	76	1 EML / Email	R10: Mckenna, James (Port of Portland)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
4940680418	10/14/2010	Email regarding reply to Meeting re LRM.	22	1 EML / Email	R10: Mckenna, James (Port of Portland)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100011586	10/18/2010	Email regarding Deadline for Revising the Draft RI and RAs.	47	1 EML / Email	R10: Mckenna, Jim (Port of Portland)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100011733	10/18/2010	Email regarding Deadline for Revising the Draft RI and RAs.	23	1 EML / Email	R10: Mckenna, James (Verdant Solutions, LLC)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100011883	10/18/2010	Email regarding Extension of Time for Submission of Revised RI and Risk Assessment Reports.	23	1 EML / Email	R10: Wyatt, Robert, J (NW Natural)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
4940680360	10/18/2010	Email regarding reply to Deadline for revising the draft RI and RAs.	23	1 EML / Email	R10: Mckenna, James (Port of Portland)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
4940680383	10/18/2010	Email regarding reply to Extension of time for submission of revised RI and Risk Assessment Reports.	23	1 EML / Email	R10: Wyatt, Robert, J (NW Natural)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100016471	10/19/2010	REDACTED Email regarding Request for Additional Work Under 2009 Gasco-Siltronic AOC.	27	1 EML / Email	R10: Wyatt, Robert, J (NW Natural)	R10: Stivers, Carl (Anchor Environmental, LLC), R10: Barth, Ryan (Anchor Environmental, LLC), R10: Peale, James, G (Maul Foster & Alongi, Inc.), R10: Sheldrake, Sean, A (EPA), R10: Mccue, Tom (Siltronic Corporation), R10: Gladstone, Alan (Davis Rothwell Earle & Xochihua), R10: Eastwood, Hanne (Davis Rothwell Earle & Xochihua), R10: Dost, Patty (Pearl Legal Group PC)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100018197	10/19/2010	REDACTED Email regarding reply to Request for additional work under 2009 Gasco-Siltronic AOC.	27	1 EML / Email	R10: Wyatt, Robert, J (NW Natural)	R10: Stivers, Carl (Anchor Environmental, LLC), R10: Peale, James, G (Maul Foster & Alongi, Inc.), R10: Sheldrake, Sean, A (EPA), R10: Mccue, Tom (Siltronic Corporation), R10: Barth, Ryan (Anchor Environmental, L. L. C.), R10: Gladstone, Alan (Davis Rothwell Earle & Xochihua), R10: Dost, Patty (Pearl Legal Group PC)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100012249	10/21/2010	Email regarding SETAC-NA Portland Harbor "Tour".	25	2 EML / Email	R10: Mckenna, James (Verdant Solutions, LLC)	R10: Humphrey, Chip (EPA), R10: Claytor, Carrie (GEI Consultants, Inc.)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100012277	10/21/2010	Email regarding SETAC-NA Portland Harbor "Tour".	26	2 EML / Email	R10: Mckenna, James (Verdant Solutions, LLC)	R10: Humphrey, Chip (EPA), R10: Smith, Barbara (Harris and Smith)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
4940680381	10/21/2010	Email regarding reply to Example of Historical source.	25	2 EML / Email	R10: Mckenna, James (Port of Portland)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100015990	10/26/2010	Email regarding N-qualified data.	32	1 EML / Email	R10: Allen, Elizabeth (EPA)	R10: Kennedy, Laura (Kennedy/Jenks Consultants)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100016009	10/26/2010	Email regarding clarifications from October 15th discussion.	80	2 EML / Email	R10: Allen, Elizabeth (EPA)	R10: Kennedy, Laura (Kennedy/Jenks Consultants), R10: Poulsen, Mike (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100012626	10/30/2010	Email regarding Hit/No-Hit Classifications.	23	1 EML / Email	R10: Field, Jay (NOAA)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100012614	10/31/2010	Email regarding Hit/No-Hit Classifications.	30	4 EML / Email	R10: Field, Jay (NOAA)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100012625	10/31/2010	Email regarding Hit/No-Hit Classifications.	26	3 EML / Email	R10: Field, Jay (NOAA)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100012906	10/31/2010	Email regarding hit/no-hit classifications.	29	2 EML / Email	R10: Field, Jay (NOAA)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100012913	10/31/2010	PH RefTox Thresholds 1010031.doc.	69	1 CHT / Chart/Table			ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100013769	10/31/2010	Portland Harbor RefTox Thresholds.	63	1 CHT / Chart/Table	R10: Unknown, Unknown (Unknown)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100013938	10/31/2010	Email regarding Hit/No-Hit Classifications.	22	2 EML / Email	R10: Field, Jay (NOAA)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100011666	11/1/2010	Email regarding LWG Response to EPA's Data Lock-Down Comments.	51	2 EML / Email	R10: Mckenna, James (Verdant Solutions, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100011720	11/1/2010	Email regarding Comment Clarifications.	27	2 EML / Email	R10: Mckenna, James (Verdant Solutions, LLC)	R10: Blischke, Eric, L (EPA), R10: Revelas, Gene (Integral Corporation)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
4940680325	11/1/2010	Email regarding LWG Response to EPA's Data Lock-Down Comments.	51	2 EML / Email	R10: Mckenna, James (Port of Portland)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
4940680356	11/1/2010	Email regarding reply to Comment Clarifications.	27	2 EML / Email	R10: Mckenna, James (Port of Portland)	R10: Blischke, Eric, L (EPA), R10: Revelas, Gene (Integral Corporation)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100011636	11/3/2010	Email regarding Dispute Deadline.	21	1 EML / Email	R10: Wyatt, Robert, J (NW Natural)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100011727	11/4/2010	Email regarding Dispute Deadline.	25	2 EML / Email	R10: Wyatt, Robert, J (NW Natural)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization

100012102	11/4/2010	Email regarding LWG Response to EPA's Data Lock-Down Comments.	30	3 EML / Email	R10: Mckenna, James (Verdant Solutions, LLC)	R10: Humphrey, Chip (EPA) R10: Fuentes, Rene, C (EPA), R10: Blischke, Eric, L (EPA), R10: Locke, Bill (Integral Corporation)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100012172	11/4/2010	Email regarding Piper Diagram Comments.	28	2 EML / Email	R10: Mckenna, James (Verdant Solutions, LLC)		ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
4940680364	11/4/2010	Email regarding reply to Dispute deadline.	25	2 EML / Email	R10: Wyatt, Robert, J (NW Natural)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
4940680414	11/4/2010	Email regarding reply to LWG Response to EPA's Data Lock-Down Comments.	30	3 EML / Email	R10: Mckenna, James (Port of Portland)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
4940680435	11/4/2010	Email regarding reply to Piper Diagram Comments.	28	2 EML / Email	R10: Mckenna, James (Port of Portland)	R10: Blischke, Eric, L (EPA), R10: Locke, Bill (Integral Corporation)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100012250	11/5/2010	Email regarding SETAC-NA Portland Harbor "Tour".	25	2 EML / Email	R10: Mckenna, James (Verdant Solutions, LLC)	R10: Humphrey, Chip (EPA), R10: Claytor, Carrie (GEI Consultants, Inc.)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100011719	11/8/2010	Email regarding Comment Clarifications.	31	3 EML / Email	R10: Mckenna, James (Verdant Solutions, LLC)	R10: Blischke, Eric, L (EPA), R10: Locke, Bill (Integral Corporation)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100012103	11/8/2010	Email regarding LWG Response to EPA's Data Lock-Down Comments.	30	3 EML / Email	R10: Mckenna, James (Verdant Solutions, LLC)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100017573	11/8/2010	REDACTED Email regarding LWG Response to EPA's Data Lock-Down Comments.	26	4 EML / Email	R10: Mckenna, James (Verdant Solutions, LLC)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
4940680415	11/8/2010	Email regarding reply to LWG Response to EPA's Data Lock-Down Comments.	30	3 EML / Email	R10: Mckenna, James (Port of Portland)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100011645	11/9/2010	Email regarding CSM Source and In-Water Contamination Relationship Discussion.	23	1 EML / Email	R10: Mckenna, James (Verdant Solutions, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100011683	11/9/2010	Email regarding Meet with Charlie Menzie.	20	1 EML / Email	R10: Mckenna, James (Verdant Solutions, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100016694	11/9/2010	REDACTED Email regarding Willamette River watershed databases posted - 11/9/10.	26	2 EML / Email	R10: Field, Jay (NOAA)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
4940680314	11/9/2010	Email regarding CSM Source and In-Water Contamination Relationship Discussion.	23	1 EML / Email	R10: Mckenna, James (Port of Portland)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
4940680329	11/9/2010	Email regarding Meet with Charlie Menzie?.	20	1 EML / Email	R10: Mckenna, James (Port of Portland)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100016189	11/12/2010	Email Regarding PDBE Half-Life.	29	1 EML / Email	R10: Allen, Elizabeth (EPA)	R10: Poulsen, Michael (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100016207	11/12/2010	Email Regarding PDBE Half-Life.	29	1 EML / Email	R10: Allen, Elizabeth (EPA)	R10: Poulsen, Michael (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100012247	11/15/2010	Email regarding Round 3 Sample Disposal.	22	1 EML / Email	R10: Mckenna, James (Verdant Solutions, LLC)	R10: Humphrey, Chip (EPA), R10: Wyatt, Robert, J (NW Natural)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100012386	11/18/2010	Email regarding LWG Hit Classification Changes.	22	1 EML / Email	R10: Field, Jay (NOAA)	R10: Musgrove, Nancy, A (Windward Environmental, LLC.)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100012658	11/18/2010	Email regarding LWG Hit Classification Changes.	24	1 EML / Email	R10: Field, Jay (NOAA)	R10: Toll, John (Windward Environmental, LLC.)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100015968	11/18/2010	Email regarding general responses to EPA's non-directive, comment key issue on the RI, BERA, and BHHRA.	32	1 EML / Email	R10: Allen, Elizabeth (EPA)	R10: Kennedy, Laura (Kennedy/Jenks Consultants)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100011934	11/23/2010	Email regarding FS Source Control Tables.	22	1 EML / Email	R10: Mckenna, James (Verdant Solutions, LLC)	R10: Humphrey, Chip (EPA), R10: Wyatt, Robert, J (NW Natural)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
4940680393	11/23/2010	Email regarding reply to FS Source Control Tables.	22	1 EML / Email	R10: Mckenna, James (Port of Portland)	R10: Humphrey, Chip (EPA), R10: Wyatt, Robert, J (NW Natural)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100015991	11/29/2010	Email regarding PDBEs for Monday morning.	30	1 EML / Email	R10: Allen, Elizabeth (EPA)	R10: Kennedy, Laura (Kennedy/Jenks Consultants), R10: Poulsen, Mike (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100013945	12/1/2010	Email regarding Potential Impacts to Revised RI and RAs Schedule.	66	1 EML / Email	R10: Mckenna, James (Verdant Solutions, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100013946	12/1/2010	Level of Additional Effort Tables 1 and 2.	53	12 CHT / Chart/Table	R10: Unknown, Unknown (Unknown)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100015135	12/1/2010	Email Regarding Potential Impacts to Revised RI and RAs Schedule.	66	1 EML / Email	R10: Mckenna, Jim (Port of Portland)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100015136	12/1/2010	Table 1: Level of Additional Effort Resulting from "New" Information or Analysis Requested in EPA Comments on the Draft RI Report, Baseline Human Health Risk Assessment, and Baseline Ecological Risk Assessment.	53	12 CHT / Chart/Table	R10: (Lower Willamette Group)		ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100013948	12/8/2010	Development of Logistic Regression Models for Portland Harbor.	72	5 RPT / Report	R10: Unknown, Unknown (Unknown)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100013949	12/8/2010	LRM Report Tables 1-5.	124	9 CHT / Chart/Table	R10: Unknown, Unknown (Unknown)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100013978	12/8/2010	LRM Report Tables 6: Probability statistics (Shephard 2010) for selected PMax model for all 3 toxicity levels and PMax thresholds at increments of 0.01 from 0.20 to 0.80.	340	25 CHT / Chart/Table	R10: Unknown, Unknown (Unknown)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100016133	12/8/2010	Email Regarding EPA Direction on Non-Directed RI/RA Comment Resolution.	68	2 EML / Email	R10: Allen, Elizabeth (EPA)	R10: Kennedy, Laura (Kennedy/Jenks Consultants), R10: Poulsen, Michael (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100016136	12/8/2010	Letter Regarding Portland Harbor Superfund Site; Administrative Order on Consent for Remedial Investigation and Feasibility Study; Docket No. CERCLA-10-2001-0240 - General Responses to EPA Non-Directed RI, BHHRA and BERA Comments.	26	2 LTR / Letter	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	R10: Wyatt, Robert, J (NW Natural)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100016138	12/8/2010	Attachment 1 - EPA Response to Non-Directed Comment Resolution Tables.	41	6 CORR / Correspondence	R10: (EPA)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100016201	12/8/2010	Email Regarding EPA Direction on Non-Directed RI/RA Comment Resolution.	33	2 EML / Email	R10: Allen, Elizabeth (EPA)	R10: Kennedy, Laura (Kennedy/Jenks Consultants), R10: Poulsen, Michael (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100011921	12/9/2010	Email regarding FS Habitat Values.	33	1 EML / Email	R10: Wyatt, Robert, J (NW Natural)	R10: Madden, Erin (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100012723	12/9/2010	Email regarding Willamette River Watershed Databases Posted - 12/08/2010.	50	2 EML / Email	R10: Field, Jay (NOAA)	R10: Myre, Peggy (Exa Data & Mapping Services, Inc.)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100013947	12/9/2010	Email regarding Draft Documentation.	18	1 EML / Email	R10: Field, Jay (NOAA)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100012291	12/15/2010	Email regarding URGENT: Latest Information from Jay Regarding the LRM.	71	1 EML / Email	R10: Mckenna, James (Verdant Solutions, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100012375	12/15/2010	Email regarding LRMs.	21	1 EML / Email	R10: Field, Jay (NOAA)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100013219	12/15/2010	Email regarding LRMs.	24	1 EML / Email	R10: Field, Jay (NOAA)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100013955	12/15/2010	Email regarding Request for Extension to Invoke Dispute; EPA Directed Comments of December 8, 2010.	45	1 EML / Email	R10: Mckenna, James (Verdant Solutions, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100013956	12/15/2010	Letter regarding EPA December 8, 2010 Directed RI, BHHRA and BERA Comments.	34	2 CORR / Correspondence	R10: Wyatt, Robert, J (NW Natural)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100015137	12/15/2010	Email Regarding Request for Extension to Invoke Dispute; EPA Directed Comments of December 8, 2010.	45	1 EML / Email	R10: Mckenna, Jim (Port of Portland)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100015138	12/15/2010	Letter Regarding EPA December 8, 2010 Directed RI, BHHRA and BERA Comments.	34	2 LTR / Letter	R10: Wyatt, Bob (Northwest Natural Gas Company)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
4940680500	12/15/2010	Email regarding URGENT: Latest information from Jay regarding the LRM.	71	1 EML / Email	R10: Mckenna, James (Port of Portland)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100012221	12/16/2010	Email regarding Request for Extension to Invoke Dispute; EPA Directed Comments of December 8, 2010.	23	1 EML / Email	R10: Wyatt, Robert, J (NW Natural)	R10: Humphrey, Chip (EPA), R10: Mckenna, James (Verdant Solutions, LLC)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100012235	12/16/2010	Email regarding Request for Extension to Invoke Dispute; EPA Directed Comments of December 8, 2010.	23	1 EML / Email	R10: Mckenna, James (Verdant Solutions, LLC)	R10: Humphrey, Chip (EPA), R10: Wyatt, Robert, J (NW Natural)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100012914	12/16/2010	Email transmitting revised tables (LRM Report Table 1 5 1011216REV.xls and Table6 PMAxmodel ReliabilityStatistics REV.xlsx attached).	24	1 EML / Email	R10: Field, Jay (NOAA)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100012918	12/16/2010	LRM Report Table 1 5 1011216REV.xls.	34	1 EML / Email			ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100012919	12/16/2010	Table6 PMAxmodel Reliability Statistics REV.xlsx.	175	1 EML / Email			ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization

100012951	12/16/2010	Email transmitting revised tables (PH_AllData_PR5_101216.DBF and PH AllData PR5 101216.xls attached).	25	1 EML / Email	R10: Field, Jay (NOAA)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100012953	12/16/2010	PH AllData PR5 101216.DBF.	135	1 OTH / Other			ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100012959	12/16/2010	PH AllData PR5 101216.xls.	5,736	82 CHT / Chart/Table			ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100013958	12/16/2010	Email regarding PMAX Differences.	17	1 EML / Email	R10: Field, Jay (NOAA)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100013959	12/16/2010	Email regarding Revised Tables.	18	1 EML / Email	R10: Field, Jay (NOAA)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100013981	12/16/2010	Chart showing PMAX Difference.	84	1 CHT / Chart/Table	R10: Unknown, Unknown (Unknown)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100014020	12/16/2010	Email regarding Revised Tables.	18	1 EML / Email	R10: Field, Jay (NOAA)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100014021	12/16/2010	LRM Report Tables 1-5 Revised.	124	9 CHT / Chart/Table	R10: Unknown, Unknown (Unknown)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100014022	12/16/2010	LRM Report Table 6 Revised.	342	25 CHT / Chart/Table	R10: Unknown, Unknown (Unknown)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100014023	12/16/2010	Excel Spreadsheet: PH AllData PR5.	1,046	82 CHT / Chart/Table	R10: Unknown, Unknown (Unknown)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
4940680453	12/16/2010	Email regarding reply to Request for Extension to Invoke Dispute; EPA Directed Comments of December 8, 2010.	23	1 EML / Email	R10: Mckenna, James (Port of Portland)	R10: Humphrey, Chip (EPA), R10: Wyatt, Robert, J (NW Natural)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
4940680454	12/16/2010	Email regarding reply to Request for Extension to Invoke Dispute; EPA Directed Comments of December 8, 2010.	23	1 EML / Email	R10: Wyatt, Robert, J (NW Natural)	R10: Mckenna, James (Port of Portland), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100012689	12/17/2010	Email regarding Revised Tables.	24	2 EML / Email	R10: Field, Jay (NOAA)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100012967	12/17/2010	Email transmitting revised tables (PH_AllData_PR5_101217.DBF and PH AllData PR5 101217.xls attached).	26	2 EML / Email	R10: Field, Jay (NOAA)	R10: Spence, Margaret (Parametrix, Inc.)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100012968	12/17/2010	PH_AllData_PR5_101217.xls.	6,104	123 CHT / Chart/Table			ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100012976	12/17/2010	PH_AllData_PR5_101217.DBF.	131	1 OTH / Other			ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100012988	12/17/2010	Email regarding revised tables (PH LRM derivation 101217.doc attached).	26	2 EML / Email	R10: Field, Jay (NOAA)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100012989	12/17/2010	Draft PH LRM derivation.	73	5 RPT / Report			ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100014031	12/17/2010	Development of Logistic Regression Models for Portland Harbor.	73	5 RPT / Report	R10: Unknown, Unknown (Unknown)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100014034	12/17/2010	Email regarding Revised Tables.	19	2 EML / Email	R10: Field, Jay (NOAA)	R10: Blischke, Eric, L (EPA), R10: Shephard, Burt (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100014036	12/17/2010	Excel Spreadsheet: PH AllData PR5.	1,109	123 CHT / Chart/Table	R10: Unknown, Unknown (Unknown)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100014037	12/17/2010	Email regarding Revised Tables.	20	2 EML / Email	R10: Field, Jay (NOAA)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100011650	12/20/2010	Email regarding List of Potential Data Sources.	92	2 EML / Email	R10: Mckenna, James (Verdant Solutions, LLC)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100011813	12/21/2010	Email regarding EPA Direction on Draft FS for Portland Harbor.	22	1 EML / Email	R10: Wyatt, Robert, J (NW Natural)	R10: Humphrey, Chip (EPA), R10: Mckenna, James (Verdant Solutions, LLC)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100011814	12/21/2010	Email regarding EPA Direction on Draft FS for Portland Harbor.	22	1 EML / Email	R10: Mckenna, James (Verdant Solutions, LLC)	R10: Humphrey, Chip (EPA), R10: Wyatt, Robert, J (NW Natural)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100012057	12/21/2010	Email regarding List of Potential Data Sources.	22	1 EML / Email	R10: Mckenna, James (Verdant Solutions, LLC)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100011811	12/22/2010	Email regarding EPA Direction on Draft FS Dispute Deadline.	24	2 EML / Email	R10: Mckenna, James (Verdant Solutions, LLC)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100011889	1/10/2011	Email regarding Extension to Invoke Dispute; EPA Directed Comments of December 8, 2010.	22	1 EML / Email	R10: Mckenna, James (Verdant Solutions, LLC)	R10: Humphrey, Chip (EPA), R10: Wyatt, Robert, J (NW Natural)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100011896	1/10/2011	Email regarding Extension to Invoke Dispute; EPA Directed Comments of December 8, 2010.	23	1 EML / Email	R10: Wyatt, Robert, J (NW Natural)	R10: Humphrey, Chip (EPA), R10: Mckenna, James (Verdant Solutions, LLC)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100015476	1/12/2011	REDACTED 01_12_11 email; Wednesday, January 12th Portland Harbor Managers Meeting Agenda.	95	3 EML / Email	R10: Woronets, Jennifer (Lower Willamette Group)	R10: Wyatt, Bob (Lower Willamette Group), R10: Mckenna, Jim (Lower Willamette Group), R10: Pine, Keith (Lower Willamette Group), R10: Humphrey, Chip (EPA), R10: Stivers, Carl (Anchor QEA, LLC)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100011862	1/14/2011	Email regarding LWG Response to EPA September 27, 2010, December 8, 2010, and December 21, 2010 Letters.	27	2 EML / Email	R10: Field, Jay (NOAA)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100011633	1/19/2011	Email regarding CSM/Source ID Meeting.	20	1 EML / Email	R10: Mckenna, Jim (Port of Portland)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100012299	1/20/2011	Email regarding Updated Project Approach and Schedule.	47	1 EML / Email	R10: Mckenna, James (Verdant Solutions, LLC)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100012093	1/25/2011	Email regarding LWG Dispute Deadline re: EPA Directed Comments on CSM.	22	1 EML / Email	R10: Mckenna, James (Verdant Solutions, LLC)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100012094	1/25/2011	Email regarding LWG Dispute Deadline re: EPA Directed Comments on CSM.	23	1 EML / Email	R10: Mckenna, James (Verdant Solutions, LLC)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100016185	1/27/2011	Email Regarding NW Natural - Uplands Risk Assessment, Source Control, and the Riverbank.	74	7 EML / Email	R10: Allen, Elizabeth (EPA)	R10: Poulsen, Michael (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100011797	1/28/2011	Email regarding EPA Comments on Dec 14 2010 Presentations.	22	1 EML / Email	R10: Wyatt, Robert, J (NW Natural)	R10: Humphrey, Chip (EPA), R10: Mckenna, James (Verdant Solutions, LLC)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100012110	1/31/2011	Email regarding MNR Modeling Presentation.	25	2 EML / Email	R10: Mckenna, James (Verdant Solutions, LLC)	R10: Humphrey, Chip (EPA), R10: Woronets, Jennifer (Anchor QEA, LLC)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100016096	2/1/2011	Email regarding Portland Harbor calculated whole body tissue concentrations.	115	20 EML / Email	R10: Ryals, Cindy (Kennedy Jenks Consultants)	R10: Allen, Elizabeth (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100016131	2/1/2011	Email Regarding Portland Harbor Calculated Whole Body Tissue Concentrations.	32	2 EML / Email	R10: Allen, Elizabeth (EPA)	R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality), R10: Poulsen, Michael (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100016200	2/1/2011	Email Regarding Portland Harbor Calculated Whole Body Tissue Concentrations.	32	2 EML / Email	R10: Allen, Elizabeth (EPA)	R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality), R10: Poulsen, Michael (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100015699	2/3/2011	REDACTED 02_03_11 email; CSM Directive Conf Call.	66	3 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100011552	2/9/2011	Email regarding CSM Approach.	21	1 EML / Email	R10: Mckenna, Jim (Port of Portland)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100011585	2/9/2011	Email regarding CSM Approval.	21	1 EML / Email	R10: Mckenna, Jim (Port of Portland)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100011710	2/11/2011	Email regarding CSM Issue Resolution.	25	2 EML / Email	R10: Mckenna, James (Verdant Solutions, LLC)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100011723	2/11/2011	Email regarding CSM Approval.	22	1 EML / Email	R10: Mckenna, James (Verdant Solutions, LLC)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100011711	2/12/2011	Email regarding CSM Issue Resolution.	26	2 EML / Email	R10: Mckenna, James (Verdant Solutions, LLC)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100011712	2/14/2011	Email regarding CSM Issue Resolution.	24	2 EML / Email	R10: Mckenna, James (Verdant Solutions, LLC)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100012253	2/14/2011	Email regarding Schedule.	21	1 EML / Email	R10: Mckenna, James (Verdant Solutions, LLC)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100012106	2/15/2011	Email regarding Meet to Discuss Project Schedule.	22	1 EML / Email	R10: Wyatt, Robert, J (NW Natural)	R10: Humphrey, Chip (EPA), R10: Mckenna, James (Verdant Solutions, LLC)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100012107	2/15/2011	Email regarding Meet to Discuss Project Schedule.	22	1 EML / Email	R10: Mckenna, James (Verdant Solutions, LLC)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100016095	2/16/2011	Email regarding Portland Harbor calculated whole body tissue concentrations.	40	4 EML / Email	R10: Ryals, Cindy (Kennedy Jenks Consultants)	R10: Allen, Elizabeth (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100015705	2/22/2011	REDACTED 02_22_11 email; Wednesday, February 23rd Focused Technical MNR Modeling Presentation.	86	3 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100011831	2/26/2011	Email regarding EPA Response Letter Re Portland Harbor RI/FS Schedule.	23	1 EML / Email	R10: Mckenna, James (Verdant Solutions, LLC)	R10: Koch, Kristine, M (EPA), R10: Wyatt, Robert, J (NW Natural), R10: Woronets, Jennifer (Anchor Environmental, LLC)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization



100011830	3/1/2011	Email regarding EPA Response Letter Re Portland Harbor RI/FS Schedule.	23	1 EML / Email	R10: Mckenna, James (Verdant Solutions, LLC)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100011803	3/2/2011	Email regarding EPA Comments on Stormwater Loading Calculations Methods.	22	1 EML / Email	R10: Wyatt, Robert, J (NW Natural)	R10: Koch, Kristine, M (EPA) R10: Humphrey, Chip (EPA), R10: Mckenna, James (Verdant Solutions, LLC)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100011816	3/9/2011	Email regarding EPA Feedback on MNR Modeling Presentation.	22	1 EML / Email	R10: Wyatt, Robert, J (NW Natural)	R10: Humphrey, Chip (EPA), R10: Mckenna, James (Verdant Solutions, LLC), R10: Woronets, Jennifer (Anchor Environmental, LLC)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100011864	3/11/2011	Email regarding EPA Response to LWG Request for Extension.	24	2 EML / Email	R10: Wyatt, Robert, J (NW Natural)	R10: Humphrey, Chip (EPA), R10: Woronets, Jennifer (Anchor QEA, LLC), R10: Wyatt, Robert, J (NW Natural)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100012161	3/17/2011	Email regarding PH RI/FS Revised RI and Draft FS Submittal Dates.	23	1 EML / Email	R10: Mckenna, James (Verdant Solutions, LLC)	R10: Humphrey, Chip (EPA), R10: Woronets, Jennifer (Anchor QEA, LLC), R10: Mckenna, James (Verdant Solutions, LLC)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100012162	3/17/2011	Email regarding PH RI/FS Revised RI and Draft FS Submittal Dates.	24	1 EML / Email	R10: Wyatt, Robert, J (NW Natural)	R10: Humphrey, Chip (EPA), R10: Woronets, Jennifer (Anchor QEA, LLC), R10: Mckenna, James (Verdant Solutions, LLC)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100012171	3/17/2011	Email regarding PH RI/FS Revised RI and Draft FS Submittal Dates.	22	1 EML / Email	R10: Mckenna, James (Verdant Solutions, LLC)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100015719	3/17/2011	REDACTED 03_17_11 email; BHHRA New Risk Scenario Tables Posted for EPA Review and Comment.	104	2 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100011721	3/29/2011	Email regarding Congressman Blumenauer Meeting April 22nd.	23	1 EML / Email	R10: Wyatt, Robert, J (NW Natural)	R10: Humphrey, Chip (EPA), R10: Mckenna, James (Verdant Solutions, LLC)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100012290	3/29/2011	Email regarding Stormwater Model Runs. REDACTED Email regarding Response to EPA March 16, 2011 Letter Regarding Use of Chemical Versus Contaminant.	74	1 EML / Email	R10: Mckenna, James (Verdant Solutions, LLC)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100016473	3/30/2011	REDACTED 03_30_11 email; Alternatives Screening Presentation.	21	2 EML / Email	R10: Wyatt, Robert, J (NW Natural)	R10: Humphrey, Chip (EPA), R10: Mckenna, James (Verdant Solutions, LLC)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100016839	3/30/2011	Email regarding Portland Harbor In-Water RI/FS Meeting Agenda.	82	1 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100011669	3/31/2011	Email regarding Congressman Blumenauer Mtg April 22nd.	71	1 EML / Email	R10: Mckenna, James (Verdant Solutions, LLC)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100014032	3/31/2011	Draft Agenda for April 22, 2011 Blumenauer Meeting: RI/FS Update.	20	2 EML / Email	R10: Mckenna, James (Verdant Solutions, LLC)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100014041	3/31/2011	Email regarding Congressman Blumenauer Meeting April 22nd.	72	1 MTG / Meeting Document	R10: Unknown, Unknown (Unknown)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100011722	4/1/2011	Powerpoint presentation: Portland Harbor Superfund Site: How Contaminant Cleanup Levels Are Established.	24	2 EML / Email	R10: Mckenna, James (Verdant Solutions, LLC)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100014055	4/1/2011	REDACTED 04_01_11 email; Conference call to discuss April 12th Alternatives Screening Presentation.	552	2 MTG / Meeting Document	R10: Unknown, Unknown (Lower Willamette Group)	R10: Unknown, Unknown (Unknown) R10: Wyatt, Bob (Lower Willamette Group), R10: Mckenna, Jim (Lower Willamette Group), R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA), R10: Stivers, Carl (Anchor QEA, LLC)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100016919	4/1/2011	Email regarding Blumenauer Meetings.	81	1 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Humphrey, Chip (EPA), R10: Mckenna, James (Verdant Solutions, LLC)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100011716	4/6/2011	REDACTED 04_06_11 email; LWG Responses to EPA Comments on the MNR Presentation.	22	1 EML / Email	R10: Wyatt, Robert, J (NW Natural)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100015748	4/6/2011	Email regarding Portland Harbor HHRA tables. REDACTED 04_06_11 email; Alternatives Screening Presentation Deliverable.	136	2 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100016101	4/6/2011	Email regarding EPA Comments on BHHRA Risk Tables & Calculations.	37	2 EML / Email	R10: Allen, Elizabeth (EPA)	R10: Lavelle, James, M (CDM) R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100016922	4/6/2011	REDACTED 04_06_11 email; Alternatives Screening Presentation.	76	1 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Humphrey, Chip (EPA), R10: Wyatt, Robert, J (NW Natural)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100011795	4/11/2011	REDACTED 04_11_11 email; Alternatives Screening Presentation.	23	1 EML / Email	R10: Mckenna, James (Verdant Solutions, LLC)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100015758	4/11/2011	REDACTED 04_14_11 email; March 2011 Portland Harbor Monthly Progress Report.	86	2 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100016928	4/14/2011	Email regarding Request for Extension on EPA Comments on Draft BHHRA Tables.	85	1 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA), R10: Mckenna, James (Verdant Solutions, LLC)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100012228	4/15/2011	Email regarding Request for Extension on EPA Comments on Draft BHHRA Tables.	48	1 EML / Email	R10: Mckenna, James (Verdant Solutions, LLC)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100012230	4/15/2011	Email regarding Request for Extension on EPA Comments on Draft BHHRA Tables.	23	1 EML / Email	R10: Mckenna, James (Verdant Solutions, LLC)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100012287	4/15/2011	REDACTED 04_15_11 email; Final Stormwater Loading Methods Report.	47	1 EML / Email	R10: Mckenna, James (Verdant Solutions, LLC)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100016909	4/15/2011	Email regarding For Bob and Jim - final Exec approved talking points for April 22nd	206	2 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100014063	4/21/2011	Blumenauer Meeting and financial slide.	36	1 EML / Email	R10: Mckenna, James (Verdant Solutions, LLC) R10: Unknown, Unknown (Lower Willamette Group)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100014064	4/21/2011	LWG Talking Points for April 22 Meeting. Email regarding For Bob and Jim - final Exec approved talking points for April 22nd	266	1 MTG / Meeting Document	R10: Unknown, Unknown (Lower Willamette Group)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100014065	4/21/2011	Blumenauer Meeting and financial slide.	38	1 EML / Email	R10: Mckenna, James (Verdant Solutions, LLC)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100011654	4/22/2011	Email regarding Inclusion of Early Action Areas in Draft FS.	58	3 EML / Email	R10: Mckenna, James (Verdant Solutions, LLC)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100012298	4/25/2011	Email regarding Schedule a Meeting to Discuss Definitions.	21	1 EML / Email	R10: Mckenna, James (Verdant Solutions, LLC)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100011785	4/27/2011	Email regarding EPA Comments on FS Tools Memoranda.	22	1 EML / Email	R10: Mckenna, James (Verdant Solutions, LLC)	R10: Humphrey, Chip (EPA), R10: Wyatt, Robert, J (NW Natural)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100011809	4/27/2011	Email regarding EPA Comments re: PBDE Risk Calculations.	22	1 EML / Email	R10: Mckenna, James (Verdant Solutions, LLC)	R10: Humphrey, Chip (EPA), R10: Wyatt, Robert, J (NW Natural)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100011786	4/28/2011	Email regarding EPA Comments on FS Tools Memoranda.	24	2 EML / Email	R10: Mckenna, James (Verdant Solutions, LLC)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100011717	5/4/2011	Email regarding Clarification on Dispute Deadline for EPA Comments on FS Tools Memos.	23	1 EML / Email	R10: Mckenna, James (Verdant Solutions, LLC)	R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100013392	5/4/2011	Email regarding Clarification on Dispute Deadline for EPA Comments on FS Tools Memos.	63	1 EML / Email	R10: Mckenna, James (Verdant Solutions, LLC)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100015779	5/6/2011	REDACTED 05_06_11 email; Response to EPA April 11, 2011 Comments on BHHRA Risk Tables and Calculations.	85	2 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100011588	5/10/2011	Email regarding Draft Comments re Key FS Elements Check-in.	48	1 EML / Email	R10: Mckenna, James (Verdant Solutions, LLC)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100012097	5/10/2011	Email regarding LWG Response to EPA Comments on MNR Modeling Presentation.	22	1 EML / Email	R10: Mckenna, James (Verdant Solutions, LLC)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100016933	5/12/2011	REDACTED 05_12_11 email; April 2011 Portland Harbor Monthly Progress Report. REDACTED Email regarding Requested LWG Documents - Memo from City of Portland.	85	1 EML / Email	R10: Woronets, Jennifer (Lower Willamette Group)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100017461	5/27/2011	REDACTED Email regarding June 21st and 22nd FS Key Elements Check In - Meeting Location, Conference Call and Web Meeting.	24	2 EML / Email	R10: Mckenna, James (Verdant Solutions, LLC)	R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100017569	6/1/2011	Email regarding FS Check-In Meeting Prep - Bibliography.	23	2 EML / Email	R10: Mckenna, James (Verdant Solutions, LLC)	R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100011927	6/2/2011	Email regarding Updated RI & RA Databases. Email regarding Alternatives Screening Stipulated Penalties.	22	1 EML / Email	R10: Mckenna, James (Verdant Solutions, LLC)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100012280	6/2/2011	Email regarding FS and Early Action Areas.	23	1 EML / Email	R10: Mckenna, James (Verdant Solutions, LLC)	R10: Humphrey, Chip (EPA), R10: Wyatt, Robert, J (NW Natural)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100011681	6/6/2011	Email regarding FS and Early Action Areas.	22	1 EML / Email	R10: Mckenna, James (Verdant Solutions, LLC)	R10: Humphrey, Chip (EPA), R10: Mckenna, James (Verdant Solutions, LLC)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100011917	6/6/2011	Email regarding Agency Attendee List for June 21/22 Check-in.	22	1 EML / Email	R10: Mckenna, James (Verdant Solutions, LLC)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100011924	6/6/2011	Email regarding Agency Attendee List for June 21/22 Check-in.	21	1 EML / Email	R10: Mckenna, James (Verdant Solutions, LLC)	R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100013377	6/6/2011	Email regarding Agency Attendee List for June 21/22 Check-in.	45	1 EML / Email	R10: Mckenna, James (Verdant Solutions, LLC)	R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100011692	6/7/2011	REDACTED 06_07_11 email; Portland Harbor Managers Meeting Agenda.	22	1 EML / Email	R10: Mckenna, James (Verdant Solutions, LLC)	R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100015823	6/7/2011	REDACTED 06_07_11 email; Portland Harbor Managers Meeting Agenda.	87	2 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Ebbets, Allison (Stratus Consulting, Inc.), R10: Humphreys, Brandy (Grand Ronde Tribe)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization



100011699	Email regarding Alternatives Screening Stipulated Penalties.	24	1 EML / Email	R10: Mckenna, James (Verdant Solutions, LLC)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA), R10: Wyatt, Robert, J (NW Natural)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100013386	Email regarding Call to discuss agenda for tomorrow's Early Action call.	46	1 EML / Email	R10: Mckenna, James (Verdant Solutions, LLC)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100017462	REDACTED Email regarding Requested LWG Documents - Memo from City of Portland.	23	3 EML / Email	R10: Mckenna, James (Verdant Solutions, LLC)	R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100017457	REDACTED Email regarding FS Check-In Meeting - NMFS Participation.	18	1 EML / Email	R10: Mckenna, James (Verdant Solutions, LLC)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100012086	6/17/2011 Email regarding July 5.	22	1 EML / Email	R10: Wyatt, Robert, J (NW Natural)	R10: Koch, Kristine, M (EPA), R10: Mckenna, James (Verdant Solutions, LLC)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100012177	Email regarding Proposed resolutions - LWG Responses to EPA Comments on FS Tools.	24	2 EML / Email	R10: Wyatt, Robert, J (NW Natural)	R10: Humphrey, Chip (EPA), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality), R10: Applegate, Rick (City of Portland), R10: Duncan, Holly (Environmental Law Education Center)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100012281	6/23/2011 Email regarding Workshop on Monday.	62	2 EML / Email	R10: Wyatt, Robert, J (NW Natural)	R10: Stivers, Carl (Anchor Environmental, LLC), R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100011718	Email regarding Clarification on Proposed Resolutions to EPA Comments on the FS Tools.	27	2 EML / Email	R10: Mckenna, James (Verdant Solutions, LLC)	R10: Poulsen, Michael (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100016197	6/30/2011 Email Regarding PDBEs Portland Harbor.	27	1 EML / Email	R10: Allen, Elizabeth (EPA)	R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100017452	REDACTED Email regarding Requested LWG Documents - Memo from City of Portland.	26	2 EML / Email	R10: Mckenna, James (Verdant Solutions, LLC)	R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100013375	Email regarding a few management-related questions.	46	1 EML / Email	R10: Mckenna, James (Verdant Solutions, LLC)	R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100011678	Email regarding A Few Management-Related Questions.	22	1 EML / Email	R10: Mckenna, James (Verdant Solutions, LLC)	R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100016935	REDACTED 07_07_11 email; Portland Harbor Managers Meeting Agenda.	82	1 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Ebbets, Allison (Stratus Consulting, Inc.), R10: Humphreys, Brandy (Grand Ronde Tribe)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100016944	REDACTED 07_07_11 email; Portland Harbor Managers Meeting Agenda.	82	1 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Ebbets, Allison (Stratus Consulting, Inc.), R10: Humphreys, Brandy (Grand Ronde Tribe)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100012175	7/11/2011 Email regarding Portland Harbor ERA.	54	2 EML / Email	R10: Mckenna, James (Verdant Solutions, LLC)	R10: Mcclincy, Matt (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100011591	Email regarding EPA Comments on FS Key Elements Check-in.	21	1 EML / Email	R10: Wyatt, Robert, J (NW Natural)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100012114	7/20/2011 Email regarding MNR Discussion.	21	1 EML / Email	R10: Mckenna, James (Verdant Solutions, LLC)	R10: Humphrey, Chip (EPA), R10: Woronets, Jennifer (Anchor QEA, LLC)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100012184	7/21/2011 Email regarding Portland Harbor BHHRA.	22	1 EML / Email	R10: Mckenna, James (Verdant Solutions, LLC)	R10: Koch, Kristine, M (EPA), R10: Wyatt, Robert, J (NW Natural)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100015871	REDACTED 07_21_11 email; Editorial revision to Table 7-46 of Portland Harbor BERA.	157	2 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100015886	REDACTED 07_21_11 email; Editorial revision to Table 7-46 of Portland Harbor BERA.	157	2 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100011584	Email regarding Conference Call to Discuss RALS and Alternatives.	47	1 EML / Email	R10: Mckenna, Jim (Port of Portland)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100011828	7/22/2011 Email regarding EPA Request for Human.	23	1 EML / Email	R10: Mckenna, James (Verdant Solutions, LLC)	R10: Humphrey, Chip (EPA), R10: Wyatt, Robert, J (NW Natural)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100011836	Email regarding EPA Request for Human.	23	1 EML / Email	R10: Wyatt, Robert, J (NW Natural)	R10: Humphrey, Chip (EPA), R10: Mckenna, James (Verdant Solutions, LLC)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100011835	Email regarding EPA Proposed Revised Comments Regarding FS Alternatives and RALS.	22	1 EML / Email	R10: Mckenna, James (Verdant Solutions, LLC)	R10: Koch, Kristine, M (EPA), R10: Wyatt, Robert, J (NW Natural)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100012241	Email regarding REVISED Table 1 for This Afternoon's Call.	22	1 EML / Email	R10: Mckenna, James (Verdant Solutions, LLC)	R10: Mcclincy, Matt (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100016451	REDACTED Email regarding Proposed Path Forward to EPA July 15th FS Key Elements Comments With a July 29th Dispute Deadline.	95	2 EML / Email	R10: Mckenna, James (Verdant Solutions, LLC)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100017486	REDACTED Email regarding Dispute Deadline for Comment #16 FS Key Elements.	22	2 EML / Email	R10: Mckenna, James (Verdant Solutions, LLC)	R10: Humphrey, Chip (EPA), R10: Woronets, Jennifer (Anchor QEA, LLC), R10: Wyatt, Robert, J (NW Natural), R10: Applegate, Rick (City of Portland)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100007974	Terminal 4 Confined Disposal Facility (CDF) Design Analysis Report (Prelinal 60 Percent Design Deliverable); Port of Portland, Portland, Oregon.	41,080	737 ADD / Analytical Data Document	R10: Dickenson, Stephen (Dr. Stephen Dickenson), R10: (Berger/ABAM Engineers, Inc.), R10: (Newfields, Inc.), R10: (Ash Creek Associates, Inc.), R10: (Anchor QEA, LLC)	R10: (Port of Portland)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100012242	Email regarding RI Groundwater Plume Figures.	44	1 EML / Email	R10: Mckenna, James (Verdant Solutions, LLC)	R10: Mcclincy, Matt (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100017466	REDACTED Email regarding Initial Working Responses to EPA FS Key Elements Comments.	90	2 EML / Email	R10: Wyatt, Robert, J (NW Natural)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100011735	8/10/2011 Email regarding DRAFT - EPA Alternatives.	41	1 EML / Email	R10: Mckenna, James (Verdant Solutions, LLC)	R10: Koch, Kristine, M (EPA), R10: Wyatt, Robert, J (NW Natural)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100011679	Email regarding Alternatives for FS development - Directed Comments.	22	1 EML / Email	R10: Mckenna, James (Verdant Solutions, LLC)	R10: Koch, Kristine, M (EPA), R10: Wyatt, Robert, J (NW Natural)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100011680	Email regarding Alternatives for FS development - Directed Comments.	24	2 EML / Email	R10: Wyatt, Robert, J (NW Natural)	R10: Koch, Kristine, M (EPA), R10: Mckenna, James (Verdant Solutions, LLC)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100011695	Email regarding Alternatives for FS development - Directed Comments.	24	2 EML / Email	R10: Mckenna, James (Verdant Solutions, LLC)	R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100016202	Email Regarding Alternatives for FS Development - Directed Comments.	29	1 EML / Email	R10: Allen, Elizabeth (EPA)	R10: Poulsen, Michael (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100011643	8/16/2011 Email regarding Check in for Wednesday.	62	2 EML / Email	R10: Wyatt, Robert, J (NW Natural)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100011548	Email regarding Conference Call re Fish Sampling Effort.	47	1 EML / Email	R10: Mckenna, Jim (Port of Portland)	R10: Madalinski, Kelly (Port of Portland), R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA), R10: Gustavson, Karl (EPA), R10: Applegate, Rick (City of Portland)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100012293	Email regarding Fish Tissue Collection, Electronic Versions of Round 3B Fish and Collocated Surface Sediments Field Sampling Plan, & Round 2 QAPP Addendum 9.	22	1 EML / Email	R10: Mckenna, James (Verdant Solutions, LLC)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100012297	Email regarding Resolution of RALS and Alternatives.	46	1 EML / Email	R10: Mckenna, James (Verdant Solutions, LLC)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100017447	REDACTED Email regarding Follow Up Conference Call re Fish Sampling Effort - This Friday 10:00 PDT (1:00 EDT).	28	4 EML / Email	R10: Mckenna, James (Verdant Solutions, LLC)	R10: Madalinski, Kelly (Port of Portland), R10: Younus, Burhan (Tetra Tech, Inc.), R10: Ellis, Stephen, J (EPA), R10: Humphrey, Chip (EPA), R10: Lambert, Matthew (EPA), R10: Parrett, Kevin (GSI Groundwater Solutions, Inc.), R10: Gustavson, Karl (EPA), R10: Woronets, Jennifer (Anchor Environmental, LLC), R10: Applegate, Rick (City of Portland)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100011903	8/25/2011 Email regarding Fish Sampling Design.	22	1 EML / Email	R10: Mckenna, James (Verdant Solutions, LLC)	R10: Humphrey, Chip (EPA), R10: Gustavson, Karl (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100012239	Email regarding Response to LWG August 23 Letter.	22	1 EML / Email	R10: Wyatt, Robert, J (NW Natural)	R10: Humphrey, Chip (EPA), R10: Woronets, Jennifer (Anchor QEA, LLC), R10: Mckenna, James (Verdant Solutions, LLC)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100012240	Email regarding Response to LWG August 23 Letter.	22	1 EML / Email	R10: Mckenna, James (Verdant Solutions, LLC)	R10: Humphrey, Chip (EPA), R10: Woronets, Jennifer (Anchor QEA, LLC), R10: Wyatt, Robert, J (NW Natural)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100012244	Email regarding Response to LWG August 23 Letter.	22	1 EML / Email	R10: Wyatt, Robert, J (NW Natural)	R10: Humphrey, Chip (EPA), R10: Woronets, Jennifer (Anchor QEA, LLC), R10: Mckenna, James (Verdant Solutions, LLC)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization

100017446	8/25/2011	REDACTED Email regarding Follow Up Conference Call re Fish Sampling Effort - This Friday 10:00 PDT (1:00 EDT).	28	4 EML / Email	R10: Mckenna, James (Verdant Solutions, LLC)	R10: Madalinski, Kelly (Port of Portland), R10: Younus, Burhan (Tetra Tech, Inc.), R10: Ellis, Stephen, J (EPA), R10: Humphrey, Chip (EPA), R10: Lambert, Matthew (EPA), R10: Parrett, Kevin (GSI Groundwater Solutions, Inc.), R10: Gustavson, Karl (EPA), R10: Woronets, Jennifer (Anchor Environmental, LLC), R10: Applegate, Rick (City of Portland)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100017453	8/25/2011	REDACTED Email regarding Follow Up Conference Call re Fish Sampling Effort - This Friday 10:00 PDT (1:00 EDT).	31	5 EML / Email	R10: Mckenna, James (Verdant Solutions, LLC)	R10: Lambert, Matthew (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100016034	9/2/2011	Email regarding Portland Harbor BSAF. REDACTED 09_15_11 email; August 2011	84	2 EML / Email	R10: Allen, Elizabeth (EPA)	R10: Lavelle, James, M (CDM)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100015933	9/15/2011	Portland Harbor Monthly Progress Report.	77	2 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100012164	9/22/2011	Email regarding NW Natural, DEQ Comments on the Draft Groundwater SCMs Design.	64	2 EML / Email	R10: Wyatt, Robert, J (NW Natural)	R10: Bayuk, Dana (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100011687	10/6/2011	Email regarding Monthly Portland Harbor Managers Meeting.	22	1 EML / Email	R10: Mckenna, James (Verdant Solutions, LLC)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100011817	10/7/2011	Email regarding EPA Letter. REDACTED 10_13_11 email; LWG Response to	22	1 EML / Email	R10: Mckenna, James (Verdant Solutions, LLC)	R10: Humphrey, Chip (EPA), R10: Wyatt, Robert, J (NW Natural), R10: Woronets, Jennifer (Anchor Environmental, LLC)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100015927	10/13/2011	EPA Letter.	76	2 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100015936	10/13/2011	REDACTED 10_13_11 email; September 2011 Portland Harbor Monthly Progress Report.	77	2 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100007899	10/14/2011	Final Removal Action Area Characterization Report: Arkema Early Action. REDACTED 10_26_11 email; LWG Response to EPA September 08, 2011 Smallmouth Bass	70,227	932 RPT / Report	R10: Livermore, David, G (Integral Consulting, Inc.), R10: (ARCADIS)	R10: (Legacy Site Services, LLC)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100015966	10/26/2011	Sampling Letter. Email regarding November Monthly Portland Harbor Managers Meeting.	77	2 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100012160	11/4/2011	REDACTED 11_09_11 email; October 2011	49	2 EML / Email	R10: Mckenna, James (Verdant Solutions, LLC)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100015932	11/9/2011	Portland Harbor Monthly Progress Report.	77	2 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100017503	11/28/2011	REDACTED Email regarding Gasco EE/CA Briefing Comments.	29	2 EML / Email	R10: Wyatt, Robert, J (NW Natural)	R10: Stivers, Carl (Anchor Environmental, LLC), R10: Barth, Ryan (Anchor Environmental, LLC), R10: Peale, James, G (Maul Foster & Alongi, Inc.), R10: Sheldrake, Sean, A (EPA), R10: Mccue, Tom (Siltronic Corporation), R10: Edwards, John (Anchor QEA, LLC), R10: Gladstone, Alan (Davis Rothwell Earle & Xochihua), R10: Eastwood, Hanne (Davis Rothwell Earle & Xochihua), R10: Wyatt, Robert, J (NW Natural), R10: Dost, Patty (Pearl Legal Group PC)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100012130	12/9/2011	Email regarding Monthly Managers Meeting.	21	1 EML / Email	R10: Mckenna, James (Verdant Solutions, LLC)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100015972	12/15/2011	REDACTED 12_15_11 email; November 2011 Portland Harbor Monthly Progress Report.	84	3 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100017601	12/21/2011	REDACTED Email regarding NW Natural and Siltronic, Responses to DEQ's September 22nd Comments and November 2011 Meetings.	26	2 EML / Email	R10: Wyatt, Robert, J (NW Natural)	R10: Edwards, John (Anchor QEA, LLC)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100012167	1/9/2012	Email regarding PH Managers Mts.	22	1 EML / Email	R10: Mckenna, James (Verdant Solutions, LLC)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100015686	1/13/2012	REDACTED 01_13_12 email; December 2011 Portland Harbor Monthly Progress Report.	138	3 EML / Email	R10: Woronets, Jennifer (Lower Willamette Group)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100015693	1/17/2012	REDACTED 01_17_12 email; Draft FS Appendix R Description of Draft FS Database.	140	3 EML / Email	R10: Woronets, Jennifer (Lower Willamette Group)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100015701	2/7/2012	REDACTED 02_07_12 email; Portland Harbor Managers Meeting.	89	3 EML / Email	R10: Woronets, Jennifer (Lower Willamette Group)	R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Ebbets, Allison (Stratus Consulting, Inc.), R10: Wyatt, Bob (Lower Willamette Group), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality), R10: Humphreys, Brandy (Grand Ronde Tribe)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100015703	2/8/2012	REDACTED 02_08_12 email; January 2012 Portland Harbor Monthly Progress Report	83	3 EML / Email	R10: Woronets, Jennifer (Lower Willamette Group)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100016183	2/21/2012	Email Regarding Noncancer Dioxin/Furan Assessment for Portland Harbor.	27	1 EML / Email	R10: Allen, Elizabeth (EPA)	R10: Poulsen, Michael (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100016188	2/22/2012	Email Regarding PH Fish Consumption.	28	1 EML / Email	R10: Allen, Elizabeth (EPA)	R10: Poulsen, Michael (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100016206	2/22/2012	Email Regarding Noncancer Dioxin. REDACTED 02_29_12 email; Portland Harbor Ecorisk call Thursday, March 1st, 10 - 11am	35	3 EML / Email	R10: Allen, Elizabeth (EPA)	R10: Poulsen, Michael (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100016025	2/29/2012	PST. Email Regarding Back Into the Fish Consumption Pool.	35	1 CORR / Correspondence	R10: Shephard, Burt (EPA)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100016144	3/1/2012	REDACTED 03_07_12 email; Portland Harbor Ecorisk call Thursday, March 1st, 10 - 11am	32	1 EML / Email	R10: Allen, Elizabeth (EPA)	R10: Poulsen, Michael (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100016012	3/7/2012	PST.	35	1 CORR / Correspondence	R10: Shephard, Burt (EPA)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100015706	3/12/2012	REDACTED 03_12_12 email; Portland Harbor Managers Meeting Agenda.	92	3 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Ebbets, Allison (Stratus Consulting, Inc.), R10: Wyatt, Bob (Lower Willamette Group), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality), R10: Humphreys, Brandy (Grand Ronde Tribe)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100015711	3/15/2012	REDACTED 03_15_12 email; February 2012 Portland Harbor Monthly Progress Report.	84	3 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100015929	3/15/2012	Email regarding NDs Portland Harbor. Email Regarding Definitions of CT and RME	35	1 EML / Email	R10: Allen, Elizabeth (EPA)	R10: Kennedy, Laura (Kennedy/Jenks Consultants)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100016203	3/15/2012	Consumption Rates. Email Regarding Portland Harbor Fish	60	3 EML / Email	R10: Allen, Elizabeth (EPA)	R10: Poulsen, Michael (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100016208	3/30/2012	Consumption.	34	2 EML / Email	R10: Allen, Elizabeth (EPA)	R10: Poulsen, Michael (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100015756	4/10/2012	REDACTED 04_10_12 email; Portland Harbor Managers Meeting.	91	3 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Ebbets, Allison (Stratus Consulting, Inc.), R10: Wyatt, Bob (Lower Willamette Group), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality), R10: Humphreys, Brandy (Grand Ronde Tribe)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100015759	4/11/2012	REDACTED 04_11_12 email; Portland Harbor Managers Meeting.	97	4 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Ebbets, Allison (Stratus Consulting, Inc.), R10: Wyatt, Bob (Lower Willamette Group), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality), R10: Humphreys, Brandy (Grand Ronde Tribe)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100015731	4/12/2012	REDACTED 04_12_12 email; March 2012 Portland Harbor Monthly Progress Report.	84	3 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100016048	5/2/2012	REDACTED 05_02_12 email; Portland Harbor Ecorisk Team Call Tomorrow, May 3rd, 10 am PD.	37	1 CORR / Correspondence	R10: Shephard, Burt (EPA)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100015810	5/11/2012	REDACTED 05_11_12 email; April 2012 Portland Harbor Monthly Progress Report.	76	2 EML / Email	R10: Woronets, Jennifer (Lower Willamette Group)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization

100015812	5/30/2012	REDACTED 05_30_12 email; Estimated Alternative Sequencing.	84	3 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100013216	6/7/2012	REDACTED 06_07_12 email; LWG Draft FS Errata.	252	3 CORR / Correspondence	R10: Woronets, Jennifer (Lower Willamette Group)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100015695	6/7/2012	REDACTED 06_07_12 email; LWG Response to DEQ May 21 2012 Email Regarding May 10 2012 Hot Spots Meeting.	130	2 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100015815	6/7/2012	REDACTED 06_07_12 email; LWG Response to DEQ May 21 2012 Email Regarding May 10 2012 Hot Spots Meeting.	82	2 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100015698	6/8/2012	REDACTED 06_08_12 email; Protectiveness Memorandum.	133	3 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100015828	6/8/2012	REDACTED 06_08_12 email; Protectiveness Memorandum.	83	3 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100015717	6/11/2012	REDACTED 06_11_12 email; Portland Harbor Managers Meeting Agenda.	82	3 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Ebbets, Allison (Stratus Consulting, Inc.), R10: Wyatt, Bob (Lower Willamette Group), R10: Humphrey, Chip (EPA), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality), R10: Humphreys, Brandy (Grand Ronde Tribe)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100015819	6/11/2012	REDACTED 06_11_12 email; Portland Harbor Managers Meeting Agenda.	82	3 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Ebbets, Allison (Stratus Consulting, Inc.), R10: Wyatt, Bob (Lower Willamette Group), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality), R10: Humphreys, Brandy (Grand Ronde Tribe)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100015743	6/13/2012	REDACTED 06_13_12 email; Portland Harbor Managers Meeting Agenda.	95	4 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Ebbets, Allison (Stratus Consulting, Inc.), R10: Wyatt, Bob (Northwest Natural Gas Company), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality), R10: Wagoner, Colin, H (Ridolfi, Inc.), R10: Humphreys, Brandy (Grand Ronde Tribe)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100015820	6/13/2012	REDACTED 06_13_12 email; Portland Harbor Managers Meeting Agenda.	94	4 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Ebbets, Allison (Stratus Consulting, Inc.), R10: Wyatt, Bob (Lower Willamette Group), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality), R10: Humphreys, Brandy (Grand Ronde Tribe)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100015750	6/14/2012	REDACTED 06_14_12 email; May 2012 Portland Harbor Monthly Progress Report.	76	2 EML / Email	R10: Woronets, Jennifer (Lower Willamette Group)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100015835	6/14/2012	REDACTED 06_14_12 email; May 2012 Portland Harbor Monthly Progress Report.	76	2 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100015839	6/29/2012	REDACTED 06_29_12 email; Response to EPA June 22, 2012 Comments on May 2, 2011 Draft BHHRA.	76	3 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100015875	7/13/2012	REDACTED 07_13_12 email; June 2012 Portland Harbor Monthly Progress Report.	77	3 EML / Email	R10: Woronets, Jennifer (Lower Willamette Group)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100016179	7/17/2012	Email Regarding DEQ Review of EHAP Willamette Cove Health Consultation.	144	3 EML / Email	R10: Allen, Elizabeth (EPA)	R10: Poulsen, Michael (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100015868	7/18/2012	REDACTED 07_18_12 email; LWG Letter to EPA regarding June 22, 2012 Comments on BHHRA.	76	2 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Cora, Lori, H (EPA), R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100015884	7/18/2012	REDACTED 07_18_12 email; LWG Letter to EPA regarding June 22, 2012 Comments on BHHRA.	76	2 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Cora, Lori, H (EPA), R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100013324	8/15/2012	REDACTED 08_15_12 email; Modifications to 2012 Field Sampling Plan for Bass Tissue.	126	2 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100016013	8/15/2012	REDACTED email; LWG List of Key Issues on Draft Final BHHRA.	75	2 CORR / Correspondence	R10: Woronets, Jennifer (Lower Willamette Group)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100017194	8/15/2012	REDACTED 08_15_12 email; Modifications to 2012 Field Sampling Plan for Bass Tissue	127	2 CORR / Correspondence	R10: Woronets, Jennifer (Lower Willamette Group)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100013326	8/16/2012	REDACTED 08_16_12 email; July 2012 Portland Harbor Monthly Progress Report.	130	2 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100016209	8/30/2012	Email Regarding Reasonable Maximum Exposure (RME) Proposal for the Baseline Human Health Risk Assessment.	30	1 EML / Email	R10: Allen, Elizabeth (EPA)	R10: Poulsen, Michael (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100016186	8/31/2012	Email Regarding My Crazy Idea.	29	1 EML / Email	R10: Allen, Elizabeth (EPA)	R10: Poulsen, Michael (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100016004	9/5/2012	REDACTED email; LWG Comments on EPA's Redline BHHRA.	103	2 CORR / Correspondence	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100016005	9/7/2012	REDACTED email; LWG Proposal to Address Key Context Information and Uncertainties in the Final BHHRA.	107	2 CORR / Correspondence	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100016021	9/7/2012	REDACTED email; LWG Proposal to Address Primary Contributors in the Final BHHRA.	153	2 CORR / Correspondence	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100013327	9/12/2012	REDACTED 09_12_12 email; August 2012 Portland Harbor Monthly Progress Report.	132	3 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100013328	9/12/2012	REDACTED 09_12_12 email; Portland Harbor BERA team call Thursday, September 13, 10 am PD.	36	2 EML / Email	R10: Shephard, Burt (EPA)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100013344	9/12/2012	REDACTED 09_12_12 email; August 2012 Portland Harbor Monthly Progress Report.	107	3 EML / Email	R10: Woronets, Jennifer (Lower Willamette Group)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (Department of Environmental Quality)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100013348	9/18/2012	REDACTED 09_18_12 email; LWG Response to EPA comments on Draft Final BERA.	130	2 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100013351	9/18/2012	REDACTED 09_18_12 email; LWG Response to EPA July 10 2012 Comments on the 2011 Draft Final BERA.	134	2 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100013355	9/18/2012	REDACTED 09_18_12 email; LWG Response to EPA comments on Draft Final BERA.	130	2	R10: Woronets, Jennifer (Lower Willamette Group)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100017054	9/21/2012	REDACTED 2012-09-21 - SUPPORTING DOCUMENTATION.	88,971	6221 RPT / Report	R10: Koch, Kristine, M (EPA)	R10: Unknown, Unknown (Lower Willamette Group)	OPTICAL STORAGE	053-REMEDIAL/0531-Remedy Characterization
100013363	10/3/2012	REDACTED 10_03_12 email; Portland Harbor BERA team call Thursday, October 4.	42	2 EML / Email	R10: Shephard, Burt (EPA)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100016173	10/10/2012	REDACTED 10_10_12 email; Portland Harbor BERA team call Thursday, October 11.	34	1 EML / Email	R10: Shephard, Burt (EPA)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100013350	10/11/2012	REDACTED 10_11_12 email; September 2012 Portland Harbor Monthly Progress Report.	130	2 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100013364	10/15/2012	REDACTED 10_15_12 email; Portland Harbor BERA team meetings October 15 & 16.	76	2 EML / Email	R10: Shephard, Burt (EPA)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100016008	10/20/2012	Email regarding clarification on Portland Harbor BHHRA revisions.	78	1 EML / Email	R10: Allen, Elizabeth (EPA)	R10: Kennedy, Laura (Kennedy/Jenks Consultants)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100016224	10/24/2012	REDACTED email; LWG Reply to EPA Submission.	88	2 CORR / Correspondence	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100013359	10/25/2012	REDACTED 10_25_12 email; Smallmouth Bass Field Memo.	162	3 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100013342	12/17/2012	REDACTED 12_17_12 email; November 2012 Portland Harbor Monthly Progress Report.	134	2 CORR / Correspondence	R10: Woronets, Jennifer (Lower Willamette Group)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100016098	12/17/2012	Email regarding Portland Harbor dispute resolution question.	74	2 EML / Email	R10: Allen, Elizabeth (EPA)	R10: Kennedy, Laura (Kennedy/Jenks Consultants)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100016083	1/3/2013	Email regarding Portland Harbor BHHRA - revised fish consumption risk tables, river mile basis.	32	1 EML / Email	R10: Allen, Elizabeth (EPA)	R10: Kennedy, Laura (Kennedy/Jenks Consultants)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100015951	1/7/2013	Email regarding need for clarification/confirmation on Portland Harbor BHHRA.	123	3 EML / Email	R10: Allen, Elizabeth (EPA)	R10: Kennedy, Laura (Kennedy/Jenks Consultants)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100015949	1/10/2013	Email regarding need for clarification/confirmation on Portland Harbor BHHRA.	85	3 EML / Email	R10: Allen, Elizabeth (EPA)	R10: Kennedy, Laura (Kennedy/Jenks Consultants)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization



100015994	1/11/2013	Email regarding Portland Harbor BHHRA cumulative risk tables.	35	1 EML / Email	R10: Allen, Elizabeth (EPA)	R10: Kennedy, Laura (Kennedy/Jenks Consultants)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization
100017189	1/11/2013	REDACTED 01_11_13 email; December 2012 Portland Harbor Monthly Progress Report.	134	2 CORR / Correspondence	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization
100018050	1/11/2013	REDACTED Email transmitting Portland Harbor BHHRA draft modifications to September 17 final version.	33	1 EML / Email	R10: Allen, Elizabeth (EPA)	R10: Kennedy, Laura (Kennedy/Jenks Consultants)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization
100016093	1/14/2013	Email regarding Portland Harbor BHHRA list of tables.	71	1 EML / Email	R10: Allen, Elizabeth (EPA)	R10: Kennedy, Laura (Kennedy/Jenks Consultants)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization
100015953	1/15/2013	Email regarding Columbia Slough survey language.	33	1 EML / Email	R10: Allen, Elizabeth (EPA)	R10: Kennedy, Laura (Kennedy/Jenks Consultants)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization
100018160	1/15/2013	REDACTED Email regarding Portland Harbor BHHRA - draft modifications to Sept. 17 final version.	74	2 EML / Email	R10: Allen, Elizabeth (EPA)	R10: Kennedy, Laura (Kennedy/Jenks Consultants)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization
100015945	1/16/2013	Email regarding Section 5.2.6.2.	34	1 EML / Email	R10: Allen, Elizabeth (EPA)	R10: Kennedy, Laura (Kennedy/Jenks Consultants)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization
100015999	1/16/2013	Email regarding another figure issue.	75	1 EML / Email	R10: Allen, Elizabeth (EPA)	R10: Kennedy, Laura (Kennedy/Jenks Consultants)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization
100016000	1/17/2013	Email regarding Section 5.2.6.2.	73	2 EML / Email	R10: Allen, Elizabeth (EPA)	R10: Kennedy, Laura (Kennedy/Jenks Consultants)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization
100016107	1/22/2013	Email regarding roster changes.	33	1 EML / Email	R10: Allen, Elizabeth (EPA)	R10: Kennedy, Laura (Kennedy/Jenks Consultants)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization
100016045	1/29/2013	Email regarding Portland Harbor BHHRA - revised Attachment F 6.	75	1 EML / Email	R10: Allen, Elizabeth (EPA)	R10: Kennedy, Laura (Kennedy/Jenks Consultants), R10: Mckenna, Jim (Verdant Solutions, LLC)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization
100015996	1/30/2013	Email regarding revised attachment F 6.	71	2 EML / Email	R10: Allen, Elizabeth (EPA)	R10: Kennedy, Laura (Kennedy/Jenks Consultants)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization
100015934	1/31/2013	Email transmitting Revised Portland Harbor BHHRA text.	79	2 RPT / Report	R10: Allen, Elizabeth (EPA)	R10: Kennedy, Laura (Kennedy/Jenks Consultants)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization
100015937	1/31/2013	Appendix F: Baseline Human Health Risk Assessment (revised main text working draft).	1,081	140 RPT / Report	R10: Allen, Elizabeth (EPA)	R10: Kennedy, Laura (Kennedy/Jenks Consultants)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization
100016090	1/31/2013	Email regarding Portland Harbor BHHRA text. Final Remedial Investigation Report: Appendix F - Baseline Human Health Risk Assessment	79	3 EML / Email	R10: Allen, Elizabeth (EPA)	R10: Kennedy, Laura (Kennedy/Jenks Consultants)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization
100015921	2/1/2013	(main text working draft).	1,227	147 RPT / Report			ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization
100016030	2/1/2013	Email regarding PH BHHRA - revised attachment F 3.	75	1 EML / Email	R10: Allen, Elizabeth (EPA)	R10: Kennedy, Laura (Kennedy/Jenks Consultants)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization
100013347	2/11/2013	REDACTED 02_11_13 email; Final BHHRA Posted.	142	2 CORR / Correspondence	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization
100015964	2/11/2013	Email regarding PBDEs.	73	2 EML / Email	R10: Allen, Elizabeth (EPA)	R10: Kennedy, Laura (Kennedy/Jenks Consultants)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization
100013207	2/14/2013	REDACTED 02_14_13 email; January 2013 Portland Harbor Monthly Progress Report.	134	2 CORR / Correspondence	R10: Woronets, Jennifer (Lower Willamette Group)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization
100015947	2/14/2013	Email regarding BHHRA corrections.	32	1 EML / Email	R10: Allen, Elizabeth (EPA)	R10: Kennedy, Laura (Kennedy/Jenks Consultants)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization
100013209	3/1/2013	REDACTED 03_01_13 email; Smallmouth Bass FSR.	107	2 CORR / Correspondence	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization
100013210	3/6/2013	REDACTED 03_06_13 email; 2012 Smallmouth Bass Data Evaluation.	88	2 CORR / Correspondence	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization
100013357	3/14/2013	REDACTED 03_14_13 email; Portland Harbor Modeling Agenda.	78	2 CORR / Correspondence	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Shellenberger, Amanda (Anchor Environmental, LLC), R10: Wyatt, Bob (Lower Willamette Group), R10: Russell, Kevin, T (Quantitative Environmental Analysis, L.L.C.), R10: Glaser, David (Quantitative Environmental Analysis, L.L.C.), R10: Hayter, Earl, J (EPA), R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA), R10: Ziegler, C. Kirk (Anchor QEA, LLC), R10: Stivers, Carl (Anchor QEA, LLC), R10: King, Todd (CDM Smith)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization
100016036	3/14/2013	REDACTED 03_14_13 email; Portland Harbor Draft 2012 Smallmouth Bass Data Report.	66	1 CORR / Correspondence	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization
100016041	3/15/2013	REDACTED 03_15_13 email; February 2013 Portland Harbor Monthly Progress Report.	66	1 CORR / Correspondence	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization
100013213	3/20/2013	REDACTED 03_20_13 email; Estimated Alternative Sequencing.	72	2 FIG / Figure/Map/ Drawing	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA), R10: Allen, Elizabeth (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization
100013214	3/25/2013	REDACTED 03_25_13 email; Portland Harbor Final BHHRA Posted.	95	2 FIG / Figure/Map/ Drawing	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization
100013161	4/1/2013	REDACTED 04_01_13 email; Portland Harbor Final BERA Posted.	91	2 CORR / Correspondence	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization
100013353	4/4/2013	REDACTED April 4th Portland Harbor BERA call.	142	2 EML / Email	R10: Longoria, Rose (Yakama Nation)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization
100016046	4/12/2013	REDACTED 04_12_13 email; March 2013 Portland Harbor Monthly Progress Report.	66	1 CORR / Correspondence	R10: Woronets, Jennifer (Lower Willamette Group)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization
100016116	5/14/2013	REDACTED 05_14_13 email; April 2013 Portland Harbor Monthly Progress Report.	66	1 CORR / Correspondence	R10: Woronets, Jennifer (Lower Willamette Group)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization
100016117	6/14/2013	REDACTED 06_14_13 email; May 2013 Portland Harbor Monthly Progress Report.	66	1 CORR / Correspondence	R10: Woronets, Jennifer (Lower Willamette Group)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization
100016124	7/12/2013	REDACTED 07_12_13 email; June 2013 Portland Harbor Monthly Progress Report.	68	1 CORR / Correspondence	R10: Woronets, Jennifer (Lower Willamette Group)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization
100016137	8/15/2013	REDACTED 08_15_13 email; July 2013 Portland Harbor Monthly Progress Report.	73	1 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization
100016168	9/16/2013	REDACTED 09_16_13 email; August 2013 Portland Harbor Monthly Progress Report.	74	1 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization
100007933	10/3/2013	Final Work Plan for Supplemental Remedial Investigation/Feasibility Study (RI/FS) Work at the River Mile 11 East Project Area; Portland Harbor Superfund Site; CERCLA Docket No. 10-2013-0087 (Transmittal Letter Attached).	56,888	713 WP / Work Plan	R10: Wetzsteon, Jacqueline, T (PacifiCorp), R10: (Dalton, Olmstead & Fuglevand, Inc.), R10: (GSI Water Solutions, Inc.)	R10: Sheldrake, Sean, A (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization
100013349	10/10/2013	REDACTED 10_10_13 email; Request for backup cost information.	96	2 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization
100016132	10/11/2013	REDACTED 10_11_13 email; September 2013 Portland Harbor Monthly Progress Report.	66	1 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization
100016175	11/15/2013	REDACTED 11_15_13 email; October 2013 Portland Harbor Monthly Progress Report.	66	1 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization
100016180	12/12/2013	REDACTED 12_12_13 email; November 2013 Portland Harbor Monthly Progress Report.	67	1 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization
100013365	12/13/2013	REDACTED 12_13_13 email; Portland Harbor Final BERA Posted.	148	2 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization
100013081	1/15/2014	REDACTED 01_15_14 email; December 2013 Portland Harbor Monthly Progress Report.	66	1 CORR / Correspondence	R10: Woronets, Jennifer (Lower Willamette Group)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization
100013356	1/15/2014	REDACTED 01_15_14 email; December 2013 Portland Harbor Monthly Progress Report.	66	1 EML / Email	R10: Woronets, Jennifer (Lower Willamette Group)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization
100013157	2/13/2014	REDACTED 02_13_14 email; January 2014 Portland Harbor Monthly Progress Report.	66	1 CORR / Correspondence	R10: Woronets, Jennifer (Lower Willamette Group)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization
100013345	3/5/2014	REDACTED 03_05_14 email; Here were our recommendations on DDX in the ERA.	78	2 EML / Email	R10: Shephard, Burt (EPA)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization
100013211	3/14/2014	REDACTED 03_14_14 email; February 2014 Portland Harbor Monthly Progress Report.	66	1 CORR / Correspondence	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization
100007867	5/22/2014	Final Porewater Sampling and Analysis Plan (SAP) for the River Mile 11 East Project Area; Supplemental Remedial Investigation/Feasibility Study (RI/FS); Willamette River, Portland, Oregon.	16,064	237 RPT / Report	R10: Wetzsteon, Jacqueline, T (PacifiCorp), R10: (Dalton, Olmstead, & Fuglevand, Incorporated), R10: (SEE LLC)	R10: Sheldrake, Sean, A (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization

100007973	9/9/2014	Final Supplemental Remedial Investigation/Feasibility Study Field Sampling and Data Report for River Mile 11 East; Willamette River, Portland, Oregon.	130,691	2839 RPT / Report	R10: (GSI Water Solutions, Inc.)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100016779	11/12/2014	REDACTED Email regarding October 2014 Portland Harbor Monthly Progress Report.	66	1 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100016787	12/11/2014	REDACTED Email regarding November 2014 Portland Harbor Monthly Progress Report.	66	1 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100016792	2/13/2015	REDACTED Email regarding January 2015 Portland Harbor Monthly Progress Report.	66	1 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100016804	3/13/2015	REDACTED Email regarding February 2015 Portland Harbor Monthly Progress Report.	66	1 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100020119	9/1/2015	REDACTED Email regarding Reply to PHCAG/PHCC newsletter (Needed Clarification before print).	90	7 EML / Email	R10: Sheldrake, Sean, A (EPA)	R10: Quinn, Barbara (Portland Harbor Community Advisory Group), R10: Conley, Alanna (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100015700	9/10/2015	REDACTED Final Porewater Characterization Report for River Mile 11 East; Willamette River, Portland, Oregon.	91,440	988 RPT / Report	R10: (Dalton, Olmstead & Fuglevand, Inc.), R10: (SEE LLC), R10: (GSI Water Solutions, Inc.)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100017785	9/14/2015	REDACTED Email regarding Next Call Sept 14th at 1:15pm.	42	5 EML / Email	R10: Stivers, Carl (Anchor Environmental, LLC)	R10: Sanders, Dawn (City of Portland, Oregon), R10: Scheffler, Linda (City of Portland, Oregon), R10: Lafranchise, Nicole, M (Port of Portland), R10: Shellenberger, Amanda (Anchor Environmental, LLC), R10: Koch, Kristine, M (EPA), R10: Tarnow, Karen, E (Oregon Dept. of Environmental Quality), R10: Koulermos, Andrew, C (Newfields, Inc), R10: Spencer, Amanda, L (Ash Creek Associates, Inc.), R10: Jones, Laura (Integral Corporation)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100012733	10/19/2015	Five Tribes' Comments on Portland Harbor Superfund Site.	330	22 MEMO / Memorandum	R10: Cabral, Rita (Industrial Economics, Incorporated), R10: Fricano, Gail (Industrial Economics, Inc.), R10: Delvecchio, Rachel (Industrial Economics, Inc.), R10: Fredette, Tom (Industrial Economics, Inc.)	R10: (National Remedy Review Board), R10: (Contaminated Sediments Technical Advisory Group)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100012743	10/19/2015	ODEQ comments to the National Remedy Review Board (NRRB) and the Contaminated Sediment Technical Advisory Group (CSTAG).	2,089	19 LTR / Letter	R10: Pederson, Dick (Oregon Department of Environmental Quality)	R10: Mclerran, Dennis, J (EPA), R10: (National Remedy Review Board), R10: (Contaminated Sediments Technical Advisory Group)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100012757	10/19/2015	Comments on the Portland Harbor Superfund Site Cleanup to the National Remedy Review Board (NRRB) and the Contaminated Sediment Technical Advisory Group (CSTAG).	2,007	40 LTR / Letter	R10: (Portland Harbor Community Advisory Group)	R10: (National Remedy Review Board), R10: (Contaminated Sediments Technical Advisory Group)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100012758	10/19/2015	Comments on the Portland Harbor Superfund Site Cleanup.	5,699	32 LTR / Letter	R10: Ward, Paul (Confederated Tribes and Bands of the Yakima Indian Nation)	R10: Legare, Amy, R (National Remedy Review Board)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100017429	10/19/2015	REDACTED Notes/agendas from EPA/Oregon Dept. of Environmental Quality meetings in June, July and October 2015.	4,054	5 MTG / Meeting Document			PAPER DOCUMENT	053-REMEDIAL/0531-Remedy Characterization
100016550	2/5/2016	Email regarding Portland Harbor ESA species list for the upcoming biological assessment.	44	2 EML / Email	R10: Angle, Genevieve (NOAA)	R10: Liverman, Marc (NOAA), R10: Sheldrake, Sean, A (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100016709	2/5/2016	Email regarding Portland Harbor ESA species list for the upcoming biological assessment.	104	4 EML / Email	R10: Sheldrake, Sean, A (EPA)	R10: Angle, Genevieve (NOAA), R10: Liverman, Marc (NOAA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100016711	2/5/2016	Email regarding Portland Harbor ESA species list for the upcoming biological assessment.	45	3 EML / Email	R10: Angle, Genevieve (NOAA)	R10: Sheldrake, Sean, A (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100016712	2/5/2016	Email regarding Portland Harbor ESA species list for the upcoming biological assessment.	125	6 EML / Email	R10: Sheldrake, Sean, A (EPA)	R10: Angle, Genevieve (NOAA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100016716	2/5/2016	Letter regarding Proposed Species List for the Programmatic Biological Assessment, Portland Harbor Superfund Site.	322	3 LTR / Letter	R10: Sheldrake, Sean, A (EPA)	R10: Kratz, Kim, W (National Marine Fisheries Service), R10: Henson, Paul (U. S. Fish & Wildlife Service)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100016720	2/5/2016	Email regarding Proposed Species List for the Programmatic Biological Assessment, Portland Harbor Superfund Site.	45	1 EML / Email	R10: Sheldrake, Sean, A (EPA)	R10: Kratz, Kim, W (National Marine Fisheries Service), R10: Henson, Paul (U. S. Fish & Wildlife Service)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100016733	2/5/2016	Email regarding ESA species list for Portland Harbor.	55	1 EML / Email	R10: Sheldrake, Sean, A (EPA)	R10: Coffey, Scott (CDM Smith), R10: Allen, Chris (U. S. Fish & Wildlife Service)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100016459	2/25/2016	Email regarding 404(b)(1) evaluation, section 2.4 - cross walk to BA (with attached annotated draft).	167	10 EML / Email	R10: Sheldrake, Sean, A (EPA)	R10: Angle, Genevieve (NOAA), R10: Barton, Justine, S (EPA), R10: Vallette, Yvonne (EPA), R10: Jones, Jennifer, M. (CDM Smith)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100016763	3/1/2016	Email regarding transloading BMPs.	134	4 EML / Email	R10: Sheldrake, Sean, A (EPA)		ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100017958	3/1/2016	REDACTED Meeting Information Package: HQs Meetings/Conference Calls with Outside Parties.	4,789	37 OTH / Other			ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100016735	3/25/2016	Email regarding new package notification, Portland Harbor draft BA.	116	7 EML / Email	R10: Angle, Genevieve (NOAA)	R10: Sheldrake, Sean, A (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100012915	4/20/2016	PH Layer Request noaa.	19	1 CORR / Correspondence	R10: Shorr, Benjamin (NOAA)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100012960	4/20/2016	PH Layer Request noaa.	19	1 CORR / Correspondence	R10: Shorr, Benjamin (NOAA)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100015778	5/1/2016	Memo Regarding MNR Evaluation - Fish Contaminant Concentrations Portland Harbor Superfund Site RAC Contract Number EP-W-05-049.	113	4 MEMO / Memorandum	R10: (Unknown)	R10: (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100015806	5/1/2016	Memo Regarding Evaluation of Analyses Used to Calculate Bioaccumulation Calculation Results - Portland Harbor Superfund Site RAC Contract Number EP-W-05-049.	110	6 MEMO / Memorandum	R10: (Unknown)	R10: (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100019894	5/3/2016	Letter regarding public comment period for EPA's forthcoming Proposed Plan.	981	2 CORR / Correspondence	R10: Christianson, Greg, A (Bingham McCutchen LLP), R10: Ring, J, W (BAE Systems San Diego Ship Repair Inc.), R10: Vaughan, Kevin, J (Exxon Mobil Corporation)	R10: Cora, Lori, H (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100019895	5/10/2016	Letter regarding Portland Harbor Superfund Site Public Comment Period for the Proposed Plan.	661	2 CORR / Correspondence	R10: Jones-mckeown, Meredith, A (Sheppard, Mullin, Richter, and Hampton.)	R10: Cora, Lori, H (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100016486	5/11/2016	Letter Regarding DRAFT PCB in Breast Milk at Portland Harbor.	401	7 LTR / Letter	R10: Farrer, David, G (Oregon Dept. of Human Services)	R10: Wyatt, Bob (Lower Willamette Group), R10: Mckenna, Jim (Lower Willamette Group)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100007975	Undated	Appendix B: Statement of Work for Port of Portland Terminal 4 Removal Action Area; Portland Harbor Superfund Site, Portland, Oregon.	291	18 RPT / Report	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100010935	Undated	Benthic AOPCs .zap file.	568	1 OTH / Other			ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100012705	Undated	Wr_chems_n_qual.	18	2 RPT / Report	R10: (Unknown)		ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100012706	Undated	Wr_chems_n_qual.	37	2 RPT / Report	R10: (Unknown)		ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100012714	Undated	Upstream indicators 1.	798	1 FIG / Figure/Map/ Drawing	R10: (Unknown)		ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100012760	Undated	Project Review Group Technical Memorandum for the Sediment Characterization Report for the Federal Project Post Office.	52	3 MEMO / Memorandum	R10: Gambetta, Daniel (NOAA)		ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100012763	Undated	Lamprey and sturgeon suggested studies v1.0.	89	9 RPT / Report	R10: (Unknown)		ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100012774	Undated	LWG Floating Point Model Predictions.	395	1 FIG / Figure/Map/ Drawing	R10: (Unknown)		ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100012775	Undated	NOAA PMax Model.	395	1 FIG / Figure/Map/ Drawing	R10: (Unknown)		ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization

100012832	Undated	Feistetal docfin.	146	41 RPT / Report	R10: (Oregon State University)		ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100012834	Undated	New#2004-159 accept.	135	31 RPT / Report	R10: Webb, Molly (Oregon State University)		ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100012837	Undated	Portland Harbor data report, Review of Round 2 Subyearling Chinook Tissue.	129	16 RPT / Report	R10: (Windward Environmental, LLC.), R10: (Integral Consulting, Inc.)	R10: (Lower Willamette Group)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100012954	Undated	Greenberg Rule of Five.	599	16 RPT / Report	R10: Greenberg, Marc, S (EPA)		ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100012962	Undated	Benthic risk areas.	60	3 RPT / Report	R10: (Unknown)		ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100012977	Undated	Draft comments summary.	9	1 RPT / Report	R10: (Unknown)		ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100012981	Undated	PH controls biomass.	84	4 RPT / Report	R10: (Unknown)		ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100012982	Undated	Portland Harbor Control Data 080602.	16	1 RPT / Report	R10: (Unknown)		ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100012983	Undated	Round 2 Sediment Toxicity Test Result Summary.	12	1 RPT / Report	R10: (Unknown)		ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100012998	Undated	Draft Ecological risk assessment conceptual site model for the Portland Harbor Superfund Site.	135	11 CHT / Chart/Table	R10: Unknown, Unknown (Unknown)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100013054	Undated	Spreadsheet summarizing the N-qualified results for each chemical.	46	2 CHT / Chart/Table	R10: Unknown, Unknown (Unknown)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100013080	Undated	Map showing upstream indicators.	798	1 FIG / Figure/Map/ Drawing	R10: Unknown, Unknown (Unknown)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100013231	Undated	Phase 3A: Recommended Studies on Pacific Lamprey and White Sturgeon to Inform the Portland Harbor Ecological Risk Assessment and NRDA.	774	23 RPT / Report	R10: Unknown, Unknown (Unknown)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100013368	Undated	Review of Round 2 Subyearling Chinook Tissue Data Report.	772	16 RPT / Report	R10: Johnson, Lyndal, L (NOAA)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100013372	Undated	Spreadsheet showing Logistic Regression SQVs.	21	1 CHT / Chart/Table	R10: Unknown, Unknown (Unknown)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100013581	Undated	Portland Harbor ToxRef Compare chart.	79	2 CHT / Chart/Table	R10: Unknown, Unknown (Unknown)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100013590	Undated	Attachment 1 - Benthic Risk Data Gaps Evaluation Process.	48	1 RPT / Report	R10: Unknown, Unknown (Unknown)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100013628	Undated	Charts showing PH Controls Biomass.	125	4 CHT / Chart/Table	R10: Unknown, Unknown (Unknown)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100013630	Undated	Portland Harbor Control Data.	32	1 CHT / Chart/Table	R10: Unknown, Unknown (Unknown)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100013885	Undated	Portland Harbor Hexachlorobutadiene Rep.	15	1 CHT / Chart/Table	R10: Field, Jay (NOAA)		ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100013897	Undated	FPM SQV Revised.	23	1 CHT / Chart/Table	R10: Field, Jay (NOAA)		ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100014582	Undated	Portland Harbor RI/FS (Remedial Investigation/Feasibility Study) Comprehensive Round 2 Site Characterization Study, Contoured Surface Sediment Texture, Percent Fines.	259	1 CORR / Correspondence	R10: (Lower Willamette Group), R10: (Integral Consulting, Inc.)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100014647	Undated	Draft Ecological risk assessment conceptual site model for the Portland Harbor Superfund Site.	193	15 CHT / Chart/Table	R10: Unknown, Unknown (Unknown)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100014690	Undated	Round 3 White Sturgeon (Acipenser transmontanus) Tissue Sampling Locations.	747	1 CORR / Correspondence	R10: (Windward Environmental, LLC.)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100014695	Undated	Storm Sample, Matrix, Status of Stormwater Outfall Composite Water Samples.	86	3 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100014846	Undated	Fall Stormwater Sediment Trap Sample Prioritization Summary.	19	1 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100014859	Undated	TZW Evaluation Framework for BERA.	18	1 CHT / Chart/Table	R10: Unknown, Unknown (Unknown)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100014860	Undated	TZW Evaluation Framework for HH.	29	3 CHT / Chart/Table	R10: Unknown, Unknown (Unknown)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100015954	Undated	Poster: 2009 FINAL Welsh Mothers Milk PCB. Chemical Specific Information for Human Milk Pathway.	15,964	1 RPT / Report	R10: (U. S. Public Health Service), R10: (ATSDR), R10: (EPA), R10: (Oregon Dept. of Human Services), R10: (Oregon Dept. of Environmental Quality)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100016288	Undated	Table 1: Half-lives and Oral Toxicity Values for Bioaccumulating Chemicals.	35	1 OTH / Other	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100016289	Undated		63	2 CHT / Chart/Table	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100016374	Undated	Poster: Final Comparison of Estimated PCB 153 Concentrations in Human Milk Using Various Pharmacokinetic Models.	1,473	1 RPT / Report	R10: Fowler, David (ATSDR), R10: Bailey, Marcia, L (EPA), R10: Davoli, Dana (EPA), R10: Farrer, David, G (Oregon Dept. of Human Services), R10: Poulsen, Mike (Oregon Dept. of Environmental Quality), R10: Moffett, Daphne (ATSDR), R10: Welsh, Clem (ATSDR), R10: Yang, Ray (Ray Yang Consulting, LLC), R10: Haddad, Sami (University of Quebec)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100016375	Undated	Poster: Comparison of Estimated PCB 153 Concentrations in Human Milk Using Various Pharmacokinetic Models.	144	1 RPT / Report	R10: Fowler, David (ATSDR), R10: Bailey, Marcia, L (EPA), R10: Davoli, Dana (EPA), R10: Farrer, David, G (Oregon Dept. of Human Services), R10: Poulsen, Mike (Oregon Dept. of Environmental Quality), R10: Moffett, Daphne (ATSDR), R10: Welsh, Clem (ATSDR), R10: Yang, Ray (Ray Yang Consulting, LLC), R10: Ayotte, Pierre (Centre Hospitalier Universitaire de Quebec), R10: Verner, Marc-andre (University of Quebec), R10: Muckle, Gina (Centre Hospitalier Universitaire de Quebec), R10: Haddad, Sami (University of Quebec)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100020128	Undated	REDACTED Individual comment cards distributed by the Willamette Riverkeeper organization urging cleanup of the river.	721,851	358 OTH / Other		R10: (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100020140	Undated	REDACTED Individual comment cards distributed by the Willamette Riverkeeper organization urging cleanup of the river.	563,129	274 OTH / Other	R10: (Willamette Riverkeeper), R10: (Audobon Society of Portland)	R10: (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100004365	1/1/1975	Hill EF, Heath RG, Spann JW, Williams JD. 1975. Lethal dietary toxicities of environmental pollutants to birds. US Fish and Wildlife Service, Laurel, MD.	7,922	70 PUB / Publication	R10: Williams, Joseph, D (Patuxent Wildlife Research Center), R10: Hill, Elwood, F (Patuxent Wildlife Research Center), R10: Heath, Robert, G (Patuxent Wildlife Research Center), R10: Spann, James, W (Patuxent Wildlife Research Center)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100004232	12/1/1976	Jarvinen AW, Hoffman MJ, Thorslund TW. 1976. Toxicity of DDT food and water exposure to fathead minnows. EPA-600/3-76/114. US Environmental Protection Agency, Duluth, MN.	1,917	84 PUB / Publication	R10: Hoffman, Molly, J (EPA), R10: Thorslund, Todd, W (EPA), R10: Jarvinen, Alfred, W (EPA)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
1094768	1/1/1977	Synoptic survey of trace metals in bottom sediments of the Willamette River (reference 9).	2,288	31 CORR / Correspondence	R10: Unknown, Unknown (U. S. Geological Survey)	R10: Unknown, Unknown (Unknown)	PAPER DOCUMENT	053-REMEDIAL/0531-Remedy Characterization
100004094	11/1/1977	EPA. 1978. In-depth studies on health and environmental impacts of selected water pollutants. Contract No. 68-01-4646.	527	15 RPT / Report	R10: Unknown, Unknown (EG&G Bionomics)	R10: Unknown, Unknown (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100002904	10/1/1980	Ambient water quality criteria for DDT.	7,451	175 CORR / Correspondence	R10: (EPA)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100004095	10/1/1980	EPA. 1980a. Ambient Water Quality Criteria for Benzene. Office of Water Regulations and Standards, Criteria and Standards Division, Washington DC. EPA 440/5-80-018. October 1980.	3,240	124 RPT / Report	R10: Unknown, Unknown (EPA)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization

100004098	10/1/1980	EPA. 1980d. Ambient Water Quality Criteria for Trichloroethylene. Office of Water Regulations and Standards, Criteria and Standards Division, Washington DC. EPA 440/5-80-077. October 1980.	1,802	66 RPT / Report	R10: Unknown, Unknown (EPA)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100004099	10/1/1980	EPA. 1980e. Ambient Water Quality Criteria for Vinyl Chloride. Office of Water Regulations and Standards, Criteria and Standards Division, Washington DC. EPA 440/5-80-078. October 1980.	2,425	97 RPT / Report	R10: Unknown, Unknown (EPA)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100004147	10/1/1980	EPA. 1980c. Ambient Water Quality Criteria for Chloroform. Office of Water Regulations and Standards, Criteria and Standards Division, Washington DC. EPA 440/5-80-033. October 1980.	1,716	68 RPT / Report	R10: Unknown, Unknown (EPA)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100003839	12/1/1983	EPA. 1983. Results of the Nationwide Urban Runoff Program (NURP). Final Report. U.S. Environmental Protection Agency, Water Planning Division, Washington, DC. 186 pp.	32,552	1066 RPT / Report	R10: Unknown, Unknown (EPA)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100002905	2/1/1984	Ambient water quality for 2'3'7'8-tetrachlorodibenzo-p-dioxin.	13,663	289 CORR / Correspondence	R10: (EPA)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
693040	9/21/1987	EPA Response to LWG Dispute Exhibits: Exhibit 2 - Guidance on the Use of Stipulated Penalties in Hazardous Waste Consent Decrees.	559	18 RPT / Report	R10: Adams, Tom (EPA)	R10: Unknown, Unknown (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
1395723	12/18/1987	Letter clarifying findings and conclusions for the Liquid Air Corporation - Acetylene Plant Preliminary Assessment.	95	2 CORR / Correspondence	R10: Miller, Tom (Oregon Dept. of Environmental Quality)	R10: Humphrey, Chip (EPA), R10: Robertson, Tom (EPA)	PAPER DOCUMENT	053-REMEDIAL/0531-Remedy Characterization
100003922	6/1/1989	PTI. 1989. Data Validation Guidance Manual for Selected Sediment Variables Draft Report. Prepared for Washington Department of Ecology. PTI Environmental Services, Inc., Bellevue, WA. 154 pp.	10,260	190 RPT / Report	R10: Unknown, Unknown (PTI Environmental Services)	R10: Unknown, Unknown (Washington State Dept. of Ecology)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
500011408	12/1/1989	Risk Assessment Guidance for Superfund, Volume 1, Human Health Evaluation Manual (Part A), Interim Final.	77	17 LAWS / Laws/Regulations/Guidance	R10: Unknown, Unknown (EPA)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
1094761	1/1/1990	Map of Linnton Quadrangle Oregon 7.5 Minute Series (topographic)(reference 3).	232	2 FIG / Figure/Map/ Drawing	R10: Unknown, Unknown (U. S. Geological Survey)	R10: Unknown, Unknown (Unknown)	PAPER DOCUMENT	053-REMEDIAL/0531-Remedy Characterization
1094762	1/1/1990	Map of Portland Quadrangle Oregon-Washington 7.5 Minute Series (topographic)(reference 3).	215	2 FIG / Figure/Map/ Drawing	R10: Unknown, Unknown (U. S. Geological Survey)	R10: Unknown, Unknown (Unknown)	PAPER DOCUMENT	053-REMEDIAL/0531-Remedy Characterization
100003923	1/1/1990	WHO. 2003. Tributyltin compounds. World Health Organization, Geneva, Switzerland. <a href="http://www.inchem.org/documents/ehc/ehc/ehc116.htm">http://www.inchem.org/documents/ehc/ehc/ehc116.htm</a> . July 8, 2003.	601	154 RPT / Report	R10: Unknown, Unknown (World Health Organization)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
500011410	3/25/1991	Risk Assessment Guidance for Superfund, Volume 1 Human Health Evaluation Manual, Supplemental Guidance, Standard Default Exposure Factors, Interim Final.	131	28 LAWS / Laws/Regulations/Guidance	R10: Unknown, Unknown (EPA)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
1094772	7/1/1994	Willamette River Toxics Study (reference 13). Ecology. 1994. Natural Background Soil Metal Concentration in Washington State. Publication #94-115. Washington Department of Ecology, Olympia, WA.	11,966	178 CORR / Correspondence	R10: Unknown, Unknown (Oregon Dept. of Environmental Quality)	R10: Unknown, Unknown (Unknown)	PAPER DOCUMENT	053-REMEDIAL/0531-Remedy Characterization
100003816	10/1/1994	WDOE. 1994. Natural Background Soil Metal Concentration in Washington State. Publication #94-115. Washington department of Ecology, Olympia, WA (October, 1994).	29,609	275 PUB / Publication	R10: San Juan, Charles (Washington State Dept. of Ecology)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100004174	10/1/1994	Ecology. 1994. Natural background soils metals concentrations in Washington State Toxics Cleanup Program. Publication #94-115. Washington Department of Ecology, Olympia, WA.	29,610	275 PUB / Publication	R10: San Juan, Charles (Washington State Dept. of Ecology)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100004542	10/1/1994	Ecology. 1994. Natural background soils metals concentrations in Washington State Toxics Cleanup Program. Publication #94-115. Washington Department of Ecology, Olympia, WA.	29,610	275 RPT / Report	R10: San Juan, Charles (Washington State Dept. of Ecology)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100003791	6/13/1995	ATSDR. 1995a. Public Health Assessment: McCormick and Baxter Creosoting Company (Portland), Portland, Multnomah County, Oregon. Agency for Toxic Substances and Disease Registry, Washington DC. Available at <a href="http://www.atsdr.cdc.gov/HAC/pha/mccormick">http://www.atsdr.cdc.gov/HAC/pha/mccormick</a>	822	46 RPT / Report	R10: Unknown, Unknown (U. S. Dept. of Health and Human Services), R10: Unknown, Unknown (Agency for Toxic Substances and Disease Registry)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
1094769	8/11/1995	Willamette River Basin Water Quality Study (reference 10).	1,035	23 CORR / Correspondence	R10: Unknown, Unknown (Tetra Tech, Inc.)	R10: Unknown, Unknown (Oregon Dept. of Environmental Quality)	PAPER DOCUMENT	053-REMEDIAL/0531-Remedy Characterization
100003792	9/1/1995	ATSDR. 1995c. ToxFAQs for Thallium. Available at <a href="http://www.atsdr.cdc.gov/tfacts54.html">http://www.atsdr.cdc.gov/tfacts54.html</a> . U.S. Department of Health and Human Services, Public Health Service, Agency for Toxic Substances and Disease Registry, Atlanta, GA.	184	2 RPT / Report	R10: Unknown, Unknown (U. S. Dept. of Health and Human Services), R10: Unknown, Unknown (Agency for Toxic Substances and Disease Registry)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100003800	9/1/1995	ATSDR. 1995b. ToxFAQs for Chlordane. Available at <a href="http://www.atsdr.cdc.gov/tfacts31.html">http://www.atsdr.cdc.gov/tfacts31.html</a> . U.S. Department of Health and Human Services, Public Health Service, Agency for Toxic Substances and Disease Registry, Atlanta, GA.	67	2 RPT / Report	R10: Unknown, Unknown (U. S. Dept. of Health and Human Services), R10: Unknown, Unknown (Agency for Toxic Substances and Disease Registry)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100002903	12/29/1995	Sediment management standards.	242	28 CORR / Correspondence	R10: (Washington State Dept. of Ecology)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
1094778	11/1/1996	EPA Memorandum: Using qualified data to document an observed release and observed contamination (reference 19).	1,321	19 CORR / Correspondence	R10: Unknown, Unknown (EPA)	R10: Unknown, Unknown (Unknown)	PAPER DOCUMENT	053-REMEDIAL/0531-Remedy Characterization
100004486	12/1/1996	Beckvar N, Field J, Salazar S, Hoff R. 1996. Contaminants in aquatic habitats at hazardous waste sites: mercury. NOAA Technical Memorandum NOS ORCA 100. National Oceanic and Atmospheric Administration, Seattle, WA.	187	80 PUB / Publication	R10: Field, Jay (NOAA), R10: Beckvar, Nancy (NOAA), R10: Hoff, Rebecca (NOAA), R10: Salazar, Sandra (EVS Consultants, Inc.)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100004193	6/1/1997	EPA. 1997b. EPA Region 10 supplemental ecological risk assessment guidance for Superfund. EPA/910/R-97/005. Region 10 Office of Environmental Assessment Risk Evaluation Unit, US Environmental Protection Agency, Seattle, WA.	754	86 PUB / Publication	R10: Nwosu, Julius, U (EPA)	R10: Unknown, Unknown (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
1094771	6/4/1997	Executive summary of historical sediment data and site investigation (reference 12).	7,910	162 CORR / Correspondence	R10: Unknown, Unknown (Roy F. Weston, Inc.)	R10: Unknown, Unknown (EPA)	PAPER DOCUMENT	053-REMEDIAL/0531-Remedy Characterization
100004170	7/1/1997	EPA. 1997. Health Effects Assessment Summary Tables (HEAST), FY-1997 Annual Update. EPA/540/R-97/036. Office of Solid Waste and Emergency Response.	7,185	404 RPT / Report	R10: Unknown, Unknown (EPA)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
1094776	7/22/1997	Analytical data packages for Willamette River sampling event as part of the Columbia River channel deepening (reference 17).	13,732	371 CORR / Correspondence	R10: Unknown, Unknown (U. S. Army Corps of Engineers)	R10: Unknown, Unknown (Unknown)	PAPER DOCUMENT	053-REMEDIAL/0531-Remedy Characterization
1094767	7/30/1997	Willamette River sampling and analysis plan (reference 8).	6,152	58 CORR / Correspondence	R10: Unknown, Unknown (Roy F. Weston, Inc.)	R10: Unknown, Unknown (EPA)	PAPER DOCUMENT	053-REMEDIAL/0531-Remedy Characterization
100003793	9/1/1997	ATSDR. 1997a. ToxFAQs for Chloroform. Available at <a href="http://www.atsdr.cdc.gov/tfacts6.html">http://www.atsdr.cdc.gov/tfacts6.html</a> . U.S. Department of Health and Human Services, Public Health Service, Agency for Toxic Substances and Disease Registry, Atlanta, GA.	185	2 RPT / Report	R10: Unknown, Unknown (U. S. Dept. of Health and Human Services), R10: Unknown, Unknown (Agency for Toxic Substances and Disease Registry)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization



1094764	9/16/1997	Sediment investigation field sampling logbook (reference 5).	410	8	CORR / Correspondence	R10: Unknown, Unknown (Roy F. Weston, Inc.)	R10: Unknown, Unknown (Unknown)	PAPER DOCUMENT	053-REMEDIAL/0531-Remedy Characterization
1094765	9/16/1997	Portland Harbor sediment investigation data quality assurance packages (reference 6, part 1 of 3).	31,388	713	CORR / Correspondence	R10: Unknown, Unknown (Roy F. Weston, Inc.)	R10: Unknown, Unknown (EPA)	PAPER DOCUMENT	053-REMEDIAL/0531-Remedy Characterization
1094892	9/16/1997	Portland Harbor sediment investigation data quality assurance package (reference 6, part 2 of 3).	27,893	643	CORR / Correspondence	R10: Unknown, Unknown (Roy F. Weston, Inc.)	R10: Unknown, Unknown (EPA)	PAPER DOCUMENT	053-REMEDIAL/0531-Remedy Characterization
1094893	9/16/1997	Portland Harbor sediment investigation data quality assurance package (reference 6, part 3 of 3).	8,508	297	CORR / Correspondence	R10: Unknown, Unknown (Roy F. Weston, Inc.)	R10: Unknown, Unknown (EPA)	PAPER DOCUMENT	053-REMEDIAL/0531-Remedy Characterization
1094766	9/17/1997	Portland Harbor sediment investigation chain-of-custody forms (reference 7).	10,958	104	CORR / Correspondence	R10: Unknown, Unknown (Roy F. Weston, Inc.)	R10: Unknown, Unknown (EPA)	PAPER DOCUMENT	053-REMEDIAL/0531-Remedy Characterization
100003966	12/1/1997	EPA. 1997. Mercury Study Report to Congress, Volumes I through VIII. EPA/452/R-97-001. U.S. Environmental Protection Agency, Office of Air Quality Planning and Standards and Office of Research and Development, Washington DC.	15,371	1	RPT / Report	R10: Unknown, Unknown (EPA)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100006042	1/15/1998	REDACTED Report of Environmental Roundtable regarding Columbia River channel deepening sediment quality evaluation (reference 16).	6,515	55	RPT / Report	R10: Unknown, Unknown (U. S. Army Corps of Engineers)	R10: Unknown, Unknown (Unknown)	PAPER DOCUMENT	053-REMEDIAL/0531-Remedy Characterization
100003717	2/1/1998	Evaluation of dredged material proposed for discharge in waters of the U.S. - testing manual: Inland testing Manual.	6,345	176	CORR / Correspondence	R10: (EPA), R10: (U.S. Army Corps of Engineers)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100002072	4/23/1998	Guidance for Identification of Hot Spots	163	33	CORR / Correspondence	R10: (State of Oregon Department of Environmental Quality)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
712784	5/1/1998	Portland Harbor Sediment Investigation Report.	28,376	48		R10: Unknown, Unknown (Roy F. Weston, Inc.)	R10: Unknown, Unknown (EPA Region 10)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
1094763	5/13/1998	Sediment Investigation Report (reference 4).	40,869	676	RPT / Report	R10: Unknown, Unknown (Roy F. Weston, Inc.)	R10: Unknown, Unknown (EPA)	PAPER DOCUMENT	053-REMEDIAL/0531-Remedy Characterization
100003811	8/1/1998	CSWRCB. 1998. Sediment Quality and Biological Effects in San Francisco Bay. Bay Protection and Toxic Cleanup Program (BPTCP). Final Technical Report, August 1998. California State Water Resources Control Board, Oakland, CA.	13,834	201	PUB / Publication	R10: Stephenson, Mark (California Dept. of Fish and Game), R10: Wilson, Craig, J (California State Water Resources Control Board), R10: Anderson, Brian, S (University of California, Santa Cruz), R10: Phillips, Bryn, M (University of California, Santa Cruz), R10: Hunt, John, W (University of California, Santa Cruz), R10: Newman, John (University of California, Santa Cruz), R10: Tjeerdema, Ron, S (University of California, Santa Cruz), R10: Taberski, Karen (San Francisco Bay Regional Water Quality Control Board), R10: Puckett, H. Max (California Dept. of Fish and Game), R10: Fairey, Russell (Moss Landing Marine Laboratories), R10: Oakden, James (Moss Landing Marine Laboratories)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
1094773	12/1/1998	Willamette River Spring Chinook Salmon Run for 1997 (excerpt)(reference 14).	442	8	CORR / Correspondence	R10: Unknown, Unknown (Oregon Dept. of Fish and Wildlife)	R10: Unknown, Unknown (Unknown)	PAPER DOCUMENT	053-REMEDIAL/0531-Remedy Characterization
100003970	12/1/1998	Norton, D. 1998. 1998 Sediment Trap Monitoring of Suspended Particulates in Stormwater Discharges to Thea Foss Waterway. Washington State Department of Ecology Report #98336. Olympia, WA.	5,438	128	RPT / Report	R10: Norton, Dale (Washington State Dept. of Ecology)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100003933	1/1/1999	WLCWQH99. Investigation of the Distribution of Organochlorine and Polycyclic Aromatic Hydrocarbon Compounds in the Lower Columbia River Using Semipermeable Membrane Devices, Portland, OR. Prepared by USGS, 1999.	576	145	RPT / Report	R10: Mccarthy, Kathleen, A (U. S. Geological Survey), R10: Gale, Robert, W (U. S. Geological Survey)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
1094774	4/1/1999	NOAA web page excerpts regarding Coastal Cutthroat Trout, Coho and Chinook Salmon (reference 15).	389	7	CORR / Correspondence	R10: Unknown, Unknown (NOAA)	R10: Unknown, Unknown (Unknown)	PAPER DOCUMENT	053-REMEDIAL/0531-Remedy Characterization
100004181	6/1/1999	ODEQ. 1999. Portland Harbor sediment management plan. Appendix G - sediment assessment methodology. Oregon Department of Environmental Quality, Portland, OR.	16,307	187	RPT / Report	R10: Unknown, Unknown (Oregon Dept. of Environmental Quality)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
500004240	6/15/1999	Letter Regarding the Columbia River Inter-Tribal Fish Commission's (CRITFC) concerns about Oregon's proposed process for cleaning up sites contaminated by the Portland Harbor industries.	1,218	18	CORR / Correspondence	R10: Sampson, Donald (Columbia River Inter-Tribal Fish Commission)	R10: Marsh, Langdon (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100003840	8/1/1999	EPA. 1999b. Screening Level Ecological Risk Assessment Protocol for Hazardous Waste Combustion Facilities. Volume 1. EPA530-D-99-001A. U.S. Environmental Protection Agency, Office of Solid Waste and Emergency Response, Washington, DC.	2,507	340	RPT / Report	R10: Unknown, Unknown (EPA)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100003905	8/1/1999	Metro King County. 1999. King County Combined Sewer Overflow Water Quality Assessment for the Duwamish River and Elliott Bay. King County Department of Natural Resources Wastewater Treatment Division & Water and Land Resources Division. Prepared by Para	4,251	12	PUB / Publication	R10: Unknown, Unknown (King County Dept. of Natural Resources)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
1094770	9/8/1999	Preliminary Natural Resource Survey, lower Willamette River (reference 11).	2,787	39	CORR / Correspondence	R10: Unknown, Unknown (NOAA)	R10: Unknown, Unknown (Unknown)	PAPER DOCUMENT	053-REMEDIAL/0531-Remedy Characterization
1469275	10/26/1999	Correspondence from Portland General Electric regarding Voluntary Cleanup Program Intent to Participate - PGE Harborton Substation. (Includes signed declaration to participate.)	156	3	CORR / Correspondence	R10: Miller, Fred, D (Portland General Electric Company)	R10: Blischke, Eric, L (Oregon Dept. of Environmental Quality)	PAPER DOCUMENT	053-REMEDIAL/0531-Remedy Characterization
100003842	1/1/2000	EPA. 2000e. Technical Basis for the Derivation of Equilibrium Partitioning Sediment Guidelines (ESGs) for the Protection of Benthic Organisms: Nonionic Organics. EPA 822-R00-001. U.S. Environmental Protection Agency, Office of Science and Technology, Wash	1,824	20	RPT / Report	R10: Unknown, Unknown (EPA)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
500011461	1/25/2000	EPA Region 10 Supplemental Human Health Risk Assessment Guidance, Office of Environmental Assessment, Soil Ingestion Rates.	31	2	LAWS / Laws/Regulations/Guidance	R10: Unknown, Unknown (EPA)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100004339	2/1/2000	EPA. 2000. Bioaccumulation testing and interpretation for the purpose of sediment quality assessment: status and needs. EPA-823-R-00-001. Bioaccumulation Analysis Workgroup, US Environmental Protection Agency, Washington, DC.	3,209	957	PUB / Publication	R10: Unknown, Unknown (EPA)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
1094777	2/18/2000	Sample quantitation limit calculations for samples collected as part of the Portland Harbor Sediment Investigation Report (reference 18).	2,965	77	CORR / Correspondence	R10: Woodke, Mark (Ecology & Environment, Inc.)	R10: Foster, Linda, E (Ecology & Environment, Inc.)	PAPER DOCUMENT	053-REMEDIAL/0531-Remedy Characterization
1081709	3/31/2000	Draft Portland Harbor Remedial Investigation/ Feasibility Study Work Plan.	13,459	230	RPT / Report	R10: Unknown, Unknown (Unknown)	R10: Unknown, Unknown (Unknown)	PAPER DOCUMENT	053-REMEDIAL/0531-Remedy Characterization
100003861	4/18/2000	Hart Crowser. 2000a. Remedial Investigation Report, Terminal 4 Slip 3 Sediments. Prepared for the Port of Portland, Portland, Oregon.	52,482	1273	RPT / Report	R10: Unknown, Unknown (Hart Crowser)	R10: Unknown, Unknown (Port of Portland)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
500007466	5/1/2000	Guidance for Conduct of Deterministic Human Health Risk Assessments.	209	43	LAWS / Laws/Regulations/Guidance	R10: Unknown, Unknown (Oregon Dept. of Environmental Quality)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization



1094888	5/30/2000	Hazard Ranking System documentation package. Document available in PDF format: <a href="http://www.epa.gov/superfund/sites/newpro">http://www.epa.gov/superfund/sites/newpro</a> p.htm.	2,063	65 CORR / Correspondence	R10: Sackman-franzen, Annette (Ecology & Environment, Inc.)	R10: Tonel, Monica (EPA)	PAPER DOCUMENT	053-REMEDIAL/0531-Remedy Characterization
100003841	6/1/2000	EPA. 2000d. Progress in Water Quality: An Evaluation of the National Investment in Municipal Wastewater Treatment: Chapter 13, Willamette River Case Study. U.S. Environmental Protection Agency, Portland, OR.	1,185	25 RPT / Report	R10: Unknown, Unknown (Tetra Tech, Inc.), R10: Unknown, Unknown (Andrew Stoddard & Associates)	R10: Unknown, Unknown (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
1094890	7/1/2000	Memorandum transmitting descriptions of seven proposed sites added to the National Priorities List in July 2000. Document available in PDF format: <a href="http://www.epa.gov/superfund/new/newnpl.htm">http://www.epa.gov/superfund/new/newnpl.htm</a>	269	5 CORR / Correspondence	R10: Unknown, Unknown (EPA)	R10: Unknown, Unknown (Unknown)	PAPER DOCUMENT	053-REMEDIAL/0531-Remedy Characterization
1094891	7/1/2000	Memorandum transmitting auxiliary information: National Priorities List, Proposed Rule and Final Rule. Document available in PDF format: <a href="http://www.epa.gov/superfund/new/newnpl.htm">http://www.epa.gov/superfund/new/newnpl.htm</a>	2,890	70 CORR / Correspondence	R10: Unknown, Unknown (EPA)	R10: Unknown, Unknown (Unknown)	PAPER DOCUMENT	053-REMEDIAL/0531-Remedy Characterization
1094889	7/6/2000	Letter transmitting support for the placement of Portland Harbor to the National Priorities List.	297	6 CORR / Correspondence	R10: Kitzhaber, John, A (State of Oregon)	R10: Browner, Carol, M (EPA)	PAPER DOCUMENT	053-REMEDIAL/0531-Remedy Characterization
1098816	9/3/2000	Letter transmitting comments regarding the EPA proposal of Portland Harbor to the National Priorities List.	158	2 CORR / Correspondence	R10: Carter, Glen, D (Unknown)	R10: Unknown, Unknown (EPA)	PAPER DOCUMENT	053-REMEDIAL/0531-Remedy Characterization
1098817	9/18/2000	Letter transmitting comments regarding the EPA proposal of Portland Harbor to the National Priorities List.	113	2 CORR / Correspondence	R10: Butler, Randall, J (U. S. Army Corps of Engineers)	R10: Unknown, Unknown (EPA)	PAPER DOCUMENT	053-REMEDIAL/0531-Remedy Characterization
1098818	9/20/2000	Letter transmitting comments regarding the EPA proposal of Portland Harbor to the National Priorities List.	107	2 CORR / Correspondence	R10: Penney, Samuel, N (Nez Perce Tribe)	R10: Unknown, Unknown (EPA)	PAPER DOCUMENT	053-REMEDIAL/0531-Remedy Characterization
1098819	9/22/2000	Letter transmitting comments regarding the EPA proposal of Portland Harbor to the National Priorities List.	345	5 CORR / Correspondence	R10: Koshuta, Cheryl, R (Port of Portland)	R10: Unknown, Unknown (EPA)	PAPER DOCUMENT	053-REMEDIAL/0531-Remedy Characterization
1098820	9/22/2000	Letter transmitting comments on behalf of Time Oil Co. regarding the EPA proposal of Portland Harbor to the National Priorities List.	73	1 CORR / Correspondence	R10: Dost, Patricia, M (Schwabe, Williamson & Wyatt, P.C.)	R10: Unknown, Unknown (EPA)	PAPER DOCUMENT	053-REMEDIAL/0531-Remedy Characterization
1098909	9/22/2000	Letter transmitting comments regarding the proposal of the Portland Harbor site to the National Priorities List (with attached letter from the Columbia River Inter-Tribal Fish Commission).	1,295	16 CORR / Correspondence	R10: Settler, Randy (Confederated Tribes and Bands of the Yakima Indian Nation)	R10: Unknown, Unknown (EPA)	PAPER DOCUMENT	053-REMEDIAL/0531-Remedy Characterization
1098855	9/25/2000	Letter transmitting comments regarding the proposal of Portland Harbor to the National Priorities List.	170	3 CORR / Correspondence	R10: Brunoe, Bruce (Confederated Tribes of the Warm Springs Reservation of Oregon)	R10: Unknown, Unknown (EPA)	PAPER DOCUMENT	053-REMEDIAL/0531-Remedy Characterization
1098856	9/25/2000	Letter transmitting comments regarding the proposal of Portland Harbor to the National Priorities List and attached Portland Harbor Cleanup Statement of General Principles.	852	11 CORR / Correspondence	R10: Farrow, Michael, J (Confederated Tribes of the Umatilla Indian Reservation), R10: Unknown, Unknown (Oregon Dept. of Environmental Quality)	R10: Unknown, Unknown (EPA)	PAPER DOCUMENT	053-REMEDIAL/0531-Remedy Characterization
1098908	9/25/2000	Letter transmitting comments regarding the proposal of the Portland Harbor site to the National Priorities List (with attached news article).	448	4 CORR / Correspondence	R10: Demaray, Harry, M (Oregon Dept. of Environmental Quality)	R10: Unknown, Unknown (EPA)	PAPER DOCUMENT	053-REMEDIAL/0531-Remedy Characterization
1081711	11/21/2000	Human Health Risk Assessment of Chemical Contaminants in Four Fish Species from the Middle Willamette River, Oregon.	9,398	198 RPT / Report	R10: Unknown, Unknown (EVS Environment Consultants, Inc.)	R10: Unknown, Unknown (Oregon Dept. of Environmental Quality)	PAPER DOCUMENT	053-REMEDIAL/0531-Remedy Characterization
100006041	12/1/2000	REDACTED Support Document for the Revised National Priorities List Final Rule December 2000.	1,346	26 CORR / Correspondence	R10: Unknown, Unknown (EPA)	R10: Unknown, Unknown (Unknown)	PAPER DOCUMENT	053-REMEDIAL/0531-Remedy Characterization
100006043	12/1/2000	REDACTED Region 10 portion of the Support Document for the Revised National Priorities List, Final Rule December 2000.	1,469	27 RPT / Report	R10: Unknown, Unknown (EPA)	R10: Unknown, Unknown (Unknown)	PAPER DOCUMENT	053-REMEDIAL/0531-Remedy Characterization
1128679	3/2/2001	Memorandum of Understanding for the Portland Harbor Superfund Site, Signed By a Total of Eleven (11) Parties.	932	26 AGMT / Agreement	R10: Kennedy, David, M (NOAA), R10: Sleeper, Preston, A (U.S. Dept. of the Interior), R10: Minthorn, Antone, C (Confederated Tribes of the Umatilla Indian Reservation), R10: Patt, Olney (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Selam, Lonnie (Confederated Tribes and Bands of the Yakima Indian Nation), R10: Pigsley, Delores (Confederated Tribes of the Siletz Indians), R10: Harrison, Kathryn (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Findley, Charles, E (EPA), R10: Scott, Wilfred, A (Nez Perce Tribe), R10: Johnson, Anthony, D (Nez Perce Tribe), R10: Taylor, Arthur, M (Nez Perce Tribe), R10: Penney, Samuel, N (Nez Perce Tribe), R10: Hallock, Stephanie (Oregon Dept. of Environmental Quality), R10: Ball, Lindsay, A (Oregon Dept. of Fish and Wildlife)	R10: Unknown, Unknown (Unknown)	PAPER DOCUMENT	053-REMEDIAL/0531-Remedy Characterization
1146190	3/15/2001	Letter transmitting permit applications within the Portland Harbor Area, Willamette River below mile 14 (less attachments).	36	1 CORR / Correspondence	R10: Linton, Judy, L (U. S. Army Corps of Engineers)	R10: Reid, Wallace, A (EPA), R10: Humphrey, Chip (EPA)	PAPER DOCUMENT	053-REMEDIAL/0531-Remedy Characterization
1081737	5/1/2001	Portland Harbor Fact Sheet.	306	5 PUB / Publication	R10: Unknown, Unknown (EPA)	R10: Unknown, Unknown (Unknown)	PAPER DOCUMENT	053-REMEDIAL/0531-Remedy Characterization
100003799	5/1/2001	City of Portland. 2001c. Willamette Riverbank Design Notebook: Portland, Oregon. City of Portland, Oregon.	6,725	111 PUB / Publication	R10: Unknown, Unknown (City of Portland, Bureau of Environmental Services)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100003803	8/1/2001	DEQ. 2001. Tualatin Subbasin Total Maximum Daily Load (TMDL). Oregon Department of Environmental Quality, Portland, OR.	3,607	174 RPT / Report	R10: Unknown, Unknown (Oregon Dept. of Environmental Quality)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
1128882	9/1/2001	Statement of Work, Remedial Investigation/Feasibility Study (RI/FS) & Identification of Potential Early Action Areas for the Portland Harbor Superfund Site.	2,219	41 CONTR / Contract Documentation	R10: Unknown, Unknown (EPA)	R10: Unknown, Unknown (Unknown)	PAPER DOCUMENT	053-REMEDIAL/0531-Remedy Characterization
100003794	9/1/2001	ATSDR. 2001a. ToxFAQs for Di(n)butyl Phthalate. Available at <a href="http://www.atsdr.cdc.gov/tfacts135.html">http://www.atsdr.cdc.gov/tfacts135.html</a> . U.S. Department of Health and Human Services, Public Health Service, Agency for Toxic Substances and Disease Registry, Atlanta, GA.	63	2 RPT / Report	R10: Unknown, Unknown (U. S. Dept. of Health and Human Services), R10: Unknown, Unknown (Agency for Toxic Substances and Disease Registry)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
500012796	12/1/2001	Risk Assessment Guidance for Superfund, Volume 1, Human Health Evaluation Manual (Part D Standardized Planning, Reporting, and Review of Superfund Risk Assessments), Final.	3,557	1 LAWS / Laws/Regulations/Guidance	R10: Unknown, Unknown (EPA)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
1146831	12/5/2001	Fax transmitting a letter from Dost dated 12/5/01 regarding access to Ross Island Sand & Gravel Lagoon for the Portland Harbor Superfund Site RI/FS AOC (total of 7 addressees).	142	3 CORR / Correspondence	R10: Dost, Patricia, M (Schwabe, Williamson & Wyatt, P.C.)	R10: Harbert, H. (Trey), P (Port of Portland), R10: Mckenna, Elizabeth, A (EPA), R10: Reid, Wallace, A (EPA), R10: Ordine, Charles, J (EPA), R10: Humphrey, Chip (EPA)	PAPER DOCUMENT	053-REMEDIAL/0531-Remedy Characterization

672157	1/15/2002	2002 Public Health Assessment (Initial Release).	3,173	48 RPT / Report	R10: Unknown, Unknown (U. S. Dept. of Health and Human Services), R10: Unknown, Unknown (ATSDR), R10: Unknown, Unknown (Agency for Toxic Substances and Disease Registry)	R10: Unknown, Unknown (Interested Parties)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
711546	2/1/2002	Portland Harbor Community Involvement Plan. Draft Capping Material Evaluation Technical Memorandum.	351	24	R10: Unknown, Unknown (EPA), R10: Unknown, Unknown (DEQ)	R10: Unknown, Unknown (Lower Willamette Group)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
712785	2/1/2002	Portland Harbor Fact Sheet, Launching the Investigation for Portland Harbor.	235	14	R10: Unknown, Unknown (Anchor Environmental, L. L. C.)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
1128788	2/1/2002	Portland Harbor Community Involvement Plan. (2nd AR Update)	386	6 PUB / Publication	R10: Unknown, Unknown (Oregon Dept. of Environmental Quality)	R10: Unknown, Unknown (Unknown)	PAPER DOCUMENT	053-REMEDIAL/0531-Remedy Characterization
1198773	2/1/2002	Portland Harbor Community Involvement Plan. (2nd AR Update)	1,881	24 RPT / Report	R10: Unknown, Unknown (Oregon Dept. of Environmental Quality)	R10: Unknown, Unknown (Unknown)	PAPER DOCUMENT	053-REMEDIAL/0531-Remedy Characterization
100003836	2/15/2002	EES. 2002. Portland Harbor Superfund Site Technical Memorandum: Juvenile Salmon Residence Time in Portland Harbor. Prepared for the Lower Willamette Group, Portland, OR. Ellis Ecological Services, Inc., Estacada, OR. Letter of Agreement between the U.S. EPA, Region 10, the Oregon Department of Environmental Quality and the U.S. Army Corps of Engineers, Portland District concerning the Lower Willamette River (with attached Transmittal Letter).	3,505	51 RPT / Report	R10: Unknown, Unknown (Ellis Ecological Services, Inc.)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
1386183	3/21/2002	Letter transmitting draft maps of candidate human use areas in the ISA.	4,383	10	R10: Burkholder, Kurt (Oregon Dept. of Justice)	R10: Mckenna, Elizabeth, A (EPA)	PAPER DOCUMENT	053-REMEDIAL/0531-Remedy Characterization
1151168	5/1/2002	Letter transmitting Portland Harbor Draft Data Quality Objective (DQO) Problem Statements. Letter commenting on LWG's Analytical Concentration Goals for Target Analytes in Sediment, Tissue and Water Samples.	4,696	13	R10: Patterson, Larry (Lower Willamette Group), R10: Harbert, Trey (Lower Willamette Group)	R10: Reid, Wallace, A (EPA), R10: Humphrey, Chip (EPA), R10: Karamas, Tara (EPA)	PAPER DOCUMENT	053-REMEDIAL/0531-Remedy Characterization
1151169	5/1/2002	Letter transmitting Portland Harbor Draft Data Quality Objective (DQO) Problem Statements. Letter commenting on LWG's Analytical Concentration Goals for Target Analytes in Sediment, Tissue and Water Samples.	156	4 CORR / Correspondence	R10: Patterson, Larry (Lower Willamette Group), R10: Harbert, Trey (Lower Willamette Group)	R10: Reid, Wallace, A (EPA), R10: Humphrey, Chip (EPA), R10: Karamas, Tara (EPA)	PAPER DOCUMENT	053-REMEDIAL/0531-Remedy Characterization
1152303	5/7/2002	Letter describing two deliverables called for in April 25, 2002 letter to LWG.	125	2 CORR / Correspondence	R10: Skarzinskas, Regina (Willamette Riverkeeper), R10: Williams, Travis (Willamette Riverkeeper)	R10: Humphrey, Chip (EPA)	PAPER DOCUMENT	053-REMEDIAL/0531-Remedy Characterization
1152304	5/9/2002	Letter providing NOAA's comments on the Field Sampling Plan, Round 1A, Portland Harbor Remedial Investigation/Feasibility Study dated April 22, 2002.	70	2 CORR / Correspondence	R10: Wyatt, Robert (Lower Willamette Group), R10: Harbert, Trey (Lower Willamette Group)	R10: Reid, Wallace, A (EPA), R10: Humphrey, Chip (EPA), R10: Karamas, Tara (EPA)	PAPER DOCUMENT	053-REMEDIAL/0531-Remedy Characterization
1152308	5/20/2002	MFA. 2002. Remedial Investigation for Soil, Triangle Park LLC, Portland, Oregon. Prepared for Triangle Park, LLC. Maul Foster & Alongi, Inc., Vancouver, WA.	546	9 CORR / Correspondence	R10: Hillman, Helen, E (NOAA)	R10: Reid, Wallace, A (EPA), R10: Humphrey, Chip (EPA), R10: Karamas, Tara (EPA)	PAPER DOCUMENT	053-REMEDIAL/0531-Remedy Characterization
100003867	6/10/2002	Letter summarizing agreements reached during the meeting on June 26, 2002, attended by the LWG, EPA and EPA's partners.	116,979	3541 RPT / Report	R10: Unknown, Unknown (Maul Foster & Alongi, Inc.)	R10: Unknown, Unknown (Triangle Park, LLC)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
1152316	7/5/2002	Letter transmitting a revised version of Section 4.1 of the Work Plan.	145	3 CORR / Correspondence	R10: Wyatt, Robert (Lower Willamette Group)	R10: Reid, Wallace, A (EPA), R10: Humphrey, Chip (EPA), R10: Karamas, Tara (EPA)	PAPER DOCUMENT	053-REMEDIAL/0531-Remedy Characterization
1185838	7/24/2002	Helsel, D.R., and R.M. Hirsch. 2002. Statistical Methods in Water Resources. Report 04-A3, Techniques of Water-Resource Investigation. U.S. Geological Survey, Elsevier Publishers, Amsterdam. 523 pp.	1,029	15 EML / Email	R10: Wyatt, Robert (Lower Willamette Group), R10: Harbert, Trey (Lower Willamette Group)	R10: Reid, Wallace, A (EPA), R10: Humphrey, Chip (EPA), R10: Karamas, Tara (EPA)	PAPER DOCUMENT	053-REMEDIAL/0531-Remedy Characterization
100003886	9/1/2002	Letter regarding reference area tissue samples for Round 1 Sampling.	10,046	524 RPT / Report	R10: Helsel, Dennis, R (U. S. Geological Survey), R10: Hirsch, R. M. (U. S. Geological Survey)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
1151156	9/27/2002	Letter regarding the upstream sampling area approach for the Round 1 sampling effort.	145	3 CORR / Correspondence	R10: Wyatt, Robert (Lower Willamette Group), R10: Harbert, Trey (Lower Willamette Group)	R10: Reid, Wallace, A (EPA), R10: Humphrey, Chip (EPA), R10: Karamas, Tara (EPA)	PAPER DOCUMENT	053-REMEDIAL/0531-Remedy Characterization
1151194	9/27/2002	Letter regarding the status of the 2002 fish collection task.	148	3 CORR / Correspondence	R10: Wyatt, Robert (Lower Willamette Group), R10: Harbert, Trey (Lower Willamette Group)	R10: Reid, Wallace, A (EPA), R10: Humphrey, Chip (EPA), R10: Karamas, Tara (EPA)	PAPER DOCUMENT	053-REMEDIAL/0531-Remedy Characterization
1151158	10/14/2002	Letter regarding upstream sampling, and discussions about location RM 160.	118	3 CORR / Correspondence	R10: Wyatt, Robert (Lower Willamette Group), R10: Harbert, Trey (Lower Willamette Group)	R10: Reid, Wallace, A (EPA), R10: Humphrey, Chip (EPA), R10: Karamas, Tara (EPA)	PAPER DOCUMENT	053-REMEDIAL/0531-Remedy Characterization
1151159	10/16/2002	Review of the Portland Harbor RI/FS Round 1 Quality Assurance Project Plan (QAPP) Revision: 10/11/02 (marginalia).	199	3 CORR / Correspondence	R10: Davoli, Dana (EPA), R10: Grepo-grove, Ginna (EPA), R10: Wroble, Julie (EPA)	R10: Reid, Wallace, A (EPA), R10: Humphrey, Chip (EPA), R10: Karamas, Tara (EPA)	PAPER DOCUMENT	053-REMEDIAL/0531-Remedy Characterization
1151344	10/31/2002	National recommended water quality criteria: 2002.	898	17 CORR / Correspondence	R10: (EPA)	R10: (Unknown)	PAPER DOCUMENT	053-REMEDIAL/0531-Remedy Characterization
100002907	11/1/2002	REDACTED Portland Harbor Remedial Investigation/Feasibility Study: Round 1 Quality Assurance Project Plan (QAPP) Final Report.	335	36 CORR / Correspondence	R10: (EPA)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100006045	11/22/2002	Appendix B Sediment Technologies Memorandum Overdredge Studies.	6,217	194 WP / Work Plan	R10: Striplin, Betsy, D (Striplin Environmental Associates)	R10: Unknown, Unknown (Lower Willamette Group)	PAPER DOCUMENT	053-REMEDIAL/0531-Remedy Characterization
100002031	12/15/2002	Draft Technical Memorandum: Results of Seep Reconnaissance Survey, River Mile 2 - 10.5 Lower Willamette River.	10,723	368 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
1160449	2/18/2003	R1 Field Sampling Report APPENDIX C (XLS) . Letter transmitting the Summer 2002 Bathymetry Report and Juvenile Lamprey/Benthic Infauna Biomass Reconnaissance Survey Technical Memorandum (less attachment).	6,963	32 CORR / Correspondence	R10: Unknown, Unknown (Groundwater Solutions Inc.)	R10: Unknown, Unknown (Lower Willamette Group)	PAPER DOCUMENT	053-REMEDIAL/0531-Remedy Characterization
713126	2/24/2003	Summary of 2002 Field Activities - 2003-02-28 -	2,944	1	R10: Unknown, Unknown (Unknown)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
1163690	2/26/2003	SUMMARY OF 2002 FIELD ACTIVITIES REPORT.	47	2 CORR / Correspondence	R10: Striplin, Betsy, D (Striplin Environmental Associates)	R10: Humphrey, Chip (EPA), R10: Martich, Tara (EPA)	PAPER DOCUMENT	053-REMEDIAL/0531-Remedy Characterization
500011744	2/27/2003	SUMMARY OF ROUND 1/1A FIELD ACTIVITIES PORTLAND HARBOR RI/FS, with attached letter.	250	9 CORR / Correspondence	R10: Wyatt, Bob (Lower Willamette Group)	R10: Humphrey, Chip (EPA), R10: Martich, Tara (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
713167	2/28/2003	Portland Harbor Cleanup Community Information Card.	250	9	R10: Unknown, Unknown (Striplin Environmental Associates), R10: Wyatt, Bob (Lower Willamette Group), R10: Lewis, Mark (Lower Willamette Group)	R10: Unknown, Unknown (Lower Willamette Group), R10: Humphrey, Chip (EPA), R10: Martich, Tara (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
713173	2/28/2003	Letter transmitting the Summary of Round 1 and Round 1A Field Activities (less attachment).	773	2 RPT / Report	R10: Conley, Alanna (EPA), R10: Humphrey, Chip (EPA)	R10: Unknown, Unknown (general Public)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
1163691	3/5/2003	ROUND 1 FIELD SAMPLING REPORT PORTLAND HARBOR RI/FS.	36	1 CORR / Correspondence	R10: Lewis, Mark (Lower Willamette Group), R10: Wyatt, Robert (Lower Willamette Group)	R10: Humphrey, Chip (EPA), R10: Martich, Tara (EPA)	PAPER DOCUMENT	053-REMEDIAL/0531-Remedy Characterization
712985	3/14/2003	R1 Field Sampling Report TABLES (XLS) . Figure 5-13 Lab Sample Storage Log Data Sheet (XLS).	210	44	R10: Unknown, Unknown (Striplin Environmental Associates), R10: Unknown, Unknown (Kennedy/Jenks Consultants), R10: Unknown, Unknown (Windward Environmental, LLC.), R10: Unknown, Unknown (Fishman Environmental Services, LLC), R10: Unknown, Unknown (Anchor Environmental, L. L. C.), R10: Unknown, Unknown (Ellis Environmental Services)	R10: Unknown, Unknown (Lower Willamette Group)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
713129	3/14/2003	R1 Field Sampling Report TABLES (XLS) . Figure 5-13 Lab Sample Storage Log Data Sheet (XLS).	1,578	1	R10: Unknown, Unknown (Unknown)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
713166	3/14/2003	Draft Round 1 Field Sampling Report, Portland Harbor RI/FS.	1,520	1	R10: Unknown, Unknown (Unknown)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
1160451	3/14/2003	Draft Round 1 Field Sampling Report, Portland Harbor RI/FS.	19,953	233 RPT / Report	R10: Unknown, Unknown (Striplin Environmental Associates), R10: Unknown, Unknown (Anchor Environmental, LLC), R10: Unknown, Unknown (Kennedy/Jenks Consultants), R10: Unknown, Unknown (Windward Environmental, LLC.), R10: Unknown, Unknown (Fishman Environmental Services, LLC)	R10: Unknown, Unknown (Lower Willamette Group)	PAPER DOCUMENT	053-REMEDIAL/0531-Remedy Characterization

1163062	3/26/2003	Monthly Progress Report for February 2003, Lower Willamette River, Portland Harbor Superfund Site.	110	3 RPT / Report	R10: Striplin, Betsy (Lower Willamette Group)	R10: Humphrey, Chip (EPA), R10: Martich, Tara (EPA)	PAPER DOCUMENT	053-REMEDIAL/0531-Remedy Characterization
1160447	4/4/2003	Memorandum: Data Validation Report of Metals Analysis of Tissue Samples Collected from Portland Harbor - RI/FS Round 1 Sampling Event.	1,543	51 CORR / Correspondence	R10: Grepo-grove, Ginna (EPA)	R10: Humphrey, Chip (EPA), R10: Martich, Tara (EPA)	PAPER DOCUMENT	053-REMEDIAL/0531-Remedy Characterization
1160454	4/8/2003	Letter transmitting copies of a Round 2A Presentation CD and Revised Draft Field Sampling Plan (FSP) maps (CD not attached).	418	5	R10: Striplin, Betsy, D (Striplin Environmental Associates), R10: Martich, Tara (EPA)	R10: Humphrey, Chip (EPA)	PAPER DOCUMENT	053-REMEDIAL/0531-Remedy Characterization
1163693	4/8/2003	Letter transmitting the Development of Modeling Approach Technical Memorandum for EPA review (less attachment).	41	1 CORR / Correspondence	R10: Patterson, Larry (Lower Willamette Group)	R10: Humphrey, Chip (EPA), R10: Martich, Tara (EPA)	PAPER DOCUMENT	053-REMEDIAL/0531-Remedy Characterization
712984	4/17/2003	PORTLAND HARBOR RI/FS ROUND 2A QUALITY ASSURANCE PROJECT PLAN ADDENDUM DRAFT.	116	31	R10: Unknown, Unknown (Striplin Environmental Associates)	R10: Unknown, Unknown (Lower Willamette Group)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
1160445	4/17/2003	Monthly Progress Report for March 2003, Lower Willamette River, Portland Harbor Superfund Site.	81	2 RPT / Report	R10: Striplin, Betsy (Lower Willamette Group)	R10: Humphrey, Chip (EPA), R10: Martich, Tara (EPA)	PAPER DOCUMENT	053-REMEDIAL/0531-Remedy Characterization
1163694	4/17/2003	Letter transmitting a copy of the Round 2A Quality Assurance Project Plan Addendum for the Portland Harbor RI/FS (less attachment).	32	1 CORR / Correspondence	R10: Lewis, Mark (Lower Willamette Group), R10: Wyatt, Robert (Lower Willamette Group)	R10: Humphrey, Chip (EPA), R10: Martich, Tara (EPA)	PAPER DOCUMENT	053-REMEDIAL/0531-Remedy Characterization
1175369	4/29/2003	Letter providing an update on the status of Round 1 sample analyses.	277	7 CORR / Correspondence	R10: Striplin, Betsy (Lower Willamette Group)	R10: Humphrey, Chip (EPA), R10: Martich, Tara (EPA)	PAPER DOCUMENT	053-REMEDIAL/0531-Remedy Characterization
712914	5/1/2003	SEDIMENT STAKE EROSION/ACCRETION MONITORING REPORT ROUND 1A PORTLAND HARBOR RI/FS.	4,154	45	R10: Unknown, Unknown (Anchor Environmental, L. L. C.)	R10: Unknown, Unknown (Lower Willamette Group)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
1163696	5/16/2003	Letter transmitting the Lower Willamette Group's response to comments on the Draft 2002 Round 1 Work Plan (less attachment).	34	1 CORR / Correspondence	R10: Unknown, Unknown (Lower Willamette Group)	R10: Humphrey, Chip (EPA), R10: Martich, Tara (EPA)	PAPER DOCUMENT	053-REMEDIAL/0531-Remedy Characterization
1163697	5/16/2003	Letter regarding the status of the EPA's review of Portland Harbor Deliverables, and transmitting a draft table tracking the review status.	201	5 CORR / Correspondence	R10: Mckenna, Jim (Lower Willamette Group), R10: Wyatt, Robert (Lower Willamette Group)	R10: Humphrey, Chip (EPA), R10: Martich, Tara (EPA)	PAPER DOCUMENT	053-REMEDIAL/0531-Remedy Characterization
1163698	5/21/2003	Letter transmitting the Draft Technical Memorandum: Benthic Analysis Approach for the Portland Harbor.	60	2 CORR / Correspondence	R10: Wyatt, Robert (Lower Willamette Group)	R10: Humphrey, Chip (EPA), R10: Martich, Tara (EPA)	PAPER DOCUMENT	053-REMEDIAL/0531-Remedy Characterization
1163699	5/29/2003	Letter transmitting a copy of the 5/28/03 Errata Revised Programmatic Work Plan.	90	3 CORR / Correspondence	R10: Pine, Keith (Striplin Environmental Associates)	R10: Humphrey, Chip (EPA), R10: Martich, Tara (EPA)	PAPER DOCUMENT	053-REMEDIAL/0531-Remedy Characterization
712912	5/30/2003	PORTLAND HARBOR RI/FS HISTORICAL CHEMISTRY DATA CATEGORY RECLASSIFICATION TECHNICAL MEMORANDUM.	231	40	R10: Unknown, Unknown (Striplin Environmental Associates)	R10: Unknown, Unknown (Lower Willamette Group)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
712913	5/30/2003	PORTLAND HARBOR RI/FS HISTORICAL CHEMISTRY DATA CATEGORY RECLASSIFICATION TECHNICAL MEMORANDUM.	231	40	R10: Unknown, Unknown (Striplin Environmental Associates)	R10: Unknown, Unknown (Lower Willamette Group)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
1163700	5/30/2003	Letter transmitting 5 copies each of the Historical Chemistry Data Category Reclassification Technical Memorandum, Historical Chemistry Database with updated Category 1 & 2 classification, and Revised Figure 2-1 from the Round 2A Field Sampling Plan	45	1 CORR / Correspondence	R10: Pine, Keith (Striplin Environmental Associates)	R10: Humphrey, Chip (EPA), R10: Martich, Tara (EPA)	PAPER DOCUMENT	053-REMEDIAL/0531-Remedy Characterization
1185952	5/30/2003	Letter transmitting revised figure 2-1 for Round 2A Field Sampling Plan.	2,664	5	R10: Pine, Keith (Lower Willamette Group)	R10: Humphrey, Chip (EPA), R10: Martich, Tara (EPA)	PAPER DOCUMENT	053-REMEDIAL/0531-Remedy Characterization
100004172	6/1/2003	EPA. 2006b. List of Contaminants & Their Maximum Contaminant Level (MCLs). Internet site: <a href="http://www.epa.gov/safewater/contaminants/index.html">http://www.epa.gov/safewater/contaminants/index.html</a> .	410	6 RPT / Report	R10: Unknown, Unknown (EPA)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
712911	6/2/2003	Portland Harbor RI/FS Upland Groundwater Data Review Report River Mile 2 - 11 Lower Willamette River.	430	62	R10: Unknown, Unknown (Groundwater Solutions Inc.)	R10: Unknown, Unknown (Lower Willamette Group)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
1432160	6/3/2003	Transmittal Letter regarding Portland Harbor Superfund Site RI/FS Round 1 Sediment Data Validation Reports, (less enclosures).	33	1 CORR / Correspondence	R10: Pine, Keith (Striplin Environmental Associates)	R10: Humphrey, Chip (EPA), R10: Martich, Tara (EPA)	PAPER DOCUMENT	053-REMEDIAL/0531-Remedy Characterization
1175379	6/10/2003	Letter providing comments on the draft revised Portland Harbor RI/FS Programmatic Work Plan.	354	5 CORR / Correspondence	R10: McMaster, Kemper, M (U. S. Fish and Wildlife Service)	R10: Humphrey, Chip (EPA), R10: Martich, Tara (EPA)	PAPER DOCUMENT	053-REMEDIAL/0531-Remedy Characterization
1163703	6/26/2003	Monthly Progress Report for May 2003, Lower Willamette River, Portland Harbor Superfund Site.	244	6 RPT / Report	R10: Striplin, Betsy (Lower Willamette Group)	R10: Humphrey, Chip (EPA), R10: Martich, Tara (EPA)	PAPER DOCUMENT	053-REMEDIAL/0531-Remedy Characterization
100003932	6/26/2003	WLCITC03. International Terminals Sediment Data Report Portland, OR. Prepared by Floyd Snider McCarthy, Inc., June 2003.	3,038	85 RPT / Report	R10: Unknown, Unknown (Floyd Snider McCarthy, Inc.)	R10: Unknown, Unknown (Schnitzer Steel Industries, Inc.)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
1175378	6/27/2003	Letter providing comments on the draft Portland Harbor RI/FS Programmatic Work Plan.	524	9 CORR / Correspondence	R10: Hillman, Helen, E (NOAA)	R10: Humphrey, Chip (EPA), R10: Martich, Tara (EPA)	PAPER DOCUMENT	053-REMEDIAL/0531-Remedy Characterization
1175035	7/1/2003	Fact Sheet: Summer 2003 Portland Harbor Project Newsletter.	598	10 PUB / Publication	R10: Unknown, Unknown (Oregon Dept. of Environmental Quality)	R10: Unknown, Unknown (Unknown)	PAPER DOCUMENT	053-REMEDIAL/0531-Remedy Characterization
100003801	7/1/2003	ATSDR. 2003. ToxFAQs for Trichloroethylene (TCE). Available at <a href="http://www.atsdr.cdc.gov/tfacts19.html">http://www.atsdr.cdc.gov/tfacts19.html</a> . U.S. Department of Health and Human Services, Public Health Service, Agency for Toxic Substances and Disease Registry, Atlanta, GA.	60	2 RPT / Report	R10: Unknown, Unknown (U. S. Dept. of Health and Human Services), R10: Unknown, Unknown (Agency for Toxic Substances and Disease Registry)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100006153	7/9/2003	Technical Memorandum: "Upland" Versus "In-Water" Definition and Portland Harbor Elevation Datums Portland Harbor Superfund Project. Oregon Department of Environmental Quality, Portland, OR. July 9, 2003.	34	3 CORR / Correspondence	R10: (State of Oregon Department of Environmental Quality)		ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
1163702	7/10/2003	Letter documenting a deviation from the Round 1 Quality Assurance Project Plan related to the analysis of dioxins/furans and PCB congeners for Round 1 biological tissue samples.	63	1 CORR / Correspondence	R10: Striplin, Betsy (Lower Willamette Group)	R10: Humphrey, Chip (EPA), R10: Martich, Tara (EPA)	PAPER DOCUMENT	053-REMEDIAL/0531-Remedy Characterization
1163704	7/10/2003	Monthly Progress Report for June 2003, Lower Willamette River, Portland Harbor Superfund Site.	176	5 RPT / Report	R10: Striplin, Betsy (Lower Willamette Group)	R10: Humphrey, Chip (EPA), R10: Martich, Tara (EPA)	PAPER DOCUMENT	053-REMEDIAL/0531-Remedy Characterization
1185604	7/17/2003	Memorandum Regarding the Potential Responsible Party Pursuit Strategy.	4,669	69 CORR / Correspondence	R10: Mckenna, James (Port of Portland), R10: Wyatt, Robert, J (Northwest Natural Gas Company)	R10: Cora, Lori, H (EPA), R10: Humphrey, Chip (EPA), R10: Martich, Tara (EPA)	PAPER DOCUMENT	053-REMEDIAL/0531-Remedy Characterization
1178618	8/8/2003	Monthly Progress Report for July 2003, Lower Willamette River, Portland Harbor Superfund Site.	159	5 CORR / Correspondence	R10: Striplin, Betsy (Lower Willamette Group)	R10: Humphrey, Chip (EPA), R10: Martich, Tara (EPA)	PAPER DOCUMENT	053-REMEDIAL/0531-Remedy Characterization
1185434	9/5/2003	Letter providing explanation of Category 3a and 3b Comments and List of Technical Memoranda for Lower Willamette River, Portland Harbor Superfund Site.	3,024	44	R10: Wyatt, Robert (Lower Willamette Group)	R10: Humphrey, Chip (EPA), R10: Martich, Tara (EPA)	PAPER DOCUMENT	053-REMEDIAL/0531-Remedy Characterization
1175292	9/10/2003	Monthly Progress Report for August 2003, Lower Willamette River, Portland Harbor Superfund Site.	204	6 RPT / Report	R10: Striplin, Betsy (Lower Willamette Group)	R10: Humphrey, Chip (EPA), R10: Martich, Tara (EPA)	PAPER DOCUMENT	053-REMEDIAL/0531-Remedy Characterization
1185246	10/10/2003	Monthly Progress Report for September 2003, (9/03) Lower Willamette River, Portland Harbor Superfund Site, USEPA Docket No: CERCLA-10-2001-0240.	214	6 RPT / Report	R10: Striplin, Betsy (Lower Willamette Group)	R10: Humphrey, Chip (EPA), R10: Martich, Tara (EPA)	PAPER DOCUMENT	053-REMEDIAL/0531-Remedy Characterization

100003868	10/10/2003	MFA. 2003b. Data Report for Soil and Groundwater Investigation, Truck Manufacturing Plant II. Prepared for Freightliner LLC. Maul Foster and Alongi, Inc., Portland, OR.	54,126	1 RPT / Report	R10: Unknown, Unknown (Maul Foster & Alongi, Inc.)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
1178615	10/15/2003	Letter regarding revisions to the Programmatic Work Plan (PWP).	75	2 CORR / Correspondence	R10: Mckenna, Jim (Lower Willamette Group)	R10: Humphrey, Chip (EPA), R10: Martich, Tara (EPA)	PAPER DOCUMENT	053-REMEDIAL/0531-Remedy Characterization
712910	10/22/2003	Round 1 Tissue Sample Collection and Archive Information Summary Tables.	482	54	R10: Mckenna, Jim (Port of Portland), R10: Wyatt, Robert, J (Northwest Natural Gas Company)	R10: Humphrey, Chip (EPA), R10: Martich, Tara (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
1185428	10/22/2003	Letter transmitting tables 1 & 2 re the Lower Willamette Group Round 1 Tissue Samples. Land Conservation and Development Department Division 20 - Willamette River Greenway Plan.	3,288	54 CORR / Correspondence	R10: Mckenna, Jim (Lower Willamette Group)	R10: Humphrey, Chip (EPA), R10: Martich, Tara (EPA)	PAPER DOCUMENT	053-REMEDIAL/0531-Remedy Characterization
500004416	10/22/2003	Letter regarding validated Round 1 sediment congeners and tissue data.	685	10 RPT / Report	R10: Unknown, Unknown (Oregon Dept. of Land Conservation and Development)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
1178616	10/27/2003	Guidance for Obtaining Representative Laboratory Analytical Subsamples from Particulate Laboratory Samples	109	2 CORR / Correspondence	R10: Striplin, Betsy, D (Striplin Environmental Associates)	R10: Humphrey, Chip (EPA), R10: Martich, Tara (EPA)	PAPER DOCUMENT	053-REMEDIAL/0531-Remedy Characterization
100001984	10/27/2003	Gerlach_EPA_GuidanceObtainRepresentLabAnalySubsamplesParticLab03.	2,721	156 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100002908	11/1/2003	Procedures for the derivation of equilibrium partitioning sediment benchmarks (ESBs) for the protection of benthic organisms: PAH mixtures.	6,643	175 CORR / Correspondence	R10: (EPA)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
693047	11/6/2003	EPA Response to LWG Dispute Exhibits: Exhibit 4(2) - Re: EPA Comments on LWG Field Sampling Plan EPA Alternate Field Sampling Plan.	3,846	52 RPT / Report	R10: Humphrey, Chip (EPA), R10: Martich, Tara (EPA)	R10: Mckenna, Jim (Lower Willamette Group), R10: Wyatt, Robert (Lower Willamette Group)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
1178619	11/10/2003	Monthly Progress Report for October 2003, Lower Willamette River, Portland Harbor Superfund Site.	219	7 CORR / Correspondence	R10: Striplin, Betsy (Lower Willamette Group)	R10: Humphrey, Chip (EPA), R10: Martich, Tara (EPA)	PAPER DOCUMENT	053-REMEDIAL/0531-Remedy Characterization
1185947	11/10/2003	Letter transmitting the Portland Harbor Remedial Investigation/Feasibility Study (RI/FS) Programmatic Work Plan, without attachment.	63	1 CORR / Correspondence	R10: Mckenna, Jim (Lower Willamette Group), R10: Wyatt, Robert (Lower Willamette Group)	R10: Humphrey, Chip (EPA), R10: Martich, Tara (EPA)	PAPER DOCUMENT	053-REMEDIAL/0531-Remedy Characterization
1455122	11/14/2003	Letter Transmitting Transmittal Sheet and Lower Willamette Group Round 1 Validated Sediment Congeners and Tissue Data, Portland Harbor RI/FS Dated November 18, 2003.	2,648	27	R10: Jones, Laura, L (Striplin Environmental Associates), R10: Pine, Keith (Striplin Environmental Associates), R10: Unknown, Unknown (Lower Willamette Group)	R10: Revelas, Gene (Striplin Environmental Associates), R10: Pine, Keith (Striplin Environmental Associates), R10: Humphrey, Chip (EPA), R10: Grepo-grove, Ginna (EPA), R10: Tritt, Maja (EPA)	PAPER DOCUMENT	053-REMEDIAL/0531-Remedy Characterization
1185041	12/1/2003	Portland Harbor - Cleanup Newsletter. Monthly Progress Report for November 2003, (11/03) Lower Willamette River, Portland Harbor Superfund Site, USEPA Docket No: CERCLA-10-2001-0240.	436	6 PUB / Publication	R10: Unknown, Unknown (EPA)	R10: Unknown, Unknown (Unknown)	PAPER DOCUMENT	053-REMEDIAL/0531-Remedy Characterization
1185247	12/10/2003	Data Validation Report for the Polychlorinated Biphenyl Congener Analysis of Fish Tissue and Sediment Samples collected for the Portland Harbor RI/FS Round 1 Sampling.	208	6 RPT / Report	R10: Striplin, Betsy (Lower Willamette Group)	R10: Humphrey, Chip (EPA), R10: Martich, Tara (EPA)	PAPER DOCUMENT	053-REMEDIAL/0531-Remedy Characterization
1198107	12/15/2003	Data Validation Report for the Polychlorinated Biphenyl Congener Analysis of Fish Tissue and Sediment Samples collected for the Portland Harbor RI/FS Round 1 Sampling.	10,531	271 RPT / Report	R10: Grepo-grove, Ginna (EPA)	R10: Humphrey, Chip (EPA), R10: Martich, Tara (EPA)	PAPER DOCUMENT	053-REMEDIAL/0531-Remedy Characterization
100004544	1/1/2004	EPA. 2004d. ProUCL Version 3.0. Statistical software to compute Upper Confidence Limits of the unknown population mean [online]. Technical Support Center for Monitoring and Site Characterization US Environmental Protection Agency. Updated 5/6/2004. Availa Lower Willamette River, Portland Harbor Superfund Site: Errata - November 13, 2003 (11/13/03) Revised Draft Final RI/FS Programmatic Work Plan.	172	2 PUB / Publication	R10: Unknown, Unknown (EPA)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
1185845	1/8/2004	Letter regarding the Portland Harbor Project - Cultural Resources Analysis.	669	6 RPT / Report	R10: Pine, Keith (Lower Willamette Group)	R10: Humphrey, Chip (EPA), R10: Karamas, Tara (EPA)	PAPER DOCUMENT	053-REMEDIAL/0531-Remedy Characterization
1185429	1/12/2004	Monthly Progress Report for December 2003 (12/03) for the Lower Willamette River, Portland Harbor Superfund Site.	209	4 CORR / Correspondence	R10: Mckenna, Jim (Lower Willamette Group), R10: Wyatt, Robert (Lower Willamette Group)	R10: Humphrey, Chip (EPA), R10: Martich, Tara (EPA)	PAPER DOCUMENT	053-REMEDIAL/0531-Remedy Characterization
1185431	1/12/2004	Letter providing responses to EPA Comments on the Draft Round 2A Field Sampling Plan.	210	6	R10: Striplin, Betsy (Lower Willamette Group)	R10: Humphrey, Chip (EPA), R10: Martich, Tara (EPA)	PAPER DOCUMENT	053-REMEDIAL/0531-Remedy Characterization
1185435	1/16/2004	Letter providing comments on the Portland Harbor RI/FS Programmatic Work Plan, revised draft final 11/13/03.	1,829	30	R10: Mckenna, Jim (Lower Willamette Group), R10: Wyatt, Robert (Lower Willamette Group)	R10: Humphrey, Chip (EPA), R10: Martich, Tara (EPA)	PAPER DOCUMENT	053-REMEDIAL/0531-Remedy Characterization
1185403	1/20/2004	Letter in response to a 1/28/04 letter from the Department of Environmental Quality.	508	8 CORR / Correspondence	R10: McMaster, Kemper, M (U. S. Fish and Wildlife Service)	R10: Humphrey, Chip (EPA), R10: Martich, Tara (EPA)	PAPER DOCUMENT	053-REMEDIAL/0531-Remedy Characterization
1185752	2/11/2004	Letter Regarding Administrative Order on Consent for Remedial Investigation and Feasibility Study and EPA Comments on Programmatic Work Plan, Portland Harbor Superfund Site.	122	2 CORR / Correspondence	R10: Wyatt, Robert, J (Northwest Natural Gas Company)	R10: Humphrey, Chip (EPA), R10: Anderson, James, M (Oregon Dept. of Environmental Quality)	PAPER DOCUMENT	053-REMEDIAL/0531-Remedy Characterization
1372609	2/23/2004	Draft Round 2 Field Sampling Plan - Shorebird Area and Beach Sediment Sampling - Portland Harbor RI/FS.	87	2 CORR / Correspondence	R10: Mckenna, Jim (Lower Willamette Group)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	PAPER DOCUMENT	053-REMEDIAL/0531-Remedy Characterization
1185440	2/24/2004	EPA Response to LWG Dispute Exhibits: Exhibit 4(1)b - Re: Administrative Order on Consent for Remedial Investigation and Feasibility Study, RI/FS Work Plan.	1,010	21 WP / Work Plan	R10: Pine, Keith, A (Integral Consulting, Inc.)	R10: Humphrey, Chip (EPA), R10: Martich, Tara (EPA)	PAPER DOCUMENT	053-REMEDIAL/0531-Remedy Characterization
693044	3/15/2004	Lower Willamette River, Portland Harbor Superfund Site: Monthly Progress Report for February 2004.	632	20 RPT / Report	R10: Humphrey, Chip (EPA), R10: Blischke, Eric, L (Oregon Dept. of Environmental Quality)	R10: Mckenna, Jim (Lower Willamette Group), R10: Wyatt, Robert (Lower Willamette Group)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
1185839	3/18/2004	EPA. 2004. ProUCL Version 3.0 user guide. Technical Support Center for Monitoring and Site Characterization, US Environmental Protection Agency.	318	7 RPT / Report	R10: Pine, Keith (Lower Willamette Group)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA), R10: Karamas, Tara (EPA)	PAPER DOCUMENT	053-REMEDIAL/0531-Remedy Characterization
100004065	4/1/2004	EPA. 2004c. ProUCL Version 3.0, User Guide. Office of Research and Development. April 2004.	1,622	166 RPT / Report	R10: Singh, Anita (Lockheed Martin Environmental Services), R10: Maichle, Robert (Lockheed Martin Environmental Services), R10: Singh, Ashok, K (University of Nevada)	R10: Unknown, Unknown (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100004171	4/1/2004	Lower Willamette River, Portland Harbor Superfund Site: Monthly Progress Report for March 2004.	1,622	166 RPT / Report	R10: Singh, Anita (Lockheed Martin Environmental Services), R10: Maichle, Robert (Lockheed Martin Environmental Services), R10: Singh, Ashok, K (University of Nevada)	R10: Unknown, Unknown (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
1185840	4/10/2004	Portland Harbor RI/FS Programmatic Work Plan.	292	7 RPT / Report	R10: Pine, Keith (Lower Willamette Group)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA), R10: Karamas, Tara (EPA)	PAPER DOCUMENT	053-REMEDIAL/0531-Remedy Characterization
712908	4/23/2004	Portland Harbor RI/FS Programmatic Work Plan - Map Folio.	778	217	R10: Unknown, Unknown (Windward Environmental, LLC.), R10: Unknown, Unknown (Integral Consulting, Inc.)	R10: Unknown, Unknown (Lower Willamette Group)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
1185727	4/23/2004	Portland Harbor RI/FS: Programmatic Work Plan - Map Folio.	36,476	205 RPT / Report	R10: Unknown, Unknown (Anchor Environmental, LLC), R10: Unknown, Unknown (Kennedy/Jenks Consultants), R10: Unknown, Unknown (Windward Environmental, LLC.), R10: Unknown, Unknown (Groundwater Solutions Inc.), R10: Unknown, Unknown (Integral Consulting, Inc.)	R10: Unknown, Unknown (Lower Willamette Group)	PAPER DOCUMENT	053-REMEDIAL/0531-Remedy Characterization



100006082	4/23/2004	REDACTED Portland Harbor RI/FS: Programmatic Work Plan - Volume One: Text, Figures and Tables.	21,457	508 RPT / Report	R10: Unknown, Unknown (Anchor Environmental, LLC), R10: Unknown, Unknown (Kennedy/Jenks Consultants), R10: Unknown, Unknown (Windward Environmental, LLC.), R10: Unknown, Unknown (Groundwater Solutions Inc.), R10: Unknown, Unknown (Integral Consulting, Inc.)	R10: Unknown, Unknown (Lower Willamette Group)	PAPER DOCUMENT	053-REMEDIAL/0531-Remedy Characterization
100006083	4/23/2004	REDACTED Portland Harbor RI/FS: Programmatic Work Plan - Volume Two: Appendices A - G.	35,348	880 RPT / Report	R10: Unknown, Unknown (Anchor Environmental, LLC), R10: Unknown, Unknown (Kennedy/Jenks Consultants), R10: Unknown, Unknown (Windward Environmental, LLC.), R10: Unknown, Unknown (Groundwater Solutions Inc.), R10: Unknown, Unknown (Integral Consulting, Inc.)	R10: Unknown, Unknown (Lower Willamette Group)	PAPER DOCUMENT	053-REMEDIAL/0531-Remedy Characterization
500013403	4/23/2004	Portland Harbor RI/FS programmatic work plan.	753	217 LAWS / Laws/Regulations/Guidance	R10: Unknown, Unknown (Windward Environmental, LLC.)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
1185841	5/6/2004	Lower Willamette River, Portland Harbor Superfund Site: Monthly Progress Report for April 2004.	266	7 RPT / Report	R10: Pine, Keith (Lower Willamette Group)	R10: Humphrey, Chip (EPA), R10: Karamas, Tara (EPA)	PAPER DOCUMENT	053-REMEDIAL/0531-Remedy Characterization
100004754	5/28/2004	Windward. 2004a. Portland Harbor RI/FS. Ecological risk assessment: Approach for the preliminary risk evaluation for ecological receptors. Prepared for Lower Willamette Group. Windward Environmental LLC, Seattle, WA.	634	60 RPT / Report	R10: Unknown, Unknown (Windward Environmental, LLC.)	R10: Unknown, Unknown (Lower Willamette Group)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
712903	6/2/2004	PORTLAND HARBOR RI/FS ROUND 2 FIELD SAMPLING PLAN SHOREBIRD AREA AND BEACH SEDIMENT SAMPLING.	318	20	R10: Unknown, Unknown (Kennedy/Jenks Consultants), R10: Unknown, Unknown (Windward Environmental, LLC.), R10: Unknown, Unknown (Integral Consulting, Inc.)	R10: Unknown, Unknown (Lower Willamette Group)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
1185842	6/10/2004	Lower Willamette River, Portland Harbor Superfund Site: Monthly Progress Report for May 2004.	320	8 RPT / Report	R10: Pine, Keith (Lower Willamette Group)	R10: Humphrey, Chip (EPA), R10: Karamas, Tara (EPA)	PAPER DOCUMENT	053-REMEDIAL/0531-Remedy Characterization
712904	6/21/2004	PORTLAND HARBOR RI/FS ROUND 2 FIELD SAMPLING PLAN SEDIMENT SAMPLING AND BENTHIC TOXICITY TESTING.	7,253	101	R10: Unknown, Unknown (Anchor Environmental, LLC), R10: Unknown, Unknown (Windward Environmental, LLC.), R10: Unknown, Unknown (Integral Consulting, Inc.)	R10: Unknown, Unknown (Lower Willamette Group)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
712906	6/21/2004	PORTLAND HARBOR RI/FS ROUND 2 FIELD SAMPLING PLAN SEDIMENT SAMPLING AND BENTHIC TOXICITY TESTING.	8,978	133	R10: Unknown, Unknown (Integral Consulting, Inc.)	R10: Unknown, Unknown (Lower Willamette Group)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
1176569	6/24/2004	Appendix C: Quality Assurance Manuals for Columbia Analytical Services, Northeast Analytical, and STL Seattle.	12,065	458 RPT / Report	R10: Christian, Jeff (Columbia Analytical Services, Inc.), R10: Zboralski, Felix, R (STL Seattle), R10: Boyden, Thomas (STL Seattle), R10: Palmquist, Stan, P (Severn Trent Laboratories (STL)), R10: Kotas, William, A (Northeast Analytical, Inc.), R10: Wagner, Robert, E (Northeast Analytical, Inc.)	R10: Unknown, Unknown (Lower Willamette Group)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
1471390	6/24/2004	CD With Appendix C: Quality Assurance Manuals for Columbia Analytical Services, Northeast Analytical, and STL Seattle (CD-ROM at Records Center).	93	1	R10: Christian, Jeff (Columbia Analytical Services, Inc.), R10: Zboralski, Felix, R (STL Seattle), R10: Boyden, Thomas (STL Seattle), R10: Palmquist, Stan, P (Severn Trent Laboratories (STL)), R10: Kotas, William, A (Northeast Analytical, Inc.), R10: Wagner, Robert, E (Northeast Analytical, Inc.)	R10: Unknown, Unknown (Lower Willamette Group)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100006296	6/30/2004	EPA comments on technical memorandum: EPA comments on TRV selection technical memorandum, and accompanying cover letter to Lower Willamette Group from C. Humphrey and E. Blischke dated June 30, 2004.	87	21 RPT / Report	R10: (EPA)		ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
712869	7/1/2004	Portland Harbor RI/FS Deliverable Descriptions and Submittal Deadlines.	83	13	R10: Unknown, Unknown (Lower Willamette Group)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
712909	7/6/2004	Round 1 Complete Set of Sampling Data. Lower Willamette River, Portland Harbor Superfund Site: Monthly Progress Report for June 2004.	3,955	1	R10: Unknown, Unknown (Unknown)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
1185843	7/12/2004	Lower Willamette River, Portland Harbor Superfund Site: Monthly Progress Report for June 2004.	311	8 RPT / Report	R10: Pine, Keith (Lower Willamette Group)	R10: Humphrey, Chip (EPA), R10: Karamas, Tara (EPA)	PAPER DOCUMENT	053-REMEDIAL/0531-Remedy Characterization
100004067	7/28/2004	Windward. 2004. Portland Harbor RI/FS. Technical memorandum: evaluating steady-state aquatic food web models for the Portland Harbor Superfund site. WE-04-0002. Draft. Prepared for Lower Willamette Group.	890	83 RPT / Report	R10: Unknown, Unknown (Windward Environmental, LLC.)	R10: Unknown, Unknown (Lower Willamette Group)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
1185844	8/10/2004	Lower Willamette River, Portland Harbor Superfund Site: Monthly Progress Report for July 2004.	318	8 RPT / Report	R10: Pine, Keith (Lower Willamette Group)	R10: Humphrey, Chip (EPA), R10: Karamas, Tara (EPA)	PAPER DOCUMENT	053-REMEDIAL/0531-Remedy Characterization
1185847	8/13/2004	Portland Harbor Remedial Investigation/Feasibility Study (RI/FS) Round 2 Quality Assurance Project Plan Addendum 1: Surface Water.	1,590	32 RPT / Report	R10: Unknown, Unknown (Integral Consulting, Inc.)	R10: Unknown, Unknown (Lower Willamette Group)	PAPER DOCUMENT	053-REMEDIAL/0531-Remedy Characterization
1185848	8/13/2004	Portland Harbor Remedial Investigation/Feasibility Study (RI/FS): Round 2A Field Sampling Plan Surface Water Sampling.	7,604	153 WP / Work Plan	R10: Pine, Keith, A (Integral Consulting, Inc.)	R10: Wyatt, Robert (Lower Willamette Group), R10: Humphrey, Chip (EPA), R10: Martich, Tara (EPA)	PAPER DOCUMENT	053-REMEDIAL/0531-Remedy Characterization
100003899	9/17/2004	Integral and GSI. 2004. Portland Harbor RI/FS Conceptual Model Update. Prepared for the Lower Willamette Group, Portland, OR. Groundwater Solutions Inc., Portland, OR and Integral Consulting Inc., Mercer Island, WA.	243,868	1 RPT / Report	R10: Unknown, Unknown (Integral Consulting, Inc.)	R10: Unknown, Unknown (Lower Willamette Group)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
712855	10/1/2004	Portland Harbor Superfund Site Remedial Investigation/Feasibility Study Round 1 Site Characterization Summary Report Executive Summary.	57	5	R10: Unknown, Unknown (Lower Willamette Group)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
1457862	10/1/2004	Correspondence regarding Submittal of Revised Round 2 Quality Assurance Project Plan Addendum 1: Surface Water and Round 2A Field Sampling Plan: Surface Water Sampling.	81	1 CORR / Correspondence	R10: Wyatt, Bob (Lower Willamette Group), R10: Mckenna, Jim (Lower Willamette Group)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	PAPER DOCUMENT	053-REMEDIAL/0531-Remedy Characterization
500013400	10/4/2004	Portland Harbor RI/FS round 2a field sampling plan: surface water sampling.	251	50 LAWS / Laws/Regulations/Guidance	R10: Unknown, Unknown (Integral Consulting, Inc.)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
1457880	10/8/2004	Portland Harbor RI/FS Interim Deliverable for Human Health Risk Assessment: Human Health Toxicity Values, Final, October 8, 2004.	1,937	12 RPT / Report	R10: Unknown, Unknown (Kennedy/Jenks Consultants)	R10: Unknown, Unknown (Lower Willamette Group)	PAPER DOCUMENT	053-REMEDIAL/0531-Remedy Characterization
1457881	10/8/2004	Portland Harbor RI/FS Interim Deliverable for Human Health Risk Assessment: Round 1 Tissue Exposure Point Concentrations, Final, October 8, 2004.	6,190	44 RPT / Report	R10: Unknown, Unknown (Kennedy/Jenks Consultants)	R10: Unknown, Unknown (Lower Willamette Group)	PAPER DOCUMENT	053-REMEDIAL/0531-Remedy Characterization
712850	10/12/2004	PORTLAND HARBOR RI/FS ROUND 1 SITE CHARACTERIZATION SUMMARY REPORT DRAFT.	357	51	R10: Unknown, Unknown (Integral Consulting, Inc.)	R10: Unknown, Unknown (Lower Willamette Group)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
500013401	10/12/2004	Portland Harbor RI/FS: Round 1 site characterization summary report. Draft.	251	51 LAWS / Laws/Regulations/Guidance	R10: Unknown, Unknown (Integral Consulting, Inc.)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100002909	11/1/2004	Draft aquatic life water quality criteria for selenium - 2004.	888	334 CORR / Correspondence	R10: (EPA)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100004146	12/1/2004	ATSDR. 2004. Agency for Toxic Substances and Disease Registry (ATSDR) Minimum Risk Levels (MRLs), December 2004. URL: <a href="http://www.atsdr.cdc.gov/mrls.html">http://www.atsdr.cdc.gov/mrls.html</a> .	49	13 RPT / Report	R10: Unknown, Unknown (ATSDR)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization

1210091	12/16/2004	Portland Harbor RI/FS Round 2 Quality Assurance Project Plan Addendum 3: Groundwater Pathway Assessment Pilot Study. Letter providing the final decision on the formal dispute regarding EPA comments on the Draft Preliminary Design Submittal. (2nd AR Update)	2,090	52	RPT / Report	R10: Unknown, Unknown (Kennedy/Jenks Consultants), R10: Unknown, Unknown (Integral Consulting, Inc.)	R10: Unknown, Unknown (Lower Willamette Group)	PAPER DOCUMENT	053-REMEDIAL/0531-Remedy Characterization
1198481	12/17/2004	Canadian water quality guidelines for the protection of aquatic life: summary table.	354	6	CORR / Correspondence	R10: Opalski, Daniel, D (EPA)	R10: Wyatt, Robert, J (Northwest Natural Gas Company)	PAPER DOCUMENT	053-REMEDIAL/0531-Remedy Characterization
100002548	1/1/2005	Biology, behavior, and resources of resident and anadromous fish in the Lower Willamette River. Final report of research, 2000-2004.	181	28	CORR / Correspondence	R10: (Canadian Council of Ministers of the Environment)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
500014959	3/1/2005	Transmittal letter regarding Portland Harbor RI/FS, Phase I Results: Hydrodynamic Sedimentation Modeling for Lower Willamette River dated 2/28/05 (less attachment).	2,271	246	LAWS / Laws/Regulations/Guidance	R10: Friesen, Thomas, A (Oregon Dept. of Fish and Wildlife)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
1254662	3/8/2005	Technical Memo: Provisional Toxicity Reference Value Selection for the Portland Harbor Preliminary Risk Assessment (EPA comments).	48	2	CORR / Correspondence	R10: Pine, Keith, A (Integral Consulting, Inc.)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	PAPER DOCUMENT	053-REMEDIAL/0531-Remedy Characterization
1210006	3/18/2005	Re: Terminal 4 Early Action City of Portland Balance Cut and Fill Regulation.	2,049	28	CORR / Correspondence	R10: Humphrey, Chip (EPA)	R10: Mckenna, James (Port of Portland), R10: Wyatt, Robert, J (Northwest Natural Gas Company)	PAPER DOCUMENT	053-REMEDIAL/0531-Remedy Characterization
1396816	3/29/2005	PORTLAND HARBOR RI/FS DRAFT MONITORED NATURAL RECOVERY (MNR) TECHNICAL MEMORANDUM - STEP 2 DATA EVALUATION METHODS.	3,886	3	CORR / Correspondence	R10: Koehl, Krista (Port of Portland)	R10: Houck-cora, Lori, H (EPA)	PAPER DOCUMENT	053-REMEDIAL/0531-Remedy Characterization
712847	4/1/2005	Memorandum Regarding Floodway and Flood Storage Technical Explanation and Analysis.	2,404	58		R10: Unknown, Unknown (Anchor Environmental, L. L. C.) R10: Lowe, Cynthia (Parsons Brinckerhoff Quade Douglas, Inc.), R10: Kroma, Karl (Parsons Brinckerhoff)	R10: Unknown, Unknown (Lower Willamette Group)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
500003965	4/29/2005	Email Regarding Dan's email message to Dick re:MCL.	541	10	CORR / Correspondence	R10: Kawabata, Sylvia (EPA)	R10: Summers, Anne, B (Port of Portland) R10: Cora, Lori, H (EPA), R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA), R10: Ivy, Kathy (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
500004246	6/7/2005	Draft letter requesting the Safe Drinking Water Act Maximum Contaminant Level (MCLs) standards and federal Ambient Water Quality Criteria (AWQC) for consumption of water and fish as screening criteria in DEQ's source control program.	70	2	CORR / Correspondence	R10: Opalski, Daniel, D (EPA)	R10: Pedersen, Dick (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
500004247	6/7/2005	Letter to Early Action and Lower Willamette Group Project Managers Regarding Diving Safety, (less enclosure).	74	1	CORR / Correspondence	R10: Sheldrake, Sean, A (EPA), R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	R10: Summers, Anne, B (Port of Portland), R10: Mckenna, Jim (Port of Portland), R10: Patterson, Larry, D (ARKEMA, Inc.), R10: Wyatt, Robert, J (NW Natural)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
712799	6/22/2005	Transmittal sheet for Portland Harbor RI/FS, Round 2 Groundwater Pathway Assessment Sampling & Analysis Plan, Appendix B, Pilot Study Data Report. (less attachment)	50	4		R10: Pine, Keith, A (Integral Consulting, Inc.)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	PAPER DOCUMENT	053-REMEDIAL/0531-Remedy Characterization
1223903	7/8/2005	Transmittal sheet for Portland Harbor RI/FS, Round 2 Quality Assurance Project Plan Supplement to Addendum 3, Groundwater Pathway Assessment Transition Zone Water Sampling. (less attachment).	49	2	CORR / Correspondence	R10: Pine, Keith, A (Integral Consulting, Inc.)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	PAPER DOCUMENT	053-REMEDIAL/0531-Remedy Characterization
1223904	7/8/2005	Transmittal sheet for Portland Harbor RI/FS, Round 2 Groundwater Pathway Assessment Sampling & Analysis Plan, Attachment 2: Field Sampling Plan Transition Zone Water Sampling. (less attachment).	52	2	CORR / Correspondence	R10: Pine, Keith, A (Integral Consulting, Inc.)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	PAPER DOCUMENT	053-REMEDIAL/0531-Remedy Characterization
1223905	7/8/2005	PORTLAND HARBOR RI/FS ROUND 2A SEDIMENT SITE CHARACTERIZATION SUMMARY REPORT DRAFT.	50	2	CORR / Correspondence	R10: Unknown, Unknown (Integral Consulting, Inc.)	R10: Unknown, Unknown (Lower Willamette Group)	PAPER DOCUMENT	053-REMEDIAL/0531-Remedy Characterization
712798	7/15/2005	ATSDR. 2005c. ToxFAQs for Hexachlorocyclohexane. Available at <a href="http://www.atsdr.cdc.gov/tfacts43.html">http://www.atsdr.cdc.gov/tfacts43.html</a> . U.S. Department of Health and Human Services, Public Health Service, Agency for Toxic Substances and Disease Registry, Atlanta, GA.	314	44		R10: Unknown, Unknown (U. S. Dept. of Health and Human Services), R10: Unknown, Unknown (Agency for Toxic Substances and Disease Registry)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100003802	8/1/2005	ATSDR. 2005b. ToxFAQs for Heptachlor and Heptachlor Epoxide. Available at <a href="http://www.atsdr.cdc.gov/tfacts12.html">http://www.atsdr.cdc.gov/tfacts12.html</a> . U.S. Department of Health and Human Services, Public Health Service, Agency for Toxic Substances and Disease Registry, Atlanta, GA.	42	2	RPT / Report	R10: Stone, Jen (U. S. Fish and Wildlife Service), R10: Buck, Jeremy (U. S. Fish and Wildlife Service), R10: Unknown, Unknown (Xerces Society for Invertebrate Conservation), R10: Nedeau, Ethan (Biodiversity), R10: Smith, Allan, K (Pacific Northwest Native Freshwater Mussel Workgroup)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
610932	8/3/2005	ATSDR. 2005b. ToxFAQs for Heptachlor and Heptachlor Epoxide. Available at <a href="http://www.atsdr.cdc.gov/tfacts12.html">http://www.atsdr.cdc.gov/tfacts12.html</a> . U.S. Department of Health and Human Services, Public Health Service, Agency for Toxic Substances and Disease Registry, Atlanta, GA.	1,679	48	RPT / Report	R10: Unknown, Unknown (U. S. Dept. of Health and Human Services), R10: Unknown, Unknown (Agency for Toxic Substances and Disease Registry)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100003796	9/1/2005	EPA. 2004b. Preliminary Closeout Report. McCormick & Baxter Creosoting Company Superfund Site, Portland Oregon. U.S. Environmental Protection Agency Region 10, Oregon Operations Office, Portland, OR	35	2	RPT / Report	R10: Unknown, Unknown (EPA)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100003804	9/1/2005	Maestre, A., and R. Pitt. 2005. The National Stormwater Quality Database, Version 1.1: A Compilation and Analysis of NPDES Stormwater Monitoring Information.	1,145	19	RPT / Report	R10: Pitt, Robert, E (University of Alabama), R10: Maestre, Alexander (University of Alabama)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100003968	9/4/2005	Windward. 2005. Portland Harbor RI/FS. Ecological preliminary risk evaluation. WE-05-0007. Draft. Prepared for Lower Willamette Group. Windward Environmental LLC, Seattle, WA.	9,283	447	RPT / Report	R10: Unknown, Unknown (Windward Environmental, LLC.) R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	R10: Unknown, Unknown (Lower Willamette Group)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100004454	9/9/2005	Email regarding Reply to LWG's understanding of the modifications to the Addendum 1 Transition Zone Water Sampling Plan (based on our 9/23/05 meeting).	307	3	CORR / Correspondence	R10: Palmeri, Jordan (Unknown)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
614112	9/16/2005	Email regarding Request for Additional Information re: Round 1 Biota/Sediment Sampling.	241	1	EML / Email	R10: Unknown, Unknown (Unknown)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
612652	9/28/2005	Email regarding Extension of time for LWG respond to Round 2B Conditional Approval.	40	6	EML / Email	R10: Humphrey, Chip (EPA)	R10: Applegate, Richard (City of Portland, Oregon), R10: Mckenna, James (Port of Portland), R10: Martin, Todd (Integral Consulting, Inc.), R10: Wyatt, Robert, J (NW Natural)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100006817	9/30/2005	Email regarding Reply to Extension of time for LWG respond to Round 2B Conditional Approval.	40	1	EML / Email	R10: Unknown, Unknown (Unknown)	R10: Applegate, Richard (City of Portland, Oregon), R10: Mckenna, James (Port of Portland), R10: Wyatt, Robert, J (NW Natural)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100006827	10/3/2005	Email regarding Request for Additional Information re: Round 1 Biota/Sediment Sampling.	15	2	EML / Email	R10: Unknown, Unknown (Unknown)	R10: Applegate, Richard (City of Portland, Oregon), R10: Mckenna, James (Port of Portland), R10: Wyatt, Robert, J (NW Natural)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100006818	10/6/2005	Email regarding Reply to Extension of time for LWG respond to Round 2B Conditional Approval.	19	2	EML / Email	R10: Unknown, Unknown (Unknown)	R10: Applegate, Richard (City of Portland, Oregon), R10: Mckenna, James (Port of Portland), R10: Wyatt, Robert, J (NW Natural)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100006830	10/6/2005	Email regarding RPAC/River stage Groundwater Monitoring.	29	2	EML / Email	R10: Unknown, Unknown (Unknown)	R10: Applegate, Richard (City of Portland, Oregon), R10: Mckenna, James (Port of Portland), R10: Wyatt, Robert, J (NW Natural)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100006830	10/6/2005	Email regarding Reply to Extension of time for LWG respond to Round 2B Conditional Approval.	29	2	EML / Email	R10: Unknown, Unknown (Unknown)	R10: Applegate, Richard (City of Portland, Oregon), R10: Mckenna, James (Port of Portland), R10: Wyatt, Robert, J (NW Natural)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
613802	10/20/2005	Email regarding Reply to Extension of time for LWG respond to Round 2B Conditional Approval.	242	1	EML / Email	R10: Unknown, Unknown (Unknown)	R10: Applegate, Richard (City of Portland, Oregon), R10: Mckenna, James (Port of Portland), R10: Wyatt, Robert, J (NW Natural)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization

100006298	10/26/2005	Memo to Lower Willamette Group. Subject: benthic interpretive approach for Portland Harbor Ecological Risk Assessment. October 26, 2005. US Environmental Protection Agency, Portland, OR.	36	4 RPT / Report	R10: (EPA)		ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100006299	10/26/2005	Memo to Lower Willamette Group. Subject: benthic interpretive approach for Portland Harbor Ecological Risk Assessment. October 26, 2005. US Environmental Protection Agency, Portland, OR.	33	3 RPT / Report	R10: (EPA)		ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100006034	11/4/2005	REDACTED Administrative Order on Consent for Remedial Investigation and Feasibility Study; Docket No. CERCLA-102001-0240; LWG Food Web Modeling Report: Evaluating TrophicTrace and the Arnot and Gobas Models for Application to the PORSF Site.	3,222	304 RPT / Report	R10: Wyatt, Robert, J (NW Natural)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100006971	12/2/2005	Email regarding EPA R3 Data Gaps Cover letter, Memo, Figures and Tables.	41	2 EML / Email	R10: Humphrey, Chip (EPA)	R10: Applegate, Richard (City of Portland, Oregon), R10: Mckenna, James (Port of Portland), R10: Wyatt, Robert, J (NW Natural)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100006972	12/2/2005	Identification of Round 3 Data Gaps.	311	39 CORR / Correspondence	R10: (Unknown)		ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100006973	12/2/2005	Table 1 Conceptual Site Model Data Needs.	39	1 CORR / Correspondence	R10: (Unknown)		ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100006974	12/2/2005	Table 2 Potential Upstream Sources of Contamination (River Mile 11 – 14).	34	1 CORR / Correspondence	R10: (Unknown)		ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100006975	12/2/2005	Table 3 AOPCID Criteria.	45	1 CORR / Correspondence	R10: (Unknown)		ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100006976	12/2/2005	Table 4 AOPC Summary.	45	1 CORR / Correspondence	R10: (Unknown)		ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100006977	12/2/2005	Table 5 Areas of Concern Data Gaps.	88	6 CORR / Correspondence			ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100006978	12/2/2005	Table 6 Assessment Endpoint Changes.	86	4 CORR / Correspondence	R10: (Unknown)		ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100006979	12/2/2005	Table 6 ERA Data Needs.	104	3 CORR / Correspondence	R10: (Unknown)		ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100006980	12/2/2005	Table 9 Summary of Round 3 In-Water Data Gaps.	42	2 CORR / Correspondence	R10: (Unknown)		ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100006981	12/2/2005	Table 8 Outstanding Deliverables.	47	1 CORR / Correspondence	R10: (Unknown)		ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100006982	12/2/2005	Figure 7 Relationship of Contaminant Fate and Transport Model and Food Web Models.	34	1 CORR / Correspondence	R10: (Unknown)		ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100006983	12/2/2005	Figure 4 ERACSM.	125	1 CORR / Correspondence	R10: (Unknown)		ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100006984	12/2/2005	Figure 5 HHRACSM.	83	1 CORR / Correspondence	R10: (Unknown)		ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100006985	12/2/2005	Figure 6 Date and Transport.	68	1 CORR / Correspondence	R10: (Unknown)		ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100006986	12/2/2005	Letter regarding Portland Harbor RI/FS Identification of Round 3 Data Gaps.	94	3 CORR / Correspondence	R10: (Unknown)		ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
500015239	12/2/2005	Identification of round 3 data gaps.	361	42 CORR / Correspondence	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	R10: Mckenna, Jim (Port of Portland), R10: Wyatt, Robert, J (NW Natural)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100002906	1/1/2006	Pesticide Ecotoxicity Database (formerly Environmental Effects Database, EEDB).	180	2 CORR / Correspondence	R10: (EPA)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100003716	1/1/2006	National recommended water quality criteria (4304T).	144	25 CORR / Correspondence	R10: (EPA)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100003813	1/1/2006	DEQ. 2006b. DEQ Site Summary Report--Details for Site ID 49, 81, 111, 138, 155, 395, 398, 1026, 1328, 1398, 2362, 2355, 2371, 2375, and 2437 and 2406. DEQ Environmental Cleanup Site (ECS) Database. www.deq.state.or.us/wmc/ecsi/ecsidetail.asp ?seqnbr.	2,240	1 RPT / Report	R10: Unknown, Unknown (Oregon Dept. of Environmental Quality)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100003931	1/1/2006	TWLCGSG04. Draft Removal Action Completion Report, NW Natural "Gasco" Site Portland, OR. Prepared by Anchor Environmental L.L.C., January 2006.	22,794	287 RPT / Report	R10: Unknown, Unknown (Anchor Environmental, LLC)	R10: Unknown, Unknown (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
500006369	1/1/2006	National recommended water quality criteria (4304T).	149	25 LAWS / Laws/Regulations/Guidance	R10: Unknown, Unknown (EPA)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
610947	1/11/2006	01-11-2006 LWG letter to EPA on December 2 memo.	927	21 CORR / Correspondence	R10: Wyatt, Bob (Lower Willamette Group), R10: Mckenna, Jim (Lower Willamette Group)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
618157	1/18/2006	Email regarding Reply to Oregon Steel Mills Conceptual Site Model MCLINCY Matt to Eric Blischke, ANDERSON Jim.	244	2 EML / Email	R10: Mclincy, Matt (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100006300	2/17/2006	EPA letter to the Lower Willamette Group dated February 17, 2006 (from C. Humphrey and E. Blischke to J. McKenna and R. Wyatt) regarding Portland Harbor RI/FS EPA Proposed Round 3 Scope of Work.	55	10 RPT / Report	R10: (EPA)		ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100006840	3/10/2006	Email regarding Food Web Model Comments.	16	1 EML / Email	R10: Humphrey, Chip (EPA)	R10: Applegate, Richard (City of Portland, Oregon), R10: Mckenna, James (Port of Portland), R10: Wyatt, Robert, J (NW Natural)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100006841	3/10/2006	EPA Comments on Food Web Modeling Report: Evaluating TrophicTrace and the Arnot and Gobas Models for Application to the Portland Harbor Superfund Site (November 2005 Draft).	145	14 CORR / Correspondence	R10: (Unknown)		ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100006842	3/10/2006	Letter regarding Portland Harbor Superfund Site; Administrative Order on Consent for Remedial Investigation and Feasibility Study; Docket No. CERCLA-10-2001-0240 Food Web Modeling Report: Evaluating Trophic Trace and the Arnot and Gobas Models.	90	2 CORR / Correspondence	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	R10: Mckenna, James (Port of Portland), R10: Wyatt, Robert, J (NW Natural)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100004755	3/15/2006	Windward. 2006b. Portland Harbor Superfund Site: Proposed ecological risk assessment decision framework. Draft. Prepared for Lower Willamette Group. Windward Environmental LLC, Seattle, WA.	742	29 RPT / Report	R10: Unknown, Unknown (Windward Environmental, LLC.)	R10: Unknown, Unknown (Lower Willamette Group)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100003795	3/22/2006	ATSDR. 2002a. Public Health Assessment, Portland Harbor, Portland, Multnomah County, Oregon. EPA Facility ID OR0001297969. Draft Report. U.S. Department of Health and Human Services, Agency for Toxic Substances and Disease Registry, Atlanta, GA.	2,158	86 RPT / Report	R10: Unknown, Unknown (U. S. Dept. of Health and Human Services), R10: Unknown, Unknown (Agency for Toxic Substances and Disease Registry)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100006812	3/24/2006	Email regarding Benthic Report tables.	16	1 EML / Email	R10: Humphrey, Chip (EPA)	R10: Mckenna, James (Port of Portland)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
712797	3/27/2006	PORTLAND HARBOR RI/FS ROUND 3 JANUARY 2006 HIGH-FLOW SURFACE WATER FIELD SAMPLING REPORT DRAFT.	15,879	72	R10: Unknown, Unknown (Integral Consulting, Inc.)	R10: Unknown, Unknown (Lower Willamette Group)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
612816	4/12/2006	Email regarding Draft summary of ERA framework meeting.	243	1 EML / Email	R10: Omealy, Mikell (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
1309349	4/21/2006	Portland Harbor RI/FS Technical Memorandum for Human Health Risk Assessment: Exposure Point Concentration Calculation Approach and Summary of Exposure Factors.	1,666	35 RPT / Report	R10: Unknown, Unknown (Kennedy/Jenks Consultants)	R10: Unknown, Unknown (Lower Willamette Group)	PAPER DOCUMENT	053-REMEDIAL/0531-Remedy Characterization

100006204	5/5/2006	Integral, Windward, Anchor, and Kennedy/Jenks. 2006. Personal communication (letter regarding LWG response to EPA CSM questions). Windward Environmental LLC, Seattle, WA; Anchor Environmental L.L.C., Seattle, WA; Kennedy/Jenks Consultants, Inc.	49	6	CORR / Correspondence	R10: (Lower Willamette Group)		ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
616155	5/17/2006	Email regarding Thursday's stormwater meeting (9-11 at BES).	242	1	EML / Email	R10: Tarnow, Karen, E (Oregon Dept. of Environmental Quality)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100006729	5/18/2006	Email regarding Progress Report on ERA Weight of Evidence Framework Development. Proposed General Timeframe for Scoping Potential Round 3 Data Needs Portland Harbor	56	2	CORR / Correspondence	R10: (Unknown)		ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100006821	5/18/2006	RI/FS.	123	1	CORR / Correspondence			ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100006822	5/18/2006	Progress Report on Modeling Approach.	49	1	CORR / Correspondence	R10: (Unknown)		ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100006811	5/19/2006	Email regarding Draft meeting agenda for May 23rd Project Management Meeting. REDACTED Email regarding HRA Issue Summary for May 23rd Project Manager's Meeting.	19	2	EML / Email	R10: Humphrey, Chip (EPA)	R10: Mckenna, James (Port of Portland), R10: Oster, Valerie (Anchor Environmental, LLC), R10: Pine, Keith, A (Integral Consulting, Inc.), R10: Anderson, James, M (Oregon Dept. of Environmental Quality), R10: McClincy, Matt (Oregon Dept. of Environmental Quality), R10: Lewis, Mark, D (NewFields), R10: Livesay, Dave (GSI Groundwater Solutions, Inc.), R10: Lee, Jean, H (Environment International, Ltd.), R10: Longoria, Rose (Yakama Nation), R10: Wyatt, Robert, J (NW Natural)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100006126	5/24/2006	Meeting.	810	5	CORR / Correspondence	R10: Blischke, Eric, L (EPA)	R10: Thompson, Chris (Unknown), R10: Shephard, Burt (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
500003781	5/24/2006	Email regarding identification of Outstanding Issues for 5/23/06 Portland Harbor Managers Meeting on R2 Reporting.	284	4	CORR / Correspondence	R10: Blischke, Eric, L (EPA)	R10: Thompson, Chris (Unknown), R10: Shephard, Burt (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100006156	6/5/2006	EPA letter to the Lower Willamette Group dated June 5, 2006 (from C. Humphrey and E. Blischke to J. McKenna and R. Wyatt) regarding Portland Harbor Superfund Site.	79	13	CORR / Correspondence	R10: (EPA)		ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
712641	6/12/2006	PORTLAND HARBOR RI/FS ROUND 2 MULTIPLATE INVERTEBRATE TISSUE DATA REPORT DRAFT.	1,530	33		R10: Unknown, Unknown (Integral Consulting, Inc.)	R10: Unknown, Unknown (Lower Willamette Group)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100006128	6/15/2006	REDACTED Email regarding Sites Recommended for Transition Zone Water Sampling. Landau Associates. 2006a. Source Control Evaluation, Time Oil Northwest Terminal. Prepared for Time Oil Co. Landau Associates, Tigard, OR.	906	17	CORR / Correspondence	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Cunnigham, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100003902	6/21/2006		9,858	158	RPT / Report	R10: Unknown, Unknown (Landau Associates, Inc.)	R10: Unknown, Unknown (Time Oil Company)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
500003700	6/22/2006	Email Regarding Project Update - June 22, 2006	672	14	CORR / Correspondence	R10: Blischke, Eric, L (EPA)	R10: Bernardini, Lori (Parametrix, Inc.), R10: Battuello, Peter (Parametrix, Inc.), R10: Barquin, Billy (LeRoy Wilder, P.C.), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality), R10: Baker, Jeff (Grand Ronde Tribe)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
500003670	6/30/2006	Email Regarding Outstanding Issues Relative to the Round 2 Report.	220	3	CORR / Correspondence	R10: Blischke, Eric, L (EPA)	R10: Applegate, Richard (City of Portland, Oregon), R10: Mckenna, Jim (Port of Portland), R10: Saban, Lisa (Windward Environmental, LLC.), R10: Pine, Keith, A (Integral Consulting, Inc.), R10: Wyatt, Robert, J (NW Natural)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100003797	7/1/2006	ATSDR. 2006a. ToxFAQs for Cyanide. Available at <a href="http://www.atsdr.cdc.gov/tfacts8.html">http://www.atsdr.cdc.gov/tfacts8.html</a> . U.S. Department of Health and Human Services, Public Health Service, Agency for Toxic Substances and Disease Registry, Atlanta, GA.	47	2	RPT / Report	R10: Unknown, Unknown (U. S. Dept. of Health and Human Services), R10: Unknown, Unknown (Agency for Toxic Substances and Disease Registry)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100003798	7/1/2006	ATSDR. 2006b. ToxFAQs for Hydrogen Sulfide. Available at <a href="http://www.atsdr.cdc.gov/tfacts114.html">http://www.atsdr.cdc.gov/tfacts114.html</a> . U.S. Department of Health and Human Services, Public Health Service, Agency for Toxic Substances and Disease Registry, Atlanta, GA.	41	2	RPT / Report	R10: Unknown, Unknown (U. S. Dept. of Health and Human Services), R10: Unknown, Unknown (Agency for Toxic Substances and Disease Registry)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100003930	7/1/2006	URS. 2006. Source Control Implementation Report - Final. Prepared for BP West Coast Products, LLC, La Palma, CA. URS Corporation, Portland, OR.	125,726	672	RPT / Report	R10: Unknown, Unknown (URS Corporation)	R10: Unknown, Unknown (BP West Coast Products, LLC.)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100006295	7/6/2006	EPA comments on TRVs for Round 2 comprehensive site summary and data gaps report to Lower Willamette Group from C. Humphrey and E. Blischke, dated July 6, 2006. U.S. Environmental Protection Agency Region 10, Oregon Operations Office, Portland, OR.	26	3	RPT / Report	R10: (EPA)		ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100006297	7/6/2006	LWG response to EPA comments dated 7/6/06 on benthic interpretive report, and accompanying cover letter to EPA from B. Wyatt and J. McKenna, LWG co-chairs, dated September 1, 2006. Lower Willamette Group, Portland, OR.	99	18	RPT / Report	R10: (EPA)		ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100006816	7/21/2006	Email regarding Reply to Extension Request: R2 Groundwater Pathway Summary Report. Environmental Cleanup Site Information (ECSI) Database Site Summary Report - Details for	33	3	EML / Email	R10: Humphrey, Chip (EPA)	R10: Applegate, Richard (City of Portland, Oregon), R10: Mckenna, James (Port of Portland), R10: Locke, William, W (Integral Consulting, Inc.), R10: Wyatt, Robert, J (NW Natural)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
1468882	7/24/2006	Site ID 1686.	160	3	RPT / Report	R10: Wistar, Gilbert, M (Oregon Dept. of Environmental Quality), R10: Gainer, Tom (DEQ Northwest Region)	R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	PAPER DOCUMENT	053-REMEDIAL/0531-Remedy Characterization
100003898	7/28/2006	Integral. 2006m. Portland Harbor RI/FS Round 2B Field Sampling Plan Addendum for Analysis of Archived Subsurface Sediment Samples. Draft. Prepared for the Lower Willamette Group, Portland, OR. Integral Consulting Inc., Mercer Island, WA.	20,786	116	RPT / Report	R10: Unknown, Unknown (Integral Consulting, Inc.)	R10: Unknown, Unknown (Lower Willamette Group)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization



					R10: Field, Jay (NOAA), R10: Neely, Robert (NOAA), R10: Buck, Jeremy (U. S. Fish and Wildlife Service), R10: Thompson, Chris (Unknown), R10: Madden, Erin (Unknown), R10: Baker, Jeff (Unknown), R10: Donoghue, Cinde (Washington State Dept. of Ecology), R10: Gensemer, Robert, W (GEI Consultants, Inc.), R10: Bridgen, Pamela, J (Environment International, Ltd.), R10: Arthur, Jennifer (Environment International, Ltd.), R10: Estensen, Lisa (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Sheldrake, Sean, A (EPA), R10: Fuentes, Rene, C (EPA), R10: Cora, Lori, H (EPA), R10: Koch, Kristine, M (EPA), R10: Smith, Judy, R (EPA), R10: Shephard, Burt (EPA), R10: Humphrey, Chip (EPA), R10: Black, Curt (EPA), R10: Davoli, Dana (EPA), R10: Grepo-grove, Gina (EPA), R10: Goulet, Joe (EPA), R10: Toepel, Kathryn (Oregon Dept. of Human Services), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality), R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality), R10: McClincy, Matt (Oregon Dept. of Environmental Quality), R10: Poulsen, Mike (Oregon Dept. of Environmental Quality), R10: Omealy, Mikell (Oregon Dept. of Environmental Quality), R10: Gainer, Tom (Oregon Dept. of Environmental Quality), R10: Borok, Aron (Environment International, Ltd.)			
100003859	8/24/2006	Ore EPA. 2006. Personal communication (e-mail of August 24, 2006, to Lower Willamette Group from C. Humphrey and E. Blischke regarding Portland Harbor RI/FS issue summary and status table, with attachments). U.S. Environmental Protection Agency Region 10,	2,771	1 EML / Email	R10: Blischke, Eric, L (EPA)		ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
613742	8/28/2006	Email regarding GW Seeps. Stormwater Modeling Using the Fate and Transport Model -Initial Model Runs- Modeling	243	2 EML / Email	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100001782	8/29/2006	workplan. Portland Harbor RI/FS Draft Round 2 Benthic Tissue and Sediment Data Report with	49	1 CORR / Correspondence	R10: Tarnow, Karen, E (Oregon Dept. of Environmental Quality)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
1244235	9/1/2006	included CD ROM. Email regarding UNIVAR Facility - Proposed	15,009	276 RPT / Report	R10: Unknown, Unknown (Integral Consulting, Inc.)	R10: Unknown, Unknown (Lower Willamette Group)	PAPER DOCUMENT	053-REMEDIAL/0531-Remedy Characterization
614733	9/6/2006	RCRA Remedy Selection. Email regarding Portland Harbor RI/FS =	290	4 EML / Email	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100006815	9/8/2006	Projected Schedule for Major Milestones. Email regarding Stormwater Strategy Mtg	16	1 EML / Email	R10: Humphrey, Chip (EPA)	R10: Wyatt, Robert, J (NW Natural)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
613915	9/20/2006	tomorrow (9/21). Email regarding Next Stormwater Strategy mtg	242	1 EML / Email	R10: Tarnow, Karen, E (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
613916	9/20/2006	Stormwater Strategy Mtg tomorrow. Email regarding Next Stormwater Strategy mtg	223	1 CORR / Correspondence	R10: Tarnow, Karen, E (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
613917	9/21/2006	Oct 5. SW Strategy PPT presentation. Email regarding anchorenv.com Subject: Re:	285	12 CORR / Correspondence	R10: Tarnow, Karen, E (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100007113	10/4/2006	Siletz biologist - re: Lamprey Sampling. Letter regarding Portland Harbor Superfund Site; Administrative Order on Consent for Remedial Investigation and Feasibility Study; Docket No. CERCLA-10-2001-0240. Round 3	29	2 EML / Email	R10: Humphrey, Chip (EPA)	R10: Mckenna, James (Port of Portland)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100006814	10/11/2006	Lamprey Ammonoete Toxicity Testing Field Sampling Plan. Letter regarding Portland Harbor Superfund Site; Administrative Order on Consent for Remedial Investigation and Feasibility Study; Docket No. CERCLA-10-2001-0240. Round 3	71	4 CORR / Correspondence		R10: Mckenna, James (Port of Portland), R10: Wyatt, Robert, J (NW Natural)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100006829	10/11/2006	Lamprey Ammonoete Toxicity Testing Field Sampling Plan. Email regarding Reply to Completion of	135	4 CORR / Correspondence	R10: (Unknown)		ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100006831	10/12/2006	lamprey tissue sampling in the ISA. Transmittal Letter for the Revised Preliminary Upstream & Downstream Sediment Data Evaluation and Round 3A Field Sampling Plan	15	1 EML / Email	R10: Humphrey, Chip (EPA)	R10: Mckenna, James (Port of Portland)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
1471389	10/13/2006	for EPA Review. LWG response dated October 13, 2006 to EPA comments on revised draft, table 1, selected acute and chronic ecological screening levels (Eco SLs) for chemicals in water, 9/15/06.	1,631	1 LTR / Letter	R10: Wyatt, Bob (Lower Willamette Group), R10: Mckenna, Jim (Lower Willamette Group)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	PAPER DOCUMENT	053-REMEDIAL/0531-Remedy Characterization
100006227	10/13/2006	Lower Willamette Group, Portland, OR.	403	26 RPT / Report	R10: (EPA)		ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100006813	10/13/2006	Email regarding Lamprey Toxicity FSP.	17	2 EML / Email	R10: Humphrey, Chip (EPA)	R10: Applegate, Richard (City of Portland, Oregon), R10: Mckenna, James (Port of Portland), R10: Wyatt, Robert, J (NW Natural)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100006828	10/13/2006	Email regarding Lamprey Toxicity FSP.	17	2 EML / Email	R10: Humphrey, Chip (EPA)	R10: Applegate, Richard (City of Portland, Oregon), R10: Mckenna, James (Port of Portland), R10: Wyatt, Robert, J (NW Natural)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100006833	10/27/2006	Email regarding Mussel tissue analysis.	18	2 EML / Email	R10: Humphrey, Chip (EPA)	R10: Applegate, Richard (City of Portland, Oregon), R10: Mckenna, James (Port of Portland), R10: Wyatt, Robert, J (NW Natural)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
500006367	10/31/2006	Comments on Round 3 Lamprey Ammonoete Toxicity Testing Field Sampling Plan and Round 3 Lamprey Ammonoete Toxicity Testing Quality Assurance Project Plan. Email regarding EPA approval of	74	7 LTR / Letter	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	R10: Mckenna, James (Port of Portland), R10: Unknown, Unknown (Lower Willamette Group), R10: Wyatt, Robert, J (NW Natural)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100006823	11/2/2006	Upstream/Downstream FSP. Letter regarding Portland Harbor Superfund Site; Administrative Order on Consent for Remedial Investigation and Feasibility Study; Docket No. CERCLA-10-2001-0240. Preliminary Upstream & Downstream Sediment Data	16	1 EML / Email	R10: Humphrey, Chip (EPA)	R10: Applegate, Richard (City of Portland, Oregon), R10: Mckenna, James (Port of Portland), R10: Wyatt, Robert, J (NW Natural)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100006824	11/2/2006	Evaluation and Round 3A Field Sampling.	88	2 CORR / Correspondence	R10: Humphrey, Chip (EPA)	R10: Mckenna, James (Port of Portland), R10: Wyatt, Robert, J (NW Natural)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100006810	11/3/2006	Agenda Development Notes.	43	2 CORR / Correspondence	R10: Longoria, Rose (Yakama Nation)		ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization

						R10: Applegate, Richard (City of Portland, Oregon), R10: Neely, Robert (NOAA), R10: Gouget, Ron (NOAA), R10: Givens, Ray (Unknown), R10: Mckenna, James (Port of Portland), R10: Cunninghame, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Oster, Valerie (Anchor Environmental, LLC), R10: Ward, Paul (Confederated Tribes and Bands of the Yakima Indian Nation), R10: Downey, Tom (Confederated Tribes of the Siletz Indians), R10: Baker, Jeff (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Bluelake, Lisa (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Blischke, Eric, L (EPA), R10: Madden, Erin (Nez Perce Tribe), R10: Barquin, Billy (Haglund, Kelley, Horngren, Jones & Wilder, LLP), R10: Anderson, James, M (Oregon Dept. of Environmental Quality), R10: Mcclincy, Matt (Oregon Dept. of Environmental Quality), R10: Longoria, Rose (Yakama Nation), R10: Wyatt, Robert, J (NW Natural)		
100006809	Email regarding Reply to Agenda Development 11/6/2006 for Milestone Meeting - Senior Manager input.	34	2 EML / Email	R10: Humphrey, Chip (EPA)		ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization	
100006834	Email regarding Milestone Meeting Draft 11/9/2006 Agenda (November 15th 10:00am to 3pm).	20	2 EML / Email	R10: Humphrey, Chip (EPA)	R10: Neely, Robert (NOAA), R10: Gouget, Ron (NOAA), R10: Buerger, Ted (U. S. Fish and Wildlife Service), R10: Mckenna, James (Port of Portland), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Cunninghame, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Howard, Patti (Columbia River Inter-Tribal Fish Commission), R10: Downey, Tom (Confederated Tribes of the Siletz Indians), R10: Baker, Jeff (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Bluelake, Lisa (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Kelly, Stephen (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Opalski, Daniel, D (EPA), R10: Yamamoto, Deborah, J (EPA), R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA), R10: Smith, Judy, R (EPA), R10: Ader, Mark (EPA), R10: Rodriguez, Socorro (EPA), R10: Kawabata, Sylvia (EPA), R10: Madden, Erin (Nez Perce Tribe), R10: Barquin, Billy (Haglund, Kelley, Horngren, Jones & Wilder, LLP), R10: Anderson, James, M (Oregon Dept. of Environmental Quality), R10: Pedersen, Dick (Oregon Dept. of Environmental Quality), R10: Johnson, Keith (Oregon Dept. of Environmental Quality), R10: Borok, Aron (Environment International, Ltd.), R10: Lee, Valerie Ann (Environment International, Ltd.), R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA), R10: Tarnow, Karen, E (Oregon Dept. of Environmental Quality), R10: Koulermos, Andrew, C (Newfields, Inc), R10: Wyatt, Robert, J (NW Natural), R10: Mckenna, James (Verdant Solutions, LLC)			
500001549	11_29_06 email; November 28, 2006 Meeting 11/29/2006 Summary.	37	3 EML / Email	R10: Stivers, Carl (Anchor Environmental, LLC)		ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization	
500001575	12_01_06 email; Stormwater model 12/1/2006 documentation.	17	1 EML / Email	R10: Tarnow, Karen, E (Oregon Dept. of Environmental Quality)	R10: Livesay, Dave (CH2M Hill, Inc.), R10: Applegate, Richard (City of Portland, Oregon), R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA), R10: Sanders, Dawn (City of Portland, Bureau of Environmental Services), R10: Roick, Thomas, E (Oregon Dept. of Environmental Quality), R10: Johnson, Keith (Oregon Dept. of Environmental Quality), R10: Wyatt, Robert, J (NW Natural), R10: Mckenna, James (Verdant Solutions, LLC)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization	
500001577	12/1/2006 12_01_06 email; Updated Stormwater Table.	34	1 EML / Email	R10: Mckenna, James (Verdant Solutions, LLC)	R10: Applegate, Richard (City of Portland, Oregon), R10: Koehl, Krista (Port of Portland), R10: Anderson, Nicole (Port of Portland), R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA), R10: Hope, Bruce, K (Oregon Dept. of Environmental Quality), R10: Borok, Aron (Environment International, Ltd.)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization	
500001604	12/4/2006 12_04_06 email; Updated Stormwater Table.	31	4 EML / Email	R10: Mckenna, James (Verdant Solutions, LLC)	R10: Blischke, Eric, L (EPA), R10: Johnson, Keith (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization	
500001605	12/5/2006 12_05_06 email; Updated Stormwater Table.	34	1 EML / Email	R10: Sanders, Dawn (City of Portland, Bureau of Environmental Services)	R10: Applegate, Richard (City of Portland, Oregon), R10: Koehl, Krista (Port of Portland), R10: Anderson, Nicole (Port of Portland), R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA), R10: Hope, Bruce, K (Oregon Dept. of Environmental Quality), R10: Borok, Aron (Environment International, Ltd.)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization	
682025	12_08_06 email attachment; 2004-10-12/8/2006 04_R2_QAPP_SURFACEWATER_ADD.	285	50 CORR / Correspondence	R10: Mckenna, Jim (Lower Willamette Group), R10: Wyatt, Robert, J (Northwest Natural Gas Company)	R10: Humphrey, Chip (EPA), R10: Blischke, Eric, L (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization	
100001770	Figure 17 Outfall 22B and 22C - Sample Locations Source Control Sediment Investigation City of Portland City 2002 22C 12/13/2006 Sediment Sampling locations.	332	1 CORR / Correspondence	R10: (CH2MHILL)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization	
613743	12/15/2006 Email regarding TZW report DEQ PM Feedback.	260	5 EML / Email	R10: Mcclincy, Matt (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization	
680188	12/18/2006 12_18_06 email Stormwater list.	35	3 CORR / Correspondence	R10: Mckenna, Jim (Lower Willamette Group)	R10: Blischke, Eric, L (Oregon Dept. of Environmental Quality), R10: Tarnow, Karen, E (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization	
100001761	Portland Harbor Managers Meeting 12-20 PH 12/20/2006 managers mtg.	47	2 CORR / Correspondence	R10: Tarnow, Karen, E (Oregon Dept. of Environmental Quality)		ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization	
100001627	Email regarding 12-20 Memo from Tech Team to Managers.	36	4 EML / Email	R10: Tarnow, Karen, E (Oregon Dept. of Environmental Quality)	R10: Sanders, Dawn (City of Portland, Oregon), R10: Scheffler, Linda (City of Portland, Oregon), R10: Stivers, Carl (Anchor Environmental, LLC), R10: Jones, Laura (Integral Consulting, Inc.), R10: Koch, Kristine, M (EPA), R10: Koulermos, Andrew, C (Newfields, Inc)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization	
100001628	Email regarding 2006/2007 Water Year Stormwater Sampling.	33	2 EML / Email	R10: Blischke, Eric, L (EPA)	R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization	
100003814	DEQ. 2007. DEQ Site Summary Report -- Details for Site ID 69, 100, 330, 1076, 1405, 4015, and 2352. DEQ Environmental Cleanup Site (ECSI) Database. Available at: http://www.deq.state.or.us/lq/ECSI/ecsi.htm.	1,862	1 RPT / Report	R10: Unknown, Unknown (Oregon Dept. of Environmental Quality)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization	

100001760	1/2/2007	Email regarding 12-20 PH Managers mtg.	36	4	EML / Email	R10: Tarnow, Karen, E (Oregon Dept. of Environmental Quality)	R10: Sanders, Dawn (City of Portland, Oregon), R10: Scheffler, Linda (City of Portland, Oregon), R10: Stivers, Carl (Anchor Environmental, LLC), R10: Koch, Kristine, M (EPA), R10: Tarnow, Karen, E (Oregon Dept. of Environmental Quality), R10: Koulermos, Andrew, C (Newfields, Inc), R10: Jones, Laura (Integral Corporation)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100001637	1/3/2007	Email regarding SW Framework Document. Draft Table 1 Stormwater Sample Type and Locations City Outfall Basin 22C Basin 22C	38	2	EML / Email	R10: Koch, Kristine, M (EPA)	R10: Tarnow, Karen, E (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100001757	1/3/2007	Sample Location Table_D2 (2). Draft Table 2 Sample Types and Analyses Performed within each System Branch City Outfall Basin 22C Basin 22C Sampling	27	1	CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100001758	1/3/2007	Summary Table_D2.	68	1	CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100001759	1/3/2007	Sediment Outfall Data OF 22C City Sed Data.	228	9	CORR / Correspondence	R10: Rice, Tina (CH2M Hill, Inc.)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100001762	1/3/2007	Email regarding Attachments.	34	3	EML / Email	R10: Scheffler, Linda (City of Portland, Oregon)	R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100001639	1/4/2007	Email regarding 2006/2007 Water Year Stormwater Sampling. Confined Space Entry- Oregon Policy & Procedures Appendix I-LWG Confined Space	33	2	EML / Email	R10: Blischke, Eric, L (EPA)	R10: Mckenna, Elizabeth, A (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100001784	1/9/2007	Entry_formatted.	229	24	CORR / Correspondence	R10: (City of Portland, Bureau of Environmental Services)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100001781	1/10/2007	Email regarding Jan 16 Tech Team mtg re: modeling.	32	1	EML / Email	R10: Tarnow, Karen, E (Oregon Dept. of Environmental Quality)	R10: Sanders, Dawn (City of Portland, Oregon), R10: Scheffler, Linda (City of Portland, Oregon), R10: Koch, Kristine, M (EPA), R10: Tarnow, Karen, E (Oregon Dept. of Environmental Quality), R10: Koulermos, Andrew, C (Newfields, Inc), R10: Jones, Laura (Integral Corporation)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100001783	1/10/2007	Email regarding Draft Stormwater FSP. Appendix A Stormwater Composite Sampling	37	3	EML / Email	R10: Stivers, Carl (Anchor Environmental, LLC)	R10: Sanders, Dawn (City of Portland, Oregon), R10: Scheffler, Linda (City of Portland, Oregon), R10: Koch, Kristine, M (EPA), R10: Tarnow, Karen, E (Oregon Dept. of Environmental Quality), R10: Koulermos, Andrew, C (Newfields, Inc), R10: Jones, Laura (Integral Corporation)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100001785	1/10/2007	SOP Stormwater FSP_appendices. Portland Harbor RI/FS Field Sampling Plan Stormwater Sampling Stormwater	244	39	CORR / Correspondence	R10: Boehlke, Lora (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100001786	1/10/2007	FSP_formatted master. Figure 2-1a Draft Stormwater Basin	304	32	CORR / Correspondence	R10: Boehlke, Lora (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100001787	1/10/2007	Characterization STW FSP Figures. Table 2.1. Proposed Stormwater Sampling	965	7	CORR / Correspondence	R10: (Lower Willamette Group), R10: (Anchor Environmental, LLC)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100001788	1/10/2007	Locations STW FSP Tables.	295	30	CORR / Correspondence	R10: Spielman, Abbie (Integral Consulting, Inc.)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100001642	1/11/2007	Email regarding Draft Stormwater FSP. Portland Harbor RI/FS Field Sampling Plan Stormwater Sampling Stormwater FSP 1-12 KT	35	4	EML / Email	R10: Stivers, Carl (Anchor Environmental, LLC)	R10: Sanders, Dawn (City of Portland, Oregon), R10: Scheffler, Linda (City of Portland, Oregon), R10: Koch, Kristine, M (EPA), R10: Tarnow, Karen, E (Oregon Dept. of Environmental Quality), R10: Koulermos, Andrew, C (Newfields, Inc), R10: Jones, Laura (Integral Corporation)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100001807	1/12/2007	comments.	334	34	CORR / Correspondence	R10: Boehlke, Lora (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100001809	1/12/2007	Outfalls AttachmentA12-28. Email regarding Stormwater FSP Working	51	3	CORR / Correspondence	R10: Macintyre, Mark, A (EPA)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100001644	1/16/2007	Schedule.	40	3	EML / Email	R10: Koch, Kristine, M (EPA)	R10: Stivers, Carl (Anchor Environmental, LLC)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100006825	1/16/2007	Email regarding EPA direction to LWG on lamprey composites. Letter regarding Portland Harbor Superfund Site; Administrative Order on Consent for Remedial Investigation and Feasibility Study; Docket No. CERCLA-10-2001-0240. Round 3 Sampling for Lamprey (Lampetra sp)	22	1	EML / Email	R10: Humphrey, Chip (EPA)	R10: Mckenna, James (Port of Portland), R10: Wyatt, Robert, J (NW Natural)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100006826	1/16/2007	Ammocoete Tissue.	93	2	CORR / Correspondence	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	R10: Mckenna, James (Port of Portland), R10: Wyatt, Robert, J (NW Natural)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100001651	1/17/2007	Email regarding PECS.	36	2	EML / Email	R10: Davoli, Dana (EPA)	R10: Mckenna, Elizabeth, A (EPA), R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100001655	1/18/2007	Email regarding Question about Data availability.	24	2	EML / Email	R10: Stivers, Carl (Anchor Environmental, LLC)	R10: Sanders, Dawn (City of Portland, Oregon), R10: Scheffler, Linda (City of Portland, Oregon), R10: Koch, Kristine, M (EPA), R10: Tarnow, Karen, E (Oregon Dept. of Environmental Quality), R10: Koulermos, Andrew, C (Newfields, Inc), R10: Jones, Laura (Integral Corporation)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100001659	1/18/2007	Email regarding Laura's Comments on Draft Stormwater FSP.	105	2	EML / Email	R10: Stivers, Carl (Anchor Environmental, LLC)	R10: Sanders, Dawn (City of Portland, Oregon), R10: Scheffler, Linda (City of Portland, Oregon), R10: Stivers, Carl (Anchor Environmental, LLC), R10: Koch, Kristine, M (EPA), R10: Tarnow, Karen, E (Oregon Dept. of Environmental Quality), R10: Koulermos, Andrew, C (Newfields, Inc), R10: Jones, Laura (Integral Corporation)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100001789	1/18/2007	Email regarding Laura's Comments on Draft Stormwater FSP. Portland Harbor RI/FS Field Sampling Plan Stormwater Sampling Stormwater	74	1	EML / Email	R10: Jones, Laura (Integral Corporation)	R10: Sanders, Dawn (City of Portland, Oregon), R10: Scheffler, Linda (City of Portland, Oregon), R10: Stivers, Carl (Anchor Environmental, LLC), R10: Koch, Kristine, M (EPA), R10: Tarnow, Karen, E (Oregon Dept. of Environmental Quality), R10: Koulermos, Andrew, C (Newfields, Inc)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100001790	1/18/2007	FSP_formatted master_ljredits.	341	32	CORR / Correspondence	R10: Boehlke, Lora (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100001791	1/18/2007	Email regarding Laura's Comments on Draft Stormwater FSP. Portland Harbor RI/FS Field Sampling Plan Stormwater Sampling Stormwater	101	2	EML / Email	R10: Sanders, Dawn (City of Portland, Oregon)	R10: Scheffler, Linda (City of Portland, Oregon), R10: Stivers, Carl (Anchor Environmental, LLC), R10: Koch, Kristine, M (EPA), R10: Tarnow, Karen, E (Oregon Dept. of Environmental Quality), R10: Koulermos, Andrew, C (Newfields, Inc), R10: Jones, Laura (Integral Corporation)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100001792	1/18/2007	FSP_formatted master(City Comments). STW FSP Tables STW FSP Tables(City	367	35	CORR / Correspondence	R10: Boehlke, Lora (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100001793	1/18/2007	Comment). Gauge Height in Feet, Morrison Street bridge	311	30	CORR / Correspondence	R10: Spielman, Abbie (Integral Consulting, Inc.)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100001801	1/18/2007	Gauge Height Conv. to COP.	54	6	CORR / Correspondence	R10: Stivers, Carl (Anchor Environmental, LLC)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100001804	1/18/2007	Email regarding Laura's Comments on Draft Stormwater FSP. Portland Harbor RI/FS Field Sampling Plan Stormwater Sampling Stormwater	103	2	EML / Email	R10: Koulermos, Andrew, C (Newfields, Inc)	R10: Sanders, Dawn (City of Portland, Oregon), R10: Scheffler, Linda (City of Portland, Oregon), R10: Stivers, Carl (Anchor Environmental, LLC), R10: Koch, Kristine, M (EPA), R10: Tarnow, Karen, E (Oregon Dept. of Environmental Quality), R10: Jones, Laura (Integral Corporation)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100001805	1/18/2007	FSP_formatted master(City Comments)_Andys as well.	379	36	CORR / Correspondence	R10: Boehlke, Lora (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization

100001806	1/18/2007	Email regarding Comments on draft FSP.	19	1	EML / Email	R10: Tarnow, Karen, E (Oregon Dept. of Environmental Quality)	R10: Sanders, Dawn (City of Portland, Oregon), R10: Scheffler, Linda (City of Portland, Oregon), R10: Stivers, Carl (Anchor Environmental, LLC), R10: Koch, Kristine, M (EPA), R10: Tarnow, Karen, E (Oregon Dept. of Environmental Quality), R10: Koulermos, Andrew, C (Newfields, Inc), R10: Jones, Laura (Integral Corporation)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100001810	1/18/2007	Email regarding River Heights.	48	2	EML / Email	R10: Stivers, Carl (Anchor Environmental, LLC)	R10: Sanders, Dawn (City of Portland, Oregon), R10: Scheffler, Linda (City of Portland, Oregon), R10: Koch, Kristine, M (EPA), R10: Tarnow, Karen, E (Oregon Dept. of Environmental Quality), R10: Koulermos, Andrew, C (Newfields, Inc), R10: Jones, Laura (Integral Corporation)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100001808	1/19/2007	Email regarding Stormwater Sampling at the Portland Harbor Site.	43	3	EML / Email	R10: Humphrey, Chip (EPA)	R10: Mckenna, Elizabeth, A (EPA), R10: Cora, Lori, H (EPA), R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100001861	1/23/2007	Table 2-1. Proposed Stormwater Sampling Locations STW FSP Tables_lj edits Feb2.	342	31	CORR / Correspondence	R10: Spielman, Abbie (Integral Consulting, Inc.)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100001661	1/24/2007	Email regarding Stormwater Meeting. Stormwater Sampling Checklist 5-Appendix E	37	5	EML / Email	R10: Scheffler, Linda (City of Portland, Oregon)	R10: Sanders, Dawn (City of Portland, Oregon), R10: Scheffler, Linda (City of Portland, Oregon), R10: Stivers, Carl (Anchor Environmental, LLC), R10: Koch, Kristine, M (EPA), R10: Tarnow, Karen, E (Oregon Dept. of Environmental Quality), R10: Koulermos, Andrew, C (Newfields, Inc), R10: Jones, Laura (Integral Corporation)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100001811	1/24/2007	Forms. Portland Harbor RI/FS Round 2 Quality Assurance Project Plan Addendum 8: Round 3A Stormwater Sampling 7-Stormwater Draft	109	4	CORR / Correspondence	R10: Boehlke, Lora (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100001813	1/24/2007	QAPP Addendum 8. Figure 2-1a Draft Stormwater Basin	124	10	CORR / Correspondence	R10: Jones, Laura (Integral Corporation)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100001823	1/24/2007	Characterization 3-Stormwater FSP Figures.	1,045	6	CORR / Correspondence	R10: (Lower Willamette Group), R10: (Anchor Environmental, LLC)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100001825	1/24/2007	Table 3-1a. Laboratory Methods for Sediment Samples 8-QAPP Addendum Tables.	134	29	CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100001663	1/25/2007	Email regarding FSP.	41	7	EML / Email	R10: Stivers, Carl (Anchor Environmental, LLC)	R10: Sanders, Dawn (City of Portland, Oregon), R10: Scheffler, Linda (City of Portland, Oregon), R10: Koch, Kristine, M (EPA), R10: Tarnow, Karen, E (Oregon Dept. of Environmental Quality), R10: Koulermos, Andrew, C (Newfields, Inc), R10: Jones, Laura (Integral Corporation)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100001820	1/25/2007	Email regarding Stormwater FSP. Portland Harbor RI/FS Round 3A Field Sampling Plan Stormwater Sampling 1-	47	7	EML / Email	R10: Stivers, Carl (Anchor Environmental, LLC)	R10: Sanders, Dawn (City of Portland, Oregon), R10: Scheffler, Linda (City of Portland, Oregon), R10: Koch, Kristine, M (EPA), R10: Tarnow, Karen, E (Oregon Dept. of Environmental Quality), R10: Koulermos, Andrew, C (Newfields, Inc), R10: Jones, Laura (Integral Corporation)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100001821	1/25/2007	Stormwater FSP_Text Jan 24 eds. Table 2-1. Proposed Stormwater Sampling	514	48	CORR / Correspondence	R10: Boehlke, Lora (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100001822	1/25/2007	Locations. 2-STW FSP Tables.	342	35	CORR / Correspondence	R10: Spielman, Abbie (Integral Consulting, Inc.)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100001824	1/25/2007	Appendix A Stormwater Composite Sampling SOP 4-Stormwater FSP_appendices_Jan 25.	283	45	CORR / Correspondence	R10: Boehlke, Lora (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100001665	1/26/2007	Email regarding Stormwater FSP.	47	12	EML / Email	R10: Stivers, Carl (Anchor Environmental, LLC)	R10: Koch, Kristine, M (EPA), R10: Tarnow, Karen, E (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100001826	1/29/2007	Email regarding KT's edits to Section 1.4.	14	1	EML / Email	R10: Tarnow, Karen, E (Oregon Dept. of Environmental Quality)	R10: Sanders, Dawn (City of Portland, Oregon), R10: Shellenberger, Amanda (Anchor Environmental, LLC), R10: Stivers, Carl (Anchor Environmental, LLC), R10: Hanzlick, Dennis (Anchor Environmental, LLC), R10: Page, Simon (Anchor Environmental, LLC), R10: Koch, Kristine, M (EPA), R10: Koulermos, Andrew, C (Newfields, Inc), R10: Jones, Laura (Integral Corporation), R10: Hinz, Shawn (Anchor Environmental, LLC)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100001828	1/29/2007	FSP 1.0-1.4.4 KT's edits to Section 1.4.	190	12	CORR / Correspondence	R10: Boehlke, Lora (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100001832	1/30/2007	Email regarding DEQ comments on Stormwater FSP.	66	8	EML / Email	R10: Tarnow, Karen, E (Oregon Dept. of Environmental Quality)	R10: Sanders, Dawn (City of Portland, Oregon), R10: Scheffler, Linda (City of Portland, Oregon), R10: Stivers, Carl (Anchor Environmental, LLC), R10: Koch, Kristine, M (EPA), R10: Koulermos, Andrew, C (Newfields, Inc), R10: Jones, Laura (Integral Corporation)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100001834	1/30/2007	FSP 1.0-2.0 DEQ edits (Clean Copy) on FSP_Text Jan 24 eds2.	178	17	CORR / Correspondence	R10: Boehlke, Lora (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100001835	1/30/2007	FSP 1.0-2.4.2 DEQ edits on FSP_Text Jan 24 eds2.	250	23	CORR / Correspondence	R10: Boehlke, Lora (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100001837	1/30/2007	Email regarding DEQ comments on Stormwater FSP.	52	6	EML / Email	R10: Koch, Kristine, M (EPA)	R10: Tarnow, Karen, E (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100001838	1/30/2007	Draft Stormwater FSP Storm Water FSP.	144	14	CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100001841	2/1/2007	Email regarding Stormwater FSP. Portland Harbor RI/FS Round 3A Field Sampling Plan Stormwater Sampling FSP Text	43	7	EML / Email	R10: Stivers, Carl (Anchor Environmental, LLC)	R10: Sanders, Dawn (City of Portland, Oregon), R10: Scheffler, Linda (City of Portland, Oregon), R10: Koch, Kristine, M (EPA), R10: Tarnow, Karen, E (Oregon Dept. of Environmental Quality), R10: Koulermos, Andrew, C (Newfields, Inc), R10: Jones, Laura (Integral Corporation)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100001842	2/1/2007	Feb 1 Split.	477	41	CORR / Correspondence	R10: Boehlke, Lora (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100001843	2/1/2007	FSP Rational Round 3A Rationale Feb 1 Split.	213	17	CORR / Correspondence	R10: Boehlke, Lora (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100001846	2/1/2007	Email regarding Stormwater FSP. Portland Harbor RI/FS Round 3A Field Sampling Plan Stormwater Sampling FSP Text	45	8	EML / Email	R10: Koulermos, Andrew, C (Newfields, Inc)	R10: Sanders, Dawn (City of Portland, Oregon), R10: Scheffler, Linda (City of Portland, Oregon), R10: Koch, Kristine, M (EPA), R10: Tarnow, Karen, E (Oregon Dept. of Environmental Quality), R10: Koulermos, Andrew, C (Newfields, Inc), R10: Jones, Laura (Integral Corporation)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100001847	2/1/2007	Feb 1 Split_ack. Remedial Investigation/Feasibility Study Round 2 Comprehensive Site Summary and Data Gaps Analysis Report Executive Summary	329	31	CORR / Correspondence	R10: Boehlke, Lora (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
500003761	2/1/2007	(marginalia). Ecological soil screening levels for copper.	1,760	7	RPT / Report	R10: Unknown, Unknown (Lower Willamette Group)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
500006370	2/1/2007	Interim final.	1,769	313	LAWS / Laws/Regulations/Guidance	R10: Unknown, Unknown (EPA)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100001667	2/2/2007	Email regarding Stormwater FSP.	53	8	EML / Email	R10: Koch, Kristine, M (EPA)	R10: Koulermos, Andrew, C (Newfields, Inc)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100001668	2/2/2007	Email regarding Stormwater FSP.	67	2	EML / Email	R10: Tarnow, Karen, E (Oregon Dept. of Environmental Quality)	R10: Koulermos, Andrew, C (Newfields, Inc)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization

100001669	2/2/2007	Email regarding Cononco Phillips - Willbridge facility.	29	1	EML / Email	R10: Sanders, Dawn (City of Portland, Oregon)	R10: Stivers, Carl (Anchor Environmental, LLC), R10: Koch, Kristine, M (EPA), R10: Tarnow, Karen, E (Oregon Dept. of Environmental Quality), R10: Koulermos, Andrew, C (Newfields, Inc), R10: Jones, Laura (Integral Corporation)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100001852	2/2/2007	Email regarding Stormwater FSP.	53	7	EML / Email	R10: Koch, Kristine, M (EPA)	R10: Koulermos, Andrew, C (Newfields, Inc)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100001853	2/2/2007	Portland Harbor RI/FS Round 3A Field Sampling Plan Stormwater Sampling EPA - FSP Text Feb 1 Split_ack.	474	40	CORR / Correspondence	R10: Boehlke, Lora (Unknown)		ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100001855	2/2/2007	Email regarding FSP Split Text.	79	2	EML / Email	R10: Jones, Laura (Integral Corporation)	R10: Sanders, Dawn (City of Portland, Oregon), R10: Scheffler, Linda (City of Portland, Oregon), R10: Stivers, Carl (Anchor Environmental, LLC), R10: Page, Simon (Anchor Environmental, LLC), R10: Koch, Kristine, M (EPA), R10: Tarnow, Karen, E (Oregon Dept. of Environmental Quality), R10: Koulermos, Andrew, C (Newfields, Inc)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100001859	2/2/2007	Appendix A Stormwater Composite Sampling SOP 4-Stormwater FSP_appendices_Feb2.	390	48	CORR / Correspondence	R10: Boehlke, Lora (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100001860	2/2/2007	Portland Harbor RI/FS Round 3A Field Sampling Plan Stormwater Sampling FSP Text Feb 1 Split_ack+hj.	346	32	CORR / Correspondence	R10: Boehlke, Lora (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100001866	2/2/2007	Email regarding Rationale Split Text.	34	1	EML / Email	R10: Sanders, Dawn (City of Portland, Oregon)	R10: Scheffler, Linda (City of Portland, Oregon), R10: Stivers, Carl (Anchor Environmental, LLC), R10: Page, Simon (Anchor Environmental, LLC), R10: Koch, Kristine, M (EPA), R10: Tarnow, Karen, E (Oregon Dept. of Environmental Quality), R10: Koulermos, Andrew, C (Newfields, Inc), R10: Jones, Laura (Integral Corporation)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100001867	2/2/2007	FSP Combined Comments City Comments_Rationale Feb 1 Split.	172	17	CORR / Correspondence	R10: Boehlke, Lora (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100001618	2/5/2007	Email regarding Stormwater FSP/Rationale Comment Resolutions.	80	3	EML / Email	R10: Koch, Kristine, M (EPA)	R10: Stivers, Carl (Anchor Environmental, LLC)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100001671	2/5/2007	Email regarding Stormwater FSP/Rationale Comment Resolutions.	109	4	EML / Email	R10: Tarnow, Karen, E (Oregon Dept. of Environmental Quality)	R10: Sanders, Dawn (City of Portland, Oregon), R10: Scheffler, Linda (City of Portland, Oregon), R10: Stivers, Carl (Anchor Environmental, LLC), R10: Page, Simon (Anchor Environmental, LLC), R10: Koch, Kristine, M (EPA), R10: Koulermos, Andrew, C (Newfields, Inc), R10: Jones, Laura (Integral Corporation)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100001674	2/5/2007	Email regarding Stormwater FSP/Rationale Comment Resolutions.	84	3	EML / Email	R10: Sanders, Dawn (City of Portland, Oregon)	R10: Scheffler, Linda (City of Portland, Oregon), R10: Stivers, Carl (Anchor Environmental, LLC), R10: Page, Simon (Anchor Environmental, LLC), R10: Koch, Kristine, M (EPA), R10: Tarnow, Karen, E (Oregon Dept. of Environmental Quality), R10: Jones, Laura (Integral Corporation)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100001869	2/5/2007	Email regarding LWG Stormwater Sampling Site Recon Presentation.	32	1	EML / Email	R10: Shellenberger, Amanda (Anchor Environmental, LLC)	R10: Koulermos, Andrew, C (Newfields, Inc)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100001870	2/5/2007	LWG Storm Water Basin Reconnaissance Summary of Findings Recon Presentation.	1,503	22	CORR / Correspondence	R10: Keithly, James (Anchor Environmental, LLC)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
712640	2/7/2007	PORTLAND HARBOR RI/FS Round 3A FIELD SAMPLING PLAN STORMWATER SAMPLING.	3,073	69		R10: Unknown, Unknown (Anchor Environmental, L. L. C.)	R10: Unknown, Unknown (Lower Willamette Group)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
712723	2/7/2007	PORTLAND HARBOR RI/FS Round 3A FIELD SAMPLING PLAN STORMWATER SAMPLING.	3,073	69		R10: Unknown, Unknown (Anchor Environmental, L. L. C.)	R10: Unknown, Unknown (Lower Willamette Group)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100001871	2/7/2007	Email regarding Portland Harbor RI/FS Stormwater FSP for EPA/LWG Approval.	20	2	EML / Email	R10: Stivers, Carl (Anchor Environmental, LLC)	R10: Applegate, Richard (City of Portland, Oregon), R10: Mckenna, Jim (Port of Portland), R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality), R10: Wyatt, Robert, J (NW Natural)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100001872	2/7/2007	Portland Harbor RI/FS Round 3A Stormwater Sampling Rationale Rationale and QAPP Addendum.	275	60	CORR / Correspondence	R10: Jones, Laura (Integral Corporation)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100001873	2/7/2007	Portland Harbor RI/FS Round 3A Field Sampling Plan Stormwater Sampling FSP Text and Tables.	390	69	CORR / Correspondence	R10: Boehlke, Lora (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100001874	2/7/2007	Email regarding Portland Harbor RI/FS Stormwater FSP for EPA/LWG Approval.	29	3	EML / Email	R10: Stivers, Carl (Anchor Environmental, LLC)	R10: Applegate, Richard (City of Portland, Oregon), R10: Mckenna, Jim (Port of Portland), R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality), R10: Wyatt, Robert, J (NW Natural)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100001875	2/7/2007	Appendix A Stormwater Composite Sampling SOP FSP Appendices.	470	71	CORR / Correspondence	R10: Boehlke, Lora (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100001876	2/7/2007	Figure 2-1a Draft Round 3A Field Sampling Plan FSP Figures.	1,135	6	CORR / Correspondence	R10: (Lower Willamette Group), R10: (Anchor Environmental, LLC)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100001690	2/8/2007	Email regarding Portland Harbor RI/FS Stormwater FSP for EPA /LWG Approval.	36	4	EML / Email	R10: Tarnow, Karen, E (Oregon Dept. of Environmental Quality)	R10: Shellenberger, Amanda (Anchor Environmental, LLC), R10: Stivers, Carl (Anchor Environmental, LLC), R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
500011801	2/9/2007	Round 3 Sampling for Pre-Breeding White Sturgeon Tissue - Sturgeon_FSP_Full.	418	39	CORR / Correspondence	R10: Mckenna, Jim (Lower Willamette Group)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100001693	2/12/2007	Email regarding OF 18 decision.	44	8	EML / Email	R10: Tarnow, Karen, E (Oregon Dept. of Environmental Quality)	R10: Shellenberger, Amanda (Anchor Environmental, LLC), R10: Stivers, Carl (Anchor Environmental, LLC), R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100001695	2/12/2007	Email regarding Sampling at OSM.	42	7	EML / Email	R10: Sanders, Dawn (City of Portland, Oregon)	R10: Shellenberger, Amanda (Anchor Environmental, LLC), R10: Stivers, Carl (Anchor Environmental, LLC), R10: Koch, Kristine, M (EPA), R10: Tarnow, Karen, E (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100001696	2/12/2007	Email regarding Portland Harbor RI/FS Stormwater FSP for EPA /LWG Approval.	37	4	EML / Email	R10: Stivers, Carl (Anchor Environmental, LLC)	R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100001700	2/12/2007	Email regarding Sampling at OSM.	42	5	EML / Email	R10: Blischke, Eric, L (EPA)	R10: Stivers, Carl (Anchor Environmental, LLC)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100001697	2/13/2007	Email regarding OF 18 decision.	53	13	EML / Email	R10: Scheffler, Linda (City of Portland, Oregon)	R10: Sanders, Dawn (City of Portland, Oregon), R10: Shellenberger, Amanda (Anchor Environmental, LLC), R10: Stivers, Carl (Anchor Environmental, LLC), R10: Koch, Kristine, M (EPA), R10: Tarnow, Karen, E (Oregon Dept. of Environmental Quality), R10: Koulermos, Andrew, C (Newfields, Inc)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100001698	2/14/2007	Email regarding DEQ comments on FSP.	28	2	EML / Email	R10: Tarnow, Karen, E (Oregon Dept. of Environmental Quality)	R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100001699	2/15/2007	Email regarding Portland Harbor RI/FS Stormwater FSP for EPA /LWG Approval.	75	4	EML / Email	R10: Fuentes, Rene, C (EPA)	R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
500019176	2/15/2007	Email regarding Stormwater FSP & QAPP Approval.	34	1	EML / Email	R10: Koch, Kristine, M (EPA)	R10: Applegate, Richard (City of Portland, Oregon), R10: Mckenna, Jim (Port of Portland), R10: Wyatt, Robert, J (NW Natural)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
500019177	2/15/2007	Portland Harbor RI/FS Round 3A Field Sampling Plan, Stormwater Sampling and Portland Harbor RI/FS Round 2 Quality Assurance Project Plan, Addendum 8: Round 3A Stormwater Sampling - Stormwater FSP approval letter Feb 07.	270	2	CORR / Correspondence	R10: Koch, Kristine, M (EPA)	R10: Mckenna, Jim (Port of Portland), R10: Wyatt, Robert, J (NW Natural)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization



500019178	2/15/2007	Attachment A Comments on Stormwater FSP - Stormwater FSP approval letter Feb 07- Attachment A.	10	2 EML / Email	R10: Unknown, Unknown (Unknown)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100001710	2/20/2007	Email regarding Stormwater FSP & QAPP Approval.	34	3 EML / Email	R10: Mckenna, Jim (Port of Portland)	R10: Applegate, Richard (City of Portland, Oregon), R10: Koch, Kristine, M (EPA), R10: Wyatt, Robert, J (NW Natural)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
1254661	2/21/2007	Transmittal letter regarding Portland Harbor RI/FS, Comprehensive Round 2 Site Characterization Summary & Data Gaps Analysis Report (less attachment).	42	2 CORR / Correspondence	R10: Pine, Keith, A (Integral Consulting, Inc.)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	PAPER DOCUMENT	053-REMEDIAL/0531-Remedy Characterization
1259080	2/21/2007	Portland Harbor RI/FS Comprehensive Round 2 Site Characterization Summary and Data Gaps Analysis Report, Volume 2: Text, Figures, and Tables (Sections 9-15).	88,829	732 RPT / Report	R10: Unknown, Unknown (Anchor Environmental, LLC), R10: Unknown, Unknown (Kennedy/Jenks Consultants), R10: Unknown, Unknown (Windward Environmental, LLC.), R10: Unknown, Unknown (Integral Consulting, Inc.)	R10: Unknown, Unknown (Lower Willamette Group)	PAPER DOCUMENT	053-REMEDIAL/0531-Remedy Characterization
1259083	2/21/2007	Portland Harbor RI/FS Comprehensive Round 2 Site Characterization Summary and Data Gaps Analysis Report, Volume 4: Map Folio (2 of 2).	373,186	344 RPT / Report	R10: Unknown, Unknown (Anchor Environmental, LLC), R10: Unknown, Unknown (Kennedy/Jenks Consultants), R10: Unknown, Unknown (Windward Environmental, LLC.), R10: Unknown, Unknown (Integral Consulting, Inc.)	R10: Unknown, Unknown (Lower Willamette Group)	PAPER DOCUMENT	053-REMEDIAL/0531-Remedy Characterization
1259084	2/21/2007	Portland Harbor RI/FS Comprehensive Round 2 Site Characterization Summary and Data Gaps Analysis Report, Volume 5: Appendices A, B, and C.	98,230	878 RPT / Report	R10: Unknown, Unknown (Anchor Environmental, LLC), R10: Unknown, Unknown (Kennedy/Jenks Consultants), R10: Unknown, Unknown (Windward Environmental, LLC.), R10: Unknown, Unknown (Integral Consulting, Inc.)	R10: Unknown, Unknown (Lower Willamette Group)	PAPER DOCUMENT	053-REMEDIAL/0531-Remedy Characterization
1259086	2/21/2007	Portland Harbor RI/FS Comprehensive Round 2 Site Characterization Summary and Data Gaps Analysis Report, Volume 6: Appendices D, E, and F.	67,657	537 RPT / Report	R10: Unknown, Unknown (Anchor Environmental, LLC), R10: Unknown, Unknown (Kennedy/Jenks Consultants), R10: Unknown, Unknown (Windward Environmental, LLC.), R10: Unknown, Unknown (Integral Consulting, Inc.)	R10: Unknown, Unknown (Lower Willamette Group)	PAPER DOCUMENT	053-REMEDIAL/0531-Remedy Characterization
1259087	2/21/2007	Portland Harbor RI/FS Comprehensive Round 2 Site Characterization Summary and Data Gaps Analysis Report, Volume 7: Appendices G, H, I, and J.	93,218	952 RPT / Report	R10: Unknown, Unknown (Anchor Environmental, LLC), R10: Unknown, Unknown (Kennedy/Jenks Consultants), R10: Unknown, Unknown (Windward Environmental, LLC.), R10: Unknown, Unknown (Integral Consulting, Inc.)	R10: Unknown, Unknown (Lower Willamette Group)	PAPER DOCUMENT	053-REMEDIAL/0531-Remedy Characterization
1372605	2/21/2007	Letter Regarding Portland Harbor RI/FS Round 3A Field Sampling Plan, Storm Water Sampling and Portland Harbor RI/FS Round 2 Quality Assurance Project Plan, Addendum 8: Round 3A Storm Water Sampling with Attached Attachment A, Comments on Stormwater FSP.	145	4	R10: Koch, Kristine, M (EPA)	R10: Mckenna, Jim (Lower Willamette Group), R10: Wyatt, Robert (Lower Willamette Group), R10: Cora, Lori, H (EPA), R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	PAPER DOCUMENT	053-REMEDIAL/0531-Remedy Characterization
100003890	2/21/2007	Portland Harbor RI/FS: Comprehensive round 2 site characterization summary and data gaps analysis report, plus addenda.	3,997	779 CORR / Correspondence	R10: (Anchor Environmental, LLC), R10: (Windward Environmental, LLC.), R10: (Kennedy/Jenks Consultants), R10: (Integral Consulting, Inc.)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
500013404	2/21/2007	Portland Harbor RI/FS: Comprehensive round 2 site characterization summary and data gaps analysis report, plus addenda.	4,021	779 LAWS / Laws/Regulations/Guidance	R10: Unknown, Unknown (Kennedy/Jenks Consultants), R10: Unknown, Unknown (Windward Environmental, LLC.), R10: Unknown, Unknown (Integral Consulting, Inc.), R10: Unknown, Unknown (Anchor QEA, LLC)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
500019811	2/28/2007	Sediment Trap Sample Prioritization Summary - Table 2 - REVISED 2-28-2008 Sediment Trap Prioritization Summary versus detection limits.	20	1 CORR / Correspondence	R10: Unknown, Unknown (Unknown)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
1259351	3/1/2007	Portland Harbor RI/FS Round 3A Field Sampling Plan Stormwater Sampling.	10,082	150 RPT / Report	R10: Unknown, Unknown (Anchor Environmental, LLC), R10: Unknown, Unknown (Integral Consulting, Inc.)	R10: Unknown, Unknown (Lower Willamette Group)	PAPER DOCUMENT	053-REMEDIAL/0531-Remedy Characterization
1259352	3/1/2007	Portland Harbor RI/FS Round 2 Quality Assurance Project Plan Addendum 8: Round 3A Stormwater Sampling.	1,657	38 RPT / Report	R10: Unknown, Unknown (Integral Consulting, Inc.)	R10: Unknown, Unknown (Lower Willamette Group)	PAPER DOCUMENT	053-REMEDIAL/0531-Remedy Characterization
100001711	3/7/2007	Email regarding LWG Final Round 3A Stormwater FSP.	43	2 EML / Email	R10: Koch, Kristine, M (EPA)	R10: Applegate, Richard (City of Portland, Oregon), R10: Mckenna, Jim (Port of Portland), R10: Wyatt, Robert, J (NW Natural)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100001701	3/12/2007	Email regarding Schnitzer Recon Take 2.	38	5 EML / Email	R10: Jones, Laura (Integral Corporation)	R10: Sanders, Dawn (City of Portland, Oregon), R10: Koch, Kristine, M (EPA), R10: Tarnow, Karen, E (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
613732	3/20/2007	Email regarding Reply to FW: TZW report DEQ PM Feedback.	276	12 EML / Email	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100001712	3/21/2007	Email regarding Proposed FSP Deviation for One Outfall.	35	3 EML / Email	R10: Tarnow, Karen, E (Oregon Dept. of Environmental Quality)	R10: Sanders, Dawn (City of Portland, Oregon), R10: Scheffler, Linda (City of Portland, Oregon), R10: Stivers, Carl (Anchor Environmental, LLC), R10: Koch, Kristine, M (EPA), R10: Koulermos, Andrew, C (Newfields, Inc.), R10: Spencer, Amanda, L (Ash Creek Associates, Inc.), R10: Jones, Laura (Integral Corporation)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
500004487	3/22/2007	Newspaper article: EPA's Standards for Safety Not Enough for Willamette Water.	295	3 PUB / Publication	R10: Unknown, Unknown (The Oregonian)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
500019181	3/24/2007	OF49-COP Weekly Level, Velocity & Flow Rate Graph - OF49.	22	1 CORR / Correspondence	R10: Unknown, Unknown (Unknown)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100006843	3/28/2007	Email regarding Portland Harbor Round 2 data question.	14	1 EML / Email	R10: Humphrey, Chip (EPA)	R10: Mckenna, James (Port of Portland)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100007112	3/28/2007	Email regarding Reply to Portland Harbor Round 2 data question.	30	2 EML / Email	R10: Humphrey, Chip (EPA)	R10: Mckenna, James (Port of Portland)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
1258539	4/4/2007	Email regarding JSCS table update of the screening level values in table 3-1	42	1 EML / Email	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	PAPER DOCUMENT	053-REMEDIAL/0531-Remedy Characterization
100001714	4/6/2007	Email regarding Stormwater Progress and Issues.	35	3 EML / Email	R10: Stivers, Carl (Anchor Environmental, LLC)	R10: Sanders, Dawn (City of Portland, Oregon), R10: Scheffler, Linda (City of Portland, Oregon), R10: Stivers, Carl (Anchor Environmental, LLC), R10: Koch, Kristine, M (EPA), R10: Tarnow, Karen, E (Oregon Dept. of Environmental Quality), R10: Koulermos, Andrew, C (Newfields, Inc.), R10: Spencer, Amanda, L (Ash Creek Associates, Inc.), R10: Jones, Laura (Integral Corporation)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
500019180	4/8/2007	OF19 Weekly Level, Velocity & Flow Rate Graph - OF19 Sample 2.	18	1 CORR / Correspondence	R10: Unknown, Unknown (Unknown)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
1258417	4/9/2007	Transmittal letter regarding the Portland Harbor RI/FS Draft Round 3A Upstream & Downstream Sediment Field Sampling Report.	45	2 CORR / Correspondence	R10: Revelas, Gene, C (Integral Consulting, Inc.)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	PAPER DOCUMENT	053-REMEDIAL/0531-Remedy Characterization
1258418	4/9/2007	Portland Harbor RI/FS Draft Round 3A Upstream & Downstream Sediment Field Sampling Report.	6,456	143 CORR / Correspondence	R10: Revelas, Gene, C (Integral Consulting, Inc.)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	PAPER DOCUMENT	053-REMEDIAL/0531-Remedy Characterization
500019179	4/9/2007	Email regarding Reply to Stormwater Progress and Issues.	40	5 EML / Email	R10: Shellenberger, Amanda (Anchor Environmental, LLC)	R10: Sanders, Dawn (City of Portland, Oregon), R10: Scheffler, Linda (City of Portland, Oregon), R10: Stivers, Carl (Anchor Environmental, LLC), R10: Tarnow, Karen, E (Oregon Dept. of Environmental Quality), R10: Koulermos, Andrew, C (Newfields, Inc.), R10: Spencer, Amanda, L (Ash Creek Associates, Inc.)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
500019184	4/24/2007	Sampling Specifics by Site & Storm event - Stormwater sampling matrix-042407ces.	36	2 CORR / Correspondence	R10: Unknown, Unknown (Unknown)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization

						R10: Sanders, Dawn (City of Portland, Oregon), R10: Scheffler, Linda (City of Portland, Oregon), R10: Jones, Laura (Integral Consulting, Inc.), R10: Koch, Kristine, M (EPA), R10: Tarnow, Karen, E (Oregon Dept. of Environmental Quality), R10: Koulermos, Andrew, C (Newfields, Inc), R10: Spencer, Amanda, L (Ash Creek Associates, Inc.)		
100006089	4/26/2007	REDACTED Email regarding Stormwater Technical Team Conf. Call.	38	4	EML / Email	R10: Stivers, Carl (Anchor Environmental, LLC)		ELECTRONIC RECORD 053-REMEDIAL/0531-Remedy Characterization
500019183	4/26/2007	Sediment Trap Installations - Sediment Traps CES.	21	2	CORR / Correspondence	R10: Unknown, Unknown (Unknown)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD 053-REMEDIAL/0531-Remedy Characterization
500019186	4/27/2007	Storm Water Drainage Basins Page 2 of 3 - Gunderson.	578	1	CORR / Correspondence	R10: Unknown, Unknown (Unknown)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD 053-REMEDIAL/0531-Remedy Characterization
500011574	5/1/2007	Guidance for Evaluating the Oral Bioavailability of Metals in Soils for Use in Human Health Risk Assessment.	121	20	LAWS / Laws/Regulations/Guidance	R10: Unknown, Unknown (EPA)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD 053-REMEDIAL/0531-Remedy Characterization
613036	5/3/2007	Email regarding Fate and Transport Modeling Report Outline.	244	1	EML / Email	R10: Stivers, Carl (Anchor Environmental, LLC)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD 053-REMEDIAL/0531-Remedy Characterization
613037	5/3/2007	Draft FT Report outline2.	251	4	CORR / Correspondence	R10: Stivers, Carl (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD 053-REMEDIAL/0531-Remedy Characterization
500019189	5/7/2007	Sampling Specifics by Site & Storm event - Stormwater-matrix-5-7-07.	43	4	CORR / Correspondence	R10: Unknown, Unknown (Unknown)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD 053-REMEDIAL/0531-Remedy Characterization
613039	5/8/2007	Email regarding Reply to Fate and Transport Modeling Meeting.	249	2	EML / Email	R10: Stivers, Carl (Anchor Environmental, LLC)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD 053-REMEDIAL/0531-Remedy Characterization
100006101	5/8/2007	REDACTED Email regarding Stormwater and Sediment Trap Update.	53	6	EML / Email	R10: Stivers, Carl (Anchor Environmental, LLC)	R10: Sanders, Dawn (City of Portland, Oregon), R10: Scheffler, Linda (City of Portland, Oregon), R10: Jones, Laura (Integral Consulting, Inc.), R10: Koch, Kristine, M (EPA), R10: Tarnow, Karen, E (Oregon Dept. of Environmental Quality), R10: Koulermos, Andrew, C (Newfields, Inc), R10: Spencer, Amanda, L (Ash Creek Associates, Inc.)	ELECTRONIC RECORD 053-REMEDIAL/0531-Remedy Characterization
500019188	5/8/2007	Sediment Trap Installations - Sediment Traps May 08.	22	2	CORR / Correspondence	R10: Unknown, Unknown (Unknown)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD 053-REMEDIAL/0531-Remedy Characterization
1258419	5/11/2007	Email regarding discussion with AMEC about Rhone Poulenc.	66	1	EML / Email	R10: Sheldrake, Sean, A (EPA)	R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA), R10: Ader, Mark (EPA Coeur d'Alene Basin Eco-Planning Team)	PAPER DOCUMENT 053-REMEDIAL/0531-Remedy Characterization
100006103	5/17/2007	REDACTED Email regarding Reply to Stormwater Technical Team Conf. Call.	36	1	EML / Email	R10: Stivers, Carl (Anchor Environmental, LLC)	R10: Sanders, Dawn (City of Portland, Oregon), R10: Scheffler, Linda (City of Portland, Oregon), R10: Jones, Laura (Integral Consulting, Inc.), R10: Koch, Kristine, M (EPA), R10: Tarnow, Karen, E (Oregon Dept. of Environmental Quality), R10: Koulermos, Andrew, C (Newfields, Inc), R10: Spencer, Amanda, L (Ash Creek Associates, Inc.)	ELECTRONIC RECORD 053-REMEDIAL/0531-Remedy Characterization
500019345	5/17/2007	Sediment Trap Installations - Sediment TrapsAG05_16ces	23	2	CORR / Correspondence	R10: Unknown, Unknown (Unknown)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD 053-REMEDIAL/0531-Remedy Characterization
613040	5/18/2007	Email regarding Fate and Transport Modeling Meeting May 17 Highlights.	259	4	EML / Email	R10: Stivers, Carl (Anchor Environmental, LLC)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD 053-REMEDIAL/0531-Remedy Characterization
100006104	5/18/2007	REDACTED Email regarding Reply to Stormwater Technical Team Conf. Call.	38	2	EML / Email	R10: Stivers, Carl (Anchor Environmental, LLC)	R10: Sanders, Dawn (City of Portland, Oregon), R10: Scheffler, Linda (City of Portland, Oregon), R10: Stivers, Carl (Anchor Environmental, LLC), R10: Jones, Laura (Integral Consulting, Inc.), R10: Koch, Kristine, M (EPA), R10: Tarnow, Karen, E (Oregon Dept. of Environmental Quality), R10: Koulermos, Andrew, C (Newfields, Inc), R10: Spencer, Amanda, L (Ash Creek Associates, Inc.)	ELECTRONIC RECORD 053-REMEDIAL/0531-Remedy Characterization
500019347	5/18/2007	Storm Sample Matrix.	19	1	CORR / Correspondence	R10: Unknown, Unknown (Unknown)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD 053-REMEDIAL/0531-Remedy Characterization
500019348	5/18/2007	Stormwater Matrix - Stormwater-matrix-5-7-07.	41	4	CORR / Correspondence	R10: Unknown, Unknown (Unknown)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD 053-REMEDIAL/0531-Remedy Characterization
712223	5/21/2007	Portland Harbor RI/FS, Round 3A Low-Flow and Stormwater Impacted Surface Water Data Report, Draft.	1,609	163	RPT / Report	R10: Unknown, Unknown (Integral Consulting, Inc.)	R10: Unknown, Unknown (Lower Willamette Group)	ELECTRONIC RECORD 053-REMEDIAL/0531-Remedy Characterization
100006105	5/25/2007	REDACTED Email regarding Potential Sediment Trap Modifications.	36	5	EML / Email	R10: Stivers, Carl (Anchor Environmental, LLC)	R10: Sanders, Dawn (City of Portland, Oregon), R10: Scheffler, Linda (City of Portland, Oregon), R10: Jones, Laura (Integral Consulting, Inc.), R10: Koch, Kristine, M (EPA), R10: Tarnow, Karen, E (Oregon Dept. of Environmental Quality), R10: Koulermos, Andrew, C (Newfields, Inc), R10: Spencer, Amanda, L (Ash Creek Associates, Inc.)	ELECTRONIC RECORD 053-REMEDIAL/0531-Remedy Characterization
500019350	5/25/2007	Sediment Trap Inspections - Sediment Traps with Modification NotesAG5.23.	27	2	CORR / Correspondence	R10: Unknown, Unknown (Unknown)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD 053-REMEDIAL/0531-Remedy Characterization
500019355	6/1/2007	Status of Stormwater Outfall Composite Water Samples - Stormwater Matrix for Stormwater Tech Group_UJ_5312007CES.	37	3	CORR / Correspondence	R10: Unknown, Unknown (Unknown)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD 053-REMEDIAL/0531-Remedy Characterization
613019	6/4/2007	Email regarding Round 2 Report DEQ Comments Chapter 11.	591	21	EML / Email	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD 053-REMEDIAL/0531-Remedy Characterization
1309342	6/4/2007	Email Letter Regarding Round 2 Report DEQ Comments Chapter 11.	1,160	20	CORR / Correspondence	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	R10: Humphrey, Chip (EPA)	PAPER DOCUMENT 053-REMEDIAL/0531-Remedy Characterization
100001703	6/4/2007	Email regarding SW Tech Team June 4 Call Highlights and Next Call.	25	2	EML / Email	R10: Stivers, Carl (Anchor Environmental, LLC)	R10: Sanders, Dawn (City of Portland, Oregon), R10: Scheffler, Linda (City of Portland, Oregon), R10: Stivers, Carl (Anchor Environmental, LLC), R10: Jones, Laura (Integral Consulting, Inc.), R10: Koch, Kristine, M (EPA), R10: Tarnow, Karen, E (Oregon Dept. of Environmental Quality), R10: Koulermos, Andrew, C (Newfields, Inc), R10: Spencer, Amanda, L (Ash Creek Associates, Inc.), R10: Jones, Laura (Integral Corporation)	ELECTRONIC RECORD 053-REMEDIAL/0531-Remedy Characterization
100001717	6/4/2007	Email regarding GE stormwater.	48	2	EML / Email	R10: Koch, Kristine, M (EPA)	R10: Scheffler, Linda (City of Portland, Oregon)	ELECTRONIC RECORD 053-REMEDIAL/0531-Remedy Characterization
500019351	6/5/2007	Email regarding Catch Basin sampling at Arkema.	15	1	EML / Email	R10: Tarnow, Karen, E (Oregon Dept. of Environmental Quality)	R10: Sanders, Dawn (City of Portland, Oregon), R10: Scheffler, Linda (City of Portland, Oregon), R10: Stivers, Carl (Anchor Environmental, LLC), R10: Jones, Laura (Integral Consulting, Inc.), R10: Koch, Kristine, M (EPA), R10: Tarnow, Karen, E (Oregon Dept. of Environmental Quality), R10: Koulermos, Andrew, C (Newfields, Inc), R10: Spencer, Amanda, L (Ash Creek Associates, Inc.)	ELECTRONIC RECORD 053-REMEDIAL/0531-Remedy Characterization
500019352	6/5/2007	Table A6-3, Analytes and Method Reporting Limits for Catch Basin Sediment Samples - Arkema CB sampling plan.	51	2	CORR / Correspondence	R10: Unknown, Unknown (Unknown)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD 053-REMEDIAL/0531-Remedy Characterization
100001890	6/7/2007	Proposed Rd 3B: River Miles 10-11 Bioassay & Surface Sediment Sampling Proposed Round 3B Bioassay & Surface Sediment Sampling Locations.	3,638	10	CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD 053-REMEDIAL/0531-Remedy Characterization
100006106	6/7/2007	REDACTED Email regarding PH Data question.	70	7	EML / Email	R10: Koch, Kristine, M (EPA)	R10: Sanders, Dawn (City of Portland, Oregon), R10: Scheffler, Linda (City of Portland, Oregon), R10: Stivers, Carl (Anchor Environmental, LLC), R10: Jones, Laura (Integral Consulting, Inc.), R10: Tarnow, Karen, E (Oregon Dept. of Environmental Quality), R10: Koulermos, Andrew, C (Newfields, Inc)	ELECTRONIC RECORD 053-REMEDIAL/0531-Remedy Characterization

100006107	6/7/2007	REDACTED Email regarding Reply to PH Data question. Status of Stormwater Outfall Composite Water Samples - Copy of Copy of Storm Sample Matrix_LL_0616007_MMT.	53	13 EML / Email	R10: Jones, Laura (Integral Consulting, Inc.)	R10: Sanders, Dawn (City of Portland, Oregon), R10: Scheffler, Linda (City of Portland, Oregon), R10: Stivers, Carl (Anchor Environmental, LLC), R10: Koch, Kristine, M (EPA), R10: Tarnow, Karen, E (Oregon Dept. of Environmental Quality), R10: Koulermos, Andrew, C (Newfields, Inc)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
500019357	6/16/2007	Detected-undetected by Sampling Event - Stormwater Outfall Detected-undetected analytes.	35	3 CORR / Correspondence	R10: Unknown, Unknown (Unknown)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
500019359	6/16/2007	Matrix_LL_0616007_MMT.	51	5 CORR / Correspondence	R10: Unknown, Unknown (Unknown)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100006108	6/17/2007	REDACTED Email regarding June 18 SW Tech Team Call at 11:00 am.	46	8 EML / Email	R10: Stivers, Carl (Anchor Environmental, LLC)	R10: Lafranchise, Nicole, M (Port of Portland), R10: Stivers, Carl (Anchor Environmental, LLC), R10: Jones, Laura (Integral Consulting, Inc.), R10: Koch, Kristine, M (EPA), R10: Koulermos, Andrew, C (Newfields, Inc)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100006096	6/18/2007	REDACTED Email regarding Reply to June 18 SW Tech Team Call - additional info. Status of Stormwater Outfall Composite Water Samples - Storm Sample	44	6 EML / Email	R10: Stivers, Carl (Anchor Environmental, LLC)	R10: Lafranchise, Nicole, M (Port of Portland), R10: Koch, Kristine, M (EPA), R10: Koulermos, Andrew, C (Newfields, Inc), R10: Jones, Laura (Integral Corporation)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
500019361	6/19/2007	Matrix_LL_0616007_MMT.	36	3 CORR / Correspondence	R10: Unknown, Unknown (Unknown)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100006097	6/21/2007	REDACTED Email regarding Stormwater Sample Matrix.	53	2 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Applegate, Richard (City of Portland, Oregon), R10: Mckenna, Jim (Port of Portland), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Bluelake, Lisa (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Karnosh, Michael (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA), R10: Madden, Erin (Nez Perce Tribe), R10: Barquin, Billy (Haglund, Kelley, Horngren, Jones & Wilder, LLP), R10: Anderson, James, M (Oregon Dept. of Environmental Quality), R10: McClincy, Matt (Oregon Dept. of Environmental Quality), R10: Lee, Valerie (Environment International, Ltd.), R10: Longoria, Rose (Yakama Nation), R10: Wyatt, Robert, J (NW Natural), R10: Hawley, Christine (Integral Corporation), R10: Revelas, Gene (Integral Corporation)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
500019360	6/21/2007	Email regarding Stormwater Sample Matrix. Sediment Trap Sediment Samples - Stormwater Outfall Sed Trap Sample Mass Analytical Aliquots.	51	2 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Applegate, Richard (City of Portland, Oregon), R10: Mckenna, Jim (Port of Portland), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Bluelake, Lisa (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Karnosh, Michael (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA), R10: Madden, Erin (Nez Perce Tribe), R10: Barquin, Billy (Haglund, Kelley, Horngren, Jones & Wilder, LLP), R10: Anderson, James, M (Oregon Dept. of Environmental Quality), R10: McClincy, Matt (Oregon Dept. of Environmental Quality), R10: Lee, Valerie (Environment International, Ltd.), R10: Longoria, Rose (Yakama Nation), R10: Wyatt, Robert, J (NW Natural), R10: Hawley, Christine (Integral Corporation), R10: Revelas, Gene (Integral Corporation)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
500019449	7/10/2007	Stormwater Sediment Trap Sample Handling and Analysis Methods - Stormwater Outfall Sed Trap Sample Mass Analytical Aliquots.	59	8 CORR / Correspondence	R10: Unknown, Unknown (Unknown)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
500019444	7/18/2007	Table 2. Sediment Trap Sample Prioritization Summary - Showing Target Detection Limit Factors* - Stormwater Summary.	59	8 CORR / Correspondence	R10: Unknown, Unknown (Unknown)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
500019445	7/18/2007	Table 2. Sediment Trap Sample Prioritization Summary - Showing Target Detection Limit Factors* - Stormwater Summary.	20	1 CORR / Correspondence	R10: Unknown, Unknown (Unknown)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
500019450	7/18/2007	Table 2. Sediment Trap Sample Prioritization Summary - Showing Target Detection Limit Factors* - Stormwater Summary.	20	1 CORR / Correspondence	R10: Unknown, Unknown (Unknown)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
500019443	7/25/2007	Email regarding Stormwater Sediment Trap Sample Handling and Analysis Methods.	27	1 EML / Email	R10: Shellenberger, Amanda (Anchor Environmental, LLC)	R10: Sanders, Dawn (City of Portland, Oregon), R10: Scheffler, Linda (City of Portland, Oregon), R10: Lafranchise, Nicole, M (Port of Portland), R10: Mckenna, James (Port of Portland), R10: Stivers, Carl (Anchor Environmental, LLC), R10: Koch, Kristine, M (EPA), R10: Tarnow, Karen, E (Oregon Dept. of Environmental Quality), R10: Koulermos, Andrew, C (Newfields, Inc), R10: Spencer, Amanda, L (Ash Creek Associates, Inc.), R10: Jones, Laura (Integral Corporation)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
619743	7/26/2007	Email regarding Apparent Contamination in Willamette Cove.	249	2 EML / Email	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100001721	8/13/2007	Email regarding Stormwater Sediment Trap Sample Handling and Analysis Methods.	45	3 EML / Email	R10: Stivers, Carl (Anchor Environmental, LLC)	R10: Sanders, Dawn (City of Portland, Oregon), R10: Scheffler, Linda (City of Portland, Oregon), R10: Lafranchise, Nicole, M (Port of Portland), R10: Mckenna, Jim (Port of Portland), R10: Shellenberger, Amanda (Anchor Environmental, LLC), R10: Koch, Kristine, M (EPA), R10: Tarnow, Karen, E (Oregon Dept. of Environmental Quality), R10: Koulermos, Andrew, C (Newfields, Inc), R10: Spencer, Amanda, L (Ash Creek Associates, Inc.), R10: Jones, Laura (Integral Corporation)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100006099	8/13/2007	REDACTED Email regarding Reply to Stormwater Sediment Trap Sample Handling and Analysis Methods Conference Call Try #3 Monday August 13th 9-11.	39	4 EML / Email	R10: Stivers, Carl (Anchor Environmental, LLC)	R10: Shellenberger, Amanda (Anchor Environmental, LLC), R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
613733	8/14/2007	Email regarding PCB Sediment Background Calculations.	243	1 EML / Email	R10: Poulsen, Mike (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
613734	8/14/2007	Zidell PCB Sediment Background.	242	6 CORR / Correspondence	R10: Poulsen, Mike (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization



100001722	8/14/2007	Email regarding Stormwater Technical Team Call Highlights (Aug. 13th call).	51	4 EML / Email	R10: Stivers, Carl (Anchor Environmental, LLC)	R10: Sanders, Dawn (City of Portland, Oregon), R10: Scheffler, Linda (City of Portland, Oregon), R10: Lafranchise, Nicole, M (Port of Portland), R10: Mckenna, Jim (Port of Portland), R10: Shellenberger, Amanda (Anchor Environmental, LLC), R10: Stivers, Carl (Anchor Environmental, LLC), R10: Koch, Kristine, M (EPA), R10: Tarnow, Karen, E (Oregon Dept. of Environmental Quality), R10: Koulermos, Andrew, C (Newfields, Inc), R10: Spencer, Amanda, L (Ash Creek Associates, Inc.), R10: Jones, Laura (Integral Corporation)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100001723	8/16/2007	Email regarding Stormwater Technical Team Call Highlights (Aug. 13th call).	49	11 EML / Email	R10: Stivers, Carl (Anchor Environmental, LLC)	R10: Scheffler, Linda (City of Portland, Oregon), R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100001724	8/17/2007	Email regarding Stormwater Technical Team Call Highlights (Aug. 13th call).	50	12 EML / Email	R10: Jones, Laura (Integral Corporation)	R10: Scheffler, Linda (City of Portland, Oregon), R10: Stivers, Carl (Anchor Environmental, LLC), R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100001725	8/20/2007	Email regarding Stormwater Technical Team Call Highlights (Aug. 13th call).	52	12 EML / Email	R10: Scheffler, Linda (City of Portland, Oregon)	R10: Stivers, Carl (Anchor Environmental, LLC), R10: Jones, Laura (Integral Corporation)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
500019451	8/20/2007	Email regarding Stormwater Data Posted. Blanks for Stormwater -	84	2 EML / Email	R10: Jones, Laura (Integral Corporation)	R10: Pisano, Jessica, A (Anchor Environmental, LLC)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
500019454	8/21/2007	B010162_Blanks_Phthalates.	27	2 CORR / Correspondence	R10: Unknown, Unknown (Unknown)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100006110	8/22/2007	REDACTED Email regarding Reply to Stormwater Technical Team Call Thursday Aug. 23rd at 1 pm.	20	2 EML / Email	R10: Stivers, Carl (Anchor Environmental, LLC)	R10: Sanders, Dawn (City of Portland, Oregon), R10: Scheffler, Linda (City of Portland, Oregon), R10: Lafranchise, Nicole, M (Port of Portland), R10: Shellenberger, Amanda (Anchor Environmental, LLC), R10: Koch, Kristine, M (EPA), R10: Tarnow, Karen, E (Oregon Dept. of Environmental Quality), R10: Koulermos, Andrew, C (Newfields, Inc), R10: Spencer, Amanda, L (Ash Creek Associates, Inc.), R10: Jones, Laura (Integral Corporation)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
500019455	8/22/2007	Table 2. Sediment Trap Sample Prioritization Summary - Showing Target Detection Limit Factors for LWG Sites and Estimated for T4 Sites* - Sediment Trap Summary Est.	22	2 CORR / Correspondence	R10: Unknown, Unknown (Unknown)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
500019456	8/22/2007	Status of Stormwater Outfall Composite Water Samples - Storm Sample Matrix with T4 and GE.	26	2 CORR / Correspondence	R10: Unknown, Unknown (Unknown)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
613054	8/29/2007	Email regarding Round 3B Erosion Core Scoping Document - For EPA Review.	329	2 EML / Email	R10: Pisano, Jessica, A (Anchor Environmental, LLC)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
613055	8/29/2007	Email regarding Round 3B Erosion Core Scoping Documents and Server Location - For EPA Review.	329	3 EML / Email	R10: Pisano, Jessica, A (Anchor Environmental, LLC)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
500019617	9/10/2007	Status of Stormwater Outfall Composite Water Samples - Data Complete Summary3.	62	3 CORR / Correspondence	R10: Unknown, Unknown (Unknown)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
612956	9/13/2007	Email regarding Map (TPH) used in this This Morning's Meeting: John's Presentation.	302	1 EML / Email	R10: Pisano, Jessica, A (Anchor Environmental, LLC)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100001727	9/13/2007	Email regarding LWG Stormwater Data Gaps.	32	2 EML / Email	R10: Sanders, Dawn (City of Portland, Oregon)	R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100006120	9/20/2007	REDACTED Email regarding Reply to Notes from Stormwater Tech Team Call Sept 14th at 1:15pm.	64	8 EML / Email	R10: Stivers, Carl (Anchor Environmental, LLC)	R10: Sanders, Dawn (City of Portland, Oregon), R10: Scheffler, Linda (City of Portland, Oregon), R10: Lafranchise, Nicole, M (Port of Portland), R10: Shellenberger, Amanda (Anchor Environmental, LLC), R10: Koch, Kristine, M (EPA), R10: Tarnow, Karen, E (Oregon Dept. of Environmental Quality), R10: Koulermos, Andrew, C (Newfields, Inc), R10: Spencer, Amanda, L (Ash Creek Associates, Inc.), R10: Jones, Laura (Integral Corporation)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
500019619	9/20/2007	Sediment Trap - Data Needs Summary Sep 18.	16	1 CORR / Correspondence	R10: Unknown, Unknown (Unknown)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
611036	9/25/2007	2007-09-21_R3B_Sediment_Proposed.	4,220	12 CORR / Correspondence	R10: Pisano, Jessica, A (Anchor Environmental, LLC)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
613023	9/25/2007	Email regarding Round 3B Sediment Maps. Email regarding For your consideration - Evaluation of Groundwater Discharge to the Willamette River, RP - Portland Site.	302	3 EML / Email	R10: Pisano, Jessica, A (Anchor Environmental, LLC)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
613804	10/2/2007	2007-08-	242	1 EML / Email	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
611037	10/3/2007	14_Draft_GWPA_FSP_Gunderson_Fig2-4.	523	1 CORR / Correspondence	R10: Pisano, Jessica, A (Anchor Environmental, LLC)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
611038	10/3/2007	14_Draft_GWPA_FSP_Gunderson_Fig2-5.	547	1 CORR / Correspondence	R10: Pisano, Jessica, A (Anchor Environmental, LLC)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
611045	10/3/2007	2007-09-27_DRAFT_RTC_Gunderson_TZW.	27	3 CORR / Correspondence	R10: Pisano, Jessica, A (Anchor Environmental, LLC)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
611046	10/3/2007	2007-09-27_Gunderson_Counter-proposal_Summary.	376	2 CORR / Correspondence	R10: Pisano, Jessica, A (Anchor Environmental, LLC)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
611047	10/3/2007	2007-09-27_R3_GundersonTZW_Counterproposal figure.	465	1 CORR / Correspondence	R10: Pisano, Jessica, A (Anchor Environmental, LLC)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
611048	10/4/2007	2007-09-21_R3B_Sediment_Maps_with_9-28 Annotations.	4,250	12 CORR / Correspondence	R10: Pisano, Jessica, A (Anchor Environmental, LLC)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
613024	10/4/2007	Email regarding Round 3B Sediment Maps Annotated based on 9/28 meeting.	309	2 EML / Email	R10: Pisano, Jessica, A (Anchor Environmental, LLC)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100001730	10/4/2007	Email regarding Kach Machine Works. EPA and DEQ Notification: R3 GWPA Gunderson FSP - Revised Approach based on 10/4 Conference Call.	28	1 EML / Email	R10: Scheffler, Linda (City of Portland, Oregon)	R10: Sanders, Dawn (City of Portland, Oregon), R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
611236	10/5/2007	10/4 Conference Call.	310	3 CORR / Correspondence	R10: Pisano, Jessica, A (Anchor Environmental, LLC)	R10: Fuentes, Rene, C (EPA), R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
1471381	10/10/2007	Transmittal of Round 3B Gunderson Area 1 Groundwater Pathway Field Sampling Plan.	2,601	2 LTR / Letter	R10: Wyatt, Bob (Lower Willamette Group), R10: Mckenna, Jim (Lower Willamette Group)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	PAPER DOCUMENT	053-REMEDIAL/0531-Remedy Characterization
611238	10/11/2007	EPA Notification: Round3 Groundwater Pathway Assessment FSP - Gunderson.	286	2 CORR / Correspondence	R10: Pisano, Jessica, A (Anchor Environmental, LLC)	R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100006111	10/12/2007	REDACTED Email regarding Reply to Stormwater Technical Team Call October 16 at 1:00 pm.	36	4 EML / Email	R10: Stivers, Carl (Anchor Environmental, LLC)	R10: Sanders, Dawn (City of Portland, Oregon), R10: Scheffler, Linda (City of Portland, Oregon), R10: Lafranchise, Nicole, M (Port of Portland), R10: Shellenberger, Amanda (Anchor Environmental, LLC), R10: Koch, Kristine, M (EPA), R10: Tarnow, Karen, E (Oregon Dept. of Environmental Quality), R10: Koulermos, Andrew, C (Newfields, Inc), R10: Spencer, Amanda, L (Ash Creek Associates, Inc.), R10: Coover, Merv (AECOM), R10: Jones, Laura (Integral Corporation)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization

100006121	10/12/2007	REDACTED Email regarding Reply to Stormwater Technical Team Call October 16 at 1:00 pm.	37	5	EML / Email	R10: Stivers, Carl (Anchor Environmental, LLC)	R10: Sanders, Dawn (City of Portland, Oregon), R10: Scheffler, Linda (City of Portland, Oregon), R10: Lafranchise, Nicole, M (Port of Portland), R10: Shellenberger, Amanda (Anchor Environmental, LLC), R10: Stivers, Carl (Anchor Environmental, LLC), R10: Koch, Kristine, M (EPA), R10: Tarnow, Karen, E (Oregon Dept. of Environmental Quality), R10: Koulermos, Andrew, C (Newfields, Inc), R10: Spencer, Amanda, L (Ash Creek Associates, Inc.), R10: Coover, Merv (AECOM), R10: Jones, Laura (Integral Corporation)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
500019621	10/12/2007	Table by Outfall Table by Land Use - 20071010_summary_stats_tables_only.	104	19	CORR / Correspondence	R10: Unknown, Unknown (Unknown)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
500019622	10/12/2007	Figures by Outfall - 20071011_figures_by_outfall.	103	8	CORR / Correspondence	R10: Unknown, Unknown (Unknown)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
500019623	10/12/2007	Figures by Land Use - 20071012_figures_by_land_use.	79	8	CORR / Correspondence	R10: Unknown, Unknown (Unknown)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
500019624	10/12/2007	Draft Elements of Loading Analysis - Elements of Loading Analysis Oct 12.	69	2	CORR / Correspondence	R10: Unknown, Unknown (Unknown)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
500019626	10/12/2007	Table: Compilation of Data Used in Summary Statistics and Scatterplots - 20071012_data_tabulated_nograb.	74	11	CORR / Correspondence	R10: Unknown, Unknown (Unknown)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100006122	10/16/2007	REDACTED Email regarding Reply to Stormwater Technical Team Call October 16 at 1:00 pm.	46	9	EML / Email	R10: Shellenberger, Amanda (Anchor Environmental, LLC)	R10: Stivers, Carl (Anchor Environmental, LLC), R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
500019628	10/16/2007	HWY 30/ Reed Street Map - HWY30_REEDST.	922	1	CORR / Correspondence	R10: Unknown, Unknown (Unknown)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
500019629	10/16/2007	Email regarding Notes from Oct. 16 Stormwater Technical Meeting.	29	3	EML / Email	R10: Stivers, Carl (Anchor Environmental, LLC)	R10: Sanders, Dawn (City of Portland, Oregon), R10: Scheffler, Linda (City of Portland, Oregon), R10: Lafranchise, Nicole, M (Port of Portland), R10: Shellenberger, Amanda (Anchor Environmental, LLC), R10: Stivers, Carl (Anchor Environmental, LLC), R10: Koch, Kristine, M (EPA), R10: Tarnow, Karen, E (Oregon Dept. of Environmental Quality), R10: Koulermos, Andrew, C (Newfields, Inc), R10: Spencer, Amanda, L (Ash Creek Associates, Inc.), R10: Coover, Merv (AECOM), R10: Jones, Laura (Integral Corporation)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
500019630	10/16/2007	Table - Data Needs Summary Oct 16.	21	1	CORR / Correspondence	R10: Unknown, Unknown (Unknown)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
1290670	10/18/2007	Transmittal Letter Regarding 4 Copies of Draft Treatability Study Literature Review Technical Memorandum.	43	1	CORR / Correspondence	R10: Stivers, Carl (Anchor Environmental, LLC)	R10: Humphrey, Chip (EPA)	PAPER DOCUMENT	053-REMEDIAL/0531-Remedy Characterization
712222	10/20/2007	Portland Harbor RI/FS, Draft Treatability Study and Literature Review.	914	12	RPT / Report	R10: Unknown, Unknown (Anchor Environmental, LLC)	R10: Unknown, Unknown (Lower Willamette Group)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100001732	10/25/2007	Email regarding phthalate workgroup report.	38	5	EML / Email	R10: Stern, Jeff (King County)	R10: Dejesus, Kathryn (Washington State Dept. of Ecology), R10: Preston, Seth (Washington State Dept. of Ecology), R10: Rude, Peter, D (City of Seattle Public Utilities), R10: Tiffany, Bruce (King County Wastewater Treatment Division), R10: Flint, Kristine, A (EPA), R10: O'loughlin, John (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100001733	10/29/2007	Email regarding Sampling location at Sulzer. Report regarding Draft Round 2 Quality Assurance Project Plan Addendum 9: Fish and Invertebrate Tissue and Collocated Sediment	31	2	EML / Email	R10: Tarnow, Karen, E (Oregon Dept. of Environmental Quality)	R10: Sanders, Dawn (City of Portland, Oregon), R10: Scheffler, Linda (City of Portland, Oregon), R10: Stivers, Carl (Anchor Environmental, LLC), R10: Koch, Kristine, M (EPA), R10: Koulermos, Andrew, C (Newfields, Inc), R10: Jones, Laura (Integral Corporation)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
1254516	10/31/2007	Sampling for Round 3B. 2007-11-01_Round_3B_Gunderson_strat_core_review_DRAFT_.	2,732	67	RPT / Report	R10: Unknown, Unknown (Integral Consulting, Inc.)	R10: Unknown, Unknown (Lower Willamette Group)	PAPER DOCUMENT	053-REMEDIAL/0531-Remedy Characterization
611060	11/1/2007	2007_11-01_Round_3B_Gunderson_strat_core_review_DRAFT_.	324	2	CORR / Correspondence	R10: Pisano, Jessica, A (Anchor Environmental, LLC)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
611061	11/1/2007	2007_11_01_DRAFT_Figure1.	408	1	CORR / Correspondence	R10: Pisano, Jessica, A (Anchor Environmental, LLC)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
611062	11/1/2007	Figure 2 Portland Harbor RI/FS Round 3 Groundwater Pathway Assessment Stratigraphic Coring and Bulk Sediment FSP - Gunderson Site Cross-Section (A-A).	544	1	CORR / Correspondence	R10: Pisano, Jessica, A (Anchor Environmental, LLC)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
611066	11/1/2007	2007_11_01_DRAFT_Figure3_B-B_xsect_view.	527	1	CORR / Correspondence	R10: Pisano, Jessica, A (Anchor Environmental, LLC)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
611067	11/1/2007	2007_11_01_DRAFT_Figure4_C-C_xsect_view.	501	1	CORR / Correspondence	R10: Pisano, Jessica, A (Anchor Environmental, LLC)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
662938	11/1/2007	2007_11_MONTHLYPROGRESSREPORT.	283	23	RPT / Report	R10: Unknown, Unknown (Lower Willamette Group)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100006112	11/2/2007	REDACTED Email regarding Stormwater FSP Addendum for Immediate Approval.	87	3	EML / Email	R10: Pisano, Jessica, A (Anchor Environmental, LLC)	R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100006123	11/2/2007	REDACTED Draft Round 3A Field Sampling Plan Addendum Stormwater Sampling - RD 3 SW FSP Addendum_11-2-07.	1,562	131	CORR / Correspondence	R10: Unknown, Unknown (Lower Willamette Group)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
1471382	11/5/2007	Transmittal Letter for the Remedial Investigation/Feasibility Study: Round 3B Comprehensive Sediment and Bioassay Testing Field Sampling Plan for Portland Harbor.	84	2	LTR / Letter	R10: Revelas, Gene, C (Integral Consulting, Inc.)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	PAPER DOCUMENT	053-REMEDIAL/0531-Remedy Characterization
1254462	11/6/2007	Letter of transmittal regarding RI/FS Response to EPA comments on: Erosion Vore Sediment Evaluation & Field Sampling Plan Technical Approach; Upriver and Multnomah Channel Sediment Evaluation & Field Sampling Plan Technical Approach (attached report).	391	14	CORR / Correspondence	R10: Revelas, Gene, C (Integral Consulting, Inc.)	R10: Humphrey, Chip (EPA)	PAPER DOCUMENT	053-REMEDIAL/0531-Remedy Characterization
100001734	11/6/2007	Email regarding Stormwater FSP Approval.	33	2	EML / Email	R10: Mckenna, Jim (Port of Portland)	R10: Koch, Kristine, M (EPA), R10: Wyatt, Robert, J (NW Natural)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100006832	11/7/2007	Email regarding Portland Harbor - Postponing Nov 15th Milestone Meeting.	16	1	EML / Email	R10: Humphrey, Chip (EPA)	R10: Mckenna, James (Port of Portland)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100006113	11/12/2007	REDACTED Email regarding Tomorrow's Stormwater Technical Team Meeting.	40	4	EML / Email	R10: Stivers, Carl (Anchor Environmental, LLC)	R10: Sanders, Dawn (City of Portland, Oregon), R10: Scheffler, Linda (City of Portland, Oregon), R10: Shellenberger, Amanda (Anchor Environmental, LLC), R10: Koch, Kristine, M (EPA), R10: Koulermos, Andrew, C (Newfields, Inc), R10: Spencer, Amanda, L (Ash Creek Associates, Inc.), R10: Coover, Merv (AECOM), R10: Jones, Laura (Integral Corporation)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100006114	11/12/2007	REDACTED Email regarding Reply to Tomorrow's Stormwater Technical Team Meeting	43	5	EML / Email	R10: Stivers, Carl (Anchor Environmental, LLC)	R10: Sanders, Dawn (City of Portland, Oregon), R10: Scheffler, Linda (City of Portland, Oregon), R10: Shellenberger, Amanda (Anchor Environmental, LLC), R10: Stivers, Carl (Anchor Environmental, LLC), R10: Koch, Kristine, M (EPA), R10: Koulermos, Andrew, C (Newfields, Inc), R10: Spencer, Amanda, L (Ash Creek Associates, Inc.), R10: Jones, Laura (Integral Corporation)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization

500019634	11/12/2007	Draft One Potential Method for Stormwater Loading Analysis – Portland Harbor Superfund Site - One Potential Loading Analysis Nov 8.	69	2	CORR / Correspondence	R10: Unknown, Unknown (Unknown)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
500019701	11/12/2007	Portland Stormwater Data (LWG and T4) - BoxPlotsAllData.	49	3	CORR / Correspondence	R10: Unknown, Unknown (Unknown)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
500019702	11/12/2007	Goodness-of-Fit Test Statistics for Full Data Sets without Non-Detects - GOFoutput.	67	11	CORR / Correspondence	R10: Unknown, Unknown (Unknown)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
500019703	11/12/2007	Portland Stormwater Data (LWG and T4): Summary Statistics by Land Use - ProbPlotsbyLanduse.	77	18	CORR / Correspondence	R10: Unknown, Unknown (Unknown)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
614133	11/20/2007	Portland Harbor RI/FS, Compilation of Information for Sources Between River Miles 11 and 11.6, East Bank of Portland Harbor.	16,045	93	CORR / Correspondence	R10: Mckenna, James (Port of Portland), R10: Wyatt, Robert, J (Northwest Natural Gas Company)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
611241	11/27/2007	Email regarding Round 3B Gunderson TZW - Stratigraphic Coring Results.	304	2	CORR / Correspondence	R10: Pisano, Jessica, A (Anchor Environmental, LLC)	R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
1254456	12/14/2007	Letter of Transmittal regarding RI/FS, Response to EPA Comments on: Erosion Core Sediment Evaluation & Field Sampling Plan Technical Approach, Upriver & Multnomah Channel Sediment Evaluation & Plan Technical Approach (attached comments).	404	15	CORR / Correspondence	R10: Revelas, Gene, C (Lower Willamette Group)	R10: Humphrey, Chip (EPA)	PAPER DOCUMENT	053-REMEDIAL/0531-Remedy Characterization
1309210	1/1/2008	Portland Harbor RI/FS Round 3A Sediment Trap Sampling Quarter 4 Field Report, with an Attached Transmittal Letter.	10,099	53	CORR / Correspondence	R10: Hanzlick, Dennis (Anchor Environmental, LLC)	R10: Humphrey, Chip (EPA)	PAPER DOCUMENT	053-REMEDIAL/0531-Remedy Characterization
500019705	1/10/2008	Agreed To Methods or Evaluation Processes for Stormwater Load Calculations - Storm Notes Jan 10 2008.	65	2	CORR / Correspondence	R10: Unknown, Unknown (Unknown)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100006115	1/14/2008	REDACTED Email regarding Notes from Jan. 10th meeting.	52	13	EML / Email	R10: Stivers, Carl (Anchor Environmental, LLC)	R10: Sanders, Dawn (City of Portland, Oregon), R10: Scheffler, Linda (City of Portland, Oregon), R10: Lafranchise, Nicole, M (Port of Portland), R10: Shellenberger, Amanda (Anchor Environmental, LLC), R10: Tear, Lucinda (Windward Environmental, LLC.), R10: Koch, Kristine, M (EPA), R10: Tarnow, Karen, E (Oregon Dept. of Environmental Quality), R10: Koulermos, Andrew, C (Newfields, Inc), R10: Spencer, Amanda, L (Ash Creek Associates, Inc.), R10: Coover, Merv (AECOM), R10: Jones, Laura (Integral Corporation)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
1254812	1/15/2008	Letter regarding Administrative Order on Consent for Remedial Investigation and Feasibility Study; Comprehensive Round 2 Site Characterization & Data Gaps Analysis Report.	4,253	63	CORR / Correspondence	R10: Humphrey, Chip (EPA)	R10: Mckenna, Jim (Lower Willamette Group), R10: Wyatt, Robert (Lower Willamette Group)	PAPER DOCUMENT	053-REMEDIAL/0531-Remedy Characterization
100007395	1/15/2008	Email regarding EPA Comments on Round 2 Comprehensive R2 Report.	18	1	EML / Email	R10: Humphrey, Chip (EPA)	R10: Applegate, Richard (City of Portland, Oregon), R10: Mckenna, Jim (Port of Portland), R10: Wyatt, Bob (Northwest Natural Gas Company)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100007396	1/15/2008	EPA Comments on Comprehensive Round 2 Site Summary and Data Gaps Analysis Report Sections 1 – 9 and Appendices A, B, C, D, F, and G.	346	57	CORR / Correspondence	R10: Hobbs, Daniel (Parametrix, Inc.)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100007397	1/15/2008	Letter regarding Comprehensive Round 2 Site Characterization and Data Gaps Analysis Report.	51	6	CORR / Correspondence	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	R10: Mckenna, Jim (Lower Willamette Group), R10: Wyatt, Robert (Lower Willamette Group)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
500019799	1/22/2008	Portland Harbor RI/FS Round 3B Upland Stormwater Sampling DRAFT -- Fall Sediment Trap Status 1-22-2008.	11	1	CORR / Correspondence	R10: Unknown, Unknown (Unknown)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
500019798	1/23/2008	Email regarding LWG Stormwater -- Summary of Fall Sediment Trap Inspections.	30	2	EML / Email	R10: Shellenberger, Amanda (Anchor Environmental, LLC)	R10: Sanders, Dawn (City of Portland, Oregon), R10: Scheffler, Linda (City of Portland, Oregon), R10: Lafranchise, Nicole, M (Port of Portland), R10: Stivers, Carl (Anchor Environmental, LLC), R10: Tear, Lucinda (Windward Environmental, LLC.), R10: Koch, Kristine, M (EPA), R10: Tarnow, Karen, E (Oregon Dept. of Environmental Quality), R10: Koulermos, Andrew, C (Newfields, Inc), R10: Spencer, Amanda, L (Ash Creek Associates, Inc.), R10: Coover, Merv (AECOM), R10: Jones, Laura (Integral Corporation)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
613346	1/30/2008	Email regarding Initial LWG Talking Points on Select EPA Comments (EPA Letter Dated January 15 Round 2 Report Comments).	290	2	EML / Email	R10: Pisano, Jessica, A (Anchor Environmental, LLC)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100007398	1/31/2008	Email regarding LWG request for extension of deadline to initiate dispute resolution on SLEA comments.	32	2	EML / Email	R10: Humphrey, Chip (EPA)	R10: Mckenna, James (Port of Portland), R10: Oster, Valerie (Anchor Environmental, LLC), R10: Wyatt, Bob (Northwest Natural Gas Company), R10: Dost, Patty (Schwabe, Williamson & Wyatt, P.C.)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100007399	1/31/2008	Letter regarding EPA Comments on Round 2 Comprehensive Report Screening Level Ecological Risk Assessment.	129	2	CORR / Correspondence	R10: Dost, Patricia, M (Schwabe, Williamson & Wyatt, P.C.)	R10: Houck-cora, Lori, H (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
500019801	2/5/2008	Status of Stormwater Outfall Composite Water Samples --- Table 1 - Summary of Fall Stormwater Composite Samples.	19	1	CORR / Correspondence	R10: Unknown, Unknown (Unknown)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
500019802	2/5/2008	Sediment Trap Sample Prioritization Summary - Showing Target Detection Limit Factors for LWG Sites and Estimated for T4 Sites* -- Table 2 - Sediment Trap Prioritization Summary versus detection limits.	17	1	CORR / Correspondence	R10: Unknown, Unknown (Unknown)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
500019803	2/5/2008	Sediment Trap Samples -- Table 3 - Stormwater Outfall Sed Trap Sample Mass Analytical Aliquots.	25	3	CORR / Correspondence	R10: Unknown, Unknown (Unknown)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
613805	2/6/2008	Email regarding RPAC TZW.	242	2	EML / Email	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100006116	2/7/2008	REDACTED Email regarding Reply to Feb 7 call Starting at Noon - Stormwater Tech. Team -- Summary Tables Composite and Sediment Samples.	87	15	EML / Email	R10: Shellenberger, Amanda (Anchor Environmental, LLC)	R10: Sanders, Dawn (City of Portland, Oregon), R10: Scheffler, Linda (City of Portland, Oregon), R10: Lafranchise, Nicole, M (Port of Portland), R10: Stivers, Carl (Anchor Environmental, LLC), R10: Tarnow, Karen, E (Oregon Dept. of Environmental Quality), R10: Koulermos, Andrew, C (Newfields, Inc), R10: Spencer, Amanda, L (Ash Creek Associates, Inc.), R10: Coover, Merv (AECOM), R10: Jones, Laura (Integral Corporation)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
500019804	2/7/2008	Sediment Trap Sample Prioritization Summary - Table 6-3 Spring Sediment Sample Prioritization Summary.	19	1	CORR / Correspondence	R10: Unknown, Unknown (Unknown)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
500019806	2/7/2008	Sediment Trap Prioritization -- Table 2 - REVISED Sediment Trap Prioritization Summary versus detection limits.	18	2	CORR / Correspondence	R10: Unknown, Unknown (Unknown)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization

100006124	2/11/2008	REDACTED Email regarding Feb 7 call Starting at Noon - Stormwater Tech. Team.	72	15 EML / Email	R10: Shellenberger, Amanda (Anchor Environmental, LLC)	R10: Sanders, Dawn (City of Portland, Oregon), R10: Scheffler, Linda (City of Portland, Oregon), R10: Lafranchise, Nicole, M (Port of Portland), R10: Stivers, Carl (Anchor Environmental, LLC), R10: Koch, Kristine, M (EPA), R10: Tarnow, Karen, E (Oregon Dept. of Environmental Quality), R10: Koulermos, Andrew, C (Newfields, Inc.), R10: Spencer, Amanda, L (Ash Creek Associates, Inc.), R10: Coover, Merv (AECOM), R10: Jones, Laura (Integral Corporation)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
611078	2/15/2008	EPAProblemFormulationFinal15Feb08.	610	65 CORR / Correspondence	R10: Unknown, Unknown (EPA)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
611079	2/15/2008	PFFigures021508.	423	6 CORR / Correspondence	R10: Unknown, Unknown (Unknown)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
611080	2/15/2008	PFTables021508.	911	21 CORR / Correspondence	R10: Unknown, Unknown (Unknown)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
611081	2/15/2008	PFCoverLetter021508 (incomplete).	260	4 CORR / Correspondence	R10: Unknown, Unknown (EPA)	R10: Mckenna, Jim (Lower Willamette Group), R10: Wyatt, Robert (Lower Willamette Group)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
612966	2/15/2008	Email regarding Problem Formulation for the Ecological Risk Assessment.	245	1 EML / Email	R10: Blischke, Eric, L (EPA)	R10: Shephard, Burt (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100006117	2/26/2008	REDACTED Email regarding Reply to LWG Stormwater - REVISED Sediment Trap Prioritization.	86	17 EML / Email	R10: Jones, Laura (Integral Corporation)	R10: Sanders, Dawn (City of Portland, Oregon), R10: Scheffler, Linda (City of Portland, Oregon), R10: Lafranchise, Nicole, M (Port of Portland), R10: Shellenberger, Amanda (Anchor Environmental, LLC), R10: Stivers, Carl (Anchor Environmental, LLC), R10: Koch, Kristine, M (EPA), R10: Tarnow, Karen, E (Oregon Dept. of Environmental Quality), R10: Koulermos, Andrew, C (Newfields, Inc.), R10: Spencer, Amanda, L (Ash Creek Associates, Inc.), R10: Coover, Merv (AECOM)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
500019808	2/26/2008	Sediment Trap Sample Prioritization Summary - Table 2 - REVISED 2-26-2008 Sediment Trap Prioritization Summary versus detection limits.	20	1 CORR / Correspondence	R10: Unknown, Unknown (Unknown)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
500019809	2/26/2008	Sediment Trap Samples -- Table 3 - REVISED Stormwater Outfall Sed Trap Sample Mass Analytical Aliquots-022508	27	3 CORR / Correspondence	R10: Unknown, Unknown (Unknown)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
629776	2/28/2008	Email regarding Bathemetry map for Zidell.	241	1 EML / Email	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
657511	2/28/2008	02_28_08 email; Bathemetry map for Zidell.	30	1 CORR / Correspondence	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	R10: Sheldrake, Sean, A (EPA), R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100006125	2/28/2008	REDACTED Email regarding Reply to LWG Stormwater - REVISED Sediment Trap Prioritization.	89	18 EML / Email	R10: Shellenberger, Amanda (Anchor Environmental, LLC)	R10: Sanders, Dawn (City of Portland, Oregon), R10: Scheffler, Linda (City of Portland, Oregon), R10: Lafranchise, Nicole, M (Port of Portland), R10: Stivers, Carl (Anchor Environmental, LLC), R10: Koch, Kristine, M (EPA), R10: Tarnow, Karen, E (Oregon Dept. of Environmental Quality), R10: Koulermos, Andrew, C (Newfields, Inc.), R10: Spencer, Amanda, L (Ash Creek Associates, Inc.), R10: Coover, Merv (AECOM), R10: Jones, Laura (Integral Corporation)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
500020095	3/3/2008	Sediment Trap Sample Prioritization Summary - Showing Target Detection Limit Factors* -- Table 1 - Fall Stormwater Sediment Trap Approach Final.	14	1 CORR / Correspondence	R10: Unknown, Unknown (Unknown)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100006118	3/10/2008	REDACTED Email regarding Stormwater Items for EPA review and approval.	75	3 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
712221	3/24/2008	Portland Harbor RI/FS, Sediment Chemical Mobility Testing Field Sampling Plan.	7,249	158 RPT / Report	R10: Unknown, Unknown (Anchor Environmental, LLC)	R10: Unknown, Unknown (Lower Willamette Group)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100006281	3/24/2008	Portland Harbor Superfund Site; Administrative Order on Consent for Remedial Investigation and Feasibility Study; Docket No. CERCLA-10-2001-0240. Status of Round 3 Sampling Activities Letter. U.S. Environmental Protection Agency, Washington, DC.	4,160	55 RPT / Report	R10: (EPA)		ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
500003747	3/24/2008	Email forwarding 3/5/08 letter sent to Humphrey and Blischke.	39	1 CORR / Correspondence	R10: Pearson, Stephanie, D (Bingham McCutchen LLP)	R10: Mckenna, Elizabeth, A (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100006208	3/28/2008	Letter dated March 28, 2008 from EPA to LWG regarding EPA Guidance on the Portland Harbor Feasibility Study, Region 10, Oregon Operations Office. Portland, OR.	78	14 CORR / Correspondence	R10: (EPA)		ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
712220	4/1/2008	Portland Harbor RI/FS, Remedial Investigation/Feasibility Study Summary - Portland Harbor April 2008 Update Continued.	559	17 RPT / Report	R10: Unknown, Unknown (EPA Region 10)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
613297	4/2/2008	Email regarding TOC handout.	241	1 EML / Email	R10: Revelas, Gene, C (Integral Consulting, Inc.)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100001743	4/4/2008	Email regarding Validated Round 3A Stormwater Outfall Sediment Trap Data.	37	3 EML / Email	R10: Blischke, Eric, L (EPA)	R10: Buck, Jeremy (U. S. Fish and Wildlife Service), R10: Smith, Judy, R (EPA), R10: Shephard, Burt (EPA), R10: Humphrey, Chip (EPA), R10: Davoli, Dana (EPA), R10: Grepogrove, Gina (EPA), R10: Goulet, Joe (EPA), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality), R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality), R10: Gainer, Tom (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100006158	4/11/2008	EPA letter and attachment dated April 11, 2008 to the Lower Willamette Group (from E. Blischke and C. Humphrey to J. McKenna and R. Wyatt) regarding Portland Harbor RI/FS: Toxicity reference values for the baseline ecological risk assessment.	397	49 CORR / Correspondence	R10: (EPA)		ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
611085	4/15/2008	Oregon ecological TPH TRV derivation.	322	18 CORR / Correspondence	R10: Unknown, Unknown (Unknown)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
611086	4/15/2008	TRVCover041108.	240	2 CORR / Correspondence	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	R10: Mckenna, Jim (Lower Willamette Group), R10: Wyatt, Robert (Lower Willamette Group)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
611087	4/15/2008	PHBERATRVs041108.	612	29 CORR / Correspondence	R10: Unknown, Unknown (Unknown)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
612971	4/15/2008	Email regarding TRVs for Portland Harbor BERA.	242	1 EML / Email	R10: Blischke, Eric, L (EPA)	R10: Shephard, Burt (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
712218	4/15/2008	Portland Harbor RI/FS, Superfund Site Overview.	2,426	41 RPT / Report	R10: Unknown, Unknown (EPA Region 10)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
712219	4/15/2008	Portland Harbor RI/FS, Remedial Investigation/Feasibility Study Summary.	10,629	88 RPT / Report	R10: Blischke, Eric, L (EPA), R10: Unknown, Unknown (EPA Region 10)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
1309205	4/18/2008	Portland Harbor RI/FS Round 2 Quality Assurance Project Plan Addendum 11: Sediment Chemical Mobility Testing - Draft, with an Attached CD and Transmittal Letter.	2,677	58 RPT / Report	R10: Tritt, Maja (Integral Consulting, Inc.)	R10: Humphrey, Chip (EPA)	PAPER DOCUMENT	053-REMEDIAL/0531-Remedy Characterization
1309204	4/21/2008	Portland Harbor RI/FS Round 3B Bioassay Testing Data Report, with an Attached Letter and CD of the Report.	4,781	26 RPT / Report	R10: Mckenna, Jim (Lower Willamette Group)	R10: Unknown, Unknown (Lower Willamette Group), R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	PAPER DOCUMENT	053-REMEDIAL/0531-Remedy Characterization
100006003	4/24/2008	REDACTED Portland Harbor RI/FS, Round 3B Side Scan Sonar Field Sampling Plan.	8,379	26 RPT / Report	R10: Unknown, Unknown (Windward Environmental, LLC.)	R10: Unknown, Unknown (Lower Willamette Group)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization



1372509	4/25/2008	Letter Transmitting CD Containing Portland Harbor RI/FS Round 3B Side-Scan Sonar Field Sampling Plan, (Contents of CD Have Been Processed and Uploaded Into SDMS).	2,057	2	CORR / Correspondence	R10: Stivers, Carl (Anchor Environmental, LLC)	R10: Ashton, David (Port of Portland), R10: Downey, Tom (Confederated Tribes of the Siletz Indians), R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	OPTICAL STORAGE	053-REMEDIAL/0531-Remedy Characterization
1372510	4/29/2008	Lower Willamette Group (LWG) Responses to EPA's March 13, 2008 Comments on the Lower Willamette Side-Scan Sonar Survey Field Sampling Plan.	297	4	LTR / Letter	R10: Unknown, Unknown (Lower Willamette Group)	R10: Ashton, David (Port of Portland), R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	PAPER DOCUMENT	053-REMEDIAL/0531-Remedy Characterization
712216	5/7/2008	Portland Harbor RI/FS, Round 3 Lamprey Ammocete Phase 2 Toxicity Testing Data Report.	1,528	33	RPT / Report	R10: Unknown, Unknown (Windward Environmental, LLC.)	R10: Unknown, Unknown (Lower Willamette Group)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
1290840	5/7/2008	Portland Harbor RI/FS Round 3 Lamprey Ammocete Phase 2 Toxicity Testing Data Report with an Attached Letter and CD.	2,117	35		R10: Saban, Lisa (Windward Environmental, LLC.)	R10: Humphrey, Chip (EPA)	PAPER DOCUMENT	053-REMEDIAL/0531-Remedy Characterization
500014966	5/7/2008	Portland Harbor RI/FS. Round 3 lamprey ammocoete phase 2 toxicity data report. Draft.	1,504	33	LAWS / Laws/Regulations/Guidance	R10: Unknown, Unknown (Windward Environmental, LLC.)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100005933	5/16/2008	REDACTED Portland Harbor RI/FS Stormwater Loading Calculation Methods, May 16, 2008. Transmittal Letter Regarding Copies of Stormwater Loading Calculation Methods,	41,561	597	RPT / Report	R10: Unknown, Unknown (Lower Willamette Group)	R10: Sheldrake, Sean, A (EPA)	OPTICAL STORAGE	053-REMEDIAL/0531-Remedy Characterization
1309524	5/22/2008	(less enclosures).	514	1	CORR / Correspondence	R10: Stivers, Carl (Anchor Environmental, LLC)	R10: Humphrey, Chip (EPA)	PAPER DOCUMENT	053-REMEDIAL/0531-Remedy Characterization
611118	5/27/2008	Response to Letter From Lower Willamette Group (LWG) Sent to EPA, Commenting On Several Outstanding Issues From EPA-Directed Analytical Work for the Portland Harbor Remedial Investigation/Feasibility Study and Issues Raised From LWG.	1,323	2	LTR / Letter	R10: Applegate, Richard (City of Portland, Oregon)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
500019452	6/9/2008	Stormwater Data - 2008-06-09_-R3a_R3b_T4Spring_Stormwater.	5,044	206	CORR / Correspondence	R10: Unknown, Unknown (Unknown)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
500020198	6/10/2008	Email regarding NW Pipe drainage basin. Figure 1 Outfall 18 Drainage Basin and Stormwater System Map Burgard Industrial Park -- LWG Stormwater - REVISED Sediment	23	1	EML / Email	R10: Sanders, Dawn (City of Portland, Oregon)	R10: Scheffler, Linda (City of Portland, Oregon), R10: Applegate, Richard (City of Portland, Oregon), R10: Lafranchise, Nicole, M (Port of Portland), R10: Mckenna, Jim (Port of Portland), R10: Shellenberger, Amanda (Anchor Environmental, LLC), R10: Stivers, Carl (Anchor Environmental, LLC), R10: Kase, Jason (Anchor Environmental, LLC), R10: Oster, Valerie (Anchor Environmental, LLC), R10: Pine, Keith, A (Integral Consulting, Inc.), R10: Jones, Laura (Integral Consulting, Inc.), R10: Koch, Kristine, M (EPA), R10: Tarnow, Karen, E (Oregon Dept. of Environmental Quality), R10: Mcclincy, Matt (Oregon Dept. of Environmental Quality), R10: Koulermos, Andrew, C (Newfields, Inc), R10: Spencer, Amanda, L (Ash Creek Associates, Inc.), R10: Coover, Merv (AECOM), R10: Wyatt, Robert, J (NW Natural)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
500020199	6/10/2008	Trap Prioritization.	761	1	CORR / Correspondence	R10: Unknown, Unknown (Unknown)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
500020200	6/11/2008	Email regarding Portland Harbor stormwater workgroup meeting. Oregon Water Quality Division Rulemaking Instructions -- Page 1-9	34	1	EML / Email	R10: Tarnow, Karen, E (Oregon Dept. of Environmental Quality)	R10: Anderson, James, M (Oregon Dept. of Environmental Quality), R10: Geist, Gregory (Oregon Dept. of Environmental Quality), R10: Tarnow, Karen, E (Oregon Dept. of Environmental Quality), R10: Johnson, Keith (Oregon Dept. of Environmental Quality), R10: Mcclincy, Matt (Oregon Dept. of Environmental Quality), R10: Weick, Rodney (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
500020201	6/11/2008	WQRulemakingInstructions. Information Sheet -- Rule Factors --	300	9	CORR / Correspondence	R10: Unknown, Unknown (Unknown)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
500020202	6/11/2008	ruleadoptionfactors.	62	2	CORR / Correspondence	R10: Unknown, Unknown (Unknown)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
500020203	6/11/2008	StartRulemakingProposal (SRP) -- StartRulemakingProposal.	75	3	CORR / Correspondence	R10: Unknown, Unknown (Unknown)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
500020210	6/11/2008	Stormwater Loading Methods Meeting Summary - June 5, 2008 -- Stormwater June 5 Meeting Notes.	69	2	CORR / Correspondence	R10: Unknown, Unknown (Unknown)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
500020204	6/12/2008	Email regarding Reply to Tomorrow's Stormwater Technical Team Meeting. Project Proposed Sample Locations -- Cascade	34	3	EML / Email	R10: Tarnow, Karen, E (Oregon Dept. of Environmental Quality)	R10: Sanders, Dawn (City of Portland, Oregon), R10: Scheffler, Linda (City of Portland, Oregon), R10: Lafranchise, Nicole, M (Port of Portland), R10: Shellenberger, Amanda (Anchor Environmental, LLC), R10: Stivers, Carl (Anchor Environmental, LLC), R10: Jones, Laura (Integral Consulting, Inc.), R10: Koch, Kristine, M (EPA), R10: Tarnow, Karen, E (Oregon Dept. of Environmental Quality), R10: Koulermos, Andrew, C (Newfields, Inc), R10: Spencer, Amanda, L (Ash Creek Associates, Inc.), R10: Coover, Merv (AECOM)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
500020205	6/12/2008	General drainage basins. Site Features and Sampling Locations Map --	256	1	CORR / Correspondence	R10: Unknown, Unknown (Unknown)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
500020206	6/12/2008	GE Drainage basins. Figure 1 Outfall 18 Drainage Basin and Stormwater System Map Burgard Industrial	539	1	CORR / Correspondence	R10: Unknown, Unknown (Unknown)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
500020207	6/12/2008	Park -- NW Pipe drainage basin.	761	1	EML / Email	R10: Unknown, Unknown (Unknown)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
500020208	6/12/2008	Figure 2 Sulzer Pumps, US, Inc. General Site Map -- Sulzer Pump 2.20 2008 SITE MAP.	563	1	CORR / Correspondence	R10: Unknown, Unknown (Unknown)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
500020209	6/12/2008	Email regarding Reply to Tomorrow's Stormwater Technical Team Meeting.	35	3	EML / Email	R10: Stivers, Carl (Anchor Environmental, LLC)	R10: Sanders, Dawn (City of Portland, Oregon), R10: Scheffler, Linda (City of Portland, Oregon), R10: Lafranchise, Nicole, M (Port of Portland), R10: Shellenberger, Amanda (Anchor Environmental, LLC), R10: Jones, Laura (Integral Consulting, Inc.), R10: Koch, Kristine, M (EPA), R10: Tarnow, Karen, E (Oregon Dept. of Environmental Quality), R10: Koulermos, Andrew, C (Newfields, Inc), R10: Spencer, Amanda, L (Ash Creek Associates, Inc.), R10: Coover, Merv (AECOM)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
712212	6/13/2008	Portland Harbor RI/FS, Draft Final Sediment Chemical Mobility Testing Field Sampling Plan.	142	8	RPT / Report	R10: Unknown, Unknown (Anchor Environmental, L. L. C.)	R10: Unknown, Unknown (Lower Willamette Group)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100001752	6/13/2008	Email regarding R3B Upland Stormwater Sampling Report.	33	1	EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization

100001753	6/13/2008	Email regarding Tomorrow's Stormwater Technical Team Meeting.	43	3 EML / Email	R10: Shellenberger, Amanda (Anchor Environmental, LLC) R10: Unknown, Unknown (Integral Consulting, Inc.), R10: Unknown, Unknown (Anchor Environmental, L. L. C.)	R10: Sanders, Dawn (City of Portland, Oregon), R10: Scheffler, Linda (City of Portland, Oregon), R10: Lafranchise, Nicole, M (Port of Portland), R10: Stivers, Carl (Anchor Environmental, LLC), R10: Koch, Kristine, M (EPA), R10: Tarnow, Karen, E (Oregon Dept. of Environmental Quality), R10: Koulermos, Andrew, C (Newfields, Inc), R10: Spencer, Amanda, L (Ash Creek Associates, Inc.), R10: Coover, Merv (AECOM), R10: Jones, Laura (Integral Corporation)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100006002	6/13/2008	REDACTED Portland Harbor RI/FS, Round 3B Upland Stormwater Field Sampling Report. EPA letter dated June 13, 2008 to the Lower Willamette Group (from E. Blischke and C. Humphrey to J. McKenna and R. Wyatt) regarding Portland Harbor RI/FS toxicity reference values methodology.	17,610	561 RPT / Report	R10: Unknown, Unknown (Integral Consulting, Inc.), R10: Unknown, Unknown (Anchor Environmental, L. L. C.)	R10: Unknown, Unknown (Lower Willamette Group)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100006159	6/13/2008	EPA letter regarding Portland Harbor RI/FS toxicity reference values methodology - aquatic biota tissue, with attachment: Aquatic Biota Tissue TRV Derivation.	219	20 CORR / Correspondence	R10: (EPA)	R10: Mckenna, James (Port of Portland), R10: Wyatt, Robert, J (Northwest Natural Gas Company)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
500012825	6/13/2008	Stormwater Loading Methods Meeting Summary - June 5, 2008 - Stormwater June 5 Meeting Notes.	235	20 EML / Email	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
500020272	6/16/2008	Stormwater Loading Methods Meeting Summary - June 5, 2008 - Stormwater June 5 Meeting Notes.	73	2 CORR / Correspondence	R10: Unknown, Unknown (Unknown)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
500020271	6/19/2008	Email regarding Stormwater calculation methods.	68	11 EML / Email	R10: Tarnow, Karen, E (Oregon Dept. of Environmental Quality)	R10: Shellenberger, Amanda (Anchor Environmental, LLC), R10: Stivers, Carl (Anchor Environmental, LLC), R10: Koch, Kristine, M (EPA), R10: Tarnow, Karen, E (Oregon Dept. of Environmental Quality), R10: Koulermos, Andrew, C (Newfields, Inc), R10: Spencer, Amanda, L (Ash Creek Associates, Inc.)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100001756	6/25/2008	Email regarding More discussion items for June 26 9 am Stormwater Tech Team Call.	20	2 EML / Email	R10: Sanders, Dawn (City of Portland, Oregon)	R10: Scheffler, Linda (City of Portland, Oregon), R10: Lafranchise, Nicole, M (Port of Portland), R10: Shellenberger, Amanda (Anchor Environmental, LLC), R10: Stivers, Carl (Anchor Environmental, LLC), R10: Kase, Jason (Anchor Environmental, LLC), R10: Koch, Kristine, M (EPA), R10: Tarnow, Karen, E (Oregon Dept. of Environmental Quality), R10: McClincy, Matt (Oregon Dept. of Environmental Quality), R10: Poulsen, Mike (Oregon Dept. of Environmental Quality), R10: Koulermos, Andrew, C (Newfields, Inc), R10: Spencer, Amanda, L (Ash Creek Associates, Inc.), R10: Coover, Merv (AECOM), R10: Jones, Laura (Integral Corporation), R10: Pine, Keith (Anchor Environmental, LLC)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
500012823	6/27/2008	Email regarding change of default ACR for use in water column TRV development.	60	3 EML / Email	R10: Shephard, Burt (EPA)	R10: Toll, John (Windward Environmental, LLC.)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
500014972	6/27/2008	EPA email regarding change of default ACR for use in water column TRV development.	58	2 EML / Email	R10: Toll, John (Windward Environmental, LLC.)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
712193	7/2/2008	Portland Harbor RI/FS, Background Document: Application of Oregon Water Quality Standards, Draft.	27,179	54 RPT / Report	R10: Unknown, Unknown (Unknown)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
500020276	7/2/2008	Stormwater Loading Methods Conference Call Summary - June 26, 2008 -- Stormwater June 26 Meeting Notes.	80	3 CORR / Correspondence	R10: Unknown, Unknown (Unknown)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
711831	7/3/2008	Portland Harbor RI/FS Background Data Processing and Outlier Identification.	3,069	35 RPT / Report	R10: Unknown, Unknown (Integral Consulting, Inc.)	R10: Unknown, Unknown (Lower Willamette Group)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100006206	7/3/2008	Lower Willamette Group memorandum to EPA dated July 3, 2008 regarding Background Data Processing and Outlier Identification. Lower Willamette Group, Portland, OR.	3,159	35 CORR / Correspondence	R10: (Lower Willamette Group)		ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
500003970	7/15/2008	Cover Letter and Attachment - LWG Portland Harbor RI/FS Draft Background Document: Application of Oregon Water Quality Standards -- For Discussion. July 2, 2008. Stormwater Loading Methods Conference Call Summary- July 3, 2008 Stormwater July 3 Meeting Notes Update of July 26 notes.	2,773	55 CORR / Correspondence	R10: Snyder, Joan, P (Stoel Rives, LLP)	R10: Cora, Lori, H (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100001881	7/17/2008	Meeting Notes Update of July 26 notes.	124	4 CORR / Correspondence	R10: Stivers, Carl (Anchor Environmental, LLC)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100001882	7/17/2008	Attachment A EPA Comments on Stormwater Loading Calculation Method Stormwater Meeting Notes July 3 - Attachment A (2).	172	17 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100001880	7/18/2008	Email regarding Stormwater Technical Team Notes.	34	1 EML / Email	R10: Shellenberger, Amanda (Anchor Environmental, LLC)	R10: Sanders, Dawn (City of Portland, Oregon), R10: Scheffler, Linda (City of Portland, Oregon), R10: Stivers, Carl (Anchor Environmental, LLC), R10: Koch, Kristine, M (EPA), R10: Koulermos, Andrew, C (Newfields, Inc), R10: Spencer, Amanda, L (Ash Creek Associates, Inc.)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100001883	7/23/2008	Email regarding Next Stormwater Technical Team Meeting Thursday July 31st 9am-noon. Table X: Chemicals and Sites for Further Analysis Sites and Chemicals for Further Consideration.	36	3 EML / Email	R10: Shellenberger, Amanda (Anchor Environmental, LLC)	R10: Shellenberger, Amanda (Anchor Environmental, LLC), R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100001884	7/23/2008	Table X: Chemicals and Sites for Further Analysis Sites and Chemicals for Further Consideration.	43	1 CORR / Correspondence	R10: Shellenberger, Amanda (Anchor Environmental, LLC)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100006203	7/24/2008	EPA letter of July 24, 2008 to the Lower Willamette Group (from C. Humphrey and E. Blischke to R. Wyatt) regarding Portland Harbor Superfund Site; Administrative Order on Consent for Remedial Investigation and Feasibility Study.	30	3 CORR / Correspondence	R10: (EPA)		ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100006209	7/24/2008	EPA Confirmation of PRG Agreements in Principle.	27	4 RPT / Report	R10: (EPA)		ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100006212	7/24/2008	Confirmation of PRG Agreements in Principle. July 24, 2008. Provided in an email from Eric Blischke of EPA Region 10 to Bob Wyatt and Jim McKenna of LWG. Region 10, Oregon Operations Office. Portland, OR.	33	1 RPT / Report	R10: (EPA)		ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100006214	7/24/2008	Proposed Early PRGs: Human Health Risk - PRG Chemicals & Methods.	30	2 RPT / Report	R10: (EPA)		ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100006215	7/24/2008	Proposed Early PRGs: Ecological Risk - PRG Chemicals & Methods.	14	2 RPT / Report	R10: (EPA)		ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
647634	7/25/2008	Transmittal Memo for Draft Round 2 Archived Sediment PCB Congener Analysis Data Report.	116	2 CORR / Correspondence	R10: Tritt, Maja (Integral Consulting, Inc.)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100001892	7/29/2008	Email regarding Next Stormwater Technical Team Meeting Thursday July 31st 9am-noon. Portland Harbor RI/FS Draft Round 3B Sediment Data Report.	36	3 EML / Email	R10: Scheffler, Linda (City of Portland, Oregon)	R10: Shellenberger, Amanda (Anchor Environmental, LLC), R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
711830	8/1/2008	Portland Harbor RI/FS Draft Round 3B Sediment Data Report.	105	18 RPT / Report	R10: Unknown, Unknown (Integral Consulting, Inc.)	R10: Unknown, Unknown (Lower Willamette Group)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
1290765	8/1/2008	Transmittal Letter Regarding Portland Harbor RI/FS Draft Round 3B Sediment Data Report, (less Attachments)	53	2 CORR / Correspondence	R10: Browning, Sandy (Integral Consulting, Inc.)	R10: Humphrey, Chip (EPA)	PAPER DOCUMENT	053-REMEDIAL/0531-Remedy Characterization
711829	8/4/2008	Portland Harbor RI/FS Draft Round 2 Quality Assurance Project Plan Addendum 11: Sediment Chemical Mobility Testing.	164	26 RPT / Report	R10: Unknown, Unknown (Integral Consulting, Inc.)	R10: Unknown, Unknown (Lower Willamette Group)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization

1290766	8/4/2008	Letter Transmittal Regarding Portland Harbor RI/FS Draft Round 2 Quality Assurance Project Plan Addendum 11: Sediment Chemical Mobility Testing. (less Attachments).	62	2	CORR / Correspondence	R10: Tritt, Maja (Integral Consulting, Inc.)	R10: Humphrey, Chip (EPA)	PAPER DOCUMENT	053-REMEDIAL/0531-Remedy Characterization
100006275	8/5/2008	EPA letter dated August 5, 2008 to Lower Willamette Group (from E. Blischke and C. Humphrey to J. McKenna and R. Wyatt) regarding Portland Harbor RI/FS tissue TRV methodology, with attachments titled "Aquatic Tissue TRV response."	280	26	RPT / Report	R10: (EPA)		ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
1290764	8/8/2008	Transmittal Letter Regarding Portland Harbor RI/FS Draft Round 3B Fish and Invertebrate Tissue and Collocated Surface Sediment Data Report. (less Attachments).	53	2	CORR / Correspondence	R10: Tritt, Maja (Integral Consulting, Inc.)	R10: Humphrey, Chip (EPA) R10: Sanders, Dawn (City of Portland, Oregon), R10: Scheffler, Linda (City of Portland, Oregon), R10: Lafranchise, Nicole, M (Port of Portland), R10: Shellenberger, Amanda (Anchor Environmental, LLC), R10: Koch, Kristine, M (EPA), R10: Koulermos, Andrew, C (Newfields, Inc.), R10: Spencer, Amanda, L (Ash Creek Associates, Inc.)	PAPER DOCUMENT	053-REMEDIAL/0531-Remedy Characterization
100001878	8/8/2008	Email regarding June 26 9 am Stormwater Tech Team Call.	32	1	EML / Email	R10: Stivers, Carl (Anchor Environmental, LLC)		ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100001879	8/8/2008	Stormwater Loading Methods Conference Call Summary- July 31, 2008 Stormwater July 31 Meeting Notes.	80	2	CORR / Correspondence	R10: Stivers, Carl (Anchor Environmental, LLC)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100001894	8/8/2008	Email regarding July 31 Stormwater Conf. Call Notes.	15	2	EML / Email	R10: Stivers, Carl (Anchor Environmental, LLC)	R10: Sanders, Dawn (City of Portland, Oregon), R10: Scheffler, Linda (City of Portland, Oregon), R10: Lafranchise, Nicole, M (Port of Portland), R10: Shellenberger, Amanda (Anchor Environmental, LLC), R10: Scheffler, Linda (City of Portland, Bureau of Environmental Services), R10: Tarnow, Karen, E (Oregon Dept. of Environmental Quality), R10: Koulermos, Andrew, C (Newfields, Inc.), R10: Spencer, Amanda, L (Ash Creek Associates, Inc.), R10: Coover, Merv (AECOM), R10: Jones, Laura (Integral Corporation)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
500003971	8/21/2008	Draft Background Document: Weight to be given to attaining MCLS in Portland Harbor.	2,383	38	RPT / Report	R10: Unknown, Unknown (Lower Willamette Group)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100007400	8/27/2008	Email regarding EPA R2 Report Comment Clarifications.	16	1	EML / Email	R10: Humphrey, Chip (EPA)	R10: Applegate, Richard (City of Portland, Oregon), R10: Wyatt, Bob (Northwest Natural Gas Company)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100007401	8/27/2008	EPA Clarifications to January 15, 2008 Comments on Comprehensive Round 2 Site Summary and Data Gaps Analysis Report.	82	13	CORR / Correspondence	R10: Hobbs, Daniel (Parametrix, Inc.)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
500014030	9/1/2008	An evaluation of the approach for assessing risks to the benthic invertebrate community at the Portland Harbor Superfund site. Preliminary draft.	2,877	80	EML / Email	R10: Macdonald, Donald, D (MacDonald Environmental Sciences, Ltd.), R10: Landrum, P., F (Landrum and Associates)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100001922	9/2/2008	Memorandum for Proposed method for calculating basin-weighted statistics for stormwater data kochWeighted data approach Sep 2 08.	202	6	CORR / Correspondence	R10: Stivers, Carl (Anchor Environmental, LLC), R10: Kase, Jason (Anchor Environmental, LLC)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
713787	9/3/2008	2008-09-03 Responses to EPA Background Comments.	152	3	RPT / Report	R10: Unknown, Unknown (Lower Willamette Group)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
613749	9/17/2008	Email regarding LWG Responses to the EPA Comments on the Round 2 Comp Report CSM.	241	1	EML / Email	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100001895	9/18/2008	Email regarding Stormwater Conc. Weighting Methods Memo - DEQ's input.	37	4	EML / Email	R10: Tarnow, Karen, E (Oregon Dept. of Environmental Quality)	R10: Stivers, Carl (Anchor Environmental, LLC), R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100001896	9/18/2008	Proposed method for calculating representative LU concentrations DEQ's thoughts on SW Calc method.	48	3	CORR / Correspondence	R10: Tarnow, Karen, E (Oregon Dept. of Environmental Quality), R10: Poulsen, Mike (Oregon Dept. of Environmental Quality)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100001897	9/18/2008	Example Calculations to Represent Storm Water Concentration Example Calculation Methods.	24	1	CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100001908	9/18/2008	Proposed method for calculating representative LU concentrations DEQ's thoughts on SW Calc method.	48	3	CORR / Correspondence	R10: Tarnow, Karen, E (Oregon Dept. of Environmental Quality), R10: Poulsen, Mike (Oregon Dept. of Environmental Quality)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100001909	9/18/2008	Example Calculations to Represent Storm Water Concentration Example Calculation Methods.	24	1	CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
1290653	9/26/2008	Transmittal Letter Regarding Portland Harbor RI/FS 16 Hard Copies, 5 CD Copies of Draft Round 3B Fish and Invertebrate Tissue and Collocated Surface Sediment Data Report, 6 Email Copies Addendum 1 LW3-SB010E-C00B, (Less Enclosures).	52	2	CORR / Correspondence	R10: Tritt, Maja (Integral Consulting, Inc.)	R10: Humphrey, Chip (EPA)	PAPER DOCUMENT	053-REMEDIAL/0531-Remedy Characterization
1290654	9/26/2008	Portland Harbor RI/FS Round 3B Fish and Invertebrate Tissue and Collocated Sediment Data Report Addendum 1: Lead and Antimony Results for Smallmouth Bass Sample LW3-SB010E-C00B Draft (hard copy and CD).	452	14	RPT / Report	R10: Unknown, Unknown (Integral Consulting, Inc.)	R10: Unknown, Unknown (Lower Willamette Group)	PAPER DOCUMENT	053-REMEDIAL/0531-Remedy Characterization
711828	9/30/2008	Portland Harbor RI/FS Round 3A and 3B Stormwater Data Report.	100	10	RPT / Report	R10: Unknown, Unknown (Integral Consulting, Inc.), R10: Unknown, Unknown (Anchor QEA, LLC)	R10: Unknown, Unknown (Lower Willamette Group)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
1290598	9/30/2008	Transmittal Letter Regarding Portland Harbor RI/FS Round 3A and 3B Upland Stormwater Sampling Data Report both in Hard Copy and on CD (less enclosures).	43	1	CORR / Correspondence	R10: Stivers, Carl (Anchor Environmental, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	PAPER DOCUMENT	053-REMEDIAL/0531-Remedy Characterization
100007404	10/6/2008	Email regarding PCB Congener detection limits.	14	1	EML / Email	R10: Humphrey, Chip (EPA)	R10: Wyatt, Robert, J (NW Natural)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100006132	10/10/2008	REDACTED Email regarding Fish TRVs for EPA submittal with attachment: EPA response to fish tissue-residue toxicity reference value reconciliation tables.	105	8	EML / Email	R10: Blischke, Eric, L (EPA)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
500012824	10/10/2008	Email regarding Portland Harbor RI/FS toxicity reference values -- elimination of aluminum from screening.	82	6	EML / Email	R10: Blischke, Eric, L (EPA)	R10: Toll, John (Windward Environmental, LLC.)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100001898	10/17/2008	Email regarding Portland Harbor ground water mega site (Arkema to GASCO).	32	1	EML / Email	R10: Fuentes, Rene, C (EPA)	R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100001899	10/17/2008	Gasco Siltronic Rhone-Poulenc & Arkema Ground Water Contaminant Plumes Gasco Siltronic Rhone-Poulenc Arkema gw plumes.	800	2	EML / Email	R10: Fuentes, Rene, C (EPA)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100001921	10/21/2008	EPA's Draft Approval Letter for Stormwater Loading Calculations koch_DEQ's comments on EPA's draft approval ltr.	67	2	CORR / Correspondence	R10: Tarnow, Karen, E (Oregon Dept. of Environmental Quality), R10: Poulsen, Mike (Oregon Dept. of Environmental Quality)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100001900	10/22/2008	Email regarding LWG Stormwater Loading Issue Status Summary.	19	2	EML / Email	R10: Stivers, Carl (Anchor Environmental, LLC)	R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100001901	10/22/2008	Enclosure A Comments on Stormwater Loading Calculation Method Issue Status EPA Stormwater Loading Approval Letter Comments.	159	17	CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100001911	10/23/2008	Email regarding LWG Stormwater Loading - Outlier Analysis methodology.	26	1	EML / Email	R10: Sanders, Dawn (City of Portland, Oregon)	R10: Stivers, Carl (Anchor Environmental, LLC), R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100006265	10/23/2008	Email from Carl Stivers to Eric Blischke and Chip Humphrey, Draft Responses to EPA (9/23/08) Comments on Proposed Degradation Rates, October 23, 2008.	143	2	RPT / Report	R10: (EPA)		ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization

100006266	10/23/2008	Responses to EPA Comments on Proposed Degradation Rates - Responses to EPA Comments on Proposed Degradation Rates Oct.23.08.	73	3	RPT / Report	R10: (EPA)		ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100001920	10/27/2008	Unweighted & Weighted Stormwater Loading Example Tables	34	4	CORR / Correspondence	R10: Blischke, Eric, L (EPA)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100001906	10/28/2008	Email regarding Stormwater Concentration Estimation.	52	2	EML / Email	R10: Blischke, Eric, L (EPA)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100001907	10/28/2008	Current EPA Recommended Approach Current EPA recommended approach.	55	2	CORR / Correspondence	R10: Blischke, Eric, L (EPA)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100001915	10/28/2008	Email regarding Gilbert.	34	2	EML / Email	R10: Blischke, Eric, L (EPA)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100001931	10/30/2008	Stochastic modeling of stormwater and receiving stream concentrations Butte Paper 3. Confidence Intervals (Cont.)	279	9	CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100001932	10/30/2008	Confidence_Intervals_Quantiles.	69	4	CORR / Correspondence	R10: Chappell, Rick (Camp, Dresser & McKee, Incorporated)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
1290650	11/3/2008	Letter Regarding Portland Harbor RI/FS Stormwater Loading Calculation Methods, May 16, 2008, and Proposed Methods for Calculating Basin-Weighted Statistics for Stormwater Data Technical Memorandum, September 2, 2008, Enclosure A.	1,662	39		R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	R10: Wyatt, Robert, J (Northwest Natural Gas Company)	PAPER DOCUMENT	053-REMEDIAL/0531-Remedy Characterization
100006226	11/3/2008	EPA e-mail dated November 3, 2008 (Burt Shephard to Helle Andersen, Windward Environmental) regarding nutritional deficiency levels of zinc and copper in aquatic invertebrates. Risk Evaluation Unit, US Environmental Protection Agency Region 10.	39	2	RPT / Report	R10: (EPA)		ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
1290649	11/4/2008	Letter Regarding an attached EPA's comments on Table 5.1-2 of the Comprehensive Round 2 Site Characterization Summary and Data Gaps Analysis Report, February 21, 2007.	2,542	49	CORR / Correspondence	R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	R10: Wyatt, Robert, J (Northwest Natural Gas Company)	PAPER DOCUMENT	053-REMEDIAL/0531-Remedy Characterization
1290714	11/4/2008	Transmittal Letter Regarding 2 Hard Copies of Sediment Chemical Mobility Testing Field Sampling Report and 1 CD Copy of Sediment Chemical Mobility Testing Field Sampling Report, (Less Enclosure).	44	1	CORR / Correspondence	R10: Stivers, Carl (Anchor Environmental, LLC)	R10: Humphrey, Chip (EPA)	PAPER DOCUMENT	053-REMEDIAL/0531-Remedy Characterization
100006294	11/7/2008	E-mail dated November 7, 2008 to LWG (Jim McKenna, Bob Wyatt) regarding TRVs and benthic evaluation.	31	1	RPT / Report	R10: (EPA)		ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
500014976	11/7/2008	Email regarding TRVs and benthic evaluation.	125	2	EML / Email	R10: Toll, John (Windward Environmental, LLC.)	R10: McKenna, Jim (Lower Willamette Group), R10: Wyatt, Robert (Lower Willamette Group)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100006280	11/10/2008	EPA e-mail dated November 10, 2008 (Burt Shephard to John Toll, Windward Environmental) regarding benthic ACR time limit. Risk Evaluation Unit, US Environmental Protection Agency Region 10, Oregon Operations Office, Portland, OR.	80	2	RPT / Report	R10: (EPA)		ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100001935	11/19/2008	Email regarding LWG Response to EPA Comments on Stormwater Loading Calculation Methods.	39	1	EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100001936	11/19/2008	EPA comments on Portland Harbor RI/FS Stormwater Loading Calculation Methods 2008-11-19 LWG Response to EPA Comments on Stormwater Loading Calculation Methods.	34	2	CORR / Correspondence	R10: Wyatt, Robert (Lower Willamette Group)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100006229	12/22/2008	EPA e-mail dated December 22, 2008 (Eric Blischke to Bob Wyatt, Rick Applegate, Jim McKenna) regarding fish TRVs for EPA submittal with attachment: EPA response to fish tissue-residue toxicity reference value reconciliation tables.	117	2	RPT / Report	R10: (EPA)		ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100006279	12/22/2008	EPA Response to Fish Tissue-Residue Toxicity Reference Value Reconciliation Tables - EPAFishTissueTRVResponse.	57	5	RPT / Report	R10: (EPA)		ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
1387608	1/14/2009	Email regarding retention of Portland Harbor RI/FS samples.	90	2	CORR / Correspondence	R10: Applegate, Richard (City of Portland, Oregon)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	PAPER DOCUMENT	053-REMEDIAL/0531-Remedy Characterization
100006292	1/14/2009	E-mail dated January 14, 2009 to EPA (Eric Blischke, Burt Shephard) regarding final resolution of fish TRV issues with attached table. Windward Environmental, Seattle, WA.	142	3	RPT / Report	R10: (EPA)		ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100006293	1/14/2009	Tabulation of LWG reevaluation of fish tissue TRV studies reporting behavioral endpoints - behavior reevaluation.	91	12	RPT / Report	R10: (EPA)		ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100001917	1/19/2009	Email regarding outfall basin info.	79	3	EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100001918	1/19/2009	LWG Stormwater Sample Basin Characteristics Sampled Basin Characteristics to DEQ 01192009 (2).	12	2	CORR / Correspondence	R10: (Lower Willamette Group)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
500012919	1/23/2009	Letter regarding Portland Harbor RI/FS: Fish tissue-residue toxicity reference values for the baseline ecological risk assessment.	198	13	EML / Email	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	R10: Wyatt, Robert, J (Northwest Natural Gas Company)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100001937	1/26/2009	Email regarding Clarification on EPA request for stormline information.	29	1	EML / Email	R10: Humphrey, Chip (EPA)	R10: Applegate, Richard (City of Portland, Oregon), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
711235	2/1/2009	Community Involvement Plan Newsletter: Community Involvement Helps Shape Clean-Up Decisions.	280	24	PUB / Publication	R10: Unknown, Unknown (EPA)		ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100004182	2/1/2009	Burkhard LP. 2006. Estimation of biota sediment accumulation factor (BSAF) from paired observations of chemical concentrations in biota and sediment. EPA/600/R-06/045. Ecological Risk Assessment Support Center, US Environmental Protection Agency, Cincinnati	514	35	PUB / Publication	R10: Burkhard, Lawrence (EPA)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
611152	2/6/2009	2009-02-06 LWG Response to Comments on Comprehensive R2 Report Table 5.1-2.	251	2	CORR / Correspondence	R10: Wyatt, Robert (Lower Willamette Group)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
613075	2/6/2009	Email regarding Handout for February 9th RAOs Meeting.	292	1	EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
613306	2/6/2009	Email regarding LWG Response to Comments on Comprehensive Round 2 Report Table 5.1-2.	297	1	EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
500014974	2/6/2009	LWG letter in response to letter dated January 23, 2009 regarding use of behavioral endpoints for fish tissue-residue toxicity reference values for the Baseline Ecological Risk Assessment.	79	6	CORR / Correspondence	R10: Wyatt, Robert, J (NW Natural)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
711234	2/11/2009	Human Health Risk Assessment Overview, (Community Advisory Group Meeting).	28	2	RPT / Report	R10: Unknown, Unknown (EPA)		ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
613307	2/18/2009	Email regarding Reply to LWG Stormwater Loading Check -ins (email w/out attachment).	387	3	EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100006277	2/18/2009	EPA letter dated February 18, 2009 to Lower Willamette Group (from E. Blischke and C. Humphrey to R. Wyatt) regarding Portland Harbor RI/FS: inclusion of two studies (Dillon et al. 1990 and Fowler et al. 1978)	25	2	RPT / Report	R10: (EPA)		ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
622156	2/25/2009	Email regarding Potential Oil Discharge Portland Oregon.	256	2	EML / Email	R10: Yamamoto, Deborah, J (EPA)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization



613076	2/27/2009	Email regarding GIS Tool meeting highlights.	347	2 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
611301	2/28/2009	LWG RAOs and Management Goals Memo. Barrier Wall Placement & "Stranded Contaminant Wedge" Sizes Barrier Wall	295	1 CORR / Correspondence	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100001940	3/2/2009	Placement Comparisons. EPA e-mail dated March 2, 2009 (Burt Shephard to John Toll, Windward Environmental) regarding confirmation request regarding Dillon et al. 1990. Risk Evaluation Unit, US Environmental Protection Agency Region 10, Oregon Operations Office, Portland, OR.	6,617	6 CORR / Correspondence	R10: Fuentes, Rene, C (EPA)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100006291	3/2/2009	Portland, OR.	94	2 RPT / Report	R10: (EPA)		ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100001941	3/4/2009	Email regarding LWG Stormwater Info - per EPA request. Kd Values for Sediment Metal Partitioning by Land Use 2009-03-04 Partitioning Coefficients by Land Use.	179	3 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100001942	3/4/2009	LWG letter in response to letter dated February 18, 2009 regarding inclusion of two studies (Dillon et al. 1990 and Fowler et al. 1978) in invertebrate tissue-residue toxicity reference values for the Baseline Ecological Risk Assessment.	33	10 CORR / Correspondence	R10: (Lower Willamette Group)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
500014975	3/5/2009	Risk Assessment.	51	2 CORR / Correspondence	R10: Wyatt, Robert (Lower Willamette Group)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100001943	3/15/2009	Email regarding Stormwater Checking Docs.	31	2 EML / Email	R10: Shellenberger, Amanda (Anchor Environmental, LLC)	R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
500012918	3/17/2009	Email regarding RI/FS agreement summary. Email regarding Potential ARARs for Portland Superfund Site.	81	3 EML / Email	R10: Blischke, Eric, L (EPA)	R10: Wyatt, Robert, J (NW Natural)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
613079	3/19/2009	Letter Regarding Re: Early Preliminary Remediation Goals and GIS Mapping Tool Lower Willamette River, Portland Harbor Superfund Site, USEPA Docket No: CERCLA-10-2001-0240.	296	1 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
1309189	3/19/2009	Email regarding ARARs and Points of Compliance Table.	13,564	89 CORR / Correspondence	R10: Wyatt, Bob (Northwest Natural Gas Company)	R10: Humphrey, Chip (EPA)	PAPER DOCUMENT	053-REMEDIAL/0531-Remedy Characterization
613080	3/26/2009	Email regarding LWG Stormwater Check-ins and Path Forward.	345	2 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100001944	3/26/2009	Portland Harbor RI/FS Early Preliminary Remediation Goals Draft (PRGs).	166	4 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
711827	3/27/2009	Early Preliminary Remediation Goals - Draft.	1,430	86 RPT / Report	R10: Unknown, Unknown (Anchor QEA, LLC)	R10: Unknown, Unknown (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100003170	3/27/2009	Early Preliminary Remediation Goals - Draft.	1,472	86 RPT / Report	R10: (Windward Environmental, LLC.), R10: (Kennedy Jenks Consultants), R10: (Integral Consulting, Inc.), R10: (Anchor QEA, LLC)	R10: (The Lower Willamette Group)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
613081	3/31/2009	Email regarding LWG response to EPA RAOs.	345	2 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
613082	4/1/2009	Email regarding RAOs Meeting Hand Out.	345	2 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
665365	4/1/2009	04_01_09 email attachment; RAO Trustee letter.	102	2 CORR / Correspondence	R10: Madden, Erin (Cascadia Law Group)	R10: Humphrey, Chip (EPA), R10: Blischke, Eric, L (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
665366	4/1/2009	04_01_09 email; Trustee comments regarding RAOs.	32	1 EML / Email	R10: Madden, Erin (Cascadia Law Group)	R10: Humphrey, Chip (EPA), R10: Blischke, Eric, L (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
866759	4/2/2009	Remedial Investigation/Feasibility Study: GIS Tool Revised; Project No. 010142-01 (CD-ROM at Record Center).	25	1 RPT / Report	R10: Stivers, Carl (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	OPTICAL STORAGE	053-REMEDIAL/0531-Remedy Characterization
874840	4/2/2009	Portland Harbor Remedial Investigation/Feasibility Study: GIS Tool Revised (CD-ROM at Records Center).	25	1	R10: Stivers, Carl (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	OPTICAL STORAGE	053-REMEDIAL/0531-Remedy Characterization
1320429	4/2/2009	Letter Regarding LWG GIS Tool; Project Number 010142-01.	70	2 CORR / Correspondence	R10: Stivers, Carl (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	PAPER DOCUMENT	053-REMEDIAL/0531-Remedy Characterization
1322912	4/2/2009	Letter Concerning LWG GIS Tool.	69	2 CORR / Correspondence	R10: Stivers, Carl (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	PAPER DOCUMENT	053-REMEDIAL/0531-Remedy Characterization
711826	4/3/2009	Portland Harbor RI/FS Treatment beneficial Use Market Survey Draft.	535	118 RPT / Report	R10: Unknown, Unknown (Anchor QEA, LLC)	R10: Unknown, Unknown (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
1290974	4/3/2009	Draft Report Regarding Portland Harbor RI/FS Treatment Beneficial Use Market Survey.	3,993	102 RPT / Report	R10: Stivers, Carl (Anchor Environmental, LLC)	R10: Humphrey, Chip (EPA)	PAPER DOCUMENT	053-REMEDIAL/0531-Remedy Characterization
100001939	4/3/2009	Email regarding Inclusion of City composite data at OF 53.	31	2 EML / Email	R10: Sanders, Dawn (City of Portland, Oregon)	R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100001950	4/3/2009	Email regarding anomalous stormwater data.	139	2 EML / Email	R10: Shellenberger, Amanda (Anchor Environmental, LLC)	R10: Stivers, Carl (Anchor Environmental, LLC), R10: Tarnow, Karen, E (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
613323	4/15/2009	Email regarding Reply to LWG Responses: Status of RI/FS Technical Issues.	361	3 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
613329	4/15/2009	Email regarding Provision of "interim" HHRA info to EPA.	299	2 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100006100	4/27/2009	REDACTED Email regarding Reply to Stormwater Technical Team Conf. Call. Portland Harbor RI/FS Revised Phase 2 Recalibration Results: Hydrodynamic Sedimentation Modeling for Lower Willamette River, with a Transmittal Letter and two Cd attached regarding the Report and Appendices B&J.	42	4 EML / Email	R10: Stivers, Carl (Anchor Environmental, LLC)	R10: Sanders, Dawn (City of Portland, Oregon), R10: Scheffler, Linda (City of Portland, Oregon), R10: Jones, Laura (Integral Consulting, Inc.), R10: Koch, Kristine, M (EPA), R10: Tarnow, Karen, E (Oregon Dept. of Environmental Quality), R10: Koulermos, Andrew, C (Newfields, Inc.), R10: Spencer, Amanda, L (Ash Creek Associates, Inc.)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
1309532	5/7/2009	LWG AOPC Presentation.	58,215	286 RPT / Report	R10: Revelas, Gene, C (Integral Consulting, Inc.)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	PAPER DOCUMENT	053-REMEDIAL/0531-Remedy Characterization
611184	5/14/2009	REDACTED Portland Harbor RI/FS Lower Willamete River Sidescan Sonar Data Report. Email regarding LWG Sidescan Sonar Data Report.	345	3 CORR / Correspondence	R10: Woronets, Jennifer (Lower Willamette Group)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100005938	5/15/2009	Portland Harbor RI/FS Revised Phase 2 Recalibration Results: Hydrodynamic Sedimentation Modeling for Lower Willamette River, with a Transmittal Letter and two Cd attached regarding the Report and Appendices B&J.	6,789	198 RPT / Report	R10: Unknown, Unknown (Anchor QEA, LLC)	R10: Unknown, Unknown (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
611183	5/18/2009	AOPC GIS Shape Files.	293	1 CORR / Correspondence	R10: Woronets, Jennifer (Lower Willamette Group)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
611186	5/20/2009	City of Portland Environmental Services Letter Regarding Lower Willamette Group on a May 22, 2008 LWG Letter Sent to The EPA Commenting on PORSF Remedial Investigation Feasibility Study.	342	2 CORR / Correspondence	R10: Woronets, Jennifer (Lower Willamette Group)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
1290792	5/27/2009	Revised Areas for Evaluation in the FS. Email regarding Treatment Technologies Screening Tables.	127	2 CORR / Correspondence	R10: Applegate, Richard (City of Portland, Oregon)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	PAPER DOCUMENT	053-REMEDIAL/0531-Remedy Characterization
611192	6/5/2009	Portland Harbor RI/FS Treatment Technology Screening Tables: LWG Treatment Screening Tables, 06-05-09.	345	2 CORR / Correspondence	R10: Woronets, Jennifer (Lower Willamette Group)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
611197	6/5/2009	Portland Harbor RI/FS Treatment Technology Screening Tables: LWG Treatment Screening Tables, 06-05-09.	373	2 CORR / Correspondence	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
627936	6/5/2009	Portland Harbor RI/FS The LWG, Pre-Feasibility Study Treatment Technologies Table Draft, 6/5/09.	74	7	R10: Stivers, Carl (Anchor QEA, LLC)	R10: Humphrey, Chip (EPA)	OPTICAL STORAGE	053-REMEDIAL/0531-Remedy Characterization
1356708	6/5/2009	Transmittal Letter regarding Portland Harbor RI/FS The LWG, Pre-Feasibility Study Treatment Technologies Table Draft, 6/5/09, (less enclosure).	625	7 RPT / Report	R10: Stivers, Carl (Anchor QEA, LLC)	R10: Humphrey, Chip (EPA)	PAPER DOCUMENT	053-REMEDIAL/0531-Remedy Characterization
1356709	6/5/2009		45	1 CORR / Correspondence	R10: Stivers, Carl (Anchor QEA, LLC)	R10: Humphrey, Chip (EPA)	PAPER DOCUMENT	053-REMEDIAL/0531-Remedy Characterization

Table 1. Preliminary Screening of Ex Situ Treatment Technologies Draft Pre-Feasibility Study Treatment Technologies Table LWG							
100001999	6/5/2009	Treatment Screening Tables (06-05-09). Yakama Nation Letter of Withdraw from the PH Trustee Council.	31	7 CORR / Correspondence	R10: (Lower Willamette Group)	R10: (Unknown)	ELECTRONIC RECORD 053-REMEDIAL/0531-Remedy Characterization
615100	6/8/2009	PH Trustee Council. Email regarding Yakama Nation Letter of Withdraw from the PH Trustee Council.	378	4 CORR / Correspondence	R10: Longoria, Rose (Yakama Nation)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD 053-REMEDIAL/0531-Remedy Characterization
615101	6/8/2009	Email regarding confirmation of agreed use of upstream fish tissue data.	272	1 EML / Email	R10: Longoria, Rose (Yakama Nation)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD 053-REMEDIAL/0531-Remedy Characterization
500014973	6/10/2009	2009_05_LWG_Progress_Report. Email regarding May 2009 Portland Harbor Monthly Progress Report.	60	3 EML / Email	R10: Blischke, Eric, L (EPA)	R10: Shephard, Burt (EPA) R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD 053-REMEDIAL/0531-Remedy Characterization
611198	6/11/2009	Monthly Progress Report. EPA Comments on Draft Remedial Action Objectives Text – June 12, 2009.	296	12 CORR / Correspondence	R10: Pine, Keith (Lower Willamette Group)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD 053-REMEDIAL/0531-Remedy Characterization
611199	6/11/2009	Monthly Progress Report. EPA Comments on Draft Remedial Action Objectives Text – June 12, 2009.	353	2 CORR / Correspondence	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD 053-REMEDIAL/0531-Remedy Characterization
100006269	6/12/2009	Technical memo. Lower Willamette Group Transmittal Letter regarding Screening of Disposal Facilities for the Feasibility Study, (less enclosure).	215	16 RPT / Report	R10: (EPA)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD 053-REMEDIAL/0531-Remedy Characterization
611203	6/18/2009	Lower Willamette Group Transmittal Letter regarding Screening of Disposal Facilities for the Feasibility Study, (less enclosure).	344	2 CORR / Correspondence	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD 053-REMEDIAL/0531-Remedy Characterization
1356691	6/19/2009	Lines of Evidence Maps Referenced in June 23, 2009 AOPC Letter - Areas of Potential Concern. Portland Harbor Superfund Site Update Information for Lower Columbia Basin PCB Workshop.	544	1 CORR / Correspondence	R10: Stivers, Carl (Anchor QEA, LLC)	R10: Humphrey, Chip (EPA)	PAPER DOCUMENT 053-REMEDIAL/0531-Remedy Characterization
711815	6/23/2009	Workshop. Ambient aquatic life water quality criteria: acrolein.	1,393	4 FIG / Figure/Map/ Drawing	R10: Humphrey, Chip (EPA), R10: Blischke, Eric, L (Oregon Dept. of Environmental Quality)	R10: Wyatt, Robert, J (Northwest Natural Gas Company)	ELECTRONIC RECORD 053-REMEDIAL/0531-Remedy Characterization
711232	7/1/2009	Workshop. Ambient aquatic life water quality criteria: acrolein.	100	3 RPT / Report	R10: Unknown, Unknown (EPA)		ELECTRONIC RECORD 053-REMEDIAL/0531-Remedy Characterization
100003723	7/1/2009	AOPC to SMA Steps Schematic.	302	49 CORR / Correspondence	R10: (EPA)	R10: (Unknown) R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD 053-REMEDIAL/0531-Remedy Characterization
611217	7/2/2009	AOPC to SMA Steps Schematic.	343	2 CORR / Correspondence	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD 053-REMEDIAL/0531-Remedy Characterization
874571	7/8/2009	Email regarding Wheeler Bay Site Walk Follow-Up. Administrative Order on Consent for Remedial Investigation and Feasibility Study Docket No. CERCLA-10-2001-0240 – Treatment Technology Screening Tables EPACommentsTreatmentTechnologyTables070909.	330	5 EML / Email	R10: Sheldrake, Sean, A (EPA)	R10: Young, Cyril (Oregon Dept. of State Lands), R10: Cora, Lori, H (EPA), R10: Humphrey, Chip (EPA), R10: Cyril, L. Alexander (Alex) (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD 053-REMEDIAL/0531-Remedy Characterization
100001998	7/8/2009	June 2009 Portland Harbor Monthly Progress Report.	45	6 CORR / Correspondence	R10: Humphrey, Chip (EPA)	R10: Wyatt, Robert, J (NW Natural)	ELECTRONIC RECORD 053-REMEDIAL/0531-Remedy Characterization
611221	7/9/2009	EPA Comments on LWG Treatment Screening Tables – July 9, 2009.	333	2 CORR / Correspondence	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD 053-REMEDIAL/0531-Remedy Characterization
100006270	7/9/2009	EPA Comments on LWG Disposal Screening Memo – July 10, 2009.	52	6 RPT / Report	R10: (EPA)		ELECTRONIC RECORD 053-REMEDIAL/0531-Remedy Characterization
100006224	7/10/2009	Letter from Bob Wyatt of LWG to Chip Humphrey and Eric Blischke of EPA regarding Areas of Potential Concern. Dated July 16, 2009. Portland, OR.	34	4 RPT / Report	R10: (EPA)		ELECTRONIC RECORD 053-REMEDIAL/0531-Remedy Characterization
100006218	7/16/2009	AOPC Letter July 17 09.	52	2 RPT / Report	R10: (EPA)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD 053-REMEDIAL/0531-Remedy Characterization
611231	7/17/2009	AOPC Letter July 17 09.	259	2 CORR / Correspondence	R10: Wyatt, Robert (Lower Willamette Group) R10: Unknown, Unknown (Windward Environmental, LLC.), R10: Unknown, Unknown (Lower Willamette Group)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD 053-REMEDIAL/0531-Remedy Characterization
500012795	7/21/2009	RI/FS bioaccumulation modeling report. Letter regarding DEQ's concern with issue regarding EPA/partners' draft Remedial Action Objectives (RAOs) as presented in Eric's 7/2/09 e-mail to the Lower Willamette Group (LWG) and EPA/partners' Technical Coordinating Team.	5,973	302 LAWS / Laws/Regulations/Guidance	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD 053-REMEDIAL/0531-Remedy Characterization
500003865	7/23/2009	LWG Response to EPA Comments on the Draft Treatment Beneficial Use Market Survey.	110	2 CORR / Correspondence	R10: Blischke, Eric, L (EPA)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD 053-REMEDIAL/0531-Remedy Characterization
611245	7/24/2009	2009-07-24 RAOs letter.	330	1 CORR / Correspondence	R10: Woronets, Jennifer (Anchor QEA, LLC) R10: Pisano, Jessica, A (Anchor Environmental, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD 053-REMEDIAL/0531-Remedy Characterization
611246	7/24/2009	Email regarding RAOs Response.	251	2 CORR / Correspondence	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA) R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD 053-REMEDIAL/0531-Remedy Characterization
611248	7/24/2009	For EPA Use: Chemical Mobility SCRA Data Set.	328	2 CORR / Correspondence	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Neely, Robert (NOAA), R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD 053-REMEDIAL/0531-Remedy Characterization
611249	7/27/2009	LWR Bioaccumulation Report Posting.	314	2 CORR / Correspondence	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD 053-REMEDIAL/0531-Remedy Characterization
611259	7/27/2009	Reply to EPA Requested GIS Layers Posted. Email regarding Portland Harbor RI/FS: benthic interpretation.	307	2 CORR / Correspondence	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD 053-REMEDIAL/0531-Remedy Characterization
611261	7/28/2009	Hot Spot Decision Flow Chart. 20090803HotSpotDecisionFlow.	296	2 CORR / Correspondence	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD 053-REMEDIAL/0531-Remedy Characterization
500012916	7/31/2009	July 2009 Portland Harbor Monthly Progress Report.	74	4 EML / Email	R10: Blischke, Eric, L (EPA)	R10: Mckenna, James (Port of Portland)	ELECTRONIC RECORD 053-REMEDIAL/0531-Remedy Characterization
100002071	8/3/2009	Portland Harbor Site Remedial Action Objectives. DEQ Letter Regarding EPA's 8/4/09 Draft Final Remedial Action Objectives. Sediment Chemical Mobility Data Report posted.	504	1 CORR / Correspondence	R10: (Unknown)	R10: (Unknown) R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD 053-REMEDIAL/0531-Remedy Characterization
611271	8/7/2009	2009-09-19 LWG Response to August 7 2009 EPA RAO Direction.	334	2 CORR / Correspondence	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD 053-REMEDIAL/0531-Remedy Characterization
711813	8/7/2009	2009-09-19 LWG Response to August 7 2009 EPA RAO Direction.	31	5	R10: Unknown, Unknown (EPA)	R10: Unknown, Unknown (Portland Harbor Site File)	ELECTRONIC RECORD 053-REMEDIAL/0531-Remedy Characterization
1309485	8/7/2009	2009-09-19 LWG Response to August 7 2009 EPA RAO Direction.	223	4 CORR / Correspondence	R10: Unknown, Unknown (Unknown)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	PAPER DOCUMENT 053-REMEDIAL/0531-Remedy Characterization
611279	8/11/2009	2009-09-19 LWG Response to August 7 2009 EPA RAO Direction.	293	1 CORR / Correspondence	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD 053-REMEDIAL/0531-Remedy Characterization
611280	8/19/2009	Email regarding LWG Response to August 7, 2009 EPA Direction on Portland Harbor RAOs. The national study of chemical residues in lake fish tissue.	255	3 CORR / Correspondence	R10: Wyatt, Robert (Lower Willamette Group)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD 053-REMEDIAL/0531-Remedy Characterization
611281	8/19/2009	2009-09-02 BERA Cover Letter.	294	1 CORR / Correspondence	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD 053-REMEDIAL/0531-Remedy Characterization
500012917	9/1/2009	Email regarding Draft BERA posted for EPA. 2009-09-03 LWG Response to EPA BERA Submittal Letter.	8,204	242 EML / Email	R10: Unknown, Unknown (EPA)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD 053-REMEDIAL/0531-Remedy Characterization
611284	9/2/2009	Email regarding LWG Response to EPA Comments on Pre-Feasibility Study Treatment Technologies Table.	249	2 CORR / Correspondence	R10: Wyatt, Robert (Lower Willamette Group)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD 053-REMEDIAL/0531-Remedy Characterization
611285	9/2/2009	LWG Response to EPA August 19, 2009 BERA Submittal Letter.	293	2 CORR / Correspondence	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD 053-REMEDIAL/0531-Remedy Characterization
611287	9/3/2009	Email regarding LWG Response to EPA Comments on Pre-Feasibility Study Treatment Technologies Table.	262	4 CORR / Correspondence	R10: Wyatt, Robert (Lower Willamette Group)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD 053-REMEDIAL/0531-Remedy Characterization
611289	9/3/2009	LWG Response to EPA August 19, 2009 BERA Submittal Letter.	288	1 CORR / Correspondence	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD 053-REMEDIAL/0531-Remedy Characterization
611290	9/3/2009	Lower Willamette Group Responses to EPA's July 9, 2009 Comments on the Pre-Feasibility Study Treatment Technologies Table Responses to EPA Comments on Treatment Table (09-03-2009 EPA).	288	1 CORR / Correspondence	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD 053-REMEDIAL/0531-Remedy Characterization
100002000	9/3/2009	Email regarding LWG Response to EPA Comments on Revised Phase 2 Recalibration Results: Hydrodynamic Sedimentation Modeling.	29	4 CORR / Correspondence	R10: (Lower Willamette Group)	R10: (Unknown)	ELECTRONIC RECORD 053-REMEDIAL/0531-Remedy Characterization
611295	9/4/2009	2009_08_LWG_Progress_Report. August 2009 Portland Harbor Monthly Progress Report.	294	1 CORR / Correspondence	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD 053-REMEDIAL/0531-Remedy Characterization
611296	9/9/2009	Reply to Stormwater Lining in City Stormwater Basin 22B. Final Statement of Work (SOW) Gasco Sediments Site.	294	11 CORR / Correspondence	R10: Pine, Keith (Lower Willamette Group)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD 053-REMEDIAL/0531-Remedy Characterization
611297	9/9/2009	Reply to Stormwater Lining in City Stormwater Basin 22B.	328	2 CORR / Correspondence	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD 053-REMEDIAL/0531-Remedy Characterization
620897	9/9/2009	Final Statement of Work (SOW) Gasco Sediments Site.	239	1 EML / Email	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD 053-REMEDIAL/0531-Remedy Characterization
500019083	9/9/2009	Final Statement of Work (SOW) Gasco Sediments Site.	362	55 CORR / Correspondence	R10: Unknown, Unknown (Unknown)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD 053-REMEDIAL/0531-Remedy Characterization

500019084	9/9/2009	Memorandum regarding EE/CA Approval Memorandum for Proposed Non-Time Critical Removal Action at Gasco and Siltronic Facilities, Portland, Oregon.	4,403	20	CORR / Correspondence	R10: Sheldrake, Sean, A (EPA)	R10: Cohen, Lori, G (EPA) R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
611307	9/23/2009	2009-09-23 BHHRA Cover Letter. Portland Harbor RI/FS Remedial Investigation Report - Appendix F Baseline Human Health Risk Assessment Draft.	251	2	CORR / Correspondence	R10: Wyatt, Robert (Lower Willamette Group)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
711811	9/23/2009	2009-10-07 LWG Response to EPA RAO Directive.	35,776	5612	RPT / Report	R10: Unknown, Unknown (Kennedy/Jenks Consultants)	R10: Unknown, Unknown (Lower Willamette Group) R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
611317	10/7/2009	2009-10-08 Letter Regarding Draft BHHRA Submittal.	261	6	CORR / Correspondence	R10: Wyatt, Robert (Lower Willamette Group)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
611471	10/7/2009	WW benthic respiration memo 07-Oct-2009. Email regarding LWG Response to EPA RAO Directive.	285	3	CORR / Correspondence	R10: Unknown, Unknown (Windward Environmental, LLC.)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
611477	10/7/2009	2009-10-08 Letter Regarding Draft BHHRA Submittal.	289	1	CORR / Correspondence	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
611472	10/8/2009	Email regarding LWG Letter Regarding Draft BHHRA Submittal.	265	4	CORR / Correspondence	R10: Wyatt, Robert (Lower Willamette Group)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
611478	10/8/2009	2009-10-08 Letter Regarding Draft BHHRA Submittal.	288	1	CORR / Correspondence	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
611473	10/12/2009	2009_09_LWG_Progress_Report. Email regarding September 2009 Portland Harbor Monthly Progress Report.	295	11	CORR / Correspondence	R10: Pine, Keith (Lower Willamette Group)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
611476	10/12/2009	Email regarding Errata: Draft BHHRA Table 2- 14.	326	2	CORR / Correspondence	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
611480	10/14/2009	2009-10-16 LWG Archive Samples Letter to EPA.	290	2	CORR / Correspondence	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
611485	10/16/2009	Email regarding LWG archive samples letter. For EPA Use   Existing Database Update (includes City RM 11 East Data).	248	1	CORR / Correspondence	R10: Wyatt, Robert (Lower Willamette Group)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
611487	10/16/2009	Email regarding QEA Fate Model History and References.	289	1	CORR / Correspondence	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Neely, Robert (NOAA), R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
611547	10/19/2009	Letter Transmitting DVD Containing Portland Harbor RI/FS Revised GIS Tool, (Contents of DVD Have Been Processed and Uploaded Into SDMS).	309	2	CORR / Correspondence	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
611499	10/22/2009	Portland Harbor RI/FS Remedial Investigation Report Draft.	327	2	CORR / Correspondence	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Fuentes, Rene, C (EPA), R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA), R10: Davoli, Dana (EPA), R10: Goulet, Joe (EPA)	OPTICAL STORAGE	053-REMEDIAL/0531-Remedy Characterization
1372504	10/23/2009	Portland Harbor RI/FS Remedial Investigation Report Draft.	1,521	3	CORR / Correspondence	R10: Stivers, Carl (Anchor QEA, LLC)	R10: Unknown, Unknown (Kennedy/Jenks Consultants), R10: Unknown, Unknown (Windward Environmental, LLC.), R10: Unknown, Unknown (Integral Consulting, Inc.)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
711810	10/27/2009	Email regarding Updated GIS Tool.	4,649	598	RPT / Report	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Unknown, Unknown (Lower Willamette Group) R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
611502	10/28/2009	Email regarding proposed meeting with Corps to discuss 404 jurisdictional issues in Portland Harbor.	287	1	CORR / Correspondence	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Taylor, Thomas, J (U. S. Army Corps of Engineers), R10: Petersen, Erik, S (U. S. Army Corps of Engineers), R10: Zinszer, Shawn (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
500003955	11/3/2009	2009_10_LWG_Progress_Report. Email regarding October 2009 Portland Harbor Monthly Progress Report.	45	1	CORR / Correspondence	R10: Freedman, Jonathan (EPA)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
611550	11/12/2009	Email regarding Portland Harbor Feasibility Study - QEA Fate Model Presentation PowerPoint.	310	10	CORR / Correspondence	R10: Pine, Keith (Lower Willamette Group)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
611551	11/12/2009	Benthic Toxicity Reanalysis Technical Memorandum.	288	1	CORR / Correspondence	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
611557	11/12/2009	Portland Harbor RI/FS Benthic Toxicity Reanalysis Technical Memorandum. Draft. Prepared for the Lower Willamette Group, Portland, OR. Windward Environmental LLC, Seattle, WA. November 13, 2009.	370	2	CORR / Correspondence	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
611559	11/13/2009	2009-11-18 Benthic Data Memo. Email regarding Supporting Electronic Information for Draft Benthic BERA Posted. Email regarding List FS Related Items Needing Resolution Before the Full Alternatives Screening Analysis Can Occur. 2009-12-09 QEA Fate Calibration and Sensitivity Analysis Parameters Memo. QEA Fate Calibration and Sensitivity Analysis Parameters Memo.	287	1	CORR / Correspondence	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100006207	11/13/2009	2009-11-18 Benthic Data Memo. Email regarding Supporting Electronic Information for Draft Benthic BERA Posted. Email regarding List FS Related Items Needing Resolution Before the Full Alternatives Screening Analysis Can Occur. 2009-12-09 QEA Fate Calibration and Sensitivity Analysis Parameters Memo. QEA Fate Calibration and Sensitivity Analysis Parameters Memo.	3,534	97	CORR / Correspondence	R10: (Windward Environmental, LLC.) R10: Unknown, Unknown (Windward Environmental, LLC.)	R10: Blischke, Eric, L (EPA) R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
611561	11/19/2009	2009-12-09 QEA Fate Calibration and Sensitivity Analysis Parameters Memo. QEA Fate Calibration and Sensitivity Analysis Parameters Memo.	309	4	CORR / Correspondence	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
611563	11/19/2009	2009-11-18 Benthic Data Memo. Email regarding Supporting Electronic Information for Draft Benthic BERA Posted. Email regarding List FS Related Items Needing Resolution Before the Full Alternatives Screening Analysis Can Occur. 2009-12-09 QEA Fate Calibration and Sensitivity Analysis Parameters Memo. QEA Fate Calibration and Sensitivity Analysis Parameters Memo.	289	1	CORR / Correspondence	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
611572	12/7/2009	2009-11-18 Benthic Data Memo. Email regarding Supporting Electronic Information for Draft Benthic BERA Posted. Email regarding List FS Related Items Needing Resolution Before the Full Alternatives Screening Analysis Can Occur. 2009-12-09 QEA Fate Calibration and Sensitivity Analysis Parameters Memo. QEA Fate Calibration and Sensitivity Analysis Parameters Memo.	288	1	CORR / Correspondence	R10: Woronets, Jennifer (Lower Willamette Group)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
611570	12/9/2009	2009-11-18 Benthic Data Memo. Email regarding Supporting Electronic Information for Draft Benthic BERA Posted. Email regarding List FS Related Items Needing Resolution Before the Full Alternatives Screening Analysis Can Occur. 2009-12-09 QEA Fate Calibration and Sensitivity Analysis Parameters Memo. QEA Fate Calibration and Sensitivity Analysis Parameters Memo.	360	3	CORR / Correspondence	R10: Unknown, Unknown (Lower Willamette Group)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
611573	12/10/2009	2009-11-18 Benthic Data Memo. Email regarding Supporting Electronic Information for Draft Benthic BERA Posted. Email regarding List FS Related Items Needing Resolution Before the Full Alternatives Screening Analysis Can Occur. 2009-12-09 QEA Fate Calibration and Sensitivity Analysis Parameters Memo. QEA Fate Calibration and Sensitivity Analysis Parameters Memo.	288	1	CORR / Correspondence	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
611574	12/10/2009	2009-11-18 Benthic Data Memo. Email regarding Supporting Electronic Information for Draft Benthic BERA Posted. Email regarding List FS Related Items Needing Resolution Before the Full Alternatives Screening Analysis Can Occur. 2009-12-09 QEA Fate Calibration and Sensitivity Analysis Parameters Memo. QEA Fate Calibration and Sensitivity Analysis Parameters Memo.	311	11	CORR / Correspondence	R10: Woronets, Jennifer (Lower Willamette Group)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
611575	12/10/2009	2009-11-18 Benthic Data Memo. Email regarding Supporting Electronic Information for Draft Benthic BERA Posted. Email regarding List FS Related Items Needing Resolution Before the Full Alternatives Screening Analysis Can Occur. 2009-12-09 QEA Fate Calibration and Sensitivity Analysis Parameters Memo. QEA Fate Calibration and Sensitivity Analysis Parameters Memo.	288	1	CORR / Correspondence	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
611648	12/17/2009	2009-11-18 Benthic Data Memo. Email regarding Supporting Electronic Information for Draft Benthic BERA Posted. Email regarding List FS Related Items Needing Resolution Before the Full Alternatives Screening Analysis Can Occur. 2009-12-09 QEA Fate Calibration and Sensitivity Analysis Parameters Memo. QEA Fate Calibration and Sensitivity Analysis Parameters Memo.	325	2	CORR / Correspondence	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100006216	1/6/2010	Letter dated January 6, 2010 from EPA to LWG regarding EPA's Preliminary Identification of ARARS at the Portland Harbor Site for Development of the Feasibility Study. Region 10, Oregon Operations Office. Portland OR.	75	12	RPT / Report	R10: (EPA)		ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100006221	1/6/2010	Letter dated January 6, 2010 from EPA to LWG regarding EPA's Preliminary Identification of ARARS at the Portland Harbor Site for Development of the Feasibility Study. Region 10, Oregon Operations Office. Portland OR.	298	11	RPT / Report	R10: (EPA)	R10: Wyatt, Robert (Lower Willamette Group), R10: Cora, Lori, H (EPA), R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
611655	2/1/2010	Email regarding LWG ARAR Questions for February 4th Meeting.	291	1	CORR / Correspondence	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Lacey, David (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
620935	2/3/2010	April 7, 2009 SLLI-DEQ-EPA Meeting Summary.	266	3	CORR / Correspondence	R10: Lacey, David (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
620936	2/3/2010	RP-Deep basalt VOC data.	1,652	4	CORR / Correspondence	R10: Lacey, David (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
620940	2/3/2010	Email regarding Rhone Poulenc Groundwater Discharge to the Willamette River.	286	2	EML / Email	R10: Lacey, David (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
611670	2/10/2010	Email regarding Compiled PRG Tables.	327	2	CORR / Correspondence	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Pine, Keith (Lower Willamette Group), R10: Wyatt, Robert, J (Northwest Natural Gas Company), R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
611671	2/16/2010	2010_01_LWG_Progress_Report.	324	11	CORR / Correspondence	R10: Woronets, Jennifer (Lower Willamette Group)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
611672	2/16/2010	Email regarding January 2010 Portland Harbor Monthly Progress Report.	290	1	CORR / Correspondence	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Ashton, David (Port of Portland), R10: Wyatt, Robert (Lower Willamette Group), R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
611673	2/18/2010	2010-02-18 LWG Response Letter to EPA Response on PCB Modeling Approach. 2010-02-18 LWG Response Letter to EPA Directive Clarifications on the Baseline Risk Assessments.	252	2	CORR / Correspondence	R10: Wyatt, Robert (Lower Willamette Group)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
611674	2/18/2010	2010-02-18 LWG Response Letter to EPA Response on PCB Modeling Approach.	258	2	CORR / Correspondence	R10: Wyatt, Robert (Lower Willamette Group)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
611675	2/18/2010	Email regarding LWG Response Letter to EPA Response on PCB Modeling Approach.	291	1	CORR / Correspondence	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Ashton, David (Port of Portland), R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality), R10: Stivers, Carl (Anchor QEA, LLC)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization



611676	2/18/2010	Email regarding LWG Response to EPA Directive Clarifications on the Baseline Risk Assessments.	290	1 CORR / Correspondence	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Wyatt, Robert (Lower Willamette Group), R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
611678	2/24/2010	2010-02-24 LWG Extension Request EPA Performance Standards for CDF.	249	2 CORR / Correspondence	R10: Wyatt, Robert (Lower Willamette Group)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
611679	2/24/2010	Email regarding LWG Extension Request EPA Performance Standards for Confined Disposal Facilities.	283	1 CORR / Correspondence	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
611154	2/28/2010	2009-02-27 RAOs and Management Goal.	400	9 CORR / Correspondence	R10: Unknown, Unknown (Lower Willamette Group)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
611689	3/12/2010	2010_02_LWG_Progress_Report.	332	11 CORR / Correspondence	R10: Woronets, Jennifer (Lower Willamette Group)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
611691	3/12/2010	Email regarding February 2010 Portland Harbor Monthly Progress Report.	284	1 CORR / Correspondence	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
611692	3/12/2010	Table of PRGs from March 4th Meeting.	284	1 CORR / Correspondence	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
611697	3/16/2010	Email regarding March 18th Performance Standards for CDFs Conference Call - Agenda and Table.	283	1 CORR / Correspondence	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
611696	3/17/2010	Email regarding Portland Harbor Degradation Rate History.	284	1 CORR / Correspondence	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
611701	3/23/2010	Reply to Response to February 18, 2010 Letter on Portland Harbor Preliminary Risk Assessment Comments.	254	7 CORR / Correspondence	R10: Macdonald, Donald, D (MacDonald Environmental Sciences, Ltd.)	R10: Blischke, Eric, L (EPA), R10: Shephard, Burt (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
611705	3/24/2010	Email regarding Focused PRGs Lists Through March 17th and PRG maps.	283	1 CORR / Correspondence	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
611706	3/29/2010	Email regarding Portland Harbor - SQG Comparison.	245	2 CORR / Correspondence	R10: Poulsen, Mike (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100006273	4/1/2010	EPA Email Comment on Flood Analysis – April 1, 2010.	53	3 RPT / Report	R10: (EPA)		ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100006274	4/1/2010	LWG Response to Email Comment on Flood Analysis – April 1, 2010.	99	3 RPT / Report	R10: (Lower Willamette Group)		ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
611708	4/2/2010	Email regarding Site-specific SQGs based on individual bioassay endpoints.	327	2 CORR / Correspondence	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100006222	4/9/2010	EPA Letter regarding LWG Response to EPA Preliminary Comments on Baseline Human Health and Ecological Risk Assessments. Letter to Jim McKenna, Lower Willamette Group, from Chip Humphrey and Eric Blischke, EPA Region 10. April 9, 2010.	30	3 RPT / Report	R10: (EPA)		ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
611710	4/14/2010	2010_03_LWG_Progress_Report.	332	11 CORR / Correspondence	R10: Woronets, Jennifer (Lower Willamette Group)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
611713	4/14/2010	Email regarding March 2010 Portland Harbor Monthly Progress Report.	284	1 CORR / Correspondence	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
500003960	4/15/2010	Notice Invoking Dispute Resolution Regarding Maintenance Dredging in Portland Harbor (marginalia).	506	8 CORR / Correspondence	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Hicks, Laura, L (U. S. Army Corps of Engineers), R10: Yamamoto, Deb (EPA), R10: Carrubba, Sheryl (U.S. Army Corps of Engineers)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100006225	4/21/2010	Further Question on ARARs Clarification Emails – April 21, 2010.	68	11 RPT / Report	R10: (EPA)		ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
500003867	5/4/2010	Email regarding Section-10 only permit action with no 404 component.	1,215	18 CORR / Correspondence	R10: Freedman, Jonathan (EPA)	R10: Cora, Lori, H (EPA), R10: Humphrey, Chip (EPA), R10: Yamamoto, Deb (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
611721	5/5/2010	2010-05-05 LWG Response to EPA April 23rd Performance Standards for CDF Letter.	251	2 CORR / Correspondence	R10: Wyatt, Robert (Lower Willamette Group)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
611733	5/5/2010	2010-05-05 LWG Response to EPA April 21st PRG Comments.	253	2 CORR / Correspondence	R10: Wyatt, Robert (Lower Willamette Group)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
611734	5/5/2010	Email regarding LWG Response to EPA's April 21st PRG Comments.	281	1 CORR / Correspondence	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
611735	5/5/2010	Email regarding LWG Response to EPA April 23rd Performance Standards for Confined Disposal Facilities for the Portland Harbor Feasibility Study.	284	1 CORR / Correspondence	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
611736	5/12/2010	Email regarding April 2010 Portland Harbor Monthly Progress Report.	284	1 CORR / Correspondence	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
611743	5/12/2010	2010_04_LWG_Progress_Report.	312	12 CORR / Correspondence	R10: Woronets, Jennifer (Lower Willamette Group)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
612565	5/13/2010	QEAFAFTE comments JWinter 5-7-10.	232	3 CORR / Correspondence	R10: Winter, Jessica (NOAA)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
500004144	5/14/2010	Comments Regarding Fish Consumption and Risk Assessment Assumptions.	140	3 LTR / Letter	R10: Myers, Mark, M (Williams, Kastner & Gibbs, LLP)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
611739	5/17/2010	PCB mass balance.	264	2 CORR / Correspondence	R10: Tarnow, Karen, E (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
611744	5/20/2010	Correction to Focused PRG Table.	365	2 CORR / Correspondence	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
611748	5/26/2010	Reply to Initial LWG response to EPA Comments on QEAFAFTE Presentation.	242	1 CORR / Correspondence	R10: Winter, Jessica (NOAA)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
611752	5/31/2010	Recon Eval conf call - discussion topics.	242	2 CORR / Correspondence	R10: Tarnow, Karen, E (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA), R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
612547	6/9/2010	2010_05_LWG_Progress_Report.	286	12 CORR / Correspondence	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
612548	6/9/2010	Email regarding May 2010 Portland Harbor Monthly Progress Report.	284	1 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
613729	6/15/2010	Email regarding TCT Agenda Item.	240	1 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
612561	6/16/2010	Email regarding LWG Chemical Fate and Transport Model Summary of June 8th Conference Call with EPA.	292	1 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
612619	6/25/2010	Email regarding For EPA Use Portland Harbor Existing Data Database.	294	2 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
612620	6/25/2010	Email regarding Upriver Data Set Revision and Revised Sediment Background Results.	362	2 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
613813	6/28/2010	Email regarding recontamination model for lagoon.	246	3 EML / Email	R10: Tarnow, Karen, E (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
612627	7/1/2010	Email regarding LWG Letter Regarding Portland Harbor Superfund Site Recreational User Health Assessment.	290	1 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
612626	7/10/2010	Email regarding Revised Alternatives Screening Check In Process.	292	1 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100006278	7/16/2010	EPA comments on Portland Harbor RI report - baseline ecological risk assessment. July 16, 2010. US Environmental Protection Agency Region 10, Oregon Operations Office, Portland, OR.	342	62 RPT / Report	R10: (EPA)		ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100006267	7/19/2010	Regarding: QEAFAFTE Model Calibration. Email to J. Woronets, Anchor QEA, B. Wyatt, NW Natural, J. McKenna, Verdant Solutions, and R. Applegate, City of Portland, July 19, 2010.	30	1 RPT / Report	R10: (EPA)		ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100006268	7/19/2010	Regarding: QEAFAFTE Model Calibration. Email to J. Woronets, Anchor QEA, B. Wyatt, NW Natural, J. McKenna, Verdant Solutions, and R. Applegate, City of Portland, July 19, 2010.	66	7 RPT / Report	R10: (EPA)		ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
613807	7/27/2010	Model overview for TCT.	417	2 CORR / Correspondence	R10: Tarnow, Karen, E (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
613808	7/27/2010	4 recon evals for TCT.	241	4 CORR / Correspondence	R10: Tarnow, Karen, E (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization

100001985	7/30/2010	Sediment Sampling & Analysis Plan Portland Harbor Comparative Sampling Study at Post Office Bar Portland ARRA SAP 07-29_AECOM.	2,962	25	CORR / Correspondence	R10: Buck, Jeremy (U. S. Fish and Wildlife Service), R10: Inouye, Laura (Washington State Dept. of Ecology), R10: Mcmillan, James, M (U.S. Army Corps of Engineers), R10: Briner, Wendy (U.S. Fish and Wildlife Service)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100001955	8/10/2010	Email regarding Identification of COCs /Risk Drivers in Draft FS.	32	2	EML / Email	R10: Blischke, Eric, L (EPA)	R10: Anderson, Jim, M (State of Oregon), R10: Hermanson, Brad (Unknown), R10: Peers, Jennifer (Stratus Consulting, Inc.), R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA), R10: Malek, John (EPA), R10: McClincy, Matt (Oregon Dept. of Environmental Quality), R10: Poulsen, Mike (Oregon Dept. of Environmental Quality), R10: Gustavson, Karl (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
613480	9/7/2010	4318_Benthic AOPCs_090710.	3,066	11	CORR / Correspondence	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
613481	9/7/2010	092210 benthic tox check-in slides.	329	11	CORR / Correspondence	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
613482	9/7/2010	092210 benthic tox check-in supplemental slides.	1,346	6	CORR / Correspondence	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
613483	9/7/2010	Email regarding 9/22/10 benthic check-in materials.	312	2	EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
613484	9/9/2010	2010_08_LWG_Progress_Report.	493	11	EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
613485	9/9/2010	Email regarding August 2010 Portland Harbor Monthly Progress Report.	291	1	EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
613486	9/15/2010	2010-09-15 Attachment A- BERA Process Flow Chart.	267	1	CORR / Correspondence	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
613487	9/15/2010	2010-09-15 General Responses to Directed Comments on BERA.	275	5	CORR / Correspondence	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
613488	9/15/2010	2010-09-15 General Responses to Directed Comments on BHHRA.	243	8	CORR / Correspondence	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
613489	9/15/2010	Email regarding LWG general responses to EPA directed BHHRA and BERA comments.	293	2	EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
613490	9/15/2010	2010-09-15 LWG General responses to EPA directed BHHRA and BERA comments.	244	2	CORR / Correspondence	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
613491	9/16/2010	LWG Response to EPA Comments on SW Loading Calcs 09-17-2010.	241	5	CORR / Correspondence	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
613492	9/16/2010	Email regarding LWG response to EPA comments on the Draft Stormwater Loading Methods Report.	362	2	EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
613568	9/22/2010	2010-09-22 Portland Harbor sediment and tissue disposal letter.	283	2	CORR / Correspondence	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
613569	9/22/2010	Email regarding Portland Harbor Sediment and Tissue Disposal Letter.	290	1	EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100006276	9/27/2010	EPA letter and attachment dated September 27, 2010 to Lower Willamette Group (from E. Blischke and C. Humphrey to R. Wyatt) regarding Portland Harbor Superfund site: EPA comments on benthic risk evaluation.	954	67	RPT / Report	R10: (EPA)		ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
613570	9/29/2010	Email regarding Benthic AOPC layers.	333	2	EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
500011407	10/1/2010	Human Health Risk Assessment Guidance. 2010-10-05 EPA Comments on Benthic Risk Evaluation Dispute Deadline.	1,678	117	LAWS / Laws/Regulations/Guidance	R10: Unknown, Unknown (Oregon Dept. of Environmental Quality)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
613571	10/5/2010	Email regarding EPA Comments on Benthic Risk Evaluation Dispute Deadline.	244	2	CORR / Correspondence	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
613579	10/5/2010	Risk Evaluation Dispute Deadline.	290	1	EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
613574	10/7/2010	2010-10-07 List of BHHRA and BERA Non-Directive Comment Issues.	328	2	CORR / Correspondence	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
613575	10/7/2010	2010-10-07_General Responses to EPA Non-Directive Comment Key Issues on BHHRA.	239	5	CORR / Correspondence	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
613585	10/7/2010	Email regarding List of BHHRA and BERA Non-directive Comment Issues and General Responses to EPA Non -Directive Comment Key Issues on the RI and BHHRA.	295	2	EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
613576	10/13/2010	2010-10-13 Attachment A response to comment 128 TTC and TSC approach.	295	4	CORR / Correspondence	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
613577	10/13/2010	2010-10-13 General Responses to EPA Non-Directive Comment Key Issues on BERA.	285	10	CORR / Correspondence	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
613584	10/13/2010	Email regarding General Responses to EPA Non -Directive Comment Key Issues on the BERA.	294	1	EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
613578	10/14/2010	2010_09_LWG_Progress_Report.	494	12	CORR / Correspondence	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
613581	10/14/2010	Email regarding September 2010 Portland Harbor Monthly Progress Report.	291	1	EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100001963	10/14/2010	Preliminary Capping Chemical Isolation Evaluation.	922	23	CORR / Correspondence	R10: (Lower Willamette Group)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100001971	10/14/2010	Preliminary Methods for Volume Determinations 02 Volume Determination Methods 08 Dec 10.	518	38	CORR / Correspondence	R10: (Lower Willamette Group)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100001957	10/26/2010	Water Quality Analysis Using AquaChem Piper Diagram Piper Diagram Pages from Aqua Chem Tab 6.	65	1	CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
663431	11/1/2010	11_01_10 email; News Release.	59	2	EML / Email	R10: Sanders, Dawn (City of Portland, Bureau of Environmental Services)	R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100001958	11/8/2010	Email regarding Piper Diagram Comments. 11_12_10 email attachment;	44	3	EML / Email	R10: Fuentes, Rene, C (EPA)	R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
663450	11/12/2010	2010_10_LWG_Progress_Report. 11_12_10 email; October 2010 Portland Harbor Monthly Progress Report.	72	11	CORR / Correspondence	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
663452	11/12/2010	11_12_10 email; November 2010 Portland Harbor Monthly Progress Report.	80	1	EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100007402	11/15/2010	Email regarding Round 3 sample disposal. Letter regarding Administrative Order on Consent for Remedial Investigation and Feasibility Study.	15	1	EML / Email	R10: Humphrey, Chip (EPA)	R10: Wyatt, Bob (Northwest Natural Gas Company), R10: McKenna, Jim (Verdant Solutions, LLC)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100007403	11/15/2010	11_18_10 email; General Responses to EPA's Non-Directive Comment Key Issues on the RI, BERA and BHHRA.	22	2	CORR / Correspondence	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	R10: Wyatt, Bob (Northwest Natural Gas Company)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
663464	11/18/2010	11_18_10 email attachment;	83	2	EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
663487	12/8/2010	2010_11_LWG_Progress_Report. 12_08_10 email; November 2010 Portland Harbor Progress Report.	298	11	CORR / Correspondence	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
663503	12/8/2010	12_08_10 email; November 2010 Portland Harbor Progress Report.	81	1	EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100001959	12/9/2010	Email regarding December 14th FS Check In Meeting Presentations (email 3 of 3) - posting location.	90	3	EML / Email	R10: Blischke, Eric, L (EPA)	R10: Buck, Jeremy (U. S. Fish and Wildlife Service), R10: Anderson, Jim (Unknown), R10: Koch, Kristine, M (EPA), R10: Smith, Judy, R (EPA), R10: Shephard, Burt (EPA), R10: Humphrey, Chip (EPA), R10: Grepo-grove, Gina (EPA), R10: Goulet, Joe (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100001962	12/9/2010	Email regarding December 14th FS Check In Meeting Presentations (email 3 of 3).	89	3	EML / Email	R10: Blischke, Eric, L (EPA)	R10: Buck, Jeremy (U. S. Fish and Wildlife Service), R10: Anderson, Jim (Unknown), R10: Koch, Kristine, M (EPA), R10: Smith, Judy, R (EPA), R10: Shephard, Burt (EPA), R10: Humphrey, Chip (EPA), R10: Grepo-grove, Gina (EPA), R10: Goulet, Joe (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization

100001970	12/9/2010	Email regarding December 14th FS Check In Meeting Presentations (email 1 of 3).	85	1 EML / Email	R10: Blischke, Eric, L (EPA)	R10: Buck, Jeremy (U. S. Fish and Wildlife Service), R10: Anderson, Jim (Unknown), R10: Koch, Kristine, M (EPA), R10: Smith, Judy, R (EPA), R10: Shephard, Burt (EPA), R10: Humphrey, Chip (EPA), R10: Grepo-grove, Gina (EPA), R10: Goulet, Joe (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100001973	12/9/2010	Email regarding December 14th FS Check In Meeting Presentations (email 2 of 3).	87	2 EML / Email	R10: Blischke, Eric, L (EPA)	R10: Anderson, Jim (Unknown), R10: Koch, Kristine, M (EPA), R10: Smith, Judy, R (EPA), R10: Shephard, Burt (EPA), R10: Humphrey, Chip (EPA), R10: Grepo-grove, Gina (EPA), R10: Goulet, Joe (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100001997	12/9/2010	Email regarding Technology Screening Tables and EPA and LWG Responses.	28	1 EML / Email	R10: Blischke, Eric, L (EPA)	R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100001974	12/10/2010	Disposal Site Screening Evaluation. Sensitivity/Uncertainty Analyses and Other Evaluations to Support SMA Refinement 04	1,921	27 EML / Email	R10: (Lower Willamette Group)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100001972	12/14/2010	Sensitivity and SMA Refinement 08 Dec 10.	133	22 CORR / Correspondence	R10: (Lower Willamette Group)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
693061	12/21/2010	EPA Response to LWG Dispute Exhibits: Exhibit 4(3)a - Re: Administrative Order on Consent for Remedial Investigation and Feasibility Study, Portland Harbor Feasibility Study. 01_12_11 email attachment; 2011-01-12 Comprehensive Response to EPA September 27 2010 December 8 2010 and December 21 2010 Letters.	31	4 RPT / Report	R10: Humphrey, Chip (EPA)	R10: Wyatt, Robert (Lower Willamette Group)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
662416	1/12/2011	Response to EPA letter regarding status of Portland Harbor Feasibility, Benthic Risk Evaluation, and EPA non-directed RI, BHHRA and BERA comments.	84	13 CORR / Correspondence	R10: Wyatt, Bob (Lower Willamette Group)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
500003778	1/12/2011	01_13_11 email attachment; FINAL 2010_12_LWG_Progress_Report.	847	13 CORR / Correspondence	R10: Wyatt, Robert (Lower Willamette Group) R10: Woronets, Jennifer (Lower Willamette Group)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
662425	1/13/2011	01_13_11 email; December 2010 Portland Harbor Monthly Progress Report.	125	12	R10: Woronets, Jennifer (Lower Willamette Group)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
662430	1/13/2011	Letter regarding City of Portland's views on issues raised in 01/12/2011 LWG letter concerning Portland Harbor RI/FS and risk assessments.	86	1 EML / Email	R10: Woronets, Jennifer (Lower Willamette Group)	R10: Shellenberger, Amanda (Anchor Environmental, LLC), R10: Wyatt, Bob (Lower Willamette Group), R10: Pine, Keith (Lower Willamette Group), R10: Humphrey, Chip (EPA), R10: Stivers, Carl (Anchor QEA, LLC)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
1387619	1/13/2011	01_25_11 email; LWG Dispute deadline re_	221	3 CORR / Correspondence	R10: Applegate, Richard (City of Portland, Oregon)	R10: Humphrey, Chip (EPA)	PAPER DOCUMENT	053-REMEDIAL/0531-Remedy Characterization
662515	1/25/2011	EPA directed comments on CSM.	30	1 EML / Email	R10: Mckenna, Jim (Lower Willamette Group) R10: Woronets, Jennifer (Lower Willamette Group)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
662516	1/25/2011	01_25_11 email; MNR Modeling Presentation. 01_31_11 email; Final Stormwater Loading Methods Report.	80	1 EML / Email	R10: Woronets, Jennifer (Lower Willamette Group)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
662530	1/31/2011	Portland Harbor RI/FS: Final Stormwater Loading Calculation Methods.	163	2 EML / Email	R10: Stivers, Carl (Anchor QEA, LLC), R10: Unknown, Unknown (Anchor QEA, LLC)	R10: Humphrey, Chip (EPA), R10: Unknown, Unknown (The Lower Willamette Group)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
1356980	1/31/2011	Transmittal Letter from Lower Willamette Group regarding Portland Harbor RI/FS Stormwater Loading Calculations Methods, (less enclosure).	82,884	226 RPT / Report			PAPER DOCUMENT	053-REMEDIAL/0531-Remedy Characterization
1356981	1/31/2011	02_02_11 email attachment; 2011-02-02 LWG Request for Extension for Draft FS Submittal. 02_02_11 email; LWG Request for Extension for Draft FS Submittal and Portland Harbor RI FS Schedule.	45	1 CORR / Correspondence	R10: Stivers, Carl (Anchor QEA, LLC)	R10: Humphrey, Chip (EPA)	PAPER DOCUMENT	053-REMEDIAL/0531-Remedy Characterization
662574	2/2/2011	02_03_11 email; CSM Section Proposed Revisions.	43	3 CORR / Correspondence	R10: Wyatt, Bob (Lower Willamette Group)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
662577	2/2/2011	02_09_11 email attachment; FINAL_2011_01_LWG_Progress_Report. 02_09_11 email; January 2011 Portland Harbor Monthly Progress Report.	81	1 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
662581	2/3/2011	02_09_11 email attachment; FINAL_2011_01_LWG_Progress_Report. 02_09_11 email; January 2011 Portland Harbor Monthly Progress Report.	108	2 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC) R10: Woronets, Jennifer (Lower Willamette Group)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
662591	2/9/2011	02_16_11 email attachment; 2011-02-16 Response to EPA Comments Dated January 28 2011 on Four FS Check-in Presentations. 02_16_11 email; Response to EPA Comments Dated January 28, 2011 on Four FS Check-in Presentations.	121	12 CORR / Correspondence	R10: Woronets, Jennifer (Lower Willamette Group)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
662592	2/9/2011	02_16_11 email attachment; 2011-02-16 Response to EPA Comments Dated January 28 2011 on Four FS Check-in Presentations.	80	1 EML / Email	R10: Woronets, Jennifer (Lower Willamette Group)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
662598	2/16/2011	02_25_11 email; Portland Harbor RIFS Detailed Project Schedule.	34	2 CORR / Correspondence	R10: Wyatt, Bob (Lower Willamette Group)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
662599	2/16/2011	02_25_11 email; Portland Harbor RIFS Detailed Project Schedule.	80	1 EML / Email	R10: Woronets, Jennifer (Lower Willamette Group)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
662614	2/25/2011	EPA Response to LWG Dispute Exhibits: Exhibit 4(3)b - Re: Administrative Order on Consent for Remedial Investigation and Feasibility Study, Schedule for Remedial Investigation and Feasibility Study, 03_09_11 email attachment; 2011-03-09 Draft Response to RI FS Schedule.	81	1 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
693062	2/25/2011	03_09_11 email; Draft LWG Response to EPA Feb 25 Portland Harbor RI FS Schedule Letter. 03_10_11 email attachment; FINAL_2011_02_LWG_Progress_Report. 03_10_11 email; February 2011 Portland Harbor Monthly Progress Report.	367	8 RPT / Report	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	R10: Mckenna, Jim (Lower Willamette Group), R10: Wyatt, Robert (Lower Willamette Group)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
662667	3/9/2011	Lower Willamette River, Portland Harbor Superfund Site USEPA Docket No: CERCLA-10-2001-0240, Monthly Progress Report for February 2011.	65	4 CORR / Correspondence	R10: Wyatt, Bob (Lower Willamette Group)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
662671	3/9/2011	03_18_11 email attachment; 2011-03-18 Response to EPA February 25 2011 RI FS Schedule Letter.	85	1 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
662673	3/10/2011	03_10_11 email; February 2011 Portland Harbor Monthly Progress Report.	113	12 CORR / Correspondence	R10: Woronets, Jennifer (Lower Willamette Group)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
662674	3/10/2011	Lower Willamette River, Portland Harbor Superfund Site USEPA Docket No: CERCLA-10-2001-0240, Monthly Progress Report for February 2011.	81	1 EML / Email	R10: Woronets, Jennifer (Lower Willamette Group)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
1356967	3/10/2011	03_18_11 email attachment; 2011-03-18 Response to EPA February 25 2011 RI FS Schedule Letter.	4,005	12 CORR / Correspondence	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Humphrey, Chip (EPA)	PAPER DOCUMENT	053-REMEDIAL/0531-Remedy Characterization
662708	3/18/2011	03_18_11 email; Response to EPA February 25, 2011 RI FS Schedule Letter.	42	4 CORR / Correspondence	R10: Wyatt, Bob (Lower Willamette Group)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
662709	3/18/2011	E-Mail Concerning Stormwater Model Runs; I Want to Provide You With Our Understanding of EPA's Expectation Regarding Comment Which Follows.	82	1 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
662712	3/29/2011	03_30_11 email attachment; 2011-03-30 LWG Response to EPA March 16 2011 Letter Regarding Use of Chemical Versus Contaminant.	85	1 EML / Email	R10: Mckenna, James (Verdant Solutions, LLC)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
662713	3/30/2011	03_30_11 email; Response to EPA March 16, 2011 Letter Regarding Use of Chemical Versus Contaminant.	38	3 CORR / Correspondence	R10: Wyatt, Bob (Lower Willamette Group)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
662715	3/30/2011	03_30_11 email; Response to EPA March 16, 2011 Letter Regarding Use of Chemical Versus Contaminant.	82	1 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100001983	3/31/2011	Email regarding Post Office Bar. 04_06_11 email; Alternatives Screening Presentation.	20	3 EML / Email	R10: Buck, Jeremy (U. S. Fish and Wildlife Service)	R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
662765	4/6/2011	Lower Willamette River, Portland Harbor Superfund Site USEPA Docket No: CERCLA-10-2001-0240, Monthly Progress Report for March 2011.	85	1 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
1356929	4/13/2011	04_14_11 email attachment; FINAL_2011_03_LWG_Progress_Report. 04_14_11 email; Additional Alternatives Screening Presentation Materials.	549	12 CORR / Correspondence	R10: Woronets, Jennifer (Anchor QEA, LLC) R10: Woronets, Jennifer (Lower Willamette Group)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	PAPER DOCUMENT	053-REMEDIAL/0531-Remedy Characterization
662788	4/14/2011	04_14_11 email; Additional Alternatives Screening Presentation Materials.	121	12 CORR / Correspondence	R10: Woronets, Jennifer (Lower Willamette Group)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
662792	4/14/2011	Screening Presentation Materials.	80	1 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization



100002011	4/14/2011	Memorandum regarding Comments on the Lower Willamette Group's Draft Feasibility Study Costing Approach, submitted on March 15, 2011 2011-04-14 comments_FS_Costing_Approach_Memorandum.	300	2	CORR / Correspondence	R10: Wagoner, Colin, H (Ridolfi, Inc.)	R10: Longoria, Rose (Yakama Nation)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100002012	4/14/2011	Memorandum regarding Comments on the Lower Willamette Group's Draft Mitigation Determination Approach for us in the Feasibility Study, submitted on March 15, 2011 2011-04-14 comments_Mitigation_Determination_Approach_foruseinthe_FS.	294	1	CORR / Correspondence	R10: Wagoner, Colin, H (Ridolfi, Inc.)	R10: Longoria, Rose (Yakama Nation)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100002013	4/14/2011	Memorandum regarding Comments on the Lower Willamette Group's Draft Treatment Technology Evaluation Tools Memorandum, submitted on March 15, 2011 2011-04-14 comments_Treatment_Technologies_Evaluation_Tools.	295	1	CORR / Correspondence	R10: Wagoner, Colin, H (Ridolfi, Inc.)	R10: Longoria, Rose (Yakama Nation)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100002017	4/14/2011	Portland Harbor Clean Fill Requirements Table Portland Harbor Clean Fill Requirements 3-23-2011.	198	2	EML / Email	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
1356982	4/15/2011	Portland Harbor RI/FS Final Stormwater Loading Calculation Methods.	61,016	223	RPT / Report	R10: Stivers, Carl (Anchor QEA, LLC), R10: Unknown, Unknown (Anchor QEA, LLC)	R10: Humphrey, Chip (EPA), R10: Unknown, Unknown (The Lower Willamette Group)	PAPER DOCUMENT	053-REMEDIAL/0531-Remedy Characterization
1356983	4/15/2011	Lower Willamette Group Transmittal Letter regarding Final Stormwater Loading Calculations Methods.	68	2	CORR / Correspondence	R10: Stivers, Carl (Anchor QEA, LLC)	R10: Humphrey, Chip (EPA)	PAPER DOCUMENT	053-REMEDIAL/0531-Remedy Characterization
100001988	4/15/2011	Email regarding Draft FS Cost Tool.	33	2	EML / Email	R10: Allen, Elizabeth (EPA)	R10: Koch, Kristine, M (EPA) R10: Anderson, Jim, M (State of Oregon), R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100001989	4/18/2011	Email regarding DEQ Comments on LWG FS TMs.	139	4	EML / Email	R10: Young, Cyril (Oregon Dept. of State Lands)	R10: (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100002010	4/18/2011	Email regarding Comments on Portland Harbor FS tools Tech memos.	75	1	EML / Email	R10: Wagoner, Colin, H (Ridolfi, Inc.)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
664434	4/27/2011	04_27_11 email; EPA comments re_PBDE risk calculations.	29	1	EML / Email	R10: Mckenna, Jim (Lower Willamette Group)	R10: Wyatt, Bob (Lower Willamette Group), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100002016	4/28/2011	Email regarding EPA comments on FS Tools Memoranda.	35	2	EML / Email	R10: Koch, Kristine, M (EPA)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
711127	5/2/2011	Portland Harbor RI/FS Draft Final Remedial Investigation Report Appendix F Baseline Human Health Risk Assessment.	1,081	203	RPT / Report	R10: Unknown, Unknown (Kennedy/Jenks Consultants) R10: Unknown, Unknown (Kennedy/Jenks Consultants), R10: Unknown, Unknown (Lower Willamette Group)	R10: Unknown, Unknown (Lower Willamette Group)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
500013494	5/2/2011	Portland Harbor RI, Appendix F: Baseline human health risk assessment. Draft final. Email regarding Clarification on Dispute Deadline for EPA Comments on FS Tools	1,139	203	LAWS / Laws/Regulations/Guidance	R10: Unknown, Unknown (Lower Willamette Group)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100002021	5/4/2011	Memos.	95	2	EML / Email	R10: Koch, Kristine, M (EPA)	R10: Mckenna, James (Verdant Solutions, LLC)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
662824	5/6/2011	05_06_11 email attachment; 2011-05-06 Response to EPA April 11 2011 Comments on BHHRA Risk Tables and Calculations.	33	2	CORR / Correspondence	R10: Wyatt, Bob (Lower Willamette Group)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
1356916	5/11/2011	Lower Willamette River, Portland Harbor Superfund Site USEPA Docket No: CERCLA-10-2001-0240 Monthly Progress Report for April 2011.	5,051	12	CORR / Correspondence	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	PAPER DOCUMENT	053-REMEDIAL/0531-Remedy Characterization
662846	5/12/2011	05_12_11 email attachment; FINAL_2011_04_LWG_Progress_Report.	121	12	CORR / Correspondence	R10: Woronets, Jennifer (Lower Willamette Group)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
662884	5/26/2011	05_26_11 email attachment; 2011-05-26 Response to EPA May 13 2011 FS Key Elements Check In Objectives.	37	3	CORR / Correspondence	R10: Wyatt, Bob (Lower Willamette Group)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100002076	6/3/2011	Mitigation Costs Method Description 09- Mitigation Cost Methods Description.	203	13	CORR / Correspondence	R10: (Lower Willamette Group)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
693063	6/6/2011	EPA Response to LWG Dispute Exhibits: Exhibit 4(3)c - Re: Alternatives Screening Stipulated Penalties.	30	1	CORR / Correspondence	R10: Humphrey, Chip (EPA)	R10: Mckenna, Jim (Lower Willamette Group), R10: Wyatt, Robert (Lower Willamette Group), R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
1396184	6/8/2011	Lower Willamette River, Portland Harbor Superfund Site - Monthly Progress Report for May 2011.	6,327	13	CORR / Correspondence	R10: Woronets, Jennifer (Lower Willamette Group)	R10: Humphrey, Chip (EPA)	PAPER DOCUMENT	053-REMEDIAL/0531-Remedy Characterization
662532	6/9/2011	06_09_11 email attachment; FINAL_2011_05_LWG_Progress_Report.	120	13	EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
662533	6/9/2011	06_09_11 email; Alternatives Screening Stipulated penalties.	31	1	EML / Email	R10: Mckenna, James, J (McKenna Environmental, LLC)	R10: Wyatt, Robert (Lower Willamette Group), R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
662685	6/9/2011	06_09_11 email; May 2011 Portland Harbor Monthly Progress Report.	81	1	EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Shellenberger, Amanda (Anchor Environmental, LLC), R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA), R10: Stivers, Carl (Anchor QEA, LLC), R10: Woronets, Jennifer (Anchor QEA, LLC)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
662974	6/9/2011	06_09_11 email attachment; FINAL_2011_05_LWG_Progress_Report.	120	13	CORR / Correspondence	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
662976	6/9/2011	06_09_11 email; Alternatives Screening Stipulated penalties.	31	1	EML / Email	R10: Mckenna, Jim (Lower Willamette Group)	R10: Wyatt, Bob (Lower Willamette Group), R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
662977	6/9/2011	06_09_11 email; May 2011 Portland Harbor Monthly Progress Report.	80	1	EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
693064	6/9/2011	EPA Response to LWG Dispute Exhibits: Exhibit 4(3)d - Re: Alternatives Screening Stipulated Penalties.	31	1	CORR / Correspondence	R10: Mckenna, Jim (Lower Willamette Group)	R10: Mckenna, Jim (Lower Willamette Group), R10: Wyatt, Robert (Lower Willamette Group), R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
1175832	6/9/2011	08_02_13 email attachment; Exhibit 4(3)d.	36	1	EML / Email	R10: Mckenna, Jim (Port of Portland)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA), R10: Wyatt, Robert, J (NW Natural)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
500000736	6/9/2011	08_02_13 email attachment; Exhibit 4(3)d.	36	1	EML / Email	R10: Mckenna, James (Verdant Solutions, LLC)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA), R10: Wyatt, Robert, J (NW Natural)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
662753	6/15/2011	06_15_11 email; June 21st and 22nd Draft FS Key Elements Check In Additional Agenda Details.	85	2	EML / Email	R10: Woronets, Jennifer (Lower Willamette Group)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
662754	6/17/2011	06_17_11 email attachment; 2011-05-26 Response to EPA May 13 2011 FS Key Elements Check In Objectives.	37	3	EML / Email	R10: Wyatt, Bob (Lower Willamette Group)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
663009	6/17/2011	06_17_11 email attachment; 2011-05-26 Response to EPA May 13 2011 FS Key Elements Check In Objectives.	37	3	CORR / Correspondence	R10: Wyatt, Bob (Lower Willamette Group)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100002023	6/19/2011	EPA Comment Number (from draft BHHRA) Table PH Comment File.	130	15	CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100002030	6/22/2011	Email regarding Overdredging Studies.	65	1	EML / Email	R10: French, Ronald (Unknown)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA), R10: King, Todd (CDM Smith)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100002032	6/27/2011	Email regarding Notes from June 21-22 meeting.	93	1	EML / Email	R10: Penoyar, Susan, J (CDM)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100002033	6/27/2011	Memorandum regarding Rough Meeting Notes-FS-Key Elements of Check-In FS Meeting June 21-22 R1.	125	7	CORR / Correspondence	R10: Penoyar, Susan, J (CDM), R10: King, Todd (CDM Smith), R10: French, Ronald (Unknown)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
662873	6/28/2011	06_28_11 email attachment; 2011-06-28 Proposed Supplemental Table 9-2A.	33	2	EML / Email	R10: Wyatt, Bob (Lower Willamette Group)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
662880	6/28/2011	06_28_11 email; Proposed Supplemental Table 9-2A Supplement to Portland Harbor RIFS Deliverable Descriptions and Submittal Deadlines.	81	1	EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
663045	6/28/2011	06_28_11 email attachment; 2011-06-28 Proposed Supplemental Table 9-2A.	33	2	CORR / Correspondence	R10: Wyatt, Bob (Lower Willamette Group)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization

663047	6/28/2011	06_28_11 email; Proposed Supplemental Table 9-2A Supplement to Portland Harbor RIFS Deliverable Descriptions and Submittal Deadlines.	81	1 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100002070	6/28/2011	Email regarding Hot Spot Material.	99	1 EML / Email	R10: Hermanson, Brad (Parametrix, Inc.)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100002073	6/28/2011	Email regarding LWG FS Check-in: Mitigation Cost Presentation.	98	2 EML / Email	R10: Angle, Genevieve (NOAA)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100002081	6/29/2011	Email regarding FS Check In comments.	98	2 EML / Email	R10: Gainer, Tom (Oregon Dept. of Environmental Quality)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100002082	6/29/2011	Email regarding Comments on LWG FS Presentation.	132	3 EML / Email	R10: Hermanson, Brad (Parametrix, Inc.)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100002080	6/30/2011	Email regarding 2011-06-30_YN_Comment_Memo_FScheckin_June21.	77	1 EML / Email	R10: Wagoner, Colin, H (Ridolfi, Inc.)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100002085	6/30/2011	Memorandum regarding LGW presentation on Portland Harbor FS (June 21 and 22, 2011) 2011-06-30_YN_Comment_Memo_FScheckin_June21.	259	3 CORR / Correspondence	R10: Wagoner, Colin, H (Ridolfi, Inc.)	R10: Longoria, Rose (Yakama Nation)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
663017	7/1/2011	07_01_11 email; LWG Draft Final Baseline Ecological Risk Assessment.	120	2 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
663054	7/1/2011	07_01_11 email; LWG Draft Final Baseline Ecological Risk Assessment.	120	2 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
711121	7/1/2011	Appendix G for the Draft Final Baseline Ecological Risk Assessment: Portland Harbor Remedial Investigation/Feasibility Study.	6,561	746 RPT / Report	R10: Unknown, Unknown (Windward Environmental, LLC.)	R10: Unknown, Unknown (Lower Willamette Group)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
500002054	7/1/2011	Appendix G - Attachment 1a: EPA-Lower Willamette Group Communications (Draft Final).	399	30 RPT / Report	R10: Unknown, Unknown (Windward Environmental, LLC.)	R10: Unknown, Unknown (Lower Willamette Group)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
500002056	7/1/2011	Appendix G - Attachment 2: Problem Formulation for the Baseline Ecological Risk Assessment at the Portland Harbor Site (Draft Final).	994	76 RPT / Report	R10: Unknown, Unknown (Windward Environmental, LLC.)	R10: Unknown, Unknown (Lower Willamette Group)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
500002057	7/1/2011	Appendix G - Attachment 3: Data Management (Draft Final).	617	28 RPT / Report	R10: Unknown, Unknown (Windward Environmental, LLC.)	R10: Unknown, Unknown (Lower Willamette Group)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
500002058	7/1/2011	Appendix G - Attachment 4: Baseline Ecological Risk Assessment (BERA) Data (Draft Final).	1,537	44 ADD / Analytical Data Document	R10: Unknown, Unknown (Windward Environmental, LLC.)	R10: Unknown, Unknown (Lower Willamette Group)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
500002059	7/1/2011	Appendix G - Attachment 5: Screening Level Ecological Risk Assessment (SLERA) and Refined Screen (Draft Final).	3,756	186 RPT / Report	R10: Unknown, Unknown (Windward Environmental, LLC.)	R10: Unknown, Unknown (Lower Willamette Group)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
500002060	7/1/2011	Appendix G - Attachment 6 (Part A): Toxicity Test Results and Interpretation (Draft Final).	973	36 ADD / Analytical Data Document	R10: Unknown, Unknown (Windward Environmental, LLC.)	R10: Unknown, Unknown (Lower Willamette Group)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
500002061	7/1/2011	Appendix G - Attachment 6 (Part F): Logistic Regression Model (LRM).	976	41 RPT / Report	R10: Unknown, Unknown (Windward Environmental, LLC.)	R10: Unknown, Unknown (Lower Willamette Group)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
500002062	7/1/2011	Appendix G - Attachment 8: Evaluation of Models Used to Predict Tissue Concentrations (Draft Final).	300	11 RPT / Report	R10: Unknown, Unknown (Windward Environmental, LLC.)	R10: Unknown, Unknown (Lower Willamette Group)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
500002063	7/1/2011	Appendix G - Attachment 9: Tissue-Residue Toxicity Reference Values (TRVs) (Draft Final).	1,669	69 ADD / Analytical Data Document	R10: Unknown, Unknown (Windward Environmental, LLC.)	R10: Unknown, Unknown (Lower Willamette Group)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
500002064	7/1/2011	Appendix G - Attachment 10: Selection of Water Toxicity Reference Values (TRVs) (Draft Final).	902	31 RPT / Report	R10: Unknown, Unknown (Windward Environmental, LLC.)	R10: Unknown, Unknown (Lower Willamette Group)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
500002065	7/1/2011	Appendix G - Attachment 11: Evaluation of Background and Upriver Reach Concentrations (Draft Final).	588	19 RPT / Report	R10: Unknown, Unknown (Windward Environmental, LLC.)	R10: Unknown, Unknown (Lower Willamette Group)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
500002081	7/1/2011	Appendix G - Attachment 12: Individual Sample and Dietary Component Assessment for Fish (Draft Final).	668	25 RPT / Report	R10: Unknown, Unknown (Windward Environmental, LLC.)	R10: Unknown, Unknown (Lower Willamette Group)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
500002082	7/1/2011	Appendix G - Attachment 13: Details On Exposure and Effects Assumptions for the Fish Dietary Line of Evidence (LOE) (Draft Final).	463	32 LST / List/Index	R10: Unknown, Unknown (Windward Environmental, LLC.)	R10: Unknown, Unknown (Lower Willamette Group)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
500002083	7/1/2011	Appendix G - Attachment 14: Recommended Literature-Based Fish Dietary and Wildlife Toxicity Reference Value (TRVs) (Draft Final).	1,747	162	R10: Unknown, Unknown (Windward Environmental, LLC.)	R10: Unknown, Unknown (Lower Willamette Group)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
500002084	7/1/2011	Appendix G - Attachment 15: Evaluation of Lamprey Sensitivity to Sediment Contaminants (Draft Final).	456	21 RPT / Report	R10: Unknown, Unknown (Windward Environmental, LLC.)	R10: Unknown, Unknown (Lower Willamette Group)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
500002085	7/1/2011	Appendix G - Attachment 16: Details On Exposure and Effects Assumptions for the Wildlife Dietary and Bird Egg Line of Evidence (LOEs) (Draft Final).	738	60 RPT / Report	R10: Unknown, Unknown (Windward Environmental, LLC.)	R10: Unknown, Unknown (Lower Willamette Group)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
500002086	7/1/2011	Appendix G - Attachment 17: Individual Sample and Dietary Component Assessment for Wildlife (Draft Final).	1,570	60 RPT / Report	R10: Unknown, Unknown (Windward Environmental, LLC.)	R10: Unknown, Unknown (Lower Willamette Group)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
500002088	7/1/2011	Appendix G - Attachment 18: Future Risk Estimates (Draft Final).	303	8	R10: Unknown, Unknown (Windward Environmental, LLC.)	R10: Unknown, Unknown (Lower Willamette Group)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
500014967	7/1/2011	Portland Harbor RI, Appendix G: Baseline ecological risk assessment. Draft final.	6,760	746 LAWS / Laws/Regulations/Guidance	R10: Unknown, Unknown (Windward Environmental, LLC.)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
1396176	7/7/2011	Re: Lower Willamette River, Portland Harbor Superfund Site, USEPA Docket No: Monthly Progress Report for June 2011.	5,836	13 CORR / Correspondence	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Humphrey, Chip (EPA)	PAPER DOCUMENT	053-REMEDIAL/0531-Remedy Characterization
663093	7/13/2011	07_13_11 email attachment; FINAL_2011_06_Progress_Report.	104	13 CORR / Correspondence	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
663095	7/13/2011	07_13_11 email; June 2011 Portland Harbor Monthly Progress Report.	81	1 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
663184	7/13/2011	07_13_11 email attachment; FINAL_2011_06_Progress_Report.	104	13 EML / Email	R10: Woronets, Jennifer (Lower Willamette Group)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
663187	7/13/2011	07_13_11 email; June 2011 Portland Harbor Monthly Progress Report.	81	1 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
663124	7/20/2011	07_20_11 email; EPA Comments on FS Key Elements Check-in.	31	1 EML / Email	R10: Wyatt, Bob (Lower Willamette Group)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
663203	7/20/2011	07_20_11 email; EPA Comments on FS Key Elements Check-in.	31	1 EML / Email	R10: Wyatt, Bob (Lower Willamette Group)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
663218	7/22/2011	07_22_11 email; Risk Management Recommendations Report for Portland Harbor.	107	2 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
663224	7/22/2011	07_22_11 email; Risk Management Recommendations Report for Portland Harbor.	107	2 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
663279	8/3/2011	08_03_11 email; Agenda Questions for Friday's Meeting.	69	2 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
663286	8/11/2011	08_11_11 email attachment; FINAL_2011_07_Progress_Report.	133	13 CORR / Correspondence	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
663294	8/11/2011	08_11_11 email; July 2011 Portland Harbor Monthly Progress Report.	80	1 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
1396210	8/11/2011	Lower Willamette River, Portland Harbor Superfund Site - Monthly Progress Report for July 2011.	4,840	13 CORR / Correspondence	R10: Woronets, Jennifer (Lower Willamette Group)	R10: Humphrey, Chip (EPA)	PAPER DOCUMENT	053-REMEDIAL/0531-Remedy Characterization
663299	8/23/2011	08_23_11 email attachment; 2011-08-23 Response to EPA August 11 2011 Alternatives Letter.	111	4 CORR / Correspondence	R10: Wyatt, Bob (Lower Willamette Group)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
663308	9/8/2011	09_08_11 email attachment; 2011-09-08 LWG Request for Project Schedule Modification for Submittal of Draft FS Letter.	40	3 CORR / Correspondence	R10: Wyatt, Bob (Lower Willamette Group)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
1396238	9/14/2011	Lower Willamette River, Portland Harbor Superfund Site - Monthly Progress Report for August 2011.	5,195	12 RPT / Report	R10: Woronets, Jennifer (Lower Willamette Group)	R10: Humphrey, Chip (EPA)	PAPER DOCUMENT	053-REMEDIAL/0531-Remedy Characterization



663314	09_15_11 email attachment; FINAL_2011_08_Progress_Report.	137	12 CORR / Correspondence	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
665163	9/21/2011 09_21_11 email; NWP Soil Capping Maps. 10_13_11 email attachment;	42	2 EML / Email	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
663418	10/13/2011 FINAL_2011_09_Progress_Report.	152	11 CORR / Correspondence	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
664175	10_13_11 email attachment; 2011-10-13 LWG Response to EPA October 07 2011 Letter. Lower Willamette River, Portland Harbor Superfund Site USEPA Docket No: CERCLA-10- 2011-0240 - Monthly Progress Report for	34	2 CORR / Correspondence	R10: Wyatt, Bob (Lower Willamette Group)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
1396360	10/13/2011 September 2011. Risk Management Decisions Required: Portland Harbor Superfund Site, Portland, Oregon.	3,866	11 RPT / Report	R10: Woronets, Jennifer (Lower Willamette Group)	R10: Humphrey, Chip (EPA)	PAPER DOCUMENT	053-REMEDIAL/0531-Remedy Characterization
663425	10_26_11 email attachment; 2011-10-26 LWG Response to 2011-09-08 EPA Smallmouth Bass Sampling Letter.	1,715	25 RPT / Report	R10: Unknown, Unknown (Unknown)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
663428	10/26/2011	34	2 CORR / Correspondence	R10: Wyatt, Bob (Lower Willamette Group)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
500001313	11_04_11 email attachment; L-GWM-LWG et.al. 11-4-11.	156	4 EML / Email	R10: Mckallip, George, W (Sussman Shank)	R10: Neely, Robert (NOAA), R10: Allen II, P. David (Stratus Consulting, Inc.), R10: Mckenna, Jim (Lower Willamette Group), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
663444	11/9/2011 FINAL_2011_10_Progress_Report. Lower Willamette River, Monthly Progress Report for October 2011.	130	12 CORR / Correspondence	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
1396341	11/9/2011	4,313	12 RPT / Report	R10: Woronets, Jennifer (Lower Willamette Group)	R10: Humphrey, Chip (EPA)	PAPER DOCUMENT	053-REMEDIAL/0531-Remedy Characterization
500003767	Congressional Letter From Kurt Schrader, Earl Blumenauer, Jeff Merkley, and Ron Wyden to Lisa Jackson Administrator of the Environmental Protection Agency.	131	2 CORR / Correspondence	R10: Blumenauer, Earl (U. S. House of Representatives), R10: Schrader, Kurt (U. S. House of Representatives), R10: Merkley, Jeff (U. S. Senate), R10: Wyden, Ron (U. S. Senate) Supply Company), R10: Unknown, Unknown (Esco Corporation), R10: Unknown, Unknown (FMC Corporation), R10: Unknown, Unknown (Atlantic Richfield Company), R10: Unknown, Unknown (Schnitzer Investment Corporation), R10: Unknown, Unknown (Lockheed Martin Corporation), R10: Unknown, Unknown (Schnitzer Steel Industries, Inc.), R10: Unknown, Unknown (Beazer East, Inc.), R10: Unknown, Unknown (Shaver Transportation Company), R10: Unknown, Unknown (Calbag Metals Company), R10: Unknown, Unknown (Ash Grove Cement Company), R10: Unknown, Unknown (Fred Devine Diving and Salvage, Inc.), R10: Unknown, Unknown (Cargill, Incorporated), R10: Unknown, Unknown (Lakeside Industries), R10: Unknown, Unknown (Crawford Street Corporation), R10: Unknown, Unknown (Equilon Enterprises LLC), R10: Unknown, Unknown (Babcock Land Company, LLC.), R10: Unknown, Unknown (ACF Industries, Inc.), R10: Unknown, Unknown (Brix Maritime Company), R10: Unknown, Unknown (Shore Terminals, LLC), R10: Unknown, Unknown (Tube Forgings of America, Inc.), R10: Unknown, Unknown (Front Avenue Corporation), R10: Unknown, Unknown (Legacy Site Services, LLC), R10: Unknown, Unknown (Ashland, inc.), R10: Unknown, Unknown (Anchor Park LLC), R10: Unknown, Unknown (ATKM Company), R10: Unknown,	R10: Jackson, Lisa, P (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
1396380	A Letter in Response to an EPA letter and Proposed Meeting regarding Portland Harbor Superfund Site Preliminary Response to Concerns Raised in White Paper, with attached Signatories.	602	3 CORR / Correspondence	R10: Opalski, Daniel, D (EPA)	R10: Opalski, Daniel, D (EPA)	PAPER DOCUMENT	053-REMEDIAL/0531-Remedy Characterization
715198	Baseline Human Health Risk Assessment (BHHRA) Dispute Decision.	994	10 RPT / Report	R10: Opalski, Daniel, D (EPA)	R10: Unknown, Unknown (File)	PAPER DOCUMENT	053-REMEDIAL/0531-Remedy Characterization
1396511	Lower Willamette River, Monthly Progress Report for November 2011.	4,495	13 RPT / Report	R10: Woronets, Jennifer (Lower Willamette Group)	R10: Humphrey, Chip (EPA)	PAPER DOCUMENT	053-REMEDIAL/0531-Remedy Characterization
500003768	Letter to Congressman Kurt Schrader regarding the Portland Harbor Superfund Site	771	10 CORR / Correspondence	R10: McLerran, Dennis, J (EPA)	R10: Schrader, Kurt (U. S. House of Representatives)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
500003769	Letter to Congressman Earl Blumenauer regarding the Portland Harbor Superfund Site	753	10 CORR / Correspondence	R10: McLerran, Dennis, J (EPA)	R10: Blumenauer, Earl (U. S. House of Representatives)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
500003770	Letter to Senator Jeffrey Merkley regarding the Portland Harbor Superfund Site	752	10 CORR / Correspondence	R10: McLerran, Dennis, J (EPA)	R10: Merkley, Jeff (U. S. Senate)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
500003771	Letter to Senator Ron Wyden regarding the Portland Harbor Superfund Site	761	10 CORR / Correspondence	R10: McLerran, Dennis, J (EPA)	R10: Wyden, Ron (U. S. Senate)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
663529	12_15_11 email attachment; FINAL_2011_November_Progress_Report.	454	13 CORR / Correspondence	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
1372372	Monthly Progress Report for December 2011, USEPA Docket No: CERCLA-10-2001-0240, Lower Willamette River, Portland Harbor Superfund Site.	29,095	13 CONTR / Contract Documentation	R10: Woronets, Jennifer (Lower Willamette Group)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality), R10: McClincy, Matt (Oregon Dept. of Environmental Quality), R10: Gainer, Tom (Oregon Dept. of Environmental Quality)	PAPER DOCUMENT	053-REMEDIAL/0531-Remedy Characterization
662435	01_16_12 email attachment; 2012-01-16 LWG January 15 Draft FS Submittal Cover Letter.	119	4 CORR / Correspondence	R10: Wyatt, Bob (Lower Willamette Group)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
662474	01_20_12 email; Word Version of Text of Draft Final Remedial Investigation.	86	2 EML / Email	R10: Woronets, Jennifer (Lower Willamette Group)	R10: Cora, Lori, H (EPA), R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
658444	1/23/2012 01_23_12 email; DEQ_EPA Riverbank Meeting.	33	3 CORR / Correspondence	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
662522	01_27_12 email; Word Version of Text of Draft Final Baseline Ecological Risk Assessment. Lower Willamette River Monthly Progress Report for January 2012.	85	2 EML / Email	R10: Woronets, Jennifer (Lower Willamette Group)	R10: Cora, Lori, H (EPA), R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
1396835	02_08_12 email attachment; FINAL_2012_01_Progress_Report.	25,815	13 CORR / Correspondence	R10: Woronets, Jennifer (Lower Willamette Group)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	PAPER DOCUMENT	053-REMEDIAL/0531-Remedy Characterization
662589	2/8/2012	137	13 CORR / Correspondence	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
658450	3/12/2012 03_12_12 email; Kinder Morgan Linnton. 03_15_12 email attachment;	24	1 CORR / Correspondence	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
662678	3/15/2012 FINAL_2012_02_Progress_Report. Re: Lower Willamette River, Portland Harbor Superfund Site Monthly Progress Report for	130	12 CORR / Correspondence	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
1396793	3/15/2012 February 2012.	24,316	12 CORR / Correspondence	R10: Woronets, Jennifer (Lower Willamette Group)	R10: Humphrey, Chip (EPA)	PAPER DOCUMENT	053-REMEDIAL/0531-Remedy Characterization
710313	03_23_12 email; Moisture content response from John Toll on Portland Harb.	35	2 CORR / Correspondence	R10: Shephard, Burt (EPA)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA), R10: Goulet, Joe (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
1432043	Letter from City of Portland Bureau of Environmental Services regarding Sampling and Analysis Plan (SAP) - River Mile 6 East Focused Sediment Characterization.	485	1 CORR / Correspondence	R10: Sanders, Dawn (City of Portland, Bureau of Environmental Services)	R10: Humphrey, Chip (Department of Environmental Quality)	PAPER DOCUMENT	053-REMEDIAL/0531-Remedy Characterization
662727	04_04_12 email; LWG Slides for public presentations.	48	2 EML / Email	R10: Smith, Barbara (Harris Smith Public Affairs)	R10: Koch, Kristine, M (EPA), R10: Conley, Alanna (EPA), R10: Humphrey, Chip (EPA), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
662783	04_12_12 email attachment; FINAL_2012_03_Progress_Report.	138	13 CORR / Correspondence	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
1396781	Re: Lower Willamette River, Monthly Progress Report for March 2012.	17,563	13 CORR / Correspondence	R10: Woronets, Jennifer (Lower Willamette Group)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	PAPER DOCUMENT	053-REMEDIAL/0531-Remedy Characterization
1396780	Re: Submittal of Comments on the LWG Draft Bioaccumulation Model Report.	15,273	56 RPT / Report	R10: Heineck, David, M (Summit Law Group, PLLC)	R10: Humphrey, Chip (EPA)	PAPER DOCUMENT	053-REMEDIAL/0531-Remedy Characterization
100003318	Email regarding September 2nd HST Modeling Meeting Summary Memo.	35	4 EML / Email			ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization

719258	Draft Engineering Evaluation/Cost Analysis for the Gasco Sediments Cleanup Action. CD With Attachment 2 (GIS Layers Project AIR Data Rescreen): Draft Engineering Evaluation/Cost Analysis for the Gasco Sediments Cleanup Action (CD-ROM at Records Center).	84,940	2355 RPT / Report	R10: Unknown, Unknown (Anchor QEA, LLC), R10: Unknown, Unknown (NW Natural)	R10: Unknown, Unknown (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
1471590	CD With Draft Engineering Evaluation/Cost Analysis for the Gasco Sediments Cleanup Action (CD-ROM at Records Center).	93	1	R10: Unknown, Unknown (Anchor QEA, LLC), R10: Unknown, Unknown (NW Natural)	R10: Unknown, Unknown (EPA)	OPTICAL STORAGE	053-REMEDIAL/0531-Remedy Characterization
1471591	CD With Attachments 6 and 7 (Draft Data Investigation Report): Draft Engineering Evaluation/Cost Analysis for the Gasco Sediments Cleanup Action (CD-ROM at Records Center).	92	1	R10: Unknown, Unknown (Anchor QEA, LLC), R10: Unknown, Unknown (NW Natural)	R10: Unknown, Unknown (EPA)	OPTICAL STORAGE	053-REMEDIAL/0531-Remedy Characterization
1471592	CD With Attachments 6 and 7 (Draft Data Investigation Report): Draft Engineering Evaluation/Cost Analysis for the Gasco Sediments Cleanup Action (CD-ROM at Records Center).	92	1	R10: Unknown, Unknown (Anchor QEA, LLC), R10: Unknown, Unknown (NW Natural)	R10: Unknown, Unknown (EPA)	OPTICAL STORAGE	053-REMEDIAL/0531-Remedy Characterization
662842	05_11_12 email attachment; FINAL 2012_04_Progress_Report.	123	12 CORR / Correspondence	R10: Woronets, Jennifer (Lower Willamette Group)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
1396691	Lower Willamette River, Monthly Progress Report for April 2012..	24,787	12 CORR / Correspondence	R10: Woronets, Jennifer (Lower Willamette Group)	R10: Humphrey, Chip (EPA)	PAPER DOCUMENT	053-REMEDIAL/0531-Remedy Characterization
662507	06_07_12 email attachment; 2012-06-07 Response to DEQ Oregon Hot Spot Issues.	148	6 EML / Email	R10: Unknown, Unknown (Lower Willamette Group)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA), R10: Anderson, James, M (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
662916	06_07_12 email attachment; 2012-06-07 Response to DEQ Oregon Hot Spot Issues.	148	6 CORR / Correspondence	R10: Unknown, Unknown (Lower Willamette Group)	R10: Koch, Kristine, M (EPA), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
662529	06_08_12 email attachment; 2012-06-08 LWG Protectiveness Memorandum.	275	11 EML / Email	R10: Unknown, Unknown (Lower Willamette Group)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
1472160	Letter Transmitting DEA Bathymetric Survey CDs and DVDs.	69	1 LTR / Letter	R10: Strandhagen, Erik (Integral Consulting, Inc.)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	PAPER DOCUMENT	053-REMEDIAL/0531-Remedy Characterization
1396687	Re: Lower Willamette River, Monthly Progress Report for May 2012.	17,795	14 CORR / Correspondence	R10: Woronets, Jennifer (Lower Willamette Group)	R10: Humphrey, Chip (EPA)	PAPER DOCUMENT	053-REMEDIAL/0531-Remedy Characterization
662750	06_14_12 email; FINAL_2012_May_Progress_Report.	139	14 EML / Email	R10: Woronets, Jennifer (Lower Willamette Group)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
663005	06_14_12 email attachment; FINAL_2012_May_Progress_Report.	139	14 CORR / Correspondence	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
711128	Portland Harbor RI/FS Draft Baseline Human Health Risk Assessment BHHRA Comment Letter.	772	4 CORR / Correspondence	R10: Humphrey, Chip (EPA)	R10: Wyatt, Bob (Lower Willamette Group)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
715200	EPA's comments on the Lower Willamette Group's May 2, 2011 Draft Baseline Human Health Risk Assessment.	760	4 RPT / Report	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	R10: Wyatt, Bob (Lower Willamette Group)	PAPER DOCUMENT	053-REMEDIAL/0531-Remedy Characterization
662911	06_29_12 email attachment; 2012-06-29 LWG Response to EPA Directed Modifications and Additional Comments on BHHRA.	36	2 EML / Email	R10: Wyatt, Bob (Lower Willamette Group)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
663051	06_29_12 email attachment; 2012-06-29 LWG Response to EPA Directed Modifications and Additional Comments on BHHRA.	36	2 CORR / Correspondence	R10: Wyatt, Bob (Lower Willamette Group)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
1396934	Lower Willamette River, Monthly Progress Report for June 2012.	3,331	11 CORR / Correspondence	R10: Woronets, Jennifer (Lower Willamette Group)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	PAPER DOCUMENT	053-REMEDIAL/0531-Remedy Characterization
663101	07_13_12 email attachment; FINAL_2012_06_Progress_Report.	118	11 CORR / Correspondence	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
663102	07_13_12 email; June 2012 Portland Harbor Monthly Progress Report.	80	3 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
663188	07_13_12 email attachment; FINAL_2012_06_Progress_Report.	118	11 EML / Email	R10: Woronets, Jennifer (Lower Willamette Group)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
663113	7/17/2012 07_17_12 email; 2012 Fish Tissue Sampling.	51	2 EML / Email	R10: Mckenna, Jim (Lower Willamette Group)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
663198	7/17/2012 07_17_12 email; 2012 Fish Tissue Sampling.	51	2 EML / Email	R10: Mckenna, Jim (Unknown)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
663115	07_18_12 email attachment; 2012-07-18 LWG Letter to EPA Regarding June 22, 2012 Comments on BHHRA.	42	3 CORR / Correspondence	R10: Unknown, Unknown (Lower Willamette Group)	R10: Cora, Lori, H (EPA), R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
663199	07_18_12 email attachment; 2012-07-18 LWG Letter to EPA Regarding June 22, 2012 Comments on BHHRA.	42	3 EML / Email	R10: Unknown, Unknown (Lower Willamette Group)	R10: Cora, Lori, H (EPA), R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
1396891	Re: Lower Willamette River, Portland Harbor Superfund.	951	3 CORR / Correspondence	R10: Unknown, Unknown (Lower Willamette Group)	R10: Cora, Lori, H (EPA), R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	PAPER DOCUMENT	053-REMEDIAL/0531-Remedy Characterization
663222	07_23_12 email; EPA comments on Draft Final BERA.	17	2 EML / Email	R10: Wyatt, Bob (Lower Willamette Group)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
672538	LWG Notice of Objection and Request for Dispute Resolution.	58	7 CORR / Correspondence	R10: Unknown, Unknown (Lower Willamette Group)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
696728	2012-07-23 LWG Notice of Objection and Request for Dispute Resolution.	59	7 CORR / Correspondence	R10: Unknown, Unknown (Lower Willamette Group)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
696729	2012-07-23 Table 1 Deficiencies Identified by EPA in its June 22, 2012 Cover Letter.	10,559	6 RPT / Report	R10: Koch, Kristine, M (EPA)	R10: Unknown, Unknown (Lower Willamette Group)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
696730	2012-07-23 Table 2 General Categories of LWG Objections to EPA June 22, 2012 Revisions.	24,635	11 RPT / Report	R10: Koch, Kristine, M (EPA)	R10: Unknown, Unknown (Lower Willamette Group)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
696731	2012-07-23 Table of Contents For Dispute Resolution Package.	138	1 RPT / Report	R10: Koch, Kristine, M (EPA)	R10: Unknown, Unknown (Lower Willamette Group)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
1432318	Notice of Objection to EPA Notice of Non-Compliance and Directed Revisions to the Portland Harbor Draft Final Baseline Human Health Risk Assessment and Request for Dispute Resolution.	40,826	25 RPT / Report	R10: Unknown, Unknown (Lower Willamette Group)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100005935	REDACTED Portland Harbor RI/FS Notice of Objection to EPA Notice of Non-Compliance and Directed Revisions to the Portland Harbor Draft Final Baseline Human Health Risk Assessment and Request for Dispute Resolution.	14,445	1397 RPT / Report	R10: Koch, Kristine, M (EPA)	R10: Unknown, Unknown (Lower Willamette Group)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100005937	REDACTED 2012-07-23 Dispute Resolution Supporting Documentation.	14,445	1397 RPT / Report	R10: Blischke, Eric, L (Oregon Dept. of Environmental Quality), R10: Humphrey, Chip (Department of Environmental Quality)	R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
672283	LWG Tabulated Issues Associated with EPA's Modified Draft Final BHHRA.	42	3 CORR / Correspondence	R10: Wyatt, Robert, J (Northwest Natural Gas Company)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
668394	08_16_12 email attachment; Final_2012_07_Progress_Report.	147	14 CORR / Correspondence	R10: Woronets, Jennifer (Lower Willamette Group)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (Department of Environmental Quality)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
1396927	Lower Willamette River, Portland Harbor, Monthly Progress Report for July 2012.	4,543	14 CORR / Correspondence	R10: Woronets, Jennifer (Lower Willamette Group)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	PAPER DOCUMENT	053-REMEDIAL/0531-Remedy Characterization
706655	09_12_12 email attachment; FINAL_2012_08_Progress_Report.	135	12 EML / Email	R10: Woronets, Jennifer (Lower Willamette Group)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (Department of Environmental Quality)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
1396944	Lower Willamette River Monthly Progress Report for August 2012.	5,709	12 CORR / Correspondence	R10: Woronets, Jennifer (Lower Willamette Group)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	PAPER DOCUMENT	053-REMEDIAL/0531-Remedy Characterization
500001136	09_12_12 email attachment; FINAL_2012_08_Progress_Report.	139	12 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
672134	email; Portland Harbor BHHRA informal dispute extension request.	172	3 CORR / Correspondence	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Cora, Lori, H (EPA), R10: Yamamoto, Deborah, J (EPA), R10: Grandinetti, Carmela (Cami), L (EPA), R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
672135	9/14/2012 email; Portland Harbor BHHRA.	86	2 CORR / Correspondence	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
706657	09_18_12 email attachment; LWG responses to EPA draft final BERA comments 18 September 2012.	644	34	R10: Woronets, Jennifer (Lower Willamette Group)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (Department of Environmental Quality)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization

1432322	9/21/2012	Lower Willamette Group Opening Submission - Formal Dispute on EPA Notice of Non-Compliance and Directed Revisions to the Portland Harbor Draft Final Baseline Human Health Risk Assessment and Request for Dispute Resolution.	476,641	225 RPT / Report	R10: Unknown, Unknown (Lower Willamette Group)	R10: Koch, Kristine, M (EPA)	PAPER DOCUMENT	053-REMEDIAL/0531-Remedy Characterization
1432444	9/21/2012	Supporting Documentation for the July 12, 2013 LWG Combined Notice of Objection and Request for Dispute Resolution of EPA's Notice of Demand for Payment of Stipulated Penalties Regarding BHHRA and Request for Determination.	69,063	172 RPT / Report	R10: Unknown, Unknown (Lower Willamette Group)	R10: Albright, Richard, G (EPA), R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	PAPER DOCUMENT	053-REMEDIAL/0531-Remedy Characterization
677199	10/8/2012	10_08_12 email; Government-to-Government Meeting Regarding Portland Harbor Superfund Site	83	1 CORR / Correspondence	R10: Longoria, Rose (Yakama Nation)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
1396917	10/11/2012	Lower Willamette River, Monthly Progress Report for September 2012.	5,334	12 CORR / Correspondence	R10: Woronets, Jennifer (Lower Willamette Group)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	PAPER DOCUMENT	053-REMEDIAL/0531-Remedy Characterization
500001248	10/11/2012	10_11_12 email; September 2012 Portland Harbor Monthly Progress Report	128	12 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
1432323	10/24/2012	Lower Willamette Group Reply to EPA Submission Formal Dispute on EPA Notice of Non-Compliance and Directed Revisions to the Portland Harbor Draft Final Baseline Human Health Risk Assessment and Request for Dispute Resolution.	19,912	30 RPT / Report	R10: Unknown, Unknown (Lower Willamette Group)	R10: Opalski, Daniel, D (EPA)	PAPER DOCUMENT	053-REMEDIAL/0531-Remedy Characterization
711126	10/25/2012	Portland Harbor RI/FS Baseline Human Health Risk Assessment BHHRA Dispute Partial Resolution.	822	2 RPT / Report	R10: Opalski, Daniel, D (EPA)	R10: Unknown, Unknown (File)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
715199	10/25/2012	Baseline Human Health Risk Assessment Dispute Decision Memo - Partial Resolution.	822	2 RPT / Report	R10: Opalski, Daniel, D (EPA)	R10: Unknown, Unknown (File)	PAPER DOCUMENT	053-REMEDIAL/0531-Remedy Characterization
1432147	10/25/2012	Formal Dispute on the EPA Notice of Non-Compliance and Directed Revisions to the Portland Harbor Draft Final BHHRA and Request for Dispute Resolution; Administrative Settlement Agreement and Order on Consent for RI/FS, Partial Resolution.	126	2 CORR / Correspondence	R10: Opalski, Daniel, D (EPA)	R10: Unknown, Unknown (Unknown)	PAPER DOCUMENT	053-REMEDIAL/0531-Remedy Characterization
1432316	10/25/2012	Memorandum regarding Formal Dispute on the EPA Notice of Non-Compliance and Directed Revisions to the Portland Harbor Draft Final Baseline Human Health Risk Assessment and Request for Dispute Resolution, Partial Resolution.	3,306	2 CORR / Correspondence	R10: Opalski, Daniel, D (EPA)	R10: Koch, Kristine, M (EPA)	PAPER DOCUMENT	053-REMEDIAL/0531-Remedy Characterization
500001269	10/25/2012	10_25_12 email attachment; 2012-10-25 Bass Sampling Memo.	6,998	16 EML / Email	R10: Wyatt, Robert, J (NW Natural)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
1396906	11/21/2012	Lower Willamette River Monthly Progress Report for October 2012.	5,239	12 CORR / Correspondence	R10: Unknown, Unknown (Unknown)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	PAPER DOCUMENT	053-REMEDIAL/0531-Remedy Characterization
500001453	11/21/2012	11_21_12 email attachment; FINAL_2012_10_Progress_Report.	137	12 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
500001545	11/28/2012	11_28_12 email; Letter from Five Tribes regarding the BERA.	32	1 EML / Email	R10: Madden, Erin (Cascadia Law Group)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
500001546	11/28/2012	11_28_12 email attachment; BERA_letter_re_species_importance_FINAL.	115	2 EML / Email	R10: Madden, Erin (Cascadia Law Group)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
677124	12/7/2012	12_07_12 email; Final Resolution.	30	1 CORR / Correspondence	R10: Opalski, Daniel, D (EPA)	R10: Cora, Lori, H (EPA), R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
711125	12/7/2012	Portland Harbor RI/FS Baseline Human Health Risk Assessment BHHRA Dispute Final Resolution.	993	10 RPT / Report	R10: Opalski, Daniel, D (EPA)	R10: Unknown, Unknown (File)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
680463	12/17/2012	12_17_12 email attachment; Final_2012_11_Progress_Report.	141	12 CORR / Correspondence	R10: Woronets, Jennifer (Lower Willamette Group)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
711132	12/21/2012	Portland Harbor RI/FS EPA Supplemental Comments on the Portland Harbor RI/FS Draft Baseline Ecological Risk Assessment.	938	44 RPT / Report	R10: Humphrey, Chip (EPA)	R10: Wyatt, Bob (Lower Willamette Group)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
715195	12/21/2012	EPA comments on the RI/FS Draft Baseline Ecological Risk Assessment.	938	44 RPT / Report	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	R10: Wyatt, Bob (Lower Willamette Group)	PAPER DOCUMENT	053-REMEDIAL/0531-Remedy Characterization
679168	1/11/2013	01_11_13 email attachment; FINAL_2012_12_Progress_Report.	137	12 CORR / Correspondence	R10: Woronets, Jennifer (Lower Willamette Group)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
1396897	1/11/2013	Lower Willamette River, Monthly Progress Report for December 2012.	4,546	12 CORR / Correspondence	R10: Woronets, Jennifer (Lower Willamette Group)	R10: Humphrey, Chip (EPA)	PAPER DOCUMENT	053-REMEDIAL/0531-Remedy Characterization
711227	1/14/2013	Proposed Confined Disposal Facility Questions and Answers.	101	19 CORR / Correspondence	R10: Unknown, Unknown (EPA)		ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
713375	1/14/2013	Confined Disposal Facility (CDF) Frequently Asked Questions.	131	20	R10: Unknown, Unknown (Unknown)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
709194	1/18/2013	01_18_13 email; EPA Comments on Draft Final BERA Request for Extension to Invoke Dispute.	64	2 CORR / Correspondence	R10: Mckenna, James, J (McKenna Environmental, LLC)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
709255	1/29/2013	01_29_13 email; Notes from January 28 EPA Modeling Call.	109	1 CORR / Correspondence	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
709420	1/29/2013	01_29_13 email; Notes from January 28 EPA Modeling Call.	110	1 CORR / Correspondence	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
709630	2/11/2013	02_11_13 email; Draft Meeting Action Items Tables.	54	1 CORR / Correspondence	R10: Mckenna, Jim (Unknown)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
709647	2/14/2013	02_14_13 email attachment; FINAL_2013-01_Progress_Report.	143	14 CORR / Correspondence	R10: Woronets, Jennifer (Lower Willamette Group)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
709651	2/14/2013	02_14_13 email; Notes on Conference Call on Revised FS February 14, 2013.	139	2 CORR / Correspondence	R10: Woronets, Jennifer (Lower Willamette Group)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
709786	3/5/2013	03_05_13 email; Food Web Model and PRGs.	59	2 CORR / Correspondence	R10: Mckenna, James, J (McKenna Environmental, LLC)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
687204	3/6/2013	03_15_13 email attachment; PH GW flux	54	2 EML / Email	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
709856	3/15/2013	03_15_13 email attachment; FINAL_2013_02_Progress_Report.	142	13 CORR / Correspondence	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
709901	3/20/2013	03_20_13 email; Portland Harbor - Approximate Feedback Analysis Presentation.	124	2 CORR / Correspondence	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
710320	3/24/2013	03_24_14 email; Suggested March 27 Meeting Agenda.	92	1 FIG / Figure/Map/ Drawing	R10: Stivers, Carl (Anchor QEA, LLC)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
687176	3/28/2013	Final RI full Report regarding Appendix F: Baseline Human Health Risk Assessment.	59,265	3206 RPT / Report	R10: Unknown, Unknown (Kennedy/Jenks/Chilton)	R10: Unknown, Unknown (Lower Willamette Group)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
710510	3/29/2013	03_29_13 email; March 28th Action Items and Assignments.	49	1 CORR / Correspondence	R10: Mckenna, James, J (McKenna Environmental, LLC)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
710763	4/5/2013	04_05_13 email; Monthly Portland Harbor Project Managers Meeting Project Summary.	64	2 CORR / Correspondence	R10: Mckenna, James, J (McKenna Environmental, LLC)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
710802	4/8/2013	04_08_13 email; March 28th Action Items and Assignments.	53	1 CORR / Correspondence	R10: Mckenna, James, J (McKenna Environmental, LLC)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
715194	4/10/2013	Notice of Assessment and Stipulated Penalties Letter to Lower Willamette Group.	266	3 RPT / Report	R10: Cohen, Lori, G (EPA)	R10: Wyatt, Bob (Lower Willamette Group)	PAPER DOCUMENT	053-REMEDIAL/0531-Remedy Characterization
100005934	4/10/2013	REDACTED EPA Response to LWG Dispute Exhibits: Exhibit 4(1)a - Re: EPA Response and Comments on the Portland Harbor RI/FS Programmatic Work Plan, March 31, 2003.	261	68 RPT / Report	R10: Humphrey, Chip (EPA)	R10: Mckenna, Jim (Lower Willamette Group), R10: Wyatt, Robert (Lower Willamette Group)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization



					R10: Werth, Michael (Unknown), R10: Shellenberger, Amanda (Anchor Environmental, LLC), R10: Stivers, Carl (Anchor Environmental, LLC), R10: Wyatt, Bob (Northwest Natural Gas Company), R10: Russell, Kevin, T (Quantitative Environmental Analysis, L.L.C.), R10: Glaser, David (Quantitative Environmental Analysis, L.L.C.), R10: Mckenna, James, J (McKenna Environmental, LLC), R10: Hayter, Earl, J (EPA), R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA), R10: Ziegler, C. Kirk (Anchor QEA, LLC), R10: Woronets, Jennifer (Anchor QEA, LLC), R10: King, Todd (CDM Smith)			
710823	4/11/2013	04_11_13 email; Additional EPA Requests on Analysis of Approximate Feedback in HST Model.	136	2	FIG / Figure/Map/ Drawing	R10: Woronets, Jennifer (Anchor QEA, LLC)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
710868	4/12/2013	04_12_13 email attachment; FINAL_2013_04_Progress_Report.	143	13	CORR / Correspondence	R10: Woronets, Jennifer (Lower Willamette Group)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
710956	4/23/2013	04_23_13 email; Preserved 2012 Fish Tissue.	53	1	CORR / Correspondence	R10: Mckenna, James, J (McKenna Environmental, LLC)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
711906	5/14/2013	05_14_13 email attachment; FINAL_2013_05_Progress_Report.	142	13	CORR / Correspondence	R10: Woronets, Jennifer (Lower Willamette Group)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
1432103	5/14/2013	Re: Lower Willamette River, Portland Harbor Monthly Progress Report for April 2013.	5,718	13	CORR / Correspondence	R10: Woronets, Jennifer (Lower Willamette Group)	PAPER DOCUMENT	053-REMEDIAL/0531-Remedy Characterization
711940	5/21/2013	05_21_13 email; Advance copy of EPA modifications to final BERA.	48	1	CORR / Correspondence	R10: Mckenna, James, J (McKenna Environmental, LLC)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
711951	6/5/2013	06_05_13 email; Residuals Request.	125	3	CORR / Correspondence	R10: Stivers, Carl (Anchor QEA, LLC)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
712052	6/12/2013	06_12_13 email; Portland Harbor 2012 Smallmouth Bass Tissue Sampling Results EPA HQ Brief.	64	1	CORR / Correspondence	R10: Woronets, Jennifer (Anchor QEA, LLC)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
712084	6/14/2013	06_14_13 email attachment; FINAL_2013_06_Progress_Report.	141	13	CORR / Correspondence	R10: Woronets, Jennifer (Lower Willamette Group)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
1432433	6/14/2013	Lower Willamette River, Portland Harbor Superfund Site Monthly Progress Report for May 2013.	22,394	13	RPT / Report	R10: Woronets, Jennifer (Lower Willamette Group)	PAPER DOCUMENT	053-REMEDIAL/0531-Remedy Characterization
712945	7/12/2013	07_12_13 email attachment; FINAL_2013_06_Progress_Report.	141	13	CORR / Correspondence	R10: Woronets, Jennifer (Lower Willamette Group)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
1175816	7/12/2013	07_15_13 email attachment; 2013-07-12 LWG Combined Notice Of Objection to and Request for Dispute R...	460	16	EML / Email	R10: Unknown, Unknown (The Lower Willamette Group)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
1432423	7/12/2013	Lower Willamette River, Monthly Progress Report for June 2013.	23,614	13	CORR / Correspondence	R10: Woronets, Jennifer (Lower Willamette Group)	PAPER DOCUMENT	053-REMEDIAL/0531-Remedy Characterization
1432443	7/12/2013	Re: Combined Notice of Objection to and Request for Dispute Resolution of EPA's Notice of Demand for Payment of Stipulated Penalties regarding Baseline Human Health Risk Assessment and Request for Determination; Lower Willamette River.	5,030	18	RPT / Report	R10: Unknown, Unknown (Lower Willamette Group)	PAPER DOCUMENT	053-REMEDIAL/0531-Remedy Characterization
715277	7/23/2013	07_23_13 email; Eco Significance Revisions to the BERA.	54	1	CORR / Correspondence	R10: Mckenna, James, J (McKenna Environmental, LLC)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
500000604	7/25/2013	07_25_13 email; Portland Harbor BERA Updated Sections ES13 and 3_4_1.	59	2	EML / Email	R10: Mckenna, James (Verdant Solutions, LLC)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
500000602	7/26/2013	07_26_13 email; Revised Draft Eco Significance Text and Table.	57	2	EML / Email	R10: Mckenna, James (Verdant Solutions, LLC)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
500000603	7/27/2013	07_27_13 email; Revised Draft Eco Significance Text and Table.	94	3	EML / Email	R10: Mckenna, James (Verdant Solutions, LLC)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
500002350	7/27/2013	07_27_13 email; Portland Harbor BERA Updated Section ES13 and 3_4_1.	52	1	EML / Email	R10: Shephard, Burt (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
500000664	7/31/2013	07_31_13 email; Final Draft Eco Significance Text and Table.	58	1	EML / Email	R10: Mckenna, James (Verdant Solutions, LLC)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
713363	8/1/2013	Portland Harbor RI/FS Human Health Risk Assessment Summary.	780	4		R10: Koch, Kristine, M (EPA), R10: Conley, Alanna (EPA), R10: Humphrey, Chip (EPA), R10: Allen, Elizabeth (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
1432411	8/15/2013	Lower Willamette River, Monthly Progress Report for July 2013.	25,699	15	CORR / Correspondence	R10: Woronets, Jennifer (Lower Willamette Group)	PAPER DOCUMENT	053-REMEDIAL/0531-Remedy Characterization
707295	9/9/2013	09_09_13 email; Timeline Proposed Plan to ROD.	11	1	EML / Email	R10: Madden, Erin (Nez Perce Tribe)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
500001141	9/13/2013	09_16_13 email attachment; FINAL_2013_08_Progress_Report.	142	13	EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
1432441	9/19/2013	Swan Island Basin Fate and Transport Analysis Presentation to EPA.	61,542	34		R10: Bey, Richard, A (Short Cressman & Burgess PL)	PAPER DOCUMENT	053-REMEDIAL/0531-Remedy Characterization
500001231	9/25/2013	09_25_13 email; EPA final BERA revisions.	57	2	EML / Email	R10: Mckenna, James (Verdant Solutions, LLC)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
500002356	10/11/2013	10_01_13 email attachment; FINAL_2013_09_Progress_Report.	144	14	EML / Email	R10: Woronets, Jennifer (Lower Willamette Group)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
1432403	11/15/2013	Lower Willamette River, Monthly Progress Report.	25,673	13	CORR / Correspondence	R10: Woronets, Jennifer (Lower Willamette Group)	PAPER DOCUMENT	053-REMEDIAL/0531-Remedy Characterization
1432404	11/15/2013	Lower Willamette River, Monthly Progress Report.	24,276	14	CORR / Correspondence	R10: Woronets, Jennifer (Lower Willamette Group)	PAPER DOCUMENT	053-REMEDIAL/0531-Remedy Characterization
500001441	11/15/2013	11_15_13 email attachment; FINAL_2013_10_Progress_Report.	149	13	EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
500001581	12/3/2013	12_03_13 email; EPA Final BERA Comments; Draft Recommended Responses_Need for Clarification.	52	1	EML / Email	R10: Mckenna, James (Verdant Solutions, LLC)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
1432492	12/12/2013	Lower Willamette River, Portland Harbor Superfund Site Monthly Progress Report for November 2013.	33,233	13	RPT / Report	R10: Woronets, Jennifer (Lower Willamette Group)	PAPER DOCUMENT	053-REMEDIAL/0531-Remedy Characterization
500001680	12/12/2013	12_12_13 email attachment; FINAL_2013_11_Progress_Report.	143	13	EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
500001682	12/13/2013	12_13_13 email; Production of the Final BERA.	51	1	EML / Email	R10: Mckenna, James (Verdant Solutions, LLC)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
500002413	12/16/2013	12_16_13 email; GIS layers posted.	85	1	EML / Email	R10: Toll, John (Windward Environmental, LLC.)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
707313	1/7/2014	01_07_14 email; Yamama Nation Letter to EPA Superfund Director regarding Portland Harbor Superfund cleanup.	51	1	EML / Email	R10: Tosch, McClure (Yakama Nation)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
708150	1/7/2014	E-Mail Stating That Unfortunately, Due to Bad Weather, Yakima Nation Will Not Be Able To Attend the Meeting Today With James Woolford and Dennis McLerran Regarding Portland Harbor; Reference to Letter Outlining Yakima's Expectations for Cleanup.	1,387	1	EML / Email	R10: Tosch, McClure (Yakama Nation)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
709120	1/15/2014	01_15_14 email attachment; FINAL_2013_12_Progress_Report.	166	15	CORR / Correspondence	R10: Woronets, Jennifer (Lower Willamette Group)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
709122	1/15/2014	01_15_14 email; Portland Harbor January 16 Revision Process and Schedule Meeting.	63	1	EML / Email	R10: Woronets, Jennifer (Lower Willamette Group)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
709385	1/15/2014	01_15_14 email attachment; FINAL_2013_12_Progress_Report.	149	15	CORR / Correspondence	R10: Woronets, Jennifer (Lower Willamette Group)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
1432482	1/15/2014	Letter regarding Lower Willamette River, Portland Harbor Superfund Site Monthly Progress Report for December 2013.	36,119	15	CORR / Correspondence	R10: Woronets, Jennifer (Lower Willamette Group)	PAPER DOCUMENT	053-REMEDIAL/0531-Remedy Characterization
709196	1/21/2014	01_21_14 email; EPA Request for Additional GIS Layers.	144	1	CORR / Correspondence	R10: Shellenberger, Amanda (Anchor Environmental, LLC)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
709404	1/21/2014	01_21_14 email; EPA Request for Additional GIS Layers.	145	1	CORR / Correspondence	R10: Shellenberger, Amanda (Anchor Environmental, LLC)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization

699273	1/24/2014	Letter regarding Dispute of EPA Comments, Arkema Inc. Portland Facility Administrative Order on Consent (AOC) for Removal Action U.S. EPA Region 10 Docket No. CERCLA 10-2005-0191.	661	25	CORR / Correspondence	R10: Slater, J. Todd (Legacy Site Services, LLC)	R10: Sheldrake, Sean, A (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
709642	2/13/2014	02_13_14 email attachment; FINAL_2014_01_Progress_Report.	142	14	CORR / Correspondence	R10: Woronets, Jennifer (Lower Willamette Group)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
709706	2/14/2014	02_14_14 email; Portland Harbor - Status of Draft COC Selection Table.	64	1	CORR / Correspondence	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
1468606	2/14/2014	Correspondence regarding Lower Willamette River, Portland Harbor Superfund Site, January 2014 Monthly Progress Report.	33,641	14	CORR / Correspondence	R10: Woronets, Jennifer (Lower Willamette Group)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	PAPER DOCUMENT	053-REMEDIAL/0531-Remedy Characterization
709845	3/14/2014	03_14_14 email attachment; FINAL_2014_02_Progress_Report.	155	14	CORR / Correspondence	R10: Woronets, Jennifer (Lower Willamette Group)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
1468607	3/14/2014	Correspondence regarding Lower Willamette River, Portland Harbor Superfund Site, February 2014 Monthly Progress Report.	29,988	14	CORR / Correspondence	R10: Woronets, Jennifer (Lower Willamette Group)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	PAPER DOCUMENT	053-REMEDIAL/0531-Remedy Characterization
705131	4/11/2014	Email regarding PTW Memo.	45	1	EML / Email	R10: Sheldrake, Sean, A (EPA)	R10: Mckenna, Jim (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
1176273	5/1/2014	Field and Data Report: River Mile 6 East Focused Sediment Characterization.	125,921	362	ADD / Analytical Data Document	R10: Carroll, Erin (GSI Water Solutions, Inc.), R10: Demsey, Karen (GSI Water Solutions, Inc.)	R10: Unknown, Unknown (City of Portland Environmental Services)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
1176276	5/1/2014	Field and Data Report: River Mile 6 East Focused Sediment Characterization: Appendix H Data File.	1,656	1	ADD / Analytical Data Document	R10: Carroll, Erin (GSI Water Solutions, Inc.), R10: Demsey, Karen (GSI Water Solutions, Inc.)	R10: Unknown, Unknown (City of Portland Environmental Services)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
707138	6/6/2014	Email regarding Revised PTW Evaluation Memo.	44	1	EML / Email	R10: Sheldrake, Sean, A (EPA)	R10: Woronets, Jennifer (Anchor QEA, LLC)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
500002103	6/27/2014	Portland Harbor HEC-RAS Model Transfer: Calibrations and Flood Simulation Files.	1,681,830	1	ADD / Analytical Data Document	R10: Unknown, Unknown (Anchor QEA, LLC)	R10: Unknown, Unknown (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
712658	9/14/2014	Letter regarding EPA Comments on Supplemental Remedial Investigation/Feasibility Study Field Sampling and Data Report, River Mile 11 East, Portland, Oregon, (dated July 2014), CERCLA Docket No. 10-2013-0087.	123	3	CORR / Correspondence	R10: Sheldrake, Sean, A (EPA)	R10: Wetzsteon, Jacqueline, T (PacifiCorp)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100006046	10/8/2014	REDACTED Email regarding Transmittal of the Final Field Sampling and Data Report.	81	3	EML / Email	R10: Sheldrake, Sean, A (EPA)	R10: Wetzsteon, Jacqueline, T (PacifiCorp)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
500002809	10/16/2014	Email regarding Reply to Post-dredge Grab Sample Summary of Maintenance Dredging 2014.	25,838	700	CORR / Correspondence	R10: Steckman, Larry, D (Norwest Engineering), R10: Perleberg, Brian (Northern Resource Consulting, Inc.)	R10: Mcmillian, James, M (U. S. Army Corps of Engineers), R10: Freedman, Jonathan (EPA), R10: Ladoucer, Michael, A (U.S. Army Corps of Engineers)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100005256	11/12/2014	Letter regarding Lower Willamette River, Portland Harbor Superfund Site - FINAL_2014_10_Progress_Report.	128	12	CORR / Correspondence	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100005258	12/11/2014	Letter regarding Lower Willamette River, Portland Harbor Superfund Site - FINAL_2014_11_Progress_Report.	292	14	CORR / Correspondence	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100005270	1/19/2015	Letter regarding Lower Willamette River, Portland Harbor Superfund Site - FINAL_2014_12_Progress_Report.	289	13	CORR / Correspondence	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100005272	2/13/2015	Letter regarding Lower Willamette River, Portland Harbor Superfund Site - FINAL_2015_01_Progress_Report.	288	12	CORR / Correspondence	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100005274	3/13/2015	Letter regarding Lower Willamette River, Portland Harbor Superfund Site - FINAL_2015_02_Progress_Report.	286	12	CORR / Correspondence	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
500002811	4/23/2015	Email regarding WARNING: A/V UNSCANNABLE) Portland Harbor Administrative Record - Shore Terminals document.	80	1	EML / Email	R10: Peterson, Lance (CDM)	R10: Sheldrake, Sean, A (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
500002813	4/24/2015	Email regarding Potential DEQ Oversight of Inwater Work.	50	1	EML / Email	R10: Parrett, Kevin (Oregon Dept. of Environmental Quality)	R10: Wetzsteon, Jacqueline, T (PacifiCorp)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
500002852	4/27/2015	Email regarding Draft Summary Report Talking Points.	88	2	EML / Email	R10: Muza, Richard (EPA)	R10: Sheldrake, Sean, A (EPA), R10: Robinson, Deborah, G (EPA), R10: Cohen, Lori, G (EPA), R10: Yamamoto, Deborah, J (EPA), R10: Grandinetti, Carmela (Cami), L (EPA), R10: Koch, Kristine, M (EPA), R10: Christopher, Anne (EPA), R10: Allen, Elizabeth (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
500004189	5/13/2015	Portland Harbor Source Control. Assessment of DEQ Uplands Source Control Efforts at the Portland Harbor Superfund Site	380,962	1	CORR / Correspondence	R10: Unknown, Unknown (Unknown)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
500004191	5/14/2015	April 2015.	450	10	CORR / Correspondence	R10: Unknown, Unknown (Unknown)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
1412928	6/10/2015	Offer of consultation and coordination with tribes on pending EPA actions at the Portland Harbor Superfund Site.	19,212	12	LTR / Letter	R10: McLerran, Dennis, J (EPA)	R10: Burke, Gary (Confederated Tribes of the Umatilla Indian Reservation), R10: Pigsley, Delores (Confederated Tribes of the Siletz Indians), R10: Leno, Reynold, L (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Green, Eugene (Confederated Tribes of Warm Springs), R10: Johnson, Anthony, D (Nez Perce Tribe), R10: Groudy, Jode, L (Yakima Nation)	PAPER DOCUMENT	053-REMEDIAL/0531-Remedy Characterization
500006693	6/10/2015	Letter regarding consultation and coordination.	1,757	2	CORR / Correspondence	R10: McLerran, Dennis, J (EPA)	R10: Burke, Gary (Confederated Tribes of the Umatilla Indian Reservation)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
500006694	6/10/2015	Letter regarding consultation and coordination.	1,750	2	CORR / Correspondence	R10: McLerran, Dennis, J (EPA)	R10: Goudy, Jode, L (Yakima Nation)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
500006695	6/10/2015	Letter regarding consultation and coordination.	1,783	2	CORR / Correspondence	R10: McLerran, Dennis, J (EPA)	R10: Green, Eugene (Confederated Tribes of Warm Springs)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
500006696	6/10/2015	Letter regarding consultation and coordination.	1,710	2	CORR / Correspondence	R10: McLerran, Dennis, J (EPA)	R10: Johnson, Anthony, D (Nez Perce Tribe)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
500006697	6/10/2015	Letter regarding consultation and coordination.	1,748	2	CORR / Correspondence	R10: McLerran, Dennis, J (EPA)	R10: Leno, Reynold, L (Confederated Tribes of the Grand Ronde Community of Oregon)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100006142	6/11/2015	REDACTED Email regarding Invitation for Government-to-Government Consultation with EPA on the Portland Harbor Superfund Site Conceptual Cleanup Plan.	83	1	EML / Email	R10: McLerran, Dennis, J (EPA)	R10: Moses, Gabriel (Nez Perce Tribe)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
500006687	6/11/2015	Email regarding Invitation for Government-to-Government Consultation with EPA on the Portland Harbor Superfund Site Conceptual Cleanup Plan.	81	1	EML / Email	R10: McLerran, Dennis, J (EPA)	R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
500006688	6/11/2015	Email regarding Invitation for Government-to-Government Consultation with EPA on the Portland Harbor Superfund Site Conceptual Cleanup Plan.	81	1	EML / Email	R10: McLerran, Dennis, J (EPA)	R10: Longoria, Rose (Yakama Nation)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
500006691	6/11/2015	Email regarding Invitation for Government-to-Government Consultation with EPA on the Portland Harbor Superfund Site Conceptual Cleanup Plan.	81	1	EML / Email	R10: McLerran, Dennis, J (EPA)	R10: Partridge, Holly (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Daquila, Kim (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Karnosh, Michael (Confederated Tribes of the Grand Ronde Community of Oregon)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
500006692	6/11/2015	Email regarding Invitation for Government-to-Government Consultation with EPA on the Portland Harbor Superfund Site Conceptual Cleanup Plan.	81	1	EML / Email	R10: McLerran, Dennis, J (EPA)	R10: Unknown, Unknown (Confederated Tribes of Siletz Indians), R10: Weis, Julie (Haglund Kelley Jones & Wilder LLP)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
1412922	6/23/2015	Monthly Progress Report for May 2015.	28,910	13	LTR / Letter	R10: Woronets, Jennifer (Lower Willamette Group)	R10: Koch, Kristine, M (EPA)	PAPER DOCUMENT	053-REMEDIAL/0531-Remedy Characterization
500006705	6/23/2015	Email regarding Certain Teed aka GS Roofing.	71	2	EML / Email	R10: Sheldrake, Sean, A (EPA)	R10: Demaria, Eva (Unknown), R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100001802	7/7/2015	Gauge Height in Feet, Morrison Street Bridge image002.	26	1	CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization

500013944	7/9/2015	Letter regarding requested meeting.	364	2	CORR / Correspondence	R10: Cusma, Mathew, J (Schnitzer Steel Industries, Inc.), R10: Wolf, Frederick (Legacy Site Services, LLC)	R10: Woolford, James, E (EPA), R10: Grandinetti, Cami (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
1412918	7/15/2015	Monthly Progress Report for June 2015.	30,976	13	LTR / Letter	R10: Woronets, Jennifer (Lower Willamette Group)	R10: Koch, Kristine, M (EPA)	PAPER DOCUMENT	053-REMEDIAL/0531-Remedy Characterization
500013943	8/5/2015	Letter regarding Request for Meeting with EPA to Discuss Sediment Sampling Study.	213	1	CORR / Correspondence	R10: Grandinetti, Cami (EPA)	R10: Cusma, Mathew, J (Schnitzer Steel Industries, Inc.), R10: Wolf, Frederick (Legacy Site Services, LLC)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
1412929	8/7/2015	Letter regarding natural recovery of sediments affected by PCBs in Portland Harbor (referenced CD with enclosures is not included).	9,202	9	LTR / Letter	R10: Cusma, Mathew, J (Schnitzer Steel Industries, Inc.), R10: Wolf, Frederick (Legacy Site Services, LLC), R10: Ring, J, W (BAE Systems San Diego Ship Repair Inc.), R10: Edwards, Deborah, A (ExxonMobil Oil Corporation), R10: Weaver, Elizabeth (Unknown)	R10: Woolford, James, E (EPA), R10: Grandinetti, Cami (EPA)	PAPER DOCUMENT	053-REMEDIAL/0531-Remedy Characterization
500013942	8/7/2015	Letter regarding Natural Recovery of Sediments Affected by PCBs in Portland Harbor.	589	9	CORR / Correspondence	R10: Cusma, Mathew, J (Schnitzer Steel Industries, Inc.), R10: Wolf, Frederick (Legacy Site Services, LLC)	R10: Woolford, James, E (EPA), R10: Grandinetti, Cami (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
500013956	8/7/2015	Cover Letter for Key Findings on Recent Investigations: Portland Harbor Superfund Site.	487	9	CORR / Correspondence	R10: Cusma, Mathew, J (Schnitzer Steel Industries, Inc.), R10: Wolf, Frederick (Legacy Site Services, LLC), R10: Ring, J, W (BAE Systems San Diego Ship Repair Inc.), R10: Edwards, Deborah, A (ExxonMobil Oil Corporation)	R10: Woolford, James, E (EPA), R10: Grandinetti, Cami (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
1412919	8/13/2015	Monthly Progress Report for July 2015.	31,332	13	LTR / Letter	R10: Woronets, Jennifer (Lower Willamette Group)	R10: Koch, Kristine, M (EPA)	PAPER DOCUMENT	053-REMEDIAL/0531-Remedy Characterization
500013952	9/1/2015	Email regarding Mitigation acres/cost calculations.	99	4	EML / Email	R10: Sheldrake, Sean, A (EPA)	R10: Angle, Genevieve (NOAA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
1412920	9/9/2015	Monthly Progress Report for August 2015.	31,419	13	LTR / Letter	R10: Woronets, Jennifer (Lower Willamette Group)	R10: Koch, Kristine, M (EPA)	PAPER DOCUMENT	053-REMEDIAL/0531-Remedy Characterization
500014010	9/10/2015	Email regarding LWG Model Predictions for Fish Tissue.	51	1	EML / Email	R10: Parrett, Kevin (Oregon Dept. of Environmental Quality)	R10: Sheldrake, Sean, A (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100006109	9/14/2015	REDACTED Email regarding Next Call Sept 14th at 1:15pm.	43	5	EML / Email	R10: Sanders, Dawn (City of Portland, Oregon), R10: Scheffler, Linda (City of Portland, Oregon), R10: Lafranchise, Nicole, M (Port of Portland), R10: Shellenberger, Amanda (Anchor Environmental, LLC), R10: Koch, Kristine, M (EPA), R10: Tarnow, Karen, E (Oregon Dept. of Environmental Quality), R10: Koulermos, Andrew, C (Newfields, Inc), R10: Spencer, Amanda, L (Ash Creek Associates, Inc.), R10: Jones, Laura (Integral Corporation)	R10: Stivers, Carl (Anchor Environmental, LLC)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100006088	10/7/2015	REDACTED Email regarding Submittal of Final RM11E Porewater Characterization Report.	118	3	EML / Email	R10: Ford, Bill (Lathrop & Gage), R10: Wetzsteon, Jacqueline, T (PacifiCorp)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
500018635	10/7/2015	Email regarding Submittal of Final RM11E Porewater Characterization Report.	115	3	EML / Email	R10: Ford, Bill (Lathrop & Gage), R10: Wetzsteon, Jacqueline, T (PacifiCorp)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
1412912	10/14/2015	Monthly Progress Report for September 2015.	27,823	13	LTR / Letter	R10: Woronets, Jennifer (Lower Willamette Group)	R10: Koch, Kristine, M (EPA)	PAPER DOCUMENT	053-REMEDIAL/0531-Remedy Characterization
1412913	11/11/2015	Monthly Progress Report for October 2015.	29,956	13	LTR / Letter	R10: Woronets, Jennifer (Lower Willamette Group)	R10: Koch, Kristine, M (EPA)	PAPER DOCUMENT	053-REMEDIAL/0531-Remedy Characterization
1412914	12/15/2015	Monthly Progress Report for November 2015.	29,800	13	LTR / Letter	R10: Woronets, Jennifer (Lower Willamette Group)	R10: Koch, Kristine, M (EPA)	PAPER DOCUMENT	053-REMEDIAL/0531-Remedy Characterization
100001536	12/31/2015	PORTLAND HARBOR SUPERFUND SITE NRRB RECOMMENDATIONS	2,794	11	MEMO / Memorandum	R10: Legare, Amy, R (National Remedy Review Board), R10: Ellis, Stephen, J (EPA)	R10: Albright, Richard, G (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100001537	1/21/2016	PORTLAND HARBOR SUPERFUND SITE REGIONAL RESPONSE TO NRRB RECOMMENDATIONS	636	19	MEMO / Memorandum	R10: Fleming, Sheila (EPA)	R10: Legare, Amy, R (National Remedy Review Board), R10: Ellis, Stephen, J (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
713085	Undated	Figure 5-14 Species Relabeling Check Sheet blank).	1,514	1		R10: Unknown, Unknown (Unknown)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
500003701	Undated	EPA comments on Section 11 of Round 2 Report.	1,158	17	RPT / Report	R10: Unknown, Unknown (EPA)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
500003766	Undated	EPA comments on Round 2A Field Sampling Plan Surface Water Sampling.	607	9	RPT / Report	R10: Unknown, Unknown (EPA)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
500003957	Undated	Agenda: EPA/USACE/DEQ Meeting: Regulatory Framework for Permitting Maintenance Dredging in Portland Harbor.	85	2	MTG / Meeting Document	R10: Unknown, Unknown (Unknown)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
500004152	Undated	Draft LWG Background Data Methods Proposal.	255	6	LTR / Letter	R10: Unknown, Unknown (Unknown)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
500004410	Undated	Procedures for "No-Rise" Certification For Proposed Developments in the Regulatory Floodway.	229	5	RPT / Report	R10: Unknown, Unknown (FEMA)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
500004414	Undated	"No Rise" Considerations.	102	3	RPT / Report	R10: Unknown, Unknown (FEMA)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
663228	7/27/2011	07_27_11 email attachment; FS Key Elements Check-in Revised RAL & Alternatives	248	4	FIG / Figure/Map/ Drawing	R10: Unknown, Unknown (Unknown)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
663242	8/11/2011	Comments 7-27-2011.	453	9	CORR / Correspondence	R10: Koch, Kristine, M. (EPA)	R10: Wyatt, Robert (Lower Willamette Group)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
663260	7/27/2011	Letter re Alternatives for FS development 8-11-2011.	248	4	CORR / Correspondence	R10: Unknown, Unknown (Unknown)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
663285	8/11/2011	07_27_11 email attachment; FS Key Elements Check-in Revised RAL & Alternatives	212	4	FIG / Figure/Map/ Drawing	R10: Unknown, Unknown (Unknown)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
702128	3/28/2013	08_11_11 email attachment; Basis for FS Key Elements Check-in Revised RAL & Alternatives	59,300	3206	RPT / Report	R10: Kennedy, Laura (Kennedy/Jenks Consultants)	R10: Unknown, Unknown (Lower Willamette Group), R10: Koch, Kristine, M. (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
715198	12/6/2012	Final Remedial Investigation Report Appendix F: Baseline Human Health Risk Assessment.(with attached paper copy)	994	10	RPT / Report	R10: Opalski, Daniel, D. (EPA)	R10: Unknown, Unknown (File)	PAPER DOCUMENT	053-REMEDIAL/0531-Remedy Characterization
715199	10/25/2012	Baseline Human Health Risk Assessment (BHHRA) Dispute Decision.	822	2	RPT / Report	R10: Opalski, Daniel, D. (EPA)	R10: Unknown, Unknown (File)	PAPER DOCUMENT	053-REMEDIAL/0531-Remedy Characterization
850005	12/7/2016	Dispute Decision Memo - Partial Resolution.	217	2	CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
850006	12/5/2016	Table 17 Cleanup levels targets.	180	3	CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
1146370	3/1/2002	Water_PRG_Basis.	1,679	31	RPT / Report	R10: Unknown, Unknown (Anchor Environmental, LLC)	R10: Unknown, Unknown (Lower Willamette Group)	PAPER DOCUMENT	053-REMEDIAL/0531-Remedy Characterization
1146373	4/26/2002	Draft Disposal Facility Siting Technical Memorandum, Portland Harbor Superfund Site.	3,363	63	RPT / Report	R10: Unknown, Unknown (Striplin Environmental Associates)	R10: Unknown, Unknown (Lower Willamette Group)	PAPER DOCUMENT	053-REMEDIAL/0531-Remedy Characterization
1185808	6/14/2002	Draft Integration of Sediment Trend Analysis (STA) Survey Results with Historic Bathymetry in the Lower Willamette River (Bathymetry Survey CD-ROM Attached).	5,751	119	RPT / Report	R10: Unknown, Unknown (Striplin Environmental Associates)	R10: Unknown, Unknown (Lower Willamette Group)	PAPER DOCUMENT	053-REMEDIAL/0531-Remedy Characterization
1432316	10/25/2012	Draft Round 1 Health and Safety Plan, Portland Harbor Remedial Investigation/Feasibility Study (RI/FS).	3,306	2	CORR / Correspondence	R10: Opalski, Daniel, D. (EPA)	R10: Koch, Kristine, M. (EPA)	PAPER DOCUMENT	053-REMEDIAL/0531-Remedy Characterization
1482301	2/25/2005	Memorandum regarding Formal Dispute on the EPA Notice of Non-Compliance and Directed Revisions to the Portland Harbor Draft Final Baseline Human Health Risk Assessment and Request for Dispute Resolution, Partial Resolution.	12,629	6	RPT / Report	R10: (Kennedy/Jenks Consultants)	R10: (The Lower Willamette Group)	PAPER DOCUMENT	053-REMEDIAL/0531-Remedy Characterization
1482302	Undated	Portland Harbor RI/FS: Interim Deliverable For Human Health Risk Assessment; Human Health Uncertainty Analysis Outline.	4,663	1	FIG / Figure/Map/ Drawing	R10: (Unknown)	R10: (Unknown)	PAPER DOCUMENT	053-REMEDIAL/0531-Remedy Characterization
1482303	5/2/2002	Figure From Unknown Report: Map of Portland Harbor.	20,581	5	FIG / Figure/Map/ Drawing	R10: (Windward Environmental, LLC.)	R10: (Unknown)	PAPER DOCUMENT	053-REMEDIAL/0531-Remedy Characterization

1482304	6/17/2001	Boring Logs For West Side CSO Project. Portland Harbor RI/FS Phase 1 Results: Hydrodynamic Sedimentation Modeling for Lower Willamette River - Draft.	86,717	33 RPT / Report	R10: (Parsons Brinckerhoff)	R10: (Unknown)	PAPER DOCUMENT	053-REMEDIAL/0531-Remedy Characterization
1482305	2/28/2005	Swan Island Basin Hydrodynamic and Stormwater Solids Fate and Transport Analysis.	276,252	161 RPT / Report	R10: (West Consultants, Inc.), R10: (Integral Consulting, Inc.)	R10: (Lower Willamette Group)	PAPER DOCUMENT	053-REMEDIAL/0531-Remedy Characterization
1482306	9/9/2013	Transmittal Letter for Portland Harbor Superfund Site Ecological Risk Assessment, Interpretive Report: Estimating Risks to Benthic Organisms Using Predictive Models Based on Sediment Toxicity Tests.	456,596	287 RPT / Report	R10: (Pacific Groundwater Group), R10: (Coast & Harbor Engineering), R10: (Confluence Environmental Company)	R10: (Daimler Trucks North America LLC)	PAPER DOCUMENT	053-REMEDIAL/0531-Remedy Characterization
1482307	3/17/2006	Transmittal Letter for Portland Harbor RI/FS Technical Memorandum for Human Health Risk Assessment: Exposure Point Concentration Calculation Approach and Summary of Exposure Factors.	1,808	1 CORR / Correspondence	R10: (TerraStat Consulting Group), R10: (Windward Environmental, LLC.), R10: (Avocet Consulting)	R10: (The Lower Willamette Group)	PAPER DOCUMENT	053-REMEDIAL/0531-Remedy Characterization
1482308	4/21/2006	Portland Harbor RI/FS Interim Deliverable for Human Health Risk Assessment: Exposure Point Concentration Calculation Approach and Summary of Exposure Factors - Draft.	2,639	2 CORR / Correspondence	R10: (Kennedy/Jenks Consultants)	R10: (The Lower Willamette Group)	PAPER DOCUMENT	053-REMEDIAL/0531-Remedy Characterization
1482309	12/3/2004	Project Update, Portland Harbor RI/FS: Presentations, With Marginalia.	63,906	38 RPT / Report	R10: (Kennedy/Jenks Consultants)	R10: (The Lower Willamette Group)	PAPER DOCUMENT	053-REMEDIAL/0531-Remedy Characterization
1482310	8/16/2005	Portland Harbor RI/FS Preliminary Ecological Risk Evaluation Appendix B: Toxicity Reference Value Selection, Volume 3 of 4.	136,399	71 RPT / Report	R10: (Lower Willamette Group)	R10: (Unknown)	PAPER DOCUMENT	053-REMEDIAL/0531-Remedy Characterization
1482311	9/9/2005	Transmittal Letter for Process to Identify COPCs.	913,238	353 RPT / Report	R10: (Windward Environmental, LLC.)	R10: (The Lower Willamette Group)	PAPER DOCUMENT	053-REMEDIAL/0531-Remedy Characterization
1482312	11/18/2004	Portland Harbor Superfund Site Ecological Risk Assessment: Approach for the Preliminary Risk Evaluation for Ecological Receptors.	1,949	2 CORR / Correspondence	R10: Williams, Bill (Kennedy/Jenks Consultants)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	PAPER DOCUMENT	053-REMEDIAL/0531-Remedy Characterization
1482313	9/23/2004	Portland Harbor RI/FS Technical Memorandum: Guidelines for Data Reporting, Data Averaging, and Treatment of Non-Detected Values for the Round 1 Database.	138,340	65 RPT / Report	R10: (Windward Environmental, LLC.)	R10: (The Lower Willamette Group)	PAPER DOCUMENT	053-REMEDIAL/0531-Remedy Characterization
1482314	6/10/2004	Transmittal Letter for TM 001 Final Version #2 and WEST Responses to EPA's Comments of 4/29/2004, Without Enclosure.	18,619	8 RPT / Report	R10: (Windward Environmental, LLC.), R10: (Kennedy/Jenks Consultants), R10: (Integral Consulting, Inc.)	R10: (The Lower Willamette Group)	PAPER DOCUMENT	053-REMEDIAL/0531-Remedy Characterization
1482315	8/2/2004	Memorandum Regarding Technical Issues With Pesticide/PCB Aroclors Data for Round 1 Tissue Samples, With Attached Data Table.	1,092	1 CORR / Correspondence	R10: Walton, Raymond (West Consultants, Inc.)	R10: Humphrey, Chip (EPA)	PAPER DOCUMENT	053-REMEDIAL/0531-Remedy Characterization
1482316	2/18/2004	Memorandum Regarding QA Review of the Portland Harbor RI/FS Round 2 Quality Assurance Project Plan Addendum 6: Sampling of Benthic Invertebrate Tissue, Revision November 23, 2005.	54,803	25 CORR / Correspondence	R10: Grepogrove, Ginna (EPA)	R10: (Unknown)	PAPER DOCUMENT	053-REMEDIAL/0531-Remedy Characterization
1482317	12/7/2005	Additional EPA Comments (Received on 9/22/04) on Ecological TRVs and LWG Responses.	3,977	2 CORR / Correspondence	R10: Grepogrove, Ginna (EPA)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	PAPER DOCUMENT	053-REMEDIAL/0531-Remedy Characterization
1482318	10/22/2004	LWG Response to EPA Comments of 8/24/04. Copies of the Upland/Riparian Soil Data, Maps, and Responses to Inquiries, With Transmittal Letter.	19,019	8 CORR / Correspondence	R10: (Lower Willamette Group)	R10: (EPA)	PAPER DOCUMENT	053-REMEDIAL/0531-Remedy Characterization
1482319	8/24/2004	Portland Harbor Superfund Site Ecological Risk Assessment: Estimating Risks to Benthic Organisms Using Sediment Toxicity Tests - Draft.	87,855	34 CORR / Correspondence	R10: (Lower Willamette Group)	R10: (EPA)	PAPER DOCUMENT	053-REMEDIAL/0531-Remedy Characterization
1482320	6/28/2006	Framework For Evaluating Exposure to the Benthic Community and Humans from Chemicals Transported in Groundwater.	428,631	97 CORR / Correspondence	R10: Gensemer, Robert, W. (Parametrix, Inc.)	R10: Blischke, Eric, L (EPA)	PAPER DOCUMENT	053-REMEDIAL/0531-Remedy Characterization
1482321	5/28/2004	GE Energy - Energy Services Wet Deposition Evaluation Report.	70,880	31 RPT / Report	R10: (TerraStat Consulting Group), R10: (Windward Environmental, LLC.), R10: (Avocet Consulting)	R10: (The Lower Willamette Group)	PAPER DOCUMENT	053-REMEDIAL/0531-Remedy Characterization
1482322	7/25/2003	PCB Congeners in Archived Round 2A Surface Sediment Data Report - Draft.	55,364	24 RPT / Report	R10: (Windward Environmental, LLC.), R10: (Kennedy/Jenks Consultants), R10: (Groundwater Solutions Inc.)	R10: (The Lower Willamette Group)	PAPER DOCUMENT	053-REMEDIAL/0531-Remedy Characterization
1482323	5/19/2009	Round 2 Groundwater Pathway Assessment Sampling and Analysis Plan, Attachment 3: Field Sampling Plan: Sampling of Shoreline Seeps Discharging to Human Use Beaches. Transmittal Sheet for Technical Memorandum: Approach to Determining Background, Without Enclosure.	392,516	151 RPT / Report	R10: Rock, Joseph, M. (MWH Americas, Inc.), R10: Hersey, J. Andrew (MWH Americas, Inc.)	R10: (GE Energy)	PAPER DOCUMENT	053-REMEDIAL/0531-Remedy Characterization
1482324	4/10/2006	Portland Harbor RI/FS Interim Deliverable for Human Health Risk Assessment: Round 1 Data Gaps Analysis.	234,526	67 RPT / Report	R10: (Integral Consulting, Inc.)	R10: (The Lower Willamette Group)	PAPER DOCUMENT	053-REMEDIAL/0531-Remedy Characterization
1482325	4/29/2005	Portland Harbor RI/FS Preliminary Draft Site-Wide Biological Assessment Report.	42,022	25 RPT / Report	R10: (Kennedy/Jenks Consultants), R10: (Integral Consulting, Inc.)	R10: (The Lower Willamette Group)	PAPER DOCUMENT	053-REMEDIAL/0531-Remedy Characterization
1482326	3/2/2006	Portland Harbor RI/FS: Draft Chemical Fate and Transport Model Development and Data Gaps Identification Report.	2,480	2 CORR / Correspondence	R10: Fuji, Taku (Kennedy Jenks Consultants)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	PAPER DOCUMENT	053-REMEDIAL/0531-Remedy Characterization
1482327	10/12/2004	Portland Harbor RI/FS: Draft Chemical Fate and Transport Model Development and Data Gaps Identification Report, With Marginalia.	46,117	21 RPT / Report	R10: (Kennedy/Jenks Consultants)	R10: (The Lower Willamette Group)	PAPER DOCUMENT	053-REMEDIAL/0531-Remedy Characterization
1482328	3/30/2012	Transmittal Letter for Round 2 Quality Assurance Plan Addendum 2: PCB Congener Analysis in Sediment Samples.	1,051,862	337 RPT / Report	R10: (Anchor QEA, LLC)	R10: (The Lower Willamette Group)	PAPER DOCUMENT	053-REMEDIAL/0531-Remedy Characterization
1482330	7/1/2007	Dredging Operations Appendix: Willamette River Dredge Material Management Plan. Lamprey Harvest Reconnaissance Survey for 2002 Technical Memorandum, With Transmittal Letter.	555,579	222 RPT / Report	R10: (Anchor Environmental, LLC), R10: (Windward Environmental, LLC.), R10: (Integral Consulting, Inc.)	R10: (The Lower Willamette Group)	PAPER DOCUMENT	053-REMEDIAL/0531-Remedy Characterization
1482331	7/24/2007	Comments on Portland Harbor RI/FS: Draft Chemical Fate and Transport Model Development and Data Gaps Identification Report.	1,815	1 CORR / Correspondence	R10: Stivers, Carl (Anchor Environmental, LLC), R10: Goldberg, Rebecca (Anchor QEA, LLC)	R10: Koch, Kristine, M. (EPA)	PAPER DOCUMENT	053-REMEDIAL/0531-Remedy Characterization
1482332	Undated	Pages From Portland Harbor RI/FS: Draft Chemical Fate and Transport Model Development and Data Gaps Identification Report, With Marginalia.	108,380	36 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	PAPER DOCUMENT	053-REMEDIAL/0531-Remedy Characterization
1482333	7/1/2007	Transmittal Letter for Round 2 Quality Assurance Plan Addendum 2: PCB Congener Analysis in Sediment Samples.	16,467	6 RPT / Report	R10: (Unknown)	R10: (Unknown)	PAPER DOCUMENT	053-REMEDIAL/0531-Remedy Characterization
1482334	11/1/2004	Dredging Operations Appendix: Willamette River Dredge Material Management Plan. Lamprey Harvest Reconnaissance Survey for 2002 Technical Memorandum, With Transmittal Letter.	2,594	2 CORR / Correspondence	R10: Pine, Keith, A (Integral Consulting, Inc.)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	PAPER DOCUMENT	053-REMEDIAL/0531-Remedy Characterization
1482335	1/1/2008	Portland Harbor RI/FS: Ecological Preliminary Risk Evaluation, Volume 1 of 4: Report and Appendix A.	186,063	63 RPT / Report	R10: (CH2M Hill, Inc.)	R10: (U. S. Army Corps of Engineers)	PAPER DOCUMENT	053-REMEDIAL/0531-Remedy Characterization
1482336	4/18/2003	Portland Harbor Superfund Site Ecological Risk Assessment: Process For Selecting Acute and Chronic Water Screening Levels for Portland Harbor Surface Water, Groundwater, and Transition Zone Water - Draft.	28,340	13 RPT / Report	R10: (Kennedy/Jenks Consultants)	R10: (The Lower Willamette Group)	PAPER DOCUMENT	053-REMEDIAL/0531-Remedy Characterization
1482337	9/9/2005	Letter Regarding Ecological Risk Assessment Interpretive Report: Estimating Risks to Benthic Organisms Using Predictive Models Based on Sediment Toxicity Tests.	392,582	142 RPT / Report	R10: (Windward Environmental, LLC.)	R10: (The Lower Willamette Group)	PAPER DOCUMENT	053-REMEDIAL/0531-Remedy Characterization
1482338	4/29/2005	Memorandum Regarding Revised Upstream Ambient Locations.	44,715	18 RPT / Report	R10: (Windward Environmental, LLC.)	R10: (The Lower Willamette Group)	PAPER DOCUMENT	053-REMEDIAL/0531-Remedy Characterization
1482339	9/1/2006		43,108	17 CORR / Correspondence	R10: Wyatt, Bob (Lower Willamette Group), R10: Mckenna, Jim (Lower Willamette Group)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	PAPER DOCUMENT	053-REMEDIAL/0531-Remedy Characterization
1482340	10/19/2004		9,826	5 CORR / Correspondence	R10: Andersen, Helle (Windward Environmental, LLC.), R10: Saban, Lisa (Windward Environmental, LLC.)	R10: Blischke, Eric, L (EPA)	PAPER DOCUMENT	053-REMEDIAL/0531-Remedy Characterization



1482341	1/20/2005	Process For Derivation of Preliminary Remediation Goals (PRG) Technical Memorandum - EPA Review Draft.	21,652	9 RPT / Report	R10: (Anchor Environmental, LLC), R10: (Windward Environmental, LLC.), R10: (Kennedy/Jenks Consultants), R10: (Integral Consulting, Inc.)	R10: (The Lower Willamette Group)	PAPER DOCUMENT	053-REMEDIAL/0531-Remedy Characterization
1482342	9/9/2005	Portland Harbor RI/FS Preliminary Ecological Risk Evaluation Appendices C, D, and E - Volume 4 of 4.	435,529	164 RPT / Report	R10: (Windward Environmental, LLC.)	R10: (The Lower Willamette Group)	PAPER DOCUMENT	053-REMEDIAL/0531-Remedy Characterization
1482343	3/24/2008	Transmittal Letter for Sediment Chemical Mobility Testing Field Sampling Plan.	2,127	1 CORR / Correspondence	R10: (Anchor Environmental, LLC)	R10: (The Lower Willamette Group)	PAPER DOCUMENT	053-REMEDIAL/0531-Remedy Characterization
1482344	3/14/2016	Groundwater Monitoring Report Fourth Quarter 2015, Gunderson LLC, Portland, Oregon.	779,558	353 RPT / Report	R10: Owens, Carmen, R. (APEX Companies LLC), R10: Walvatne, Gary, L. (Apex)	R10: (Gunderson LLC)	PAPER DOCUMENT	053-REMEDIAL/0531-Remedy Characterization
1482345	3/31/2016	Transmittal Letter for Gunderson Groundwater Monitoring Report Fourth Quarter 2015 from Gunderson to ODEQ.	1,371	1 CORR / Correspondence	R10: Harvey, David, J (Gunderson, Inc.)	R10: Liverman, Alex (Oregon Dept. of Environmental Quality)	PAPER DOCUMENT	053-REMEDIAL/0531-Remedy Characterization
1482346	9/15/2016	Lower Willamette River, Portland Harbor Superfund Site: Monthly Progress Report for August 2016.	27,432	11 RPT / Report	R10: Mott, Jennifer (Lower Willamette Group)	R10: Koch, Kristine, M. (EPA)	PAPER DOCUMENT	053-REMEDIAL/0531-Remedy Characterization
1482347	8/15/2016	Lower Willamette River, Portland Harbor Superfund Site: Monthly Progress Report for July 2016.	28,251	12 RPT / Report	R10: Mott, Jennifer (Lower Willamette Group)	R10: Koch, Kristine, M. (EPA)	PAPER DOCUMENT	053-REMEDIAL/0531-Remedy Characterization
1482348	7/15/2016	Lower Willamette River, Portland Harbor Superfund Site: Monthly Progress Report for June 2016.	31,406	13 RPT / Report	R10: Mott, Jennifer (Lower Willamette Group)	R10: Koch, Kristine, M. (EPA)	PAPER DOCUMENT	053-REMEDIAL/0531-Remedy Characterization
1482349	6/14/2016	Lower Willamette River, Portland Harbor Superfund Site: Monthly Progress Report for May 2016.	32,368	13 RPT / Report	R10: Mott, Jennifer (Lower Willamette Group)	R10: Koch, Kristine, M. (EPA)	PAPER DOCUMENT	053-REMEDIAL/0531-Remedy Characterization
1482350	1/14/2016	Lower Willamette River, Portland Harbor Superfund Site: Monthly Progress Report for December 2015.	31,038	13 RPT / Report	R10: Woronets, Jennifer (Lower Willamette Group)	R10: Koch, Kristine, M. (EPA)	PAPER DOCUMENT	053-REMEDIAL/0531-Remedy Characterization
1482352	9/15/2016	Letter Regarding Submission of Monthly Progress Reports.	4,064	2 CORR / Correspondence	R10: Koch, Kristine, M. (EPA)	R10: Wyatt, Bob (Lower Willamette Group)	PAPER DOCUMENT	053-REMEDIAL/0531-Remedy Characterization
1482354	4/14/2016	Lower Willamette River, Portland Harbor Superfund Site: Monthly Progress Report for March 2016.	33,215	13 RPT / Report	R10: Mott, Jennifer (Lower Willamette Group)	R10: Koch, Kristine, M. (EPA)	PAPER DOCUMENT	053-REMEDIAL/0531-Remedy Characterization
1482355	1/12/2000	Briefing Packet for Technical Exchange Workgroup Special Meeting: Applicability of Fish Biomarkers to the Lower Willamette River.	1,218,668	464 RPT / Report	R10: (Oregon Dept. of Environmental Quality)	R10: (Unknown)	PAPER DOCUMENT	053-REMEDIAL/0531-Remedy Characterization
1482356	5/7/2004	Portland Harbor RI/FS Technical Memorandum: Finalization of Round 1 Chlorinated Pesticide Data.	55,142	30 RPT / Report	R10: (Integral Consulting, Inc.)	R10: (The Lower Willamette Group)	PAPER DOCUMENT	053-REMEDIAL/0531-Remedy Characterization
1482357	4/5/2016	Transmittal Letter for Portland Harbor RI/FS Final Remedial Investigative Report, With Attached Replacement Pages.	12,528	7 CORR / Correspondence	R10: Jones, Laura (Integral Consulting, Inc.)	R10: Koch, Kristine, M. (EPA)	PAPER DOCUMENT	053-REMEDIAL/0531-Remedy Characterization
1482358	3/30/2012	Transmittal Letter for Preliminary Draft Biological Assessment and Draft Feasibility Study.	2,301	1 CORR / Correspondence	R10: Stivers, Carl (Anchor QEA, LLC)	R10: (Lower Willamette Group)	PAPER DOCUMENT	053-REMEDIAL/0531-Remedy Characterization
100001536	12/31/2015	PORTLAND HARBOR SUPERFUND SITE NRRB RECOMMENDATIONS	2,794	11 MEMO / Memorandum	R10: Legare, Amy, R. (National Remedy Review Board), R10: Ellis, Stephen, J. (EPA)	R10: Albright, Richard, G. (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100007974	8/4/2011	Terminal 4 Confined Disposal Facility (CDF) Design Analysis Report (Prefinal 60 Percent Design Deliverable); Port of Portland, Portland, Oregon.	41,080	737 ADD / Analytical Data Document	R10: Dickenson, Stephen (Dr. Stephen Dickenson), R10: (Berger/ABAM Engineers, Inc.), R10: (Newfields, Inc.), R10: (Ash Creek Associates, Inc.), R10: (Anchor QEA, LLC)	R10: (Port of Portland)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100020946	2/29/2016	Final Draft Pre-Remedial Design Investigation Work Plan Arkema Early Action.	166,699	3299 WP / Work Plan	R10: (Integral Consulting, Inc.)	R10: (Legacy Site Services, LLC)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100021026	4/23/2013	Use of Amendments for In Situ Remediation at Superfund Sediment Sites.	618	61 CORR / Correspondence	R10: (EPA)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100032070	6/23/2016	Email Regarding Comment Period.	19	3 EML / Email	R10: Williams, Travis (Willamette Riverkeeper)	R10: McLerran, Dennis, J. (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100032074	4/6/2016	Email Regarding Letter to EPA Administrator Gina McCarthy.	68	1 EML / Email	R10: McLerran, Dennis, J. (EPA)	R10: Sheldrake, Sean, A. (EPA), R10: Woolford, James, E. (EPA), R10: Longoria, Rose (Yakama Nation), R10: Woods, Jim (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100033912	3/1/2012	Portland Harbor Superfund Site Draft Feasibility Study Report.	13,991	41 CORR / Correspondence	R10: (Lower Willamette Group)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100034839	6/22/2016	Letter regarding Legacy Site Services Request for Formal Dispute Determination regarding the EPA June 8, 2016.	276	24 CORR / Correspondence	R10: Slater, J. Todd (Legacy Site Services, LLC)	R10: Koch, Kristine, M. (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100035043	8/22/2016	Email Regarding DEQ & EPA Comments on Gunderson Updated Groundwater SCE (Less Attachments).	60	1 EML / Email	R10: Liverman, Alex (Oregon Dept. of Environmental Quality)	R10: Harvey, David (Greenbrier Companies)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100035044	8/5/2016	Memo Regarding Updated Groundwater Source Control Evaluation, Gunderson LLC Facility, ECSI #1155, May 31, 2016.	74	7 MEMO / Memorandum	R10: Demaria, Eva (EPA)	R10: Liverman, Alex (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100035045	8/18/2016	Memo Regarding Updated Crawford Street Corp. Supplemental Bank Erodible Soil Assessment Plan, Source Control Evaluation, ECSI #2363, July 6, 2016.	48	2 MEMO / Memorandum	R10: Demaria, Eva (EPA)	R10: Orr, Jim (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100035046	8/12/2016	Memo Regarding Review of the Draft Source Control Decision for Owens Corning, Linnton Roofing and Asphalt Facility, June 27, 2016.	353	1 MEMO / Memorandum	R10: Shanahan, Peter (Hydro Analysis)	R10: Liverman, Alex (Oregon Dept. of Environmental Quality), R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100035050	8/22/2016	Letter Regarding DEQ Comments on Updated Groundwater Source Control Evaluation, Gunderson LLC Facility, ECSI #1155.	251	3 LTR / Letter	R10: Liverman, Alex (Oregon Dept. of Environmental Quality)	R10: Harvey, David (Greenbrier Companies)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100035051	8/18/2016	Email Regarding EPA Comments, ECSI # 2363 Crawford Street Bank Assessment Work Plan (Less Attachment).	94	2 EML / Email	R10: Demaria, Eva (EPA)	R10: Orr, Jim (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100035057	8/30/2016	Email Regarding OC Linnton final SCD (Less Attachment).	60	1 EML / Email	R10: Liverman, Alex (Oregon Dept. of Environmental Quality)	R10: Demaria, Eva (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100035058	8/30/2016	Memo Regarding Source Control Decision, Owens Corning, Linnton Roofing and Asphalt Facility, ECSI # 1036.	4,581	25 MEMO / Memorandum	R10: Liverman, Alex (Oregon Dept. of Environmental Quality), R10: Manzano, Scott (Oregon Dept. of Environmental Quality)	R10: Demaria, Eva (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100035059	8/23/2016	Memo Regarding Draft Source Control Decision, BNSF Willbridge Rail Yard, ECSI #3395, July 20, 2016.	78	5 MEMO / Memorandum	R10: Demaria, Eva (EPA)	R10: Hood, Robert (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100035061	8/18/2016	Memo Regarding Draft Source Control Decision, Owens Corning, Linnton Roofing and Asphalt Facility, ECSI #1036, June 27, 2016.	63	4 MEMO / Memorandum	R10: Demaria, Eva (EPA)	R10: Liverman, Alex (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100035062	8/24/2016	Memo Regarding Draft Source Control Decision, Fred Devine Diving and Salvage Co., ECSI #2365.	67	6 MEMO / Memorandum	R10: Liverman, Alex (Oregon Dept. of Environmental Quality), R10: Manzano, Scott (Oregon Dept. of Environmental Quality)	R10: Demaria, Eva (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100035403	5/19/2009	Appendix B to GE Energy - Energy Services Wet Deposition Evaluation Report: Meteorological Data.	5,360	1595 RPT / Report	R10: Rock, Joseph, M. (MWH Americas, Inc.), R10: Hersey, J. Andrew (MWH Americas, Inc.)	R10: (GE Energy)	OPTICAL STORAGE	053-REMEDIAL/0531-Remedy Characterization
100035404	5/19/2009	Appendix C to GE Energy - Energy Services Wet Deposition Evaluation Report: Laboratory Analytical Data.	40,981	1265 RPT / Report	R10: Rock, Joseph, M. (MWH Americas, Inc.), R10: Hersey, J. Andrew (MWH Americas, Inc.)	R10: (GE Energy)	OPTICAL STORAGE	053-REMEDIAL/0531-Remedy Characterization
100035408	4/10/2006	Appendix B to PCB Congeners in Archived Round 2A Surface Sediment Data Report: SCRA Database.	62,292	1153 RPT / Report	R10: (Integral Consulting, Inc.)	R10: (The Lower Willamette Group)	OPTICAL STORAGE	053-REMEDIAL/0531-Remedy Characterization
100035429	4/10/2006	Appendix C to PCB Congeners in Archived Round 2A Surface Sediment Data Report: EcoChem Data Validation Report.	740	37 RPT / Report	R10: (Integral Consulting, Inc.)	R10: (The Lower Willamette Group)	OPTICAL STORAGE	053-REMEDIAL/0531-Remedy Characterization
100035556	3/30/2012	Portland Harbor RI/FS Draft Feasibility Study. A Guide for Controlling the Lead Hazard Associated With Tank Entry and Cleaning.	148,113	1493 RPT / Report	R10: (Windward Environmental, LLC.), R10: (Kennedy/Jenks Consultants), R10: (Integral Consulting, Inc.), R10: (Anchor QEA, LLC)	R10: (Lower Willamette Group)	OPTICAL STORAGE	053-REMEDIAL/0531-Remedy Characterization
100035561	5/1/1975	1975.	442	8 LAWS / Laws/Regulations/Guidance	R10: (American Petroleum Institute)	R10: (Unknown)	OPTICAL STORAGE	053-REMEDIAL/0531-Remedy Characterization



100035567	3/30/2012	Appendices A - J to Portland Harbor RI/FS Draft Feasibility Study.	485,008	5083 RPT / Report	R10: (Windward Environmental, LLC.), R10: (Kennedy/Jenks Consultants), R10: (Integral Consulting, Inc.), R10: (Anchor QEA, LLC)	R10: (Lower Willamette Group)	OPTICAL STORAGE	053-REMEDIAL/0531-Remedy Characterization
100035569	3/6/2006	White Paper: Contaminant Sources at the Premier Edible Oil Site ESCI #2013 Located Within the Portland Harbor Superfund Site.	8,353	98 RPT / Report	R10: (James C. Brown & Associates)	R10: (Unknown)	OPTICAL STORAGE	053-REMEDIAL/0531-Remedy Characterization
100035570	3/10/2006	Letter Regarding White Paper: Contaminant Sources at the Premier Edible Oil Site ESCI #2013 Located Within the Portland Harbor Superfund Site (EPA).	517	4 CORR / Correspondence	R10: Brown, James, C (James C. Brown & Associates)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	OPTICAL STORAGE	053-REMEDIAL/0531-Remedy Characterization
100035571	3/10/2006	Letter Regarding White Paper: Contaminant Sources at the Premier Edible Oil Site ESCI #2013 Located Within the Portland Harbor Superfund Site (ODEQ).	1,124	3 CORR / Correspondence	R10: Brown, James, C (James C. Brown & Associates)	R10: Romero, Michael (Oregon Dept. of Environmental Quality)	OPTICAL STORAGE	053-REMEDIAL/0531-Remedy Characterization
100035665	8/12/2016	REDACTED Email Regarding Five Tribe Review of OC Linnton SCD (Less Attachment).	66	1 EML / Email	R10: Liverman, Alex (Oregon Dept. of Environmental Quality)	R10: Demaria, Eva (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100035666	8/23/2016	REDACTED Email Regarding Draft Source Control Decision BNSF Willbridge Rail Yard (Less Attachment).	65	1 EML / Email	R10: Demaria, Eva (EPA)	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100035673	8/18/2016	REDACTED Email Regarding Owens Corning Linnton Draft Source Control Decision (Less Attachment).	64	1 EML / Email	R10: Demaria, Eva (EPA)	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100035708	7/18/2016	Email Regarding DEQ and EPA Comments on Revised Gunderson Supplemental Area 2 Riverbank FFS.	61	1 EML / Email	R10: Liverman, Alex (Oregon Dept. of Environmental Quality)	R10: Harvey, David (Greenbrier Companies)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100035711	8/5/2016	Memorandum Regarding Updated Groundwater Source Control Evaluation, Gunderson LLC Facility, ECSI #1155, May 31, 2016.	74	7 MEMO / Memorandum	R10: Demaria, Eva (EPA)	R10: Liverman, Alex (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100035713	1/29/2016	Memorandum regarding the Draft Source Control Decision & No Further Action Determination Brazil Motors and Controls, Inc.	68	7 MEMO / Memorandum	R10: Liverman, Alex (Oregon Department of Environmental Quality) R10: (GeoDesign, Inc.), R10: (City of Portland), R10: (Holtech Civil and Environmental Engineering), R10: (Coles Environmental Consulting Inc.)	R10: Demaria, Eva (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100035715	9/1/2014	Figures for Brazil Motor and Controls. Tables for Phase II Soil Sampling Results 2014-Summary of Soil and Sediment Chemical Analytical Results	3,570	4 FIG / Figure/Map/ Drawing	R10: (GeoDesign, Inc.)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100035716	9/1/2014	Letter Regarding DEQ Initial Comments on Revised Supplemental Riverbank Area 2 Focused Feasibility Study Gunderson Site.	244	10 CORR / Correspondence	R10: Liverman, Alex (Oregon Dept. of Environmental Quality)	R10: Harvey, David (Greenbrier Companies)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100035721	7/18/2016	Memorandum Regarding Draft Source Control Decision, BNSF Willbridge Rail Yard, ECSI #3395.	3,413	27 MEMO / Memorandum	R10: Hood, Robert (Oregon Dept. of Environmental Quality)	R10: Demaria, Eva (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100035722	7/20/2016	Memorandum Regarding Draft Revised Preliminary Hot Spot Evaluation, Former Rhone-Poulenc Site, ECSI #115, June 3, 2016.	60	4 MEMO / Memorandum	R10: Demaria, Eva (EPA)	R10: Lacey, David (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100035725	7/18/2016	Letter Regarding Final Source Control Decision, Schnitzer Investment Corp. Doane Lake Property, ECSI #395, June 20, 2016.	38	1 CORR / Correspondence	R10: Demaria, Eva (EPA)	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100035728	8/5/2016	Letter Regarding Schnitzer Investment Corp. Doane Lake Property File ECSI #395, Final Source Control Decision - Determination that Source Control Measure Satisfactorily Performed.	34,888	216 CORR / Correspondence	R10: Lacey, David (Oregon Dept. of Environmental Quality)	R10: (File)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100035729	6/20/2016	Review Comments: Proposed Source Control Decision-Determination That Source Control Measure Satisfactorily Performed, Schnitzer Investment Corp. Doane Lake Property, ECSI #395, January 15, 2016.	42	3 CORR / Correspondence	R10: (EPA)	R10: (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100035731	2/12/2016	Email Regarding the RE: ETA on Brazil SCD concurrence? less Attachment.	90	2 EML / Email	R10: Demaria, Eva (EPA)	R10: Liverman, Alex (Oregon Department of Environmental Quality)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100035737	3/22/2016	Memorandum Containing the EPA Comments on the January 29, 2016 Draft Source Control Decision (SCD) and No Further Action (NFA) Memorandum.	63	3 MEMO / Memorandum	R10: Demaria, Eva (EPA)	R10: Liverman, Alex (Oregon Department of Environmental Quality)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100035738	3/22/2016	Memorandum Regarding Source Control Decision: Owens Corning - Linnton Roofing and Asphalt Facility ECSI #1036.	11,018	25 CORR / Correspondence	R10: Liverman, Alex (Oregon Dept. of Environmental Quality)	R10: Demaria, Eva (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100035957	10/20/2016	Email Regarding Portland Harbor Questions.	43	1 EML / Email	R10: McClerran, Dennis, J. (EPA Regional Administrator)	R10: Dunbar, Bill (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100035958	12/14/2016	Email Regarding Recommended Final (Less Attachment).	31	1 EML / Email	R10: Parrett, Kevin, G. (Oregon Dept. of Environmental Quality)	R10: Grandinetti, Carmela (Cami), L. (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100036126	12/27/2016	Letter regarding Portland Harbor Superfund Site Final Feasibility Study Dispute Decision.	758	8 LTR / Letter	R10: Bilbrey, Sheryl (Office of Environmental Cleanup EPA Region 10)	R10: Bylsma, Robert, C (Union Pacific Railroad Company), R10: Wyatt, Bob (Lower Willamette Group), R10: Slater, J. Todd (Legacy Site Services, LLC)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100036144	8/5/2016	REDACTED Email Regarding EPA Letter - Final SCD for Schnitzer Investment - Doane Lake Property.	93	4 EML / Email	R10: Demaria, Eva (EPA)	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100036145	7/19/2016	REDACTED Email Regarding EPA's Comments on Proposed SCD for Schnitzer Investment - Doane Lake Property.	93	4 EML / Email	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	R10: Demaria, Eva (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100036154	8/5/2016	REDACTED Email Regarding EPA Comments - Updated Gunderson Groundwater Source Control Evaluation Report.	89	2 EML / Email	R10: Demaria, Eva (EPA)	R10: Liverman, Alex (Oregon Dept. of Environmental Quality) Robert (NOAA), R10: Cabral, Rita (Industrial Economics, Incorporated), R10: Huber, Audie, B. (Confederated Tribes of the Umatilla Indian Reservation), R10: Ward, Elmer (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Ridolfi, Callie (Ridolfi Engineers, Inc.), R10: Downey, Thomas, C. (Confederated Tribes of the Siletz Indians), R10: Partridge, Holly (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Karnosh, Michael (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Sheldrake, Sean, A. (EPA), R10: Fuentes, Rene, C. (EPA), R10: Robinson, Deborah, G. (EPA), R10: Koch, Kristine, M. (EPA), R10: Conley, Alanna (EPA), R10: Christopher, Anne (EPA), R10: Shephard, Burt (EPA), R10: Zhen, Davis (EPA), R10: Allen, Elizabeth (EPA), R10: Demaria, Eva (EPA), R10: Morrison, Kay (EPA), R10: Liverman, Alex (Oregon Dept. of Environmental Quality), R10: Poulsen, Mike (Oregon Dept. of Environmental Quality), R10: Fricano, Gail (Industrial Economics, Inc.), R10: Delvecchio, Rachel (Industrial Economics, Inc.), R10: Bianco, Paul (Ridolfi, Inc.), R10: Humphreys, Brandy (Grand Ronde Tribe), R10: Longoria, Rose (Yakama Nation), R10: Williams, J., D (Law Offices of J. D. Williams), R10: Blischke, Eric (CDM Smith), R10: Coffey, Scott (CDM Smith), R10: Greenfield, Sarah (Oregon Dept. of Environmental Quality), R10: Moses, Gabriel	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100036158	1/29/2016	REDACTED Email Regarding the Draft Source Control Decision - Brazil less Attachments.	101	2 EML / Email	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	R10: Lacey, David (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100036159	7/18/2016	REDACTED Email Regarding EPA Comments - Rhone Poulenc Draft Revised Preliminary Hot Spot Evaluation.	60	1 EML / Email	R10: Demaria, Eva (EPA)	R10: Lacey, David (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100036161	12/27/2016	Appendix A: EPA Responses to Dispute Issues.	1,336	180 RPT / Report	R10: (EPA)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization

100036176	REDACTED Draft Disposal Site Inventory Preliminary Screening Report - Portland Harbor Superfund Site.	7/1/2004	10,047	54 RPT / Report	R10: Unknown, Unknown (Anchor Environmental, LLC)	R10: Unknown, Unknown (Lower Willamette Group)	PAPER DOCUMENT	053-REMEDIAL/0531-Remedy Characterization
100036187	REDACTED Letter Regarding Cleanup of Willamette River, With Attached Routing Slip.	2/17/2016	1,148	2 CORR / Correspondence	R10: (Unknown)	R10: (EPA)	PAPER DOCUMENT	053-REMEDIAL/0531-Remedy Characterization
100036194	REDACTED Appendices K - U to Portland Harbor RI/FS Draft Feasibility Study.	3/30/2012	150,402	2418 RPT / Report	R10: (Windward Environmental, LLC.), R10: (Kennedy/Jenks Consultants), R10: (Integral Consulting, Inc.), R10: (Anchor QEA, LLC)	R10: (Lower Willamette Group)	OPTICAL STORAGE	053-REMEDIAL/0531-Remedy Characterization
100036269	Target Sheet: Non-Releasable Administrative Record Documents.	1/6/2017	76	1 ARI / Administrative Record Index	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100036270	Final Remedial Administrative Record Index	1/6/2017	72	1 ARI / Administrative Record Index	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100036516	Target Sheet: Enclosures to Cover Letter for Key Findings on Recent Investigations: Portland Harbor Superfund Site.	8/7/2015	27	1 LST / List/Index	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
500012795	RI/FS bioaccumulation modeling report.	7/21/2009	5,973	302 LAWS / Laws/Regulations/Guidance	R10: Unknown, Unknown (Windward Environmental, LLC.), R10: Unknown, Unknown (Lower Willamette Group)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
840000	Portland Harbor RI/FS Draft Final Feasibility Study.	6/8/2016	1,517	276 RPT / Report	R10: (EPA)			053-REMEDIAL/0531-Remedy Characterization/043-Feasibility Study (FS)
840001	Portland Harbor RI/FS Draft Final Feasibility Study Tables.	6/8/2016	1,416	118 RPT / Report	R10: (EPA)			053-REMEDIAL/0531-Remedy Characterization/043-Feasibility Study (FS)
840002	Portland Harbor RI/FS Draft Final Feasibility Study Figures.	6/8/2016	115,117	648 RPT / Report	R10: (EPA)			053-REMEDIAL/0531-Remedy Characterization/043-Feasibility Study (FS)
840003	Portland Harbor RI/FS Draft Final Feasibility Study Appendix A Sediment Database Description.	6/8/2016	324	22 RPT / Report	R10: (EPA)			053-REMEDIAL/0531-Remedy Characterization/043-Feasibility Study (FS)
840004	Portland Harbor RI/FS Draft Final Feasibility Study Appendix A Portland Riverbanks Data Compilation.	6/8/2016	27	1 RPT / Report	R10: (EPA)			053-REMEDIAL/0531-Remedy Characterization/043-Feasibility Study (FS)
840005	Portland Harbor RI/FS Draft Final Feasibility Study Appendix B Derivation of Risk-Based Preliminary Remediation Goals.	6/8/2016	8,142	266 RPT / Report	R10: (EPA)			053-REMEDIAL/0531-Remedy Characterization/043-Feasibility Study (FS)
840006	Portland Harbor RI/FS Draft Final Feasibility Study Appendix C Technology Assignment Supporting Documentation.	6/8/2016	3,646	118 RPT / Report	R10: (EPA)			053-REMEDIAL/0531-Remedy Characterization/043-Feasibility Study (FS)
840007	Portland Harbor RI/FS Draft Final Feasibility Study Appendix D Supporting Information for Alternative Development.	6/8/2016	9,457	444 RPT / Report	R10: (EPA)			053-REMEDIAL/0531-Remedy Characterization/043-Feasibility Study (FS)
840008	Portland Harbor RI/FS Draft Final Feasibility Study Appendix E Evaluation of the Potential Water Quality Impacts from the Terminal 4 Confined Disposal Facility.	6/8/2016	3,193	42 RPT / Report	R10: (EPA)			053-REMEDIAL/0531-Remedy Characterization/043-Feasibility Study (FS)
840009	Portland Harbor RI/FS Draft Final Feasibility Study Appendix F Evaluation of Sediment Handling and Transport for Commercial Landfill Disposal During Remedial Action.	6/8/2016	361	16 RPT / Report	R10: (EPA)			053-REMEDIAL/0531-Remedy Characterization/043-Feasibility Study (FS)
840010	Portland Harbor RI/FS Draft Final Feasibility Study Appendix G Detailed Analysis Cost Estimates.	6/8/2016	6,331	494 RPT / Report	R10: (EPA)			053-REMEDIAL/0531-Remedy Characterization/043-Feasibility Study (FS)
840011	Portland Harbor RI/FS Draft Final Feasibility Study Appendix H EPA Review of Existing and Hydrodynamic and Sediment Transport Model.	6/8/2016	337	24 RPT / Report	R10: (EPA)			053-REMEDIAL/0531-Remedy Characterization/043-Feasibility Study (FS)
840012	Portland Harbor RI/FS Draft Final Feasibility Study Appendix I Surface Weighted Average Concentration Uncertainty Analysis (PCBs, Total PAHs, DDx).	6/8/2016	1,549	34 RPT / Report	R10: (EPA)			053-REMEDIAL/0531-Remedy Characterization/043-Feasibility Study (FS)
840013	Portland Harbor RI/FS Draft Final Feasibility Study Appendix J Calculation of Residual and Post-Construction Risk Estimates.	6/8/2016	20,685	644 RPT / Report	R10: (EPA)			053-REMEDIAL/0531-Remedy Characterization/043-Feasibility Study (FS)
840014	Portland Harbor RI/FS Draft Final Feasibility Study Appendix K Surface Water Evaluation.	6/8/2016	768	45 RPT / Report	R10: (EPA)			053-REMEDIAL/0531-Remedy Characterization/043-Feasibility Study (FS)
840015	Portland Harbor RI/FS Draft Final Feasibility Study Appendix L CWA Section 404(B)(1) Evaluation.	6/8/2016	13,573	120 RPT / Report	R10: (EPA)			053-REMEDIAL/0531-Remedy Characterization/043-Feasibility Study (FS)
840016	Portland Harbor RI/FS Draft Final Feasibility Study Appendix M Green Remediation Plan Outline.	6/8/2016	75	6 RPT / Report	R10: (EPA)			053-REMEDIAL/0531-Remedy Characterization/043-Feasibility Study (FS)
840017	Portland Harbor RI/FS Draft Final Feasibility Study Appendix N Sensitivity Analysis.	6/8/2016	2,249	362 RPT / Report	R10: (EPA)			053-REMEDIAL/0531-Remedy Characterization/043-Feasibility Study (FS)
840018	Portland Harbor RI/FS Draft Final Feasibility Study Appendix O Considerations for Dredge Releases.	6/8/2016	170	16 RPT / Report	R10: (EPA)			053-REMEDIAL/0531-Remedy Characterization/043-Feasibility Study (FS)
840019	Portland Harbor RI/FS Draft Final Feasibility Study Appendix P Flood Rise Evaluation.	6/8/2016	221	11 RPT / Report	R10: (EPA)			053-REMEDIAL/0531-Remedy Characterization/043-Feasibility Study (FS)
712567	06_19_14 email attachment; 2014-06-19_LWG Comments on Revised Feasibility Study Section 2.	6/19/2014	346	2 CORR / Correspondence	R10: Unknown, Unknown (Lower Willamette Group)	R10: Koch, Kristine, M. (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/043-Feasibility Study (FS)
840000	Portland Harbor RI/FS Draft Final Feasibility Study.	6/8/2016	1,517	276 RPT / Report	R10: (EPA)			053-REMEDIAL/0531-Remedy Characterization/043-Feasibility Study (FS)
840001	Portland Harbor RI/FS Draft Final Feasibility Study Tables.	6/8/2016	1,416	118 RPT / Report	R10: (EPA)			053-REMEDIAL/0531-Remedy Characterization/043-Feasibility Study (FS)
840002	Portland Harbor RI/FS Draft Final Feasibility Study Figures.	6/8/2016	115,348	650 RPT / Report	R10: (EPA)			053-REMEDIAL/0531-Remedy Characterization/043-Feasibility Study (FS)
840003	Portland Harbor RI/FS Draft Final Feasibility Study Appendix A Sediment Database Description.	6/8/2016	324	22 RPT / Report	R10: (EPA)			053-REMEDIAL/0531-Remedy Characterization/043-Feasibility Study (FS)
840004	Portland Harbor RI/FS Draft Final Feasibility Study Appendix A Portland Riverbanks Data Compilation.	6/8/2016	27	1 RPT / Report	R10: (EPA)			053-REMEDIAL/0531-Remedy Characterization/043-Feasibility Study (FS)
840005	Portland Harbor RI/FS Draft Final Feasibility Study Appendix B Derivation of Risk-Based Preliminary Remediation Goals.	6/8/2016	8,142	266 RPT / Report	R10: (EPA)			053-REMEDIAL/0531-Remedy Characterization/043-Feasibility Study (FS)
840006	Portland Harbor RI/FS Draft Final Feasibility Study Appendix C Technology Assignment Supporting Documentation.	6/8/2016	3,646	118 RPT / Report	R10: (EPA)			053-REMEDIAL/0531-Remedy Characterization/043-Feasibility Study (FS)
840007	Portland Harbor RI/FS Draft Final Feasibility Study Appendix D Supporting Information for Alternative Development.	6/8/2016	9,457	444 RPT / Report	R10: (EPA)			053-REMEDIAL/0531-Remedy Characterization/043-Feasibility Study (FS)
840008	Portland Harbor RI/FS Draft Final Feasibility Study Appendix E Evaluation of the Potential Water Quality Impacts from the Terminal 4 Confined Disposal Facility.	6/8/2016	3,193	42 RPT / Report	R10: (EPA)			053-REMEDIAL/0531-Remedy Characterization/043-Feasibility Study (FS)
840009	Portland Harbor RI/FS Draft Final Feasibility Study Appendix F Evaluation of Sediment Handling and Transport for Commercial Landfill Disposal During Remedial Action.	6/8/2016	361	16 RPT / Report	R10: (EPA)			053-REMEDIAL/0531-Remedy Characterization/043-Feasibility Study (FS)
840010	Portland Harbor RI/FS Draft Final Feasibility Study Appendix G Detailed Analysis Cost Estimates.	6/8/2016	6,331	494 RPT / Report	R10: (EPA)			053-REMEDIAL/0531-Remedy Characterization/043-Feasibility Study (FS)
840011	Portland Harbor RI/FS Draft Final Feasibility Study Appendix H EPA Review of Existing and Hydrodynamic and Sediment Transport Model.	6/8/2016	337	24 RPT / Report	R10: (EPA)			053-REMEDIAL/0531-Remedy Characterization/043-Feasibility Study (FS)
840012	Portland Harbor RI/FS Draft Final Feasibility Study Appendix I Surface Weighted Average Concentration Uncertainty Analysis (PCBs, Total PAHs, DDx).	6/8/2016	1,549	34 RPT / Report	R10: (EPA)			053-REMEDIAL/0531-Remedy Characterization/043-Feasibility Study (FS)
840013	Portland Harbor RI/FS Draft Final Feasibility Study Appendix J Calculation of Residual and Post-Construction Risk Estimates.	6/8/2016	20,685	644 RPT / Report	R10: (EPA)			053-REMEDIAL/0531-Remedy Characterization/043-Feasibility Study (FS)
840014	Portland Harbor RI/FS Draft Final Feasibility Study Appendix K Surface Water Evaluation.	6/8/2016	768	45 RPT / Report	R10: (EPA)			053-REMEDIAL/0531-Remedy Characterization/043-Feasibility Study (FS)

840015	6/8/2016	Portland Harbor RI/FS Draft Final Feasibility Study Appendix L CWA Section 404(B)(1) Evaluation.	13,573	120 RPT / Report	R10: (EPA)		053-REMEDIAL/0531-Remedy Characterization/043-Feasibility Study (FS)
840016	6/8/2016	Portland Harbor RI/FS Draft Final Feasibility Study Appendix M Green Remediation Plan Outline.	75	6 RPT / Report	R10: (EPA)		053-REMEDIAL/0531-Remedy Characterization/043-Feasibility Study (FS)
840017	6/8/2016	Portland Harbor RI/FS Draft Final Feasibility Study Appendix N Sensitivity Analysis.	2,249	362 RPT / Report	R10: (EPA)		053-REMEDIAL/0531-Remedy Characterization/043-Feasibility Study (FS)
840018	6/8/2016	Portland Harbor RI/FS Draft Final Feasibility Study Appendix O Considerations for Dredge Releases.	170	16 RPT / Report	R10: (EPA)		053-REMEDIAL/0531-Remedy Characterization/043-Feasibility Study (FS)
840019	6/8/2016	Portland Harbor RI/FS Draft Final Feasibility Study Appendix P Flood Rise Evaluation.	150	16 RPT / Report	R10: (EPA)		053-REMEDIAL/0531-Remedy Characterization/043-Feasibility Study (FS)
100035669	11/9/2016	Memorandum regarding EPA Position regarding the Lower Willamette Group's (LWG), Legacy Site Services' (LSS) and Union Pacific Railroad Company's (Union Pacific) June 22, 2016 Request for Dispute Resolution on EPA June 2016 Feasibility Study.	4,269	217 MEMO / Memorandum	R10: Koch, Kristine, M. (EPA)	R10: Bilbrey, Sheryl (Office of Environmental Cleanup EPA Region 10)	053-REMEDIAL/0531-Remedy Characterization/043-Feasibility Study (FS)
100035693	4/30/2016	Supplemental Area 2 Riverbank Focused Feasibility Study: Gunderson LLC Facility, 4350 NW Front Avenue, Portland, Oregon.	23,926	353 RPT / Report	R10: Breemer, Christopher, W. (Cascadia Associates, LLC), R10: Harrington, Kurt (Cascadia Associates, LLC)	R10: Harvey, David, J. (Gunderson LLC)	053-REMEDIAL/0531-Remedy Characterization/043-Feasibility Study (FS)
100035694	3/14/2016	Groundwater Monitoring Report for Fourth Quarter of 2015; Gunderson, LLC, Portland, Oregon.	1,581	38 RPT / Report	R10: Owens, Carmen, R. (APEX Companies LLC), R10: Walvatne, Gary, L. (Apex)	R10: (Gunderson LLC)	053-REMEDIAL/0531-Remedy Characterization/043-Feasibility Study (FS)
100035707	3/14/2016	Appendix A: Field Data Sheets; Groundwater Monitoring Report for Fourth Quarter of 2015; Gunderson, LLC, Portland, Oregon.	1,632	39 ADD / Analytical Data Document	R10: Owens, Carmen, R. (APEX Companies LLC), R10: Walvatne, Gary, L. (Apex)	R10: (Gunderson LLC)	053-REMEDIAL/0531-Remedy Characterization/043-Feasibility Study (FS)
100035719	3/14/2016	Appendix B: Historical Groundwater Elevations Results; Groundwater Monitoring Report for Fourth Quarter of 2015; Gunderson, LLC, Portland, Oregon.	165	70 ADD / Analytical Data Document	R10: Owens, Carmen, R. (APEX Companies LLC), R10: Walvatne, Gary, L. (Apex)	R10: (Gunderson LLC)	053-REMEDIAL/0531-Remedy Characterization/043-Feasibility Study (FS)
100035747	1/19/2016	Results of Analyses for Work Order A5L0719 (Gunderson/1935-01); Groundwater Monitoring Report for Fourth Quarter of 2015; Gunderson, LLC, Portland, Oregon.	1,704	198 ADD / Analytical Data Document	R10: Nerenberg, Philip (Apex Laboratories, Inc.), R10: (Gunderson LLC)	R10: Owens, Carmen, R. (APEX Companies LLC)	053-REMEDIAL/0531-Remedy Characterization/043-Feasibility Study (FS)
100035751	5/27/2016	Attachment A: As-Built Drawings (Or Record Drawings); Riverbank Source Control Measure Completion Report for EVRAZ Oregon Steel.	9,086	12 FIG / Figure/Map/ Drawing	R10: Byers, Michael, Girard (Crete Consulting Inc. PC), R10: (Herrera Environmental Consultants, Inc.), R10: (Crete Consulting Inc. PC), R10: (Integral Consulting Inc.)	R10: (EVRAZ Oregon Steel Mills, Inc.)	053-REMEDIAL/0531-Remedy Characterization/043-Feasibility Study (FS)
100035753	7/15/2015	Attachment B: Weekly Progress Reports to Dept. of Environmental Quality; Riverbank Source Control Measure Completion Report for EVRAZ Oregon Steel.	3,862	163 RPT / Report	R10: Heimbucher, Craig (Integral Consulting, Inc.)	R10: Sutter, Jennifer, L. (Oregon Dept. of Environmental Quality)	053-REMEDIAL/0531-Remedy Characterization/043-Feasibility Study (FS)
100035755	5/26/2015	Attachment C: Upland Soil Management Plan; Riverbank Source Control Measure Completion Report for EVRAZ Oregon Steel.	2,577	26 RPT / Report	R10: Sutter, Jennifer, L. (Oregon Dept. of Environmental Quality)	R10: Gilpin, Andrew, J. (EVRAZ Oregon Steel Mills, Inc.)	053-REMEDIAL/0531-Remedy Characterization/043-Feasibility Study (FS)
100035757	5/27/2016	Riverbank Source Control Measure Completion Report for EVRAZ Oregon Steel.	6,614	57 ADD / Analytical Data Document	R10: Heimbucher, Craig (Integral Consulting, Inc.), R10: Byers, Michael, Girard (Crete Consulting Inc. PC)	R10: (EVRAZ Oregon Steel Mills, Inc.)	053-REMEDIAL/0531-Remedy Characterization/043-Feasibility Study (FS)
100035764	8/19/2015	Attachment E: Well Abandonment Reports; Riverbank Source Control Measure Completion Report for EVRAZ Oregon Steel.	1,724	53 RPT / Report	R10: (EVRAZ Oregon Steel Mills, Inc.)		053-REMEDIAL/0531-Remedy Characterization/043-Feasibility Study (FS)
100035765	7/16/2015	Attachment G: Dept. of Environmental Quality (DEQ) Approvals and Notifications; Riverbank Source Control Measure Completion Report for EVRAZ Oregon Steel.	370	28 EML / Email	R10: Baker, Linda (Integral Consulting, Inc.)	R10: Heimbucher, Craig (Integral Consulting, Inc.), R10: Sund, Jane (Integral Consulting, Inc.), R10: Stevens, Jamie (Crete Consulting Inc. PC)	053-REMEDIAL/0531-Remedy Characterization/043-Feasibility Study (FS)
100035766	5/25/2016	Attachment H: Technical Memorandum 3 - Berm Construction Design Modifications; Riverbank Source Control Measure Completion Report for EVRAZ Oregon Steel.	1,478	9 MEMO / Memorandum	R10: Byers, Michael, Girard (Crete Consulting Inc. PC), R10: Forester, Kathryn, S. (Herrera Environmental Consultants, Inc.), R10: King, Jason (Herrera Environmental Consultants, Inc.)	R10: Baker, Linda (Integral Consulting, Inc.)	053-REMEDIAL/0531-Remedy Characterization/043-Feasibility Study (FS)
100035768	4/10/2015	Attachment D: 1200-C Permit Termination Documentation; Riverbank Source Control Measure Completion Report for EVRAZ Oregon Steel.	9,962	31 RPT / Report	R10: Garner, Ian (Oregon Dept. of Environmental Quality)	R10: Gilpin, Andrew, J. (EVRAZ Oregon Steel Mills, Inc.)	053-REMEDIAL/0531-Remedy Characterization/043-Feasibility Study (FS)
100035774	6/22/2015	Attachment I: Disposal Profiling Analytical Laboratory Reports; Riverbank Source Control Measure Completion Report for EVRAZ Oregon Steel.	1,181	58 RPT / Report	R10: (ALS Environmental)	R10: (Integral Consulting, Inc.)	053-REMEDIAL/0531-Remedy Characterization/043-Feasibility Study (FS)
100035776	8/15/2015	Attachment J: Material Disposal Receipts - Riverbend Landfill; Riverbank Source Control Measure Completion Report for EVRAZ Oregon Steel.	1,420	15 RPT / Report	R10: (Waste Management)	R10: (EVRAZ Oregon Steel Mills, Inc.)	053-REMEDIAL/0531-Remedy Characterization/043-Feasibility Study (FS)
100035799	10/19/2015	Attachment L: Cultural Resources Monitoring Report; Riverbank Source Control Measure; EVRAZ Oregon Steel.	4,369	27 RPT / Report	R10: Gilmour, Daniel, M. (Willamette Cultural Resources Associates, Ltd.), R10: Ellis, David, V. (Willamette Cultural Resources Associates, Ltd.)	R10: (Integral Consulting, Inc.), R10: (EVRAZ Oregon Steel Mills, Inc.)	053-REMEDIAL/0531-Remedy Characterization/043-Feasibility Study (FS)
100035801	9/4/2015	Attachment M: Post-Excavation Analytical Laboratory Reports; Riverbank Source Control Measure; EVRAZ Oregon Steel.	75,567	3991 RPT / Report	R10: Salata, Gregory, G. (ALS Laboratory Group)	R10: Heimbucher, Craig (Integral Consulting, Inc.)	053-REMEDIAL/0531-Remedy Characterization/043-Feasibility Study (FS)
100035823	7/30/2015	Attachment N: Import Material Sampling Protocol; Riverbank Source Control Measure; EVRAZ Oregon Steel.	322	13 RPT / Report	R10: (Integral Consulting, Inc.)		053-REMEDIAL/0531-Remedy Characterization/043-Feasibility Study (FS)
100036174	8/27/2015	REDACTED Attachment F: Import Material Analytical Laboratory Reports; Riverbank Source Control Measure Completion Report for EVRAZ Oregon Steel.	14,800	193 RPT / Report	R10: Auvil, Darrell, W. (Apex Laboratories, Inc.), R10: Thomas, Darwin (Apex Laboratories, Inc.)	R10: Rice, Terry (Columbia West Engineering, Inc.)	053-REMEDIAL/0531-Remedy Characterization/043-Feasibility Study (FS)
100036175	5/27/2016	REDACTED Attachment K: Monitoring and Maintenance Plan; Riverbank Source Control Measure; EVRAZ Oregon Steel.	37,678	170 RPT / Report	R10: (Integral Consulting Inc.)	R10: (EVRAZ Oregon Steel Mills, Inc.)	053-REMEDIAL/0531-Remedy Characterization/043-Feasibility Study (FS)
4940680515	12/7/2005	Email regarding December 8 PHManagers meeting.	22	1 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Applegate, Richard (City of Portland, Oregon), R10: Mckenna, Jim (Port of Portland), R10: Pine, Keith, A (Integral Consulting, Inc.), R10: Humphrey, Chip (EPA), R10: Blischke, Eric, L (Oregon Dept. of Environmental Quality), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality), R10: McClincy, Matt (Oregon Dept. of Environmental Quality), R10: Lee, Jean, H (Environment International, Ltd.), R10: Wyatt, Robert, J (NW Natural)	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100013685	4/10/2006	2006-04-12 LWG letter on alternative technologies.	56	2 CORR / Correspondence	R10: Mckenna, Jim (Port of Portland), R10: Wyatt, Robert, J (NW Natural)	R10: Haley-harris, Jane (Oregon Center for Environmental Health), R10: Plance, Robin, G (Portland Harbor Community Advisory Group)	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100016706	4/12/2006	REDACTED Email regarding LWG letter on alternative technologies in Portland.	25	1 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Plance, Robin, G, R10: Healy-harris, Jane (Oregon Department of Health Services)	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100009333	4/20/2006	Email Regarding location of 4/25 FS meeting.	52	1 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality), R10: McClincy, Matt (Oregon Dept. of Environmental Quality), R10: Lee, Jean, H (Environment International, Ltd.)	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100013502	4/20/2006	Email Regarding location of 4/25 FS meeting.	52	1 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality), R10: McClincy, Matt (Oregon Dept. of Environmental Quality), R10: Lee, Jean, H (Environment International, Ltd.)	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)

100007787	Email Regarding agenda for 5/2 modeling discussion	43	1 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Mckenna, Jim (Port of Portland), R10: Walton, Raymond (West Consultants, Inc.), R10: Stivers, Carl (Anchor Environmental, LLC), R10: Kennedy, Laura (Kennedy/Jenks Consultants), R10: Judd, Nancy (Windward Environmental, LLC.), R10: Pine, Keith, A (Integral Consulting, Inc.), R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA), R10: Hope, Bruce, K (Oregon Dept. of Environmental Quality), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality), R10: McClincy, Matt (Oregon Dept. of Environmental Quality), R10: Lewis, Mark, D (NewFields), R10: Livesay, Dave (GSI Groundwater Solutions, Inc.), R10: Lee, Jean, H (Environment International, Ltd.), R10: Lee, Valerie (Environment International, Ltd.), R10: Longoria, Rose (Yakama Nation), R10: Wyatt, Robert, J (NW Natural), R10: Revelas, Gene (Integral Corporation), R10: Applegate, Rick (City of Portland)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100013404	Email regarding agenda for 5_2 modeling discussion.	48	1 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Applegate, Richard (City of Portland, Oregon), R10: Walton, Raymond (West Consultants, Inc.), R10: Stivers, Carl (Anchor Environmental, LLC), R10: Oster, Valerie (Anchor Environmental, LLC), R10: Kennedy, Laura (Kennedy/Jenks Consultants), R10: Judd, Nancy (Windward Environmental, LLC.), R10: Pine, Keith, A (Integral Consulting, Inc.), R10: Mckenna, James, J (McKenna Environmental, LLC), R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA), R10: Hope, Bruce, K (Oregon Dept. of Environmental Quality), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality), R10: McClincy, Matt (Oregon Dept. of Environmental Quality), R10: Lewis, Mark, D (NewFields), R10: Livesay, Dave (GSI Groundwater Solutions, Inc.), R10: Lee, Jean, H (Environment International, Ltd.), R10: Lee, Valerie (Environment International, Ltd.), R10: Longoria, Rose (Yakama Nation), R10: Wyatt, Robert, J (NW Natural), R10: Revelas, Gene (Integral Corporation)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100015784	REDACTED Email Regarding Tuesday May 2 meeting location.	42	1 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality), R10: Lee, Jean, H (Environment International, Ltd.), R10: Longoria, Rose (Yakama Nation)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100009668	5/2/2006 Email Regarding Agenda for Today's Meeting.	21	1 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100014180	REDACTED Meeting Agenda Regarding Modeling Discussions	37	1 MTG / Meeting Document			ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100016913	REDACTED Modeling Discussions agenda and objectives.	24	1 MEMO / Memorandum	R10: (Stoel Rives)		ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
4940680590	Email regarding LWG Lamprey Sturgeon proposed studies.	66	1 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Neely, Robert (NOAA), R10: Gouget, Ron (NOAA), R10: Sleeper, Preston, A (U.S. Dept. of the Interior), R10: Buerger, Ted (U. S. Fish and Wildlife Service), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Cunningham, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Howard, Patti (Columbia River Inter-Tribal Fish Commission), R10: Barquin, Billy (Confederated Tribes of the Siletz Indians), R10: Downey, Tom (Confederated Tribes of the Siletz Indians), R10: Baker, Jeff (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Bluelake, Lisa (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA), R10: Davoli, Dana (EPA), R10: Madden, Erin (Nez Perce Tribe), R10: Anderson, James, M (Oregon Dept. of Environmental Quality), R10: Omealy, Mikell (Oregon Dept. of Environmental Quality), R10: Lee, Valerie (Environment International, Ltd.), R10: Longoria, Rose (Yakama Nation), R10: Kepler, Rick, J (State of Oregon)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100009086	Suggested Revisions to Modeling Objectives Matrix based on May 17 Conference Call with EPA.	30	2 CHT / Chart/Table	R10: Unknown, Unknown (Lower Willamette Group)		ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100009085	Email Regarding Revised Modeling Objectives	57	2 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Marsh, John (Unknown), R10: Mckenna, Jim (Port of Portland), R10: Cunningham, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Stivers, Carl (Anchor Environmental, LLC), R10: Toll, John (Windward Environmental, LLC.), R10: Saban, Lisa (Windward Environmental, LLC.), R10: Judd, Nancy (Windward Environmental, LLC.), R10: Pine, Keith, A (Integral Consulting, Inc.), R10: Blischke, Eric, L (EPA), R10: Hope, Bruce, K (Oregon Dept. of Environmental Quality), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality), R10: McClincy, Matt (Oregon Dept. of Environmental Quality), R10: Lee, Valerie (Environment International, Ltd.), R10: Longoria, Rose (Yakama Nation), R10: Wyatt, Robert, J (NW Natural), R10: Revelas, Gene (Integral Corporation), R10: Applegate, Rick (City of Portland)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)

100013405	Email regarding Revised Modeling Objectives 6/8/2006 Matrix.	55	2 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Applegate, Richard (City of Portland, Oregon), R10: Walton, Raymond (West Consultants, Inc.), R10: Stivers, Carl (Anchor Environmental, LLC), R10: Toll, John (Windward Environmental, LLC.), R10: Saban, Lisa (Windward Environmental, LLC.), R10: Judd, Nancy (Windward Environmental, LLC.), R10: Pine, Keith, A (Integral Consulting, Inc.), R10: Mckenna, James, J (McKenna Environmental, LLC), R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA), R10: Hope, Bruce, K (Oregon Dept. of Environmental Quality), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality), R10: McClincy, Matt (Oregon Dept. of Environmental Quality), R10: Lee, Valerie (Environment International, Ltd.), R10: Longoria, Rose (Yakama Nation), R10: Wyatt, Robert, J (NW Natural), R10: Marsh, John (Parametrix, Inc.), R10: Cunningham, Brian (Columbia Gorge Mining Company), R10: Revelas, Gene (Windward Environmental, LLC.)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remediation/044-Feasibility Study (FS) (General)
4940680370	6/9/2006 Email regarding Reply to Ecorisk status update.	23	2 EML / Email	R10: Mckenna, James (Port of Portland)	R10: Applegate, Richard (City of Portland, Oregon), R10: Saban, Lisa (Windward Environmental, LLC.), R10: Blischke, Eric, L (EPA), R10: Goulet, Joe (EPA), R10: Wyatt, Robert, J (NW Natural)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remediation/044-Feasibility Study (FS) (General)
100010319	8/22/2006 Email regarding Portland Harbor FWM.	16	2 EML / Email	R10: Judd, Nancy (Windward Environmental, LLC.)	R10: Hope, Bruce, K (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remediation/044-Feasibility Study (FS) (General)
100010318	1/29/2007 Email regarding PH FW model comments.	71	1 EML / Email	R10: Hope, Bruce, K (Oregon Dept. of Environmental Quality)	R10: Shephard, Burt (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remediation/044-Feasibility Study (FS) (General)
4940680035	Email regarding Comprehensive Round 2 2/23/2007 Report Posted on Portal.	62	2 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Applegate, Richard (City of Portland, Oregon), R10: Neely, Robert (NOAA), R10: Gouget, Ron (NOAA), R10: Fleming, Sheila (Ridolfi Engineers and Associates, Inc.), R10: Buck, Jeremy (U. S. Fish and Wildlife Service), R10: Buerger, Ted (U. S. Fish and Wildlife Service), R10: Mckenna, Jim (Port of Portland), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Cunninghame, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Howard, Patti (Columbia River Inter-Tribal Fish Commission), R10: Baker, Jeff (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Bluelake, Lisa (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Fuentes, Rene, C (EPA), R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA), R10: Madden, Erin (Nez Perce Tribe), R10: Barquin, Billy (Haglund, Kelley, Horngren, Jones & Wilder, LLP), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality), R10: McClincy, Matt (Oregon Dept. of Environmental Quality), R10: Lee, Valerie (Environment International, Ltd.), R10: Longoria, Rose (Yakama Nation), R10: Wyatt, Robert, J (NW Natural), R10: Pine, Keith (Anchor Environmental, LLC)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remediation/044-Feasibility Study (FS) (General)
4940680523	Email regarding Comprehensive Round 2 2/23/2007 Report Posted on Portal.	62	2 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Applegate, Richard (City of Portland, Oregon), R10: Neely, Robert (NOAA), R10: Gouget, Ron (NOAA), R10: Fleming, Sheila (Ridolfi Engineers and Associates, Inc.), R10: Sleeper, Preston, A (U.S. Dept. of the Interior), R10: Buerger, Ted (U. S. Fish and Wildlife Service), R10: Mckenna, James (Port of Portland), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Cunninghame, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Howard, Patti (Columbia River Inter-Tribal Fish Commission), R10: Barquin, Billy (Confederated Tribes of the Siletz Indians), R10: Downey, Tom (Confederated Tribes of the Siletz Indians), R10: Baker, Jeff (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Bluelake, Lisa (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Fuentes, Rene, C (EPA), R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA), R10: Davoli, Dana (EPA), R10: Goulet, Joe (EPA), R10: Madden, Erin (Nez Perce Tribe), R10: Anderson, James, M (Oregon Dept. of Environmental Quality), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality), R10: McClincy, Matt (Oregon Dept. of Environmental Quality), R10: Lee, Valerie (Environment International, Ltd.), R10: Longoria, Rose (Yakama Nation), R10: Wyatt, Robert, J (NW Natural), R10: Pine, Keith	ELECTRONIC RECORD	053-REMEDIAL/0531-Remediation/044-Feasibility Study (FS) (General)
4940680702	Email regarding Updates to EPA Partners 3/15/2007 deliverable distribution list.	40	1 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Mckenna, Jim (Port of Portland), R10: Revelas, Gene, C (Integral Consulting, Inc.), R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA), R10: Wyatt, Robert, J (NW Natural), R10: Hawley, Christine (Integral Corporation), R10: Pine, Keith (Anchor Environmental, LLC), R10: Applegate, Rick (City of Portland)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remediation/044-Feasibility Study (FS) (General)



4940680034	3/23/2007	Email regarding Comprehensive Round 2 Report Errata Posted.	71	2 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	Oregon), R10: Neely, Robert (NOAA), R10: Fleming, Sheila (Ridolfi Engineers and Associates, Inc.), R10: Sleeper, Preston, A (U.S. Dept. of the Interior), R10: Buerger, Ted (U. S. Fish and Wildlife Service), R10: Mckenna, Jim (Port of Portland), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Cunninghame, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Howard, Patti (Columbia River Inter-Tribal Fish Commission), R10: Barquin, Billy (Confederated Tribes of the Siletz Indians), R10: Downey, Tom (Confederated Tribes of the Siletz Indians), R10: Baker, Jeff (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Bluelake, Lisa (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Downey, Scott, E (EPA), R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA), R10: Shephard, Burt (EPA), R10: Humphrey, Chip (EPA), R10: Davoli, Dana (EPA), R10: Madden, Erin (Nez Perce Tribe), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality), R10: McClincy, Matt (Oregon Dept. of Environmental Quality), R10: Lee, Valerie (Environment International, Ltd.), R10: Longoria, Rose (Yakama Nation), R10: Wyatt, Robert, J (NW Natural), R10: Pine, Keith (Anchor Environmental, LLC), R10: Gouguet, Ron (NOAA), R10: Kepler, Rick, J (State of	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
4940680522	3/23/2007	Email regarding Comprehensive Round 2 Report Errata Posted.	61	2 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Applegate, Richard (City of Portland, Oregon), R10: Fleming, Sheila (Ridolfi Engineers and Associates, Inc.), R10: Buck, Jeremy (U. S. Fish and Wildlife Service), R10: Mckenna, Jim (Port of Portland), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Cunninghame, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Howard, Patti (Columbia River Inter-Tribal Fish Commission), R10: Downey, Tom (Confederated Tribes of the Siletz Indians), R10: Pine, Keith, A (Integral Consulting, Inc.), R10: Baker, Jeff (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Bluelake, Lisa (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Fuentes, Roger, C (EPA), R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA), R10: Shephard, Burt (EPA), R10: Humphrey, Chip (EPA), R10: Goulet, Joe (EPA), R10: Madden, Erin (Nez Perce Tribe), R10: Barquin, Billy (Haglund, Kelley, Horngren, Jones & Wilder, LLP), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality), R10: McClincy, Matt (Oregon Dept. of Environmental Quality), R10: Lee, Valerie (Environment International, Ltd.), R10: Wyatt, Robert, J (NW Natural), R10: Gouguet, Ron (NOAA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100008807	3/30/2007	Email Regarding draft agenda for April 2 modeling meeting.	48	1 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Smith, Carrie, A (Parametrix, Inc.), R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA), R10: Shephard, Burt (EPA), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100014745	4/2/2007	REDACTED Draft Meeting Agenda: Hybrid Modeling Meeting.	58	1 MTG / Meeting Document	R10: Unknown, Unknown (Lower Willamette Group)		ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100013649	4/9/2007	Email regarding FS data gaps.	36	2 EML / Email	R10: Mckenna, James (Verdant Solutions, LLC)	R10: Humphrey, Chip (EPA), R10: Gainer, Tom (Oregon Dept. of Environmental Quality), R10: Stivers, Carl (Anchor QEA, LLC)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100008779	6/22/2007	Email regarding 6/19/07 DEQ/EPA SC Meeting.	42	2 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Sheldrake, Sean, A (EPA), R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA), R10: Yamamoto, Deb (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
4940680175	7/20/2007	Email regarding Reply to Draft SCD Paco Pumps.	42	2 EML / Email	R10: Anderson, James, M (Oregon Dept. of Environmental Quality)	Buchman, Mike (NOAA), R10: Neely, Robert (NOAA), R10: Gouget, Ron (NOAA), R10: Burkholder, Kurt (Oregon Dept. of Justice), R10: Perry, Lynne (Oregon Dept. of Justice), R10: Fleming, Sheila (Ridolfi Engineers and Associates, Inc.), R10: Szumski, Michael, J (U. S. Fish and Wildlife Service), R10: Buerger, Ted (U. S. Fish and Wildlife Service), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Cunninghame, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Howard, Patti (Columbia River Inter-Tribal Fish Commission), R10: Bridgen, Pamela, J (Environment International, Ltd.), R10: Downey, Tom (Confederated Tribes of the Siletz Indians), R10: Baker, Jeff (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Bluelake, Lisa (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Karnosh, Michael (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Young, Cyril (Oregon Dept. of State Lands), R10: Sheldrake, Sean, A (EPA), R10: Fuentes, Rene, C (EPA), R10: Cora, Lori, H (EPA), R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA), R10: Smith, Judy, R (EPA), R10: Black, Curt (EPA), R10: Davoli, Dana (EPA), R10: Yamamoto, Deb (EPA), R10: Grepo-grove, Ginna (EPA), R10: Goulet, Joe (EPA), R10: Madden, Erin (Nez Perce Tribe), R10: Oatman,	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100017657	8/7/2007	REDACTED Email regarding Reply to Field Day equipment quotes.	26	2 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Cox, Kim, E (City of Portland, Oregon), R10: Wray, Rachel (Port of Portland), R10: Howard, Patti (Columbia River Inter-Tribal Fish Commission), R10: Williams, Travis (Willamette Riverkeeper), R10: Smith, Judy, R (EPA), R10: Early, Julie (Oregon Dept. of Human Services), R10: Danab, Marcia (Oregon Dept. of Environmental Quality), R10: Plance, Robin, G (Portland Harbor Community Advisory Group), R10: Hanna, Vicki (Harris and Smith), R10: Smith, Barbara (Harris and Smith), R10: Robison, Jim (Forward Support Inc.), R10: Longley, Jeanne (Portland Harbor Community Advisory Group)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)

100017568	REDACTED Email regarding Reply to PHFD 8/8/2007 meeting start time.	55	3 EML / Email	R10: Danab, Marcia (Oregon Dept. of Environmental Quality)	R10: Wray, Rachel (Port of Portland), R10: Howard, Patti (Columbia River Inter-Tribal Fish Commission), R10: Smith, Judy, R (EPA), R10: Humphrey, Chip (EPA), R10: Early, Julie (Oregon Dept. of Human Services), R10: Cox, Kim, E (Oregon Dept. of Environmental Quality), R10: Anderson, James, M (Oregon Dept. of Environmental Quality), R10: Plance, Robin, G (Portland Harbor Community Advisory Group), R10: Williams, Travis (Portland Harbor Citizen Advisory Group), R10: Hanna, Vicki (Harris and Smith), R10: Smith, Barbara (Harris and Smith), R10: Robison, Jim (Forward Support Inc.), R10: Longley, Jeanne (Portland Harbor Community Advisory Group)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100017570	REDACTED Email regarding Reply to Park Permit.	21	1 EML / Email	R10: Anderson, James, M (Oregon Dept. of Environmental Quality)	R10: Cox, Kim, E (City of Portland, Oregon), R10: Wray, Rachel (Port of Portland), R10: Howard, Patti (Columbia River Inter-Tribal Fish Commission), R10: Smith, Judy, R (EPA), R10: Humphrey, Chip (EPA), R10: Early, Julie (Oregon Dept. of Human Services), R10: Danab, Marcia (Oregon Dept. of Environmental Quality), R10: Plance, Robin, G (Portland Harbor Community Advisory Group), R10: Williams, Travis (Portland Harbor Citizen Advisory Group), R10: Hanna, Vicki (Harris and Smith), R10: Robison, Jim (Forward Support Inc.), R10: Longley, Jeanne (Portland Harbor Community Advisory Group)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100009065	DECLARATION FOR THE NEAL'S LANDFILL RECORD OF DECISION AMENDMENT.	824	13 RPT / Report	R10: (US ENVIRONMENTAL PROTECTION AGENCY)		ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100008781	Email regarding Leachate Testing to Support Portland Harbor FS.	30	4 EML / Email	R10: Blischke, Eric, L (EPA)	R10: Mckenna, Jim (Port of Portland), R10: Stivers, Carl (Anchor Environmental, LLC), R10: Wyatt, Robert, J (NW Natural), R10: Applegate, Rick (City of Portland)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100013657	Email regarding Leachate Testing to Support Portland Harbor FS.	23	3 EML / Email	R10: Mckenna, James (Verdant Solutions, LLC)	R10: Applegate, Richard (City of Portland, Oregon), R10: Wyatt, Robert, J (Northwest Natural Gas Company), R10: Blischke, Eric, L (EPA), R10: Stivers, Carl (Anchor QEA, LLC), Buchman, Mike (NOAA), R10: Neely, Robert (NOAA), R10: Burkholder, Kurt (Oregon Dept. of Justice), R10: Fleming, Sheila (Ridolfi Engineers and Associates, Inc.), R10: Szumski, Michael, J (U. S. Fish and Wildlife Service), R10: Buck, Jeremy (U. S. Fish and Wildlife Service), R10: Buerger, Ted (U. S. Fish and Wildlife Service), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Cunninghame, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Howard, Patti (Columbia River Inter-Tribal Fish Commission), R10: Baker, Jeff (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Bluelake, Lisa (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Karnosh, Michael (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Young, Cyril (Oregon Dept. of State Lands), R10: Shelldrake, Sean, A (EPA), R10: Fuentes, Rene, C (EPA), R10: Cora, Lori, H (EPA), R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA), R10: Smith, Judy, R (EPA), R10: Humphrey, Chip (EPA), R10: Black, Curt (EPA), R10: Yamamoto, Deb (EPA), R10: Grepogrove, Ginna (EPA), R10: Madden, Erin (Nez Perce Tribe), R10: Oatman, Joe (Nez Perce Tribe), R10: Eichstaedt, Rick (Nez Perce Tribe), R10: Barquin, Billy (Haglund, Kelley, Horngren, Jones & Wilder, LLP), R10: Anderson, James, M (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
4940680176	Email regarding Reply to Draft SCD Portland Shipyard OU3.	49	1 EML / Email	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)		ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100013660	Email regarding Leachate Testing to Support Portland Harbor FS.	24	3 EML / Email	R10: Mckenna, James (Verdant Solutions, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100016834	REDACTED Email regarding Leachate Testing to Support Portland Harbor FS.	25	4 EML / Email	R10: Mckenna, James (Verdant Solutions, LLC)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100013655	Email regarding Leachate Testing to Support Portland Harbor FS.	24	4 EML / Email	R10: Mckenna, James (Port of Portland)	R10: Blischke, Eric, L (EPA), Buchman, Mike (NOAA), R10: Neely, Robert (NOAA), R10: Burkholder, Kurt (Oregon Dept. of Justice), R10: Fleming, Sheila (Ridolfi Engineers and Associates, Inc.), R10: Szumski, Michael, J (U. S. Fish and Wildlife Service), R10: Buck, Jeremy (U. S. Fish and Wildlife Service), R10: Buerger, Ted (U. S. Fish and Wildlife Service), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Cunninghame, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Howard, Patti (Columbia River Inter-Tribal Fish Commission), R10: Baker, Jeff (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Bluelake, Lisa (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Karnosh, Michael (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Young, Cyril (Oregon Dept. of State Lands), R10: Shelldrake, Sean, A (EPA), R10: Fuentes, Rene, C (EPA), R10: Cora, Lori, H (EPA), R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA), R10: Smith, Judy, R (EPA), R10: Humphrey, Chip (EPA), R10: Black, Curt (EPA), R10: Yamamoto, Deb (EPA), R10: Grepogrove, Ginna (EPA), R10: Madden, Erin (Nez Perce Tribe), R10: Oatman, Joe (Nez Perce Tribe), R10: Eichstaedt, Rick (Nez Perce Tribe), R10: Barquin, Billy (Haglund, Kelley, Horngren, Jones & Wilder, LLP), R10: Anderson, James, M (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
4940680177	Email regarding Reply to Draft SCD Portland Shipyard OU3.	53	2 EML / Email	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)		ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)

4940680184	11/15/2007	Email regarding Draft SCD Mar Com North.	39	1 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	Buchman, Mike (NOAA), R10: Neely, Robert (NOAA), R10: Burkholder, Kurt (Oregon Dept. of Justice), R10: Fleming, Sheila (Ridolfi Engineers and Associates, Inc.), R10: Szumski, Michael, J (U. S. Fish and Wildlife Service), R10: Buerger, Ted (U. S. Fish and Wildlife Service), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Cunninghame, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Howard, Patti (Columbia River Inter-Tribal Fish Commission), R10: Spencer, Jeff (Confederated Tribes and Bands of the Yakima Indian Nation), R10: Ward, Paul (Confederated Tribes and Bands of the Yakima Indian Nation), R10: Barquin, Billy (Confederated Tribes of the Siletz Indians), R10: Baker, Jeff (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Bluelake, Lisa (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Karnosh, Michael (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Young, Cyril (Oregon Dept. of State Lands), R10: Sheldrake, Sean, A (EPA), R10: Fuentes, Rene, C (EPA), R10: Cora, Lori, H (EPA), R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA), R10: Smith, Judy, R (EPA), R10: Humphrey, Chip (EPA), R10: Black, Curt (EPA), R10: Davoli, Dana (EPA), R10: Yamamoto, Deb (EPA), R10: Grepo-grove, Ginna (EPA), R10: Goulet, Joe (EPA), R10: Buchman, Mike (NOAA), R10: Neely, Robert (NOAA), R10: Burkholder, Kurt (Oregon Dept. of Justice), R10: Fleming, Sheila (Ridolfi Engineers and Associates, Inc.), R10: Szumski, Michael, J (U. S. Fish and Wildlife Service), R10: Buck, Jeremy (U. S. Fish and Wildlife Service), R10: Buerger, Ted (U. S. Fish and Wildlife Service), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Cunninghame, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Howard, Patti (Columbia River Inter-Tribal Fish Commission), R10: Baker, Jeff (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Bluelake, Lisa (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Karnosh, Michael (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Young, Cyril (Oregon Dept. of State Lands), R10: Sheldrake, Sean, A (EPA), R10: Fuentes, Rene, C (EPA), R10: Cora, Lori, H (EPA), R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA), R10: Smith, Judy, R (EPA), R10: Humphrey, Chip (EPA), R10: Black, Curt (EPA), R10: Yamamoto, Deb (EPA), R10: Grepo-grove, Ginna (EPA), R10: Madden, Erin (Nez Perce Tribe), R10: Oatman, Joe (Nez Perce Tribe), R10: Eichstaedt, Rick (Nez Perce Tribe), R10: Barquin, Billy (Haglund, Kelley, Horngren, Jones & Wilder, LLP), R10: Anderson, James, M (Oregon Dept. of	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
4940680196	11/16/2007	Email regarding Reply to Draft Gasco and Siltronic Groundwater Source Control FFS.	37	1 EML / Email	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)		ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100013565	12/14/2007	Email regarding LWG Responses on EPA F&T Comments Related to Data Needs.	75	2 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100008941	12/17/2007	Email Regarding LWG Proposal Mobility Testing.	62	2 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100008942	12/17/2007	Preliminary Proposal for Feasibility Study (FS) Mobility Testing.	242	6 MEMO / Memorandum	R10: Stivers, Carl (Anchor Environmental, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100008943	12/17/2007	Preliminary Proposal for Feasibility Study (FS) Mobility Test Tables.	22	5 CHT / Chart/Table	R10: Stivers, Carl (Anchor QEA, LLC)		ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100013566	12/17/2007	Email regarding LWG Proposal Mobility Testing.	60	2 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100013935	12/17/2007	Mobility Testing Memo.	173	6 MEMO / Memorandum	R10: Stivers, Carl (Anchor Environmental, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
4940680185	12/19/2007	Email regarding Reply to Draft SCD Mar Com North.	41	2 EML / Email	R10: Anderson, James, M (Oregon Dept. of Environmental Quality)	Buchman, Mike (NOAA), R10: Neely, Robert (NOAA), R10: Burkholder, Kurt (Oregon Dept. of Justice), R10: Perry, Lynne (Oregon Dept. of Justice), R10: Fleming, Sheila (Ridolfi Engineers and Associates, Inc.), R10: Szumski, Michael, J (U. S. Fish and Wildlife Service), R10: Buerger, Ted (U. S. Fish and Wildlife Service), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Howard, Patti (Columbia River Inter-Tribal Fish Commission), R10: Downey, Tom (Confederated Tribes of the Siletz Indians), R10: Baker, Jeff (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Bluelake, Lisa (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Karnosh, Michael (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Young, Cyril (Oregon Dept. of State Lands), R10: Sheldrake, Sean, A (EPA), R10: Fuentes, Rene, C (EPA), R10: Cora, Lori, H (EPA), R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA), R10: Smith, Judy, R (EPA), R10: Humphrey, Chip (EPA), R10: Black, Curt (EPA), R10: Davoli, Dana (EPA), R10: Yamamoto, Deb (EPA), R10: Grepo-grove, Ginna (EPA), R10: Goulet, Joe (EPA), R10: Madden, Erin (Nez Perce Tribe), R10: Oatman, Joe (Nez Perce Tribe), R10: Eichstaedt, Rick (Nez Perce Tribe), R10: Barquin, Billy (Haglund, Kelley, Horngren, Jones & Wilder, LLP), R10: McClincy, Matt	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100008911	2/2/2008	Email Regarding LWG Proposal Mobility Testing.	43	3 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100013484	2/2/2008	Email Regarding LWG Proposal Mobility Testing.	44	3 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100008784	3/3/2008	Email regarding FS Process Outline.	16	1 EML / Email	R10: Blischke, Eric, L (EPA)	R10: Mckenna, Jim (Port of Portland), R10: Wyatt, Robert, J (NW Natural), R10: Applegate, Rick (City of Portland)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100008786	3/3/2008	Portland Harbor RI/FS - FS Process Outline.	31	4 CORR / Correspondence	R10: Unknown, Unknown (EPA)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100008800	3/5/2008	Discussion Materials from EPA Meeting on Feasibility Study.	25	2 MTG / Meeting Document	R10: Unknown, Unknown (Lower Willamette Group)		ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100013376	3/5/2008	Email regarding today's FS meeting location - schwabe.	27	1 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)



100013936	Discussion Materials from EPA Meeting on 3/5/2008 Feasibility Study.	20	2	MTG / Meeting Document	R10: (Schwabe Williamson & Wyatt)		ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100008799	Email Regarding FS meeting action items and discussion outline.	25	1	EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100013569	Email regarding FS meeting action items and discussion outline.	25	1	EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100017986	REDACTED Email Regarding LWG Sediment Chemical Mobility FSP for EPA Review.	20	1	EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100008947	Lower Willamette Group (LWG) Responses to EPA's February 15th, 2008 Comments on the Draft Treatability Study Literature Survey Technical Memorandum – All Responses, March 28, 2008.	81	12	MEMO / Memorandum	R10: Unknown, Unknown (Lower Willamette Group)		ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100013570	Email regarding LWG Response to EPA Comments - Treatability Study Literature Survey.	45	1	EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100013939	Responses to EPA - Draft Treatability Study Literature Survey Technical Memorandum, all responses.	69	12	RPT / Report	R10: (Lower Willamette Group)		ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100020071	REDACTED Email Regarding LWG Response to EPA Comments - Treatability Study Literature Survey.	32	1	EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100017925	REDACTED Email Regarding Side Scan Sonar Revised FSP Extension.	62	2	EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100009090	Email Regarding Sediment chemical mobility QAPP - For EPA review.	25	2	EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100017921	REDACTED Email Regarding Sediment chemical mobility QAPP - For EPA review.	22	2	EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100009361	Issue Resolution Table.	82	7	CHT / Chart/Table	R10: Unknown, Unknown (Lower Willamette Group)		ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100015667	REDACTED Email Regarding LWG revised table response.	27	1	EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Cora, Lori, H (EPA), R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100016737	REDACTED Email regarding call-in number for 5/7/2008 1pm FS disposal site meeting.	51	1	EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Madden, Erin (Unknown), R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100010861	Supplemental Data for "A database of fish biotransformation rates for organic chemicals" Environmental Toxicology and Chemistry - Arnot et al 2008_supplement1.	473	86	CORR / Correspondence	R10: Mackay, Donald (Unknown), R10: Arnot, Jon, A (Unknown), R10: Parkerton, Thomas (Unknown), R10: Bonnell, Mark (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100010798	Email Regarding Stormwater Loading Methods Report.	25	1	EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100013679	Fate and Transport May 28 Meeting Notes.	14	1	RPT / Report	R10: (Unknown)		ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100008903	Email Regarding DRAFT Definition of FS Terms.	23	1	EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100008904	Draft Definitions of Terms for use in the Feasibility Study.	94	4	RPT / Report	R10: Stivers, Carl (Anchor QEA, LLC)		ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100013572	Email regarding DRAFT Definition of FS Terms.	25	1	EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100013770	Draft, Definitions of Terms for Use in the Feasibility Study.	47	4	RPT / Report	R10: (Unknown)		ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100013681	PRGs June 4 Meeting Notes.	20	2	MTG / Meeting Document	R10: (Unknown)		ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100013683	Stormwater Loading Methods June 5 Meeting Notes.	16	2	MTG / Meeting Document	R10: (Unknown)		ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100013605	Email regarding PH Meeting tomorrow - June 6/10/2008 11.	17	1	EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA), R10: Pine, Keith (Anchor Environmental, LLC)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100013246	Email regarding PH Meeting tomorrow - June 6/11/2008 11.	52	2	EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100013583	Email regarding Recent Meeting Summary Notes.	23	1	EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100013673	AETT Meeting Notes and Proposed Scope.	81	4	RPT / Report	R10: (Lower Willamette Group)		ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100013675	June 11 Meeting Notes, Alternative Evaluation of Treatment Technologies Meeting Summary.	35	1	MTG / Meeting Document	R10: (Lower Willamette Group)		ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100008907	Email Regarding Draft Final LWG Sediment Chemical Mobility Testing FSP.	29	1	EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100017831	REDACTED Email Regarding Draft Final LWG Sediment Chemical Mobility Testing FSP.	23	1	EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100017852	REDACTED Email Regarding Draft Final LWG Sediment Chemical Mobility Testing FSP.	22	1	EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100009661	Email Regarding PRG Meeting Agenda Items.	23	1	EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Mckenna, Jim (Port of Portland), R10: Humphrey, Chip (EPA), R10: Wyatt, Robert, J (NW Natural), R10: Applegate, Rick (City of Portland)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100010317	Email regarding Food Web Model Comments.	225	2	EML / Email	R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)	R10: Shephard, Burt (EPA), R10: Humphrey, Chip (EPA), R10: Blischke, Heidi (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100008905	Email Regarding Draft Disposal Site Working List.	25	1	EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100008906	DRAFT DISPOSAL FACILITY SITE "WORKING LIST" FOR THE FS.	105	2	RPT / Report	R10: Stivers, Carl (Anchor QEA, LLC)		ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100013582	Draft Working Disposal Site 6-27-2008.	53	2	RPT / Report	R10: (Lower Willamette Group)		ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100013585	Email regarding Draft Disposal Site Working List.	25	1	EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100009041	Email Regarding PRG June 18 Meeting Notes.	23	1	EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100009042	PRG Meeting Summary - June 18, 2008.	63	2	MTG / Meeting Document	R10: Unknown, Unknown (Lower Willamette Group)		ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100009089	Email Regarding Sediment Chemical Mobility FSP; Revised Posting.	70	2	EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)

100009039	7/11/2008	Ecological Receptors.	129	2	CHT / Chart/Table	R10: Unknown, Unknown (Lower Willamette Group)		ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100009040	7/11/2008	Draft PRG Methods and Process Agreements.	75	4	MTG / Meeting Document	R10: Unknown, Unknown (Lower Willamette Group)		ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100009076	7/11/2008	Email Regarding PRG July 2 Meeting Notes and Summary PRG Agreements.	26	1	EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100009077	7/11/2008	PRG Meeting Summary – July 2, 2008	63	2	MTG / Meeting Document	R10: Stivers, Carl (Lower Willamette Group)		ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100009078	7/11/2008	Chemical List for Early PRGs.	27	1	CHT / Chart/Table	R10: Unknown, Unknown (Lower Willamette Group)		ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100010322	7/11/2008	Review Portland Food Web Modeling Effort - Burkhard comments June 2008.	71	6	CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100010323	7/16/2008	EPA Comments Appendix E: Round 2 Comprehensive Site Characterization Summary and Data Gaps Report - Shephard AppendixEComments071208.	133	11	CORR / Correspondence	R10: Macintyre, Mark, A (EPA)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100008893	7/17/2008	Alternative Evaluation of Treatment Technologies Meeting Summary - June 11, 2008 (Revised).	73	1	MTG / Meeting Document	R10: Stivers, Carl (Lower Willamette Group)		ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100008894	7/17/2008	Scope of the Beneficial Use and Initial Market Evaluation Addendum Document and Pre-Feasibility Study Treatment Technologies Table.	99	3	MTG / Meeting Document	R10: Byanasak, Unknown (Anchor Environmental, LLC)		ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100008831	7/18/2008	Email Regarding AETT - LWG Meeting Notes and Scope for EPA review and approval.	26	1	EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100008832	7/18/2008	Alternative Evaluation of Treatment Technologies Meeting Summary - June 11, 2008.	79	4	MTG / Meeting Document	R10: Stivers, Carl (Lower Willamette Group)		ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100013586	7/18/2008	Email regarding AETT - LWG Meeting Notes and Scope for EPA review and approval.	26	1	EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100013677	7/18/2008	Scope of Work final 07-18-08.	58	3	RPT / Report	R10: (Lower Willamette Group)		ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100017408	7/29/2008	REDACTED Email regarding Reply to Dredging at Port of Portland's Marine Terminal 2.	25	3	EML / Email	R10: Mckenna, James (Port of Portland)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100013650	8/28/2008	Email regarding AETT - LWG Meeting Notes and Scope for EPA review and approval.	17	1	EML / Email	R10: Mckenna, Jim (Port of Portland)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100009038	9/24/2008	Portland Spirit - Public Cruise: Event Guidelines.	104	1	MTG / Meeting Document	R10: Byrne, Heather (Portland Spirit)		ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100013618	10/1/2008	Email regarding Draft Disposal Site Working List.	23	3	EML / Email	R10: Mckenna, Jim (Port of Portland)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100008780	1/7/2009	Email regarding FS Milestones.	24	2	EML / Email	R10: Blischke, Eric, L (EPA)	R10: Wyatt, Robert, J (NW Natural)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100011464	1/21/2009	Email regarding calculating tissue TRVs	80	2	EML / Email	R10: Toll, John (Windward Environmental, LLC.)	R10: Shephard, Burt (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100008801	2/4/2009	Email Regarding Revised FS Milestone Table	143	2	EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100008802	2/4/2009	Revised FS Schedule - Key Milestones.	10	1	CHT / Chart/Table	R10: Unknown, Unknown (Lower Willamette Group)		ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100013587	2/6/2009	Email regarding Draft RAO talking points.	37	1	EML / Email	R10: Mckenna, Jim (Port of Portland)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100014179	2/6/2009	REDACTED Email Regarding 2/11 Portland Harbor Managers Meeting Agenda.	79	1	EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Applegate, Richard (City of Portland, Oregon), R10: Gervais, Greg (NOAA), R10: Neely, Robert (NOAA), R10: Fleming, Sheila (Ridolfi Engineers and Associates, Inc.), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Cunninghame, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Peers, Jennifer (Stratus Consulting, Inc.), R10: Wyatt, Bob (Northwest Natural Gas Company), R10: Bluelake, Lisa (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Karnosh, Michael (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA), R10: Madden, Erin (Nez Perce Tribe), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality), R10: McClincy, Matt (Oregon Dept. of Environmental Quality), R10: Woronets, Jennifer (Anchor QEA, LLC), R10: Fox, Julie (Anchor QEA, LLC), R10: Longoria, Rose (Yakama Nation), R10: Weis, Julie (Haglund Kelley Jones & Wilder LLP), R10: Pine, Keith (Anchor Environmental, LLC), R10: Williams, Jd (Unknown), R10: Woronets, Jennifer (Anchor Environmental, LLC), R10: Dost, Patty (Schwabe, Williamson & Wyatt, P.C.), R10: Pine, Keith (Anchor QEA, LLC)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100008902	2/10/2009	Compiled PRG Tables.	165	8	CHT / Chart/Table	R10: Stivers, Carl (Anchor QEA, LLC)		ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100014186	2/11/2009	REDACTED Portland Harbor Managers' Meeting Agenda: February 11, 2009.	31	1	MTG / Meeting Document	R10: Unknown, Unknown (Lower Willamette Group)		ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
4940680449	2/12/2009	Email regarding Reply to Reducing level of validation for SBLT mobility tests for EPA. Summary of Large Feasibility Study Examples and Discussion of Pros and Cons as Examples for Portland Harbor.	35	4	EML / Email	R10: Wyatt, Robert, J (NW Natural)		ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100008940	2/18/2009	MEMO / Memorandum	186	9	MEMO / Memorandum	R10: Verduin, John (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100008953	2/18/2009	Email Regarding LWG Stormwater Loading Check-ins.	178	3	EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100010164	2/18/2009	Email Regarding LWG Stormwater Loading Check-ins (email w/out attachment).	181	3	EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100020069	2/18/2009	REDACTED Email Regarding WG FS Examples Memo.	131	2	EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100010163	2/19/2009	Email Regarding LWG Stormwater Loading Check-ins - posted to server.	187	4	EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)

100015463	REDACTED Email Regarding 2 Day AOPC Check- 2/26/2009 in May 27th and 28th.	95	3 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100008945	Work Plan Remedial Action Objectives (RAOs) Revision and Potential New "Management Goals" for Portland Harbor Site.	184	9 MEMO / Memorandum	R10: Unknown, Unknown (Lower Willamette Group)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100020070	REDACTED Email Regarding LWG RAOs and Management Goals Memo.	84	1 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100011490	Email regarding the Dillon et al. 1990 paper use in developing the invertebrate tissue TRVs for PCBs.	83	1 EML / Email	R10: Toll, John (Windward Environmental, LLC.)	R10: Shephard, Burt (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100011543	Email regarding the confirmation request regarding Dillon et al. 1990.	42	3 EML / Email	R10: Toll, John (Windward Environmental, LLC.)	R10: Shephard, Burt (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100011545	Email regarding the development of Reference Envelope for evaluation of Benthic Risk.	91	3 EML / Email	R10: Toll, John (Windward Environmental, LLC.)	R10: Blischke, Eric, L (EPA), R10: (Northwest Natural)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100007774	3/4/2009 PDX St. Helens A & B Conference Rooms	86	1 MTG / Meeting Document	R10: Unknown, Unknown (Lower Willamette Group)		ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100007784	3/4/2009 PDX St. Helens A & B Conference Rooms.	87	1 CORR / Correspondence	R10: (Unknown)		ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100009100	3/4/2009 PDX St. Helens A & B Conference Rooms	86	1 MTG / Meeting Document			ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100009346	3/4/2009 PDX St. Helens A & B Conference Rooms.	87	1 MTG / Meeting Document	R10: Unknown, Unknown (Lower Willamette Group)		ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100014185	REDACTED Email Regarding 2 Day AOPC Check- 3/5/2009 in.	84	1 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	Oregon), R10: Parkinson, Steve (Groff & Murphy), R10: Gervais, Greg (NOAA), R10: Neely, Robert (NOAA), R10: Fleming, Sheila (Ridolfi Engineers and Associates, Inc.), R10: Ashton, David (Port of Portland), R10: Mckenna, Jim (Port of Portland), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Cunninghame, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Peers, Jennifer (Stratus Consulting, Inc.), R10: Bluelake, Lisa (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Karnosh, Michael (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA), R10: Humphrey, Alan (EPA), R10: Madden, Erin (Nez Perce Tribe), R10: Traeger, Karen, E (Legacy Site Services, LLC), R10: Anderson, James, M (Oregon Dept. of Environmental Quality), R10: Mcclincy, Matt (Oregon Dept. of Environmental Quality), R10: Fox, Julie (Anchor QEA, LLC), R10: Longoria, Rose (Yakama Nation), R10: Wyatt, Robert, J (NW Natural), R10: Weis, Julie (Haglund Kelley Jones & Wilder LLP), R10: Pine, Keith (Anchor Environmental, LLC), R10: Williams, Jd (Unknown), R10: Woronets, Jennifer (Anchor Environmental, LLC), R10: Dost, Patty (Schwabe, Williamson & Wyatt, P.C.), R10: Betz, Jan (City of Portland, Oregon)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100008938	3/27/2009 Email Regarding LWG early PRG submittal.	149	2 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100010156	3/31/2009 Email Regarding LWG early PRG submittal.	26	2 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100011768	Email regarding the development of reference envelope for the evaluation of benthic risk.	48	6 EML / Email	R10: Toll, John (Windward Environmental, LLC.)	R10: Toll, John (Windward Environmental, LLC.), R10: Blischke, Eric, L (EPA) Gervais, Greg (NOAA), R10: Neely, Robert (NOAA), R10: Fleming, Sheila (Ridolfi Engineers and Associates, Inc.), R10: Betz, J. (Unknown), R10: Ashton, David (Port of Portland), R10: Mckenna, Jim (Port of Portland), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Cunninghame, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Peers, Jennifer (Stratus Consulting, Inc.), R10: Bluelake, Lisa (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Karnosh, Michael (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA), R10: Madden, Erin (Nez Perce Tribe), R10: Traeger, Karen, E (Legacy Site Services, LLC), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality), R10: Mcclincy, Matt (Oregon Dept. of Environmental Quality), R10: Fox, Julie (Anchor QEA, LLC), R10: Sudbury, Ryan (Grand Ronde Tribe), R10: Longoria, Rose (Yakama Nation), R10: Wyatt, Robert, J (NW Natural), R10: Weis, Julie (Haglund Kelley Jones & Wilder LLP), R10: Pine, Keith (Anchor Environmental, LLC), R10: Williams, Jd (Unknown), R10: Woronets, Jennifer (Anchor Environmental, LLC), R10: Dost, Patty (Schwabe, Williamson & Wyatt, P.C.), R10: Applegate, Rick (City of Portland), R10: Wolf, F, G (Pacific Lutheran University)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100014194	REDACTED Email Regarding April 15th Portland Harbor Managers Meeting Agenda.	84	1 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Wolf, F, G (Pacific Lutheran University)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100013334	Email regarding Revised RAOs for Portland Harbor.	38	1 EML / Email	R10: Wyatt, Robert, J (NW Natural)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100008951	Email Regarding LWG Responses: Status of RI/FS Technical Issues.	161	2 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100008952	OUTSTANDING PORTLAND HARBOR RI/FS ISSUES STATUS AS OF 4/15/2009.	57	22 CHT / Chart/Table	R10: Woronets, Jennifer (Anchor QEA, LLC)		ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100010151	OUTSTANDING PORTLAND HARBOR RI/FS ISSUES - STATUS AS OF 4/15/2009.	49	11 CHT / Chart/Table	R10: Woronets, Jennifer (Lower Willamette Group), R10: Woronets, Jennifer (Anchor QEA, LLC)		ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100010174	Email Regarding LWG Responses: Status of RI/FS Technical Issues.	149	2 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100014196	REDACTED Portland Harbor Managers' Meeting: April 15, 2009.	30	1 MTG / Meeting Document	R10: Unknown, Unknown (Lower Willamette Group)		ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100009087	Email Regarding Revised Phase 2 Hydromodel Report posted for EPA Review.	102	2 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)

100015668	5/7/2009	REDACTED Email Regarding May 13th Portland Harbor Managers Meeting Agenda.	69	1 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	Gervais, Greg (NOAA), R10: Neely, Robert (NOAA), R10: Fleming, Sheila (Ridolfi Engineers and Associates, Inc.), R10: Ashton, David (Port of Portland), R10: Mckenna, Jim (Port of Portland), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Cunninghame, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Peers, Jennifer (Stratus Consulting, Inc.), R10: BlueLake, Lisa (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Karnosh, Michael (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA), R10: Madden, Erin (Nez Perce Tribe), R10: Traeger, Karen, E (Legacy Site Services, LLC), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality), R10: McClincy, Matt (Oregon Dept. of Environmental Quality), R10: Woronets, Jennifer (Anchor QEA, LLC), R10: Fox, Julie (Anchor QEA, LLC), R10: Sudbury, Ryan (Grand Ronde Tribe), R10: Longoria, Rose (Yakama Nation), R10: Wyatt, Robert, J (NW Natural), R10: Pine, Keith (Anchor Environmental, LLC), R10: Williams, Jd (Unknown), R10: Woronets, Jennifer (Anchor Environmental, LLC), R10: Dost, Patty (Schwabe, Williamson & Wyatt, P.C.), R10: Betz, Jan (City of Portland, Oregon), R10: Applegate, Rick (City of Portland), R10: Weis,	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100015669	5/7/2009	REDACTED Portland Harbor Managers' Meeting - May 13, 2009.	28	1 MTG / Meeting Document	R10: Unknown, Unknown (Lower Willamette Group)		ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100008937	5/14/2009	Email Regarding LWG AOPC Presentation.	157	3 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100008895	5/20/2009	Email Regarding AOPC GIS Shape Files.	150	2 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100008908	5/20/2009	Email Regarding EPA AOPC Shape Files.	22	2 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100010154	5/21/2009	Email Regarding EPA AOPC Shape Files.	25	2 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100011815	6/2/2009	Email regarding the @upstream fish tissue data.	95	1 EML / Email	R10: Toll, John (Windward Environmental, LLC.)	R10: Shephard, Burt (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100009072	6/3/2009	Figure 1: Areas to Be Evaluated Using EPA's Suggested Methods.	676	1 FIG / Figure/Map/ Drawing	R10: Unknown, Unknown (Lower Willamette Group)		ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100009071	6/5/2009	Email Regarding Revised Areas for Evaluation in the FS.	151	2 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100009092	6/5/2009	Email Regarding Treatment Technologies Screening Tables.	168	2 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100009093	6/5/2009	Pre-Feasibility Study Treatment Technologies Table.	35	7 CHT / Chart/Table	R10: Unknown, Unknown (Lower Willamette Group)		ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100015503	6/5/2009	REDACTED Email Regarding June 10th Portland Harbor Managers Meeting Agenda.	83	1 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	Neely, Robert (NOAA), R10: Fleming, Sheila (Ridolfi Engineers and Associates, Inc.), R10: Ashton, David (Port of Portland), R10: Mckenna, Jim (Port of Portland), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Cunninghame, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Peers, Jennifer (Stratus Consulting, Inc.), R10: Betz, Jan, V (City of Portland, Oregon, Office of Attorney), R10: BlueLake, Lisa (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Karnosh, Michael (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA), R10: Madden, Erin (Nez Perce Tribe), R10: Traeger, Karen, E (Legacy Site Services, LLC), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality), R10: McClincy, Matt (Oregon Dept. of Environmental Quality), R10: Woronets, Jennifer (Anchor QEA, LLC), R10: Fox, Julie (Anchor QEA, LLC), R10: Sudbury, Ryan (Grand Ronde Tribe), R10: Longoria, Rose (Yakama Nation), R10: Wyatt, Robert, J (NW Natural), R10: Weis, Julie (Haglund Kelley Jones & Wilder LLP), R10: Pine, Keith (Anchor Environmental, LLC), R10: Williams, Jd (Unknown), R10: Woronets, Jennifer (Anchor Environmental, LLC), R10: Dost, Patty (Schwabe, Williamson & Wyatt, P.C.), R10:	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100015573	6/5/2009	REDACTED Portland Harbor Managers' Meeting - June 10, 2009.	24	1 MTG / Meeting Document	R10: Unknown, Unknown (Lower Willamette Group)		ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100008719	6/7/2009	Email Regarding Availability to Attend LWG Hydrodynamic & Sediment Transport Modeling Meeting Week of August 24th.	87	1 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Rodgers, Charles (Stratus Consulting, Inc.), R10: Fuentes, Rene, C (EPA), R10: Koch, Kristine, M (EPA), R10: Cope, Ben (EPA), R10: Petroni, Ricardo (Anchor QEA, LLC)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100019049	6/7/2009	REDACTED Email Regarding Availability to Attend LWG Hydrodynamic & Sediment Transport Modeling Meeting Week of August 24th.	20	2 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100011898	6/10/2009	Email regarding the Portland Harbor BERA as part of the larger RI report.	39	3 EML / Email	R10: Toll, John (Windward Environmental, LLC.)	R10: Shephard, Burt (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100011906	6/10/2009	Email regarding the Portland Harbor BERA as part of the larger RI report.	41	4 EML / Email	R10: Toll, John (Windward Environmental, LLC.)	R10: Blischke, Eric, L (EPA), R10: Shephard, Burt (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)

100009060	Email Regarding Portland Harbor Managers Meeting. 6/11/2009	103	3 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	Neely, Robert (NOAA), R10: Fleming, Sheila (Ridolfi Engineers and Associates, Inc.), R10: Dost, Patricia, M (Schwabe, Williamson & Wyatt, P.C.), R10: Ashton, David (Port of Portland), R10: Mckenna, Jim (Port of Portland), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Cunninghame, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Peers, Jennifer (Stratus Consulting, Inc.), R10: Bluelake, Lisa (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Karnosh, Michael (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA), R10: Madden, Erin (Nez Perce Tribe), R10: Traeger, Karen, E (Legacy Site Services, LLC), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality), R10: Mcclincy, Matt (Oregon Dept. of Environmental Quality), R10: Woronets, Jennifer (Anchor QEA, LLC), R10: Fox, Julie (Anchor QEA, LLC), R10: Longoria, Rose (Yakama Nation), R10: Wyatt, Robert, J (NW Natural), R10: Weis, Julie (Haglund Kelley Jones & Wilder LLP), R10: Pine, Keith (Anchor Environmental, LLC), R10: Williams, Jd (Unknown), R10: Woronets, Jennifer (Anchor Environmental, LLC), R10: Betz, Jan (City of Portland, Oregon), R10: Applegate, Rick (City of Portland)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remediation Characterization/044-Feasibility Study (FS) (General)
100009061	Email Regarding Portland Harbor Managers Meeting - Proposed dates of Friday, June 19th or Monday, June 22nd. 6/12/2009	106	4 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Parkinson, Steve (Groff & Murphy), R10: Neely, Robert (NOAA), R10: Fleming, Sheila (Ridolfi Engineers and Associates, Inc.), R10: Mckenna, Jim (Port of Portland), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Cunninghame, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Peers, Jennifer (Stratus Consulting, Inc.), R10: Woronets, Jennifer (Lower Willamette Group), R10: Bluelake, Lisa (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Karnosh, Michael (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA), R10: Madden, Erin (Nez Perce Tribe), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality), R10: Mcclincy, Matt (Oregon Dept. of Environmental Quality), R10: Woronets, Jennifer (Anchor QEA, LLC), R10: Fox, Julie (Anchor QEA, LLC), R10: Sudbury, Ryan (Grand Ronde Tribe), R10: Longoria, Rose (Yakama Nation), R10: Wyatt, Robert, J (NW Natural), R10: Weis, Julie (Haglund Kelley Jones & Wilder LLP), R10: Pine, Keith (Anchor Environmental, LLC), R10: Williams, Jd (Unknown), R10: Dost, Patty (Schwabe, Williamson & Wyatt, P.C.), R10: Betz, Jan (City of Portland, Oregon), R10: Applegate, Rick (City of Portland)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remediation Characterization/044-Feasibility Study (FS) (General)
100009562	Email regarding Portland Harbor ARARs. 6/12/2009	275	2 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Cora, Lori, H (EPA), R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remediation Characterization/044-Feasibility Study (FS) (General)
100010188	Email Regarding Portland Harbor Managers Meeting - Proposed date of Friday, June 19th. 6/12/2009	109	5 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	Neely, Robert (NOAA), R10: Fleming, Sheila (Ridolfi Engineers and Associates, Inc.), R10: Ashton, David (Port of Portland), R10: Mckenna, Jim (Port of Portland), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Cunninghame, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Peers, Jennifer (Stratus Consulting, Inc.), R10: Woronets, Jennifer (Lower Willamette Group), R10: Bluelake, Lisa (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Karnosh, Michael (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA), R10: Madden, Erin (Nez Perce Tribe), R10: Traeger, Karen, E (Legacy Site Services, LLC), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality), R10: Mcclincy, Matt (Oregon Dept. of Environmental Quality), R10: Woronets, Jennifer (Anchor QEA, LLC), R10: Fox, Julie (Anchor QEA, LLC), R10: Sudbury, Ryan (Grand Ronde Tribe), R10: Longoria, Rose (Yakama Nation), R10: Wyatt, Robert, J (NW Natural), R10: Pine, Keith (Anchor Environmental, LLC), R10: Williams, Jd (Unknown), R10: Dost, Patty (Schwabe, Williamson & Wyatt, P.C.), R10: Betz, Jan (City of Portland, Oregon), R10: Applegate, Rick (City of Portland), R10: Weis, Julie (Haglund	ELECTRONIC RECORD	053-REMEDIATION/0531-Remediation Characterization/044-Feasibility Study (FS) (General)
100014983	REDACTED Email Regarding Portland Harbor Managers Meeting - Friday, June 19th 9 - 11 am. 6/15/2009	22	2 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remediation Characterization/044-Feasibility Study (FS) (General)
100015317	REDACTED Portland Harbor Managers Meeting - June 19, 2009. 6/15/2009	29	1 MTG / Meeting Document	R10: Unknown, Unknown (Lower Willamette Group)		ELECTRONIC RECORD	053-REMEDIATION/0531-Remediation Characterization/044-Feasibility Study (FS) (General)



100015430	REDACTED Email Regarding Portland Harbor Managers Meeting - Friday, June 19th 9 - 11 am.	6/15/2009	83	1 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	Neely, Robert (NOAA), R10: Fleming, Sheila (Ridolfi Engineers and Associates, Inc.), R10: Ashton, David (Port of Portland), R10: Mckenna, Jim (Port of Portland), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Cunninghame, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Peers, Jennifer (Stratus Consulting, Inc.), R10: Bluelake, Lisa (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Karnosh, Michael (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA), R10: Madden, Erin (Nez Perce Tribe), R10: Traeger, Karen, E (Legacy Site Services, LLC), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality), R10: Mcclincy, Matt (Oregon Dept. of Environmental Quality), R10: Woronets, Jennifer (Anchor QEA, LLC), R10: Fox, Julie (Anchor QEA, LLC), R10: Sudbury, Ryan (Grand Ronde Tribe), R10: Longoria, Rose (Yakama Nation), R10: Wyatt, Robert, J (NW Natural), R10: Pine, Keith (Anchor Environmental, LLC), R10: Williams, Jd (Unknown), R10: Woronets, Jennifer (Anchor Environmental, LLC), R10: Dost, Patty (Schwabe, Williamson & Wyatt, P.C.), R10: Betz, Jan (City of Portland, Oregon), R10: Applegate, Rick (City of Portland), R10: Weis, Julie (Haglund Kelley, LLP)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100008815	Areas of Potential Concern (Lower Willamette River, Portland Harbor Superfund Site, USEPA Docket No: CERCLA-10-2001-0240)	6/16/2009	36	2 LTR / Letter	R10: Wyatt, Bob (Lower Willamette Group)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100014959	REDACTED Email Regarding Portland Harbor Managers Meeting Agenda - Friday, June 19th 9 - 11 am.	6/16/2009	88	2 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Parkinson, Steve (Groff & Murphy), R10: Neely, Robert (NOAA), R10: Fleming, Sheila (Ridolfi Engineers and Associates, Inc.), R10: Ashton, David (Port of Portland), R10: Mckenna, Jim (Port of Portland), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Cunninghame, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Peers, Jennifer (Stratus Consulting, Inc.), R10: Bluelake, Lisa (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Karnosh, Michael (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA), R10: Madden, Erin (Nez Perce Tribe), R10: Traeger, Karen, E (Legacy Site Services, LLC), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality), R10: Mcclincy, Matt (Oregon Dept. of Environmental Quality), R10: Fox, Julie (Anchor QEA, LLC), R10: Sudbury, Ryan (Grand Ronde Tribe), R10: Longoria, Rose (Yakama Nation), R10: Wyatt, Robert, J (NW Natural), R10: Pine, Keith (Anchor Environmental, LLC), R10: Williams, Jd (Unknown), R10: Woronets, Jennifer (Anchor Environmental, LLC), R10: Dost, Patty (Schwabe, Williamson & Wyatt, P.C.), R10: Betz, Jan (City of Portland, Oregon), R10: Weis, Julie (Haglund Kelley, LLP)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100009079	SCREENING OF DISPOSAL FACILITIES FOR THE 6/18/2009 FEASIBILITY STUDY.	6/18/2009	1,515	15 RPT / Report	R10: Unknown, Unknown (Lower Willamette Group)		ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100009088	Email Regarding Screening of Disposal Facilities technical memo.	6/18/2009	151	2 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100010778	6/18/2009 Email Regarding Updated Areas to Be.	6/18/2009	141	2 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100008809	Email Regarding Draft FS Evaluation Areas Map Talking Points.	6/24/2009	96	1 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100008810	Draft FS Evaluation Area maps - Suggested Talking Points.	6/24/2009	43	1 MTG / Meeting Document	R10: Unknown, Unknown (Lower Willamette Group)		ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100009069	Revised Remedial Action Objectives (RAOs) and Management Goals (Lower Willamette River, Portland Harbor Superfund Site, USEPA Docket No: CERCLA-10-2001-0240).	6/24/2009	33	2 LTR / Letter	R10: Wyatt, Robert (Lower Willamette Group)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100009070	6/24/2009 REVISED REMEDIAL ACTION OBJECTIVES.	6/24/2009	67	8 RPT / Report	R10: Unknown, Unknown (Lower Willamette Group)		ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100008897	Schematic of Areas of Potential Concern (AOPC) to Sediment Management Area (SMA) Refinement Steps.	6/29/2009	12	2 CHT / Chart/Table	R10: Woronets, Jennifer (Anchor QEA, LLC)		ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100015417	6/29/2009 REDACTED FS Meeting Agenda - 10-611229.	6/29/2009	250	8 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100015491	REDACTED Email Regarding July 8th Portland Harbor Managers Meeting Agenda.	7/1/2009	84	1 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	Neely, Robert (NOAA), R10: Fleming, Sheila (Ridolfi Engineers and Associates, Inc.), R10: Zylstra, Stephen, J (U. S. Fish and Wildlife Service), R10: Ashton, David (Port of Portland), R10: Mckenna, James (Port of Portland), R10: Mckenna, Jim (Port of Portland), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Cunninghame, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Peers, Jennifer (Stratus Consulting, Inc.), R10: Woronets, Jennifer (Lower Willamette Group), R10: Bluelake, Lisa (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Karnosh, Michael (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA), R10: Madden, Erin (Nez Perce Tribe), R10: Traeger, Karen, E (Legacy Site Services, LLC), R10: Wolf, Frederick (Legacy Site Services, LLC), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality), R10: Mcclincy, Matt (Oregon Dept. of Environmental Quality), R10: Woronets, Jennifer (Anchor QEA, LLC), R10: Fox, Julie (Anchor QEA, LLC), R10: Sudbury, Ryan (Grand Ronde Tribe), R10: Longoria, Rose (Yakama Nation), R10: Wyatt, Robert, J (NW Natural), R10: Weis, Julie (Haglund Kelley Jones & Wilder LLP), R10: Pine, Keith (Anchor Environmental, LLC), R10: Williams, Jd	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100015492	REDACTED Portland Harbor Managers' Meeting - July 8, 2009.	7/1/2009	29	1 MTG / Meeting Document	R10: Unknown, Unknown (Lower Willamette Group)		ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)

100008896	Email Regarding AOPC to SMA Steps 7/2/2009 Schematic.	152	2 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100009037	Directions to Caruthers Landing and the 7/2/2009 Portland Spirit Sales Office.	176	1 MTG / Meeting Document	R10: Adams, Arian (Portland Spirit)	Neely, Robert (NOAA), R10: Fleming, Sheila (Ridolfi Engineers and Associates, Inc.), R10: Zylstra, Stephen, J (U. S. Fish and Wildlife Service), R10: Ashton, David (Port of Portland), R10: Mckenna, Jim (Port of Portland), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Cunninghame, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Peers, Jennifer (Stratus Consulting, Inc.), R10: Bluelake, Lisa (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Karnosh, Michael (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA), R10: Madden, Erin (Nez Perce Tribe), R10: Traeger, Karen, E (Legacy Site Services, LLC), R10: Wolf, Frederick (Legacy Site Services, LLC), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality), R10: McClincy, Matt (Oregon Dept. of Environmental Quality), R10: Woronets, Jennifer (Anchor QEA, LLC), R10: Fox, Julie (Anchor QEA, LLC), R10: Sudbury, Ryan (Grand Ronde Tribe), R10: Longoria, Rose (Yakama Nation), R10: Wyatt, Robert, J (NW Natural), R10: Weis, Julie (Haglund Kelley Jones & Wilder LLP), R10: Pine, Keith (Anchor Environmental, LLC), R10: Williams, Jd (Unknown), R10: Woronets, Jennifer (Anchor Environmental, LLC), R10: Dost, Patty	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100014869	REDACTED Email Regarding Revised July 8th 7/7/2009 Portland Harbor Managers Meeting Agenda.	89	2 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Woronets, Jennifer (Anchor QEA, LLC)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100014920	REDACTED Portland Harbor Managers' 7/7/2009 Meeting - July 8, 2009.	30	1 MTG / Meeting Document	R10: Unknown, Unknown (Lower Willamette Group)		ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100015238	REDACTED Email Regarding July 8th Portland 7/7/2009 Harbor Managers Meeting Agenda	23	2 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100009658	Email Regarding Portland Harbor Managers Meeting, RAOs Discussion (Tentative) July 28th 7/9/2009 1 pm.	102	1 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Woronets, Jennifer (Anchor QEA, LLC), R10: Fox, Julie (Anchor QEA, LLC), R10: Sudbury, Ryan (Grand Ronde Tribe), R10: Longoria, Rose (Yakama Nation), R10: Wyatt, Robert, J (NW Natural), R10: Dost, Patty (Pearl Legal Group PC), R10: Pine, Keith (Anchor Environmental, LLC), R10: Williams, Jd (Unknown), R10: Betz, Jan (City of	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100009699	Email Regarding EPA Comments on Treatment 7/9/2009 Technology Tables.	78	1 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA) Neely, Robert (NOAA), R10: Fleming, Sheila (Ridolfi Engineers and Associates, Inc.), R10: Zylstra, Stephen, J (U. S. Fish and Wildlife Service), R10: Ashton, David (Port of Portland), R10: Mckenna, Jim (Port of Portland), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Cunninghame, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Peers, Jennifer (Stratus Consulting, Inc.), R10: Bluelake, Lisa (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Karnosh, Michael (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA), R10: Madden, Erin (Nez Perce Tribe), R10: Traeger, Karen, E (Legacy Site Services, LLC), R10: Wolf, Frederick (Legacy Site Services, LLC), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality), R10: McClincy, Matt (Oregon Dept. of Environmental Quality), R10: Fox, Julie (Anchor QEA, LLC), R10: Sudbury, Ryan (Grand Ronde Tribe), R10: Longoria, Rose (Yakama Nation), R10: Wyatt, Robert, J (NW Natural), R10: Weis, Julie (Haglund Kelley Jones & Wilder LLP), R10: Pine, Keith (Anchor Environmental, LLC), R10: Williams, Jd (Unknown), R10: Dost, Patty (Schwabe, Williamson & Wyatt, P.C.), R10: Betz, Jan (City of Portland, Oregon), R10: Applegate, Rick (City of Portland), R10: Davis	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100014743	REDACTED Email Regarding August Portland Harbor Managers Meeting - Tuesday, August 7/9/2009 18th 10 - 2.	90	1 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)		ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)

100015611	REDACTED Email Regarding LWG HST Model Meeting - Wednesday, August 3rd 1 - 3 pm.	84	1 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	Neely, Robert (NOAA), R10: Fleming, Sheila (Ridolfi Engineers and Associates, Inc.), R10: Zylstra, Stephen, J (U. S. Fish and Wildlife Service), R10: Ashton, David (Port of Portland), R10: Mckenna, Jim (Port of Portland), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Cunninghame, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Rodgers, Charles (Stratus Consulting, Inc.), R10: Peers, Jennifer (Stratus Consulting, Inc.), R10: Shellenberger, Amanda (Anchor Environmental, LLC), R10: Woronets, Jennifer (Lower Willamette Group), R10: Russell, Kevin, T (Quantitative Environmental Analysis, L.L.C.), R10: Bluelake, Lisa (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Karnosh, Michael (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA), R10: Madden, Erin (Nez Perce Tribe), R10: Traeger, Karen, E (Legacy Site Services, LLC), R10: Wolf, Frederick (Legacy Site Services, LLC), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality), R10: McClincy, Matt (Oregon Dept. of Environmental Quality), R10: Ziegler, C. Kirk (Anchor QEA, LLC), R10: Stivers, Carl (Anchor QEA, LLC), R10: Woronets, Jennifer (Anchor QEA, LLC), R10: Verduin, John (Anchor QEA, LLC), R10: Fox, Julie (Anchor Neely, Robert (NOAA), R10: Fleming, Sheila (Ridolfi Engineers and Associates, Inc.), R10: Zylstra, Stephen, J (U. S. Fish and Wildlife Service), R10: Ashton, David (Port of Portland), R10: Mckenna, Jim (Port of Portland), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Cunninghame, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Rodgers, Charles (Stratus Consulting, Inc.), R10: Peers, Jennifer (Stratus Consulting, Inc.), R10: Shellenberger, Amanda (Anchor Environmental, LLC), R10: Desrisiers, Rebecca (Anchor Environmental, LLC), R10: Russell, Kevin, T (Quantitative Environmental Analysis, L.L.C.), R10: Bluelake, Lisa (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Karnosh, Michael (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA), R10: Madden, Erin (Nez Perce Tribe), R10: Traeger, Karen, E (Legacy Site Services, LLC), R10: Wolf, Frederick (Legacy Site Services, LLC), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality), R10: McClincy, Matt (Oregon Dept. of Environmental Quality), R10: Templeton, David, W (Anchor QEA, LLC), R10: Ziegler, C. Kirk (Anchor QEA, LLC), R10: Stivers, Carl (Anchor QEA, LLC), R10: Patmont, Clay (Anchor	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100015247	REDACTED Email Regarding LWG HST Model Meeting - Wednesday, August 5th 1 - 3 pm.	90	2 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100008814	Email Regarding AOPC Agreement Letter - final version.	143	2 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100009068	7/24/2009 Email Regarding RAOs Response.	142	2 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA), R10: Parkinson, Steve (Groff & Murphy), R10: Neely, Robert (NOAA), R10: Fleming, Sheila (Ridolfi Engineers and Associates, Inc.), R10: Zylstra, Stephen, J (U. S. Fish and Wildlife Service), R10: Ashton, David (Port of Portland), R10: Mckenna, Jim (Port of Portland), R10: Cunninghame, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Peers, Jennifer (Stratus Consulting, Inc.), R10: Bluelake, Lisa (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Karnosh, Michael (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA), R10: Madden, Erin (Nez Perce Tribe), R10: Traeger, Karen, E (Legacy Site Services, LLC), R10: Wolf, Frederick (Legacy Site Services, LLC), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality), R10: McClincy, Matt (Oregon Dept. of Environmental Quality), R10: Fox, Julie (Anchor QEA, LLC), R10: Sudbury, Ryan (Grand Ronde Tribe), R10: Longoria, Rose (Yakama Nation), R10: Wyatt, Robert, J (NW Natural), R10: Pine, Keith (Anchor Environmental, LLC), R10: Williams, Jd (Unknown), R10: Woronets, Jennifer (Anchor Environmental, LLC), R10: Dost, Patty (Schwabe, Williamson & Wyatt, P.C.), R10: Betz, Jan (City of Portland, Oregon), R10: Weis, Julie (Haglund Kelley, LLP)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100014984	REDACTED Email Regarding Portland Harbor Managers RAOs Conference Call - Tuesday, July 28th 1 - 3 pm.	98	2 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100008954	Email Regarding LWR Bioaccumulation Report Posting.	104	2 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100010177	7/27/2009 Email Regarding RAOs Response.	136	2 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Madden, Erin (Nez Perce Tribe)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100010138	Email Regarding EPA Requested GIS Layers Posted.	106	2 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100008910	Email Regarding For EPA Use: Chemical Mobility SCRA Data Set.	103	2 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Neely, Robert (NOAA), R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)



100015768	REDACTED Email Regarding Wednesday, August 5th 1 - 3 pm - LWG HST Modeling Meeting.	97	4 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	Neely, Robert (NOAA), R10: Zylstra, Stephen, J (U. S. Fish and Wildlife Service), R10: Ashton, David (Port of Portland), R10: Mckenna, Jim (Port of Portland), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Cunninghame, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Rodgers, Charles (Stratus Consulting, Inc.), R10: Peers, Jennifer (Stratus Consulting, Inc.), R10: Shellenberger, Amanda (Anchor Environmental, LLC), R10: Stivers, Carl (Anchor Environmental, LLC), R10: Bluelake, Lisa (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Karnosh, Michael (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA), R10: Fleming, Sheila (EPA), R10: Madden, Erin (Nez Perce Tribe), R10: Traeger, Karen, E (Legacy Site Services, LLC), R10: Wolf, Frederick (Legacy Site Services, LLC), R10: Mcclincy, Matt (Oregon Dept. of Environmental Quality), R10: Templeton, David, W (Anchor QEA, LLC), R10: Patmont, Clay (Anchor QEA, LLC), R10: Verduin, John (Anchor QEA, LLC), R10: Fox, Julie (Anchor QEA, LLC), R10: Sudbury, Ryan (Grand Ronde Tribe), R10: Longoria, Rose (Yakama Nation), R10: Wyatt, Robert, J (NW Natural), R10: Dost, Patty (Pearl Legal Group PC), R10: Pine, Keith (Anchor Environmental, LLC), R10: Williams, Jd	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100017968	REDACTED Hydrodynamic and Sediment Transport Modeling Meeting - August 05, 2009.	12	1 MTG / Meeting Document	R10: Unknown, Unknown (Lower Willamette Group)		ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100009665	Revised HST Modeling Study Model Development and Calibration.	1,542	46 MTG / Meeting Document	R10: Ziegler, C. Kirk (Anchor QEA, LLC)		ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
4940681070	Email regarding reply to management goals and programmatic consultation.	22	2 EML / Email	R10: Neely, Robert (NOAA)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
4940681071	Email regarding reply to management goals and programmatic consultation.	21	1 EML / Email	R10: Neely, Robert (NOAA)	R10: Meyer, Ben (NOAA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100015254	REDACTED Email Regarding LWG HST Modeling Meeting - Email addresses for attendees of technical sub-team meeting.	29	5 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA) Neely, Robert (NOAA), R10: Fleming, Sheila (Ridolfi Engineers and Associates, Inc.), R10: Zylstra, Stephen, J (U. S. Fish and Wildlife Service), R10: Ashton, David (Port of Portland), R10: Mckenna, Jim (Port of Portland), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Cunninghame, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Rodgers, Charles (Stratus Consulting, Inc.), R10: Peers, Jennifer (Stratus Consulting, Inc.), R10: Shellenberger, Amanda (Anchor Environmental, LLC), R10: Desrisiers, Rebecca (Anchor Environmental, LLC), R10: Woronets, Jennifer (Lower Willamette Group), R10: Russell, Kevin, T (Quantitative Environmental Analysis, L.L.C.), R10: Bluelake, Lisa (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Karnosh, Michael (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA), R10: Madden, Erin (Nez Perce Tribe), R10: Traeger, Karen, E (Legacy Site Services, LLC), R10: Wolf, Frederick (Legacy Site Services, LLC), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality), R10: Mcclincy, Matt (Oregon Dept. of Environmental Quality), R10: Templeton, David, W (Anchor QEA, LLC), R10: Ziegler, C. Kirk (Anchor QEA, LLC), R10: Stivers, Carl	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100015439	REDACTED Email Regarding 8/5 LWG HST Modeling Meeting - Presentation.	109	4 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100015441	REDACTED Email Regarding LWG HST Modeling Meeting - Email addresses for attendees of technical sub-team meeting.	111	5 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100008930	Email Regarding July 2009 Portland Harbor Monthly Progress Report.	125	2 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100008931	8/7/2009 Monthly Progress Report for July 2009.	77	10 LTR / Letter	R10: Pine, Keith (Lower Willamette Group)		ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100015629	REDACTED Email Regarding LWG Hydrodynamic & Sediment Transport Modeling Meeting - Tuesday, August 25th 9 am - 4 pm (Eastern).	94	2 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Hayter, Earl, J (U. S. Army Corps of Engineers), R10: Rodgers, Charles (Stratus Consulting, Inc.), R10: Fuentes, Rene, C (EPA), R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA), R10: Ziegler, C. Kirk (Anchor QEA, LLC), R10: Stivers, Carl (Anchor QEA, LLC), R10: Petroni, Ricardo (Anchor QEA, LLC)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
4940681069	Email regarding reply to management goals and programmatic consultation.	27	2 EML / Email	R10: Munn, Nancy (NOAA)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100010793	Email Regarding Sediment Chemical Mobility Data Report posted.	97	1 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)

						Neely, Robert (NOAA), R10: Fleming, Sheila (Ridolfi Engineers and Associates, Inc.), R10: Zylstra, Stephen, J (U. S. Fish and Wildlife Service), R10: Ashton, David (Port of Portland), R10: Mckenna, Jim (Port of Portland), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Cunninghame, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Peers, Jennifer (Stratus Consulting, Inc.), R10: Bluelake, Lisa (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Karnosh, Michael (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA), R10: Madden, Erin (Nez Perce Tribe), R10: Traeger, Karen, E (Legacy Site Services, LLC), R10: Wolf, Frederick (Legacy Site Services, LLC), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality), R10: McClincy, Matt (Oregon Dept. of Environmental Quality), R10: Woronets, Jennifer (Anchor QEA, LLC), R10: Fox, Julie (Anchor QEA, LLC), R10: Sudbury, Ryan (Grand Ronde Tribe), R10: Longoria, Rose (Yakama Nation), R10: Wyatt, Robert, J (NW Natural), R10: Dost, Patty (Pearl Legal Group PC), R10: Weis, Julie (Haglund Kelley Jones & Wilder LLP), R10: Pine, Keith (Anchor Environmental, LLC), R10: Williams, Jd (Unknown), R10: Woronets, Jennifer (Anchor		
100014799	REDACTED Email Regarding Tuesday, August 18th - August Portland Harbor Managers Meeting NEW LOCATION.	100	2 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)		ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)	
100014800	REDACTED Portland Harbor Managers' Meeting - August 18, 2009.	12	1 MTG / Meeting Document	R10: Unknown, Unknown (Lower Willamette Group)		ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)	
100008813	Email Regarding (Another) GIS Layer Request - 8/14/2009 layer posted.	112	2 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)	
100009351	Email Regarding LWG Response to August 7, 2009 EPA Direction on Portland Harbor RAOs.	94	1 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)	
100009352	August 7, 2009 EPA Direction on Portland Harbor Remedial Action Objectives (RAOs) for Lower Willamette River (Lower Willamette River, Portland Harbor Superfund Site, USEPA Docket No: CERCLA-10-2001-0240).	40	3 LTR / Letter	R10: Wyatt, Bob (Lower Willamette Group)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)	
100012179	8/26/2009 Email regarding the Benthic Interpretation.	55	8 EML / Email	R10: Toll, John (Windward Environmental, LLC.)	R10: Shephard, Burt (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)	
100012180	Email regarding the decisions made at the EPA-8/26/2009 LWG BERA technical teams meeting.	97	2 EML / Email	R10: Toll, John (Windward Environmental, LLC.)	R10: Blischke, Eric, L (EPA), R10: Shephard, Burt (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)	
100013310	Revised HST Modeling Study Review of Model Development and Calibration - Sed Trans_2009-08-25 Model Devel Cal.	5,793	133 CORR / Correspondence	R10: Ziegler, C. Kirk (Anchor QEA, LLC)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)	
100014960	REDACTED Email Regarding September 8th RAOs meeting - Conference call line.	38	4 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)	
100009356	Email Regarding LWG Response to EPA Comments on Pre-Feasibility Study Treatment Technologies Table.	94	1 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)	
100009357	LOWER WILLAMETTE GROUP RESPONSES TO EPA'S JULY 9, 2009 COMMENTS ON THE PRE-FEASIBILITY STUDY TREATMENT TECHNOLOGIES TABLE.	29	4 MEMO / Memorandum	R10: Unknown, Unknown (Lower Willamette Group)		ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)	
100013178	Figure 1.2-21 Portland Harbor Doane Lake Area map - Figure 1.2-21_DEQ Doane Lake GW overview map_2010.	2,077	1 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)	
100010789	9/9/2009 Email Regarding Scheduling of ARARs meeting.	83	1 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)	
100015230	REDACTED Email Regarding Scheduling of ARARs meeting - Monday, September 21st 1 - 4 pm location TBD.	34	2 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)	
100015141	REDACTED Email Regarding ARARs meeting - Monday, September 21st 1 - 4 pm Confirmed?.	35	2 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)	
100015145	REDACTED Email Regarding ARARs meeting - Friday September 25 tentative 10 - 1.	35	3 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)	
100013333	9/16/2009 Email regarding RAO Response Extension.	36	2 EML / Email	R10: Wyatt, Robert, J (NW Natural)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)	
100013614	9/16/2009 Email regarding RAO Response Extension.	17	1 EML / Email	R10: Wyatt, Robert, J (NW Natural)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)	
100015144	REDACTED Email Regarding ARARs meeting - Friday September 25.	36	3 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)	
100015388	REDACTED Email regarding TCT Agenda - September 23, 2009.	236	1 EML / Email	R10: Bernardini, L (Parametrix)	R10: Shephard, Burt (EPA), R10: Humphrey, Chip (EPA), R10: Davoli, Dana (EPA), R10: Gainer, Tom (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)	
100009347	Email Regarding LWG Questions Regarding ARARs Potentially Proposed by EPA - For September 25th ARARs Meeting.	79	1 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA), R10: Yamamoto, Deb (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)	
100009348	Questions Regarding ARARs Potentially Proposed by EPA.	20	2 CHT / Chart/Table	R10: Unknown, Unknown (Lower Willamette Group)		ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)	
100009560	Questions Regarding ARARs Potentially Proposed by EPA - 10-613713.	229	2 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)	
100015140	REDACTED Email Regarding ARARs meeting - Friday September 25 10:00 to 1:00.	37	4 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)	
100009343	Email Regarding LWG Possible Interpretations of EPA's Potential ARARs for Discussion - For September 25th ARARs Meeting.	94	1 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA), R10: Yamamoto, Deb (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)	
100009344	Possible Interpretations of EPA's Potential ARARs for Discussion.	27	3 CHT / Chart/Table	R10: Unknown, Unknown (Lower Willamette Group)		ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)	
100009557	Possible Interpretations of EPA's Potential ARARs for Discussion - 10-611311.	226	3 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)	
100009558	Email regarding LWG Possible Interpretations of EPA's Potential ARARs for Discussion - For September 25th ARARs Meeting.	241	1 EML / Email	R10: Shephard, Burt (EPA)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)	

100009678	Email Regarding November Portland Harbor Managers Meeting - Proposed new date of 9/24/2009 November 4th.	97	1 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	Neely, Robert (NOAA), R10: Fleming, Sheila (Ridolfi Engineers and Associates, Inc.), R10: Zylstra, Stephen, J (U. S. Fish and Wildlife Service), R10: Ashton, David (Port of Portland), R10: Mckenna, Jim (Port of Portland), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Cunninghame, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Peers, Jennifer (Stratus Consulting, Inc.), R10: Bluelake, Lisa (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Karnosh, Michael (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA), R10: Madden, Erin (Nez Perce Tribe), R10: Traeger, Karen, E (Legacy Site Services, LLC), R10: Wolf, Frederick (Legacy Site Services, LLC), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality), R10: McClincy, Matt (Oregon Dept. of Environmental Quality), R10: Woronets, Jennifer (Anchor QEA, LLC), R10: Fox, Julie (Anchor QEA, LLC), R10: Sudbury, Ryan (Grand Ronde Tribe), R10: Longoria, Rose (Yakama Nation), R10: Wyatt, Robert, J (NW Natural), R10: Dost, Patty (Pearl Legal Group PC), R10: Pine, Keith (Anchor Environmental, LLC), R10: Williams, Jd (Unknown), R10: Woronets, Jennifer (Anchor Environmental, LLC), R10: Betz, Jan (City of Portland, Oregon),	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100017534	REDACTED Email regarding LWG Questions Regarding ARARs Potentially Proposed by EPA - 9/24/2009 For September 25th ARARs Meeting.	85	2 EML / Email	R10: Humphrey, Chip (EPA)	R10: Burkholder, Kurt (Oregon Dept. of Justice), R10: Madden, Erin (Unknown), R10: French, Robert (Unknown), R10: Fuentes, Rene, C (EPA), R10: Cora, Lori, H (EPA), R10: Koch, Kristine, M (EPA), R10: Shephard, Burt (EPA), R10: Davoli, Dana (EPA), R10: Yamamoto, Deb (EPA), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality), R10: Longoria, Rose (Yakama Nation), R10: King, Todd (CDM Smith)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100010794	Email Regarding September 2nd HST Modeling Meeting Summary Memo.	79	1 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Rodgers, Charles (Stratus Consulting, Inc.), R10: Fuentes, Rene, C (EPA), R10: Hayter, Earl, J (EPA), R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100010795	LWG HST Modeling Group Meeting on 9/28/2009 September 2, 2009.	95	5 MEMO / Memorandum	R10: Zeigler, C., Kirk (Anchor QEA, LLC)	R10: Unknown, Unknown (Lower Willamette Group), R10: Unknown, Unknown (EPA Region 10)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100013301	Memorandum regarding LWG HST Modeling Group Meeting on September 2, 2009 - 2009- 9/28/2009 09-28 LWG STM Group Meeting Memo.	91	5 CORR / Correspondence	R10: Ziegler, C. Kirk (Anchor QEA, LLC)	R10: (Lower Willamette Group)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100008956	Email Regarding November 4th Portland Harbor Managers Meeting Confirmed.	99	2 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	Neely, Robert (NOAA), R10: Fleming, Sheila (Ridolfi Engineers and Associates, Inc.), R10: Zylstra, Stephen, J (U. S. Fish and Wildlife Service), R10: Ashton, David (Port of Portland), R10: Mckenna, Jim (Port of Portland), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Cunninghame, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Peers, Jennifer (Stratus Consulting, Inc.), R10: Bluelake, Lisa (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Karnosh, Michael (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA), R10: Madden, Erin (Nez Perce Tribe), R10: Traeger, Karen, E (Legacy Site Services, LLC), R10: Wolf, Fred (Legacy Site Services, LLC), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality), R10: McClincy, Matt (Oregon Dept. of Environmental Quality), R10: Fox, Julie (Anchor QEA, LLC), R10: Longoria, Rose (Yakama Nation), R10: Wyatt, Robert, J (NW Natural), R10: Dost, Patty (Pearl Legal Group PC), R10: Weis, Julie (Haglund Kelley Jones & Wilder LLP), R10: Pine, Keith (Anchor Environmental, LLC), R10: Williams, Jd (Unknown), R10: Woronets, Jennifer (Anchor Environmental, LLC), R10: Betz, Jan (City of Portland, Oregon), R10: Applegate, Rick (City	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100008720	Email Regarding Confirmation of November 17th for alternatives analysis meeting.	90	1 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100011025	Email regarding the delivery date for the revised sediment toxicity text for the Portland Harbor BERA.	29	1 EML / Email	R10: Shephard, Burt (EPA)	R10: Toll, John (Windward Environmental, LLC.)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100012232	Email regarding the delivery date for the revised sediment toxicity text for the Portland Harbor BERA.	172	2 EML / Email	R10: Toll, John (Windward Environmental, LLC.)	R10: Shephard, Burt (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100012323	Email regarding the delivery date for the revised sediment toxicity text for the Portland Harbor BERA.	42	4 EML / Email	R10: Toll, John (Windward Environmental, LLC.)	R10: Shephard, Burt (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100013335	Email regarding Revised RAOs with Groundwater RAO Inclusion.	32	1 EML / Email	R10: Wyatt, Robert, J (NW Natural)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100014182	REDACTED Email Regarding Alternatives Analysis Meeting - Tuesday, November 17th.	91	1 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100014863	REDACTED Portland Harbor Managers' Meeting - October 14, 2009.	12	1 MTG / Meeting Document	R10: Woronets, Jennifer (Anchor QEA, LLC)		ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)

100015475	REDACTED Email Regarding October 14th 10/8/2009 Portland Harbor Managers Meeting Agenda.	69	1 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	Neely, Robert (NOAA), R10: Fleming, Sheila (Ridolfi Engineers and Associates, Inc.), R10: Zylstra, Stephen, J (U. S. Fish and Wildlife Service), R10: Ashton, David (Port of Portland), R10: Mckenna, Jim (Port of Portland), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Cunninghame, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Peers, Jennifer (Stratus Consulting, Inc.), R10: Bluelake, Lisa (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Karnosh, Michael (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA), R10: Madden, Erin (Nez Perce Tribe), R10: Traeger, Karen, E (Legacy Site Services, LLC), R10: Wolf, Fred (Legacy Site Services, LLC), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality), R10: McClincy, Matt (Oregon Dept. of Environmental Quality), R10: Woronets, Jennifer (Anchor QEA, LLC), R10: Fox, Julie (Anchor QEA, LLC), R10: Longoria, Rose (Yakama Nation), R10: Wyatt, Robert, J (NW Natural), R10: Dost, Patty (Pearl Legal Group PC), R10: Pine, Keith (Anchor Environmental, LLC), R10: Williams, Jd (Unknown), R10: Woronets, Jennifer (Anchor Environmental, LLC), R10: Betz, Jan (City of Portland, Oregon), R10: Applegate, Rick (City	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100015636	REDACTED Portland Harbor Managers' Meeting - October 14, 2009.	11	1 MTG / Meeting Document	R10: Unknown, Unknown (Lower Willamette Group)		ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100014862	REDACTED Email Regarding October 14th 10/13/2009 Portland Harbor Managers Meeting Agenda.	96	2 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	Neely, Robert (NOAA), R10: Fleming, Sheila (Ridolfi Engineers and Associates, Inc.), R10: Zylstra, Stephen, J (U. S. Fish and Wildlife Service), R10: Ashton, David (Port of Portland), R10: Mckenna, Jim (Port of Portland), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Cunninghame, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Peers, Jennifer (Stratus Consulting, Inc.), R10: Bluelake, Lisa (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Karnosh, Michael (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA), R10: Madden, Erin (Nez Perce Tribe), R10: Traeger, Karen, E (Legacy Site Services, LLC), R10: Wolf, Frederick (Legacy Site Services, LLC), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality), R10: McClincy, Matt (Oregon Dept. of Environmental Quality), R10: Woronets, Jennifer (Anchor QEA, LLC), R10: Fox, Julie (Anchor QEA, LLC), R10: Longoria, Rose (Yakama Nation), R10: Wyatt, Robert, J (NW Natural), R10: Dost, Patty (Pearl Legal Group PC), R10: Weis, Julie (Haglund Kelley Jones & Wilder LLP), R10: Pine, Keith (Anchor Environmental, LLC), R10: Williams, Jd (Unknown), R10: Woronets, Jennifer (Anchor Environmental, LLC), R10: Betz, Jan (City of	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100008721	Email Regarding Coordination of LWG QEA Fate model presentation and site tour with 10/14/2009 Ron French and Todd King.	97	1 EML / Email	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA), R10: Woronets, Jennifer (Anchor QEA, LLC)		ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100009675	Email Regarding Movies from September 2nd HST Modeling Technical Subgroup Meeting 10/15/2009 Posted.	86	1 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Hayter, Earl, J (U. S. Army Corps of Engineers), R10: Rodgers, Charles (Stratus Consulting, Inc.), R10: Fuentes, Rene, C (EPA), R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100009684	Email Regarding Coordination of LWG QEA Fate model presentation and site tour with 10/19/2009 Ron French and Todd King.	34	1 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100009685	Email Regarding Coordination of LWG QEA Fate model presentation and site tour with 10/19/2009 Ron French and Todd King.	108	2 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100010152	Email Regarding LWG QEA Fate model presentation - Wednesday, November 18th. 10/19/2009	36	2 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100009067	USE OF MATHEMATICAL MODELS TO EVALUATE MANAGEMENT OPTIONS FOR REDUCING PCB BIOACCUMULATION BY FISH IN TWO STREAMS AT THE NEAL'S LANDFILL SITE, BLOOMINGTON, IN. 10/21/2009	1,088	15 PUB / Publication	R10: Cepko, Russell, P (CBS), R10: Rhea, James, R (Quantitative Environmental Analysis, L.L.C.), R10: Russell, Kevin, T (Quantitative Environmental Analysis, L.L.C.), R10: Glaser, David (Quantitative Environmental Analysis, L.L.C.), R10: Ku, Wen (Quantitative Environmental Analysis, L.L.C.)		ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100009683	Email Regarding Coordination of LWG QEA Fate model presentation and site tour with 10/21/2009 Ron French and Todd King.	37	2 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100015615	REDACTED Email Regarding LWG QEA Fate model presentation - Wednesday, November 18th 1 - 4 pm. 10/21/2009	84	2 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100009063	Email Regarding QEA Fate Model History and References. 10/22/2009	145	2 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100009066	QEA FATE Model Development and Application History. 10/22/2009	103	4 RPT / Report	R10: Unknown, Unknown (Lower Willamette Group)		ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100009686	Email Regarding Coordination of LWG QEA Fate model presentation and site tour with 10/23/2009 Ron French and Todd King	38	2 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100009672	Email Regarding Coordination of LWG QEA Fate model presentation and site tour with 10/28/2009 Ron French and Todd King.	39	3 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100014861	REDACTED Portland Harbor Managers' Meeting - November 4, 2009. 10/29/2009	12	1 MTG / Meeting Document	R10: Woronets, Jennifer (Lower Willamette Group)		ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100015237	REDACTED Email Regarding Head count for - 10/29/2009 November 17th Alternatives Analysis Meeting.	93	2 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)

100014811	10/30/2009	REDACTED Email Regarding November 4th Portland Harbor Managers Meeting Agenda.	91	3 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Parkinson, Steve (Groff & Murphy), R10: Neely, Robert (NOAA), R10: Fleming, Sheila (Ridolfi Engineers and Associates, Inc.), R10: Zylstra, Stephen, J (U. S. Fish and Wildlife Service), R10: Ashton, David (Port of Portland), R10: Mckenna, James (Port of Portland), R10: Mckenna, Jim (Port of Portland), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Cunninghame, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Peers, Jennifer (Stratus Consulting, Inc.), R10: Bluelake, Lisa (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Karnosh, Michael (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA), R10: Madden, Erin (Nez Perce Tribe), R10: Traeger, Karen, E (Legacy Site Services, LLC), R10: Wolf, Frederick (Legacy Site Services, LLC), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality), R10: Fox, Julie (Anchor QEA, LLC), R10: Longoria, Rose (Yakama Nation), R10: Wyatt, Robert, J (NW Natural), R10: Dost, Patty (Pearl Legal Group PC), R10: Weis, Julie (Haglund Kelley Jones & Wilder LLP), R10: Pine, Keith (Anchor Environmental, LLC), R10: Williams, Jd (Unknown), R10: Woronets, Jennifer (Anchor Environmental, LLC), R10: Betz, Jan (City of Portland, Oregon)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100008722	11/4/2009	Email Regarding Coordination of QEAFATE model presentation meeting at EPA.	83	1 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100009688	11/4/2009	Email Regarding Coordination of QEAFATE model presentation meeting at EPA.	35	1 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100015315	11/4/2009	REDACTED Email Regarding November 4th Portland Harbor Managers Meeting Materials.	38	3 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100009687	11/5/2009	Email Regarding Coordination of QEAFATE model presentation meeting at EPA.	35	2 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100014773	11/5/2009	REDACTED Email Regarding Head count for - November 17th Alternatives Analysis Meeting.	97	2 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100015233	11/5/2009	REDACTED Email Regarding Head count for - November 17th Alternatives Analysis Meeting.	32	2 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100015256	11/5/2009	REDACTED Email Regarding New location: LWG QEAFATE model presentation - Wednesday, November 18th 1 - 4 pm.	35	3 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100009059	11/11/2009	Email Regarding Portland Harbor Feasibility Study - Example Alternatives Development and Screening Evaluation PowerPoint.	164	2 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100009036	11/13/2009	Email Regarding Monday, November 16th 9 am to noon - Portland Harbor Site Tour.	40	3 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100014801	11/13/2009	REDACTED Email Regarding Tuesday, November 17th 9 am to 5 pm - Example Alternatives Development and Screening Evaluation.	94	2 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100010183	11/16/2009	Physical Info Maps with Sub SMAs.	767	3 FIG / Figure/Map/ Drawing	R10: Unknown, Unknown (Lower Willamette Group)		ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100010184	11/16/2009	Summary of Comprehensive Alternatives.	66	1 CHT / Chart/Table	R10: Unknown, Unknown (Lower Willamette Group)		ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100010185	11/16/2009	Summary of Screened Technologies by SMA.	71	1 CHT / Chart/Table	R10: Unknown, Unknown (Lower Willamette Group)		ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100015258	11/16/2009	REDACTED Email Regarding November 17th Example Alternatives Development and Screening Evaluation - Agenda and handouts.	102	3 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100015291	11/16/2009	REDACTED Example Alternatives Development and Screening Evaluation Presentation - November 17th, 2009.	14	2 MTG / Meeting Document	R10: Unknown, Unknown (Lower Willamette Group)		ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100015490	11/16/2009	REDACTED Email Regarding Wednesday, November 18th 1 - 4 pm - LWG QEAFATE model presentation at EPA.	89	4 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100015287	11/17/2009	REDACTED Example Alternatives Development and Screening Evaluation Presentation - November 17th, 2009.	14	2 MTG / Meeting Document			ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
4940681059	11/17/2009	Email regarding [Fwd: comments on Portland Harbor Sed Transport model].	22	2 EML / Email	R10: Neely, Robert (NOAA)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
4940682055	11/19/2009	List regarding Questions and recommendations for the next phase of QEAFATE model development for Portland Harbor.	34	3 LST / List/Index	R10: Winter, Jessica (NOAA)		ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100017320	11/23/2009	REDACTED Email in reply to Portland Harbor fate & transport modeling meeting followup.	22	2 EML / Email	R10: Winter, Jessica (NOAA)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100008791	11/30/2009	REDACTED Email Regarding December 9th Portland Harbor Managers Meeting.	82	1 EML / Email	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA), R10: Woronets, Jennifer (Anchor QEA, LLC)		ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100015435	12/2/2009	REDACTED Portland Harbor Managers' Meeting - December 9, 2009.	12	1 MTG / Meeting Document	R10: Unknown, Unknown (Lower Willamette Group)		ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100015445	12/2/2009	REDACTED Email Regarding Portland Harbor Managers Meeting Agenda - Wednesday, December 9th 1 - 4 pm.	84	1 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100015480	12/2/2009	REDACTED Portland Harbor Managers' Meeting - December 9, 2009.	12	1 MTG / Meeting Document	R10: Unknown, Unknown (Lower Willamette Group)		ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100015485	12/2/2009	REDACTED Portland Harbor Managers' Meeting - December 9, 2009.	12	1 MTG / Meeting Document	R10: Unknown, Unknown (Lower Willamette Group)		ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100017527	12/2/2009	REDACTED Email regarding Clarification on EPA's position on CDF design analysis.	25	2 EML / Email	R10: Koehl, Krista (Port of Portland)	R10: Cora, Lori, H (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100017531	12/2/2009	REDACTED Clarification on EPA's position on CDF design analysis.	24	2 EML / Email	R10: Koehl, Krista (Port of Portland)	R10: Cora, Lori, H (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100017972	12/2/2009	REDACTED Portland Harbor Managers' Meeting - December 9, 2009.	12	1 EML / Email	R10: Unknown, Unknown (Lower Willamette Group)		ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100009331	12/7/2009	Email Regarding List FS Related Items Needing Resolution Before the Full Alternatives Screening Analysis Can Occur.	83	1 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100009332	12/7/2009	List of FS Related Items Needing Resolution Before the Full Alternatives Screening Analysis Can Occur (and items not needing resolution).	139	4 MEMO / Memorandum	R10: Unknown, Unknown (Lower Willamette Group)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)



100015478	12/8/2009	REDACTED Email Regarding Wednesday, December 9th 1 - 4 pm - Portland Harbor Managers Meeting.	88	2 EML / Email		Sheila (Ridolfi Engineers and Associates, Inc.), R10: Zylstra, Stephen, J (U. S. Fish and Wildlife Service), R10: Ashton, David (Port of Portland), R10: Mckenna, Jim (Port of Portland), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Cunninghame, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Peers, Jennifer (Stratus Consulting, Inc.), R10: Woronets, Jennifer (Lower Willamette Group), R10: Bluelake, Lisa (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Karnosh, Michael (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA), R10: Madden, Erin (Nez Perce Tribe), R10: Traeger, Karen, E (Legacy Site Services, LLC), R10: Wolf, Frederick (Legacy Site Services, LLC), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality), R10: McClincy, Matt (Oregon Dept. of Environmental Quality), R10: Woronets, Jennifer (Anchor QEA, LLC), R10: Longoria, Rose (Yakama Nation), R10: Wyatt, Robert, J (NW Natural), R10: Dost, Patty (Pearl Legal Group PC), R10: Weis, Julie (Haglund Kelley Jones & Wilder LLP), R10: Pine, Keith (Anchor Environmental, LLC), R10: Williams, Jd (Unknown), R10: Woronets, Jennifer (Anchor Environmental, LLC), R10: Betz, Jan (City of	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100009662	12/9/2009	Email Regarding QEA Fate Calibration and Sensitivity Analysis Parameters Memo.	83	1 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100009663	12/9/2009	QEA Fate Calibration and Sensitivity Analysis Parameters.	145	3 MEMO / Memorandum	R10: Unknown, Unknown (Lower Willamette Group)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100015236	12/9/2009	REDACTED Email Regarding Wednesday, December 9th 1 - 4 pm - Portland Harbor Managers Meeting.	37	3 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100015482	12/9/2009	REDACTED Email Regarding Wednesday, December 9th 1 - 4 pm - Portland Harbor Managers Meeting Web Meeting Information.	104	3 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA) R10: Parkinson, Steve (Groff & Murphy), R10: Neely, Robert (NOAA), R10: Fleming, Sheila (Ridolfi Engineers and Associates, Inc.), R10: Zylstra, Stephen, J (U. S. Fish and Wildlife Service), R10: Ashton, David (Port of Portland), R10: Mckenna, Jim (Port of Portland), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Cunninghame, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Peers, Jennifer (Stratus Consulting, Inc.), R10: Bluelake, Lisa (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Karnosh, Michael (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA), R10: Madden, Erin (Nez Perce Tribe), R10: Traeger, Karen, E (Legacy Site Services, LLC), R10: Wolf, Frederick (Legacy Site Services, LLC), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality), R10: McClincy, Matt (Oregon Dept. of Environmental Quality), R10: Wyatt, Robert, J (NW Natural), R10: Dost, Patty (Pearl Legal Group PC), R10: Pine, Keith (Anchor Environmental, LLC), R10: Williams, Jd (Unknown), R10: Woronets, Jennifer (Anchor Environmental, LLC), R10: Betz, Jan (City of Portland, Oregon), R10: Applegate, Rick (City of Portland), R10: Weis, Julie (Haglund Kelley, LLP)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100015770	12/9/2009	REDACTED Email Regarding Wednesday, December 9th 1 - 4 pm - Portland Harbor Managers Meeting Web Meeting Information.	108	3 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100008928	12/10/2009	Email Regarding Interim Revised PRG Table	145	2 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100008929	12/10/2009	All PRGs As Of Dec 10 2009.	52	4 CHT / Chart/Table	R10: Woronets, Jennifer (Anchor QEA, LLC)		ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100009676	12/10/2009	Email Regarding November 2009 Portland Harbor Monthly Progress Report.	92	1 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100009677	12/10/2009	Lower Willamette River, Portland Harbor Superfund Site USEPA Docket No: CERCLA-10-2001-0240 Monthly Progress Report for November 2009.	101	11 LTR / Letter	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100008948	12/17/2009	Email Regarding LWG Response to EPA Comments on QEA Fate Model.	143	2 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100008949	12/17/2009	Response to EPA's comments dated November 24, 2009 on the QEA Fate Model.	175	6 MEMO / Memorandum	R10: Unknown, Unknown (The Lower Willamette Group)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100009561	1/4/2010	Email regarding ARAR comments -- Table 1.	266	2 EML / Email	R10: Cora, Lori, H (EPA)	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality) Neely, Robert (NOAA), R10: Fleming, Sheila (Ridolfi Engineers and Associates, Inc.), R10: Zylstra, Stephen, J (U. S. Fish and Wildlife Service), R10: Mckenna, Jim (Port of Portland), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Cunninghame, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Peers, Jennifer (Stratus Consulting, Inc.), R10: Woronets, Jennifer (Lower Willamette Group), R10: Bluelake, Lisa (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Karnosh, Michael (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA), R10: Madden, Erin (Nez Perce Tribe), R10: Traeger, Karen, E (Legacy Site Services, LLC), R10: Wolf, Frederick (Legacy Site Services, LLC), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality), R10: McClincy, Matt (Oregon Dept. of Environmental Quality), R10: Woronets, Jennifer (Anchor QEA, LLC), R10: Longoria, Rose (Yakama Nation), R10: Wyatt, Robert, J (NW Natural), R10: Dost, Patty (Pearl Legal Group PC), R10: Pine, Keith (Anchor Environmental, LLC), R10: Williams, Jd (Unknown), R10: Betz, Jan (City of Portland, Oregon), R10: Applegate, Rick (City of Portland), R10: Weis, Julie (Haglund Kelley,	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100015433	1/7/2010	REDACTED Email Regarding Portland Harbor Managers Meeting - Wednesday, January 13th 1 - 3 pm.	84	1 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)

100015443	REDACTED Portland Harbor Managers' Meeting - January 13, 2010.	12	1 MTG / Meeting Document	R10: Unknown, Unknown (Lower Willamette Group)		ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)	
100015489	REDACTED Email Regarding Portland Harbor Managers' Meeting - January 13, 2010.	12	1 MTG / Meeting Document	R10: Unknown, Unknown (Lower Willamette Group)		ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)	
100014746	REDACTED Email Regarding February Portland Harbor Managers Meeting.	79	1 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)	
					R10: Neely, Robert (NOAA), R10: Fleming, Sheila (Ridolfi Engineers and Associates, Inc.), R10: Zylstra, Stephen, J (U. S. Fish and Wildlife Service), R10: Ashton, David (Port of Portland), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Cunninghame, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Peers, Jennifer (Stratus Consulting, Inc.), R10: Bluelake, Lisa (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Karnosh, Michael (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA), R10: Madden, Erin (Nez Perce Tribe), R10: Traeger, Karen, E (Legacy Site Services, LLC), R10: Wolf, Frederick (Legacy Site Services, LLC), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality), R10: McClincy, Matt (Oregon Dept. of Environmental Quality), R10: Woronets, Jennifer (Anchor QEA, LLC), R10: Longoria, Rose (Yakama Nation), R10: Wyatt, Robert, J (NW Natural), R10: Dost, Patty (Pearl Legal Group PC), R10: Weis, Julie (Haglund Kelley Jones & Wilder LLP), R10: Williams, Jd (Unknown), R10: Woronets, Jennifer (Anchor Environmental, LLC), R10: Betz, Jan (City of Portland, Oregon), R10: Applegate, Rick (City of Portland)			
100015488	REDACTED Email Regarding Wednesday, January 13th 1 - 3 pm - Portland Harbor Managers Meeting.	96	2 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)		ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)	
100008806	1/14/2010 Monthly Progress Report for December 2009	181	10 LTR / Letter	R10: Woronets, Jennifer (Lower Willamette Group)		ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)	
100008805	Email Regarding December 2009 Portland Harbor Monthly Progress Report.	103	1 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)	
100009342	1/19/2010 Table 1. Draft LWG Mitigation Framework.	31	1 CHT / Chart/Table	R10: Unknown, Unknown (Lower Willamette Group)		ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)	
100008718	Email Regarding Availability to attend Legal and Technical ARARs meeting.	83	1 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)	
100009362	Email Regarding LWG Total PCB Modeling Approach Memo.	125	4 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)	
100009363	1/20/2010 Total PCB Modeling Approach.	125	4 MEMO / Memorandum	R10: Unknown, Unknown (Lower Willamette Group)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)	
100014776	REDACTED Email Regarding February Portland Harbor Managers Meeting.	82	2 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)	
100010190	Email Regarding Reply requested - Legal and Technical ARARs meeting Thursday, February 1/21/2010 4th.	37	2 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)	
100010191	Email Regarding Reply requested - Legal and Technical ARARs meeting Thursday, February 1/21/2010 4th.	37	3 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)	
100014679	REDACTED Email Regarding ARARs Meeting - 1/21/2010 Thursday, February 4th 9:30 - 12:30.	78	1 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)	
4940681063	Email regarding reply to LWG Total PCB Modeling Approach Memo.	27	3 EML / Email	R10: Winter, Jessica (NOAA)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)	
4940681064	Email regarding reply to LWG Total PCB Modeling Approach Memo.	25	2 EML / Email	R10: Winter, Jessica (NOAA)	R10: Neely, Robert (NOAA), R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)	
100010192	Email Regarding Reply requested - Scheduling 1/22/2010 follow-up meeting.	37	2 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)	
100010193	Email Regarding Reply requested - Scheduling 1/25/2010 follow-up meeting.	39	3 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)	
100011465	Email regarding pooling of endpoints for 1/26/2010 Predictive Models.	115	1 EML / Email	R10: Toll, John (Windward Environmental, LLC.)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)	
100011466	Email regarding pooling of endpoints for 1/29/2010 Predictive Models.	153	2 EML / Email	R10: Toll, John (Windward Environmental, LLC.)	R10: Toll, John (Windward Environmental, LLC.), R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)	
4940681072	1/29/2010 Email regarding reply to PCB Modeling.	26	2 EML / Email	R10: Winter, Jessica (NOAA)	R10: Dexter, Bob (Ridolfi, Inc.)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)	
4940681073	1/29/2010 Email regarding reply to PCB Modeling.	25	2 EML / Email	R10: Winter, Jessica (NOAA)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)	
100009335	Email Regarding LWG ARAR Questions for 2/1/2010 February 4th Meeting.	88	1 EML / Email	R10: Cora, Lori, H (EPA), R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA), R10: Woronets, Jennifer (Anchor QEA, LLC)		ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)	
100009336	Table 1. ARAR Questions for February 4, 2010 Meeting with EPA.	40	7 CHT / Chart/Table	R10: Unknown, Unknown (Lower Willamette Group)		ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)	
100008900	2/10/2010 Email Regarding Compiled PRG Tables.	144	2 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)	
100009323	Email Regarding January 2010 Portland Harbor Monthly Progress Report.	91	1 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)	
100009324	Lower Willamette River, Portland Harbor Superfund Site USEPA Docket No: CERCLA-10-2001-0240 Monthly Progress Report for January 2010.	113	11 LTR / Letter	R10: Woronets, Jennifer (Lower Willamette Group)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)	
100009349	Email Regarding LWG Response Letter to EPA Response on PCB Modeling Approach - Contaminant Fate and Transport Model (Lower Willamette River, Portland Harbor Superfund Site, USEPA Docket No: CERCLA-10-2001-0240).	95	1 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)	
100009350	2/18/2010	37	2 LTR / Letter	R10: Wyatt, Robert (Lower Willamette Group)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)	
100015452	REDACTED Email Regarding PRG Mapping Meeting - Thursday, March 4th 9 am to 4 pm.	78	1 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)	
100009341	Email Regarding LWG Mitigation Framework 2/19/2010 Matrix.	82	1 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Meyer, Ben (NOAA), R10: Angle, Genevieve (NOAA), R10: Callahan-grant, Megan (NOAA), R10: Munn, Nancy (NOAA), R10: Neely, Robert (NOAA), R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA), R10: Connine, Mischa (NOAA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)	

100014802	2/23/2010	REDACTED Email Regarding Wednesday, February 24th 12:30 to 3:30 pm - LOE Analysis Conference Call.	94	2 EML / Email	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA), R10: Woronets, Jennifer (Anchor QEA, LLC)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)	
100009337	2/24/2010	Email Regarding LWG Extension Request EPA Performance Standards for Confined Disposal Facilities.	96	1 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100009338	2/24/2010	February 18, 2010 EPA Performance Standards for Confined Disposal Facilities (Lower Willamette River, Portland Harbor Superfund Site, USEPA Docket No: CERCLA-10-2001-0240).	35	2 LTR / Letter	R10: Wyatt, Robert (Lower Willamette Group)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100013589	2/24/2010	Email regarding LWG Extension Request EPA Performance Standards for Confined Disposal Facilities.	105	1 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100013670	2/24/2010	2010-02-24 LWG Extension Request EPA Performance Standards for Confined Disposal Facilities.	57	2 LTR / Letter	R10: Wyatt, Robert, J (NW Natural)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100014754	2/26/2010	REDACTED Email Regarding Attendee question - PRG Mapping Meeting - Thursday, March 4th 9 am to 4 pm.	97	2 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100010792	3/10/2010	Email Regarding Schematic FS Schedule and Critical Linkages - March 10, 2010.	15	1 CHT / Chart/Table	R10: Woronets, Jennifer (Anchor QEA, LLC)		ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100013667	3/10/2010	2010-03-10 Schematic FS Schedule.	116	1 RPT / Report	R10: (Unknown)		ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100013591	3/11/2010	Email regarding Schematic FS Schedule.	100	1 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100015465	3/11/2010	REDACTED Email Regarding Mitigation Framework Meeting with NOAA - Wednesday, April 7th 1:30 - 3:30 pm.	78	1 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100015773	3/11/2010	REDACTED Email Regarding Schematic FS Schedule.	89	1 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100008796	3/12/2010	Email Regarding February 2010 Portland Harbor Monthly Progress Report.	102	1 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100008797	3/12/2010	Monthly Progress Report for February 2010.	221	11 LTR / Letter	R10: Woronets, Jennifer (Anchor QEA, LLC)		ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100010186	3/12/2010	Email Regarding PCB Approach and PRG Table.	87	1 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100010800	3/12/2010	Table 1 - PRG's for FS from EPA 3-4-2010 Meeting.	79	1 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)		ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100015783	3/12/2010	REDACTED Email Regarding Table of PRGs from March 4th Meeting.	83	1 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100015451	3/15/2010	REDACTED Email Regarding PRG and Performance Standards for CDFs Conference Calls - Wednesday, March 17th 1 - 5 pm and Thursday, March 18th 1:30 - 4:30 pm.	84	1 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA), R10: Neely, Robert (NOAA), R10: Fleming, Sheila (Ridolfi Engineers and Associates, Inc.), R10: Zylstra, Stephen, J (U. S. Fish and Wildlife Service), R10: McKenna, Jim (Port of Portland), R10: Madalinski, Kelly (Port of Portland), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Cunningham, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Peers, Jennifer (Stratus Consulting, Inc.), R10: Zeilman, Tom (Confederated Tribes and Bands of the Yakima Indian Nation), R10: Woronets, Jennifer (Lower Willamette Group), R10: Bluelake, Lisa (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Karnosh, Michael (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA), R10: Madden, Erin (Nez Perce Tribe), R10: Traeger, Karen, E (Legacy Site Services, LLC), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality), R10: McClincy, Matt (Oregon Dept. of Environmental Quality), R10: Livesay, Dave (GSI Groundwater Solutions, Inc.), R10: Parrett, Kevin (GSI Groundwater Solutions, Inc.), R10: Stivers, Carl (Anchor QEA, LLC), R10: Woronets, Jennifer (Anchor QEA, LLC), R10: Longoria, Rose (Yakama Nation), R10: Wyatt, Robert, J (NW Natural), R10: Dost, Patty (Pearl Legal Group PC), R10: Pine, Keith	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100020089	3/15/2010	REDACTED Email Regarding Monday 9am meeting to discuss table of PRGs from March 4th Meeting.	35	2 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100009611	3/16/2010	Email Regarding March 18th Performance Standards for CDFs Conference Call - Agenda and Table.	84	1 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100009612	3/16/2010	CDF Performance Standards Table.	123	4 CHT / Chart/Table	R10: Unknown, Unknown (Lower Willamette Group)		ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100013592	3/16/2010	Email regarding March 18th Performance Standards for CDFs Conference Call - Agenda and Table.	92	1 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100013663	3/16/2010	2010-03-16 CDF Performance Standards Table.	160	4 RPT / Report	R10: (Unknown)		ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100014985	3/16/2010	REDACTED Email Regarding Revised schedule: PRG Follow-up call 3/17 2- 5 and Performance Standards for CDFs call 3/18 1:30 - 4:30.	35	2 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)



100015303	3/16/2010	REDACTED Email Regarding REVISED: PRG Follow-up Call Wednesday, March 17th 2 - 5 pm and Performance Standards for CDFs Call Thursday, March 18th 1:30 - 4:30 pm.	101	2 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	Neely, Robert (NOAA), R10: Fleming, Sheila (Ridolfi Engineers and Associates, Inc.), R10: Zylstra, Stephen, J (U. S. Fish and Wildlife Service), R10: Ashton, David (Port of Portland), R10: Mckenna, Jim (Port of Portland), R10: Madalinski, Kelly (Port of Portland), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Cunninghame, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Peers, Jennifer (Stratus Consulting, Inc.), R10: Shellenberger, Amanda (Anchor Environmental, LLC), R10: Zeilman, Tom (Confederated Tribes and Bands of the Yakima Indian Nation), R10: Bluelake, Lisa (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Karnosh, Michael (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA), R10: Madden, Erin (Nez Perce Tribe), R10: Traeger, Karen, E (Legacy Site Services, LLC), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality), R10: McClincy, Matt (Oregon Dept. of Environmental Quality), R10: Livesay, Dave (GSI Groundwater Solutions, Inc.), R10: Parrett, Kevin (GSI Groundwater Solutions, Inc.), R10: Stivers, Carl (Anchor QEA, LLC), R10: Longoria, Rose (Yakama Nation), R10: Wyatt, Robert, J (NW Natural), R10: Dost, Patty (Pearl	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100015474	3/16/2010	REDACTED Portland Harbor Managers' Meeting - March 18, 2010.	12	1 MTG / Meeting Document	R10: Unknown, Unknown (Lower Willamette Group)		ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100015767	3/16/2010	REDACTED Email Regarding Web meeting information: PRG Follow-up Call Wednesday, March 17th 2 - 5 pm.	103	3 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	Neely, Robert (NOAA), R10: Zylstra, Stephen, J (U. S. Fish and Wildlife Service), R10: Ashton, David (Port of Portland), R10: Mckenna, Jim (Port of Portland), R10: Madalinski, Kelly (Port of Portland), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Cunninghame, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Peers, Jennifer (Stratus Consulting, Inc.), R10: Shellenberger, Amanda (Anchor Environmental, LLC), R10: Zeilman, Tom (Confederated Tribes and Bands of the Yakima Indian Nation), R10: Bluelake, Lisa (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Karnosh, Michael (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA), R10: Fleming, Sheila (EPA), R10: Madden, Erin (Nez Perce Tribe), R10: Traeger, Karen, E (Legacy Site Services, LLC), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality), R10: McClincy, Matt (Oregon Dept. of Environmental Quality), R10: Livesay, Dave (GSI Groundwater Solutions, Inc.), R10: Parrett, Kevin (GSI Groundwater Solutions, Inc.), R10: Longoria, Rose (Yakama Nation), R10: Wyatt, Robert, J (NW Natural), R10: Dost, Patty (Pearl Legal Group PC), R10: Pine, Keith (Anchor Environmental, LLC), R10: Williams, Jd (Unknown), R10: Woronets,	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100009647	3/17/2010	Email Regarding Portland Harbor Degradation Rate History.	98	1 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100009648	3/17/2010	Degradation half lives for select chemicals in soils, sediments, and surface waters.	124	8 CHT / Chart/Table	R10: Unknown, Unknown (Lower Willamette Group)		ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100013593	3/17/2010	Email regarding Portland Harbor Degradation Rate History.	108	1 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100016843	3/18/2010	REDACTED 2010-03-18 Performance Standards for CDFs for the Portland Harbor Feasibility Study.	16	1 MTG / Meeting Document	R10: (Lower Willamette Group)		ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
4940680396	3/22/2010	Email regarding Reply to PH FS.	25	4 EML / Email	R10: Mckenna, James (Port of Portland)	R10: Applegate, Richard (City of Portland, Oregon), R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100008717	3/24/2010	Email Regarding Availability to attend CDF and PRG meeting.	96	1 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100010790	3/24/2010	Email Regarding Scheduling placeholder for model calibration check-in.	94	1 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100015461	3/25/2010	REDACTED Email Regarding CDF and PRG Meeting - Monday, March 29th 1 to 4 pm.	33	2 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100015464	3/25/2010	REDACTED Email Regarding CDF and PRG Meeting - Monday, March 29th 1 to 4 pm.	32	2 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100010198	3/29/2010	Email Regarding Scheduling placeholder for model calibration check-in.	97	2 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
4940681060	4/2/2010	Email regarding reply to Flood rise analysis proposal from LWG.	28	3 EML / Email	R10: Winter, Jessica (NOAA)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
4940681076	4/2/2010	Email regarding reply to Flood rise analysis proposal from LWG.	28	3 EML / Email	R10: Winter, Jessica (NOAA)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100009096	4/8/2010	Schematic FS Schedule and Critical Linkages - April 5, 2010 version.	13	1 CHT / Chart/Table	R10: Unknown, Unknown (Lower Willamette Group)		ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100014760	4/8/2010	REDACTED Portland Harbor Managers' Meeting - April 20, 2010.	12	1 MTG / Meeting Document	R10: Unknown, Unknown (Lower Willamette Group)		ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)

100015431	4/8/2010	REDACTED Email Regarding Portland Harbor Managers Meeting - Tuesday, April 20th 1 to 4 pm.	83	1 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	Neely, Robert (NOAA), R10: Fleming, Sheila (Ridolfi Engineers and Associates, Inc.), R10: Ashton, David (Port of Portland), R10: Mckenna, Jim (Port of Portland), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Cunninghame, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Peers, Jennifer (Stratus Consulting, Inc.), R10: Zeilman, Tom (Confederated Tribes and Bands of the Yakima Indian Nation), R10: Bluelake, Lisa (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Karnosh, Michael (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA), R10: Madden, Erin (Nez Perce Tribe), R10: Traeger, Karen, E (Legacy Site Services, LLC), R10: Wolf, Frederick (Legacy Site Services, LLC), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality), R10: Woronets, Jennifer (Anchor QEA, LLC), R10: Longoria, Rose (Yakama Nation), R10: Wyatt, Robert, J (NW Natural), R10: Dost, Patty (Pearl Legal Group PC), R10: Pine, Keith (Anchor Environmental, LLC), R10: Williams, Jd (Unknown), R10: Woronets, Jennifer (Anchor Environmental, LLC), R10: Betz, Jan (City of Portland, Oregon), R10: Applegate, Rick (City of Portland), R10: Weis, Julie (Haglund Kelley, LLP)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100013612	4/12/2010	Email regarding QEAfate Model Calibration Check-in - Tuesday, May 4th 9 am to 4 pm.	74	1 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100013599	4/14/2010	2010_03_LWG_Progress_Report.	121	11 LTR / Letter	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100013635	4/14/2010	2010-04-14 CDF Performance Standards Comment Responses.	315	9 RPT / Report	R10: (EPA)		ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100013636	4/14/2010	2010-04-14 LWG Response to EPA Performance Standards for Confined Disposal Facilities for the Portland Harbor Feasibility Study.	62	2 LTR / Letter	R10: Mckenna, Jim (Lower Willamette Group)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100016590	4/14/2010	REDACTED Email regarding March 2010 Portland Harbor Monthly Progress Report.	104	1 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100016807	4/14/2010	REDACTED Email regarding LWG Response to EPA February 18th Performance Standards for CDFs for the Portland Harbor FS.	107	1 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100014649	4/19/2010	REDACTED Email Regarding Tuesday, April 20th 1 to 4 pm - Portland Harbor Managers Meeting Agenda and updated FS Schedule.	92	3 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	Neely, Robert (NOAA), R10: Fleming, Sheila (Ridolfi Engineers and Associates, Inc.), R10: Ashton, David (Port of Portland), R10: Mckenna, Jim (Port of Portland), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Cunninghame, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Peers, Jennifer (Stratus Consulting, Inc.), R10: Zeilman, Tom (Confederated Tribes and Bands of the Yakima Indian Nation), R10: Woronets, Jennifer (Lower Willamette Group), R10: Bluelake, Lisa (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Karnosh, Michael (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA), R10: Traeger, Karen, E (Legacy Site Services, LLC), R10: Wolf, Frederick (Legacy Site Services, LLC), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality), R10: McClincy, Matt (Oregon Dept. of Environmental Quality), R10: Woronets, Jennifer (Anchor QEA, LLC), R10: Longoria, Rose (Yakama Nation), R10: Wyatt, Robert, J (NW Natural), R10: Dost, Patty (Pearl Legal Group PC), R10: Weis, Julie (Haglund Kelley Jones & Wilder LLP), R10: Pine, Keith (Anchor Environmental, LLC), R10: Williams, Jd (Unknown), R10: Betz, Jan (City of Portland, Oregon), R10: Applegate, Rick (City of	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100013415	4/23/2010	Responses to EPA's CDF Performance Standards Comments Dated April 23, 2010.	100	4 CORR / Correspondence	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100017815	4/23/2010	REDACTED Email regarding Model calibration check-in location and web me.	92	2 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100017981	4/29/2010	REDACTED Email Regarding Model calibration presentation posted.	79	1 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100017936	5/3/2010	REDACTED Email Regarding Tuesday, May 4th 9 am to 5 pm - Model calibration check-in location and web meeting information.	86	3 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100009353	5/5/2010	Email Regarding LWG Response to EPA April 23rd Performance Standards for Confined Disposal Facilities for the Portland Harbor Feasibility Study.	96	1 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100009354	5/5/2010	EPA Performance Standards for Confined Disposal Facilities for the Portland Harbor Feasibility Study (Lower Willamette River, Portland Harbor Superfund Site, USEPA Docket No: CERCLA-10-2001-0240).	36	2 LTR / Letter	R10: Wyatt, Robert (Lower Willamette Group)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100009355	5/5/2010	Responses to EPA's CDF Performance Standards Comments Dated April 23, 2010.	104	4 LTR / Letter	R10: Unknown, Unknown (Lower Willamette Group)		ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100009358	5/5/2010	Email Regarding LWG Response to EPA's April 21st PRG Comments.	95	1 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100009359	5/5/2010	Response to EPA PRG Comments Dated April 21, 2010 (Lower Willamette River, Portland Harbor Superfund Site, USEPA Docket No: CERCLA-10-2001-0240).	38	2 LTR / Letter	R10: Wyatt, Robert (Lower Willamette Group)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100013414	5/5/2010	Letter regarding EPA Performance Standards for Confined Disposal Facilities for the Portland Harbor Feasibility Study.	35	2 CORR / Correspondence	R10: Wyatt, Bob (Northwest Natural Gas Company)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100016701	5/5/2010	REDACTED Email regarding LWG Response to EPA April 23rd Performance Standards for Confined Disposal Facilities for the Portland Harbor Feasibility Study.	94	1 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100013417	5/12/2010	Letter regarding Monthly Progress Report for April 2010.	102	12 CORR / Correspondence	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100016702	5/12/2010	REDACTED Email regarding April 2010 Portland Harbor Monthly Progress Report.	90	1 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)

100016734	REDACTED Email regarding Alternatives screening check-in planning meeting - Monday, June 7th 12:30 to 3:30 pm (pacific).	38	4 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100013419	EPA Comments on May 4, 2010 Qeafate Model Presentation.	71	5 CORR / Correspondence	R10: Humphrey, Chip (EPA)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100013418	Email regarding EPA comments on QEAFate modeling presentation.	29	1 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100013501	Email Regarding List of topics for LWG and EPA ESA mitigation framework meeting.	91	1 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100013421	Draft, Agenda, Objectives and List of Topics to Be Covered in Portland Harbor FS Alternatives Screening Check-in Meeting.	16	3 CORR / Correspondence	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100013422	LWG – Chemical Fate and Transport Model Initial Response to EPA Comments on 5/4/10 Presentation Materials.	152	7 CORR / Correspondence	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100016714	REDACTED Email regarding Alternatives Screening Check in Planning Meeting Topics and Initial LWG Responses to EPA Fate Model Comments.	144	2 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100013424	Letter regarding Portland Harbor Monthly Progress Report for May 2010.	75	12 CORR / Correspondence	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100016710	REDACTED Email regarding May 2010 Portland Harbor Monthly Progress Report.	91	1 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100017311	REDACTED Email regarding reply to LWG Chemical Fate and Transport Model Summary of June 8th Conference Call with EPA.	26	3 EML / Email	R10: Winter, Jessica (NOAA)	R10: Hayter, Earl, J (U. S. Army Corps of Engineers)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100017310	REDACTED Email regarding reply to LWG Chemical Fate and Transport Model Summary of June 8th Conference Call with EPA.	29	4 EML / Email	R10: Winter, Jessica (NOAA)	R10: Dexter, Bob (Ridolfi, Inc.)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100009074	Table 1. Draft LWG Mitigation Framework - Active Channel Margin.	433	10 CHT / Chart/Table	R10: Unknown, Unknown (Lower Willamette Group), R10: (Lower Willamette Group)		ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100009075	LWG Comments on the NOAA/NMFS Habitat 6/21/2010 Values for Salmonids.	128	9 MEMO / Memorandum	R10: Woronets, Jennifer (Lower Willamette Group)		ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100016722	REDACTED Email regarding QEAFate modeling meeting - Monday, July 19th 1:30 to 5:30 pm (eastern).	95	1 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100013426	Draft Objectives, Agendas, and List of Topics to Be Covered in Portland Harbor FS Alternatives Screening Check-in Process.	19	3 CORR / Correspondence	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100016723	REDACTED Email regarding Revised Alternatives Screening Check In Process.	97	1 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100012016	Email regarding fish TRVs related to Tributyltin (TBT) in the draft BERA.	56	1 EML / Email	R10: Toll, John (Windward Environmental, LLC.)	R10: Shephard, Burt (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100009062	Email Regarding Prep for next FS matrix meeting.	114	2 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Meyer, Ben (NOAA), R10: Pease, Katherine (NOAA), R10: Munn, Nancy (NOAA), R10: Malek, John (Parametrix, Inc.), R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100009073	Follow up from LWG/NMFS/EPA Mitigation Matrix Meeting (June 22, 2010).	48	4 MTG / Meeting Document	R10: Unknown, Unknown (Lower Willamette Group)		ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
4940682057	Draft Analytical Data Document regarding HEA 7/8/2010 Habitat Values for ESA Consultation.	99	1 ADD / Analytical Data Document	R10: Angle, Genevieve (NOAA)		ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
4940682059	Draft Analytical data document regarding 7/8/2010 Draft HEA Habitat Values for ESA Consultation.	99	1 ADD / Analytical Data Document	R10: Angle, Genevieve (NOAA)		ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100009559	7/14/2010 ARARs Table - 10-613083.	248	6 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100013428	Letter regarding Portland Harbor Monthly Progress Report for June 2010.	129	12 CORR / Correspondence	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100016736	REDACTED Email regarding June 2010 Portland Harbor Monthly Progress Report.	90	1 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Parkinson, Steve (Groff & Murphy), R10: Neely, Robert (NOAA), R10: Madden, Erin (Unknown), R10: Madalinski, Kelly (Port of Portland), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Cunninghame, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Ebbets, Allison (Stratus Consulting, Inc.), R10: Wyatt, Bob (Lower Willamette Group), R10: Wyatt, Bob (Northwest Natural Gas Company), R10: Bluelake, Lisa (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Karnosh, Michael (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality), R10: Wagoner, Colin, H (Ridolfi, Inc.), R10: Longoria, Rose (Yakama Nation), R10: Dost, Patty (Pearl Legal Group PC), R10: Williams, Jd (Unknown), R10: Mckenna, Jim (Verdant Solutions, LLC), R10: Pine, Keith (Anchor QEA, LLC), R10: Applegate, Rick (City of Portland), R10: Weis, Julie (Haglund Kelley, LLP), R10: Wolf, Frederick, G (Total)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
4940682058	7/14/2010 HEA habitat values for ESA consultation	19	1 EML / Email	R10: Angle, Genevieve (NOAA)	R10: Appy, Elizabeth (Anchor QEA, LLC), R10: Wyatt, Robert, J (NW Natural), R10: Mckenna, Jim (Verdant Solutions, LLC)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
4940682060	Email regarding HEA habitat values for ESA consultation.	19	1 EML / Email	R10: Angle, Genevieve (NOAA)	R10: Appy, Elizabeth (Anchor QEA, LLC), R10: Wyatt, Robert, J (NW Natural), R10: Mckenna, Jim (Verdant Solutions, LLC)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100014987	REDACTED Email Regarding Small Technical Group Benthic Toxicity AOPCs Meeting - Thursday, August 19th 9 am to 1 pm.	93	2 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Shephard, Burt (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100008782	7/19/2010 Email regarding QEAFate Model Calibration.	18	1 EML / Email	R10: Blischke, Eric, L (EPA)	R10: Mckenna, Jim (Port of Portland), R10: Woronets, Jennifer (Anchor QEA, LLC), R10: Wyatt, Robert, J (NW Natural), R10: Applegate, Rick (City of Portland)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100015040	REDACTED Email Regarding Small Technical Group Benthic Toxicity AOPCs Meeting Location - Thursday, August 19th 9 am to 1 pm.	99	3 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA), R10: Shephard, Burt (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100009656	Schematic FS Schedule and Critical Linkages - 8/5/2010 Aug 2, 2010 version.	14	1 CHT / Chart/Table	R10: Unknown, Unknown (Lower Willamette Group)		ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100010783	Schematic FS Schedule and Critical Linkages - 8/5/2010 Aug 2, 2010 version.	14	1 CHT / Chart/Table	R10: Woronets, Jennifer (Anchor QEA, LLC)		ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)

100015436	REDACTED Email Regarding Portland Harbor Managers Meeting Agenda and Updated FS Schedule - Wednesday, August 11th 1 - 3 pm.	85	1 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	Colin (Ridolfi Engineers and Associates, Inc.), R10: Ashton, David (Port of Portland), R10: Mckenna, Jim (Port of Portland), R10: Madalinski, Kelly (Port of Portland), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Cunninghame, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Ebbets, Allison (Stratus Consulting, Inc.), R10: Peers, Jennifer (Stratus Consulting, Inc.), R10: Zeilman, Tom (Confederated Tribes and Bands of the Yakima Indian Nation), R10: Woronets, Jennifer (Lower Willamette Group), R10: Bluelake, Lisa (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Karnosh, Michael (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA), R10: Madden, Erin (Nez Perce Tribe), R10: Traeger, Karen, E (Legacy Site Services, LLC), R10: Wolf, Frederick (Legacy Site Services, LLC), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality), R10: McClincy, Matt (Oregon Dept. of Environmental Quality), R10: Woronets, Jennifer (Anchor QEA, LLC), R10: Longoria, Rose (Yakama Nation), R10: Wyatt, Robert, J (NW Natural), R10: Dost, Patty (Pearl Legal Group PC), R10: Pine, Keith (Anchor Environmental, LLC), R10: Williams, Jd (Unknown), R10: Woronets, Jennifer (Anchor	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100015449	REDACTED Portland Harbor Managers' Meeting - August 11, 2010.	9	1 MTG / Meeting Document	R10: Unknown, Unknown (Lower Willamette Group)		ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100017971	REDACTED Portland Harbor Managers' Meeting - August 11, 2010.	9	1 EML / Email	R10: Unknown, Unknown (Lower Willamette Group)		ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100015786	REDACTED Email Regarding Wednesday, September 22nd 1 to 5 pm - Small Technical Group Benthic Toxicity AOPCs Meeting.	93	2 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA), R10: Shephard, Burt (EPA), R10: Humphrey, Chip (EPA) Neely, Robert (NOAA), R10: Wagoner, Colin (Ridolfi Engineers and Associates, Inc.), R10: Ashton, David (Port of Portland), R10: Mckenna, Jim (Port of Portland), R10: Madalinski, Kelly (Port of Portland), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Cunninghame, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Ebbets, Allison (Stratus Consulting, Inc.), R10: Peers, Jennifer (Stratus Consulting, Inc.), R10: Zeilman, Tom (Confederated Tribes and Bands of the Yakima Indian Nation), R10: Bluelake, Lisa (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Karnosh, Michael (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA), R10: Madden, Erin (Nez Perce Tribe), R10: Traeger, Karen, E (Legacy Site Services, LLC), R10: Wolf, Frederick (Legacy Site Services, LLC), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality), R10: McClincy, Matt (Oregon Dept. of Environmental Quality), R10: Longoria, Rose (Yakama Nation), R10: Wyatt, Robert, J (NW Natural), R10: Dost, Patty (Pearl Legal Group PC), R10: Pine, Keith (Anchor Environmental, LLC), R10: Williams, Jd (Unknown), R10: Mckenna, Jim (Verdant Solutions, LLC), R10: Woronets, Jennifer	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100015769	REDACTED Email Regarding Wednesday, August 11th 1 - 3 pm - Portland Harbor Managers Meeting Agenda and Updated FS Schedule.	90	2 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)		ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100009328	Lower Willamette River, Portland Harbor Superfund Site USEPA Docket No: CERCLA-10-2001-0240 Monthly Progress Report for July 2010.	124	12 LTR / Letter	R10: Woronets, Jennifer (Lower Willamette Group)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100013430	Letter regarding Portland Harbor Superfund Monthly Progress Report for July 2010.	124	12 CORR / Correspondence	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA) Neely, Robert (NOAA), R10: Ashton, David (Port of Portland), R10: Mckenna, Jim (Port of Portland), R10: Madalinski, Kelly (Port of Portland), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Cunninghame, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Ebbets, Allison (Stratus Consulting, Inc.), R10: Peers, Jennifer (Stratus Consulting, Inc.), R10: Zeilman, Tom (Confederated Tribes and Bands of the Yakima Indian Nation), R10: Bluelake, Lisa (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Karnosh, Michael (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA), R10: Madden, Erin (Nez Perce Tribe), R10: Traeger, Karen, E (Legacy Site Services, LLC), R10: Wolf, Frederick (Legacy Site Services, LLC), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality), R10: McClincy, Matt (Oregon Dept. of Environmental Quality), R10: Wagoner, Colin, H (Ridolfi, Inc.), R10: Woronets, Jennifer (Anchor QEA, LLC), R10: Longoria, Rose (Yakama Nation), R10: Wyatt, Robert, J (NW Natural), R10: Dost, Patty (Pearl Legal Group PC), R10: Mckenna, James (Verdant Solutions, LLC), R10: Weis, Julie (Haglund Kelley Jones & Wilder LLP), R10: Pine, Keith (Anchor Environmental, LLC), R10:	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100009327	Email Regarding July 2010 Portland Harbor Monthly Progress Report.	92	1 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)		ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)

100016738	REDACTED Email regarding July 2010 Portland Harbor Monthly Progress Report.	90	1 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Neely, Robert (NOAA), R10: Madden, Erin (Unknown), R10: Ashton, David (Port of Portland), R10: Madalinski, Kelly (Port of Portland), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Cunninghame, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Ebbets, Allison (Stratus Consulting, Inc.), R10: Peers, Jennifer (Stratus Consulting, Inc.), R10: Zeilman, Tom (Confederated Tribes and Bands of the Yakima Indian Nation), R10: Wyatt, Bob (Northwest Natural Gas Company), R10: Bluelake, Lisa (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Karnosh, Michael (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality), R10: Wagoner, Colin, H (Ridolfi, Inc.), R10: Longoria, Rose (Yakama Nation), R10: Dost, Patty (Pearl Legal Group PC), R10: Williams, Jd (Unknown), R10: Mckenna, Jim (Verdant Solutions, LLC), R10: Pine, Keith (Anchor QEA, LLC), R10: Applegate, Rick (City of Portland), R10: Weis, Julie (Haglund Kelley, LLP), R10: Wolf, Frederick, G (Total)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
4940681061	Email regarding reply to July 19th Chemical Fate Modeling Presentation Posted.	41	3 EML / Email	R10: Winter, Jessica (NOAA)	R10: Neely, Robert (NOAA), R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
4940681062	Email regarding reply to July 19th Chemical Fate Modeling Presentation Posted.	43	4 EML / Email	R10: Winter, Jessica (NOAA)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100010776	Email Regarding Stormwater Loading Comments.	37	2 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100010777	Email Regarding Stormwater Loading Comments.	34	1 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
4940681065	Email regarding reply to HEA habitat values for 8/18/2010 ESA consultation.	24	1 EML / Email	R10: Angle, Genevieve (NOAA)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100015789	REDACTED Email Regarding Scheduling FS tools meeting with the LWG (reply requested).	90	2 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
4940681066	Email regarding Reply to HEA habitat values 8/19/2010 for ESA consultation.	25	1 EML / Email	R10: Angle, Genevieve (NOAA)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100015051	REDACTED Email Regarding FS tools meeting with the LWG - Wednesday, September 29th 8/24/2010 11 am to 2 pm.	97	2 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100013432	Schematic FS Schedule and Critical Linkages - 9/1/2010 Sep 1, 2010 version.	14	1 CORR / Correspondence	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100010797	Schematic FS Schedule and Critical Linkages - 9/2/2010 Sep 1, 2010 version.	14	1 CHT / Chart/Table	R10: Woronets, Jennifer (Anchor QEA, LLC)		ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100015771	REDACTED Email Regarding September schematic FS schedule.	83	1 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100016740	REDACTED Email regarding September schematic FS schedule.	83	1 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100015444	REDACTED Email regarding 2:30 pm Draft FS 9/7/2010 source control tables and table instructions.	36	3 EML / Email	R10: Humphrey, Chip (EPA)	R10: Mckenna, James (Verdant Solutions, LLC)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100015446	REDACTED Email regarding Draft FS source control tables and table instructions.	104	4 EML / Email	R10: Humphrey, Chip (EPA)	R10: Mckenna, James (Verdant Solutions, LLC)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100008715	9/8/2010 Monthly Progress Report for August 2010.	344	11 LTR / Letter	R10: Woronets, Jennifer (Lower Willamette Group)		ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100013434	Letter regarding Portland Harbor Monthly Progress Report for August 2010.	246	11 CORR / Correspondence	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100014680	REDACTED Email Regarding August 2010 Portland Harbor Monthly Progress Report.	90	1 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100016742	REDACTED Email regarding August 2010 Portland Harbor Monthly Progress Report.	90	1 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100015458	REDACTED Email Regarding Benthic toxicity AOPCs check in - Wednesday, September 29th 9/16/2010 11 am to 2 pm.	43	6 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100015292	REDACTED Email Regarding Reschedule October Portland Harbor Managers Meeting - 9/30/2010 reply requested.	36	2 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100013436	Schematic FS Schedule and Critical Linkages - 10/1/2010 October 1, 2010 version.	14	1 CORR / Correspondence	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100015260	REDACTED Email Regarding Reschedule October Portland Harbor Managers Meeting - 10/1/2010 Reply Requested.	87	2 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Parkinson, Steve (Groff & Murphy), R10: Neely, Robert (NOAA), R10: Ashton, David (Port of Portland), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Cunninghame, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Ebbets, Allison (Stratus Consulting, Inc.), R10: Peers, Jennifer (Stratus Consulting, Inc.), R10: Zeilman, Tom (Confederated Tribes and Bands of the Yakima Indian Nation), R10: Bluelake, Lisa (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Karnosh, Michael (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA), R10: Madden, Erin (Nez Perce Tribe), R10: Traeger, Karen, E (Legacy Site Services, LLC), R10: Wolf, Frederick (Legacy Site Services, LLC), R10: McClincy, Matt (Oregon Dept. of Environmental Quality), R10: Longoria, Rose (Yakama Nation), R10: Wyatt, Robert, J (NW Natural), R10: Dost, Patty (Pearl Legal Group PC), R10: Pine, Keith (Anchor Environmental, LLC), R10: Williams, Jd (Unknown), R10: Betz, Jan (City of Portland, Oregon), R10: Applegate, Rick (City of Portland), R10: Weis, Julie (Haglund Kelley, LLP)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100009646	Schematic FS Schedule and Critical Linkages - 10/6/2010 October 1, 2010 version.	14	1 CHT / Chart/Table	R10: Unknown, Unknown (Lower Willamette Group)		ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100015429	REDACTED Email Regarding October schematic FS schedule.	83	1 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)



100016746	REDACTED Email regarding October schematic 10/6/2010 FS schedule.	83	1 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100011030	Email regarding the TBT discussion Friday in 10/13/2010 Portland.	29	1 EML / Email	R10: Shephard, Burt (EPA)	R10: Toll, John (Windward Environmental, LLC.)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100015530	REDACTED Email Regarding LRM meeting with 10/17/2010 LWG - Friday, October 22nd 10 am to 12 pm.	78	1 EML / Email	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA), R10: Woronets, Jennifer (Anchor QEA, LLC)		ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100015671	REDACTED Email Regarding LRM meeting with 10/17/2010 LWG - Friday, October 22nd 10 am to 12 pm.	53	2 EML / Email	R10: Koch, Kristine, M (EPA)	R10: Angle, Genevieve (NOAA), R10: Buck, Jeremy (U. S. Fish and Wildlife Service), R10: Madden, Erin (Unknown), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Cunninghame, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Ridolfi, Callie (Ridolfi Engineers, Inc.), R10: Downey, Tom (Confederated Tribes of the Siletz Indians), R10: Karnosh, Michael (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Liverman, Alex (Oregon Dept. of Environmental Quality), R10: Fricano, Gail (Industrial Economics, Inc.), R10: Delvecchio, Rachel (Industrial Economics, Inc.), R10: Humphreys, Brandy (Grand Ronde Tribe), R10: Penoyar, Susan, J (CDM), R10: Longoria, Rose (Yakama Nation), R10: King, Todd (CDM Smith), R10: Johnson, Matt (WilliamsJohnson), R10: Weis, Julie (Haglund Kelley Jones & Wilder LLP), R10: Williams, Jd (Unknown), R10: Dexter, Bob (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100012376	Email regarding the follow up to the morning 10/22/2010 meeting 10/22/2010	37	2 EML / Email	R10: Toll, John (Windward Environmental, LLC.)	R10: Blischke, Eric, L (EPA), R10: Shephard, Burt (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100012457	Email regarding the LWG hit classification 11/18/2010 changes.	36	2 EML / Email	R10: Toll, John (Windward Environmental, LLC.)	R10: Field, Jay (NOAA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100012472	Email regarding the LWG hit classification 11/18/2010 changes.	36	2 EML / Email	R10: Toll, John (Windward Environmental, LLC.)	R10: Field, Jay (NOAA), R10: Musgrove, Nancy, A (Windward Environmental, LLC.), R10: Tear, Lucinda (Windward Environmental, LLC.)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100011104	Email regarding the current reliability stats spreadsheet with the corrected NMI calculation.. 12/2/2010	31	1 EML / Email	R10: Shephard, Burt (EPA)	R10: Toll, John (Windward Environmental, LLC.)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100012476	Email regarding the reliability statistics 12/2/2010 spreadsheet.	37	1 EML / Email	R10: Toll, John (Windward Environmental, LLC.)	R10: Shephard, Burt (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100012568	Email regarding Aluminum identified as a 12/7/2010 COPC in the draft BERA less attachment.	33	1 EML / Email	R10: Toll, John (Windward Environmental, LLC.)	R10: Shephard, Burt (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100015647	REDACTED Email Regarding December 14th FS 12/7/2010 Check In Meeting - 9 am to 5 pm (pacific).	32	2 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100008792	Email Regarding December 14th FS Check In 12/9/2010 Meeting Presentations (email 1 of 3).	84	1 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100009694	Email Regarding December 14th FS Check In 12/9/2010 Meeting Presentations (email 2 of 3).	80	2 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100009696	Email Regarding December 14th FS Check In 12/9/2010 Meeting Presentations (email 3 of 3).	84	2 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100009698	Email Regarding December 14th FS Check In 12/9/2010 Meeting Presentations (email 3 of 3) - posting location.	95	3 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100011207	Email regarding Aluminum is identified as a 12/9/2010 COPC in the draft BERA.	41	2 EML / Email	R10: Shephard, Burt (EPA)	R10: Toll, John (Windward Environmental, LLC.)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100012572	Email regarding dropping aluminum from the 12/9/2010 draft BERA.	43	3 EML / Email	R10: Toll, John (Windward Environmental, LLC.)	R10: Shephard, Burt (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100015638	REDACTED Email Regarding December 14th 9 12/9/2010 am to 5 pm (pacific) - FS Check In Meeting Agenda.	81	2 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100015639	REDACTED FS Check In Meeting Agenda - 12/9/2010 Tuesday, December 14th, 2010, 9:00 AM – 5:00 PM.	84	1 MTG / Meeting Document	R10: Unknown, Unknown (Lower Willamette Group)		ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100015644	REDACTED FS Check In Meeting Agenda - 12/9/2010 Wednesday, December 14th, 2010, 9:00 AM – 5:00 PM.	84	1 MTG / Meeting Document	R10: Unknown, Unknown (Lower Willamette Group)		ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100015645	REDACTED Email Regarding December 14th 9 12/9/2010 am to 5 pm (pacific) - FS Check In Meeting Revised Agenda.	83	3 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100016748	REDACTED Email regarding December 14th 9 12/9/2010 am to 5 pm (pacific) - FS Check In Meeting Revised Agenda.	83	3 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100016750	REDACTED FS Check In Meeting Agenda. 12/9/2010	83	1 CORR / Correspondence	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100016751	REDACTED Email regarding December 14th 9 12/9/2010 am to 5 pm (pacific) - FS Check In Meeting Agenda.	81	2 CORR / Correspondence	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100008803	Sensitivity/Uncertainty Analyses and Other 12/14/2010 Evaluations to Support SMA Refinement.	205	22 MTG / Meeting Document	R10: Unknown, Unknown (Lower Willamette Group)		ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100008804	Preliminary Methods for Volume 12/14/2010 Determinations.	608	38 MTG / Meeting Document	R10: Unknown, Unknown (Lower Willamette Group)		ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100009695	Disposal Site Screening Evaluation. 12/14/2010	1,953	27 MTG / Meeting Document	R10: Unknown, Unknown (Lower Willamette Group)		ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100009697	Preliminary Capping Chemical Isolation 12/14/2010 Evaluation.	951	23 MTG / Meeting Document	R10: Unknown, Unknown (Lower Willamette Group)		ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100016765	REDACTED FS Check In Meeting Agenda. 12/14/2010	83	1 CORR / Correspondence	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100008950	Email Regarding LWG Response to EPA 12/16/2010 Comments on the Stormwater Loading Calculations Methods Report.	169	2 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100017891	REDACTED Email Regarding LWG Response to 12/16/2010 EPA Comments on the Stormwater Loading Calculations Methods Report.	155	2 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100013442	Letter regarding December 9, 2010 Natural 1/13/2011 Resources Trustee Council FS Habitat Values Letter.	508	27 CORR / Correspondence	R10: Wyatt, Bob (Northwest Natural Gas Company)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100016767	REDACTED Email regarding Response to 1/14/2011 December 9, 2010 FS Habitat Values Letter.	80	1 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Madden, Erin (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100017991	REDACTED Email Regarding MNR Modeling 1/25/2011 Presentation.	69	1 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100013244	Email regarding MNR Modeling Presentation. 1/31/2011	59	2 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)

100017951	REDACTED Email Regarding LWG Request for Extension for Draft FS Submittal and Portland Harbor RI FS Schedule.	2/2/2011	68	1 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
4940681077	Email regarding reply to MNR Modeling Presentation.	2/4/2011	29	4 EML / Email	R10: Neely, Robert (NOAA)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100017849	REDACTED Email Regarding Focused Technical MNR Modeling Presentation - Wednesday, February 23rd 12:30 to 5:00 pm (pacific).	2/9/2011	82	2 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100016579	REDACTED Email regarding Response to EPA Comments Dated January 28, 2011 on Four FS Check-in Presentations from the December 14, 2010 Meeting.	2/16/2011	89	1 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100017928	REDACTED Email Regarding Wednesday, February 23rd 12:30 to 5:00 pm (pacific) - Focused Technical MNR Modeling Presentation.	2/22/2011	85	3 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
4940681075	Email regarding reply to Feedback on LWG MNR presentation Feb 23rd.	2/28/2011	26	2 EML / Email	R10: Winter, Jessica (NOAA)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100016772	REDACTED Email regarding Portland Harbor Managers Meeting Agenda - Wednesday, March 9th 1:00 to 3:00 pm.	3/3/2011	85	1 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Neely, Robert (NOAA), R10: Madden, Erin (Unknown), R10: Madalinski, Kelly (Port of Portland), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Cunninghame, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Ebbets, Allison (Stratus Consulting, Inc.), R10: Wyatt, Bob (Northwest Natural Gas Company), R10: Bluelake, Lisa (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Karnosh, Michael (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality), R10: Wagoner, Colin, H (Ridolfi, Inc.), R10: Parkinson, Stephen, T (Groff Murphy, PLLC), R10: Longoria, Rose (Yakama Nation), R10: Dost, Patty (Pearl Legal Group PC), R10: Williams, Jd (Unknown), R10: Mckenna, Jim (Verdant Solutions, LLC), R10: Betz, Jan (City of Portland, Oregon), R10: Pine, Keith (Anchor QEA, LLC), R10: Weis, Julie (Haglund Kelley, LLP), R10: Traeger, Karen (Total), R10: Wolf, Frederick, G (Total)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100016778	REDACTED Email regarding Wednesday, March 9th 1:00 to 3:00 pm - Portland Harbor Managers Meeting Agenda.	3/8/2011	88	2 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Parkinson, Steve (Groff & Murphy), R10: Neely, Robert (NOAA), R10: Madden, Erin (Unknown), R10: Ashton, David (Port of Portland), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Cunninghame, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Ebbets, Allison (Stratus Consulting, Inc.), R10: Wyatt, Bob (Northwest Natural Gas Company), R10: Bluelake, Lisa (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Karnosh, Michael (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality), R10: Wagoner, Colin, H (Ridolfi, Inc.), R10: Longoria, Rose (Yakama Nation), R10: Dost, Patty (Pearl Legal Group PC), R10: Pine, Keith (Anchor Environmental, LLC), R10: Williams, Jd (Unknown), R10: Mckenna, Jim (Verdant Solutions, LLC), R10: Betz, Jan (City of Portland, Oregon), R10: Applegate, Rick (City of Portland), R10: Weis, Julie (Haglund Kelley, LLP), R10: Traeger, Karen (Total), R10: Wolf, Frederick, G (Total)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100016775	REDACTED Portland Harbor Managers' Meeting Agenda.	3/9/2011	9	1 CORR / Correspondence	R10: (Lower Willamette Group)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100016813	REDACTED Portland Harbor Managers' Meeting Agenda.	3/9/2011	10	1 CORR / Correspondence	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100017895	REDACTED Email Regarding FS Tools Memos. Draft Portland Harbor RI/FS Identification of "COCs" and Contaminant Mobility Evaluation Criteria for the Draft FS.	3/15/2011	119	2 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100013601	REDACTED 03_16_11 email; Identification of COCs and Contaminant Mobility Evaluation Criteria for the Draft FS.	3/16/2011	164	11 CORR / Correspondence	R10: (Lower Willamette Group)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100015714	REDACTED Email regarding Identification of "COCs" and Contaminant Mobility Evaluation Criteria for the Draft FS.	3/16/2011	145	2 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100016798	REDACTED Email regarding Identification of "COCs" and Contaminant Mobility Evaluation Criteria for the Draft FS.	3/16/2011	137	2 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100016689	REDACTED Email regarding Response to EPA March 16, 2011 Letter Regarding Use.	3/30/2011	142	1 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100013603	Draft Portland Harbor RI/FS Dredging Water Quality Evaluation.	3/31/2011	158	10 CORR / Correspondence	R10: (Lower Willamette Group)	R10: (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100016582	REDACTED Email regarding Dredge Tools Memo.	3/31/2011	138	2 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Koch, Kristine, R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100017314	REDACTED Email regarding FS Tools Memos.	4/5/2011	139	3 EML / Email	R10: Angle, Genevieve (NOAA)	R10: Koch, Kristine, R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100015850	REDACTED Email Regarding Portland Harbor Managers' Meeting - April 13, 2011.	4/6/2011	9	1 MTG / Meeting Document	R10: Unknown, Unknown (Lower Willamette Group)		ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)

100015853	REDACTED Email Regarding Portland Harbor Managers Meeting Agenda - Wednesday, April 4/6/2011 13th 1:00 to 3:00 pm.	86	1 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	Neely, Robert (NOAA), R10: Ashton, David (Port of Portland), R10: Hamilton, Jessica (Port of Portland), R10: Madalinski, Kelly (Port of Portland), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Cunninghame, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Ebbets, Allison (Stratus Consulting, Inc.), R10: Peers, Jennifer (Stratus Consulting, Inc.), R10: Wyatt, Robert, J (Northwest Natural Gas Company), R10: Bluelake, Lisa (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Karnosh, Michael (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA), R10: Madden, Erin (Nez Perce Tribe), R10: Traeger, Karen, E (Legacy Site Services, LLC), R10: Wolf, Frederick (Legacy Site Services, LLC), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality), R10: McClincy, Matt (Oregon Dept. of Environmental Quality), R10: Wagoner, Colin, H (Ridolfi, Inc.), R10: Woronets, Jennifer (Anchor QEA, LLC), R10: Humphreys, Brandy (Grand Ronde Tribe), R10: Longoria, Rose (Yakama Nation), R10: Wyatt, Robert, J (NW Natural), R10: Dost, Patty (Pearl Legal Group PC), R10: Johnson, Matt (WilliamsJohnson), R10: Pine, Keith (Anchor Environmental, LLC), R10: Williams, Jd (Unknown), R10: Mckenna, Jim (Verdant Solutions, LLC), R10: Betz, Jan	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100015855	REDACTED Email Regarding Portland Harbor Managers Meeting - April 13, 2011.	9	1 MTG / Meeting Document	R10: Unknown, Unknown (Lower Willamette Group)		ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100017903	REDACTED Email Regarding LWG Responses to EPA Comments on the MNR Presentation.	94	2 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100015851	REDACTED Email Regarding Wednesday, April 13th 1:00 to 3:00 pm - Portland Harbor Managers Meeting Agenda.	90	2 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Parkinson, Steve (Groff & Murphy), R10: Neely, Robert (NOAA), R10: Ashton, David (Port of Portland), R10: Hamilton, Jessica (Port of Portland), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Cunninghame, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Ebbets, Allison (Stratus Consulting, Inc.), R10: Peers, Jennifer (Stratus Consulting, Inc.), R10: Bluelake, Lisa (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Karnosh, Michael (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA), R10: Madalinski, Kelly (EPA), R10: Madden, Erin (Nez Perce Tribe), R10: Traeger, Karen, E (Legacy Site Services, LLC), R10: Wolf, Frederick (Legacy Site Services, LLC), R10: McClincy, Matt (Oregon Dept. of Environmental Quality), R10: Wagoner, Colin, H (Ridolfi, Inc.), R10: Humphreys, Brandy (Grand Ronde Tribe), R10: Longoria, Rose (Yakama Nation), R10: Wyatt, Robert, J (NW Natural), R10: Dost, Patty (Pearl Legal Group PC), R10: Johnson, Matt (WilliamsJohnson), R10: Pine, Keith (Anchor Environmental, LLC), R10: Williams, Jd (Unknown), R10: Mckenna, Jim (Verdant Solutions, LLC), R10: Betz, Jan (City of Portland, Oregon), R10: Applegate, Rick (City of Portland), R10: Anderson, Jim (EPA), R10: Weis, Julie (Haglund Kelley, LLP)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100015864	REDACTED Email Regarding Portland Harbor Managers Meeting Agenda - Wednesday, May 5/5/2011 11th 1:00 to 3:00 pm.	86	1 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	Neely, Robert (NOAA), R10: Ashton, David (Port of Portland), R10: Hamilton, Jessica (Port of Portland), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Cunninghame, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Ebbets, Allison (Stratus Consulting, Inc.), R10: Peers, Jennifer (Stratus Consulting, Inc.), R10: Bluelake, Lisa (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Karnosh, Michael (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA), R10: Madalinski, Kelly (EPA), R10: Madden, Erin (Nez Perce Tribe), R10: Traeger, Karen, E (Legacy Site Services, LLC), R10: Wolf, Frederick (Legacy Site Services, LLC), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality), R10: McClincy, Matt (Oregon Dept. of Environmental Quality), R10: Wagoner, Colin, H (Ridolfi, Inc.), R10: Woronets, Jennifer (Anchor QEA, LLC), R10: Humphreys, Brandy (Grand Ronde Tribe), R10: Longoria, Rose (Yakama Nation), R10: Wyatt, Robert, J (NW Natural), R10: Dost, Patty (Pearl Legal Group PC), R10: Johnson, Matt (WilliamsJohnson), R10: Pine, Keith (Anchor Environmental, LLC), R10: Williams, Jd (Unknown), R10: Mckenna, Jim (Verdant Solutions, LLC), R10: Betz, Jan (City of Portland, Oregon), R10: Applegate, Rick (City of	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100015869	REDACTED Email Regarding Portland Harbor Managers Meeting - May 11, 2011.	10	1 MTG / Meeting Document	R10: Unknown, Unknown (Lower Willamette Group)		ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100013498	Email Regarding Portland Harbor - Clarification of EPA FS Tools Comments and June 22nd Check In Meeting.	21	1 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Stivers, Carl (Anchor Environmental, LLC), R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA), R10: Wyatt, Robert, J (NW Natural), R10: Mckenna, Jim (Verdant Solutions, LLC)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100013105	LWG Responses to EPA Comments on Feasibility Study Tools Memoranda.	133	20 MTG / Meeting Document	R10: Unknown, Unknown (Lower Willamette Group)		ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100015870	REDACTED Email Regarding LWG Response to EPA April 27th FS Tools Memo Comments.	95	1 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100016572	REDACTED Email regarding Response to EPA May 13 2011 FS Key Elements Check.	93	1 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100016595	REDACTED Email regarding Portland Harbor - EPA FS Tools Memo Comments.	56	2 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100015814	REDACTED 06_01_11 email; June 21st and 22nd FS Key Elements Check In - Meeting location.	86	2 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)



100015874	6/1/2011	REDACTED Email Regarding Portland Harbor Managers Meeting Agenda - Wednesday, June 8th 1:00 to 3:00 pm.	86	1 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	Neely, Robert (NOAA), R10: Ashton, David (Port of Portland), R10: Hamilton, Jessica (Port of Portland), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Cunninghame, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Ebbets, Allison (Stratus Consulting, Inc.), R10: Peers, Jennifer (Stratus Consulting, Inc.), R10: Bluelake, Lisa (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Karnosh, Michael (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA), R10: Madalinski, Kelly (EPA), R10: Madden, Erin (Nez Perce Tribe), R10: Traeger, Karen, E (Legacy Site Services, LLC), R10: Wolf, Frederick (Legacy Site Services, LLC), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality), R10: Mcclincy, Matt (Oregon Dept. of Environmental Quality), R10: Wagoner, Colin, H (Ridolfi, Inc.), R10: Woronets, Jennifer (Anchor QEA, LLC), R10: Humphreys, Brandy (Grand Ronde Tribe), R10: Longoria, Rose (Yakama Nation), R10: Wyatt, Robert, J (NW Natural), R10: Dost, Patty (Pearl Legal Group PC), R10: Johnson, Matt (WilliamsJohnson), R10: Pine, Keith (Anchor Environmental, LLC), R10: Williams, Jd (Unknown), R10: Mckenna, Jim (Verdant Solutions, LLC), R10: Betz, Jan (City of Portland, Oregon), R10: Applegate, Rick (City of	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100015877	6/1/2011	REDACTED Portland Harbor Managers' Meeting - June 08, 2011.	10	1 MTG / Meeting Document	R10: Unknown, Unknown (Lower Willamette Group)		ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100015897	6/1/2011	REDACTED Portland Harbor Managers' Meeting - June 08, 2011.	10	1 MTG / Meeting Document	R10: Unknown, Unknown (Lower Willamette Group)		ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100016799	6/1/2011	REDACTED Email regarding June 21st and 22nd FS Key Elements Check In - Meeting location, conference call and web meeting information.	34	2 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100017946	6/1/2011	REDACTED Email Regarding June 21st and 22nd FS Key Elements Check In - Meeting location, conference call and web meeting information.	81	1 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
4940682061	6/3/2011	Report regarding Mitigation Costs Method Description.	204	13 RPT / Report	R10: Jensen, Josh (Anchor QEA, LLC)		ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100017884	6/6/2011	REDACTED Email Regarding Draft FS Key Elements Check In Materials Posted	143	2 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100015878	6/7/2011	REDACTED Email Regarding Wednesday, June 8th 1:00 to 3:00 pm - Portland Harbor Managers Meeting Agenda.	90	2 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	Neely, Robert (NOAA), R10: Ashton, David (Port of Portland), R10: Hamilton, Jessica (Port of Portland), R10: Madalinski, Kelly (Port of Portland), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Cunninghame, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Ebbets, Allison (Stratus Consulting, Inc.), R10: Peers, Jennifer (Stratus Consulting, Inc.), R10: Bluelake, Lisa (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Karnosh, Michael (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA), R10: Madden, Erin (Nez Perce Tribe), R10: Traeger, Karen, E (Legacy Site Services, LLC), R10: Wolf, Frederick (Legacy Site Services, LLC), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality), R10: Mcclincy, Matt (Oregon Dept. of Environmental Quality), R10: Wagoner, Colin, H (Ridolfi, Inc.), R10: Humphreys, Brandy (Grand Ronde Tribe), R10: Longoria, Rose (Yakama Nation), R10: Wyatt, Robert, J (NW Natural), R10: Dost, Patty (Pearl Legal Group PC), R10: Johnson, Matt (WilliamsJohnson), R10: Williams, Jd (Unknown), R10: Mckenna, Jim (Verdant Solutions, LLC), R10: Betz, Jan (City of Portland, Oregon), R10: Pine, Keith (Anchor QEA, LLC), R10: Applegate, Rick (City of Portland), R10: Weis, Julie (Haglund Kelley,	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100015697	6/8/2011	REDACTED 06_08_11 email; June 21st and 22nd FS Key Elements Check In - Agenda.	89	2 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100015826	6/8/2011	REDACTED 06_08_11 email; June 21st and 22nd FS Key Elements Check In - Agenda.	89	2 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100015898	6/8/2011	REDACTED Email Regarding June 21st and 22nd FS Key Elements Check In - Agenda.	85	2 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100015899	6/8/2011	REDACTED Draft Feasibility Study Key Elements Check-in - June 21 and 22, 2011.	14	2 MTG / Meeting Document	R10: Unknown, Unknown (Lower Willamette Group)		ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100013113	6/10/2011	LWG Responses to EPA Comments on Feasibility Study Tools Memoranda.	229	23 MTG / Meeting Document	R10: Unknown, Unknown (Lower Willamette Group)		ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100015900	6/10/2011	REDACTED Email Regarding Proposed Resolutions to EPA FS Tools Memo Comments.	99	2 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100015694	6/11/2011	REDACTED 06_01_11 email; June 21st and 22nd FS Key Elements Check In - Meeting location,.	85	2 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100010311	6/15/2011	Map 5.3-1a-c Portland Harbor RI/FS Remedial Investigation Report Surface Water Sampling Locations - 2011-08-29_DF RI_Sec5.3_Map 5.3-1a-c.	1,828	3 CORR / Correspondence	R10: (Lower Willamette Group), R10: (Integral Consulting, Inc.)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100017944	6/15/2011	REDACTED Email Regarding June 21st and 22nd Draft FS Key Elements Check In Additional Agenda Details.	102	2 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100015448	6/16/2011	REDACTED Email regarding FS Check-in Meeting - NMFS participation.	16	1 EML / Email	R10: Humphrey, Chip (EPA)	R10: Mckenna, Jim (Verdant Solutions, LLC)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100016797	6/16/2011	REDACTED Email regarding FS Check-in Meeting - NMFS participation.	31	1 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100015729	6/17/2011	REDACTED 06_17_11 email; June 21st and 22nd Draft FS Key Elements Check In.	118	4 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100015836	6/17/2011	REDACTED 06_17_11 email; June 21st and 22nd Draft FS Key Elements Check In.	117	4 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100017899	6/17/2011	REDACTED Email Regarding June 21st and 22nd Draft FS Key Elements Check In.	143	3 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100016569	6/20/2011	REDACTED Email regarding Question for EPA - June 21st and 22nd Draft FS.	57	3 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)

100016574	6/20/2011	REDACTED Email regarding Question for EPA - June 21st and 22nd Draft FS(1).	207	4 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Wagoner, Colin (Ridolfi Engineers and Associates, Inc.), R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA), R10: Longoria, Rose (Yakama Nation)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100016796	6/20/2011	REDACTED Email regarding For Rose - June 21st and 22nd Draft FS Key Elements Check In Additional Agenda Details.	184	4 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Longoria, Rose (Yakama Nation)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100016809	6/20/2011	REDACTED Email regarding For Rose - June 21st and 22nd Draft FS Key Elements Check In Additional Agenda Details.	179	3 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Longoria, Rose (Yakama Nation)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100013497	6/21/2011	Initial Working Responses to EPA FS Key Elements Comments.	35	5 CHT / Chart/Table	R10: Unknown, Unknown (Lower Willamette Group)		ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100017919	6/27/2011	REDACTED Email Regarding Revised Table of Proposed Resolutions to EPA Comments on the FS Tools.	45	4 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100013115	6/28/2011	Proposed Supplemental Table 9-2A: Supplement to Portland Harbor RI/FS Deliverable Descriptions and Submittal Deadlines (Lower Willamette River, Portland Harbor Superfund Site, USEPA Docket No: CERCLA-10-2001-0240).	33	2 LTR / Letter	R10: Wyatt, Robert, J (NW Natural)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100013116	6/28/2011	Supplemental Table 9-2A to Programmatic Work Plan: Supplement to Portland Harbor RI/FS Deliverable Descriptions and Submittal Deadlines.	16	2 CHT / Chart/Table	R10: Unknown, Unknown (Lower Willamette Group)		ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100015901	6/28/2011	REDACTED Email Regarding Proposed Supplemental Table 9-2A Supplement to Portland Harbor RI/FS Deliverable Descriptions and Submittal Deadlines.	85	1 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
4940682062	6/28/2011	Email regarding LWG FS Check-in: Mitigation Cost Presentation.	65	2 EML / Email	R10: Angle, Genevieve (NOAA)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100013122	7/7/2011	Lower Willamette River, Portland Harbor Superfund Site USEPA Docket No: CERCLA-10-2001-0240 Monthly Progress Report for June 2011.	108	13 LTR / Letter	R10: Woronets, Jennifer (Lower Willamette Group)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA), Neely, Robert (NOAA), R10: Ashton, David (Port of Portland), R10: Hamilton, Jessica (Port of Portland), R10: Madalinski, Kelly (Port of Portland), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Cunninghame, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Ebbets, Allison (Stratus Consulting, Inc.), R10: Peers, Jennifer (Stratus Consulting, Inc.), R10: Bluelake, Lisa (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Karnosh, Michael (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA), R10: Madden, Erin (Nez Perce Tribe), R10: Traeger, Karen, E (Legacy Site Services, LLC), R10: Wolf, Frederick (Legacy Site Services, LLC), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality), R10: McClincy, Matt (Oregon Dept. of Environmental Quality), R10: Gainer, Tom (Oregon Dept. of Environmental Quality), R10: Johnson, Matt (Unknown), R10: Wagoner, Colin, H (Ridolfi, Inc.), R10: Woronets, Jennifer (Anchor QEA, LLC), R10: Humphreys, Brandy (Grand Ronde Tribe), R10: Longoria, Rose (Yakama Nation), R10: Wyatt, Robert, J (NW Natural), R10: Dost, Patty (Pearl Legal Group PC), R10: Pine, Keith (Anchor Environmental, LLC), R10: Williams, Jd (Unknown), R10: Mckenna, Jim (Verdant Solutions, LLC), R10:	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100015902	7/7/2011	REDACTED Email Regarding Portland Harbor Managers Meeting Agenda - Wednesday, July 13th 1:00 to 3:00 pm.	86	1 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)		ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100015903	7/7/2011	REDACTED Portland Harbor Managers' Meeting - July 13, 2011.	9	1 MTG / Meeting Document	R10: Unknown, Unknown (Lower Willamette Group)		ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100015905	7/7/2011	REDACTED Portland Harbor Managers' Meeting - July 13, 2011.	9	1 MTG / Meeting Document	R10: Unknown, Unknown (Lower Willamette Group)		ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100015904	7/12/2011	REDACTED Email Regarding Wednesday, July 13th 1:00 to 3:00 pm - Portland Harbor Managers Meeting Agenda.	91	2 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)		ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100015906	7/13/2011	REDACTED Email Regarding June 2011 Portland Harbor Monthly Progress Report.	93	1 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100017796	7/21/2011	REDACTED Email regarding MNR discussion - Friday, July 22nd 9 to 10 am.	43	2 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Hayter, Earl, J (U. S. Army Corps of Engineers), R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA), R10: Gustavson, Karl (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100017808	7/21/2011	REDACTED Email regarding MNR discussion - Friday, July 22nd 2 to 3 pm.	44	2 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA), R10: Gustavson, Karl (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100017906	7/21/2011	REDACTED Email Regarding MNR discussion - Friday, July 22nd 9 to 10 am (pacific).	32	2 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA), R10: Gustavson, Karl (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100017939	7/21/2011	REDACTED Email Regarding Initial Working Responses to EPA FS Key Elements Comments.	96	2 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100016835	7/25/2011	REDACTED Email regarding Meeting or Conference Call to Discuss RALs/Alternatives - Call Tuesday, July 26th from 1:30 to 2 pm.	36	2 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Wyatt, Bob (Northwest Natural Gas Company), R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA), R10: Stivers, Carl (Anchor QEA, LLC), R10: Mckenna, James (Verdant Solutions, LLC)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)

100017805	7/25/2011	REDACTED Email regarding Meeting or Conference Call to Discuss RALs Alt.	46	2 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Wyatt, Bob (Northwest Natural Gas Company), R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA), R10: Stivers, Carl (Anchor QEA, LLC), R10: Mckenna, James (Verdant Solutions, LLC)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100010434	7/27/2011	Feasibility Study Key Elements RAL & Alternatives - 10-663228.	249	4 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100010435	7/27/2011	Email regarding EPA Proposed Revised Comments Regarding FS Alternatives and RALs.	31	1 EML / Email	R10: Koch, Kristine, M (EPA)	R10: Wyatt, Robert, J (Northwest Natural Gas Company), R10: Mckenna, James (Verdant Solutions, LLC)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100016575	7/27/2011	REDACTED Email regarding Wednesday, July 27th 1 to 3 pm (pacific) Conference Call to Discuss RALs/Alternatives.	48	3 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA), R10: Stivers, Carl (Anchor QEA, LLC), R10: Wyatt, Robert, J (NW Natural), R10: Mckenna, James (Verdant Solutions, LLC)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100016718	7/27/2011	REDACTED Email regarding Portland Harbor EPA July 15th Draft FS Key Elements Check In Comments.	39	2 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100016719	7/27/2011	REDACTED Email regarding Proposed Path Forward to EPA July 15th FS Key Elements Comments With a July 29th Dispute Deadline.	85	2 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100013610	7/28/2011	Email regarding Portland Harbor Scheduling RALs / Alternatives Meeting (reply requested).	76	1 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100013406	7/29/2011	REDACTED Email regarding Dispute deadline for comment #16 FS Key Elements.	108	3 EML / Email	R10: Humphrey, Chip (EPA)	R10: Applegate, Richard (City of Portland, Oregon), R10: Wyatt, Bob (Northwest Natural Gas Company), R10: Woronets, Jennifer (Anchor QEA, LLC), R10: Mckenna, Jim (Verdant Solutions, LLC)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100017799	7/29/2011	REDACTED Email regarding RE_Portland Harbor RALs _ Alternatives Meeting.	44	2 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100016821	8/2/2011	REDACTED Email regarding Portland Harbor RALs / Alternatives Meeting - Friday, August 5th 11 am to 5 pm (pacific).	35	2 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100017907	8/2/2011	REDACTED Email Regarding Portland Harbor RALs / Alternatives Meeting - Friday, August 5th 11 am to 5 pm (pacific).	36	2 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100016818	8/3/2011	REDACTED Email regarding Portland Harbor RALs / Alternatives Meeting - Friday, August 5th 11 am to 5 pm (pacific) List of LWG Attendees.	36	3 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100017851	8/3/2011	REDACTED Email Regarding Agenda Questions for Friday's Meeting.	36	1 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA), R10: Neely, Robert (NOAA), R10: Ashton, David (Port of Portland), R10: Hamilton, Jessica (Port of Portland), R10: Madalinski, Kelly (Port of Portland), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Cunninghame, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Ebbets, Allison (Stratus Consulting, Inc.), R10: Peers, Jennifer (Stratus Consulting, Inc.), R10: Bluelake, Lisa (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA), R10: Madden, Erin (Nez Perce Tribe), R10: Traeger, Karen, E (Legacy Site Services, LLC), R10: Wolf, Frederick (Legacy Site Services, LLC), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality), R10: McClincy, Matt (Oregon Dept. of Environmental Quality), R10: Gainer, Tom (Oregon Dept. of Environmental Quality), R10: Johnson, Matt (Unknown), R10: Wagoner, Colin, H (Ridolfi, Inc.), R10: Woronets, Jennifer (Anchor QEA, LLC), R10: Humphreys, Brandy (Grand Ronde Tribe), R10: Longoria, Rose (Yakama Nation), R10: Wyatt, Robert, J (NW Natural), R10: Dost, Patty (Pearl Legal Group PC), R10: Pine, Keith (Anchor Environmental, LLC), R10: Williams, Jd (Unknown), R10: Mckenna, Jim (Verdant Solutions, LLC), R10: Betz, Jan (City of Portland, Oregon), R10: Applegate, Rick (City of Portland), R10: Weis,	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100017848	8/4/2011	REDACTED Email Regarding August 10th Portland Harbor Managers Meeting Cancelled.	84	1 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100013123	8/6/2011	Email Regarding EPA Request for GIS Files - .zap file.	83	1 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100013475	8/6/2011	Email Regarding EPA Request for GIS Files. Lower Willamette River, Portland Harbor Superfund Site USEPA Docket No: CERCLA-10-2001-0240 Monthly Progress Report for July 2011.	85	1 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100013126	8/11/2011	REDACTED Email Regarding July 2011 Portland Harbor Monthly Progress Report.	138	13 LTR / Letter	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100016017	8/11/2011	REDACTED Email Regarding July 2011 Portland Harbor Monthly Progress Report.	93	1 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100015920	8/23/2011	REDACTED 08_23_11 email; Response to EPA August 11, 2011 Letter on Alternatives to be Evaluated in the Draft FS.	73	2 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100016576	8/23/2011	REDACTED Email regarding Response to EPA August 11, 2011 Letter on Alternatives to be Evaluated in the Draft FS.	93	1 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100012226	9/7/2011	Email regarding the FPM Excel files used for the draft final BERA.	36	1 EML / Email	R10: Toll, John (Windward Environmental, LLC.)	R10: Koch, Kristine, M (EPA), R10: Shephard, Burt (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100015922	9/8/2011	REDACTED 09_08_11 email; LWG Request for Project Schedule Modification for Submittal of the Draft Feasibility Study.	76	2 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100017966	9/8/2011	REDACTED Email Regarding LWG Request for Project Schedule Modification for Submittal of the Draft Feasibility Study.	68	1 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100010677	9/9/2011	Email regarding the BERA data set concerns. Lower Willamette River, Portland Harbor Superfund Site USEPA Docket No: CERCLA-10-2001-0240 Monthly Progress Report for August 2011.	29	1 EML / Email	R10: Shephard, Burt (EPA)	R10: Toll, John (Windward Environmental, LLC.)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100013128	9/14/2011	REDACTED Email Regarding August 2011 Portland Harbor Monthly Progress Report.	138	12 LTR / Letter	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100013305	9/14/2011	Memorandum regarding Portland Harbor Hydrodynamic/Sediment Transport Model Transfer - EPA Model Xfer Memo.	137	4 CORR / Correspondence	R10: Werth, Michael (Unknown), R10: Russell, Kevin, T (Quantitative Environmental Analysis, L.L.C.), R10: Petroni, Ricardo (Anchor QEA, LLC)	R10: Hayter, Earl, J (U. S. Army Corps of Engineers)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100016006	9/15/2011	REDACTED Email Regarding August 2011 Portland Harbor Monthly Progress Report.	93	1 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100015926	9/23/2011	REDACTED 09_23_11 email; LWG Draft FS Project Tasks Bar Chart and Schedule Description.	78	3 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100017949	9/23/2011	REDACTED Email Regarding LWG Draft FS Project Tasks Bar Chart and Schedule Description.	70	1 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)

100016695	10/10/2011	REDACTED Email regarding Wednesday, October 12th Portland Harbor Managers Meeting Cancelled.	97	1 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Parkinson, Steve (Groff & Murphy), R10: Neely, Robert (NOAA), R10: Wagoner, Colin (Ridolfi Engineers and Associates, Inc.), R10: Madden, Erin (Unknown), R10: Ashton, David (Port of Portland), R10: Hamilton, Jessica (Port of Portland), R10: Madalinski, Kelly (Port of Portland), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Ebbets, Allison (Stratus Consulting, Inc.), R10: Peers, Jennifer (Stratus Consulting, Inc.), R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality), R10: McClincy, Matt (Oregon Dept. of Environmental Quality), R10: Gainer, Tom (Oregon Dept. of Environmental Quality), R10: Livesay, Dave (GSI Groundwater Solutions, Inc.), R10: Stivers, Carl (Anchor QEA, LLC), R10: Woronets, Jennifer (Anchor QEA, LLC), R10: Humphreys, Brandy (Grand Ronde Tribe), R10: D'aquila, Kim (Grand Ronde Tribe), R10: Longoria, Rose (Yakama Nation), R10: Williams, J., D (Law Offices of J. D. Williams), R10: Wyatt, Robert, J (NW Natural), R10: Dost, Patty (Pearl Legal Group PC), R10: Johnson, Matt (WilliamsJohnson), R10: Mckenna, Jim (Verdant Solutions, LLC), R10: Betz, Jan (City of Portland, Oregon), R10: Cunningham, E, R10: Pine, Keith (Anchor QEA, LLC), R10: Weis, Julie (Haglund Kelley, LLP), R10: Traeger, Karen (Total), R10: Wolf, Frederick, G (Total)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100013645	10/12/2011	Email regarding EPA letter - For Chip Edit to cc List.	29	1 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100013130	10/13/2011	Response to EPA October 07, 2011 Letter (Lower Willamette River, Portland Harbor Superfund Site, USEPA Docket No: CERCLA-10-2001-0240).	34	2 LTR / Letter	R10: Wyatt, Robert, J (NW Natural)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100013132	10/13/2011	Lower Willamette River, Portland Harbor Superfund Site USEPA Docket No: CERCLA-10-2001-0240 Monthly Progress Report for September 2011.	156	11 LTR / Letter	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100016023	10/13/2011	REDACTED Email Regarding LWG Response to EPA October 7, 2011 Letter.	94	1 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100016028	10/13/2011	REDACTED Email Regarding September 2011 Portland Harbor Monthly Progress Report. Response to EPA September 8, 2011 Letter Regarding EPA's Smallmouth Bass Sampling (Lower Willamette River, Portland Harbor Superfund Site, USEPA Docket No: CERCLA-10-2001-0240).	93	1 EML / Email		R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100013507	10/26/2011	REDACTED Email Regarding LWG Response to EPA September 08, 2011 Smallmouth Bass Sampling Letter.	34	2 LTR / Letter	R10: Wyatt, Robert, J (NW Natural)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100017970	10/26/2011	Lower Willamette River, Portland Harbor Superfund Site USEPA Docket No: CERCLA-10-2001-0240 Monthly Progress Report for October 2011.	94	1 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100013134	11/9/2011	REDACTED Email Regarding October 2011 Portland Harbor Monthly Progress Report. PORTLAND HARBOR RI/FS APPENDIX R SEDIMENT DATABASE DESCRIPTION DRAFT FEASIBILITY STUDY.	131	12 LTR / Letter	R10: Woronets, Jennifer (Lower Willamette Group)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100016040	11/9/2011	REDACTED Email Regarding October 2011 Portland Harbor Monthly Progress Report. PORTLAND HARBOR RI/FS APPENDIX R SEDIMENT DATABASE DESCRIPTION DRAFT FEASIBILITY STUDY.	93	1 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100013138	1/11/2012	January 15th Draft FS Submittal (Lower Willamette River, Portland Harbor Superfund Site, USEPA Docket No: CERCLA-10-2001-0240).	137	18 RPT / Report	R10: Unknown, Unknown (Anchor QEA, LLC)	R10: Unknown, Unknown (Lower Willamette Group)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100013136	1/16/2012	REDACTED 01_16_12 email; January 15 2012 Draft FS Key Work Product Deliverables.	121	4 LTR / Letter	R10: Wyatt, Robert, J (NW Natural)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100015692	1/16/2012	REDACTED Email Regarding January 15, 2012 Draft FS Key Work Product Deliverables.	165	3 EML / Email	R10: Smith, Barbara (Harris Smith Public Affairs)	R10: Conley, Alanna (Unknown), R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100016094	1/16/2012	REDACTED Email Regarding January 15, 2012 Draft FS Key Work Product Deliverables.	147	2 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100016097	1/17/2012	REDACTED Email Regarding Draft FS Appendix R Description of Draft FS Database.	94	1 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100013330	1/26/2012	Email regarding Scheduling Draft FS Presentation(1).	58	2 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100016087	2/2/2012	REDACTED Email Regarding Portland Harbor Managers Meeting - Wednesday, February 8th 1 to 3 pm (pacific).	93	1 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Cox, Kim, E (City of Portland, Oregon), R10: Neely, Robert (NOAA), R10: Madalinski, Kelly (Port of Portland), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Cunninghame, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Ebbets, Allison (Stratus Consulting, Inc.), R10: Peers, Jennifer (Stratus Consulting, Inc.), R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA), R10: Madden, Erin (Nez Perce Tribe), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality), R10: McClincy, Matt (Oregon Dept. of Environmental Quality), R10: Gainer, Tom (Oregon Dept. of Environmental Quality), R10: Johnson, Matt (Unknown), R10: Livesay, Dave (GSI Groundwater Solutions, Inc.), R10: Wagoner, Colin, H (Ridolfi, Inc.), R10: Humphreys, Brandy (Grand Ronde Tribe), R10: D'aquila, Kim (Grand Ronde Tribe), R10: Longoria, Rose (Yakama Nation), R10: Wyatt, Robert, J (NW Natural), R10: Pine, Keith (Anchor Environmental, LLC), R10: Williams, Jd (Unknown), R10: Mckenna, Jim (Verdant Solutions, LLC), R10: Weis, Julie (Haglund Kelley, LLP)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100016103	2/2/2012	REDACTED Portland Harbor Managers' Meeting - February 08, 2012.	9	1 LTR / Letter	R10: Unknown, Unknown (Lower Willamette Group)		ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100016110	2/2/2012	REDACTED Portland Harbor Managers' Meeting - February 08, 2012.	9	1 MTG / Meeting Document	R10: Unknown, Unknown (Lower Willamette Group)		ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)



100016104	2/7/2012	REDACTED Email Regarding Wednesday, February 8th 1 to 3 pm (pacific) - Portland Harbor Managers Meeting. Email Regarding Lower Willamette River, Portland Harbor Superfund Site USEPA Docket No: CERCLA-10-2001-0240 Monthly Progress Report for January 2012.	96	2 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Cox, Kim, F (City of Portland, Oregon), R10: Neely, Robert (NOAA), R10: Madalinski, Kelly (Port of Portland), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Cunninghame, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Ebbets, Allison (Stratus Consulting, Inc.), R10: Peers, Jennifer (Stratus Consulting, Inc.), R10: Koch, Kristine, M (EPA), R10: Madden, Erin (Nez Perce Tribe), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality), R10: McClincy, Matt (Oregon Dept. of Environmental Quality), R10: Gainer, Tom (Oregon Dept. of Environmental Quality), R10: Johnson, Matt (Unknown), R10: Livesay, Dave (GSI Groundwater Solutions, Inc.), R10: Wagoner, Colin, H (Ridolfi, Inc.), R10: Woronets, Jennifer (Anchor QEA, LLC), R10: Humphreys, Brandy (Grand Ronde Tribe), R10: D'aquila, Kim (Grand Ronde Tribe), R10: Longoria, Rose (Yakama Nation), R10: Wyatt, Robert, J (NW Natural), R10: Pine, Keith (Anchor Environmental, LLC), R10: Williams, Jd (Unknown), R10: Mckenna, Jim (Verdant Solutions, LLC), R10: Weis, Julie (Haglund Kelley, LLP)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100013144	2/8/2012	REDACTED Email Regarding January 2012 Portland Harbor Monthly Progress Report.	141	13 LTR / Letter	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100016114	2/8/2012	REDACTED Email Regarding January 2012 Portland Harbor Monthly Progress Report.	101	1 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100017333	2/17/2012	REDACTED Email regarding TCT meeting cancelled 2/22 AM; FS Team meeting 1 - 5pm.	54	1 EML / Email	R10: Humphrey, Chip (EPA)	R10: Buck, Jeremy (U. S. Fish and Wildlife Service), R10: Koch, Kristine, M (EPA), R10: Shephard, Burt (EPA), R10: Goulet, Joe (EPA), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality), R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality), R10: McClincy, Matt (Oregon Dept. of Environmental Quality), R10: Gainer, Tom (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100011488	2/22/2012	Email regarding the follow-up to the voicemail concerning the list of BERA issues.	35	1 EML / Email	R10: Toll, John (Windward Environmental, LLC.)	R10: Shephard, Burt (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100016112	3/1/2012	REDACTED Portland Harbor Managers' Meeting - March 14, 2012.	12	1 MTG / Meeting Document	R10: Unknown, Unknown (Lower Willamette Group)		ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100016115	3/1/2012	REDACTED Email Regarding Portland Harbor Managers Meeting - Wednesday, March 14th 1 to 3 pm (pacific).	95	1 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Parkinson, Steve (Groff & Murphy), R10: Neely, Robert (NOAA), R10: Ashton, David (Port of Portland), R10: Hamilton, Jessica (Port of Portland), R10: Madalinski, Kelly (Port of Portland), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Cunninghame, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Ebbets, Allison (Stratus Consulting, Inc.), R10: Peers, Jennifer (Stratus Consulting, Inc.), R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA), R10: Madden, Erin (Nez Perce Tribe), R10: Traeger, Karen, E (Legacy Site Services, LLC), R10: Wolf, Frederick (Legacy Site Services, LLC), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality), R10: McClincy, Matt (Oregon Dept. of Environmental Quality), R10: Gainer, Tom (Oregon Dept. of Environmental Quality), R10: Johnson, Matt (Unknown), R10: Livesay, Dave (GSI Groundwater Solutions, Inc.), R10: Wagoner, Colin, H (Ridolfi, Inc.), R10: Woronets, Jennifer (Anchor QEA, LLC), R10: Humphreys, Brandy (Grand Ronde Tribe), R10: D'aquila, Kim (Grand Ronde Tribe), R10: Longoria, Rose (Yakama Nation), R10: Wyatt, Robert, J (NW Natural), R10: Dost, Patty (Pearl Legal Group PC), R10: Pine, Keith (Anchor Environmental, LLC), R10: Williams, Jd (Unknown), R10: Mckenna, Jim (Verdant Solutions, LLC), R10: Betz, Jan (City of Portland,	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100016800	3/1/2012	REDACTED Portland Harbor Managers' Meeting - March 14, 2012.	12	1 MTG / Meeting Document	R10: Unknown, Unknown (Lower Willamette Group)		ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100013609	3/7/2012	Email regarding Portland Harbor Scheduling April 2nd Focused Draft FS Meeting. Email regarding the news that no changes are needed to the stations included in and the breakpoints for the reference envelope definition for either the Chironomus survival or Chironomus biomass sediment toxicity tests & out of office tomorrow.	83	1 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100009435	3/8/2012	REDACTED Email Regarding Wednesday, March 14th 1 to 3 pm (pacific) - Portland Harbor Managers Meeting CONFERENCE CALL ONLY.	99	2 EML / Email	R10: Shephard, Burt (EPA)	R10: Toll, John (Windward Environmental, LLC.) R10: Parkinson, Steve (Groff & Murphy), R10: Neely, Robert (NOAA), R10: Ashton, David (Port of Portland), R10: Hamilton, Jessica (Port of Portland), R10: Madalinski, Kelly (Port of Portland), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Cunninghame, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Ebbets, Allison (Stratus Consulting, Inc.), R10: Peers, Jennifer (Stratus Consulting, Inc.), R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA), R10: Madden, Erin (Nez Perce Tribe), R10: Traeger, Karen, E (Legacy Site Services, LLC), R10: Wolf, Frederick (Legacy Site Services, LLC), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality), R10: McClincy, Matt (Oregon Dept. of Environmental Quality), R10: Gainer, Tom (Oregon Dept. of Environmental Quality), R10: Johnson, Matt (Unknown), R10: Livesay, Dave (GSI Groundwater Solutions, Inc.), R10: Wagoner, Colin, H (Ridolfi, Inc.), R10: Woronets, Jennifer (Anchor QEA, LLC), R10: Humphreys, Brandy (Grand Ronde Tribe), R10: D'aquila, Kim (Grand Ronde Tribe), R10: Longoria, Rose (Yakama Nation), R10: Wyatt, Robert, J (NW Natural), R10: Dost, Patty (Pearl Legal Group PC), R10: Pine, Keith (Anchor Environmental, LLC), R10: Williams, Jd (Unknown), R10: Mckenna, Jim (Verdant Solutions, LLC), R10: Betz, Jan (City of Portland,	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100016123	3/12/2012	REDACTED Email Regarding Wednesday, March 14th 1 to 3 pm (pacific) - Portland Harbor Managers Meeting CONFERENCE CALL ONLY.	99	2 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Parkinson, Steve (Groff & Murphy), R10: Neely, Robert (NOAA), R10: Ashton, David (Port of Portland), R10: Hamilton, Jessica (Port of Portland), R10: Madalinski, Kelly (Port of Portland), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Cunninghame, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Ebbets, Allison (Stratus Consulting, Inc.), R10: Peers, Jennifer (Stratus Consulting, Inc.), R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA), R10: Madden, Erin (Nez Perce Tribe), R10: Traeger, Karen, E (Legacy Site Services, LLC), R10: Wolf, Frederick (Legacy Site Services, LLC), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality), R10: McClincy, Matt (Oregon Dept. of Environmental Quality), R10: Gainer, Tom (Oregon Dept. of Environmental Quality), R10: Johnson, Matt (Unknown), R10: Livesay, Dave (GSI Groundwater Solutions, Inc.), R10: Wagoner, Colin, H (Ridolfi, Inc.), R10: Woronets, Jennifer (Anchor QEA, LLC), R10: Humphreys, Brandy (Grand Ronde Tribe), R10: D'aquila, Kim (Grand Ronde Tribe), R10: Longoria, Rose (Yakama Nation), R10: Wyatt, Robert, J (NW Natural), R10: Dost, Patty (Pearl Legal Group PC), R10: Pine, Keith (Anchor Environmental, LLC), R10: Williams, Jd (Unknown), R10: Mckenna, Jim (Verdant Solutions, LLC), R10: Betz, Jan (City of Portland,	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100013619	3/13/2012	Email regarding Draft FS Document distribution.	72	2 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)

100013620	3/13/2012	Email regarding Draft FS Document distribution.	74	3 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100013450	3/15/2012	Lower Willamette River, Portland Harbor Superfund Site USEPA Docket No: CERCLA-10-2001-0240 Monthly Progress Report for February 2012.	134	12 LTR / Letter	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100015712	3/15/2012	REDACTED 03_15_12 email; Portland Harbor Draft FS Presentation Information.	89	2 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100016717	3/15/2012	REDACTED Email regarding Portland Harbor Draft FS Presentation - Tuesday, April 24th and Wednesday, April 25th.	94	2 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100016833	3/15/2012	REDACTED Email Regarding February 2012 Portland Harbor Monthly Progress Report.	101	1 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100017918	3/15/2012	REDACTED Email Regarding Portland Harbor Draft FS Presentation - Tuesday, April 24th and Wednesday, April 25th Estimated Number of In Person Attendees.	93	2 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100011774	3/22/2012	Email regarding the sediment moisture content question less attachment.	33	1 EML / Email	R10: Toll, John (Windward Environmental, LLC.)	R10: Shephard, Burt (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100016568	3/22/2012	REDACTED Email regarding Portland Harbor Draft FS Presentation - Tuesday.	107	2 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100017813	3/22/2012	REDACTED Email regarding Portland Harbor Draft FS Presentation - Tuesday(1).	96	3 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100010566	3/26/2012	Email regarding the Level 1 toxicity estimate less attachment.	43	2 EML / Email	R10: Shephard, Burt (EPA)	R10: Toll, John (Windward Environmental, LLC.)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100011777	3/26/2012	Email regarding the mapping of Level 1 benthic toxicity predictions.	33	1 EML / Email	R10: Toll, John (Windward Environmental, LLC.)	R10: Shephard, Burt (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100013471	3/28/2012	Email Regarding April 2nd Portland Harbor Draft FS April 24th and 25th Presentation Preparation Meeting - Revised Time.	103	1 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA), R10: Muza, Richard (EPA), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100016566	3/29/2012	REDACTED Email regarding Portland Harbor Draft FS Presentation - Tuesday(2).	106	2 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100011368	3/30/2012	Portland Harbor RI/FS Appendix Hc: Capping Effectiveness and Stability Modeling Draft Feasibility Study - Pages from 2012-03-20_Appendix Hc.	33	1 CORR / Correspondence	R10: (Lower Willamette Group)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100011372	3/30/2012	Email regarding Portland Harbor RI/FS Appendix Hc: Capping Effectiveness and Stability Modeling - Pages from 2012-03-20_Appendix Hc.	33	1 CORR / Correspondence	R10: (Lower Willamette Group)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100011779	3/30/2012	Email regarding the use of generic SQGs.	34	1 EML / Email	R10: Toll, John (Windward Environmental, LLC.)	R10: Shephard, Burt (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100013617	3/30/2012	Email regarding Delivery of Portland Harbor Draft FS.	145	2 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100019928	3/30/2012	Draft Portland Harbor RI/FS Appendix N Green Remediation Draft Feasibility Study.	289	46 CORR / Correspondence	R10: (Anchor QEA, LLC)	R10: (The Lower Willamette Group)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100019929	3/30/2012	Portland Harbor RI/FS Draft Feasibility Study Appendix N: Green Remediation Tables.	71	5 CORR / Correspondence	R10: (Anchor QEA, LLC)	R10: (The Lower Willamette Group)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100013644	4/10/2012	Email regarding EPA and DEQ slides.	89	2 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100017822	4/11/2012	REDACTED LWG Draft FS Presentation to EPA - Meeting Agenda - April 24 and 25, 2012, 9:00 AM - 4:00 PM.	99	2 MTG / Meeting Document	R10: Unknown, Unknown (Lower Willamette Group)		ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100013458	4/12/2012	Lower Willamette River, Portland Harbor Superfund Site USEPA Docket No: CERCLA-10-2001-0240 Monthly Progress Report for March 2012.	142	13 LTR / Letter	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100017802	4/12/2012	REDACTED Email Regarding March 2012 Portland Harbor Monthly Progress Report.	101	1 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100017821	4/23/2012	REDACTED Email Regarding Portland Harbor Tuesday, April 24th and Wednesday, April 25th - Draft FS Presentation.	97	2 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100013472	4/27/2012	Email Regarding April 24th and 25th Draft FS EPA Presentation Posted.	103	1 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100013462	5/11/2012	Lower Willamette River, Portland Harbor Superfund Site - USEPA Docket No: CERCLA-10-2001-0240 Monthly Progress Report for April 2012.	127	12 MTG / Meeting Document	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100017824	5/11/2012	REDACTED Email Regarding April 2012 Portland Harbor Monthly Progress Report.	92	1 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100017869	5/12/2012	REDACTED Email Regarding Draft FS EPA Presentation Cross-Reference.	94	2 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100015813	5/24/2012	REDACTED 05_24_12 email; Draft FS EPA Presentation Cross-Reference.	157	3 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100017356	5/24/2012	REDACTED Email regarding EPA Requested Information.	220	3 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100017894	5/24/2012	REDACTED Email Regarding EPA Requested Information.	159	2 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100013464	5/30/2012	Estimated Alternative Sequencing - Assumed Project Sequencing by Construction Season.	133	5 CHT / Chart/Table	R10: Unknown, Unknown (Lower Willamette Group)		ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100017835	5/30/2012	REDACTED Email Regarding Estimated Alternative Sequencing.	85	1 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100013466	6/6/2012	Email Regarding Portland Harbor Draft FS - Errata Tracking.	80	1 CHT / Chart/Table	R10: Unknown, Unknown (Lower Willamette Group)		ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100013468	6/7/2012	LWG Responses to DEQ's May 21, 2012 Seven Concerns contained in an Email Regarding "5/10/12 DEQ/EPA/LWG Hot Spots Meeting".	179	6 MTG / Meeting Document	R10: Unknown, Unknown (Lower Willamette Group)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100017357	6/7/2012	REDACTED Email regarding EPA Request Information.	256	5 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100017837	6/7/2012	REDACTED Email Regarding LWG Draft FS Errata.	159	2 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100017845	6/7/2012	REDACTED Email Regarding LWG Response to DEQ May 21, 2012 Email Regarding May 10, 2012 Hot Spots Meeting.	91	1 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100013470	6/8/2012	Protectiveness Criterion for the Evaluation of Alternatives.	276	11 MEMO / Memorandum	R10: Unknown, Unknown (Lower Willamette Group)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)

100017847	REDACTED Email Regarding Protectiveness Memorandum.	85	1 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
4940682063	Letter regarding NOAA's comments on the Portland Harbor Superfund Site Feasibility Study (Draft).	77	11 EML / Email		R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
4940682064	Email regarding NOAA comments on draft Portland Harbor FS.	22	1 EML / Email	R10: Neely, Robert (NOAA)	R10: Humphrey, Chip (EPA), R10: Penoyar, Susan, J (CDM)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
4940681357	Email regarding Willamette Cove Health Consultation: Embargoed copy.	68	2 EML / Email	R10: Bishop, Karen (State of Oregon)	R10: Neely, Robert (NOAA), R10: Senkyr, Lauren (NOAA), R10: Ebbets, Allison (Stratus Consulting, Inc.), R10: Peers, Jennifer (Stratus Consulting, Inc.), R10: Conley, Alanna (EPA), R10: Humphrey, Chip (EPA), R10: Allen, Elizabeth (EPA), R10: Muza, Richard (EPA), R10: Madden, Erin (Nez Perce Tribe), R10: Thiessen, Kenneth (Oregon Dept. of Environmental Quality), R10: Danab, Marcia (Oregon Dept. of Environmental Quality), R10: Poulsen, Mike (Oregon Dept. of Environmental Quality), R10: Weil, Katy (Metro Regional Government), R10: Longoria, Rose (Yakama Nation), R10: Kauffman, Richard, R (Centers for Disease Control), R10: Henry, Audra, E (Centers for Disease Control)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100017977	REDACTED Email regarding Willamette Cove health consultation - open for public comment.	83	1 EML / Email	R10: Bishop, Karen (State of Oregon)	R10: Applegate, Richard (City of Portland, Oregon), R10: Leisle, Dwight (Port of Portland), R10: Williams, Travis (Willamette Riverkeeper), R10: Kennedy, Laura (Kennedy/Jenks Consultants), R10: Edmunds, Sallie (City of Portland, Oregon, Bureau of Planning), R10: Defur, Peter, L (Environmental Stewardship Concepts), R10: Smith, Barbara (Harris Smith Public Affairs), R10: Gardner, Sara (City of Portland, Oregon, Environmental Services), R10: Sallinger, Robert (Audobon Society of Portland), R10: Weil, Katy (Metro Regional Government), R10: Hoop, Brian (Unknown), R10: Bacchieri, Jane (Oregon State Governor's Office), R10: Wadden, Kathleen (City of Portland, Oregon), R10: Pasko, Brian (Sierra Club), R10: Houck, Mike (Urban Greenspaces Institute), R10: Bastasch, Rick (City of Portland, Oregon), R10: Van Dyke, Jane (Columbia Slough Watershed Council), R10: Etherton, Laura (Oregon State Public Interest Research Group (OSPIRG)), R10: Lyon, Brett (SOLV), R10: Dickens, S (The River Network), R10: Huntsinger, Teresa (Oregon Environmental Council), R10: (Port of Portland), R10: (Oregon Physicians for Social Responsibility), R10: (University Park Neighborhood Association), R10: (Portland Boathouse), R10: (WaterWatch of Oregon), R10: (Overlook Neighborhood Association), R10: (Friends of Baltimore Woods)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100010597	Email regarding notes taken on the fly during the last meeting less attachment.	30	1 EML / Email	R10: Shephard, Burt (EPA)	R10: Toll, John (Windward Environmental, LLC.)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100010651	Email regarding the agreement to lump the different TRVs for similar chemical groups.	29	1 EML / Email	R10: Shephard, Burt (EPA)	R10: Toll, John (Windward Environmental, LLC.)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100012174	Email regarding the BERA notes generated during the August 9 meeting less attachment	72	1 EML / Email	R10: Toll, John (Windward Environmental, LLC.)	R10: Shephard, Burt (EPA), R10: Humphrey, Chip (EPA), R10: Mckenna, James (Verdant Solutions, LLC)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100012188	Email regarding the agreement to lump the different TRVs for similar chemical groups.	105	1 EML / Email	R10: Toll, John (Windward Environmental, LLC.)	R10: Shephard, Burt (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100012229	Email regarding the LWG response to the EPA July 10, 2012 comments n the July 1, 2011 Draft Final BERA less attachment.	144	2 EML / Email	R10: Toll, John (Windward Environmental, LLC.)	R10: Shephard, Burt (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100015434	REDACTED Email regarding Confined Disposal Facility Presentation -Questions from CAG member Jackie Calder.	31	6 EML / Email	R10: Humphrey, Chip (EPA)	R10: Madalinski, Kelly (Port of Portland), R10: Mckenna, Jim (Verdant Solutions, LLC)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100011016	Email regarding LWG responses to EPA comments on the draft final BERA.	30	1 EML / Email	R10: Shephard, Burt (EPA)	R10: Toll, John (Windward Environmental, LLC.)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100012325	Email regarding LWGs Portland Harbor BERA comment responses.	115	1 EML / Email	R10: Toll, John (Windward Environmental, LLC.)	R10: Shephard, Burt (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100017334	REDACTED Email regarding Portland Harbor TCT Meeting 10/3/2012.	39	2 EML / Email	R10: Conley, Alanna (EPA)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100012327	Email regarding fact check on response to 10/4/2012 BERA comment 50.	75	1 EML / Email	R10: Toll, John (Windward Environmental, LLC.)	R10: Shephard, Burt (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100012328	Email regarding the BERA comment resolution less attachment.	92	1 EML / Email	R10: Toll, John (Windward Environmental, LLC.)	R10: Shephard, Burt (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100012329	Email regarding the BERA comment resolution less attachment.	146	2 EML / Email	R10: Toll, John (Windward Environmental, LLC.)	R10: Shephard, Burt (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100012332	Email regarding the BERA comment resolution	149	2 EML / Email	R10: Toll, John (Windward Environmental, LLC.)	R10: Humphrey, Chip (EPA), R10: Mckenna, James (Verdant Solutions, LLC)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100012356	Email regarding the BERA comment resolution less attachment	201	3 EML / Email	R10: Toll, John (Windward Environmental, LLC.)	R10: Toll, John (Windward Environmental, LLC.), R10: Humphrey, Chip (EPA), R10: Mckenna, James (Verdant Solutions, LLC)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100012366	Email regarding the BERA comment resolution	188	3 EML / Email	R10: Toll, John (Windward Environmental, LLC.)	R10: Toll, John (Windward Environmental, LLC.), R10: Humphrey, Chip (EPA), R10: Mckenna, James (Verdant Solutions, LLC)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100011089	Email regarding having a team meeting.	30	1 EML / Email	R10: Shephard, Burt (EPA)	R10: Toll, John (Windward Environmental, LLC.)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100012362	Email regarding the team meeting.	117	1 EML / Email	R10: Toll, John (Windward Environmental, LLC.)	R10: Shephard, Burt (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100011082	Email regarding having a team meeting.	80	3 EML / Email	R10: Shephard, Burt (EPA)	R10: Toll, John (Windward Environmental, LLC.)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100012391	Email regarding the data in the draft final BERA.	180	2 EML / Email	R10: Toll, John (Windward Environmental, LLC.)	R10: Shephard, Burt (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100012403	Email regarding the EPA team meeting on October 16-17.	247	3 EML / Email	R10: Toll, John (Windward Environmental, LLC.)	R10: Shephard, Burt (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100015732	REDACTED Email regarding questions on the Portland Harbor BERA and Oregon's aquatic life criteria Biological Opinion schedule.	30	1 EML / Email	R10: Shephard, Burt (EPA)	R10: Toll, John (Windward Environmental, LLC.)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100012433	Email regarding the BERA resolution.	81	1 EML / Email	R10: Toll, John (Windward Environmental, LLC.)	R10: Shephard, Burt (EPA), R10: Humphrey, Chip (EPA), R10: Mckenna, James (Verdant Solutions, LLC)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100012437	Email regarding the revised BERA comment resolution table less attachment.	72	1 EML / Email	R10: Toll, John (Windward Environmental, LLC.)	R10: Shephard, Burt (EPA), R10: Humphrey, Chip (EPA), R10: Mckenna, James (Verdant Solutions, LLC)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)

100012446	11/8/2012	Email regarding the revised BERA comment resolution table.	131	2 EML / Email	R10: Toll, John (Windward Environmental, LLC.)	R10: Shephard, Burt (EPA), R10: Humphrey, Chip (EPA), R10: Mckenna, James (Verdant Solutions, LLC)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100017337	11/16/2012	REDACTED Email regarding Hudson River.	32	2 EML / Email	R10: Koch, Kristine, M (EPA)	R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100017342	12/12/2012	REDACTED Email regarding Portland Harbor. Email regarding the draft executive summary for the Portland Harbor baseline ecological risk assessment	30	1 EML / Email	R10: Cohen, Lori, G (EPA)	R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100011208	12/14/2012	Email regarding the draft executive summary for the Portland Harbor baseline ecological risk assessment	87	2 EML / Email	R10: Shephard, Burt (EPA)	R10: Toll, John (Windward Environmental, LLC.)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100012593	12/14/2012	Email regarding the draft executive summary for the Portland Harbor baseline ecological risk assessment	134	1 EML / Email	R10: Toll, John (Windward Environmental, LLC.)	R10: Shephard, Burt (EPA), R10: Mckenna, Jim (Verdant Solutions, LLC)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100012599	12/15/2012	Email regarding the draft executive summary for the Portland Harbor baseline ecological risk assessment	145	2 EML / Email	R10: Toll, John (Windward Environmental, LLC.)	R10: Shephard, Burt (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100012608	12/17/2012	Email regarding CSM graphics that the LWG has used in public meetings less attachments.	118	1 EML / Email	R10: Toll, John (Windward Environmental, LLC.)	R10: Shephard, Burt (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100011257	12/18/2012	Email regarding the CSM pictures less attachment	73	3 EML / Email	R10: Shephard, Burt (EPA)	R10: Toll, John (Windward Environmental, LLC.)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100011265	12/18/2012	Email regarding the CSM pictures.	70	2 EML / Email	R10: Shephard, Burt (EPA)	R10: Toll, John (Windward Environmental, LLC.)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100012613	12/18/2012	Email regarding Table ES-8 from the executive summary of the baseline ecological risk assessment.	172	2 EML / Email	R10: Toll, John (Windward Environmental, LLC.)	R10: Shephard, Burt (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100011273	12/21/2012	Email regarding Word versions of Portland Harbor BERA executive summary, Section 11, comment resolution table less attachments	32	1 EML / Email	R10: Shephard, Burt (EPA)	R10: Toll, John (Windward Environmental, LLC.)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100011325	1/10/2013	Email regarding the DDx fish tissue TRV.	75	1 EML / Email	R10: Toll, John (Windward Environmental, LLC.)	R10: Shephard, Burt (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100011463	1/15/2013	Email regarding the BERA Executive Summary	97	1 EML / Email	R10: Toll, John (Windward Environmental, LLC.)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100016139	1/15/2013	REDACTED Email regarding the BERA Comments Conference Call.	176	4 EML / Email	R10: Toll, John (Windward Environmental, LLC.)	R10: Shephard, Burt (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100007903	1/23/2013	Email regarding EPA Preliminary FS revision Task List.	51	1 EML / Email	R10: Mckenna, James (Verdant Solutions, LLC)	R10: Wyatt, Bob (Northwest Natural Gas Company), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100007904	1/23/2013	Draft Portland Harbor FS Revision Tasks - EPA Preliminary FS TASK LIST.	274	9 CORR / Correspondence	R10: Blichke, Eric, L (EPA)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100008057	1/23/2013	Email regarding Clarifications Requested on Section 1 Redline.	16	2 EML / Email	R10: Koch, Kristine, M (EPA)	R10: Revelas, Gene (Integral Corporation)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100009383	1/23/2013	Email regarding problems with verifying proposed DDx in fish tissue TRV.	30	1 EML / Email	R10: Shephard, Burt (EPA)	R10: Toll, John (Windward Environmental, LLC.)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100015685	1/24/2013	REDACTED Email regarding the BERA meeting at Windward on 1/25/2013.	76	3 EML / Email	R10: Shephard, Burt (EPA)	R10: Toll, John (Windward Environmental, LLC.)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100011473	1/25/2013	Email regarding editing the BERA Executive Summary for consistency with ecological significance agreements.	100	1 EML / Email	R10: Toll, John (Windward Environmental, LLC.)	R10: Shephard, Burt (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100007906	1/28/2013	Outline of Procedure used for Sediment Transport Model Review - ATTSKEG8.	55	1 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100013512	1/28/2013	REDACTED Email regarding Portland Harbor - Monday, January 28th 9:30 - 12:30 (pacific) Conference Call to Discuss Draft FS Modeling/MNR Related Comments.	94	3 EML / Email	R10: Humphrey, Chip (EPA)	R10: Werth, Michael (Unknown), R10: Shellenberger, Amanda (Anchor Environmental, LLC), R10: Russell, Kevin, T (Quantitative Environmental Analysis, L.L.C.), R10: Ziegler, C. Kirk (Anchor QEA, LLC), R10: Stivers, Carl (Anchor QEA, LLC), R10: Woronets, Jennifer (Anchor QEA, LLC), R10: King, Todd (CDM Smith), R10: Gustavson, Karl (EPA), R10: Mckenna, Jim (Verdant Solutions, LLC)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100014199	1/28/2013	REDACTED Email regarding Portland Harbor - Monday, January 28th 9:30 - 12:30 (pacific) Conference Call to Discuss Draft FS Modeling/MNR Related Comments.	20	2 EML / Email	R10: Humphrey, Chip (EPA)	R10: Werth, Michael (Unknown), R10: Shellenberger, Amanda (Anchor Environmental, LLC), R10: Stivers, Carl (Anchor Environmental, LLC), R10: Russell, Kevin, T (Quantitative Environmental Analysis, L.L.C.), R10: Ziegler, C. Kirk (Anchor QEA, LLC), R10: Woronets, Jennifer (Anchor QEA, LLC), R10: King, Todd (CDM Smith), R10: Gustavson, Karl (EPA), R10: Mckenna, Jim (Verdant Solutions, LLC)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100017353	1/28/2013	REDACTED Email regarding Portland Harbor - Monday, January 28th 9:30 - 12:30 (pacific) Conference Call to Discuss Draft FS Modeling /MNR Related Comments.	95	3 EML / Email	R10: Humphrey, Chip (EPA)	R10: Gustavson, Karl (U. S. Army Corps of Engineers), R10: Shellenberger, Amanda (Anchor Environmental, LLC), R10: Stivers, Carl (Anchor Environmental, LLC), R10: King, Todd (CDM Smith), R10: Mckenna, James (Verdant Solutions, LLC)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100011474	1/30/2013	Email regarding the searchable equivalent of new Table 11-1.	40	1 EML / Email	R10: Toll, John (Windward Environmental, LLC.)	R10: Shephard, Burt (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100013093	1/31/2013	REDACTED 01_31_13 email; Portland Harbor January 28th Draft FS Modeling MNR Related Comments Conference Call Slides.	138	3 CORR / Correspondence	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Humphrey, Chip (Department of Environmental Quality)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100011475	2/1/2013	Email regarding the searchable equivalent of new Table 11-1.	60	1 EML / Email	R10: Toll, John (Windward Environmental, LLC.)	R10: Shephard, Burt (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100009387	2/4/2013	Email regarding the Searchable equivalent of new Table 11-1.	51	3 EML / Email	R10: Shephard, Burt (EPA)	R10: Toll, John (Windward Environmental, LLC.)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100011467	2/4/2013	Email regarding the searchable equivalent of new Table 11-1.	90	3 EML / Email	R10: Toll, John (Windward Environmental, LLC.)	R10: Shephard, Burt (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100011469	2/4/2013	Email regarding the searchable equivalent of new Table 11-1.	92	3 EML / Email	R10: Toll, John (Windward Environmental, LLC.)	R10: Mckenna, James (Verdant Solutions, LLC)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100009389	2/19/2013	Email regarding the Portland Harbor BERA Table 11-3 review.	70	2 EML / Email	R10: Shephard, Burt (EPA)	R10: Toll, John (Windward Environmental, LLC.)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100009395	2/19/2013	Email regarding the Portland Harbor BERA Table 11-3 review.	43	1 EML / Email	R10: Shephard, Burt (EPA)	R10: Toll, John (Windward Environmental, LLC.)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100009396	2/19/2013	Email regarding the TRVs for Portland Harbor BERA.	69	2 EML / Email	R10: Shephard, Burt (EPA)	R10: Toll, John (Windward Environmental, LLC.)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100011472	2/19/2013	Email regarding the Portland BERA Table 11-3 more review checks.	68	2 EML / Email	R10: Toll, John (Windward Environmental, LLC.)	R10: Shephard, Burt (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)



100011476	Email regarding the Portland BERA Table 11-3 - 2/19/2013 Windward edited version.	94	2 EML / Email	R10: Toll, John (Windward Environmental, LLC.)	R10: Shephard, Burt (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100011477	Email regarding the Portland BERA Table 11-3 2/19/2013 review.	62	2 EML / Email	R10: Toll, John (Windward Environmental, LLC.)	R10: Shephard, Burt (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100011478	Email regarding the Portland BERA Table 11-3 2/19/2013 review discrepancy.	73	3 EML / Email	R10: Toll, John (Windward Environmental, LLC.)	R10: Shephard, Burt (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100011479	Email regarding TRVs for the Portland Harbor 2/19/2013 BERA.	79	3 EML / Email	R10: Toll, John (Windward Environmental, LLC.)	R10: Shephard, Burt (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100011485	Email regarding the Portland BERA Table 11-3 2/19/2013 review.	74	3 EML / Email	R10: Toll, John (Windward Environmental, LLC.)	R10: Shephard, Burt (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100011496	Email regarding TRVs for the Portland Harbor 2/19/2013 BERA.	83	3 EML / Email	R10: Toll, John (Windward Environmental, LLC.)	R10: Shephard, Burt (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100015687	REDACTED Email regarding the Portland BERA 2/19/2013 Table 11-3 - Windward edited version.	95	3 EML / Email	R10: Shephard, Burt (EPA)	R10: Toll, John (Windward Environmental, LLC.)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100011498	Email regarding the Portland BERA Table 11-3 - 2/20/2013 Windward edited version.	102	3 EML / Email	R10: Toll, John (Windward Environmental, LLC.)	R10: Shephard, Burt (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100009398	Email regarding the follow-up to the voice-mail 2/22/2013 concerning BERA issues.	90	2 EML / Email	R10: Shephard, Burt (EPA)	R10: Toll, John (Windward Environmental, LLC.)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100009408	Email regarding the Portland Harbor food web 2/26/2013 model question.	47	2 EML / Email	R10: Shephard, Burt (EPA)	R10: Toll, John (Windward Environmental, LLC.)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100009212	The Road to ROD Portland Harbor Superfund 2/27/2013 Site Agency FS Team Technical Work Session 1 - AgencyTechWS1.	6,778	55 CORR / Correspondence	R10: (CDM)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100009211	Email regarding Please forward to those I 2/28/2013 missed.	42	1 EML / Email	R10: King, Todd (CDM Smith)	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality), R10: McClincy, Matt (Oregon Dept. of Environmental Quality), R10: Gainer, Tom (Oregon Dept. of Environmental Quality), R10: Penoyar, Susan, J (CDM), R10: Longoria, Rose (Yakama Nation), R10: Dexter, Bob (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100009223	2/28/2013 COC Evaluation Table - COCEvalTable.	78	9 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100009411	Email regarding the Portland Harbor Food Web 3/4/2013 Model and PRGs.	84	3 EML / Email	R10: Shephard, Burt (EPA)	R10: Toll, John (Windward Environmental, LLC.)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100009414	Email regarding the answer to the bird egg 3/4/2013 DDx PRG question.	46	1 EML / Email	R10: Shephard, Burt (EPA)	R10: Toll, John (Windward Environmental, LLC.)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100011559	Email regarding the Food Web Model and 3/4/2013 PRGs..	81	2 EML / Email	R10: Toll, John (Windward Environmental, LLC.)	R10: Shephard, Burt (EPA), R10: Allen, Elizabeth (EPA), R10: Mckenna, James (Verdant Solutions, LLC)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100007908	COC Evaluation Table - 3/5/2013 COCEvalTable20130305.	186	18 CORR / Correspondence	R10: King, Todd (CDM Smith)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100007909	Portland Harbor FS - COC Status - 3/5/2013 SummaryCOCs20130305.	150	4 CORR / Correspondence	R10: Blischke, Eric, L (EPA)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100007907	Email regarding TCT Meeting 3/06/2013 COC 3/6/2013 list.	46	1 EML / Email	R10: Humphrey, Chip (EPA)	R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100009426	Email regarding the Tributytin sediment TRV 3/6/2013 for Portland Harbor.	47	1 EML / Email	R10: Shephard, Burt (EPA)	R10: Toll, John (Windward Environmental, LLC.)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100011674	Email regarding Negative PRGs - the 3/19/2013 consequence of when water exposure alone results in tissue concentrations exceeding a specified target tissue concentration.	74	2 EML / Email	R10: Toll, John (Windward Environmental, LLC.)	R10: Allen, Elizabeth (EPA), R10: Mckenna, James (Verdant Solutions, LLC)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100009224	3/28/2013 Email regarding Fish PRGs.	46	1 EML / Email	R10: Allen, Elizabeth (EPA)	R10: Toll, John (Windward Environmental, LLC.), R10: Mckenna, James (Verdant Solutions, LLC)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100009225	3/29/2013 Fish PRGs Table - Fish PRGs1.	129	16 CORR / Correspondence	R10: Allen, Elizabeth (EPA)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100009226	Email regarding Lower Willamette River Fish 4/19/2013 Tissue Data.	173	2 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Werth, Michael (Unknown), R10: Shellenberger, Amanda (Anchor Environmental, LLC), R10: Russell, Kevin, T (Quantitative Environmental Analysis, L.L.C.), R10: Glaser, David (Quantitative Environmental Analysis, L.L.C.), R10: Hayter, Earl, J (EPA), R10: Ziegler, C. Kirk (Anchor QEA, LLC), R10: King, Todd (CDM Smith), R10: Mckenna, James (Verdant Solutions, LLC)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100009227	Whole Body Data Table - 4/19/2013 dt_SMBWholeBodyData_AllEvents_20130417.	297	27 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100011790	Email regarding the categorization of EPA's 5/28/2013 recent comments on the draft Final BERA.	59	2 EML / Email	R10: Toll, John (Windward Environmental, LLC.)	R10: Mckenna, James (Verdant Solutions, LLC)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100010574	Email regarding additions to the BERA 6/3/2013 summary Section 11.	59	1 EML / Email	R10: Shephard, Burt (EPA)	R10: Toll, John (Windward Environmental, LLC.)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100011827	6/3/2013 Email regarding the Portland Harbor BERA.	34	1 EML / Email	R10: Toll, John (Windward Environmental, LLC.)	R10: Shephard, Burt (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100011838	Email regarding the Portland Harbor BERA 6/3/2013 tables.	64	2 EML / Email	R10: Toll, John (Windward Environmental, LLC.)	R10: Shephard, Burt (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100010571	6/4/2013 Email regarding the Portland Harbor BERA.	69	2 EML / Email	R10: Shephard, Burt (EPA)	R10: Toll, John (Windward Environmental, LLC.)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100017604	REDACTED Email regarding the Portland 6/4/2013 Harbor BERA cross check of tables.	69	3 EML / Email	R10: Toll, John (Windward Environmental, LLC.)	R10: Shephard, Burt (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100007910	6/11/2013 Email regarding PH Slides for CSTAG call.	46	1 EML / Email	R10: Humphrey, Chip (EPA)	R10: Eils, Stephen, J (EPA), R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100010572	6/13/2013 Email regarding LPAH and HPAH definitions.	99	3 EML / Email	R10: Shephard, Burt (EPA)	R10: Toll, John (Windward Environmental, LLC.)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100011911	Email regarding the definitions for HPAHs and 6/13/2013 LPAHs.	94	2 EML / Email	R10: Toll, John (Windward Environmental, LLC.)	R10: Shephard, Burt (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100011926	6/13/2013 Email regarding the Portland Harbor BERA.	69	1 EML / Email	R10: Toll, John (Windward Environmental, LLC.)	R10: Shephard, Burt (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100014935	REDACTED Email regarding Potential Project 7/2/2013 Meetings in August.	58	1 EML / Email	R10: Koch, Kristine, M (EPA)	R10: Humphrey, Chip (EPA), R10: Mckenna, James (Verdant Solutions, LLC)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)

100007912	7/16/2013	Email regarding FS team technical work session 2 - July 31.	48	1 EML / Email	R10: Humphrey, Chip (EPA)	R10: Angle, Genevieve (NOAA), R10: Neeley, Robert (NOAA), R10: Madden, Erin (Unknown), R10: Cunninghame, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Downey, Tom (Confederated Tribes of the Siletz Indians), R10: Karnosh, Michael (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality), R10: Humphreys, Brandy (Grand Ronde Tribe), R10: Penoyar, Susan, J (CDM), R10: Longoria, Rose (Yakama Nation)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100010579	7/23/2013	Email regarding thoughts on bioaccumulation / biomagnification for the Portland Harbor BERA less attachment.	52	2 EML / Email	R10: Shephard, Burt (EPA)	R10: Toll, John (Windward Environmental, LLC.)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100012053	7/24/2013	Email regarding Portland Harbor BERA: Updated Sections ES.13 and 3.4.1.	60	1 EML / Email	R10: Toll, John (Windward Environmental, LLC.)	R10: Koch, Kristine, M (EPA), R10: Shephard, Burt (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100012169	7/24/2013	Email regarding Portland Harbor BERA: Updated Sections ES.13 and 3.4.1.	54	1 EML / Email	R10: Toll, John (Windward Environmental, LLC.)	R10: Humphrey, Chip (EPA), R10: Mckenna, James (Verdant Solutions, LLC)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100008054	7/29/2013	Memorandum regarding Remedial Technologies Screening. Draft Portland Harbor FS Team Technical Work Session 2 - Draft Agenda-	6,527	68 CORR / Correspondence	R10: Penoyar, Susan, J (CDM), R10: Blischke, Eric (CDM Smith)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100007913	7/31/2013	DraftAgendaAgencyTWS2_2013-07-31.	253	1 CORR / Correspondence	R10: (CDM)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100009229	9/16/2013	Email regarding Residuals Request.	77	1 EML / Email	R10: Humphrey, Chip (EPA)	R10: Stivers, Carl (Anchor QEA, LLC)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100009230	9/26/2013	Email regarding TBT PRG Questions. Portland Harbor RI/FS Cost Estimate Backup Draft Feasibility Study - Anchor QEA Draft FS-Cost Estimate Backup for Tem.	46	1 EML / Email	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100008015	10/10/2013	Cost Estimate Backup for Tem.	82	4 CORR / Correspondence	R10: (Anchor QEA, LLC)	R10: (Lower Willamette Group)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100009231	10/10/2013	Email regarding Request for backup cost information.	93	2 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100009232	10/10/2013	Portland Harbor RI/FS Additional Cost Backup Draft Feasibility Study Response to EPA Costs Comments - Cost Estimate Backup.	608	39 CORR / Correspondence	R10: (Anchor QEA, LLC)	R10: (Lower Willamette Group)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100010882	10/10/2013	Portland Harbor RI/FS Additional Cost Backup Draft Feasibility Study Response to EPA Cost Comments - Cost Estimate Backup.	608	39 CORR / Correspondence	R10: (Anchor QEA, LLC)	R10: (Lower Willamette Group)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100007914	11/20/2013	Email regarding LWG supplemental technical analysis and information for draft FS.	46	1 EML / Email	R10: Humphrey, Chip (EPA)	R10: Wyatt, Bob (Northwest Natural Gas Company), R10: Mckenna, James (Verdant Solutions, LLC)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100007915	11/20/2013	Draft EPA request for supplemental technical analysis and other information to support Draft Feasibility review/revisions - Draft FS supplemental information list 11202013.	55	1 CORR / Correspondence	R10: Humphrey, Chip (EPA)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100009233	11/25/2013	Email regarding Notes from CDM/Anchor QEA Cost Call 11/25/13.	97	2 EML / Email	R10: Penoyar, Susan, J (CDM)	R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100007916	12/5/2013	Email regarding Suggested FS Revision Schedule and Issue Themes - Supplemental Information Requests Integrated.	132	2 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100007917	12/5/2013	Suggestion for Road to Proposed Plan - Suggestion for Road to Proposed Plan Dec 5 2013 Draft.	79	1 CORR / Correspondence	R10: Stivers, Carl (Anchor QEA, LLC)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100007918	12/5/2013	Revised FS Comment Themes and Process Draft - Revised Dec 5 2013 FS Comment Themes and Process Draft.	112	1 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100007919	12/5/2013	Email regarding EPA Supplemental Information Request - Item 1: Bed Elevation Comparison files.	135	2 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100007924	12/5/2013	Revised FS Comment Themes and Process Draft - Revised Jan 10 2014 FS Comment Themes and Process Draft.	113	1 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100007925	12/5/2013	Suggestion for Road to Proposed Plan - Suggestion for Road to Proposed Plan Dec 5 2013 Draft.	79	1 CORR / Correspondence	R10: Stivers, Carl (Anchor QEA, LLC)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100007920	12/6/2013	Email regarding Item 7 Supplemental FS Information Request - Editable FS Files.	90	1 EML / Email	R10: Stivers, Carl (Anchor QEA, LLC)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100009239	12/10/2013	Senior Managers' Meeting - notes mgr meeting 12-10-13 rev l.c.	112	4 CORR / Correspondence	R10: Kirkpatrick, Margaret (Northwest Natural Gas Company)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100009254	12/10/2013	Senior Managers' Meeting Notes - notes mgr meeting 12-10-13 rev l.c.	112	4 CORR / Correspondence	R10: Kirkpatrick, Margaret (Northwest Natural Gas Company)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100009235	12/11/2013	Portland Harbor RI/FS Response to EPA Follow-up Cost Comments Response to EPA Follow-up Cost Comments - Response to EPA Cost Comments_ Dec11 2013_Final.	244	19 CORR / Correspondence	R10: (Anchor QEA, LLC)	R10: (Lower Willamette Group)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100009234	12/12/2013	Email regarding Portland Harbor Additional Cost Backup Information.	63	1 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100009236	1/9/2014	Email regarding List of Additional Information That LWG is Requesting from EPA on November 13 PRG/RALS Presentation.	151	4 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100009237	1/13/2014	Email regarding PRGs-.	76	2 EML / Email	R10: Gainer, Tom (Oregon Dept. of Environmental Quality)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100009241	1/15/2014	Memorandum regarding Proposed Process for Incorporation of EPA's Dredge Production and Dredge Residual Recommendations for the Portland Harbor Feasibility Study - Dredge Production Rate and Residual_20140115.	44	5 CORR / Correspondence	R10: (Lower Willamette Group)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100009242	1/15/2014	Memorandum regarding Draft Decision Step Process Outline for incorporation of EPA's Remedial Action Levels into the revised Portland Harbor Feasibility Study - EPA RALS Decision Steps Process_20140115.	51	7 CORR / Correspondence	R10: (Lower Willamette Group)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100009243	1/15/2014	Memorandum regarding Sediment Transport Modeling Analysis: Item 2 of EPA's Portland Harbor Feasibility Study Supplemental Information Requests - LWR Model Output Transfer_20140115.	172	4 CORR / Correspondence	R10: Ziegler, C. Kirk (Anchor QEA, LLC), R10: Zheng, Li (Anchor QEA, LLC), R10: Chen, Fanghui (Anchor QEA, LLC)	R10: Hayter, Earl, J (U. S. Army Corps of Engineers), R10: Gustavson, Karl (U. S. Army Corps of Engineers), R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100009245	1/15/2014	Memorandum regarding Proposed Process for Incorporation of EPA's Dredge Production and Dredge Residual Recommendations for the Portland Harbor Feasibility Study - Dredge Production Rate and Residual_20140115.	44	5 CORR / Correspondence	R10: (Lower Willamette Group)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)

100009246	1/15/2014	Memorandum regarding Draft Decision Step Process Outline for incorporation of EPA's Remedial Action Levels into the revised Portland Harbor Feasibility Study - EPA RALS Decision Steps Process_20140115.	51	7	CORR / Correspondence	R10: (Lower Willamette Group)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100009247	1/15/2014	Memorandum regarding Sediment Transport Modeling Analysis: Item 2 of EPA's Portland Harbor Feasibility Study Supplemental Information Requests - LWR Model Output Transfer_20140115.	172	4	CORR / Correspondence	R10: Ziegler, C. Kirk (Anchor QEA, LLC), R10: Zheng, Li (Anchor QEA, LLC), R10: Chen, Fanghui (Anchor QEA, LLC)	R10: Hayter, Earl, J (U. S. Army Corps of Engineers), R10: Gustavson, Karl (U. S. Army Corps of Engineers), R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100007923	1/16/2014	Email regarding Draft Revised Comment Themes and Process and Suggested Road to the Proposed Plan Documents.	87	1	EML / Email	R10: Humphrey, Chip (EPA)	R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100009238	1/16/2014	Email regarding December 10 meeting summary.	125	3	EML / Email	R10: Cohen, Lori, G (EPA)	R10: Cora, Lori, H (EPA), R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100009240	1/17/2014	Email regarding Portland Harbor - Items 2, 3, and 4 of EPA November 20, 2013 FS Supplemental Information Requests.	95	1	EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100017198	1/17/2014	REDACTED 01_17_14 email; Portland Harbor Items 2, 3 and 4 of EPA FS Supplemental Information Requests.	139	2	CORR / Correspondence	R10: Stivers, Carl (Anchor QEA, LLC)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA), R10: Woronets, Jennifer (Anchor QEA, LLC)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100009251	1/20/2014	FS Revision Process Matrix - 012814 Draft FS Process Dates Matrix.	287	2	CORR / Correspondence	R10: Stivers, Carl (Anchor QEA, LLC)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100009252	1/20/2014	FS Revision Process Matrix - 012814 Draft FS Process Dates Matrix1.	134	2	CORR / Correspondence	R10: Stivers, Carl (Anchor QEA, LLC)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100009244	1/22/2014	Email regarding Portland Harbor - Items 2, 3, and 4 of EPA November 20, 2013 FS Supplemental Information Requests.	97	2	EML / Email	R10: Humphrey, Chip (EPA)	R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100009248	1/28/2014	Email regarding Draft FS Framework Materials.	11	1	EML / Email	R10: Mckenna, James (Verdant Solutions, LLC)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100009249	1/30/2014	Portland Harbor Superfund Site Draft EPA/LWG Framework for Revising the Feasibility Study - 012814 Draft FS Framework.	156	2	CORR / Correspondence	R10: (Verdant Solutions, LLC)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100009250	1/30/2014	Portland Harbor Superfund Site Draft EPA/LWG Framework for Revising the Feasibility Study - 012814 Draft FS Framework1.	95	2	CORR / Correspondence	R10: (Verdant Solutions, LLC)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100009253	2/4/2014	Email regarding December 10 meeting summary.	125	3	EML / Email	R10: Cohen, Lori, G (EPA)	R10: Cora, Lori, H (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100009738	2/7/2014	Table 1 - Feasibility Study List of Proposed Figures - 2014-07-08 FS Outline - List of Figures.	110	2	CORR / Correspondence	R10: (CDM Smith)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100010084	2/7/2014	Table 1 - Feasibility Study List of Proposed Figures - 2014-07-08 FS Outline - List of Figures.	111	2	CORR / Correspondence	R10: (CDM Smith)	R10: (CDM Smith)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100010085	2/7/2014	Table 1 - Feasibility Study List of Proposed Tables - FS Outline - List of Tables.	99	1	CORR / Correspondence	R10: (CDM Smith)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100010491	2/7/2014	Table 1 - Feasibility Study List of Proposed Figures - 2014-12-02 FS Section 1 - List of Figures.	110	2	CORR / Correspondence	R10: (CDM Smith)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100010492	2/7/2014	Table 1 - Feasibility Study List of Proposed Tables - 2014-12-02 FS Section 1 - List of Tables.	98	1	CORR / Correspondence	R10: (CDM Smith)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100009255	2/11/2014	Email regarding agenda for Thursday PH meeting.	45	1	EML / Email	R10: Cohen, Lori, G (EPA)	R10: Hamilton, Jessica (Port of Portland), R10: Marriott, Dean, C (City of Portland, Oregon, Bureau of Environmental Services), R10: Wyatt, Bob (Northwest Natural Gas Company), R10: Kirkpatrick, Margaret (Northwest Natural Gas Company), R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA), R10: Yamamoto, Deb (EPA), R10: Imeson, Tom (Unknown), R10: Isselmann, Jack (Unknown), R10: Loutzenhiser, Doug (Unknown), R10: Mckenna, Jim (Verdant Solutions, LLC)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100009256	2/13/2014	Agenda Portland Harbor Senior Managers Meeting - 2-13-14 draft agenda PH senior mgrs.	49	1	CORR / Correspondence	R10: Cohen, Lori, G (EPA)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100009722	2/14/2014	Portland Harbor RI/FS Draft Feasibility Study Report Section 1 - 2014-06-02 FS Section 1_Rev 5 Tribes edits 19 June 2014.	438	29	CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100009726	2/14/2014	Portland Harbor RI/FS Draft Feasibility Study Report Section 1 - 2014-06-02 Portland Harbor FS Section 1_Rev 1 DEQ comments.	398	32	CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100007927	2/18/2014	EPA Alternative Sediment Management Areas Overlaying Dioxin/Furans as TEQ RALS - DioxinFuran_TEQ_RALS_wth_alts_SMA_maps.	829	11	CORR / Correspondence	R10: (EPA)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100011240	2/20/2014	Letter regarding Dispute of EPA Comments, Arkema Inc. Portland Facility Oregon Pesticide Rule and Waste Designation - OR_PesticideRuleAndWasteDesignationClarification.	136	4	CORR / Correspondence	R10: O'brien, Audrey, M (Oregon Dept. of Environmental Quality)	R10: Sheldrake, Sean, A (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100009259	2/21/2014	DDX SDU SWAG Values - 2014-02-21 DDX SDU_SWAC_values.	102	10	CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100010884	2/21/2014	Email regarding FS Issue 3.3.2 DDX RALS Additional - LWG Initial Questions.	103	2	EML / Email	R10: Stivers, Carl (Anchor QEA, LLC)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100007926	2/25/2014	Email regarding Dioxin/Furan as TEQ RALS.	41	1	EML / Email	R10: Koch, Kristine, M (EPA)	R10: Wyatt, Bob (Northwest Natural Gas Company), R10: Stivers, Carl (Anchor QEA, LLC), R10: Mckenna, James (Verdant Solutions, LLC)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100009257	2/25/2014	Email regarding Question on FS data set.	50	2	EML / Email	R10: Koch, Kristine, M (EPA)	R10: Stivers, Carl (Anchor QEA, LLC), R10: Mckenna, James (Verdant Solutions, LLC)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100009258	2/26/2014	Email regarding EPA evaluation of DDX.	46	1	EML / Email	R10: Koch, Kristine, M (EPA)	R10: Wyatt, Bob (Northwest Natural Gas Company), R10: Mckenna, James (Verdant Solutions, LLC)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100009260	2/28/2014	Email regarding FS Issue 3.3.1 - Expanded Discussion of BaPEq RAL Application.	138	3	EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100009467	3/3/2014	Portland Harbor Direct Contact PRGs - Portland Harbor Direct Contact PRGs 3-3-14b.	146	14	CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100011551	3/4/2014	Email regarding the questions about PRG (I took out the lead questions) that we discussed on the PRG call today.	48	1	EML / Email	R10: Toll, John (Windward Environmental, LLC.)	R10: Shephard, Burt (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100011590	3/4/2014	Email regarding the bird egg DDX PRG question.	62	1	EML / Email	R10: Toll, John (Windward Environmental, LLC.)	R10: Shephard, Burt (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100009445	3/11/2014	Email regarding TBT PRG misunderstanding.	69	1	EML / Email	R10: Toll, John (Windward Environmental, LLC.)	R10: Koch, Kristine, M (EPA), R10: Shephard, Burt (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)

100009446	3/11/2014	Email regarding TBT PRG misunderstanding.	46	1 EML / Email	R10: Toll, John (Windward Environmental, LLC.)	R10: Shephard, Burt (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100010561	3/11/2014	Email regarding the TBT PRG misunderstanding.	54	1 EML / Email	R10: Shephard, Burt (EPA)	R10: Toll, John (Windward Environmental, LLC.)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100011651	3/11/2014	Email regarding the TBT PRG misunderstanding.	40	1 EML / Email	R10: Toll, John (Windward Environmental, LLC.)	R10: Shephard, Burt (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100011657	3/11/2014	Email regarding the Tributyltin sediment TRV for Portland Harbor.	65	1 EML / Email	R10: Toll, John (Windward Environmental, LLC.)	R10: Shephard, Burt (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100011664	3/11/2014	Email regarding the TBT PRG misunderstanding.	70	1 EML / Email	R10: Toll, John (Windward Environmental, LLC.)	R10: Koch, Kristine, M (EPA), R10: Shephard, Burt (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100009447	3/12/2014	Email regarding Benthic Risk and Remediation/Dredge Areas.	132	1 EML / Email	R10: Stivers, Carl (Anchor QEA, LLC)	R10: Koch, Kristine, M (EPA), R10: Shephard, Burt (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100009456	3/12/2014	Draft Toxicity Model Comparison and Comprehensive Benthic Risk Areas Recommended for Evaluation in the Feasibility Study RM 1.9 to RM 7 - FS Appx P Map 1a_additional tox model info_extra layers off.	740	1 CORR / Correspondence	R10: (Lower Willamette Group), R10: (Windward Environmental, LLC.)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100009457	3/12/2014	Map 1a Portland Harbor RI/FS Comprehensive Benthic Risk Areas Recommended for Evaluation in the Feasibility Study RM 1.9 to RM 7 - FS Appx P Map 1a_wPEC_MQ.	440	1 CORR / Correspondence	R10: (Lower Willamette Group), R10: (Windward Environmental, LLC.)		ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100009458	3/12/2014	AOPCs from Map 1a Portland Harbor RI/FS Comprehensive Benthic Risk Areas Recommended for Evaluation in the Feasibility Study RM 1.9 to RM 7 - FS Appx P Map 1a_wPEC_MQ_extra layers off.	372	1 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100009459	3/12/2014	Map 1a Portland Harbor RI/FS Comprehensive Benthic Risk Areas Recommended for Evaluation in the Feasibility Study RM 1.9 to RM 7 - FS Appx P Map 1a_wPEL_MQ.	446	1 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100009460	3/12/2014	AOPCs from Map 1a Portland Harbor RI/FS Comprehensive Benthic Risk Areas Recommended for Evaluation in the Feasibility Study RM 1.9 to RM 7 - FS Appx P Map 1a_wPEL_MQ_extra layers off.	372	1 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100009461	3/12/2014	Map 1b Portland Harbor RI/FS Comprehensive Benthic Risk Areas Recommended for Evaluation in the Feasibility Study RM 7 to RM 11.8 - FS Appx P Map 1b_wPEC_MQ.	440	1 CORR / Correspondence	R10: (Lower Willamette Group), R10: (Windward Environmental, LLC.)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100009462	3/12/2014	AOPCs from Map 1b Portland Harbor RI/FS Comprehensive Benthic Risk Areas Recommended for Evaluation in the Feasibility Study RM 7 to RM 11.8 - FS Appx P Map 1b_wPEC_MQ_extra layers off.	382	1 CORR / Correspondence	R10: (Lower Willamette Group), R10: (Windward Environmental, LLC.)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100009463	3/12/2014	Map 1b Portland Harbor RI/FS Comprehensive Benthic Risk Areas Recommended for Evaluation in the Feasibility Study RM 7 to RM 11.8 - FS Appx P Map 1b_wPEL_MQ.	441	1 CORR / Correspondence	R10: (Lower Willamette Group), R10: (Windward Environmental, LLC.)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100009464	3/12/2014	AOPCs from Map 1b Portland Harbor RI/FS Comprehensive Benthic Risk Areas Recommended for Evaluation in the Feasibility Study RM 7 to RM 11.8 - FS Appx P Map 1b_wPEL_MQ_extra layers off.	383	1 CORR / Correspondence	R10: (Lower Willamette Group), R10: (Windward Environmental, LLC.)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100011662	3/13/2014	Email regarding the Benthic Risk Areas; LWG Action Items.	75	2 EML / Email	R10: Toll, John (Windward Environmental, LLC.)	R10: Shephard, Burt (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100009449	3/14/2014	Email regarding Portland Harbor Draft Final COCs.	42	1 EML / Email	R10: Koch, Kristine, M (EPA)	R10: Wyatt, Bob (Northwest Natural Gas Company), R10: Mckenna, Jim (Verdant Solutions, LLC)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100009450	3/14/2014	Final Portland Harbor COCs Table - 2014-03-14 Final PH COCs.	144	2 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100009452	3/14/2014	Email regarding Portland Harbor - Updated PRGs (not final).	46	1 EML / Email	R10: Koch, Kristine, M (EPA)	R10: Wyatt, Bob (Northwest Natural Gas Company), R10: Mckenna, Jim (Verdant Solutions, LLC)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100009453	3/14/2014	Final Portland Harbor PRGs Table - 2014-03-14 Final PH PRGs.	181	8 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100009454	3/14/2014	Portland Harbor Eco PRGs Table - 2014-03-14 Portland Harbor Eco PRGs.	149	5 CORR / Correspondence	R10: Koch, Kristine, M (EPA)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100015670	3/14/2014	REDACTED Email regarding Portland Harbor FS - Principal Threat Material and Oregon Hot Spots (Issue 3.5 and 3.6).	85	2 EML / Email	R10: Koch, Kristine, M (EPA)	R10: Humphrey, Chip (EPA), R10: Gainer, Tom (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100009455	3/17/2014	Email regarding Benthic Risk Areas; LWG Action Items.	59	3 EML / Email	R10: Humphrey, Chip (EPA)	R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality), R10: Gainer, Tom (Oregon Dept. of Environmental Quality), R10: Fricano, Gail (Industrial Economics, Inc.), R10: Dexter, Bob (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100009465	3/17/2014	Email regarding Portland Harbor - Updated PRGs (not final).	70	2 EML / Email	R10: Koch, Kristine, M (EPA)	R10: Wyatt, Robert, J (Northwest Natural Gas Company), R10: Mckenna, Jim (Verdant Solutions, LLC)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100009466	3/18/2014	Email regarding updated spreadsheet.	38	1 EML / Email	R10: Koch, Kristine, M (EPA)	R10: Wyatt, Bob (Northwest Natural Gas Company), R10: Mckenna, Jim (Verdant Solutions, LLC)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100007930	3/24/2014	PDefur Comments on FS - PDefur Comments on FS.	114	2 CORR / Correspondence	R10: Conley, Alanna (EPA)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100010327	3/25/2014	Key RALS by SDU - Key_RALS_by_SDU.	1,252	2 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100009470	3/27/2014	Portland Harbor Feasibility Study EPA LWG Meeting - Development of Sediment Decision Units - EPA_LWG_Meeting_20140327v3.	1,515	16 CORR / Correspondence	R10: King, Todd (CDM Smith)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100009991	3/27/2014	Map of SDUs with Key RALS designated - Sediment Decision Units - SDUs and Primary COCs.	421	1 CORR / Correspondence	R10: King, Todd (CDM Smith)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100009468	3/28/2014	Email regarding Status of Preparation for April 1 FS Technical Meeting.	71	1 EML / Email	R10: Koch, Kristine, M (EPA)	R10: Mckenna, James (Verdant Solutions, LLC)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100009469	3/28/2014	Email regarding Portland Harbor - EPA Presentation From March 27 Meeting.	104	1 EML / Email	R10: Koch, Kristine, M (EPA)	R10: Humphrey, Chip (EPA), R10: Woronets, Jennifer (Anchor QEA, LLC)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100009471	4/4/2014	Email regarding Comprehensive benthic approach thoughts and recommendations for the FS.	59	2 EML / Email	R10: Shephard, Burt (EPA)	R10: Toll, John (Windward Environmental, LLC.)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)



100009472	4/4/2014	Email regarding Principle Threat Material Memo.	50	1 EML / Email	R10: Sheldrake, Sean, A (EPA)	R10: Angle, Genevieve (NOAA), R10: Buck, Jeremy (U. S. Fish and Wildlife Service), R10: Madden, Erin (Unknown), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Cunninghame, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Ridolfi, Callie (Ridolfi Engineers, Inc.), R10: Downey, Tom (Confederated Tribes of the Siletz Indians), R10: Karnosh, Michael (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Liverman, Alex (Oregon Dept. of Environmental Quality), R10: Fricano, Gail (Industrial Economics, Inc.), R10: Kassakian, Jen (Industrial Economics, Inc.), R10: Delvecchio, Rachel (Industrial Economics, Inc.), R10: Callahan, Kristin (Ridolfi, Inc.), R10: Humphreys, Brandy (Grand Ronde Tribe), R10: Longoria, Rose (Yakama Nation), R10: Peterson, Lance, E (CDM Smith), R10: Weis, Julie (Haglund Kelley Jones & Wilder LLP), R10: Williams, Jd (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100010568	4/4/2014	Email regarding comprehensive benthic approach thoughts and recommendations for the FS.	55	2 EML / Email	R10: Shephard, Burt (EPA)	R10: Toll, John (Windward Environmental, LLC.)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100011769	4/4/2014	Email regarding the EPA recommendations for the comprehensive benthic approach in the Portland Harbor FS.	71	2 EML / Email	R10: Toll, John (Windward Environmental, LLC.)	R10: Shephard, Burt (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100009537	4/8/2014	Memorandum regarding Comments on the Memorandum: Identification of Principal Threat Waste at the Portland Harbor Superfund Site - 140408_Principal_Threat_Wastes_Comments.	282	2 CORR / Correspondence	R10: Dexter, Bob (Unknown)	R10: Longoria, Rose (Yakama Nation)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100007929	4/9/2014	Email regarding EPA discussion with CAG on DeFur comments on FS.	21	1 EML / Email	R10: Conley, Alanna (EPA)	R10: Sheldrake, Sean, A (EPA), R10: Cora, Lori, H (EPA), R10: Koch, Kristine, M (EPA), R10: Muza, Richard (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100009475	4/9/2014	Email regarding DEQ comments on draft PTW determination.	41	1 EML / Email	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	R10: Sheldrake, Sean, A (EPA), R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100009477	4/9/2014	Memorandum regarding Comments on CDM Memo: Identification of Principal Threat Waste at the Portland Harbor Superfund Site - Five Tribe Comments on EPA PTW memo 9April2014.	27	2 CORR / Correspondence	R10: Fricano, Gail (Industrial Economics, Inc.)	R10: Sheldrake, Sean, A (EPA), R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100009478	4/9/2014	Email regarding EPA Draft Principle Threat Memo/DEQ Hot Spots.	70	1 EML / Email	R10: Sheldrake, Sean, A (EPA)	R10: Koch, Kristine, M (EPA), R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100009480	4/9/2014	Portland Harbor Technology Maps - PH_Technology_rd.	4,603	10 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100009481	4/9/2014	Email regarding April 15 FS Technical Meeting; Status of PTM and Oregon Hot Spot information.	73	2 EML / Email	R10: Koch, Kristine, M (EPA)	R10: McKenna, James (Verdant Solutions, LLC)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100009500	4/9/2014	Development of cPAH PRG for shellfish and fish consumption (RAO 2) - 2014-04-11	81	2 CORR / Correspondence	R10: Koch, Kristine, M (EPA)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100015696	4/9/2014	REDACTED Email regarding Five Tribe comments on CDM principal threat waste memo.	76	2 EML / Email	R10: Fricano, Gail (Industrial Economics, Inc.)	R10: Sheldrake, Sean, A (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100009482	4/11/2014	Email regarding PTW Memo.	44	1 EML / Email	R10: Sheldrake, Sean, A (EPA)	R10: Wyatt, Bob (Northwest Natural Gas Company), R10: McKenna, Jim (Verdant Solutions, LLC)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100009484	4/11/2014	Email regarding Principle Threat Material Memo.	110	4 EML / Email	R10: Koch, Kristine, M (EPA)	R10: Sheldrake, Sean, A (EPA), R10: McClincy, Matt (Oregon Dept. of Environmental Quality), R10: Gainer, Tom (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100009499	4/11/2014	Email regarding Portland Harbor COCs and PRGs.	52	1 EML / Email	R10: Koch, Kristine, M (EPA)	R10: Wyatt, Bob (Northwest Natural Gas Company), R10: McKenna, Jim (Verdant Solutions, LLC)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100009501	4/11/2014	Portland Harbor Final COCs - 2014-04-11 Final PH COCs.	149	2 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100009502	4/11/2014	Portland Harbor Final PRGs Table - 2014-04-11 Final PH PRGs.	178	8 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100009533	4/11/2014	Portland Harbor Eco PRGs Table - 2014-04-11 Portland Harbor Eco PRGs.	180	8 CORR / Correspondence	R10: Koch, Kristine, M (EPA)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100009534	4/11/2014	Portland Harbor HH PRGs Table - 2014-04-11 Portland Harbor HH PRGs.	147	4 CORR / Correspondence	R10: Allen, Elizabeth (EPA)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100009535	4/14/2014	Email regarding Oregon Hot Spots.	45	1 EML / Email	R10: Gainer, Tom (Oregon Dept. of Environmental Quality)	R10: Wyatt, Bob (Northwest Natural Gas Company), R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100009536	4/14/2014	Email regarding Review of the EPA draft memo on identifying principal waste threats.	115	2 EML / Email	R10: Sheldrake, Sean, A (EPA)	R10: Koch, Kristine, M (EPA), R10: Longoria, Rose (Yakama Nation)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100009538	4/18/2014	Email regarding Portland Harbor - Spatial scales for sediment PRGs.	88	2 EML / Email	R10: Koch, Kristine, M (EPA)	R10: Wyatt, Bob (Northwest Natural Gas Company), R10: McKenna, Jim (Verdant Solutions, LLC)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100009539	4/22/2014	Email regarding New Eco PRG.	40	1 EML / Email	R10: Koch, Kristine, M (EPA)	R10: Gainer, Tom (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100009473	4/23/2014	DRAFT List of Unresolved COC and PRG Issues - Draft List of PRG Outstanding Issues 042314 .	199	5 CORR / Correspondence	R10: (Lower Willamette Group)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100009542	4/24/2014	Email regarding Portland Harbor - List of PRG Outstanding Issues.	108	2 EML / Email	R10: Koch, Kristine, M (EPA)	R10: Angle, Genevieve (NOAA), R10: Buck, Jeremy (U. S. Fish and Wildlife Service), R10: Madden, Erin (Unknown), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Cunninghame, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Ridolfi, Callie (Ridolfi Engineers, Inc.), R10: Downey, Tom (Confederated Tribes of the Siletz Indians), R10: Partridge, Holly (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Karnosh, Michael (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Liverman, Alex (Oregon Dept. of Environmental Quality), R10: Fricano, Gail (Industrial Economics, Inc.), R10: Delvecchio, Rachel (Industrial Economics, Inc.), R10: Penoyar, Susan, J (CDM), R10: Longoria, Rose (Yakama Nation), R10: Johnson, Matt (WilliamsJohnson), R10: Weis, Julie (Haglund Kelley Jones & Wilder LLP), R10: Williams, Jd (Unknown), R10: Dexter, Bob (Unknown), R10: Sudbury, Ryan	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)

100015385	4/25/2014	REDACTED Email regarding Portland Harbor TCT Agenda for 4/30.	53	2 EML / Email	R10: Koch, Kristine, M (EPA)	R10: Angle, Genevieve (NOAA), R10: Buck, Jeremy (U. S. Fish and Wildlife Service), R10: Madden, Erin (Unknown), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Cunninghame, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Ridolfi, Callie (Ridolfi Engineers, Inc.), R10: Downey, Tom (Confederated Tribes of the Siletz Indians), R10: Partridge, Holly (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Karnosh, Michael (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Liverman, Alex (Oregon Dept. of Environmental Quality), R10: Johnson, Matt (Unknown), R10: Fricano, Gail (Industrial Economics, Inc.), R10: Delvecchio, Rachel (Industrial Economics, Inc.), R10: Sudbury, Ryan (Grand Ronde Tribe), R10: Penoyar, Susan, J (CDM), R10: Longoria, Rose (Yakama Nation), R10: King, Todd (CDM Smith), R10: Weis, Julie (Haglund Kelley Jones & Wilder LLP), R10: Williams, Jd (Unknown), R10: Dexter, Bob (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100009545	4/30/2014	Draft LWG Suggestions for Revisions to EPA's Technology Screening Approach - Suggestions for Technology Screening Revisions Draft 050214r.	136	5 CORR / Correspondence	R10: (Lower Willamette Group)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100009544	5/2/2014	Email regarding Suggestions for Technology Screening Revisions Draft.	129	2 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100017221	5/2/2014	REDACTED Email regarding Upcoming FS meetings.	52	1 EML / Email	R10: Koch, Kristine, M (EPA)	R10: Mckenna, Jim (Unknown), R10: Wyatt, Bob (Northwest Natural Gas Company), R10: Stivers, Carl (Anchor QEA, LLC)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100017257	5/2/2014	REDACTED Email regarding Portland Harbor Schedules.	57	2 EML / Email	R10: Koch, Kristine, M (EPA)	Genevieve (NOAA), R10: Neeley, Robert (NOAA), R10: Buck, Jeremy (U. S. Fish and Wildlife Service), R10: Madden, Erin (Unknown), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Cunninghame, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Ridolfi, Callie (Ridolfi Engineers, Inc.), R10: Downey, Tom (Confederated Tribes of the Siletz Indians), R10: Partridge, Holly (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Karnosh, Michael (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Sheldrake, Sean, A (EPA), R10: Fuentes, Rene, C (EPA), R10: Shephard, Burt (EPA), R10: Allen, Elizabeth (EPA), R10: Liverman, Alex (Oregon Dept. of Environmental Quality), R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality), R10: McClincy, Matt (Oregon Dept. of Environmental Quality), R10: Poulsen, Mike (Oregon Dept. of Environmental Quality), R10: Gainer, Tom (Oregon Dept. of Environmental Quality), R10: Muza, Richard (EPA Region 10), R10: Fricano, Gail (Industrial Economics, Inc.), R10: Delvecchio, Rachel (Industrial Economics, Inc.), R10: Sudbury, Ryan (Grand Ronde Tribe), R10: Penoyar, Susan, J (CDM), R10: Longoria, Rose (Yakama Nation), R10: King, Todd (CDM Smith), R10: Johnson, Matt (WilliamsJohnson), R10: Weis, Julie (Haglund Kelley Jones &	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100009546	5/7/2014	Email regarding Portland Harbor COCs and PRGs.	76	2 EML / Email	R10: Gainer, Tom (Oregon Dept. of Environmental Quality)	R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100009548	5/7/2014	Sediment Remediation: A Case Study of Residual-Driven Volume Expansion and Project Risk - Hylebos Sediment Remediation Volume Expansion .	339	9 CORR / Correspondence	R10: Parkinson, Stephen, T (Unknown), R10: Wolf, Frederick (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100015416	5/7/2014	REDACTED Email regarding Portland Harbor FS - Volume Estimates and Dredge Depth Assumptions.	68	1 EML / Email	R10: Wolf, Fred (Total)	R10: Livesay, Dave (CH2M Hill, Inc.), R10: Cox, Kim, E (City of Portland, Oregon), R10: Slater, Todd (Unknown), R10: Shellenberger, Amanda (Anchor Environmental, LLC), R10: Wyatt, Bob (Northwest Natural Gas Company), R10: Stivers, Carl (Anchor QEA, LLC), R10: Woronets, Jennifer (Anchor QEA, LLC), R10: Verduin, John (Anchor QEA, LLC), R10: Penoyar, Susan, J (CDM), R10: Lewis, Mark, C (Formation Environmental, LLC), R10: Peterson, Lance, E (CDM Smith), R10: Blischke, Eric (CDM Smith), R10: King, Todd (CDM Smith), R10: Madalinski, Kelly (Unknown), R10: Mckenna, Jim (Verdant Solutions, LLC)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100017284	5/9/2014	REDACTED Email regarding Portland Harbor TCT Agenda - 5/14.	53	2 EML / Email	R10: Koch, Kristine, M (EPA)	Genevieve (NOAA), R10: Neeley, Robert (NOAA), R10: Buck, Jeremy (U. S. Fish and Wildlife Service), R10: Madden, Erin (Unknown), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Cunninghame, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Ridolfi, Callie (Ridolfi Engineers, Inc.), R10: Downey, Tom (Confederated Tribes of the Siletz Indians), R10: Partridge, Holly (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Karnosh, Michael (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Sheldrake, Sean, A (EPA), R10: Fuentes, Rene, C (EPA), R10: Conley, Alanna (EPA), R10: Shephard, Burt (EPA), R10: Allen, Elizabeth (EPA), R10: Liverman, Alex (Oregon Dept. of Environmental Quality), R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality), R10: McClincy, Matt (Oregon Dept. of Environmental Quality), R10: Poulsen, Mike (Oregon Dept. of Environmental Quality), R10: Gainer, Tom (Oregon Dept. of Environmental Quality), R10: Muza, Richard (EPA Region 10), R10: Fricano, Gail (Industrial Economics, Inc.), R10: Delvecchio, Rachel (Industrial Economics, Inc.), R10: Sudbury, Ryan (Grand Ronde Tribe), R10: Penoyar, Susan, J (CDM), R10: Longoria, Rose (Yakama Nation), R10: King, Todd (CDM Smith), R10: Johnson, Matt (WilliamsJohnson),	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100009551	5/14/2014	Confined Disposal Facility Analysis Action Items from May 8, 2014 EPA/LWG Technical Feasibility Study Meeting - CDF Follow Up Information 051414.	34	4 CORR / Correspondence	R10: (Lower Willamette Group)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)

100009549	5/15/2014	Email regarding Portland Harbor - Action Items From May 8 FS Technical Meeting.	196	3 EML / Email	R10: Shephard, Burt (EPA)	R10: Angle, Genevieve (NOAA), R10: Buck, Jeremy (U. S. Fish and Wildlife Service), R10: Madden, Erin (Unknown), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Cunninghame, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Ridolfi, Callie (Ridolfi Engineers, Inc.), R10: Downey, Tom (Confederated Tribes of the Siletz Indians), R10: Partridge, Holly (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Karnosh, Michael (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Liverman, Alex (Oregon Dept. of Environmental Quality), R10: Fricano, Gail (Industrial Economics, Inc.), R10: Delvecchio, Rachel (Industrial Economics, Inc.), R10: Sudbury, Ryan (Grand Ronde Tribe), R10: Penoyar, Susan, J (CDM), R10: Longoria, Rose (Yakama Nation), R10: King, Todd (CDM Smith), R10: Johnson, Matt (WilliamsJohnson), R10: Williams, Jd (Unknown), R10: Dexter, Bob (Unknown), R10: Weis, Julie (Haglund Kelley, LLP)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100009550	5/15/2014	Email regarding LWG Action Items on T4 CDF Information.	139	3 EML / Email	R10: Sheldrake, Sean, A (EPA)	R10: Koch, Kristine, M (EPA), R10: Woronets, Jennifer (Anchor QEA, LLC)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100009552	5/16/2014	Email regarding Portland Harbor - Action Items From May 8 FS Technical Meeting.	196	3 EML / Email	R10: Dexter, Robert (Ridolfi, Inc.)	R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100009553	5/20/2014	Email regarding Portland Harbor - shallow definition.	59	2 EML / Email	R10: Parrett, Kevin (Oregon Dept. of Environmental Quality)	R10: Koch, Kristine, M (EPA), R10: Gainer, Tom (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100009554	5/21/2014	Email regarding Portland Harbor ARARs.	89	2 EML / Email	R10: Koch, Kristine, M (EPA)	R10: Gainer, Tom (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100009563	5/21/2014	Email regarding Portland Harbor - Dredge Depths.	42	1 EML / Email	R10: Koch, Kristine, M (EPA)	R10: Wyatt, Bob (Northwest Natural Gas Company), R10: Mckenna, James (Verdant Solutions, LLC)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100009566	5/21/2014	Constructability Review of EPA Preferred Technology Areas - Constructability Review 5-21-14.	1,693	11 CORR / Correspondence	R10: (Lower Willamette Group)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100009565	5/23/2014	Email regarding Revised FS Discussions Action Item - Constructability Review Technology Assignments.	128	2 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100009704	5/27/2014	Figure 1a-k Portland Harbor RI/FS Draft Feasibility Study EPA Preferred Technology Analysis - AQ_EPAScoring_PreferredTech_Mapbook.	7,255	11 CORR / Correspondence	R10: (Lower Willamette Group), R10: (Anchor QEA, LLC)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100015389	5/27/2014	REDACTED Email regarding New Package Is Waiting.	53	1 EML / Email	R10: King, Todd (CDM Smith)	R10: Shellenberger, Amanda (Anchor Environmental, LLC)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100009703	5/28/2014	Email regarding SubSMA Technology Assignments Map with Bathymetry Added.	182	2 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100017346	5/28/2014	REDACTED Email regarding Portland Harbor TCT Agenda for Today.	54	2 EML / Email	R10: Koch, Kristine, M (EPA)	R10: Angle, Genevieve (NOAA), R10: Buck, Jeremy (U. S. Fish and Wildlife Service), R10: Madden, Erin (Unknown), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Cunninghame, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Ridolfi, Callie (Ridolfi Engineers, Inc.), R10: Downey, Tom (Confederated Tribes of the Siletz Indians), R10: Partridge, Holly (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Karnosh, Michael (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Sheldrake, Sean, A (EPA), R10: Fuentes, Rene, C (EPA), R10: Conley, Alanna (EPA), R10: Shephard, Burt (EPA), R10: Allen, Elizabeth (EPA), R10: Liverman, Alex (Oregon Dept. of Environmental Quality), R10: McClincy, Matt (Oregon Dept. of Environmental Quality), R10: Poulsen, Mike (Oregon Dept. of Environmental Quality), R10: Muza, Richard (EPA Region 10), R10: Fricano, Gail (Industrial Economics, Inc.), R10: Delvecchio, Rachel (Industrial Economics, Inc.), R10: Sudbury, Ryan (Grand Ronde Tribe), R10: Penoyar, Susan, J (CDM), R10: Longoria, Rose (Yakama Nation), R10: King, Todd (CDM Smith), R10: Johnson, Matt (WilliamsJohnson), R10: Weis, Julie (Haglund Kelley Jones & Wilder LLP), R10: Williams, Jd (Unknown), R10: Dexter, Bob (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100009705	5/30/2014	Email regarding Replacement Value Suggestion to EPA.	143	3 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100009708	5/30/2014	Figure 1a-i Portland Harbor RI/FS Draft Feasibility Study EPA Preferred Technology Analysis Cross Section Location SMA 1A - Example Plan View EPA Tech Assign 060214.	1,475	9 CORR / Correspondence	R10: (Lower Willamette Group), R10: (Anchor QEA, LLC)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100009706	6/2/2014	Email regarding Example Cross Sections EPA's Technology Assignments.	132	2 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100009707	6/2/2014	Figure 2a-i Portland Harbor RI/FS Draft Feasibility Study EPA Preferred Technology Analysis Conceptual Cross Section A-A' - SMA 1 - Example Cross Sections EPA Tech Assign 060214.	1,286	9 CORR / Correspondence	R10: (Lower Willamette Group), R10: (Anchor QEA, LLC)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100009709	6/2/2014	Email regarding Action Item 3 - Two Layer Map Draft FS and EPA SMAs.	184	2 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100009710	6/2/2014	Figures 1-5 Portland Harbor RI/FS Comparison of Overall Draft FS Alternative - AQ_RALonlyComparison_20140530.	3,472	5 CORR / Correspondence	R10: (Lower Willamette Group), R10: (Anchor QEA, LLC)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100009711	6/4/2014	Email regarding Comparison of EPA and Draft FS SMA approaches.	129	2 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100009712	6/4/2014	Portland Harbor RI/FS Table 1: Overall Summary by Sediment Management Area Changes Based on Draft FS and EPA RALS - Comparison of RAL SMA Areas EPA vs DraftFS 060314.	43	3 CORR / Correspondence	R10: (Lower Willamette Group)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100009713	6/4/2014	Portland Harbor RI/FS Table 1: Overall Summary by Sediment Management Area Changes Based on Draft FS and EPA RALS - Comparison of RAL SMA Areas EPA vs DraftFS 060314.	65	3 CORR / Correspondence	R10: (Lower Willamette Group)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100009714	6/9/2014	Email regarding Current EPA Optimized Technology Assignments.	45	1 EML / Email	R10: King, Todd (CDM Smith)	R10: Shellenberger, Amanda (Anchor Environmental, LLC), R10: Stivers, Carl (Anchor QEA, LLC), R10: Woronets, Jennifer (Anchor QEA, LLC)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)

100009716	Portland Harbor Final COCs Table - 2014-06-09 6/9/2014 Final PH COCs.	152	2 CORR / Correspondence	R10: Koch, Kristine, M (EPA)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)	
100009715	Email regarding Latest version of the COC 6/10/2014 table.	41	1 EML / Email	R10: Koch, Kristine, M (EPA)	R10: Wyatt, Bob (Northwest Natural Gas Company), R10: Mckenna, Jim (Verdant Solutions, LLC)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)	
100017413	REDACTED Email regarding June 11, 2014 TCT 6/10/2014 Agenda.	58	2 EML / Email	R10: Koch, Kristine, M (EPA)	R10: Angle, Genevieve (NOAA), R10: Buck, Jeremy (U. S. Fish and Wildlife Service), R10: Madden, Erin (Unknown), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Cunninghame, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Ridolfi, Callie (Ridolfi Engineers, Inc.), R10: Downey, Tom (Confederated Tribes of the Siletz Indians), R10: Partridge, Holly (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Karnosh, Michael (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Sheldrake, Sean, A (EPA), R10: Fuentes, Rene, C (EPA), R10: Conley, Alanna (EPA), R10: Shepherd, Burt (EPA), R10: Allen, Elizabeth (EPA), R10: Liverman, Alex (Oregon Dept. of Environmental Quality), R10: Muza, Richard (EPA Region 10), R10: Fricano, Gail (Industrial Economics, Inc.), R10: Delvecchio, Rachel (Industrial Economics, Inc.), R10: Sudbury, Ryan (Grand Ronde Tribe), R10: Penoyar, Susan, J (CDM), R10: Longoria, Rose (Yakama Nation), R10: King, Todd (CDM Smith), R10: Johnson, Matt (WilliamsJohnson), R10: Weis, Julie (Haglund Kelley Jones & Wilder LLP), R10: Williams, Jd (Unknown), R10: Dexter, Bob (Unknown)	R10: Mclincly, Matt (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100009717	6/12/2014 Email regarding GIS Layer for SDUs.	51	1 EML / Email	R10: King, Todd (CDM Smith)		ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)	
100017397	REDACTED Email regarding Portland Harbor FS 6/16/2014 Appendix A - Derivation of Risk-based PRGs.	51	1 EML / Email	R10: Koch, Kristine, M (EPA)	R10: Angle, Genevieve (NOAA), R10: Buck, Jeremy (U. S. Fish and Wildlife Service), R10: Madden, Erin (Unknown), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Cunninghame, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Ridolfi, Callie (Ridolfi Engineers, Inc.), R10: Downey, Tom (Confederated Tribes of the Siletz Indians), R10: Partridge, Holly (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Karnosh, Michael (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Fuentes, Rene, C (EPA), R10: Conley, Alanna (EPA), R10: Allen, Elizabeth (EPA), R10: Liverman, Alex (Oregon Dept. of Environmental Quality), R10: Muza, Richard (EPA Region 10), R10: Fricano, Gail (Industrial Economics, Inc.), R10: Delvecchio, Rachel (Industrial Economics, Inc.), R10: Sudbury, Ryan (Grand Ronde Tribe), R10: Penoyar, Susan, J (CDM), R10: Longoria, Rose (Yakama Nation), R10: King, Todd (CDM Smith), R10: Johnson, Matt (WilliamsJohnson), R10: Weis, Julie (Haglund Kelley Jones & Wilder LLP), R10: Williams, Jd (Unknown), R10: Dexter, Bob (Unknown)		ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100009718	6/17/2014 Email regarding Dredging.	42	1 EML / Email	R10: Koch, Kristine, M (EPA)	R10: Mckenna, Jim (Verdant Solutions, LLC)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)	
100009719	Email regarding Comparison of EPA and Draft 6/17/2014 FS SMA approaches.	184	2 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Sheldrake, Sean, A (EPA), R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)	
100009720	Portland Harbor RI/FS Table 1. Acreages Added, Removed, or Unchanged by EPA's RAL Maps as Compared to Draft FS RAL Maps by Cause - 6/17/2014 ComparisonOfAllISMAPParameters_EPAvsFS_17 Jun14.	96	3 CORR / Correspondence	R10: (Lower Willamette Group)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)	
100009721	Email regarding Five Tribe FS Section 1 6/19/2014 comments.	44	1 EML / Email	R10: Fricano, Gail (Industrial Economics, Inc.)	R10: Sheldrake, Sean, A (EPA), R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)	
100009724	Memorandum regarding Comments on Draft 6/20/2014 Introduction to the Portland Harbor Feasibility Study - 140620 Draft FS Introduction. Figures 1a-2i Portland Harbor RI/FS Draft Feasibility Study EPA Preferred Technology Analysis - Figure Set 1 and 2 EPA Technology Screening 7-2-2014.	141	2 CORR / Correspondence	R10: Dexter, Bob (Ridolfi, Inc.)	R10: Longoria, Rose (Yakama Nation)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)	
100009733	Email regarding Comments on draft FS 6/23/2014 Introduction.	4,993	21 CORR / Correspondence	R10: (Lower Willamette Group), R10: (Anchor QEA, LLC)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)	
100009723	Email regarding Revisions to Portland Harbor 6/26/2014 FS Section 1.	53	1 EML / Email	R10: Gainer, Tom (Oregon Dept. of Environmental Quality)	R10: Sheldrake, Sean, A (EPA), R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)	
100009727	Email regarding CDF Analysis of Action Items 6/26/2014 from June 16, 2014 EPA/LWG Call. CDF Analysis Action Items from June 16, 2014 EPA/LWG Call - June 16 2014 CDF Follow Up_2014-06-26.	135	2 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Sheldrake, Sean, A (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)	
100009728	6/26/2014 Email regarding the upcoming CAG meeting.	140	7 CORR / Correspondence	R10: (Lower Willamette Group)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)	
100010576	6/26/2014 Email regarding the upcoming CAG meeting.	48	1 EML / Email	R10: Shepherd, Burt (EPA)	R10: Toll, John (Windward Environmental, LLC.)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)	
100011941	6/26/2014 Email regarding the Upcoming CAG meeting.	62	2 EML / Email	R10: Toll, John (Windward Environmental, LLC.)	R10: Shepherd, Burt (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)	
100015733	REDACTED Email regarding the big picture 6/26/2014 benthic ecorisk issues.	30	1 EML / Email	R10: Shepherd, Burt (EPA)	R10: Toll, John (Windward Environmental, LLC.)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)	
100009741	7/1/2014 RAL Conversion Graphs - RALconversions.	108	1 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)	
100011958	7/1/2014 Email regarding the Upcoming CAG meeting.	66	2 EML / Email	R10: Toll, John (Windward Environmental, LLC.)	R10: Shepherd, Burt (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)	
100009729	Email regarding Updated Technology 7/3/2014 Screening Maps, Cross Sections, and Depth of Impact Maps.	199	3 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)	
100009730	Figures 1-1-11 Portland Harbor RI/FS Removal Depths And Threshold Exceedances - 7/3/2014 AQ_DepthOfImpact_SMA01.	1,221	11 CORR / Correspondence	R10: (Lower Willamette Group), R10: (Anchor QEA, LLC)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)	



100009731	7/3/2014	Figure 1-1-11 Portland Harbor RI/FS Removal Depths And Threshold Exceedances - AQ_DepthOfImpact_SMA09U.	1,297	11 CORR / Correspondence	R10: (Lower Willamette Group), R10: (Anchor QEA, LLC)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100009732	7/3/2014	Figures 1-1-11 Portland Harbor RI/FS Removal Depths And Threshold Exceedances - AQ_DepthOfImpact_SMA14.	1,821	11 CORR / Correspondence	R10: (Lower Willamette Group), R10: (Anchor QEA, LLC)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100011959	7/3/2014	Email regarding the FS meeting next week - preview of Portland Harbor BERA presentation to CAG next week.	61	1 EML / Email	R10: Toll, John (Windward Environmental, LLC.)	R10: Shephard, Burt (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100009734	7/7/2014	Email regarding Latest draft of the Portland Harbor Superfund Site ARARs.	126	2 EML / Email	R10: Yamamoto, Deb (EPA)	R10: Johnson, Keith (Oregon Dept. of Environmental Quality), R10: Parrett, Kevin (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100009735	7/7/2014	Portland Harbor Table 2.2-4 ARARs - Copy of Table 2.2-4_ARARs_2014-07-01 (2).	167	16 CORR / Correspondence	R10: (CDM Smith)		ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100009736	7/8/2014	Email regarding Portland Harbor FS Section 1.	44	1 EML / Email	R10: Koch, Kristine, M (EPA)	R10: Wyatt, Bob (Northwest Natural Gas Company), R10: Mckenna, Jim (Verdant Solutions, LLC)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100009737	7/8/2014	Letter regarding Modifications to the Feasibility Study Report (Section 1) dated March 30, 2012 - 2014-07-08 EPA Comment Letter on 2012 FS Report Section 1.	525	2 CORR / Correspondence	R10: Koch, Kristine, M (EPA)	R10: Wyatt, Bob (Northwest Natural Gas Company)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100009739	7/8/2014	Portland Harbor RI/FS Draft Feasibility Study Report Section 1 - 2014-07-08 Portland Harbor FS Section 1.	328	26 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100009740	7/8/2014	Email regarding Total PAH RAL Curves from FS database.	49	1 EML / Email	R10: Koch, Kristine, M (EPA)	R10: Wyatt, Bob (Northwest Natural Gas Company), R10: Mckenna, Jim (Verdant Solutions, LLC)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100009745	7/8/2014	Feasibility Study Appendix A - Ecological Risk Based Threshold (RBT) Derivation - RBT Derivation_TG_jk_rev3 - 5Tribes comments 10July2014.	247	6 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100009990	7/8/2014	Reach Q Segment 2 Map and Graphs - BuriedDeposit_Depiction.	1,147	1 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100010436	7/8/2014	Email regarding Total PAH RAL Curves from FS database.	70	2 EML / Email	R10: Koch, Kristine, M (EPA)	R10: Angle, Genevieve (NOAA), R10: Madden, Erin (Unknown), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Cunninghame, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Ridolfi, Callie (Ridolfi Engineers, Inc.), R10: Downey, Tom (Confederated Tribes of the Siletz Indians), R10: Partridge, Holly (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Karnosh, Michael (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Liverman, Alex (Oregon Dept. of Environmental Quality), R10: Fricano, Gail (Industrial Economics, Inc.), R10: Delvecchio, Rachel (Industrial Economics, Inc.), R10: Sudbury, Ryan (Grand Ronde Tribe), R10: Longoria, Rose (Yakama Nation), R10: Coffey, Scott (CDM Smith), R10: King, Todd (CDM Smith), R10: Johnson, Matt (WilliamsJohnson), R10: Hagerman, Paul (Unknown), R10: Williams, Jd (Unknown), R10: Weis, Julie (Haglund Kelley, LLP), R10: Dexter, Bob (Ridolfi, Inc.), R10: Buck, Jeremy (U. S. Fish & Wildlife Service)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100010593	7/8/2014	Email regarding the FS meeting next week - preview of Portland Harbor BERA presentation to CAG next week.	96	4 EML / Email	R10: Shephard, Burt (EPA)	R10: Toll, John (Windward Environmental, LLC.)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100017417	7/8/2014	REDACTED Email regarding Portland Harbor TCT Agenda for July 9.	54	2 EML / Email	R10: Koch, Kristine, M (EPA)	R10: Angle, Genevieve (NOAA), R10: Buck, Jeremy (U. S. Fish and Wildlife Service), R10: Madden, Erin (Unknown), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Cunninghame, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Ridolfi, Callie (Ridolfi Engineers, Inc.), R10: Downey, Tom (Confederated Tribes of the Siletz Indians), R10: Partridge, Holly (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Karnosh, Michael (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Sheldrake, Sean, A (EPA), R10: Fuentes, Rene, C (EPA), R10: Conley, Alanna (EPA), R10: Shephard, Burt (EPA), R10: Allen, Elizabeth (EPA), R10: Liverman, Alex (Oregon Dept. of Environmental Quality), R10: Muza, Richard (EPA Region 10), R10: Fricano, Gail (Industrial Economics, Inc.), R10: Delvecchio, Rachel (Industrial Economics, Inc.), R10: Sudbury, Ryan (Grand Ronde Tribe), R10: Longoria, Rose (Yakama Nation), R10: Coffey, Scott (CDM Smith), R10: King, Todd (CDM Smith), R10: Johnson, Matt (WilliamsJohnson), R10: Weis, Julie (Haglund Kelley Jones & Wilder LLP), R10: Hagerman, Paul (Unknown), R10: Williams, Jd (Unknown), R10: Dexter, Bob (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100009981	7/9/2014	Draft LWG Responses to EPA's Proposed Dredge Depth Approach for the Revised Feasibility Study - Responses to EPA's Draft Dredge Depth Memo_070914.	466	10 CORR / Correspondence	R10: (Lower Willamette Group)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100017500	7/9/2014	REDACTED Email regarding CAG questions about sturgeon sampling.	114	5 EML / Email	R10: Toll, John (Windward Environmental, LLC.)	R10: Conley, Alanna (EPA), R10: Shephard, Burt (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100009742	7/10/2014	Email regarding 5 Tribe review of FS Appendix A - PRG development.	51	1 EML / Email	R10: Fricano, Gail (Industrial Economics, Inc.)	R10: Sheldrake, Sean, A (EPA), R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100009743	7/10/2014	Tribal Comments on Appendix A1 - Appendix A1 - 5Tribes comments 10July2014.	285	9 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100009744	7/10/2014	Technical memorandum regarding Review of draft of Portland Harbor Feasibility Study Appendix A - Derivation of Risk-Based PRGs, June 16, 2014 - FS Appendix A 5Tribes comments 10July2014.	142	2 CORR / Correspondence	R10: Jacobs, Bruce (Hydro Analysis), R10: Shanahan, Peter (Hydro Analysis)	R10: Sheldrake, Sean, A (EPA), R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100009746	7/10/2014	Email regarding Response to EPA's Questions about Transload and Disposal Options.	127	2 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Sheldrake, Sean, A (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100009747	7/10/2014	EPA Requested Information on Off-Site Transload and Barge Transport Costs - Response_to_EPA_Trans-Disposal_Questions 071014.	30	2 CORR / Correspondence	R10: (Lower Willamette Group)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100009980	7/10/2014	Email regarding Responses to EPA Dredge Depth Memo.	88	1 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)

100010092	Portland Harbor RI/FS Draft Feasibility Study Report Section 2 - Portland Harbor FS Section 2_5Tribe comments 2014-08-27.	630	58 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100010112	Portland Harbor RI/FS Draft Feasibility Study Report Section 2 - Portland Harbor FS Section 2-DEQ Comments.	500	58 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100011612	Portland Harbor Sediment Equilibrium Estimates for the Revised Feasibility Study Figures 1-5 - 2014-08-07_Equilibrium Estimates Memo Figures.	4,917	5 CORR / Correspondence	R10: (Lower Willamette Group), R10: (Anchor QEA, LLC)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100015044	REDACTED Email regarding Portland Harbor PRG DDX Problem.	143	3 EML / Email	R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)	R10: Shephard, Burt (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100015055	REDACTED Email regarding Portland Harbor PRG DDX Problem.	157	5 EML / Email	R10: Shephard, Burt (EPA)	R10: Koch, Kristine, M (EPA), R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100015056	REDACTED Email regarding Portland Harbor PRG DDX Problem.	150	5 EML / Email	R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)	R10: Koch, Kristine, M (EPA), R10: Shephard, Burt (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100009985	Email regarding LWG Comments on Revised FS Section 2.	123	3 EML / Email	R10: Koch, Kristine, M (EPA)	R10: Mcclincy, Matt (Oregon Dept. of Environmental Quality), R10: Gainer, Tom (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100009986	Email regarding LWG Comments on Revised FS Section 2.	119	2 EML / Email	R10: Koch, Kristine, M (EPA)	R10: Gainer, Tom (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100009987	Email regarding LWG Comments on Revised FS Section 2.	122	3 EML / Email	R10: Mcclincy, Matt (Oregon Dept. of Environmental Quality)	R10: Koch, Kristine, M (EPA), R10: Gainer, Tom (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100009988	Email regarding Draft FS Revision Process; Updated Matrix Table and Action Items List for 11-July-14.	142	3 EML / Email	R10: Shephard, Burt (EPA)	R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100009989	Email regarding Portland Harbor FS: Depth of Impact - Work Product Request. Feasibility Study Appendix A2 - Ecological Risk Based Preliminary Remediation Goal (PRG) Derivation - Appendix A2 BKS revision	47	1 EML / Email	R10: Koch, Kristine, M (EPA)	R10: Wyatt, Bob (Northwest Natural Gas Company), R10: Stivers, Carl (Anchor QEA, LLC), R10: Mckenna, Jim (Verdant Solutions, LLC)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100010097	071514_5Tribe comments 8.27.2014.	374	12 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100009992	Email regarding Some follow up on the DDE sediment PRG.	77	3 EML / Email	R10: Koch, Kristine, M (EPA)	R10: Shephard, Burt (EPA), R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100009993	Email regarding Some follow up on the DDE sediment PRG.	72	2 EML / Email	R10: Shephard, Burt (EPA)	R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100009994	Email regarding Some follow up on the DDE sediment PRG.	76	3 EML / Email	R10: Shephard, Burt (EPA)	R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100015046	REDACTED Email regarding Portland Harbor FS Appendix A - Derivation of Risk-based PRGs Tom.	76	2 EML / Email	R10: Koch, Kristine, M (EPA)	R10: Gainer, Tom (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100009996	Email regarding Draft List of Issues Needing Resolution by August 5th.	131	2 EML / Email	R10: Koch, Kristine, M (EPA)	R10: Woronets, Jennifer (Anchor QEA, LLC)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100009997	Email regarding LWG Comments on Revised FS Section 2.	67	2 EML / Email	R10: Koch, Kristine, M (EPA)	R10: Wyatt, Bob (Northwest Natural Gas Company), R10: Mckenna, Jim (Verdant Solutions, LLC)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100009998	Email regarding Example of high concentration spots.	38	1 EML / Email	R10: Koch, Kristine, M (EPA)	R10: Wyatt, Bob (Northwest Natural Gas Company), R10: Stivers, Carl (Anchor QEA, LLC), R10: Mckenna, Jim (Verdant Solutions, LLC)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100010000	Email regarding Portland Harbor Action Items from July 24 FS Section 1 Call.	116	2 EML / Email	R10: Koch, Kristine, M (EPA)	R10: Mckenna, Jim (Verdant Solutions, LLC)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100010001	Email regarding Portland Harbor Action Items from July 24 FS Section 1 Call.	114	2 EML / Email	R10: Koch, Kristine	R10: Woronets, Jennifer (Anchor QEA, LLC)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100007931	Email regarding Portland Harbor Action Items from July 24 FS Section 1 Call.	114	2 EML / Email	R10: Koch, Kristine, M (EPA)	R10: Wyatt, Bob (Northwest Natural Gas Company), R10: Mckenna, Jim (Verdant Solutions, LLC)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100007932	Table 2 - Feasibility Study Outline Cross-Walk - Table 2_LWG FS Outline Cross-walk to EPA FS_2014-07-25.	455	18 CORR / Correspondence	R10: Blischke, Eric, L (EPA)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100007938	RAL Conversions - RALconversions2.	56	1 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100010002	Email regarding Portland Harbor Action Items from July 24 FS Section 1 Call.	114	2 EML / Email	R10: Koch, Kristine, M (EPA)	R10: Wyatt, Bob (Northwest Natural Gas Company), R10: Mckenna, Jim (Verdant Solutions, LLC)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100010003	Portland Harbor PRGs Tables 2.2 - Table 2 2-16_Final PH PRGs.	185	5 EML / Email			ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100007936	Total Diox Furan Tables - TotalDioxFuranOutsideRALsmth.	642	1 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100010004	Email regarding Portland Harbor dioxin/furan RALS.	45	1 EML / Email	R10: Koch, Kristine, M (EPA)	R10: Wyatt, Bob (Northwest Natural Gas Company), R10: Mckenna, Jim (Verdant Solutions, LLC)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100010005	Email regarding Updated Information re Manganese Aquatic Toxicity.	54	1 EML / Email	R10: Mckenna, James (Verdant Solutions, LLC)	R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100010006	Memorandum regarding Derivation of Proposed Manganese PRG to Replace the Suter and Tsao (1996) Tier II Value in the Portland Harbor Feasibility Study - Hardness-based Mn Criterion Memo_01 August 2014.	659	24 CORR / Correspondence	R10: Deforest, David, K (Windward Environmental, LLC.), R10: Toll, John (Windward Environmental, LLC.), R10: Church, Brian (Windward Environmental, LLC.)	R10: (Lower Willamette Group)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100012173	Email regarding the Mn memo less attachment.	32	1 EML / Email	R10: Toll, John (Windward Environmental, LLC.)	R10: Shephard, Burt (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100010104	Portland Harbor RI/FS Draft Feasibility Study Report Section 1 Edits - Combined LWG Edits Portland Harbor FS Section 1 8-28-2014.	637	44 CORR / Correspondence	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100010581	Email regarding the Mn memo.	51	1 EML / Email	R10: Shephard, Burt (EPA)	R10: Toll, John (Windward Environmental, LLC.)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100012176	Email regarding using the hardness-based Mn "criterion" to set the PRG.	70	2 EML / Email	R10: Toll, John (Windward Environmental, LLC.)	R10: Shephard, Burt (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100007935	Email regarding Total dioxin/furan RAL footprints.	39	1 EML / Email	R10: Koch, Kristine, M (EPA)	R10: Wyatt, Bob (Northwest Natural Gas Company), R10: Mckenna, Jim (Verdant Solutions, LLC)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100007937	Email regarding total dioxin/furan RALS.	40	1 EML / Email	R10: Koch, Kristine, M (EPA)	R10: Wyatt, Bob (Northwest Natural Gas Company), R10: Mckenna, Jim (Verdant Solutions, LLC)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100010007	Email regarding Principal Threat Waste Response.	128	2 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100010008	LWG Response to EPA's Principal Threat Waste Approach - 2014_08_07_Principal Threat Waste Response.	254	11 CORR / Correspondence	R10: (Anchor QEA, LLC)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100010009	Email regarding Equilibrium Estimates Memorandum.	127	2 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)

Document ID	Document Title	Page Count	Document Type	Author	Reviewer	Record Type	Project/Study Name
100010010	Sediment Equilibrium Estimates for the Revised Feasibility Study - 2014-08-07/2014 07_Equilibrium Estimates Memo.	346	17 CORR / Correspondence	R10: (Anchor QEA, LLC)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100017419	REDACTED Email regarding Equilibrium Estimates Memorandum.	133	2 EML / Email	R10: Koch, Kristine, M (EPA)	R10: Dexter, Bob (NOAA), R10: Angle, Genevieve (NOAA), R10: Buck, Jeremy (U. S. Fish and Wildlife Service), R10: Madden, Erin (Unknown), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Cunninghame, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Ridolfi, Callie (Ridolfi Engineers, Inc.), R10: Downey, Tom (Confederated Tribes of the Siletz Indians), R10: Partridge, Holly (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Karnosh, Michael (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Sheldrake, Sean, A (EPA), R10: Fuentes, Rene, C (EPA), R10: Conley, Alanna (EPA), R10: Shephard, Burt (EPA), R10: Allen, Elizabeth (EPA), R10: Liverman, Alex (Oregon Dept. of Environmental Quality), R10: Muza, Richard (EPA Region 10), R10: Fricano, Gail (Industrial Economics, Inc.), R10: Delvecchio, Rachel (Industrial Economics, Inc.), R10: Sudbury, Ryan (Grand Ronde Tribe), R10: Longoria, Rose (Yakama Nation), R10: Coffey, Scott (CDM Smith), R10: King, Todd (CDM Smith), R10: Weis, Julie (Haglund Kelley Jones & Wilder LLP), R10: Hagerman, Paul (Unknown), R10: Williams, Jd (Unknown), R10: Moses, Gabriel (Unknown)	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)	
100010012	EPA Interpolation Methodology - EPA Interpolation Methodology.	155	1 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100010098	Portland Harbor RI/FS Appendix B - Appendix B_FWM Description_REV 1_5Tribes comments 8/8/2014 8.27.2014.	316	19 CORR / Correspondence	R10: Hanour, Kenny (Anchor QEA, LLC)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100015047	REDACTED Email regarding Discussion and GIS Layer for EPA Interpolation method.	51	1 EML / Email	R10: Koch, Kristine, M (EPA)	R10: Wyatt, Bob (Northwest Natural Gas Company), R10: Mckenna, Jim (Verdant Solutions, LLC)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100010014	Email regarding Portland Harbor FS: Depth of Impact - Work Product Request.	148	2 EML / Email	R10: Koch, Kristine, M (EPA)	R10: Shellenberger, Amanda (Anchor Environmental, LLC)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100015048	REDACTED Email regarding Portland Harbor - Scheduling RI and FS Technical Meetings.	115	2 EML / Email	R10: Koch, Kristine, M (EPA)	R10: Woronets, Jennifer (Anchor QEA, LLC)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100010015	8/12/2014 Email regarding Section 1 FS.	67	1 EML / Email	R10: Koch, Kristine, M (EPA)	R10: Wyatt, Bob (Northwest Natural Gas Company), R10: Mckenna, Jim (Verdant Solutions, LLC)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100010016	8/12/2014 Email regarding LWG Core Profile Posters.	127	2 EML / Email	R10: Koch, Kristine, M (EPA)	R10: Woronets, Jennifer (Anchor QEA, LLC)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100010080	Portland Harbor RI/FS Draft Feasibility Study Report Section 1 - 2014-08-12 Combined LWG Edits Portland Harbor FS Section 1.	601	32 CORR / Correspondence	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100010086	Portland Harbor RI/FS Draft Feasibility Study Report Section 1 - koch2_2014-08-12 Combined LWG Edits Portland Harbor FS Section 1.	787	40 CORR / Correspondence	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100010077	Email regarding Draft List of Information for Section 3 FS Issues.	122	2 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100010078	Draft List Information for Section 3 FS Issues - Draft List of Information for Section 3 FS Issues 8/13/2014 13 Aug 14.	31	4 CORR / Correspondence	R10: (Lower Willamette Group)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100017409	REDACTED Email regarding Draft List of Information for Section 3 FS Issues.	130	2 EML / Email	R10: Koch, Kristine, M (EPA)	R10: Angle, Genevieve (NOAA), R10: Buck, Jeremy (U. S. Fish and Wildlife Service), R10: Madden, Erin (Unknown), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Cunninghame, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Ridolfi, Callie (Ridolfi Engineers, Inc.), R10: Downey, Tom (Confederated Tribes of the Siletz Indians), R10: Partridge, Holly (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Karnosh, Michael (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Sheldrake, Sean, A (EPA), R10: Fuentes, Rene, C (EPA), R10: Conley, Alanna (EPA), R10: Shephard, Burt (EPA), R10: Allen, Elizabeth (EPA), R10: Liverman, Alex (Oregon Dept. of Environmental Quality), R10: Muza, Richard (EPA Region 10), R10: Fricano, Gail (Industrial Economics, Inc.), R10: Delvecchio, Rachel (Industrial Economics, Inc.), R10: Sudbury, Ryan (Grand Ronde Tribe), R10: Longoria, Rose (Yakama Nation), R10: Coffey, Scott (CDM Smith), R10: King, Todd (CDM Smith), R10: Weis, Julie (Haglund Kelley Jones & Wilder LLP), R10: Hagerman, Paul (Unknown), R10: Williams, Jd (Unknown), R10: Moses, Gabriel (Unknown), R10: Dexter, Bob (Unknown)	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)	

100017507	REDACTED Email regarding LWG Core Profile 8/13/2014 Posters.	132	3 EML / Email	R10: Koch, Kristine, M (EPA)	R10: Angle, Genevieve (NOAA), R10: Buck, Jeremy (U. S. Fish and Wildlife Service), R10: Madden, Erin (Unknown), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Cunninghame, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Ridolfi, Callie (Ridolfi Engineers, Inc.), R10: Downey, Tom (Confederated Tribes of the Siletz Indians), R10: Partridge, Holly (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Karnosh, Michael (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Sheldrake, Sean, A (EPA), R10: Fuentes, Rene, C (EPA), R10: Conley, Alanna (EPA), R10: Shephard, Burt (EPA), R10: Allen, Elizabeth (EPA), R10: Liverman, Alex (Oregon Dept. of Environmental Quality), R10: Muza, Richard (EPA Region 10), R10: Fricano, Gail (Industrial Economics, Inc.), R10: Delvecchio, Rachel (Industrial Economics, Inc.), R10: Sudbury, Ryan (Grand Ronde Tribe), R10: Longoria, Rose (Yakama Nation), R10: Coffey, Scott (CDM Smith), R10: King, Todd (CDM Smith), R10: Weis, Julie (Haglund Kelley Jones & Wilder LLP), R10: Hagerman, Paul (Unknown), R10: Williams, Jd (Unknown), R10: Moses, Gabriel (Unknown), R10: Dexter, Bob (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100010017	Email regarding Portland Harbor - Scheduling FS Section 1 Call on August 19.	109	2 EML / Email	R10: Koch, Kristine, M (EPA)	R10: Woronets, Jennifer (Anchor QEA, LLC)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100010018	8/14/2014 Email regarding Dioxin/Furan PRGs and RALs.	45	1 EML / Email	R10: Koch, Kristine, M (EPA)	R10: Wyatt, Bob (Northwest Natural Gas Company), R10: Mckenna, Jim (Verdant Solutions, LLC)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100010079	8/14/2014 Email regarding LWG Draft Section 1 FS Edits.	119	2 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100017509	REDACTED Email regarding Dioxin/Furan PRGs 8/14/2014 and RALs.	71	2 EML / Email	R10: Koch, Kristine, M (EPA)	R10: Angle, Genevieve (NOAA), R10: Buck, Jeremy (U. S. Fish and Wildlife Service), R10: Madden, Erin (Unknown), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Cunninghame, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Ridolfi, Callie (Ridolfi Engineers, Inc.), R10: Downey, Tom (Confederated Tribes of the Siletz Indians), R10: Partridge, Holly (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Karnosh, Michael (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Sheldrake, Sean, A (EPA), R10: Fuentes, Rene, C (EPA), R10: Conley, Alanna (EPA), R10: Shephard, Burt (EPA), R10: Allen, Elizabeth (EPA), R10: Liverman, Alex (Oregon Dept. of Environmental Quality), R10: Muza, Richard (EPA Region 10), R10: Fricano, Gail (Industrial Economics, Inc.), R10: Delvecchio, Rachel (Industrial Economics, Inc.), R10: Sudbury, Ryan (Grand Ronde Tribe), R10: Longoria, Rose (Yakama Nation), R10: Coffey, Scott (CDM Smith), R10: King, Todd (CDM Smith), R10: Hagerman, Paul (Unknown), R10: Williams, Jd (Unknown), R10: Moses, Gabriel (Unknown), R10: Dexter, Bob (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100010052	8/15/2014 Email regarding Dioxin/Furan PRGs and RALs.	82	3 EML / Email	R10: Koch, Kristine, M (EPA)	R10: Mckenna, James (Verdant Solutions, LLC)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100015049	REDACTED Email regarding Dioxin/Furan PRGs 8/15/2014 and RALs.	88	3 EML / Email	R10: Koch, Kristine, M (EPA)	R10: Mckenna, James (Verdant Solutions, LLC)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100017581	REDACTED Email regarding Draft FS Revision Process; Updated Matrix Table and Action Items List for 15-August-14.	112	2 EML / Email	R10: Koch, Kristine, M (EPA)	R10: Angle, Genevieve (NOAA), R10: Buck, Jeremy (U. S. Fish and Wildlife Service), R10: Madden, Erin (Unknown), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Cunninghame, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Ridolfi, Callie (Ridolfi Engineers, Inc.), R10: Downey, Tom (Confederated Tribes of the Siletz Indians), R10: Partridge, Holly (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Karnosh, Michael (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Sheldrake, Sean, A (EPA), R10: Fuentes, Rene, C (EPA), R10: Conley, Alanna (EPA), R10: Shephard, Burt (EPA), R10: Allen, Elizabeth (EPA), R10: Liverman, Alex (Oregon Dept. of Environmental Quality), R10: Muza, Richard (EPA Region 10), R10: Fricano, Gail (Industrial Economics, Inc.), R10: Delvecchio, Rachel (Industrial Economics, Inc.), R10: Sudbury, Ryan (Grand Ronde Tribe), R10: Longoria, Rose (Yakama Nation), R10: Coffey, Scott (CDM Smith), R10: King, Todd (CDM Smith), R10: Weis, Julie (Haglund Kelley Jones & Wilder LLP), R10: Hagerman, Paul (Unknown), R10: Williams, Jd (Unknown), R10: Moses, Gabriel (Unknown), R10: Dexter, Bob (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)

100017591	REDACTED Email regarding Dioxin/Furan PRGs 8/15/2014 and RALS.	87	3 EML / Email	R10: Koch, Kristine, M (EPA)	R10: Angle, Genevieve (NOAA), R10: Buck, Jeremy (U. S. Fish and Wildlife Service), R10: Madden, Erin (Unknown), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Cunninghame, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Ridolfi, Callie (Ridolfi Engineers, Inc.), R10: Downey, Tom (Confederated Tribes of the Siletz Indians), R10: Partridge, Holly (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Karnosh, Michael (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Sheldrake, Sean, A (EPA), R10: Fuentes, Rene, C (EPA), R10: Conley, Alanna (EPA), R10: Shephard, Burt (EPA), R10: Allen, Elizabeth (EPA), R10: Liverman, Alex (Oregon Dept. of Environmental Quality), R10: Muza, Richard (EPA Region 10), R10: Fricano, Gail (Industrial Economics, Inc.), R10: Delvecchio, Rachel (Industrial Economics, Inc.), R10: Sudbury, Ryan (Grand Ronde Tribe), R10: Longoria, Rose (Yakama Nation), R10: Coffey, Scott (CDM Smith), R10: King, Todd (CDM Smith), R10: Weis, Julie (Haglund Kelley Jones & Wilder LLP), R10: Hagerman, Paul (Unknown), R10: Williams, Jd (Unknown), R10: Moses, Gabriel (Unknown), R10: Dexter, Bob (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100017609	REDACTED Email regarding LWG Draft Section 8/15/2014 1 FS Edits.	128	2 EML / Email	R10: Koch, Kristine, M (EPA)	R10: Angle, Genevieve (NOAA), R10: Buck, Jeremy (U. S. Fish and Wildlife Service), R10: Madden, Erin (Unknown), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Cunninghame, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Ridolfi, Callie (Ridolfi Engineers, Inc.), R10: Downey, Tom (Confederated Tribes of the Siletz Indians), R10: Partridge, Holly (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Karnosh, Michael (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Sheldrake, Sean, A (EPA), R10: Fuentes, Rene, C (EPA), R10: Conley, Alanna (EPA), R10: Shephard, Burt (EPA), R10: Allen, Elizabeth (EPA), R10: Liverman, Alex (Oregon Dept. of Environmental Quality), R10: Muza, Richard (EPA Region 10), R10: Fricano, Gail (Industrial Economics, Inc.), R10: Delvecchio, Rachel (Industrial Economics, Inc.), R10: Sudbury, Ryan (Grand Ronde Tribe), R10: Coffey, Scott (CDM Smith), R10: King, Todd (CDM Smith), R10: Weis, Julie (Haglund Kelley Jones & Wilder LLP), R10: Hagerman, Paul (Unknown), R10: Williams, Jd (Unknown), R10: Moses, Gabriel (Unknown), R10: Dexter, Bob (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100017613	REDACTED Email regarding Dioxin/Furan PRGs 8/15/2014 and RALS.	81	2 EML / Email	R10: Koch, Kristine, M (EPA)	R10: Angle, Genevieve (NOAA), R10: Buck, Jeremy (U. S. Fish and Wildlife Service), R10: Madden, Erin (Unknown), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Cunninghame, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Ridolfi, Callie (Ridolfi Engineers, Inc.), R10: Downey, Tom (Confederated Tribes of the Siletz Indians), R10: Partridge, Holly (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Karnosh, Michael (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Sheldrake, Sean, A (EPA), R10: Fuentes, Rene, C (EPA), R10: Conley, Alanna (EPA), R10: Shephard, Burt (EPA), R10: Allen, Elizabeth (EPA), R10: Liverman, Alex (Oregon Dept. of Environmental Quality), R10: Muza, Richard (EPA Region 10), R10: Fricano, Gail (Industrial Economics, Inc.), R10: Delvecchio, Rachel (Industrial Economics, Inc.), R10: Sudbury, Ryan (Grand Ronde Tribe), R10: Longoria, Rose (Yakama Nation), R10: Coffey, Scott (CDM Smith), R10: King, Todd (CDM Smith), R10: Weis, Julie (Haglund Kelley Jones & Wilder LLP), R10: Hagerman, Paul (Unknown), R10: Williams, Jd (Unknown), R10: Moses, Gabriel (Unknown), R10: Dexter, Bob (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100017633	REDACTED Email regarding Dioxin/Furan PRGs 8/15/2014 and RALS.	87	3 EML / Email	R10: Mckenna, James (Verdant Solutions, LLC)	R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100010073	Email regarding Portland Harbor - Scheduling 8/18/2014 FS Section 1 Call on August 19.	116	3 EML / Email	R10: Koch, Kristine, M (EPA)	R10: Woronets, Jennifer (Anchor QEA, LLC), R10: Mckenna, James (Verdant Solutions, LLC)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100010091	Appendix A1 Section 1 Tribal comments - Appendix A1_8_18_14_5Tribes comments 2014- 8/18/2014 08-27.	383	12 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100015069	REDACTED Email regarding Dioxin/Furan PRGs 8/18/2014 and RALS.	88	3 EML / Email	R10: Koch, Kristine, M (EPA)	R10: Mckenna, James (Verdant Solutions, LLC)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)



100017303	8/18/2014	REDACTED Email regarding Dioxin/Furan PRGs and RALS.	89	3 EML / Email	R10: Koch, Kristine, M (EPA)	R10: Dexter, Bob (NOAA), R10: Angle, Genevieve (NOAA), R10: Buck, Jeremy (U. S. Fish and Wildlife Service), R10: Madden, Erin (Unknown), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Cunninghame, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Ridolfi, Callie (Ridolfi Engineers, Inc.), R10: Downey, Tom (Confederated Tribes of the Siletz Indians), R10: Partridge, Holly (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Karnosh, Michael (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Sheldrake, Sean, A (EPA), R10: Fuentes, Rene, C (EPA), R10: Conley, Alanna (EPA), R10: Shephard, Burt (EPA), R10: Allen, Elizabeth (EPA), R10: Liverman, Alex (Oregon Dept. of Environmental Quality), R10: Muza, Richard (EPA Region 10), R10: Fricano, Gail (Industrial Economics, Inc.), R10: Delvecchio, Rachel (Industrial Economics, Inc.), R10: Sudbury, Ryan (Grand Ronde Tribe), R10: Longoria, Rose (Yakama Nation), R10: King, Todd (CDM Smith), R10: Weis, Julie (Haglund Kelley Jones & Wilder LLP), R10: Hagerman, Paul (Unknown), R10: Williams, Jd (Unknown), R10: Coffey, Scott (Unknown), R10: Moses, Gabriel (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100015072	8/19/2014	REDACTED Email regarding Dioxin/Furan PRGs and RALS.	93	4 EML / Email	R10: Koch, Kristine, M (EPA)	R10: Mckenna, James (Verdant Solutions, LLC)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100010076	8/20/2014	Email regarding Mn Meeting.	66	1 EML / Email	R10: Mcclincy, Matt (Oregon Dept. of Environmental Quality)	R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100010081	8/22/2014	Email regarding Portland Harbor Superfund Site / Northwest Pipe Company Modifications to Feasibility Study Report.	80	1 EML / Email	R10: Rourke, Tracy, C (Unknown)	R10: Wyatt, Bob (Northwest Natural Gas Company), R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100010082	8/22/2014	Letter regarding Modifications to the Feasibility Study Report (Section 1) - 880817.	2,949	5 CORR / Correspondence	R10: Schell, Steven, R (Black Helterline), R10: Merchant, Michael, B (Northwest Pipe Company)	R10: Wyatt, Bob (Northwest Natural Gas Company), R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100010083	8/25/2014	Email regarding Portland Harbor FS Section 1.	40	1 EML / Email	R10: Koch, Kristine, M (EPA)	R10: Wyatt, Bob (Northwest Natural Gas Company), R10: Mckenna, Jim (Verdant Solutions, LLC)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100010087	8/25/2014	Email regarding bioaccumulation models for additional PCDD/F congeners of interest.	125	4 EML / Email	R10: Koch, Kristine, M (EPA)	R10: Mckenna, James (Verdant Solutions, LLC)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100010089	8/25/2014	Memorandum regarding Comments on Draft Section 2 of the Portland Harbor Feasibility Study - 140825 Draft FS Section 2.	161	2 CORR / Correspondence	R10: Dexter, Bob (Ridolfi, Inc.)	R10: Longoria, Rose (Yakama Nation)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100010088	8/26/2014	Email regarding Comments on PH draft FS Section 2.	68	1 EML / Email	R10: Dexter, Robert (Ridolfi, Inc.)	R10: Sheldrake, Sean, A (EPA), R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100010106	8/26/2014	Memorandum regarding Comments on Draft Appendix A-2 of Section 2 of the Portland Harbor Feasibility Study - 140826 Draft FS Section Appendix A-2.	142	2 CORR / Correspondence	R10: Dexter, Bob (Ridolfi, Inc.)	R10: Longoria, Rose (Yakama Nation)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100010426	8/26/2014	Memorandum regarding Comments on Draft Appendix A-2 of Section 2 of the Portland Harbor Feasibility Study - 140826 Draft FS Section Appendix A-2.	142	2 CORR / Correspondence	R10: Dexter, Bob (Ridolfi, Inc.)	R10: Longoria, Rose (Yakama Nation)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100010090	8/27/2014	Email regarding FS Section 2 comments.	46	1 EML / Email	R10: Fricano, Gail (Industrial Economics, Inc.)	R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100010099	8/27/2014	Figure B -1 - FWM Description Figure B-1_5Tribe comments 8.27.2014.	206	1 CORR / Correspondence	R10: Lavelle, James	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100010100	8/27/2014	Table B-3: Arnot & Gobas Equations - FWM Description Table B-3_5Tribe comments 8.27.2014.	172	3 CORR / Correspondence	R10: Lavelle, James	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100007939	8/28/2014	Email regarding Portland Harbor - Food Web Model.	74	2 EML / Email	R10: Mckenna, James (Verdant Solutions, LLC)	R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100007940	8/28/2014	PRG Calculations - DF congeners_PRG calc spreadsheet_FWM PRGs_forEPA.	167	7 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100007941	8/28/2014	Email regarding Portland Harbor - Food Web Model.	68	1 EML / Email	R10: Mckenna, James (Verdant Solutions, LLC)	R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100010096	8/28/2014	Email regarding FS Section 2 Appendices A2 and B comments.	49	1 EML / Email	R10: Fricano, Gail (Industrial Economics, Inc.)	R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100010093	8/29/2014	Email regarding Portland Harbor FS Section 1 - BCS Comments.	78	1 EML / Email	R10: Bennett, Ross (Golder Associates, Inc.)	R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100010094	8/29/2014	Letter regarding suggested edits to Section 1.0 of EPA's Draft Feasibility Study - Final Letter to Kristine Koch 08-29-14.	253	3 CORR / Correspondence	R10: Macdonald, Alistair, P (Golder Associates, Inc.), R10: Gormley, Sean, F (AMEC Earth & Environmental, Inc.)	R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100010101	8/29/2014	Email regarding LWG Comments on Revised FS Section 1.	63	1 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100010102	8/29/2014	LWG Comments on EPA's Feasibility Study Draft Section 1 Text - 2014-08-29 LWG Comments FS Section 1.	292	6 CORR / Correspondence	R10: (Lower Willamette Group)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100010103	8/29/2014	Letter regarding LWG Comments on Revised FS Section 1 - 2014-08-29 Cover letter LWG Comments on Revised FS Section 1.	246	2 CORR / Correspondence	R10: Wyatt, Bob (Lower Willamette Group)	R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100010095	9/3/2014	Email regarding Portland Harbor FS: Depth of Impact - Work Product Request.	123	2 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100010105	9/3/2014	Email regarding Comments on draft FS Appendix A-2.	41	1 EML / Email	R10: Dexter, Robert (Ridolfi, Inc.)	R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100010107	9/3/2014	Email regarding Draft Residual Risk Assessment Approach for the Revised FS.	88	1 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100010108	9/3/2014	Portland Harbor Residual Risk Assessment Approach - LWG - Draft Residual Risk Assessment Approach_9-3-2014.	270	11 CORR / Correspondence	R10: (Lower Willamette Group)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100010109	9/4/2014	Email regarding ARARs related to Removal-Fill Program for PDX Harbor.	59	2 EML / Email	R10: Mcclincy, Matt (Oregon Dept. of Environmental Quality)	R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100010110	9/4/2014	Feasibility Study Appendix A2 - Ecological Risk Based Preliminary Remediation Goal (PRG) Derivation - Appendix A2 ecological PRGs BKS revision 071514).	318	12 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100010111	9/4/2014	Letter regarding Portland Harbor Feasibility Study Draft Section 2, DEQ Review Comments - PdxHarborFS-Section2.	332	7 CORR / Correspondence	R10: Mcclincy, Matt (Oregon Dept. of Environmental Quality)	R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100010113	9/4/2014	Email regarding DEQ Review Comments on Draft FS Section 2.	41	1 EML / Email	R10: Mcclincy, Matt (Oregon Dept. of Environmental Quality)	R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)

100010114	Email regarding Update on review of manganese water quality criteria from LWG for Portland Harbor.	98	3 EML / Email	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	R10: Koch, Kristine, M (EPA), R10: Shephard, Burt (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100008008	Feasibility Study Surface Sediment for Bass SWACs - FS surface sed for bass SWACs_2014-09-09.	3,431	272 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100010116	Portland Harbor Site Depositional Areas - PortHarborSiteDepositionalAreas.	48	2 CORR / Correspondence	R10: King, Todd (CDM Smith)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100010298	Email regarding Revised Additional CSM and FS Database Edits Portland Harbor FS Section 1.	130	2 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100010299	Portland Harbor RI/FS Draft Feasibility Study Report Section 1 - Additional CSM and FS database edits FS Section 1 09-17-14s.	464	41 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100010300	Portland Harbor RI/FS Appendix A - Appendix A - FS Sediment Database Description_edit 09-17-14.	236	20 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100010115	Email regarding Portland Harbor - natural recovery areas.	52	1 EML / Email	R10: Cohen, Lori, G (EPA)	R10: Kirkpatrick, Margaret (Northwest Natural Gas Company)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100010303	Email regarding Portland Harbor - LWG response to EPA comments on LWG core profile maps.	105	3 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100010494	Portland Harbor RI/FS Draft Final Feasibility Study Report Section 1 - 2014-12-02 Proposed Final Portland Harbor FS Section 1.	360	29 CORR / Correspondence	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100010493	Portland Harbor RI/FS Appendix A - 2014-12-02 Proposed Final Portland Harbor FS Appendix A.	190	19 CORR / Correspondence	R10: (Anchor QEA, LLC)	R10: (The Lower Willamette Group)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100010304	Email regarding Portland Harbor - LWG response to EPA comments on LWG core profile maps.	171	5 EML / Email	R10: Shellenberger, Amanda (Anchor Environmental, LLC)	R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100011019	Email regarding call to discuss the Portland Harbor Mn criteria.	45	1 EML / Email	R10: Shephard, Burt (EPA)	R10: Toll, John (Windward Environmental, LLC.)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100010305	Email regarding Portland Harbor - LWG response to EPA comments on LWG core profile maps.	172	5 EML / Email	R10: Koch, Kristine, M (EPA)	R10: Shellenberger, Amanda (Anchor Environmental, LLC)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100010306	Email regarding Portland Harbor - Food Web Model.	77	3 EML / Email	R10: Koch, Kristine, M (EPA)	R10: Mckenna, James (Verdant Solutions, LLC)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100011032	Email regarding availability for a call to discuss the Portland Harbor Mn criteria.	70	2 EML / Email	R10: Shephard, Burt (EPA)	R10: Toll, John (Windward Environmental, LLC.)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100012224	Email regarding the call to discuss the Portland Harbor Mn criteria.	58	1 EML / Email	R10: Toll, John (Windward Environmental, LLC.)	R10: Shephard, Burt (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100012357	Email regarding the call to discuss the Portland Harbor Mn criteria.	58	1 EML / Email	R10: Toll, John (Windward Environmental, LLC.)	R10: Shephard, Burt (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100012360	Email regarding the call to discuss the Portland Harbor Mn criteria.	88	2 EML / Email	R10: Toll, John (Windward Environmental, LLC.)	R10: Shephard, Burt (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100010307	Email regarding Agenda for Senior Managers' meeting.	67	1 EML / Email	R10: Cohen, Lori, G (EPA)	R10: Koch, Kristine, M (EPA), R10: Yamamoto, Deb (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100010413	LWG/EPA Senior Managers Meeting - Notes for LWG EPA Sr Mgr Meeting 10.23.2014.	114	3 CORR / Correspondence	R10: Hamilton, Jessica (Port of Portland)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100019972	REDACTED Email regarding Manganese follow-up on brown trout and brook trout.	84	2 EML / Email	R10: Shephard, Burt (EPA)	R10: Deforest, David, K (Windward Environmental, LLC.)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100010309	10/24/2014 Email regarding quick question.	76	5 EML / Email	R10: Rodenburg, Lisa, A (Rutgers University)	R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100010310	10/24/2014 Email regarding quick question.	71	4 EML / Email	R10: Koch, Kristine, M (EPA)	R10: Rodenburg, Lisa, A (Rutgers University)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100010312	Portland Harbor Surface Water Data - Portland Harbor Surface Water Data - PCBs.	246	19 CORR / Correspondence	R10: Koch, Kristine, M (EPA)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100010313	10/24/2014 Email regarding quick question.	52	2 EML / Email	R10: Koch, Kristine, M (EPA)	R10: Rodenburg, Lisa, A (Rutgers University)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100010314	Email regarding Portland Harbor Food Web Model Issues.	88	3 EML / Email	R10: Koch, Kristine, M (EPA)	R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100010315	Email regarding Portland Harbor Food Web Model Issues.	92	3 EML / Email	R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)	R10: Allen, Elizabeth (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100010316	Portland Harbor Superfund Site Comprehensive Round 2 Site Characterization Summary and Data Gaps Analysis Report Appendix H: Food Web Model - Attachment 3, Parameterization - BruceHComments R2 App H.	52	2 CORR / Correspondence	R10: Hope, Bruce, K (Oregon Dept. of Environmental Quality)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100012401	Email regarding the hardness based Mn Criterion Memo.	44	1 EML / Email	R10: Toll, John (Windward Environmental, LLC.)	R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100019988	REDACTED Email regarding Portland Harbor - LWG response to EPA comments on LWG core profile maps.	225	6 EML / Email	R10: Shellenberger, Amanda (Anchor Environmental, LLC)	R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100010321	Email regarding Larry Burkhard and Burt Shephard comments on Portland Harbor FWM.	45	1 EML / Email	R10: Shephard, Burt (EPA)	R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)

						Robert (NOAA), R10: Buck, Jeremy (U. S. Fish and Wildlife Service), R10: Madden, Erin (Unknown), R10: Cabral, Rita (Industrial Economics, Incorporated), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Cunninghame, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Ridolfi, Callie (Ridolfi Engineers, Inc.), R10: Downey, Tom (Confederated Tribes of the Siletz Indians), R10: Partridge, Holly (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Karnosh, Michael (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Sheldrake, Sean, A (EPA), R10: Fuentes, Rene, C (EPA), R10: Blischke, Eric, L (EPA), R10: Conley, Alanna (EPA), R10: Shephard, Burt (EPA), R10: Allen, Elizabeth (EPA), R10: Moses, Gabriel (Nez Perce Tribe), R10: Liverman, Alex (Oregon Dept. of Environmental Quality), R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality), R10: Mcclincy, Matt (Oregon Dept. of Environmental Quality), R10: Poulsen, Mike (Oregon Dept. of Environmental Quality), R10: Gainer, Tom (Oregon Dept. of Environmental Quality), R10: Muza, Richard (EPA Region 10), R10: Fricano, Gail (Industrial Economics, Inc.), R10: Delvecchio, Rachel (Industrial Economics, Inc.), R10: Sudbury, Ryan (Grand Ronde Tribe), R10: Longoria, Rose (Yakama Nation), R10: Coffey, Scott (CDM		053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100014501	REDACTED Email regarding Larry Burkhard and Burt Shephard comments on Portland Harbor FWM.	10/30/2014	72	2 EML / Email	R10: Koch, Kristine, M (EPA)		ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100010324	Email regarding Manganese memo.	11/4/2014	73	2 EML / Email	R10: Koch, Kristine, M (EPA)	R10: Toll, John (Windward Environmental, LLC.)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100010325	Table 3. Acute-to-chronic ratios - Mn ACRs from MATC calculations 110314.	11/4/2014	105	2 CORR / Correspondence	R10: Shephard, Burt (EPA)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100010326	Email regarding SDUs.	11/4/2014	80	1 EML / Email	R10: Koch, Kristine, M (EPA)	R10: Gainer, Tom (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100010331	Email regarding FWM Conference Call.	11/5/2014	70	2 EML / Email	R10: Mckenna, James (Verdant Solutions, LLC)	R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100010333	Memorandum regarding Derivation of Proposed Manganese PRG to Replace the Suter and Tsao (1996) Tier II Value in the Portland Harbor Feasibility Study - Hardness-based Mn Criterion Memo_5 November 2014.	11/5/2014	667	25 CORR / Correspondence	R10: Deforest, David, K (Windward Environmental, LLC.), R10: Toll, John (Windward Environmental, LLC.), R10: Church, Brian (Windward Environmental, LLC.)	R10: (Lower Willamette Group)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100010334	Email regarding Portland Harbor - depositional areas/ natural recovery.	11/5/2014	149	4 EML / Email	R10: Mckenna, James (Verdant Solutions, LLC)	R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100010335	Draft Response to EPA's October 21, 2014 Response to LWG Clarifications and Questions about "Natural Recovery Areas".	11/5/2014	27	2 CORR / Correspondence	R10: (Lower Willamette Group)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100010336	Email regarding Portland Harbor - depositional areas/ natural recovery.	11/5/2014	148	4 EML / Email	R10: Mckenna, James (Verdant Solutions, LLC)	R10: Cohen, Lori, G (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100011144	Memorandum regarding Derivation of Proposed Manganese PRG to Replace the Suter and Tsao (1996) Tier II Value in the Portland Harbor Feasibility Study - LWG Hardness-based Mn Criterion Memo_5 November 2014.	11/5/2014	667	25 CORR / Correspondence	R10: Deforest, David, K (Windward Environmental, LLC.), R10: Toll, John (Windward Environmental, LLC.), R10: Church, Brian (Windward Environmental, LLC.)	R10: (Lower Willamette Group)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100019989	REDACTED Email regarding Manganese memo.	11/5/2014	80	2 EML / Email	R10: Mckenna, James (Verdant Solutions, LLC)	R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100010328	Email regarding Comparison of current Portland Harbor FWM internal default parameter values to original Arnot and Gobas (2004) defaults.	11/6/2014	53	1 EML / Email	R10: Shephard, Burt (EPA)	R10: Allen, Elizabeth (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100010329	Portland Harbor Food Web Model Internal Parameters not set at Arnot and Goba - Gobas default values for 21 FWM parameters.	11/6/2014	206	9 CORR / Correspondence	R10: Shephard, Burt (EPA)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100010330	Gobas Food Web Model Default Values for Model Parameters - Gobas vs LWG default values for FWM parameters comparison.	11/6/2014	63	3 CORR / Correspondence	R10: Shephard, Burt (EPA)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100016817	REDACTED TCT Meeting Agenda - TCT Meeting Agenda_11-12-14.	11/12/2014	71	1 CORR / Correspondence	R10: Coffey, Scott (CDM Smith)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100010337	Email regarding please confirm time of DEC 8 PH execs meeting. thxl eom.	11/13/2014	78	2 EML / Email	R10: Cohen, Lori, G (EPA)	R10: Koch, Kristine, M (EPA), R10: Grandinetti, Cami (EPA), R10: Allen, Elizabeth (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100007942	Email regarding dioxin/furan metabolic rates for the FWM.	11/14/2014	112	2 EML / Email	R10: Allen, Elizabeth (EPA)	R10: Replinger, Suzanne (Windward Environmental, LLC.)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100016802	REDACTED Email regarding Nov. 19 Senior Managers Meeting.	11/17/2014	72	1 EML / Email	R10: Cohen, Lori, G (EPA)	R10: Cox, Kim, E (City of Portland, Oregon), R10: Loutzenhiser, Dough (Unknown), R10: Hamilton, Jessica (Port of Portland), R10: Kirkpatrick, Margaret (Northwest Natural Gas Company), R10: Wyatt, Robert, J (NW Natural), R10: Mckenna, James (Verdant Solutions, LLC)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100016830	REDACTED Email regarding Nov. 19 Senior Managers Meeting.	11/18/2014	74	2 EML / Email	R10: Kirkpatrick, Margaret (Northwest Natural Gas Company)	R10: Cohen, Lori, G (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100016838	REDACTED Email regarding Portland Harbor Project Manager's meeting notes 11/18/2014.	11/18/2014	55	2 EML / Email	R10: Koch, Kristine, M (EPA)	R10: Genevieve (NOAA), R10: Neeley, Robert (NOAA), R10: Buck, Jeremy (U. S. Fish and Wildlife Service), R10: Madden, Erin (Unknown), R10: Mckenna, Jim (Unknown), R10: Cabral, Rita (Industrial Economics, Incorporated), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Cunninghame, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Ridolfi, Callie (Ridolfi Engineers, Inc.), R10: Downey, Tom (Confederated Tribes of the Siletz Indians), R10: Wyatt, Bob (Northwest Natural Gas Company), R10: Partridge, Holly (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Karnosh, Michael (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Sheldrake, Sean, A (EPA), R10: Fuentes, Rene, C (EPA), R10: Blischke, Eric, L (EPA), R10: Conley, Alanna (EPA), R10: Shephard, Burt (EPA), R10: Allen, Elizabeth (EPA), R10: Moses, Gabriel (Nez Perce Tribe), R10: Liverman, Alex (Oregon Dept. of Environmental Quality), R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality), R10: Mcclincy, Matt (Oregon Dept. of Environmental Quality), R10: Poulsen, Mike (Oregon Dept. of Environmental Quality), R10: Gainer, Tom (Oregon Dept. of Environmental Quality), R10: Muza, Richard (EPA Region 10), R10: Fricano, Gail (Industrial Economics, Inc.),	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)



100007943	11/25/2014	Email regarding bioaccumulation models for additional PCDD/F congeners of interest.	139	4 EML / Email	R10: Allen, Elizabeth (EPA)	R10: Toll, John (Windward Environmental, LLC.), R10: Replinger, Suzanne (Windward Environmental, LLC.), R10: Koch, Kristine, M (EPA), R10: Woronets, Jennifer (Anchor QEA, LLC), R10: Mckenna, James (Verdant Solutions, LLC)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100010414	11/25/2014	Email regarding Final Memorandum: Hardness-Based Chronic and Acute Manganese Ecological PRGs for Water.	82	1 EML / Email	R10: Mckenna, James (Verdant Solutions, LLC)	R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100010415	11/25/2014	Derivation of Final Manganese PRG to Replace the Suter and Tsao (1996) Tier II Value in the Portland Harbor Feasibility Study - Hardness-based Mn Criterion Memo_FINAL_25 November 2014.	651	23 CORR / Correspondence	R10: Deforest, David, K (Windward Environmental, LLC.), R10: Toll, John (Windward Environmental, LLC.), R10: Church, Brian (Windward Environmental, LLC.)	R10: (Lower Willamette Group)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100011615	11/25/2014	Memorandum regarding Derivation of Final Manganese PRG to Replace the Suter and Tsao (1996) Tier II Value in the Portland Harbor Feasibility Study - 2015-07-29 Attachment B1.	651	23 CORR / Correspondence	R10: Deforest, David, K (Windward Environmental, LLC.), R10: Toll, John (Windward Environmental, LLC.), R10: Church, Brian (Windward Environmental, LLC.)	R10: (Lower Willamette Group) Robert (NOAA), R10: Buck, Jeremy (U. S. Fish and Wildlife Service), R10: Madden, Erin (Unknown), R10: Cabral, Rita (Industrial Economics, Incorporated), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Cunninghame, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Ridolfi, Callie (Ridolfi Engineers, Inc.), R10: Downey, Tom (Confederated Tribes of the Siletz Indians), R10: Partridge, Holly (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Karnosh, Michael (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Sheldrake, Sean, A (EPA), R10: Fuentes, Rene, C (EPA), R10: Blischke, Eric, L (EPA), R10: Conley, Alanna (EPA), R10: Shephard, Burt (EPA), R10: Allen, Elizabeth (EPA), R10: Moses, Gabriel (Nez Perce Tribe), R10: Liverman, Alex (Oregon Dept. of Environmental Quality), R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality), R10: McClincy, Matt (Oregon Dept. of Environmental Quality), R10: Poulsen, Mike (Oregon Dept. of Environmental Quality), R10: Gainer, Tom (Oregon Dept. of Environmental Quality), R10: Muza, Richard (EPA Region 10), R10: Fricano, Gail (Industrial Economics, Inc.), R10: Delvecchio, Rachel (Industrial Economics, Inc.), R10: Callahan, Kristin (Ridolfi, Inc.), R10: Sudbury, Ryan (Grand Ronde Tribe), R10: Longoria, Rose	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100014528	11/25/2014	REDACTED Email regarding Updated EPA FS Database.	58	2 EML / Email	R10: Koch, Kristine, M (EPA)		ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100010421	11/26/2014	Portland Harbor Superfund Site Revision Process for Feasibility Study - 2014-11-26 FS Revision Process Final Draft Revision pmd.	144	2 CORR / Correspondence	R10: Dost, Patty (Pearl Legal Group PC)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100010424	11/26/2014	Portland Harbor Superfund Site Revision Process for Feasibility Study - 2014-11-26 FS Revision Process Final Draft Revision pmd.	144	2 CORR / Correspondence	R10: Dost, Patty (Pearl Legal Group PC)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100016846	11/26/2014	REDACTED TCT Meeting Agenda - TCT Meeting Agenda_11-26-14.	70	1 CORR / Correspondence	R10: Coffey, Scott (CDM Smith)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100010416	12/3/2014	Email regarding Updated Core Profile Maps.	146	1 EML / Email			ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100010417	12/3/2014	Email regarding draft of manuscript.	50	1 EML / Email	R10: Rodenburg, Lisa, A (Rutgers University)	R10: Koch, Kristine, M (EPA), R10: Conley, Alanna (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100010418	12/3/2014	Microbial dechlorination of polychlorinated biphenyls, dibenzo-p-dioxins, and -furans in groundwater at Portland Harbor - Portland Groundwater for release to EPA.	229	17 CORR / Correspondence	R10: Rodenburg, Lisa, A (Rutgers University)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100010419	12/3/2014	Microbial dechlorination of polychlorinated biphenyls, dibenzo-p-dioxins, and -furans in groundwater at Portland Harbor - supp info for release to EPA.	1,342	9 CORR / Correspondence	R10: Rodenburg, Lisa, A (Rutgers University)	R10: (Unknown) R10: Sheldrake, Sean, A (EPA), R10: Cora, Lori, H (EPA), R10: Koch, Kristine, M (EPA), R10: Grandinetti, Cami (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100010420	12/8/2014	Email regarding 2014-11-26 FS Revision Process Final Draft Revision pmd.docx.	84	1 EML / Email	R10: Cohen, Lori, G (EPA)	R10: Replinger, Suzanne (Windward Environmental, LLC.), R10: Koch, Kristine, M (EPA), R10: Allen, Elizabeth (EPA), R10: Woronets, Jennifer (Anchor QEA, LLC), R10: Mckenna, James (Verdant Solutions, LLC)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100007944	12/9/2014	Email regarding bioaccumulation models for additional PCDD/F congeners of interest.	145	4 EML / Email	R10: Toll, John (Windward Environmental, LLC.)	R10: Koch, Kristine, M (EPA), R10: Allen, Elizabeth (EPA), R10: Woronets, Jennifer (Anchor QEA, LLC), R10: Mckenna, James (Verdant Solutions, LLC)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100010422	12/10/2014	Email regarding Section 2 and appendix response to comments.	64	3 EML / Email	R10: Fricano, Gail (Industrial Economics, Inc.)	R10: Koch, Kristine, M (EPA), R10: Allen, Elizabeth (EPA), R10: Coffey, Scott (CDM Smith)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100010425	12/11/2014	Email regarding FS Sec. 2 App B-2 (YN).	73	1 EML / Email	R10: Callahan, Kristin (Ridolfi, Inc.)	R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100010427	12/11/2014	Email regarding Updated Core Profile Maps.	151	2 EML / Email	R10: Koch, Kristine, M (EPA)	R10: Gustavson, Karl (U. S. Army Corps of Engineers), R10: Shellenberger, Amanda (Anchor Environmental, LLC), R10: Sheldrake, Sean, A (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100010428	12/11/2014	Email regarding LWG Response to EPA Question on FS Database.	107	2 EML / Email	R10: Mckenna, James (Verdant Solutions, LLC)	R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100010429	12/12/2014	Email regarding Updated Core Profile Maps.	153	2 EML / Email	R10: Shellenberger, Amanda (Anchor Environmental, LLC)	R10: Gustavson, Karl (U. S. Army Corps of Engineers), R10: Sheldrake, Sean, A (EPA), R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100010430	12/12/2014	Email regarding FS process revisions.	69	1 EML / Email	R10: Cohen, Lori, G (EPA)	R10: Sheldrake, Sean, A (EPA), R10: Cora, Lori, H (EPA), R10: Koch, Kristine, M (EPA), R10: Grandinetti, Cami (EPA), R10: Yamamoto, Deb (EPA), R10: Allen, Elizabeth (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100010431	12/12/2014	Revision Process for Final FS - 2014-12-12 FS Revision Process Diagram Revision.	117	1 CORR / Correspondence	R10: Humphrey, Chip (EPA)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100010432	12/12/2014	Portland Harbor Superfund Site Revision Process for Feasibility Study - 2014-12-12 FS Revision Process Final Draft.	143	2 CORR / Correspondence	R10: Dost, Patty (Pearl Legal Group PC)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100010857	12/12/2014	Draft Portland Harbor Remedial Action Objectives (RAOs) - 2014-12-12 Revised Draft RAOs.	54	1 CORR / Correspondence	R10: Allen, Elizabeth (EPA)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100007947	12/15/2014	Portland Harbor Superfund Site Revision Process for Feasibility Study - 2014-12-17 PH FS Revision Process.	70	2 CORR / Correspondence	R10: (Unknown)	R10: (Unknown) R10: Gustavson, Karl (U. S. Army Corps of Engineers), R10: Shellenberger, Amanda (Anchor Environmental, LLC), R10: Sheldrake, Sean, A (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100016851	12/15/2014	REDACTED Email regarding Updated Core Profile Maps.	153	2 EML / Email	R10: Koch, Kristine, M (EPA)	R10: Wyatt, Bob (Northwest Natural Gas Company), R10: Mckenna, Jim (Verdant Solutions, LLC)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100010433	12/16/2014	Email regarding Portland Harbor - Core Profile Maps.	47	1 EML / Email	R10: Koch, Kristine, M (EPA)	R10: Gustavson, Karl (U. S. Army Corps of Engineers), R10: Shellenberger, Amanda (Anchor Environmental, LLC), R10: Sheldrake, Sean, A (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100010437	12/16/2014	Email regarding Updated Core Profile Maps.	159	3 EML / Email	R10: Koch, Kristine, M (EPA)	R10: Gustavson, Karl (U. S. Army Corps of Engineers), R10: Shellenberger, Amanda (Anchor Environmental, LLC), R10: Sheldrake, Sean, A (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)

100010488	12/16/2014	Email regarding Updated Core Profile Maps.	157	3 EML / Email	R10: Shellenberger, Amanda (Anchor Environmental, LLC)	R10: Gustavson, Karl (U. S. Army Corps of Engineers), R10: Sheldrake, Sean, A (EPA), R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100010489	12/16/2014	Email regarding Portland Harbor - Core Profile Maps.	54	1 EML / Email	R10: Mckenna, James (Verdant Solutions, LLC)	R10: Wyatt, Bob (Northwest Natural Gas Company), R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100010865	12/16/2014	Letter regarding Review of DSL Proposed ARARs for Portland Harbor Superfund Site submitted by Lore Bensel - Response to DSL ARARs 121614.	62	3 CORR / Correspondence	R10: Koch, Kristine, M (EPA), R10: Yamamoto, Deb (EPA)	R10: Mcclincy, Matt (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100010866	12/16/2014	Table 2.2-3a -c - Revised DSL ARARs Table 2-2-03_ARARs 121614.	78	8 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100010870	12/16/2014	Letter regarding Review of DSL Proposed ARARs for Portland Harbor Superfund Site submitted by Lore Bensel - Response to DSL ARARs 121614.	62	3 CORR / Correspondence	R10: Koch, Kristine, M (EPA), R10: Yamamoto, Deb (EPA)	R10: Mcclincy, Matt (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100007945	12/17/2014	Email regarding PH FS Revision Process.	42	1 EML / Email	R10: Cohen, Lori, G (EPA)	R10: Kirkpatrick, Margaret, D (Northwest Natural Gas Co.)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100007946	12/17/2014	Revision Process for Final FS - 2014-12-17 FS Revision Process Diagram Revision.	127	1 CORR / Correspondence	R10: Humphrey, Chip (EPA)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100010490	12/18/2014	Email regarding Portland Harbor - Draft Final FS Section 1 and Appendix A.	46	1 EML / Email	R10: Koch, Kristine, M (EPA)	R10: Wyatt, Bob (Northwest Natural Gas Company), R10: Mckenna, Jim (Verdant Solutions, LLC)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100010495	12/18/2014	Email regarding Updated Core Profile Maps.	157	3 CORR / Correspondence	R10: Shellenberger, Amanda (Anchor Environmental, LLC)	R10: Gustavson, Karl (U. S. Army Corps of Engineers), R10: Sheldrake, Sean, A (EPA), R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100007948	12/19/2014	Email regarding PH FS Revision Process.	47	1 EML / Email	R10: Kirkpatrick, Margaret, D (Northwest Natural Gas Co.)	R10: Cohen, Lori, G (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100010496	12/19/2014	Email regarding Portland Harbor - Draft Final FS Section 1 and Appendix A.	59	2 EML / Email	R10: Mckenna, James (Verdant Solutions, LLC)	R10: Koch, Kristine, M (EPA) R10: Wyatt, Bob (Northwest Natural Gas Company), R10: Mckenna, Jim (Verdant Solutions, LLC)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100010497	12/23/2014	Email regarding Portland Harbor FS - Evaluation of Dioxins/Furans.	42	1 EML / Email	R10: Koch, Kristine, M (EPA)	R10: Mckenna, Jim (Verdant Solutions, LLC)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100007949	1/2/2015	Email regarding Portland Harbor FS - Evaluation of Dioxins/Furans.	96	2 EML / Email	R10: Stivers, Carl (Anchor QEA, LLC)	R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100008002	1/2/2015	Email regarding LWG Comments on EPA's December 19, 2014, Feasibility Study Proposed Final Draft Section 1 - LWG Comments on EPA FS Previously Submitted to EPA.	3,180	212 CORR / Correspondence	R10: (Lower Willamette Group)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100010848	1/2/2015	Email regarding Portland Harbor - Draft Final FS Section 1 and Appendix A - LWG Comments.	112	2 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100010849	1/2/2015	LWG Comments on EPA's December 19, 2014, Feasibility Study Proposed Final Draft Section 1 - 2015-01-02 LWG Comments FS Section 1.	281	7 CORR / Correspondence	R10: (Lower Willamette Group)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100015327	1/6/2015	Draft 2,3,4,7,8-Pentachlorodibenzofuran (PeCDF) and 5 Dioxin/Furan Congeners, Alt B-G - Dioxin-Furans-PeCDF-Comparison-All-Alternatives.	1,523	6 FIG / Figure/Map/ Drawing	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100007950	1/7/2015	Email regarding dioxin/furan metabolic rates for the FWM.	116	2 EML / Email	R10: Mckenna, Jim (Verdant Solutions, LLC)	R10: Wyatt, Bob (Northwest Natural Gas Company), R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100007951	1/9/2015	Email regarding Draft List of D/F Action Items.	56	1 EML / Email	R10: Mckenna, James (Verdant Solutions, LLC)	R10: Koch, Kristine, M (EPA) R10: Defur, Peter, L (Unknown), R10: Williams, Travis (Willamette Riverkeeper), R10: Robinson, Jim	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100010850	1/9/2015	Email regarding Portland Harbor - Draft Final FS Section 1 and Appendix A - LWG Comments.	123	3 EML / Email	R10: Koch, Kristine, M (EPA)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100010853	1/9/2015	Portland Harbor RI/FS Draft Final Feasibility Study Report Section 1 - 2015-01-09 Proposed Final Portland Harbor FS Section 1.	358	28 CORR / Correspondence	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100010854	1/9/2015	Email regarding Portland Harbor - Draft Final FS Section 1 and Appendix A - LWG Comments.	121	3 EML / Email	R10: Koch, Kristine, M (EPA)	R10: Woronets, Jennifer (Anchor QEA, LLC)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100010855	1/9/2015	Portland Harbor RI/FS Draft Final Feasibility Study Report Section 1 - 2015-01-09 Proposed Final Portland Harbor FS Section 1.	358	28 CORR / Correspondence	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100010856	1/9/2015	Email regarding Portland Harbor RAOs. Congener Specific SWACS (ug/kg) and Remediated Acres for each SDU - SWACS-Acres-by-SDU_2015-01-08_1229.pdf.	49	1 EML / Email	R10: Sheldrake, Sean, A (EPA)	R10: Angle, Genevieve (NOAA), R10: Madden, Erin (Unknown), R10: Cabral, Rita (Industrial Economics, Incorporated), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Cunningham, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Ridolfi, Callie (Ridolfi Engineers, Inc.), R10: Downey, Tom (Confederated Tribes of the Siletz Indians), R10: Partridge, Holly (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Karnosh, Michael (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Liverman, Alex (Oregon Dept. of Environmental Quality), R10: Fricano, Gail (Industrial Economics, Inc.), R10: Kassakian, Jen (Industrial Economics, Inc.), R10: Delvecchio, Rachel (Industrial Economics, Inc.), R10: Callahan, Kristin (Ridolfi, Inc.), R10: Longoria, Rose (Yakama Nation), R10: Coffey, Scott (CDM Smith), R10: King, Todd (CDM Smith), R10: Williams, Jd (Unknown), R10: Weis, Julie (Haglund Kelley, LLP), R10: Dexter, Bob (Ridolfi, Inc.), R10: Buck, Jeremy (U. S. Fish & Wildlife Service)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100015328	1/9/2015	Email regarding For TCT next Wed at 0930 EPA-ODO: Updated Appendix B1 and B2 for TCT meeting materials.	87	2 CORR / Correspondence	R10: Coffey, Scott (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100010858	1/12/2015	Representative RAL Curves presented in Dioxin/Furan Congener Evaluation Memo -	77	2 EML / Email	R10: Sheldrake, Sean, A (EPA)	R10: Fricano, Gail (Industrial Economics, Inc.)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100015329	1/13/2015	Representative RAL Curves.	277	1 FIG / Figure/Map/ Drawing	R10: Foster, Malena (CDM Smith)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100007952	1/14/2015	Email regarding Draft List of D/F Action Items.	80	2 EML / Email	R10: Mckenna, James (Verdant Solutions, LLC)	R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100013177	1/15/2015	Portland Harbor RI/FS Remedial Investigation Report Figure 1.2-20a - h - Figure 1.2-20_2011-08-29_DF RI Sec4_GW Plume Maps.	1,503	8 CORR / Correspondence	R10: (Lower Willamette Group), R10: Integral Consulting, Inc.)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100010859	1/19/2015	Email regarding references used to develop the metabolism rate coefficients for PCDD/Fs for the Portland Harbor bioaccumulation model.	50	1 EML / Email	R10: Toll, John (Windward Environmental, LLC.)	R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100010862	1/19/2015	Table 1. Rational for selected metabolism rate coefficients - Table 1.	230	1 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)

100007953	1/20/2015	Email regarding January 27 Project Managers Meeting.	78	2 EML / Email	R10: Koch, Kristine, M (EPA)	R10: Mckenna, James (Verdant Solutions, LLC)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100007954	1/20/2015	Email regarding Dioxin/Furan deliverables.	42	1 EML / Email	R10: Koch, Kristine, M (EPA)	R10: Wyatt, Bob (Northwest Natural Gas Company), R10: Mckenna, Jim (Verdant Solutions, LLC)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100010863	1/21/2015	Email regarding For TCT next Wed at 0930 EPA-OOO: Updated Appendix B1 and B2 for TCT meeting materials.	78	3 EML / Email	R10: Koch, Kristine, M (EPA)	R10: Sheldrake, Sean, A (EPA), R10: Gainer, Tom (Oregon Dept. of Environmental Quality) Robert (NOAA), R10: Buck, Jeremy (U. S. Fish and Wildlife Service), R10: Madden, Erin (Unknown), R10: Cabral, Rita (Industrial Economics, Incorporated), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Cunninghame, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Ridolfi, Callie (Ridolfi Engineers, Inc.), R10: Downey, Tom (Confederated Tribes of the Siletz Indians), R10: Partridge, Holly (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Karnosh, Michael (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Sheldrake, Sean, A (EPA), R10: Fuentes, Rene, C (EPA), R10: Robinson, Deborah, G (EPA), R10: Blischke, Eric, L (EPA), R10: Conley, Alanna (EPA), R10: Christopher, Anne (EPA), R10: Allen, Elizabeth (EPA), R10: Muza, Richard (EPA), R10: Moses, Gabriel (Nez Perce Tribe), R10: Liverman, Alex (Oregon Dept. of Environmental Quality), R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality), R10: McClincy, Matt (Oregon Dept. of Environmental Quality), R10: Poulsen, Mike (Oregon Dept. of Environmental Quality), R10: Gainer, Tom (Oregon Dept. of Environmental Quality), R10: Fricano, Gail (Industrial Economics, Inc.), R10: DeIvecchio, Rachel (Industrial Economics, Inc.), R10: Callahan, Kristin (Ridolfi, Inc.), R10: Gustavson, Karl	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100013678	1/27/2015	REDACTED Email regarding Portland Harbor FS Schedule to NRRB/CSTAG.	71	2 EML / Email	R10: Koch, Kristine, M (EPA)	R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100010867	1/28/2015	Email regarding Revised Schedule.	42	1 EML / Email	R10: Koch, Kristine, M (EPA)	R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100010868	1/28/2015	2015-01-21 EPA Portland Harbor Schedule - 2015-01-28 EPA Portland Harbor Schedule.	88	2 CORR / Correspondence	R10: Koch, Kristine, M (EPA)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100016840	1/28/2015	REDACTED TCT Meeting Agenda - TCT Meeting Agenda_1-28-15.	89	1 CORR / Correspondence	R10: Coffey, Scott (CDM Smith)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100010869	1/29/2015	Email regarding ARARs related to Removal-Fill Program for PDX Harbor.	76	2 EML / Email	R10: Koch, Kristine, M (EPA)	R10: McClincy, Matt (Oregon Dept. of Environmental Quality), R10: Bense, Lore (Oregon Department of Justice)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100010871	1/29/2015	Table 2.2-3a-c - Revised DSL ARARs Table 2-03_ARARs 121614.	78	8 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100010872	2/2/2015	Email regarding Benthic Toxicity PRGs.	86	3 EML / Email	R10: Koch, Kristine, M (EPA)	R10: Shephard, Burt (EPA), R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100010873	2/7/2015	Email regarding Benthic Toxicity PRGs.	91	4 CORR / Correspondence	R10: Koch, Kristine, M (EPA)	R10: Shephard, Burt (EPA), R10: Gainer, Tom (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100010874	2/9/2015	Email regarding Agenda for 2/11 TCT Meeting. Comparison of Risk Areas to be Remediated Map - 2015-02-23_Figure 2.2-2 PRG-Footprints.	43	1 EML / Email	R10: Koch, Kristine, M (EPA)	R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100011123	2/9/2015	Portland Harbor RI/FS Draft Final Feasibility Study Report Edits Section 1 - 2015-02-11 LWG Redlines and Comments.	408	1 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100010877	2/11/2015	REDACTED TCT Meeting Agenda - TCT Meeting Agenda_2-11-15.	658	44 CORR / Correspondence	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100015775	2/11/2015	Email regarding 95th percentiles of upstream detection limits.	113	1 CORR / Correspondence	R10: Coffey, Scott (CDM Smith)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100007955	2/12/2015	Site Wide AOPC TCDD - PeCDD_TCDD_95UCLMDLasSWACfloor.	72	2 EML / Email	R10: Koch, Kristine, M (EPA)	R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality), R10: Poulsen, Mike (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100007956	2/12/2015	Email regarding LWG Comments Regarding EPA Proposed Final FS Section 1.	12	1 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100010876	2/12/2015	Letter regarding EPA Proposed Final Feasibility Study Section 1 - 2015-02-12 Letter to EPA Regarding EPA FS Section 1.	63	1 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100010878	2/12/2015	Portland Harbor RI/FS Draft Feasibility Study Report Section 2 - 2015_02_23 FS Section 2_5	141	2 CORR / Correspondence	R10: Wyatt, Bob (Northwest Natural Gas Company)	R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100010879	2/13/2015	Email regarding FS Section 2.	112	1 CORR / Correspondence	R10: Koch, Kristine, M (EPA)	R10: Gainer, Tom (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100010880	2/17/2015	Email regarding Portland Harbor: Section 2 and RAOs.	49	1 EML / Email	R10: Cabral, Rita (Industrial Economics, Incorporated)	R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100010881	2/17/2015	Email regarding Portland Harbor LWG FS Cost Backup.	51	1 EML / Email	R10: Koch, Kristine, M (EPA)	R10: Wyatt, Bob (Northwest Natural Gas Company), R10: Mckenna, Jim (Verdant Solutions, LLC)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100010883	2/20/2015	Email regarding Portland Harbor LWG FS Cost Backup.	109	2 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100010885	2/23/2015	Email regarding BERA GIS layers.	69	1 EML / Email	R10: Mckenna, James (Verdant Solutions, LLC)	R10: Wyatt, Bob (Northwest Natural Gas Company), R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100010886	2/23/2015	Portland Harbor RI/FS Draft Feasibility Study Report Section 2 - 2015_02_23 FS Section 2_5	46	1 EML / Email	R10: Koch, Kristine, M (EPA)	R10: Wyatt, Bob (Northwest Natural Gas Company), R10: Mckenna, Jim (Verdant Solutions, LLC)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100011134	2/23/2015	Tribe comments_2015_03_16.	340	31 CORR / Correspondence	R10: Blischke, Eric (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100013186	2/23/2015	Email regarding Portland Harbor FS Section 2. Portland Harbor RI/FS Draft Feasibility Study Report Section 2 - 2015_02_23 Portland Harbor FS Section 2.	48	1 EML / Email	R10: Koch, Kristine, M (EPA)	R10: Wyatt, Bob (Northwest Natural Gas Company), R10: Mckenna, Jim (Verdant Solutions, LLC)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100013187	2/23/2015	Appendix B1 - Human Health Risk-Based Preliminary Remedial Goal (PRG) Derivation - 2015-02-23 Appendix B1_HH PRGs.	299	32 CORR / Correspondence	R10: Blischke, Eric, L (EPA)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100013188	2/23/2015	Appendix B2 - Ecological Risk-Based Preliminary Remediation Goal (PRG) Derivation - 2015-02-23 Appendix B2_Ecological PRGs.	200	13 CORR / Correspondence	R10: Allen, Elizabeth (EPA)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100013189	2/23/2015	B1 - Table Portland Harbor Human Health Risk PRGs - 2015-02-23 Table B1_Portland Harbor HH PRGs.	120	4 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100013190	2/23/2015	Table B-2 Risk-Based Ecological PRGs - 2015-02-23 Table B2_Portland Harbor Eco PRGs.	114	1 CORR / Correspondence	R10: Allen, Elizabeth (EPA)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100013191	2/23/2015		121	2 CORR / Correspondence	R10: Koch, Kristine, M (EPA)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)

100013192	2/23/2015	Draft Map of Comparison of Risk Areas to be Remediated - 2015-02-23_Figure 2.2-2 PRG-Footprints.	408	1 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100013193	2/23/2015	Table 2.1-1-3 - 2015-02-23_Table 2.1-01-03_ARARs.	78	8 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100013194	2/23/2015	Table 2.1-4 Numeric Standards Associated with Chemical-Specific ARARs - 2015-02-23_Table 2.1-04_ARAR Chem Values Table.	166	1 CORR / Correspondence	R10: Lavelle, James, M (CDM)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100013195	2/23/2015	Table 2.2-1 Summary of Portland Harbor PRGs by RAO and Media - 2015-02-23_Table 2.2-01_PRG Summary.	138	1 CORR / Correspondence	R10: Koch, Kristine, M (EPA)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100013196	2/23/2015	Table 2.1-2 Summary of COC Selection Process - 2015-02-23_Table 2.2-02_COC Selection Rationale.	109	3 CORR / Correspondence	R10: King, Todd (CDM Smith)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100013197	2/23/2015	Table 2.1-3 Basis for Portland Harbor COC Selection by RAO and Media - 2015-02-23_Table 2.2-03_Final PH COCs.	102	1 CORR / Correspondence	R10: Koch, Kristine, M (EPA)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100013267	2/23/2015	Table 2.2-4 RAO 1 PRG Derivation - 2015-02-23_Table 2.2-04_RAO1 PRG Derivation.	79	1 CORR / Correspondence	R10: Koch, Kristine, M (EPA)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100013268	2/23/2015	Table 2.2-5 RAO 2 PRG Derivation - 2015-02-23_Table 2.2-05_RAO2 PRG Derivation.	90	1 CORR / Correspondence	R10: Koch, Kristine, M (EPA)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100013269	2/23/2015	Table 2.2-6 RAO 3 PRG Derivation - 2015-02-23_Table 2.2-06_RAO3 PRG Derivation.	85	1 CORR / Correspondence	R10: Koch, Kristine, M (EPA)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100013270	2/23/2015	Table 2.2-7 RAO 4 PRG Derivation - 2015-02-23_Table 2.2-07_RAO4 PRG Derivation.	83	1 CORR / Correspondence	R10: Koch, Kristine, M (EPA)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100013271	2/23/2015	Table 2.2-8 RAO 5 PRG Derivation - 2015-02-23_Table 2.2-08_RAO5 PRG Derivation.	106	1 CORR / Correspondence	R10: Koch, Kristine, M (EPA)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100013272	2/23/2015	Table 2.2-9 RAO 6 PRG Derivation - 2015-02-23_Table 2.2-09_RAO6 PRG Derivation.	83	1 CORR / Correspondence	R10: Koch, Kristine, M (EPA)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100013273	2/23/2015	Table 2.2-10 RAO 7 PRG Derivation - 2015-02-23_Table 2.2-10_RAO7 PRG Derivation.	84	1 CORR / Correspondence	R10: Koch, Kristine, M (EPA)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100013274	2/23/2015	Table 2.2-11 RAO 8 PRG Derivation - 2015-02-23_Table 2.2-11_RAO8 PRG Derivation.	84	1 CORR / Correspondence	R10: Koch, Kristine, M (EPA)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100013275	2/23/2015	Table 2.2-12 Basis for Portland Harbor PRGs by RAO and Media - 2015-02-23_Table 2.2-12_Basis for Selected PRGs.	109	6 CORR / Correspondence	R10: Koch, Kristine, M (EPA)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100013276	2/23/2015	Table 2.4-1 Initial Screening of Remedial Technologies and Process Options - 2015-02-23_Table 2.4-01.	116	5 CORR / Correspondence	R10: Koch, Kristine, M (EPA)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100013277	2/23/2015	Table 2.4-2 Technology and Process Options Screening Summary - 2015-02-23_Table 2.4-02.	147	7 CORR / Correspondence	R10: Koch, Kristine, M (EPA)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100010887	2/24/2015	Email regarding February 24 PM Conference Call.	74	2 EML / Email	R10: Mckenna, James (Verdant Solutions, LLC)	R10: Wyatt, Bob (Northwest Natural Gas Company), R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100014559	2/25/2015	REDACTED TCT Meeting Agenda - TCT Meeting Agenda_2-25-15.	110	1 CORR / Correspondence	R10: Coffey, Scott (CDM Smith)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100007957	2/26/2015	Email regarding BERA GIS layers.	76	3 EML / Email	R10: Toll, John (Windward Environmental, LLC.)	R10: Koch, Kristine, M (EPA), R10: Mckenna, James (Verdant Solutions, LLC)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100011096	2/26/2015	Email regarding BERA GIS layers.	72	2 EML / Email	R10: Mckenna, James (Verdant Solutions, LLC)	R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100007958	2/27/2015	Email regarding Comprehensive benthic approach thoughts and recommendations for the FS.	63	2 EML / Email	R10: Toll, John (Windward Environmental, LLC.)	R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100007959	2/27/2015	Email regarding Portland Harbor - Dioxin/Furan RALs.	43	1 EML / Email	R10: Koch, Kristine, M (EPA)	R10: Wyatt, Bob (Northwest Natural Gas Company), R10: Mckenna, Jim (Verdant Solutions, LLC)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100007960	2/27/2015	Site Wide TCDD Charts - 2015-02-27 TCDD RAL Curve.	15	1 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100007961	2/27/2015	Site-wide - PeCDF Tables - PeCDF_Top3SDUs_2015-02-27_1428.	12	1 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100007966	2/27/2015	Site - Wide PeCDF - PeCDF_Top3SDUs_2015-02-27_1428.	12	1 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100007968	2/27/2015	Site Wide Tables - PeCDD_Top3SDUs_2015-02-27_1358.	16	1 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100007969	2/27/2015	Site - wide tables - PeCDF_Top3SDUs_2015-02-27_1428.	12	1 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100011098	2/27/2015	Email regarding March 9 - next PH mgr/proj mgr meeting.	85	3 EML / Email	R10: Cohen, Lori, G (EPA)	R10: Kirkpatrick, Margaret, D (Northwest Natural Gas Co.)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100011099	2/27/2015	Email regarding possible dates for next PH mgr/proj mgr meeting.	81	3 EML / Email	R10: Kirkpatrick, Margaret, D (Northwest Natural Gas Co.)	R10: Cohen, Lori, G (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100011100	2/27/2015	Email regarding Comprehensive benthic approach thoughts and recommendations for the FS.	80	3 EML / Email	R10: Koch, Kristine, M (EPA)	R10: Toll, John (Windward Environmental, LLC.)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100011114	2/27/2015	Microbial dechlorination of polychlorinated biphenyls, dibenzo-p-dioxins, and -furans in groundwater at the Portland Harbor superfund site Figures - supp info draft 5.	1,541	12 CORR / Correspondence	R10: Rodenburg, Lisa, A (Rutgers University), R10: Kruminis, Valdis (Rutgers University), R10: Crowe Curran, Joanna (Northwest Hydraulic Consultants)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100015765	2/27/2015	REDACTED Email regarding Portland Harbor - Errata #2 for FS Section 2.	77	2 EML / Email	R10: Koch, Kristine, M (EPA)	R10: Wyatt, Bob (Northwest Natural Gas Company), R10: Mckenna, Jim (Verdant Solutions, LLC)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100007965	3/1/2015	Draft Comparison of Dioxin/Furan Congeners and Other COCs - D-F-Congeners-COCs-Benthic-Comparison-AllAlts.	2,879	6 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100011227	3/2/2015	Attachment 2 Comprehensive Benthic Approach Table Revised - Attachment_2_Comprehensive Benthic Approach_revised_2015_03_02.	39	1 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100015772	3/2/2015	REDACTED Email regarding Portland Harbor - Errata #2 for FS Section 2.	82	3 EML / Email	R10: Koch, Kristine, M (EPA)	R10: Wyatt, Bob (Northwest Natural Gas Company), R10: Mckenna, Jim (Verdant Solutions, LLC)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100007963	3/3/2015	Portland Harbor RI/FS Subsurface Sediment Cores With Total Dioxin/Furan Data Figures - 3-6-2015.	2,943	6 CORR / Correspondence	R10: (Lower Willamette Group), R10: (Anchor QEA, LLC)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)



100014567	3/4/2015	REDACTED Email regarding Portland Harbor - TCT Meeting Notes for 2/25.	44	1 EML / Email	R10: Koch, Kristine, M (EPA)	Robert (NOAA), R10: Buck, Jeremy (U. S. Fish and Wildlife Service), R10: Madden, Erin (Unknown), R10: Cabral, Rita (Industrial Economics, Incorporated), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Cunninghame, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Ridolfi, Callie (Ridolfi Engineers, Inc.), R10: Downey, Tom (Confederated Tribes of the Siletz Indians), R10: Partridge, Holly (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Karnosh, Michael (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Sheldrake, Sean, A (EPA), R10: Fuentes, Rene, C (EPA), R10: Robinson, Deborah, G (EPA), R10: Blischke, Eric, L (EPA), R10: Conley, Alanna (EPA), R10: Christopher, Anne (EPA), R10: Allen, Elizabeth (EPA), R10: Morrison, Kay (EPA), R10: Moses, Gabriel (Nez Perce Tribe), R10: Liverman, Alex (Oregon Dept. of Environmental Quality), R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality), R10: McClincy, Matt (Oregon Dept. of Environmental Quality), R10: Poulsen, Mike (Oregon Dept. of Environmental Quality), R10: Gainer, Tom (Oregon Dept. of Environmental Quality), R10: Muza, Richard (EPA Region 10), R10: Fricano, Gail (Industrial Economics, Inc.), R10: Delvecchio, Rachel (Industrial Economics, Inc.), R10: Callahan, Kristin (Ridolfi, Inc.), R10:	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100015785	3/4/2015	REDACTED Email regarding Draft manuscript, Portland Harbor, Rutgers Univ. (Powerpoint, call in-number included).	67	3 EML / Email	R10: Rodenburg, Lisa, A (Rutgers University)	R10: Conley, Alanna (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100011116	3/5/2015	Portland Harbor Table 2.1-1 - 2.1-3.	78	8 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100014568	3/5/2015	REDACTED Email regarding Portland Harbor TCT Agenda for 3/11.	46	1 EML / Email	R10: Koch, Kristine, M (EPA)	Robert (NOAA), R10: Buck, Jeremy (U. S. Fish and Wildlife Service), R10: Madden, Erin (Unknown), R10: Cabral, Rita (Industrial Economics, Incorporated), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Cunninghame, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Ridolfi, Callie (Ridolfi Engineers, Inc.), R10: Downey, Tom (Confederated Tribes of the Siletz Indians), R10: Partridge, Holly (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Karnosh, Michael (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Sheldrake, Sean, A (EPA), R10: Fuentes, Rene, C (EPA), R10: Robinson, Deborah, G (EPA), R10: Blischke, Eric, L (EPA), R10: Conley, Alanna (EPA), R10: Christopher, Anne (EPA), R10: Allen, Elizabeth (EPA), R10: Morrison, Kay (EPA), R10: Liverman, Alex (Oregon Dept. of Environmental Quality), R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality), R10: McClincy, Matt (Oregon Dept. of Environmental Quality), R10: Poulsen, Mike (Oregon Dept. of Environmental Quality), R10: Gainer, Tom (Oregon Dept. of Environmental Quality), R10: Muza, Richard (EPA Region 10), R10: Fricano, Gail (Industrial Economics, Inc.), R10: Delvecchio, Rachel (Industrial Economics, Inc.), R10: Callahan, Kristin (Ridolfi, Inc.), R10: Gustavson, Karl (Unknown), R10: Longoria, R10: Wyatt, Bob (Northwest Natural Gas Company), R10: Mckenna, Jim (Verdant Solutions, LLC)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100015788	3/5/2015	REDACTED Email regarding Portland Harbor - FS Section 2: Update to ARAR Table.	48	1 EML / Email	R10: Koch, Kristine, M (EPA)	R10: Wyatt, Bob (Northwest Natural Gas Company), R10: Mckenna, Jim (Verdant Solutions, LLC)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100007962	3/6/2015	Email regarding Dioxin/Furan core maps.	189	2 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100007964	3/6/2015	Email regarding Dioxin/Furan Follow-up.	53	1 EML / Email	R10: Koch, Kristine, M (EPA)	R10: Wyatt, Bob (Northwest Natural Gas Company), R10: Mckenna, Jim (Verdant Solutions, LLC)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100011117	3/6/2015	Email regarding LWG Letter to EPA on EPA Draft FS Section 2.	63	1 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100011118	3/6/2015	Letter regarding EPA Draft Feasibility Study, Section 2 - 2015-03-06 Letter to EPA on FS Section 2.	188	2 CORR / Correspondence	R10: Wyatt, Bob (Northwest Natural Gas Company)	R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100011119	3/6/2015	Email regarding DDx and PAH Core Profile Maps.	202	2 EML / Email	R10: Shellenberger, Amanda (Anchor Environmental, LLC)	R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100007979	3/9/2015	Draft Comparison of Dioxin/Furan Congeners and other COCs - D-F-Congeners-COCs-Comparison-2015-03-09.	2,284	6 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100007981	3/9/2015	Draft PeCDD Alternative Footprints - PeCDD_withSampleLocations_2015-03-09.	631	1 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100007982	3/9/2015	Draft PeCDF Alternative Footprints - PeCDF_withSampleLocations_2015-03-09.	493	1 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100007995	3/9/2015	Draft TCDD Tables - TCDD_PeCDD_PeCDF_RALCurves_aboveSWAC Floor_2015-03-09_1802.	30	3 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100007996	3/9/2015	Draft TCDD Alternative Footprints - TCDD_withSampleLocations_2015-03-09.	519	1 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)

100014603	3/9/2015	REDACTED Email regarding Dioxin/Furan core maps.	194	2 EML / Email	R10: Koch, Kristine, M (EPA)		ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100007980	3/10/2015	Draft Table 1 Dioxin/Furan Congener RALS Portland Harbor Superfund Site - Final-DF-RALS_2015-03-09.	78	1 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100007993	3/10/2015	Draft RAL COC Tables - RALCOCpctdetRAL.	67	3 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100007994	3/10/2015	Draft TCDD Tables - TCDD_PeCDD_PeCDF_RALCurves_2015-03-09_1756.	27	3 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100011120	3/10/2015	Email regarding LWG Comments on DEQ Source Control Summary Report Consistency with EPA Draft FS Section 1.	150	2 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100011121	3/10/2015	Lower Willamette Group Comments on SCSR Feasibility Study Section 1 - LWG Comments on SCSR FS Section 1 3-4-2015.	181	18 CORR / Correspondence	R10: (Lower Willamette Group)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100011122	3/10/2015	Email regarding Portland Harbor - followup to 3/10/15 meeting.	80	1 EML / Email	R10: Cohen, Lori, G (EPA)	R10: Kirkpatrick, Margaret, D (Northwest Natural Gas Co.)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100011125	3/10/2015	Revised RAOs Comments - 2015-02-23 Revised RAOs_Ridolfi comments.	107	1 CORR / Correspondence	R10: Callahan, Kristin (Ridolfi, Inc.)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100011129	3/10/2015	Revised RAOs comments - 2015-02-23 Revised RAOs_Ridolfi comments.	107	1 CORR / Correspondence	R10: Callahan, Kristin (Ridolfi, Inc.)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100014606	3/10/2015	REDACTED Email regarding LWG Letter to EPA on EPA Draft FS Section 2.	113	2 EML / Email	R10: Koch, Kristine, M (EPA)	Robert (NOAA), R10: Buck, Jeremy (U. S. Fish and Wildlife Service), R10: Madden, Erin (Unknown), R10: Cabral, Rita (Industrial Economics, Incorporated), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Cunninghame, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Ridolfi, Callie (Ridolfi Engineers, Inc.), R10: Downey, Tom (Confederated Tribes of the Siletz Indians), R10: Partridge, Holly (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Karnosh, Michael (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Sheldrake, Sean, A (EPA), R10: Fuentes, Rene, C (EPA), R10: Robinson, Deborah, G (EPA), R10: Blischke, Eric, L (EPA), R10: Conley, Alanna (EPA), R10: Christopher, Anne (EPA), R10: Allen, Elizabeth (EPA), R10: Morrison, Kay (EPA), R10: Moses, Gabriel (Nez Perce Tribe), R10: Liverman, Alex (Oregon Dept. of Environmental Quality), R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality), R10: McClincy, Matt (Oregon Dept. of Environmental Quality), R10: Poulsen, Mike (Oregon Dept. of Environmental Quality), R10: Gainer, Thomas, B (Oregon Dept. of Environmental Quality), R10: Fricano, Gail (Industrial Economics, Inc.), R10: Delvecchio, Rachel (Industrial Economics, Inc.), R10: Callahan, Kristin (Ridolfi, Inc.), R10: Robert (NOAA), R10: Buck, Jeremy (U. S. Fish and Wildlife Service), R10: Madden, Erin (Unknown), R10: Cabral, Rita (Industrial Economics, Incorporated), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Cunninghame, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Ridolfi, Callie (Ridolfi Engineers, Inc.), R10: Downey, Tom (Confederated Tribes of the Siletz Indians), R10: Partridge, Holly (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Karnosh, Michael (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Sheldrake, Sean, A (EPA), R10: Fuentes, Rene, C (EPA), R10: Robinson, Deborah, G (EPA), R10: Blischke, Eric, L (EPA), R10: Conley, Alanna (EPA), R10: Christopher, Anne (EPA), R10: Allen, Elizabeth (EPA), R10: Morrison, Kay (EPA), R10: Moses, Gabriel (Nez Perce Tribe), R10: Liverman, Alex (Oregon Dept. of Environmental Quality), R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality), R10: McClincy, Matt (Oregon Dept. of Environmental Quality), R10: Poulsen, Mike (Oregon Dept. of Environmental Quality), R10: Muza, Richard (EPA Region 10), R10: Fricano, Gail (Industrial Economics, Inc.), R10: Delvecchio, Rachel (Industrial Economics, Inc.), R10: Callahan, Kristin (Ridolfi, Inc.), R10:	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100014608	3/10/2015	REDACTED Email regarding LWG Comments on DEQ Source Control Summary Report Consistency with EPA Draft FS Section 1.	156	3 EML / Email	R10: Koch, Kristine, M (EPA)		ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100015702	3/10/2015	REDACTED Email regarding Dioxin/Furan Follow-up.	102	2 EML / Email	R10: Koch, Kristine, M (EPA)	R10: Stivers, Carl (Anchor QEA, LLC)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100015704	3/10/2015	REDACTED Email regarding Dioxin/Furan RALS.	58	2 EML / Email	R10: Koch, Kristine, M (EPA)	R10: Wyatt, Bob (Northwest Natural Gas Company), R10: Mckenna, Jim (Verdant Solutions, LLC)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100015797	3/10/2015	REDACTED Email regarding Portland Harbor FS Section 2.	100	2 EML / Email	R10: Callahan, Kristin (Ridolfi, Inc.)	R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100011126	3/11/2015	Email regarding LWG Comments on DEQ Source Control Summary Report Consistency with EPA Draft FS Section 1 - updated table.	156	3 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)

100011127	3/11/2015	Lower Willamette Group Comments on SCSR Feasibility Study Section 1 - LWG Comments on SCSR FS Section 1 3-11-2015.	181	18	CORR / Correspondence	R10: (Lower Willamette Group)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remediation Characterization/044-Feasibility Study (FS) (General)	
100014510	3/11/2015	REDACTED DEQ/EPA Monthly Meeting - 2015 3-11 Final Agenda rev 3-10-15 (2).	110	1	CORR / Correspondence	R10: Robinson, Deborah, G (EPA)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remediation Characterization/044-Feasibility Study (FS) (General)	
100014601	3/11/2015	REDACTED TCT Meeting Agenda - TCT Meeting Agenda_3-11-15.	133	2	CORR / Correspondence	R10: Coffey, Scott (CDM Smith)	R10: (Unknown) Robert (NOAA), R10: Buck, Jeremy (U. S. Fish and Wildlife Service), R10: Madden, Erin (Unknown), R10: Cabral, Rita (Industrial Economics, Incorporated), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Cunningham, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Ridolfi, Callie (Ridolfi Engineers, Inc.), R10: Downey, Tom (Confederated Tribes of the Siletz Indians), R10: Partridge, Holly (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Karnosh, Michael (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Sheldrake, Sean, A (EPA), R10: Fuentes, Rene, C (EPA), R10: Robinson, Deborah, G (EPA), R10: Blischke, Eric, L (EPA), R10: Conley, Alanna (EPA), R10: Christopher, Anne (EPA), R10: Allen, Elizabeth (EPA), R10: Morrison, Kay (EPA), R10: Moses, Gabriel (Nez Perce Tribe), R10: Gainer, Thomas, B (Oregon Dept. of Environmental Quality), R10: Liverman, Alex (Oregon Dept. of Environmental Quality), R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality), R10: McClincy, Matt (Oregon Dept. of Environmental Quality), R10: Poulsen, Mike (Oregon Dept. of Environmental Quality), R10: Muza, Richard (EPA Region 10), R10: Fricano, Gail (Industrial Economics, Inc.), R10: Delvecchio, Rachel (Industrial Economics, Inc.), R10: Callahan, Kristin (Ridolfi, Inc.), R10:	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remediation Characterization/044-Feasibility Study (FS) (General)
100014610	3/11/2015	REDACTED Email regarding Talking Pts for TCT.	51	1	EML / Email	R10: Koch, Kristine, M (EPA)		ELECTRONIC RECORD	053-REMEDIATION/0531-Remediation Characterization/044-Feasibility Study (FS) (General)	
100008056	3/12/2015	Draft LWG Technical FS Meeting Notes - DRAFT LWG Technical FS Meeting Notes_3-12-15.	159	3	CORR / Correspondence	R10: Coffey, Scott (CDM Smith)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remediation Characterization/044-Feasibility Study (FS) (General)	
100015798	3/12/2015	REDACTED Email regarding Portland Harbor FS Section 2.	102	2	EML / Email	R10: Callahan, Kristin (Ridolfi, Inc.)	R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remediation Characterization/044-Feasibility Study (FS) (General)	
100011130	3/13/2015	Email regarding GIS File Request for D/F data.	155	2	EML / Email	R10: Shellenberger, Amanda (Anchor Environmental, LLC)	R10: King, Todd (CDM Smith)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remediation Characterization/044-Feasibility Study (FS) (General)	
100011131	3/16/2015	Email regarding Please Read Prior to LWG Meeting - Mn PRG Issue.	73	1	EML / Email	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remediation Characterization/044-Feasibility Study (FS) (General)	
100011132	3/16/2015	Email regarding Portland Harbor - FS Section 2.	100	3	EML / Email	R10: Stivers, Carl (Anchor QEA, LLC)	R10: Koch, Kristine, M (EPA) Robert (NOAA), R10: Buck, Jeremy (U. S. Fish and Wildlife Service), R10: Madden, Erin (Unknown), R10: Cabral, Rita (Industrial Economics, Incorporated), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Cunningham, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Ridolfi, Callie (Ridolfi Engineers, Inc.), R10: Downey, Tom (Confederated Tribes of the Siletz Indians), R10: Partridge, Holly (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Karnosh, Michael (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Sheldrake, Sean, A (EPA), R10: Fuentes, Rene, C (EPA), R10: Robinson, Deborah, G (EPA), R10: Blischke, Eric, L (EPA), R10: Conley, Alanna (EPA), R10: Christopher, Anne (EPA), R10: Allen, Elizabeth (EPA), R10: Morrison, Kay (EPA), R10: Liverman, Alex (Oregon Dept. of Environmental Quality), R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality), R10: McClincy, Matt (Oregon Dept. of Environmental Quality), R10: Poulsen, Mike (Oregon Dept. of Environmental Quality), R10: Gainer, Tom (Oregon Dept. of Environmental Quality), R10: Muza, Richard (EPA Region 10), R10: Fricano, Gail (Industrial Economics, Inc.), R10: Delvecchio, Rachel (Industrial Economics, Inc.), R10: Callahan, Kristin (Ridolfi, Inc.), R10: Longoria, Rose (Yakama Nation), R10: Coffey,	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remediation Characterization/044-Feasibility Study (FS) (General)
100014623	3/16/2015	REDACTED Email regarding Portland Harbor - Meeting notes from 3/11 TCT meeting.	44	1	EML / Email	R10: Koch, Kristine, M (EPA)		ELECTRONIC RECORD	053-REMEDIATION/0531-Remediation Characterization/044-Feasibility Study (FS) (General)	
100011133	3/18/2015	Email regarding FS Section 2 comments. Revised from BERA Maps 6-28a Portland Harbor RI/FS Revised Benthic Weight of Evidence - 5909a_Updated Benthic WOE .	45	1	EML / Email	R10: Fricano, Gail (Industrial Economics, Inc.)	R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remediation Characterization/044-Feasibility Study (FS) (General)	
100011224	3/18/2015	Revised from BERA Maps 6-28b Portland Harbor RI/FS Revised Benthic Weight of Evidence - 5909b_Updated Benthic WOE.	1,044	1	CORR / Correspondence	R10: (Lower Willamette Group), R10: (Windward Environmental, LLC.)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remediation Characterization/044-Feasibility Study (FS) (General)	
100011225	3/18/2015	Letter regarding Administrative Order on Consent for Remedial Investigation and Feasibility Study - 2015-03-19 FS Section 1 letter to LWG.	1,269	1	CORR / Correspondence	R10: (Lower Willamette Group), R10: (Windward Environmental, LLC.)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remediation Characterization/044-Feasibility Study (FS) (General)	
100011137	3/19/2015	Email regarding Portland Harbor - Bioaccumulation Modeling Report.	457	2	CORR / Correspondence	R10: Cohen, Lori, G (EPA)	R10: Wyatt, Bob (Northwest Natural Gas Company) R10: Wyatt, Bob (Northwest Natural Gas Company), R10: Mckenna, Jim (Verdant Solutions, LLC)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remediation Characterization/044-Feasibility Study (FS) (General)	
100011135	3/20/2015	Email regarding Portland Harbor Letters.	43	1	EML / Email	R10: Koch, Kristine, M (EPA)	R10: Wyatt, Bob (Northwest Natural Gas Company), R10: Mckenna, Jim (Verdant Solutions, LLC)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remediation Characterization/044-Feasibility Study (FS) (General)	
100011136	3/20/2015		44	1	EML / Email	R10: Koch, Kristine, M (EPA)		ELECTRONIC RECORD	053-REMEDIATION/0531-Remediation Characterization/044-Feasibility Study (FS) (General)	

100014535	3/20/2015	REDACTED Email regarding Portland Harbor Letters.	71	2	EML / Email	R10: Koch, Kristine, M (EPA)		ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100011223	3/23/2015	Portland Harbor RI/FS Appendix P - 2014-03-23_Appendix P.	221	18	CORR / Correspondence	R10: (Lower Willamette Group)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100011139	3/25/2015	Letter regarding LWG Comments on Revised FS Section 2 - 2015-03-25 LWG Comments on Revised Draft Section 2 Cover Letter.	148	2	CORR / Correspondence	R10: Wyatt, Bob (Northwest Natural Gas Company)	R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100011140	3/25/2015	LWG Comments on EPA's Feasibility Study Revised Draft Section 2 - 2015-03-25 LWG Comments Section 2 FS.	237	17	CORR / Correspondence	R10: (Lower Willamette Group)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100011141	3/25/2015	Email regarding Section 2 FS Review Comments.	202	7	EML / Email	R10: Gainer, Tom (Oregon Dept. of Environmental Quality)	R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100011142	3/25/2015	Eco Screening Values for TPH Fractions Tables - Eco Screening Values for TPH Fractions.	45	1	CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100011229	3/25/2015	LWG Comments on Table 2.1-1 - 2.1-2.	114	4	CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100011233	3/25/2015	LWG Comments on Table 2.1-1- 2 - 2015-04-10 Response to LWG 2015-03-25 Comments on ARARs.	127	5	CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100015799	3/25/2015	REDACTED Email regarding LWG Comments on EPA's FS Revised Draft Section 2.	66	1	EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100011143	3/26/2015	Email regarding LWG Recommendation on Manganese Water PRG for RAO 8.	96	2	EML / Email	R10: Stivers, Carl (Anchor QEA, LLC)	R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100011216	3/26/2015	LWG Comments on Table 2.1-1 - 2.1-2.	261	4	CORR / Correspondence	R10: (Lower Willamette Group)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100014536	3/26/2015	REDACTED Email regarding LWG Comments on EPA's FS Revised Draft Section 2.	113	2	EML / Email	R10: Koch, Kristine, M (EPA)		ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100015802	3/26/2015	REDACTED Email regarding LWG Comments on EPA's FS Revised Draft Section 2.	112	2	EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100011217	3/30/2015	Email regarding Scheduling of meetings.	75	2	EML / Email	R10: Mckenna, James (Verdant Solutions, LLC)	R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100011218	3/30/2015	Email regarding Scheduling of meetings.	74	2	EML / Email	R10: Koch, Kristine, M (EPA)	R10: Mckenna, James (Verdant Solutions, LLC)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100011219	3/30/2015	Email regarding Scheduling of meetings.	51	1	EML / Email	R10: Mckenna, James (Verdant Solutions, LLC)	R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100011220	4/3/2015	Email regarding Portland Harbor Draft Appendix P.	107	2	EML / Email	R10: Koch, Kristine, M (EPA)	R10: Woronets, Jennifer (Anchor QEA, LLC)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100011221	4/3/2015	Email regarding Portland Harbor Draft Appendix P.	86	1	EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100011222	4/3/2015	Portland Harbor RI/FS Appendix P - 2014-03-02_Appendix P_RLSO.	279	19	CORR / Correspondence	R10: (Windward Environmental, LLC.)	R10: (Lower Willamette Group)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100011226	4/3/2015	Attachment 2 Comprehensive Benthic Approach Table - Attachment_2_Comprehensive Benthic Approach_clean_2014_03_24.	35	1	CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)



100014529	4/3/2015	REDACTED Email regarding Portland Harbor Draft Appendix P.	111	2 EML / Email	R10: Koch, Kristine, M (EPA)	Robert (NOAA), R10: Buck, Jeremy (U. S. Fish and Wildlife Service), R10: Johnson, Courtney (Unknown), R10: Madden, Erin (Unknown), R10: Cabral, Rita (Industrial Economics, Incorporated), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Cunninghame, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Ridolfi, Callie (Ridolfi Engineers, Inc.), R10: Downey, Tom (Confederated Tribes of the Siletz Indians), R10: Partridge, Holly (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Karnosh, Michael (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Sheldrake, Sean, A (EPA), R10: Fuentes, Rene, C (EPA), R10: Blischke, Eric, L (EPA), R10: Conley, Alanna (EPA), R10: Christopher, Anne (EPA), R10: Shephard, Burt (EPA), R10: Allen, Elizabeth (EPA), R10: Morrison, Kay (EPA), R10: Moses, Gabriel (Nez Perce Tribe), R10: Liverman, Alex (Oregon Dept. of Environmental Quality), R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality), R10: McClincy, Matt (Oregon Dept. of Environmental Quality), R10: Poulsen, Mike (Oregon Dept. of Environmental Quality), R10: Gainer, Tom (Oregon Dept. of Environmental Quality), R10: Muza, Richard (EPA Region 10), R10: Fricano, Gail (Industrial Economics, Inc.), R10: Delvecchio, Rachel (Industrial Economics,	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100011228	4/6/2015	Email regarding Portland Harbor - LWG FS Section 2 comments.	69	1 EML / Email	R10: Mckenna, Jim (Verdant Solutions, LLC)	R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100011231	4/8/2015	Draft Portland Harbor Feasibility Study CAD/CDF Disposal Option Summary - CAD_CDF Evaluation Matrix_2015-04-08.	187	7 CORR / Correspondence	R10: Mullin, Jeanette (CDM Smith)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100011235	4/10/2015	EPA Response to LWG's March 25, 2015 Comments on the Portland Harbor FS Section 2 - 2015-04-10 EPA Response to LWG Comments on FS Section 2.	141	20 CORR / Correspondence	R10: Koch, Kristine, M (EPA)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100011236	4/10/2015	LWG Comments on Table 2.1-1 -2 - 2015-04-10 Response to LWG Comments on ARARs.	92	4 CORR / Correspondence	R10: (Lower Willamette Group)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100011237	4/10/2015	Email regarding DEQ Water Quality Criteria - ARAR Question.	109	2 EML / Email	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	R10: Koch, Kristine, M (EPA), R10: Allen, Elizabeth (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100015915	4/10/2015	REDACTED Email regarding LWG Comments on EPA's FS Revised Draft Section 2.	123	3 EML / Email	R10: Koch, Kristine, M (EPA)	R10: Woronets, Jennifer (Anchor QEA, LLC)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100015916	4/10/2015	REDACTED Email regarding LWG Comments on EPA's FS Revised Draft Section 2.	118	2 EML / Email	R10: Koch, Kristine, M (EPA)	R10: Woronets, Jennifer (Anchor QEA, LLC)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100015924	4/10/2015	REDACTED Email regarding LWG Comments on EPA's FS Revised Draft Section 2.	114	2 EML / Email	R10: Koch, Kristine, M (EPA)	R10: Woronets, Jennifer (Anchor QEA, LLC)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100011238	4/13/2015	Email regarding Oregon Hazardous Waste -- pesticide rule -- ARAR question.	55	1 EML / Email	R10: Cora, Lori, H (EPA)	R10: Vrooman, Gary, L (State of Oregon)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100011239	4/13/2015	Email regarding OPR ODEQ letter.	102	3 EML / Email	R10: Peterson, Lance, E (CDM Smith)	R10: Cora, Lori, H (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100011241	4/14/2015	Email regarding Portland Harbor Data Request.	67	1 EML / Email	R10: Mckenna, James (Verdant Solutions, LLC)	R10: Wyatt, Bob (Northwest Natural Gas Company), R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100011243	4/14/2015	Letter regarding Inclusion of RM 6E and RM 11E Data in FS Database - 2015-04-14 LWG Letter Regarding Inclusion of RM 6E and 11E .	210	2 CORR / Correspondence	R10: Wyatt, Bob (Northwest Natural Gas Company)	R10: Koch, Kristine, M (EPA) R10: Wyatt, Bob (Northwest Natural Gas Company), R10: Mckenna, Jim (Verdant Solutions, LLC)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100011244	4/14/2015	Email regarding Portland Harbor Data Request.	44	1 EML / Email	R10: Koch, Kristine, M (EPA)	R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100015918	4/14/2015	REDACTED Email regarding Letter Regarding Inclusion of RM 6E and 11E Data in FS Database.	108	1 EML / Email	R10: Woronets, Jennifer (Anchor Environmental, LLC)	R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100011245	4/16/2015	Email regarding Map 6-11 data layers.	49	1 EML / Email	R10: Toll, John (Windward Environmental, LLC.)	R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100011246	4/20/2015	Email regarding Portland Harbor - Follow-up from 4/9 EPA/DEQ Meeting.	95	2 EML / Email	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100011248	4/23/2015	LWG Responses to EPA's Responses to LWG Comments on Feasibility Stud Revised Draft Section 2 Text - LWG 2015-04-23 LWG FS Section 2 comments.	170	28 CORR / Correspondence	R10: (Lower Willamette Group)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100011249	4/23/2015	Email regarding Portland Harbor - BERA data request.	70	1 EML / Email	R10: Toll, John (Windward Environmental, LLC.)	R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100011250	4/23/2015	Email regarding Dioxin/Furan core maps.	193	2 EML / Email	R10: Shellenberger, Amanda (Anchor Environmental, LLC)	R10: Koch, Kristine, M (EPA), R10: Woronets, Jennifer (Anchor QEA, LLC)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100015925	4/23/2015	REDACTED Email regarding LWG Comments on EPA's FS Revised Draft Section 2.	128	4 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Koch, Kristine, M (EPA) R10: Wyatt, Bob (Northwest Natural Gas Company), R10: Mckenna, Jim (Verdant Solutions, LLC)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100011251	4/24/2015	Email regarding Portland Harbor - Bioaccumulation Modeling Report.	47	1 EML / Email	R10: Koch, Kristine, M (EPA)	Robert (NOAA), R10: Buck, Jeremy (U. S. Fish and Wildlife Service), R10: Johnson, Courtney (Unknown), R10: Madden, Erin (Unknown), R10: Cabral, Rita (Industrial Economics, Incorporated), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Cunninghame, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Ridolfi, Callie (Ridolfi Engineers, Inc.), R10: Downey, Tom (Confederated Tribes of the Siletz Indians), R10: Partridge, Holly (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Karnosh, Michael (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Sheldrake, Sean, A (EPA), R10: Fuentes, Rene, C (EPA), R10: Robinson, Deborah, G (EPA), R10: Blischke, Eric, L (EPA), R10: Conley, Alanna (EPA), R10: Christopher, Anne (EPA), R10: Shephard, Burt (EPA), R10: Allen, Elizabeth (EPA), R10: Morrison, Kay (EPA), R10: Moses, Gabriel (Nez Perce Tribe), R10: Liverman, Alex (Oregon Dept. of Environmental Quality), R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality), R10: McClincy, Matt (Oregon Dept. of Environmental Quality), R10: Poulsen, Mike (Oregon Dept. of Environmental Quality), R10: Muza, Richard (EPA Region 10), R10: Fricano, Gail (Industrial Economics, Inc.), R10: Delvecchio, Rachel (Industrial Economics,	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100014527	4/24/2015	REDACTED Email regarding LWG Comments on EPA's FS Revised Draft Section 2.	133	4 EML / Email	R10: Koch, Kristine, M (EPA)	R10: Longoria, Rose (Yakama Nation),	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)

100011252	4/28/2015	Email regarding Dioxin/Furan core maps.	196	3 EML / Email	R10: Koch, Kristine, M (EPA)	R10: Shellenberger, Amanda (Anchor Environmental, LLC)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100013303	4/28/2015	AquaBlo & Technology & Application of Amendments and Low-Permeability Materials in Remediation & Geotechnical Applications - AquaBlok AquaGate EPA Update April 2015.	7,141	48 CORR / Correspondence	R10: (AquaBlok)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100011253	4/30/2015	Email regarding Portland Harbor - Bioaccumulation Modeling Report.	78	3 EML / Email	R10: Koch, Kristine, M (EPA)	R10: Mckenna, James (Verdant Solutions, LLC)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100011254	5/5/2015	Email regarding FS Revised Section 2; Clarification on LWG Comment #8.	52	1 EML / Email	R10: Mckenna, James (Verdant Solutions, LLC)	R10: Koch, Kristine, M (EPA) Robert (NOAA), R10: Buck, Jeremy (U. S. Fish and Wildlife Service), R10: Johnson, Courtney (Unknown), R10: Cabral, Rita (Industrial Economics, Incorporated), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Cunningham, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Ridolfi, Callie (Ridolfi Engineers, Inc.), R10: Downey, Tom (Confederated Tribes of the Siletz Indians), R10: Partridge, Holly (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Karnosh, Michael (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Sheldrake, Sean, A (EPA), R10: Fuentes, Rene, C (EPA), R10: Robinson, Deborah, G (EPA), R10: Blischke, Eric, L (EPA), R10: Conley, Alanna (EPA), R10: Christopher, Anne (EPA), R10: Shephard, Burt (EPA), R10: Allen, Elizabeth (EPA), R10: Morrison, Kay (EPA), R10: Moses, Gabriel (Nez Perce Tribe), R10: Liverman, Alex (Oregon Dept. of Environmental Quality), R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality), R10: McClincy, Matt (Oregon Dept. of Environmental Quality), R10: Poulsen, Mike (Oregon Dept. of Environmental Quality), R10: Fricano, Gail (Industrial Economics, Inc.), R10: Delvecchio, Rachel (Industrial Economics, Inc.), R10: Gustavson, Karl (Unknown), R10: Longoria, Rose (Yakama Nation), R10: Coffey, Scott (CDM Smith), R10:	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100016347	5/15/2015	REDACTED Email regarding Dioxin/Furan core maps.	218	4 EML / Email	R10: Koch, Kristine, M (EPA)		ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100011255	5/19/2015	Email regarding calculation workbook for the updated congener bioaccumulation models.	57	1 EML / Email	R10: Toll, John (Windward Environmental, LLC.)	R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100011345	5/19/2015	PRG calculations based on fillet target tissue concentrations - PRG calc spreadsheet_DF congeners_FWM PRGs_forEPA_5.15.2015.	141	2 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100011346	5/19/2015	Email regarding calculation workbook for the updated congener bioaccumulation models.	75	2 EML / Email	R10: Koch, Kristine, M (EPA)	R10: Toll, John (Windward Environmental, LLC.)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100011347	5/20/2015	Email regarding calculation workbook for the updated congener bioaccumulation models.	116	2 EML / Email	R10: Toll, John (Windward Environmental, LLC.)	R10: Koch, Kristine, M (EPA), R10: Woronets, Jennifer (Anchor QEA, LLC)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100011348	5/20/2015	Email regarding calculation workbook for the updated congener bioaccumulation models.	114	2 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100016143	5/20/2015	REDACTED Email regarding TPH Fraction PRG.	46	1 EML / Email	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	R10: Koch, Kristine, M (EPA), R10: Allen, Elizabeth (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100011350	5/21/2015	Email regarding TPH Fractions in PH Groundwater Data.	46	1 EML / Email	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	R10: Koch, Kristine, M (EPA), R10: Allen, Elizabeth (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100011351	5/21/2015	Evaluation of Risk from TPH Fractions in Selected Groundwater Monitoring Well Data for Portland Harbor Sites - TPH Fractions in PH Groundwater Data1.	128	9 CORR / Correspondence	R10: Poulsen, Michael (Oregon Dept. of Environmental Quality)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100011352	5/21/2015	Email regarding TPH Fractions in PH Groundwater Data.	51	1 EML / Email	R10: Koch, Kristine, M (EPA)	R10: Allen, Elizabeth (EPA), R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100011353	5/21/2015	Email regarding TPH Fractions in PH Groundwater Data.	57	2 EML / Email	R10: Poulsen, Mike (Oregon Dept. of Environmental Quality)	R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100011354	5/26/2015	Email regarding Final decision on ES&T manuscript es-2015-01092d.R1.	12	2 EML / Email	R10: Rodenburg, Lisa, A (Rutgers University)	R10: Koch, Kristine, M (EPA), R10: Conley, Alanna (EPA), R10: Hafley, Daniel (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100011355	5/26/2015	Email regarding TPH Fractions in PH Groundwater Data.	60	3 EML / Email	R10: Poulsen, Mike (Oregon Dept. of Environmental Quality)	R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100011356	5/26/2015	Table 3 TPH Fractions Tables - Table 3 TPH fractions BERA addition.	90	5 CORR / Correspondence	R10: Poulsen, Mike (Oregon Dept. of Environmental Quality)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100011357	5/26/2015	TPH Fraction HQ Tables 1 & 2 - Tables 1&2 TPH Fraction HQs.	170	8 CORR / Correspondence	R10: Poulsen, Mike (Oregon Dept. of Environmental Quality)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100011359	5/26/2015	Figure 2.2-2 Portland Harbor Site Areas that Exceed Preliminary Remediation Goals - 2015-06-03 Draft Final Figure 2.2-2 PRG & river bank-Footprints.	557	1 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100011362	5/26/2015	Figure 2.2-2 Areas that Exceed Preliminary Remediation Goals - 2015-06-03 Draft Final Figure 2.2-2 PRG & river bank-Footprints.	538	1 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100013293	5/26/2015	Figure 2.2-2 Comparison of Risk Areas to be Remediated - 2015-06-02 Draft Final Figure 2.2-2 PRG & river bank-Footprints.	533	1 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)

									Robert (NOAA), R10: Buck, Jeremy (U. S. Fish and Wildlife Service), R10: Johnson, Courtney (Unknown), R10: Madden, Erin (Unknown), R10: Cabral, Rita (Industrial Economics, Incorporated), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Cunninghame, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Ridolfi, Callie (Ridolfi Engineers, Inc.), R10: Downey, Tom (Confederated Tribes of the Siletz Indians), R10: Partridge, Holly (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Karnosh, Michael (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Sheldrake, Sean, A (EPA), R10: Fuentes, Rene, C (EPA), R10: Robinson, Deborah, G (EPA), R10: Blischke, Eric, L (EPA), R10: Conley, Alanna (EPA), R10: Christopher, Anne (EPA), R10: Shephard, Burt (EPA), R10: Allen, Elizabeth (EPA), R10: Morrison, Kay (EPA), R10: Liverman, Alex (Oregon Dept. of Environmental Quality), R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality), R10: McClincy, Matt (Oregon Dept. of Environmental Quality), R10: Poulsen, Mike (Oregon Dept. of Environmental Quality), R10: Gainer, Tom (Oregon Dept. of Environmental Quality), R10: Muza, Richard (EPA Region 10), R10: Fricano, Gail (Industrial Economics, Inc.), R10: Delvecchio, Rachel (Industrial Economics, R10: Wyatt, Bob (Northwest Natural Gas Company), R10: Mckenna, Jim (Verdant Solutions, LLC)			
100014537	5/26/2015	REDACTED Email regarding LWG Comments on EPA's FS Revised Draft Section 2.	118	2	EML / Email	R10: Koch, Kristine, M (EPA)		ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)			
100013288	6/2/2015	Email regarding Portland Harbor FS Section 2. Appendix B1 – Human Health Risk-Based Preliminary Remediation Goal (PRG) Derivation - 2015-06-02 Draft Final Appendix B1_HH PRGs.	48	1	EML / Email	R10: Koch, Kristine, M (EPA)		ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)			
100013289	6/2/2015	Appendix B1 - HH PRGs - 2015-06-02 Draft Final Appendix B1_Table B1_HH PRGs.	204	13	CORR / Correspondence	R10: Allen, Elizabeth (EPA)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)			
100013290	6/2/2015	Appendix B2 - Ecological Risk-Based Preliminary Remediation Goal (PRG) Derivation - 2015-06-02 Draft Final Appendix B2_Ecological PRGs.	119	1	CORR / Correspondence	R10: Allen, Elizabeth (EPA)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)			
100013291	6/2/2015	Table B-2 Risk-Based Ecological PRGs - 2015-06-02 Draft Final Appendix B2_Table B2_Eco PRGs.	128	4	CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)			
100013292	6/2/2015	Draft Final Feasibility Stud Section 2.2 Tables - 2015-06-02 Draft Final FS Section 2.2 Tables. Portland Harbor RI/FS Draft Final Feasibility Study Report Section 1 - 2015-06-02 Draft Final Portland Harbor FS Section 1.	440	16	CORR / Correspondence	R10: Koch, Kristine, M (EPA)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)			
100013295	6/2/2015	Table 2.4-1 Initial Screening of Remedial Technologies and Process Options - 2015-06-02 Draft Final Table 2.4-01.	362	28	CORR / Correspondence	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)			
100013296	6/2/2015	Table 2.4-2 Technology and Process Options Screening Summary - 2015-06-02 Draft Final Table 2.4-02.	341	33	CORR / Correspondence	R10: Blischke, Eric, L (EPA)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)			
100013297	6/2/2015	Table 2.4-3 CAD/CDF Disposal Option Summary - 2015-06-02 Draft Final Table 2.4-3 CAD_CDF Evaluation Matrix.	116	5	CORR / Correspondence	R10: Koch, Kristine, M (EPA)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)			
100013298	6/2/2015	Table 2.1-1-3 - 2015-06-02 Draft Final Tables 2.1-1 through 2.1-3 ARARs.	143	6	CORR / Correspondence	R10: Koch, Kristine, M (EPA)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)			
100013299	6/2/2015	Table 2.1-1-3 - 2015-06-02 Draft Final Tables 2.1-1 through 2.1-3 ARARs.	189	8	CORR / Correspondence	R10: Mullin, Jeanette (CDM Smith)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)			
100013300	6/2/2015	Table 2.1-1-3 - 2015-06-02 Draft Final Tables 2.1-1 through 2.1-3 ARARs.	148	4	CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)			
100011358	6/3/2015	Email regarding Portland Harbor FS Section 2.	42	1	EML / Email	R10: Koch, Kristine, M (EPA)	R10: Wyatt, Bob (Northwest Natural Gas Company), R10: Mckenna, Jim (Verdant Solutions, LLC)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)			
100011360	6/3/2015	Email regarding Portland Harbor FS Section 2.	43	1	EML / Email	R10: Koch, Kristine, M (EPA)	R10: Wyatt, Bob (Northwest Natural Gas Company), R10: Mckenna, Jim (Verdant Solutions, LLC)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)			
100011361	6/3/2015	Table B-2 Risk-Based Ecological PRGs Portland Harbor Superfund Site - 2015-06-03 Draft Final Appendix B2_Table B2_Eco PRGs.	121	1	CORR / Correspondence	R10: Koch, Kristine, M (EPA)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)			
100011363	6/5/2015	Email regarding Portland Harbor FS Section 2 - Updated PRG tables.	53	1	EML / Email	R10: Koch, Kristine, M (EPA)	R10: Wyatt, Bob (Northwest Natural Gas Company), R10: Mckenna, Jim (Verdant Solutions, LLC)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)			
100011364	6/5/2015	Portland Harbor Feasibility Study Section 2.2 Tables - 2015-06-05 Draft Final FS Section 2.2 Tables.	388	15	CORR / Correspondence	R10: Koch, Kristine, M (EPA)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)			
100011365	6/17/2015	Email regarding Mn Questions.	96	1	EML / Email	R10: Koch, Kristine, M (EPA)	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)			
100017711	6/19/2015	REDACTED Email regarding bioaccumulation modeling report.	74	2	EML / Email	R10: Koch, Kristine, M (EPA)	R10: Angle, Genevieve (NOAA), R10: Johnson, Courtney (Unknown), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Cunninghame, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Ward, Elmer (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Ridolfi, Callie (Ridolfi Engineers, Inc.), R10: Downey, Tom (Confederated Tribes of the Siletz Indians), R10: Partridge, Holly (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Karnosh, Michael (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Moses, Gabriel (Nez Perce Tribe), R10: Liverman, Alex (Oregon Dept. of Environmental Quality), R10: Fricano, Gail (Industrial Economics, Inc.), R10: Delvecchio, Rachel (Industrial Economics, Inc.), R10: Longoria, Rose (Yakama Nation), R10: Bianco, Paul (Unknown), R10: Hagerman, Paul (Unknown), R10: Williams, Jd (Unknown), R10: Mullin, Jeanette (CDM Smith), R10: Weis, Julie (Haglund Kelley, LLP), R10: Buck, Jeremy (U. S. Fish & Wildlife Service)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)			
100011367	6/26/2015	Email regarding Portland Harbor FS.	43	1	EML / Email	R10: Koch, Kristine, M (EPA)	R10: Wyatt, Bob (Northwest Natural Gas Company), R10: Stivers, Carl (Anchor QEA, LLC), R10: Mckenna, Jim (Verdant Solutions, LLC)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)			
100011369	7/1/2015	Email regarding DSL easement/fees for use of state aquatic lands.	69	1	EML / Email	R10: Cora, Lori, H (EPA)	R10: Sheldrake, Sean, A (EPA), R10: Koch, Kristine, M (EPA), R10: Cohen, Grant (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)			
100011370	7/1/2015	Email regarding ARARs related to Removal-Fill Program for PDX Harbor.	82	3	EML / Email	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)			
100011371	7/1/2015	Email regarding Portland Harbor FS.	136	2	EML / Email	R10: Stivers, Carl (Anchor QEA, LLC)	R10: Wyatt, Bob (Northwest Natural Gas Company), R10: Koch, Kristine, M (EPA), R10: Mckenna, Jim (Verdant Solutions, LLC)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)			

100011374	7/7/2015	Email regarding Final Memorandum: Hardness-Based Chronic and Acute Manganese Ecological PRGs for Water.	107	2 EML / Email	R10: Koch, Kristine, M (EPA)	R10: Mckenna, James (Verdant Solutions, LLC)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100011375	7/7/2015	Email regarding Portland Harbor Project Manager Meetings.	42	1 EML / Email	R10: Koch, Kristine, M (EPA)	R10: Mckenna, Jim (Verdant Solutions, LLC)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100011376	7/7/2015	Email regarding Portland Harbor FS Schedule.	48	1 EML / Email	R10: Koch, Kristine, M (EPA)	R10: Wyatt, Bob (Northwest Natural Gas Company), R10: Mckenna, Jim (Verdant Solutions, LLC)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100017716	7/7/2015	REDACTED Email regarding Portland Harbor FS Schedule.	73	2 EML / Email	R10: Koch, Kristine, M (EPA)	R10: Angle, Genevieve (NOAA), R10: Johnson, Courtney (Unknown), R10: Cabral, Rita (Industrial Economics, Incorporated), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Cunningham, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Ward, Elmer (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Ridolfi, Callie (Ridolfi Engineers, Inc.), R10: Downey, Tom (Confederated Tribes of the Siletz Indians), R10: Partridge, Holly (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Karnosh, Michael (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Moses, Gabriel (Nez Perce Tribe), R10: Liverman, Alex (Oregon Dept. of Environmental Quality), R10: Fricano, Gail (Industrial Economics, Inc.), R10: Delvecchio, Rachel (Industrial Economics, Inc.), R10: Humphreys, Brandy (Grand Ronde Tribe), R10: Longoria, Rose (Yakama Nation), R10: Coffey, Scott (CDM Smith), R10: King, Todd (CDM Smith), R10: Bianco, Paul (Unknown), R10: Hagerman, Paul (Unknown), R10: Williams, Jd (Unknown), R10: Mullin, Jeanette (CDM Smith), R10: Weis, Julie (Haglund Kelley, LLP), R10: Buck, Jeremy (U. S. Fish & Wildlife Service)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100011378	7/8/2015	Portland Harbor FS Alternatives Presentation - 2015-07-08 Presentation on FS to TCT.	316	7 CORR / Correspondence	R10: Koch, Kristine, M (EPA)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100011377	7/9/2015	Email regarding Portland Harbor TCT Presentation.	42	1 EML / Email	R10: Koch, Kristine, M (EPA)	R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100011379	7/13/2015	Email regarding Portland Harbor Revised ARARs tables.	52	1 EML / Email	R10: Cora, Lori, H (EPA)	R10: Vrooman, Gary, L (State of Oregon)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100011380	7/13/2015	Portland Harbor Tables 2.1-1-3 - Copy of 2015-07-13 Draft Final Tables 2.1-1 through 2.1-3 ARARs.	208	23 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100011383	7/13/2015	Technology Assignments for Navigation Channel and Future Maintenance Dredge Areas - 2015-07-13 Nav-FMD-Tech-Assignment-Flow-Chart.	108	1 CORR / Correspondence	R10: Foster, Malena (CDM Smith)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100011384	7/13/2015	Technology Assignments for Shallow Areas - 2015-07-13 Shallow-Tech-Assignment-Flow-Chart.	159	1 CORR / Correspondence	R10: Foster, Malena (CDM Smith)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100013285	7/14/2015	Highly Toxic PTW Contours (Surface Sediment) Map - Figure 3.2-05_PTW-Concentrations.	561	1 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100011593	7/15/2015	Technology Assignments for Intermediate Areas - 2015-07-14 Intermediate-Tech-Assignment-Flow-Chart.	188	1 CORR / Correspondence	R10: Foster, Malena (CDM Smith)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100011381	7/16/2015	Email regarding FS schedule.	78	3 EML / Email	R10: Koch, Kristine, M (EPA)	R10: Wyatt, Robert, J (Northwest Natural Gas Company)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100017722	7/16/2015	REDACTED Email regarding Portland Harbor FS.	48	1 EML / Email	R10: Koch, Kristine, M (EPA)	R10: Angle, Genevieve (NOAA), R10: Johnson, Courtney (Unknown), R10: Cabral, Rita (Industrial Economics, Incorporated), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Cunningham, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Ward, Elmer (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Ridolfi, Callie (Ridolfi Engineers, Inc.), R10: Downey, Tom (Confederated Tribes of the Siletz Indians), R10: Partridge, Holly (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Karnosh, Michael (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Moses, Gabriel (Nez Perce Tribe), R10: Liverman, Alex (Oregon Dept. of Environmental Quality), R10: Fricano, Gail (Industrial Economics, Inc.), R10: Delvecchio, Rachel (Industrial Economics, Inc.), R10: Humphreys, Brandy (Grand Ronde Tribe), R10: Longoria, Rose (Yakama Nation), R10: Coffey, Scott (CDM Smith), R10: King, Todd (CDM Smith), R10: Bianco, Paul (Unknown), R10: Hagerman, Paul (Unknown), R10: Williams, Jd (Unknown), R10: Mullin, Jeanette (CDM Smith), R10: Weis, Julie (Haglund Kelley, LLP), R10: Buck, Jeremy (U. S. Fish & Wildlife Service)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100011594	7/17/2015	Email regarding Portland Harbor River Banks.	92	2 EML / Email	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100011597	7/17/2015	Email regarding Portland Harbor River Banks.	87	2 EML / Email	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100011598	7/17/2015	Email regarding Portland Harbor River Banks.	43	1 EML / Email	R10: Koch, Kristine, M (EPA)	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100011599	7/17/2015	Email regarding Portland Harbor River Banks.	92	2 EML / Email	R10: Koch, Kristine, M (EPA)	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100013280	7/17/2015	Technology Assignments Alternative B Maps - Fig3-06-02_Tech-Assign-AltB.	1,962	6 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100013282	7/17/2015	Technology Assignments Alternative E Maps - Fig3-06-05_Tech-Assign-AltE.	1,582	6 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100013283	7/17/2015	Technology Assignments Alternative F Maps - Fig3-06-06_Tech-Assign-AltF.	1,668	6 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100013284	7/17/2015	Technology Assignments Alternative G Maps - Fig3-06-07_Tech-Assign-AltG.	1,747	6 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100011616	7/20/2015	Figure 2.2-2. Areas that Exceed Preliminary Remediation Goals (PRGs) - 2015-07-29 Portland Harbor Draft Final Figure 2.2-2.	629	1 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100017565	7/28/2015	REDACTED Portland Harbor EPA FS Roll Out Meeting Agenda - 2015-07-31 Draft EPA FS Roll Out Meeting Agenda.	38	1 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)



100011600	7/29/2015	Email regarding Portland Harbor FS.	43	1 EML / Email	R10: Koch, Kristine, M (EPA)	R10: Wyatt, Bob (Northwest Natural Gas Company), R10: Mckenna, Jim (Verdant Solutions, LLC)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100011603	7/29/2015	Email regarding Request for extension of deadline to submit FS comments.	80	2 EML / Email	R10: Koch, Kristine, M (EPA)	R10: Wyatt, Robert, J (Northwest Natural Gas Company)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100011606	7/29/2015	Tables 2.1-1-3 - 2015-07-29 PH Draft Final Tables 2.1-1 through 2.1-3.	251	8 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100011607	7/29/2015	Figure 2.2-2. Areas that Exceed Preliminary Remediation Goals (PRGs) - 2015-07-29 Portland Harbor Draft Final Figure 2.2-2.	629	1 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100011608	7/29/2015	Tables 2.1-4 - 2015-07-29 Portland Harbor Draft Final FS Section 2.2 Tables.	201	4 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100011609	7/29/2015	Portland Harbor RI/FS Draft Final Feasibility Study Report Section 2 - 2015-07-29 Portland Harbor Draft Final FS Section 2.	314	33 CORR / Correspondence	R10: Blischke, Eric, L (EPA)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100011610	7/29/2015	Table 2.4-2 Technology and Process Options Screening Summary - 2015-07-29 Portland Harbor Draft Final Table 2.4-02.	143	6 CORR / Correspondence	R10: Koch, Kristine, M (EPA)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100011617	7/29/2015	Section 2.2 Tables - 2015-07-29 Portland Harbor Draft Final FS Section 2.2 Tables.	201	4 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100011618	7/29/2015	Portland Harbor RI/FS Draft Final Feasibility Study Report Section 2 - 2015-07-29 Portland Harbor Draft Final FS Section 2.	343	33 CORR / Correspondence	R10: Blischke, Eric, L (EPA)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100011619	7/29/2015	Table 2.4-2 Technology and Process Options Screening Summary - 2015-07-29 Portland Harbor Draft Final Table 2.4-02.	143	6 CORR / Correspondence	R10: Koch, Kristine, M (EPA)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100011620	7/29/2015	Portland Harbor Draft Final Tables 2.1-1-3 - 2015-07-29 PH Draft Final Table 2.1-1 through 2.1-3.	223	6 CORR / Correspondence	R10: Koch, Kristine, M (EPA)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100011626	7/29/2015	Portland Harbor RI/FS Draft Final Feasibility Study Report Dredge Production Update - 3341-DredgeProduction-Update.	123	2 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100012943	7/29/2015	Portland Harbor RI/FS Appendix D - 2015-07-29 Draft Final FS Appendix D_STribes 2015-09-11.	195	10 CORR / Correspondence	R10: Mullin, Jeanette (CDM Smith)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100012944	7/29/2015	Portland Harbor RI/FS Draft Final Feasibility Study Report Section 3 - 2015-07-29 Draft Final FS Section 3_STribes 2015-09-11.	665	51 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100013302	7/29/2015	Portland Harbor RI/FS Appendix C - 2015-07-29 Draft Final FS Appendix C_STribes 2015-09-11.	724	38 CORR / Correspondence	R10: Mullin, Jeanette (CDM Smith)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100017724	7/29/2015	REDACTED Email regarding Portland Harbor Draft Final FS Section 3 and updates to Section 2.	83	3 EML / Email	R10: Koch, Kristine, M (EPA)	R10: Wyatt, Bob (Northwest Natural Gas Company), R10: Mckenna, James (Verdant Solutions, LLC)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100017728	7/29/2015	REDACTED Email regarding Portland Harbor Draft Final FS Section 3 and updates to Section 2.	95	4 EML / Email	R10: Koch, Kristine, M (EPA)	R10: Angle, Genevieve (NOAA), R10: Buck, Jeremy (U. S. Fish and Wildlife Service), R10: Johnson, Courtney (Unknown), R10: Cabral, Rita (Industrial Economics, Incorporated), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Cunninghame, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Ward, Elmer (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Downey, Tom (Confederated Tribes of the Siletz Indians), R10: Partridge, Holly (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Karnosh, Michael (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Moses, Gabriel (Nez Perce Tribe), R10: Liverman, Alex (Oregon Dept. of Environmental Quality), R10: Fricano, Gail (Industrial Economics, Inc.), R10: Delvecchio, Rachel (Industrial Economics, Inc.), R10: Humphreys, Brandy (Grand Ronde Tribe), R10: Partridge, Holly (Grand Ronde Tribe), R10: Longoria, Rose (Yakama Nation), R10: Coffey, Scott (CDM Smith), R10: King, Todd (CDM Smith), R10: Bianco, Paul (Unknown), R10: Hagerman, Paul (Unknown), R10: Weis, Julie (Haglund Kelley, LLP)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100017731	7/29/2015	REDACTED Email regarding Portland Harbor Draft Final FS Section 3 and updates to Section 2.	74	2 EML / Email	R10: Koch, Kristine, M (EPA)	R10: Wyatt, Bob (Northwest Natural Gas Company), R10: Mckenna, Jim (Verdant Solutions, LLC)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100017733	7/29/2015	REDACTED Email regarding Portland Harbor Draft Final FS Section 3 and updates to Section 2.	81	2 EML / Email	R10: Koch, Kristine, M (EPA)	R10: Wyatt, Bob (Northwest Natural Gas Company), R10: Mckenna, James (Verdant Solutions, LLC)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100017735	7/29/2015	REDACTED Email regarding Equilibrium Estimates Memorandum.	138	3 EML / Email	R10: Koch, Kristine, M (EPA)	R10: Angle, Genevieve (NOAA), R10: Buck, Jeremy (U. S. Fish and Wildlife Service), R10: Johnson, Courtney (Unknown), R10: Cabral, Rita (Industrial Economics, Incorporated), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Cunninghame, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Ward, Elmer (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Ridolfi, Callie (Ridolfi Engineers, Inc.), R10: Downey, Tom (Confederated Tribes of the Siletz Indians), R10: Partridge, Holly (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Karnosh, Michael (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Moses, Gabriel (Nez Perce Tribe), R10: Liverman, Alex (Oregon Dept. of Environmental Quality), R10: Fricano, Gail (Industrial Economics, Inc.), R10: Delvecchio, Rachel (Industrial Economics, Inc.), R10: Humphreys, Brandy (Grand Ronde Tribe), R10: Longoria, Rose (Yakama Nation), R10: Coffey, Scott (CDM Smith), R10: King, Todd (CDM Smith), R10: Bianco, Paul (Unknown), R10: Hagerman, Paul (Unknown), R10: Williams, Jd (Unknown), R10: Mullin, Jeanette (CDM Smith), R10: Weis, Julie (Haglund Kelley, LLP)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100017734	7/30/2015	REDACTED Email regarding Portland Harbor Draft Final FS Section 3 and updates to Section 2.	83	3 EML / Email			ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100012929	7/31/2015	MNR Graphs - Time to RAO cPAH 6W_release.	497	1 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100012930	7/31/2015	MNR Graphs - Time to RAO DDx 7W_release.	491	1 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100012931	7/31/2015	MNR Graphs - Time to RAO PAH 6Nav_release.	497	1 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)

100012932	7/31/2015	MNR Graphs - Time to RAO PCB 9W_release.	512	1 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100011621	8/4/2015	Email regarding questions on FS Section 2 tables.	53	1 EML / Email	R10: Fricano, Gail (Industrial Economics, Inc.)	R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100011622	8/4/2015	Feasibility Study Section 2.2 Tables - 2015-07-29 FS Section 2.2 Tables_forEPA_08032015. REDACTED Email regarding Portland Harbor Draft Final FS Section 3 and updates to Section 2.	144	4 CORR / Correspondence	R10: Koch, Kristine, M (EPA)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100017732	8/7/2015	GIS Riverbank Estimate Assumptions - Annotated Riverbank Quantity Calculations	87	3 EML / Email	R10: Mckenna, James (Verdant Solutions, LLC)	R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100013044	8/11/2015	REDACTED Email regarding Portland Harbor - Call to Discuss Revised FS.	212	2 CORR / Correspondence	R10: (CDM Smith)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100015707	8/12/2015	REDACTED Email regarding Portland Harbor - Call to Discuss Revised FS.	118	2 EML / Email	R10: Mckenna, James (Verdant Solutions, LLC)	R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100007998	8/13/2015	Email regarding Roosevelt Landfill.	58	1 EML / Email	R10: Wolf, Fred (Unknown)	R10: Koch, Kristine, M (EPA) Robert (NOAA), R10: Buck, Jeremy (U. S. Fish and Wildlife Service), R10: Cabral, Rita (Industrial Economics, Incorporated), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Cunninghame, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Ward, Elmer (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Ridolfi, Callie (Ridolfi Engineers, Inc.), R10: Downey, Tom (Confederated Tribes of the Siletz Indians), R10: Partridge, Holly (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Karnosh, Michael (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Sheldrake, Sean, A (EPA), R10: Fuentes, Rene, C (EPA), R10: Robinson, Deborah, G (EPA), R10: Blischke, Eric, L (EPA), R10: Conley, Alanna (EPA), R10: Christopher, Anne (EPA), R10: Shephard, Burt (EPA), R10: Zhen, Davis (EPA), R10: Allen, Elizabeth (EPA), R10: Morrison, Kay (EPA), R10: Roick, Thomas, E (Oregon Dept. of Environmental Quality), R10: Liverman, Alex (Oregon Dept. of Environmental Quality), R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality), R10: McClincy, Matt (Oregon Dept. of Environmental Quality), R10: Poulsen, Mike (Oregon Dept. of Environmental Quality), R10: Fricano, Gail (Industrial Economics, Inc.), R10: Delvecchio, Rachel	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100017567	8/13/2015	REDACTED Email regarding Portland Harbor - Call to Discuss Revised FS.	121	3 EML / Email	R10: Koch, Kristine, M (EPA)	R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100011624	8/14/2015	Email regarding production text.	103	2 EML / Email	R10: Stivers, Carl (Anchor QEA, LLC)	R10: Gustavson, Karl (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100011625	8/14/2015	Email regarding production text.	45	1 EML / Email	R10: Gustavson, Karl (EPA)	R10: Stivers, Carl (Anchor QEA, LLC)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100011627	8/14/2015	Email regarding Preliminary List of Section 3 Inconsistencies.	86	1 EML / Email	R10: Stivers, Carl (Anchor QEA, LLC)	R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100011628	8/14/2015	Preliminary Draft List of Inconsistencies in Revised FS Section 3 - EPA Submittal 2015-08-14 Preliminary List of Inconsist.	28	3 CORR / Correspondence	R10: Madalinski, Kelly (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100011629	8/14/2015	Email regarding Portland Harbor - Draft Action Items List from August 13 Call Regarding Revised FS.	96	1 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100011630	8/15/2015	Email regarding Preliminary List of Section 3 Inconsistencies.	95	2 EML / Email	R10: Mckenna, James (Verdant Solutions, LLC)	R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100013027	8/18/2015	Portland Harbor RI/FS Draft Final Feasibility Study Report Section 4 - FS Section 4 5Tribes editorial redline 2015-09-24.	629	73 CORR / Correspondence	R10: Mullin, Jeanette (CDM Smith)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100017558	8/18/2015	REDACTED Email regarding Portland Harbor FS Section 4.	102	3 EML / Email	R10: Mckenna, James (Verdant Solutions, LLC)	R10: Wyatt, Robert, J (Northwest Natural Gas Company)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100020066	8/18/2015	REDACTED Email regarding Portland Harbor FS Section 4.	101	3 EML / Email	R10: Mckenna, James (Verdant Solutions, LLC)	R10: Wyatt, Robert, J (Northwest Natural Gas Company)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100020082	8/19/2015	REDACTED Email regarding Portland Harbor FS Section 4.	105	4 EML / Email	R10: Koch, Kristine, M (EPA)	R10: Mckenna, James (Verdant Solutions, LLC)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100012909	8/25/2015	Laundry list of topics to expect LWG to raise during FS discussion - 2015 8-25 Laundry list of topics to expect LWG to raise.	86	1 CORR / Correspondence	R10: Robinson, Deborah, G (EPA)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100011632	8/26/2015	Email regarding Initial list of LWG issues.	68	1 EML / Email	R10: Koch, Kristine, M (EPA)	R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100017781	8/26/2015	REDACTED Email regarding List of Topics for Tomorrow's Technical Conference Call.	94	2 EML / Email	R10: Koch, Kristine, M (EPA)	R10: Angle, Genevieve (NOAA), R10: Johnson, Courtney (Unknown), R10: Cabral, Rita (Industrial Economics, Incorporated), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Cunninghame, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Ward, Elmer (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Ridolfi, Callie (Ridolfi Engineers, Inc.), R10: Downey, Tom (Confederated Tribes of the Siletz Indians), R10: Partridge, Holly (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Karnosh, Michael (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Liverman, Alex (Oregon Dept. of Environmental Quality), R10: Fricano, Gail (Industrial Economics, Inc.), R10: Delvecchio, Rachel (Industrial Economics, Inc.), R10: Humphreys, Brandy (Grand Ronde Tribe), R10: Longoria, Rose (Yakama Nation), R10: Coffey, Scott (CDM Smith), R10: Bianco, Paul (Unknown), R10: Hagerman, Paul (Unknown), R10: Moses, Gabriel (Unknown), R10: Weis, Julie (Haglund Kelley, LLP), R10: Buck, Jeremy (U. S. Fish & Wildlife Service)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100013304	8/27/2015	EPA-LWG Meeting on FS LWG List of Issues for Discussion - Draft Notes from LWG meeting 8-27-15.	223	5 CORR / Correspondence	R10: (Lower Willamette Group)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100020083	8/31/2015	REDACTED Email regarding Question about Ex-situ Treatment.	54	2 EML / Email	R10: Koch, Kristine, M (EPA)	R10: Stivers, Carl (Anchor QEA, LLC)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100008051	9/1/2015	Email regarding Mitigation acres/cost calculations.	16	2 EML / Email	R10: Angle, Genevieve (NOAA)	R10: Sheldrake, Sean, A (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)

100012910	9/8/2015	Email regarding Portland Harbor River Banks.	66	4 EML / Email	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	R10: Koch, Kristine, M (EPA), R10: Zhen, Davis (EPA), R10: Parrett, Kevin (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100012911	9/8/2015	Google Map Image 2700 NW Front Street - 20150908144451116.	209	1 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100012923	9/8/2015	List of Significant Issues with EPA's Revised FS Sections 3 and 4 - 2015-09-08 FS Sec 3 and 4 List of Significant Issues.	459	60 CORR / Correspondence	R10: Madalinski, Kelly (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100012924	9/8/2015	Letter regarding List of significant comments on EPA Feasibility Study Section 3 and 4 - 2015-09-08 LWG Letter re Significant Issues on EPA FS.	252	6 CORR / Correspondence	R10: Wyatt, Bob (Northwest Natural Gas Company)	R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100012926	9/8/2015	Information needs to enable review of EPA's revised FS section 3 and 4 - 2015-09-08 Information Requests from EPA.	170	9 CORR / Correspondence	R10: Madalinski, Kelly (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100012927	9/8/2015	Letter regarding Information requests from EPA - 2015-09-08 LWG Letter to EPA re Information Requests.	54	1 CORR / Correspondence	R10: Wyatt, Bob (Northwest Natural Gas Company)	R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100013030	9/8/2015	Letter regarding Portland Harbor Feasibility Study Comments - City Comments on FS_Final. REDACTED Email regarding LWG Information Needs to Enable Review of EPA's Revised FS Sections 3 and 4.	893	3 CORR / Correspondence	R10: Jordan, Michael (City of Portland, Bureau of Environmental Services)	R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100016129	9/8/2015	REDACTED Email regarding LWG List of Significant Issues with EPA's Revised FS Sections 3 and 4.	66	1 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100016145	9/8/2015	REDACTED Email regarding LWG List of Significant Issues with EPA's Revised FS Sections 3 and 4.	66	1 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100016130	9/9/2015	REDACTED Email regarding LWG List of Significant Issues with EPA's Revised FS Sections 3 and 4.	110	1 EML / Email	R10: Koch, Kristine, M (EPA)	R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100016174	9/9/2015	REDACTED Email regarding LWG List of Significant Issues with EPA's Revised FS Sections 3 and 4.	115	2 EML / Email	R10: McKenna, James (Verdant Solutions, LLC)	R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100016181	9/9/2015	REDACTED Email regarding LWG Information Needs to Enable Review of EPA's Revised FS Sections 3 and 4.	110	1 EML / Email	R10: Koch, Kristine, M (EPA)	R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100012935	9/10/2015	Email regarding Additional Tish Tissue Samples.	80	2 EML / Email	R10: Wolf, Fred (Total)	R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100012936	9/10/2015	Email regarding LWG Model Predictions for Fish Tissue.	46	1 EML / Email	R10: Parrett, Kevin (Oregon Dept. of Environmental Quality)	R10: Koch, Kristine, M (EPA), R10: Grandinetti, Cami (EPA), R10: Gilles, Bruce, A (Oregon Dept. of Environmental Quality), R10: Johnson, Keith (Oregon Dept. of Environmental Quality), R10: McClincy, Matt (Oregon Dept. of Environmental Quality), R10: Deconcini, Nina (Oregon Dept. of Environmental Quality), R10: Roick, Tom (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100012937	9/10/2015	Portland Harbor RI/FS Attachment 1 - LWG Model Predictions for Small Mouth Bass (9-10-15).	1,494	9 CORR / Correspondence	R10: Parrett, Kevin (Oregon Dept. of Environmental Quality)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100012938	9/10/2015	Email regarding arkema napl.	57	2 EML / Email	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	R10: Sheldrake, Sean, A (EPA), R10: Koch, Kristine, M (EPA), R10: Allen, Elizabeth (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100012939	9/10/2015	Email regarding Additional Tish Tissue Samples.	75	1 EML / Email	R10: Koch, Kristine, M (EPA)	R10: Wolf, Fred (Total)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100012940	9/11/2015	Email regarding FS Section 2 Tables.	21	1 EML / Email	R10: Cabral, Rita (Industrial Economics, Incorporated)	R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100012941	9/11/2015	Table 2.2-4 RAO 1 PRG Derivation Portland Harbor Superfund Site - 2015-07-29 Draft Final FS Section 2.2 Tables_forEPA_08032015.	132	1 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100016184	9/11/2015	REDACTED Email regarding FS Section 3 comments.	47	1 EML / Email	R10: Fricano, Gail (Industrial Economics, Inc.)	R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100013286	9/14/2015	Quantity Backup for Sheet Pile and Silt Curtains - Quantity Backup for Sheet Pile and Silt Curtains.	145	2 CORR / Correspondence	R10: (CDM Smith)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100013287	9/15/2015	Email regarding Question on Fish Tissue Figure in Draft FS.	55	2 EML / Email	R10: Koch, Kristine, M (EPA)	R10: Parrett, Kevin (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100012946	9/18/2015	Email regarding Portland Harbor Update.	57	2 EML / Email	R10: Koch, Kristine, M (EPA)	R10: Wyatt, Bob (Northwest Natural Gas Company), R10: McKenna, Jim (Verdant Solutions, LLC)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100015780	9/18/2015	REDACTED Email regarding Portland Harbor Update.	60	2 EML / Email	R10: Koch, Kristine, M (EPA)	R10: Angle, Genevieve (NOAA), R10: Johnson, Courtney (Unknown), R10: Cabral, Rita (Industrial Economics, Incorporated), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Cunnigham, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Ward, Elmer (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Downey, Tom (Confederated Tribes of the Siletz Indians), R10: Partridge, Holly (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Karnosh, Michael (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Liverman, Alex (Oregon Dept. of Environmental Quality), R10: Fricano, Gail (Industrial Economics, Inc.), R10: Delvecchio, Rachel (Industrial Economics, Inc.), R10: Humphreys, Brandy (Grand Ronde Tribe), R10: Longoria, Rose (Yakama Nation), R10: Coffey, Scott (CDM Smith), R10: Hagerman, Paul (Unknown), R10: Williams, Jd (Unknown), R10: Moses, Gabriel (Unknown), R10: Weis, Julie (Haglund Kelley, LLP), R10: Buck, Jeremy (U. S. Fish & Wildlife Service)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100017523	9/18/2015	REDACTED Email regarding PCI group presentation.	89	8 EML / Email	R10: White, Bruce (Unknown)	R10: Cora, Lori, H (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100012947	9/22/2015	Email regarding Additional Tish Tissue Samples.	86	2 EML / Email	R10: Koch, Kristine, M (EPA)	R10: Wolf, Fred (Total)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100012948	9/24/2015	Email regarding Portland Harbor - Contaminant Transport Model.	79	3 EML / Email	R10: McKenna, James (Verdant Solutions, LLC)	R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100013028	9/24/2015	Memorandum regarding Comments on Section 4 of the Portland Harbor Feasibility Study - FS Section 4 5 Tribes substantive comments 2015-09-24.	150	7 CORR / Correspondence	R10: Cabral, Rita (Industrial Economics, Incorporated), R10: Fricano, Gail (Industrial Economics, Inc.), R10: Delvecchio, Rachel (Industrial Economics, Inc.), R10: Fredette, Tom (Industrial Economics, Inc.)	R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100015816	9/24/2015	REDACTED Email regarding FS Section 4 comments.	27	1 EML / Email	R10: Fricano, Gail (Industrial Economics, Inc.)	R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)

						R10: Angle, Genevieve (NOAA), R10: Johnson, Courtney (Unknown), R10: Cabral, Rita (Industrial Economics, Incorporated), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Cunninghame, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Ward, Elmer (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Ridolfi, Callie (Ridolfi Engineers, Inc.), R10: Downey, Tom (Confederated Tribes of the Siletz Indians), R10: Partridge, Holly (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Karnosh, Michael (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Liverman, Alex (Oregon Dept. of Environmental Quality), R10: Fricano, Gail (Industrial Economics, Inc.), R10: Delvecchio, Rachel (Industrial Economics, Inc.), R10: Humphreys, Brandy (Grand Ronde Tribe), R10: Longoria, Rose (Yakama Nation), R10: Coffey, Scott (CDM Smith), R10: Bianco, Paul (Unknown), R10: Hagerman, Paul (Unknown), R10: Williams, Jd (Unknown), R10: Moses, Gabriel (Unknown), R10: Weis, Julie (Haglund Kelley, LLP), R10: Buck, Jeremy (U. S. Fish & Wildlife Service)		053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)	
100015782	REDACTED Email regarding Oregonian 9/28/2015 Editorial Today.	48	1 EML / Email	R10: Koch, Kristine, M (EPA)		ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)		
100013020	Email regarding Portland Harbor - Bioaccumulation Modeling Report. 9/29/2015	70	1 EML / Email	R10: Mckenna, James (Verdant Solutions, LLC)	R10: Wyatt, Bob (Northwest Natural Gas Company), R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)		
100013021	Email regarding Portland Harbor - Bioaccumulation Modeling Report. 9/29/2015	48	1 EML / Email	R10: Koch, Kristine, M (EPA)	R10: Wyatt, Bob (Northwest Natural Gas Company), R10: Mckenna, Jim (Verdant Solutions, LLC)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)		
100013022	Email regarding Portland Harbor - Contaminant Transport Model. 9/30/2015	82	3 EML / Email	R10: Mckenna, James (Verdant Solutions, LLC)	R10: Koch, Kristine, M (EPA), R10: Grandinetti, Cami (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)		
100013171	GASCO Sediments Administrative Settlement Agreement - Gasco AOC and SOW. 10/1/2015	1,314	130 CORR / Correspondence	R10: (EPA Region 10)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)		
100017401	REDACTED Email regarding Portland Harbor - Attendee list for 9-29-2015 presentation. 10/1/2015	40	1 EML / Email	R10: White, Bruce (Unknown)	R10: Cora, Lori, H (EPA), R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)		
100013023	Email regarding Request for SMA-Specific Spreadsheets and Particular GIS Files. 10/2/2015	53	1 EML / Email	R10: Mckenna, James (Verdant Solutions, LLC)	R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)		
							R10: Angle, Genevieve (NOAA), R10: Johnson, Courtney (Unknown), R10: Cabral, Rita (Industrial Economics, Incorporated), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Cunninghame, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Ward, Elmer (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Downey, Tom (Confederated Tribes of the Siletz Indians), R10: Partridge, Holly (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Karnosh, Michael (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Liverman, Alex (Oregon Dept. of Environmental Quality), R10: Fricano, Gail (Industrial Economics, Inc.), R10: Delvecchio, Rachel (Industrial Economics, Inc.), R10: Humphreys, Brandy (Grand Ronde Tribe), R10: Longoria, Rose (Yakama Nation), R10: Coffey, Scott (CDM Smith), R10: Bianco, Paul (Unknown), R10: Hagerman, Paul (Unknown), R10: Williams, Jd (Unknown), R10: Moses, Gabriel (Unknown), R10: Weis, Julie (Haglund Kelley, LLP), R10: Buck, Jeremy (U. S. Fish & Wildlife Service)		053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100015811	REDACTED Email regarding One River, Many Voices Podcast: Episode 2: The Story of the Superfund. 10/2/2015	126	3 EML / Email	R10: Koch, Kristine, M (EPA)		ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)		
100013025	Email regarding Portland Harbor - Bioaccumulation Modeling Report. 10/5/2015	127	2 EML / Email	R10: Mckenna, James (Verdant Solutions, LLC)	R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)		
100008000	Additional Comments on the EPA's Revised FS Sections 3 and 4 - 2015_10_08_FS Section 3 and 4 Additional LWG Comments. 10/8/2015	408	73 CORR / Correspondence	R10: (Lower Willamette Group)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)		
100008001	Significant Issue Comment Clarifications Regarding EPA's FS Sections 3 and 4 - 2015_10_08_FS Section 3 and 4 LWG Significant Issue Clarif. 10/8/2015	24	2 CORR / Correspondence	R10: (Lower Willamette Group)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)		
100013029	Email regarding City of Portland comments on Draft FS. 10/8/2015	48	1 EML / Email	R10: Von Burg, Annie (City of Portland)	R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)		
100013031	Email regarding PH FS Comments. 10/9/2015	46	1 EML / Email	R10: Roick, Tom (Oregon Dept. of Environmental Quality)	R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)		
100013032	Letter regarding EPA Comments on Draft Feasibility Study - FS_Agency_Comments_Final 10-9-15. 10/9/2015	580	23 CORR / Correspondence	R10: Roick, Tom (Oregon Dept. of Environmental Quality)	R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)		
100015709	REDACTED Email regarding LWG Comments On EPA Draft FS Sections 3 and 4. 10/9/2015	64	1 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)		
100013034	Letter regarding Fate Model Transfer to EPA - 2015-10-12 LWG Letter re Fate Model Transfer to EPA. 10/12/2015	231	2 CORR / Correspondence	R10: Wyatt, Bob (Northwest Natural Gas Company)	R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)		
100013036	Draft Feasibility Study Process Flow Chart - Post-FS-Process-Flow-Chart_20151012. 10/12/2015	302	2 CORR / Correspondence	R10: Foster, Malena (CDM Smith)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)		
100015817	REDACTED Email regarding Portland Harbor - Contaminant Transport Model. 10/13/2015	132	5 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)		
100015829	REDACTED Email regarding LWG Comments On EPA Draft FS Sections 3 and 4. 10/13/2015	117	2 EML / Email	R10: Koch, Kristine, M (EPA)	R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)		
100015830	REDACTED Email regarding FS Section 4 comments. 10/15/2015	72	2 EML / Email	R10: Koch, Kristine, M (EPA)	R10: Fricano, Gail (Industrial Economics, Inc.)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)		
100013048	UCL Statistics for Data Sets with Non-Detects - HxCDF_UCL. 10/22/2015	85	3 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)		
100013049	Background Statistics for Data Sets with Non-Detects - HxCDF_UPL. 10/22/2015	73	3 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)		
100013038	Email regarding FS Information Requests. 10/27/2015	99	3 EML / Email	R10: Koch, Kristine, M (EPA)	R10: Stivers, Carl (Anchor QEA, LLC)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)		
100013039	Email regarding November 2 Gasco EE/CA Meeting. 10/30/2015	154	3 EML / Email	R10: Koch, Kristine, M (EPA)	R10: Barth, Ryan (Anchor QEA, LLC)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)		



100013040	Figure 3.3-40. Sediment and Soil Disposal Decision - Fig3-03-40_20151030_1440.	211	1 CORR / Correspondence	R10: Foster, Malena (CDM Smith)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100013041	Email regarding November 2 Gasco EE/CA Meeting.	154	3 EML / Email	R10: Koch, Kristine, M (EPA)	R10: Barth, Ryan (Anchor QEA, LLC)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100013043	Figure 3.3-40. Sediment and Soil Disposal Decision - 2015-11-03 Fig3-03-40.	244	1 CORR / Correspondence	R10: Foster, Malena (CDM Smith)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100013042	11/3/2015 Email regarding FS Information Requests.	124	5 EML / Email	R10: Koch, Kristine, M (EPA)	R10: Wyatt, Bob (Northwest Natural Gas Company), R10: Stivers, Carl (Anchor QEA, LLC), R10: Mckenna, Jim (Verdant Solutions, LLC)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100013045	Congener upriver Data no SOM - DF congener upriver data no SOM.	493	3 CORR / Correspondence	R10: Koch, Kristine, M (EPA)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100013047	Outlier Tests for Selected Variables replacing nondetects with 1/2 the Detection Limit - HxCDF_outlier.	47	1 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100007911	Portland Harbor CSTAG Update - 2013PHCSTAGUpdateJune11.	23,068	56 CORR / Correspondence	R10: Blischke, Eric, L (EPA)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100009999	Example of contaminant hot spots maps - Example of contaminant hot spots.	892	2 EML / Email	R10: Koch, Kristine, M (EPA)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100010302	Funding Portland Harbor Restoration Through CERCLA/WRDA Integration - Presentation to EPA Region 10 re Willamette - v5.	4,261	18 CORR / Correspondence	R10: (Dawson & Associates, Washington, D.C.)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100010851	Portland Harbor RI/FS Draft Feasibility Study Report Section 1 - 2015_01_09 EPA responses_Combined LWG EditsFS Secti.	708	44 CORR / Correspondence	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100010852	Portland Harbor RI/FS Draft Feasibility Study Report Section 1 - 2015_01_09 EPA responses_Combined LWG EditsFS Section 1 8-28-2014.	708	44 CORR / Correspondence	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100011595	Figure 2.2-2 Areas that Exceed PRGs - 20150717152843078.	392	1 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100011596	Figure 2.2-2. Areas that Exceed Preliminary Remediation Goals (PRGs) - Fig2-2-2_HH-and-Eco-Risk-Footprints_20150708.	570	1 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100013046	11/6/2015 Q-Q Plot for HxCDF Graph - HxCDF Q-Q.	155	1 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100013050	Email regarding Integral Request for DEQ Mn and TPH Fraction Info.	38	1 EML / Email	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	R10: Sheldrake, Sean, A (EPA), R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100013052	Memorandum regarding Suggestions for Quantitative Analyses to Support the Portland Harbor Feasibility Study - QuantitativeAnalysesSuggestionsMemo_1113 2015.	2,740	19 CORR / Correspondence	R10: Cabral, Rita (Industrial Economics, Incorporated), R10: Fricano, Gail (Industrial Economics, Inc.), R10: Fredette, Tom (Industrial Economics, Inc.)	R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100013053	Email regarding Scheduling FS Decision Tree Meetings.	122	5 CORR / Correspondence	R10: Koch, Kristine, M (EPA)	R10: Woronets, Jennifer (Anchor QEA, LLC)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100015832	REDACTED Email regarding FS Section 4 comments.	75	2 EML / Email	R10: Cabral, Rita (Industrial Economics, Incorporated)	R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100016128	REDACTED Email regarding FS Section 4 comments.	79	3 EML / Email	R10: Koch, Kristine, M (EPA)	R10: Cabral, Rita (Industrial Economics, Incorporated)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100013169	Email regarding Gasco EE/CA Meeting: Follow-up Information.	123	3 EML / Email	R10: Wyatt, Robert, J (Northwest Natural Gas Company)	R10: Sheldrake, Sean, A (EPA), R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100013170	Gasco Sediments Site 2009 Statement of Work Waste Suitability Determination Framework - 2009 SOW Waste Management Framework.	99	3 CORR / Correspondence	R10: (NW Natural Gas Co.)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100013172	11/16/2015 Email regarding Sediment Sites.	45	1 EML / Email	R10: Koch, Kristine, M (EPA)	R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100013173	Email regarding Scheduling FS Decision Tree Meetings.	89	8 EML / Email	R10: Koch, Kristine, M (EPA)	R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100013174	Email regarding Portland Harbor Information Request.	62	2 EML / Email	R10: Koch, Kristine, M (EPA)	R10: Stivers, Carl (Anchor QEA, LLC)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100013176	11/24/2015 Email regarding Groundwater Figures.	36	1 EML / Email	R10: Koch, Kristine, M (EPA)	R10: Stivers, Carl (Anchor QEA, LLC)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100013179	Email regarding Please provide a response to this.	76	3 EML / Email	R10: Koch, Kristine, M (EPA)	R10: Stivers, Carl (Anchor QEA, LLC)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100013279	Portland Harbor RI/FS Cost Estimate Backup Draft Feasibility Study Tables 6-7 - Anchor QEA Erosion Control Unit Costs.	54	2 CORR / Correspondence	R10: (Lower Willamette Group)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100016171	REDACTED Email regarding Portland Harbor Information Request.	43	1 EML / Email	R10: Koch, Kristine, M (EPA)	R10: Stivers, Carl (Anchor QEA, LLC)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100013180	Email regarding Portland Harbor Information Request.	42	1 EML / Email	R10: Koch, Kristine, M (EPA)	R10: Stivers, Carl (Anchor QEA, LLC)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100013278	Email regarding Portland Harbor Information Request.	56	1 EML / Email	R10: Koch, Kristine, M (EPA)	R10: Stivers, Carl (Anchor QEA, LLC)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100013281	Technology Assignments Alternative D -Maps - Fig3-06-04_Tech-Assign-AltD.	1,543	6 CORR / Correspondence	R10: (Lower Willamette Group), R10: (Lower Willamette Group Executive Committee)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100016193	REDACTED Email regarding Portland Harbor Information Request.	46	1 EML / Email	R10: Koch, Kristine, M (EPA)	R10: Stivers, Carl (Anchor QEA, LLC)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100013309	Outline of Procedure used for Sediment Transport Model Review - Outline of Procedure used for Sediment Transport Model Review.	57	1 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100013182	12/21/2015 Email regarding RAO Questions.	85	2 EML / Email	R10: Koch, Kristine, M (EPA)	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100008003	Email regarding Portland Harbor Bioaccumulation Modeling Report.	44	1 EML / Email	R10: Koch, Kristine, M (EPA)	R10: Wyatt, Bob (Northwest Natural Gas Company), R10: Mckenna, Jim (Verdant Solutions, LLC)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100008004	Email regarding Portland Harbor Bioaccumulation Modeling Report.	110	3 EML / Email	R10: Toll, John (Windward Environmental, LLC.)	R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100016196	REDACTED Email regarding Willamette River - 1/19/2016 ADCP data.	56	2 EML / Email	R10: Hayter, Earl, J (U. S. Army Corps of Engineers)	R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100019927	1/19/2016 Email regarding LWG FS Green Remediation.	375	1 EML / Email	R10: Parrett, Kevin (Oregon Dept. of Environmental Quality)	R10: Robinson, Deborah, G (EPA), R10: Zhen, Davis (EPA), R10: Johnson, Keith (Oregon Dept. of Environmental Quality), R10: Ross, Bill (Ross Strategic)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100008005	Email regarding Portland Harbor Bioaccumulation Modeling Report.	116	5 EML / Email	R10: Toll, John (Windward Environmental, LLC.)	R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)

100008006	1/21/2016	FS Sediment Natural Neighbors Data - BERA_PlusRM11E_FS_Sediment_NaturalNeighborsData_PCBs_2009-09-29.	1,973	522 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100008007	1/21/2016	BERA Sediment Natural Neighbors Data - BERA_Sediment_NaturalNeighborsData_AnchorFS_PCBs_2010-03-16.	590	75 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100008011	2/5/2016	Email regarding Portland Harbor - June 2015 Bioaccumulation Modeling Report.	51	1 EML / Email	R10: Wyatt, Robert, J (Northwest Natural Gas Company)	R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100008012	2/5/2016	Email regarding Portland Harbor - June 2015 Bioaccumulation Modeling Report.	48	1 EML / Email	R10: Koch, Kristine, M (EPA)	R10: Wyatt, Robert, J (Northwest Natural Gas Company)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100008013	2/10/2016	Email regarding Portland Harbor - June 2015 Bioaccumulation Modeling Report.	72	2 EML / Email	R10: Koch, Kristine, M (EPA)	R10: Wyatt, Robert, J (Northwest Natural Gas Company)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100008014	2/15/2016	Email regarding Anchor QEA Sheet Pile and Silt Curtain Unit Cost Buildup Questions.	88	1 EML / Email	R10: Koch, Kristine, M (EPA)	R10: Wyatt, Bob (Northwest Natural Gas Company)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100008016	2/15/2016	Email regarding response to EPA's February 5 request.	75	2 EML / Email	R10: Koch, Kristine, M (EPA)	R10: Toll, John (Windward Environmental, LLC.)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100008017	2/15/2016	Email regarding Gasco Sediments Site Capping Demonstration Memorandum - For Your Review.	131	2 EML / Email	R10: Koch, Kristine, M (EPA)	R10: Sheldrake, Sean, A (EPA), R10: Barth, Ryan (Anchor QEA, LLC)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100008018	2/24/2016	Email regarding Anchor QEA Sheet Pile and Silt Curtain Unit Cost Buildup Questions.	93	2 EML / Email	R10: Wyatt, Robert, J (Northwest Natural Gas Company)	R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100008019	2/29/2016	Email regarding Anchor QEA Sheet Pile and Silt Curtain Unit Cost Buildup Questions.	135	3 EML / Email	R10: Koch, Kristine, M (EPA)	R10: Wyatt, Robert, J (Northwest Natural Gas Company)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100008048	2/29/2016	Figure 4-1 a-k Presence of Salmonid Freshwater Migration PCEs - Figure 4-1a-k Presence of Salmonid Freshwater Migration PCEs.	6,539	11 CORR / Correspondence	R10: (Anchor QEA, LLC)	R10: (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100008049	2/29/2016	Figure 4-2 a-k Presence of Salmonid Freshwater Rearing PCEs - Figure 4-2a-k Presence of Salmonid Freshwater Rearing PCEs.	6,073	11 CORR / Correspondence	R10: (Anchor QEA, LLC)	R10: (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100008020	3/2/2016	Email regarding Bioaccumulation Modeling Report.	45	1 EML / Email	R10: Wyatt, Robert, J (Northwest Natural Gas Company)	R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100008021	3/2/2016	Email regarding Bioaccumulation Modeling Report.	42	1 EML / Email	R10: Koch, Kristine, M (EPA)	R10: Wyatt, Bob (Northwest Natural Gas Company)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100008022	3/4/2016	Email regarding New Package Notification.	69	1 EML / Email	R10: Koch, Kristine, M (EPA)	R10: Gudka, Nick (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100008045	3/4/2016	Email regarding 2015 draft final FS.	89	5 EML / Email	R10: Koch, Kristine, M (EPA)	R10: Conley, Alanna (EPA), R10: Gudka, Nicholas, J (IRM)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100008046	3/4/2016	Email regarding Bioaccumulation Modeling Report.	68	2 EML / Email	R10: Koch, Kristine, M (EPA)	R10: Wyatt, Robert, J (Northwest Natural Gas Company)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100008047	3/9/2016	Email regarding Portland Harbor Draft BA.	41	1 EML / Email	R10: Koch, Kristine, M (EPA)	R10: Wyatt, Bob (Northwest Natural Gas Company)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100015710	3/24/2016	REDACTED Email regarding New Package Notification.	75	2 EML / Email	R10: Koch, Kristine, M (EPA)	R10: Angle, Genevieve (NOAA), R10: Buck, Jeremy (U. S. Fish and Wildlife Service), R10: Johnson, Courtney (Unknown), R10: Cabral, Rita (Industrial Economics, Incorporated), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Ward, Elmer (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Ridolfi, Callie (Ridolfi Engineers, Inc.), R10: Downey, Tom (Confederated Tribes of the Siletz Indians), R10: Partridge, Holly (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Karnosh, Michael (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Liverman, Alex (Oregon Dept. of Environmental Quality), R10: Fricano, Gail (Industrial Economics, Inc.), R10: Delvecchio, Rachel (Industrial Economics, Inc.), R10: Humphreys, Brandy (Grand Ronde Tribe), R10: Longoria, Rose (Yakama Nation), R10: Coffey, Scott (CDM Smith), R10: Weis, Julie (Haglund Kelley Jones & Wilder LLP), R10: Bianco, Paul (Unknown), R10: Hagerman, Paul (Unknown), R10: Williams, Jd (Unknown), R10: Moses, Gabriel (Unknown), R10: Klasner Shira, Laura (Confederated Tribes and Bands of the Yakima Indian Nation)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100008053	3/31/2016	Letter regarding Investigation Reports by NewFields re PAH in RM 5-6, Portland Harbor - 2016-03-31 Letter to EPA Region IX.	335	4 CORR / Correspondence	R10: Edwards, Deborah, A (ExxonMobil Oil Corporation)	R10: Sheldrake, Sean, A (EPA), R10: Koch, Kristine, M (EPA), R10: Grandinetti, Cami (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100015713	3/31/2016	REDACTED Email regarding Investigation Reports by NewFields re PAH in RM 5-6, Portland Harbor.	28	1 EML / Email	R10: Altoonian, Cynthia (Norton Rose Fulbright)	R10: Sheldrake, Sean, A (EPA), R10: Koch, Kristine, M (EPA), R10: Grandinetti, Cami (EPA), R10: Parrett, Kevin (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100013185	4/1/2016	Letter regarding LWG's Concerns with the National Remedy Review Board and Contaminated Sediments Technical Advisory Group Recommendations - 2016-04-01 LWG Response to NRRB Comments and Region 10 Response.	203	7 CORR / Correspondence	R10: (Lower Willamette Group)	R10: Legare, Amy, R (National Remedy Review Board), R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100016198	4/1/2016	REDACTED Email regarding LWG Response to NRRB Comments and EPA Region 10 Response.	62	1 EML / Email	R10: Mott, Jen (Anchor QEA, LLC)	R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100013671	4/25/2016	Water RAO and PRG Hand Out Feb 4 09.	25	2 RPT / Report	R10: (Unknown)		ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100013876	4/25/2016	Mobility Test Tables.	56	4 RPT / Report	R10: (Anchor Environmental, LLC)		ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100019926	5/29/2016	Email regarding Draft Language.	14	1 EML / Email	R10: Parrett, Kevin (Oregon Dept. of Environmental Quality)	R10: Zhen, Davis (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100013638	Undated	Degradation Rate History Compilation. Suggested Revisions to Modeling Objectives Matrix Based on May 17 Conference Call with EPA.	320	8 RPT / Report	R10: (Unknown)		ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100013722	Undated	Responses to EPA F&T Comments on Draft Chemical Fate and Transport Model Development and Data Gaps Identification Report, Responses Related Data Needs Only.	19	2 RPT / Report	R10: (Unknown)		ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100013764	Undated	Surface Water Sampling Events and Average Flow Year.	64	9 RPT / Report	R10: (Lower Willamette Group)		ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100013765	Undated	Surface Water Sampling Events and Average Flow Year.	183	5 RPT / Report	R10: (Lower Willamette Group), R10: (Integral Consulting, Inc.)		ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)

100003055	A Guide to Developing and Documenting Cost Estimates During the Feasibility Study.	1,100	108 CORR / Correspondence	R10: (EPA), R10: (US Army Corps of Engineers)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
500004420	Final Data Gaps/Scoping Report - US Government Moorings. (Section Nine: Feasibility Study Scope of Work).	196	3 RPT / Report	R10: Unknown, Unknown (URS Corporation)	R10: Unknown, Unknown (U. S. Army Corps of Engineers)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100003416	Memorandum regarding Implementation Guidance for Section 312 of the Water Resources Development Act of 1990 (WRDA 90), Environmental Dredging, as amended by Section 224 of the Water Resources Development Act of 1999 (WRDA 99) - USACE 312 Guidance.	439	8 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
612942	Email regarding Portland Harbor Final Round 3 Sediment Trap FSP.	265	2 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100003328	Figure 1 Maximum Exceedance of Bioaccumulative SLV by either DDD, DDE, or DDT within Individual Sediment Sample Grid Cells - Section6_Figure1_01feb07.	292	1 EML / Email	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100003329	Figure 2 Maximum Exceedance of PEC SLV by either DDD, DDE, or DDT within Individual Sediment Sample Grid Cells - Section6_Figure2_01feb07.	292	1 EML / Email	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100006668	Email regarding Reply to Leachate Testing to Support Portland Harbor FS.	38	5 EML / Email	R10: Mckenna, Jim (Port of Portland)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100007181	Memorandum regarding Preliminary Proposal for Feasibility Study (FS) Mobility Testing.	228	6 CORR / Correspondence	R10: Stivers, Carl (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100007179	Email regarding LWG Proposal Mobility Testing.	66	3 EML / Email	R10: Humphrey, Chip (EPA)	R10: Applegate, Richard (City of Portland, Oregon), R10: Wyatt, Bob (Northwest Natural Gas Company), R10: Mckenna, Jim (Verdant Solutions, LLC)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100007194	Email regarding EPA comments on Treatability Study Report.	17	1 EML / Email	R10: Humphrey, Chip (EPA)	R10: Applegate, Richard (City of Portland, Oregon), R10: Wyatt, Bob (Northwest Natural Gas Company), R10: Mckenna, Jim (Verdant Solutions, LLC)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100007195	Letter regarding Draft Treatability Study Literature Survey Technical Memorandum.	82	2 CORR / Correspondence	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	R10: Wyatt, Bob (Lower Willamette Group), R10: Mckenna, Jim (Lower Willamette Group)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100007196	EPA Comments on Draft Treatability Study Literature Survey Technical Memorandum.	93	6 CORR / Correspondence	R10: Macintyre, Mark, A (EPA)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100007364	Email regarding Mobility Testing FSP Extension.	36	5 EML / Email	R10: Humphrey, Chip (EPA)	R10: Applegate, Richard (City of Portland, Oregon), R10: Mckenna, Jim (Port of Portland), R10: Wyatt, Bob (Northwest Natural Gas Company), R10: Stivers, Carl (Anchor QEA, LLC)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100002983	Memorandum regarding Pacific Lamprey.	225	6 CORR / Correspondence	R10: (Lower Willamette Group)	R10: (Lower Willamette Group)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100003015	Memorandum regarding Pacific Lamprey.	225	6 CORR / Correspondence	R10: (Lower Willamette Group)	R10: (Lower Willamette Group)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100003014	Email regarding Portland Harbor.	24	1 EML / Email	R10: Snyder, Joan, P (Stoel Rives, LLP)	R10: Cora, Lori, H (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100003042	Email regarding Portland Harbor.	22	3 EML / Email	R10: Burkholder, Kurt (Oregon Dept. of Justice)	R10: Cora, Lori, H (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100002969	Email regarding Pacific Lamprey Memorandum.	20	1 EML / Email	R10: Cross, Laura (Stratus Consulting, Inc.)	R10: Madden, Erin (Unknown), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Cunninghame, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Chapman, David (Stratus Consulting, Inc.), R10: Allen li, P. David (Stratus Consulting, Inc.), R10: Bluelake, Lisa (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Karnosh, Michael (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Cora, Lori, H (EPA), R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA), R10: Barquin, Billy (Haglund, Kelley, Horngren, Jones & Wilder, LLP)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100003000	Memorandum regarding Evaluation of Lamprey in Portland Harbor Ecological Risk Assessment.	14	2 CORR / Correspondence	R10: Cora, Lori, H (EPA)	R10: Peers, Jennifer (Stratus Consulting, Inc.)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100003753	Portland Harbor Development of Remedial Alternatives - 2015-05-13 TCT Alternative Development (Releasable).	401	14 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100007292	Draft Disposal Facility Site "Working List" For the Feasibility Study.	102	2 CORR / Correspondence	R10: Shellenberger, Amanda (Anchor Environmental, LLC)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100007294	Draft Disposal Facility Site "Working List" For Feasibility Study.	102	2 CORR / Correspondence	R10: Shellenberger, Amanda (Anchor Environmental, LLC)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100005393	Review Portland Food Web Modeling Effort - Burkhard comments June 2008.	71	6 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100005394	EPA Comments Appendix E: Round 2 Comprehensive Site Characterization Summary and Data Gaps Report - Shephard AppendixEComments071208.	133	11 CORR / Correspondence	R10: Macintyre, Mark, A (EPA)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100007354	Email regarding AETT - LWG Meeting Notes and Scope for EPA review and approval.	16	1 EML / Email	R10: Humphrey, Chip (EPA)	R10: Applegate, Richard (City of Portland, Oregon), R10: Wyatt, Bob (Northwest Natural Gas Company)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100007355	Email regarding AETT - LWG Meeting Notes and Scope for EPA review and approval.	28	2 EML / Email	R10: Humphrey, Chip (EPA)	R10: Mckenna, Jim (Verdant Solutions, LLC)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100007291	Email regarding Draft Disposal Site Working List.	31	3 EML / Email	R10: Humphrey, Chip (EPA)	R10: Applegate, Richard (City of Portland, Oregon), R10: Wyatt, Bob (Northwest Natural Gas Company), R10: Stivers, Carl (Anchor QEA, LLC), R10: Woronets, Jennifer (Anchor QEA, LLC), R10: Pine, Keith (Anchor Environmental, LLC), R10: Mckenna, Jim (Verdant Solutions, LLC)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100007293	Email regarding Draft Disposal Site Working List.	32	3 EML / Email	R10: Humphrey, Chip (EPA)	R10: Applegate, Richard (City of Portland, Oregon), R10: Wyatt, Bob (Northwest Natural Gas Company), R10: Stivers, Carl (Anchor QEA, LLC), R10: Woronets, Jennifer (Anchor QEA, LLC), R10: Pine, Keith (Anchor Environmental, LLC), R10: Mckenna, Jim (Verdant Solutions, LLC)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100005720	BSAR Summarization - BSAR_screen_to_EPA.	1,502	110 CORR / Correspondence	R10: (Windward Environmental, LLC.)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
613069	Email regarding Draft FS Outline and Org Chart.	279	2 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
613070	Email regarding Portland Harbor FS Milestones.	283	2 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)

100005354	1/12/2009	PRG Calculations Spreadsheet - DF congeners_PRG calc spreadsheet_FWM PRGs_forEPA.	164	7 CORR / Correspondence	R10: Replinger, Suzanne (Windward Environmental, LLC)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
613072	2/4/2009	Email regarding Revised FS Milestone Table.	342	2 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
613305	2/6/2009	Email regarding RI and FS Issues Status Table.	296	1 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
611153	2/18/2009	FS Examples EPA Feb 18 08.	384	9 CORR / Correspondence	R10: Unknown, Unknown (Lower Willamette Group)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
613088	2/18/2009	Email regarding LWG FS Examples Memo.	342	2 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100003051	3/17/2009	Clean Up of Contaminated Sites 33.475.480 Removal or Remediation of Hazardous Substances.	73	5 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100003050	3/19/2009	Email regarding City Code.	40	1 EML / Email	R10: Koehl, Krista (Port of Portland)	R10: Cora, Lori, H (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
611196	6/5/2009	Revised Areas for Evaluation in the FS.	373	2 CORR / Correspondence	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
711817	6/5/2009	Pre-Feasibility Study Treatment Technologies Table Draft.	30	7 CHT / Chart/Table	R10: Unknown, Unknown (Lower Willamette Group)	R10: Unknown, Unknown (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
711816	6/19/2009	Screening of Disposal Facilities for the Feasibility Study.	1,318	15 RPT / Report	R10: Unknown, Unknown (Lower Willamette Group)	R10: Unknown, Unknown (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
1356692	6/19/2009	Screening of Disposal Facilities For The Feasibility Study.	2,547	15 CORR / Correspondence	R10: Stivers, Carl (Anchor QEA, LLC), R10: Unknown, Unknown (Unknown)	R10: Humphrey, Chip (EPA), R10: Unknown, Unknown (Unknown)	PAPER DOCUMENT	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
711814	6/23/2009	Letter regarding Portland Harbor Site; Administrative Order on Consent for Remedial Investigation and Feasibility Study - Areas of Potential Concern.	92	2	R10: Humphrey, Chip (EPA), R10: Blischke, Eric, L (Oregon Dept. of Environmental Quality)	R10: Wyatt, Robert, J (Northwest Natural Gas Company)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
611209	6/24/2009	Email regarding Draft FS Evaluation Areas Map Talking Points.	294	1 CORR / Correspondence	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100003821	7/27/2009	Draft Portland Harbor Bioaccumulation Modeling Report Map 4-1 Surface Water Sampling Locations in the Study Area - 2015-06-19_Rev Draft Bioaccum Modeling Report_App B_Maps.	2,464	4 CORR / Correspondence	R10: (Lower Willamette Group), R10: (Windward Environmental, LLC)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100007366	9/16/2009	Email regarding RAO Response Extension.	27	1 EML / Email	R10: Humphrey, Chip (EPA)	R10: Wyatt, Robert, J (NW Natural)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100003044	9/23/2009	Questions Regards ARARs Potentially Proposed by EPA.	19	2 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100003315	9/28/2009	Memorandum regarding LWG HST Modeling Group Meeting on September 2, 2009 - 2009-09-28 LWG STM Group Meeting Memo.	91	5 CORR / Correspondence	R10: Ziegler, C. Kirk (Anchor QEA, LLC)	R10: (Lower Willamette Group), R10: (EPA Region 10)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100003040	11/16/2009	Email regarding T4 DSR Comments.	34	6 EML / Email	R10: Koehl, Krista (Port of Portland)	R10: Cora, Lori, H (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
611569	12/7/2009	2009-12-07 List of FS Related Items Needing Resolution.	354	4 CORR / Correspondence	R10: Unknown, Unknown (Lower Willamette Group)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
611649	12/18/2009	Reply to Draft EPA Response to November 17, 2009 FS Team Meeting.	326	2 CORR / Correspondence	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100003065	1/4/2010	Email regarding ARAR comments -- Table 1.	44	2 EML / Email	R10: Cora, Lori, H (EPA)	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100007190	2/11/2010	Email regarding EPA response to LWG February 5 2010 letter.	15	1 CORR / Correspondence	R10: Humphrey, Chip (EPA)	R10: Wyatt, Bob (Northwest Natural Gas Company)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100007191	2/11/2010	Letter regarding PCB Modeling Approach - Contaminant Fate and Transport Model.	22	3 CORR / Correspondence	R10: Humphrey, Chip (EPA)	R10: Wyatt, Robert (Lower Willamette Group)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100007197	2/18/2010	Email regarding EPA performance standards for CDF evaluations in FS.	16	1 EML / Email	R10: Humphrey, Chip (EPA)	R10: Wyatt, Bob (Northwest Natural Gas Company)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100007198	2/18/2010	Letter regarding EPA Performance Standards for Confined Disposal Facilities for the Portland Harbor Feasibility Study.	48	6 CORR / Correspondence	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	R10: Wyatt, Robert (Lower Willamette Group) R10: Applegate, Richard (City of Portland, Oregon), R10: Mckenna, Jim (Port of Portland), R10: Wyatt, Bob (Northwest Natural Gas Company), R10: Woronets, Jennifer (Anchor QEA, LLC), R10: Pine, Keith (Anchor Environmental, LLC)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100007357	3/3/2010	Email regarding LWG Extension Request EPA Performance Standards for Confined Disposal Facilities.	103	2 EML / Email	R10: Humphrey, Chip (EPA)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100003016	3/6/2010	Email regarding Portland Harbor.	26	1 EML / Email	R10: Snyder, Joan, P (Stoel Rives, LLP)	R10: Cora, Lori, H (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100003017	3/6/2010	40 CFR Part 761 Subpart D - Storage and Disposal.	90	4 CORR / Correspondence	R10: Snyder, Joan, P (Stoel Rives, LLP)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100003018	3/9/2010	Email regarding Further Question on ARARs Clarification.	100	3 EML / Email	R10: Snyder, Joan, P (Stoel Rives, LLP)	R10: Burkholder, Kurt (Oregon Dept. of Justice), R10: Cora, Lori, H (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
611690	3/11/2010	Email regarding Schematic FS Schedule.	282	1 CORR / Correspondence	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100007203	3/24/2010	Draft EPA Focused PRGs Lists Through March 17.	94	5 CORR / Correspondence	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100007356	3/24/2010	Email regarding PH FS.	31	4 EML / Email	R10: Humphrey, Chip (EPA)	R10: Mckenna, Jim (Verdant Solutions, LLC)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100007367	3/30/2010	Email regarding Request for Extension to Dispute: CDF Performance Standards.	28	1 EML / Email	R10: Humphrey, Chip (EPA)	R10: Mckenna, Jim (Port of Portland)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100003062	3/31/2010	Email regarding Further Question on ARARs Clarification.	27	3 EML / Email	R10: Snyder, Joan, P (Stoel Rives, LLP)	R10: Cora, Lori, H (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100003063	3/31/2010	Email regarding Portland Harbor.	23	2 EML / Email	R10: Snyder, Joan, P (Stoel Rives, LLP)	R10: Cora, Lori, H (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100007343	4/1/2010	Email regarding PCB modeling.	15	1 EML / Email	R10: Humphrey, Chip (EPA)	R10: Mckenna, Jim (Verdant Solutions, LLC)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
611712	4/14/2010	2010-04-14 LWG Response to EPA Performance Standards for CDFs in FS.	251	2 CORR / Correspondence	R10: Mckenna, Jim (Lower Willamette Group)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
611714	4/14/2010	Email regarding LWG Response to EPA February 18th Performance Standards for CDFs for the Portland Harbor FS.	283	1 CORR / Correspondence	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100007358	4/16/2010	Email regarding LWG Request for Extension to Dispute: CDF Performance Standards.	15	1 EML / Email	R10: Humphrey, Chip (EPA)	R10: Mckenna, Jim (Port of Portland)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)



100003019	Email regarding Further Question on ARARs Clarification.	4/19/2010	35	4 EML / Email	R10: Snyder, Joan, P (Stoel Rives, LLP)	R10: Cora, Lori, H (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100007202	Email regarding EPA Direction on PRGs. Letter regarding Administrative Order on Consent for Remedial Investigation and Feasibility Study.	4/21/2010	16	1 EML / Email	R10: Humphrey, Chip (EPA)	R10: Mckenna, Jim (Verdant Solutions, LLC)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100007204	4/21/2010	34	4 CORR / Correspondence	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	R10: Mckenna, Jim (Verdant Solutions, LLC)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)	
100007100	Email regarding EPA response to LWG CDF performance standard letter & table.	4/23/2010	16	1 EML / Email	R10: Humphrey, Chip (EPA)	R10: Mckenna, Jim (Verdant Solutions, LLC)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100007205	EPA Comments on LWG Table - EPA February 18, 2010 CDF Performance Standards Comments and LWG April 14, 2010 Responses. Letter regarding Administrative Order on Consent for Remedial Investigation and Feasibility Study.	4/23/2010	60	2 CORR / Correspondence	R10: Humphrey, Chip (EPA)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100007206	4/23/2010	21	3 CORR / Correspondence	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	R10: Mckenna, Jim (Port of Portland)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)	
100003057	Email regarding ARARs - Rivers and Harbors Act Section 10.	4/28/2010	86	4 EML / Email	R10: Cora, Lori, H (EPA)	R10: Koehl, Krista (Port of Portland)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100003066	Email regarding ARARs - Rivers and Harbors Act Section 10.	4/29/2010	87	4 EML / Email	R10: Cora, Lori, H (EPA)	R10: Koehl, Krista (Port of Portland)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100003058	Email regarding ARARs - Rivers and Harbors Act Section 10.	5/3/2010	23	2 EML / Email	R10: Koehl, Krista (Port of Portland)	R10: Cora, Lori, H (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100007232	Email regarding EPA comments on QEAfate modeling presentation.	5/18/2010	18	1 EML / Email	R10: Humphrey, Chip (EPA)	R10: Wyatt, Bob (Northwest Natural Gas Company), R10: Mckenna, Jim (Verdant Solutions, LLC)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100007233	EPA Comments on May 4, 2010 Qeafate Model Presentation.	5/18/2010	71	5 CORR / Correspondence	R10: Humphrey, Chip (EPA)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100007316	Email regarding EPA response to May 5, 2010 LWG letter re: CDF performance standards.	6/1/2010	16	1 EML / Email	R10: Humphrey, Chip (EPA)	R10: Wyatt, Bob (Northwest Natural Gas Company), R10: Mckenna, Jim (Verdant Solutions, LLC)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100007317	Email regarding EPA response to May 5, 2010 LWG letter re: PRGs for the Portland Harbor FS.	6/3/2010	16	1 EML / Email	R10: Humphrey, Chip (EPA)	R10: Wyatt, Bob (Northwest Natural Gas Company), R10: Mckenna, Jim (Verdant Solutions, LLC)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100007318	Email regarding EPA response to May 5, 2010 LWG letter re: PRGs for the Portland Harbor FS.	6/3/2010	16	1 EML / Email	R10: Humphrey, Chip (EPA)	R10: Wyatt, Bob (Northwest Natural Gas Company), R10: Mckenna, Jim (Verdant Solutions, LLC)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100003073	Draft HEA Habitat Values for ESA Consultation. Portland Harbor Natural Resource Trustee Council "Expert Panel" Discussion of Habitat Restoration for Chinook Salmon Executive Summary.	7/8/2010	99	1 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100003072	7/30/2010	179	7 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)	
100003077	7/30/2010	179	7 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)	
100003303	Piers 24 & 25 Marine Sediment Remediation Challenges and Solutions, Tacoma, Washington.	8/20/2010	3,254	44 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100007247	Email regarding FS Evaluation of Mitigation Costs.	8/24/2010	15	1 EML / Email	R10: Humphrey, Chip (EPA)	R10: Wyatt, Bob (Northwest Natural Gas Company), R10: Mckenna, Jim (Verdant Solutions, LLC)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100007248	Letter regarding Feasibility Study Evaluation of Mitigation Costs.	8/24/2010	23	3 CORR / Correspondence	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	R10: Wyatt, Bob (Northwest Natural Gas Company)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
613473	2010-09-01 Schematic FS Schedule (no change from Aug).	9/2/2010	224	1 CORR / Correspondence	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
613474	9/2/2010	290	1 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)	
613572	2010-10-05 Schematic FS Schedule (no change from Sep).	10/6/2010	224	1 CORR / Correspondence	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
613586	Email regarding October schematic FS schedule.	10/6/2010	291	1 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100007251	Email regarding EPA direction on draft FS for Portland Harbor.	12/21/2010	15	1 EML / Email	R10: Humphrey, Chip (EPA)	R10: Wyatt, Bob (Northwest Natural Gas Company), R10: Mckenna, Jim (Verdant Solutions, LLC)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100007288	Letter regarding Portland Harbor Feasibility Study.	12/21/2010	30	4 CORR / Correspondence	R10: Humphrey, Chip (EPA)	R10: Wyatt, Bob (Northwest Natural Gas Company)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100007350	Email regarding EPA direction on draft FS dispute deadline.	12/22/2010	28	2 EML / Email	R10: Humphrey, Chip (EPA)	R10: Mckenna, James (Verdant Solutions, LLC)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100007365	Email regarding Updated Project Approach and Schedule.	1/21/2011	53	2 EML / Email	R10: Humphrey, Chip (EPA)	R10: Mckenna, Jim (Verdant Solutions, LLC)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100007185	Email regarding EPA comments on Dec 14 2010 presentations.	1/28/2011	15	1 EML / Email	R10: Humphrey, Chip (EPA)	R10: Wyatt, Bob (Northwest Natural Gas Company), R10: Mckenna, Jim (Verdant Solutions, LLC)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100007187	Letter regarding Portland Harbor Feasibility Study.	1/28/2011	32	3 CORR / Correspondence	R10: Humphrey, Chip (EPA)	R10: Wyatt, Bob (Lower Willamette Group)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100007186	1/29/2011	68	8 CORR / Correspondence	R10: Hermanson, Brad (Parametrix, Inc.)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)	
100007352	Email regarding EPA Response Letter Re Portland Harbor RI/FS Schedule.	3/1/2011	16	1 EML / Email	R10: Humphrey, Chip (EPA)	R10: Mckenna, James (Verdant Solutions, LLC)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100007199	Email regarding EPA feedback on MNR modeling presentation.	3/9/2011	15	1 EML / Email	R10: Humphrey, Chip (EPA)	R10: Wyatt, Bob (Northwest Natural Gas Company), R10: Mckenna, Jim (Verdant Solutions, LLC)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100007200	Letter regarding Administrative Order on Consent for Remedial Investigation and Feasibility Study.	3/9/2011	65	2 CORR / Correspondence	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	R10: Wyatt, Bob (Lower Willamette Group)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100007201	EPA Feedback on LWG's 2/23/2011 MNR Presentation.	3/9/2011	113	6 CORR / Correspondence	R10: Humphrey, Chip (EPA)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
643712	E-Mail Regarding Feasibility Study Tools Memos.	3/15/2011	134	2 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Parkinson, Stephen, T (Unknown), R10: Wolf, Frederick (Unknown), R10: Ebbets, Allison (Stratus Consulting, Inc.), R10: Betz, Jan, V (City of Portland, Oregon, Office of Attorney), R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA), R10: Anderson, James, M (Oregon Dept. of Environmental Quality), R10: Traeger, Karen (Unknown), R10: Mckenna, James (Verdant Solutions, LLC)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
500003773	Comments on March 2011, Lower Willamette Group (LWG) FS Tools Memorandum "Draft Mitigation Determination Approach for Use in the Feasibility Study".	3/24/2011	283	4 LTR / Letter	R10: Hermanson, Brad (Parametrix, Inc.)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100007368	Email regarding Schedule a meeting to discuss definitions.	4/25/2011	26	1 EML / Email	R10: Humphrey, Chip (EPA)	R10: Mckenna, James (Verdant Solutions, LLC)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)

100003767	Table 2.4-1 Initial Screening of Remedial Technologies and Process Options - 2015-06-02 Draft Final Table 2.4-01.	116	5 CORR / Correspondence	R10: Koch, Kristine, M (EPA)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100003768	Table 2.4-2 Technology and Process Options Screening Summary - 2015-06-02 Draft Final Table 2.4-02.	146	7 CORR / Correspondence	R10: Koch, Kristine, M (EPA)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100007222	Email regarding EPA comments on FS Tools Memoranda.	16	1 EML / Email	R10: Humphrey, Chip (EPA)	R10: Wyatt, Bob (Northwest Natural Gas Company), R10: Mckenna, Jim (Verdant Solutions, LLC)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100007223	Draft Feasibility Study Identification of "COCs" and Contaminant Mobility Evaluation Criteria Memorandum.	273	2 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100007224	Draft Feasibility Study Costing Approach Memorandum.	245	5 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100007225	Draft Feasibility Study Dredging Water Quality Evaluation Memorandum.	302	2 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100007226	Draft Mitigation Determination Approach for Use in the Feasibility Study.	235	4 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100007227	Draft Feasibility Study Treatment Technology Evaluation Tools Memorandum.	208	2 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100007228	Letter regarding Administrative Order on Consent for Remedial Investigation and Feasibility Study.	578	2 CORR / Correspondence	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	R10: Wyatt, Bob (Northwest Natural Gas Company)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100003020	Email regarding Portland Harbor--EPA's comments on Mitigation Determination Approach.	23	1 EML / Email	R10: Snyder, Joan, P (Stoel Rives, LLP)	R10: Cora, Lori, H (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100007342	Email regarding LWG response to EPA comments on MNR modeling presentation.	15	1 EML / Email	R10: Humphrey, Chip (EPA)	R10: Mckenna, James (Verdant Solutions, LLC)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
662857	05_13_11 email; LWG Response to EPA April 27th FS Tools Memo Comments.	81	1 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100007229	Email regarding June 22nd FS Key Elements Check-in.	16	1 EML / Email	R10: Humphrey, Chip (EPA)	R10: Wyatt, Bob (Northwest Natural Gas Company), R10: Woronets, Jennifer (Anchor QEA, LLC), R10: Mckenna, James (Verdant Solutions, LLC)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100007230	Background Information for June 22, 2011 FS Check-in.	237	4 CORR / Correspondence	R10: Humphrey, Chip (EPA)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100007231	June 22 Portland Harbor FS Key Elements Check-in Meeting.	216	2 CORR / Correspondence	R10: Hermanson, Brad (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100007239	Background Information for June 22, 2011 FS Check-in.	237	4 CORR / Correspondence	R10: Humphrey, Chip (EPA)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100007240	June 22 Portland Harbor FS Key Elements Check-in Meeting.	216	2 CORR / Correspondence	R10: Hermanson, Brad (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100007234	Email regarding EPA feedback on April 12 mtg presentations and tables.	18	1 EML / Email	R10: Humphrey, Chip (EPA)	R10: Wyatt, Bob (Northwest Natural Gas Company), R10: Mckenna, James (Verdant Solutions, LLC), R10: Woronets, Jennifer (Anchor Environmental, LLC)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100007235	EPA Comments on LWG 4/21/2009 presentation of "Remedial Technologies" for the Feasibility Study.	187	4 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100007236	Table 2. Summary Screening of Remedial Technologies and Process Options by AOPC for the Portland Harbor Superfund Site.	119	11 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100007237	Table 3 - Summary of Screening of Alternatives Summary.	135	21 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100007347	Email regarding Conference Call tomorrow.	28	2 EML / Email	R10: Humphrey, Chip (EPA)	R10: Mckenna, James (Verdant Solutions, LLC)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
662886	05_26_11 email; Response to EPA May 13 2011 FS Key Elements Check In Objectives.	80	1 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
662501	06_02_11 email; FS Check-in Meeting prep - bibliography.	28	1 EML / Email	R10: Mckenna, Jim (Lower Willamette Group)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
662912	06_02_11 email; FS Check-in Meeting prep - bibliography.	28	1 EML / Email	R10: Mckenna, Jim (Lower Willamette Group)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100007340	Email regarding FS Check-in Meeting prep - bibliography.	14	1 EML / Email	R10: Humphrey, Chip (EPA)	R10: Mckenna, Jim (Verdant Solutions, LLC)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
643746	Draft FS Key Elements Check In Materials Posted.	139	2 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100007319	Email regarding FS and Early Action areas.	14	1 EML / Email	R10: Humphrey, Chip (EPA)	R10: Mckenna, James (Verdant Solutions, LLC)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100007346	Email regarding Alternatives Screening Stipulated penalties.	15	1 EML / Email	R10: Humphrey, Chip (EPA)	R10: Wyatt, Robert, J (NW Natural), R10: Mckenna, James (Verdant Solutions, LLC)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
663008	06_15_11 email; June 21st and 22nd Draft FS Key Elements Check In Additional Agenda Details.	85	2 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100007238	Email regarding Proposed resolutions - LWG responses to EPA comments on FS Tools.	18	2 EML / Email	R10: Humphrey, Chip (EPA)	R10: Wyatt, Bob (Northwest Natural Gas Company), R10: Mckenna, James (Verdant Solutions, LLC), R10: Woronets, Jennifer (Anchor Environmental, LLC)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100007344	Email regarding Proposed resolutions - LWG responses to EPA comments on FS Tools.	438	2 EML / Email	R10: Humphrey, Chip (EPA)	R10: Wyatt, Bob (Northwest Natural Gas Company), R10: Woronets, Jennifer (Anchor QEA, LLC), R10: Mckenna, James (Verdant Solutions, LLC)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100007369	Email regarding Workshop on Monday.	64	2 EML / Email	R10: Humphrey, Chip (EPA)	R10: Wyatt, Robert, J (NW Natural)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
662871	06_27_11 email; FS Database Files Posted - EPA Portal.	135	2 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Neely, Robert (NOAA), R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
663042	06_27_11 email; FS Database Files Posted - EPA Portal.	135	2 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Neely, Robert (NOAA), R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
662907	06_29_11 email; Revised Table of Proposed Resolutions to EPA Comments on the FS Tools.	74	5 EML / Email	R10: Unknown, Unknown (Lower Willamette Group)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
663050	06_29_11 email; Revised Table of Proposed Resolutions to EPA Comments on the FS Tools.	74	5 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100003293	Email regarding Comments on the FS Check-In Meeting.	101	2 EML / Email	R10: Ebbets, Allison (Stratus Consulting, Inc.)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100003294	Memorandum regarding Comments on the June 2011 Feasibility Study Check-in Meeting - 2011.07.08.FS.Key.Elements.Check-In.Comments.	14	3 CORR / Correspondence	R10: Ebbets, Allison (Stratus Consulting, Inc.), R10: Peers, Jennifer (Stratus Consulting, Inc.)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100003295	Email regarding Portland Harbor FS check-in comment.	14	1 EML / Email	R10: Poulsen, Mike (Oregon Dept. of Environmental Quality)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)

100003296	Email regarding PH TCT meeting Wednesday, 7/13/2011 July 13 - BERA status.	32	1 EML / Email	R10: Shephard, Burt (EPA)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100003297	Email regarding Follow Up for June 21/22 FS Meeting.	140	3 EML / Email	R10: King, Todd (CDM Smith)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100007241	Email regarding EPA comments on FS Key Elements check-in.	17	1 EML / Email	R10: Humphrey, Chip (EPA)	R10: Wyatt, Bob (Northwest Natural Gas Company), R10: Mckenna, Jim (Verdant Solutions, LLC)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100007242	EPA Comments on Portland Harbor FS Key Elements Check-in (June 21 & 22, 2011).	254	6 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100007243	Letter regarding Portland Harbor Feasibility Study (FS).	72	3 CORR / Correspondence	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	R10: Wyatt, Bob (Northwest Natural Gas Company)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100007363	7/20/2011 Email regarding MNR discussion.	14	1 EML / Email	R10: Humphrey, Chip (EPA)	R10: Woronets, Jennifer (Anchor QEA, LLC), R10: Mckenna, James (Verdant Solutions, LLC)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
663134	07_21_11 email; Initial Working Responses to EPA FS Key Elements Comments.	103	2 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
663209	07_21_11 email; Initial Working Responses to EPA FS Key Elements Comments.	103	2 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100007361	Email regarding Meeting or Conference Call to Discuss RALs/Alternatives.	31	3 EML / Email	R10: Humphrey, Chip (EPA)	R10: Mckenna, James (Verdant Solutions, LLC)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100007362	Email regarding Meeting or Conference Call to Discuss RALs/Alternatives.	83	3 EML / Email	R10: Humphrey, Chip (EPA)	R10: Mckenna, James (Verdant Solutions, LLC)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
663258	07_27_11 email; Proposed Path Forward to EPA July 15th FS Key Elements Comments with a July 29th Dispute Deadline.	82	1 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
663264	07_27_11 email; Proposed Path Forward to EPA July 15th FS Key Elements Comments with a July 29th Dispute Deadline.	82	1 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100005484	FS Key Elements Check-in Revised RAL & Alternatives - 10-663228.	249	4 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100005485	Email regarding EPA Proposed Revised Comments Regarding FS Alternatives and RALs.	31	1 EML / Email	R10: Koch, Kristine, M (EPA)	R10: Wyatt, Robert, J (NW Natural), R10: Mckenna, James (Verdant Solutions, LLC)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100007245	Proposed Path Forward for EPA FS Key Elements Comments, July 29 Dispute Items Only.	22	2 CORR / Correspondence	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100007246	7/27/2011 Dredge Volume Table.	80	2 CORR / Correspondence	R10: Gustavson, Karl (EPA)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100006066	Terminal 4 Confined Disposal Facility Design Analysis Report (Prefinal 60 Percent Design Deliverable) -Text only T4 60 Percent CDF DAR_August 2011.	1,039	155 CORR / Correspondence	R10: (Anchor QEA, LLC)	R10: (Port of Portland)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100005819	Letter regarding EPA letter dated August 11, 2011 providing direction to LWG on alternatives to be evaluated in the Draft Feasibility Study.	112	4 CORR / Correspondence	R10: Wyatt, Bob (Lower Willamette Group)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
500003775	LWG Response to EPA letter dated August 11, 2011, providing direction to LWG on alternatives to be evaluated in the Draft Feasibility Study (document is incomplete).	161	2 CORR / Correspondence	R10: Unknown, Unknown (Lower Willamette Group)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100007249	Email regarding Response to LWG August 23 Letter.	15	1 EML / Email	R10: Humphrey, Chip (EPA)	R10: Wyatt, Bob (Northwest Natural Gas Company), R10: Mckenna, Jim (Verdant Solutions, LLC)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100007250	Letter regarding Portland Harbor Feasibility Study.	80	2 CORR / Correspondence	R10: Humphrey, Chip (EPA)	R10: Wyatt, Bob (Northwest Natural Gas Company)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100007289	Email regarding Response to LWG August 23 Letter.	16	1 EML / Email	R10: Humphrey, Chip (EPA)	R10: Wyatt, Bob (Northwest Natural Gas Company), R10: Woronets, Jennifer (Anchor QEA, LLC), R10: Mckenna, Jim (Verdant Solutions, LLC)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100007290	Letter regarding Portland Harbor Feasibility Study.	77	2 CORR / Correspondence	R10: Humphrey, Chip (EPA)	R10: Wyatt, Bob (Northwest Natural Gas Company)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100003002	Draft Portland Harbor RI/FS Final Remedial Investigation Report.	669	58 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
665112	09_27_11 email attachment; trustee letter_FS delay.	197	2 CORR / Correspondence	R10: Madden, Erin (Natural Resource Damage Assessment Trustees)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
665113	09_27_11 email; Letter regarding LWG request for FS extension.	32	1 EML / Email	R10: Madden, Erin (Natural Resource Damage Assessment Trustees)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100007296	10/1/2011 CAG Additional CDF Questions.	64	1 CORR / Correspondence	R10: Humphrey, Chip (EPA)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100003011	Portland Harbor Superfund Site Risk Management Decisions Required.	1,720	25 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100003009	Email regarding The Portland Harbor Superfund Site.	36	1 EML / Email	R10: Christianson, Greg, A (Bingham McCutchen LLP)	R10: McLerran, Dennis, J (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100003010	Letter to EPA regarding The Portland Harbor Superfund Site.	19	5 CORR / Correspondence	R10: (EPA)	R10: McLerran, Dennis, J (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100003300	Email regarding Comprehensive Benthic Approach.	166	2 EML / Email	R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)	R10: Koch, Kristine, M (EPA), R10: Shephard, Burt (EPA), R10: Goulet, Joe (EPA), R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality), R10: Poulsen, Mike (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)

					(FMC Corporation), R10: (Esco Corporation), R10: (Schnitzer Investment Corporation), R10: (Atlantic Richfield Company), R10: (Acme Trading and Supply Company), R10: (ExxonMobil Corporation), R10: (Babcock Land Company, LLC), R10: (Shaver Transportation Company), R10: (Calbag Metals Company), R10: (Ash Grove Cement Company), R10: (Beazer East, Inc.), R10: (Crawford Street Corporation), R10: (Brix Maritime Company), R10: (Shore Terminals, LLC), R10: (Schnitzer Steel Industries, Inc.), R10: (Fred Devine Diving and Salvage, Inc.), R10: (Cargill, Incorporated), R10: (Lakeside Industries), R10: (Tube Forgings of America, Inc.), R10: (Front Avenue Corporation), R10: (Legacy Site Services, LLC), R10: (Equilon Enterprises LLC), R10: (Mitsubishi International Corporation), R10: (Anchor Park LLC), R10: (ATKN Company), R10: (Galvanizers Company), R10: (Marine Group, LLC), R10: (Basin Street Associates), R10: (Mitsubishi Corporation), R10: (Daimler Trucks North America LLC), R10: (BAE Systems San Diego Ship Repair Inc.), R10: (IMACC Corporation), R10: (FTL, Inc.), R10: (Union Carbide Corporation), R10: (Koppers, Inc.), R10: (ACF Industries LLC), R10: (Bird Inc.), R10: (HAJ, Inc. dba Christenson Oil), R10: (Northwest Pipe Company), R10: (Estes Express Lines), R10: (Container Management Systems, LLC), R10: (Distribution, Inc.), R10:			
100003013	11/22/2011	Letter regarding The Portland Harbor Superfund Site.	11	3	CORR / Correspondence	R10: Opalski, Daniel, D (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100005685	12/29/2011	Appendix B - Sample Agenda for the Board Meeting - App B of NRRB Guidance for RPMs dated 12-29-11.	43	1	CORR / Correspondence	R10: Robinson, Deborah, G (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100003005	1/3/2012	Economic Impacts of Remediating the Portland Harbor Superfund Site.	2,412	29	CORR / Correspondence	R10: Sunding, David (The Brattle Group), R10: Buck, Steven (The Brattle Group)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100003003	1/9/2012	Email regarding Portland Harbor.	34	1	EML / Email	R10: Christianson, Greg, A (Bingham McCutchen LLP)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100003004	1/9/2012	Cover Letter Economic Impacts of Remediating the Portland Harbor Superfund Site, dated January 3, 2012.	391	1	CORR / Correspondence	R10: Christianson, Greg, A (Bingham McCutchen LLP)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100003302	1/13/2012	Email regarding This will be useful for when we discuss what can /can't be done under piers.	30	1	EML / Email	R10: Gustavson, Karl (U. S. Army Corps of Engineers)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100003307	2/22/2012	Portland Harbor FS Team FS Review Strategy Meeting - MtgOutline2012-02-22.	337	7	CORR / Correspondence	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100003075	2/23/2012	Portland Harbor Superfund Site EPA Presentation/ Q & A Session with White Paper Signatories Parties on Conference Call.	15	1	CORR / Correspondence	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100003076	2/23/2012	Portland Harbor Superfund Site Attendees Meeting Sign-In Site.	1,016	2	CORR / Correspondence	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
709735	2/24/2012	02_24_14_email; FS Issue 2.2 Ecological COC Selections - LWG Initial Questions.	106	3	CORR / Correspondence	R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100003074	3/7/2012	Email regarding Portland Harbor Superfund Site -- EPA Presentation/Q&A Session with White Paper Signatories, Feb. 23, 1-3 PM.	272	2	EML / Email	R10: Kilbane, Tom (Short, Cressman & Burgess, PLLC)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100003012	3/9/2012	Email regarding Portland Harbor.	40	2	EML / Email	R10: Christianson, Greg, A (Bingham McCutchen LLP)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100007348	3/13/2012	Email regarding Draft FS Document distribution.	108	3	EML / Email	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100003310	3/14/2012	Email regarding Portland Harbor FS Planning meeting - draft final agenda.	27	2	EML / Email	R10: Conley, Alanna (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100003311	3/14/2012	Public Copy - Public Informational Session on the Portland Harbor Draft Feasibility Study - FS Agenda 3-14-12.	159	2	CORR / Correspondence	R10: Phalen, Dan (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100003426	3/19/2012	Figure 6.2-1 Portland Harbor RI/FS Draft Feasibility Study Bathymetry Survey Comparison Difference Between Surveys Conducted in 2003 and 2009 - FIG6_2_1_BathyChange.	3,723	1	EML / Email	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100003008	3/27/2012	Impact of Portland Harbor Remediation Costs on City of Portland Water and Sewer Rates.	1,659	26	CORR / Correspondence	R10: Sunding, David (The Brattle Group), R10: Vilbert, Michael (The Brattle Group)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100003006	3/29/2012	Email regarding Portland Harbor.	34	1	EML / Email	R10: Christianson, Greg, A (Bingham McCutchen LLP)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100003007	3/29/2012	Impact of Portland Harbor Remediation Costs on City of Portland Water and Sewer Rates Cover Letter.	406	1	CORR / Correspondence	R10: Christianson, Greg, A (Bingham McCutchen LLP)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
662722	3/30/2012	03_30_12_email; Delivery of Portland Harbor Draft FS.	144	2	EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
706171	3/30/2012	Portland Harbor RI/FS Draft Feasibility Study.	133,150	1		R10: Unknown, Unknown (Kennedy/Jenks Consultants), R10: Unknown, Unknown (Windward Environmental, LLC.), R10: Unknown, Unknown (Integral Consulting, Inc.), R10: Unknown, Unknown (Anchor QEA, LLC)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
706175	3/30/2012	Portland Harbor RI/FS Draft Feasibility Study - Appendix.	433,752	1		R10: Unknown, Unknown (Kennedy/Jenks Consultants), R10: Unknown, Unknown (Windward Environmental, LLC.), R10: Unknown, Unknown (Integral Consulting, Inc.), R10: Unknown, Unknown (Anchor QEA, LLC)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
711230	4/1/2012	Feasibility Study and Sitewide Update Information.	607	4		R10: Unknown, Unknown (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100003064	4/4/2012	Email regarding response to March 9, 2012 email.	20	2	EML / Email	R10: Cora, Lori, H (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100003314	4/19/2012	Email regarding September 2nd HST Modeling Meeting Summary Memo.	98	2	EML / Email	R10: Gustavson, Karl (U. S. Army Corps of Engineers)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100003316	4/19/2012	Email regarding September 2nd HST Modeling Meeting Summary Memo.	35	4	EML / Email	R10: Hayter, Earl, J (U. S. Army Corps of Engineers)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100003332	4/19/2012	Email regarding September 2nd HST Modeling Meeting Summary Memo.	35	4	EML / Email	R10: Hayter, Earl, J (U. S. Army Corps of Engineers)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
662816	4/27/2012	04_27_12_email; April 24th and 25th Draft FS EPA Presentation Posted.	84	2	EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100007315	5/10/2012	Email regarding EPA request.	15	2	EML / Email	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)



100003325	6/7/2012	Email regarding dredging containment. 田 田田	99	1	EML / Email	R10: Gainer, Tom (Oregon Dept. of Environmental Quality)	R10: Gustavson, Karl (U. S. Army Corps of Engineers), R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA), R10: Muza, Richard (EPA), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality), R10: McClincy, Matt (Oregon Dept. of Environmental Quality), R10: King, Todd (CDM Smith)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100003326	6/14/2012	Email regarding PTM definition Memo and Figures.	35	2	EML / Email	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100003340	6/15/2012	Email regarding Draft agenda for June 12th & 13th working session.	153	2	EML / Email	R10: Gainer, Tom (Oregon Dept. of Environmental Quality)	R10: Neely, Robert (NOAA), R10: Gustavson, Karl (U. S. Army Corps of Engineers), R10: Ebbets, Allison (Stratus Consulting, Inc.), R10: Fuentes, Rene, C (EPA), R10: Humphrey, Chip (EPA), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality), R10: Wagoner, Colin, H (Ridolfi, Inc.), R10: Olsen, Roger (Unknown), R10: Penoyar, Susan, J (CDM), R10: King, Todd (CDM Smith), R10: French, Ronald (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
711130	6/22/2012	Portland Harbor RI/FS Draft Feasibility Study, Draft.	102,240	950	RPT / Report	R10: Unknown, Unknown (Kennedy/Jenks Consultants), R10: Unknown, Unknown (Windward Environmental, LLC.), R10: Unknown, Unknown (Integral Consulting, Inc.), R10: Unknown, Unknown (Anchor QEA, LLC)	R10: Unknown, Unknown (Lower Willamette Group)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
663087	7/12/2012	07_12_12 email; Draft FS EPA Headquarters Briefing Presentation and Handout.	77	2	EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Opalski, Daniel, D (EPA), R10: Cohen, Lori, G (EPA), R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA), R10: Laws, E (Crowell.com)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
663173	7/12/2012	07_12_12 email; Draft FS EPA Headquarters Briefing Presentation and Handout.	77	2	EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Opalski, Daniel, D (EPA), R10: Cohen, Lori, G (EPA), R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
712956	7/16/2012	07_16_12 email attachment; 2012-07-16_NOAAPortlandHarborFSComments.	77	11	CORR / Correspondence	R10: Neely, Robert (NOAA)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
712957	7/16/2012	07_16_12 email; NOAA comments on draft Portland Harbor FS.	33	1	CORR / Correspondence	R10: Neely, Robert (NOAA)	R10: Penoyar, Susan, J (Applied Geotechnology, Inc.), R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100003342	7/16/2012	Email regarding Comments on elements of draft Portland Harbor Feasibility Study.	93	1	EML / Email	R10: Peers, Jennifer (Stratus Consulting, Inc.)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100003343	7/16/2012	Memorandum regarding Comments on elements of draft Portland Harbor Feasibility Study for use in developing a Record of Decision - 2012.07.16.FS.ElementsComments.	139	12	EML / Email	R10: Peers, Jennifer (Stratus Consulting, Inc.), R10: Allen li, P. David (Stratus Consulting, Inc.)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100003345	7/23/2012	Email regarding PH major comments.	16	1	EML / Email	R10: Gustavson, Karl (U. S. Army Corps of Engineers)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100003346	7/23/2012	Memorandum regarding Major Comments on March 30, 2012 Draft Feasibility Study - Draft FS July 2012 Overview Comments.	54	2	EML / Email	R10: Gustavson, Karl (U. S. Army Corps of Engineers)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100003347	7/23/2012	Email regarding Preliminary Comments on the Portland Harbor FS.	84	1	EML / Email	R10: Wagoner, Colin, H (Ridolfi, Inc.)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA), R10: Penoyar, Susan, J (CDM)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100003348	7/23/2012	Memorandum regarding Preliminary Comments on the Draft Feasibility Study Portland Harbor Superfund Site (March 2012) - 2012-07-23 Yakama_Draft Portland Harbor FS Comments.	667	3	EML / Email	R10: Dexter, Bob (NOAA), R10: Wagoner, Colin, H (Ridolfi, Inc.)	R10: Longoria, Rose (Yakama Nation)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100003877	7/25/2012	Portland Harbor Erosion and Deposition since January 2002 - Figure 4.1-5a-h Bathymetry Compare Maps.	6,900	8	CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100003333	7/27/2012	Email regarding DEQ preliminary comments on draft FS.	609	11	EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA), R10: Muza, Richard (EPA), R10: Penoyar, Susan, J (CDM)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100003335	7/27/2012	Comments on the Portland Harbor Feasibility Study By Environmental Stewardship Concepts, LLC For the Willamette Riverkeeper and the Portland Harbor CAG - HarborComments1.	377	24	CORR / Correspondence	R10: (Environmental Stewardship Concepts)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100003336	7/27/2012	General Comments on the Portland Harbor Feasibility Study By Environmental Stewardship Concepts, LLC For the Willamette Riverkeeper and the Portland Harbor CAG - HarborComments2.	335	18	CORR / Correspondence	R10: (Environmental Stewardship Concepts)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100003337	7/27/2012	Confined Disposal Facilities: Portland Harbor Draft Feasibility Study By Environmental Stewardship Concepts, LLC For the Willamette Riverkeeper and the Portland Harbor CAG - HarborCommentsCDF.	152	5	CORR / Correspondence	R10: (Environmental Stewardship Concepts)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100003338	7/27/2012	Sedimentation Comments on the Portland Harbor Draft Feasibility Study By Environmental Stewardship Concepts, LLC For the Willamette Riverkeeper and the Portland Harbor CAG - HarborCommentsSed.	199	6	CORR / Correspondence	R10: (Environmental Stewardship Concepts)		ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100003334	8/7/2012	Email regarding Draft FS Comments from Willamette Riverkeeper.	35	2	EML / Email	R10: Humphrey, Chip (EPA)	R10: Buck, Jeremy (U. S. Fish and Wildlife Service), R10: Koch, Kristine, M (EPA), R10: Shephard, Burt (EPA), R10: Goulet, Joe (EPA), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality), R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality), R10: McClincy, Matt (Oregon Dept. of Environmental Quality), R10: Gainer, Tom (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100003350	9/21/2012	Email regarding PH (UNCLASSIFIED).	73	2	EML / Email	R10: Gustavson, Karl (U. S. Army Corps of Engineers)	R10: Humphrey, Chip (EPA), R10: Penoyar, Susan, J (CDM)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100007295	10/1/2012	Email regarding CDF CAG Presentation -More Questions from CAG member Jackie Calder.	30	6	EML / Email	R10: Humphrey, Chip (EPA)	R10: Madalinski, Kelly (Port of Portland), R10: Sheldrake, Sean, A (EPA), R10: Mckenna, Jim (Verdant Solutions, LLC)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100003760	10/22/2012	Table B-1 Risk-Based Human Health PRGs - 2015-06-02 Draft Final Appendix B1_Table B1_HH PRGs.	119	1	CORR / Correspondence	R10: Allen, Elizabeth (EPA)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100007359	11/5/2012	Email regarding Meet to Discuss FS.	27	1	EML / Email	R10: Humphrey, Chip (EPA)	R10: Mckenna, James (Verdant Solutions, LLC)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100007360	11/5/2012	Email regarding Meet to Discuss FS.	52	2	EML / Email	R10: Humphrey, Chip (EPA)	R10: Mckenna, James (Verdant Solutions, LLC)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100007184	11/19/2012	Feasibility Study Model 2.	5,406	1	CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
682073	12/7/2012	12_07_12 email; Comments on the Draft FS Report.	16	1	CORR / Correspondence	R10: Imai, Diane (Bingham)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
715196	12/18/2012	EPA Comments on the March 2012 Draft Study Feasibility Study.	1,020	24	RPT / Report	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	R10: Wyatt, Bob (Lower Willamette Group)	PAPER DOCUMENT	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)

100007297	Email regarding EPA comments on LWG Draft FS Report.	16	1 EML / Email	R10: Humphrey, Chip (EPA)	R10: Wyatt, Bob (Northwest Natural Gas Company), R10: Mckenna, Jim (Verdant Solutions, LLC)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100007298	FS Review Team Comments on Portland Harbor Draft Feasibility Study (March 2012).	566	18 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100007299	Letter regarding EPA Comments on the Portland Harbor RI/FS Draft Feasibility Study.	408	6 CORR / Correspondence	R10: Humphrey, Chip (EPA)	R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
679492	01_15_13; Summary of January 10th FS Conference Call.	69	2 CORR / Correspondence	R10: Mckenna, James (Port of Portland)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100003420	Table 11-3. Contaminants Posing Potentially Unacceptable Risks by River Mile in Selected Media - BERA Table 11-3 from EPA risks by river mile.	128	6 CORR / Correspondence	R10: Shephard, Burt (EPA)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
709133	01_17_13 email; LWG Counterproposal for Finalizing the Remedial Investigation.	62	1 CORR / Correspondence	R10: Mckenna, Jim (Lower Willamette Group)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
709195	01_21_13 email; January 18th FS Conference Call Decisions and Action Items.	81	2 CORR / Correspondence	R10: Mckenna, James, J (McKenna Environmental, LLC)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100003419	Email regarding Portland Harbor BERA risks for selected sample types by river mile.	36	2 EML / Email	R10: Shephard, Burt (EPA)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100003421	Email regarding EPA Preliminary FS revisionTask List.	122	1 EML / Email	R10: Mckenna, James (Verdant Solutions, LLC)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100003422	Draft for Project Manager Discussion Portland Harbor FS Revisions Tasks - EPA Preliminary FS TASK LIST.	274	9 CORR / Correspondence	R10: Blischke, Eric, L (EPA)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100007177	Email regarding EPA Preliminary FS revisionTask List.	15	1 EML / Email	R10: Humphrey, Chip (EPA)	R10: Wyatt, Bob (Northwest Natural Gas Company), R10: Mckenna, Jim (Verdant Solutions, LLC)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100007178	Draft Portland Harbor FS Revision Tasks - EPA Preliminary FS TASK LIST.	274	9 CORR / Correspondence	R10: Blischke, Eric, L (EPA)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100007351	1/23/2013 Email regarding EPA FS task list.	13	1 EML / Email	R10: Humphrey, Chip (EPA)	R10: Mckenna, James (Verdant Solutions, LLC)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100007182	Email regarding Corps EFDC - Earl model data and comparison.	17	1 EML / Email	R10: Humphrey, Chip (EPA)	R10: Wyatt, Bob (Northwest Natural Gas Company), R10: Woronets, Jennifer (Anchor QEA, LLC), R10: Mckenna, Jim (Verdant Solutions, LLC)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100007183	1/24/2013 Earl Data Tables.	1,017	73 CORR / Correspondence	R10: King, Todd (CDM Smith)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100003424	Outline of Procedure used for Sediment Transport Model Review - Outline of Procedure used for Sediment Transport Model Review.	55	1 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100003425	Email regarding Portland Harbor- Monday, January 28th 9:30- 12:20 Conference Call to Discuss Draft FS Modeling/ MNR Related Comments.	206	3 EML / Email	R10: Shellenberger, Amanda (Anchor Environmental, LLC)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100007189	Outline of Procedure used for Sediment Transport Model Review.	55	1 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100003427	Email regarding bed property and calibration data files.	56	3 EML / Email	R10: Hayter, Earl, J (U. S. Army Corps of Engineers)	R10: Ziegler, C. Kirk (Anchor QEA, LLC)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
709439	02_03_14 email; Revised FS Revision Process Matrix.	85	1 CORR / Correspondence	R10: Stivers, Carl (Anchor Environmental, LLC)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100003428	2/8/2013 Email regarding Mink Model.	35	2 EML / Email	R10: Humphrey, Chip (EPA)	R10: Shephard, Burt (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100007192	2/14/2013 Email regarding FS discussion.	15	1 EML / Email	R10: Humphrey, Chip (EPA)	R10: Wyatt, Bob (Northwest Natural Gas Company), R10: Mckenna, Jim (Verdant Solutions, LLC)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100007193	Feasibility Study Comment Themes and Process Draft.	114	8 CORR / Correspondence	R10: King, Todd (CDM Smith)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
687203	2/25/2013 Draft Agenda for FS work session.	61	2 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Koch, Kristine, M (EPA), R10: Shephard, Burt (EPA), R10: Humphrey, Chip (EPA), R10: Gainer, Tom (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
709895	03_19_14 email; Updated FS Technical Meetings Schedule.	56	1 CORR / Correspondence	R10: Mckenna, James, J (McKenna Environmental, LLC)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
710290	03_21_13 email; 3-18-13 FS Meeting Action Items Table.	49	1 CORR / Correspondence	R10: Mckenna, James, J (McKenna Environmental, LLC)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100003762	Table B-2 Risk-Based Ecological PRGs - 2015-06-02 Draft Final Appendix B2_Table B2_Eco PRGs.	123	2 CORR / Correspondence	R10: Koch, Kristine, M (EPA)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100003773	Table B-2 Risk-Based Ecological PRGs - 2015-06-03 Draft Final Appendix B2_Table B2_Eco PRGs.	122	2 CORR / Correspondence	R10: Koch, Kristine, M (EPA)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100006345	Portland Harbor Eco PRGs - 2014-04-11 Portland Harbor Eco PRGs_REV 1.	180	8 CORR / Correspondence	R10: Koch, Kristine, M (EPA)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100003001	Email regarding Portland Harbor: RI Section 4 tweaks to resolve 2 issues.	36	1 EML / Email	R10: Ashton, David (Port of Portland)	R10: Cora, Lori, H (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100005722	Outlier Tests for Selected Variables replacing nondetects with 1/2 the Detection Limit - PCB Cong outliers.	50	1 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100006248	Spreadsheet of Acceptable Tissue Levels - Avian DDX SLVs_ATLs_TRVs.	664	24 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100006249	Acceptable Tissue Levels Spreadsheet - Avian 8/1/2013 TotPCB SLVs_ATLs_TRVs_Draft8_1_13.	255	13 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100006251	8/1/2013 Email regarding PCB SLVs, ATLs, TRVs.	22	1 EML / Email	R10: Buck, Jeremy (U. S. Fish and Wildlife Service)	R10: Shephard, Burt (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100006253	8/1/2013 Email regarding updated DDX SLVs.	64	2 EML / Email	R10: Buck, Jeremy (U. S. Fish and Wildlife Service)	R10: Shephard, Burt (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100006254	8/1/2013 Email regarding updated DDX SLVs.	46	1 EML / Email	R10: Buck, Jeremy (U. S. Fish and Wildlife Service)	R10: Shephard, Burt (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100006250	Email regarding PCB SLVs, ATLs, TRVs - and another possible RSET use for this spreadsheet?	65	2 EML / Email	R10: Buck, Jeremy (U. S. Fish and Wildlife Service)	R10: Shephard, Burt (EPA), R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100006252	Bird Egg TRVs, ATLs, and SLVs - PCB_126 and 8/5/2013 77 SLVs.	232	19 CORR / Correspondence	R10: Buck, Jeremy (U. S. Fish and Wildlife Service)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100003764	Tables 2.2 - 2015-06-02 Draft Final FS Section 2 2 Tables.	499	58 CORR / Correspondence	R10: Koch, Kristine, M (EPA)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100003779	Table 2.1-4 Numeric Standards Associated with Chemical-Specific ARARs - 2015-06-05 Draft Final FS Section 2.2 Tables.	433	48 CORR / Correspondence	R10: Koch, Kristine, M (EPA)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)

100002968	11/1/2013	Email regarding Letter from COE on "Reasonably Foreseeable Use" Willamette (UNCLASSIFIED).	36	1 EML / Email	R10: Craner, Douglas (Unknown)	R10: Cora, Lori, H (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
696673	11/12/2013	Email regarding Follow-up to LWG supplemental technical analysis and information for draft FS.	116	1 EML / Email	R10: Madalinski, Kelly (Port of Portland)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
500001430	11/13/2013	11_13_13 email; Portland Harbor Nov 13 FS Meeting Materials.	98	3 EML / Email	R10: Koch, Kristine, M (EPA)	R10: Woronets, Jennifer (Anchor QEA, LLC), R10: Mckenna, James (Verdant Solutions, LLC)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100006052	11/14/2013	Email regarding Port reference RM 16.	50	1 EML / Email	R10: Koch, Kristine, M (EPA)	R10: Hamilton, Jessica (Port of Portland)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100006065	11/20/2013	EPA request for supplemental technical analysis and other information to support Draft Feasibility review/revisions - Draft FS supplemental information list 11202013.	55	1 CORR / Correspondence	R10: (EPA)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100002973	11/22/2013	Army Corps of Engineers Letter regarding Portland Harbor Usage.	46	1 CORR / Correspondence	R10: Brice, Kevin, J (U. S. Army Corps of Engineers)	R10: Albright, Rick (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100005840	12/23/2013	Corrections and Clarifications to Toxics Water Quality Standards Rulemaking - tables303140. Tabwl 1 - Feasibility Study Outline Cross-Walk Portland Harbor Superfund Site - 2014-01-17	593	20 CORR / Correspondence	R10: (Oregon Dept. of Environmental Quality)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100006054	1/13/2014	FS Outline Cross-walk.	295	6 EML / Email	R10: Blischke, Eric, L (EPA)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100003913	1/15/2014	Memorandum regarding Proposed Process for Incorporation of EPA's Dredge Production and Dredge Residual Recommendations for the Portland Harbor Feasibility Study.	44	5 CORR / Correspondence	R10: (Lower Willamette Group)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100006057	1/15/2014	Portland Harbor Feasibility Study Schedule - 2014-04-22 EPA Portland Harbor FS Schedule.	84	1 CORR / Correspondence	R10: Koch, Kristine, M (EPA)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100006165	1/15/2014	Portland Harbor Feasibility Study Schedule - 2014-05-01 EPA Portland Harbor FS Schedule.	85	1 CORR / Correspondence	R10: Koch, Kristine, M (EPA)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100006055	1/24/2014	Final RS Revision Process Diagram - 2014-01-24 FS Revision Process Diagram.	97	1 CORR / Correspondence	R10: Humphrey, Chip (EPA)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
709258	1/29/2014	01_29_14 email; Portland Harbor Status of LWG Resources to EPA Supplemental FS Information Requests.	64	1 CORR / Correspondence	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA), R10: King, Todd (CDM Smith)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
709423	1/29/2014	01_29_14 email; Portland Harbor Status of LWG Resources to EPA Supplemental FS Information Requests.	64	1 CORR / Correspondence	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA), R10: King, Todd (CDM Smith)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100003046	1/29/2014	Email regarding Scheduling a meeting with DSL and EPA project managers.	35	1 EML / Email	R10: Perry, Lynne (Oregon Dept. of Justice)	R10: Cora, Lori, H (EPA) Genevieve (NOAA), R10: Neeley, Robert (NOAA), R10: Buck, Jeremy (U. S. Fish and Wildlife Service), R10: Madden, Erin (Unknown), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Cunninghame, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Ridolfi, Callie (Ridolfi Engineers, Inc.), R10: Downey, Tom (Confederated Tribes of the Siletz Indians), R10: Karnosh, Michael (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Sheldrake, Sean, A (EPA), R10: Fuentes, Rene, C (EPA), R10: Conley, Alanna (EPA), R10: Shephard, Burt (EPA), R10: Humphrey, Chip (EPA), R10: Allen, Elizabeth (EPA), R10: Liverman, Alex (Oregon Dept. of Environmental Quality), R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality), R10: McClincy, Matt (Oregon Dept. of Environmental Quality), R10: Poulsen, Mike (Oregon Dept. of Environmental Quality), R10: Gainer, Tom (Oregon Dept. of Environmental Quality), R10: Muza, Richard (EPA Region 10), R10: Fricano, Gail (Industrial Economics, Inc.), R10: Delvecchio, Rachel (Industrial Economics, Inc.), R10: Humphreys, Brandy (Grand Ronde Tribe), R10: Penoyar, Susan, J (CDM), R10: Longoria, Rose (Yakama Nation), R10: King, Todd (CDM Smith), R10: Johnson, Matt (WilliamsJohnson), R10: Weis, Julie (Haglund Kelley Jones & Wilder LLP), R10:	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100006053	1/31/2014	Email regarding Next TCT Meeting - 2/5.	45	1 EML / Email	R10: Koch, Kristine, M (EPA)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
709599	2/6/2014	02_06_14 email; Status of Various FS Action Items.	66	3 CORR / Correspondence	R10: Mckenna, Jim (Unknown)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
709600	2/6/2014	02_06_14 email2; Status of Various FS Action Items Draft FS Process Dates Matrix.	65	2 CORR / Correspondence	R10: Koch, Kristine, M (EPA)	R10: Mckenna, Jim (Unknown), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
709601	2/6/2014	02_06_14 email3; Status of Various FS Action Items.	62	2 CORR / Correspondence	R10: Koch, Kristine, M (EPA)	R10: Mckenna, Jim (Unknown), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
709606	2/7/2014	02_07_14 email; FS Revision Process Documents.	93	2 CORR / Correspondence	R10: Stivers, Carl (Anchor QEA, LLC)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100005303	2/7/2014	Table 1 - Feasibility Study List of Proposed Figures - 2014-07-08 FS Outline - List of Figures.	111	2 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100005304	2/7/2014	Table 1 - Feasibility Study List of Proposed Tables - FS Outline - List of Tables.	99	1 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100005342	2/7/2014	Table 1 - Feasibility Study List of Proposed Figures - 2014-07-08 FS Outline - List of Figures.	111	2 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100005343	2/7/2014	Table 1 - Feasibility Study List of Proposed Tables - FS Outline - List of Tables.	99	1 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100005491	2/7/2014	Table 1 Feasibility Study List of Proposed Figures - 2014-12-02 Proposed Final FS Section 1 - List of Figures.	94	2 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100005492	2/7/2014	Table 1 - Feasibility Study List of Proposed Tables - 2014-12-02 Proposed Final FS Section 1 - List of Tables.	116	2 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100006337	2/7/2014	Table 1 - Feasibility Study List of Proposed Figures - 2014-06-03 FS Outline - List of Figures.	110	2 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
709632	2/11/2014	02_11_14 email; Portland Harbor February 11 FS Approach Meeting.	82	2 CORR / Correspondence	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
709634	2/11/2014	02_11_14 email; Updated FS Process Diagram.	42	1 CORR / Correspondence	R10: Koch, Kristine, M (EPA)	R10: Mckenna, Jim (Unknown), R10: Wyatt, Bob (Lower Willamette Group), R10: Humphrey, Chip (EPA), R10: Stivers, Carl (Anchor QEA, LLC)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
709639	2/12/2014	02_12_14 email; Revised Dates Matrix and Gantt for Portland Harbor FS.	88	1 CORR / Correspondence	R10: Stivers, Carl (Anchor QEA, LLC)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100003070	2/12/2014	Email regarding Tucker Bldg Area Cleanups Info.	86	2 EML / Email	R10: Muza, Richard (EPA)	R10: Sheldrake, Sean, A (EPA), R10: Cora, Lori, H (EPA), R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)

709644	2/13/2014	02_13_14 email; Revised Status Work Items and Back up Sheets for FS Issues - Portland Harbor FS Revision process.	89	1 CORR / Correspondence	R10: Stivers, Carl (Anchor QEA, LLC)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
709708	2/14/2014	02_14_14 email; Weekly Status of FS Technical Revision Process.	58	1 CORR / Correspondence	R10: Mckenna, James, J (McKenna Environmental, LLC)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100006259	2/14/2014	Portland Harbor RI/FS Draft Feasibility Study Report Section 1 - 2014-06-02 Portland Harbor FS Section 1.	321	27 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100006336	2/14/2014	Portland Harbor RI/FS Draft Feasibility Study Report Section 1 - 2014-06-02 Portland Harbor FS Section 1_Rev 1.	339	32 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
709725	2/21/2014	02_21_14 email; FS Issue 2.2 Ecological COC Selections - LWG Initial Questions.	100	2 CORR / Correspondence	R10: Stivers, Carl (Anchor QEA, LLC)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
709727	2/21/2014	02_21_14 email; FS Issue 2.3.3 Water PRGs and LWG Initial Questions.	89	1 CORR / Correspondence	R10: Stivers, Carl (Anchor QEA, LLC)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
709729	2/21/2014	02_21_14 email; Weekly Update FS Revision Process Matrix Table.	54	1 CORR / Correspondence	R10: Mckenna, James, J (McKenna Environmental, LLC)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100003049	2/24/2014	Email regarding OPR ODEQ letter.	79	3 EML / Email	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	R10: Sheldrake, Sean, A (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100003060	2/24/2014	DEQ Downgrade of Former Rhone Poulenc Facility from High to Medium Priority, Portland Harbor Superfund Site, Portland, Oregon.	272	3 CORR / Correspondence	R10: Yamamoto, Deb (EPA)	R10: Johnson, Keith (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
709747	2/28/2014	02_28_14 email; Portland Harbor Weekly Updated FS Revision Process Matrix Table.	66	1 CORR / Correspondence	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100005837	2/28/2014	Aquatic Life Criteria Table - National Human Health and Aquatic Life Criteria Table.	288	13 CORR / Correspondence	R10: Koch, Kristine, M (EPA)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100005833	3/2/2014	Benthic AOC Summary Table - Revised - Attach_2_Comprehensive Benthic Approach_revised_2015_03_02.	39	1 CORR / Correspondence	R10: Musgrove, Nancy (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100005835	3/2/2014	Benthic AOC Summary Table - Revised - Attachment_2_Comprehensive Benthic Approach_revised_2015_03_02.	40	1 CORR / Correspondence	R10: Musgrove, Nancy (Unknown)	R10: Musgrove, Nancy (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
709758	3/3/2014	03_03_14 email; FS Issue 3.3.1 - Expanded Discussion of BaPEQ RAL Application.	141	3 RPT / Report	R10: Mckenna, James, J (McKenna Environmental, LLC)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA), R10: Woronets, Jennifer (Anchor QEA, LLC)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
709812	3/7/2014	03_07_14 email; Weekly Update on FS Revision Process Status.	91	1 CORR / Correspondence	R10: Stivers, Carl (Anchor QEA, LLC)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
709854	3/14/2014	03_14_14 email; Weekly Update on FS Revision Process Status.	88	1 CORR / Correspondence	R10: Stivers, Carl (Anchor Environmental, LLC)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
709872	3/17/2014	03_17_14 email; FS Meeting March 18 - Suggested Agenda.	88	1 CORR / Correspondence	R10: Stivers, Carl (Anchor QEA, LLC)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
710312	3/21/2014	03_21_14 email; Draft List of Unresolved FS Issues.	94	2 CORR / Correspondence	R10: Stivers, Carl (Anchor QEA, LLC)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100005832	3/24/2014	Benthic AOC Summary Table - Attach_2_Comprehensive Benthic Approach_clean_2014_03_24.	35	1 CORR / Correspondence	R10: Musgrove, Nancy (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100005834	3/24/2014	Benthic AOC Summary Table - Clean - Attachment_2_Comprehensive Benthic Approach_clean_2014_03_24.	35	1 CORR / Correspondence	R10: Musgrove, Nancy (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100002986	3/26/2014	Chemical-Specific ARARs for Remedial Action at the Portland Harbor Superfund Site.	121	16 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100003769	3/26/2014	Table 2.1-1 Chemical-Specific for Remedial Action at the Portland Harbor Superfund Site - 2015-06-02 Draft Final Tables 2.1-1 through 2.1-3 ARARs.	146	16 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
710462	3/28/2014	03_28_14 email; FS Revision Process Matrix Update.	89	1 CORR / Correspondence	R10: Stivers, Carl (Anchor Environmental, LLC)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
710732	4/1/2014	04_01_14 email; Written Summary of Comprehensive Benthic Risk Areas for Draft FS.	11	1 CORR / Correspondence	R10: Mckenna, James, J (McKenna Environmental, LLC)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100002985	4/1/2014	Draft Portland Harbor Feasibility Study US EPA and LWG Discussion Technology Assignment Approach.	3,359	20 CORR / Correspondence	R10: (EPA)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
707202	4/2/2014	04_02_14 email; Written Summary of Comprehensive Benthic Risk Areas for Draft FS.	59	2 EML / Email	R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100006168	4/3/2014	Portland Harbor Project Timeline to ROD - 2014-04-03 Project Timeline to ROD.	137	1 CORR / Correspondence	R10: Koch, Kristine, M (EPA)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
710759	4/4/2014	04_04_14 email; FS Data Requests.	193	3 CORR / Correspondence	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA), R10: King, Todd (CDM Smith)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
710798	4/7/2014	04_07_14 email; FS Revision Process Update.	156	2 CORR / Correspondence	R10: Koch, Kristine, M (EPA)	R10: Shellenberger, Amanda (Anchor Environmental, LLC), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100002977	4/7/2014	Email regarding Scheduling a meeting with DSL and EPA project managers.	60	2 EML / Email	R10: Cora, Lori, H (EPA)	R10: Perry, Lynne (Oregon Dept. of Justice)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100006070	4/11/2014	Portland Harbor COCs - 2014-04-11 Final PH COCs.	149	2 CORR / Correspondence	R10: Koch, Kristine, M (EPA)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100006056	4/25/2014	Email regarding Draft Schedule for FS.	42	1 EML / Email	R10: Koch, Kristine, M (EPA)	R10: Mckenna, Jim (Unknown), R10: Wyatt, Bob (Northwest Natural Gas Company)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100006058	4/28/2014	Email regarding Updated Portland Harbor RI and FS schedules.	42	1 EML / Email	R10: Koch, Kristine, M (EPA)	R10: Mckenna, Jim (Unknown), R10: Wyatt, Bob (Northwest Natural Gas Company)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100006059	4/28/2014	Portland Harbor Feasibility Study Schedule - 2014-04-28 EPA Portland Harbor FS Schedule.	85	1 EML / Email	R10: Koch, Kristine, M (EPA)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100006060	4/28/2014	Portland Harbor Project Schedule - 2014-04-28 EPA Portland Harbor RI Schedule.	120	1 CORR / Correspondence	R10: Koch, Kristine, M (EPA)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100006061	4/30/2014	Email regarding EPA roles & responsibilities.	38	1 EML / Email	R10: Koch, Kristine, M (EPA)	R10: Wyatt, Bob (Northwest Natural Gas Company)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100006062	4/30/2014	EPA Roles & Responsibilities - 2014-04-30 EPA Roles and Responsibilities - Releaseable.	94	1 CORR / Correspondence	R10: Koch, Kristine, M (EPA)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100006068	4/30/2014	Draft LWG Suggestions for Revisions to EPA's Technology Screening Approach - Suggestions for Technology Screening Revisions Draft 050214r.	136	5 CORR / Correspondence	R10: (Lower Willamette Group)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100006166	4/30/2014	Portland Harbor Project Schedule - 2014-05-01 EPA Portland Harbor RI Schedule.	119	1 CORR / Correspondence	R10: Koch, Kristine, M (EPA)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100006170	4/30/2014	Portland Harbor Project Schedule - 2014-05-01 EPA Portland Harbor RI Schedule.	119	1 CORR / Correspondence	R10: Koch, Kristine, M (EPA)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)



100006063	5/1/2014 Email regarding Portland Harbor Schedule.	44	1 EML / Email	R10: Koch, Kristine, M (EPA)	Genevieve (NOAA), R10: Neeley, Robert (NOAA), R10: Buck, Jeremy (U. S. Fish and Wildlife Service), R10: Madden, Erin (Unknown), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Cunninghame, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Ridolfi, Callie (Ridolfi Engineers, Inc.), R10: Downey, Tom (Confederated Tribes of the Siletz Indians), R10: Partridge, Holly (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Karnosh, Michael (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Sheldrake, Sean, A (EPA), R10: Fuentes, Rene, C (EPA), R10: Conley, Alanna (EPA), R10: Shephard, Burt (EPA), R10: Allen, Elizabeth (EPA), R10: Liverman, Alex (Oregon Dept. of Environmental Quality), R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality), R10: McClincy, Matt (Oregon Dept. of Environmental Quality), R10: Poulsen, Mike (Oregon Dept. of Environmental Quality), R10: Gainer, Tom (Oregon Dept. of Environmental Quality), R10: Muza, Richard (EPA Region 10), R10: Fricano, Gail (Industrial Economics, Inc.), R10: Delvecchio, Rachel (Industrial Economics, Inc.), R10: Sudbury, Ryan (Grand Ronde Tribe), R10: Penoyar, Susan, J (CDM), R10: Longoria, Rose (Yakama Nation), R10: King, Todd (CDM Smith), R10: Johnson, Matt (WilliamsJohnson),	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100006169	Portland Harbor Feasibility Study Schedule - 5/1/2014 2014-05-01 EPA Portland Harbor FS Schedule.	85	1 CORR / Correspondence	R10: Koch, Kristine, M (EPA)	R10: (Unknown) Genevieve (NOAA), R10: Neeley, Robert (NOAA), R10: Buck, Jeremy (U. S. Fish and Wildlife Service), R10: Madden, Erin (Unknown), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Cunninghame, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Ridolfi, Callie (Ridolfi Engineers, Inc.), R10: Downey, Tom (Confederated Tribes of the Siletz Indians), R10: Partridge, Holly (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Karnosh, Michael (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Sheldrake, Sean, A (EPA), R10: Fuentes, Rene, C (EPA), R10: Conley, Alanna (EPA), R10: Shephard, Burt (EPA), R10: Allen, Elizabeth (EPA), R10: Liverman, Alex (Oregon Dept. of Environmental Quality), R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality), R10: McClincy, Matt (Oregon Dept. of Environmental Quality), R10: Poulsen, Mike (Oregon Dept. of Environmental Quality), R10: Gainer, Tom (Oregon Dept. of Environmental Quality), R10: Muza, Richard (EPA Region 10), R10: Fricano, Gail (Industrial Economics, Inc.), R10: Delvecchio, Rachel (Industrial Economics, Inc.), R10: Sudbury, Ryan (Grand Ronde Tribe), R10: Penoyar, Susan, J (CDM), R10: Longoria, Rose (Yakama Nation), R10: King, Todd (CDM Smith), R10: Johnson, Matt (WilliamsJohnson),	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100006064	Email regarding May 8 CDF Sediment and Water Discharge Treatment Topic.	170	3 EML / Email	R10: Koch, Kristine, M (EPA)	Genevieve (NOAA), R10: Neeley, Robert (NOAA), R10: Buck, Jeremy (U. S. Fish and Wildlife Service), R10: Madden, Erin (Unknown), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Cunninghame, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Ridolfi, Callie (Ridolfi Engineers, Inc.), R10: Downey, Tom (Confederated Tribes of the Siletz Indians), R10: Partridge, Holly (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Karnosh, Michael (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Sheldrake, Sean, A (EPA), R10: Fuentes, Rene, C (EPA), R10: Conley, Alanna (EPA), R10: Shephard, Burt (EPA), R10: Allen, Elizabeth (EPA), R10: Liverman, Alex (Oregon Dept. of Environmental Quality), R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality), R10: McClincy, Matt (Oregon Dept. of Environmental Quality), R10: Poulsen, Mike (Oregon Dept. of Environmental Quality), R10: Gainer, Tom (Oregon Dept. of Environmental Quality), R10: Muza, Richard (EPA Region 10), R10: Fricano, Gail (Industrial Economics, Inc.), R10: Delvecchio, Rachel (Industrial Economics, Inc.), R10: Sudbury, Ryan (Grand Ronde Tribe), R10: Penoyar, Susan, J (CDM), R10: Longoria, Rose (Yakama Nation), R10: King, Todd (CDM Smith), R10: Johnson, Matt (WilliamsJohnson),	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100006067	Email regarding Suggestions for Technology Screening Revisions Draft.	132	2 EML / Email	R10: Koch, Kristine, M (EPA)	Genevieve (NOAA), R10: Neeley, Robert (NOAA), R10: Buck, Jeremy (U. S. Fish and Wildlife Service), R10: Madden, Erin (Unknown), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Cunninghame, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Ridolfi, Callie (Ridolfi Engineers, Inc.), R10: Downey, Tom (Confederated Tribes of the Siletz Indians), R10: Partridge, Holly (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Karnosh, Michael (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Sheldrake, Sean, A (EPA), R10: Fuentes, Rene, C (EPA), R10: Conley, Alanna (EPA), R10: Shephard, Burt (EPA), R10: Allen, Elizabeth (EPA), R10: Liverman, Alex (Oregon Dept. of Environmental Quality), R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality), R10: McClincy, Matt (Oregon Dept. of Environmental Quality), R10: Poulsen, Mike (Oregon Dept. of Environmental Quality), R10: Gainer, Tom (Oregon Dept. of Environmental Quality), R10: Muza, Richard (EPA Region 10), R10: Fricano, Gail (Industrial Economics, Inc.), R10: Delvecchio, Rachel (Industrial Economics, Inc.), R10: Sudbury, Ryan (Grand Ronde Tribe), R10: Penoyar, Susan, J (CDM), R10: Longoria, Rose (Yakama Nation), R10: King, Todd (CDM Smith), R10: Johnson, Matt (WilliamsJohnson),	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100006069	5/2/2014 Email regarding Final COC table.	43	1 EML / Email	R10: Koch, Kristine, M (EPA)	Genevieve (NOAA), R10: Neeley, Robert (NOAA), R10: Buck, Jeremy (U. S. Fish and Wildlife Service), R10: Madden, Erin (Unknown), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Cunninghame, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Ridolfi, Callie (Ridolfi Engineers, Inc.), R10: Downey, Tom (Confederated Tribes of the Siletz Indians), R10: Partridge, Holly (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Karnosh, Michael (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Sheldrake, Sean, A (EPA), R10: Fuentes, Rene, C (EPA), R10: Conley, Alanna (EPA), R10: Shephard, Burt (EPA), R10: Allen, Elizabeth (EPA), R10: Liverman, Alex (Oregon Dept. of Environmental Quality), R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality), R10: McClincy, Matt (Oregon Dept. of Environmental Quality), R10: Poulsen, Mike (Oregon Dept. of Environmental Quality), R10: Gainer, Tom (Oregon Dept. of Environmental Quality), R10: Muza, Richard (EPA Region 10), R10: Fricano, Gail (Industrial Economics, Inc.), R10: Delvecchio, Rachel (Industrial Economics, Inc.), R10: Sudbury, Ryan (Grand Ronde Tribe), R10: Penoyar, Susan, J (CDM), R10: Longoria, Rose (Yakama Nation), R10: King, Todd (CDM Smith), R10: Johnson, Matt (WilliamsJohnson),	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100006167	Email regarding Combined RI and FS Schedules.	77	2 EML / Email	R10: Koch, Kristine, M (EPA)	R10: Mckenna, James (Verdant Solutions, LLC) Genevieve (NOAA), R10: Neeley, Robert (NOAA), R10: Buck, Jeremy (U. S. Fish and Wildlife Service), R10: Madden, Erin (Unknown), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Cunninghame, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Ridolfi, Callie (Ridolfi Engineers, Inc.), R10: Downey, Tom (Confederated Tribes of the Siletz Indians), R10: Partridge, Holly (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Karnosh, Michael (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Sheldrake, Sean, A (EPA), R10: Fuentes, Rene, C (EPA), R10: Conley, Alanna (EPA), R10: Shephard, Burt (EPA), R10: Allen, Elizabeth (EPA), R10: Liverman, Alex (Oregon Dept. of Environmental Quality), R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality), R10: McClincy, Matt (Oregon Dept. of Environmental Quality), R10: Poulsen, Mike (Oregon Dept. of Environmental Quality), R10: Gainer, Tom (Oregon Dept. of Environmental Quality), R10: Muza, Richard (EPA Region 10), R10: Fricano, Gail (Industrial Economics, Inc.), R10: Delvecchio, Rachel (Industrial Economics, Inc.), R10: Sudbury, Ryan (Grand Ronde Tribe), R10: Penoyar, Susan, J (CDM), R10: Longoria, Rose (Yakama Nation), R10: King, Todd (CDM Smith), R10: Johnson, Matt (WilliamsJohnson),	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)

100006172	Draft FS Revision Process Matrix - 05-02-14 5/2/2014 Update of FS Revision Process Matrix.	182	3 CORR / Correspondence	R10: Stivers, Carl (Anchor QEA, LLC)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100006173	5/2/2014 Draft Action Items - 050214 Action Items Lists.	143	7 CORR / Correspondence	R10: Stivers, Carl (Anchor QEA, LLC)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100006072	Email regarding Suggestions for Technology 5/5/2014 Screening Revisions Draft.	133	2 EML / Email	R10: Koch, Kristine, M (EPA)	R10: Woronets, Jennifer (Anchor QEA, LLC) Genevieve (NOAA), R10: Neeley, Robert (NOAA), R10: Buck, Jeremy (U. S. Fish and Wildlife Service), R10: Madden, Erin (Unknown), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Cunninghame, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Ridolfi, Callie (Ridolfi Engineers, Inc.), R10: Downey, Tom (Confederated Tribes of the Siletz Indians), R10: Partridge, Holly (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Karnosh, Michael (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Shelldrake, Sean, A (EPA), R10: Fuentes, Rene, C (EPA), R10: Conley, Alanna (EPA), R10: Shephard, Burt (EPA), R10: Allen, Elizabeth (EPA), R10: Liverman, Alex (Oregon Dept. of Environmental Quality), R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality), R10: McClincy, Matt (Oregon Dept. of Environmental Quality), R10: Poulsen, Mike (Oregon Dept. of Environmental Quality), R10: Gainer, Tom (Oregon Dept. of Environmental Quality), R10: Muza, Richard (EPA Region 10), R10: Fricano, Gail (Industrial Economics, Inc.), R10: Delvecchio, Rachel (Industrial Economics, Inc.), R10: Sudbury, Ryan (Grand Ronde Tribe), R10: Penoyar, Susan, J (CDM), R10: Longoria, Rose (Yakama Nation), R10: King, Todd (CDM Smith), R10: Johnson, Matt (WilliamsJohnson),	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100006171	Email regarding Draft FS Revision Process; Updated Matrix Table and Action Items List for 5/5/2014 2-May-14.	141	3 EML / Email	R10: Koch, Kristine, M (EPA)		ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100006180	FWM Template - FWM template_ 5/6/2014 calibrated_23478PCDF_edited_OR.	314	14 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100006073	Email regarding Here is a table from USGS on 5/8/2014 groundwater FYI.	135	2 EML / Email	R10: Koch, Kristine, M (EPA)	R10: McKenna, Jim (Unknown), R10: Stivers, Carl (Anchor QEA, LLC)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100006178	Portland Harbor Project Timeline - 2014-05-12 5/12/2014 Current Schedule for PH.	452	1 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100003047	Email regarding Portland Harbor Technology 5/13/2014 Screening Criteria.	36	1 EML / Email	R10: Perry, Lynne (Oregon Dept. of Justice)	R10: Cora, Lori, H (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100005570	Portland Harbor RI/FS Comparison of Draft FS Alternative B To EPA Proposed RALS Tables - 5/14/2014 AQ_RALOnlyComparison_20140513.	2,167	5 CORR / Correspondence	R10: (Lower Willamette Group), R10: (Anchor QEA, LLC)	R10: (Unknown) Genevieve (NOAA), R10: Neeley, Robert (NOAA), R10: Buck, Jeremy (U. S. Fish and Wildlife Service), R10: Madden, Erin (Unknown), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Cunninghame, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Ridolfi, Callie (Ridolfi Engineers, Inc.), R10: Downey, Tom (Confederated Tribes of the Siletz Indians), R10: Partridge, Holly (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Karnosh, Michael (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Shelldrake, Sean, A (EPA), R10: Fuentes, Rene, C (EPA), R10: Conley, Alanna (EPA), R10: Shephard, Burt (EPA), R10: Allen, Elizabeth (EPA), R10: Liverman, Alex (Oregon Dept. of Environmental Quality), R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality), R10: McClincy, Matt (Oregon Dept. of Environmental Quality), R10: Poulsen, Mike (Oregon Dept. of Environmental Quality), R10: Gainer, Tom (Oregon Dept. of Environmental Quality), R10: Muza, Richard (EPA Region 10), R10: Fricano, Gail (Industrial Economics, Inc.), R10: Delvecchio, Rachel (Industrial Economics, Inc.), R10: Sudbury, Ryan (Grand Ronde Tribe), R10: Penoyar, Susan, J (CDM), R10: Longoria, Rose (Yakama Nation), R10: King, Todd (CDM Smith), R10: Johnson, Matt (WilliamsJohnson),	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100006175	Email regarding Portland Harbor - Action Items 5/15/2014 From May 8 FS Technical Meeting.	194	3 EML / Email	R10: Koch, Kristine, M (EPA)	R10: McKenna, Jim (Unknown), R10: Wyatt, Robert, J (Northwest Natural Gas Company)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100006179	5/16/2014 Email regarding LWG request.	44	1 EML / Email	R10: Koch, Kristine, M (EPA)		ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100006181	FWM Template - FWM template_ 5/16/2014 calibrated_sumDDT_edited_OR.	178	7 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100006183	FWM Template - FWM 5/16/2014 template_calibrated_aldrin_edited_OR.	227	8 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100006184	FWM Template - FWM 5/16/2014 template_calibrated_dieldrin_edited_OR.	226	9 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100006185	FWM Template - FWM 5/16/2014 template_calibrated_total chlordanedane_edited_OR.	229	8 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100006187	Draft FS Revision Process Matrix - 05-16-14 5/16/2014 Update of FS Revision Process Matrix.	185	3 CORR / Correspondence	R10: Stivers, Carl (Anchor QEA, LLC)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100006188	Draft Action Items - 051614 Draft Action Items 5/16/2014 Lists.	153	9 CORR / Correspondence	R10: Stivers, Carl (Anchor QEA, LLC)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100006074	Email regarding Draft FS Revision Process; Updated Matrix Table and Action Items List for 5/19/2014 16-May-14.	114	2 EML / Email	R10: Koch, Kristine, M (EPA)	R10: Woronets, Jennifer (Anchor QEA, LLC)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)

100006186	5/19/2014	Email regarding Draft FS Revision Process; Updated Matrix Table and Action Items List for 16-May-14.	115	2 EML / Email	R10: Koch, Kristine, M (EPA)	Genevieve (NOAA), R10: Neeley, Robert (NOAA), R10: Buck, Jeremy (U. S. Fish and Wildlife Service), R10: Madden, Erin (Unknown), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Cunninghame, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Ridolfi, Callie (Ridolfi Engineers, Inc.), R10: Downey, Tom (Confederated Tribes of the Siletz Indians), R10: Partridge, Holly (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Karnosh, Michael (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Sheldrake, Sean, A (EPA), R10: Fuentes, Rene, C (EPA), R10: Conley, Alanna (EPA), R10: Shephard, Burt (EPA), R10: Allen, Elizabeth (EPA), R10: Liverman, Alex (Oregon Dept. of Environmental Quality), R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality), R10: McClincy, Matt (Oregon Dept. of Environmental Quality), R10: Poulsen, Mike (Oregon Dept. of Environmental Quality), R10: Gainer, Tom (Oregon Dept. of Environmental Quality), R10: Muza, Richard (EPA Region 10), R10: Fricano, Gail (Industrial Economics, Inc.), R10: Delvecchio, Rachel (Industrial Economics, Inc.), R10: Sudbury, Ryan (Grand Ronde Tribe), R10: Penoyar, Susan, J (CDM), R10: Longoria, Rose (Yakama Nation), R10: King, Todd (CDM Smith), R10: Johnson, Matt (WilliamsJohnson),	ELECTRONIC RECORD	053-REMEDIATION/0531-Remediation Characterization/044-Feasibility Study (FS) (General)
100006189	5/21/2014	Email regarding Portland Harbor - Dredge Depths.	68	2 EML / Email	R10: Koch, Kristine, M (EPA)	Genevieve (NOAA), R10: Neeley, Robert (NOAA), R10: Buck, Jeremy (U. S. Fish and Wildlife Service), R10: Madden, Erin (Unknown), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Cunninghame, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Ridolfi, Callie (Ridolfi Engineers, Inc.), R10: Downey, Tom (Confederated Tribes of the Siletz Indians), R10: Partridge, Holly (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Karnosh, Michael (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Sheldrake, Sean, A (EPA), R10: Fuentes, Rene, C (EPA), R10: Conley, Alanna (EPA), R10: Shephard, Burt (EPA), R10: Allen, Elizabeth (EPA), R10: Liverman, Alex (Oregon Dept. of Environmental Quality), R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality), R10: McClincy, Matt (Oregon Dept. of Environmental Quality), R10: Poulsen, Mike (Oregon Dept. of Environmental Quality), R10: Gainer, Tom (Oregon Dept. of Environmental Quality), R10: Muza, Richard (EPA Region 10), R10: Fricano, Gail (Industrial Economics, Inc.), R10: Delvecchio, Rachel (Industrial Economics, Inc.), R10: Sudbury, Ryan (Grand Ronde Tribe), R10: Penoyar, Susan, J (CDM), R10: Longoria, Rose (Yakama Nation), R10: King, Todd (CDM Smith), R10: Johnson, Matt (WilliamsJohnson),	ELECTRONIC RECORD	053-REMEDIATION/0531-Remediation Characterization/044-Feasibility Study (FS) (General)
100006192	5/21/2014	Constructability Review of EPA Preferred Technology Areas - Constructability Review 5-21-14.	1,693	11 CORR / Correspondence	R10: (Lower Willamette Group)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remediation Characterization/044-Feasibility Study (FS) (General)
100006191	5/23/2014	Email regarding Revised FS Discussions Action Item - Constructability Review Technology Assignments.	132	2 EML / Email	R10: Koch, Kristine, M (EPA)	R10: Angle, Genevieve (NOAA), R10: Buck, Jeremy (U. S. Fish and Wildlife Service), R10: Madden, Erin (Unknown), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Cunninghame, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Ridolfi, Callie (Ridolfi Engineers, Inc.), R10: Downey, Tom (Confederated Tribes of the Siletz Indians), R10: Partridge, Holly (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Karnosh, Michael (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Sheldrake, Sean, A (EPA), R10: Fuentes, Rene, C (EPA), R10: Conley, Alanna (EPA), R10: Shephard, Burt (EPA), R10: Allen, Elizabeth (EPA), R10: Liverman, Alex (Oregon Dept. of Environmental Quality), R10: Fricano, Gail (Industrial Economics, Inc.), R10: Delvecchio, Rachel (Industrial Economics, Inc.), R10: Sudbury, Ryan (Grand Ronde Tribe), R10: Penoyar, Susan, J (CDM), R10: Longoria, Rose (Yakama Nation), R10: King, Todd (CDM Smith), R10: Johnson, Matt (WilliamsJohnson), R10: Weis, Julie (Haglund Kelley Jones & Wilder LLP), R10: Williams, Jd (Unknown), R10: Dexter, Bob (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remediation Characterization/044-Feasibility Study (FS) (General)
100006233	5/23/2014	Email regarding Draft FS Revision Process; Updated Matrix Table and Action Items List for 23-May-14.	132	2 EML / Email	R10: Koch, Kristine, M (EPA)	R10: Angle, Genevieve (NOAA), R10: Buck, Jeremy (U. S. Fish and Wildlife Service), R10: Madden, Erin (Unknown), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Cunninghame, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Ridolfi, Callie (Ridolfi Engineers, Inc.), R10: Downey, Tom (Confederated Tribes of the Siletz Indians), R10: Partridge, Holly (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Karnosh, Michael (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Sheldrake, Sean, A (EPA), R10: Fuentes, Rene, C (EPA), R10: Conley, Alanna (EPA), R10: Shephard, Burt (EPA), R10: Allen, Elizabeth (EPA), R10: Liverman, Alex (Oregon Dept. of Environmental Quality), R10: Fricano, Gail (Industrial Economics, Inc.), R10: Delvecchio, Rachel (Industrial Economics, Inc.), R10: Sudbury, Ryan (Grand Ronde Tribe), R10: Penoyar, Susan, J (CDM), R10: Longoria, Rose (Yakama Nation), R10: King, Todd (CDM Smith), R10: Johnson, Matt (WilliamsJohnson), R10: Weis, Julie (Haglund Kelley Jones & Wilder LLP), R10: Williams, Jd (Unknown), R10: Dexter, Bob (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remediation Characterization/044-Feasibility Study (FS) (General)
100006234	5/23/2014	Draft FS Revision Process Matrix - 05-23-14 Update of FS Revision Process Matrix.	186	3 CORR / Correspondence	R10: Stivers, Carl (Anchor QEA, LLC)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remediation Characterization/044-Feasibility Study (FS) (General)

100006235	Draft Action Items List - 052314 Draft Action Items Lists.	5/23/2014	158	10 CORR / Correspondence	R10: Stivers, Carl (Anchor QEA, LLC)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100006075	Email regarding Willamette Cove RALS.	5/27/2014	200	4 EML / Email	R10: Koch, Kristine, M (EPA)	R10: Gainer, Tom (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100006237	Portland Harbor RI/FS Draft Feasibility Study EPA Preferred Technology Analysis Figures - AQ_EPAScoring_PreferredTech_Mapbook.	5/27/2014	7,255	11 CORR / Correspondence	R10: (Lower Willamette Group), R10: (Anchor QEA, LLC)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100006236	Email regarding SubSMA Technology Assignments Map with Bathymetry Added.	5/28/2014	187	2 EML / Email	R10: Koch, Kristine, M (EPA)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100006176	Email regarding Portland Harbor - Action Items From May 8 FS Technical Meeting.	5/29/2014	217	5 EML / Email	R10: Koch, Kristine, M (EPA)	R10: Parrett, Kevin (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100006247	Email regarding Portland Harbor COCs and PRGs.	5/29/2014	141	7 EML / Email	R10: Koch, Kristine, M (EPA)	R10: Gainer, Tom (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100006347	Portland Harbor Eco TBT Tables - Portland Harbor Eco RBT Tables.	5/29/2014	189	6 CORR / Correspondence	R10: Koch, Kristine, M (EPA)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100006348	Feasibility Study Appendix A - Ecological Risk Based Threshold (RBT) Derivation - RBT Derivation_TG_jk_rev3.	5/29/2014	233	6 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100006240	Email regarding Replacement Value Suggestion to EPA.	5/30/2014	146	4 EML / Email	R10: Koch, Kristine, M (EPA)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100006242	Draft FS Revision Process Matrix - 05-30-14 Update of FS Revision Process Matrix.	5/30/2014	186	3 CORR / Correspondence	R10: Stivers, Carl (Anchor QEA, LLC)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100006243	Draft Action Items List - 053014 Draft Action Items Lists.	5/30/2014	165	11 CORR / Correspondence	R10: Stivers, Carl (Anchor QEA, LLC)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100006257	Portland Harbor RI/FS Draft Feasibility Study EPA Preferred Technology Analysis Figures - Example Plan View EPA Tech Assign 060214.	5/30/2014	1,475	9 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100006331	Portland Harbor RI/FS Comparison of Overall Draft FS Alternative B RALS to EPA Proposed RALS Including Benthic - AQ_RALonlyComparison_20140530.	5/30/2014	3,472	5 CORR / Correspondence	R10: (Lower Willamette Group), R10: (Anchor QEA, LLC)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100006241	Email regarding Draft FS Revision Process; Updated Matrix Table and Action Items List for 30-May-14.	6/1/2014	128	2 EML / Email	R10: Koch, Kristine, M (EPA)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)



100006177	Email regarding Overall Portland Harbor RI/FS 6/2/2014 Schedule.	158	2 EML / Email	R10: Koch, Kristine, M (EPA)	R10: Sheldrake, Sean, A (EPA), R10: Gainer, Tom (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100006255	Email regarding Example Cross Sections EPA's Technology Assignments.	136	2 EML / Email	R10: Koch, Kristine, M (EPA)	R10: Angle, Genevieve (NOAA), R10: Buck, Jeremy (U. S. Fish and Wildlife Service), R10: Madden, Erin (Unknown), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Cunninghame, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Ridolfi, Callie (Ridolfi Engineers, Inc.), R10: Downey, Tom (Confederated Tribes of the Siletz Indians), R10: Partridge, Holly (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Karnosh, Michael (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Sheldrake, Sean, A (EPA), R10: Fuentes, Rene, C (EPA), R10: Conley, Alanna (EPA), R10: Shephard, Burt (EPA), R10: Allen, Elizabeth (EPA), R10: Liverman, Alex (Oregon Dept. of Environmental Quality), R10: Muza, Richard (EPA Region 10), R10: Fricano, Gail (Industrial Economics, Inc.), R10: Delvecchio, Rachel (Industrial Economics, Inc.), R10: Sudbury, Ryan (Grand Ronde Tribe), R10: Penoyar, Susan, J (CDM), R10: Longoria, Rose (Yakama Nation), R10: King, Todd (CDM Smith), R10: Johnson, Matt (WilliamsJohnson), R10: Weis, Julie (Haglund Kelley Jones & Wilder LLP), R10: Williams, Jd (Unknown), R10: Dexter, Bob (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100006256	Portland Harbor RI/FS Draft Feasibility Study EPA Preferred Technology Analysis Figures - Example Cross Sections EPA Tech Assign 06/2/2014 060214.	1,286	9 CORR / Correspondence	R10: (Lower Willamette Group), R10: (Anchor QEA, LLC)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100006258	6/2/2014 Email regarding Portland Harbor FS - Section 1.	46	1 EML / Email	R10: Koch, Kristine, M (EPA)	R10: Angle, Genevieve (NOAA), R10: Buck, Jeremy (U. S. Fish and Wildlife Service), R10: Madden, Erin (Unknown), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Cunninghame, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Ridolfi, Callie (Ridolfi Engineers, Inc.), R10: Downey, Tom (Confederated Tribes of the Siletz Indians), R10: Partridge, Holly (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Karnosh, Michael (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Sheldrake, Sean, A (EPA), R10: Fuentes, Rene, C (EPA), R10: Conley, Alanna (EPA), R10: Shephard, Burt (EPA), R10: Allen, Elizabeth (EPA), R10: Liverman, Alex (Oregon Dept. of Environmental Quality), R10: Muza, Richard (EPA Region 10), R10: Fricano, Gail (Industrial Economics, Inc.), R10: Delvecchio, Rachel (Industrial Economics, Inc.), R10: Sudbury, Ryan (Grand Ronde Tribe), R10: Penoyar, Susan, J (CDM), R10: Longoria, Rose (Yakama Nation), R10: King, Todd (CDM Smith), R10: Johnson, Matt (WilliamsJohnson), R10: Weis, Julie (Haglund Kelley Jones & Wilder LLP), R10: Williams, Jd (Unknown), R10: Dexter, Bob (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100006330	Email regarding Action Item 3 - Two Layer Map Draft FS and EPA SMAs.	188	2 EML / Email	R10: Koch, Kristine, M (EPA)	R10: Angle, Genevieve (NOAA), R10: Buck, Jeremy (U. S. Fish and Wildlife Service), R10: Madden, Erin (Unknown), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Cunninghame, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Ridolfi, Callie (Ridolfi Engineers, Inc.), R10: Downey, Tom (Confederated Tribes of the Siletz Indians), R10: Partridge, Holly (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Karnosh, Michael (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Sheldrake, Sean, A (EPA), R10: Conley, Alanna (EPA), R10: Shephard, Burt (EPA), R10: Allen, Elizabeth (EPA), R10: Liverman, Alex (Oregon Dept. of Environmental Quality), R10: Muza, Richard (EPA Region 10), R10: Fricano, Gail (Industrial Economics, Inc.), R10: Delvecchio, Rachel (Industrial Economics, Inc.), R10: Sudbury, Ryan (Grand Ronde Tribe), R10: Penoyar, Susan, J (CDM), R10: Longoria, Rose (Yakama Nation), R10: King, Todd (CDM Smith), R10: Johnson, Matt (WilliamsJohnson), R10: Weis, Julie (Haglund Kelley Jones & Wilder LLP), R10: Williams, Jd (Unknown), R10: Dexter, Bob (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100006333	Portland Harbor RI/FS Table 1: Overall Summary by Sediment Management Area Changes Based on Draft FS and EPA RALS - Comparison of RAL SMA Areas EPA vs DraftFS 06/3/2014 060314.	43	3 CORR / Correspondence	R10: (Lower Willamette Group)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)

					R10: Angle, Genevieve (NOAA), R10: Buck, Jeremy (U. S. Fish and Wildlife Service), R10: Madden, Erin (Unknown), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Cunninghame, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Ridolfi, Callie (Ridolfi Engineers, Inc.), R10: Downey, Tom (Confederated Tribes of the Siletz Indians), R10: Partridge, Holly (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Karnosh, Michael (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Sheldrake, Sean, A (EPA), R10: Fuentes, Rene, C (EPA), R10: Conley, Alanna (EPA), R10: Shephard, Burt (EPA), R10: Allen, Elizabeth (EPA), R10: Liverman, Alex (Oregon Dept. of Environmental Quality), R10: Muza, Richard (EPA Region 10), R10: Fricano, Gail (Industrial Economics, Inc.), R10: Delvecchio, Rachel (Industrial Economics, Inc.), R10: Sudbury, Ryan (Grand Ronde Tribe), R10: Penoyar, Susan, J (CDM), R10: Longoria, Rose (Yakama Nation), R10: King, Todd (CDM Smith), R10: Johnson, Matt (WilliamsJohnson), R10: Weis, Julie (Haglund Kelley Jones & Wilder LLP), R10: Williams, Jd (Unknown), R10: Dexter, Bob (Unknown)			
100006332	6/4/2014	Email regarding Comparison of EPA and Draft FS SMA approaches.	132	2 EML / Email	R10: Koch, Kristine, M (EPA)		ELECTRONIC RECORD	053-REMEDIATION/0531-Remediation Characterization/044-Feasibility Study (FS) (General)
100006334	6/4/2014	Comparison of RAL SMA Areas EPA Draft Notes - Comparison of RAL SMA Areas EPA vs DraftFS 060314.	65	3 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remediation Characterization/044-Feasibility Study (FS) (General)
					R10: Angle, Genevieve (NOAA), R10: Buck, Jeremy (U. S. Fish and Wildlife Service), R10: Madden, Erin (Unknown), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Cunninghame, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Ridolfi, Callie (Ridolfi Engineers, Inc.), R10: Downey, Tom (Confederated Tribes of the Siletz Indians), R10: Partridge, Holly (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Karnosh, Michael (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Sheldrake, Sean, A (EPA), R10: Fuentes, Rene, C (EPA), R10: Conley, Alanna (EPA), R10: Shephard, Burt (EPA), R10: Allen, Elizabeth (EPA), R10: Liverman, Alex (Oregon Dept. of Environmental Quality), R10: Muza, Richard (EPA Region 10), R10: Fricano, Gail (Industrial Economics, Inc.), R10: Delvecchio, Rachel (Industrial Economics, Inc.), R10: Sudbury, Ryan (Grand Ronde Tribe), R10: Penoyar, Susan, J (CDM), R10: Longoria, Rose (Yakama Nation), R10: King, Todd (CDM Smith), R10: Johnson, Matt (WilliamsJohnson), R10: Weis, Julie (Haglund Kelley Jones & Wilder LLP), R10: Williams, Jd (Unknown), R10: Dexter, Bob (Unknown)			
100006335	6/4/2014	Email regarding Revisions to Portland Harbor FS Section 1.	48	1 EML / Email	R10: Koch, Kristine, M (EPA)		ELECTRONIC RECORD	053-REMEDIATION/0531-Remediation Characterization/044-Feasibility Study (FS) (General)
					R10: Angle, Genevieve (NOAA), R10: Buck, Jeremy (U. S. Fish and Wildlife Service), R10: Madden, Erin (Unknown), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Cunninghame, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Ridolfi, Callie (Ridolfi Engineers, Inc.), R10: Downey, Tom (Confederated Tribes of the Siletz Indians), R10: Partridge, Holly (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Karnosh, Michael (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Sheldrake, Sean, A (EPA), R10: Fuentes, Rene, C (EPA), R10: Conley, Alanna (EPA), R10: Shephard, Burt (EPA), R10: Allen, Elizabeth (EPA), R10: Liverman, Alex (Oregon Dept. of Environmental Quality), R10: Muza, Richard (EPA Region 10), R10: Fricano, Gail (Industrial Economics, Inc.), R10: Delvecchio, Rachel (Industrial Economics, Inc.), R10: Sudbury, Ryan (Grand Ronde Tribe), R10: Penoyar, Susan, J (CDM), R10: Longoria, Rose (Yakama Nation), R10: King, Todd (CDM Smith), R10: Johnson, Matt (WilliamsJohnson), R10: Weis, Julie (Haglund Kelley Jones & Wilder LLP), R10: Williams, Jd (Unknown), R10: Dexter, Bob (Unknown)			
100006338	6/6/2014	Email regarding Draft FS Revision Process; Updated Matrix Table and Action Items List for 6-June-14.	127	2 EML / Email	R10: Koch, Kristine, M (EPA)		ELECTRONIC RECORD	053-REMEDIATION/0531-Remediation Characterization/044-Feasibility Study (FS) (General)
100006339	6/6/2014	Draft Action Items List - 06-06-14 Draft Action Items Lists.	169	12 CORR / Correspondence	R10: Stivers, Carl (Anchor QEA, LLC)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remediation Characterization/044-Feasibility Study (FS) (General)
100006340	6/6/2014	Draft FS Revision Process Matrix - 06-06-14 Update of FS Revision Process Matrix.	316	4 CORR / Correspondence	R10: Stivers, Carl (Anchor QEA, LLC)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remediation Characterization/044-Feasibility Study (FS) (General)
100006341	6/6/2014	Email regarding Portland Harbor - EPA Presentation From June 5 FS Technical Meeting.	105	1 EML / Email	R10: Koch, Kristine, M (EPA)	R10: Woronets, Jennifer (Anchor QEA, LLC)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remediation Characterization/044-Feasibility Study (FS) (General)
100006343	6/6/2014	EPA Portland Harbor Feasibility Study Schedule - 2014-06-06 EPA Portland Harbor FS Schedule.	85	1 CORR / Correspondence	R10: Koch, Kristine, M (EPA)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remediation Characterization/044-Feasibility Study (FS) (General)
100006342	6/10/2014	Email regarding Updated FS Schedule.	41	1 EML / Email	R10: Koch, Kristine, M (EPA)	R10: Wyatt, Bob (Northwest Natural Gas Company), R10: Mckenna, James (Verdant Solutions, LLC)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remediation Characterization/044-Feasibility Study (FS) (General)
100006346	6/16/2014	Appendix A1 - Appendix A1.	210	9 CORR / Correspondence	R10: Allen, Elizabeth (EPA)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remediation Characterization/044-Feasibility Study (FS) (General)
100006350	6/17/2014	Table 1. Acreages Added, Removed, or Unchanged by EPA's RAL Maps as Compared to Draft FS RAL Maps by Cause - ComparisonOfAllISMAPParameters_EPAvsFS_17 Jun14.	96	3 CORR / Correspondence	R10: (Lower Willamette Group)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remediation Characterization/044-Feasibility Study (FS) (General)
100005292	6/23/2014	Table B-1: Initial and Calibrated Environmental Input Parameters for the Arnot and Gobas Food Web Model - FWM Description Table B-1.	165	4 CORR / Correspondence	R10: Lavelle, James	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remediation Characterization/044-Feasibility Study (FS) (General)
100005293	6/23/2014	Table B-2- FWM Description Table B-2.	157	3 CORR / Correspondence	R10: Lavelle, James	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remediation Characterization/044-Feasibility Study (FS) (General)
100005294	6/23/2014	Tables B-3 - FWM Description Table B-3.	159	3 CORR / Correspondence	R10: Lavelle, James	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remediation Characterization/044-Feasibility Study (FS) (General)

100002978	Email regarding Portland Harbor Technology Screening Criteria.	64	3 EML / Email	R10: Cora, Lori, H (EPA)	R10: Perry, Lynne (Oregon Dept. of Justice)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100005291	Figure B-1. Empirical and Model-Predicted Tissue Concentrations for Total PCBs - FWM Description Figure B-1.	201	1 CORR / Correspondence	R10: Lavelle, James	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100006352	CDF Analysis Action Items from June 16, 2014 EPA/LWG Call - June 16 2014 CDF Follow Up_2014-06-26.	140	7 CORR / Correspondence	R10: (Lower Willamette Group)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100006354	Draft Action Items List - 06-27-14 Draft Action Items Lists.	174	12 CORR / Correspondence	R10: Stivers, Carl (Anchor QEA, LLC)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100006355	Draft FS Revision Process Matrix - 06-27-14 Update of FS Revision Process Matrix.	189	4 CORR / Correspondence	R10: Stivers, Carl (Anchor QEA, LLC)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
					R10: Angle, Genevieve (NOAA), R10: Buck, Jeremy (U. S. Fish and Wildlife Service), R10: Madden, Erin (Unknown), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Cunninghame, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Ridolfi, Callie (Ridolfi Engineers, Inc.), R10: Downey, Tom (Confederated Tribes of the Siletz Indians), R10: Partridge, Holly (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Karnosh, Michael (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Sheldrake, Sean, A (EPA), R10: Fuentes, Rene, C (EPA), R10: Conley, Alanna (EPA), R10: Shephard, Burt (EPA), R10: Allen, Elizabeth (EPA), R10: Liverman, Alex (Oregon Dept. of Environmental Quality), R10: Muza, Richard (EPA Region 10), R10: Fricano, Gail (Industrial Economics, Inc.), R10: Delvecchio, Rachel (Industrial Economics, Inc.), R10: Sudbury, Ryan (Grand Ronde Tribe), R10: Penoyar, Susan, J (CDM), R10: Longoria, Rose (Yakama Nation), R10: King, Todd (CDM Smith), R10: Johnson, Matt (WilliamsJohnson), R10: Weis, Julie (Haglund Kelley Jones & Wilder LLP), R10: Williams, Jd (Unknown), R10: Dexter, Bob (Unknown)		
100006349	Email regarding Comparison of EPA and Draft FS SMA approaches.	188	2 EML / Email	R10: Koch, Kristine, M (EPA)		ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
					R10: Angle, Genevieve (NOAA), R10: Buck, Jeremy (U. S. Fish and Wildlife Service), R10: Madden, Erin (Unknown), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Cunninghame, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Ridolfi, Callie (Ridolfi Engineers, Inc.), R10: Downey, Tom (Confederated Tribes of the Siletz Indians), R10: Partridge, Holly (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Karnosh, Michael (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Sheldrake, Sean, A (EPA), R10: Fuentes, Rene, C (EPA), R10: Conley, Alanna (EPA), R10: Shephard, Burt (EPA), R10: Allen, Elizabeth (EPA), R10: Liverman, Alex (Oregon Dept. of Environmental Quality), R10: Muza, Richard (EPA Region 10), R10: Fricano, Gail (Industrial Economics, Inc.), R10: Delvecchio, Rachel (Industrial Economics, Inc.), R10: Sudbury, Ryan (Grand Ronde Tribe), R10: Penoyar, Susan, J (CDM), R10: Longoria, Rose (Yakama Nation), R10: King, Todd (CDM Smith), R10: Johnson, Matt (WilliamsJohnson), R10: Weis, Julie (Haglund Kelley Jones & Wilder LLP), R10: Williams, Jd (Unknown), R10: Dexter, Bob (Unknown)		
100006351	Email regarding CDF Analysis of Action Items from June 16, 2014 EPA/LWG Call.	138	3 EML / Email	R10: Koch, Kristine, M (EPA)		ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
					R10: Angle, Genevieve (NOAA), R10: Buck, Jeremy (U. S. Fish and Wildlife Service), R10: Madden, Erin (Unknown), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Cunninghame, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Ridolfi, Callie (Ridolfi Engineers, Inc.), R10: Downey, Tom (Confederated Tribes of the Siletz Indians), R10: Partridge, Holly (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Karnosh, Michael (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Sheldrake, Sean, A (EPA), R10: Fuentes, Rene, C (EPA), R10: Conley, Alanna (EPA), R10: Shephard, Burt (EPA), R10: Allen, Elizabeth (EPA), R10: Liverman, Alex (Oregon Dept. of Environmental Quality), R10: Muza, Richard (EPA Region 10), R10: Fricano, Gail (Industrial Economics, Inc.), R10: Delvecchio, Rachel (Industrial Economics, Inc.), R10: Sudbury, Ryan (Grand Ronde Tribe), R10: Penoyar, Susan, J (CDM), R10: Longoria, Rose (Yakama Nation), R10: King, Todd (CDM Smith), R10: Johnson, Matt (WilliamsJohnson), R10: Weis, Julie (Haglund Kelley Jones & Wilder LLP), R10: Williams, Jd (Unknown), R10: Dexter, Bob (Unknown)		
100006353	Email regarding Draft FS Revision Process; Updated Matrix Table and Action Items List for 27-June-14.	132	2 EML / Email	R10: Koch, Kristine, M (EPA)		ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100005295	7/1/2014 Tables B-4 - FWM Description Table B-4.	194	7 CORR / Correspondence	R10: Lavelle, James	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100006375	Draft Action Items List - 07-03-14 Draft Action Items Lists.	174	12 CORR / Correspondence	R10: Stivers, Carl (Anchor QEA, LLC)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100006376	Draft FS Revision Process Matrix - 07-03-14 Update of FS Revision Process Matrix.	189	4 CORR / Correspondence	R10: Stivers, Carl (Anchor QEA, LLC)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)



100006391	Draft FS Revision Process Matrix - 08-15-14 Update of FS Revision Process Matrix.	8/15/2014	195	4 CORR / Correspondence	R10: Stivers, Carl (Anchor QEA, LLC)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100005297	Appendix A1 - Appendix A1_8_18_14.	8/19/2014	259	11 CORR / Correspondence	R10: Allen, Elizabeth (EPA)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100005298	Email regarding DOI maps.	8/19/2014	147	2 EML / Email	R10: Shellenberger, Amanda (Anchor Environmental, LLC)	R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100005299	Email regarding FS Section 1 Comment. Feasibility Study Section 1 Languages for DEQ Review - Alex_on_sw_in_FS_Section_1_Language_for_	8/21/2014	51	2 EML / Email	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100005300	ODEQ_Review.	8/21/2014	94	3 CORR / Correspondence	R10: Blischke, Eric, L (EPA)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100005301	Email regarding bioaccumulation models for additional PCDD/F congeners of interest.	8/22/2014	107	3 EML / Email	R10: Mckenna, James (Verdant Solutions, LLC)	R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100005325	Email regarding Draft FS Revision Process; Updated Matrix Table and Action Items List for 22-August-14.	8/22/2014	117	1 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100005326	Draft Revised FS Action Items - 08-22-14 Draft Action Items Lists.	8/22/2014	262	16 CORR / Correspondence	R10: Stivers, Carl (Anchor Environmental, LLC)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100005327	Draft FS Revision Process Matrix - 08-22-14 Update of FS Revision Process Matrix.	8/22/2014	318	4 CORR / Correspondence	R10: Stivers, Carl (Anchor Environmental, LLC)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100005328	FS Revision Process Matrix - 08-22-14 Update of FS Revision Process Matrix.	8/22/2014	405	4 CORR / Correspondence	R10: Stivers, Carl (Anchor Environmental, LLC)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100005346	Memorandum regarding Additional comments on Draft Introduction to the Portland Harbor Feasibility Study.	8/22/2014	141	2 CORR / Correspondence	R10: Dexter, Robert (Ridolfi, Inc.)	R10: Longoria, Rose (Yakama Nation)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100005329	Email regarding Portland Harbor FS Section 1.	8/25/2014	45	1 EML / Email	R10: Koch, Kristine, M (EPA)	R10: Shellenberger, Amanda (Anchor Environmental, LLC)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100005340	Email regarding bioaccumulation models for additional PCDD/F congeners of interest.	8/25/2014	130	5 EML / Email	R10: Koch, Kristine, M (EPA)	R10: Mckenna, James (Verdant Solutions, LLC)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100005345	Email regarding 140822 Draft FS Introduction.docx.	8/25/2014	68	1 EML / Email	R10: Dexter, Robert (Ridolfi, Inc.)	R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100005347	Email regarding bioaccumulation models for additional PCDD/F congeners of interest.	8/25/2014	126	4 EML / Email	R10: Mckenna, James (Verdant Solutions, LLC)	R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100005348	Email regarding Portland Harbor Superfund Site / Northwest Pipe Company Modifications to Feasibility Study Report.	8/25/2014	85	2 EML / Email	R10: Koch, Kristine, M (EPA)	R10: Rourke, Tracy, C (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100005349	Email regarding Portland Harbor - Food Web Model.	8/28/2014	40	1 EML / Email	R10: Koch, Kristine, M (EPA)	R10: Mckenna, Jim (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100005305	Portland Harbor RI/FS Draft Feasibility Study Report Section 1 with Comments - koch2_2014-08-12 Combined LWG Edits.	8/29/2014	788	41 CORR / Correspondence	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100005350	Email regarding Draft FS Revision Process; Updated Matrix Table and Action Items List for 29-August-14.	8/29/2014	117	1 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100005351	Draft Action Items List - 08-29-14 Draft Action Items Lists.	8/29/2014	394	16 CORR / Correspondence	R10: Stivers, Carl (Anchor Environmental, LLC)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100005352	FS Revision Process Matrix - 08-29-14 Update of FS Revision Process Matrix.	8/29/2014	318	4 CORR / Correspondence	R10: Stivers, Carl (Anchor Environmental, LLC)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100005550	Portland Harbor RI/FS Draft Feasibility Study Section 1 - 2015_01_09 EPA responses_FS Section 1 8-28-2014.	8/29/2014	708	44 CORR / Correspondence	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100005355	Email regarding Update on review of manganese water quality criteria from LWG for Portland Harbor.	9/4/2014	100	3 EML / Email	R10: Koch, Kristine, M (EPA)	R10: Shephard, Burt (EPA), R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100005412	Email regarding EPA FS Database.	10/2/2014	69	6 EML / Email	R10: Koch, Kristine, M (EPA)	R10: Woronets, Jennifer (Anchor QEA, LLC)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100005825	Email regarding EPA FS Database.	10/2/2014	69	6 EML / Email	R10: Koch, Kristine, M (EPA)	R10: Woronets, Jennifer (Anchor QEA, LLC)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100005356	Email regarding Portland Harbor - natural recovery areas.	10/6/2014	100	2 EML / Email	R10: Mckenna, James (Verdant Solutions, LLC)	R10: Cohen, Lori, G (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100005494	Portland Harbor RI/FS Draft Final Feasibility Study Report Section 1 - 2014-12-02 Proposed Final Portland Harbor FS Section 1.	10/7/2014	360	29 CORR / Correspondence	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100005551	Portland Harbor RI/FS Draft Final Feasibility Study Report - Section 1 - 2015-01-09 Proposed Final Portland Harbor FS Section 1.	10/7/2014	358	28 CORR / Correspondence	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100005567	Portland Harbor RI/FS Draft Final Feasibility Study Report Section 1 - 2015-02-11 LWG Redlines and Comments.	10/7/2014	658	44 CORR / Correspondence	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100005493	Draft Portland Harbor RI/FS Appendix A Sediment Database Description Draft Final Feasibility Study - 2014-12-02 Proposed Final Portland Harbor FS Appendix A.	10/14/2014	190	19 CORR / Correspondence	R10: (Anchor QEA, LLC)	R10: (The Lower Willamette Group) R10: Dexter, Bob (NOAA), R10: Shephard, Burt (EPA), R10: Allen, Elizabeth (EPA), R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality), R10: Poulsen, Mike (Oregon Dept. of Environmental Quality), R10: Gainer, Tom (Oregon Dept. of Environmental Quality), R10: Fricano, Gail (Industrial Economics, Inc.)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100005357	Email regarding Portland Harbor - Food web Model Meeting.	10/15/2014	40	1 EML / Email	R10: Koch, Kristine, M (EPA)	R10: (The Lower Willamette Group)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100005358	Email regarding Portland Harbor - Food Web Model.	10/17/2014	79	3 EML / Email	R10: Koch, Kristine, M (EPA)	R10: Mckenna, James (Verdant Solutions, LLC)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100005379	Email regarding Portland Harbor.	10/24/2014	56	2 EML / Email	R10: Mckenna, James (Verdant Solutions, LLC)	R10: Wyatt, Bob (Northwest Natural Gas Company), R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100006232	Email regarding Portland Harbor.	10/24/2014	75	2 EML / Email	R10: Mckenna, James (Verdant Solutions, LLC)	R10: Wyatt, Bob (Northwest Natural Gas Company), R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100005390	Email regarding FS shallow capping criteria.	10/27/2014	98	4 EML / Email	R10: Sheldrake, Sean, A (EPA)	R10: Koch, Kristine, M (EPA), R10: Gainer, Tom (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100005391	Email regarding Manganese memo.	10/29/2014	52	1 EML / Email	R10: Toll, John (Windward Environmental, LLC.)	R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100005392	Memorandum regarding Derivation of Proposed Manganese PRG to Replace the Suter and Tsao (1996) Tier II Value in the Portland Harbor Feasibility Study - Hardness-based Mn Criterion Memo_29 October 2014.	10/29/2014	661	25 CORR / Correspondence	R10: Deforest, David, K (Windward Environmental, LLC.), R10: Toll, John (Windward Environmental, LLC.), R10: Church, Brian (Windward Environmental, LLC.)	R10: (Lower Willamette Group)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100005397	Portland Harbor TCT Meeting Notes - 10-29-14_TCT meeting notes.	10/29/2014	115	3 CORR / Correspondence	R10: Coffey, Scott (CDM Smith)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)



100005402	TCT Food Web Model Meeting Notes Working Draft - TCT FWM Meeting Notes_2014-10-30.	217	7 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100005478	TCT Comments on Portland Harbor FS Section 2, Appendix B1 - Human Health PRG Derivation - HH_Draft Response to TCT Comments_2014-11-04.	186	6 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100005407	TCT Conference Call Meeting Notes - 11-12-11/12/2014 14_TCT meeting notes.	177	6 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100005408	Email regarding Portland Harbor FWM.	42	1 EML / Email	R10: Koch, Kristine, M (EPA)	R10: Mckenna, Jim (Unknown), R10: Wyatt, Bob (Northwest Natural Gas Company)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100005411	Email regarding EPA FS Database.	53	1 EML / Email	R10: Browning, Sandy (Integral Consulting, Inc.)	R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100005476	TCT Comments on Portland Harbor FS Section 2, Appendix B2 - Ecological PRG Derivation - Eco_Draft Response to TCT Comments_2014-11-04.	248	8 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100002991	DF Congener Upriver Data no SOM.	458	46 CORR / Correspondence	R10: Koch, Kristine, M (EPA)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100003942	DF Congener Upriver Data - DF congener upriver data no SOM.	558	46 CORR / Correspondence	R10: Koch, Kristine, M (EPA)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100005457	Memorandum regarding Derivation of Final Manganese PRG to Replace the Suter and Tsao (1996) Tier II Value in the Portland Harbor Feasibility Study - Hardness-based Mn Criterion Memo_FINAL_25 November 2014.	651	23 CORR / Correspondence	R10: Deforest, David, K (Windward Environmental, LLC.), R10: Toll, John (Windward Environmental, LLC.), R10: Church, Brian (Windward Environmental, LLC.)	R10: (Lower Willamette Group)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100005470	Email regarding Portland Harbor - EPA proposals to Revise FS Process.	45	1 EML / Email	R10: Cohen, Lori, G (EPA)	R10: Hamilton, Jessica (Port of Portland), R10: Wyatt, Robert, J (Northwest Natural Gas Company), R10: Kirkpatrick, Margaret (Northwest Natural Gas Company), R10: Mckenna, James (Verdant Solutions, LLC), R10: Isselmann, Jack (Unknown), R10: Alpert, Josh (City of Portland), R10: Loutzenhiser, Doug (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100005471	Portland Harbor Superfund Site Revision Process for Feasibility Study - 2014-11-26 FS Revision Process Final Draft Revision.	173	3 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100005473	TCT Conference Call Meeting Notes - TCT Meeting Notes_11-26-14.	160	4 CORR / Correspondence	R10: Coffey, Scott (CDM Smith)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100005496	TCT Meeting Notes - TCT Meeting Notes_2014-12-10/2014 12-10.	193	8 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100005479	Email regarding December 16 Project Managers Meeting.	67	1 EML / Email	R10: Koch, Kristine, M (EPA)	R10: Mckenna, James (Verdant Solutions, LLC)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100005480	Email regarding FS Sec. 2 App B-2 (YN).	93	1 EML / Email	R10: Koch, Kristine, M (EPA)	R10: Callahan, Kristin (Ridolfi, Inc.)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100005481	Email regarding LWG Response to EPA Question on FS Database.	110	2 EML / Email	R10: Koch, Kristine, M (EPA)	R10: Mckenna, Jim (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100005499	LWG Comments on EPA's December 19, 2014, Feasibility Study Proposed Final Draft Section 1.	281	7 CORR / Correspondence	R10: (Lower Willamette Group)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100005721	Email regarding Outlier test for OCB congeners.	40	1 EML / Email		R10: Albright, Rick (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100003962	Email regarding Portland Harbor Bioaccumulation Modeling Report.	106	3 EML / Email	R10: Toll, John (Windward Environmental, LLC.)	R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100005552	Email regarding Draft List of D/F Action Items.	78	2 EML / Email	R10: Koch, Kristine, M (EPA)	R10: Mckenna, James (Verdant Solutions, LLC)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100005553	Email regarding Draft List of D/F Action Items.	83	3 EML / Email	R10: Koch, Kristine, M (EPA)	R10: Mckenna, James (Verdant Solutions, LLC)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100005554	Email regarding Dioxin/Furan deliverables.	67	1 EML / Email	R10: Mckenna, James (Verdant Solutions, LLC)	R10: Koch, Kristine, M (EPA), R10: Wyatt, Robert, J (NW Natural)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100005556	Email regarding January 27 Project Managers Meeting.	73	1 EML / Email	R10: Koch, Kristine, M (EPA)	R10: Mckenna, James (Verdant Solutions, LLC)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100005560	EPA Portland Harbor Schedule - 2015-01-21 EPA Portland Harbor Schedule_TCT.	88	2 CORR / Correspondence	R10: Koch, Kristine, M (EPA)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100003045	Email regarding Portland Harbor Technology Screening Criteria.	66	4 EML / Email	R10: Perry, Lynne, A (Oregon Department of Justice)	R10: Cora, Lori, H (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100005606	Preliminary Draft Comparison of Risks Areas to be Remediated Figure - 2015-02-23_Figure 2.2-2 PRG-Footprints.	408	1 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100002982	Email regarding Portland Harbor - BERA and Lamprey.	23	3 EML / Email	R10: Cora, Lori, H (EPA)	R10: Cora, Lori, H (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100005574	Draft TCT Meeting Notes - TCT Meeting Notes_2015-02-11_Summary.	159	3 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100005568	Letter regarding EPA Proposed Final Feasibility Study Section 1 - 2015-02-12 Letter to EPA Regarding EPA FS Section 1.	141	2 CORR / Correspondence	R10: Wyatt, Bob (Lower Willamette Group)	R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100005571	EPA Interpolation Methodology - EPA Interpolation Methodology.	152	1 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100005569	Email regarding Benthic Toxicity PRGs for Portland Harbor.	242	9 EML / Email	R10: Shephard, Burt (EPA)	R10: Parrett, Kevin (Oregon Dept. of Environmental Quality), R10: Gainer, Tom (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100005572	Email regarding Draft TCT meeting notes.	67	2 EML / Email	R10: Koch, Kristine, M (EPA)	R10: Coffey, Scott (CDM Smith)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100005601	Portland Harbor RI/FS Draft Feasibility Study Report Section 2 - 2015_02_23 Portland Harbor FS Section 2.	328	32 CORR / Correspondence	R10: Blischke, Eric, L (EPA)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100005602	Appendix B1 - Human Health Risk-Based Preliminary Remediation Goal Derivation - 2015-02-23 Appendix B1_HH PRGs.	220	13 CORR / Correspondence	R10: Allen, Elizabeth (EPA)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100005603	Appendix B2 - Ecological Risk-Based Preliminary Remediation Goal Derivation - 2015-02-23 Appendix B2_Ecological PRGs.	120	4 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100005604	Table B-1 Risk Based Human Health PRGs - 2015-02-23 Table B1_Portland Harbor HH PRGs.	114	1 CORR / Correspondence	R10: Allen, Elizabeth (EPA)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100005605	Table B-2 Risk-Based Ecological PRGs - 2015-02-23 Table B2_Portland Harbor Eco PRGs.	121	2 CORR / Correspondence	R10: Koch, Kristine, M (EPA)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100005607	Table 2.1-1 Chemical-Specific ARARs for Remedial Action at the Portland Harbor Superfund Site - 2015-02-23_Table 2.1-01-03_ARARs.	78	8 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)

100005608	Table 2.1-4 Numeric Standards Associated with Chemical-Specific ARARs - 2015-02-23_Table 2.1-04_ARAR Chem Values Table.	166	1 CORR / Correspondence	R10: Lavelle, James	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100005609	Table 2.2-1 Summary of Portland Harbor PRGs by RAO and Media - 2015-02-23_Table 2.2-01_PRG Summary.	138	1 CORR / Correspondence	R10: Koch, Kristine, M (EPA)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100005620	Table 2.1-2 Summary of COC Selection Process - 2015-02-23_Table 2.2-02_COC Selection Rationale.	109	3 CORR / Correspondence	R10: King, Todd (CDM Smith)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100005621	Table 2.1-3 Basis for Portland Harbor COC Selection by RAO and Media - 2015-02-23_Table 2.2-03_Final PH COCs.	102	1 CORR / Correspondence	R10: Koch, Kristine, M (EPA)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100005622	Table 2.2-4 RAO 1 PRG Derivation - 2015-02-23_Table 2.2-04_RAO1 PRG Derivation.	79	1 CORR / Correspondence	R10: Koch, Kristine, M (EPA)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100005623	Table 2.2-5 RAO 2 PRG Derivation - 2015-02-23_Table 2.2-05_RAO2 PRG Derivation.	90	1 CORR / Correspondence	R10: Koch, Kristine, M (EPA)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100005624	Table 2.2-6 RAO 3 PRG Derivation - 2015-02-23_Table 2.2-06_RAO3 PRG Derivation.	85	1 CORR / Correspondence	R10: Koch, Kristine, M (EPA)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100005625	RAO 4 Derivation - 2015-02-23_Table 2.2-07_RAO4 PRG Derivation.	83	1 CORR / Correspondence	R10: Koch, Kristine, M (EPA)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100005626	Table 2.2-8 RAO 5 Derivation - 2015-02-23_Table 2.2-08_RAO5 PRG Derivation.	106	1 CORR / Correspondence	R10: Koch, Kristine, M (EPA)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100005627	Table 2.2-9 RAO 6 PRG Derivation - 2015-02-23_Table 2.2-09_RAO6 PRG Derivation.	83	1 CORR / Correspondence	R10: Koch, Kristine, M (EPA)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100005628	Table 2.2-10 RAO 7 Derivation - 2015-02-23_Table 2.2-10_RAO7 PRG Derivation.	84	1 CORR / Correspondence	R10: Koch, Kristine, M (EPA)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100005629	Table 2.2-11 RAO 8 Derivation - 2015-02-23_Table 2.2-11_RAO8 PRG Derivation.	84	1 CORR / Correspondence	R10: Koch, Kristine, M (EPA)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100005630	Table 2.2-12 Basis for Portland Harbor PRGs by RAO and Media - 2015-02-23_Table 2.2-12_Basis for Selected PRGs.	109	6 CORR / Correspondence	R10: Koch, Kristine, M (EPA)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100005631	Table 2.4-1 Initial Screening of Remedial Technologies and Process Options - 2015-02-23_Table 2.4-01.	116	5 CORR / Correspondence	R10: Koch, Kristine, M (EPA)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100005632	Table 2.4-2 Technology and Process Options Screening Summary - 2015-02-23_Table 2.4-02.	147	7 CORR / Correspondence	R10: Koch, Kristine, M (EPA)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100005633	Email regarding Updated Portland Harbor meeting notes 2/11/2015.	41	1 EML / Email	R10: Koch, Kristine, M (EPA)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100005635	Email regarding Portland Harbor TCT Meeting Agenda for 2/25.	40	1 EML / Email	R10: Koch, Kristine, M (EPA)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100005639	TCT Meeting Notes - TCT Meeting Notes_2015-02-25_Summary_REV1.	160	4 CORR / Correspondence	R10: Macdonald, Marianne (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100005828	Draft Portland Harbor RI/FS Appendix P Comprehensive Benthic Approach Draft Feasibility Study - 2014-03-02_Appendix P_RLSO.	279	19 CORR / Correspondence	R10: (Windward Environmental, LLC.)	R10: (The Lower Willamette Group)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100005678	Portland Harbor RI/FS Figures - 3/3/2015 AQ_DioxinFuranCores 3-6-2015.	2,943	6 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100005636	3/4/2015 Email regarding agenda for Monday.	60	1 EML / Email	R10: Cohen, Lori, G (EPA)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100005674	EPA Staff Roles & Responsibilities - 2015-03-04 EPA Roles and Responsibilities - Releasable.	103	2 CORR / Correspondence	R10: Koch, Kristine, M (EPA)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100005676	3/5/2015 Email regarding items for next TCT meeting. Letter regarding EPA Draft Feasibility Study, Section 2 - 2015-03-06 Letter to EPA on FS	85	1 EML / Email	R10: Fricano, Gail (Industrial Economics, Inc.)	R10: Sheldrake, Sean, A (EPA), R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100005689	3/6/2015 Section 2. Agenda Portland Harbor Senior Manager/ Project Manager Meeting - 3-9-2015 Agenda	188	2 CORR / Correspondence	R10: Wyatt, Bob (Lower Willamette Group)	R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100005637	3/9/2015 Mgr meeting.	55	1 CORR / Correspondence	R10: Cohen, Lori, G (EPA)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100005679	Email regarding For 3/11/15 1:00 pm PDT EPA/DEQ Meeting - Agenda and Handout. Portland Harbor Recontamination Strategy to Date and Going Forward - Recontamination Strategy to date going forward Mar 10 2015 (2).	11	1 EML / Email	R10: Robinson, Deborah, G (EPA)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100005681	3/10/2015 LWG Comments on SCSR FS Section 1 - LWG Comments on SCSR FS Section 1 3-4-2015. Schedule for DEQ Oversight of In-water - Expanded - Schedule and Map for DEQ In-water Oversight Concepts.	112	2 CORR / Correspondence	R10: Liverman, Alex (Oregon Dept. of Environmental Quality)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100005691	3/10/2015 LWG Comments on SCSR FS Section 1 - LWG Comments on SCSR FS Section 1 3-4-2015. Schedule for DEQ Oversight of In-water - Expanded - Schedule and Map for DEQ In-water Oversight Concepts.	181	18 CORR / Correspondence	R10: (Lower Willamette Group)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100005694	3/11/2015 TCT Meeting Notes - TCT Meeting Notes_Summary_2015-03-11_Rev1.	1,010	2 CORR / Correspondence	R10: Parrett, Kevin (Oregon Dept. of Environmental Quality)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100005727	3/11/2015 TCT Meeting Notes - TCT Meeting Notes_Summary_2015-03-11_Rev1.	174	4 CORR / Correspondence	R10: Macdonald, Marianne (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100003873	3/13/2015 Section 4 Tables - 2015-08-18 Section 4 Tables.	1,891	97 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100005682	3/13/2015 Email regarding GIS File Request for D/F data.	148	1 EML / Email	R10: Shellenberger, Amanda (Anchor Environmental, LLC)	R10: King, Todd (CDM Smith)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100005686	3/18/2015 Appendix E - Community Guide; The National Remedy Review Board (NRRB) A Community Guide - NRRB Community Guide - App E.	116	2 CORR / Correspondence	R10: Robinson, Deborah, G (EPA)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100005687	3/18/2015 PRP Role - NRRB Role of the PRP.	53	1 CORR / Correspondence	R10: Robinson, Deborah, G (EPA)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)

100005830	3/18/2015	Draft Revised for BERA Maps 6-28a Portland Harbor RI/FS Revised Benthic Weight of Evidence Figure - 5909a_Updated Benthic WOE with FPM LRM PEC_RM 2 to 7.	1,044	1 CORR / Correspondence	R10: (Lower Willamette Group), R10: (Windward Environmental, LLC.)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100005831	3/18/2015	Draft Revised from BERA Maps 6-28b Portland Harbor RI/FS Revised Benthic Weight of Evidence - 5909b_Updated Benthic WOE with FPM LRM PEC_RM 7 to 12.	1,269	1 CORR / Correspondence	R10: (Lower Willamette Group), R10: (Windward Environmental, LLC.)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100005684	3/19/2015	Email regarding NRRB Guidance for LWG.	48	1 EML / Email	R10: Robinson, Deborah, G (EPA)	R10: Woronets, Jennifer (Anchor QEA, LLC)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100005729	3/19/2015	Letter regarding Portland Harbor Superfund Site, Administrative Order on Consent for Remedial Investigation and Feasibility Study - 2015-03-19 FS Section 1 letter to LWG.	457	2 CORR / Correspondence	R10: Cohen, Lori, G (EPA)	R10: Wyatt, Bob (Lower Willamette Group)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
500003669	3/19/2015	Letter regarding Portland Harbor Superfund Site, Administrative Order on Consent for Remedial Investigation and Feasibility Study; Docket No. CERCLA-10-2001-0240 Feasibility Study, Section 1	136	2 CORR / Correspondence	R10: Cohen, Lori, G (EPA), R10: Grandinetti, Cami (EPA)	R10: Wyatt, Bob (Lower Willamette Group)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100005683	3/22/2015	Email regarding Portland Harbor - Bioaccumulation Modeling Report.	74	2 EML / Email	R10: Koch, Kristine, M (EPA)	R10: Mckenna, James (Verdant Solutions, LLC)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100005829	3/23/2015	Draft Portland Harbor RI/FS Appendix P Comprehensive Benthic Approach Draft Feasibility Study - 2014-03-23_Appendix P.	221	18 CORR / Correspondence	R10: (Windward Environmental, LLC.)	R10: (The Lower Willamette Group)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100005731	3/25/2015	Letter regarding LWG Comments on Revised FS Section 2 - 2015-03-25 LWG Comments on Revised FS Section 2 Cover Letter.	148	2 CORR / Correspondence	R10: Wyatt, Bob (Lower Willamette Group)	R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100005732	3/25/2015	LWG Comments on EPA's Feasibility Study Revised Draft Section 2 Text - 2015-03-25 LWG Comments Section 2 FS.	237	17 CORR / Correspondence	R10: (Lower Willamette Group)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100005734	3/26/2015	LWG Comments on Table 2.1-1. Chemical-Specific ARARs for Remedial Action at the Portland Harbor Superfund Site - 2015-03-25 LWG Comments on 2015-02-23_Table 2_1-1_ARARs.	261	4 CORR / Correspondence	R10: (Lower Willamette Group)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100005723	3/31/2015	Email regarding Request for Copy of January 22, 2015 Email.	81	1 EML / Email	R10: Koch, Kristine, M (EPA)	R10: Mckenna, James (Verdant Solutions, LLC)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100005724	3/31/2015	Email regarding Additional Background Contaminants.	114	3 EML / Email	R10: Koch, Kristine, M (EPA)	R10: Woronets, Jennifer (Anchor QEA, LLC)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100003776	4/14/2015	Letter regarding Inclusion of RM 6E and RM 11E Data in FS Database (Lower Willamette River, Portland Harbor Superfund Site).	210	2 CORR / Correspondence	R10: Wyatt, Bob (Northwest Natural Gas Company)	R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100005725	4/14/2015	Email regarding Portland Harbor Dispute Decision.	114	2 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Albright, Rick (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100003048	4/20/2015	Email regarding Portland Harbor - Follow-up from 4/9 EPA/DEQ Meeting.	94	2 EML / Email	R10: Mcclincy, Matt (Oregon Dept. of Environmental Quality)	R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100005695	4/22/2015	Email regarding Dioxin/Furan core maps.	192	2 EML / Email	R10: Koch, Kristine, M (EPA)	R10: Woronets, Jennifer (Anchor QEA, LLC)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100005824	4/23/2015	LWG Responses to EPA's Responses to LWG Comments on Feasibility Study Revised Draft Section 2 Text - LWG 2015-04-23 LWG Responses to EPA.	170	28 CORR / Correspondence	R10: (Lower Willamette Group)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100005696	4/24/2015	Email regarding Portland Harbor - Bioaccumulation Modeling Report. Appendix B1- Human Health Risk-Based Preliminary Remediation Goal (PRG) Derivation - 2015-06-02 Draft Final Appendix	69	1 EML / Email	R10: Mckenna, James (Verdant Solutions, LLC)	R10: Wyatt, Bob (Northwest Natural Gas Company), R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100003759	4/27/2015	B1_HH PRGs.	224	13 CORR / Correspondence	R10: Allen, Elizabeth (EPA)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100003739	5/6/2015	Email regarding TCT Agenda Question.	100	2 EML / Email	R10: Koch, Kristine, M (EPA)	R10: Mcclincy, Matt (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100003750	5/7/2015	Email regarding Portland Harbor - Bioaccumulation Modeling Report.	82	3 EML / Email	R10: Toll, John (Windward Environmental, LLC.)	R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100003751	5/7/2015	Email regarding Gasco TPH Data.	49	1 EML / Email	R10: Mcclincy, Matt (Oregon Dept. of Environmental Quality)	R10: Koch, Kristine, M (EPA), R10: Allen, Elizabeth (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100003755	5/7/2015	Portland Harbor Sediment Decision Unit - 2015-05-13_PeCDD Core Profile Maps.	4,598	5 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100003756	5/7/2015	Portland Harbor Sediment Decision Unit - 2015-05-13_PeCDF Core Profile Maps.	4,623	5 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100003757	5/7/2015	Portland Harbor Sediment Decision Unit - 2015-05-13_TCDD Core Profile Maps.	4,567	5 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100002966	5/11/2015	Email regarding Catch up / Albright decision.	71	2 EML / Email	R10: Cora, Lori, H (EPA)	R10: Dunn, Loren, R (Riddell Williams, P.S.)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100003752	5/13/2015	Email regarding Portland Harbor - 5/13 TCT Presentation.	39	1 EML / Email	R10: Koch, Kristine, M (EPA)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100006182	5/16/2015	FWM Template - FWM template_calibrated_total PCBs_edited_OR.	302	13 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100003763	5/26/2015	Figure 2.2-2 Portland Harbor Site Comparison of Risk Areas to be Remediated - 2015-06-02 Draft Final Figure 2.2-2.	533	1 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100003771	5/26/2015	Figure 2.2-2 Areas that Exceed Preliminary Remediation Goals (PRGs) - 2015-06-03 Draft Final Figure 2.2-2.	557	1 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100003774	5/26/2015	Figure 2.2-2 Areas that Exceed Preliminary Remediation Goals (PRGs) - 2015-06-03 Draft Final Figure 2.2-2.	538	1 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100003761	6/1/2015	Appendix B2- Ecological Risk-Based Preliminary Remediation Goal (PRGS) Derivation - 2015-06-02 Draft Final Appendix B2_Ecological PRGs.	128	4 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100003758	6/2/2015	Email regarding Portland Harbor FS Section 2. Draft Final Feasibility Study Report - Introduction - 2015-06-02 Draft Final Portland Harbor FS Section 1.	70	2 EML / Email	R10: Koch, Kristine, M (EPA)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100003765	6/2/2015	Draft Final Feasibility Study Report Section 2 - 2015-06-02 Draft Final Portland Harbor FS Section 2.	362	28 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100003766	6/2/2015	Draft Final Feasibility Study Report Section 2 - 2015-06-02 Draft Final Portland Harbor FS Section 2.	341	33 EML / Email	R10: Blishke, Eric, L (EPA)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100003770	6/3/2015	Email regarding Portland Harbor FS Section 2.	66	1 EML / Email	R10: Koch, Kristine, M (EPA)	R10: Mckenna, Jim (Unknown), R10: Wyatt, Bob (Northwest Natural Gas Company)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100003772	6/3/2015	Email regarding Portland Harbor FS Section 2.	67	1 EML / Email	R10: Koch, Kristine, M (EPA)	R10: Mckenna, Jim (Unknown), R10: Wyatt, Bob (Northwest Natural Gas Company)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)



100003775	6/4/2015	Email regarding Incorporation of RM 6E and RM 11E data into the Portland Harbor FS database.	62	1 EML / Email	R10: Cox, Kim, E (City of Portland, Oregon)	R10: Sheldrake, Sean, A (EPA), R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
1412921	6/5/2015	Comments and objections on Section 1 of the draft final feasibility study on behalf of Atlantic Richfield Company.	7,255	6 LTR / Letter	R10: Khajetoorians, Asteghik (Miller Nash Graham & Dunn)	R10: Koch, Kristine, M (EPA)	PAPER DOCUMENT	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100003777	6/5/2015	Letter regarding Requested Corrections to Statements in the EPA Draft Final Section 1 of the Feasibility Study - BP_Comment_Letter_to_EPA_FS_Section_1.	62	6 CORR / Correspondence	R10: Khajetoorians, Asteghik (Miller Nash Graham & Dunn)	R10: Wyatt, Bob (Northwest Natural Gas Company), R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100003778	6/5/2015	Email regarding Portland Harbor FS Section 2 - Updated PRG tables.	72	2 EML / Email	R10: Koch, Kristine, M (EPA)	R10: Mckenna, Jim (Unknown), R10: Wyatt, Bob (Northwest Natural Gas Company)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100003780	6/10/2015	Email regarding Requested Corrections to Statements in the EPA Draft Final Section 1 of the Feasibility Study.	127	3 EML / Email	R10: Koch, Kristine, M (EPA)	R10: Wyatt, Bob (Northwest Natural Gas Company), R10: Khajetoorians, Asteghik (Miller Nash Graham & Dunn)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100003818	6/18/2015	Draft Portland Harbor Superfund Site Bioaccumulation Modeling Report Appendix A: Co-Located Data - 2015-06-19_Rev Draft Bioaccum Modeling Report_App A_CLEAN.	855	38 CORR / Correspondence	R10: (Lower Willamette Group)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100003819	6/18/2015	Draft Portland Harbor Superfund Site Bioaccumulation Modeling Report Appendix A: Co-Located Data - 2015-06-19_Rev Draft Bioaccum Modeling Report_App A_REDLINE.	882	38 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100003820	6/18/2015	Draft Portland Harbor Superfund Site Bioaccumulation Modeling Report Appendix B: Mechanistic Model Parameterization - 2015-06-19_Rev Draft Bioaccum Modeling Report_App B_CLEAN.	735	55 CORR / Correspondence	R10: (Lower Willamette Group)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100003817	6/19/2015	Email regarding bioaccumulation modeling report.	52	1 EML / Email	R10: Toll, John (Windward Environmental, LLC.)	R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100003822	6/19/2015	Draft Portland Harbor Superfund Site Bioaccumulation Modeling Report Appendix B: Mechanistic Model Parameterization - 2015-06-19_Rev Draft Bioaccum Modeling Report_App B_REDLINE.	727	55 CORR / Correspondence	R10: (Lower Willamette Group)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100003823	6/19/2015	Draft Portland Harbor Superfund Site Bioaccumulation Modeling Report Appendix C: Model Documentation - 2015-06-19_Rev Draft Bioaccum Modeling Report_App C_CLEAN.	417	67 CORR / Correspondence	R10: (Lower Willamette Group)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100003824	6/19/2015	Draft Portland Harbor Superfund Site Bioaccumulation Modeling Report Appendix D: Round 3 Data Compared to the Round 2 Report Mechanistic Model - 2015-06-19_Rev Draft Bioaccum Modeling Report_App D_CLEAN.	135	6 CORR / Correspondence	R10: (Lower Willamette Group)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100003825	6/19/2015	Draft Portland Harbor Superfund Site Bioaccumulation Modeling Report Appendix E: Empirical Tissue Data for the Mechanistic Model - 2015-06-19_Rev Draft Bioaccum Modeling Report_App E_CLEAN.	148	6 CORR / Correspondence	R10: (Lower Willamette Group)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100003826	6/19/2015	Draft Portland Harbor Superfund Site Bioaccumulation Modeling Report Appendix E: Empirical Tissue Data for the Mechanistic Model - 2015-06-19_Rev Draft Bioaccum Modeling Report_App E_REDLINE.	158	6 CORR / Correspondence	R10: (Lower Willamette Group)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100003827	6/19/2015	Portland Harbor RI/FS Bioaccumulation Modeling Report Revised Draft - 2015-06-19_Rev Draft Bioaccum Modeling Report_CLEAN.	5,384	149 CORR / Correspondence	R10: (Windward Environmental, LLC.)	R10: (Lower Willamette Group)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100003828	6/19/2015	Portland Harbor RI/FS Bioaccumulation Modeling Report Revised Draft - 2015-06-19_Rev Draft Bioaccum Modeling Report_REDLINE.	5,973	155 CORR / Correspondence	R10: (Windward Environmental, LLC.)	R10: (Lower Willamette Group)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100003829	6/24/2015	Email regarding EPA response to NW Natural 5/15/15 letter.	44	1 EML / Email	R10: Cora, Lori, H (EPA)	R10: Dost, Patty (Pearl Legal Group PC)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100003830	6/24/2015	Letter regarding Portland Harbor Administrative Settlement Agreement and Order on Consent for RI/FS.	190	1 CORR / Correspondence	R10: Cora, Lori, H (EPA)	R10: Dost, Patty (Pearl Legal Group PC)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100003831	6/25/2015	Email regarding Requested Corrections to Statements in the EPA Draft Final Section 1 of the Feasibility Study (Lower Willamette River, Portland Harbor Superfund Site; Docket No. CERCLA-10-2001-0240).	135	4 EML / Email	R10: Koch, Kristine, M (EPA)	R10: Wyatt, Bob (Northwest Natural Gas Company), R10: Khajetoorians, Asteghik (Miller Nash Graham & Dunn)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100003832	6/26/2015	Email regarding Portland Harbor FS.	66	1 EML / Email	R10: Mckenna, Jim (Unknown)	R10: Koch, Kristine, M (EPA), R10: Stivers, Carl (Anchor QEA, LLC)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100003059	7/1/2015	Email regarding ARARs related to Removal-Fill Program for PDX Harbor.	66	4 EML / Email	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100003833	7/7/2015	Email regarding Portland Harbor FS Schedule.	69	1 EML / Email	R10: Mckenna, Jim (Unknown)	R10: Wyatt, Bob (Northwest Natural Gas Company), R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100003875	7/14/2015	Table 4.3-2. Summary of Comparative Analysis for Remedial Alternatives - 2015-08-18 Table 4.3-2 Qualitative Comparative Analysis.	355	2 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100003834	7/28/2015	Email regarding Portland Harbor - Planning for July 31 FS Roll Out Meeting - Draft Agenda for Kristine's Review.	111	2 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100003843	7/29/2015	Email regarding Request for extension of deadline to submit FS comments.	83	2 EML / Email	R10: Wyatt, Robert, J (NW Natural)	R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100003844	7/29/2015	Email regarding Equilibrium Estimates Memorandum.	131	2 EML / Email	R10: Stivers, Carl (Anchor Environmental, LLC)	R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100003871	7/29/2015	Portland Harbor RI/FS Appendix J Compensatory Mitigation Requirements Under CWA Section 404 Draft Final - 2015-08-18 Appendix J_404 mitigation strategy.	132	10 CORR / Correspondence	R10: Koch, Kristine, M (EPA)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100003959	7/30/2015	R Graphics Output - AllChemRollingRMFullScale.	6,347	690 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100003960	7/30/2015	R Graphics Output - AllRollingRM_HQ.	1,145	145 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100002976	8/3/2015	Email regarding PCI group presentation.	62	2 EML / Email	R10: Cora, Lori, H (EPA)	R10: Klinger, Nanci (City of Portland, Oregon)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100003880	8/4/2015	Suggested Talking Points EPA Draft FS - LWG Talking Points on EPA Draft FS - August 2015.	82	1 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100003847	8/5/2015	Email regarding Request rescheduling of August 11 FS Technical Meeting.	76	2 EML / Email	R10: Mckenna, James (Verdant Solutions, LLC)	R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100003848	8/6/2015	Email regarding Section 3 Alternatives.	79	1 EML / Email	R10: Madalinski, Kelly (Port of Portland)	R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)

100003846	8/7/2015	Sediment Equilibrium Estimates for the Revised Feasibility Study - 2014-08-07_Equilibrium Estimates Memo.	346	17 CORR / Correspondence	R10: (Anchor QEA, LLC)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100003849	8/7/2015	Email regarding Portland Harbor.	46	1 EML / Email	R10: Roberson, Dave (De Maximis, Inc.)	R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100003850	8/7/2015	Natural Recovery of Sediments Affected by PCBs in Portland Harbor - 2015-08-07 Final letter to EPA.	484	9 CORR / Correspondence	R10: Ring, J.w., R10: Cusma, Mathew, J (Schnitzer Steel Industries, Inc.), R10: Wolf, Frederick (Legacy Site Services, LLC), R10: Edwards, Deborah, A (ExxonMobil Oil Corporation)	R10: Woolford, James, E (EPA), R10: Grandinetti, Cami (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100003853	8/7/2015	R Graphics Output - t0_RollingRM_Conc.	801	69 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100003855	8/7/2015	R Graphics Output - t0_RollingRM_Conc_Zoomed.	931	69 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100003941	8/11/2015	GIS Riverbank Estimate Assumptions - Annotated Riverbank Quantity Calculations Pages 179-181.	212	2 CORR / Correspondence	R10: (CDM Smith)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100003854	8/13/2015	R Graphics Output - t0_RollingRM_Conc_LogZoomed_cpah.	28	1 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100003852	8/14/2015	Email regarding Preliminary List of Section 3 Inconsistencies.	89	2 EML / Email	R10: Koch, Kristine, M (EPA)	R10: Stivers, Carl (Anchor QEA, LLC)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100003856	8/15/2015	Email regarding Preliminary List of Section 3 Inconsistencies.	97	2 EML / Email	R10: Koch, Kristine, M (EPA)	R10: Mckenna, James (Verdant Solutions, LLC)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100003806	8/18/2015	Email regarding Portland Harbor FS Section 4. Portland Harbor RI/FS Appendix F HST Evaluation Draft Final - 2015-08-18 Appendix	95	2 EML / Email	R10: Koch, Kristine, M (EPA)	R10: Mckenna, Jim (Unknown), R10: Wyatt, Bob (Northwest Natural Gas Company)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100003807	8/18/2015	F_HST Evaluation.	97	4 CORR / Correspondence	R10: Koch, Kristine, M (EPA)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100003808	8/18/2015	Portland Harbor RI/FS Appendix G Detailed Cost Evaluation Draft Final - 2015-08-18 Appendix G_Cost.	2,602	269 CORR / Correspondence	R10: Koch, Kristine, M (EPA)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100003809	8/18/2015	Portland Harbor RI/FS Appendix H Residual Risk Evaluation Draft Final - 2015-08-18 Appendix H_Residual Risk.	94	3 CORR / Correspondence	R10: Koch, Kristine, M (EPA)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100003870	8/18/2015	Portland Harbor RI/FS Appendix I Rolling Rivermile Curves - 2015-08-18 Appendix I_Rolling Rivermile Curves.	2,197	140 CORR / Correspondence	R10: Koch, Kristine, M (EPA)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100003872	8/18/2015	Portland Harbor RI/FS Draft Final Feasibility Study Report Section 4 - 2015-08-18 Portland Harbor FS Section 4.	563	73 CORR / Correspondence	R10: Mullin, Jeanette (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100003874	8/18/2015	Table 4.3-1 Summary of Comparative Analysis of Alternatives - 2015-08-18 Table 4.3-1_Comparative Analysis.	127	8 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100003876	8/18/2015	Figure 4.1-4. Absolute Bathymetric Change Seen Between Survey Pairs - Figure 4.1-4_Absolute Bathymetric Change.	171	1 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100003878	8/18/2015	Figure 4.1-6. 2007 and 2012 PCB Concentrations in Whole Smallmouth Bass by River Mile - Figure 4.1-6_2007_2012 Fish Tissue Data.	61	1 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100003879	8/19/2015	Email regarding EPA's PDX Harbor reactive statement re: Sections 3 and 4 of the FS.	132	2 EML / Email	R10: Conley, Alanna (EPA)	R10: Koch, Kristine, M (EPA), R10: Christopher, Anne (EPA), R10: Allen, Elizabeth (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100003882	8/25/2015	Email regarding Initial list of LWG issues.	48	1 EML / Email	R10: Robinson, Deborah, G (EPA)	R10: Koch, Kristine, M (EPA), R10: Christopher, Anne (EPA), R10: Allen, Elizabeth (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100003883	8/26/2015	Email regarding List of Topics for Tomorrow's Technical Conference Call.	87	1 EML / Email	R10: Mckenna, James (Verdant Solutions, LLC)	R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100003916	9/8/2015	Information Needs to Enable Review of EPA's Revised FS Sections 3 and 4 - 2015-09-08 Information Requests from EPA.	170	9 CORR / Correspondence	R10: Madalinski, Kelly (EPA)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100003950	9/8/2015	Information Needs to Enable Review of EPA's Revised FS Sections 3 and 4 - 2015-09-08 Information Requests from EPA.	170	9 CORR / Correspondence	R10: Madalinski, Kelly (EPA)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100003951	9/8/2015	Letter regarding Information requests from EPA - 2015-09-08 LWG Letter to EPA re Information Requests.	54	1 CORR / Correspondence	R10: Wyatt, Bob (Northwest Natural Gas Company)	R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100003907	9/17/2015	Email regarding Portland Harbor - Contaminant Transport Model.	50	1 EML / Email	R10: Mckenna, James (Verdant Solutions, LLC)	R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100003056	9/18/2015	Email regarding Portland Harbor Update.	46	2 EML / Email	R10: Koch, Kristine, M (EPA)	R10: Mckenna, Jim (Unknown), R10: Wyatt, Bob (Northwest Natural Gas Company)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100003054	9/29/2015	Email regarding Portland Harbor.	961	1 EML / Email	R10: Koch, Kristine, M (EPA)	R10: Ring, J.w.	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100002984	9/30/2015	Attendees for the 9-28-2015 EPA Presentation Regarding the Portland Harbor Superfund Site.	3,365	11 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100003912	10/8/2015	Assessment of Dredging Production Rates and Construction Duration Assumptions on EPA's FS Cost Estimates - 2015_10_08_Construction Duration Cost Analysis.	46	6 CORR / Correspondence	R10: Madalinski, Kelly (Port of Portland)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100003910	10/9/2015	Email regarding Portland Harbor - Contaminant Transport Model.	108	4 EML / Email	R10: Mckenna, James (Verdant Solutions, LLC)	R10: Koch, Kristine, M (EPA), R10: Grandinetti, Cami (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100003911	10/13/2015	Email regarding Cost and Construction Duration Analysis.	7	1 EML / Email	R10: Wyatt, Robert, J (Northwest Natural Gas Company)	R10: Woolford, James, E (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100003915	10/21/2015	Email regarding FS Information Requests.	98	3 EML / Email	R10: Stivers, Carl (Anchor QEA, LLC)	R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100002989	10/22/2015	Outlier Test for Selected Variables replacing nondetects with 1/2 the Detection Limit.	40	1 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100002992	10/22/2015	UCL Statistics for Data Sets with Non-Detects.	89	3 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100003945	10/22/2015	UCL Statistics for Data Sets with Non-Detects - HxCDF_UCL.	85	3 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100003946	10/22/2015	Background Statistics for Data Sets with Non-Detects - HxCDF_UPL.	73	3 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100003917	10/28/2015	Email regarding FS Information Requests.	102	4 EML / Email	R10: Koch, Kristine, M (EPA)	R10: Stivers, Carl (Anchor QEA, LLC)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100002987	10/30/2015	Figure 3.3-40. Sediment and Soil Disposal Decision Tree.	244	1 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100003937	10/30/2015	Portland Harbor Superfund Site/Remedy Review Board - 15-1030 FINAL Reconsideration Request to EPA RA (attach).	114	5 CORR / Correspondence	R10: (Atlantic Richfield Company), R10: (Schnitzer Steel Industries, Inc.), R10: (BP West Coast Products, LLC.), R10: (BAE Systems San Diego Ship Repair Inc.), R10: (The Marine Group LLC), R10: (Air Liquide USA LLC), R10: (Exxon Mobil Corporation)	R10: Mclerran, Dennis, J (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)

100003940	Figure 3.3-40. Sediment and Soil Disposal Decision Tree - 2015-11-03 Fig3-03-40.	244	1 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100003936	Email regarding Reconsideration Request for Submission of Portland Harbor Remedial Comments to National Remedy Review Board.	94	2 EML / Email	R10: Cora, Lori, H (EPA)	R10: Koch, Kristine, M (EPA), R10: Grandinetti, Cami (EPA), R10: Zhen, Davis (EPA), R10: Fonseca, Silvina (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100003938	Email regarding Portland Harbor - Bioaccumulation Modeling Report.	134	4 EML / Email	R10: Koch, Kristine, M (EPA)	R10: Mckenna, James (Verdant Solutions, LLC)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100002980	11/3/2015 Email regarding FS Information Requests.	125	5 EML / Email	R10: Cora, Lori, H (EPA)	R10: Dunn, Loren	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100003939	11/3/2015 Email regarding FS Information Requests.	128	6 EML / Email	R10: Cora, Lori, H (EPA)	R10: Dunn, Loren	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100003061	11/4/2015 Email regarding FS Information Requests.	87	6 EML / Email	R10: Dunn, Loren, R (Riddell Williams, P.S.)	R10: Cora, Lori, H (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100003943	Q-Q Plot for HxCDF Reported Values for Nondetects - HxCDF Q-Q.	153	1 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100003947	11/18/2015 Email regarding Scheduling FS Decision Tree Meetings.	140	10 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Zhen, Davis (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100005839	11/19/2015 Regional Screening Level Resident Tapwater Table November 2015 - restap_sl_table_run_nov2015.	947	13 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100003944	11/22/2015 Outliers Tests for Selected Variables replacing nondetects with 1/2 the Detection Limit - HxCDF_outlier.	47	1 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100003948	11/23/2015 Email regarding Draft Prioritization of Information Requests on FS Sections 3 and 4.	106	2 EML / Email	R10: Cora, Lori, H (EPA)	R10: Koch, Kristine, M (EPA), R10: Stivers, Carl (Anchor QEA, LLC)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100003949	11/23/2015 Email regarding Draft Prioritization of Information Requests on FS Sections 3 and 4.	99	2 EML / Email	R10: Stivers, Carl (Anchor QEA, LLC)	R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100002967	11/25/2015 Email regarding Status of LWG September information request.	40	2 EML / Email	R10: Cora, Lori, H (EPA)	R10: Stivers, Carl (Anchor Environmental, LLC), R10: Dunn, Loren, R (Riddell Williams, P.S.)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100003952	11/25/2015 Email regarding Status of LWG September information request.	56	1 EML / Email	R10: Cora, Lori, H (EPA)	R10: Dunn, Loren, R10: Stivers, Carl (Anchor QEA, LLC)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100003955	12/3/2015 Email regarding Status of LWG September information request.	96	2 EML / Email	R10: Stivers, Carl (Anchor QEA, LLC)	R10: Cora, Lori, H (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100003956	12/4/2015 Email regarding Additional Explanation of FS Information Requests.	145	3 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100003957	12/14/2015 Email regarding Additional Explanation of FS Information Requests.	148	4 EML / Email	R10: Koch, Kristine, M (EPA)	R10: Stivers, Carl (Anchor QEA, LLC), R10: Woronets, Jennifer (Anchor QEA, LLC)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100003958	12/14/2015 Email regarding Status of LWG September information request.	99	3 EML / Email	R10: Koch, Kristine, M (EPA)	R10: Cora, Lori, H (EPA), R10: Stivers, Carl (Anchor QEA, LLC)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100003961	12/14/2015 Email regarding Additional Explanation of FS Information Requests.	147	3 EML / Email	R10: Koch, Kristine, M (EPA)	R10: Woronets, Jennifer (Anchor QEA, LLC)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100003963	1/19/2016 Email regarding Portland Harbor Bioaccumulation Modeling Report.	109	3 EML / Email	R10: Koch, Kristine, M (EPA)	R10: Toll, John (Windward Environmental, LLC.)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100002981	2/3/2016 Email regarding Hazardous waste determination.	31	2 EML / Email	R10: Cora, Lori, H (EPA)	R10: Cora, Lori, H (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100003071	2/3/2016 Email regarding HEA habitat values for ESA consultation.	21	2 EML / Email	R10: Cora, Lori, H (EPA)	R10: Cora, Lori, H (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100003397	2/3/2016 Site Briefing for the Contaminated Sediments Technical Advisory Group Portland Harbor Super - PHCSTAGBriefJuly24.	120	12 RPT / Report	R10: Koch, Kristine, M (EPA)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100003398	2/3/2016 Portland Harbor Superfund Site - Portland Harbor Summary 1-10-02.	84	2 CORR / Correspondence	R10: Koch, Kristine, M (EPA)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100003435	2/4/2016 Portland Harbor Superfund Site, Administrative Order on Consent for Remedial Investigation and Feasibility Study - final dispute settlement letter EPA signed LWG signed.	181	3 CORR / Correspondence	R10: Grandinetti, Cami (EPA)	R10: Wyatt, Bob (Lower Willamette Group)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100005714	2/12/2016 Email regarding response to EPA's February 5 request.	58	1 EML / Email	R10: Toll, John (Windward Environmental, LLC.)	R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100005715	2/12/2016 Explanation of Correction Factor - Explanation of BSAR correction factor.	93	2 CORR / Correspondence	R10: Church, Brian (Windward Environmental, LLC.)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100005719	2/18/2016 Email regarding response to EPA's February 5 request.	80	2 EML / Email	R10: Toll, John (Windward Environmental, LLC.)	R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100005703	2/20/2016 Email regarding Fish Advisories as ICs. Proposed Changes to FS Language on Institutional Controls - Draft IC Language for FS	47	1 EML / Email	R10: Parrett, Kevin (Oregon Dept. of Environmental Quality)	R10: Sheldrake, Sean, A (EPA), R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100005710	2/20/2016 - 021915. Proposed Fish Advisory Program for Portland Harbor - Proposed FS Costs For PH Fish	150	5 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100005711	2/20/2016 Advisory. Proposed Fish Advisory Program for Portland Harbor - Proposed FS Costs For PH Fish	93	3 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100005697	2/22/2016 Email regarding Gregg Kantor 5 Points.	79	1 EML / Email	R10: Woolford, James, E (EPA)	R10: Cora, Lori, H (EPA), R10: Richardson, Robin, H (EPA), R10: McLerran, Dennis, J (EPA), R10: Pirzadeh, Michelle, L (EPA), R10: Koch, Kristine, M (EPA), R10: Grandinetti, Cami (EPA), R10: Mackey, Cyndy (EPA), R10: Zhen, Davis (EPA), R10: Ammon, Doug (EPA), R10: Michaud, John (EPA), R10: Fitz-james, Schatzi (EPA), R10: Fonseca, Silvina (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100005701	2/22/2016 Email regarding DEQ Comments on Portland Harbor Draft FS.	122	3 EML / Email	R10: Truedinger, Robert (Kinder Morgan Energy Partners, L.P.)	R10: Romero, Michael (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100005702	2/22/2016 Letter regarding U.S. Environmental Protection Agency Draft Feasibility Study Principal Threat Waste Areas - 2016_02-22_DEQ_PTW Letter.	448	4 CORR / Correspondence	R10: Truedinger, Robert (Kinder Morgan Energy Partners, L.P.)	R10: Romero, Michael (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100005699	2/29/2016 Email regarding Anchor QEA Sheet Pile and Silt Curtain Unit Cost Buildup Questions.	135	3 EML / Email	R10: Koch, Kristine, M (EPA)	R10: Wyatt, Bob (Northwest Natural Gas Company)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100006081	3/8/2016 Letter regarding Portland Harbor Proposed Plan - Kantor-Hamilton-response-2016-03-08.	394	2 CORR / Correspondence	R10: Woolford, James, E (EPA), R10: Mackey, Cynthia, L (EPA)	R10: Hamilton, Jessica (Port of Portland), R10: Kantor, Gregg (NW Natural)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100006076	3/9/2016 Email regarding Bioaccumulation Model.	72	2 EML / Email	R10: Koch, Kristine, M (EPA)	R10: Wyatt, Robert, J (Northwest Natural Gas Company)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100006077	3/9/2016 Email regarding Portland Harbor Draft BA.	45	1 EML / Email	R10: Wyatt, Robert, J (Northwest Natural Gas Company)	R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)

100006078	3/9/2016	Email regarding Bioaccumulation Model.	68	1 EML / Email	R10: Wyatt, Robert, J (Northwest Natural Gas Company)	R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100006079	3/10/2016	Email regarding Portland Harbor Draft BA.	69	2 EML / Email	R10: Wyatt, Robert, J (Northwest Natural Gas Company)	R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100007180	3/30/2016	Mobility Test Tables.	75	5 CORR / Correspondence	R10: Pickering, Ross (Anchor QEA, LLC)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100002964	Undated	Q-Q Plot for HxCDF Reported values used for nondetects.	54	1 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100002988	Undated	Background Statistics for Data Sets with Non-Detects.	61	3 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100003352	Undated	Superfund term fact sheet - DONOTREPLYSHARPSCANNER_20121003_084 339.	249	1 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100003353	Undated	Portland Harbor Superfund Site Diagram pamphlet - DONOTREPLYSHARPSCANNER_20121003_084 433.	155	1 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100005716	Undated	Chemical list - ph_bsar.	96	5 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100005717	Undated	Preparing Data - smear.	26	2 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
706171	3/30/2012	Portland Harbor RI/FS Draft Feasibility Study. Memorandum regarding Review and Recommendations on Dredge Releases and Residuals Calculations from the Portland Harbor Draft Feasibility Study.	133,150	1	R10: Unknown, Unknown (Kennedy/Jenks Consultants), R10: Unknown, Unknown (Windward Environmental, LLC.), R10: Unknown, Unknown (Integral Consulting, Inc.), R10: Unknown, Unknown (Anchor QEA, LLC)	R10: Unknown, Unknown (Lower Willamette Group)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
850004	5/24/2013	Portland Harbor Superfund Site, Administrative Order on Consent for Remedial Investigation and Feasibility Study - final dispute settlement letter EPA signed LWG	300	4 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100003435	2/4/2016	signed.	181	3 CORR / Correspondence	R10: Grandinetti, Cami (EPA)	R10: Wyatt, Bob (Lower Willamette Group)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100003806	8/18/2015	Email regarding Portland Harbor FS Section 4. Portland Hard RI/FS Bioaccumulation Modeling Report Revised Draft - 2015-06-19_Rev Draft Bioaccum Modeling Report_CLEAN.	95	2 EML / Email	R10: Koch, Kristine, M. (EPA)	R10: Mckenna, Jim (Unknown), R10: Wyatt, Bob (Northwest Natural Gas Company)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100003827	6/19/2015	Email regarding Preliminary List of Section 3 Inconsistencies.	5,384	149 CORR / Correspondence	R10: (Windward Environmental, LLC.)	R10: (Lower Willamette Group)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100003852	8/14/2015	Assessment of Dredging Production Rates and Construction Duration Assumptions on EPA's FS Cost Estimates - 2015_10_08_Construction Duration Cost Analysis.	89	2 EML / Email	R10: Koch, Kristine, M. (EPA)	R10: Stivers, Carl (Anchor QEA, LLC)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100003912	10/8/2015	Memorandum regarding Proposed Process for Incorporation of EPA's Dredge Production and Dredge Residual Recommendations for the Portland Harbor Feasibility Study.	46	6 CORR / Correspondence	R10: Madalinski, Kelly (Port of Portland)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100003913	1/15/2014	Memorandum regarding Derivation of Final Manganese PRG to Replace the Suter and Tsao (1996) Tier II Value in the Portland Harbor Feasibility Study - Hardness-based Mn Criterion Memo_FINAL_25 November 2014.	44	5 CORR / Correspondence	R10: (Lower Willamette Group)	R10: Koch, Kristine, M. (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100005299	8/21/2014	Feasibility Study Section 1 Languages for DEQ Review - Alex_on_sw_in_FS_Section_1_Language_for_ODEQ_Review.	51	2 EML / Email	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M. (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100005300	8/21/2014	Memorandum regarding Derivation of Final Manganese PRG to Replace the Suter and Tsao (1996) Tier II Value in the Portland Harbor Feasibility Study - Hardness-based Mn Criterion Memo_FINAL_25 November 2014.	94	3 CORR / Correspondence	R10: Blischke, Eric, L (EPA)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100005457	11/25/2014	LWG Comments on EPA's December 19, 2014, Feasibility Study Proposed Final Draft Section 1. - 2015-01-02 LWG Comments FS Section 1. LWG Comments on EPA's Feasibility Study Revised Draft Section 2 Text - 2015-03-25 LWG Comments Section 2 FS.	651	23 CORR / Correspondence	R10: Deforest, David, K (Windward Environmental, LLC.), R10: Toll, John (Windward Environmental, LLC.), R10: Church, Brian (Windward Environmental, LLC.)	R10: (Lower Willamette Group)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100005499	1/2/2015	LWG Responses to EPA's Responses to LWG Comments on Feasibility Study Revised Draft Section 2 Text - LWG 2015-04-23 LWG Responses to EPA.	281	7 CORR / Correspondence	R10: (Lower Willamette Group)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100005732	3/25/2015	EPA Comments on Portland Harbor FS Key Elements Check-in (June 21 & 22, 2011).	237	17 CORR / Correspondence	R10: (Lower Willamette Group)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100005824	4/23/2015	Email regarding EPA comments on LWG Draft FS Report.	170	28 CORR / Correspondence	R10: (Lower Willamette Group)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100007242	7/15/2011	FS Review Team Comments on Portland Harbor Draft Feasibility Study (March 2012).	254	6 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100007297	12/18/2012	Letter regarding EPA Comments on the Portland Harbor RI/FS Draft Feasibility Study. Additional Comments on the EPA's Revised FS Sections 3 and 4 - 2015_10_08_FS Section 3 and 4 Additional LWG Comments.	16	1 EML / Email	R10: Humphrey, Chip (EPA)	R10: Wyatt, Bob (Northwest Natural Gas Company), R10: Mckenna, Jim (Verdant Solutions, LLC)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100007298	12/18/2012	Significant Issue Comment Clarifications Regarding EPA's FS Sections 3 and 4 - 2015_10_08_FS Section 3 and 4 LWG Significant Issue Clarif.	566	18 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100007299	12/18/2012	Email regarding Revisions to Portland Harbor FS Section 1.	408	6 CORR / Correspondence	R10: Humphrey, Chip (EPA)	R10: Koch, Kristine, M. (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100008000	10/8/2015	Portland Harbor RI/FS Draft Feasibility Study Report Section 1 - 2014-06-02 Portland Harbor FS Section 1_Rev 1DEQ comments.	408	73 CORR / Correspondence	R10: (Lower Willamette Group)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100008001	10/8/2015	Email regarding Revisions to Portland Harbor FS Section 1.	24	2 CORR / Correspondence	R10: (Lower Willamette Group)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100009725	6/26/2014	Portland Harbor RI/FS Draft Feasibility Study Report Section 1 - 2014-06-02 Portland Harbor FS Section 1_Rev 1DEQ comments.	53	1 EML / Email	R10: Gainer, Tom (Oregon Dept. of Environmental Quality)	R10: Koch, Kristine, M. (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100009726	2/14/2014	Email regarding Portland Harbor FS Section 1.	398	32 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100009736	7/8/2014	Email regarding Portland Harbor FS Section 1.	44	1 EML / Email	R10: Koch, Kristine, M. (EPA)	R10: Wyatt, Bob (Northwest Natural Gas Company), R10: Mckenna, Jim (Verdant Solutions, LLC)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100010079	8/14/2014	Email regarding LWG Draft Section 1 FS Edits.	44	1 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Koch, Kristine, M. (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100010083	8/25/2014	Email regarding Portland Harbor FS Section 1.	119	2 EML / Email	R10: Koch, Kristine, M. (EPA)	R10: Wyatt, Bob (Northwest Natural Gas Company), R10: Mckenna, Jim (Verdant Solutions, LLC)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100010101	8/29/2014	Email regarding LWG Comments on Revised FS Section 1.	40	1 EML / Email	R10: Koch, Kristine, M. (EPA)	R10: Koch, Kristine, M. (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)



100010298	Email regarding Revised Additional CSM and FS Database Edits Portland Harbor FS Section 1.	130	2 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Koch, Kristine, M. (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100010336	Email regarding Portland Harbor - depositional areas/ natural recovery.	148	4 EML / Email	R10: Mckenna, James (Verdant Solutions, LLC)	R10: Cohen, Lori, G (EPA) R10: Wyatt, Bob (Northwest Natural Gas Company), R10: Mckenna, Jim (Verdant Solutions, LLC)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100010490	Email regarding Portland Harbor - Draft Final FS Section 1 and Appendix A.	46	1 EML / Email	R10: Koch, Kristine, M. (EPA)		ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100010848	Email regarding Portland Harbor - Draft Final FS Section 1 and Appendix A - LWG Comments.	112	2 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Koch, Kristine, M. (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100010854	Email regarding Portland Harbor - Draft Final FS Section 1 and Appendix A - LWG Comments.	121	3 EML / Email	R10: Koch, Kristine, M. (EPA)	R10: Woronets, Jennifer (Anchor QEA, LLC)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100010876	Email regarding LWG Comments Regarding EPA Proposed Final FS Section 1.	63	1 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Koch, Kristine, M. (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100011126	Email regarding LWG Comments on DEQ Source Control Summary Report Consistency with EPA Draft FS Section 1 - updated table.	156	3 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Koch, Kristine, M. (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100011235	EPA Response to LWG's March 25, 2015 Comments on the Portland Harbor FS Section 2 - 2015-04-10 EPA Response to LWG Comments on FS Section 2.	141	20 CORR / Correspondence	R10: Koch, Kristine, M. (EPA)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100011624	Email regarding production text. Region 10 - Portland Harbor CSTAG 11 Principles Consideration Memorandum - October 22, 2015.	103	2 EML / Email	R10: Stivers, Carl (Anchor QEA, LLC)	R10: Gustavson, Karl (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100012830	List of Significant Issues with EPA's Revised FS Sections 3 and 4 - 2015-09-08 FS Sec 3 and 4	288	22 CORR / Correspondence	R10: Koch, Kristine, M. (EPA), R10: Christopher, Anne (EPA)	R10: Ellis, Stephen, J. (EPA), R10: Fonseca, Silvina (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100012923	List of Significant Issues. Letter regarding List of significant comments on EPA Feasibility Study Section 3 and 4 - 2015-09-08 LWG Letter re Significant Issues on EPA	459	60 CORR / Correspondence	R10: Madalinski, Kelly (Port of Portland)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100012924	FS.	252	6 CORR / Correspondence	R10: Wyatt, Bob (Northwest Natural Gas Company)	R10: Koch, Kristine, M. (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100012929	MNR Graphs - Time to RAO cPAH 6W_release.	497	1 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100012930	MNR Graphs - Time to RAO DDx 7W_release.	491	1 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100012931	MNR Graphs - Time to RAO PAH 6Nav_release.	497	1 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100012932	MNR Graphs - Time to RAO PCB 9W_release.	512	1 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100013186	Email regarding Portland Harbor FS Section 2.	48	1 EML / Email	R10: Koch, Kristine, M. (EPA)	R10: Wyatt, Bob (Northwest Natural Gas Company), R10: Mckenna, Jim (Verdant Solutions, LLC)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100013288	Email regarding Portland Harbor FS Section 2.	48	1 EML / Email	R10: Koch, Kristine, M. (EPA)	R10: Wyatt, Bob (Northwest Natural Gas Company), R10: Mckenna, Jim (Verdant Solutions, LLC)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100015709	REDACTED Email regarding LWG Comments On EPA Draft FS Sections 3 and 4.	64	1 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Koch, Kristine, M. (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100015799	REDACTED Email regarding LWG Comments on EPA's FS Revised Draft Section 2.	66	1 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Koch, Kristine, M. (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100015899	REDACTED Draft Feasibility Study Key Elements Check-in - June 21 and 22, 2011.	14	2 MTG / Meeting Document	R10: Unknown, Unknown (Lower Willamette Group)		ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100015924	REDACTED Email regarding LWG Comments on EPA's FS Revised Draft Section 2.	114	2 EML / Email	R10: Koch, Kristine, M. (EPA)	R10: Woronets, Jennifer (Anchor QEA, LLC)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100015925	REDACTED Email regarding LWG Comments on EPA's FS Revised Draft Section 2.	128	4 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Koch, Kristine, M. (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100016130	REDACTED Email regarding LWG List of Significant Issues with EPA's Revised FS Sections 3 and 4.	110	1 EML / Email	R10: Koch, Kristine, M. (EPA)	R10: Koch, Kristine, M. (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100016145	REDACTED Email regarding LWG List of Significant Issues with EPA's Revised FS Sections 3 and 4.	66	1 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Koch, Kristine, M. (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100016174	REDACTED Email regarding LWG List of Significant Issues with EPA's Revised FS Sections 3 and 4.	115	2 EML / Email	R10: Mckenna, James (Verdant Solutions, LLC)	R10: Koch, Kristine, M. (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100016181	REDACTED Email regarding LWG Information Needs to Enable Review of EPA's Revised FS Sections 3 and 4.	110	1 EML / Email	R10: Koch, Kristine, M. (EPA)	R10: Koch, Kristine, M. (EPA) Genevieve (NOAA), R10: Neeley, Robert (NOAA), R10: Buck, Jeremy (U. S. Fish and Wildlife Service), R10: Madden, Erin (Unknown), R10: Mckenna, Jim (Unknown), R10: Cabral, Rita (Industrial Economics, Incorporated), R10: Huber, Audie, B. (Confederated Tribes of the Umatilla Indian Reservation), R10: Cunninghame, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Ridolfi, Callie (Ridolfi Engineers, Inc.), R10: Downey, Thomas, C. (Confederated Tribes of the Siletz Indians), R10: Wyatt, Bob (Northwest Natural Gas Company), R10: Partridge, Holly (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Karnosh, Michael (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Shelldrake, Sean, A. (EPA), R10: Fuentes, Rene, C. (EPA), R10: Blichke, Eric, L (EPA), R10: Conley, Alanna (EPA), R10: Shephard, Burt (EPA), R10: Allen, Elizabeth (EPA), R10: Moses, Gabriel (Nez Perce Tribe), R10: Liverman, Alex (Oregon Dept. of Environmental Quality), R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality), R10: McClincy, Matt (Oregon Dept. of Environmental Quality), R10: Poulsen, Mike (Oregon Dept. of Environmental Quality), R10: Gainer, Tom (Oregon Dept. of Environmental Quality), R10: Muza, Richard (EPA Region 10), R10: Fricano, Gail (Industrial Economics, Inc.), R10: Wyatt, Bob (Northwest Natural Gas Company), R10: Mckenna, Jim (Verdant Solutions, LLC)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100016838	REDACTED Email regarding Portland Harbor Project Manager's meeting notes 11/18/2014.	55	2 EML / Email	R10: Koch, Kristine, M. (EPA)		ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100017731	REDACTED Email regarding Portland Harbor Draft Final FS Section 3 and updates to Section 2.	74	2 EML / Email	R10: Koch, Kristine, M. (EPA)	R10: Koch, Kristine, M. (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)

100031251	Appendix to June 22, 2016 Request for Dispute Resolution.	232	16 CORR / Correspondence	R10: Miller, Max, M (Tonkon Torp, LLP.)	R10: Ridolfi, Callie, A (Ridolfi Engineers and Associates, Inc.), R10: Madalinski, Kelly (Port of Portland), R10: Ward, Elmer (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Downey, Thomas, C. (Confederated Tribes of the Siletz Indians), R10: Partridge, Holly (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Karnosh, Michael (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Sheldrake, Sean, A. (EPA), R10: Koch, Kristine, M. (EPA), R10: Moses, Gabriel (Nez Perce Tribe), R10: McClincy, Matt (Oregon Dept. of Environmental Quality), R10: Livesay, Dave (GSI Groundwater Solutions, Inc.), R10: Fricano, Gail (Industrial Economics, Inc.), R10: Kassakian, Jen (Industrial Economics, Inc.), R10: Delvecchio, Rachel (Industrial Economics, Inc.), R10: Humphreys, Brandy (Grand Ronde Tribe), R10: Longoria, Rose (Yakama Nation), R10: Wyatt, Robert, J (NW Natural), R10: Weis, Julie (Haglund Kelley Jones & Wilder LLP), R10: Greenfield, Sarah (Oregon Dept. of Environmental Quality), R10: Klasner Shira, Laura (Confederated Tribes and Bands of the Yakima Indian Nation), R10: Johnson, Courtney (Crag Law Center), R10: D'aquila, Kim (Confederated Tribes of the Grand Ronde Community of Oregon)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100031252	Letter regarding Request for Dispute Resolution on EPA June 2016 Feasibility Study Portland Harbor Feasibility Study (Lower Willamette River, Portland Harbor Superfund Site, USEPA Docket No: CERCLA-10-2001-0240).	1,426	29 CORR / Correspondence	R10: Miller, Max, M (Tonkon Torp, LLP.), R10: Gold, Tod, A (Salter Joyce Ziker), R10: Loutzenhiser, Doug (Legacy Site Services, LLC), R10: Wyatt, Robert, J (NW Natural), R10: Dost, Patty (Pearl Legal Group PC), R10: Winkler, Conrad (Evraz Inc.), R10: Blomgren, Nathan (Chevron Environmental Management Company)	R10: Koch, Kristine, M. (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100031255	6/22/2016 Table of Attachments.	72	1 CORR / Correspondence	R10: Riddle, Sarah (Pearl Legal Group PC)	R10: Koch, Kristine, M. (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100031259	Email regarding Request for Dispute Resolution - Portland Harbor Superfund Site.	120	1 EML / Email	R10: Dost, Patty (Pearl Legal Group PC)	R10: Cora, Lori, H. (EPA), R10: Koch, Kristine, M. (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100031265	Appendix to June 22, 2016 Request for Dispute Resolution.	232	16 CORR / Correspondence	R10: Miller, Max, M (Tonkon Torp, LLP.)	R10: Cora, Lori, H. (EPA), R10: Koch, Kristine, M. (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100031266	Letter regarding Request for Dispute Resolution on EPA June 2016 Feasibility Study Portland Harbor Feasibility Study (Lower Willamette River, Portland Harbor Superfund Site, USEPA Docket No: CERCLA-10-2001-0240).	1,426	29 CORR / Correspondence	R10: Miller, Max, M (Tonkon Torp, LLP.), R10: Gold, Tod, A (Salter Joyce Ziker), R10: Loutzenhiser, Doug (Legacy Site Services, LLC), R10: Wyatt, Robert, J (NW Natural), R10: Dost, Patty (Pearl Legal Group PC), R10: Winkler, Conrad (Evraz Inc.), R10: Blomgren, Nathan (Chevron Environmental Management Company)	R10: Koch, Kristine, M. (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100031275	6/22/2016 Table of Attachments	72	1 CORR / Correspondence	R10: Riddle, Sarah (Pearl Legal Group PC)	R10: Koch, Kristine, M. (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100031277	Email regarding Union Pacific's Dispute of the Portland Harbor Feasibility Study..	75	1 EML / Email	R10: Al-bahish, Ann (Jackson, Gilmour & Dobbs, PC)	R10: Cora, Lori, H. (EPA), R10: Koch, Kristine, M. (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100031278	Letter regarding Union Pacific's Dispute of 6/22/2016 Final Feasibility Study.	13,229	20 CORR / Correspondence	R10: Bylsma, Robert, C (Union Pacific Railroad Company)	R10: Koch, Kristine, M. (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100035129	4/20/2016 Figure X-X: Proposed Plan Flow Chart.	236	1 CHT / Chart/Table	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100035130	8/21/2015 Email Regarding Letter From Schnitzer.	65	2 EML / Email	R10: Parrett, Kevin, G. (Oregon Dept. of Environmental Quality)	R10: Zhen, Davis (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100035131	Pages From 3-30-2012 Draft FS Section 6 Figures.	1,419	8 FIG / Figure/Map/ Drawing	R10: (Lower Willamette Group), R10: (Anchor QEA, LLC)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100035137	Email Regarding Proposed Plan Process Flow Chart.	94	1 EML / Email	R10: Zhen, Davis (EPA)	R10: Grandinetti, Cami (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100035138	Email Regarding Portland Comparison to Passaic River.	107	1 EML / Email	R10: Woolford, James, E. (EPA)	R10: Legare, Amy, R. (EPA), R10: Stalcup, Dana, L. (EPA), R10: Zhen, Davis (EPA), R10: Fitz-james, Schatzi (EPA), R10: Fonseca, Silvina (EPA), R10: Mclerran, Dennis, J. (EPA Regional Administrator), R10: Bilbrey, Sheryl (Office of Environmental Cleanup EPA Region 10), R10: Mugdan, Walter (Unknown), R10: Carpenter, Angela (EPA Region 2)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100035139	6/14/2016 CPG Group Meeting Technical Update.	940	7 MTG / Meeting Document	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100035141	8/3/2016 Email Regarding HQ Engagement on Cost.	78	1 EML / Email	R10: Woolford, James, E. (EPA)	R10: Grandinetti, Cami (EPA), R10: Zhen, Davis (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100035142	8/3/2016 Email Regarding HQ Engagement on Cost.	112	2 EML / Email	R10: Woolford, James, E. (EPA)	R10: Zhen, Davis (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100035143	7/29/2016 Email Regarding One More Meeting.	102	2 EML / Email	R10: Zhen, Davis (EPA)	R10: Williams, Travis (Willamette Riverkeeper)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100035145	Email Regarding Printed Versions of the FS and Clean-up Plan.	98	2 EML / Email	R10: Zhen, Davis (EPA)	R10: Sallinger, Robert (Audobon Society of Portland)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100035146	Email Regarding Printed Versions of the FS and Clean-up Plan.	84	2 EML / Email	R10: Zhen, Davis (EPA)	R10: Sallinger, Robert (Audobon Society of Portland)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100035210	9/1/2015 Email Regarding FTP Report.	32	1 EML / Email	R10: Sheldrake, Sean, A. (EPA)	R10: Livermore, David, G (Integral Consulting, Inc.), R10: Slater, Todd (Total)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100035234	9/7/2014 Kevin Parrett Comments.	78	1 CORR / Correspondence	R10: Parrett, Kevin, G. (Oregon Dept. of Environmental Quality)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100035235	8/12/2015 Email Regarding FTP (Less Attachments).	39	1 EML / Email	R10: Sheldrake, Sean, A. (EPA)	R10: Slater, Todd (Total)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100035237	Letter Regarding Natural Recovery of Sediments Affected by PCBs in Portland Harbor.	586	9 LTR / Letter	R10: Cusma, Mathew, J (Schnitzer Steel Industries, Inc.), R10: Wolf, Frederick (Legacy Site Services, LLC), R10: Ring, J. W (BAE Systems San Diego Ship Repair Inc.), R10: Edwards, Deborah, A (ExxonMobil Oil Corporation)	R10: Woolford, James, E. (EPA), R10: Grandinetti, Carmela (Cami), L. (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)

100035663	6/22/2016	REDACTED Email regarding Request for Dispute Resolution - Portland Harbor Superfund Site.	159	2 EML / Email	R10: Mott, Jen (Anchor QEA, LLC)	R10: Cox, Kim, E (City of Portland, Oregon), R10: Ridolfi, Callie, A (Ridolfi Engineers and Associates, Inc.), R10: Madalinski, Kelly (Port of Portland), R10: Cabral, Rita (Industrial Economics, Incorporated), R10: Ward, Elmer (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Downey, Thomas, C. (Confederated Tribes of the Siletz Indians), R10: Partridge, Holly (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Karnosh, Michael (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Sheldrake, Sean, A. (EPA), R10: Koch, Kristine, M. (EPA), R10: Moses, Gabriel (Nez Perce Tribe), R10: McClincy, Matt (Oregon Dept. of Environmental Quality), R10: Livesay, Dave (GSI Groundwater Solutions, Inc.), R10: Fricano, Gail (Industrial Economics, Inc.), R10: Kassakian, Jen (Industrial Economics, Inc.), R10: Delvecchio, Rachel (Industrial Economics, Inc.), R10: Humphreys, Brandy (Grand Ronde Tribe), R10: Longoria, Rose (Yakama Nation), R10: Wyatt, Robert, J (NW Natural), R10: Weis, Julie (Haglund Kelley Jones & Wilder LLP), R10: Greenfield, Sarah (Oregon Dept. of Environmental Quality), R10: Klasner Shira, Laura (Confederated Tribes and Bands of the Yakima Indian Nation), R10: Johnson, Courtney (Crag Law Center), R10: D'acqua, Kim (Confederated Tribes of the Grand Ronde Community of Oregon)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100035687	7/29/2016	REDACTED Email Regarding Portland Harbor Community Coalition - Request for Extension on Portland Harbor Superfund Comment Period and Additional Public Hearing.	99	2 EML / Email	R10: Zhen, Davis (EPA)	R10: (Portland Harbor Community Coalition (PHCC))	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100035700	9/7/2015	REDACTED Email Regarding FTP Report from LSS/Schnitzer (Unblocked FTP) (Less Attachment).	29	3 EML / Email	R10: Parrett, Kevin, G. (Oregon Dept. of Environmental Quality)	R10: Sheldrake, Sean, A. (EPA), R10: Robinson, Deborah, G. (EPA), R10: Grandinetti, Carmela (Cami), L. (EPA), R10: Koch, Kristine, M. (EPA), R10: Legare, Amy, R. (EPA), R10: Charters, David, W (EPA), R10: Conley, Alanna (EPA), R10: Christopher, Anne (EPA), R10: Zhen, Davis (EPA), R10: Allen, Elizabeth (EPA), R10: Demaria, Eva (EPA), R10: Fonseca, Silvina (EPA), R10: Johnson, Keith (Oregon Dept. of Environmental Quality), R10: McClincy, Matt (Oregon Dept. of Environmental Quality), R10: Roick, Tom (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
500003669	3/19/2015	Letter regarding Portland Harbor Superfund Site, Administrative Order on Consent for Remedial Investigation and Feasibility Study; Docket No. CERCLA-10-2001-0240 Feasibility Study, Section 1	136	2 CORR / Correspondence	R10: Cohen, Lori, G (EPA), R10: Grandinetti, Cami (EPA)	R10: Wyatt, Bob (Lower Willamette Group)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100013388	12/16/2014	Email regarding Arkema Dispute Decision.	51	1 EML / Email	R10: Buck, Jeremy (U. S. Fish & Wildlife Service)	R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/045-Natural Resources Trustee
100016380	1/26/2015	REDACTED TCT Meeting Agenda January 28, 2015.	90	1 CORR / Correspondence	R10: Coffey, Scott (CDM Smith)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/045-Natural Resources Trustee
100016381	2/9/2015	REDACTED TCT Meeting Agenda February 11, 2015.	90	1 CORR / Correspondence	R10: Coffey, Scott (CDM Smith)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/045-Natural Resources Trustee
100016382	2/24/2015	REDACTED TCT Meeting Agenda February 25, 2015.	89	1 CORR / Correspondence	R10: Coffey, Scott (CDM Smith)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/045-Natural Resources Trustee
100016404	3/30/2015	REDACTED TCT Meeting Agenda March 25, 2015.	89	1 CORR / Correspondence	R10: Coffey, Scott (CDM Smith)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/045-Natural Resources Trustee
100016405	4/7/2015	REDACTED TCT Meeting Agenda April 8, 2015.	99	2 CORR / Correspondence	R10: Coffey, Scott (CDM Smith)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/045-Natural Resources Trustee
100016406	4/20/2015	REDACTED TCT Meeting Agenda April 22, 2015.	117	2 CORR / Correspondence	R10: Coffey, Scott (CDM Smith)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/045-Natural Resources Trustee
100016422	5/7/2015	REDACTED TCT Meeting Agenda May 13, 2015.	93	1 CORR / Correspondence	R10: Coffey, Scott (CDM Smith)	R10: Coffey, Scott (CDM Smith)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/045-Natural Resources Trustee
100016425	5/22/2015	REDACTED TCT Meeting Agenda May 27, 2015.	86	1 CORR / Correspondence	R10: Coffey, Scott (CDM Smith)		ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/045-Natural Resources Trustee
100016426	6/4/2015	REDACTED TCT Meeting Agenda June 10, 2015.	91	1 CORR / Correspondence	R10: Coffey, Scott (CDM Smith)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/045-Natural Resources Trustee
100016427	6/22/2015	REDACTED TCT Meeting Agenda June 24, 2015.	86	1 CORR / Correspondence	R10: Coffey, Scott (CDM Smith)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/045-Natural Resources Trustee
100016428	6/28/2015	REDACTED TCT Meeting Agenda July 8, 2015.	91	1 CORR / Correspondence	R10: Coffey, Scott (CDM Smith)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/045-Natural Resources Trustee
100016429	7/15/2015	REDACTED TCT Meeting Agenda July 22, 2015.	86	1 CORR / Correspondence	R10: Coffey, Scott (CDM Smith)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/045-Natural Resources Trustee
100016430	7/30/2015	REDACTED TCT Meeting Agenda August 12, 2015.	90	1 CORR / Correspondence	R10: Coffey, Scott (CDM Smith)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/045-Natural Resources Trustee
100013389	9/1/2015	Email regarding Mitigation acres/cost calculations.	16	2 EML / Email	R10: Angle, Genevieve (NOAA)	R10: Sheldrake, Sean, A (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/045-Natural Resources Trustee
100013391	9/21/2015	Email regarding Portland Harbor Streamlined Allocation Report sedimentation rate footnote.	25	1 EML / Email	R10: Fydenkevez, Jessica (Industrial Economics, Inc.)	R10: Pease, Katherine (NOAA), R10: Neely, Robert (NOAA), R10: McNulty, Michael, J (U. S. Dept. of Justice), R10: Cora, Lori, H (EPA), R10: Koch, Kristine, M (EPA), R10: Chang, Deanna (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/045-Natural Resources Trustee
100004829	7/8/2015	Portland Harbor FS Alternatives: Presentation to the TCT and DEQ.	323	7 CORR / Correspondence	R10: Koch, Kristine, M (EPA)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/045-Natural Resources Trustee
100003976	9/1/2015	Email regarding Mitigation acres/cost calculations.	102	4 EML / Email	R10: Angle, Genevieve (NOAA)	R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/045-Natural Resources Trustee
100013362	10/19/2015	Memorandum regarding Five Tribes' Comments on Portland Harbor Superfund Site - Comments to NRRB_CSTAG from 5 Tribes.	97	22 CORR / Correspondence	R10: Cabral, Rita (Industrial Economics, Incorporated), R10: Fricano, Gail (Industrial Economics, Inc.), R10: Delvecchio, Rachel (Industrial Economics, Inc.), R10: Fredette, Tom (Industrial Economics, Inc.)	R10: (EPA), R10: (National Remedy Review Board), R10: (Contaminated Sediments Technical Advisory Group)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/046-Proposed Plan
100013393	10/19/2015	Letter regarding comments to the NRRB and CSTAG for their consideration as they advise the EPA - Comments to NRRB_CSTAG from ODEQ.	2,150	19 CORR / Correspondence	R10: Pedersen, Dick (Oregon Dept. of Environmental Quality)	R10: McLerran, Dennis, J (EPA Regional Administrator)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/046-Proposed Plan
100013394	10/19/2015	Comments on the Portland Harbor To the National Remedy Review Board and Contaminated Sediment Technical Advisory Group from Portland Harbor Community Advisory Group - Comments to NRRB_CSTAG from PHCAG.	2,727	40 CORR / Correspondence	R10: Robinson, Jim	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/046-Proposed Plan

100013395	10/19/2015	Letter regarding LWG Recommended Approach to Portland Harbor Cleanup - Comments to NRRB_CSTAG from PRP Group.	996	42 CORR / Correspondence	R10: (Lower Willamette Group)	R10: Legare, Amy, R (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/046-Proposed Plan
100013396	10/19/2015	Letter regarding Comments on The Portland Harbor Cleanup ROD - Comments to NRRB_CSTAG from Yakama Nation.	8,631	32 CORR / Correspondence	R10: Ward, Paul (Confederated Tribes and Bands of the Yakima Indian Nation)	R10: Legare, Amy, R (National Remedy Review Board) R10: Wyatt, Bob (Northwest Natural Gas Company), R10: Karnosh, Michael (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Longoria, Rose (Yakama Nation), R10: Robinson, Jim, R10: Roick, Tom (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/046-Proposed Plan
100016676	10/23/2015	REDACTED Email regarding Comments to NRRB/CSTAG.	48	1 EML / Email	R10: Koch, Kristine, M (EPA)		ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/046-Proposed Plan
100020143	6/8/2016	Portland Harbor Superfund Site Proposed Plan. Acronyms, Glossary, and Contaminant	24,202	151 RPT / Report	R10: (EPA)		ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/046-Proposed Plan
100020203	6/8/2016	Summary.	772	16 EML / Email	R10: (EPA)		ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/046-Proposed Plan
100013395	10/19/2015	Letter regarding LWG Recommended Approach to Portland Harbor Cleanup - Comments to NRRB_CSTAG from PRP Group.	996	42 CORR / Correspondence	R10: (Lower Willamette Group)	R10: Legare, Amy, R. (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/046-Proposed Plan
100020144	6/8/2016	Remedial Administrative Record File Index	26	1 ARI / Administrative Record Index	R10: (EPA Region 10)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/047-Proposed Plan (General)
100020145	6/8/2016	Remedial Administrative Record File Related Documents Index.	26	1 ARI / Administrative Record Index	R10: (EPA Region 10)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/047-Proposed Plan (General)
100003525	Undated	Target Sheet: Non-Releasable Administrative Record Documents.	87	3 ARI / Administrative Record Index	R10: (EPA Region 10)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/047-Proposed Plan (General)
100020144	6/8/2016	Remedial Administrative Record File Index	1,191	1 ARI / Administrative Record Index	R10: (EPA Region 10)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/047-Proposed Plan (General)
1412910	10/19/2015	PRP comments on the National Remedy Review Board pursuant to attached NRRB guidance.	11,670	15 CORR / Correspondence	R10: (Lower Willamette Group), R10: (Atlantic Richfield Company), R10: (ExxonMobil Corporation), R10: (Shaver Transportation Company), R10: (Schnitzer Steel Industries, Inc.), R10: (BP West Coast Products, LLC.), R10: (BAE Systems San Diego Ship Repair Inc.), R10: (The Marine Group LLC), R10: (Air Liquide USA LLC)	R10: (National Remedy Review Board)	PAPER DOCUMENT	053-REMEDIAL/0531-Remedy Characterization/048-Public Comments (Remedial)
1412911	10/20/2015	The City of Portland's Position Regarding the Lower Willamette Group's Comments to the National Remedy Review Board.	2,141	1 CORR / Correspondence	R10: Jordan, Michael (City of Portland, Bureau of Environmental Services)	R10: Koch, Kristine, M (EPA)	PAPER DOCUMENT	053-REMEDIAL/0531-Remedy Characterization/048-Public Comments (Remedial)
271834	7/13/2016	Public Comments regarding Portland Harbor Proposed Plan PHC_1119_batch6.	45	1 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/048-Public Comments (Remedial)
272467	8/4/2016	Public Comments regarding Portland Harbor Proposed Plan PHC_1832_batch9.pdf	188	2 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/048-Public Comments (Remedial)
272574	6/11/2016	Public Comments regarding Portland Harbor Proposed Plan PHC_1941_Batch10.pdf	36	1 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/048-Public Comments (Remedial)
272819	8/11/2016	Public Comments regarding Portland Harbor Proposed Plan PHC_2186_Batch10.pdf	211	2 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/048-Public Comments (Remedial)
273162	8/17/2016	Public Comments regarding Portland Harbor Proposed Plan PHC_2535_Batch11.	462	2 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/048-Public Comments (Remedial)
273188	8/18/2016	Public Comments regarding Portland Harbor Proposed Plan PHC_2561_Batch11.	258	2 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/048-Public Comments (Remedial)
273192	8/19/2016	Public Comments regarding Portland Harbor Proposed Plan PHC_2565_Batch11.	233	2 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/048-Public Comments (Remedial)
273448	8/29/2016	Public Comments regarding Portland Harbor Proposed Plan PHC_2825_Batch12.	1,249	4 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/048-Public Comments (Remedial)
273504	7/20/2016	Public Comments regarding Portland Harbor Proposed Plan PHC_1068_batch7.	183	1 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/048-Public Comments (Remedial)
273505	7/20/2016	Public Comments regarding Portland Harbor Proposed Plan PHC_1069_batch7.	485	2 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/048-Public Comments (Remedial)
273506	7/20/2016	Public Comments regarding Portland Harbor Proposed Plan PHC_1070_batch7.	322	2 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/048-Public Comments (Remedial)
273574	8/26/2016	Public Comments regarding Portland Harbor Proposed Plan PHC_1210_Batch11.	382	3 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/048-Public Comments (Remedial)
273575	8/26/2016	Public Comments regarding Portland Harbor Proposed Plan PHC_1211_Batch11.	64	2 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/048-Public Comments (Remedial)
273930	8/31/2016	Public Comments regarding Portland Harbor Proposed Plan PHC_4960_Batch14.	182	2 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/048-Public Comments (Remedial)
273931	8/31/2016	Public Comments regarding Portland Harbor Proposed Plan PHC_4961_Batch14.	169	2 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/048-Public Comments (Remedial)
273963	9/8/2016	Public Comments regarding Portland Harbor Proposed Plan PHC_5003_Batch14.pdf	366	1 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/048-Public Comments (Remedial)
273965	9/8/2016	Public Comments regarding Portland Harbor Proposed Plan PHC_5005_Batch14.pdf	650	2 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/048-Public Comments (Remedial)
273967	8/31/2016	Public Comments regarding Portland Harbor Proposed Plan PHC_5007_Batch14.pdf	313	1 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/048-Public Comments (Remedial)
273971	9/1/2016	Public Comments regarding Portland Harbor Proposed Plan PHC_5011_Batch14.pdf	311	1 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/048-Public Comments (Remedial)
273974	9/6/2016	Public Comments regarding Portland Harbor Proposed Plan PHC_5014_Batch14.pdf	352	1 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/048-Public Comments (Remedial)
274094	8/31/2016	Public Comments regarding Portland Harbor Proposed Plan PHC_5134_Batch14.pdf	183	2 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/048-Public Comments (Remedial)
274194	8/31/2016	Public Comments regarding Portland Harbor Proposed Plan PHC_5234_Batch14.pdf	184	2 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/048-Public Comments (Remedial)
274276	8/31/2016	Public Comments regarding Portland Harbor Proposed Plan PHC_5316_Batch14.pdf	174	2 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/048-Public Comments (Remedial)
274530	9/1/2016	Public Comments regarding Portland Harbor Proposed Plan PHC_3101_Batch13.	399	1 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/048-Public Comments (Remedial)
274642	9/1/2016	Public Comments regarding Portland Harbor Proposed Plan PHC_3213_Batch13.	178	1 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/048-Public Comments (Remedial)
274689	9/6/2016	Public Comments regarding Portland Harbor Proposed Plan PHC_3260_Batch13.	19,004	36 CORR / Correspondence	R10: Giffen, Jr, Jack (Confederated Tribes of the Grand Ronde Community of Oregon)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/048-Public Comments (Remedial)



274691	Public Comments regarding Portland Harbor 9/6/2016 Proposed Plan PHC_3262_Batch13.	7,406	20 CORR / Correspondence	R10: Wetzsteon, Jacqueline, T (PacifiCorp), R10: (City of Portland, Oregon), R10: (Glacier Northwest, Inc.), R10: (Cargill, Incorporated), R10: (CBS Corporation), R10: (DIL Trust)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/048-Public Comments (Remedial)
274692	Public Comments regarding Portland Harbor 9/6/2016 Proposed Plan PHC_3263_Batch13.	188	6 CORR / Correspondence	R10: (Portland General Electric Company)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/048-Public Comments (Remedial)
274702	Public Comments regarding Portland Harbor 9/2/2016 Proposed Plan PHC_3273_Batch13.	308	4 CORR / Correspondence	R10: (Working Waterfront Coalition)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/048-Public Comments (Remedial)
274720	Public Comments regarding Portland Harbor 9/6/2016 Proposed Plan PHC_3291_Batch13.	2,213	10 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/048-Public Comments (Remedial)
274730	Public Comments regarding Portland Harbor 9/6/2016 Proposed Plan PHC_3301_Batch13.	22,820	69 CORR / Correspondence	R10: Frankenthal, John, A (Remediation Management Services Company), R10: (Atlantic Richfield Company), R10: (BP West Coast Products, LLC.), R10: (Remediation Management Services Company)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/048-Public Comments (Remedial)
274731	Public Comments regarding Portland Harbor 9/6/2016 Proposed Plan PHC_3302_Batch13.	2,014	33 CORR / Correspondence	R10: Van Burell, Nancy (Kinder Morgan Energy Partners, L.P.)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/048-Public Comments (Remedial)
274733	Public Comments regarding Portland Harbor 9/6/2016 Proposed Plan PHC_3304_Batch13.	98	3 CORR / Correspondence	R10: Zilbert, Todd, A (Lindsay Hart, LLP), R10: (Tidewater Barge Lines, Inc.)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/048-Public Comments (Remedial)
274734	Public Comments regarding Portland Harbor 9/6/2016 Proposed Plan PHC_3305_Batch13.	6,193	10 CORR / Correspondence	R10: Rosenthal, Michelle, U. (Veris Law Group), R10: (Brix Maritime Company)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/048-Public Comments (Remedial)
274736	Public Comments regarding Portland Harbor 9/6/2016 Proposed Plan PHC_3307_Batch13.	69	2 CORR / Correspondence	R10: Martin, Donald, L (Harley Marine Services, Inc.), R10: (Olympic Tug and Barge, Inc.)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/048-Public Comments (Remedial)
274738	Public Comments regarding Portland Harbor 9/6/2016 Proposed Plan PHC_3309_Batch13.	17,396	37 CORR / Correspondence	R10: Miles, Mary Jane (Nez Perce Tribe)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/048-Public Comments (Remedial)
274739	Public Comments regarding Portland Harbor 9/6/2016 Proposed Plan PHC_3310_Batch13.	687	2 CORR / Correspondence	R10: Gray, Brian, R (Knife River Corporation - Northwest)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/048-Public Comments (Remedial)
274741	Public Comments regarding Portland Harbor 9/6/2016 Proposed Plan PHC_3312_Batch13.	19,715	333 CORR / Correspondence	R10: Mcculloch, Megan, C (Union Carbide Corporation)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/048-Public Comments (Remedial)
274742	Public Comments regarding Portland Harbor 9/6/2016 Proposed Plan PHC_3313_Batch13.	81	1 CORR / Correspondence	R10: Holmes, Frank, E (Western States Petroleum Association)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/048-Public Comments (Remedial)
274751	Public Comments regarding Portland Harbor 9/6/2016 Proposed Plan PHC_3322_Batch13.	47,376	219 CORR / Correspondence	R10: (BAE Systems San Diego Ship Repair Inc.), R10: (The Marine Group LLC)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/048-Public Comments (Remedial)
274752	Public Comments regarding Portland Harbor 9/6/2016 Proposed Plan PHC_3323_Batch13.	1,193	2 CORR / Correspondence	R10: Peterson, Randy (City of St. Helens, Oregon), R10: Walsh, John (City of St. Helens, Oregon), R10: (City of St. Helens, Oregon)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/048-Public Comments (Remedial)
274753	Public Comments regarding Portland Harbor 9/6/2016 Proposed Plan PHC_3324_Batch13.	209	5 CORR / Correspondence	R10: Jones-mckeown, Meredith, A (Sheppard, Mullin, Richter, and Hampton.), R10: (Esco Corporation)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/048-Public Comments (Remedial)
274754	Public Comments regarding Portland Harbor 9/6/2016 Proposed Plan PHC_3325_Batch13.	2,047	4 CORR / Correspondence	R10: Sprott, Alan (Cascade General, Inc.)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/048-Public Comments (Remedial)
274757	Public Comments regarding Portland Harbor 9/6/2016 Proposed Plan PHC_3328_Batch13.	5,648	165 CORR / Correspondence	R10: Dost, Patty (Pearl Legal Group PC), R10: (TOC Holdings Company)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/048-Public Comments (Remedial)
274758	Public Comments regarding Portland Harbor 9/6/2016 Proposed Plan PHC_3329_Batch13.	449	14 CORR / Correspondence	R10: Shepherd, Peter (Oregon Dept. of Environmental Quality)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/048-Public Comments (Remedial)
274759	Public Comments regarding Portland Harbor 9/6/2016 Proposed Plan PHC_3330_Batch13.	501	5 CORR / Correspondence	R10: Kratz, Kim, W. (NOAA)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/048-Public Comments (Remedial)
274760	Public Comments regarding Portland Harbor 9/6/2016 Proposed Plan PHC_3331_Batch13.	8,944	34 CORR / Correspondence	R10: Wyatt, Robert, J (NW Natural)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/048-Public Comments (Remedial)
274761	Public Comments regarding Portland Harbor 9/6/2016 Proposed Plan PHC_3332_Batch13.	896	4 CORR / Correspondence	R10: Campagna, Carol (Shell Oil Products)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/048-Public Comments (Remedial)
274762	Public Comments regarding Portland Harbor 9/6/2016 Proposed Plan PHC_3333_Batch13.	42,413	140 CORR / Correspondence	R10: Christie, Patrick, D (Evraz Inc.)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/048-Public Comments (Remedial)
274763	Public Comments regarding Portland Harbor 9/6/2016 Proposed Plan PHC_3334_Batch13.	35,067	15 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/048-Public Comments (Remedial)
274766	Public Comments regarding Portland Harbor 9/6/2016 Proposed Plan PHC_3337_Batch13.	8,321	24 CORR / Correspondence	R10: Jacoby, Gregory, A (McGavick Graves, P.S.), R10: (Shore Terminals, LLC)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/048-Public Comments (Remedial)
274767	Public Comments regarding Portland Harbor 9/6/2016 Proposed Plan PHC_3338_Batch13.	46	10 CORR / Correspondence	R10: Allan, Richard, H. (Ball Janik, LLP), R10: (MMGL Corp)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/048-Public Comments (Remedial)
274768	Public Comments regarding Portland Harbor 9/6/2016 Proposed Plan PHC_3339_Batch13.	176	2 CORR / Correspondence	R10: Blomgren, Nathan (Chevron Environmental Management Company)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/048-Public Comments (Remedial)
274769	Public Comments regarding Portland Harbor 9/6/2016 Proposed Plan PHC_3340_Batch13.	150	6 CORR / Correspondence	R10: Freese, Mike (AOI (Associated Oregon Industries))	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/048-Public Comments (Remedial)
274770	Public Comments regarding Portland Harbor 9/6/2016 Proposed Plan PHC_3341_Batch13.	9,911	36 CORR / Correspondence	R10: Pigsley, Delores (Confederated Tribes of the Siletz Indians)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/048-Public Comments (Remedial)
274771	Public Comments regarding Portland Harbor 9/6/2016 Proposed Plan PHC_3342_Batch13.	53,270	211 CORR / Correspondence	R10: Hamilton, Jessica (Port of Portland), R10: Robinhold, Curtis (Port of Portland)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/048-Public Comments (Remedial)
274772	Public Comments regarding Portland Harbor 9/6/2016 Proposed Plan PHC_3343_Batch13.	13,668	53 CORR / Correspondence	R10: (Lockheed Martin Corporation), R10: (Atlantic Richfield Company), R10: (Port of Portland), R10: (Cascade General, Inc.), R10: (Daimler Trucks North America LLC), R10: (KSC Recovery, Inc.), R10: (BAE Systems San Diego Ship Repair Inc.), R10: (The Marine Group LLC), R10: (Exxon Mobil Corporation), R10: (CIL&D, LLC)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/048-Public Comments (Remedial)
274777	Public Comments regarding Portland Harbor 9/6/2016 Proposed Plan PHC_3348_Batch13.	83	16 CORR / Correspondence	R10: Nadeau, Steven, C (Sediment Management Work Group)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/048-Public Comments (Remedial)
274779	Public Comments regarding Portland Harbor 9/6/2016 Proposed Plan PHC_3350_Batch13.	214	10 CORR / Correspondence	R10: Rosenfeld, Warren (Calbag Metals Company)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/048-Public Comments (Remedial)
274807	Public Comments regarding Portland Harbor 9/5/2016 Proposed Plan PHC_3378_Batch13.	205	2 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/048-Public Comments (Remedial)
274823	Public Comments regarding Portland Harbor 9/6/2016 Proposed Plan PHC_3394_Batch13.	305	16 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/048-Public Comments (Remedial)
274824	Public Comments regarding Portland Harbor 9/6/2016 Proposed Plan PHC_3395_Batch13.	167	2 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/048-Public Comments (Remedial)
274825	Public Comments regarding Portland Harbor 9/6/2016 Proposed Plan PHC_3396_Batch13.	11,624	35 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/048-Public Comments (Remedial)
274828	Public Comments regarding Portland Harbor 9/6/2016 Proposed Plan PHC_3399_Batch13.	85	2 CORR / Correspondence	R10: Maines, Jr., William (Regional Tribal Operations Committee)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/048-Public Comments (Remedial)

274829	Public Comments regarding Portland Harbor Proposed Plan PHC_3400_Batch13.	1,470	48 CORR / Correspondence	R10: Goudy, Jode, L. (Yakama Nation)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/048-Public Comments (Remedial)
274830	Public Comments regarding Portland Harbor Proposed Plan PHC_3401_Batch13.	6,007	21 CORR / Correspondence	R10: Heldt-sheller, Stephanie (NW Pipe Company)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/048-Public Comments (Remedial)
274831	Public Comments regarding Portland Harbor Proposed Plan PHC_3402_Batch13.	1,648	4 CORR / Correspondence	R10: Brunoe, Robert (Confederated Tribes of the Warm Springs Reservation of Oregon)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/048-Public Comments (Remedial)
274832	Public Comments regarding Portland Harbor Proposed Plan PHC_3403_Batch13.	2,365	35 CORR / Correspondence	R10: Graham, Jen (Confederated Tribes of the Warm Springs Reservation of Oregon)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/048-Public Comments (Remedial)
274833	Public Comments regarding Portland Harbor Proposed Plan PHC_3404_Batch13.	3,005	6 CORR / Correspondence	R10: Stacy, Naomi, S (Confederated Tribes of the Umatilla Indian Reservation)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/048-Public Comments (Remedial)
274834	Public Comments regarding Portland Harbor Proposed Plan PHC_3405_Batch13.	23,688	70 CORR / Correspondence	R10: (Lower Willamette Group)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/048-Public Comments (Remedial)
274835	Public Comments regarding Portland Harbor Proposed Plan PHC_3406_Batch13.	495	8 CORR / Correspondence	R10: Hendricks, Walter "Al" (Volcano Partners)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/048-Public Comments (Remedial)
274836	Public Comments regarding Portland Harbor Proposed Plan PHC_3407_Batch13.	19,546	51 CORR / Correspondence	R10: Aguilar, Jose, L (U.S. Army Corps of Engineers)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/048-Public Comments (Remedial)
274837	Public Comments regarding Portland Harbor Proposed Plan PHC_3408_Batch13.	420	1 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/048-Public Comments (Remedial)
274838	Public Comments regarding Portland Harbor Proposed Plan PHC_3409_Batch13.	25,969	89 CORR / Correspondence	R10: Wolf, Frederick (Legacy Site Services, LLC), R10: Slater, J. Todd (Legacy Site Services, LLC)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/048-Public Comments (Remedial)
274839	Public Comments regarding Portland Harbor Proposed Plan PHC_3410_Batch13.	1,242	41 CORR / Correspondence	R10: Sallinger, Robert (Audobon Society of Portland)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/048-Public Comments (Remedial)
275288	Public Comments regarding Portland Harbor Proposed Plan PHC_3859_Batch13.	107	2 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/048-Public Comments (Remedial)
275343	Public Comments regarding Portland Harbor Proposed Plan PHC_3914_Batch13.	108	2 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/048-Public Comments (Remedial)
275386	Public Comments regarding Portland Harbor Proposed Plan PHC_3957_Batch13.	470	2 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/048-Public Comments (Remedial)
275389	Public Comments regarding Portland Harbor Proposed Plan PHC_3960_Batch13.	2,899	37 CORR / Correspondence	R10: Von Burg, Annie (City of Portland, Oregon)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/048-Public Comments (Remedial)
275391	Public Comments regarding Portland Harbor Proposed Plan PHC_3962_Batch13.	107	2 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/048-Public Comments (Remedial)
275392	Public Comments regarding Portland Harbor Proposed Plan PHC_3963_Batch13.	90	1 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/048-Public Comments (Remedial)
275411	Public Comments regarding Portland Harbor Proposed Plan PHC_3982_Batch13.	68	2 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/048-Public Comments (Remedial)
275426	Public Comments regarding Portland Harbor Proposed Plan PHC_3997_Batch13.	193	6 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/048-Public Comments (Remedial)
275917	Public Comments regarding Portland Harbor Proposed Plan PHC_4491_Batch13.	1,157	59 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/048-Public Comments (Remedial)
275924	Public Comments regarding Portland Harbor Proposed Plan PHC_4498_Batch13.	4,404	6 CORR / Correspondence	R10: Robinhold, Curtis (Port of Portland)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/048-Public Comments (Remedial)
275925	Public Comments regarding Portland Harbor Proposed Plan PHC_4499_Batch13.	3,513	5 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/048-Public Comments (Remedial)
276027	Public Comments regarding Portland Harbor Proposed Plan PHC_4611_Batch13.	154	3 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/048-Public Comments (Remedial)
276057	Public Comments regarding Portland Harbor Proposed Plan PHC_5393_Batch14.	241	3 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/048-Public Comments (Remedial)
276067	Public Comments regarding Portland Harbor Proposed Plan PHC_4970_Batch14_LATE.	336	1 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/048-Public Comments (Remedial)
276077	Public Comments regarding Portland Harbor Proposed Plan PHC_5401_Batch15.	116	4 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/048-Public Comments (Remedial)
276078	Public Comments regarding Portland Harbor Proposed Plan PHC_5402_Batch15.	2,218	8 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/048-Public Comments (Remedial)
276079	Public Comments regarding Portland Harbor Proposed Plan PHC_5403_Batch15.	5,872	19 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/048-Public Comments (Remedial)
276133	Public Comments regarding Portland Harbor Proposed Plan PHC_001_batch2.	77	1 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/048-Public Comments (Remedial)
290000	REDACTED Public Comments regarding Portland Harbor Proposed Plan PHC_480_batch5.	2,077	3 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/048-Public Comments (Remedial)
290001	REDACTED Public Comments regarding Portland Harbor Proposed Plan PHC_481_batch5.	1,201	2 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/048-Public Comments (Remedial)
290002	REDACTED Public Comments regarding Portland Harbor Proposed Plan PHC_482_batch5.	1,204	2 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/048-Public Comments (Remedial)
290003	REDACTED Public Comments regarding Portland Harbor Proposed Plan PHC_483_batch5.	1,208	2 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/048-Public Comments (Remedial)
290004	REDACTED Public Comments regarding Portland Harbor Proposed Plan PHC_484_batch5.	1,205	2 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/048-Public Comments (Remedial)
290005	REDACTED Public Comments regarding Portland Harbor Proposed Plan PHC_485_batch5.	1,202	2 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/048-Public Comments (Remedial)
290006	REDACTED Public Comments regarding Portland Harbor Proposed Plan PHC_486_batch5.	1,215	2 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/048-Public Comments (Remedial)
290007	REDACTED Public Comments regarding Portland Harbor Proposed Plan PHC_487_batch5.	1,213	2 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/048-Public Comments (Remedial)
290008	REDACTED Public Comments regarding Portland Harbor Proposed Plan PHC_488_batch5.	709	1 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/048-Public Comments (Remedial)
290009	REDACTED Public Comments regarding Portland Harbor Proposed Plan PHC_489_batch5.	774	1 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/048-Public Comments (Remedial)
290010	REDACTED Public Comments regarding Portland Harbor Proposed Plan PHC_490_batch5.	798	1 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/048-Public Comments (Remedial)
290011	REDACTED Public Comments regarding Portland Harbor Proposed Plan PHC_491_batch5.	569	1 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/048-Public Comments (Remedial)
290012	REDACTED Public Comments regarding Portland Harbor Proposed Plan PHC_492_batch5.	632	1 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/048-Public Comments (Remedial)

























































































































































































































































































































100028677	7/2/2016	REDACTED Public Comments regarding Portland Harbor Proposed Plan PHC_456_batch4.	5,135	1 CORR / Correspondence	R10: (Unknown)	R10: (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedial Characterization/048-Public Comments (Remedial)
100028687	7/5/2016	REDACTED Public Comments regarding Portland Harbor Proposed Plan PHC_455_batch4.	5,322	1 CORR / Correspondence	R10: (Unknown)	R10: (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedial Characterization/048-Public Comments (Remedial)
100028693	7/1/2016	REDACTED Public Comments regarding Portland Harbor Proposed Plan PHC_457_batch4.	9,279	2 CORR / Correspondence	R10: (Unknown)	R10: (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedial Characterization/048-Public Comments (Remedial)
100028695	7/3/2016	REDACTED Public Comments regarding Portland Harbor Proposed Plan PHC_458_batch4.	6,101	1 CORR / Correspondence	R10: (Unknown)	R10: (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedial Characterization/048-Public Comments (Remedial)
100028699	7/5/2016	REDACTED Public Comments regarding Portland Harbor Proposed Plan PHC_459_batch4.	6,414	1 CORR / Correspondence	R10: (Unknown)	R10: (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedial Characterization/048-Public Comments (Remedial)
100028701	7/1/2016	REDACTED Public Comments regarding Portland Harbor Proposed Plan PHC_460_batch4.	3,400	1 CORR / Correspondence	R10: (Unknown)	R10: (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedial Characterization/048-Public Comments (Remedial)
100028704	7/4/2016	REDACTED Public Comments regarding Portland Harbor Proposed Plan PHC_461_batch4.	6,873	2 CORR / Correspondence	R10: (Unknown)	R10: (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedial Characterization/048-Public Comments (Remedial)
100028705	7/3/2016	REDACTED Public Comments regarding Portland Harbor Proposed Plan PHC_462_batch4.	8,487	2 CORR / Correspondence	R10: (Unknown)	R10: (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedial Characterization/048-Public Comments (Remedial)
100028706	7/5/2016	REDACTED Public Comments regarding Portland Harbor Proposed Plan PHC_463_batch4.	8,552	2 CORR / Correspondence	R10: (Unknown)	R10: (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedial Characterization/048-Public Comments (Remedial)
100028716	7/4/2016	REDACTED Public Comments regarding Portland Harbor Proposed Plan PHC_464_batch4.	821	1 CORR / Correspondence	R10: (Unknown)	R10: (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedial Characterization/048-Public Comments (Remedial)
100028721	7/5/2016	REDACTED Public Comments regarding Portland Harbor Proposed Plan PHC_465_batch4.	1,194	1 CORR / Correspondence	R10: (Unknown)	R10: (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedial Characterization/048-Public Comments (Remedial)
100028722	7/5/2016	REDACTED Public Comments regarding Portland Harbor Proposed Plan PHC_466_batch4.	1,040	1 CORR / Correspondence	R10: (Unknown)	R10: (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedial Characterization/048-Public Comments (Remedial)
100028819	7/5/2016	REDACTED Public Comments regarding Portland Harbor Proposed Plan PHC_468_batch4.	1,149	1 CORR / Correspondence	R10: (Unknown)	R10: (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedial Characterization/048-Public Comments (Remedial)
100028821	6/23/2016	REDACTED Public Comments regarding Portland Harbor Proposed Plan PHC_469_batch4.	701	1 CORR / Correspondence	R10: (Unknown)	R10: (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedial Characterization/048-Public Comments (Remedial)
100028828	6/27/2016	REDACTED Public Comments regarding Portland Harbor Proposed Plan PHC_467_batch4.	663	1 CORR / Correspondence	R10: (Unknown)	R10: (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedial Characterization/048-Public Comments (Remedial)
100028842	6/23/2016	REDACTED Public Comments regarding Portland Harbor Proposed Plan PHC_470_batch4.	665	1 CORR / Correspondence	R10: (Unknown)	R10: (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedial Characterization/048-Public Comments (Remedial)
100028854	6/23/2016	REDACTED Public Comments regarding Portland Harbor Proposed Plan PHC_471_batch4.	648	1 CORR / Correspondence	R10: (Unknown)	R10: (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedial Characterization/048-Public Comments (Remedial)
100028856	6/23/2016	REDACTED Public Comments regarding Portland Harbor Proposed Plan PHC_472_batch4.	721	1 CORR / Correspondence	R10: (Unknown)	R10: (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedial Characterization/048-Public Comments (Remedial)
100028861	6/23/2016	REDACTED Public Comments regarding Portland Harbor Proposed Plan PHC_473_batch4.	645	1 CORR / Correspondence	R10: (Unknown)	R10: (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedial Characterization/048-Public Comments (Remedial)
100028864	Undated	REDACTED Public Comments regarding Portland Harbor Proposed Plan PHC_474_batch4.	652	1 CORR / Correspondence	R10: (Unknown)	R10: (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedial Characterization/048-Public Comments (Remedial)
100029202	6/24/2016	REDACTED Public Comments regarding Portland Harbor Proposed Plan PHC_475_batch4.	643	1 CORR / Correspondence	R10: (Unknown)	R10: (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedial Characterization/048-Public Comments (Remedial)
100029208	7/5/2016	REDACTED Public Comments regarding Portland Harbor Proposed Plan PHC_476_batch4.	836	1 CORR / Correspondence	R10: (Unknown)	R10: (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedial Characterization/048-Public Comments (Remedial)
100029219	6/28/2016	REDACTED Public Comments regarding Portland Harbor Proposed Plan PHC_477_batch4.	801	2 CORR / Correspondence	R10: (Unknown)	R10: (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedial Characterization/048-Public Comments (Remedial)
100029222	6/29/2016	REDACTED Public Comments regarding Portland Harbor Proposed Plan PHC_478_batch4.	1,362	2 CORR / Correspondence	R10: (Unknown)	R10: (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedial Characterization/048-Public Comments (Remedial)
100029235	6/26/2016	REDACTED Public Comments regarding Portland Harbor Proposed Plan PHC_479_batch4.	950	1 CORR / Correspondence	R10: (Unknown)	R10: (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedial Characterization/048-Public Comments (Remedial)
100036257	1/6/2017	Record of Decision and Responsiveness Summary for Portland Harbor.	47,367	2360 RPT / Report	R10: Mccarthy, Gina, A. (EPA)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedial Characterization/053-Record of Decision - ROD
100035094	8/22/2016	Staff Summary of Discussions On Framework Agreement Between EPA and Dept. of Environmental Quality (DEQ) Regarding Implementation of the Portland Harbor Superfund Cleanup Record of Decision (ROD).	310	3 MEMO / Memorandum	R10: (Unknown)		ELECTRONIC RECORD	053-REMEDIATION/0531-Remedial Characterization/053-Record of Decision - ROD (General)
100035106	8/22/2016	Agenda for the EPA Meeting in the Umatilla Room Regarding the Timely Implementation of the Record of Decision (ROD).	370	1 MTG / Meeting Document	R10: Robinson, Deborah, G. (EPA), R10: Mclerran, Dennis, J. (EPA Regional Administrator)		ELECTRONIC RECORD	053-REMEDIATION/0531-Remedial Characterization/053-Record of Decision - ROD (General)
100035107	6/21/2016	Note Concerning Portland Harbor EPA/State Directors' Monthly Meeting.	156	1 MTG / Meeting Document	R10: Ross, Bill (Ross Strategic)	R10: Woolford, James, E. (EPA), R10: Mclerran, Dennis, J. (EPA), R10: Grandinetti, Carmela (Cami), L. (EPA), R10: Mackey, Cynthia, L. (EPA), R10: Pirzadeh, Michelle, L. (EPA), R10: Stalcup, Dana, L. (EPA), R10: Parrett, Kevin, G. (Oregon Dept. of Environmental Quality), R10: Whitman, Richard, M. (Oregon State Governor's Office)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedial Characterization/053-Record of Decision - ROD (General)
100035118	6/21/2016	Agenda for the Portland Harbor EPA/State Directors' Monthly Meeting.	129	1 MTG / Meeting Document	R10: Ross, Bill (Ross Strategic)		ELECTRONIC RECORD	053-REMEDIATION/0531-Remedial Characterization/053-Record of Decision - ROD (General)
100035121	8/22/2016	Document Referring to Discussion of High Level Principles and Key Issues for Record of Decision Implementation Framework for the Portland Harbor Superfund Site.	149	4 CORR / Correspondence	R10: (Unknown)		ELECTRONIC RECORD	053-REMEDIATION/0531-Remedial Characterization/053-Record of Decision - ROD (General)
100035128	11/9/2016	Agenda for Monthly Portland Harbor EPA/Dept. of Environmental Quality (DEQ) Management Meeting.	136	1 MTG / Meeting Document	R10: (Unknown)		ELECTRONIC RECORD	053-REMEDIATION/0531-Remedial Characterization/053-Record of Decision - ROD (General)
100035285	7/27/2016	E-Mail With Agendas for Wednesday and Thursday's Portland Harbor Calls.	46	1 EML / Email	R10: Parrett, Kevin, G. (Oregon Dept. of Environmental Quality)	R10: Grandinetti, Carmela (Cami), L. (EPA), R10: Zhen, Davis (EPA), R10: Ross, Bill (Ross Strategic)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedial Characterization/053-Record of Decision - ROD (General)
100035675	6/8/2016	REDACTED Document Regarding the EPA/Dept. of Environmental Quality (DEQ) Monthly Managers' Meeting for Portland Harbor Superfund Site, Portland, Oregon.	238	1 MTG / Meeting Document	R10: Holsman, Marianne (EPA), R10: Fleming, Sheila, M. (EPA), R10: Gilles, Bruce, A. (Oregon Dept. of Environmental Quality), R10: Hammond, Joni (Oregon Dept. of Environmental Quality), R10: Parrett, Kevin, G. (Oregon Dept. of Environmental Quality), R10: Deconcini, Nina, A. (Oregon Dept. of Environmental Quality), R10: Manzano, Scott (Oregon Dept. of Environmental Quality)	R10: Grandinetti, Carmela (Cami), L. (EPA), R10: Stalcup, Dana, L. (EPA), R10: Zhen, Davis (EPA), R10: Ammon, Doug (EPA), R10: Fleming, Sheila, M. (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedial Characterization/053-Record of Decision - ROD (General)
100035676	8/10/2016	REDACTED Agenda for EPA/Dept. of Environmental Quality (DEQ) Portland Harbor Monthly Managers' Meeting.	258	1 MTG / Meeting Document	R10: (EPA)		ELECTRONIC RECORD	053-REMEDIATION/0531-Remedial Characterization/053-Record of Decision - ROD (General)

100035677	11/4/2016	REDACTED E-Mail With Agenda for the November 7th Portland Harbor Senior Leadership Meeting: Portland Harbor Record of Decision (ROD) Implementation.	79	2 EML / Email	R10: Robinson, Deborah, G. (EPA)	R10: McLerran, Dennis, J. (EPA), R10: Ross, Bill (Ross Strategic), R10: Whitman, Richard, M. (Oregon State Governor's Office)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/053-Record of Decision - ROD (General)
100035678	10/3/2016	REDACTED E-Mail With the Agenda for the Portland Harbor Senior Leadership Meeting of October 4, 2016.	69	1 MTG / Meeting Document	R10: Ross, Bill (Ross Strategic)	R10: Woolford, James, E. (EPA), R10: Robinson, Deborah, G. (EPA), R10: McLerran, Dennis, J. (EPA), R10: Grandinetti, Carmela (Cami), L. (EPA), R10: Mackey, Cynthia, L. (EPA), R10: Pirzadeh, Michelle, L. (EPA), R10: Stalcup, Dana, L. (EPA), R10: Zhen, Davis (EPA), R10: Tyler, Kendra (EPA), R10: Johnson, Keith (Oregon Dept. of Environmental Quality), R10: Parrett, Kevin, G. (Oregon Dept. of Environmental Quality), R10: Deconcini, Nina, A. (Oregon Dept. of Environmental Quality), R10: Feldon, Leah, K. (Oregon Dept. of Environmental Quality), R10: Bilbrey, Sheryl (Office of Environmental Cleanup EPA Region 10), R10: Tasnady, Julie (Oregon State Governor's Office), R10: Ogrodnik, Katherine, A. (Oregon Dept. of Environmental Quality), R10: Shepherd, Pete (Oregon Dept. of Environmental Quality), R10: Whitman, Richard, M. (Oregon State Governor's Office), R10: Tyson, Linda (EPA), R10: Tuttle, Nanc (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/053-Record of Decision - ROD (General)
100035679	10/25/2016	REDACTED Agenda for the Portland Harbor Senior Leadership Meeting.	145	1 MTG / Meeting Document	R10: Ross, Bill (Ross Strategic)		ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/053-Record of Decision - ROD (General)
100035681	9/28/2016	REDACTED E-Mail With Agenda (As Attachment) for Monthly EPA/Dept. of Environmental Quality (DEQ) Manager Meetings.	40	1 EML / Email	R10: Robinson, Deborah, G. (EPA)	R10: Grandinetti, Carmela (Cami), L. (EPA), R10: Stalcup, Dana, L. (EPA), R10: Zhen, Davis (EPA), R10: Ammon, Doug (EPA), R10: Fleming, Sheila, M. (EPA), R10: Gilles, Bruce, A. (Oregon Dept. of Environmental Quality), R10: Johnson, Keith (Oregon Dept. of Environmental Quality), R10: Parrett, Kevin, G. (Oregon Dept. of Environmental Quality), R10: Deconcini, Nina, A. (Oregon Dept. of Environmental Quality), R10: Ross, Bill (Ross Strategic)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/053-Record of Decision - ROD (General)
100035688	11/7/2016	REDACTED Agenda for Monthly Portland Harbor EPA/State Senior Leadership Call On Portland Harbor Record of Decision (ROD) Implementation.	159	1 MTG / Meeting Document	R10: (Washington State Dept. of Ecology), R10: (EPA)		ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/053-Record of Decision - ROD (General)
100036188	9/28/2016	REDACTED E-Mail for Monthly EPA/Dept. of Environmental Quality (DEQ) Manager Meetings at Seattle 13 Heron With VTC.	21	1 EML / Email	R10: Robinson, Deborah, G. (EPA)	R10: Grandinetti, Carmela (Cami), L. (EPA), R10: Stalcup, Dana, L. (EPA), R10: Zhen, Davis (EPA), R10: Ammon, Doug (EPA), R10: Fleming, Sheila, M. (EPA), R10: Gilles, Bruce, A. (Oregon Dept. of Environmental Quality), R10: Johnson, Keith (Oregon Dept. of Environmental Quality), R10: Parrett, Kevin, G. (Oregon Dept. of Environmental Quality), R10: Deconcini, Nina, A. (Oregon Dept. of Environmental Quality), R10: Ross, Bill (Ross Strategic)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/053-Record of Decision - ROD (General)
100036248	12/22/2016	Letter With State Concurrence with EPA's Record of Decision for the Portland Harbor Superfund Site.	619	3 LTR / Letter	R10: Miner, Jason (Oregon State Governor's Office), R10: Whitman, Richard (Oregon Dept. of Environmental Quality)	R10: McLerran, Dennis, J. (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/053-Record of Decision - ROD (General)
100036349	1/6/2017	Concurrence on Record of Decision.	456	16 CORR / Correspondence	R10: (EPA)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/053-Record of Decision - ROD (General)
1464370	2/8/2016	Portland Harbor Final Remedial Investigation - Main Text.	3,701	679 RPT / Report	R10: (Lower Willamette Group)		PAPER DOCUMENT	053-REMEDIAL/0531-Remedy Characterization/054-Remedial Investigation (RI)
1464371	2/8/2016	Portland Harbor Final Remedial Investigation - Figures.	37,784	572 RPT / Report	R10: (Lower Willamette Group)		PAPER DOCUMENT	053-REMEDIAL/0531-Remedy Characterization/054-Remedial Investigation (RI)
1464373	2/8/2016	Portland Harbor Final Remedial Investigation - Appendix A Data Sources and Site Characterization/Risk Assessment Database.	1,584	169 RPT / Report	R10: (Lower Willamette Group)		PAPER DOCUMENT	053-REMEDIAL/0531-Remedy Characterization/054-Remedial Investigation (RI)
1464374	2/8/2016	Portland Harbor Final Remedial Investigation - Appendix C Stormwater Statistics and Groundwater Characterization Final.	89,979	4408 RPT / Report	R10: (Lower Willamette Group)		PAPER DOCUMENT	053-REMEDIAL/0531-Remedy Characterization/054-Remedial Investigation (RI)
1464375	2/8/2016	Portland Harbor Final Remedial Investigation - Appendix D.	90,449	1 RPT / Report	R10: (Lower Willamette Group)		PAPER DOCUMENT	053-REMEDIAL/0531-Remedy Characterization/054-Remedial Investigation (RI)
1464376	2/8/2016	Portland Harbor Final Remedial Investigation - Appendix E Loading, Fate, and Transport Supporting Information and Calculations.	39,934	993 RPT / Report	R10: (Lower Willamette Group)		PAPER DOCUMENT	053-REMEDIAL/0531-Remedy Characterization/054-Remedial Investigation (RI)
1464377	2/8/2016	Portland Harbor Final Remedial Investigation - Transmittal.	49	1 RPT / Report	R10: (Lower Willamette Group)		PAPER DOCUMENT	053-REMEDIAL/0531-Remedy Characterization/054-Remedial Investigation (RI)
100017066	2/8/2016	Portland Harbor Final Remedial Investigation - Appendix A Data Sources and Site Characterization/Risk Assessment Database A5 Reports - Anchor 2005b MNR Tech Memo.	2,178	58 RPT / Report	R10: (Lower Willamette Group)		ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/054-Remedial Investigation (RI)
100017067	2/8/2016	Portland Harbor Final Remedial Investigation - Appendix A Data Sources and Site Characterization/Risk Assessment Database A5 Reports - Anchor and Integral 2008a R3A and R3B Stormwater DR.	21,061	1 RPT / Report	R10: (Lower Willamette Group)		ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/054-Remedial Investigation (RI)
100017078	2/8/2016	Portland Harbor Final Remedial Investigation - Appendix A Data Sources and Site Characterization/Risk Assessment Database A5 Reports - Anchor 2004a.	24,948	1 RPT / Report	R10: (Lower Willamette Group)		PAPER DOCUMENT	053-REMEDIAL/0531-Remedy Characterization/054-Remedial Investigation (RI)
100017091	2/8/2016	Portland Harbor Final Remedial Investigation - Appendix A Data Sources and Site Characterization/Risk Assessment Database A5 Reports - Anchor QEA 2009a.	6,712	198 RPT / Report	R10: (Lower Willamette Group)		ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/054-Remedial Investigation (RI)
100017093	2/8/2016	Portland Harbor Final Remedial Investigation - Appendix A Data Sources and Site Characterization/Risk Assessment Database A5 Reports - Anchor and Integral 2008c R3A In River Sed Trap DR.	46,745	1 RPT / Report	R10: (Lower Willamette Group)		ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/054-Remedial Investigation (RI)
100017094	2/8/2016	Portland Harbor Final Remedial Investigation - Appendix A Data Sources and Site Characterization/Risk Assessment Database A5 Reports - DEA 2003a_Summer 2002 Bathy Survey Rpt.	5,303	21 RPT / Report	R10: (Lower Willamette Group)		ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/054-Remedial Investigation (RI)
100017096	2/8/2016	Portland Harbor Final Remedial Investigation - Appendix A Data Sources and Site Characterization/Risk Assessment Database A5 Reports - DEA 2003c.	18,377	1 RPT / Report	R10: (Lower Willamette Group)		ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/054-Remedial Investigation (RI)
100017097	2/8/2016	Portland Harbor Final Remedial Investigation - Appendix A Data Sources and Site Characterization/Risk Assessment Database A5 Reports - DEA 2009.	413,033	1 RPT / Report	R10: (Lower Willamette Group)		ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/054-Remedial Investigation (RI)



100017098	2/8/2016	Portland Harbor Final Remedial Investigation - Appendix A Data Sources and Site Characterization/Risk Assessment Database A5 Reports - Integral 2004a R1 Site Characterization Summary Report.	33,473	1 RPT / Report	R10: (Lower Willamette Group)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/054-Remedial Investigation (RI)
100017099	2/8/2016	Portland Harbor Final Remedial Investigation - Appendix A Data Sources and Site Characterization/Risk Assessment Database A5 Reports - Integral 2005f GWSAP Pilot Study DR.	72,487	1 RPT / Report	R10: (Lower Willamette Group)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/054-Remedial Investigation (RI)
100017100	2/8/2016	Portland Harbor Final Remedial Investigation - Appendix A Data Sources and Site Characterization/Risk Assessment Database A5 Reports - Integral 2006c R2B Subsurface Sediment Data Report.	16,170	1 RPT / Report	R10: (Lower Willamette Group)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/054-Remedial Investigation (RI)
100017102	2/8/2016	Portland Harbor Final Remedial Investigation - Appendix A Data Sources and Site Characterization/Risk Assessment Database A5 Reports - Integral 2007d R3A Winter 07 High Flow Surface Water DR.	6,305	1 RPT / Report	R10: (Lower Willamette Group)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/054-Remedial Investigation (RI)
100017103	2/8/2016	Portland Harbor Final Remedial Investigation - Appendix A Data Sources and Site Characterization/Risk Assessment Database A5 Reports - DEA 2002a_Winter 2002 Bathing Survey.	1,093	13 RPT / Report	R10: (Lower Willamette Group)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/054-Remedial Investigation (RI)
100017104	2/8/2016	Portland Harbor Final Remedial Investigation - Appendix A Data Sources and Site Characterization/Risk Assessment Database A5 Reports - DEA 2002b.	5,784	1 RPT / Report	R10: (Lower Willamette Group)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/054-Remedial Investigation (RI)
100017106	2/8/2016	Portland Harbor Final Remedial Investigation - Appendix A Data Sources and Site Characterization/Risk Assessment Database A5 Reports - DEA 2004b.	11,459	41 RPT / Report	R10: (Lower Willamette Group)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/054-Remedial Investigation (RI)
100017112	2/8/2016	Portland Harbor Final Remedial Investigation - Appendix A Data Sources and Site Characterization/Risk Assessment Database A5 Reports - GeoSea 2001_STA Rpt.	4,402	1 RPT / Report	R10: (Lower Willamette Group)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/054-Remedial Investigation (RI)
100017117	2/8/2016	Portland Harbor Final Remedial Investigation - Appendix A Data Sources and Site Characterization/Risk Assessment Database A5 Reports - Integral 2005s R2A Sediment Site Characterization Summary Report.	418,668	1 RPT / Report	R10: (Lower Willamette Group)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/054-Remedial Investigation (RI)
100017121	2/8/2016	Portland Harbor Final Remedial Investigation - Appendix A Data Sources and Site Characterization/Risk Assessment Database A5 Reports - Integral 2006a PCB Congeners in Archived R2A Surface Sediment Data Report.	4,103	1 RPT / Report	R10: (Lower Willamette Group)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/054-Remedial Investigation (RI)
100017123	2/8/2016	Portland Harbor Final Remedial Investigation - Appendix A Data Sources and Site Characterization/Risk Assessment Database A5 Reports - Integral 2006b R2A Archived Core Sed DR.	9,165	1 RPT / Report	R10: (Lower Willamette Group)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/054-Remedial Investigation (RI)
100017128	2/8/2016	Portland Harbor Final Remedial Investigation - Appendix A Data Sources and Site Characterization/Risk Assessment Database A5 Reports - Integral 2006d R2A Surface Water Site Char Sum Rep.	26,219	1 RPT / Report	R10: (Lower Willamette Group)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/054-Remedial Investigation (RI)
100017132	2/8/2016	Portland Harbor Final Remedial Investigation - Appendix A Data Sources and Site Characterization/Risk Assessment Database A5 Reports - Integral 2006g R2 GPA TZW Site Characterization Summary Report.	231,457	1 RPT / Report	R10: (Lower Willamette Group)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/054-Remedial Investigation (RI)
100017137	2/8/2016	Portland Harbor Final Remedial Investigation - Appendix A Data Sources and Site Characterization/Risk Assessment Database A5 Reports - Integral 2006h Multiplate Tissue DR.	4,811	1 RPT / Report	R10: (Lower Willamette Group)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/054-Remedial Investigation (RI)
100017141	2/8/2016	Portland Harbor Final Remedial Investigation - Appendix A Data Sources and Site Characterization/Risk Assessment Database A5 Reports - Integral 2006i R3A Jan 06 High Flow DR.	2,839	1 RPT / Report	R10: (Lower Willamette Group)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/054-Remedial Investigation (RI)
100017146	2/8/2016	Portland Harbor Final Remedial Investigation - Appendix A Data Sources and Site Characterization/Risk Assessment Database A5 Reports - Integral 2007a R3A Low Flow Stormwater Impacted Surface Water DR.	6,531	1 RPT / Report	R10: (Lower Willamette Group)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/054-Remedial Investigation (RI)
100017150	2/8/2016	Portland Harbor Final Remedial Investigation - Appendix A Data Sources and Site Characterization/Risk Assessment Database A5 Reports - Integral 2007h R3A Up Downstream Sed DR Add 1 Radioisotope Cores.	1,505	1 RPT / Report	R10: (Lower Willamette Group)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/054-Remedial Investigation (RI)
100017156	2/8/2016	Portland Harbor Final Remedial Investigation - Appendix A Data Sources and Site Characterization/Risk Assessment Database A5 Reports - Integral 2007g R3A UpDownstream Sediment DR.	11,234	1 RPT / Report	R10: (Lower Willamette Group)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/054-Remedial Investigation (RI)
100017182	2/8/2016	Portland Harbor Final Remedial Investigation - Appendix A Data Sources and Site Characterization/Risk Assessment Database A5 Reports - Integral 2008a R2 Archived Sediment PCB Congener Analysis Data Report.	3,245	1 RPT / Report	R10: (Lower Willamette Group)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/054-Remedial Investigation (RI)
100017186	2/8/2016	Portland Harbor Final Remedial Investigation - Appendix A Data Sources and Site Characterization/Risk Assessment Database A5 Reports - Integral 2008b R3B Fish and Invert Tiss and Collocated Surface Sed DR.	13,359	1 RPT / Report	R10: (Lower Willamette Group)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/054-Remedial Investigation (RI)
100017187	2/8/2016	Portland Harbor Final Remedial Investigation - Appendix A Data Sources and Site Characterization/Risk Assessment Database A5 Reports - Integral 2008c Draft_R3B Tissue and Collocated Sediment DR Adden.	1,442	1 RPT / Report	R10: (Lower Willamette Group)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/054-Remedial Investigation (RI)
100017190	2/8/2016	Portland Harbor Final Remedial Investigation - Appendix A Data Sources and Site Characterization/Risk Assessment Database A5 Reports - Integral 2008d Willamette Cove Sed DR.	5,446	1 RPT / Report	R10: (Lower Willamette Group)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/054-Remedial Investigation (RI)
100017199	2/8/2016	Portland Harbor Final Remedial Investigation - Appendix A Data Sources and Site Characterization/Risk Assessment Database A5 Reports - Integral 2008e R3B Sediment DR.	24,631	1 RPT / Report	R10: (Lower Willamette Group)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/054-Remedial Investigation (RI)

100017245	2/8/2016	Portland Harbor Final Remedial Investigation - Appendix A Data Sources and Site Characterization/Risk Assessment Database A5 Reports - Integral and DEA 2004 Winter 2004 Multibeam Bathymetric Survey Report.	7,911	35 RPT / Report	R10: (Lower Willamette Group)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/054-Remedial Investigation (RI)
100017246	2/8/2016	Portland Harbor Final Remedial Investigation - Appendix A Data Sources and Site Characterization/Risk Assessment Database A5 Reports - Integral and Windward 2006a Chinook DR.	2,372	1 RPT / Report	R10: (Lower Willamette Group)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/054-Remedial Investigation (RI)
100017247	2/8/2016	Portland Harbor Final Remedial Investigation - Appendix A Data Sources and Site Characterization/Risk Assessment Database A5 Reports - Integral and Windward 2006b R2 Benthic Data Report.	10,434	1 RPT / Report	R10: (Lower Willamette Group)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/054-Remedial Investigation (RI)
100017248	2/8/2016	Portland Harbor Final Remedial Investigation - Appendix A Data Sources and Site Characterization/Risk Assessment Database A5 Reports - SEA 2002b_SPI Survey.	28,239	299 RPT / Report	R10: (Lower Willamette Group)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/054-Remedial Investigation (RI)
100017249	2/8/2016	Portland Harbor Final Remedial Investigation - Appendix A Data Sources and Site Characterization/Risk Assessment Database A5 Reports - SEA and DEA 2003.	98,963	74 RPT / Report	R10: (Lower Willamette Group)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/054-Remedial Investigation (RI)
100017253	2/8/2016	Portland Harbor Final Remedial Investigation - Appendix A Data Sources and Site Characterization/Risk Assessment Database A5 Reports - Integral 2009 Sed Mobility DR.	13,299	1 RPT / Report	R10: (Lower Willamette Group)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/054-Remedial Investigation (RI)
100017256	2/8/2016	Portland Harbor Final Remedial Investigation - Appendix A Data Sources and Site Characterization/Risk Assessment Database A5 Reports - Integral and Windward 2007a R3 Lamprey Tissue DR.	2,694	1 RPT / Report	R10: (Lower Willamette Group)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/054-Remedial Investigation (RI)
100017264	2/8/2016	Portland Harbor Final Remedial Investigation - Appendix A Data Sources and Site Characterization/Risk Assessment Database A5 Reports - Windward 2003a Aquatic Plant and Amphibian Recon Survey.	5,340	129 RPT / Report	R10: (Lower Willamette Group)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/054-Remedial Investigation (RI)
100017265	2/8/2016	Portland Harbor Final Remedial Investigation - Appendix A Data Sources and Site Characterization/Risk Assessment Database A5 Reports - Windward 2005a R2A Sediment Toxicity DR.	75,680	1 RPT / Report	R10: (Lower Willamette Group)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/054-Remedial Investigation (RI)
100017275	2/8/2016	Portland Harbor Final Remedial Investigation - Appendix A Data Sources and Site Characterization/Risk Assessment Database A5 Reports - Windward and Integral 2008 R3 Sturgeon Tissue DR.	2,944	1 RPT / Report	R10: (Lower Willamette Group)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/054-Remedial Investigation (RI)
100017290	2/8/2016	Portland Harbor Final Remedial Investigation - Appendix A Data Sources and Site Characterization/Risk Assessment Database A5 Reports - Windward and Integral 2007b Mussel and Lamprey Tissue DR.	2,380	216 RPT / Report	R10: (Lower Willamette Group)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/054-Remedial Investigation (RI)
100017294	2/8/2016	Portland Harbor Final Remedial Investigation - Appendix B DEQ September 2010 Milestone Report Table 1 Final.	379	27 RPT / Report	R10: (Lower Willamette Group)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/054-Remedial Investigation (RI)
100017312	2/8/2016	Portland Harbor Final Remedial Investigation - Appendix F Baseline Human Health Risk Assessment Final.	59,269	3206 RPT / Report	R10: (Lower Willamette Group)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/054-Remedial Investigation (RI)
100017318	2/8/2016	Portland Harbor Final Remedial Investigation - Appendix I.	26	1 RPT / Report	R10: (Lower Willamette Group)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/054-Remedial Investigation (RI)
100017323	2/8/2016	Portland Harbor Final Remedial Investigation - Appendix G Final BERA.	48,293	1 RPT / Report	R10: (Lower Willamette Group)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/054-Remedial Investigation (RI)
100017325	2/8/2016	Portland Harbor Final Remedial Investigation - Appendix H Background Supporting Information.	4,080	1 RPT / Report	R10: (Lower Willamette Group)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/054-Remedial Investigation (RI)
100017351	2/8/2016	Portland Harbor Final Remedial Investigation - Maps Section 3.1.	56,756	33 RPT / Report	R10: (Lower Willamette Group)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/054-Remedial Investigation (RI)
100017354	2/8/2016	Portland Harbor Final Remedial Investigation - Maps Sections 1 and 2.	32,427	111 RPT / Report	R10: (Lower Willamette Group)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/054-Remedial Investigation (RI)
100017358	2/8/2016	Portland Harbor Final Remedial Investigation - Maps Sections 5.0 and 5.2.	42,369	336 RPT / Report	R10: (Lower Willamette Group)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/054-Remedial Investigation (RI)
100017361	2/8/2016	Portland Harbor Final Remedial Investigation - Maps Sections 5.5 and 5.6.	18,910	81 RPT / Report	R10: (Lower Willamette Group)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/054-Remedial Investigation (RI)
100017363	2/8/2016	Portland Harbor Final Remedial Investigation - Maps Section 3.2.	47,053	68 RPT / Report	R10: (Lower Willamette Group)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/054-Remedial Investigation (RI)
100017366	2/8/2016	Portland Harbor Final Remedial Investigation - Maps Section 4.	12,733	27 RPT / Report	R10: (Lower Willamette Group)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/054-Remedial Investigation (RI)
100017368	2/8/2016	Portland Harbor Final Remedial Investigation - Maps Sections 5.0 and 5.2.	3,326	4 RPT / Report	R10: (Lower Willamette Group)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/054-Remedial Investigation (RI)
100017373	2/8/2016	Portland Harbor Final Remedial Investigation - Maps Section 10.	71,186	39 RPT / Report	R10: (Lower Willamette Group)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/054-Remedial Investigation (RI)
100018293	2/8/2016	REDACTED Portland Harbor Final Remedial Investigation - Tables.	10,485	567 RPT / Report	R10: (Lower Willamette Group)	PAPER DOCUMENT	053-REMEDIAL/0531-Remedy Characterization/054-Remedial Investigation (RI)
100018303	2/8/2016	REDACTED Portland Harbor Final Remedial Investigation - Appendix A Data Sources and Site Characterization/Risk Assessment Database A5 Reports - Windward 2007a R3 Lamprey Phase 1 Tox Testing Report.	6,038	188 RPT / Report	R10: (Lower Willamette Group)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/054-Remedial Investigation (RI)
100018305	2/8/2016	REDACTED Portland Harbor Final Remedial Investigation - Appendix A Data Sources and Site Characterization/Risk Assessment Database A5 Reports - Windward 2008a R3 Lamprey Phase 2 Tox Testing DR.	18,327	1 RPT / Report	R10: (Lower Willamette Group)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/054-Remedial Investigation (RI)
100018306	2/8/2016	REDACTED Portland Harbor Final Remedial Investigation - Appendix A Data Sources and Site Characterization/Risk Assessment Database A5 Reports - Windward 2008b R3B Bioassay DR.	22,094	1 RPT / Report	R10: (Lower Willamette Group)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/054-Remedial Investigation (RI)
100010615	4/1/2002	Preliminary Flowcharts for CSM (Conceptual Site Module) for Human Health Risk Assessment.	43	2 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100010616	9/8/2003	Letter Stating Tribal Concerns Regarding the Portland Harbor RI/FS (Remedial Investigation/Feasibility Study) Process.	311	11 LTR / Letter	R10: (Confederated Tribes of the Umatilla Indian Reservation), R10: (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: (Confederated Tribes of the Grand Ronde Community of Oregon), R10: (Nez Perce Tribe), R10: (Confederated Tribes of Siletz Indians), R10: (The Yakima Nation)	R10: Saltzman, Dan (City of Portland, Oregon), R10: Katz, Vera (City of Portland, Oregon), R10: Wyatt, Bill (Port of Portland)	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)

100011179	2/4/2004	Final Attachment 1: EPA Ingestion Rates. Letter Regarding Revised Draft Final Programmatic Work Plan With EPA Review	21	2	CORR / Correspondence	R10: (EPA)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100010617	2/11/2004	Comments. Letter Regarding EPA Conditional Approval of RI/FS (Remedial Investigation/Feasibility Study) Programmatic Work Plan (Some Parts Illegible; With Handwritten Notes).	1,072	38	LTR / Letter	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	R10: Wyatt, Bob (Lower Willamette Group), R10: Mckenna, Jim (Lower Willamette Group)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100010618	3/15/2004	Letter Regarding EPA Conditional Approval of RI/FS (Remedial Investigation/Feasibility Study) Programmatic Work Plan (Some Parts Illegible; With Handwritten Notes).	631	20	LTR / Letter	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	R10: Wyatt, Bob (Lower Willamette Group), R10: Mckenna, Jim (Lower Willamette Group)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
4940682066	10/20/2005	Email regarding reply to Oct 24-25 Eco Team agenda & assignments.	21	1	EML / Email	R10: Neely, Robert (NOAA)	R10: Omealy, Mikell (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100010611	12/2/2005	Letter Regarding Portland Harbor RI/FS (Remedial Investigation/Feasibility Study) Identification of Round 3 Data Gaps.	19	3	LTR / Letter	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	R10: Wyatt, Bob (Lower Willamette Group), R10: Mckenna, Jim (Verdant Solutions, LLC)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100010612	12/2/2005	Portland Harbor RI/FS (Remedial Investigation/Feasibility Study) Identification of Round 3 Data Gaps and Tables and Figures - 2005_12_02 email attachment; EPARound3DataGaps12-02-05.	139	39	CORR / Correspondence	R10: (EPA)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100013788	12/7/2005	Email Regarding December 13th Meeting.	25	2	EML / Email	R10: Mckenna, Jim (Port of Portland)	R10: Oster, Valerie (Anchor Environmental, LLC), R10: Blischke, Eric, L (EPA) R10: Mckenna, Jim (Port of Portland), R10: Wyatt, Bob (Northwest Natural Gas Company), R10: Blischke, Eric, L (EPA), R10: Applegate, Rick (City of Portland)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100013853	12/12/2005	Email Regarding Tuesday's Meeting. Figure/ map / drawing regarding Portland Harbor Round 2 Data Review: Surface Sediment: Total PAH (PPB).	23	2	EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Blischke, Eric, L (EPA), R10: Applegate, Rick (City of Portland)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
4940682076	1/11/2006	Letter regarding NOAA's comments on the Draft Ecological Preliminary Risk Evaluation for the Portland Harbor Superfund Site.	883	1	FIG / Figure/Map/ Drawing	R10: Shorr, Benjamin (NOAA)		ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
4940682068	1/31/2006	Letter regarding NOAA's comments on the Draft Ecological Preliminary Risk Evaluation for the Portland Harbor Superfund Site.	64	3	LTR / Letter	R10: Neely, Robert (NOAA)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100011316	2/24/2006	Email Regarding Portland Harbor meetings.	49	1	EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Mckenna, Jim (Port of Portland), R10: Oster, Valerie (Anchor Environmental, LLC), R10: Wyatt, Bob (Northwest Natural Gas Company), R10: Pine, Keith, A (Integral Consulting, Inc.), R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality), R10: McClincy, Matt (Oregon Dept. of Environmental Quality), R10: Lewis, Mark, D (NewFields), R10: Livesay, Dave (GSI Groundwater Solutions, Inc.), R10: Lee, Jean, H (Environment International, Ltd.), R10: Lee, Valerie (Environment International, Ltd.), R10: Applegate, Rick (City of Portland)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100012739	2/24/2006	Email Regarding Portland Harbor meetings.	49	1	EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Mckenna, Jim (Port of Portland), R10: Oster, Valerie (Anchor Environmental, LLC), R10: Wyatt, Bob (Northwest Natural Gas Company), R10: Pine, Keith, A (Integral Consulting, Inc.), R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality), R10: McClincy, Matt (Oregon Dept. of Environmental Quality), R10: Lewis, Mark, D (NewFields), R10: Livesay, Dave (GSI Groundwater Solutions, Inc.), R10: Lee, Jean, H (Environment International, Ltd.), R10: Longoria, Rose (Yakama Nation), R10: Applegate, Rick (City of Portland)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100017494	3/2/2006	REDACTED Email Regarding reminder of PH Managers call today.	41	1	EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Mckenna, Jim (Port of Portland), R10: Wyatt, Bob (Northwest Natural Gas Company), R10: Pine, Keith, A (Integral Consulting, Inc.), R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality), R10: McClincy, Matt (Oregon Dept. of Environmental Quality), R10: Lee, Jean, H (Environment International, Ltd.), R10: Lee, Valerie (Environment International, Ltd.), R10: Longoria, Rose (Yakama Nation), R10: Applegate, Rick (City of Portland)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100012033	3/9/2006	Email Regarding Rick's list and Portland harbor meeting dates.	25	1	EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Mckenna, Jim (Port of Portland), R10: Wyatt, Bob (Northwest Natural Gas Company), R10: Pine, Keith, A (Integral Consulting, Inc.), R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality), R10: McClincy, Matt (Oregon Dept. of Environmental Quality), R10: Lee, Jean, H (Environment International, Ltd.), R10: Lee, Valerie (Environment International, Ltd.), R10: Longoria, Rose (Yakama Nation), R10: Gouguet, Ron (NOAA), R10: Applegate, Rick (City of Portland)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100009778	3/15/2006	PROPOSED ECOLOGICAL RISK ASSESSMENT DECISION FRAMEWORK.	736	29	RPT / Report	R10: (Lower Willamette Group)		ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100011268	3/15/2006	PORTLAND HARBOR SUPERFUND SITE: PROPOSED ECOLOGICAL RISK ASSESSMENT DECISION FRAMEWORK.	683	29	RPT / Report	R10: Unknown, Unknown (Windward Environmental, LLC.)		ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100009777	3/16/2006	Email Regarding Ecological Risk Assessment Framework.	27	2	EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Neely, Robert (NOAA), R10: Buerger, Ted (U. S. Fish and Wildlife Service), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Cunninghame, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA), R10: Davoli, Dana (EPA), R10: Madden, Erin (Nez Perce Tribe), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality), R10: McClincy, Matt (Oregon Dept. of Environmental Quality), R10: Lee, Valerie (Environment International, Ltd.), R10: Baker, Jeff (Grand Ronde Tribe), R10: Longoria, Rose (Yakama Nation), R10: How, P (CRITFC), R10: D, Tom (CTS), R10: Kepler, Rick, J (State of Oregon)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)

100011111	Email Regarding Ecological Risk Assessment Framework.	27	2 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Neely, Robert (NOAA), R10: Buerger, Ted (U. S. Fish and Wildlife Service), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Cunningham, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA), R10: Davoli, Dana (EPA), R10: Madden, Erin (Nez Perce Tribe), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality), R10: McClincy, Matt (Oregon Dept. of Environmental Quality), R10: Lee, Jean, H (Environment International, Ltd.), R10: Lee, Valerie (Environment International, Ltd.), R10: Baker, Jeff (Grand Ronde Tribe), R10: Longoria, Rose (Yakama Nation), R10: How, P (CRITFC), R10: D. Tom (CTS), R10: Kepler, Rick, J (State of Oregon)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100015754	REDACTED Email Regarding meeting to discuss ecorisk framework.	43	1 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Mckenna, Jim (Port of Portland), R10: Wyatt, Bob (Northwest Natural Gas Company), R10: Pine, Keith, A (Integral Consulting, Inc.), R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality), R10: McClincy, Matt (Oregon Dept. of Environmental Quality), R10: Lewis, Mark, D (NewFields), R10: Livesay, Dave (GSI Groundwater Solutions, Inc.), R10: Lee, Jean, H (Environment International, Ltd.), R10: Lee, Valerie (Environment International, Ltd.), R10: Longoria, Rose (Yakama Nation), R10: Applegate, Rick (City of Portland)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100016587	REDACTED Email Regarding meeting to discuss ecorisk framework.	43	1 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Mckenna, Jim (Port of Portland), R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA), R10: McClincy, Matt (Oregon Dept. of Environmental Quality), R10: Lewis, Mark, D (NewFields), R10: Livesay, Dave (GSI Groundwater Solutions, Inc.), R10: Lee, Jean, H (Environment International, Ltd.), R10: Lee, Valerie (Environment International, Ltd.), R10: Longoria, Rose (Yakama Nation), R10: Wyatt, Robert, J (NW Natural), R10: Pine, Keith (Anchor Environmental, LLC), R10: Applegate, Rick (City of Portland), R10: Anderson, Jim (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100008921	Email regarding Management Goal and Objectives for Portland Harbor.	19	1 EML / Email	R10: Blischke, Eric, L (EPA)	R10: Mckenna, Jim (Port of Portland), R10: Wyatt, Robert, J (NW Natural), R10: Applegate, Rick (City of Portland)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100016007	REDACTED Portland Harbor Managers' Meeting: Eco Framework - March 20, 2006.	29	1 MTG / Meeting Document	R10: (Lower Willamette Group)		ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100016015	REDACTED Email Regarding meeting to discuss ecorisk framework.	48	2 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Neely, Robert (NOAA), R10: Mckenna, Jim (Port of Portland), R10: Oster, Valerie (Anchor Environmental, LLC), R10: Pierce, Shannon (Windward Environmental, LLC.), R10: Wyatt, Bob (Northwest Natural Gas Company), R10: Pine, Keith, A (Integral Consulting, Inc.), R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality), R10: McClincy, Matt (Oregon Dept. of Environmental Quality), R10: Lewis, Mark, D (NewFields), R10: Livesay, Dave (GSI Groundwater Solutions, Inc.), R10: Lee, Jean, H (Environment International, Ltd.), R10: Lee, Valerie (Environment International, Ltd.), R10: Longoria, Rose (Yakama Nation), R10: Applegate, Rick (City of Portland), R10: Pastorok, Robert (Integral Corporation)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100016299	REDACTED Email Regarding meeting to discuss ecorisk framework.	48	2 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Neely, Robert (NOAA), R10: Mckenna, James (Port of Portland), R10: Oster, Valerie (Anchor Environmental, LLC), R10: Pierce, Shannon (Windward Environmental, LLC.), R10: Wyatt, Bob (Northwest Natural Gas Company), R10: Pine, Keith, A (Integral Consulting, Inc.), R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality), R10: McClincy, Matt (Oregon Dept. of Environmental Quality), R10: Lewis, Mark, D (NewFields), R10: Livesay, Dave (GSI Groundwater Solutions, Inc.), R10: Lee, Jean, H (Environment International, Ltd.), R10: Lee, Valerie (Environment International, Ltd.), R10: Longoria, Rose (Yakama Nation), R10: Applegate, Rick (City of Portland), R10: Pastorok, Robert (Integral Corporation)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100016300	REDACTED Portland Harbor Managers' Meeting - Eco Framework - March 20, 2006.	29	1 MTG / Meeting Document	R10: (Lower Willamette Group)		ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100017736	REDACTED Email Regarding meeting to discuss ecorisk framework.	30	2 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Mckenna, Jim (Port of Portland), R10: Oster, Valerie (Anchor Environmental, LLC), R10: Wyatt, Bob (Northwest Natural Gas Company), R10: Pine, Keith, A (Integral Consulting, Inc.), R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality), R10: McClincy, Matt (Oregon Dept. of Environmental Quality), R10: Lewis, Mark, D (NewFields), R10: Livesay, Dave (GSI Groundwater Solutions, Inc.), R10: Lee, Valerie (Environment International, Ltd.), R10: Longoria, Rose (Yakama Nation), R10: Applegate, Rick (City of Portland), R10: Pastorok, Robert (Integral Corporation)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
4940681079	3/20/2006 Email regarding Portland PRE.	18	1 EML / Email	R10: Neely, Robert (NOAA)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
4940682067	Email regarding NOAA comments on Portland Harbor PRE.	18	1 EML / Email	R10: Neely, Robert (NOAA)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100012270	3/21/2006 Email Regarding upcoming Ecorisk meeting.	22	1 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality), R10: McClincy, Matt (Oregon Dept. of Environmental Quality), R10: Lee, Jean, H (Environment International, Ltd.)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100013869	3/21/2006 Email Regarding upcoming Ecorisk meeting.	22	1 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)

100011952	3/22/2006	Email Regarding upcoming Ecorisk meeting.	28	2 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality), R10: McClincy, Matt (Oregon Dept. of Environmental Quality), R10: Lee, Jean, H (Environment International, Ltd.), R10: Applegate, Rick (City of Portland)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100013854	3/22/2006	Email Regarding upcoming Ecorisk meeting.	28	2 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA), R10: McClincy, Matt (Oregon Dept. of Environmental Quality), R10: Lee, Jean, H (Environment International, Ltd.), R10: Applegate, Rick (City of Portland), R10: Anderson, Jim (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100013855	3/22/2006	Email Regarding upcoming Ecorisk meeting.	25	1 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality), R10: McClincy, Matt (Oregon Dept. of Environmental Quality), R10: Lee, Jean, H (Environment International, Ltd.)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100012023	3/27/2006	Email Regarding upcoming Ecorisk meeting.	29	3 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Lee, Jean, H (Environment International, Ltd.)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100013831	3/31/2006	Email Regarding Planning for April 11 ERA Framework meeting.	22	1 EML / Email	R10: Mckenna, Jim (Port of Portland)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA), R10: Omealy, Mikell (Oregon Dept. of Environmental Quality), R10: Applegate, Rick (City of Portland)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
4940682069	4/3/2006	Draft Meeting Document regarding Meeting summary of Eco-Human Health Subgroup meeting - Risk Assessment Scale and other issues.	57	4 MTG / Meeting Document	R10: Omealy, Mikell (Oregon Dept. of Environmental Quality)		ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100013782	4/5/2006	Email Regarding Bathymetry Data -- May I release it to USGS?	22	1 EML / Email	R10: Mckenna, James (Port of Portland)	R10: Hillman, Helen, E (NOAA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
4940682070	4/5/2006	Email regarding reply to Summary of Monday's meeting - review by 1:00 on Wednesday.	26	2 EML / Email	R10: Neely, Robert (NOAA)	R10: Omealy, Mikell (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
4940681096	4/6/2006	Email regarding reply to ERA Decision Framework and Meeting Agenda.	24	1 EML / Email	R10: Neely, Robert (NOAA)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100008812	4/7/2006	Agenda for April 11, 2006 Meeting and ERA Framework Issue Summary.	17	1 EML / Email	R10: Blischke, Eric, L (EPA)	R10: Mckenna, Jim (Port of Portland), R10: Wyatt, Robert, J (NW Natural), R10: Applegate, Rick (City of Portland)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100008823	4/7/2006	Summary of Ecological Risk Assessment Decision Framework Issues.	77	3 RPT / Report	R10: Unknown, Unknown (Unknown)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100013775	4/7/2006	Email Regarding Agenda for April 11, 2006 Meeting and ERA Framework Issue Summary.	23	2 EML / Email	R10: Wyatt, Bob (Northwest Natural Gas Company)	R10: Mckenna, Jim (Port of Portland), R10: Blischke, Eric, L (EPA), R10: Omealy, Mikell (Oregon Dept. of Environmental Quality), R10: Applegate, Rick (City of Portland)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100016916	4/10/2006	REDACTED Email Regarding Agenda for April 11, 2006 Meeting and ERA Framework Issue Summary.	27	3 EML / Email	R10: Wyatt, Bob (Northwest Natural Gas Company)	R10: Mckenna, Jim (Port of Portland), R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA), R10: Omealy, Mikell (Oregon Dept. of Environmental Quality), R10: Gardner, Sara (Oregon Dept. of Environmental Quality), R10: Applegate, Rick (City of Portland)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100014747	4/11/2006	REDACTED Ecological Risk Assessment Decision Framework Meeting Agenda.	48	1 MTG / Meeting Document	R10: Unknown, Unknown (Unknown)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
4940681097	4/12/2006	Email regarding reply to Evidence weighting for Calcasieu.	21	1 EML / Email	R10: Gouguet, Ron (NOAA)	R10: Gensemer, Robert, W (Parametrix, Inc.)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100011270	4/20/2006	NOAA Request for direct funding from PRPs for Portland Harbor Superfund Site, US EPA Region 10, Docket No. CERCLA-10-2001-0240.	271	2 LTR / Letter	R10: Wyatt, Bob (Lower Willamette Group), R10: Mckenna, Jim (Lower Willamette Group)	R10: Charters, David, W (EPA), R10: Humphrey, Chip (EPA), R10: Fritz, Alyce, T. (NOAA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100011269	4/24/2006	Email Regarding Direct Funding of NOAA.	18	1 EML / Email	R10: Mckenna, Jim (Port of Portland)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100011278	4/27/2006	Summary of Oregon Health Linnton Notes.	43	4 NOTE / Notes	R10: (Oregon Department of Health Services)		ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100013862	5/28/2006	Email Regarding schwabe.	20	1 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100012544	6/8/2006	Email Regarding June 12 meeting location.	49	1 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Mckenna, Jim (Port of Portland), R10: Cunninghame, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality), R10: McClincy, Matt (Oregon Dept. of Environmental Quality), R10: Longoria, Rose (Yakama Nation), R10: Wyatt, Robert, J (NW Natural), R10: Pine, Keith (Anchor Environmental, LLC), R10: Applegate, Rick (City of Portland), R10: Marsh, John (Parametrix, Inc.)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100011398	6/9/2006	Email Regarding progress reports on modeling and human health.	55	1 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Mckenna, Jim (Port of Portland), R10: Cunninghame, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Walton, Raymond (West Consultants, Inc.), R10: Stivers, Carl (Anchor Environmental, LLC), R10: Toll, John (Windward Environmental, LLC.), R10: Saban, Lisa (Windward Environmental, LLC.), R10: Pine, Keith, A (Integral Consulting, Inc.), R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA), R10: Davoli, Dana (EPA), R10: Hope, Bruce, K (Oregon Dept. of Environmental Quality), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality), R10: McClincy, Matt (Oregon Dept. of Environmental Quality), R10: Lee, Jean, H (Environment International, Ltd.), R10: Lee, Valerie (Environment International, Ltd.), R10: Longoria, Rose (Yakama Nation), R10: Wyatt, Robert, J (NW Natural), R10: Revelas, Gene (Integral Corporation), R10: Applegate, Rick (City of Portland), R10: Marsh, John (Parametrix, Inc.), R10: Fuji, Taku (Kennedy Jenks Consultants)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)



100011531	Email Regarding progress reports on modeling 6/9/2006 and human health.	49	2 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Mckenna, Jim (Port of Portland), R10: Cunninghame, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Walton, Raymond (West Consultants, Inc.), R10: Stivers, Carl (Anchor Environmental, LLC), R10: Oster, Valerie (Anchor Environmental, LLC), R10: Kennedy, Laura (Kennedy/Jenks Consultants), R10: Toll, John (Windward Environmental, LLC.), R10: Saban, Lisa (Windward Environmental, LLC.), R10: Wyatt, Bob (Northwest Natural Gas Company), R10: Pine, Keith, A (Integral Consulting, Inc.), R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA), R10: Davoli, Dana (EPA), R10: Hope, Bruce, K (Oregon Dept. of Environmental Quality), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality), R10: McClincy, Matt (Oregon Dept. of Environmental Quality), R10: Lee, Jean, H (Environment International, Ltd.), R10: Lee, Valerie (Environment International, Ltd.), R10: Longoria, Rose (Yakama Nation), R10: Revelas, Gene (Integral Corporation), R10: Applegate, Rick (City of Portland), R10: Marsh, John (Parametrix, Inc.), R10: Fuji, Taku (Kennedy Jenks Consultants)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100011532	HH Subgroup Progress Report (via email to Managers on June 6).	48	4 RPT / Report	R10: (Lower Willamette Group)		ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100012753	Email Regarding progress reports on modeling 6/9/2006 and human health.	54	1 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Mckenna, Jim (Port of Portland), R10: Cunninghame, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Walton, Raymond (West Consultants, Inc.), R10: Kennedy, Laura (Kennedy/Jenks Consultants), R10: Toll, John (Windward Environmental, LLC.), R10: Saban, Lisa (Windward Environmental, LLC.), R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA), R10: Davoli, Dana (EPA), R10: Hope, Bruce, K (Oregon Dept. of Environmental Quality), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality), R10: McClincy, Matt (Oregon Dept. of Environmental Quality), R10: Lee, Jean, H (Environment International, Ltd.), R10: Lee, Valerie (Environment International, Ltd.), R10: Stivers, Carl (Anchor QEA, LLC), R10: Longoria, Rose (Yakama Nation), R10: Wyatt, Robert, J (NW Natural), R10: Revelas, Gene (Integral Corporation), R10: Pine, Keith (Anchor Environmental, LLC), R10: Applegate, Rick (City of Portland), R10: Marsh, John (Parametrix, Inc.), R10: Fuji, Taku (Kennedy Jenks Consultants)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100012857	Email Regarding progress reports on modeling 6/9/2006 and human health.	47	2 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Hope, Bruce (CH2M Hill, Inc.), R10: Mckenna, Jim (Port of Portland), R10: Cunninghame, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Walton, Raymond (West Consultants, Inc.), R10: Stivers, Carl (Anchor Environmental, LLC), R10: Oster, Valerie (Anchor Environmental, LLC), R10: Kennedy, Laura (Kennedy/Jenks Consultants), R10: Toll, John (Windward Environmental, LLC.), R10: Saban, Lisa (Windward Environmental, LLC.), R10: Wyatt, Bob (Northwest Natural Gas Company), R10: Pine, Keith, A (Integral Consulting, Inc.), R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA), R10: Davoli, Dana (EPA), R10: Hope, Bruce, K (Oregon Dept. of Environmental Quality), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality), R10: McClincy, Matt (Oregon Dept. of Environmental Quality), R10: Lee, Jean, H (Environment International, Ltd.), R10: Lee, Valerie (Environment International, Ltd.), R10: Longoria, Rose (Yakama Nation), R10: Revelas, Gene (Integral Corporation), R10: Applegate, Rick (City of Portland), R10: Marsh, John (Parametrix, Inc.), R10: Fuji, Taku (Kennedy Jenks Consultants)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100012858	HH Subgroup Progress Report (via email to Managers on June 6) - Progress Report on 6/9/2006 Human Health, Fate and Transport.	48	4 RPT / Report	R10: (Lower Willamette Group)		ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100011422	6/12/2006 Email Regarding ERA status report.	34	1 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Mckenna, Jim (Port of Portland), R10: Wyatt, Bob (Northwest Natural Gas Company), R10: Blischke, Eric, L (EPA), R10: Applegate, Rick (City of Portland)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100013802	6/12/2006 Email Regarding ERA status report.	34	1 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Mckenna, Jim (Port of Portland), R10: Wyatt, Bob (Northwest Natural Gas Company), R10: Blischke, Eric, L (EPA), R10: Applegate, Rick (City of Portland)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100012547	6/22/2006 Email Regarding LWG-EPA meeting tomorrow.	47	1 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Mckenna, Jim (Port of Portland), R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality), R10: McClincy, Matt (Oregon Dept. of Environmental Quality), R10: Lee, Valerie (Environment International, Ltd.), R10: Longoria, Rose (Yakama Nation), R10: Wyatt, Robert, J (NW Natural), R10: Pine, Keith (Anchor Environmental, LLC), R10: Applegate, Rick (City of Portland), R10: Marsh, John (Parametrix, Inc.)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100011950	10/11/2006 Email Regarding TZW framework for ECO.	22	1 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Oster, Valerie (Anchor Environmental, LLC), R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA), R10: Locke, Bill (Integral Corporation)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100011951	TZW Evaluation Framework for Ecological Receptors.	18	1 FIG / Figure/Map/ Drawing	R10: (Lower Willamette Group)		ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100012268	Email Regarding TZW framework for Human Health.	19	1 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA), R10: Locke, Bill (Integral Corporation)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100012269	Draft TZW Evaluation Framework for Human Health.	35	1 FIG / Figure/Map/ Drawing	R10: (Lower Willamette Group)		ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100012888	10/11/2006 Email Regarding TZW framework for ECO.	20	1 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Oster, Valerie (Anchor Environmental, LLC), R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA), R10: Locke, Bill (Integral Corporation)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100012889	TZW Evaluation Framework for Ecological Receptors.	18	1 FIG / Figure/Map/ Drawing	R10: (Lower Willamette Group)		ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)

100012890	Email Regarding TZW framework for Human Health.	18	1 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA), R10: Locke, Bill (Integral Corporation)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100012891	10/11/2006 TZW Evaluation Framework for Human Health.	35	1 FIG / Figure/Map/ Drawing	R10: (Lower Willamette Group)	Koehl, Krista (Port of Portland), R10: Anderson, Nicole (Port of Portland), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Cunninghame, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Oster, Valerie (Anchor Environmental, LLC), R10: Toll, John (Windward Environmental, LLC.), R10: Johns, Mike (Windward Environmental, LLC.), R10: Snyder, Joan, P (Stoel Rives, LLP), R10: Wyatt, Bob (Northwest Natural Gas Company), R10: Pine, Keith, A (Integral Consulting, Inc.), R10: Baker, Jeff (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Kelly, Stephen (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA), R10: Madden, Erin (Nez Perce Tribe), R10: Barquin, Billy (Haglund, Kelley, Horngren, Jones & Wilder, LLP), R10: Hope, Bruce, K (Oregon Dept. of Environmental Quality), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality), R10: Johnson, Keith (Oregon Dept. of Environmental Quality), R10: Lewis, Mark, D (NewFields), R10: Koulermos, Andrew, C (NewFields, Inc), R10: Livesay, Dave (GSI Groundwater Solutions, Inc.), R10: Lee, Valerie (Environment International, Ltd.), R10: Deetz Silva, Debbie (Evrax Oregon Steel Portland), R10: Longoria, Rose (Yakama Nation), R10: Applegate, Rick (City of Portland)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100014805	REDACTED Email Regarding Draft agenda for 10/25/2006 10/26 meeting on stormwater.	47	1 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)		ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100014806	REDACTED DEQ/EPA/LWG Meeting on Stormwater in Portland Harbor - October 26, 2006.	37	2 MTG / Meeting Document	R10: Oster, Valerie (Anchor Environmental, LLC)		ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100011036	Email Regarding LWG Letter on Extension of Dispute Resolution Period.	41	1 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Cora, Lori, H (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100011037	Letter Regarding Site 108T, Portland Harbor RI/FS.	146	1 LTR / Letter	R10: Wyatt, Bob (Lower Willamette Group), R10: Mckenna, Jim (Lower Willamette Group)	R10: Cora, Lori, H (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100011272	Site 108T, Portland Harbor RI/FS - EPA Bill No. 200626S242.	300	1 LTR / Letter	R10: Mckenna, Jim (Port of Portland), R10: Wyatt, Robert, J (NW Natural)	R10: Cora, Lori, H (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
4940682071	Report regarding NOAA Input to CEQ Report on Cooperative Conservation.	82	3 RPT / Report	R10: Gouguet, Ron (NOAA)		ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100011275	Email Regarding Extending Dispute Resolution Deadline for EPA regarding interest charge.	42	1 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Cora, Lori, H (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100011276	Site 108T, Portland Harbor RI/FS - EPA Bill No. 200626S242.	42	1 LTR / Letter	R10: Mckenna, Jim (Port of Portland), R10: Wyatt, Robert, J (NW Natural)	R10: Cora, Lori, H (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100012512	Email Regarding Call to discuss LWG disputed oversight costs.	47	1 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Mckenna, Jim (Port of Portland), R10: Snyder, Joan, P (Stoel Rives, LLP), R10: Yamamoto, Deborah, J (EPA), R10: Humphrey, Chip (EPA), R10: Feige, Hans, P (Feige & Associates, Inc.), R10: Wyatt, Robert, J (NW Natural), R10: Applegate, Rick (City of Portland), R10: Elaine, Albrich (Stoel Rives, LLP)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100012514	Email Regarding Contact info for LWG treasurer.	47	1 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Cora, Lori, H (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100016906	REDACTED Email Regarding Call to discuss LWG disputed oversight costs.	21	1 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Cora, Lori, H (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100017321	REDACTED Email regarding reply to Revised Risk Screening Table.	24	3 EML / Email	R10: Shorr, Benjamin (NOAA)	R10: Field, Jay (NOAA), R10: Blischke, Eric, L (EPA), R10: Gensemer, Robert, W (Parametrix, Inc.)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
4940682074	Email regarding reply to Value of collecting and analyzing individual tissues from sturgeons.	20	1 EML / Email	R10: Gouguet, Ron (NOAA)	R10: Thompson, Chris (Environment International, Ltd.)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
4940682075	1/17/2007 Chart/table of Eco-Risk Sediment distribution.	267	10 CHT / Chart/Table	R10: (NOAA)		ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
4940682078	Chart/table of Surface Sediment Summarized by River Mile Segments.	118	6 CHT / Chart/Table	R10: (Unknown)		ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100017352	REDACTED Email regarding reply to Water Data analyses..Where I'm at.	26	2 EML / Email	R10: Shorr, Benjamin (NOAA)	R10: Spence, Margaret (Parametrix, Inc.)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100010619	Letter Regarding RI/FS (Remedial Investigation/Feasibility Study) Round 3A Field Sampling Plan, Stormwater Sampling and Portland Harbor RI/FS Round 2 Quality Assurance Project Plan, Addendum 8: Round 3A Stormwater Sampling.	264	2 LTR / Letter	R10: Koch, Kristine, M (EPA)	R10: Wyatt, Bob (Lower Willamette Group), R10: Mckenna, Jim (Lower Willamette Group)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100010620	Letter Enclosure: Attachment A, Comments on Stormwater FSP (Field Sampline Plan) - 2007 02 15 Stormwater FSP approval letter Feb 07- Attachment A.	9	2 CORR / Correspondence	R10: (EPA)	R10: (Lower Willamette Group)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100012516	Email Regarding Environmental Law Conference.	24	1 EML / Email	R10: Mckenna, Jim (Port of Portland)	R10: Madden, Erin (Nez Perce Tribe)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100010622	The Daily News Longview, WA Article: PCBs in Freshwater Clams Prompt Health Warnings (With Highlighted Text).	52	2 CORR / Correspondence	R10: Laboe, Barbara (The Daily News Longview, WA)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100011279	Summary of the Linnton Community Center fish consumption survey and health education activities for the Portland Harbor Superfund Site.	98	1 MEMO / Memorandum	R10: Toepel, Kathryn (Oregon Dept. of Human Services)	R10: Davoli, Dana (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100011277	6/15/2007 Email Regarding Linnton survey.	18	1 EML / Email	R10: Mckenna, Jim (Port of Portland)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100016832	REDACTED Email regarding Proposed direction for City of Portland Outfalls RI with DEQ.	242	1 EML / Email	R10: Johnson, Keith (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100014471	10/11/2007 PH_missing_sums_101107	33	1 EML / Email	R10: Field, Jay (NOAA)		ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100014474	10/12/2007 PH_AllData_PR5_101207	438	41 CHT / Chart/Table	R10: Field, Jay (NOAA)		ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
4940681082	10/19/2007 Email regarding CLD (Cargyl and Dreyfus).	21	1 EML / Email	R10: Neely, Robert (NOAA)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100013824	Email Regarding Milestone meeting - recommend postponing til January or Feb.	20	1 EML / Email	R10: Mckenna, Jim (Port of Portland)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)

100013823	Email Regarding Milestone meeting - recommend postponing til January or Feb.	19	1 EML / Email	R10: Mckenna, Jim (Port of Portland)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100016918	REDACTED Email Regarding Agenda Item for Project Managers Mtg.	24	1 EML / Email	R10: Mckenna, James (Port of Portland)	R10: Oster, Valerie (Anchor Environmental, LLC), R10: Longoria, Rose (Yakama Nation)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100016921	REDACTED Email Regarding Agenda Item for Project Managers Mtg.	24	1 EML / Email	R10: Mckenna, Jim (Port of Portland)	R10: Oster, Valerie (Anchor Environmental, LLC), R10: Longoria, Rose (Yakama Nation)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100010621	Letter Regarding RI/FS (Remedial Investigation/Feasibility Study) DRAFT Round 3A Field Sampling Plan Addendum, Stormwater Sampling.	23	2 LTR / Letter	R10: Koch, Kristine, M (EPA)	R10: Wyatt, Bob (Lower Willamette Group), R10: Mckenna, Jim (Lower Willamette Group)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100012551	Email Regarding Milestone Meeting.	19	1 EML / Email	R10: Mckenna, Jim (Port of Portland)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100013832	Email Regarding Portland Harbor - Postponing Nov 15th Milestone Meeting.	27	1 EML / Email	R10: Mckenna, Jim (Port of Portland)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100013833	Email Regarding Portland Harbor - Postponing Nov 15th Milestone Meeting.	28	1 EML / Email	R10: Mckenna, Jim (Port of Portland)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100008918	Email regarding Key Issues for PH Draft RI and BRA.	19	2 EML / Email	R10: Blischke, Eric, L (EPA)	R10: Mckenna, Jim (Port of Portland), R10: Wyatt, Robert, J (NW Natural), R10: Applegate, Rick (City of Portland)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100011281	Letter from LWG to EPA in Regards to Regional Sediment Evaluation Team (RSET) Quality Assurance/Quality Control (QA/QC) Information.	84	1 LTR / Letter	R10: Mckenna, Jim (Port of Portland), R10: Wyatt, Robert, J (NW Natural)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100011280	Email Regarding LWG request on RSET data.	51	1 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100011282	Email Regarding EPA/Trustee documents and distribution.	55	1 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Cunninghame, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Bluelake, Lisa (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Barquin, Billy (LeRoy Wilder, P.C.), R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality), R10: McClincy, Matt (Oregon Dept. of Environmental Quality), R10: Longoria, Rose (Yakama Nation)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100015919	REDACTED Copy of LWG Distribution List - Public Agencies and Tribal Representatives.	73	4 CHT / Chart/Table	R10: Unknown, Unknown (Lower Willamette Group)		ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100012879	Key Issues for Portland Harbor RI, BRA, and FS (2007-12-04_PH RIFS Issues List.xls).	76	1 CHT / Chart/Table	R10: (Lower Willamette Group)		ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100013801	Email Regarding EPA/Trustee documents and distribution.	30	2 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Cunninghame, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Oster, Valerie (Anchor Environmental, LLC), R10: Barquin, Billy (Confederated Tribes of the Siletz Indians), R10: Bluelake, Lisa (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA), R10: Madden, Erin (Nez Perce Tribe), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality), R10: McClincy, Matt (Oregon Dept. of Environmental Quality), R10: Longoria, Rose (Yakama Nation)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100012878	Email Regarding Table of Key Issues and Priorities.	17	1 EML / Email	R10: Mckenna, James (Port of Portland)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100013800	Email Regarding EPA/Trustee documents and distribution.	24	2 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100013816	Email Regarding March backup dates for Milestone Meeting.	29	1 EML / Email	R10: Mckenna, Jim (Port of Portland)	R10: Neely, Robert (NOAA), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Cunninghame, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Pisano, Jessica, A (Anchor Environmental, LLC), R10: Oster, Valerie (Anchor Environmental, LLC), R10: Wyatt, Bob (Northwest Natural Gas Company), R10: Bluelake, Lisa (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Karnosh, Michael (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA), R10: Madden, Erin (Nez Perce Tribe), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality), R10: McClincy, Matt (Oregon Dept. of Environmental Quality), R10: Longoria, Rose (Yakama Nation), R10: Hawley, Christine (Integral Corporation), R10: Revelas, Gene (Integral Corporation), R10: Applegate, Rick (City of Portland), R10: Barquin, Billy (Haglund Kelley, LLP)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100010842	Email Regarding ODFW (Oregon Dept. of Fish and Wildlife) Exchanges on Corbicula and Crayfish (With Highlighted Text).	50	3 EML / Email	R10: Davoli, Dana (EPA)	R10: Davoli, Dana (EPA), R10: Hunter, Matthew (Oregon State Department of Fish and Wildlife), R10: Smith, Dawn (Oregon Dept. of Agriculture), R10: Smith, Dawn (Oregon State Department of Fish and Wildlife)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100013866	Email Regarding timing of Milestone meeting?.	56	1 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100013851	Email Regarding timing of Milestone meeting?.	24	2 EML / Email	R10: Mckenna, Jim (Port of Portland)	R10: Oster, Valerie (Anchor Environmental, LLC), R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100013850	Email Regarding timing of Milestone meeting?.	27	2 EML / Email	R10: Mckenna, Jim (Port of Portland)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100010613	Letter Regarding Comprehensive Round 2 Site Characterization and Data Gaps Analysis Report With Comments.	51	6 LTR / Letter	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	R10: Wyatt, Bob (Lower Willamette Group), R10: Mckenna, Jim (Verdant Solutions, LLC)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100010614	EPA Comments on Comprehensive Round 2 Site Summary and Data Gaps Analysis Report - 2008_01_15	346	57 CORR / Correspondence	R10: (EPA)	R10: (Lower Willamette Group)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100007664	Email regarding Re_Trust Agreement Funding Approval.	22	1 EML / Email	R10: Humphrey, Chip (EPA)	R10: Mckenna, Jim (Port of Portland), R10: Wyatt, Robert, J (NW Natural)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)



100007665	Letter regarding Trust Agreement Approval 1/16/2008 Letter 11608.	26	1 LTR / Letter	R10: Humphrey, Chip (EPA)	R10: Mckenna, Jim (Port of Portland), R10: Wyatt, Robert, J (NW Natural)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100013852	Email Regarding Trust Agreement Funding 1/16/2008 Approval.	22	1 EML / Email	R10: Mckenna, Jim (Port of Portland)	R10: Wyatt, Bob (Northwest Natural Gas Company), R10: Humphrey, Chip (EPA) R10: Arden, Pam (Kenton Neighborhood Association), R10: Desmond, Jim (Metro-Portland), R10: Morgan, Jim (Metro-Portland), R10: Quinn, Barbara (Portland Harbor Community Advisory Group), R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA), R10: Thiessen, Kenneth (Oregon Dept. of Environmental Quality), R10: Royce, Francie (npGREENWAY), R10: Sofich, Kathryn (Metro), R10: Devroy, Larry (Port of Portland), R10: Cassin, Mary Anne (Metro-Portland), R10: Grumm, Matt (City of Portland), R10: Huie, Mel (Metro-Portland), R10: Geller, Roger (Unknown), R10: Marzano, Scott (State of Oregon), R10: Kotek, Rep (State of Oregon), R10: Bertelsen, April (Unknown), R10: Sperry, Arianne (City of Portland), R10: Astrid, Dragoy (City of Portland), R10: Schneider, Curt (npGREENWAY), R10: David, Mcallister (City of Portland), R10: Denver, Igarta (City of Portland, Oregon, Office of Transportation), R10: Gardner, Emily (Unknown), R10: Theisen, Gregory (Port of Portland), R10: Everhart, Gregg (City of Portland), R10: Anderson, Lenny (npGREENWAY), R10: Maresh, Paul (npGREENWAY), R10: Burkholder, Rex (Metro-Portland), R10: Miller, Tom (City of Portland), R10: Buono, Shannon (City of Portland), R10: Openheim, Shoshannah (City of Portland), R10: Donaldson, Sue (City of Portland)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100012755	Email Regarding 1/18 Greenway Meeting 1/31/2008 Notes and Scheduling for the Next Meeting.	52	2 EML / Email	R10: Mckenna, Jim (Port of Portland)	R10: Oster, Valerie (Anchor Environmental, LLC), R10: Wyatt, Bob (Northwest Natural Gas Company), R10: Humphrey, Chip (EPA), R10: Dost, Patty (Schwabe, Williamson & Wyatt, P.C.)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100013813	Email Regarding LWG request for extension of 2/1/2008 SLERA comments.	26	2 EML / Email	R10: Mckenna, Jim (Port of Portland)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100012506	Email Regarding 2/6 PH Managers Tech 2/5/2008 session.	25	1 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Neely, Robert (NOAA), R10: Ashton, David (Port of Portland), R10: Mckenna, Jim (Port of Portland), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Cunninghame, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Pisano, Jessica, A (Anchor Environmental, LLC), R10: Oster, Valerie (Anchor Environmental, LLC), R10: Kennedy, Laura (Kennedy/Jenks Consultants), R10: Toll, John (Windward Environmental, LLC.), R10: Bluelake, Lisa (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Karnosh, Michael (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA), R10: Madden, Erin (Nez Perce Tribe), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality), R10: McClincy, Matt (Oregon Dept. of Environmental Quality), R10: Longoria, Rose (Yakama Nation), R10: Wyatt, Robert, J (NW Natural), R10: Hawley, Christine (Integral Corporation), R10: Revelas, Gene (Integral Corporation), R10: Williams, Jd (Unknown), R10: Dost, Patty (Schwabe, Williamson & Wyatt, P.C.), R10: Betz, Jan (City of Portland, Oregon), R10: Applegate, Rick (City of Portland), R10: Barquin, Billy (Haglund Kelley, LLP), R10: Wolff, G.	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100017956	REDACTED Email Regarding Thursday PH 2/6/2008 Managers meeting.	24	1 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Applegate, Richard (City of Portland, Oregon), R10: Mckenna, Jim (Port of Portland), R10: Oster, Valerie (Anchor Environmental, LLC), R10: Wyatt, Robert, J (NW Natural)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100007668	2/7/2008 Email regarding CDs of RI_FS documents.	19	1 EML / Email	R10: Humphrey, Chip (EPA)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100012529	Email Regarding Fate and Transport Jan. 30 2/7/2008 2008 Meeting Notes.	49	3 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Mckenna, Jim (Port of Portland), R10: Oster, Valerie (Anchor Environmental, LLC), R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality), R10: Applegate, Rick (City of Portland)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100013857	Email Regarding Wednesday Afternoon 2/12/2008 Management Meeting.	23	2 EML / Email	R10: Wyatt, Robert, J (NW Natural)	R10: Mckenna, Jim (Port of Portland), R10: Blischke, Eric, L (EPA), R10: Applegate, Rick (City of Portland)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100013835	Email Regarding Problem Formulation for the 2/15/2008 Ecological Risk Assessment.	21	1 EML / Email	R10: Wyatt, Bob (Northwest Natural Gas Company)	R10: Blischke, Eric, L (EPA), R10: Applegate, Rick (City of Portland)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100012515	2/19/2008 Email Regarding CSM Figure 1.	51	1 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100013787	2/20/2008 Email Regarding CSM Figure 1.	21	1 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100017969	REDACTED Email Regarding today's PH mgr 2/28/2008 meeting - location.	21	1 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Oster, Valerie (Anchor Environmental, LLC), R10: McClincy, Matt (Oregon Dept. of Environmental Quality), R10: Revelas, Gene (Integral Corporation)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100011287	3/4/2008 Memorandum Regarding Pacific Lamprey.	227	6 MEMO / Memorandum	R10: (Lower Willamette Group Executive Committee)	R10: (Lower Willamette Group Legal Committee)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100013867	Email Regarding today's meeting location - 3/12/2008 Schwabe.	20	1 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100008990	Email Regarding 3/19 Portland harbor Tech - RI 3/18/2008 Data presentation.	56	1 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Mckenna, Jim (Port of Portland), R10: Wyatt, Bob (Northwest Natural Gas Company), R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA), R10: Revelas, Gene (Integral Corporation), R10: Pine, Keith (Anchor Environmental, LLC), R10: Applegate, Rick (City of Portland)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100011285	PRELIMINARY PORTLAND HARBOR REMEDIAL 3/18/2008 INVESTIGATION OUTLINE.	47	3 LST / List/Index	R10: Unknown, Unknown (Lower Willamette Group)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA), R10: Pine, Keith (Anchor Environmental, LLC)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100012507	Email Regarding 3/19 Portland harbor Tech - RI 3/18/2008 Data presentation.	56	1 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100009174	Email Regarding draft RI Table of Contents for 3/19/2008 today's discussion.	18	1 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Oster, Valerie (Anchor Environmental, LLC), R10: McClincy, Matt (Oregon Dept. of Environmental Quality), R10: Revelas, Gene (Integral Corporation), R10: Pine, Keith (Anchor Environmental, LLC), R10: Applegate, Rick (City of Portland)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100009296	PRELIMINARY PORTLAND HARBOR REMEDIAL 3/19/2008 INVESTIGATION OUTLINE - FOR DISCUSSION PURPOSES ONLY, PRELIMINARY DRAFT.	48	3 LST / List/Index	R10: Oster, Valerie (Anchor Environmental, LLC)		ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)

100009776	3/19/2008 PH Project Schedule/Roadblocks.	41	2 LST / List/Index	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)		ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100011284	Email Regarding draft RI Table of Contents for 3/19/2008 today's discussion.	18	1 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100011286	3/19/2008 Email Regarding LWG Memo on Lamprey.	18	1 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100011289	3/19/2008 PH Project Schedule/Roadblocks.	40	2 MTG / Meeting Document	R10: Unknown, Unknown (Lower Willamette Group)		ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100009775	Email Regarding draft RI Table of Contents for 3/20/2008 today's discussion.	22	1 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Neely, Robert (NOAA), R10: Mckenna, Jim (Port of Portland), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Cunninghame, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Peers, Jennifer (Stratus Consulting, Inc.), R10: Wyatt, Bob (Northwest Natural Gas Company), R10: Bluelake, Lisa (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Karnosh, Michael (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA), R10: Madden, Erin (Nez Perce Tribe), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality), R10: McClincy, Matt (Oregon Dept. of Environmental Quality), R10: Longoria, Rose (Yakama Nation), R10: Hawley, Christine (Integral Corporation), R10: Revelas, Gene (Integral Corporation), R10: Pine, Keith (Anchor Environmental, LLC), R10: Williams, Jd (Unknown), R10: Applegate, Rick (City of Portland), R10: Barquin, Billy (Haglund Kelley, LLP)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100011288	Email Regarding draft RI Table of Contents for 3/20/2008 today's discussion.	22	1 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Neely, Robert (NOAA), R10: Mckenna, Jim (Port of Portland), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Cunninghame, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Peers, Jennifer (Stratus Consulting, Inc.), R10: Bluelake, Lisa (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Karnosh, Michael (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA), R10: Madden, Erin (Nez Perce Tribe), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality), R10: McClincy, Matt (Oregon Dept. of Environmental Quality), R10: Longoria, Rose (Yakama Nation), R10: Wyatt, Robert, J (NW Natural), R10: Hawley, Christine (Integral Corporation), R10: Revelas, Gene (Integral Corporation), R10: Pine, Keith (Anchor Environmental, LLC), R10: Williams, Jd (Unknown), R10: Applegate, Rick (City of Portland), R10: Barquin, Billy (Haglund Kelley, LLP)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100011291	Status of Issues from March 12, 2008 EPA-DEQ-LWG Background Approach Technical Meeting.	24	2 MTG / Meeting Document	R10: Unknown, Unknown (Lower Willamette Group)		ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100009761	Email Regarding DRAFT Agenda for April 2 Meeting.	81	2 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100011514	Email Regarding DRAFT Agenda for April 2 Meeting.	25	2 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100012524	Email Regarding DRAFT Agenda for April 2 Meeting.	81	2 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100016204	REDACTED Email Regarding DRAFT Agenda for 4/1/2008 April 2 Meeting.	75	3 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Oster, Valerie (Anchor Environmental, LLC), R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100016908	REDACTED Email Regarding DRAFT Agenda for 4/1/2008 April 2 Meeting.	75	3 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Oster, Valerie (Anchor Environmental, LLC), R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100011290	Email Regarding Background issues from 3/12 4/2/2008 meeting.	18	1 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100016499	4/2/2008 REDACTED Email Regarding Thursday meeting.	20	1 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Ashton, David (Port of Portland), R10: Mckenna, Jim (Port of Portland), R10: Oster, Valerie (Anchor Environmental, LLC), R10: Betz, Jan, L (City of Portland, Oregon, Office of Attorney), R10: Wyatt, Bob (Northwest Natural Gas Company), R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality), R10: Livesay, Dave (GSI Groundwater Solutions, Inc.), R10: Parrett, Kevin (GSI Groundwater Solutions, Inc.), R10: Pine, Keith (Anchor Environmental, LLC), R10: Dost, Patty (Schwabe, Williamson & Wyatt, P.C.), R10: Applegate, Rick (City of Portland), R10: Wolf, Fred, G. (Pacific Lutheran University)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100017953	4/2/2008 REDACTED Email Regarding Thursday meeting.	21	1 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Ashton, David (Port of Portland), R10: Mckenna, Jim (Port of Portland), R10: Oster, Valerie (Anchor Environmental, LLC), R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality), R10: Livesay, Dave (GSI Groundwater Solutions, Inc.), R10: Parrett, Kevin (GSI Groundwater Solutions, Inc.), R10: Wyatt, Robert, J (NW Natural), R10: Pine, Keith (Anchor Environmental, LLC), R10: Dost, Patty (Schwabe, Williamson & Wyatt, P.C.), R10: Betz, Jan (City of Portland, Oregon), R10: Applegate, Rick (City of Portland), R10: Wolf, G.	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100012860	Letter Regarding Request for Underlying Backup Regarding EPA Bill No. 27008265149 and Notice re Future Potential Invocation of Dispute Resolution regarding Charges.	38	2 LTR / Letter	R10: Wyatt, Bob (Lower Willamette Group), R10: Mckenna, Jim (Lower Willamette Group)	R10: Cora, Lori, H (EPA), R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA), R10: Poetter, Joe (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100012859	Email Regarding Request for Backup for EPA 4/8/2008 Invoice 27008265149.	17	1 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Cora, Lori, H (EPA), R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA), R10: Poetter, Joe (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)

100015838	REDACTED Email Regarding PH Mgrs Meeting 4/9/2008 tomorrow (4/10).	20	1 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100016081	REDACTED Email Regarding PH Mgrs Meeting 4/9/2008 tomorrow (4/10).	20	1 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100016082	REDACTED Email Regarding PH Mgrs Meeting 4/9/2008 tomorrow (4/10).	85	1 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA), R10: Dost, Patty (Pearl Legal Group PC), R10: Pine, Keith (Anchor Environmental, LLC), R10: Williams, Jd	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100011293	Lower Willamette River, Portland Harbor Superfund Site USEPA Docket No: CERCLA-10-4/16/2008 2001-0240 Portland Harbor.	60	2 LTR / Letter	R10: Mckenna, Jim (Port of Portland), R10: Wyatt, Robert, J (NW Natural)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100012892	4/16/2008 Email Regarding TZW Risk Frameworks.	18	1 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Fleming, Sheila (Ridolfi Engineers and Associates, Inc.), R10: Ebbets, Allison (Stratus Consulting, Inc.), R10: Yamamoto, Deborah, J (EPA), R10: Koch, Kristine, M (EPA), R10: Shephard, Burt (EPA), R10: Davoli, Dana (EPA), R10: Lewis, Mark, D (NewFields)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100012893	4/16/2008 TZW Evaluation Framework for BERA.	18	1 FIG / Figure/Map/ Drawing	R10: (Lower Willamette Group)		ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100012894	4/16/2008 TZW Evaluation Framework for HH.	29	3 FIG / Figure/Map/ Drawing	R10: (Lower Willamette Group)		ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100016455	REDACTED Email Regarding 4/17 Managers meeting.	19	1 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Mckenna, Jim (Port of Portland), R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality), R10: Wyatt, Robert, J (NW Natural), R10: Pine, Keith (Anchor Environmental, LLC), R10: Applegate, Rick (City of Portland)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100011292	Email Regarding Letter from LWG on lamprey literature review.	22	1 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100012267	Email Regarding today's meeting and 4/23/2008 Thursday.	20	1 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100009968	4/24/2008 Table of Draft Resolutions of RI and RA Issues.	67	7 CHT / Chart/Table	R10: (Lower Willamette Group)		ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100009967	4/25/2008 Email Regarding RI/RA Issues Resolution Table.	19	1 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100011408	4/25/2008 Email Regarding LWG Background Proposal.	19	1 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100011409	Draft LWG Background Data Methods Proposal.	251	6 WP / Work Plan	R10: Unknown, Unknown (Lower Willamette Group)		ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100010623	4/30/2008 Email Regarding TZW Status of Issues Table.	18	1 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100010624	Status of TZW Issues from April 16, 2008 and 4/30/2008 April 24, 2008 EPA-DEQ-LWG Meetings.	62	6 CHT / Chart/Table	R10: (Lower Willamette Group)		ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100011411	4/30/2008 Issue Resolution Table.	82	7 CHT / Chart/Table	R10: Unknown, Unknown (Lower Willamette Group)		ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100011412	4/30/2008 Email Regarding TZW Status of Issues Table.	18	1 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100011423	Status of TZW Issues from April 16, 2008 and 4/30/2008 April 24, 2008 EPA-DEQ-LWG Meetings.	60	6 CHT / Chart/Table	R10: Unknown, Unknown (Lower Willamette Group)		ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100012031	Email Regarding RI Indicator Chemical List - for 4/30/2008 EPA Review.	19	1 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100012032	4/30/2008 DRAFT for EPA Indicator Chemical Lists.	28	5 ADD / Analytical Data Document	R10: (Lower Willamette Group)		ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100012861	Email Regarding RI Indicator Chemical List - for 4/30/2008 EPA Review.	17	1 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100012862	DRAFT for EPA Indicator Chemical Lists_2008042.	28	5 CHT / Chart/Table	R10: (Lower Willamette Group)		ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100016210	REDACTED Email Regarding LWG revised table response.	26	1 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Cora, Lori, H (EPA), R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100008825	Field Sampling Plan for the Collection of Osprey Eggs from the Portland Harbor Superfund Site.	95	14 WP / Work Plan	R10: Buck, Jeremy (U. S. Fish and Wildlife Service), R10: Henny, Charles, J (U. S. Geological Survey)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
4940681084	Email regarding fish tissue TRVs/government team input and resolution.	20	1 EML / Email	R10: Neely, Robert (NOAA)	R10: Shepard, Burt (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
4940681119	Email regarding Tissue TRV Methodology 5/14/2008 Comments/next steps.	21	1 EML / Email	R10: Neely, Robert (NOAA)	R10: Meador, James, P (NOAA), R10: Peers, Jennifer (Stratus Consulting, Inc.), R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality), R10: Dexter, Bob (Ridolfi, Inc.), R10: Buck, Jeremy (U. S. Fish & Wildlife Service)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100014421	5/16/2008 Email Regarding TRV comments.	18	1 EML / Email	R10: Beckvar, Nancy (NOAA)	R10: Meador, James, P (NOAA), R10: Baker, Mary (NOAA), R10: Neely, Robert (NOAA), R10: Blischke, Eric, L (EPA), R10: Shepard, Burt (EPA), R10: Dexter, Bob (Ridolfi, Inc.), R10: Buck, Jeremy (U. S. Fish & Wildlife Service), R10: Peterson, Jenn, L (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)

100014422	Comments on the Draft Tissue TRV 5/16/2008 Development Approach.	17	4 RPT / Report	R10: Beckvar, Nancy (NOAA)		ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100007688	5/19/2008 Email regarding EPA letter re_ NOAA funding.	21	1 EML / Email	R10: Humphrey, Chip (EPA)	R10: Applegate, Richard (City of Portland, Oregon), R10: Wyatt, Robert, J (NW Natural), R10: Mckenna, James (Verdant Solutions, LLC)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100007690	5/19/2008 Letter regarding NOAA support letter.	24	2 LTR / Letter	R10: Humphrey, Chip (EPA)	R10: Wyatt, Robert, J (NW Natural), R10: Mckenna, James (Verdant Solutions, LLC)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100013797	5/19/2008 Email Regarding EPA letter re: NOAA funding.	22	1 EML / Email	R10: Mckenna, Jim (Port of Portland)	R10: Wyatt, Bob (Northwest Natural Gas Company), R10: Humphrey, Chip (EPA), R10: Applegate, Rick (City of Portland)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100017838	REDACTED Email Regarding Thursday LWG- 5/21/2008 EPA Managers meeting - call only?.	20	1 EML / Email	R10: Wyatt, Bob (Northwest Natural Gas Company)	R10: Mckenna, Jim (Port of Portland), R10: Oster, Valerie (Anchor Environmental, LLC), R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality), R10: Pine, Keith (Anchor Environmental, LLC), R10: Applegate, Rick (City of Portland)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100017859	REDACTED Email Regarding Thursday LWG- 5/21/2008 EPA Managers meeting - call only?.	20	1 EML / Email	R10: Mckenna, Jim (Port of Portland)	R10: Oster, Valerie (Anchor Environmental, LLC), R10: Wyatt, Bob (Northwest Natural Gas Company), R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality), R10: Pine, Keith (Anchor Environmental, LLC), R10: Applegate, Rick (City of Portland)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100017866	REDACTED Email Regarding Thursday LWG- 5/21/2008 EPA Managers meeting - call only?.	21	1 EML / Email	R10: Mckenna, Jim (Port of Portland)	R10: Oster, Valerie (Anchor Environmental, LLC), R10: Wyatt, Bob (Northwest Natural Gas Company), R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality), R10: Pine, Keith (Anchor Environmental, LLC), R10: Applegate, Rick (City of Portland)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100017929	REDACTED Email Regarding Thursday LWG- 5/21/2008 EPA Managers meeting - call only?.	19	1 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Mckenna, Jim (Port of Portland), R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality), R10: Wyatt, Robert, J (NW Natural), R10: Pine, Keith (Anchor Environmental, LLC), R10: Applegate, Rick (City of Portland)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100011425	5/23/2008 BERA Calculated Sum Components.	244	11 CHT / Chart/Table	R10: Unknown, Unknown (Lower Willamette Group)		ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100011426	Proposed Data Use Rules and Data Integration for Baseline Human Health Risk Assessment (BHHRA).	39	2 RPT / Report	R10: Unknown, Unknown (Lower Willamette Group)		ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100011427	5/23/2008 BHHRA Calculated Sum Components.	165	6 CHT / Chart/Table	R10: Unknown, Unknown (Lower Willamette Group)		ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100011428	Proposed Data Reduction Rules and Data Integration for BERA.	48	3 RPT / Report	R10: Unknown, Unknown (Lower Willamette Group)		ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100011055	5/27/2008 Proposed Indicator Chemical List Approach. May 19, 2008 Direction on Pacific Lamprey (Lower Willamette River, Portland Harbor Superfund Site, USEPA Docket No: CERCLA-10- 2001-0240).	33	2 MTG / Meeting Document	R10: (Lower Willamette Group)		ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100011431	5/27/2008 Proposed Indicator Chemical List Approach.	48	1 LTR / Letter	R10: Mckenna, Jim (Port of Portland), R10: Wyatt, Robert, J (NW Natural)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100011433	5/27/2008 Proposed Indicator Chemical List Approach.	33	2 RPT / Report	R10: Unknown, Unknown (Lower Willamette Group)		ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100013842	5/27/2008 Email Regarding scheduling meetings.	27	3 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100011054	Email Regarding LWG RI indicator Chemical List Approach.	19	1 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100011424	5/28/2008 Email Regarding LWG Data Use Rules.	19	1 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100011429	Table: Post SCRA Data Treatment Summary for the RI and BLRAs.	163	3 CHT / Chart/Table	R10: Unknown, Unknown (Lower Willamette Group)		ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100011432	Email Regarding LWG RI indicator Chemical List Approach.	19	1 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100016221	REDACTED Email Regarding LWG Request for 5/28/2008 Extension - lamprey assessment.	27	1 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100011059	6/3/2008 Email Regarding Manager meeting tomorrow.	55	1 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Mckenna, Jim (Port of Portland), R10: Wyatt, Bob (Northwest Natural Gas Company), R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality), R10: Pine, Keith (Anchor Environmental, LLC), R10: Applegate, Rick (City of Portland)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100012548	6/3/2008 Email Regarding Manager meeting tomorrow.	55	1 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Mckenna, Jim (Port of Portland), R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality), R10: Wyatt, Robert, J (NW Natural), R10: Pine, Keith (Anchor Environmental, LLC), R10: Applegate, Rick (City of Portland)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100014423	Email Regarding NOAA comments on tissue proposed TRV derivation methodology. NOAA's comments on EPA's June 5, 2008 draft proposal for deriving aquatic biota tissue residue values (TRVs) using a species sensitivity distribution (SSD) approach for the Portland Harbor Superfund Site.	20	1 EML / Email	R10: Neely, Robert (NOAA)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100014424	6/10/2008 Portland Harbor Superfund Site.	41	4 LTR / Letter	R10: Neely, Robert (NOAA)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100011038	6/11/2008 Email Regarding LWG Letter on Osprey DQOs.	23	1 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Oster, Valerie (Anchor Environmental, LLC), R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100011039	Letter Regarding May 23, 2008 Data Quality Objectives for Osprey Egg Sampling.	52	2 LTR / Letter	R10: Wyatt, Bob (Lower Willamette Group), R10: Mckenna, Jim (Lower Willamette Group)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100011434	Email Regarding LWG Letter on Individual Lamprey Assessment.	22	1 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100011435	Pacific Lamprey Assessment (Lower Willamette River, Portland Harbor Superfund Site, USEPA Docket No: CERCLA-10-2001- 0240).	57	4 LTR / Letter	R10: Mckenna, Jim (Port of Portland), R10: Wyatt, Robert, J (NW Natural)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100011436	Email Regarding LWG Letter on Individual Lamprey Assessment.	22	1 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100011437	Pacific Lamprey Assessment (Lower Willamette River, Portland Harbor Superfund Site, USEPA Docket No: CERCLA-10-2001- 0240).	57	4 LTR / Letter	R10: Mckenna, Jim (Port of Portland), R10: Wyatt, Robert, J (NW Natural)	R10: Humphrey, Chip (EPA), R10: Wyatt, Robert, J (NW Natural)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)



100011438	6/11/2008	Email Regarding LWG Letter on Osprey DQOs. May 23, 2008 Data Quality Objectives for Osprey Egg Sampling (Lower Willamette River, Portland Harbor Superfund Site, USEPA Docket No: CERCLA-10-2001-0240).	22	1 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Oster, Valerie (Anchor Environmental, LLC), R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100011439	6/11/2008	No: CERCLA-10-2001-0240).	52	2 LTR / Letter	R10: Mckenna, Jim (Port of Portland), R10: Wyatt, Robert, J (NW Natural)	R10: Oster, Valerie (Anchor Environmental, LLC), R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100011440	6/11/2008	Email Regarding LWG Letter on Osprey DQOs. May 23, 2008 Data Quality Objectives for Osprey Egg Sampling (Lower Willamette River, Portland Harbor Superfund Site, USEPA Docket No: CERCLA-10-2001-0240).	23	1 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Oster, Valerie (Anchor Environmental, LLC), R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100011441	6/11/2008	No: CERCLA-10-2001-0240).	52	2 EML / Email	R10: Mckenna, Jim (Port of Portland), R10: Wyatt, Robert, J (NW Natural)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100013829	6/11/2008	Email Regarding PH Meeting tomorrow - June 11.	26	3 EML / Email	R10: Mckenna, Jim (Port of Portland)	R10: Oster, Valerie (Anchor Environmental, LLC), R10: Blischke, Eric, L (EPA), R10: Applegate, Rick (City of Portland)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100013836	6/11/2008	Email Regarding Request for managers meeting to discuss PRG issues.	23	1 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Blischke, Eric, L (EPA), R10: Pine, Keith (Anchor Environmental, LLC)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
4940681107	6/11/2008	Email regarding reply to NOAA comments on tissue proposed TRV derivation methodology.	19	1 EML / Email	R10: Neely, Robert (NOAA)	R10: Meador, James, P (NOAA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100007692	6/13/2008	Email regarding Aquatic Biota Tissue TRV methodology for Portland Harbor BERA.	21	1 EML / Email	R10: Humphrey, Chip (EPA)	R10: Applegate, Richard (City of Portland, Oregon), R10: Wyatt, Robert, J (NW Natural), R10: Mckenna, James (Verdant Solutions, LLC)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100007724	6/13/2008	Letter regarding TRV Methodology EPA Cover Letter.	26	2 LTR / Letter	R10: Humphrey, Chip (EPA)	R10: Wyatt, Robert, J (NW Natural), R10: Mckenna, James (Verdant Solutions, LLC)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100007728	6/17/2008	Email regarding Lamprey letter - dispute deadline extension.	19	1 EML / Email	R10: Humphrey, Chip (EPA)	R10: Applegate, Richard (City of Portland, Oregon), R10: Wyatt, Robert, J (NW Natural), R10: Mckenna, James (Verdant Solutions, LLC)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100007729	6/17/2008	Letter regarding Dispute deadline extension.	24	2 LTR / Letter	R10: Humphrey, Chip (EPA)	R10: Wyatt, Robert, J (NW Natural), R10: Mckenna, James (Verdant Solutions, LLC)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100012742	6/17/2008	Email Regarding PRG Meeting Agenda Items.	23	1 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Oster, Valerie (Anchor Environmental, LLC), R10: Wyatt, Robert, J (NW Natural), R10: Applegate, Rick (City of Portland)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100016988	6/17/2008	REDACTED Email Regarding LWG meeting on PRGs tomorrow? PROPOSED LWG APPROACH FOR ANALYZING POTENTIAL ADVECTIVE LOADING FROM SUBSURFACE SEDIMENT TO SURFACE SEDIMENT.	19	1 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100009959	6/18/2008	PROPOSED LWG APPROACH FOR ANALYZING POTENTIAL ADVECTIVE LOADING FROM SUBSURFACE SEDIMENT TO SURFACE SEDIMENT.	96	2 RPT / Report	R10: (Lower Willamette Group)		ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100011443	6/18/2008	PROPOSED LWG APPROACH FOR ANALYZING POTENTIAL ADVECTIVE LOADING FROM SUBSURFACE SEDIMENT TO SURFACE SEDIMENT.	96	2 RPT / Report	R10: Unknown, Unknown (Lower Willamette Group)		ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100009958	6/19/2008	Email Regarding Proposed subsurface sediment to surface sediment loading approach.	21	1 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100011442	6/19/2008	Email Regarding Proposed subsurface sediment to surface sediment loading approach.	21	1 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100008824	6/23/2008	Email regarding Osprey FSP.	17	1 EML / Email	R10: Blischke, Eric, L (EPA)	R10: Mckenna, Jim (Port of Portland), R10: Wyatt, Robert, J (NW Natural), R10: Applegate, Rick (City of Portland)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100010646	6/23/2008	Email Regarding LWG Chairperson Update.	52	1 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100010647	6/23/2008	Letter Regarding Lower Willamette Group Chairperson Update.	40	2 LTR / Letter	R10: Wyatt, Bob (Lower Willamette Group)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100011444	6/23/2008	Email Regarding LWG Chairperson Update. Lower Willamette Group Chairperson Update (Lower Willamette River, Portland Harbor Superfund Site, USEPA Docket No: CERCLA-10-2001-0240).	52	1 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100011445	6/23/2008	Lower Willamette Group Chairperson Update (Lower Willamette River, Portland Harbor Superfund Site, USEPA Docket No: CERCLA-10-2001-0240).	40	2 LTR / Letter	R10: Wyatt, Robert (Lower Willamette Group)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100009944	6/26/2008	Email Regarding Indicator Chemical List Memo for transmittal to EPA.	19	1 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100009945	6/26/2008	LWG INDICATOR CHEMICAL LIST MEMORANDUM.	102	5 MEMO / Memorandum	R10: (Lower Willamette Group)		ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100011446	6/26/2008	Email Regarding Indicator Chemical List Memo for transmittal to EPA.	19	1 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100011447	6/26/2008	LWG INDICATOR CHEMICAL LIST MEMORANDUM	102	5 MEMO / Memorandum	R10: Unknown, Unknown (Lower Willamette Group)		ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100011057	6/30/2008	Email Regarding LWG TRV Methodology comments.	52	1 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100011058	6/30/2008	Letter Regarding Toxicity Reference Value Methodology - Aquatic Biota Tissue.	47	3 LTR / Letter	R10: Wyatt, Bob (Lower Willamette Group)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100011448	6/30/2008	Email Regarding PRG June 18 Meeting Notes.	19	1 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100011449	6/30/2008	PRG Meeting Summary - June 18, 2008.	62	2 MTG / Meeting Document	R10: Unknown, Unknown (Lower Willamette Group)		ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100011450	6/30/2008	Email Regarding LWG TRV Methodology comments.	52	1 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100011451	6/30/2008	Portland Harbor Superfund Site; Administrative Order on Consent for Remedial Investigation and Feasibility Study; Docket No. CERCLA-10-2001-0240. Toxicity Reference Value Methodology - Aquatic Biota Tissue.	47	3 LTR / Letter	R10: Wyatt, Robert (Lower Willamette Group)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100016573	6/30/2008	REDACTED Email Regarding Sediment Chemical Mobility FSP; Revised Posting.	59	2 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100008919	7/1/2008	Email regarding Lamprey.	32	1 EML / Email	R10: Blischke, Eric, L (EPA)	R10: Wyatt, Robert, J (NW Natural)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100014426	7/1/2008	Examples of potential restoration opportunities at Portland Harbor.	2,017	1 FIG / Figure/Map/ Drawing	R10: Unknown, Unknown (NOAA)		ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100016806	7/1/2008	REDACTED Email Regarding Example restoration sites for discussion purposes.	20	1 EML / Email	R10: Neely, Robert (NOAA)	R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100014427	7/8/2008	Email Regarding balch.	17	1 EML / Email	R10: Neely, Robert (NOAA)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100014428	7/8/2008	Email Regarding centennial mills.	17	1 EML / Email	R10: Neely, Robert (NOAA)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)

100008915	7/21/2008	Email regarding Chemical Lists.	18	1	EML / Email	R10: Blischke, Eric, L (EPA)	R10: Mckenna, Jim (Port of Portland), R10: Wyatt, Robert, J (NW Natural), R10: Applegate, Rick (City of Portland)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100008916	7/24/2008	Email regarding Final Bioassay Evaluation Proposal.	30	5	EML / Email	R10: Blischke, Eric, L (EPA)	R10: Mckenna, Jim (Port of Portland), R10: Wyatt, Robert, J (NW Natural), R10: Applegate, Rick (City of Portland)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100011063	7/24/2008	Email Regarding New LWG Project Coordinator.	66	1	EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100013834	7/24/2008	Email Regarding PRG Process.	23	1	EML / Email	R10: Wyatt, Bob (Northwest Natural Gas Company)	R10: Mckenna, Jim (Port of Portland), R10: Blischke, Eric, L (EPA), R10: Applegate, Rick (City of Portland)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100009949	7/25/2008	Email Regarding LWG Response to EPA Comments on Upland Source Table.	23	2	EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100009950	7/25/2008	LWG Response to January 15, 2008 EPA Comments 127-175.	144	22	CORR / Correspondence	R10: (Lower Willamette Group)		ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100009951	7/25/2008	RI/FS Table 5.1-2: Upland Site Pathway Assessment Summary.	59	9	CHT / Chart/Table	R10: (Lower Willamette Group)		ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100014429	7/28/2008	Email Regarding NOAA comments on first batch of TRVs.	19	1	EML / Email	R10: Neely, Robert (NOAA)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100014430	7/28/2008	NOAA's comments on EPA's first batch of proposed TRVs (for cadmium, arsenic, and antimony).	28	3	LTR / Letter	R10: Neely, Robert (NOAA)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100017315	7/28/2008	REDACTED Email regarding DDT TRVs for Portland Harbor.	20	1	EML / Email	R10: Neely, Robert (NOAA)	R10: Gensemer, Robert, W (Parametrix, Inc.), R10: Shepard, Burt (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100016910	7/29/2008	REDACTED Email Regarding Dredging at Port of Portland's Marine Terminal 2.	25	3	EML / Email	R10: Mckenna, Jim (Port of Portland)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
4940681105	7/29/2008	Email regarding reply to NOAA comments on first batch of TRVs.	25	4	EML / Email	R10: Neely, Robert (NOAA)	R10: Shepard, Burt (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
4940681106	7/29/2008	Email regarding reply to NOAA comments on first batch of TRVs.	22	2	EML / Email	R10: Neely, Robert (NOAA)	R10: Shepard, Burt (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100013791	8/1/2008	Email Regarding Dredging at Port of Portland's Marine Terminal 2.	26	2	EML / Email	R10: Mckenna, Jim (Port of Portland)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100014431	8/4/2008	Email Regarding NOAA comments on Cu and Cr TRVs.	19	1	EML / Email	R10: Neely, Robert (NOAA)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100014432	8/4/2008	NOAA's comments on EPA's proposed TRVs for copper and chromium.	26	3	LTR / Letter	R10: Neely, Robert (NOAA)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100014435	8/6/2008	Email Regarding PCB Johansson 1970.	18	1	EML / Email	R10: Beckvar, Nancy (NOAA)	R10: Gensemer, Robert, W (Parametrix, Inc.)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100014437	8/7/2008	Email Regarding NOAA comments on PCB, TBT and lead TRVs.	19	1	EML / Email	R10: Neely, Robert (NOAA)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100014438	8/7/2008	NOAA's comments on EPA's proposed TRVs for polychlorinated biphenyls (PCBs), tributyltins (TBT) and lead.	140	6	LTR / Letter	R10: Neely, Robert (NOAA)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100014439	8/8/2008	Email Regarding NOAA comments on PCB, TBT and lead TRVs.	19	1	EML / Email	R10: Beckvar, Nancy (NOAA)	R10: Neely, Robert (NOAA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100014440	8/8/2008	NOAA's comments on EPA's proposed TRVs for polychlorinated bi-phenyls (PCBs), tributyltin (TBT) and lead.	87	6	LTR / Letter	R10: Neely, Robert (NOAA)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
4940681090	8/8/2008	Email regarding Our pcb write-up.	22	1	EML / Email	R10: Neely, Robert (NOAA)	R10: Gensemer, Robert, W (Parametrix, Inc.), R10: Shepard, Burt (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
4940681089	8/12/2008	Email regarding NOAA comments on TRVs for DDT and Zinc.	19	1	EML / Email	R10: Neely, Robert (NOAA)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100012546	8/13/2008	Email Regarding LWG thoughts regarding 3rd party assistance with bioassay data..	57	2	EML / Email	R10: Mckenna, Jim (Port of Portland)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
4940681102	8/14/2008	Email regarding reply to item for next TCT.	19	1	EML / Email	R10: Neely, Robert (NOAA)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
4940681103	8/14/2008	Email regarding reply to item for next TCT.	21	3	EML / Email	R10: Neely, Robert (NOAA)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100013814	8/19/2008	Email Regarding LWG thoughts regarding 3rd party assistance with bioassay data.	58	2	EML / Email	R10: Mckenna, Jim (Port of Portland)	R10: Mckenna, Jim (Port of Portland), R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100014441	8/19/2008	Email Regarding NOAA comments on TRVs for DDT and Zinc.	19	1	EML / Email	R10: Neely, Robert (NOAA)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100014442	8/19/2008	NOAA's comments on EPA's proposed TRVs for mercury, endrin, hexachlorocyclohexane (HCH) and lindane.	28	3	LTR / Letter	R10: Neely, Robert (NOAA)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100008827	9/17/2008	Email regarding Assessing Benthic Risk at the Portland Harbor Site.	20	2	EML / Email	R10: Blischke, Eric, L (EPA)	R10: Mckenna, Jim (Port of Portland), R10: Wyatt, Robert, J (NW Natural), R10: Applegate, Rick (City of Portland)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100008828	9/17/2008	An Evaluation of the Approach for Assessing Risks to the Benthic Invertebrate Community at the Portland Harbor Superfund Site.	1,155	80	RPT / Report	R10: Macdonald, D, D (MacDonald Environmental Sciences, Ltd.), R10: Landrum, P., F (Landrum and Associates)	R10: Unknown, Unknown (Parametrix, Inc.), R10: Unknown, Unknown (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100007825	9/23/2008	Email regarding Diver Scenario.	20	1	EML / Email	R10: Humphrey, Chip (EPA)	R10: Applegate, Richard (City of Portland, Oregon), R10: Mckenna, Jim (Port of Portland), R10: Wyatt, Robert, J (NW Natural)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100007833	9/23/2008	Email regarding Chemical Degradation Rates.	20	1	EML / Email	R10: Humphrey, Chip (EPA)	R10: Applegate, Richard (City of Portland, Oregon), R10: Mckenna, Jim (Port of Portland), R10: Wyatt, Robert, J (NW Natural)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100013786	9/23/2008	Email Regarding Chemical Degradation Rates.	22	1	EML / Email	R10: Mckenna, Jim (Port of Portland)	R10: Wyatt, Bob (Northwest Natural Gas Company), R10: Humphrey, Chip (EPA), R10: Applegate, Rick (City of Portland)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100014443	9/23/2008	Email Regarding NOAA comments on fish TRVs for Cd and Cu.	19	1	EML / Email	R10: Neely, Robert (NOAA)	R10: Meador, James, P (NOAA), R10: Pease, Katherine (NOAA), R10: Baker, Mary (NOAA), R10: Beckvar, Nancy (NOAA), R10: Munn, Nancy (NOAA), R10: Deforest, David (Parametrix, Inc.), R10: Peers, Jennifer (Stratus Consulting, Inc.), R10: Blischke, Eric, L (EPA), R10: Shephard, Burt (EPA), R10: Humphrey, Chip (EPA), R10: Goulet, Joe (EPA), R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality), R10: Gensemer, Robert, W (Parametrix, Inc.), R10: Longoria, Rose (Yakama Nation), R10: Dexter, Bob (Ridolfi, Inc.), R10: Buck, Jeremy (U. S. Fish & Wildlife Service)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100014444	9/23/2008	NOAA's comments on EPA's proposed fish TRVs for copper and cadmium.	76	5	LTR / Letter	R10: Neely, Robert (NOAA)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100013795	9/24/2008	Email Regarding EPA comments on LWG Background Comments Response.	21	1	EML / Email	R10: Wyatt, Bob (Northwest Natural Gas Company)	R10: Mckenna, Jim (Port of Portland), R10: Humphrey, Chip (EPA), R10: Applegate, Rick (City of Portland)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)

100008901	Email regarding Benthic Evaluation for Portland Harbor.	24	3 EML / Email	R10: Blischke, Eric, L (EPA)	R10: Wyatt, Robert, J (NW Natural)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)	
100012863	10/30/2008 Email Regarding RI Resolutions.	17	1 EML / Email	R10: Wyatt, Bob (Northwest Natural Gas Company)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)	
100012864	Map Regarding Proposed bioassay reference stations.	375	1 FIG / Figure/Map/ Drawing	R10: (Lower Willamette Group)		ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)	
100012865	Memorandum Regarding Review of benthic behavioral studies and acceptance/rejection criteria.	147	3 MEMO / Memorandum	R10: (Lower Willamette Group)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)	
100012866	Memorandum Regarding Criteria for Identifying Reference Sediment Samples.	128	2 MEMO / Memorandum	R10: (Lower Willamette Group)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)	
100008933	10/31/2008 Email regarding RI Resolutions.	33	2 EML / Email	R10: Blischke, Eric, L (EPA)	R10: Wyatt, Robert, J (NW Natural)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)	
100013840	10/31/2008 Email Regarding RI Resolutions.	24	2 EML / Email	R10: Wyatt, Bob (Northwest Natural Gas Company)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)	
100013841	10/31/2008 Email Regarding RI Resolutions.	23	2 EML / Email	R10: Wyatt, Bob (Northwest Natural Gas Company)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)	
100010893	Letter Regarding EPA Approval of the RI/FS (Remedial Investigation/Feasibility Study) Stormwater Loading Calculation Methods With Contingencies (With Enclosures).	21	2 LTR / Letter	R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	R10: Wyatt, Bob (Lower Willamette Group)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)	
100010894	Letter Enclosure A: Comments on Stormwater Loading Calculation Method - 2008 11 03 Stormwater Loading Approval Letter Nov 08- Enclosure A.	454	34 CORR / Correspondence	R10: (EPA)	R10: (Lower Willamette Group)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)	
100010895	Letter Enclosure B: Stormwater Loading Calculation Check-In Points - 2008 11 03 Stormwater Loading Approval Letter Nov 08- Enclosure B.	8	1 CORR / Correspondence	R10: (EPA)	R10: (Lower Willamette Group)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)	
4940681118	Email regarding reply to Statistical significance testing for reference envelope samples.	27	2 EML / Email	R10: Field, Jay (NOAA)	R10: Shepard, Burt (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)	
100008912	Email regarding Benthic Evaluation Reference Envelope and Stormwater Loading Methods.	17	1 EML / Email	R10: Blischke, Eric, L (EPA)	R10: Wyatt, Robert, J (NW Natural)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)	
100008914	12/8/2008 Email regarding BERA Check-Ins.	18	1 EML / Email	R10: Blischke, Eric, L (EPA)	R10: Wyatt, Robert, J (NW Natural)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)	
100013783	12/8/2008 Email Regarding BERA Check-Ins.	22	1 EML / Email	R10: Wyatt, Bob (Northwest Natural Gas Company)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)	
100016812	12/18/2008 REDACTED Email Regarding Fisher paper.	19	1 EML / Email	R10: Beckvar, Nancy (NOAA)	R10: Neely, Robert (NOAA), R10: Blischke, Eric, L (EPA), R10: Shephard, Burt (EPA), R10: Gensemer, Robert, W (Parametrix, Inc.)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)	
100008794	12/23/2008 Quote for sampling of Osprey eggs.	77	2 CORR / Correspondence	R10: Tomey, Cynthia (Axys Analytical Services Ltd.)	R10: Wyatt, Robert (Lower Willamette Group)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)	
100008793	Email regarding Quote for Chemical Analysis of Osprey Eggs Collected at Portland Harbor.	16	1 EML / Email	R10: Blischke, Eric, L (EPA)	R10: Wyatt, Robert, J (NW Natural)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)	
100016980	REDACTED Email regarding clarification on EPA request for stormline information.	160	4 CORR / Correspondence	R10: Applegate, Richard (City of Portland, Oregon)	R10: Humphrey, Chip (EPA)	PAPER DOCUMENT	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)	
100014459	Portland Harbor Wildlife Restoration Project Criteria.	149	14 RPT / Report			ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)	
100010636	Email Regarding Handout for February 9th RAOs Meeting.	78	1 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)	
100010637	2/6/2009 Water RAO and PRG Hand-Out.	14	2 CHT / Chart/Table	R10: (Lower Willamette Group)		ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)	
100011052	Email Regarding LWG Response to Fish Tissue Directive.	84	1 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)	
100011053	Letter Regarding Fish Tissue Residue Toxicity Reference Values for the Baseline Ecological Risk Assessment.	54	6 LTR / Letter	R10: Wyatt, Bob (Lower Willamette Group)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)	
100012029	2/6/2009 Email Regarding RI and FS Issues Status Table.	83	1 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)	
100012030	OUTSTANDING PORTLAND HARBOR RI/FS ISSUES - STATUS AS OF 2/6/2009.	48	16 CHT / Chart/Table	R10: (Lower Willamette Group)	(NOAA), R10: Fleming, Sheila (Ridolfi Engineers and Associates, Inc.), R10: Ashton, David (Port of Portland), R10: Mckenna, Jim (Port of Portland), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Cunninghame, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Betz, Jan, L (City of Portland, Oregon, Office of Attorney), R10: Wyatt, Bob (Northwest Natural Gas Company), R10: Bluelake, Lisa (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Karnosh, Michael (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA), R10: Madden, Erin (Nez Perce Tribe), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality), R10: Mcclincy, Matt (Oregon Dept. of Environmental Quality), R10: Woronets, Jennifer (Anchor QEA, LLC), R10: Fox, Julie (Anchor QEA, LLC), R10: Longoria, Rose (Yakama Nation), R10: Weis, Julie (Haglund Kelley Jones & Wilder LLP), R10: Pine, Keith (Anchor Environmental, LLC), R10: Williams, Jd (Unknown), R10: Woronets, Jennifer (Anchor Environmental, LLC), R10: Dost, Patty (Schwabe, Williamson & Wyatt, P.C.), R10: Applegate, Rick (City of Portland), R10: Wolf, Fred, G. (Pacific Lutheran University)		ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100014807	REDACTED Email Regarding Draft GIS Mapping Tool Meeting - February 17th.	89	2 EML / Email		R10: Applegate, Richard (City of Portland, Oregon), R10: Wyatt, Robert, J (NW Natural), R10: Mckenna, Jim (Verdant Solutions, LLC), R10: Woronets, Jennifer (Anchor Environmental, LLC)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)	
100007656	Email regarding Reducing level of validation for SBLT mobility tests for EPA.	217	4 EML / Email	R10: Humphrey, Chip (EPA)		ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)	
100008819	2/12/2009 PH Tox RefStations 090212.	41	1 CHT / Chart/Table	R10: Unknown, Unknown (Unknown)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)	
100012025	2/13/2009 Email Regarding Web Meeting Details.	25	2 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)	
100015633	REDACTED Email Regarding Draft GIS Mapping Tool Meeting - February 17th.	87	2 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)	

4940681116	Email regarding reply to Sample document 2/13/2009 TSMD Draft Final Technical Report (text).	22	1 EML / Email	R10: Field, Jay (NOAA)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100012024	2/16/2009 Email Regarding Web Meeting Details.	26	3 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100014451	Email Regarding Sample document TSMD Draft 2/16/2009 Final Technical Report (text).	21	2 EML / Email	R10: Field, Jay (NOAA)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100014452	2/16/2009 PH_Tox_RefStations_090212.	33	1 CHT / Chart/Table	R10: Field, Jay (NOAA)		ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100016218	REDACTED Email Regarding Draft GIS Mapping 2/16/2009 Tool Meeting - February 17th.	26	2 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Fleming, Sheila (Ridolfi Engineers and Associates, Inc.), R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100011518	2/17/2009 Email Regarding GIS Meeting Sue McCarthy.	25	2 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA), R10: Mccarthy, Susan (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100011519	2/17/2009 Email Regarding GIS Meeting.	24	1 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA), R10: Lavelle, James, M (CDM)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100011520	2/17/2009 Email Regarding GIS Meeting.	22	1 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA) Gervais, Greg (NOAA), R10: Neely, Robert (NOAA), R10: Fleming, Sheila (Ridolfi Engineers and Associates, Inc.), R10: Ashton, David (Port of Portland), R10: Mckenna, Jim (Port of Portland), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Cunninghame, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Peers, Jennifer (Stratus Consulting, Inc.), R10: Betz, Jan, L (City of Portland, Oregon, Office of Attorney), R10: Wyatt, Bob (Northwest Natural Gas Company), R10: Bluelake, Lisa (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Karnosh, Michael (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA), R10: Madden, Erin (Nez Perce Tribe), R10: Traeger, Karen, E (Legacy Site Services, LLC), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality), R10: McClincy, Matt (Oregon Dept. of Environmental Quality), R10: Woronets, Jennifer (Anchor QEA, LLC), R10: Fox, Julie (Anchor QEA, LLC), R10: Longoria, Rose (Yakama Nation), R10: Pine, Keith (Anchor Environmental, LLC), R10: Williams, Jd (Unknown), R10: Woronets, Jennifer (Anchor Environmental, LLC), R10: Dost, Patty (Schwabe, Williamson & Wyatt, P.C.), R10: Applegate, Rick (City of Portland), R10: Wolf,	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100009966	Email Regarding Reschedule - ARARs / Points 2/20/2009 Harbor Managers Meetings.	104	3 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)		ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100014453	2/23/2009 Email Regarding Feb 17 GIS tool meeting.	18	1 EML / Email	R10: Shorr, Benjamin (NOAA)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100014454	2/23/2009 Portland Harbor Meeting Feb 17, 2009.	64	2 MTG / Meeting Document	R10: Shorr, Benjamin (NOAA)		ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100008816	Email regarding Development of Reference 2/25/2009 Envelope for the Evaluation of Benthic Risk.	20	2 EML / Email	R10: Blischke, Eric, L (EPA)	R10: Wyatt, Robert, J (NW Natural)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100009943	2/27/2009 Email Regarding GIS Tool meeting highlights.	152	2 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100011535	3/4/2009 PDX St. Helens A & B Conference Rooms.	87	1 MTG / Meeting Document	R10: (Lower Willamette Group)		ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100011948	3/4/2009 PDX St. Helens A & B Conference Rooms.	87	1 MTG / Meeting Document	R10: (Lower Willamette Group)		ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100016583	REDACTED Email regarding request for 3/4/2009 Superfund presentation for the Planning Commission on 03/24/2009.	51	1 CORR / Correspondence	R10: Applegate, Richard (City of Portland, Oregon)	R10: Mckenna, James (Port of Portland), R10: Wyatt, Bob (Northwest Natural Gas Company), R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA), R10: Madden, Erin (Nez Perce Tribe)	PAPER DOCUMENT	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100011050	Email Regarding LWG Response to EPA 3/5/2009 Invertebrate Tissue TRV Directive.	83	1 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100011051	Letter Regarding Invertebrate Tissue – Residue 3/5/2009 Toxicity Reference Values for the Baseline Ecological Risk Assessment.	34	2 LTR / Letter	R10: Wyatt, Bob (Lower Willamette Group)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA) Gervais, Greg (NOAA), R10: Neely, Robert (NOAA), R10: Fleming, Sheila (Ridolfi Engineers and Associates, Inc.), R10: Ashton, David (Port of Portland), R10: Mckenna, Jim (Port of Portland), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Cunninghame, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Peers, Jennifer (Stratus Consulting, Inc.), R10: Betz, Jan, L (City of Portland, Oregon, Office of Attorney), R10: Wyatt, Bob (Northwest Natural Gas Company), R10: Bluelake, Lisa (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Karnosh, Michael (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA), R10: Madden, Erin (Nez Perce Tribe), R10: Traeger, Karen, E (Legacy Site Services, LLC), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality), R10: McClincy, Matt (Oregon Dept. of Environmental Quality), R10: Woronets, Jennifer (Anchor QEA, LLC), R10: Fox, Julie (Anchor QEA, LLC), R10: Longoria, Rose (Yakama Nation), R10: Weis, Julie (Haglund Kelley Jones & Wilder LLP), R10: Pine, Keith (Anchor Environmental, LLC), R10: Williams, Jd (Unknown), R10: Woronets, Jennifer (Anchor Environmental, LLC), R10: Dost, Patty (Schwabe, Williamson & Wyatt, P.C.), R10: Applegate, Rick (City of Portland), R10: Wolf,	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100014808	REDACTED Email Regarding 3/11 Portland 3/5/2009 Harbor Managers Meeting Agenda.	83	1 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA), R10: Madden, Erin (Nez Perce Tribe)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100017739	REDACTED Email Regarding Planning 3/5/2009 Commission.	20	1 EML / Email	R10: Mckenna, Jim (Port of Portland)	R10: Wyatt, Bob (Northwest Natural Gas Company), R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA), R10: Applegate, Rick (City of Portland)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100014456	3/9/2009 Email Regarding PH_Tox_RefStations_090309.	34	1 CHT / Chart/Table	R10: Field, Jay (NOAA)		ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100017858	3/9/2009 REDACTED Email Regarding Recalculated table.	41	9 EML / Email	R10: Field, Jay (NOAA)	R10: Blischke, Eric, L (EPA), R10: Shephard, Burt (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
4940681085	3/9/2009 Email regarding GIS analysis-.	22	1 EML / Email	R10: Shorr, Benjamin (NOAA)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)



100014809	REDACTED Portland Harbor Managers' Meeting Agenda - March 11, 2009.	12	1	MTG / Meeting Document	R10: (Lower Willamette Group)		ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
						Gervais, Greg (NOAA), R10: Neely, Robert (NOAA), R10: Fleming, Sheila (Ridolfi Engineers and Associates, Inc.), R10: Ashton, David (Port of Portland), R10: Mckenna, Jim (Port of Portland), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Cunninghame, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Peers, Jennifer (Stratus Consulting, Inc.), R10: Betz, Jan, L (City of Portland, Oregon, Office of Attorney), R10: Wyatt, Bob (Northwest Natural Gas Company), R10: Bluelake, Lisa (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Karnosh, Michael (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA), R10: Madden, Erin (Nez Perce Tribe), R10: Traeger, Karen, E (Legacy Site Services, LLC), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality), R10: McClincy, Matt (Oregon Dept. of Environmental Quality), R10: Woronets, Jennifer (Anchor QEA, LLC), R10: Fox, Julie (Anchor QEA, LLC), R10: Longoria, Rose (Yakama Nation), R10: Pine, Keith (Anchor Environmental, LLC), R10: Williams, Jd (Unknown), R10: Woronets, Jennifer (Anchor Environmental, LLC), R10: Dost, Patty (Schwabe, Williamson & Wyatt, P.C.), R10: Applegate, Rick (City of Portland), R10: Wolf,		
100016500	REDACTED Email Regarding Upcoming meetings.	92	2	EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)		ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100008925	3/16/2009 Email regarding Issues Status.	37	3	EML / Email	R10: Blischke, Eric, L (EPA)	R10: Wyatt, Robert, J (NW Natural), R10: Pine, Keith (Anchor QEA, LLC)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100008934	3/17/2009 Email regarding RI/FS Agreement Summary.	25	3	EML / Email	R10: Blischke, Eric, L (EPA)	R10: Wyatt, Robert, J (NW Natural)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100011317	Email Regarding Potential ARARs for Portland Superfund Site.	84	1	EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Cora, Lori, H (EPA), R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100011318	Potential Applicable or Relevant and Appropriate Requirements and To Be Considered Initiatives for the Portland Harbor Superfund Site RI/FS.	52	5	CHT / Chart/Table	R10: (Lower Willamette Group)		ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100011522	3/20/2009 Email Regarding LWG Email List.	22	1	EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100009636	Email Regarding ARARs and Points of Compliance Table.	134	2	EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100009637	Table 2 - Proposed Numeric Levels and Points of Compliance Related to Action Specific Applicable or Relevant and Appropriate Requirements for the Portland Harbor FS Alternatives Analysis.	33	2	LST / List/Index	R10: Stivers, Carl (Anchor QEA, LLC)		ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
						Gervais, Greg (NOAA), R10: Neely, Robert (NOAA), R10: Fleming, Sheila (Ridolfi Engineers and Associates, Inc.), R10: Ashton, David (Port of Portland), R10: Mckenna, Jim (Port of Portland), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Cunninghame, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Peers, Jennifer (Stratus Consulting, Inc.), R10: Betz, Jan, L (City of Portland, Oregon, Office of Attorney), R10: Wyatt, Bob (Northwest Natural Gas Company), R10: Bluelake, Lisa (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Karnosh, Michael (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA), R10: Madden, Erin (Nez Perce Tribe), R10: Traeger, Karen, E (Legacy Site Services, LLC), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality), R10: McClincy, Matt (Oregon Dept. of Environmental Quality), R10: Woronets, Jennifer (Anchor QEA, LLC), R10: Fox, Julie (Anchor QEA, LLC), R10: Longoria, Rose (Yakama Nation), R10: Pine, Keith (Anchor Environmental, LLC), R10: Williams, Jd (Unknown), R10: Woronets, Jennifer (Anchor Environmental, LLC), R10: Dost, Patty (Schwabe, Williamson & Wyatt, P.C.), R10: Applegate, Rick (City of Portland), R10: Wolf,		
100015737	REDACTED Email Regarding Upcoming meetings - location for 4/6 RAOs meeting.	102	2	EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)		ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100009953	DRAFT LWG Response and Clarifying Edits to EPA's Draft Remedial Action Objectives for the Portland Harbor Site.	149	8	CORR / Correspondence	R10: (Lower Willamette Group)		ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100009952	3/31/2009 Email Regarding LWG response to EPA RAOs.	133	2	EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100009964	4/1/2009 Email Regarding RAOs Meeting Hand Out.	134	2	EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100009965	4/1/2009 Draft RAOs Precepts Consistent with Guidance.	19	2	LAWS / Laws/Regulations/Guidance	R10: (Lower Willamette Group)		ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100011523	4/1/2009 Email Regarding LWG Email List.	22	1	EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA), R10: Sudbury, Ryan (Grand Ronde Tribe)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100011056	Email Regarding LWG Treatment Beneficial Use Market Survey.	98	1	EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100011402	Email Regarding Agenda for Monday ARAR Meeting.	22	1	EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Wyatt, Bob (Northwest Natural Gas Company), R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
4940681113	Email regarding reply to Revised draft eco-PRG table.	28	3	EML / Email	R10: Shorr, Benjamin (NOAA)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100009960	Email Regarding Provision of "interim" HHRA info to EPA.	87	2	EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100009961	Remedial Investigation: BHHRA Appendix F - Table 3-26 through 3-33.	154	9	ADD / Analytical Data Document	R10: (Lower Willamette Group)		ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100009962	Remedial Investigation: BHHRA Appendix F - Table 3-2 through 3-25.	1,031	257	ADD / Analytical Data Document	R10: (Lower Willamette Group)		ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100009963	Remedial Investigation: BHHRA Appendix F - Table 4-1 through 4-3.	41	9	ADD / Analytical Data Document	R10: (Lower Willamette Group)		ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100010896	Outstanding Portland Harbor RI/FS (Remedial Investigation/Feasibility Study) Issues, Status Table as of 04/15/2009.	46	11	CORR / Correspondence	R10: (EPA)	R10: (Lower Willamette Group)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)

4940681081	Email regarding Bioassay data: reference envelope response.	22	1 EML / Email	R10: Shorr, Benjamin (NOAA)	R10: Smith, Carrie, A (Parametrix, Inc.), R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
4940681098	4/16/2009 Email regarding reply to GIS Tool.	27	2 EML / Email	R10: Shorr, Benjamin (NOAA)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
4940681110	Email regarding reply to PRGs for Mapping AOPCs.	68	7 EML / Email	R10: Shorr, Benjamin (NOAA)	R10: Duminiak, Michael (CDM)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100014457	Email Regarding Some initial thoughts on organizing GIS Tool output.	51	1 EML / Email	R10: Shorr, Benjamin (NOAA)	R10: Spence, Margaret (Parametrix, Inc.)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100014458	Email Regarding Portland Harbor AOPC development conceptual process 4/17/2009.	46	1 NOTE / Notes	R10: Shorr, Benjamin (NOAA)		ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
4940681111	Email regarding reply to PRGs for Mapping AOPCs.	228	3 EML / Email	R10: Shorr, Benjamin (NOAA)	R10: Smith, Carrie, A (Parametrix, Inc.)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
4940681080	4/24/2009 Email regarding AOPC scenario grids-	366	1 EML / Email	R10: Shorr, Benjamin (NOAA)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
4940681104	4/24/2009 Email regarding reply to LWG mapping tool.	34	2 EML / Email	R10: Shorr, Benjamin (NOAA)	R10: Jones, Russ (Stratus Consulting, Inc.), R10: Jett, Steven (State of Oregon Department of Environmental Quality)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
4940681108	Email regarding reply to PH- AOPC development.	55	2 EML / Email	R10: Shorr, Benjamin (NOAA)	R10: Spence, Margaret (Parametrix, Inc.)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
4940681092	5/10/2009 Email regarding PH data retreat follow up.	23	1 EML / Email	R10: Shorr, Benjamin (NOAA)	R10: Blischke, Eric, L (EPA), R10: Duminiak, Michael (CDM)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100014460	5/11/2009 Email Regarding PH data retreat follow up.	20	1 EML / Email	R10: Shorr, Benjamin (NOAA)	R10: Smith, Carrie, A (Parametrix, Inc.), R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100014461	AOPC Development May 2009 Primarily Surface Sediment.	1,507	11 FIG / Figure/Map/ Drawing	R10: Shorr, Benjamin (NOAA)		ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100017347	REDACTED Email regarding reply to WebEx information for Tomorrow's AOPC review meeting.	26	2 EML / Email	R10: Shorr, Benjamin (NOAA)	R10: Spence, Margaret (Parametrix, Inc.)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
4940681091	Email regarding ph data package with AOPC layer.	22	1 EML / Email	R10: Shorr, Benjamin (NOAA)	R10: Spence, Margaret (Parametrix, Inc.), R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
4940681117	5/21/2009 Email regarding reply to Shape Files for LWG.	22	1 EML / Email	R10: Shorr, Benjamin (NOAA)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100013794	Email Regarding EPA Comments on Beneficial Use Market Survey.	22	1 EML / Email	R10: Wyatt, Bob (Northwest Natural Gas Company)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100009946	Email Regarding LWG mailing list - Jeremy Buck.	91	2 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Buck, Jeremy (U. S. Fish and Wildlife Service)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100016571	REDACTED Email regarding 6/11 DEQ/EPA Doane Lake Area Meeting.	283	2 EML / Email	R10: Anderson, James, M (Oregon Dept. of Environmental Quality)	R10: Fuentes, Rene, C (EPA), R10: Yamamoto, Deborah, J (EPA), R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100016794	REDACTED Email regarding 6/11 DEQ/EPA Doane Lake Area Mtg.	245	2 EML / Email	R10: Anderson, James, M (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100011515	Email Regarding LWG mailing list - Jeremy Buck.	97	3 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Buck, Jeremy (U. S. Fish & Wildlife Service)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
4940681094	7/29/2009 Email regarding reply to Amphibian Layer.	19	1 EML / Email	R10: Neely, Robert (NOAA)	R10: Claytor, C (Parametrix, Inc.)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
4940681086	8/5/2009 Email regarding Habitat RAO.	18	1 EML / Email	R10: Neely, Robert (NOAA)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100009762	9/2/2009 Email Regarding Draft BERA posted for EPA.	89	2 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100009773	Letter Regarding Submittal of Draft Baseline Ecological Risk Assessment.	35	2 LTR / Letter	R10: Wyatt, Bob (Lower Willamette Group)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100011044	Email Regarding LWG Response to EPA August 9/3/2009 19, 2009 BERA Submittal Letter.	93	1 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100011045	Letter Regarding Response to EPA August 19, 2009 BERA Submittal Letter.	48	4 LTR / Letter	R10: Wyatt, Bob (Lower Willamette Group)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100011046	Email Regarding LWG Response to EPA Comments on Revised Phase 2 Recalibration Results: Hydrodynamic Sedimentation Modeling.	96	1 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100011047	Letter Regarding EPA Comments on Revised Phase 2 Recalibration Results: Hydrodynamic Sedimentation Modeling for Lower Willamette River.	35	2 LTR / Letter	R10: Wyatt, Bob (Lower Willamette Group)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100009639	Email Regarding August 2009 Portland Harbor Monthly Progress Report.	113	2 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100009640	Letter Regarding Monthly Progress Report for August 2009.	79	11 LTR / Letter	R10: Pine, Keith (Lower Willamette Group)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100009779	Email Regarding EPA-Requested Nature & Extent Data Products Posted.	94	2 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100009171	9/18/2009 Email Regarding Draft RI Appendices List.	78	1 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100009172	9/18/2009 Draft RI - List of Appendices.	14	2 LST / List/Index	R10: Woronets, Jennifer (Anchor QEA, LLC)		ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100009780	Email Regarding EPA-Requested Nature & Extent Database.	96	2 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100013804	Email Regarding Formatting of Electronic Deliverables (Draft BERA).	24	1 EML / Email	R10: Wyatt, Bob (Northwest Natural Gas Company)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100009954	Email Regarding LWG submittal of Draft Portland Harbor Baseline Human Health Risk Assessment.	158	2 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100009955	Letter Regarding Submittal of Draft Baseline Human Health Risk Assessment.	36	2 LTR / Letter	R10: Wyatt, Bob (Lower Willamette Group)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100011506	Email Regarding Formatting of Electronic Deliverables (Draft BERA) - Accessible PDF of Draft BERA Posted.	92	2 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100008922	Email regarding LWG Proposed Groundwater RAO.	68	3 EML / Email	R10: Blischke, Eric, L (EPA)	R10: Stivers, Carl (Anchor QEA, LLC), R10: Wyatt, Robert, J (NW Natural)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
4940681121	10/1/2009 Email regarding TPH PYO & PTO.	21	1 EML / Email	R10: Field, Jay (NOAA)	R10: Shepard, Burt (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100008935	Email regarding Supporting Information for Benthic Risk Evaluation.	18	1 EML / Email	R10: Blischke, Eric, L (EPA)	R10: Wyatt, Robert, J (NW Natural)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)

4940681099	Email regarding reply to Supporting Information for Benthic Risk Evaluation.	33	2 EML / Email	R10: Field, Jay (NOAA)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remediation Characterization/055-Remedial Investigation (RI) (General)
100011040	Email Regarding LWG Letter Regarding Draft BHHRA Submittal.	84	1 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remediation Characterization/055-Remedial Investigation (RI) (General)
100011041	Letter Regarding Submittal of Draft Baseline Human Health Risk Assessment.	51	4 LTR / Letter	R10: Wyatt, Bob (Lower Willamette Group)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remediation Characterization/055-Remedial Investigation (RI) (General)
100010472	Email Regarding September 2009 Portland Harbor Monthly Progress Report.	113	2 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remediation Characterization/055-Remedial Investigation (RI) (General)
100010513	Letter Regarding Monthly Progress Report for September 2009.	80	11 LTR / Letter			ELECTRONIC RECORD	053-REMEDIAL/0531-Remediation Characterization/055-Remedial Investigation (RI) (General)
100009940	Email Regarding Errata: Draft BHHRA Table 2-14.	85	2 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remediation Characterization/055-Remedial Investigation (RI) (General)
100009941	Draft BHHRA Appendix F, TABLE 2-14 - Occurrence, Distribution, and Selection of Chemicals of Potential Concern.	25	3 ADD / Analytical Data Document	R10: (Lower Willamette Group)		ELECTRONIC RECORD	053-REMEDIAL/0531-Remediation Characterization/055-Remedial Investigation (RI) (General)
100012273	10/23/2009 List of GIS Tool Recipients.	13	2 CHT / Chart/Table	R10: (Lower Willamette Group)		ELECTRONIC RECORD	053-REMEDIAL/0531-Remediation Characterization/055-Remedial Investigation (RI) (General)
100009173	10/27/2009 Email Regarding Draft RI Report Posted.	98	1 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remediation Characterization/055-Remedial Investigation (RI) (General)
100012272	10/28/2009 Email Regarding Updated GIS Tool.	82	1 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA) Neely, Robert (NOAA), R10: Fleming, Sheila (Ridolfi Engineers and Associates, Inc.), R10: Ashton, David (Port of Portland), R10: McKenna, Jim (Port of Portland), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Cunningham, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Peers, Jennifer (Stratus Consulting, Inc.), R10: Betz, Jan, L (City of Portland, Oregon, Office of Attorney), R10: Wyatt, Bob (Northwest Natural Gas Company), R10: Bluelake, Lisa (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Karnosh, Michael (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA), R10: Madden, Erin (Nez Perce Tribe), R10: Traeger, Karen, E (Legacy Site Services, LLC), R10: Wolf, Frederick (Legacy Site Services, LLC), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality), R10: McClincy, Matt (Oregon Dept. of Environmental Quality), R10: Fox, Julie (Anchor QEA, LLC), R10: Longoria, Rose (Yakama Nation), R10: Dost, Patty (Pearl Legal Group PC), R10: Pine, Keith (Anchor Environmental, LLC), R10: Williams, Jd (Unknown), R10: Woronets, Jennifer (Anchor Environmental, LLC), R10: Applegate, Rick (City of Portland), R10: Weis, Julie (Haglund Kelley, LLP)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remediation Characterization/055-Remedial Investigation (RI) (General)
100015723	REDACTED Email Regarding November 4th Portland Harbor Managers Meeting Agenda.	91	3 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)		ELECTRONIC RECORD	053-REMEDIAL/0531-Remediation Characterization/055-Remedial Investigation (RI) (General)
100015042	REDACTED Portland Harbor Managers Meeting - November 4, 2009.	12	1 LST / List/Index	R10: (Lower Willamette Group)		ELECTRONIC RECORD	053-REMEDIAL/0531-Remediation Characterization/055-Remedial Investigation (RI) (General)
100017752	11/12/2009 REDACTED Email Regarding RI doc photos.	26	1 EML / Email	R10: Wyatt, Bob (Northwest Natural Gas Company)	R10: Robison, Jim (Portland Harbor Community Advisory Group), R10: Plance, Robin, G	ELECTRONIC RECORD	053-REMEDIAL/0531-Remediation Characterization/055-Remedial Investigation (RI) (General)
100009166	Email Regarding Benthic Toxicity Reanalysis Technical Memorandum.	97	1 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remediation Characterization/055-Remedial Investigation (RI) (General)
100011271	Email Regarding LWG Letter on Extension of Dispute Resolution Period.	41	1 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Cora, Lori, H (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remediation Characterization/055-Remedial Investigation (RI) (General)
100012263	Memorandum Regarding Supporting Information for Benthic Risk Evaluation.	94	4 MEMO / Memorandum	R10: (Windward Environmental, LLC.)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remediation Characterization/055-Remedial Investigation (RI) (General)
100012262	Email Regarding Supporting Electronic Information for Draft Benthic BERA Posted.	85	1 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remediation Characterization/055-Remedial Investigation (RI) (General)
100011064	Email Regarding November 2009 Portland Harbor Monthly Progress Report.	92	1 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remediation Characterization/055-Remedial Investigation (RI) (General)
100011065	12/10/2009 Monthly Progress Report for November 2009.	101	11 RPT / Report	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remediation Characterization/055-Remedial Investigation (RI) (General)
100011461	Table 1. Human Health Sediment PRGs for Direct Exposure to Sediment.	161	8 CHT / Chart/Table	R10: Unknown, Unknown (Lower Willamette Group)		ELECTRONIC RECORD	053-REMEDIAL/0531-Remediation Characterization/055-Remedial Investigation (RI) (General)
100010897	Letter Regarding Preliminary Comments on the Baseline Human Health and Ecological Risk Assessments (BHHRA and BERA) (With Attachment).	140	15 LTR / Letter	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	R10: Wyatt, Bob (Lower Willamette Group)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remediation Characterization/055-Remedial Investigation (RI) (General)
100008913	1/12/2010 Email regarding Benthic Risk Evaluation.	18	1 EML / Email	R10: Blischke, Eric, L (EPA)	R10: Wyatt, Robert, J (NW Natural)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remediation Characterization/055-Remedial Investigation (RI) (General)
100008377	Portland Harbor RI/FS Draft Final Remedial Investigation Report Section 10.2 - Rev 1 1/13/2010 EPA_2012-01-13_DF RI_Sec10.2.	588	53 CORR / Correspondence	R10: (Integral Consulting, Inc.)	R10: (Unknown) Neely, Robert (NOAA), R10: Fleming, Sheila (Ridolfi Engineers and Associates, Inc.), R10: Ashton, David (Port of Portland), R10: McKenna, Jim (Port of Portland), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Cunningham, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Peers, Jennifer (Stratus Consulting, Inc.), R10: Shellenberger, Amanda (Anchor Environmental, LLC), R10: Betz, Jan, L (City of Portland, Oregon, Office of Attorney), R10: Ashton, David (Lower Willamette Group), R10: Wyatt, Bob (Northwest Natural Gas Company), R10: Bluelake, Lisa (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Karnosh, Michael (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA), R10: Madden, Erin (Nez Perce Tribe), R10: Traeger, Karen, E (Legacy Site Services, LLC), R10: Wolf, Frederick (Legacy Site Services, LLC), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality), R10: McClincy, Matt (Oregon Dept. of Environmental Quality), R10: Stivers, Carl (Anchor QEA, LLC), R10: Patmont, Clay (Anchor QEA, LLC), R10: Woronets, Jennifer (Anchor QEA, LLC), R10: Verduin, John (Anchor QEA, LLC), R10: Longoria, Rose (Yakama Nation), R10: Dost, Patty (Pearl Legal	ELECTRONIC RECORD	053-REMEDIAL/0531-Remediation Characterization/055-Remedial Investigation (RI) (General)
100009165	Email Regarding Availability to attend Risk Management Framework Check-in - Monday, February 1st or Tuesday, February 2nd (reply requested).	105	1 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)		ELECTRONIC RECORD	053-REMEDIAL/0531-Remediation Characterization/055-Remedial Investigation (RI) (General)

100009641	1/14/2010	Email Regarding Availability to attend Risk Management Framework Check-in - Monday, February 1st or Tuesday, February 2nd (reply requested).	103	2 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100011453	1/14/2010	Lower Willamette River, Portland Harbor Superfund Site USEPA Docket No: CERCLA-10-2001-0240 Monthly Progress Report for December 2009.	114	10 LTR / Letter	R10: Woronets, Jennifer (Lower Willamette Group)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100011452	1/15/2010	Email Regarding December 2009 Portland Harbor Monthly Progress Report.	91	1 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100009635	1/19/2010	Email Regarding Additional Supporting Information for Benthic Risk Evaluation Posted.	129	2 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100012065	1/19/2010	Email Regarding Table 1. Draft LWG Mitigation Framework.	34	4 CHT / Chart/Table	R10: Unknown, Unknown (Lower Willamette Group)		ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100012520	1/19/2010	Email Regarding Additional Supporting Information for Benthic Risk Evaluation Posted. REDACTED Email Regarding Risk Management Framework Check-in Tuesday, February 2nd	129	2 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100017502	1/19/2010	1:00 - 5:00 pm. REDACTED Email Regarding Risk Management Framework Check-in Tuesday, February 2nd	83	1 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100017935	1/19/2010	1:00 - 5:00 pm. REDACTED Email Regarding Risk Management Framework Check-in Tuesday, February 2nd	84	1 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100007658	1/20/2010	Email regarding EPA response to LWG letter - dispute deadline.	18	1 EML / Email	R10: Humphrey, Chip (EPA)	R10: Woronets, Jennifer (Anchor QEA, LLC), R10: Wyatt, Robert, J (NW Natural)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100010898	1/20/2010	Letter Regarding EPA Response to LWG (Lower Willamette Group) 01/20/2010 Letter Requesting Extension of Deadline for Dispute Resolution.	22	2 LTR / Letter	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	R10: Wyatt, Bob (Lower Willamette Group)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100010960	1/20/2010	Letter Regarding EPA Preliminary Comments on the Baseline Human Health and Ecological Risk Assessments.	279	4 LTR / Letter	R10: Wyatt, Bob (Lower Willamette Group)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100011455	1/20/2010	Portland Harbor Superfund Site; Administrative Order on Consent for Remedial Investigation and Feasibility Study; Docket No. CERCLA-10-2001-0240 EPA Preliminary Comments on the Baseline Human Health and Ecological Risk Assessments.	125	4 LTR / Letter	R10: Wyatt, Robert, J (NW Natural)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100011457	1/20/2010	Total PCB Modeling Approach.	125	4 MEMO / Memorandum	R10: Unknown, Unknown (Lower Willamette Group)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100015777	1/20/2010	REDACTED Email Regarding LWG Letter EPA Preliminary Comments on the Baseline Human Health and Ecological Risk Assessments.	91	1 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100016225	1/20/2010	REDACTED Email Regarding LWG Letter EPA Preliminary Comments on the Baseline Human Health and Ecological Risk Assessments.	91	1 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100016234	1/20/2010	REDACTED Email Regarding LWG Total PCB Modeling Approach Memo.	83	1 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100012528	1/22/2010	Email Regarding Excel files for BHHRA.	100	2 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100015420	1/26/2010	REDACTED Email Regarding Follow-up to Risk Management Framework Check-in - Thursday, February 4th 2:00 - 4:30.	78	1 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100015421	1/26/2010	REDACTED Email Regarding Attendees Follow-up to Risk Management Framework Check-in - Thursday, February 4th.	80	2 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100016344	1/26/2010	REDACTED Email Regarding Risk Management Framework Check-in Tuesday, February 2nd 1:00 - 5:00 pm Location: PDX St Helens B.	88	2 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100017465	2/1/2010	REDACTED Email Regarding Risk Management Framework Check-in.	93	3 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100011397	2/3/2010	Email Regarding Presentation from February 2nd Risk Management Framework Check in.	91	1 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100011530	2/3/2010	Email Regarding Presentation from February 2nd Risk Management Framework Check in.	37	2 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100010962	2/5/2010	Letter Regarding EPA Preliminary Comments on the Baseline Human Health and Ecological Risk Assessments.	41	4 LTR / Letter	R10: Wyatt, Bob (Lower Willamette Group)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100010973	2/5/2010	Letter Regarding EPA Preliminary Comments on the Baseline Human Health and Ecological Risk Assessments.	41	4 LTR / Letter	R10: Wyatt, Bob (Lower Willamette Group)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100011458	2/5/2010	Email Regarding LWG Letter EPA Preliminary Comments on the Baseline Human Health and Ecological Risk Assessments.	92	1 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100011459	2/5/2010	EPA Preliminary Comments on the Baseline Human Health and Ecological Risk Assessments (Lower Willamette River, Portland Harbor Superfund Site, USEPA Docket No: CERCLA-10-2001-0240).	41	4 LTR / Letter	R10: Wyatt, Robert (Lower Willamette Group)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100011503	2/5/2010	Letter Regarding EPA Preliminary Comments on the Baseline Human Health and Ecological Risk Assessments.	41	4 LTR / Letter	R10: Wyatt, Bob (Lower Willamette Group)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100011504	2/5/2010	Letter Regarding EPA Preliminary Comments on the Baseline Human Health and Ecological Risk Assessments.	41	4 LTR / Letter	R10: Wyatt, Bob (Lower Willamette Group)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100012041	2/5/2010	Email Regarding Scheduling weekly Portland Harbor meetings in February.	102	1 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100012646	2/5/2010	Letter Regarding EPA Preliminary Comments on the Baseline Human Health and Ecological Risk Assessments.	41	4 LTR / Letter	R10: Wyatt, Bob (Northwest Natural Gas Company)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100012647	2/5/2010	Letter Regarding EPA Preliminary Comments on the Baseline Human Health and Ecological Risk Assessments.	41	4 LTR / Letter	R10: Wyatt, Bob (Northwest Natural Gas Company)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100015747	2/5/2010	REDACTED Email Regarding LWG / EPA Follow-up Conference Call - Tuesday, February 9th 1:30 - 2:30.	77	1 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100015805	2/5/2010	REDACTED Email Regarding LWG Letter EPA Preliminary Comments on the Baseline Human Health and Ecological Risk Assessments.	90	1 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100016345	2/5/2010	REDACTED Email Regarding Scheduling weekly Portland Harbor meetings in February.	36	2 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100011505	2/6/2010	Figure 1 - Notes on AOPC Changes from February 2, 2010 Meeting.	1,203	1 FIG / Figure/Map/ Drawing	R10: (Lower Willamette Group)		ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100012645	2/6/2010	Figure 1 - Notes on AOPC Changes from February 2, 2010 Meeting.	1,203	1 FIG / Figure/Map/ Drawing	R10: (Lower Willamette Group)		ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)



100011502	Email Regarding Figure 1 - LWG Letter EPA Preliminary Comments on the Baseline Human Health and Ecological Risk Assessments.	97	2 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100012644	Email Regarding Figure 1 - LWG Letter EPA Preliminary Comments on the Baseline Human Health and Ecological Risk Assessments.	94	2 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100007660	Letter regarding EPA Response to LWG February letter.	85	9 LTR / Letter	R10: Humphrey, Chip (EPA)	R10: Wyatt, Robert, J (NW Natural)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100007670	Email regarding EPA response to LWG February 5 2010 letter.	18	1 EML / Email	R10: Humphrey, Chip (EPA)	R10: Wyatt, Robert, J (NW Natural)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100010899	Letter Regarding EPA's 10 Directed Comments and LWG's (Lower Willamette Group) Understanding of How They Have Been Resolved (Table Attached).	37	9 LTR / Letter	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	R10: Wyatt, Bob (Lower Willamette Group) Neely, Robert (NOAA), R10: Fleming, Sheila (Ridolfi Engineers and Associates, Inc.), R10: Zylstra, Stephen, J (U. S. Fish and Wildlife Service), R10: Ashton, David (Port of Portland), R10: Mckenna, Jim (Port of Portland), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Cunnigham, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Peers, Jennifer (Stratus Consulting, Inc.), R10: Betz, Jan, L (City of Portland, Oregon, Office of Attorney), R10: Wyatt, Bob (Northwest Natural Gas Company), R10: Bluelake, Lisa (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Karnosh, Michael (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA), R10: Madden, Erin (Nez Perce Tribe), R10: Traeger, Karen, E (Legacy Site Services, LLC), R10: Wolf, Frederick (Legacy Site Services, LLC), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality), R10: McClincy, Matt (Oregon Dept. of Environmental Quality), R10: Woronets, Jennifer (Anchor QEA, LLC), R10: Longoria, Rose (Yakama Nation), R10: Dost, Patty (Pearl Legal Group PC), R10: Pine, Keith (Anchor Environmental, LLC), R10: Williams, Jd (Unknown), R10: Woronets, Jennifer (Anchor Environmental, LLC), R10: Applegate, Rick (City	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100015742	REDACTED Email Regarding Wednesday, February 10th 1- 3 pm - Portland Harbor Managers Meeting.	95	2 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100015749	REDACTED Email Regarding LWG / EPA Follow-up Conference Call - Wednesday, February 24th 12:30 to 2:30 pm.	77	1 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100015751	REDACTED Email Regarding LWG / EPA Follow-up Meeting - Wednesday, February 17th 12:30 - 2:30 pm.	78	1 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100017467	REDACTED Email Regarding Tuesday, February 9th 1:30 - 2:30 - LWG / EPA Follow-up Conference Call.	81	2 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100011460	Email Regarding Compiled PRG Tables.	130	2 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100016085	REDACTED Portland Harbor Managers' Meeting - February 10, 2010.	12	1 MTG / Meeting Document	R10: (Lower Willamette Group)		ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100017932	REDACTED Portland Harbor Managers' Meeting - February 10, 2010.	12	1 MTG / Meeting Document	R10: (Lower Willamette Group)		ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
4940680052	Email regarding selection of PCB congeners for fate and transport modeling.	24	1 EML / Email	R10: Winter, Jessica (NOAA)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100013799	Email Regarding EPA response to LWG February 5 2010 letter.	103	2 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100014462	Email Regarding Portland Harbor RI comments.	18	1 EML / Email	R10: Winter, Jessica (NOAA)	R10: Neely, Robert (NOAA), R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100014463	Portland Harbor Remedial Investigation Comment Tables due March 5.	73	9 CHT / Chart/Table	R10: Winter, Jessica (NOAA)		ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100011462	Email Regarding January 2010 Portland Harbor Monthly Progress Report.	91	1 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100012046	Lower Willamette River, Portland Harbor Superfund Site USEPA Docket No: CERCLA-10-2001-0240 Monthly Progress Report for January 2010.	113	11 LTR / Letter	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100015728	REDACTED Email Regarding Wednesday, February 17th 12:30 - 2:30 pm - LWG / EPA Risk Management Follow-up Meeting.	82	2 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100012035	Email Regarding Risk Management Materials for February 17th Meeting.	89	1 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100012036	Recommended Risk Management Decision Steps Regarding PRGs.	17	1 FIG / Figure/Map/ Drawing	R10: (Lower Willamette Group)		ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100012037	DRAFT Matrix of Chemicals with HQ > 1 By AOPC.	40	7 ADD / Analytical Data Document	R10: (Lower Willamette Group)		ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100012867	Email Regarding Risk Management Materials for February 17th Meeting.	86	1 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100012868	DRAFT Matrix of Chemicals with HQ > 1 By AOPC.	40	7 CHT / Chart/Table	R10: (Lower Willamette Group)		ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100012869	Recommended Risk Management Decision Steps Regarding PRGs.	17	1 FIG / Figure/Map/ Drawing	R10: (Lower Willamette Group)		ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100011049	Letter Regarding EPA Preliminary Comments on the Baseline Human Health and Ecological Risk Assessments.	44	2 LTR / Letter	R10: Wyatt, Bob (Lower Willamette Group)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100012047	Email Regarding LWG Response Letter to EPA Response on PCB Modeling Approach.	95	1 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100012048	EPA Response on PCB Modeling Approach - Contaminant Fate and Transport Model (Lower Willamette River, Portland Harbor Superfund Site, USEPA Docket No: CERCLA-10-2001-0240).	37	2 LTR / Letter	R10: Wyatt, Robert, J (NW Natural)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100012049	Email Regarding LWG Response to EPA Directive Clarifications on the Baseline Risk Assessments.	95	1 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100012050	EPA Preliminary Comments on the Baseline Human Health and Ecological Risk Assessments (Lower Willamette River, Portland Harbor Superfund Site, USEPA Docket No: CERCLA-10-2001-0240).	44	2 LTR / Letter	R10: Wyatt, Robert, J (NW Natural)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)

100015740	2/18/2010	REDACTED Email Regarding LWG Response to EPA Directive Clarifications on the Baseline Risk Assessments.	94	1 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100015857	2/18/2010	REDACTED Email Regarding PRG Mapping Meeting - Thursday, March 4th 9 am to 4 pm.	79	1 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100016292	2/18/2010	REDACTED Email Regarding LWG / EPA LOE Analysis Conference Call - Wednesday, February 24th 12:30 to 3:30 pm.	90	2 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100017005	2/18/2010	REDACTED Email Regarding LWG / EPA LOE Analysis Conference Call - Wednesday, February 24th 12:30 to 3:30 pm.	90	2 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100007652	2/19/2010	Email regarding Upstream samples for PBDE analysis.	27	1 EML / Email	R10: Humphrey, Chip (EPA)	R10: Wyatt, Robert, J (NW Natural)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100009623	2/19/2010	Email Regarding Evaluation of Ecological and Human Health Risk Lines of Evidence for Use in the FS.	79	1 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100009624	2/19/2010	Draft Evaluation of Ecological Risk Lines of Evidence for Use in the Feasibility Study.	207	16 LST / List/Index	R10: (Lower Willamette Group)		ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100009625	2/19/2010	Draft Evaluation of Human Health Risk Lines of Evidence for Use in the Feasibility Study.	79	4 LST / List/Index	R10: (Lower Willamette Group)		ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100012051	2/19/2010	Email Regarding Evaluation of Ecological and Human Health Risk Lines of Evidence for Use in the FS.	79	1 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100012052	2/19/2010	Evaluation of Ecological Risk Lines of Evidence for Use in the Feasibility Study - Benthic.	157	16 CHT / Chart/Table	R10: Unknown, Unknown (Lower Willamette Group)		ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100012063	2/19/2010	Evaluation of Human Health Risk Lines of Evidence for Use in the Feasibility Study.	61	4 CHT / Chart/Table	R10: Unknown, Unknown (Lower Willamette Group)		ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100012064	2/19/2010	Email Regarding LWG Mitigation Framework Matrix.	82	1 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Meyer, Ben (NOAA), R10: Angle, Genevieve (NOAA), R10: Callahan-grant, Megan (NOAA), R10: Munn, Nancy (NOAA), R10: Neely, Robert (NOAA), R10: Humphrey, Chip (EPA), R10: Connine, Mischa (NOAA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100014465	2/19/2010	Portland Harbor Restoration Plan Scoping Process.	1,193	2 PUB / Publication	R10: (Portland Harbor Natural Resource Trustee Council)		ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100017860	2/19/2010	REDACTED Email Regarding Portland Harbor restoration scoping meeting.	21	1 EML / Email	R10: Callahan-grant, Megan (NOAA)	R10: McMaster, Kemper, M (U. S. Fish and Wildlife Service), R10: Williams, Travis (Willamette Riverkeeper), R10: Edmunds, Sallie (City of Portland, Oregon, Bureau of Planning), R10: Prescott, Chris (City of Portland, Oregon, Endangered Species Act Program), R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA), R10: Hennings, Lori, A (Metro), R10: McEwen, H. Scott (Seattle Fire Department), R10: Anderson, Jim (EPA), R10: Lovell, Kaitlin (City of Portland, Bureau of Environmental Services), R10: Prescott, Chris (City of Portland), R10: Fike, Jean, R10: A, Ramona (Friends of Trees), R10: Bussard, Michelle (Friends of Forest park), R10: Kennett, Steve, R10: Kling, Josh, R10: Wolniakowski, Krystyna, R10: Millenbach, Mat, R10: Shaw, John, C	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100012039	3/5/2010	Email Regarding Scheduling of Aroclor homolog relationship conference call - Thursday, March 11th.	96	1 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA), R10: Neely, Robert (NOAA), R10: Fleming, Sheila (Ridolfi Engineers and Associates, Inc.), R10: Zylstra, Stephen, J (U. S. Fish and Wildlife Service), R10: Ashton, David (Port of Portland), R10: Mckenna, Jim (Port of Portland), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Cunninghame, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Peers, Jennifer (Stratus Consulting, Inc.), R10: Betz, Jan, L (City of Portland, Oregon, Office of Attorney), R10: Zeilman, Tom (Confederated Tribes and Bands of the Yakima Indian Nation), R10: Wyatt, Bob (Northwest Natural Gas Company), R10: Bluelake, Lisa (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Karnosh, Michael (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA), R10: Madden, Erin (Nez Perce Tribe), R10: Traeger, Karen, E (Legacy Site Services, LLC), R10: Wolf, Frederick (Legacy Site Services, LLC), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality), R10: McClincy, Matt (Oregon Dept. of Environmental Quality), R10: Woronets, Jennifer (Anchor QEA, LLC), R10: Longoria, Rose (Yakama Nation), R10: Dost, Patty (Pearl Legal Group PC), R10: Pine, Keith (Anchor Environmental, LLC), R10: Williams, Jd	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100016086	3/5/2010	REDACTED Email Regarding Portland Harbor Managers Meeting - Wednesday, March 10th 1 - 3 pm.	85	1 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100009969	3/8/2010	Email Regarding Scheduling of Aroclor homolog relationship conference call - Thursday, March 11th reply requested.	98	2 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100011516	3/8/2010	Email Regarding Scheduling of Aroclor homolog relationship conference call - Thursday, March 11th reply requested.	38	2 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100016290	3/8/2010	REDACTED Email Regarding Thursday, March 11th 9 am to 10 am (pacific) Web meeting information - Aroclor-Homolog relationship conference call.	36	2 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100020114	3/8/2010	REDACTED Email Regarding Thursday, March 11th 9 am to 10 am (pacific) - Aroclor-Homolog relationship conference call.	93	2 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)

100017490	REDACTED Email Regarding Wednesday, March 10th 1 - 3 pm - Portland Harbor Managers Meeting.	87	2 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	Neely, Robert (NOAA), R10: Fleming, Sheila (Ridolfi Engineers and Associates, Inc.), R10: Zylstra, Stephen, J (U. S. Fish and Wildlife Service), R10: Ashton, David (Port of Portland), R10: Mckenna, Jim (Port of Portland), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Cunninghame, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Peers, Jennifer (Stratus Consulting, Inc.), R10: Betz, Jan, L (City of Portland, Oregon, Office of Attorney), R10: Zeilman, Tom (Confederated Tribes and Bands of the Yakima Indian Nation), R10: Wyatt, Bob (Northwest Natural Gas Company), R10: Bluelake, Lisa (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Karnosh, Michael (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA), R10: Madden, Erin (Nez Perce Tribe), R10: Traeger, Karen, E (Legacy Site Services, LLC), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality), R10: McClincy, Matt (Oregon Dept. of Environmental Quality), R10: Longoria, Rose (Yakama Nation), R10: Dost, Patty (Pearl Legal Group PC), R10: Pine, Keith (Anchor Environmental, LLC), R10: Williams, Jd (Unknown), R10: Woronets, Jennifer (Anchor Environmental, LLC), R10: Applegate, Rick (City	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100012881	PRGs for Feasibility Study from EPA - 3/4/2010 Meeting.	79	1 CHT / Chart/Table	R10: (Lower Willamette Group)		ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100016089	REDACTED Portland Harbor Managers' Meeting - March 10, 2010.	12	1 MTG / Meeting Document	R10: (Lower Willamette Group)		ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100017491	REDACTED Portland Harbor Managers' Meeting - March 10, 2010.	11	1 MTG / Meeting Document	R10: (Lower Willamette Group)		ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100008992	Lower Willamette River Revised Fate and Transport Modeling Study - Sediment Aroclor-Homolog Relationships.	683	6 MTG / Meeting Document	R10: (Anchor QEA, LLC)		ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100012067	Lower Willamette River Revised Fate and Transport Modeling Study Sediment Aroclor-Homolog Relationships.	683	6 MTG / Meeting Document	R10: Unknown, Unknown (Anchor QEA, LLC)		ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100016588	REDACTED Email Regarding Mitigation Framework Meeting with NOAA - Wednesday, April 7th 1:30 - 3:30 pm.	78	1 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100008991	Email Regarding Aroclor-Homolog Relationships Presentation From March 11th Conference Call.	89	1 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100012066	Email Regarding Aroclor-Homolog Relationships Presentation From March 11th Conference Call.	89	1 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100012068	Email Regarding February 2010 Portland Harbor Monthly Progress Report.	91	1 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100012069	Lower Willamette River, Portland Harbor Superfund Site USEPA Docket No: CERCLA-10-2001-0240 Monthly Progress Report for February 2010.	122	11 LTR / Letter	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100012880	Email Regarding Table of PRGs from March 4th Meeting.	81	1 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100013828	3/12/2010 Email Regarding PCB Approach and PRG Table.	87	1 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100017900	REDACTED Email Regarding Web meeting information: PRG Follow-up Call Wednesday, March 17th 2 - 5 pm.	103	3 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	Neely, Robert (NOAA), R10: Fleming, Sheila (Ridolfi Engineers and Associates, Inc.), R10: Zylstra, Stephen, J (U. S. Fish and Wildlife Service), R10: Ashton, David (Port of Portland), R10: Mckenna, Jim (Port of Portland), R10: Madalinski, Kelly (Port of Portland), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Cunninghame, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Peers, Jennifer (Stratus Consulting, Inc.), R10: Shellenberger, Amanda (Anchor Environmental, LLC), R10: Zeilman, Tom (Confederated Tribes and Bands of the Yakima Indian Nation), R10: Bluelake, Lisa (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Karnosh, Michael (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA), R10: Madden, Erin (Nez Perce Tribe), R10: Traeger, Karen, E (Legacy Site Services, LLC), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality), R10: McClincy, Matt (Oregon Dept. of Environmental Quality), R10: Livesay, Dave (GSI Groundwater Solutions, Inc.), R10: Parrett, Kevin (GSI Groundwater Solutions, Inc.), R10: Stivers, Carl (Anchor QEA, LLC), R10: Woronets, Jennifer (Anchor QEA, LLC), R10: Longoria, Rose (Yakama Nation), R10: Wyatt,	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100014466	Email Regarding NOAA comments on PH BERA elements -- fish.	18	1 EML / Email	R10: Neely, Robert (NOAA)	R10: Blischke, Eric, L (EPA), R10: Shephard, Burt (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100014467	Portland Harbor Remedial Investigation Comment Tables.	90	10 CHT / Chart/Table	R10: Hobbs, Daniel (Parametrix, Inc.)		ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
4940680053	Email regarding NOAA comments on PH BERA elements -- fish.	17	1 EML / Email	R10: Neely, Robert (NOAA)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
4940681088	Email regarding NOAA comments on PH BERA elements -- fish.	18	1 EML / Email	R10: Neely, Robert (NOAA)	R10: Shepard, Burt (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100012518	Email Regarding Focused PRGs Lists Through March 17th and PRG maps.	80	1 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100010514	Email Regarding site-specific SQGs based on individual bioassay endpoints.	116	2 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100010515	DRAFT SITE-SPECIFIC SQGS BASED ON INDIVIDUAL BIOASSAY ENDPOINTS.	350	7 RPT / Report	R10: (Lower Willamette Group)		ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100014468	Email Regarding EPA spreadsheet with summary results of the Portland Harbor baseline ecological risk assessment (BERA).	22	1 EML / Email	R10: Neely, Robert (NOAA)	R10: Shephard, Burt (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100014469	4/6/2010 2010-04-06_PHSummaryBERAHQsLOE.	191	4 CHT / Chart/Table	R10: Neely, Robert (NOAA)		ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)

4940681095	Email regarding reply to EPA spreadsheet with summary results of the Portland Harbor baseline ecological risk assessment (BERA).	24	2 EML / Email	R10: Neely, Robert (NOAA)	R10: Shepard, Burt (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100007661	4/9/2010 Letter regarding Risk Assessment Response.	35	3 LTR / Letter	R10: Humphrey, Chip (EPA)	R10: Mckenna, Jim (Port of Portland)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100007671	Email regarding EPA response to LWG Feb 18th 4/9/2010 letter re preliminary risk comments.	18	1 EML / Email	R10: Humphrey, Chip (EPA)	R10: Mckenna, Jim (Port of Portland)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
4940681093	Email regarding reply to [SBRP-brief] Research Brief 184: Linking Site Specific Contaminant Mixtures to Biological Responses.	26	3 EML / Email	R10: Neely, Robert (NOAA)	R10: Blischke, Eric, L (EPA), R10: Knight, Peter (NOAA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100007651	4/15/2010 Email regarding Request for files.	25	1 EML / Email	R10: Humphrey, Chip (EPA)	R10: Mckenna, Jim (Verdant Solutions, LLC)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100016510	REDACTED Email Regarding Draft Stormwater Loading Calculation Methods Report posted. Response to EPA PRG Comments Dated April 21, 2010 (Lower Willamette River, Portland Harbor Superfund Site, USEPA Docket No: CERCLA-10-2001-0240).	171	2 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100012071	5/5/2010 CERCLA-10-2001-0240).	38	2 LTR / Letter	R10: Wyatt, Robert, J (NW Natural)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100017513	REDACTED Email Regarding LWG Response to EPA's April 21st PRG Comments.	93	1 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100009633	Email Regarding 100507 Portland Harbor Notices - Port of Portland.	83	3 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Burkholder, Kurt (Oregon Dept. of Justice), R10: Cora, Lori, H (EPA), R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100009634	5/7/2010 Presentation Slides Regarding Terminal 5.	1,110	9 MTG / Meeting Document	R10: Ashton, David (Port of Portland)	R10: Burkholder, Kurt (Oregon Dept. of Justice), R10: Cora, Lori, H (EPA), R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100012072	Email Regarding 100507 Portland Harbor Notices - Port of Portland.	82	3 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Burkholder, Kurt (Oregon Dept. of Justice), R10: Cora, Lori, H (EPA), R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100012073	5/7/2010 Terminal 5 Dredging.	1,110	9 FIG / Figure/Map/ Drawing	R10: Unknown, Unknown (Port of Portland)		ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100010642	Email Regarding List of topics for LWG and EPA ESA mitigation framework meeting. Table 1 - Near Final EPA List of Focused PRGs for the FS from 4 March, 10 March, and 17 March 2010 Meetings with LWG Meeting Notes.	91	1 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100012075	5/19/2010 Notes.	84	5 CHT / Chart/Table	R10: Unknown, Unknown (Lower Willamette Group)		ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100017524	REDACTED Email Regarding Correction to Focused PRG Table. Portland Harbor - Executive Summary for the Memorandum regarding recommended framework for ESA Consultation.	155	2 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100012077	5/26/2010 framework for ESA Consultation.	55	2 MEMO / Memorandum	R10: Iani, John (EPA), R10: Craig, Barbara, D.	R10: Unknown, Unknown (Lower Willamette Group)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100012078	Portland Harbor-Recommended Framework for ESA Consultation.	127	13 MEMO / Memorandum	R10: Iani, John (EPA), R10: Craig, Barbara, D.	R10: Unknown, Unknown (Lower Willamette Group)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100017528	REDACTED Email Regarding Background for Meeting to Discuss ESA compliance.	116	2 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100010627	Draft Remedial Investigation Report: Updated Table 2 - Detailed Comparison of Revised Sediment Background Statistical Results with Results Originally Presented in Draft RI.	53	2 ADD / Analytical Data Document	R10: (Lower Willamette Group)		ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100012080	Table 2. Detailed Comparison of Revised Sediment Background Statistical Results with Results Originally Presented in Draft RI.	53	2 CHT / Chart/Table	R10: Unknown, Unknown (Lower Willamette Group)		ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100015718	REDACTED Email Regarding For EPA Use - Portland Harbor Existing Data Database.	156	2 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Neely, Robert (NOAA), R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100015739	REDACTED Email Regarding Upriver Data Set Revision and Revised Sediment Background Results.	137	2 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100016536	REDACTED Email Regarding For EPA Use - Portland Harbor Existing Data Database.	88	2 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Neely, Robert (NOAA), R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100017532	REDACTED Email Regarding Upriver Data Set Revision and Revised Sediment Background Results.	136	2 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100011043	Letter Regarding Portland Harbor Superfund Site Recreational User Health Assessment.	44	2 LTR / Letter	R10: Wyatt, Bob (Lower Willamette Group)	R10: Farrer, David, G (Oregon Dept. of Human Services)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100012082	Email Regarding Portland Harbor Superfund Site Recreational User Health Assessment.	44	2 LTR / Letter	R10: Wyatt, Robert (Lower Willamette Group)	R10: Farrer, David, G (Oregon Dept. of Human Services)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100015738	REDACTED Email Regarding LWG Letter Regarding Portland Harbor Superfund Site Recreational User Health Assessment.	83	1 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100017519	REDACTED Email Regarding LWG Letter Regarding Portland Harbor Superfund Site Recreational User Health Assessment.	83	1 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
4940681114	7/2/2010 Email regarding reply to RI Comment.	28	3 EML / Email	R10: Winter, Jessica (NOAA)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
4940681115	7/7/2010 Email regarding reply to RI Comment.	40	12 EML / Email	R10: Winter, Jessica (NOAA)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100007716	7/16/2010 BERA_Master File_07162010Final.	400	62 RPT / Report	R10: (EPA)		ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100007717	7/16/2010 RI_Specific_Comments_07162010Final.	1,528	90 RPT / Report	R10: (EPA)		ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100007718	7/16/2010 EPA RI Comments Cover Letter.	56	4 LTR / Letter	R10: Humphrey, Chip (EPA)	R10: Wyatt, Robert, J (NW Natural), R10: Mckenna, James (Verdant Solutions, LLC)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100007730	Email regarding EPA comments on the PH draft RI and BRA_7-16-2010_1830.	19	1 EML / Email	R10: Humphrey, Chip (EPA)	R10: Applegate, Richard (City of Portland, Oregon), R10: Wyatt, Robert, J (NW Natural), R10: Mckenna, James (Verdant Solutions, LLC), R10: Woronets, Jennifer (Anchor Environmental, LLC)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100007736	7/16/2010 RI Report General comments 7162010.	45	5 RPT / Report	R10: (EPA)		ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100007737	7/16/2010 Summary of BERA HQs.	2,375	24 RPT / Report	R10: (Unknown)		ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100007769	7/16/2010 RI Report GeneralComments 7162010.	45	5 RPT / Report		R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)



100010900	EPA Specific Comments on Portland Harbor RI (Remedial Investigation) Baseline Human Health Risk Assessment (BHHRA).	352	92 CORR / Correspondence	R10: (EPA)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100010901	EPA General Comments on Portland Harbor DRAFT RI (Remedial Investigation) Report.	30	5 CORR / Correspondence	R10: (EPA)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100010906	EPA General Comments on the Portland Harbor DRAFT Remedial Investigation (RI) Report.	30	5 CORR / Correspondence	R10: (EPA)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100010907	EPA Specific Comments, Portland Harbor RI (Remedial Investigation) Report.	358	90 CORR / Correspondence	R10: (EPA)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100011308	EPA COMMENTS ON THE PORTLAND HARBOR DRAFT REMEDIATION INVESTIGATION REPORT - GENERAL COMMENTS.	78	3 CORR / Correspondence	R10: (EPA)		ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100012137	EPA COMMENTS ON THE PORTLAND HARBOR DRAFT REMEDIATION INVESTIGATION REPORT GENERAL COMMENTS.	77	3 CHT / Chart/Table	R10: Unknown, Unknown (Lower Willamette Group)		ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100007738	Email regarding EPA comments on the PH draft RI and BRA_7-19-2010_1015.	18	1 EML / Email	R10: Humphrey, Chip (EPA)	R10: Applegate, Richard (City of Portland, Oregon), R10: Wyatt, Robert, J (NW Natural), R10: Mckenna, James (Verdant Solutions, LLC), R10: Woronets, Jennifer (Anchor Environmental, LLC)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100015745	REDACTED Email Regarding Meeting to discuss directive BHHRA and BERA comments - Friday, August 20th 9 am to 3 pm.	89	1 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100009297	Email Regarding EPA Availability to attend follow up meeting on EPA's directive BHHRA and BERA comments (reply requested).	94	1 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100009628	Email Regarding Follow to August 11th Portland Harbor Managers meeting.	91	1 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100012517	Email Regarding EPA Availability to attend follow up meeting on EPA's directive BHHRA and BERA comments (reply requested).	94	1 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100012519	Email Regarding Follow to August 11th Portland Harbor Managers meeting.	91	1 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100011418	Email Regarding EPA Availability to attend follow up meeting on EPA's directive BHHRA and BERA comments (reply requested).	35	2 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100013803	Email Regarding Extension of dispute deadline 8/16/2010 for EPA directed comments.	34	2 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100012038	Email Regarding Scheduling EPA non-directive comment meetings (reply requested).	100	2 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100016220	REDACTED Email Regarding RE: EPA Availability to attend follow up meeting on EPA's directive BHHRA and BERA comments (reply requested).	36	2 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100016931	REDACTED Email Regarding EPA Availability to attend follow up meeting on EPA's directive BHHRA and BERA comments (reply requested).	36	2 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100011400	Email Regarding 9/9 meeting - EPA Availability to attend follow up meeting on EPA's directive BHHRA and BERA comments (reply requested).	39	3 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100011420	Email Regarding EPA directive BHHRA and BERA comments follow up meeting - Thursday, September 9th 9 am to 4 pm.	40	3 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100012756	Email Regarding 9/9 meeting - EPA Availability to attend follow up meeting on EPA's directive BHHRA and BERA comments (reply requested).	38	2 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100016178	REDACTED Email Regarding RE: 9/9 meeting - EPA Availability to attend follow up meeting on EPA's directive BHHRA and BERA comments (reply requested).	36	2 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100016934	REDACTED Email Regarding EPA directive BHHRA and BERA comments follow up meeting - Thursday, September 9th 9 am to 4 pm.	37	3 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100015425	REDACTED Email Regarding Friday, August 20th 9 am to 3 pm - Meeting to discuss directive BHHRA and BERA comments.	94	2 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100016229	REDACTED Email Regarding Friday, August 20th 9 am to 3 pm - Meeting to discuss directive BHHRA and BERA comments.	35	2 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100012260	EPA Directive BHHRA and BERA Comments Meeting - Summary.	106	2 MTG / Meeting Document	R10: (Lower Willamette Group)		ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100012261	8/20/2010 BERA Process Flow Chart.	515	1 FIG / Figure/Map/ Drawing	R10: (Lower Willamette Group)		ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100012876	8/20/2010 BERA Process Flow Chart.	515	1 FIG / Figure/Map/ Drawing	R10: (Lower Willamette Group)		ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100012877	EPA Directive BHHRA and BERA Comments Meeting - Meeting Summary.	106	2 MTG / Meeting Document	R10: (Lower Willamette Group)		ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100015487	REDACTED Email Regarding EPA Non-directive RI, BERA and BHHRA Comment Meetings with LWG Scheduled.	86	1 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100016233	REDACTED Email Regarding EPA Non-directive RI, BERA and BHHRA Comment Meetings with LWG Scheduled.	32	2 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100015432	REDACTED Email regarding Re_FW Request to cancel September PH Managers meeting.	109	2 EML / Email	R10: Humphrey, Chip (EPA)	R10: Mckenna, James (Verdant Solutions, LLC)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)

						Neely, Robert (NOAA), R10: Ashton, David (Port of Portland), R10: Mckenna, Jim (Port of Portland), R10: Madalinski, Kelly (Port of Portland), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Cunninghame, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Ebbets, Allison (Stratus Consulting, Inc.), R10: Peers, Jennifer (Stratus Consulting, Inc.), R10: Zeilman, Tom (Confederated Tribes and Bands of the Yakima Indian Nation), R10: Bluelake, Lisa (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Karnosh, Michael (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA), R10: Madden, Erin (Nez Perce Tribe), R10: Traeger, Karen, E (Legacy Site Services, LLC), R10: Wolf, Frederick (Legacy Site Services, LLC), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality), R10: Mcclincy, Matt (Oregon Dept. of Environmental Quality), R10: Wagoner, Colin, H (Ridolfi, Inc.), R10: Woronets, Jennifer (Anchor QEA, LLC), R10: Longoria, Rose (Yakama Nation), R10: Wyatt, Robert, J (NW Natural), R10: Dost, Patty (Pearl Legal Group PC), R10: Pine, Keith (Anchor Environmental, LLC), R10: Williams, Jd (Unknown), R10: Mckenna, Jim (Verdant Solutions, LLC), R10: Betz, Jan (City of Portland,		
100017914	REDACTED Email Regarding Request to cancel September Portland Harbor Managers meeting.	84	1 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)		053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)		
100009948	LWG Response to EPA Comments on the Stormwater Loading Calculations Methods Report.	30	5 CORR / Correspondence	R10: (Lower Willamette Group)		053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)		
100016050	REDACTED Email Regarding Summary of August 20th EPA directive BHHRA and BERA comments meeting and BERA process flow chart.	81	1 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)		
100016498	REDACTED Email Regarding Summary of August 20th EPA directive BHHRA and BERA comments meeting and BERA process flow chart.	81	1 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)		
100009643	Attachment A - Flow chart developed during 8/20/10 LWG-EPA meeting to discuss directive comments on the draft baseline risk assessments.	65	1 MTG / Meeting Document	R10: Woronets, Jennifer (Anchor QEA, LLC)		053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)		
100012084	9/8/2010 BERA flow chart comparison.	65	1 CHT / Chart/Table	R10: Unknown, Unknown (Lower Willamette Group)		053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)		
100012256	9/8/2010 Attachment A - BERA Flow Chart Comparison.	65	1 FIG / Figure/Map/ Drawing	R10: (Lower Willamette Group)		053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)		
100012872	9/8/2010 Attachment A: BERA Flow Chart Comparison.	65	1 FIG / Figure/Map/ Drawing	R10: (Lower Willamette Group)		053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)		
100013848	Email Regarding Thursday, September 9th 9 am to 4 pm - EPA directive BHHRA and BERA comments follow up meeting.	41	4 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)		
100015428	REDACTED Email Regarding Chip/Eric question - September 9th EPA-LWG Meeting on Directive BHHRA and BERA Comments - Proposed Agenda and BERA Process Flow Chart.	96	2 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)		
100016037	REDACTED Email Regarding September 9th EPA-LWG Meeting on Directive BHHRA and BERA Comments - Proposed Agenda and BERA Process Flow Chart.	92	1 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)		
100016355	REDACTED Email Regarding Thursday, September 9th 9 am to 4 pm - EPA directive BHHRA and BERA comments follow up meeting.	38	4 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)		
100016494	REDACTED Email Regarding September 9th EPA-LWG Meeting on Directive BHHRA and BERA Comments - Proposed Agenda and BERA Process Flow Chart.	91	1 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)		
100017520	REDACTED Email Regarding Chip/Eric question - September 9th EPA-LWG Meeting on Directive BHHRA and BERA Comments - Proposed Agenda and BERA Process Flow Chart.	96	2 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)		
100016039	REDACTED EPA Directive BHHRA and BERA Comment Follow Up Meeting - September 9, 2010.	48	1 MTG / Meeting Document	R10: (Lower Willamette Group)		053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)		
100016495	REDACTED EPA Directive BHHRA and BERA Comment Follow Up Meeting - September 9, 2010.	48	1 MTG / Meeting Document	R10: (Lower Willamette Group)		053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)		
100016343	REDACTED Email Regarding Revisions to EPA Non-directive RI, BERA and BHHRA Comment Meeting Schedule.	35	2 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA)	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)		
100017753	REDACTED Email Regarding Revisions to EPA Non-directive RI, BERA and BHHRA Comment Meeting Schedule.	95	2 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)		
100016199	REDACTED Email Regarding Dates to consider for rescheduling the benthic check in September 29th.	39	4 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA)	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)		
100010251	Letter Regarding Lower Willamette Group (LWG) General Responses to EPA Directed BHHRA (Baseline Human Health Risk Assessment) Comments.	33	2 LTR / Letter	R10: Wyatt, Bob (Lower Willamette Group)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)		
100010955	General Responses to EPA's Directive Comments on the Baseline Human Health Risk Assessment.	32	8 CORR / Correspondence	R10: (Lower Willamette Group)		053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)		
100010956	9/15/2010 Attachment A - BERA Process Flow Chart.	57	1 FIG / Figure/Map/ Drawing	R10: (Lower Willamette Group)		053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)		
100010957	LWG General Responses to EPAs Directed Comments on the Draft BERA.	65	5 CORR / Correspondence	R10: (Lower Willamette Group)		053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)		
100010958	Letter Regarding General responses to EPA directed BHHRA and BERA Comments.	140	2 LTR / Letter	R10: Wyatt, Bob (Lower Willamette Group)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)		
100012116	9/15/2010 Attachment A: BERA Process Flow Chart.	57	1 CHT / Chart/Table	R10: Unknown, Unknown (Lower Willamette Group)		053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)		
100012117	General Responses to EPA's Directive Comments on the Baseline Human Health Risk Assessment.	32	8 CHT / Chart/Table	R10: Unknown, Unknown (Lower Willamette Group)		053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)		
100012118	LWG General Responses to EPAs Directed Comments on the Draft BERA.	65	5 EML / Email	R10: Unknown, Unknown (Lower Willamette Group)		053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)		
100012119	General responses to EPA directed BHHRA and BERA Comments (Lower Willamette River, Portland Harbor Superfund Site, USEPA Docket No: CERCLA-10-2001-0240).	140	2 LTR / Letter	R10: Wyatt, Robert (Lower Willamette Group)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)		
100015804	REDACTED Email Regarding LWG general responses to EPA directed BHHRA and BERA comments.	95	1 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)		

100016346	9/15/2010	REDACTED Email Regarding Thursday, September 16th 9 am to 12 - directed comment general responses and non-directed comment process discussion.	95	2 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100017522	9/15/2010	REDACTED Email Regarding LWG general responses to EPA directed BHHRA and BERA comments.	94	1 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100017887	9/15/2010	REDACTED Thursday, September 16th 9 am to 12 - directed comment general responses and non-directed comment process discussion.	95	2 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100012121	9/16/2010	LWG Response to EPA Comments on the Stormwater Loading Calculations Methods Report.	30	5 CHT / Chart/Table	R10: Unknown, Unknown (Lower Willamette Group)		ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100015721	9/16/2010	REDACTED Email Regarding LWG response to EPA comments on the Draft Stormwater Loading Methods Report.	156	2 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100015757	9/16/2010	REDACTED Email Regarding Meeting to discuss non-directed BHHRA, BERA and RI comments - Friday, October 15th 9 am to 5 pm.	78	1 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100016195	9/16/2010	REDACTED Email Regarding Confirmed - Benthic toxicity AOPCs check in - Wednesday, September 29th 11 am to 2 pm.	44	6 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100017593	9/16/2010	REDACTED Email Regarding LWG response to EPA comments on the Draft Stormwater Loading Methods Report.	155	2 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100016182	9/19/2010	REDACTED Email Regarding Confirmed - Benthic toxicity AOPCs check in - Wednesday, September 29th 11 am to 2 pm.	45	7 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100010902	9/22/2010	Letter Regarding General Responses to EPA Directed BERA (Baseline Ecological Risk Assessment) and BHHRA (Baseline Human Health Risk Assessment) Comments.	24	2 LTR / Letter	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	R10: Wyatt, Bob (Lower Willamette Group)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100008917	9/24/2010	Email regarding Information Request.	18	1 EML / Email	R10: Blischke, Eric, L (EPA)	R10: Wyatt, Robert, J (NW Natural), R10: Mckenna, Jim (Verdant Solutions, LLC)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100007826	9/27/2010	Email regarding EPA comments on Benthic Approach 9-27-2010.	20	1 EML / Email	R10: Humphrey, Chip (EPA)	R10: Wyatt, Robert, J (NW Natural)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100007835	9/27/2010	EPA Benthic Approach Comments Cover Letter.	26	2 LTR / Letter	R10: Humphrey, Chip (EPA)	R10: Wyatt, Robert, J (NW Natural)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100016170	9/28/2010	REDACTED Email Regarding Wednesday, September 29th 11 am to 2 pm - Benthic toxicity AOPCs check in.	44	7 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100016287	9/29/2010	REDACTED Email Regarding Benthic AOPC layers .zap file.	38	2 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100009298	10/5/2010	Email Regarding EPA Comments on Benthic Risk Evaluation Dispute Deadline.	137	1 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100009299	10/5/2010	Letter Regarding EPA Comments on Benthic Risk Evaluation (Lower Willamette River, Portland Harbor Superfund Site, USEPA Docket No: CERCLA-10-2001-0240).	33	2 LTR / Letter	R10: Wyatt, Bob (Northwest Natural Gas Company)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100010639	10/7/2010	Non-Directive BHHRA Comment Issues. General Responses to EPA's Non-Directive Comment Key Issues on the Draft Remedial Investigation Report.	117	2 LST / List/Index	R10: (Lower Willamette Group)		ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100010640	10/7/2010	General Responses to EPA's Non-Directive Comment Key Issues on the Baseline Human Health Risk Assessment.	165	13 CORR / Correspondence	R10: (Lower Willamette Group)		ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100010641	10/7/2010	General Responses to EPA's Non-Directive Comment Key Issues on the Draft Remedial Investigation Report.	29	5 CORR / Correspondence	R10: (Lower Willamette Group)		ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100012133	10/7/2010	General Responses to EPA's Non-Directive Comment Key Issues on the Draft Remedial Investigation Report.	165	13 CHT / Chart/Table	R10: Unknown, Unknown (Lower Willamette Group)		ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100012134	10/7/2010	Non-Directive BHHRA Comment Issues. General Responses to EPA's Non-Directive Comment Key Issues on the Baseline Human Health Risk Assessment.	117	2 LST / List/Index	R10: Unknown, Unknown (Lower Willamette Group)		ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100012135	10/7/2010	Health Risk Assessment.	29	5 LST / List/Index	R10: Unknown, Unknown (Lower Willamette Group)		ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100012264	10/7/2010	Email Regarding Tabulated Coordinates for Individual Fish Collected for the RI.	86	1 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100012265	10/7/2010	Biota_indiv_locs_XY_QA.xls.	236	63 ADD / Analytical Data Document	R10: Strandhagen, Erik (Integral Consulting, Inc.)		ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100015746	10/7/2010	REDACTED Email Regarding List of BHHRA and BERA Non-directive Comment Issues and General Responses to EPA Non-Directive Comment Key Issues on the RI and BHHRA.	102	1 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA) Neely, Robert (NOAA), R10: Ashton, David (Port of Portland), R10: Madalinski, Kelly (Port of Portland), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Cunninghame, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Ebbets, Allison (Stratus Consulting, Inc.), R10: Peers, Jennifer (Stratus Consulting, Inc.), R10: Betz, Jan, L (City of Portland, Oregon, Office of Attorney), R10: Zellman, Tom (Confederated Tribes and Bands of the Yakima Indian Nation), R10: Wyatt, Bob (Northwest Natural Gas Company), R10: Bluelake, Lisa (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Karnosh, Michael (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA), R10: Madden, Erin (Nez Perce Tribe), R10: Traeger, Karen, E (Legacy Site Services, LLC), R10: Wolf, Frederick (Legacy Site Services, LLC), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality), R10: McClincy, Matt (Oregon Dept. of Environmental Quality), R10: Wagoner, Colin, H (Ridolfi, Inc.), R10: Stivers, Carl (Anchor QEA, LLC), R10: Longoria, Rose (Yakama Nation), R10: Dost, Patty (Pearl Legal Group PC), R10: Pine, Keith (Anchor Environmental, LLC), R10: Williams, Jd (Unknown), R10: Mckenna, Jim (Verdant Solutions, LLC), R10: Woronets,	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100016301	10/7/2010	REDACTED Email Regarding October Portland Harbor Managers Meeting - Friday, October 29th 1 to 3 pm.	90	2 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)		ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100017595	10/7/2010	REDACTED Email Regarding List of BHHRA and BERA Non-directive Comment Issues and General Responses to EPA Non-Directive Comment Key Issues on the RI and BHHRA.	101	1 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)

100017738	REDACTED Email Regarding October Portland Harbor Managers Meeting - Friday, October 10/7/2010 29th 1 to 3 pm.	89	2 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	Neely, Robert (NOAA), R10: Ashton, David (Port of Portland), R10: Madalinski, Kelly (Port of Portland), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Cunninghame, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Ebbets, Allison (Stratus Consulting, Inc.), R10: Peers, Jennifer (Stratus Consulting, Inc.), R10: Betz, Jan, L (City of Portland, Oregon, Office of Attorney), R10: Zeilman, Tom (Confederated Tribes and Bands of the Yakima Indian Nation), R10: Wyatt, Bob (Northwest Natural Gas Company), R10: Bluelake, Lisa (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Karnosh, Michael (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA), R10: Madden, Erin (Nez Perce Tribe), R10: Traeger, Karen, E (Legacy Site Services, LLC), R10: Wolf, Fred (Legacy Site Services, LLC), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality), R10: Mcclincy, Matt (Oregon Dept. of Environmental Quality), R10: Wagoner, Colin, H (Ridolfi, Inc.), R10: Stivers, Carl (Anchor QEA, LLC), R10: Longoria, Rose (Yakama Nation), R10: Dost, Patty (Pearl Legal Group PC), R10: Pine, Keith (Anchor Environmental, LLC), R10: Williams, Jd (Unknown), R10: Mckenna, Jim (Verdant Solutions, LLC), R10: Woronets,	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100016043	REDACTED Email Regarding Numbered Set of EPA General Comments on Draft RI.	95	1 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100017615	REDACTED Email Regarding Numbered Set of EPA General Comments on Draft RI.	94	1 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100007649	Email regarding Request for dispute deadline extension - benthic risk evaluation comments. General Responses to EPA's Non-Directive Comment Key Issues on the Draft Baseline Ecological Risk Assessment.	28	2 EML / Email	R10: Humphrey, Chip (EPA)	R10: Wyatt, Robert, J (NW Natural)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100010634	ATTACHMENT A - DIETARY RISK CALCULATIONS IN THE BERA.	74	10 CORR / Correspondence	R10: (Lower Willamette Group)		ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100010635	ATTACHMENT A. DIETARY RISK CALCULATIONS IN THE BERA.	85	4 RPT / Report	R10: (Lower Willamette Group)		ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100012139	General Responses to EPA's Non-Directive Comment Key Issues on the Draft Baseline Ecological Risk Assessment.	85	4 EML / Email	R10: Unknown, Unknown (Lower Willamette Group)		ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100012140	REDACTED Email Regarding General Responses to EPA Non-Directive Comment Key Issues on the BERA.	74	10 CHT / Chart/Table	R10: Unknown, Unknown (Lower Willamette Group)		ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100015744	REDACTED Email Regarding Friday, October 15th 9 am to 5 pm - Meeting to discuss non-directed BHHRA, BERA and RI comments.	86	1 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100016281	REDACTED Email Regarding Friday, October 15th 9 am to 5 pm - Meeting to discuss non-directed BHHRA, BERA and RI comments.	84	2 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100016959	REDACTED Email Regarding General Responses to EPA Non-Directive Comment Key Issues on the BERA.	84	2 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100017607	Letter Regarding Monthly Progress Report for September 2010.	85	1 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100012258	Letter Regarding Monthly Progress Report for September 2010.	279	12 LTR / Letter	R10: Woronets, Jennifer (Lower Willamette Group)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100012874	Letter Regarding Monthly Progress Report for September 2010.	279	12 LTR / Letter	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100016042	REDACTED Email Regarding September 2010 Portland Harbor Monthly Progress Report.	91	1 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100016497	REDACTED Email Regarding September 2010 Portland Harbor Monthly Progress Report.	91	1 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100016302	REDACTED Email Regarding October Portland Harbor Managers Meeting Agenda - Friday, October 29th 1 to 3 pm.	94	3 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	Neely, Robert (NOAA), R10: Ashton, David (Port of Portland), R10: Madalinski, Kelly (Port of Portland), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Cunninghame, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Ebbets, Allison (Stratus Consulting, Inc.), R10: Peers, Jennifer (Stratus Consulting, Inc.), R10: Betz, Jan, L (City of Portland, Oregon, Office of Attorney), R10: Zeilman, Tom (Confederated Tribes and Bands of the Yakima Indian Nation), R10: Wyatt, Bob (Northwest Natural Gas Company), R10: Bluelake, Lisa (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Karnosh, Michael (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA), R10: Madden, Erin (Nez Perce Tribe), R10: Traeger, Karen, E (Legacy Site Services, LLC), R10: Wolf, Frederick (Legacy Site Services, LLC), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality), R10: Mcclincy, Matt (Oregon Dept. of Environmental Quality), R10: Wagoner, Colin, H (Ridolfi, Inc.), R10: Stivers, Carl (Anchor QEA, LLC), R10: Longoria, Rose (Yakama Nation), R10: Dost, Patty (Pearl Legal Group PC), R10: Pine, Keith (Anchor Environmental, LLC), R10: Williams, Jd (Unknown), R10: Mckenna, Jim (Verdant Solutions, LLC), R10: Woronets,	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100016298	REDACTED Email Regarding Meeting at Integral Office - Wed at Noon Conference Call Information.	35	1 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA), R10: Locke, Bill (Integral Corporation), R10: Revelas, Gene (Integral Corporation), R10: Jones, Laura (Integral Corporation), R10: Mckenna, Jim (Verdant Solutions, LLC), R10: Pine, Keith (Anchor QEA, LLC)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)



						Neely, Robert (NOAA), R10: Ashton, David (Port of Portland), R10: Madalinski, Kelly (Port of Portland), R10: Cunninghame, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Ebbets, Allison (Stratus Consulting, Inc.), R10: Peers, Jennifer (Stratus Consulting, Inc.), R10: Betz, Jan, L (City of Portland, Oregon, Office of Attorney), R10: Zeilman, Tom (Confederated Tribes and Bands of the Yakima Indian Nation), R10: Wyatt, Bob (Northwest Natural Gas Company), R10: Bluelake, Lisa (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Karnosh, Michael (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA), R10: Madden, Erin (Nez Perce Tribe), R10: Traeger, Karen, E (Legacy Site Services, LLC), R10: Wolf, Frederick (Legacy Site Services, LLC), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality), R10: Mcclincy, Matt (Oregon Dept. of Environmental Quality), R10: Wagoner, Colin, H (Ridolfi, Inc.), R10: Stivers, Carl (Anchor QEA, LLC), R10: Longoria, Rose (Yakama Nation), R10: Dost, Patty (Pearl Legal Group PC), R10: Pine, Keith (Anchor Environmental, LLC), R10: Williams, Jd (Unknown), R10: Mckenna, Jim (Verdant Solutions, LLC), R10: Woronets, Jennifer (Anchor Environmental, LLC), R10: Pine, Keith		053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100016227	10/27/2010	REDACTED Email Regarding Friday, October 29th 1 to 3 pm - October Portland Harbor Managers Meeting Agenda.	98	4 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)		ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100009626	10/28/2010	Email Regarding Evaluation of TBT Risk to Fish in Portland Harbor Technical Memorandum.	78	1 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Shephard, Burt (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100009627	10/28/2010	Memorandum Regarding Evaluation of TBT Risk to Fish in Portland Harbor.	87	9 MEMO / Memorandum	R10: Toll, John (Windward Environmental, LLC.), R10: Luxon, Matt (Windward Environmental, LLC.), R10: Katka, Shannon (Windward Environmental, LLC.)	R10: Shephard, Burt (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100016284	10/29/2010	REDACTED Portland Harbor Managers' Meeting - October 29, 2010.	10	1 MTG / Meeting Document	R10: (Lower Willamette Group)		ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100016341	10/29/2010	REDACTED Portland Harbor Managers' Meeting - October 29, 2010.	10	1 MTG / Meeting Document	R10: (Lower Willamette Group)		ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100011536	11/2/2010	Email Regarding Scheduling Thursday, November 4th BERA Benthic Approach Conference Call - reply requested.	36	1 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100012040	11/2/2010	Email Regarding Scheduling Thursday, November 4th BERA Benthic Approach Conference Call - reply requested.	84	1 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100014804	11/2/2010	REDACTED Email Regarding BERA Benthic Approach Conference Call - Thursday, November 4th 8:30 am to 10:30 am (pacific).	78	1 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100014470	11/7/2010	Email Regarding sums---missing info.	18	1 EML / Email	R10: Field, Jay (NOAA)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100017339	11/8/2010	REDACTED Email regarding reply to PH sums---missing info.	23	2 EML / Email	R10: Field, Jay (NOAA)	R10: Blischke, Eric, L (EPA), R10: Severn, Corinne, G (Premier Environmental Services)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100011310	11/12/2010	Letter Regarding Monthly Progress Report for October 2010.	73	11 RPT / Report	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100012142	11/12/2010	Lower Willamette River, Portland Harbor Superfund Site USEPA Docket No: CERCLA-10-2001-0240 Monthly Progress Report for October 2010.	73	11 LTR / Letter	R10: Woronets, Jennifer (Lower Willamette Group)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100016049	11/12/2010	REDACTED Email Regarding October 2010 Portland Harbor Monthly Progress Report.	91	1 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100017620	11/12/2010	REDACTED Email Regarding October 2010 Portland Harbor Monthly Progress Report.	90	1 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100010241	11/18/2010	Email Regarding General Responses to EPA's Non-Directive Comment Key Issues on the RI (Remedial Investigation, BERA (Baseline Ecological Risk Assessment) and BHHRA (Baseline Human Health Risk Assessment)).	83	2 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100010242	11/18/2010	General Responses to EPA's Non-Directive Comment Key Issues on the Baseline Human Health Risk Assessment - November 18, 20102010_11_18 NonDirective Comment Responses for BHHRA.	37	9 CORR / Correspondence	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100010905	11/18/2010	General Responses to EPA's Non-Directive Comment Key Issues on the DRAFT Remedial Investigation (RI) Report.	184	19 CORR / Correspondence	R10: (Lower Willamette Group)	R10: (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100012144	11/18/2010	General Responses to EPA's Non-Directive Comment Key Issues on the Draft Baseline Ecological Risk Assessment.	92	16 CHT / Chart/Table	R10: Unknown, Unknown (Lower Willamette Group)		ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100012145	11/18/2010	General Responses to EPA's Non-Directive Comment Key Issues on the Draft Remedial Investigation Report.	180	19 CHT / Chart/Table	R10: Unknown, Unknown (Lower Willamette Group)		ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100012146	11/18/2010	General Responses to EPA's Non-Directive Comment Key Issues on the Baseline Human Health Risk Assessment.	37	9 CHT / Chart/Table	R10: Unknown, Unknown (Lower Willamette Group)		ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100017621	11/18/2010	REDACTED Email Regarding General Responses to EPA's Non-Directive Comment Key Issues on the RI, BERA and BHHRA.	85	1 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100011306	11/19/2010	Email Regarding November Portland Harbor Managers Meeting.	85	1 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100012735	11/19/2010	Email Regarding November Portland Harbor Managers Meeting.	85	1 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)

100016511	12/1/2010	REDACTED Email Regarding Wednesday, December 8th 1:00 - 3:00 pm - Portland Harbor Managers Meeting Agenda.	85	1 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	Neely, Robert (NOAA), R10: Ashton, David (Port of Portland), R10: Madalinski, Kelly (Port of Portland), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Cunninghame, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Ebbets, Allison (Stratus Consulting, Inc.), R10: Peers, Jennifer (Stratus Consulting, Inc.), R10: Betz, Jan, L (City of Portland, Oregon, Office of Attorney), R10: Zeilman, Tom (Confederated Tribes and Bands of the Yakima Indian Nation), R10: Wyatt, Bob (Northwest Natural Gas Company), R10: Bluelake, Lisa (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Karnosh, Michael (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA), R10: Madden, Erin (Nez Perce Tribe), R10: Traeger, Karen, E (Legacy Site Services, LLC), R10: Wolf, Frederick (Legacy Site Services, LLC), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality), R10: Mcclincy, Matt (Oregon Dept. of Environmental Quality), R10: Wagoner, Colin, H (Ridolfi, Inc.), R10: Stivers, Carl (Anchor QEA, LLC), R10: Woronets, Jennifer (Anchor QEA, LLC), R10: Longoria, Rose (Yakama Nation), R10: Dost, Patty (Pearl Legal Group PC), R10: Pine, Keith (Anchor Environmental, LLC), R10: Williams, Jd (Unknown), R10: Mckenna, Jim	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100011541	12/3/2010	Draft Remedial Investigation and Risk Assessments Check-in Meeting Agenda.	77	1 MTG / Meeting Document	R10: (Lower Willamette Group)		ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100016342	12/3/2010	REDACTED Email Regarding Tuesday, December 7th 10 am to 2 pm (pacific) - Meeting to discuss RI and risk assessment issues agenda.	97	2 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100017343	12/6/2010	REDACTED Email regarding reply to Reliability Statistics.	24	2 EML / Email	R10: Field, Jay (NOAA)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
4940681087	12/6/2010	Email regarding list of excluded stations.	21	1 EML / Email	R10: Field, Jay (NOAA)	R10: Spence, Margaret (Parametrix, Inc.)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100014472	12/7/2010	Email Regarding Surface Sediment Stations Excluded from BERA.	19	2 EML / Email	R10: Field, Jay (NOAA)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100015741	12/7/2010	REDACTED Email Regarding Wednesday, December 8th 1:00 - 3:00 pm - Portland Harbor Managers Meeting Agenda.	90	2 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	Neely, Robert (NOAA), R10: Ashton, David (Port of Portland), R10: Madalinski, Kelly (Port of Portland), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Cunninghame, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Ebbets, Allison (Stratus Consulting, Inc.), R10: Betz, Jan, L (City of Portland, Oregon, Office of Attorney), R10: Wyatt, Bob (Northwest Natural Gas Company), R10: Bluelake, Lisa (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Karnosh, Michael (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA), R10: Madden, Erin (Nez Perce Tribe), R10: Traeger, Karen, E (Legacy Site Services, LLC), R10: Wolf, Frederick (Legacy Site Services, LLC), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality), R10: Mcclincy, Matt (Oregon Dept. of Environmental Quality), R10: Wagoner, Colin, H (Ridolfi, Inc.), R10: Stivers, Carl (Anchor QEA, LLC), R10: Woronets, Jennifer (Anchor QEA, LLC), R10: Longoria, Rose (Yakama Nation), R10: Dost, Patty (Pearl Legal Group PC), R10: Pine, Keith (Anchor Environmental, LLC), R10: Williams, Jd (Unknown), R10: Mckenna, Jim (Verdant Solutions, LLC), R10: Pine, Keith (Anchor QEA, LLC), R10: Applegate, Rick (City of Portland),	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100007828	12/8/2010	Email regarding EPA response to non-directed RIRA comment resolution.	19	1 EML / Email	R10: Humphrey, Chip (EPA)	R10: Wyatt, Robert, J (NW Natural), R10: Mckenna, Jim (Verdant Solutions, LLC)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100007829	12/8/2010	EPA letter, Non-directed Comment Resolution.	26	2 LTR / Letter	R10: Humphrey, Chip (EPA)	R10: Wyatt, Robert, J (NW Natural)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100007830	12/8/2010	EPA Response, Non-Directed Comment Tables.	41	6 RPT / Report	R10: (EPA)		ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100010263	12/8/2010	Letter Regarding Portland Harbor Superfund Site; Administrative Order on Consent for Remedial Investigation and Feasibility Study; General Responses to EPA Non-Directed RI, BHHRA and BERA Comments.	24	2 LTR / Letter	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	R10: Wyatt, Bob (Lower Willamette Group)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100010264	12/8/2010	Attachment 1 EPA Response to Non-Directed Comment Resolution Tables - 2010_12_08_EPA Response Non-Directed Comment Tables.	36	6 CORR / Correspondence	R10: (EPA)	R10: (Lower Willamette Group)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100010903	12/8/2010	Letter Regarding General Responses to EPA Non-Directed RI (Remedial Investigation), BHHRA (Baseline Human Health Risk Assessment) and BERA (Baseline Ecological Risk Assessment) Comments.	24	2 LTR / Letter	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	R10: Wyatt, Bob (Lower Willamette Group)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100010904	12/8/2010	EPA Response to Non-Directed Comment Resolution Tables.	36	6 CORR / Correspondence	R10: (EPA)	R10: (Lower Willamette Group)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100011305	12/8/2010	Letter Regarding Monthly Progress Report for November 2010.	277	11 RPT / Report	R10: Woronets, Jennifer (Lower Willamette Group)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100012148	12/8/2010	Lower Willamette River, Portland Harbor Superfund Site USEPA Docket No: CERCLA-10-2001-0240 Monthly Progress Report for November 2010.	277	11 LTR / Letter	R10: Woronets, Jennifer (Lower Willamette Group)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100015894	12/8/2010	REDACTED Email Regarding November 2010 Portland Harbor Monthly Progress Report.	91	1 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100016501	12/8/2010	REDACTED Portland Harbor Managers' Meeting - December 8, 2010.	9	1 MTG / Meeting Document	R10: (Lower Willamette Group)		ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100017611	12/8/2010	REDACTED Email Regarding November 2010 Portland Harbor Monthly Progress Report.	90	1 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100017942	12/8/2010	REDACTED Portland Harbor Managers' Meeting - December 8, 2010.	9	1 MTG / Meeting Document	R10: (Lower Willamette Group)		ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100014475	12/9/2010	Email Regarding Surface Sediment Stations Excluded from BERA.	20	2 EML / Email	R10: Field, Jay (NOAA)	R10: Spence, Margaret (Parametrix, Inc.)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)

4940681100	Email regarding reply to Surface Sediment Stations Excluded from BERA.	23	2 EML / Email	R10: Field, Jay (NOAA)	R10: Spence, Margaret (Parametrix, Inc.)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100016553	REDACTED Email Regarding LWG Response to EPA Comments on the Stormwater Loading Calculations Methods Report.	155	2 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100010908	Letter With LWG Comprehensive Response to EPA's Letters on Status of the Portland Harbor Feasibility Study (FS), Benthic Risk Evaluation, General Responses to EPA Non-Directed RI (Remedial Investigation), BHHRA and BERA Comments (With Attachments).	85	13 LTR / Letter	R10: Wyatt, Bob (Lower Willamette Group)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100016456	REDACTED Lower Willamette River, Portland Harbor Superfund Site USEPA Docket No: CERCLA-10-2001-0240 Monthly Progress Report for December 2010.	90	1 LTR / Letter	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100016585	REDACTED Email Regarding LWG Response to EPA September 27, 2010, December 8, 2010 and December 21, 2010 Letters.	82	2 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100017622	REDACTED Email Regarding December 2010 Portland Harbor Monthly Progress Report.	89	1 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100016519	REDACTED Email Regarding Final Stormwater Loading Methods Report.	158	2 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100012152	EPA's CSM Outline Direction - Dec. 8, 2011 Letter to LWG Requested Sections/Content	90	4 CHT / Chart/Table	R10: Unknown, Unknown (Lower Willamette Group)		ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100016449	REDACTED Email Regarding CSM Section Proposed Revisions.	100	2 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100016949	REDACTED Email Regarding Friday, February 4th 1:30 to 2:30 pm CSM Directive Conference Call.	33	2 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100012154	Lower Willamette River, Portland Harbor Superfund Site USEPA Docket No: CERCLA-10-2001-0240 Monthly Progress Report for January 2011.	124	12 LTR / Letter	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100016450	REDACTED Email Regarding January 2011 Portland Harbor Monthly Progress Report.	90	1 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100016915	REDACTED Email Regarding Additional dates for consideration - Need to Reschedule February 9th Portland Harbor Managers Meeting.	90	3 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Neely, Robert (NOAA), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Cunninghame, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Ebbets, Allison (Stratus Consulting, Inc.), R10: Peers, Jennifer (Stratus Consulting, Inc.), R10: Zeilman, Tom (Confederated Tribes and Bands of the Yakima Indian Nation), R10: Bluelake, Lisa (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Karnosh, Michael (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA), R10: Madden, Erin (Nez Perce Tribe), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality), R10: McClincy, Matt (Oregon Dept. of Environmental Quality), R10: Waggoner, Colin, H (Ridolfi, Inc.), R10: Longoria, Rose (Yakama Nation), R10: Williams, Jd (Unknown), R10: Weis, Julie (Haglund Kelley, LLP)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100008710	Portland Harbor RI/FS Draft Final Remedial Investigation Report Section 10-1 - Rev 5	189	15 CORR / Correspondence	R10: (Integral Consulting, Inc.)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100008711	Portland Harbor RI/FS Draft Final Remedial Investigation Report Section 10 - Rev 5	189	15 CORR / Correspondence	R10: (Integral Consulting, Inc.)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100017737	REDACTED Email Regarding No February Portland Harbor Managers Meeting.	88	3 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Neely, Robert (NOAA), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Cunninghame, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Ebbets, Allison (Stratus Consulting, Inc.), R10: Peers, Jennifer (Stratus Consulting, Inc.), R10: Zeilman, Tom (Confederated Tribes and Bands of the Yakima Indian Nation), R10: Bluelake, Lisa (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Karnosh, Michael (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA), R10: Madden, Erin (Nez Perce Tribe), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality), R10: McClincy, Matt (Oregon Dept. of Environmental Quality), R10: Waggoner, Colin, H (Ridolfi, Inc.), R10: Longoria, Rose (Yakama Nation), R10: Williams, Jd (Unknown), R10: Weis, Julie (Haglund Kelley, LLP)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100010909	Letter Regarding Portland Harbor Schedule for Remedial Investigation (RI) and Feasibility Study (FS).	366	8 LTR / Letter	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	R10: Wyatt, Bob (Lower Willamette Group), R10: Mckenna, Jim (Lower Willamette Group)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100012189	WORKING DRAFT - Recommended Portland Harbor RI/FS Schedule.	40	2 EML / Email	R10: Unknown, Unknown (Lower Willamette Group)		ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100016457	REDACTED Email Regarding Portland Harbor RI/FS Detailed Project Schedule.	84	1 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100012191	Response to EPA February 25, 2011 Letter (Lower Willamette River, Portland Harbor Superfund Site, USEPA Docket No: CERCLA-10-2001-0240).	66	4 LTR / Letter	R10: Wyatt, Robert (Lower Willamette Group)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100012190	Email Regarding Draft LWG Response to EPA February 25, 2011 Portland Harbor RI FS Schedule Letter.	88	1 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100012193	Lower Willamette River, Portland Harbor Superfund Site USEPA Docket No: CERCLA-10-2001-0240 Monthly Progress Report for February 2011.	116	12 LTR / Letter	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100016452	REDACTED Email Regarding February 2011 Portland Harbor Monthly Progress Report.	92	1 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100016483	REDACTED Email Regarding BHHRA New Risk Scenario Tables Posted For EPA Review and Comment	93	2 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100016962	REDACTED Email Regarding BHHRA New Risk Scenario Tables Posted For EPA Review and Comment.	33	2 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100010910	Letter Regarding LWG (Lower Willamette Group) Response to EPA 02/25/2011 Letter.	42	4 LTR / Letter	R10: Wyatt, Bob (Lower Willamette Group)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)

100017740	REDACTED Email Regarding Response to EPA 3/18/2011 February 25, 2011 RI FS Schedule Letter.	24	2 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100017926	REDACTED Email Regarding Response to EPA 3/18/2011 February 25, 2011 RI FS Schedule Letter.	78	1 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100015450	REDACTED Email regarding Re_Response to EPA March 16, 2011 Letter Re Use of Chemical 3/30/2011 Versus Contaminant.	120	2 EML / Email	R10: Humphrey, Chip (EPA)	R10: Wyatt, Robert, J (NW Natural), R10: Mckenna, James (Verdant Solutions, LLC)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100016478	REDACTED Email Regarding Alternatives Screening Presentation - Tuesday, April 12th 3/30/2011 10 am to 2:30 pm (pacific).	79	1 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100015427	REDACTED Email regarding Couple of 4/1/2011 Questions.	62	2 EML / Email	R10: Humphrey, Chip (EPA)	R10: Mckenna, James (Verdant Solutions, LLC)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100016592	REDACTED Email Regarding Monday, April 4th 11 am to 12 pm - Conference call to discuss 4/1/2011 April 12th Alternatives Screening Presentation.	79	1 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA), R10: Stivers, Carl (Anchor QEA, LLC), R10: Wyatt, Robert, J (NW Natural), R10: Mckenna, Jim (Verdant Solutions, LLC)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100016462	REDACTED Email Regarding Conference Call to Discuss April 12th Alternatives Screening 4/4/2011 Presentation.	39	2 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA), R10: Stivers, Carl (Anchor QEA, LLC), R10: Wyatt, Robert, J (NW Natural), R10: Mckenna, Jim (Verdant Solutions, LLC)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100016479	REDACTED Email Regarding Alternatives Screening Presentation Deliverable. 4/6/2011	70	1 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100007662	Email regarding EPA comments on BHHRA risk tables & calculations. 4/11/2011	18	1 EML / Email	R10: Humphrey, Chip (EPA)	R10: Mckenna, Jim (Port of Portland), R10: Wyatt, Robert, J (NW Natural)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100007673	Letter regarding EPA cover letter Risk Tables 4/11/2011 Review.	52	2 LTR / Letter	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	R10: Wyatt, Robert, J (NW Natural)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100007674	Email regarding EPA Comments on revised risk tables 4_11_11. 4/11/2011	53	2 OTH / Other			ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100010911	EPA Comments on 03/17/2011 BHHRA (Baseline Human Health Risk Assessment) Risk Tables and Calculations. 4/11/2011	50	2 CORR / Correspondence	R10: (EPA)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100015873	REDACTED Email Regarding Tuesday, April 12th 10 am to 2:30 pm (pacific) - Alternatives Screening Presentation. 4/11/2011	85	2 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100012195	Lower Willamette River, Portland Harbor Superfund Site USEPA Docket No: CERCLA-10-2001-0240 Monthly Progress Report for March 4/13/2011 2011.	124	12 LTR / Letter	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100016463	REDACTED Email Regarding March 2011 4/14/2011 Portland Harbor Monthly Progress Report.	93	1 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100016477	REDACTED Email Regarding Additional 4/14/2011 Alternatives Screening Presentation Materials.	78	1 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100016923	REDACTED Email Regarding Alternatives Screening Presentation Deliverable. 4/14/2011	36	2 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100010912	Email Regarding LWG (Lower Willamette Group) Request for Dispute Deadline Extension on EPA Comments on DRAFT BHHRA (Baseline Human Health Risk Assessment) Tables. 4/15/2011	63	1 EML / Email	R10: Humphrey, Chip (EPA)	R10: Mckenna, Jim (Lower Willamette Group)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100016516	REDACTED Email Regarding Final Stormwater Loading Methods Report. 4/15/2011	161	2 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100007657	Email regarding Request for non-pdf version of 4/21/2011 technology screening tables.	23	1 EML / Email	R10: Humphrey, Chip (EPA)	R10: Wyatt, Robert, J (NW Natural), R10: Mckenna, Jim (Verdant Solutions, LLC)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100007683	Email regarding Re_FW_ For Bob and Jim - 4/21/2011 draft talking points.	54	1 EML / Email	R10: Humphrey, Chip (EPA)	R10: Mckenna, James (Verdant Solutions, LLC)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100007686	Email regarding Re_FW_Bob_Jim-final Exec approved talking points_April 22nd 4/21/2011 Blumenauer Meeting.	54	1 EML / Email	R10: Humphrey, Chip (EPA)	R10: Mckenna, James (Verdant Solutions, LLC)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100012885	Letter Regarding Portland Harbor Superfund Site RI/FS Trust Fund - Claim Certificate LWG- 4/21/2011 019.	75	4 LTR / Letter	R10: Feige, Hans, P (Feige & Associates, Inc.)	R10: Cora, Lori, H (EPA), R10: Humphrey, Chip (EPA), R10: Pham, Vinh (Bank of the West)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100016999	REDACTED Email Regarding Final Stormwater Loading Methods Report. 4/21/2011	36	2 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100010913	Email Regarding EPA Comments on PBDE Risk 4/27/2011 Calculations.	31	1 EML / Email	R10: Mckenna, Jim (Lower Willamette Group)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100012196	Table 2. Summary Screening of Remedial Technologies and Process Options by AOPC for the Portland Harbor Superfund Site. 4/27/2011	102	5 CHT / Chart/Table	R10: Unknown, Unknown (Lower Willamette Group)		ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100012884	Email Regarding Trust Certificate LWG 019. 4/27/2011	81	1 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100016565	REDACTED Email Regarding Request for non-pdf version of technology screening tables. 4/27/2011	64	1 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100010268	Portland Harbor RI/FS DRAFT Final Remedial Investigation Report, Appendix F, Baseline Human Health Risk Assessment. 5/2/2011	976	138 RPT / Report	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100010349	Portland Harbor RI/FS DRAFT Final Remedial Investigation Report Attachment F3: Risks From Exposures to PBDEs. 5/2/2011	156	15 RPT / Report	R10: (Lower Willamette Group)	R10: (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100010350	Portland Harbor RI/FS DRAFT Final Remedial Investigation Report Appendix F, Baseline Human Health Risk Assessment (BHHRA), Attachment F6: Supporting Documentation for Uncertainty Analysis. 5/2/2011	153	14 EML / Email			ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100010914	Email Regarding LWG (Lower Willamette Group) DRAFT Final Baseline Human Health Risk Assessment (BHHRA). 5/2/2011	100	2 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100011165	Final Remedial Investigation Report, Appendix F, Baseline Human Health Risk Assessment (BHHRA) (With Relined Strikethrough Text). 5/2/2011	1,050	142 CORR / Correspondence	R10: (Lower Willamette Group), R10: (EPA)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100016539	REDACTED Email Regarding LWG Draft Final Baseline Human Health Risk Assessment. 5/2/2011	95	2 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100017049	REDACTED PORTLAND HARBOR RI/FS DRAFT FINAL REMEDIATION INVESTIGATION REPORT APPENDIX F BASELINE HUMAN HEALTH RISK ASSESSMENT DRAFT FINAL. 5/2/2011	106,573	5308 RPT / Report	R10: Unknown, Unknown (Kennedy/Jenks Consultants)	R10: Unknown, Unknown (Lower Willamette Group)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100010265	Letter Regarding EPA April 11, 2011 Comments on BHHRA Risk Tables and Calculations, Lower Willamette River, Portland Harbor Superfund 5/6/2011 Site.	33	2 LTR / Letter	R10: Wyatt, Bob (Lower Willamette Group)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100012200	Email Regarding Portland Harbor Superfund Site RI/FS Trust Fund Lower Willamette Group Claim Certificate LWG-020. 5/6/2011	65	3 LTR / Letter	R10: Feige, Hans, P (Feige & Associates, Inc.)	R10: Cora, Lori, H (EPA), R10: Humphrey, Chip (EPA), R10: Pham, Vinh (Bank of the West)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100017933	REDACTED Email Regarding Response to EPA April 11, 2011 Comments on BHHRA Risk 5/6/2011 Tables and Calculations.	80	1 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)



100016120	5/10/2011	REDACTED Email Regarding Wednesday, May 11th 1:00 to 3:00 pm - Portland Harbor Managers Meeting Agenda.	90	2 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	Neely, Robert (NOAA), R10: Ashton, David (Port of Portland), R10: Hamilton, Jessica (Port of Portland), R10: Madalinski, Kelly (Port of Portland), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Cunninghame, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Ebbets, Allison (Stratus Consulting, Inc.), R10: Peers, Jennifer (Stratus Consulting, Inc.), R10: Betz, Jan, L (City of Portland, Oregon, Office of Attorney), R10: Wyatt, Bob (Northwest Natural Gas Company), R10: BlueLake, Lisa (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Karnosh, Michael (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA), R10: Madden, Erin (Nez Perce Tribe), R10: Traeger, Karen, E (Legacy Site Services, LLC), R10: Wolf, Fred (Legacy Site Services, LLC), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality), R10: Mcclincy, Matt (Oregon Dept. of Environmental Quality), R10: Johnson, Matt (Unknown), R10: Wagoner, Colin, H (Ridolfi, Inc.), R10: Humphreys, Brandy (Grand Ronde Tribe), R10: Longoria, Rose (Yakama Nation), R10: Dost, Patty (Pearl Legal Group PC), R10: Williams, Jd (Unknown), R10: Mckenna, Jim (Verdant Solutions, LLC), R10: Pine, Keith (Anchor QEA, LLC), R10: Applegate, Rick (City of Portland), R10: Weis, Julie	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100012198	5/11/2011	Lower Willamette River, Portland Harbor Superfund Site USEPA Docket No: CERCLA-10-2001-0240 Monthly Progress Report for April 2011.	125	12 LTR / Letter	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100016135	5/11/2011	REDACTED Portland Harbor Managers' Meeting - May 11, 2011.	10	1 MTG / Meeting Document	R10: (Lower Willamette Group)		ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100012199	5/25/2011	Email Regarding Claim Certificate LWG-020.	85	1 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100016464	6/12/2011	REDACTED Email Regarding April 2011 Portland Harbor Monthly Progress Report.	93	1 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100012202	6/24/2011	Portland Harbor Superfund Site RI/FS Trust Fund Lower Willamette Group Claim Certificate LWG-021.	111	5 LTR / Letter	R10: Feige, Hans, P (Feige & Associates, Inc.)	R10: Cora, Lori, H (EPA), R10: Humphrey, Chip (EPA), R10: Pham, Vinh (Bank of the West)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100016551	6/27/2011	REDACTED Email Regarding Portland Harbor RI/FS Database Files Posted - EPA Portal.	135	2 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Neely, Robert (NOAA), R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100012201	6/30/2011	Email Regarding Claim Certificate LWG-021.	93	2 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100007841	7/1/2011	EPA edits to BERA Section 11.	770	83 RPT / Report	R10: (Unknown)		ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100016538	7/1/2011	REDACTED Email Regarding LWG Draft Final Baseline Ecological Risk Assessment.	115	2 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100013517	7/19/2011	REDACTED Email regarding Conference Call today.	58	1 EML / Email	R10: Humphrey, Chip (EPA)	R10: Mckenna, James (Verdant Solutions, LLC)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100010915	7/21/2011	EPA Letter Requesting Copies of Files LWG (Lower Willamette Group) Used to Develop DRAFT Baseline Human Health Risk Assessment (BHHRA).	18	2 EML / Email	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	R10: Wyatt, Bob (Lower Willamette Group)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100016513	7/21/2011	REDACTED Email Regarding Editorial revision to Table 7-46 of Portland Harbor BERA.	134	1 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100010916	7/22/2011	Email Follow-Up to EPA Letter Requesting Copies of Files LWG (Lower Willamette Group) Used to Develop DRAFT Baseline Human Health Risk Assessment (BHHRA).	14	1 EML / Email	R10: Humphrey, Chip (EPA)	R10: Wyatt, Bob (Lower Willamette Group), R10: Mckenna, Jim (Verdant Solutions, LLC)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100016567	7/22/2011	REDACTED Email Regarding Risk Management Recommendations Report for Portland Harbor.	111	2 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100011158	7/29/2011	Email Transmitting Word Version of Text of DRAFT Baseline Human Health Risk Assessment (BHHRA).	112	2 EML / Email	R10: Humphrey, Chip (EPA)	R10: Allen, Elizabeth (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100013871	7/29/2011	Email Regarding Word Version of Text of Draft Baseline Human Health Risk Assessment (BHHRA).	93	2 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100012522	8/23/2011	Email Regarding FW: Claim Certificate LWG 023.	101	2 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100013408	8/23/2011	REDACTED Email regarding Conference Call re Fish Sampling Effort.	51	4 EML / Email	R10: Humphrey, Chip (EPA)	R10: Mckenna, James (Verdant Solutions, LLC)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100013409	8/23/2011	REDACTED Email regarding Conference Call re Fish Sampling Effort.	57	5 EML / Email	R10: Humphrey, Chip (EPA)	R10: Mckenna, James (Verdant Solutions, LLC)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100013516	8/23/2011	REDACTED Email regarding Conference Call re Fish Sampling Effort.	54	4 EML / Email	R10: Humphrey, Chip (EPA)	R10: Mckenna, James (Verdant Solutions, LLC)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100008672	8/28/2011	Portland Harbor RI/FS Draft Final Remedial Investigation Report Section 5.5 - RI 5.5_02_koch_2012-01-13_DF_RI_Sec5_5_Text - jk_tg_5.2014.	522	45 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100008313	8/29/2011	Portland Harbor RI/FS Draft Final Remedial Investigation Report Section 10 - Koch_2012-01-13_DF_RI_Sec10_Text.	1,398	136 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100008395	8/29/2011	Portland Harbor RI/FS Draft Final Remedial Investigation Report Section 5.6 - koch_2012-01-13_DF_RI_Sec5_6_Text - JK_TG_5_17_14.	1,012	105 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100008396	8/29/2011	Portland Harbor RI/FS Draft Final Remedial Investigation Report Section 5.4 - koch_2012-01-13_DF_RI_Sec5_4_Text - CDM Smith (2).	943	87 CORR / Correspondence	R10: Koch, Kristine, M (EPA)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100008397	8/29/2011	Portland Harbor RI/FS Draft Final Remedial Investigation Report Section 5.5 - koch_2012-01-13_DF_RI_Sec5_5_Text - jk_tg_5.2014.	520	45 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100008398	8/29/2011	Portland Harbor RI/FS Draft Final Remedial Investigation Report Section 5.0-5.2 - Koch_2012-01-13_DF_RI_Sec5.0, 5.1 and 5.2 Text.	1,239	136 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100008399	8/29/2011	Portland Harbor RI/FS Draft Final Remedial Investigation Report Section 5.3 - koch_2012-01-13_DF_RI_Sec5.3_Text.	403	32 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100008400	8/29/2011	Portland Harbor RI/FS Draft Final Remedial Investigation Report Section 5.0-5.2 - Koch_2012-04_23_DF_RI_Sec5_0_5_1 and 5_2 Text_ea.	990	94 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)

100008668	8/29/2011	Portland Harbor RI/FS Draft Final Remedial Investigation Report Section 5.4 - RI 5.4_02_koch_2012-01-13_DF RI_Sec5.4_Text_CDM_data.	961	89 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100008686	8/29/2011	Portland Harbor RI/FS Draft Final Remedial Investigation Report Section 5.6 - RI 5.6_02_Sec5.6_Text - JK_TG_5 17 14.	1,026	106 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100008689	8/29/2011	Portland Harbor RI/FS Draft Final Remedial Investigation Report Section 5.0-5.1 - Rev 1 2014-07-15_DF RI_Sec5.0_5.1_Text_EPA_Integral.	107	3 CORR / Correspondence	R10: Revelas, Gene, C (Integral Consulting, Inc.)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100008691	8/29/2011	Portland Harbor RI/FS Draft Final Remedial Investigation Report Section 5.3 - Rev 1 2014-07-15_DF RI_Sec5.3_Text_EPA_Integral.	260	17 CORR / Correspondence	R10: Revelas, Gene, C (Integral Consulting, Inc.)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100008692	8/29/2011	Portland Harbor RI/FS Draft Final Remedial Investigation Report Section 5.4 - Rev 1 2014-07-22_DF RI_Sec5.4_Text_EPA_Integral.	605	49 CORR / Correspondence	R10: Koch, Kristine, M (EPA)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100008693	8/29/2011	Portland Harbor RI/FS Draft Final Remedial Investigation Report Section 5.6 - Rev 1 2014-08-04_DF RI_Sec5.6_Text_EPA_Integral.	601	77 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100008696	8/29/2011	Portland Harbor RI/FS Draft Final Remedial Investigation Report Section 10 - Rev 2 EPA_2014-01-12_DF RI_Sec10_1_KK.	206	15 CORR / Correspondence	R10: (Integral Consulting, Inc.)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100008697	8/29/2011	Portland Harbor RI/FS Draft Final Remedial Investigation Report Section 10.2 - Rev 2 EPA_2014-01-12_DF RI_Sec10_2_ea_kk.	400	39 CORR / Correspondence	R10: (Integral Consulting, Inc.)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100008702	8/29/2011	Portland Harbor RI/FS Draft Final Remedial Investigation Report Section 10 - Rev 3 EPA_2014-01-12_DF RI_Sec10_1_KK_Integral.	217	15 CORR / Correspondence	R10: (Integral Consulting, Inc.)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100008703	8/29/2011	Portland Harbor RI/FS Draft Final Remedial Investigation Report Section 10.2 - Rev 3 EPA_2014-01-12_DF RI_Sec10_2_clean.	322	38 CORR / Correspondence	R10: (Integral Consulting, Inc.)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100008704	8/29/2011	Portland Harbor RI/FS Draft Final Remedial Investigation Report Section 10.2 - Rev 3 EPA_2014-01-12_DF RI_Sec10_2_ea_kk_Integral.	421	39 CORR / Correspondence	R10: (Integral Consulting, Inc.)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100010377	8/29/2011	Revised Draft RI Section 10, Proposed Final Revisions to Sections 10.1 - Rev 2 EPA_2014-01-12_DF RI_Sec10_1_KK_Integral.	213	15 CORR / Correspondence	R10: Revelas, Gene, C (Integral Consulting, Inc.)	R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100010378	8/29/2011	Revised Draft RI Section 10, Proposed Final Revisions to Sections 10.2 - Rev 2 EPA_2014-01-12_DF RI_Sec10_2_ea_kk_Integral.	414	39 CORR / Correspondence	R10: Revelas, Gene, C (Integral Consulting, Inc.)	R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100016546	8/29/2011	REDACTED Email Regarding LWG Draft Final RI Posted for EPA.	96	2 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100015424	8/30/2011	REDACTED Email regarding check in for wed.	65	2 EML / Email	R10: Humphrey, Chip (EPA)	R10: Mckenna, James (Verdant Solutions, LLC) R10: Younus, Burhan (Tetra Tech, Inc.), R10: Gustavson, Karl (National Academy of Sciences), R10: Humphrey, Chip (EPA), R10: Lambert, Matthew (EPA), R10: Parrett, Kevin (GSI Groundwater Solutions, Inc.)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100016983	9/2/2011	REDACTED Email regarding start date of September 12 for field work.	52	1 CORR / Correspondence	R10: Applegate, Richard (City of Portland, Oregon)	R10: Neely, Robert (NOAA), R10: Wagoner, Colin (Ridolfi Engineers and Associates, Inc.), R10: Ashton, David (Port of Portland), R10: Hamilton, Jessica (Port of Portland), R10: Mckenna, Jim (Port of Portland), R10: Madalinski, Kelly (Port of Portland), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Cunningham, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Ebbets, Allison (Stratus Consulting, Inc.), R10: Peers, Jennifer (Stratus Consulting, Inc.), R10: Woronets, Jennifer (Lower Willamette Group), R10: Bluelake, Lisa (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA), R10: Madden, Erin (Nez Perce Tribe), R10: Traeger, Karen, E (Legacy Site Services, LLC), R10: Wolf, Frederick (Legacy Site Services, LLC), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality), R10: McClincy, Matt (Oregon Dept. of Environmental Quality), R10: Gainer, Tom (Oregon Dept. of Environmental Quality), R10: Stivers, Carl (Anchor QEA, LLC), R10: Humphreys, Brandy (Grand Ronde Tribe), R10: Longoria, Rose (Yakama Nation), R10: Wyatt, Robert, J (NW Natural), R10: Dost, Patty (Pearl Legal Group PC), R10: Williams, Jd (Unknown), R10: Mckenna, Jim (Verdant Solutions, LLC), R10: Woronets, Jennifer (Anchor	PAPER DOCUMENT	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100016465	9/7/2011	REDACTED Email Regarding Portland Harbor Managers Meeting Agenda - Wednesday, September 14th 1:00 to 3:00 pm.	86	1 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Woronets, Jennifer (Anchor	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100016466	9/7/2011	REDACTED Portland Harbor Managers' Meeting - September 14, 2011.	9	1 MTG / Meeting Document	R10: Unknown, Unknown (Lower Willamette Group)	R10: Wyatt, Robert, J (NW Natural), R10: Mckenna, Jim (Verdant Solutions, LLC), R10: Woronets, Jennifer (Anchor Environmental, LLC)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100007794	9/8/2011	Email regarding EPA letter.	18	1 EML / Email	R10: Humphrey, Chip (EPA)	R10: Mckenna, Jim (Verdant Solutions, LLC), R10: Woronets, Jennifer (Anchor Environmental, LLC)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100007795	9/8/2011	Letter regarding EPA SMB letter to LWG.	104	2 LTR / Letter	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	R10: Wyatt, Robert, J (NW Natural)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)

100017782	9/13/2011	REDACTED Email Regarding Wednesday, September 14th 1:00 to 3:00 pm - Portland Harbor Managers Meeting Agenda.	90	2 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Parkinson, Steve (Groff & Murphy), R10: Neely, Robert (NOAA), R10: Hamilton, Jessica (Port of Portland), R10: Madalinski, Kelly (Port of Portland), R10: Cunninghame, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Ebbets, Allison (Stratus Consulting, Inc.), R10: Peers, Jennifer (Stratus Consulting, Inc.), R10: Betz, Jan, L (City of Portland, Oregon, Office of Attorney), R10: Ashton, David (Lower Willamette Group), R10: Wyatt, Bob (Northwest Natural Gas Company), R10: Bluelake, Lisa (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA), R10: Madden, Erin (Nez Perce Tribe), R10: Traeger, Karen, E (Legacy Site Services, LLC), R10: Wolf, Fred (Legacy Site Services, LLC), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality), R10: Mcclincy, Matt (Oregon Dept. of Environmental Quality), R10: Gainer, Tom (Oregon Dept. of Environmental Quality), R10: Johnson, Matt (Unknown), R10: Wagoner, Colin, H (Ridolfi, Inc.), R10: Stivers, Carl (Anchor QEA, LLC), R10: Humphreys, Brandy (Grand Ronde Tribe), R10: Longoria, Rose (Yakama Nation), R10: Dost, Patty (Pearl Legal Group PC), R10: Williams, Jd (Unknown), R10: Mckenna, Jim (Verdant Solutions, LLC), R10: Pine, Keith (Anchor QEA, LLC), R10: Applegate, Rick (City of Portland), R10: Weis, Julie (Haglund Kelley, LLP)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100017803	9/14/2011	REDACTED Portland Harbor Managers' Meeting - September 14, 2011.	9	1 MTG / Meeting Document	R10: (Lower Willamette Group)		ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100017360	9/30/2011	REDACTED Email regarding Examples of unacceptable language from the Portland Harbor BERA.	55	4 EML / Email	R10: Shephard, Burt (EPA)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100012523	10/19/2011	Email Regarding Claim Certificate LWG-024.	100	2 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100015822	10/27/2011	REDACTED Email Regarding Portland Harbor Conference Call to Discuss Upcoming CAG Presentation.	39	2 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA), R10: Mckenna, Jim (Verdant Solutions, LLC), R10: Smith, Barbara (Harris and Smith)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100012206	11/2/2011	Portland Harbor Superfund Site RI/FS Trust Fund Lower Willamette Group Claim Certificate LWG-025	92	4 LTR / Letter	R10: Feige, Hans, P (Feige & Associates, Inc.)	R10: Cora, Lori, H (EPA), R10: Humphrey, Chip (EPA), R10: Pham, Vinh (Bank of the West)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100018075	11/4/2011	REDACTED Email Regarding Wednesday, November 9th Portland Harbor Managers Meeting Cancelled.	85	1 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Parkinson, Steve (Groff & Murphy), R10: Neely, Robert (NOAA), R10: Ashton, David (Port of Portland), R10: Hamilton, Jessica (Port of Portland), R10: Madalinski, Kelly (Port of Portland), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Cunninghame, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Ebbets, Allison (Stratus Consulting, Inc.), R10: Peers, Jennifer (Stratus Consulting, Inc.), R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA), R10: Madden, Erin (Nez Perce Tribe), R10: Traeger, Karen, E (Legacy Site Services, LLC), R10: Wolf, Frederick (Legacy Site Services, LLC), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality), R10: Mcclincy, Matt (Oregon Dept. of Environmental Quality), R10: Livesay, Dave (GSI Groundwater Solutions, Inc.), R10: Wagoner, Colin, H (Ridolfi, Inc.), R10: Woronets, Jennifer (Anchor QEA, LLC), R10: Humphreys, Brandy (Grand Ronde Tribe), R10: D'auila, Kim (Grand Ronde Tribe), R10: Longoria, Rose (Yakama Nation), R10: Wyatt, Robert, J (NW Natural), R10: Dost, Patty (Pearl Legal Group PC), R10: Johnson, Matt (WilliamsJohnson), R10: Pine, Keith (Anchor Environmental, LLC), R10: Williams, Jd (Unknown), R10: Mckenna, Jim (Verdant Solutions, LLC), R10: Betz, Jan (City of Portland, Oregon), R10: Weis, Julie (Haglund Kelley, LLP)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100012205	11/10/2011	Email Regarding Claim Certificate LWG-025.	93	2 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100012542	11/23/2011	Email Regarding Trust Certificate LWG-026.	101	2 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100013815	12/7/2011	Email Regarding manager meeting next week? Portland Harbor Superfund Site RI/FS Trust Fund Revised Trust Budget Estimate Lower Willamette Group.	35	1 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Madden, Erin (Nez Perce Tribe)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100012208	12/8/2011	Willamette Group.	26	2 LTR / Letter	R10: Wyatt, Robert, J (NW Natural)	R10: Cora, Lori, H (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100016458	12/8/2011	REDACTED Email Regarding Portland Harbor Superfund Site RI/FS Trust Fund.	86	1 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Cora, Lori, H (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100013825	12/9/2011	Email Regarding Monthly Managers Meeting.	34	1 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100016467	12/9/2011	REDACTED Email Regarding Portland Harbor Managers Meeting Agenda - Wednesday, December 14th 1 to 3 pm (pacific).	95	1 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Parkinson, Steve (Groff & Murphy), R10: Neely, Robert (NOAA), R10: Ashton, David (Port of Portland), R10: Hamilton, Jessica (Port of Portland), R10: Mckenna, Jim (Port of Portland), R10: Madalinski, Kelly (Port of Portland), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Cunninghame, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Ebbets, Allison (Stratus Consulting, Inc.), R10: Peers, Jennifer (Stratus Consulting, Inc.), R10: Woronets, Jennifer (Lower Willamette Group), R10: Koch, Kristine, M (EPA), R10: Traeger, Karen, E (Legacy Site Services, LLC), R10: Wolf, Frederick (Legacy Site Services, LLC), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality), R10: Mcclincy, Matt (Oregon Dept. of Environmental Quality), R10: Gainer, Tom (Oregon Dept. of Environmental Quality), R10: Livesay, Dave (GSI Groundwater Solutions, Inc.), R10: Wagoner, Colin, H (Ridolfi, Inc.), R10: Woronets, Jennifer (Anchor QEA, LLC), R10: Humphreys, Brandy (Grand Ronde Tribe), R10: D'auila, Kim (Grand Ronde Tribe), R10: Longoria, Rose (Yakama Nation), R10: Wyatt, Robert, J (NW Natural), R10: Dost, Patty (Pearl Legal Group PC), R10: Johnson, Matt (WilliamsJohnson), R10: Mckenna, Jim (Verdant Solutions, LLC), R10: Betz, Jan (City of Portland, Oregon), R10: Pine, Keith (Anchor QEA, LLC), R10: Weis, Julie (Haglund Kelley,	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100016468	12/9/2011	REDACTED Portland Harbor Managers' Meeting - December 14, 2011.	100	1 MTG / Meeting Document	R10: Unknown, Unknown (Lower Willamette Group)		ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)

						Kim, E (City of Portland, Oregon), R10: Parkinson, Steve (Groff & Murphy), R10: Neely, Robert (NOAA), R10: Ashton, David (Port of Portland), R10: Hamilton, Jessica (Port of Portland), R10: Madalinski, Kelly (Port of Portland), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Cunninghame, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Ebbets, Allison (Stratus Consulting, Inc.), R10: Peers, Jennifer (Stratus Consulting, Inc.), R10: Betz, Jan, L (City of Portland, Oregon, Office of Attorney), R10: Wyatt, Bob (Northwest Natural Gas Company), R10: Koch, Kristine, M (EPA), R10: Madden, Erin (Nez Perce Tribe), R10: Traeger, Karen, E (Legacy Site Services, LLC), R10: Wolf, Fred (Legacy Site Services, LLC), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality), R10: McClincy, Matt (Oregon Dept. of Environmental Quality), R10: Gainer, Tom (Oregon Dept. of Environmental Quality), R10: Livesay, Dave (GSI Groundwater Solutions, Inc.), R10: Wagoner, Colin, H (Ridolfi, Inc.), R10: Humphreys, Brandy (Grand Ronde Tribe), R10: D'aguila, Kim (Grand Ronde Tribe), R10: Longoria, Rose (Yakama Nation), R10: Dost, Patty (Pearl Legal Group PC), R10: Johnson, Matt (WilliamsJohnson), R10: Williams, Jd (Unknown), R10: Mckenna, Jim (Verdant Solutions, LLC), R10: Pine, Keith (Anchor QEA,			
100016113	12/13/2011	REDACTED Email Regarding Wednesday, December 14th 1 to 3 pm (pacific) - Portland Harbor Managers Meeting Agenda.	100	2 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)		ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)	
100016111	12/14/2011	REDACTED Portland Harbor Managers' Meeting - December 14, 2011.	100	1 MTG / Meeting Document	R10: (Lower Willamette Group)		ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)	
4940680049	12/22/2011	Email regarding reply to Jay Field review of BERA LRM.	24	2 EML / Email	R10: Neely, Robert (NOAA)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)	
100016584	1/9/2012	REDACTED Email Regarding January 11th Portland Harbor Managers Meeting Cancelled.	92	1 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Parkinson, Steve (Groff & Murphy), R10: Neely, Robert (NOAA), R10: Ashton, David (Port of Portland), R10: Hamilton, Jessica (Port of Portland), R10: Madalinski, Kelly (Port of Portland), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Cunninghame, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Ebbets, Allison (Stratus Consulting, Inc.), R10: Peers, Jennifer (Stratus Consulting, Inc.), R10: Woronets, Jennifer (Lower Willamette Group), R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA), R10: Madden, Erin (Nez Perce Tribe), R10: Traeger, Karen, E (Legacy Site Services, LLC), R10: Wolf, Fred (Legacy Site Services, LLC), R10: Gainer, Thomas, B (Oregon Dept. of Environmental Quality), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality), R10: McClincy, Matt (Oregon Dept. of Environmental Quality), R10: Livesay, Dave (GSI Groundwater Solutions, Inc.), R10: Wagoner, Colin, H (Ridolfi, Inc.), R10: Stivers, Carl (Anchor QEA, LLC), R10: Woronets, Jennifer (Anchor QEA, LLC), R10: Humphreys, Brandy (Grand Ronde Tribe), R10: D'aguila, Kim (Grand Ronde Tribe), R10: Longoria, Rose (Yakama Nation), R10: Wyatt, Robert, J (NW Natural), R10: Dost, Patty (Pearl Legal Group PC), R10: Pine, Keith (Anchor Environmental, LLC), R10: Williams, Jd (Unknown), R10: Mckenna, Jim (Verdant		ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100017369	1/11/2012	REDACTED Email regarding Portland Harbor ecological risk call Thursday, January 12, 10 - 11 am.	36	1 EML / Email	R10: Shephard, Burt (EPA)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)	
100008331	1/13/2012	Portland Harbor RI/FS Draft Final Remedial Investigation Report Section 10 - Koch_2012-01-13_DF RI_Sec10_Text_Section 10.1.	238	17 CORR / Correspondence	R10: (Integral Consulting, Inc.)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)	
100008332	1/13/2012	Portland Harbor RI/FS Draft Final Remedial Investigation Report Section 10.2 - Koch_2012-01-13_DF RI_Sec10_Text_Section 10.2.	525	50 CORR / Correspondence	R10: (Integral Consulting, Inc.)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)	
100008334	1/13/2012	Portland Harbor RI/FS Draft Final Remedial Investigation Report Section 10.1 - Rev 1 EPA_2012-01-13_DF RI_Sec 10.1_Text.	310	21 CORR / Correspondence	R10: (Integral Consulting, Inc.)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)	
100008335	1/13/2012	Portland Harbor RI/FS Draft Final Remedial Investigation Report Section 10.1 - Rev 1 EPA_2012-01-13_DF RI_Sec10.2.	588	53 CORR / Correspondence	R10: (Integral Consulting, Inc.)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)	
100008376	1/13/2012	Portland Harbor RI/FS Draft Final Remedial Investigation Report Section 10.1 - Rev 1 EPA_2012-01-13_DF RI_Sec 10.1_Text.	277	21 CORR / Correspondence	R10: (Integral Consulting, Inc.)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)	
100008379	1/13/2012	Portland Harbor RI/FS Draft Final Remedial Investigation Report Section 10 - Rev 1 EPA_2012-01-13_DF RI_Sec10 1_EPA RLSO accepted.	182	15 CORR / Correspondence	R10: (Integral Consulting, Inc.)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)	
100008380	1/13/2012	Portland Harbor RI/FS Draft Final Remedial Investigation Report Section 10.2 - Rev 1 EPA_2012-01-13_DF RI_Sec10 2_EPA RLSO accepted.	394	38 CORR / Correspondence	R10: (Integral Consulting, Inc.)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)	
100012212	1/13/2012	Lower Willamette River, Portland Harbor Superfund Site USEPA Docket No: CERCLA-10-2001-0240 Monthly Progress Report for December 2011.	135	13 LTR / Letter	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)	
100016469	1/13/2012	REDACTED Email Regarding December 2011 Portland Harbor Monthly Progress Report.	101	1 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)	
100013874	1/20/2012	Email Regarding Word Version of Text of Draft Final Remedial Investigation.	72	2 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Cora, Lori, H (EPA), R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)	
100017372	1/25/2012	REDACTED Email regarding Portland Harbor ecological risk call Thursday, January 26, 10 - 10:30 am.	36	1 EML / Email	R10: Shephard, Burt (EPA)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)	
100013872	1/27/2012	Email Regarding Word Version of Text of Draft Final Baseline Ecological Risk Assessment.	96	1 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Cora, Lori, H (EPA), R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)	
100017379	2/1/2012	REDACTED Email regarding Weekly Portland Harbor Ecorisk Call 10 - 11 am Thursday, February 2.	34	1 EML / Email	R10: Shephard, Burt (EPA)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)	
100012213	2/2/2012	Email Regarding Portland Harbor Request For Underlying Backup Regarding EPA Bill No. 270122650020.	86	1 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Cora, Lori, H (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)	
100012214	2/2/2012	Site 108T, Portland Harbor RI/FS Request for Underlying Backup Regarding EPA Bill No. 270122650020 (Lower Willamette River, Portland Harbor Superfund Site, USEPA Docket No: CERCLA-10-2001-0240).	103	2 LTR / Letter	R10: Wyatt, Robert (Lower Willamette Group)	R10: Rice, Richard (EPA Cincinnati Finance Center)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)	
100017381	2/8/2012	REDACTED Email regarding Portland Harbor Ecological Risk Assessment Call, Thursday, February 9th 10 - 11 am and Doodle poll for meeting this month.	35	1 EML / Email	R10: Shephard, Burt (EPA)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)	



100012216	2/17/2012	Portland Harbor Superfund Site RI/FS Trust Fund Lower Willamette Group Claim Certificate LWG-027.	125	3 LTR / Letter	R10: Feige, Hans, P (Feige & Associates, Inc.)	R10: Cora, Lori, H (EPA), R10: Humphrey, Chip (EPA), R10: Pham, Vinh (Bank of the West)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100012215	2/22/2012	Email Regarding Claim Certificate LWG - 027	101	2 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100008092	2/24/2012	Figure 1-1 Portland Harbor RI/FS Vicinity Map - Figure 1-1.	287	1 CORR / Correspondence	R10: Nelson, Robin (Cadman, Inc.)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100008113	2/24/2012	Portland Harbor RI/FS 2001 Aerial Ortho-photos Map 1-3 Maps.	7,280	14 CORR / Correspondence	R10: Koch, Kristine, M (EPA)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100017002	2/28/2012	REDACTED Email Regarding Hot Spots Call Scheduled - Thursday, March 15th 2 to 3:30 pm (pacific).	37	3 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Burkholder, Kurt (Oregon Dept. of Justice), R10: Cora, Lori, H (EPA), R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100017872	3/14/2012	REDACTED Email Regarding Thursday, March 15th 2 to 3:30 pm (pacific) - Hot Spots Call. Letter Regarding Portland Harbor Superfund Site RI/FS Trust Fund - Claim Certificate LWG-	38	3 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Burkholder, Kurt (Oregon Dept. of Justice), R10: Cora, Lori, H (EPA), R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100012887	3/21/2012	028.	107	3 LTR / Letter	R10: Feige, Hans, P (Feige & Associates, Inc.)	R10: Cora, Lori, H (EPA), R10: Humphrey, Chip (EPA), R10: Pham, Vinh (Bank of the West)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100012886	3/27/2012	Email Regarding Trust Certificate LWG-028.	89	1 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100012218	4/16/2012	Portland Harbor Superfund Site RI/FS Trust Fund Lower Willamette Group Claim Certificate LWG-029.	206	7 LTR / Letter	R10: Feige, Hans, P (Feige & Associates, Inc.)	R10: Cora, Lori, H (EPA), R10: Humphrey, Chip (EPA), R10: Pham, Vinh (Bank of the West)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100012217	4/18/2012	Email Regarding Trust Certificate LWG-029.	93	1 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100016558	4/19/2012	REDACTED Email Regarding Oregon Hot Spots Meeting - Thursday, May 10th 2 to 3 pm (pacific).	119	4 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100012219	5/4/2012	Email Regarding May 10, 2012 Hot Spots Meeting - Background Document: Hot Spots In The Portland Harbor Feasibility Study.	90	1 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100012494	5/4/2012	PORTLAND HARBOR RI/FS - BACKGROUND DOCUMENT: HOT SPOTS IN THE PORTLAND HARBOR FEASIBILITY STUDY.	141	10 RPT / Report	R10: Unknown, Unknown (Lower Willamette Group)	R10: Parkinson, Steve (Groff & Murphy), R10: Neely, Robert (NOAA), R10: Wagoner, Colin (Ridolfi Engineers and Associates, Inc.), R10: Ashton, David (Port of Portland), R10: Mckenna, Jim (Port of Portland), R10: Madalinski, Kelly (Port of Portland), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Cunninghame, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Ebbets, Allison (Stratus Consulting, Inc.), R10: Peers, Jennifer (Stratus Consulting, Inc.), R10: Woronets, Jennifer (Lower Willamette Group), R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA), R10: Madden, Erin (Nez Perce Tribe), R10: Traeger, Karen, E (Legacy Site Services, LLC), R10: Wolf, Fred (Legacy Site Services, LLC), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality), R10: McClincy, Matt (Oregon Dept. of Environmental Quality), R10: Gainer, Tom (Oregon Dept. of Environmental Quality), R10: Livesay, Dave (GSI Groundwater Solutions, Inc.), R10: Woronets, Jennifer (Anchor QEA, LLC), R10: Humphreys, Brandy (Grand Ronde Tribe), R10: D'aquila, Kim (Grand Ronde Tribe), R10: Longoria, Rose (Yakama Nation), R10: Wyatt, Robert, J (NW Natural), R10: Dost, Patty (Pearl Legal Group PC), R10: Williams, Jd (Unknown), R10: Mckenna, Jim (Verdant Solutions, LLC), R10: Betz, Jan (City of Portland)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100016586	5/8/2012	REDACTED Email Regarding May 9th Portland Harbor Managers Meeting.	84	1 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100017751	5/8/2012	REDACTED Email Regarding May 9th Portland Harbor Managers Meeting.	74	2 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100017876	5/9/2012	REDACTED Email Regarding Thursday, May 10th 2 to 3 pm (pacific) - Oregon Hot Spots Meeting.	108	2 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Humphrey, Chip (EPA), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100012496	6/1/2012	Portland Harbor Superfund Site RI/FS Trust Fund Lower Willamette Group Claim Certificate LWG-030.	93	3 LTR / Letter	R10: Feige, Hans, P (Feige & Associates, Inc.)	R10: Cora, Lori, H (EPA), R10: Humphrey, Chip (EPA), R10: Pham, Vinh (Bank of the West)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100012495	6/6/2012	Email Regarding Claim Certificate LWG-030.	92	2 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100015841	6/6/2012	REDACTED Email Regarding Portland Harbor Managers Meeting Rescheduled - Thursday, June 14th 1 to 2 pm Conference Call.	86	1 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Parkinson, Steve (Groff & Murphy), R10: Neely, Robert (NOAA), R10: Wagoner, Colin (Ridolfi Engineers and Associates, Inc.), R10: Ashton, David (Port of Portland), R10: Hamilton, Jessica (Port of Portland), R10: Mckenna, Jim (Port of Portland), R10: Madalinski, Kelly (Port of Portland), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Cunninghame, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Peers, Jennifer (Stratus Consulting, Inc.), R10: Woronets, Jennifer (Lower Willamette Group), R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA), R10: Madden, Erin (Nez Perce Tribe), R10: Traeger, Karen, E (Legacy Site Services, LLC), R10: Wolf, Frederick (Legacy Site Services, LLC), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality), R10: McClincy, Matt (Oregon Dept. of Environmental Quality), R10: Gainer, Tom (Oregon Dept. of Environmental Quality), R10: Livesay, Dave (GSI Groundwater Solutions, Inc.), R10: Woronets, Jennifer (Anchor QEA, LLC), R10: Humphreys, Brandy (Grand Ronde Tribe), R10: D'aquila, Kim (Grand Ronde Tribe), R10: Longoria, Rose (Yakama Nation), R10: Wyatt, Robert, J (NW Natural), R10: Dost, Patty (Pearl Legal Group PC), R10: Johnson, Matt (WilliamsJohnson), R10: Williams, Jd (Unknown), R10: Mckenna, Jim (Verdant Solutions, LLC)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100012498	6/7/2012	LWG Responses to DEQ's May 21, 2012 Seven Concerns contained in an Email Regarding "5/10/12 DEQ/EPA/LWG Hot Spots Meeting".	179	6 MEMO / Memorandum	R10: Unknown, Unknown (Lower Willamette Group)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100016442	6/7/2012	REDACTED Email Regarding LWG Response to DEQ May 21, 2012 Email Regarding May 10, 2012 Hot Spots Meeting.	91	1 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Koch, Kristine, M (EPA), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100016514	6/7/2012	REDACTED Email Regarding EPA Requested Information.	231	5 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)

100013819	6/8/2012	Email Regarding Meeting with Bob & Jim to discuss tissue monitoring.	102	2 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100013820	6/8/2012	Email Regarding Meeting with Bob & Jim to discuss tissue monitoring.	88	2 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100013821	6/8/2012	Email Regarding Meeting with Bob & Jim to discuss tissue monitoring.	37	1 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100013822	6/8/2012	Email Regarding Meeting with Bob & Jim to discuss tissue monitoring.	94	1 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Humphrey, Chip (EPA) R10: Neely, Robert (NOAA), R10: Ashton, David (Port of Portland), R10: Hamilton, Jessica (Port of Portland), R10: Madalinski, Kelly (Port of Portland), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Cunninghame, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Ebbets, Allison (Stratus Consulting, Inc.), R10: Peers, Jennifer (Stratus Consulting, Inc.), R10: Betz, Jan, L (City of Portland, Oregon, Office of Attorney), R10: Wyatt, Bob (Northwest Natural Gas Company), R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA), R10: Madden, Erin (Nez Perce Tribe), R10: Traeger, Karen, E (Legacy Site Services, LLC), R10: Wolf, Fred (Legacy Site Services, LLC), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality), R10: McClincy, Matt (Oregon Dept. of Environmental Quality), R10: Gainer, Tom (Oregon Dept. of Environmental Quality), R10: Livesay, Dave (GSI Groundwater Solutions, Inc.), R10: Wagoner, Colin, H (Ridolfi, Inc.), R10: Humphreys, Brandy (Grand Ronde Tribe), R10: D'aquila, Kim (Grand Ronde Tribe), R10: Longoria, Rose (Yakama Nation), R10: Dost, Patty (Pearl Legal Group PC), R10: Parkinson, Stephen (Joyce Ziker Parkinson), R10: Johnson, Matt (WilliamsJohnson), R10: Williams, Jd (Unknown), R10: Mckenna, Jim (Verdant Solutions, LLC), R10: Weis, Julie (Haglund Kelley, LLP)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100016026	6/11/2012	REDACTED Email Regarding Portland Harbor Managers Meeting Agenda - Thursday, June 14th 1 to 2 pm Conference Call.	100	2 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100012505	6/13/2012	Lower Willamette River, Portland Harbor Superfund Site USEPA Docket No: CERCLA-10-2001-0240 Monthly Progress Report for May 2012.	144	14 LTR / Letter	R10: Woronets, Jennifer (Lower Willamette Group)	R10: Neely, Robert (NOAA), R10: Ashton, David (Port of Portland), R10: Hamilton, Jessica (Port of Portland), R10: Madalinski, Kelly (Port of Portland), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Cunninghame, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Ebbets, Allison (Stratus Consulting, Inc.), R10: Peers, Jennifer (Stratus Consulting, Inc.), R10: Betz, Jan, L (City of Portland, Oregon, Office of Attorney), R10: Wyatt, Bob (Northwest Natural Gas Company), R10: Humphrey, Chip (EPA), R10: Madden, Erin (Nez Perce Tribe), R10: Traeger, Karen, E (Legacy Site Services, LLC), R10: Wolf, Fred (Legacy Site Services, LLC), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality), R10: McClincy, Matt (Oregon Dept. of Environmental Quality), R10: Gainer, Tom (Oregon Dept. of Environmental Quality), R10: Livesay, Dave (GSI Groundwater Solutions, Inc.), R10: Wagoner, Colin, H (Ridolfi, Inc.), R10: Humphreys, Brandy (Grand Ronde Tribe), R10: D'aquila, Kim (Grand Ronde Tribe), R10: Longoria, Rose (Yakama Nation), R10: Dost, Patty (Pearl Legal Group PC), R10: Parkinson, Stephen (Joyce Ziker Parkinson), R10: Johnson, Matt (WilliamsJohnson), R10: Williams, Jd (Unknown), R10: Mckenna, Jim (Verdant Solutions, LLC), R10: Weis, Julie (Haglund Kelley, LLP)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100016032	6/13/2012	REDACTED Email Regarding Thursday, June 14th 1 to 2 pm Conference Call - Portland Harbor Managers Meeting Agenda.	106	3 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA), R10: Wyatt, Robert, J (NW Natural), R10: Gustavson, Karl (EPA), R10: Mckenna, Jim (Verdant Solutions, LLC)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100012500	6/14/2012	Potential Hot Spot Buried Contamination Transition Zone Water (TZW) Screening Analysis, Portland Harbor Superfund Site (Site). Figure 2: Portland Harbor RI/FS - Draft Feasibility Study - BaP Porewater Increase Over Time Analysis. River Mile 1.9 to 11.8.	450	3 MEMO / Memorandum	R10: Unknown, Unknown (Lower Willamette Group)	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100012501	6/14/2012	Figure 3: Portland Harbor RI/FS - Draft Feasibility Study - ODE Porewater Increase Over Time Analysis. River Mile 1.9 to 11.8.	577	1 FIG / Figure/Map/ Drawing	R10: Unknown, Unknown (Anchor QEA, LLC)		ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100012502	6/14/2012	Figure 1: Portland Harbor RI/FS - Draft Feasibility Study - Total PCB Porewater Increase Over Time Analysis. River Mile 1.9 to 11.8.	570	1 FIG / Figure/Map/ Drawing	R10: Unknown, Unknown (Anchor QEA, LLC)		ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100012503	6/14/2012	11.8.	570	1 FIG / Figure/Map/ Drawing	R10: Unknown, Unknown (Anchor QEA, LLC)		ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100015849	6/14/2012	REDACTED Email Regarding Portland Harbor Tissue Monitoring Call.	40	2 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA), R10: Wyatt, Robert, J (NW Natural), R10: Gustavson, Karl (EPA), R10: Mckenna, Jim (Verdant Solutions, LLC)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100016033	6/14/2012	REDACTED Portland Harbor Managers' Meeting - June 14, 2012.	12	1 MTG / Meeting Document	R10: (Lower Willamette Group)		ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100016100	6/14/2012	REDACTED Portland Harbor Managers' Meeting - June 14, 2012.	12	1 MTG / Meeting Document	R10: (Lower Willamette Group)		ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100016453	6/14/2012	REDACTED Email Regarding Potential Hot Spot Buried Contamination Transition Zone Water (TZW) Screening Analysis.	117	2 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100016454	6/14/2012	REDACTED Email Regarding May 2012 Portland Harbor Monthly Progress Report. Letter Regarding Directed Modifications and Additional Comments on Baseline Human Health Risk Assessment (BHHRA) Dated 05/02/2011.	92	1 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100010269	6/22/2012	Enclosure: EPA Comments on DRAFT BHHRA (Baseline Human Health Risk Assessment) Required Modifications to Text, Tables and Figures.	759	4 LTR / Letter	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	R10: Wyatt, Bob (Lower Willamette Group)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100010351	6/22/2012	Figures.	53	2 CORR / Correspondence	R10: (EPA)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100011178	6/22/2012	Portland Harbor Cumulative Risk Tables. Letter Regarding 06/22/2012 EPA Directed Modifications and Additional Comments on Baseline Human Health Risk Assessment (BHHRA).	19,574	9176 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100010352	6/29/2012	Letter Regarding Response to Lower Willamette Group (LWG) 06/29/2012 Letter Regarding EPA Directed Modifications and Additional Comments on Baseline Human Health Risk Assessment (BHHRA) Dated 05/02/2011.	36	2 LTR / Letter	R10: Wyatt, Bob (Lower Willamette Group)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100010363	6/29/2012	05/02/2011.	626	4 LTR / Letter	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	R10: Wyatt, Bob (Lower Willamette Group)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)

100015821	REDACTED 07_02_12 email; Potential Hot Spot Buried Contamination Transition Zone Water.	127	7 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA), R10: Muza, Richard (EPA Region 10)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100015866	REDACTED 07_02_12 email; Potential Hot Spot Buried Contamination Transition Zone Water.	127	7 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA), R10: Muza, Richard (EPA Region 10)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100011159	Letter Sent Via Federal Express to EPA Regarding Notice of Objection to EPA Notice of Non-Compliance and Directed Revisions to the Baseline Human Health Risk Assessment (BHHRA), and Request for Dispute Resolution. Basis for EPA's Determination the 05/02/2011 DRAFT BHHRA (Baseline Human Health Risk Assessment) As Unacceptable, For Dispute Resolution (With Highlighted and	59	7 LTR / Letter	R10: (The Lower Willamette Group)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100011160	Strikethrough Text).	214	25 CORR / Correspondence	R10: (EPA)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100011161	EPA BHHRA (Baseline Human Health Risk Assessment) Dispute Issues (With Highlighted Text).	161	11 CORR / Correspondence	R10: (EPA)	R10: (Lower Willamette Group)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100011162	LWG (Lower Willamette Group) BHHRA (Baseline Human Health Risk Assessment) Dispute Issues (With Highlighted Text).	130	4 CORR / Correspondence	R10: (Lower Willamette Group)	R10: (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100011163	Portland Harbor Dispute Resolution Meeting Sign-In Sheet.	288	2 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100011177	LWG (Lower Willamette Group) Dispute Issues, 8/21/2012 EPA Proposed Resolution, DRAFT.	107	9 CORR / Correspondence	R10: (EPA)	R10: (Lower Willamette Group)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100010267	Portland Harbor RI/FS DRAFT Remedial Investigation Report, Appendix F, Baseline Human Health Risk Assessment (BHHRA). Letter Regarding LWG (Lower Willamette Group) Request for Extension on BHHRA (Baseline Human Health Risk Assessment) Dispute Resolution.	2,557	317 RPT / Report	R10: Koch, Kristine, M (EPA)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100011164	RI/FS (Remedial Investigation/Feasibility Study) DRAFT Final Remedial Investigation Report (Dated 05/02/2011), Appendix F BHHRA (Baseline Human Health Risk Assessment) with Redline Resolution EA LWG	285	2 LTR / Letter	R10: Koch, Kristine, M (EPA)	R10: Wyatt, Bob (Lower Willamette Group)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100011167	Comments.	1,191	143 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100011166	9/10/2012 Resolution of Comments on Redlined Text.	87	2 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100011168	DRAFT Final Remedial Investigation Report (Dated 05/02/2011), Appendix F BHHRA (Baseline Human Health Risk Assessment) With Redline Resolution EA LWG Comments.	1,193	143 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100017383	9/11/2012 REDACTED Email regarding Round 1 Sampling. DRAFT Final Remedial Investigation Report (Dated 05/02/2011), Appendix F BHHRA (Baseline Human Health Risk Assessment) with	337	4 EML / Email	R10: Mckenna, James (Verdant Solutions, LLC)	R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100011169	Redline Resolution EA LWG Redlines.	1,216	145 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100011170	Table of Contents for CD of Supporting Documentation for the 09/21/2012 Lower Willamette Group (LWG) Opening Submission – Formal Dispute on EPA Notice of Non-Compliance and Directed Revisions to DRAFT Final Baseline Human Health Risk Assessment (BHHRA).	89,020	6221 CORR / Correspondence	R10: (Lower Willamette Group)	R10: (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100010364	Letter Regarding EPA's Response to Lower Willamette Group (LWG) Opening Submission Dated 09/21/2012.	274	2 LTR / Letter	R10: Houck, Lori, L (EPA)	R10: Opalski, Daniel, D (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100011171	Memorandum: Partial Resolution, Formal Dispute on the EPA Notice of Non-Compliance and Directed Revisions to the Portland Harbor DRAFT Final Baseline Human Health Risk Assessment (BHHRA) and Request for Dispute Resolution.	90	2 CORR / Correspondence	R10: Opalski, Daniel, D (EPA)	R10: (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100008128	EPA Comments on Appendix A1 and Table 2.0-1 and Appendix H1 and Table H2.0-1 - 2012_12_03 EPA Comments on 2011 RI Report_Integral.	72	3 CORR / Correspondence	R10: Koch, Kristine, M (EPA)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100011172	Memorandum: Final Resolution, Formal Dispute on the EPA Notice of Non-Compliance and Directed Revisions to the Portland Harbor DRAFT Final Baseline Human Health Risk Assessment (BHHRA) and Request for Dispute Resolution With Administrative Record Summary.	942	10 CORR / Correspondence			ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100007831	Email regarding EPA comments and direction on Draft BERA, 12-21-2012.	21	2 EML / Email	R10: Humphrey, Chip (EPA)	R10: Wyatt, Robert, J (NW Natural), R10: Mckenna, Jim (Verdant Solutions, LLC)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100007832	12/21/2012 EPA BERA Comments Letter.	66	2 LTR / Letter	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	R10: Wyatt, Robert, J (NW Natural)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100007839	12/21/2012 BERA Comment Resolution Table.	970	42 RPT / Report	R10: (EPA)		ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100015422	REDACTED Email regarding RE_EPA comments and direction on Draft BERA.	67	3 EML / Email	R10: Humphrey, Chip (EPA)	R10: Mckenna, James (Verdant Solutions, LLC)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100013407	REDACTED Email regarding BERA meeting at 1/29/2013 Windward next Friday (1-25).	77	3 EML / Email	R10: Humphrey, Chip (EPA)	R10: Mckenna, James (Verdant Solutions, LLC)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100008114	2/1/2013 Email regarding Portland Harbor RI - Section 3.	7	1 EML / Email	R10: Koch, Kristine, M (EPA)	R10: Wyatt, Bob (Northwest Natural Gas Company), R10: Mckenna, Jim (Verdant Solutions, LLC)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
4940680051	2/5/2013 Email regarding reply to Portland Harbor RI.	29	2 EML / Email	R10: Angle, Genevieve (NOAA)	R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100008115	Email regarding Final Draft RI; EPA Comments and Edits for Sections 1 and 2.	12	2 EML / Email	R10: Koch, Kristine, M (EPA)	R10: Mckenna, James (Verdant Solutions, LLC)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100011173	Letter Regarding Conditional Approval of the Final Baseline Human Health Risk Assessment (BHHRA) Dated 02/11/2013.	44	3 LTR / Letter	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	R10: Wyatt, Bob (Lower Willamette Group)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100010603	Email Regarding Consistency in Discussion About Conveyance Systems in the RI (Remedial Investigation), Wording Change, "Private" to "Non-Municipal".	40	2 EML / Email	R10: Koch, Kristine, M (EPA)	R10: Revelas, Gene, C (Lower Willamette Group), R10: Mckenna, Jim (Verdant Solutions, LLC)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100011174	Letter Regarding Final Approval of the Final Baseline Human Health Risk Assessment (BHHRA) Dated 03/28/2013.	50	3 LTR / Letter	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	R10: Wyatt, Bob (Lower Willamette Group)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100010367	Certified Letter Regarding Notice of Assessment and Demand for Payment of Stipulated Penalties; Administrative Settlement Agreement and Order on Consent for Remedial Investigation and Feasibility Study.	255	3 LTR / Letter	R10: Cohen, Lori, G (EPA)	R10: Wyatt, Bob (Lower Willamette Group)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)

100011176	4/10/2013	Letter by Certified Mail Regarding Notice of Assessment and Demand for Payment of Stipulated Penalties.	255	3 LTR / Letter	R10: Cohen, Lori, G (EPA)	R10: Wyatt, Bob (Lower Willamette Group)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100008130	6/4/2013	New References Called out in Table 2.0-1 - new refs from Table 2.0-1.	122	3 CORR / Correspondence	R10: Trevathan, Sue (Integral Corporation)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100008116	6/19/2013	Email regarding Background Data Set.	47	1 EML / Email	R10: Koch, Kristine, M (EPA)	R10: Mckenna, James (Verdant Solutions, LLC)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100008117	6/20/2013	Email regarding Portland Harbor RI Section 5 - Box & Whisker Plots.	45	1 EML / Email	R10: Koch, Kristine, M (EPA)	R10: Revelas, Gene (Integral Corporation), R10: Mckenna, James (Verdant Solutions, LLC)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100008308	6/26/2013	RI COIs - RI_v3.	503	5 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100008119	6/27/2013	Email regarding Background Dataset.	53	1 EML / Email	R10: Koch, Kristine, M (EPA)	R10: Revelas, Gene (Integral Corporation)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100018058	6/27/2013	REDACTED Email regarding Background Dataset.	64	3 EML / Email	R10: Koch, Kristine, M (EPA)	R10: Revelas, Gene (Integral Corporation)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100008120	6/28/2013	Email regarding Portland Harbor RI 2013 revision - source tables for Tables 5.2-1 and 5.2-2.	60	2 EML / Email	R10: Koch, Kristine, M (EPA)	R10: Fitzgerald, Susan (Integral Consulting, Inc.)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100008121	6/28/2013	Portland Harbor Remedial Investigation Section 5 Matrix of Tables, Figures, and Maps - Rev 1 PH RI Section 5 Matrix of Tables, Figures, and Maps.	924	76 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100008122	6/28/2013	Email regarding Section 5 Interim Data Products for Discussion.	86	2 EML / Email	R10: Koch, Kristine, M (EPA)	R10: Revelas, Gene (Integral Corporation)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100008123	6/28/2013	Email regarding Section 5 Interim Data Products for Discussion.	87	2 EML / Email	R10: Koch, Kristine, M (EPA)	R10: Revelas, Gene (Integral Corporation)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100008124	6/28/2013	Email regarding Section 5 Interim Data Products for Discussion.	87	2 EML / Email	R10: Koch, Kristine, M (EPA)	R10: Revelas, Gene (Integral Corporation)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100008126	6/28/2013	Email regarding Background Dataset.	77	3 EML / Email	R10: Koch, Kristine, M (EPA)	R10: Locke, Bill (Integral Corporation)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100018062	6/28/2013	REDACTED Email regarding Background Dataset.	86	4 EML / Email	R10: Koch, Kristine, M (EPA)	R10: Locke, Bill (Integral Corporation)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100008127	7/3/2013	Email regarding Reference work.	84	1 EML / Email	R10: Trevathan, Sue (Integral Corporation)	R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100008131	7/3/2013	Email regarding Subsurface PCB samples.	51	1 EML / Email	R10: Mckenna, James (Verdant Solutions, LLC)	R10: Koch, Kristine, M (EPA), R10: Revelas, Gene (Integral Corporation)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100008132	7/3/2013	Email regarding Subsurface PCB samples.	43	1 EML / Email	R10: Koch, Kristine, M (EPA)	R10: Revelas, Gene (Integral Corporation), R10: Mckenna, James (Verdant Solutions, LLC)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100008133	7/9/2013	Email regarding Upriver data set.	56	2 EML / Email	R10: Koch, Kristine, M (EPA)	R10: Revelas, Gene (Integral Corporation), R10: Mckenna, James (Verdant Solutions, LLC)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100008134	7/9/2013	Email regarding Upriver data set.	42	1 EML / Email	R10: Koch, Kristine, M (EPA)	R10: Revelas, Gene (Integral Corporation), R10: Mckenna, James (Verdant Solutions, LLC), R10: Browning, Sandy (Integral Consulting, Inc.)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100008135	7/10/2013	Email regarding Upriver data set.	99	3 EML / Email	R10: Koch, Kristine, M (EPA)	R10: Mckenna, James (Verdant Solutions, LLC), R10: Browning, Sandy (Integral Consulting, Inc.), R10: Revelas, Gene (Integral Corporation)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100008136	7/11/2013	Email regarding Upriver data set.	145	5 EML / Email	R10: Koch, Kristine, M (EPA)	R10: Mckenna, James (Verdant Solutions, LLC), R10: Browning, Sandy (Integral Consulting, Inc.)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100008137	7/11/2013	Email regarding Upriver data set.	141	5 EML / Email	R10: Koch, Kristine, M (EPA)	R10: Mckenna, James (Verdant Solutions, LLC), R10: Browning, Sandy (Integral Consulting, Inc.), R10: Revelas, Gene (Integral Corporation)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100008138	7/11/2013	Email regarding Upriver data set.	101	3 EML / Email	R10: Koch, Kristine, M (EPA)	R10: Mckenna, James (Verdant Solutions, LLC), R10: Browning, Sandy (Integral Consulting, Inc.), R10: Revelas, Gene (Integral Corporation)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100008139	7/12/2013	Email regarding Portland Harbor RI Section 5.	44	1 EML / Email	R10: Koch, Kristine, M (EPA)	R10: Browning, Sandy (Integral Consulting, Inc.), R10: Revelas, Gene (Integral Corporation)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100008140	7/12/2013	Email regarding Portland Harbor RI Section 5.	53	2 EML / Email	R10: Koch, Kristine, M (EPA)	R10: Wyatt, Robert, J (Northwest Natural Gas Company), R10: Mckenna, James (Verdant Solutions, LLC)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100008141	7/12/2013	Email regarding Portland Harbor RI Report Revision - Indicator Contaminant Question.	49	1 EML / Email	R10: Koch, Kristine, M (EPA)	R10: Browning, Sandy (Integral Consulting, Inc.)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100008142	7/15/2013	Email regarding Portland Harbor - Question for Section 5 TCDD TEQ.	50	1 EML / Email	R10: Koch, Kristine, M (EPA)	R10: Revelas, Gene (Integral Corporation), R10: Mckenna, James (Verdant Solutions, LLC)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100008143	7/15/2013	Email regarding Portland Harbor - Question for Section 5 TCDD TEQ.	42	1 EML / Email	R10: Koch, Kristine, M (EPA)	R10: Revelas, Gene (Integral Corporation), R10: Mckenna, James (Verdant Solutions, LLC)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100008144	7/15/2013	Email regarding Portland Harbor RI Section 5 Table 5.2-6.	51	1 EML / Email	R10: Koch, Kristine, M (EPA)	R10: Revelas, Gene (Integral Corporation), R10: Mckenna, James (Verdant Solutions, LLC)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100008145	7/15/2013	Email regarding Portland Harbor RI Section 5 Table 5.2-6.	43	1 EML / Email	R10: Koch, Kristine, M (EPA)	R10: Revelas, Gene (Integral Corporation), R10: Mckenna, James (Verdant Solutions, LLC)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100008382	7/17/2013	Portland Harbor RI/FS Remedial Investigation Report Section 5.3-2 to 5.3-7 Tables - 2013-07-17_SedTrap_Sec5_Tables 5.3-2 to 5.3-7.	114	6 CORR / Correspondence	R10: (Lower Willamette Group)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100008388	7/17/2013	Figure 5.3-3 Portland Harbor RI/FS Remedial Investigation Report Regression of Sediment Accumulation Rate of Trapped Sediment for In-River Sediment Trap Sampling - Sec5.3_Figure 5.3-3.	553	1 CORR / Correspondence	R10: (Lower Willamette Group), R10: (Integral Consulting, Inc.)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100008389	7/17/2013	Figure 5.3-4a - b Portland Harbor RI/FS Remedial Investigation Report Grain Size Distribution of Sediment Trap Samples by Quarter, 2007 - Sec5.3_Figure 5.3-4a-b.	860	2 CORR / Correspondence	R10: (Lower Willamette Group), R10: (Integral Consulting, Inc.)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100008390	7/17/2013	Figure 5.3-5a - b Portland Harbor RI/FS Remedial Investigation Report Histograms of Sediment Accumulation Rates by Quarter and Corresponding Frequency Distribution of Willamette River Discharge, 2007 - Sec5.3_Figure 5.3-5a-b.	419	2 CORR / Correspondence	R10: (Lower Willamette Group), R10: (Integral Consulting, Inc.)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100008392	7/17/2013	Figure 5.3-8 Portland Harbor RI/FS Remedial Investigation Report Regression of Total PCB Congener and PCB Aroclor Concentrations for In-River Sediment Traps - Sec5.3_Figure 5.3-8.	516	1 CORR / Correspondence	R10: (Lower Willamette Group), R10: (Integral Consulting, Inc.)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100008146	7/18/2013	Email regarding Section 5 Data Products - TZW. Draft Portland Harbor RI/FS Remedial Investigation Report Transition Zone Water Chemistry Maps 5.5-4a-f - Map 5.5-4a-f.	121	1 EML / Email	R10: Browning, Sandy (Integral Consulting, Inc.)	R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100008205	7/18/2013	f_TZW_Chromium_2013-07-18.	769	5 EML / Email	R10: (Lower Willamette Group), R10: (Integral Consulting, Inc.)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)



100008206	7/23/2013	Email regarding Revised Surface Water figure examples, Section 5.3.	84	1 EML / Email	R10: Revelas, Gene (Integral Corporation)	R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100008207	7/23/2013	Revised Draft Surface Water Figure Examples - Revised Surface Water Figure examples1.	182	2 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100008208	7/23/2013	Draft Figure 5.3-20 Portland Harbor RI/FS Remedial Investigation Report Histogram by Flow Type of Total PCB Congener Concentrations - 2011-08-29_DF RI_Figure 5.3-20.	99	1 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100008391	7/23/2013	Figure 5.3-6a - 21b Portland Harbor RI/FS Remedial Investigation Report Histogram of Dieldrin Concentrations for In-River Sediment Traps, 2007 - Sec5.3_Figure 5.3-6 etc_Histograms_2013-07-22.	878	30 CORR / Correspondence	R10: (Lower Willamette Group), R10: (Integral Consulting, Inc.)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100008386	7/24/2013	Figure 5.3-1a-b Portland Harbor RI/FS Remedial Investigation Report Hydrograph of the Willamette River at Portland During In-River Sediment Trap Sampling - Sec5.3_Figure 5.3-1a-b.	1,004	2 CORR / Correspondence	R10: (Lower Willamette Group), R10: (Integral Consulting, Inc.)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100008387	7/24/2013	Figure 5.3-2a - b Portland Harbor RI/FS Remedial Investigation Report Histogram of Accumulation Rate of Trapped Sediment for In-River Sediment Trap Sampling - Sec5.3_Figure 5.3-2a-b.	545	2 CORR / Correspondence	R10: (Lower Willamette Group), R10: (Integral Consulting, Inc.)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100008209	7/26/2013	Email regarding Section 5 data products.	57	2 EML / Email	R10: Koch, Kristine, M (EPA)	R10: Browning, Sandy (Integral Consulting, Inc.), R10: Trevathan, Sue (Integral Corporation)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100008210	7/26/2013	Email regarding Section 5 Data Products - TZW.	125	2 EML / Email	R10: Koch, Kristine, M (EPA)	R10: Browning, Sandy (Integral Consulting, Inc.)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100008211	7/26/2013	Email regarding Section 5 Data Products.	85	2 EML / Email	R10: Koch, Kristine, M (EPA)	R10: Browning, Sandy (Integral Consulting, Inc.)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100008212	7/26/2013	Email regarding Section 5 Data Products - TZW.	83	2 EML / Email	R10: Koch, Kristine, M (EPA)	R10: Browning, Sandy (Integral Consulting, Inc.)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100010365	8/1/2013	Letter Regarding EPA Response to The Lower Willamette Group's Notice of Objection to and Request for Dispute Resolution for Payment of Stipulated Penalties For Baseline Human Health Risk Assessment and Request for Determination, 07/12/2013.	177	1 LTR / Letter	R10: Houck, Lori, L (EPA)	R10: Albright, Richard, G (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100008384	8/5/2013	Portland Harbor RI/FS Remedial Investigation Report Section 5 Tables - 2013-08-05_SW_Sec5_Tables.	2,439	120 CORR / Correspondence	R10: (Lower Willamette Group)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100018079	8/8/2013	REDACTED Email regarding Section 5 data products, 1 of 2.	89	1 EML / Email	R10: Trevathan, Sue (Integral Consulting, Inc.)	R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100008383	8/15/2013	Portland Harbor RI/FS Remedial Investigation Report Appendix D Tables - 2013-08-05_SW_AppD_Tables.	9,767	348 CORR / Correspondence	R10: (Lower Willamette Group)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100008223	9/3/2013	Email regarding Box & Whisker Plot of Arsenic.	40	1 EML / Email	R10: Koch, Kristine, M (EPA)	R10: Revelas, Gene (Integral Corporation), R10: Mckenna, James (Verdant Solutions, LLC)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100016142	9/3/2013	REDACTED 09_03_13 email; Portland Harbor TCT Meeting Agenda.	53	1 EML / Email	R10: Koch, Kristine, M (EPA)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100008224	9/4/2013	Email regarding Box & Whisker Plot of Arsenic.	87	2 EML / Email	R10: Koch, Kristine, M (EPA)	R10: Woronets, Jennifer (Anchor QEA, LLC)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100008225	9/4/2013	Email regarding Background Values.	112	2 EML / Email	R10: Koch, Kristine, M (EPA)	R10: Angle, Genevieve (NOAA), R10: Neely, Robert (NOAA), R10: Buck, Jeremy (U. S. Fish and Wildlife Service), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Cunninghame, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Karnosh, Michael (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Sheldrake, Sean, A (EPA), R10: Fuentes, Rene, C (EPA), R10: Conley, Alanna (EPA), R10: Shephard, Burt (EPA), R10: Humphrey, Chip (EPA), R10: Allen, Elizabeth (EPA), R10: Muza, Richard (EPA), R10: Madden, Erin (Nez Perce Tribe), R10: Gainer, Thomas, B (Oregon Dept. of Environmental Quality), R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality), R10: McClincy, Matt (Oregon Dept. of Environmental Quality), R10: Poulsen, Mike (Oregon Dept. of Environmental Quality), R10: Fricano, Gail (Industrial Economics, Inc.), R10: Liverman, Alex (Oregon Department of Environmental Quality), R10: Penoyar, Susan, J (CDM), R10: Williams, J., D (Law Offices of J. D. Williams), R10: King, Todd (CDM Smith), R10: Johnson, Matt (WilliamsJohnson), R10: Weis, Julie (Haglund Kelley Jones & Wilder LLP)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100008226	9/20/2013	Email regarding Portland Harbor RI - Question for Section 5.	42	1 EML / Email	R10: Koch, Kristine, M (EPA)	R10: Revelas, Gene (Integral Corporation), R10: Mckenna, James (Verdant Solutions, LLC)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100008227	9/27/2013	Email regarding Revised Section 5 Surface Water figure format.	112	2 EML / Email	R10: Revelas, Gene (Integral Corporation)	R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100008228	9/27/2013	Draft Figure 5.3-22 Portland Harbor RI/FS Remedial Investigation Report Histogram By Channel Position of Total PCB Congener - 2011-08-29_DF RI_Figure 5.3-22.	166	1 CORR / Correspondence	R10: (Lower Willamette Group), R10: (Integral Consulting, Inc.)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100008229	9/27/2013	Revised Surface Water Figure - Revised Surface Water Figure examples_20130925.	328	1 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100011175	9/30/2013	Letter Regarding Final Dispute Decision.	271	7 LTR / Letter	R10: Albright, Richard, G (EPA)	R10: Wyatt, Bob (Lower Willamette Group)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)

100008232	11/20/2013	Email regarding Portland Harbor RI - Section 5.	47	1 EML / Email	R10: Koch, Kristine, M (EPA)	R10: Wyatt, Robert, J (Northwest Natural Gas Company), R10: Mckenna, James (Verdant Solutions, LLC)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100008233	11/21/2013	Email regarding Portland Harbor RI - Section 5.	55	2 EML / Email	R10: Koch, Kristine, M (EPA)	R10: Wyatt, Robert, J (Northwest Natural Gas Company), R10: Revelas, Gene (Integral Corporation), R10: Mckenna, James (Verdant Solutions, LLC)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100008234	11/21/2013	Email regarding Portland Harbor RI - Section 5.	56	2 EML / Email	R10: Koch, Kristine, M (EPA)	R10: Wyatt, Robert, J (Northwest Natural Gas Company), R10: Revelas, Gene (Integral Corporation), R10: Mckenna, James (Verdant Solutions, LLC)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100008235	11/21/2013	Email regarding Portland Harbor RI - Section 5. Email Regarding Portland Harbor RI (Remedial Action), Section 5, Tables for Appendices D and H.	54	2 EML / Email	R10: Koch, Kristine, M (EPA)	R10: Wyatt, Robert, J (Northwest Natural Gas Company), R10: Mckenna, James (Verdant Solutions, LLC)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100010368	11/21/2013	H. Portland Harbor RI/FS Remedial Investigation Report Sediment Trap Results Tables - SedTrap	53	1 EML / Email	R10: Revelas, Gene (Integral Corporation)	R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100008402	11/25/2013	Results Tables 2013-11-25.	226	28 CORR / Correspondence	R10: (Lower Willamette Group)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100008236	12/10/2013	Email regarding Question on Sed Trap Data.	56	2 EML / Email	R10: Koch, Kristine, M (EPA)	R10: Revelas, Gene (Integral Corporation)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100008237	1/21/2014	Email regarding Surface Water Data.	42	1 EML / Email	R10: Koch, Kristine, M (EPA)	R10: Revelas, Gene (Integral Corporation), R10: Mckenna, James (Verdant Solutions, LLC)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100008238	1/22/2014	Email regarding RI Update.	51	1 EML / Email	R10: Koch, Kristine, M (EPA)	R10: Mckenna, James (Verdant Solutions, LLC)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100008239	1/24/2014	Email regarding Portland Harbor RI - Section 5 Surface Water Questions.	51	1 EML / Email	R10: Koch, Kristine, M (EPA)	R10: Revelas, Gene (Integral Corporation), R10: Mckenna, James (Verdant Solutions, LLC)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100008240	1/27/2014	Email regarding Portland Harbor Surface Water data.	41	1 EML / Email	R10: Koch, Kristine, M (EPA)	R10: Revelas, Gene (Integral Corporation), R10: Mckenna, James (Verdant Solutions, LLC)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100008243	1/28/2014	Email regarding Portland Harbor Surface Water data.	53	2 EML / Email	R10: Koch, Kristine, M (EPA)	R10: Revelas, Gene (Integral Corporation), R10: Mckenna, James (Verdant Solutions, LLC)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100010369	1/31/2014	Email Regarding Revised Section 5 Surface Water Figure Format and Summary Statistics Tables.	64	3 EML / Email	R10: Revelas, Gene (Integral Corporation)	R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100010370	1/31/2014	Email Regarding Revised Section 5 Surface Water Figure Format and Include the 6 Detected Aroclor Values in Figure 5.3-22, But Not the ND Values.	62	3 EML / Email	R10: Koch, Kristine, M (EPA)	R10: Koch, Kristine, M (EPA), R10: Revelas, Gene (Integral Corporation)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100008244	2/10/2014	Email regarding Portland Harbor RI Section 5 - Surface Water.	76	5 EML / Email	R10: Koch, Kristine, M (EPA)	R10: Revelas, Gene (Integral Corporation), R10: Mckenna, James (Verdant Solutions, LLC)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100008245	2/14/2014	Email regarding Section 5 Revisions check in.	92	2 EML / Email	R10: Koch, Kristine, M (EPA)	R10: Revelas, Gene (Integral Corporation)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100008246	2/25/2014	Email regarding Are you available for a discussion on surface water tomorrow afternoon?.	41	1 EML / Email	R10: Koch, Kristine, M (EPA)	R10: Revelas, Gene (Integral Corporation), R10: Mckenna, James (Verdant Solutions, LLC)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100008247	3/28/2014	Email regarding Surface Water Summary Stats Revised Format; PCB Histogram w/Aroclors.	73	2 EML / Email	R10: Koch, Kristine, M (EPA)	R10: Revelas, Gene (Integral Corporation)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100010371	3/31/2014	Email Regarding Portland Harbor RI Section 5 - Surface Water and Plan for Site-Specific Evaluation of Hydrophobic Contaminants Subsection.	47	1 EML / Email	R10: Koch, Kristine, M (EPA)	R10: Revelas, Gene, C (Integral Consulting, Inc.), R10: Mckenna, Jim (Verdant Solutions, LLC)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100008685	5/17/2014	Notes on Draft of RI Section 5.6 - RI 5.6_01_Draft RI Section 5.6 Notes.	84	1 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100008671	5/20/2014	Notes on Draft of RI Section 5.5 - RI 5.5_01_Draft RI Section 5.5 Notes.	90	1 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100008667	5/24/2014	Notes on Draft of RI Section 5.4 - RI 5.4_01_Draft RI Section 5.4 Notes.	88	1 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100008248	6/11/2014	Email regarding Portland Harbor RI Section 5. Letter regarding Comments on the Remedial Investigation Report (Section 5) - 2014_06_11_EPA Comment Letter on 2011 RI Report Sections 5.	67	1 EML / Email	R10: Koch, Kristine, M (EPA)	R10: Wyatt, Bob (Northwest Natural Gas Company), R10: Mckenna, Jim (Verdant Solutions, LLC)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100008249	6/11/2014	Portland Harbor Remedial Investigation Section 5 Matrix of Tables, Figures and Maps - Rev 4 PH RI Section 5 Matrix of Tables, Figures, and Maps.	45	3 CORR / Correspondence	R10: Koch, Kristine, M (EPA)	R10: Wyatt, Bob (Northwest Natural Gas Company)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100008385	6/11/2014	Portland Harbor Remedial Investigation Sediment Bin Tables - Sediment bin tables - study area, downstream, upriver.	296	129 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100008393	6/11/2014	Email regarding Portland Harbor RI Section 5.	182	20 CORR / Correspondence	R10: (Lower Willamette Group)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100008394	6/11/2014	Email regarding Portland Harbor RI Section 5.	46	1 EML / Email	R10: Koch, Kristine, M (EPA)	R10: Wyatt, Bob (Northwest Natural Gas Company), R10: Mckenna, Jim (Verdant Solutions, LLC)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100008403	6/11/2014	Seep DB Results - seep_DB_results. Table 5.1-1 Summary of detected COIs or chemical classes by in-river media - Table 5.1-1.	586	49 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100008404	6/11/2014	Table 5.1-2 Screening of COIs by in-river media for discussion and presentation in RI - Table 5.1-2.	139	5 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100008405	6/11/2014	Table 5.1-3 Basis for screening of COIs due to co-location - Table 5.1-3.	165	5 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100008406	6/11/2014	Table 5.3-1 Average Heights of Sediment collected in Sediment Traps Deployed in Willamette - Table 5.3-1.	74	1 CORR / Correspondence	R10: Koch, Kristine, M (EPA)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100008407	6/11/2014	DB Results Table - TZW_DB_results.	82	2 CORR / Correspondence	R10: Koch, Kristine, M (EPA)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100008408	6/11/2014	DB Results Table - TZW_DB_results.	838	96 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100008309	6/17/2014	Email regarding Portland Harbor RI Section 5.	85	4 EML / Email	R10: Koch, Kristine, M (EPA)	R10: Revelas, Gene (Integral Corporation)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100015727	REDACTED 6/17/2014	Email regarding Kristine question - PM Conference Call Today.	128	3 EML / Email	R10: Koch, Kristine, M (EPA)	R10: Mckenna, James (Verdant Solutions, LLC)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100008251	7/9/2014	Email regarding Portland Harbor RI Section 5.	73	2 EML / Email	R10: Koch, Kristine, M (EPA)	R10: Gainer, Tom (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100008252	7/11/2014	Email regarding Portland Harbor RI Section 5.	73	2 EML / Email	R10: Koch, Kristine, M (EPA)	R10: Gainer, Tom (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100008253	7/16/2014	Email regarding Portland Harbor - Schedule extension for RI Section 5.	79	1 EML / Email	R10: Koch, Kristine, M (EPA)	R10: Wyatt, Bob (Northwest Natural Gas Company), R10: Mckenna, Jim (Verdant Solutions, LLC)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100008254	7/16/2014	Email regarding Scheduling RI Meeting - Section 5 proposed revisions.	115	2 EML / Email	R10: Koch, Kristine, M (EPA)	R10: Woronets, Jennifer (Anchor QEA, LLC)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100008307	7/16/2014	Email regarding Portland Harbor RI Section 5.	81	3 EML / Email	R10: Koch, Kristine, M (EPA)	R10: Revelas, Gene (Integral Corporation)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)

100008310	7/22/2014	Email regarding Portland Harbor RI Section 10.	45	1 EML / Email	R10: Koch, Kristine, M (EPA)	R10: Wyatt, Bob (Northwest Natural Gas Company), R10: Mckenna, Jim (Verdant Solutions, LLC)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remediation Characterization/055-Remedial Investigation (RI) (General)
100008409	7/25/2014	Email regarding Portland Harbor RI Section 5.	91	4 EML / Email	R10: Koch, Kristine, M (EPA)	R10: Revelas, Gene, C (Integral Consulting, Inc.)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remediation Characterization/055-Remedial Investigation (RI) (General)
100008683	7/25/2014	Remedial Investigation Section 5.5 Seep DB Results Tables - RI 5.5_03_seep_DB_results.	615	49 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remediation Characterization/055-Remedial Investigation (RI) (General)
100008684	7/25/2014	Portland Harbor Remedial Investigation Section 5.5 TZW DB Results - RI 5.5_04_TZW_DB_results.	879	96 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remediation Characterization/055-Remedial Investigation (RI) (General)
100008311	7/29/2014	Email regarding Portland Harbor RI Section 10 Comments.	123	4 EML / Email	R10: Koch, Kristine, M (EPA)	R10: Sheldrake, Sean, A (EPA), R10: Mckenna, James (Verdant Solutions, LLC)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remediation Characterization/055-Remedial Investigation (RI) (General)
100008312	7/29/2014	Letter regarding Comments on the Remedial Investigation Report (Section 10) - 2014_07_29_EPA Comment Letter on 2011 RI Report Sections 10.	44	3 CORR / Correspondence	R10: Koch, Kristine, M (EPA)	R10: Wyatt, Bob (Lower Willamette Group)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remediation Characterization/055-Remedial Investigation (RI) (General)
100008314	7/29/2014	Email regarding TBT...how about this?.	70	2 EML / Email	R10: Koch, Kristine, M (EPA)	R10: Revelas, Gene (Integral Corporation)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remediation Characterization/055-Remedial Investigation (RI) (General)
100008315	8/11/2014	Email regarding Initial Issues - Section 10 of the RI.	121	2 EML / Email	R10: Jones, Laura (Integral Corporation)	R10: Koch, Kristine, M (EPA) R10: Wyatt, Bob (Northwest Natural Gas Company), R10: Mckenna, Jim (Verdant Solutions, LLC)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remediation Characterization/055-Remedial Investigation (RI) (General)
100008687	8/11/2014	Email regarding Portland Harbor RI Section 5.	46	1 EML / Email	R10: Koch, Kristine, M (EPA)		ELECTRONIC RECORD	053-REMEDIATION/0531-Remediation Characterization/055-Remedial Investigation (RI) (General)
100008688	8/11/2014	Portland Harbor RI/FS Draft Final Remedial Investigation Report Section 5.5 - Rev 1 2014-06-16_DF RI_Sec5.5_Text_EPA_Integral.	258	14 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remediation Characterization/055-Remedial Investigation (RI) (General)
100014621	8/11/2014	REDACTED Email regarding Portland Harbor RI Section 5.	72	2 EML / Email	R10: Koch, Kristine, M (EPA)	R10: Angle, Genevieve (NOAA), R10: Buck, Jeremy (U. S. Fish and Wildlife Service), R10: Madden, Erin (Unknown), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Cunninghame, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Ridolfi, Callie (Ridolfi Engineers, Inc.), R10: Downey, Tom (Confederated Tribes of the Siletz Indians), R10: Partridge, Holly (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Karnosh, Michael (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Liverman, Alex (Oregon Dept. of Environmental Quality), R10: Fricano, Gail (Industrial Economics, Inc.), R10: Delvecchio, Rachel (Industrial Economics, Inc.), R10: Sudbury, Ryan (Grand Ronde Tribe), R10: Longoria, Rose (Yakama Nation), R10: Coffey, Scott (CDM Smith), R10: King, Todd (CDM Smith), R10: Weis, Julie (Haglund Kelley Jones & Wilder LLP), R10: Hagerman, Paul (Unknown), R10: Williams, Jd (Unknown), R10: Moses, Gabriel (Unknown), R10: Dexter, Bob (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remediation Characterization/055-Remedial Investigation (RI) (General)
100014593	8/12/2014	REDACTED Email regarding Response to the Background Issue Raised During the EPA/LWG Senior Managers Call.	79	2 EML / Email	R10: Koch, Kristine, M (EPA)	R10: Angle, Genevieve (NOAA), R10: Buck, Jeremy (U. S. Fish and Wildlife Service), R10: Madden, Erin (Unknown), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Cunninghame, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Ridolfi, Callie (Ridolfi Engineers, Inc.), R10: Downey, Tom (Confederated Tribes of the Siletz Indians), R10: Partridge, Holly (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Karnosh, Michael (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Liverman, Alex (Oregon Dept. of Environmental Quality), R10: Fricano, Gail (Industrial Economics, Inc.), R10: Delvecchio, Rachel (Industrial Economics, Inc.), R10: Sudbury, Ryan (Grand Ronde Tribe), R10: Longoria, Rose (Yakama Nation), R10: Coffey, Scott (CDM Smith), R10: King, Todd (CDM Smith), R10: Weis, Julie (Haglund Kelley Jones & Wilder LLP), R10: Hagerman, Paul (Unknown), R10: Williams, Jd (Unknown), R10: Moses, Gabriel (Unknown), R10: Dexter, Bob (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remediation Characterization/055-Remedial Investigation (RI) (General)
100008316	8/14/2014	Email regarding Section 10 Specific Comments.	25	1 EML / Email	R10: Jones, Laura (Integral Corporation)	R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remediation Characterization/055-Remedial Investigation (RI) (General)
100008317	8/14/2014	Comments on EPA's Revisions to RI Section 10 - 2014_0814_Section 10_Comments_forEPA.	147	2 CORR / Correspondence	R10: Jones, Laura (Integral Corporation)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remediation Characterization/055-Remedial Investigation (RI) (General)
100014594	8/15/2014	REDACTED Email regarding Section 10 Specific Comments.	71	2 EML / Email	R10: Koch, Kristine, M (EPA)	R10: Angle, Genevieve (NOAA), R10: Buck, Jeremy (U. S. Fish and Wildlife Service), R10: Madden, Erin (Unknown), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Cunninghame, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Ridolfi, Callie (Ridolfi Engineers, Inc.), R10: Downey, Tom (Confederated Tribes of the Siletz Indians), R10: Partridge, Holly (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Karnosh, Michael (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Liverman, Alex (Oregon Dept. of Environmental Quality), R10: Fricano, Gail (Industrial Economics, Inc.), R10: Delvecchio, Rachel (Industrial Economics, Inc.), R10: Sudbury, Ryan (Grand Ronde Tribe), R10: Longoria, Rose (Yakama Nation), R10: Coffey, Scott (CDM Smith), R10: King, Todd (CDM Smith), R10: Weis, Julie (Haglund Kelley Jones & Wilder LLP), R10: Hagerman, Paul (Unknown), R10: Williams, Jd (Unknown), R10: Moses, Gabriel (Unknown), R10: Dexter, Bob (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remediation Characterization/055-Remedial Investigation (RI) (General)

100014596	8/18/2014	REDACTED Email regarding Portland Harbor RI Section 5.	156	4 EML / Email	R10: Koch, Kristine, M (EPA)	R10: Angle, Genevieve (NOAA), R10: Buck, Jeremy (U. S. Fish and Wildlife Service), R10: Madden, Erin (Unknown), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Cunninghame, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Ridolfi, Callie (Ridolfi Engineers, Inc.), R10: Downey, Tom (Confederated Tribes of the Siletz Indians), R10: Partridge, Holly (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Karnosh, Michael (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Liverman, Alex (Oregon Dept. of Environmental Quality), R10: Fricano, Gail (Industrial Economics, Inc.), R10: Delvecchio, Rachel (Industrial Economics, Inc.), R10: Sudbury, Ryan (Grand Ronde Tribe), R10: Longoria, Rose (Yakama Nation), R10: Coffey, Scott (CDM Smith), R10: King, Todd (CDM Smith), R10: Weis, Julie (Haglund Kelley Jones & Wilder LLP), R10: Hagerman, Paul (Unknown), R10: Williams, Jd (Unknown), R10: Moses, Gabriel (Unknown), R10: Dexter, Bob (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100020068	8/18/2014	REDACTED Email regarding Portland Harbor RI Section 5.	155	4 EML / Email	R10: Koch, Kristine, M (EPA)	Genevieve (NOAA), R10: Neeley, Robert (NOAA), R10: Buck, Jeremy (U. S. Fish and Wildlife Service), R10: Madden, Erin (Unknown), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Cunninghame, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Ridolfi, Callie (Ridolfi Engineers, Inc.), R10: Downey, Tom (Confederated Tribes of the Siletz Indians), R10: Karnosh, Michael (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Sheldrake, Sean, A (EPA), R10: Fuentes, Rene, C (EPA), R10: Conley, Alanna (EPA), R10: Shephard, Burt (EPA), R10: Allen, Elizabeth (EPA), R10: Muza, Richard (EPA), R10: Liverman, Alex (Oregon Dept. of Environmental Quality), R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality), R10: McClincy, Matt (Oregon Dept. of Environmental Quality), R10: Poulsen, Mike (Oregon Dept. of Environmental Quality), R10: Gainer, Tom (Oregon Dept. of Environmental Quality), R10: Fricano, Gail (Industrial Economics, Inc.), R10: Delvecchio, Rachel (Industrial Economics, Inc.), R10: Partridge, Holly (Grand Ronde Tribe), R10: Sudbury, Ryan (Grand Ronde Tribe), R10: Longoria, Rose (Yakama Nation), R10: Williams, J., D (Law Offices of J. D. Williams), R10: King, Todd (CDM Smith), R10: Weis, Julie (Haglund Kelley Jones & Wilder LLP), R10:	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100008318	8/19/2014	Email regarding Portland Harbor RI Section 5. Figure 2-1d Portland Harbor RI/FS Round 3 Sediment Trap Deployment Field Sampling Report - Fall 2006 - Pages from 2006-12 Fall	153	4 EML / Email	R10: Koch, Kristine, M (EPA)	R10: Woronets, Jennifer (Anchor QEA, LLC)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100008319	8/19/2014	2006 Sed Trap Rpt 10-637823.	807	1 CORR / Correspondence	R10: (Lower Willamette Group)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100014597	8/26/2014	REDACTED Email regarding LWG Request for Dispute Resolution of EPA's Notice of Decisions on Background Regarding Section 7.	105	2 EML / Email	R10: Koch, Kristine, M (EPA)	R10: Sheldrake, Sean, A (EPA), R10: Yamamoto, Deb (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100008320	9/16/2014	Email regarding dates for next Portland Harbor PMS/Senior Mgrs meeting.	66	1 EML / Email	R10: Cohen, Lori, G (EPA)	R10: Koch, Kristine, M (EPA), R10: Yamamoto, Deb (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100008321	9/18/2014	Email regarding Portland Harbor RI Section 10 - BCS Comments.	78	1 EML / Email	R10: Macdonald, Alistair, P (Golder Associates, Inc.)	R10: Koch, Kristine, M (EPA), R10: Muza, Richard (EPA), R10: Manzano, Scott (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100008322	9/18/2014	Letter regarding Requested edits to section 10.0 of EPA's Draft Remedial Investigation Report - 09-17-14 BCS Requested Edits to RI Section 10.	323	6 CORR / Correspondence	R10: Macdonald, Alistair, P (Golder Associates, Inc.), R10: Gormley, Sean, F (AMEC Earth & Environmental, Inc.)	R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100008324	9/18/2014	Letter regarding Requested Edits to Section 10.0 of EPA's Draft Remedial Investigation Report - 09-17-14 BCS Requested Edits to RI Section 10.	323	6 CORR / Correspondence	R10: Macdonald, Alistair, P (Golder Associates, Inc.), R10: Gormley, Sean, F (AMEC Earth & Environmental, Inc.)	R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100014598	10/2/2014	REDACTED Email regarding LWG Unresolved Comments on RI Section 5 and 10.	67	1 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Cohen, Lori, G (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100014560	10/14/2014	REDACTED Email regarding LWG Reply in Support of Request for Dispute Resolution of EPA's Notice of Decisions on Background Regarding Section 7.	102	2 EML / Email	R10: Koch, Kristine, M (EPA)	Genevieve (NOAA), R10: Neeley, Robert (NOAA), R10: Buck, Jeremy (U. S. Fish and Wildlife Service), R10: Madden, Erin (Unknown), R10: Cabral, Rita (Industrial Economics, Incorporated), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Cunninghame, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Ridolfi, Callie (Ridolfi Engineers, Inc.), R10: Downey, Tom (Confederated Tribes of the Siletz Indians), R10: Karnosh, Michael (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Sheldrake, Sean, A (EPA), R10: Fuentes, Rene, C (EPA), R10: Conley, Alanna (EPA), R10: Shephard, Burt (EPA), R10: Allen, Elizabeth (EPA), R10: Muza, Richard (EPA), R10: Liverman, Alex (Oregon Dept. of Environmental Quality), R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality), R10: McClincy, Matt (Oregon Dept. of Environmental Quality), R10: Poulsen, Mike (Oregon Dept. of Environmental Quality), R10: Gainer, Tom (Oregon Dept. of Environmental Quality), R10: Fricano, Gail (Industrial Economics, Inc.), R10: Delvecchio, Rachel (Industrial Economics, Inc.), R10: Partridge, Holly (Grand Ronde Tribe), R10: Sudbury, Ryan (Grand Ronde Tribe), R10: Longoria, Rose (Yakama Nation), R10: Williams, J., D (Law Offices of J. D. Williams), R10: King, Todd (CDM	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)

100014561	10/14/2014	REDACTED Email regarding LWG Reply in Support of Request for Dispute Resolution of EPA's Notice of Decisions on Background Regarding Section 7.	103	2 EML / Email	R10: Koch, Kristine, M (EPA)	R10: Angle, Genevieve (NOAA), R10: Buck, Jeremy (U. S. Fish and Wildlife Service), R10: Madden, Erin (Unknown), R10: Cabral, Rita (Industrial Economics, Incorporated), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Cunninghame, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Ridolfi, Callie (Ridolfi Engineers, Inc.), R10: Downey, Tom (Confederated Tribes of the Siletz Indians), R10: Partridge, Holly (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Karnosh, Michael (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Liverman, Alex (Oregon Dept. of Environmental Quality), R10: Fricano, Gail (Industrial Economics, Inc.), R10: Delvecchio, Rachel (Industrial Economics, Inc.), R10: Sudbury, Ryan (Grand Ronde Tribe), R10: Longoria, Rose (Yakama Nation), R10: Coffey, Scott (CDM Smith), R10: King, Todd (CDM Smith), R10: Weis, Julie (Haglund Kelley Jones & Wilder LLP), R10: Hagerman, Paul (Unknown), R10: Williams, Jd (Unknown), R10: Moses, Gabriel (Unknown), R10: Dexter, Bob (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100008323	10/31/2014	Email regarding Portland Harbor RI Section 10 - BCS Comments.	98	2 EML / Email	R10: Koch, Kristine, M (EPA)	R10: Mckenna, Jim (Verdant Solutions, LLC)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100010372	11/7/2014	Letter Regarding Documented Corrections to Incorrect Factual Assertions in EPA's 10/03/2014 Response to the LWG's Request for Dispute Resolution Concerning Background, Section 7 of the Draft RI - LWG Doc Corrections to Assertions in EPA Dispute Resp.	425	6 LTR / Letter	R10: (The Lower Willamette Group)	R10: Cohen, Lori, G (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100010373	11/7/2014	Email Regarding Follow-Up to LWG's October 14, 2014 Letter to Rick Albright, Attached LWG Documented Corrections to Incorrect Factual Assertions in EPA's October 3, 2014 Response to the LWG's Request for Dispute Resolution.	64	1 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Cohen, Lori, G (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100014600	11/12/2014	REDACTED Email regarding LWG Documented Corrections to Incorrect Factual Assertions in EPA's October 3, 2014 Response to LWG's Request for Dispute Resolution on RI Section 7 Background.	114	2 EML / Email	R10: Koch, Kristine, M (EPA)	R10: Angle, Genevieve (NOAA), R10: Buck, Jeremy (U. S. Fish and Wildlife Service), R10: Madden, Erin (Unknown), R10: Cabral, Rita (Industrial Economics, Incorporated), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Cunninghame, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Ridolfi, Callie (Ridolfi Engineers, Inc.), R10: Downey, Tom (Confederated Tribes of the Siletz Indians), R10: Partridge, Holly (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Karnosh, Michael (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Liverman, Alex (Oregon Dept. of Environmental Quality), R10: Fricano, Gail (Industrial Economics, Inc.), R10: Delvecchio, Rachel (Industrial Economics, Inc.), R10: Sudbury, Ryan (Grand Ronde Tribe), R10: Longoria, Rose (Yakama Nation), R10: Coffey, Scott (CDM Smith), R10: King, Todd (CDM Smith), R10: Weis, Julie (Haglund Kelley Jones & Wilder LLP), R10: Hagerman, Paul (Unknown), R10: Williams, Jd (Unknown), R10: Moses, Gabriel (Unknown), R10: Dexter, Bob (Unknown), R10: Mullin, Jeanette (CDM Smith)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100014612	11/12/2014	REDACTED Email regarding LWG Documented Corrections to Incorrect Factual Assertions in EPA's October 3, 2014 Response to LWG's Request for Dispute Resolution on RI Section 7 Background.	113	2 EML / Email	R10: Koch, Kristine, M (EPA)	Genevieve (NOAA), R10: Neeley, Robert (NOAA), R10: Buck, Jeremy (U. S. Fish and Wildlife Service), R10: Blischke, Eric (Unknown), R10: Madden, Erin (Unknown), R10: Cabral, Rita (Industrial Economics, Incorporated), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Cunninghame, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Ridolfi, Callie (Ridolfi Engineers, Inc.), R10: Downey, Tom (Confederated Tribes of the Siletz Indians), R10: Karnosh, Michael (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Sheldrake, Sean, A (EPA), R10: Fuentes, Rene, C (EPA), R10: Conley, Alanna (EPA), R10: Shephard, Burt (EPA), R10: Allen, Elizabeth (EPA), R10: Muza, Richard (EPA), R10: Moses, Gabriel (Nez Perce Tribe), R10: Liverman, Alex (Oregon Dept. of Environmental Quality), R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality), R10: McClincy, Matt (Oregon Dept. of Environmental Quality), R10: Poulsen, Mike (Oregon Dept. of Environmental Quality), R10: Gainer, Tom (Oregon Dept. of Environmental Quality), R10: Fricano, Gail (Industrial Economics, Inc.), R10: Delvecchio, Rachel (Industrial Economics, Inc.), R10: Partridge, Holly (Grand Ronde Tribe), R10: Sudbury, Ryan (Grand Ronde Tribe), R10: Longoria, Rose (Yakama Nation), R10:	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100008325	11/13/2014	Email regarding Revised Draft RI Section 10 outline and Example Text for CSM.	50	1 EML / Email	R10: Mckenna, James (Verdant Solutions, LLC)	R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100008326	11/13/2014	Draft Portland Harbor RI/FS Final Remedial Investigation Report Section 10 Outline - Draft Re-org Sect 10 outline_20141113.	53	2 CORR / Correspondence	R10: (Lower Willamette Group)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100008327	11/13/2014	Portland Harbor RI/FS Draft Final Remedial Investigation Report Section 10 CSM - Draft Sec10_PCB CSM Text_20141113.	340	38 CORR / Correspondence	R10: (Integral Consulting, Inc.)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100008328	11/14/2014	Email regarding Revised Draft RI Section 10 outline and Example Text for CSM.	71	2 EML / Email	R10: Koch, Kristine, M (EPA)	R10: Mckenna, James (Verdant Solutions, LLC)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100008329	11/25/2014	Email regarding Portland Harbor RI Section 10 - BCS Comments.	103	2 EML / Email	R10: Koch, Kristine, M (EPA)	R10: Mckenna, James (Verdant Solutions, LLC)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100010374	12/8/2014	Email Regarding Portland Harbor Data.	77	3 EML / Email	R10: Mckenna, Jim (Verdant Solutions, LLC)	R10: Wyatt, Bob (Lower Willamette Group), R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100008330	12/10/2014	Email regarding Portland Harbor Revised RI Section 10 Text.	88	1 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)



100010375	12/18/2014	List of Portland Harbor RI (Remedial Investigation) Data Reports for Rounds 1, 2 and 3 Data - List of Portland Harbor RI Data Reports_12-18-14.	58	3 RPT / Report	R10: (Lower Willamette Group)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100010376	12/18/2014	Email Regarding List of Portland Harbor RI (Remedial Investigation) Data Reports for Rounds 1, 2 and 3 Data.	55	2 EML / Email	R10: Revelas, Gene, C (Integral Consulting, Inc.)	R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100008333	12/23/2014	Email regarding Portland Harbor Revised RI Section 10 Text.	110	2 EML / Email	R10: Koch, Kristine, M (EPA)	R10: Woronets, Jennifer (Anchor QEA, LLC)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100008375	12/23/2014	Email regarding Portland Harbor RI Section 10.	50	1 EML / Email	R10: Koch, Kristine, M (EPA)	R10: Cohen, Lori, G (EPA) Robert (NOAA), R10: Buck, Jeremy (U. S. Fish and Wildlife Service), R10: Blischke, Eric (Unknown), R10: Madden, Erin (Unknown), R10: Cabral, Rita (Industrial Economics, Incorporated), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Cunninghame, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Ridolfi, Callie (Ridolfi Engineers, Inc.), R10: Downey, Tom (Confederated Tribes of the Siletz Indians), R10: Karnosh, Michael (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Sheldrake, Sean, A (EPA), R10: Fuentes, Rene, C (EPA), R10: Conley, Alanna (EPA), R10: Allen, Elizabeth (EPA), R10: Muza, Richard (EPA), R10: Moses, Gabriel (Nez Perce Tribe), R10: Liverman, Alex (Oregon Dept. of Environmental Quality), R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality), R10: McClincy, Matt (Oregon Dept. of Environmental Quality), R10: Poulsen, Mike (Oregon Dept. of Environmental Quality), R10: Gainer, Tom (Oregon Dept. of Environmental Quality), R10: Fricano, Gail (Industrial Economics, Inc.), R10: Delvecchio, Rachel (Industrial Economics, Inc.), R10: Callahan, Kristin (Ridolfi, Inc.), R10: Partridge, Holly (Grand Ronde Tribe), R10: Longoria, Rose (Yakama Nation), R10: Williams, J., D (Law Offices of J. D. Williams), R10: King, Todd (CDM	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100014541	12/23/2014	REDACTED Email regarding Portland Harbor Revised RI Section 10 Text.	114	2 EML / Email	R10: Koch, Kristine, M (EPA)	R10: Angle, Genevieve (NOAA), R10: Buck, Jeremy (U. S. Fish and Wildlife Service), R10: Madden, Erin (Unknown), R10: Cabral, Rita (Industrial Economics, Incorporated), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Cunninghame, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Ridolfi, Callie (Ridolfi Engineers, Inc.), R10: Downey, Tom (Confederated Tribes of the Siletz Indians), R10: Partridge, Holly (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Karnosh, Michael (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Liverman, Alex (Oregon Dept. of Environmental Quality), R10: Fricano, Gail (Industrial Economics, Inc.), R10: Delvecchio, Rachel (Industrial Economics, Inc.), R10: Callahan, Kristin (Ridolfi, Inc.), R10: Longoria, Rose (Yakama Nation), R10: Coffey, Scott (CDM Smith), R10: King, Todd (CDM Smith), R10: Weis, Julie (Haglund Kelley Jones & Wilder LLP), R10: Hagerman, Paul (Unknown), R10: Williams, Jd (Unknown), R10: Moses, Gabriel (Unknown), R10: Mullin, Jeanette (CDM Smith)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100014602	12/23/2014	REDACTED Email regarding Portland Harbor Revised RI Section 10 Text.	115	2 EML / Email	R10: Koch, Kristine, M (EPA)	R10: Koch, Kristine, M (EPA), R10: Woronets, Jennifer (Anchor QEA, LLC)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100008336	1/8/2015	Email regarding RI Section 10; Revised Draft RLSO for Discussion Purposes.	111	2 EML / Email	R10: Mckenna, James (Verdant Solutions, LLC)	R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100008378	1/8/2015	Email regarding RI Section 10; Revised Draft RLSO for Discussion Purposes.	109	2 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Koch, Kristine, M (EPA) R10: Wyatt, Bob (Northwest Natural Gas Company), R10: Revelas, Gene, C (Integral Consulting, Inc.), R10: Sheldrake, Sean, A (EPA), R10: Koch, Kristine, M (EPA), R10: Woronets, Jennifer (Anchor QEA, LLC), R10: Mckenna, James (Verdant Solutions, LLC)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100008694	1/13/2015	Email regarding RI revised Section 10 and executive summary.	56	1 EML / Email	R10: Allen, Elizabeth (EPA)	R10: Allen, Elizabeth (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100008695	1/13/2015	Portland Harbor Remedial Investigation Executive Summary - Koch_2015_1_13 DF RI Executive_Summary.	140	10 CORR / Correspondence	R10: (Unknown)	R10: (Unknown) Robert (NOAA), R10: Buck, Jeremy (U. S. Fish and Wildlife Service), R10: Madden, Erin (Unknown), R10: Cabral, Rita (Industrial Economics, Incorporated), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Cunninghame, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Ridolfi, Callie (Ridolfi Engineers, Inc.), R10: Downey, Tom (Confederated Tribes of the Siletz Indians), R10: Karnosh, Michael (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Sheldrake, Sean, A (EPA), R10: Fuentes, Rene, C (EPA), R10: Koch, Kristine, M (EPA), R10: Conley, Alanna (EPA), R10: Shephard, Burt (EPA), R10: Muza, Richard (EPA), R10: Moses, Gabriel (Nez Perce Tribe), R10: Liverman, Alex (Oregon Dept. of Environmental Quality), R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality), R10: McClincy, Matt (Oregon Dept. of Environmental Quality), R10: Poulsen, Mike (Oregon Dept. of Environmental Quality), R10: Gainer, Tom (Oregon Dept. of Environmental Quality), R10: Fricano, Gail (Industrial Economics, Inc.), R10: Delvecchio, Rachel (Industrial Economics, Inc.), R10: Callahan, Kristin (Ridolfi, Inc.), R10: Partridge, Holly (Grand Ronde Tribe), R10: Sudbury, Ryan (Grand Ronde Tribe), R10: Longoria, Rose (Yakama Nation), R10: Williams, J., D (Law Offices of J. D. Williams), R10: Blischke, Eric	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100014543	1/13/2015	REDACTED Email regarding RI revised Section 10 and executive summary.	264	2 EML / Email	R10: Allen, Elizabeth (EPA)	R10: Allen, Elizabeth (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)

						R10: Angle, Genevieve (NOAA), R10: Buck, Jeremy (U. S. Fish and Wildlife Service), R10: Madden, Erin (Unknown), R10: Cabral, Rita (Industrial Economics, Incorporated), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Cunninghame, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Ridolfi, Callie (Ridolfi Engineers, Inc.), R10: Downey, Tom (Confederated Tribes of the Siletz Indians), R10: Partridge, Holly (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Karnosh, Michael (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Liverman, Alex (Oregon Dept. of Environmental Quality), R10: Fricano, Gail (Industrial Economics, Inc.), R10: Delvecchio, Rachel (Industrial Economics, Inc.), R10: Callahan, Kristin (Ridolfi, Inc.), R10: Sudbury, Ryan (Grand Ronde Tribe), R10: Longoria, Rose (Yakama Nation), R10: Coffey, Scott (CDM Smith), R10: King, Todd (CDM Smith), R10: Weis, Julie (Haglund Kelley Jones & Wilder LLP), R10: Hagerman, Paul (Unknown), R10: Williams, Jd (Unknown), R10: Moses, Gabriel (Unknown), R10: Mullin, Jeanette (CDM Smith)		053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100014613	1/13/2015	REDACTED Email regarding RI revised Section 10 and executive summary.	264	2 EML / Email	R10: Allen, Elizabeth (EPA)		ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100008698	2/2/2015	Email regarding Status of the revised Draft RI Section 10 and the Draft Executive Summary.	53	1 EML / Email	R10: Mckenna, James (Verdant Solutions, LLC)	R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100010598	2/2/2015	Email Regarding Revised Draft RI Section 10, Proposed Final Revisions to Sections 10.1 and 10.2 and Executive Summary.	56	2 EML / Email	R10: Revelas, Gene, C (Integral Consulting, Inc.)	R10: Koch, Kristine, M (EPA), R10: Mckenna, Jim (Verdant Solutions, LLC)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100008699	2/5/2015	Email regarding Status of the revised Draft RI Section 10 and the Draft Executive Summary. Lower Willamette Group (LWG) Executive Summary, Revised DRAFT Final Remedial Investigation Report - 2015_RI_Executive Summary.	75	2 EML / Email	R10: Koch, Kristine, M (EPA)	R10: Mckenna, James (Verdant Solutions, LLC)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100010599	2/12/2015	Letter Regarding EPA DRAFT Portland Harbor Remedial Investigation Report Executive Summary - 2015-02-12 Letter to EPA with RI Executive Summary.	202	17 CORR / Correspondence	R10: (Lower Willamette Group)		ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100010600	2/12/2015	Letter Regarding EPA DRAFT Portland Harbor Remedial Investigation Report Executive Summary - 2015-02-12 Letter to EPA with RI Executive Summary.	2,378	29 CORR / Correspondence	R10: Wyatt, Bob (Lower Willamette Group)	R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100010601	2/12/2015	Email Regarding LWG's (Lower Willamette Group) Comments on EPA's DRAFT RI Executive Summary and Recommended Alternative DRAFT Executive Summary.	77	3 EML / Email	R10: Mckenna, Jim (Verdant Solutions, LLC)	R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100008700	2/13/2015	Email regarding Status of the revised Draft RI Section 10 and the Draft Executive Summary. Portland Harbor RI/FS Draft Final Remedial Investigation Report Section 10 - Rev 3	75	2 EML / Email	R10: Koch, Kristine, M (EPA)	R10: Revelas, Gene, C (Integral Consulting, Inc.), R10: Mckenna, James (Verdant Solutions, LLC)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100008701	2/13/2015	EPA_2014-01-12_DF RI_Sec10_1_clean.	187	15 CORR / Correspondence	R10: (Integral Consulting, Inc.)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
						Robert (NOAA), R10: Buck, Jeremy (U. S. Fish and Wildlife Service), R10: Madden, Erin (Unknown), R10: Cabral, Rita (Industrial Economics, Incorporated), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Cunninghame, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Ridolfi, Callie (Ridolfi Engineers, Inc.), R10: Downey, Tom (Confederated Tribes of the Siletz Indians), R10: Karnosh, Michael (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Sheldrake, Sean, A (EPA), R10: Fuentes, Rene, C (EPA), R10: Robinson, Deborah, G (EPA), R10: Blischke, Eric, L (EPA), R10: Conley, Alanna (EPA), R10: Christopher, Anne (EPA), R10: Allen, Elizabeth (EPA), R10: Morrison, Kay (EPA), R10: Muza, Richard (EPA), R10: Moses, Gabriel (Nez Perce Tribe), R10: Liverman, Alex (Oregon Dept. of Environmental Quality), R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality), R10: Mcclincy, Matt (Oregon Dept. of Environmental Quality), R10: Poulsen, Mike (Oregon Dept. of Environmental Quality), R10: Gainer, Tom (Oregon Dept. of Environmental Quality), R10: Fricano, Gail (Industrial Economics, Inc.), R10: Delvecchio, Rachel (Industrial Economics, Inc.), R10: Callahan, Kristin (Ridolfi, Inc.), R10: Partridge, Holly (Grand Ronde Tribe), R10: Longoria, Rose (Yakama Nation), R10: Williams, J., D (Law		053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100014526	2/17/2015	REDACTED Email regarding LWG Response to EPA Draft RI Executive Summary.	80	3 EML / Email	R10: Koch, Kristine, M (EPA)		ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
						R10: Angle, Genevieve (NOAA), R10: Buck, Jeremy (U. S. Fish and Wildlife Service), R10: Madden, Erin (Unknown), R10: Cabral, Rita (Industrial Economics, Incorporated), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Cunninghame, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Ridolfi, Callie (Ridolfi Engineers, Inc.), R10: Downey, Tom (Confederated Tribes of the Siletz Indians), R10: Partridge, Holly (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Karnosh, Michael (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Fricano, Gail (Industrial Economics, Inc.), R10: Delvecchio, Rachel (Industrial Economics, Inc.), R10: Callahan, Kristin (Ridolfi, Inc.), R10: Longoria, Rose (Yakama Nation), R10: Coffey, Scott (CDM Smith), R10: King, Todd (CDM Smith), R10: Weis, Julie (Haglund Kelley Jones & Wilder LLP), R10: Hagerman, Paul (Unknown), R10: Williams, Jd (Unknown), R10: Mullin, Jeanette (CDM Smith)		053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100014614	2/17/2015	REDACTED Email regarding LWG Response to EPA Draft RI Executive Summary.	81	3 EML / Email	R10: Koch, Kristine, M (EPA)		ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100008705	2/18/2015	Email regarding Status of the revised Draft RI Section 10 and the Draft Executive Summary.	79	3 EML / Email	R10: Koch, Kristine, M (EPA)	R10: Revelas, Gene, C (Integral Consulting, Inc.), R10: Mckenna, James (Verdant Solutions, LLC)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100008706	2/18/2015	Portland Harbor RI/FS Draft Final Remedial Investigation Report Section 10-1 - Rev 4 EPA_2014-01-12_DF RI_Sec10_1_clean_wLWG.	158	15 CORR / Correspondence	R10: (Integral Consulting, Inc.)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100008708	3/19/2015	Portland Harbor RI/FS Draft Final Remedial Investigation Report Section 10-1 - Rev 4 EPA_2014-01-12_DF RI_Sec10_1_clean_wLWG cg.	199	15 CORR / Correspondence	R10: (Integral Consulting, Inc.)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100014682	3/19/2015	REDACTED Email regarding RI Section 10 Conceptual Site Model Review.	27	1 EML / Email	R10: Grandinetti, Cami (EPA)	R10: Kirkpatrick, Margaret, D (Northwest Natural Gas Co.)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)

100014502	REDACTED Email regarding RI Section 10 3/20/2015 Conceptual Site Model Review.	77	3 EML / Email	R10: Koch, Kristine, M (EPA)	Robert (NOAA), R10: Buck, Jeremy (U. S. Fish and Wildlife Service), R10: Madden, Erin (Unknown), R10: Cabral, Rita (Industrial Economics, Incorporated), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Cunninghame, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Ridolfi, Callie (Ridolfi Engineers, Inc.), R10: Downey, Tom (Confederated Tribes of the Siletz Indians), R10: Karnosh, Michael (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Sheldrake, Sean, A (EPA), R10: Fuentes, Rene, C (EPA), R10: Robinson, Deborah, G (EPA), R10: Conley, Alanna (EPA), R10: Christopher, Anne (EPA), R10: Allen, Elizabeth (EPA), R10: Morrison, Kay (EPA), R10: Muza, Richard (EPA), R10: Moses, Gabriel (Nez Perce Tribe), R10: Liverman, Alex (Oregon Dept. of Environmental Quality), R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality), R10: Mcclincy, Matt (Oregon Dept. of Environmental Quality), R10: Poulsen, Mike (Oregon Dept. of Environmental Quality), R10: Gainer, Tom (Oregon Dept. of Environmental Quality), R10: Fricano, Gail (Industrial Economics, Inc.), R10: Delvecchio, Rachel (Industrial Economics, Inc.), R10: Partridge, Holly (Grand Ronde Tribe), R10: Longoria, Rose (Yakama Nation), R10: Williams, J., D (Law Offices of J. D. Williams), R10: Blischke, Eric	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100014525	REDACTED Email regarding RI Section 10 3/20/2015 Conceptual Site Model Review.	188	2 EML / Email	R10: Koch, Kristine, M (EPA)	Robert (NOAA), R10: Buck, Jeremy (U. S. Fish and Wildlife Service), R10: Madden, Erin (Unknown), R10: Cabral, Rita (Industrial Economics, Incorporated), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Cunninghame, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Ridolfi, Callie (Ridolfi Engineers, Inc.), R10: Downey, Tom (Confederated Tribes of the Siletz Indians), R10: Karnosh, Michael (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Sheldrake, Sean, A (EPA), R10: Fuentes, Rene, C (EPA), R10: Robinson, Deborah, G (EPA), R10: Conley, Alanna (EPA), R10: Christopher, Anne (EPA), R10: Allen, Elizabeth (EPA), R10: Morrison, Kay (EPA), R10: Moses, Gabriel (Nez Perce Tribe), R10: Liverman, Alex (Oregon Dept. of Environmental Quality), R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality), R10: Mcclincy, Matt (Oregon Dept. of Environmental Quality), R10: Poulsen, Mike (Oregon Dept. of Environmental Quality), R10: Gainer, Tom (Oregon Dept. of Environmental Quality), R10: Fricano, Gail (Industrial Economics, Inc.), R10: Delvecchio, Rachel (Industrial Economics, Inc.), R10: Callahan, Kristin (Ridolfi, Inc.), R10: Partridge, Holly (Grand Ronde Tribe), R10: Longoria, Rose (Yakama Nation), R10: Williams, J., D (Law Offices of J. D. Williams), R10: Blischke, Eric	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100014617	REDACTED Email regarding RI Section 10 3/20/2015 Conceptual Site Model Review.	191	2 EML / Email	R10: Koch, Kristine, M (EPA)	R10: Angle, Genevieve (NOAA), R10: Buck, Jeremy (U. S. Fish and Wildlife Service), R10: Madden, Erin (Unknown), R10: Cabral, Rita (Industrial Economics, Incorporated), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Cunninghame, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Ridolfi, Callie (Ridolfi Engineers, Inc.), R10: Downey, Tom (Confederated Tribes of the Siletz Indians), R10: Partridge, Holly (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Karnosh, Michael (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Liverman, Alex (Oregon Dept. of Environmental Quality), R10: Fricano, Gail (Industrial Economics, Inc.), R10: Delvecchio, Rachel (Industrial Economics, Inc.), R10: Callahan, Kristin (Ridolfi, Inc.), R10: Longoria, Rose (Yakama Nation), R10: Coffey, Scott (CDM Smith), R10: King, Todd (CDM Smith), R10: Weis, Julie (Haglund Kelley Jones & Wilder LLP), R10: Hagerman, Paul (Unknown), R10: Williams, Jd (Unknown), R10: Moses, Gabriel (Unknown), R10: Mullin, Jeanette (CDM Smith)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100014740	REDACTED Email regarding RI Section 10 3/20/2015 Conceptual Site Model Review.	73	2 EML / Email	R10: Koch, Kristine, M (EPA)	R10: Wyatt, Bob (Northwest Natural Gas Company), R10: Mckenna, Jim (Verdant Solutions, LLC)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100014533	REDACTED Email regarding Portland Harbor - 3/24/2015 Dispute Decision on Background (RI Section 7).	49	1 EML / Email	R10: Koch, Kristine, M (EPA)	Robert (NOAA), R10: Buck, Jeremy (U. S. Fish and Wildlife Service), R10: Johnson, Courtney (Unknown), R10: Madden, Erin (Unknown), R10: Cabral, Rita (Industrial Economics, Incorporated), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Cunninghame, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Ridolfi, Callie (Ridolfi Engineers, Inc.), R10: Downey, Tom (Confederated Tribes of the Siletz Indians), R10: Karnosh, Michael (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Sheldrake, Sean, A (EPA), R10: Fuentes, Rene, C (EPA), R10: Robinson, Deborah, G (EPA), R10: Conley, Alanna (EPA), R10: Christopher, Anne (EPA), R10: Shephard, Burt (EPA), R10: Allen, Elizabeth (EPA), R10: Morrison, Kay (EPA), R10: Muza, Richard (EPA), R10: Moses, Gabriel (Nez Perce Tribe), R10: Liverman, Alex (Oregon Dept. of Environmental Quality), R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality), R10: Mcclincy, Matt (Oregon Dept. of Environmental Quality), R10: Poulsen, Mike (Oregon Dept. of Environmental Quality), R10: Gainer, Tom (Oregon Dept. of Environmental Quality), R10: Fricano, Gail (Industrial Economics, Inc.), R10: Delvecchio, Rachel (Industrial Economics, Inc.), R10: Callahan, Kristin (Ridolfi, Inc.), R10: Partridge, Holly (Grand Ronde Tribe), R10: Longoria, Rose	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)



100014618	3/24/2015	REDACTED Email regarding Portland Harbor - Dispute Decision on Background (RI Section 7).	50	1 EML / Email	R10: Koch, Kristine, M (EPA)	R10: Angle, Genevieve (NOAA), R10: Buck, Jeremy (U. S. Fish and Wildlife Service), R10: Johnson, Courtney (Unknown), R10: Madden, Erin (Unknown), R10: Cabral, Rita (Industrial Economics, Incorporated), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Ridolfi, Callie (Ridolfi Engineers, Inc.), R10: Downey, Tom (Confederated Tribes of the Siletz Indians), R10: Partridge, Holly (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Karnosh, Michael (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Liverman, Alex (Oregon Dept. of Environmental Quality), R10: Fricano, Gail (Industrial Economics, Inc.), R10: Delvecchio, Rachel (Industrial Economics, Inc.), R10: Callahan, Kristin (Ridolfi, Inc.), R10: Longoria, Rose (Yakama Nation), R10: Coffey, Scott (CDM Smith), R10: King, Todd (CDM Smith), R10: Weis, Julie (Haglund Kelley Jones & Wilder LLP), R10: Hagerman, Paul (Unknown), R10: Williams, Jd (Unknown), R10: Moses, Gabriel (Unknown), R10: Mullin, Jeanette (CDM Smith)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100008712	3/30/2015	Email regarding Additional Background Contaminants.	111	2 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100014534	4/27/2015	REDACTED Email regarding Portland Harbor - EPA Direction on Remedial Investigation Report.	73	2 EML / Email	R10: Koch, Kristine, M (EPA)	Robert (NOAA), R10: Buck, Jeremy (U. S. Fish and Wildlife Service), R10: Johnson, Courtney (Unknown), R10: Madden, Erin (Unknown), R10: Cabral, Rita (Industrial Economics, Incorporated), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Cunninghame, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Ridolfi, Callie (Ridolfi Engineers, Inc.), R10: Downey, Tom (Confederated Tribes of the Siletz Indians), R10: Karnosh, Michael (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Sheldrake, Sean, A (EPA), R10: Fuentes, Rene, C (EPA), R10: Robinson, Deborah, G (EPA), R10: Blischke, Eric, L (EPA), R10: Conley, Alanna (EPA), R10: Christopher, Anne (EPA), R10: Shephard, Burt (EPA), R10: Allen, Elizabeth (EPA), R10: Morrison, Kay (EPA), R10: Moses, Gabriel (Nez Perce Tribe), R10: Liverman, Alex (Oregon Dept. of Environmental Quality), R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality), R10: McClincy, Matt (Oregon Dept. of Environmental Quality), R10: Poulsen, Mike (Oregon Dept. of Environmental Quality), R10: Fricano, Gail (Industrial Economics, Inc.), R10: Delvecchio, Rachel (Industrial Economics, Inc.), R10: Partridge, Holly (Grand Ronde Tribe), R10: Longoria, Rose (Yakama Nation), R10: Williams, J., D (Law Offices of J. D. Williams), R10: Coffey, Scott	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100014620	4/27/2015	REDACTED Email regarding Portland Harbor - EPA Direction on Remedial Investigation Report.	74	2 EML / Email	R10: Koch, Kristine, M (EPA)	R10: Angle, Genevieve (NOAA), R10: Buck, Jeremy (U. S. Fish and Wildlife Service), R10: Johnson, Courtney (Unknown), R10: Madden, Erin (Unknown), R10: Cabral, Rita (Industrial Economics, Incorporated), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Cunninghame, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Ridolfi, Callie (Ridolfi Engineers, Inc.), R10: Downey, Tom (Confederated Tribes of the Siletz Indians), R10: Partridge, Holly (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Karnosh, Michael (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Liverman, Alex (Oregon Dept. of Environmental Quality), R10: Fricano, Gail (Industrial Economics, Inc.), R10: Delvecchio, Rachel (Industrial Economics, Inc.), R10: Longoria, Rose (Yakama Nation), R10: Coffey, Scott (CDM Smith), R10: King, Todd (CDM Smith), R10: Weis, Julie (Haglund Kelley Jones & Wilder LLP), R10: Bianco, Paul (Unknown), R10: Hagerman, Paul (Unknown), R10: Williams, Jd (Unknown), R10: Moses, Gabriel (Unknown), R10: Mullin, Jeanette (CDM Smith)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100017572	4/29/2015	REDACTED Email regarding Portland Harbor - EPA Direction on Remedial Investigation Report.	75	2 EML / Email	R10: Koch, Kristine, M (EPA)	Robert (NOAA), R10: Buck, Jeremy (U. S. Fish and Wildlife Service), R10: Johnson, Courtney (Unknown), R10: Madden, Erin (Unknown), R10: Cabral, Rita (Industrial Economics, Incorporated), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Cunninghame, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Ridolfi, Callie (Ridolfi Engineers, Inc.), R10: Downey, Tom (Confederated Tribes of the Siletz Indians), R10: Partridge, Holly (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Karnosh, Michael (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Sheldrake, Sean, A (EPA), R10: Fuentes, Rene, C (EPA), R10: Robinson, Deborah, G (EPA), R10: Blischke, Eric, L (EPA), R10: Conley, Alanna (EPA), R10: Christopher, Anne (EPA), R10: Shephard, Burt (EPA), R10: Allen, Elizabeth (EPA), R10: Morrison, Kay (EPA), R10: Moses, Gabriel (Nez Perce Tribe), R10: Liverman, Alex (Oregon Dept. of Environmental Quality), R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality), R10: McClincy, Matt (Oregon Dept. of Environmental Quality), R10: Poulsen, Mike (Oregon Dept. of Environmental Quality), R10: Fricano, Gail (Industrial Economics, Inc.), R10: Delvecchio, Rachel (Industrial Economics, Inc.), R10: Gustavson,	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)

						Robert (NOAA), R10: Buck, Jeremy (U. S. Fish and Wildlife Service), R10: Johnson, Courtney (Unknown), R10: Cabral, Rita (Industrial Economics, Incorporated), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Cunninghame, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Ridolfi, Callie (Ridolfi Engineers, Inc.), R10: Downey, Tom (Confederated Tribes of the Siletz Indians), R10: Partridge, Holly (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Karnosh, Michael (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Sheldrake, Sean, A (EPA), R10: Fuentes, Rene, C (EPA), R10: Robinson, Deborah, G (EPA), R10: Blischke, Eric, L (EPA), R10: Conley, Alanna (EPA), R10: Christopher, Anne (EPA), R10: Shephard, Burt (EPA), R10: Allen, Elizabeth (EPA), R10: Morrison, Kay (EPA), R10: Moses, Gabriel (Nez Perce Tribe), R10: Liverman, Alex (Oregon Dept. of Environmental Quality), R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality), R10: McClincy, Matt (Oregon Dept. of Environmental Quality), R10: Poulsen, Mike (Oregon Dept. of Environmental Quality), R10: Fricano, Gail (Industrial Economics, Inc.), R10: Delvecchio, Rachel (Industrial Economics, Inc.), R10: Gustavson, Karl (Unknown), R10: Longoria, Rose (Yakama Nation), R10: Coffey, Scott (CDM Smith), R10:		053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100017560	5/12/2015	REDACTED Email regarding Portland Harbor - EPA Direction on Remedial Investigation Report.	79	3 EML / Email	R10: Koch, Kristine, M (EPA)		ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100014635	6/12/2015	REDACTED Email regarding Draft Final RI; Posting of Electronic Version and Mailing of DVD Copies.	125	2 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100016669	6/12/2015	REDACTED Email regarding Draft Final RI; Posting of Electronic Version and Mailing of DVD Copies.	128	2 EML / Email	R10: Koch, Kristine, M (EPA)	R10: Koch, Kristine, M (EPA), R10: Buck, Jeremy (U. S. Fish and Wildlife Service), R10: Johnson, Courtney (Unknown), R10: Cabral, Rita (Industrial Economics, Incorporated), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Cunninghame, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Ward, Elmer (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Ridolfi, Callie (Ridolfi Engineers, Inc.), R10: Downey, Tom (Confederated Tribes of the Siletz Indians), R10: Partridge, Holly (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Karnosh, Michael (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Sheldrake, Sean, A (EPA), R10: Fuentes, Rene, C (EPA), R10: Robinson, Deborah, G (EPA), R10: Blischke, Eric, L (EPA), R10: Conley, Alanna (EPA), R10: Christopher, Anne (EPA), R10: Shephard, Burt (EPA), R10: Allen, Elizabeth (EPA), R10: Morrison, Kay (EPA), R10: Moses, Gabriel (Nez Perce Tribe), R10: Roick, Thomas, E (Oregon Dept. of Environmental Quality), R10: Liverman, Alex (Oregon Dept. of Environmental Quality), R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality), R10: McClincy, Matt (Oregon Dept. of Environmental Quality), R10: Poulsen, Mike (Oregon Dept. of Environmental Quality), R10: Fricano, Gail (Industrial Economics, Inc.), R10:		053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100014604	7/31/2015	REDACTED Email regarding Five Tribes Comments on Draft Final Remedial Investigation.	50	1 EML / Email	R10: Cabral, Rita (Industrial Economics, Incorporated)	R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100010602	8/28/2015	Email Regarding Portland Harbor RI Question, Wording Change, "Private" to "Non-Municipal".	43	1 EML / Email	R10: Koch, Kristine, M (EPA)	R10: Mckenna, Jim (Lower Willamette Group), R10: Revelas, Gene, C (Integral Consulting, Inc.)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100010604	9/1/2015	Email Regarding Agreement to Utilize the Phrases "Municipal" and "Non-Municipal" When Referring to Stormwater Outfalls in the RI (Remedial Investigation) and Process for Finalizing RI.	73	2 EML / Email	R10: Mckenna, Jim (Verdant Solutions, LLC)	R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100010605	9/1/2015	Email Regarding Process for Finalizing RI (Remedial Investigation) and Informal Questions.	75	2 EML / Email	R10: Koch, Kristine, M (EPA)	R10: Mckenna, Jim (Verdant Solutions, LLC)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100010606	9/17/2015	Email Regarding Code and Input Files for Contaminant Transport Model.	70	2 EML / Email	R10: Koch, Kristine, M (EPA)	R10: Mckenna, Jim (Verdant Solutions, LLC)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100010607	9/28/2015	Email Regarding Input Files for Contaminant Transport Model.	80	2 EML / Email	R10: Koch, Kristine, M (EPA)	R10: Mckenna, Jim (Verdant Solutions, LLC)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100010608	10/6/2015	Email Regarding Portland Harbor Bioaccumulation Modeling Report, Instructions and Concerns.	129	3 EML / Email	R10: Koch, Kristine, M (EPA)	R10: Mckenna, Jim (Verdant Solutions, LLC)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100008241	11/5/2015	Surface Water Data backup - Backup of surface waterdata.	5,984	5945 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100008242	11/5/2015	Surface Water Data - surface waterdata.	349	8 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100008401	11/5/2015	Portland Harbor Remedial Investigation Section 5.4 Tables - Section 5.4_tables.	6,342	174 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100008669	11/5/2015	Portland Harbor Remedial Investigation Section 5.4 Tables - RI 5.4_03_Section 5.4_tables.	6,430	174 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100008670	11/5/2015	Portland Harbor Remedial Investigation Section 5.4 Tables - RI 5.4_04_Section 5.4_working tables.	21,222	750 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100008690	11/5/2015	Portland Harbor RI/FS Draft Final Remedial Investigation Report Section 5.2 - Rev 1 2014-07-15_DF RI_Sec5.2 Text_EPA_Integral.	700	66 CORR / Correspondence	R10: Browning, Sandy (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100018064	11/5/2015	REDACTED LWG FOIA Cargill - LWG_FOIA_Cargill.	3,876	217 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100010609	12/21/2015	Email Regarding Portland Harbor RI (Remedial Investigation) Question and Correction of Discharge Number.	95	3 EML / Email	R10: Koch, Kristine, M (EPA)		ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100010610	12/21/2015	Email Regarding Portland Harbor RI (Remedial Investigation) Question and Discharge Number.	50	1 EML / Email	R10: Koch, Kristine, M (EPA)	R10: Wyatt, Bob (Lower Willamette Group), R10: Mckenna, Jim (Verdant Solutions, LLC)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100008851	1/8/2016	Attachment 1 List of Changes for Conditional Approval of the Portland Harbor RI Report - 2016-01-08 Portland Harbor RI Cond Appr Att 1_EPA Response.	84	17 CORR / Correspondence	R10: Koch, Kristine, M (EPA)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100008855	1/8/2016	Email regarding Portland Harbor RI - Conditional Approval.	46	1 EML / Email	R10: Koch, Kristine, M (EPA)	R10: Wyatt, Bob (Northwest Natural Gas Company), R10: Mckenna, Jim (Verdant Solutions, LLC)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100008863	1/8/2016	Attachment 1 List of Changes for Conditional Approval of the Portland Harbor RI Report - 2016-01-08 Portland Harbor RI Conditional Approval Att 1.	17	6 CORR / Correspondence	R10: Koch, Kristine, M (EPA)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)

100008864	Letter regarding Conditional Approval of the 1/8/2016 Draft Final Remedial Investigation Report.	524	2 CORR / Correspondence	R10: Koch, Kristine, M (EPA)	R10: Wyatt, Bob (Northwest Natural Gas Company)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)		
100008878	How to Create a Web-Ready PDF for EPA - How 1/8/2016 to Create a Web-Ready PDF.	165	3 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)		
					R10: Angle, Genevieve (NOAA), R10: Buck, Jeremy (U. S. Fish and Wildlife Service), R10: Johnson, Courtney (Unknown), R10: Cabral, Rita (Industrial Economics, Incorporated), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Ward, Elmer (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Ridolfi, Callie (Ridolfi Engineers, Inc.), R10: Downey, Tom (Confederated Tribes of the Siletz Indians), R10: Partridge, Holly (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Karnosh, Michael (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Liverman, Alex (Oregon Dept. of Environmental Quality), R10: Fricano, Gail (Industrial Economics, Inc.), R10: Delvecchio, Rachel (Industrial Economics, Inc.), R10: Humphreys, Brandy (Grand Ronde Tribe), R10: Longoria, Rose (Yakama Nation), R10: Coffey, Scott (CDM Smith), R10: Weis, Julie (Haglund Kelley Jones & Wilder LLP), R10: Bianco, Paul (Unknown), R10: Hagerman, Paul (Unknown), R10: Williams, Jd (Unknown), R10: Moses, Gabriel (Unknown), R10: Klasner Shira, Laura (Confederated Tribes and Bands of the Yakima Indian Nation)				053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100014748	REDACTED Email regarding Portland Harbor RI - 1/8/2016 Conditional Approval.	73	2 EML / Email	R10: Koch, Kristine, M (EPA)		ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)		
100008847	Format for Final Portland Harbor Remedial Investigation Report - 2016 1-11 Format for RI - 1/11/2016 Requests from TCT.	51	1 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)		
100013509	REDACTED Email regarding EPA January 8, 2016 Conditional RI Approval - LWG Final RI Production Clarification Items.	62	1 EML / Email	R10: Mott, Jen (Anchor QEA, LLC)	R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)		
100014763	REDACTED Email regarding EPA January 8, 2016 Conditional RI Approval - LWG Final RI Production Clarification Items.	111	2 EML / Email	R10: Koch, Kristine, M (EPA)	R10: Mott, Jen (Anchor QEA, LLC)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)		
100008836	1/15/2016 Email regarding Portland Harbor RI.	42	1 EML / Email	R10: Koch, Kristine, M (EPA)	R10: Wyatt, Bob (Northwest Natural Gas Company)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)		
100020084	REDACTED Email regarding Portland Harbor -- 1/21/2016 LWG January 19 dispute.	84	2 EML / Email	R10: Cora, Lori, H (EPA)	R10: Dost, Patty (Pearl Legal Group PC)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)		
100008837	Email regarding Final Remedial Investigation 2/3/2016 Hard Copy Submittal.	101	1 EML / Email	R10: Koch, Kristine, M (EPA)	R10: Mott, Jen (Anchor QEA, LLC)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)		
100008838	2/3/2016 Email regarding Final RI electronic map files.	80	2 EML / Email	R10: Koch, Kristine, M (EPA)	R10: Revelas, Gene, C (Integral Consulting, Inc.)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)		
100008846	Email regarding spreadsheet regarding format 2/3/2016 of RI.	68	1 EML / Email	R10: Koch, Kristine, M (EPA)	R10: Mott, Jen (Anchor QEA, LLC)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)		
100008840	Email regarding Final Portland Harbor RI 2/8/2016 Posted.	68	1 EML / Email	R10: Koch, Kristine, M (EPA)	R10: Revelas, Gene, C (Integral Consulting, Inc.)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)		
100008852	Portland Harbor RI/FS Final Remedial Investigation Report Section 5 - mod1_2016- 2/8/2016 01-08 Portland Harbor RI Section 5 Text.	1,412	209 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)		
100008853	Portland Harbor RI/FS Final Remedial Investigation Report Section 8 - mod1_2016- 2/8/2016 01-08 Portland Harbor RI Section 8 Text.	175	15 CORR / Correspondence	R10: Allen, Elizabeth (EPA)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)		
100008854	Portland Harbor RI/FS Final Remedial Investigation Report Section 10 - mod1_2016- 2/8/2016 01-08 Portland Harbor RI Section 10 Text.	471	52 CORR / Correspondence	R10: Koch, Kristine, M (EPA)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)		
100008856	Portland Harbor RI/FS Remedial Investigation Report Appendix D1.5 - 2016-01-08 Portland Harbor RI Appendix D1.5.	160	13 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)		
100008857	Portland Harbor RI/FS Remedial Investigation Report Appendix D2.3 - 2016-01-08 Portland Harbor RI Appendix D2.3.	135	10 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)		
100008858	Portland Harbor RI/FS Remedial Investigation Report Appendix D3.3 - 2016-01-08 Portland Harbor RI Appendix D3.3.	124	10 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)		
100008859	Portland Harbor RI/FS Remedial Investigation Report Appendix D4.4 - 2016-01-08 Portland Harbor RI Appendix D4.4.	100	9 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)		
100008860	Portland Harbor RI/FS Remedial Investigation Report Appendix D5.3 - 2016-01-08 Portland Harbor RI Appendix D5.3.	92	8 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)		
100008861	Portland Harbor RI/FS Final Remedial Investigation Report Appendix E Attachment 1 - 2016-01-08 Portland Harbor RI Appendix E Attachment 1.	179	7 CORR / Correspondence	R10: Allen, Elizabeth (EPA)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)		
100008862	Portland Harbor RI/FS Remedial Investigation Report Appendix E - 2016-01-08 Portland Harbor RI Appendix E.	567	66 CORR / Correspondence	R10: Allen, Elizabeth (EPA)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)		
100008865	Portland Harbor RI/FS Final Remedial Investigation Report Executive Summary - 2016-01-08 Portland Harbor RI Executive Summary.	183	17 CORR / Correspondence	R10: Koch, Kristine, M (EPA)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)		
100008866	Portland Harbor RI/FS Final Remedial Investigation Report Section 1 Text - 2016-01-08 Portland Harbor RI Section 1 Text.	111	7 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)		
100008867	Portland Harbor RI/FS Final Remedial Investigation Report Section 2 Text - 2016-01-08 Portland Harbor RI Section 2 Text.	570	75 CORR / Correspondence	R10: Koch, Kristine, M (EPA)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)		
100008868	Portland Harbor RI/FS Final Remedial Investigation Report Section 3 Text - 2016-01-08 Portland Harbor RI Section 3 Text.	780	95 CORR / Correspondence	R10: Koch, Kristine, M (EPA)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)		
100008869	Portland Harbor RI/FS Final Remedial Investigation Report Section 4 Text - 2016-01-08 Portland Harbor RI Section 4 Text.	391	40 CORR / Correspondence	R10: Koch, Kristine, M (EPA)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)		
100008870	Portland Harbor RI/FS Final Remedial Investigation Report Section 5 Text - 2016-01-08 Portland Harbor RI Section 5 Text.	1,383	209 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)		
100008871	Portland Harbor RI/FS Final Remedial Investigation Report Section 6 Text - 2016-01-08 Portland Harbor RI Section 6 Text.	404	43 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)		
100008872	Portland Harbor RI/FS Final Remedial Investigation Report Table 7.3-1. Summary of Background Results, DryWeight and OC-Equivalent Concentrations All Data - 2016-01-08 Portland Harbor RI Section 7 Table 7.3-1.	98	1 CORR / Correspondence	R10: Koch, Kristine, M (EPA)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)		

100008873	2/8/2016	Portland Harbor RI/FS Final Remedial Investigation Report Section 7 Text - 2016-01-08 Portland Harbor RI Section 7 Text.	119	9 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100008874	2/8/2016	Portland Harbor RI/FS Final Remedial Investigation Report Section 8 Text - 2016-01-08 Portland Harbor RI Section 8 Text.	145	15 CORR / Correspondence	R10: Allen, Elizabeth (EPA)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100008875	2/8/2016	Portland Harbor RI/FS Final Remedial Investigation Report Table 9.11-1. Contaminants of Ecological Significance - 2016-01-08 Portland Harbor RI Section 9 Table 9.11-1.	170	1 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100008876	2/8/2016	Portland Harbor RI/FS Final Remedial Investigation Report Section 9 Text - 2016-01-08 Portland Harbor RI Section 9 Text.	230	14 CORR / Correspondence	R10: Allen, Elizabeth (EPA)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100008877	2/8/2016	Portland Harbor RI/FS Final Remedial Investigation Report Section 10 Text - 2016-01-08 Portland Harbor RI Section 10 Text.	471	52 CORR / Correspondence	R10: Koch, Kristine, M (EPA)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100014753	2/8/2016	REDACTED Email regarding Final Portland Harbor RI Posted.	73	2 EML / Email	R10: Koch, Kristine, M (EPA)	R10: Angle, Genevieve (NOAA), R10: Buck, Jeremy (U. S. Fish and Wildlife Service), R10: Johnson, Courtney (Unknown), R10: Cabral, Rita (Industrial Economics, Incorporated), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Ward, Elmer (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Ridolfi, Callie (Ridolfi Engineers, Inc.), R10: Downey, Tom (Confederated Tribes of the Siletz Indians), R10: Partridge, Holly (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Karnosh, Michael (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Liverman, Alex (Oregon Dept. of Environmental Quality), R10: Fricano, Gail (Industrial Economics, Inc.), R10: Delvecchio, Rachel (Industrial Economics, Inc.), R10: Humphreys, Brandy (Grand Ronde Tribe), R10: Longoria, Rose (Yakama Nation), R10: Coffey, Scott (CDM Smith), R10: Weis, Julie (Haglund Kelley Jones & Wilder LLP), R10: Bianco, Paul (Unknown), R10: Hagerman, Paul (Unknown), R10: Williams, Jd (Unknown), R10: Moses, Gabriel (Unknown), R10: Klasner Shira, Laura (Confederated Tribes and Bands of the Yakima Indian Nation)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100017385	2/9/2016	REDACTED Email regarding Final Portland Harbor RI Posted.	113	2 EML / Email	R10: Mott, Jen (Anchor QEA, LLC)	R10: Cox, Kim, E (City of Portland, Oregon), R10: Neely, Robert (NOAA), R10: Ridolfi, Callie, A (Ridolfi Engineers and Associates, Inc.), R10: Johnson, Courtney (Unknown), R10: Madalinski, Kelly (Port of Portland), R10: Cabral, Rita (Industrial Economics, Incorporated), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Ward, Elmer (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Wyatt, Bob (Northwest Natural Gas Company), R10: Partridge, Holly (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Karnosh, Michael (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Sheldrake, Sean, A (EPA), R10: Koch, Kristine, M (EPA), R10: Moses, Gabriel (Nez Perce Tribe), R10: McClincy, Matt (Oregon Dept. of Environmental Quality), R10: Livesay, Dave (GSI Groundwater Solutions, Inc.), R10: Fricano, Gail (Industrial Economics, Inc.), R10: Kassakian, Jen (Industrial Economics, Inc.), R10: Delvecchio, Rachel (Industrial Economics, Inc.), R10: Humphreys, Brandy (Grand Ronde Tribe), R10: D'aquila, Kim (Grand Ronde Tribe), R10: Longoria, Rose (Yakama Nation), R10: Weis, Julie (Haglund Kelley Jones & Wilder LLP), R10: Shira, Laura, R10: Greenfield, Sarah (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100017394	2/9/2016	REDACTED Email regarding Final Portland Harbor RI Posted.	105	2 EML / Email	R10: Mott, Jen (Anchor QEA, LLC)	R10: Cox, Kim, E (City of Portland, Oregon), R10: Neely, Robert (NOAA), R10: Johnson, Courtney (Unknown), R10: Madalinski, Kelly (Port of Portland), R10: Cabral, Rita (Industrial Economics, Incorporated), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Ward, Elmer (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Ridolfi, Callie (Ridolfi Engineers, Inc.), R10: Wyatt, Bob (Northwest Natural Gas Company), R10: Partridge, Holly (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Karnosh, Michael (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Sheldrake, Sean, A (EPA), R10: Koch, Kristine, M (EPA), R10: Moses, Gabriel (Nez Perce Tribe), R10: McClincy, Matt (Oregon Dept. of Environmental Quality), R10: Livesay, Dave (GSI Groundwater Solutions, Inc.), R10: Fricano, Gail (Industrial Economics, Inc.), R10: Kassakian, Jen (Industrial Economics, Inc.), R10: Delvecchio, Rachel (Industrial Economics, Inc.), R10: Humphreys, Brandy (Grand Ronde Tribe), R10: D'aquila, Kim (Grand Ronde Tribe), R10: Longoria, Rose (Yakama Nation), R10: Weis, Julie (Haglund Kelley Jones & Wilder LLP), R10: Shira, Laura, R10: Mott, Jen (Anchor QEA, LLC), R10: Greenfield, Sarah (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100008841	2/18/2016	Email regarding Portland Harbor RI Report.	42	1 EML / Email	R10: Koch, Kristine, M (EPA)	R10: Wyatt, Bob (Northwest Natural Gas Company), R10: Revelas, Gene, C (Integral Consulting, Inc.)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)

								R10: Angle, Genevieve (NOAA), R10: Buck, Jeremy (U. S. Fish and Wildlife Service), R10: Johnson, Courtney (Unknown), R10: Cabral, Rita (Industrial Economics, Incorporated), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Ward, Elmer (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Ridolfi, Callie (Ridolfi Engineers, Inc.), R10: Downey, Tom (Confederated Tribes of the Siletz Indians), R10: Partridge, Holly (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Karnosh, Michael (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Liverman, Alex (Oregon Dept. of Environmental Quality), R10: Fricano, Gail (Industrial Economics, Inc.), R10: Delvecchio, Rachel (Industrial Economics, Inc.), R10: Humphreys, Brandy (Grand Ronde Tribe), R10: Longoria, Rose (Yakama Nation), R10: Coffey, Scott (CDM Smith), R10: Weis, Julie (Haglund Kelley Jones & Wilder LLP), R10: Bianco, Paul (Unknown), R10: Hagerman, Paul (Unknown), R10: Williams, Jd (Unknown), R10: Moses, Gabriel (Unknown), R10: Klasner Shira, Laura (Confederated Tribes and Bands of the Yakima Indian Nation)			053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100014751	2/29/2016	REDACTED Email regarding Portland Harbor RI	48	1 EML / Email	R10: Koch, Kristine, M (EPA)					053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)	
100008843	3/21/2016	Email regarding Final RI Approval.	73	2 EML / Email	R10: Wyatt, Robert, J (Northwest Natural Gas Company)	R10: Koch, Kristine, M (EPA)				053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)	
100008848	3/21/2016	Email regarding Final RI Approval.	73	2 EML / Email	R10: Koch, Kristine, M (EPA)	R10: Wyatt, Robert, J (Northwest Natural Gas Company)				053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)	
100008849	3/21/2016	Portland Harbor Remedial Investigation Acronyms Check - Portland Harbor RI Acronyms Check.	161	3 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)				053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)	
100008844	3/22/2016	Email regarding Final RI Approval.	75	3 EML / Email	R10: Wyatt, Robert, J (Northwest Natural Gas Company)	R10: Koch, Kristine, M (EPA)				053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)	
100008845	3/22/2016	Email regarding Final RI Approval.	76	3 EML / Email	R10: Koch, Kristine, M (EPA)	R10: Wyatt, Robert, J (Northwest Natural Gas Company)				053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)	
4940682065	4/29/2016	Draft Chart/Table regarding Ecological risk assessment conceptual site model for the Portland Harbor Superfund Site.	106	11 CHT / Chart/Table	R10: Nichols, Brian (Unknown)					053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)	
100007669	Undated	Creating Web Ready PDFs for the EPA.	22	1 OTH / Other	R10: (Unknown)					053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)	
100007687	Undated	Racetrack.	75	1 OTH / Other						053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)	
100007689	Undated	Final Portland Harbor RIFS Scope of Work FY08.	38	3 OTH / Other						053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)	
100007723	Undated	Aquatic Biota Tissue TRV Derivation 061308.	210	18 OTH / Other	R10: (Unknown)					053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)	
100007733	Undated	BHHRA_Specific_Comments_07162010Final.	407	92 RPT / Report	R10: (EPA)					053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)	
100007735	Undated	GNL Address List March 2010.	57	9 RPT / Report	R10: (Unknown)					053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)	
100007824	Undated	Chemical Degradation.	15	1 RPT / Report	R10: (Unknown)					053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)	
100007827	Undated	EPA Comments on benthic approach.	70	13 RPT / Report	R10: (Unknown)					053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)	
100007834	Undated	Chemical Degradation.	17	1 RPT / Report	R10: (EPA)					053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)	
100007836	Undated	Attachment 1, PHLRM derivation.	30	2 RPT / Report	R10: (Unknown)					053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)	
100007837	Undated	Attachment 2, Reliability Statistics.	883	48 RPT / Report	R10: (Unknown)					053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)	
100007838	Undated	Table 1, Maps & Tables.	27	2 FIG / Figure/Map/ Drawing	R10: (Unknown)					053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)	
100007840	Undated	EPA BERA Executive Summary.	629	24 RPT / Report	R10: (Unknown)					053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)	
100010240	Undated	Lower Willamette Group (LWG) General Responses to EPA's Directive Comments on the Baseline Human Health Risk Assessment (BHHRA).	32	8 CORR / Correspondence	R10: (Lower Willamette Group)	R10: (EPA)				053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)	
100010266	Undated	LWG's (Lower Willamette Group) Response to EPA's April 11, 2011 Comments on the BHHRA Risk Tables and Calculations - 2011_05_06_Response to EPA April 11 Comments.	14	2 CORR / Correspondence	R10: (Lower Willamette Group)	R10: (EPA)				053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)	
100010366	Undated	EPA Response to 07/12/2013 Lower Willamette Group's Notice of Objection to and Request for Dispute Resolution for Payment of Stipulated Penalties - 2013-08-01 Final EPA Response to LWG dispute statement.	78	9 CORR / Correspondence	R10: Cora, Lori, H (EPA)					053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)	
1146450	1/29/2001	Email transmitting additional information for the Portland Harbor group e-mail list.	29	1 EML / Email	R10: Cox, Kim, E (Oregon Dept. of Environmental Quality)	R10: Reid, Wallace, A (EPA), R10: Humphrey, Chip (EPA)				053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)	
1469189	3/11/2001	Correspondence providing the comments of NOAA on three draft DEQ decision memos regarding determination of current sources of sediment contamination.	206	3	R10: Hillman, Helen, E (NOAA)	R10: Blischke, Eric, L (Oregon Dept. of Environmental Quality)				053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)	
1128887	3/1/2002	Comments regarding the Preliminary Planning, Scoping, and Problem Formulation Document.	112	2 CORR / Correspondence	R10: Dyken, Jill (ATSDR), R10: Crellin, John (ATSDR)	R10: Reid, Wallace, A (EPA), R10: Humphrey, Chip (EPA)				053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)	
1128891	3/7/2002	Letter transmitting comments on the Problem Formulation and Proposed Database Approach Document.	150	3 CORR / Correspondence	R10: Kauffman, Kenneth (Oregon Dept. of Human Resources)	R10: Humphrey, Chip (EPA)				053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)	
1128893	3/8/2002	Letter transmitting comments on the Draft Preliminary Planning, Scoping, and Problem Formulation Document.	604	9 CORR / Correspondence	R10: Hillman, Helen, E (NOAA)	R10: Reid, Wallace, A (EPA), R10: Humphrey, Chip (EPA)				053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)	
100004272	4/22/2002	Draft 3-5b Sediment Profile Survey.	1,185	4 FIG / Figure/Map/ Drawing	R10: (Unknown)	R10: (Unknown)				053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)	
1152302	5/1/2002	Letter responding to EPA's April 25, 2002 letter extending the time for submission of workplan deliverables and requesting submission by May 9 of summaries.	184	3 CORR / Correspondence	R10: Harbert, Trey (Lower Willamette Group), R10: Patterson, Larry, D (ATOFINA Chemicals, Inc.)	R10: Reid, Wallace, A (EPA), R10: Humphrey, Chip (EPA), R10: Karamas, Tara (EPA)				053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)	



1152305	Letter providing comments on the Draft Sampling and Analysis Plan, April 22, 2002.	124	2 CORR / Correspondence	R10: Howard, Patti (Columbia River Inter-Tribal Fish Commission)	R10: Reid, Wallace, A (EPA), R10: Humphrey, Chip (EPA)	PAPER DOCUMENT	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
1152315	Letter regarding LWG's position with respect to the sharing of site-related documents with the public.	108	2 CORR / Correspondence	R10: Harbert, Trey (Lower Willamette Group), R10: Patterson, Larry, D (ATOFINA Chemicals, Inc.)	R10: Reid, Wallace, A (EPA), R10: Humphrey, Chip (EPA), R10: Karamas, Tara (EPA)	PAPER DOCUMENT	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
1469148	Email and EPA comments regarding the Outfall Pilot Project for the City of Portland Outfalls.	370	7 EML / Email	R10: Karamas, Tara (EPA)	R10: Struck, Rodney, G (Oregon Dept. of Environmental Quality), R10: Blischke, Eric, L (Oregon Dept. of Environmental Quality)	PAPER DOCUMENT	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
1160446	Memorandum: Data Validation Report for Polynuclear Hydrocarborn (PNAs), Semi-volatile Organic Compound (SVOC), PCB Aroclor (PCBs), Pesticide (Pest), Percent Solids (% solids), Grain Size and Total Organic Carbon (TOC) Analyses of Sediment Samples	4,042	107 ADD / Analytical Data Document	R10: Grepo-grove, Ginna (EPA)	R10: Reid, Wallace, A (EPA), R10: Humphrey, Chip (EPA), R10: Karamas, Tara (EPA)	PAPER DOCUMENT	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100006880	Draft Round 1 Field Sampling Report Portland Harbor RI/FS - 2003-03-14 - _R1_Field_Sampling_Report.	201	44 CORR / Correspondence	R10: (Striplin Environmental Associates), R10: (Anchor Environmental, LLC), R10: (Windward Environmental, LLC.), R10: (Kennedy/Jenks Consultants), R10: (Fishman Environmental Services, LLC), R10: (Ellis Environmental Services)	R10: (Lower Willamette Group)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
1178620	Memorandum: Data Validation Report for Semi-volatile Organic Compounds (SVOCs) full scan with Tentatively identified Compound (TICs), SVOCs using Selected Ion Monitoring (SIM) for low detection Polynuclear Aromatic Hydrocarbons (PAHs) and other SVOCs.	5,161	142 CORR / Correspondence	R10: Grepo-grove, Ginna (EPA)	R10: Humphrey, Chip (EPA), R10: Martich, Tara (EPA)	PAPER DOCUMENT	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
1455118	Memorandum Transmitting Data Validation Report for Semi-Volatile Organic Compounds (SVOCs).	618	11	R10: Grepo-grove, Ginna (EPA), R10: Unknown, Unknown (Technical Support Unit, USEPA)	R10: Karamas, Tara (Unknown), R10: Humphrey, Chip (EPA), R10: Davoli, Dana (EPA), R10: Wroble, Julie (EPA), R10: Unknown, Unknown (Office of Environmental Cleanup EPA Region 10)	PAPER DOCUMENT	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
1198108	Data Validation Report for the Polychlorinated Dibenzodioxins (PCDD) and Polychlorinated Dibenzofurans (PCDF) Analysis of Sediment and Fish Tissue Samples from Portland Harbor Round 1 Sampling.	4,222	97 RPT / Report	R10: Grepo-grove, Ginna (EPA)	R10: Humphrey, Chip (EPA), R10: Martich, Tara (EPA)	PAPER DOCUMENT	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100006802	Figure 1: Transect Location and Discharge Values - Map 2.1-4 2004 ADCP Transect Locations.	544	1 CORR / Correspondence	R10: (David Evans and Associates, Inc.)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
1185432	Monthly Progress Report for January 2004 (1/04) for the Lower Willamette River, Portland Harbor Superfund Site.	228	7	R10: Day, Betsy (Lower Willamette Group)	R10: Humphrey, Chip (EPA), R10: Martich, Tara (EPA)	PAPER DOCUMENT	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
1185907	Letter transmitting the Draft Technical Memorandum - Groundwater Pathway Assessment, (Less Attachment).	63	2 CORR / Correspondence	R10: Brody-heine, Bruce (Groundwater Solutions Inc.)	R10: Humphrey, Chip (EPA)	PAPER DOCUMENT	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
1198386	Hexavalent Chromium Reduction - Interim Remedial Measure Work Plan, ATOFINA Chemicals, Inc.	3,294	72 RPT / Report	R10: Galvin, Patrick, E (Environmental Resources Management, Inc.), R10: Kraus, Jason, F (Environmental Resources Management, Inc.), R10: Bailey, Chris, L (Environmental Resources Management, Inc.)	R10: Humphrey, Chip (EPA)	PAPER DOCUMENT	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
712895	EPA Response to LWG 8/26/14 Request for Dispute Resolution Exhibit 1: Revised Upstream Ambient Locations.	163	5 CORR / Correspondence	R10: Andersen, Helle (Windward Environmental, LLC.), R10: Saban, Lisa (Windward Environmental, LLC.)	R10: Blischke, Eric, L (EPA)	OPTICAL STORAGE	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
1244925	Letter regarding Linnton Oil Fire Training Facility, Intersection of NW Marina Way & St Helens Road, Portland, Oregon, ECSI No. 1189 (River Mile 3.5).	4,214	37 CORR / Correspondence	R10: Anderson, James, M (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA), R10: Ivy, Kathy (EPA)	PAPER DOCUMENT	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
664960	06_28_05 email; updated congressional briefing sheet.	26	1 EML / Email	R10: Kawabata, Sylvia (EPA)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA), R10: Veit, Kathleen (EPA), R10: Deppman, Marianne (EPA), R10: Rodriguez, Socorro (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
612637	Email regarding Field Guide to NW mussels.	243	1 EML / Email	R10: Buck, Jeremy (U. S. Fish and Wildlife Service)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100006724	Email regarding PH Milestone meeting agenda - revised.	14	1 EML / Email	R10: Humphrey, Chip (EPA)	R10: Applegate, Richard (City of Portland, Oregon), R10: Mckenna, James (Port of Portland), R10: Wyatt, Robert, J (NW Natural)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100006725	Portland Harbor Milestone Meeting Agenda Monday - 12 SEPTEMBER 2005.	31	1 MTG / Meeting Document			ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100006722	Email regarding EPA letter re: MCLs as potential ARARs for PH.	21	1 EML / Email	R10: Humphrey, Chip (EPA)	R10: Applegate, Richard (City of Portland, Oregon), R10: Mckenna, James (Port of Portland)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100006723	Letter regarding Portland Harbor Superfund Site; Administrative Order on Consent for Remedial Investigation and Feasibility Study; Docket No. CERCLA-10-2001-0240.	90	3 CORR / Correspondence	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	R10: Mckenna, James (Port of Portland), R10: Wyatt, Robert, J (NW Natural)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
1258572	Letter regarding Stormwater meeting.	67	2 CORR / Correspondence	R10: Johnson, Keith (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA), R10: Kawabata, Sylvia (EPA)	PAPER DOCUMENT	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
1244939	Letter transmitting comments on the December 2005 and February 2006 proposals for Portland Harbor Superfund Round 3 sampling and analysis.	364	5 CORR / Correspondence	R10: Applegate, Richard (City of Portland, Oregon)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	PAPER DOCUMENT	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100006879	Wash Load/Bed Material Load Concept in Regional Sediment Management - Session 7A-3_Biedenbarn.	151	8 CORR / Correspondence	R10: Watson, Chester, C (Colorado State University), R10: Biedenbarn, David (Army Corps of Engineers), R10: Thorne, Colin (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100006726	Email regarding HHRA Issue Summary for May 23rd Project Manager's Meeting.	20	2 EML / Email	R10: Humphrey, Chip (EPA)	R10: Applegate, Richard (City of Portland, Oregon), R10: Mckenna, James (Port of Portland), R10: Cunninghame, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Oster, Valerie (Anchor Environmental, LLC), R10: Pine, Keith, A (Integral Consulting, Inc.), R10: Anderson, James, M (Oregon Dept. of Environmental Quality), R10: McClincy, Matt (Oregon Dept. of Environmental Quality), R10: Lewis, Mark, D (NewFields), R10: Livesay, Dave (GSI Groundwater Solutions, Inc.), R10: Lee, Jean, H (Environment International, Ltd.), R10: Longoria, Rose (Yakama Nation), R10: Wyatt, Robert, J (NW Natural)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
614116	Storm Water Characterization Letter.	350	19 CORR / Correspondence	R10: Koch, Kristine, M (EPA)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
614734	Email regarding DEQ's Proposed SW sampling.	247	2 EML / Email	R10: Koch, Kristine, M (EPA)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100006717	Portland Harbor Superfund Site - Projected Schedule	48	2 CORR / Correspondence			ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)

					R10: Applegate, Richard (City of Portland, Oregon), R10: Anderson, James, M (Oregon Dept. of Environmental Quality), R10: McClincy, Matt (Oregon Dept. of Environmental Quality), R10: Lee, Valerie Ann (Environment International, Ltd.), R10: Longoria, Rose (Yakama Nation), R10: Wyatt, Robert, J (NW Natural), R10: Pine, Keith (Anchor Environmental, LLC)		053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100006727	Email regarding Projected RI/FS ROD Schedule - 6/26/2006 msg. info for senior managers.	16	1 EML / Email	R10: Humphrey, Chip (EPA)		ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
613911	9/12/2006 SW approach - high level view _Eric_.	222	1 CORR / Correspondence	R10: Koch, Kristine, M (EPA)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
613912	9/12/2006 DraftStormwaterApproachHighLevel.	219	1 CORR / Correspondence	R10: Koch, Kristine, M (EPA)	R10: Blischke, Eric, L (EPA) R10: Koehl, Krista (Port of Portland), R10: Stivers, Carl (Anchor Environmental, LLC), R10: Roick, Thomas, E (Oregon Dept. of Environmental Quality), R10: Blischke, Eric (CDM Smith)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
500001448	11/20/2006 11_20_06 email; Draft Stormwater Matrix.	38	1 EML / Email	R10: Koch, Kristine, M (EPA)	R10: Mckenna, Jim (Lower Willamette Group), R10: Blischke, Eric, L (Oregon Dept. of Environmental Quality), R10: Anderson, James, M (Oregon Dept. of Environmental Quality), R10: Humphrey, Chip (Department of Environmental Quality)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
679562	12/18/2006 12_18_06 email; Stormwater Tech Subgroup.	39	2 CORR / Correspondence	R10: Koch, Kristine, M (EPA)		ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
1259009	Portland Harbor Schedule for TCT Meeting- 1/2/2007 01/03/07.	1,011	19 CORR / Correspondence	R10: Bernardini, Lori (Parametrix, Inc.)	R10: Cora, Lori, H (EPA), R10: Humphrey, Chip (EPA), R10: Davoli, Dana (EPA), R10: Anderson, James, M (Oregon Dept. of Environmental Quality), R10: Cyril, L. Alexander (Alex) (Oregon Dept. of Environmental Quality)	PAPER DOCUMENT	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
611237	10/8/2007 Revised Gunderson GW PA FSP.	240	1 CORR / Correspondence	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
611243	Reply to Superfund Site Willamette River - Dredging at Gunderson.	248	2 CORR / Correspondence	R10: Koch, Kristine, M (EPA)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100007389	Email regarding Re_ timing of Milestone meeting.	77	3 EML / Email	R10: Humphrey, Chip (EPA)	R10: Mckenna, James (Verdant Solutions, LLC)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
1396371	Comments on the Lower Willamette Group's Comprehensive Round 2 Site Characterization Summary and Data Gaps Analysis Report, Portland Harbor Superfund.	990	15 LTR / Letter	R10: Dragna, James (Bingham McCutchen LLP)	R10: Humphrey, Chip (EPA)	PAPER DOCUMENT	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
613744	Email regarding Comments on Round 2 (RD2) Site Characterization Summary Report (SCSR) Section 10.	246	2 EML / Email	R10: Anderson, James, M (Oregon Dept. of Environmental Quality)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
613357	4/2/2008 2008-04-01_DRAFT RI Table of Contents.	230	3 CORR / Correspondence	R10: Revelas, Gene, C (Integral Consulting, Inc.)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
1372599	E-mail Transmitting Memorandum Regarding Evaluation of Lamprey in Portland Harbor Ecological Risk Assessment with Attached Three Treaty Tribes Action Agency Agreement - April 4, 2008.	32,593	65 EML / Email	R10: Cross, Laura (Stratus Consulting, Inc.)	R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Peers, Jennifer (Stratus Consulting, Inc.), R10: Cora, Lori, H (EPA), R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	PAPER DOCUMENT	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
613747	Email regarding Draft Comments on Section 11.	243	2 EML / Email	R10: Anderson, James, M (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
613748	EPA Comments on Section 11 of Round 2 5/9/2008 Report.	317	18 CORR / Correspondence	R10: Anderson, James, M (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
611170	Email regarding City of Portland separate 5/28/2008 views letter.	240	1 CORR / Correspondence	R10: Gardner, Sara (City of Portland, Oregon, Environmental Services)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100003445	6/25/2008 Email regarding Document Attachment.	30	1 EML / Email	R10: Sanders, Dawn (City of Portland, Oregon)	R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100003453	6/25/2008 Sorted Data- Doc1.	24	2 CORR / Correspondence	R10: Sanders, Dawn (City of Portland, Oregon)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
665012	08_07_08 email; INVITE_ Willamette Cove Trail Tour.	32	1 EML / Email	R10: Kotek, Tina (Oregon State House of Representatives)	R10: Brooks, Suzanne, L (Port of Portland), R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA), R10: Blischke, Eric, L (Oregon Dept. of Environmental Quality), R10: Thiessen, Kenneth (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100007255	Email regarding EPA comments on LWG Background Comments Response.	25	1 EML / Email	R10: Humphrey, Chip (EPA)	R10: Applegate, Richard (City of Portland, Oregon), R10: Wyatt, Robert, J (NW Natural)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100007337	Email regarding RE_Portland Harbor Managers Meeting - Wednesday October 8th.	80	3 EML / Email	R10: Humphrey, Chip (EPA)	R10: Applegate, Richard (City of Portland, Oregon), R10: Wyatt, Robert, J (NW Natural), R10: Mckenna, James (Verdant Solutions, LLC)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100007335	10/6/2008 Email regarding Re_ Milestone Meeting.	43	1 EML / Email	R10: Humphrey, Chip (EPA)	R10: Wyatt, Robert, J (NW Natural)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
613800	11/24/2008 Email regarding Reply to Revised RPAC Letter.	270	2 EML / Email	R10: Anderson, James, M (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100007264	Email regarding Final osprey egg QAPP 12/4/2008 transmittal.	44	2 EML / Email	R10: Humphrey, Chip (EPA)	R10: Woronets, Jennifer (Anchor QEA, LLC), R10: Wyatt, Robert, J (NW Natural)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
613292	Email regarding DRAFT Outline of the Groundwater Pathway Assessment and Geochemical Analysis Appendix for the RI.	297	2 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
613750	1/16/2009 Email regarding Table 5.1-2.	266	1 EML / Email	R10: Anderson, James, M (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
1387622	Email regarding clarification on EPA request 1/26/2009 for stormline information.	61	2 CORR / Correspondence	R10: Applegate, Richard (City of Portland, Oregon)	R10: Humphrey, Chip (EPA)	PAPER DOCUMENT	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
611188	6/2/2009 2009-05-27-28 AOPC Meeting_Agenda.	273	1 CORR / Correspondence	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
613737	6/12/2009 Email regarding Portland Harbor ARARs.	275	2 EML / Email	R10: Anderson, James, M (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
611232	7/17/2009 Email regarding AOPC Agreement Letter.	322	2 CORR / Correspondence	R10: Fox, Julie (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
611276	8/3/2009 7_09 DEQ Letter to EPA re GW.	404	2 CORR / Correspondence	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
611267	8/6/2009 Reply to Draft Final RAOs for Portland Harbor.	266	1 CORR / Correspondence	R10: Fleming, Sheila (Ridolfi Engineers and Associates, Inc.)	R10: Blischke, Eric, L (EPA), R10: Shephard, Burt (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
611268	Email regarding DEQ comments on EPA's 8/7/2009 8/4/09 Portland Harbor RAOs.	264	1 CORR / Correspondence	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
611481	8/7/2009 8_09 RAO Comments.	309	4 CORR / Correspondence	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)

611275	8/13/2009	DEQRAOComments080709.	336	4	CORR / Correspondence	R10: Anderson, James, M (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100004674	9/21/2009	Portland Harbor RI/FS Remedial Investigation Report Section 10 Figures.	1,803	57	RPT / Report	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
611308	9/22/2009	Email regarding Portland Harbor Master Schedule and Schedule/Activity Updates - September 22.	248	1	CORR / Correspondence	R10: Bernardini, Lori (Parametrix, Inc.)	R10: Shepard, Burt (EPA), R10: Humphrey, Chip (EPA), R10: Davoli, Dana (EPA), R10: Gainer, Tom (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
1309729	10/1/2009	Lower Willamette Group - Executive Summary - Portland Harbor Superfund Site Draft Remedial Investigation Report.	12,204	30	RPT / Report	R10: Unknown, Unknown (Unknown)	R10: Unknown, Unknown (Lower Willamette Group)	PAPER DOCUMENT	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
613714	10/6/2009	Email regarding Downtown Portland Sediment Investigation.	266	1	EML / Email	R10: Anderson, James, M (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
611503	10/27/2009	Draft RI Report Posted.	286	1	CORR / Correspondence	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
1363640	10/27/2009	Portland Harbor RI/FS Draft Remedial Investigation Report: Volume 12, Appendix E-G Prepared for The Lower Willamette Group.	41,745	283	RPT / Report	R10: Unknown, Unknown (Kennedy/Jenks Consultants), R10: Unknown, Unknown (Windward Environmental, LLC.), R10: Unknown, Unknown (Integral Consulting, Inc.), R10: Unknown, Unknown (Anchor QEA, LLC)	R10: Unknown, Unknown (Lower Willamette Group)	PAPER DOCUMENT	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
1363641	10/27/2009	Portland Harbor RI/FS Draft Remedial Investigation Report: Volume 11, Appendix D Prepared for The Lower Willamette Group.	75,060	304	RPT / Report	R10: Unknown, Unknown (Kennedy/Jenks Consultants), R10: Unknown, Unknown (Windward Environmental, LLC.), R10: Unknown, Unknown (Integral Consulting, Inc.), R10: Unknown, Unknown (Anchor QEA, LLC)	R10: Unknown, Unknown (Lower Willamette Group)	PAPER DOCUMENT	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
1363642	10/27/2009	Portland Harbor RI/FS Draft Remedial Investigation Report: Volume 10, Appendix C Prepared for The Lower Willamette Group.	151,198	460	RPT / Report	R10: Unknown, Unknown (Kennedy/Jenks Consultants), R10: Unknown, Unknown (Windward Environmental, LLC.), R10: Unknown, Unknown (Integral Consulting, Inc.), R10: Unknown, Unknown (Anchor QEA, LLC)	R10: Unknown, Unknown (Lower Willamette Group)	PAPER DOCUMENT	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
1363643	10/27/2009	Portland Harbor RI/FS Draft Remedial Investigation Report: Volume 5, Section 6-13 Prepared for The Lower Willamette Group.	105,231	606	RPT / Report	R10: Unknown, Unknown (Kennedy/Jenks Consultants), R10: Unknown, Unknown (Windward Environmental, LLC.), R10: Unknown, Unknown (Integral Consulting, Inc.), R10: Unknown, Unknown (Anchor QEA, LLC)	R10: Unknown, Unknown (Lower Willamette Group)	PAPER DOCUMENT	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
1363644	10/27/2009	Portland Harbor RI/FS Draft Remedial Investigation Report: Volume 9, Appendix A-B Prepared for The Lower Willamette Group.	36,996	167	RPT / Report	R10: Unknown, Unknown (Kennedy/Jenks Consultants), R10: Unknown, Unknown (Windward Environmental, LLC.), R10: Unknown, Unknown (Integral Consulting, Inc.), R10: Unknown, Unknown (Anchor QEA, LLC)	R10: Unknown, Unknown (Lower Willamette Group)	PAPER DOCUMENT	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
1363645	10/27/2009	Portland Harbor RI/FS Draft Remedial Investigation Report: Volume 4, Section 5 (Tables) Prepared for The Lower Willamette Group.	12,308	151	RPT / Report	R10: Unknown, Unknown (Kennedy/Jenks Consultants), R10: Unknown, Unknown (Windward Environmental, LLC.), R10: Unknown, Unknown (Integral Consulting, Inc.), R10: Unknown, Unknown (Anchor QEA, LLC)	R10: Unknown, Unknown (Lower Willamette Group)	PAPER DOCUMENT	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
1363646	10/27/2009	Portland Harbor RI/FS Draft Remedial Investigation Report: Volume 3, Section 5 (Figures) Prepared for The Lower Willamette Group.	138,551	391	RPT / Report	R10: Unknown, Unknown (Kennedy/Jenks Consultants), R10: Unknown, Unknown (Windward Environmental, LLC.), R10: Unknown, Unknown (Integral Consulting, Inc.), R10: Unknown, Unknown (Anchor QEA, LLC)	R10: Unknown, Unknown (Lower Willamette Group)	PAPER DOCUMENT	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
1363647	10/27/2009	Portland Harbor RI/FS Draft Remedial Investigation Report: Volume 2, Section 4-5 (Text) Prepared for The Lower Willamette Group.	23,193	281	RPT / Report	R10: Unknown, Unknown (Kennedy/Jenks Consultants), R10: Unknown, Unknown (Windward Environmental, LLC.), R10: Unknown, Unknown (Integral Consulting, Inc.), R10: Unknown, Unknown (Anchor QEA, LLC)	R10: Unknown, Unknown (Lower Willamette Group)	PAPER DOCUMENT	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
1363648	10/27/2009	Portland Harbor RI/FS Draft Remedial Investigation Report: Volume 1, Executive Summary, Sections 1-3 Prepared for The Lower Willamette Group.	45,196	347	RPT / Report	R10: Unknown, Unknown (Kennedy/Jenks Consultants), R10: Unknown, Unknown (Windward Environmental, LLC.), R10: Unknown, Unknown (Integral Consulting, Inc.), R10: Unknown, Unknown (Anchor QEA, LLC)	R10: Unknown, Unknown (Lower Willamette Group)	PAPER DOCUMENT	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
1363649	10/27/2009	Portland Harbor RI/FS Draft Remedial Investigation Report: Volume 6, Map Folio (1 of 3) Prepared for The Lower Willamette Group.	193,540	169	RPT / Report	R10: Unknown, Unknown (Kennedy/Jenks Consultants), R10: Unknown, Unknown (Windward Environmental, LLC.), R10: Unknown, Unknown (Integral Consulting, Inc.), R10: Unknown, Unknown (Anchor QEA, LLC)	R10: Unknown, Unknown (Lower Willamette Group)	PAPER DOCUMENT	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
1363650	10/27/2009	Portland Harbor RI/FS Draft Remedial Investigation Report: Volume 13, Appendix Map Folio (1 of 2) Prepared for The Lower Willamette Group.	284,201	271	RPT / Report	R10: Unknown, Unknown (Kennedy/Jenks Consultants), R10: Unknown, Unknown (Windward Environmental, LLC.), R10: Unknown, Unknown (Integral Consulting, Inc.), R10: Unknown, Unknown (Anchor QEA, LLC)	R10: Unknown, Unknown (Lower Willamette Group)	PAPER DOCUMENT	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
1363662	10/27/2009	Portland Harbor RI/FS Draft Remedial Investigation Report: Volume 8, Map Folio (3 of 3) Prepared for The Lower Willamette Group.	155,576	131	RPT / Report	R10: Unknown, Unknown (Kennedy/Jenks Consultants), R10: Unknown, Unknown (Windward Environmental, LLC.), R10: Unknown, Unknown (Integral Consulting, Inc.), R10: Unknown, Unknown (Anchor QEA, LLC)	R10: Unknown, Unknown (Lower Willamette Group)	PAPER DOCUMENT	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
1363663	10/27/2009	Portland Harbor RI/FS Draft Remedial Investigation Report: Volume 7, Map Folio (2 of 3) Prepared for The Lower Willamette Group.	254,434	242	RPT / Report	R10: Unknown, Unknown (Kennedy/Jenks Consultants), R10: Unknown, Unknown (Windward Environmental, LLC.), R10: Unknown, Unknown (Integral Consulting, Inc.), R10: Unknown, Unknown (Anchor QEA, LLC)	R10: Unknown, Unknown (Lower Willamette Group)	PAPER DOCUMENT	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
1363664	10/27/2009	Portland Harbor RI/FS Draft Remedial Investigation Report: Volume 14, Appendix Map Folio (2 of 2) Prepared for The Lower Willamette Group.	245,613	243	RPT / Report	R10: Unknown, Unknown (Kennedy/Jenks Consultants), R10: Unknown, Unknown (Windward Environmental, LLC.), R10: Unknown, Unknown (Integral Consulting, Inc.), R10: Unknown, Unknown (Anchor QEA, LLC)	R10: Unknown, Unknown (Lower Willamette Group)	PAPER DOCUMENT	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
611650	11/4/2009	Outline of Proposed LWG November 17, 2009 Alternatives Development and Screening Examples Presentation.	337	3	CORR / Correspondence	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Sheldrake, Sean, A (EPA), R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA), R10: Poulsen, Mike (Oregon Dept. of Environmental Quality), R10: Gainer, Tom (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
1387612	1/20/2010	Email regarding City of Portland's views on the LWG 01/20/2010 dispute letter.	32	1	CORR / Correspondence	R10: Applegate, Richard (City of Portland, Oregon)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	PAPER DOCUMENT	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
614563	2/3/2010	Email regarding Rhone Poulenc Groundwater Discharge to the Willamette River.	286	2	EML / Email	R10: Lacey, David (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
1387614	3/11/2010	Email regarding River-in-Focus March 16 Brownbag.	73	2	CORR / Correspondence	R10: Applegate, Richard (City of Portland, Oregon)	R10: Blischke, Eric, L (EPA), R10: Smith, Judy, R (EPA)	PAPER DOCUMENT	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
1387615	4/15/2010	Email regarding City of Portland's views on the analysis of Combined Disposal Facilities.	49	1	CORR / Correspondence	R10: Applegate, Richard (City of Portland, Oregon)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	PAPER DOCUMENT	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100007339	4/21/2010	Email regarding Re_Resolution of risk assessment comment_4-21-2010_1519.	47	2	EML / Email	R10: Humphrey, Chip (EPA)	R10: Mckenna, James (Verdant Solutions, LLC)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)



100007380	4/21/2010	Email regarding Re_Resolution of risk assessment comment_4-21-2010_1544.	47	2 EML / Email	R10: Humphrey, Chip (EPA)	R10: Mckenna, James (Verdant Solutions, LLC)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
663237	5/12/2010	CrawfordStreetRIComments (comments on remedial investigation report).	162	4 CORR / Correspondence	R10: Reeve, Mark, P (Reeve Kearns)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
663546	5/12/2010	SchnitzerRIComments.	1,386	32 RPT / Report	R10: Dragna, James (Bingham McCutchen LLP)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
500004143	5/12/2010	Comments on the Lower Willamette Group's October 27, 2009 Draft Remedial Investigation Report for the Portland Harbor Superfund Site.	1,978	32 LTR / Letter	R10: Dragna, James (Bingham McCutchen LLP)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
663234	5/14/2010	ACMERIComments.	94	3	R10: Myers, Mark (Williams Kastner)	R10: Humphrey, Chip (EPA), R10: Blischke, Eric, L (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
663247	5/24/2010	PGERIComments. (comments on draft Remedial Investigation Report).	374	8 CORR / Correspondence	R10: McWilliams, Laura, S (URS Corporation)	R10: Humphrey, Chip (EPA), R10: Blischke, Eric, L (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
613730	5/31/2010	Email regarding DEQ Comments on Draft RI /BRA.	273	1 EML / Email	R10: Anderson, James, M (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
613735	5/31/2010	5_10_RI_BRA Comment Tables.	283	15 CORR / Correspondence	R10: Anderson, James, M (Oregon Dept. of Environmental Quality) R10: Ryciewicz, Christopher, A (Miller & Nash), R10: Reeve, Mark, P (Reeve & Reeve), R10: Lacampagne, Suzanne, C (Miller Nash, LLP), R10: Simmons, Jacqueline, A (Unknown), R10: Merchant, Michael, B (Northwest Pipe Company)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
500004153	7/23/2010	Comments on Draft Remedial Investigation Report.	1,658	32 LTR / Letter	R10: Cora, Lori, H (EPA)		ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100007311	7/27/2010	Email regarding Dispute Deadline Extension Request.	47	2 EML / Email	R10: Humphrey, Chip (EPA)	R10: Wyatt, Robert, J (NW Natural)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100007262	8/16/2010	Email regarding Fw Extension of dispute deadline for EPA directed comments.	28	2 EML / Email	R10: Humphrey, Chip (EPA)	R10: Woronets, Jennifer (Anchor QEA, LLC), R10: Mckenna, Jim (Verdant Solutions, LLC)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100007327	8/16/2010	Email regarding Re_Extension of dispute deadline for EPA directed comments.	26	1 EML / Email	R10: Humphrey, Chip (EPA)	R10: Wyatt, Robert, J (NW Natural), R10: Mckenna, James (Verdant Solutions, LLC)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
1396014	9/23/2010	E-Mail Regarding the University of Portland Fill Material: Technically and Rigidly, the Roosevelt High School Soil Does Not Meet DEQ's Definition of Clean Fill for Unrestricted Use.	146	3 EML / Email	R10: Anderson, James, M (Oregon Dept. of Environmental Quality)	R10: Ader, Mark, A (EPA), R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	PAPER DOCUMENT	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100007254	9/28/2010	Email regarding EPA comments on Benthic Approach.	27	1 EML / Email	R10: Humphrey, Chip (EPA)	R10: Wyatt, Robert, J (NW Natural)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
613573	10/7/2010	2010-10-07 General Responses to EPA Non-Directive Comment Key Issues on RI.	376	13 CORR / Correspondence	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
613582	10/11/2010	Email regarding Numbered Set of EPA General Comments on Draft RI.	291	1 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100007268	10/14/2010	Email regarding Jay's availability.	51	2 EML / Email	R10: Humphrey, Chip (EPA)	R10: Mckenna, James (Verdant Solutions, LLC)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100007371	10/14/2010	Email regarding Re_Meeting re LRM.	100	2 EML / Email	R10: Humphrey, Chip (EPA)	R10: Mckenna, James (Verdant Solutions, LLC)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100007261	10/18/2010	Email regarding Extension of time for submission of revised RI and RA Reports.	27	2 EML / Email	R10: Humphrey, Chip (EPA)	R10: Wyatt, Robert, J (NW Natural)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100007321	10/18/2010	Email regarding Re_Deadline for revising the draft RI and RAs.	72	2 EML / Email	R10: Humphrey, Chip (EPA)	R10: Mckenna, James (Verdant Solutions, LLC)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
1387616	11/2/2010	Email regarding City of Portland's proposal on downtown reach data.	50	1 CORR / Correspondence	R10: Applegate, Richard (City of Portland, Oregon)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	PAPER DOCUMENT	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100007312	11/4/2010	Email regarding Dispute Deadline.	50	2 EML / Email	R10: Humphrey, Chip (EPA)	R10: Wyatt, Robert, J (NW Natural)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100007333	11/4/2010	Email regarding Re_LWG Response to EPA's Data Lock-Down Comments_11-4-2010.	101	5 EML / Email	R10: Humphrey, Chip (EPA)	R10: Mckenna, James (Verdant Solutions, LLC)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100007370	11/8/2010	Email regarding RE_LWG Response to EPA's Data Lock-Down Comments_11-8-2010.	79	5 EML / Email	R10: Humphrey, Chip (EPA)	R10: Mckenna, James (Verdant Solutions, LLC) R10: Blischke, Eric, L (EPA), R10: Smith, Judy, R (EPA), R10: Humphrey, Chip (EPA), R10: Madden, Erin (Nex Perce Tribe), R10: Anderson, James, M (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
1387618	11/10/2010	Email transmitting City of Portland's letter to CAG regarding some form of public process being taken before taking positions on cleanup and risk levels (less enclosures).	34	1 CORR / Correspondence	R10: Applegate, Richard (City of Portland, Oregon)	R10: Anderson, James, M (Oregon Dept. of Environmental Quality)	PAPER DOCUMENT	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100003451	12/6/2010	Development and Implementation of the Fish Tissue Sampling Program at the Portland Harbor Site - BatelleFishSamplingPaper.	126	8 CORR / Correspondence	R10: Blischke, Eric, L (EPA)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100007374	12/16/2010	Email regarding Re_Request for Extension to Invoke Dispute; EPA Directed Comments_12-8-2010.	26	1 EML / Email	R10: Humphrey, Chip (EPA)	R10: Wyatt, Robert, J (NW Natural), R10: Mckenna, James (Verdant Solutions, LLC)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100007332	12/21/2010	Email regarding Re_List of potential data sources.	113	2 EML / Email	R10: Humphrey, Chip (EPA)	R10: Mckenna, James (Verdant Solutions, LLC)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100007329	1/10/2011	Email regarding Re_Extension to Invoke Dispute; EPA Directed Comments of December 8, 2010.	25	1 EML / Email	R10: Humphrey, Chip (EPA)	R10: Wyatt, Robert, J (NW Natural), R10: Mckenna, James (Verdant Solutions, LLC)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
662423	1/13/2011	01_13_11 email attachment; city letter to epa 011311.	1,337	3 CORR / Correspondence	R10: Applegate, Richard (City of Portland, Oregon)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100007269	1/25/2011	Email regarding LWG Dispute deadline re EPA directed comments on CSM.	26	1 EML / Email	R10: Humphrey, Chip (EPA)	R10: Mckenna, James (Verdant Solutions, LLC)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100007270	1/25/2011	Email regarding LWG Dispute deadline re EPA directed comments on CSM.	22	1 EML / Email	R10: Humphrey, Chip (EPA)	R10: Mckenna, James (Verdant Solutions, LLC)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100007095	2/8/2011	Portland Harbor RI/FS Final Remedial Investigation Report Section 4 - 2016-01-08 Portland Harbor RI Section 4 Text.	422	40 CORR / Correspondence	R10: Koch, Kristine, M (EPA)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100007096	2/8/2011	Portland Harbor RI/FS Final Remedial Investigation Report Section 5 - 2016-01-08 Portland Harbor RI Section 5 Text.	1,413	209 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100007097	2/8/2011	Portland Harbor RI/FS Final Remedial Investigation Report Section 6 - 2016-01-08 Portland Harbor RI Section 6 Text.	430	43 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100007104	2/8/2011	Portland Harbor RI/FS Final Remedial Investigation Report Section 10 - 2016-01-08 Portland Harbor RI Section 10 Text.	500	52 CORR / Correspondence	R10: Koch, Kristine, M (EPA)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100007308	2/11/2011	Email regarding CSM approval.	21	1 EML / Email	R10: Humphrey, Chip (EPA)	R10: Mckenna, James (Verdant Solutions, LLC)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100007309	2/11/2011	Email regarding Re_CSM Issue Resolution_2-11-2011.	83	2 EML / Email	R10: Humphrey, Chip (EPA)	R10: Mckenna, James (Verdant Solutions, LLC)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)

100006607	2/13/2011	Portland Harbor RI/FS Draft Final Remedial Investigation Report Section 10 - Rev 5 EPA_2014-01-12_DF RI_Sec10_1_clean_wLWG.	189	15	CORR / Correspondence	R10: (Integral Consulting, Inc.)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100006608	2/13/2011	Portland Harbor RI/FS Draft Final Remedial Investigation Report Section 10 - Rev 5 EPA_2014-01-12_DF RI_Sec10_1_wLWG.	189	15	CORR / Correspondence	R10: (Integral Consulting, Inc.)	R10: (Integral Consulting, Inc.)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100007320	2/14/2011	Email regarding RE_CSM Issue Resolution_2-14-2011.	62	3	EML / Email	R10: Humphrey, Chip (EPA)	R10: Mckenna, James (Verdant Solutions, LLC)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100007384	2/14/2011	Email regarding RE_Schedule.	20	1	EML / Email	R10: Humphrey, Chip (EPA)	R10: Mckenna, James (Verdant Solutions, LLC)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100007334	2/15/2011	Email regarding Re_Meet to discuss project schedule.	66	1	EML / Email	R10: Humphrey, Chip (EPA)	R10: Mckenna, James (Verdant Solutions, LLC)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100007259	3/11/2011	Email regarding EPA response to LWG request for extension.	136	2	EML / Email	R10: Humphrey, Chip (EPA)	R10: Woronets, Jennifer (Anchor QEA, LLC), R10: Wyatt, Robert, J (NW Natural), R10: Mckenna, Jim (Verdant Solutions, LLC)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100007272	3/17/2011	Email regarding PH RI FS revised RI and draft FS submittal dates.	27	1	EML / Email	R10: Humphrey, Chip (EPA)	R10: Woronets, Jennifer (Anchor QEA, LLC), R10: Wyatt, Robert, J (NW Natural), R10: Mckenna, James (Verdant Solutions, LLC)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100007336	3/17/2011	Email regarding RE_PH RIFS revised RI and draft FS submittal dates.	48	2	EML / Email	R10: Humphrey, Chip (EPA)	R10: Mckenna, James (Verdant Solutions, LLC)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
662711	3/29/2011	E-Mail With a Couple of Questions: About Scheduling a Meeting to Go Over the Alt Screen Materials That Will Provided On April 12; Some Thoughts On How Best to Manage the Shift From "Chemical" to "Contaminant" In RI and RAS.	60	1	EML / Email	R10: Mckenna, Jim (Lower Willamette Group)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100007285	3/29/2011	Email regarding Congressman Blumenauer Mtg April 22nd.	28	2	EML / Email	R10: Humphrey, Chip (EPA)	R10: Mckenna, James (Verdant Solutions, LLC)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100007310	4/1/2011	Email regarding Congressman Blumenauer Mtg April 22nd.	54	3	EML / Email	R10: Humphrey, Chip (EPA)	R10: Mckenna, James (Verdant Solutions, LLC)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100007252	4/6/2011	Email regarding Blumenauer meetings.	25	1	EML / Email	R10: Humphrey, Chip (EPA)	R10: Wyatt, Bob (Northwest Natural Gas Company)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100004271	4/7/2011	Draft Map 1.2-1 Portland Harbor RI/FS Remedial Investigation Report Portland Harbor Study Area and Vicinity.	543	1	FIG / Figure/Map/ Drawing	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100006873	4/7/2011	Draft Portland Harbor RI/FS Remedial Investigation Report Portland Harbor Study Area and Vicinity Map 1.2-1- Map 1-1.	543	1	CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100007390	4/7/2011	Email regarding Re_Trust Funding Letter.	72	2	EML / Email	R10: Humphrey, Chip (EPA)	R10: Feige, Hans (Unknown), R10: Wyatt, Robert, J (NW Natural)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
660683	4/14/2011	04_14_11 email; EPA PH Clean Fill Requirements.	139	6	CORR / Correspondence	R10: Koch, Kristine, M (EPA)	R10: Humphrey, Chip (EPA), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality), R10: Gainer, Tom (Oregon Dept. of Environmental Quality), R10: Mason, Bill (Department of Environmental Quality)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100007373	4/15/2011	Email regarding Re_Request for Extension on EPA Comments on Draft BHHRA Tables.	72	2	EML / Email	R10: Humphrey, Chip (EPA)	R10: Mckenna, James (Verdant Solutions, LLC)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100004623	4/20/2011	Portland Harbor RI/FS Remedial Investigation Report Section 6 Figures.	1,740	76	RPT / Report	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100004573	4/26/2011	Portland Harbor RI/FS Remedial Investigation Report Section 4 Figures.	10,408	43	RPT / Report	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100007147	4/27/2011	Background Statistics for Data Sets with Non-Detects - DDx BTv full.	70	2	CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100007256	4/27/2011	Email regarding EPA comments PBDE risk calculations.	24	1	EML / Email	R10: Humphrey, Chip (EPA)	R10: Wyatt, Robert, J (NW Natural), R10: Mckenna, Jim (Verdant Solutions, LLC)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100004607	5/2/2011	Portland Harbor RI/FS Remedial Investigation Report Section 5.5 Maps.	2,853	27	RPT / Report	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100007265	6/2/2011	Email regarding Updated RI & RA databases.	51	1	EML / Email	R10: Humphrey, Chip (EPA)	R10: Mckenna, Jim (Verdant Solutions, LLC)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
662705	6/13/2011	06_13_11 email; Comments on Revised Portland Harbor BHHRA.	20	2	EML / Email	R10: Ebbets, Allison (Stratus Consulting, Inc.)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA), R10: Allen, Elizabeth (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
662996	6/13/2011	06_13_11 email; Comments on Revised Portland Harbor BHHRA.	20	2	EML / Email	R10: Ebbets, Allison (Stratus Consulting, Inc.)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA), R10: Allen, Elizabeth (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100003450	7/18/2011	Email regarding fish sampling summary.	28	1	EML / Email	R10: Humphrey, Chip (EPA)	R10: Gustavson, Karl (U. S. Army Corps of Engineers)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
663135	7/21/2011	07_21_11 email; Portland Harbor BHHRA.	31	1	EML / Email	R10: Koch, Kristine, M (EPA)	R10: Wyatt, Bob (Lower Willamette Group), R10: Mckenna, Jim (Lower Willamette Group), R10: Humphrey, Chip (EPA), R10: Woronets, Jennifer (Anchor QEA, LLC)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100003452	7/21/2011	Email regarding climate of Portland harbor.	52	1	EML / Email	R10: Haskell, Daniel	R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100003454	7/21/2011	Portland Harbor Climate Information - PortlandHARBORclimate.	73	1	CORR / Correspondence	R10: Haskell, Daniel	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100007257	7/22/2011	Email regarding EPA request for human.	27	2	EML / Email	R10: Humphrey, Chip (EPA)	R10: Wyatt, Robert, J (NW Natural), R10: Mckenna, Jim (Verdant Solutions, LLC)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100007313	8/16/2011	Email regarding check in for wed.	91	2	EML / Email	R10: Humphrey, Chip (EPA)	R10: Wyatt, Robert, J (NW Natural)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100007279	8/22/2011	Email regarding Conference Call re Fish Sampling Effort.	94	2	EML / Email	R10: Humphrey, Chip (EPA)	R10: Mckenna, James (Verdant Solutions, LLC)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100007266	8/23/2011	Email regarding Here's why the fish call didn't happen.	22	1	EML / Email	R10: Humphrey, Chip (EPA)	R10: Mckenna, James (Verdant Solutions, LLC)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100007284	8/23/2011	Email regarding Conference Call.	39	1	EML / Email	R10: Humphrey, Chip (EPA)	R10: Mckenna, James (Verdant Solutions, LLC)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100007274	8/24/2011	Email regarding Follow-Up regarding Fish Tissue Collection.	21	1	EML / Email	R10: Humphrey, Chip (EPA)	R10: Mckenna, James (Verdant Solutions, LLC)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100007330	8/24/2011	Email regarding RE_FSP and QAPP request.	49	1	EML / Email	R10: Humphrey, Chip (EPA)	R10: Mckenna, James (Verdant Solutions, LLC)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100006009	8/29/2011	REDACTED Draft Portland Harbor Remedial Investigation Report Draft Final.	12,036	1649	RPT / Report	R10: Unknown, Unknown (Kennedy/Jenks Consultants), R10: Unknown, Unknown (Windward Environmental, LLC.), R10: Unknown, Unknown (Integral Consulting, Inc.), R10: Unknown, Unknown (Anchor QEA, LLC)	R10: Unknown, Unknown (Lower Willamette Group)	PAPER DOCUMENT	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100006540	8/29/2011	Portland Harbor RI/FS Draft Final Remedial Investigation Report Section 6 - Koch_2014-05-6_DF RI_Sec6_Text_.	821	72	CORR / Correspondence	R10: Koch, Kristine, M (EPA)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)

100006543	8/29/2011	Portland Harbor RI/FS Draft Final Remedial Investigation Report Section 6 Revisions - Koch_2014-05-6_DF RI_Sec6_Text_Rev 1.	930	73 CORR / Correspondence	R10: Revelas, Gene (Integral Corporation)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100006545	8/29/2011	Portland Harbor RI/FS Draft Final Remedial Investigation Report Section 6 Revisions - Koch_2014-05-6_DF RI_Sec6_Text_Rev 1.	899	73 CORR / Correspondence	R10: Revelas, Gene (Integral Corporation)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100006551	8/29/2011	Portland Harbor RI/FS Draft Final Remedial Investigation Report Section 5.5 - 2014-06-16_DF RI_Sec5.5_Text_EPA_Integral.	292	16 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100006552	8/29/2011	Portland Harbor RI/FS Draft Final Remedial Investigation Report Section 5.0-5.1 - 2014-07-15_DF RI_Sec5.0_5.1_Text_EPA_Integral.	108	3 CORR / Correspondence	R10: Revelas, Gene (Integral Corporation)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100006553	8/29/2011	Portland Harbor RI/FS Draft Final Remedial Investigation Report Section 5.2 - 2014-07-15_DF RI_Sec5.2_Text_EPA_Integral.	711	68 CORR / Correspondence	R10: Browning, Sandy (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100006554	8/29/2011	Portland Harbor RI/FS Draft Final Remedial Investigation Report Section 5.3 - 2014-07-15_DF RI_Sec5.3_Text_EPA_Integral.	266	18 CORR / Correspondence	R10: Revelas, Gene (Integral Corporation)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100006557	8/29/2011	Portland Harbor RI/FS Draft Final Remedial Investigation Report Section 5.4 - 2014-07-22_DF RI_Sec5.4_Text_EPA_Integral.	674	53 CORR / Correspondence	R10: Koch, Kristine, M (EPA)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100006559	8/29/2011	Portland Harbor RI/FS Draft Remedial Investigation Report Section 5 Tables - 2014-07-30_Biota_Sec5_Tables.	993	75 CORR / Correspondence	R10: (Lower Willamette Group)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100006560	8/29/2011	Portland Harbor RI/FS Draft Final Remedial Investigation Report Section 5.6 - 2014-08-04_DF RI_Sec5.6_Text_EPA_Integral.	724	82 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100006562	8/29/2011	Portland Harbor RI/FS Draft Remedial Investigation Report Section 7 - Background Rev 3 1_2013-11-4_DF RI_Sec7_Text dyrev.(2).	135	9 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100006597	8/29/2011	Portland Harbor RI/FS Draft Final Remedial Investigation Report Section 10 - Rev 1 EPA_2012-01-13_DF RI_Sec 10.1_Text.	310	21 CORR / Correspondence	R10: (Integral Consulting, Inc.)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100006598	8/29/2011	Portland Harbor RI/FS Draft Final Remedial Investigation Report Section 10.2 - Rev 1 EPA_2012-01-13_DF RI_Sec10.2.	557	53 CORR / Correspondence	R10: (Integral Consulting, Inc.)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100006601	8/29/2011	Portland Harbor RI/FS Draft Final Remedial Investigation Report Section 10 - Rev 2 EPA_2014-01-12_DF RI_Sec10_1_KK.	206	15 CORR / Correspondence	R10: (Integral Consulting, Inc.)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100006602	8/29/2011	Portland Harbor RI/FS Draft Final Remedial Investigation Report - Rev 2 EPA_2014-01-12_DF RI_Sec10_2_ea_kk.	400	39 CORR / Correspondence	R10: (Integral Consulting, Inc.)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100006646	8/29/2011	Portland Harbor RI/FS Draft Final Remedial Investigation Report Section 7 - Rev 3_dy_koch_2013-11-4_DF RI_Sec7_Text redline.	136	9 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100006683	8/29/2011	Portland Harbor RI/FS Draft Remedial Investigation Report Section 5.6 - koch_2012-01-13_DF RI_Sec5_6_Text - JK_TG_5_17_14.	979	105 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100006684	8/29/2011	Portland Harbor RI/FS Draft Final Remedial Investigation Report Section 5.4 - koch_2012-01-13_DF RI_Sec5_4_Text - CDM Smith (2).	910	87 CORR / Correspondence	R10: Koch, Kristine, M (EPA)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100006685	8/29/2011	Portland Harbor RI/FS Draft Final Remedial Investigation Report Section 5.5 - koch_2012-01-13_DF RI_Sec5_5_Text - jk_tg_5_2014.	520	45 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100006686	8/29/2011	Portland Harbor RI/FS Draft Final Remedial Investigation Report Section 5.0-5.2 - Koch_2012-01-13_DF RI_Sec5.0_5.1 and 5.2 Text.	1,265	136 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100006687	8/29/2011	Portland Harbor RI/FS Draft Final Remedial Investigation Report Section 5.3 - koch_2012-01-13_DF RI_Sec5.3_Text.	433	32 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100006688	8/29/2011	Portland Harbor RI/FS Draft Final Remedial Investigation Report Section 5.0-5.3 - Koch_2012-04_23_DF RI_Sec5_0_5_1 and 5_2 Text_ea.	985	94 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100006699	8/29/2011	Portland Harbor RI/FS Draft Final Remedial Investigation Report Section 5.5 - Rev 1 2014-06-16_DF RI_Sec5.5_Text_EPA_Integral.	227	14 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100006700	8/29/2011	Portland Harbor RI/FS Draft Final Remedial Investigation Report Section 5.0-5.1 - Rev 1 2014-07-15_DF RI_Sec5.0_5.1_Text_EPA_Integral.	107	3 CORR / Correspondence	R10: Revelas, Gene (Integral Corporation)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100006701	8/29/2011	Portland Harbor RI/FS Draft Final Remedial Investigation Report Section 5.2 - Rev 1 2014-07-15_DF RI_Sec5.2_Text_EPA_Integral.	676	66 CORR / Correspondence	R10: Browning, Sandy (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100006702	8/29/2011	Portland Harbor RI/FS Draft Final Remedial Investigation Report Section 5.3 - Rev 1 2014-07-15_DF RI_Sec5.3_Text_EPA_Integral.	231	17 CORR / Correspondence	R10: Revelas, Gene (Integral Corporation)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100006703	8/29/2011	Portland Harbor RI/FS Draft Final Remedial Investigation Report Section 5.4 - Rev 1 2014-07-22_DF RI_Sec5.4_Text_EPA_Integral.	605	49 CORR / Correspondence	R10: Koch, Kristine, M (EPA)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100006704	8/29/2011	Portland Harbor RI/FS Draft Final Remedial Investigation Report Section 5.6 - Rev 1 2014-08-04_DF RI_Sec5_6_Text_EPA_Integral.	601	77 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100006706	8/29/2011	Letter regarding LWG Unresolved Comments on RI Sections 5 and 10 - 2014-08-29 Cover Letter LWG Comments on RI Sections 5 & 10.	192	2 CORR / Correspondence	R10: Wyatt, Bob (Lower Willamette Group)	R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100006736	8/29/2011	Unresolved LWG Comments on RI Section 10 - 2014-08-29 Unresolved LWG Comments on RI Section 10.	224	3 CORR / Correspondence	R10: Dost, Patty (Pearl Legal Group PC)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100006737	8/29/2011	Portland Harbor RI/FS Draft Final Remedial Investigation Report Section 10 - Koch_2012-01-13_DF RI_Sec10_Text_Retained_082814.	1,648	137 CORR / Correspondence	R10: (Integral Consulting, Inc.)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100006738	8/29/2011	Portland Harbor RI/FS Draft Final Remedial Investigation Report Section 5.5 - Rev 1 2014-06-16_DF RI_Sec5.5_Text_EPA_Integral.	258	14 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100006739	8/29/2011	Portland Harbor RI/FS Draft Final Remedial Investigation Report Section 5.5-1 - Rev 1 2014-07-15_DF RI_Sec5.0_5.1_Text_EPA_Integral.	106	3 CORR / Correspondence	R10: Revelas, Gene (Integral Corporation)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100006740	8/29/2011	Portland Harbor RI/FS Draft Final Remedial Investigation Report Section 5.2 - Rev 1 2014-07-15_DF RI_Sec5.2_Text_EPA_Integral.	670	66 CORR / Correspondence	R10: Browning, Sandy (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100006741	8/29/2011	Portland Harbor RI/FS Draft Final Remedial Investigation Report Section 5.3 - Rev 1 2014-07-15_DF RI_Sec5.3_Text_EPA_Integral.	262	17 CORR / Correspondence	R10: Revelas, Gene (Integral Corporation)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100006742	8/29/2011	Portland Harbor RI/FS Draft Final Remedial Investigation Report Section 5.4 - Rev 1 2014-07-22_DF RI_Sec5.4_Text_EPA_Integral.	604	49 CORR / Correspondence	R10: Koch, Kristine, M (EPA)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)

100006743	8/29/2011	Portland Harbor RI/FS Draft Final Remedial Investigation Report Section 5.6 - Rev 1 2014-08-04_DF RI_Sec5_6_Text_EPA_Integral.	590	78 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100006792	8/29/2011	Email regarding Portland Harbor RI/FS Draft Final Remedial Investigation Report Section 8 - koch_2013-05_14 DF RI_Sec8_Text_KJ comments jim.	313	25 CORR / Correspondence	R10: Kennedy, Laura (Kennedy/Jenks Consultants)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100006877	8/29/2011	Portland Harbor RI/FS Draft Final Remedial Investigation Report Section 8 - REV 1 koch_2013-05_14 DF RI_Sec8_Text_KJ comments jim.	313	25 CORR / Correspondence	R10: Kennedy, Laura (Kennedy/Jenks Consultants)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100003457	9/9/2011	Email regarding Reminder - BERA comments due today.	98	3 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100003461	9/26/2011	Email regarding Revised Draft RI Table. Jennifer Peterson, DEQ, Draft Comments on Appendix G, Baseline Ecological Risk Assessment, July, 1, 2011 - BERA DRAFT DEQ comments JP_questions.	97	1 EML / Email	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100003472	11/9/2011	12_02_11 email; Portland Harbor discussion - possible meeting dates.	236	11 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100003482	12/2/2011	12_02_11 email; Portland Harbor discussion - possible meeting dates.	46	1 EML / Email	R10: Geiselbrecht, Allison (Floyd Snider, Inc.)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100007372	12/9/2011	Email regarding Re_Monthly Managers Meeting.	40	1 EML / Email	R10: Humphrey, Chip (EPA)	R10: Mckenna, James (Verdant Solutions, LLC)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100003467	12/13/2011	Email regarding BERA technical issues to raise with the LWG.	37	2 EML / Email	R10: Shephard, Burt (EPA)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100003475	12/13/2011	Portland Harbor BERA - Review assignments 2011-12-13.	70	1 CORR / Correspondence	R10: Shephard, Burt (EPA)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100007258	1/9/2012	Email regarding EPA request for word version of RI report.	26	1 EML / Email	R10: Humphrey, Chip (EPA)	R10: Wyatt, Robert, J (NW Natural), R10: Mckenna, Jim (Verdant Solutions, LLC)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100007326	1/9/2012	Email regarding RE_EPA request for word version of RI report.	47	2 EML / Email	R10: Humphrey, Chip (EPA)	R10: Mckenna, James (Verdant Solutions, LLC)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100003471	1/10/2012	Email regarding Portland Harbor ERA Draft Comments.	69	1 EML / Email	R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)	R10: Shephard, Burt (EPA), R10: Humphrey, Chip (EPA), R10: Goulet, Joe (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100003478	1/24/2012	Sediment Management Standards (SMS) Rule Revisions Freshwater Sediment Standards Review Comments and Responses - Summary_Reviewer_Comments_Ecology_Responses Jan 2012.	539	86 CORR / Correspondence	R10: (Washington State Department of Ecology)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100003477	2/2/2012	Email regarding Weekly Portland Harbor Ecorisk Call followup - Peer review comments on floating percentile model.	34	1 EML / Email	R10: Shephard, Burt (EPA)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100004253	2/24/2012	Figure 1-1 Portland Harbor RI/FS Vicinity Map.	287	1 FIG / Figure/Map/ Drawing	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100004275	2/24/2012	Map 1-3 Portland Harbor RI/FS 2001 Aerial Ortho-photos.	7,279	14 FIG / Figure/Map/ Drawing	R10: Koch, Kristine, M (EPA)	R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100006870	2/24/2012	Portland Harbor RI/FS Figure 1-1 Vicinity Map - Figure 1-1.	287	1 CORR / Correspondence	R10: Nelson, Robin (Cadman, Inc.)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100006796	3/1/2012	Remedial Investigation Report 2.1 Figures - Figure 2.1-2a-g 2000 STA Survey Sediment Sample Locations.	651	7 CORR / Correspondence	R10: Koch, Kristine, M (EPA)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100006799	3/14/2012	Draft Sediment Profile Image Survey of the Lower Willamette River - Map 2.1-2a-d SPI Transect Locations.	1,455	4 CORR / Correspondence			ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100006800	3/14/2012	Draft Sediment Profile Image Survey of the Lower Willamette River - Map 2.1-3a-d SPI Station Locations.	1,185	4 CORR / Correspondence	R10: (Striplin Environmental Associates)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
710415	3/26/2012	03_26_12 email; Moisture content response from John Toll on Portland Harb.	90	2 CORR / Correspondence	R10: Gendusa, Tony, C (CDM Smith)	R10: Koch, Kristine, M (EPA), R10: Shephard, Burt (EPA), R10: Humphrey, Chip (EPA), R10: Goulet, Joe (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
710905	4/15/2012	04_15_12 email attachment; 2012.04.13 IRM Report transmittal letter to EPA.	1,429	3 CORR / Correspondence	R10: Heineck, David, M (FMC Corporation)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
710909	4/15/2012	04_15_12 email; Report Evaluating LWG PCB sediment bioaccumulation model.	49	3 CORR / Correspondence	R10: Heineck, David, M (Summit Law Group, PLLC)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
662879	5/21/2012	05_21_12 email; 5-10-12 DEQ EPA LWG Hot Spots Meeting.	87	2 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100003494	7/10/2012	Email regarding Need another approval letter.	136	1 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
663872	7/11/2012	07_11_12 email; July 24, 2012 dispute deadline on EPA directed revisions to Willamette River Acoustic Doppler Current Profiler Figure 1:ADCP Transect Locations - Map 2.1-4 2003 ADCP Transect Locations.	86	2 EML / Email	R10: Cora, Lori, H (EPA)	R10: Yamamoto, Deborah, J (EPA), R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100006801	7/11/2012	Willamette River Acoustic Doppler Current Profiler Figure 1:ADCP Transect Locations - Map 2.1-4 2003 ADCP Transect Locations.	358	1 CORR / Correspondence	R10: Lesnikowski, Nicholas (Williamson & Associates, Inc.)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
672146	7/12/2012	email; EPA's Response to LWG's Opening Submission on the BHHRA Dispute.	36	1 CORR / Correspondence	R10: Koch, Kristine, M (EPA)	R10: Wyatt, Robert, J (Northwest Natural Gas Company), R10: Cora, Lori, H (EPA), R10: Grandinetti, Carmela (Cami), L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)



671891	7/27/2012	email; Portland Harbor BHHRA Dispute.	36	1	CORR / Correspondence	R10: Cora, Lori, H (EPA)	R10: Parkinson, Stephen, T (Unknown), R10: Yamamoto, Deborah, J (EPA), R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
671895	7/31/2012	email; Today's attendance sheet.	31	1	CORR / Correspondence	R10: Cora, Lori, H (EPA)	R10: Yamamoto, Deborah, J (EPA), R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100003495	8/14/2012	Email regarding Need more documents.	107	1	EML / Email	R10: Mckenna, James (Verdant Solutions, LLC)	R10: Koch, Kristine, M (EPA), R10: Woronets, Jennifer (Anchor QEA, LLC)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100003496	8/28/2012	Email regarding Round 1 Sampling.	205	2	EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100007383	8/30/2012	Email regarding Re_ Revised SAP Figure 3-1 for the 2012 Smallmouth Bass Effort.	79	1	EML / Email	R10: Humphrey, Chip (EPA)	R10: Mckenna, James (Verdant Solutions, LLC)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100007385	9/20/2012	Email regarding Re_Small Mouth Bass Fishing Update.	46	1	EML / Email	R10: Humphrey, Chip (EPA)	R10: Wyatt, Robert, J (NW Natural)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
672147	10/15/2012	email; Signed Letter Agreement.	31	1	CORR / Correspondence	R10: Cora, Lori, H (EPA)	R10: Parkinson, Stephen, T (Unknown), R10: Yamamoto, Deborah, J (EPA), R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
500001250	10/24/2012	10_24_12 email; Materials for discussion meeting with Brattle.	139	2	EML / Email	R10: Buck, Jeremy (U. S. Fish and Wildlife Service)	R10: Yamamoto, Deborah, J (EPA), R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100004273	11/29/2012	Draft Figure 3-1 Portland Harbor RI/FS Round 3 Groundwater Pathway Assessment Stratigraphic Coring FSR - Gunderson Core Location Map.	335	1	FIG / Figure/Map/ Drawing	R10: Boehlke, Lora (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100006803	11/29/2012	Draft Figure 3-1 Portland Harbor RI/FS Round 3 Groundwater Pathway Assessment Stratigraphic Coring FSR - Gunderson Core Location Map - Map 2.1-22.	335	1	CORR / Correspondence	R10: (Lower Willamette Group), R10: (Integral Consulting, Inc.)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100003500	11/30/2012	Email regarding Portland Harbor RI.	33	1	EML / Email	R10: Cora, Lori, H (EPA)	R10: Snyder, Joan, P (Stoel Rivers, LLP)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
680476	12/14/2012	12_14_12 email; BHHRA Tables.	33	1	CORR / Correspondence	R10: Koch, Kristine, M (EPA)	R10: Mckenna, Jim (Lower Willamette Group), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100007276	12/20/2012	Email regarding Conference Call re BERA.	94	2	EML / Email	R10: Humphrey, Chip (EPA)	R10: Mckenna, James (Verdant Solutions, LLC)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100007278	12/20/2012	Email regarding Conference Call re Fish Sampling Effort.	75	2	EML / Email	R10: Humphrey, Chip (EPA)	R10: Mckenna, James (Verdant Solutions, LLC)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100007253	12/21/2012	Email regarding EPA comments and direction on Draft BERA.	24	1	EML / Email	R10: Humphrey, Chip (EPA)	R10: Wyatt, Robert, J (NW Natural), R10: Mckenna, Jim (Verdant Solutions, LLC)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
679491	1/15/2013	01_15_13 email; Summary of January 10th RI Conference Call.	53	1	CORR / Correspondence	R10: Mckenna, Jim (Lower Willamette Group)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
709398	1/17/2013	01_17_13 email; LWG Counterproposal for Finalizing the Remedial Investigation.	63	1	CORR / Correspondence	R10: Mckenna, Jim (Unknown)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100007386	1/17/2013	Email regarding RE_Time Critical Follow-up Issues_1-17-2013_1311.	87	2	EML / Email	R10: Humphrey, Chip (EPA)	R10: Mckenna, James (Verdant Solutions, LLC)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100007324	1/18/2013	Email regarding Re_EPA Comments on Draft Final BERA; Request for Extension_1-18-2013.	78	2	EML / Email	R10: Humphrey, Chip (EPA)	R10: Mckenna, James (Verdant Solutions, LLC)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100007325	1/18/2013	Email regarding Re_EPA Comments on Draft Final BERA; Request for Extension_1-18-2013.	97	2	EML / Email	R10: Humphrey, Chip (EPA)	R10: Mckenna, James (Verdant Solutions, LLC)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100007388	1/18/2013	Email regarding RE_Time Critical Follow-up Issues_1-17-2013_1311.	92	2	EML / Email	R10: Humphrey, Chip (EPA)	R10: Mckenna, James (Verdant Solutions, LLC)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
709254	1/29/2013	01_29_13 email; LWG Counterproposal for Finalizing the Remedial Investigation.	65	2	CORR / Correspondence	R10: Mckenna, Jim (Unknown)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
709419	1/29/2013	01_29_13 email; LWG Counterproposal for Finalizing the Remedial Investigation.	66	2	CORR / Correspondence	R10: Mckenna, James, J (McKenna Environmental, LLC)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
709602	2/7/2013	02_07_13 email; Final Draft RI - EPA Comments and Edits for Sections 1 and 2.	53	1	CORR / Correspondence	R10: Mckenna, Jim (Unknown)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
1432063	2/15/2013	Letter regarding Re: Lower Willamette River, Monthly Progress Report for January 2013.	5,011	14	CORR / Correspondence	R10: Koch, Kristine, M (EPA)	R10: Humphrey, Chip (Department of Environmental Quality)	PAPER DOCUMENT	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
687208	2/21/2013	Proposed RI Language.	115	3	EML / Email	R10: Karnosh, Michael (Confederated Tribes of the Grand Ronde Community of Oregon)	R10: Koch, Kristine, M (EPA), R10: Humphreys, Brandy (Grand Ronde Tribe)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
687213	2/21/2013	Proposed RI Language.	120	5	EML / Email	R10: Madden, Erin (Nez Perce Tribe)	R10: Karnosh, Michael (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Koch, Kristine, M (EPA), R10: Humphreys, Brandy (Grand Ronde Tribe)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
709757	3/1/2013	03_01_13 email; Revised Draft RI Schedule.	59	2	CORR / Correspondence	R10: Koch, Kristine, M (EPA)	R10: Mckenna, James, J (McKenna Environmental, LLC), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
710449	3/27/2013	03_27_13 email; Agenda for tomorrow. PORTLAND HARBOR RI/FS FINAL REMEDIATION INVESTIGATION REPORT APPENDIX F BASELINE HUMAN HEALTH RISK ASSESSMENT FINAL March 28, 2013.	54	1	CORR / Correspondence	R10: Koch, Kristine, M (EPA)	R10: Mckenna, James, J (McKenna Environmental, LLC), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
713364	3/28/2013	Portland Harbor RI/FS Draft Final Remedial Investigation Report Section 8 - koch_2013-	1,243	141		R10: Unknown, Unknown (Kennedy/Jenks Consultants)	R10: Unknown, Unknown (Lower Willamette Group), R10: Unknown, Unknown (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100006642	4/17/2013	04_17 DF RI_Sec8_Text.	296	24	CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
710982	4/26/2013	04_26_13 email; RI Section 3 and 4 Issues for Elevation to Senior Managers.	47	1	CORR / Correspondence	R10: Revelas, Gene, C (Integral Consulting, Inc.)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
710983	4/26/2013	04_26_13 email; RI Section 3 and 4 Issues for Elevation to Senior Managers2.	52	1	CORR / Correspondence	R10: Koch, Kristine, M (EPA)	R10: Revelas, Gene, C (Integral Consulting, Inc.), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100004391	5/7/2013	Table 5.1-3 Basis for screening of COIs due to co-location.	70	1	CHT / Chart/Table	R10: Koch, Kristine, M (EPA)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100006794	5/9/2013	Email regarding Portland Harbor RI Section 8.	57	2	EML / Email	R10: Allen, Elizabeth (EPA)	R10: Kennedy, Laura (Kennedy/Jenks Consultants)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100006791	5/14/2013	Email regarding Portland Harbor RI Section 8.	53	1	EML / Email	R10: Allen, Elizabeth (EPA)	R10: Kennedy, Laura (Kennedy/Jenks Consultants)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100004254	5/31/2013	R Graphics Output - RI COCs.	95	1	CHT / Chart/Table	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100007022	5/31/2013	LWG RA Total PCB Congener TEQ 2005 - RI COCs - Figure 5.1-7.	95	1	CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100004392	6/7/2013	Table 5.3-1 Average Heights of Sediment collected in Sediment Traps Deployed in Willamette River (2007 & 2009).	82	2	CHT / Chart/Table	R10: Koch, Kristine, M (EPA)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)

100006638	6/14/2013	Remedial Investigation Section 9 - Rev 1 koch CLEAN_2013-06-14_Section 9 BERA redline.	336	23 CORR / Correspondence	R10: Toll, John (Windward Environmental, LLC.)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100006639	6/14/2013	Remedial Investigation Section 9 - Rev 1 koch_2013-06-14_Section 9 BERA redline.	309	23 CORR / Correspondence	R10: Toll, John (Windward Environmental, LLC.)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100004255	6/26/2013	R Graphics Output - RI COIs.	503	5 CHT / Chart/Table	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100007023	6/26/2013	Figures 5.1-1 through 5.1-5 - Figures 5.1-1 through 5.1-5.	503	5 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
712958	7/16/2013	07_16_13 email; Portland Harbor RI - Background Data Set.	68	2 CORR / Correspondence	R10: Allen, Elizabeth (EPA)	R10: Revelas, Gene, C (Integral Consulting, Inc.), R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100006681	7/17/2013	Portland Harbor RI/FS Remedial Investigation Report Section 5 Tables 5.3-2 to 5.3-7 - 2013-07-17_SedTrap_Sec5_Tables 5.3-2 to 5.3-7.	185	12 CORR / Correspondence	R10: (Lower Willamette Group)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100004138	7/20/2013	Goodness-of-Fit Test Statistics for Uncensored Full Data Sets without Non-Detect.	44	1 RPT / Report	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100004135	7/30/2013	Background Statistics for Data Sets with Non-Detects.	64	2 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100004136	7/30/2013	Background Statistics for Data Sets with Non-Detects.	59	2 RPT / Report	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100004137	7/30/2013	Goodness-of-Fit Test Statistics for Uncensored Full Data Sets without Non-Detects.	50	2 RPT / Report	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100004139	7/30/2013	Outlier Tests for Selected Variables replacing nondetects with 1/2 the Detection Limit.	47	1 RPT / Report	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100004140	7/30/2013	UCL Statistics for Data Sets with Non-Detects.	63	2 RPT / Report	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100004141	7/30/2013	UCL Statistics for Data Sets with Non-Detects.	58	2 RPT / Report	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100004142	7/30/2013	Background Statistics for Data Sets with Non-Detects.	72	3 RPT / Report	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100004143	7/30/2013	Background Statistics for Data Sets with Non-Detects.	73	3 RPT / Report	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100004196	7/30/2013	Goodness-of-Fit Test Statistics for Data Sets with Non-Detects.	58	2 RPT / Report	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100004197	7/30/2013	Goodness-of-Fit Test Statistics for Data Sets with Non-Detects.	59	2 EML / Email	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100004198	7/30/2013	Outlier Tests for Selected Variables replacing nondetects with 1/2 Detection Limit.	47	1 RPT / Report	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100004199	7/30/2013	UCL Statistics for Data Sets with Non-Detects.	88	2 RPT / Report	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100004200	7/30/2013	UCL Statistics for Data Sets with Non-Detects.	88	2 RPT / Report	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100004201	7/30/2013	Background Statistics for Data Sets with Non-Detects.	73	3 RPT / Report	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100004202	7/30/2013	Background Statistics for Data Sets with Non-Detects.	70	2 RPT / Report	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100004203	7/30/2013	Goodness-of-Fit Test Statistics for Data Sets in Non-Detects.	59	2 RPT / Report	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100004205	7/30/2013	Goodness-of-Fit Test Statistics for Data Sets with Non-Detects.	59	2 RPT / Report	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100004206	7/30/2013	Outlier Tests for Selected Variables excluding nondetects.	47	1 RPT / Report	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100004207	7/30/2013	UCL Statistics for Data Sets with Non-Detects.	88	2 RPT / Report	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100004208	7/30/2013	UCL Statistics for Data Sets with Non-Detects.	86	2 RPT / Report	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100004209	7/30/2013	Background Statistics for Data Sets with Non-Detects.	70	2 RPT / Report	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100004212	7/30/2013	Background Statistics for Data Sets with Non-Detects.	59	2 RPT / Report	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100004213	7/30/2013	Goodness-of-Fit Test Statistics for Uncensored Full Data Sets without Non-Detects.	44	1 RPT / Report	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100004214	7/30/2013	Outlier Tests for Selected Variables replacing nondetects with 1/2 the Detection Limit.	47	1 RPT / Report	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100004215	7/30/2013	UCL Statistics for Uncensored Full Data Sets.	58	2 RPT / Report	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100004241	7/30/2013	Background Statistics for Data Sets with Non-Detects.	70	2 RPT / Report	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100004242	7/30/2013	Goodness-of-Fit Test Statistics for Data Sets with Non-Detects.	59	2 RPT / Report	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100004243	7/30/2013	Goodness-of-Fit Test Statistics for Data Sets with Non-Detects.	59	2 RPT / Report	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100004244	7/30/2013	UCL Statistics for Data Sets with Non-Detects.	86	2 RPT / Report	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100004245	7/30/2013	UCL Statistics for Data Sets with Non-Detects.	86	2 RPT / Report	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100004276	7/30/2013	Background Statistics for Data Sets with Non-Detects.	72	3 RPT / Report	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100004277	7/30/2013	Background Statistics for Data Sets with Non-Detects.	72	3 RPT / Report	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100004278	7/30/2013	Goodness-of-Fit Test Statistics for Data Sets with Non-Detects.	57	2 RPT / Report	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100004279	7/30/2013	Goodness-of-Fit Test Statistics for Data Sets with Non-Detects.	57	2 RPT / Report	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)



100004257	Goodness-of-Fit Test Statistics for Data Sets with Non-Detects.	57	2 RPT / Report	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100004258	Outlier Tests for Selected Variables replacing nondetects with 1/2 the Detection Limit.	47	1 RPT / Report	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100004259	normal UCL Statistics for Data Sets with Non-Detects.	50	1 RPT / Report	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100006413	Revised Surface Water Figure Examples - Revised Surface Water Figure examples_20130925.	328	1 CORR / Correspondence	R10: (Integral Consulting, Inc.)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100006412	Portland Harbor RI/FS Remedial Investigation Report Histogram by Channel Position of Total PCB Congener Concentrations in Surface Water Figure 5.3-22 - 2011-08-29_DF RI_Figure 5.3-22.	166	1 CORR / Correspondence	R10: (Lower Willamette Group), R10: (Integral Consulting, Inc.)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100004386	Goodness-of-Fit Test Statistics for Uncensored Full Data Sets without Non-Detects.	45	1 RPT / Report	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100004396	Outlier Tests for Selected Variables excluding nondetects.	47	1 RPT / Report	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100006691	Portland Harbor RI/FS Remedial Investigation Report Section 5.3 Tables - SedTrap Results Tables 2013-11-25.	222	28 CORR / Correspondence	R10: (Lower Willamette Group)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
500001583	12_03_13 email2; EPA Final BERA Comments; Draft Recommended Responses_Need for Clarification.	54	1 EML / Email	R10: Koch, Kristine, M (EPA)	R10: Humphrey, Chip (EPA), R10: Mckenna, James (Verdant Solutions, LLC)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
707206	12/5/2013 12_05_13 email; hot spots.	101	2 EML / Email	R10: Gainer, Tom (DEQ Northwest Region)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
500001650	12_05_13 email; Follow Up Question to EPA's November 13 PRGs Presentation.	98	2 EML / Email	R10: Koch, Kristine, M (EPA)	R10: Humphrey, Chip (EPA), R10: Stivers, Carl (Anchor QEA, LLC)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
500001683	12_13_14 email; List of Additional Information that LWG is Requesting from EPA on November 13 PRG_RAL Presentation.	102	3 EML / Email	R10: Koch, Kristine, M (EPA)	R10: Humphrey, Chip (EPA), R10: Mckenna, James (Verdant Solutions, LLC)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
713176	PORTLAND HARBOR RI/FS FINAL REMEDIAL INVESTIGATION REPORT APPENDIX G BASELINE ECOLOGICAL RISK ASSESSMENT FINAL.	2,060	62	R10: Conley, Alanna (EPA), R10: Humphrey, Chip (EPA)	R10: Unknown, Unknown (Lower Willamette Group), R10: Unknown, Unknown (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
1432515	Final Remedial Investigation Report Appendix G Baseline Ecological Risk Assessment Final. Final, Volume I.	423,808	870 RPT / Report	R10: Unknown, Unknown (Windward Environmental, LLC.)	R10: Unknown, Unknown (Lower Willamette Group), R10: Unknown, Unknown (EPA Region 8)	PAPER DOCUMENT	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
1432516	Final Remedial Investigation Report Appendix G Baseline Ecological Risk Assessment Final. Final, Volume II Attachments.	148,388	1096 RPT / Report	R10: Unknown, Unknown (Windward Environmental, LLC.)	R10: Unknown, Unknown (Lower Willamette Group), R10: Unknown, Unknown (EPA Region 8)	PAPER DOCUMENT	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
1432519	Final Remedial Investigation Report Appendix G Baseline Ecological Risk Assessment Final. Final, Volume II Attachments.	230,868	53 RPT / Report	R10: Unknown, Unknown (Windward Environmental, LLC.)	R10: Unknown, Unknown (Lower Willamette Group), R10: Unknown, Unknown (EPA Region 8)	PAPER DOCUMENT	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
500001684	12_18_13 email; List of Additional Information that LWG is requesting from EPA on November 13 PRG_RAL Presentation.	147	3 EML / Email	R10: Koch, Kristine, M (EPA)	R10: Humphrey, Chip (EPA), R10: Woronets, Jennifer (Anchor QEA, LLC)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
709382	1/6/2014 01_06_14 email; Portland Harbor RI Section 5.	46	1 CORR / Correspondence	R10: Koch, Kristine, M (EPA)	R10: Humphrey, Chip (EPA), R10: Woronets, Jennifer (Anchor QEA, LLC)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100006411	Email regarding Revised Section 5 Surface Water figure format.	115	2 EML / Email	R10: Revelas, Gene (Integral Corporation)	R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
709761	3/4/2014 03_04_14 email; PRG questions.	95	2 RPT / Report	R10: Koch, Kristine, M (EPA)	R10: Shephard, Burt (EPA), R10: Humphrey, Chip (EPA), R10: Allen, Elizabeth (EPA), R10: Woronets, Jennifer (Anchor QEA, LLC)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100004628	Portland Harbor RI/FS Remedial Investigation Report Section 7 Figures.	203	17 RPT / Report	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
710309	03_21_14 email; Summary of Jan 7 2014 Portland Harbor Executives meeting.	66	1 CORR / Correspondence	R10: Cohen, Lori, G (EPA)	R10: Cora, Lori, H (EPA), R10: Koch, Kristine, M (EPA), R10: Conley, Alanna (EPA), R10: Humphrey, Chip (EPA), R10: Yamamoto, Deb (EPA Region 10)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100006419	Letter regarding Portland Harbor Superfund Site, Administrative Order on Consent for Remedial Investigation and Feasibility Study - 2014_05_07_EPA Comment Letter on 2011 RI Report Section 6.	193	3 CORR / Correspondence	R10: Koch, Kristine, M (EPA)	R10: Wyatt, Bob (Northwest Natural Gas Company)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100006414	Email regarding Updated Portland Harbor RI Schedule for discussion today.	41	1 EML / Email	R10: Koch, Kristine, M (EPA)	R10: Wyatt, Bob (Northwest Natural Gas Company), R10: Mckenna, James (Verdant Solutions, LLC)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100006415	Portland Harbor Project Schedule - 2014-04-22 EPA Portland Harbor RI Schedule.	118	1 CORR / Correspondence	R10: Koch, Kristine, M (EPA)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100004390	4/29/2014 Section 5.4 Tables.	6,270	174 CHT / Chart/Table	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100006548	Portland Harbor Project Schedule - 2014-06-17 EPA Portland Harbor RI Schedule.	119	1 CORR / Correspondence	R10: Koch, Kristine, M (EPA)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100006416	5/5/2014 Email regarding RI Schedule.	66	1 EML / Email	R10: Koch, Kristine, M (EPA)	R10: Mckenna, James (Verdant Solutions, LLC)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100006417	Portland Harbor Superfund Site Feasibility Study - Revision Schedule - PH_Overall Schedule_05-05-2014_REV 1.	199	2 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100006418	5/7/2014 Email regarding Portland Harbor RI Section 6.	44	1 EML / Email	R10: Koch, Kristine, M (EPA)	R10: Wyatt, Bob (Northwest Natural Gas Company), R10: Mckenna, James (Verdant Solutions, LLC)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100006541	6/4/2014 Email regarding Portland Harbor RI Section 6.	44	1 EML / Email	R10: Koch, Kristine, M (EPA)	R10: Mckenna, Jim (Verdant Solutions, LLC)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)



100006542	6/6/2014	Email regarding Portland Harbor RI Section 6.	69	2 EML / Email	R10: Koch, Kristine, M (EPA)	R10: Angle, Genevieve (NOAA), R10: Buck, Jeremy (U. S. Fish and Wildlife Service), R10: Madden, Erin (Unknown), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Cunninghame, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Ridolfi, Callie (Ridolfi Engineers, Inc.), R10: Downey, Tom (Confederated Tribes of the Siletz Indians), R10: Partridge, Holly (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Karnosh, Michael (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Liverman, Alex (Oregon Dept. of Environmental Quality), R10: Fricano, Gail (Industrial Economics, Inc.), R10: Delvecchio, Rachel (Industrial Economics, Inc.), R10: Sudbury, Ryan (Grand Ronde Tribe), R10: Penoyar, Susan, J (CDM), R10: Longoria, Rose (Yakama Nation), R10: King, Todd (CDM Smith), R10: Johnson, Matt (WilliamsJohnson), R10: Weis, Julie (Haglund Kelley Jones & Wilder LLP), R10: Williams, Jd (Unknown), R10: Dexter, Bob (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100006544	6/6/2014	Email regarding Portland Harbor RI Section 6.	45	1 EML / Email	R10: Koch, Kristine, M (EPA)	R10: Wyatt, Bob (Northwest Natural Gas Company), R10: Mckenna, Jim (Verdant Solutions, LLC)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100006680	6/11/2014	Email regarding Portland Harbor RI Section 5. Letter regarding Comments on the Remedial Investigation Report (Section 5) - 2014_06_11_EPA Comment Letter on 2011 RI	69	2 EML / Email	R10: Koch, Kristine, M (EPA)	R10: Angle, Genevieve (NOAA), R10: Buck, Jeremy (U. S. Fish and Wildlife Service), R10: Madden, Erin (Unknown), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Cunninghame, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Ridolfi, Callie (Ridolfi Engineers, Inc.), R10: Partridge, Holly (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Karnosh, Michael (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Liverman, Alex (Oregon Dept. of Environmental Quality), R10: Fricano, Gail (Industrial Economics, Inc.), R10: Delvecchio, Rachel (Industrial Economics, Inc.), R10: Sudbury, Ryan (Grand Ronde Tribe), R10: Penoyar, Susan, J (CDM), R10: Longoria, Rose (Yakama Nation), R10: King, Todd (CDM Smith), R10: Johnson, Matt (WilliamsJohnson), R10: Weis, Julie (Haglund Kelley Jones & Wilder LLP), R10: Williams, Jd (Unknown), R10: Dexter, Bob (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100006682	6/11/2014	Report Sections 5.	45	3 CORR / Correspondence	R10: Koch, Kristine, M (EPA)	R10: Wyatt, Bob (Lower Willamette Group)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100006690	6/11/2014	Portland Harbor RI Sediment Bin Tables - Sediment bin tables.	413	64 CORR / Correspondence	R10: (Lower Willamette Group)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100006692	6/11/2014	Seep DB Results - seep_DB_results. Table 5.1-1 Summary of detected COIs or Chemical classes by in-river media - Table 5.1-1	586	49 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100006693	6/11/2014	Table 5.1-2 Screening of COIs by in-river media for discussion and presentation in RI - Table 5.1-2	134	5 CORR / Correspondence	R10: Koch, Kristine, M (EPA)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100006694	6/11/2014	Table 5.1-3 Basis for screening of COIs due to co-location - Table 5.1-3.	161	5 CORR / Correspondence	R10: Koch, Kristine, M (EPA)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100006695	6/11/2014	Table 5.3-1 Average Heights of Sediment collected in Sediment Traps Deployed in Willamette - Table 5.3-1.	70	1 CORR / Correspondence	R10: Koch, Kristine, M (EPA)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100006696	6/11/2014	Table 5.3-1 Average Heights of Sediment collected in Sediment Traps Deployed in Willamette - Table 5.3-1.	82	2 CORR / Correspondence	R10: Koch, Kristine, M (EPA)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100006697	6/11/2014	TZW DB Results - TZW_DB_results.	2,391	96 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100006546	6/17/2014	Email regarding Portland Harbor RI Section 5.	73	2 EML / Email	R10: Koch, Kristine, M (EPA)	R10: Angle, Genevieve (NOAA), R10: Buck, Jeremy (U. S. Fish and Wildlife Service), R10: Madden, Erin (Unknown), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Cunninghame, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Ridolfi, Callie (Ridolfi Engineers, Inc.), R10: Downey, Tom (Confederated Tribes of the Siletz Indians), R10: Partridge, Holly (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Karnosh, Michael (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Liverman, Alex (Oregon Dept. of Environmental Quality), R10: Fricano, Gail (Industrial Economics, Inc.), R10: Delvecchio, Rachel (Industrial Economics, Inc.), R10: Sudbury, Ryan (Grand Ronde Tribe), R10: Penoyar, Susan, J (CDM), R10: Longoria, Rose (Yakama Nation), R10: King, Todd (CDM Smith), R10: Johnson, Matt (WilliamsJohnson), R10: Weis, Julie (Haglund Kelley Jones & Wilder LLP), R10: Williams, Jd (Unknown), R10: Dexter, Bob (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100006547	7/3/2014	Email regarding Updated RI schedule.	41	1 EML / Email	R10: Koch, Kristine, M (EPA)	R10: Wyatt, Bob (Northwest Natural Gas Company), R10: Mckenna, Jim (Verdant Solutions, LLC)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100006549	7/3/2014	Email regarding Topic for todays meeting.	84	1 EML / Email	R10: Revelas, Gene (Integral Corporation)	R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100006555	7/15/2014	Table 5.1-2 Screening of COIs by in-river media for discussion and presentation in RI - 2014-07-15_Table 5.1-2_Integral.	162	3 CORR / Correspondence	R10: Koch, Kristine, M (EPA)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100007028	7/15/2014	Table 5.1-2 Screening of COIs by in-river media for discussion and presentation in RI - Rev 1 2014-07-15_Table 5.1-2_Integral.	164	4 CORR / Correspondence	R10: Koch, Kristine, M (EPA)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100006550	7/16/2014	Email regarding Section 5 proposed revisions.	55	1 EML / Email	R10: Revelas, Gene (Integral Corporation)	R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100006556	7/24/2014	Email regarding Section 5 proposed revisions - Section 5.4 (Surface Water).	45	1 EML / Email	R10: Revelas, Gene (Integral Corporation)	R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100006558	8/5/2014	Email regarding Portland Harbor RI/FS - RI Section 5.6 Proposed Revisions.	51	1 EML / Email	R10: Browning, Sandy (Unknown)	R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)

100006564	Comments on EPA's Revisions to RI Section 10 - 8/14/2014 2014_0814_Section 10_Comments_forEPA.	147	2 CORR / Correspondence	R10: Jones, Laura (Integral Corporation)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100006565	8/15/2014 Email regarding Portland Harbor RI Section 5.	135	3 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100005671	8/21/2014 Email regarding Portland Harbor RI Section 1.	46	1 EML / Email	R10: Koch, Kristine, M (EPA)	R10: Wyatt, Bob (Lower Willamette Group), R10: Mckenna, Jim (Lower Willamette Group)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100006567	8/21/2014 Email regarding Portland Harbor RI Section 1.	45	1 EML / Email	R10: Koch, Kristine, M (EPA)	R10: Wyatt, Bob (Northwest Natural Gas Company), R10: Mckenna, Jim (Verdant Solutions, LLC)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100005672	8/22/2014 Email regarding Portland Harbor RI Section 5.	158	4 EML / Email	R10: Revelas, Gene, C (Integral Consulting, Inc.)	R10: Koch, Kristine, M (EPA), R10: Woronets, Jennifer (Anchor QEA, LLC)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100005673	8/22/2014 Email regarding Portland Harbor RI Section 1.	68	2 EML / Email	R10: Koch, Kristine, M (EPA)	R10: Wyatt, Bob (Lower Willamette Group), R10: Mckenna, James (Verdant Solutions, LLC)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100006568	8/22/2014 Email regarding Portland Harbor RI Section 5.	158	4 EML / Email	R10: Revelas, Gene (Integral Corporation)	R10: Koch, Kristine, M (EPA), R10: Woronets, Jennifer (Anchor QEA, LLC)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100006569	8/22/2014 9 am today if possible. Email regarding Portland Harbor RI Section 5 - Section 5.4 need feedback on MCL issue before	184	6 EML / Email	R10: Revelas, Gene (Integral Corporation), R10: Mckenna, Jim (Verdant Solutions, LLC)	R10: Wyatt, Bob (Northwest Natural Gas Company), R10: Mckenna, James (Verdant Solutions, LLC)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100006581	8/25/2014 Email regarding Portland Harbor RI Section 1.	68	2 EML / Email	R10: Koch, Kristine, M (EPA)	R10: Wyatt, Bob (Northwest Natural Gas Company), R10: Mckenna, Jim (Verdant Solutions, LLC)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100006582	8/25/2014 Email regarding Portland Harbor RI Section 1.	42	1 EML / Email	R10: Koch, Kristine, M (EPA)		ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100005646	8/26/2014 Letter regarding Request for Dispute Resolution of EPA's Notice of Decisions on Background Regarding Section 7 of the Remedial Investigation; Lower Willamette River - 2014 08 26 LWG Request for Dispute Resolution on Background.	3,151	58 CORR / Correspondence	R10: Unknown, Unknown (Lower Willamette Group)	R10: Albright, Richard, G (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100006584	8/26/2014 Letter regarding Request for Dispute Resolution of EPA's Notice of Decisions on Background Regarding Section 7 of the Remedial Investigation - 2014 08 26 LWG Request for Dispute Resolution on Background. Email regarding Response to the Background Issue Raised During the EPA/LWG Senior Managers Call.	3,120	58 CORR / Correspondence	R10: (The Lower Willamette Group)	R10: Albright, Richard, G (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100005802	8/28/2014 Email regarding Response to the Background Issue Raised During the EPA/LWG Senior Managers Call.	84	3 EML / Email	R10: Yamamoto, Deb (EPA)	R10: Hamilton, Jessica (Port of Portland)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100006585	8/28/2014 Email regarding Response to the Background Issue Raised During the EPA/LWG Senior Managers Call.	84	3 EML / Email	R10: Yamamoto, Deb (EPA)	R10: Hamilton, Jessica (Port of Portland)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100006705	8/29/2014 Email regarding LWG RI Section 5 and 10 Issues for Elevation to Senior Managers.	64	1 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100006707	8/29/2014 Letter regarding LWG Unresolved Comments on RI Sections 5 and 10 - 2014-08-29 Cover Letter LWG Comments on RI Sections 5 and 10. Remedial Investigation Section 5 Resolved Issues - 2014-08-29 Resolved LWG Comments on Section 5.	192	2 CORR / Correspondence	R10: Wyatt, Bob (Lower Willamette Group)	R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100006708	8/29/2014 Unresolved LWG Comments on the RI Section 5 - 2014-08-29 Unresolved LWG Comments on RI Section 5.	114	3 CORR / Correspondence	R10: Revelas, Gene (Integral Corporation)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100006709	8/29/2014 Correspondence regarding Request for Dispute Resolution of EPA's Notice of Decisions on Background Regarding Section 7 of the Remedial Investigation (USEPA Docket No: CERCLA-10-2001-0240).	113	1 CORR / Correspondence	R10: Dost, Patty (Pearl Legal Group PC)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
1469559	9/11/2014 Outlier Tests for Selected Variables replacing nondetects with 1/2 the Detection Limit.	3,457	2 CORR / Correspondence	R10: Unknown, Unknown (Lower Willamette Group)	R10: Albright, Richard, G (EPA)	PAPER DOCUMENT	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100004129	9/16/2014 Background Statistics for Data Sets with Non-Detects.	47	1 RPT / Report	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100004124	9/22/2014 Background Statistics for Data with Non-Detects.	73	3 RPT / Report	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100004127	9/22/2014 UCL Statistics for Data Sets with Non-Detects.	70	2 RPT / Report	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100004132	9/22/2014 UCL Statistics for Data Sets with Non-Detects.	88	2 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100004250	9/22/2014 Outlier Tests for Selected Variables replacing nondetects with 1/2 the Detection Limit.	47	1 RPT / Report	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100004393	9/22/2014 Background Statistics for Data Sets with Non-Detects.	59	2 RPT / Report	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100004397	9/22/2014 UCL Statistics for Data Sets with Non-Detects.	58	2 RPT / Report	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100004398	9/22/2014 UCL Statistics for Data Sets with Non-Detects.	58	2 RPT / Report	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100004108	9/23/2014 Background Statistics for Data Sets with Non-Detects.	73	3 RPT / Report	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100004109	9/23/2014 Goodness-of-Fit Test Statistics for Data Sets with Non-Detects.	60	2 RPT / Report	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100004128	9/23/2014 Outlier Tests for Selected Variables replacing nondetects with 1/2 the Detection Limit.	47	1 RPT / Report	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100004110	9/24/2014 UCL Statistics for Data Sets with Non-Detects.	88	2 RPT / Report	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100006587	10/1/2014 Revised Final Draft RI Section 5 List of LWG Significant Comments - 2014-10-01 List of Key RI Section 5 Issues.	222	4 CORR / Correspondence	R10: Mckenna, James (Verdant Solutions, LLC)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100006588	10/2/2014 Letter regarding LWG Unresolved Comments on RI Sections 5 and 10. Portland Harbor RI/FS Draft Remedial Investigation Report PCB Congeners in Upstream Sediments Exhibit A - 2014 10 14	2,900	5 CORR / Correspondence	R10: Kirkpatrick, Margaret, D (Lower Willamette Group)	R10: Cohen, Lori, G (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100006590	10/10/2014 LWG reply for dispute resolution - Ex. A.	409	1 CORR / Correspondence	R10: (Integral Consulting, Inc.)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100005649	10/14/2014 Letter regarding Reply in Support of Request for Dispute Resolution of EPA's Notice of Decisions on Background Regarding Section 7 of the Remedial Investigation - 2014 10 14 Exhibit A: PCB Congeners in Upstream Sediments - 2014 10 14 LWG reply for dispute resolution - Ex.A.	418	10 CORR / Correspondence	R10: Unknown, Unknown (Lower Willamette Group)	R10: Albright, Richard, G (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100005670	10/14/2014 LWG reply for dispute resolution - Ex.A.	411	1 CHT / Chart/Table	R10: Unknown, Unknown (Integral Consulting, Inc.)	R10: Unknown, Unknown (Lower Willamette Group)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)

100006591	10/14/2014	Letter regarding Reply in Support of Request for Dispute Resolution of EPA's Notice of Decisions on Background Regarding Section 7 of the Remedial Investigation - 2014 10 14 LWG reply for dispute resolution.	413	10 CORR / Correspondence	R10: (The Lower Willamette Group)	R10: Albright, Richard, G (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100005706	11/7/2014	Letter regarding Documented Corrections to Incorrect Factual Assertions in EPA's Oct 3, 2014 Response to LWG's Request for Dispute Resolution Concerning Background in Section 7 of the Draft RI - 2014-11-07 LWG Corrections to EPA 10-3-14 Response.	428	6 CORR / Correspondence	R10: Unknown, Unknown (Lower Willamette Group)	R10: Cohen, Lori, G (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100006593	11/7/2014	Letter regarding Documented Corrections to Incorrect Factual Assertions in EPA's Response to the LWG's Request for Dispute Resolution Concerning Background in Section 7 - 2014-11-07 LWG Corrections to EPA 10-3-14 Response.	425	6 CORR / Correspondence	R10: (The Lower Willamette Group)	R10: Cohen, Lori, G (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100005741	12/8/2014	Email regarding Portland Harbor Data.	42	1 EML / Email	R10: Koch, Kristine, M (EPA)	R10: Wyatt, Bob (Lower Willamette Group), R10: Mckenna, Jim (Lower Willamette Group)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100006594	12/8/2014	Email regarding Portland Harbor Data.	42	1 EML / Email	R10: Koch, Kristine, M (EPA)	R10: Wyatt, Bob (Northwest Natural Gas Company), R10: Mckenna, Jim (Verdant Solutions, LLC)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100005781	12/11/2014	Email regarding Portland Harbor Revised RI Section 10 Text.	109	2 EML / Email	R10: Koch, Kristine, M (EPA)	R10: Woronets, Jennifer (Anchor QEA, LLC)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100006595	12/11/2014	Email regarding Portland Harbor Revised RI Section 10 Text.	109	2 EML / Email	R10: Koch, Kristine, M (EPA)	R10: Woronets, Jennifer (Anchor QEA, LLC)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100006798	12/18/2014	List of Data Reports for Rounds 1, 2, and 3 Data - List of Portland Harbor RI Data Reports_12-18-14.	39	3 CORR / Correspondence	R10: (Lower Willamette Group)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100005775	12/23/2014	Section 10.2 of Draft Final Remedial Investigation Report with edits - Rev 1 EPA_2012-01-13_DF RI_Sec10.2.	573	53 RPT / Report	R10: Unknown, Unknown (Unknown)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100005783	12/23/2014	Section 10 of Draft Final Remedial Investigation Report with edits - Rev 1 EPA_2012-01-13_DF RI_Sec 10.1_Text.	303	21 RPT / Report	R10: Unknown, Unknown (Unknown)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100005805	1/13/2015	Executive Summary from the Remedial Investigation Report - Koch_2015_1_13 DF RI Executive_Summary.	137	10 RPT / Report	R10: Unknown, Unknown (Unknown)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100005806	1/13/2015	Section 10 from the Remedial Investigation Report - Rev 2 EPA_2014-01-12_DF RI_Sec10_KK.	201	15 RPT / Report	R10: Unknown, Unknown (Unknown)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100005808	1/13/2015	Section 10.2 from the Remedial Investigation Report - Rev 2 EPA_2014-01-12_DF RI_Sec10_2_ea_kk.	389	39 RPT / Report	R10: Unknown, Unknown (Unknown)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100006600	1/13/2015	Remedial Investigation Executive Summary - Koch_2015_1_13 DF RI Executive_Summary.	140	10 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100004087	2/2/2015	Portland Harbor RI/FS Revised Draft Final Remedial Investigation Report.	106	17 RPT / Report	R10: (Lower Willamette Group)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100007103	2/8/2015	Portland Harbor RI/FS Final Remedial Investigation Report Section 9 - 2016-01-08 Portland Harbor RI Section 9 Text.	230	14 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100005812	2/12/2015	Letter regarding EPA Draft Portland Harbor Remedial Investigation Report Executive Summary.	2,407	29 CORR / Correspondence	R10: Wyatt, Bob (Lower Willamette Group)	R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100006604	2/12/2015	Letter regarding EPA Draft Portland Harbor Remedial Investigation Report Executive Summary.	2,378	29 CORR / Correspondence	R10: Wyatt, Bob (Northwest Natural Gas Company)	R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100006788	2/12/2015	Portland Harbor RI/FS Revised Draft Final Remedial Investigation Report Executive Summary - 2015_4_16_RI_Executive Summary.	183	17 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100006884	2/12/2015	Portland Harbor RI/FS Revised Draft Final Remedial Investigation Report Executive Summary - 2015_5_15_RI_Executive Summary.	182	17 CORR / Correspondence	R10: (Lower Willamette Group)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100004101	2/19/2015	Q-Q Plot for Arclor Reported values used for nondetects.	126	1 CHT / Chart/Table	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100005878	3/19/2015	Letter regarding Remedial Investigation Executive Summary - 2015-03-19 Portland Harbor Letter re RI Exec Summary.	402	2 CORR / Correspondence	R10: Cohen, Lori, G (EPA), R10: Grandinetti, Cami (EPA)	R10: Wyatt, Bob (Lower Willamette Group)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100007165	3/19/2015	Letter regarding Remedial Investigation Executive Summary - 2015-03-19 Portland Harbor Letter re RI Exec Summary.	409	2 CORR / Correspondence	R10: Grandinetti, Cami (EPA)	R10: Wyatt, Bob (Lower Willamette Group)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
500003667	3/19/2015	Letter regarding Portland Harbor Superfund Site, Administrative Order on Consent for Remedial Investigation and Feasibility Study; Docket No. CERCLA-10-2001-0240 Remedial Investigation Executive Summary.	120	2 CORR / Correspondence	R10: Cohen, Lori, G (EPA), R10: Grandinetti, Cami (EPA)	R10: Wyatt, Bob (Lower Willamette Group)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100005848	3/20/2015	Section 10 from Draft Final Remedial Investigation Report - Rev 5 EPA_2014-01-12_DF RI_Sec10_1_clean_wLWG.	184	15 RPT / Report	R10: Unknown, Unknown (Unknown)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100005849	3/20/2015	Section 10 from Draft Final Remedial Investigation Report - Rev 5 EPA_2014-01-12_DF RI_Sec10_1_wLWG.	185	15 RPT / Report	R10: Unknown, Unknown (Unknown)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100005851	3/24/2015	Letter regarding Dispute Decision Regarding Lower Willamette Group Dispute dated August 26, 2014 - 2015-03-24 Dispute Decision on Background (RI Section 7).	17,821	20 CORR / Correspondence	R10: Unknown, Unknown (EPA)	R10: Wyatt, Bob (Lower Willamette Group)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100004578	3/31/2015	Portland Harbor RI/FS Remedial Investigation Report Section 5.0 Maps.	983	1 RPT / Report	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100004274	4/16/2015	Map 2-1a Portland Harbor RI/FS Ownership and Zoning.	1,541	7 FIG / Figure/Map/ Drawing	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100006626	4/16/2015	Email regarding Portland Harbor RI.	54	2 EML / Email	R10: Mckenna, James (Verdant Solutions, LLC)	R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100006874	4/16/2015	Portland Harbor RI/FS Ownership and Zoning 1-2 Maps - Maps 1-2.	1,541	7 CORR / Correspondence	R10: (Lower Willamette Group), R10: (Integral Consulting, Inc.)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100005813	4/20/2015	Email regarding Portland Harbor RI.	157	4 EML / Email	R10: Koch, Kristine, M (EPA)	R10: Woronets, Jennifer (Anchor QEA, LLC)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100006619	4/20/2015	Email regarding Portland Harbor RI.	156	4 EML / Email	R10: Koch, Kristine, M (EPA)	R10: Woronets, Jennifer (Anchor QEA, LLC), R10: Wyatt, Bob (Northwest Natural Gas Company), R10: Revelas, Gene (Integral Corporation), R10: Mckenna, Jim (Verdant Solutions, LLC)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100006620	4/21/2015	Email regarding Portland Harbor - EPA direction on the RI report.	46	1 EML / Email	R10: Koch, Kristine, M (EPA)	R10: Revelas, Gene, C (Lower Willamette Group), R10: Wyatt, Bob (Lower Willamette Group), R10: Mckenna, Jim (Lower Willamette Group)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100005814	4/22/2015	Email regarding Portland Harbor - EPA direction on the RI report.	67	1 EML / Email	R10: Koch, Kristine, M (EPA)	R10: Wyatt, Bob (Lower Willamette Group), R10: Mckenna, Jim (Lower Willamette Group)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100005853	4/22/2015	Email regarding Portland Harbor - BERA data request.	45	1 EML / Email	R10: Koch, Kristine, M (EPA)	R10: Wyatt, Bob (Lower Willamette Group), R10: Mckenna, Jim (Lower Willamette Group)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)

100006621	4/22/2015	Email regarding Portland Harbor - BERA data request.	45	1 EML / Email	R10: Koch, Kristine, M (EPA)	R10: Wyatt, Bob (Northwest Natural Gas Company), R10: Mckenna, Jim (Verdant Solutions, LLC)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100006624	4/22/2015	Portland Harbor RI/FS Remedial Investigation Report Background Upriver Bedded Sediment Outlier Analysis AppH Figures - 20150422_AppH_Figures.	205	20 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100006625	4/22/2015	Portland Harbor RI/FS Draft Final Remedial Investigation Report App H Tables - 20150422_AppH_Tables.	96	3 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100005855	4/23/2015	Email regarding Background Threshold Values for additional contaminants.	68	1 EML / Email	R10: Revelas, Gene, C (Lower Willamette Group)	R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100005858	4/23/2015	Tables from Draft Final Remedial Investigation Report - 20150422_AppH_Tables.	96	3 CHT / Chart/Table	R10: Unknown, Unknown (Unknown)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100005873	4/23/2015	Figures from Draft Final Remedial Investigation Report - 20150422_AppH_Figures.	205	20 FIG / Figure/Map/ Drawing	R10: Unknown, Unknown (Unknown)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100006623	4/23/2015	Email regarding Background Threshold Values for additional contaminants.	68	1 EML / Email	R10: Koch, Kristine, M (EPA)	R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100004086	4/27/2015	EPA Direction to LWG on Production of Draft Final Remedial Investigation Report for the Portland Harbor Superfund Site.	77	2 CORR / Correspondence	R10: Koch, Kristine, M (EPA)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100004260	4/27/2015	Portland Harbor RI/FS Draft Final Investigation Section 8.	296	24 RPT / Report	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100005875	4/27/2015	Letter regarding Directed Modifications and Additional Comments on Remedial Investigation Report dated August 29, 2011 - 2015-04-27 Portland Harbor RI Comment Letter.	346	3 CORR / Correspondence	R10: Koch, Kristine, M (EPA)	R10: Wyatt, Bob (Lower Willamette Group)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100005877	4/27/2015	EPA Direction to LWG on Production of Draft Final Remedial Investigation Report for the Portland Harbor Superfund Site - 2015-04-27 EPA Direction to LWG on Production of RI Report.	77	2 CORR / Correspondence	R10: Unknown, Unknown (EPA)	R10: Unknown, Unknown (Lower Willamette Group)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100006628	4/27/2015	EPA Direction to LWG on Production of Draft Final Remedial Investigation Report for the Portland Harbor Superfund Site - 2015-04-27 EPA Direction to LWG on Production of RI Report.	77	2 CORR / Correspondence	R10: Koch, Kristine, M (EPA)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100006629	4/27/2015	Letter regarding Portland Harbor Superfund Site, Settlement Agreement and Administrative Order on Consent for Remedial Investigation and Feasibility Study - 2015-04-27 Portland Harbor RI Comment Letter.	345	3 CORR / Correspondence	R10: Koch, Kristine, M (EPA)	R10: Wyatt, Bob (Lower Willamette Group)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100006630	4/27/2015	Email regarding Portland Harbor - EPA Direction on Remedial Investigation Report.	69	1 EML / Email	R10: Mckenna, James (Verdant Solutions, LLC)	R10: Wyatt, Bob (Northwest Natural Gas Company), R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100006631	4/27/2015	Email regarding Portland Harbor - RI Direction Documents - Executive Summary.	91	2 EML / Email	R10: Koch, Kristine, M (EPA)	R10: Woronets, Jennifer (Anchor QEA, LLC)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100006632	4/27/2015	Email regarding Portland Harbor - RI Direction Documents - Section 10.	36	1 EML / Email	R10: Koch, Kristine, M (EPA)	R10: Woronets, Jennifer (Anchor QEA, LLC)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100006633	4/27/2015	Portland Harbor RI/FS Draft Final Remedial Investigation Report Section 10.2 - Rev 3 CELAN EPA_2014-01-12_DF RI_Sec10_2_ea_kk_Integral.	369	38 CORR / Correspondence	R10: (Integral Consulting, Inc.)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100006634	4/27/2015	Portland Harbor RI/FS Draft Final Remedial Investigation Report Section 10.2 - Rev 3 EPA_2014-01-12_DF RI_Sec10_2_ea_kk_Integral.	428	39 CORR / Correspondence	R10: (Integral Consulting, Inc.)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100006635	4/27/2015	Portland Harbor RI/FS Draft Remedial Investigation Report Section 10 - Rev 5 CLEAN EPA_2014-01-12_DF RI_Sec10_1_wLWG.	185	15 CORR / Correspondence	R10: (Integral Consulting, Inc.)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100006636	4/27/2015	Portland Harbor RI/FS Draft Final Remedial Investigation Report Section 10.1 - Rev 5 EPA_2014-01-12_DF RI_Sec10_1_wLWG.	192	15 CORR / Correspondence	R10: (Integral Consulting, Inc.)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100006637	4/27/2015	Email regarding Portland Harbor - RI Direction Documents - Section 9.	36	1 EML / Email	R10: Koch, Kristine, M (EPA)	R10: Woronets, Jennifer (Anchor QEA, LLC)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100006640	4/27/2015	Email regarding Portland Harbor - RI Direction Documents - Section 8.	36	1 EML / Email	R10: Koch, Kristine, M (EPA)	R10: Woronets, Jennifer (Anchor QEA, LLC)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100006641	4/27/2015	Portland Harbor RI/FS Draft Final Remedial Investigation Report Section 8 - koch CLEAN_2013-04-17_DF RI_Sec8_Text.	156	15 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100006643	4/27/2015	Email regarding Portland Harbor - RI Direction Documents - Section 7.	36	1 EML / Email	R10: Koch, Kristine, M (EPA)	R10: Woronets, Jennifer (Anchor QEA, LLC)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100006644	4/27/2015	Revision - Changes to tables, figures & maps - REV 1 Changes to tables, figures & Maps. Portland Harbor RI/FS Draft Final Remedial Investigation Report Section 7 - Rev 3 CLEAN_dy_koch_2013-11-4_DF RI_Sec7_Text redline.	111	15 CORR / Correspondence	R10: Allen, Elizabeth (EPA)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100006645	4/27/2015	Portland Harbor RI/FS Draft Final Remedial Investigation Report Section 7 - Rev 3 CLEAN_dy_koch_2013-11-4_DF RI_Sec7_Text redline.	126	9 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100006744	4/27/2015	Email regarding Portland Harbor - RI Direction Documents - Appendix H Files (3 of 3).	36	1 EML / Email	R10: Koch, Kristine, M (EPA)	R10: Woronets, Jennifer (Anchor QEA, LLC)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100006745	4/27/2015	Normal Background Statistics for Data Sets with Non-Detects - Hg BTV.	48	1 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100006746	4/27/2015	Goodness-of-Fit Test Statistics for Data Sets with Non-Detects - Hg GOF.	57	2 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100006747	4/27/2015	Outlier Tests for Selected Variables replacing nondetects with 1/2 the Detection Limits - Hg outlier.	47	1 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100006748	4/27/2015	Normal UCL Statistics for Data Sets with Non-Detects - Hg UCL.	50	1 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100006749	4/27/2015	Background Statistics for Data Sets with Non-Detects - PAH BTV full.	72	3 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100006750	4/27/2015	Background Statistics for Data Sets with Non-Detects - PAH BTV wo.	72	3 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100006751	4/27/2015	Goodness-of-Fit Test Statistics for Data Sets with Non-Detects - PAH GOF full.	57	2 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100006752	4/27/2015	Goodness-of-Fit Test Statistics for Data Sets with Non-Detects - PAH GOF wo.	57	2 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100006753	4/27/2015	UCL Statistics for Data Sets with Non-Detects - PAH UCL full.	87	2 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100006754	4/27/2015	UCL Statistics for Data Sets with Non-Detects - PAH UCL wo.	87	2 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)



100006755	4/27/2015	Outlier Tests for Selected Variables replacing nondetects with 1/2 the Detection Limits - PAHs Outlier.	47	1 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100006756	4/27/2015	Background Statistics for Data Sets with Non-Detects - PCB Cong BTV full.	59	2 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100006757	4/27/2015	Background Statistics for Data Sets with Non-Detects - PCB Cong BTV wo.	59	2 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100006758	4/27/2015	Outlier Tests for Selected Variables replacing nondetects with 1/2 the Detection Limits - PCB Cong outliers.	47	1 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100006759	4/27/2015	UCL Statistics for Data Sets with Non-Detects - PCB cong UCL full.	59	2 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100006760	4/27/2015	UCL Statistics for Data Sets with Non-Detects - PCB cong UCL wo.	58	2 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100006764	4/27/2015	Goodness-of-Fit Test Statistics for Uncensored Full Data Sets without Non-Detects - PCB Congeners GOF full.	45	1 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100006765	4/27/2015	Goodness-of-Fit Test Statistics for Uncensored Full Data Sets without Non-Detects - PCB Congeners GOF wo.	45	1 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100006766	4/27/2015	Background Statistics for Uncensored Full Data Sets - PCDD Full BTV.	59	2 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100006767	4/27/2015	UCL Statistics for Uncensored Full Data Sets - PCDD full UCLs.	58	2 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100006768	4/27/2015	Goodness-of-Fit Test Statistics for Uncensored Full Data Sets without Non-Detects - PCDD Full.	45	1 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100006769	4/27/2015	Goodness-of-Fit Test Statistics for Uncensored Full Data Sets without Non-Detects - PCDD GOF 1 outlier.	45	1 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100006770	4/27/2015	Outlier Tests for Selected Uncensored Variables - PCDD outlier.	45	1 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100006771	4/27/2015	Background Statistics for Uncensored Full Data Sets - PCDD wo BTV.	59	2 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100006772	4/27/2015	UCL Statistics for Uncensored Full Data Sets - PCDD wo UCLs.	58	2 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100006773	4/27/2015	Background Statistics for Data Sets with Non-Detects - Zinc BTV wo.	59	2 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100006774	4/27/2015	Normal Background Statistics for Uncensored Full Data Sets - Zinc BTV.	46	1 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100006775	4/27/2015	Goodness-of-Fit Test Statistics for Uncensored Full Data Sets without Non-Detects - Zinc GOF.	44	1 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100006776	4/27/2015	Outlier Tests for Selected Variables excluding nondetects - Zinc outlier.	47	1 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100006777	4/27/2015	UCL Statistics for Data Sets with Non-Detects - Zinc UCL all.	58	2 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100006778	4/27/2015	UCL Statistics for Data Sets with Non-Detects - Zinc UCL wo.	58	2 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100006779	4/27/2015	Email regarding Portland Harbor - RI Direction Documents - Section 6.	36	1 EML / Email	R10: Koch, Kristine, M (EPA)	R10: Woronets, Jennifer (Anchor QEA, LLC)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100006780	4/27/2015	Portland Harbor RI/FS Draft Final Remedial Investigation Report Section 6 - Rev 1 CLEAN Koch_2014-05-6_DF_RI_Sec6_Text.	529	61 CORR / Correspondence	R10: Revelas, Gene (Integral Corporation)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100006781	4/27/2015	Portland Harbor RI/FS Draft Final Remedial Investigation Report Section 6 - Rev 1 Koch_2014-05-6_DF_RI_Sec6_Text.	909	73 CORR / Correspondence	R10: Revelas, Gene (Integral Corporation)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100006782	4/27/2015	Portland Harbor RI/FS Draft Final Remedial Investigation Report Section 4 - Rev 1_koch CLEAN_2012-01-13_DF_RI_Sec4_Text.	430	41 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100006783	4/27/2015	Portland Harbor RI/FS Draft Final Remedial Investigation Report Section 4 Revisions - Rev 1_koch_2012-01-13_DF_RI_Sec4_Text.	698	58 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100006784	4/27/2015	Email regarding Portland Harbor - RI Direction Documents - Section 3.	36	1 EML / Email	R10: Koch, Kristine, M (EPA)	R10: Woronets, Jennifer (Anchor QEA, LLC)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100006785	4/27/2015	Portland Harbor RI/FS Draft Final Remedial Investigation Report Section 4 - Rev 1_koch CLEAN_2012-01-13_DF_RI_Sec3_Text.	1,358	97 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100006786	4/27/2015	Portland Harbor RI/FS Draft Final Remedial Investigation Report Section 3 - Rev 4_koch_2012-01-13_DF_RI_Sec3_Text.	2,320	136 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100006787	4/27/2015	Email regarding Portland Harbor - RI Direction Documents - Executive Summary.	40	1 EML / Email	R10: Koch, Kristine, M (EPA)	R10: Woronets, Jennifer (Anchor QEA, LLC)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100006789	4/27/2015	Email regarding Portland Harbor - EPA Direction on Remedial Investigation Report. Letter regarding Directed Modifications and Additional Comments on Remedial Investigation Report - 2015-04-27 Portland Harbor RI Comment Letter.	47	1 EML / Email	R10: Koch, Kristine, M (EPA)	R10: Wyatt, Bob (Northwest Natural Gas Company), R10: Mckenna, Jim (Verdant Solutions, LLC)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100006790	4/27/2015	Portland Harbor RI Comment Letter.	345	3 CORR / Correspondence	R10: Koch, Kristine, M (EPA)	R10: Wyatt, Bob (Northwest Natural Gas Company)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100006795	4/27/2015	Email regarding Portland Harbor - RI Direction Documents - Section 2.	36	1 EML / Email	R10: Koch, Kristine, M (EPA)	R10: Woronets, Jennifer (Anchor QEA, LLC)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100006869	4/27/2015	Email regarding Portland Harbor - RI Direction Documents - Section 1.	36	1 EML / Email	R10: Koch, Kristine, M (EPA)	R10: Woronets, Jennifer (Anchor QEA, LLC)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100006871	4/27/2015	Portland Harbor RI/FS Draft Final Remedial Investigation Report Section 1 - koch CLEAN_2012-01-13_DF_RI_Sec1_Introduction_Text.	121	7 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100006872	4/27/2015	Portland Harbor RI/FS Draft Final Remedial Investigation Report Section 1 - koch_2012-01-13_DF_RI_Sec1_Introduction_Text.	218	15 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100007021	4/27/2015	Email regarding Portland Harbor - RI Direction Documents - Section 5.	36	1 EML / Email	R10: Koch, Kristine, M (EPA)	R10: Woronets, Jennifer (Anchor QEA, LLC)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100007024	4/27/2015	Portland Harbor RI/FS Draft Final Remedial Investigation Report Section 5.5 - Rev 1 2014-06-16_DF_RI_Sec5.5_Text_EPA_Integral.	264	14 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100007025	4/27/2015	Portland Harbor RI/FS Draft Final Remedial Investigation Report Section 5 - Rev 1 2014-07-15_DF_RI_Sec5.0_5.1_Text_EPA_Integral.	108	3 CORR / Correspondence	R10: Revelas, Gene (Integral Corporation)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100007026	4/27/2015	Portland Harbor RI/FS Draft Final Remedial Investigation Report Section 5.2 - Rev 1 2014-07-15_DF_RI_Sec5.2_Text_EPA_Integral.	683	66 CORR / Correspondence	R10: Browning, Sandy (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)

100007027	4/27/2015	Portland Harbor RI/FS Draft Final Remedial Investigation Report Section 5.3 - Rev 1 2014-07-15_DF RI_Sec5.3_Text_EPA_Integral.	262	17	CORR / Correspondence	R10: Revelas, Gene (Integral Corporation)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100007029	4/27/2015	Portland Harbor RI/FS Draft Final Remedial Investigation Report Section 5.4 - Rev 1 2014-07-22_DF RI_Sec5.4_Text_EPA_Integral.	605	49	CORR / Correspondence	R10: Koch, Kristine, M (EPA)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100007030	4/27/2015	Portland Harbor RI/FS Draft Final Remedial Investigation Report Section 5.6 - Rev 1 2014-08-04_DF RI_Sec5.6_Text_EPA_Integral.	588	77	CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100007031	4/27/2015	Portland Harbor RI/FS Draft Final Remedial Investigation Report Section 5.5 - Rev 1 CLEAN 2014-06-16_DF RI_Sec5.5_Text_EPA_Integral.	185	13	CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100007032	4/27/2015	Portland Harbor RI/FS Draft Final Remedial Investigation Report Section 5 - Rev 1 CLEAN 2014-07-15_DF RI_Sec5.0_5.1_Text_EPA_Int.	102	3	CORR / Correspondence	R10: Revelas, Gene (Integral Corporation)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100007033	4/27/2015	Portland Harbor RI/FS Draft Final Remedial Investigation Report Section 5 - Rev 1 CLEAN 2014-07-15_DF RI_Sec5.0_5.1_Text_EPA_Integral.	102	3	CORR / Correspondence	R10: Revelas, Gene (Integral Corporation)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100007034	4/27/2015	Portland Harbor RI/FS Draft Final Remedial Investigation Report Section 5.2 - Rev 1 CLEAN 2014-07-15_DF RI_Sec5.2_Text_EPA_Integral.	600	66	CORR / Correspondence	R10: Browning, Sandy (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100007035	4/27/2015	Portland Harbor RI/FS Draft Final Remedial Investigation Report Section 5.3 - Rev 1 CLEAN 2014-07-15_DF RI_Sec5.3_Text_EPA_Integral.	228	17	CORR / Correspondence	R10: Revelas, Gene (Integral Corporation)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100007036	4/27/2015	Portland Harbor RI/FS Draft Final Remedial Investigation Report Section 5.4 - Rev 1 CLEAN 2014-07-22_DF RI_Sec5.4_Text_EPA_Integral.	471	46	CORR / Correspondence	R10: Koch, Kristine, M (EPA)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100007037	4/27/2015	Portland Harbor RI/FS Draft Final Remedial Investigation Report Section 5.6 - Rev 1 CLEAN 2014-08-04_DF RI_Sec5.6_Text_EPA_Integral.	485	77	CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100007038	4/27/2015	Remedial Investigation Section 5 Matrix of Tables, Figures and Maps - Rev 4 PH RI Section 5 Matrix of Tables, Figures, and Maps.	1,256	90	CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100007039	4/27/2015	Remedial Investigation Section 5 Matrix of Tables, Figures, Maps - Rev 4 PH RI Section 5 Matrix of Tables, Figures, Maps.	1,256	90	CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100007040	4/27/2015	Remedial Investigation Section 5.4 Tables - Section 5.4_tables.	6,308	174	CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100007041	4/27/2015	Table 5.1-3 Basis for screening of COIs due to co-location - Table 5.1-3.	70	1	CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100007042	4/27/2015	Table 5.3-1 Average Heights of Sediment collected in Sediment Traps Deployed in Willamette - Table 5.3-1.	82	2	CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100007043	4/27/2015	Email regarding Portland Harbor - RI Direction Documents - Appendix H Files (1 of 3).	36	1	EML / Email	R10: Koch, Kristine, M (EPA)	R10: Woronets, Jennifer (Anchor QEA, LLC)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100007044	4/27/2015	Nonparametric Background Statistics for Data Sets with Non-Detects - Aroclor BTV full.	51	1	CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100007045	4/27/2015	Goodness-of-Fit Test Statistics for Data Sets with Non-Detects - Aroclor GOF full.	59	2	CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100007046	4/27/2015	Outlier Tests for Selected Variables replacing nondetects with 1/2 the Detection Limits - Aroclor outliers.	47	1	CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100007061	4/27/2015	Nonparametric UCL Statistics for Data Sets with Non-Detects - Aroclor UCL full.	47	1	CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100007062	4/27/2015	Nonparametric Background Statistics for Data Sets with Non-Detects - Aroclor-4 BTV.	47	1	CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100007063	4/27/2015	Goodness-of-Fit Test Statistics for Data Sets with Non-Detects - Aroclor-4 outliers.	59	2	CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100007064	4/27/2015	Nonparametric UCL Statistics for Data Sets with Non-Detects - Aroclor-4 UCL.	46	1	CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100007065	4/27/2015	Nonparametric Background Statistics for Data Sets with Non-Detects - Aroclor-6 BTV.	47	1	CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100007066	4/27/2015	Nonparametric UCL Statistics for Data Sets with Non-Detects - Aroclor-6 UCL.	47	1	CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100007067	4/27/2015	Background Statistics for Data Sets with Non-Detects - Aroclor-23 5 outliers BTV.	73	3	CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100007068	4/27/2015	Goodness-of-Fit Test Statistics for Data Sets with Non-Detects - Aroclor-23 5 outliers GOF.	60	2	CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100007069	4/27/2015	UCL Statistics for Data Sets with Non-Detects - Aroclor-23 5 outliers UCL.	88	2	CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100007070	4/27/2015	Background Statistics for Data Sets with Non-Detects - Aroclor-23 BTV 4 outliers.	73	3	CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100007071	4/27/2015	Nonparametric Background Statistics for Data Sets with Non-Detects - Aroclor-23 BTV 6 outliers.	47	1	CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100007072	4/27/2015	Background Statistics for Data Sets with Non-Detects - Aroclor-23 BTV 8 outliers.	73	3	CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100007073	4/27/2015	Background Statistics for Data Sets with Non-Detects - Aroclor-23 BTV full.	70	2	CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100007074	4/27/2015	Outlier Tests for Selected Variables replacing nondetects with 1/2 the Detection Limits - Aroclor-23 Outlier.	47	1	CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100007075	4/27/2015	Outlier Tests for Selected Variables replacing nondetects with 1/2 the Detection Limits - Aroclor-23 outliers 9-16-14.	47	1	CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100007076	4/27/2015	Outlier Tests for Selected Variables replacing nondetects with 1/2 the Detection Limits - Aroclor-23 outliers.	47	1	CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100007077	4/27/2015	Q-Q Plot for Aroclor - Aroclor-23 Q-Q.	124	1	CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100007078	4/27/2015	UCL Statistics for Data Sets with Non-Detects - Aroclor-23 UCL 4 outliers.	88	2	CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100007079	4/27/2015	Nonparametric UCL Statistics for Data Sets with Non-Detects - Aroclor-23 UCL 6 outliers.	46	1	CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)



100007166	Email regarding Portland Harbor - RI Direction Documents - Section 4.	4/27/2015	36	1 EML / Email	R10: Koch, Kristine, M (EPA)	R10: Woronets, Jennifer (Anchor QEA, LLC)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100006793	Email regarding Portland Harbor - EPA Direction on Remedial Investigation Report.	4/29/2015	70	1 EML / Email	R10: Mckenna, James (Verdant Solutions, LLC)	R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100007081	Email regarding Portland Harbor - EPA Direction on Remedial Investigation Report.	4/29/2015	71	2 EML / Email	R10: Mckenna, James (Verdant Solutions, LLC)	R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100006876	Email regarding Portland Harbor - EPA Direction on Remedial Investigation Report. May 7 2015 References request to EPA - 2015-05-08 kk Portland Harbor RI References	4/30/2015	73	2 EML / Email	R10: Koch, Kristine, M (EPA)	R10: Mckenna, James (Verdant Solutions, LLC)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100006881	May 7 2015 References request to EPA - Portland Harbor RI References Requests.	5/7/2015	107	1 CORR / Correspondence	R10: Fitzgerald, Susan (Integral Consulting, Inc.)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100006882	May 7 2015 References request to EPA - Portland Harbor RI References Requests.	5/7/2015	92	1 CORR / Correspondence	R10: Fitzgerald, Susan (Integral Consulting, Inc.)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100004529	UCL Statistics for Data Sets with Non-Detects.	5/8/2015	4,079	230 RPT / Report	R10: (Unknown)		ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100004670	Portland Harbor RI/FS Remedial Investigation Report Simplified Ecological CSM Figure 9.6-1.	5/8/2015	269	1 RPT / Report	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100006878	Email regarding Questions/Clarifications on EPA Direction.	5/8/2015	83	4 EML / Email	R10: Koch, Kristine, M (EPA)	R10: Revelas, Gene (Integral Corporation)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100006647	Email regarding Portland Harbor - EPA Direction on Remedial Investigation Report.	5/12/2015	75	2 EML / Email	R10: Koch, Kristine, M (EPA)	R10: Mckenna, James (Verdant Solutions, LLC)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100004570	Portland Harbor RI/FS Remedial Investigation Report Section 3 Figures.	5/13/2015	16,954	109 RPT / Report	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100004564	Portland Harbor RI/FS Remedial Investigation Report Section 2 Maps.	5/15/2015	31,234	110 RPT / Report	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100004568	Portland Harbor RI/FS Remedial Investigation Report Section 3.1 Maps.	5/15/2015	56,976	33 RPT / Report	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100004569	Portland Harbor RI/FS Remedial Investigation Report Section 3.2 Maps.	5/15/2015	47,594	68 RPT / Report	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100004574	Portland Harbor RI/FS Remedial Investigation Report Section 4 Maps.	5/15/2015	12,291	27 RPT / Report	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100006883	Email regarding Portland Harbor RI Executive Summary.	5/15/2015	69	1 EML / Email	R10: Mckenna, James (Verdant Solutions, LLC)	R10: Wyatt, Bob (Northwest Natural Gas Company), R10: Koch, Kristine, M (EPA), R10: Revelas, Gene (Integral Corporation)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100006885	Email regarding Draft Final RI; List of Topics for Conference Call Tomorrow.	5/15/2015	90	2 EML / Email	R10: Mckenna, James (Verdant Solutions, LLC)	R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100004470	Draft Final Portland Harbor RI/FS Remedial Investigation Report Appendix D1.5: Patterns and Trends of PCBs, PCDD/Fs, DDx, and PAHs in Bedded Sediment.	5/26/2015	163	14 RPT / Report	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100006886	Email regarding Question on Appendix D5 contents.	5/28/2015	72	2 EML / Email	R10: Mckenna, James (Verdant Solutions, LLC)	R10: Koch, Kristine, M (EPA), R10: Revelas, Gene (Integral Corporation)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100006887	Email regarding Follow-up re Ecological Significance.	6/2/2015	109	2 EML / Email	R10: Koch, Kristine, M (EPA)	R10: Allen, Elizabeth (EPA), R10: Mckenna, James (Verdant Solutions, LLC)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100006888	Email regarding Proposed Exec Summary revisions for discussion.	6/2/2015	67	1 EML / Email	R10: Koch, Kristine, M (EPA)	R10: Revelas, Gene (Integral Corporation)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100004449	Draft Final Table C1-1. LWG Summary Statistics for Sediment Trap and Stormwater based on Land Use Type.	6/3/2015	3,401	84 RPT / Report	R10: (Lower Willamette Group)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100004608	Portland Harbor RI/FS Remedial Harbor Report Section 5.6 Maps.	6/3/2015	19,619	54 RPT / Report	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100004672	Draft Final Portland Harbor RI/FS Remedial Investigation Report Section 9 - Clean.	6/3/2015	256	15 RPT / Report	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100004673	Draft Final Portland Harbor RI/FS Remedial Investigation Report Section 9 -Redline.	6/3/2015	399	21 RPT / Report	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100004563	Portland Harbor RI/FS Remedial Investigation Report Section 2 Figures.	6/4/2015	655	5 RPT / Report	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100004606	Portland Harbor RI/FS Remedial Investigation Report Section 5.2 Maps.	6/4/2015	41,611	335 RPT / Report	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100004560	Map 1.0-1 Portland Harbor RI/FS Remedial Investigation Report Portland Harbor Study Area and Vicinity.	6/8/2015	875	1 FIG / Figure/Map/ Drawing	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100004675	Portland Harbor RI/FS Remedial Investigation Report Section 10 Maps.	6/8/2015	70,594	40 RPT / Report	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100004461	Draft Final Portland Harbor RI/FS Remedial Investigation Report Appendix C2 Figures.	6/9/2015	74,596	228 RPT / Report	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100004444	Draft Final Portland Harbor RI/FS Remedial Investigation Report Appendix A1: Chemistry Survey Descriptions for Data Collected by Other Parties - Combined.	6/12/2015	1,670	166 RPT / Report	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100004445	Draft Final Portland Harbor RI/FS Remedial Investigation Report Appendix A1: Chemistry Survey Descriptions for Data Collected by Other Parties - Clean.	6/12/2015	1,564	134 RPT / Report	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100004446	Draft Final Portland Harbor RI/FS Remedial Investigation Report Appendix A1: Chemistry Survey Descriptions for Data Collected by Other Parties - Redline.	6/12/2015	1,436	140 RPT / Report	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100004447	Draft Final Portland Harbor RI/FS Remedial Investigation Report Appendix A3: SCRA Database and Data Management -Redline.	6/12/2015	287	22 RPT / Report	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100004448	Draft Final Portland Harbor RI/FS Remedial Investigation Report Appendix B: DEQ September 2010 Milestone Report Table 1.	6/12/2015	355	27 RPT / Report	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100004460	Draft Final Portland Harbor RI/RS Remedial Investigation Report Appendix C2, Attachment 1: High-Priority Site Excluded from the Groundwater Pathway Assessment.	6/12/2015	9,010	3850 RPT / Report	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100004462	Draft Final Portland Harbor RI/FS Remedial Investigation Report Appendix C Tables.	6/12/2015	1,874	76 RPT / Report	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100004463	Draft Final Portland Harbor RI/FS Remedial Investigation Report Appendix C2 Groundwater Pathway Assessment and Geochemical Analysis.	6/12/2015	1,153	169 RPT / Report	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100004464	Draft Final Portland Harbor RI/FS Remedial Investigation Report Appendix D: In-River Distribution of Contaminants in Biotic and Abiotic Media.	6/12/2015	22	2 RPT / Report	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)



100004465	6/12/2015	Draft Final Portland Harbor RI/FS Remedial Investigation Report Appendix D1.1: Contaminant and Physical Parameters in Bedded Sediment - Figures.	7,527	111 RPT / Report	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100004466	6/12/2015	Draft Final Portland Harbor RI/FS Remedial Investigation Report Appendix D1.2: Contaminant and Physical Parameters in Bedded Sediment - Maps.	64,810	543 RPT / Report	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100004467	6/12/2015	Draft Final Portland Harbor RI/FS Remedial Investigation Report Appendix D1.3: Summary Statistics for all COIs and Physical Parameters in Bedded Sediment - Tables.	6,316	244 RPT / Report	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100004468	6/12/2015	Draft Final Portland Harbor RI/FS Remedial Investigation Report Appendix D1.4 Comparison and Use of PCB Aroclor and Congener Data.	663	30 RPT / Report	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100004469	6/12/2015	Draft Final Portland Harbor RI/FS Remedial Investigation Report Appendix D1.5: Patterns and Trends of PCBs, PCDD/Fs, DDx, and PAHs in Bedded Sediment.	4,115	76 EML / Email			ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100004471	6/12/2015	Draft Final Portland Harbor RI/FS Remedial Investigation Report Appendix D2.1: Contaminant and Physical Parameters in Sediment Traps - Figures.	2,241	49 RPT / Report	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100004472	6/12/2015	Draft Final Portland Harbor RI/FS Remedial Investigation Report Appendix D2.2: Contaminant Summary Statistics in Sediment Traps - Tables.	2,083	49 RPT / Report	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100004473	6/12/2015	Draft Final Portland Harbor RI/FS Remedial Investigation Report Appendix D2.3: Patterns and Trends of PCBs, PCDD/Fs, DDx, and PAHs in Sediment Traps.	801	25 RPT / Report	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100004512	6/12/2015	Draft Final Portland Harbor RI/FS Remedial Investigation Report Appendix D2.3: Patterns and Trends of PCBs, PCDD/Fs, DDx, and PAHs in Sediment Traps.	137	10 RPT / Report	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100004513	6/12/2015	Draft Final Portland Harbor RI/FS Remedial Investigation Report Appendix D3.1 Contaminants in Surface Water - Figures.	282	13 RPT / Report	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100004514	6/12/2015	Draft Final Portland Harbor RI/FS Remedial Investigation Report Appendix D3.2: Contaminant Summary Statistics in Surface Water - Tables.	2,616	148 RPT / Report	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100004515	6/12/2015	Draft Final Portland Harbor RI/FS Remedial Investigation Report Appendix D3.3: Patterns and Trends of PCBs, PCDD/Fs, DDx, and PAHs in Surface Water.	437	20 RPT / Report	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100004516	6/12/2015	Draft Final Portland Harbor RI/FS Remedial Investigation Report Appendix D3.3: Patterns and Trends of PCBs, PCDD/Fs, DDx, and PAH in Surface Water.	128	11 RPT / Report	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100004517	6/12/2015	Draft Final Portland Harbor RI/FS Remedial Investigation Report Appendix D4.1: Contaminant Summary Statistics for Transition Zone Water and Seeps - Tables.	279	6 RPT / Report	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100004518	6/12/2015	Draft Final Portland Harbor RI/FS Remedial Investigation Report Appendix D4.2: Contaminants in Transition Zone Water and Seeps - Maps.	4,545	61 RPT / Report	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100004519	6/12/2015	Draft Final Portland Harbor RI/FS Remedial Investigation Report appendix D4.3: Contaminants in Transition Zone Water and Seeps - Figures.	113	6 RPT / Report	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100004520	6/12/2015	Draft Final Portland Harbor RI/FS Remedial Investigation Report Appendix D4.4: Patterns and Trends of DDx, PAHs, and TPH in Transition Zone Water.	110	10 RPT / Report	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100004521	6/12/2015	Draft Final Portland Harbor RI/FS Remedial Investigation Report Appendix D5.1: Contaminant Summary Statistics in Biota - Tables.	840	25 RPT / Report	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100004522	6/12/2015	Draft Final Portland Harbor RI/FS Remedial Investigation Report Appendix D5.2: Contaminants in Biota - Figures.	379	56 RPT / Report	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100004523	6/12/2015	Draft Final Portland Harbor RI/FS Remedial Investigation Report Appendix D5.3: Patterns and Trends of PCBs, PCDD/Fs, DDx, and PAHs in Biota.	373	16 RPT / Report	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100004524	6/12/2015	Draft Final Portland Harbor RI/FS Remedial Investigation Report Appendix D5.3: Patterns and Trends of PDBs, PCDD/Fs, DDx, and PAHs in Biota.	95	8 RPT / Report	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100004525	6/12/2015	Final Draft Portland Harbor RI/FS Remedial Investigation Report Appendix E: Loading, Fate and Transport Supporting Information and Calculations.	39,418	1009 RPT / Report	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100004526	6/12/2015	Draft Final Portland Harbor RI/FS Remedial Investigation Report Appendix E: Loading, Fate and Transport Supporting Information and Calculations - Clean.	611	75 RPT / Report	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100004527	6/12/2015	Draft Final Portland Harbor RI/FS Remedial Investigation Report Appendix E: Loading, Fate and Transport Supporting Information and Calculations - Redline.	675	77 RPT / Report	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100004528	6/12/2015	Draft Final Portland Harbor RI/FS Remedial Investigation Report Appendix H: Background Supporting Information - Combined.	298	26 RPT / Report	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100004530	6/12/2015	Revised Draft Final Portland Harbor RI/FS Remedial Investigation Report Executive Summary - Clean.	179	17 RPT / Report	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100004531	6/12/2015	Revised Draft Final Portland Harbor RI/FS Remedial Investigation Report - Redline.	219	17 RPT / Report	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100004539	6/12/2015	Draft Final Portland Harbor RI/FS Remedial Investigation Report.	3,801	700 RPT / Report	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100004561	6/12/2015	Draft Final Portland Harbor RI/FS Remedial Investigation Report Introduction - Clean.	107	7 RPT / Report	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100004562	6/12/2015	Draft Final Portland Harbor Remedial Investigation Report Introduction - Redline.	138	7 RPT / Report	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100004565	6/12/2015	Draft Final Portland Harbor RI/FS Remedial Investigation Report Section 2 Tables.	2,156	120 RPT / Report	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100004566	6/12/2015	Draft Final Portland Harbor RI/FS Remedial Investigation Report Section 2 - Clean.	573	75 RPT / Report	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100004567	6/12/2015	Draft Final Portland Harbor RI/FS Remedial Investigation Report Section 2 - Redline.	1,548	85 RPT / Report	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100004571	6/12/2015	Draft Final Portland Harbor Remedial Investigation Report Section 3 Tables.	938	53 RPT / Report	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)

100004572	Draft Final Portland Harbor RI/FS Remedial Investigation Report Section 3 - Clean.	6/12/2015	802	95 RPT / Report	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100004575	Draft Final Portland Harbor RI/FS Remedial Investigation Report Section 4 Tables.	6/12/2015	1,600	114 RPT / Report	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100004576	Draft Final Portland Harbor Remedial Investigation Report Section 4 - Clean.	6/12/2015	439	40 RPT / Report	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100004577	Draft Final Portland Harbor RI/FS Remedial Investigation Report -Redline.	6/12/2015	534	42 RPT / Report	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100004609	Portland Harbor RI/FS Remedial Investigation Report Section 5 Figures.	6/12/2015	6,209	267 RPT / Report	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100004620	Draft Final Portland Harbor RI/FS Remedial Investigation Report Section 5 Tables.	6/12/2015	5,035	179 RPT / Report	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100004621	Draft Final Portland Harbor RI/FS Remedial Investigation Report Section 5 - Clean.	6/12/2015	1,407	210 RPT / Report	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100004622	Draft Final Portland Harbor RI/FS Remedial Investigation Report - Redline.	6/12/2015	2,047	217 RPT / Report	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100004624	Portland Harbor RI/FS Remedial Investigation Report Section 6 Maps.	6/12/2015	1,327	1 RPT / Report	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100004625	Draft final Portland Harbor RI/FS Remedial Investigation Report Section 6 Tables.	6/12/2015	702	32 RPT / Report	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100004626	Draft Final Portland Harbor Remedial Investigation Report - Redline.	6/12/2015	627	65 RPT / Report	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100004627	Draft Final Portland Harbor RI/FS Remedial Investigation Report - Clean.	6/12/2015	544	65 RPT / Report	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100004629	Portland Harbor RI/FS Remedial Investigation Report Section 7 Maps.	6/12/2015	1,148	2 RPT / Report	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100004630	Draft Final Portland Harbor RI/FS Remedial Investigation Report Section 7 Tables.	6/12/2015	116	2 RPT / Report	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100004631	Draft Final Portland Harbor RI/FS Remedial Investigation Report - Clean.	6/12/2015	120	9 RPT / Report	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100004632	Draft Final Portland Harbor RI/FS Remedial Investigation Report - Redline.	6/12/2015	144	9 RPT / Report	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100004633	Draft Final Portland Harbor RI/FS Remedial Investigation Report Section 8 Tables.	6/12/2015	121	6 RPT / Report	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100004634	Draft Final Portland Harbor RI/FS Remedial Investigation Report Section 8 - Clean.	6/12/2015	160	15 RPT / Report	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100004635	Draft Final Portland Harbor RI/FS Remedial Investigation Report Section 8 - Redline.	6/12/2015	190	15 RPT / Report	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100004671	Draft Final Portland Harbor RI/FS Remedial Investigation Report Section 9 Tables.	6/12/2015	243	10 RPT / Report	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100004676	Draft Final Portland Harbor RI/FS Remedial Investigation Report Section 10 - Clean.	6/12/2015	501	52 RPT / Report	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100004677	Draft Final Portland Harbor RI/FS Remedial Investigation Report Section 10 - Redline.	6/12/2015	594	53 RPT / Report	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100004678	Draft Final Portland Harbor RI/FS Remedial Investigation Report Section 11 References.	6/12/2015	354	48 RPT / Report	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100004679	Draft Final Portland Harbor RI/FS Remedial Investigation Report Section 12 - Glossary.	6/12/2015	158	15 RPT / Report	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100004680	Draft Final Portland Harbor RI/FS Remedial Investigation Report Appendix A3: SCRA Database and Data Management.	6/12/2015	217	18 RPT / Report	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100006889	Portland Harbor RI/FS Revised Draft Final Remedial Investigation Report Executive Summary - kk_2015_5_15_RI_Executive Summary_DRAFT_6-2-15.	6/12/2015	189	17 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100006892	Portland Harbor RI/FS Draft Final Remedial Investigation Report Section 7 - 5Tribes Comments on RI Section 7 IEC 31July2015.	6/12/2015	163	9 CORR / Correspondence	R10: , Judy, Breen (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100006893	Portland Harbor RI/FS Draft Final Remedial Investigation Report Section 8 - 5Tribes Comments on RI Section 8 IEC 31July2015.	6/12/2015	192	15 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100006895	Portland Harbor RI/FS Draft Final Remedial Investigation Report Section 10 - 5Tribes Comments on RI Section 10 IEC 31July2015.	6/12/2015	549	52 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100006894	Portland Harbor RI/FS Draft Final Remedial Investigation Report Section 9.0 - 5Tribes Comments on RI Section 9 IEC 31July2015.	7/17/2015	276	15 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100006896	Email regarding Comments on Portland Harbor draft Final RI.	8/10/2015	68	1 EML / Email	R10: Ridolfi, Callie (Ridolfi Engineers, Inc.)	R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100006897	Memorandum regarding Portland Harbor; Review of draft Final RI.	8/10/2015	146	3 CORR / Correspondence	R10: Ridolfi, Callie (Ridolfi Engineers, Inc.), R10: Dexter, Robert (Ridolfi, Inc.)	R10: Koch, Kristine, M (EPA), R10: Longoria, Rose (Yakama Nation)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100006889	Section 5.4 Tables - Section 5.4_tables.	11/5/2015	6,341	174 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100006797	Section 2 Study Area Investigation - kkocho_Section 2 STUDY AREA INVESTIGATION.	11/5/2015	1,211	78 CORR / Correspondence	R10: Koch, Kristine, M (EPA)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100006875	Portland Harbor RI/FS Ownership and Zoning 1-11/5/2015 2 Maps - Maps 1-3a-n.	11/5/2015	7,279	14 CORR / Correspondence	R10: (Lower Willamette Group), R10: (Integral Consulting, Inc.)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100007060	11/5/2015 Q-Q Plot for Aroclor - Aroclor Q-Q.	11/5/2015	126	1 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100003979	12/21/2015 Email regarding Portland Harbor RI Question.	12/21/2015	92	3 EML / Email	R10: Revelas, Gene (Integral Corporation)	R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100003980	12/21/2015 Email regarding Portland Harbor RI Question.	12/21/2015	50	1 EML / Email	R10: Wyatt, Robert, J (Northwest Natural Gas Company)	R10: Mckenna, Jim (Unknown), R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100006999	Attachment 1 List of Changes for Conditional Approval of the Portland Harbor RI Report - 2016-01-08 PH RI Conditional Approval Attach 1_Response.	1/8/2016	229	12 CORR / Correspondence	R10: Koch, Kristine, M (EPA)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100007059	Attachment 1 List of Changes for Conditional Approval of the Portland Harbor RI Report - 2016-01-08 Portland Harbor RI Conditional Approval Attach 1.	1/8/2016	17	6 CORR / Correspondence	R10: Koch, Kristine, M (EPA)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)

100007082	1/8/2016	Attachment 1 List of Changes for Conditional Approval of the Portland Harbor RI Report - 2016-01-08 PH RI Conditional Approval Attach 1.	78	6 CORR / Correspondence	R10: Koch, Kristine, M (EPA)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100007083	1/8/2016	Attachment 1 List of Changes for Conditional Approval of the Portland Harbor RI Report - 2016-01-08 PH RI Conditional Approval Attach 1_EPA.	150	17 CORR / Correspondence	R10: Koch, Kristine, M (EPA)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100007090	1/8/2016	Letter regarding Conditional Approval of the Draft Final Remedial Investigation Report dated June 12, 2015 - 2016-01-08 Portland Harbor RI Conditional Approval Letter.	362	2 CORR / Correspondence	R10: Koch, Kristine, M (EPA)	R10: Wyatt, Bob (Lower Willamette Group)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100007020	1/13/2016	Letter regarding EPA January 8, 2016 Draft Final Remedial Investigation Conditional Approval.	125	2 CORR / Correspondence	R10: Wyatt, Bob (Lower Willamette Group)	R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100003981	1/15/2016	Email regarding Portland Harbor RI.	43	1 EML / Email	R10: Wyatt, Robert, J (Northwest Natural Gas Company)	R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100003982	1/21/2016	Email regarding Portland Harbor RI.	77	2 EML / Email	R10: Dost, Patty (Pearl Legal Group PC)	R10: Cora, Lori, H (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100003983	1/21/2016	Email regarding Request for Extension.	50	1 EML / Email	R10: Wyatt, Robert, J (Northwest Natural Gas Company)	R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100003985	1/21/2016	Email regarding RI Title Page.	7	1 EML / Email	R10: Wyatt, Robert, J (Northwest Natural Gas Company)	R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100003986	1/22/2016	Email regarding Portland Harbor RI.	76	2 EML / Email	R10: Wyatt, Robert, J (Northwest Natural Gas Company)	R10: Cora, Lori, H (EPA), R10: Koch, Kristine, M (EPA), R10: Dost, Patty (Pearl Legal Group PC)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100003987	1/22/2016	Email regarding Portland Harbor RI.	80	2 EML / Email	R10: Dost, Patty (Pearl Legal Group PC)	R10: Cora, Lori, H (EPA), R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100003988	1/22/2016	Email regarding Portland Harbor RI.	79	2 EML / Email	R10: Koch, Kristine, M (EPA)	R10: Cora, Lori, H (EPA), R10: Dost, Patty (Pearl Legal Group PC)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100003502	1/25/2016	Email regarding Final RI Revisions.	102	4 EML / Email	R10: Koch, Kristine, M (EPA)	R10: Revelas, Gene (Integral Corporation)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100003520	1/25/2016	Email regarding Final RI Revisions.	81	3 EML / Email	R10: Koch, Kristine, M (EPA)	R10: Revelas, Gene (Integral Corporation)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100006898	1/29/2016	Email regarding Final RI electronic map files.	59	1 EML / Email	R10: Revelas, Gene (Integral Corporation)	R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100003503	2/3/2016	Email regarding spreadsheet regarding format of RI.	104	2 EML / Email	R10: Mott, Jen (Anchor QEA, LLC)	R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100003317	2/8/2016	Final Portland Harbor RI/FS, Remedial Investigation Report: Appendix B: DEQ September 2010 Milestone Report Table 1.	416	27 RPT / Report	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100003319	2/8/2016	Final Portland Harbor RI/FS, Remedial Investigation Report: Appendix C: Stormwater Statistics and Groundwater Characterization.	89,989	4408 RPT / Report	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100003323	2/8/2016	Final Portland Harbor RI/FS, Remedial Investigation Report: Appendix H: Background Supporting Information.	51	1 RPT / Report	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100003330	2/8/2016	Final Portland Harbor RI/FS, Remedial Investigation Report: Appendix E: Loading, Fate, and Transport Supporting Information and Calculations.	39,940	993 RPT / Report	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100003331	2/8/2016	Final Portland Harbor RI/FS, Remedial Investigation Report: Appendix F: Baseline Human Health Risk Assessment.	59,265	3206 RPT / Report	R10: (Kennedy Jenks Consultants)	R10: (EPA), R10: (The Lower Willamette Group)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100003504	2/8/2016	Email regarding Final Portland Harbor RI Posted.	46	1 EML / Email	R10: Revelas, Gene (Integral Corporation)	R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100006998	2/8/2016	Portland Harbor RI/FS Remedial Investigation Report Subsurface Sediment Chemistry Total PCBs Map 5.2-3a - RI Header Test Map.	320	1 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100007053	2/8/2016	Portland Harbor RI/FS Remedial Investigation Report Appendix D2.3 - 2016-01-08 Portland Harbor RI Appendix D2.3.	135	10 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100007054	2/8/2016	Portland Harbor RI/FS Remedial Investigation Report Appendix D3.3 - 2016-01-08 Portland Harbor RI Appendix D3.3.	124	10 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100007055	2/8/2016	Portland Harbor RI/FS Remedial Investigation Report Appendix D4.4 - 2016-01-08 Portland Harbor RI Appendix D4.4.	104	9 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100007056	2/8/2016	Portland Harbor RI/FS Remedial Investigation Report Appendix D5.3 - 2016-01-08 Portland Harbor RI Appendix D5.3.	92	8 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100007057	2/8/2016	Portland Harbor RI/FS Final Remedial Investigation Report Appendix E Attachment - 2016-01-08 Portland Harbor RI Appendix E Attachment 1.	179	7 CORR / Correspondence	R10: Allen, Elizabeth (EPA)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100007058	2/8/2016	Portland Harbor RI/FS Final Remedial Investigation Report Appendix E - 2016-01-08 Portland Harbor RI Appendix E.	572	66 CORR / Correspondence	R10: Allen, Elizabeth (EPA)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100007084	2/8/2016	Portland Harbor RI/FS Remedial Investigation Report Appendix D1.5 - 2016-01-08 Portland Harbor RI Appendix D1.5.	160	13 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100007091	2/8/2016	Portland Harbor RI/FS Final Remedial Investigation Report Executive Summary - 2016-01-08 Portland Harbor RI Executive Summary.	182	17 CORR / Correspondence	R10: Koch, Kristine, M (EPA)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100007092	2/8/2016	Portland Harbor RI/FS Final Remedial Investigation Report Section 1 - 2016-01-08 Portland Harbor RI Section 1 Text.	111	7 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100007093	2/8/2016	Portland Harbor RI/FS Final Remedial Investigation Report Section 2 - 2016-01-08 Portland Harbor RI Section 2 Text.	570	75 CORR / Correspondence	R10: Koch, Kristine, M (EPA)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100007094	2/8/2016	Portland Harbor RI/FS Final Remedial Investigation Report Section 3 - 2016-01-08 Portland Harbor RI Section 3 Text.	811	95 CORR / Correspondence	R10: Koch, Kristine, M (EPA)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100007098	2/8/2016	Portland Harbor RI/FS Final Remedial Investigation Report Table 7.3-1. Summary of Background Results, DryWeight and OC-Equivalent Concentrations - 2016-01-08 Portland Harbor RI Section 7 Table 7.3-1.	98	1 CORR / Correspondence	R10: Koch, Kristine, M (EPA)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100007099	2/8/2016	Portland Harbor RI/FS Final Remedial Investigation Report Section 7 - 2016-01-08 Portland Harbor RI Section 7 Text.	119	9 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100007101	2/8/2016	Portland Harbor RI/FS Final Remedial Investigation Report Section 8 - 2016-01-08 Portland Harbor RI Section 8 Text.	175	15 CORR / Correspondence	R10: Allen, Elizabeth (EPA)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100007102	2/8/2016	Portland Harbor RI/FS Final Remedial Investigation Report Table 9.11-1. Contaminants of Ecological Significance - 2016-01-08 Portland Harbor RI Section 9 Table 9.11-1.	170	1 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)

100004252	Q-Q Plot for DDx Reported values used for nondetects.	120	1	CHT / Chart/Table	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100004131	Q-Q Plot for Aroclor Reported values used for nondetects.	122	1	CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
713364	PORTLAND HARBOR RI/FS FINAL REMEDIATION INVESTIGATION REPORT APPENDIX F BASELINE HUMAN HEALTH RISK ASSESSMENT FINAL March 28, 2013.	1,243	141		R10: Unknown, Unknown (Kennedy/Jenks Consultants)	R10: Unknown, Unknown (Lower Willamette Group), R10: Unknown, Unknown (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
1432515	Final Remedial Investigation Report Appendix G Baseline Ecological Risk Assessment Final. Final, Volume I.	423,808	870	RPT / Report	R10: Unknown, Unknown (Windward Environmental, LLC.)	R10: Unknown, Unknown (Lower Willamette Group), R10: Unknown, Unknown (EPA Region 8)	PAPER DOCUMENT	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
1432516	Final Remedial Investigation Report Appendix G Baseline Ecological Risk Assessment Final. Final, Volume II Attachments.	86,232	1096	RPT / Report	R10: Unknown, Unknown (Windward Environmental, LLC.)	R10: Unknown, Unknown (Lower Willamette Group), R10: Unknown, Unknown (EPA Region 8)	PAPER DOCUMENT	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
1185904	Draft Technical Memorandum - Guidelines for Data Reporting, Data Averaging, and Treatment of Non-Detected Values for the Round 1 Database.	631	9	MEMO / Memorandum	R10: Unknown, Unknown (Kennedy/Jenks Consultants), R10: Unknown, Unknown (Windward Environmental, LLC.), R10: Unknown, Unknown (Integral Consulting, Inc.)	R10: Unknown, Unknown (Lower Willamette Group)	PAPER DOCUMENT	053-REMEDIATION/0531-Remedy Characterization/057-RI/FS (General)
1185908	Technical Memorandum - Process to Identify COPCs.	1,038	14	MEMO / Memorandum	R10: Unknown, Unknown (Kennedy/Jenks Consultants), R10: Unknown, Unknown (Windward Environmental, LLC.)	R10: Unknown, Unknown (Lower Willamette Group)	PAPER DOCUMENT	053-REMEDIATION/0531-Remedy Characterization/057-RI/FS (General)
1185910	Technical Memorandum 001: Hydrodynamic/Sedimentation Modeling for Lower Willamette River - Development of Modeling Approach.	3,563	54	MEMO / Memorandum	R10: Unknown, Unknown (West Consultants, Inc.)	R10: Unknown, Unknown (Lower Willamette Group)	PAPER DOCUMENT	053-REMEDIATION/0531-Remedy Characterization/057-RI/FS (General)
1185911	Memorandum 003: Hydrodynamic/Sedimentation Modeling for Lower Willamette River - WEST Responses to EPA's Comments of 4/29/04.	1,219	10	MEMO / Memorandum	R10: Walton, Raymond (West Consultants, Inc.)	R10: Martich, Tara (EPA)	PAPER DOCUMENT	053-REMEDIATION/0531-Remedy Characterization/057-RI/FS (General)
100017160	REDACTED Analysis of Chemical Contaminant Levels in Store-Bought Fish from Washington State.	28,869	411	LAWS / Laws/Regulations/Guidance	R10: McBride, David, E (Washington State Dept. of Health)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/059-Ecological Risk Assessment (General)
100017702	REDACTED Portland Harbor RI/FS. Round 3 lamprey (Lampetra sp.) phase 1 toxicity testing report.	4,944	188	LAWS / Laws/Regulations/Guidance	R10: Unknown, Unknown (Windward Environmental, LLC.)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/059-Ecological Risk Assessment (General)
100016293	3/4/2013 Email Regarding Food Web Model.	41	2	EML / Email	R10: Allen, Elizabeth (EPA)	R10: Mckenna, James (Verdant Solutions, LLC)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/059-Ecological Risk Assessment (General)
100016296	8/16/2013 Email Regarding Section 7: Follow-Up Questions from 8-14-13 Meeting.	42	2	EML / Email	R10: Allen, Elizabeth (EPA)	R10: Mckenna, James (Verdant Solutions, LLC)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/059-Ecological Risk Assessment (General)
100018164	4/20/2015 REDACTED Email Regarding Portland Harbor BERA Ecological TPH TRV Derivation.	76	6	EML / Email	R10: Allen, Elizabeth (EPA)	R10: Poulsen, Michael (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/059-Ecological Risk Assessment (General)
100016295	8/13/2015 Email Regarding Portland Harbor RAL Curve.	58	1	EML / Email	R10: Allen, Elizabeth (EPA)	R10: Poulsen, Michael (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/059-Ecological Risk Assessment (General)
100016294	8/20/2015 Email Regarding Portland Harbor HexaCDF Risk.	79	1	EML / Email	R10: Allen, Elizabeth (EPA)	R10: Poulsen, Michael (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/059-Ecological Risk Assessment (General)
500014544	6/22/1905 Biomonitoring of environmental status and trends (BEST) program: selected methods for monitoring chemical contaminants and their effects in aquatic ecosystems.	1,211	96	LAWS / Laws/Regulations/Guidance	R10: Schmitt, Christopher, J (U. S. Geological Survey), R10: Blazer, Vicki, S (U. S. Geological Survey), R10: Whyte, Jeff, J (University of Missouri), R10: Denslow, Nancy, D (U.S. Geological Survey), R10: Tillitt, Donald, E (U.S. Geological Survey), R10: Mcdonald, Kelly, K (U.S. Geological Survey), R10: Dethloff, Gail, M (U.S. Geological Survey), R10: Gross, Timothy, S (U.S. Geological Survey)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/059-Ecological Risk Assessment (General)
500018326	1/1/1956 Solubility of Lindane in H2O.	70	5	LAWS / Laws/Regulations/Guidance	R10: Ivanov, K, A (Unknown)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/059-Ecological Risk Assessment (General)
500016389	9/1/1961 Sturgeons.	948	10	LAWS / Laws/Regulations/Guidance	R10: Dees, Lola, T (U.S. Fish and Wildlife Service)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/059-Ecological Risk Assessment (General)
500015456	6/1/1979 Toxicity of organic chemicals to embryo-larval stages of fish.	2,688	71	LAWS / Laws/Regulations/Guidance	R10: Black, Jeffery, A (University of Kentucky), R10: Birge, Wesley, J (University of Kentucky), R10: Bruser, Donald, M (University of Kentucky)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/059-Ecological Risk Assessment (General)
500006101	10/1/1980 Ambient water quality criteria for DDT. EPA 440/5-80-038.	4,391	174	RPT / Report	R10: Unknown, Unknown (EPA)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/059-Ecological Risk Assessment (General)
500006105	10/1/1980 Ambient water quality criteria for naphthalene. EPA 440/5-80-059.	7,358	74	RPT / Report	R10: Unknown, Unknown (EPA)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/059-Ecological Risk Assessment (General)
500006106	10/1/1980 Ambient water quality criteria for polychlorinated biphenyls. EPA 440/5-80-068.	28,347	204	RPT / Report	R10: Unknown, Unknown (EPA)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/059-Ecological Risk Assessment (General)
500015459	10/1/1980 Ambient water quality criteria for DDT.	4,368	174	LAWS / Laws/Regulations/Guidance	R10: Unknown, Unknown (EPA)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/059-Ecological Risk Assessment (General)
500015460	10/1/1980 Ambient water quality criteria for polychlorinated biphenyls.	6,606	204	LAWS / Laws/Regulations/Guidance	R10: Unknown, Unknown (EPA)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/059-Ecological Risk Assessment (General)
500018320	10/1/1980 Ambient water quality criteria for hexachlorocyclohexane.	2,589	108	LAWS / Laws/Regulations/Guidance	R10: Unknown, Unknown (EPA)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/059-Ecological Risk Assessment (General)
500006107	1/1/1985 Ambient water quality criteria for cyanide - 1984. EPA 440/5-84-028.	6,327	66	RPT / Report	R10: Unknown, Unknown (EPA)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/059-Ecological Risk Assessment (General)
500015449	1/1/1985 Guideline for Deriving Numerical National Water Quality Criteria for the Protection of Aquatic Organisms and Their Uses.	415	59	LAWS / Laws/Regulations/Guidance	R10: Chapman, Gary, A (EPA), R10: Brungs, William, A (EPA), R10: Stephen, Charles, E (EPA), R10: Mount, Donald, I (EPA), R10: Hansen, David, J (EPA), R10: Gentile, John, R (EPA)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/059-Ecological Risk Assessment (General)
500018321	1/1/1986 Ambient water quality criteria for pentachlorophenol - 1986.	3,484	135	LAWS / Laws/Regulations/Guidance	R10: Unknown, Unknown (EPA)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/059-Ecological Risk Assessment (General)
500006108	2/1/1987 Ambient water quality criteria for zinc-1987. EPA-440/5-87-003.	23,542	215	RPT / Report	R10: Unknown, Unknown (EPA)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/059-Ecological Risk Assessment (General)
500017164	2/1/1988 Recommendations for and documentation of biological values for use in risk assessment.	11,205	395	LAWS / Laws/Regulations/Guidance	R10: Blackburn, X (EPA)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/059-Ecological Risk Assessment (General)
500011409	4/22/1991 Role of the Baseline Risk Assessment in Superfund Remedy Selection Decisions.	49	11	LAWS / Laws/Regulations/Guidance	R10: Clay, Donald, R (EPA)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/059-Ecological Risk Assessment (General)
500015348	8/1/1991 The Potential for Biological Effects of Sediment-Sorbed Contaminants Tested in the National Status and Trends Program.	7,462	233	LAWS / Laws/Regulations/Guidance	R10: Morgan, Lee, G (NOAA), R10: Long, Edward, R (NOAA)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/059-Ecological Risk Assessment (General)
500007444	10/1/1991 Preventing lead poisoning in young children: a statement by the Centers for Disease Control.	656	122	LAWS / Laws/Regulations/Guidance	R10: Roper, William, L (Centers for Disease Control), R10: Houk, Vernon, N (Centers for Disease Control), R10: Binder, Susan (Centers for Disease Control), R10: Unknown, Unknown (Centers for Disease Control), R10: Falk, Henry (Center for Environmental Health)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/059-Ecological Risk Assessment (General)
500006111	2/1/1992 Framework for ecological risk assessment. EPA/630/R-92/001.	944	57	RPT / Report	R10: Unknown, Unknown (EPA)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/059-Ecological Risk Assessment (General)



500011427	Supplemental Guidance to RAGS: Calculating the Concentration Term.	346	8 LAWS / Laws/Regulations/Guidance	R10: Unknown, Unknown (EPA)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/059-Ecological Risk Assessment (General)
500011428	Provisional Guidance for Quantitative Risk Assessment of Polycyclic Aromatic Hydrocarbons.	885	28 LAWS / Laws/Regulations/Guidance	R10: Unknown, Unknown (EPA)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/059-Ecological Risk Assessment (General)
500018322	9/1/1993 Ambient water quality criteria for aniline.	5,771	56 LAWS / Laws/Regulations/Guidance	R10: Unknown, Unknown (EPA)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/059-Ecological Risk Assessment (General)
500006115	Wildlife exposure factors handbook. EPA/600/R-93/187a: Volume I of II.	3,580	572 RPT / Report	R10: Unknown, Unknown (EPA)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/059-Ecological Risk Assessment (General)
500011429	Memorandum: OSWER Directive: Revised Interim Soil Lead Guidelines for CERCLA Sites and RCRA Corrective Action Facilities.	66	16 LAWS / Laws/Regulations/Guidance	R10: Laws, Elliott, P (EPA)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/059-Ecological Risk Assessment (General)
500006183	Great Lakes Water Quality Initiative technical support document for the procedure to determine bioaccumulation factors. EPA 820-B-95-005.	383	212 RPT / Report	R10: Unknown, Unknown (EPA)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/059-Ecological Risk Assessment (General)
500015729	Evaluation of field-generated accumulation factors for predicting the bioaccumulation potential of sediment-associated PAH compounds.	4,275	160 LAWS / Laws/Regulations/Guidance	R10: McFarland, Victor, A (U. S. Army Corps of Engineers)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/059-Ecological Risk Assessment (General)
500006186	Soil screening guidance: User's guide. Second edition. 9355.4-23.	981	89 RPT / Report	R10: Unknown, Unknown (EPA)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/059-Ecological Risk Assessment (General)
500007412	8/1/1996 Toxicological Profile for Endrin.	2,313	227 LAWS / Laws/Regulations/Guidance	R10: Spoo, Jerry, W (ATSDR), R10: Satcher, David (ATSDR), R10: Taylor, Jessilyn (ATSDR), R10: Kedderis, Lorrene Buckley (ATSDR)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/059-Ecological Risk Assessment (General)
500014282	8/1/1996 Status review of west coast steelhead.	41,376	275 LAWS / Laws/Regulations/Guidance	R10: Wainwright, Thomas, C (NOAA), R10: Bryant, Gregory, J (NOAA), R10: Lierheimer, Lisa, J (NOAA), R10: Busby, Peggy, J (NOAA), R10: Waples, Robin, S (NOAA), R10: Lagomarsino, Irma, V (NOAA), R10: Waknitz, F. William (NOAA)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/059-Ecological Risk Assessment (General)
500014487	National list of plant species that occur in wetlands: a 1996 national summary.	643	209 LAWS / Laws/Regulations/Guidance	R10: Unknown, Unknown (U.S. Fish and Wildlife Service)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/059-Ecological Risk Assessment (General)
500006184	Ecological risk assessment guidance for Superfund: Process for designing and conducting ecological risk assessments. EPA/540/R-97/006. Interim final.	1,801	229 RPT / Report	R10: Unknown, Unknown (EPA)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/059-Ecological Risk Assessment (General)
500015195	Ecological Risk Assessment Guidance for Superfund: Process for Designing and Conducting Ecological Risk Assessments - Interim Final.	1,809	230 LAWS / Laws/Regulations/Guidance	R10: Sprenger, Mark, D (EPA), R10: Charters, David, W (EPA)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/059-Ecological Risk Assessment (General)
500006187	Rules of thumb for Superfund remedy selection. EPA 540-R-97-013; OSWER 9355.0-69.	121	27 RPT / Report	R10: Unknown, Unknown (EPA)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/059-Ecological Risk Assessment (General)
500011457	8/1/1997 Exposure Factors Handbook.	7,996	1193 LAWS / Laws/Regulations/Guidance	R10: Unknown, Unknown (EPA)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/059-Ecological Risk Assessment (General)
500011458	Should I Eat the Fish I Catch? A guide to healthy eating of the fish you catch.	130	2 LAWS / Laws/Regulations/Guidance	R10: Unknown, Unknown (EPA)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/059-Ecological Risk Assessment (General)
500013497	1/1/1998 Stilt sandpiper (Calidris himantopus).	112	3 LAWS / Laws/Regulations/Guidance	R10: Jehl, Joseph, R (Unknown), R10: Klima, Joanna (Unknown)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/059-Ecological Risk Assessment (General)
500012920	Evaluation of dredged material proposed for discharge in waters of the U.S. - testing manual: Inland Testing Manual.	5,854	176 EML / Email	R10: Unknown, Unknown (EPA), R10: Unknown, Unknown (U.S. Army Corps of Engineers)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/059-Ecological Risk Assessment (General)
500015237	Evaluation of Dredged Material Proposed for Discharge in Waters of the U.S. - Testing Manual.	5,856	176 LAWS / Laws/Regulations/Guidance	R10: Unknown, Unknown (EPA), R10: Unknown, Unknown (U.S. Army Corps of Engineers)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/059-Ecological Risk Assessment (General)
500006189	Guidelines for ecological risk assessment. EPA/630/R-95/002 F. Risk Assessment Forum.	883	188 RPT / Report	R10: Unknown, Unknown (EPA)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/059-Ecological Risk Assessment (General)
500014285	Guidance for ecological risk assessment: levels I, II, III, IV.	336	88 LAWS / Laws/Regulations/Guidance	R10: Unknown, Unknown (Oregon Dept. of Environmental Quality)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/059-Ecological Risk Assessment (General)
500011459	Memorandum: OSWER Directive: Clarification to the 1994 Revised Interim Soil Lead (Pb) Guidance for CERCLA Sites and RCRA Correction Action Facilities.	82	16 LAWS / Laws/Regulations/Guidance	R10: Unknown, Unknown (EPA)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/059-Ecological Risk Assessment (General)
500012944	Beyond thresholds: using logistic regression models to estimate the probability of toxicity from sediment chemistry.	11,892	3 LAWS / Laws/Regulations/Guidance	R10: Field, Jay (NOAA), R10: Ingersoll, Christopher, G (U. S. Geological Survey), R10: Macdonald, Donald, D (MacDonald Environmental Sciences, Ltd.), R10: Severn, Corinne (EVS Consultants, Inc.)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/059-Ecological Risk Assessment (General)
500013029	The importance of surface water/groundwater interactions issue paper.	1,965	22 LAWS / Laws/Regulations/Guidance	R10: Gardner, Kerianne (EPA)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/059-Ecological Risk Assessment (General)
500011460	A Guide to Preparing Superfund Proposed Plans, Records of Decision, and Other Remedy Selection Decision Documents.	6,376	182 LAWS / Laws/Regulations/Guidance	R10: Unknown, Unknown (EPA)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/059-Ecological Risk Assessment (General)
500006217	USEPA contract laboratory program national functional guidelines for organic data review. EPA-540/R-99/008.	516	125 LAWS / Laws/Regulations/Guidance	R10: Unknown, Unknown (EPA)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/059-Ecological Risk Assessment (General)
500006192	Issuance of Final Guidance: Ecological Risk Assessment and Risk Management Principles for Superfund Sites	131	9 CORR / Correspondence	R10: Luftig, Stephen, D (EPA)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/059-Ecological Risk Assessment (General)
500011502	Data Quality Objectives Process for Hazardous Waste Site Investigations.	487	143 LAWS / Laws/Regulations/Guidance	R10: Unknown, Unknown (EPA)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/059-Ecological Risk Assessment (General)
500005250	Health of bullhead in an urban fishery after remedial dredging. Final report, January 31, 2000. Prepared for Great Lakes National Program Office, US Environmental Protection Agency [online]. US Geological Survey Field Research Station.	205	10 RPT / Report	R10: Unknown, Unknown (EPA)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/059-Ecological Risk Assessment (General)
500018586	6/6/2000 The river otter.	109	4 LAWS / Laws/Regulations/Guidance	R10: Unknown, Unknown (Nebraska Game and Parks Commission)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/059-Ecological Risk Assessment (General)
500006271	Supplementary guidance for conducting health risk assessment of chemical mixtures. EPA/630/R-00/002. Risk Assessment Forum.	1,435	209 LAWS / Laws/Regulations/Guidance	R10: Unknown, Unknown (EPA)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/059-Ecological Risk Assessment (General)
500011564	Estimated Per Capita Fish Consumption in the United States.	2,752	262 LAWS / Laws/Regulations/Guidance	R10: Unknown, Unknown (EPA)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/059-Ecological Risk Assessment (General)
500006225	Soil screening guidance for radionuclides: user's guide. EPA/540-R-00-007.	1,535	88 LAWS / Laws/Regulations/Guidance	R10: Unknown, Unknown (EPA)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/059-Ecological Risk Assessment (General)
500011501	Methodology for Deriving Ambient Water Quality Criteria for the Protection of Human Health.	806	185 LAWS / Laws/Regulations/Guidance	R10: Grubbs, Geoffrey, H (EPA)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/059-Ecological Risk Assessment (General)
500006222	Guidance for assessing chemical contaminant data for use in fish advisories. Volume 1: Fish sampling and analysis. Third ed. EPA 823-B-00-007.	3,959	485 LAWS / Laws/Regulations/Guidance	R10: Unknown, Unknown (EPA)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/059-Ecological Risk Assessment (General)
500011500	Guidance for Assessing Chemical Contaminant Data for Use in Fish Advisories, Volume 1, Fish Sampling and Analysis, Third Edition.	3,215	485 LAWS / Laws/Regulations/Guidance	R10: Unknown, Unknown (EPA)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/059-Ecological Risk Assessment (General)

500016004	1/1/2001	Willamette River bass diet study - spring 2000. No. 2001-04.	2,545	21 LAWS / Laws/Regulations/Guidance	R10: Summers, Jodene (Oregon Dept. of Fish and Wildlife), R10: Daily, Kin (Oregon Dept. of Fish and Wildlife)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remediation Characterization/059-Ecological Risk Assessment (General)
500014288	2/1/2001	Fisheries management and evaluation plan: Upper Willamette River spring chinook in freshwater fisheries of the Willamette basin and lower Columbia River mainstem.	878	67 LAWS / Laws/Regulations/Guidance	R10: Unknown, Unknown (Oregon Dept. of Environmental Quality)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remediation Characterization/059-Ecological Risk Assessment (General)
500011562	5/1/2001	Dioxin Reassessment - An SAB Review of the Office of Research and Development's Reassessment of Dioxin Review of the Revised Sections (Dose Response Modeling, Integrated Summary, Risk Characterization, and Toxicity Equivalency Factors).	178	80 LAWS / Laws/Regulations/Guidance	R10: Lippmann, Morton (EPA), R10: Glaze, William (EPA)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remediation Characterization/059-Ecological Risk Assessment (General)
500014293	6/1/2001	Aquatic plant sampling protocols.	654	35 LAWS / Laws/Regulations/Guidance	R10: Unknown, Unknown (Washington State Dept. of Ecology)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remediation Characterization/059-Ecological Risk Assessment (General)
500011503	8/1/2001	Trichloroethylene Health Risk Assessment: Synthesis and Characterization External Review Draft.	769	153 LAWS / Laws/Regulations/Guidance	R10: Caldwell, Jane, C (EPA), R10: Scott, Cheryl Siegel (EPA), R10: Cogliano, V. James (EPA)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remediation Characterization/059-Ecological Risk Assessment (General)
500012947	10/30/2001	Eastbank riverfront (phase I) floating walkway fish predation study: data summary, spring 1999 sampling season.	2,821	30 LAWS / Laws/Regulations/Guidance	R10: Unknown, Unknown (Fishman Environmental Services, LLC)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remediation Characterization/059-Ecological Risk Assessment (General)
500015643	10/31/2001	Eastbank riverfront (phase I) floating walkway fish predation study: final report and data summary, 1999 and 2000 sampling seasons.	2,821	30 LAWS / Laws/Regulations/Guidance	R10: Unknown, Unknown (Fishman Environmental Services, LLC)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remediation Characterization/059-Ecological Risk Assessment (General)
500011525	12/1/2001	Risk Assessment Guidance for Superfund, Volume 3, Part A: Process for Conducting Probabilistic Risk Assessment.	8,038	385 LAWS / Laws/Regulations/Guidance	R10: Unknown, Unknown (EPA)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remediation Characterization/059-Ecological Risk Assessment (General)
500015734	2/1/2002	Relationships between bank treatment/nearshore development and anadromous/resident fish in the lower Willamette River. Annual progress report, May 2000-June 2001. Draft.	7,042	130 LAWS / Laws/Regulations/Guidance	R10: North, John, A (Oregon Dept. of Fish and Wildlife), R10: Farr, Ruth, A (Oregon Dept. of Fish and Wildlife), R10: Friesen, Thomas, A (Oregon Dept. of Fish and Wildlife), R10: Harrington, Jennifer, C (Oregon Dept. of Fish and Wildlife), R10: Burner, Lisa, C (Oregon Dept. of Fish and Wildlife), R10: Takata, Howard, K (Oregon Dept. of Fish and Wildlife), R10: Ward, David, L (Oregon Dept. of Fish and Wildlife), R10: Cunningham, Bonnie, S (Oregon Dept. of Fish and Wildlife)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remediation Characterization/059-Ecological Risk Assessment (General)
500011566	2/28/2002	Blood Lead Concentrations of U.S. Adult Females: Summary Statistics from Phases 1 and 2 of the National Health and Nutrition Evaluation Survey (NHANES III).	192	28 LAWS / Laws/Regulations/Guidance	R10: Thayer, William, C (Syracuse Research Corporation (SRC)), R10: Diamond, Gary, L (Syracuse Research Corporation (SRC))	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remediation Characterization/059-Ecological Risk Assessment (General)
500011499	3/1/2002	Estimated Per Capita Fish Consumption in the United States.	14,827	221 LAWS / Laws/Regulations/Guidance	R10: Unknown, Unknown (EPA)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remediation Characterization/059-Ecological Risk Assessment (General)
500014546	4/22/2002	Portland Harbor remedial investigation/feasibility study round 1 field sampling plan. Draft.	2,781	199 LAWS / Laws/Regulations/Guidance	R10: Unknown, Unknown (Lower Willamette Group)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remediation Characterization/059-Ecological Risk Assessment (General)
500006296	5/1/2002	Role of background in the CERCLA cleanup program. OSWER 9285.6-07P.	56	15 LAWS / Laws/Regulations/Guidance	R10: Cook, Michael, B (EPA)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remediation Characterization/059-Ecological Risk Assessment (General)
500011565	8/12/2002	Columbia River Basin Fish Contaminant Survey, 1996-1998.	827	284 LAWS / Laws/Regulations/Guidance	R10: Unknown, Unknown (EPA)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remediation Characterization/059-Ecological Risk Assessment (General)
500014908	9/1/2002	Illustrated field guide for assessing external and internal anomalies in fish.	17,644	56 LAWS / Laws/Regulations/Guidance	R10: Smith, Stephen, B (U.S. Geological Survey), R10: Schmitt, Christopher, J (U.S. Geological Survey), R10: Lipkin, Robin, J (U.S. Geological Survey), R10: Donahue, Anne, P (U.S. Geological Survey), R10: Blazer, Vicki, S (U.S. Geological Survey), R10: Goede, Ronald, W (U.S. Geological Survey)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remediation Characterization/059-Ecological Risk Assessment (General)
500015009	9/1/2002	Development of Freshwater Sediment Quality Values for Use in Washington State. Phase I, Task 6: Final Report.	316	73 LAWS / Laws/Regulations/Guidance	R10: Unknown, Unknown (Avocet Consulting), R10: Unknown, Unknown (Science Applications International Corporation)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remediation Characterization/059-Ecological Risk Assessment (General)
500015451	10/1/2002	Generic Endpoints for Ecological Risk Assessment.	729	77 LAWS / Laws/Regulations/Guidance	R10: Unknown, Unknown (EPA)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remediation Characterization/059-Ecological Risk Assessment (General)
500015461	11/1/2002	National recommended water quality criteria: 2002.	335	36 LAWS / Laws/Regulations/Guidance	R10: Unknown, Unknown (EPA)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remediation Characterization/059-Ecological Risk Assessment (General)
500006295	12/1/2002	Calculating upper confidence limits for exposure point concentrations at hazardous waste sites.	630	32 LAWS / Laws/Regulations/Guidance	R10: Unknown, Unknown (EPA)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remediation Characterization/059-Ecological Risk Assessment (General)
500011563	12/1/2002	Calculating Upper Confidence Limits for Exposure Point Concentrations at Hazardous Waste Sites.	598	32 LAWS / Laws/Regulations/Guidance	R10: Unknown, Unknown (EPA)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remediation Characterization/059-Ecological Risk Assessment (General)
500011569	1/1/2003	Recommendations of the Technical Review Workgroup for Lead for an Approach to Assessing Risks Associates with Adult Exposures to Lead in Soil.	719	62 LAWS / Laws/Regulations/Guidance	R10: Unknown, Unknown (EPA)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remediation Characterization/059-Ecological Risk Assessment (General)
500014283	2/1/2003	Relationships between bank treatment/nearshore development and anadromous/resident fish in the lower Willamette River. Annual progress report, May 2000-June 2001. Draft.	1,871	124 LAWS / Laws/Regulations/Guidance	R10: Farr, Ruth, A (Oregon Dept. of Fish and Wildlife), R10: Friesen, Thomas, A (Oregon Dept. of Fish and Wildlife), R10: Graham, Jennifer, C (Oregon Dept. of Fish and Wildlife), R10: Reesman, Martyne, J (Oregon Dept. of Fish and Wildlife), R10: Takata, Howard, K (Oregon Dept. of Fish and Wildlife), R10: Cunningham, Bonnie, S (Oregon Dept. of Fish and Wildlife), R10: Vile, John, S (Oregon Dept. of Fish and Wildlife)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remediation Characterization/059-Ecological Risk Assessment (General)
500014774	3/14/2003	Portland Harbor remedial investigation/feasibility study round 1 field sampling report.	202	44 LAWS / Laws/Regulations/Guidance	R10: Unknown, Unknown (Striplin Environmental Associates), R10: Unknown, Unknown (Anchor Environmental, LLC), R10: Unknown, Unknown (Kennedy/Jenks Consultants), R10: Unknown, Unknown (Windward Environmental, LLC.), R10: Unknown, Unknown (Fishman Environmental Services, LLC), R10: Unknown, Unknown (Ellis Environmental Services)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remediation Characterization/059-Ecological Risk Assessment (General)
500006298	4/1/2003	Analyses of laboratory and field studies of reproductive toxicity in birds exposed to dioxin-like compounds for use in ecological risk assessment. EPA/600/R-03/114F.	316	60 LAWS / Laws/Regulations/Guidance	R10: Unknown, Unknown (EPA)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remediation Characterization/059-Ecological Risk Assessment (General)
500011567	6/1/2003	National Primary Drinking Water Standards. HERD ecological risk assessment Note 3: Calculation of an action level/preliminary cleanup goal for dibutyltin (DBT) in surface, ground, and sediment interstitial water for protection of saltwater aquatic life.	160	5 LAWS / Laws/Regulations/Guidance	R10: Unknown, Unknown (EPA)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remediation Characterization/059-Ecological Risk Assessment (General)
500005388	9/2/2003	Risk-Based Decision Making for the Remediation of Petroleum-Contaminated Sites.	2,418	200 LAWS / Laws/Regulations/Guidance	R10: Unknown, Unknown (California Dept. of Toxic Substances Control)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remediation Characterization/059-Ecological Risk Assessment (General)
500011393	9/22/2003	Risk-Based Decision Making for the Remediation of Petroleum-Contaminated Sites.	2,418	200 LAWS / Laws/Regulations/Guidance	R10: Unknown, Unknown (Oregon Dept. of Environmental Quality)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remediation Characterization/059-Ecological Risk Assessment (General)
500015452	11/1/2003	Guidance for Developing Ecological Soil Screening Levels.	1,494	85 LAWS / Laws/Regulations/Guidance	R10: Unknown, Unknown (EPA)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remediation Characterization/059-Ecological Risk Assessment (General)

500006110	Ambient Aquatic Life Water Quality Criteria for Tributyltin (TBT) - Final EPA 822-R-03-031.	944	57 RPT / Report	R10: Unknown, Unknown (EPA)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/059-Ecological Risk Assessment (General)
500006297	Ambient aquatic life water quality criteria for tributyltin (TBT) - final.	387	138 LAWS / Laws/Regulations/Guidance	R10: Unknown, Unknown (EPA) R10: Unknown, Unknown (EPA), R10: Unknown, Unknown (U.S. Army Corps of Engineers)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/059-Ecological Risk Assessment (General)
500017166	Environmental residue-effects database.	45	1 LAWS / Laws/Regulations/Guidance		R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/059-Ecological Risk Assessment (General)
500011568	OSWER Directive 9285.7-53 Human Health Toxicity Values in Superfund Risk Assessment.	218	4 LAWS / Laws/Regulations/Guidance	R10: Cook, Michael, B (EPA)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/059-Ecological Risk Assessment (General)
500017158	ECOTOXicology database.	60	1 LAWS / Laws/Regulations/Guidance	R10: Unknown, Unknown (EPA)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/059-Ecological Risk Assessment (General)
500006305	An examination of EPA risk assessment principles and practices. EPA/100/B-04/001. Risk Assessment Guidance for Superfund, Volume 1, Human Health Evaluation Manual (Part E, Supplemental Guidance for Dermal Risk Assessment), Final.	1,277	193 LAWS / Laws/Regulations/Guidance	R10: Unknown, Unknown (EPA)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/059-Ecological Risk Assessment (General)
500011570	Considerations for developing problem formulations for ecological risk assessments conducted at contaminated sites under CERCLA.	3,055	156 LAWS / Laws/Regulations/Guidance	R10: Unknown, Unknown (EPA)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/059-Ecological Risk Assessment (General)
500006302	Considerations for Developing Problem Formulations for Ecological Risk Assessments Conducted at Contaminated Sites under CERCLA.	384	30 LAWS / Laws/Regulations/Guidance	R10: Unknown, Unknown (MacDonald Environmental Sciences, Ltd.), R10: Unknown, Unknown (CANTOX Environmental, Inc.)	R10: Greenberg, Marc, S (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/059-Ecological Risk Assessment (General)
500015238	The incidence and severity of sediment contamination in surface waters of the United States. National Sediment Quality Survey, second ed. EPA 823-R-04-007.	379	30 LAWS / Laws/Regulations/Guidance	R10: Unknown, Unknown (MacDonald Environmental Sciences, Ltd.), R10: Unknown, Unknown (CANTOX Environmental, Inc.)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/059-Ecological Risk Assessment (General)
500006306	The incidence and severity of sediment contamination in surface waters of the United States.	9,770	280 LAWS / Laws/Regulations/Guidance	R10: Unknown, Unknown (EPA)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/059-Ecological Risk Assessment (General)
500015268	Draft Aquatic Life Water Quality Criteria for Selenium - 2004.	11,184	280 LAWS / Laws/Regulations/Guidance	R10: Unknown, Unknown (EPA)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/059-Ecological Risk Assessment (General)
500015450	Canadian water quality guidelines for the protection of aquatic life: summary table.	888	334 LAWS / Laws/Regulations/Guidance	R10: Unknown, Unknown (EPA)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/059-Ecological Risk Assessment (General)
500015457	Ecological soil screening levels for antimony. Interim final. OSWER Directive 9285.7-61.	75	9 LAWS / Laws/Regulations/Guidance	R10: Unknown, Unknown (Canadian Council of Ministers of the Environment)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/059-Ecological Risk Assessment (General)
500006307	Biology, behavior, and resources of resident and anadomous fish in the Lower Willamette River Final Report of Research.	474	29 LAWS / Laws/Regulations/Guidance	R10: Unknown, Unknown (EPA)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/059-Ecological Risk Assessment (General)
500013028	Ecological soil screening levels for arsenic. Interim final. OSWER Directive 9285.7-62.	1,742	246 LAWS / Laws/Regulations/Guidance	R10: Friesen, Thomas, A (Oregon Department of Fish & Wildlife)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/059-Ecological Risk Assessment (General)
500006308	Ecological soil screening levels for cadmium. Interim final. OSWER Directive 9285.7-65.	934	128 LAWS / Laws/Regulations/Guidance	R10: Unknown, Unknown (EPA)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/059-Ecological Risk Assessment (General)
500006309	Ecological soil screening levels for chromium. Interim final. OSWER Directive 9285.7-66.	12,141	236 LAWS / Laws/Regulations/Guidance	R10: Unknown, Unknown (EPA)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/059-Ecological Risk Assessment (General)
500006310	Ecological soil screening levels for lead. Interim final. OSWER Directive 9285.7-70.	608	106 LAWS / Laws/Regulations/Guidance	R10: Unknown, Unknown (EPA)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/059-Ecological Risk Assessment (General)
500006311	Predicting toxicity to amphipods from sediment chemistry. EPA/600/R-04/030.	1,490	242 LAWS / Laws/Regulations/Guidance	R10: Unknown, Unknown (EPA)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/059-Ecological Risk Assessment (General)
500006347	Guidelines for Carcinogen Risk Assessment, Risk Assessment Forum.	1,556	212 LAWS / Laws/Regulations/Guidance	R10: Unknown, Unknown (EPA)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/059-Ecological Risk Assessment (General)
500011571	Supplemental Guidance for Assessing Susceptibility from Early-Life Exposure to Carcinogens.	408	166 LAWS / Laws/Regulations/Guidance	R10: Unknown, Unknown (EPA)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/059-Ecological Risk Assessment (General)
500011572	Purple loosestrife, Lythrum salicaria L.	1,331	125 LAWS / Laws/Regulations/Guidance	R10: Unknown, Unknown (EPA)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/059-Ecological Risk Assessment (General)
500014296	Oregon threatened and endangered species list.	114	3 LAWS / Laws/Regulations/Guidance	R10: Unknown, Unknown (Plant Conservation Alliance)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/059-Ecological Risk Assessment (General)
500014289	Development and evaluation of risk-based preliminary remediation goals for selected sediment-associated contaminants of concern in the West Branch of the Grand Calumet River.	50	3 LAWS / Laws/Regulations/Guidance	R10: Unknown, Unknown (Oregon Dept. of Environmental Quality)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/059-Ecological Risk Assessment (General)
500015270	REDACTED Analysis of Chemical Contaminant Levels in Store-Bought Fish from Washington State.	2,319	200 LAWS / Laws/Regulations/Guidance	R10: Unknown, Unknown (U.S. Fish and Wildlife Service)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/059-Ecological Risk Assessment (General)
100006131	Ambient water quality criteria: diazinon.	27,617	411 LAWS / Laws/Regulations/Guidance	R10: McBride, David, E (Washington State Dept. of Health)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/059-Ecological Risk Assessment (General)
500018323	Ambient water quality criteria: diazinon.	350	85 LAWS / Laws/Regulations/Guidance	R10: Unknown, Unknown (EPA)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/059-Ecological Risk Assessment (General)
500007414	Final Release: Public Health Assessment,	1,572	86 RPT / Report	R10: Unknown, Unknown (ATSDR)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/059-Ecological Risk Assessment (General)
500007450	River Concept.	7,473	36 RPT / Report	R10: Unknown, Unknown (City of Portland, Oregon)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/059-Ecological Risk Assessment (General)
500013491	RCRA facility investigation - remedial investigation/corrective measures study - feasibility study report for the Rocky Flats Environmental Technology site. Appendix A - comprehensive risk assessment. Volume 1 of 15: Executive summary.	1,353	32 LAWS / Laws/Regulations/Guidance	R10: Unknown, Unknown (U.S. Department of Energy)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/059-Ecological Risk Assessment (General)
500007447	City of Portland. 2006a. Comprehensive Plan Goals and Policies.	192	30 RPT / Report	R10: Unknown, Unknown (City of Portland, Oregon)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/059-Ecological Risk Assessment (General)
500015462	National recommended water quality criteria (4304T).	144	25 LAWS / Laws/Regulations/Guidance	R10: Unknown, Unknown (EPA)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/059-Ecological Risk Assessment (General)
500012095	Fish Advisories: Consumption Guidelines.	638	6 LAWS / Laws/Regulations/Guidance	R10: Unknown, Unknown (Oregon Department of Human Services)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/059-Ecological Risk Assessment (General)
500015241	Estimation Program Interface (EPI) Suite for Microsoft Windows, v. 3.20.	175	3 LAWS / Laws/Regulations/Guidance	R10: Unknown, Unknown (EPA)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/059-Ecological Risk Assessment (General)
500018324	Table 1. Acute toxicity of copper to freshwater animals, 2007 revision.	1,142	204 LAWS / Laws/Regulations/Guidance	R10: Unknown, Unknown (EPA)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/059-Ecological Risk Assessment (General)
500014286	Water pollution, Division 41, water quality standards: beneficial uses, policies, and criteria for Oregon.	237	64 LAWS / Laws/Regulations/Guidance	R10: Unknown, Unknown (Oregon Dept. of Environmental Quality)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/059-Ecological Risk Assessment (General)
500011573	ProUCL Version 4.00.02 User Guide.	7,416	239 LAWS / Laws/Regulations/Guidance	R10: Lee, Sanghee, E (Lockheed Martin Environmental Services), R10: Singh, Anita (Lockheed Martin Environmental Services), R10: Armbya, Narain (Lockheed Martin Environmental Services), R10: Maichle, Robert (Lockheed Martin Environmental Services), R10: Singh, Ashok, K (University of Nevada)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/059-Ecological Risk Assessment (General)

500012797	Ecological soil screening levels for DDT and metabolites. OSWER Directive 9285.7-57.	4/1/2007	834	134 LAWS / Laws/Regulations/Guidance	R10: Unknown, Unknown (EPA) R10: Lee, Sanghee, E (Lockheed Martin Environmental Services), R10: Singh, Anita (Lockheed Martin Environmental Services), R10: Armbya, Narain (Lockheed Martin Environmental Services), R10: Maichle, Robert (Lockheed Martin Environmental Services), R10: Singh, Ashok, K (University of Nevada), R10: Nocerino, John, M (EPA)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/059-Ecological Risk Assessment (General)
500012801	ProUCL Version 4.0. Statistical software for environmental applications for data sets with and without nondetect observations [online].	4/1/2007	7,551	239 LAWS / Laws/Regulations/Guidance	R10: Unknown, Unknown (Unknown)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/059-Ecological Risk Assessment (General)
500017165	Ecological soil screening levels for DDT and metabolites. Interim final.	4/1/2007	898	134 LAWS / Laws/Regulations/Guidance	R10: Unknown, Unknown (EPA)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/059-Ecological Risk Assessment (General)
500011406	Guidance for Assessing Bioaccumulative Chemicals of Concern in Sediment.	4/3/2007	593	89 LAWS / Laws/Regulations/Guidance	R10: Unknown, Unknown (Oregon Department of Environmental Quality)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/059-Ecological Risk Assessment (General)
100006095	REDACTED Portland Harbor RI/FS. Round 3 lamprey (Lampetra sp.) phase 1 toxicity testing report.	4/6/2007	4,513	188 LAWS / Laws/Regulations/Guidance	R10: Unknown, Unknown (Windward Environmental, LLC.)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/059-Ecological Risk Assessment (General)
500011575	User's Guide for the Integrated Exposure Uptake Biokinetic Model for Lead in Children (IEUBK), Windows version 1.1.	5/1/2007	480	59 LAWS / Laws/Regulations/Guidance	R10: Unknown, Unknown (Syracuse Research Corporation (SRC)) R10: Deligeannis, Casey (Washington State Dept. of Ecology), R10: Sandvik, Patti (Washington State Dept. of Ecology), R10: Seiders, Keith (Washington State Dept. of Ecology)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/059-Ecological Risk Assessment (General)
500012793	Washington State Toxics Monitoring Program: Contaminants in Fish Tissue from Freshwater Environments in 2004 and 2005.	6/1/2007	769	35 LAWS / Laws/Regulations/Guidance	R10: Unknown, Unknown (Unknown)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/059-Ecological Risk Assessment (General)
500018578	Ecological soil screening levels for polycyclic aromatic hydrocarbons (PAHs). Interim final.	6/1/2007	1,769	446 LAWS / Laws/Regulations/Guidance	R10: Unknown, Unknown (EPA)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/059-Ecological Risk Assessment (General)
500012798	Ecological soil screening levels for selenium. OSWER Directive 9285.7-72.	7/1/2007	1,109	180 LAWS / Laws/Regulations/Guidance	R10: Unknown, Unknown (EPA)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/059-Ecological Risk Assessment (General)
500005403	Willamette River natural resources inventory: riparian corridors and wildlife habitat. Portland, Oregon. Proposed draft report.	1/1/2008	3,928	60 RPT / Report	R10: Unknown, Unknown (City of Portland)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/059-Ecological Risk Assessment (General)
500012826	Framework for application of the toxicity equivalence methodology for polychlorinated dioxins, furans, and biphenyls in ecological risk assessment.	6/1/2008	1,173	92 LAWS / Laws/Regulations/Guidance	R10: Unknown, Unknown (EPA) R10: Cirone, Patricia, A (EPA), R10: Cook, Philip, M (EPA), R10: Henry, Tala, R (EPA), R10: Duncan, Bruce (EPA), R10: Devito, Michael (EPA), R10: Pepin, Robert (EPA), R10: Wharton, Steven (EPA)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/059-Ecological Risk Assessment (General)
500015242	Framework for application of the toxicity equivalence methodology for polychlorinated dioxins, furans, and biphenyls in ecological risk assessment.	6/1/2008	1,114	92 LAWS / Laws/Regulations/Guidance	R10: Unknown, Unknown (EPA)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/059-Ecological Risk Assessment (General)
500006301	Procedures for the derivation of equilibrium partitioning sediment benchmarks (ESBs) for the protection of benthic organisms: PAH mixtures. EPA-600-R-02-013.	8/1/2008	1,280	75 LAWS / Laws/Regulations/Guidance	R10: Unknown, Unknown (EPA)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/059-Ecological Risk Assessment (General)
500006358	An Evaluation of the Approach for Assessing Risks to the Benthic Invertebrate Community at the Portland Harbor Superfund Site: Preliminary Draft (EPA comments).	9/1/2008	2,883	80 RPT / Report	R10: Macdonald, Donald, D (MacDonald Environmental Sciences, Ltd.), R10: Landrum, P., F (Landrum and Associates)	R10: Unknown, Unknown (Parametrix, Inc.), R10: Unknown, Unknown (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/059-Ecological Risk Assessment (General)
500007436	Toxicological Profile for Chromium.	9/1/2008	12,997	610 LAWS / Laws/Regulations/Guidance	R10: Unknown, Unknown (ATSDR)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/059-Ecological Risk Assessment (General)
500007439	Toxicity Criteria Database.	9/1/2008	108	7 LAWS / Laws/Regulations/Guidance	R10: Unknown, Unknown (EPA)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/059-Ecological Risk Assessment (General)
500015192	An evaluation of the approach for assessing risks to the benthic invertebrate community at the Portland Harbor Superfund site.	9/1/2008	2,878	80 LAWS / Laws/Regulations/Guidance	R10: Macdonald, D, D (MacDonald Environmental Sciences, Ltd.), R10: Landrum, P., F (Landrum and Associates)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/059-Ecological Risk Assessment (General)
500011897	Region 10 Memorandum regarding Proposed Commercial Diver Exposure Scenario for the Portland Harbor Risk Assessment.	9/15/2008	50	9 LAWS / Laws/Regulations/Guidance	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/059-Ecological Risk Assessment (General)
100006143	REDACTED Diver Exposure Scenario for the Portland Harbor Risk Assessment.	1/1/2009	9,960	260 LAWS / Laws/Regulations/Guidance	R10: Unknown, Unknown (EPA) R10: Sheldrake, Sean, A (EPA), R10: Davoli, Dana (EPA), R10: Duncan, P. Bruce (EPA), R10: Pedersen, Rob (EPA), R10: Poulsen, Michael (Oregon Dept. of Environmental Quality)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/059-Ecological Risk Assessment (General)
500014287	Portland Harbor cleanup sites.	2/17/2009	400	1 LAWS / Laws/Regulations/Guidance	R10: Unknown, Unknown (Oregon Dept. of Environmental Quality)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/059-Ecological Risk Assessment (General)
500014492	Sediment evaluation framework for the Pacific Northwest. Final.	5/1/2009	1,629	211 LAWS / Laws/Regulations/Guidance	R10: Unknown, Unknown (Washington State Dept. of Ecology), R10: Unknown, Unknown (Idaho Dept. of Environmental Quality), R10: Unknown, Unknown (National Marine Fisheries Service), R10: Unknown, Unknown (EPA), R10: Unknown, Unknown (Washington State Dept. of Natural Resources), R10: Unknown, Unknown (U.S. Army Corps of Engineers), R10: Unknown, Unknown (Oregon Dept. of Environmental Quality), R10: Unknown, Unknown (U.S. Fish and Wildlife Service)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/059-Ecological Risk Assessment (General)
711812	Portland Harbor RI/FS Remedial Investigation Report - Appendix F Baseline Ecological Risk Assessment Draft.	8/19/2009	10,385	594 RPT / Report	R10: Unknown, Unknown (Windward Environmental, LLC.)	R10: Unknown, Unknown (Lower Willamette Group)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/059-Ecological Risk Assessment (General)
500011898	Toxicological Review of Thallium and Compounds (CAS No. 7440-28-0) In Support of Summary Information on the Integrated Risk Information System (IRIS).	9/1/2009	923	163 LAWS / Laws/Regulations/Guidance	R10: Unknown, Unknown (EPA)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/059-Ecological Risk Assessment (General)
500011899	Regional Screening Levels for Chemical Contaminants at Superfund Sites.	5/1/2010	2,867	176 LAWS / Laws/Regulations/Guidance	R10: Unknown, Unknown (EPA)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/059-Ecological Risk Assessment (General)
500011900	Integrated Risk Information System (IRIS).	11/1/2010	405	25 LAWS / Laws/Regulations/Guidance	R10: Unknown, Unknown (EPA)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/059-Ecological Risk Assessment (General)
500014779	Guidelines for deriving numerical national water quality criteria for the protection of aquatic organisms and their uses.	12/1/2010	416	59 LAWS / Laws/Regulations/Guidance	R10: Unknown, Unknown (EPA) R10: Chapman, Gary, A (Environmental Research Laboratories), R10: Brungs, William, A (Environmental Research Laboratories), R10: Stephen, Charles, E (Environmental Research Laboratories), R10: Mount, Donald, I (Environmental Research Laboratories), R10: Hansen, David, J (Environmental Research Laboratories), R10: Gentile, John, R (Environmental Research Laboratories)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/059-Ecological Risk Assessment (General)
500005404	Aquatic plant profiles: Soft rush (Juncus effusus var. effusus, Juncus effusus var. solutus)	2/7/2011	467	2 RPT / Report	R10: Unknown, Unknown (Clemson University)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/059-Ecological Risk Assessment (General)
500005374	Contaminant concentrations in osprey (Pandion haliaetus) eggs for Portland Harbor and surrounding areas: Data summary report.	5/7/2011	1,116	23 RPT / Report	R10: Buck, Jeremy (U. S. Fish and Wildlife Service), R10: Kaiser, James, L (Kaiser and Associates Environmental Consulting)	R10: Unknown, Unknown (Portland Harbor Natural Resource Trustees)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/059-Ecological Risk Assessment (General)



500012021	9/1/2011	Exposure Factors Handbook: 2011 Edition.	22,323	1436 LAWS / Laws/Regulations/Guidance	R10: Diaz, Adria (Versar, Inc.), R10: Wood, Patricia (Versar, Inc.), R10: Lee, Ron (Versar, Inc.), R10: Chapman, Kathleen (Westat, Inc.), R10: Mahaffey, Kathryn (Westat, Inc.), R10: Adjei, Naa (Westat, Inc.), R10: Blood, Peter (Westat, Inc.), R10: Birch, Rebecca Jeffries (Westat, Inc.), R10: De Castro, Rey (Westat, Inc.), R10: Clickner, Robert (Westat, Inc.), R10: Moya, Jacqueline (EPA), R10: Schuda, Laurie (EPA), R10: Phillips, Linda (EPA)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/059-Ecological Risk Assessment (General)
500005330	9/7/2011	Lead fishing weights: sinkers and lead heads [online]. Blue Ocean Tackle Inc., National City, CA. [Accessed 5/16/11.] Available from: http://www.blueoceantackle.com/lead_fishin_g_weights.htm.	316	2 PUB / Publication	R10: Unknown, Unknown (Blue Ocean Tackle, Inc.)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/059-Ecological Risk Assessment (General)
500011896	1/1/2015	Region 6 Human Health Medium-Specific Screening Levels.	8,100	1 LAWS / Laws/Regulations/Guidance	R10: Unknown, Unknown (EPA)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/059-Ecological Risk Assessment (General)
500005866	3/19/2015	Non-native invasive freshwater plants: Reed canarygrass (Phalaris arundinacea)	127	3 RPT / Report	R10: Unknown, Unknown (Washington State Dept. of Ecology)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/059-Ecological Risk Assessment (General)
500005869	3/19/2015	Shoreline plants: Sagittaria cuneata Sheld. and Sagittaria latifolia Willd. Duck potato, wapato, arrowhead.	164	2 RPT / Report	R10: Unknown, Unknown (Washington State Dept. of Ecology)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/059-Ecological Risk Assessment (General)
500005875	3/19/2015	ECOTOXicology database.	87	1 RPT / Report	R10: Unknown, Unknown (EPA)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/059-Ecological Risk Assessment (General)
500014907	4/9/2015	Species profile: Water howellia (Howellia aquatilis).	180	4 LAWS / Laws/Regulations/Guidance	R10: Unknown, Unknown (U.S. Fish and Wildlife Service)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/059-Ecological Risk Assessment (General)
500008641	7/9/2015	Letter requesting meeting. Draft Portland Harbor Superfund Site Ecological Risk Assessment: Estimating Risks to Benthic Organisms Using Sediment Toxicity Tests.	363	2 CORR / Correspondence	R10: Cusma, Mathew, J (Schnitzer Steel Industries, Inc.), R10: Wolf, Fred (Legacy Site Services, LLC)	R10: Woolford, James, E (EPA), R10: Grandinetti, Carmela (Cami), L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/059-Ecological Risk Assessment (General)
850000	5/28/2004	Draft Portland Harbor Superfund Site Ecological Risk Assessment: Upstream Ambient Sampling Approach and Additional Site Sampling.	215	31 RPT / Report	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/059-Ecological Risk Assessment (General)
850001	9/23/2004	Internal Meeting/Briefing Request Form for Administrator Gina McCarthy re Portland Harbor Superfund Site Cleanup.	235	23 RPT / Report	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/059-Ecological Risk Assessment (General)
1412926	7/24/2015	MNR (Monitored Natural Recovery) Evaluation - Fish Tissue Contaminant Concentrations.	2,864	2 FRM / Form	R10: (EPA Region 10)	R10: Mccarthy, Gina (EPA)	PAPER DOCUMENT	053-REMEDIAL/0532-Remedial Design
100033469	12/13/2015	DRAFT Early Preliminary Remediation Goals (Excel Spreadsheet Version Attached).	202	3 RPT / Report	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0532-Remedial Design
100033474	3/29/2009	Figures Showing Concentrations of DDD, DDE, DDT and DDX.	930	8 CHT / Chart/Table	R10: (Lower Willamette Group), R10: (EPA)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0532-Remedial Design
100033475	7/21/2011	Dredge Production Update, Mechanical Removal Equipment, Portland Harbor RI/FS (Remedial Investigation/Feasibility Study), DRAFT Final Feasibility Study Report (Word Document Version Attached).	2,799	8 FIG / Figure/Map/ Drawing	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0532-Remedial Design
100033480	7/29/2015	Benzo(a)pyrene (BaP Eq) Figures.	131	2 RPT / Report	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0532-Remedial Design
100033486	7/26/2011	Correlation Graph of Dioxins, Furans and PCBs (polychlorinated biphenyls) and DDE (dichlorodiphenyldichloroethylene).	1,149	7 FIG / Figure/Map/ Drawing	R10: (EPA)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0532-Remedial Design
100033488	6/30/2011	Sums of DDT, DDE and DDX Concentrations.	51	2 FIG / Figure/Map/ Drawing	R10: (GSI Water Solutions, Inc.)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0532-Remedial Design
100033490	7/21/2011	Dioxin-Furan Figures with Lower Duwamish Waterway Site RALs (Remedial Action Levels). Photo of LDC (Louis Dreyfus Corporation) Facility.	4,709	8 FIG / Figure/Map/ Drawing	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0532-Remedial Design
100033492	7/19/2011	Near Final List of Focused PRGs for the FS (Feasibility Study), Based on Notes from Meetings with LWG (Lower Willamette Group).	1,950	7 FIG / Figure/Map/ Drawing	R10: (Unknown), R10: (Lower Duwamish Waterway Group)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0532-Remedial Design
100033501	6/30/2011	DRAFT Revised RALs (Remedial Action Levels). RM (River Mile) 11 Bathymetry. Slide 12, LWG's (Lower Willamette Group) Sedimentation Rates (Bathymetry Data), 2003 - 2009, River Mile 1.9 to 11.8.	2,013	1 PHT / Photograph	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0532-Remedial Design
100033502	Undated	Slide 42, LWG's (Lower Willamette Group) Chemical Concentration of Incoming Sediment, PCBs.	560	1 CHT / Chart/Table	R10: (Lower Duwamish Waterway Group)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0532-Remedial Design
100033503	Undated	Slide 93, LWG's (Lower Willamette Group) River Mile 11 Predicted Recovery.	116	1 CHT / Chart/Table	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0532-Remedial Design
100033504	5/23/2009	Slide 46, LWG's (Lower Willamette Group) Sediment Trap Data Within Study Area, Example: Total PCB.	525	13 CHT / Chart/Table	R10: (Unknown), R10: (Lower Willamette Group)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0532-Remedial Design
100033507	7/19/2011	Email Transmittal of Final March 2016 Signed Brazil SCD/NFA and DEQ Responses to EPA Comments (Less Attachment).	2,686	6 FIG / Figure/Map/ Drawing	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0532-Remedial Design
100033508	8/4/2014	Portland Harbor: The State of the River in 2014, Final Presentation to Oregon Delegation	1,745	15 MTG / Meeting Document	R10: (Kleinfelder)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0532-Remedial Design
100033509	5/19/2015	Slide 42, LWG's (Lower Willamette Group) Chemical Concentration of Incoming Sediment, PCBs.	161	5 CHT / Chart/Table	R10: (EPA)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0532-Remedial Design
100033543	7/27/2011	Slide 93, LWG's (Lower Willamette Group) River Mile 11 Predicted Recovery.	61	1 CHT / Chart/Table	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0532-Remedial Design
100033545	7/19/2011	Slide 46, LWG's (Lower Willamette Group) Sediment Trap Data Within Study Area, Example: Total PCB.	30,922	10 PHT / Photograph	R10: (GSI Water Solutions, Inc.)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0532-Remedial Design
100033569	12/31/2009	Email Transmittal of Final March 2016 Signed Brazil SCD/NFA and DEQ Responses to EPA Comments (Less Attachment).	418	1 PHT / Photograph	R10: (Lower Willamette Group)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0532-Remedial Design
100033580	Undated	Slide 42, LWG's (Lower Willamette Group) Chemical Concentration of Incoming Sediment, PCBs.	117	1 FIG / Figure/Map/ Drawing	R10: (Lower Willamette Group)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0532-Remedial Design
100033612	1/25/2011	Slide 93, LWG's (Lower Willamette Group) River Mile 11 Predicted Recovery.	119	1 FIG / Figure/Map/ Drawing	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0532-Remedial Design
100033631	Undated	Slide 46, LWG's (Lower Willamette Group) Sediment Trap Data Within Study Area, Example: Total PCB.	114	1 FIG / Figure/Map/ Drawing	R10: (Lower Willamette Group)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0532-Remedial Design
100035702	4/6/2016	Email Transmittal of Final March 2016 Signed Brazil SCD/NFA and DEQ Responses to EPA Comments (Less Attachment).	69	2 EML / Email	R10: Mcclincy, Matt (Oregon Dept. of Environmental Quality)	R10: Demaria, Eva (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0532-Remedial Design
100035705	4/7/2016	Email Transmittal of Final March 2016 Signed Brazil SCD/NFA and DEQ Responses to EPA Comments (Less Attachment).	97	3 EML / Email	R10: Demaria, Eva (EPA)	R10: Mcclincy, Matt (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	053-REMEDIAL/0532-Remedial Design
100035712	4/5/2016	Email Transmittal of DEQ Comments on Revised Work Plan.	62	1 EML / Email	R10: Pugh, Mark, T. (Oregon Dept. of Environmental Quality)	R10: Peterson, Melissa (Sulzer Pumps, Inc.)	ELECTRONIC RECORD	053-REMEDIAL/0532-Remedial Design
100035714	4/14/2016	Email Transmittal of ODOT Hydraulics Chapter 15 Bank Protection.	78	2 EML / Email	R10: Demaria, Eva (EPA)	R10: Pugh, Mark, T. (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	053-REMEDIAL/0532-Remedial Design
100035720	4/15/2016	Letter Regarding Voluntary Agreements Progress Report - First Quarter 2016.	330	2 LTR / Letter	R10: Spencer, Amanda, L (APEX Companies LLC), R10: Maguire, Ian (Apex)	R10: Thiessen, Kenneth (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	053-REMEDIAL/0532-Remedial Design
100035723	4/14/2016	Storm Drain Cleanout and Supplemental Source Control Evaluation (With Highlighted Text, Handwriting, Transmittal Letter Included).	22,000	217 RPT / Report	R10: (URS Corporation)	R10: (Mecox Partners II, LLC)	ELECTRONIC RECORD	053-REMEDIAL/0532-Remedial Design
100035727	4/14/2016	Email Transmittal of EVRAZ Oregon Steel Q1 2016 Quarterly Update to DEQ.	64	1 EML / Email	R10: Heimbucher, Craig (Integral Consulting, Inc.)	R10: Sutter, Jennifer (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0532-Remedial Design
100035752	4/7/2016	Email Transmittal of GeoDesign Final Revised Work Plan, Sulzer Pump Facility.	88	1 EML / Email	R10: Tebbe, Kristen (GeoDesign, Inc.)	R10: Pugh, Mark, T. (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	053-REMEDIAL/0532-Remedial Design
100035754	4/1/2016	Email Transmittal of Photo and Stormwater Report for Lampros Properties From Source Control Evaluation Program.	46	1 EML / Email	R10: Miller, R., Scott (SLR International Corporation)	R10: Orr, Jim (Oregon Dept. of Transportation)	ELECTRONIC RECORD	053-REMEDIAL/0532-Remedial Design
100035756	4/15/2016	Email Transmittal of First Quarter 2016 Progress Report for NuStar Portland Terminal.	86	1 EML / Email	R10: Miller, R., Scott (SLR International Corporation)	R10: Orr, Jim (Oregon Dept. of Transportation)	ELECTRONIC RECORD	053-REMEDIAL/0532-Remedial Design

100035760	4/4/2016	Email Regarding Kinder Morgan Linnton Feasibility Study Water Monitoring.	40	1 EML / Email	R10: Demaria, Eva (EPA) R10: Bazargani, Mohammad (SLR International Corporation), R10: Kemnitz, Steve (SLR International Corporation)	R10: Romero, Mike (Oregon Department of Environmental Quality)	ELECTRONIC RECORD	053-REMEDIAL/0532-Remedial Design
100035762	4/1/2016	NW Lake Street Investigation Work Plan.	3,723	40 RPT / Report		R10: (City of Portland)	ELECTRONIC RECORD	053-REMEDIAL/0532-Remedial Design
100035804	4/21/2016	Email Regarding DEQ Responses to NWP (Northwest Pipe Company) 3/08/2016 Email.	75	3 EML / Email	R10: Orr, Jim (Oregon Dept. of Environmental Quality)	R10: Heldt-sheller, Stephanie (NW Pipe Company)	ELECTRONIC RECORD	053-REMEDIAL/0532-Remedial Design
100035813	4/20/2016	Email Regarding EPA Comments on Proposed SCD for Schnitzer Investment Doane Lake Property.	61	1 EML / Email	R10: Demaria, Eva (EPA)	R10: Lacey, David (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	053-REMEDIAL/0532-Remedial Design
100035821	4/13/2016	Email Transmittal of GeoDesign DRAFT Work Plan, Bank Stability Access, Sulzer Pumps Facility.	91	1 EML / Email	R10: Tebbe, Kristen (GeoDesign, Inc.)	R10: Pugh, Mark, T. (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	053-REMEDIAL/0532-Remedial Design
100035826	4/28/2016	Email Regarding GeoDesign DRAFT Work Plan, Bank Stability Access, Sulzer Pumps Facility.	105	2 EML / Email	R10: Demaria, Eva (EPA)	R10: Pugh, Mark, T. (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	053-REMEDIAL/0532-Remedial Design
100035828	4/14/2016	Email Transmittal of EPA Comments on Container Management, Incremental Sampling Work Plan for SW - 8.	97	3 EML / Email	R10: Demaria, Eva (EPA)	R10: Orr, Jim (Oregon Dept. of Environmental Quality), R10: Seidel, Paul (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	053-REMEDIAL/0532-Remedial Design
100035832	3/7/2016	Email Transmittal of Source Control Status Reports, EPA Report Attachments, EPA Report Text Regarding New/Altered Section of SC Summary Report.	91	2 EML / Email	R10: Demaria, Eva (EPA)	R10: Zhen, Davis (EPA), R10: Liverman, Alex (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	053-REMEDIAL/0532-Remedial Design
100035837	4/27/2016	Email Transmittal of Transformer Room Assessment Approval and Transformer Room Memo Regarding Transformer Removal - Centennial Mills.	39	1 EML / Email	R10: Hafley, Dan (Oregon Dept. of Environmental Quality)	R10: Polk, Colin (Portland Development Commission)	ELECTRONIC RECORD	053-REMEDIAL/0532-Remedial Design
100036143	4/7/2016	REDACTED Email Transmittal of 2012 Stormwater Inspection Form.	470	7 EML / Email	R10: Johnson, Laura (City of Portland, Oregon, Bureau of Environmental Services)	R10: Demaria, Eva (EPA), R10: Brozusky, Sandra (EPA), R10: Liverman, Alex (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	053-REMEDIAL/0532-Remedial Design
100036146	4/14/2016	REDACTED Email Transmittal of EPA Comments on Schnitzer Steel (SSI) Dust Monitoring Results.	90	4 EML / Email	R10: Demaria, Eva (EPA)	R10: Orr, Jim (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	053-REMEDIAL/0532-Remedial Design
100036150	4/6/2016	REDACTED Email Regarding EPA Participation in Stormwater Inspections in Portland Harbor.	433	10 EML / Email	R10: Johnson, Laura (City of Portland, Oregon, Bureau of Environmental Services)	R10: Demaria, Eva (EPA), R10: Brozusky, Sandra (EPA), R10: Liverman, Alex (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	053-REMEDIAL/0532-Remedial Design
100036160	4/21/2016	REDACTED Email Regarding Crawford Street Site Tour of Bank Area by EPA and DEQ.	19	1 EML / Email	R10: Orr, Jim (Oregon Dept. of Environmental Quality)	R10: Leaptrout, Thomas (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0532-Remedial Design
100016534	12/11/2015	Request on behalf of Siltronic Corporation for written determination regarding proper classification and handling of waste from Portland Gas & Coke facility, CERCLA Docket No. 10-2009-0255.	1,726	21 LTR / Letter	R10: Nicita, James, J (Davis Rothwell Earle & Xochihua), R10: Gaekwad, Ilene (Davis Rothwell Earle & Xochihua)	R10: Cora, Lori, H (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0533-Remedial Action
100016747	12/11/2015	Email regarding Siltronic Corporation request for feedback on waste classification of Portland Gase and Coke Waste on Siltronic property.	77	2 EML / Email	R10: Gaekwad, Ilene (Davis Rothwell Earle & Xochihua)	R10: Sheldrake, Sean, A (EPA), R10: Cora, Lori, H (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0533-Remedial Action
100016522	1/22/2016	Letter providing NW Natural's response to 12/11/15 Siltronic letter regarding management of remediation wastes generated at the Gasco and Siltronic upland facilities and the Gasco sediment site.	294	12 LTR / Letter	R10: Dost, Patty (Pearl Legal Group PC)	R10: Cora, Lori, H (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0533-Remedial Action
100016732	2/22/2016	Email regarding 404(b)(a) evaluation section 2.4 - cross walk to BA.	153	7 EML / Email	R10: Sheldrake, Sean, A (EPA)	R10: Angle, Genevieve (NOAA)	ELECTRONIC RECORD	053-REMEDIAL/0533-Remedial Action
100016544	3/7/2016	Programmatic Biological Assessment - Working Draft.	21,559	217 RPT / Report		R10: Angle, Genevieve (NOAA), R10: Buck, Jeremy (U. S. Fish & Wildlife Service), R10: Allen, Chris (U. S. Fish & Wildlife Service)	ELECTRONIC RECORD	053-REMEDIAL/0533-Remedial Action
100018112	3/8/2016	REDACTED Email transmitting Programmatic Biological Assessment - Working Draft.	74	2 EML / Email	R10: Sheldrake, Sean, A (EPA)		ELECTRONIC RECORD	053-REMEDIAL/0533-Remedial Action
100016785	3/20/2016	Reply to NWN's response to Siltronic request for written determination regarding proper classification and handling of waste for Portland Gas and Coke facility, CERCLA Docket No. 10-2009-0255.	372	16 LTR / Letter	R10: Munk, Ilene, M. (Foley & Mansfield)	R10: Vrooman, Gary, L (State of Oregon), R10: Cora, Lori, H (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0533-Remedial Action
100016795	3/20/2016	Reply to NWN's response to Siltronic request for written determination regarding proper classification and handling of waste for Portland Gas and Coke facility, CERCLA Docket No. 10-2009-0255 Exhibit I.	2,823	78 LTR / Letter	R10: Munk, Ilene, M. (Foley & Mansfield)	R10: Vrooman, Gary, L (State of Oregon), R10: Cora, Lori, H (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0533-Remedial Action
100016808	3/20/2016	Reply to NWN's response to Siltronic request for written determination regarding proper classification and handling of waste for Portland Gas and Coke facility, CERCLA Docket No. 10-2009-0255 Exhibit A.	3,603	45 LTR / Letter	R10: Munk, Ilene, M. (Foley & Mansfield)	R10: Vrooman, Gary, L (State of Oregon), R10: Cora, Lori, H (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0533-Remedial Action
100016811	3/20/2016	Reply to NWN's response to Siltronic request for written determination regarding proper classification and handling of waste for Portland Gas and Coke facility, CERCLA Docket No. 10-2009-0255 Exhibit L.	2,713	89 LTR / Letter	R10: Munk, Ilene, M. (Foley & Mansfield)	R10: Vrooman, Gary, L (State of Oregon), R10: Cora, Lori, H (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0533-Remedial Action
100005856	11/26/2014	Dispute Resolution Tab 12 Native - Revision Process Final Draft Revision.	122	2 LTR / Letter	R10: Wyatt, Bob (Lower Willamette Group), R10: Wolf, Fred (Legacy Site Services, LLC), R10: (The Lower Willamette Group)	R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0533-Remedial Action
1499044	1/19/2016	Transmittal Sheet regarding Request for Dispute Resolution on EPA January 4, 2016 Decision to Take Over Portland Harbor Feasibility Study (Lower Willamette River, Portland Harbor Superfund Site, USEPA Docket No: CERCLA-10-2001-0240)	1,157	1 LTR / Letter	R10: Mott, Jen (Anchor QEA, LLC)	R10: Koch, Kristine, M (EPA)	PAPER DOCUMENT	053-REMEDIAL/0533-Remedial Action
1499045	1/19/2016	Correspondence regarding Request for Dispute Resolution on EPA January 4, 2016 Decision to Take Over Portland Harbor Feasibility Study (Lower Willamette River, Portland Harbor Superfund Site, USEPA Docket No: CERCLA-10-2001-0240.)	7,438	14 LTR / Letter	R10: Wyatt, Bob (Lower Willamette Group), R10: Wolf, Fred (Legacy Site Services, LLC), R10: (The Lower Willamette Group)	R10: Koch, Kristine, M (EPA)	PAPER DOCUMENT	053-REMEDIAL/0533-Remedial Action
1499053	1/19/2016	Dispute Resolution Attachment A: List of Major Technical Issues Related to the Portland Harbor Feasibility Study.	264	4 LTR / Letter	R10: Wyatt, Bob (Lower Willamette Group), R10: Wolf, Fred (Legacy Site Services, LLC), R10: (The Lower Willamette Group)	R10: Koch, Kristine, M (EPA)	PAPER DOCUMENT	053-REMEDIAL/0533-Remedial Action
1499054	1/19/2016	Dispute Resolution Table of Contents - Lower Willamette Group Request for Dispute Resolution, Lower Willamette River, Portland Harbor Superfund Site USEPA Docket No: CERCLA-10-2001-0240.	97	2 LTR / Letter	R10: Wyatt, Bob (Lower Willamette Group), R10: Wolf, Fred (Legacy Site Services, LLC), R10: (The Lower Willamette Group)	R10: Koch, Kristine, M (EPA)	PAPER DOCUMENT	053-REMEDIAL/0533-Remedial Action
100005815	1/19/2016	Dispute Resolution Attachment A: List of LWG Major Technical Issues Related to the Portland Harbor Feasibility Study.	96	4 LTR / Letter	R10: Wyatt, Bob (Lower Willamette Group), R10: Wolf, Fred (Legacy Site Services, LLC), R10: (The Lower Willamette Group)	R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0533-Remedial Action
100005816	1/19/2016	Dispute Resolution Table of Contents - January 19, 2015 Lower Willamette Group Request for Dispute Resolution Lower Willamette River, Portland Harbor Superfund Site, USEPA Docket No: CERCLA-10-2001-0240.	81	2 LTR / Letter	R10: Wyatt, Bob (Lower Willamette Group), R10: Wolf, Fred (Legacy Site Services, LLC), R10: (The Lower Willamette Group)	R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0533-Remedial Action
100005852	1/19/2016	Correspondence regarding Request for Dispute Resolution on EPA January 4, 2016 Decision to Take Over Portland Harbor Feasibility Study (Lower Willamette River, Portland Harbor Superfund Site, USEPA Docket No: CERCLA-10-2001-0240)	238	14 LTR / Letter	R10: Wyatt, Bob (Lower Willamette Group), R10: Wolf, Fred (Legacy Site Services, LLC), R10: (The Lower Willamette Group)	R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0533-Remedial Action
100032364	8/3/2016	Email Regarding Attendance Sheet for 6/29/2016 EPA Presentation (Less Attachment).	211	1 EML / Email	R10: White, Bruce (Unknown)	R10: Cora, Lori, H. (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0533-Remedial Action
100032365	7/26/2016	Email Regarding Attendance Sheet for 6/29/2016 EPA Presentation (Less Attachment).	43	1 EML / Email	R10: White, Bruce (Unknown)	R10: Cora, Lori, H. (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0533-Remedial Action
100032366	6/30/2016	Sign In Sheet for 6/30/2016 EPA Presentation (With Handwriting).	157	4 MTG / Meeting Document	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0533-Remedial Action

100032376	7/26/2016	Email Regarding Attendance Sheet for 6/29/2016 EPA Presentation.	45	1 EML / Email	R10: White, Bruce (Unknown)	R10: Cora, Lori, H. (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0533-Remedial Action
100032377	Undated	Working Draft Biological Assessment (BA) Figures, Portland Harbor Site.	6,197	33 FIG / Figure/Map/ Drawing	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0533-Remedial Action
100032379	6/28/2012	Press Release: New Study Shows Portland Harbor Superfund Clean-Up Will Support the Local Economy with Portland Harbor Superfund Cleanup Economic Impacts Report by ECONorthwest.	5,692	28 PUB / Publication	R10: (PortlandOnline.com)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0533-Remedial Action
100032388	7/25/2016	Yakama Nation Input on the Proposed Plan, Handout with Key Issues, Confederated Tribes and Bands of the Yakama Nation.	118	2 MTG / Meeting Document	R10: (Confederated Tribes and Bands of the Yakama Nation)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0533-Remedial Action
100032680	7/6/2016	Email Regarding Portland Harbor Public Comment Period Extension: EPA Public Meetings July 11 and July 20, 2016.	80	3 EML / Email	R10: Cora, Lori, H. (EPA)	R10: Stock, Matthew, J (Joyce Ziker Parkinson)	ELECTRONIC RECORD	053-REMEDIAL/0533-Remedial Action
100032682	3/31/2016	Letter From Yakama Nation Requesting Consultation with EPA Region 10 Regarding Proposed Plan for Portland Harbor NPL Site (Mailing Envelope Included).	754	3 LTR / Letter	R10: Goudy, Jode, L. (Yakama Nation)	R10: Mccarthy, Gina, A. (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0533-Remedial Action
100032686	9/1/2016	Memorandum Regarding Discussion with NOAA About Possible Additions of Enhanced Natural Recovery (ENR) Areas in the River.	45	1 MEMO / Memorandum	R10: Sheldrake, Sean, A. (EPA)	R10: (File)	ELECTRONIC RECORD	053-REMEDIAL/0533-Remedial Action
100032694	6/8/2016	Letter Regarding Legacy Site Services (LSS) Request for Extension of Public Comment Period for the Portland Harbor Proposed Plan.	281	2 LTR / Letter	R10: Stock, Matthew, J (Joyce Ziker Parkinson)	R10: Cora, Lori, H. (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0533-Remedial Action
100032699	6/24/2016	Letter Regarding Endangered Species Act (ESA) Programmatic Biological Assessment (BA) for the Site-Wide Remedial Action at the Portland Harbor Superfund Site.	44	2 LTR / Letter	R10: Sheldrake, Sean, A. (EPA)	R10: Kratz, Kim, W. (National Marine Fisheries Service), R10: Henson, Paul (U. S. Fish & Wildlife Service)	ELECTRONIC RECORD	053-REMEDIAL/0533-Remedial Action
100032754	7/19/2016	Email Regarding Draft Agenda and Attendees for Government to Government Consultation, The Confederated Tribes of the Umatilla Indian Reservation and the EPA.	63	1 EML / Email	R10: Robinson, Deborah, G. (EPA)	R10: Moses, Gabriel (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0533-Remedial Action
100032758	7/21/2016	Draft Agenda and Attendees for Government to Government Consultation, The Confederated Tribes of the Umatilla Indian Reservation and the EPA (Word Document Version Attached).	48	1 MTG / Meeting Document	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0533-Remedial Action
100032764	7/26/2016	Draft Agenda and Attendees for Government to Government Consultation, The Nez Perce Tribe and the EPA (Word Document Version Attached).	41	1 MTG / Meeting Document	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0533-Remedial Action
100032767	7/25/2016	Email Regarding Draft Agenda and Attendees for Government to Government Consultation, The Nez Perce Tribe and the EPA (Outlook Email Message Version Attached).	100	1 EML / Email	R10: Robinson, Deborah, G. (EPA)	R10: Johnson, Courtney (Unknown), R10: Sheldrake, Sean, A. (EPA), R10: Woolford, James, E. (EPA), R10: Mclerran, Dennis, J. (EPA), R10: Zhen, Davis (EPA), R10: Tyler, Kendra (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0533-Remedial Action
100032770	6/24/2016	Letter Regarding Endangered Species Act (ESA) Programmatic Biological Assessment (BA) for the Site-Wide Remedial Action at the Portland Harbor Superfund Site.	44	2 LTR / Letter	R10: Sheldrake, Sean, A. (EPA)	R10: Kratz, Kim, W. (NOAA), R10: Henson, Paul (U. S. Fish & Wildlife Service)	ELECTRONIC RECORD	053-REMEDIAL/0533-Remedial Action
100032772	7/22/2016	Email Regarding Final Briefing Materials, Yakama Nation Consultation 7/25/2016 (Outlook Email Version Attached).	8,169	2 EML / Email	R10: Juarez, Maria Elena (EPA)	R10: Sheldrake, Sean, A. (EPA), R10: Woolford, James, E. (EPA), R10: Robinson, Deborah, G. (EPA), R10: Mclerran, Dennis, J. (EPA), R10: Breen, Barry, N (EPA), R10: Grandinetti, Cami (EPA), R10: Siciliano, Carol Ann (EPA), R10: Giles, Cynthia (EPA), R10: Zhen, Davis (EPA), R10: Harris, Dona (EPA), R10: Woods, James (EPA), R10: Tyler, Kendra (EPA), R10: Gartner, Lois (EPA), R10: Stanislaus, Mathy (EPA), R10: Guadagno, Tony (EPA), R10: Maher, Lauren (EPA), R10: Wallace-wilson, Barbara (Unknown), R10: Silver, Edna (Unknown), R10: Shenkman, Ethan (Unknown), R10: Baca, Andrew (Unknown), R10: ; Karin, Koslow (Unknown), R10: Prabhu, Aditi (Unknown), R10: Patrick, Monique (Unknown), R10: Naples, Eileen (Unknown), R10: Hilosky, Nick (Unknown), R10: Nishida, Jane (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0533-Remedial Action
100032791	7/22/2016	Memorandum Regarding Government to Government Consultation with the Yakama Nation, Portland Harbor Superfund Site Proposed Plan (Word Document Version Attached).	5,686	9 MEMO / Memorandum	R10: (EPA)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0533-Remedial Action
100032799	3/31/2016	Letter Requesting a Government to Government Consultation Regarding Portland Harbor NPL Site Proposed Plan (Mailing Envelope Attached).	502	3 LTR / Letter	R10: Goudy, Jode, L. (Yakama Nation)	R10: Mccarthy, Gina, A. (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0533-Remedial Action
100032801	Undated	Presentation Slides Regarding Pre-Brief for Consultation with Yakama Nation, Portland Harbor Superfund Site (Power Point Version Attached).	2,776	9 MTG / Meeting Document	R10: (EPA)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0533-Remedial Action
100032806	7/25/2016	Email Regarding Nez Perce Expected Attendees for 7/26/2016 Government to Government Consultation (Outlook Email Version Attached).	85	1 EML / Email	R10: Robinson, Deborah, G. (EPA)	R10: Sheldrake, Sean, A. (EPA), R10: Woolford, James, E. (EPA), R10: Mclerran, Dennis, J. (EPA), R10: Zhen, Davis (EPA), R10: Woods, James (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0533-Remedial Action
100032807	1/8/2016	Confederated Tribes and Bands of the Yakama Nation Resolution Regarding Portland Harbor Superfund Site Clean Up.	455	2 MTG / Meeting Document	R10: (Confederated Tribes and Bands of the Yakama Nation)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0533-Remedial Action
100032808	7/18/2016	Email Regarding Grand Ronde Tribal Council Members List and Years of Experience (Outlook Email Version Attached).	113	2 EML / Email	R10: Robinson, Deborah, G. (EPA)	R10: Sheldrake, Sean, A. (EPA), R10: Woolford, James, E. (EPA), R10: Mclerran, Dennis, J. (EPA), R10: Grandinetti, Cami (EPA), R10: Woods, James (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0533-Remedial Action
100032813	8/17/2016	Email Regarding Portland Harbor Port Decision, Confined Disposal Facility (CDF) (Outlook Email Version Attached).	108	2 EML / Email	R10: Sheldrake, Sean, A. (EPA)	R10: Madalinski, Kelly (Port of Portland), R10: Koch, Kristine, M. (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0533-Remedial Action
100032817	7/27/2016	Email Regarding Portland Harbor Tribal Consultation Letter (Outlook Email Version Attached).	75	1 EML / Email	R10: Sheldrake, Sean, A. (EPA)	R10: Humphreys, Brandy (Grand Ronde Tribe)	ELECTRONIC RECORD	053-REMEDIAL/0533-Remedial Action
100035664	6/24/2016	REDACTED Email Regarding Endangered Species Act (ESA) Programmatic Biological Assessment (BA) (Outlook Email Version Attached).	129	2 EML / Email	R10: Sheldrake, Sean, A. (EPA)	R10: Kratz, Kim, W. (NOAA), R10: Henson, Paul (U. S. Fish & Wildlife Service)	ELECTRONIC RECORD	053-REMEDIAL/0533-Remedial Action
100035703	8/10/2016	Outfall 22B Iram Performance Monitoring Second Quarter 2016 Report.	13,784	495 RPT / Report	R10: (Golder Associates, Inc.)	R10: (State of Oregon Department of Environmental Quality), R10: (StarLink Logistics Inc.)	PAPER DOCUMENT	053-REMEDIAL/0533-Remedial Action
100035706	7/1/2016	Fred Devine Diving & Salvage Co. SCD Figures and Tables attached.	2,957	6 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	PAPER DOCUMENT	053-REMEDIAL/0533-Remedial Action
100035927	3/29/2016	Signed Memo Regarding Source Control Decision and No Further Action Determination Brazil Motors and Controls, Inc.	2,073	18 MEMO / Memorandum	R10: Liverman, Alex (Oregon Dept. of Environmental Quality)	R10: Demaria, Eva (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0533-Remedial Action
100035928	4/5/2016	Signed Memo Regarding EPA Memo on Comments on Brazil DRAFT Source Control Decision 03/22/2016.	412	3 MEMO / Memorandum	R10: Liverman, Alex (Oregon Dept. of Environmental Quality), R10: Mcclincy, Matt (Oregon Dept. of Environmental Quality)	R10: Zhen, Davis (EPA), R10: Demaria, Eva (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0533-Remedial Action
100035929	4/7/2016	Letter Regarding Final Source Control Decision, Brazil Motors and Controls, Inc. 3/29/2016.	53	1 LTR / Letter	R10: Demaria, Eva (EPA)	R10: Mcclincy, Matt (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	053-REMEDIAL/0533-Remedial Action

100035932	4/5/2016	Letter Regarding Revised Work Plan, Additional Source Control Evaluation Activities.	69	2 LTR / Letter	R10: Pugh, Mark, T. (Oregon Dept. of Environmental Quality)	R10: Peterson, Melissa (Sulzer Pumps, Inc.)	ELECTRONIC RECORD	053-REMEDIAL/0533-Remedial Action
100035933	Undated	Chapter 15 Bank Protection, ODOT Hydraulics Manual (With Highlighted Text).	4,322	90 RPT / Report	R10: (Oregon Dept. of Transportation)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0533-Remedial Action
100035934	3/31/2016	February 2016 Stormwater Sampling Summary Report, Lampros Properties.	1,902	50 RPT / Report	R10: Miller, Scott (SLR International Corporation)	R10: Orr, Jim (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	053-REMEDIAL/0533-Remedial Action
100035935	4/15/2016	Letter Presenting Voluntary Agreements Progress Report – First Quarter 2016, Shore Terminals LLC Portland Facility.	331	2 LTR / Letter	R10: Maguire, Ian (Apex)	R10: Thiessen, Kenneth (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	053-REMEDIAL/0533-Remedial Action
100035937	Undated	Blank City of Portland Environmental Services Industrial Stormwater Program Form.	106	5 FRM / Form	R10: (City of Portland)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0533-Remedial Action
100035938	4/14/2016	Letter Regarding First Quarter 2016 Progress Report for EVRAZ Oregon Steel Facility in Portland, OR.	249	8 LTR / Letter	R10: Sutter, Jennifer, L. (Oregon Dept. of Environmental Quality)	R10: Heimbucher, Craig (Integral Consulting, Inc.)	ELECTRONIC RECORD	053-REMEDIAL/0533-Remedial Action
100035939	4/7/2016	Revised Work Plan for Additional Source Control Evaluation Activities, Sulzer Pumps Facility.	276	7 RPT / Report	R10: Nelson, Stephen, C (GeoDesign, Inc.), R10: Belding, Robert, E (GeoDesign, Inc.)	R10: (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	053-REMEDIAL/0533-Remedial Action
100035940	4/14/2016	Memo Regarding Dust Monitoring Results: August 2015, September 2015, October 2015, and January 2016 Monitoring Events, Burgard Industrial Park – SSI Area.	66	2 MEMO / Memorandum	R10: Demaria, Eva (EPA)	R10: Orr, Jim (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	053-REMEDIAL/0533-Remedial Action
100035941	Undated	Attachment 1, Portland Harbor Uplands Sites Status Spreadsheet.	5,496	28 RPT / Report	R10: (EPA)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0533-Remedial Action
100035942	4/1/2015	Assessment of DEQ Uplands Source Control Efforts at the Portland Harbor Superfund Site, April 2015.	446	10 RPT / Report	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0533-Remedial Action
100035943	5/18/2015	Email Regarding Source Control Status Memo.	52	1 EML / Email	R10: Sheldrake, Sean, A. (EPA)	R10: Mcclincy, Matt (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	053-REMEDIAL/0533-Remedial Action
100035944	4/27/2016	Letter Regarding Transformer Room Assessment, Centennial Mills Site.	56	2 LTR / Letter	R10: Hafley, Daniel (Oregon Dept. of Environmental Quality)	R10: Polk, Colin (Portland Development Commission)	ELECTRONIC RECORD	053-REMEDIAL/0533-Remedial Action
100035945	4/22/2016	Letter Regarding Transformer Room Assessment, Centennial Mills.	4,993	32 LTR / Letter	R10: Ernst, Richard, D (Hart Crowser, Inc.)	R10: Polk, Colin (Portland Development Commission)	ELECTRONIC RECORD	053-REMEDIAL/0533-Remedial Action
100035947	4/8/2016	DRAFT Work Plan for Bank Stability Assessment, Additional Source Control Evaluation (SCE) Activities at the Sulzer Pumps (Sulzer) Facility.	5,234	53 RPT / Report	R10: Nelson, Stephen, C (GeoDesign, Inc.), R10: Belding, Robert, E (GeoDesign, Inc.)	R10: (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	053-REMEDIAL/0533-Remedial Action
100035948	4/14/2016	Memo Regarding SW-8 Area Assessment and Groundwater Investigation Work Plan, Container Management Services Site, March 2016.	72	4 MEMO / Memorandum	R10: Demaria, Eva (EPA)	R10: Orr, Jim (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	053-REMEDIAL/0533-Remedial Action
100035949	8/5/2016	Memorandum regarding Updated Groundwater Source Control Evaluation Gunderson LLC Facility ECSI #1155 May 31, 2016.	74	7 RPT / Report	R10: Demaria, Eva (EPA)	R10: Liverman, Alex (Oregon Dept. of Environmental Quality)	PAPER DOCUMENT	053-REMEDIAL/0533-Remedial Action
100036129	8/5/2016	REDACTED Email regarding EPA comment-Updated Gunderson Groundwater Source Control Evaluation Report. No attachments.	98	2 RPT / Report	R10: Demaria, Eva (EPA)	R10: Liverman, Alex (Oregon Dept. of Environmental Quality)	PAPER DOCUMENT	053-REMEDIAL/0533-Remedial Action
100036149	8/5/2016	REDACTED Email regarding EPA letter Final SCD for Schnitzer Investment-Doane Lake Property. No attachments.	94	4 CORR / Correspondence	R10: Demaria, Eva (EPA)	R10: Mcclincy, Matt (Oregon Dept. of Environmental Quality)	PAPER DOCUMENT	053-REMEDIAL/0533-Remedial Action
100008789	11/16/2006	GASCO Early Removal Action Construction Oversight Report - Table of Contents and Executive Summary.	320	10 RPT / Report	R10: (Parametrix, Inc.)	R10: (EPA)	ELECTRONIC RECORD	054-REMOVAL/0541-Removal Responses
100017391	4/6/2012	REDACTED Conference Call - EPA/City of Portland Agenda - RM 11 Conference Call Agenda (3).	22	1 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	054-REMOVAL/0541-Removal Responses
100003524	4/3/2012	River Mile 11 East Current and Historical Land Use - RM11E Short Overview (Feb 10 2012)_LS.	1,347	6 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	054-REMOVAL/0541-Removal Responses
100003540	4/23/2012	Email regarding RM 11E Upland Site Status.	24	2 EML / Email	R10: Betz, Jan, L (City of Portland, Oregon, Office of Attorney)	R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	054-REMOVAL/0541-Removal Responses
100035672	5/11/2006	REDACTED Action Memorandum for a Removal Action at the Port of Portland Terminal 4 Site Within the Portland Harbor Superfund Site, Portland, Multnomah County, Oregon.	10,009	125 MEMO / Memorandum	R10: Sheldrake, Sean, A. (EPA)	R10: Opalski, Daniel, D. (EPA)	PAPER DOCUMENT	054-REMOVAL/0541-Removal Responses/111-Action Memorandum (General)
100007655	4/20/2004	Administrative Order On Consent (AOC) for Removal Action In the Matter of Portland Harbor Superfund Site, Gasco Facility, Portland, Oregon; NW Natural (AKA Northwest Natural Gas Company), Respondent.	124	30 LGL / Legal Instrument	R10: Gearheard, Michael, F (EPA)	R10: (NW Natural)	ELECTRONIC RECORD	054-REMOVAL/0543-Engineering Evaluation/Cost Analysis (EE/CA)/113-EE/CA (General) (RV)
100007648	4/23/2004	Appendix B: Statement of Work; Gasco Removal Action, Portland Harbor Superfund Site, Portland, Oregon.	144	13 RPT / Report	R10: (EPA)	R10: (Unknown)	ELECTRONIC RECORD	054-REMOVAL/0543-Engineering Evaluation/Cost Analysis (EE/CA)/113-EE/CA (General) (RV)
100007645	5/12/2005	Draft Final Biological Assessment for Northwest Natural "Gasco" Site Removal Action.	12,352	172 RPT / Report	R10: (Anchor Environmental, LLC)	R10: (NOAA), R10: (EPA), R10: (National Oceanic and Atmospheric Administration)	ELECTRONIC RECORD	054-REMOVAL/0543-Engineering Evaluation/Cost Analysis (EE/CA)/113-EE/CA (General) (RV)
100007650	10/5/2005	Letter Regarding Amendment to August 19, 2005 Endangered Species Act (ESA), Section 7 Formal Consultation and Magnuson-Stevens Act Essential Fish Habitat Consultation On the Northwest Natural Removal Action at the Gasco Site.	742	3 LTR / Letter	R10: Crouse, Michael, R (NOAA), R10: Lohn, D. Robert (NOAA)	R10: Sheldrake, Sean, A (EPA)	ELECTRONIC RECORD	054-REMOVAL/0543-Engineering Evaluation/Cost Analysis (EE/CA)/113-EE/CA (General) (RV)
100007647	10/20/2005	Gasco, Second Biological Opinion Amendment, E-Mail From Munn/NMFS to Sean Sheldrake On October 20, 2005.	34	2 EML / Email	R10: Munn, Nancy (National Marine Fisheries Service)	R10: Sheldrake, Sean, A (EPA)	ELECTRONIC RECORD	054-REMOVAL/0543-Engineering Evaluation/Cost Analysis (EE/CA)/113-EE/CA (General) (RV)
100007507	7/22/2008	Appendix D to Draft Arkema Early Action EE/CA Work Plan: Comment Tables A and B.	917	33 WP / Work Plan	R10: Livermore, David, G (Integral Consulting, Inc.)	R10: (Legacy Site Services, LLC)	ELECTRONIC RECORD	054-REMOVAL/0543-Engineering Evaluation/Cost Analysis (EE/CA)/113-EE/CA (General) (RV)
100007638	7/22/2008	Draft Arkema Early Action EE/CA Work Plan: Work Plan Addendum.	2,083	47 WP / Work Plan	R10: Livermore, David, G (Integral Consulting, Inc.)	R10: (Legacy Site Services, LLC)	ELECTRONIC RECORD	054-REMOVAL/0543-Engineering Evaluation/Cost Analysis (EE/CA)/113-EE/CA (General) (RV)
100007639	7/22/2008	Appendix A to Draft Arkema Early Action EE/CA Work Plan: Field Sampling Plan (To Be Submitted).	97	1 WP / Work Plan	R10: Livermore, David, G (Integral Consulting, Inc.)	R10: (Legacy Site Services, LLC)	ELECTRONIC RECORD	054-REMOVAL/0543-Engineering Evaluation/Cost Analysis (EE/CA)/113-EE/CA (General) (RV)
100007640	7/22/2008	Appendix B to Draft Arkema Early Action EE/CA Work Plan: Quality Assurance Project Plan (To Be Submitted).	106	1 WP / Work Plan	R10: Livermore, David, G (Integral Consulting, Inc.)	R10: (Legacy Site Services, LLC)	ELECTRONIC RECORD	054-REMOVAL/0543-Engineering Evaluation/Cost Analysis (EE/CA)/113-EE/CA (General) (RV)
100007641	7/22/2008	Appendix C to Draft Arkema Early Action EE/CA Work Plan: Health and Safety Plan (To Be Submitted).	92	1 WP / Work Plan	R10: Livermore, David, G (Integral Consulting, Inc.)	R10: (Legacy Site Services, LLC)	ELECTRONIC RECORD	054-REMOVAL/0543-Engineering Evaluation/Cost Analysis (EE/CA)/113-EE/CA (General) (RV)
100007642	7/22/2008	Cover Letter for the Draft Engineering Evaluation/Cost Analysis (EE/CA) Work Plan Addendum: Arkema Removal Action, Arkema, Inc. Portland Facility; Administrative Order On Consent (AOC) for Removal Action.	57	2 LTR / Letter	R10: Livermore, David, G (Integral Consulting, Inc.)	R10: (Legacy Site Services, LLC)	ELECTRONIC RECORD	054-REMOVAL/0543-Engineering Evaluation/Cost Analysis (EE/CA)/113-EE/CA (General) (RV)
100007654	3/1/2010	Revised Final Work Plan for Gasco Sediments Cleanup Action.	56,162	476 WP / Work Plan	R10: (Anchor QEA, LLC)	R10: (Northwest Natural)	ELECTRONIC RECORD	054-REMOVAL/0543-Engineering Evaluation/Cost Analysis (EE/CA)/113-EE/CA (General) (RV)
100007646	7/11/2010	Final Project Area Identification Report and Data Gaps Quality Assurance Project Plan (QAPP).	20,261	691 RPT / Report	R10: (Anchor QEA, LLC)	R10: (EPA)	ELECTRONIC RECORD	054-REMOVAL/0543-Engineering Evaluation/Cost Analysis (EE/CA)/113-EE/CA (General) (RV)
100007684	9/28/2010	Appendix A, Attachment 1: Field Change Request Forms for Northwest Natural and Siltronic Corporation; Gasco Sediments Cleanup Action.	508	9 FRM / Form	R10: Barth, Ryan (Anchor QEA, LLC)	R10: Sheldrake, Sean, A (EPA)	ELECTRONIC RECORD	054-REMOVAL/0543-Engineering Evaluation/Cost Analysis (EE/CA)/113-EE/CA (General) (RV)
100007685	9/28/2010	Appendix A, Attachment 2-1 Through 2-4: In-Water Field Data Forms for Northwest Natural and Siltronic Corporation; Gasco Sediments Cleanup Action.	133,986	539 FRM / Form	R10: Barth, Ryan (Anchor QEA, LLC)	R10: Sheldrake, Sean, A (EPA)	ELECTRONIC RECORD	054-REMOVAL/0543-Engineering Evaluation/Cost Analysis (EE/CA)/113-EE/CA (General) (RV)



100007725	9/28/2010	Appendix A, Attachment 2-5: Subsurface Core Photographs for Northwest Natural and Siltronic Corporation; Gasco Sediments Cleanup Action.	551,053	208 PHT / Photograph	R10: Barth, Ryan (Anchor QEA, LLC)	R10: Sheldrake, Sean, A (EPA)	ELECTRONIC RECORD	054-REMOVAL/0543-Engineering Evaluation/Cost Analysis (EE/CA)/113-EE/CA (General) (RV)
100007726	9/28/2010	Appendix A, Attachment 3: Upland Field Data Forms for Northwest Natural and Siltronic Corporation; Gasco Sediments Cleanup Action.	134,734	326 RPT / Report	R10: Barth, Ryan (Anchor QEA, LLC)	R10: Sheldrake, Sean, A (EPA)	ELECTRONIC RECORD	054-REMOVAL/0543-Engineering Evaluation/Cost Analysis (EE/CA)/113-EE/CA (General) (RV)
100007727	9/28/2010	Appendix A, Attachment 4: Field Data/Transition Zone Water (TZW) and Groundwater Field Data Forms for Northwest Natural and Siltronic Corporation; Gasco Sediments Cleanup Action.	451	17 RPT / Report	R10: Barth, Ryan (Anchor QEA, LLC), R10: (Maul Foster & Alongi, Inc.)	R10: Sheldrake, Sean, A (EPA)	ELECTRONIC RECORD	054-REMOVAL/0543-Engineering Evaluation/Cost Analysis (EE/CA)/113-EE/CA (General) (RV)
100007731	9/28/2010	Appendix A, Attachment 5: Chain of Custody for Northwest Natural and Siltronic Corporation; Gasco Sediments Cleanup Action.	2,225	46 FRM / Form	R10: Barth, Ryan (Anchor QEA, LLC), R10: (Maul Foster & Alongi, Inc.)	R10: Sheldrake, Sean, A (EPA)	ELECTRONIC RECORD	054-REMOVAL/0543-Engineering Evaluation/Cost Analysis (EE/CA)/113-EE/CA (General) (RV)
100007627	10/14/2011	Final Removal Action Area Characterization Report: Arkema Early Action.	70,232	932 RPT / Report	R10: Livermore, David, G (Integral Consulting, Inc.)	R10: (Legacy Site Services, LLC)	ELECTRONIC RECORD	054-REMOVAL/0543-Engineering Evaluation/Cost Analysis (EE/CA)/113-EE/CA (General) (RV)
100007653	5/10/2012	Draft Engineering Evaluation/Cost Estimate for Gasco Sediments Cleanup Site.	84,960	2355 RPT / Report	R10: (Anchor QEA, LLC)	R10: (EPA)	ELECTRONIC RECORD	054-REMOVAL/0543-Engineering Evaluation/Cost Analysis (EE/CA)/113-EE/CA (General) (RV)
100007732	5/18/2012	Appendix A, Attachment 8: Sediment Toxicity (Bioassay) Analysis for Northwest Natural and Siltronic Corporation; Gasco Sediments Cleanup Action.	43,094	181 ADD / Analytical Data Document	R10: Barth, Ryan (Anchor QEA, LLC), R10: (Northwestern Aquatic Sciences, Inc.)	R10: Sheldrake, Sean, A (EPA)	ELECTRONIC RECORD	054-REMOVAL/0543-Engineering Evaluation/Cost Analysis (EE/CA)/113-EE/CA (General) (RV)
100007823	5/18/2012	Appendix A, Attachment 9 FCR 001 Analytical Laboratory Reports for Northwest Natural and Siltronic Corporation; Gasco Sediments Cleanup Action.	88,359	2562 ADD / Analytical Data Document	R10: Barth, Ryan (Anchor QEA, LLC), R10: (Analytical Resources, Incorporated)	R10: Sheldrake, Sean, A (EPA)	ELECTRONIC RECORD	054-REMOVAL/0543-Engineering Evaluation/Cost Analysis (EE/CA)/113-EE/CA (General) (RV)
100007842	5/23/2012	Gasco-Specific Issue Comments on Draft Gasco Engineering Evaluation/Cost Analysis (EE/CA) Report (Dated May 2012).	608	16 OTH / Other	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	054-REMOVAL/0543-Engineering Evaluation/Cost Analysis (EE/CA)/113-EE/CA (General) (RV)
100007851	7/16/2012	Memorandum With Comments On Draft Engineering Evaluation/Cost Analysis for the Gasco Sediments Cleanup Site.	122	3 MEMO / Memorandum	R10: Peers, Jennifer (Stratus Consulting, Inc.), R10: Roberts, Keegan (Stratus Consulting, Inc.)	R10: Sheldrake, Sean, A (EPA)	ELECTRONIC RECORD	054-REMOVAL/0543-Engineering Evaluation/Cost Analysis (EE/CA)/113-EE/CA (General) (RV)
100007852	7/16/2012	Detailed Comments On the Draft Engineering Evaluation/Cost Analysis (EE/CA) for the Gasco Sediments Cleanup Site.	851	10 LTR / Letter	R10: Budai, Christine, M (United States Army Corps of Engineers)	R10: Sheldrake, Sean, A (EPA)	ELECTRONIC RECORD	054-REMOVAL/0543-Engineering Evaluation/Cost Analysis (EE/CA)/113-EE/CA (General) (RV)
100007849	9/27/2012	EPA Comments On Draft Engineering Evaluation/Cost Estimate for Gasco Sediments Cleanup Site (Dated May 2012).	40	2 LTR / Letter	R10: Sheldrake, Sean, A (EPA)	R10: Mccue, Tom (Siltronic Corporation), R10: Wyatt, Robert, J (NW Natural)	ELECTRONIC RECORD	054-REMOVAL/0543-Engineering Evaluation/Cost Analysis (EE/CA)/113-EE/CA (General) (RV)
100007866	4/15/2013	Administrative Settlement Agreement and Order On Consent for Supplemental RI/FS Work In the Matter of River Mile 11E Project Area Within Portland Harbor Superfund Site; Cargill, Inc., CBS Corporation, City of Portland, DIL Trust, Etc.	973	99 LGL / Legal Instrument	R10: Grandinetti, Carmela (Cami), L (EPA)	R10: Wilkinson, Kirk, A (Latham & Watkins, Attorneys at Law), R10: Sobczak, Eric, J (CBS Corporation), R10: (Cargill, Incorporated), R10: (CBS Corporation), R10: (DIL Trust)	ELECTRONIC RECORD	054-REMOVAL/0543-Engineering Evaluation/Cost Analysis (EE/CA)/113-EE/CA (General) (RV)
100007663	12/23/2013	Memorandum With Data Report for EPA-Required Northwest Natural Sediment Characterization Adjacent to U.S. Moorings Site - Addendum 1 to the Project Area Identification Report Quality Assurance Project Plan (QAPP).	9,581	61 MEMO / Memorandum	R10: Dunay, Joy (Anchor QEA, LLC), R10: Barth, Ryan (Anchor QEA, LLC)	R10: Sheldrake, Sean, A (EPA)	ELECTRONIC RECORD	054-REMOVAL/0543-Engineering Evaluation/Cost Analysis (EE/CA)/113-EE/CA (General) (RV)
100007666	1/21/2014	Review of Data Report for EPA-Required NW Natural Sediment Characterization Adjacent to U.S. Moorings Site - Addendum 1 to the Project Area Identification Report Quality Assurance Project Plan (QAPP); Gasco Sediments Site.	365	4 LTR / Letter	R10: Sheldrake, Sean, A (EPA)	R10: Wyatt, Robert, J (Northwest Natural Gas Company), R10: Burr, Myron (Siltronic Corporation), R10: Wyatt, Robert, J (NW Natural)	ELECTRONIC RECORD	054-REMOVAL/0543-Engineering Evaluation/Cost Analysis (EE/CA)/113-EE/CA (General) (RV)
100007667	1/24/2014	Sediment Investigation Report for U.S. Government Moorings In Portland, Oregon.	10,409	177 ADD / Analytical Data Document	R10: Gaulke, Scott, W (Shannon & Wilson, Inc.), R10: Tiraio, Agnes, C (Shannon & Wilson, Inc.), R10: (Shannon & Wilson, Inc.)	R10: Gelinias, Sharon, L (U. S. Army Corps of Engineers)	ELECTRONIC RECORD	054-REMOVAL/0543-Engineering Evaluation/Cost Analysis (EE/CA)/113-EE/CA (General) (RV)
100007672	2/5/2014	Field Oversight Report for U.S. Moorings Substantial Product Investigation, Gasco Sediments Site, Portland, Oregon; Response Action Contract for Remedial Response, Enforcement Oversight, and Non-Time-Critical Removal Activities.	28,633	149 RPT / Report	R10: Peterson, Lance, E (CDM Smith)	R10: Sheldrake, Sean, A (EPA)	ELECTRONIC RECORD	054-REMOVAL/0543-Engineering Evaluation/Cost Analysis (EE/CA)/113-EE/CA (General) (RV)
100008625	12/29/1209	Milestone Report for Upland Source Control at the Portland Harbor Superfund Site.	155	26 RPT / Report	R10: (Oregon Dept. of Environmental Quality)	R10: Sample, B, E (Oak Ridge National Laboratory), R10: Opresko, D, M (Oak Ridge National Laboratory), R10: Suter, G, W (Oak Ridge National Laboratory)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100009140	6/1/1996	Toxicological Benchmarks for Wildlife: 1996 Revision.	1,385	217 RPT / Report		R10: Unknown, Unknown (U. S. Dept. of Energy)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100013719	2/12/2002	Memo regarding Principles for Managing Contaminated Sediment Risks at Hazardous Waste Sites.	396	11 MEMO / Memorandum	R10: Horinko, Marianne, L (EPA)	R10: (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100014942	2/12/2002	Memo Regarding Principles for Managing Contaminated Sediment Risks at Hazardous Waste Sites.	396	11 MEMO / Memorandum	R10: Horinko, Marianne, L (EPA)	R10: (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100009018	10/28/2002	Memorandum regarding default background concentrations for metals.	72	4 MEMO / Memorandum	R10: Unknown, Unknown (Oregon Dept. of Environmental Quality)	R10: Unknown, Unknown (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100007528	2/5/2004	Letter regarding permit application numbers.	212	19 CORR / Correspondence	R10: Llewelyn, Michael, T (Oregon Dept. of Environmental Quality)	R10: Headley, Mary (U.S. Army Corps of Engineers)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100010357	2/25/2004	Memorandum regarding Development of Perchlorate Ecological Screening Criterion for Aquatic Life.	68	3 MEMO / Memorandum	R10: Seidel, Paul (Oregon Dept. of Environmental Quality)	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100013227	3/15/2004	Letter regarding Portland Harbor Superfund Site; Administrative Order on Consent for Remedial Investigation and Feasibility Study; Docket No. CERCLA-10-2001-0240 - RI/FS Work Plan.	624	20 LTR / Letter	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	R10: Mckenna, James (Port of Portland), R10: Wyatt, Robert, J (NW Natural)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100007569	8/24/2004	EPA Comments Approach for the Preliminary Risk Evaluation for Ecological Receptors	114	10 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100012220	8/24/2004	EPA Comments: Approach for the Preliminary Risk Evaluation for Ecological Receptors.	111	10 RPT / Report	R10: Unknown, Unknown (EPA)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100007568	10/1/2004	EPA Comments on Technical Memorandum: Comprehensive Synopsis of Approaches and Methods, Ecological Risk Assessment.	105	8 CORR / Correspondence	R10: (EPA)	R10: (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100012234	10/1/2004	EPA Comments on Technical Memorandum: Comprehensive Synopsis of Approaches and Methods, Ecological Risk Assessment.	102	8 RPT / Report	R10: Unknown, Unknown (EPA)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100010261	10/5/2004	Technical Memorandum regarding Additional reliability analysis for WA Freshwater SQGs.	143	4 MEMO / Memorandum	R10: Michelsen, Teresa (Avocet Consulting)	R10: Betts, Brett (Washington State Dept. of Ecology), R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality), R10: Poulsen, Mike (Oregon Dept. of Environmental Quality), R10: Fuji, Taku (Kennedy Jenks Consultants)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100014895	10/5/2004	Letter regarding Additional reliability analysis for WA Freshwater SQGs.	145	4 CORR / Correspondence	R10: Michaelsen, Teresa (Avocet Consulting)	R10: Betts, Brett (Washington State Dept. of Ecology), R10: Poulsen, Mike (Oregon Dept. of Environmental Quality), R10: Fuji, Taku (Kennedy Jenks Consultants), R10: Peterson, Jenn, L (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement

4940681717	11/30/2004	Letter regarding Programmatic Biological and Conference Opinion and Magnuson-Stevens Fishery Conservation and Management Act Essential Fish Habitat Consultation for Revised Standard Local Operating Procedures for Endangered Species (SLOPES III).	654	187 LTR / Letter		R10: Evans, Lawrence, C (U. S. Army Corps of Engineers), R10: Mueller, Thomas, F (U. S. Army Corps of Engineers), R10: Willis, Robert (U.S. Army Corps of Engineers)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100014874	2/4/2005	Water Quality Criteria Summary.	139	6 CORR / Correspondence	R10: (Oregon Dept. of Environmental Quality)	R10: (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100010345	2/15/2005	Toxics Criteria Table.	460	15 CHT / Chart/Table	R10: Unknown, Unknown (Unknown)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100010343	3/1/2005	Table 33A: Water Quality Criteria Summary.	108	10 CHT / Chart/Table	R10: Unknown, Unknown (Unknown)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100014151	6/7/2005	Process for Selecting Acute and Chronic Water Screening Levels for the Portland Harbor Surface Water, Groundwater, and Transition Zone Water, DRAFT, 04/29/2005.	67	4 CORR / Correspondence	R10: Peterson, Jenn, L (Oregon Dept. of Environmental Quality)	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100014152	6/17/2005	Memo Regarding Comments on LWG's (Lower Willamette Group) Acute and Chronic Water Screening Levels for Portland Harbor.	40	3 MEMO / Memorandum	R10: Shephard, Burt (EPA)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940680771	8/31/2005	Email regarding reply to LOFTG Source Control Decision.	21	1 EML / Email	R10: Gainer, Tom (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA), R10: Anderson, James, M (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940680919	8/31/2005	Email regarding reply to Sept 16 mtg with DEQ/EPA.	31	2 EML / Email	R10: Roick, Thomas, E (Oregon Dept. of Environmental Quality)	R10: Gresh, Roger, T (AMEC Earth & Environmental, Inc.), R10: Humphrey, Chip (EPA), R10: Anderson, James, M (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940681742	8/31/2005	Eco SubGroup calendars.	21	2 CHT / Chart/Table	R10: O'mealy, Mikell (Oregon Dept. of Environmental Quality)		ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100014143	9/1/2005	Email Regarding Quick Head's Up That Today We Posted On DEQ/EPA Joint Source Control Strategy (JSCS).	49	1 EML / Email	R10: Anderson, James, M (Oregon Dept. of Environmental Quality)	Macdonald, Donald, D (NOAA), R10: Buchman, Mike (NOAA), R10: Iadanza, Nick (NOAA), R10: Neely, Robert (NOAA), R10: Szumski, Michael, J (U. S. Fish and Wildlife Service), R10: Buck, Jeremy (U. S. Fish and Wildlife Service), R10: Buerger, Ted (U. S. Fish and Wildlife Service), R10: Burkholder, Kurt (U. S. Dept. of Justice), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Cunninghame, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Howard, Patti (Columbia River Inter-Tribal Fish Commission), R10: Bridgen, Pamela, J (Environment International, Ltd.), R10: Spencer, Jeff (Confederated Tribes and Bands of the Yakima Indian Nation), R10: Downey, Tom (Confederated Tribes of the Siletz Indians), R10: Thompson, Rodney, N (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Estensen, Lisa (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Kelly, Stephen (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Barquin, Billy (LeRoy Wilder, P.C.), R10: Sheldrake, Sean, A (EPA), R10: Fuentes, Rene, C (EPA), R10: Cora, Lori, H (EPA), R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA), R10: Smith, Judy, R (EPA), R10: Humphrey, Chip (EPA), R10: Black, Curt (EPA), R10: Davoli, Dana (EPA), R10: Grepo-grove, Gina (EPA), R10: Goulet, Joe	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100015808	9/1/2005	REDACTED Email Regarding [pdxharborcag] DEQ/EPA Joint Source Control Strategy.	19	1 EML / Email	R10: Anderson, James, M (Oregon Dept. of Environmental Quality)	R10: Plance, Robin, G (Portland Harbor Community Advisory Group), R10: (Portland Harbor Community Advisory Group)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940681706	9/1/2005	Email regarding Plan for Eco Team meetings.	22	2 EML / Email	R10: O'mealy, Mikell (Oregon Dept. of Environmental Quality)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940681707	9/1/2005	Table Tracking Eco-Team Member Calendars 09/06/2005 - 11/04/2005.	16	4 CHT / Chart/Table	R10: Neely, Robert (NOAA)		ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940681709	9/2/2005	Email regarding Initial data gaps & key questions.	21	1 EML / Email	R10: O'mealy, Mikell (Oregon Dept. of Environmental Quality)	R10: Neely, Robert (NOAA), R10: Bridgen, Pamela, J (Environment International, Ltd.), R10: Estensen, Lisa (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Humphrey, Chip (EPA), R10: Madden, Erin (Nez Perce Tribe), R10: Anderson, James, M (Oregon Dept. of Environmental Quality), R10: Lee, Jean, H (Environment International, Ltd.), R10: How, P (CRITFC), R10: Buck, Jeremy (U. S. Fish & Wildlife Service)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940680163	9/5/2005	Email regarding reply to Eco Mtgs, try again.	25	1 EML / Email	R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)	R10: Neely, Robert (NOAA), R10: Bridgen, Pamela, J (Environment International, Ltd.), R10: Blischke, Eric, L (EPA), R10: O'mealy, Mikell (Oregon Dept. of Environmental Quality), R10: Lee, Valerie (Environment International, Ltd.), R10: Buck, Jeremy (U. S. Fish & Wildlife Service), R10: Burkholder, Kurt (Oregon Dept. of Justice), R10: Buerger, Ted (U. S. Fish and Wildlife Service), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Cunninghame, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Howard, Patti (Columbia River Inter-Tribal Fish Commission), R10: Downey, Tom (Confederated Tribes of the Siletz Indians), R10: Thompson, Rodney, N (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Estensen, Lisa (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Sheldrake, Sean, A (EPA), R10: Fuentes, Rene, C (EPA), R10: Opalski, Daniel, D (EPA), R10: Cora, Lori, H (EPA), R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA), R10: Smith, Judy, R (EPA), R10: Humphrey, Chip (EPA), R10: Davoli, Dana (EPA), R10: Goulet, Joe (EPA), R10: Ivy, Kathy (EPA), R10: Dagseth, Renee (EPA), R10: Rodriguez, Socorro (EPA), R10: Kawabata, Sylvia (EPA), R10: Madden, Erin (Nez Perce Tribe), R10: Struck, Rodney, G (Oregon Dept. of Environmental Quality), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality), R10: Pedersen, Dick (Oregon Dept. of Environmental Quality), R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality), R10: Johnson, Keith (Oregon Dept. of Environmental Quality), R10: McClincy, Matt	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100011015	9/6/2005	Email regarding Agenda and Assignment for Thursday's MOU meeting.	26	2 EML / Email	R10: O'mealy, Mikell (Oregon Dept. of Environmental Quality)	R10: Neely, Robert (NOAA), R10: Bridgen, Pamela, J (Environment International, Ltd.), R10: Blischke, Eric, L (EPA), R10: O'mealy, Mikell (Oregon Dept. of Environmental Quality), R10: Lee, Valerie (Environment International, Ltd.), R10: Buck, Jeremy (U. S. Fish & Wildlife Service)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100012584	9/6/2005	Email regarding Exxon Mobil Seep Data.	23	2 EML / Email	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100017477	9/6/2005	REDACTED Email regarding reply to Meeting of HH group next Thursday morning.	23	2 EML / Email	R10: Poulsen, Mike (Oregon Dept. of Environmental Quality)	R10: Howard, Patti (Columbia River Inter-Tribal Fish Commission), R10: Bridgen, Pamela, J (Environment International, Ltd.), R10: Davoli, Dana (EPA), R10: Toepel, Kathryn (Oregon Dept. of Human Services)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940680815	9/6/2005	Email regarding reply to MOU meeting - briefing memo for your review.	24	2 EML / Email	R10: O'mealy, Mikell (Oregon Dept. of Environmental Quality)	R10: Kawabata, Sylvia (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement

4940681708	9/6/2005	Portland Harbor MOU Meeting Agenda. Revised Portland Harbor MOU Meeting	103	6	MTG / Meeting Document	R10: Anderson, James, M (Oregon Dept. of Environmental Quality)		ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940681710	9/6/2005	Agenda.	97	5	MTG / Meeting Document	R10: O'mealy, Mikell (Oregon Dept. of Environmental Quality)		ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940681711	9/6/2005	Email regarding MOU meeting - briefing memo for your review.	20	1	EML / Email	R10: O'mealy, Mikell (Oregon Dept. of Environmental Quality)	R10: Kawabata, Sylvia (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100011028	9/8/2005	Portland Harbor MOU Meeting Agenda, September 8, 2005.	94	5	MTG / Meeting Document	R10: Unknown, Unknown (Unknown)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100011031	9/9/2005	Letter regarding Meeting Decisions and Response to Source Control Letters.	88	3	CORR / Correspondence	R10: Wyatt, Robert, J (NW Natural)	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940680809	9/9/2005	Email regarding reply to Milestone meeting.	21	1	EML / Email	R10: Anderson, James, M (Oregon Dept. of Environmental Quality)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940681182	9/9/2005	Email regarding JSCS Presentation to LWG.	23	1	EML / Email	R10: Anderson, James, M (Oregon Dept. of Environmental Quality)	R10: McKenna, James (Port of Portland)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
							R10: Hillman, Helen, E (NOAA), R10: Burkholder, Kurt (Oregon Dept. of Justice), R10: Buerger, Ted (U. S. Fish and Wildlife Service), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Cunninghame, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Barquin, Billy (Confederated Tribes of the Siletz Indians), R10: Thompson, Rodney, N (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Opalski, Daniel, D (EPA), R10: Omealy, Mikell (Oregon Dept. of Environmental Quality), R10: Kawabata, Sylvia (Unknown), R10: Lee, Valerie (Environment International, Ltd.), R10: How, P (CRITFC), R10: Givens, Raymond, C (Givens Law), R10: Ward, Paul (Yakama Nation), R10: Kepler, Rick, J (State of Oregon), R10: Burford, Christopher (Confederated Tribes of Umatilla Indian Reservation)		
4940681201	9/9/2005	Email regarding MOU Meeting notes.	37	1	EML / Email	R10: Omealy, Mikell (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100013076	9/12/2005	Email Regarding 9/14 TCT.	29	1	EML / Email	R10: Anderson, James, M (Oregon Dept. of Environmental Quality)	R10: Shaw, Steven, M (Troutdale Reduction Plant)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100017811	9/12/2005	REDACTED Email regarding reply to Surface Soil.	21	2	EML / Email	R10: Kent, Mavis, D (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100013260	9/14/2005	Email Regarding 9/22/2005 Sediment Management Area (SMA) Meeting.	29	1	EML / Email	R10: Anderson, James, M (Oregon Dept. of Environmental Quality)		ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940680145	9/14/2005	Email regarding reply to Fish condition observations table.	24	2	EML / Email	R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940680748	9/14/2005	Email regarding reply to Groundwater TZW Sampling.	25	1	EML / Email	R10: Anderson, James, M (Oregon Dept. of Environmental Quality)	R10: Bridgen, Pamela, J (Environment International, Ltd.), R10: Blischke, Eric, L (EPA), R10: Struck, Rodney, G (Oregon Dept. of Environmental Quality), R10: Lee, Jean, H (Environment International, Ltd.), R10: Buck, Jeremy (U. S. Fish & Wildlife Service)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940681200	9/14/2005	Email regarding Monthly PH meetings.	21	1	EML / Email	R10: Johnson, Keith (Oregon Dept. of Environmental Quality)	R10: Kawabata, Sylvia (EPA), R10: Anderson, James, M (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100011014	9/15/2005	Letter regarding Source Control: Northwest Natural - GASCO Facility & Siltronic Facility.	78	2	CORR / Correspondence	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	R10: Wyatt, Robert, J (NW Natural)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100010922	9/16/2005	Email regarding Gasco/Siltronic Source Control.	17	1	EML / Email	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	R10: Sheldrake, Sean, A (EPA), R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100011018	9/16/2005	Email regarding Gasco Meeting Decisions and Response to Source Control Letters.	16	1	EML / Email	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	R10: Sheldrake, Sean, A (EPA), R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940681804	9/16/2005	Eco Team Work Session agenda.	47	2	MTG / Meeting Document	R10: O'mealy, Mikell (Oregon Dept. of Environmental Quality)		ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940681805	9/16/2005	Conceptual Aquatic Food Web Schematic.	61	1	CHT / Chart/Table	R10: Shephard, Burt (EPA)		ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940681806	9/16/2005	Food Chain Image.	113	1	CHT / Chart/Table	R10: Shephard, Burt (EPA)		ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940681807	9/16/2005	Email regarding Portland Harbor CSM.	21	1	EML / Email	R10: O'mealy, Mikell (Oregon Dept. of Environmental Quality)	R10: Bridgen, Pamela, J (Environment International, Ltd.), R10: Blischke, Eric, L (EPA), R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality), R10: Lee, Valerie (Environment International, Ltd.), R10: Shorr, Benjamin (NOAA), R10: Buck, Jeremy (U. S. Fish & Wildlife Service)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940681808	9/16/2005	Portland Harbor Draft NMCB Eco CSM.	58	1	CHT / Chart/Table	R10: Shephard, Burt (EPA)		ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100007532	9/19/2005	Eco Team Work Session - notes.	66	3	CORR / Correspondence	R10: O'mealy, Mikell (Oregon Dept. of Environmental Quality)	R10: (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100011034	9/19/2005	Eco Team Work Session - notes.	64	3	MTG / Meeting Document	R10: Unknown, Unknown (Unknown)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940680205	9/19/2005	Email regarding reply to Do we have any agenda for Thursday CSM meeting? or For Friday LWG meeting?.	22	1	EML / Email	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940680769	9/19/2005	Email regarding reply to List of chemicals for Addendum 1 Plume Projection.	28	2	EML / Email	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	R10: Bridgen, Pamela, J (Environment International, Ltd.), R10: Blischke, Eric, L (EPA), R10: Anderson, James, M (Oregon Dept. of Environmental Quality), R10: Lee, Jean, H (Environment International, Ltd.), R10: Buck, Jeremy (U. S. Fish & Wildlife Service)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940680770	9/19/2005	Email regarding reply to List of chemicals for Addendum 1 Plume Projection.	28	2	EML / Email	R10: Anderson, James, M (Oregon Dept. of Environmental Quality)	R10: Bridgen, Pamela, J (Environment International, Ltd.), R10: Blischke, Eric, L (EPA), R10: Struck, Rodney, G (Oregon Dept. of Environmental Quality), R10: Lee, Jean, H (Environment International, Ltd.), R10: Buck, Jeremy (U. S. Fish & Wildlife Service)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100007531	9/22/2005	Email regarding Eco Team notes & assignments.	25	2	EML / Email	R10: O'mealy, Mikell (Oregon Dept. of Environmental Quality)	R10: Neeley, Robert (NOAA), R10: Buck, Jeremy (U. S. Fish and Wildlife Service), R10: Thompson, Chris (Unknown), R10: Palmeri, Jordan (Unknown), R10: Bridgen, Pamela, J (Environment International, Ltd.), R10: Lee, Valerie Ann (Environment International, Ltd.), R10: Blischke, Eric, L (EPA), R10: Shephard, Burt (EPA), R10: Humphrey, Chip (EPA), R10: Goulet, Joe (EPA), R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality), R10: Shorr, Benjamin (NOAA), R10: Finley, Brent (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100011020	9/22/2005	Email regarding Eco Team notes and assignments.	25	2	EML / Email	R10: O'mealy, Mikell (Oregon Dept. of Environmental Quality)	R10: Neely, Robert (NOAA), R10: Bridgen, Pamela, J (Environment International, Ltd.), R10: Blischke, Eric, L (EPA), R10: Shephard, Burt (EPA), R10: Humphrey, Chip (EPA), R10: Goulet, Joe (EPA), R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality), R10: Lee, Valerie (Environment International, Ltd.), R10: Shorr, Benjamin (NOAA), R10: Palmeri, Jordan (Oregon Dept. of Environmental Quality), R10: Thompson, Chris (Environment International, Ltd.), R10: Buck, Jeremy (U. S. Fish & Wildlife Service), R10: Finley, Brent (Environment International, Ltd.)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement

100017688	REDACTED Email regarding reply to Eco Team notes & assignments.	24	2 EML / Email	R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)	R10: Neely, Robert (NOAA), R10: Bridgen, Pamela, J (Environment International, Ltd.), R10: Blischke, Eric, L (EPA), R10: O'nealy, Mikell (Oregon Dept. of Environmental Quality), R10: Lee, Valerie (Environment International, Ltd.), R10: Buck, Jeremy (U. S. Fish & Wildlife Service)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100020090	REDACTED Email regarding eco team notes and assignments.	24	2 EML / Email	R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)	R10: Neely, Robert (NOAA), R10: Buck, Jeremy (U. S. Fish and Wildlife Service), R10: Blischke, Eric, L (EPA), R10: Shephard, Burt (EPA), R10: Humphrey, Chip (EPA), R10: Omealy, Mikell (Oregon Dept. of Environmental Quality), R10: Bridgen, Pamela (Environment International, Ltd.), R10: Lee, Valerie (Environment International, Ltd.), R10: Shorr, Benjamin (NOAA), R10: Finley, Brent (Unknown), R10: Palmeri, Jordan (Oregon Dept. of Environmental Quality), R10: Thompson, Chris (Environment International, Ltd.)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100007533	Email regarding Draft Oct 3-4 Eco Team agenda.	23	3 EML / Email	R10: O'nealy, Mikell (Oregon Dept. of Environmental Quality)	R10: Neeley, Robert (NOAA), R10: Buck, Jeremy (U. S. Fish and Wildlife Service), R10: Thompson, Chris (Unknown), R10: Palmeri, Jordan (Unknown), R10: Bridgen, Pamela, J (Environment International, Ltd.), R10: Lee, Valerie Ann (Environment International, Ltd.), R10: Blischke, Eric, L (EPA), R10: Shephard, Burt (EPA), R10: Humphrey, Chip (EPA), R10: Goulet, Joe (EPA), R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality), R10: Shorr, Benjamin (NOAA), R10: Finley, Brent (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100015730	REDACTED Email regarding Draft Oct 3-4 Eco Team agenda.	26	3 EML / Email	R10: O'nealy, Mikell (Oregon Dept. of Environmental Quality)	R10: Neely, Robert (NOAA), R10: Bridgen, Pamela, J (Environment International, Ltd.), R10: Blischke, Eric, L (EPA), R10: Shephard, Burt (EPA), R10: Humphrey, Chip (EPA), R10: Goulet, Joe (EPA), R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality), R10: Lee, Valerie (Environment International, Ltd.), R10: Shorr, Benjamin (NOAA), R10: Palmeri, Jordan (Oregon Dept. of Environmental Quality), R10: Thompson, Chris (Environment International, Ltd.), R10: Buck, Jeremy (U. S. Fish & Wildlife Service), R10: Finley, Brent (Environment International, Ltd.)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100007538	Letter regarding Portland Harbor RI/FS Field Sampling Plan: Round 2 Sampling of Benthic Invertebrate Tissue.	57	3 CORR / Correspondence	R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100007539	Comments on Portland Harbor RI/FS Field Sampling Plan: Round 2 Sampling of Benthic Invertebrate Tissue.	65	3 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100007540	Additional Comments on Portland Harbor RI/FS Field Sampling Plan: Round 2 Sampling of Benthic Invertebrate Tissue.	71	5 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100009108	Email regarding Benthic FSP comments.	18	1 EML / Email	R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA), R10: Goulet, Joe (EPA), R10: O'nealy, Mikell (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100009119	Portland Harbor RI/FS Field Sampling Plan: Round 2 Sampling of Benthic Invertebrate Tissue, September 9, 2005, Prepared for the Lower Willamette Group by Windward Environmental LLC.	55	3 MEMO / Memorandum	R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940681243	Email regarding Proposed Source Control Decision for Calbag Metals	37	2 EML / Email	R10: Anderson, James, M (Oregon Dept. of Environmental Quality)	R10: Hillman, Helen, E (NOAA), R10: Burkholder, Kurt (Oregon Dept. of Justice), R10: Szumski, Michael, J (U. S. Fish and Wildlife Service), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Cunningham, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Unknown, Unknown (Environment International, Ltd.), R10: Spencer, Jeff (Confederated Tribes and Bands of the Yakima Indian Nation), R10: Downey, Tom (Confederated Tribes of the Siletz Indians), R10: Kelly, Stephen (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Barquin, Billy (LeRoy Wilder, P.C.), R10: Humphrey, Chip (EPA), R10: Oatman, Joe (Nez Perce Tribe), R10: Gainer, Thomas, B (Oregon Dept. of Environmental Quality), R10: Lee, Jean, H (Environment International, Ltd.), R10: Althouse, Scott (The Nez Perce Tribe), R10: How, P (CRITFC), R10: Givens, Raymond, C (Givens Law), R10: Ward, Paul (Yakama Nation), R10: Kepler, Rick, J (State of Oregon), R10: Buck, Jeremy (U. S. Fish & Wildlife Service)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940681812	Draft Portland Harbor Eco CSM.	81	1 CHT / Chart/Table	R10: Neely, Robert (NOAA)		ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940680782	Email regarding reply to LWG's understanding of the modifications to the Addendum 1 Transition Zone Water Sampling Plan (based on our 9/23/05 meeting).	26	2 EML / Email	R10: Anderson, James, M (Oregon Dept. of Environmental Quality)	R10: Humphrey, Chip (EPA), R10: McClincy, Matt (Oregon Dept. of Environmental Quality), R10: Lee, Jean, H (Environment International, Ltd.)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940680783	Email regarding reply to LWG's understanding of the modifications to the Addendum 1 Transition Zone Water Sampling Plan (based on our 9/23/05 meeting).	27	3 EML / Email	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	R10: Humphrey, Chip (EPA), R10: Anderson, James, M (Oregon Dept. of Environmental Quality), R10: Lee, Jean, H (Environment International, Ltd.)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100011070	Email regarding 9-28 SMA tables.	16	1 EML / Email	R10: Palmeri, Jordan (Oregon Dept. of Environmental Quality)	R10: Fuentes, Rene, C (EPA), R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA), R10: Struck, Rodney, G (Oregon Dept. of Environmental Quality), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality), R10: McClincy, Matt (Oregon Dept. of Environmental Quality), R10: Lee, Jean, H (Environment International, Ltd.)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100011080	SMA Table B.	16	1 CHT / Chart/Table	R10: Unknown, Unknown (Unknown)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100011084	SMA Table A.	32	1 CHT / Chart/Table	R10: Unknown, Unknown (Unknown)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940681811	Email regarding PDX Harbor draft EcoCSM.	21	1 EML / Email	R10: O'nealy, Mikell (Oregon Dept. of Environmental Quality)	R10: Neely, Robert (NOAA), R10: Finley, Brent (ChemRisk), R10: Bridgen, Pamela, J (Environment International, Ltd.), R10: Shephard, Burt (EPA), R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality), R10: Lee, Valerie (Environment International, Ltd.), R10: Buck, Jeremy (U. S. Fish & Wildlife Service)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement



100009416	9/29/2005	Email Regarding October 3-4 Agenda and Assignments: Thank You for Your Continued Great Work On Ecological Risk Assessment Issues.	32	2 EML / Email	R10: O'mealy, Mikell (Oregon Dept. of Environmental Quality)	R10: Neely, Robert (NOAA), R10: Buck, Jeremy (U. S. Fish and Wildlife Service), R10: Bridgen, Pamela, J (Environment International, Ltd.), R10: Lee, Valerie Ann (Environment International, Ltd.), R10: Blischke, Eric, L (EPA), R10: Shephard, Burt (EPA), R10: Humphrey, Chip (EPA), R10: Goulet, Joe (EPA), R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality), R10: Borok, Aron (Environment International, Ltd.), R10: Shorr, Benjamin (NOAA), R10: Thompson, Chris (Environment International, Ltd.)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100009417	9/29/2005	Photograph Representative of the Food Chain.	37	1 PHT / Photograph	R10: (Unknown)		ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100009418	9/29/2005	Photograph Showing Conceptual Aquatic Food Web Schematic.	26	1 PHT / Photograph	R10: (Unknown)		ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100016441	9/29/2005	REDACTED Email regarding Draft Arkema EE/CA Work Plan.	24	3 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Sheldrake, Sean, A (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940681712	9/29/2005	Eco Team Work Session Agenda.	62	2 MTG / Meeting Document	R10: O'mealy, Mikell (Oregon Dept. of Environmental Quality)		ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940681713	9/29/2005	Conceptual Aquatic Food Web Schematic.	61	1 CHT / Chart/Table	R10: O'mealy, Mikell (Oregon Dept. of Environmental Quality)		ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940681714	9/29/2005	Food Chain Image.	113	1 CHT / Chart/Table	R10: O'mealy, Mikell (Oregon Dept. of Environmental Quality)		ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940681715	9/29/2005	Email regarding Oct 3-4 agenda & assignments.	25	2 EML / Email	R10: O'mealy, Mikell (Oregon Dept. of Environmental Quality)	R10: Neely, Robert (NOAA), R10: Bridgen, Pamela, J (Environment International, Ltd.), R10: Blischke, Eric, L (EPA), R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality), R10: Lee, Valerie (Environment International, Ltd.), R10: Buck, Jeremy (U. S. Fish & Wildlife Service)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100007537	9/30/2005	Email regarding Additional comments on Round 2 benthic sampling plan.	17	1 EML / Email	R10: O'mealy, Mikell (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100007696	9/30/2005	Email regarding Assessment Endpoints Table.	16	1 EML / Email	R10: O'mealy, Mikell (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100008547	9/30/2005	Email regarding Assessment Endpoints Table.	21	1 EML / Email	R10: O'mealy, Mikell (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100009525	9/30/2005	Email regarding Oct 3-4 Agenda and Assignments.	28	2 EML / Email	R10: Omealy, Mikell (Oregon Dept. of Environmental Quality)	R10: Shephard, Burt (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100012013	9/30/2005	Letter Regarding Schnitzer Investment Corp. (SIC) Comments on September 2005 Interim Final Portland Harbor Joint Source Control Strategy.	453	6 LTR / Letter	R10: Brown, James, C (James C. Brown & Associates)	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100007534	10/3/2005	Eco Team Work Session agenda - DRAFT.	56	2 CORR / Correspondence	R10: O'mealy, Mikell (Oregon Dept. of Environmental Quality)	R10: (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100008465	10/3/2005	Email regarding "Seep" Data.	22	1 EML / Email	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	R10: Browning, Sandy (Integral Consulting, Inc.)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100009419	10/3/2005	Ecology Team Work Session Agenda (October 3-4, 2005) at the EPA/DEQ Headquarters Building, 811 SW 6th Avenue, Portland, Oregon.	168	2 MTG / Meeting Document	R10: (Unknown)		ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100009827	10/3/2005	Email regarding Call on Wednesday morning on TRZ and risk.	25	1 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Neely, Robert (NOAA), R10: Buck, Jeremy (U. S. Fish and Wildlife Service), R10: Bridgen, Pamela, J (Environment International, Ltd.), R10: Fuentes, Rene, C (EPA), R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA), R10: Shephard, Burt (EPA), R10: Humphrey, Chip (EPA), R10: Black, Curt (EPA), R10: Davoli, Dana (EPA), R10: Goulet, Joe (EPA), R10: Struck, Rodney, G (Oregon Dept. of Environmental Quality), R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality), R10: McClincy, Matt (Oregon Dept. of Environmental Quality), R10: Poulsen, Mike (Oregon Dept. of Environmental Quality), R10: O'mealy, Mikell (Oregon Dept. of Environmental Quality), R10: Lee, Jean, H (Environment International, Ltd.)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100015456	10/3/2005	REDACTED Email regarding TZW Addendum 2 Meeting - 9 a.m. Thursday 10/6.	21	3 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940680236	10/3/2005	Email regarding reply to Call on Wednesday morning on TRZ and risk.	25	1 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Neely, Robert (NOAA), R10: Bridgen, Pamela, J (Environment International, Ltd.), R10: Davoli, Dana (EPA), R10: Struck, Rodney, G (Oregon Dept. of Environmental Quality), R10: Lee, Jean, H (Environment International, Ltd.), R10: Buck, Jeremy (U. S. Fish & Wildlife Service)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100009277	10/4/2005	Email regarding TZW Addendum 2 Meeting - 9 a.m. Thursday 10/6.	24	3 EML / Email	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100011022	10/4/2005	Eco Team Work Session Agenda - Draft.	55	2 MTG / Meeting Document	R10: Unknown, Unknown (Unknown)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100007805	10/5/2005	Email regarding Food Web Meeting Availability.	20	1 EML / Email	R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)	R10: Neeley, Robert (NOAA), R10: Buck, Jeremy (U. S. Fish and Wildlife Service), R10: Bridgen, Pamela, J (Environment International, Ltd.), R10: Blischke, Eric, L (EPA), R10: Shephard, Burt (EPA), R10: Goulet, Joe (EPA), R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality), R10: O'mealy, Mikell (Oregon Dept. of Environmental Quality), R10: Lee, Valerie (Environment International, Ltd.), R10: Shorr, Benjamin (NOAA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100010770	10/5/2005	Email regarding TZW Meeting Notes.	29	1 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Neely, Robert (NOAA), R10: Bridgen, Pamela, J (Environment International, Ltd.), R10: Fuentes, Rene, C (EPA), R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA), R10: Davoli, Dana (EPA), R10: Goulet, Joe (EPA), R10: Struck, Rodney, G (Oregon Dept. of Environmental Quality), R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality), R10: McClincy, Matt (Oregon Dept. of Environmental Quality), R10: Poulsen, Mike (Oregon Dept. of Environmental Quality), R10: Lee, Jean, H (Environment International, Ltd.)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940681041	10/5/2005	Email regarding TZW Mtg Notes.	29	1 EML / Email	R10: Anderson, James, M (Oregon Dept. of Environmental Quality)	R10: Neely, Robert (NOAA), R10: Bridgen, Pamela, J (Environment International, Ltd.), R10: Blischke, Eric, L (EPA), R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality), R10: Lee, Jean, H (Environment International, Ltd.)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100009915	10/7/2005	Email regarding Schedule.	29	2 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Peale, James, G (Maul Foster & Alongi, Inc.), R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA), R10: Bayuk, Dana (Oregon Dept. of Environmental Quality), R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940680909	10/7/2005	Email regarding reply to Schedule.	29	2 EML / Email	R10: Anderson, James, M (Oregon Dept. of Environmental Quality)	R10: Peale, James, G (Maul Foster & Alongi, Inc.), R10: Blischke, Eric, L (EPA), R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement

100007816	10/10/2005	Email regarding future Eco Team work sessions.	22	1 EML / Email	R10: O'mealy, Mikell (Oregon Dept. of Environmental Quality)	R10: Neeley, Robert (NOAA), R10: Buck, Jeremy (U. S. Fish and Wildlife Service), R10: Thompson, Chris (Unknown), R10: Bridgen, Pamela, J (Environment International, Ltd.), R10: Shephard, Burt (EPA), R10: Goulet, Joe (EPA), R10: Blischke, Eric, L (Oregon Dept. of Environmental Quality), R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality), R10: Gensemer, Robert, W (Parametrix, Inc.), R10: Borok, Aron (Environment International, Ltd.), R10: Lee, Valerie (Environment International, Ltd.)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100009911	10/10/2005	Email regarding Schedule.	29	2 EML / Email	R10: Bayuk, Dana (Oregon Dept. of Environmental Quality)	R10: Peale, James, G (Maul Foster & Alongi, Inc.), R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality), R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100011090	10/10/2005	Letter regarding comments on the Portland Harbor Joint Source Control Strategy (JSCS). AOI Comments on Appendix E - Framework for Portland Harbor Storm Water Screening Evaluations (August 2005) Regarding Sampling Protocols.	116	5 CORR / Correspondence	R10: Ledger, John (AOI (Associated Oregon Industries))	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100011094	10/10/2005	Anchor Environmental Comments on Interim Final Portland Harbor Joint Source Control Strategy.	66	4 CORR / Correspondence	R10: Unknown, Unknown (AOI (Associated Oregon Industries))	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100011108	10/10/2005	Letter regarding Lower Willamette Group comments to the Interim Final DEQ/EPA Joint Source Control Strategy (JCS).	265	9 CORR / Correspondence	R10: Edwards, John, E (Anchor Environmental, LLC), R10: Thornburg, Todd (Anchor Environmental, LLC)	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100015675	10/10/2005	Email regarding LWG Meeting Tomorrow.	44	1 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940680908	10/10/2005	Email regarding reply to Schedule.	29	2 EML / Email	R10: Bayuk, Dana (Oregon Dept. of Environmental Quality)	R10: Peale, James, G (Maul Foster & Alongi, Inc.), R10: Blischke, Eric, L (EPA), R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940681718	10/10/2005	Calendar of Eco Sub Group Availability.	23	4 CHT / Chart/Table	R10: Neely, Robert (NOAA), R10: Borok, Aron (Environment International, Ltd.)	R10: Neely, Robert (NOAA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940681720	10/10/2005	Letter regarding Portland Harbor Joint Source Control Strategy.	41	1 LTR / Letter	R10: Nelson, Mark (Oregon Metals Industry Council)	R10: Anderson, James, M (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940681722	10/10/2005	Joint Source Control Strategy - LWG Comments.	82	33 RPT / Report	R10: Mckenna, Jim (Lower Willamette Group)		ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940681723	10/10/2005	Letter regarding Lower Willamette Group comments to the Interim Final DEQ/EPA Joint Source Control Strategy (JCS).	43	1 LTR / Letter	R10: Mckenna, Jim (Lower Willamette Group)	R10: Anderson, James, M (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940681732	10/10/2005	Email regarding Oct 24-25 Eco Team agenda & assignments.	21	1 EML / Email	R10: O'mealy, Mikell (Oregon Dept. of Environmental Quality)	R10: Neely, Robert (NOAA), R10: Bridgen, Pamela, J (Environment International, Ltd.), R10: Goulet, Joe (EPA), R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality), R10: Gensemer, Robert, W (Parametrix, Inc.), R10: Lee, Valerie (Environment International, Ltd.), R10: Buck, Jeremy (U. S. Fish & Wildlife Service)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100009198	10/11/2005	Email regarding Future Eco Team Work Sessions.	27	2 EML / Email	R10: Omealy, Mikell (Oregon Dept. of Environmental Quality)	R10: Neely, Robert (NOAA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100011549	10/11/2005	Email Regarding JSCS Comments.	32	1 EML / Email	R10: Anderson, James, M (Oregon Dept. of Environmental Quality)	R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940680134	10/11/2005	Email regarding reply to future Eco Team work sessions.	27	2 EML / Email	R10: O'mealy, Mikell (Oregon Dept. of Environmental Quality)	R10: Neely, Robert (NOAA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940680165	10/11/2005	Email regarding reply to Eco-CSM tasks/schedule.	23	1 EML / Email	R10: O'mealy, Mikell (Oregon Dept. of Environmental Quality)	R10: Neely, Robert (NOAA), R10: Goulet, Joe (EPA), R10: Thompson, Chris (Environment International, Ltd.), R10: Buck, Jeremy (U. S. Fish & Wildlife Service)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940680166	10/11/2005	Email regarding reply to Eco-CSM tasks/schedule.	23	1 EML / Email	R10: Thompson, Chris (Environment International, Ltd.)	R10: Neely, Robert (NOAA), R10: Goulet, Joe (EPA), R10: Thompson, Chris (Environment International, Ltd.), R10: Buck, Jeremy (U. S. Fish & Wildlife Service)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940681181	10/11/2005	Email regarding JSCS Comments.	23	1 EML / Email	R10: Anderson, James, M (Oregon Dept. of Environmental Quality)	R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940681716	10/11/2005	Email regarding USACE/NOAA SLOPES III and Environmental Drilling.	22	3 EML / Email	R10: Anderson, James, M (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940681719	10/11/2005	Email regarding Nov 9 meeting hold.	22	1 EML / Email	R10: O'mealy, Mikell (Oregon Dept. of Environmental Quality)	R10: Bridgen, Pamela, J (Environment International, Ltd.), R10: Humphrey, Chip (EPA), R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality), R10: Gensemer, Robert, W (Parametrix, Inc.), R10: Lee, Valerie (Environment International, Ltd.), R10: Buck, Jeremy (U. S. Fish & Wildlife Service)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100014962	10/12/2005	Letter Regarding Request for Assistance from DEQ Regarding the Portland Harbor Food Web Modeling Effort.	36	1 LTR / Letter	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality), R10: Johnson, Keith (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940681727	10/12/2005	Draft Memo regarding Benthic Interpretive Approach for the Lower Willamette River Ecological Risk Assessment.	60	3 MEMO / Memorandum	R10: Neely, Robert (NOAA), R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)		ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100009007	10/13/2005	Email regarding FW_ Draft FWM request to LWG.	17	1 EML / Email	R10: Omealy, Mikell (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100009506	10/13/2005	Email Regarding October 17 Ecological Team Agenda in Centralia.	27	1 EML / Email	R10: O'mealy, Mikell (Oregon Dept. of Environmental Quality)	R10: Neely, Robert (NOAA), R10: Buck, Jeremy (U. S. Fish and Wildlife Service), R10: Bridgen, Pamela, J (Environment International, Ltd.), R10: Lee, Valerie Ann (Environment International, Ltd.), R10: Blischke, Eric, L (EPA), R10: Shephard, Burt (EPA), R10: Humphrey, Chip (EPA), R10: Goulet, Joe (EPA), R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality), R10: Gensemer, Robert, W (Parametrix, Inc.), R10: Borok, Aron (Environment International, Ltd.), R10: Shorr, Benjamin (NOAA), R10: Thompson, Chris (Environment International, Ltd.)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100009508	10/13/2005	Draft Memorandum: Benthic Interpretive Approach for the Lower Willamette River Ecological Risk Assessment.	105	3 MEMO / Memorandum	R10: (EPA)	R10: (Lower Willamette Group)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100009771	10/13/2005	Email regarding Request for Bruce Hope's Assistance.	24	1 EML / Email	R10: Omealy, Mikell (Oregon Dept. of Environmental Quality)	R10: Buck, Jeremy (U. S. Fish and Wildlife Service)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100009772	10/13/2005	Email regarding Request for Bruce Hope's Assistance.	21	1 EML / Email	R10: Omealy, Mikell (Oregon Dept. of Environmental Quality)	R10: Lee, Jean, H (Environment International, Ltd.)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100010501	10/13/2005	Email regarding Request for Bruce Hope's assistance.	18	1 EML / Email	R10: O'mealy, Mikell (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100011088	10/13/2005	Email regarding AOI Comments Re: JSCS.	70	1 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100011149	10/13/2005	Email regarding Anchor Comments on Interim Final Joint Source Control Strategy.	18	1 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100012732	10/13/2005	Email regarding Request for Bruce Hope's assistance.	21	1 EML / Email	R10: O'mealy, Mikell (Oregon Dept. of Environmental Quality)	R10: Lee, Jean, H (Environment International, Ltd.)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100012734	10/13/2005	Email regarding Request for Bruce Hope's assistance.	24	1 EML / Email	R10: O'mealy, Mikell (Oregon Dept. of Environmental Quality)	R10: Buck, Jeremy (U. S. Fish & Wildlife Service)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100014961	10/13/2005	Email Regarding Request for Bruce Hope's assistance.	18	1 EML / Email	R10: Omealy, Mikell (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100017140	10/13/2005	REDACTED Email regarding JSCS comments.	19	1 EML / Email	R10: Anderson, James, M (Oregon Dept. of Environmental Quality)	R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100017148	10/13/2005	REDACTED Email regarding JSCS Comments.	21	2 EML / Email	R10: Anderson, James, M (Oregon Dept. of Environmental Quality)	R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940680859	10/13/2005	Email regarding reply to PH - Bruce Hope technical assistance.	24	2 EML / Email	R10: O'mealy, Mikell (Oregon Dept. of Environmental Quality)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement

4940681721	10/13/2005	Email regarding JSCS Letter.	19	1 EML / Email	R10: Anderson, James, M (Oregon Dept. of Environmental Quality)	R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940681724	10/13/2005	Email regarding LWG comments on JSCS.	43	2 EML / Email	R10: Anderson, James, M (Oregon Dept. of Environmental Quality)	R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940681725	10/13/2005	Eco Team Work Session Agenda .	47	2 MTG / Meeting Document	R10: O'mealy, Mikell (Oregon Dept. of Environmental Quality)		ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940681726	10/13/2005	Email regarding October 17 Eco Team agenda.	21	1 EML / Email	R10: O'mealy, Mikell (Oregon Dept. of Environmental Quality)	R10: Neely, Robert (NOAA), R10: Bridgen, Pamela, J (Environment International, Ltd.), R10: Goulet, Joe (EPA), R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality), R10: Gensemer, Robert, W (Parametrix, Inc.), R10: Lee, Valerie (Environment International, Ltd.), R10: Buck, Jeremy (U. S. Fish & Wildlife Service)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100009021	10/14/2005	Willamette Group (LWG).	24	2 EML / Email	R10: Omealy, Mikell (Oregon Dept. of Environmental Quality)	R10: Shephard, Burt (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100009210	10/14/2005	Email regarding benthic approach memo - status.	22	1 EML / Email	R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)	R10: Field, Jay (NOAA), R10: Neely, Robert (NOAA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100009526	10/14/2005	Email regarding October 17 Eco Team Agenda.	23	2 EML / Email	R10: Omealy, Mikell (Oregon Dept. of Environmental Quality)	R10: Gensemer, Robert, W (Parametrix, Inc.)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100009527	10/14/2005	Email regarding October 17 Eco Team Agenda.	28	2 EML / Email	R10: Omealy, Mikell (Oregon Dept. of Environmental Quality)	R10: Goulet, Joe (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100009528	10/14/2005	Email regarding October 17 Eco Team Agenda.	21	1 EML / Email	R10: Omealy, Mikell (Oregon Dept. of Environmental Quality)	R10: Gensemer, Robert, W (Parametrix, Inc.)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100010210	10/14/2005	Email regarding Draft FWM request to LWG.	21	1 EML / Email	R10: O'mealy, Mikell (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100010211	10/14/2005	Email regarding Draft FWM request to LWG.	21	1 EML / Email	R10: O'mealy, Mikell (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA), R10: Shephard, Burt (EPA), R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940680845	10/14/2005	Email regarding reply to October 17 Eco Team agenda.	28	2 EML / Email	R10: O'mealy, Mikell (Oregon Dept. of Environmental Quality)	R10: Goulet, Joe (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100009507	10/17/2005	Ecological Team Meeting Session Agenda at the McMenamins Olympic Club Hotel, 112 North Tower Avenue, Centralia, Washington 98531.	156	2 MTG / Meeting Document	R10: (Unknown)		ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100009521	10/17/2005	Eco Team Data Needs Table (Draft - Work In Progress).	35	4 CHT / Chart/Table	R10: (Unknown)		ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100009819	10/17/2005	Spreadsheet: Data Needs Table.JB Revisions; Portland Harbor EcoTeam Data Needs Table (Original Spreadsheet in Excel Format Attached).	112	6 CHT / Chart/Table	R10: (Unknown)		ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940680139	10/17/2005	Email regarding reply to FE/PWO Performance Test.	23	1 EML / Email	R10: Kent, Mavis, D (Oregon Dept. of Environmental Quality)	R10: Shaw, Steven, M (Reynolds Metals Company), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940680972	10/17/2005	Email regarding reply to Tues 10/18 Call.	20	1 EML / Email	R10: Anderson, James, M (Oregon Dept. of Environmental Quality)	R10: Kawabata, Sylvia (EPA), R10: Blischke, Heidi (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940681040	10/17/2005	Email regarding Tues 10/18 Call.	22	1 EML / Email	R10: Anderson, James, M (Oregon Dept. of Environmental Quality)	R10: Kawabata, Sylvia (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100012493	10/18/2005	Email regarding Draft Gasco/Siltronic Offshore Groundwater Field Sampling Approach.	26	1 EML / Email	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100012901	10/18/2005	Email regarding Revised Removal Field Sampling Plan.	22	1 EML / Email	R10: Kent, Mavis, D (Oregon Dept. of Environmental Quality)	R10: Humphrey, Chip (EPA), R10: Shaw, Steve, M (Alcoa, Incorporated)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100017626	10/18/2005	REDACTED Email regarding FW_ Draft Gasco_Siltronic Offshore Groundwater Fie(1).	21	1 EML / Email	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940680794	10/18/2005	Email regarding reply to Meeting in Centralia, Wednesday 10/19.	22	1 EML / Email	R10: O'mealy, Mikell (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA), R10: Palmeri, Jordan (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100007563	10/19/2005	Email regarding Draft Seattle agenda.	16	1 EML / Email	R10: O'mealy, Mikell (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA) (NOAA), R10: Sleeper, Preston, A (U.S. Dept. of the Interior), R10: McMaster, Kemper, M (U. S. Fish and Wildlife Service), R10: Buck, Jeremy (U. S. Fish and Wildlife Service), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Cunninghame, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Fellows, Kenneth, T (Parametrix, Inc.), R10: Battuello, Peter (Parametrix, Inc.), R10: Wadsworth, Rick (Parametrix, Inc.), R10: Christian, Craig, K (Environment International, Ltd.), R10: Lee, Valerie Ann (Environment International, Ltd.), R10: Downey, Tom (Confederated Tribes of the Siletz Indians), R10: Baker, Jeff (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Estensen, Lisa (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Young, Cyril (Oregon Dept. of State Lands), R10: Purchase, Steve (Oregon Dept. of State Lands), R10: Sheldrake, Sean, A (EPA), R10: Fuentes, Rene, C (EPA), R10: Cora, Lori, H (EPA), R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA), R10: Smith, Judy, R (EPA), R10: Shephard, Burt (EPA), R10: Humphrey, Chip (EPA), R10: Davoli, Dana (EPA), R10: Goulet, Joe (EPA), R10: Malek, John (EPA), R10: Rodriguez, Socorro (EPA), R10: Kawabata, Sylvia (EPA), R10: Madden, Erin (Nez Perce Tribe), R10: Gainer, Thomas, B (Oregon Dept. of Environmental Quality), R10: Humphrey, Chip (EPA), R10: Solis, Ricardo (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100011184	10/19/2005	Email Regarding Granular Activated Carbon/Organoclay - Response to Questions.	47	2 EML / Email	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA), R10: Palmeri, Jordan (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100014993	10/19/2005	Email Regarding Revised PHSCS quarterly report.	17	1 EML / Email	R10: Carlson, Kim (Oregon Dept. of Environmental Quality)	R10: Humphrey, Chip (EPA), R10: Solis, Ricardo (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100014994	10/19/2005	QUARTERLY REPORT: Portland Harbor Joint Source Control Strategy.	26	2 RPT / Report	R10: Omealy, Mikell (Oregon Dept. of Environmental Quality)	R10: (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100017193	10/19/2005	REDACTED Email regarding Granular Activated Carbon/Organoclay.	26	2 EML / Email	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	R10: Wadsworth, R., M (Buell Envirotech), R10: Munn, Nancy (NOAA), R10: McMaster, Kemper, M (U. S. Fish and Wildlife Service), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Fellows, Kenneth, T (Parametrix, Inc.), R10: Christian, Craig, K (Environment International, Ltd.), R10: Downey, Tom (Confederated Tribes of the Siletz Indians), R10: Estensen, Lisa (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Young, Cyril (Oregon Dept. of State Lands), R10: Sheldrake, Sean, A (EPA), R10: Svetkovich, Christine (Oregon Dept. of Environmental Quality), R10: Rodriguez, Socorro (EPA Region 10), R10: Purchase, Stephen, J (State of Oregon, Dept. of State Lands), R10: Lee, Jean, H (Environment International, Ltd.), R10: Baker, Jeff (Grand Ronde Tribe), R10: Peterson, Jenn, L (Unknown), R10: Givens, Raymond, C (Givens Law), R10: Ward, Paul (Yakama Nation), R10: Barquin, Billy (Haglund Kelley, LLP), R10: Kepler, Rick, J (State of Oregon), R10: Buck, Jeremy (U. S. Fish & Wildlife Service)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940680232	10/19/2005	Email regarding reply to Bruce Hope	24	1 EML / Email	R10: Johnson, Keith (Oregon Dept. of Environmental Quality)	R10: Humphrey, Chip (EPA), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940681733	10/19/2005	Portland Harbor Eco Team Data Needs Table.	54	6 ADD / Analytical Data Document	R10: O'mealy, Mikell (Oregon Dept. of Environmental Quality)		ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement

100007565	10/20/2005	Email regarding DEQ ARKEMA EE/CA Review Comments.	17	1 EML / Email	R10: Mcclincy, Matt (Oregon Dept. of Environmental Quality)	R10: Sheldrake, Sean, A (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100007566	10/20/2005	Arkema EECA Review Comments.	62	10 CORR / Correspondence	R10: Warren, Kelli (Parametrix, Inc.)	R10: (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100008533	10/20/2005	Email regarding Arkema Lots 1 and 2.	27	2 EML / Email	R10: Mcclincy, Matt (Oregon Dept. of Environmental Quality)	R10: Sheldrake, Sean, A (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100008888	10/20/2005	Email regarding FW_ RPAC_River stage Groundwater Monitoring.	23	1 EML / Email	R10: Mcclincy, Matt (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100009519	10/20/2005	Email Regarding Agenda and Assignments for Our October 24-25 Meeting In Seattle.	20	1 EML / Email	R10: O'mealy, Mikell (Oregon Dept. of Environmental Quality)	R10: Neely, Robert (NOAA), R10: Buck, Jeremy (U. S. Fish and Wildlife Service), R10: Bridgen, Pamela, J (Environment International, Ltd.), R10: Lee, Valerie Ann (Environment International, Ltd.), R10: Blischke, Eric, L (EPA), R10: Shephard, Burt (EPA), R10: Humphrey, Chip (EPA), R10: Goulet, Joe (EPA), R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality), R10: Gensemer, Robert, W (Parametrix, Inc.), R10: Borok, Aron (Environment International, Ltd.), R10: Shorr, Benjamin (NOAA), R10: Thompson, Chris (Environment International, Ltd.)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100009520	10/20/2005	Table With Ecology Team Comments On the LWG's Proposed Assessment Endpoint Table, Including Changes to the Table, Justification, and Data Needs.	52	5 CHT / Chart/Table	R10: (Unknown)		ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100009617	10/20/2005	Email Regarding Phenyl Group (PH) Management Objectives.	25	1 EML / Email	R10: O'mealy, Mikell (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100011110	10/20/2005	Email regarding DEQ ARKEMA EE/CA Review Comments.	17	1 EML / Email	R10: Mcclincy, Matt (Oregon Dept. of Environmental Quality)	R10: Sheldrake, Sean, A (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100011195	10/20/2005	Arkema EE/CA Review Comments.	96	4 CHT / Chart/Table	R10: Unknown, Unknown (ARKEMA, Inc.)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940680265	10/20/2005	Email regarding reply to Arkema Lots 1 and 2.	27	2 EML / Email	R10: Mcclincy, Matt (Oregon Dept. of Environmental Quality)	R10: Sheldrake, Sean, A (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940680784	10/20/2005	Email regarding reply to Management objectives for Portland Harbor.	37	5 EML / Email	R10: O'mealy, Mikell (Oregon Dept. of Environmental Quality)	R10: Lee, Valerie (Environment International, Ltd.)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940681157	10/20/2005	Email regarding RPAC/River stage Groundwater Monitoring.	23	1 EML / Email	R10: Mcclincy, Matt (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940681728	10/20/2005	Data Needs Table.	28	4 CHT / Chart/Table	R10: O'mealy, Mikell (Oregon Dept. of Environmental Quality)		ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940681729	10/20/2005	Eco Team Work Session Agenda - October 24-25, 2005.	69	3 MTG / Meeting Document	R10: O'mealy, Mikell (Oregon Dept. of Environmental Quality)		ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940681730	10/20/2005	Draft Proposed Management Objectives for the PH Programmatic Workplan.	59	2 WP / Work Plan	R10: O'mealy, Mikell (Oregon Dept. of Environmental Quality)		ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940681731	10/20/2005	Assessment Endpoint Table Changes.	41	5 CHT / Chart/Table	R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)		ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100009192	10/21/2005	Email regarding Arkema Key Topics and Comments.	38	2 EML / Email	R10: Mcclincy, Matt (Oregon Dept. of Environmental Quality)	R10: Sheldrake, Sean, A (EPA), R10: Lee, Jean, H (Environment International, Ltd.)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100017411	10/21/2005	REDACTED Email regarding reply to Arkema Key Topics and Comments.	29	2 EML / Email	R10: Mcclincy, Matt (Oregon Dept. of Environmental Quality)	R10: Sheldrake, Sean, A (EPA), R10: Lee, Jean, H (Environment International, Ltd.)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100007564	10/24/2005	Eco Team Work Session Agenda.	54	3 CORR / Correspondence	R10: O'mealy, Mikell (Oregon Dept. of Environmental Quality)	R10: (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100008678	10/24/2005	Email regarding FW_ Maintenance Dredging at T-4.	22	1 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Sheldrake, Sean, A (EPA), R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA), R10: Svetkovich, Christine (Oregon Dept. of Environmental Quality), R10: Johnson, Keith (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100009522	10/24/2005	Agenda for Ecological Team Work Session (October 24-25, 2005).	259	3 MTG / Meeting Document	R10: (Unknown)		ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940680215	10/24/2005	Email regarding reply to DEQ ARKEMA EE/CA Review Comments.	25	1 EML / Email	R10: Gainer, Thomas, B (Oregon Dept. of Environmental Quality)	R10: Sheldrake, Sean, A (EPA), R10: Mcclincy, Matt (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940681139	10/24/2005	Email regarding Maintenance Dredging at T-4.	22	1 EML / Email	R10: Anderson, James, M (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100009523	10/25/2005	Proposed Management Objectives for the Phenyl Group (PH) Programmatic Work Plan.	147	2 OTH / Other	R10: (Unknown)		ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100009618	10/25/2005	Proposed Management Objectives for the PH Programmatic Work Plan.	147	2 OTH / Other	R10: (Unknown)		ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100009820	10/25/2005	Notes of Eco Team Work Session: Review of Revised Conceptual Site Model (CSM) and Pathway Determinations for the Completeness and Significance of Each Pathway to the Receptors of Concern.	308	7 NOTE / Notes	R10: (EPA)		ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100010533	10/25/2005	Eco Team Work Session Notes.	104	7 NOTE / Notes	R10: Unknown, Unknown (Unknown)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100010656	10/25/2005	Dive Survey Report - Area 2.	161	4 RPT / Report	R10: Peale, James, G (Maul Foster & Alongi, Inc.), R10: Maul, James, J (Maul Foster & Alongi, Inc.)	R10: Bayuk, Dana (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100011190	10/25/2005	Eco Team Work Session - Notes.	104	7 MTG / Meeting Document	R10: Unknown, Unknown (Unknown)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100015007	10/25/2005	Letter Regarding Dive Survey Report - Area 2.	161	4 LTR / Letter	R10: Peale, James, G (Maul Foster & Alongi, Inc.), R10: Maul, James, J (Maul Foster & Alongi, Inc.)	R10: Bayuk, Dana (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100009870	10/26/2005	Spreadsheet With Eco Sub Group Calendars102605 Master RN (Original Spreadsheet in Excel Format Attached).	18	2 CHT / Chart/Table	R10: (Unknown)		ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100011067	10/26/2005	Email Regarding Gasco Work Plan Link - I Also Can Not Get PDF File to Open, It Did, However Will Copy to a Folder.	29	1 EML / Email	R10: Mcclincy, Matt (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100011206	10/26/2005	Benthic Interpretive Approach for Portland Harbor Ecological Risk Assessment.	61	4 LTR / Letter	R10: (EPA)	R10: (Lower Willamette Group)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100011487	10/26/2005	Benthic Interpretive Approach for Portland Harbor Ecological Risk Assessment, Model Direction Memo 10/26/05.	61	4 LTR / Letter	R10: (EPA)	R10: (Lower Willamette Group)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100012554	10/26/2005	Email regarding Draft Gasco/Siltronic Offshore Groundwater Field Sampling Approach.	27	1 EML / Email	R10: Mcclincy, Matt (Oregon Dept. of Environmental Quality)	R10: Fuentes, Rene, C (EPA), R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA), R10: Lee, Jean, H (Environment International, Ltd.)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100015497	10/26/2005	REDACTED Email regarding Data Clarification/ARKEMA.	32	3 EML / Email	R10: Mcclincy, Matt (Oregon Dept. of Environmental Quality)	R10: Sheldrake, Sean, A (EPA), R10: Mcclincy, Matt (Oregon Dept. of Environmental Quality), R10: Lee, Jean, H (Environment International, Ltd.)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100017612	10/26/2005	REDACTED Email regarding FW_ Draft Gasco/Siltronic Offshore Groundwater Fie.	23	1 EML / Email	R10: Mcclincy, Matt (Oregon Dept. of Environmental Quality)	R10: Fuentes, Rene, C (EPA), R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA), R10: Lee, Jean, H (Environment International, Ltd.)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100017704	10/26/2005	REDACTED Email regarding reply to Data Clarification / ARKEMA.	31	3 EML / Email	R10: Mcclincy, Matt (Oregon Dept. of Environmental Quality)	R10: Sheldrake, Sean, A (EPA), R10: Lee, Jean, H (Environment International, Ltd.)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100009013	10/27/2005	Email regarding FW_ Draft Meeting Agenda.	20	2 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940681737	10/27/2005	Draft EPA/DEQ/LWG Managers Meeting Agenda.	35	1 MTG / Meeting Document	R10: Livesay, Dave (CH2M Hill, Inc.)		ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement



100009818	10/28/2005	Email Regarding Agenda for Our November 1-2 Eco Team Work Session In Portland, Oregon.	31	1 EML / Email	R10: O'mealy, Mikell (Oregon Dept. of Environmental Quality)	R10: Buck, Jeremy (U. S. Fish and Wildlife Service), R10: Howard, Patti (Columbia River Inter-Tribal Fish Commission), R10: Bridgen, Pamela, J (Environment International, Ltd.), R10: Lee, Valerie Ann (Environment International, Ltd.), R10: Blischke, Eric, L (EPA), R10: Shephard, Burt (EPA), R10: Humphrey, Chip (EPA), R10: Goulet, Joe (EPA), R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality), R10: Gensemer, Robert, W (Parametrix, Inc.), R10: Borok, Aron (Environment International, Ltd.), R10: Shorr, Benjamin (NOAA), R10: Thompson, Chris (Environment International, Ltd.)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100010507	10/28/2005	Email regarding Revised CSM. Draft Ecological risk assessment conceptual site model for the Portland Harbor Superfund	17	1 EML / Email	R10: O'mealy, Mikell (Oregon Dept. of Environmental Quality)	R10: Neely, Robert (NOAA), R10: Blischke, Eric, L (EPA), R10: Shephard, Burt (EPA), R10: Goulet, Joe (EPA), R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality), R10: Borok, Aron (Environment International, Ltd.), R10: Thompson, Chris (Environment International, Ltd.), R10: Buck, Jeremy (U. S. Fish & Wildlife Service)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100010519	10/28/2005	Site.	173	3 CHT / Chart/Table	R10: Unknown, Unknown (Unknown)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100010526	10/28/2005	Email regarding Revised CSM.	22	2 EML / Email	R10: O'mealy, Mikell (Oregon Dept. of Environmental Quality)	R10: Neely, Robert (NOAA), R10: Blischke, Eric, L (EPA), R10: Shephard, Burt (EPA), R10: Humphrey, Chip (EPA), R10: Goulet, Joe (EPA), R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality), R10: Thompson, Chris (Environment International, Ltd.), R10: Buck, Jeremy (U. S. Fish & Wildlife Service)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100011197	10/28/2005	Email regarding Revised CSM. Draft Ecological risk assessment conceptual site model for the Portland Harbor Superfund	21	2 EML / Email	R10: O'mealy, Mikell (Oregon Dept. of Environmental Quality)	R10: Neely, Robert (NOAA), R10: Blischke, Eric, L (EPA), R10: Shephard, Burt (EPA), R10: Humphrey, Chip (EPA), R10: Goulet, Joe (EPA), R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality), R10: Thompson, Chris (Environment International, Ltd.), R10: Buck, Jeremy (U. S. Fish & Wildlife Service)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100011198	10/28/2005	Site.	173	3 CHT / Chart/Table	R10: Unknown, Unknown (Unknown)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940681734	10/28/2005	Eco Team Work Session Notes.	107	7 MTG / Meeting Document	R10: O'mealy, Mikell (Oregon Dept. of Environmental Quality)	R10: O'mealy, Mikell (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940681735	10/28/2005	Eco Team Work Session Agenda.	80	3 MTG / Meeting Document	R10: O'mealy, Mikell (Oregon Dept. of Environmental Quality)	R10: O'mealy, Mikell (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940681736	10/28/2005	Email regarding Nov 1-2 Eco Team agenda & assignments.	22	1 EML / Email	R10: O'mealy, Mikell (Oregon Dept. of Environmental Quality)	R10: Neely, Robert (NOAA), R10: Bridgen, Pamela, J (Environment International, Ltd.), R10: Goulet, Joe (EPA), R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality), R10: Gensemer, Robert, W (Parametrix, Inc.), R10: Lee, Valerie (Environment International, Ltd.), R10: How, P (CRITFC), R10: Buck, Jeremy (U. S. Fish & Wildlife Service)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940681738	10/30/2005	Management Meeting.	17	1 EML / Email	R10: Anderson, James, M (Oregon Dept. of Environmental Quality)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940681739	10/30/2005	LWG Management Meeting Talking Points - Status of EPA Data Gap and Issue Identification Process.	46	2 MTG / Meeting Document	R10: Anderson, James, M (Oregon Dept. of Environmental Quality)	R10: Anderson, James, M (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940681741	10/30/2005	Information regarding Management Objectives and Assessment Endpoints.	607	26 RPT / Report	R10: (Environment International, Ltd.)	R10: (Environment International, Ltd.)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940681743	10/30/2005	Email regarding Updated scheduler.	22	1 EML / Email	R10: O'mealy, Mikell (Oregon Dept. of Environmental Quality)	R10: Neely, Robert (NOAA), R10: Bridgen, Pamela, J (Environment International, Ltd.), R10: Goulet, Joe (EPA), R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality), R10: Gensemer, Robert, W (Parametrix, Inc.), R10: Lee, Valerie (Environment International, Ltd.), R10: How, P (CRITFC), R10: Buck, Jeremy (U. S. Fish & Wildlife Service)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100009569	10/31/2005	Meeting Agenda REVIEW DRAFT.	21	1 MTG / Meeting Document	R10: (Lower Willamette Group), R10: (EPA), R10: (DEQ)	R10: (Lower Willamette Group), R10: (EPA), R10: (DEQ)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100009869	10/31/2005	Email Regarding Updated Scheduler: It Looks Like November 29-30 and December 13-14 May Work As Potential Meeting Dates for Us.	30	1 EML / Email	R10: O'mealy, Mikell (Oregon Dept. of Environmental Quality)	R10: Neely, Robert (NOAA), R10: Buck, Jeremy (U. S. Fish and Wildlife Service), R10: Howard, Patti (Columbia River Inter-Tribal Fish Commission), R10: Bridgen, Pamela, J (Environment International, Ltd.), R10: Blischke, Eric, L (EPA), R10: Shephard, Burt (EPA), R10: Humphrey, Chip (EPA), R10: Goulet, Joe (EPA), R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality), R10: Gensemer, Robert, W (Parametrix, Inc.), R10: Borok, Aron (Environment International, Ltd.), R10: Lee, Valerie Ann (Environment International, Ltd.), R10: Shorr, Benjamin (NOAA), R10: Thompson, Chris (Environment International, Ltd.)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100011186	10/31/2005	R1FSR_AppB-1_Revised (1) (Recovered).	193	6 RPT / Report	R10: (Lower Willamette Group)	R10: (Lower Willamette Group)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100011187	10/31/2005	R1FSR_AppB-1_Revised.	193	6 RPT / Report	R10: (Lower Willamette Group)	R10: (Lower Willamette Group)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940681740	10/31/2005	Email regarding Management Objectives and Endpoints.	20	1 EML / Email	R10: O'mealy, Mikell (Oregon Dept. of Environmental Quality)	R10: Neely, Robert (NOAA), R10: Blischke, Eric, L (EPA), R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality), R10: Lee, Valerie (Environment International, Ltd.), R10: How, P (CRITFC), R10: Thompson, Chris (Environment International, Ltd.), R10: Buck, Jeremy (U. S. Fish & Wildlife Service)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100009594	11/2/2005	Floating Percentile Calculations. Eco Team Work Session Agenda (November 1-2, 2005) at Dept. of Environmental Quality (DEQ) Northwest Region Office, Portland, Oregon.	28	3 MEMO / Memorandum	R10: Anderson, Mike (Oregon Dept. of Environmental Quality)	R10: Michaelsen, Teresa (Avocet Consulting)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100009821	11/2/2005	Pilot study of diver exposure in contaminated water.	275	3 MTG / Meeting Document	R10: (Oregon Dept. of Environmental Quality)	R10: (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940681768	11/2/2005	Letter regarding DEQ Comments on GASCO MARP.	648	4 RPT / Report	R10: (Oregon Health Sciences University)	R10: (Oregon Health Sciences University)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100007572	11/3/2005	Letter regarding DEQ Comments Draft - Monitoring and Reporting Plan - Post Construction Removal Action NW Natural "GASCO" Site.	17	1 EML / Email	R10: Mcclincy, Matt (Oregon Dept. of Environmental Quality)	R10: Sheldrake, Sean, A (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100007573	11/3/2005	Final Draft Ecological Risk Assessment Conceptual Site Model (CSM) for the Portland Harbor Superfund Site (Original Spreadsheet in Excel Format Attached).	56	3 CORR / Correspondence	R10: Mcclincy, Matt (Oregon Dept. of Environmental Quality)	R10: Sheldrake, Sean, A (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100007709	11/3/2005	Letter regarding DEQ Comments Draft - Monitoring and Reporting Plan - Post Construction Removal Action NW Natural "GASCO" Site.	17	1 EML / Email	R10: O'mealy, Mikell (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA), R10: Palmeri, Jordan (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100009913	11/3/2005	Final Draft Ecological Risk Assessment Conceptual Site Model (CSM) for the Portland Harbor Superfund Site (Original Spreadsheet in Excel Format Attached).	160	1 CHT / Chart/Table	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement

100011191	11/3/2005	Email regarding DEQ Comments on GASCO MARP.	17	1 EML / Email	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	R10: Sheldrake, Sean, A (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100011192	11/3/2005	DEQ Comments on Draft - Monitoring and Reporting Plan - Post Construction, Removal Action, NW Natural Gasco Site.	67	3 CORR / Correspondence	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	R10: Sheldrake, Sean, A (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100011564	11/3/2005	Final draft Ecological Risk Assessment Conceptual Site Model for the Portland Harbor Superfund Site.	160	1 RPT / Report	R10: (Unknown)		ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940681744	11/3/2005	Final Draft Eco CSM.	121	3 CHT / Chart/Table	R10: O'mealy, Mikell (Oregon Dept. of Environmental Quality)		ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100009912	11/4/2005	Email Regarding Agenda for Monday's Eco Team Work Session, Which Will Be Held at DEQ's Northwest Region Office.	27	1 EML / Email	R10: O'mealy, Mikell (Oregon Dept. of Environmental Quality)	R10: Neely, Robert (NOAA), R10: Buck, Jeremy (U. S. Fish and Wildlife Service), R10: Howard, Patti (Columbia River Inter-Tribal Fish Commission), R10: Bridgen, Pamela, J (Environment International, Ltd.), R10: Blischke, Eric, L (EPA), R10: Shephard, Burt (EPA), R10: Humphrey, Chip (EPA), R10: Goulet, Joe (EPA), R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality), R10: Gensemer, Robert, W (Parametrix, Inc.), R10: Borok, Aron (Environment International, Ltd.), R10: Lee, Valerie Ann (Environment International, Ltd.), R10: Shorr, Benjamin (NOAA), R10: Thompson, Chris (Environment International, Ltd.)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100010397	11/4/2005	Email regarding Using Large-Scale Sucker as Surrogate for Sturgeon.	26	1 EML / Email	R10: Omealy, Mikell (Oregon Dept. of Environmental Quality)	R10: Thompson, Chris (Environment International, Ltd.)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940680982	11/4/2005	Email regarding reply to Using large-scalesucker as surrogate for sturgeon.	26	1 EML / Email	R10: O'mealy, Mikell (Oregon Dept. of Environmental Quality)	R10: Thompson, Chris (Environment International, Ltd.)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940680985	11/4/2005	Email regarding reply to Willamette River DMMP Inter-agency Coordination meeting.	37	2 EML / Email	R10: Anderson, James, M (Oregon Dept. of Environmental Quality)	R10: Schneider, Carolyn (U.S. Army Corps of Engineers)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940681745	11/4/2005	Eco Team Work Session Agenda - November 7, 2005.	63	2 MTG / Meeting Document	R10: O'mealy, Mikell (Oregon Dept. of Environmental Quality)		ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940681746	11/4/2005	Email regarding Nov 7 Eco Team agenda. Attached copy of Rothlein Email Re. Divers,	19	1 EML / Email	R10: O'mealy, Mikell (Oregon Dept. of Environmental Quality)	R10: Neely, Robert (NOAA), R10: Bridgen, Pamela, J (Environment International, Ltd.), R10: Goulet, Joe (EPA), R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality), R10: Gensemer, Robert, W (Parametrix, Inc.), R10: Lee, Valerie (Environment International, Ltd.), R10: How, P (CRITFC), R10: Buck, Jeremy (U. S. Fish & Wildlife Service)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940681770	11/4/2005	Transmittal of Diver Data.	28	1 EML / Email	R10: Davoli, Dana (EPA)		ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100009914	11/7/2005	Eco Team Work Session Agenda: Dept. of Environmental Quality (DEQ) Northwest Region Office In Portland, Oregon.	190	2 MTG / Meeting Document	R10: (Unknown)		ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100007807	11/8/2005	Email regarding Food Web Model Data Needs. Email Regarding Food Web Model Data Needs: List of Needed Information From the Lower Willamette Group In Order to Proceed With the Review.	16	1 EML / Email	R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100014988	11/8/2005		28	1 EML / Email	R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100007576	11/9/2005	Email regarding Bruce H's initial "direction" on the food web model.	17	1 EML / Email	R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)	R10: Neeley, Robert (NOAA), R10: Buck, Jeremy (U. S. Fish and Wildlife Service), R10: Thompson, Chris (Unknown), R10: Bridgen, Pamela, J (Environment International, Ltd.), R10: Blischke, Eric, L (EPA), R10: Shephard, Burt (EPA), R10: Humphrey, Chip (EPA), R10: Davoli, Dana (EPA), R10: Goulet, Joe (EPA), R10: O'mealy, Mikell (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100007577	11/9/2005	Portland Harbor Superfund Site - Transport & Fate / Food Web Modeling Directions for model design and development.	85	3 CORR / Correspondence	R10: Hope, Bruce, K (Oregon Dept. of Environmental Quality)	R10: (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100011203	11/9/2005	Email regarding Bruce H's initial direction on the food web model.	17	1 EML / Email	R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)	R10: Neely, Robert (NOAA), R10: Bridgen, Pamela, J (Environment International, Ltd.), R10: Blischke, Eric, L (EPA), R10: Shephard, Burt (EPA), R10: Humphrey, Chip (EPA), R10: Davoli, Dana (EPA), R10: Goulet, Joe (EPA), R10: O'mealy, Mikell (Oregon Dept. of Environmental Quality), R10: Thompson, Chris (Environment International, Ltd.), R10: Buck, Jeremy (U. S. Fish & Wildlife Service)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100011205	11/9/2005	Portland Harbor Superfund Site - Transport & Fate/Food Web Modeling: Directions for model design and development.	87	3 CORR / Correspondence	R10: Hope, Bruce, K (Oregon Dept. of Environmental Quality)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100008280	11/10/2005	Email regarding Portland Harbor Food Web Modeling Effort.	16	1 EML / Email	R10: Hope, Bruce, K (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100008282	11/10/2005	Tables showing Details of the transport and fate (T&F) sub-model for a single river segment and Relationship of T&F and food web sub-models over multiple river segments.	43	2 CHT / Chart/Table	R10: Unknown, Unknown (Unknown)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100008545	11/10/2005	Email regarding Arnot and Gobas model template.	22	2 EML / Email	R10: Hope, Bruce, K (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100008546	11/10/2005	Email regarding Arnot and Gobas model template.	21	1 EML / Email	R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100009825	11/10/2005	Email regarding Bruce Hope.	26	2 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100011764	11/10/2005	Email Regarding Management Objectives.	28	1 EML / Email	R10: O'mealy, Mikell (Oregon Dept. of Environmental Quality)	R10: Neely, Robert (NOAA), R10: Buck, Jeremy (U. S. Fish and Wildlife Service), R10: Blischke, Eric, L (EPA), R10: Goulet, Joe (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940680231	11/10/2005	Email regarding reply to Bruce Hope.	26	2 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100007581	11/14/2005	Changes to the draft Assessment Endpoint Table.	54	4 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100007582	11/14/2005	Data Needs for the Portland Harbor Ecological Risk Assessment.	61	4 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100007583	11/14/2005	Approach for the Ecological Risk Assessment. DRAFT Ecological risk assessment conceptual site model for the Portland Harbor Superfund Site.	119	7 CORR / Correspondence	R10: O'mealy, Mikell (Oregon Dept. of Environmental Quality)	R10: (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100007585	11/14/2005		183	15 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement

						R10: Neely, Robert (NOAA), R10: Anderson, Jim, M (State of Oregon), R10: Buck, Jeremy (U. S. Fish and Wildlife Service), R10: Madden, Erin (Unknown), R10: Bridgen, Pamela, J (Environment International, Ltd.), R10: Estensen, Lisa (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Sheldrake, Sean, A (EPA), R10: Fuentes, Rene, C (EPA), R10: Cora, Lori, H (EPA), R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA), R10: Smith, Judy, R (EPA), R10: Shephard, Burt (EPA), R10: Humphrey, Chip (EPA), R10: Black, Curt (EPA), R10: Davoli, Dana (EPA), R10: Grepo-grove, Gina (EPA), R10: Goulet, Joe (EPA), R10: Ivy, Kathy (EPA), R10: Toepel, Kathryn (Oregon Dept. of Human Services), R10: Struck, Rodney, G (Oregon Dept. of Environmental Quality), R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality), R10: Mcclincy, Matt (Oregon Dept. of Environmental Quality), R10: Poulsen, Mike (Oregon Dept. of Environmental Quality), R10: Gainer, Tom (Oregon Dept. of Environmental Quality), R10: Lee, Jean, H (Environment International, Ltd.), R10: Lee, Valerie (Environment International, Ltd.), R10: Baker, Jeff (Grand Ronde Tribe), R10: How, P (CRITFC), R10: Thompson, Chris (Environment International, Ltd.), R10: D, Tom (CTSI)			
100011068	11/14/2005	Email regarding Integration Meeting Follow-up.	23	1 EML / Email	R10: Omealy, Mikell (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement		
4940680233	11/15/2005	Email regarding reply to CAG Gasco Presentation.	21	1 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement		
4940680803	11/15/2005	Email regarding reply to meeting tomorrow (11/16).	46	2 EML / Email	R10: Anderson, James, M (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement		
100009202	11/16/2005	Email regarding Draft Gasco/Siltronic Offshore Groundwater Field Sampling Approach. REDACTED Email regarding reply to Draft Gasco/Siltronic Offshore Groundwater Field Sampling Approach.	28	2 EML / Email	R10: Mcclincy, Matt (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement		
100017418	11/16/2005	Final Draft ERA Package to EPA - review needed.	23	2 EML / Email	R10: Mcclincy, Matt (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement		
100009012	11/17/2005	Email regarding FW_NW Natural Gasco Preliminary Groundwater Source. Preliminary Identification of Technologies for Groundwater Source Control, NW Natural Gasco Site, Portland, Oregon.	19	1 EML / Email	R10: Mcclincy, Matt (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement		
100009579	11/17/2005	Final Draft ERA Package to EPA.	200	12 MEMO / Memorandum	R10: Edwards, John, E (Anchor Environmental, LLC)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement		
100007580	11/18/2005	Email regarding Arnot and Gobas model template.	21	1 EML / Email	R10: O'mealy, Mikell (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement		
100008542	11/18/2005	Email regarding SMA Data Gaps Table.	24	2 EML / Email	R10: Hope, Bruce, K (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement		
100010536	11/18/2005	Email Regarding SMA Data Gaps Table. DEQ Sediment Management Area Data Gaps Table.	18	1 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement		
100014995	11/18/2005	Final Draft ERA Package to EPA.	18	1 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement		
100014996	11/18/2005	Final Draft ERA Package to EPA.	64	1 CHT / Chart/Table	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement		
100010120	11/21/2005	Email regarding SMA Data Gaps Table. Email Regarding Memorandum Showing My Draft Evaluation of Potential Risks to Infants From Consuming PCBs in Breast Milk As a Result of Material Exposure From Eating Contaminated Fish.	22	2 EML / Email	R10: Mcclincy, Matt (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement		
100010553	11/21/2005	Draft Report: Potential Risks From Consuming Breast Milk.	26	1 EML / Email	R10: Poulsen, Michael (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement		
100010554	11/21/2005	Email regarding FW_my response to burt_	99	5 RPT / Report	R10: Poulsen, Michael (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement		
100009019	11/22/2005	Final Draft ERA Package to EPA.	23	3 EML / Email	R10: Omealy, Mikell (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement		
100009271	11/22/2005	Email regarding Schedule. Technical Recommendations to EPA on the Ecological Risk Assessment for Portland Harbor.	27	2 EML / Email	R10: Mcclincy, Matt (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement		
100007584	11/23/2005	Technical Recommendations to EPA on the Ecological Risk Assessment for Portland Harbor.	69	4 CORR / Correspondence	R10: O'mealy, Mikell (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement		
100007617	11/23/2005	Email regarding Accum in GW discharge zones. Email regarding Technical recommendations for the ERA.	17	1 EML / Email	R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement		
100010540	11/23/2005	Technical Recommendations to EPA on the Ecological Risk Assessment for Portland Harbor.	25	2 EML / Email	R10: O'mealy, Mikell (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement		
100010557	11/23/2005	Technical Recommendations to EPA on the Ecological Risk Assessment for Portland Harbor.	68	4 RPT / Report	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement		
100010563	11/23/2005	Email Regarding DEQ Comments On the Gasco/Siltronic Groundwater Source Control Screening Memorandum.	26	1 EML / Email	R10: Mcclincy, Matt (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement		
100010564	11/23/2005	Review of the November 17, 2005 Memorandum Regarding Preliminary Identification of Technologies for Groundwater Source Control at the Northwest Natural GASCO Site; NW Natural - Gasco/Siltronic Facilities #84 and #183.	223	3 CORR / Correspondence	R10: Mcclincy, Matt (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement		
100010570	11/23/2005	Technical Recommendations to EPA on the Ecological Risk Assessment for Portland Harbor. Letter regarding Groundwater Source Control, NW Natural, Gasco/Siltronic Facilities ECSI #84 and #183.	67	4 RPT / Report	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement		
100011093	11/23/2005	Email Regarding Technical recommendations for the ERA.	38	3 LTR / Letter	R10: Mcclincy, Matt (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement		
100014997	11/23/2005	Technical Recommendations to EPA on the Ecological Risk Assessment for Portland Harbor.	25	2 EML / Email	R10: Omealy, Mikell (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement		
100014998	11/23/2005	Technical Recommendations to EPA on the Ecological Risk Assessment for Portland Harbor. DRAFT Ecological risk assessment conceptual site model for the Portland Harbor Superfund Site.	60	4 CORR / Correspondence	R10: (Eco Team)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement		
100014999	11/23/2005	Changes to the draft Assessment Endpoint Table.	110	1 FIG / Figure/Map/ Drawing	R10: (Eco Team)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement		
100015000	11/23/2005	Changes to the draft Assessment Endpoint Table.	82	4 CHT / Chart/Table	R10: (Eco Team)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement		

100015001	11/23/2005	Approach for the Ecological Risk Assessment. DATA NEEDS FOR THE PORTLAND HARBOR	121	8 RPT / Report	R10: (Eco Team)		ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100015002	11/23/2005	ECOLOGICAL RISK ASSESSMENT.	86	4 CHT / Chart/Table	R10: (Eco Team)		ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100015004	11/23/2005	Approach for the Ecological Risk Assessment.	91	6 RPT / Report	R10: (Eco Team)		ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100015005	11/23/2005	Ecological risk assessment conceptual site model for the Portland Harbor Superfund Site. REDACTED Email regarding reply to Draft Gasco/Siltronic Offshore Groundwater Field Sampling Approach.	114	1 FIG / Figure/Map/ Drawing	R10: (Eco Team)		ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100017420	11/23/2005	Email regarding Gasco/Siltronic Groundwater Source Control.	23	2 EML / Email	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	R10: Fuentes, Rene, C (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940681747	11/23/2005	Letter regarding Groundwater Source Control - NW Natural - Gasco/Siltronic Facilities - ECSI #84 and #183.	18	1 EML / Email	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	R10: Wyatt, Bob (Northwest Natural Gas Company)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940681748	11/23/2005	Email regarding Technical recommendations for the ERA.	97	3 LTR / Letter	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	R10: Wyatt, Bob (Northwest Natural Gas Company)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100010573	11/28/2005	Email regarding Technical recommendations for the ERA.	21	3 EML / Email	R10: O'mealy, Mikell (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100010577	11/28/2005	Email regarding Meeting Agenda for Tomorrow's Food Web Model Meeting.	23	3 EML / Email	R10: O'mealy, Mikell (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100010678	11/28/2005	Email Regarding Technical recommendations for the ERA.	26	2 EML / Email	R10: Hope, Bruce, K (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100015003	11/28/2005		23	3 EML / Email	R10: Omealy, Mikell (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940681202	11/29/2005	Email regarding Msg from Chip Humphrey re: TCT Meeting Location/Time tomorrow Nov 30. Email Regarding Gasco Draft Groundwater Work Plan - I Am Checking With You Regarding the Review Status.	32	1 EML / Email	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	R10: Neely, Robert (NOAA), R10: Madden, Erin (Unknown), R10: Bridgen, Pamela, J (Environment International, Ltd.), R10: Downey, Tom (Confederated Tribes of the Siletz Indians), R10: Estensen, Lisa (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Blischke, Eric, L (EPA), R10: Toepel, Kathryn (Oregon Dept. of Human Services), R10: Anderson, James, M (Oregon Dept. of Environmental Quality), R10: Lee, Jean, H (Environment International, Ltd.), R10: Baker, Jeff (Grand Ronde Tribe), R10: How, P (CRITFC), R10: Buck, Jeremy (U. S. Fish & Wildlife Service)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100010836	11/30/2005	Email regarding Gasco Draft Groundwater Work Plan.	30	1 EML / Email	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	R10: Stivers, Carl (Anchor Environmental, LLC)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940681166	11/30/2005		23	1 EML / Email	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	R10: Stivers, Carl (Anchor Environmental, LLC)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100009886	12/1/2005	Email regarding Round 3 Data Gaps Memo.	21	1 EML / Email	R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100010282	12/1/2005	Email regarding Tentative Lamprey Meeting Schedule and Agenda.	25	1 EML / Email	R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)	R10: Neely, Robert (NOAA), R10: Buck, Jeremy (U. S. Fish and Wildlife Service), R10: Goulet, Joe (EPA), R10: Thompson, Chris (Environment International, Ltd.), R10: Van De Wetering, Stan (Confederated Tribes of Siletz Indians)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100010588	12/1/2005	Email regarding Rewrite of human health sections of Data Gaps memo.	18	1 EML / Email	R10: Poulsen, Mike (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA), R10: Davoli, Dana (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100010590	12/1/2005	Identification of Round 3 Data Gaps.	309	35 RPT / Report	R10: Unknown, Unknown (Unknown)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100011199	12/1/2005	Email regarding Rewrite of human health sections of Data Gaps memo.	17	1 EML / Email	R10: Poulsen, Mike (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA), R10: Davoli, Dana (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100011209	12/1/2005	Identification of Round 3 Data Gaps.	311	35 RPT / Report	R10: Unknown, Unknown (Unknown)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100017069	12/1/2005	REDACTED Email regarding reply to Arkema Data Presentation and Screening Proposal.	23	2 EML / Email	R10: Struck, Rodney, G (Oregon Dept. of Environmental Quality)	R10: Sheldrake, Sean, A (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100017070	12/1/2005	REDACTED Email regarding reply to Arkema Data Presentation and Screening Proposal.	27	2 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Munn, Nancy (NOAA), R10: Sleeper, Preston, A (U.S. Dept. of the Interior), R10: Smith, Greg (U. S. Fish and Wildlife Service), R10: Madden, Erin (Unknown), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Roth, Eric (Parametrix, Inc.), R10: Downey, Tom (Confederated Tribes of the Siletz Indians), R10: Bluelake, Lisa (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Young, Cyril (Oregon Dept. of State Lands), R10: Sheldrake, Sean, A (EPA), R10: McClincy, Matt (Oregon Dept. of Environmental Quality), R10: Lee, Jean, H (Environment International, Ltd.), R10: Baker, Jeff (Grand Ronde Tribe), R10: Givens, Raymond, C (Givens Law), R10: Thompson, Chris (Environment International, Ltd.), R10: Ward, Paul (Yakama Nation), R10: Barquin, Billy (Haglund Kelley, LLP), R10: Kepler, Rick, J (State of Oregon), R10: Buck, Jeremy (U. S. Fish & Wildlife Service)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940680961	12/1/2005	Email regarding reply to Tentative Lamprey meeting schedule and agenda.	25	1 EML / Email	R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)	R10: Neely, Robert (NOAA), R10: Goulet, Joe (EPA), R10: Thompson, Chris (Environment International, Ltd.), R10: Van De Wetering, Stan (Confederated Tribes of Siletz Indians), R10: Buck, Jeremy (U. S. Fish & Wildlife Service)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940681749	12/1/2005	Email regarding Round 3 Data Gaps Memo.	19	1 EML / Email	R10: Anderson, James, M (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940681750	12/1/2005	Comments on Identification of Round 3 Data Gaps.	256	33 RPT / Report	R10: Anderson, James, M (Oregon Dept. of Environmental Quality)	R10: Neely, Robert (NOAA), R10: Bridgen, Pamela, J (Environment International, Ltd.), R10: Black, Curt (EPA), R10: McClincy, Matt (Oregon Dept. of Environmental Quality), R10: Lee, Jean, H (Environment International, Ltd.), R10: Buck, Jeremy (U. S. Fish & Wildlife Service)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940681753	12/1/2005	Email regarding M Greenberg's Publications.	20	1 EML / Email	R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)	R10: Field, Jay (NOAA), R10: Neely, Robert (NOAA), R10: Buck, Jeremy (U. S. Fish and Wildlife Service), R10: Goulet, Joe (EPA), R10: Thompson, Chris (Environment International, Ltd.)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100009024	12/2/2005	Email regarding FW_ Floating Percentile comments.	17	1 EML / Email	R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)	R10: Andersen, Helle (Windward Environmental, LLC.), R10: Saban, Lisa (Windward Environmental, LLC.), R10: Johns, Mike (Windward Environmental, LLC.), R10: Michelsen, Teresa (Windward Environmental, LLC.), R10: Read, Lorraine (Windward Environmental, LLC.)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100010650	12/6/2005	Summary of the November 21st Benthic Meeting.	223	4 MTG / Meeting Document	R10: Unknown, Unknown (Lower Willamette Group), R10: Unknown, Unknown (EPA)	R10: Unknown, Unknown (Lower Willamette Group), R10: Unknown, Unknown (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100010654	12/6/2005	Email regarding Siltronic, Area 2 Dive Survey Report.	22	2 EML / Email	R10: Bayuk, Dana (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100011489	12/6/2005	Summary of Nov 21 2005 Benthic Meeting, JP comments.	109	4 MEMO / Memorandum	R10: Andersen, Helle (Windward Environmental, LLC.), R10: Saban, Lisa (Windward Environmental, LLC.), R10: Johns, Mike (Windward Environmental, LLC.), R10: Michelsen, Teresa (Windward Environmental, LLC.), R10: Read, Lorraine (Windward Environmental, LLC.)	R10: (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100015006	12/6/2005	Email Regarding Siltronic, Area 2 Dive Survey Report.	22	2 EML / Email	R10: Bayuk, Dana (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement



					R10: Andersen, Helle (Windward Environmental, LLC.), R10: Saban, Lisa (Windward Environmental, LLC.), R10: Johns, Mike (Windward Environmental, LLC.), R10: Michelsen, Teresa (Windward Environmental, LLC.), R10: Read, Lorraine (Windward Environmental, LLC.)			
100015009	12/6/2005	Memorandum Regarding Summary of November 21, 2005 Benthic Meeting. REDACTED Email regarding reply to Sediment treatment technology workshop for Portland Harbor.	194	4 MEMO / Memorandum		R10: (Eco Team)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100017765	12/6/2005		20	1 EML / Email	R10: O'mealy, Mikell (Oregon Dept. of Environmental Quality)	R10: Smith, Judy, R (EPA), R10: Anderson, James, M (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
						R10: Field, Jay (NOAA), R10: Neely, Robert (NOAA), R10: Bridgen, Pamela, J (Environment International, Ltd.), R10: Blischke, Eric, L (EPA), R10: Shephard, Burt (EPA), R10: Humphrey, Chip (EPA), R10: Goulet, Joe (EPA), R10: Omealy, Mikell (Oregon Dept. of Environmental Quality), R10: Thompson, Chris (Environment International, Ltd.), R10: Buck, Jeremy (U. S. Fish & Wildlife Service)		
100017225	12/7/2005	REDACTED Email Regarding Summary of the November 21st Benthic Meeting.	27	3 EML / Email	R10: Peterson, Jenn, L (Oregon Dept. of Environmental Quality)		ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
						R10: Field, Jay (NOAA), R10: Neely, Robert (NOAA), R10: Bridgen, Pamela, J (Environment International, Ltd.), R10: Blischke, Eric, L (EPA), R10: Shephard, Burt (EPA), R10: Humphrey, Chip (EPA), R10: Goulet, Joe (EPA), R10: O'mealy, Mikell (Oregon Dept. of Environmental Quality), R10: Thompson, Chris (Environment International, Ltd.), R10: Buck, Jeremy (U. S. Fish & Wildlife Service)		
100017945	12/7/2005	REDACTED Email regarding Summary of the November 21st Benthic Meeting.	27	3 EML / Email	R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)		ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100010652	12/9/2005	Email regarding Talking points for ERA on Tuesday.	17	1 EML / Email	R10: O'mealy, Mikell (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA), R10: Goulet, Joe (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100010675	12/9/2005	ERA speaking points for December 13, 2005 meeting with LWG.	73	4 NOTE / Notes	R10: O'mealy, Mikell (Oregon Dept. of Environmental Quality)	R10: Unknown, Unknown (Lower Willamette Group)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100012814	12/12/2005	Email regarding Proposed Corps/EPA/DEQ Agenda.	21	1 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100010584	12/13/2005	Notes From Portland Harbor Managers Meeting.	162	2 MTG / Meeting Document	R10: O'mealy, Mikell (Oregon Dept. of Environmental Quality)		ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940681754	12/13/2005	Notes from Portland Harbor Managers meeting.	58	2 MTG / Meeting Document	R10: O'mealy, Mikell (Oregon Dept. of Environmental Quality)		ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
						R10: Mckenna, James (Port of Portland), R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA), R10: Kawabata, Sylvia (EPA), R10: Anderson, James, M (Oregon Dept. of Environmental Quality), R10: McClincy, Matt (Oregon Dept. of Environmental Quality), R10: Livesay, Dave (GSI Groundwater Solutions, Inc.), R10: Lee, Jean, H (Environment International, Ltd.), R10: Lee, Valerie Ann (Environment International, Ltd.), R10: Thompson, Chris (Environment International, Ltd.), R10: Applegate, Rick (City of Portland)		
100010583	12/14/2005	Email Regarding Notes From Last Night's Managers Meeting, Which Included Reactions From the Technical Meeting and a Description of Next Steps.	26	1 EML / Email	R10: O'mealy, Mikell (Oregon Dept. of Environmental Quality)		ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100012187	12/14/2005	Email Regarding PH Surface Water.	27	1 EML / Email	R10: Hope, Bruce, K (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100017696	12/14/2005	REDACTED Email regarding Meeting with Stan Van de Wetering on 19 Dec.	19	1 EML / Email	R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)	R10: Thompson, Chris (Environment International, Ltd.)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
						R10: Livesay, Dave (CH2M Hill, Inc.), R10: Mckenna, Jim (Lower Willamette Group), R10: Blischke, Eric, L (EPA), R10: Lee, Valerie (Environment International, Ltd.), R10: Thompson, Chris (Environment International, Ltd.), R10: Applegate, Rick (City of Portland)		
4940681755	12/14/2005	Email regarding Notes from managers meeting.	18	1 EML / Email	R10: O'mealy, Mikell (Oregon Dept. of Environmental Quality)		ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100009977	12/15/2005	Email regarding December 21 TCT and Planning Next Steps.	24	2 EML / Email	R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100008287	12/19/2005	Email regarding Preliminary Draft Offshore Groundwater Field Sampling Approach.	19	1 EML / Email	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	R10: Wyatt, Robert, J (NW Natural)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100008291	12/19/2005	Letter regarding Preliminary Draft Offshore Groundwater Field Sampling Approach: Gasco/Siltronic Groundwater Source Evaluation ECSI #84.	115	5 LTR / Letter	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	R10: Wyatt, Robert, J (NW Natural)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100011081	12/19/2005	Gasco Preliminary ID of Groundwater Technologies and Alternatives for Groundwater Source Control, NW Natural Gasco Site, Portland, Oregon.	287	19 MEMO / Memorandum	R10: Edwards, John, E (Anchor Environmental, LLC)	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100011095	12/19/2005	Letter regarding Preliminary Draft Offshore Groundwater Field Sampling Approach Gasco/Siltronic Groundwater Source Evaluation ECSI #84.	56	5 LTR / Letter	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	R10: Wyatt, Robert, J (NW Natural)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940680837	12/19/2005	Email regarding reply to Notes from managers meeting.	26	1 EML / Email	R10: Anderson, James, M (Oregon Dept. of Environmental Quality)	R10: Mckenna, James (Port of Portland), R10: O'mealy, Mikell (Oregon Dept. of Environmental Quality), R10: Lee, Jean, H (Environment International, Ltd.)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940680838	12/19/2005	Email regarding reply to Notes from managers meeting.	23	1 EML / Email	R10: O'mealy, Mikell (Oregon Dept. of Environmental Quality)	R10: Lee, Jean, H (Environment International, Ltd.)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940681756	12/19/2005	Letter regarding Preliminary Draft Offshore Groundwater Field Sampling Approach - Gasco/Siltronic Groundwater Source Evaluation - ECSI #84.	117	5 LTR / Letter	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	R10: Wyatt, Bob (Northwest Natural Gas Company)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940681757	12/19/2005	Email regarding Preliminary Draft Offshore Groundwater Field Sampling Approach.	19	1 EML / Email	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	R10: Wyatt, Bob (Northwest Natural Gas Company)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
						R10: Mckenna, James (Port of Portland), R10: Pine, Keith, A (Integral Consulting, Inc.), R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA), R10: Anderson, James, M (Oregon Dept. of Environmental Quality), R10: McClincy, Matt (Oregon Dept. of Environmental Quality), R10: Lee, Jean, H (Environment International, Ltd.), R10: Wyatt, Robert, J (NW Natural), R10: Applegate, Rick (City of Portland)		
100015572	12/20/2005	Email regarding Portland Harbor Managers Meeting Tomorrow (12/21).	45	1 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)		ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100007699	12/21/2005	Email regarding Background.	21	2 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Pine, Keith, A (Integral Consulting, Inc.)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100009597	12/21/2005	Email regarding PH Surface Water.	20	1 EML / Email	R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100009599	12/21/2005	Email regarding PH Surface Water.	21	2 EML / Email	R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100013715	12/21/2005	Email Regarding References for Background and Ambient Conditions.	34	2 EML / Email	R10: Anderson, James, M (Oregon Dept. of Environmental Quality)	R10: Pine, Keith, A (Integral Consulting, Inc.)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940681235	12/21/2005	Email regarding Portland Harbor Joint Source Control Strategy	24	1 EML / Email	R10: Anderson, James, M (Oregon Dept. of Environmental Quality)	R10: Unknown, Unknown (Oregon Department of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100009584	12/22/2005	Email regarding PH Monthly Conf Call Today at 1:30pm,????.	21	1 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA), R10: Kawabata, Sylvia (EPA), R10: Johnson, Keith (Washington State Dept. of Ecology), R10: Anderson, Jim (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100011500	12/22/2005	Benthic Interpretive Approach for Portland Harbor Ecological Risk Assessment, Model Direction Memo 12/22/05.	62	4 LTR / Letter	R10: (EPA)	R10: (Lower Willamette Group)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940680867	12/22/2005	Email regarding reply to PH monthly conf call today at 1:30p.	21	1 EML / Email	R10: Anderson, James, M (Oregon Dept. of Environmental Quality)	R10: Kawabata, Sylvia (EPA), R10: Johnson, Keith (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940680868	12/22/2005	Email regarding reply to PH monthly conf call today at 1:30p.	21	1 EML / Email	R10: Johnson, Keith (Oregon Dept. of Environmental Quality)	R10: Kawabata, Sylvia (EPA), R10: Anderson, James, M (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement

4940681868	12/31/2005	Quarterly Report to the U.S. Environmental Protection Agency Portland Harbor Joint Source Control Strategy - Period Ending December 31, 2005.	25	2 CONTR / Contract Documentation	R10: Parker, A., M (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100009025	1/1/2006	National Recommended Water Quality Criteria.	162	25 LAWS / Laws/Regulations/Guidance	R10: Unknown, Unknown (EPA)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD 056-SITE SUPPORT/0563-State/Tribal Involvement
100009132	1/1/2006	Synthesis of effects of dissolved copper on juvenile salmonid olfaction using a benchmark concentration analysis.	71	1 RPT / Report	R10: Mebane, Christopher, A (U.S. Geological Survey), R10: Hawkes, Tony (National Marine Fisheries Service), R10: Hecht, Scott, A (National Marine Fisheries Service), R10: Baldwin, David, H (National Marine Fisheries Service), R10: Gross, Sean, J (National Marine Fisheries Service), R10: Scholz, Nathaniel, L (National Marine Fisheries Service)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD 056-SITE SUPPORT/0563-State/Tribal Involvement
100011023	1/3/2006	Email Regarding Gasco Groundwater Work Plan: NW Natural Is Looking to Have a Conference Call the Latter Part of the Week of January 9th to Discuss Regulatory Comments In Their In-Water Groundwater Work Plan.	31	1 EML / Email	R10: Mcclincy, Matt (Oregon Dept. of Environmental Quality)	R10: Neely, Robert (NOAA), R10: Fuentes, Rene, C (EPA), R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA), R10: Lee, Jean, H (Environment International, Ltd.)	ELECTRONIC RECORD 056-SITE SUPPORT/0563-State/Tribal Involvement
4940681168	1/3/2006	Email regarding Gasco Groundwater Work Plan.	23	1 EML / Email	R10: Mcclincy, Matt (Oregon Dept. of Environmental Quality)	R10: Neely, Robert (NOAA), R10: Blischke, Eric, L (EPA), R10: Lee, Jean, H (Environment International, Ltd.)	ELECTRONIC RECORD 056-SITE SUPPORT/0563-State/Tribal Involvement
4940681772	1/3/2006	Draft Risk Assessment Approach for Evaluating Potential Risks from Consuming Breast Milk.	115	8 RPT / Report	R10: Poulsen, Michael (Oregon Dept. of Environmental Quality)		ELECTRONIC RECORD 056-SITE SUPPORT/0563-State/Tribal Involvement
100010470	1/6/2006	Email regarding Siltronic, Draft Source Control Alternatives Work Plan Review.	26	1 EML / Email	R10: Bayuk, Dana (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA), R10: Blischke, Heidi (Oregon Dept. of Environmental Quality), R10: Gainer, Tom (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD 056-SITE SUPPORT/0563-State/Tribal Involvement
4940680297	1/6/2006	Email regarding reply to Siltronic, Draft Source control Alternatives Work Plan Review.	28	2 EML / Email	R10: Blischke, Heidi (Oregon Dept. of Environmental Quality)	R10: Bayuk, Dana (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD 056-SITE SUPPORT/0563-State/Tribal Involvement
4940681019	1/6/2006	Email regarding Siltronic, Draft Source control Alternatives Work Plan Review.	26	1 EML / Email	R10: Bayuk, Dana (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA), R10: Blischke, Heidi (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD 056-SITE SUPPORT/0563-State/Tribal Involvement
100007743	1/9/2006	Email regarding DEQ Comments on ARKEMA Draft Comment/Response Spreadsheet.	22	2 EML / Email	R10: Mcclincy, Matt (Oregon Dept. of Environmental Quality)	R10: Sheldrake, Sean, A (EPA)	ELECTRONIC RECORD 056-SITE SUPPORT/0563-State/Tribal Involvement
100008451	1/9/2006	Email regarding Siltronic, Draft Source Control Alternatives Work Plan Review.	26	2 EML / Email	R10: Mcclincy, Matt (Oregon Dept. of Environmental Quality)	R10: Bayuk, Dana (Oregon Dept. of Environmental Quality), R10: Blischke, Heidi (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD 056-SITE SUPPORT/0563-State/Tribal Involvement
100008453	1/9/2006	Email regarding Siltronic, Draft Source Control Alternatives Work Plan Review.	28	2 EML / Email	R10: Bayuk, Dana (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD 056-SITE SUPPORT/0563-State/Tribal Involvement
100011013	1/9/2006	Email Regarding Gasco Groundwater Work Plan Meeting: Reminder to Everyone That We Set Aside This Friday to Meet or Have a Conference Call With Northwest Natural Concerning the Regulatory Comments On the In-Water Groundwater Investigation Work Plan.	30	1 EML / Email	R10: Mcclincy, Matt (Oregon Dept. of Environmental Quality)	R10: Fuentes, Rene, C (EPA), R10: Blischke, Eric, L (EPA), R10: Anderson, James, M (Oregon Dept. of Environmental Quality), R10: Blischke, Heidi (Oregon Dept. of Environmental Quality), R10: Lee, Jean, H (Environment International, Ltd.)	ELECTRONIC RECORD 056-SITE SUPPORT/0563-State/Tribal Involvement
100014058	1/9/2006	Email Regarding DEQ Comments on ARKEMA Draft Comment/Response Spreadsheet Concerning Engineering Evaluation/Cost Analysis (EE/CA).	37	2 EML / Email	R10: Mcclincy, Matt (Oregon Dept. of Environmental Quality)	R10: Sheldrake, Sean, A (EPA)	ELECTRONIC RECORD 056-SITE SUPPORT/0563-State/Tribal Involvement
4940680298	1/9/2006	Email regarding reply to Siltronic, Draft Source control Alternatives Work Plan Review.	26	2 EML / Email	R10: Mcclincy, Matt (Oregon Dept. of Environmental Quality)	R10: Blischke, Heidi (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD 056-SITE SUPPORT/0563-State/Tribal Involvement
4940680299	1/9/2006	Email regarding reply to Siltronic, Draft Source control Alternatives Work Plan Review.	28	2 EML / Email	R10: Bayuk, Dana (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD 056-SITE SUPPORT/0563-State/Tribal Involvement
4940681167	1/9/2006	Email regarding Gasco Groundwater Work Plan Meeting.	23	1 EML / Email	R10: Mcclincy, Matt (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA), R10: Blischke, Heidi (Oregon Dept. of Environmental Quality), R10: Lee, Jean, H (Environment International, Ltd.)	ELECTRONIC RECORD 056-SITE SUPPORT/0563-State/Tribal Involvement
100010066	1/10/2006	Email regarding Siltronic, Draft Source Control Alternatives Work Plan Review.	24	2 EML / Email	R10: Bayuk, Dana (Oregon Dept. of Environmental Quality)	R10: Blischke, Heidi (Oregon Dept. of Environmental Quality), R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA), R10: Blischke, Heidi (Oregon Dept. of Environmental Quality), R10: Gainer, Tom (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD 056-SITE SUPPORT/0563-State/Tribal Involvement
4940680923	1/10/2006	Email regarding reply to Siltronic, Draft Source control Alternatives Work Plan Review.	24	2 EML / Email	R10: Bayuk, Dana (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA), R10: Blischke, Heidi (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD 056-SITE SUPPORT/0563-State/Tribal Involvement
4940681227	1/10/2006	Email regarding Pdx Harbor Physical Team Sub Group Meeting.	22	1 EML / Email	R10: Mcclincy, Matt (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD 056-SITE SUPPORT/0563-State/Tribal Involvement
100008295	1/11/2006	Email regarding Portland Harbor Food Web Model Data.	39	1 EML / Email	R10: Hope, Bruce, K (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD 056-SITE SUPPORT/0563-State/Tribal Involvement
100011024	1/11/2006	Email Regarding Gasco Meeting: Purpose of Meeting Is to Review the Objectives of the In-Water Groundwater Work Plan That NW Natural Submitted and the Comments That DEQ, EPA, and Partners Provided Comments on.	30	1 EML / Email	R10: Mcclincy, Matt (Oregon Dept. of Environmental Quality)	R10: Fuentes, Rene, C (EPA), R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA), R10: Anderson, James, M (Oregon Dept. of Environmental Quality), R10: Blischke, Heidi (Oregon Dept. of Environmental Quality), R10: Lee, Jean, H (Environment International, Ltd.)	ELECTRONIC RECORD 056-SITE SUPPORT/0563-State/Tribal Involvement
100011210	1/11/2006	Email regarding Draft tech support request memo.	17	1 EML / Email	R10: O'mealy, Mikell (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD 056-SITE SUPPORT/0563-State/Tribal Involvement
4940681169	1/11/2006	Email regarding Gasco Meeting.	23	1 EML / Email	R10: Mcclincy, Matt (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA), R10: Blischke, Heidi (Oregon Dept. of Environmental Quality), R10: Lee, Jean, H (Environment International, Ltd.)	ELECTRONIC RECORD 056-SITE SUPPORT/0563-State/Tribal Involvement
4940681233	1/11/2006	Email regarding Portland Harbor data	39	1 EML / Email	R10: Hope, Bruce, K (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD 056-SITE SUPPORT/0563-State/Tribal Involvement
100010815	1/12/2006	Email regarding Gasco Meeting - Follow Up.	27	2 EML / Email	R10: Mcclincy, Matt (Oregon Dept. of Environmental Quality)	R10: Fuentes, Rene, C (EPA), R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality), R10: Blischke, Heidi (Oregon Dept. of Environmental Quality), R10: Mcclincy, Matt (Oregon Dept. of Environmental Quality), R10: Lee, Jean, H (Environment International, Ltd.)	ELECTRONIC RECORD 056-SITE SUPPORT/0563-State/Tribal Involvement
100012379	1/12/2006	Email regarding agenda for 1/11 PH Managers meeting.	30	3 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality), R10: Poulsen, Mike (Oregon Dept. of Environmental Quality), R10: Gainer, Tom (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD 056-SITE SUPPORT/0563-State/Tribal Involvement
100007804	1/13/2006	Email regarding Food Web Comments.	15	1 EML / Email	R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD 056-SITE SUPPORT/0563-State/Tribal Involvement
100012825	1/17/2006	Email regarding Proposed Meeting Dates - Siltronic Source Control Discussion.	30	2 EML / Email	R10: Bayuk, Dana (Oregon Dept. of Environmental Quality)	R10: Peale, James, G (Maul Foster & Alongi, Inc.)	ELECTRONIC RECORD 056-SITE SUPPORT/0563-State/Tribal Involvement
100012829	1/17/2006	Email regarding Proposed Meeting Dates - Siltronic Source Control Discussion.	31	2 EML / Email	R10: Bayuk, Dana (Oregon Dept. of Environmental Quality)	R10: Peale, James, G (Maul Foster & Alongi, Inc.), R10: Maul, James, J (Maul Foster & Alongi, Inc.), R10: Peterson, Jeffrey (Maul Foster & Alongi, Inc.), R10: Wall, Ted (Maul Foster & Alongi, Inc.), R10: Reive, Christopher, L (Tarlow Jordan & Schrader), R10: Mccue, Tom (Siltronic Corporation), R10: Gladstone, Alan (Davis Rothwell Earle & Xochihua)	ELECTRONIC RECORD 056-SITE SUPPORT/0563-State/Tribal Involvement
100015066	1/17/2006	REDACTED Email regarding Siltronic, Draft Source Control Alternatives Work Plan Review.	25	3 EML / Email	R10: Bayuk, Dana (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA), R10: Blischke, Heidi (Oregon Dept. of Environmental Quality), R10: Gainer, Tom (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD 056-SITE SUPPORT/0563-State/Tribal Involvement

100017767	REDACTED Email regarding reply to Siltronic, Draft Source control Alternatives Work Plan Review.	25	3 EML / Email	R10: Bayuk, Dana (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA), R10: Blischke, Heidi (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100011200	Figure 1: Ambient Sediment Quality Evaluation.	1,558	1 FIG / Figure/Map/ Drawing	R10: Unknown, Unknown (Landau Associates, Inc.)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100011212	Email regarding Ambient Sediment Quality Evaluation.	22	2 EML / Email	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100011213	Table 1: Existing Ambient Sediment Quality Data, Ross Island Sand and Gravel Co.	87	1 CHT / Chart/Table	R10: Unknown, Unknown (Unknown)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940680847	Email regarding reply to Oregon Steel Mills Conceptual Site Model.	33	2 EML / Email	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	R10: Neely, Robert (NOAA), R10: Howard, Patti (Columbia River Inter-Tribal Fish Commission), R10: Bridgen, Pamela, J (Environment International, Ltd.), R10: Downey, Tom (Confederated Tribes of the Siletz Indians), R10: Estensen, Lisa (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Blischke, Eric, L (EPA), R10: Madden, Erin (Nez Perce Tribe), R10: Anderson, James, M (Oregon Dept. of Environmental Quality), R10: Lee, Jean, H (Environment International, Ltd.), R10: Buck, Jeremy (U. S. Fish & Wildlife Service)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940681150	Email regarding Port of Portland T4 Berth Maintenance for Berth 401, 414, 415, and 416 SAP for RMT Review (1 of 2).	24	2 EML / Email	R10: Anderson, James, M (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940681020	Email regarding Siltronic, EPA, and DEQ Meeting Confirmed.	35	3 EML / Email	R10: Bayuk, Dana (Oregon Dept. of Environmental Quality)	R10: Peale, James, G (Maul Foster & Alongi, Inc.), R10: Reive, Christopher, L (Tarlow Jordan & Schrader), R10: Mccue, Tom (Siltronic Corporation), R10: Gladstone, Alan (Davis Rothwell Earle & Xochihua)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100009858	Email regarding Riparian Areas - Next Steps Conference Call Tuesday.	25	1 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Neely, Robert (NOAA), R10: Buck, Jeremy (U. S. Fish and Wildlife Service), R10: Bridgen, Pamela, J (Environment International, Ltd.), R10: Fuentes, Rene, C (EPA), R10: Blischke, Eric, L (EPA), R10: Shephard, Burt (EPA), R10: Humphrey, Chip (EPA), R10: Davoli, Dana (EPA), R10: Goulet, Joe (EPA), R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality), R10: McClincy, Matt (Oregon Dept. of Environmental Quality), R10: Poulsen, Michael (Oregon Dept. of Environmental Quality), R10: Lee, Jean, H (Environment International, Ltd.), R10: Thompson, Chris (Environment International, Ltd.)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100012966	Email regarding Riparian Areas - Next Steps Conference call Tuesday.	20	1 EML / Email	R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100012974	Email regarding Riparian Areas - Next Steps Conference call Tuesday.	25	1 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Neely, Robert (NOAA), R10: Bridgen, Pamela, J (Environment International, Ltd.), R10: Fuentes, Rene, C (EPA), R10: Blischke, Eric, L (EPA), R10: Shephard, Burt (EPA), R10: Humphrey, Chip (EPA), R10: Davoli, Dana (EPA), R10: Goulet, Joe (EPA), R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality), R10: McClincy, Matt (Oregon Dept. of Environmental Quality), R10: Poulsen, Mike (Oregon Dept. of Environmental Quality), R10: Lee, Jean, H (Environment International, Ltd.), R10: Thompson, Chris (Environment International, Ltd.), R10: Buck, Jeremy (U. S. Fish & Wildlife Service)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940681027	Email regarding Stormwater meeting.	23	1 EML / Email	R10: Johnson, Keith (Oregon Dept. of Environmental Quality)	R10: Kawabata, Sylvia (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100009009	Email regarding Background Reference. Comments on the Food Web Modeling Report: Evaluating Trophic Trace and the Arnot and Gobas Models for Application to the Portland Harbor Superfund Site, Draft, Nov 4, 2005. Prepared for LWG by Windward	17	1 EML / Email	R10: Poulsen, Mike (Oregon Dept. of Environmental Quality)	R10: Neely, Robert (NOAA), R10: Blischke, Eric, L (EPA), R10: Davoli, Dana (EPA), R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality), R10: Thompson, Chris (Environment International, Ltd.)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100011201	Environmental.	113	12 CORR / Correspondence	R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100011214	Email regarding Food Web Model Comments.	16	1 EML / Email	R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100018090	REDACTED Email regarding PH Managers Jan 27 Conference Call.	41	1 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Mckenna, James (Port of Portland), R10: Pine, Keith, A (Integral Consulting, Inc.), R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA), R10: Anderson, James, M (Oregon Dept. of Environmental Quality), R10: McClincy, Matt (Oregon Dept. of Environmental Quality), R10: Lee, Jean, H (Environment International, Ltd.), R10: Wyatt, Robert, J (NW Natural), R10: Applegate, Rick (City of Portland)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100010463	Email regarding Round 2 Field Sampling Plan Round 2 B Subsurface Addendum.	22	1 EML / Email	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940681005	Email regarding Round 2 Field Sampling Plan Round 2 B Subsurface Addendum.	22	1 EML / Email	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100009269	Email regarding SCD Spreadsheet.	22	2 EML / Email	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940680723	Email regarding reply to SCD Spreadsheet.	22	2 EML / Email	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940681869	Email regarding Portland Harbor Source Control Strategy quarterly report.	19	1 EML / Email	R10: Carlson, Kim (Oregon Dept. of Environmental Quality)	R10: Solis, Ricardo (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100007622	Email regarding Approach for Upstream Sampling.	24	2 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100013380	Email Regarding Approach for Upstream Sampling.	39	2 EML / Email	R10: Anderson, James, M (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100015641	Email regarding Sediment PCB Congener Data.	111	2 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Neely, Robert (NOAA), R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100007620	Email regarding Another Link.	16	1 EML / Email	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100009933	Email regarding Scheduling of Lamprey Meeting on 13 Feb.	22	1 EML / Email	R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)	R10: Neely, Robert (NOAA), R10: Buck, Jeremy (U. S. Fish and Wildlife Service), R10: Feehan, Kathleen (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA), R10: Goulet, Joe (EPA), R10: Thompson, Chris (Environment International, Ltd.), R10: Van De Wetering, Stan (Confederated Tribes of Siletz Indians)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940680910	Email regarding reply to Scheduling of lamprey meeting on 13 Feb.	22	1 EML / Email	R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)	R10: Neely, Robert (NOAA), R10: Feehan, Kathleen (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Goulet, Joe (EPA), R10: Thompson, Chris (Environment International, Ltd.), R10: Van De Wetering, Stan (Confederated Tribes of Siletz Indians), R10: Buck, Jeremy (U. S. Fish & Wildlife Service)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement

						R10: Buck, Jeremy (U. S. Fish and Wildlife Service), R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality), R10: McClincy, Matt (Oregon Dept. of Environmental Quality), R10: Poulsen, Mike (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement	
100007605	2/2/2006	Email regarding 2/7 Centralia Mtg. Email regarding FW_ GASCO Offshore Sampling.	17	1	EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)			
100008620	2/2/2006	Sampling.	29	2	EML / Email	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	R10: Wyatt, Robert, J (NW Natural)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100012558	2/2/2006	Email regarding EPA sediment guidance.	39	2	EML / Email	R10: Gainer, Tom (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100012589	2/2/2006	Email regarding GASCO Offshore Sampling.	29	2	EML / Email	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	R10: Wyatt, Robert, J (NW Natural)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100013078	2/2/2006	Email Regarding 2/7 Centralia Meeting.	32	1	EML / Email	R10: Anderson, James, M (Oregon Dept. of Environmental Quality)	R10: Buck, Jeremy (U. S. Fish and Wildlife Service), R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality), R10: McClincy, Matt (Oregon Dept. of Environmental Quality), R10: Poulsen, Michael (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100015286	2/6/2006	REDACTED Email regarding Sturgeon SOW for Round 3.	20	1	EML / Email	R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)	R10: Neely, Robert (NOAA), R10: Buck, Jeremy (U. S. Fish and Wildlife Service), R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA), R10: Goulet, Joe (EPA), R10: Gensemer, Robert, W (Parametrix, Inc.), R10: Thompson, Chris (Environment International, Ltd.)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100017787	2/6/2006	REDACTED Email regarding reply to Sturgeon SOW for Round 3.	20	1	EML / Email	R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)	R10: Neely, Robert (NOAA), R10: Blischke, Eric, L (EPA), R10: Gensemer, Robert, W (Parametrix, Inc.), R10: Thompson, Chris (Environment International, Ltd.), R10: Buck, Jeremy (U. S. Fish & Wildlife Service)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100010049	2/8/2006	Email regarding Set Up time to Talk About High Flow Sampling.	23	1	EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA), R10: Cope, Ben (EPA), R10: Lee, Jean, H (Environment International, Ltd.)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100011215	2/8/2006	Email regarding CSTAG.	16	1	EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100012961	2/8/2006	Email regarding Rhone Poulenc Contact.	20	1	EML / Email	R10: Roick, Tom (Oregon Dept. of Environmental Quality)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100008936	2/9/2006	Email regarding FW_ Floating Percentile Calculations.	20	1	EML / Email	R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)	R10: Field, Jay (NOAA), R10: Neely, Robert (NOAA), R10: Buck, Jeremy (U. S. Fish and Wildlife Service), R10: Goulet, Joe (EPA), R10: Thompson, Chris (Environment International, Ltd.)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100009179	2/9/2006	FPM Method Comparisons.	37	3	LTR / Letter	R10: Anderson, Mike (Oregon Dept. of Environmental Quality)	R10: Michelsen, Teresa (Avocet Consulting)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100012562	2/9/2006	Email regarding Floating Percentile Calculations.	26	2	EML / Email	R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)	R10: Field, Jay (NOAA), R10: Neely, Robert (NOAA), R10: Goulet, Joe (EPA), R10: Thompson, Chris (Environment International, Ltd.), R10: Buck, Jeremy (U. S. Fish & Wildlife Service)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100015597	2/10/2006	Email regarding LWG Response to EPA Comments on QAPP 6 Benthic Tissue.	136	1	EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100008366	2/12/2006	Email regarding PRE Comments.	20	1	EML / Email	R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100009133	2/13/2006	Email regarding Food Web Model Fish Tissue Requirements.	21	1	EML / Email	R10: Hope, Bruce, K (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100009214	2/13/2006	Email regarding Food Web Model Fish Tissue Requirements.	26	2	EML / Email	R10: Hope, Bruce, K (Oregon Dept. of Environmental Quality)	R10: Davoli, Dana (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940680715	2/13/2006	Email regarding reply to Food Web Model Fish Tissue Requirements.	26	2	EML / Email	R10: Hope, Bruce, K (Oregon Dept. of Environmental Quality)	R10: Davoli, Dana (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100013563	2/14/2006	Email Regarding Round 3 Data Gap Sample, City Stormwater Outfall #43.	17	1	EML / Email	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100015010	2/14/2006	Email Regarding Round 3 Data Gap Sample.	18	1	EML / Email	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100015011	2/14/2006	Diagram of City stormwater outfall #43 location.	121	1	FIG / Figure/Map/ Drawing	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)		ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100009281	2/15/2006	Email regarding UCR Fish Sampling Design Statistics from John Skalski (UW Statistician).	29	3	EML / Email	R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)	R10: Gensemer, Robert, W (Parametrix, Inc.), R10: Thompson, Chris (Environment International, Ltd.)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100009289	2/15/2006	Email regarding UCR Fish Sampling Design Statistics from John Skalski (UW Statistician).	27	2	EML / Email	R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)	R10: Buck, Jeremy (U. S. Fish and Wildlife Service), R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA), R10: Goulet, Joe (EPA), R10: Gensemer, Robert, W (Parametrix, Inc.), R10: Thompson, Chris (Environment International, Ltd.)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940680714	2/15/2006	Email regarding reply to Food Web Model Fish Tissue Requirements.	28	3	EML / Email	R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940680726	2/15/2006	Email regarding reply to UCR fish sampling design statistics from John Skalski(UW statistician).	27	2	EML / Email	R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA), R10: Gensemer, Robert, W (Parametrix, Inc.), R10: Thompson, Chris (Environment International, Ltd.), R10: Buck, Jeremy (U. S. Fish & Wildlife Service)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940680727	2/15/2006	Email regarding reply to UCR fish sampling design statistics from John Skalski(UW statistician).	29	3	EML / Email	R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)	R10: Gensemer, Robert, W (Parametrix, Inc.), R10: Thompson, Chris (Environment International, Ltd.)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100009392	2/16/2006	Email regarding draft Round 3 lamprey and sturgeon data needs document.	27	1	EML / Email	R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)	R10: Neely, Robert (NOAA), R10: Buck, Jeremy (U. S. Fish and Wildlife Service), R10: Thompson, Chris (Unknown), R10: Feehan, Kathleen (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Goulet, Joe (EPA), R10: Gensemer, Robert, W (Parametrix, Inc.), R10: Gouguet, Ron (NOAA), R10: Van De Wetering, Stan	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100015012	2/16/2006	Email Regarding Siltronic, Draft February 1st Meeting Summary Letter.	18	1	EML / Email	R10: Bayuk, Dana (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA), R10: Blischke, Heidi (Oregon Dept. of Environmental Quality), R10: Gainer, Tom (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100015013	2/16/2006	Letter Regarding Source Control Evaluation - Siltronic Corporation (ECSI No. 183).	89	2	LTR / Letter	R10: Bayuk, Dana (Oregon Dept. of Environmental Quality)	R10: Mccue, Tom (Siltronic Corporation)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940680183	2/16/2006	Email regarding reply to Draft Round 3 lamprey and sturgeon data needs doc.	26	1	EML / Email	R10: Thompson, Chris (Environment International, Ltd.)	R10: Neely, Robert (NOAA), R10: Feehan, Kathleen (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Goulet, Joe (EPA), R10: Gensemer, Robert, W (Parametrix, Inc.), R10: Thompson, Chris (Environment International, Ltd.), R10: Van De Wetering, Stan (Confederated Tribes of Siletz Indians), R10: Buck, Jeremy (U. S. Fish & Wildlife Service)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940680921	2/16/2006	Email regarding reply to Siltronic, Draft February 1st Meeting Summary Letter.	27	2	EML / Email	R10: Blischke, Heidi (Oregon Dept. of Environmental Quality)	R10: Bayuk, Dana (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100012849	2/21/2006	Email Regarding Request for Arkema Source Control Presentation; File Too Large to Transmit Via E-Mail; CD to Be Mailed.	29	1	EML / Email	R10: O'mealy, Mikell (Oregon Dept. of Environmental Quality)	R10: (Portland Harbor Community Advisory Group)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100013969	2/21/2006	Email Regarding Siltronic Corporation, February 1 Meeting Summary.	18	1	EML / Email	R10: Bayuk, Dana (Oregon Dept. of Environmental Quality)	R10: Mccue, Tom (Siltronic Corporation)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100013970	2/21/2006	Letter Regarding Source Control Evaluation, Siltronic Corporation.	110	3	LTR / Letter	R10: Bayuk, Dana (Oregon Dept. of Environmental Quality)	R10: Mccue, Tom (Siltronic Corporation)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100015014	2/21/2006	Email Regarding Siltronic Corporation, February 1 Meeting Summary.	19	1	EML / Email	R10: Bayuk, Dana (Oregon Dept. of Environmental Quality)	R10: Mccue, Tom (Siltronic Corporation)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100015015	2/21/2006	Source Control Evaluation: Siltronic Corporation - Portland, Oregon - ECSI No. 183.	93	3	LTR / Letter	R10: Bayuk, Dana (Oregon Dept. of Environmental Quality)	R10: Mccue, Tom (Siltronic Corporation)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100007693	2/22/2006	Email regarding Arkema Preliminary Data Screening Approach.	30	3	EML / Email	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	R10: Sheldrake, Sean, A (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement



100013639	Email Regarding Arkema Preliminary Data Screening Approach for Removal Action: Our Review Comments.	48	3 EML / Email	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	R10: Sheldrake, Sean, A (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100015648	Email regarding Summer 2005 Surface Water SCRA Data Posted.	24	1 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Neely, Robert (NOAA), R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100007766	Email regarding Draft Source Control Decisions.	23	1 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Hillman, Helen, E (NOAA), R10: Burkholder, Kurt (Oregon Dept. of Justice), R10: Buck, Jeremy (U. S. Fish and Wildlife Service), R10: Givens, Raymond, C (Givens & Funke), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Spencer, Jeff (Confederated Tribes and Bands of the Yakima Indian Nation), R10: Ward, Paul (Confederated Tribes and Bands of the Yakima Indian Nation), R10: Downey, Tom (Confederated Tribes of the Siletz Indians), R10: Estensen, Lisa (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Kelly, Stephen (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Oatman, Joe (Nez Perce Tribe), R10: Eichstaedt, Rick (Nez Perce Tribe), R10: Barquin, Billy (Haglund, Kelley, Horngren, Jones & Wilder, LLP), R10: Lee, Jean, H (Environment International, Ltd.), R10: Althouse, Scott (The Nez Perce Tribe)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100014833	Email Regarding a "Head's-Up" That Later This Week DEQ Plans To Submit Draft Source Control Decisions (SCDs) for the Ro-Mar and PGE Substation E Sites to EPA for Their Review and Comment.	47	1 EML / Email	R10: Anderson, James, M (Oregon Dept. of Environmental Quality)	R10: Macdonald, Donald, D (NOAA), R10: Buchman, Mike (NOAA), R10: Neely, Robert (NOAA), R10: Burkholder, Kurt (Oregon Dept. of Justice), R10: Perry, Lynne (Oregon Dept. of Justice), R10: Szumski, Michael, J (U. S. Fish and Wildlife Service), R10: Buck, Jeremy (U. S. Fish and Wildlife Service), R10: Buerger, Ted (U. S. Fish and Wildlife Service), R10: Burkholder, Kurt (U. S. Dept. of Justice), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Cunninghame, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Howard, Patti (Columbia River Inter-Tribal Fish Commission), R10: Bridgen, Pamela, J (Environment International, Ltd.), R10: Spencer, Jeff (Confederated Tribes and Bands of the Yakima Indian Nation), R10: Ward, Paul (Confederated Tribes and Bands of the Yakima Indian Nation), R10: Downey, Tom (Confederated Tribes of the Siletz Indians), R10: Estensen, Lisa (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Kelly, Stephen (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Sheldrake, Sean, A (EPA), R10: Fuentes, Rene, C (EPA), R10: Cora, Lori, H (EPA), R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA), R10: Smith, Judy, R (EPA), R10: Humphrey, Chip (EPA), R10: Black, Curt (EPA), R10: Davoli, Dana (EPA), R10: Grepo-grove, Gina (EPA), R10: Goulet, Joe (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100010058	Email regarding Next Monthly PH Conference Call Between EPA-DEQ.	21	1 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA), R10: Kawabata, Sylvia (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100013971	Email Regarding Portland Harbor Lamprey and Sturgeon Meeting.	17	1 EML / Email	R10: Peterson, Jenn, L (Oregon Dept. of Environmental Quality)	R10: Neely, Robert (NOAA), R10: Goulet, Ron (NOAA), R10: Buck, Jeremy (U. S. Fish and Wildlife Service), R10: Shephard, Burt (EPA), R10: Goulet, Joe (EPA), R10: Gensemer, Robert, W (Parametrix, Inc.), R10: Dalton, Tim (State of Oregon), R10: V, Stan (CTS)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940680833	Email regarding reply to next PH monthly conf call btwn EPA-DEQ.	21	1 EML / Email	R10: Anderson, James, M (Oregon Dept. of Environmental Quality)	R10: Kawabata, Sylvia (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100011480	Table 2: Sites identified by DEQ in 1999 as part of the Portland Harbor Site Discovery Process.	28	1 CHT / Chart/Table	R10: Unknown, Unknown (Oregon Dept. of Environmental Quality)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100011482	Table 3: New Sites in Portland Harbor identified through the Site Discovery Process (2000 to present).	17	1 CHT / Chart/Table	R10: Unknown, Unknown (Oregon Dept. of Environmental Quality)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100011484	Milestone Report for Upland Source Control at the Portland Harbor Superfund Site.	152	19 RPT / Report	R10: Unknown, Unknown (Oregon Dept. of Environmental Quality)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100011486	Table 1: Results of 1999 DEQ Project Manager evaluation of the potential relationship between in-water sediment contamination and upland sites already in the process of cleanup.	23	2 CHT / Chart/Table	R10: Unknown, Unknown (Oregon Dept. of Environmental Quality)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100011493	Table 4: DEQ Milestone Report: Controlling Confirmed or Suspected Upland Sources of Contamination to Portland Harbor.	172	24 CHT / Chart/Table	R10: Unknown, Unknown (Oregon Dept. of Environmental Quality)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940681760	Milestone Report for Upland Source Control at the Portland Harbor Superfund Site.	152	19 RPT / Report	R10: (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA), R10: Shephard, Burt (EPA), R10: Humphrey, Chip (EPA), R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality), R10: Lee, Jean, H (Environment International, Ltd.)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100008364	Email regarding Portland Harbor T&F and food web models.	39	1 EML / Email	R10: Hope, Bruce, K (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100009397	Email regarding draft PRG comments.	24	1 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Macdonald, Donald, D (NOAA), R10: Buchman, Mike (NOAA), R10: Neely, Robert (NOAA), R10: Burkholder, Kurt (Oregon Dept. of Justice), R10: Perry, Lynne (Oregon Dept. of Justice), R10: Szumski, Michael, J (U. S. Fish and Wildlife Service), R10: Buerger, Ted (U. S. Fish and Wildlife Service), R10: Madden, Erin (Unknown), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Cunninghame, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Bridgen, Pamela, J (Environment International, Ltd.), R10: Spencer, Jeff (Confederated Tribes and Bands of the Yakima Indian Nation), R10: Ward, Paul (Confederated Tribes and Bands of the Yakima Indian Nation), R10: Downey, Tom (Confederated Tribes of the Siletz Indians), R10: Estensen, Lisa (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Kelly, Stephen (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Sheldrake, Sean, A (EPA), R10: Fuentes, Rene, C (EPA), R10: Cora, Lori, H (EPA), R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA), R10: Smith, Judy, R (EPA), R10: Humphrey, Chip (EPA), R10: Black, Curt (EPA), R10: Davoli, Dana (EPA), R10: Grepo-grove, Gina (EPA), R10: Goulet, Joe (EPA), R10: Kawabata, Sylvia (EPA), R10: Oatman, Joe (Nez Perce Tribe), R10: Eichstaedt, Rick (Nez Perce Tribe), R10:	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100010589	Email regarding Ro-Mar Source Control Decision.	41	1 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Oatman, Joe (Nez Perce Tribe), R10: Eichstaedt, Rick (Nez Perce Tribe), R10:	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement

100012018	Email Regarding PGE Substation E Source Control Decision.	3/2/2006	50	1 EML / Email	R10: Anderson, James, M (Oregon Dept. of Environmental Quality)	Macdonald, Donald, D (NOAA), R10: Buchman, Mike (NOAA), R10: Neely, Robert (NOAA), R10: Perry, Lynne (Oregon Dept. of Justice), R10: Szumski, Michael, J (U. S. Fish and Wildlife Service), R10: Buerger, Ted (U. S. Fish and Wildlife Service), R10: Burkholder, Kurt (U. S. Dept. of Justice), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Cunninghame, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Howard, Patti (Columbia River Inter-Tribal Fish Commission), R10: Bridgen, Pamela, J (Environment International, Ltd.), R10: Spencer, Jeff (Confederated Tribes and Bands of the Yakima Indian Nation), R10: Ward, Paul (Confederated Tribes and Bands of the Yakima Indian Nation), R10: Downey, Tom (Confederated Tribes of the Siletz Indians), R10: Estensen, Lisa (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Kelly, Stephen (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Barquin, Billy (LeRoy Wilder, P.C.), R10: Sheldrake, Sean, A (EPA), R10: Fuentes, Rene, C (EPA), R10: Cora, Lori, H (EPA), R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA), R10: Smith, Judy, R (EPA), R10: Humphrey, Chip (EPA), R10: Black, Curt (EPA), R10: Davoli, Dana (EPA), R10: Grepo-grove, Gina (EPA), R10: Goulet, Joe (EPA), R10: Kawabata, Sylvia (EPA), R10:	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940681003	Email regarding Ro-Mar Source Control Decision.	3/2/2006	41	1 EML / Email	R10: Anderson, James, M (Oregon Dept. of Environmental Quality)	R10: Hillman, Helen, E (NOAA), R10: Burkholder, Kurt (Oregon Dept. of Justice), R10: Szumski, Michael, J (U. S. Fish and Wildlife Service), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Cunninghame, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Howard, Patti (Columbia River Inter-Tribal Fish Commission), R10: Bridgen, Pamela, J (Environment International, Ltd.), R10: Spencer, Jeff (Confederated Tribes and Bands of the Yakima Indian Nation), R10: Downey, Tom (Confederated Tribes of the Siletz Indians), R10: Kelly, Stephen (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Humphrey, Chip (EPA), R10: Madden, Erin (Nez Perce Tribe), R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality), R10: Lee, Jean, H (Environment International, Ltd.), R10: Althouse, Scott (The Nez Perce Tribe), R10: Givens, Raymond, C (Givens Law), R10: Ward, Paul (Yakama Nation), R10: Barquin, Billy (Haglund Kelley, LLP), R10: Kepler, Rick, J (State of Oregon), R10: Buck, Jeremy (U. S. Fish & Wildlife Service)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940681230	Email regarding PGE Substation E Source Control Decision.	3/2/2006	39	1 EML / Email	R10: Anderson, James, M (Oregon Dept. of Environmental Quality)	R10: Hillman, Helen, E (NOAA), R10: Burkholder, Kurt (Oregon Dept. of Justice), R10: Szumski, Michael, J (U. S. Fish and Wildlife Service), R10: Madden, Erin (Unknown), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Cunninghame, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Unknown, Unknown (Environment International, Ltd.), R10: Spencer, Jeff (Confederated Tribes and Bands of the Yakima Indian Nation), R10: Downey, Tom (Confederated Tribes of the Siletz Indians), R10: Kelly, Stephen (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Barquin, Billy (LeRoy Wilder, P.C.), R10: Humphrey, Chip (EPA), R10: Oatman, Joe (Nez Perce Tribe), R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality), R10: Lee, Jean, H (Environment International, Ltd.), R10: Althouse, Scott (The Nez Perce Tribe), R10: How, P (CRITFC), R10: Givens, Raymond, C (Givens Law), R10: Ward, Paul (Yakama Nation), R10: Kepler, Rick, J (State of Oregon), R10: Buck, Jeremy (U. S. Fish & Wildlife Service)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940681239	Email regarding Portland Harbor T&F and food web models	3/2/2006	39	1 EML / Email	R10: Hope, Bruce, K (Oregon Dept. of Environmental Quality)	R10: Lee, Jean, H (Environment International, Ltd.)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100008179	Email regarding PRE Comments. Comments on Portland Harbor RI/FS: Ecological Preliminary Risk Evaluation, Dated September 9, 2005, Prepared for the Lower Willamette Group by Windward	3/3/2006	17	1 EML / Email	R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)	R10: Neely, Robert (NOAA), R10: Buck, Jeremy (U. S. Fish and Wildlife Service), R10: Thompson, Chris (Unknown), R10: Blischke, Eric, L (EPA), R10: Shephard, Burt (EPA), R10: Goulet, Joe (EPA), R10: Omealy, Mikell (Oregon Dept. of Environmental Quality), R10: Gensemer, Robert, W (Parametrix, Inc.)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100008181	Environmental.	3/3/2006	105	13 CORR / Correspondence	R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100009615	Email regarding Portland Harbor Food Web Model Comments.	3/6/2006	33	4 EML / Email	R10: Hope, Bruce, K (Oregon Dept. of Environmental Quality)	R10: Shephard, Burt (EPA), R10: Davoli, Dana (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940680138	Email regarding reply to Portland Harbor Food Web Model comments.	3/6/2006	33	4 EML / Email	R10: Hope, Bruce, K (Oregon Dept. of Environmental Quality)	R10: Davoli, Dana (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940680948	Email regarding reply to Surface Water Screening Table.	3/8/2006	20	1 EML / Email	R10: Anderson, James, M (Oregon Dept. of Environmental Quality)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100008304	Email regarding Portland Harbor Fate and Transport/Food Web Model.	3/13/2006	26	1 EML / Email	R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)	R10: Neely, Robert (NOAA), R10: Buck, Jeremy (U. S. Fish and Wildlife Service), R10: Blischke, Eric, L (EPA), R10: Shephard, Burt (EPA), R10: Humphrey, Chip (EPA), R10: Davoli, Dana (EPA), R10: Goulet, Joe (EPA), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality), R10: Gensemer, Robert, W (Parametrix, Inc.), R10: Thompson, Chris (Environment International, Ltd.)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940681234	Email regarding Portland Harbor Fate and Transport / Food Web Model	3/13/2006	26	1 EML / Email	R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)	R10: Neely, Robert (NOAA), R10: Shephard, Burt (EPA), R10: Anderson, James, M (Oregon Dept. of Environmental Quality), R10: Gensemer, Robert, W (Parametrix, Inc.), R10: Thompson, Chris (Environment International, Ltd.), R10: Buck, Jeremy (U. S. Fish & Wildlife Service)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100014150	Email Regarding Water Screening Levels.	3/14/2006	16	1 EML / Email	R10: Peterson, Jenn, L (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940681759	Lamprey Data Summary.	3/14/2006	36	7 ADD / Analytical Data Document	R10: Poulsen, Michael (Oregon Dept. of Environmental Quality)		ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement

100007806	3/15/2006	Email regarding Food Web Model & F&T Model.	17	1 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Bridgen, Pamela, J (Environment International, Ltd.), R10: Lee, Jean, H (Environment International, Ltd.), R10: Longoria, Rose (Yakama Nation)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100009781	3/15/2006	Email regarding Project Update - March 15, 2006.	26	2 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100011499	3/15/2006	Portland Harbor Superfund Site: Proposed Ecological Risk Assessment Decision Framework.	736	29 RPT / Report	R10: Unknown, Unknown (Windward Environmental, LLC.)	R10: Unknown, Unknown (Lower Willamette Group)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100014932	3/15/2006	Email Regarding Food Web Model and Fate and Transport (F&T) Model.	31	1 EML / Email	R10: Anderson, James, M (Oregon Dept. of Environmental Quality)	R10: Bridgen, Pamela, J (Environment International, Ltd.), R10: Lee, Jean, H (Environment International, Ltd.), R10: Longoria, Rose (Yakama Nation)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100007618	3/16/2006	Email regarding Acute & Chronic Water Screening Levels.	17	1 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100009768	3/16/2006	Email regarding Project Update - March 15, 2006.	25	3 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100012044	3/16/2006	Figure 7: Proposed Phase 2 Sampling Locations, NW Natural-Gasco Site, Portland, Oregon.	1,003	1 CHT / Chart/Table	R10: Unknown, Unknown (Anchor Environmental, LLC)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100013082	3/16/2006	Email Regarding Acute & Chronic Water Screening Levels.	30	1 EML / Email	R10: Anderson, James, M (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100011204	3/17/2006	Ecological Risk Assessment, Interpretive Report, Estimating Risks to Benthic Organisms Using Predictive Models Based on Sediment Toxicity Tests, Draft.	474	78 RPT / Report	R10: (TerraStat Consulting Group), R10: (Windward Environmental, LLC.), R10: (Avocet Consulting)	R10: (The Lower Willamette Group)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100015659	3/17/2006	Email regarding Validated LWG TZW Sediment & Groundwater Data.	63	2 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Neely, Robert (NOAA), R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940680870	3/20/2006	Email regarding reply to PH Newsletter status.	21	1 EML / Email	R10: O'mealy, Mikell (Oregon Dept. of Environmental Quality)	R10: Smith, Judy, R (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100008491	3/21/2006	Email regarding Acute & Chronic Water Screening Levels.	24	2 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100010390	3/21/2006	Email regarding Upcoming Ecorisk Meeting.	23	1 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Oster, Valerie (Anchor Environmental, LLC), R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA), R10: McClincy, Matt (Oregon Dept. of Environmental Quality), R10: Lee, Jean, H (Environment International, Ltd.)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100017126	3/21/2006	REDACTED Email regarding Portland Harbor - Comparison of Lamprey Data with TRVs.	22	2 EML / Email	R10: Poulsen, Michael (Oregon Dept. of Environmental Quality)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940680276	3/21/2006	Email regarding reply to Acute & Chronic Water Screening Levels.	24	2 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940680975	3/21/2006	Email regarding reply to upcoming Ecorisk meeting.	23	1 EML / Email	R10: Anderson, James, M (Oregon Dept. of Environmental Quality)	R10: Oster, Valerie (Anchor Environmental, LLC), R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA), R10: McClincy, Matt (Oregon Dept. of Environmental Quality), R10: Lee, Jean, H (Environment International, Ltd.)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100009844	3/23/2006	Email regarding RE_HHRA Interim Deliverable, EPC Calculation and Exposure Factors.	22	1 EML / Email	R10: Poulsen, Mike (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940680753	3/23/2006	Email regarding reply to HHRA Interim Deliverable, EPC Calculation and Exposure Factors.	22	1 EML / Email	R10: Poulsen, Mike (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100008932	3/24/2006	Email regarding FW_ Milestone report.	28	1 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100009766	3/24/2006	Email regarding Project Meeting to Discuss Scale (As In Risk)/Facilitator for Framework Discussions.	29	2 EML / Email	R10: Omealy, Mikell (Oregon Dept. of Environmental Quality)	R10: Neely, Robert (NOAA), R10: Gouget, Ron (NOAA), R10: Buck, Jeremy (U. S. Fish and Wildlife Service), R10: Shephard, Burt (EPA), R10: Goulet, Joe (EPA), R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality), R10: Omealy, Mikell (Oregon Dept. of Environmental Quality), R10: Gensemer, Robert, W (Parametrix, Inc.), R10: Thompson, Chris (Environment International, Ltd.)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100009767	3/24/2006	Email regarding Project Meeting to Discuss Scale (As In Risk)/Facilitator for Framework Discussions.	28	2 EML / Email	R10: Omealy, Mikell (Oregon Dept. of Environmental Quality)	R10: Neely, Robert (NOAA), R10: Gouget, Ron (NOAA), R10: Buck, Jeremy (U. S. Fish and Wildlife Service), R10: Shephard, Burt (EPA), R10: Goulet, Joe (EPA), R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality), R10: Omealy, Mikell (Oregon Dept. of Environmental Quality), R10: Gensemer, Robert, W (Parametrix, Inc.), R10: Thompson, Chris (Environment International, Ltd.)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100011483	3/24/2006	Email regarding Milestone Report.	23	2 EML / Email	R10: O'mealy, Mikell (Oregon Dept. of Environmental Quality)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100012672	3/24/2006	Email regarding Project Meeting to discuss Scale (as in risk)/Facilitator for Framework Discussions.	29	2 EML / Email	R10: O'mealy, Mikell (Oregon Dept. of Environmental Quality)	R10: Neely, Robert (NOAA), R10: Howard, Patti (Columbia River Inter-Tribal Fish Commission), R10: Shephard, Burt (EPA), R10: Goulet, Joe (EPA), R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality), R10: Omealy, Mikell (Oregon Dept. of Environmental Quality), R10: Gensemer, Robert, W (Parametrix, Inc.), R10: Gouget, Ron (NOAA), R10: Thompson, Chris (Environment International, Ltd.), R10: Buck, Jeremy (U. S. Fish & Wildlife Service)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100012728	3/24/2006	Email regarding Project Meeting to discuss Scale (as in risk)/Facilitator for Framework Discussions.	28	2 EML / Email	R10: O'mealy, Mikell (Oregon Dept. of Environmental Quality)	R10: Neely, Robert (NOAA), R10: Howard, Patti (Columbia River Inter-Tribal Fish Commission), R10: Shephard, Burt (EPA), R10: Goulet, Joe (EPA), R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality), R10: Omealy, Mikell (Oregon Dept. of Environmental Quality), R10: Gensemer, Robert, W (Parametrix, Inc.), R10: Gouget, Ron (NOAA), R10: Thompson, Chris (Environment International, Ltd.), R10: Buck, Jeremy (U. S. Fish & Wildlife Service)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940681761	3/24/2006	Table 1: Results of 1999 DEQ Project Manager evaluation of the potential relationship between in-water sediment contamination and upland sites already in the process of cleanup.	23	2 CHT / Chart/Table	R10: (Oregon Dept. of Environmental Quality)		ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940681762	3/24/2006	Table 2: Sites identified by DEQ in 1999 as part of the Portland Harbor Site Discovery Process.	28	1 CHT / Chart/Table	R10: (Oregon Dept. of Environmental Quality)		ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940681763	3/24/2006	Table 3: New Sites in Portland Harbor identified through the Site Discovery Process.	17	1 CHT / Chart/Table	R10: (Oregon Dept. of Environmental Quality)		ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940681764	3/24/2006	DEQ Milestone Report - Controlling Confirmed or Suspected Upland Sources of Contamination to Portland Harbor.	172	24 CHT / Chart/Table	R10: (Oregon Dept. of Environmental Quality)		ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement

4940681765	3/24/2006	Email regarding Milestone report.	29	1 EML / Email	R10: Anderson, James, M (Oregon Dept. of Environmental Quality)	R10: Hillman, Helen, E (NOAA), R10: Burkholder, Kurt (Oregon Dept. of Justice), R10: Szumski, Michael, J (U. S. Fish and Wildlife Service), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Cunninghame, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Bridgen, Pamela, J (Environment International, Ltd.), R10: Spencer, Jeff (Confederated Tribes and Bands of the Yakima Indian Nation), R10: Downey, Tom (Confederated Tribes of the Siletz Indians), R10: Kelly, Stephen (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Barquin, Billy (LeRoy Wilder, P.C.), R10: Smith, Judy, R (EPA), R10: Madden, Erin (Nez Perce Tribe), R10: Johnson, Keith (Oregon Dept. of Environmental Quality), R10: Pederson, Dick (Oregon Department of Environmental Quality), R10: Lee, Jean, H (Environment International, Ltd.), R10: Althouse, Scott (The Nez Perce Tribe), R10: How, P (CRITFC), R10: Givens, Raymond, C (Givens Law), R10: Ward, Paul (Yakama Nation), R10: Kepler, Rick, J (State of Oregon), R10: Buck, Jeremy (U. S. Fish & Wildlife Service)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940681149	3/27/2006	Email regarding Please verify Region 10 info.	22	1 EML / Email	R10: Gainer, Thomas, B (Oregon Dept. of Environmental Quality)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100007800	3/28/2006	Email regarding Fate and Transport / Food Web Model Meeting.	18	1 EML / Email	R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)	R10: Neeley, Robert (NOAA), R10: Buck, Jeremy (U. S. Fish and Wildlife Service), R10: Thompson, Chris (Unknown), R10: Gensemer, Robert, W (GEI Consultants, Inc.), R10: Bridgen, Pamela, J (Environment International, Ltd.), R10: Baker, Jeff (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Fuentes, Rene, C (EPA), R10: Blischke, Eric, L (EPA), R10: Shephard, Burt (EPA), R10: Humphrey, Chip (EPA), R10: Davoli, Dana (EPA), R10: Goulet, Joe (EPA), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality), R10: McClincy, Matt (Oregon Dept. of Environmental Quality), R10: Poulsen, Mike (Oregon Dept. of Environmental Quality), R10: O'mealy, Mikell (Oregon Dept. of Environmental Quality), R10: Gainer, Tom (Oregon Dept. of Environmental Quality), R10: Lee, Jean, H (Environment International, Ltd.), R10: Lee, Valerie (Environment International, Ltd.)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100007801	3/28/2006	Email regarding Fate and Transport / Food Web Model Meeting.	20	1 EML / Email	R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)	R10: Neeley, Robert (NOAA), R10: Buck, Jeremy (U. S. Fish and Wildlife Service), R10: Thompson, Chris (Unknown), R10: Bridgen, Pamela, J (Environment International, Ltd.), R10: Baker, Jeff (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Fuentes, Rene, C (EPA), R10: Blischke, Eric, L (EPA), R10: Shephard, Burt (EPA), R10: Humphrey, Chip (EPA), R10: Davoli, Dana (EPA), R10: Goulet, Joe (EPA), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality), R10: McClincy, Matt (Oregon Dept. of Environmental Quality), R10: Poulsen, Mike (Oregon Dept. of Environmental Quality), R10: O'mealy, Mikell (Oregon Dept. of Environmental Quality), R10: Gainer, Tom (Oregon Dept. of Environmental Quality), R10: Gensemer, Robert, W (Parametrix, Inc.), R10: Lee, Jean, H (Environment International, Ltd.), R10: Lee, Valerie (Environment International, Ltd.)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100014916	3/28/2006	Email Regarding Fate and Transport / Food Web Model Meeting: Based on the Responses So Far, It Sounds Like Monday, April 24th Would Be the Best day for an Internal Modeling Meeting.	37	1 EML / Email	R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)	R10: Neely, Robert (NOAA), R10: Buck, Jeremy (U. S. Fish and Wildlife Service), R10: Bridgen, Pamela, J (Environment International, Ltd.), R10: Lee, Valerie Ann (Environment International, Ltd.), R10: Baker, Jeff (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Fuentes, Rene, C (EPA), R10: Blischke, Eric, L (EPA), R10: Shephard, Burt (EPA), R10: Humphrey, Chip (EPA), R10: Davoli, Dana (EPA), R10: Goulet, Joe (EPA), R10: Gainer, Thomas, B (Oregon Dept. of Environmental Quality), R10: Anderson, James, M (Oregon Dept. of Environmental Quality), R10: McClincy, Matt (Oregon Dept. of Environmental Quality), R10: Poulsen, Michael (Oregon Dept. of Environmental Quality), R10: Poulsen, Mike (Oregon Dept. of Environmental Quality), R10: O'mealy, Mikell (Oregon Dept. of Environmental Quality), R10: Gensemer, Robert, W (Parametrix, Inc.), R10: Lee, Jean, H (Environment International, Ltd.), R10: Lee, Valerie (Environment International, Ltd.), R10: Baker, Jeff (Grand Ronde Tribe), R10: Thompson, Chris (Environment International, Ltd.), R10: Buck, Jeremy (U. S. Fish & Wildlife Service)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100020102	3/28/2006	REDACTED Email regarding fate and transport/food web model meeting.	20	1 EML / Email	R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)	R10: Neely, Robert (NOAA), R10: Fuentes, Rene, C (EPA), R10: Blischke, Eric, L (EPA), R10: Shephard, Burt (EPA), R10: Humphrey, Chip (EPA), R10: Davoli, Dana (EPA), R10: Goulet, Joe (EPA), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality), R10: McClincy, Matt (Oregon Dept. of Environmental Quality), R10: Poulsen, Mike (Oregon Dept. of Environmental Quality), R10: Omealy, Mikell (Oregon Dept. of Environmental Quality), R10: Gensemer, Robert, W (Parametrix, Inc.), R10: Lee, Jean, H (Environment International, Ltd.), R10: Thompson, Chris (Environment International, Ltd.)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940680153	3/28/2006	Email regarding reply to Fate and Transport / Food Web Model Meeting.	24	1 EML / Email	R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)	R10: Neely, Robert (NOAA), R10: Humphrey, Chip (EPA), R10: Anderson, James, M (Oregon Dept. of Environmental Quality), R10: O'mealy, Mikell (Oregon Dept. of Environmental Quality), R10: Lee, Jean, H (Environment International, Ltd.), R10: Thompson, Chris (Environment International, Ltd.)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100010292	3/30/2006	Email regarding Thoughts Regarding Agenda Items for Monday's Meeting.	29	2 EML / Email	R10: Omealy, Mikell (Oregon Dept. of Environmental Quality)	R10: Thompson, Chris (Environment International, Ltd.)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement



100014159	3/30/2006	Email Regarding Project Meeting to Discuss Scale (Risk)/Facilitator for Framework Discussions.	20	1 EML / Email	R10: Omealy, Mikell (Oregon Dept. of Environmental Quality)	R10: Neely, Robert (NOAA), R10: Buck, Jeremy (U. S. Fish and Wildlife Service), R10: Thompson, Chris (Unknown), R10: Davoli, Dana (EPA), R10: Goulet, Joe (EPA), R10: Poulsen, Mike (Oregon Dept. of Environmental Quality), R10: Gensemer, Robert, W (Parametrix, Inc.), R10: Gouguet, Ron (NOAA), R10: Peterson, Jenn, L (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100009600	3/31/2006	Email regarding Planning for April 11 ERA Framework Meeting.	21	1 EML / Email	R10: Omealy, Mikell (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA) (Confederated Tribes of the Umatilla Indian Reservation), R10: Cunninghame, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Howard, Patti (Columbia River Inter-Tribal Fish Commission), R10: Downey, Tom (Confederated Tribes of the Siletz Indians), R10: Baker, Jeff (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Sheldrake, Sean, A (EPA), R10: Fuentes, Rene, C (EPA), R10: Cora, Lori, H (EPA), R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA), R10: Smith, Judy, R (EPA), R10: Shephard, Burt (EPA), R10: Humphrey, Chip (EPA), R10: Black, Curt (EPA), R10: Davoli, Dana (EPA), R10: Goulet, Joe (EPA), R10: Kawabata, Sylvia (EPA), R10: Madden, Erin (Nez Perce Tribe), R10: Oatman, Joe (Nez Perce Tribe), R10: Toepel, Kathryn (Oregon Dept. of Human Services), R10: Struck, Rodney, G (Oregon Dept. of Environmental Quality), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality), R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality), R10: McClincy, Matt (Oregon Dept. of Environmental Quality), R10: Poulsen, Mike (Oregon Dept. of Environmental Quality), R10: Gensemer, Robert, W (Parametrix, Inc.), R10: Lee, Jean, H (Environment International, Ltd.), R10: Lee, Valerie (Environment International, Ltd.), R10: Longoria, Rose (Yakama Nation), R10: Gouguet, Ron (NOAA), R10: Thompson, R10: Applegate, Richard (City of Portland, Oregon), R10: Mckenna, James (Port of Portland), R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100011495	3/31/2006	Email regarding Agenda for Monday's meeting in Centralia.	24	2 EML / Email	R10: O'mealy, Mikell (Oregon Dept. of Environmental Quality)	R10: O'mealy, Mikell (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100012231	3/31/2006	Email Regarding Planning for April 11 ERA Framework Meeting.	28	1 EML / Email	R10: O'mealy, Mikell (Oregon Dept. of Environmental Quality)	R10: O'mealy, Mikell (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100013972	3/31/2006	Lamprey and Sturgeon Meeting Availability Calendar.	17	1 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100017518	3/31/2006	REDACTED Email regarding reply to Planning for April 11 ERA Framework meeting.	19	1 EML / Email	R10: O'mealy, Mikell (Oregon Dept. of Environmental Quality)	R10: Mckenna, James (Port of Portland), R10: Gardner, Sara (City of Portland, Oregon, Environmental Services), R10: Humphrey, Chip (EPA), R10: Applegate, Rick (City of Portland)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940680876	3/31/2006	Email regarding reply to Planning for April 11 ERA Framework meeting.	21	1 EML / Email	R10: O'mealy, Mikell (Oregon Dept. of Environmental Quality)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940681776	3/31/2006	Quarterly Report to the U.S. Environmental Protection Agency Portland Harbor Joint Source Control Strategy - Period Ending March 31, 2006.	27	2 CONTR / Contract Documentation	R10: O'mealy, Mikell (Oregon Dept. of Environmental Quality)	R10: (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100014160	4/3/2006	Eco-Human Health Subgroup Meeting – Risk Assessment Scale and Other Issues.	59	2 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100014166	4/3/2006	Eco-Human Health Subgroup Meeting – Risk Assessment Scale and Other Issues, DRAFT Meeting Summary.	56	4 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100014168	4/3/2006	Eco-Human Health Subgroup Meeting – Risk Assessment Scale and Other Issues, DRAFT Meeting Summary.	80	4 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100014245	4/3/2006	Eco-Human Health Subgroup Meeting – Risk Assessment Scale and Other Issues, DRAFT Meeting Summary.	84	4 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100016279	4/3/2006	REDACTED Agenda for Eco-Human Health Subgroup meeting - Risk Assessment Scale and other issues.	75	4 MTG / Meeting Document	R10: Unknown, Unknown (Unknown)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940681177	4/3/2006	Email regarding Individual fish GIS locations by composite / sample number.	20	1 EML / Email	R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940681766	4/3/2006	Eco-Human Health Subgroup meeting notes - Risk Assessment Scale and other issues.	86	4 MTG / Meeting Document	R10: Poulsen, Michael (Oregon Dept. of Environmental Quality)	R10: Sheldrake, Sean, A (EPA), R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality), R10: Blischke, Heidi (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100008218	4/4/2006	Email regarding FW_BP Portland Terminal T22.	29	2 EML / Email	R10: Gainer, Tom (Oregon Dept. of Environmental Quality)	R10: Gainer, Tom (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100010486	4/4/2006	Email regarding fate and transport/food web model meeting.	26	1 EML / Email	R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)	R10: Neely, Robert (NOAA), R10: Bridgen, Pamela, J (Environment International, Ltd.), R10: Fuentes, Rene, C (EPA), R10: Blischke, Eric, L (EPA), R10: Cope, Ben (EPA), R10: Shephard, Burt (EPA), R10: Humphrey, Chip (EPA), R10: Davoli, Dana (EPA), R10: Goulet, Joe (EPA), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality), R10: McClincy, Matt (Oregon Dept. of Environmental Quality), R10: Poulsen, Mike (Oregon Dept. of Environmental Quality), R10: Omealy, Mikell (Oregon Dept. of Environmental Quality), R10: Gainer, Tom (Oregon Dept. of Environmental Quality), R10: Gensemer, Robert, W (Parametrix, Inc.), R10: Lee, Jean, H (Environment International, Ltd.), R10: Lee, Valerie (Environment International, Ltd.), R10: Baker, Jeff (Grand Ronde Tribe), R10: Thompson, Chris (Environment International, Ltd.), R10: Buck, Jeremy (U. S. Fish & Wildlife Service)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100010502	4/4/2006	Email regarding fate and transport/food web model meeting.	23	1 EML / Email	R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)	R10: Davoli, Dana (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement

100010538	Email regarding Summary of Monday's 4/4/2006 Meeting - Review by 4:00 on Wednesday.	37	2 EML / Email	R10: Omealy, Mikell (Oregon Dept. of Environmental Quality)	(NOAA), R10: Madden, Erin (Unknown), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Cunninghame, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Downey, Tom (Confederated Tribes of the Siletz Indians), R10: Baker, Jeff (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Sheldrake, Sean, A (EPA), R10: Fuentes, Rene, C (EPA), R10: Cora, Lori, H (EPA), R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA), R10: Smith, Judy, R (EPA), R10: Shephard, Burt (EPA), R10: Humphrey, Chip (EPA), R10: Black, Curt (EPA), R10: Davoli, Dana (EPA), R10: Goulet, Joe (EPA), R10: Kawabata, Sylvia (EPA), R10: Oatman, Joe (Nez Perce Tribe), R10: Toepel, Kathryn (Oregon Dept. of Human Services), R10: Struck, Rodney, G (Oregon Dept. of Environmental Quality), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality), R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality), R10: Mcclincy, Matt (Oregon Dept. of Environmental Quality), R10: Poulsen, Michael (Oregon Dept. of Environmental Quality), R10: Omealy, Mikell (Oregon Dept. of Environmental Quality), R10: Gensemer, Robert, W (Parametrix, Inc.), R10: Lee, Jean, H (Environment International, Ltd.), R10: Lee, Valerie (Environment International, Ltd.), R10: Longoria, Rose (Yakama Nation), R10:	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100014165	Email Regarding Summary of Monday's 4/4/2006 Meeting - Review by 1:00 on Wednesday.	19	1 EML / Email	R10: Peterson, Jenn, L (Oregon Dept. of Environmental Quality)	R10: Neely, Robert (NOAA), R10: Buck, Jeremy (U. S. Fish and Wildlife Service), R10: Thompson, Chris (Unknown), R10: Madden, Erin (Unknown), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Lee, Valerie Ann (Environment International, Ltd.), R10: Fuentes, Rene, C (EPA), R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA), R10: Shephard, Burt (EPA), R10: Humphrey, Chip (EPA), R10: Black, Curt (EPA), R10: Davoli, Dana (EPA), R10: Goulet, Joe (EPA), R10: Oatman, Joe (Nez Perce Tribe), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality), R10: Mcclincy, Matt (Oregon Dept. of Environmental Quality), R10: Poulsen, Mike (Oregon Dept. of Environmental Quality), R10: Omealy, Mikell (Oregon Dept. of Environmental Quality), R10: Gensemer, Robert, W (Parametrix, Inc.), R10: Lee, Jean, H (Environment International, Ltd.), R10: Baker, Jeff (Grand Ronde Tribe), R10: Longoria, Rose (Yakama Nation), R10: Gouguet, Ron (NOAA), R10: How, P (CRITFC), R10: D, Tom (CTSI), R10: Cunningham, E (gorge.net)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100014167	Email Regarding Summary of Monday's 4/4/2006 Meeting - Review by 1:00 on Wednesday.	25	2 EML / Email	R10: Omealy, Mikell (Oregon Dept. of Environmental Quality)	(U. S. Fish and Wildlife Service), R10: Thompson, Chris (Unknown), R10: Madden, Erin (Unknown), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Sheldrake, Sean, A (EPA), R10: Fuentes, Rene, C (EPA), R10: Cora, Lori, H (EPA), R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA), R10: Smith, Judy, R (EPA), R10: Shephard, Burt (EPA), R10: Humphrey, Chip (EPA), R10: Black, Curt (EPA), R10: Davoli, Dana (EPA), R10: Goulet, Joe (EPA), R10: Kawabata, Sylvia (EPA), R10: Oatman, Joe (Nez Perce Tribe), R10: Toepel, Kathryn (Oregon Dept. of Human Services), R10: Struck, Rodney, G (Oregon Dept. of Environmental Quality), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality), R10: Mcclincy, Matt (Oregon Dept. of Environmental Quality), R10: Poulsen, Mike (Oregon Dept. of Environmental Quality), R10: Omealy, Mikell (Oregon Dept. of Environmental Quality), R10: Gensemer, Robert, W (Parametrix, Inc.), R10: Lee, Jean, H (Environment International, Ltd.), R10: Lee, Valerie (Environment International, Ltd.), R10: Baker, Jeff (Grand Ronde Tribe), R10: Longoria, Rose (Yakama Nation), R10: Gouguet, Ron (NOAA), R10: How, P (CRITFC), R10: D, Tom (CTSI), R10: Kepler, Rick, J (State of Oregon), R10: Peterson, Jenn, L (Oregon Dept. of Environmental Quality), R10: Cunningham, E (gorge.net)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100014317	Email Regarding Source Control Milestone Report On the Web.	31	1 EML / Email	R10: O'mealy, Mikell (Oregon Dept. of Environmental Quality)	R10: Robison, Jim (Portland Harbor Community Advisory Group)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100015016	Email Regarding Summary of Monday's 4/4/2006 meeting - review by 1:00 on Wednesday.	20	1 EML / Email	R10: Peterson, Jenn, L (Oregon Dept. of Environmental Quality)	R10: Neely, Robert (NOAA), R10: Madden, Erin (Unknown), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Cunninghame, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Howard, Patti (Columbia River Inter-Tribal Fish Commission), R10: Unknown, Unknown (Environment International, Ltd.), R10: Fuentes, Rene, C (EPA), R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA), R10: Shephard, Burt (EPA), R10: Humphrey, Chip (EPA), R10: Black, Curt (EPA), R10: Davoli, Dana (EPA), R10: Goulet, Joe (EPA), R10: Oatman, Joe (Nez Perce Tribe), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality), R10: Mcclincy, Matt (Oregon Dept. of Environmental Quality), R10: Poulsen, Mike (Oregon Dept. of Environmental Quality), R10: Omealy, Mikell (Oregon Dept. of Environmental Quality), R10: Gensemer, Robert, W (Parametrix, Inc.), R10: Lee, Jean, H (Environment International, Ltd.), R10: Lee, Valerie (Environment International, Ltd.), R10: Baker, Jeff (Grand Ronde Tribe), R10: Longoria, Rose (Yakama Nation), R10: Gouguet, Ron (NOAA), R10: D, Tom (CTSI), R10: Buck, Jeremy (U. S. Fish & Wildlife Service), R10: Thompson, Chris (State of Oregon)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100015017	Eco-Human Health Subgroup meeting: Risk Assessment Scale and other issues - April 3, 2006, at the Olympic Club in Centralia WA - 4/4/2006 DRAFT Meeting summary	75	4 MTG / Meeting Document	R10: Omealy, Mikell (Oregon Dept. of Environmental Quality)		ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement

100015018	4/4/2006	Email Regarding Summary of Monday's meeting - review by 1:00 on Wednesday.	26	2 EML / Email	R10: Omealy, Mikell (Oregon Dept. of Environmental Quality)	Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Cunninghame, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Howard, Patti (Columbia River Inter-Tribal Fish Commission), R10: Sheldrake, Sean, A (EPA), R10: Fuentes, Rene, C (EPA), R10: Cora, Lori, H (EPA), R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA), R10: Smith, Judy, R (EPA), R10: Shephard, Burt (EPA), R10: Humphrey, Chip (EPA), R10: Black, Curt (EPA), R10: Davoli, Dana (EPA), R10: Goulet, Joe (EPA), R10: Kawabata, Sylvia (EPA), R10: Oatman, Joe (Nez Perce Tribe), R10: Toepel, Kathryn (Oregon Dept. of Human Services), R10: Struck, Rodney, G (Oregon Dept. of Environmental Quality), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality), R10: McClincy, Matt (Oregon Dept. of Environmental Quality), R10: Poulsen, Mike (Oregon Dept. of Environmental Quality), R10: Omealy, Mikell (Oregon Dept. of Environmental Quality), R10: Gensemer, Robert, W (Parametrix, Inc.), R10: Lee, Jean, H (Environment International, Ltd.), R10: Unknown, Unknown (Environment International, Ltd.), R10: Lee, Valerie (Environment International, Ltd.), R10: Baker, Jeff (Grand Ronde Tribe), R10: Longoria, Rose (Yakama Nation), R10: Gouguet, Ron (NOAA), R10: How, P (CRITFC), R10: D, Tom (CTS), R10: Kepler, Rick, J (State of Oregon), R10: Buck,	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100015019	4/4/2006	DRAFT Meeting summary.	65	4 MTG / Meeting Document	R10: Omealy, Mikell (Oregon Dept. of Environmental Quality)	R10: Mckenna, Jim (Port of Portland), R10: Gardner, Sara (City of Portland, Oregon, Environmental Services), R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA), R10: Wyatt, Robert, J (NW Natural), R10: Applegate, Rick (City of Portland)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100015390	4/4/2006	REDACTED Email regarding Planning for April 11 ERA Framework Meeting.	22	2 EML / Email	R10: Omealy, Mikell (Oregon Dept. of Environmental Quality)	R10: Sheldrake, Sean, A (EPA), R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality), R10: Blischke, Heidi (Oregon Dept. of Environmental Quality), R10: Blischke, Eric, L (EPA), R10: Gainer, Thomas, B (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100016395	4/4/2006	REDACTED Email regarding BP Portland Terminal T22.	25	2 EML / Email	R10: Gainer, Tom (Oregon Dept. of Environmental Quality)	R10: Gardner, Sara (City of Portland, Oregon, Environmental Services), R10: Blischke, Eric, L (EPA), R10: Johnson, Keith (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100017065	4/4/2006	REDACTED Email regarding reply to BP Portland Terminal T22.	24	2 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Johnson, Keith (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940680808	4/4/2006	Email regarding reply to Meeting with Rick Applegate/City of Portland.	21	1 EML / Email	R10: Anderson, James, M (Oregon Dept. of Environmental Quality)	R10: Gardner, Sara (City of Portland, Oregon, Environmental Services), R10: Blischke, Eric, L (EPA), R10: Anderson, James, M (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940680810	4/4/2006	Email regarding reply to Meeting with Rick Applegate/City of Portland.	21	1 EML / Email	R10: Johnson, Keith (Oregon Dept. of Environmental Quality)	R10: Gardner, Sara (City of Portland, Oregon, Environmental Services), R10: Blischke, Eric, L (EPA), R10: Anderson, James, M (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940680942	4/4/2006	Email regarding reply to Summary of Monday's meeting - review by 4:00 on Wednesday.	37	2 EML / Email	R10: O'mealy, Mikell (Oregon Dept. of Environmental Quality)	R10: Neely, Robert (NOAA), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Cunninghame, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Howard, Patti (Columbia River Inter-Tribal Fish Commission), R10: Downey, Tom (Confederated Tribes of the Siletz Indians), R10: Baker, Jeff (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Humphrey, Chip (EPA), R10: Oatman, Joe (Nez Perce Tribe), R10: Toepel, Kathryn (Oregon Dept. of Human Services), R10: Anderson, James, M (Oregon Dept. of Environmental Quality), R10: Gensemer, Robert, W (Parametrix, Inc.), R10: Lee, Jean, H (Environment International, Ltd.), R10: Longoria, Rose (Yakama Nation), R10: Thompson, Chris (Environment International, Ltd.), R10: Kepler, Rick, J (State of Oregon), R10: Buck, Jeremy (U. S. Fish & Wildlife Service)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940681767	4/4/2006	Email regarding Summary of Monday's meeting - review by 1:00 on Wednesday.	22	1 EML / Email	R10: O'mealy, Mikell (Oregon Dept. of Environmental Quality)	R10: Neely, Robert (NOAA), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Cunninghame, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Downey, Tom (Confederated Tribes of the Siletz Indians), R10: Humphrey, Chip (EPA), R10: Oatman, Joe (Nez Perce Tribe), R10: Anderson, James, M (Oregon Dept. of Environmental Quality), R10: Gensemer, Robert, W (Parametrix, Inc.), R10: Lee, Jean, H (Environment International, Ltd.), R10: Baker, Jeff (Grand Ronde Tribe), R10: Longoria, Rose (Yakama Nation), R10: How, P (CRITFC), R10: Buck, Jeremy (U. S. Fish & Wildlife Service)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100007623	4/5/2006	Email regarding April 7th Fate and Transport / Food Web Model Meeting.	19	1 EML / Email	R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)	R10: Neeley, Robert (NOAA), R10: Buck, Jeremy (U. S. Fish and Wildlife Service), R10: Thompson, Chris (Unknown), R10: Bridgen, Pamela, J (Environment International, Ltd.), R10: Baker, Jeff (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Humphrey, Chip (EPA), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality), R10: Gensemer, Robert, W (Parametrix, Inc.), R10: Lee, Jean, H (Environment International, Ltd.)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100007739	4/5/2006	Email regarding Data Availability on Portal.	16	1 EML / Email	R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100007747	4/5/2006	Email regarding DEQ Comments re: RD 3 Sed Trap FSP.	24	2 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100009582	4/5/2006	Email regarding PH Benthic Review.	22	1 EML / Email	R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)	R10: Neely, Robert (NOAA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100009895	4/5/2006	Email regarding Data Availability on Portal.	22	2 EML / Email	R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100009898	4/5/2006	Email regarding Data Availability on Portal.	22	2 EML / Email	R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100009899	4/5/2006	Email regarding Data Availability on Portal.	22	2 EML / Email	R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100009901	4/5/2006	Email regarding Data Availability on Portal.	21	1 EML / Email	R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement

100010063	4/5/2006	Email regarding Sediment Trap FSP.	22	1 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Fuentes, Rene, C (EPA), R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA), R10: McClincy, Matt (Oregon Dept. of Environmental Quality), R10: Lee, Jean, H (Environment International, Ltd.)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100010064	4/5/2006	Email regarding Sediment Trap FSP.	23	2 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100010537	4/5/2006	Meeting - Review by 1:00 on Wednesday.	54	4 EML / Email	R10: Omealy, Mikell (Oregon Dept. of Environmental Quality)	R10: Longoria, Rose (Yakama Nation)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100011491	4/5/2006	Email regarding Draft agenda for April 11 ERA Framework meeting.	17	1 EML / Email	R10: O'mealy, Mikell (Oregon Dept. of Environmental Quality)	R10: Mckenna, James (Port of Portland), R10: Oster, Valerie (Anchor Environmental, LLC), R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA), R10: Wyatt, Robert, J (NW Natural), R10: Applegate, Rick (City of Portland)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100014053	4/5/2006	Email Regarding Raw Data Availability on Portal.	27	1 EML / Email	R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100014098	4/5/2006	Email Regarding DEQ Comments Concerning Round 3 Sediment Trap Field Sampling Plan (FSP).	38	2 EML / Email	R10: Anderson, James, M (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100014169	4/5/2006	Email Regarding Summary of Monday's Meeting - Review by 1:00 on Wednesday.	31	4 EML / Email	R10: Omealy, Mikell (Oregon Dept. of Environmental Quality)	R10: Neely, Robert (NOAA), R10: Buck, Jeremy (U. S. Fish and Wildlife Service), R10: Thompson, Chris (Unknown), R10: Madden, Erin (Unknown), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Fuentes, Rene, C (EPA), R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA), R10: Shephard, Burt (EPA), R10: Humphrey, Chip (EPA), R10: Black, Curt (EPA), R10: Davoli, Dana (EPA), R10: Goulet, Joe (EPA), R10: Kawabata, Sylvia (EPA), R10: Oatman, Joe (Nez Perce Tribe), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality), R10: McClincy, Matt (Oregon Dept. of Environmental Quality), R10: Poulsen, Mike (Oregon Dept. of Environmental Quality), R10: Gensemer, Robert, W (Parametrix, Inc.), R10: Lee, Jean, H (Environment International, Ltd.), R10: Baker, Jeff (Grand Ronde Tribe), R10: Longoria, Rose (Yakama Nation), R10: Goulet, Ron (NOAA), R10: How, P (CRITFC), R10: D, Tom (CTS), R10: Peterson, Jenn, L (Oregon Dept. of Environmental Quality), R10: Cunningham, E (gorge.net)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100014775	4/5/2006	REDACTED Email regarding FW_Thursday Lamprey Sturgeon premeeting with LWG.	26	3 EML / Email	R10: Omealy, Mikell (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100017076	4/5/2006	REDACTED Email regarding reply to BP Portland Terminal T21.	24	2 EML / Email	R10: Blischke, Heidi (Oregon Dept. of Environmental Quality)	R10: Gainer, Thomas, B (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940680860	4/5/2006	Email regarding reply to PH benthic review.	21	1 EML / Email	R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)	R10: Neely, Robert (NOAA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940680916	4/5/2006	Email regarding reply to Sediment Trap FSP.	22	1 EML / Email	R10: Anderson, James, M (Oregon Dept. of Environmental Quality)	R10: Humphrey, Chip (EPA), R10: McClincy, Matt (Oregon Dept. of Environmental Quality), R10: Lee, Jean, H (Environment International, Ltd.)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940680917	4/5/2006	Email regarding reply to Sediment Trap FSP.	23	2 EML / Email	R10: Anderson, James, M (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940680941	4/5/2006	Email regarding reply to Summary of Monday's meeting - review by 1:00 on Wednesday.	54	4 EML / Email	R10: O'mealy, Mikell (Oregon Dept. of Environmental Quality)	R10: Longoria, Rose (Yakama Nation)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940680943	4/5/2006	Email regarding reply to Summary of Monday's meeting - review by 4:00 on Wednesday.	69	4 EML / Email	R10: O'mealy, Mikell (Oregon Dept. of Environmental Quality)	R10: Neely, Robert (NOAA), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Cunningham, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Howard, Patti (Columbia River Inter-Tribal Fish Commission), R10: Downey, Tom (Confederated Tribes of the Siletz Indians), R10: Baker, Jeff (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Humphrey, Chip (EPA), R10: Oatman, Joe (Nez Perce Tribe), R10: Anderson, James, M (Oregon Dept. of Environmental Quality), R10: Gensemer, Robert, W (Parametrix, Inc.), R10: Lee, Jean, H (Environment International, Ltd.), R10: Longoria, Rose (Yakama Nation), R10: Thompson, Chris (Environment International, Ltd.), R10: Buck, Jeremy (U. S. Fish & Wildlife Service)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940681771	4/5/2006	Email regarding Portland Harbor, Breast Milk.	21	2 EML / Email	R10: Poulsen, Michael (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA), R10: Toepel, Kathryn (Oregon Dept. of Human Services)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100007697	4/6/2006	Email regarding Availability for LWG modeling meeting.	16	1 EML / Email	R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)	R10: Toepel, Kathryn (Oregon Dept. of Human Services)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100008288	4/6/2006	Email Regarding Human Health Risk Assessment Scale Meeting Summary.	43	6 EML / Email	R10: Omealy, Mikell (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA), R10: Davoli, Dana (EPA), R10: Goulet, Joe (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100009222	4/6/2006	Email regarding Milestone Report.	27	2 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100009892	4/6/2006	Email regarding CSM questions.	24	2 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100010026	4/6/2006	Email regarding RE_ Lamprey and Sturgeon Data.	25	3 EML / Email	R10: Poulsen, Mike (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100010218	4/6/2006	Email regarding RE_LWG Surface Water Data - Raw Format.	22	2 EML / Email	R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100012478	4/6/2006	Email regarding Draft agenda for April 11 ERA Framework meeting.	21	1 EML / Email	R10: O'mealy, Mikell (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100015585	4/6/2006	Email Regarding Lamprey and Sturgeon Data.	24	2 EML / Email	R10: Stone, Dave (Unknown)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100017077	4/6/2006	REDACTED Email regarding reply to BP Portland Terminal T22.	25	3 EML / Email	R10: Gainer, Thomas, B (Oregon Dept. of Environmental Quality)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940680717	4/6/2006	Email regarding reply to Milestone report.	27	2 EML / Email	R10: Anderson, James, M (Oregon Dept. of Environmental Quality)	R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940680802	4/6/2006	Email regarding reply to Meeting to discuss Sediment Trap FSP.	21	1 EML / Email	R10: Anderson, James, M (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA), R10: Lee, Jean, H (Environment International, Ltd.)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940681199	4/6/2006	Email regarding Monday's meeting summary; need for clarification on facilitator's role.	70	6 EML / Email	R10: O'mealy, Mikell (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100008337	4/7/2006	Email regarding FW_CSM questions.	30	3 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA), R10: McClincy, Matt (Oregon Dept. of Environmental Quality), R10: Lee, Jean, H (Environment International, Ltd.)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100010476	4/7/2006	Email regarding ERA decision framework and meeting agenda.	23	1 EML / Email	R10: Omealy, Mikell (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100011571	4/7/2006	Email regarding Initial Draft of Meeting Facilitation Document.	16	1 EML / Email	R10: Johnson, Keith (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100011574	4/7/2006	Letter regarding Meeting Facilitation.	73	3 CORR / Correspondence	R10: Humphrey, Chip (EPA)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100011578	4/7/2006	Email regarding Agenda for April 11, 2006 Meeting and ERA Framework Issue Summary.	17	1 EML / Email	R10: O'mealy, Mikell (Oregon Dept. of Environmental Quality)	R10: Mckenna, James (Port of Portland), R10: Blischke, Eric, L (EPA), R10: Wyatt, Robert, J (NW Natural), R10: Applegate, Rick (City of Portland)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100011581	4/7/2006	Summary of Ecological Risk Assessment Decision Framework Issues.	77	3 CORR / Correspondence	R10: Unknown, Unknown (EPA)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement

100012449	4/7/2006	Email regarding CSM questions.	30	3 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA), R10: Lee, Jean, H (Environment International, Ltd.)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100013979	4/7/2006	Email Regarding Continued Meetings for Discussion of Portland Harbor Stormwater Issues.	31	1 EML / Email	R10: Johnson, Keith (Oregon Dept. of Environmental Quality)	R10: Applegate, Richard (City of Portland, Oregon), R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA), R10: Sanders, Dawn (City of Portland, Bureau of Environmental Services), R10: Roick, Thomas, E (Oregon Dept. of Environmental Quality), R10: Anderson, James, M (Oregon Dept. of Environmental Quality), R10: Tarnow, Karen, E (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100016678	4/7/2006	REDACTED Email Regarding Well Water Quality In Sauvie Island.	27	2 EML / Email	R10: O'mealy, Mikell (Oregon Dept. of Environmental Quality)	R10: Robison, Jim (Portland Harbor Community Advisory Group), R10: Plance, Robin, G (Portland Harbor Community Advisory Group)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100020101	4/7/2006	REDACTED Email regarding ERA decision framework and meeting agenda.	19	1 EML / Email	R10: Omealy, Mikell (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940680152	4/7/2006	Email regarding reply to ERA Decision Framework and Meeting Agenda.	21	1 EML / Email	R10: O'mealy, Mikell (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940681773	4/7/2006	Email regarding Initial Draft of Meeting Facilitation Document.	17	1 EML / Email	R10: O'mealy, Mikell (Oregon Dept. of Environmental Quality)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940681774	4/7/2006	Suggested changes to Meeting Facilitation Document.	75	3 MTG / Meeting Document	R10: O'mealy, Mikell (Oregon Dept. of Environmental Quality)		ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100008502	4/10/2006	Email regarding April 17th Fate and Transport / Food Web Model Meeting.	31	1 EML / Email	R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)	R10: Neely, Robert (NOAA), R10: Buck, Jeremy (U. S. Fish and Wildlife Service), R10: Bridgen, Pamela, J (Environment International, Ltd.), R10: Baker, Jeff (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Fuentes, Rene, C (EPA), R10: Blischke, Eric, L (EPA), R10: Cope, Ben (EPA), R10: Shephard, Burt (EPA), R10: Humphrey, Chip (EPA), R10: Davoli, Dana (EPA), R10: Goulet, Joe (EPA), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality), R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality), R10: McClincy, Matt (Oregon Dept. of Environmental Quality), R10: Poulsen, Mike (Oregon Dept. of Environmental Quality), R10: O'mealy, Mikell (Oregon Dept. of Environmental Quality), R10: Gainer, Tom (Oregon Dept. of Environmental Quality), R10: Gensemer, Robert, W (Parametrix, Inc.), R10: Lee, Jean, H (Environment International, Ltd.), R10: Lee, Valerie (Environment International, Ltd.), R10: Thompson, Chris (Environment International, Ltd.)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100009266	4/10/2006	Email regarding Portland Harbor, Breast Milk.	51	1 EML / Email	R10: Poulsen, Michael (Oregon Dept. of Environmental Quality)	R10: Davoli, Dana (EPA), R10: Toepel, Kathryn (Oregon Dept. of Human Services), R10: (Environment International, Ltd.)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100010065	4/10/2006	Email regarding Sediment Trap Locations. Email Regarding Heads-Up On Goal for Tomorrow; Reference to Lower Willamette Group (LWG)'s Response and Ecological Risk Assessment (ERA) Framework Meeting.	23	1 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100011267	4/10/2006	REDACTED Email regarding reply to Agenda for April 11, 2006 Meeting and ERA Framework Issue Summary.	27	3 EML / Email	R10: O'mealy, Mikell (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100017095	4/10/2006	Email regarding reply to Continued meetings for discussion of Portland Harbor stormwater issues.	26	1 EML / Email	R10: Johnson, Keith (Oregon Dept. of Environmental Quality)	R10: Gardner, Sara (City of Portland, Oregon, Environmental Services), R10: Blischke, Eric, L (EPA), R10: Sanders, Dawn (City of Portland, Bureau of Environmental Services), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality), R10: Applegate, Rick (City of Portland)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940680225	4/10/2006	Email regarding reply to Agenda for April 11, 2006 Meeting and ERA Framework Issue Summary.	25	2 EML / Email	R10: O'mealy, Mikell (Oregon Dept. of Environmental Quality)	R10: Mckenna, Jim (Port of Portland), R10: Wyatt, Bob (Northwest Natural Gas Company), R10: Gardner, Sara (City of Portland, Oregon, Environmental Services), R10: Blischke, Eric, L (EPA), R10: Applegate, Rick (City of Portland)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940680282	4/10/2006	Email regarding reply to April 17th Fate and Transport / Food Web Model Meeting.	31	1 EML / Email	R10: Thompson, Chris (Environment International, Ltd.)	R10: Shephard, Burt (EPA), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality), R10: Lee, Valerie (Environment International, Ltd.), R10: Baker, Jeff (Grand Ronde Tribe), R10: Thompson, Chris (Environment International, Ltd.), R10: Buck, Jeremy (U. S. Fish & Wildlife Service)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940680721	4/10/2006	Email regarding reply to Portland Harbor, Breast Milk.	51	1 EML / Email	R10: Poulsen, Mike (Oregon Dept. of Environmental Quality)	R10: Davoli, Dana (EPA), R10: Toepel, Kathryn (Oregon Dept. of Human Services)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940681175	4/10/2006	Email regarding heads-up on goal for tomorrow.	29	2 EML / Email	R10: O'mealy, Mikell (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100007619	4/11/2006	Email regarding Agenda for Portland Harbor model meeting (Centralia, 4/17).	36	1 EML / Email	R10: Hope, Bruce, K (Oregon Dept. of Environmental Quality)	R10: Neeley, Robert (NOAA), R10: Buck, Jeremy (U. S. Fish and Wildlife Service), R10: Thompson, Chris (Unknown), R10: Gensemer, Robert, W (GEI Consultants, Inc.), R10: Bridgen, Pamela, J (Environment International, Ltd.), R10: Baker, Jeff (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Fuentes, Rene, C (EPA), R10: Blischke, Eric, L (EPA), R10: Cope, Ben (EPA), R10: Shephard, Burt (EPA), R10: Humphrey, Chip (EPA), R10: Davoli, Dana (EPA), R10: Goulet, Joe (EPA), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality), R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality), R10: McClincy, Matt (Oregon Dept. of Environmental Quality), R10: Poulsen, Mike (Oregon Dept. of Environmental Quality), R10: O'mealy, Mikell (Oregon Dept. of Environmental Quality), R10: Gainer, Tom (Oregon Dept. of Environmental Quality), R10: Lee, Jean, H (Environment International, Ltd.), R10: Lee, Valerie	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100008628	4/11/2006	Meeting Summary: Ecological Risk Assessment Framework Meeting at the Ater Wynne Office In Portland, Oregon.	185	4 MTG / Meeting Document	R10: O'mealy, Mikell (Oregon Dept. of Environmental Quality)		ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100010235	4/11/2006	278702700 DDT CBCs.	93	3 ADD / Analytical Data Document	R10: Unknown, Unknown (Unknown)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100011544	4/11/2006	Agenda for Ecological Risk Assessment Decision Framework Meeting.	55	1 MTG / Meeting Document	R10: Unknown, Unknown (Unknown)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100011580	4/11/2006	Agenda for Ecological Risk Assessment Decision Framework Meeting.	46	1 MTG / Meeting Document	R10: Unknown, Unknown (Unknown)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100011583	4/11/2006	Draft Summary of Ecological Risk Assessment Framework Meeting.	68	3 MTG / Meeting Document	R10: Unknown, Unknown (Unknown)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement



100013332	4/11/2006	Email Regarding Agenda for Portland Harbor Model Meeting (Centralia, 4/17) to Discuss the Portland Harbor Transport and Fate and Food Web Models.	53	1 EML / Email	R10: Hope, Bruce, K (Oregon Dept. of Environmental Quality)	R10: Neely, Robert (NOAA), R10: Bridgen, Pamela, J (Environment International, Ltd.), R10: Lee, Valerie Ann (Environment International, Ltd.), R10: Baker, Jeff (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Fuentes, Rene, C (EPA), R10: Blischke, Eric, L (EPA), R10: Cope, Ben (EPA), R10: Shephard, Burt (EPA), R10: Humphrey, Chip (EPA), R10: Davoli, Dana (EPA), R10: Goulet, Joe (EPA), R10: Gainer, Thomas, B (Oregon Dept. of Environmental Quality), R10: Anderson, James, M (Oregon Dept. of Environmental Quality), R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality), R10: McClincy, Matt (Oregon Dept. of Environmental Quality), R10: Poulsen, Michael (Oregon Dept. of Environmental Quality), R10: O'mealy, Mikell (Oregon Dept. of Environmental Quality), R10: Gensemer, Robert, W (Parametrix, Inc.), R10: Lee, Jean, H (Environment International, Ltd.), R10: Baker, Jeff (Grand Ronde Tribe), R10: Thompson, Chris (Environment International, Ltd.), R10: Buck, Jeremy (U. S. Fish & Wildlife Service)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100015442	4/11/2006	REDACTED Ecological Risk Assessment Decision Framework Meeting Agenda.	49	1 CORR / Correspondence	R10: O'mealy, Mikell (Oregon Dept. of Environmental Quality)	R10: (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100015454	4/11/2006	REDACTED Ecological Risk Assessment Decision Framework Meeting.	58	1 CORR / Correspondence	R10: O'mealy, Mikell (Oregon Dept. of Environmental Quality)	R10: (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100008982	4/12/2006	Draft Memorandum: Species Sensitivity Distribution Tissue Screening Levels - 278702700M3.	298	7 MEMO / Memorandum	R10: Stirling, Bruce, A (GeoEngineers, Inc.), R10: Morton, Neil (GeoEngineers, Inc.)	R10: Hope, Bruce, K (Oregon Dept. of Environmental Quality), R10: Levine, Ann (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100010143	4/12/2006	Email regarding Sturgeon References.	23	2 EML / Email	R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)	R10: Neely, Robert (NOAA), R10: Goulet, Ron (NOAA), R10: Buck, Jeremy (U. S. Fish and Wildlife Service), R10: Shephard, Burt (EPA), R10: Goulet, Joe (EPA), R10: Gensemer, Robert, W (Parametrix, Inc.), R10: Thompson, Chris (Environment International, Ltd.)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100010234	4/12/2006	Memorandum regarding Species Sensitivity Distribution Tissue Screening Levels.	193	7 MEMO / Memorandum	R10: Stirling, Bruce, A (GeoEngineers, Inc.), R10: Morton, Neil (GeoEngineers, Inc.)	R10: Hope, Bruce, K (Oregon Dept. of Environmental Quality), R10: Levine, Ann (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100010254	4/12/2006	Table 1: NOER/LOER Database Summary - Fish Tissue Screening Level Development.	71	2 CHT / Chart/Table	R10: Unknown, Unknown (Oregon Dept. of Environmental Quality)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100011582	4/12/2006	Email regarding Draft summary of ERA framework meeting.	22	1 EML / Email	R10: O'mealy, Mikell (Oregon Dept. of Environmental Quality)	James (Port of Portland), R10: Smith, Carrie, A (Parametrix, Inc.), R10: Oster, Valerie (Anchor Environmental, LLC), R10: Howard, Patti (Columbia River Inter-Tribal Fish Commission), R10: Bridgen, Pamela, J (Environment International, Ltd.), R10: Downey, Tom (Confederated Tribes of the Siletz Indians), R10: Baker, Jeff (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Estensen, Lisa (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Fuentes, Rene, C (EPA), R10: Cora, Lori, H (EPA), R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA), R10: Smith, Judy, R (EPA), R10: Shephard, Burt (EPA), R10: Humphrey, Chip (EPA), R10: Black, Curt (EPA), R10: Davoli, Dana (EPA), R10: Goulet, Joe (EPA), R10: Gensemer, Robert, W (Parametrix, Inc.), R10: Lee, Jean, H (Environment International, Ltd.), R10: Lee, Valerie (Environment International, Ltd.), R10: Longoria, Rose (Yakama Nation), R10: Wyatt, R10: Applegate, Richard (City of Portland, Oregon), R10: Mckenna, James (Port of Portland), R10: Wyatt, Robert, J (Northwest Natural Gas Company), R10: Gardner, Sara (City of Portland, Oregon, Environmental Services), R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA), R10: Wyatt, Robert, J (NW Natural)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100012324	4/12/2006	Email Regarding Planning for Tuesday's CSM Meeting.	29	1 EML / Email	R10: O'mealy, Mikell (Oregon Dept. of Environmental Quality)		ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940680786	4/12/2006	Email regarding reply to Mark your calendars for April 26th lamprey and sturgeon meeting.	31	1 EML / Email	R10: O'mealy, Mikell (Oregon Dept. of Environmental Quality)	R10: Buerger, Ted (U. S. Fish and Wildlife Service), R10: Mckenna, James (Port of Portland), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Cunninghame, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Oster, Valerie (Anchor Environmental, LLC), R10: Howard, Patti (Columbia River Inter-Tribal Fish Commission), R10: Downey, Tom (Confederated Tribes of the Siletz Indians), R10: Bluelake, Lisa (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Humphrey, Chip (EPA), R10: Madden, Erin (Nez Perce Tribe), R10: O'mealy, Mikell (Oregon Dept. of Environmental Quality), R10: Lee, Valerie (Environment International, Ltd.), R10: Longoria, Rose (Yakama Nation), R10: Goulet, Ron (NOAA), R10: Givens, Raymond, C (Givens Law), R10: Thompson, Chris (Environment International, Ltd.), R10: Applegate, Rick (City of Portland), R10: Barquin, Billy (Haglund Kelley, LLP), R10: Kepler, Rick, J (State of Oregon), R10: Buck, Jeremy (U. S. Fish & Wildlife Service)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940680877	4/12/2006	Email regarding reply to Planning for Tuesday's CSM meeting.	22	1 EML / Email	R10: O'mealy, Mikell (Oregon Dept. of Environmental Quality)	R10: Mckenna, James (Port of Portland), R10: Gardner, Sara (City of Portland, Oregon, Environmental Services), R10: Blischke, Eric, L (EPA), R10: Wyatt, Robert, J (NW Natural), R10: Applegate, Rick (City of Portland)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100007992	4/13/2006	Email regarding FW_ April 18 & 25 participants.	47	2 EML / Email	R10: Omealy, Mikell (Oregon Dept. of Environmental Quality)	R10: Neely, Robert (NOAA), R10: Anderson, Jim, M (State of Oregon), R10: Buck, Jeremy (U. S. Fish and Wildlife Service), R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA), R10: Lee, Valerie (Environment International, Ltd.)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100008506	4/13/2006	Email regarding April 18 & 25 participants.	47	2 EML / Email	R10: O'mealy, Mikell (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement

100009318	4/13/2006	Email regarding BP Portland Terminal T22.	25	1 EML / Email	R10: Gainer, Tom (Oregon Dept. of Environmental Quality)	R10: Garner, Erin (Atlantic Richfield Company), R10: Edwards, Mike (URS Corporation), R10: Hooton, Scott, T (BP Oil Company), R10: Sheldrake, Sean, A (EPA), R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality), R10: Blischke, Heidi (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100009601	4/13/2006	Email regarding Planning for Tuesday's CSM Meeting.	25	1 EML / Email	R10: Omealy, Mikell (Oregon Dept. of Environmental Quality)	R10: Mckenna, Jim (Port of Portland), R10: Gardner, Sara (City of Portland, Oregon, Environmental Services), R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA), R10: Omealy, Mikell (Oregon Dept. of Environmental Quality), R10: Wyatt, Robert, J (NW Natural), R10: Applegate, Rick (City of Portland)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100011322	4/13/2006	Composite / Sample Number.	27	1 EML / Email	R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100017073	4/13/2006	REDACTED Email regarding reply to BP Portland Terminal T22.	25	3 EML / Email	R10: Gainer, Thomas, B (Oregon Dept. of Environmental Quality)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100017074	4/13/2006	REDACTED Email regarding reply to BP Portland Terminal T22.	22	3 EML / Email	R10: Gainer, Thomas, B (Oregon Dept. of Environmental Quality)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940680246	4/13/2006	Email regarding reply to BP Portland Terminal T22.	25	1 EML / Email	R10: Gainer, Thomas, B (Oregon Dept. of Environmental Quality)	R10: Garner, Erin (Atlantic Richfield Company), R10: Edwards, Mike (URS Corporation), R10: Hooton, Scott, T (BP Oil Company), R10: Blischke, Eric, L (EPA), R10: Blischke, Heidi (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940680878	4/13/2006	Email regarding reply to Planning for Tuesday's CSM meeting.	25	1 EML / Email	R10: O'mealy, Mikell (Oregon Dept. of Environmental Quality)	R10: Mckenna, James (Port of Portland), R10: Gardner, Sara (City of Portland, Oregon, Environmental Services), R10: Blischke, Eric, L (EPA), R10: Wyatt, Robert, J (NW Natural), R10: Applegate, Rick (City of Portland)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100010891	4/14/2006	Email regarding Planning for Tuesday's CSM meeting(1).	22	2 EML / Email	R10: Omealy, Mikell (Oregon Dept. of Environmental Quality)	R10: Applegate, Richard (City of Portland, Oregon), R10: Mckenna, Jim (Port of Portland), R10: Gardner, Sara (City of Portland, Oregon, Environmental Services), R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA), R10: Omealy, Mikell (Oregon Dept. of Environmental Quality), R10: Livesay, Dave (GSI Groundwater Solutions, Inc.), R10: Wyatt, Robert, J (NW Natural)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940680866	4/14/2006	Email regarding reply to PH meeting facilitation.	23	2 EML / Email	R10: O'mealy, Mikell (Oregon Dept. of Environmental Quality)	R10: Humphrey, Chip (EPA), R10: Buck, Jeremy (U. S. Fish & Wildlife Service)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100011634	4/17/2006	Email regarding Agenda for Tuesday's CSM meeting.	22	3 EML / Email	R10: O'mealy, Mikell (Oregon Dept. of Environmental Quality)	R10: Mckenna, James (Port of Portland), R10: Oster, Valerie (Anchor Environmental, LLC), R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA), R10: Livesay, Dave (GSI Groundwater Solutions, Inc.), R10: Wyatt, Robert, J (NW Natural), R10: Applegate, Rick (City of Portland)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100011644	4/18/2006	Email regarding Agenda for Thursday's Stormwater meeting.	17	1 EML / Email	R10: Tarnow, Karen, E (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA), R10: Sanders, Dawn (City of Portland, Bureau of Environmental Services), R10: Scheffler, Linda (City of Portland, Bureau of Environmental Services), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality), R10: Johnson, Keith (Oregon Dept. of Environmental Quality), R10: Applegate, Rick (City of Portland)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100015459	4/18/2006	REDACTED Meeting to discuss the Conceptual Site Model and Round 2 Site Characterization Summary Report.	63	2 CORR / Correspondence	R10: O'mealy, Mikell (Oregon Dept. of Environmental Quality)	R10: (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100017463	4/18/2006	REDACTED Agenda for Meeting to discuss the Conceptual Site Model and Round 2 Site Characterization Summary Report.	62	2 MTG / Meeting Document	R10: Unknown, Unknown (Unknown)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100017710	4/18/2006	REDACTED Meeting to discuss the Conceptual Site Model and Round 2 Site Characterization Summary Report.	22	1 MTG / Meeting Document	R10: (Unknown)		ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100007702	4/19/2006	Email regarding Benthic Interpretive Approach Meeting.	17	1 EML / Email	R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)	R10: Neeley, Robert (NOAA), R10: Buck, Jeremy (U. S. Fish and Wildlife Service), R10: Thompson, Chris (Unknown), R10: Gensemer, Robert, W (GEI Consultants, Inc.), R10: Blischke, Eric, L (EPA), R10: Shephard, Burt (EPA), R10: Humphrey, Chip (EPA), R10: Goulet, Joe (EPA), R10: Anderson, Michael, R (Oregon Dept. of Environmental Quality), R10: Poulsen, Mike (Oregon Dept. of Environmental Quality), R10: Gouquet, Ron (NOAA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100012624	4/19/2006	Letter Regarding Storm Water Discharge Characterization With Enclosure.	133	19 LTR / Letter	R10: Koch, Kristine, M (EPA)	R10: Anderson, James, M (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100011639	4/20/2006	Agenda for Portland Harbor Stormwater Strategy Meeting.	32	1 MTG / Meeting Document	R10: Unknown, Unknown (Unknown)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100007745	4/24/2006	Email regarding DEQ Comments on LWG's Background TM.	26	2 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100011642	4/24/2006	Email regarding April 26 Agenda.	16	1 EML / Email	R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)	R10: Humphrey, Chip (EPA), R10: Goulet, Joe (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100014087	4/24/2006	Email Regarding DEQ Comments on Lower Willamette Group (LWG's) February 27, 2006 Background Technical Memorandum.	42	2 EML / Email	R10: Anderson, James, M (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940681143	4/24/2006	Email regarding Notice Letter Mailing List. REDACTED King-Reis Property - DEQ No Further Action Determination (ECSI Site ID: 100016810)	29	2 EML / Email	R10: Anderson, James, M (Oregon Dept. of Environmental Quality)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100016810	4/25/2006	REDACTED King-Reis Property - DEQ No Further Action Determination (ECSI Site ID: 100016810)	91	2 LTR / Letter	R10: Gilles, Bruce, A (Oregon Dept. of Environmental Quality)	R10: (King-Reis LLC)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100009575	4/26/2006	Email regarding Paper on Proposed Portland Harbor Model.	37	1 EML / Email	R10: Hope, Bruce, K (Oregon Dept. of Environmental Quality)	R10: Stivers, Carl (Anchor Environmental, LLC)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100011188	4/26/2006	Draft Assessment and Measurement Endpoints, Including LOEs.	38	6 RPT / Report	R10: (Unknown)		ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100011655	4/26/2006	Agenda for Portland Harbor Lamprey-Sturgeon Workshop Joint NRDA - Eco Team Meeting.	57	2 MTG / Meeting Document	R10: Unknown, Unknown (Unknown)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940680856	4/26/2006	Email regarding reply to Paper on Proposed Portland Harbor Model.	37	1 EML / Email	R10: Hope, Bruce, K (Oregon Dept. of Environmental Quality)	R10: Stivers, Carl (Anchor Environmental, LLC)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100008358	4/27/2006	Email regarding FW_ Data on Portal.	21	1 EML / Email	R10: Heriford, Arron (DEQ)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100009261	4/27/2006	Email regarding Round 2 Sediment Data.	25	2 EML / Email	R10: Heriford, Arron (DEQ)	R10: Blischke, Eric, L (EPA), R10: Browning, Sandy (Integral Consulting, Inc.), R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100010504	4/27/2006	Email regarding fate and transport discussion.	23	1 EML / Email	R10: Hope, Bruce, K (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA), R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100010510	4/27/2006	Email regarding fate and transport discussion.	28	2 EML / Email	R10: Hope, Bruce, K (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100010511	4/27/2006	Email regarding fate and transport discussion.	27	2 EML / Email	R10: Hope, Bruce, K (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100010512	4/27/2006	Email regarding fate and transport discussion.	27	3 EML / Email	R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA), R10: Hope, Bruce, K (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100010748	4/27/2006	Email regarding missing data.	21	1 EML / Email	R10: Heriford, Arron (DEQ)	R10: Neely, Robert (NOAA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement

100012970	4/27/2006	Email regarding Response to EPA Comments on Ro-Mar.	18	1 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100012994	4/27/2006	Letter regarding Source Control Decision - Ro-Mar Site.	55	2 LTR / Letter	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100012995	4/27/2006	Response to Comments from US EPA - Source Control Decision (SCD) - Ro-Mar Site - ECSI #2437.	60	3 CORR / Correspondence	R10: Anderson, James, M (Oregon Dept. of Environmental Quality)	R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100015020	4/27/2006	Email Regarding Response to EPA comments on Ro-Mar.	18	1 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100015021	4/27/2006	Source Control Decision- Ro-Mar Site - 9333 N Time Oil Road - Portland, OR - ECSI No. 2437. Response to Comments from U.S. EPA - Source Control Decision (SCD) - Ro-Mar Site - ECSI #2437.	48	2 LTR / Letter	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100015022	4/27/2006	Email regarding Benthic Interpretive Approach Meeting.	23	1 EML / Email	R10: Gainer, Tom (Oregon Dept. of Environmental Quality)	R10: Goulet, Joe (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100009284	4/28/2006	Email regarding EPA Round 1 Report Information Request.	21	2 EML / Email	R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)	R10: Palmeri, Jordan (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100010924	4/28/2006	Email regarding Measurement endpoints table (aka, left side of WOE matrix).	19	2 EML / Email	R10: Heriford, Arron (DEQ)	R10: Gensemer, Robert, W (Parametrix, Inc.)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100010931	4/28/2006	Email regarding Validated LWG Round 2B Sediment Core Data.	47	1 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Neely, Robert (NOAA), R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100015657	4/28/2006					R10: Blischke, Eric, L (EPA), R10: Hope, Bruce, K (Oregon Dept. of Environmental Quality), R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100008964	5/1/2006	Email regarding FW_ Fate and Transport Presentation.	17	1 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality), R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100009105	5/1/2006	Email regarding Fate and Transport Presentation.	21	1 EML / Email	R10: Hope, Bruce, K (Oregon Dept. of Environmental Quality)	R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100010246	5/1/2006	Steps in Portland Harbor Stormwater Evaluation.	52	2 RPT / Report	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100010509	5/1/2006	Email regarding fate and transport discussion.	44	4 EML / Email	R10: Hope, Bruce, K (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA), R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100010941	5/1/2006	Email regarding Fate and Transport Presentation(1).	18	1 EML / Email	R10: Hope, Bruce, K (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality), R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100012971	5/1/2006	Email regarding Thursday's Stormwater Strategy Meeting, 1:00 - 3:00.	18	1 EML / Email	R10: Tarnow, Karen, E (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA), R10: Sanders, Dawn (City of Portland, Bureau of Environmental Services), R10: Scheffler, Linda (City of Portland, Bureau of Environmental Services), R10: Anderson, James, M (Oregon Dept. of Environmental Quality), R10: Johnson, Keith (Oregon Dept. of Environmental Quality), R10: Applegate, Rick (City of Portland)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100013005	5/1/2006	Discussion Topic for May 4 Stormwater Strategy Meeting.	60	2 MTG / Meeting Document	R10: Tarnow, Karen, E (Oregon Dept. of Environmental Quality)	R10: (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100015023	5/1/2006	Email Regarding Thursday's stormwater strategy meeting, 1:00 - 3:00.	19	1 EML / Email	R10: Tarnow, Karen, E (Oregon Dept. of Environmental Quality)	R10: Sanders, Dawn (City of Portland, Oregon), R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA), R10: Scheffler, Linda (City of Portland, Bureau of Environmental Services), R10: Johnson, Keith (Oregon Dept. of Environmental Quality), R10: McClincy, Matt (Oregon Dept. of Environmental Quality), R10: Applegate, Rick (City of Portland), R10: Masterson, Kevin (Oregon Dept. of Environmental Quality), R10: Anderson, Jim (EPA), R10: Roick, Tom (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100015024	5/1/2006	DISCUSSION TOPIC FOR MAY 4 STORMWATER STRATEGY MEETING.	49	2 MTG / Meeting Document	R10: Tarnow, Karen, E (Oregon Dept. of Environmental Quality)		ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100008350	5/2/2006	Email Regarding Final Version of Today's Modeling Presentation With Additions to the Upfront, Objectives Portion.	26	2 EML / Email	R10: Hope, Bruce, K (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100008351	5/2/2006	Presentation Regarding Models for Estimation of Chemical Distribution and Fate In Response to Remedial Alternatives In the Lower Willamette River; Modeling Discussions for the Portland Harbor Superfund Project (Version 2).	4,493	30 MTG / Meeting Document	R10: Hope, Bruce, K (Oregon Dept. of Environmental Quality)		ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100013164	5/2/2006	Email Regarding 5/25/2006 Milestone Report Meeting to Discuss EPA/Partners' Comments and Concerns With the Milestone Report.	46	1 EML / Email	R10: Anderson, James, M (Oregon Dept. of Environmental Quality)	Macdonald, Donald, D (NOAA), R10: Buchman, Mike (NOAA), R10: Neely, Robert (NOAA), R10: Perry, Lynne (Oregon Dept. of Justice), R10: Szumski, Michael, J (U. S. Fish and Wildlife Service), R10: Buck, Jeremy (U. S. Fish and Wildlife Service), R10: Buerger, Ted (U. S. Fish and Wildlife Service), R10: Burkholder, Kurt (U. S. Dept. of Justice), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Cunninghame, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Howard, Patti (Columbia River Inter-Tribal Fish Commission), R10: Bridgen, Pamela, J (Environment International, Ltd.), R10: Lee, Valerie Ann (Environment International, Ltd.), R10: Spencer, Jeff (Confederated Tribes and Bands of the Yakima Indian Nation), R10: Ward, Paul (Confederated Tribes and Bands of the Yakima Indian Nation), R10: Downey, Tom (Confederated Tribes of the Siletz Indians), R10: Estensen, Lisa (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Kelly, Stephen (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Barquin, Billy (LeRoy Wilder, P.C.), R10: Sheldrake, Sean, A (EPA), R10: Fuentes, Rene, C (EPA), R10: Cora, Lori, H (EPA), R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA), R10: Smith, Judy, R (EPA), R10: Humphrey, Chip (EPA), R10: Black, Curt (EPA), R10: Davoli,	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940680966	5/2/2006	Email regarding reply to Thursday's stormwater strategy meeting, 1:00 - 3:00.	24	1 EML / Email	R10: Johnson, Keith (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA), R10: Sanders, Dawn (City of Portland, Bureau of Environmental Services), R10: Tarnow, Karen, E (Oregon Dept. of Environmental Quality), R10: Applegate, Rick (City of Portland)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100008591	5/3/2006	Working Draft of Dept. of Environmental Quality's Comprehensive Stormwater Control Strategy.	154	1 OTH / Other	R10: (Oregon Dept. of Environmental Quality)		ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100010040	5/3/2006	Email regarding Next Monthly PH Meeting.	22	2 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Kawabata, Sylvia (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100011649	5/3/2006	Email regarding First cut at PH data by segment.	16	1 EML / Email	R10: Hope, Bruce, K (Oregon Dept. of Environmental Quality)	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality), R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement



100015578	5/3/2006	Email Regarding Meeting with Stan Van and Tom Downey.	22	1 EML / Email	R10: Van De Wetering, Stan	R10: Kennedy, Mike (Unknown), R10: Kentta, Robert (Confederated Tribes of the Siletz Indians), R10: Downey, Tom (Confederated Tribes of the Siletz Indians), R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA), R10: Simmons, Frank (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940680144	5/3/2006	Email regarding reply to First cut at PH data by segment.	21	1 EML / Email	R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)	R10: Hope, Bruce, K (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940680247	5/3/2006	Email regarding reply to BP Portland Terminal T22.	25	1 EML / Email	R10: Gainer, Thomas, B (Oregon Dept. of Environmental Quality)	R10: Garner, Erin (Atlantic Richfield Company), R10: Edwards, Mike (URS Corporation), R10: Hooton, Scott, T (BP Oil Company), R10: Blischke, Eric, L (EPA), R10: Blischke, Heidi (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940680829	5/3/2006	Email regarding reply to next monthly PH meeting.	22	2 EML / Email	R10: Anderson, James, M (Oregon Dept. of Environmental Quality)	R10: Kawabata, Sylvia (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940680830	5/3/2006	Email regarding reply to next monthly PH meeting.	22	2 EML / Email	R10: Anderson, James, M (Oregon Dept. of Environmental Quality)	R10: Kawabata, Sylvia (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940680967	5/3/2006	Email regarding reply to Thursday's stormwater strategy meeting, 1:00 - 3:00.	26	1 EML / Email	R10: Johnson, Keith (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA), R10: Sanders, Dawn (City of Portland, Bureau of Environmental Services), R10: Tarnow, Karen, E (Oregon Dept. of Environmental Quality), R10: Applegate, Rick (City of Portland)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940681775	5/3/2006	Email regarding Portland Harbor Joint Source Control Strategy quarterly report.	18	1 EML / Email	R10: Wistar, Gilbert, M (Oregon Dept. of Environmental Quality)	R10: Solis, Ricardo (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940681778	5/3/2006	DEQ's Comprehensive Stormwater Control Strategy - Working Draft.	38	1 WP / Work Plan	R10: Tarnow, Karen, E (Oregon Dept. of Environmental Quality)		ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940681787	5/3/2006	Invitation to Participate and Cooperate in the Portland Harbor Superfund Site Remedial Investigation and Feasibility Study.	343	9 LTR / Letter	R10: Hengemihle, William (LECG, LLC)	R10: Feeney, Kevin (Air Liquide America Corporation)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100008608	5/4/2006	Notes From Stormwater Workgroup Meeting; Reference to Draft Overview of DEQ's "Comprehensive Stormwater Control Strategy."	131	2 MTG / Meeting Document	R10: Tarnow, Karen, E (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA), R10: Scheffler, Linda (City of Portland, Bureau of Environmental Services), R10: Roick, Thomas, E (Oregon Dept. of Environmental Quality), R10: McClincy, Matt (Oregon Dept. of Environmental Quality), R10: Sanders, Dawn (Oregon Dept. of Environmental Quality), R10: Masterson, Kevin (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100008626	5/4/2006	Outline of a Sampling of Approaches for Evaluating Recontamination: Terminal 4 Recontamination Evaluation.	291	5 OTH / Other	R10: (Unknown)		ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100009118	5/4/2006	Email regarding First Cut at PH Data by Segment.	20	1 EML / Email	R10: Hope, Bruce, K (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100009123	5/4/2006	Email regarding First Cut at PH Data by Segment.	21	2 EML / Email	R10: Hope, Bruce, K (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940681780	5/4/2006	A Sampling of Approaches for Evaluating Recontamination.	195	5 WP / Work Plan	R10: Tarnow, Karen, E (Oregon Dept. of Environmental Quality)		ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100008623	5/5/2006	Email With Notes From May 4, 2006 Stormwater Meeting.	27	1 EML / Email	R10: Tarnow, Karen, E (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA), R10: Sanders, Dawn (City of Portland, Bureau of Environmental Services), R10: Scheffler, Linda (City of Portland, Bureau of Environmental Services), R10: Roick, Thomas, E (Oregon Dept. of Environmental Quality), R10: Anderson, James, M (Oregon Dept. of Environmental Quality), R10: Johnson, Keith (Oregon Dept. of Environmental Quality), R10: McClincy, Matt (Oregon Dept. of Environmental Quality), R10: Applegate, Rick (City of Portland), R10: Masterson, Kevin (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100008629	5/5/2006	Email Regarding Final Notes From the April 11th Ecological Framework Meeting I Facilitated With the Lower Willamette Group (LWG).	25	1 EML / Email	R10: O'mealy, Mikell (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100013007	5/5/2006	Email regarding Weighting Matrix.	23	2 EML / Email	R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)	R10: Gensemer, Robert, W (Parametrix, Inc.)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100013008	5/5/2006	Weighting Matrix.	73	23 OTH / Other	R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)	R10: (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940681777	5/5/2006	Notes from EPA/DEQ/COP Stormwater Workgroup Meeting.	57	2 MTG / Meeting Document	R10: Tarnow, Karen, E (Oregon Dept. of Environmental Quality)	R10: Humphrey, Chip (EPA), R10: Scheffler, Linda (City of Portland, Bureau of Environmental Services), R10: Sanders, Dawn (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940681779	5/5/2006	Email regarding Notes from 5/4 stormwater meeting.	19	1 EML / Email	R10: Tarnow, Karen, E (Oregon Dept. of Environmental Quality)	R10: Livesay, Dave (CH2M Hill, Inc.), R10: Anderson, Kim, A (Oregon State University), R10: Humphrey, Chip (EPA), R10: Scheffler, Linda (City of Portland, Bureau of Environmental Services), R10: Sanders, Dawn (Oregon Dept. of Environmental Quality), R10: Applegate, Rick (City of Portland) Oregon), R10: Neely, Robert (NOAA), R10: Buck, Jeremy (U. S. Fish and Wildlife Service), R10: Mckenna, James (Port of Portland), R10: Smith, Carrie, A (Parametrix, Inc.), R10: Bridgen, Pamela, J (Environment International, Ltd.), R10: Downey, Tom (Confederated Tribes of the Siletz Indians), R10: Estensen, Lisa (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Sheldrake, Sean, A (EPA), R10: Fuentes, Rene, C (EPA), R10: Cora, Lori, H (EPA), R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA), R10: Smith, Judy, R (EPA), R10: Shephard, Burt (EPA), R10: Humphrey, Chip (EPA), R10: Black, Curt (EPA), R10: Davoli, Dana (EPA), R10: Grepogrove, Gina (EPA), R10: Goulet, Joe (EPA), R10: Madden, Erin (Nez Perce Tribe), R10: Toepel, Kathryn (Oregon Dept. of Human Services), R10: Gainer, Thomas, B (Oregon Dept. of Environmental Quality), R10: Anderson, James, M (Oregon Dept. of Environmental Quality), R10: McClincy, Matt (Oregon Dept. of Environmental Quality), R10: Poulsen, Michael (Oregon Dept. of Environmental Quality), R10: O'mealy, Mikell (Oregon Dept. of Environmental Quality), R10: Gensemer, Robert, W (Parametrix, Inc.), R10: Lee, Jean, H (Environment International, Ltd.), R10: Lee, Valerie (Environment International, Ltd.), R10: Baker, Jeff (Grand Ronde Tribe), R10: Longoria, Rose (Yakama Nation), R10: Wyatt, Robert, J	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100008654	5/8/2006	Email Regarding Materials for Meeting of May 9th - Ecological Framework Meeting. Spreadsheet With Draft Assessment and Measurement Endpoints, Including Level-of-Effort (LOE) (Full Spreadsheet In Native Format Attached).	33	1 EML / Email	R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)		ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100008725	5/8/2006	Attached.	40	6 CHT / Chart/Table	R10: (Unknown)		ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement

	Draft Spreadsheet With PH Matrix (Revised); Weighing Criteria for Measuring Endpoints, Consideration, Ranking Relative to Considerations (Full Spreadsheet In Native Format Attached).	28	2 CHT / Chart/Table	R10: (Unknown)		ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100008727	5/8/2006			R10: Gainer, Tom (Oregon Dept. of Environmental Quality)			056-SITE SUPPORT/0563-State/Tribal Involvement
100009797	5/8/2006	24	2 EML / Email	R10: Gainer, Tom (Oregon Dept. of Environmental Quality)	R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100012840	5/8/2006	23	2 EML / Email	R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)	R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100017129	5/8/2006	41	2 MTG / Meeting Document	R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)		ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940680117	5/8/2006	30	5 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Lombardozi, Kevin (Valhi)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
					R10: Neely, Robert (NOAA), R10: Smith, Carrie, A (Parametrix, Inc.), R10: Mckenna, Jim (Lower Willamette Group), R10: Downey, Tom (Confederated Tribes of the Siletz Indians), R10: Estensen, Lisa (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Humphrey, Chip (EPA), R10: Madden, Erin (Nez Perce Tribe), R10: Toepel, Kathryn (Oregon Dept. of Human Services), R10: Gainer, Thomas, B (Oregon Dept. of Environmental Quality), R10: Lee, Jean, H (Environment International, Ltd.), R10: Baker, Jeff (Grand Ronde Tribe), R10: Longoria, Rose (Yakama Nation), R10: Wyatt, Robert, J (NW Natural), R10: How, P (CRITFC), R10: Thompson, Chris (Environment International, Ltd.), R10: Applegate, Rick (City of Portland), R10: Buck, Jeremy (U. S. Fish & Wildlife Service)		
4940681782	5/8/2006	23	1 EML / Email	R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)		ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940681783	5/8/2006	39	8 ADD / Analytical Data Document	R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality), R10: Gensemer, Robert, W (Parametrix, Inc.)		ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940681784	5/8/2006	37	9 ADD / Analytical Data Document	R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)		ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100015583	5/9/2006	20	1 EML / Email	R10: Stone, Dave (Unknown)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100017670	5/9/2006	160	2 MTG / Meeting Document	R10: (Unknown)		ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100013097	5/10/2006	27	1 EML / Email	R10: Anderson, James, M (Oregon Dept. of Environmental Quality)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100015564	5/11/2006	46	1 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Blischke, Eric, L (EPA), R10: Marsh, John (Parametrix, Inc.)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100009404	5/12/2006	24	2 EML / Email	R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)	R10: Goulet, Joe (EPA), R10: Gensemer, Robert, W (Parametrix, Inc.)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100009406	5/12/2006	21	1 EML / Email	R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)	R10: Goulet, Joe (EPA), R10: Gensemer, Robert, W (Parametrix, Inc.)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
					R10: Neely, Robert (NOAA), R10: Buck, Jeremy (U. S. Fish and Wildlife Service), R10: Bridgen, Pamela, J (Environment International, Ltd.), R10: Baker, Jeff (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Sheldrake, Sean, A (EPA), R10: Fuentes, Rene, C (EPA), R10: Cora, Lori, H (EPA), R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA), R10: Shephard, Burt (EPA), R10: Humphrey, Chip (EPA), R10: Black, Curt (EPA), R10: Davoli, Dana (EPA), R10: Grepo-grove, Gina (EPA), R10: Goulet, Joe (EPA), R10: Madden, Erin (Nez Perce Tribe), R10: Hope, Bruce, K (Oregon Dept. of Environmental Quality), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality), R10: McClincy, Matt (Oregon Dept. of Environmental Quality), R10: Poulsen, Mike (Oregon Dept. of Environmental Quality), R10: Omealy, Mikell (Oregon Dept. of Environmental Quality), R10: Gainer, Tom (Oregon Dept. of Environmental Quality), R10: Gensemer, Robert, W (Parametrix, Inc.), R10: Lee, Jean, H (Environment International, Ltd.), R10: Longoria, Rose (Yakama Nation), R10: Gouguet, Ron (NOAA), R10: Thompson, Chris (Environment International, Ltd.), R10: Wittman, Parker (Environment International, Ltd.)		
100008166	5/15/2006	19	1 EML / Email	R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)		ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100015029	5/15/2006	45	2 LST / List/Index	R10: Omealy, Mikell (Oregon Dept. of Environmental Quality)		ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100017833	5/15/2006	19	1 EML / Email	R10: Hope, Bruce, K (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100019960	5/15/2006	19	1 EML / Email	R10: Hope, Bruce, K (Oregon Dept. of Environmental Quality)	R10: Hayter, Earl, J (EPA), R10: Blischke, Eric, L (EPA), R10: Cope, Ben (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
					R10: Neely, Robert (NOAA), R10: Baker, Jeff (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Black, Curt (EPA), R10: Madden, Erin (Nez Perce Tribe), R10: Anderson, James, M (Oregon Dept. of Environmental Quality), R10: Gensemer, Robert, W (Parametrix, Inc.), R10: Lee, Jean, H (Environment International, Ltd.), R10: Longoria, Rose (Yakama Nation), R10: Thompson, Chris (Environment International, Ltd.), R10: Buck, Jeremy (U. S. Fish & Wildlife Service)		
4940680887	5/15/2006	30	1 EML / Email	R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)		ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940681241	5/15/2006	20	1 EML / Email	R10: Kent, Mavis, D (Oregon Dept. of Environmental Quality)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
					R10: Neely, Robert (NOAA), R10: Black, Curt (EPA), R10: Madden, Erin (Nez Perce Tribe), R10: Anderson, James, M (Oregon Dept. of Environmental Quality), R10: Gensemer, Robert, W (Parametrix, Inc.), R10: Lee, Jean, H (Environment International, Ltd.), R10: Baker, Jeff (Grand Ronde Tribe), R10: Longoria, Rose (Yakama Nation), R10: Thompson, Chris (Environment International, Ltd.), R10: Buck, Jeremy (U. S. Fish & Wildlife Service)		
4940681786	5/15/2006	21	1 EML / Email	R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)		ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement

100008457	Email regarding 5/25/06 Milestone Report Meeting.	40	2 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	Macdonald, Donald, D (NOAA), R10: Buchman, Mike (NOAA), R10: Neely, Robert (NOAA), R10: Burkholder, Kurt (Oregon Dept. of Justice), R10: Szumski, Michael, J (U. S. Fish and Wildlife Service), R10: Buck, Jeremy (U. S. Fish and Wildlife Service), R10: Buerger, Ted (U. S. Fish and Wildlife Service), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Cunninghame, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Howard, Patti (Columbia River Inter-Tribal Fish Commission), R10: Bridgen, Pamela, J (Environment International, Ltd.), R10: Spencer, Jeff (Confederated Tribes and Bands of the Yakima Indian Nation), R10: Downey, Tom (Confederated Tribes of the Siletz Indians), R10: Estensen, Lisa (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Kelly, Stephen (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Barquin, Billy (LeRoy Wilder, P.C.), R10: Sheldrake, Sean, A (EPA), R10: Fuentes, Rene, C (EPA), R10: Cora, Lori, H (EPA), R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA), R10: Smith, Judy, R (EPA), R10: Humphrey, Chip (EPA), R10: Black, Curt (EPA), R10: Davoli, Dana (EPA), R10: Grepo-grove, Gina (EPA), R10: Goulet, Joe (EPA), R10: Kawabata, Sylvia (EPA), R10: Madden, Erin (Nez Perce Tribe), R10: Oatman, Joe (Nez Perce Tribe), R10:	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100013057	Email regarding Thursday's Stormwater Meeting (9-11 at BES).	18	1 EML / Email	R10: Tarnow, Karen, E (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA), R10: Sanders, Dawn (City of Portland, Bureau of Environmental Services), R10: Scheffler, Linda (City of Portland, Bureau of Environmental Services), R10: Anderson, James, M (Oregon Dept. of Environmental Quality), R10: Johnson, Keith (Oregon Dept. of Environmental Quality), R10: McClincy, Matt (Oregon Dept. of Environmental Quality), R10: Applegate, Rick (City of Portland)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100013058	Suggested Agenda for May 18 Stormwater Strategy Meeting.	53	2 MTG / Meeting Document	R10: Tarnow, Karen, E (Oregon Dept. of Environmental Quality)	R10: (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100015025	Email Regarding Thursday's stormwater meeting (9-11 at BES).	18	1 EML / Email	R10: Tarnow, Karen, E (Oregon Dept. of Environmental Quality)	R10: Scheffler, Linda (City of Portland, Oregon), R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA), R10: Sanders, Dawn (City of Portland, Bureau of Environmental Services), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality), R10: Johnson, Keith (Oregon Dept. of Environmental Quality), R10: McClincy, Matt (Oregon Dept. of Environmental Quality), R10: Applegate, Rick (City of Portland)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100016126	REDACTED Email Regarding [pdxharborcag] Boat Accident near Sauvie Island.	24	1 EML / Email	R10: O'mealy, Mikell (Oregon Dept. of Environmental Quality)	R10: Robison, Jim (Portland Harbor Community Advisory Group), R10: Plance, Robin, G (Portland Harbor Community Advisory Group)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940680295	Email regarding reply to 5/25/06 Milestone Report Meeting.	40	2 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Hillman, Helen, E (NOAA), R10: Burkholder, Kurt (Oregon Dept. of Justice), R10: Szumski, Michael, J (U. S. Fish and Wildlife Service), R10: Madden, Erin (Unknown), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Cunninghame, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Howard, Patti (Columbia River Inter-Tribal Fish Commission), R10: Bridgen, Pamela, J (Environment International, Ltd.), R10: Spencer, Jeff (Confederated Tribes and Bands of the Yakima Indian Nation), R10: Downey, Tom (Confederated Tribes of the Siletz Indians), R10: Kelly, Stephen (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Humphrey, Chip (EPA), R10: Oatman, Joe (Nez Perce Tribe), R10: Gainer, Thomas, B (Oregon Dept. of Environmental Quality), R10: Lee, Jean, H (Environment International, Ltd.), R10: Longoria, Rose (Yakama Nation), R10: Althouse, Scott (The Nez Perce Tribe), R10: Givens, Raymond, C (Givens Law), R10: Barquin, Billy (Haglund Kelley, LLP), R10: Kepler, Rick, J (State of Oregon), R10: Buck, Jeremy (U. S. Fish & Wildlife Service)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100009430	5/18/2006 ERA Framework Status.	20	2 RPT / Report	R10: (Unknown)		ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100009432	5/18/2006 Outfall.	69	1 RPT / Report	R10: (Unknown)		ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100009437	Arkema Proposed Schedule Upland & In Water rev 0.	46	3 RPT / Report	R10: (Unknown)		ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100010244	Email regarding Steps in PH Stormwater Evaluation.	19	1 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA), R10: Sanders, Dawn (City of Portland, Bureau of Environmental Services), R10: Applegate, Rick (City of Portland)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100015028	Email Regarding Steps in PH Stormwater Evaluation.	18	1 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA), R10: Sanders, Dawn (City of Portland, Bureau of Environmental Services), R10: Applegate, Rick (City of Portland)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100015064	REDACTED Email regarding Next Monthly PH Meeting.	19	1 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Kawabata, Sylvia (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100015652	Email regarding Validated LWG Round 2 Multiplate Tissue Data.	48	2 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Neely, Robert (NOAA), R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100017515	REDACTED Email regarding reply to Next PH monthly call.	20	2 EML / Email	R10: Johnson, Keith (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100017533	REDACTED Email regarding reply to Next PH monthly call.	19	1 EML / Email	R10: Anderson, James, M (Oregon Dept. of Environmental Quality)	R10: Kawabata, Sylvia (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100010471	5/19/2006 Email regarding Siltronic, Status Update.	26	2 EML / Email	R10: Bayuk, Dana (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100010719	Email regarding Stormwater in the EPA PH ROD.	23	1 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Kawabata, Sylvia (EPA), R10: Johnson, Keith (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940681022	5/19/2006 Email regarding Siltronic, Status Update.	26	2 EML / Email	R10: Bayuk, Dana (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940681788	5/19/2006 Email regarding Portland Harbor, LWG Letter.	18	1 EML / Email	R10: Anderson, James, M (Oregon Dept. of Environmental Quality)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement



100018117	5/31/2006	REDACTED Email regarding June 1 Call to Discuss LWG Sediment Trap FSP.	24	3 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Mckenna, James (Port of Portland), R10: Hanzlick, Dennis (Anchor Environmental, LLC), R10: Oster, Valerie (Anchor Environmental, LLC), R10: Pine, Keith, A (Integral Consulting, Inc.), R10: Blischke, Eric, L (EPA), R10: Wyatt, Robert, J (NW Natural), R10: Jones, Laura (Integral Corporation), R10: Applegate, Rick (City of Portland)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940680759	5/31/2006	Email regarding reply to Issues for Development of PRGs.	21	1 EML / Email	R10: Poulsen, Mike (Oregon Dept. of Environmental Quality)	R10: Davoli, Dana (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940680939	5/31/2006	Email regarding reply to Stormwater questions for Tuesday's modeling discussion.	24	2 EML / Email	R10: Hope, Bruce, K (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940681030	5/31/2006	Email regarding Stormwater questions for Tuesday's modeling discussion.	26	1 EML / Email	R10: Tarnow, Karen, E (Oregon Dept. of Environmental Quality)	R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100007808	6/1/2006	Email regarding Food web models.	23	3 EML / Email	R10: Hope, Bruce, K (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100008305	6/1/2006	Email regarding FW_ Conf call yesterday and FWM programming issues.	65	2 EML / Email	R10: Hope, Bruce, K (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA), R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality), R10: Poulsen, Mike (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100008590	6/1/2006	Email regarding FW_ Food web models.	28	3 EML / Email	R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100008967	6/1/2006	Email regarding FW_ May 23 Manager Meeting Summary Notes.	22	2 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Applegate, Richard (City of Portland, Oregon), R10: Mckenna, James (Port of Portland), R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA), R10: (Parametrix), R10: (Environment International, Ltd.), R10: (Columbia Gorge Mining Company)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100010258	6/1/2006	Email regarding CTL Info.	219	3 EML / Email	R10: Anderson, Michael, R (Oregon Dept. of Environmental Quality), R10: Levine, Ann (Oregon Dept. of Environmental Quality)	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100011776	6/1/2006	Email Regarding Modeling.	30	1 EML / Email	R10: Anderson, James, M (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100012432	6/1/2006	Email regarding Conf call yesterday and FWM programming issues.	65	2 EML / Email	R10: Hope, Bruce, K (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100014992	6/1/2006	Email Regarding Food Web Models: I Agree With Your Sequence of Events, the Need for One Model (Unless Issues of Scale Dictate Otherwise), and How This Model Should Work With the T&F Model.	36	3 EML / Email	R10: Hope, Bruce, K (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940680159	6/1/2006	Email regarding reply to FE/PWO Outage.	20	1 EML / Email	R10: Kent, Mavis, D (Oregon Dept. of Environmental Quality)	R10: Shaw, Steven, M (Reynolds Metals Company), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940681198	6/1/2006	Email regarding Modeling.	22	1 EML / Email	R10: Anderson, James, M (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940681789	6/1/2006	Email regarding May 23 Manager Meeting Summary Notes.	22	2 EML / Email	R10: Anderson, Kim, A (Oregon State University)	R10: Cunnigham, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Cunnigham, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Mckenna, Jim (Lower Willamette Group), R10: Humphrey, Chip (EPA), R10: Applegate, Rick (City of Portland), R10: Marsh, John (Parametrix, Inc.)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100007610	6/2/2006	Email regarding 6/6/ Framework Modeling Mtg.	18	1 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100007611	6/2/2006	Email regarding 9/21/ SC Meeting.	21	1 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA), R10: Kawabata, Sylvia (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100013253	6/2/2006	Email Regarding 6/6/2006 Framework Modeling Meeting.	32	1 EML / Email	R10: Anderson, James, M (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100007609	6/5/2006	Email regarding 6/6 Mtg.	17	1 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA), R10: Hope, Bruce, K (Oregon Dept. of Environmental Quality), R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100007765	6/5/2006	Email regarding Draft Source Control Decision for Triangle Park GW.	25	1 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Hillman, Helen, E (NOAA), R10: Burkholder, Kurt (Oregon Dept. of Justice), R10: Buck, Jeremy (U. S. Fish and Wildlife Service), R10: Givens, Raymond, C (Givens & Funke), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Cunnigham, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Spencer, Jeff (Confederated Tribes and Bands of the Yakima Indian Nation), R10: Ward, Paul (Confederated Tribes and Bands of the Yakima Indian Nation), R10: Downey, Tom (Confederated Tribes of the Siletz Indians), R10: Bluelake, Lisa (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Estensen, Lisa (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Kelly, Stephen (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Oatman, Joe (Nez Perce Tribe), R10: Eichstaedt, Rick (Nez Perce Tribe), R10: Barquin, Billy (Haglund, Kelley, Horngren, Jones & Wilder, LLP), R10: Lee, Jean, H (Environment International, Ltd.), R10: Longoria, Rose (Yakama Nation), R10: Althouse, Scott (The Nez Perce Tribe)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100008983	6/5/2006	Email regarding FW_ Identification of Outstanding Issues for 5_23.	28	4 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Hope, Bruce, K (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100013071	6/5/2006	Email Regarding 6/6 Meeting.	32	1 EML / Email	R10: Anderson, James, M (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA), R10: Hope, Bruce, K (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement



100014815	6/5/2006	Email Regarding "Head's-Up" That DEQ Plans to Submit Draft Source Control Decisions (SCDs) for Groundwater at the Triangle Park Site EPA for Their Review & Comment in Late June 2006.	51	1 EML / Email	R10: Anderson, James, M (Oregon Dept. of Environmental Quality)	Macdonald, Donald, D (NOAA), R10: Buchman, Mike (NOAA), R10: Neely, Robert (NOAA), R10: Burkholder, Kurt (Oregon Dept. of Justice), R10: Szumski, Michael, J (U. S. Fish and Wildlife Service), R10: Buck, Jeremy (U. S. Fish and Wildlife Service), R10: Buerger, Ted (U. S. Fish and Wildlife Service), R10: Burkholder, Kurt (U. S. Dept. of Justice), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Cunninghame, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Howard, Patti (Columbia River Inter-Tribal Fish Commission), R10: Bridgen, Pamela, J (Environment International, Ltd.), R10: Spencer, Jeff (Confederated Tribes and Bands of the Yakima Indian Nation), R10: Ward, Paul (Confederated Tribes and Bands of the Yakima Indian Nation), R10: Downey, Tom (Confederated Tribes of the Siletz Indians), R10: Bluelake, Lisa (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Estensen, Lisa (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Kelly, Stephen (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Sheldrake, Sean, A (EPA), R10: Fuentes, Rene, C (EPA), R10: Cora, Lori, H (EPA), R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA), R10: Smith, Judy, R (EPA), R10: Humphrey, Chip (EPA), R10: Black, Curt (EPA), R10: Davoli, Dana (EPA),	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940680161	6/5/2006	Email regarding reply to Draft Source Control Decision for Triangle Park GW.	24	2 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100007701	6/6/2006	Email regarding Benthic Approach Comments.	16	1 EML / Email	R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100010666	6/6/2006	Email regarding ME Table revision Call(1).	22	1 EML / Email	R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)	R10: Saban, Lisa (Windward Environmental, LLC.), R10: Goulet, Joe (EPA), R10: Gensemer, Robert, W (Parametrix, Inc.)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100010670	6/6/2006	Email regarding ME Table revision Call.	22	1 EML / Email	R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)	R10: Saban, Lisa (Windward Environmental, LLC.), R10: Goulet, Joe (EPA), R10: Gensemer, Robert, W (Parametrix, Inc.)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100009796	6/7/2006	Email regarding Reschedule Next Monthly Call on June 20th.	21	1 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA), R10: Kawabata, Sylvia (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100009830	6/7/2006	Email regarding Call-In Number for Today.	21	1 EML / Email	R10: Poulsen, Mike (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100012844	6/7/2006	Email regarding reschedule next monthly call on June 20th.	21	1 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA), R10: Kawabata, Sylvia (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100009807	6/8/2006	Email regarding Revised Modeling Objectives Matrix.	71	2 EML / Email	R10: Hope, Bruce, K (Oregon Dept. of Environmental Quality)	R10: Mckenna, Jim (Port of Portland), R10: Cunninghame, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Walton, Raymond (West Consultants, Inc.), R10: Stivers, Carl (Anchor Environmental, LLC), R10: Oster, Valerie (Anchor Environmental, LLC), R10: Toll, John (Windward Environmental, LLC.), R10: Saban, Lisa (Windward Environmental, LLC.), R10: Judd, Nancy (Windward Environmental, LLC.), R10: Pine, Keith, A (Integral Consulting, Inc.), R10: Revelas, Gene, C (Integral Consulting, Inc.), R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality), R10: Mcclincy, Matt (Oregon Dept. of Environmental Quality), R10: Lee, Valerie (Environment International, Ltd.), R10: Longoria, Rose (Yakama Nation), R10: Applegate, Rick (City of Portland), R10: Marsh, John (Parametrix, Inc.)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100011670	6/8/2006	Email regarding Administrative Framework for Stormwater in the ROD.	18	1 EML / Email	R10: Tarnow, Karen, E (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA), R10: Sanders, Dawn (City of Portland, Bureau of Environmental Services), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality), R10: Johnson, Keith (Oregon Dept. of Environmental Quality), R10: Mcclincy, Matt (Oregon Dept. of Environmental Quality), R10: Applegate, Rick (City of Portland), R10: Roick, Tom (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100011675	6/8/2006	Pathway to Controlling Stormwater in Portland Harbor.	43	1 FIG / Figure/Map/ Drawing	R10: Unknown, Unknown (Unknown)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100011684	6/8/2006	Operating Assumptions Related to Stormwater and the ROD.	66	2 CORR / Correspondence	R10: Unknown, Unknown (Unknown)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100011696	6/8/2006	Draft Operating Assumptions Related to Stormwater and the ROD.	66	2 CORR / Correspondence	R10: Unknown, Unknown (Unknown)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100012847	6/8/2006	Email regarding Revised Modeling Objectives Matrix.	71	2 EML / Email	R10: Hope, Bruce, K (Oregon Dept. of Environmental Quality)	R10: Mckenna, Jim (Port of Portland), R10: Cunninghame, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Walton, Raymond (West Consultants, Inc.), R10: Stivers, Carl (Anchor Environmental, LLC), R10: Oster, Valerie (Anchor Environmental, LLC), R10: Toll, John (Windward Environmental, LLC.), R10: Saban, Lisa (Windward Environmental, LLC.), R10: Judd, Nancy (Windward Environmental, LLC.), R10: Pine, Keith, A (Integral Consulting, Inc.), R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality), R10: Mcclincy, Matt (Oregon Dept. of Environmental Quality), R10: Lee, Valerie (Environment International, Ltd.), R10: Longoria, Rose (Yakama Nation), R10: Wyatt, Robert, J (NW Natural), R10: Revelas, Gene (Integral Corporation), R10: Applegate, Rick (City of Portland), R10: Marsh, John (Parametrix, Inc.)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100015666	6/8/2006	Email regarding June 12 Meeting Location.	49	1 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Mckenna, James (Port of Portland), R10: Cunninghame, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Pine, Keith, A (Integral Consulting, Inc.), R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA), R10: Anderson, James, M (Oregon Dept. of Environmental Quality), R10: Mcclincy, Matt (Oregon Dept. of Environmental Quality), R10: Longoria, Rose (Yakama Nation), R10: Wyatt, Robert, J (NW Natural), R10: Applegate, Rick (City of Portland), R10: Marsh, John (Parametrix, Inc.)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement

					(U. S. Fish and Wildlife Service), R10: Mckenna, James (Port of Portland), R10: Schadt, Tom (Anchor Environmental, LLC), R10: Howard, Patti (Columbia River Inter-Tribal Fish Commission), R10: Saban, Lisa (Windward Environmental, LLC.), R10: Luxon, Matt (Windward Environmental, LLC.), R10: Johns, Mike (Windward Environmental, LLC.), R10: Snyder, Joan, P (Stoel Rives, LLP), R10: Downey, Tom (Confederated Tribes of the Siletz Indians), R10: Cramer, Martin (ConocoPhillips Company), R10: Baker, Jeff (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Blischke, Eric, L (EPA), R10: Shephard, Burt (EPA), R10: Humphrey, Chip (EPA), R10: Goulet, Joe (EPA), R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality), R10: Omealy, Mikell (Oregon Dept. of Environmental Quality), R10: Lewis, Mark, D (NewFields), R10: Lee, Jean, H (Environment International, Ltd.), R10: Lee, Valerie (Environment International, Ltd.), R10: Longoria, Rose (Yakama Nation), R10: Wyatt, Robert, J (NW Natural), R10: Gouguet, Ron (NOAA), R10: Thompson, Chris (Environment International, Ltd.), R10: Applegate, Rick (City of Portland), R10: Kepler, Rick, J (State of Oregon), R10: Van De Wetering, Stan (Confederated Tribes of Siletz Indians), R10: Buck, Jeremy (U. S. Fish & Wildlife Service), R10: Dalton, Tim (State of Oregon), R10: Mesa,		056-SITE SUPPORT/0563-State/Tribal Involvement	
100018038	REDACTED Email regarding Next Meeting of Lamprey Sturgeon Task Team - June 28.	26	1 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)		ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement	
4940681158	6/8/2006 Email regarding Schnitzer.	25	2 EML / Email	R10: Anderson, James, M (Oregon Dept. of Environmental Quality)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement	
100007798	6/12/2006 Email regarding ERA Framework Review.	17	1 EML / Email	R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement	
100009935	6/12/2006 Email regarding RE_Issue Summary Table(1).	22	1 EML / Email	R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement	
100009970	6/12/2006 Email regarding RE_Issue Summary Table.	22	1 EML / Email	R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement	
100008762	Progress Report On Fate and Transport/Food Web Modeling Approaches.	133	2 RPT / Report	R10: Stivers, Carl (Anchor QEA, LLC)		ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement	
100008764	Fate and Transport Matrix (Revised): Suggested Revisions to Modeling Objectives Matrix Based On May 17 Conference Call With EPA (Updated June 13, 2006 by Carl Stivers).	15	1 CHT / Chart/Table	R10: Stivers, Carl (Anchor QEA, LLC)		ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement	
100008790	6/13/2006 Email Regarding Updated Status Report and Matrix for Fate and Transport Modeling.	29	1 EML / Email	R10: Anderson, James, M (Oregon Dept. of Environmental Quality)	R10: Hope, Bruce, K (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement	
4940681140	6/13/2006 Email regarding Modeling Meeting. Suggested Revisions to Modeling Objectives Matrix based on May 17 Conference Call with EPA.	38	1 EML / Email	R10: Hope, Bruce, K (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement	
4940681791	6/13/2006 Email regarding Updated Status Report and Matrix for F/T modeling.	63	1 ADD / Analytical Data Document	R10: Stivers, Carl (Anchor Environmental, LLC)		ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement	
4940681792	6/13/2006 Email regarding Updated Status Report and Matrix for F/T modeling.	63	1 EML / Email	R10: Anderson, James, M (Oregon Dept. of Environmental Quality)	R10: Hope, Bruce, K (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement	
4940681793	Progress Report on Fate and Transport/Food Web Modeling Approaches.	21	2 CONTR / Contract Documentation	R10: Stivers, Carl (Anchor Environmental, LLC)		ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement	
100008923	6/14/2006 Email regarding FW_Status of Portland Harbor lamprey_sturgeon deb.	31	3 EML / Email	R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement	
100009263	6/14/2006 Email regarding Modeling Meeting.	26	2 EML / Email	R10: Hope, Bruce, K (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement	
100009264	6/14/2006 Email regarding Modeling Meeting.	27	3 EML / Email	R10: Hope, Bruce, K (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement	
100010753	6/14/2006 Email regarding Modeling Meeting(1).	40	1 EML / Email	R10: Hope, Bruce, K (Oregon Dept. of Environmental Quality)	R10: Stivers, Carl (Anchor Environmental, LLC)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement	
4940680718	6/14/2006 Email regarding reply to Modeling Meeting.	26	2 EML / Email	R10: Hope, Bruce, K (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement	
100007700	6/15/2006 Email regarding Benthic Approach Comments.	16	1 EML / Email	R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement	
100010580	Email regarding Sites Recommended for Transition Zone Water Sampling.	68	15 EML / Email	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	Macdonald, Donald, D (NOAA), R10: Buchman, Mike (NOAA), R10: Neely, Robert (NOAA), R10: Burkholder, Kurt (Oregon Dept. of Justice), R10: Perry, Lynne (Oregon Dept. of Justice), R10: Szumski, Michael, J (U. S. Fish and Wildlife Service), R10: Buerger, Ted (U. S. Fish and Wildlife Service), R10: Madden, Erin (Unknown), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Cunninghame, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Bridgen, Pamela, J (Environment International, Ltd.), R10: Spencer, Jeff (Confederated Tribes and Bands of the Yakima Indian Nation), R10: Ward, Paul (Confederated Tribes and Bands of the Yakima Indian Nation), R10: Downey, Tom (Confederated Tribes of the Siletz Indians), R10: Estensen, Lisa (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Kelly, Stephen (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Sheldrake, Sean, A (EPA), R10: Fuentes, Rene, C (EPA), R10: Cora, Lori, H (EPA), R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA), R10: Smith, Judy, R (EPA), R10: Humphrey, Chip (EPA), R10: Black, Curt (EPA), R10: Davoli, Dana (EPA), R10: Grepo-grove, Ginna (EPA), R10: Goulet, Joe (EPA), R10: Kawabata, Sylvia (EPA), R10: Oatman, Joe (Nez Perce Tribe), R10: Eichstaedt, Rick (Nez Perce Tribe), R10:		ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940681024	Email regarding Sites Recommended for Transition Zone Water Sampling.	68	15 EML / Email	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	R10: Hillman, Helen, E (NOAA), R10: Burkholder, Kurt (Oregon Dept. of Justice), R10: Szumski, Michael, J (U. S. Fish and Wildlife Service), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Cunninghame, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Howard, Patti (Columbia River Inter-Tribal Fish Commission), R10: Bridgen, Pamela, J (Environment International, Ltd.), R10: Spencer, Jeff (Confederated Tribes and Bands of the Yakima Indian Nation), R10: Downey, Tom (Confederated Tribes of the Siletz Indians), R10: Kelly, Stephen (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Humphrey, Chip (EPA), R10: Madden, Erin (Nez Perce Tribe), R10: Anderson, James, M (Oregon Dept. of Environmental Quality), R10: Lee, Jean, H (Environment International, Ltd.), R10: Althouse, Scott (The Nez Perce Tribe), R10: Givens, Raymond, C (Givens Law), R10: Ward, Paul (Yakama Nation), R10: Barquin, Billy (Haglund Kelley, LLP), R10: Kepler, Rick, J (State of Oregon), R10: Buck, Jeremy (U. S. Fish & Wildlife Service)		ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement

100011694	6/16/2006	Email regarding Administrative Framework for Stormwater in the ROD - Summary of 6/16 Meeting.	23	2 EML / Email	R10: Johnson, Keith (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA), R10: Sanders, Dawn (City of Portland, Bureau of Environmental Services), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality), R10: Tarnow, Karen, E (Oregon Dept. of Environmental Quality), R10: Johnson, Keith (Oregon Dept. of Environmental Quality), R10: McClincy, Matt (Oregon Dept. of Environmental Quality), R10: Applegate, Rick (City of Portland), R10: Roick, Tom (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100010766	6/20/2006	Email regarding Modeling Meeting(2).	42	2 EML / Email	R10: Hope, Bruce, K (Oregon Dept. of Environmental Quality)	R10: Stivers, Carl (Anchor Environmental, LLC)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100007499	6/21/2006	Email regarding Benthic Approach Comments Benthic Approach Comments.	18	1 EML / Email	R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)	R10: Field, Jay (NOAA), R10: Neeley, Robert (NOAA), R10: Buck, Jeremy (U. S. Fish and Wildlife Service), R10: Thompson, Chris (Unknown), R10: Gensemer, Robert, W (GEI Consultants, Inc.), R10: Blischke, Eric, L (EPA), R10: Goulet, Joe (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100007510	6/21/2006	Letter regarding Portland Harbor Superfund Site Ecological Risk Assessment: Interpretive Report: Estimating Risks to Benthic Organisms Using Predictive Models Based on Sediment Toxicity Tests.	99	8 CORR / Correspondence	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100008975	6/21/2006	Email regarding FW_ Arkema Project Schedule.	73	2 EML / Email	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	R10: Bernardini, L (Parametrix)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100009048	6/21/2006	Portland Harbor Superfund Site Ecological Risk Assessment: Interpretive Report: Estimating Risks to Benthic Organisms Using Predictive Models Based on Sediment Toxicity Tests.	96	8 MEMO / Memorandum	R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100010749	6/21/2006	Email regarding Modeling Discussions(1).	48	3 EML / Email	R10: Hope, Bruce, K (Oregon Dept. of Environmental Quality)	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality), R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100010768	6/21/2006	Email regarding Modeling Meeting.	42	3 EML / Email	R10: Hope, Bruce, K (Oregon Dept. of Environmental Quality)	R10: Stivers, Carl (Anchor Environmental, LLC)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100010287	6/22/2006	Email regarding TCT TZW Follow Up.	24	2 EML / Email	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100010733	6/22/2006	Email regarding TCT TZW Follow Up.	26	1 EML / Email	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA), R10: Lee, Jean, H (Environment International, Ltd.)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940680959	6/22/2006	Email regarding reply to TCT TZW Follow Up.	25	2 EML / Email	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940681035	6/22/2006	Email regarding TCT TZW Follow Up.	26	1 EML / Email	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA), R10: Lee, Jean, H (Environment International, Ltd.)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100008881	6/23/2006	Email regarding FW_ Project Update - June 22, 2006.	29	3 EML / Email	R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100009568	6/25/2006	Email regarding P.S. on WOE Framework.	20	1 EML / Email	R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA), R10: Gensemer, Robert, W (Parametrix, Inc.)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100009046	6/26/2006	Email regarding Benthic Approach Comments.	24	2 EML / Email	R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)	R10: Field, Jay (NOAA), R10: Neely, Robert (NOAA), R10: Buck, Jeremy (U. S. Fish and Wildlife Service), R10: Blischke, Eric, L (EPA), R10: Goulet, Joe (EPA), R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality), R10: Gensemer, Robert, W (Parametrix, Inc.), R10: Thompson, Chris (Environment International, Ltd.)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100009047	6/26/2006	Portland Harbor Sediment Data Summary.	184	7 CHT / Chart/Table	R10: Unknown, Unknown (Unknown)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100009770	6/26/2006	Email regarding Projected RI/FS ROD Schedule - msg, Info for Senior Managers.	31	2 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Mckenna, Jim (Port of Portland), R10: Oster, Valerie (Anchor Environmental, LLC), R10: Pine, Keith, A (Integral Consulting, Inc.), R10: Humphrey, Chip (EPA), R10: McClincy, Matt (Oregon Dept. of Environmental Quality), R10: Lee, Valerie (Environment International, Ltd.), R10: Longoria, Rose (Yakama Nation), R10: Wyatt, Robert, J (NW Natural), R10: Applegate, Rick (City of Portland)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100010751	6/26/2006	Email regarding Modeling Discussions(2).	27	2 EML / Email	R10: Hope, Bruce, K (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100012773	6/26/2006	Email regarding Projected RI/FS ROD Schedule - msg, info for senior managers.	31	2 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Mckenna, Jim (Port of Portland), R10: Oster, Valerie (Anchor Environmental, LLC), R10: Pine, Keith, A (Integral Consulting, Inc.), R10: Humphrey, Chip (EPA), R10: McClincy, Matt (Oregon Dept. of Environmental Quality), R10: Lee, Valerie (Environment International, Ltd.), R10: Longoria, Rose (Yakama Nation), R10: Wyatt, Robert, J (NW Natural), R10: Applegate, Rick (City of Portland)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100015665	6/26/2006	Email regarding July 6 TZW Meeting.	22	1 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Mckenna, James (Port of Portland), R10: Blischke, Eric, L (EPA), R10: Wyatt, Robert, J (NW Natural), R10: Applegate, Rick (City of Portland)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100017449	6/26/2006	REDACTED Email regarding reply to Jim Anderson's Vacation.	20	1 EML / Email	R10: Anderson, James, M (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940680898	6/26/2006	Email regarding reply to RP - Gould Camera Survey Work Plan.	33	3 EML / Email	R10: Roick, Thomas, E (Oregon Dept. of Environmental Quality)	R10: Wilson, Teresa, A (AMEC Earth & Environmental, Inc.)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940680897	6/27/2006	Email regarding reply to RP - Gould Camera Survey Work Plan.	40	5 EML / Email	R10: Roick, Thomas, E (Oregon Dept. of Environmental Quality)	R10: Gormley, Sean (AMEC Environment & Infrastructure, Inc.)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100008817	6/28/2006	Spreadsheet With Food Web (PRG) Example Model Required Inputs.	110	6 CHT / Chart/Table	R10: (Unknown)		ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100008818	6/28/2006	Email Regarding Follow-Up to Discussion of Generating Sediment Preliminary Remediation Goals (PRGs) With the Food Web Model.	35	1 EML / Email	R10: Hope, Bruce, K (Oregon Dept. of Environmental Quality)	R10: Buck, Jeremy (U. S. Fish and Wildlife Service), R10: Blischke, Eric, L (EPA), R10: Smith, Judy, R (EPA), R10: Shephard, Burt (EPA), R10: Humphrey, Chip (EPA), R10: Black, Curt (EPA), R10: Davoli, Dana (EPA), R10: Grepo-grove, Gina (EPA), R10: Goulet, Joe (EPA), R10: Gainer, Thomas, B (Oregon Dept. of Environmental Quality), R10: Anderson, James, M (Oregon Dept. of Environmental Quality), R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality), R10: Lee, Jean, H (Environment International, Ltd.), R10: Baker, Jeff (Grand Ronde Tribe), R10: Thompson, Chris (Environment International, Ltd.)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100010117	6/28/2006	Email regarding Siltronic, Status Update.	26	2 EML / Email	R10: Bayuk, Dana (Oregon Dept. of Environmental Quality)	R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100010342	6/28/2006	Email regarding Water Screening Level Comments.	19	1 EML / Email	R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality), R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100010353	6/28/2006	Email regarding Water Screening Level Comments.	19	1 EML / Email	R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100010354	6/28/2006	Memorandum regarding Table 1, Selected acute and chronic ecological screening levels (Eco SLS) for chemicals in water, Revised Draft, May 25, 2006.	54	3 MEMO / Memorandum	R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement



100010506	6/28/2006	Email regarding Siltronic, Status Update.	24	1 EML / Email	R10: Bayuk, Dana (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100010712	6/28/2006	Email regarding Storm Water Source Control at CERCLA Sediment Sites.	27	1 EML / Email	R10: Tarnow, Karen, E (Oregon Dept. of Environmental Quality)	R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940680928	6/28/2006	Email regarding reply to Siltronic, Status Update.	26	2 EML / Email	R10: Bayuk, Dana (Oregon Dept. of Environmental Quality)	R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940680936	6/28/2006	Email regarding reply to Storm Water Source Control at CERCLA Sediment Sites.	27	1 EML / Email	R10: Tarnow, Karen, E (Oregon Dept. of Environmental Quality)	R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940681023	6/28/2006	Email regarding Siltronic, Status Update.	24	1 EML / Email	R10: Bayuk, Dana (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940681794	6/28/2006	Email regarding Generating sediment PRGs with the food web model.	25	1 EML / Email	R10: Hope, Bruce, K (Oregon Dept. of Environmental Quality)	R10: Baker, Mary (NOAA), R10: Smith, Carrie, A (Parametrix, Inc.), R10: Downey, Tom (Confederated Tribes of the Siletz Indians), R10: Estensen, Lisa (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Humphrey, Chip (EPA), R10: Madden, Erin (Nez Perce Tribe), R10: Toepel, Kathryn (Oregon Dept. of Human Services), R10: Gainer, Thomas, B (Oregon Dept. of Environmental Quality), R10: Lee, Jean, H (Environment International, Ltd.), R10: Longoria, Rose (Yakama Nation), R10: How, P (CRITFC), R10: Thompson, Chris (Environment International, Ltd.), R10: Buck, Jeremy (U. S. Fish & Wildlife Service)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940681795	6/28/2006	Food Web Model Consistent with Arnot and Gobas Template.	103	1 CHT / Chart/Table	R10: Hope, Bruce, K (Oregon Dept. of Environmental Quality)		ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100007513	6/29/2006	Email regarding Final Benthic Interpretive Comments.	17	1 EML / Email	R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100007514	6/29/2006	Letter regarding Portland Harbor Superfund Site Ecological Risk Assessment: Interpretive Report: Estimating Risks to Benthic Organisms Using Predictive Models Based on Sediment Toxicity Tests.	102	8 CORR / Correspondence	R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100008973	6/29/2006	Email Regarding Quick Notes From June 29th Stormwater Meeting.	28	1 EML / Email	R10: Tarnow, Karen, E (Oregon Dept. of Environmental Quality)	R10: Applegate, Richard (City of Portland, Oregon), R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA), R10: Roick, Thomas, E (Oregon Dept. of Environmental Quality), R10: Johnson, Keith (Oregon Dept. of Environmental Quality), R10: Livesay, Dave (GSI Groundwater Solutions, Inc.), R10: Sanders, Dawn (Oregon Dept. of Environmental Quality), R10: Masterson, Kevin (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100008974	6/29/2006	Notes From the June 29th Meeting of the EPA, Dept. of Environmental Quality, and City of Portland Stormwater Workgroup.	86	2 MTG / Meeting Document	R10: (Unknown)		ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100011077	6/30/2006	Email Regarding Gasco/Siltronic Off-Shore Groundwater Work Plan: I Distributed Copies of the Revised Off-Shore Groundwater Investigation Work Plan Prepared By Northwest Natural to Augment the Transition Zone Water (TZW) Work Conducted By the LWG.	32	1 EML / Email	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	R10: Fuentes, Rene, C (EPA), R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA), R10: Lee, Jean, H (Environment International, Ltd.), R10: Donoghue, Cinde (Environment International, Ltd.)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940681171	6/30/2006	Email regarding Gasco/Siltronic Off-Shore Groundwater Work Plan.	24	1 EML / Email	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	R10: Fuentes, Rene, C (EPA), R10: Lee, Jean, H (Environment International, Ltd.), R10: Donoghue, Cinde (Environment International, Ltd.)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940681799	6/30/2006	Quarterly Report to the U.S. Environmental Protection Agency Portland Harbor Joint Source Control Strategy - Period Ending June 30, 2006.	28	2 CONTR / Contract Documentation	R10: O'mealy, Mikell (Oregon Dept. of Environmental Quality)	R10: (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940681802	6/30/2006	Quarterly Report to the U.S. Environmental Protection Agency Portland Harbor Joint Source Control Strategy - Period Ending June 30, 2006.	17	2 CONTR / Contract Documentation	R10: Kiernan, Jill, A (Oregon Dept. of Environmental Quality)	R10: (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100008204	7/1/2006	DEQ Seeking Public Comment on Proposed State Consent Judgment Regarding Portland Harbor Superfund Site.	60	3 PUB / Publication	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality), R10: O'mealy, Mikell (Oregon Dept. of Environmental Quality)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100011698	7/1/2006	DEQ Seeking Public Comment on Proposed State Consent Judgment Regarding Portland Harbor Superfund Site.	60	3 PUB / Publication	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality), R10: O'mealy, Mikell (Oregon Dept. of Environmental Quality)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100011705	7/1/2006	Oregon Economic and Community Development Department Industrial Site Inventory.	430	1 FIG / Figure/Map/ Drawing	R10: Unknown, Unknown (Oregon Economic and Community Development Dept.)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100015030	7/3/2006	Email Regarding Source Control Milestone Report.	28	1 EML / Email	R10: Omealy, Mikell (Oregon Dept. of Environmental Quality)	R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100015031	7/3/2006	Milestone Report for Upland Source Control at the Portland Harbor Superfund Site.	289	3 LTR / Letter	R10: O'mealy, Mikell (Oregon Dept. of Environmental Quality)	R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100015032	7/3/2006	Milestone Report - for Upland Source Control - at the Portland Harbor Superfund Site.	157	20 RPT / Report	R10: Unknown, Unknown (Oregon Department of Environmental Quality)		ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100015033	7/3/2006	Table 1: DEQ Milestone Report - Controlling Confirmed or Suspected Upland Sources of Contamination to Portland Harbor/	157	25 CHT / Chart/Table	R10: Unknown, Unknown (Oregon Department of Environmental Quality)		ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100008193	7/5/2006	Email regarding PRP Notice Letters - Public Information Meeting July 18.	30	2 EML / Email	R10: O'mealy, Mikell (Oregon Dept. of Environmental Quality)	Robert (NOAA), R10: Burkholder, Kurt (Oregon Dept. of Justice), R10: Szumski, Michael, J (U. S. Fish and Wildlife Service), R10: Buck, Jeremy (U. S. Fish and Wildlife Service), R10: Buerger, Ted (U. S. Fish and Wildlife Service), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Cunninghame, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Bridgen, Pamela, J (Environment International, Ltd.), R10: Downey, Tom (Confederated Tribes of the Siletz Indians), R10: Baker, Jeff (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Estensen, Lisa (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Kelly, Stephen (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Barquin, Billy (LeRoy Wilder, P.C.), R10: Sheldrake, Sean, A (EPA), R10: Fuentes, Rene, C (EPA), R10: Cora, Lori, H (EPA), R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA), R10: Smith, Judy, R (EPA), R10: Cope, Ben (EPA), R10: Shephard, Burt (EPA), R10: Humphrey, Chip (EPA), R10: Davoli, Dana (EPA), R10: Grepo-grove, Gina (EPA), R10: Goulet, Joe (EPA), R10: Madden, Erin (Nez Perce Tribe), R10: Gensemer, Robert, W (Parametrix, Inc.), R10: Lee, Jean, H (Environment International, Ltd.), R10: Lee, Valerie (Environment International, Ltd.), R10: Longoria, Rose	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100011697	7/5/2006	Email regarding PRP notice letters - public information meeting July 18.	22	2 EML / Email	R10: O'mealy, Mikell (Oregon Dept. of Environmental Quality)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement

100015681	7/5/2006	Email regarding LWG/EPA Call on Friday. Public Notice: EPA Seeking Public Comment on Proposed State Consent Judgment Regarding	46	1 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Mckenna, James (Port of Portland), R10: Pine, Keith, A (Integral Consulting, Inc.), R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA), R10: Anderson, James, M (Oregon Dept. of Environmental Quality), R10: Wyatt, Robert, J (NW Natural), R10: Applegate, Rick (City of Portland)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940681796	7/5/2006	Portland Harbor Superfund Site.	62	3 PUB / Publication	R10: Burkholder, Kurt (Oregon Dept. of Justice)	R10: O'mealy, Mikell (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940681797	7/5/2006	Email Regarding PRP notice letters -- public information meeting July 18.	30	2 EML / Email	R10: O'mealy, Mikell (Oregon Dept. of Environmental Quality)	R10: Burkholder, Kurt (Oregon Dept. of Justice), R10: Szumski, Michael, J (U. S. Fish and Wildlife Service), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Cunningham, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Bridgen, Pamela, J (Environment International, Ltd.), R10: Downey, Tom (Confederated Tribes of the Siletz Indians), R10: Kelly, Stephen (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Barquin, Billy (LeRoy Wilder, P.C.), R10: Humphrey, Chip (EPA), R10: Madden, Erin (Nez Perce Tribe), R10: Anderson, James, M (Oregon Dept. of Environmental Quality), R10: Gensemer, Robert, W (Parametrix, Inc.), R10: Pederson, Dick (Oregon Department of Environmental Quality), R10: Lee, Jean, H (Environment International, Ltd.), R10: Baker, Jeff (Grand Ronde Tribe), R10: Longoria, Rose (Yakama Nation), R10: Gouguet, Ron (NOAA), R10: How, P (CRITFC), R10: Barquin, Billy (Haglund Kelley, LLP), R10: Kepler, Rick, J (State of Oregon), R10: Buck, Jeremy (U. S. Fish & Wildlife Service)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100009139	7/6/2006	Email regarding Food Web Model Issues.	21	1 EML / Email	R10: Hope, Bruce, K (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100010401	7/6/2006	Email regarding WOE Framework Attempt. REDACTED Email regarding WOE Framework Attempt.	24	1 EML / Email	R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)	R10: Gensemer, Robert, W (Parametrix, Inc.)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100020097	7/7/2006	Email regarding Portland Harbor Joint Source Control Strategy quarterly report.	26	2 EML / Email	R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)	R10: Gensemer, Robert, W (Parametrix, Inc.)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940681798	7/10/2006	Control Strategy quarterly report.	19	1 EML / Email	R10: Wistar, Gilbert, M (Oregon Dept. of Environmental Quality)	R10: Solis, Ricardo (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100011701	7/13/2006	Email regarding Background Tech Memo Response to Comments.	20	2 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality), R10: McClincy, Matt (Oregon Dept. of Environmental Quality), R10: Poulsen, Mike (Oregon Dept. of Environmental Quality), R10: Gainer, Tom (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100011702	7/13/2006	Response to Comments on the Technical Memorandum: Approach to Determining Background.	28	1 CORR / Correspondence	R10: Mckenna, Jim (Port of Portland), R10: Wyatt, Robert, J (NW Natural)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100011703	7/13/2006	Initial Categorization - EPA Technical Memorandum: Approach to Determining Background Comments (dated June 5, 2006).	201	21 CORR / Correspondence	R10: Unknown, Unknown (Lower Willamette Group)	R10: Unknown, Unknown (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100015643	7/14/2006	REDACTED Email regarding Reminder - Conference Call on Monday.	44	2 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Mckenna, Jim (Port of Portland), R10: Oster, Valerie (Anchor Environmental, LLC), R10: Pine, Keith, A (Integral Consulting, Inc.), R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA), R10: Lee, Valerie (Environment International, Ltd.), R10: Longoria, Rose (Yakama Nation), R10: Wyatt, Robert, J (NW Natural), R10: Donoghue, Cinde (Environment International, Ltd.), R10: Applegate, Rick (City of Portland)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100015885	7/14/2006	REDACTED Email regarding reminder - conference call on Monday.	46	2 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Mckenna, Jim (Port of Portland), R10: Oster, Valerie (Anchor Environmental, LLC), R10: Pine, Keith, A (Integral Consulting, Inc.), R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA), R10: Lee, Valerie (Environment International, Ltd.), R10: Longoria, Rose (Yakama Nation), R10: Wyatt, Robert, J (NW Natural), R10: Donoghue, Cinde (Environment International, Ltd.), R10: Applegate, Rick (City of Portland)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100011798	7/17/2006	Email Regarding Muliplate/Juvenile Chinook Document Comments.	40	2 EML / Email	R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)	R10: Neely, Robert (NOAA), R10: Buck, Jeremy (U. S. Fish and Wildlife Service), R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA), R10: Goulet, Joe (EPA), R10: Anderson, James, M (Oregon Dept. of Environmental Quality), R10: Gensemer, Robert, W (Parametrix, Inc.), R10: Gouguet, Ron (NOAA), R10: Thompson, Chris (Environment International, Ltd.)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940681203	7/17/2006	Email regarding Muliplate / Juvenile Chinook Document Comments.	31	2 EML / Email	R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)	R10: Neely, Robert (NOAA), R10: Goulet, Joe (EPA), R10: Anderson, James, M (Oregon Dept. of Environmental Quality), R10: Gensemer, Robert, W (Parametrix, Inc.), R10: Thompson, Chris (Environment International, Ltd.), R10: Buck, Jeremy (U. S. Fish & Wildlife Service)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940680947	7/18/2006	Email regarding reply to Surface Water FSP comments.	22	1 EML / Email	R10: Anderson, James, M (Oregon Dept. of Environmental Quality)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100008984	7/20/2006	Email Regarding Materials for the Next July 27th Stormwater Strategy Meeting. Draft Portland Harbor Stormwater Strategy - the Good Read, Capturing Main Points From	29	1 EML / Email	R10: Tarnow, Karen, E (Oregon Dept. of Environmental Quality)	R10: Applegate, Richard (City of Portland, Oregon), R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA), R10: Scheffler, Linda (City of Portland, Bureau of Environmental Services), R10: Roick, Thomas, E (Oregon Dept. of Environmental Quality), R10: Anderson, James, M (Oregon Dept. of Environmental Quality), R10: Johnson, Keith (Oregon Dept. of Environmental Quality), R10: McClincy, Matt (Oregon Dept. of Environmental Quality), R10: Livesay, Dave (GSI Groundwater Solutions, Inc.), R10: Sanders, Dawn (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100008985	7/20/2006	Document That Follows.	343	6 OTH / Other	R10: (Unknown)		ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940681800	7/20/2006	Email regarding Materials for next 7/27 stormwater strategy mtg.	20	1 EML / Email	R10: Tarnow, Karen, E (Oregon Dept. of Environmental Quality)	R10: Koch, Kristine, M (EPA), R10: Sanders, Dawn (Oregon Dept. of Environmental Quality), R10: Applegate, Rick (City of Portland)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940681801	7/20/2006	Portland Harbor Stormwater Strategy.	98	6 WP / Work Plan	R10: Tarnow, Karen, E (Oregon Dept. of Environmental Quality)		ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement

100017496	REDACTED Email regarding reply to News for 7/21/2006 you.	26	2 EML / Email	R10: Anderson, James, M (Oregon Dept. of Environmental Quality)	R10: Plance, Robin, G (St. Johns Neighborhood Association), R10: Plance, Robin, G (St. Johns Neighborhood Association), R10: Harris, Jane (Friends of the Columbia Gorge)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100017474	REDACTED Email regarding Industrial sites for 7/25/2006 redevelopment.	25	1 EML / Email	R10: O'mealy, Mikell (Oregon Dept. of Environmental Quality)	R10: Barrett, M., J (Unknown), R10: Gunther, Stephen, M (Unknown), R10: Robison, Jim (Portland Harbor Community Advisory Group), R10: Williams, Travis (Willamette Riverkeeper)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100017499	REDACTED Email regarding reply to News for 7/25/2006 you.	21	1 EML / Email	R10: Anderson, James, M (Oregon Dept. of Environmental Quality)	R10: Plance, Robin, G (St. Johns Neighborhood Association)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100014493	7/27/2006 Email Regarding Draft Plan.	30	1 EML / Email	R10: Kent, Mavis, D (Oregon Dept. of Environmental Quality)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100016713	REDACTED Email Regarding Diver Scenario Call Cancelled As Dana Is Away With a Family Emergency.	19	1 EML / Email	R10: Poulsen, Michael (Oregon Dept. of Environmental Quality)	R10: Bridgen, Pamela, J (Environment International, Ltd.), R10: Sheldrake, Sean, A (EPA), R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA), R10: Goulet, Joe (EPA), R10: Toepel, Kathryn (Oregon Dept. of Human Services)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100019970	REDACTED Email regarding Telecon to Discuss EPA Comments on Draft Round 3A Surface Water FSP - 7/28 10:30AM.	23	2 EML / Email	R10: Hope, Bruce, K (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940680912	Email regarding reply to Schnitzer Burgard site 7/27/2006 visit on.	24	1 EML / Email	R10: Anderson, James, M (Oregon Dept. of Environmental Quality)	R10: Humphrey, Chip (EPA), R10: Romero, Michael (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940680973	Email regarding reply to TZW Meeting 7/27/2006 participants.	55	2 EML / Email	R10: Anderson, James, M (Oregon Dept. of Environmental Quality)	R10: Mckenna, James (Port of Portland), R10: Benedict, James, E (Cable, Huston, Benedict, & Haagensen), R10: Coover, Merv (Thermo RETEC Consulting Corporation), R10: Oster, Valerie (Anchor Environmental, LLC), R10: Peale, James, G (Maul Foster & Alongi, Inc.), R10: Kennedy, Laura (Kennedy/Jenks Consultants), R10: Hurley, Kathleen (Windward Environmental, LLC.), R10: Burt, Walt (Groundwater Solutions Inc.), R10: Locke, William, W (Integral Consulting, Inc.), R10: Gresh, Roger, T (AMEC Earth & Environmental, Inc.), R10: Blischke, Eric, L (EPA), R10: McClincy, Matt (Oregon Dept. of Environmental Quality), R10: Gensemer, Robert, W (Parametrix, Inc.), R10: Koschal, Gerard (Red Hills Environmental, Inc.), R10: Longoria, Rose (Yakama Nation), R10: Wyatt, Robert, J (NW Natural), R10: Hawley, Christine (Integral Corporation), R10: Gormley, Sean (AMEC Environment & Infrastructure, Inc.), R10: Donoghue, Cinde (Environment International, Ltd.), R10: Applegate, Rick (City of Portland)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100014480	8/1/2006 Email Regarding Draft Plan Comments.	37	3 EML / Email	R10: Kent, Mavis, D (Oregon Dept. of Environmental Quality)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100017498	REDACTED Email regarding reply to News for 8/1/2006 you.	33	5 EML / Email	R10: Anderson, James, M (Oregon Dept. of Environmental Quality)	R10: Harris, Jane (Friends of the Columbia Gorge)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940681246	8/1/2006 Email regarding Rd 3 Sed Trap FSP	22	1 EML / Email	R10: Anderson, James, M (Oregon Dept. of Environmental Quality)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940680911	Email regarding reply to Schnitzer Burgard site 8/2/2006 visit on.	22	1 EML / Email	R10: Anderson, James, M (Oregon Dept. of Environmental Quality)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940680858	Email regarding reply to Perchlorate Pilot Test 8/3/2006 Workplan - electronic copy.	35	10 EML / Email	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	R10: Sheldrake, Sean, A (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940681803	8/3/2006 Email regarding Gould quarterly report.	17	1 EML / Email	R10: Wistar, Gilbert, M (Oregon Dept. of Environmental Quality)	R10: Solis, Ricardo (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100008606	Email regarding FW_ Fate and Transport 8/7/2006 Modeling Meeting - Portland.	46	2 EML / Email	R10: Hope, Bruce, K (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100012559	Email regarding Fate and Transport Modeling 8/7/2006 Meeting - Portland Harbor.	46	2 EML / Email	R10: Hope, Bruce, K (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100014662	REDACTED Email regarding GASCO Offshore 8/7/2006 Investigation Plan.	26	3 EML / Email	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	R10: Fuentes, Rene, C (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100016597	REDACTED Email regarding Gasco Offshore 8/7/2006 Investigation Plan.	26	2 EML / Email	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	R10: Arthur, Jennifer (Environment International, Ltd.), R10: Fuentes, Rene, C (EPA), R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality), R10: Bayuk, Dana (Oregon Dept. of Environmental Quality), R10: Donoghue, Cinde (Environment International, Ltd.)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100017421	REDACTED Email regarding reply to Gasco 8/7/2006 Offshore Investigation Plan.	26	3 EML / Email	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	R10: Fuentes, Rene, C (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100017454	REDACTED Email regarding reply to Gasco 8/7/2006 Offshore Investigation Plan.	27	2 EML / Email	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	R10: Edwards, John, C (Anchor Environmental, LLC)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100017668	REDACTED Email regarding FW_ Gasco 8/7/2006 Offshore Investigation Plan.	26	2 EML / Email	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	R10: Anderson, Jim, M (State of Oregon), R10: Arthur, Jennifer (Environment International, Ltd.), R10: Fuentes, Rene, C (EPA), R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA), R10: Bayuk, Dana (Oregon Dept. of Environmental Quality), R10: Donoghue, Cinde (Environment International, Ltd.)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100017204	REDACTED Email regarding New Groundwater 8/8/2006 Site - Gunderson Area 3 RI Data.	24	1 EML / Email	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	R10: Neely, Robert (NOAA), R10: Madden, Erin (Unknown), R10: Smith, Carrie, A (Parametrix, Inc.), R10: Estensen, Lisa (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Blischke, Eric, L (EPA), R10: Toepel, Kathryn (Oregon Dept. of Human Services), R10: Gainer, Thomas, B (Oregon Dept. of Environmental Quality), R10: Lee, Jean, H (Environment International, Ltd.), R10: Baker, Jeff (Grand Ronde Tribe), R10: Longoria, Rose (Yakama Nation), R10: How, P (CRITFC), R10: Thompson, Chris (Environment International, Ltd.), R10: Buck, Jeremy (U. S. Fish & Wildlife Service)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940681205	8/8/2006 Email regarding New Site Groundwater Data.	24	1 EML / Email	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	R10: Humphrey, Chip (EPA), R10: Donoghue, Cinde (Environment International, Ltd.)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement

100015609	8/10/2006	Email regarding Portland Harbor Lamprey/Sturgeon Call.	32	1 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Neely, Robert (NOAA), R10: Mckenna, James (Port of Portland), R10: Schadt, Tom (Anchor Environmental, LLC), R10: Oster, Valerie (Anchor Environmental, LLC), R10: Howard, Patti (Columbia River Inter-Tribal Fish Commission), R10: Saban, Lisa (Windward Environmental, LLC.), R10: Luxon, Matt (Windward Environmental, LLC.), R10: Johns, Mike (Windward Environmental, LLC.), R10: Downey, Tom (Confederated Tribes of the Siletz Indians), R10: Pine, Keith, A (Integral Consulting, Inc.), R10: Baker, Jeff (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA), R10: Anderson, James, M (Oregon Dept. of Environmental Quality), R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality), R10: Lewis, Mark, D (NewFields), R10: Lee, Valerie (Environment International, Ltd.), R10: Longoria, Rose (Yakama Nation), R10: Wyatt, Robert, J (NW Natural), R10: Gouguet, Ron (NOAA), R10: Thompson, Chris (Environment International, Ltd.), R10: Applegate, Rick (City of Portland), R10: Van De Wetering, Stan (Confederated Tribes of Siletz Indians), R10: Fuji, Taku (Kennedy Jenks Consultants), R10: Buck, Jeremy (U. S. Fish & Wildlife Service), R10: Dalton, Tim (State of Oregon), R10: Mesa, Matthew, G (USGS), R10: Prescott, Chris (City of Portland)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940680234	8/10/2006	Email regarding reply to CAG minutes web posting.	22	1 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Smith, Judy, R (EPA), R10: O'mealy, Mikell (Oregon Dept. of Environmental Quality) James (Port of Portland), R10: Schadt, Tom (Anchor Environmental, LLC), R10: Oster, Valerie (Anchor Environmental, LLC), R10: Howard, Patti (Columbia River Inter-Tribal Fish Commission), R10: Saban, Lisa (Windward Environmental, LLC.), R10: Luxon, Matt (Windward Environmental, LLC.), R10: Johns, Mike (Windward Environmental, LLC.), R10: Downey, Tom (Confederated Tribes of the Siletz Indians), R10: Pine, Keith, A (Integral Consulting, Inc.), R10: Baker, Jeff (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA), R10: Anderson, James, M (Oregon Dept. of Environmental Quality), R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality), R10: Omealy, Mikell (Oregon Dept. of Environmental Quality), R10: Lewis, Mark, D (NewFields), R10: Lee, Valerie (Environment International, Ltd.), R10: Longoria, Rose (Yakama Nation), R10: Wyatt, Robert, J (NW Natural), R10: Gouguet, Ron (NOAA), R10: Thompson, Chris (Environment International, Ltd.), R10: Applegate, Rick (City of Portland), R10: Van De Wetering, Stan (Confederated Tribes of Siletz Indians), R10: Fuji, Taku (Kennedy Jenks Consultants), R10: Buck, Jeremy (U. S. Fish & Wildlife Service), R10: Dalton, Tim (State of Oregon), R10: Mesa, Matthew, G (USGS), R10: Prescott, Chris (City of Portland)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100018088	8/11/2006	REDACTED Email regarding Portland Harbor Lamprey/Sturgeon Call - August 17.	26	2 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Koch, Kristine, M (EPA), R10: Mcclincy, Matt (Oregon Dept. of Environmental Quality) R10: Shaw, Steven, M (Reynolds Metals Company), R10: Smith, Judy, R (EPA), R10: Kent, Mavis, D (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940680819	8/11/2006	Email regarding reply to New Site Groundwater Data.	23	1 EML / Email	R10: Anderson, James, M (Oregon Dept. of Environmental Quality)	R10: Koch, Kristine, M (EPA), R10: Mcclincy, Matt (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940680223	8/14/2006	Email regarding reply to Community Meeting Requests for Reynolds Metals Superfund Site.	27	1 EML / Email	R10: Gilles, Bruce, A (Oregon Dept. of Environmental Quality)	R10: Shaw, Steven, M (Reynolds Metals Company), R10: Smith, Judy, R (EPA), R10: Kent, Mavis, D (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100014803	8/15/2006	REDACTED Email regarding August 16, 2006 TCT Meeting.	20	1 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100007613	8/18/2006	Email regarding 8/18/06 DEQ/EPA Source Control Meeting.	23	2 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Sheldrake, Sean, A (EPA), R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA), R10: Flint, Kris (EPA), R10: Kawabata, Sylvia (EPA), R10: Tarnow, Karen, E (Oregon Dept. of Environmental Quality), R10: Johnson, Keith (Oregon Dept. of Environmental Quality), R10: Mcclincy, Matt (Oregon Dept. of Environmental Quality), R10: O'mealy, Mikell (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100017893	8/18/2006	REDACTED Email regarding Siltronic, Site and Source Control Status Update.	24	1 EML / Email	R10: Bayuk, Dana (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100020113	8/18/2006	REDACTED Email regarding Siltronic, Site and Source Control Status Update.	23	1 EML / Email	R10: Bayuk, Dana (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100007524	8/21/2006	Draft Evaluating Stormwater in the Context of the Portland Harbor RI/FS.	68	3 CORR / Correspondence	R10: Tarnow, Karen, E (Oregon Dept. of Environmental Quality)	R10: Tarnow, Karen, E (Oregon Dept. of Environmental Quality), R10: Johnson, Keith (Oregon Dept. of Environmental Quality), R10: Mcclincy, Matt (Oregon Dept. of Environmental Quality), R10: O'mealy, Mikell (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100010441	8/21/2006	Evaluating Stormwater in the Context of the Portland Harbor RI/FS.	66	3 MTG / Meeting Document	R10: Unknown, Unknown (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100011707	8/21/2006	Evaluating Stormwater in the Context of the Portland Harbor RI/FS.	67	3 RPT / Report	R10: Unknown, Unknown (Unknown)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100015037	8/21/2006	EVALUATING STORMWATER IN THE CONTEXT OF THE PORTLAND HARBOR RI/FS.	22	3 CHT / Chart/Table	R10: Tarnow, Karen, E (Oregon Dept. of Environmental Quality)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100007711	8/22/2006	Email regarding Comments on Issue Summary Table.	22	2 EML / Email	R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100008879	8/22/2006	Email regarding FW_ Portland Harbor FWM.	24	2 EML / Email	R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100010448	8/22/2006	Email regarding Stormwater Strategy Update.	20	1 EML / Email	R10: Tarnow, Karen, E (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA), R10: Sanders, Dawn (City of Portland, Bureau of Environmental Services), R10: Scheffler, Linda (City of Portland, Bureau of Environmental Services), R10: Roick, Thomas, E (Oregon Dept. of Environmental Quality), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality), R10: Tarnow, Karen, E (Oregon Dept. of Environmental Quality), R10: Johnson, Keith (Oregon Dept. of Environmental Quality), R10: Mcclincy, Matt (Oregon Dept. of Environmental Quality), R10: Livesay, Dave (GSI Groundwater Solutions, Inc.), R10: Applegate, Rick (City of Portland)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement

100015036	8/22/2006	Email Regarding Stormwater Strategy Update.	21	1	EML / Email	R10: Tarnow, Karen, E (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA), R10: Sanders, Dawn (City of Portland, Bureau of Environmental Services), R10: Scheffler, Linda (City of Portland, Bureau of Environmental Services), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality), R10: Tarnow, Karen, E (Oregon Dept. of Environmental Quality), R10: Johnson, Keith (Oregon Dept. of Environmental Quality), R10: Mcclincy, Matt (Oregon Dept. of Environmental Quality), R10: Livesay, Dave (GSI Groundwater Solutions, Inc.), R10: Applegate, Rick (City of Portland), R10: Roick, Tom (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940680126	8/22/2006	Email regarding reply to Portland Harbor meeting August 30?	47	2	EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Oster, Valerie (Anchor Environmental, LLC), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100009530	8/23/2006	Email regarding OSM Groundwater Pathway Assessment and TZW Monitoring Document Review.	29	2	EML / Email	R10: Mcclincy, Matt (Oregon Dept. of Environmental Quality)	R10: Arthur, Jennifer (Environment International, Ltd.)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100009531	8/23/2006	Email regarding OSM Groundwater Pathway Assessment and TZW Monitoring Document Review.	25	2	EML / Email	R10: Mcclincy, Matt (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100010213	8/23/2006	Email regarding Summary of Today's Call.	26	2	EML / Email	R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100010774	8/23/2006	Email Regarding Gasco - Offshore Groundwater Work Plan Addendum: Gasco Will Distribute for Review the Addendum On September 1st.	33	1	EML / Email	R10: Mcclincy, Matt (Oregon Dept. of Environmental Quality)	R10: Fuentes, Rene, C (EPA), R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA), R10: Donoghue, Cinde (Environment International, Ltd.)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940680848	8/23/2006	Email regarding reply to OSM Groundwater Pathway Assessment and TZW Monitoring document review.	29	2	EML / Email	R10: Mcclincy, Matt (Oregon Dept. of Environmental Quality)	R10: Arthur, Jennifer (Environment International, Ltd.)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940681165	8/23/2006	Email regarding Gasco - Off Shore Groundwater Work Plan Addendum.	24	1	EML / Email	R10: Mcclincy, Matt (Oregon Dept. of Environmental Quality)	R10: Fuentes, Rene, C (EPA), R10: Donoghue, Cinde (Environment International, Ltd.)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100007525	8/24/2006	Stormwater Modeling Using the Fate and Transport Model - Initial Model Runs.	49	1	CORR / Correspondence	R10: Tarnow, Karen, E (Oregon Dept. of Environmental Quality)	R10: (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100009375	8/24/2006	Email regarding GW Seeps.	21	1	EML / Email	R10: Mcclincy, Matt (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100009376	8/24/2006	Email regarding GW Seeps.	22	2	EML / Email	R10: Mcclincy, Matt (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100009377	8/24/2006	Email regarding GW Seeps.	21	1	EML / Email	R10: Mcclincy, Matt (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100010481	8/24/2006	Stormwater Modeling Using the Fate and Transport Model - Initial Model Runs.	48	1	NOTE / Notes	R10: Unknown, Unknown (Unknown)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100011713	8/24/2006	Stormwater Modeling Using the Fate and Transport Model - Initial Model Runs.	48	1	RPT / Report	R10: Unknown, Unknown (Unknown)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100015143	8/24/2006	Stormwater Modeling Using the Fate and Transport Model - Initial Model Runs.	43	1	MTG / Meeting Document	R10: Tarnow, Karen, E (Oregon Dept. of Environmental Quality)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940680752	8/24/2006	Email regarding reply to GW Seeps.	21	1	EML / Email	R10: Mcclincy, Matt (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA), R10: Anderson, James, M (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100008554	8/28/2006	Email regarding Atmospheric Deposition of Mercury and Conversion to Methyl Mercury.	21	1	EML / Email	R10: Hope, Bruce, K (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100008643	8/28/2006	Email regarding FW_ GW Seeps.	23	1	EML / Email	R10: Mcclincy, Matt (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100012605	8/28/2006	Email regarding GW Seeps.	23	1	EML / Email	R10: Mcclincy, Matt (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100014810	8/28/2006	REDACTED Email regarding Fate and Transport Modeling Meeting - Portland Harbor.	24	3	EML / Email	R10: Hope, Bruce, K (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100014929	8/28/2006	REDACTED Email regarding Fate and Transport Modeling Meeting - Portland Harbor.	24	2	EML / Email	R10: Hope, Bruce, K (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100017516	8/28/2006	REDACTED Email regarding reply to NOAA's comments on McCormick & Baxter Draft OM Plan and Draft Second Five-Year Review Report.	20	1	EML / Email	R10: Parrett, Kevin (Oregon Dept. of Environmental Quality)	R10: Neely, Robert (NOAA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100020092	8/28/2006	REDACTED Email regarding TZW Meeting Agenda.	25	3	EML / Email	R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100020115	8/28/2006	REDACTED Email regarding fate and transport modeling meeting - Portland Harbor.	24	3	EML / Email	R10: Hope, Bruce, K (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA), R10: Cope, Ben (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100007523	8/29/2006	Email regarding Agenda and Materials for Aug 31 Stormwater Mtg.	21	1	EML / Email	R10: Tarnow, Karen, E (Oregon Dept. of Environmental Quality)	R10: Sanders, Dawn (City of Portland, Oregon), R10: Scheffler, Linda (City of Portland, Oregon), R10: Applegate, Richard (City of Portland, Oregon), R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality), R10: Tarnow, Karen, E (Oregon Dept. of Environmental Quality), R10: Johnson, Keith (Oregon Dept. of Environmental Quality), R10: Mcclincy, Matt (Oregon Dept. of Environmental Quality), R10: Livesay, Dave (GSI Groundwater Solutions, Inc.)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100007526	8/29/2006	Draft Options for Evaluating Stormwater to Address Portland Harbor RI/FS Needs.	47	2	CORR / Correspondence	R10: Tarnow, Karen, E (Oregon Dept. of Environmental Quality)	R10: (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100010239	8/29/2006	Email regarding TCT Agenda Items.	21	1	EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100011706	8/29/2006	Email regarding Agenda and Materials for Aug 31 Stormwater Mtg.	22	1	EML / Email	R10: Tarnow, Karen, E (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA), R10: Sanders, Dawn (City of Portland, Bureau of Environmental Services), R10: Scheffler, Linda (City of Portland, Bureau of Environmental Services), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality), R10: Tarnow, Karen, E (Oregon Dept. of Environmental Quality), R10: Johnson, Keith (Oregon Dept. of Environmental Quality), R10: Mcclincy, Matt (Oregon Dept. of Environmental Quality), R10: Livesay, Dave (GSI Groundwater Solutions, Inc.), R10: Applegate, Rick (City of Portland), R10: Roick, Tom (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100011715	8/29/2006	Options for Evaluating Stormwater to Address Portland Harbor RI/FS Needs.	45	2	CHT / Chart/Table	R10: Unknown, Unknown (Unknown)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100015570	8/29/2006	Email regarding PH Managers Meeting?	23	1	EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Mckenna, James (Port of Portland), R10: Humphrey, Chip (EPA), R10: Anderson, James, M (Oregon Dept. of Environmental Quality), R10: Wyatt, Robert, J (NW Natural), R10: Applegate, Rick (City of Portland)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940681814	9/1/2006	Combining Engineering and Biology in a Low-Impact In-Situ Treatment System for Sediments.	1,633	30	RPT / Report	R10: Menzie, Charles, A (Exponent)		ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement



100009301	9/5/2006	Email regarding GASCO - Off Shore Groundwater Work Plan Addendum.	30	1 EML / Email	R10: Mcclincy, Matt (Oregon Dept. of Environmental Quality)	R10: Fuentes, Rene, C (EPA), R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA), R10: Donoghue, Cinde (Environment International, Ltd.)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100010238	9/5/2006	Memorandum regarding Reliability of Potential Freshwater Sediment Screening Values.	137	9 MEMO / Memorandum	R10: Johnson, Keith (Oregon Dept. of Environmental Quality), R10: Poulsen, Mike (Oregon Dept. of Environmental Quality)	R10: Foster, Eugene (Oregon Dept. of Environmental Quality), R10: Puent, Sally (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100010832	9/5/2006	Email regarding Upstream/Downstream Sediment Sampling FSP.	32	2 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100011759	9/5/2006	Email Regarding LWG's RD 2B Archived Core FSP.	38	1 EML / Email	R10: Anderson, James, M (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100014897	9/5/2006	Memorandum regarding Evaluation of Reliability of Potential Freshwater Sediment Screening Values.	137	9 CORR / Correspondence	R10: Poulsen, Mike (Oregon Dept. of Environmental Quality), R10: Johnson, Keith (Unknown)	R10: Foster, Eugene (Oregon Dept. of Environmental Quality), R10: Puent, Sally (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100017214	9/5/2006	REDACTED Email regarding PH RI/FS Negotiations Support.	23	1 EML / Email	R10: Anderson, James, M (Oregon Dept. of Environmental Quality)	R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940680731	9/5/2006	Email regarding reply to Gasco - Off Shore Groundwater Work Plan Addendum.	30	1 EML / Email	R10: Mcclincy, Matt (Oregon Dept. of Environmental Quality)	R10: Fuentes, Rene, C (EPA), R10: Donoghue, Cinde (Environment International, Ltd.)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940680804	9/5/2006	Email regarding reply to Meeting with EPA Contractor - Source Control Database.	23	1 EML / Email	R10: Tarnow, Karen, E (Oregon Dept. of Environmental Quality)	R10: Koch, Kristine, M (EPA), R10: Mcclincy, Matt (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940680805	9/5/2006	Email regarding reply to Meeting with EPA Contractor - Source Control Database.	23	1 EML / Email	R10: Mcclincy, Matt (Oregon Dept. of Environmental Quality)	R10: Koch, Kristine, M (EPA), R10: Anderson, James, M (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940681193	9/5/2006	Email regarding LWG's RD 2B Archived Core FSP.	29	1 EML / Email	R10: Anderson, James, M (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940681395	9/5/2006	Email regarding Upstream/Downstream Sediment Sampling FSP.	32	2 EML / Email	R10: Anderson, James, M (Oregon Dept. of Environmental Quality)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100010658	9/6/2006	Email Regarding UNIVAR Facility - Proposed RCRA Remedy Selection Relative to Source Control.	87	3 EML / Email	R10: Mcclincy, Matt (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100011658	9/6/2006	Email Regarding Lamprey FSP Comments.	34	1 EML / Email	R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA), R10: Anderson, James, M (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940681043	9/6/2006	Email regarding UNIVAR Facility - Proposed RCRA Remedy Selection.	78	3 EML / Email	R10: Gilles, Bruce, A (Oregon Dept. of Environmental Quality)	R10: Orlean, Howard, M (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100008500	9/11/2006	Email regarding Amendment to the lamprey issue FSP.	25	2 EML / Email	R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100010402	9/11/2006	Email regarding Response to Benthic Interp Report Comments from LWG.	21	1 EML / Email	R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940680974	9/11/2006	Email regarding reply to UNIVAR Facility - Proposed RCRA Remedy Selection.	32	5 EML / Email	R10: Gilles, Bruce, A (Oregon Dept. of Environmental Quality)	R10: Orlean, Howard, M (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940680992	9/11/2006	Email regarding Response to Benthic Interp Report Comments from LWG.	21	1 EML / Email	R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100007704	9/12/2006	Email regarding Benthic Interpretive Approach Comments.	16	1 EML / Email	R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100009273	9/12/2006	Email regarding Benthic Interpretive Approach Comments.	22	1 EML / Email	R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100009581	9/12/2006	Email regarding Perchlorate Aquatic Values.	24	2 EML / Email	R10: Mcclincy, Matt (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100010217	9/12/2006	Email regarding RE_LWG response to EPAs Benthic Interpretive Report comments.	26	2 EML / Email	R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA), R10: Goulet, Joe (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100010465	9/12/2006	Email regarding RPAC Upland Data.	24	1 EML / Email	R10: Mcclincy, Matt (Oregon Dept. of Environmental Quality)	R10: Fuentes, Rene, C (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940680775	9/12/2006	Email regarding reply to LWG response to EPAs Benthic Interpretive Report comments.	26	2 EML / Email	R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100017089	9/13/2006	REDACTED Email regarding reply to 9/13 PH Managers meeting draft agenda.	48	2 EML / Email	R10: Johnson, Keith (Oregon Dept. of Environmental Quality)	R10: Mckenna, Jim (Port of Portland), R10: Oster, Valerie (Anchor Environmental, LLC), R10: Wyatt, Bob (Northwest Natural Gas Company), R10: Pine, Keith, A (Integral Consulting, Inc.), R10: Blischke, Eric, L (EPA), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality), R10: Lee, Valerie (Environment International, Ltd.), R10: Longoria, Rose (Yakama Nation), R10: Donoghue, Cinde (Environment International, Ltd.), R10: Applegate, Rick (City of Portland)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100017108	9/13/2006	REDACTED Email regarding reply to 9/13 PH Managers meeting draft agenda.	47	2 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Mckenna, Jim (Port of Portland), R10: Oster, Valerie (Anchor Environmental, LLC), R10: Wyatt, Bob (Northwest Natural Gas Company), R10: Pine, Keith, A (Integral Consulting, Inc.), R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA), R10: Johnson, Keith (Oregon Dept. of Environmental Quality), R10: Lee, Valerie (Environment International, Ltd.), R10: Longoria, Rose (Yakama Nation), R10: Donoghue, Cinde (Environment International, Ltd.), R10: Applegate, Rick (City of Portland)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100017639	9/13/2006	REDACTED Email regarding 9/13 PH Managers meeting draft agenda.	47	2 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Mckenna, Jim (Port of Portland), R10: Oster, Valerie (Anchor Environmental, LLC), R10: Pine, Keith, A (Integral Consulting, Inc.), R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA), R10: Johnson, Keith (Oregon Dept. of Environmental Quality), R10: Lee, Valerie (Environment International, Ltd.), R10: Longoria, Rose (Yakama Nation), R10: Wyatt, Robert, J (NW Natural), R10: Donoghue, Cinde (Environment International, Ltd.), R10: Applegate, Rick (City of Portland)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100018067	9/13/2006	REDACTED Email regarding 9/13 PH Managers Meeting Draft Agenda.	48	2 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Mckenna, James (Port of Portland), R10: Pine, Keith, A (Integral Consulting, Inc.), R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA), R10: Anderson, James, M (Oregon Dept. of Environmental Quality), R10: Johnson, Keith (Oregon Dept. of Environmental Quality), R10: Lee, Valerie (Environment International, Ltd.), R10: Longoria, Rose (Yakama Nation), R10: Wyatt, Robert, J (NW Natural), R10: Donoghue, Cinde (Environment International, Ltd.), R10: Applegate, Rick (City of Portland)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100013258	9/14/2006	Email Regarding 9/21/2006 Source Control (SC) Meeting.	37	1 EML / Email	R10: Anderson, James, M (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA), R10: Kawabata, Sylvia (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100009580	9/15/2006	Email regarding Perchlorate and Froggies (New Subject!).	26	2 EML / Email	R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA), R10: Gensemer, Robert, W (Parametrix, Inc.)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100010655	9/15/2006	Email regarding RE_LWG-EPA-DEQ meeting on Stormwater.	49	2 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Applegate, Richard (City of Portland, Oregon), R10: Mckenna, Jim (Port of Portland), R10: Stivers, Carl (Anchor Environmental, LLC), R10: Oster, Valerie (Anchor Environmental, LLC), R10: Snyder, Joan, P (Stoel Rives, LLP), R10: Pine, Keith, A (Integral Consulting, Inc.), R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA), R10: Wyatt, Robert, J (NW Natural)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement

100015684	Email regarding LWG/EPA/DEQ Meeting on 9/15/2006 Stormwater.	47	1 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Mckenna, James (Port of Portland), R10: Stivers, Carl (Anchor Environmental, LLC), R10: Oster, Valerie (Anchor Environmental, LLC), R10: Snyder, Joan, P (Stoel Rives, LLP), R10: Pine, Keith, A (Integral Consulting, Inc.), R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA), R10: Anderson, James, M (Oregon Dept. of Environmental Quality), R10: Wyatt, Robert, J (NW Natural), R10: Applegate, Rick (City of Portland)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940680780	Email regarding reply to LWG-EPA-DEQ meeting on Stormwater.	49	2 EML / Email	R10: Anderson, James, M (Oregon Dept. of Environmental Quality)	R10: Mckenna, James (Port of Portland), R10: Oster, Valerie (Anchor Environmental, LLC), R10: Snyder, Joan, P (Stoel Rives, LLP), R10: Pine, Keith, A (Integral Consulting, Inc.), R10: Blischke, Eric, L (EPA), R10: Wyatt, Robert, J (NW Natural), R10: Applegate, Rick (City of Portland)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100008435	Email regarding RD2 Benthic Tissue & Sediment Data Report.	22	1 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100009788	Email Regarding Round 2 (RD2) Benthic Tissue & Sediment Data Report.	21	1 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100010396	Email regarding Upland Source Control Meeting.	26	1 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100012949	9/18/2006 Email regarding Reynolds Questions.	22	1 EML / Email	R10: Kent, Mavis, D (Oregon Dept. of Environmental Quality)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100015111	REDACTED Email regarding Siltronic, Site and 9/18/2006 Source Control Status Update.	27	2 EML / Email	R10: Bayuk, Dana (Oregon Dept. of Environmental Quality)	R10: Peale, James, G (Maul Foster & Alongi, Inc.), R10: Wall, Ted (Maul Foster & Alongi, Inc.), R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA), R10: Mccue, Tom (Siltronic Corporation), R10: Gladstone, Alan (Davis Rothwell Earle & Xochihua)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100017772	REDACTED Email regarding reply to Siltronic, 9/18/2006 Site and Source Control Status Update.	27	2 EML / Email	R10: Bayuk, Dana (Oregon Dept. of Environmental Quality)	R10: Peale, James, G (Maul Foster & Alongi, Inc.), R10: Blischke, Eric, L (EPA), R10: Mccue, Tom (Siltronic Corporation), R10: Gladstone, David (Davis Rothwell Earle & Xochihua)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940680980	Email regarding reply to upland source control mtg.	26	1 EML / Email	R10: Anderson, James, M (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100009924	Email regarding RE_Interim Comments on 9/19/2006 TZW Data Report.	21	1 EML / Email	R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100010395	Email regarding Upland Source Control Meeting.	26	1 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: McClincy, Matt (Oregon Dept. of Environmental Quality), R10: Donoghue, Cinde (Environment International, Ltd.)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100010451	Email regarding comments on stormwater evaluation framework.	24	1 EML / Email	R10: Tarnow, Karen, E (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100011763	Email Regarding DEQ Gasco Project Team: Would Like to Convene a Joint DEQ/EPA Meeting to Discuss Our Plans for Upland Source Control at the Gasco/Siltronic Site.	26	1 EML / Email	R10: Anderson, James, M (Oregon Dept. of Environmental Quality)	R10: Sheldrake, Sean, A (EPA), R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA), R10: Kawabata, Sylvia (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940680981	Email regarding reply to upland source control mtg.	26	1 EML / Email	R10: Anderson, James, M (Oregon Dept. of Environmental Quality)	R10: McClincy, Matt (Oregon Dept. of Environmental Quality), R10: Donoghue, Cinde (Environment International, Ltd.)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940681195	Email regarding Meeting to discuss Upland Source Control at Gasco/Siltronic Site.	26	1 EML / Email	R10: Anderson, James, M (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA), R10: Kawabata, Sylvia (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100008470	9/20/2006 Email regarding 9/21 SC Meeting.	34	3 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA), R10: Kawabata, Sylvia (EPA), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100010466	Email regarding Stormwater Strategy Meeting tomorrow (9/21).	19	1 EML / Email	R10: Tarnow, Karen, E (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA), R10: Sanders, Dawn (City of Portland, Bureau of Environmental Services), R10: Roick, Thomas, E (Oregon Dept. of Environmental Quality), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality), R10: Johnson, Keith (Oregon Dept. of Environmental Quality), R10: McClincy, Matt (Oregon Dept. of Environmental Quality), R10: Livesay, Dave (GSI Groundwater Solutions, Inc.), R10: Applegate, Rick (City of Portland)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100015038	Email Regarding Stormwater Strategy Mtg 9/20/2006 tomorrow (9/21).	19	1 EML / Email	R10: Tarnow, Karen, E (Oregon Dept. of Environmental Quality)	R10: Sanders, Dawn (City of Portland, Oregon), R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA), R10: Johnson, Keith (Oregon Dept. of Environmental Quality), R10: McClincy, Matt (Oregon Dept. of Environmental Quality), R10: Livesay, Dave (GSI Groundwater Solutions, Inc.), R10: Sanders, Dawn (Oregon Dept. of Environmental Quality), R10: Applegate, Rick (City of Portland), R10: Anderson, Jim (EPA), R10: Roick, Tom (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940680288	9/20/2006 Email regarding reply to 9/21/ SC Meeting.	34	3 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940681810	9/20/2006 SW Strategy Presentation for 10/05/06 LWG Meeting.	192	12 MTG / Meeting Document	R10: Tarnow, Karen, E (Oregon Dept. of Environmental Quality)		ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100009217	Email Regarding Next Stormwater Strategy Meeting of October 5.	28	1 EML / Email	R10: Tarnow, Karen, E (Oregon Dept. of Environmental Quality)	R10: Applegate, Richard (City of Portland, Oregon), R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA), R10: Saunders, Dawn (City of Portland, Bureau of Environmental Services), R10: Roick, Thomas, E (Oregon Dept. of Environmental Quality), R10: Anderson, James, M (Oregon Dept. of Environmental Quality), R10: Johnson, Keith (Oregon Dept. of Environmental Quality), R10: McClincy, Matt (Oregon Dept. of Environmental Quality), R10: Livesay, Dave (GSI Groundwater Solutions, Inc.)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100009218	Stormwater Strategy Evaluation (PowerPoint Presentation).	201	12 MTG / Meeting Document	R10: (Unknown)		ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100012999	9/21/2006 Email Regarding Draft ROD.	30	1 EML / Email	R10: Kent, Mavis, D (Oregon Dept. of Environmental Quality)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940681809	Email regarding Next Stormwater Strategy mtg 9/21/2006 Oct 5.	19	1 EML / Email	R10: Tarnow, Karen, E (Oregon Dept. of Environmental Quality)	R10: Livesay, Dave (CH2M Hill, Inc.), R10: Humphrey, Chip (EPA), R10: Sanders, Dawn (Oregon Dept. of Environmental Quality), R10: Applegate, Rick (City of Portland)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100015565	Email regarding Meet Next Week RE: Round 2 9/22/2006 Report Issues.	55	4 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Mckenna, James (Port of Portland), R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA), R10: Wyatt, Robert, J (NW Natural), R10: Applegate, Rick (City of Portland)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100009793	Email regarding Request for F&T Model Code - Portland Harbor.	22	1 EML / Email	R10: Hope, Bruce, K (Oregon Dept. of Environmental Quality)	R10: Stivers, Carl (Anchor Environmental, LLC)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100012822	Email regarding Request for F&T model code - 9/24/2006 Portland Harbor.	22	1 EML / Email	R10: Hope, Bruce, K (Oregon Dept. of Environmental Quality)	R10: Stivers, Carl (Anchor Environmental, LLC)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement

100008488	9/25/2006	Email regarding 9/21/06 DEQ/EPA Source Control Meeting.	35	3 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Sheldrake, Sean, A (EPA), R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA), R10: Kawabata, Sylvia (EPA), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality), R10: Tarnow, Karen, E (Oregon Dept. of Environmental Quality), R10: Johnson, Keith (Oregon Dept. of Environmental Quality), R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100009278	9/25/2006	Email regarding TZW Meeting - October 10.	26	3 EML / Email	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100009306	9/25/2006	Email regarding GASCO/Siltronic Early Action.	29	3 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Sheldrake, Sean, A (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100009319	9/25/2006	Email regarding GASCO/Siltronic Early Action.	31	2 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Sheldrake, Sean, A (EPA), R10: Kawabata, Sylvia (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100010383	9/25/2006	Email regarding TZW Meeting - October 10.	26	2 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100011708	9/25/2006	Email regarding Final Phase 1 Field Sampling Approach - Off Shore Plan.	19	1 EML / Email	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	R10: Edwards, John, E (Anchor Environmental, LLC), R10: Wyatt, Robert, J (NW Natural)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100012997	9/25/2006	Email Regarding Draft ROD.	30	1 EML / Email	R10: Kent, Mavis, D (Oregon Dept. of Environmental Quality)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100013003	9/25/2006	Email Regarding Draft ROD.	30	1 EML / Email	R10: Kent, Mavis, D (Oregon Dept. of Environmental Quality)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100014553	9/25/2006	Email Regarding Draft Record of Decision (ROD) Comments; a Number of Redlines, Most of Which Are Trying to Get at the Silt Issue Including Adding In an Addendum for the Focused Extraction.	30	1 EML / Email	R10: Kent, Mavis, D (Oregon Dept. of Environmental Quality)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100015075	9/25/2006	REDACTED Email regarding Siltronic, Site and Source Control Status Update.	28	3 EML / Email	R10: Bayuk, Dana (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100015460	9/25/2006	REDACTED Letter regarding Final Phase 1 Field Sampling Approach Groundwater Source Evaluation Northwest Natural Gas Company.	106	5 CORR / Correspondence	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	R10: Wyatt, Robert, J (Northwest Natural Gas Company)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100015690	9/25/2006	REDACTED Email regarding draft of diver scenario for Kennedy Jenks.	22	1 EML / Email	R10: Poulsen, Mike (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100017235	9/25/2006	REDACTED Email regarding Final Phase 1 Field Sampling Approach - Off Shore Plan.	21	1 EML / Email	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	R10: Edwards, John, E (Anchor Environmental, LLC), R10: Wyatt, Bob (Northwest Natural Gas Company)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100017480	9/25/2006	REDACTED Letter regarding Final Phase 1 Field Sampling Approach: Groundwater Source Evaluation.	105	5 CORR / Correspondence	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	R10: Wyatt, Robert, J (NW Natural)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100017691	9/25/2006	REDACTED Email regarding reply to Draft of Diver Scenario for Kennedy -Jenks.	22	1 EML / Email	R10: Poulsen, Michael (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100017771	9/25/2006	REDACTED Email regarding reply to Siltronic, Site and Source Control Status Update.	29	3 EML / Email	R10: Bayuk, Dana (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940680271	9/25/2006	Email regarding reply to 9/21/06 DEQ/EPA Source Control Meeting.	35	3 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA), R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940680740	9/25/2006	Email regarding reply to GASCO/Siltronic early action.	31	2 EML / Email	R10: Anderson, James, M (Oregon Dept. of Environmental Quality)	R10: Sheldrake, Sean, A (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940680741	9/25/2006	Email regarding reply to GASCO/Siltronic early action.	29	3 EML / Email	R10: Anderson, James, M (Oregon Dept. of Environmental Quality)	R10: Sheldrake, Sean, A (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100010380	9/26/2006	Email regarding TZW Meeting - October 10.	25	2 EML / Email	R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100012963	9/26/2006	Email regarding Reynolds ROD.	22	1 EML / Email	R10: Kent, Mavis, D (Oregon Dept. of Environmental Quality)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100014866	9/26/2006	Email Regarding Request for EPA Regional Administrator; I Am Preparing the Draft Concurrence Letter Today.	30	1 EML / Email	R10: Kent, Mavis, D (Oregon Dept. of Environmental Quality)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940680174	9/26/2006	Email regarding reply to EPA ROD for Reynolds.	23	2 EML / Email	R10: Kent, Mavis, D (Oregon Dept. of Environmental Quality)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940680763	9/26/2006	Email regarding reply to Kreitzenbeck letter - EPA.	54	2 EML / Email	R10: Roth, Denise (Oregon Dept. of Environmental Quality)	R10: Roth, Denise (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940680765	9/26/2006	Email regarding reply to Kreitzenbeck letter - EPA.	53	1 EML / Email	R10: Gilles, Bruce, A (Oregon Dept. of Environmental Quality)	R10: Roth, Denise (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100010220	9/27/2006	Email regarding RE_LWG_EPA_DEQ meeting on stormwater - October 26.	48	2 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Applegate, Richard (City of Portland, Oregon), R10: Mckenna, Jim (Port of Portland), R10: Oster, Valerie (Anchor Environmental, LLC), R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA), R10: Tarnow, Karen, E (Oregon Dept. of Environmental Quality), R10: Johnson, Keith (Oregon Dept. of Environmental Quality), R10: McClincy, Matt (Oregon Dept. of Environmental Quality), R10: Wyatt, Robert, J (NW Natural)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100015682	9/27/2006	Email regarding LWG/EPA/DEQ Meeting on Stormwater - October 26.	46	1 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA), R10: Anderson, James, M (Oregon Dept. of Environmental Quality), R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940680776	9/27/2006	Email regarding reply to LWG/EPA/DEQ meeting on stormwater - October 26.	48	2 EML / Email	R10: Anderson, James, M (Oregon Dept. of Environmental Quality)	R10: Oster, Valerie (Anchor Environmental, LLC), R10: Blischke, Eric, L (EPA), R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940680778	9/27/2006	Email regarding reply to LWG/EPA/DEQ meeting on stormwater - October 26.	48	2 EML / Email	R10: Tarnow, Karen, E (Oregon Dept. of Environmental Quality)	R10: Oster, Valerie (Anchor Environmental, LLC), R10: Blischke, Eric, L (EPA), R10: Anderson, James, M (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940680779	9/27/2006	Email regarding reply to LWG/EPA/DEQ meeting on stormwater - October 26.	48	2 EML / Email	R10: Johnson, Keith (Oregon Dept. of Environmental Quality)	R10: Oster, Valerie (Anchor Environmental, LLC), R10: Blischke, Eric, L (EPA), R10: Anderson, James, M (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940680890	9/27/2006	Email regarding reply to ROD status.	21	1 EML / Email	R10: Kent, Mavis, D (Oregon Dept. of Environmental Quality)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100009082	9/28/2006	Email regarding Fate and Transport Modeling Support.	21	1 EML / Email	R10: Hope, Bruce, K (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100011773	9/28/2006	Email regarding Stormwater Solutions Showcase today.	31	1 EML / Email	R10: O'mealy, Mikell (Oregon Dept. of Environmental Quality)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940680825	9/28/2006	Email regarding reply to Next EPA/DEQ Meeting.	22	1 EML / Email	R10: Kent, Mavis, D (Oregon Dept. of Environmental Quality)	R10: Humphrey, Chip (EPA), R10: Shaw, Steven, M (Troutdale Reduction Plant)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100007587	9/29/2006	Letter regarding Addendum to Offshore Final Phase I Field Sampling Approach, NW Natural, Gasco Site.	244	7 CORR / Correspondence	R10: Edwards, John, E (Anchor Environmental, LLC)	R10: Bayuk, Dana (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement



									R10: Ede, Robert, B (Hahn and Associates, Inc.), R10: Munn, Nancy (NOAA), R10: Gross, Michael, J (U. S. Army Corps of Engineers), R10: Summers, Anne, B (Port of Portland), R10: Mckenna, James (Port of Portland), R10: Spadaro, Philip, A (Blasland, Bouck & Lee, Incorporated), R10: Moody, Chris (URS Corporation), R10: Marcus, Kim (URS Corporation), R10: Brown, Stuart, M (Bridgewater Group, Inc.), R10: Cusma, Mathew, J (Schnitzer Steel Industries, Inc.), R10: Edwards, John, E (Anchor Environmental, LLC), R10: St. John, Anna, M (Maul Foster & Alongi, Inc.), R10: Williams, Travis (Willamette Riverkeeper), R10: Snyder, Joan, P (Stoel Rives, LLP), R10: Morford, J. Mark (Stoel Rives, LLP), R10: Burt, Walt (Groundwater Solutions Inc.), R10: Miller, Max, M (Tonkon Torp, LLP.), R10: Pine, Keith, A (Integral Consulting, Inc.), R10: Locke, William, W (Integral Consulting, Inc.), R10: Young, Cyril (Oregon Dept. of State Lands), R10: Farr, Jr., Leonard, C (AMEC Earth & Environmental, Inc.), R10: Fuentes, Rene, C (EPA), R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA), R10: Sanders, Dawn (City of Portland, Bureau of Environmental Services), R10: Blischke, Heidi (GSI Groundwater Solutions, Inc.), R10: Lee, Jean, H (Environment International, Ltd.), R10: Buck, Jeremy (U. S. Fish & Wildlife Service)		
100012555	9/29/2006	Email regarding Draft Guidelines for Assessing Bioaccumulative Chemicals of Concern in Sediment.	54	2 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)		ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement			
100017587	9/29/2006	REDACTED Addendum to Offshore Final Phase I Field Sampling Approach, NW Natural, Gasco Site, Portland, Oregon.	247	7 CORR / Correspondence	R10: Edwards, John, E (Anchor Environmental, LLC)	R10: Bayuk, Dana (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement			
4940681815	9/30/2006	Quarterly Report to the U.S. Environmental Protection Agency Portland Harbor Joint Source Control Strategy - Period Ending September 30, 2006.	17	2 CONTR / Contract Documentation	R10: Kent, Mavis, D (Oregon Dept. of Environmental Quality)	R10: (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement			
4940681817	9/30/2006	Quarterly Report to the U.S. Environmental Protection Agency Portland Harbor Joint Source Control Strategy - Period Ending September 30, 2006.	30	2 CONTR / Contract Documentation	R10: Tarnow, Karen, E (Oregon Dept. of Environmental Quality)	R10: (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement			
100007516	10/2/2006	Willamette Cover Suspect Contamination Map. Email regarding Agenda for October 10, 2006	1,614	1 CORR / Correspondence	R10: Parrett, Kevin (Oregon Dept. of Environmental Quality)	R10: (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement			
100008498	10/2/2006	Meeting.	31	4 EML / Email	R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement			
100009054	10/2/2006	Email regarding Fate and Transport Modeling Support.	24	2 EML / Email	R10: Hope, Bruce, K (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA), R10: Gensemer, Robert, W (Parametrix, Inc.)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement			
100009080	10/2/2006	Email regarding Fate and Transport Modeling Support.	24	2 EML / Email	R10: Hope, Bruce, K (Oregon Dept. of Environmental Quality)	R10: Smith, Carrie, A (Parametrix, Inc.), R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement			
100009272	10/2/2006	Email regarding SediMite Presentation from Charlie Menzie.	21	1 EML / Email	R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement			
100010135	10/2/2006	Email regarding Status of Lamprey Sampling.	23	1 EML / Email	R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement			
100010710	10/2/2006	Email regarding Status of Lamprey Sampling.	25	2 EML / Email	R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement			
								R10: Sanders, Dawn (City of Portland, Oregon), R10: Applegate, Richard (City of Portland, Oregon), R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality), R10: Tarnow, Karen, E (Oregon Dept. of Environmental Quality), R10: Johnson, Keith (Oregon Dept. of Environmental Quality), R10: McClincy, Matt (Oregon Dept. of Environmental Quality), R10: Livesay, Dave (GSI Groundwater Solutions, Inc.), R10: Roick, Tom (Oregon Dept. of Environmental Quality)			
100010964	10/2/2006	Email regarding Next Stormwater Strategy meeting Oct 5.	20	1 EML / Email	R10: Tarnow, Karen, E (Oregon Dept. of Environmental Quality)		ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement			
100017171	10/2/2006	REDACTED Email regarding October-November 2006 - ITRC Internet-based Training Courses (SB).	28	2 EML / Email	R10: Kent, Mavis, D (Oregon Dept. of Environmental Quality)	R10: (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement			
4940680143	10/2/2006	Email regarding reply to Final signed ROD.	21	1 EML / Email	R10: Kent, Mavis, D (Oregon Dept. of Environmental Quality)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement			
4940680824	10/2/2006	Email regarding reply to Next EPA/DEQ Meeting.	23	1 EML / Email	R10: Kent, Mavis, D (Oregon Dept. of Environmental Quality)	R10: Humphrey, Chip (EPA), R10: Shaw, Steven, M (Troutdale Reduction Plant)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement			
4940681813	10/2/2006	Email regarding SediMite Presentation from Charlie Menzie.	21	1 EML / Email	R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)	R10: Anderson, Kim, A (Oregon State University), R10: Humphrey, Chip (EPA), R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement			
100007678	10/3/2006	Email regarding ARCO Source Control.	23	2 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement			
100010382	10/3/2006	Email regarding TZW Meeting.	22	1 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement			
100010387	10/3/2006	Email regarding TZW Meeting.	22	1 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement			
100010388	10/3/2006	Email regarding TZW Meeting.	21	1 EML / Email	R10: Poulsen, Michael (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement			
100013564	10/3/2006	Email Regarding ARCO Source Control: Update On Some Recent Activities at the ARCO Site.	38	2 EML / Email	R10: Anderson, James, M (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement			
100007708	10/4/2006	Email regarding Clam Data.	17	1 EML / Email	R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA), R10: Goulet, Joe (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement			
100010030	10/4/2006	Email regarding RE_Lamprey Toxicity Testing.	22	1 EML / Email	R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement			
100010384	10/4/2006	Email regarding TZW Meeting Agenda.	26	2 EML / Email	R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement			
100017170	10/4/2006	REDACTED Email regarding NWNG, Phase 1 Off- shore FSA Addendum and Follow-up Telephone Discussions.	29	4 EML / Email	R10: Bayuk, Dana (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA), R10: Donoghue, Cinde (Environment International, Ltd.)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement			
100008410	10/5/2006	Email regarding RD 3A FSP-Surface Water Sampling.	26	1 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement			
100008510	10/5/2006	Email regarding ARCO Source Control.	30	2 EML / Email	R10: Gainer, Tom (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement			
100009800	10/5/2006	Email regarding Results of October 5 Conf. Call.	36	1 EML / Email	R10: Hope, Bruce, K (Oregon Dept. of Environmental Quality)	R10: Smith, Carrie, A (Parametrix, Inc.), R10: Blischke, Eric, L (EPA), R10: Gensemer, Robert, W (Parametrix, Inc.)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement			
100010459	10/5/2006	Email regarding Round 3A SW FSP Comments. REDACTED Email regarding FW_Siltronic, Site and Source Control Status Update.	25	2 EML / Email	R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement			
100014767	10/5/2006	REDACTED Email regarding Siltronic, Site and Source Control Status Update.	28	3 EML / Email	R10: Bayuk, Dana (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement			
100015426	10/5/2006	REDACTED Email regarding Siltronic, Site and Source Control Status Update.	24	3 EML / Email	R10: Bayuk, Dana (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement			
100017183	10/5/2006	REDACTED Email regarding Siltronic, Site and Source Control Status Update.	28	3 EML / Email	R10: Bayuk, Dana (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement			
100017416	10/5/2006	REDACTED Email regarding reply to Siltronic, Site and Source Control Status Update.	24	3 EML / Email	R10: Bayuk, Dana (Oregon Dept. of Environmental Quality)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement			

100018110	REDACTED Email regarding Portland Harbor Managers Meeting - October 10.	45	1 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Madden, Erin (Unknown), R10: Mckenna, James (Port of Portland), R10: Cunninghame, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Pine, Keith, A (Integral Consulting, Inc.), R10: Bluelake, Lisa (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA), R10: Anderson, James, M (Oregon Dept. of Environmental Quality), R10: McClincy, Matt (Oregon Dept. of Environmental Quality), R10: Lewis, Mark, D (NewFields), R10: Livesay, Dave (GSI Groundwater Solutions, Inc.), R10: Lee, Jean, H (Environment International, Ltd.), R10: Lee, Valerie (Environment International, Ltd.), R10: Longoria, Rose (Yakama Nation), R10: Wyatt, Robert, J (NW Natural), R10: Applegate, Rick (City of Portland), R10: Barquin, Billy (Haglund Kelley, LLP)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940680270	10/5/2006 Email regarding reply to ARCO Source Control.	30	2 EML / Email	R10: Gainer, Thomas, B (Oregon Dept. of Environmental Quality)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940681155	10/5/2006 Email regarding Siltronic, Site and Source Control Status Update.	36	1 EML / Email	R10: Bayuk, Dana (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940681173	10/5/2006 Email regarding Gould Site Activities.	21	1 EML / Email	R10: Kent, Mavis, D (Oregon Dept. of Environmental Quality)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940681247	10/5/2006 Email regarding RD 3A FSP-Surface Water Sampling	26	1 EML / Email	R10: Anderson, James, M (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100009497	10/6/2006 Upland Groundwater Dioxin/Furan Sampling Technical Memorandum, Arkema Inc., Portland Facility.	1,130	18 LTR / Letter	R10: Ipsen, Erik, C (Environmental Resources Management, Inc.), R10: Edwards, David, P (ERM-West, Inc.)	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100011640	10/6/2006 Email Regarding Lamprey FSP Comments(1).	36	2 EML / Email	R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)	R10: Anderson, James, M (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100009003	10/9/2006 Email regarding FW_ Arkema Dioxin_Furan Groundwater Sampling Technical Memorandum.	21	1 EML / Email	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	R10: Neely, Robert (NOAA), R10: Arthur, Jennifer (Environment International, Ltd.), R10: Sheldrake, Sean, A (EPA), R10: Fuentes, Rene, C (EPA), R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA), R10: Davoli, Dana (EPA), R10: Goulet, Joe (EPA), R10: Lee, Jean, H (Environment International, Ltd.), R10: Donoghue, Cinde (Environment International, Ltd.)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100012414	10/9/2006 Email regarding Arkema Dioxin/Furan Groundwater Sampling Technical Memorandum.	27	2 EML / Email	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	R10: Neely, Robert (NOAA), R10: Arthur, Jennifer (Environment International, Ltd.), R10: Sheldrake, Sean, A (EPA), R10: Fuentes, Rene, C (EPA), R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA), R10: Davoli, Dana (EPA), R10: Goulet, Joe (EPA), R10: Lee, Jean, H (Environment International, Ltd.), R10: Donoghue, Cinde (Environment International, Ltd.)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940680274	10/9/2006 Email regarding reply to 2006 3rd Quarter Inspection at Gould Site.	22	2 EML / Email	R10: Kent, Mavis, D (Oregon Dept. of Environmental Quality)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940680746	10/9/2006 Email regarding reply to Gould Site Activities.	22	1 EML / Email	R10: Kent, Mavis, D (Oregon Dept. of Environmental Quality)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100010150	10/10/2006 Email regarding Draft Agenda for TZW Meeting.	26	2 EML / Email	R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA), R10: Goulet, Joe (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100015068	10/10/2006 REDACTED Email regarding Siltronic, Site and Source Control Status Update.	28	3 EML / Email	R10: Bayuk, Dana (Oregon Dept. of Environmental Quality)	R10: Peale, James, G (Maul Foster & Alongi, Inc.), R10: Wall, Ted (Maul Foster & Alongi, Inc.), R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA), R10: Mccue, Tom (Siltronic Corporation), R10: Gladstone, Alan (Davis Rothwell Earle & Xochihua)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100017770	10/10/2006 REDACTED Email regarding reply to Siltronic, Site and Source Control Status Update.	29	3 EML / Email	R10: Bayuk, Dana (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940680267	10/10/2006 Email regarding reply to ARCO Source Control.	24	2 EML / Email	R10: Gainer, Thomas, B (Oregon Dept. of Environmental Quality)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100017540	10/11/2006 REDACTED Minutes from the Portland Harbor Community Advisory Group Meeting.	101	4 MTG / Meeting Document	R10: Smith, Judy, R (EPA)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100017842	10/11/2006 REDACTED Email regarding reply to Transition Zone Water meeting Oct 11.	20	1 EML / Email	R10: O'mealy, Mikell (Oregon Dept. of Environmental Quality)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100012429	10/12/2006 Email regarding Brown bagger, Nov 2 in NWR.	39	1 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Mckenna, James (Port of Portland), R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA), R10: Wyatt, Robert, J (NW Natural), R10: Erickson, Donald (U. S. Army)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100015674	10/12/2006 Email regarding Lamprey Discussion Today.	43	1 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100018035	10/12/2006 REDACTED Email Regarding Issues with Termination of Oct Ammocoete Sampling. Table 1: Selected acute and chronic ecological screening levels (Eco SLs) for chemicals in water.	33	5 EML / Email	R10: Van De Wetering, Stan	R10: Neely, Robert (NOAA), R10: Thompson, Chris (Unknown), R10: Barquin, Billy (Confederated Tribes of the Siletz Indians), R10: Kentta, Robert (Confederated Tribes of the Siletz Indians), R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA), R10: Baker, Jeff (Grand Ronde Tribe), R10: Gouguet, Ron (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100009026	10/13/2006 Technical Memorandum regarding Upland Groundwater Dioxin/Furan Sampling - Revised.	318	13 CHT / Chart/Table	R10: Unknown, Unknown (Lower Willamette Group)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100011780	10/13/2006 Email regarding reply to Lamprey Toxicity QAPP.	404	18 MEMO / Memorandum	R10: Ipsen, Erik, C (Environmental Resources Management, Inc.), R10: Edwards, David, P (ERM-West, Inc.)	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940680767	10/13/2006 Email regarding reply to Lamprey Toxicity QAPP.	28	2 EML / Email	R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)	R10: Goulet, Joe (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940680768	10/13/2006 Email regarding reply to Lamprey Toxicity QAPP.	28	2 EML / Email	R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)	R10: Howard, Patti (Columbia River Inter-Tribal Fish Commission), R10: Baker, Jeff (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Goulet, Joe (EPA), R10: Anderson, James, M (Oregon Dept. of Environmental Quality), R10: Gensemer, Robert, W (Parametrix, Inc.), R10: Thompson, Chris (Environment International, Ltd.), R10: Buck, Jeremy (U. S. Fish & Wildlife Service)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100009787	10/17/2006 Email regarding Questions for November 13 Modeling Meeting.	36	3 EML / Email	R10: Hope, Bruce, K (Oregon Dept. of Environmental Quality)	R10: Smith, Carrie, A (Parametrix, Inc.), R10: Blischke, Eric, L (EPA), R10: Gensemer, Robert, W (Parametrix, Inc.), R10: Marsh, John (Parametrix, Inc.)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100011767	10/18/2006 Email regarding Dioxin Groundwater Sampling Report - Revised.	23	2 EML / Email	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality), R10: Hafley, Dan (Oregon Dept. of Environmental Quality), R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality), R10: Poulsen, Mike (Oregon Dept. of Environmental Quality), R10: Gainer, Tom (Oregon Dept. of Environmental Quality), R10: Roick, Tom (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement

100014828	10/18/2006	Email regarding Thursday's stormwater mtg and PPT presentation.	19	1 EML / Email	R10: Tarnow, Karen, E (Oregon Dept. of Environmental Quality)	R10: Sanders, Dawn (City of Portland, Oregon), R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA), R10: Hope, Bruce, K (Oregon Dept. of Environmental Quality), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality), R10: Tarnow, Karen, E (Oregon Dept. of Environmental Quality), R10: Johnson, Keith (Oregon Dept. of Environmental Quality), R10: McClincy, Matt (Oregon Dept. of Environmental Quality), R10: Livesay, Dave (GSI Groundwater Solutions, Inc.), R10: Applegate, Rick (City of Portland), R10: Roick, Tom (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100007588	10/19/2006	Memorandum regarding SOP for Discrete Depth Groundwater Sampling.	111	3 CORR / Correspondence	R10: Edwards, John (Anchor QEA, LLC)	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100008509	10/19/2006	Email regarding ARCO Source Control. Memorandum regarding SOP for Discrete	32	2 EML / Email	R10: Gainer, Tom (Oregon Dept. of Environmental Quality)	R10: Garner, Erin (Atlantic Richfield Company), R10: Moody, Chris (URS Corporation), R10: Edwards, Mike (URS Corporation), R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100011842	10/19/2006	Depth Groundwater Sampling.	114	3 MEMO / Memorandum	R10: Edwards, John, E (Anchor Environmental, LLC)	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100015595	10/19/2006	Email regarding Proposed Date for Fate and Transport Meeting.	46	1 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100015683	10/19/2006	Email regarding LWG/EPA/DEQ Stormwater Meeting.	50	1 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Madden, Erin (Unknown), R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA), R10: Anderson, James, M (Oregon Dept. of Environmental Quality), R10: Johnson, Keith (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940680269	10/19/2006	Email regarding reply to ARCO Source Control.	32	2 EML / Email	R10: Gainer, Thomas, B (Oregon Dept. of Environmental Quality)	R10: Edwards, Mike (URS Corporation), R10: Humphrey, Chip (EPA), R10: McClincy, Matt (Oregon Dept. of Environmental Quality), R10: Garner, Erin (BP Oil Company)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940680777	10/19/2006	Email regarding reply to LWG/EPA/DEQ stormwater meeting.	51	1 EML / Email	R10: Johnson, Keith (Oregon Dept. of Environmental Quality)	R10: Oster, Valerie (Anchor Environmental, LLC), R10: Blischke, Eric, L (EPA), R10: Madden, Erin (Nez Perce Tribe), R10: Anderson, James, M (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100013262	10/20/2006	Email Regarding 10/26/2006 Source Control Meeting.	34	1 EML / Email	R10: Anderson, James, M (Oregon Dept. of Environmental Quality)	R10: Koch, Kristine, M (EPA), R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100007744	10/23/2006	Email regarding DEQ Comments on Lamprey QAPP.	21	1 EML / Email	R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)	R10: Neeley, Robert (NOAA), R10: Buck, Jeremy (U. S. Fish and Wildlife Service), R10: Thompson, Chris (Unknown), R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA), R10: Goulet, Joe (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100012623	10/23/2006	Letter Regarding EPA Comments on DEQ's Draft Presentation "Stormwater in Portland Harbor: What is DEQ Doing About It?" for 10/26/2006.	511	7 LTR / Letter	R10: Koch, Kristine, M (EPA)	R10: Johnson, Keith (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100012908	10/23/2006	Email regarding Revised Upstream/Downstream FSP on Portland Harbor Portal.	23	2 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100014086	10/23/2006	Email Regarding DEQ Comments on Lamprey Toxicity Testing Quality Assurance Project Plan (QAPP).	35	1 EML / Email	R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)	R10: Neely, Robert (NOAA), R10: Buck, Jeremy (U. S. Fish and Wildlife Service), R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA), R10: Goulet, Ron (NOAA), R10: Thompson, Chris (Environment International, Ltd.), R10: Buck, Jeremy (U. S. Fish & Wildlife Service)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100014831	10/23/2006	Quarterly Report Reynolds Aluminum.	22	4 CORR / Correspondence	R10: (Unknown)	R10: (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100017542	10/23/2006	REDACTED Email regarding Draft October CAG meeting minutes.	21	2 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Sheldrake, Sean, A (EPA), R10: Smith, Judy, R (EPA), R10: Humphrey, Chip (EPA), R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100017836	10/23/2006	REDACTED Email regarding reply to Thursday's stormwater mtg and PPT presentation.	24	2 EML / Email	R10: Tarnow, Karen, E (Oregon Dept. of Environmental Quality)	R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100010467	10/24/2006	Email regarding RPAC Upland EPA Orientation.	24	1 EML / Email	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940681013	10/24/2006	Email regarding RPAC Upland EPA Orientation.	24	1 EML / Email	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940681818	10/24/2006	Email regarding Portland Harbor JSCS quarterly report, Jul. - Sept. 06.	19	1 EML / Email	R10: Wistar, Gilbert, M (Oregon Dept. of Environmental Quality)	R10: Solis, Ricardo (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100013772	10/25/2006	Email Regarding Clam Data Analysis for Total PCBs.	41	1 EML / Email	R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)	R10: Neely, Robert (NOAA), R10: Buck, Jeremy (U. S. Fish and Wildlife Service), R10: Fuentes, Rene, C (EPA), R10: Shephard, Burt (EPA), R10: Davoli, Dana (EPA), R10: Goulet, Joe (EPA), R10: McClincy, Matt (Oregon Dept. of Environmental Quality), R10: Poulsen, Michael (Oregon Dept. of Environmental Quality), R10: Gensemer, Robert, W (Parametrix, Inc.), R10: Goulet, Ron (NOAA), R10: Thompson, Chris (Environment International, Ltd.)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940680713	10/25/2006	Email regarding reply to Fate and Transport. Stormwater in Portland Harbor: What is DEQ	38	2 EML / Email	R10: Hope, Bruce, K (Oregon Dept. of Environmental Quality)	R10: Smith, Carrie, A (Parametrix, Inc.), R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100014829	10/26/2006	Doing About It? Presentation.	352	29 CORR / Correspondence	R10: Johnson, Keith (Oregon Dept. of Environmental Quality)	R10: (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100010525	10/30/2006	Email regarding Sturgeon FSP Comments.	27	1 EML / Email	R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940681032	10/30/2006	Email regarding Sturgeon FSP Comments.	27	1 EML / Email	R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)	R10: Humphrey, Chip (EPA), R10: Anderson, James, M (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100009700	10/31/2006	Email regarding Portland Harbor Stormwater.	30	2 EML / Email	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	R10: Mckenna, Jim (Port of Portland), R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA), R10: Sanders, Dawn (City of Portland, Bureau of Environmental Services), R10: Wyatt, Robert, J (NW Natural), R10: Applegate, Rick (City of Portland)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100009701	10/31/2006	Email regarding Portland Harbor Stormwater.	31	2 EML / Email	R10: Tarnow, Karen, E (Oregon Dept. of Environmental Quality)	R10: Mckenna, Jim (Port of Portland), R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA), R10: Sanders, Dawn (City of Portland, Bureau of Environmental Services), R10: McClincy, Matt (Oregon Dept. of Environmental Quality), R10: Wyatt, Robert, J (NW Natural), R10: Applegate, Rick (City of Portland)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940680123	10/31/2006	Email regarding reply to Portland Harbor Stormwater.	33	3 EML / Email	R10: Johnson, Keith (Oregon Dept. of Environmental Quality)	R10: Mckenna, Jim (Port of Portland), R10: Blischke, Eric, L (EPA), R10: Applegate, Rick (City of Portland)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement

4940680124	10/31/2006	Email regarding reply to Portland Harbor Stormwater.	30	2 EML / Email	R10: Tarnow, Karen, E (Oregon Dept. of Environmental Quality)	R10: Sanders, Dawn (City of Portland, Oregon), R10: Mckenna, Jim (Port of Portland), R10: Wyatt, Bob (Northwest Natural Gas Company), R10: Blischke, Eric, L (EPA), R10: McClincy, Matt (Oregon Dept. of Environmental Quality), R10: Applegate, Rick (City of Portland)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940680125	10/31/2006	Email regarding reply to Portland Harbor Stormwater.	30	2 EML / Email	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	R10: Sanders, Dawn (City of Portland, Oregon), R10: Mckenna, Jim (Port of Portland), R10: Wyatt, Bob (Northwest Natural Gas Company), R10: Blischke, Eric, L (EPA), R10: Applegate, Rick (City of Portland)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940681031	10/31/2006	Email regarding Stormwater Sampling at PH sites.	22	1 EML / Email	R10: Tarnow, Karen, E (Oregon Dept. of Environmental Quality)	R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100009320	11/1/2006	Email regarding Brown bagger, Nov 2 in NWR.	40	1 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Levine, Ann (Oregon Dept. of Environmental Quality), R10: Unknown, Unknown (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100009682	11/1/2006	Email regarding Portland Harbor Stormwater.	24	1 EML / Email	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	R10: Mckenna, Jim (Port of Portland), R10: Blischke, Eric, L (EPA), R10: Johnson, Keith (Oregon Dept. of Environmental Quality), R10: Applegate, Rick (City of Portland)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100010544	11/1/2006	Email regarding Scope of Work for Retreat.	24	1 EML / Email	R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)	R10: Neely, Robert (NOAA), R10: Gouget, Ron (NOAA), R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA), R10: Davoli, Dana (EPA), R10: Goulet, Joe (EPA), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality), R10: Gensemer, Robert, W (Parametrix, Inc.), R10: Thompson, Chris (Environment International, Ltd.), R10: Buck, Jeremy (U. S. Fish & Wildlife Service)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100014832	11/1/2006	Email regarding Surface Water SLVs.	21	1 EML / Email	R10: Peterson, Jenn, L (Oregon Dept. of Environmental Quality)	R10: Neely, Robert (NOAA), R10: Shephard, Burt (EPA), R10: Goulet, Joe (EPA), R10: Gensemer, Robert, W (Parametrix, Inc.), R10: Thompson, Chris (Environment International, Ltd.), R10: Buck, Jeremy (U. S. Fish & Wildlife Service)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100014873	11/1/2006	Toxics Criteria Tables.	462	15 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940680116	11/1/2006	Email regarding reply to Portland Harbor Stormwater.	24	1 EML / Email	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	R10: Mckenna, Jim (Port of Portland), R10: Blischke, Eric, L (EPA), R10: Johnson, Keith (Oregon Dept. of Environmental Quality), R10: Applegate, Rick (City of Portland)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940680230	11/1/2006	Email regarding reply to Brown bagger, Nov 2 in NWR.	40	1 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Levine, Ann (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940681018	11/1/2006	Email regarding Scope of Work for Retreat.	24	1 EML / Email	R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)	R10: Neely, Robert (NOAA), R10: Blischke, Eric, L (EPA), R10: Anderson, James, M (Oregon Dept. of Environmental Quality), R10: Gensemer, Robert, W (Parametrix, Inc.), R10: Thompson, Chris (Environment International, Ltd.), R10: Buck, Jeremy (U. S. Fish & Wildlife Service)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100007575	11/3/2006	Agenda Development Notes.	43	2 CORR / Correspondence	R10: Longoria, Rose (Yakama Nation)	R10: (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100007574	11/6/2006	Email regarding Agenda Development for Milestone Meeting.	24	2 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Applegate, Richard (City of Portland, Oregon), R10: Neeley, Robert (NOAA), R10: Madden, Erin (Unknown), R10: Mckenna, Jim (Port of Portland), R10: Cunninghame, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Downey, Tom (Confederated Tribes of the Siletz Indians), R10: Wyatt, Bob (Northwest Natural Gas Company), R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA), R10: Yamamoto, Deb (EPA), R10: Barquin, Billy (Haglund, Kelley, Horngren, Jones & Wilder, LLP), R10: Longoria, Rose (Yakama Nation)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100010043	11/6/2006	Email Regarding Confirmation of November 8 Meeting Concerning Stormwater Sampling Methodologies.	30	1 EML / Email	R10: Tarnow, Karen, E (Oregon Dept. of Environmental Quality)	R10: Nusrala, James (Oregon Dept. of Environmental Quality), R10: Anderson, Nicole (Port of Portland), R10: Stivers, Carl (Anchor Environmental, LLC), R10: Koch, Kristine, M (EPA), R10: Roick, Thomas, E (Oregon Dept. of Environmental Quality), R10: Sanders, Dawn (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100010044	11/6/2006	Draft Statement of Purpose for the Stormwater Sampling Methodology Workgroup.	71	1 OTH / Other	R10: (Unknown)		ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100010045	11/6/2006	Table of T-4 Sampling Methodology With Objective, Loading Calculation, Sampling Method, and Approach.	143	1 CHT / Chart/Table	R10: (Unknown)		ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100010480	11/6/2006	Email regarding Sampling at DEQ Sites.	24	1 EML / Email	R10: Tarnow, Karen, E (Oregon Dept. of Environmental Quality)	R10: Mckenna, Jim (Port of Portland), R10: Stivers, Carl (Anchor Environmental, LLC), R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA), R10: Sanders, Dawn (City of Portland, Bureau of Environmental Services), R10: Applegate, Rick (City of Portland)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100011801	11/6/2006	Email regarding Agenda Development for Milestone Meeting.	24	2 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Neely, Robert (NOAA), R10: Mckenna, Jim (Port of Portland), R10: Cunninghame, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Downey, Tom (Confederated Tribes of the Siletz Indians), R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA), R10: Yamamoto, Deb (EPA), R10: Madden, Erin (Nez Perce Tribe), R10: Longoria, Rose (Yakama Nation), R10: Wyatt, Robert, J (NW Natural), R10: Applegate, Rick (City of Portland), R10: Barquin, Billy (Haglund Kelley, LLP)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940681014	11/6/2006	Email regarding Sampling at DEQ sites.	25	1 EML / Email	R10: Tarnow, Karen, E (Oregon Dept. of Environmental Quality)	R10: Mckenna, James (Port of Portland), R10: Stivers, Carl (Anchor Environmental, LLC), R10: Humphrey, Chip (EPA), R10: Sanders, Dawn (City of Portland, Bureau of Environmental Services), R10: Applegate, Rick (City of Portland)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940681819	11/6/2006	Email regarding Nov 8 mtg on Stormwater sampling methodologies.	21	1 EML / Email	R10: Tarnow, Karen, E (Oregon Dept. of Environmental Quality)	R10: Anderson, Nicole (Port of Portland), R10: Stivers, Carl (Anchor Environmental, LLC), R10: Koch, Kristine, M (EPA), R10: Sanders, Dawn (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940681820	11/6/2006	Draft Statement of Purpose for the Stormwater Sampling Methodology Workgroup.	44	1 WP / Work Plan	R10: Tarnow, Karen, E (Oregon Dept. of Environmental Quality)		ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940681821	11/6/2006	Sampling Methodology from T-4 Recontamination Analysis.	27	1 WP / Work Plan	R10: Tarnow, Karen, E (Oregon Dept. of Environmental Quality)		ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100017139	11/9/2006	REDACTED Stormwater Sampling Methodology Workgroup Meeting Notes from 11/08/2006.	72	3 MTG / Meeting Document	R10: Tarnow, Karen, E (Oregon Dept. of Environmental Quality)		ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement



					R10: Stivers, Carl (Anchor Environmental, LLC), R10: Koch, Kristine, M (EPA), R10: Sanders, Dawn (City of Portland, Bureau of Environmental Services), R10: Tarnow, Karen, E (Oregon Dept. of Environmental Quality), R10: Koulermos, Andrew, C (Newfields, Inc), R10: Spencer, Amanda, L (Ash Creek Associates, Inc.), R10: Livesay, Dave (GSI Groundwater Solutions, Inc.)		056-SITE SUPPORT/0563-State/Tribal Involvement
100017484	11/9/2006	REDACTED Email regarding reply to Meeting notes from 10/8 Sampling Methodology Workgroup.	24	1 EML / Email	R10: Johnson, Keith (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100017684	11/9/2006	REDACTED Email regarding reply to Fate and Transport and Stormwater Meetings.	20	1 EML / Email	R10: Hope, Bruce, K (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940680799	11/9/2006	Email regarding reply to Meeting notes from 10/8 Sampling Methodology Workgroup.	31	2 EML / Email	R10: Johnson, Keith (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940681822	11/9/2006	Email regarding Meeting notes from 10/8 Sampling Methodology Workgroup.	21	1 EML / Email	R10: Tarnow, Karen, E (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940680811	11/12/2006	Email regarding reply to Milestone Meeting Draft Agenda (November 15th 10:00am to 3pm).	23	1 EML / Email	R10: Pedersen, Dick (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100010204	11/13/2006	Email regarding Sturgeon Tissue for HHRA.	21	1 EML / Email	R10: Poulsen, Michael (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940680156	11/13/2006	Email regarding reply to Fate and Transport Meeting.	23	1 EML / Email	R10: Hope, Bruce, K (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940680798	11/13/2006	Email regarding reply to Meeting notes from 10/8 Sampling Methodology Workgroup.	32	3 EML / Email	R10: Johnson, Keith (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100009823	11/14/2006	Email regarding Retreat Planning.	24	1 EML / Email	R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100017472	11/15/2006	REDACTED Email regarding reply to Meeting notes from 10/8 Sampling Methodology Workgroup.	31	5 EML / Email	R10: Johnson, Keith (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940681186	11/15/2006	Email regarding LWG Round 2 Comp Report.	24	1 EML / Email	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100017471	11/16/2006	REDACTED Email regarding reply to Meeting notes from 10/8 Sampling Methodology Workgroup.	33	5 EML / Email	R10: Hope, Bruce, K (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100017680	11/16/2006	REDACTED Email regarding Meeting notes from 10_8 Sampling Methodology Workgroup.	32	5 EML / Email	R10: Hope, Bruce, K (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100009215	11/20/2006	Email regarding LWG Lamprey Tissue Analysis Proposal.	29	4 EML / Email	R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100009220	11/20/2006	Email regarding LWG Lamprey Tissue Analysis Proposal.	30	5 EML / Email	R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100009931	11/20/2006	Email regarding RE_Lamprey Toxicity Testing for Naphthalene.	22	1 EML / Email	R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100011085	11/20/2006	Email regarding Fw_LWG lamprey tissue analysis proposal(3).	23	3 EML / Email	R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100009219	11/21/2006	Email regarding LWG Lamprey Tissue Analysis Proposal.	28	4 EML / Email	R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100010555	11/22/2006	Email Regarding Lamprey Tissue Analysis Final Proposal (Ammocoete and Macrophthalmia Tissue Sampling)	28	1 EML / Email	R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100010556	11/22/2006	Spreadsheet Concerning Lamprey Ammocoete and Macrophthalmia Tissue Analysis Proposal (Spreadsheet In Excel Format Attached).	16	1 CHT / Chart/Table	R10: (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940681824	11/22/2006	Email regarding Lamprey Tissue Analysis Proposal.	19	1 EML / Email	R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940681825	11/22/2006	Lampre Tissue Analysis Proposal.	14	2 ADD / Analytical Data Document	R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100010027	11/27/2006	Email regarding RE_Lamprey Tissue Analysis Proposal.	26	1 EML / Email	R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940680766	11/27/2006	Email regarding reply to Lamprey Tissue Analysis Proposal.	26	1 EML / Email	R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100015689	11/28/2006	Email regarding Managers Meeting This Afternoon?	45	1 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100010721	11/29/2006	Email regarding Stormwater Loading (What Else?).	22	1 EML / Email	R10: Hope, Bruce, K (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100017784	11/29/2006	REDACTED Email regarding reply to stormwater managers meeting on Thursday.	24	2 EML / Email	R10: Johnson, Keith (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement

						R10: Ashton, David (Port of Portland), R10: Mckenna, Jim (Port of Portland), R10: Walton, Raymond (West Consultants, Inc.), R10: Stivers, Carl (Anchor Environmental, LLC), R10: Oster, Valerie (Anchor Environmental, LLC), R10: Peale, James, G (Maul Foster & Alongi, Inc.), R10: Peterson, Jeffrey (Maul Foster & Alongi, Inc.), R10: Toll, John (Windward Environmental, LLC.), R10: Judd, Nancy (Windward Environmental, LLC.), R10: Wyatt, Bob (Northwest Natural Gas Company), R10: Burt, Walt (Groundwater Solutions Inc.), R10: Pine, Keith, A (Integral Consulting, Inc.), R10: Baker, Linda (RETEC Group, Inc.), R10: Gormley, Sean, F (AMEC Earth & Environmental, Inc.), R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA), R10: George, Gerald, F (Pillsbury Winthrop Shaw Pittman, L.L.P.), R10: Hope, Bruce, K (Oregon Dept. of Environmental Quality), R10: Lewis, Mark, D (NewFields), R10: Lee, Jean, H (Environment International, Ltd.), R10: Lee, Valerie (Environment International, Ltd.), R10: Davis, Andy (Geomega, Inc.), R10: Hawley, Christine (Integral Corporation), R10: Revelas, Gene (Integral Corporation), R10: Dost, Patty (Schwabe, Williamson & Wyatt, P.C.), R10: Betz, Jan (City of Portland, Oregon), R10: Applegate, Rick (City of Portland), R10: Wolf, Fred (Total)		
100009410	11/30/2006	Email regarding Notes From 11/29 Fate and Transport Model Meeting.	64	4 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement	
100010596	11/30/2006	A Rate Constant Model for Estimating Stormwater Impacts on the Lower Willamette River, Portland Harbor, Oregon.	1,040	56 RPT / Report	R10: Hope, Bruce, K (Oregon Dept. of Environmental Quality)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100010723	11/30/2006	Email regarding Storm Water Source Control. A Rate Constant Model for Estimating Stormwater Impacts on the Lower Willamette River.	25	2 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Mckenna, Jim (Port of Portland), R10: Howard, Patti (Columbia River Inter-Tribal Fish Commission), R10: Blischke, Eric, L (EPA), R10: Applegate, Rick (City of Portland)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100014876	11/30/2006	64	56 CORR / Correspondence	R10: Hope, Bruce, K (Oregon Dept. of Environmental Quality)	R10: (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement	
4940680836	11/30/2006	Email regarding reply to Notes from 11/29 Fate and Transport Model Meeting.	64	4 EML / Email	R10: Anderson, James, M (Oregon Dept. of Environmental Quality)	R10: Dost, Patricia, M (Schwabe, Williamson & Wyatt, P.C.), R10: Ashton, David (Port of Portland), R10: Walton, Raymond (West Consultants, Inc.), R10: Oster, Valerie (Anchor Environmental, LLC), R10: Peale, James, G (Maul Foster & Alongi, Inc.), R10: Toll, John (Windward Environmental, LLC.), R10: Burt, Walt (Groundwater Solutions Inc.), R10: Pine, Keith, A (Integral Consulting, Inc.), R10: Baker, Linda (RETEC Group, Inc.), R10: Blischke, Eric, L (EPA), R10: George, Gerald, F (Pillsbury Winthrop Shaw Pittman, L.L.P.), R10: Hope, Bruce, K (Oregon Dept. of Environmental Quality), R10: Lewis, Mark, D (NewFields), R10: Lee, Jean, H (Environment International, Ltd.), R10: Davis, Andy (Geomega, Inc.), R10: Wyatt, Robert, J (NW Natural), R10: Hawley, Christine (Integral Corporation), R10: Gormley, Sean (AMEC Environment & Infrastructure, Inc.), R10: Betz, Jan (City of Portland, Oregon), R10: Applegate, Rick (City of Portland), R10: Wolf, Fred (Total)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100010529	12/1/2006	Email regarding Task 3 Data Analysis Planning.	28	2 EML / Email	R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)	R10: Field, Jay (NOAA), R10: Blischke, Eric, L (EPA), R10: Shephard, Burt (EPA), R10: Davoli, Dana (EPA), R10: Goulet, Joe (EPA), R10: Gensemer, Robert, W (Parametrix, Inc.), R10: Shorr, Benjamin (NOAA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100010594	12/1/2006	Email regarding Stormwater model documentation.	20	1 EML / Email	R10: Tarnow, Karen, E (Oregon Dept. of Environmental Quality)	R10: Mckenna, James (Port of Portland), R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA), R10: Sanders, Dawn (City of Portland, Bureau of Environmental Services), R10: Roick, Thomas, E (Oregon Dept. of Environmental Quality), R10: Johnson, Keith (Oregon Dept. of Environmental Quality), R10: Livesay, Dave (GSI Groundwater Solutions, Inc.), R10: Wyatt, Robert, J (NW Natural), R10: Applegate, Rick (City of Portland)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100011083	12/1/2006	Email Regarding GIS Layer: I Want to Start Developing a Map of the Harbor That Can Be Color-Coded to Show Where We Are with Respect to Stormwater Evaluation and Source Control at Individual Stes.	29	1 EML / Email	R10: Tarnow, Karen, E (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100011861	12/1/2006	Preliminary Draft: Scoping Technical memorandum: Groundwater Source Control Interim Remedial Action.	528	60 RPT / Report	R10: Edwards, David, P (ERM-West, Inc.), R10: Ipsen, Erik (ERM-West, Inc.)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100011931	12/1/2006	Milestone Report for Upland Source Control at the Portland Harbor Superfund Site.	160	20 RPT / Report	R10: Unknown, Unknown (Oregon Dept. of Environmental Quality)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100014875	12/1/2006	Email regarding Stormwater model documentation.	19	1 EML / Email	R10: Tarnow, Karen, E (Oregon Dept. of Environmental Quality)	R10: Sanders, Dawn (City of Portland, Oregon), R10: Mckenna, James (Port of Portland), R10: Wyatt, Bob (Northwest Natural Gas Company), R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA), R10: Johnson, Keith (Oregon Dept. of Environmental Quality), R10: Livesay, Dave (GSI Groundwater Solutions, Inc.), R10: Applegate, Rick (City of Portland), R10: Roick, Tom (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940680203	12/1/2006	Email regarding reply to Developing messages about the PH schedule (working draft information).	29	2 EML / Email	R10: Danab, Marcia (Oregon Dept. of Environmental Quality)	R10: Howard, Patti (Columbia River Inter-Tribal Fish Commission), R10: Smith, Judy, R (EPA), R10: Borok, Aron (Environment International, Ltd.)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940681034	12/1/2006	Email regarding Task 3 Data Analysis Planning.	28	2 EML / Email	R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)	R10: Field, Jay (NOAA), R10: Blischke, Eric, L (EPA), R10: Gensemer, Robert, W (Parametrix, Inc.)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100008508	12/4/2006	Email regarding ARCO Source Control.	32	2 EML / Email	R10: Gainer, Tom (Oregon Dept. of Environmental Quality)	R10: Garner, Erin (Atlantic Richfield Company), R10: Moody, Chris (URS Corporation), R10: Edwards, Mike (URS Corporation), R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality), R10: Gainer, Tom (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100009106	12/4/2006	Email regarding Fate and Transport Segment Rationale.	23	1 EML / Email	R10: Hope, Bruce, K (Oregon Dept. of Environmental Quality)	R10: Smith, Carrie, A (Parametrix, Inc.), R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100009114	12/4/2006	Email regarding Fate and Transport Segment Rationale.	25	2 EML / Email	R10: Hope, Bruce, K (Oregon Dept. of Environmental Quality)	R10: Smith, Carrie, A (Parametrix, Inc.), R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100009115	12/4/2006	Email regarding Fate and Transport Segment Rationale.	21	1 EML / Email	R10: Hope, Bruce, K (Oregon Dept. of Environmental Quality)	R10: Smith, Carrie, A (Parametrix, Inc.), R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement

4940680268	12/4/2006	Email regarding reply to ARCO Source Control.	32	2 EML / Email	R10: Gainer, Thomas, B (Oregon Dept. of Environmental Quality)	R10: Edwards, Mike (URS Corporation), R10: Humphrey, Chip (EPA), R10: McClincy, Matt (Oregon Dept. of Environmental Quality), R10: Garner, Erin (BP Oil Company)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940680979	12/4/2006	Email regarding reply to Updated Stormwater Table.	31	1 EML / Email	R10: Johnson, Keith (Oregon Dept. of Environmental Quality)	R10: Mckenna, James (Port of Portland), R10: Stivers, Carl (Anchor Environmental, LLC), R10: Blischke, Eric, L (EPA), R10: Madden, Erin (Nez Perce Tribe), R10: Sanders, Dawn (City of Portland, Bureau of Environmental Services), R10: Hope, Bruce, K (Oregon Dept. of Environmental Quality), R10: Koulermos, Andrew, C (Newfields, Inc), R10: Livesay, Dave (GSI Groundwater Solutions, Inc.), R10: Borok, Aron (Environment International, Ltd.), R10: Wyatt, Robert, J (NW Natural), R10: Applegate, Rick (City of Portland), R10: Wolf, Fred (Total)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100007707	12/5/2006	Email regarding Clam and Sediment Re-Analysis.	17	1 EML / Email	R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)	R10: Humphrey, Chip (EPA), R10: Blischke, Eric, L (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100009131	12/5/2006	Email regarding Bioaccumulative sediment criteria for Copper.	19	1 EML / Email	R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA), R10: Poulsen, Mike (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100009138	12/5/2006	Email regarding Bioaccumulative sediment criteria for Copper.	22	2 EML / Email	R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100009290	12/5/2006	Email regarding Bioaccumulative sediment criteria for Copper.	25	2 EML / Email	R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100013942	12/5/2006	Email Regarding Clam and Sediment Re-Analysis.	30	1 EML / Email	R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA), R10: Goulet, Joe (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100007590	12/6/2006	Letter regarding Addendum to Offshore Final Phase I Field Sampling Approach, NW Natural, Gasco Site.	172	4 CORR / Correspondence	R10: Edwards, John, E (Anchor Environmental, LLC), R10: Renda, John (Anchor Environmental, LLC)	R10: Bayuk, Dana (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100011826	12/6/2006	Addendum to Offshore Final Phase I Field Sampling Approach, NW Natural, Gasco Site, Portland, Oregon.	177	4 CORR / Correspondence	R10: Edwards, John, E (Anchor Environmental, LLC), R10: Renda, John (Anchor Environmental, LLC)	R10: Bayuk, Dana (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100007586	12/7/2006	Email regarding NWNG, Phase 1 Off-shore FSA Addendum 2 References.	18	1 EML / Email	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	R10: Arthur, Jennifer (Environment International, Ltd.), R10: Sheldrake, Sean, A (EPA), R10: Fuentes, Rene, C (EPA), R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA), R10: Donoghue, Cinde (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100007589	12/7/2006	Email regarding Addendum to Gasco Offshore FSA.	21	2 EML / Email	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	R10: Arthur, Jennifer (Environment International, Ltd.), R10: Sheldrake, Sean, A (EPA), R10: Fuentes, Rene, C (EPA), R10: Donoghue, Cinde (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100008682	12/7/2006	Email regarding FW_ NWNG, Phase 1 Off-shore FSA Telephone Discussion.	30	3 EML / Email	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	R10: Arthur, Jennifer (Environment International, Ltd.), R10: Sheldrake, Sean, A (EPA), R10: Fuentes, Rene, C (EPA), R10: Donoghue, Cinde (Environment International, Ltd.)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100011791	12/7/2006	Email regarding Addendum to Gasco Offshore FSA.	21	2 EML / Email	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	R10: Arthur, Jennifer (Environment International, Ltd.), R10: Sheldrake, Sean, A (EPA), R10: Fuentes, Rene, C (EPA), R10: Donoghue, Cinde (Environment International, Ltd.)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100011837	12/7/2006	Email regarding NWNG, Phase 1 Off-shore FSA Addendum 2 References.	18	1 EML / Email	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	R10: Arthur, Jennifer (Environment International, Ltd.), R10: Sheldrake, Sean, A (EPA), R10: Fuentes, Rene, C (EPA), R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA), R10: Donoghue, Cinde (Environment International, Ltd.)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940681145	12/7/2006	Email regarding NWNG, Phase 1 Off-shore FSA Telephone Discussions.	30	3 EML / Email	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	R10: Arthur, Jennifer (Environment International, Ltd.), R10: Sheldrake, Sean, A (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100008372	12/8/2006	Email regarding Proposed BP/Arco Source Control Measure.	39	1 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100009028	12/8/2006	Email regarding FW_ Monitoring Locations Table.	18	1 EML / Email	R10: Tarnow, Karen, E (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100009585	12/8/2006	Tech Team Sample Site Recommendations.	108	3 RPT / Report	R10: (Unknown)		ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940681242	12/8/2006	Email regarding Proposed BP/Arco Source Control Measure	39	1 EML / Email	R10: Anderson, James, M (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100010694	12/11/2006	Email regarding Tasks related to evaluating risks to fish themselves.	18	1 EML / Email	R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA), R10: Shephard, Burt (EPA), R10: Goulet, Joe (EPA), R10: Gensemer, Robert, W (Parametrix, Inc.), R10: Thompson, Chris (Environment International, Ltd.), R10: Buck, Jeremy (U. S. Fish & Wildlife Service)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100010844	12/11/2006	Email regarding Wednesday's mgr mtg.	21	1 EML / Email	R10: Tarnow, Karen, E (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100014877	12/11/2006	Email regarding Tasks related to evaluating risk to fish themselves.	17	1 EML / Email	R10: Peterson, Jenn, L (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA), R10: Shephard, Burt (EPA), R10: Goulet, Joe (EPA), R10: Gensemer, Robert, W (Parametrix, Inc.), R10: Thompson, Chris (Environment International, Ltd.), R10: Buck, Jeremy (U. S. Fish & Wildlife Service)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100014878	12/11/2006	Fish Dietary and Tissue Residue Analysis (for analysis of risk to fish themselves).	64	5 CORR / Correspondence	R10: Peterson, Jenn, L (Oregon Dept. of Environmental Quality)	R10: (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100009033	12/13/2006	Email regarding FW_ Draft Groundwater Source Control IRM Scoping Technical Memorandum.	26	1 EML / Email	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	(NOAA), R10: Buck, Jeremy (U. S. Fish and Wildlife Service), R10: Madden, Erin (Unknown), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Smith, Carrie, A (Parametrix, Inc.), R10: Arthur, Jennifer (Environment International, Ltd.), R10: Bluelake, Lisa (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Sheldrake, Sean, A (EPA), R10: Fuentes, Rene, C (EPA), R10: Cora, Lori, H (EPA), R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA), R10: Smith, Judy, R (EPA), R10: Shephard, Burt (EPA), R10: Humphrey, Chip (EPA), R10: Black, Curt (EPA), R10: Davoli, Dana (EPA), R10: Grepo-grove, Gina (EPA), R10: Goulet, Joe (EPA), R10: Ader, Mark (EPA), R10: Barquin, Billy (Haglund, Kelley, Horngren, Jones & Wilder, LLP), R10: Toepel, Kathryn (Oregon Dept. of Human Services), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality), R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality), R10: Poulsen, Mike (Oregon Dept. of Environmental Quality), R10: Gainer, Tom (Oregon Dept. of Environmental Quality), R10: Gensemer, Robert, W (Parametrix, Inc.), R10: Borok, Aron (Environment International, Ltd.), R10: Baker, Jeff (Grand Ronde Tribe), R10: Longoria, Rose (Yakama Nation), R10: Gouguet, Ron (NOAA), R10: How, P (CRITFC), R10: Thompson, Chris (Environment	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement

					(NOAA), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Smith, Carrie, A (Parametrix, Inc.), R10: Howard, Patti (Columbia River Inter-Tribal Fish Commission), R10: Arthur, Jennifer (Environment International, Ltd.), R10: Downey, Tom (Confederated Tribes of the Siletz Indians), R10: Baker, Jeff (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Bluelake, Lisa (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Sheldrake, Sean, A (EPA), R10: Fuentes, Rene, C (EPA), R10: Cora, Lori, H (EPA), R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA), R10: Smith, Judy, R (EPA), R10: Shephard, Burt (EPA), R10: Humphrey, Chip (EPA), R10: Black, Curt (EPA), R10: Davoli, Dana (EPA), R10: Grepogrove, Gina (EPA), R10: Goulet, Joe (EPA), R10: Ader, Mark (EPA), R10: Madden, Erin (Nez Perce Tribe), R10: Toepel, Kathryn (Oregon Dept. of Human Services), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality), R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality), R10: Poulsen, Mike (Oregon Dept. of Environmental Quality), R10: Gainer, Tom (Oregon Dept. of Environmental Quality), R10: Gensemer, Robert, W (Parametrix, Inc.), R10: Borok, Aron (Environment International, Ltd.), R10: Longoria, Rose (Yakama Nation), R10:			
100011855	12/13/2006	Email regarding Draft Groundwater Source Control IRM Scoping Technical Memorandum.	24	1 EML / Email	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)		ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100014889	12/13/2006	Overview of OSM Riverbank Figure 1-2.	471	1 CORR / Correspondence	R10: (RETEC)	R10: (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
						R10: Madden, Erin (Unknown), R10: Ashton, David (Port of Portland), R10: Mckenna, James (Port of Portland), R10: Smith, Carrie, A (Parametrix, Inc.), R10: Walton, Raymond (West Consultants, Inc.), R10: Stivers, Carl (Anchor Environmental, LLC), R10: Oster, Valerie (Anchor Environmental, LLC), R10: Peale, James, G (Maul Foster & Alongi, Inc.), R10: Peterson, Jeffrey (Maul Foster & Alongi, Inc.), R10: Toll, John (Windward Environmental, LLC.), R10: Judd, Nancy (Windward Environmental, LLC.), R10: Burt, Walt (Groundwater Solutions Inc.), R10: Pine, Keith, A (Integral Consulting, Inc.), R10: Baker, Linda (RETEC Group, Inc.), R10: Gormley, Sean, F (AMEC Earth & Environmental, Inc.), R10: Blischke, Eric, L (EPA), R10: George, Gerald, F (Pillsbury Winthrop Shaw Pittman, L.L.P.), R10: Hope, Bruce, K (Oregon Dept. of Environmental Quality), R10: Anderson, James, M (Oregon Dept. of Environmental Quality), R10: Lewis, Mark, D (NewFields), R10: Lee, Jean, H (Environment International, Ltd.), R10: Davis, Andy (Geomega, Inc.), R10: Wyatt, Robert, J (NW Natural), R10: Hawley, Christine (Integral Corporation), R10: Revelas, Gene (Integral Corporation), R10: Dost, Patty (Schwabe, Williamson & Wyatt, P.C.), R10: Betz, Jan (City of Portland, Oregon), R10: Applegate, Rick (City of Portland), R10: Wolf, Fred (Total)		
100015691	12/14/2006	Email regarding Schedule Notes for Fate and Transport Team.	63	2 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)		ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100010653	12/15/2006	Email Regarding Transition Zone Water (TZW) Report DEQ Project Manager (PM) Feedback.	61	5 EML / Email	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100012333	12/15/2006	Email Regarding Portland Harbor - Possible meeting Place.	32	1 EML / Email	R10: Poulsen, Michael (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940681161	12/15/2006	Email regarding TZW report DEQ PM Feedback.	52	5 EML / Email	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100010720	12/17/2006	Email regarding Stormwater list.	27	2 EML / Email	R10: Tarnow, Karen, E (Oregon Dept. of Environmental Quality)	R10: Mckenna, Jim (Port of Portland), R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100014989	12/18/2006	REDACTED Email regarding TCT Action Items.	23	2 EML / Email	R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100007604	12/20/2006	Draft Notes Portland Harbor Managers Meeting.	46	2 CORR / Correspondence	R10: Tarnow, Karen, E (Oregon Dept. of Environmental Quality)	R10: (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100011872	12/20/2006	Draft notes from 12-20 PH Managers Meeting.	45	2 MTG / Meeting Document	R10: Unknown, Unknown (Unknown)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100015571	12/20/2006	Email regarding PH Managers Stormwater Meeting.	24	1 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Mckenna, James (Port of Portland), R10: Pine, Keith, A (Integral Consulting, Inc.), R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA), R10: Johnson, Keith (Oregon Dept. of Environmental Quality), R10: Wyatt, Robert, J (NW Natural), R10: Applegate, Rick (City of Portland)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
						R10: Neely, Robert (NOAA), R10: Mckenna, James (Port of Portland), R10: Cunningham, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Downey, Tom (Confederated Tribes of the Siletz Indians), R10: Pine, Keith, A (Integral Consulting, Inc.), R10: Baker, Jeff (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Kelly, Stephen (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Anderson, James, M (Oregon Dept. of Environmental Quality), R10: Tarnow, Karen, E (Oregon Dept. of Environmental Quality), R10: Johnson, Keith (Oregon Dept. of Environmental Quality), R10: Longoria, Rose (Yakama Nation), R10: Wyatt, Robert, J (NW Natural), R10: Gouguet, Ron (NOAA), R10: Applegate, Rick (City of Portland), R10: Barquin, Billy (Haglund Kelley, LLP)		
100018076	12/20/2006	REDACTED Email regarding PH Managers Stormwater Call.	45	1 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)		ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940680861	12/20/2006	Email regarding reply to PH Managers stormwater meeting.	25	1 EML / Email	R10: Johnson, Keith (Oregon Dept. of Environmental Quality)	R10: Mckenna, James (Port of Portland), R10: Oster, Valerie (Anchor Environmental, LLC), R10: Pine, Keith, A (Integral Consulting, Inc.), R10: Blischke, Eric, L (EPA), R10: Wyatt, Robert, J (NW Natural), R10: Applegate, Rick (City of Portland)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940680862	12/20/2006	Email regarding reply to PH Managers stormwater meeting.	29	2 EML / Email	R10: Anderson, James, M (Oregon Dept. of Environmental Quality)	R10: Mckenna, James (Port of Portland), R10: Oster, Valerie (Anchor Environmental, LLC), R10: Pine, Keith, A (Integral Consulting, Inc.), R10: Blischke, Eric, L (EPA), R10: Johnson, Keith (Oregon Dept. of Environmental Quality), R10: Wyatt, Robert, J (NW Natural), R10: Applegate, Rick (City of Portland)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940680863	12/20/2006	Email regarding reply to PH Managers stormwater meeting.	27	1 EML / Email	R10: Anderson, James, M (Oregon Dept. of Environmental Quality)	R10: Mckenna, James (Port of Portland), R10: Oster, Valerie (Anchor Environmental, LLC), R10: Pine, Keith, A (Integral Consulting, Inc.), R10: Blischke, Eric, L (EPA), R10: Wyatt, Robert, J (NW Natural), R10: Applegate, Rick (City of Portland)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement



4940680864	12/20/2006	Email regarding reply to PH Managers stormwater meeting.	25	1 EML / Email	R10: Johnson, Keith (Oregon Dept. of Environmental Quality)	R10: Mckenna, James (Port of Portland), R10: Oster, Valerie (Anchor Environmental, LLC), R10: Pine, Keith, A (Integral Consulting, Inc.), R10: Blischke, Eric, L (EPA), R10: Wyatt, Robert, J (NW Natural), R10: Applegate, Rick (City of Portland)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940680865	12/20/2006	Email regarding reply to PH Managers stormwater meeting.	30	2 EML / Email	R10: Johnson, Keith (Oregon Dept. of Environmental Quality)	R10: Mckenna, James (Port of Portland), R10: Oster, Valerie (Anchor Environmental, LLC), R10: Pine, Keith, A (Integral Consulting, Inc.), R10: Blischke, Eric, L (EPA), R10: Anderson, James, M (Oregon Dept. of Environmental Quality), R10: Wyatt, Robert, J (NW Natural), R10: Applegate, Rick (City of Portland)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100009824	12/21/2006	Email regarding Review of Bruce Hope Dynamic FWM for LWR - Correction.	63	4 EML / Email	R10: Hope, Bruce, K (Oregon Dept. of Environmental Quality)	R10: Smith, Carrie, A (Parametrix, Inc.), R10: Judd, Nancy (Windward Environmental, LLC.), R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100010291	12/21/2006	Email regarding Tentative Retreat Date.	21	1 EML / Email	R10: Poulsen, Michael (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100007603	12/22/2006	Email regarding Draft notes from 12-22 PH Managers meeting.	17	1 EML / Email	R10: Tarnow, Karen, E (Oregon Dept. of Environmental Quality)	R10: Madden, Erin (Unknown), R10: Mckenna, James (Port of Portland), R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100010294	12/22/2006	Email regarding Tentative Retreat Date.	22	1 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100011871	12/22/2006	Email regarding Draft notes from 12-22 PH Managers Meeting.	17	1 EML / Email	R10: Tarnow, Karen, E (Oregon Dept. of Environmental Quality)	R10: Mckenna, Jim (Port of Portland), R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA), R10: Madden, Erin (Nez Perce Tribe), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality), R10: Applegate, Rick (City of Portland)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940680190	12/22/2006	Email regarding reply to Draft notes from 12-22 PH Managers meeting.	24	1 EML / Email	R10: Johnson, Keith (Oregon Dept. of Environmental Quality)	R10: Madden, Erin (Unknown), R10: Mckenna, Jim (Port of Portland), R10: Blischke, Eric, L (EPA), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality), R10: Applegate, Rick (City of Portland)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100011843	12/26/2006	Email Regarding NWNG, Phase 1 Off-Shore FSA - Analysis of Groundwater Collected at Boring GS-03.	40	1 EML / Email	R10: Bayuk, Dana (Oregon Dept. of Environmental Quality)	R10: Edwards, John, E (Anchor Environmental, LLC)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940681206	12/26/2006	Email regarding NWNG, Phase 1 Off-shore FSA - Analysis of Groundwater Collected at Boring GS-03.	30	1 EML / Email	R10: Bayuk, Dana (Oregon Dept. of Environmental Quality)	R10: Edwards, John, E (Anchor Environmental, LLC)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100010689	12/27/2006	Email regarding Updated site list.	22	2 EML / Email	R10: Tarnow, Karen, E (Oregon Dept. of Environmental Quality)	R10: Mckenna, Jim (Port of Portland), R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA), R10: Madden, Erin (Nez Perce Tribe), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality), R10: Tarnow, Karen, E (Oregon Dept. of Environmental Quality), R10: Johnson, Keith (Oregon Dept. of Environmental Quality), R10: Applegate, Rick (City of Portland)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100010692	12/27/2006	Stormwater Sampling Sites as agreed to at 12-22 PH Mgr Mtg.	84	3 CHT / Chart/Table	R10: Unknown, Unknown (Unknown)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100014879	12/27/2006	Email regarding Updated site list.	21	2 EML / Email	R10: Tarnow, Karen, E (Oregon Dept. of Environmental Quality)	R10: Mckenna, James (Port of Portland), R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality), R10: Johnson, Keith (Oregon Dept. of Environmental Quality), R10: Applegate, Rick (City of Portland), R10: Madden, Erin	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100014880	12/27/2006	Stormwater Sampling Sites as agreed to at 12-22 PH Mgr Mtg.	51	3 CORR / Correspondence	R10: Macintyre, Mark, A (EPA)	R10: (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940680191	12/27/2006	Email regarding reply to Draft notes from 12-22 PH Managers meeting.	27	1 EML / Email	R10: Johnson, Keith (Oregon Dept. of Environmental Quality)	R10: Madden, Erin (Unknown), R10: Mckenna, Jim (Port of Portland), R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality), R10: Applegate, Rick (City of Portland)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940680978	12/27/2006	Email regarding reply to Updated site list.	28	2 EML / Email	R10: Johnson, Keith (Oregon Dept. of Environmental Quality)	R10: Mckenna, James (Port of Portland), R10: Blischke, Eric, L (EPA), R10: Madden, Erin (Nez Perce Tribe), R10: Tarnow, Karen, E (Oregon Dept. of Environmental Quality), R10: Applegate, Rick (City of Portland)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100010591	12/28/2006	Email Regarding NW Natural, Offshore Final Phase I FSA Addendum and Boring GS-06.	30	1 EML / Email	R10: Bayuk, Dana (Oregon Dept. of Environmental Quality)	R10: Wyatt, Robert, J (Northwest Natural Gas Company), R10: Wyatt, Robert, J (NW Natural)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100010592	12/28/2006	Letter Concerning Addendum 2, Final Phase 1 Field Sampling Approach for Groundwater Source Evaluation: Northwest Natural Gas Company Site, Portland, Oregon; ECSI No. 84.	171	2 LTR / Letter	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	R10: Wyatt, Robert, J (Northwest Natural Gas Company), R10: Wyatt, Robert, J (NW Natural)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940681826	12/28/2006	Letter regarding Addendum 2, Final Phase 1 Field Sampling Approach - Groundwater Source Evaluation - Northwest Natural Gas Company Site, Portland, Oregon - ECSI No. 84.	95	2 LTR / Letter	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	R10: Wyatt, Robert, J (NW Natural)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940681827	12/28/2006	Email regarding NW Natural, Offshore Final Phase I FSA Addendum and Boring GS-06.	21	1 EML / Email	R10: Bayuk, Dana (Oregon Dept. of Environmental Quality)	R10: Wyatt, Robert, J (NW Natural)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100008649	12/29/2006	Email regarding FW_Joint Informational Coordination Meetings.	28	2 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100011912	12/29/2006	Letter regarding Milestone Report for Upland Source Control at the Portland Harbor Superfund Site.	20	2 CORR / Correspondence	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100011932	12/29/2006	Table 1: DEQ Milestone Report: Controlling Confirmed or Suspected Upland Sources of Contamination to Portland Harbor.	183	33 CHT / Chart/Table	R10: Unknown, Unknown (Oregon Dept. of Environmental Quality)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100011943	12/29/2006	Table 2: Status of High Priority Sites.	34	1 CHT / Chart/Table	R10: Unknown, Unknown (Oregon Dept. of Environmental Quality)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940681135	12/29/2006	Email regarding Joint Informational/Coordination Meetings.	28	2 EML / Email	R10: Anderson, James, M (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100008645	1/2/2007	Email regarding FW_Joint Informational Coordination Meetings (1).	35	4 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100009754	1/2/2007	Email regarding Preliminary Screening for Bioaccumulative Compounds.	22	1 EML / Email	R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement

100011886	1/2/2007	Email regarding 12/06 Source Control Milestone Report.	26	1 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	Robert (NOAA), R10: Burkholder, Kurt (Oregon Dept. of Justice), R10: Szumski, Michael, J (U. S. Fish and Wildlife Service), R10: Buerger, Ted (U. S. Fish and Wildlife Service), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Cunninghame, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Howard, Patti (Columbia River Inter-Tribal Fish Commission), R10: Bridgen, Pamela, J (Environment International, Ltd.), R10: Downey, Tom (Confederated Tribes of the Siletz Indians), R10: Baker, Jeff (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Estensen, Lisa (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Kelly, Stephen (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Barquin, Billy (LeRoy Wilder, P.C.), R10: Sheldrake, Sean, A (EPA), R10: Fuentes, Rene, C (EPA), R10: Cora, Lori, H (EPA), R10: Blischke, Eric, L (EPA), R10: Smith, Judy, R (EPA), R10: Cope, Ben (EPA), R10: Shephard, Burt (EPA), R10: Humphrey, Chip (EPA), R10: Black, Curt (EPA), R10: Davoli, Dana (EPA), R10: Grepogrove, Gina (EPA), R10: Goulet, Joe (EPA), R10: Kawabata, Sylvia (EPA), R10: Madden, Erin (Nez Perce Tribe), R10: Kiernan, Jill, A (Oregon Dept. of Environmental Quality), R10: Sutter, Jennifer, L (Oregon Dept. of Environmental Quality), R10: Anderson, Jim, M (Oregon Dept.	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100011957	1/2/2007	Email regarding 12/06 Source Control Milestone Report.	23	2 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100015515	1/2/2007	REDACTED Email regarding Project Update and TCT Agenda.	24	2 EML / Email	R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940681136	1/2/2007	Email regarding Joint Informational/Coordination Meetings.	36	4 EML / Email	R10: Anderson, James, M (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100009137	1/3/2007	Email regarding Food Web Model for Portland Harbor.	21	1 EML / Email	R10: Hope, Bruce, K (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100009763	1/3/2007	Email regarding Preliminary Screening for Bioaccumulative Compounds.	23	1 EML / Email	R10: Poulsen, Michael (Oregon Dept. of Environmental Quality)	R10: Gensemer, Robert, W (Parametrix, Inc.)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100008374	1/5/2007	Email regarding Proposed Upland Source Control at Arco/BP.	45	2 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	Robert (NOAA), R10: Burkholder, Kurt (Oregon Dept. of Justice), R10: Szumski, Michael, J (U. S. Fish and Wildlife Service), R10: Buck, Jeremy (U. S. Fish and Wildlife Service), R10: Buerger, Ted (U. S. Fish and Wildlife Service), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Cunninghame, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Bridgen, Pamela, J (Environment International, Ltd.), R10: Downey, Tom (Confederated Tribes of the Siletz Indians), R10: Baker, Jeff (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Kelly, Stephen (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Sheldrake, Sean, A (EPA), R10: Fuentes, Rene, C (EPA), R10: Cora, Lori, H (EPA), R10: Blischke, Eric, L (EPA), R10: Smith, Judy, R (EPA), R10: Cope, Ben (EPA), R10: Shephard, Burt (EPA), R10: Humphrey, Chip (EPA), R10: Black, Curt (EPA), R10: Davoli, Dana (EPA), R10: Yamamoto, Deb (EPA), R10: Grepogrove, Gina (EPA), R10: Goulet, Joe (EPA), R10: Madden, Erin (Nez Perce Tribe), R10: Barquin, Billy (Haglund, Kelley, Horngren, Jones & Wilder, LLP), R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality), R10: McClincy, Matt (Oregon Dept. of Environmental Quality), R10: Poulsen, Mike (Oregon Dept. of Environmental Quality), R10: Gainer, Tom (Oregon Dept. of	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100015386	1/5/2007	REDACTED Email regarding benthic interp review integration.	20	1 EML / Email	R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)	R10: Neely, Robert (NOAA), R10: Buck, Jeremy (U. S. Fish and Wildlife Service), R10: Blischke, Eric, L (EPA), R10: Shephard, Burt (EPA), R10: Humphrey, Chip (EPA), R10: Goulet, Joe (EPA), R10: Longoria, Rose (Yakama Nation), R10: Gouguet, Ron (NOAA), R10: Thompson, Chris (Environment International, Ltd.)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100017980	1/5/2007	REDACTED Email Regarding [pdxharborcag] Proposed Source Control Action at BP/ARCO.	29	2 EML / Email	R10: Anderson, James, M (Oregon Dept. of Environmental Quality)	R10: Longley, Jean (Linnton Neighborhood Association), R10: (Portland Harbor Community Advisory Group)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940680240	1/5/2007	Email regarding reply to benthic interp review integration.	24	1 EML / Email	R10: Thompson, Chris (Environment International, Ltd.)	R10: Neely, Robert (NOAA), R10: Goulet, Joe (EPA), R10: Longoria, Rose (Yakama Nation), R10: Thompson, Chris (Environment International, Ltd.), R10: Buck, Jeremy (U. S. Fish & Wildlife Service)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940681244	1/5/2007	Email regarding Proposed Upland Source Control at Arco/BP	45	2 EML / Email	R10: Anderson, James, M (Oregon Dept. of Environmental Quality)	R10: Burkholder, Kurt (Oregon Dept. of Justice), R10: Szumski, Michael, J (U. S. Fish and Wildlife Service), R10: Madden, Erin (Unknown), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Cunninghame, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Bridgen, Pamela, J (Environment International, Ltd.), R10: Downey, Tom (Confederated Tribes of the Siletz Indians), R10: Kelly, Stephen (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Blischke, Eric, L (EPA), R10: McClincy, Matt (Oregon Dept. of Environmental Quality), R10: Gensemer, Robert, W (Parametrix, Inc.), R10: Yamamoto, Deb (EPA Region 10), R10: Lee, Jean, H (Environment International, Ltd.), R10: Baker, Jeff (Grand Ronde Tribe), R10: Longoria, Rose (Yakama Nation), R10: Gouguet, Ron (NOAA), R10: How, P (CRITFC), R10: Barquin, Billy (Haglund Kelley, LLP), R10: Kepler, Rick, J (State of Oregon), R10: Buck, Jeremy (U. S. Fish & Wildlife Service)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100010661	1/8/2007	Email regarding LWR FWM parameterization.	47	1 EML / Email	R10: Hope, Bruce, K (Oregon Dept. of Environmental Quality)	R10: Smith, Carrie, A (Parametrix, Inc.), R10: Judd, Nancy (Windward Environmental, LLC.), R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100010228	1/9/2007	Email regarding Target Mercury Water Concentration.	21	1 EML / Email	R10: Hope, Bruce, K (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100018261	1/9/2007	REDACTED Email regarding reply to [pdxharborcag] Proposed Source Control Action at BP/Arco.	44	3 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Longley, Jean (Linnton Neighborhood Association), R10: Longley, Jean (Linnton Neighborhood Association)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100010648	1/10/2007	Email regarding LWR FWM parameterization- Next Thursday 9-11 am.	50	3 EML / Email	R10: Hope, Bruce, K (Oregon Dept. of Environmental Quality)	R10: Smith, Carrie, A (Parametrix, Inc.), R10: Judd, Nancy (Windward Environmental, LLC.), R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940681828	1/10/2007	Portland Harbor Timeline Racetrack Graphic.	90	1 CHT / Chart/Table	R10: Anderson, James, M (Oregon Dept. of Environmental Quality)		ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement

100008610	1/11/2007	Email regarding FW_ FPM revised.	25	2 EML / Email	R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100008884	1/11/2007	Email regarding FW_ Round 2 Report Roll Out Meetings.	22	1 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100009877	1/11/2007	Email regarding Round 2 Report Roll Out Meetings.	22	1 EML / Email	R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100011153	1/14/2007	Outline for Stormwater Strategy.	97	7 RPT / Report	R10: (Unknown)	Buchman, Mike (NOAA), R10: Neely, Robert (NOAA), R10: Fleming, Sheila (Ridolfi Engineers and Associates, Inc.), R10: Szumski, Michael, J (U. S. Fish and Wildlife Service), R10: Buck, Jeremy (U. S. Fish and Wildlife Service), R10: Buerger, Ted (U. S. Fish and Wildlife Service), R10: Madden, Erin (Unknown), R10: Kepler, Rick (Unknown), R10: Burkholder, Kurt (U. S. Dept. of Justice), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Bridgen, Pamela, J (Environment International, Ltd.), R10: Spencer, Jeff (Confederated Tribes and Bands of the Yakima Indian Nation), R10: Ward, Paul (Confederated Tribes and Bands of the Yakima Indian Nation), R10: Downey, Tom (Confederated Tribes of the Siletz Indians), R10: Bluelake, Lisa (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Kelly, Stephen (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Young, Cyril (Oregon Dept. of State Lands), R10: Sheldrake, Sean, A (EPA), R10: Fuentes, Rene, C (EPA), R10: Cora, Lori, H (EPA), R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA), R10: Smith, Judy, R (EPA), R10: Humphrey, Chip (EPA), R10: Black, Curt (EPA), R10: Davoli, Dana (EPA), R10: Yamamoto, Deb (EPA), R10: Grepo-grove, Gina (EPA), R10: Goulet, Joe (EPA), R10: Oatman, Joe (Nez Perce Tribe), R10: Eichstaedt, Rick (Nez Perce Tribe), R10: Gensemer, Robert, W (Parametrix, Inc.), R10: Koloszar, Jim (Parametrix, Inc.)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100008434	1/17/2007	Email regarding FW_ DEQ in the News Today 1_17_07.	41	1 EML / Email	R10: Anderson, Jim, M (State of Oregon)	R10: Gensemer, Robert, W (Parametrix, Inc.), R10: Koloszar, Jim (Parametrix, Inc.)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100009889	1/17/2007	Email regarding Confirming surface water screening logistics.	22	1 EML / Email	R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)	Buchman, Mike (NOAA), R10: Neely, Robert (NOAA), R10: Burkholder, Kurt (Oregon Dept. of Justice), R10: Perry, Lynne (Oregon Dept. of Justice), R10: Fleming, Sheila (Ridolfi Engineers and Associates, Inc.), R10: Szumski, Michael, J (U. S. Fish and Wildlife Service), R10: Buerger, Ted (U. S. Fish and Wildlife Service), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Cunninghame, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Howard, Patti (Columbia River Inter-Tribal Fish Commission), R10: Bridgen, Pamela, J (Environment International, Ltd.), R10: Spencer, Jeff (Confederated Tribes and Bands of the Yakima Indian Nation), R10: Downey, Tom (Confederated Tribes of the Siletz Indians), R10: Bluelake, Lisa (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Kelly, Stephen (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Sheldrake, Sean, A (EPA), R10: Fuentes, Rene, C (EPA), R10: Cora, Lori, H (EPA), R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA), R10: Smith, Judy, R (EPA), R10: Humphrey, Chip (EPA), R10: Black, Curt (EPA), R10: Davoli, Dana (EPA), R10: Yamamoto, Deb (EPA), R10: Grepo-grove, Gina (EPA), R10: Goulet, Joe (EPA), R10: Madden, Erin (Nez Perce Tribe), R10: Oatman, Joe (Nez Perce Tribe), R10: Eichstaedt, Rick (Nez Perce Tribe), R10: Shephard, Burt (EPA), R10: Gensemer, Robert, W (Parametrix, Inc.)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100012451	1/17/2007	Email regarding DEQ in the News Today 1/17/07.	41	1 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Shephard, Burt (EPA), R10: Gensemer, Robert, W (Parametrix, Inc.)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100015635	1/17/2007	REDACTED Email regarding BSAF and dietary analysis discussion.	20	1 EML / Email	R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)	R10: Longoria, Rose (Yakama Nation)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100009592	1/19/2007	Email regarding Portland Harbor Data Retreat.	27	2 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100008655	1/25/2007	Email regarding FW_ LWG Eco SLVs.	25	1 EML / Email	R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)	R10: Wisdom, Charles (Parametrix, Inc.), R10: Davoli, Dana (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100009020	1/25/2007	Email regarding DDE Water Quality Value.	28	3 EML / Email	R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)	R10: Gensemer, Robert, W (Parametrix, Inc.)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100014210	1/25/2007	REDACTED Email regarding JCSC chronic WQC for dioxin is incorrect.	31	3 EML / Email	R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)	R10: Neely, Robert (NOAA), R10: Madden, Erin (Unknown), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Smith, Carrie, A (Parametrix, Inc.), R10: Arthur, Jennifer (Environment International, Ltd.), R10: Downey, Tom (Confederated Tribes of the Siletz Indians), R10: Baker, Jeff (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Bluelake, Lisa (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Toepel, Kathryn (Oregon Dept. of Human Services), R10: Gainer, Tom (Oregon Dept. of Environmental Quality), R10: Gensemer, Robert, W (Parametrix, Inc.), R10: Longoria, Rose (Yakama Nation), R10: Wittman, Parker (Environment International, Ltd.), R10: Donoghue, Cinde (Environment International, Ltd.), R10: Barquin, Billy (Haglund Kelley, LLP), R10: Buck, Jeremy (U. S. Fish & Wildlife Service)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100014881	1/25/2007	Email regarding Review Comments on Arkema Groundwater Source Control Scoping Memo.	23	1 EML / Email	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	R10: Slater, Todd (Legacy Site Services, LLC)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100014882	1/25/2007	Letter regarding Former Arkema Portland Plant Scoping Technical Memorandum Groundwater Source Control Interim Remedial Measure.	182	15 CORR / Correspondence	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	R10: Madden, Erin (Unknown), R10: Mckenna, James (Port of Portland), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Cunninghame, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Oster, Valerie (Anchor Environmental, LLC), R10: Pine, Keith, A (Integral Consulting, Inc.), R10: Bluelake, Lisa (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA), R10: Anderson, James, M (Oregon Dept. of Environmental Quality), R10: Longoria, Rose (Yakama Nation), R10: Wyatt, Robert, J (NW Natural), R10: Gouguet, Ron (NOAA), R10: Applegate, Rick (City of Portland), R10: Barquin, Billy (Haglund Kelley, LLP)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100015562	1/25/2007	Email regarding March Round 2 Roll-Out Meetings.	51	1 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Blischke, Eric, L (EPA), R10: Davoli, Dana (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100017627	1/25/2007	REDACTED Email regarding 10x versus 100x DDX PECS.	23	2 EML / Email	R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)		ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement

100008464	1/26/2007	Email regarding "Rule of Five" presentation.	25	2 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement	
100007520	1/29/2007	Email regarding PH FW model comments.	71	1 EML / Email	R10: Hope, Bruce, K (Oregon Dept. of Environmental Quality)	R10: Shephard, Burt (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement	
100009268	1/29/2007	Email regarding Round 3 Sturgeon FSP Comments.	24	2 EML / Email	R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)	R10: Shephard, Burt (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement	
100012335	1/29/2007	Email regarding PH FW model comments.	12	1 EML / Email	R10: Hope, Bruce, K (Oregon Dept. of Environmental Quality)	R10: Shephard, Burt (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement	
100012339	1/29/2007	Bruce Hope's comments on Comprehensive Round 2 Site Characterization Summary and Data Gaps Analysis Report, Appendix H: Food Web Model - Attachment 3, Parameterization. Email regarding reply to Round 3 Sturgeon FSP	82	2 CORR / Correspondence	R10: Hope, Bruce, K (Oregon Dept. of Environmental Quality)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement	
4940680722	1/29/2007	Email regarding Round 3 Sturgeon FSP Comments.	24	2 EML / Email	R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)	R10: Shephard, Burt (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement	
100009783	1/31/2007	Email regarding Proposed Column Headings for New Section 6 Tables.	34	1 EML / Email	R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)	R10: Munn, Nancy (NOAA), R10: Neely, Robert (NOAA), R10: Fleming, Sheila (Ridolfi Engineers and Associates, Inc.), R10: Buck, Jeremy (U. S. Fish and Wildlife Service), R10: Wisdom, Charles (Parametrix, Inc.), R10: Roth, Eric (Parametrix, Inc.), R10: Howland, John (Parametrix, Inc.), R10: Battuello, Peter (Parametrix, Inc.), R10: Arthur, Jennifer (Environment International, Ltd.), R10: Sheldrake, Sean, A (EPA), R10: Fuentes, Rene, C (EPA), R10: Cora, Lori, H (EPA), R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA), R10: Smith, Judy, R (EPA), R10: Shephard, Burt (EPA), R10: Humphrey, Chip (EPA), R10: Davoli, Dana (EPA), R10: Yamamoto, Deb (EPA), R10: Goulet, Joe (EPA), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality), R10: Mcclincy, Matt (Oregon Dept. of Environmental Quality), R10: Poulsen, Michael (Oregon Dept. of Environmental Quality), R10: Gainer, Tom (Oregon Dept. of Environmental Quality), R10: Lee, Jean, H (Environment International, Ltd.), R10: Lee, Valerie (Environment International, Ltd.), R10: Longoria, Rose (Yakama Nation), R10: Thompson, Chris (Environment International, Ltd.), R10: Wright, Jim (NOAA), R10: Kepler, Rick, J (State of Oregon)	R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100012777	1/31/2007	Email regarding Proposed Column Headings for New Section 6 Tables.	34	1 EML / Email	R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)	R10: Munn, Nancy (NOAA), R10: Neely, Robert (NOAA), R10: Fleming, Sheila (Ridolfi Engineers and Associates, Inc.), R10: Wisdom, Charles (Parametrix, Inc.), R10: Roth, Eric (Parametrix, Inc.), R10: Howland, John (Parametrix, Inc.), R10: Battuello, Peter (Parametrix, Inc.), R10: Arthur, Jennifer (Environment International, Ltd.), R10: Sheldrake, Sean, A (EPA), R10: Fuentes, Rene, C (EPA), R10: Cora, Lori, H (EPA), R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA), R10: Smith, Judy, R (EPA), R10: Shephard, Burt (EPA), R10: Humphrey, Chip (EPA), R10: Davoli, Dana (EPA), R10: Yamamoto, Deb (EPA), R10: Goulet, Joe (EPA), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality), R10: Mcclincy, Matt (Oregon Dept. of Environmental Quality), R10: Poulsen, Mike (Oregon Dept. of Environmental Quality), R10: Gainer, Tom (Oregon Dept. of Environmental Quality), R10: Lee, Jean, H (Environment International, Ltd.), R10: Lee, Valerie (Environment International, Ltd.), R10: Longoria, Rose (Yakama Nation), R10: Thompson, Chris (Environment International, Ltd.), R10: Wright, Jim (NOAA), R10: Kepler, Rick, J (State of Oregon), R10: Buck, Jeremy (U. S. Fish & Wildlife Service)	R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100013099	2/2/2007	Section 6, Figure 2: Maximum Exceedance of PEC SLV by either DDD, DDE, or DDT within Individual Sediment Sample Grid Cells.	281	1 FIG / Figure/Map/ Drawing	R10: (Parametrix, Inc.)	R10: (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement	
100013150	2/2/2007	Memo Regarding Updated Definitions Arkema EE/CA Work Plan for Internal Review - Task Order Submittal Contract No. 68-57-03-04 Task Order 003B.	69	2 MEMO / Memorandum	R10: Park, Will (Parametrix, Inc.)	R10: Sheldrake, Sean, A (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement	
100013151	2/2/2007	Section 6, Figure 1: Maximum Exceedance of Bioaccumulative SLV by either DDD, DDE, or DDT within Individual Sediment Sample Grid Cells.	281	1 FIG / Figure/Map/ Drawing	R10: (Parametrix, Inc.)	R10: (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement	
100013000	2/7/2007	Email Regarding Data Retreat.	29	1 EML / Email	R10: Romero, Michael (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement	
100009909	2/12/2007	Email regarding Data Retreat.	24	1 EML / Email	R10: Gainer, Tom (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement	
100010438	2/12/2007	Email regarding Reviewing Round 2 (RD2) Site Characterization Summary Report (SCSR).	29	2 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement	
100010499	2/12/2007	REDACTED Email regarding Risk Parameter Table and Upstream Chemical Concentrations - 3rd Time is the Charm.	32	3 EML / Email	R10: Tarnow, Karen, E (Oregon Dept. of Environmental Quality)	R10: Shellenberger, Amanda (Anchor Environmental, LLC), R10: Stivers, Carl (Anchor Environmental, LLC), R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement	
100015637	2/12/2007	REDACTED Email regarding Risk Parameter Table and Upstream Chemical Concentrations - 3rd Time is the Charm.	27	3 EML / Email	R10: Poulsen, Michael (Oregon Dept. of Environmental Quality)	R10: Shephard, Burt (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement	
4940680993	2/12/2007	Email regarding Reviewing RD2 SCSR.	29	2 EML / Email	R10: Anderson, James, M (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement	
4940681015	2/12/2007	Email regarding Sampling at OSM.	32	3 EML / Email	R10: Tarnow, Karen, E (Oregon Dept. of Environmental Quality)	R10: Stivers, Carl (Anchor Environmental, LLC), R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement	
100009805	2/13/2007	Email regarding Reviewing RD2 SCSR.	26	2 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement	
100012841	2/13/2007	Email regarding Reviewing RD2 SCSR.	26	2 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement	
100015467	2/13/2007	REDACTED Email regarding Risk Parameter Table and Upstream Chemical Concentrations - 3rd Time is the Charm.	30	4 EML / Email	R10: Poulsen, Michael (Oregon Dept. of Environmental Quality)	R10: Shephard, Burt (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement	
100015656	2/13/2007	REDACTED Email regarding Risk Parameter Table and Upstream Chemical Concentrations - 3rd Time is the Charm.	20	1 EML / Email	R10: Poulsen, Michael (Oregon Dept. of Environmental Quality)	R10: Shephard, Burt (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement	
100007606	2/14/2007	Email regarding 2/23 mtg.	17	1 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Mckenna, James (Port of Portland), R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement	
4940681829	2/14/2007	Email regarding Race track.	18	1 EML / Email	R10: Anderson, James, M (Oregon Dept. of Environmental Quality)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement	
100010407	2/20/2007	Email regarding WOE Meeting Space.	21	1 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement	

4940680253	2/20/2007	Email regarding reply to Arkema reports and data for Lots 1 & 2.	27	2 EML / Email	R10: McClincy, Matt (Oregon Dept. of Environmental Quality) R10: Anderson, James, M (Oregon Dept. of Environmental Quality)	R10: Neely, Robert (NOAA), R10: Fleming, Sheila (Ridolfi Engineers and Associates, Inc.), R10: Zylstra, Stephen, J (U. S. Fish and Wildlife Service), R10: Madden, Erin (Unknown), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Cunnigham, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Smith, Carrie, A (Parametrix, Inc.), R10: Downey, Tom (Confederated Tribes of the Siletz Indians), R10: Bluelake, Lisa (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Humphrey, Chip (EPA), R10: Farrer, David, G (Oregon Dept. of Human Services), R10: Gainer, Thomas, B (Oregon Dept. of Environmental Quality), R10: Longoria, Rose (Yakama Nation), R10: Thompson, Chris (Environment International, Ltd.), R10: Sudbury, Ryan, R10: Lavelle, James, M (CDM), R10: Allen, David (Stratus Consulting, Inc.), R10: Weis, Julie (Haglund Kelley, LLP), R10: Dexter, Bob (Ridolfi, Inc.), R10: Buck, Jeremy (U. S. Fish & Wildlife Service)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940680989	2/20/2007	Email regarding reply to WOE Meeting Space.	21	1 EML / Email	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940680252	2/21/2007	Email regarding reply to Arkema reports and data for Lots 1 & 2.	26	2 EML / Email	R10: McClincy, Matt (Oregon Dept. of Environmental Quality) R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)	R10: Sheldrake, Sean, A (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100007809	2/22/2007	Email regarding FPM and Round 2 Report.	16	1 EML / Email	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100009280	2/22/2007	Email regarding TZW Report DEQ PM Feedback.	30	4 EML / Email	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA) R10: McKenna, Jim (Port of Portland), R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA), R10: Wyatt, Robert, J (NW Natural), R10: Applegate, Rick (City of Portland)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100015889	2/22/2007	REDACTED Email regarding reminder - meeting on Feb 23.	45	2 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality) R10: Anderson, James, M (Oregon Dept. of Environmental Quality)	R10: Applegate, Rick (City of Portland)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940680990	2/27/2007	Email regarding reply to WOE Meeting/TCT.	21	1 EML / Email	R10: Anderson, James, M (Oregon Dept. of Environmental Quality)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100010523	2/28/2007	Email regarding fate and transport model sediment volume.	28	1 EML / Email	R10: Hope, Bruce, K (Oregon Dept. of Environmental Quality) R10: Unknown, Unknown (Integral Consulting, Inc.)	R10: Smith, Carrie, A (Parametrix, Inc.), R10: Stivers, Carl (Anchor Environmental, LLC)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100012104	3/1/2007	Arkema Riverbank Soil Data - March 2007.	95	8 ADD / Analytical Data Document	R10: Unknown, Unknown (Integral Consulting, Inc.)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100012668	3/1/2007	Email regarding Portland Industrial Land Follow-Up.	47	2 EML / Email	R10: Johnson, Keith (Oregon Dept. of Environmental Quality)	R10: Henry, Clark (City of Portland, Oregon), R10: Klinger, Nanci (City of Portland, Oregon), R10: Hudson, Seth (Portland Development Commission), R10: Kelley, Gil (City of Portland, Oregon, Bureau of Planning), R10: Kountz, Steve (City of Portland, Oregon, Bureau of Planning), R10: Homolac, Karen (Oregon Economic and Community Development Dept.), R10: Opalski, Daniel, D (EPA), R10: Cora, Lori, H (EPA), R10: Norton, Allen (EPA), R10: Humphrey, Chip (EPA), R10: Yamamoto, Deb (EPA), R10: Slater, Mike (EPA), R10: Rodriguez, Socorro (EPA), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality), R10: Pedersen, Dick (Oregon Dept. of Environmental Quality), R10: Scarlett, Paul (City of Portland, Bureau of Development Services), R10: Redding, Marveita (City of Portland), R10: Applegate, Rick (City of Portland), R10: Herrley, Sylvia (Oregon Dept. of Environmental Quality), R10: Clay, Bob (City of Portland), R10: Miner, Peggy (City of Portland, Bureau of Environmental Services), R10: Meurs, Lisa (Portland Development Commission), R10: Olson, Carolyn (City of Portland), R10: Peterson, Andy (City of Portland, Oregon)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940681836	3/3/2007	Letter regarding City Comments on Source Control Data Gaps Work Plan, NW Natural Gas Site, July 2007.	292	3 LTR / Letter	R10: Sanders, Dawn (Oregon Dept. of Environmental Quality)	R10: Bayuk, Dana (Oregon Dept. of Environmental Quality) (NOAA), R10: Gouget, Ron (NOAA), R10: Fleming, Sheila (Ridolfi Engineers and Associates, Inc.), R10: Buck, Jeremy (U. S. Fish and Wildlife Service), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Smith, Carrie, A (Parametrix, Inc.), R10: Bridgen, Pamela, J (Environment International, Ltd.), R10: Arthur, Jennifer (Environment International, Ltd.), R10: Downey, Tom (Confederated Tribes of the Siletz Indians), R10: Baker, Jeff (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Bluelake, Lisa (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Ader, Mark, A (EPA), R10: Sheldrake, Sean, A (EPA), R10: Fuentes, Rene, C (EPA), R10: Cora, Lori, H (EPA), R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA), R10: Smith, Judy, R (EPA), R10: Shephard, Burt (EPA), R10: Humphrey, Chip (EPA), R10: Black, Curt (EPA), R10: Davoli, Dana (EPA), R10: Grepo-grove, Gina (EPA), R10: Goulet, Joe (EPA), R10: Madden, Erin (Cascadia Law Group), R10: Toepel, Kathryn (Oregon Dept. of Human Services), R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality), R10: McClincy, Matt (Oregon Dept. of Environmental Quality), R10: Poulsen, Michael (Oregon Dept. of Environmental Quality), R10: Gainer, Tom (Oregon Dept. of Environmental Quality), R10: Gensemer, Robert, W	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100015468	3/5/2007	REDACTED Email regarding Roll-Out Meeting and Next Steps on Round 2 Report.	30	2 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement



100017686	3/5/2007	REDACTED Email regarding reply to Roll-Out Meeting and Next Steps on Round 2 Report.	30	2 EML / Email	R10: Anderson, James, M (Oregon Dept. of Environmental Quality)	R10: Neely, Robert (NOAA), R10: Fleming, Sheila (Ridolfi Engineers and Associates, Inc.), R10: Lavelle, Jim (CDM Federal Programs Corporation), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Smith, Carrie, A (Parametrix, Inc.), R10: Howard, Patti (Columbia River Inter-Tribal Fish Commission), R10: Downey, Tom (Confederated Tribes of the Siletz Indians), R10: Baker, Jeff (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Blischke, Eric, L (EPA), R10: Madden, Erin (Nez Perce Tribe), R10: Toepel, Kathryn (Oregon Dept. of Human Services), R10: Gainer, Tom (Oregon Dept. of Environmental Quality), R10: Borok, Aron (Environment International, Ltd.), R10: Longoria, Rose (Yakama Nation), R10: Wittman, Parker (Environment International, Ltd.), R10: Barquin, Billy (Haglund Kelley, LLP), R10: Buck, Jeremy (U. S. Fish & Wildlife Service)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100017826	3/5/2007	REDACTED Email regarding reply to Upcoming Meetings.	23	1 EML / Email	R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100020095	3/5/2007	REDACTED Email regarding Upcoming Meetings.	20	1 EML / Email	R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100020103	3/5/2007	REDACTED Email regarding Upcoming Meetings.	21	1 EML / Email	R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940681178	3/5/2007	Email regarding Initial Concerns with RD2 SCSR.	25	1 EML / Email	R10: Anderson, James, M (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100011753	3/8/2007	Email Regarding LWG Round 2 Report.	39	2 EML / Email	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940681187	3/8/2007	Email regarding LWG Round 2 Report.	30	2 EML / Email	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100010772	3/12/2007	Email regarding TZW.	23	1 EML / Email	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940681042	3/12/2007	Email regarding TZW.	23	1 EML / Email	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100007542	3/13/2007	Email regarding Arco/BP Proposed Source Control Action.	29	2 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	Burkholder, Kurt (Oregon Dept. of Justice), R10: Fleming, Sheila (Ridolfi Engineers and Associates, Inc.), R10: Szumski, Michael, J (U. S. Fish and Wildlife Service), R10: Buck, Jeremy (U. S. Fish and Wildlife Service), R10: Buerger, Ted (U. S. Fish and Wildlife Service), R10: Madden, Erin (Unknown), R10: Kepler, Rick (Unknown), R10: Givens, Raymond, C (Givens & Funke), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Cunnigham, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Bridgen, Pamela, J (Environment International, Ltd.), R10: Spencer, Jeff (Confederated Tribes and Bands of the Yakima Indian Nation), R10: Ward, Paul (Confederated Tribes and Bands of the Yakima Indian Nation), R10: Downey, Tom (Confederated Tribes of the Siletz Indians), R10: Baker, Jeff (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Bluelake, Lisa (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Kelly, Stephen (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Oatman, Joe (Nez Perce Tribe), R10: Eichstaedt, Rick (Nez Perce Tribe), R10: Barquin, Billy (Haglund, Kelley, Horngren, Jones & Wilder, LLP), R10: Perry, Lynne, A (Oregon Department of Justice), R10: Lee, Jean, H (Environment International, Ltd.), R10: Longoria, Rose (Yakama Nation), R10: Burkholder, Kurt (Oregon Dept. of Justice), R10: Perry, Lynne (Oregon Dept. of Justice), R10: Szumski, Michael, J (U. S. Fish and Wildlife Service), R10: Buck, Jeremy (U. S. Fish and Wildlife Service), R10: Buerger, Ted (U. S. Fish and Wildlife Service), R10: Madden, Erin (Unknown), R10: Kepler, Rick (Unknown), R10: Givens, Raymond, C (Givens & Funke), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Cunnigham, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Bridgen, Pamela, J (Environment International, Ltd.), R10: Spencer, Jeff (Confederated Tribes and Bands of the Yakima Indian Nation), R10: Ward, Paul (Confederated Tribes and Bands of the Yakima Indian Nation), R10: Downey, Tom (Confederated Tribes of the Siletz Indians), R10: Baker, Jeff (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Bluelake, Lisa (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Kelly, Stephen (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Oatman, Joe (Nez Perce Tribe), R10: Eichstaedt, Rick (Nez Perce Tribe), R10: Barquin, Billy (Haglund, Kelley, Horngren, Jones & Wilder, LLP), R10: Lee, Jean, H (Environment International, Ltd.), R10: Longoria, Rose (Yakama Nation), R10: Althouse, Scott (The Nez Perce Tribe)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100007680	3/13/2007	Email regarding Arco/BP Proposed Source Control Action.	29	2 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100011468	3/13/2007	Email Regarding Internal Meeting Tomorrow.	29	1 EML / Email	R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement

100013574	3/13/2007	Email Regarding a Head's-Up That There Will be a Comment Period From April 1- 30, 2007 for Arco/BP's (BP) Proposed Source Control Action at Their Facility.	56	2 EML / Email	R10: Anderson, James, M (Oregon Dept. of Environmental Quality)	Buchman, Mike (NOAA), R10: Neely, Robert (NOAA), R10: Perry, Lynne (Oregon Dept. of Justice), R10: Fleming, Sheila (Ridolfi Engineers and Associates, Inc.), R10: Szumski, Michael, J (U. S. Fish and Wildlife Service), R10: Buck, Jeremy (U. S. Fish and Wildlife Service), R10: Buerger, Ted (U. S. Fish and Wildlife Service), R10: Burkholder, Kurt (U. S. Dept. of Justice), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Cunninghame, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Howard, Patti (Columbia River Inter-Tribal Fish Commission), R10: Bridgen, Pamela, J (Environment International, Ltd.), R10: Spencer, Jeff (Confederated Tribes and Bands of the Yakima Indian Nation), R10: Ward, Paul (Confederated Tribes and Bands of the Yakima Indian Nation), R10: Downey, Tom (Confederated Tribes of the Siletz Indians), R10: Baker, Jeff (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Bluelake, Lisa (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Kelly, Stephen (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Barquin, Billy (LeRoy Wilder, P.C.), R10: Sheldrake, Sean, A (EPA), R10: Fuentes, Rene, C (EPA), R10: Cora, Lori, H (EPA), R10: Yamamoto, Deborah, J (EPA), R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA), R10:	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100018002	3/13/2007	REDACTED Email regarding RE_ Internal Meeting Tomorrow.	19	1 EML / Email	R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100010456	3/14/2007	Email regarding Round 2 Report Issues.	25	2 EML / Email	R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100015041	3/14/2007	Email Regarding FS Data Gaps: In Order to Evaluate Potential Remaining FS Data Gaps in Lower Willamette Group Round 2 Report, I Would Like to Get a Better Conceptual Sense of Where the Portland Harbor FS is Going and How Well Existing Data Supports It.	46	1 EML / Email	R10: Gainer, Thomas, B (Oregon Dept. of Environmental Quality)	R10: Stivers, Carl (Anchor Environmental, LLC), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100017514	3/14/2007	REDACTED Email regarding reply to Next meeting for breakout group.	36	2 EML / Email	R10: Johnson, Keith (Oregon Dept. of Environmental Quality)	R10: Hudson, Seth (Portland Development Commission), R10: Kelley, Gil (City of Portland, Oregon, Bureau of Planning), R10: Homolac, Karen (Oregon Economic and Community Development Dept.), R10: Norton, Allen (EPA), R10: Pedersen, Dick (Oregon Dept. of Environmental Quality), R10: Applegate, Rick (City of Portland), R10: Miner, Peggy (City of Portland, Bureau of Environmental Services), R10: Clay, Bob (City of Portland, Oregon)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100019930	3/14/2007	REDACTED Email regarding Parameters for LWR FWM Used for Round 2 Report.	30	4 EML / Email	R10: Hope, Bruce, K (Oregon Dept. of Environmental Quality)	R10: Smith, Carrie, A (Parametrix, Inc.), R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100010457	3/15/2007	Email regarding Round 2 Report.	29	2 EML / Email	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100011326	3/15/2007	Email Regarding Initial Concerns With Round 2 Site Characterization Summary Report (SCSR): How Was the Screening-Level Risk Assessment (SLRA) Completed (Taking Chemicals of Interest (COIs) to Chemicals of Potential Concern (COPCs))?	34	1 EML / Email	R10: Anderson, James, M (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940681008	3/15/2007	Email regarding Round 2 Report.	29	2 EML / Email	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940680820	3/16/2007	Email regarding reply to New time choices for breakout meeting.	43	1 EML / Email	R10: Johnson, Keith (Oregon Dept. of Environmental Quality)	R10: Klinger, Nanci (City of Portland, Oregon), R10: Hudson, Seth (Portland Development Commission), R10: Kelley, Gil (City of Portland, Oregon, Bureau of Planning), R10: Homolac, Karen (Oregon Economic and Community Development Dept.), R10: Norton, Allen (EPA), R10: Pedersen, Dick (Oregon Dept. of Environmental Quality), R10: Scarlett, Paul (City of Portland, Bureau of Development Services), R10: Applegate, Rick (City of Portland), R10: Miner, Peggy (City of Portland, Bureau of Environmental Services)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100010454	3/19/2007	Email regarding Round 2 Report - Initial Concerns.	24	1 EML / Email	R10: Poulsen, Michael (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940681006	3/19/2007	Email regarding Round 2 Report - Initial Concerns.	24	1 EML / Email	R10: Poulsen, Mike (Oregon Dept. of Environmental Quality)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100008359	3/20/2007	Email regarding Portland Harbor Round 2 Data Question.	22	1 EML / Email	R10: Poulsen, Mike (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100009279	3/20/2007	Email regarding TZW Report DEQ PM Feedback.	68	23 EML / Email	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100017675	3/20/2007	REDACTED Email regarding reply to Fate and Transport /FWM Meeting Times.	22	3 EML / Email	R10: Blischke, Eric, L (EPA)	R10: Oster, Valerie (Anchor Environmental, LLC)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940680725	3/20/2007	Email regarding reply to TZW report DEQ PM Feedback.	68	23 EML / Email	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940680827	3/20/2007	Email regarding reply to Next Meeting date.	35	1 EML / Email	R10: Johnson, Keith (Oregon Dept. of Environmental Quality)	R10: Hudson, Seth (Portland Development Commission), R10: Kountz, Steve (City of Portland, Oregon, Bureau of Planning), R10: Humphrey, Chip (EPA), R10: Applegate, Rick (City of Portland), R10: Miner, Peggy (City of Portland, Bureau of Environmental Services), R10: Peterson, Andy (City of Portland, Oregon)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940681237	3/20/2007	Email regarding Portland Harbor Round 2 data question	22	1 EML / Email	R10: Poulsen, Michael (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA), R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement

					(NOAA), R10: Neely, Robert (NOAA), R10: Buck, Jeremy (U. S. Fish and Wildlife Service), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Smith, Carrie, A (Parametrix, Inc.), R10: Howard, Patti (Columbia River Inter-Tribal Fish Commission), R10: Arthur, Jennifer (Environment International, Ltd.), R10: Downey, Tom (Confederated Tribes of the Siletz Indians), R10: Baker, Jeff (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Bluelake, Lisa (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Ader, Mark, A (EPA), R10: Sheldrake, Sean, A (EPA), R10: Fuentes, Rene, C (EPA), R10: Cora, Lori, H (EPA), R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA), R10: Smith, Judy, R (EPA), R10: Shephard, Burt (EPA), R10: Humphrey, Chip (EPA), R10: Black, Curt (EPA), R10: Davoli, Dana (EPA), R10: Grepo-grove, Gina (EPA), R10: Goulet, Joe (EPA), R10: Madden, Erin (Nez Perce Tribe), R10: Toepel, Kathryn (Oregon Dept. of Human Services), R10: Anderson, James, M (Oregon Dept. of Environmental Quality), R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality), R10: Poulsen, Michael (Oregon Dept. of Environmental Quality), R10: Gainer, Tom (Oregon Dept. of Environmental Quality), R10: Gensemer, Robert, W (Parametrix, Inc.), R10: Borok, Aron (Environment International, Ltd.), R10: Mckenna, James (Port of Portland), R10: Oster, Valerie (Anchor Environmental, LLC), R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)		
100013640	Email Regarding Arkema Reponse to DEQ/EPA Comments on the Draft Scoping Tech Memo for Groundwater Source Control.	3/21/2007	48	2 EML / Email	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100007607	3/22/2007 Email regarding 5/16/07 Senior Mgrs Mtg.		17	1 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100013100	Email Regarding 5/16/07 Senior Managers' Meeting.	3/22/2007	32	1 EML / Email	R10: Anderson, James, M (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100015651	3/22/2007 Email regarding Validated Data Posting.		51	2 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100017774	REDACTED Email regarding reply to Spring Portland Harbor newsletter.	3/22/2007	27	2 EML / Email	R10: Anderson, James, M (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
					(NOAA), R10: Buck, Jeremy (U. S. Fish and Wildlife Service), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Smith, Carrie, A (Parametrix, Inc.), R10: Howard, Patti (Columbia River Inter-Tribal Fish Commission), R10: Arthur, Jennifer (Environment International, Ltd.), R10: Downey, Tom (Confederated Tribes of the Siletz Indians), R10: Baker, Jeff (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Bluelake, Lisa (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Sheldrake, Sean, A (EPA), R10: Fuentes, Rene, C (EPA), R10: Cora, Lori, H (EPA), R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA), R10: Smith, Judy, R (EPA), R10: Shephard, Burt (EPA), R10: Humphrey, Chip (EPA), R10: Black, Curt (EPA), R10: Davoli, Dana (EPA), R10: Grepo-grove, Gina (EPA), R10: Goulet, Joe (EPA), R10: Ader, Mark (EPA), R10: Madden, Erin (Nez Perce Tribe), R10: Barquin, Billy (Haglund, Kelley, Horngren, Jones & Wilder, LLP), R10: Toepel, Kathryn (Oregon Dept. of Human Services), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality), R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality), R10: McClincy, Matt (Oregon Dept. of Environmental Quality), R10: Poulsen, Mike (Oregon Dept. of Environmental Quality), R10: Gainer, Tom (Oregon Dept. of Environmental Quality)		
100008539	Email regarding Arkema Response to DEQ/EPA Comments on the Draft Scoping Tech Memo for Groundwater Source Control.	3/23/2007	40	2 EML / Email	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940680266	Email regarding reply to Arkema Reponse to DEQ/EPA Comments on the Draft Scoping Tech Memo for Groundwater Source Control.	3/23/2007	40	2 EML / Email	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100009644	Email regarding Portland Harbor Round 2 Data Question.	3/27/2007	21	1 EML / Email	R10: Poulsen, Michael (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940680122	Email regarding reply to Portland Harbor Round 2 data question.	3/27/2007	23	1 EML / Email	R10: Poulsen, Michael (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100015661	Email regarding Validated Surface Water Data (November 2006).	3/28/2007	48	2 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940680121	Email regarding reply to Portland Harbor Round 2 data question.	3/28/2007	22	1 EML / Email	R10: Poulsen, Michael (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940681236	Email regarding Portland Harbor Round 2 data question	3/28/2007	21	1 EML / Email	R10: Poulsen, Michael (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100010344	Email regarding draft spring Portland Harbor newsletter.	3/29/2007	26	2 EML / Email	R10: Poulsen, Mike (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940680162	Email regarding reply to Draft spring Portland Harbor Newsletter.	3/29/2007	24	2 EML / Email	R10: Poulsen, Michael (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement



100008044	Email regarding FW_Arco_BP Proposed Source Control Action.	4/2/2007	43	2 EML / Email	R10: Anderson, Jim, M (State of Oregon)	Buchman, Mike (NOAA), R10: Neely, Robert (NOAA), R10: Fleming, Sheila (Ridolfi Engineers and Associates, Inc.), R10: Szumski, Michael, J (U. S. Fish and Wildlife Service), R10: Buck, Jeremy (U. S. Fish and Wildlife Service), R10: Buerger, Ted (U. S. Fish and Wildlife Service), R10: Madden, Erin (Unknown), R10: Kepler, Rick (Unknown), R10: Burkholder, Kurt (U. S. Dept. of Justice), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Bridgen, Pamela, J (Environment International, Ltd.), R10: Spencer, Jeff (Confederated Tribes and Bands of the Yakima Indian Nation), R10: Ward, Paul (Confederated Tribes and Bands of the Yakima Indian Nation), R10: Downey, Tom (Confederated Tribes of the Siletz Indians), R10: Bluelake, Lisa (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Kelly, Stephen (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Young, Cyril (Oregon Dept. of State Lands), R10: Sheldrake, Sean, A (EPA), R10: Fuentes, Rene, C (EPA), R10: Cora, Lori, H (EPA), R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA), R10: Smith, Judy, R (EPA), R10: Humphrey, Chip (EPA), R10: Black, Curt (EPA), R10: Davoli, Dana (EPA), R10: Yamamoto, Deb (EPA), R10: Grepo-grove, Gina (EPA), R10: Goulet, Joe (EPA), R10: Oatman, Joe (Nez Perce Tribe), R10: Eichstaedt, Rick (Nez Perce Tribe), R10: Smith, Carrie, A (Parametrix, Inc.), R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA), R10: Shephard, Burt (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100008501	Email regarding April 2 Fate and Transport/FWM Meeting reminder.	4/2/2007	24	1 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	Buchman, Mike (NOAA), R10: Neely, Robert (NOAA), R10: Burkholder, Kurt (Oregon Dept. of Justice), R10: Perry, Lynne (Oregon Dept. of Justice), R10: Fleming, Sheila (Ridolfi Engineers and Associates, Inc.), R10: Szumski, Michael, J (U. S. Fish and Wildlife Service), R10: Buerger, Ted (U. S. Fish and Wildlife Service), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Cunninghame, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Howard, Patti (Columbia River Inter-Tribal Fish Commission), R10: Bridgen, Pamela, J (Environment International, Ltd.), R10: Spencer, Jeff (Confederated Tribes and Bands of the Yakima Indian Nation), R10: Downey, Tom (Confederated Tribes of the Siletz Indians), R10: Baker, Jeff (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Bluelake, Lisa (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Kelly, Stephen (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Young, Cyril (Oregon Dept. of State Lands), R10: Sheldrake, Sean, A (EPA), R10: Fuentes, Rene, C (EPA), R10: Cora, Lori, H (EPA), R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA), R10: Smith, Judy, R (EPA), R10: Humphrey, Chip (EPA), R10: Black, Curt (EPA), R10: Davoli, Dana (EPA), R10: Yamamoto, Deb (EPA), R10: Grepo-grove, Gina (EPA), R10: R10: Smith, Carrie, A (Parametrix, Inc.), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100012400	Email regarding Arco/BP Proposed Source Control Action.	4/2/2007	44	2 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	Buchman, Mike (NOAA), R10: Neely, Robert (NOAA), R10: Burkholder, Kurt (Oregon Dept. of Justice), R10: Perry, Lynne (Oregon Dept. of Justice), R10: Fleming, Sheila (Ridolfi Engineers and Associates, Inc.), R10: Szumski, Michael, J (U. S. Fish and Wildlife Service), R10: Buerger, Ted (U. S. Fish and Wildlife Service), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Cunninghame, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Howard, Patti (Columbia River Inter-Tribal Fish Commission), R10: Bridgen, Pamela, J (Environment International, Ltd.), R10: Spencer, Jeff (Confederated Tribes and Bands of the Yakima Indian Nation), R10: Downey, Tom (Confederated Tribes of the Siletz Indians), R10: Baker, Jeff (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Bluelake, Lisa (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Kelly, Stephen (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Young, Cyril (Oregon Dept. of State Lands), R10: Sheldrake, Sean, A (EPA), R10: Fuentes, Rene, C (EPA), R10: Cora, Lori, H (EPA), R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA), R10: Smith, Judy, R (EPA), R10: Humphrey, Chip (EPA), R10: Black, Curt (EPA), R10: Davoli, Dana (EPA), R10: Yamamoto, Deb (EPA), R10: Grepo-grove, Gina (EPA), R10: R10: Smith, Carrie, A (Parametrix, Inc.), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940680285	Email regarding reply to April 2 Fate and Transport/FWM Meeting reminder.	4/2/2007	24	1 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100011573	Email Regarding JSCS Table Update.	4/4/2007	33	1 EML / Email	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940681183	Email regarding JSCS Table Update.	4/4/2007	23	1 EML / Email	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940680292	Email regarding reply to 5/16/07 Senior Mgrs Mtg.	4/5/2007	23	2 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940680293	Email regarding reply to 5/16/07 Senior Mgrs Mtg.	4/5/2007	22	1 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100012670	Email regarding Portland Industrial Land users Meeting on April 11th.	4/9/2007	30	2 EML / Email	R10: Johnson, Keith (Oregon Dept. of Environmental Quality)	R10: Henry, Clark (City of Portland, Oregon), R10: Hudson, Seth (Portland Development Commission), R10: Kountz, Steve (City of Portland, Oregon, Bureau of Planning), R10: Cora, Lori, H (EPA), R10: Humphrey, Chip (EPA), R10: Applegate, Rick (City of Portland), R10: Miner, Peggy (City of Portland, Bureau of Environmental Services), R10: Peterson, Andy (City of Portland, Oregon)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100015457	REDACTED Email regarding Appendix G Comments.	4/9/2007	20	1 EML / Email	R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940680151	Email regarding reply to FS data gaps.	4/9/2007	36	1 EML / Email	R10: Gainer, Thomas, B (Oregon Dept. of Environmental Quality)	R10: Stivers, Carl (Anchor Environmental, LLC), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100009044	Email requesting comments on draft Gasco/Siltronc early action statement of work (SOW).	4/12/2007	36	2 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	(NOAA), R10: Fleming, Sheila (Ridolfi Engineers and Associates, Inc.), R10: McMaster, Kemper, M (U. S. Fish and Wildlife Service), R10: Buck, Jeremy (U. S. Fish and Wildlife Service), R10: Givens, Ray (Unknown), R10: Kepler, Rick (Unknown), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Cunninghame, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Fellows, Kenneth, T (Parametrix, Inc.), R10: Wadsworth, Rick (Parametrix, Inc.), R10: Christian, Craig, K (Environment International, Ltd.), R10: Arthur, Jennifer (Environment International, Ltd.), R10: Barquin, Billy (Confederated Tribes of the Siletz Indians), R10: Bluelake, Lisa (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Young, Cyril (Oregon Dept. of State Lands), R10: Purchase, Steve (Oregon Dept. of State Lands), R10: Sheldrake, Sean, A (EPA), R10: Fuentes, Rene, C (EPA), R10: Cora, Lori, H (EPA), R10: Blischke, Eric, L (EPA), R10: Smith, Judy, R (EPA), R10: Shephard, Burt (EPA), R10: Humphrey, Chip (EPA), R10: Davoli, Dana (EPA), R10: Goulet, Joe (EPA), R10: Rodriguez, Socorro (EPA), R10: Madden, Erin (Nez Perce Tribe), R10: Bayuk, Dana (Oregon Dept. of Environmental Quality), R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality), R10: Straughan, John (Oregon Dept. of Environmental Quality), R10: Cyril, L.	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement



100017656	4/19/2007 12:30.	REDACTED Email regarding reply to Portland Harbor Managers conference call - April 25	24	2 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Madden, Erin (Unknown), R10: Mckenna, Jim (Port of Portland), R10: Cunninghame, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Oster, Valerie (Anchor Environmental, LLC), R10: Wyatt, Bob (Northwest Natural Gas Company), R10: Revelas, Gene, C (Integral Consulting, Inc.), R10: Bluelake, Lisa (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Blischke, Eric, L (EPA), R10: McClincy, Matt (Oregon Dept. of Environmental Quality), R10: Lee, Valerie (Environment International, Ltd.), R10: Baker, Jeff (Grand Ronde Tribe), R10: Longoria, Rose (Yakama Nation), R10: Hawley, Christine (Integral Corporation), R10: Applegate, Rick (City of Portland), R10: Barquin, Billy (Haglund Kelley, LLP)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940680264	4/19/2007	Email regarding reply to Arkema Groundwater Source Control.	41	2 EML / Email	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	R10: Neely, Robert (NOAA), R10: Fleming, Sheila (Ridolfi Engineers and Associates, Inc.), R10: Madden, Erin (Unknown), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Smith, Carrie, A (Parametrix, Inc.), R10: Downey, Tom (Confederated Tribes of the Siletz Indians), R10: Bluelake, Lisa (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Blischke, Eric, L (EPA), R10: Toepel, Kathryn (Oregon Dept. of Human Services), R10: Gainer, Thomas, B (Oregon Dept. of Environmental Quality), R10: Borok, Aron (Environment International, Ltd.), R10: Baker, Jeff (Grand Ronde Tribe), R10: Longoria, Rose (Yakama Nation), R10: Thompson, Chris (Environment International, Ltd.), R10: Barquin, Billy (Haglund Kelley, LLP), R10: Buck, Jeremy (U. S. Fish & Wildlife Service)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100009864	4/23/2007	Email regarding COCs to consider for future wastes going into T4 CDF.	24	1 EML / Email	R10: Poulsen, Mike (Oregon Dept. of Environmental Quality)	R10: Davoli, Dana (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100010122	4/30/2007	Email regarding Source Control Meeting.	23	1 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Koch, Kristine, M (EPA), R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940680932	4/30/2007	Email regarding reply to Source Control Meeting.	23	1 EML / Email	R10: Anderson, James, M (Oregon Dept. of Environmental Quality)	R10: Koch, Kristine, M (EPA), R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100007764	5/2/2007	Email regarding Draft Source Control Decision for Terminal 5.	24	1 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Macdonald, Donald, D (NOAA), R10: Neeley, Robert (NOAA), R10: Burkholder, Kurt (Oregon Dept. of Justice), R10: Perry, Lynne (Oregon Dept. of Justice), R10: Buck, Jeremy (U. S. Fish and Wildlife Service), R10: Givens, Raymond, C (Givens & Funke), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Cunninghame, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Bridgen, Pamela, J (Environment International, Ltd.), R10: Spencer, Jeff (Confederated Tribes and Bands of the Yakima Indian Nation), R10: Ward, Paul (Confederated Tribes and Bands of the Yakima Indian Nation), R10: Downey, Tom (Confederated Tribes of the Siletz Indians), R10: Baker, Jeff (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Bluelake, Lisa (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Karnosh, Michael (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Oatman, Joe (Nez Perce Tribe), R10: Lee, Eichstaedt, Rick (Nez Perce Tribe), R10: Jean, H (Environment International, Ltd.), R10: Longoria, Rose (Yakama Nation), R10: Althouse, Scott (The Nez Perce Tribe)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100013006	5/2/2007	Email regarding Siltronic Property RI Proposal - NW Natural & Siltronic Properties Source Control Work.	22	1 EML / Email	R10: Bayuk, Dana (Oregon Dept. of Environmental Quality)	R10: Wyatt, Robert, J (NW Natural)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100013014	5/2/2007	Letter regarding Proposal for Remedial Investigation of Manufactured Gas Plant Waste, Siltronic Corporation Property/Source Control Work, Northwest Natural Gas Company and Siltronic Properties.	151	10 LTR / Letter	R10: Bayuk, Dana (Oregon Dept. of Environmental Quality)	R10: Wyatt, Robert, J (NW Natural)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100014813	5/2/2007	Email Regarding "Head's-Up" That Next Week the DEQ Plans to Submit a Draft Source Control Decision (SCD) for the Port of Portland's Terminal 5 (T5) Facility to EPA for Their Review and Comment.	49	1 EML / Email	R10: Anderson, James, M (Oregon Dept. of Environmental Quality)	R10: Neely, Robert (NOAA), R10: Fleming, Sheila (Ridolfi Engineers and Associates, Inc.), R10: Szumski, Michael, J (U. S. Fish and Wildlife Service), R10: Buck, Jeremy (U. S. Fish and Wildlife Service), R10: Buerger, Ted (U. S. Fish and Wildlife Service), R10: Burkholder, Kurt (U. S. Dept. of Justice), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Cunninghame, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Howard, Patti (Columbia River Inter-Tribal Fish Commission), R10: Bridgen, Pamela, J (Environment International, Ltd.), R10: Spencer, Jeff (Confederated Tribes and Bands of the Yakima Indian Nation), R10: Ward, Paul (Confederated Tribes and Bands of the Yakima Indian Nation), R10: Downey, Tom (Confederated Tribes of the Siletz Indians), R10: Baker, Jeff (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Bluelake, Lisa (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Karnosh, Michael (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Young, Cyril (Oregon Dept. of State Lands), R10: Shelldrake, Sean, A (EPA), R10: Fuentes, Rene, C (EPA), R10: Cora, Lori, H (EPA), R10: Yamamoto, Deborah, J (EPA), R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA), R10: Smith, Judy, R (EPA), R10: Humphrey, Chip (EPA), R10: Black, Curt (EPA),	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100014883	5/2/2007	Email regarding Siltronic Property RI Proposal - NW Natural & Siltronic Properties Source Control Work.	21	1 EML / Email	R10: Bayuk, Dana (Oregon Dept. of Environmental Quality)	R10: Wyatt, Robert, J (NW Natural)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100014884	5/2/2007	Letter regarding Proposal for Remedial Investigation of Manufactured Gas Plant Waste, Siltronic Corporation Property/Source Control Work, Northwest Natural Gas Company and Siltronic Properties.	152	10 CORR / Correspondence	R10: Bayuk, Dana (Oregon Dept. of Environmental Quality)	R10: Wyatt, Robert, J (Northwest Natural Gas Company)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement

100008440	5/3/2007	Email regarding Gasco TZW Work Plan.	37	1 EML / Email	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	(NOAA), R10: Fleming, Sheila (Ridolfi Engineers and Associates, Inc.), R10: Buck, Jeremy (U. S. Fish and Wildlife Service), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Smith, Carrie, A (Parametrix, Inc.), R10: Arthur, Jennifer (Environment International, Ltd.), R10: Downey, Tom (Confederated Tribes of the Siletz Indians), R10: Baker, Jeff (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Bluelake, Lisa (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Karnosh, Michael (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Shelldrake, Sean, A (EPA), R10: Fuentes, Rene, C (EPA), R10: Cora, Lori, H (EPA), R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA), R10: Smith, Judy, R (EPA), R10: Shephard, Burt (EPA), R10: Humphrey, Chip (EPA), R10: Black, Curt (EPA), R10: Davoli, Dana (EPA), R10: Grepogrove, Gina (EPA), R10: Goulet, Joe (EPA), R10: Ader, Mark (EPA), R10: Madden, Erin (Nez Perce Tribe), R10: Toepel, Kathryn (Oregon Dept. of Human Services), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality), R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality), R10: McClincy, Matt (Oregon Dept. of Environmental Quality), R10: Poulsen, Mike (Oregon Dept. of Environmental Quality), R10: Gainer, Tom (Oregon Dept. of Environmental Quality), R10: Arthur, Jennifer (Environment International, Ltd.), R10: Shelldrake, Sean, A (EPA), R10: Fuentes, Rene, C (EPA), R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA), R10: Davoli, Dana (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100008965	5/3/2007	Email regarding FW_Gasco NWNG, Phase 2 FSA Work Plan Figure 7.	19	1 EML / Email	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA), R10: Davoli, Dana (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100009316	5/3/2007	Email regarding GASCO TZW Work Plan.	22	2 EML / Email	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100012042	5/3/2007	Email regarding Gasco NWNG, Phase 2 FSA Work Plan Figure 7.	17	1 EML / Email	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	R10: Arthur, Jennifer (Environment International, Ltd.), R10: Shelldrake, Sean, A (EPA), R10: Fuentes, Rene, C (EPA), R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA), R10: Davoli, Dana (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940681251	5/3/2007	Email regarding Reply to Gasco TZW Work Plan	37	1 EML / Email	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	R10: Neely, Robert (NOAA), R10: Fleming, Sheila (Ridolfi Engineers and Associates, Inc.), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Smith, Carrie, A (Parametrix, Inc.), R10: Downey, Tom (Confederated Tribes of the Siletz Indians), R10: Karnosh, Michael (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Blischke, Eric, L (EPA), R10: Madden, Erin (Nez Perce Tribe), R10: Toepel, Kathryn (Oregon Dept. of Human Services), R10: McClincy, Matt (Oregon Dept. of Environmental Quality), R10: Borok, Aron (Environment International, Ltd.), R10: Baker, Jeff (Grand Ronde Tribe), R10: Longoria, Rose (Yakama Nation), R10: Wittman, Parker (Environment International, Ltd.), R10: Barquin, Billy (Haglund Kelley, LLP), R10: Buck, Jeremy (U. S. Fish & Wildlife Service)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100017215	5/8/2007	REDACTED Email regarding Reply to Arkema Source Control Conference Call Draft Agenda.	42	2 EML / Email	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	R10: Baker, Mary (NOAA), R10: Fleming, Sheila (Ridolfi Engineers and Associates, Inc.), R10: Madden, Erin (Unknown), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Smith, Carrie, A (Parametrix, Inc.), R10: Downey, Tom (Confederated Tribes of the Siletz Indians), R10: Bluelake, Lisa (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Blischke, Eric, L (EPA), R10: Toepel, Kathryn (Oregon Dept. of Human Services), R10: McClincy, Matt (Oregon Dept. of Environmental Quality), R10: Borok, Aron (Environment International, Ltd.), R10: Longoria, Rose (Yakama Nation), R10: How, P (CRITFC), R10: Wittman, Parker (Environment International, Ltd.), R10: Barquin, Billy (Haglund Kelley, LLP), R10: Buck, Jeremy (U. S. Fish & Wildlife Service)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100017624	5/8/2007	REDACTED Email regarding Arkema Source Control Conference Call Draft Agenda.	31	2 EML / Email	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	(NOAA), R10: Fleming, Sheila (Ridolfi Engineers and Associates, Inc.), R10: Buck, Jeremy (U. S. Fish and Wildlife Service), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Smith, Carrie, A (Parametrix, Inc.), R10: Arthur, Jennifer (Environment International, Ltd.), R10: Downey, Tom (Confederated Tribes of the Siletz Indians), R10: Baker, Jeff (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Bluelake, Lisa (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Karnosh, Michael (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Shelldrake, Sean, A (EPA), R10: Fuentes, Rene, C (EPA), R10: Cora, Lori, H (EPA), R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA), R10: Smith, Judy, R (EPA), R10: Shephard, Burt (EPA), R10: Humphrey, Chip (EPA), R10: Black, Curt (EPA), R10: Davoli, Dana (EPA), R10: Grepogrove, Gina (EPA), R10: Goulet, Joe (EPA), R10: Ader, Mark (EPA), R10: Madden, Erin (Nez Perce Tribe), R10: Barquin, Billy (Haglund, Kelley, Horngren, Jones & Wilder, LLP), R10: Toepel, Kathryn (Oregon Dept. of Human Services), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality), R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality), R10: McClincy, Matt (Oregon Dept. of Environmental Quality), R10: Poulsen, Mike	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940680167	5/8/2007	Email regarding reply to EIS Comments.	23	2 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Erickson, Donald (U. S. Army)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940680235	5/8/2007	Email regarding reply to CAG survey.	30	3 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Smith, Judy, R (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement

100010272	5/9/2007	Email regarding draft source control decision (SCD) for Terminal 5.	37	2 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	Robert (NOAA), R10: Burkholder, Kurt (Oregon Dept. of Justice), R10: Perry, Lynne (Oregon Dept. of Justice), R10: Szumski, Michael, J (U. S. Fish and Wildlife Service), R10: Buck, Jeremy (U. S. Fish and Wildlife Service), R10: Buerger, Ted (U. S. Fish and Wildlife Service), R10: Baker, Jeff (Unknown), R10: Givens, Ray (Unknown), R10: Eichstaedt, Rick (Unknown), R10: Kepler, Rick (Unknown), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Bridgen, Pamela, J (Environment International, Ltd.), R10: Spencer, Jeff (Confederated Tribes and Bands of the Yakima Indian Nation), R10: Ward, Paul (Confederated Tribes and Bands of the Yakima Indian Nation), R10: Bluelake, Lisa (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Karnosh, Michael (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Young, Cyril (Oregon Dept. of State Lands), R10: Sheldrake, Sean, A (EPA), R10: Fuentes, Rene, C (EPA), R10: Cora, Lori, H (EPA), R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA), R10: Smith, Judy, R (EPA), R10: Humphrey, Chip (EPA), R10: Black, Curt (EPA), R10: Davoli, Dana (EPA), R10: Yamamoto, Deb (EPA), R10: Grepo-grove, Gina (EPA), R10: Goulet, Joe (EPA), R10: Fleming, Sheila (EPA), R10: Madden, Erin (Nez Perce Tribe), R10: Oatman, Joe (Nez Perce Tribe), R10: Peterson, Jennifer, L (Oregon Dept.	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940680160	5/9/2007	Email regarding reply to Draft Source Control Decision for Terminal 5.	41	2 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Macdonald, Donald, D (NOAA), R10: Burkholder, Kurt (Oregon Dept. of Justice), R10: Fleming, Sheila (Ridolfi Engineers and Associates, Inc.), R10: Szumski, Michael, J (U. S. Fish and Wildlife Service), R10: Madden, Erin (Unknown), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Howard, Patti (Columbia River Inter-Tribal Fish Commission), R10: Bridgen, Pamela, J (Environment International, Ltd.), R10: Spencer, Jeff (Confederated Tribes and Bands of the Yakima Indian Nation), R10: Downey, Tom (Confederated Tribes of the Siletz Indians), R10: Bluelake, Lisa (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Young, Cyril (Oregon Dept. of State Lands), R10: Humphrey, Chip (EPA), R10: Oatman, Joe (Nez Perce Tribe), R10: Gainer, Thomas, B (Oregon Dept. of Environmental Quality), R10: Yamamoto, Deb (EPA Region 10), R10: Lee, Jean, H (Environment International, Ltd.), R10: Baker, Jeff (Grand Ronde Tribe), R10: Althouse, Scott (The Nez Perce Tribe), R10: Givens, Raymond, C (Givens Law), R10: Ward, Paul (Yakama Nation), R10: Barquin, Billy (Haglund Kelley, LLP), R10: Kepler, Rick, J (State of Oregon), R10: Buck, Jeremy (U. S. Fish & Wildlife Service)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100010060	5/10/2007	Email regarding Downtown Reach PCBs.	28	2 EML / Email	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100010126	5/10/2007	Email regarding Draft Agenda for Milestone Meeting.	30	3 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100010128	5/10/2007	Email regarding Draft Agenda for Milestone Meeting.	21	1 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100014211	5/10/2007	REDACTED Email regarding Arkema Source Control Conference Call Draft Agenda.	40	3 EML / Email	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100015664	5/10/2007	Email regarding Validated Round 2 Lamprey Ammocoetes Data.	51	2 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Neely, Robert (NOAA), R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100018027	5/10/2007	REDACTED Email Regarding Arkema Source Control Conference Call Draft Agenda: Follow-Up On Yesterday's Request That If Possible One of You Participate In May 18th DEQ/EPA Discussion.	40	3 EML / Email	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940680200	5/10/2007	Email regarding reply to Draft Agenda for Milestone Meeting.	30	3 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940680201	5/10/2007	Email regarding reply to Draft Agenda for Milestone Meeting.	21	1 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940680209	5/10/2007	Email regarding reply to	28	2 EML / Email	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100010062	5/11/2007	Email regarding Downtown Reach PCBs.	34	3 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA), R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940680208	5/11/2007	Email regarding reply to Downtown Reach PCBs.	34	3 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA), R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100007608	5/16/2007	Email regarding 5/22 mtg.	16	1 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA), R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940680899	5/18/2007	Email regarding reply to RPAC Documents.	24	1 EML / Email	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	R10: Davoli, Dana (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940681009	5/18/2007	Email regarding RPAC Documents.	23	1 EML / Email	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100010674	5/21/2007	Email regarding May 18 Arkema Phone Call Decisions.	31	2 EML / Email	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	R10: Sheldrake, Sean, A (EPA), R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100012345	5/21/2007	CAG Survey #1 Submitted on March 28, 2007, Response from EPA on May 21, 2007.	65	3 CORR / Correspondence	R10: Unknown, Unknown (EPA)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement



100012411	5/21/2007	Email regarding Arco/BP Source Control Action.	45	2 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	Buchman, Mike (NOAA), R10: Neely, Robert (NOAA), R10: Burkholder, Kurt (Oregon Dept. of Justice), R10: Perry, Lynne (Oregon Dept. of Justice), R10: Fleming, Sheila (Ridolfi Engineers and Associates, Inc.), R10: Szumski, Michael, J (U. S. Fish and Wildlife Service), R10: Buerger, Ted (U. S. Fish and Wildlife Service), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Cunninghame, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Howard, Patti (Columbia River Inter-Tribal Fish Commission), R10: Bridgen, Pamela, J (Environment International, Ltd.), R10: Spencer, Jeff (Confederated Tribes and Bands of the Yakima Indian Nation), R10: Downey, Tom (Confederated Tribes of the Siletz Indians), R10: Baker, Jeff (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Bluelake, Lisa (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Karnosh, Michael (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Young, Cyril (Oregon Dept. of State Lands), R10: Sheldrake, Sean, A (EPA), R10: Fuentes, Rene, C (EPA), R10: Cora, Lori, H (EPA), R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA), R10: Smith, Judy, R (EPA), R10: Humphrey, Chip (EPA), R10: Black, Curt (EPA), R10: Davoli, Dana (EPA), R10: Yamamoto, Deb (EPA), R10: Grepo-grove, Gina (EPA), R10:	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100015603	5/21/2007	Email regarding Next PH Managers Meeting.	52	1 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Madden, Erin (Unknown), R10: Mckenna, James (Port of Portland), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Cunninghame, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Bluelake, Lisa (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Karnosh, Michael (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA), R10: Anderson, James, M (Oregon Dept. of Environmental Quality), R10: McClincy, Matt (Oregon Dept. of Environmental Quality), R10: Lee, Valerie (Environment International, Ltd.), R10: Longoria, Rose (Yakama Nation), R10: Wyatt, Robert, J (NW Natural), R10: Hawley, Christine (Integral Corporation), R10: Revelas, Gene (Integral Corporation), R10: Gouguet, Ron (NOAA), R10: Applegate, Rick (City of Portland), R10: Barquin, Billy (Haglund Kelley, LLP)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940680793	5/21/2007	Email regarding reply to May 18 Arkema Phone Call Decisions.	31	2 EML / Email	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100017172	5/23/2007	REDACTED Email regarding Revised Agenda.	23	2 EML / Email	R10: Anderson, James, M (Oregon Dept. of Environmental Quality)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100009929	5/25/2007	Email regarding RE_June 17, 2007 Source Control Meeting.	22	1 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940680762	5/25/2007	Email regarding reply to June 17, 2007 Source Control Meeting.	22	1 EML / Email	R10: Anderson, James, M (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100012056	5/29/2007	Email regarding Arkema Portland Groundwater Source Control Evaluation.	17	1 EML / Email	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	R10: Slater, Todd (Legacy Site Services, LLC)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100012088	5/29/2007	Letter regarding Former Arkema Portland Plant Draft Groundwater Source Control Evaluation.	119	3 CORR / Correspondence	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	R10: Slater, Todd (Legacy Site Services, LLC)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100017071	5/30/2007	REDACTED Email regarding reply to 2007 Field Day.	27	2 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Williams, Travis (Willamette Riverkeeper), R10: Longley, Jean (Linnton Neighborhood Association), R10: Smith, Barbara (Harris Smith Public Affairs), R10: Smith, Judy, R (EPA), R10: Early, Julie (Oregon Dept. of Human Services), R10: Plance, Robin, G (Portland Harbor Community Advisory Group)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100009978	5/31/2007	Email regarding Deep Groundwater Plumes and TZW.	22	1 EML / Email	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100010338	5/31/2007	Email regarding draft source control decision (SCD) for Terminal 5.	37	3 EML / Email	R10: Gainer, Tom (Oregon Dept. of Environmental Quality)	R10: Koch, Kristine, M (EPA), R10: Anderson, James, M (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940680179	5/31/2007	Email regarding reply to Draft Source Control Decision for Terminal 5.	41	3 EML / Email	R10: Gainer, Thomas, B (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940680212	5/31/2007	Email regarding reply to Deep Groundwater Plumes and TZW.	22	1 EML / Email	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100009309	6/1/2007	Email regarding GASCO/Siltronic Phase 1 Report and Phase 2 Sampling Approach: Source Control Evaluation; EPA Comments.	29	2 EML / Email	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	R10: Sheldrake, Sean, A (EPA), R10: Bayuk, Dana (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940680744	6/1/2007	Email regarding reply to GASCO/Siltronic Phase 1 Report and Phase 2 Sampling Approach: Source Control Evaluation; EPA comments.	29	2 EML / Email	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	R10: Sheldrake, Sean, A (EPA), R10: Bayuk, Dana (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100010455	6/4/2007	Email regarding Round 2 Report DEQ Comments Chapter 11.	66	18 EML / Email	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940681007	6/4/2007	Email regarding Round 2 Report DEQ Comments Chapter 11.	66	18 EML / Email	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100011930	6/5/2007	Email Regarding Pdx Harbor TZW Data Gaps.	29	1 EML / Email	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940681228	6/5/2007	Email regarding Pdx Harbor TZW Data Gaps.	21	1 EML / Email	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100009305	6/6/2007	Email regarding Biota DQOs.	27	2 EML / Email	R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100007815	6/7/2007	Email regarding FSP Comments.	68	19 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100015383	6/7/2007	Email Regarding FSP Comments; Understanding That You Are Going to Submit the LWG EPA/Partners Initial Concerns With 3 LWG RD 3B FSPs, Rough Scope of Work for Filling TZW Data Gaps, and Rough Justification and Scope for Biota Sampling.	86	19 EML / Email	R10: Anderson, James, M (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100015660	6/7/2007	Email regarding Validated Round 3A Upstream/Downstream Data.	52	2 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Neely, Robert (NOAA), R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940680224	6/7/2007	Email regarding reply to Conference Call with City.	20	1 EML / Email	R10: Johnson, Keith (Oregon Dept. of Environmental Quality)	R10: Gardner, Sara (City of Portland, Oregon, Environmental Services), R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100009786	6/11/2007	Email regarding Question on MCLs.	21	1 EML / Email	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100009900	6/12/2007	Email regarding Round 3B Data Gaps Meeting.	21	1 EML / Email	R10: Poulsen, Michael (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement

								(NOAA), R10: Neely, Robert (NOAA), R10: Gouget, Ron (NOAA), R10: Fleming, Sheila (Ridolfi Engineers and Associates, Inc.), R10: Buck, Jeremy (U. S. Fish and Wildlife Service), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Smith, Carrie, A (Parametrix, Inc.), R10: Bridgen, Pamela, J (Environment International, Ltd.), R10: Arthur, Jennifer (Environment International, Ltd.), R10: Downey, Tom (Confederated Tribes of the Siletz Indians), R10: Baker, Jeff (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Bluelake, Lisa (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Karnosh, Michael (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Ader, Mark, A (EPA), R10: Sheldrake, Sean, A (EPA), R10: Fuentes, Rene, C (EPA), R10: Cora, Lori, H (EPA), R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA), R10: Smith, Judy, R (EPA), R10: Shephard, Burt (EPA), R10: Humphrey, Chip (EPA), R10: Black, Curt (EPA), R10: Davoli, Dana (EPA), R10: Grepo-grove, Gina (EPA), R10: Goulet, Joe (EPA), R10: Madden, Erin (Cascadia Law Group), R10: Toepel, Kathryn (Oregon Dept. of Human Services), R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality), R10: McClincy, Matt (Oregon Dept. of Environmental Quality), R10: Poulsen, Michael	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100009971	6/12/2007	Email regarding Round 3B Data Gaps Meeting.	36	1 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)					
100010271	6/12/2007	Email regarding Stormwater Modeling Results - Materials for next Monday's meeting.	19	1 EML / Email	R10: Tarnow, Karen, E (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)				056-SITE SUPPORT/0563-State/Tribal Involvement
100010284	6/12/2007	Estimating Potential Impacts of Chemical Contaminants in Stormwater on Sediment and Fish in Portland harbor (Lower Willamette River, Oregon).	562	39 RPT / Report	R10: Hope, Bruce, K (Oregon Dept. of Environmental Quality)	R10: Unknown, Unknown (Unknown)				056-SITE SUPPORT/0563-State/Tribal Involvement
100010286	6/12/2007	Portland Harbor Stormwater Modeling: Summary of Results for PCB-118.	158	1 CHT / Chart/Table	R10: Unknown, Unknown (Unknown)	R10: Unknown, Unknown (Unknown)				056-SITE SUPPORT/0563-State/Tribal Involvement
4940680895	6/12/2007	Email regarding reply to Round 3B Data Gaps Meeting.	36	1 EML / Email	R10: Anderson, James, M (Oregon Dept. of Environmental Quality)	R10: Neely, Robert (NOAA), R10: Fleming, Sheila (Ridolfi Engineers and Associates, Inc.), R10: Lavelle, Jim (CDM Federal Programs Corporation), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Smith, Carrie, A (Parametrix, Inc.), R10: Howard, Patti (Columbia River Inter-Tribal Fish Commission), R10: Downey, Tom (Confederated Tribes of the Siletz Indians), R10: Baker, Jeff (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Blischke, Eric, L (EPA), R10: Madden, Erin (Nez Perce Tribe), R10: Toepel, Kathryn (Oregon Dept. of Human Services), R10: Gainer, Tom (Oregon Dept. of Environmental Quality), R10: Borok, Aron (Environment International, Ltd.), R10: Longoria, Rose (Yakama Nation), R10: Wittman, Parker (Environment International, Ltd.), R10: Barquin, Billy (Haglund Kelley, LLP), R10: Buck, Jeremy (U. S. Fish & Wildlife Service)				056-SITE SUPPORT/0563-State/Tribal Involvement
4940681028	6/12/2007	Email regarding Stormwater Modeling Results - materials for next Monday's mtg.	25	1 EML / Email	R10: Tarnow, Karen, E (Oregon Dept. of Environmental Quality)	R10: Koch, Kristine, M (EPA)				056-SITE SUPPORT/0563-State/Tribal Involvement
100015575	6/13/2007	Email regarding Presentation for Tomorrow?	20	1 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)				056-SITE SUPPORT/0563-State/Tribal Involvement
4940681830	6/13/2007	Letter regarding Proposed Groundwater/NAPL Pilot Program - Northwest Natural Gas Company Site, Portland, Oregon - ECSI No. 84.	123	6 LTR / Letter	R10: Bayuk, Dana (Oregon Dept. of Environmental Quality)	R10: Wyatt, Robert, J (NW Natural)				056-SITE SUPPORT/0563-State/Tribal Involvement
4940681831	6/13/2007	Email regarding NW Natural, Gasco Site Extraction Well Pilot Program.	20	1 EML / Email	R10: Bayuk, Dana (Oregon Dept. of Environmental Quality)	R10: Wyatt, Robert, J (NW Natural)				056-SITE SUPPORT/0563-State/Tribal Involvement
100010447	6/15/2007	Email regarding RM E 621 TZW Meeting.	22	1 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)				056-SITE SUPPORT/0563-State/Tribal Involvement
4940681002	6/15/2007	Email regarding RM E 621 TZW Mtg.	22	1 EML / Email	R10: Anderson, James, M (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)				056-SITE SUPPORT/0563-State/Tribal Involvement
100012090	6/19/2007	Agenda for DEQ/EPA Source Control Meeting.	57	3 MTG / Meeting Document	R10: Unknown, Unknown (Unknown)	R10: Unknown, Unknown (Unknown)				056-SITE SUPPORT/0563-State/Tribal Involvement
100010072	6/20/2007	Email regarding RE_ Loading Rates(1).	21	1 EML / Email	R10: Hope, Bruce, K (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)				056-SITE SUPPORT/0563-State/Tribal Involvement
100017797	6/20/2007	REDACTED Email regarding reply to TCT Agenda.	27	2 EML / Email	R10: Anderson, James, M (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)				056-SITE SUPPORT/0563-State/Tribal Involvement
100020117	6/20/2007	REDACTED Email regarding TCT Agenda.	27	2 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Sheldrake, Sean, A (EPA), R10: Blischke, Eric, L (EPA)				056-SITE SUPPORT/0563-State/Tribal Involvement
100010953	6/21/2007	Email regarding Loading Rates.	17	1 EML / Email	R10: Hope, Bruce, K (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)				056-SITE SUPPORT/0563-State/Tribal Involvement
100011944	6/22/2007	Email Regarding Pdx Harbor TZW Meeting.	36	2 EML / Email	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)				056-SITE SUPPORT/0563-State/Tribal Involvement
100012060	6/22/2007	Email regarding 6/19/07 DEQ/EPA SC Mtg.	25	2 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Sheldrake, Sean, A (EPA), R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA), R10: Yamamoto, Deb (EPA)				056-SITE SUPPORT/0563-State/Tribal Involvement
4940680296	6/22/2007	Email regarding reply to 6/19/07 DEQ/EPA SC Mtg.	33	3 EML / Email	R10: Johnson, Keith (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)				056-SITE SUPPORT/0563-State/Tribal Involvement
4940681229	6/22/2007	Email regarding Pdx Harbor TZW Meeting.	27	2 EML / Email	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)				056-SITE SUPPORT/0563-State/Tribal Involvement
100016665	6/25/2007	REDACTED Email regarding RPAC.	23	2 EML / Email	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	R10: Sheldrake, Sean, A (EPA), R10: Fuentes, Rene, C (EPA), R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA), R10: Ader, Mark (EPA), R10: Roick, Thomas, E (Oregon Dept. of Environmental Quality), R10: Roick, Tom (Oregon Dept. of Environmental Quality)				056-SITE SUPPORT/0563-State/Tribal Involvement
100017634	6/25/2007	REDACTED Email regarding RPAC.	23	2 EML / Email	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	R10: Sheldrake, Sean, A (EPA), R10: Fuentes, Rene, C (EPA), R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA), R10: Ader, Mark (EPA), R10: Roick, Thomas, E (Oregon Dept. of Environmental Quality), R10: Roick, Tom (Oregon Dept. of Environmental Quality)				056-SITE SUPPORT/0563-State/Tribal Involvement
4940680290	6/25/2007	Email regarding reply to 2nd Quarter 2007 Gould Site Inspection.	24	3 EML / Email	R10: Kent, Mavis, D (Oregon Dept. of Environmental Quality)	R10: Humphrey, Chip (EPA)				056-SITE SUPPORT/0563-State/Tribal Involvement
100015658	6/26/2007	Email regarding Validated LWG Round 3 Lamprey Data.	26	1 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Neely, Robert (NOAA), R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)				056-SITE SUPPORT/0563-State/Tribal Involvement
100015663	6/26/2007	Email regarding Validated LWG Round 3 Lamprey Data.	28	2 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Neely, Robert (NOAA), R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)				056-SITE SUPPORT/0563-State/Tribal Involvement

						R10: Madden, Erin (Unknown), R10: Mckenna, James (Port of Portland), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Cunninghame, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Bluelake, Lisa (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Karnosh, Michael (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA), R10: Anderson, James, M (Oregon Dept. of Environmental Quality), R10: McClincy, Matt (Oregon Dept. of Environmental Quality), R10: Lee, Valerie (Environment International, Ltd.), R10: Longoria, Rose (Yakama Nation), R10: Wyatt, Robert, J (NW Natural), R10: Hawley, Christine (Integral Corporation), R10: Revelas, Gene (Integral Corporation), R10: Gouguet, Ron (NOAA), R10: Applegate, Rick (City of Portland), R10: Barquin, Billy (Haglund Kelley, LLP)		
100018072	REDACTED Email regarding PH Managers Meeting - 6/28.	45	1 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Cox, Kim, E (City of Portland, Oregon), R10: Bussen, Dave (Douglas County Health Dept.), R10: Kirk, Monica, J (EPA), R10: Blischke, Eric, L (EPA), R10: Emerson, Pamela (EPA), R10: Hinkle, Stephen, R (USGS), (USGS), R10: Ledger, John (AOI (Associated Oregon Industries))	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement	
100018060	REDACTED Email Regarding Invitation to Participate in a Webinar on Risk Communication Planning on 7/16 2-4 ET.	74	3 EML / Email			ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement	
4940680900	6/27/2007 Email regarding reply to RPAC Documents.	25	2 EML / Email	R10: Roick, Thomas, E (Oregon Dept. of Environmental Quality)	R10: Fuentes, Rene, C (EPA), R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement	
100007695	6/28/2007 Email regarding Arkema Sediment Volumes.	17	1 EML / Email	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement	
100008829	6/28/2007 Email Regarding Northwest Natural, Phase 2 Offshore Field Sampling Approach (Phase 2 FSA) Review and Comments.	31	1 EML / Email	R10: Bayuk, Dana (Oregon Dept. of Environmental Quality)	R10: Wyatt, Robert, J (NW Natural)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement	
100008976	6/28/2007 Email regarding FW_ Cargill.	20	2 EML / Email	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement	
100012061	6/28/2007 Email regarding Cargill.	19	2 EML / Email	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement	
100012096	6/28/2007 Email regarding Cargill.	17	1 EML / Email	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement	
100013703	6/28/2007 Email Regarding Arkema Concentration/Sediment Volumes From My Phone Notes.	28	1 EML / Email	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement	
100014770	6/28/2007 REDACTED Letter Regarding Phase 2 Offshore Field Sampling Approach, Groundwater Source Evaluation, Northwest Natural Gas Company Site, Portland, Oregon; ECSI #84.	147	8 LTR / Letter	R10: Bayuk, Dana (Oregon Dept. of Environmental Quality)	R10: Wyatt, Robert, J (Northwest Natural Gas Company)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement	
4940681832	6/28/2007 Letter regarding Phase 2 Offshore Field Sampling Approach Groundwater Source Evaluation - Northwest Natural Gas Company Site, Portland, Oregon - ECSI # 84.	128	8 LTR / Letter	R10: Bayuk, Dana (Oregon Dept. of Environmental Quality)	R10: Wyatt, Robert, J (NW Natural)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement	
4940681833	6/28/2007 Email regarding NW Natural, Phase 2 Offshore Field Sampling Approach.	22	1 EML / Email	R10: Bayuk, Dana (Oregon Dept. of Environmental Quality)	R10: Wyatt, Robert, J (NW Natural)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement	
100013102	6/29/2007 Letter Regarding Source Control Decision (SCD), Port of Portland Terminal 5 Site.	242	4 LTR / Letter	R10: Koch, Kristine, M (EPA)	R10: Anderson, James, M (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement	
100017072	7/2/2007 REDACTED Email regarding reply to 2007 Field Day.	36	2 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Williams, Travis (Willamette Riverkeeper), R10: Longley, Jean (Linnton Neighborhood Association), R10: Smith, Barbara (Harris Smith Public Affairs), R10: Smith, Judy, R (EPA), R10: Early, Julie (Oregon Dept. of Human Services), R10: Plance, Robin, G (Portland Harbor Community Advisory Group)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement	
4940680114	7/2/2007 Email regarding reply to ODFW's Take Permit.	26	2 EML / Email	R10: Neely, Robert (NOAA)	R10: Munn, Nancy (NOAA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement	
100010341	7/3/2007 Email regarding draft source control decision (SCD) for Terminal 5.	25	1 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Fuentes, Rene, C (EPA), R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA), R10: Gainer, Tom (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement	
100015499	7/3/2007 REDACTED Email regarding RPAC.	24	2 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Koch, Kristine, M (EPA), R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement	
100017763	7/3/2007 REDACTED Email regarding reply to RPAC.	25	2 EML / Email	R10: Anderson, James, M (Oregon Dept. of Environmental Quality)	R10: Koch, Kristine, M (EPA), R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement	
4940680178	7/3/2007 Email regarding reply to Draft Source Control Decision for Terminal 5.	23	1 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Koch, Kristine, M (EPA), R10: Gainer, Thomas, B (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement	
4940680115	7/5/2007 Email regarding reply to LWG application for Section 10 Permit.	27	1 EML / Email	R10: Neely, Robert (NOAA)	R10: Revelas, Gene, C (Integral Consulting, Inc.)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement	
100015569	7/10/2007 Email regarding PH Managers Meeting?	20	1 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement	
100007751	7/11/2007 Email regarding DEQ/EPA Meeting.	17	1 EML / Email	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement	
100008449	7/11/2007 Email regarding Rhone Poulenc.	26	1 EML / Email	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement	
100017713	7/11/2007 REDACTED Email regarding reply to Bill Egan question.	20	2 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Humphrey, Chip (EPA), R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement	
4940680113	7/11/2007 Email regarding ESA permit/ODFW.	21	1 EML / Email	R10: Neely, Robert (NOAA)	R10: Revelas, Gene, C (Integral Consulting, Inc.), R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement	
4940680133	7/11/2007 Email regarding reply to FSP addendum.	27	2 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement	
4940681252	7/11/2007 Email regarding Reply to Rhone Poulenc	26	1 EML / Email	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement	
100009902	7/12/2007 Email regarding Round 3B FSP Review.	24	2 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement	





100009979	7/16/2007	Email regarding Round 3B FSP Review. Table 3-1: Screening Level Values for Soil/Stormwater Sediment, Stormwater, Groundwater, and Surface Water.	40	2 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	(NOAA), R10: Neely, Robert (NOAA), R10: Gouget, Ron (NOAA), R10: Fleming, Sheila (Ridolfi Engineers and Associates, Inc.), R10: Buck, Jeremy (U. S. Fish and Wildlife Service), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Smith, Carrie, A (Parametrix, Inc.), R10: Bridgen, Pamela, J (Environment International, Ltd.), R10: Arthur, Jennifer (Environment International, Ltd.), R10: Downey, Tom (Confederated Tribes of the Siletz Indians), R10: Baker, Jeff (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Bluelake, Lisa (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Karnosh, Michael (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Ader, Mark, A (EPA), R10: Sheldrake, Sean, A (EPA), R10: Fuentes, Rene, C (EPA), R10: Cora, Lori, H (EPA), R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA), R10: Smith, Judy, R (EPA), R10: Shephard, Burt (EPA), R10: Humphrey, Chip (EPA), R10: Black, Curt (EPA), R10: Davoli, Dana (EPA), R10: Grepo-grove, Gina (EPA), R10: Goulet, Joe (EPA), R10: Madden, Erin (Cascadia Law Group), R10: Toepel, Kathryn (Oregon Dept. of Human Services), R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality), R10: Mcclincy, Matt (Oregon Dept. of Environmental Quality), R10: Poulsen, Michael	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100010404	7/16/2007	Footnotes to Table 3-1: Screening Level Values for Soil/Stormwater Sediment, Stormwater, Groundwater, and Surface Water.	129	18 CHT / Chart/Table	R10: Unknown, Unknown (Oregon Dept. of Environmental Quality)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100010409	7/16/2007	Portland Harbor Joint Source Control Strategy Table 3.1 Footnotes.	14	2 NOTE / Notes	R10: Unknown, Unknown (Oregon Dept. of Environmental Quality)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100014886	7/16/2007	Portland Harbor Joint Source Control Strategy Table 3-1 Revision.	13	2 CORR / Correspondence	R10: (Oregon Dept. of Environmental Quality)	R10: (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100014887	7/16/2007	Portland Harbor Joint Source Control Strategy Table 3-1 Revision.	491	18 CORR / Correspondence	R10: (Oregon Dept. of Environmental Quality)	R10: (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940680896	7/16/2007	Email regarding reply to Round 3B FSP Review.	40	2 EML / Email	R10: Anderson, James, M (Oregon Dept. of Environmental Quality)	R10: Neely, Robert (NOAA), R10: Fleming, Sheila (Ridolfi Engineers and Associates, Inc.), R10: Lavelle, Jim (CDM Federal Programs Corporation), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Smith, Carrie, A (Parametrix, Inc.), R10: Howard, Patti (Columbia River Inter-Tribal Fish Commission), R10: Downey, Tom (Confederated Tribes of the Siletz Indians), R10: Baker, Jeff (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Blischke, Eric, L (EPA), R10: Madden, Erin (Nez Perce Tribe), R10: Toepel, Kathryn (Oregon Dept. of Human Services), R10: Gainer, Tom (Oregon Dept. of Environmental Quality), R10: Borok, Aron (Environment International, Ltd.), R10: Longoria, Rose (Yakama Nation), R10: Wittman, Parker (Environment International, Ltd.), R10: Barquin, Billy (Haglund Kelley, LLP), R10: Buck, Jeremy (U. S. Fish & Wildlife Service)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100008886	7/17/2007	Email regarding FW_ RPAC Meeting Agenda. Quarterly Progress Report for April through June 2007 Acid Plant Area RI/FS, Arkema, Inc.,	29	2 EML / Email	R10: Mcclincy, Matt (Oregon Dept. of Environmental Quality)	R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100009438	7/18/2007	Portland Plant. Quarterly Progress Report for April through June 2007, Acid Plant Area RI/FS, Arkema Inc.,	197	5 CORR / Correspondence	R10: Slater, J. Todd (Legacy Site Services, LLC)	R10: Mcclincy, Matt (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100012099	7/18/2007	Portland Plant. Email Regarding Oregon/4d Scientific Take	197	5 RPT / Report	R10: Slater, J. Todd (Legacy Site Services, LLC)	R10: Mcclincy, Matt (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100015580	7/18/2007	Application.	45	2 EML / Email	R10: Hanson, Mary (Oregon Dept. of Fish and Wildlife)	R10: Blischke, Eric, L (EPA) Robert (NOAA), R10: Buck, Jeremy (U. S. Fish and Wildlife Service), R10: Buerger, Ted (U. S. Fish and Wildlife Service), R10: McCabe, Mike (Unknown), R10: Kepler, Rick (Unknown), R10: Givens, Ray (Coeur d'Alene Tribe), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Bridgen, Pamela, J (Environment International, Ltd.), R10: Spencer, Jeff (Confederated Tribes and Bands of the Yakima Indian Nation), R10: Ward, Paul (Confederated Tribes and Bands of the Yakima Indian Nation), R10: Barquin, Billy (Confederated Tribes of the Siletz Indians), R10: Bluelake, Lisa (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Karnosh, Michael (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Young, Cyril (Oregon Dept. of State Lands), R10: Sheldrake, Sean, A (EPA), R10: Fuentes, Rene, C (EPA), R10: Cora, Lori, H (EPA), R10: Koch, Kristine, M (EPA), R10: Smith, Judy, R (EPA), R10: Humphrey, Chip (EPA), R10: Black, Curt (EPA), R10: Davoli, Dana (EPA), R10: Yamamoto, Deb (EPA), R10: Macdonald, Don (EPA), R10: Grepo-grove, Gina (EPA), R10: Goulet, Joe (EPA), R10: Fleming, Sheila (EPA), R10: Madden, Erin (Nez Perce Tribe), R10: Oatman, Joe (Nez Perce Tribe), R10: Eichstaedt, Rick (Nez Perce Tribe), R10: Mcclincy, Matt (Oregon Dept. of Environmental Quality), R10: Poulsen, Mike	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100009421	7/19/2007	Email regarding draft SCD for Marine Finance site.	37	2 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement

100009785	Email regarding draft source control decision 7/20/2007 (SCD) for Paco Pumps.	38	2 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	Inc.), R10: Macdonald, Donald, D (NOAA), R10: Buchman, Mike (NOAA), R10: Neely, Robert (NOAA), R10: Burkholder, Kurt (Oregon Dept. of Justice), R10: Perry, Lynne (Oregon Dept. of Justice), R10: Szumski, Michael, J (U. S. Fish and Wildlife Service), R10: Buck, Jeremy (U. S. Fish and Wildlife Service), R10: Buerger, Ted (U. S. Fish and Wildlife Service), R10: Mccabe, Mike (Unknown), R10: Kepler, Rick (Unknown), R10: Givens, Ray (Coeur d'Alene Tribe), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Bridgen, Pamela, J (Environment International, Ltd.), R10: Spencer, Jeff (Confederated Tribes and Bands of the Yakima Indian Nation), R10: Ward, Paul (Confederated Tribes and Bands of the Yakima Indian Nation), R10: Barquin, Billy (Confederated Tribes of the Siletz Indians), R10: Bluelake, Lisa (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Karnosh, Michael (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Young, Cyril (Oregon Dept. of State Lands), R10: Sheldrake, Sean, A (EPA), R10: Fuentes, Rene, C (EPA), R10: Cora, Lori, H (EPA), R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA), R10: Smith, Judy, R (EPA), R10: Humphrey, Chip (EPA), R10: Black, Curt (EPA), R10: Davoli, Dana (EPA), R10: Yamamoto, Deb (EPA), R10: Grepo-grove, Gina (EPA), R10: Goulet, Joe (EPA), R10: Madden, Erin (Nez Buchman, Mike (NOAA), R10: Neely, Robert (NOAA), R10: Burkholder, Kurt (Oregon Dept. of Justice), R10: Perry, Lynne (Oregon Dept. of Justice), R10: Fleming, Sheila (Ridolfi Engineers and Associates, Inc.), R10: Szumski, Michael, J (U. S. Fish and Wildlife Service), R10: Buck, Jeremy (U. S. Fish and Wildlife Service), R10: Buerger, Ted (U. S. Fish and Wildlife Service), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Cunninghame, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Howard, Patti (Columbia River Inter-Tribal Fish Commission), R10: Bridgen, Pamela, J (Environment International, Ltd.), R10: Spencer, Jeff (Confederated Tribes and Bands of the Yakima Indian Nation), R10: Downey, Tom (Confederated Tribes of the Siletz Indians), R10: Baker, Jeff (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Bluelake, Lisa (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Karnosh, Michael (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Young, Cyril (Oregon Dept. of State Lands), R10: Sheldrake, Sean, A (EPA), R10: Fuentes, Rene, C (EPA), R10: Cora, Lori, H (EPA), R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA), R10: Smith, Judy, R (EPA), R10: Humphrey, Chip (EPA), R10: Black, Curt (EPA), R10: Davoli, Dana (EPA), R10: Yamamoto, Deb	056-SITE SUPPORT/0563-State/Tribal Involvement
100010391	Email regarding Updated Joint Source Control 7/23/2007 Screening Level Values.	25	1 EML / Email	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	Burkholder, Kurt (Oregon Dept. of Justice), R10: Fleming, Sheila (Ridolfi Engineers and Associates, Inc.), R10: Szumski, Michael, J (U. S. Fish and Wildlife Service), R10: Madden, Erin (Unknown), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Cunninghame, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Spencer, Jeff (Confederated Tribes and Bands of the Yakima Indian Nation), R10: Downey, Tom (Confederated Tribes of the Siletz Indians), R10: Baker, Jeff (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Bluelake, Lisa (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Karnosh, Michael (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Young, Cyril (Oregon Dept. of State Lands), R10: Oatman, Joe (Nez Perce Tribe), R10: Eichstaedt, Rick (Nez Perce Tribe), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality), R10: Perry, Lynne, A (Oregon Department of Justice), R10: Lee, Jean, H (Environment International, Ltd.), R10: Bridgen, Pamela (Environment International, Ltd.), R10: Longoria, Rose (Yakama Nation), R10: Althouse, Scott (The Nez Perce Tribe), R10: Givens, Raymond, C (Givens Law), R10: Ward, Paul (Yakama Nation), R10: Barquin, Billy (Haglund Kelley, LLP), R10: Kepler, Rick, J (State of Oregon), R10: Buck, Jeremy (U. S. Fish	056-SITE SUPPORT/0563-State/Tribal Involvement
100014885	Email regarding Updated Joint Source Control 7/23/2007 Screening Level Values.	24	1 EML / Email	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	056-SITE SUPPORT/0563-State/Tribal Involvement
100009444	Response to Comments, 7-24-07.	341	5 CORR / Correspondence	R10: Slater, J. Todd (Legacy Site Services, LLC)	R10: Slater, J. Todd (Legacy Site Services, LLC)	056-SITE SUPPORT/0563-State/Tribal Involvement
100010543	Email regarding Updated Joint Source Control 7/24/2007 Screening Level Values. Former Arkema Portland Plant: Responses to DEQ/EPA Comments on the Draft	41	2 EML / Email	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	Buchman, Mike (NOAA), R10: Neely, Robert (NOAA), R10: Goulet, Ron (NOAA), R10: Burkholder, Kurt (Oregon Dept. of Justice), R10: Perry, Lynne (Oregon Dept. of Justice), R10: Fleming, Sheila (Ridolfi Engineers and Associates, Inc.), R10: Szumski, Michael, J (U. S. Fish and Wildlife Service), R10: Buerger, Ted (U. S. Fish and Wildlife Service), R10: Madden, Erin (Unknown), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Cunninghame, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Bridgen, Pamela, J (Environment International, Ltd.), R10: Spencer, Jeff (Confederated Tribes and Bands of the Yakima Indian Nation), R10: Ward, Paul (Confederated Tribes and Bands of the Yakima Indian Nation), R10: Downey, Tom (Confederated Tribes of the Siletz Indians), R10: Baker, Jeff (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Bluelake, Lisa (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Karnosh, Michael (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Young, Cyril (Oregon Dept. of State Lands), R10: Sheldrake, Sean, A (EPA), R10: Fuentes, Rene, C (EPA), R10: Cora, Lori, H (EPA), R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA), R10: Smith, Judy, R (EPA), R10: Humphrey, Chip (EPA), R10: Black, Curt (EPA),	056-SITE SUPPORT/0563-State/Tribal Involvement
100012101	Groundwater Source Control Evaluation.	341	5 CORR / Correspondence	R10: Slater, J. Todd (Legacy Site Services, LLC)	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	056-SITE SUPPORT/0563-State/Tribal Involvement

4940680977	7/24/2007	Email regarding reply to Updated Joint Source Control Screening Level Values.	41	2 EML / Email	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	R10: Macdonald, Donald, D (NOAA), R10: Burkholder, Kurt (Oregon Dept. of Justice), R10: Fleming, Sheila (Ridolfi Engineers and Associates, Inc.), R10: Szumski, Michael, J (U. S. Fish and Wildlife Service), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Cunningham, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Howard, Patti (Columbia River Inter-Tribal Fish Commission), R10: Bridgen, Pamela, J (Environment International, Ltd.), R10: Spencer, Jeff (Confederated Tribes and Bands of the Yakima Indian Nation), R10: Downey, Tom (Confederated Tribes of the Siletz Indians), R10: Baker, Jeff (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Young, Cyril (Oregon Dept. of State Lands), R10: Humphrey, Chip (EPA), R10: Madden, Erin (Nez Perce Tribe), R10: Anderson, James, M (Oregon Dept. of Environmental Quality), R10: Lee, Jean, H (Environment International, Ltd.), R10: Althouse, Scott (The Nez Perce Tribe), R10: Givens, Raymond, C (Givens Law), R10: Ward, Paul (Yakama Nation), R10: Barquin, Billy (Haglund Kelley, LLP), R10: Kepler, Rick, J (State of Oregon), R10: Buck, Jeremy (U. S. Fish & Wildlife Service)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100007517	7/25/2007	Suspect Contamination Photo.	714	1 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100007518	7/25/2007	Suspect Contamination Photo.	910	1 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100007515	7/26/2007	Email regarding Apparent Contamination in Willamette Cove.	23	2 EML / Email	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100008978	7/26/2007	Email regarding FW_ Arkema Quarterly Report and Response to JSCS.	23	2 EML / Email	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	R10: Sheldrake, Sean, A (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100010137	7/26/2007	Email regarding RE_LWG F&T Modeling Report - Correct Attribution.	22	2 EML / Email	R10: Hope, Bruce, K (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100010144	7/26/2007	Email regarding RE_LWG F&T Modeling Report - Correct Attribution (1).	22	1 EML / Email	R10: Hope, Bruce, K (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100010381	7/26/2007	Email regarding TZW Meeting.	24	2 EML / Email	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100011665	7/26/2007	Email Regarding LWG F&T Modeling Report - Correct Attribution for the AFT Model.	31	1 EML / Email	R10: Hope, Bruce, K (Oregon Dept. of Environmental Quality)	R10: Smith, Carrie, A (Parametrix, Inc.), R10: Stivers, Carl (Anchor Environmental, LLC), R10: Saban, Lisa (Windward Environmental, LLC.), R10: Pine, Keith, A (Integral Consulting, Inc.), R10: Blischke, Eric, L (EPA), R10: Shephard, Burt (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100012098	7/26/2007	Email regarding Arkema Quarterly Report and Response to JSCS Comments.	21	2 EML / Email	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	R10: Sheldrake, Sean, A (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100012396	7/26/2007	Email regarding Apparent Contamination in Willamette Cove.	27	2 EML / Email	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100008592	7/27/2007	Email regarding FW_ FSP Comments.	111	23 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100010838	7/27/2007	Email regarding UR & MC Sed Evaluation & FSP.	34	2 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100017648	7/27/2007	REDACTED Email regarding reply to Flyer Text.	29	2 EML / Email	R10: Anderson, James, M (Oregon Dept. of Environmental Quality)	R10: Wray, Rachel (Port of Portland), R10: Smith, Barbara (Harris Smith Public Affairs), R10: Smith, Judy, R (EPA), R10: Pance, Robin, G (Portland Harbor Community Advisory Group)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940681396	7/27/2007	REDACTED Email regarding UR & MC Sed Evaluation & FSP.	34	2 EML / Email	R10: Anderson, James, M (Oregon Dept. of Environmental Quality)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100017689	7/31/2007	REDACTED Email regarding reply to EPA RA - Elin Miller's meetings August 16, 17.	21	2 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100017878	8/1/2007	REDACTED Email regarding RPAC PreMeeting.	19	1 EML / Email	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100020100	8/1/2007	REDACTED Email regarding RPAC PreMeeting.	19	1 EML / Email	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100015498	8/2/2007	REDACTED Email regarding RPAC PreMeeting.	20	2 EML / Email	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100017687	8/2/2007	REDACTED Email regarding reply to RPAC PreMeeting.	20	2 EML / Email	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100009135	8/3/2007	City Comments On Source Control Data Gaps Work Plan, Northwest Natural Gasco Site, July 2007.	212	3 LTR / Letter	R10: Sanders, Dawn (City of Portland, Bureau of Environmental Services), R10: Scheffler, Linda (City of Portland, Bureau of Environmental Services)	R10: Bayuk, Dana (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100016663	8/3/2007	REDACTED Email regarding Poster/Flyer.	22	1 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Robison, Jim (Portland Harbor Community Advisory Group), R10: Wray, Rachel (Port of Portland), R10: Smith, Judy, R (EPA), R10: Pance, Robin, G (Portland Harbor Community Advisory Group), R10: Smith, Barbara (Harris and Smith)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100010508	8/6/2007	Email regarding Source Control Data Gaps Work Plan, NW Natural, Gasco Site.	23	1 EML / Email	R10: Bayuk, Dana (Oregon Dept. of Environmental Quality)	R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100017196	8/6/2007	REDACTED Email regarding LWG's Biota FSP.	20	1 EML / Email	R10: Anderson, James, M (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940681025	8/6/2007	Email regarding Source Control Data Gaps Work Plan, NW Natural, Gasco Site.	23	1 EML / Email	R10: Bayuk, Dana (Oregon Dept. of Environmental Quality)	R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940681769	8/7/2007	DRAFT for Diver Dermal Exposure and Dose-2002.	21	2 ADD / Analytical Data Document	R10: (Oregon Health Sciences University)		ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940680140	8/8/2007	Email regarding reply to feedback on potential interview questions.	27	3 EML / Email	R10: Anderson, James, M (Oregon Dept. of Environmental Quality)	R10: Humphrey, Chip (EPA), R10: Hanna, Vicki (Harris and Smith), R10: Longley, Jeanne (Portland Harbor Community Advisory Group)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100013370	8/10/2007	Email Regarding AMEC's Evaluation of Transition Zone Water (TZW) Data Gaps for Rhone-Poulenc Ag Company (RPAC).	30	1 EML / Email	R10: Anderson, James, M (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100017575	8/10/2007	REDACTED Email regarding Draft Calendar notice.	21	1 EML / Email	R10: Danab, Marcia (Oregon Dept. of Environmental Quality)	R10: Cox, Kim, E (City of Portland, Oregon), R10: Robison, Jim (Portland Harbor Community Advisory Group), R10: Wray, Rachel (Port of Portland), R10: Howard, Patti (Columbia River Inter-Tribal Fish Commission), R10: Williams, Travis (Willamette Riverkeeper), R10: Longley, Jean (Linnton Neighborhood Association), R10: Smith, Judy, R (EPA), R10: Humphrey, Chip (EPA), R10: Pance, Robin, G (St. Johns Neighborhood Association), R10: Early, Julie (Oregon Dept. of Human Services), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality), R10: Hanna, Vicki (Harris and Smith), R10: Smith, Barbara (Harris and Smith)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100017693	8/10/2007	REDACTED Email regarding reply to Draft Calendar notice.	27	2 EML / Email	R10: Danab, Marcia (Oregon Dept. of Environmental Quality)	R10: Smith, Judy, R (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100010672	8/13/2007	Email Regarding Westinghouse Outfall: We Are Not Entirely Clear About the Situation Involving Whether There is a Direct Connection From the Site to the City Sewer.	28	1 EML / Email	R10: Tarnow, Karen, E (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement

100015496	8/13/2007	REDACTED Email regarding RPAC PreMeeting. REDACTED Email regarding reply to RPAC	19	1 EML / Email	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA), R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100017682	8/13/2007	PreMeeting. Email regarding Discussion Items for 8/16	19	1 EML / Email	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100007755	8/14/2007	RPAC Mtg.	23	2 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Sheldrake, Sean, A (EPA), R10: Koch, Kristine, M (EPA) (NOAA), R10: Neely, Robert (NOAA), R10: Fleming, Sheila (Ridolfi Engineers and Associates, Inc.), R10: Buck, Jeremy (U. S. Fish and Wildlife Service), R10: Lavelle, Jim (CDM Federal Programs Corporation), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Smith, Carrie, A (Parametrix, Inc.), R10: Howard, Patti (Columbia River Inter-Tribal Fish Commission), R10: Downey, Tom (Confederated Tribes of the Siletz Indians), R10: Bluelake, Lisa (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Karnosh, Michael (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Ader, Mark, A (EPA), R10: Sheldrake, Sean, A (EPA), R10: Fuentes, Rene, C (EPA), R10: Cora, Lori, H (EPA), R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA), R10: Smith, Judy, R (EPA), R10: Shephard, Burt (EPA), R10: Humphrey, Chip (EPA), R10: Black, Curt (EPA), R10: Davoli, Dana (EPA), R10: Grepo-grove, Gina (EPA), R10: Goulet, Joe (EPA), R10: Madden, Erin (Nez Perce Tribe), R10: Barquin, Billy (Haglund, Kelley, Horngren, Jones & Wilder, LLP), R10: Gainer, Thomas, B (Oregon Dept. of Environmental Quality), R10: Anderson, James, M (Oregon Dept. of Environmental Quality), R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality), R10: McClincy, Matt (Oregon Dept. of Environmental Quality), R10:	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100009014	8/14/2007	Email Regarding PCB Sediment Background Calculations.	33	1 EML / Email	R10: Poulsen, Michael (Oregon Dept. of Environmental Quality)	R10: (Portland Harbor Technical Coordinating Team (TCT))	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100009015	8/14/2007	Memorandum: Determining a Regional Anthropogenic Background Concentration of PCBs in Sediment Upstream of the Zidell Site.	178	6 MEMO / Memorandum	R10: Poulsen, Michael (Oregon Dept. of Environmental Quality)	R10: Sheldrake, Sean, A (EPA), R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100014339	8/14/2007	Email Regarding Discussion Items for the August 14, 2007 Rhone Poulenc Agricultural Company (RPAC) Meeting.	38	2 EML / Email	R10: Anderson, James, M (Oregon Dept. of Environmental Quality)	R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100017690	8/14/2007	REDACTED Email regarding reply to RPAC PreMeeting.	22	2 EML / Email	R10: Anderson, James, M (Oregon Dept. of Environmental Quality)		ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940681834	8/14/2007	Email regarding PCB Sediment Background Calculations.	71	1 EML / Email	R10: Poulsen, Michael (Oregon Dept. of Environmental Quality)	R10: Neely, Robert (NOAA), R10: Fleming, Sheila (Ridolfi Engineers and Associates, Inc.), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Smith, Carrie, A (Parametrix, Inc.), R10: Downey, Tom (Confederated Tribes of the Siletz Indians), R10: Bluelake, Lisa (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Humphrey, Chip (EPA), R10: Madden, Erin (Nez Perce Tribe), R10: Gainer, Thomas, B (Oregon Dept. of Environmental Quality), R10: Longoria, Rose (Yakama Nation), R10: How, P (CRITFC), R10: Lavelle, James, M (CDM), R10: Barquin, Billy (Haglund Kelley, LLP), R10: Buck, Jeremy (U. S. Fish & Wildlife Service)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940681835	8/14/2007	Memo regarding Determining a Regional Anthropogenic Background Concentration of PCBs in Sediment Upstream of the Zidell Site.	63	6 MEMO / Memorandum	R10: Poulsen, Michael (Oregon Dept. of Environmental Quality)	R10: (Portland Harbor Technical Coordinating Team (TCT))	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100009134	8/15/2007	Email Regarding Northwest Natural - Gasco Site: Source Control Data Gaps Work Plan.	31	1 EML / Email	R10: Bayuk, Dana (Oregon Dept. of Environmental Quality)	R10: Wyatt, Robert, J (Northwest Natural Gas Company)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100009136	8/15/2007	Review of the "Source Control Data Gaps Work Plan, NW Natural Gasco Site, 7900 NW St. Helens Road, Portland, Oregon."	242	6 LTR / Letter	R10: Bayuk, Dana (Oregon Dept. of Environmental Quality)	R10: Wyatt, Robert, J (Northwest Natural Gas Company), R10: Wyatt, Robert, J (NW Natural)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940681837	8/15/2007	Letter regarding Source Control Data Gaps Work Plan - Northwest Natural Gas Company Site, Portland, Oregon - ECSI No. 84 .	139	6 LTR / Letter	R10: Bayuk, Dana (Oregon Dept. of Environmental Quality)	R10: Wyatt, Robert, J (NW Natural)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940681838	8/15/2007	Email regarding NW Natural - Gasco Site, Source Control Data Gaps Work Plan.	22	1 EML / Email	R10: Bayuk, Dana (Oregon Dept. of Environmental Quality)	R10: Wyatt, Robert, J (NW Natural) Buchman, Mike (NOAA), R10: Neely, Robert (NOAA), R10: Burkholder, Kurt (Oregon Dept. of Justice), R10: Fleming, Sheila (Ridolfi Engineers and Associates, Inc.), R10: Szumski, Michael, J (U. S. Fish and Wildlife Service), R10: Buerger, Ted (U. S. Fish and Wildlife Service), R10: Burkholder, Kurt (U. S. Dept. of Justice), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Cunninghame, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Howard, Patti (Columbia River Inter-Tribal Fish Commission), R10: Bridgen, Pamela, J (Environment International, Ltd.), R10: Spencer, Jeff (Confederated Tribes and Bands of the Yakima Indian Nation), R10: Downey, Tom (Confederated Tribes of the Siletz Indians), R10: Baker, Jeff (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Bluelake, Lisa (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Karnosh, Michael (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Young, Cyril (Oregon Dept. of State Lands), R10: Sheldrake, Sean, A (EPA), R10: Fuentes, Rene, C (EPA), R10: Cora, Lori, H (EPA), R10: Yamamoto, Deborah, J (EPA), R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA), R10: Smith, Judy, R (EPA), R10: Humphrey, Chip (EPA), R10: Black, Curt (EPA), R10: Davoli, Dana (EPA), R10: Grepo-grove, Gina (EPA), R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100011026	8/16/2007	Email Regarding Gasco Offshore Sampling: As You May Recall, DEQ Is Overseeing NW Natural's Efforts to Characterize Transition Zone Water (TZW) Related to Release at Their Gasco Facility.	54	2 EML / Email	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100017481	8/16/2007	REDACTED Email Regarding LWG's Biota FSP.	21	1 EML / Email	R10: Anderson, James, M (Oregon Dept. of Environmental Quality)		ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement



4940680737	8/16/2007	Email regarding reply to Gasco Offshore Sampling Part 1 of 3.	44	2 EML / Email	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	R10: Macdonald, Donald, D (NOAA), R10: Burkholder, Kurt (Oregon Dept. of Justice), R10: Fleming, Sheila (Ridolfi Engineers and Associates, Inc.), R10: Szumski, Michael, J (U. S. Fish and Wildlife Service), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Cunninghame, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Howard, Patti (Columbia River Inter-Tribal Fish Commission), R10: Bridgen, Pamela, J (Environment International, Ltd.), R10: Spencer, Jeff (Confederated Tribes and Bands of the Yakima Indian Nation), R10: Downey, Tom (Confederated Tribes of the Siletz Indians), R10: Baker, Jeff (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Young, Cyril (Oregon Dept. of State Lands), R10: Humphrey, Chip (EPA), R10: Madden, Erin (Nez Perce Tribe), R10: Anderson, James, M (Oregon Dept. of Environmental Quality), R10: Althouse, Scott (The Nez Perce Tribe), R10: Givens, Raymond, C (Givens Law), R10: Ward, Paul (Yakama Nation), R10: Barquin, Billy (Haglund Kelley, LLP), R10: Kepler, Rick, J (State of Oregon), R10: Buck, Jeremy (U. S. Fish & Wildlife Service)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940680738	8/16/2007	Email regarding reply to Gasco Offshore Sampling Part 2 of 2.	46	3 EML / Email	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	R10: Macdonald, Donald, D (NOAA), R10: Burkholder, Kurt (Oregon Dept. of Justice), R10: Fleming, Sheila (Ridolfi Engineers and Associates, Inc.), R10: Szumski, Michael, J (U. S. Fish and Wildlife Service), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Cunninghame, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Howard, Patti (Columbia River Inter-Tribal Fish Commission), R10: Bridgen, Pamela, J (Environment International, Ltd.), R10: Spencer, Jeff (Confederated Tribes and Bands of the Yakima Indian Nation), R10: Downey, Tom (Confederated Tribes of the Siletz Indians), R10: Baker, Jeff (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Young, Cyril (Oregon Dept. of State Lands), R10: Humphrey, Chip (EPA), R10: Oatman, Joe (Nez Perce Tribe), R10: Anderson, James, M (Oregon Dept. of Environmental Quality), R10: Althouse, Scott (The Nez Perce Tribe), R10: Givens, Raymond, C (Givens Law), R10: Ward, Paul (Yakama Nation), R10: Barquin, Billy (Haglund Kelley, LLP), R10: Kepler, Rick, J (State of Oregon), R10: Buck, Jeremy (U. S. Fish & Wildlife Service)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940680739	8/16/2007	Email regarding reply to Gasco Offshore Sampling Part 3 of 3.	36	1 EML / Email	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	R10: Macdonald, Donald, D (NOAA), R10: Burkholder, Kurt (Oregon Dept. of Justice), R10: Fleming, Sheila (Ridolfi Engineers and Associates, Inc.), R10: Szumski, Michael, J (U. S. Fish and Wildlife Service), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Cunninghame, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Howard, Patti (Columbia River Inter-Tribal Fish Commission), R10: Bridgen, Pamela, J (Environment International, Ltd.), R10: Spencer, Jeff (Confederated Tribes and Bands of the Yakima Indian Nation), R10: Downey, Tom (Confederated Tribes of the Siletz Indians), R10: Baker, Jeff (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Young, Cyril (Oregon Dept. of State Lands), R10: Humphrey, Chip (EPA), R10: Oatman, Joe (Nez Perce Tribe), R10: Anderson, James, M (Oregon Dept. of Environmental Quality), R10: Althouse, Scott (The Nez Perce Tribe), R10: Givens, Raymond, C (Givens Law), R10: Ward, Paul (Yakama Nation), R10: Barquin, Billy (Haglund Kelley, LLP), R10: Kepler, Rick, J (State of Oregon), R10: Buck, Jeremy (U. S. Fish & Wildlife Service)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940681170	8/16/2007	Email regarding Gasco Offshore Sampling.	29	2 EML / Email	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	Buchman, Mike (NOAA), R10: Neely, Robert (NOAA), R10: Gouget, Ron (NOAA), R10: Burkholder, Kurt (Oregon Dept. of Justice), R10: Perry, Lynne (Oregon Dept. of Justice), R10: Fleming, Sheila (Ridolfi Engineers and Associates, Inc.), R10: Szumski, Michael, J (U. S. Fish and Wildlife Service), R10: Buerger, Ted (U. S. Fish and Wildlife Service), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Howard, Patti (Columbia River Inter-Tribal Fish Commission), R10: Bridgen, Pamela, J (Environment International, Ltd.), R10: Spencer, Jeff (Confederated Tribes and Bands of the Yakima Indian Nation), R10: Barquin, Billy (Confederated Tribes of the Siletz Indians), R10: Baker, Jeff (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Bluelake, Lisa (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Karnosh, Michael (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Young, Cyril (Oregon Dept. of State Lands), R10: Sheldrake, Sean, A (EPA), R10: Fuentes, Rene, C (EPA), R10: Cora, Lori, H (EPA), R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA), R10: Smith, Judy, R (EPA), R10: Humphrey, Chip (EPA), R10: Black, Curt (EPA), R10: Davoli, Dana (EPA), R10: Yamamoto, Deb (EPA), R10: Grepogrove, Ginna (EPA), R10: Goulet, Joe (EPA), R10: Madden, Erin (Nez	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100009907	8/17/2007	Email regarding RPAC Source Control Letter.	26	2 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100010464	8/17/2007	Email regarding RPAC Source Control Letter? Letter Regarding Source Control at the Rhone	26	1 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Sheldrake, Sean, A (EPA), R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100012619	8/17/2007	Poulenc Site.	19	2 LTR / Letter	R10: Anderson, James, M (Oregon Dept. of Environmental Quality)	R10: Dearden, Stuart (Sanofi-Aventis), R10: Ferguson, Robert (Starlink Logistics, Inc.)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940680904	8/17/2007	Email regarding reply to RPAC Source Control Letter.	26	2 EML / Email	R10: Anderson, James, M (Oregon Dept. of Environmental Quality)	R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940681011	8/17/2007	Email regarding RPAC Source Control Letter.	25	1 EML / Email	R10: Anderson, James, M (Oregon Dept. of Environmental Quality)	R10: Sheldrake, Sean, A (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement

4940681839	Letter regarding Source Control at the Rhone Poulenc Site (ESCI #155).	175	3 LTR / Letter	R10: Koch, Kristine, M (EPA)	R10: Ferguson, Robert, L (Rhone-Poulenc, Inc.), R10: Dearden, Stuart (Sanofi-Aventis)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940681841	Letter regarding Source Control at the Rhone Poulenc Site (ESCI #155).	20	2 LTR / Letter	R10: Koch, Kristine, M (EPA)	R10: Ferguson, Robert, L (Rhone-Poulenc, Inc.), R10: Dearden, Stuart (Sanofi-Aventis)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100009836	Email regarding RFP Distribution Question.	23	2 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA), R10: Madden, Erin (Cascadia Law Group)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100012958	Email regarding RFP distribution question.	23	2 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA), R10: Madden, Erin (Nez Perce Tribe)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940681840	Email Regarding RPAC Source Control Letter.	25	3 EML / Email	R10: Anderson, James, M (Oregon Dept. of Environmental Quality)	R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940681191	Email regarding LWG's Chemical F&TM Report.	26	1 EML / Email	R10: Anderson, James, M (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940681194	Email regarding LWG's RD 3A Upstream & Downstream Sediment Data Report.	31	2 EML / Email	R10: Anderson, James, M (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940681842	Letter regarding Re: Draft Cyanide Surface Water Field Sampling Plan - Northwest Natural Gas Company Site, Portland, Oregon - ECSI #84.	119	6 LTR / Letter	R10: Bayuk, Dana (Oregon Dept. of Environmental Quality)	R10: Wyatt, Robert, J (NW Natural)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940681843	Email regarding NW Natural - Gasco Site, Surface Water Field Sampling Plan.	22	1 EML / Email	R10: Bayuk, Dana (Oregon Dept. of Environmental Quality)	R10: Wyatt, Robert, J (NW Natural)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100011757	Email Regarding LWG's Chemical F&TM Report.	35	1 EML / Email	R10: Anderson, James, M (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100011761	Email Regarding LWG's RD 3A Upstream & Downstream Sediment Data Report.	40	2 EML / Email	R10: Anderson, James, M (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100012123	Draft News Release: Sept 29 Field Day Event to Offer Activities, Presentations about the Portland Harbor Superfund Cleanup.	94	1 PUB / Publication	R10: Unknown, Unknown (Oregon Dept. of Environmental Quality)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100017205	REDACTED Email Regarding Field Day Public Relations Update.	33	3 EML / Email	R10: Danab, Marcia (Oregon Dept. of Environmental Quality)	R10: Cox, Kim, E (City of Portland, Oregon), R10: Wray, Rachel (Port of Portland), R10: Smith, Judy, R (EPA), R10: Anderson, James, M (Oregon Dept. of Environmental Quality), R10: Plance, Robin, G (Portland Harbor Community Advisory Group), R10: Hanna, Vicki (Harris and Smith)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940681162	Email regarding Willamette Cover Petroleum-contaminated sediments.	29	3 EML / Email	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100017646	REDACTED Email regarding reply to Field Day PR update.	38	2 EML / Email	R10: Danab, Marcia (Oregon Dept. of Environmental Quality)	R10: Longley, Jean (Linnton Neighborhood Association)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940681184	Email regarding Linnton Plywood Association site.	21	1 EML / Email	R10: Johnson, Keith (Oregon Dept. of Environmental Quality)	R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100009151	Email Regarding DEQ Review of the Seepage Meter Deployment Scope and Transition Zone Water Tidal Influence Study Technical Memorandums and Our Comments.	31	1 EML / Email	R10: Bayuk, Dana (Oregon Dept. of Environmental Quality)	R10: Wyatt, Robert, J (Northwest Natural Gas Company), R10: Wyatt, Robert, J (NW Natural)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100009152	Letter Concerning Proposed Groundwater Seepage Meter and Transition Zone Water; Tidal Influence Study Scopes of Work; Northwest Natural Gas Company - Gasco Site; Portland, Oregon; ECSI #84.	176	3 LTR / Letter	R10: Bayuk, Dana (Oregon Dept. of Environmental Quality)	R10: Wyatt, Robert, J (Northwest Natural Gas Company), R10: Wyatt, Robert, J (NW Natural)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940681844	Letter regarding Proposed Groundwater Seepage Meter and Transition Zone Water Tidal Influence Study Scopes of Work - Northwest Natural Gas Company - Gasco Site Portland, Oregon - ECSI #84.	99	3 LTR / Letter	R10: Bayuk, Dana (Oregon Dept. of Environmental Quality)	R10: Wyatt, Robert, J (NW Natural)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940681845	Email regarding NW Natural - Gasco Site, Seepage Meter Deployment and TZW Tidal Influence Study.	22	1 EML / Email	R10: Bayuk, Dana (Oregon Dept. of Environmental Quality)	R10: Wyatt, Robert, J (NW Natural)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100015494	REDACTED Email regarding Round 3 Lamprey Toxicity Testing FSP and QAPP Addenda and Lamprey Interpretive Memo.	27	4 EML / Email	R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)	R10: Shephard, Burt (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940681192	Email regarding LWG's FSP for TZW at Gunderson.	30	1 EML / Email	R10: Anderson, James, M (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100017818	REDACTED Email regarding reply to TCT meeting tomorrow - DEQ conference Room C, Round 3B Sediment Maps.	37	6 EML / Email	R10: Parrett, Kevin (Oregon Dept. of Environmental Quality)	R10: Humphrey, Chip (EPA), R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100017823	REDACTED Email regarding reply to TCT meeting tomorrow - DEQ conference Room C, Round 3B Sediment Maps.	31	5 EML / Email	R10: Anderson, James, M (Oregon Dept. of Environmental Quality)	R10: Humphrey, Chip (EPA), R10: Anderson, James, M (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100014888	Email regarding TCT meeting tomorrow - DEQ conference Room C; Round 3B Sediment Maps.	22	1 EML / Email	R10: Parrett, Kevin (Oregon Dept. of Environmental Quality)	R10: Neely, Robert (NOAA), R10: Fleming, Sheila (Ridolfi Engineers and Associates, Inc.), R10: Madden, Erin (Unknown), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Smith, Carrie, A (Parametrix, Inc.), R10: Downey, Tom (Confederated Tribes of the Siletz Indians), R10: Bluelake, Lisa (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Karnosh, Michael (Confederated Tribes of the Grand Ronde Community of Oregon), R10: McClincy, Matt (Oregon Dept. of Environmental Quality), R10: Gainer, Tom (Oregon Dept. of Environmental Quality), R10: Gensemer, Robert, W (Parametrix, Inc.), R10: Longoria, Rose (Yakama Nation), R10: Lavelle, James, M (CDM), R10: Barquin, Billy (Haglund Kelley, LLP), R10: Buck, Jeremy (U. S. Fish & Wildlife Service)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100014890	Riverbank Soil Total Aroclor Distribution Figure 5-2.	363	1 CORR / Correspondence	R10: (RETEC)	R10: (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100014891	Riverbank Conceptual Site Model: Extent of Slag and Aroclor Exceedances of JSCS Toxicity SLVs.	299	1 CORR / Correspondence	R10: (RETEC)	R10: (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940680954	Email regarding reply to TCT meeting tomorrow - DEQ conference Room C; Round 3B Sediment Maps.	33	1 EML / Email	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	R10: Neely, Robert (NOAA), R10: Fleming, Sheila (Ridolfi Engineers and Associates, Inc.), R10: Lavelle, Jim (CDM Federal Programs Corporation), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Smith, Carrie, A (Parametrix, Inc.), R10: Howard, Patti (Columbia River Inter-Tribal Fish Commission), R10: Downey, Tom (Confederated Tribes of the Siletz Indians), R10: Bluelake, Lisa (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Humphrey, Chip (EPA), R10: Madden, Erin (Nez Perce Tribe), R10: Gainer, Tom (Oregon Dept. of Environmental Quality), R10: Longoria, Rose (Yakama Nation), R10: Barquin, Billy (Haglund Kelley, LLP), R10: Buck, Jeremy (U. S. Fish & Wildlife Service)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement

4940681207	9/27/2007	Email regarding Oregon Steel Mills - DEQ Proposed Source Control Action.	34	1 EML / Email	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	R10: Parrett, Kevin (Dames & Moore, Inc.), R10: Neely, Robert (NOAA), R10: Fleming, Sheila (Ridolfi Engineers and Associates, Inc.), R10: Madden, Erin (Unknown), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Smith, Carrie, A (Parametrix, Inc.), R10: Downey, Tom (Confederated Tribes of the Siletz Indians), R10: Bluelake, Lisa (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Humphrey, Chip (EPA), R10: Gainer, Thomas, B (Oregon Dept. of Environmental Quality), R10: Longoria, Rose (Yakama Nation), R10: How, P (CRITFC), R10: Lavelle, James, M (CDM), R10: Barquin, Billy (Haglund Kelley, LLP), R10: Buck, Jeremy (U. S. Fish & Wildlife Service)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100017211	9/28/2007	REDACTED Email regarding Oregonian article.	20	1 EML / Email	R10: Danab, Marcia (Oregon Dept. of Environmental Quality)	R10: Cox, Kim, F (City of Portland, Oregon), R10: Wray, Rachel (Port of Portland), R10: Smith, Judy, R (EPA), R10: Humphrey, Chip (EPA), R10: Anderson, James, M (Oregon Dept. of Environmental Quality), R10: Plance, Robin, G (Portland Harbor Community Advisory Group), R10: Hanna, Vicki (Harris and Smith), R10: Smith, Barbara (Harris and Smith), R10: Robison, Jim (Forward Support Inc.), R10: Longley, Jeanne (Portland Harbor Community Advisory Group)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100017203	10/1/2007	REDACTED Email regarding Media Contact: Portland Harbor on KBOO.	21	1 EML / Email	R10: Danab, Marcia (Oregon Dept. of Environmental Quality)	R10: (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100017455	10/1/2007	REDACTED Email regarding reply to Hybrid Model Comments.	21	1 EML / Email	R10: Hope, Bruce, K (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940680707	10/1/2007	Email regarding reply to Conference Call Availability for Thursday 10/4 or Friday 10/5 to Discuss Gunderson.	24	2 EML / Email	R10: Bayuk, Dana (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA), R10: Anderson, James, M (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940680755	10/1/2007	Email regarding reply to Hybrid Model Comments.	22	1 EML / Email	R10: Hope, Bruce, K (Oregon Dept. of Environmental Quality)	R10: Smith, Carrie, A (Parametrix, Inc.), R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100009439	10/2/2007	Email Regarding NW Natural - Gasco Site Seepage Meter Deployment, Transition Zone Water (TZW), Tidal Influence Study, and Surface Water Sampling.	32	1 EML / Email	R10: Bayuk, Dana (Oregon Dept. of Environmental Quality)	R10: Wyatt, Robert, J (Northwest Natural Gas Company)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100009440	10/2/2007	Approval of the Final Cyanide Surface Water Field Sampling Plan for Northwest Natural Gas Company - Gasco Site, Portland, Oregon; ECSI No. 84.	118	2 LTR / Letter	R10: Bayuk, Dana (Oregon Dept. of Environmental Quality)	R10: Wyatt, Robert, J (Northwest Natural Gas Company), R10: Wyatt, Robert, J (NW Natural)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100009441	10/2/2007	Approval of and Comments for Proposed Groundwater Seepage Meter Deployment Scope of Work - Gasco Site and Proposed Transition Zone Water (TZW) Tidal Influence Study Scope of Work - Gasco Site.	116	2 LTR / Letter	R10: Bayuk, Dana (Oregon Dept. of Environmental Quality)	R10: Wyatt, Robert, J (Northwest Natural Gas Company), R10: Wyatt, Robert, J (NW Natural)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100012573	10/2/2007	Email regarding For your consideration - Evaluation of Groundwater Discharge to the Willamette River, RP - Portland Site.	23	1 EML / Email	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	R10: Humphrey, Chip (EPA), R10: Blischke, Eric, L (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940680719	10/2/2007	Email regarding reply to Portland Harbor HH bass composites.	48	10 EML / Email	R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)	R10: Field, Jay (NOAA), R10: Davoli, Dana (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940681253	10/2/2007	Email regarding Reply to Rhone-Poulenc Groundwater TZW Data Gap Evaluation Letter regarding Re: Final Cyanide Surface Water Field Sampling Plan - Northwest Natural Gas Company - Gasco Site, Portland, Oregon - ECSI No. 84.	32	1 EML / Email	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	R10: Neely, Robert (NOAA), R10: Fleming, Sheila (Ridolfi Engineers and Associates, Inc.), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Smith, Carrie, A (Parametrix, Inc.), R10: Downey, Tom (Confederated Tribes of the Siletz Indians), R10: Karnosh, Michael (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Humphrey, Chip (EPA), R10: Madden, Erin (Nez Perce Tribe), R10: Gainer, Thomas, B (Oregon Dept. of Environmental Quality), R10: Longoria, Rose (Yakama Nation), R10: How, P (CRITFC), R10: Lavelle, James, M (CDM), R10: Barquin, Billy (Haglund Kelley, LLP), R10: Buck, Jeremy (U. S. Fish & Wildlife Service)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940681846	10/2/2007	Letter regarding Re: Groundwater Seepage Meter and Transition Zone Water - Tidal Influence Study Scopes of Work - Northwest Natural Gas Company - Gasco Site, Portland, Oregon - ECSI #84.	97	2 LTR / Letter	R10: Bayuk, Dana (Oregon Dept. of Environmental Quality)	R10: Wyatt, Robert, J (NW Natural)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940681847	10/2/2007	Letter regarding Re: Groundwater Seepage Meter and Transition Zone Water - Tidal Influence Study Scopes of Work - Northwest Natural Gas Company - Gasco Site, Portland, Oregon - ECSI #84.	90	2 LTR / Letter	R10: Bayuk, Dana (Oregon Dept. of Environmental Quality)	R10: Wyatt, Robert, J (NW Natural)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940681848	10/2/2007	Email regarding NW Natural - Gasco Site Seepage Meter Deployment, TZW and Tidal Influence Study, and Surface Water Sampling.	22	1 EML / Email	R10: Bayuk, Dana (Oregon Dept. of Environmental Quality)	R10: Wyatt, Robert, J (NW Natural)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100012170	10/4/2007	Contaminated Media Management Plan (CMMP) for the Former Reynolds Metals Company Facility in Troutdale, Oregon.	244	19 RPT / Report	R10: Unknown, Unknown (CH2M Hill, Inc.), R10: Unknown, Unknown (Alcoa, Incorporated)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100011754	10/5/2007	Email Regarding LWG's 8/07 "Erosion Core FSP Tech Approach."	36	1 EML / Email	R10: Anderson, James, M (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940681188	10/5/2007	Email regarding LWG's 8/07 "Erosion Core FSP Tech Approach".	27	1 EML / Email	R10: Anderson, James, M (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100009863	10/8/2007	Email regarding Clam Toxicity Data.	21	1 EML / Email	R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)	R10: Shephard, Burt (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100010411	10/8/2007	Email regarding Revised Gunderson GW PA FSP.	26	1 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940680994	10/8/2007	Email regarding Revised Gunderson GW PA FSP.	26	1 EML / Email	R10: Anderson, James, M (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100009006	10/9/2007	Email regarding FW_ Comments regarding Evaluation of Groundwater Discharge.	20	1 EML / Email	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	R10: Fuentes, Rene, C (EPA), R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100009516	10/9/2007	Evaluation of Groundwater Discharge to the Willamette River - RP Portland Site, Portland, OR.	71	2 LTR / Letter	R10: Peale, James, G (Maul Foster & Alongi, Inc.), R10: Maul, James, J (Maul Foster & Alongi, Inc.)	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100012128	10/9/2007	Email: Comments regarding Evaluation of Groundwater Discharge.	18	1 EML / Email	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	R10: Fuentes, Rene, C (EPA), R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100012159	10/9/2007	Letter regarding Evaluation of Groundwater Discharge to the Willamette River - RP Portland Site, Portland OR.	71	2 CORR / Correspondence	R10: Peale, James, G (Maul Foster & Alongi, Inc.), R10: Maul, James, J (Maul Foster & Alongi, Inc.)	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100012166	10/10/2007	Email regarding Contaminated Media Management Plan 10-4-07.	16	1 EML / Email	R10: Kent, Mavis, D (Oregon Dept. of Environmental Quality)	R10: Breen, David (Port of Portland), R10: Humphrey, Chip (EPA), R10: Shaw, Steve, M (Alcoa, Incorporated)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100013321	10/11/2007	Email Regarding AFT Model Equation Corrections.	29	1 EML / Email	R10: Hope, Bruce, K (Oregon Dept. of Environmental Quality)	R10: Smith, Carrie, A (Parametrix, Inc.), R10: Koch, Kristine, M (EPA), R10: Cope, Ben (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940680280	10/11/2007	Email regarding reply to AFT model equation corrections.	22	1 EML / Email	R10: Hope, Bruce, K (Oregon Dept. of Environmental Quality)	R10: Smith, Carrie, A (Parametrix, Inc.), R10: Cope, Ben (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100007614	10/12/2007	Email regarding 11/07 Milestone Mtg.	18	1 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Yamamoto, Deb (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement



100013325	10/12/2007	Email Regarding 11/7/2007 Milestone Meeting.	30	1 EML / Email	R10: Anderson, James, M (Oregon Dept. of Environmental Quality)	R10: Yamamoto, Deborah, J (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100010442	10/17/2007	Email regarding EPA comments and approval.	24	1 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940680173	10/19/2007	Email regarding reply to EPA Regional Administrator Harbor Tour - October 24.	21	1 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940680272	10/19/2007	Email regarding reply to 10/24 LWG Boat Tour.	23	2 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Pisano, Jessica, A (Anchor Environmental, LLC), R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100007567	10/24/2007	Email regarding Eco Analysis Plan.	18	1 EML / Email	R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)	R10: Neeley, Robert (NOAA), R10: Buck, Jeremy (U. S. Fish and Wildlife Service), R10: Blischke, Eric, L (EPA), R10: Shephard, Burt (EPA), R10: Humphrey, Chip (EPA), R10: Goulet, Joe (EPA), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100012183	10/24/2007	Email regarding Eco Analysis Plan.	18	1 EML / Email	R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)	R10: Neely, Robert (NOAA), R10: Blischke, Eric, L (EPA), R10: Shephard, Burt (EPA), R10: Humphrey, Chip (EPA), R10: Goulet, Joe (EPA), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality), R10: Buck, Jeremy (U. S. Fish & Wildlife Service)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100015640	10/24/2007	Email regarding Sample Disposal Notification.	52	2 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100015646	10/24/2007	Email regarding Round 3 Gunderson TZW - Phase 2 Planning Meeting/Conference Call.	80	2 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100009891	10/25/2007	Email regarding Round 3 Gunderson TZW - Phase 2 Planning Meeting/Conf Call.	25	2 EML / Email	R10: Bayuk, Dana (Oregon Dept. of Environmental Quality)	R10: Fuentes, Rene, C (EPA), R10: Blischke, Eric, L (EPA), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100009893	10/25/2007	Email regarding Round 3 Gunderson TZW - Phase 2 Planning Meeting/Conf Call.	25	3 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100009896	10/25/2007	Email regarding Round 3 Gunderson TZW - Phase 2 Planning Meeting/Conf Call.	24	2 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Fuentes, Rene, C (EPA), R10: Blischke, Eric, L (EPA), R10: Bayuk, Dana (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940680892	10/25/2007	Email regarding reply to Round 3 Gunderson TZW - Phase 2 Planning Meeting/Conf Call.	24	2 EML / Email	R10: Anderson, James, M (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA), R10: Bayuk, Dana (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940680893	10/25/2007	Email regarding reply to Round 3 Gunderson TZW - Phase 2 Planning Meeting/Conf Call.	25	2 EML / Email	R10: Bayuk, Dana (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA), R10: Anderson, James, M (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100009816	10/26/2007	Email regarding draft source control decision (SCD) for Portland Shipyard OU3.	38	2 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	Inc.), R10: Macdonald, Donald, D (NOAA), R10: Buchman, Mike (NOAA), R10: Neely, Robert (NOAA), R10: Burkholder, Kurt (Oregon Dept. of Justice), R10: Perry, Lynne (Oregon Dept. of Justice), R10: Szumski, Michael, J (U. S. Fish and Wildlife Service), R10: Buck, Jeremy (U. S. Fish and Wildlife Service), R10: Buerger, Ted (U. S. Fish and Wildlife Service), R10: McCabe, Mike (Unknown), R10: Kepler, Rick (Unknown), R10: Givens, Ray (Coeur d'Alene Tribe), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Bridgen, Pamela, J (Environment International, Ltd.), R10: Spencer, Jeff (Confederated Tribes and Bands of the Yakima Indian Nation), R10: Ward, Paul (Confederated Tribes and Bands of the Yakima Indian Nation), R10: Barquin, Billy (Confederated Tribes of the Siletz Indians), R10: Bluelake, Lisa (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Karnosh, Michael (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Young, Cyril (Oregon Dept. of State Lands), R10: Sheldrake, Sean, A (EPA), R10: Fuentes, Rene, C (EPA), R10: Cora, Lori, H (EPA), R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA), R10: Smith, Judy, R (EPA), R10: Humphrey, Chip (EPA), R10: Black, Curt (EPA), R10: Davoli, Dana (EPA), R10: Yamamoto, Deb (EPA), R10: Grepo-grove, Gina (EPA), R10: Goulet, Joe (EPA), R10: Madden, Erin (Nez	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100014609	10/26/2007	Email regarding Oregon EPHT Newsletter.	18	1 EML / Email	R10: Worden, Karen, A (State of Oregon)	R10: (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100014611	10/26/2007	Environmental Public Health Tracking Newsletter - Fall 2007 Issue 5.	485	4 OTH / Other	R10: (Oregon Dept. of Human Services)	R10: (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100009894	10/29/2007	Email regarding Round 3 Gunderson TZW - Phase 2 Planning Meeting/Conf Call.	26	3 EML / Email	R10: Bayuk, Dana (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940680894	10/29/2007	Email regarding reply to Round 3 Gunderson TZW - Phase 2 Planning Meeting/Conf Call.	26	3 EML / Email	R10: Bayuk, Dana (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100009373	10/31/2007	Email regarding Gunderson TZW Call.	21	1 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Fuentes, Rene, C (EPA), R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA), R10: Bayuk, Dana (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940680751	10/31/2007	Email regarding reply to Gunderson TZW Call.	21	1 EML / Email	R10: Anderson, James, M (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA), R10: Bayuk, Dana (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100009209	11/1/2007	Email regarding Bass Lengths.	25	2 EML / Email	R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100009881	11/1/2007	Email regarding Round 3 Gunderson TZW - Phase 2 Planning Meeting/Conf Call.	23	2 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100009194	11/2/2007	Email regarding Bass Lengths.	21	1 EML / Email	R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA), R10: Shephard, Burt (EPA), R10: Davoli, Dana (EPA), R10: Poulsen, Mike (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100014933	11/2/2007	REDACTED Email regarding Bass Lengths.	23	2 EML / Email	R10: Poulsen, Mike (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100015566	11/2/2007	Email regarding Meeting to Discuss Schedule with LWG Management.	55	1 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940680749	11/6/2007	Email regarding reply to Guidance on establishing sediment reference areas.	44	1 EML / Email	R10: Drake, Doug (Oregon Dept. of Environmental Quality)	R10: Levine, Ann (Oregon Dept. of Environmental Quality), R10: Knight, Peter (NOAA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940680750	11/6/2007	Email regarding reply to Guidance on establishing sediment reference areas.	24	2 EML / Email	R10: Levine, Ann (Oregon Dept. of Environmental Quality)	R10: Humphrey, Chip (EPA), R10: Drake, Doug (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100010119	11/13/2007	Email regarding Site/Sampling Visit to Portland Harbor on Thursday.	20	1 EML / Email	R10: Poulsen, Michael (Oregon Dept. of Environmental Quality)	R10: Farrer, David, G (Oregon Dept. of Human Services)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100018120	11/14/2007	REDACTED Email regarding LWG Response to EPA Round 3B Sediment FSP.	27	1 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement

100009784	11/15/2007	Email regarding draft source control decision (SCD) for the MarCom North site.	34	1 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	Inc.), R10: Macdonald, Donald, D (NOAA), R10: Buchman, Mike (NOAA), R10: Neely, Robert (NOAA), R10: Burkholder, Kurt (Oregon Dept. of Justice), R10: Perry, Lynne (Oregon Dept. of Justice), R10: Szumski, Michael, J (U. S. Fish and Wildlife Service), R10: Buck, Jeremy (U. S. Fish and Wildlife Service), R10: Buerger, Ted (U. S. Fish and Wildlife Service), R10: Mccabe, Mike (Unknown), R10: Kepler, Rick (Unknown), R10: Givens, Ray (Coeur d'Alene Tribe), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Spencer, Jeff (Confederated Tribes and Bands of the Yakima Indian Nation), R10: Ward, Paul (Confederated Tribes and Bands of the Yakima Indian Nation), R10: Barquin, Billy (Confederated Tribes of the Siletz Indians), R10: Bluelake, Lisa (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Karnosh, Michael (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Young, Cyril (Oregon Dept. of State Lands), R10: Sheldrake, Sean, A (EPA), R10: Fuentes, Rene, C (EPA), R10: Cora, Lori, H (EPA), R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA), R10: Smith, Judy, R (EPA), R10: Humphrey, Chip (EPA), R10: Black, Curt (EPA), R10: Davoli, Dana (EPA), R10: Yamamoto, Deb (EPA), R10: Grepo-grove, Gina (EPA), R10: Goulet, Joe (EPA), R10: Madden, Erin (Nez Perce Tribe), R10: Oatman, Joe (Nez Perce Robert (NOAA), R10: Perry, Lynne (Oregon Dept. of Justice), R10: Szumski, Michael, J (U. S. Fish and Wildlife Service), R10: Buck, Jeremy (U. S. Fish and Wildlife Service), R10: Buerger, Ted (U. S. Fish and Wildlife Service), R10: Madden, Erin (Unknown), R10: Anderson, Jim (Unknown), R10: Mccabe, Mike (Unknown), R10: Kepler, Rick (Unknown), R10: Burkholder, Kurt (U. S. Dept. of Justice), R10: Givens, Ray (Coeur d'Alene Tribe), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Macdonald, Donald, D (MacDonald Environmental Sciences, Ltd.), R10: Spencer, Jeff (Confederated Tribes and Bands of the Yakima Indian Nation), R10: Barquin, Billy (Confederated Tribes of the Siletz Indians), R10: Bluelake, Lisa (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Young, Cyril (Oregon Dept. of State Lands), R10: Sheldrake, Sean, A (EPA), R10: Fuentes, Rene, C (EPA), R10: Cora, Lori, H (EPA), R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA), R10: Smith, Judy, R (EPA), R10: Humphrey, Chip (EPA), R10: Black, Curt (EPA), R10: Davoli, Dana (EPA), R10: Yamamoto, Deb (EPA), R10: Grepo-grove, Gina (EPA), R10: Goulet, Joe (EPA), R10: Fleming, Sheila (EPA), R10: Oatman, Joe (Nez Perce Tribe), R10: Eichstaedt, Rick (Nez Perce Tribe), R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality), R10: Poulsen, Mike (EPA)	056-SITE SUPPORT/0563-State/Tribal Involvement
100009022	11/16/2007	Email regarding draft Gasco and Siltronic groundwater source control FFS.	33	1 EML / Email	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100014311	11/16/2007	Email Regarding Dick Pedersen's Schedule for Milestone Meeting.	39	1 EML / Email	R10: Anderson, James, M (Oregon Dept. of Environmental Quality)	R10: Mckenna, James (Port of Portland), R10: Humphrey, Chip (EPA)	056-SITE SUPPORT/0563-State/Tribal Involvement
4940680743	11/16/2007	Email regarding reply to Gasco/Siltronic Meeting on FFSs.	24	1 EML / Email	R10: Bayuk, Dana (Oregon Dept. of Environmental Quality)	R10: Koch, Kristine, M (EPA)	056-SITE SUPPORT/0563-State/Tribal Involvement
100009307	11/19/2007	Email regarding GASCO/Siltronic Meeting on FFS.	27	2 EML / Email	R10: Bayuk, Dana (Oregon Dept. of Environmental Quality)	R10: Koch, Kristine, M (EPA)	056-SITE SUPPORT/0563-State/Tribal Involvement
100011788	11/19/2007	Email Regarding NW Natural and Siltronic - FFS Review Status and Timeframe.	38	1 EML / Email	R10: Bayuk, Dana (Oregon Dept. of Environmental Quality)	R10: Wyatt, Robert, J (Northwest Natural Gas Company), R10: Mccue, Tom (Siltronic Corporation), R10: Wyatt, Robert, J (NW Natural)	056-SITE SUPPORT/0563-State/Tribal Involvement
4940680742	11/19/2007	Email regarding reply to Gasco/Siltronic Meeting on FFSs.	27	2 EML / Email	R10: Bayuk, Dana (Oregon Dept. of Environmental Quality)	R10: Koch, Kristine, M (EPA)	056-SITE SUPPORT/0563-State/Tribal Involvement
100017820	11/20/2007	REDACTED Email regarding reply to TCT tomorrow.	19	1 EML / Email	R10: Anderson, James, M (Oregon Dept. of Environmental Quality)	R10: Humphrey, Chip (EPA)	056-SITE SUPPORT/0563-State/Tribal Involvement
100017632	11/26/2007	REDACTED Email regarding Agenda for Wednesday's Meeting.	19	1 EML / Email	R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	056-SITE SUPPORT/0563-State/Tribal Involvement
100015567	12/4/2007	Email regarding Meeting with LWG to Discuss Stormwater Team.	53	1 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA), R10: Anderson, James, M (Oregon Dept. of Environmental Quality)	056-SITE SUPPORT/0563-State/Tribal Involvement
100012615	12/5/2007	Letter Regarding Permit Application, Evraz Oregon Steel Mills, Inc.	96	3 LTR / Letter		R10: Gilpin, Andrew (Evraz Oregon Steel Portland)	056-SITE SUPPORT/0563-State/Tribal Involvement
100018115	12/5/2007	REDACTED Email regarding Upland Stormwater Field Sampling Report.	59	2 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA), R10: Tarnow, Karen, E (Oregon Dept. of Environmental Quality)	056-SITE SUPPORT/0563-State/Tribal Involvement
100012222	12/6/2007	Email regarding DEQ's 1/08 PH Milestone Report.	17	1 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	056-SITE SUPPORT/0563-State/Tribal Involvement
100012243	12/6/2007	Table 1: DEQ Milestone Report: Controlling Confirmed or Suspected Upland Sources of Contamination to Portland Harbor.	122	7 CHT / Chart/Table	R10: Unknown, Unknown (Oregon Dept. of Environmental Quality)	R10: Unknown, Unknown (Unknown)	056-SITE SUPPORT/0563-State/Tribal Involvement
100009751	12/7/2007	Email regarding Postponed TCT.	20	1 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	056-SITE SUPPORT/0563-State/Tribal Involvement
100017487	12/7/2007	REDACTED Email regarding reply to meeting with LWG to discuss stormwater team.	25	4 EML / Email	R10: Anderson, James, M (Oregon Dept. of Environmental Quality)	R10: Mckenna, James (Port of Portland), R10: Blischke, Eric, L (EPA)	056-SITE SUPPORT/0563-State/Tribal Involvement
4940680806	12/7/2007	Email regarding reply to meeting with LWG to discuss stormwater team.	28	4 EML / Email	R10: Anderson, James, M (Oregon Dept. of Environmental Quality)	R10: Mckenna, James (Port of Portland), R10: Blischke, Eric, L (EPA), R10: Applegate, Rick (City of Portland)	056-SITE SUPPORT/0563-State/Tribal Involvement
100008742	12/10/2007	Email regarding FW_ PCBs and carp for rd 1.	30	3 EML / Email	R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	056-SITE SUPPORT/0563-State/Tribal Involvement
100009030	12/10/2007	Email regarding FW_ bass stats.	17	1 EML / Email	R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	056-SITE SUPPORT/0563-State/Tribal Involvement
100009031	12/10/2007	Email regarding FW_ carp and PCBs.	19	1 EML / Email	R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	056-SITE SUPPORT/0563-State/Tribal Involvement
100007758	12/11/2007	Email regarding DQE/EPA/BES Stormwater Meeting.	18	1 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Applegate, Richard (City of Portland, Oregon), R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA), R10: Tarnow, Karen, E (Oregon Dept. of Environmental Quality), R10: Johnson, Keith (Oregon Dept. of Environmental Quality), R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	056-SITE SUPPORT/0563-State/Tribal Involvement
100009204	12/11/2007	Email regarding Bass Stats.	21	1 EML / Email	R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	056-SITE SUPPORT/0563-State/Tribal Involvement
100014389	12/11/2007	Email Regarding DQE/EPA/BES Stormwater Meeting.	33	1 EML / Email	R10: Anderson, James, M (Oregon Dept. of Environmental Quality)	R10: Applegate, Richard (City of Portland, Oregon), R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA), R10: Tarnow, Karen, E (Oregon Dept. of Environmental Quality), R10: Johnson, Keith (Oregon Dept. of Environmental Quality), R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	056-SITE SUPPORT/0563-State/Tribal Involvement

4940680210	12/11/2007	Email regarding reply to DQE/EPA/BES Stormwater Meeting.	26	1 EML / Email	R10: Johnson, Keith (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality), R10: Applegate, Rick (City of Portland)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100009872	12/12/2007	Email regarding Round 2 Report - Chapter 5.	21	1 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100009883	12/12/2007	Email regarding Round 2 Report - Chapter 5.	20	1 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100009972	12/12/2007	Email regarding RE_January Meetings with LWG.	21	1 EML / Email	R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100010121	12/12/2007	Email regarding DQE/EPA/BES Stormwater Meeting.	26	1 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality), R10: Tarnow, Karen, E (Oregon Dept. of Environmental Quality), R10: Johnson, Keith (Oregon Dept. of Environmental Quality), R10: McClincy, Matt (Oregon Dept. of Environmental Quality), R10: Applegate, Rick (City of Portland)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100015605	12/12/2007	Email regarding Next PH Managers Meeting.	62	1 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Neely, Robert (NOAA), R10: Madden, Erin (Unknown), R10: Mckenna, James (Port of Portland), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Cunningham, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Pisano, Jessica, A (Anchor Environmental, LLC), R10: Oster, Valerie (Anchor Environmental, LLC), R10: Bluelake, Lisa (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Karnosh, Michael (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA), R10: Anderson, James, M (Oregon Dept. of Environmental Quality), R10: McClincy, Matt (Oregon Dept. of Environmental Quality), R10: Longoria, Rose (Yakama Nation), R10: Wyatt, Robert, J (NW Natural), R10: Hawley, Christine (Integral Corporation), R10: Revelas, Gene (Integral Corporation), R10: Applegate, Rick (City of Portland), R10: Barquin, Billy (Haglund Kelley, LLP)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940680202	12/12/2007	Email regarding reply to DQE/EPA/BES Stormwater Meeting.	26	1 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA), R10: Johnson, Keith (Oregon Dept. of Environmental Quality), R10: Applegate, Rick (City of Portland) (NOAA), R10: Neely, Robert (NOAA), R10: Fleming, Sheila (Ridolfi Engineers and Associates, Inc.), R10: Buck, Jeremy (U. S. Fish and Wildlife Service), R10: Lavelle, Jim (CDM Federal Programs Corporation), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Smith, Carrie, A (Parametrix, Inc.), R10: Peers, Jennifer (Stratus Consulting, Inc.), R10: Allen, P. David (Stratus Consulting, Inc.), R10: Howard, Patti (Columbia River Inter-Tribal Fish Commission), R10: Downey, Tom (Confederated Tribes of the Siletz Indians), R10: Bluelake, Lisa (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Karnosh, Michael (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Sheldrake, Sean, A (EPA), R10: Fuentes, Rene, C (EPA), R10: Cora, Lori, H (EPA), R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA), R10: Smith, Judy, R (EPA), R10: Shephard, Burt (EPA), R10: Humphrey, Chip (EPA), R10: Black, Curt (EPA), R10: Davoli, Dana (EPA), R10: Grepo-grove, Gina (EPA), R10: Goulet, Joe (EPA), R10: Ader, Mark (EPA), R10: Madden, Erin (Nez Perce Tribe), R10: Barquin, Billy (Haglund, Kelley, Horngren, Jones & Wilder, LLP), R10: Farrer, David, G (Oregon Dept. of Human Services), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality), R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100008517	12/13/2007	Email regarding Arkema Draft Groundwater Model.	33	1 EML / Email	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA), R10: Johnson, Keith (Oregon Dept. of Environmental Quality), R10: Applegate, Rick (City of Portland)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940680204	12/13/2007	Email regarding reply to Dick Pedersen's schedule for Milestone Mtg.	21	1 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940680263	12/13/2007	Email regarding reply to Arkema Draft Groundwater Model.	33	1 EML / Email	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	R10: Neely, Robert (NOAA), R10: Fleming, Sheila (Ridolfi Engineers and Associates, Inc.), R10: Madden, Erin (Unknown), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Smith, Carrie, A (Parametrix, Inc.), R10: Peers, Jennifer (Stratus Consulting, Inc.), R10: Downey, Tom (Confederated Tribes of the Siletz Indians), R10: Bluelake, Lisa (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Blischke, Eric, L (EPA), R10: Farrer, David, G (Oregon Dept. of Human Services), R10: Gainer, Thomas, B (Oregon Dept. of Environmental Quality), R10: Longoria, Rose (Yakama Nation), R10: Thompson, Chris (Environment International, Ltd.), R10: Lavelle, James, M (CDM), R10: Barquin, Billy (Haglund Kelley, LLP), R10: Buck, Jeremy (U. S. Fish & Wildlife Service)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100009303	12/18/2007	Email regarding GASCO FFS.	22	1 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Koch, Kristine, M (EPA), R10: Bayuk, Dana (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100009789	12/18/2007	Email regarding Relationship of Kow and Koc.	21	1 EML / Email	R10: Hope, Bruce, K (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100009841	12/18/2007	Email regarding Chapter 5 and 11 Review.	24	2 EML / Email	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100009855	12/18/2007	Email regarding Chapter 5 and 11 Review.	24	2 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940680237	12/18/2007	Email regarding reply to Chapter 5 and 11 Review.	24	2 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940680734	12/18/2007	Email regarding reply to Gasco FFS.	22	1 EML / Email	R10: Anderson, James, M (Oregon Dept. of Environmental Quality)	R10: Koch, Kristine, M (EPA), R10: Bayuk, Dana (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940680735	12/18/2007	Email regarding reply to Gasco FFS.	23	1 EML / Email	R10: Bayuk, Dana (Oregon Dept. of Environmental Quality)	R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100008087	12/19/2007	Memorandum With Comments On Gasco Draft Focused Feasibility Study; Silttronic.	103	5 MEMO / Memorandum	R10: Peers, Jennifer (Stratus Consulting, Inc.)	R10: Anderson, James, M (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement





4940681852	Email regarding Materials for Jan 17 stormwater mtg.	1/14/2008	19	1 EML / Email	R10: Tarnow, Karen, E (Oregon Dept. of Environmental Quality)	R10: Koch, Kristine, M (EPA), R10: Scheffler, Linda (City of Portland, Bureau of Environmental Services), R10: Yamamoto, Deb (EPA Region 10), R10: Sanders, Dawn (Oregon Dept. of Environmental Quality), R10: Applegate, Rick (City of Portland)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100009443	Comment Clarification.	1/15/2008	111	10 RPT / Report	R10: (EPA)		ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100009503	EPA Comments on Comprehensive Round 2 Site Summary and Data Gaps Analysis Report, Sections 1 - 9 and Appendices A, B, C, D, E, F, and G.	1/15/2008	111	10 RPT / Report	R10: (Unknown)		ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100009756	Email regarding Presentation of Data.	1/15/2008	21	1 EML / Email	R10: Poulsen, Michael (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100009764	Email regarding Presentation of Data.	1/15/2008	22	1 EML / Email	R10: Poulsen, Michael (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100010469	Email regarding Sediment Degradation. EPA Comments on Comprehensive Round 2 Site Summary and Data Gaps Analysis Report: Sections 1-9 and Appendices A, B, C, D, F, and G.	1/15/2008	21	1 EML / Email	R10: Hope, Bruce, K (Oregon Dept. of Environmental Quality)	R10: Stivers, Carl (Anchor Environmental, LLC)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100012364		1/15/2008	151	10 CORR / Correspondence	R10: Unknown, Unknown (EPA)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100010450	Email regarding Room at DEQ for Milestone Meeting.	1/17/2008	21	1 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Mckenna, James (Port of Portland), R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA), R10: Wyatt, Robert, J (NW Natural)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940681004	Email regarding Room at DEQ for Milestone Mtg.	1/17/2008	21	1 EML / Email	R10: Anderson, James, M (Oregon Dept. of Environmental Quality)	R10: Mckenna, James (Port of Portland), R10: Blischke, Eric, L (EPA), R10: Wyatt, Robert, J (NW Natural)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940680758	Email regarding reply to Invitation/draft Agenda for PH Outreach and Communications Planning for 2008.	1/18/2008	23	1 EML / Email	R10: Danab, Marcia (Oregon Dept. of Environmental Quality)	R10: Smith, Barbara (Harris Smith Public Affairs), R10: Smith, Judy, R (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940680118	Email regarding reply to Portland Harbor R3B biota Clam sample weights and analyses.	1/22/2008	26	2 EML / Email	R10: Poulsen, Michael (Oregon Dept. of Environmental Quality)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940680119	Email regarding reply to Portland Harbor R3B biota Clam sample weights and analyses.	1/23/2008	30	3 EML / Email	R10: Poulsen, Michael (Oregon Dept. of Environmental Quality)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100010392	Email regarding Water Samples.	1/28/2008	21	1 EML / Email	R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100010518	Email regarding Stormwater Modeling Results.	1/28/2008	20	1 EML / Email	R10: Tarnow, Karen, E (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100010839	Email regarding Water Samples.	1/28/2008	21	1 EML / Email	R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA), R10: Goulet, Joe (EPA), R10: Gensemer, Robert, W (Parametrix, Inc.), R10: Buck, Jeremy (U. S. Fish & Wildlife Service)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100017468	REDACTED Email regarding reply to Materials for Jan 17 stormwater mtg.	1/28/2008	26	2 EML / Email	R10: Johnson, Keith (Oregon Dept. of Environmental Quality)	R10: Yamamoto, Deb (EPA), R10: Sanders, Dawn (City of Portland, Bureau of Environmental Services), R10: Tarnow, Karen, E (Oregon Dept. of Environmental Quality), R10: Applegate, Rick (City of Portland)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100018063	REDACTED Email regarding Q4 Sediment Trap Priority Analyses.	1/28/2008	67	2 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940681029	Email regarding Stormwater Modeling Results.	1/28/2008	21	1 EML / Email	R10: Tarnow, Karen, E (Oregon Dept. of Environmental Quality)	R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100014990	REDACTED Email regarding TCT Agenda and Round 2 Report Review Status.	1/29/2008	23	2 EML / Email	R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100010659	Email regarding RE_LWG's Treatability Study Lit Survey.	1/30/2008	26	2 EML / Email	R10: Gainer, Tom (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100017470	REDACTED Email regarding reply to Materials for Jan 17 stormwater mtg.	1/30/2008	27	3 EML / Email	R10: Anderson, James, M (Oregon Dept. of Environmental Quality)	R10: Yamamoto, Deb (EPA), R10: Sanders, Dawn (City of Portland, Bureau of Environmental Services), R10: Johnson, Keith (Oregon Dept. of Environmental Quality), R10: Applegate, Rick (City of Portland)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100017473	REDACTED Email regarding reply to Materials for Jan 17 stormwater mtg.	1/30/2008	27	3 EML / Email	R10: Johnson, Keith (Oregon Dept. of Environmental Quality)	R10: Yamamoto, Deb (EPA), R10: Sanders, Dawn (City of Portland, Bureau of Environmental Services), R10: Tarnow, Karen, E (Oregon Dept. of Environmental Quality), R10: Applegate, Rick (City of Portland)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100017679	REDACTED Email regarding Materials for Jan 17 stormwater meeting.	1/30/2008	27	3 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Applegate, Richard (City of Portland, Oregon), R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA), R10: Tarnow, Karen, E (Oregon Dept. of Environmental Quality), R10: Johnson, Keith (Oregon Dept. of Environmental Quality), R10: Yamamoto, Deb (EPA Region 10), R10: Sanders, Dawn (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940680991	Email regarding reply to WOE ready for internal review.	1/30/2008	23	1 EML / Email	R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)	R10: Goulet, Joe (EPA), R10: Gensemer, Robert, W (Parametrix, Inc.)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100010136	Email regarding Stormwater Modeling Results.	1/31/2008	22	2 EML / Email	R10: Tarnow, Karen, E (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100010725	Email regarding Stormwater modeling results.	1/31/2008	21	1 EML / Email	R10: Tarnow, Karen, E (Oregon Dept. of Environmental Quality)	R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940680244	Email regarding reply to Bivalve Consumption Exposure Scenario in the Human Health Risk Assessment.	1/31/2008	21	1 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940680938	Email regarding reply to Stormwater modeling results.	1/31/2008	21	1 EML / Email	R10: Tarnow, Karen, E (Oregon Dept. of Environmental Quality)	R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940681197	Email regarding Milestone Rpt. Calculation of Potential Risk from Consumption of Breast Milk.	1/31/2008	20	1 EML / Email	R10: Anderson, James, M (Oregon Dept. of Environmental Quality)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100008153	Consumption of Breast Milk.	2/1/2008	55	1 CHT / Chart/Table	R10: Unknown, Unknown (Unknown)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100015469	REDACTED Email regarding Comments on Problem Formation.	2/4/2008	23	2 EML / Email	R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100015470	REDACTED Email regarding Comments on Problem Formation.	2/4/2008	20	1 EML / Email	R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)	R10: Field, Jay (NOAA), R10: Neely, Robert (NOAA), R10: Fleming, Sheila (Ridolfi Engineers and Associates, Inc.), R10: Buck, Jeremy (U. S. Fish and Wildlife Service), R10: Peers, Jennifer (Stratus Consulting, Inc.), R10: Howard, Patti (Columbia River Inter-Tribal Fish Commission), R10: Blischke, Eric, L (EPA), R10: Shephard, Burt (EPA), R10: Goulet, Joe (EPA), R10: Gensemer, Robert, W (Parametrix, Inc.)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100015676	Email regarding LWG Quarter 4 Sediment Trap Field Report.	2/4/2008	60	1 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100017700	REDACTED Email regarding reply to Comments on Problem Formulation.	2/4/2008	23	2 EML / Email	R10: Thompson, Chris (Environment International, Ltd.)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100017707	REDACTED Email regarding reply to Comments on Problem Formulation.	2/4/2008	20	1 EML / Email	R10: Thompson, Chris (Environment International, Ltd.)	R10: Neely, Robert (NOAA), R10: Fleming, Sheila (Ridolfi Engineers and Associates, Inc.), R10: Peers, Jennifer (Stratus Consulting, Inc.), R10: Howard, Patti (Columbia River Inter-Tribal Fish Commission), R10: Blischke, Eric, L (EPA), R10: Gensemer, Robert, W (Parametrix, Inc.), R10: Buck, Jeremy (U. S. Fish & Wildlife Service)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement

100008466	Email regarding 2/6 PH Managers Tech Session.	28	1 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Oster, Valerie (Anchor Environmental, LLC), R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA), R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality), R10: Poulsen, Mike (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100017451	REDACTED Email regarding reply to Materials for Jan 17 stormwater mtg.	25	3 EML / Email	R10: Johnson, Keith (Oregon Dept. of Environmental Quality)	R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940680302	Email regarding reply to 2/6 PH Managers Tech session.	28	1 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Oster, Valerie (Anchor Environmental, LLC), R10: Humphrey, Chip (EPA), R10: Poulsen, Michael (Oregon Dept. of Environmental Quality), R10: Thompson, Chris (Environment International, Ltd.)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100010474	2/6/2008 Email regarding RPAC TZW.	27	1 EML / Email	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100010811	Email regarding Multi Plate objectives and results(1).	26	2 EML / Email	R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)	R10: Smith, Carrie, A (Parametrix, Inc.), R10: Blischke, Eric, L (EPA), R10: Shephard, Burt (EPA), R10: Goulet, Joe (EPA), R10: Gensemer, Robert, W (Parametrix, Inc.)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100010813	Email regarding Multi Plate objectives and results.	26	2 EML / Email	R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA), R10: Gensemer, Robert, W (Parametrix, Inc.)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100014142	REDACTED Email regarding DEQ's 1/31/08 Portland Harbor Source Control Milestone Report.	26	1 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Neeley, Robert (NOAA), R10: Buerger, Ted (U. S. Fish and Wildlife Service), R10: Madden, Erin (Unknown), R10: Kepler, Rick (Unknown), R10: Lavelle, Jim (CDM Federal Programs Corporation), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Cunninghame, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Bernardini, Lori (Parametrix, Inc.), R10: Peers, Jennifer (Stratus Consulting, Inc.), R10: Downey, Tom (Confederated Tribes of the Siletz Indians), R10: Karnosh, Michael (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Young, Cyril (Oregon Dept. of State Lands), R10: Barquin, Billy (Haglund, Kelley, Horngren, Jones & Wilder, LLP), R10: Farrer, David, G (Oregon Dept. of Human Services), R10: Gainer, Tom (Oregon Dept. of Environmental Quality), R10: Gensemer, Robert, W (Parametrix, Inc.), R10: Longoria, Rose (Yakama Nation)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100016831	REDACTED Email Regarding DEQ's 1/31/2008 Portland Harbor Source Control Milestone Report.	27	1 EML / Email	R10: Anderson, James, M (Oregon Dept. of Environmental Quality)	(NOAA), R10: Fleming, Sheila (Ridolfi Engineers and Associates, Inc.), R10: Buerger, Ted (U. S. Fish and Wildlife Service), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Cunninghame, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Smith, Carrie, A (Parametrix, Inc.), R10: Bernardini, Lori (Parametrix, Inc.), R10: Peers, Jennifer (Stratus Consulting, Inc.), R10: Howard, Patti (Columbia River Inter-Tribal Fish Commission), R10: Downey, Tom (Confederated Tribes of the Siletz Indians), R10: Karnosh, Michael (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Young, Cyril (Oregon Dept. of State Lands), R10: Purchase, Steve (Oregon Dept. of State Lands), R10: Ader, Mark, A (EPA), R10: Sheldrake, Sean, A (EPA), R10: Fuentes, Rene, C (EPA), R10: Cora, Lori, H (EPA), R10: Yamamoto, Deborah, J (EPA), R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA), R10: Smith, Judy, R (EPA), R10: Cope, Ben (EPA), R10: Shephard, Burt (EPA), R10: Humphrey, Chip (EPA), R10: Davoli, Dana (EPA), R10: Grepo-grove, Gina (EPA), R10: Goulet, Joe (EPA), R10: Madden, Erin (Nez Perce Tribe), R10: Farrer, David, G (Oregon Dept. of Human Services), R10: Gainer, Thomas, B (Oregon Dept. of Environmental Quality), R10: Anderson, James, M (Oregon Dept. of Environmental Quality), R10:	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940681012	2/6/2008 Email regarding RPAC TZW.	26	1 EML / Email	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100008883	2/7/2008 Email regarding FW_ Refined screen.	29	3 EML / Email	R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)	R10: Gensemer, Robert, W (GEI Consultants, Inc.), R10: Shephard, Burt (EPA), R10: Goulet, Joe (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100009871	Email regarding RE_ Inconsistencies noted - media-specific MEs for.	25	2 EML / Email	R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)	R10: Shephard, Burt (EPA), R10: Gensemer, Robert, W (Parametrix, Inc.)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100009882	Email regarding RE_ Inconsistencies noted in seep pathways.	61	2 EML / Email	R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)	R10: Shephard, Burt (EPA), R10: Gensemer, Robert, W (Parametrix, Inc.)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100010048	Email regarding Sentence Fragment Needed, AE 3.	61	1 EML / Email	R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)	R10: Shephard, Burt (EPA), R10: Gensemer, Robert, W (Parametrix, Inc.)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940681855	DEQ RSET Flowchart for Sediment Management.	34	2 CHT / Chart/Table	R10: Poulsen, Michael (Oregon Dept. of Environmental Quality)		ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100008089	EPA Comments on Gasco Groundwater/DNAPL Source Control Focused Feasibility Study of November 2007.	237	6 LTR / Letter	R10: Yamamoto, Deborah, J (EPA)	R10: Anderson, James, M (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100009835	Email regarding Revisions to Exposure Table and Text.	27	2 EML / Email	R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)	R10: Shephard, Burt (EPA), R10: Gensemer, Robert, W (Parametrix, Inc.)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100009879	Email regarding RE_ Inconsistencies noted in seep pathways(1).	24	1 EML / Email	R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA), R10: Gensemer, Robert, W (Parametrix, Inc.)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100010130	Email regarding Draft Agenda for Portland Harbor Milestone Meeting, Tuesday, February 12, 2008.	35	1 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	Mary (NOAA), R10: Neely, Robert (NOAA), R10: Buck, Jeremy (U. S. Fish and Wildlife Service), R10: Buerger, Ted (U. S. Fish and Wildlife Service), R10: Imeson, Thomas, J (Port of Portland), R10: Mckenna, Jim (Port of Portland), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Cunninghame, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Oster, Valerie (Anchor Environmental, LLC), R10: Howard, Patti (Columbia River Inter-Tribal Fish Commission), R10: Marriott, Dean, C (City of Portland, Oregon, Bureau of Environmental Services), R10: Gilpin, Andrew, J (Oregon Steel Mills, Inc.), R10: Downey, Tom (Confederated Tribes of the Siletz Indians), R10: Miller, Max, M (Tonkon Torp, LLP.), R10: Vallance, Derrick (ConocoPhillips Company), R10: Joyce, William, F (Salter Joyce Ziker), R10: Bluelake, Lisa (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Karnosh, Michael (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Young, Cyril (Oregon Dept. of State Lands), R10: Opalski, Daniel, D (EPA), R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA), R10: Smith, Judy, R (EPA), R10: Humphrey, Chip (EPA), R10: Yamamoto, Deb (EPA), R10: Ader, Mark (EPA), R10: Rodriguez, Socorro (EPA), R10: Townsend, Thomas (EPA), R10: Madden, Erin (Nez Perce Tribe), R10: Pedersen, Dick	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement

									Mary (NOAA), R10: Neely, Robert (NOAA), R10: Buck, Jeremy (U. S. Fish and Wildlife Service), R10: Buerger, Ted (U. S. Fish and Wildlife Service), R10: Imeson, Thomas, J (Port of Portland), R10: Mckenna, Jim (Port of Portland), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Cunninghame, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Oster, Valerie (Anchor Environmental, LLC), R10: Howard, Patti (Columbia River Inter-Tribal Fish Commission), R10: Marriott, Dean, C (City of Portland, Oregon, Bureau of Environmental Services), R10: Gilpin, Andrew, J (Oregon Steel Mills, Inc.), R10: Downey, Tom (Confederated Tribes of the Siletz Indians), R10: Miller, Max, M (Tonkon Torp, LLP.), R10: Vallance, Derrick (ConocoPhillips Company), R10: Joyce, William, F (Salter Joyce Ziker), R10: Bluelake, Lisa (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Karnosh, Michael (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Young, Cyril (Oregon Dept. of State Lands), R10: Opalski, Daniel, D (EPA), R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA), R10: Smith, Judy, R (EPA), R10: Humphrey, Chip (EPA), R10: Yamamoto, Deb (EPA), R10: Ader, Mark (EPA), R10: Rodriguez, Socorro (EPA), R10: Townsend, Thomas (EPA), R10: Madden, Erin (Nez Perce Tribe), R10: Pedersen, Dick		
100015139	2/8/2008	REDACTED Email regarding Draft Agenda for Portland Harbor Milestone Meeting, Tuesday, February 12, 2008.	25	1	EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)		ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement		
4940681859	2/8/2008	Letter regarding GASCO Groundwater/DNAPL Source Control Focused Feasibility Study, November 2007.	421	6	LTR / Letter	R10: Yamamoto, Deb (EPA Region 10)	R10: Anderson, James, M (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement		
100017493	2/11/2008	REDACTED Email regarding reply to MOU meeting - Access to 5th Floor in Fox Tower.	21	2	EML / Email	R10: Anderson, James, M (Oregon Dept. of Environmental Quality)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement		
100009760	2/12/2008	Email regarding Problem Formulation Check-in.	22	1	EML / Email	R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)	R10: Buck, Jeremy (U. S. Fish and Wildlife Service), R10: Smith, Carrie, A (Parametrix, Inc.), R10: Blischke, Eric, L (EPA), R10: Shephard, Burt (EPA), R10: Goulet, Joe (EPA), R10: Gensemer, Robert, W (Parametrix, Inc.)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement		
100012721	2/12/2008	Email regarding Problem Formulation Check-in?	22	1	EML / Email	R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)	R10: Smith, Carrie, A (Parametrix, Inc.), R10: Blischke, Eric, L (EPA), R10: Shephard, Burt (EPA), R10: Goulet, Joe (EPA), R10: Gensemer, Robert, W (Parametrix, Inc.), R10: Buck, Jeremy (U. S. Fish & Wildlife Service)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement		
100013560	2/12/2008	Email Regarding Stormwater Modeling Results.	17	1	EML / Email	R10: Tarnow, Karen, E (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement		
100009759	2/13/2008	Email regarding Problem Formulation Check-in.	26	2	EML / Email	R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA), R10: Gensemer, Robert, W (Parametrix, Inc.)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement		
100009849	2/13/2008	Email regarding Clam ATC Map.	20	1	EML / Email	R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement		
100012715	2/13/2008	Email regarding Problem Formulation Check-in?	26	2	EML / Email	R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA), R10: Gensemer, Robert, W (Parametrix, Inc.)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement		
100017168	2/13/2008	REDACTED Email regarding Non-LWG Dredging Data in Portland Harbor.	26	2	EML / Email	R10: Anderson, James, M (Oregon Dept. of Environmental Quality)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement		
100008111	2/14/2008	Email regarding Portland Harbor breastfeeding risk.	18	1	EML / Email	R10: Poulsen, Mike (Oregon Dept. of Environmental Quality)	R10: Lavelle, Jim (CDM Federal Programs Corporation), R10: Davoli, Dana (EPA), R10: Farrer, David, G (Oregon Dept. of Human Services)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement		
100009758	2/14/2008	Email regarding Problem Formulation Check-in.	24	2	EML / Email	R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)	R10: Goulet, Joe (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement		
100012719	2/14/2008	Email regarding Problem Formulation Check-in?	24	2	EML / Email	R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)	R10: Goulet, Joe (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement		
100013963	2/14/2008	Email Regarding Comments on DEQ (Dept. of Environmental Quality) Focused Feasibility Study (FFS), Siltronic Corporation.	22	1	EML / Email	R10: Bayuk, Dana (Oregon Dept. of Environmental Quality)	R10: Mccue, Tom (Siltronic Corporation)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement		
100013965	2/14/2008	Letter Regarding Focused Feasibility Study (FFS), Siltronic Corporation.	158	12	LTR / Letter	R10: Bayuk, Dana (Oregon Dept. of Environmental Quality)	R10: Mccue, Tom (Siltronic Corporation)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement		
100014792	2/14/2008	REDACTED Email regarding Follow-up From MOU and Milestone Meetings.	25	2	EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement		
100014892	2/14/2008	Email regarding Siltronic, FFS Comments Letter.	22	1	EML / Email	R10: Bayuk, Dana (Oregon Dept. of Environmental Quality)	R10: Mccue, Tom (Siltronic Corporation)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement		
100014894	2/14/2008	Letter regarding Focused Feasibility Study Siltronic Corporation.	156	12	CORR / Correspondence	R10: Bayuk, Dana (Oregon Dept. of Environmental Quality)	R10: Mccue, Tom (Siltronic Corporation)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement		
4940681853	2/14/2008	Draft spreadsheet showing Calculation of Potential Risk from Consumption of Breast Milk.	17	2	ADD / Analytical Data Document	R10: Poulsen, Michael (Oregon Dept. of Environmental Quality)		ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement		
4940681854	2/14/2008	Email regarding Portland Harbor breastfeeding risk.	18	1	EML / Email	R10: Poulsen, Michael (Oregon Dept. of Environmental Quality)	R10: Davoli, Dana (EPA), R10: Farrer, David, G (Oregon Dept. of Human Services), R10: Lavelle, James, M (CDM)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement		
100010118	2/15/2008	Email regarding Site Summary.	44	1	EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Varnum, Nicholas (Integral Consulting, Inc.)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement		
4940680816	2/15/2008	Email regarding reply to My draft notes from last night.	22	1	EML / Email	R10: Anderson, James, M (Oregon Dept. of Environmental Quality)	R10: Smith, Judy, R (EPA), R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement		
100010888	2/19/2008	Email regarding Portland Harbor breastfeeding risk.	21	2	EML / Email	R10: Poulsen, Mike (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement		
100020072	2/20/2008	REDACTED Email regarding Thursday Managers' Meeting Location.	21	1	EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Oster, Valerie (Anchor Environmental, LLC), R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement		
4940680964	2/20/2008	Email regarding reply to Thursday Managers' meeting location.	24	1	EML / Email	R10: Anderson, James, M (Oregon Dept. of Environmental Quality)	R10: Oster, Valerie (Anchor Environmental, LLC), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement		
100017834	2/22/2008	REDACTED Email regarding reply to Thursday Managers' meeting location.	20	1	EML / Email	R10: Anderson, James, M (Oregon Dept. of Environmental Quality)	R10: Oster, Valerie (Anchor Environmental, LLC)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement		
100014633	2/25/2008	Letter regarding (DRAFT) PCB in Breast Milk at Portland Harbor.	442	7	LTR / Letter	R10: Farrer, David, G (Oregon Dept. of Human Services)	R10: Mckenna, James (Port of Portland), R10: Wyatt, Robert, J (NW Natural)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement		

100009378	2/26/2008	Email regarding GASCO - Offshore Investigation Report.	33	1 EML / Email	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	(NOAA), R10: Neely, Robert (NOAA), R10: Fleming, Sheila (Ridolfi Engineers and Associates, Inc.), R10: Buck, Jeremy (U. S. Fish and Wildlife Service), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Smith, Carrie, A (Parametrix, Inc.), R10: Downey, Tom (Confederated Tribes of the Siletz Indians), R10: Bluelake, Lisa (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Karnosh, Michael (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Ader, Mark, A (EPA), R10: Sheldrake, Sean, A (EPA), R10: Fuentes, Rene, C (EPA), R10: Cora, Lori, H (EPA), R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA), R10: Smith, Judy, R (EPA), R10: Shephard, Burt (EPA), R10: Humphrey, Chip (EPA), R10: Davoli, Dana (EPA), R10: Grepo-grove, Gina (EPA), R10: Goulet, Joe (EPA), R10: Farrer, David, G (Oregon Dept. of Human Services), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality), R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality), R10: Poulsen, Michael (Oregon Dept. of Environmental Quality), R10: Gainer, Tom (Oregon Dept. of Environmental Quality), R10: Gensemer, Robert, W (Parametrix, Inc.), R10: Dexter, Robert (Ridolfi, Inc.), R10: Longoria, Rose (Yakama Nation), R10: Shorr, Benjamin (NOAA), R10: Lavelle, James, M (CDM), R10:	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100017443	2/26/2008	REDACTED Email regarding reply to Gasco - Offshore Investigation Report.	24	1 EML / Email	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	R10: Neely, Robert (NOAA), R10: Fleming, Sheila (Ridolfi Engineers and Associates, Inc.), R10: Lavelle, Jim (CDM Federal Programs Corporation), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Cunninghame, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Smith, Carrie, A (Parametrix, Inc.), R10: Howard, Patti (Columbia River Inter-Tribal Fish Commission), R10: Downey, Tom (Confederated Tribes of the Siletz Indians), R10: Bluelake, Lisa (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Blischke, Eric, L (EPA), R10: Madden, Erin (Nez Perce Tribe), R10: Farrer, David, G (Oregon Dept. of Human Services), R10: Gainer, Tom (Oregon Dept. of Environmental Quality), R10: Longoria, Rose (Yakama Nation), R10: Williams, J., D (Law Offices of J. D. Williams), R10: Allen, David (Stratus Consulting, Inc.), R10: Barquin, Billy (Haglund Kelley, LLP), R10: Dexter, Bob (Ridolfi, Inc.), R10: Buck, Jeremy (U. S. Fish & Wildlife Service)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100018095	2/26/2008	REDACTED Email regarding PH Tech Meeting Wednesday.	20	1 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA), R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100018053	2/27/2008	REDACTED Email Regarding PCBs in Breast Milk at Portland Harbor.	24	2 EML / Email	R10: Farrer, David, G (Oregon Dept. of Human Services)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940681856	2/27/2008	DEQ-NWR Clean Fill Screening Level Values Table.	26	3 ADD / Analytical Data Document	R10: Weick, Rodney (Oregon Dept. of Environmental Quality)		ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100008926	2/28/2008	Email regarding FW_ Bathemetry map for Zidell.	17	1 EML / Email	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	R10: Sheldrake, Sean, A (EPA), R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100012425	2/28/2008	Email regarding Bathemetry map for Zidell.	22	1 EML / Email	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	R10: Sheldrake, Sean, A (EPA), R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100012278	3/1/2008	DEQ/City Outfall Basin Evaluation Process. Pished Source Control Decision Criteria for	23	1 CHT / Chart/Table	R10: Unknown, Unknown (Oregon Dept. of Environmental Quality)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100012284	3/1/2008	Portland Harbor. Email regarding DEQ Solid Waste Program	67	2 RPT / Report	R10: Unknown, Unknown (Oregon Dept. of Environmental Quality)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100007750	3/3/2008	Contact. Email Regarding DEQ Solid Waste Program Contact: Requirements for Upland Management of Treated Contaminated Sediment From Future Portland Harbor	17	1 EML / Email	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100014070	3/3/2008	Remediation Projects.	29	1 EML / Email	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100008436	3/4/2008	Email regarding RD3B Side-scan Sonar FSP.	22	1 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100010032	3/4/2008	Email regarding DEQ Solid Waste Program Contact.	22	1 EML / Email	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100017563	3/4/2008	REDACTED Email regarding reply to Portland Harbor Communications Group Meet/Eat Prior to CAG.	20	1 EML / Email	R10: Anderson, James, M (Oregon Dept. of Environmental Quality)	R10: Bishop, Karen (State of Oregon), R10: Wray, Rachel (Port of Portland), R10: Smith, Barbara (Harris Smith Public Affairs), R10: Gardner, Sara (City of Portland, Oregon, Environmental Services), R10: Smith, Judy, R (EPA), R10: Early, Julie (Oregon Dept. of Human Services), R10: Danab, Marcia (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940680218	3/4/2008	Email regarding reply to DEQ Solid Waste Program Contact.	22	1 EML / Email	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940681248	3/4/2008	Email regarding RD3B Side-scan Sonar FSP	22	1 EML / Email	R10: Anderson, James, M (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100011561	3/5/2008	Discussion Materials from EPA Meeting on Feasibility Study, Wednesday March 5, 2008. Email Regarding Options/Requirements for Upland Management of Contaminated	20	2 RPT / Report	R10: (Unknown)		ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100011829	3/5/2008	Sediment.	47	1 EML / Email	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100012282	3/5/2008	Stormwater Pathway Evaluation Process. Email regarding reply to Thursday Managers' meeting location.	86	2 CHT / Chart/Table	R10: Unknown, Unknown (Oregon Dept. of Environmental Quality)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940680963	3/5/2008	meeting location. Email regarding Options/Requirements for Upland Management of Contaminated	22	1 EML / Email	R10: Anderson, James, M (Oregon Dept. of Environmental Quality)	R10: Oster, Valerie (Anchor Environmental, LLC)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940681857	3/5/2008	Sediment.	18	1 EML / Email	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940681245	3/6/2008	Email regarding Race track	20	1 EML / Email	R10: Anderson, James, M (Oregon Dept. of Environmental Quality)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100012245	3/7/2008	Email regarding Agenda for March 13th stormwater mtg 10-noon.	18	1 EML / Email	R10: Johnson, Keith (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA), R10: Yamamoto, Deb (EPA), R10: Sanders, Dawn (City of Portland, Bureau of Environmental Services), R10: Scheffler, Linda (City of Portland, Bureau of Environmental Services), R10: Tarnow, Karen, E (Oregon Dept. of Environmental Quality), R10: Applegate, Rick (City of Portland)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100012246	3/7/2008	Agenda for March 13th Stormwater Source Control Meeting.	30	1 MTG / Meeting Document	R10: Unknown, Unknown (Unknown)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement



4940680283	3/10/2008	Email regarding reply to Agenda for March 13th stormwater mtg 10-noon.	26	1 EML / Email	R10: Johnson, Keith (Oregon Dept. of Environmental Quality)	R10: Koch, Kristine, M (EPA), R10: Sanders, Dawn (City of Portland, Bureau of Environmental Services), R10: Tarnow, Karen, E (Oregon Dept. of Environmental Quality), R10: Yamamoto, Deb (EPA Region 10), R10: Applegate, Rick (City of Portland)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100017940	3/11/2008	REDACTED Email regarding Draft Comments on Section 10 of Round 2 Report and Portland Harbor FS Guidance.	26	3 EML / Email	R10: Gainer, Tom (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100012276	3/12/2008	Email regarding Agenda for March 13th stormwater mtg 10-noon.	18	1 EML / Email	R10: Tarnow, Karen, E (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA), R10: Yamamoto, Deb (EPA), R10: Sanders, Dawn (City of Portland, Bureau of Environmental Services), R10: Scheffler, Linda (City of Portland, Bureau of Environmental Services), R10: Johnson, Keith (Oregon Dept. of Environmental Quality), R10: Applegate, Rick (City of Portland)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100012279	3/13/2008	Agenda for DEQ-EPA Meeting on March 13, 2008.	28	1 MTG / Meeting Document	R10: Unknown, Unknown (EPA), R10: Unknown, Unknown (Oregon Dept. of Environmental Quality)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100007713	3/14/2008	Email regarding Comments on RD2 SCSR Section 10.	22	2 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100013953	3/14/2008	Email Regarding Comments On Round 2 Site Characterization Summary Report (SCSR) Section 10.	35	2 EML / Email	R10: Anderson, James, M (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100009124	3/17/2008	Email regarding First Draft of Water TRV Table.	25	2 EML / Email	R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100011494	3/17/2008	Email Regarding J. Peterson and M. Poulsen Comments.	39	3 EML / Email	R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100009828	3/18/2008	Email regarding Revised Portland Harbor Technical Meeting Schedule.	21	1 EML / Email	R10: Poulsen, Michael (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100012286	3/20/2008	Email regarding Draft notes from 3/13 stormwater meeting.	19	1 EML / Email	R10: Tarnow, Karen, E (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA), R10: Yamamoto, Deb (EPA), R10: Sanders, Dawn (City of Portland, Bureau of Environmental Services), R10: Scheffler, Linda (City of Portland, Bureau of Environmental Services), R10: Applegate, Rick (City of Portland)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100012294	3/20/2008	Summary of March 13, 2008 EPA-DEQ-BES Stormwater Meeting.	51	3 MTG / Meeting Document	R10: Unknown, Unknown (Unknown)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100008086	3/21/2008	Email Regarding NW Natural, Focused Feasibility Study Comments Letter.	33	2 EML / Email	R10: Bayuk, Dana (Oregon Dept. of Environmental Quality)	R10: Wyatt, Robert, J (NW Natural)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100008088	3/21/2008	Review of the Groundwater/DNAPL Source Control Focused Feasibility Study for NW Natural 'Gasco' Site Received 10/12/2007 and Amended 11/9/2007 (Groundwater/DNAPL FFS).	291	18 LTR / Letter	R10: Bayuk, Dana (Oregon Dept. of Environmental Quality)	R10: Wyatt, Robert, J (Northwest Natural Gas Company)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100010697	3/21/2008	Email regarding Meeting discussing contamination at North Reach restoration sites.	30	3 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Sanders, Dawn (City of Portland, Oregon), R10: Applegate, Richard (City of Portland, Oregon), R10: Callahan-grant, Megan (NOAA), R10: Munn, Nancy (NOAA), R10: Prescott, Chris (City of Portland, Oregon, Endangered Species Act Program), R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA), R10: Johnson, Keith (Oregon Dept. of Environmental Quality), R10: Ketcham, Paul, R10: Lustig, Matt	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100012687	3/21/2008	Email regarding Portland Harbor (T&E and sensitive species).	26	3 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Burkholder, Kurt (Oregon Dept. of Justice), R10: Cora, Lori, H (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940681860	3/21/2008	Letter regarding Groundwater/DNAPL Focused Feasibility Study - Shoreline Segments 1 and 2, NW Natural Property and the Northern Portion of the Siltronic Corporation Property - Northwest Natural Gas Company, Portland, Oregon - ECSI No. 183.	226	18 LTR / Letter	R10: Bayuk, Dana (Oregon Dept. of Environmental Quality)	R10: Wyatt, Robert, J (NW Natural)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940681861	3/21/2008	Email regarding NW Natural, FFS Comments Letter.	24	2 EML / Email	R10: Bayuk, Dana (Oregon Dept. of Environmental Quality)	R10: Wyatt, Robert, J (NW Natural)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100007753	3/24/2008	Email regarding DEQ's comment re: EPA's draft FS Guidance.	22	2 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA), R10: Gainer, Tom (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100009748	3/24/2008	Email regarding Portland Harbor (Endangered Species Act).	27	3 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Cora, Lori, H (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100012667	3/24/2008	Email regarding Portland Harbor (T&E and sensitive species).	27	3 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Cora, Lori, H (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100014319	3/24/2008	Email Regarding DEQ's Comment Concerning EPA's Draft Feasibility Study (FS) Guidance.	35	2 EML / Email	R10: Anderson, James, M (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA), R10: Gainer, Thomas, B (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100015678	3/24/2008	Email regarding LWG Sediment Chemical Mobility FSP for EPA Review.	24	1 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100010524	3/25/2008	Email regarding fate and transport model calibration parameters.	28	3 EML / Email	R10: Hope, Bruce, K (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100010527	3/25/2008	Email regarding fate and transport model calibration parameters.	33	4 EML / Email	R10: Hope, Bruce, K (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100010528	3/25/2008	Email regarding fate and transport model calibration parameters.	35	5 EML / Email	R10: Hope, Bruce, K (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100010530	3/25/2008	Email regarding fate and transport model calibration parameters.	32	4 EML / Email	R10: Hope, Bruce, K (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100014619	3/25/2008	Email regarding Breast Milk Contamination Health Consultation.	18	1 EML / Email	R10: Farrer, David, G (Oregon Dept. of Human Services)	R10: Douglas, Jae, P (State of Oregon), R10: Blischke, Eric, L (EPA), R10: Davoli, Dana (EPA), R10: Bradley, Katherine (State of Oregon)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100008890	3/26/2008	Email regarding FW_Siltronic & DEQ meeting.	34	3 EML / Email	R10: Bayuk, Dana (Oregon Dept. of Environmental Quality)	R10: Sheldrake, Sean, A (EPA), R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100012330	3/26/2008	Email regarding 2008 CAG Survey.	17	1 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Smith, Judy, R (EPA), R10: Humphrey, Chip (EPA), R10: Smith, Barbara (Harris and Smith)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940681159	3/26/2008	Email regarding Siltronic & DEQ meeting.	34	3 EML / Email	R10: Bayuk, Dana (Oregon Dept. of Environmental Quality)	R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100018055	3/28/2008	REDACTED Email Regarding Start of Memo to Reviewers of Breatmilk Methods and Consultation.	21	1 EML / Email	R10: Farrer, David, G (Oregon Dept. of Human Services)	R10: Davoli, Dana (EPA), R10: Poulsen, Mike (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100015642	3/31/2008	Email regarding Side Scan Sonar Revised FSP Extension.	78	2 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100009126	4/1/2008	Email regarding Fish Dietary TRVs, and Cleaned Up Water TRVs.	25	2 EML / Email	R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)	R10: Buck, Jeremy (U. S. Fish and Wildlife Service), R10: Blischke, Eric, L (EPA), R10: Shephard, Burt (EPA), R10: Goulet, Joe (EPA), R10: Gensemer, Robert, W (Parametrix, Inc.)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100014766	4/1/2008	REDACTED Email regarding Fate and Transport Modeling Update.	34	5 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100017685	4/1/2008	REDACTED Email regarding reply to Fate and Transport Modeling Update.	34	5 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100017967	4/2/2008	REDACTED Email regarding TRVs.	19	1 EML / Email	R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA), R10: Shephard, Burt (EPA), R10: Goulet, Joe (EPA), R10: Gensemer, Robert, W (Parametrix, Inc.), R10: Buck, Jeremy (U. S. Fish & Wildlife Service)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100010067	4/4/2008	Email regarding Siltronic, EPA and DEQ Meeting or Conference Call.	26	2 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement

100010068	4/4/2008	Email regarding Siltronic, EPA and DEQ Meeting or Conference Call.	26	2 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA), R10: Bayuk, Dana (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940680926	4/4/2008	Email regarding reply to Siltronic, EPA and DEQ Meeting or Conference Call.	26	2 EML / Email	R10: Anderson, James, M (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100009183	4/7/2008	Email regarding Background Methods Meeting - Date change needed.	21	1 EML / Email	R10: Poulsen, Mike (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100011194	4/7/2008	Memorandum regarding Final Draft Proposed Approach for Evaluating Potential Risks from Consuming Breast Milk.	166	18 MEMO / Memorandum	R10: Davoli, Dana (EPA), R10: Farrer, David, G (Oregon Dept. of Human Services), R10: Poulsen, Mike (Oregon Dept. of Environmental Quality)	R10: (Lower Willamette Group)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100014644	4/7/2008	Memo regarding Proposed Risk Assessment Approach for Evaluating Potential Risks From Consuming Breast Milk.	235	18 MEMO / Memorandum	R10: Davoli, Dana (EPA), R10: Farrer, David, G (Oregon Dept. of Human Services), R10: Poulsen, Michael (Oregon Dept. of Environmental Quality)	R10: (Lower Willamette Group) (NOAA), R10: Neely, Robert (NOAA), R10: Fleming, Sheila (Ridolfi Engineers and Associates, Inc.), R10: Buck, Jeremy (U. S. Fish and Wildlife Service), R10: Lavelle, Jim (CDM Federal Programs Corporation), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Cunninghame, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Smith, Carrie, A (Parametrix, Inc.), R10: Malek, John (Parametrix, Inc.), R10: Peers, Jennifer (Stratus Consulting, Inc.), R10: Allen li, P. David (Stratus Consulting, Inc.), R10: Howard, Patti (Columbia River Inter-Tribal Fish Commission), R10: Downey, Tom (Confederated Tribes of the Siletz Indians), R10: Bluelake, Lisa (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Karnosh, Michael (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Sheldrake, Sean, A (EPA), R10: Fuentes, Rene, C (EPA), R10: Cora, Lori, H (EPA), R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA), R10: Smith, Judy, R (EPA), R10: Shephard, Burt (EPA), R10: Humphrey, Chip (EPA), R10: Davoli, Dana (EPA), R10: Grepo-grove, Gina (EPA), R10: Goulet, Joe (EPA), R10: Ader, Mark (EPA), R10: Madden, Erin (Nez Perce Tribe), R10: Barquin, Billy (Haglund, Kelley, Horngren, Jones & Wilder, LLP), R10: Farrer, David, G (Oregon Dept. of Human Services), R10: Peterson,	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100014655	4/7/2008	REDACTED Email regarding Background Methods Meeting - Date change needed.	26	2 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Batson, David, C (EPA), R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100015391	4/7/2008	REDACTED Email regarding Portland Harbor - Prep for April 15 Technical Information Session.	26	3 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100015392	4/7/2008	REDACTED Email regarding Portland Harbor Breast Milk.	28	3 EML / Email	R10: Poulsen, Michael (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100015724	4/7/2008	REDACTED Email regarding FW_ Background Methods Meeting - Date change needed.	22	2 EML / Email	R10: Gainer, Tom (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100017080	4/7/2008	REDACTED Email regarding reply to Background Methods Meeting - Date change needed.	27	2 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Neely, Robert (NOAA), R10: Fleming, Sheila (Ridolfi Engineers and Associates, Inc.), R10: Madden, Erin (Unknown), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Cunninghame, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Smith, Carrie, A (Parametrix, Inc.), R10: Howard, Patti (Columbia River Inter-Tribal Fish Commission), R10: Downey, Tom (Confederated Tribes of the Siletz Indians), R10: Bluelake, Lisa (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Blischke, Eric, L (EPA), R10: Farrer, David, G (Oregon Dept. of Human Services), R10: Gainer, Thomas, B (Oregon Dept. of Environmental Quality), R10: Longoria, Rose (Yakama Nation), R10: Thompson, Chris (Environment International, Ltd.), R10: Lavelle, James, M (CDM), R10: Allen, David (Stratus Consulting, Inc.), R10: Barquin, Billy (Haglund Kelley, LLP), R10: Dexter, Bob (Ridolfi, Inc.), R10: Buck, Jeremy (U. S. Fish & Wildlife Service)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100017521	4/7/2008	REDACTED Email regarding reply to Portland Harbor breast milk.	28	3 EML / Email	R10: Poulsen, Mike (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100017547	4/7/2008	REDACTED Email regarding reply to Portland Harbor - Prep for April 15 Technical Information Session.	27	3 EML / Email	R10: Anderson, James, M (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100017705	4/7/2008	REDACTED Email regarding Portland Harbor breast milk(1).	25	2 EML / Email	R10: Poulsen, Mike (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100016929	4/8/2008	REDACTED Email regarding Portland Harbor Breast Milk.	36	6 EML / Email	R10: Farrer, David, G (Oregon Dept. of Human Services)	R10: Blischke, Eric, L (EPA), R10: Poulsen, Michael (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100017773	4/8/2008	REDACTED Email regarding reply to Siltronic, EPA and DEQ Meeting or Conference Call.	25	3 EML / Email	R10: Bayuk, Dana (Oregon Dept. of Environmental Quality)	R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100017068	4/10/2008	REDACTED Email regarding reply to Background meeting date proposal.	25	1 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Neely, Robert (NOAA), R10: Fleming, Sheila (Ridolfi Engineers and Associates, Inc.), R10: Madden, Erin (Unknown), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Cunninghame, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Smith, Carrie, A (Parametrix, Inc.), R10: Howard, Patti (Columbia River Inter-Tribal Fish Commission), R10: Downey, Tom (Confederated Tribes of the Siletz Indians), R10: Bluelake, Lisa (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Blischke, Eric, L (EPA), R10: Farrer, David, G (Oregon Dept. of Human Services), R10: Gainer, Thomas, B (Oregon Dept. of Environmental Quality), R10: Longoria, Rose (Yakama Nation), R10: Williams, J., D (Law Offices of J. D. Williams), R10: Thompson, Chris (Environment International, Ltd.), R10: Lavelle, James, M (CDM), R10: Allen, David (Stratus Consulting, Inc.), R10: Barquin, Billy (Haglund Kelley, LLP), R10: Dexter, Bob (Ridolfi, Inc.), R10: Buck, Jeremy (U. S. Fish & Wildlife Service)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100020091	4/16/2008	REDACTED Email regarding TZ Water Issues.	24	2 EML / Email	R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)	R10: Shephard, Burt (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100014625	4/18/2008	DRAFT Memo regarding Risk Assessment Evaluation of Breast Feeding Pathway (With Comments).	78	3 OTH / Other	R10: Farrer, David, G (Oregon Dept. of Human Services)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA), R10: Davoli, Dana (EPA), R10: Poulsen, Michael (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100017768	4/21/2008	REDACTED Email regarding reply to Siltronic, EPA and DEQ Meeting or Conference Call.	23	4 EML / Email	R10: Bayuk, Dana (Oregon Dept. of Environmental Quality)	R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement

4940680207	4/21/2008	Email regarding reply to Downtown Portland FSP- Email 1 of 3.	22	1 EML / Email	R10: Johnson, Keith (Oregon Dept. of Environmental Quality) R10: Poulsen, Mike (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100009029	4/22/2008	Email regarding Breastmilk.	18	1 EML / Email		R10: Davoli, Dana (EPA) R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA), R10: Davoli, Dana (EPA), R10: Poulsen, Michael (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100014624	4/22/2008	Email regarding Breast Milk.	19	1 EML / Email	R10: Farrer, David, G (Oregon Dept. of Human Services) R10: Poulsen, Michael (Oregon Dept. of Environmental Quality)	Poulsen, Michael (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940680229	4/22/2008	Email regarding reply to Breastmilk.	24	2 EML / Email		R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100014643	4/23/2008	Memo regarding Recommendation to Include Risk Evaluation of the Breast Feeding Pathway in the Portland Harbor Human Health Risk Assessment (HHRA) and RI/FS.	108	4 MEMO / Memorandum	R10: Davoli, Dana (EPA), R10: Farrer, David, G (Oregon Dept. of Human Services), R10: Poulsen, Michael (Oregon Dept. of Environmental Quality)	R10: Yamamoto, Deb (EPA) R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA), R10: Davoli, Dana (EPA), R10: Poulsen, Michael (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100016930	4/24/2008	REDACTED Email regarding Breast Milk Package to Be Sent to Deb Yamamoto.	22	2 EML / Email	R10: Farrer, David, G (Oregon Dept. of Human Services)	Poulsen, Michael (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100007746	4/25/2008	Email regarding DEQ Comments re: LWG's Sed Chemical Mobility Testing FSP.	18	1 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100014093	4/25/2008	Email Regarding DEQ Comments Concerning Lower Willamette Group's (LWG's) Sediment Chemical Mobility Testing Field Sampling Plan (FSP).	33	1 EML / Email	R10: Anderson, James, M (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100015679	4/25/2008	Email regarding LWG Side Scan Sonar FSP for EPA Review.	24	1 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940680239	4/25/2008	Email regarding reply to Breast Milk Package to Be Sent to Deb Yamamoto.	20	1 EML / Email	R10: Poulsen, Michael (Oregon Dept. of Environmental Quality)	R10: Davoli, Dana (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100007767	4/28/2008	Email regarding ELEC Slides.	16	1 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100010127	4/28/2008	Email regarding RE_LWG Background Proposal.	22	1 EML / Email	R10: Poulsen, Mike (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100013016	4/28/2008	Email Regarding ELEC Slides.	28	1 EML / Email	R10: Anderson, James, M (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940680772	4/28/2008	Email regarding reply to LWG Background Proposal.	22	1 EML / Email	R10: Poulsen, Mike (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100020094	4/29/2008	REDACTED Email regarding Tissue-Residue TRVs.	19	1 EML / Email	R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100010145	4/30/2008	Email regarding RE_LWG proposal to use RSET toxicity bioassay interpretation criteria.	26	2 EML / Email	R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100010146	4/30/2008	Email regarding RE_LWG proposal to use RSET toxicity bioassay interpretation criteria(1).	25	2 EML / Email	R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100010348	4/30/2008	Email regarding ELEC slides.	23	1 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100010356	4/30/2008	Email regarding ELEC slides.	23	1 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940680168	4/30/2008	Email regarding reply to ELEC Slides.	20	1 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940681176	5/2/2008	Email regarding Indicator Chemical List for RI. Email regarding Brave New World - Aquatic biota tissue residue TRV approach for Portland Harbor BERA.	23	1 EML / Email	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100009308	5/5/2008	REDACTED Email regarding Background Meeting Summary.	21	1 EML / Email	R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA), R10: Shephard, Burt (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100014653	5/5/2008	REDACTED Email regarding Background Meeting Summary.	23	2 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100014660	5/5/2008	REDACTED Email regarding Background Meeting Summary.	22	2 EML / Email	R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100015722	5/5/2008	REDACTED Email regarding FW_Background Meeting Summary.	23	2 EML / Email	R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100017079	5/5/2008	REDACTED Email regarding reply to Background Meeting Summary.	23	2 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100007742	5/6/2008	Email regarding DEQ Accepts Public Comment on Stormwater Guidance for Cleanup Sites.	27	2 EML / Email	R10: Tarnow, Karen, E (Oregon Dept. of Environmental Quality)	R10: Sanders, Dawn (City of Portland, Oregon), R10: Shelley, Erin (City of Portland, Oregon), R10: Scheffler, Linda (City of Portland, Oregon), R10: Applegate, Richard (City of Portland, Oregon), R10: Johnson, Laura (City of Portland, Oregon, Bureau of Environmental Services), R10: Pronold, Michael (City of Portland, Oregon, Bureau of Environmental Services), R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA), R10: Yamamoto, Deb (EPA), R10: Chomowicz, Amy (City of Portland)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100014054	5/6/2008	Email Regarding Portland Harbor (Columbia Slough and General Cleanup Program): DEQ Accepts Informal Public Comment On Proposed Stormwater Guidance for Cleanup Sites.	47	2 EML / Email	R10: Tarnow, Karen, E (Oregon Dept. of Environmental Quality)	R10: Johnson, Laura (City of Portland, Oregon, Bureau of Environmental Services), R10: Pronold, Michael (City of Portland, Oregon, Bureau of Environmental Services), R10: Yamamoto, Deborah, J (EPA), R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA), R10: Sanders, Dawn (City of Portland, Bureau of Environmental Services), R10: Scheffler, Linda (City of Portland, Bureau of Environmental Services), R10: Tarnow, Karen, E (Oregon Dept. of Environmental Quality), R10: Johnson, Keith (Oregon Dept. of Environmental Quality), R10: Chomowicz, Amy (City of Portland), R10: Applegate, Rick (City of Portland)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100017810	5/6/2008	REDACTED Email regarding reply to Summary of Outstanding RI and BRA Issues.	29	3 EML / Email	R10: Anderson, James, M (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100017941	5/6/2008	REDACTED Email regarding Summary of Outstanding RI and BRA Issues.	29	3 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100009164	5/7/2008	Email regarding Background Meeting Summary.	21	1 EML / Email	R10: Poulsen, Mike (Oregon Dept. of Environmental Quality)	R10: Shephard, Burt (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100009145	5/8/2008	Email regarding Friday Morning Telecon on Background Tech Issues.	22	1 EML / Email	R10: Poulsen, Michael (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA), R10: Shephard, Burt (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100014650	5/8/2008	REDACTED Email regarding Friday Morning Telecon on Background Tech Issues.	23	2 EML / Email	R10: Poulsen, Michael (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100017674	5/8/2008	REDACTED Email regarding reply to Friday morning telecon on background tech issues.	23	2 EML / Email	R10: Poulsen, Michael (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940680148	5/8/2008	Email regarding reply to Friday morning telecon on background tech issues.	22	1 EML / Email	R10: Poulsen, Michael (Oregon Dept. of Environmental Quality)	R10: Shephard, Burt (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100008966	5/9/2008	REDACTED Email regarding Draft Comments on Section 11.	18	1 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100012350	5/9/2008	Email regarding Draft Comments on Section 11.	17	1 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100009583	5/12/2008	Email regarding PH Lamprey Assessment.	26	2 EML / Email	R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100014661	5/12/2008	REDACTED Email regarding Draft Comments on Section 11.	21	2 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100007676	5/13/2008	Email regarding Aquatic Tissue TRVs.	16	1 EML / Email	R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)	R10: Shephard, Burt (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement

100009144	5/13/2008	Email regarding Friday Morning Telecon on Background Tech Issues.	27	2 EML / Email	R10: Poulsen, Michael (Oregon Dept. of Environmental Quality)	R10: Shephard, Burt (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100010847	5/13/2008	Email regarding WOE and TRV Weighting and other issues.	22	1 EML / Email	R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)	R10: Shephard, Burt (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100011295	5/13/2008	Email Regarding Discussion On the Technical Coordinating Team (TCT) Call Last Week About the Hit/No Hit Criteria Interpretation for the Bioassays.	29	1 EML / Email	R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)	R10: Shephard, Burt (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100011300	5/13/2008	Email Regarding Indicator Chemical List for Remedial Investigation; Question Was Raised of Why the List of Indicator Chemicals In the Organochlorine (OC) Pesticide List Proposed By the LWG Was Limited to DDX, Aldrin, and Chlordane.	31	1 EML / Email	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100013009	5/13/2008	Comments on EPA's "Aquatic Biota Tissue TRV Derivation" for Portland Harbor.	65	4 CORR / Correspondence	R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)	R10: (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100017789	5/13/2008	REDACTED Email regarding reply to Summary of Outstanding Portland Harbor Issues.	26	2 EML / Email	R10: Anderson, James, M (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100017938	5/13/2008	REDACTED Email regarding Summary of Outstanding Portland Harbor Issues.	26	2 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940680150	5/13/2008	Email regarding reply to Friday morning telecon on background tech issues.	27	2 EML / Email	R10: Poulsen, Michael (Oregon Dept. of Environmental Quality)	R10: Poulsen, Michael (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100014744	5/14/2008	REDACTED Email regarding FW_PH tox classification issues.	21	3 EML / Email	R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100013018	5/18/2008	Email regarding Tissue TRV Methodology Comments/Next Steps.	21	2 EML / Email	R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100009702	5/19/2008	Email regarding Portland Harbor Tissue TRV Approach Call on Monday, May 19th, 11am to 1pm.	33	2 EML / Email	R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)	R10: Shephard, Burt (EPA), R10: Gensemer, Robert, W (Parametrix, Inc.) R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA), R10: Davoli, Dana (EPA), R10: Poulsen, Michael (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100014645	5/19/2008	Email regarding Letter Health Consultation (Final).	18	1 EML / Email	R10: Farrer, David, G (Oregon Dept. of Human Services)	R10: Mckenna, James (Port of Portland), R10: Wyatt, Robert, J (NW Natural)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100014646	5/19/2008	Letter regarding (DRAFT) PCB in Breast Milk at Portland Harbor (With Appendix).	270	8 LTR / Letter	R10: Farrer, David, G (Oregon Dept. of Human Services)	R10: Mckenna, James (Port of Portland), R10: Wyatt, Robert, J (NW Natural)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940680757	5/19/2008	Email regarding reply to invitation to Sauvie Island Community Meeting.	21	1 EML / Email	R10: Anderson, James, M (Oregon Dept. of Environmental Quality)	R10: Smith, Judy, R (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100010248	5/20/2008	Email regarding SDD Methodology Part 2.	17	1 EML / Email	R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)	R10: Shephard, Burt (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100010252	5/20/2008	Email regarding SSDs Part 3.	17	1 EML / Email	R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)	R10: Shephard, Burt (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100017812	5/20/2008	REDACTED Email regarding reply to TCT Agenda.	26	1 EML / Email	R10: Anderson, James, M (Oregon Dept. of Environmental Quality)	R10: Neely, Robert (NOAA), R10: Fleming, Sheila (Ridolfi Engineers and Associates, Inc.), R10: Lavelle, Jim (CDM Federal Programs Corporation), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Cunninghame, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Smith, Carrie, A (Parametrix, Inc.), R10: Howard, Patti (Columbia River Inter-Tribal Fish Commission), R10: Downey, Tom (Confederated Tribes of the Siletz Indians), R10: Bluelake, Lisa (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Blischke, Eric, L (EPA), R10: Madden, Erin (Nez Perce Tribe), R10: Farrer, David, G (Oregon Dept. of Human Services), R10: Gainer, Tom (Oregon Dept. of Environmental Quality), R10: Longoria, Rose (Yakama Nation), R10: Williams, J., D (Law Offices of J. D. Williams), R10: Allen, David (Stratus Consulting, Inc.), R10: Barquin, Billy (Haglund Kelley, LLP), R10: Dexter, Bob (Ridolfi, Inc.), R10: Buck, Jeremy (U. S. Fish & Wildlife Service) (NOAA), R10: Neely, Robert (NOAA), R10: Fleming, Sheila (Ridolfi Engineers and Associates, Inc.), R10: Madden, Erin (Unknown), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Cunninghame, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Smith, Carrie, A (Parametrix, Inc.), R10: Malek, John (Parametrix, Inc.), R10: Peers, Jennifer (Stratus Consulting, Inc.), R10: Downey, Tom (Confederated Tribes of the Siletz Indians), R10: Bluelake, Lisa (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Karnosh, Michael (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Ader, Mark, A (EPA), R10: Sheldrake, Sean, A (EPA), R10: Fuentes, Rene, C (EPA), R10: Cora, Lori, H (EPA), R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA), R10: Smith, Judy, R (EPA), R10: Shephard, Burt (EPA), R10: Humphrey, Chip (EPA), R10: Davoli, Dana (EPA), R10: Grepo-grove, Ginna (EPA), R10: Goulet, Joe (EPA), R10: Madalinski, Kelly (EPA), R10: Farrer, David, G (Oregon Dept. of Human Services), R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality), R10: McClincy, Matt (Oregon Dept. of Environmental Quality), R10: Poulsen, Michael (Oregon Dept. of Environmental Quality), R10: Gainer, Tom (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100020116	5/20/2008	REDACTED Email regarding TCT Agenda.	26	1 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Gainer, Tom (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100008479	5/22/2008	Email regarding 5/28 FT call.	24	2 EML / Email	R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100008531	5/27/2008	Email regarding ATC approach.	25	2 EML / Email	R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA), R10: Shephard, Burt (EPA), R10: Goulet, Joe (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100007741	5/28/2008	Email regarding Degradation Rates!	17	1 EML / Email	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100014626	5/29/2008	Letter regarding (DRAFT) PCB in Breast Milk at Portland Harbor (With Appendix).	267	8 LTR / Letter	R10: Farrer, David, G (Oregon Dept. of Human Services)	R10: Mckenna, James (Port of Portland), R10: Wyatt, Robert, J (NW Natural)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100014648	5/29/2008	Email regarding True Final Breast Milk Letter.	18	1 EML / Email	R10: Farrer, David, G (Oregon Dept. of Human Services)	R10: Poulsen, Michael (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100009035	6/1/2008	Framework for Application of the Toxicity Equivalence Methodology for polychlorinated Dioxins, Furans, and Biphenyls in Ecological Risk Assessment.	1,236	92 LAWS / Laws/Regulations/Guidance	R10: Unknown, Unknown (EPA)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100010297	6/1/2008	Estimating Contaminated Stormwater Impacts on Sediment and Fish in Portland Harbor (Lower Willamette River, Oregon) - Powerpoint Presentation.	1,198	16 MTG / Meeting Document	R10: Hope, Bruce, K (Oregon Dept. of Environmental Quality)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100014899	6/1/2008	Estimating Contaminated Stormwater Impacts in Portland Harbor Presentation.	1,170	16 CORR / Correspondence	R10: Hope, Bruce, K (Oregon Dept. of Environmental Quality)	R10: (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100017118	6/3/2008	REDACTED Email regarding Reliability.	22	1 EML / Email	R10: Peterson, Jenn, L (Oregon Dept. of Environmental Quality)	R10: Field, Jay (NOAA), R10: Neely, Robert (NOAA), R10: Malek, John (Parametrix, Inc.), R10: Blischke, Eric, L (EPA), R10: Shephard, Burt (EPA), R10: Goulet, Joe (EPA), R10: Gensemer, Robert, W (Parametrix, Inc.), R10: Dexter, Bob (Ridolfi, Inc.)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement



100019932	6/3/2008	REDACTED Email regarding Reliability.	22	1	EML / Email	R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)	R10: Field, Jay (NOAA), R10: Neely, Robert (NOAA), R10: Malek, John (Parametrix, Inc.), R10: Blischke, Eric, L (EPA), R10: Shephard, Burt (EPA), R10: Goulet, Joe (EPA), R10: Gensemer, Robert, W (Parametrix, Inc.), R10: Dexter, Bob (Ridolfi, Inc.)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100009867	6/5/2008	Email regarding Comments on FWM. Stormwater Loading Methods Meeting	20	1	EML / Email	R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100010293	6/5/2008	Summary - June 5, 2008.	72	2	MTG / Meeting Document	R10: Unknown, Unknown (Unknown)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100007703	6/9/2008	Email regarding Benthic Stuff.	16	1	EML / Email	R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100009838	6/9/2008	Email regarding Cargill.	23	1	EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100009843	6/9/2008	Email regarding Revised TRV Methodology.	21	1	EML / Email	R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100009845	6/9/2008	Email regarding RE_Hit_No Hit Criteria.	21	1	EML / Email	R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100009873	6/9/2008	Email regarding Comments on FWM.	20	1	EML / Email	R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100010943	6/9/2008	Email regarding Hit_No Hit Criteria.	19	1	EML / Email	R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100015654	6/9/2008	Email regarding Updated Stormwater Outfall Data Station IDs.	25	2	EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Neely, Robert (NOAA), R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100015735	6/9/2008	REDACTED Email Regarding Time-Critical Items for Portland Harbor Remedial Investigation (RI) and Baseline Risk Assessment (BRA).	23	2	EML / Email	R10: Anderson, James, M (Oregon Dept. of Environmental Quality)	R10: Tarnow, Karen, E (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100009834	6/10/2008	Email regarding Revised TRV Methodology.	26	1	EML / Email	R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)	R10: Shephard, Burt (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100012907	6/10/2008	Email regarding Revised TRV Methodology.	26	1	EML / Email	R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)	R10: Shephard, Burt (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100015481	6/10/2008	REDACTED Email regarding Chemical Lists.	25	2	EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100015528	6/10/2008	Email regarding PH Meeting Tomorrow - June 11.	23	1	EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Pine, Keith, A (Integral Consulting, Inc.), R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100015843	6/10/2008	REDACTED Email regarding Chemical Lists.	19	1	EML / Email	R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100017701	6/10/2008	REDACTED Email regarding reply to Chemical Lists.	25	2	EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100009832	6/11/2008	Email regarding Cargill.	26	2	EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100009847	6/11/2008	Email regarding RE_Hyalella Growth Evaluation.	20	1	EML / Email	R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100009302	6/12/2008	Email regarding Bioassay Interpretation.	26	2	EML / Email	R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA), R10: Gensemer, Robert, W (Parametrix, Inc.)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100009304	6/12/2008	Email regarding Bioassay Interpretation.	28	3	EML / Email	R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940680243	6/12/2008	Email regarding reply to Bioassay Interpretation.	26	2	EML / Email	R10: Thompson, Chris (Environment International, Ltd.)	R10: Blischke, Eric, L (EPA), R10: Gensemer, Robert, W (Parametrix, Inc.)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100010208	6/13/2008	Email regarding Draft Food Web Model Comments.	21	1	EML / Email	R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA), R10: Shephard, Burt (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100012340	6/13/2008	EPA Comments Appendix E: Round 2 Comprehensive Site Characterization Summary and Data Gaps Report.	107	8	CORR / Correspondence	R10: Unknown, Unknown (EPA)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100018047	6/13/2008	REDACTED Email regarding R3B Upland Stormwater Sampling Report.	23	1	EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940680195	6/13/2008	Email regarding reply to Draft Food Web Model Comments.	21	1	EML / Email	R10: Thompson, Chris (Environment International, Ltd.)	R10: Shephard, Burt (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100010209	6/16/2008	Email regarding Draft Food Web Model Comments.	23	2	EML / Email	R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)	R10: Shephard, Burt (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100012354	6/17/2008	Email regarding Food Web Model Comments.	30	4	EML / Email	R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA), R10: Shephard, Burt (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100010362	6/18/2008	PRG Meeting Summary - June 18, 2008.	70	2	MTG / Meeting Document	R10: Unknown, Unknown (Lower Willamette Group), R10: Unknown, Unknown (EPA)	R10: Unknown, Unknown (Lower Willamette Group), R10: Unknown, Unknown (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100014902	6/18/2008	PRG Meeting Summary - June 18, 2008.	71	2	CORR / Correspondence	R10: Stivers, Carl (Anchor QEA, LLC)	R10: (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940681862	6/18/2008	Proposed LWG Approach for Analyzing Potential Advective Loading from Subsurface Sediment to Surface Sediment.	96	2	RPT / Report	R10: Pine, Keith (Anchor Environmental, LLC)		ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100010288	6/19/2008	Email regarding Stormwater calculation methods.	49	10	EML / Email	R10: Tarnow, Karen, E (Oregon Dept. of Environmental Quality)	R10: Lafranchise, Nicole, M (Port of Portland), R10: Shellenberger, Amanda (Anchor Environmental, LLC), R10: Stivers, Carl (Anchor Environmental, LLC), R10: Koch, Kristine, M (EPA), R10: Sanders, Dawn (City of Portland, Bureau of Environmental Services), R10: Scheffler, Linda (City of Portland, Bureau of Environmental Services), R10: Tarnow, Karen, E (Oregon Dept. of Environmental Quality), R10: Koulermos, Andrew, C (Newfields, Inc.), R10: Spencer, Amanda, L (Ash Creek Associates, Inc.), R10: Coover, Merv (AECOM), R10: Jones, Laura (Integral Corporation)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100007712	6/23/2008	Email regarding Comments on LWG Lamprey Response Letter.	21	2	EML / Email	R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA), R10: Shephard, Burt (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100010295	6/23/2008	Email regarding Sediment/Water Contributions to Fish Tissue.	18	1	EML / Email	R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA), R10: Shephard, Burt (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100010339	6/23/2008	Email regarding Water Equation Reference.	17	1	EML / Email	R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)	R10: Shephard, Burt (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100010468	6/23/2008	Email regarding RSET.	20	1	EML / Email	R10: Poulsen, Michael (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100014898	6/23/2008	Email regarding Sediment / Water Contributions to Fish Tissue.	17	1	CORR / Correspondence	R10: Peterson, Jenn, L (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA), R10: Shephard, Burt (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100014900	6/23/2008	Estimating Contaminated Stormwater Impacts on Sediment and Fish in Portland Harbor Paper #307.	627	16	CORR / Correspondence	R10: Hope, Bruce, K (Oregon Dept. of Environmental Quality), R10: Tarnow, Karen, E (Oregon Dept. of Environmental Quality)	R10: (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100008499	6/24/2008	Email regarding Alder Creek Lumber ECSI ID 2446.	30	2	EML / Email	R10: Gainer, Tom (Oregon Dept. of Environmental Quality)	R10: Young, Cyril (Oregon Dept. of State Lands)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100009865	6/25/2008	Email regarding Comment Clarification.	21	1	EML / Email	R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940681036	6/25/2008	Email regarding The Willamette River Probably Won't Kill You.	27	1	EML / Email	R10: Poulsen, Mike (Oregon Dept. of Environmental Quality)	R10: Davoli, Dana (EPA), R10: Farrer, David, G (Oregon Dept. of Human Services)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100008795	6/26/2008	Biological Sciences Facility (BSF) Calculations of Freely Dissolved Chemical Concentration From Measured Total or Dissolved Concentrations.	102	1	OTH / Other	R10: (Unknown)		ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100008811	6/26/2008	Email Regarding Water Equation, Including Implications for Using the Lower Willamette Group (LWG) Water Equation.	27	2	EML / Email	R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA), R10: Shephard, Burt (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100017120	7/2/2008	REDACTED Email regarding TCT Agenda - July 2, 2008.	30	3	EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100020093	7/2/2008	REDACTED Email regarding TCT Agenda - July 2, 2008.	29	3	EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100017681	7/3/2008	REDACTED Email regarding reply to Draft Disposal Site Working List.	23	2	EML / Email	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100017931	7/3/2008	REDACTED Email regarding Draft Disposal Site Working List.	23	2	EML / Email	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100015688	7/8/2008	Email regarding Managers Meeting Next Week.	20	1	EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA), R10: Anderson, James, M (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940680785	7/8/2008	Email regarding reply to Managers meeting next week.	21	1	EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Anderson, James, M (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement

4940680872	Email regarding reply to PH Presentation to 7/8/2008 Sauvie Island Community Assn 7/17.	22	1 EML / Email	R10: Danab, Marcia (Oregon Dept. of Environmental Quality)	R10: Smith, Judy, R (EPA), R10: Anderson, James, M (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940680873	Email regarding reply to PH Presentation to 7/8/2008 Sauvie Island Community Assn 7/17.	21	1 EML / Email	R10: Anderson, James, M (Oregon Dept. of Environmental Quality)	R10: Smith, Judy, R (EPA), R10: Danab, Marcia (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100009317	7/10/2008 Email regarding Bioassays.	22	1 EML / Email	R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100015484	7/10/2008 REDACTED Email regarding Chemical Lists.	20	1 EML / Email	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100008977	7/15/2008 Email regarding FW_ Comment Clarification.	20	2 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100009293	7/15/2008 Email regarding Bioassay Evaluation.	27	2 EML / Email	R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)	R10: Field, Jay (NOAA), R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100009295	7/15/2008 Email regarding Bioassay Evaluation.	39	6 EML / Email	R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)	R10: Field, Jay (NOAA), R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940680871	Email regarding reply to PH Presentation to 7/15/2008 Sauvie Island Community Assn 7/17.	22	1 EML / Email	R10: Anderson, James, M (Oregon Dept. of Environmental Quality)	R10: Smith, Judy, R (EPA), R10: Danab, Marcia (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940681863	Email regarding Proposed subsurface sediment to surface sediment loading approach.	25	2 EML / Email	R10: Anderson, James, M (Oregon Dept. of Environmental Quality)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100010746	7/17/2008 Email regarding Teresa's FPM Model.	20	1 EML / Email	R10: Poulsen, Mike (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940680906	7/17/2008 Email regarding reply to Sauvie Island meeting.	20	1 EML / Email	R10: Anderson, James, M (Oregon Dept. of Environmental Quality)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940680907	7/18/2008 Email regarding reply to Sauvie Island non-meeting.	21	1 EML / Email	R10: Anderson, James, M (Oregon Dept. of Environmental Quality)	R10: Smith, Judy, R (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100010347	7/21/2008 Email regarding effect threshold for use in predictive model.	24	1 EML / Email	R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100010355	7/21/2008 Email regarding effect threshold for use in predictive model.	27	2 EML / Email	R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100014794	7/21/2008 REDACTED Email regarding Background Evaluation.	22	2 EML / Email	R10: Poulsen, Mike (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100015844	7/21/2008 REDACTED Email regarding Data Use Rules.	27	2 EML / Email	R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100018032	7/21/2008 REDACTED Email With Comments Concerning Data Use Rules.	49	2 EML / Email	R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100010133	7/22/2008 Email regarding State Source Control and Sediment Cleanup Activities.	21	1 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100014779	7/22/2008 REDACTED Email regarding First Batch of Draft Tissue TRVs.	23	3 EML / Email	R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)	R10: Shephard, Burt (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100014789	7/22/2008 REDACTED Email regarding First Batch of Draft Tissue TRVs.	23	3 EML / Email	R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100015845	7/22/2008 REDACTED Email regarding Data Use Rules.	25	3 EML / Email	R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100007621	7/23/2008 Email regarding Antimony TRV.	16	1 EML / Email	R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)	R10: Shephard, Burt (EPA), R10: Gensemer, Robert, W (Parametrix, Inc.)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100008369	7/23/2008 Email regarding PRG Comments.	28	2 EML / Email	R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100014768	7/23/2008 REDACTED Email regarding First Batch of Draft Tissue TRVs.	24	4 EML / Email	R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)	R10: Shephard, Burt (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100014774	7/23/2008 REDACTED Email regarding First Batch of Draft Tissue TRVs.	23	3 EML / Email	R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)	R10: Shephard, Burt (EPA), R10: Gensemer, Robert, W (Parametrix, Inc.)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100014785	7/23/2008 REDACTED Email regarding First Batch of Draft Tissue TRVs.	29	5 EML / Email	R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)	R10: Shephard, Burt (EPA), R10: Gensemer, Robert, W (Parametrix, Inc.)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100014787	7/23/2008 REDACTED Email regarding First Batch of Draft Tissue TRVs.	26	4 EML / Email	R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)	R10: Shephard, Burt (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100008446	7/24/2008 Email regarding FW_ Dredging at Port of Portland's Marine Terminal.	44	1 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100012557	7/24/2008 Email regarding Dredging at Port of Portland's Marine Terminal 2.	44	1 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100009492	7/25/2008 Table 5 1-2. Upland Site Pathway Assessment Summary.	59	9 RPT / Report	R10: (Unknown)		ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100008979	7/29/2008 Email Regarding PCB Aroclors List (See Database Spreadsheet), We Identified and Used Several Additional Studies for Total PCBs, Which Will Be a Part of My Comments On the TRV Derivation.	25	1 EML / Email	R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100008980	7/29/2008 Spreadsheet With 278702700 SSD ERED-SETAC Database (PCBs As Aroclors, Pyrene, Selenium, TBT, TCDD, Fluoranthene, HCB, Mercury) (Original Spreadsheet Is Attached).	100	1 ADD / Analytical Data Document	R10: (Unknown)		ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100008981	7/29/2008 Spreadsheet Concerning 2,3,7,8-Tetrachlorodibenzo-p-Dioxin (TCDD); 278702700 TCDD CBCs (Original Spreadsheet Is Attached).	47	1 ADD / Analytical Data Document	R10: (Unknown)		ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100008993	7/29/2008 278702700T1 T2 SSD Database Summary; NOER/LOER; Fish Tissue Screening Level Development.	32	1 CHT / Chart/Table	R10: (Oregon Dept. of Environmental Quality)		ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100009400	7/29/2008 Email regarding NOAA Comments on First Batch of TRVs.	29	2 EML / Email	R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)	R10: Neely, Robert (NOAA), R10: Shephard, Burt (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100009757	7/29/2008 Email regarding PRG Distribution Analysis - Conceptual Example for Portland Harbor.	24	1 EML / Email	R10: Poulsen, Michael (Oregon Dept. of Environmental Quality)	R10: Hermanson, Brad (Parametrix, Inc.), R10: Blischke, Eric, L (EPA), R10: Davoli, Dana (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100009809	7/29/2008 Email regarding Cadmium Fish Tissue TRV.	26	2 EML / Email	R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940680834	7/29/2008 Email regarding reply to NOAA comments on first batch of TRVs.	29	2 EML / Email	R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)	R10: Neely, Robert (NOAA), R10: Shephard, Burt (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100007715	7/30/2008 Email regarding Copper and Cadmium TRV Review.	17	1 EML / Email	R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100007749	7/30/2008 DEQ Response to EPA Sediment/Source Control Info Request.	27	4 EML / Email	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100009141	7/30/2008 Email regarding Food Web Model Performance Evaluation.	20	1 EML / Email	R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100009142	7/30/2008 Email regarding Food Web Model Performance Evaluation.	23	1 EML / Email	R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100009143	7/30/2008 Email regarding Food Web Model Performance Evaluation.	20	1 EML / Email	R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100009153	7/30/2008 Email regarding Food Web Model Performance Evaluation.	20	1 EML / Email	R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100010500	7/30/2008 Email regarding Sediment Remedy Estimates.	20	1 EML / Email	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100007519	8/4/2008 Email regarding Food Web Model Comments.	15	1 EML / Email	R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100009154	8/4/2008 Email regarding Food Web Model.	21	1 EML / Email	R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100010025	8/4/2008 Email regarding DEQ Response to EPA Sediment/Source Control Info Request.	28	5 EML / Email	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100010028	8/4/2008 Email regarding DEQ Response to EPA Sediment/Source Control Info Request.	26	4 EML / Email	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100010029	8/4/2008 Email regarding DEQ Response to EPA Sediment/Source Control Info Request.	27	4 EML / Email	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100011148	8/4/2008 Email Regarding Gobas Reference: Gobas, Frank, and Jon Arnot, 2006; Food-Web Bioaccumulation Modeling of Organic Substances; Short Course Program; Society of Environmental Toxicology and Chemistry, Pensacola, Florida.	29	1 EML / Email	R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100009407	8/5/2008 Email regarding NOAA Comments on Cu and Cr TRVs.	23	2 EML / Email	R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)	R10: Beckvar, Nancy (NOAA), R10: Neely, Robert (NOAA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100010057	8/5/2008 Email regarding Dissolved Organic Carbon.	20	1 EML / Email	R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement

100010728	Email regarding TBT, PCB and Lead TRV 8/7/2008 Comments.	21	1 EML / Email	R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA), R10: Shephard, Burt (EPA), R10: Gensemer, Robert, W (Parametrix, Inc.)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100010757	Email Regarding Your Request: Materials Documents Are Ready; Here is the Chromium Paper - Click On the Link Below.	30	1 EML / Email	R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)	R10: Beckvar, Nancy (NOAA), R10: Neely, Robert (NOAA), R10: Shephard, Burt (EPA), R10: Gensemer, Robert, W (Parametrix, Inc.)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100011923	Email Regarding PCB, TBT and Lead TRV 8/7/2008 Comments.	36	1 EML / Email	R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)	R10: Shephard, Burt (EPA), R10: Gensemer, Robert, W (Parametrix, Inc.)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100015112	8/11/2008 REDACTED Email regarding Stats for Jay.	21	1 EML / Email	R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100007740	8/12/2008 Email regarding DDT and Zinc.	18	1 EML / Email	R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)	R10: Shephard, Burt (EPA), R10: Gensemer, Robert, W (Parametrix, Inc.)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100008995	Email regarding FW_ LWG Response to EPA 8/12/2008 Comments on Upland Source.	20	2 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Madden, Erin (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100009221	Email regarding LWG Response to EPA 8/12/2008 Comments on Upland Source Table.	28	1 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100007706	Email regarding Bis(2-Ethylhexyl)phthalate 8/13/2008 TRV Review.	17	1 EML / Email	R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA), R10: Shephard, Burt (EPA), R10: Gensemer, Robert, W (Parametrix, Inc.)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100007802	Email regarding Floating Percentile Method 8/13/2008 Spreadsheet.	16	1 EML / Email	R10: Poulsen, Mike (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100008996	Email regarding FW_ Comment 8/13/2008 Clarification(1).	23	2 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100012363	8/13/2008 Email regarding Comment Clarification.	22	2 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100015387	8/13/2008 REDACTED Email regarding Odds and Ends.	18	1 EML / Email	R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100007710	8/15/2008 Email regarding Comment Clarification.	22	2 EML / Email	R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100010716	Email Regarding Your Request: Materials Documents Are Ready!	29	1 EML / Email	R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)	R10: Shephard, Burt (EPA), R10: Gensemer, Robert, W (Parametrix, Inc.)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100010724	Email Regarding Your Request: Materials Documents Are Ready; Reference to Article That You Requested With Title of Di-2-Ethylhexy Phthalate: Residue Dynamics and Biological Effects In Rainbow Trout and Fathead Minnows).	29	1 EML / Email	R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)	R10: Shephard, Burt (EPA), R10: Gensemer, Robert, W (Parametrix, Inc.)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100010726	Email Regarding Your Request: Materials Documents Are Ready; Request Received by Oregon State Library.	29	1 EML / Email	R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)	R10: Shephard, Burt (EPA), R10: Gensemer, Robert, W (Parametrix, Inc.)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100015486	REDACTED Email regarding Your Request 8/15/2008 Materials Documents Are Ready.	19	1 EML / Email	R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100017839	REDACTED Email regarding reply to Tomorrow's OPB talk show on Willamette River. 8/21/2008	26	2 EML / Email	R10: Danab, Marcia (Oregon Dept. of Environmental Quality)	R10: Callahan-grant, Megan (NOAA), R10: Fleming, Sheila (Ridolfi Engineers and Associates, Inc.), R10: Bishop, Karen (State of Oregon), R10: Wray, Rachel (Port of Portland), R10: Smith, Barbara (Harris Smith Public Affairs), R10: Gardner, Sara (City of Portland, Oregon, Environmental Services), R10: Humphrey, Chip (EPA), R10: Pance, Robin, G (St. Johns Neighborhood Association), R10: Anderson, James, M (Oregon Dept. of Environmental Quality), R10: Longoria, Rose (Yakama Nation), R10: Hanna, Vicki (Harris and Smith)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100017896	REDACTED Email regarding Tomorrow's OPB talk show on Willamette River. 8/21/2008	23	1 EML / Email	R10: Danab, Marcia (Oregon Dept. of Environmental Quality)	R10: Callahan-grant, Megan (NOAA), R10: Fleming, Sheila (Ridolfi Engineers and Associates, Inc.), R10: Bishop, Karen (State of Oregon), R10: Wray, Rachel (Port of Portland), R10: Smith, Barbara (Harris Smith Public Affairs), R10: Gardner, Sara (City of Portland, Oregon, Environmental Services), R10: Humphrey, Chip (EPA), R10: Pance, Robin, G (St. Johns Neighborhood Association), R10: Anderson, James, M (Oregon Dept. of Environmental Quality), R10: Longoria, Rose (Yakama Nation), R10: Hanna, Vicki (Harris and Smith), R10: Shackman, Stephen (City of Portland, Oregon)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100008497	Email regarding AETT - LWG Meeting Notes and Scope for EPA review and approval. 8/22/2008	26	2 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100009265	Email regarding Nutritional Deficiency Levels of Zinc in Aquatic Life. 8/22/2008	33	4 EML / Email	R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA), R10: Shephard, Burt (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100009515	Preliminary Design Report, Shoreline Segments 1 and 2, NW Natural Property and the Northern Portion of the Siltronic Corporation Property, Portland, Oregon. 8/22/2008	71	10 LTR / Letter	R10: Bayuk, Dana (Oregon Dept. of Environmental Quality)	R10: Wyatt, Robert, J (NW Natural)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100017082	REDACTED Email regarding reply to AETT - LWG Meeting Notes and Scope for EPA review and approval. 8/22/2008	23	2 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100007527	Email regarding 2355 Schnitzer Burgard Industrial Slip Dredging Notification. 9/2/2008	22	2 EML / Email	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100010764	Email regarding TRVs. 9/2/2008	20	1 EML / Email	R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100012393	Email regarding 2355 Schnitzer Burgard Industrial Slip Dredging Notification. 9/2/2008	26	2 EML / Email	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100014127	Email Regarding DEQ/EPA "Cleaning Up the PH Superfund Site." 9/2/2008	34	1 EML / Email	R10: Anderson, James, M (Oregon Dept. of Environmental Quality)	R10: Smith, Judy, R (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940680135	Email regarding reply to 2355 Schnitzer Burgard Industrial Slip Dredging Notification. 9/2/2008	26	3 EML / Email	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940680704	Email regarding reply to 2355 Schnitzer Burgard Industrial Slip Dredging Notification. 9/2/2008	25	2 EML / Email	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100009200	Email regarding Divers. 9/4/2008	21	1 EML / Email	R10: Poulsen, Michael (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100009201	Email regarding Divers. 9/4/2008	21	1 EML / Email	R10: Poulsen, Michael (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA), R10: Davoli, Dana (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940680709	Email regarding reply to Divers. 9/4/2008	21	1 EML / Email	R10: Poulsen, Mike (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940680710	Email regarding reply to Divers. 9/4/2008	21	1 EML / Email	R10: Poulsen, Mike (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940680213	Email regarding reply to Degradation Rate Summary. 9/6/2008	25	2 EML / Email	R10: Hope, Bruce, K (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100009001	Email regarding FW_ NW Natural, Preliminary Design Report Comments. 9/9/2008	22	2 EML / Email	R10: Bayuk, Dana (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940680136	Email regarding reply to 2355 Schnitzer Burgard Industrial Slip Dredging Notification. 9/9/2008	24	3 EML / Email	R10: Orr, Jim (Oregon Dept. of Environmental Quality)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940680703	Email regarding reply to 2355 Schnitzer Burgard Industrial Slip Dredging Notification. 9/9/2008	23	2 EML / Email	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940681017	Email regarding Schnitzer Steel Dredging Oversight. 9/10/2008	20	1 EML / Email	R10: Orr, Jim (Oregon Dept. of Environmental Quality)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940681180	Email regarding Jim Orr DEQ Dredging Observation at International Slip. 9/11/2008	20	1 EML / Email	R10: Orr, Jim (Oregon Dept. of Environmental Quality)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100008263	Email regarding FW_ Channel Migration Zone training - Paradise Val. 9/12/2008	50	3 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100007754	Email regarding Dioxin TRV - Fish. 9/15/2008	16	1 EML / Email	R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA), R10: Shephard, Burt (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100009051	Email regarding Dioxin TRV - Fish. 9/15/2008	18	2 EML / Email	R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100010042	Email regarding Dioxin TRV - Fish. 9/15/2008	23	2 EML / Email	R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement



100010047	9/15/2008	Email regarding Dioxin TRV - Fish.	22	1	EML / Email	R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100009081	9/16/2008	Email regarding Dioxin TRV - Fish.	22	4	EML / Email	R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100010039	9/16/2008	Email regarding Dioxin TRV - Fish.	23	3	EML / Email	R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100010041	9/16/2008	Email regarding Dioxin TRV - Fish.	31	5	EML / Email	R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100010054	9/16/2008	Email regarding Dioxin TRV - Fish.	23	2	EML / Email	R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100010056	9/16/2008	Email regarding Dioxin TRV - Fish. Letter Regarding EPA Recommendations for Groundwater Dioxin Sampling at the Rhone Poulenc Site.	24	3	EML / Email	R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100012620	9/16/2008		76	2	LTR / Letter	R10: Koch, Kristine, M (EPA)	R10: Lacey, David (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100014651	9/16/2008	REDACTED Email regarding Background Comment Responses for transmittal to EPA.	22	2	EML / Email	R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100014652	9/16/2008	REDACTED Email regarding Background Comment Responses for transmittal to EPA.	23	2	EML / Email	R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100015576	9/16/2008	Email Regarding Breast Milk Letter. Email Regarding Lower Willamette Group (LWG) Responses to the EPA Comments On the Round 2 Comprehensive Report Conceptual Site Model (CSM).	22	1	EML / Email	R10: Farrer, David, G (Oregon Dept. of Human Services)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA), R10: Davoli, Dana (EPA), R10: Poulsen, Mike (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100009190	9/17/2008		26	1	EML / Email	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100009191	9/17/2008	Comment 123 (ACF Industries) Regarding Groundwater - Change Pathway Designation / January 2008 JCS Milestone Report.	340	39	EML / Email	R10: (Unknown)		ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940681864	9/17/2008	Email regarding LWG Responses to the EPA Comments on the Round 2 Comp Report CSM. DEQ Comments on the LWG Responses to EPA's Comments on the Conceptual Site Model in Round 2 Comp. Report.	18	1	EML / Email	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940681865	9/17/2008		204	39	RPT / Report	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)		ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100008892	9/18/2008	Email regarding FW_ Statistical Workshop location.	30	2	EML / Email	R10: Poulsen, Mike (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100009122	9/18/2008	Memorandum regarding Proposed method for calculating representative LU concentrations. REDACTED Email regarding FW_ Background Comment Responses for transmittal.	47	3	MEMO / Memorandum	R10: Tarnow, Karen, E (Oregon Dept. of Environmental Quality), R10: Poulsen, Mike (Oregon Dept. of Environmental Quality)	R10: Unknown, Unknown (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100015720	9/18/2008		28	3	EML / Email	R10: Poulsen, Mike (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940680914	9/18/2008	Email regarding reply to Schnitzer.	26	2	EML / Email	R10: Cyril, L. Alexander (Alex) (Oregon Dept. of Environmental Quality)	R10: Freedman, Jonathan (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940681016	9/18/2008	Email regarding Schnitzer dredging 1991-00099-1.	31	2	EML / Email	R10: Cyril, L. Alexander (Alex) (Oregon Dept. of Environmental Quality)	R10: Holm, James, A (U.S. Army Corps of Engineers)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940680913	9/19/2008	Email regarding reply to Schnitzer dredging 1991-00099-1.	28	2	EML / Email	R10: Cyril, L. Alexander (Alex) (Oregon Dept. of Environmental Quality)	R10: Holm, James, A (U.S. Army Corps of Engineers)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100008880	9/23/2008	Email regarding FW_ Portland Metro Area 2007 Draft Precipitation D(1).	24	2	EML / Email	R10: Tarnow, Karen, E (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100010055	9/24/2008	Email regarding Dioxin TRV - Fish.	29	3	EML / Email	R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)	R10: Buck, Jeremy (U. S. Fish and Wildlife Service), R10: Shephard, Burt (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100017699	9/30/2008	REDACTED Email regarding reply to Date for next milestone meeting - November 12th?.	20	1	EML / Email	R10: Anderson, James, M (Oregon Dept. of Environmental Quality)	R10: Humphrey, Chip (EPA), R10: Pedersen, Dick (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100010485	10/2/2008	Email regarding Round 3 Detection Limits - Fish Tissue.	18	1	EML / Email	R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100014903	10/2/2008	Email regarding Round 3 Detection Limits - Fish Tissue.	17	1	EML / Email	R10: Peterson, Jenn, L (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100014904	10/2/2008	Round 3 Detection Limits - Fish Tissues Tables.	22	2	CORR / Correspondence	R10: Peterson, Jenn, L (Oregon Dept. of Environmental Quality)	R10: (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100007768	10/6/2008	Email regarding EPA mtg.	60	1	EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Sheldrake, Sean, A (EPA), R10: Koch, Kristine, M (EPA), R10: Yamamoto, Deb (EPA), R10: Bayuk, Dana (Oregon Dept. of Environmental Quality), R10: Lacey, David (Oregon Dept. of Environmental Quality), R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100012992	10/6/2008	Email Regarding EPA Meeting.	75	1	EML / Email	R10: Anderson, James, M (Oregon Dept. of Environmental Quality)	R10: Sheldrake, Sean, A (EPA), R10: Yamamoto, Deborah, J (EPA), R10: Koch, Kristine, M (EPA), R10: Bayuk, Dana (Oregon Dept. of Environmental Quality), R10: Lacey, David (Oregon Dept. of Environmental Quality), R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100015438	10/9/2008	REDACTED Email regarding Stormwater Technical Team Call October 16 at 1:00 pm.	24	4	EML / Email	R10: Tarnow, Karen, E (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100015440	10/9/2008	REDACTED Email regarding Stormwater Technical Team Call October 16 at 1:00 pm.	26	4	EML / Email	R10: Tarnow, Karen, E (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940681148	10/9/2008	Email regarding PCB cleanup levels at Alcoa (Vancouver, WA).	21	1	EML / Email	R10: Anderson, James, M (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100010453	10/13/2008	Email regarding Round 2 Comp Report CSM Comments.	22	1	EML / Email	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100009876	10/14/2008	Email regarding Round 2 Comp Report CSM Comments.	75	6	EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Fuentes, Rene, C (EPA), R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100010360	10/15/2008	Email regarding Tox Values for Portland Harbor.	26	3	EML / Email	R10: Poulsen, Michael (Oregon Dept. of Environmental Quality)	R10: Davoli, Dana (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100015582	10/15/2008	Email Regarding Portland Harbor Recreational use PHA.	22	1	EML / Email	R10: Farrer, David, G (Oregon Dept. of Human Services)	R10: Blischke, Eric, L (EPA), R10: Davoli, Dana (EPA), R10: Poulsen, Mike (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100008437	10/16/2008	Email regarding FW_ DEQ-Rhone Poulenc Deep Groundwater Memo Discussion.	68	3	EML / Email	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100012477	10/16/2008	Email regarding DEQ-Rhone Poulenc Deep Groundwater Memo Discussion.	68	3	EML / Email	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100017445	10/16/2008	REDACTED Email regarding reply to GASCO et al. 11/6 meeting is on.	19	1	EML / Email	R10: Anderson, James, M (Oregon Dept. of Environmental Quality)	R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100010532	10/17/2008	Email regarding Table 5.1-2.	110	5	EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100009880	10/20/2008	Email regarding Round 3 Data.	21	1	EML / Email	R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100010458	10/20/2008	Email regarding Round 3 Data.	20	1	EML / Email	R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100009125	10/21/2008	Email regarding Draft Approval Letter for Stormwater Loading Calculation Methods.	22	1	EML / Email	R10: Tarnow, Karen, E (Oregon Dept. of Environmental Quality)	R10: Stivers, Carl (Anchor Environmental, LLC), R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100009128	10/21/2008	Memorandum regarding EPA's Draft Approval Letter for Stormwater Loading Calculations.	55	2	MEMO / Memorandum	R10: Tarnow, Karen, E (Oregon Dept. of Environmental Quality), R10: Poulsen, Mike (Oregon Dept. of Environmental Quality)	R10: Unknown, Unknown (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100009887	10/21/2008	Email regarding Round 3 Data.	22	2	EML / Email	R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100009890	10/21/2008	Email regarding Round 3 Data.	21	2	EML / Email	R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100010227	10/21/2008	Email regarding Table 5.1-2.	30	4	EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100007679	10/22/2008	Email regarding Arco status.	52	1	EML / Email	R10: Gainer, Tom (Oregon Dept. of Environmental Quality)	R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100007811	10/22/2008	Email regarding FS Documents.	42	1	EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement



100009148	10/22/2008	Email regarding FS Documents.	21	1 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA) R10: Williams, Travis (Willamette Riverkeeper), R10: Humphrey, Chip (EPA), R10: Blischke, Eric, L (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100009524	10/22/2008	Email regarding November 11 Harbor.	48	2 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100009878	10/22/2008	Email regarding Round 3 Data.	23	2 EML / Email	R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100013573	10/22/2008	Email Regarding ARCO Status: Primary Due to Contractor and Construction-Related Delays, the Sediment Removal Project at the ARCO Site Got Behind Schedule and Completion By the October 31 Fish Window Became Questionable.	66	1 EML / Email	R10: Gainer, Thomas, B (Oregon Dept. of Environmental Quality)	R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100015053	10/22/2008	Email Regarding Feasibility Study (FS) Documents: I Want to Make Sure Tom Gainer and I Have Identified the Pertinent Documents We Should Review Prior to the 10/29/2008 Manager Meeting Focusing On Project Schedule and the FS.	55	1 EML / Email	R10: Anderson, James, M (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940680841	10/22/2008	Email regarding reply to November 11 Harbor.	48	2 EML / Email	R10: Anderson, James, M (Oregon Dept. of Environmental Quality)	R10: Williams, Travis (Willamette Riverkeeper), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940680869	10/22/2008	Email regarding reply to PH MOU Partners meeting.	52	2 EML / Email	R10: Anderson, James, M (Oregon Dept. of Environmental Quality)	R10: Neely, Robert (NOAA), R10: Buerger, Ted (U. S. Fish and Wildlife Service), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Cunninghame, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Downey, Tom (Confederated Tribes of the Siletz Indians), R10: Bluelake, Lisa (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Young, Cyril (Oregon Dept. of State Lands), R10: Smith, Judy, R (EPA), R10: Madden, Erin (Nez Perce Tribe), R10: Longoria, Rose (Yakama Nation), R10: Kepler, Rick, J (State of Oregon), R10: Burford, Christopher (Confederated Tribes of Umatilla Indian Reservation)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100009053	10/24/2008	Email regarding draft letter on RPAC groundwater.	23	1 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA), R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940680187	10/24/2008	Email regarding reply to Draft Letter on RPAC Groundwater.	21	1 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA), R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100009008	10/27/2008	Email regarding FW_Gasco Meeting with DEQ and NW Natural on 11_6.	101	4 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Sheldrake, Sean, A (EPA), R10: Opalski, Daniel, D (EPA), R10: Yamamoto, Deborah, J (EPA), R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA), R10: Bayuk, Dana (Oregon Dept. of Environmental Quality), R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100009091	10/27/2008	Email regarding draft letter on RPAC groundwater.	24	1 EML / Email	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100012367	10/27/2008	Email regarding Gasco Meeting with DEQ and NW Natural on 11/6.	117	4 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Sheldrake, Sean, A (EPA), R10: Opalski, Daniel, D (EPA), R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA), R10: Yamamoto, Deb (EPA), R10: Bayuk, Dana (Oregon Dept. of Environmental Quality), R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940680186	10/27/2008	Email regarding reply to Draft Letter on RPAC Groundwater.	22	1 EML / Email	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100010223	10/28/2008	Email regarding Table 5.1-2.	72	6 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100010224	10/28/2008	Email regarding Table 5.1-2.	72	6 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100010225	10/28/2008	Email regarding Table 5.1-2.	29	4 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100010226	10/29/2008	Email regarding Table 5.1-2.	78	13 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100010837	11/3/2008	Email regarding Upland Groundwater Data - Background.	21	1 EML / Email	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100007698	11/4/2008	Email regarding Background Groundwater Data.	19	2 EML / Email	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100009016	11/4/2008	Email regarding FW_Gasco Meeting with DEQ and NW Natural on 11_6 (1).	66	4 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Sheldrake, Sean, A (EPA), R10: Yamamoto, Deborah, J (EPA), R10: Koch, Kristine, M (EPA), R10: Bayuk, Dana (Oregon Dept. of Environmental Quality), R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100009102	11/4/2008	Comments on draft letter on RPAC groundwater.	72	5 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA), R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100012370	11/4/2008	Email regarding Gasco Meeting with DEQ and NW Natural on 11/6.	66	4 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Sheldrake, Sean, A (EPA), R10: Koch, Kristine, M (EPA), R10: Yamamoto, Deb (EPA), R10: Bayuk, Dana (Oregon Dept. of Environmental Quality), R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100013705	11/4/2008	Email Regarding Background Groundwater Data for Upland Monitoring Wells and Whether They Had Data for Arsenic, Iron, Barium, and Manganese.	31	2 EML / Email	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940680188	11/4/2008	Email regarding reply to Draft Letter on RPAC Groundwater.	71	5 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA), R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100017517	11/10/2008	REDACTED Email regarding reply to November 11 Harbor.	22	3 EML / Email	R10: Anderson, James, M (Oregon Dept. of Environmental Quality)	R10: Williams, Travis (Willamette Riverkeeper), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100009908	11/14/2008	Email regarding RPAC.	22	1 EML / Email	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100009609	11/17/2008	Email regarding Portland Harbor Management Team Schedule Discussion.	24	1 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Neely, Robert (NOAA), R10: Buck, Jeremy (U. S. Fish and Wildlife Service), R10: Madden, Erin (Unknown), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Cunninghame, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Karnosh, Michael (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA), R10: McClincy, Matt (Oregon Dept. of Environmental Quality), R10: Kepler, Richard, J (Oregon Dept. of Fish and Wildlife), R10: Longoria, Rose (Yakama Nation), R10: Weis, Julie (Haglund Kelley, LLP)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100012815	11/17/2008	Email regarding Proposed reschedule - PH Communications Planning Meeting - 12/2.	44	1 EML / Email	R10: Danab, Marcia (Oregon Dept. of Environmental Quality)	R10: Smith, Judy, R (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement

4940680127	11/17/2008	Email regarding reply to Portland Harbor Management Team Schedule Discussion.	24	1 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Neely, Robert (NOAA), R10: Madden, Erin (Unknown), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Cunninghame, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Karnosh, Michael (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Blischke, Eric, L (EPA), R10: McClincy, Matt (Oregon Dept. of Environmental Quality), R10: Longoria, Rose (Yakama Nation), R10: Weis, Julie (Haglund Kelley, LLP), R10: Kepler, Rick, J (State of Oregon), R10: Buck, Jeremy (U. S. Fish & Wildlife Service)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100008887	11/18/2008	Email regarding FW_ RPAC. Gasco Source Control Meeting Notes Nov 18 2008.	25	2 EML / Email	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100011569	11/18/2008	Letter regarding Siltronic Corporation Revised Enhanced In-Situ Bioremediation Source Control Work Plan (October 20, 2008); Portland Harbor Superfund Site, Portland, Oregon.	41	6 MTG / Meeting Document	R10: (Unknown)		ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100010679	11/20/2008	Letter Regarding Evaluation of Groundwater Discharge to the Willamette River – Rhone Poulenc, Portland, Oregon (October 1, 2007) (With Highlighted Comments).	52	2 CORR / Correspondence	R10: Koch, Kristine, M (EPA)	R10: Bayuk, Dana (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100012621	11/20/2008	Letter regarding Siltronic Corporation Revised Enhanced In-Situ Bioremediation Source Control Work Plan.	106	3 LTR / Letter	R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	R10: Ferguson, Robert (Starlink Logistics, Inc.)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100014906	11/20/2008	Email regarding Revised RPAC Letter.	52	2 CORR / Correspondence	R10: Koch, Kristine, M (EPA)	R10: Bayuk, Dana (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100009812	11/21/2008	Email regarding Revised RPAC Letter.	21	1 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA), R10: Lacey, David (Oregon Dept. of Environmental Quality), R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100009831	11/21/2008	Email regarding Revised RPAC Letter.	21	1 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100012851	11/21/2008	Email regarding Revised RPAC Letter.	21	1 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA), R10: Lacey, David (Oregon Dept. of Environmental Quality), R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100009833	11/24/2008	Email regarding Revised RPAC Letter.	50	2 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA), R10: Lacey, David (Oregon Dept. of Environmental Quality), R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100012852	11/24/2008	Email regarding Revised RPAC Letter.	50	2 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA), R10: Lacey, David (Oregon Dept. of Environmental Quality), R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940680839	11/26/2008	Email regarding reply to Nov. 18 Meeting Notes - NWN, DEQ, EPA Gasco Meeting.	55	2 EML / Email	R10: Bayuk, Dana (Oregon Dept. of Environmental Quality)	R10: Stivers, Carl (Anchor Environmental, LLC), R10: Wyatt, Robert, J (NW Natural)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100009811	12/1/2008	Email regarding Revised RPAC Letter.	26	2 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100009829	12/1/2008	Email regarding Revised RPAC Letter.	72	3 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA), R10: Lacey, David (Oregon Dept. of Environmental Quality), R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100012850	12/1/2008	Email regarding Revised RPAC Letter.	26	2 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100010412	12/2/2008	Email regarding Rhone Poulenc TZW Letter.	69	1 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100011086	12/8/2008	DEQ, EPA Gasco Me.	22	2 EML / Email	R10: Bayuk, Dana (Oregon Dept. of Environmental Quality)	R10: Stivers, Carl (Anchor Environmental, LLC), R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100012371	12/9/2008	Email regarding Release of USGS National Drinking Water Report.	17	1 EML / Email	R10: Drake, Doug (Oregon Dept. of Environmental Quality)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100010668	12/10/2008	Email regarding Siltronic, revised EIB Work Plan Comments.	42	1 EML / Email	R10: Bayuk, Dana (Oregon Dept. of Environmental Quality)	R10: Mccue, Tom (Siltronic Corporation)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100010680	12/10/2008	Letter regarding Revised Enhanced In-Situ Bioremediation Work Plan, Siltronic Corporation, Portland, Oregon, ECSI No. 183.	103	7 CORR / Correspondence	R10: Bayuk, Dana (Oregon Dept. of Environmental Quality)	R10: Mccue, Tom (Siltronic Corporation)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100014905	12/10/2008	Email regarding Siltronic, Revised EIB Work Plan Comments.	41	1 EML / Email	R10: Bayuk, Dana (Oregon Dept. of Environmental Quality)	R10: Mccue, Tom (Siltronic Corporation)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100014907	12/10/2008	Letter regarding Revised Enhanced In-Situ Bioremediation Work Plan Siltronic Corporation.	101	7 CORR / Correspondence	R10: Bayuk, Dana (Oregon Dept. of Environmental Quality)	R10: Mccue, Tom (Siltronic Corporation)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940681867	12/11/2008	Gasco Source Control Meeting Notes.	31	6 MTG / Meeting Document	R10: Edwards, John, E (Anchor Environmental, LLC)		ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100017652	12/15/2008	REDACTED Email regarding ATC.	19	1 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100008512	12/23/2008	Email regarding Arkema DEQ and EPA Review Comments on Draft Stormwater FFS.	23	2 EML / Email	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100012014	1/1/2009	Field and Data Report, Downtown Portland, Sediment Characterization, Willamette River. Criteria for Creating Accessible PDFs for the 1/2/2009 EPA .	885,483	8719 RPT / Report	R10: (GSI Water Solutions, Inc.)	R10: (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940681874	1/2/2009	Email regarding BERA Check-Ins.	63	2 LAWS / Laws/Regulations/Guidance	R10: Sheldrake, Sean, A (EPA)		ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100009287	1/13/2009	REDACTED Email regarding TCT Meeting Agenda.	27	3 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100019969	1/13/2009	REDACTED Email regarding TCT Meeting Agenda.	20	1 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100014198	1/14/2009	REDACTED Email regarding FS Modeling Tools.	29	3 EML / Email	R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)	R10: Neeley, Robert (NOAA), R10: Buck, Jeremy (U. S. Fish and Wildlife Service), R10: Lavelle, Jim (CDM Federal Programs Corporation), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Cunninghame, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Peers, Jennifer (Stratus Consulting, Inc.), R10: Allen li, P. David (Stratus Consulting, Inc.), R10: Downey, Tom (Confederated Tribes of the Siletz Indians), R10: Bluelake, Lisa (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Karnosh, Michael (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Gainer, Tom (Oregon Dept. of Environmental Quality), R10: Gensemer, Robert, W (Parametrix, Inc.), R10: Longoria, Rose (Yakama Nation), R10: Weis, Julie (Haglund Kelley Jones & Wilder LLP), R10: Dexter, Bob (Unknown), R10: Shorr, Benjamin (NOAA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100019961	1/14/2009	REDACTED Email regarding TCT Meeting Agenda.	20	1 EML / Email	R10: Gainer, Tom (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100010534	1/16/2009	Email regarding Table 5.1-2.	44	1 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100011264	1/16/2009	Email Regarding Review of Lower Willamette Group's (LWG's) December 23, 2008 Draft Outline for the Groundwater Pathway Assessment and Geochemical Analysis Appendix for the Remedial Investigation Report.	46	2 EML / Email	R10: Anderson, James, M (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100009150	1/20/2009	Email regarding Background Groundwater Data.	24	3 EML / Email	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement

100009161	1/20/2009	Email regarding Background Groundwater Data.	24	3 EML / Email	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100009163	1/20/2009	Email regarding Background Groundwater Data.	23	2 EML / Email	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100009532	1/22/2009	Email regarding OSM MW-22.	21	1 EML / Email	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100010036	1/22/2009	Email regarding Need to Reschedule 3/9 Meeting - Upcoming Portland Harbor Managers Meetings.	28	3 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA), R10: Gainer, Tom (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100010178	1/22/2009	Email regarding Draft Comments on Groundwater Pathway Appendix.	23	2 EML / Email	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100015846	1/22/2009	REDACTED Email regarding Need to Reschedule 3/9 Meeting - Upcoming Portland Harbor Managers Meetings.	25	3 EML / Email	R10: Gainer, Tom (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100010202	1/23/2009	Email regarding Draft Comments on Groundwater Pathway Appendix.	22	1 EML / Email	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100010398	1/23/2009	Email regarding Volume Estimate for BP/ARCO.	20	1 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100007757	1/27/2009	Email regarding Doane Lake Area Mtg.	41	1 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Sheldrake, Sean, A (EPA), R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA), R10: Bayuk, Dana (Oregon Dept. of Environmental Quality), R10: Lacey, David (Oregon Dept. of Environmental Quality), R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100008357	1/27/2009	Email regarding Portland Harbor iAOPC layers.	22	2 EML / Email	R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100009374	1/29/2009	Email regarding GW Data at OSM, PEO and Time Oil.	21	1 EML / Email	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100013549	1/29/2009	Unvalidated Reconnaissance Groundwater Volatile Organic Compound (VOC) Results, RP (Rhône Poulenc) Portland Site.	1,237	4 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100010517	1/30/2009	Email regarding State WQSS.	46	1 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA), R10: Gensemer, Robert, W (Parametrix, Inc.)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100010671	2/2/2009	Email regarding Meeting Dates.	21	1 EML / Email	R10: Poulsen, Mike (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940681870	2/5/2009	Risk Assessment Basics.	172	2 RPT / Report	R10: Poulsen, Michael (Oregon Dept. of Environmental Quality)		ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940681871	2/5/2009	Email regarding Portland Harbor CAG RA presentation.	17	1 EML / Email	R10: Poulsen, Michael (Oregon Dept. of Environmental Quality)	R10: Smith, Judy, R (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100017145	2/6/2009	REDACTED RE Data Use Rules_JPDEQ comments.rtf.	50	2 CORR / Correspondence	R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100017697	2/8/2009	REDACTED Email regarding reply to Draft Agenda for Portland Harbor Milestone Meeting, Tuesday, February 12, 2008,.	26	1 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	Ted (U. S. Fish and Wildlife Service), R10: Madden, Erin (Unknown), R10: Imeson, Thomas, J (Port of Portland), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Cunninghame, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Oster, Valerie (Anchor Environmental, LLC), R10: Howard, Patti (Columbia River Inter-Tribal Fish Commission), R10: Marriott, Dean, C (City of Portland, Oregon, Bureau of Environmental Services), R10: Gilpin, Andrew, J (Oregon Steel Mills, Inc.), R10: Downey, Tom (Confederated Tribes of the Siletz Indians), R10: Wyatt, Bob (Northwest Natural Gas Company), R10: Miller, Max, M (Tonkon Torp, LLP.), R10: Vallance, Derrick (ConocoPhillips Company), R10: Joyce, William, F (Salter Joyce Ziker), R10: Bluelake, Lisa (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Young, Cyril (Oregon Dept. of State Lands), R10: Blischke, Eric, L (EPA), R10: Johnson, Keith (Oregon Dept. of Environmental Quality), R10: Yamamoto, Deb (EPA Region 10), R10: Longoria, Rose (Yakama Nation), R10: Givens, Raymond, C (Givens Law), R10: Applegate, Rick (City of Portland), R10: Barquin, Billy (Haglund Kelley, LLP), R10: Kepler, Rick, J (State of Oregon), R10: Burford, Christopher (Confederated Tribes of Umatilla Indian Reservation), R10: Buck, Jeremy (U. S. Fish & Ted (U. S. Fish and Wildlife Service), R10: Madden, Erin (Unknown), R10: Imeson, Thomas, J (Port of Portland), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Cunninghame, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Oster, Valerie (Anchor Environmental, LLC), R10: Howard, Patti (Columbia River Inter-Tribal Fish Commission), R10: Marriott, Dean, C (City of Portland, Oregon, Bureau of Environmental Services), R10: Gilpin, Andrew, J (Oregon Steel Mills, Inc.), R10: Downey, Tom (Confederated Tribes of the Siletz Indians), R10: Wyatt, Bob (Northwest Natural Gas Company), R10: Miller, Max, M (Tonkon Torp, LLP.), R10: Vallance, Derrick (ConocoPhillips Company), R10: Joyce, William, F (Salter Joyce Ziker), R10: Bluelake, Lisa (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Young, Cyril (Oregon Dept. of State Lands), R10: Blischke, Eric, L (EPA), R10: Johnson, Keith (Oregon Dept. of Environmental Quality), R10: Yamamoto, Deb (EPA Region 10), R10: Longoria, Rose (Yakama Nation), R10: Givens, Raymond, C (Givens Law), R10: Applegate, Rick (City of Portland), R10: Barquin, Billy (Haglund Kelley, LLP), R10: Kepler, Rick, J (State of Oregon), R10: Burford, Christopher (Confederated Tribes of Umatilla Indian Reservation), R10: Buck, Jeremy (U. S. Fish &	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940680198	2/8/2009	Email regarding reply to Draft Agenda for Portland Harbor Milestone Meeting, Tuesday, February 12, 2008,.	35	1 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement

100017816	REDACTED Email regarding reply to TCT Meeting - February 11, 2009.	26	1 EML / Email	R10: Anderson, James, M (Oregon Dept. of Environmental Quality)	R10: Neely, Robert (NOAA), R10: Fleming, Sheila (Ridolfi Engineers and Associates, Inc.), R10: Lavelle, Jim (CDM Federal Programs Corporation), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Cunninghame, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Smith, Carrie, A (Parametrix, Inc.), R10: Downey, Tom (Confederated Tribes of the Siletz Indians), R10: Bluelake, Lisa (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Humphrey, Chip (EPA), R10: Madden, Erin (Nez Perce Tribe), R10: Farrer, David, G (Oregon Dept. of Human Services), R10: Gainer, Tom (Oregon Dept. of Environmental Quality), R10: Longoria, Rose (Yakama Nation), R10: Williams, J., D (Law Offices of J. D. Williams), R10: French, R, D (CDM), R10: Allen, David (Stratus Consulting, Inc.), R10: Weis, Julie (Haglund Kelley, LLP), R10: Dexter, Bob (Ridolfi, Inc.), R10: Buck, Jeremy (U. S. Fish & Wildlife Service)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100016001	REDACTED Email regarding Reservation at Stoeel Rives, Portland - Room availability for 5/27-28/09.	96	3 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality) R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA), R10: Woronets, Jennifer (Anchor QEA, LLC)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100010755	2/17/2009 Email regarding TPH.	20	1 EML / Email	R10: Anderson, James, M (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100010809	Email regarding Update: Office of Healthy Working Rivers Meetings.	34	1 EML / Email	R10: Danab, Marcia (Oregon Dept. of Environmental Quality)	R10: Callahan-grant, Megan (NOAA), R10: Buerger, Ted (U. S. Fish and Wildlife Service), R10: Wray, Rachel (Port of Portland), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Cunninghame, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Unknown, Unknown (Columbia River Inter-Tribal Fish Commission), R10: Downey, Tom (Confederated Tribes of the Siletz Indians), R10: Karnosh, Michael (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Middaugh, Jim (City of Portland, Oregon, Endangered Species Act Program), R10: Blischke, Eric, L (EPA), R10: Smith, Judy, R (EPA), R10: Humphrey, Chip (EPA), R10: Soscia, Marylou (EPA), R10: Madden, Erin (Nez Perce Tribe), R10: Stewart, Sheree, L (Oregon Dept. of Environmental Quality), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality), R10: Longoria, Rose (Yakama Nation), R10: Lut, Agnes (Oregon Dept. of Environmental Quality), R10: Kepler, Rick, J (State of Oregon), R10: Buck, Jeremy (U. S. Fish & Wildlife Service), R10: Unknown, Unknown (Washington County, Oregon), R10: Unknown, Unknown (East Multnomah Soil & Water Conservation District), R10: Unknown, Unknown (West Multnomah Soil & Water Conservation District)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940681045	Email regarding Update: Office of Healthy Working Rivers Meetings.	34	1 EML / Email	R10: Danab, Marcia (Oregon Dept. of Environmental Quality)	R10: Callahan-grant, Megan (NOAA), R10: Buerger, Ted (U. S. Fish and Wildlife Service), R10: Wray, Rachel (Port of Portland), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Cunninghame, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Downey, Tom (Confederated Tribes of the Siletz Indians), R10: Karnosh, Michael (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Middaugh, Jim (City of Portland, Oregon, Endangered Species Act Program), R10: Smith, Judy, R (EPA), R10: Madden, Erin (Nez Perce Tribe), R10: Anderson, James, M (Oregon Dept. of Environmental Quality), R10: Longoria, Rose (Yakama Nation), R10: Kepler, Rick, J (State of Oregon), R10: Buck, Jeremy (U. S. Fish & Wildlife Service), R10: Unknown, Unknown (Washington County, Oregon), R10: Hudson, Charles (Columbia River Inter-Tribal Fish Commission), R10: Courter, Dick (West Multnomah Soil & Water Conservation District), R10: Fike, Jean (East Multnomah Soil & Water Conservation District)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100010280	2/19/2009 Email regarding TCT/LCT ARARs Meeting.	20	1 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100007681	Email regarding Arkema - Groundwater Source Control.	22	1 EML / Email	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	R10: Neeley, Robert (NOAA), R10: Buck, Jeremy (U. S. Fish and Wildlife Service), R10: Madden, Erin (Unknown), R10: Lavelle, Jim (CDM Federal Programs Corporation), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Cunninghame, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Hermanson, Brad (Parametrix, Inc.), R10: Malek, John (Parametrix, Inc.), R10: Gensemer, Robert, W (GEI Consultants, Inc.), R10: Peers, Jennifer (Stratus Consulting, Inc.), R10: Allen li, P. David (Stratus Consulting, Inc.), R10: Downey, Tom (Confederated Tribes of the Siletz Indians), R10: Bluelake, Lisa (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Karnosh, Michael (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Gainer, Thomas, B (Oregon Dept. of Environmental Quality), R10: Gainer, Tom (Oregon Dept. of Environmental Quality), R10: Longoria, Rose (Yakama Nation), R10: Weis, Julie (Haglund Kelley Jones & Wilder LLP), R10: Dexter, Bob (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement

					(NOAA), R10: Baker, Mary (NOAA), R10: Munn, Nancy (NOAA), R10: Neely, Robert (NOAA), R10: Fleming, Sheila (Ridolfi Engineers and Associates, Inc.), R10: Buck, Jeremy (U. S. Fish and Wildlife Service), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Cunninghame, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Smith, Carrie, A (Parametrix, Inc.), R10: Hermanson, Brad (Parametrix, Inc.), R10: Malek, John (Parametrix, Inc.), R10: Peers, Jennifer (Stratus Consulting, Inc.), R10: Allen li, P. David (Stratus Consulting, Inc.), R10: Downey, Tom (Confederated Tribes of the Siletz Indians), R10: Bluelake, Lisa (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Karnosh, Michael (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Ader, Mark, A (EPA), R10: Sheldrake, Sean, A (EPA), R10: Fuentes, Rene, C (EPA), R10: Cora, Lori, H (EPA), R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA), R10: Smith, Judy, R (EPA), R10: Shephard, Burt (EPA), R10: Humphrey, Chip (EPA), R10: Davoli, Dana (EPA), R10: Grepogrove, Gina (EPA), R10: Goulet, Joe (EPA), R10: Madden, Erin (Nez Perce Tribe), R10: Farrer, David, G (Oregon Dept. of Human Services), R10: Anderson, James, M (Oregon Dept. of Environmental Quality), R10: Peterson, Jennifer, L (Oregon		
100016591	2/20/2009	REDACTED Email Regarding Arkema - Proposed Groundwater Source Control Technical Memorandum.	24	1 EML / Email	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100008514	2/23/2009	Email regarding Arkema - Groundwater Source Control.	22	2 EML / Email	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100008177	2/24/2009	Letter regarding Arkema Groundwater Source Control Measure, Arkema Portland Plant, ECSI No. 398.	145	6 CORR / Correspondence	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100009752	2/24/2009	Email regarding Potential Oil Discharge Portland Oregon.	24	2 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100015649	2/24/2009	REDACTED Email regarding Potential Oil Discharge Portland Oregon.	23	3 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
					(NOAA), R10: Baker, Mary (NOAA), R10: Munn, Nancy (NOAA), R10: Neely, Robert (NOAA), R10: Fleming, Sheila (Ridolfi Engineers and Associates, Inc.), R10: Buck, Jeremy (U. S. Fish and Wildlife Service), R10: Lavelle, Jim (CDM Federal Programs Corporation), R10: Cunninghame, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Smith, Carrie, A (Parametrix, Inc.), R10: Hermanson, Brad (Parametrix, Inc.), R10: Malek, John (Parametrix, Inc.), R10: Peers, Jennifer (Stratus Consulting, Inc.), R10: Allen li, P. David (Stratus Consulting, Inc.), R10: Downey, Tom (Confederated Tribes of the Siletz Indians), R10: Bluelake, Lisa (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Karnosh, Michael (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Sheldrake, Sean, A (EPA), R10: Fuentes, Rene, C (EPA), R10: Cora, Lori, H (EPA), R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA), R10: Smith, Judy, R (EPA), R10: Shephard, Burt (EPA), R10: Humphrey, Chip (EPA), R10: Davoli, Dana (EPA), R10: Grepogrove, Gina (EPA), R10: Goulet, Joe (EPA), R10: Ader, Mark (EPA), R10: Madden, Erin (Nez Perce Tribe), R10: Farrer, David, G (Oregon Dept. of Human Services), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality), R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality), R10: Koch, Kristine, M (EPA)		
100015715	2/24/2009	REDACTED Email regarding Arkema - Groundwater Source Control.	25	1 EML / Email	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100010222	2/25/2009	Email regarding Table 5.1-2 Discussion at LWG Management Meeting.	75	7 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100015589	2/25/2009	Email Regarding Revised Portland Harbor RAOs.	26	2 EML / Email	R10: Farrer, David, G (Oregon Dept. of Human Services)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940680949	2/25/2009	Email regarding reply to Table 5.1-2 Discussion at LWG Management Meeting.	75	7 EML / Email	R10: Anderson, James, M (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100010059	2/26/2009	Email regarding Doane Lake area meeting.	23	2 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940680206	2/26/2009	Email regarding reply to Doane Lake area meeting.	23	2 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100008641	3/2/2009	Email regarding FW_ GIS Team Meeting.	21	1 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100016014	3/3/2009	REDACTED Email regarding Revised Portland Harbor RAOs.	73	5 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
					R10: Gardner, Sara (City of Portland, Oregon, Environmental Services), R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA), R10: Smith, Judy, R (EPA), R10: Humphrey, Chip (EPA), R10: Slyman, Paul (Oregon Dept. of Environmental Quality)		
100008360	3/4/2009	Email regarding Portland Harbor Source Control Map.	42	1 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
					R10: Unknown, Unknown (City of Portland, Oregon, Bureau of Environmental Services), R10: Blischke, Eric, L (EPA), R10: Slyman, Paul (Oregon Dept. of Environmental Quality)		
4940681238	3/4/2009	Email regarding Portland Harbor Source Control Map	42	1 EML / Email	R10: Anderson, James, M (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100008096	3/5/2009	Email Regarding Lower Willamette Group 's (LWG's) 2/6/2009 Remedial Investigation/Feasibility Study Issues Status Table.	103	2 EML / Email	R10: Anderson, James, M (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940681872	3/5/2009	Email regarding LWG's 2/6/09 "RI-FS Issues Status Table".	94	2 EML / Email	R10: Anderson, James, M (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100008633	3/10/2009	Email regarding FW_ GIS Analysis.	22	1 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100012622	3/11/2009	Letter Regarding Evaluation of Initial Deep Gravel Zone Extended Pump Test Plan (January 19, 2009).	22	3 LTR / Letter	R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
					R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA), R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality), R10: Tarnow, Karen, E (Oregon Dept. of Environmental Quality), R10: McClincy, Matt (Oregon Dept. of Environmental Quality), R10: Poulsen, Mike (Oregon Dept. of Environmental Quality), R10: Gainer, Tom (Oregon Dept. of Environmental Quality), R10: Longoria, Rose (Yakama Nation)		
100015414	3/13/2009	REDACTED Email regarding Retreat Information.	59	3 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
					R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA), R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality), R10: Tarnow, Karen, E (Oregon Dept. of Environmental Quality), R10: McClincy, Matt (Oregon Dept. of Environmental Quality), R10: Poulsen, Mike (Oregon Dept. of Environmental Quality), R10: Gainer, Tom (Oregon Dept. of Environmental Quality), R10: Longoria, Rose (Yakama Nation)		
100015415	3/13/2009	REDACTED Email regarding Retreat Information.	73	5 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement



100015483	REDACTED Email regarding RI/FS Issue 3/13/2009 Summary.	71	6 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA), R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100015998	REDACTED Email regarding Retreat 3/13/2009 Information.	59	3 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA), R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality), R10: Tarnow, Karen, E (Oregon Dept. of Environmental Quality), R10: McClincy, Matt (Oregon Dept. of Environmental Quality), R10: Poulsen, Mike (Oregon Dept. of Environmental Quality), R10: Gainer, Tom (Oregon Dept. of Environmental Quality), R10: Longoria, Rose (Yakama Nation)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940680931	3/13/2009 Email regarding reply to SLLI mtg.	23	2 EML / Email	R10: Lacey, David (Oregon Dept. of Environmental Quality)	R10: Gresh, Roger, T (AMEC Earth & Environmental, Inc.), R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100015437	REDACTED Email regarding RI/FS Issue 3/16/2009 Summary.	102	8 EML / Email	R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940680260	Email regarding reply to Arkema and future documents. 3/17/2009	27	2 EML / Email	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	R10: Defur, Peter, L (Unknown), R10: Humphrey, Chip (EPA), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100007616	3/18/2009 Email regarding Accepted: GIS Check-In.	15	1 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100009129	3/18/2009 Email regarding Follow-up From GIS Meeting.	25	2 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100009310	3/18/2009 Email regarding GIS Tool Training Session.	22	1 EML / Email	R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100009311	3/18/2009 Email regarding GIS Tool Training Session.	22	1 EML / Email	R10: Poulsen, Michael (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100015466	REDACTED Email regarding RI/FS Issue 3/18/2009 Summary.	56	12 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA), R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100015479	REDACTED Email regarding RI/FS Issue 3/18/2009 Summary.	69	12 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA), R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940680259	Email regarding reply to Arkema and future documents. 3/18/2009	28	3 EML / Email	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	R10: Defur, Peter, L (Unknown), R10: Williams, Travis (Willamette Riverkeeper), R10: Humphrey, Chip (EPA), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100015455	REDACTED Email regarding RI/FS Issue 3/19/2009 Summary.	28	9 EML / Email	R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940680258	Email regarding reply to Arkema and future documents. 3/19/2009	29	3 EML / Email	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	R10: Weinberger, Dawn (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100015418	REDACTED Email regarding RI/FS Issue 3/23/2009 Summary.	30	10 EML / Email	R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100015453	REDACTED Email regarding RI/FS Issue 3/23/2009 Summary.	30	10 EML / Email	R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100008090	Email Regarding NW Natural - Document Copies, Routing, and Soft Copy Formatting. 3/25/2009	30	2 EML / Email	R10: Bayuk, Dana (Oregon Dept. of Environmental Quality)	R10: Shephard, Burt (EPA), R10: Ede, Robert, B (Hahn and Associates, Inc.), R10: Stivers, Carl (Anchor QEA, LLC), R10: Edwards, John (Anchor QEA, LLC)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100008101	3/25/2009 PDFs for the EPA.	109	2 OTH / Other	R10: Sheldrake, Sean, A (EPA), R10: Butler, Billy (EPA)		ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940681875	Email regarding NW Natural - Document Copies, Routing, and Soft Copy Formatting (2). 3/25/2009	22	2 EML / Email	R10: Bayuk, Dana (Oregon Dept. of Environmental Quality)	R10: Ede, Robert, B (Hahn and Associates, Inc.), R10: Edwards, John, E (Anchor Environmental, LLC)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100009379	3/30/2009 Email regarding GIS Training.	24	1 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Smith, Carrie, A (Parametrix, Inc.), R10: Peers, Jennifer (Stratus Consulting, Inc.), R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA), R10: Gubitoso, Matthew (EPA), R10: Mccarthy, Susan (EPA), R10: Locke, Adam, L (CDM), R10: Shorr, Benjamin (NOAA), R10: French, R, D (CDM), R10: Jett, Steven (State of Oregon Department of Environmental Quality), R10: Duminiak, Michael (CDM)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940680745	3/30/2009 Email regarding reply to GIS Training. Memo regarding Discharge Limitations and Monitoring Requirements for the NW Natural/Gasco Site.	24	1 EML / Email	R10: Anderson, James, M (Oregon Dept. of Environmental Quality)	R10: Smith, Carrie, A (Parametrix, Inc.), R10: Peers, Jennifer (Stratus Consulting, Inc.), R10: Blischke, Eric, L (EPA), R10: Shorr, Benjamin (NOAA), R10: French, R, D (CDM), R10: Jett, Steven (State of Oregon Department of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940681877	3/31/2009	97	3 MEMO / Memorandum	R10: Burkhart, Rob (Oregon Dept. of Environmental Quality)	R10: Bayuk, Dana (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100009127	4/2/2009 Meeting. Letter regarding Discharge Limitations and Monitoring Requirements - NW Natural Former "Gasco" Site.	21	1 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940681876	4/2/2009	93	2 LTR / Letter	R10: Bayuk, Dana (Oregon Dept. of Environmental Quality)	R10: Bayuk, Dana (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940681878	4/2/2009 Email regarding NW Natural, Treatment System Discharge Limitations and Monitoring Requirements.	48	2 EML / Email	R10: Bayuk, Dana (Oregon Dept. of Environmental Quality)	R10: Wyatt, Bob (Northwest Natural Gas Company)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100009925	4/6/2009 Meeting (Apr 21 01_00 PM P(1)).	43	1 EML / Email	R10: Gainer, Tom (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100018012	REDACTED Email regarding RE_Invitation_FS Team Meeting (Apr 21 01_00 PM PM PDT). 4/6/2009	42	1 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100017817	4/7/2009 Meeting - Wednesday April 8 - Agenda items.	19	1 EML / Email	R10: Gainer, Tom (Oregon Dept. of Environmental Quality)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100019957	4/7/2009 REDACTED Email regarding TCT Meeting - Wednesday April 8 - Agenda Items.	26	1 EML / Email	R10: Gainer, Tom (Oregon Dept. of Environmental Quality)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100019968	4/7/2009 REDACTED Email regarding TCT Meeting - Wednesday April 8 - Agenda Items.	19	1 EML / Email	R10: Gainer, Tom (Oregon Dept. of Environmental Quality)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940681154	4/7/2009 Email regarding Report on possible Release at Triangle Park Property.	65	2 EML / Email	R10: Anderson, James, M (Oregon Dept. of Environmental Quality)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100007543	4/8/2009 Letter regarding Draft Interim Construction Report, Revetment Source Control Measure. Letter regarding March 2009 Draft Interim Construction Report, Revetment Source Control Measure for the Arco Site.	66	1 CORR / Correspondence	R10: Gainer, Tom (Oregon Dept. of Environmental Quality)	R10: Wyatt, Bob (Northwest Natural Gas Company)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100014044	4/8/2009	67	1 LTR / Letter	R10: Gainer, Tom (Oregon Dept. of Environmental Quality)	R10: Wyatt, Robert, J (NW Natural)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100013149	4/9/2009 Email Regarding 4/8 CAG Meeting. Email Regarding GIS Tool: I Have Started Working With the GIS Tool and Wanted to Pass On An Observation During Orientation - Tool Contours Both Detects and Non-Detects and Does Not Allow Contouring of Just the Non- Defects.	50	1 EML / Email	R10: Anderson, James, M (Oregon Dept. of Environmental Quality)	R10: Shephard, Burt (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100011091	4/16/2009	29	1 EML / Email	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940680920	4/16/2009 Email regarding reply to Sept 2008 Gould Inspection Report.	53	2 EML / Email	R10: Kent, Mavis, D (Oregon Dept. of Environmental Quality)	R10: Humphrey, Chip (EPA), R10: Hersey, Kasey (AMEC Environment & Infrastructure, Inc.)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940681172	4/16/2009 Email regarding GIS Tool.	21	1 EML / Email	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100009267	4/23/2009 Email regarding Round 3 Detection Limits - Fish Tissue.	24	2 EML / Email	R10: Poulsen, Michael (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100009578	4/23/2009 Email regarding PCB 126.	20	1 EML / Email	R10: Poulsen, Michael (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement

100009262	Email regarding Round 3 Detection Limits - Fish Tissue.	25	2 EML / Email	R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA), R10: Poulsen, Michael (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100010730	Email regarding Tentative: GIS Mapping/Retreat Planning.	17	1 EML / Email	R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100010743	Email regarding Tentative: GIS Mapping/Retreat Planning.	17	1 EML / Email	R10: Poulsen, Mike (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100013546	Letter Regarding 04/07/2009 SLLI/DEQ/EPA Meeting Summary RP (Rhône Poulenc) – Portland Site.	50	3 LTR / Letter	R10: Gormley, Sean, F (AMEC Earth & Environmental, Inc.), R10: Gresh, Roger, T (AMEC Earth & Environmental, Inc.)	R10: Lacey, David (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940681163	Email regarding Willamette River Post Office Bar Dredging.	44	1 EML / Email	R10: Johnson, Keith (Oregon Dept. of Environmental Quality)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100012326	5/12/2009 Email Regarding Plots.	95	1 EML / Email	R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)	R10: Smith, Carrie, A (Parametrix, Inc.), R10: Blischke, Eric, L (EPA), R10: Shephard, Burt (EPA), R10: Humphrey, Chip (EPA), R10: Davoli, Dana (EPA), R10: Goulet, Joe (EPA), R10: Poulsen, Michael (Oregon Dept. of Environmental Quality), R10: Gensemer, Robert, W (Parametrix, Inc.), R10: Shorr, Benjamin (NOAA), R10: Lavelle, James, M (CDM), R10: Duminiak, Michael (CDM)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100012358	5/12/2009 Email regarding ARKEMA Dioxins/Furans.	32	1 EML / Email	R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)	R10: Smith, Carrie, A (Parametrix, Inc.), R10: Hermanson, Brad (Parametrix, Inc.), R10: Blischke, Eric, L (EPA), R10: Shephard, Burt (EPA), R10: Humphrey, Chip (EPA), R10: Davoli, Dana (EPA), R10: Goulet, Joe (EPA), R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality), R10: Poulsen, Mike (Oregon Dept. of Environmental Quality), R10: Gensemer, Robert, W (Parametrix, Inc.), R10: Shorr, Benjamin (NOAA), R10: Lavelle, James, M (CDM), R10: Duminiak, Michael (CDM)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100014324	Email Regarding Dioxin / Furan PCB Plots (Three Dimensional Graph).	133	1 EML / Email	R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)	R10: Smith, Carrie, A (Parametrix, Inc.), R10: Hermanson, Brad (Parametrix, Inc.), R10: Blischke, Eric, L (EPA), R10: Shephard, Burt (EPA), R10: Humphrey, Chip (EPA), R10: Goulet, Joe (EPA), R10: Poulsen, Michael (Oregon Dept. of Environmental Quality), R10: Gensemer, Robert, W (Parametrix, Inc.), R10: Shorr, Benjamin (NOAA), R10: Lavelle, James, M (CDM), R10: Duminiak, Michael (CDM)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100017846	REDACTED Email regarding reply to WebEx information for Tomorrow's AOPC review meeting.	23	2 EML / Email	R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)	R10: Lavelle, Jim (CDM Federal Programs Corporation), R10: Davoli, Dana (EPA), R10: Poulsen, Mike (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100020098	REDACTED Email regarding WebEx Information for Tomorrow's AOPC Review Meeting.	23	2 EML / Email	R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA), R10: Shephard, Burt (EPA), R10: Humphrey, Chip (EPA), R10: Davoli, Dana (EPA), R10: Goulet, Joe (EPA), R10: Poulsen, Michael (Oregon Dept. of Environmental Quality), R10: Lavelle, James, M (CDM)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940681232	5/12/2009 Email regarding Plots	78	1 EML / Email	R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)	R10: Hermanson, Brad (Parametrix, Inc.), R10: Shephard, Burt (EPA), R10: Poulsen, Michael (Oregon Dept. of Environmental Quality), R10: Shorr, Benjamin (NOAA), R10: Duminiak, Michael (CDM)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100015680	Email regarding LWG Sidescan Sonar Data Report.	98	1 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940680728	Email regarding reply to Willamette River Post Office Bar Dredging.	22	2 EML / Email	R10: Johnson, Keith (Oregon Dept. of Environmental Quality)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940680729	Email regarding reply to Willamette River Post Office Bar Dredging.	21	1 EML / Email	R10: Johnson, Keith (Oregon Dept. of Environmental Quality)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100010759	Email regarding Treatment Beneficial Use Market Survey.	67	1 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940681039	Email regarding Treatment Beneficial Use Market Survey.	67	1 EML / Email	R10: Anderson, James, M (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940681153	Email regarding PRG meeting with request to discuss P.O. Bar.	43	1 EML / Email	R10: Johnson, Keith (Oregon Dept. of Environmental Quality)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100009495	5/28/2009 Appendices.	742	85 RPT / Report	R10: Gilpin, Drew (Unknown)		ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940680888	5/29/2009 Email regarding reply to RiverFest 2009.	51	3 EML / Email	R10: Danab, Marcia (Oregon Dept. of Environmental Quality)	R10: Smith, Judy, R (EPA), R10: Anderson, James, M (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100007677	6/1/2009 Email regarding Arco AOPC.	74	1 EML / Email	R10: Gainer, Tom (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100009930	6/1/2009 Email regarding DEQ April 2009 Source Control Milestone Report.	34	1 EML / Email	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	(NOAA), R10: Neely, Robert (NOAA), R10: Fleming, Sheila (Ridolfi Engineers and Associates, Inc.), R10: Zylstra, Stephen, J (U. S. Fish and Wildlife Service), R10: Buck, Jeremy (U. S. Fish and Wildlife Service), R10: Lavelle, Jim (CDM Federal Programs Corporation), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Cunninghame, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Smith, Carrie, A (Parametrix, Inc.), R10: Hermanson, Brad (Parametrix, Inc.), R10: Malek, John (Parametrix, Inc.), R10: Peers, Jennifer (Stratus Consulting, Inc.), R10: Allen li, P. David (Stratus Consulting, Inc.), R10: Downey, Tom (Confederated Tribes of the Siletz Indians), R10: Bluelake, Lisa (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Karnosh, Michael (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Sheldrake, Sean, A (EPA), R10: Fuentes, Rene, C (EPA), R10: Cora, Lori, H (EPA), R10: Koch, Kristine, M (EPA), R10: Smith, Judy, R (EPA), R10: Shephard, Burt (EPA), R10: Humphrey, Chip (EPA), R10: Davoli, Dana (EPA), R10: Grepogrove, Gina (EPA), R10: Goulet, Joe (EPA), R10: Ader, Mark (EPA), R10: Madden, Erin (Nez Perce Tribe), R10: Farrer, David, G (Oregon Dept. of Human Services), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality), R10: Stivers, Carl (Anchor Environmental, LLC), R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100013384	6/1/2009 Email Regarding ARCO Areas of Potential Concern (AOPC).	89	1 EML / Email	R10: Gainer, Thomas, B (Oregon Dept. of Environmental Quality)		ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement

4940680214	Email regarding reply to DEQ April 2009 Source Control Milestone Report.	34	1 EML / Email	R10: Mcclincy, Matt (Oregon Dept. of Environmental Quality)	R10: Neely, Robert (NOAA), R10: Fleming, Sheila (Ridolfi Engineers and Associates, Inc.), R10: Zylstra, Stephen, J (U. S. Fish and Wildlife Service), R10: Madden, Erin (Unknown), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Cunninghame, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Smith, Carrie, A (Parametrix, Inc.), R10: Downey, Tom (Confederated Tribes of the Siletz Indians), R10: Bluelake, Lisa (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Humphrey, Chip (EPA), R10: Farrer, David, G (Oregon Dept. of Human Services), R10: Gainer, Thomas, B (Oregon Dept. of Environmental Quality), R10: Longoria, Rose (Yakama Nation), R10: Thompson, Chris (Environment International, Ltd.), R10: Sudbury, Ryan, R10: Lavelle, James, M (CDM), R10: Allen, David (Stratus Consulting, Inc.), R10: Weis, Julie (Haglund Kelley, LLP), R10: Dexter, Bob (Ridolfi, Inc.), R10: Buck, Jeremy (U. S. Fish & Wildlife Service)	056-SITE SUPPORT/0563-State/Tribal Involvement	ELECTRONIC RECORD
100008734	Table Referring to Applicable or Relevant and Appropriate Requirements (ARARs) By Oregon Revised Statute, Oregon Administrative Rule, Criterion/Standard, and ARAR Compliance.	231	6 CHT / Chart/Table	R10: (Unknown)		056-SITE SUPPORT/0563-State/Tribal Involvement	ELECTRONIC RECORD
100008735	Email Regarding Portland Harbor Applicable or Relevant and Appropriate Requirements (ARARs).	53	1 EML / Email	R10: Anderson, James, M (Oregon Dept. of Environmental Quality)	R10: Cora, Lori, H (EPA), R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	056-SITE SUPPORT/0563-State/Tribal Involvement	ELECTRONIC RECORD
4940681879	Potential ARARs & TBCs for the Portland Harbor project.	119	6 RPT / Report	R10: Gamolo, Gerald, M (Oregon Dept. of Environmental Quality)		056-SITE SUPPORT/0563-State/Tribal Involvement	ELECTRONIC RECORD
4940681880	Email regarding Portland Harbor ARARs.	44	1 EML / Email	R10: Anderson, James, M (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	056-SITE SUPPORT/0563-State/Tribal Involvement	ELECTRONIC RECORD
4940681881	Potential ARARs & TBCs for the Portland Harbor project.	119	6 RPT / Report	R10: Gamolo, Gerald, M (Oregon Dept. of Environmental Quality)		056-SITE SUPPORT/0563-State/Tribal Involvement	ELECTRONIC RECORD
100017862	REDACTED Email regarding reply to Willamette River/Post office Bar discussion.	45	2 EML / Email	R10: Johnson, Keith (Oregon Dept. of Environmental Quality)	R10: Inouye, Laura (Washington State Dept. of Ecology), R10: Freedman, Jonathan (EPA), R10: Cyril, L. Alexander (Alex) (Oregon Dept. of Environmental Quality), R10: Buck, Jeremy (U. S. Fish & Wildlife Service), R10: Gambetta, Daniel (NOAA), R10: Cook, Marci (U.S. Army Corps of Engineers)	056-SITE SUPPORT/0563-State/Tribal Involvement	ELECTRONIC RECORD
100007759	Email regarding Draft 6/11 Doane Lk Area Mtg Agenda.	70	2 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Sheldrake, Sean, A (EPA), R10: Fuentes, Rene, C (EPA), R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA), R10: Yamamoto, Deb (EPA), R10: Bayuk, Dana (Oregon Dept. of Environmental Quality), R10: Lacey, David (Oregon Dept. of Environmental Quality), R10: Larsen, Henning (Oregon Dept. of Environmental Quality), R10: Mcclincy, Matt (Oregon Dept. of Environmental Quality), R10: Gainer, Tom (Oregon Dept. of Environmental Quality)	056-SITE SUPPORT/0563-State/Tribal Involvement	ELECTRONIC RECORD
100009852	Email regarding Comments and Proposed RAOs.	107	3 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	056-SITE SUPPORT/0563-State/Tribal Involvement	ELECTRONIC RECORD
100014416	Email Regarding Draft 6/11 Doane Lake Area Meeting Agenda.	85	2 EML / Email	R10: Anderson, James, M (Oregon Dept. of Environmental Quality)	R10: Sheldrake, Sean, A (EPA), R10: Fuentes, Rene, C (EPA), R10: Yamamoto, Deborah, J (EPA), R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA), R10: Gainer, Thomas, B (Oregon Dept. of Environmental Quality), R10: Bayuk, Dana (Oregon Dept. of Environmental Quality), R10: Lacey, David (Oregon Dept. of Environmental Quality), R10: Larsen, Henning (Oregon Dept. of Environmental Quality), R10: Mcclincy, Matt (Oregon Dept. of Environmental Quality)	056-SITE SUPPORT/0563-State/Tribal Involvement	ELECTRONIC RECORD
4940680228	Email regarding reply to Comments and Proposed RAOs.	107	3 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	056-SITE SUPPORT/0563-State/Tribal Involvement	ELECTRONIC RECORD
100009604	Email regarding Portland Harbor ARARs.	71	5 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	056-SITE SUPPORT/0563-State/Tribal Involvement	ELECTRONIC RECORD
100009798	Email regarding Response to RAO Comments and Doane Lake Meeting Time.	43	1 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	056-SITE SUPPORT/0563-State/Tribal Involvement	ELECTRONIC RECORD
100009799	Email regarding Response to RAO Comments and Doane Lake Meeting Time.	21	1 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	056-SITE SUPPORT/0563-State/Tribal Involvement	ELECTRONIC RECORD
100017870	REDACTED Email regarding reply to Willamette River/Post office Bar discussion.	47	2 EML / Email	R10: Anderson, Peter (Oregon Dept. of Environmental Quality)	R10: Inouye, Laura (Washington State Dept. of Ecology), R10: Humphrey, Chip (EPA), R10: Johnson, Keith (Oregon Dept. of Environmental Quality), R10: Cook, Marci (U.S. Army Corps of Engineers)	056-SITE SUPPORT/0563-State/Tribal Involvement	ELECTRONIC RECORD
100015610	Email regarding Portland Harbor Managers Meeting - Proposed Date June 18th.	95	1 EML / Email	R10: Woronets, Jennifer (Anchor QEA, LLC)	R10: Parkinson, Steve (Groff & Murphy), R10: Neely, Robert (NOAA), R10: Fleming, Sheila (Ridolfi Engineers and Associates, Inc.), R10: Madden, Erin (Unknown), R10: Ashton, David (Port of Portland), R10: Mckenna, James (Port of Portland), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Cunninghame, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Peers, Jennifer (Stratus Consulting, Inc.), R10: Pine, Keith, A (Integral Consulting, Inc.), R10: Bluelake, Lisa (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Karnosh, Michael (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA), R10: Anderson, James, M (Oregon Dept. of Environmental Quality), R10: Mcclincy, Matt (Oregon Dept. of Environmental Quality), R10: Woronets, Jennifer (Anchor QEA, LLC), R10: Fox, Julie (Anchor QEA, LLC), R10: Longoria, Rose (Yakama Nation), R10: Williams, J., D (Law Offices of J. D. Williams), R10: Wyatt, Robert, J (NW Natural), R10: Dost, Patty (Schwabe, Williamson & Wyatt, P.C.), R10: Betz, Jan (City of Portland, Oregon), R10: Applegate, Rick (City of Portland), R10: Weis, Julie (Haglund Kelley, LLP), R10: Traeger, Karen (Total), R10: Ryan (Davis Sudbury)	056-SITE SUPPORT/0563-State/Tribal Involvement	ELECTRONIC RECORD
100009043	Email regarding Draft 6/11 Doane Lake Area Meeting Agenda.	22	2 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	056-SITE SUPPORT/0563-State/Tribal Involvement	ELECTRONIC RECORD
100009045	6/11/09 DEQ/EPA Doane Lake Area Meeting Agenda.	106	2 MTG / Meeting Document	R10: Unknown, Unknown (EPA), R10: Unknown, Unknown (Oregon Dept. of Environmental Quality)	R10: Unknown, Unknown (EPA), R10: Unknown, Unknown (Oregon Dept. of Environmental Quality)	056-SITE SUPPORT/0563-State/Tribal Involvement	ELECTRONIC RECORD
4940680720	Email regarding reply to Portland Harbor Managers Meeting - Proposed Date Wednesday, June 17th 10 am to noon.	26	3 EML / Email	R10: Anderson, James, M (Oregon Dept. of Environmental Quality)	R10: Humphrey, Chip (EPA), R10: Woronets, Jennifer (Anchor QEA, LLC)	056-SITE SUPPORT/0563-State/Tribal Involvement	ELECTRONIC RECORD



100008737	6/12/2009	Table Regarding Portland Harbor Applicable or Relevant and Appropriate Requirements (ARARs).	231	6 CHT / Chart/Table	R10: (Unknown)		ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100008746	6/12/2009	Email Regarding Portland Harbor Applicable or Relevant and Appropriate Requirements (ARARs): After Further Evaluation, DEQ Will Not Add Further ARARs or Thermal Bypass Checklists (TBCs) to Its Table at This Time.	53	2 EML / Email	R10: Anderson, James, M (Oregon Dept. of Environmental Quality) R10: Blischke, Eric, L (EPA), R10: Anderson, James, M (Oregon Dept. of Environmental Quality)	R10: Cora, Lori, H (EPA), R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940681882	6/12/2009	Email regarding Portland Harbor ARARs.	45	2 EML / Email			ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100010038	6/15/2009	Email regarding Next FS Team Meeting.	47	1 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality) R10: Gainer, Tom (Oregon Dept. of Environmental Quality)	R10: Fleming, Sheila (Ridolfi Engineers and Associates, Inc.), R10: Hermanson, Brad (Parametrix, Inc.), R10: Malek, John (Parametrix, Inc.), R10: Peers, Jennifer (Stratus Consulting, Inc.), R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA), R10: McClincy, Matt (Oregon Dept. of Environmental Quality), R10: Poulsen, Michael (Oregon Dept. of Environmental Quality), R10: Gainer, Tom (Oregon Dept. of Environmental Quality), R10: French, R, D (CDM), R10: King, Tw (CDM)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100010046	6/15/2009	Email regarding Next FS Team Meeting.	20	1 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100010285	6/15/2009	Email regarding TCT Meeting.	43	1 EML / Email		R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940680826	6/15/2009	Email regarding reply to Next FS Team Meeting.	47	1 EML / Email	R10: Anderson, James, M (Oregon Dept. of Environmental Quality) R10: Anderson, James, M (Oregon Dept. of Environmental Quality)	R10: Fleming, Sheila (Ridolfi Engineers and Associates, Inc.), R10: Hermanson, Brad (Parametrix, Inc.), R10: Peers, Jennifer (Stratus Consulting, Inc.), R10: Blischke, Eric, L (EPA), R10: Gainer, Tom (Oregon Dept. of Environmental Quality), R10: French, R, D (CDM)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940680957	6/15/2009	Email regarding reply to TCT meeting.	43	1 EML / Email		R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100014409	6/16/2009	Email Regarding Draft E-Mail to Regional Sediment Evaluation Team (RSET) on Post Office (PO) Bar.	65	2 EML / Email	R10: Johnson, Keith (Oregon Dept. of Environmental Quality)	R10: Humphrey, Chip (EPA), R10: Freedman, Jonathan (EPA), R10: Cyril, L. Alexander (Alex) (Oregon Dept. of Environmental Quality), R10: Poulsen, Michael (Oregon Dept. of Environmental Quality), R10: Belete, Etsegenet (Oregon Dept. of Environmental Quality), R10: Anderson, Peter (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940680986	6/16/2009	Email regarding reply to Willamette River Post Office Bar Dredging.	52	2 EML / Email	R10: Johnson, Keith (Oregon Dept. of Environmental Quality)	R10: Inouye, Laura (Washington State Dept. of Ecology), R10: Freedman, Jonathan (EPA), R10: Cyril, L. Alexander (Alex) (Oregon Dept. of Environmental Quality), R10: Buck, Jeremy (U. S. Fish & Wildlife Service), R10: Gambetta, Daniel (NOAA), R10: Cook, Marci (U.S. Army Corps of Engineers)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100015473	6/19/2009	REDACTED Email regarding 6/11 DEQ/EPA Doane Lake Area Mtg.	74	2 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Sheldrake, Sean, A (EPA), R10: Fuentes, Rene, C (EPA), R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA), R10: Yamamoto, Deb (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100016561	6/19/2009	REDACTED Email Regarding 6/11/2009 DEQ/EPA Doane Lake Area Meeting.	74	2 EML / Email	R10: Anderson, James, M (Oregon Dept. of Environmental Quality) R10: Gainer, Thomas, B (Oregon Dept. of Environmental Quality)	R10: Sheldrake, Sean, A (EPA), R10: Fuentes, Rene, C (EPA), R10: Yamamoto, Deborah, J (EPA), R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA), R10: Gainer, Thomas, B (Oregon Dept. of Environmental Quality), R10: Bayuk, Dana (Oregon Dept. of Environmental Quality), R10: Lacey, David (Oregon Dept. of Environmental Quality), R10: Larsen, Henning (Oregon Dept. of Environmental Quality), R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100012109	6/22/2009	Email Regarding PH documents.	67	1 EML / Email		R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100013083	6/24/2009	PO Bar PRG Determination (With Marginalia) - Memo re Project Review Group Technical Memorandum for the Sediment Characterization Report for the Federal Project Post Office Bar.	112	3 OTH / Other	R10: Cook, Marci (U.S. Army Corps of Engineers)	R10: (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100013163	6/24/2009	PO Bar PRG Determination (With Marginalia) - Memo re Project Review Group Technical Memorandum for the Sediment Characterization Report for the Federal Project Post Office Bar.	112	3 OTH / Other	R10: Cook, Marci (U.S. Army Corps of Engineers)	R10: (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100013940	6/25/2009	Email Regarding Bruce's PCB Paper.	52	3 EML / Email	R10: Drake, Doug (Oregon Dept. of Environmental Quality) R10: Gainer, Tom (Oregon Dept. of Environmental Quality)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100007756	6/30/2009	Email regarding Disposal Screening.	73	1 EML / Email	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100011866	7/9/2009	Email Regarding Outfall 22 Lining.	29	1 EML / Email	R10: Poulsen, Michael (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100010034	7/14/2009	Email regarding Naphthalene.	21	1 EML / Email	R10: Poulsen, Michael (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100010035	7/14/2009	Email regarding Naphthalene.	24	2 EML / Email	R10: Poulsen, Mike (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940680817	7/14/2009	Email regarding reply to Naphthalene.	24	2 EML / Email	R10: Poulsen, Mike (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940680818	7/14/2009	Email regarding reply to Naphthalene.	21	1 EML / Email	R10: Poulsen, Mike (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement

100009853	7/15/2009	Email regarding RE_Hydrodynamic Sedimentation Transport Model Meeting.	60	2 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	(NOAA), R10: Munn, Nancy (NOAA), R10: Neely, Robert (NOAA), R10: Fleming, Sheila (Ridolfi Engineers and Associates, Inc.), R10: Zylstra, Stephen, J (U. S. Fish and Wildlife Service), R10: Buck, Jeremy (U. S. Fish and Wildlife Service), R10: Madden, Erin (Unknown), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Smith, Carrie, A (Parametrix, Inc.), R10: Hermanson, Brad (Parametrix, Inc.), R10: Malek, John (Parametrix, Inc.), R10: Peers, Jennifer (Stratus Consulting, Inc.), R10: Bluelake, Lisa (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Karnosh, Michael (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Sheldrake, Sean, A (EPA), R10: Fuentes, Rene, C (EPA), R10: Cora, Lori, H (EPA), R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA), R10: Smith, Judy, R (EPA), R10: Shephard, Burt (EPA), R10: Humphrey, Chip (EPA), R10: Davoli, Dana (EPA), R10: Grepo-grove, Gina (EPA), R10: Goulet, Joe (EPA), R10: Ader, Mark (EPA), R10: Farrer, David, G (Oregon Dept. of Human Services), R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality), R10: McClincy, Matt (Oregon Dept. of Environmental Quality), R10: Poulsen, Mike (Oregon Dept. of Environmental Quality), R10: Gensemer, Robert, W (Parametrix, Inc.), R10: Gainer, Tom (DEQ Northwest Region), R10:	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100014183	7/15/2009	REDACTED Email regarding Draft Source Control Decision for Anderson Brothers.	53	2 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Buck, Jeremy (U. S. Fish and Wildlife Service), R10: Lavelle, Jim (CDM Federal Programs Corporation), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Cunninghame, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Battuello, Peter (Parametrix, Inc.), R10: Peers, Jennifer (Stratus Consulting, Inc.), R10: Downey, Tom (Confederated Tribes of the Siletz Indians), R10: Karnosh, Michael (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Longoria, Rose (Yakama Nation), R10: Shorr, Benjamin (NOAA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100016932	7/15/2009	REDACTED Email Regarding Draft Source Control Decision (SCD) for the Anderson Brothers Site to EPA for Review and Comment.	53	2 EML / Email	R10: Anderson, James, M (Oregon Dept. of Environmental Quality)	(NOAA), R10: Baker, Mary (NOAA), R10: Munn, Nancy (NOAA), R10: Neely, Robert (NOAA), R10: Fleming, Sheila (Ridolfi Engineers and Associates, Inc.), R10: Buck, Jeremy (U. S. Fish and Wildlife Service), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Cunninghame, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Smith, Carrie, A (Parametrix, Inc.), R10: Bernardini, Lori (Parametrix, Inc.), R10: Peers, Jennifer (Stratus Consulting, Inc.), R10: Downey, Tom (Confederated Tribes of the Siletz Indians), R10: Karnosh, Michael (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Ader, Mark, A (EPA), R10: Sheldrake, Sean, A (EPA), R10: Fuentes, Rene, C (EPA), R10: Cora, Lori, H (EPA), R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA), R10: Smith, Judy, R (EPA), R10: Cope, Ben (EPA), R10: Shephard, Burt (EPA), R10: Humphrey, Chip (EPA), R10: Black, Curt (EPA), R10: Davoli, Dana (EPA), R10: Grepo-grove, Gina (EPA), R10: Goulet, Joe (EPA), R10: Madden, Erin (Nez Perce Tribe), R10: Farrer, David, G (Oregon Dept. of Human Services), R10: Gainer, Thomas, B (Oregon Dept. of Environmental Quality), R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality), R10: McClincy, Matt (Oregon Dept. of Environmental Quality), R10: Gensemer, Robert, W (Parametrix, Inc.), R10:	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940680756	7/15/2009	Email regarding reply to Hydrodynamic Sedimentation Transport Model Meeting.	60	2 EML / Email	R10: Anderson, James, M (Oregon Dept. of Environmental Quality)	R10: Neely, Robert (NOAA), R10: Fleming, Sheila (Ridolfi Engineers and Associates, Inc.), R10: Zylstra, Stephen, J (U. S. Fish and Wildlife Service), R10: Lavelle, Jim (CDM Federal Programs Corporation), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Cunninghame, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Smith, Carrie, A (Parametrix, Inc.), R10: Downey, Tom (Confederated Tribes of the Siletz Indians), R10: Bluelake, Lisa (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Blischke, Eric, L (EPA), R10: Madden, Erin (Nez Perce Tribe), R10: Farrer, David, G (Oregon Dept. of Human Services), R10: Gainer, Tom (Oregon Dept. of Environmental Quality), R10: Sudbury, Ryan (Grand Ronde Tribe), R10: Longoria, Rose (Yakama Nation), R10: French, R, D (CDM), R10: Allen, David (Stratus Consulting, Inc.), R10: Weis, Julie (Haglund Kelley, LLP), R10: Dexter, Bob (Ridolfi, Inc.), R10: Buck, Jeremy (U. S. Fish & Wildlife Service)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100014564	7/16/2009	Email Regarding Draft Source Control Decision (SCD) for the Anderson Brothers Site (ECSI 970).	54	1 EML / Email	R10: Tarnow, Karen, E (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100012373	7/21/2009	General Comments of Portland Harbor RI/FS Bioaccumulation Modeling Report.	846	15 OTH / Other	R10: (Unknown)		ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100008215	7/23/2009	Letter regarding use of the word "groundwater" in RAO 1 and RAO 4.	370	2 CORR / Correspondence	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100008256	7/23/2009	Email regarding Portland Harbor RAOs.	39	1 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100010703	7/23/2009	Email Regarding Willbridge 60" Lining - Visiting the site: It Looks Like Work Is Going to Get Going the Morning of July 28th. Letter regarding use of the term "Groundwater" in draft Remedial Action Objectives (RAOs).	176	3 EML / Email	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940681883	7/23/2009	Letter regarding use of the term "Groundwater" in draft Remedial Action Objectives (RAOs).	372	2 LTR / Letter	R10: Anderson, James, M (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940681884	7/23/2009	Email regarding Portland Harbor RAOs.	39	1 EML / Email	R10: Anderson, James, M (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100017459	7/24/2009	REDACTED Email regarding reply to LWGs Response to EPA's RAOs.	22	2 EML / Email	R10: Anderson, James, M (Oregon Dept. of Environmental Quality)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100010682	7/28/2009	Email Regarding Willbridge 60" Lining - Visiting the Site: It Looks Like the Work Has Been Postponed to Early Morning Due to the Heat.	174	4 EML / Email	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100010845	8/3/2009	Email regarding Willbridge - Potential Maintenance Dredging.	21	1 EML / Email	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940681397	8/3/2009	Email regarding Willbridge - Potential Maintenance Dredging.	21	1 EML / Email	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement

100009485	8/4/2009	Figure 5 Cross Section. Spreadsheet File: Gasco_Siltronic Timeline 9_09 (Original Spreadsheet Attached as Native Excel File).	95	8 FIG / Figure/Map/ Drawing	R10: (AMEC Earth & Environmental, Inc.)	R10: (ConocoPhillips Company)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100012633	8/4/2009	Project Summary, Maintenance Dredging at ConocoPhillips Portland Terminal Marine Dock.	25	1 CHT / Chart/Table	R10: (Unknown)		ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100009489	8/6/2009	Dock.	101	7 RPT / Report	R10: (AMEC Earth & Environmental, Inc.)	R10: (ConocoPhillips Company)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100007521	8/7/2009	Email regarding DEQ comments on EPA's 8/4/09 Portland Harbor RAOs.	38	1 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Burkholder, Kurt (Oregon Dept. of Justice), R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA), R10: Yamamoto, Deb (EPA), R10: Mcclincy, Matt (Oregon Dept. of Environmental Quality), R10: Deconcini, Nina (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100007522	8/7/2009	Letter regarding EPA's 8/4/09 Draft Final Remedial Action Objectives.	333	4 CORR / Correspondence	R10: Anderson, James, M (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100008994	8/7/2009	Email regarding FW_ ConocoPhillips Portland Terminal Dredge Discussion.	19	2 EML / Email	R10: Mcclincy, Matt (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100012359	8/7/2009	Email regarding DEQ comments on EPA's 8/4/09 Portland Harbor RAOs.	38	1 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Burkholder, Kurt (Oregon Dept. of Justice), R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA), R10: Yamamoto, Deb (EPA), R10: Mcclincy, Matt (Oregon Dept. of Environmental Quality), R10: Deconcini, Nina (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100012384	8/7/2009	Letter regarding EPA's 8/4/09 Draft Final Remedial Action Objectives.	331	4 CORR / Correspondence	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100012444	8/7/2009	Email regarding Conoco & Chevron.	96	3 EML / Email	R10: Mcclincy, Matt (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100012447	8/7/2009	Email regarding ConocoPhillips Portland Terminal Dredge Discussion Handouts.	23	2 EML / Email	R10: Mcclincy, Matt (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100012577	8/10/2009	Email regarding Status of Zidell Remediation Project - Initial Design Approved.	25	2 EML / Email	R10: Johnson, Keith (Oregon Dept. of Environmental Quality)	R10: Gamolo, Gerald, M (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100012436	8/11/2009	Email regarding CLD Pacific Grain notes.	38	2 EML / Email	R10: Johnson, Keith (Oregon Dept. of Environmental Quality)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940681146	8/11/2009	Email regarding NWP-2001-31 CLD Pacific SCR.	22	1 EML / Email	R10: Johnson, Keith (Oregon Dept. of Environmental Quality)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100010439	8/12/2009	Email regarding Siltronic, EIB Performance/Effectiveness Plan Comments.	48	2 EML / Email	R10: Bayuk, Dana (Oregon Dept. of Environmental Quality)	R10: Mccue, Tom (Siltronic Corporation)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100010446	8/12/2009	Letter regarding Enhanced In-Situ Bioremediation Performance/Effectiveness Plan, Siltronic Corporation, Portland, Oregon, ECSI No. 183.	107	5 LTR / Letter	R10: Bayuk, Dana (Oregon Dept. of Environmental Quality)	R10: Mccue, Tom (Siltronic Corporation)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100013534	8/12/2009	Joint Permit Application Form, Vigor Industrial.	602	11 CORR / Correspondence	R10: Caudill, Gene (Unknown)	R10: (U.S. Army Corps of Engineers)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100014908	8/12/2009	Email regarding Siltronic, EIB Performance/Effectiveness Plan Comments.	47	2 EML / Email	R10: Bayuk, Dana (Oregon Dept. of Environmental Quality)	R10: Mccue, Tom (Siltronic Corporation), R10: Mccue, Tom	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100014909	8/12/2009	Letter regarding Enhanced In-Situ Bioremediation Performance/Effectiveness Plan Siltronic Corporation.	106	5 CORR / Correspondence	R10: Bayuk, Dana (Oregon Dept. of Environmental Quality)	R10: Mccue, Tom (Siltronic Corporation)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100019954	8/12/2009	REDACTED Email regarding TCT Agenda.	20	1 EML / Email	R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100019955	8/12/2009	REDACTED Email regarding TCT Agenda.	21	2 EML / Email	R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100019964	8/12/2009	REDACTED Email regarding TCT Agenda.	20	1 EML / Email	R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100019966	8/12/2009	REDACTED Email regarding TCT Agenda.	21	2 EML / Email	R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100010125	8/13/2009	Email regarding SRP Research Brief 176: A New Analytical Method to Support Studies of Mercury Bioavailability in Aquatic Ecosystems.	169	5 EML / Email	R10: Hope, Bruce, K (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100013954	8/25/2009	Email Regarding Confirmation: Permit Kick-Off Meeting for Zidell Remedial Action Project Set for September 9th, 9 to Noon.	86	1 EML / Email	R10: Johnson, Keith (Oregon Dept. of Environmental Quality)	R10: Meyer, Ben (NOAA), R10: Petersen, Erik, S (U. S. Army Corps of Engineers), R10: Buck, Jeremy (U. S. Fish and Wildlife Service), R10: Silva, Kathryn, M (Zidell Marine Corporation), R10: Maul, James, J (Maul Foster & Alongi, Inc.), R10: Young, Cyril (Oregon Dept. of State Lands), R10: Moynahan, Kevin (Oregon Dept. of State Lands), R10: Purchase, Steve (Oregon Dept. of State Lands), R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA), R10: Holm, James, A (U.S. Army Corps of Engineers), R10: Rosen, Michael (Oregon Dept. of Environmental Health), R10: Fishman, Paul, A (NorthWest Ecosystem Services), R10: Mccabe, Mike (State of Oregon), R10: Fellas, Christy (NOAA), R10: Wahi, Mary (City of Portland, Bureau of Environmental Services), R10: Unsworth, David (TriMet), R10: Lovell, Kaitlin (City of Portland, Bureau of Environmental Services)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940681886	8/31/2009	Project Review Group (PRG) Technical Memorandum for the Sampling and Analysis Plan (SAP) for NWP-2007-195, Vigor Industrial berth deepening.	1,023	7 MEMO / Memorandum	R10: Mcmillan, James, M (U.S. Army Corps of Engineers)	R10: Inouye, Laura (Washington State Dept. of Ecology), R10: Mcmillan, James, M (U.S. Army Corps of Engineers), R10: Buck, Jeremy (U. S. Fish & Wildlife Service), R10: Gambetta, Daniel (NOAA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100008222	9/1/2009	Doane Lake Area Projects EPA and DEQ Quarterly Status Meeting: Arkema - Site Status.	106	2 RPT / Report	R10: Unknown, Unknown (Oregon Dept. of Environmental Quality)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100008262	9/1/2009	Doane Lake Area Projects EPA and DEQ Quarterly Status Meeting: Rhone Poulenc Site Status.	54	2 RPT / Report	R10: Unknown, Unknown (EPA), R10: Unknown, Unknown (Oregon Dept. of Environmental Quality)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100008265	9/1/2009	Doane Lake Area Projects EPA and DEQ Quarterly Status Meeting: Arkema - Projected Timeline.	37	1 RPT / Report	R10: Unknown, Unknown (EPA), R10: Unknown, Unknown (Oregon Dept. of Environmental Quality)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100008266	9/1/2009	Doane Lake Area Projects EPA and DEQ Quarterly Status Meeting: NW Natural - Gasco Site Status.	64	4 RPT / Report	R10: Unknown, Unknown (EPA), R10: Unknown, Unknown (Oregon Dept. of Environmental Quality)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100008267	9/1/2009	Doane Lake Area Projects EPA and DEQ Quarterly Status Meeting: NW Natural - Gasco Projected Timeline.	40	1 RPT / Report	R10: Unknown, Unknown (EPA), R10: Unknown, Unknown (Oregon Dept. of Environmental Quality)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100008273	9/1/2009	Doane Lake Area Projects EPA and DEQ Quarterly Status Meeting: Rhone Poulenc Projected Timeline.	34	1 RPT / Report	R10: Unknown, Unknown (EPA), R10: Unknown, Unknown (Oregon Dept. of Environmental Quality)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement

						R10: Meyer, Ben (NOAA), R10: Petersen, Erik, S (U. S. Army Corps of Engineers), R10: Buck, Jeremy (U. S. Fish and Wildlife Service), R10: Silva, Kathryn, M (Zidell Marine Corporation), R10: Maul, James, J (Maul Foster & Alongi, Inc.), R10: Rosenberger, Michael, F (City of Portland, Oregon, Bureau of Water Works), R10: Young, Cyril (Oregon Dept. of State Lands), R10: Moynahan, Kevin (Oregon Dept. of State Lands), R10: Purchase, Steve (Oregon Dept. of State Lands), R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA), R10: Madden, Erin (Nez Perce Tribe), R10: Holm, James, A (U.S. Army Corps of Engineers), R10: Longoria, Rose (Yakama Nation), R10: Fishman, Paul, A (NorthWest Ecosystem Services), R10: McCabe, Mike (State of Oregon), R10: Fellas, Christy (NOAA), R10: Wahl, Mary (City of Portland, Bureau of Environmental Services), R10: Unsworth, David (TriMet), R10: Lovell, Kaitlin (City of Portland, Bureau of Environmental Services)		056-SITE SUPPORT/0563-State/Tribal Involvement
100012336	9/1/2009	Email Regarding Agenda for Permit Kick-Off Meeting for Zidell Remedial Action Project On Wednesday September 9th, 9:00 to Noon.	54	1 EML / Email	R10: Johnson, Keith (Oregon Dept. of Environmental Quality)		ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100014673	9/1/2009	Risk Assessment Model Comparisons.	188	5 CHT / Chart/Table	R10: Farrer, David, G (Oregon Dept. of Human Services)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100015725	9/2/2009	REDACTED Email regarding 9/9 DEQ/EPA Doane Lake Area Meeting.	77	3 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Sheldrake, Sean, A (EPA), R10: Fuentes, Rene, C (EPA), R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA), R10: Yamamoto, Deb (EPA), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100007705	9/8/2009	Email regarding Bioaccumulation Modeling Report.	36	1 EML / Email	R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100010290	9/9/2009	Email regarding Tentative Meeting Date for PH ARARs Discussion.	43	1 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100012337	9/9/2009	Agenda for Interagency Permit Preapplication Meeting.	207	1 MTG / Meeting Document	R10: (Oregon Dept. of Environmental Quality)		ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100012338	9/9/2009	Agenda for Interagency Permit Preapplication Meeting for DEQ NWR Cleanup Program.	207	1 MTG / Meeting Document	R10: (Oregon Dept. of Environmental Quality)		ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940680300	9/9/2009	Email regarding reply to Stormwater Lining in City Stormwater Basin 22B.	39	1 EML / Email	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	R10: Neely, Robert (NOAA), R10: Fleming, Sheila (Ridolfi Engineers and Associates, Inc.), R10: Zylstra, Stephen, J (U. S. Fish and Wildlife Service), R10: Madden, Erin (Unknown), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Cunninghame, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Downey, Tom (Confederated Tribes of the Siletz Indians), R10: Bluelake, Lisa (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Blischke, Eric, L (EPA), R10: Farrer, David, G (Oregon Dept. of Human Services), R10: Gainer, Thomas, B (Oregon Dept. of Environmental Quality), R10: Gensemer, Robert, W (Parametrix, Inc.), R10: Longoria, Rose (Yakama Nation), R10: Thompson, Chris (Environment International, Ltd.), R10: Sudbury, Ryan, R10: Lavelle, James, M (CDM), R10: Allen, David (Stratus Consulting, Inc.), R10: Weis, Julie (Haglund Kelley, LLP), R10: Dexter, Bob (Ridolfi, Inc.), R10: Buck, Jeremy (U. S. Fish & Wildlife Service)		056-SITE SUPPORT/0563-State/Tribal Involvement
100012372	9/10/2009	Email Regarding Bioaccumulation Modeling Report.	44	1 EML / Email	R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100012635	9/12/2009	Outline With Arkema Site Status for Doane Lake Area Projects, EPA and DEQ, 1/4-LY Status Meeting.	238	2 OTH / Other	R10: (Unknown)		ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100012632	9/13/2009	Spreadsheet File: Arkema Timeline 9/09 (Original Spreadsheet Attached as Native Excel File).	24	1 CHT / Chart/Table	R10: (Unknown)		ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100010129	9/14/2009	Email regarding State ARARs - Chemical Specific.	85	4 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Cora, Lori, H (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940680934	9/14/2009	Email regarding reply to State ARARs- chemical specific.	85	4 EML / Email	R10: Anderson, James, M (Oregon Dept. of Environmental Quality)	R10: Cora, Lori, H (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940681885	9/15/2009	Email regarding NWP-2007-195 Vigor Industrial SAP Draft TM (v2).	40	1 EML / Email	R10: Johnson, Keith (Oregon Dept. of Environmental Quality)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100008820	9/16/2009	Email regarding FW_ Portland Harbor FS Matrix(1).	93	4 EML / Email	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	R10: Sutter, Jennifer, L (Oregon Dept. of Environmental Quality), R10: Pugh, Mark, T (Oregon Dept. of Environmental Quality), R10: Bayuk, Dana (Oregon Dept. of Environmental Quality), R10: Lacey, David (Oregon Dept. of Environmental Quality), R10: Orr, Jim (Oregon Dept. of Environmental Quality), R10: Tarnow, Karen, E (Oregon Dept. of Environmental Quality), R10: Thiessen, Kenneth (Oregon Dept. of Environmental Quality), R10: Manzano, Scott (Oregon Dept. of Environmental Quality), R10: Gainer, Tom (Oregon Dept. of Environmental Quality), R10: Romero, Mike (Oregon Department of Environmental Quality)		056-SITE SUPPORT/0563-State/Tribal Involvement
100008821	9/16/2009	Email regarding FW_ Portland Harbor FS Matrix.	93	5 EML / Email	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100010214	9/16/2009	Email regarding RE_LWG Proposed Groundwater RAO.	105	3 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Sheldrake, Sean, A (EPA), R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940680773	9/16/2009	Email regarding reply to LWG Proposed Groundwater RAO.	105	3 EML / Email	R10: Anderson, James, M (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940681151	9/16/2009	Email regarding Portland Harbor FS Matrix.	93	5 EML / Email	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940681152	9/16/2009	Email regarding Portland Harbor FS Matrix.	93	4 EML / Email	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	R10: Gainer, Thomas, B (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100007812	9/17/2009	Email regarding FS Matrix - September 22 Meeting.	17	1 EML / Email	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100009613	9/17/2009	Email regarding Portland Harbor Fate and Transport Model.	23	1 EML / Email	R10: Hope, Bruce, K (Oregon Dept. of Environmental Quality)	R10: Hayter, Earl, J (U. S. Army Corps of Engineers), R10: Blischke, Eric, L (EPA), R10: Cope, Ben (EPA), R10: Claytor, C (Parametrix, Inc.)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100010147	9/17/2009	Email regarding RE_LWG Proposed Groundwater RAO(1).	74	9 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100015240	9/17/2009	Email Regarding FS Matrix - September 22 Meeting.	31	1 EML / Email	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940680137	9/17/2009	Email regarding reply to Portland Harbor Fate and Transport Model.	23	1 EML / Email	R10: Hope, Bruce, K (Oregon Dept. of Environmental Quality)	R10: Hayter, Earl, J (U. S. Army Corps of Engineers), R10: Blischke, Eric, L (EPA), R10: Clayton, C. (Parametrix, Inc.)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100012636	9/20/2009	Meeting Concerning Doane Lake Area Projects - EPA and DEQ, 1/4-LY Status Meeting; NW Natural - "Gasco" Site Status.	196	4 MTG / Meeting Document	R10: (Unknown)		ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement

100012637	Doane Lake Area Projects; EPA and DEQ, 1/4 LY 9/20/2009 Status Meeting; Rhone Poulenc Site Status.	186	2 MTG / Meeting Document	R10: (Unknown)		ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100007529	9/21/2009 Email regarding anderson brothers.	20	2 EML / Email	R10: Tarnow, Karen, E (Oregon Dept. of Environmental Quality)	R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100007530	Letter regarding Review of Source Control 9/21/2009 Decision Anderson Brothers Inc.	89	3 CORR / Correspondence	R10: Koch, Kristine, M (EPA) R10: Tarnow, Karen, E (Oregon Dept. of Environmental Quality)	R10: Tarnow, Karen, E (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100012407	9/21/2009 Email Regarding FW: Anderson Brothers. Review of Source Control Decision: Anderson Brothers Inc., 9111 N. Vancouver Avenue,	28	2 EML / Email	R10: Tarnow, Karen, E (Oregon Dept. of Environmental Quality)	R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100012408	9/21/2009 Portland, OR 97217; ECSI #970	108	3 LTR / Letter	R10: Koch, Kristine, M (EPA)	R10: Tarnow, Karen, E (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
					R10: Sutter, Jennifer, L (Oregon Dept. of Environmental Quality), R10: Pugh, Mark, T (Oregon Dept. of Environmental Quality), R10: Bayuk, Dana (Oregon Dept. of Environmental Quality), R10: Lacey, David (Oregon Dept. of Environmental Quality), R10: Orr, Jim (Oregon Dept. of Environmental Quality), R10: Tarnow, Karen, E (Oregon Dept. of Environmental Quality), R10: Thiessen, Kenneth (Oregon Dept. of Environmental Quality), R10: McClincy, Matt (Oregon Dept. of Environmental Quality), R10: Manzano, Scott (Oregon Dept. of Environmental Quality), R10: Rapp, Shawn (Oregon Dept. of Environmental Quality), R10: Gainer, Tom (Oregon Dept. of Environmental Quality), R10: Romero, Mike (Oregon Department of Environmental Quality)		056-SITE SUPPORT/0563-State/Tribal Involvement
100008611	9/23/2009 Email regarding FW_ FS Matrix.	80	2 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Tarnow, Karen, E (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100009180	9/23/2009 Email regarding Anderson Brothers.	27	3 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
					R10: Sutter, Jennifer, L (Oregon Dept. of Environmental Quality), R10: Pugh, Mark, T (Oregon Dept. of Environmental Quality), R10: Bayuk, Dana (Oregon Dept. of Environmental Quality), R10: Lacey, David (Oregon Dept. of Environmental Quality), R10: Orr, Jim (Oregon Dept. of Environmental Quality), R10: Tarnow, Karen, E (Oregon Dept. of Environmental Quality), R10: Romero, Michael (Oregon Dept. of Environmental Quality), R10: Manzano, Scott (Oregon Dept. of Environmental Quality), R10: Rapp, Shawn (Oregon Dept. of Environmental Quality), R10: Gainer, Tom (Oregon Dept. of Environmental Quality)		056-SITE SUPPORT/0563-State/Tribal Involvement
100012576	9/23/2009 Email regarding FS Matrix.	80	2 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Tarnow, Karen, E (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940680705	9/23/2009 Email regarding reply to anderson brothers.	27	3 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100009312	Email regarding Groundwater RAO for 9/24/2009 Portland Harbor.	61	3 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100009393	Email Regarding Northwest Natural, Interim 9/24/2009 Design Report Contents and Submittal Schedule.	57	2 EML / Email	R10: Bayuk, Dana (Oregon Dept. of Environmental Quality)	R10: Wyatt, Robert, J (Northwest Natural Gas Company), R10: Wyatt, Robert, J (NW Natural)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100009394	Letter With Comments and Direction 9/24/2009 Concerning the Content and Schedule for the Interim Design Report for Source Control Measures (SCMs) Being Planned Along the Shoreline of Property Owned by NW Natural and Northern Portion of Property Owned By Siltronic.	89	4 LTR / Letter	R10: Bayuk, Dana (Oregon Dept. of Environmental Quality)	R10: Wyatt, Robert, J (Unknown), R10: Wyatt, Robert, J (NW Natural)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940680747	Email regarding reply to Groundwater RAO for 9/24/2009 Portland Harbor.	61	3 EML / Email	R10: Anderson, James, M (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940681887	Letter regarding Interim Design Report 9/24/2009 Shoreline Segments 1 and 2, NW Natural Property and the Northern Portion of the Siltronic Corporation Property, Portland, Oregon - ECSI No. 84.	85	4 LTR / Letter	R10: Bayuk, Dana (Oregon Dept. of Environmental Quality)	R10: Wyatt, Robert, J (NW Natural)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940681888	Email regarding NW Natural, Interim Design 9/24/2009 Report Contents and Submittal Schedule.	48	2 EML / Email	R10: Bayuk, Dana (Oregon Dept. of Environmental Quality)	R10: Wyatt, Robert, J (NW Natural)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
					R10: Sutter, Jennifer, L (Oregon Dept. of Environmental Quality), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality), R10: Pugh, Mark, T (Oregon Dept. of Environmental Quality), R10: Bayuk, Dana (Oregon Dept. of Environmental Quality), R10: Lacey, David (Oregon Dept. of Environmental Quality), R10: Orr, Jim (Oregon Dept. of Environmental Quality), R10: Tarnow, Karen, E (Oregon Dept. of Environmental Quality), R10: Thiessen, Kenneth (Oregon Dept. of Environmental Quality), R10: McClincy, Matt (Oregon Dept. of Environmental Quality), R10: Romero, Michael (Oregon Dept. of Environmental Quality), R10: Manzano, Scott (Oregon Dept. of Environmental Quality), R10: Rapp, Shawn (Oregon Dept. of Environmental Quality), R10: Gainer, Tom (Oregon Dept. of Environmental Quality)		056-SITE SUPPORT/0563-State/Tribal Involvement
100009162	9/29/2009 Email regarding FS Matrix.	82	3 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100009206	9/29/2009 Email regarding FS Matrix.	24	3 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Orr, Jim (Oregon Dept. of Environmental Quality), R10: Romero, Mike (Oregon Department of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940680131	9/29/2009 Email regarding reply to FS Matrix. News Release regarding DEQ to Hold Oct. 21 Information Meeting about Downtown Portland Willamette River Sediment	82	3 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Johnson, Keith (Oregon Dept. of Environmental Quality), R10: Danab, Marcia (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100007559	9/30/2009 Investigation.	105	2 CORR / Correspondence	R10: Johnson, Keith (Oregon Dept. of Environmental Quality), R10: Danab, Marcia (Oregon Dept. of Environmental Quality)	R10: (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
					R10: Sutter, Jennifer, L (Oregon Dept. of Environmental Quality), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality), R10: Pugh, Mark, T (Oregon Dept. of Environmental Quality), R10: Bayuk, Dana (Oregon Dept. of Environmental Quality), R10: Lacey, David (Oregon Dept. of Environmental Quality), R10: Orr, Jim (Oregon Dept. of Environmental Quality), R10: Tarnow, Karen, E (Oregon Dept. of Environmental Quality), R10: Thiessen, Kenneth (Oregon Dept. of Environmental Quality), R10: McClincy, Matt (Oregon Dept. of Environmental Quality), R10: Romero, Michael (Oregon Dept. of Environmental Quality), R10: Manzano, Scott (Oregon Dept. of Environmental Quality), R10: Rapp, Shawn (Oregon Dept. of Environmental Quality), R10: Gainer, Tom (Oregon Dept. of Environmental Quality)		056-SITE SUPPORT/0563-State/Tribal Involvement
100009160	9/30/2009 Email regarding FS Matrix.	108	3 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Johnson, Keith (Oregon Dept. of Environmental Quality), R10: Danab, Marcia (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100012435	NR Willamette Ssediment 10-21-09 Info 9/30/2009 Meeting.	235	2 OTH / Other	R10: Johnson, Keith (Oregon Dept. of Environmental Quality), R10: Danab, Marcia (Oregon Dept. of Environmental Quality)		ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement



4940680129	9/30/2009	Email regarding reply to FS Matrix.	108	3 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Orr, Jim (Oregon Dept. of Environmental Quality), R10: Romero, Mike (Oregon Department of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940680846	10/1/2009	Email regarding reply to October 19. Table from Draft Biological Assessment - ZRZ	22	2 EML / Email	R10: Tarnow, Karen, E (Oregon Dept. of Environmental Quality)	R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940681895	10/1/2009	Waterfront Remediation Project.	35	2 CHT / Chart/Table	R10: Fishman, Paul, A (NorthWest Ecosystem Services)		ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940680170	10/2/2009	Email regarding reply to EPA Comments: Sediment Recontamination Analysis Approach Port of Portland Terminal 4 Removal Action.	48	2 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Fellows, Kenneth, T (Parametrix, Inc.), R10: Sheldrake, Sean, A (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100010219	10/5/2009	Email regarding Supporting Information for Benthic Risk Evaluation - Portland Harbor.	28	2 EML / Email	R10: Poulsen, Michael (Oregon Dept. of Environmental Quality)	R10: Shephard, Burt (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100007541	10/6/2009	Email regarding Arco.	51	1 EML / Email	R10: Gainer, Tom (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100007558	10/6/2009	Email regarding Downtown Portland Sediment Investigation.	44	1 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Neeley, Robert (NOAA), R10: Zylstra, Stephen, J (U. S. Fish and Wildlife Service), R10: Buck, Jeremy (U. S. Fish and Wildlife Service), R10: Madden, Erin (Unknown), R10: Lavelle, Jim (CDM Federal Programs Corporation), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Cunninghame, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Hermanson, Brad (Parametrix, Inc.), R10: Malek, John (Parametrix, Inc.), R10: Peers, Jennifer (Stratus Consulting, Inc.), R10: Allen li, P. David (Stratus Consulting, Inc.), R10: Downey, Tom (Confederated Tribes of the Siletz Indians), R10: Bluelake, Lisa (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Karnosh, Michael (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Farrer, David, G (Oregon Dept. of Human Services), R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality), R10: Gainer, Tom (Oregon Dept. of Environmental Quality), R10: Gensemer, Robert, W (Parametrix, Inc.), R10: Longoria, Rose (Yakama Nation), R10: Weis, Julie (Haglund Kelley Jones & Wilder LLP), R10: Dexter, Bob (Unknown) (NOAA), R10: Munn, Nancy (NOAA), R10: Neely, Robert (NOAA), R10: Fleming, Sheila (Ridolfi Engineers and Associates, Inc.), R10: Zylstra, Stephen, J (U. S. Fish and Wildlife Service), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Cunninghame, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Hermanson, Brad (Parametrix, Inc.), R10: Malek, John (Parametrix, Inc.), R10: Peers, Jennifer (Stratus Consulting, Inc.), R10: Downey, Tom (Confederated Tribes of the Siletz Indians), R10: Bluelake, Lisa (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Karnosh, Michael (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Ader, Mark, A (EPA), R10: Sheldrake, Sean, A (EPA), R10: Fuentes, Rene, C (EPA), R10: Cora, Lori, H (EPA), R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA), R10: Smith, Judy, R (EPA), R10: Shephard, Burt (EPA), R10: Humphrey, Chip (EPA), R10: Davoli, Dana (EPA), R10: Grepo-grove, Gina (EPA), R10: Goulet, Joe (EPA), R10: Madden, Erin (Nez Perce Tribe), R10: Farrer, David, G (Oregon Dept. of Human Services), R10: Gainer, Thomas, B (Oregon Dept. of Environmental Quality), R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality), R10: McClincy, Matt (Oregon Dept. of Environmental Quality), R10: (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100012434	10/6/2009	Email Regarding Downtown Portland Sediment Investigation.	53	1 EML / Email	R10: Anderson, James, M (Oregon Dept. of Environmental Quality)	R10: (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100014675	10/6/2009	Public Health Assessment - Initial Release.	721	85 RPT / Report	R10: (Oregon Dept. of Human Services)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100014627	10/7/2009	Email regarding Human Milk Collaboration.	20	1 EML / Email	R10: Farrer, David, G (Oregon Dept. of Human Services)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100014629	10/7/2009	Comparison of Estimated PCB-153 Concentrations in Human Milk Using Various Pharmacokinetic Models.	51	1 OTH / Other	R10: Fowler, David (ATSDR), R10: Bailey, Marcia, L (EPA), R10: Davoli, Dana (EPA), R10: Farrer, David, G (Oregon Dept. of Human Services), R10: Poulsen, Michael (Oregon Dept. of Environmental Quality), R10: Moffett, Daphne (ATSDR), R10: Welsh, Clem (ATSDR), R10: Yang, Ray (Ray Yang Consulting, LLC), R10: Ayotte, Pierre (Centre Hospitalier Universitaire de Quebec), R10: Verner, Marc-andre (University of Quebec), R10: Muckle, Gina (Centre Hospitalier Universitaire de Quebec), R10: Haddad, Sami (University of Quebec)	R10: (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100014674	10/8/2009	Email regarding Public Health Assessment for Portland Harbor.	22	2 EML / Email	R10: Farrer, David, G (Oregon Dept. of Human Services)	R10: Blischke, Eric, L (EPA), R10: Smith, Judy, R (EPA), R10: Davoli, Dana (EPA), R10: Drake, Doug (EPA), R10: Danab, Marcia (Oregon Dept. of Environmental Quality), R10: Poulsen, Michael (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940680844	10/8/2009	Email regarding reply to NW Natural, Segment 2 Test Plan In-water Piezometer Drilling and Installation Comments.	58	3 EML / Email	R10: Bayuk, Dana (Oregon Dept. of Environmental Quality)	R10: Wyatt, Robert, J (NW Natural)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940681889	10/8/2009	EPA Comments on Capture Zone Field Test Plan; GASCO, Portland, Oregon.	182	3 WP / Work Plan	R10: (Oregon Dept. of Environmental Quality)		ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940681890	10/8/2009	Letter regarding Segment 2 Capture Zone Test Plan - Former Gasco Manufacture Gas Plant Site.	81	4 LTR / Letter	R10: Burkhart, Rob (Oregon Dept. of Environmental Quality)		ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940681891	10/8/2009	Email regarding NW Natural, Segment 2 Test Plan In-water Piezometer Drilling and Installation Comments.	50	2 EML / Email	R10: Bayuk, Dana (Oregon Dept. of Environmental Quality)	R10: Burkhart, Rob (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100009804	10/9/2009	Comments On the Proposed Cleanup Project at the Zidell Site On the Willamette River: Current Proposal Entails Capping Most of the Sediment Management Area With a Sand and Riprap Cap Along With Some Vegetation Along the Bank.	37	2 LTR / Letter	R10: Kratz, Kim, W (NOAA), R10: Kratz, Kim, W (National Marine Fisheries Service)	R10: Fishman, Paul, A (Northwest Ecosystem Alliance)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940681892	10/9/2009	Letter regarding comments on the Proposed Cleanup Project at the Zidell Site.	32	2 LTR / Letter	R10: Kratz, Kim, W (National Marine Fisheries Service)	R10: Fishman, Paul, A (NorthWest Ecosystem Services)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100010221	10/12/2009	Email regarding Supporting Information for Benthic Risk Evaluation - Portland Harbor.	49	3 EML / Email	R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement

100009158	10/13/2009	Email regarding FS Matrix.	111	3 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Sutter, Jennifer, L (Oregon Dept. of Environmental Quality), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality), R10: Pugh, Mark, T (Oregon Dept. of Environmental Quality), R10: Bayuk, Dana (Oregon Dept. of Environmental Quality), R10: Lacey, David (Oregon Dept. of Environmental Quality), R10: Orr, Jim (Oregon Dept. of Environmental Quality), R10: Tarnow, Karen, E (Oregon Dept. of Environmental Quality), R10: Thiessen, Kenneth (Oregon Dept. of Environmental Quality), R10: McClincy, Matt (Oregon Dept. of Environmental Quality), R10: Romero, Michael (Oregon Dept. of Environmental Quality), R10: Manzano, Scott (Oregon Dept. of Environmental Quality), R10: Rapp, Shawn (Oregon Dept. of Environmental Quality), R10: Gainer, Tom (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100010444	10/13/2009	Email regarding RM 11 Bank Data.	20	1 EML / Email	R10: Tarnow, Karen, E (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940680130	10/13/2009	Email regarding reply to FS Matrix.	111	3 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Orr, Jim (Oregon Dept. of Environmental Quality), R10: Romero, Mike (Oregon Department of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940680843	10/13/2009	Email regarding reply to Number for call to AOPC meeting.	54	1 EML / Email	R10: Anderson, James, M (Oregon Dept. of Environmental Quality)	R10: Baker, Jeff (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Fuentes, Rene, C (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100014669	10/14/2009	Email regarding PHA and BHHRA Comparison. Comparison of the Initial Release Version of the Portland Harbor Public Health Assessment and the Draft BHHRA.	18	1 EML / Email	R10: Farrer, David, G (Oregon Dept. of Human Services)	R10: Blischke, Eric, L (EPA), R10: Davoli, Dana (EPA), R10: Poulsen, Michael (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100014676	10/14/2009	and the Draft BHHRA.	41	2 CORR / Correspondence	R10: Farrer, David, G (Oregon Dept. of Human Services)	R10: Blischke, Eric, L (EPA), R10: Davoli, Dana (EPA), R10: Poulsen, Michael (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940680284	10/14/2009	Email regarding reply to AOPC 14 October 13th Meeting, NW Natural & Siltronic Slides. Memorandum regarding Summary of Remedial Alternatives, Riverbank Source Control Measure, Arkema Inc., Portland Oregon.	20	1 EML / Email	R10: Bayuk, Dana (Oregon Dept. of Environmental Quality)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100008268	10/16/2009	Table From Draft Biological Assessment (October 2009): ZRZ Waterfront Remediation Project.	1,602	19 MEMO / Memorandum	R10: Ipsen, Erik (ERM)	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100009814	10/17/2009	Response to NMFS Letter of 10/9/2009 Regarding ZRZ Realty Company Remedial Action Project On the Willamette River.	40	2 CHT / Chart/Table	R10: (Unknown)		ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100009815	10/19/2009	Letter regarding response to recommendations for ZRZ Remedial Action methods on Willamette River.	124	2 LTR / Letter	R10: Fishman, Paul, A (NorthWest Ecosystem Services)	R10: Kratz, Kim, W (National Marine Fisheries Service)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940681896	10/19/2009	Letter regarding response to recommendations for ZRZ Remedial Action methods on Willamette River.	120	2 LTR / Letter	R10: Fishman, Paul, A (NorthWest Ecosystem Services)	R10: Kratz, Kim, W (National Marine Fisheries Service)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100008293	10/21/2009	Email regarding Portland Harbor BSAF.	40	1 EML / Email	R10: Poulsen, Mike (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100008368	10/21/2009	Email regarding Preparation for 11/17 EPA/LWG FS Meeting.	49	2 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Fleming, Sheila (Ridolfi Engineers and Associates, Inc.), R10: Hermanson, Brad (Parametrix, Inc.), R10: Malek, John (Parametrix, Inc.), R10: Peers, Jennifer (Stratus Consulting, Inc.), R10: Sheldrake, Sean, A (EPA), R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA), R10: McClincy, Matt (Oregon Dept. of Environmental Quality), R10: Poulsen, Mike (Oregon Dept. of Environmental Quality), R10: Gainer, Tom (Oregon Dept. of Environmental Quality), R10: King, Tood (CDM Smith), R10: Gustavson, Karl (EPA), R10: French, R, D (CDM), R10: Claytor, C (Parametrix, Inc.)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940681240	10/21/2009	Email regarding Preparation for 11/17 EPA/LWG FS Mtg	49	2 EML / Email	R10: Anderson, James, M (Oregon Dept. of Environmental Quality)	R10: McClincy, Matt (Oregon Dept. of Environmental Quality), R10: French, R, D (CDM)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100009294	10/22/2009	Email regarding Zidell Site Cleanup.	22	2 EML / Email	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100009803	10/22/2009	Email Regarding Zidell Site Cleanup.	25	1 EML / Email	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100009813	10/22/2009	Email Regarding ZRZ Remediation Project; Mention of Attachment Outlining Our Thoughts About Your Recommendations and Some Additional Information for Discussion.	44	1 EML / Email	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA), R10: Anderson, James, M (Oregon Dept. of Environmental Quality), R10: Johnson, Keith (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100010762	10/22/2009	Email Regarding ZRZ Remediation Project.	38	1 EML / Email	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA), R10: Anderson, James, M (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100017706	10/22/2009	REDACTED Email regarding PBDEs in Portland Harbor Fish Tissue.	20	1 EML / Email	R10: Poulsen, Mike (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100018013	10/22/2009	REDACTED Email regarding RE_LWG QEAFATE model presentation - Wednesday, No (1).	87	3 EML / Email	R10: Gainer, Tom (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality), R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100018025	10/22/2009	REDACTED Email regarding Re_LWG QEAFATE model presentation - Wednesday, November 18th, 1-4 pm.	84	2 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA), R10: McClincy, Matt (Oregon Dept. of Environmental Quality), R10: Gainer, Tom (DEQ Northwest Region)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940680730	10/22/2009	Email regarding reply to Zidell Site Cleanup.	22	2 EML / Email	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940681164	10/22/2009	Email regarding ZRZ remediation project.	22	1 EML / Email	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA), R10: Anderson, James, M (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940681893	10/22/2009	Email regarding Zidell Site Cleanup.	19	1 EML / Email	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940681894	10/22/2009	Email regarding ZRZ remediation project.	37	1 EML / Email	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	R10: Humphrey, Chip (EPA), R10: Anderson, James, M (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement

100008276	10/23/2009	Email regarding Arkema Riverbank Alternatives.	25	1 EML / Email	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	(NOAA), R10: Baker, Mary (NOAA), R10: Munn, Nancy (NOAA), R10: Neely, Robert (NOAA), R10: Fleming, Sheila (Ridolfi Engineers and Associates, Inc.), R10: Zylstra, Stephen, J (U. S. Fish and Wildlife Service), R10: Buck, Jeremy (U. S. Fish and Wildlife Service), R10: Lavelle, Jim (CDM Federal Programs Corporation), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Cunninghame, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Hermanson, Brad (Parametrix, Inc.), R10: Malek, John (Parametrix, Inc.), R10: Peers, Jennifer (Stratus Consulting, Inc.), R10: Allen ii, P. David (Stratus Consulting, Inc.), R10: Downey, Tom (Confederated Tribes of the Siletz Indians), R10: Bluelake, Lisa (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Karnosh, Michael (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Sheldrake, Sean, A (EPA), R10: Fuentes, Rene, C (EPA), R10: Cora, Lori, H (EPA), R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA), R10: Smith, Judy, R (EPA), R10: Shephard, Burt (EPA), R10: Humphrey, Chip (EPA), R10: Davoli, Dana (EPA), R10: Grepo-grove, Gina (EPA), R10: Goulet, Joe (EPA), R10: Ader, Mark (EPA), R10: Madden, Erin (Nez Perce Tribe), R10: Farrer, David, G (Oregon Dept. of Human Services), R10: Anderson, Jim, M (Oregon Dept. of	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940680254	10/23/2009	Email regarding reply to Arkema Riverbank Alternatives.	37	2 EML / Email	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	R10: Neely, Robert (NOAA), R10: Fleming, Sheila (Ridolfi Engineers and Associates, Inc.), R10: Madden, Erin (Unknown), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Smith, Carrie, A (Parametrix, Inc.), R10: Howard, Patti (Columbia River Inter-Tribal Fish Commission), R10: Downey, Tom (Confederated Tribes of the Siletz Indians), R10: Bluelake, Lisa (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Humphrey, Chip (EPA), R10: Farrer, David, G (Oregon Dept. of Human Services), R10: Gainer, Thomas, B (Oregon Dept. of Environmental Quality), R10: Longoria, Rose (Yakama Nation), R10: Thompson, Chris (Environment International, Ltd.), R10: Allen, David (Stratus Consulting, Inc.), R10: Barquin, Billy (Haglund Kelley, LLP), R10: Buck, Jeremy (U. S. Fish & Wildlife Service)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100014215	10/27/2009	Portland Harbor RI/FS Remedial Investigation Report Appendix A4 Calculation of Whole-Body Concentrations for Round 3B Bass and Carp Samples.	39	2 CORR / Correspondence	R10: (Lower Willamette Group)	R10: (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100017709	11/3/2009	REDACTED Email regarding Materials for November 3rd FS Team Meeting.	26	2 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA) (NOAA), R10: Baker, Mary (NOAA), R10: Munn, Nancy (NOAA), R10: Neely, Robert (NOAA), R10: Fleming, Sheila (Ridolfi Engineers and Associates, Inc.), R10: Zylstra, Stephen, J (U. S. Fish and Wildlife Service), R10: Buck, Jeremy (U. S. Fish and Wildlife Service), R10: Lavelle, Jim (CDM Federal Programs Corporation), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Cunninghame, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Hermanson, Brad (Parametrix, Inc.), R10: Malek, John (Parametrix, Inc.), R10: Peers, Jennifer (Stratus Consulting, Inc.), R10: Allen ii, P. David (Stratus Consulting, Inc.), R10: Downey, Tom (Confederated Tribes of the Siletz Indians), R10: Bluelake, Lisa (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Karnosh, Michael (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Sheldrake, Sean, A (EPA), R10: Fuentes, Rene, C (EPA), R10: Cora, Lori, H (EPA), R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA), R10: Smith, Judy, R (EPA), R10: Shephard, Burt (EPA), R10: Humphrey, Chip (EPA), R10: Davoli, Dana (EPA), R10: Grepo-grove, Gina (EPA), R10: Goulet, Joe (EPA), R10: Ader, Mark (EPA), R10: Madden, Erin (Nez Perce Tribe), R10: Farrer, David, G (Oregon Dept. of Human Services), R10: Peterson, Jennifer, L (Oregon Dept. of	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100010033	11/4/2009	Email regarding DEQ Toxic Monitoring Program for Willamette Basin.	53	1 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Peterson, Jennifer, L (Oregon Dept. of	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940680211	11/4/2009	Email regarding reply to DEQ Toxic Monitoring Program for Willamette Basin.	53	1 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Neely, Robert (NOAA), R10: Fleming, Sheila (Ridolfi Engineers and Associates, Inc.), R10: Zylstra, Stephen, J (U. S. Fish and Wildlife Service), R10: Madden, Erin (Unknown), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Cunninghame, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Downey, Tom (Confederated Tribes of the Siletz Indians), R10: Bluelake, Lisa (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Blischke, Eric, L (EPA), R10: Farrer, David, G (Oregon Dept. of Human Services), R10: Gainer, Thomas, B (Oregon Dept. of Environmental Quality), R10: Gensemer, Robert, W (Parametrix, Inc.), R10: Longoria, Rose (Yakama Nation), R10: Thompson, Chris (Environment International, Ltd.), R10: Sudbury, Ryan, R10: Lavelle, James, M (CDM), R10: Allen, David (Stratus Consulting, Inc.), R10: Weis, Julie (Haglund Kelley, LLP), R10: Dexter, Bob (Ridolfi, Inc.), R10: Buck, Jeremy (U. S. Fish & Wildlife Service)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100009010	11/5/2009	Email regarding FW_ Notes from Yesterday's Management Meeting.	39	1 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100009156	11/5/2009	Email regarding attendees for site tour with Ron French and Todd King.	70	5 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100007578	11/9/2009	Email regarding BERA Comments.	38	1 EML / Email	R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA), R10: Shephard, Burt (EPA), R10: Goulet, Joe (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100007579	11/9/2009	Initial Comments and Notes on "Appendix G, Baseline Ecological Risk Assessment", DRAFT, Portland Harbor RI.	356	24 CORR / Correspondence	R10: (Windward Environmental, LLC.)	R10: (Lower Willamette Group)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100015477	11/9/2009	REDACTED Email regarding BERA Review Meeting - November 10, 2009.	19	1 EML / Email	R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA), R10: Shephard, Burt (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100012163	11/12/2009	Email Regarding PH Draft HHRA.	30	1 EML / Email	R10: Poulsen, Michael (Oregon Dept. of Environmental Quality)	R10: Davoli, Dana (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement



100008272	11/16/2009	Initial DEQ Comments on the Draft Baseline Human Health Risk Assessment for the Portland Harbor Site.	93	6 CORR / Correspondence	R10: Poulsen, Mike (Oregon Dept. of Environmental Quality)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100008283	11/16/2009	Email regarding Portland Harbor HHRA initial comments.	23	2 EML / Email	R10: Poulsen, Mike (Oregon Dept. of Environmental Quality)	R10: Davoli, Dana (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940681897	11/16/2009	Initial DEQ Comments on the Draft Baseline Human Health Risk Assessment for the Portland Harbor Site.	94	6 RPT / Report	R10: Poulsen, Michael (Oregon Dept. of Environmental Quality)		ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940681898	11/16/2009	Email regarding Portland Harbor HHRA initial comments.	23	2 EML / Email	R10: Poulsen, Michael (Oregon Dept. of Environmental Quality)	R10: Davoli, Dana (EPA) (NOAA), R10: Winter, Jessica (NOAA), R10: Munn, Nancy (NOAA), R10: Neely, Robert (NOAA), R10: Fleming, Sheila (Ridolfi Engineers and Associates, Inc.), R10: Zylstra, Stephen, J (U. S. Fish and Wildlife Service), R10: Buck, Jeremy (U. S. Fish and Wildlife Service), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Cunninghame, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Hermanson, Brad (Parametrix, Inc.), R10: Malek, John (Parametrix, Inc.), R10: Peers, Jennifer (Stratus Consulting, Inc.), R10: Allen ii, P. David (Stratus Consulting, Inc.), R10: Downey, Tom (Confederated Tribes of the Siletz Indians), R10: Bluelake, Lisa (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Karnosh, Michael (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Sheldrake, Sean, A (EPA), R10: Fuentes, Rene, C (EPA), R10: Cora, Lori, H (EPA), R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA), R10: Smith, Judy, R (EPA), R10: Shephard, Burt (EPA), R10: Humphrey, Chip (EPA), R10: Davoli, Dana (EPA), R10: Grepogrove, Gina (EPA), R10: Goulet, Joe (EPA), R10: Ader, Mark (EPA), R10: Madden, Erin (Nez Perce Tribe), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality), R10: Peterson, Jennifer, L (Oregon Dept. of Environmental	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100008438	11/19/2009	Email regarding Gasco Source Control Interim Design Report.	38	2 EML / Email	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	R10: Neely, Robert (NOAA), R10: Zylstra, Stephen, J (U. S. Fish and Wildlife Service), R10: Madden, Erin (Unknown), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Cunninghame, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Malek, John (Parametrix, Inc.), R10: Downey, Tom (Confederated Tribes of the Siletz Indians), R10: Karnosh, Michael (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Blischke, Eric, L (EPA), R10: Farrer, David, G (Oregon Dept. of Human Services), R10: Gainer, Thomas, B (Oregon Dept. of Environmental Quality), R10: Sudbury, Ryan (Grand Ronde Tribe), R10: Longoria, Rose (Yakama Nation), R10: Lavelle, James, M (CDM), R10: Allen, David (Stratus Consulting, Inc.), R10: Weis, Julie (Haglund Kelley, LLP), R10: Dexter, Bob (Ridolfi, Inc.), R10: Buck, Jeremy (U. S. Fish & Wildlife Service)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940681250	11/19/2009	Email regarding Reply to Gasco Source Control Interim Design Report	38	2 EML / Email	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100008651	11/23/2009	Email regarding FW_ Last FS Matrix Mtg.	74	2 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA), R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100009130	11/23/2009	Email regarding Follow-up Items from LWG FS Meeting.	52	1 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Fleming, Sheila (Ridolfi Engineers and Associates, Inc.), R10: Hermanson, Brad (Parametrix, Inc.), R10: Malek, John (Parametrix, Inc.), R10: Peers, Jennifer (Stratus Consulting, Inc.), R10: Sheldrake, Sean, A (EPA), R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA), R10: McClincy, Matt (Oregon Dept. of Environmental Quality), R10: Poulsen, Michael (Oregon Dept. of Environmental Quality), R10: Gainer, Tom (Oregon Dept. of Environmental Quality), R10: Gustavson, Karl (EPA), R10: French, R, D (CDM), R10: Claytor, C (Parametrix, Inc.), R10: King, Tw (CDM)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100010445	11/23/2009	Email regarding RM 11E Sediment Data.	21	1 EML / Email	R10: Tarnow, Karen, E (Oregon Dept. of Environmental Quality)	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100015588	11/23/2009	Email Regarding Region 10 EPA Comments on PHA for Portland Harbor.	22	1 EML / Email	R10: Farrer, David, G (Oregon Dept. of Human Services)	R10: Davoli, Dana (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940680147	11/23/2009	Email regarding reply to Follow-Up Items from LWG FS Meeting.	52	1 EML / Email	R10: Anderson, James, M (Oregon Dept. of Environmental Quality)	R10: Anderson, James, M (Oregon Dept. of Environmental Quality), R10: French, R, D (CDM)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940681001	11/23/2009	Email regarding RM 11E sediment data.	22	1 EML / Email	R10: Tarnow, Karen, E (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA), R10: Johnson, Keith (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940681138	11/23/2009	Email regarding Last FS Matrix Mtg.	74	2 EML / Email	R10: Anderson, James, M (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA), R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940680801	12/2/2009	Email regarding reply to meeting room.	47	1 EML / Email	R10: Anderson, James, M (Oregon Dept. of Environmental Quality)	R10: Humphrey, Chip (EPA), R10: Madden, Erin (Nez Perce Tribe)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940681899	12/2/2009	EPA Meeting 10-09 Notes.	101	1 MTG / Meeting Document	R10: Pugh, Mark, T (Oregon Dept. of Environmental Quality)		ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940681900	12/2/2009	Email regarding Sulzer Pump.	46	2 EML / Email	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100009189	12/4/2009	Email regarding FS Process.	101	3 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Fleming, Sheila (Ridolfi Engineers and Associates, Inc.), R10: Hermanson, Brad (Parametrix, Inc.), R10: Malek, John (Parametrix, Inc.), R10: Peers, Jennifer (Stratus Consulting, Inc.), R10: Sheldrake, Sean, A (EPA), R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA), R10: McClincy, Matt (Oregon Dept. of Environmental Quality), R10: Poulsen, Michael (Oregon Dept. of Environmental Quality), R10: Gainer, Tom (Oregon Dept. of Environmental Quality), R10: Gustavson, Karl (EPA), R10: French, R, D (CDM), R10: Claytor, C (Parametrix, Inc.), R10: King, Tw (CDM)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement

4940680132	12/4/2009	Email regarding reply to FS Process.	101	3 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Fleming, Sheila (Ridolfi Engineers and Associates, Inc.), R10: Malek, John (Parametrix, Inc.), R10: Blischke, Eric, L (EPA), R10: Poulsen, Michael (Oregon Dept. of Environmental Quality), R10: King, Tw (CDM), R10: Peers, J (Stratus Consulting, Inc.)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100010737	12/7/2009	Email regarding Tomorrow's Briefing on City Outfall Investigations.	35	2 EML / Email	R10: Tarnow, Karen, E (Oregon Dept. of Environmental Quality)	R10: Oregon, Bureau of Environmental Services), R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA), R10: Sanders, Dawn (City of Portland, Bureau of Environmental Services), R10: Scheffler, Linda (City of Portland, Bureau of Environmental Services), R10: Sutter, Jennifer, L (Oregon Dept. of Environmental Quality), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality), R10: Pugh, Mark, T (Oregon Dept. of Environmental Quality), R10: Harman, Charles (Oregon Dept. of Environmental Quality), R10: Hafley, Dan (Oregon Dept. of Environmental Quality), R10: Bayuk, Dana (Oregon Dept. of Environmental Quality), R10: Lacey, David (Oregon Dept. of Environmental Quality), R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality), R10: Johnson, Keith (Oregon Dept. of Environmental Quality), R10: Thiessen, Kenneth (Oregon Dept. of Environmental Quality), R10: McClincy, Matt (Oregon Dept. of Environmental Quality), R10: Romero, Michael (Oregon Dept. of Environmental Quality), R10: Poulsen, Mike (Oregon Dept. of Environmental Quality), R10: Manzano, Scott (Oregon Dept. of Environmental Quality), R10: Rapp, Shawn (Oregon Dept. of Environmental Quality), R10: Gainer, Tom (Oregon Dept. of Environmental Quality), R10: Fowler, Julia (GSI Groundwater Solutions, Inc.), R10: Parrett, Kevin (GSI	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100014765	12/7/2009	REDACTED Email regarding FW_ Portland Harbor Visualization Specialist.	46	2 EML / Email	R10: Gainer, Tom (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA), R10: Smith, Judy, R (EPA), R10: Humphrey, Chip (EPA), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality), R10: Danab, Marcia (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940681037	12/7/2009	Email regarding Tomorrow's Briefing on City Outfall Investigations.	35	2 EML / Email	R10: Tarnow, Karen, E (Oregon Dept. of Environmental Quality)	R10: Pronold, Michael (City of Portland, Oregon, Bureau of Environmental Services), R10: Koch, Kristine, M (EPA), R10: Sanders, Dawn (City of Portland, Bureau of Environmental Services), R10: Johnson, Keith (Oregon Dept. of Environmental Quality), R10: Fowler, Julia (GSI Groundwater Solutions, Inc.), R10: Applegate, Rick (City of Portland)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100010738	12/8/2009	Email regarding Briefing on City Outfall Investigations (Portland Harbor).	20	1 EML / Email	R10: Tarnow, Karen, E (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100011471	12/8/2009	Email Regarding Invitation - Briefing on City Outfall Investigations (Portland Harbor).	31	1 EML / Email	R10: Tarnow, Karen, E (Oregon Dept. of Environmental Quality)	R10: Sanders, Dawn (City of Portland, Oregon), R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA), R10: Sanders, Dawn (City of Portland, Bureau of Environmental Services), R10: Scheffler, Linda (City of Portland, Bureau of Environmental Services), R10: Pugh, Mark, T (Oregon Dept. of Environmental Quality), R10: Shelly, Erin (City of Portland, Environmental Services, Industrial Storm Water Section), R10: Applegate, Rick (City of Portland), R10: Struck, Rod (City of Portland, Bureau of Environmental Services), R10: (Lower Willamette Group)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940681044	12/8/2009	Email regarding Briefing on City Outfall Investigations (Portland Harbor).	21	1 EML / Email	R10: Tarnow, Karen, E (Oregon Dept. of Environmental Quality)	R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940681179	12/8/2009	Email regarding Meeting Invitation for Briefing on City Outfall Investigations (Portland Harbor).	23	1 EML / Email	R10: Tarnow, Karen, E (Oregon Dept. of Environmental Quality)	R10: Unknown, Rick (Unknown), R10: Blischke, Eric, L (EPA), R10: Scheffler, Linda (City of Portland, Bureau of Environmental Services), R10: Pugh, Mark, T (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100007591	12/9/2009	Email regarding AOPC_23 - UPRR Info.docx.	38	1 EML / Email	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100007592	12/9/2009	AOPC: 23- Information for UPRR Albina.	208	3 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100012586	12/9/2009	Email Regarding FW: AOPC_23 - UPRR Info.docx.	45	1 EML / Email	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA), R10: Anderson, James, M (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100012588	12/9/2009	AOPC: 23- Information for UPRR Albina.	487	3 CHT / Chart/Table	R10: (Unknown)		ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100019899	12/9/2009	Milestone Report for Upland Source Control at the Portland Harbor Superfund Site.	150	26 RPT / Report	R10: (Oregon Dept. of Environmental Quality)		ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940681902	12/9/2009	Complete ARARs List.	60	9 RPT / Report	R10: Cora, Lori, H (EPA)		ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940681901	12/11/2009	Enclosure 2: December 2009 Identification of ARARs Letter.	89	7 RPT / Report	R10: Cora, Lori, H (EPA)		ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940681903	12/11/2009	Enclosure 3: Regulations, Guidance, Etc. Determined Not to be ARARs.	58	3 LAWS / Laws/Regulations/Guidance	R10: Humphrey, Chip (EPA)		ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940681904	12/11/2009	Letter regarding Portland Harbor Superfund Site; Docket No. CERCLA-10-2001-0240 - EPA's Preliminary Identification of ARARs at the Portland Harbor Site for Development of the Feasibility Study.	85	3 LTR / Letter	R10: Humphrey, Chip (EPA)	R10: Wyatt, Robert, J (NW Natural)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940680760	12/17/2009	Email regarding reply to January 13 meeting with Trustees.	24	2 EML / Email	R10: Anderson, James, M (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA), R10: Madden, Erin (Nez Perce Tribe)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100010206	12/18/2009	Email regarding Draft EPA Response to November 17, 2009 FS Team Meeting.	136	3 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Fleming, Sheila (Ridolfi Engineers and Associates, Inc.), R10: Hermanson, Brad (Parametrix, Inc.), R10: Malek, John (Parametrix, Inc.), R10: Peers, Jennifer (Stratus Consulting, Inc.), R10: Sheldrake, Sean, A (EPA), R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA), R10: McClincy, Matt (Oregon Dept. of Environmental Quality), R10: Poulsen, Mike (Oregon Dept. of Environmental Quality), R10: Gainer, Tom (Oregon Dept. of Environmental Quality), R10: King, Todd (CDM Smith), R10: Gustavson, Karl (EPA), R10: French, R, D (CDM), R10: Clayton, C. (Parametrix, Inc.)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100010207	12/18/2009	Email regarding Draft EPA Response to November 17, 2009 FS Team Meeting.	26	2 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940680194	12/18/2009	Email regarding reply to Draft EPA Response to November 17, 2009 FS Team Meeting.	136	3 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Fleming, Sheila (Ridolfi Engineers and Associates, Inc.), R10: Hermanson, Brad (Parametrix, Inc.), R10: Peers, Jennifer (Stratus Consulting, Inc.), R10: Blischke, Eric, L (EPA), R10: Gainer, Thomas, B (Oregon Dept. of Environmental Quality), R10: French, R, D (CDM)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement

4940681905	12/18/2009	Email regarding PH ARARs Package.	84	4 EML / Email	R10: Anderson, James, M (Oregon Dept. of Environmental Quality)	R10: Humphrey, Chip (EPA) R10: Blischke, Eric, L (EPA), R10: Shephard, Burt (EPA), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100007594	12/21/2009	Email regarding EPA's Initial Comment Review. Maximum Detected Values from the RI Report, Tables D3: 2-3 through D3: 2-6.	49	5 EML / Email	R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)		ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100007595	12/21/2009	Doane Lake Area Projects EPA and DEQ, ¼-LY Status Meeting.	73	3 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100007597	12/21/2009	Doane Lake Area Projects EPA and DEQ, ¼-LY Status Meeting.	108	2 CORR / Correspondence	R10: Mcclincy, Matt (Oregon Dept. of Environmental Quality)	R10: (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100007598	12/21/2009	Arkema Projected Timeline.	27	1 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100007599	12/21/2009	Doane Lake Area Projects EPA and DEQ, 1/4-LY Status Meeting.	66	4 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100007600	12/21/2009	DRAFT NW Natural - Gasco Site Projected Timeline DEQ Oversight Work.	27	1 CORR / Correspondence	R10: Bayuk, Dana (Oregon Dept. of Environmental Quality)	R10: (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100007601	12/21/2009	Doane Lake, Area Projects EPA and DEQ, 1/4-LY Status Meeting.	55	2 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100007602	12/21/2009	Rhone Poulenc Projected Timeline DEQ Oversight Work.	24	1 CORR / Correspondence	R10: Bayuk, Dana (Oregon Dept. of Environmental Quality)	R10: (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100012634	12/21/2009	Spreadsheet File: RPac Timeline 9_09 (Original Spreadsheet Attached as Native Excel File).	26	1 CHT / Chart/Table			ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100015462	12/21/2009	REDACTED Email regarding 9/09 DEQ/EPA Doane Lake Area Mtg.	82	4 EML / Email	R10: Mcclincy, Matt (Oregon Dept. of Environmental Quality)	R10: Sheldrake, Sean, A (EPA), R10: Fuentes, Rene, C (EPA), R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA), R10: Yamamoto, Deb (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100016603	12/21/2009	REDACTED Email Regarding FW: 9/09 DEQ/EPA Doane Lake Area Meeting.	82	4 EML / Email	R10: Mcclincy, Matt (Oregon Dept. of Environmental Quality)	R10: Sheldrake, Sean, A (EPA), R10: Fuentes, Rene, C (EPA), R10: Yamamoto, Deborah, J (EPA), R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100009049	12/24/2009	Email regarding FW_FW_PH ARARs package.	61	6 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100012779	12/24/2009	Email Regarding pH Applicable or Relevant and Appropriate Requirements (ARARs) Package. Spreadsheet With ARARs for Remedial Action at the Portland Harbor Superfund Site (Excel Spreadsheet Attached).	68	6 EML / Email	R10: Anderson, James, M (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100012780	12/24/2009	Identification of Applicable or Relevant and Appropriate Requirements (ARARs) Letter; Regulations, Guidance, Etc. Determined Not to Be ARARs.	133	10 CHT / Chart/Table	R10: (Unknown)		ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100012781	12/24/2009	Letter Providing EPA's Current List of Potential Applicable or Relevant and Appropriate Requirements (ARARs) for the Portland Harbor Superfund Site.	90	3 CHT / Chart/Table	R10: (Unknown)		ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100012782	12/24/2009	Review Comments on NPDES (National Pollutant Discharge Elimination System) Permit Fact Sheet/Permit Evaluation Report Prepared by Oregon Department of Environmental Quality (DEQ) 11/23/2009 - EPA_Review_Comments_FS-PER_31DEC09.	138	3 LTR / Letter	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	R10: Wyatt, Robert (Lower Willamette Group), R10: Wyatt, Robert, J (Northwest Natural Gas Company)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100012617	12/31/2009	Review Comments on DRAFT NPDES (National Pollutant Discharge Elimination System) Waste Discharge Permit #101007 Prepared by Oregon Department of Environmental Quality File #64905 -	141	4 RPT / Report	R10: (EPA)	R10: (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100012618	12/31/2009	EPA_Review_Comments_WDP_31Dec09.	116	3 RPT / Report	R10: (EPA)	R10: (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100012616	1/4/2010	Letter Regarding Proposed Renewal of NPDES (National Pollutant Discharge Elimination System) Permit for Evraz Oregon Steel.	188	9 LTR / Letter	R10: Koch, Kristine, M (EPA)	R10: Stellmach, Nancy (Northwest Region DEQ)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100013533	1/4/2010	Email Regarding Permit Application, Vigor Insdustry, Dredging in Swan Island Lagoon.	18	2 EML / Email	R10: Lacey, David (Oregon Dept. of Environmental Quality)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100007803	1/5/2010	Email regarding Floating Point SQG Files.	56	1 EML / Email	R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA), R10: Shephard, Burt (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100007748	1/6/2010	Email regarding DEQ December 2009 Source Control Milestone Report.	22	1 EML / Email	R10: Mcclincy, Matt (Oregon Dept. of Environmental Quality)	R10: Dexter, Bob (NOAA), R10: Neeley, Robert (NOAA), R10: Zylstra, Stephen, J (U. S. Fish and Wildlife Service), R10: Buck, Jeremy (U. S. Fish and Wildlife Service), R10: Madden, Erin (Unknown), R10: Lavelle, Jim (CDM Federal Programs Corporation), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Cunninghame, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Hermanson, Brad (Parametrix, Inc.), R10: Malek, John (Parametrix, Inc.), R10: Peers, Jennifer (Stratus Consulting, Inc.), R10: Allen li, P. David (Stratus Consulting, Inc.), R10: Downey, Tom (Confederated Tribes of the Siletz Indians), R10: Bluelake, Lisa (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Karnosh, Michael (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Gainer, Thomas, B (Oregon Dept. of Environmental Quality), R10: Longoria, Rose (Yakama Nation), R10: Weis, Julie (Haglund Kelley Jones & Wilder LLP), R10: Shorr, Benjamin (NOAA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100014227	1/6/2010	Email regarding 2007-00195 Vigor dredging in Portland Harbor.	19	2 EML / Email	R10: Lacey, David (Oregon Dept. of Environmental Quality)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100015419	1/11/2010	REDACTED Email regarding Portland Harbor Managers Meeting - Wednesday, January 13th 1 - 3 pm.	91	2 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Parkinson, Steve (Groff & Murphy), R10: Neely, Robert (NOAA), R10: Fleming, Sheila (Ridolfi Engineers and Associates, Inc.), R10: Zylstra, Stephen, J (U. S. Fish and Wildlife Service), R10: Madden, Erin (Unknown), R10: Ashton, David (Port of Portland), R10: Mckenna, Jim (Port of Portland), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Cunninghame, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Peers, Jennifer (Stratus Consulting, Inc.), R10: Bluelake, Lisa (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Karnosh, Michael (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA), R10: Mcclincy, Matt (Oregon Dept. of Environmental Quality), R10: Woronets, Jennifer (Anchor QEA, LLC), R10: Longoria, Rose (Yakama Nation), R10: Williams, J. D (Law Offices of J. D. Williams), R10: Wyatt, Robert, J (NW Natural), R10: Dost, Patty (Pearl Legal Group PC), R10: Pine, Keith (Anchor Environmental, LLC), R10: Betz, Jan (City of Portland, Oregon), R10: Applegate, Rick (City of Portland), R10: Wolf, Fred (Total), R10: Weis, Julie (Haglund Kelley, LLP), R10: Traeger, Karen (Total)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement

						R10: Applegate, Richard (City of Portland, Oregon), R10: Fleming, Sheila (Ridolfi Engineers and Associates, Inc.), R10: Zylstra, Stephen, J (U. S. Fish and Wildlife Service), R10: Madden, Erin (Unknown), R10: Ashton, David (Port of Portland), R10: Mckenna, Jim (Port of Portland), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Cunninghame, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Wyatt, Bob (Northwest Natural Gas Company), R10: Bluelake, Lisa (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Karnosh, Michael (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Koch, Kristine, M (EPA), R10: McClincy, Matt (Oregon Dept. of Environmental Quality), R10: Woronets, Jennifer (Anchor QEA, LLC), R10: Parkinson, Stephen, T (Groff Murphy, PLLC), R10: Longoria, Rose (Yakama Nation), R10: Dost, Patty (Pearl Legal Group PC), R10: Pine, Keith (Anchor Environmental, LLC), R10: Williams, Jd (Unknown), R10: Mckenna, Jim (Verdant Solutions, LLC), R10: Betz, Jan (City of Portland, Oregon), R10: Applegate, Rick (City of Portland), R10: Weis, Julie (Haglund Kelley, LLP), R10: Traeger, Karen (Total), R10: Wolf, Frederick, G (Total)		
100018185	REDACTED Email regarding Portland Harbor Managers Meeting - Wednesday, January 13th 1/11/2010 1 - 3 pm.	92	2 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)		ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement	
100009860	Email regarding Risk Management at Portland Harbor. 1/19/2010	43	1 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement	
100010693	Email regarding Meeting on Portland Harbor ARARs - DEQ and EPA(1). 1/19/2010	65	1 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Burkholder, Kurt (Oregon Dept. of Justice), R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement	
100010695	Email regarding Meeting on Portland Harbor ARARs - DEQ and EPA. 1/19/2010	23	2 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Burkholder, Kurt (Oregon Dept. of Justice), R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement	
100007760	Email regarding Draft Agenda for 1/28 ARARs Meeting. 1/21/2010	72	2 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Cora, Lori, H (EPA), R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA), R10: Yamamoto, Deb (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement	
100007694	Email regarding Arkema Preliminary EE/CA Data. 1/25/2010	19	1 EML / Email	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	R10: Sheldrake, Sean, A (EPA), R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement	
100008538	Email regarding Arkema Preliminary EE/CA Data. 1/25/2010	23	2 EML / Email	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement	
100013544	Email Regarding DEQ's (Dept. of Environmental Quality) Reliability Figure. 1/25/2010	34	1 EML / Email	R10: Peterson, Jenn, L (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA), R10: Shephard, Burt (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement	
					(NOAA), R10: Winter, Jessica (NOAA), R10: Baker, Mary (NOAA), R10: Munn, Nancy (NOAA), R10: Neely, Robert (NOAA), R10: Fleming, Sheila (Ridolfi Engineers and Associates, Inc.), R10: Zylstra, Stephen, J (U. S. Fish and Wildlife Service), R10: Buck, Jeremy (U. S. Fish and Wildlife Service), R10: Madden, Erin (Unknown), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Hermanson, Brad (Parametrix, Inc.), R10: Malek, John (Parametrix, Inc.), R10: Peers, Jennifer (Stratus Consulting, Inc.), R10: Bluelake, Lisa (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Karnosh, Michael (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Ader, Mark, A (EPA), R10: Sheldrake, Sean, A (EPA), R10: Fuentes, Rene, C (EPA), R10: Cora, Lori, H (EPA), R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA), R10: Smith, Judy, R (EPA), R10: Shephard, Burt (EPA), R10: Davoli, Dana (EPA), R10: Grepogrove, Gina (EPA), R10: Goulet, Joe (EPA), R10: Nemes, Lester (Pillsbury Winthrop Shaw Pittman, L.L.P.), R10: Farrer, David, G (Oregon Dept. of Human Services), R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality), R10: Tarnow, Karen, E (Oregon Dept. of Environmental Quality), R10: McClincy, Matt (Oregon Dept. of Environmental Quality), R10: Gainer, Tom			
100017698	REDACTED Email regarding Follow up call on reliability issues in interpreting Portland Harbor sediment toxicity. 1/28/2010	26	1 EML / Email	R10: Poulsen, Mike (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement	
100009749	Email regarding Portland Metro Area 2007 Draft Precipitation Data. 2/1/2010	24	3 EML / Email	R10: Gainer, Tom (Oregon Dept. of Environmental Quality)	R10: Shellenberger, Amanda (Anchor Environmental, LLC)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement	
100009750	Email regarding Portland Metro Area 2007 Draft Precipitation Data. 2/1/2010	120	3 EML / Email	R10: Gainer, Tom (Oregon Dept. of Environmental Quality)	R10: Wyatt, Bob (Northwest Natural Gas Company), R10: Edwards, John (Anchor QEA, LLC)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement	
100018140	REDACTED Email regarding Gasco Capture Zone Field Test Plan, Response to Comments. 2/1/2010	93	3 EML / Email	R10: Bayuk, Dana (Oregon Dept. of Environmental Quality)	R10: Fuentes, Rene, C (EPA), R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement	
100013547	Email Regarding Rhone Poulenc Groundwater Discharge to the Willamette River. 2/3/2010	50	2 EML / Email	R10: Lacey, David (Oregon Dept. of Environmental Quality)	R10: Cora, Lori, H (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement	
100014258	Email regarding LWG ARARs list discussion. 2/3/2010	16	1 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)		ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement	
					R10: Callahan-grant, Megan (NOAA), R10: Bishop, Karen (State of Oregon), R10: Madden, Erin (Unknown), R10: Wray, Rachel (Port of Portland), R10: Gardner, Sara (City of Portland, Oregon, Environmental Services), R10: Smith, Judy, R (EPA), R10: Humphrey, Chip (EPA), R10: Longoria, Rose (Yakama Nation), R10: Anderson, Jim (EPA), R10: (Harris and Smith)			
100014375	Email regarding Portland Harbor Communications Planning Meeting Thursday, February 11. 2/8/2010	37	1 EML / Email	R10: Danab, Marcia (Oregon Dept. of Environmental Quality)	R10: Cora, Lori, H (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement	
100010123	Email regarding RE_LWG ARARs list discussion(1). 2/9/2010	22	1 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement	
100010835	Email regarding LWG ARARs list discussion. 2/9/2010	18	1 EML / Email	R10: Poulsen, Mike (Oregon Dept. of Environmental Quality)	R10: Burkholder, Kurt (Oregon Dept. of Justice), R10: Cora, Lori, H (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement	
100013737	Email regarding LWG ARARs list discussion. 2/9/2010	17	1 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)		ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement	
100013738	Response to LWG ARARs Questions. 2/9/2010	73	1 CORR / Correspondence	R10: Burkholder, Kurt (Oregon Dept. of Justice)	R10: (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement	
100014257	Email regarding LWG ARARs list discussion. 2/9/2010	16	1 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Burkholder, Kurt (Oregon Dept. of Justice), R10: Cora, Lori, H (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement	
100014259	Email regarding LWG ARARs list discussion. 2/9/2010	17	1 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Cora, Lori, H (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement	
100014113	Email regarding FS evaluation response slides. 2/10/2010	16	1 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement	
100007714	Email regarding Conclusions from 1/28/10 DEQ/EPA ARARs Meeting. 2/12/2010	79	4 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Cora, Lori, H (EPA), R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA), R10: Yamamoto, Deb (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement	

100009817	Email regarding draft source control decision 2/16/2010 (SCD) for BES Water Lab.	65	3 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	(NOAA), R10: Winter, Jessica (NOAA), R10: Baker, Mary (NOAA), R10: Munn, Nancy (NOAA), R10: Neely, Robert (NOAA), R10: Fleming, Sheila (Ridolfi Engineers and Associates, Inc.), R10: Zylstra, Stephen, J (U. S. Fish and Wildlife Service), R10: Buck, Jeremy (U. S. Fish and Wildlife Service), R10: Cunningham, Edward, P (Unknown), R10: Hermanson, Brad (Unknown), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Malek, John (Parametrix, Inc.), R10: Allen li, P. David (Stratus Consulting, Inc.), R10: Bluelake, Lisa (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Karnosh, Michael (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Sheldrake, Sean, A (EPA), R10: Fuentes, Rene, C (EPA), R10: Cora, Lori, H (EPA), R10: Koch, Kristine, M (EPA), R10: Smith, Judy, R (EPA), R10: Shephard, Burt (EPA), R10: Humphrey, Chip (EPA), R10: Davoli, Dana (EPA), R10: Grepogrove, Gina (EPA), R10: Goulet, Joe (EPA), R10: Ader, Mark (EPA), R10: Madden, Erin (Nez Perce Tribe), R10: Farrer, David, G (Oregon Dept. of Human Services), R10: Blischke, Heidi (Oregon Dept. of Environmental Quality), R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality), R10: Tarnow, Karen, E (Oregon Dept. of Environmental Quality), R10: Mcclincy, Matt (Oregon Dept. of Environmental Quality), R10: Winter, Jessica (NOAA), R10: Baker, Mary (NOAA), R10: Munn, Nancy (NOAA), R10: Neely, Robert (NOAA), R10: Fleming, Sheila (Ridolfi Engineers and Associates, Inc.), R10: Zylstra, Stephen, J (U. S. Fish and Wildlife Service), R10: Buck, Jeremy (U. S. Fish and Wildlife Service), R10: Hermanson, Brad (Unknown), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Malek, John (Parametrix, Inc.), R10: Madden, Erin (Natural Resource Damage Assessment Trustees), R10: Bluelake, Lisa (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Karnosh, Michael (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Ader, Mark, A (EPA), R10: Sheldrake, Sean, A (EPA), R10: Fuentes, Rene, C (EPA), R10: Cora, Lori, H (EPA), R10: Blischke, Eric, L (EPA), R10: Smith, Judy, R (EPA), R10: Shephard, Burt (EPA), R10: Humphrey, Chip (EPA), R10: Davoli, Dana (EPA), R10: Grepogrove, Gina (EPA), R10: Goulet, Joe (EPA), R10: Farrer, David, G (Oregon Dept. of Human Services), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality), R10: Mcclincy, Matt (Oregon Dept. of Environmental Quality), R10: Poulsen, Mike (Oregon Dept. of Environmental Quality), R10: Longoria, Rose (Yakama Nation), R10: Gainer, Tom (Unknown), R10: Dexter, Bob (Unknown), R10: Shorr, Benjamin (NOAA),	056-SITE SUPPORT/0563-State/Tribal Involvement
100014342	Email Regarding DRAFT Source Control Decision (SCD), BES (Bureau of Environmental Services) Water Pollution Control Lab (WPCL).	55	3 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)		056-SITE SUPPORT/0563-State/Tribal Involvement
100014631	REDACTED Email regarding Compiled PRG 2/17/2010 Tables.	26	3 EML / Email	R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD 056-SITE SUPPORT/0563-State/Tribal Involvement
100010022	2/18/2010 Email regarding DEQ Hot Spot Questions.	25	2 EML / Email	R10: Poulsen, Mike (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD 056-SITE SUPPORT/0563-State/Tribal Involvement
100010021	2/19/2010 Email regarding DEQ Hot Spot Questions.	27	3 EML / Email	R10: Poulsen, Mike (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD 056-SITE SUPPORT/0563-State/Tribal Involvement
100014345	2/19/2010 Email Regarding DEQ Hot Spot Questions.	22	3 EML / Email	R10: Poulsen, Mike (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD 056-SITE SUPPORT/0563-State/Tribal Involvement
100008920	2/25/2010 Email regarding FW_Supporting Information for Benthic Risk Evaluation.	53	3 EML / Email	R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD 056-SITE SUPPORT/0563-State/Tribal Involvement
100014096	2/25/2010 Email regarding Supporting Information for Benthic Risk Evaluation - Portland Harbor.	53	3 EML / Email	R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD 056-SITE SUPPORT/0563-State/Tribal Involvement
100008296	3/3/2010 Email regarding FW_Comments on ERA Lines of Evidence and PRGs.	55	3 EML / Email	R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD 056-SITE SUPPORT/0563-State/Tribal Involvement
100009195	3/3/2010 EPA Draft Response Re Conclusions.	108	5 EML / Email	R10: Koch, Kristine, M (EPA)	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD 056-SITE SUPPORT/0563-State/Tribal Involvement
100013750	3/3/2010 Email regarding Conclusions from 1/28/10 DEQ/EPA ARARs Meeting.	108	5 EML / Email	R10: Koch, Kristine, M (EPA)	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD 056-SITE SUPPORT/0563-State/Tribal Involvement
100014057	3/3/2010 Email regarding Comments on ERA Lines of Evidence and PRGs.	55	3 EML / Email	R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA), R10: Shephard, Burt (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD 056-SITE SUPPORT/0563-State/Tribal Involvement
100008098	3/10/2010 Email Regarding NW Natural, DEQ Comments to RI and Risk Assessment.	59	2 EML / Email	R10: Bayuk, Dana (Oregon Dept. of Environmental Quality)	R10: Wyatt, Robert, J (NW Natural)	ELECTRONIC RECORD 056-SITE SUPPORT/0563-State/Tribal Involvement
100008099	3/10/2010 Review of Remedial Investigation Report for Northwest Natural - Gasco Facility (Dated 4/30/2007) and Revised Baseline Ecological and Human Health Risk Assessment Report (Dated 12/2004); ECSI No. 84.	272	35 LTR / Letter	R10: Bayuk, Dana (Oregon Dept. of Environmental Quality)	R10: Wyatt, Robert, J (Northwest Natural Gas Company)	ELECTRONIC RECORD 056-SITE SUPPORT/0563-State/Tribal Involvement
100008100	3/10/2010 Table 1: Landfill and Remedial Investigation/Remedial Action for the Tar Pond Area Soil Data and Hazard Quotients.	98	1 CHT / Chart/Table			ELECTRONIC RECORD 056-SITE SUPPORT/0563-State/Tribal Involvement
100010237	3/10/2010 Email regarding draft source control decision for former Chevron asphalt facility.	57	1 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	(NOAA), R10: Winter, Jessica (NOAA), R10: Baker, Mary (NOAA), R10: Munn, Nancy (NOAA), R10: Neely, Robert (NOAA), R10: Fleming, Sheila (Ridolfi Engineers and Associates, Inc.), R10: Zylstra, Stephen, J (U. S. Fish and Wildlife Service), R10: Buck, Jeremy (U. S. Fish and Wildlife Service), R10: Hermanson, Brad (Unknown), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Malek, John (Parametrix, Inc.), R10: Peers, Jennifer (Stratus Consulting, Inc.), R10: Bluelake, Lisa (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Karnosh, Michael (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Sheldrake, Sean, A (EPA), R10: Fuentes, Rene, C (EPA), R10: Cora, Lori, H (EPA), R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA), R10: Smith, Judy, R (EPA), R10: Shephard, Burt (EPA), R10: Humphrey, Chip (EPA), R10: Davoli, Dana (EPA), R10: Grepogrove, Gina (EPA), R10: Goulet, Joe (EPA), R10: Ader, Mark (EPA), R10: Madden, Erin (Nez Perce Tribe), R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality), R10: Tarnow, Karen, E (Oregon Dept. of Environmental Quality), R10: Mcclincy, Matt (Oregon Dept. of Environmental Quality), R10: Poulsen, Mike (Oregon Dept. of Environmental Quality), R10: Gainer, Tom (Oregon Dept. of Environmental Quality), R10: Longoria, Rose	ELECTRONIC RECORD 056-SITE SUPPORT/0563-State/Tribal Involvement
100013975	3/10/2010 Email Regarding NW Natural, Gasco Facility, DEQ (Dept. of Environmental Quality) Comments to RI (Remedial Investigation) and Risk Assessment Reports.	48	2 EML / Email	R10: Bayuk, Dana (Oregon Dept. of Environmental Quality)	R10: Wyatt, Robert, J (NW Natural)	ELECTRONIC RECORD 056-SITE SUPPORT/0563-State/Tribal Involvement
100013976	3/10/2010 Letter Regarding Remedial Investigation (RI) and Risk Assessment, NW Natural.	243	35 LTR / Letter	R10: Bayuk, Dana (Oregon Dept. of Environmental Quality)	R10: Wyatt, Robert, J (NW Natural)	ELECTRONIC RECORD 056-SITE SUPPORT/0563-State/Tribal Involvement



100013977	Table 1: Tar Pond Area Soil Data and Hazard Quotients.	3/10/2010	81	1 CORR / Correspondence	R10: (Unknown) R10: Johnson, Keith (Oregon Dept. of Environmental Quality)	R10: (Unknown) R10: Koch, Kristine, M (EPA), R10: Applegate, Rick (City of Portland)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100014017	3/10/2010 Email regarding EPA/DEQ/City meetings.		17	1 EML / Email		(NOAA), R10: Winter, Jessica (NOAA), R10: Baker, Mary (NOAA), R10: Munn, Nancy (NOAA), R10: Neely, Robert (NOAA), R10: Fleming, Sheila (Ridolfi Engineers and Associates, Inc.), R10: Zylstra, Stephen, J (U. S. Fish and Wildlife Service), R10: Buck, Jeremy (U. S. Fish and Wildlife Service), R10: Hermanson, Brad (Unknown), R10: Madden, Erin (Unknown), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Bluelake, Lisa (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Karnosh, Michael (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Sheldrake, Sean, A (EPA), R10: Fuentes, Rene, C (EPA), R10: Cora, Lori, H (EPA), R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA), R10: Smith, Judy, R (EPA), R10: Shephard, Burt (EPA), R10: Humphrey, Chip (EPA), R10: Davoli, Dana (EPA), R10: Grepogrove, Gina (EPA), R10: Goulet, Joe (EPA), R10: Malek, John (EPA), R10: Ader, Mark (EPA), R10: Farrer, David, G (Oregon Dept. of Human Services), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality), R10: Tarnow, Karen, E (Oregon Dept. of Environmental Quality), R10: McClincy, Matt (Oregon Dept. of Environmental Quality), R10: Longoria, Rose (Yakama Nation), R10: Gainer, Tom (Unknown), R10: Dexter, Bob (Unknown), R10:	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100014419	Email Regarding DRAFT Source Control Decision (SCD), Former Chevron Asphalt Facility.	3/10/2010	47	1 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)		ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100013759	3/12/2010 Email regarding PRGs.		36	1 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100010452	Email regarding EPA/DEA/City of Portland session on joint source control/stormwater meeting.	3/15/2010	60	1 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Scheffler, Linda (City of Portland, Oregon), R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA), R10: Tarnow, Karen, E (Oregon Dept. of Environmental Quality), R10: Johnson, Keith (Oregon Dept. of Environmental Quality), R10: Gardner, Sara (Oregon Dept. of Environmental Quality), R10: Livesay, Dave (GSI Groundwater Solutions, Inc.), R10: Struck, Rod (GSI Groundwater Solutions, Inc.), R10: Sanders, Dawn (Oregon Dept. of Environmental Quality), R10: Applegate, Rick (City of Portland)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100010462	Email regarding EPA/DEA/City of Portland session on joint source control/stormwater meeting.	3/15/2010	41	1 EML / Email	R10: Tarnow, Karen, E (Oregon Dept. of Environmental Quality)	R10: Scheffler, Linda (City of Portland, Oregon), R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality), R10: Johnson, Keith (Oregon Dept. of Environmental Quality), R10: Gardner, Sara (Oregon Dept. of Environmental Quality), R10: Livesay, Dave (GSI Groundwater Solutions, Inc.), R10: Struck, Rod (GSI Groundwater Solutions, Inc.), R10: Sanders, Dawn (Oregon Dept. of Environmental Quality), R10: Applegate, Rick (City of Portland)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100014018	Email regarding EPA/DEQ/City of Portland session on a joint source control/stormwater meeting.	3/15/2010	52	1 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Sanders, Dawn (City of Portland, Oregon), R10: Scheffler, Linda (City of Portland, Oregon), R10: Gardner, Sara (City of Portland, Oregon, Environmental Services), R10: Tarnow, Karen, E (Oregon Dept. of Environmental Quality), R10: Johnson, Keith (Oregon Dept. of Environmental Quality), R10: Livesay, Dave (GSI Groundwater Solutions, Inc.), R10: Applegate, Rick (City of Portland), R10: Struck, Rod (City of Portland, Bureau of Environmental Services)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100014019	Email regarding EPA/DEQ/City of Portland session on a joint source control/stormwater meeting.	3/15/2010	33	1 EML / Email	R10: Tarnow, Karen, E (Oregon Dept. of Environmental Quality)	R10: Anderson, Jim, M (State of Oregon), R10: Gardner, Sara (City of Portland, Oregon, Environmental Services), R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA), R10: Johnson, Keith (Oregon Dept. of Environmental Quality), R10: Livesay, Dave (GSI Groundwater Solutions, Inc.)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100009574	Email regarding Outline of Approach to Derive Sediment PRGs from Bird Egg TRVs.	3/16/2010	27	2 EML / Email	R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)	R10: Buck, Jeremy (U. S. Fish and Wildlife Service), R10: Shephard, Burt (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100009573	Email regarding Outline of Approach to Derive Sediment PRGs from Bird Egg TRVs.	3/17/2010	34	4 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100010477	3/17/2010 Email regarding ERA PRGs.		23	1 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA), R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality), R10: Poulsen, Mike (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100013996	3/17/2010 Email regarding Blumenaur meeting March 30.		16	1 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100008102	Email Regarding Portland Harbor - Sediment Quality Guidelines (SQG) Comparison.	3/29/2010	37	2 EML / Email	R10: Poulsen, Michael (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100008103	Spreadsheet With Comparison of High Sediment Quality Guidelines (SQGs) From the Lower Willamette Group (LWG) Floating Percentile Method (Original Spreadsheet File Attached).	3/29/2010	483	7 EML / Email	R10: Poulsen, Michael (Oregon Dept. of Environmental Quality)		ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100014157	Email Regarding Portland Harbor SQG (Small Quantity Generators) Comparison.	3/29/2010	25	2 EML / Email	R10: Poulsen, Mike (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100008043	3/30/2010 Email regarding FW_Arco.		59	1 EML / Email	R10: Gainer, Tom (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100014330	Email regarding Scheduling Placeholder for Model Calibration Check-In.	4/1/2010	23	2 EML / Email	R10: Gainer, Tom (Oregon Dept. of Environmental Quality)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100014331	Email regarding Scheduling Placeholder for Model Calibration Check-In.	4/1/2010	23	2 EML / Email	R10: Tarnow, Karen, E (Oregon Dept. of Environmental Quality)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100008341	Email Regarding Materials for Today's Portland Harbor Stormwater Source Control Meeting.	4/8/2010	73	1 EML / Email	R10: Tarnow, Karen, E (Oregon Dept. of Environmental Quality)	R10: Applegate, Richard (City of Portland, Oregon), R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA), R10: Scheffler, Linda (City of Portland, Bureau of Environmental Services), R10: Struck, Rodney, G (Oregon Dept. of Environmental Quality), R10: Anderson, James, M (Oregon Dept. of Environmental Quality), R10: Johnson, Keith (Oregon Dept. of Environmental Quality), R10: McClincy, Matt (Oregon Dept. of Environmental Quality), R10: Livesay, Dave (GSI Groundwater Solutions, Inc.), R10: Sanders, Dawn (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement

100008342	4/8/2010	Agenda and Materials for Dept. of Environmental Quality (DEQ)/EPA/BES Meeting On Stormwater Source Control.	235	3 MTG / Meeting Document				ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100013740	4/8/2010	Agenda and Materials for DEQ/EPA/BES Meeting on Stormwater Source Control.	100	3 CORR / Correspondence	R10: Tarnow, Karen, E (Oregon Dept. of Environmental Quality)	R10: (Unknown)		ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100013744	4/8/2010	DRAFT Meeting Notes DEQ/EPA/BES Meeting on Stormwater Source Control.	113	2 CORR / Correspondence	R10: Tarnow, Karen, E (Oregon Dept. of Environmental Quality)	R10: (Unknown)		ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100014925	4/8/2010	Meeting Notes for the April 8, 2010 DEQ/EPA/BES Meeting on Stormwater Source Control.	114	2 OTH / Other	R10: (Oregon Dept. of Environmental Quality)	R10: (EPA), R10: (City of Portland, Bureau of Environmental Services), R10: (Oregon Dept. of Environmental Quality)		ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
						(NOAA), R10: Winter, Jessica (NOAA), R10: Baker, Mary (NOAA), R10: Munn, Nancy (NOAA), R10: Neely, Robert (NOAA), R10: Fleming, Sheila (Ridolfi Engineers and Associates, Inc.), R10: Zylstra, Stephen, J (U. S. Fish and Wildlife Service), R10: Hermanson, Brad (Unknown), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Malek, John (Parametrix, Inc.), R10: Peers, Jennifer (Stratus Consulting, Inc.), R10: Bluelake, Lisa (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Karnosh, Michael (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Sheldrake, Sean, A (EPA), R10: Fuentes, Rene, C (EPA), R10: Cora, Lori, H (EPA), R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA), R10: Smith, Judy, R (EPA), R10: Shephard, Burt (EPA), R10: Humphrey, Chip (EPA), R10: Davoli, Dana (EPA), R10: Grepo-grove, Gina (EPA), R10: Goulet, Joe (EPA), R10: Ader, Mark (EPA), R10: Madden, Erin (Nez Perce Tribe), R10: Farrer, David, G (Oregon Dept. of Human Services), R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality), R10: Tarnow, Karen, E (Oregon Dept. of Environmental Quality), R10: Mcclincy, Matt (Oregon Dept. of Environmental Quality), R10: Gainer, Tom (Oregon Dept. of Environmental Quality), R10: Dexter, Bob (Unknown), R10: Shorr, Benjamin (NOAA), R10: Cunningham, E, R10: French, R, D			
100010406	4/9/2010	Email regarding draft source control decision (SCD).	67	3 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Tarnow, Karen, E (Oregon Dept. of Environmental Quality)		ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100013551	4/9/2010	Letter Regarding EPA Comments on DRAFT Recontamination Evaluation Work Plan - Zidell Waterfront Property.	214	3 LTR / Letter	R10: Koch, Kristine, M (EPA)	(NOAA), R10: Winter, Jessica (NOAA), R10: Baker, Mary (NOAA), R10: Neely, Robert (NOAA), R10: Fleming, Sheila (Ridolfi Engineers and Associates, Inc.), R10: Buck, Jeremy (U. S. Fish and Wildlife Service), R10: Hermanson, Brad (Unknown), R10: Madden, Erin (Unknown), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Ebbets, Allison (Stratus Consulting, Inc.), R10: Beltman, Douglas (Stratus Consulting, Inc.), R10: Bluelake, Lisa (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Karnosh, Michael (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Sheldrake, Sean, A (EPA), R10: Fuentes, Rene, C (EPA), R10: Cora, Lori, H (EPA), R10: Koch, Kristine, M (EPA), R10: Smith, Judy, R (EPA), R10: Shephard, Burt (EPA), R10: Humphrey, Chip (EPA), R10: Allen, Elizabeth (EPA), R10: Grepo-grove, Gina (EPA), R10: Goulet, Joe (EPA), R10: Ader, Mark (EPA), R10: Muza, Richard (EPA), R10: Farrer, David, G (Oregon Dept. of Human Services), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality), R10: Hafley, Dan (Oregon Dept. of Environmental Quality), R10: Tarnow, Karen, E (Oregon Dept. of Environmental Quality), R10: Kirk, Marcy (Oregon Dept. of Environmental Quality), R10: Mcclincy, Matt (Oregon Dept. of Environmental Quality), R10: D'acqua, Kim (Grand Ronde Tribe), R10: Longoria, Rose		ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100014520	4/9/2010	Email Regarding DRAFT Source Control Decision (SCD), Portland Dock Commission Site.	57	3 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)		ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100018137	4/9/2010	REDACTED Email regarding LWG Meeting Regarding Source Control Update - Wednesday, April 14th 11 am to 1 pm.	118	5 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Koch, Kristine, M (EPA)		ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100014080	4/14/2010	Email regarding Kinder Morgan - Dredging.	41	1 EML / Email	R10: Mcclincy, Matt (Oregon Dept. of Environmental Quality)	R10: Humphrey, Chip (EPA)		ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100014079	4/15/2010	Email regarding Green Remediation - Biodiesel.	44	1 EML / Email	R10: Anderson, James, M (Oregon Dept. of Environmental Quality)	R10: Humphrey, Chip (EPA)		ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
						R10: Sanders, Dawn (City of Portland, Oregon), R10: Scheffler, Linda (City of Portland, Oregon), R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality), R10: Johnson, Keith (Oregon Dept. of Environmental Quality), R10: Mcclincy, Matt (Oregon Dept. of Environmental Quality), R10: Livesay, Dave (GSI Groundwater Solutions, Inc.), R10: Applegate, Rick (City of Portland), R10: Struck, Rod (City of Portland, Bureau of Environmental Services)			
100013743	4/19/2010	Email regarding Draft Notes from April 8 EPA/DEQ/City mtg re: SW source control.	63	1 EML / Email	R10: Tarnow, Karen, E (Oregon Dept. of Environmental Quality)	R10: Anderson, James, M (Oregon Dept. of Environmental Quality)		ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100011946	4/21/2010	Email Regarding Performance Standards for CDF.	78	1 EML / Email	R10: Anderson, James, M (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)		ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100014201	4/21/2010	Email regarding Performance Standards for CDF.	70	1 EML / Email	R10: Anderson, James, M (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)		ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100008963	4/22/2010	Email regarding FW_Jan 2010 meeting notes.	57	2 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Koch, Kristine, M (EPA)		ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100013749	4/22/2010	Email regarding Jan 2010 meeting notes.	56	2 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Koch, Kristine, M (EPA)		ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100016691	4/22/2010	REDACTED Email regarding Request for FPM Data Files.	40	3 EML / Email	R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)	R10: Humphrey, Chip (EPA)		ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement

100013554	5/3/2010	Email Regarding Arkema - Upland Draft Wall - Groundwater Extraction Treatment System Design.	40	1 EML / Email	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	(NOAA), R10: Winter, Jessica (NOAA), R10: Baker, Mary (NOAA), R10: Munn, Nancy (NOAA), R10: Neely, Robert (NOAA), R10: Fleming, Sheila (Ridolfi Engineers and Associates, Inc.), R10: Zylstra, Stephen, J (U. S. Fish and Wildlife Service), R10: Buck, Jeremy (U. S. Fish and Wildlife Service), R10: Hermanson, Brad (Unknown), R10: Madden, Erin (Unknown), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Malek, John (Parametrix, Inc.), R10: Bluelake, Lisa (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Karnosh, Michael (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Sheldrake, Sean, A (EPA), R10: Fuentes, Rene, C (EPA), R10: Cora, Lori, H (EPA), R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA), R10: Smith, Judy, R (EPA), R10: Shephard, Burt (EPA), R10: Humphrey, Chip (EPA), R10: Davoli, Dana (EPA), R10: Grepogrove, Gina (EPA), R10: Goulet, Joe (EPA), R10: Farrer, David, G (Oregon Dept. of Human Services), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality), R10: Tarnow, Karen, E (Oregon Dept. of Environmental Quality), R10: Poulsen, Mike (Oregon Dept. of Environmental Quality), R10: Gainer, Tom (Oregon Dept. of Environmental Quality), R10: Longoria, Rose (Yakama Nation), R10: Dexter, Bob (Unknown), R10: Shorr, Benjamin (NOAA), R10: French, R,	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100016725	5/11/2010 12:30 pm.	REDACTED Email regarding ESA coordination meeting with LWG meeting location and call in number - Thursday, May 20th 10:30 am to	21	2 EML / Email	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100008745	5/17/2010	Email regarding FW_ PCB mass balance.	75	2 EML / Email	R10: Tarnow, Karen, E (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100013059	5/17/2010	Email regarding PCB Mass Balance.	20	2 EML / Email	R10: Tarnow, Karen, E (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100013061	5/17/2010	Text of email for PCB Mass Balance.	48	3 EML / Email	R10: Tarnow, Karen, E (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100013990	5/19/2010	Email regarding Arkema - Upland Draft Wall - Groundwater Extraction Treatment System Design.	27	3 EML / Email	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	R10: Neely, Robert (NOAA), R10: Fleming, Sheila (Ridolfi Engineers and Associates, Inc.), R10: Buck, Jeremy (U. S. Fish and Wildlife Service), R10: Madden, Erin (Unknown), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Cunninghame, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Malek, John (Parametrix, Inc.), R10: Peers, Jennifer (Stratus Consulting, Inc.), R10: Downey, Tom (Confederated Tribes of the Siletz Indians), R10: Bluelake, Lisa (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Karnosh, Michael (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Longoria, Rose (Yakama Nation), R10: Lavelle, James, M (CDM), R10: Weis, Julie (Haglund Kelley, LLP)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100014677	5/19/2010	Email regarding Portland Harbor Public Health Assessment.	24	1 EML / Email	R10: Farrer, David, G (Oregon Dept. of Human Services)	R10: Madden, Erin (Unknown), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Cunninghame, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Peers, Jennifer (Stratus Consulting, Inc.), R10: Oxman, Gary (Multnomah County Health Dept.), R10: Downey, Tom (Confederated Tribes of the Siletz Indians), R10: Blischke, Eric, L (EPA), R10: Smith, Judy, R (EPA), R10: Humphrey, Chip (EPA), R10: Allen, Elizabeth (EPA), R10: Larson, Karen (EPA), R10: Gilles, Bruce, A (Oregon Dept. of Environmental Quality), R10: Anderson, James, M (Oregon Dept. of Environmental Quality), R10: Danab, Marcia (Oregon Dept. of Environmental Quality), R10: Poulsen, Michael (Oregon Dept. of Environmental Quality), R10: Omealy, Mikell (Oregon Dept. of Environmental Quality), R10: Longoria, Rose (Yakama Nation), R10: Buck, Jeremy (U. S. Fish & Wildlife Service), R10: Massey, Ashley (State of Oregon)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940681345	5/19/2010	Email regarding Portland Harbor Public Health Assessment.	31	1 EML / Email	R10: Farrer, David, G (Oregon Dept. of Human Services)	R10: Madden, Erin (Unknown), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Cunninghame, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Oxman, Gary (Multnomah County Health Dept.), R10: Unknown, Unknown (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Allen, Elizabeth (EPA), R10: Gilles, Bruce, A (Oregon Dept. of Environmental Quality), R10: Longoria, Rose (Yakama Nation), R10: D, Tom (CTSI), R10: Peers, J (Stratus Consulting, Inc.), R10: Buck, Jeremy (U. S. Fish & Wildlife Service), R10: Massey, Ashley (State of Oregon)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100014681	5/20/2010	Fact Sheet: Portland Harbor Superfund Site - Recreational User Health Assessment Completed.	3,351	4 OTH / Other	R10: (Oregon Dept. of Human Services)	R10: (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100014739	5/20/2010	Portland Harbor Public Health Assessment - Public Comment Release.	548	87 RPT / Report	R10: (Oregon Dept. of Human Services)	R10: (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100014741	5/20/2010	Press Release: Oregon Public Health Officials Release Health Assessment for Recreational Use of Portland Harbor.	13	3 OTH / Other	R10: (Oregon Dept. of Human Services)	R10: (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940681344	5/20/2010	Email regarding Portland Harbor Public Health Assessment - public comment version released.	52	2 EML / Email	R10: Bishop, Karen (State of Oregon)	R10: Bishop, Karen (State of Oregon)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100014082	5/24/2010	Email regarding Media Contact Regarding Portland Harbor.	27	2 EML / Email	R10: Poulsen, Michael (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA), R10: Smith, Judy, R (EPA), R10: Humphrey, Chip (EPA), R10: Allen, Elizabeth (EPA), R10: Anderson, James, M (Oregon Dept. of Environmental Quality), R10: Danab, Marcia (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100014092	5/24/2010	Email regarding Portland Harbor on TV Tonight.	67	1 EML / Email	R10: Poulsen, Michael (Oregon Dept. of Environmental Quality)	R10: Anderson, James, M (Oregon Dept. of Environmental Quality), R10: Danab, Marcia (Oregon Dept. of Environmental Quality), R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement



100014384	Email regarding Portland Harbor on TV 5/25/2010 tonight.	59	1 EML / Email	R10: Poulsen, Mike (Oregon Dept. of Environmental Quality)	R10: Farrer, David, G (Oregon Dept. of Human Services), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality), R10: Danab, Marcia (Oregon Dept. of Environmental Quality), R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100010408	Email regarding Recon Eval Conference Call - 5/31/2010 Discussion Topics.	25	2 EML / Email	R10: Tarnow, Karen, E (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA), R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100013064	Email regarding DEQ Comments on Draft 5/31/2010 RI/BRA.	42	1 EML / Email	R10: Anderson, James, M (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100013067	Portland Harbor Remedial Investigation 5/31/2010 Comment Tables.	147	15 CORR / Correspondence	R10: (Oregon Dept. of Environmental Quality)	R10: (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100013068	6/2/2010 Email regarding PO Bar Dredging.	92	3 EML / Email	R10: Anderson, James, M (Oregon Dept. of Environmental Quality)	R10: Humphrey, Chip (EPA), R10: Liverman, Alex (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100013072	6/2/2010 PO Bar NMFS BO Conditions.	162	4 OTH / Other	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100013085	Email regarding Notes from Recon Eval 6/2/2010 Discussion.	18	1 EML / Email	R10: Tarnow, Karen, E (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA), R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100013086	Text of Email for Notes from Recon Eval 6/2/2010 Discussion.	15	1 EML / Email	R10: Tarnow, Karen, E (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA), R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100013087	6/2/2010 Notes from DEQ/EPA Discussion on 6/1/10.	57	1 NOTE / Notes	R10: Tarnow, Karen, E (Oregon Dept. of Environmental Quality)	R10: (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100014089	6/2/2010 Email regarding PO Bar Dredging.	55	3 EML / Email	R10: Anderson, James, M (Oregon Dept. of Environmental Quality)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100014184	6/2/2010 Email regarding Next PH Manager Meeting.	45	1 EML / Email	R10: Anderson, James, M (Oregon Dept. of Environmental Quality)	R10: Woronets, Jennifer (Anchor QEA, LLC)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100015521	Email Regarding T-5 Proposed 401 WQC Conditions.	114	5 EML / Email	R10: Liverman, Alex (Oregon Department of Environmental Quality)	R10: Humphrey, Chip (EPA), R10: Freedman, Jonathan (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100014393	Email regarding T-5 Proposed 401 WQC Conditions.	124	7 EML / Email	R10: Liverman, Alex (Oregon Dept. of Environmental Quality)	R10: Liverman, Alex (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100017973	REDACTED Email regarding reply to Arkema - Preliminary CDF Screening Evaluation (PSE) 6/11/2010 Submittal.	29	2 EML / Email	R10: Young, Cyril (Oregon Dept. of State Lands)	R10: Maitland, Kristi (Port of Portland), R10: Sheldrake, Sean, A (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100018168	REDACTED Email regarding MTG REQUEST.: K- 6/11/2010 M Linnton and Willbridge Terminals.	23	1 EML / Email	R10: Liverman, Alex (Oregon Dept. of Environmental Quality)	R10: Mcmillian, James, M (U. S. Army Corps of Engineers), R10: Hagan, Michael, D (Northwest Engineering Company), R10: Steckman, Larry, D (Norwest Engineering), R10: Morey, Scott (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100015522	6/15/2010 Email Regarding TCT Agenda Item.	22	1 EML / Email	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100014181	6/17/2010 Email regarding NOAA - HEA Meeting.	20	1 EML / Email	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100013153	6/23/2010 PO Bar NMFS BO Conditions.	162	4 OTH / Other	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100016125	6/23/2010 REDACTED Email regarding PO Bar Dredging.	97	3 EML / Email	R10: Liverman, Alex (Oregon Dept. of Environmental Quality)	R10: Humphrey, Chip (EPA), R10: Freedman, Jonathan (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100018180	6/25/2010 REDACTED Email regarding PO Bar dredging.	25	3 EML / Email	R10: Liverman, Alex (Oregon Dept. of Environmental Quality)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100010410	Email regarding Recontamination Model for 6/28/2010 Lagoon.	29	3 EML / Email	R10: Tarnow, Karen, E (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100014140	7/7/2010 Email regarding Maintenance Dredging Sites.	45	1 EML / Email	R10: Anderson, James, M (Oregon Dept. of Environmental Quality)	R10: Smith, Judy, R (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100011671	Email Regarding LWG FS Source Control 7/14/2010 Table(1).	30	1 EML / Email	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	R10: Anderson, James, M (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100014171	7/14/2010 Email regarding LWG FS Source Control Table.	22	1 EML / Email	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	R10: Anderson, James, M (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100014090	Email regarding Port of Portland T5 Deepening Post-Dredge Upstream Berth 501 Sampling Results (NWP-2007-1020).	47	2 EML / Email	R10: Liverman, Alex (Oregon Dept. of Environmental Quality)	R10: Humphrey, Chip (EPA), R10: Freedman, Jonathan (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100014371	Email regarding Port of Portland Terminal 5 7/16/2010 Deepening Post-dredge Sampling.	43	2 EML / Email	R10: Liverman, Alex (Oregon Dept. of Environmental Quality)	R10: Hollis, Michelle (Port of Portland)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100014914	7/20/2010 Email regarding Stormwater "Message".	19	1 EML / Email	R10: Tarnow, Karen, E (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100014927	Achieving Stormwater Source Control in Portland Harbor (aka the Stormwater 7/20/2010 "Message").	128	4 OTH / Other	R10: Tarnow, Karen, E (Oregon Dept. of Environmental Quality)	R10: (EPA), R10: (City of Portland, Bureau of Environmental Services), R10: (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100014192	Email regarding PO Bar Dredging Draft 7/21/2010 Findings and 401 Cert Language & Conditions.	164	5 EML / Email	R10: Liverman, Alex (Oregon Dept. of Environmental Quality)	R10: Humphrey, Chip (EPA), R10: Freedman, Jonathan (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100014298	7/21/2010 Email regarding PH ppt slide.	16	1 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100014369	Email regarding PO Bar drdging draft Findings 7/26/2010 and 401 cert language & conditions.	155	5 EML / Email	R10: Liverman, Alex (Oregon Dept. of Environmental Quality)	R10: Humphrey, Chip (EPA), R10: Freedman, Jonathan (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100015534	7/26/2010 Email Regarding TCT Topic - Recon Eval.	18	1 EML / Email	R10: Tarnow, Karen, E (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100014187	7/27/2010 Email regarding NMFS Meeting.	20	1 EML / Email	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100014292	7/27/2010 Email regarding NMFS Meeting.	16	1 EML / Email	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100016924	REDACTED Email regarding TCT Agenda - July 7/27/2010 28, 2010.	27	2 EML / Email	R10: Tarnow, Karen, E (Oregon Dept. of Environmental Quality)	(NOAA), R10: Winter, Jessica (NOAA), R10: Baker, Mary (NOAA), R10: Munn, Nancy (NOAA), R10: Neely, Robert (NOAA), R10: Madden, Erin (Unknown), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Cunningham, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Hermanson, Brad (Parametrix, Inc.), R10: Malek, John (Parametrix, Inc.), R10: Spence, Margaret (Parametrix, Inc.), R10: Peers, Jennifer (Stratus Consulting, Inc.), R10: Downey, Tom (Confederated Tribes of the Siletz Indians), R10: Bluelake, Lisa (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Karnosh, Michael (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Ader, Mark, A (EPA), R10: Sheldrake, Sean, A (EPA), R10: Fuentes, Rene, C (EPA), R10: Cora, Lori, H (EPA), R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA), R10: Smith, Judy, R (EPA), R10: Shephard, Burt (EPA), R10: Humphrey, Chip (EPA), R10: Allen, Elizabeth (EPA), R10: Grepo-grove, Ginna (EPA), R10: Goulet, Joe (EPA), R10: Farrer, David, G (Oregon Dept. of Human Services), R10: Anderson, James, M (Oregon Dept. of Environmental Quality), R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality), R10: McClincy, Matt (Oregon Dept. of Environmental Quality), R10: Poulsen, Michael	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement

100014122	7/28/2010	Email regarding FS Team Meeting.	18	1 EML / Email	R10: Gainer, Tom (Oregon Dept. of Environmental Quality) R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Hermanson, Brad (Parametrix, Inc.), R10: Malek, John (Parametrix, Inc.), R10: Spence, Margaret (Parametrix, Inc.), R10: Ebbets, Allison (Stratus Consulting, Inc.), R10: Peers, Jennifer (Stratus Consulting, Inc.), R10: King, Todd (CDM Smith), R10: French, R, D (CDM)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100014123	7/28/2010	Email regarding FS Team Meeting.	18	1 EML / Email		R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100009509	7/29/2010	Figures 1 through 5.	2,014	5 FIG / Figure/Map/ Drawing	R10: (Integral Consulting, Inc.) R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)		ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100014121	7/29/2010	Email regarding FS Team Meeting.	18	1 EML / Email		R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100012007	8/1/2010	Figure 1: Status of Source Identification in City Outfall Basins - MilestoneRpt1009Figure1.	643	1 CORR / Correspondence	R10: (Oregon Dept. of Environmental Quality)		ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100010023	8/4/2010	Email regarding RE_lagoon recontamination model(1).	21	1 EML / Email	R10: Tarnow, Karen, E (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100010024	8/4/2010	Email regarding RE_lagoon recontamination model.	24	2 EML / Email	R10: Tarnow, Karen, E (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100011638	8/4/2010	Email Regarding Lagoon Recontamination Model.	29	1 EML / Email	R10: Tarnow, Karen, E (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100014000	8/5/2010	Email regarding Cert issue - PDX Harbor.	40	1 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Moynahan, Kevin (Oregon Dept. of State Lands)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100018186	8/5/2010	REDACTED Email regarding Portland Harbor Managers Meeting Agenda and Updated FS Schedule - Wednesday, August 11th 1 - 3 pm.	95	2 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Neely, Robert (NOAA), R10: Madden, Erin (Unknown), R10: Ashton, David (Port of Portland), R10: Madalinski, Kelly (Port of Portland), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Cunninghame, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Ebbets, Allison (Stratus Consulting, Inc.), R10: Peers, Jennifer (Stratus Consulting, Inc.), R10: Wyatt, Bob (Northwest Natural Gas Company), R10: Bluelake, Lisa (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Karnosh, Michael (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Blischke, Eric, L (EPA), R10: McClincy, Matt (Oregon Dept. of Environmental Quality), R10: Wagoner, Colin, H (Ridolfi, Inc.), R10: Woronets, Jennifer (Anchor QEA, LLC), R10: Parkinson, Stephen, T (Groff Murphy, PLLC), R10: Longoria, Rose (Yakama Nation), R10: Dost, Patty (Pearl Legal Group PC), R10: Zeilman, Tom (Law Offices of Thomas Zeilman), R10: Pine, Keith (Anchor Environmental, LLC), R10: Williams, Jd (Unknown), R10: Mckenna, Jim (Verdant Solutions, LLC), R10: Betz, Jan (City of Portland, Oregon), R10: Applegate, Rick (City of Portland), R10: Weis, Julie (Haglund Kelley, LLP), R10: Traeger, Karen (Total), R10: Wolf, Frederick, G (Total)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100014991	8/10/2010	REDACTED Email regarding TCT Agenda - August 11, 2010.	19	1 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA), R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100020096	8/10/2010	REDACTED Email regarding Wednesday, September 22nd 1 to 5 pm - Small Technical Group Benthic Toxicity AOPCs Meeting.	27	3 EML / Email	R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100020099	8/10/2010	REDACTED Email regarding Wednesday, September 22nd 1 to 5 pm - Small Technical Group Benthic Toxicity AOPCs Meeting.	24	2 EML / Email	R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100010833	8/11/2010	Email Regarding General Comments On GASCO Air, Including On the Red-Lined Copy Appearing to Have Additional Text and Comments On the Interpretation of Empirical Bioassay Results Being Deferred and Dropped Into the Final Air.	161	4 EML / Email	R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality) R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)	R10: Bayuk, Dana (Oregon Dept. of Environmental Quality) R10: Bayuk, Dana (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100014133	8/11/2010	Email regarding Gasco Air Comments.	153	4 EML / Email		R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100009504	8/12/2010	Baseline Salmonid Habitat Survey Technical Memorandum, Arkema Inc. Portland Facility.	126	1 LTR / Letter	R10: Slater, J. Todd (Legacy Site Services, LLC)	R10: Slater, Todd (Legacy Site Services, LLC)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100009510	8/12/2010	Final Technical Memorandum, Baseline Salmonid Habitat Survey, Arkema Facility, Portland OR.	354	10 LTR / Letter	R10: Livermore, David, G (Integral Consulting, Inc.), R10: Williams, Les, R10: Preziosi, Damian	R10: Slater, Todd (Legacy Site Services, LLC)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100013249	8/12/2010	Email regarding Public Hearing for Post Office Bar 401 Certification.	18	1 EML / Email	R10: Anderson, James, M (Oregon Dept. of Environmental Quality)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100009512	8/13/2010	DEQ Comments, "Final Project Area Identification Report and Data Gaps QAPP 'GASCO' Sediments Cleanup Action" dated July 2010.	179	7 RPT / Report	R10: (Unknown)		ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100008680	8/15/2010	Email regarding FW_NW Natural, DEQ Comments on Final AIR & Data G(1).	31	4 EML / Email	R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100014083	8/15/2010	Email regarding NW Natural, DEQ Comments on Final AIR & Data Gaps QAPP.	31	4 EML / Email	R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100008616	8/16/2010	Email regarding FW_Baseline Salmonid Habitat Survey Technical.	25	2 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100008998	8/16/2010	Email regarding FW_Baseline Salmonid Habitat Survey Technical Memorandum.	47	2 EML / Email	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100008999	8/16/2010	Email regarding FW_NW Natural, DEQ Comments on Final AIR & Data G.	53	4 EML / Email	R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA) (NOAA), R10: Winter, Jessica (NOAA), R10: Baker, Mary (NOAA), R10: Munn, Nancy (NOAA), R10: Neely, Robert (NOAA), R10: Fleming, Sheila (Ridolfi Engineers and Associates, Inc.), R10: Zylstra, Stephen, J (U. S. Fish and Wildlife Service), R10: Buck, Jeremy (U. S. Fish and Wildlife Service), R10: Hermanson, Brad (Unknown), R10: Weis, Julie (Unknown), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Malek, John (Parametrix, Inc.), R10: Bluelake, Lisa (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Karnosh, Michael (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Sheldrake, Sean, A (EPA), R10: Fuentes, Rene, C (EPA), R10: Cora, Lori, H (EPA), R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA), R10: Smith, Judy, R (EPA), R10: Shephard, Burt (EPA), R10: Humphrey, Chip (EPA), R10: Grepogrove, Gina (EPA), R10: Goulet, Joe (EPA), R10: Ader, Mark (EPA), R10: Madden, Erin (Nez Perce Tribe), R10: Farrer, David, G (Oregon Dept. of Human Services), R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality), R10: Tarnow, Karen, E (Oregon Dept. of Environmental Quality), R10: McClincy, Matt (Oregon Dept. of Environmental Quality), R10: Poulsen, Mike (Oregon Dept. of Environmental Quality), R10: Gainer, Tom (Oregon Dept. of Environmental Quality), R10: Longoria, Rose	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100010253	8/16/2010	Email regarding draft source control decision for Evraz Oregon Steel Mill.	57	1 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Gainer, Tom (Oregon Dept. of Environmental Quality), R10: Longoria, Rose	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement

100014048	Email regarding Baseline Salmonid Habitat Survey Technical Memorandum.	49	2 EML / Email	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100014078	Email regarding Baseline Salmonid Habitat Survey Technical Memorandum.	25	2 EML / Email	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	R10: Sheldrake, Sean, A (EPA) (NOAA), R10: Winter, Jessica (NOAA), R10: Baker, Mary (NOAA), R10: Munn, Nancy (NOAA), R10: Neely, Robert (NOAA), R10: Fleming, Sheila (Ridolfi Engineers and Associates, Inc.), R10: Zylstra, Stephen, J (U. S. Fish and Wildlife Service), R10: Buck, Jeremy (U. S. Fish and Wildlife Service), R10: Hermanson, Brad (Unknown), R10: Madden, Erin (Unknown), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Bluelake, Lisa (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Karnosh, Michael (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Sheldrake, Sean, A (EPA), R10: Fuentes, Rene, C (EPA), R10: Cora, Lori, H (EPA), R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA), R10: Smith, Judy, R (EPA), R10: Shephard, Burt (EPA), R10: Humphrey, Chip (EPA), R10: Grepo-grove, Gina (EPA), R10: Goulet, Joe (EPA), R10: Malek, John (EPA), R10: Ader, Mark (EPA), R10: Farrer, David, G (Oregon Dept. of Human Services), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality), R10: Tarnow, Karen, E (Oregon Dept. of Environmental Quality), R10: McClincy, Matt (Oregon Dept. of Environmental Quality), R10: Longoria, Rose (Yakama Nation), R10: Gainer, Tom (Unknown), R10: Dexter, Bob (Unknown), R10: Shorr, Benjamin (NOAA), R10: French, R, D	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100014344	Email Regarding DRAFT Source Control Decision (SCD), Evraz Oregon Steel Mill (EOS) Site.	47	1 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100009920	Email regarding Scheduling EPA Non-Directive Comment Meetings (Reply Requested).	65	2 EML / Email	R10: Poulsen, Michael (Oregon Dept. of Environmental Quality)	R10: Winter, Jessica (NOAA), R10: Neely, Robert (NOAA), R10: Buck, Jeremy (U. S. Fish and Wildlife Service), R10: Ebbets, Allison (Stratus Consulting, Inc.), R10: Peers, Jennifer (Stratus Consulting, Inc.), R10: Blischke, Eric, L (EPA), R10: Shephard, Burt (EPA), R10: Allen, Elizabeth (EPA), R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality), R10: McClincy, Matt (Oregon Dept. of Environmental Quality), R10: Poulsen, Michael (Oregon Dept. of Environmental Quality), R10: Dexter, Robert (Ridolfi, Inc.)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100010020	Email regarding Scheduling EPA Non-Directive Comment Meetings (Reply Requested).	28	2 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Winter, Jessica (NOAA), R10: Neely, Robert (NOAA), R10: Ebbets, Allison (Stratus Consulting, Inc.), R10: Peers, Jennifer (Stratus Consulting, Inc.), R10: Blischke, Eric, L (EPA), R10: Shephard, Burt (EPA), R10: Allen, Elizabeth (EPA), R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality), R10: McClincy, Matt (Oregon Dept. of Environmental Quality), R10: Poulsen, Michael (Oregon Dept. of Environmental Quality), R10: Dexter, Robert (Ridolfi, Inc.)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100014328	Email regarding Scheduling EPA Non-Directive Comment Meetings (Reply Requested).	28	2 EML / Email	R10: Anderson, James, M (Oregon Dept. of Environmental Quality)	R10: Dexter, Robert (Ridolfi, Inc.), R10: Buck, Jeremy (U. S. Fish & Wildlife Service)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100007561	8/18/2010 Draft Portland Harbor RI/FS Tables.	1,093	125 CORR / Correspondence	R10: (Lower Willamette Group)	R10: (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100007562	8/18/2010 Draft Portland Harbor RI/FS Tables.	1,104	142 CORR / Correspondence	R10: (Lower Willamette Group)	R10: (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100009918	Email regarding Scheduling EPA Non-Directive Comment Meetings (Reply Requested).	25	2 EML / Email	R10: Poulsen, Michael (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100015708	REDACTED Email regarding Scheduling FS Tools Meeting with the LWG (Reply Requested).	20	2 EML / Email	R10: Gainer, Tom (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100008659	Email regarding FW_ LWG FS Source Control Table.	44	1 EML / Email	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100009000	Email regarding FW_ Draft Source Control Decision for Evraz Oregon.	48	2 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA) (NOAA), R10: Winter, Jessica (NOAA), R10: Baker, Mary (NOAA), R10: Munn, Nancy (NOAA), R10: Neely, Robert (NOAA), R10: Zylstra, Stephen, J (U. S. Fish and Wildlife Service), R10: Buck, Jeremy (U. S. Fish and Wildlife Service), R10: Hermanson, Brad (Unknown), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Malek, John (Parametrix, Inc.), R10: Bluelake, Lisa (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Karnosh, Michael (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Sheldrake, Sean, A (EPA), R10: Fuentes, Rene, C (EPA), R10: Cora, Lori, H (EPA), R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA), R10: Smith, Judy, R (EPA), R10: Shephard, Burt (EPA), R10: Humphrey, Chip (EPA), R10: Grepo-grove, Gina (EPA), R10: Goulet, Joe (EPA), R10: Ader, Mark (EPA), R10: Madden, Erin (Nez Perce Tribe), R10: Farrer, David, G (Oregon Dept. of Human Services), R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality), R10: Tarnow, Karen, E (Oregon Dept. of Environmental Quality), R10: McClincy, Matt (Oregon Dept. of Environmental Quality), R10: Gainer, Tom (Oregon Dept. of Environmental Quality), R10: Longoria, Rose (Yakama Nation), R10: Dexter, Bob (Unknown), R10: Shorr, Benjamin (NOAA), R10: Cunningham, E, R10: French, R, D (CDM), R10: Lavelle, James, M	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100010249	Email regarding draft source control decision (SCD) for Evraz Oregon Steel Mill.	59	2 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Dexter, Bob (Unknown), R10: Shorr, Benjamin (NOAA), R10: Cunningham, E, R10: French, R, D (CDM), R10: Lavelle, James, M	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100011676	8/23/2010 Email Regarding LWG FS Source Control Table.	29	1 EML / Email	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100014061	Email regarding Draft Source Control Decision 8/23/2010 for Evraz Oregon Steel Mill.	52	2 EML / Email	R10: Anderson, James, M (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100014081	8/23/2010 Email regarding LWG FS Source Control Table.	44	1 EML / Email	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA), R10: Anderson, James, M (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100014136	8/23/2010 Email regarding LWG FS Source Control Table.	21	1 EML / Email	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement

						(NOAA), R10: Baker, Mary (NOAA), R10: Munn, Nancy (NOAA), R10: Neely, Robert (NOAA), R10: Wagoner, Colin (Ridolfi Engineers and Associates, Inc.), R10: Zylstra, Stephen, J (U. S. Fish and Wildlife Service), R10: Buck, Jeremy (U. S. Fish and Wildlife Service), R10: Hermanson, Brad (Unknown), R10: Madden, Erin (Unknown), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Malek, John (Parametrix, Inc.), R10: Bluelake, Lisa (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Karnosh, Michael (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Sheldrake, Sean, A (EPA), R10: Fuentes, Rene, C (EPA), R10: Cora, Lori, H (EPA), R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA), R10: Smith, Judy, R (EPA), R10: Shephard, Burt (EPA), R10: Humphrey, Chip (EPA), R10: Greppogrove, Gina (EPA), R10: Goulet, Joe (EPA), R10: Ader, Mark (EPA), R10: Farrer, David, G (Oregon Dept. of Human Services), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality), R10: Tarnow, Karen, E (Oregon Dept. of Environmental Quality), R10: Mcclincy, Matt (Oregon Dept. of Environmental Quality), R10: Poulsen, Mike (Oregon Dept. of Environmental Quality), R10: Longoria, Rose (Yakama Nation), R10: Gainer, Tom (Unknown), R10: Dexter, Bob (Unknown), R10: Shorr, Benjamin (NOAA), R10: French, R,		
100014343	8/23/2010	Email Regarding DRAFT Source Control Decision (SCD), Evraz Oregon Steel Mill (EOS) Site.	49	2 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)		ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100014111	8/24/2010	Email regarding For Chip BHHRA meeting dates for consideration - EPA Non-directive RI, BERA and BHHRA Comment Meetings with LWG Scheduled.	16	1 EML / Email	R10: Poulsen, Michael (Oregon Dept. of Environmental Quality)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100016743	8/24/2010	REDACTED Email regarding For Chip BHHRA meeting dates for consideration - EPA Non-directive RI, BERA and BHHRA Comment Meetings with LWG Scheduled.	35	3 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality) R10: Anderson, James, M (Oregon Dept. of Environmental Quality)	R10: Ebbets, Allison (Stratus Consulting, Inc.), R10: Peers, Jennifer (Stratus Consulting, Inc.), R10: Humphrey, Chip (EPA), R10: Allen, Elizabeth (EPA), R10: Mcclincy, Matt (Oregon Dept. of Environmental Quality), R10: Poulsen, Mike (Oregon Dept. of Environmental Quality), R10: Dexter, Bob (Ridolfi, Inc.)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement 056-SITE SUPPORT/0563-State/Tribal Involvement
100014500	8/25/2010	Email regarding West Hayden Island.	41	2 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100018101	8/26/2010	REDACTED Email regarding BHHRA meeting dates for consideration - EPA Non-directive Comments.	36	4 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100013250	8/30/2010	Notice of Public Hearing (August 30, 2010) - Proposed 401 Water Quality Certification for Maintenance Dredging of the Federal Navigation Channel in the Lower Willamette River at Post Office Bar.	207	2 OTH / Other	R10: (Oregon Dept. of Environmental Quality)	R10: (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100014095	8/31/2010	Email regarding Source Control Tables Update.	87	1 EML / Email	R10: Mcclincy, Matt (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA), R10: Anderson, James, M (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100018158	9/3/2010	REDACTED Email Regarding DRAFT FS (Feasibility Study) Source Control Tables and Table Instructions, Milestone Report.	88	2 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Koch, Kristine, M (EPA), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality), R10: Mcclincy, Matt (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100018161	9/6/2010	REDACTED Email Regarding DRAFT FS (Feasibility Study) Source Control Tables and Table Instructions, Milestone Report	94	2 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Humphrey, Chip (EPA), R10: Mcclincy, Matt (Oregon Dept. of Environmental Quality), R10: Mckenna, James (Verdant Solutions, LLC)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100017636	9/7/2010	REDACTED Email regarding 2:30 pm Draft FS source control tables and table instructions.	23	3 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Humphrey, Chip (EPA), R10: Mckenna, James (Verdant Solutions, LLC)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100018096	9/7/2010	REDACTED Email regarding 2:30 pm Draft FS source control tables and table instructions.	24	3 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Humphrey, Chip (EPA), R10: Mckenna, James (Verdant Solutions, LLC)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100014173	9/8/2010	Email regarding LWG FS Source Control Table.	21	1 EML / Email	R10: Mcclincy, Matt (Oregon Dept. of Environmental Quality)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100009795	9/13/2010	Email regarding Reschedule Benthic FS Meeting.	21	1 EML / Email	R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100013961	9/15/2010	Email regarding 9/16 mtg.	85	2 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Woronets, Jennifer (Anchor QEA, LLC)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100013751	9/20/2010	Email regarding FS Source Control Table - Gould.	37	1 EML / Email	R10: Lacey, David (Oregon Dept. of Environmental Quality)	R10: Mcclincy, Matt (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100013752	9/20/2010	Table 14. AOPC 14: Status of Adjacent or Immediately Upstream Current Ongoing and Potentially Ongoing Upland and Overwater Sources.	38	3 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100015592	9/21/2010	Email Regarding TriMet Light Rail Bridge.	25	1 EML / Email	R10: Young, Cyril (Oregon Dept. of State Lands)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940681352	9/21/2010	Email regarding TriMet Light Rail Bridge.	25	1 EML / Email	R10: Young, Cyril (Oregon Dept. of State Lands)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100008433	9/22/2010	Email regarding FW_DEQ_EPA Review Status of the LWG FS Table.	37	1 EML / Email	R10: Mcclincy, Matt (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100014060	9/22/2010	Email regarding DEQ/EPA Review Status of the LWG FS Table.	37	1 EML / Email	R10: Mcclincy, Matt (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA), R10: Soscia, Marylou (EPA), R10: Ades, Dennis (Oregon Dept. of Environmental Quality), R10: Drake, Doug (Oregon Dept. of Environmental Quality), R10: Coyle, James, J (U.S. Geological Survey), R10: Nilsen, Elena, B (U. S. Geological Survey), R10: Lut, Agnes (Oregon Dept. of Environmental Quality), R10: Morace, Jennifer, L (U. S. Geological Survey), R10: Rounds, Stewart, A (U. S. Geological Survey), R10: Anderson, Chauncey (U. S. Geological Survey)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100009385	9/23/2010	Email Regarding Polybrominated Diphenyl Ether (PBDE) Sources and Pathways; Reference to 'Local' and 'Background' Sources of Polychlorinated Biphenyls (PCBs) and Polybrominated Diphenyl Ethers (PBDEs) in Coastal British Columbia.	54	1 EML / Email	R10: Masterson, Kevin (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100009586	9/23/2010	Email regarding PH Smallmouth Bass Collection Location Coordinates.	23	2 EML / Email	R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100009587	9/23/2010	Email regarding PH Smallmouth Bass Collection Location Coordinates.	21	1 EML / Email	R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100009596	9/23/2010	Email regarding PH Smallmouth Bass Collection Location Coordinates.	22	2 EML / Email	R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100009794	9/23/2010	Email regarding Request for FPM Data.	24	1 EML / Email	R10: Poulsen, Michael (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100010389	9/23/2010	Email regarding UP Fill Material.	27	2 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Ader, Mark, A (EPA), R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100012168	9/23/2010	Email Regarding PH Smallmouth Bass Collection Location Coordinates.	49	1 EML / Email	R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100014408	9/23/2010	Email regarding UP Fill Material.	27	2 EML / Email	R10: Anderson, James, M (Oregon Dept. of Environmental Quality)	R10: Ader, Mark, A (EPA), R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100010761	9/24/2010	Email regarding Trimet Bridge Mitigation.	21	1 EML / Email	R10: Mcclincy, Matt (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100015544	9/24/2010	Email Regarding Trimet Bridge Mitigation.	21	1 EML / Email	R10: Mcclincy, Matt (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100009285	9/27/2010	Email regarding Benthic Risk Comments.	55	3 EML / Email	R10: Poulsen, Mike (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement



100009286	9/27/2010	Email regarding Benthic Risk Comments.	25	2 EML / Email	R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100014124	10/4/2010	Email regarding 9/10 PH Source Control Milestone Rpt. Table 1: DEQ Milestone Report Controlling Confirmed or Suspected Upland Sources of Contamination to Portland Harbor - MilestoneRptTbl11009.	42	2 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Smith, Judy, R (EPA), R10: Humphrey, Chip (EPA), R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100012009	10/8/2010	Email Regarding December 15 FS (Feasibility Study) Team Meeting.	305	26 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100014271	10/10/2010	Milestone Report for Upland Source Control at the Portland Harbor Superfund Site.	17	1 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100012006	10/11/2010	Portland Harbor Study Area Status of Stormwater Source Control Evaluations - Figure1-StatusStormwaterEvaluations.	125	25 RPT / Report	R10: (Oregon Dept. of Environmental Quality)	R10: (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100012012	10/11/2010	Update on Stormwater Source Control at the Portland Harbor Superfund Site.	4,929	1 CORR / Correspondence	R10: (Oregon Dept. of Environmental Quality)	R10: (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100012011	10/12/2010	Email regarding 10/14 Pre-mtg.	716	18 CORR / Correspondence	R10: (Oregon Dept. of Environmental Quality)	R10: (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100007615	10/13/2010	Email regarding 10/14 Pre-mtg.	41	1 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100008490	10/13/2010	Email regarding 10/14 Pre-mtg.	47	1 EML / Email	R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100009216	10/13/2010	Email regarding Benthic Cleanup Numbers.	22	1 EML / Email	R10: Poulsen, Mike (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100014197	10/13/2010	REDACTED Email regarding FS meetings.	52	1 EML / Email	R10: Gainer, Thomas, B (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100014325	10/13/2010	Email regarding Reminder - Call for Presentation Materials for SEF Public Meeting.	24	1 EML / Email	R10: Anderson, James, M (Oregon Dept. of Environmental Quality)	R10: Inouye, Laura (Washington State Dept. of Ecology), R10: Humphrey, Chip (EPA), R10: Freedman, Jonathan (EPA), R10: Mcmillan, James, M (U.S. Army Corps of Engineers), R10: Buck, Jeremy (U. S. Fish & Wildlife Service), R10: Turner, Richard, C (US Army Corps of Engineers), R10: Vanselow, Glenn (Pacific Northwest Waterways Association (PNWA))	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100007560	10/15/2010	Email regarding Draft LWG FS Source Control Status Table.	21	2 EML / Email	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100019959	10/19/2010	REDACTED Email regarding TCT Meeting Agenda.	20	1 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100008274	10/21/2010	Email regarding Portland Harbor probability plots.	17	1 EML / Email	R10: Poulsen, Mike (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100008275	10/21/2010	CFD plots benthic tox spreadsheet.	903	60 CHT / Chart/Table	R10: Unknown, Unknown (Unknown)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100015050	10/21/2010	REDACTED Email regarding draft agenda for 10/22/10 LRM meeting.	23	2 EML / Email	R10: Poulsen, Mike (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100007810	10/25/2010	Email regarding Friday's Benthic Call.	37	1 EML / Email	R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100009146	10/26/2010	Email regarding Friday's Benthic Call.	25	2 EML / Email	R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100007570	10/27/2010	Email regarding BERA Non-Directive Comments.	39	1 EML / Email	R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA), R10: Shephard, Burt (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100007571	10/27/2010	EPA summary of Non Directed RI and BRA Comments based on October 15, 2010 meeting.	141	15 CORR / Correspondence	R10: Blischke, Eric, L (EPA)	R10: (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100010830	10/27/2010	Email regarding Updates to Stormwater Guidance.	28	1 EML / Email	R10: Tarnow, Karen, E (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100015547	10/27/2010	Email Regarding Updates to Stormwater Guidance.	18	1 EML / Email	R10: Tarnow, Karen, E (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100009120	11/2/2010	Email regarding First Draft of Reliability Statistics Powerpoint Presentation for SETAC Next Week.	28	2 EML / Email	R10: Poulsen, Michael (Oregon Dept. of Environmental Quality)	R10: Shephard, Burt (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100009937	11/2/2010	Email regarding Scheduling Thursday, November 4th BERA Benthic Approach Conference Call - Reply Requested.	22	1 EML / Email	R10: Poulsen, Michael (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100009938	11/2/2010	Email regarding Scheduling Thursday, November 4th BERA Benthic Approach Conference Call - Reply Requested.	22	1 EML / Email	R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100014109	11/2/2010	Email regarding First draft of reliability statistics Powerpoint presentation for SETAC next week.	22	2 EML / Email	R10: Poulsen, Mike (Oregon Dept. of Environmental Quality)	R10: Shephard, Burt (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100011900	11/4/2010	Email Regarding PBDE's International Slip.	30	1 EML / Email	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100014188	11/4/2010	Email regarding PBDE's International Slip.	22	1 EML / Email	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100008504	11/8/2010	Email regarding Additional PH Data Sets.	21	1 EML / Email	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100013985	11/8/2010	Email regarding Additional PH Data Sets.	16	1 EML / Email	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100008492	11/9/2010	Email regarding Additional PH Data Sets.	23	2 EML / Email	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100008493	11/9/2010	Email regarding Additional PH Data Sets.	23	2 EML / Email	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100008496	11/9/2010	Email regarding Additional PH Data Sets.	23	1 EML / Email	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100008503	11/9/2010	Email regarding Additional PH Data Sets.	22	1 EML / Email	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100013548	11/9/2010	Email Regarding Additional PH Data Sets.	18	1 EML / Email	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality), R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100013553	11/9/2010	Email Regarding Additional PH Data Sets.	19	2 EML / Email	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100013562	11/9/2010	Email Regarding Additional PH Data Sets.	17	1 EML / Email	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100013962	11/9/2010	Email regarding 11/10 CAG mtg.	16	1 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement

100015752	11/9/2010 REDACTED Email regarding T4 EA Call.	28	2 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	Nancy (NOAA), R10: Neely, Robert (NOAA), R10: Wagoner, Colin (Ridolfi Engineers and Associates, Inc.), R10: Madden, Erin (Unknown), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Cunninghame, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Fellows, Kenneth, T (Parametrix, Inc.), R10: Some, Andrew (Parametrix, Inc.), R10: Ebbets, Allison (Stratus Consulting, Inc.), R10: Peers, Jennifer (Stratus Consulting, Inc.), R10: Zeilman, Tom (Confederated Tribes and Bands of the Yakima Indian Nation), R10: Downey, Tom (Confederated Tribes of the Siletz Indians), R10: Bluelake, Lisa (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Karnosh, Michael (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Sheldrake, Sean, A (EPA), R10: Fuentes, Rene, C (EPA), R10: Cora, Lori, H (EPA), R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA), R10: Smith, Judy, R (EPA), R10: Shephard, Burt (EPA), R10: Humphrey, Chip (EPA), R10: Allen, Elizabeth (EPA), R10: Liverman, Alex (Oregon Dept. of Environmental Quality), R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality), R10: Poulsen, Michael (Oregon Dept. of Environmental Quality), R10: Gainer, Tom (Oregon Dept. of Environmental Quality), R10: Longoria, Rose (Yakama Nation), R10: Allen, Nancy (NOAA), R10: Neely, Robert (NOAA), R10: Buck, Jeremy (U. S. Fish and Wildlife Service), R10: Madden, Erin (Unknown), R10: Kepler, Rick (Unknown), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Cunninghame, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Fellows, Kenneth, T (Parametrix, Inc.), R10: Some, Andrew (Parametrix, Inc.), R10: Ebbets, Allison (Stratus Consulting, Inc.), R10: Peers, Jennifer (Stratus Consulting, Inc.), R10: Zeilman, Tom (Confederated Tribes and Bands of the Yakima Indian Nation), R10: Bluelake, Lisa (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Karnosh, Michael (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Sheldrake, Sean, A (EPA), R10: Fuentes, Rene, C (EPA), R10: Cora, Lori, H (EPA), R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA), R10: Smith, Judy, R (EPA), R10: Shephard, Burt (EPA), R10: Humphrey, Chip (EPA), R10: Allen, Elizabeth (EPA), R10: Poulsen, Mike (Oregon Dept. of Environmental Quality), R10: Longoria, Rose (Yakama Nation), R10: Gainer, Tom (Unknown), R10: Peterson, Jenn, L (Unknown), R10: Liverman, Alex (Unknown), R10: D, Tom (CTS), R10: Allen, David (Stratus Consulting, Inc.), R10: Weis, Julie (Haglund Kelley, LLP), R10: Wagoner, Colin, R10: (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100018015	11/9/2010 REDACTED Email Regarding T4 EA Call. Groundwater and Bank Soil Source Control Evaluation: Appendix G - River Bank Erodability	29	2 EML / Email	R10: Anderson, Jim (Unknown)		ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100008064	11/15/2010 Assessment. Email regarding draft LWG FS source control	19,307	61 CHT / Chart/Table	R10: Cotten, Todd (CH2M Hill, Inc.)	R10: (Kinder Morgan Liquids Terminals, LLC)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100009113	11/15/2010 status table. EPA Comments on Portland Harbor Feasibility	26	2 EML / Email	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100011566	11/15/2010 Study Sources Tables.	22	3 RPT / Report	R10: (EPA)		ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100013716	EPA Comments on Portland Harbor Feasibility Study Source Tables - November 15, 2010. Email Regarding DRAFT LWG (Lower Willamette Group) FS (Feasibility Study)	61	3 CORR / Correspondence	R10: (EPA)	R10: (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100014274	11/15/2010 Source Control Status Table. Email regarding Draft LWG FS Source Control	19	2 EML / Email	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100011071	11/17/2010 Status Table. Email regarding Draft LWG FS Source Control	20	2 EML / Email	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100013725	11/17/2010 Status Table.	21	2 EML / Email	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100016708	11/17/2010 REDACTED Email regarding TCT Agenda.	20	1 EML / Email	R10: Anderson, James, M (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100019956	11/17/2010 REDACTED Email regarding TCT Agenda. Email Regarding Portland Harbor Fish Advisory	20	1 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100015581	11/18/2010 Signs. Email Regarding Portland Harbor Fish Advisory	38	1 EML / Email	R10: Bishop, Karen (State of Oregon)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100015587	11/18/2010 Signs.	26	2 EML / Email	R10: Bishop, Karen (State of Oregon)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100017218	11/19/2010 REDACTED Email regarding Willbridge Dredging Meeting Agenda. Email Regarding LWG modeling meeting Dec	97	3 EML / Email	R10: Liverman, Alex (Oregon Dept. of Environmental Quality)	R10: Hale, Erin (Ecology & Environment, Inc.), R10: Angle, Genevieve (NOAA), R10: Taylor, Thomas, J (U. S. Army Corps of Engineers), R10: Humphrey, Chip (EPA), R10: Freedman, Jonathan (EPA), R10: Holm, James, A (U.S. Army Corps of Engineers), R10: Mcmillan, James, M (U.S. Army Corps of Engineers), R10: Steckman, Larry, D (Norwest Engineering), R10: Moody, Chris (ARCADIS)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100011693	11/22/2010 1st. Email regarding LWG Modeling Meeting Dec	29	1 EML / Email	R10: Tarnow, Karen, E (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100013717	11/22/2010 1st. Email regarding LWG Response to Non-Directed Comments.	17	1 EML / Email	R10: Tarnow, Karen, E (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100014175	11/22/2010 Direct Comments. Wilbridge Cove Multi-Applicant Dredging Proposals Meeting Agenda for November 23, 2010.	42	1 EML / Email	R10: Anderson, James, M (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100014958	11/23/2010 2010. Wilbridge Cove Multi-Applicant Dredging Proposals Meeting Agenda for November 23, 2010.	77	1 MTG / Meeting Document	R10: Liverman, Alex (Oregon Dept. of Environmental Quality)	R10: (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100014982	11/23/2010 2010.	75	1 MTG / Meeting Document	R10: Liverman, Alex (Oregon Dept. of Environmental Quality)	R10: (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100017212	11/23/2010 REDACTED Email regarding Willbridge Dredging Meeting TODAY.	102	4 EML / Email	R10: Liverman, Alex (Oregon Dept. of Environmental Quality)	R10: Hale, Erin (Ecology & Environment, Inc.), R10: Angle, Genevieve (NOAA), R10: Taylor, Thomas, J (U. S. Army Corps of Engineers), R10: Sprick, Grant, V (ARCADIS), R10: Humphrey, Chip (EPA), R10: Freedman, Jonathan (EPA), R10: Holm, James, A (U.S. Army Corps of Engineers), R10: Mcmillan, James, M (U.S. Army Corps of Engineers), R10: Steckman, Larry, D (Norwest Engineering), R10: Moody, Chris (ARCADIS), R10: Liebe, Kurt, D (Chevron)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100014957	11/24/2010 Recap. Email regarding Willbridge Dredging Meeting	88	1 EML / Email	R10: Liverman, Alex (Oregon Dept. of Environmental Quality)	R10: Hale, Erin (Ecology & Environment, Inc.), R10: Angle, Genevieve (NOAA), R10: Taylor, Thomas, J (U. S. Army Corps of Engineers), R10: Freedman, Jonathan (EPA), R10: Holm, James, A (U.S. Army Corps of Engineers), R10: Steckman, Larry, D (Norwest Engineering), R10: Moody, Chris (ARCADIS)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement

100014986	11/24/2010	Wilbridge Cove Multi-Applicant Dredging Proposals Meeting Summary for November 23, 2010.	107	2	MTG / Meeting Document	R10: Liverman, Alex (Oregon Dept. of Environmental Quality)	R10: (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100009916	11/29/2010	Email regarding Scheduling Benthic Follow Up Meeting 12/2 or 12/3.	31	4	EML / Email	R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)	R10: Shephard, Burt (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100009923	11/29/2010	Email regarding Scheduling Benthic Follow Up Meeting 12/2 or 12/3.	22	1	EML / Email	R10: Poulsen, Michael (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100015634	11/30/2010	REDACTED Email regarding Project Update and TCT Agenda.	28	3	EML / Email	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100016683	11/30/2010	REDACTED Email regarding Project Update and TCT Agenda.	46	1	EML / Email	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100013974	12/1/2010	Soil/Sediment Clean Fill Screening Table.	38	3	CORR / Correspondence	R10: (Oregon Dept. of Environmental Quality)	R10: (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100015054	12/3/2010	REDACTED Email regarding December 14th FS Check In Meeting - 9am to 5pm (Pacific).	21	2	EML / Email	R10: Tarnow, Karen, E (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA) (NOAA), R10: Winter, Jessica (NOAA), R10: Baker, Mary (NOAA), R10: Munn, Nancy (NOAA), R10: Neely, Robert (NOAA), R10: Buck, Jeremy (U. S. Fish and Wildlife Service), R10: Lavelle, Jim (CDM Federal Programs Corporation), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Cunninghame, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Hermanson, Brad (Parametrix, Inc.), R10: Malek, John (Parametrix, Inc.), R10: Spence, Margaret (Parametrix, Inc.), R10: Ebbets, Allison (Stratus Consulting, Inc.), R10: Peers, Jennifer (Stratus Consulting, Inc.), R10: Allen li, P. David (Stratus Consulting, Inc.), R10: Downey, Tom (Confederated Tribes of the Siletz Indians), R10: BlueLake, Lisa (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Karnosh, Michael (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Sheldrake, Sean, A (EPA), R10: Fuentes, Rene, C (EPA), R10: Cora, Lori, H (EPA), R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA), R10: Smith, Judy, R (EPA), R10: Shephard, Burt (EPA), R10: Humphrey, Chip (EPA), R10: Allen, Elizabeth (EPA), R10: Grepo-grove, Gina (EPA), R10: Goulet, Joe (EPA), R10: Ader, Mark (EPA), R10: Fleming, Sheila (EPA), R10: Madden, Erin (Nez Perce Tribe), R10: Farrer, David, G (Oregon Dept. of Human Services), R10: (NOAA), R10: Winter, Jessica (NOAA), R10: Baker, Mary (NOAA), R10: Munn, Nancy (NOAA), R10: Neely, Robert (NOAA), R10: Buck, Jeremy (U. S. Fish and Wildlife Service), R10: Hermanson, Brad (Unknown), R10: Madden, Erin (Unknown), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Malek, John (Parametrix, Inc.), R10: Spence, Margaret (Parametrix, Inc.), R10: Ebbets, Allison (Stratus Consulting, Inc.), R10: Karnosh, Michael (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Ader, Mark, A (EPA), R10: Sheldrake, Sean, A (EPA), R10: Fuentes, Rene, C (EPA), R10: Cora, Lori, H (EPA), R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA), R10: Smith, Judy, R (EPA), R10: Shephard, Burt (EPA), R10: Humphrey, Chip (EPA), R10: Allen, Elizabeth (EPA), R10: Grepo-grove, Gina (EPA), R10: Goulet, Joe (EPA), R10: Fleming, Sheila (EPA), R10: Farrer, David, G (Oregon Dept. of Human Services), R10: Tarnow, Karen, E (Oregon Dept. of Environmental Quality), R10: McClincy, Matt (Oregon Dept. of Environmental Quality), R10: Gainer, Tom (Oregon Dept. of Environmental Quality), R10: Wagoner, Colin, H (Ridolfi, Inc.), R10: Longoria, Rose (Yakama Nation), R10: Shorr, Benjamin (NOAA), R10: French, R, D (CDM), R10: D, Tom (CTSI), R10: Lavelle, James, M (CDM), R10: Allen, David (Stratus Consulting, Inc.), R10: Peers, J (Stratus Consulting, Inc.)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100015716	12/3/2010	REDACTED Email regarding December 14th FS Check In Meeting - 9am to 5pm (Pacific).	94	3	EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100018162	12/3/2010	REDACTED Email Regarding December 14 FS (Feasibility Study) Check In Meeting - 9am to 5pm (Pacific).	94	3	EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100007682	12/6/2010	Email regarding Arkema Draft Stormwater Source Control Design.	23	1	EML / Email	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	R10: Neeley, Robert (NOAA), R10: Buck, Jeremy (U. S. Fish and Wildlife Service), R10: Madden, Erin (Unknown), R10: Lavelle, Jim (CDM Federal Programs Corporation), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Cunninghame, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Hermanson, Brad (Parametrix, Inc.), R10: Malek, John (Parametrix, Inc.), R10: Spence, Margaret (Parametrix, Inc.), R10: Ebbets, Allison (Stratus Consulting, Inc.), R10: Peers, Jennifer (Stratus Consulting, Inc.), R10: Allen li, P. David (Stratus Consulting, Inc.), R10: Downey, Tom (Confederated Tribes of the Siletz Indians), R10: BlueLake, Lisa (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Karnosh, Michael (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Gainer, Thomas, B (Oregon Dept. of Environmental Quality), R10: Longoria, Rose (Yakama Nation), R10: Weis, Julie (Haglund Kelley Jones & Wilder LLP), R10: Dexter, Bob (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100015043	12/6/2010	REDACTED Email regarding December 14th FS Check In Meeting - 9am to 5pm (Pacific).	22	2	EML / Email	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100014084	12/7/2010	Email regarding ODOT Update.	45	1	EML / Email	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	R10: Lafranchise, Nicole (Anchor QEA, LLC)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100008299	12/10/2010	Email regarding Portland Harbor SQG discussion issues.	85	3	EML / Email	R10: Poulsen, Mike (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100014076	12/20/2010	Email regarding Followup Questions on Source Control Inventory Tables.	112	4	EML / Email	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement

100014137	12/20/2010	Email regarding LWG Source Control Table. REDACTED Email regarding Upcoming Schedule for Gasco/Siltronic & Arkema Document Reviews.	25	1 EML / Email	R10: Mcclincy, Matt (Oregon Dept. of Environmental Quality)	R10: Sutter, Jennifer, L (Oregon Dept. of Environmental Quality), R10: Anderson, James, M (Oregon Dept. of Environmental Quality), R10: Pugh, Mark, T (Oregon Dept. of Environmental Quality), R10: Bayuk, Dana (Oregon Dept. of Environmental Quality), R10: Hafley, Daniel (Oregon Dept. of Environmental Quality), R10: Lacey, David (Oregon Dept. of Environmental Quality), R10: Orr, Jim (Oregon Dept. of Environmental Quality), R10: Tarnow, Karen, E (Oregon Dept. of Environmental Quality), R10: Thiessen, Kenneth (Oregon Dept. of Environmental Quality), R10: Romero, Michael (Oregon Dept. of Environmental Quality), R10: Rapp, Shawn (Oregon Dept. of Environmental Quality), R10: Gainer, Tom (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100016715	12/27/2010		46	2 EML / Email	R10: Mcclincy, Matt (Oregon Dept. of Environmental Quality)	R10: Sheldrake, Sean, A (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100013758	1/3/2011	Email regarding Portland Harbor Round 3 Fish Analysis and Compositing.	46	2 EML / Email	R10: Peterson, Jenn, L (Oregon Dept. of Environmental Quality)	R10: Shephard, Burt (EPA), R10: Humphrey, Chip (EPA), R10: Allen, Elizabeth (EPA), R10: Goulet, Joe (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100014266	1/3/2011	Email Regarding Directed Comments and Extended Deadlines.	18	2 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100013537	1/4/2011	Certified Mail, Letter Regarding 60 Day Notice to Remedy or Intent to File Suit.	274	5 LTR / Letter	R10: Rohlf, Daniel (PEAC)	R10: Van Antwerp, Robert, L (U. S. Army Corps of Engineers), R10: Locke, Gary (U.S. Department of Commerce), R10: McMahon, John (U.S. Army Corps of Engineers)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940681340	1/5/2011	Email regarding GASCO.	21	1 EML / Email	R10: Farrer, David, G (Oregon Dept. of Human Services)	R10: Humphrey, Chip (EPA), R10: Poulsen, Mike (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940681341	1/5/2011	Email regarding GIS shape files portland harbor and sampled beaches.	25	1 EML / Email	R10: Farrer, David, G (Oregon Dept. of Human Services)	R10: Anderson, Jim, M (State of Oregon), R10: Kennedy, Laura (Kennedy/Jenks Consultants), R10: Humphrey, Chip (EPA), R10: Poulsen, Mike (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100014290	1/7/2011	Email regarding Naming GASCO in Public Health Assessment.	55	2 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Humphrey, Chip (EPA), R10: Farrer, David, G (Oregon Dept. of Human Services)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940681342	1/7/2011	Email regarding Naming GASCO in Public Health Assessment.	22	1 EML / Email	R10: Farrer, David, G (Oregon Dept. of Human Services)	R10: Anderson, Jim, M (State of Oregon), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100014214	1/10/2011	Email regarding Portland Harbor Round 3 Fish Analysis and Compositing.	65	7 EML / Email	R10: Peterson, Jenn, L (Oregon Dept. of Environmental Quality)	R10: Allen, Elizabeth (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100014247	1/10/2011	Email Regarding Draft Message About Adding PBDEs as Portland Harbor COC.	17	1 EML / Email	R10: Mcclincy, Matt (Oregon Dept. of Environmental Quality)	R10: Humphrey, Chip (EPA), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100013538	1/13/2011	Email Regarding Audubon Objection to Dredging, Consultations with NMFS (UNCLASSIFIED).	18	2 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100014334	1/13/2011	Email regarding Reminder - Comments for EPA Feedback on Dec 14th LWG Presentations.	94	8 EML / Email	R10: Anderson, James, M (Oregon Dept. of Environmental Quality)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA), R10: Winter, Jessica (NOAA), R10: Field, Jay (NOAA), R10: Baker, Mary (NOAA), R10: Munn, Nancy (NOAA), R10: Neely, Robert (NOAA), R10: Hermanson, Brad (Unknown), R10: Madden, Erin (Unknown), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Malek, John (Parametrix, Inc.), R10: Spence, Margaret (Parametrix, Inc.), R10: Ebbets, Allison (Stratus Consulting, Inc.), R10: Bluelake, Lisa (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Karnosh, Michael (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Sheldrake, Sean, A (EPA), R10: Fuentes, Rene, C (EPA), R10: Cora, Lori, H (EPA), R10: Koch, Kristine, M (EPA), R10: Smith, Judy, R (EPA), R10: Shephard, Burt (EPA), R10: Humphrey, Chip (EPA), R10: Allen, Elizabeth (EPA), R10: Grepogrove, Gina (EPA), R10: Goulet, Joe (EPA), R10: Ader, Mark (EPA), R10: Fleming, Sheila (EPA), R10: Farrer, David, G (Oregon Dept. of Human Services), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality), R10: Tarnow, Karen, E (Oregon Dept. of Environmental Quality), R10: Poulsen, Mike (Oregon Dept. of Environmental Quality), R10: Gainer, Tom (Oregon Dept. of Environmental Quality), R10: Wagoner, Colin, H (Ridolfi, Inc.), R10: Longoria, Rose (Yakama Nation), R10: Peterson, Jenn, L (Unknown), R10: Shorr, Benjamin (NOAA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100013542	1/18/2011	Email Regarding Arkema - DRAFT DEQ (Dept. of Environmental Quality) Review Comments on DRAFT Stormwater Source Control Design Report.	23	1 EML / Email	R10: Mcclincy, Matt (Oregon Dept. of Environmental Quality)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA), R10: Neely, Robert (NOAA), R10: Madden, Erin (Unknown), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Cunninghame, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Malek, John (Parametrix, Inc.), R10: Allen, P. David (Stratus Consulting, Inc.), R10: Downey, Tom (Confederated Tribes of the Siletz Indians), R10: Bluelake, Lisa (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Karnosh, Michael (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Gainer, Tom (Oregon Dept. of Environmental Quality), R10: Longoria, Rose (Yakama Nation), R10: Sudbury, Ryan, R10: Lavelle, James, M (CDM), R10: Peers, J (Stratus Consulting, Inc.), R10: Weis, Julie (Haglund Kelley, LLP), R10: Buck, Jeremy (U. S. Fish & Wildlife Service)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100013989	1/18/2011	Email regarding Arkema - Groundwater Barrier Wall and Groundwater Extraction Work Plan.	23	1 EML / Email	R10: Mcclincy, Matt (Oregon Dept. of Environmental Quality)	R10: Neely, Robert (NOAA), R10: Madden, Erin (Unknown), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Cunninghame, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Malek, John (Parametrix, Inc.), R10: Allen, P. David (Stratus Consulting, Inc.), R10: Downey, Tom (Confederated Tribes of the Siletz Indians), R10: Bluelake, Lisa (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Karnosh, Michael (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Gainer, Tom (Oregon Dept. of Environmental Quality), R10: Longoria, Rose (Yakama Nation), R10: Sudbury, Ryan, R10: Lavelle, James, M (CDM), R10: Peers, J (Stratus Consulting, Inc.), R10: Weis, Julie (Haglund Kelley, LLP), R10: Buck, Jeremy (U. S. Fish & Wildlife Service)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100014406	1/25/2011	Email regarding TCT.	20	1 EML / Email	R10: Anderson, James, M (Oregon Dept. of Environmental Quality)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100014285	1/26/2011	Email regarding MNR Modeling Presentation. Email regarding EPA Comments on Dec 14 FS Tools Presentations EPA Comments on	21	2 EML / Email	R10: Tarnow, Karen, E (Oregon Dept. of Environmental Quality)	R10: Anderson, Jim, M (State of Oregon), R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA), R10: Mcclincy, Matt (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100014075	1/31/2011	December 14 FS Check-In Presentations. Email Regarding Willbridge Terminal Dredging	24	1 EML / Email	R10: Tarnow, Karen, E (Oregon Dept. of Environmental Quality)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100015553	1/31/2011	401 Conditions.	96	2 EML / Email	R10: Liverman, Alex (Unknown)	R10: Humphrey, Chip (EPA), R10: Freedman, Jonathan (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100014114	2/4/2011	Email regarding FS Team - Scheduling MNR Modeling Presentation - Dates for EPA Consideration.	20	2 EML / Email	R10: Tarnow, Karen, E (Oregon Dept. of Environmental Quality)	R10: Humphrey, Chip (EPA), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality), R10: Gainer, Tom (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100014115	2/4/2011	Email regarding FS Team - Scheduling MNR Modeling Presentation - Dates for EPA Consideration.	19	2 EML / Email	R10: Gainer, Tom (Oregon Dept. of Environmental Quality)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100014116	2/4/2011	Email regarding FS Team - Scheduling MNR Modeling Presentation - Dates for EPA Consideration.	19	2 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Humphrey, Chip (EPA), R10: Gainer, Tom (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement



100014374	Email regarding Portland Harbor CAG meets 2/4/2011 on Wednesday 2/9.	36	2 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Smith, Judy, R (EPA), R10: Humphrey, Chip (EPA), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality) (NOAA), R10: Winter, Jessica (NOAA), R10: Baker, Mary (NOAA), R10: Munn, Nancy (NOAA), R10: Neely, Robert (NOAA), R10: Madden, Erin (Unknown), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Cunninghame, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Hermanson, Brad (Parametrix, Inc.), R10: Malek, John (Parametrix, Inc.), R10: Spence, Margaret (Parametrix, Inc.), R10: Ebbets, Allison (Stratus Consulting, Inc.), R10: Peers, Jennifer (Stratus Consulting, Inc.), R10: Downey, Tom (Confederated Tribes of the Siletz Indians), R10: Bluelake, Lisa (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Karnosh, Michael (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Ader, Mark, A (EPA), R10: Sheldrake, Sean, A (EPA), R10: Fuentes, Rene, C (EPA), R10: Cora, Lori, H (EPA), R10: Koch, Kristine, M (EPA), R10: Smith, Judy, R (EPA), R10: Shephard, Burt (EPA), R10: Allen, Elizabeth (EPA), R10: Grepo-grove, Ginna (EPA), R10: Goulet, Joe (EPA), R10: Fleming, Sheila (EPA), R10: Farrer, David, G (Oregon Dept. of Human Services), R10: Anderson, James, M (Oregon Dept. of Environmental Quality), R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality), R10: Tarnow, Karen, E (Oregon Dept. of Environmental Quality), R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100014046	Email regarding Arkema Groundwater Extraction and Treatment System Pre-Final Design.	57	2 EML / Email	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	R10: Tarnow, Karen, E (Oregon Dept. of Environmental Quality), R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100013746	Developing Sediment Cleanup Levels Protective of Human Health for Interim and Final Actions at Superfund Sites.	348	13 CORR / Correspondence	R10: Gustavson, Karl (U. S. Army Corps of Engineers), R10: Ellis, Stephen, J (EPA)	R10: (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100014255	3/1/2011 Email regarding Latest draft EPA tph letter.	29	5 EML / Email	R10: Bayuk, Dana (Oregon Dept. of Environmental Quality)	R10: Sheldrake, Sean, A (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100013973	3/8/2011 Email Regarding Soil/Sediment Clean Fill Screening Table.	36	1 EML / Email	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100020118	REDACTED Email regarding Portland Harbor TCT Meeting Wednesday, March 9th at 9:00am.	20	1 EML / Email	R10: Tarnow, Karen, E (Oregon Dept. of Environmental Quality)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100014002	3/10/2011 Email regarding Clean Fill Table.	17	1 EML / Email	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100014003	3/10/2011 Email regarding Clean Fill Table.	19	2 EML / Email	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	R10: Koch, Kristine, M (EPA), R10: Roick, Tom (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100014004	3/10/2011 Email regarding Clean Fill Table.	42	3 EML / Email	R10: Roick, Tom (Oregon Dept. of Environmental Quality)	R10: Koch, Kristine, M (EPA), R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100014012	3/10/2011 Email regarding EPA feedback on MNR modeling presentation.	17	1 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100012990	3/15/2011 Abstract for Webinar Presentation on Sediment Trend Analysis (STA).	19	1 OTH / Other	R10: McClaren, Patrick (GeoSea Consulting (Canada), Ltd.)	R10: Liverman, Alex (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100014387	3/22/2011 Email regarding Siltronic - Revised Response to DEQ Comments Regarding Supplemental Injection Program.	104	2 EML / Email	R10: Bayuk, Dana (Oregon Dept. of Environmental Quality)	R10: Peale, James, G (Maul Foster & Alongi, Inc.), R10: Anderson, James, M (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100014314	3/24/2011 Email regarding Post Office Bar.	21	1 EML / Email	R10: Anderson, James, M (Oregon Dept. of Environmental Quality)	R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100014872	3/24/2011 Email regarding Siltronic, WS-33-81 DNAPL TCE Data and Data Trends.	52	2 EML / Email	R10: Bayuk, Dana (Oregon Dept. of Environmental Quality)	R10: Mccue, Tom (Siltronic Corporation)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100014923	3/24/2011 Letter regarding Monitoring Well WS-33-81, DNAPL Data Summary - Siltronic Corp. - Portland, Oregon.	79	4 LTR / Letter	R10: Bayuk, Dana (Oregon Dept. of Environmental Quality)	R10: Mccue, Tom (Siltronic Corporation)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940681339	3/24/2011 Email regarding Draft Final Portland Harbor: Recreational Use Public Health Assessment. Groundwater and Bank Soil Source Control Evaluation: Appendix H - Subsurface Soils	25	2 EML / Email	R10: Farrer, David, G (Oregon Dept. of Human Services)	R10: Anderson, Jim, M (State of Oregon), R10: Allen, Elizabeth (EPA), R10: Poulsen, Mike (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100008038	3/28/2011 Investigation Results.	5,039	104 CHT / Chart/Table	R10: (CH2M Hill, Inc.)	R10: Romero, Mike (Oregon Department of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100014246	4/4/2011 Email Regarding Congressman Blumenauer Meeting 04/22/2011.	16	1 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Humphrey, Chip (Department of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100014414	4/4/2011 Email regarding Updated Internal PH Schedule.	21	1 EML / Email	R10: Anderson, James, M (Oregon Dept. of Environmental Quality)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100014413	4/5/2011 Email regarding Updated Internal PH Schedule.	22	2 EML / Email	R10: Anderson, James, M (Oregon Dept. of Environmental Quality)	R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100014016	4/15/2011 Email regarding EPA PH Clean Fill Requirements.	27	4 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940681347	4/18/2011 Email regarding reply to DEQ Comments on LWG FS TMs.	90	5 EML / Email	R10: Young, Cyril (Oregon Dept. of State Lands)	R10: Humphrey, Chip (EPA), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100014401	4/19/2011 Email regarding Update on Blumenauer Meeting Presentations.	23	2 EML / Email	R10: Anderson, James, M (Oregon Dept. of Environmental Quality)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100014402	4/19/2011 Email regarding Update on Blumenauer Meeting Presentations.	23	2 EML / Email	R10: Anderson, James, M (Oregon Dept. of Environmental Quality)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940681348	4/19/2011 Email regarding reply to Draft Final Portland Harbor: Recreational Use Public Health Assessment.	29	3 EML / Email	R10: Farrer, David, G (Oregon Dept. of Human Services)	R10: Allen, Elizabeth (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100013745	4/20/2011 Email regarding Ells Presentation?	49	2 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Hermanson, Brad (Parametrix, Inc.), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100013747	4/21/2011 Email regarding Remedial Technology and Alternative Screen.	43	2 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100013748	4/21/2011 Feasibility Site Wide Table.	88	4 CORR / Correspondence	R10: Koch, Kristine, M (EPA)	R10: (Unknown) (NOAA), R10: Winter, Jessica (NOAA), R10: Baker, Mary (NOAA), R10: Neely, Robert (NOAA), R10: Fleming, Sheila (Ridolfi Engineers and Associates, Inc.), R10: Buck, Jeremy (U. S. Fish and Wildlife Service), R10: Hermanson, Brad (Unknown), R10: Madden, Erin (Unknown), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Spence, Margaret (Parametrix, Inc.), R10: Ebbets, Allison (Stratus Consulting, Inc.), R10: Beltman, Douglas (Stratus Consulting, Inc.), R10: Bluelake, Lisa (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Karnosh, Michael (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Sheldrake, Sean, A (EPA), R10: Fuentes, Rene, C (EPA), R10: Cora, Lori, H (EPA), R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA), R10: Smith, Judy, R (EPA), R10: Shephard, Burt (EPA), R10: Humphrey, Chip (EPA), R10: Allen, Elizabeth (EPA), R10: Grepo-grove, Gina (EPA), R10: Goulet, Joe (EPA), R10: Malek, John (EPA), R10: Ader, Mark (EPA), R10: Farrer, David, G (Oregon Dept. of Human Services), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality), R10: Tarnow, Karen, E (Oregon Dept. of Environmental Quality), R10: McClincy, Matt (Oregon Dept. of Environmental Quality), R10: Longoria, Rose (Yakama Nation), R10: Gainer, Tom (Unknown), R10: Dexter, Bob (Unknown), R10:	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100014481	4/21/2011 Email Regarding DRAFT Source Control Decision (SCD), General Electric Site.	48	1 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: (Unknown), R10: Dexter, Bob (Unknown), R10:	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement

100012987	4/22/2011	Email regarding Webinar on Sediment Trend Analysis (STA).	47	2 EML / Email	R10: Liverman, Alex (Oregon Dept. of Environmental Quality)	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality), R10: Harman, Charles (Oregon Dept. of Environmental Quality), R10: Ades, Dennis (Oregon Dept. of Environmental Quality), R10: Drake, Doug (Oregon Dept. of Environmental Quality), R10: Foster, Eugene (Oregon Dept. of Environmental Quality), R10: Urbanowicz, Karla (Oregon Dept. of Environmental Quality), R10: Borisenko, Aaron (Oregon Dept. of Environmental Quality), R10: Turner, Daniel (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100015555	4/25/2011	Email Regarding Zidell Cap Moving Forward.	21	1 EML / Email	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100014072	4/26/2011	Email regarding Willamette Cove Data.	21	1 EML / Email	R10: Anderson, James, M (Oregon Dept. of Environmental Quality)	R10: Harman, Charles (Oregon Dept. of Environmental Quality), R10: Thiessen, Kenneth (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100014146	4/26/2011	Email regarding Integration of SC in to ROD.	45	1 EML / Email	R10: Anderson, James, M (Oregon Dept. of Environmental Quality)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100014273	4/27/2011	Email Regarding DRAFT June 22 Meeting Agenda (with Rationale and Background Discussion).	21	2 EML / Email	R10: Tarnow, Karen, E (Oregon Dept. of Environmental Quality)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100014062	4/28/2011	Email regarding Draft Source Control Decision for General Electric Site.	89	3 EML / Email	R10: Anderson, James, M (Oregon Dept. of Environmental Quality)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA) (NOAA), R10: Winter, Jessica (NOAA), R10: Baker, Mary (NOAA), R10: Neely, Robert (NOAA), R10: Fleming, Sheila (Ridolfi Engineers and Associates, Inc.), R10: Buck, Jeremy (U. S. Fish and Wildlife Service), R10: Hermanson, Brad (Unknown), R10: Madden, Erin (Unknown), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Spence, Margaret (Parametrix, Inc.), R10: Ebbets, Allison (Stratus Consulting, Inc.), R10: Beltman, Douglas (Stratus Consulting, Inc.), R10: Bluelake, Lisa (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Karnosh, Michael (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Sheldrake, Sean, A (EPA), R10: Fuentes, Rene, C (EPA), R10: Cora, Lori, H (EPA), R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA), R10: Smith, Judy, R (EPA), R10: Shephard, Burt (EPA), R10: Humphrey, Chip (EPA), R10: Allen, Elizabeth (EPA), R10: Grepo-grove, Gina (EPA), R10: Goulet, Joe (EPA), R10: Malek, John (EPA), R10: Ader, Mark (EPA), R10: Farrer, David, G (Oregon Dept. of Human Services), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality), R10: Tarnow, Karen, E (Oregon Dept. of Environmental Quality), R10: McClincy, Matt (Oregon Dept. of Environmental Quality), R10: Longoria, Rose (Yakama Nation), R10: Gainer, Tom (Unknown), R10: Dexter, Bob (Unknown), R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100014479	4/28/2011	Email Regarding DRAFT Source Control Decision (SCD), General Electric Site.	51	2 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100014015	4/29/2011	Email regarding EPA PH Clean Fill Requirements.	53	6 EML / Email	R10: Anderson, James, M (Oregon Dept. of Environmental Quality)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100014138	4/29/2011	Email regarding LWG's Alt Screening & Meeting.	112	4 EML / Email	R10: Anderson, James, M (Oregon Dept. of Environmental Quality)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100014358	5/2/2011	Email regarding Siltronic - WS-33-81 DNAPL TCE Data and Data Trends.	139	5 EML / Email	R10: Bayuk, Dana (Oregon Dept. of Environmental Quality)	R10: Mccue, Tom (Siltronic Corporation)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100014232	5/11/2011	Email regarding Gasco - Groundwater Source Control Measure Design.	22	1 EML / Email	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	R10: Neely, Robert (NOAA), R10: Madden, Erin (Unknown), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Cunninghame, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Ebbets, Allison (Stratus Consulting, Inc.), R10: Peers, Jennifer (Stratus Consulting, Inc.), R10: Allen li, P. David (Stratus Consulting, Inc.), R10: Downey, Tom (Confederated Tribes of the Siletz Indians), R10: Bluelake, Lisa (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Karnosh, Michael (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Koch, Kristine, M (EPA), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality), R10: Wagoner, Colin, H (Ridolfi, Inc.), R10: Humphreys, Brandy (Grand Ronde Tribe), R10: Longoria, Rose (Yakama Nation), R10: Weis, Julie (Haglund Kelley, LLP), R10: Buck, Jeremy (U. S. Fish & Wildlife Service)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100014233	5/12/2011	Email regarding Gasco - Groundwater Source Control Measure Design.	24	2 EML / Email	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100015027	5/17/2011	Suggested Agenda for May 18 Stormwater Meeting.	43	2 MTG / Meeting Document	R10: Tarnow, Karen, E (Oregon Dept. of Environmental Quality)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100014094	5/24/2011	Email regarding Recontamination Eval.	45	1 EML / Email	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100014230	5/24/2011	Email regarding recontamination eval.	17	1 EML / Email	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100013062	5/25/2011	Email regarding 5/25 DEQ/EPA Meeting.	40	1 EML / Email	R10: Anderson, James, M (Oregon Dept. of Environmental Quality)	R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100013063	5/25/2011	Agenda 5/25/11 DEQ/EPA Source Control Integration into PH ROD.	69	3 MTG / Meeting Document	R10: Anderson, James, M (Oregon Dept. of Environmental Quality)	R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100016687	6/1/2011	REDACTED Email regarding Risk Assessment, Fish Consumption & Portland Harbor Workshop.	93	3 EML / Email	R10: Anderson, James, M (Oregon Dept. of Environmental Quality)	R10: Humphrey, Chip (EPA), R10: Allen, Elizabeth (EPA), R10: Poulsen, Michael (Oregon Dept. of Environmental Quality), R10: Duncan, Holly (Environmental Law Education Center), R10: Wigal, Jennifer (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100018177	6/1/2011	REDACTED Email regarding PH TCT meeting Wednesday, June 1 @ 9:00am.	28	1 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Neely, Robert (NOAA), R10: Madden, Erin (Unknown), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Cunninghame, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Hermanson, Brad (Parametrix, Inc.), R10: Malek, John (Parametrix, Inc.), R10: Allen li, P. David (Stratus Consulting, Inc.), R10: Downey, Tom (Confederated Tribes of the Siletz Indians), R10: Bluelake, Lisa (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Karnosh, Michael (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Gainer, Tom (Oregon Dept. of Environmental Quality), R10: Longoria, Rose (Yakama Nation), R10: Lavelle, James, M (CDM), R10: Weis, Julie (Haglund Kelley, LLP), R10: Dexter, Bob (Ridolfi, Inc.), R10: Buck, Jeremy (U. S. Fish & Wildlife Service)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100014392	6/2/2011	Email regarding Stormwater Loading.	46	1 EML / Email	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement

100015546	6/2/2011	Email Regarding Updated RI & RA Databases. Letter Regarding US ACE Comments on the Draft Groundwater Source Control Final	45	1 EML / Email	R10: Anderson, Jim (Unknown)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100013699	6/16/2011	Design Report, NW Gasco Site, May 2011.	102	2 LTR / Letter	R10: Budai, Chris (U. S. Army Corps of Engineers)	R10: Bayuk, Dana (Oregon Dept. of Environmental Quality) Colin (Ridolfi Engineers and Associates, Inc.), R10: Buerger, Ted (U. S. Fish and Wildlife Service), R10: Madden, Erin (Unknown), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Cunninghame, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Hermanson, Brad (Parametrix, Inc.), R10: Ebbets, Allison (Stratus Consulting, Inc.), R10: Beltman, Douglas (Stratus Consulting, Inc.), R10: Peers, Jennifer (Stratus Consulting, Inc.), R10: Downey, Tom (Confederated Tribes of the Siletz Indians), R10: Bluelake, Lisa (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Karnosh, Michael (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Ader, Mark, A (EPA), R10: Sheldrake, Sean, A (EPA), R10: Fuentes, Rene, C (EPA), R10: Koch, Kristine, M (EPA), R10: Smith, Judy, R (EPA), R10: Shephard, Burt (EPA), R10: Humphrey, Chip (EPA), R10: Black, Curt (EPA), R10: Phalen, Dan (EPA), R10: Yamamoto, Deb (EPA), R10: Allen, Elizabeth (EPA), R10: Goulet, Joe (EPA), R10: Anderson, James, M (Oregon Dept. of Environmental Quality), R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality), R10: McClincy, Matt (Oregon Dept. of Environmental Quality), R10: Poulsen, Michael (Oregon Dept. of Environmental Quality), R10: Humphreys, Brandy (Grand Ronde Tribe), R10:	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100016837	6/27/2011	REDACTED Email regarding June 28 FS Team Check In Reminder. EPA Comments on Draft Groundwater Source Control Final Design Report NW Natural GASCO Site, Portland, Oregon (Dated May 2011).	30	2 EML / Email	R10: Gainer, Tom (Oregon Dept. of Environmental Quality)	R10: Poulsen, Michael (Oregon Dept. of Environmental Quality), R10: Poulsen, Michael (Oregon Dept. of Environmental Quality), R10: Humphreys, Brandy (Grand Ronde Tribe), R10:	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100013687	6/29/2011	Interim Action Feasibility Study: Kinder Morgan Linnton Terminal.	169	8 CORR / Correspondence	R10: (EPA), R10: (Anchor QEA, LLC)	R10: (NW Natural)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100008035	6/30/2011	Groundwater and Bank Soil Source Control Evaluation: Appendix F - Barrier	19,947	160 RPT / Report	R10: (CH2M Hill, Inc.)	R10: (Kinder Morgan Liquids Terminals, LLC)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100008062	7/1/2011	Wall/Extraction Well Diagrams (Part 1). Groundwater and Bank Soil Source Control Evaluation: Appendix F - Barrier	3,038	13 CHT / Chart/Table	R10: (CH2M Hill, Inc.)		ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100008063	7/1/2011	Wall/Extraction Well Diagrams (Part 2). Email regarding Portland Harbor BHHRA	376	18 CHT / Chart/Table	R10: (CH2M Hill, Inc.)		ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100013204	7/8/2011	Review Comments. Oregon DEQ Comments on the Portland Harbor DRAFT Final Baseline Human Health Risk Assessment (BHHRA).	20	1 EML / Email	R10: Poulsen, Michael (Oregon Dept. of Environmental Quality)	R10: Allen, Elizabeth (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100013206	7/8/2011	Email regarding Portland Harbor FS check-in comment.	190	7 CORR / Correspondence	R10: Poulsen, Mike (Oregon Dept. of Environmental Quality)	R10: (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100013754	7/8/2011		18	1 EML / Email	R10: Poulsen, Mike (Oregon Dept. of Environmental Quality)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100014379	7/11/2011	Email regarding Portland Harbor ERA.	46	2 EML / Email	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	R10: Mckenna, James (Verdant Solutions, LLC)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100015539	7/12/2011	Email Regarding TCT.	21	1 EML / Email	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100013755	7/13/2011	Email regarding Portland Harbor HHR.	17	1 EML / Email	R10: Poulsen, Mike (Oregon Dept. of Environmental Quality)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA), R10: Allen, Elizabeth (EPA) Robert (NOAA), R10: Buerger, Ted (U. S. Fish and Wildlife Service), R10: Madden, Erin (Unknown), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Cunninghame, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Hermanson, Brad (Parametrix, Inc.), R10: Ebbets, Allison (Stratus Consulting, Inc.), R10: Beltman, Douglas (Stratus Consulting, Inc.), R10: Peers, Jennifer (Stratus Consulting, Inc.), R10: Downey, Tom (Confederated Tribes of the Siletz Indians), R10: Bluelake, Lisa (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Karnosh, Michael (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Sheldrake, Sean, A (EPA), R10: Fuentes, Rene, C (EPA), R10: Koch, Kristine, M (EPA), R10: Smith, Judy, R (EPA), R10: Shephard, Burt (EPA), R10: Humphrey, Chip (EPA), R10: Black, Curt (EPA), R10: Phalen, Dan (EPA), R10: Yamamoto, Deb (EPA), R10: Allen, Elizabeth (EPA), R10: Goulet, Joe (EPA), R10: Anderson, James, M (Oregon Dept. of Environmental Quality), R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality), R10: Poulsen, Michael (Oregon Dept. of Environmental Quality), R10: Gainer, Tom (Oregon Dept. of Environmental Quality), R10: Wagoner, Colin, H (Ridolfi, Inc.), R10: Humphreys, Brandy (Grand Ronde Tribe), R10: Longoria, Rose (Yakama Nation), R10:	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100014524	7/13/2011	Email regarding Trimet Bridge Web Cam - Zidell.	37	1 EML / Email	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	R10: Humphreys, Brandy (Grand Ronde Tribe), R10: Longoria, Rose (Yakama Nation), R10:	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100013230	7/19/2011	Email regarding Portland Harbor Passive Sampling Results.	39	1 EML / Email	R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)	R10: Neely, Robert (NOAA), R10: Peers, Jennifer (Stratus Consulting, Inc.), R10: Fuentes, Rene, C (EPA), R10: Koch, Kristine, M (EPA), R10: Shephard, Burt (EPA), R10: Humphrey, Chip (EPA), R10: Allen, Elizabeth (EPA), R10: Goulet, Joe (EPA), R10: Anderson, James, M (Oregon Dept. of Environmental Quality), R10: McClincy, Matt (Oregon Dept. of Environmental Quality), R10: Poulsen, Michael (Oregon Dept. of Environmental Quality), R10: Seidel, Paul (Oregon Dept. of Environmental Quality), R10: Buck, Jeremy (U. S. Fish & Wildlife Service), R10: Turnblom, Susan (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100014189	7/19/2011	Email regarding Pdx Harbor FS - Arkema SMA.	22	1 EML / Email	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100014129	7/27/2011	Email regarding Gunderson Letter.	21	1 EML / Email	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement

100014202	7/27/2011	Email regarding Portland - Willamette River Sediment Evaluation Downtown Reach Phase II Follow-up Summary.	54	1 EML / Email	R10: Sutter, Jennifer, L (Oregon Dept. of Environmental Quality)	Justice), R10: Behbehani-drivers, Arya (Portland General Electric Company), R10: Allen, Jayne (Portland General Electric Company), R10: Wells-albers, Rebecca (Oregon Dept. of Environmental Quality), R10: Silva, Kathryn, M (Zidell Marine Corporation), R10: Weatherby, David (URS Corporation), R10: Dunn, Loren, R (Riddell Williams, P.S.), R10: Ernst, Richard, D (Hart Crowser, Inc.), R10: Dodak, Eron, J (Integral Consulting, Inc.), R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA), R10: Sanders, Dawn (City of Portland, Bureau of Environmental Services), R10: Scheffler, Linda (City of Portland, Bureau of Environmental Services), R10: Wistar, Gilbert, M (Oregon Dept. of Environmental Quality), R10: Anderson, James, M (Oregon Dept. of Environmental Quality), R10: Harman, Charles (Oregon Dept. of Environmental Quality), R10: Hafley, Daniel (Oregon Dept. of Environmental Quality), R10: Christensen, Jeff (Oregon Dept. of Environmental Quality), R10: Tarnow, Karen, E (Oregon Dept. of Environmental Quality), R10: Johnson, Keith (Oregon Dept. of Environmental Quality), R10: Manzano, Scott (Oregon Dept. of Environmental Quality), R10: Gainer, Tom (Oregon Dept. of Environmental Quality), R10: Wiles, Wendy (Oregon Dept. of Environmental Quality), R10: Parrett, Kevin (GSI Groundwater Solutions, Inc.), R10: Wyatt, Robert, J (NW Natural), R10: Carroll, Erin (GSI	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100014238	7/27/2011	Email regarding Gunderson Letter. Draft Risk Assessments: What's the Difference	17	2 EML / Email	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100014219	8/2/2011	Notes. Email regarding PLEASE HELP - Five minute review request - Portland HarborRisk	90	1 CORR / Correspondence	R10: Phalen, Dan (EPA)	R10: (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100014218	8/3/2011	Confusion. Email regarding PLEASE HELP - Five minute review request - Portland Harbor Risk	69	4 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Hudson, Todd (State of Oregon), R10: Danab, Marcia (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100014367	8/3/2011	Confusion. Email regarding PLEASE HELP - Five minute review request - Portland Harbor Risk	47	3 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Bishop, Karen (State of Oregon), R10: Poulsen, Mike (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100014368	8/3/2011	Confusion. Email regarding PLEASE HELP - Five minute review request - Portland Harbor Risk	21	1 EML / Email	R10: Poulsen, Mike (Oregon Dept. of Environmental Quality)	R10: Bishop, Karen (State of Oregon), R10: Farrer, David, G (Oregon Dept. of Human Services)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100018103	8/3/2011	REDACTED Email regarding Staff changes in DEQ 401 Water Quality Program.	121	2 EML / Email	R10: Liverman, Alex (Oregon Dept. of Environmental Quality)	Genevieve (NOAA), R10: Kratz, Kim, W (NOAA), R10: Liverman, Marc (NOAA), R10: Burkholder, Kurt (Oregon Dept. of Justice), R10: Taylor, Thomas, J (U. S. Army Corps of Engineers), R10: Linton, Judy, L (U. S. Army Corps of Engineers), R10: Smith, Greg (U. S. Army Corps of Engineers), R10: Monical, Teena, G (U. S. Army Corps of Engineers), R10: Zylstra, Stephen, J (U. S. Fish and Wildlife Service), R10: Young, Doug (U. S. Fish and Wildlife Service), R10: Lohrman, Bridgette (EPA), R10: Hollis, Michelle (Port of Portland), R10: Inouye, Laura (Washington State Dept. of Ecology), R10: Randall, Loree (Washington State Dept. of Ecology), R10: Williams, Travis (Willamette Riverkeeper), R10: Courtney, Aaron, C (Stoel Rives, LLP), R10: Ware, Craig, W (GeoDesign, Inc.), R10: Sandowa, Johnna (Idaho Dept. of Environmental Quality), R10: Grimes, Jim (Oregon Dept. of State Lands), R10: Moynahan, Kevin (Oregon Dept. of State Lands), R10: Ochsner, Jean (Environmental Science and Assessment, LLC), R10: Szerlog, Michael, J (EPA), R10: Humphrey, Chip (EPA), R10: Freedman, Jonathan (EPA), R10: Nadeau, Tracie (EPA), R10: Vallette, Yvonne (EPA), R10: Holm, James, A (U.S. Army Corps of Engineers), R10: Mcmillan, James, M (U.S. Army Corps of Engineers), R10: Davis, Jaimee, W (U.S. Army Corps of Engineers), R10: Mundie, Ben (Oregon Dept. of Geology and Mineral Resources), R10: Bishop, Karen (State of Oregon), R10: Allen, Elizabeth (EPA), R10: Danab, Marcia (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940681349	8/3/2011	Confusion. Email regarding reply to PLEASE HELP - Five minute review request - Portland HarborRisk	56	3 EML / Email	R10: Farrer, David, G (Oregon Dept. of Human Services)	R10: Bishop, Karen (State of Oregon), R10: Allen, Elizabeth (EPA), R10: Farrer, David, G (Oregon Dept. of Human Services), R10: Danab, Marcia (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940681350	8/3/2011	Confusion. Email regarding reply to PLEASE HELP - Five minute review request - Portland HarborRisk	58	4 EML / Email	R10: Hudson, Todd (State of Oregon)	R10: Danab, Marcia (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100016705	8/8/2011	REDACTED Email regarding TCT Meeting 8/10 Is Cancelled.	20	1 EML / Email	R10: Anderson, James, M (Oregon Dept. of Environmental Quality)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100014483	8/11/2011	Email Regarding DRAFT Source Control Decision (SCD), MarCom South.	72	2 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	(NOAA), R10: Winter, Jessica (NOAA), R10: Baker, Mary (NOAA), R10: Neely, Robert (NOAA), R10: Fleming, Sheila (Ridolfi Engineers and Associates, Inc.), R10: Buck, Jeremy (U. S. Fish and Wildlife Service), R10: Hermanson, Brad (Unknown), R10: Madden, Erin (Unknown), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Ebbets, Allison (Stratus Consulting, Inc.), R10: Beltman, Douglas (Stratus Consulting, Inc.), R10: Bluelake, Lisa (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Karnosh, Michael (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Sheldrake, Sean, A (EPA), R10: Fuentes, Rene, C (EPA), R10: Cora, Lori, H (EPA), R10: Blichke, Eric, L (EPA), R10: Koch, Kristine, M (EPA), R10: Smith, Judy, R (EPA), R10: Shephard, Burt (EPA), R10: Humphrey, Chip (EPA), R10: Allen, Elizabeth (EPA), R10: Grepo-grove, Gina (EPA), R10: Goulet, Joe (EPA), R10: Ader, Mark (EPA), R10: Farrer, David, G (Oregon Dept. of Human Services), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality), R10: Tarnow, Karen, E (Oregon Dept. of Environmental Quality), R10: McClincy, Matt (Oregon Dept. of Environmental Quality), R10: Romero, Michael (Oregon Dept. of Environmental Quality), R10: Longoria, Rose (Yakama Nation), R10: Gainer, Tom (Unknown), R10: Dexter, Bob (Unknown), R10: Shorr, Benjamin (NOAA), R10: French, R, R10: Breen, David (Port of Portland), R10: Humphrey, Chip (EPA), R10: Stevens, Mike (Ash Creek Associates, Inc.)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100014372	8/16/2011	Email regarding Port of Portland TRIP Groundwater Monitoring Schedule.	89	2 EML / Email	R10: Gilles, Bruce, A (Oregon Dept. of Environmental Quality)	R10: Perry, Lynne (Oregon Dept. of Justice), R10: Madden, Erin (Unknown), R10: Young, Cyril (Oregon Dept. of State Lands), R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA), R10: Pyle, Donald, H (Oregon Department of Justice), R10: Lloyd, Diane (Oregon Department of Justice), R10: Kepler, Rick, J (State of Oregon)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100016559	8/24/2011	REDACTED Email regarding Draft Consent Judgment for Alder Creek Lumber site.	49	2 EML / Email	R10: Schwarz, Bob (Oregon Dept. of Environmental Quality)		ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement

100018175	REDACTED Email regarding PH TCT meeting 8/24/2011 Wednesday, August 24 @ 9:00am.	28	1 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality) R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	R10: Neely, Robert (NOAA), R10: Madden, Erin (Unknown), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Cunninghame, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Malek, John (Parametrix, Inc.), R10: Allen II, P. David (Stratus Consulting, Inc.), R10: Downey, Tom (Confederated Tribes of the Siletz Indians), R10: Bluelake, Lisa (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Karnosh, Michael (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Gainer, Tom (Oregon Dept. of Environmental Quality), R10: Longoria, Rose (Yakama Nation), R10: Lavelle, James, M (CDM), R10: Weis, Julie (Haglund Kelley, LLP), R10: Dexter, Bob (Ridolfi, Inc.)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100014110	8/25/2011 Email regarding Fish Sampling.	17	1 EML / Email	R10: Peterson, Jenn, L (Oregon Dept. of Environmental Quality)	R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100014256	8/25/2011 Email regarding Lower Willamette tissue (bass) collection this fall.	17	1 EML / Email	R10: Peterson, Jenn, L (Oregon Dept. of Environmental Quality)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100014291	8/25/2011 Email regarding New Portland Harbor DEQ Stormwater Source Control Coordinator.	23	1 EML / Email	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	R10: Neely, Robert (NOAA), R10: Madden, Erin (Unknown), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Cunninghame, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Ebbets, Allison (Stratus Consulting, Inc.), R10: Peers, Jennifer (Stratus Consulting, Inc.), R10: Allen II, P. David (Stratus Consulting, Inc.), R10: Downey, Tom (Confederated Tribes of the Siletz Indians), R10: Bluelake, Lisa (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Karnosh, Michael (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Shephard, Burt (EPA), R10: Humphrey, Chip (EPA), R10: Gainer, Tom (Oregon Dept. of Environmental Quality), R10: Longoria, Rose (Yakama Nation), R10: King, Todd (CDM Smith), R10: French, Ronald (Unknown), R10: Lavelle, James, M (CDM), R10: Weis, Julie (Haglund Kelley, LLP), R10: Dexter, Bob (Ridolfi, Inc.), R10: Buck, Jeremy (U. S. Fish & Wildlife Service)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100014295	8/25/2011 Email regarding Lower Willamette tissue (bass) collection this fall.	18	1 EML / Email	R10: Poulsen, Mike (Oregon Dept. of Environmental Quality)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100014288	8/28/2011 Email regarding Moorings Upland-Draft Proposed Plan (UNCLASSIFIED). RI/FS (Remedial Investigation/Feasibility Study) RI Report, Appendix H Maps, Surface Sediment Chemistry - Pages from 2011-08-29_DF RI_AppH_Maps_H4.	52	4 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Ader, Mark, A (EPA), R10: Fuentes, Rene, C (EPA), R10: Cora, Lori, H (EPA), R10: Budai, Christine, M (United States Army Corps of Engineers), R10: Bayuk, Dana (Oregon Dept. of Environmental Quality), R10: Longoria, Rose (Yakama Nation)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100011960	8/29/2011 29_DF RI_AppH_Maps_H4.	392	1 CORR / Correspondence	R10: (Lower Willamette Group), R10: (Integral Consulting, Inc.)	R10: (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100014248	8/31/2011 Email Regarding DRAFT SAP for 2011 Small Mouth Bass Collection.	21	2 EML / Email	R10: Poulsen, Mike (Oregon Dept. of Environmental Quality)	R10: Humphrey, Chip (EPA), R10: French, Ronald (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100016816	9/6/2011 REDACTED Email regarding PH Fish Sampling.	21	1 EML / Email	R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)	R10: Humphrey, Chip (EPA) Robert (NOAA), R10: Buerger, Ted (U. S. Fish and Wildlife Service), R10: Madden, Erin (Unknown), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Cunninghame, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Ebbets, Allison (Stratus Consulting, Inc.), R10: Peers, Jennifer (Stratus Consulting, Inc.), R10: Downey, Tom (Confederated Tribes of the Siletz Indians), R10: Bluelake, Lisa (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Karnosh, Michael (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Ader, Mark, A (EPA), R10: Sheldrake, Sean, A (EPA), R10: Fuentes, Rene, C (EPA), R10: Koch, Kristine, M (EPA), R10: Smith, Judy, R (EPA), R10: Shephard, Burt (EPA), R10: Humphrey, Chip (EPA), R10: Black, Curt (EPA), R10: Phalen, Dan (EPA), R10: Yamamoto, Deb (EPA), R10: Allen, Elizabeth (EPA), R10: Goulet, Joe (EPA), R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality), R10: McClincy, Matt (Oregon Dept. of Environmental Quality), R10: Poulsen, Michael (Oregon Dept. of Environmental Quality), R10: Gainer, Tom (Oregon Dept. of Environmental Quality), R10: Wagoner, Colin, H (Ridolfi, Inc.), R10: Humphreys, Brandy (Grand Ronde Tribe), R10: Longoria, Rose (Yakama Nation), R10: Williams, J., D (Law Offices of J. D. Williams),	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100014554	9/9/2011 Email regarding Reminder - BERA Comments Due Today.	60	2 EML / Email	R10: Anderson, James, M (Oregon Dept. of Environmental Quality)	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality), R10: Peterson, Jenn, L (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100016690	9/12/2011 REDACTED Email regarding Reminder - BERA Comments Due Today.	20	1 EML / Email	R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)	R10: Koch, Kristine, M (EPA), R10: Shephard, Burt (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940681343	9/14/2011 Email regarding Portland Harbor Final Draft Public Health Assessment.	23	1 EML / Email	R10: Farrer, David, G (Oregon Dept. of Human Services)	R10: Farrer, David, G (Oregon Dept. of Human Services)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100013753	9/20/2011 Email regarding Portland Harbor fish sampling.	17	1 EML / Email	R10: Poulsen, Mike (Oregon Dept. of Environmental Quality)	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality), R10: Peterson, Jenn, L (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100013672	9/21/2011 Email regarding NWP Soil Capping Maps. Figures 1, 2, & 4 - Northwest Pipe Co. Work Areas.	40	1 EML / Email	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA), R10: Anderson, James, M (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100013676	9/21/2011	683	3 FIG / Figure/Map/ Drawing	R10: (CH2M Hill, Inc.)	R10: (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100014323	9/21/2011 Email regarding Public Link to Portland Harbor Outreach Calendar.	26	1 EML / Email	R10: Anderson, James, M (Oregon Dept. of Environmental Quality)	R10: Bishop, Karen (State of Oregon), R10: Wray, Rachel (Port of Portland), R10: Conley, Alanna (EPA), R10: Humphrey, Chip (EPA), R10: Phalen, Dan (EPA), R10: Deetz Silva, Debbie (Evraz Oregon Steel Portland), R10: Beier, Ann (Portland Oregon Office of Healthy Working Rivers), R10: Harvey, David (Greenbrier Companies), R10: Applegate, Rick (City of Portland), R10: Smith, Barbara (Harris and Smith), R10: Levine, Claire (NW Natural), R10: Burr, Charles (Edelman), R10: Mayse, Diane (Harris and Smith), R10: Helting, Kim, A (NW Natural), R10: Wilson, Susan (Greenbrier Companies)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100015540	9/21/2011 Email Regarding Thea Foss.	56	1 EML / Email	R10: Gainer, Tom (Unknown)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement



100013680	9/22/2011	Email regarding NW Natural, DEQ Comments on the Draft Groundwater SCMs Design.	56	2 EML / Email	R10: Bayuk, Dana (Oregon Dept. of Environmental Quality)	R10: Wyatt, Robert, J (NW Natural)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100013693	9/22/2011	Oregon DEQ Comments on Draft Groundwater Source Control Final Design Report NW Natural GASCO Site, Portland, Oregon (Dated May 2011).	229	16 CORR / Correspondence	R10: (Oregon Dept. of Environmental Quality)	R10: (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100013695	9/22/2011	Letter Regarding Draft Groundwater Source Control Measures Final Design Report - Shoreline Segments 1 and 2, NW Natural Property and the Northern Portion of the Siltronic Corporation Property - Portland, Oregon - ECSI Nos. 84 and 183.	215	14 CORR / Correspondence	R10: Bayuk, Dana (Oregon Dept. of Environmental Quality)	R10: Wyatt, Robert, J (NW Natural)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100014286	9/23/2011	Email regarding Monthly Progress Report - August 2011.	54	2 EML / Email	R10: Bayuk, Dana (Oregon Dept. of Environmental Quality)	R10: Ede, Robert, B (Hahn and Associates, Inc.)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100016671	9/29/2011	REDACTED Email regarding Possible Antifreeze Spill at Schnitzers International Slip.	46	1 EML / Email	R10: Thoms, Bryn (Oregon Dept. of Environmental Quality)	R10: Egan, William	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100016670	9/30/2011	REDACTED Email regarding Possible Antifreeze Spill at Schnitzers International Slip.	20	1 EML / Email	R10: Anderson, James, M (Oregon Dept. of Environmental Quality)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100018108	10/5/2011	REDACTED Email regarding AHDO Briefs.	75	2 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100014921	10/11/2011	Email regarding Tool for Crafting Messages.	24	2 EML / Email	R10: Danab, Marcia (Oregon Dept. of Environmental Quality)	R10: Cox, Kim, E (City of Portland, Oregon), R10: Bishop, Karen (State of Oregon), R10: Wray, Rachel (Port of Portland), R10: Conley, Alanna (EPA), R10: Humphrey, Chip (EPA), R10: Phalen, Dan (EPA), R10: Anderson, James, M (Oregon Dept. of Environmental Quality), R10: Deetz Silva, Debbie (Evrax Oregon Steel Portland), R10: Beier, Ann (Portland Oregon Office of Healthy Working Rivers), R10: Harvey, David (Greenbrier Companies), R10: Smith, Barbara (Harris and Smith), R10: Levine, Claire (NW Natural), R10: Burr, Charles (Edelman), R10: Mayse, Diane (Harris and Smith), R10: Heiting, Kim, A (NW Natural), R10: Wilson, Susan (Greenbrier Companies)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100014934	10/11/2011	Message Map: Air Quality Advisory.	44	1 OTH / Other	R10: (Oregon Dept. of Environmental Quality)	R10: (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100014936	10/11/2011	Sample Message Map: Reo's Ribs Restaurants.	40	1 OTH / Other	R10: (Oregon Dept. of Environmental Quality)	R10: (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100014937	10/11/2011	Sample Message Map: "Draft Report of Independent Review of Northwest Portland ESCO Corporation Alternative Analysis" by Jim Karas.	41	1 OTH / Other	R10: (Oregon Dept. of Environmental Quality)	R10: (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100014938	10/11/2011	Message Map Template.	24	1 OTH / Other	R10: (Oregon Dept. of Environmental Quality)	R10: (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100013701	10/12/2011	Letter regarding Ecological Soil Screening Level Values for PCDDs and PCDFs Arkema, Portland ECSI #398.	263	2 LTR / Letter	R10: Mcclincy, Matt (Oregon Dept. of Environmental Quality)	R10: Slater, Todd (Legacy Site Services, LLC)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100016707	10/12/2011	REDACTED Email regarding Site ID 154, Reynolds Metals Co.	26	3 EML / Email	R10: Mcdonnell, Erin (Oregon Department of Environmental Quality)	R10: O'hara, Mandy (Multnomah County Drainage District)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100013689	10/13/2011	Email regarding Arkema - Eco Soil Screening Levels for PCDDs and PCDFs.	45	2 EML / Email	R10: Mcclincy, Matt (Oregon Dept. of Environmental Quality)	R10: Slater, Todd (Total)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100013704	10/13/2011	Attachment to October 12, 2011 DEQ Review of Ecological Soil Screening Levels for PCDDs and PCDFs.	252	9 CORR / Correspondence	R10: (Oregon Dept. of Environmental Quality)	R10: (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100014071	10/18/2011	Email regarding West Company Lake Investigation Report.	24	2 EML / Email	R10: Mcdonnell, Erin (Oregon Department of Environmental Quality)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100014523	10/18/2011	Email regarding West Company Lake Investigation Report.	23	2 EML / Email	R10: Mcdonnell, Erin (Oregon Department of Environmental Quality)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100017750	10/19/2011	REDACTED Email regarding My 2 cents re the ODSL RAC.	63	3 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Egan, Bill (Oregon Bass & Panfish Club)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100018170	10/24/2011	REDACTED Email regarding Nov. 2nd deadline for Arkema revised RAACR review and comment.	23	1 EML / Email	R10: Mcclincy, Matt (Oregon Dept. of Environmental Quality)	R10: Sheldrake, Sean, A (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100014001	11/10/2011	Email regarding Citizen Complaint today - Navy reporting possible violations of RCRA and CWA at Portland Harbor.	20	1 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100018133	11/10/2011	REDACTED Email regarding CalPortland.	49	2 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Secunda, Joseph, N (Linnton Neighborhood Association), R10: Weller, Darise (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100014405	11/15/2011	Email regarding TCT.	21	1 EML / Email	R10: Anderson, James, M (Oregon Dept. of Environmental Quality)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100014225	11/16/2011	Email regarding Portland Harbor letter from Congressionals to Lisa Jackson.	17	1 EML / Email	R10: Mcclincy, Matt (Oregon Dept. of Environmental Quality)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100014381	11/16/2011	Email regarding Portland Harbor letter from Congressionals to Lisa Jackson.	17	1 EML / Email	R10: Mcclincy, Matt (Oregon Dept. of Environmental Quality)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100014038	11/21/2011	Comments on Response to September 22, 2011 Letter Commenting on the May, 2011, Draft Groundwater Source Control Final Design Report, NW Natural GASCO Site, Prepared by Anchor QEA on Behalf of NW Natural and Dated November 4, 2011.	221	9 CORR / Correspondence	R10: (EPA)	R10: (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100013984	12/1/2011	Email regarding Additional Materials for Portland Harbor Outreach call 12/1 at 2pm.	18	1 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Cox, Kim, E (City of Portland, Oregon), R10: Wray, Rachel (Port of Portland), R10: Humphrey, Chip (EPA), R10: Phalen, Dan (EPA), R10: Danab, Marcia (Oregon Dept. of Environmental Quality), R10: Beier, Ann (Portland Oregon Office of Healthy Working Rivers), R10: Smith, Barbara (Harris and Smith), R10: (Harris and Smith)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100018154	12/1/2011	REDACTED Email Regarding DSL Remediation Rulemaking Advisory Committee (RRAC) Meeting.	44	1 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Humphrey, Chip (EPA), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality), R10: Kearns, Leannette (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100018156	12/1/2011	REDACTED Email Regarding DSL Remediation Rulemaking Advisory Committee (RRAC) Meeting.	48	3 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Orton, Mary (The Mary Orton Company, LLC)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100014029	12/7/2011	Email regarding NW Natural and Siltronic, Responses to DEQ's September 22nd Comments and November 2011 Meetings.	53	2 EML / Email	R10: Bayuk, Dana (Oregon Dept. of Environmental Quality)	R10: Mccue, Tom (Siltronic Corporation), R10: Wyatt, Robert, J (NW Natural)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100014030	12/7/2011	Letter regarding Responses to DEQ's September 22nd Comments on the Revised Groundwater Source Control Interim Design Report, November 2011 Meeting Summaries, and DEQ's Decisions re: NW Natural's Proposed Source Control Design Framework.	139	7 LTR / Letter	R10: Bayuk, Dana (Oregon Dept. of Environmental Quality)	R10: Mccue, Tom (Siltronic Corporation), R10: Wyatt, Robert, J (NW Natural)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100017692	12/7/2011	REDACTED Email regarding December CAG meeting.	85	4 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Robinson, Jim, R10: Smith, Barbara (Harris and Smith), R10: Plance, Robin, G	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100013550	12/13/2011	DRAFT Portland Harbor (PH) Source Control (SC) Recontamination Evaluation (RE) Strategy Considerations.	240	6 RPT / Report	R10: Liverman, Alex (Oregon Dept. of Environmental Quality)	R10: (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100014039	12/13/2011	Email regarding Recontamination Evaluation Discussion Info for TCT Meeting (Dec 14th).	61	1 EML / Email	R10: Anderson, James, M (Oregon Dept. of Environmental Quality)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100014040	12/13/2011	Portland Harbor Source Control Recontamination Evaluation Strategy Considerations.	239	6 CORR / Correspondence	R10: Liverman, Alex (Oregon Dept. of Environmental Quality)	R10: (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100015535	12/13/2011	Email Regarding TCT.	42	1 EML / Email	R10: Anderson, Jim (Unknown)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100018178	12/13/2011	REDACTED Email regarding PH TCT meeting Wednesday, December 14.	21	1 EML / Email	R10: Mcclincy, Matt (Oregon Dept. of Environmental Quality)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement

100017151	12/14/2011	REDACTED Email regarding Arco Data. Email regarding Portland Harbor partnership	20	1 EML / Email	R10: Gainer, Tom (Oregon Dept. of Environmental Quality)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA), R10: Anderson, James, M (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100013757	12/22/2011	Brown Bag Presentation. Email regarding Portland Harbor Partnership	82	1 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100014313	12/22/2011	Brown Bag Presentation.	24	1 EML / Email	R10: Anderson, James, M (Oregon Dept. of Environmental Quality)	R10: Allen, Elizabeth (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100014272	1/4/2012	Email Regarding DEQ (Dept. of Environmental Quality) Source Control January Meeting.	18	1 EML / Email	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	R10: Koch, Kristine, M (EPA), R10: Muza, Richard (EPA), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality), R10: Johnson, Keith (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100014074	1/5/2012	Email regarding Draft Source Control Decision for Terminal 1 North.	69	2 EML / Email	R10: Anderson, James, M (Oregon Dept. of Environmental Quality)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA), R10: Muza, Richard (EPA) (NOAA), R10: Winter, Jessica (NOAA), R10: Baker, Mary (NOAA), R10: Neely, Robert (NOAA), R10: Fleming, Sheila (Ridolfi Engineers and Associates, Inc.), R10: Buck, Jeremy (U. S. Fish and Wildlife Service), R10: Madden, Erin (Unknown), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Ebbets, Allison (Stratus Consulting, Inc.), R10: Beltman, Douglas (Stratus Consulting, Inc.), R10: Karnosh, Michael (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Sheldrake, Sean, A (EPA), R10: Fuentes, Rene, C (EPA), R10: Cora, Lori, H (EPA), R10: Koch, Kristine, M (EPA), R10: Smith, Judy, R (EPA), R10: Shephard, Burt (EPA), R10: Humphrey, Chip (EPA), R10: Allen, Elizabeth (EPA), R10: Grepogrove, Gina (EPA), R10: Goulet, Joe (EPA), R10: Ader, Mark (EPA), R10: Muza, Richard (EPA), R10: Farrer, David, G (Oregon Dept. of Human Services), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality), R10: Hafley, Dan (Oregon Dept. of Environmental Quality), R10: Tarnow, Karen, E (Oregon Dept. of Environmental Quality), R10: McClincy, Matt (Oregon Dept. of Environmental Quality), R10: D'aguila, Kim (Grand Ronde Tribe), R10: Longoria, Rose (Yakama Nation), R10: Gainer, Tom (Unknown), R10: Johnson, Keith (Unknown), R10: Lacey, David (Unknown), R10: Dexter, Bob (Unknown), R10: Shorr, Benjamin	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100014519	1/5/2012	Email Regarding DRAFT Source Control Decision (SCD), Terminal 1 North.	69	2 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100014312	1/9/2012	Email regarding Project Managers Meeting. Email Regarding Portland Harbor Baseline Ecological Risk Assessment (BERA) DRAFT	21	1 EML / Email	R10: Anderson, James, M (Oregon Dept. of Environmental Quality)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100013535	1/10/2012	Comments.	37	1 EML / Email	R10: Peterson, Jenn, L (Unknown)	R10: Koch, Kristine, M (EPA), R10: Shephard, Burt (EPA), R10: Humphrey, Chip (EPA), R10: Goulet, Joe (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100013536	1/10/2012	DEQ (Dept. of Environmental Quality), DRAFT Comments on Appendix G, Baseline Ecological Risk Assessment (BERA), 07/01/2011.	236	11 CORR / Correspondence	R10: (Windward Environmental, LLC.)	R10: (Lower Willamette Group)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100013983	1/11/2012	Email regarding A major ecorisk misstatement in the Portland Harbor Partnership's presentation on the Portland Harbor Superfund site.	18	1 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Shephard, Burt (EPA), R10: McClincy, Matt (Oregon Dept. of Environmental Quality), R10: Poulsen, Mike (Oregon Dept. of Environmental Quality), R10: Peterson, Jenn, L (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100016704	1/11/2012	REDACTED Email regarding PHP_template_Final1-10-12.pdf - Adobe Acrobat Professional.	41	1 EML / Email	R10: Anderson, James, M (Oregon Dept. of Environmental Quality)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA), R10: Allen, Elizabeth (EPA), R10: Muza, Richard (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100013555	1/13/2012	Initial EPA Comments on Storm Water Source Control Recontamination Evaluation Strategy Considerations Terminal 4 Slip 1 and Slip 3 Upland Facilities.	193	5 RPT / Report	R10: (EPA)	R10: (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100016776	1/17/2012	REDACTED Email regarding Toxic Sites Along the Willamette River: UW Landscape Architecture Grad Student Request.	75	5 EML / Email	R10: Johnson, Keith (Oregon Dept. of Environmental Quality)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100018092	1/17/2012	REDACTED Email Regarding DSL RRAC (Remediation Rulemaking Advisory Committee): Draft Agenda for Next Meeting.	61	2 EML / Email			ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100014236	1/24/2012	Email regarding Gasco Monthly Progress Report - December 2011.	50	2 EML / Email	R10: Bayuk, Dana (Oregon Dept. of Environmental Quality)	R10: Ede, Robert, B (Hahn and Associates, Inc.)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100014403	1/24/2012	Email regarding TCT Meeting Location.	21	1 EML / Email	R10: Anderson, James, M (Oregon Dept. of Environmental Quality)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100014268	2/1/2012	Email Regarding DRAFT FS (Feasibility Study) Outreach Planning.	23	2 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Smith, Barbara (Unknown), R10: Conley, Alanna (EPA), R10: Levine, Claire (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100014269	2/1/2012	Email Regarding DRAFT FS (Feasibility Study) Outreach Planning.	22	2 EML / Email	R10: Danab, Marcia (Oregon Dept. of Environmental Quality)	R10: Smith, Barbara (Unknown), R10: Conley, Alanna (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100014103	2/2/2012	Email regarding EPA/Partners FS Team Meeting - Feb dates.	17	1 EML / Email	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100014104	2/2/2012	Email regarding EPA/Partners FS Team Meeting - Feb dates.	17	1 EML / Email	R10: Gainer, Tom (Oregon Dept. of Environmental Quality)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100014105	2/2/2012	Email regarding EPA/Partners FS Team Meeting - Feb dates.	55	1 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Winter, Jessica (NOAA), R10: Gustavson, Karl (U. S. Army Corps of Engineers), R10: Cunnigham, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Ebbets, Allison (Stratus Consulting, Inc.), R10: Beltman, Douglas (Stratus Consulting, Inc.), R10: Peers, Jennifer (Stratus Consulting, Inc.), R10: Allen ii, P. David (Stratus Consulting, Inc.), R10: Downey, Tom (Confederated Tribes of the Siletz Indians), R10: Sheldrake, Sean, A (EPA), R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA), R10: McClincy, Matt (Oregon Dept. of Environmental Quality), R10: Gainer, Tom (Oregon Dept. of Environmental Quality), R10: Penoyar, Susan, J (CDM), R10: Longoria, Rose (Yakama Nation), R10: King, Todd (CDM Smith), R10: French, R, D (CDM), R10: Dexter, Bob (Ridolfi, Inc.)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100014162	2/2/2012	Portland Harbor RI (Remedial Investigation)/BRA/FS (Feasibility Study) Documents.	86	5 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100018173	2/6/2012	REDACTED Email regarding PCB's in the Willamette and related health risks.	58	3 EML / Email	R10: Drake, Doug (Oregon Dept. of Environmental Quality)	R10: Levenson, Will (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100014102	2/7/2012	Email regarding EPA/Partners FS Team Meeting - Feb 22nd.	17	1 EML / Email			ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100013552	2/10/2012	Email Regarding PH Recontamination Evaluation Strategy Discussion.	60	1 EML / Email	R10: Liverman, Alex (Oregon Dept. of Environmental Quality)	R10: Sheldrake, Sean, A (EPA), R10: Koch, Kristine, M (EPA), R10: Muza, Richard (EPA), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality), R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100013966	2/14/2012	Email Regarding DEQ/EPA Riverbank Meeting Summary.	17	1 EML / Email	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	R10: Muza, Richard (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100013967	2/14/2012	Summary of DEQ/EPA 01/25/2012 Riverbank Meeting.	68	2 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement

100014013	Email regarding EPA FS Planning meeting: Date change, Feb 27, 2pm.	21	1 EML / Email	R10: Danab, Marcia (Oregon Dept. of Environmental Quality)	R10: Conley, Alanna (EPA), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100014014	Email regarding EPA FS Planning meeting: Date change, Feb 27, 2pm.	21	1 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Conley, Alanna (EPA) (NOAA), R10: Winter, Jessica (NOAA), R10: Neely, Robert (NOAA), R10: Buck, Jeremy (U. S. Fish and Wildlife Service), R10: Madden, Erin (Unknown), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Ebbets, Allison (Stratus Consulting, Inc.), R10: Beltman, Douglas (Stratus Consulting, Inc.), R10: Karnosh, Michael (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Sheldrake, Sean, A (EPA), R10: Fuentes, Rene, C (EPA), R10: Cora, Lori, H (EPA), R10: Koch, Kristine, M (EPA), R10: Conley, Alanna (EPA), R10: Shephard, Burt (EPA), R10: Humphrey, Chip (EPA), R10: Phalen, Dan (EPA), R10: Allen, Elizabeth (EPA), R10: Goulet, Joe (EPA), R10: Ader, Mark (EPA), R10: Muza, Richard (EPA), R10: Fleming, Sheila (EPA), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality), R10: Poulsen, Mike (Oregon Dept. of Environmental Quality), R10: Gainer, Tom (Oregon Dept. of Environmental Quality), R10: Wagener, Colin, H (Ridolfi, Inc.), R10: Humphreys, Brandy (Grand Ronde Tribe), R10: Penoyar, Susan, J (CDM), R10: Longoria, Rose (Yakama Nation), R10: Dexter, Bob (Unknown), R10: French, R, D (CDM), R10: D, Tom (CTSI), R10: Lavelle, James, M (CDM), R10: Allen, David (Stratus Consulting, Inc.), R10: Peers, J (Stratus Consulting, Inc.), R10: Weis, Julie (Haglund Kelley, LLP), R10: Ryan (Davis Sudbury), R10: Peterson, Jenn, L (Oregon Dept.	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100014251	Email Regarding Internet Link to 01/01/2012 DEQ (Dept. of Environmental Quality) Milestone Report.	22	1 EML / Email	R10: Mcclincy, Matt (Oregon Dept. of Environmental Quality)	R10: Koch, Kristine, M (EPA), R10: Muza, Richard (EPA), R10: Anderson, James, M (Oregon Dept. of Environmental Quality), R10: Liverman, Alex (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100014357	Email regarding Siltronic - Monthly Progress Report (for January 2012).	29	1 EML / Email	R10: Bayuk, Dana (Oregon Dept. of Environmental Quality)	R10: Peale, James, G (Maul Foster & Alongi, Inc.)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100014332	Email regarding PH Recontamination Evaluation strategy discussion.	18	1 EML / Email	R10: Liverman, Alex (Oregon Dept. of Environmental Quality)	R10: Muza, Richard (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100014363	Email regarding PH Recontamination Evaluation strategy discussion.	63	2 EML / Email	R10: Liverman, Alex (Oregon Dept. of Environmental Quality)	R10: Koch, Kristine, M (EPA), R10: Muza, Richard (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100014195	Email regarding OOPS! New Date Set for PH Recontamination Evaluation Strategy Discussion.	71	2 EML / Email	R10: Liverman, Alex (Oregon Dept. of Environmental Quality)	R10: Sheldrake, Sean, A (EPA), R10: Koch, Kristine, M (EPA), R10: Muza, Richard (EPA), R10: Anderson, James, M (Oregon Dept. of Environmental Quality), R10: Liverman, Alex (Oregon Dept. of Environmental Quality), R10: Mcclincy, Matt (Oregon Dept. of Environmental Quality), R10: Peterson, Lance, E (CDM Smith)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100014329	Email regarding Scheduling Hot Spots Call.	131	3 EML / Email	R10: Anderson, James, M (Oregon Dept. of Environmental Quality)	R10: Burkholder, Kurt (Oregon Dept. of Justice), R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA), R10: Muza, Richard (EPA), R10: Woronets, Jennifer (Anchor QEA, LLC)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100014141	Email regarding New Poll for PH Recontamination Evaluation Strategy Discussion Dates.	72	2 EML / Email	R10: Liverman, Alex (Oregon Dept. of Environmental Quality)	R10: Sheldrake, Sean, A (EPA), R10: Koch, Kristine, M (EPA), R10: Muza, Richard (EPA), R10: Anderson, James, M (Oregon Dept. of Environmental Quality), R10: Mcclincy, Matt (Oregon Dept. of Environmental Quality), R10: Peterson, Lance, E (CDM Smith)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100014178	Email regarding NEW DATE SET for PH Recontamination Evaluation Strategy Discussion Dates.	73	3 EML / Email	R10: Liverman, Alex (Oregon Dept. of Environmental Quality)	R10: Sheldrake, Sean, A (EPA), R10: Koch, Kristine, M (EPA), R10: Muza, Richard (EPA), R10: Anderson, James, M (Oregon Dept. of Environmental Quality), R10: Mcclincy, Matt (Oregon Dept. of Environmental Quality), R10: Peterson, Lance, E (CDM Smith)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100014008	Email regarding Community Outreach for Portland Harbor- New event added on March 22. (Jim/Marci please let me know if you plan to attend any pre-FS meetings).	18	1 EML / Email	R10: Danab, Marcia (Oregon Dept. of Environmental Quality)	R10: Koch, Kristine, M (EPA), R10: Conley, Alanna (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100014149	Email regarding Kinder Morgan Linnton.	22	1 EML / Email	R10: Mcclincy, Matt (Oregon Dept. of Environmental Quality)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA), R10: Muza, Richard (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100016827	REDACTED Email regarding Portland Black History-Project Invited You to the Event 'River City Confidential: The Willamette River's Pollution Story Revealed.'	44	1 EML / Email	R10: Danab, Marcia (Oregon Dept. of Environmental Quality)	R10: Cox, Kim, E (City of Portland, Oregon), R10: Neely, Robert (NOAA), R10: Madden, Erin (Unknown), R10: Senkyr, Lauren (NOAA), R10: Madalinski, Kelly (Port of Portland), R10: Koehl, Krista (Port of Portland), R10: Ebbets, Allison (Stratus Consulting, Inc.), R10: Peers, Jennifer (Stratus Consulting, Inc.), R10: Koch, Kristine, M (EPA), R10: Smith, Judy, R (EPA), R10: Conley, Alanna (EPA), R10: Humphrey, Chip (EPA), R10: Phalen, Dan (EPA), R10: Anderson, James, M (Oregon Dept. of Environmental Quality), R10: Woronets, Jennifer (Anchor QEA, LLC), R10: Longoria, Rose (Yakama Nation), R10: Beier, Ann (Portland Oregon Office of Healthy Working Rivers), R10: Harvey, David (Greenbrier Companies), R10: Mckenna, James (Verdant Solutions, LLC), R10: Smith, Barbara (Harris and Smith), R10: Levine, Claire (NW Natural), R10: Burr, Charles (Edelman), R10: Mayse, Diane (Harris and Smith), R10: Helting, Kim, A (NW Natural), R10: Wilson, Susan (Greenbrier Companies)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100014135	Email regarding Gunderson Riverbank.	46	1 EML / Email	R10: Johnson, Keith (Oregon Dept. of Environmental Quality)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA), R10: Muza, Richard (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100014240	Email regarding Gunderson Riverbank.	44	2 EML / Email	R10: Johnson, Keith (Oregon Dept. of Environmental Quality)	R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100014241	Email regarding Gunderson Riverbank.	45	2 EML / Email	R10: Rapp, Shawn (Oregon Dept. of Environmental Quality)	R10: Koch, Kristine, M (EPA), R10: Johnson, Keith (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100014243	Email regarding Gunderson Riverbank.	44	2 EML / Email	R10: Johnson, Keith (Oregon Dept. of Environmental Quality)	R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100014294	Email regarding Gunderson Riverbank.	44	2 EML / Email	R10: Johnson, Keith (Oregon Dept. of Environmental Quality)	R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100014155	Portland Harbor Source Control Recontamination Evaluation Strategy.	197	3 CORR / Correspondence	R10: Liverman, Alex (Oregon Dept. of Environmental Quality)	R10: (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100014156	Modeling Issues for Consideration.	179	4 CORR / Correspondence	R10: Liverman, Alex (Oregon Dept. of Environmental Quality)	R10: (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100014242	Email regarding Gunderson Riverbank.	47	3 EML / Email	R10: Rapp, Shawn (Oregon Dept. of Environmental Quality)	R10: Koch, Kristine, M (EPA), R10: Johnson, Keith (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100016729	REDACTED Email Regarding Agenda and Materials for 03/16/2012 PH Recontamination Evaluation Strategy Discussion.	63	1 EML / Email	R10: Liverman, Alex (Oregon Dept. of Environmental Quality)	R10: Peterson, Lance (Unknown), R10: Sheldrake, Sean, A (EPA), R10: Koch, Kristine, M (EPA), R10: Muza, Richard (EPA), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality), R10: Liverman, Alex (Oregon Dept. of Environmental Quality), R10: Mcclincy, Matt (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement



100014377	3/16/2012	Email regarding Portland Harbor Draft FS Presentation - Tuesday, April 24th and Wednesday, April 25th.	17	1	EML / Email	R10: Poulsen, Mike (Oregon Dept. of Environmental Quality)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100016814	3/16/2012	REDACTED Agenda, DEQ and EPA Portland Harbor Recontamination Evaluation Strategy Discussion.	105	2	CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100014134	3/19/2012	Meeting Invitation: Gunderson Riverbank Discussion.	34	2	EML / Email	R10: Johnson, Keith (Oregon Dept. of Environmental Quality)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA), R10: Muza, Richard (EPA), R10: Hafley, Daniel (Oregon Dept. of Environmental Quality), R10: McClincy, Matt (Oregon Dept. of Environmental Quality), R10: Rapp, Shawn (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100014239	3/19/2012	Email regarding Gunderson Riverbank --- MEETING CALL-IN NUMBER???	37	1	EML / Email	R10: Johnson, Keith (Oregon Dept. of Environmental Quality)	R10: Muza, Richard (EPA), R10: Rapp, Shawn (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100018182	3/19/2012	REDACTED Email regarding Portland Harbor Draft FS Presentation - Tuesday, April 24th and Wednesday, April 25th.	95	2	EML / Email	R10: Gainer, Tom (Oregon Dept. of Environmental Quality)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100014009	3/20/2012	Email regarding Confirming Delivery of Portland Harbor Draft FS CDs.	89	2	EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA), R10: Stivers, Carl (Anchor QEA, LLC)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100015536	3/20/2012	Email Regarding TCT. Groundwater and Bank Soil Source Control Evaluation: Appendix H - Phase 2 Bank Soils	39	1	EML / Email	R10: Anderson, Jim (Unknown)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100008065	3/28/2012	Investigation Results.	6,913	42	CHT / Chart/Table	R10: (CH2M Hill, Inc.)	R10: Romero, Mike (Oregon Department of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100018183	3/29/2012	REDACTED Email regarding Portland Harbor ecorisk call this morning.	46	2	EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Angle, Genevieve (NOAA), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Cunningham, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Ebbets, Allison (Stratus Consulting, Inc.), R10: Allen, P. David (Stratus Consulting, Inc.), R10: Karnosh, Michael (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Gainer, Tom (Oregon Dept. of Environmental Quality), R10: Humphreys, Brandy (Grand Ronde Tribe), R10: Penoyar, Susan, J (CDM), R10: Longoria, Rose (Yakama Nation), R10: Weis, Julie (Haglund Kelley, LLP), R10: Dexter, Bob (Ridolfi, Inc.), R10: Buck, Jeremy (U. S. Fish & Wildlife Service)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100014161	3/30/2012	Email Regarding Directed Comments Bibliography.	44	2	EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: King, Todd (CDM Smith)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100014164	3/30/2012	Letter Regarding Support of the Renewal and Proposed Activities of Oregon State University's (OSU) Superfund Research Program (SRP).	133	1	CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100014163	4/2/2012	Email Regarding OSU (Oregon State University) Superfund Research Program Letter of Support.	39	1	EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100014395	4/3/2012	Email regarding TCT.	47	1	EML / Email	R10: Anderson, James, M (Oregon Dept. of Environmental Quality)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100014396	4/3/2012	Email regarding TCT.	50	2	EML / Email	R10: Anderson, James, M (Oregon Dept. of Environmental Quality)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100015537	4/3/2012	Email Regarding TCT.	41	1	EML / Email	R10: Anderson, Jim (Unknown)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100018100	4/4/2012	REDACTED Email regarding April 5 call (I need to shift call to 10am rather than 9am. Call should take no more than 30 minutes) Agenda and number included.	44	1	EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Conley, Alanna (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100018122	4/5/2012	REDACTED Email regarding April 5 call (I need to shift call to 10am rather than 9am. Call should take no more than 30 minutes) Agenda and number included.	47	2	EML / Email	R10: Danab, Marcia (Oregon Dept. of Environmental Quality)	R10: Conley, Alanna (EPA), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100013756	4/6/2012	Email regarding Portland Harbor Hydrodynamic Model.	50	1	EML / Email	R10: Hafley, Dan (Oregon Dept. of Environmental Quality)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100013741	4/10/2012	Email regarding EPA and DEQ slides. Portland Harbor Source Control Update Presentation.	42	2	EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Humphrey, Chip (EPA), R10: Koch, Kristine, M (EPA), R10: Conley, Alanna (EPA), R10: Humphrey, Chip (EPA), R10: Danab, Marcia (Oregon Dept. of Environmental Quality), R10: Smith, Barbara (Harris and Smith)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100013742	4/10/2012	Portland Harbor Source Control Update Presentation.	1,316	18	CORR / Correspondence	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100014091	4/10/2012	Email regarding Portland Harbor - Scheduling Next Hot Spots Meeting.	103	1	EML / Email	R10: Anderson, James, M (Oregon Dept. of Environmental Quality)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100014359	4/17/2012	Email regarding TCT Meeting 4/18/2012. REDACTED Email regarding Oregon Hot Spots Meeting - Thursday, May 10th 2 to 3 pm (Pacific).	53	2	EML / Email	R10: Anderson, James, M (Oregon Dept. of Environmental Quality)	R10: Humphrey, Chip (EPA), R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100016703	4/18/2012	REDACTED Email regarding Oregon Hot Spots Meeting - Thursday, May 10th 2 to 3 pm (Pacific).	105	1	EML / Email	R10: Anderson, James, M (Oregon Dept. of Environmental Quality)	R10: Burkholder, Kurt (Oregon Dept. of Justice), R10: Vrooman, Gary, L (State of Oregon), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100018184	4/18/2012	REDACTED Email regarding Portland Harbor Information Sessions.	100	1	EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Conley, Alanna (EPA), R10: Humphrey, Chip (EPA), R10: Muza, Richard (EPA), R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100018172	4/19/2012	REDACTED Email regarding Oregon Hot Spots Meeting - Thursday, May 10th 2 to 3 pm (Pacific).	113	2	EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Humphrey, Chip (EPA), R10: Woronets, Jennifer (Anchor QEA, LLC)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100014005	4/23/2012	Email regarding Cleanup and Restoration Conference agenda -- speakers update.	76	2	EML / Email	R10: Gainer, Tom (Oregon Dept. of Environmental Quality)	R10: Duncan, Holly (Environmental Law Education Center)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100014059	4/30/2012	Email regarding Courtesy Copy: DEQ News Release: Cleanup Efforts Resume at the Arkema Inc. Site.	45	1	EML / Email	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	R10: Sheldrake, Sean, A (EPA), R10: Koch, Kristine, M (EPA), R10: Conley, Alanna (EPA), R10: Humphrey, Chip (EPA), R10: Muza, Richard (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100016822	5/1/2012	REDACTED Email regarding PH TCT.	19	1	EML / Email	R10: Poulsen, Michael (Oregon Dept. of Environmental Quality)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100015542	5/2/2012	Email Regarding Today's TCT.	42	1	EML / Email	R10: Anderson, Jim (Unknown)	R10: Anderson, Jim (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100013235	5/4/2012	EPA Comments on the Revised Groundwater Source Control Construction Design Report - NW Natural GASCO Site, Portland, Oregon (Dated January 2012).	238	11	CORR / Correspondence	R10: (EPA)	R10: (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100014260	5/8/2012	Email regarding LWG proposing to cancel Project Managers meeting this month.	32	1	EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100014126	5/16/2012	Email regarding Gasco EE/CA Review.	23	1	EML / Email	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	R10: Sheldrake, Sean, A (EPA), R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA), R10: Muza, Richard (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100018102	5/17/2012	REDACTED Email regarding Bioremediation at Willamette River Superfund sites.	59	6	EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Wheeler, Daniel (ipns.com)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100016771	5/29/2012	REDACTED Email regarding TCT Meeting Weds 5/30/2012.	37	1	EML / Email	R10: Gainer, Tom (Oregon Dept. of Environmental Quality)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100014073	6/1/2012	Email regarding Draft Source Control Decision for Portland Shipyard Operable Unit 3.	49	3	EML / Email	R10: Anderson, James, M (Oregon Dept. of Environmental Quality)	R10: Muza, Richard (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100013202	6/11/2012	Identifying Hot Spots for Chemical Classes.	100	1	OTH / Other	R10: Anderson, James, M (Oregon Dept. of Environmental Quality)	R10: (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100014216	6/11/2012	Email regarding Portland Harbor: Hot Spots.	102	6	EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Woronets, Jennifer (Anchor QEA, LLC)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100014217	6/11/2012	Identifying Hot Spots for Chemical Classes. REDACTED Email regarding Portland Harbor Managers Meeting Agenda - Thursday, June	99	1	CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100016140	6/11/2012	14th 1 to 2 pm Conference Call.	102	2	EML / Email	R10: Anderson, James, M (Oregon Dept. of Environmental Quality)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement

100016297	6/11/2012	REDACTED Portland Harbor Managers Meeting Agenda for Thursday, June 14th.	12	1	MTG / Meeting Document	R10: (Lower Willamette Group)	R10: (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100018139	6/11/2012	REDACTED Email regarding Portland Harbor Managers Meeting Agenda - Thursday, June 14th 1 to 2 pm Conference Call.	110	2	EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100013098	6/14/2012	Email regarding PTM Definition Memo and Figures.	19	1	EML / Email	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100013167	6/14/2012	Memo Regarding Potential Hot Spot Buried Contamination Transition Zone Water (TZW) Screening Analysis, Portland Harbor Superfund Site (Site).	450	3	MEMO / Memorandum	R10: Anderson, James, M (Oregon Dept. of Environmental Quality)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100014267	6/15/2012	Email Regarding DRAFT Agenda for June 12 & 13 Feasibility Study (FS) Work Session.	49	2	EML / Email	R10: Gainer, Tom (Oregon Dept. of Environmental Quality)	R10: Neely, Robert (NOAA), R10: Madden, Erin (Unknown), R10: Ebbets, Allison (Stratus Consulting, Inc.), R10: Sheldrake, Sean, A (EPA), R10: Fuentes, Rene, C (EPA), R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA), R10: Muza, Richard (EPA), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality), R10: Wagener, Colin, H (Ridolfi, Inc.), R10: Olsen, Roger (Unknown), R10: Penoyar, Susan, J (CDM), R10: King, Todd (CDM Smith), R10: French, Ronald (Unknown), R10: Gustavson, Karl (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100014231	6/19/2012	Email regarding Work Plan.	57	2	EML / Email	R10: Mcdonnell, Erin (Oregon Department of Environmental Quality)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100016726	6/19/2012	REDACTED Email regarding Fact checking for Portland Monthly.	93	2	EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Humphrey, Chip (EPA), R10: Strom, Dean (Specialty Analytical)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100016727	6/19/2012	REDACTED Email regarding Fact checking for Portland Monthly.	87	1	EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Humphrey, Chip (EPA), R10: Strom, Dean (Specialty Analytical)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100014011	6/22/2012	Email regarding EPA Comments on May 2, 2011 Draft Baseline Human Health Risk Assessment.	36	2	EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100014203	6/27/2012	Email regarding Portland Harbor - PEO CSM.	43	1	EML / Email	R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100014006	6/28/2012	Email regarding Cleanup Efforts Resume at the Arkema Inc. Site.	38	1	EML / Email	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100014007	6/28/2012	Email regarding Cleanup Efforts Resume at the Arkema Inc. Site.	39	1	EML / Email	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100014373	6/28/2012	Email regarding Portland Harbor - PEO CSM.	41	1	EML / Email	R10: Peterson, Jenn, L (Oregon Dept. of Environmental Quality)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100016127	7/2/2012	REDACTED Email regarding Potential Hot Spot Buried Contamination Transition Zone Water (TZW) Screening Analysis.	139	7	EML / Email	R10: Anderson, James, M (Oregon Dept. of Environmental Quality)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA), R10: Muza, Richard (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100014941	7/9/2012	Presentation Regarding Alternative Means of Confining Contaminated Dredged Material.	3,567	10	MTG / Meeting Document	R10: McNabb, Carl (PND Engineers, Inc.)	Meyer, Andrew (Unknown), R10: Hathaway, Chris (Unknown), R10: Koehl, Krista (Port of Portland), R10: Degens, Sebastian (Port of Portland), R10: Jansky, Andrew (Gundersen, Inc.), R10: Williams, Travis (Willamette Riverkeeper), R10: Merrill, Brent (The Smoke Signals), R10: Wyatt, Bob (Northwest Natural Gas Company), R10: Wexler, Randi (Integral Consulting, Inc.), R10: Wilson, Mike (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Sallinger, Robert (Audobon Society of Portland), R10: Rowe, Patrick, G (Sussman Shank LLP), R10: Deetz Silva, Debbie (Evraz Oregon Steel Portland), R10: Gilpin, Andrew (Evraz Inc.), R10: Harvey, David (Greenbrier Companies), R10: Weller, Darise (Unknown), R10: Egan, William, R10: Hayward, Mike (NW Natural), R10: Krumbein, David (Blue Mountain Community College), R10: Wall, Kathy (Port of Coos Bay), R10: Berg, Heidi (City of Portland, Oregon), R10: Lovell, Kaitlin (City of Portland, Oregon), R10: Pfeiffer, Steve (Perkins Coie), R10: Allen, Susan (The Pew Charitable Trust), R10: Voetberg, Jim (City of Newport, Oregon), R10: Craddock, Rodger (City of Coos Bay, Oregon), R10: Thorpe, Kathleen (Ktec Environmental Consulting), R10: Ackland, Emily (Association of Oregon Counties), R10: Wolf, Tom (Unknown), R10: Howatt, Kris (Unknown), R10: Collin, Will (Unknown), R10: Walker, Doug (Unknown),	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100017210	7/9/2012	REDACTED Email Regarding CDF Presentation.	61	1	EML / Email	R10: Castelli, Christopher (Oregon Dept. of State Lands)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100014010	7/10/2012	Email regarding EPA comments on Draft Final BERA.	34	1	EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	(NOAA), R10: Winter, Jessica (NOAA), R10: Neely, Robert (NOAA), R10: Madden, Erin (Unknown), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Cunningham, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Ebbets, Allison (Stratus Consulting, Inc.), R10: Beltman, Douglas (Stratus Consulting, Inc.), R10: Peers, Jennifer (Stratus Consulting, Inc.), R10: Downey, Tom (Confederated Tribes of the Siletz Indians), R10: Karnosh, Michael (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Ader, Mark, A (EPA), R10: Sheldrake, Sean, A (EPA), R10: Fuentes, Rene, C (EPA), R10: Cora, Lori, H (EPA), R10: Koch, Kristine, M (EPA), R10: Conley, Alanna (EPA), R10: Shephard, Burt (EPA), R10: Humphrey, Chip (EPA), R10: Phalen, Dan (EPA), R10: Allen, Elizabeth (EPA), R10: Goulet, Joe (EPA), R10: Muza, Richard (EPA), R10: Fleming, Sheila (EPA), R10: Anderson, James, M (Oregon Dept. of Environmental Quality), R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality), R10: Poulsen, Michael (Oregon Dept. of Environmental Quality), R10: Gainer, Tom (Oregon Dept. of Environmental Quality), R10: Wagener, Colin, H (Ridolfi, Inc.), R10: Dexter, Robert (Ridolfi, Inc.), R10: Humphreys, Brandy (Grand Ronde Tribe), R10: Penoyar, Susan, J (CDM), R10: Longoria, Rose (Yakama Nation),	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100014557	7/11/2012	Email regarding TCT Arkema Photos.	36	2	EML / Email	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement

100015552	7/11/2012	Email Regarding Willamette Cove Riverbank / Beach Sampling.	59	1 EML / Email	R10: Peterson, Jenn, L (Unknown)	Angle, Genevieve (NOAA), R10: Field, Jay (NOAA), R10: Winter, Jessica (NOAA), R10: Neely, Robert (NOAA), R10: Buck, Jeremy (U. S. Fish and Wildlife Service), R10: Conley, Alanna (Unknown), R10: Shephard, Burt (Unknown), R10: Madden, Erin (Unknown), R10: Anderson, Jim (Unknown), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Cunningham, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Ebbets, Allison (Stratus Consulting, Inc.), R10: Beltman, Douglas (Stratus Consulting, Inc.), R10: Karnosh, Michael (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Sheldrake, Sean, A (EPA), R10: Cora, Lori, H (EPA), R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA), R10: Phalen, Dan (EPA), R10: Goulet, Joe (EPA), R10: Ader, Mark (EPA), R10: Muza, Richard (EPA), R10: Fleming, Sheila (EPA), R10: McClincy, Matt (Oregon Dept. of Environmental Quality), R10: Poulsen, Mike (Oregon Dept. of Environmental Quality), R10: Wagener, Colin, H (Ridolfi, Inc.), R10: Gustavson, Karl (Unknown), R10: Humphreys, Brandy (Grand Ronde Tribe), R10: Penoyar, Susan, J (CDM), R10: Longoria, Rose (Yakama Nation), R10: Gainer, Tom (Unknown), R10: Dexter, Bob (Unknown), R10: French, R, D (CDM), R10: Lavelle, James, M (CDM), R10: Allen, David (Stratus Consulting, Inc.), R10:	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100016699	7/11/2012	REDACTED Email regarding Request from USCG to Present Info on Portland Harbor and Zidell on July 26 at 7:30pm.	46	3 EML / Email	R10: Anderson, James, M (Oregon Dept. of Environmental Quality)	R10: Conley, Alanna (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940681354	7/13/2012	Email regarding Willamette Cove health consult.	54	1 EML / Email	R10: Bishop, Karen (State of Oregon)	R10: Humphrey, Chip (EPA), R10: Thiessen, Kenneth (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100013212	7/17/2012	Email regarding NW Natural, DEQ's Initial General Comments on the Draft Gasco Sediments Cleanup Site EE/CA.	22	1 EML / Email	R10: Bayuk, Dana (Oregon Dept. of Environmental Quality)	R10: Sheldrake, Sean, A (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100013215	7/17/2012	DEQ's Initial General Comments on the Draft Gasco Sediments Cleanup Site EE/CA.	207	7 CORR / Correspondence	R10: (Oregon Dept. of Environmental Quality)	R10: (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100013225	7/18/2012	Email regarding EPA's 3/15/04 Letter.	38	1 EML / Email	R10: Anderson, James, M (Oregon Dept. of Environmental Quality)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100013243	7/18/2012	Oregon DEQ's Comments to 1) NW Natural's Nov. 4, 2011 Responses to the Sept. 22, 2011 Modeling-Related Comments on the Revised Interim Design Report; and 2) Appendix F of the Revised GW Source Control Construction Design Report.	143	8 CORR / Correspondence	R10: (Oregon Dept. of Environmental Quality)	R10: (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100014287	7/18/2012	Email regarding Monthly Progress Report-November 2011.	51	2 EML / Email	R10: Bayuk, Dana (Oregon Dept. of Environmental Quality)	R10: Ede, Robert, B (Hahn and Associates, Inc.)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100014264	7/23/2012	Email Regarding DRAFT FS (Feasibility Study) Comments.	44	2 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100014341	7/23/2012	Email Regarding Eco Management Recommendations.	39	2 EML / Email	R10: Peterson, Jenn, L (Oregon Dept. of Environmental Quality)	R10: Shephard, Burt (EPA), R10: Goulet, Joe (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100016856	7/23/2012	REDACTED Email Regarding Eco Management Recommendations Meeting.	47	2 EML / Email	R10: Peterson, Jenn, L (Oregon Dept. of Environmental Quality)	R10: Goulet, Joe (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100014120	7/24/2012	Email regarding FS Team meeting tomorrow.	37	1 EML / Email	R10: Gainer, Tom (Oregon Dept. of Environmental Quality)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100014340	7/24/2012	Email Regarding Eco Management Recommendations.	45	2 EML / Email	R10: Peterson, Jenn, L (Oregon Dept. of Environmental Quality)	R10: Goulet, Joe (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100017904	7/26/2012	REDACTED Email regarding Clarification.	73	2 EML / Email	R10: Castelli, Christopher (Oregon Dept. of State Lands)	R10: Miranda, Paula (Port of St. Helens), R10: Degens, Sebastian (Port of Portland), R10: Meyer, Andy (Clallam County), R10: Jansky, Andrew (Gunderson, Inc.), R10: Williams, Travis (Willamette Riverkeeper), R10: Merrill, Brent (The Smoke Signals), R10: Wyatt, Bob (Northwest Natural Gas Company), R10: Wexler, Randi (Integral Consulting, Inc.), R10: Wilson, Mike (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Egan, Bill (Oregon Bass & Panfish Club), R10: Walker, Doug (Idaho National Laboratory), R10: Sallinger, Robert (Audobon Society of Portland), R10: Rowe, Patrick, G (Sussman Shank LLP), R10: Deetz Silva, Debbie (Evrax Oregon Steel Portland), R10: Gilpin, Andrew (Evrax Inc.), R10: Robison, Jim (Forward Support Inc.), R10: Hayward, Mike (NW Natural), R10: Krumbein, David (Blue Mountain Community College), R10: Wall, Kathy (Port of Coos Bay), R10: Berg, Heidi (City of Portland, Oregon), R10: Pfeiffer, Steve (Perkins Coie), R10: Allen, Susan (The Pew Charitable Trust), R10: Voetberg, Jim (City of Newport, Oregon), R10: Weller, Darise (Portland Harbor Community Advisory Group), R10: Craddock, Rodger (City of Coos Bay, Oregon), R10: Thorpe, Kathleen (Ktec Environmental Consulting), R10: Ackland, Emily (Association of Oregon Counties)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100017902	7/27/2012	REDACTED Email regarding Additional Comment.	95	5 EML / Email	R10: Castelli, Christopher (Oregon Dept. of State Lands)	R10: Miranda, Paula (Port of St. Helens), R10: Degens, Sebastian (Port of Portland), R10: Meyer, Andy (Clallam County), R10: Jansky, Andrew (Gunderson, Inc.), R10: Williams, Travis (Willamette Riverkeeper), R10: Merrill, Brent (The Smoke Signals), R10: Wyatt, Bob (Northwest Natural Gas Company), R10: Wexler, Randi (Integral Consulting, Inc.), R10: Wilson, Mike (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Egan, Bill (Oregon Bass & Panfish Club), R10: Walker, Doug (Idaho National Laboratory), R10: Sallinger, Robert (Audobon Society of Portland), R10: Rowe, Patrick, G (Sussman Shank LLP), R10: Deetz Silva, Debbie (Evrax Oregon Steel Portland), R10: Gilpin, Andrew (Evrax Inc.), R10: Robison, Jim (Forward Support Inc.), R10: Hayward, Mike (NW Natural), R10: Krumbein, David (Blue Mountain Community College), R10: Wall, Kathy (Port of Coos Bay), R10: Berg, Heidi (City of Portland, Oregon), R10: Pfeiffer, Steve (Perkins Coie), R10: Allen, Susan (The Pew Charitable Trust), R10: Voetberg, Jim (City of Newport, Oregon), R10: Weller, Darise (Portland Harbor Community Advisory Group), R10: Craddock, Rodger (City of Coos Bay, Oregon), R10: Thorpe, Kathleen (Ktec Environmental Consulting), R10: Ackland, Emily (Association of Oregon Counties)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement

4940681356	Email regarding Willamette Cove Health Consultation release.	7/27/2012	88	2 EML / Email	R10: Bishop, Karen (State of Oregon)	R10: Douglas, Jae, P (State of Oregon), R10: King, Katie (Unknown), R10: Allen, Elizabeth (EPA), R10: Early, Julie (Oregon Dept. of Human Services), R10: Thiessen, Kenneth (Oregon Dept. of Environmental Quality), R10: Shibley, Gail, R (Centers for Disease Control)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100014139	Email regarding DEQ Comments on the Draft Action Memo for the Triangle Park Site.	7/31/2012	80	2 EML / Email	R10: Anderson, James, M (Oregon Dept. of Environmental Quality)	R10: Ader, Mark, A (EPA), R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA), R10: Muza, Richard (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100013992	Email regarding Arkema Stormwater Source Construction Photos.	8/8/2012	3,503	1 EML / Email	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	R10: Neely, Robert (NOAA), R10: Madden, Erin (Unknown), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Cunninghame, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Allen II, P. David (Stratus Consulting, Inc.), R10: Downey, Tom (Confederated Tribes of the Siletz Indians), R10: Karnosh, Michael (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Gainer, Tom (Oregon Dept. of Environmental Quality), R10: Penoyar, Susan, J (CDM), R10: Lavelle, James, M (CDM), R10: Weis, Julie (Haglund Kelley, LLP), R10: Dexter, Bob (Ridolfi, Inc.), R10: Buck, Jeremy (U. S. Fish & Wildlife Service), R10: Peterson, Jenn, L (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100018167	REDACTED Email regarding M&B Chem Analysis of Import Sand and Soil (E&E 2004).	8/8/2012	44	1 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Humphrey, Chip (EPA), R10: McClincy, Matt (Oregon Dept. of Environmental Quality), R10: Parrett, Kevin (GSI Groundwater Solutions, Inc.)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100013232	Email regarding NW Natural, Revised Groundwater Source Control Construction Design Report Comments Letter.	8/9/2012	84	5 EML / Email	R10: Bayuk, Dana (Oregon Dept. of Environmental Quality)	R10: Wyatt, Robert, J (NW Natural)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100013248	Letter Regarding the Revised Groundwater Source Control Construction Design Report - Shoreline Segments 1 and 2, NW Natural Property and the Northern Portion of the Siltronic Corporation Property - Portland, Oregon - ECSI Nos. 84 and 183.	8/9/2012	266	24 LTR / Letter	R10: Bayuk, Dana (Oregon Dept. of Environmental Quality)	R10: Wyatt, Robert, J (NW Natural)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100013712	Presentation by CDM Smith: Draft Site Level Recontamination Evaluation Framework.	8/10/2012	2,190	32 MTG / Meeting Document	R10: (CDM Smith)	R10: (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100014391	Email regarding Small Mouth Bass Tissue Sampling.	8/10/2012	46	1 EML / Email	R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100014390	Email regarding Small Mouth Bass Tissue Sampling.	8/13/2012	56	2 EML / Email	R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100016801	REDACTED Email regarding Portland Harbor Eco Update	8/21/2012	40	1 EML / Email	R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)	R10: Shephard, Burt (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100017910	REDACTED Email regarding Comments on Confined Disposal Facilities.	8/21/2012	62	2 EML / Email	R10: Castelli, Christopher (Oregon Dept. of State Lands)	R10: Miranda, Paula (Port of St. Helens), R10: Degens, Sebastian (Port of Portland), R10: Meyer, Andy (Clallam County), R10: Jansky, Andrew (Gunderson, Inc.), R10: Williams, Travis (Willamette Riverkeeper), R10: Merrill, Brent (The Smoke Signals), R10: Wyatt, Bob (Northwest Natural Gas Company), R10: Wexler, Randi (Integral Consulting, Inc.), R10: Wilson, Mike (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Egan, Bill (Oregon Bass & Panfish Club), R10: Walker, Doug (Idaho National Laboratory), R10: Sallinger, Robert (Audobon Society of Portland), R10: Rowe, Patrick, G (Sussman Shank LLP), R10: Deetz Silva, Debbie (Evrax Oregon Steel Portland), R10: Gilpin, Andrew (Evrax Inc.), R10: Robison, Jim (Forward Support Inc.), R10: Hayward, Mike (NW Natural), R10: Krumbein, David (Blue Mountain Community College), R10: Wall, Kathy (Port of Coos Bay), R10: Berg, Heidi (City of Portland, Oregon), R10: Pfeiffer, Steve (Perkins Coie), R10: Allen, Susan (The Pew Charitable Trust), R10: Voetberg, Jim (City of Newport, Oregon), R10: Weller, Darise (Portland Harbor Community Advisory Group), R10: Craddock, Rodger (City of Coos Bay, Oregon), R10: Thorpe, Kathleen (Ktec Environmental Consulting), R10: Ackland, Emily (Association of Oregon Counties)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100017952	REDACTED Email regarding Comments on Confined Disposal Facilities.	8/21/2012	56	1 EML / Email	R10: Castelli, Christopher (Oregon Dept. of State Lands)	R10: Miranda, Paula (Port of St. Helens), R10: Hathaway, Chris (Unknown), R10: Degens, Sebastian (Port of Portland), R10: Meyer, Andy (Clallam County), R10: Jansky, Andrew (Gunderson, Inc.), R10: Williams, Travis (Willamette Riverkeeper), R10: Merrill, Brent (The Smoke Signals), R10: Wyatt, Bob (Northwest Natural Gas Company), R10: Wexler, Randi (Integral Consulting, Inc.), R10: Wilson, Mike (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Egan, Bill (Oregon Bass & Panfish Club), R10: Walker, Doug (Idaho National Laboratory), R10: Sallinger, Robert (Audobon Society of Portland), R10: Rowe, Patrick, G (Sussman Shank LLP), R10: Deetz Silva, Debbie (Evrax Oregon Steel Portland), R10: Gilpin, Andrew (Evrax Inc.), R10: Robison, Jim (Forward Support Inc.), R10: Hayward, Mike (NW Natural), R10: Krumbein, David (Blue Mountain Community College), R10: Wall, Kathy (Port of Coos Bay), R10: Berg, Heidi (City of Portland, Oregon), R10: Pfeiffer, Steve (Perkins Coie), R10: Allen, Susan (The Pew Charitable Trust), R10: Voetberg, Jim (City of Newport, Oregon), R10: Weller, Darise (Portland Harbor Community Advisory Group), R10: Craddock, Rodger (City of Coos Bay, Oregon), R10: Thorpe, Kathleen (Ktec Environmental Consulting), R10: Ackland, Emily (Association of Oregon Counties)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement

100014517	8/29/2012	Email Regarding DRAFT Source Control Decision (SCD), Schnitzer Investment Corp Doane Lake Property.	45	1 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	(NOAA), R10: Winter, Jessica (NOAA), R10: Baker, Mary (NOAA), R10: Neely, Robert (NOAA), R10: Fleming, Sheila (Ridolfi Engineers and Associates, Inc.), R10: Buck, Jeremy (U. S. Fish and Wildlife Service), R10: Madden, Erin (Unknown), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Ebbets, Allison (Stratus Consulting, Inc.), R10: Beltman, Douglas (Stratus Consulting, Inc.), R10: Karnosh, Michael (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Sheldrake, Sean, A (EPA), R10: Fuentes, Rene, C (EPA), R10: Cora, Lori, H (EPA), R10: Koch, Kristine, M (EPA), R10: Smith, Judy, R (EPA), R10: Shephard, Burt (EPA), R10: Humphrey, Chip (EPA), R10: Allen, Elizabeth (EPA), R10: Grepogrove, Gina (EPA), R10: Goulet, Joe (EPA), R10: Ader, Mark (EPA), R10: Muza, Richard (EPA), R10: Farrer, David, G (Oregon Dept. of Human Services), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality), R10: Hafley, Dan (Oregon Dept. of Environmental Quality), R10: Tarnow, Karen, E (Oregon Dept. of Environmental Quality), R10: McClincy, Matt (Oregon Dept. of Environmental Quality), R10: D'aquila, Kim (Grand Ronde Tribe), R10: Longoria, Rose (Yakama Nation), R10: Gainer, Tom (Unknown), R10: Johnson, Keith (Unknown), R10: Lacey, David (Unknown), R10: Dexter, Bob (Unknown), R10: Shorr, Benjamin	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100014327	9/5/2012	Email regarding RRAC #7 Agenda.	54	2 EML / Email	R10: Anderson, James, M (Oregon Dept. of Environmental Quality)	R10: Castell, Christopher (Oregon Dept. of State Lands)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100013998	9/6/2012	Email regarding CAG - just wonderin'.	38	1 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100014221	9/13/2012	Portland Harbor 1200Z Parameters Table.	195	2 CORR / Correspondence	R10: Liverman, Alex (Oregon Dept. of Environmental Quality)	R10: (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100014222	9/13/2012	Portland Harbor specific 1200Z Permit – Iteration #1 Communications Plan.	187	7 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100014223	9/13/2012	Potential Recontamination Evaluation Regions.	64	2 CORR / Correspondence	R10: Liverman, Alex (Oregon Dept. of Environmental Quality)	R10: (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100014224	9/13/2012	Harbor-Wide Recontamination Evaluation Elements, Data/Info Sources, and Timeline.	130	1 CORR / Correspondence	R10: Liverman, Alex (Oregon Dept. of Environmental Quality)	R10: (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100018134	9/13/2012	REDACTED Email regarding Recontamination Evaluation Approach at Early Action Sites.	76	3 EML / Email	R10: Liverman, Alex (Oregon Dept. of Environmental Quality)	R10: Sheldrake, Sean, A (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100014077	9/14/2012	Email regarding FPM Mean Quotient Comment.	151	2 EML / Email	R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100015551	9/14/2012	Email Regarding Willamette Cove Phone Meeting Results 9/14/12.	46	1 EML / Email	R10: Thiessen, Kenneth (Oregon Dept. of Environmental Quality)	R10: Koch, Kristine, M (EPA), R10: Conley, Alanna (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100018142	9/14/2012	REDACTED Email regarding Gasco EE/CA - draft EPA comments.	89	4 EML / Email	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	R10: Sheldrake, Sean, A (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940681353	9/14/2012	Email regarding Willamette Cove "next steps" call.	30	2 EML / Email	R10: Hudson, Todd (State of Oregon)	R10: Bishop, Karen (State of Oregon), R10: Humphrey, Chip (EPA), R10: Early, Julie (Oregon Dept. of Human Services), R10: Poulsen, Mike (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100013994	9/18/2012	Email regarding Arkema Video 2.	42	1 EML / Email	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	R10: Neely, Robert (NOAA), R10: Buck, Jeremy (U. S. Fish and Wildlife Service), R10: Madden, Erin (Unknown), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Cunninghame, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Allen li, P. David (Stratus Consulting, Inc.), R10: Downey, Tom (Confederated Tribes of the Siletz Indians), R10: Karnosh, Michael (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Gainer, Tom (Oregon Dept. of Environmental Quality), R10: Humphreys, Brandy (Grand Ronde Tribe), R10: Penoyar, Susan, J (CDM), R10: Longoria, Rose (Yakama Nation), R10: Lavelle, James, M (CDM), R10: Weis, Julie (Haglund Kelley, LLP), R10: Dexter, Bob (Ridolfi, Inc.), R10: Peterson, Jenn, L (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100016677	9/18/2012	REDACTED Email regarding Presentation.	52	1 EML / Email	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	R10: Miller, Todd	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100018165	9/18/2012	REDACTED Email regarding LWG Response to EPA July 10, 2012 Comments on the July 01, 2011 Draft Final BERA.	104	2 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100014056	9/19/2012	Email regarding Briefing on WRDA Project for Willamette Cove and Swan Island.	53	2 EML / Email	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100013665	9/20/2012	Email regarding Arkema EE/CA Review Comments.	19	1 EML / Email	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	R10: Sheldrake, Sean, A (EPA), R10: Peterson, Lance, E (CDM Smith)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100013668	9/20/2012	Final Oregon DEQ Comments on the July 26, 2012 Draft Engineering Evaluation and Cost Analysis (EE/CA) Arkema Early Action.	209	11 CORR / Correspondence	R10: (Oregon Dept. of Environmental Quality)	R10: (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100014193	9/20/2012	Email regarding NW Natural and Siltronic, Request to Revise and Add to Gasco Sediment Project EECA Comments.	29	2 EML / Email	R10: Bayuk, Dana (Oregon Dept. of Environmental Quality)	R10: Sheldrake, Sean, A (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
4940681351	9/28/2012	Email regarding reply to Willamette Cove Outreach.	66	2 EML / Email	R10: Bishop, Karen (State of Oregon)	R10: Hudson, Todd (State of Oregon), R10: Leisle, Dwight (Port of Portland), R10: Humphrey, Chip (EPA), R10: Thiessen, Kenneth (Oregon Dept. of Environmental Quality), R10: Weil, Katy (Metro Regional Government), R10: Cohen, Cassie (Groundwork Portland)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100013993	10/2/2012	Email regarding Arkema Upland Source Control Photos.	44	1 EML / Email	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	R10: Neely, Robert (NOAA), R10: Buck, Jeremy (U. S. Fish and Wildlife Service), R10: Madden, Erin (Unknown), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Cunninghame, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Ebbets, Allison (Stratus Consulting, Inc.), R10: Allen li, P. David (Stratus Consulting, Inc.), R10: Downey, Tom (Confederated Tribes of the Siletz Indians), R10: Karnosh, Michael (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Gainer, Tom (Oregon Dept. of Environmental Quality), R10: Penoyar, Susan, J (CDM), R10: Lavelle, James, M (CDM), R10: Weis, Julie (Haglund Kelley, LLP), R10: Dexter, Bob (Ridolfi, Inc.), R10: Peterson, Jenn, L (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100015543	10/9/2012	Email Regarding Triangle Park Dock Photos.	586	2 EML / Email	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	R10: Ader, Mark (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement



100014516	10/10/2012	Email Regarding DRAFT Source Control Decision (SCD), Schnitzer Investment Corp Doane Lake Property.	120	3 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	(NOAA), R10: Winter, Jessica (NOAA), R10: Baker, Mary (NOAA), R10: Neely, Robert (NOAA), R10: Fleming, Sheila (Ridolfi Engineers and Associates, Inc.), R10: Buck, Jeremy (U. S. Fish and Wildlife Service), R10: Madden, Erin (Unknown), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Ebbets, Allison (Stratus Consulting, Inc.), R10: Beltman, Douglas (Stratus Consulting, Inc.), R10: Karnosh, Michael (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Sheldrake, Sean, A (EPA), R10: Fuentes, Rene, C (EPA), R10: Cora, Lori, H (EPA), R10: Koch, Kristine, M (EPA), R10: Smith, Judy, R (EPA), R10: Shephard, Burt (EPA), R10: Humphrey, Chip (EPA), R10: Allen, Elizabeth (EPA), R10: Grepogrove, Gina (EPA), R10: Goulet, Joe (EPA), R10: Ader, Mark (EPA), R10: Muza, Richard (EPA), R10: Farrer, David, G (Oregon Dept. of Human Services), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality), R10: Hafley, Dan (Oregon Dept. of Environmental Quality), R10: Tarnow, Karen, E (Oregon Dept. of Environmental Quality), R10: McClincy, Matt (Oregon Dept. of Environmental Quality), R10: D'auila, Kim (Grand Ronde Tribe), R10: Longoria, Rose (Yakama Nation), R10: Gainer, Tom (Unknown), R10: Johnson, Keith (Unknown), R10: Lacey, David (Unknown), R10: Dexter, Bob (Unknown), R10: Shorr, Benjamin	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100008066	10/15/2012	Groundwater and Bank Soil Source Control Evaluation: Appendix I - Estimated Pore Water Concentrations from Bank Soil Samples.	4,202	10 CHT / Chart/Table	R10: Romero, Mike (Oregon Department of Environmental Quality)	R10: (Kinder Morgan Liquids Terminals, LLC)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100013723	10/23/2012	Portland Harbor Source Control Recontamination Evaluation Strategy	174	3 CORR / Correspondence	R10: Liverman, Alex (Oregon Dept. of Environmental Quality)	R10: (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100013709	10/24/2012	Proposed Contents on Re In DEQ's Milestone-Like Source Control Summary Report.	124	1 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100013710	10/24/2012	DEQ Comments on CDM Powerpoint on Site-Level Recontamination Evaluation Framework.	80	2 CORR / Correspondence	R10: (Oregon Dept. of Environmental Quality)	R10: (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100016900	10/24/2012	REDACTED Email regarding Materials for Recontamination Evaluation Conference Call on Oct 29th.	70	2 EML / Email	R10: Liverman, Alex (Oregon Dept. of Environmental Quality)	R10: Sheldrake, Sean, A (EPA), R10: Koch, Kristine, M (EPA), R10: Muza, Richard (EPA), R10: Anderson, James, M (Oregon Dept. of Environmental Quality), R10: Liverman, Alex (Oregon Dept. of Environmental Quality), R10: McClincy, Matt (Oregon Dept. of Environmental Quality), R10: Peterson, Lance, E (CDM Smith), R10: Quasebarth, T (CDM Smith)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100014097	10/29/2012	Email regarding USACE LWR WRDA Presentation.	22	1 EML / Email	R10: Gainer, Tom (Oregon Dept. of Environmental Quality)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100014930	11/1/2012	Email regarding Recontamination Evaluation Meeting Summary & Strategy Update.	88	2 EML / Email	R10: Liverman, Alex (Oregon Dept. of Environmental Quality)	R10: Sheldrake, Sean, A (EPA), R10: Muza, Richard (EPA), R10: Anderson, James, M (Oregon Dept. of Environmental Quality), R10: McClincy, Matt (Oregon Dept. of Environmental Quality), R10: Peterson, Lance, E (CDM Smith), R10: Quasebarth, T (CDM Smith)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100014953	11/1/2012	Portland Harbor Source Control Recontamination Evaluation Strategy.	197	4 OTH / Other	R10: Liverman, Alex (Oregon Dept. of Environmental Quality)	R10: (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100014361	11/14/2012	Email regarding TCT Meeting 11/14 Is Cancelled.	55	1 EML / Email	R10: Anderson, James, M (Oregon Dept. of Environmental Quality)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100014362	11/14/2012	Email regarding TCT Meeting 11/14 Is Cancelled.	42	1 EML / Email	R10: Anderson, James, M (Oregon Dept. of Environmental Quality)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100015533	11/14/2012	Email Regarding TCT Mtg Today.	40	1 EML / Email	R10: Anderson, Jim (Unknown)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA), R10: Muza, Richard (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100014397	11/27/2012	Email regarding TCT.	45	1 EML / Email	R10: Anderson, James, M (Oregon Dept. of Environmental Quality)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100015538	11/27/2012	Email Regarding TCT.	40	1 EML / Email	R10: Anderson, Jim (Unknown)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100014305	11/28/2012	Email regarding Portland Harbor: Hot Spots.	151	7 EML / Email	R10: Anderson, James, M (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100013720	11/29/2012	Portland Harbor Source Control Recontamination Evaluation Strategy.	173	4 CORR / Correspondence	R10: Liverman, Alex (Oregon Dept. of Environmental Quality)	R10: (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100013731	11/29/2012	Email regarding Final Recontamination Evaluation Strategy Docs.	90	2 EML / Email	R10: Liverman, Alex (Oregon Dept. of Environmental Quality)	R10: Sheldrake, Sean, A (EPA), R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA), R10: Muza, Richard (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100014306	11/29/2012	Email regarding Portland Harbor: Hot Spots.	160	9 EML / Email	R10: Anderson, James, M (Oregon Dept. of Environmental Quality)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100014337	12/5/2012	Email regarding Request for Time on Jan TCT Agenda for City Outfalls SCD Approach.	74	2 EML / Email	R10: Liverman, Alex (Oregon Dept. of Environmental Quality)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100014265	12/21/2012	Email Regarding EPA Comments and Direction on the DRAFT BERA (Baseline Ecological Risk Assessment).	43	2 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	(NOAA), R10: Winter, Jessica (NOAA), R10: Neely, Robert (NOAA), R10: Buck, Jeremy (U. S. Fish and Wildlife Service), R10: Madden, Erin (Unknown), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Ebbets, Allison (Stratus Consulting, Inc.), R10: Beltman, Douglas (Stratus Consulting, Inc.), R10: Karnosh, Michael (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Ader, Mark, A (EPA), R10: Sheldrake, Sean, A (EPA), R10: Fuentes, Rene, C (EPA), R10: Cora, Lori, H (EPA), R10: Koch, Kristine, M (EPA), R10: Conley, Alanna (EPA), R10: Shephard, Burt (EPA), R10: Humphrey, Chip (EPA), R10: Allen, Elizabeth (EPA), R10: Muza, Richard (EPA), R10: Fleming, Sheila (EPA), R10: Dahl, Tom (EPA), R10: McClincy, Matt (Oregon Dept. of Environmental Quality), R10: Poulsen, Mike (Oregon Dept. of Environmental Quality), R10: Gainer, Tom (Oregon Dept. of Environmental Quality), R10: Wagoner, Colin, H (Ridolfi, Inc.), R10: Humphreys, Brandy (Grand Ronde Tribe), R10: Penoyar, Susan, J (CDM), R10: Longoria, Rose (Yakama Nation), R10: Dexter, Bob (Unknown), R10: Gustavson, Karl (EPA), R10: French, R, D (CDM), R10: Lavelle, James, M (CDM), R10: Allen, David (Stratus Consulting, Inc.), R10: Peers, J (Stratus Consulting, Inc.), R10: Weis, Julie (Haglund Kelley, LLP), R10: Ryan (Davis Sudbury), R10: Peterson, Jenn, L (Oregon Dept.	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement

100014498	Email Regarding DRAFT Source Control Decision (SCD), Portland Shipyard Operable Unit 3.	49	2 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	(NOAA), R10: Winter, Jessica (NOAA), R10: Baker, Mary (NOAA), R10: Neely, Robert (NOAA), R10: Fleming, Sheila (Ridolfi Engineers and Associates, Inc.), R10: Buck, Jeremy (U. S. Fish and Wildlife Service), R10: Madden, Erin (Unknown), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Ebbets, Allison (Stratus Consulting, Inc.), R10: Beltman, Douglas (Stratus Consulting, Inc.), R10: Karnosh, Michael (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Sheldrake, Sean, A (EPA), R10: Fuentes, Rene, C (EPA), R10: Cora, Lori, H (EPA), R10: Koch, Kristine, M (EPA), R10: Smith, Judy, R (EPA), R10: Shephard, Burt (EPA), R10: Humphrey, Chip (EPA), R10: Allen, Elizabeth (EPA), R10: Grepo-grove, Gina (EPA), R10: Goulet, Joe (EPA), R10: Ader, Mark (EPA), R10: Muza, Richard (EPA), R10: Farrer, David, G (Oregon Dept. of Human Services), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality), R10: Hafley, Dan (Oregon Dept. of Environmental Quality), R10: Tarnow, Karen, E (Oregon Dept. of Environmental Quality), R10: Mcclincy, Matt (Oregon Dept. of Environmental Quality), R10: D'aquila, Kim (Grand Ronde Tribe), R10: Gainer, Tom (Unknown), R10: Johnson, Keith (Unknown), R10: Lacey, David (Unknown), R10: Dexter, Bob (Unknown), R10: Shorr, Benjamin (NOAA), R10: French, R, D (CDM), R10: D, Tom (NOAA), R10: Winter, Jessica (NOAA), R10: Baker, Mary (NOAA), R10: Neely, Robert (NOAA), R10: Fleming, Sheila (Ridolfi Engineers and Associates, Inc.), R10: Buck, Jeremy (U. S. Fish and Wildlife Service), R10: Madden, Erin (Unknown), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Ebbets, Allison (Stratus Consulting, Inc.), R10: Beltman, Douglas (Stratus Consulting, Inc.), R10: Karnosh, Michael (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Sheldrake, Sean, A (EPA), R10: Fuentes, Rene, C (EPA), R10: Cora, Lori, H (EPA), R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA), R10: Smith, Judy, R (EPA), R10: Shephard, Burt (EPA), R10: Humphrey, Chip (EPA), R10: Allen, Elizabeth (EPA), R10: Grepo-grove, Gina (EPA), R10: Goulet, Joe (EPA), R10: Ader, Mark (EPA), R10: Muza, Richard (EPA), R10: Farrer, David, G (Oregon Dept. of Human Services), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality), R10: Liverman, Alex (Oregon Dept. of Environmental Quality), R10: Tarnow, Karen, E (Oregon Dept. of Environmental Quality), R10: Mcclincy, Matt (Oregon Dept. of Environmental Quality), R10: D'aquila, Kim (Grand Ronde Tribe), R10: Longoria, Rose (Yakama Nation), R10: Gainer, Tom (Unknown), R10: Johnson, Keith (Unknown), R10: Dexter, Bob (Unknown), R10: Shorr,	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100014513	Email Regarding DRAFT Source Control Decision (SCD), Peninsula Iron Works Property.	69	2 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Opalski, Daniel, D (EPA), R10: Humphrey, Chip (EPA), R10: Harman, Charles (Oregon Dept. of Environmental Quality), R10: Drake, Doug (Oregon Dept. of Environmental Quality), R10: Hoy, Ray (Oregon Dept. of Environmental Quality), R10: Powers, David, L (Key Tronic Corporation), R10: Masterson, Kevin (Oregon Dept. of Environmental Quality), R10: Pinney, Michael (Oregon Dept. of Environmental Quality), R10: Benninghoff, Benjamin (Oregon Dept. of Environmental Quality), R10: Van't Hof, David, E (Lane Powell, P.C.), R10: Conboy, William (DOWA-IBI Group Architects, Inc.), R10: Mason, Palmer (Oregon Dept. of Environmental Quality), R10: Koch, Geoff (Mentor Graphics)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100014237	Email regarding Gowanans Canal Proposed 1/4/2013 Plan.	34	1 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100016780	REDACTED Email regarding We Playing 1/7/2013 Tomorrow.	44	1 EML / Email	R10: Stocum, Jeffrey (Oregon Dept. of Environmental Quality)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100014148	Email regarding Jan 23rd Reschedule TCT for 1/8/2013 City Of SCD & Update on Recontamination.	85	4 EML / Email	R10: Liverman, Alex (Oregon Dept. of Environmental Quality)	(NOAA), R10: Winter, Jessica (NOAA), R10: Baker, Mary (NOAA), R10: Neely, Robert (NOAA), R10: Fleming, Sheila (Ridolfi Engineers and Associates, Inc.), R10: Buck, Jeremy (U. S. Fish and Wildlife Service), R10: Madden, Erin (Unknown), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Ebbets, Allison (Stratus Consulting, Inc.), R10: Beltman, Douglas (Stratus Consulting, Inc.), R10: Karnosh, Michael (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Sheldrake, Sean, A (EPA), R10: Fuentes, Rene, C (EPA), R10: Cora, Lori, H (EPA), R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA), R10: Smith, Judy, R (EPA), R10: Shephard, Burt (EPA), R10: Humphrey, Chip (EPA), R10: Allen, Elizabeth (EPA), R10: Grepo-grove, Gina (EPA), R10: Goulet, Joe (EPA), R10: Ader, Mark (EPA), R10: Muza, Richard (EPA), R10: Farrer, David, G (Oregon Dept. of Human Services), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality), R10: Liverman, Alex (Oregon Dept. of Environmental Quality), R10: Tarnow, Karen, E (Oregon Dept. of Environmental Quality), R10: Mcclincy, Matt (Oregon Dept. of Environmental Quality), R10: D'aquila, Kim (Grand Ronde Tribe), R10: Longoria, Rose (Yakama Nation), R10: Gainer, Tom (Unknown), R10: Johnson, Keith (Unknown), R10: Dexter, Bob (Unknown), R10: Shorr,	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100014496	Email Regarding DRAFT Source Control Decision (SCD), Peninsula Iron Works Property.	72	2 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	(NOAA), R10: Winter, Jessica (NOAA), R10: Baker, Mary (NOAA), R10: Neely, Robert (NOAA), R10: Fleming, Sheila (Ridolfi Engineers and Associates, Inc.), R10: Buck, Jeremy (U. S. Fish and Wildlife Service), R10: Madden, Erin (Unknown), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Ebbets, Allison (Stratus Consulting, Inc.), R10: Beltman, Douglas (Stratus Consulting, Inc.), R10: Karnosh, Michael (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Sheldrake, Sean, A (EPA), R10: Fuentes, Rene, C (EPA), R10: Cora, Lori, H (EPA), R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA), R10: Smith, Judy, R (EPA), R10: Shephard, Burt (EPA), R10: Humphrey, Chip (EPA), R10: Allen, Elizabeth (EPA), R10: Grepo-grove, Gina (EPA), R10: Goulet, Joe (EPA), R10: Ader, Mark (EPA), R10: Muza, Richard (EPA), R10: Farrer, David, G (Oregon Dept. of Human Services), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality), R10: Liverman, Alex (Oregon Dept. of Environmental Quality), R10: Tarnow, Karen, E (Oregon Dept. of Environmental Quality), R10: Mcclincy, Matt (Oregon Dept. of Environmental Quality), R10: D'aquila, Kim (Grand Ronde Tribe), R10: Longoria, Rose (Yakama Nation), R10: Gainer, Tom (Unknown), R10: Johnson, Keith (Unknown), R10: Dexter, Bob (Unknown), R10: Shorr,	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement

100014495	1/14/2013	Email Regarding DRAFT Source Control Decision (SCD), PacifiCorp's Knott Street Property.	51	2 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	(NOAA), R10: Winter, Jessica (NOAA), R10: Baker, Mary (NOAA), R10: Neely, Robert (NOAA), R10: Fleming, Sheila (Ridolfi Engineers and Associates, Inc.), R10: Buck, Jeremy (U. S. Fish and Wildlife Service), R10: Hermanson, Brad (Unknown), R10: Madden, Erin (Unknown), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Ebbets, Allison (Stratus Consulting, Inc.), R10: Beltman, Douglas (Stratus Consulting, Inc.), R10: Bluelake, Lisa (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Karnosh, Michael (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Sheldrake, Sean, A (EPA), R10: Fuentes, Rene, C (EPA), R10: Cora, Lori, H (EPA), R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA), R10: Smith, Judy, R (EPA), R10: Shephard, Burt (EPA), R10: Humphrey, Chip (EPA), R10: Allen, Elizabeth (EPA), R10: Grepo-grove, Gina (EPA), R10: Goulet, Joe (EPA), R10: Ader, Mark (EPA), R10: Muza, Richard (EPA), R10: Farrer, David, G (Oregon Dept. of Human Services), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality), R10: Hafley, Dan (Oregon Dept. of Environmental Quality), R10: Tarnow, Karen, E (Oregon Dept. of Environmental Quality), R10: Mcclincy, Matt (Oregon Dept. of Environmental Quality), R10: Romero, Michael (Oregon Dept. of Environmental Quality), R10: D'aguila, Kim	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100013539	1/17/2013	Email Regarding Briefing Materials for TCT 01/23/2013 Meeting, City of Portland Stormwater Outfalls Source Investigation and Control Project.	61	1 EML / Email	R10: Liverman, Alex (Oregon Dept. of Environmental Quality)	R10: Muza, Richard (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100013540	1/17/2013	Briefing for TCT on City of Portland Stormwater Outfalls Source Investigation and Control Project.	110	2 CORR / Correspondence	R10: Liverman, Alex (Oregon Dept. of Environmental Quality)	R10: (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100013541	1/17/2013	Briefing for TCT on DEQ's (Dept. of Environmental Quality) Approach to Recontamination Evaluation and Upland Source Control Summary Report.	145	2 CORR / Correspondence	R10: Liverman, Alex (Oregon Dept. of Environmental Quality)	R10: (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100015545	1/17/2013	Email Regarding Troutdale Energy Center Information Meeting.	34	1 EML / Email	R10: Mcdonnell, Erin (Oregon Department of Environmental Quality)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100013997	1/18/2013	Email regarding briefing materials for TCT Jan 23rd meeting on CoP OF SCD and RE approach.	17	1 EML / Email	R10: Liverman, Alex (Oregon Dept. of Environmental Quality)	R10: Muza, Richard (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100014117	1/22/2013	Email regarding FS Team info - Preliminary FS task list.	45	2 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Humphrey, Chip (EPA), R10: Gainer, Tom (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100014118	1/22/2013	Email regarding FS Team info - Preliminary FS task list.	47	2 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100014119	1/22/2013	Email regarding FS Team info - Preliminary FS task list.	37	1 EML / Email	R10: Gainer, Tom (Oregon Dept. of Environmental Quality)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100014283	1/24/2013	Email regarding Media Contact.	46	2 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Bailey, Deborah (Oregon Dept. of Environmental Quality), R10: Mcclincy, Matt (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100014284	1/24/2013	Email regarding Media Contact.	46	2 EML / Email	R10: Mcclincy, Matt (Oregon Dept. of Environmental Quality)	R10: Bailey, Deborah (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100016696	1/24/2013	REDACTED Email regarding Request for Information Regarding Tribal Costs for Cleanup Sites.	25	2 EML / Email	R10: Harman, Charles (Oregon Dept. of Environmental Quality)	R10: Yamamoto, Deb (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100014299	1/28/2013	Email regarding PH BHHRA.	38	1 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100014399	1/28/2013	Email regarding Troutdale Energy Center Information Meeting.	116	3 EML / Email	R10: Burkhart, Rob (Oregon Dept. of Environmental Quality)	R10: Humphrey, Chip (EPA), R10: Mcdonnell, Erin (Oregon Department of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100011961	4/4/2013	Email Regarding Stormwater and Sediment Information Around RM16.	59	1 EML / Email	R10: Mcclincy, Matt (Oregon Dept. of Environmental Quality)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100011962	8/9/2013	Email Regarding State Concurrence and Acceptance of Portland Harbor Remedies. DRAFT Schnitzer ASD Yard Riverbank Source Control Measures Feasibility Study Work Plan (With Highlighted Text) - DRAFT Area 3 SC FS	61	2 EML / Email	R10: Anderson, James, M (Oregon Dept. of Environmental Quality)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA), R10: Muza, Richard (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100011963	8/30/2013	WP - Revised II.	3,340	52 CORR / Correspondence	R10: Clough, Herbert, F (Ash Creek Associates, Inc.), R10: Breemer, Chris (Ash Creek Associates, Inc.)	R10: (Gunderson LLC)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100011964	9/25/2013	Email Regarding Gunderson Area 3 Riverbank DRAFT Source Control FS (Feasibility Study) Work Plan.	56	1 EML / Email	R10: Mcclincy, Matt (Oregon Dept. of Environmental Quality)	R10: Fuentes, Rene, R10: Allen, Elizabeth, R10: Muza, Richard, R10: Angle, Genevieve (NOAA), R10: Neely, Robert (NOAA), R10: Buck, Jeremy (U. S. Fish and Wildlife Service), R10: Shephard, Burt (Unknown), R10: Madden, Erin (Unknown), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Cunninghame, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Karnosh, Michael (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Sheldrake, Sean, A (EPA), R10: Koch, Kristine, M (EPA), R10: Conley, Alanna (EPA), R10: Humphrey, Chip (EPA), R10: Poulsen, Mike (Oregon Dept. of Environmental Quality), R10: Fricano, Gail (Industrial Economics, Inc.), R10: Delvecchio, Rachel (Industrial Economics, Inc.), R10: Humphreys, Brandy (Grand Ronde Tribe), R10: Penoyar, Susan, J (CDM), R10: Longoria, Rose (Yakama Nation), R10: Williams, J., D (Law Offices of J. D. Williams), R10: King, Todd (CDM Smith), R10: Johnson, Matt (WilliamsJohnson), R10: Gainer, Tom (Unknown), R10: Peterson, Jenn, L (Unknown), R10: Liverman, Alex (Unknown), R10: Weis, Julie (Haglund Kelley, LLP)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100011965	11/7/2013	Email Regarding DEQ Hot Spot Guidance Link.	49	1 EML / Email	R10: Mcclincy, Matt (Oregon Dept. of Environmental Quality)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100011967	12/17/2013	Total cPAH Hot Spots - HotSpotMap cPAH.	370	1 CORR / Correspondence	R10: (EPA)	R10: (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100011968	12/17/2013	Total DDx Hot Spots - HotSpotMap DDx.	378	1 CORR / Correspondence	R10: (EPA)	R10: (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100011969	12/17/2013	Total PCB Hot Spots - HotSpotMap PCB.	394	1 CORR / Correspondence	R10: (EPA)	R10: (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100011970	12/17/2013	PeCDF Hot Spots - HotSpotMap PeCDF.	378	1 CORR / Correspondence	R10: (EPA)	R10: (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100011966	12/18/2013	Email Regarding Hot Spots Maps.	42	1 EML / Email	R10: Koch, Kristine, M (EPA)	R10: Gainer, Tom (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100011974	1/6/2014	Total PCBs Hot Spots, COC Concentration Divided by Hot Spot Concentration (0.001 mg/kg) - HotSpotMaps_rev_PCB.	456	1 CORR / Correspondence	R10: (EPA)	R10: (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100011971	1/22/2014	Email Regarding Hot Spots.	108	4 EML / Email	R10: King, Todd (CDM Smith)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA), R10: Gainer, Tom (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100011972	1/29/2014	Email Regarding Hot Spots High Mobility.	111	4 EML / Email	R10: King, Todd (CDM Smith)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA), R10: Gainer, Tom (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement



100011973	1/29/2014	BaPEQ ODEQ (Oregon Dept. of Environmental Quality) Hotspot High Mobility - Hotspot High Mobility.	1,309	6 CORR / Correspondence	R10: (EPA)	R10: (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100011977	1/29/2014	BaPEQ ODEQ (Oregon Dept. of Environmental Quality) Hotspot High Mobility - Highly Mobile_BaPEq.	242	1 CORR / Correspondence	R10: (EPA)	R10: (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100008059	1/31/2014	Groundwater and Bank Soil Source Control Evaluation: Appendix A: Pore Water Sampling Results.	13,649	209 RPT / Report	R10: (CH2M Hill, Inc.)	R10: (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100011975	2/4/2014	Total PCBs Hot Spots COC Concentration Divided by Hot Spot Concentration (0.012 mg/kg) - HotSpotMaps_rev_PCB_012.	461	1 CORR / Correspondence	R10: (EPA)	R10: (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100011976	2/4/2014	Email Regarding Response to 1/29/14 Email About Hot Spots.	49	1 EML / Email	R10: King, Todd (CDM Smith)	R10: Gainer, Tom (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100011978	2/4/2014	Email Regarding Hot Spots.	113	5 EML / Email	R10: King, Todd (CDM Smith)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA), R10: Gainer, Tom (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100011979	2/4/2014	BaPEq ODEQ (Oregon Dept. of Environmental Quality) Hotspot High Mobility - Hotspot High Mobility_20140204.	1,311	6 CORR / Correspondence	R10: (EPA)	R10: (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100011992	2/4/2014	Attachment 1, Figures, Highly Mobile - Attach1Figures_HighlyMobile_pw.	1,983	8 CORR / Correspondence	R10: (EPA)	R10: (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100011980	2/6/2014	Email Regarding Hot Spots.	110	4 EML / Email	R10: Gainer, Tom (Oregon Dept. of Environmental Quality)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA), R10: King, Todd (CDM Smith)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100011981	2/6/2014	Email Regarding Response to 1/29/14 Email About Hot Spots.	56	2 EML / Email	R10: Gainer, Tom (Oregon Dept. of Environmental Quality)	R10: King, Todd (CDM Smith)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100011984	2/12/2014	Total PCBs Hot Spots, COC Concentration Divided by Hot Spot Concentration (0.001 mg/kg) - HotSpotMaps_rev_PCB_wth_xhatch.	613	1 CORR / Correspondence	R10: (EPA)	R10: (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100011982	2/14/2014	Email Regarding Hot Spots.	58	2 EML / Email	R10: Humphrey, Chip (EPA)	R10: Gainer, Tom (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100011983	2/18/2014	Email Regarding Hot Spots.	61	3 EML / Email	R10: King, Todd (CDM Smith)	R10: Humphrey, Chip (EPA), R10: Gainer, Tom (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100011985	3/3/2014	Email Regarding ODEQ (Oregon Dept. of Environmental Quality) Highly Mobile - Attachment1Figures.	403	7 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100011986	3/3/2014	Email Regarding ODEQ (Oregon Dept. of Environmental Quality) Highly Mobile - Attachment2Figures.	483	8 EML / Email	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100011987	3/3/2014	Email Regarding ODEQ (Oregon Dept. of Environmental Quality) Highly Mobile. Figures for Methodology for Calculating ODEQ (Oregon Dept. of Environmental Quality) Hot Spots Exceeding the Highly Mobile Threshold - Hot Spot Maps - Attach2Figures_HighlyMobile_sed.	53	2 EML / Email	R10: King, Todd (CDM Smith)	R10: Parrett, Kevin (Oregon Dept. of Environmental Quality), R10: McClincy, Matt (Oregon Dept. of Environmental Quality), R10: Gainer, Tom (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100011989	3/3/2014	Hot Spot Maps - Attach2Figures_HighlyMobile_sed.	403	7 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100011994	3/6/2014	HotSpotMaps_rev_DioxinFuran.	460	1 CORR / Correspondence	R10: (EPA)	R10: (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100011991	3/7/2014	Email Regarding ODEQ (Oregon Dept. of Environmental Quality) Maps.	76	1 EML / Email	R10: King, Todd (CDM Smith)	R10: Parrett, Kevin (Oregon Dept. of Environmental Quality), R10: McClincy, Matt (Oregon Dept. of Environmental Quality), R10: Gainer, Tom (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100011993	3/7/2014	Attachment 2, Figures, Highly Mobile - Attach2Figures_HighlyMobile_sed.	2,656	8 CORR / Correspondence	R10: (EPA)	R10: (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100008060	8/1/2014	Groundwater and Bank Soil Source Control Evaluation: Appendix C - Extraction Well Step Drawdown Testing Results.	12,652	47 RPT / Report	R10: (CH2M Hill, Inc.)	R10: (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100014522	8/1/2014	REDACTED Email regarding LWG Comments on Revised FS Section 2.	153	8 EML / Email	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	R10: Parrett, Kevin (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100014571	11/21/2014	REDACTED Email Regarding DEQ Portland Harbor Source Control Summary Report_Portland Harbor Source Control Summary Report.	59	2 EML / Email	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	R10: Fuentes, Rene, R10: Allen, Elizabeth, R10: Sheldrake, Sean, R10: Angle, Genevieve (NOAA), R10: Neely, Robert (NOAA), R10: Buck, Jeremy (U. S. Fish and Wildlife Service), R10: Conley, Alanna (Unknown), R10: Shephard, Burt (Unknown), R10: Cabral, Rita (Industrial Economics, Incorporated), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Cunninghame, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Karnosh, Michael (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Koch, Kristine, M (EPA), R10: Muza, Richard (EPA), R10: Fricano, Gail (Industrial Economics, Inc.), R10: Delvecchio, Rachel (Industrial Economics, Inc.), R10: Callahan, Kristin (Ridolfi, Inc.), R10: Bianco, Paul (Ridolfi, Inc.), R10: Partridge, Holly (Grand Ronde Tribe), R10: Sudbury, Ryan (Grand Ronde Tribe), R10: King, Todd (CDM Smith), R10: Weis, Julie (Haglund Kelley Jones & Wilder LLP), R10: Hagerman, Paul (Unknown), R10: Williams, Jd (Unknown), R10: Gainer, Tom (Unknown), R10: Coffey, Scott (Unknown), R10: Moses, Gabriel (Unknown), R10: Peterson, Jenn, L (Unknown), R10: Liverman, Alex (Unknown), R10: Dexter, Bob (Unknown), R10: (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100011997	12/10/2014	Email Regarding Final SCD (Source Control Decision) for Swan Island Upland Facility.	43	1 EML / Email	R10: Muza, Richard (EPA)	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100011998	12/10/2014	Letter Regarding Final Source Control Decision (SCD) for the Swan Island Upland Facility - FSCD_OU1SIUF.	22	1 CORR / Correspondence	R10: Muza, Richard (EPA)	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100011999	12/17/2014	Email Regarding Willamette River Downtown Reach DEQ-EPA Talking Points.	50	1 EML / Email	R10: Gainer, Tom (Oregon Dept. of Environmental Quality)	R10: Sheldrake, Sean, A (EPA), R10: Koch, Kristine, M (EPA), R10: Conley, Alanna (EPA), R10: Morrison, Kay (EPA), R10: Muza, Richard (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement

100014595	12/22/2014	REDACTED Email Regarding Proposed Source Control Decision - Port of Portland Operable Unit 4 Swan Island_Proposed Source Control Decision - Port of Portland OU4 Swan Island.	90	1 EML / Email	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	R10: Fuentes, Rene, R10: Allen, Elizabeth, R10: Angle, Genevieve (NOAA), R10: Neely, Robert (NOAA), R10: Ridolfi, Callie, A (Ridolfi Engineers and Associates, Inc.), R10: Buck, Jeremy (U. S. Fish and Wildlife Service), R10: Conley, Alanna (Unknown), R10: Shephard, Burt (Unknown), R10: Madden, Erin (Unknown), R10: Weis, Juile (Unknown), R10: Cabral, Rita (Industrial Economics, Incorporated), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Cunninghame, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Karnosh, Michael (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Sheldrake, Sean, A (EPA), R10: Koch, Kristine, M (EPA), R10: Muza, Richard (EPA), R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality), R10: Poulsen, Mike (Oregon Dept. of Environmental Quality), R10: Fricano, Gail (Industrial Economics, Inc.), R10: Delvecchio, Rachel (Industrial Economics, Inc.), R10: Partridge, Holly (Grand Ronde Tribe), R10: Sudbury, Ryan (Grand Ronde Tribe), R10: Longoria, Rose (Yakama Nation), R10: King, Todd (CDM Smith), R10: Williams, Jd (Unknown), R10: Gainer, Tom (Unknown), R10: Coffey, Scott (Unknown), R10: Moses, Gabriel (Unknown), R10: Liverman, Alex (Unknown), R10: Dexter, Bob (Unknown), R10: (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100014599	1/7/2015	REDACTED Email Regarding Proposed Source Control Decision - Port of Portland Operable Unit 4 Swan Island_Proposed Source Control Decision Port of Portland OU 4 Swan Island. Memorandum: Operable Unit 5 Swan Island Upland Facility File ECSI #271 - Proposed Source Control Decision for Source Control Measure.	95	2 EML / Email	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	R10: Fuentes, Rene, R10: Allen, Elizabeth, R10: Angle, Genevieve (NOAA), R10: Neely, Robert (NOAA), R10: Buck, Jeremy (U. S. Fish and Wildlife Service), R10: Conley, Alanna (Unknown), R10: Madden, Erin (Unknown), R10: Weis, Juile (Unknown), R10: Cabral, Rita (Industrial Economics, Incorporated), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Cunninghame, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Ridolfi, Callie (Ridolfi Engineers, Inc.), R10: Karnosh, Michael (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Sheldrake, Sean, A (EPA), R10: Koch, Kristine, M (EPA), R10: Muza, Richard (EPA), R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality), R10: Poulsen, Mike (Oregon Dept. of Environmental Quality), R10: Fricano, Gail (Industrial Economics, Inc.), R10: Delvecchio, Rachel (Industrial Economics, Inc.), R10: Partridge, Holly (Grand Ronde Tribe), R10: Longoria, Rose (Yakama Nation), R10: King, Todd (CDM Smith), R10: Williams, Jd (Unknown), R10: Coffey, Scott (Unknown), R10: Moses, Gabriel (Unknown), R10: Liverman, Alex (Unknown), R10: Dexter, Bob (Unknown), R10: (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100008833	1/19/2015	REDACTED Email Regarding Proposed Source Control Decision - Historical Drainage Ditch Area Rhone-Poulenc Site_Proposed Source Control Decision Rhone-Poulenc.	4,304	82 MEMO / Memorandum	R10: Lacey, David (Oregon Dept. of Environmental Quality)	R10: (File)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100014538	1/29/2015	REDACTED Email Regarding Proposed Source Control Decision - Historical Drainage Ditch Area Rhone-Poulenc Site_Proposed Source Control Decision Rhone-Poulenc.	77	2 EML / Email	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	R10: Fuentes, Rene, R10: Allen, Elizabeth, R10: Angle, Genevieve (NOAA), R10: Neely, Robert (NOAA), R10: Buck, Jeremy (U. S. Fish and Wildlife Service), R10: Conley, Alanna (Unknown), R10: Shephard, Burt (Unknown), R10: Madden, Erin (Unknown), R10: Cabral, Rita (Industrial Economics, Incorporated), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Cunninghame, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Ridolfi, Callie (Ridolfi Engineers, Inc.), R10: Karnosh, Michael (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Sheldrake, Sean, A (EPA), R10: Koch, Kristine, M (EPA), R10: Muza, Richard (EPA), R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality), R10: Poulsen, Mike (Oregon Dept. of Environmental Quality), R10: Fricano, Gail (Industrial Economics, Inc.), R10: Delvecchio, Rachel (Industrial Economics, Inc.), R10: Partridge, Holly (Grand Ronde Tribe), R10: Sudbury, Ryan (Grand Ronde Tribe), R10: King, Todd (CDM Smith), R10: Weis, Julie (Haglund Kelley Jones & Wilder LLP), R10: Hagerman, Paul (Unknown), R10: Williams, Jd (Unknown), R10: Gainer, Tom (Unknown), R10: Coffey, Scott (Unknown), R10: Moses, Gabriel (Unknown), R10: Liverman, Alex (Unknown), R10: Dexter, Bob (Unknown), R10: (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100014539	1/30/2015	REDACTED Email Regarding Proposed Source Control Decision - Oregon Beverage Recycling Cooperative_Proposed Source Control Decision Oregon Beverage Recycling Cooperative.	75	1 EML / Email	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	R10: Fuentes, Rene, R10: Allen, Elizabeth, R10: Angle, Genevieve (NOAA), R10: Neely, Robert (NOAA), R10: Buck, Jeremy (U. S. Fish and Wildlife Service), R10: Conley, Alanna (Unknown), R10: Shephard, Burt (Unknown), R10: Madden, Erin (Unknown), R10: Cabral, Rita (Industrial Economics, Incorporated), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Cunninghame, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Ridolfi, Callie (Ridolfi Engineers, Inc.), R10: Karnosh, Michael (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Sheldrake, Sean, A (EPA), R10: Koch, Kristine, M (EPA), R10: Muza, Richard (EPA), R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality), R10: Poulsen, Mike (Oregon Dept. of Environmental Quality), R10: Fricano, Gail (Industrial Economics, Inc.), R10: Delvecchio, Rachel (Industrial Economics, Inc.), R10: Partridge, Holly (Grand Ronde Tribe), R10: Longoria, Rose (Yakama Nation), R10: King, Todd (CDM Smith), R10: Weis, Julie (Haglund Kelley Jones & Wilder LLP), R10: Hagerman, Paul (Unknown), R10: Williams, Jd (Unknown), R10: Gainer, Tom (Unknown), R10: Coffey, Scott (Unknown), R10: Moses, Gabriel (Unknown), R10: Liverman, Alex (Unknown), R10: Dexter, Bob (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement

100014531	2/5/2015	REDACTED Email Regarding Draft Source Control Decision for Oregon Beverage Recycling_Draft Source Control Decision for Oregon Beverage Recycling.	116	2 EML / Email	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	Angle, Genevieve (NOAA), R10: Buck, Jeremy (U. S. Fish and Wildlife Service), R10: Conley, Alanna (Unknown), R10: Shephard, Burt (Unknown), R10: Madden, Erin (Unknown), R10: Cabral, Rita (Industrial Economics, Incorporated), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Cunninghame, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Ridolfi, Callie (Ridolfi Engineers, Inc.), R10: Karnosh, Michael (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Sheldrake, Sean, A (EPA), R10: Koch, Kristine, M (EPA), R10: Muza, Richard (EPA), R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality), R10: Poulsen, Mike (Oregon Dept. of Environmental Quality), R10: Gainer, Tom (Oregon Dept. of Environmental Quality), R10: Fricano, Gail (Industrial Economics, Inc.), R10: Delvecchio, Rachel (Industrial Economics, Inc.), R10: Partridge, Holly (Grand Ronde Tribe), R10: Sudbury, Ryan (Grand Ronde Tribe), R10: Longoria, Rose (Yakama Nation), R10: King, Todd (CDM Smith), R10: Weis, Julie (Haglund Kelley Jones & Wilder LLP), R10: Hagerman, Paul (Unknown), R10: Williams, Jd (Unknown), R10: Coffey, Scott (Unknown), R10: Moses, Gabriel (Unknown), R10: Liverman, Alex (Unknown), R10: Dexter, Bob (Unknown), R10: (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100014540	2/5/2015	REDACTED Email Regarding Draft Source Control Decision Rhone-Poulenc Historical Drainage Ditch_Draft Source Control Decision Rhone-Poulenc.	95	2 EML / Email	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	Angle, Genevieve (NOAA), R10: Buck, Jeremy (U. S. Fish and Wildlife Service), R10: Conley, Alanna (Unknown), R10: Shephard, Burt (Unknown), R10: Madden, Erin (Unknown), R10: Cabral, Rita (Industrial Economics, Incorporated), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Cunninghame, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Ridolfi, Callie (Ridolfi Engineers, Inc.), R10: Karnosh, Michael (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Sheldrake, Sean, A (EPA), R10: Koch, Kristine, M (EPA), R10: Muza, Richard (EPA), R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality), R10: Poulsen, Mike (Oregon Dept. of Environmental Quality), R10: Gainer, Tom (Oregon Dept. of Environmental Quality), R10: Fricano, Gail (Industrial Economics, Inc.), R10: Delvecchio, Rachel (Industrial Economics, Inc.), R10: Partridge, Holly (Grand Ronde Tribe), R10: Sudbury, Ryan (Grand Ronde Tribe), R10: Longoria, Rose (Yakama Nation), R10: King, Todd (CDM Smith), R10: Weis, Julie (Haglund Kelley Jones & Wilder LLP), R10: Hagerman, Paul (Unknown), R10: Williams, Jd (Unknown), R10: Coffey, Scott (Unknown), R10: Moses, Gabriel (Unknown), R10: Liverman, Alex (Unknown), R10: Dexter, Bob (Unknown), R10: (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100014532	2/11/2015	REDACTED Email Regarding LWG Comments on DEQ Source Control Summary Report_LWG Comments on DEQ Source Control Summary Report.	102	2 EML / Email	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	Angle, Genevieve (NOAA), R10: Neely, Robert (NOAA), R10: Buck, Jeremy (U. S. Fish and Wildlife Service), R10: Conley, Alanna (Unknown), R10: Shephard, Burt (Unknown), R10: Madden, Erin (Unknown), R10: Cabral, Rita (Industrial Economics, Incorporated), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Cunninghame, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Ridolfi, Callie (Ridolfi Engineers, Inc.), R10: Karnosh, Michael (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Sheldrake, Sean, A (EPA), R10: Koch, Kristine, M (EPA), R10: Muza, Richard (EPA), R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality), R10: Poulsen, Mike (Oregon Dept. of Environmental Quality), R10: Gainer, Tom (Oregon Dept. of Environmental Quality), R10: Fricano, Gail (Industrial Economics, Inc.), R10: Delvecchio, Rachel (Industrial Economics, Inc.), R10: Liverman, Alex (Oregon Department of Environmental Quality), R10: Partridge, Holly (Grand Ronde Tribe), R10: Sudbury, Ryan (Grand Ronde Tribe), R10: Longoria, Rose (Yakama Nation), R10: King, Todd (CDM Smith), R10: Weis, Julie (Haglund Kelley Jones & Wilder LLP), R10: Hagerman, Paul (Unknown), R10: Williams, Jd (Unknown), R10: Coffey, Scott (Unknown), R10: Moses, Gabriel (Unknown), R10: Dexter, Bob (Unknown), R10: (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100019922	2/19/2015	Proposed Changes to FS Language on Institutional Controls.	150	5 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100012001	2/25/2015	Email Regarding EPA Review of OBRC (Oregon Beverage Recycling Cooperative) Final SCD (Source Control Decision).	43	1 EML / Email	R10: Muza, Richard (EPA)	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100012002	2/25/2015	Letter Regarding Review of the Source Control Decision (SCD) for the Oregon Beverage Recycling Cooperative (OBRC) - FSCD_OBRC.	24	1 LTR / Letter	R10: Muza, Richard (EPA)	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100016470	3/11/2015	REDACTED DEQ/EPA Monthly Meeting Agenda. Groundwater and Bank Soil Source Control Evaluation: Appendix D: Barrier Wall	76	1 CORR / Correspondence	R10: Robinson, Deborah, G (EPA)	R10: (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100008061	4/1/2015	REDACTED Draft DEQ/EPA Monthly Meeting Agenda.	12,158	22 RPT / Report	R10: (CH2M Hill, Inc.)	R10: (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100016472	4/8/2015	REDACTED Draft DEQ/EPA Monthly Meeting Agenda.	79	2 CORR / Correspondence	R10: Robinson, Deborah, G (EPA)	R10: (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100018031	4/16/2015	REDACTED Email Regarding Agenda for Tomorrow's Call at 2pm PDT on Portland Harbor Cleanup.	110	1 EML / Email	R10: Ross, Bill (Ross Strategic)	R10: McClerran, Dennis (EPA), R10: Pedersen, Dick (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100016444	4/17/2015	REDACTED Dick/Dennis Monthly Call.	72	1 CORR / Correspondence	R10: Robinson, Deborah, G (EPA)	R10: (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100016474	5/13/2015	REDACTED Draft DEQ/EPA Monthly Meeting Agenda.	91	2 CORR / Correspondence	R10: Robinson, Deborah, G (EPA)	R10: (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100016941	5/22/2015	Email Regarding EPA Input on ODEQ Source Control Talking Points.	117	2 EML / Email	R10: Grandinetti, Cami (EPA)	R10: Sheldrake, Sean, A (EPA), R10: Robinson, Deborah, G (EPA), R10: Cora, Lori, H (EPA), R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100017051	5/28/2015	Email regarding Portland Harbor: draft agenda for the Dick/Dennis call on Monday June 8, 2015.	39	1 EML / Email	R10: Pedersen, Dick (Oregon Dept. of Environmental Quality)	R10: Robinson, Deborah, G (EPA), R10: McClerran, Dennis, J (EPA), R10: Grandinetti, Carmela (Cami), L (EPA), R10: Pirzadeh, Michelle, L (EPA), R10: Zhen, Davis (EPA), R10: Johnson, Keith (Oregon Dept. of Environmental Quality), R10: Parrett, Kevin (Oregon Dept. of Environmental Quality), R10: Deconcini, Nina (Oregon Dept. of Environmental Quality), R10: Ross, Bill (Ross Strategic), R10: Roick, Tom (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement

100016964	6/5/2015	Email Regarding Briefing Sheet for June 8 Meeting with Dick and Dennis.	52	1 EML / Email	R10: Grandinetti, Cami (EPA)	R10: Sheldrake, Sean, A (EPA), R10: Robinson, Deborah, G (EPA), R10: Koch, Kristine, M (EPA), R10: Christopher, Anne (EPA), R10: Ross, Bill (EPA), R10: Zhen, Davis (EPA), R10: Allen, Elizabeth (EPA), R10: Demaria, Eva (EPA), R10: Magorrian, Matthew (EPA), R10: Johnson, Keith (Oregon Dept. of Environmental Quality), R10: Parrett, Kevin (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100016475	6/17/2015	REDACTED 2015 6-17 EPA/DEQ Staff? Management Meeting Agenda.	105	2 CORR / Correspondence	R10: Robinson, Deborah, G (EPA)	R10: (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100017886	6/26/2015	REDACTED Email regarding Manager-level update on Portland Harbor permits coordination.	68	2 EML / Email	R10: Liverman, Alex (Oregon Dept. of Environmental Quality) R10: Mcclincy, Matt (Oregon Dept. of Environmental Quality), R10: Liverman, Alex (Oregon Department of Environmental Quality)	R10: Liverman, Marc (NOAA), R10: Sheldrake, Sean, A (EPA), R10: Demaria, Eva (EPA), R10: Davis, Jaimee, W (U.S. Army Corps of Engineers), R10: Johnson, Keith (Oregon Dept. of Environmental Quality), R10: Parrett, Kevin (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100008540	6/29/2015	Presentation: Portland Harbor Source Control Summary Report Guide for the LWG.	1,465	17 MTG / Meeting Document	R10: Liverman, Alex (Oregon Dept. of Environmental Quality)	R10: (Lower Willamette Group)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100008768	6/29/2015	Presentation: Portland Harbor Source Control Summary Report Guide for the LWG.	13,475	17 MTG / Meeting Document	R10: Liverman, Alex (Oregon Dept. of Environmental Quality), R10: Mcclincy, Matt (Oregon Dept. of Environmental Quality)	R10: (Lower Willamette Group)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100008541	6/30/2015	Presentation: Portland Harbor Source Control Stormwater Pathway Evaluation.	2,151	16 MTG / Meeting Document	R10: Liverman, Alex (Oregon Department of Environmental Quality)		ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100016480	7/5/2015	REDACTED 2015 7-8 EPA/DEQ Staff/ Management Meeting Agenda Draft as od 7/5.	116	1 CORR / Correspondence	R10: Robinson, Deborah, G (EPA)	R10: (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100017039	7/8/2015	Email regarding Portland Harbor: Agenda for Dennis/Dick/Jim Briefing July 9 at 2:30 PDT, 5:30 EDT.	112	1 EML / Email	R10: Ross, Bill (Ross Strategic)	R10: Woolford, James, E (EPA), R10: McLerran, Dennis, J (EPA), R10: Pedersen, Dick (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100017435	7/23/2015	REDACTED Email regarding 4784 Container Management Document Forwarding to EPA - Link to Lab Reports.	84	3 EML / Email	R10: Bazargani, Mohammad (SLR International Corporation)	R10: Orr, Jim (Oregon Dept. of Environmental Quality), R10: Zanone, Dana (Zanone Consulting)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100017032	7/31/2015	Email regarding Portland Harbor: 8/7 Draft Agenda.	120	2 EML / Email	R10: Ross, Bill (Ross Strategic)	R10: Robinson, Deborah, G (EPA), R10: Grandinetti, Carmela (Cami), L (EPA), R10: Koch, Kristine, M (EPA), R10: Zhen, Davis (EPA), R10: Allen, Elizabeth (EPA), R10: Parrett, Kevin (Oregon Dept. of Environmental Quality), R10: Roick, Tom (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100008037	8/1/2015	Groundwater and Bank Soil Source Control Evaluation: Appendix E: LNAPL Mobility Analysis.	3,935	29 RPT / Report	R10: (CH2M Hill, Inc.)	R10: (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100017400	8/10/2015	REDACTED EPA Region 10 - Site Safety Plan Oregon Steel Mills (Evraz) Visit.	84	11 CORR / Correspondence	R10: Bell, Cathe (EPA)	R10: (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100008536	8/11/2015	DEQ comments on Data Gap Investigation and Stormwater Assessment Workplan, 10/14 and 5/7/15, GeoPro Comment Responses, State Battery Site, ECSI #1007.	1,145	6 CORR / Correspondence	R10: Orr, Jim (Oregon Dept. of Environmental Quality)	R10: Kent, Richard, C (GeoPro Geologic Services, LLC)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100020076	8/18/2015	REDACTED Email regarding Portland Harbor FS Section 4.	108	3 EML / Email	R10: Koch, Kristine, M (EPA)	R10: Mcclincy, Matt (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100020077	8/18/2015	REDACTED Email regarding Portland Harbor FS Section 4.	108	4 EML / Email	R10: Koch, Kristine, M (EPA)	R10: Mcclincy, Matt (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100020085	8/18/2015	REDACTED Email regarding Portland Harbor FS Section 4.	108	3 EML / Email	R10: Koch, Kristine, M (EPA)	R10: Mcclincy, Matt (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100020086	8/18/2015	REDACTED Email regarding Portland Harbor FS Section 4.	108	4 EML / Email	R10: Koch, Kristine, M (EPA)	R10: Mcclincy, Matt (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100017431	8/24/2015	REDACTED Email regarding HASP for site visit to Evraz Oregon Steel Mills 9/10/15.	85	1 EML / Email	R10: Maxwell, Grady (EPA)	R10: Demaria, Eva (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100017889	8/27/2015	REDACTED Email regarding EPA update.	40	1 EML / Email	R10: Demaria, Eva (EPA)	R10: Liverman, Alex (Oregon Dept. of Environmental Quality), R10: Lacey, David (Oregon Dept. of Environmental Quality), R10: Orr, Jim (Oregon Dept. of Environmental Quality), R10: Thiessen, Kenneth (Oregon Dept. of Environmental Quality), R10: Mcclincy, Matt (Oregon Dept. of Environmental Quality), R10: Manzano, Scott (Oregon Dept. of Environmental Quality), R10: McDonnell, Erin (Oregon Department of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100017428	8/28/2015	REDACTED Email regarding COP stormwater topsoil import data.	117	3 EML / Email	R10: Demaria, Eva (EPA)	R10: Sutter, Jennifer, L (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100017871	8/28/2015	REDACTED Email regarding Premier Edible Oils Site - Groundwater Source Control Measure Draft Design Report.	94	3 EML / Email	R10: Demaria, Eva (EPA)	R10: McDonnell, Erin (Oregon Department of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100008609	9/1/2015	Annual Groundwater Monitoring Sampling and Analysis Plan: BP Terminal 22T.	5,090	77 WP / Work Plan	R10: (AECOM)	R10: (Atlantic Richfield Company)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100017031	9/8/2015	Email regarding EPA Decision Matrix for Technology Assignments.pptx.	97	1 EML / Email	R10: Roick, Tom (Oregon Dept. of Environmental Quality)	R10: Robinson, Deborah, G (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100017040	9/10/2015	Email regarding Talking Points for your Presentation to Richard Whitman.	98	1 EML / Email	R10: Parrett, Kevin (Oregon Dept. of Environmental Quality)	R10: Zhen, Davis (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100017042	9/10/2015	Email regarding Portland Harbor: Agenda for Today's Call for Dennis, Dick and Jim.	110	1 EML / Email	R10: Ross, Bill (Ross Strategic)	R10: Woolford, James, E (EPA), R10: Robinson, Deborah, G (EPA), R10: McLerran, Dennis, J (EPA), R10: Grandinetti, Carmela (Cami), L (EPA), R10: Pirzadeh, Michelle, L (EPA), R10: Koch, Kristine, M (EPA), R10: Stalcup, Dana (EPA), R10: Zhen, Davis (EPA), R10: Pedersen, Dick (Oregon Dept. of Environmental Quality), R10: Johnson, Keith (Oregon Dept. of Environmental Quality), R10: Parrett, Kevin (Oregon Dept. of Environmental Quality), R10: Deconcini, Nina (Oregon Dept. of Environmental Quality), R10: Roick, Tom (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement

100017864	9/18/2015	REDACTED Email regarding Agenda for TCT meeting 9/23/15, 9-11 am.	58	2 EML / Email	R10: Demaria, Eva (EPA)	(NOAA), R10: Neely, Robert (NOAA), R10: Buck, Jeremy (U. S. Fish and Wildlife Service), R10: Johnson, Courtney (Unknown), R10: Cabral, Rita (Industrial Economics, Incorporated), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Cunninghame, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Ward, Elmer (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Ridolfi, Callie (Ridolfi Engineers, Inc.), R10: Partridge, Holly (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Karnosh, Michael (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Sheldrake, Sean, A (EPA), R10: Fuentes, Rene, C (EPA), R10: Robinson, Deborah, G (EPA), R10: Ells, Stephen, J (EPA), R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA), R10: Legare, Amy, R (EPA), R10: Charters, David, W (EPA), R10: Conley, Alanna (EPA), R10: Christopher, Anne (EPA), R10: Shephard, Burt (EPA), R10: Allen, Elizabeth (EPA), R10: Morrison, Kay (EPA), R10: Fonseca, Silvina (EPA), R10: Moses, Gabriel (Nez Perce Tribe), R10: Roick, Thomas, E (Oregon Dept. of Environmental Quality), R10: Liverman, Alex (Oregon Dept. of Environmental Quality), R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality), R10: Parrett, Kevin (Oregon Dept. of	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100008543	9/22/2015	Presentation: PGE Downtown Reach Remediation, River Mile 13.1 Sediment Cap (Inter-Agency Permitting Meeting).	3,842	21 MTG / Meeting Document	R10: (Portland General Electric Company)		ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100008738	9/22/2015	Record of Decision: Selected Remedy for Port of Portland - Swan Island Upland Facility Operable Unit 4.	2,295	64 RPT / Report	R10: (Oregon Dept. of Environmental Quality)		ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100008544	9/23/2015	Agenda: Agency Source Control Coordination Meeting.	13	1 MTG / Meeting Document			ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100008553	9/24/2015	Transmittal Letter with Record of Decision (ROD) for Port of Portland Swan Island Upland Facility Operable Unit (OU) 4.	2,589	58 CORR / Correspondence	R10: Lacey, David (Oregon Dept. of Environmental Quality)	R10: Leisle, Dwight (Port of Portland)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100008555	9/25/2015	DEQ Review of Revised Soil and Cap Management Plan, Operable Unit 4 Swan Island Upland Facility, ECSI #271.	149	1 CORR / Correspondence	R10: Lacey, David (Oregon Dept. of Environmental Quality)	R10: Leisle, Dwight (Port of Portland)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100017829	9/28/2015	REDACTED Email regarding ODOT Source Control.	74	2 EML / Email	R10: Mcclincy, Matt (Oregon Dept. of Environmental Quality)	Robert (NOAA), R10: Buck, Jeremy (U. S. Fish and Wildlife Service), R10: Johnson, Courtney (Unknown), R10: Cabral, Rita (Industrial Economics, Incorporated), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Cunninghame, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Ward, Elmer (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Ridolfi, Callie (Ridolfi Engineers, Inc.), R10: Partridge, Holly (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Karnosh, Michael (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Sheldrake, Sean, A (EPA), R10: Fuentes, Rene, C (EPA), R10: Robinson, Deborah, G (EPA), R10: Ells, Stephen, J (EPA), R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA), R10: Legare, Amy, R (EPA), R10: Charters, David, W (EPA), R10: Conley, Alanna (EPA), R10: Christopher, Anne (EPA), R10: Shephard, Burt (EPA), R10: Allen, Elizabeth (EPA), R10: Demaria, Eva (EPA), R10: Morrison, Kay (EPA), R10: Fonseca, Silvina (EPA), R10: Moses, Gabriel (Nez Perce Tribe), R10: Roick, Thomas, E (Oregon Dept. of Environmental Quality), R10: Liverman, Alex (Oregon Dept. of Environmental Quality), R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality), R10: Poulsen, Mike (Oregon Dept. of Environmental Quality), R10:	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100007721	10/1/2015	Voluntary Cleanup Pathway Final Report for Brazil Motors and Control.	49,381	239 RPT / Report	R10: (Terra Hydr, Inc.)	R10: (Brazil Motors & Controls, inc.)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100008834	10/9/2015	Third Quarter 2015 Progress Report: Western Star Truck Manufacturing Plant (DEQ No. WMCVC-NWR-03-02 and ECSI No. 2366).	220	4 LTR / Letter	R10: St. John, Anna (Bridgewater Group, Inc.)	R10: Mcdonnell, Erin (Oregon Department of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100017219	10/13/2015	REDACTED Email regarding Former Bird Roofing SSCE.	65	2 EML / Email	R10: Thiessen, Kenneth (Oregon Dept. of Environmental Quality)	R10: Demaria, Eva (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100018125	10/13/2015	REDACTED Email regarding Monthly EPA/DEQ Staff/Manager Meetings - Updated Logistical Info.	94	3 EML / Email	R10: Parrett, Kevin (Oregon Dept. of Environmental Quality)	R10: Macintyre, Mark, A (EPA), R10: Sheldrake, Sean, A (EPA), R10: Robinson, Deborah, G (EPA), R10: Ells, Stephen, J (EPA), R10: Grandinetti, Carmela (Cami), L (EPA), R10: Koch, Kristine, M (EPA), R10: Legare, Amy, R (EPA), R10: Charters, David, W (EPA), R10: Conley, Alanna (EPA), R10: Christopher, Anne (EPA), R10: Stalcup, Dana (EPA), R10: Zhen, Davis (EPA), R10: Ammon, Doug (EPA), R10: Allen, Elizabeth (EPA), R10: Fleming, Sheila (EPA), R10: Fonseca, Silvina (EPA), R10: Gilles, Bruce, A (Oregon Dept. of Environmental Quality), R10: Johnson, Keith (Oregon Dept. of Environmental Quality), R10: Mcclincy, Matt (Oregon Dept. of Environmental Quality), R10: Deconcini, Nina (Oregon Dept. of Environmental Quality), R10: Ross, Bill (Oregon Strategic), R10: Roick, Tom (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100020087	10/13/2015	REDACTED Email regarding Monthly EPA/DEQ Staff/Manager Meetings - Updated Logistical Info.	87	2 EML / Email	R10: Ross, Bill (Unknown)	R10: Macintyre, Mark, A (EPA), R10: Sheldrake, Sean, A (EPA), R10: Robinson, Deborah, G (EPA), R10: Ells, Stephen, J (EPA), R10: Koch, Kristine, M (EPA), R10: Legare, Amy, R (EPA), R10: Charters, David, W (EPA), R10: Conley, Alanna (EPA), R10: Christopher, Anne (EPA), R10: Grandinetti, Cami (EPA), R10: Stalcup, Dana (EPA), R10: Zhen, Davis (EPA), R10: Ammon, Doug (EPA), R10: Allen, Elizabeth (EPA), R10: Fleming, Sheila (EPA), R10: Fonseca, Silvina (EPA), R10: Gilles, Bruce, A (Oregon Dept. of Environmental Quality), R10: Roick, Thomas, E (Oregon Dept. of Environmental Quality), R10: Johnson, Keith (Oregon Dept. of Environmental Quality), R10: Parrett, Kevin (Oregon Dept. of Environmental Quality), R10: Mcclincy, Matt (Oregon Dept. of Environmental Quality), R10: Deconcini, Nina (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100017220	10/15/2015	REDACTED Email regarding Former Bird Roofing SSCE.	76	2 EML / Email	R10: Demaria, Eva (EPA)	R10: Thiessen, Kenneth (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement



100017223	10/23/2015	REDACTED Email regarding EPA comments on the former Mt. Hood Solutions Site draft Stormwater SCE Work Plan.	82	2 EML / Email	R10: Demaria, Eva (EPA)	R10: Orr, Jim (Oregon Dept. of Transportation)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100017890	10/23/2015	REDACTED Email regarding site visit opportunities for Eva.	61	1 EML / Email	R10: Liverman, Alex (Oregon Dept. of Environmental Quality)	R10: Demaria, Eva (EPA) Robert (NOAA), R10: Buck, Jeremy (U. S. Fish and Wildlife Service), R10: Johnson, Courtney (Unknown), R10: Cabral, Rita (Industrial Economics, Incorporated), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Cunninghame, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Ward, Elmer (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Ridolfi, Callie (Ridolfi Engineers, Inc.), R10: Partridge, Holly (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Karnosh, Michael (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Sheldrake, Sean, A (EPA), R10: Fuentes, Rene, C (EPA), R10: Robinson, Deborah, G (EPA), R10: Ellis, Stephen, J (EPA), R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA), R10: Legare, Amy, R (EPA), R10: Charters, David, W (EPA), R10: Conley, Alanna (EPA), R10: Christopher, Anne (EPA), R10: Shephard, Burt (EPA), R10: Allen, Elizabeth (EPA), R10: Morrison, Kay (EPA), R10: Fonseca, Silvina (EPA), R10: Moses, Gabriel (Nez Perce Tribe), R10: Roick, Thomas, E (Oregon Dept. of Environmental Quality), R10: Liverman, Alex (Oregon Dept. of Environmental Quality), R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality), R10: Parrett, Kevin (Oregon Dept. of Environmental Quality), R10: McClincy, Matt	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100017868	10/26/2015	REDACTED Email regarding Portland Harbor TCT Meeting, Wednesday, October 28, 2015, 9-11 am.	65	2 EML / Email	R10: Demaria, Eva (EPA)	R10: Liverman, Alex (Oregon Dept. of Environmental Quality), R10: McClincy, Matt	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100017422	11/2/2015	REDACTED Email regarding Evraz Oregon Steel Groundwater report.	151	3 EML / Email	R10: Sutter, Jennifer, L (Oregon Dept. of Environmental Quality)	R10: Demaria, Eva (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100017850	11/6/2015	REDACTED Email regarding ODOT Source Control.	98	2 EML / Email	R10: Demaria, Eva (EPA)	R10: Liverman, Alex (Oregon Dept. of Environmental Quality), R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100020064	11/10/2015	REDACTED Email regarding EPA/DEQ Staff/Management Meeting - updated location and VTC info.	61	2 EML / Email	R10: Parrett, Kevin (Oregon Dept. of Environmental Quality)	R10: Macintyre, Mark, A (EPA), R10: Sheldrake, Sean, A (EPA), R10: Robinson, Deborah, G (EPA), R10: Ellis, Stephen, J (EPA), R10: Koch, Kristine, M (EPA), R10: Legare, Amy, R (EPA), R10: Charters, David, W (EPA), R10: Conley, Alanna (EPA), R10: Christopher, Anne (EPA), R10: Grandinetti, Cami (EPA), R10: Stalcup, Dana (EPA), R10: Zhen, Davis (EPA), R10: Ammon, Doug (EPA), R10: Allen, Elizabeth (EPA), R10: Demaria, Eva (EPA), R10: Morrison, Kay (EPA), R10: Fonseca, Silvina (EPA), R10: Skadowski, Suzanne (EPA), R10: Townsend, Thomas (EPA), R10: Gilles, Bruce, A (Oregon Dept. of Environmental Quality), R10: Roick, Thomas, E (Oregon Dept. of Environmental Quality), R10: Johnson, Keith (Oregon Dept. of Environmental Quality), R10: McClincy, Matt (Oregon Dept. of Environmental Quality), R10: Deconcini, Nina (Oregon Dept. of Environmental Quality), R10: Ross, Bill (Unknown), R10: Poland, Melody (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100020088	11/10/2015	REDACTED Email regarding EPA/DEQ Staff/Management Meeting - updated location and VTC info.	61	2 EML / Email	R10: Parrett, Kevin (Oregon Dept. of Environmental Quality)	R10: Macintyre, Mark, A (EPA), R10: Sheldrake, Sean, A (EPA), R10: Robinson, Deborah, G (EPA), R10: Ellis, Stephen, J (EPA), R10: Koch, Kristine, M (EPA), R10: Legare, Amy, R (EPA), R10: Charters, David, W (EPA), R10: Conley, Alanna (EPA), R10: Christopher, Anne (EPA), R10: Grandinetti, Cami (EPA), R10: Stalcup, Dana (EPA), R10: Zhen, Davis (EPA), R10: Ammon, Doug (EPA), R10: Allen, Elizabeth (EPA), R10: Demaria, Eva (EPA), R10: Morrison, Kay (EPA), R10: Fonseca, Silvina (EPA), R10: Skadowski, Suzanne (EPA), R10: Townsend, Thomas (EPA), R10: Gilles, Bruce, A (Oregon Dept. of Environmental Quality), R10: Roick, Thomas, E (Oregon Dept. of Environmental Quality), R10: Johnson, Keith (Oregon Dept. of Environmental Quality), R10: McClincy, Matt (Oregon Dept. of Environmental Quality), R10: Deconcini, Nina (Oregon Dept. of Environmental Quality), R10: Ross, Bill (Unknown), R10: Poland, Melody (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100016460	11/12/2015	REDACTED EPA/DEQ Staff/Managers Meeting Agenda.	67	1 CORR / Correspondence	R10: Robinson, Deborah, G (EPA)	R10: (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100012003	11/17/2015	Email Regarding NRRB (National Remedy Review Board) Presentation Questions.	93	2 EML / Email	R10: Koch, Kristine, M (EPA)	R10: Robinson, Deborah, G (EPA), R10: Christopher, Anne (EPA), R10: Liverman, Alex (Oregon Dept. of Environmental Quality), R10: Liverman, Alex (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100017881	11/17/2015	REDACTED Email regarding Declined: Rhone Poulenc conference call.	52	1 EML / Email	R10: Lacey, David (Oregon Dept. of Environmental Quality)	R10: Demaria, Eva (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100012004	11/23/2015	Email Regarding Draft Sediment Recontamination Definition.	98	1 EML / Email	R10: Koch, Kristine, M (EPA)	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100017880	11/24/2015	REDACTED Email regarding Rhone Poulenc conference call cancelled.	107	3 EML / Email	R10: Lacey, David (Oregon Dept. of Environmental Quality)	R10: Demaria, Eva (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement

100017857	11/25/2015	9:30 am-11:00 am. REDACTED Email regarding Portland Harbor TCT Meeting, Wednesday, November 25, 2015.	59	2 EML / Email	R10: Demaria, Eva (EPA)	Robert (NOAA), R10: Buck, Jeremy (U. S. Fish and Wildlife Service), R10: Johnson, Courtney (Unknown), R10: Cabral, Rita (Industrial Economics, Incorporated), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Cunninghame, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Ward, Elmer (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Ridolfi, Callie (Ridolfi Engineers, Inc.), R10: Partridge, Holly (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Karnosh, Michael (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Sheldrake, Sean, A (EPA), R10: Fuentes, Rene, C (EPA), R10: Robinson, Deborah, G (EPA), R10: Ellis, Stephen, J (EPA), R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA), R10: Legare, Amy, R (EPA), R10: Charters, David, W (EPA), R10: Conley, Alanna (EPA), R10: Christopher, Anne (EPA), R10: Shephard, Burt (EPA), R10: Allen, Elizabeth (EPA), R10: Morrison, Kay (EPA), R10: Fonseca, Silvina (EPA), R10: Moses, Gabriel (Nez Perce Tribe), R10: Roick, Thomas, E (Oregon Dept. of Environmental Quality), R10: Liverman, Alex (Oregon Dept. of Environmental Quality), R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality), R10: Parrett, Kevin (Oregon Dept. of Environmental Quality), R10: McClincy, Matt	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100008058	12/1/2015	No. 1096. Groundwater and Bank Soil Source Control Evaluation: Kinder Morgan Linnton Terminal, Oregon Dept. of Environmental Quality ESCI	105,902	842 RPT / Report	R10: (CH2M Hill, Inc.)	R10: (Kinder Morgan Liquids Terminals, LLC)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100008176	12/1/2015	Schematic Utility Plan: Sulzer Office Building (marginalia).	484	1 FIG / Figure/Map/ Drawing	R10: (Sisul Engineering)		ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100016446	12/1/2015	REDACTED EPA/DEQ Director's Teleconference.	43	1 CORR / Correspondence	R10: Robinson, Deborah, G (EPA)	R10: (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100017865	12/8/2015	Wednesday, 9:30-11 am. REDACTED Email regarding 2016 Portland Harbor TCT Meetings, every fourth	43	1 EML / Email	R10: Demaria, Eva (EPA)	Robert (NOAA), R10: Buck, Jeremy (U. S. Fish and Wildlife Service), R10: Johnson, Courtney (Unknown), R10: Cabral, Rita (Industrial Economics, Incorporated), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Cunninghame, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Ward, Elmer (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Ridolfi, Callie (Ridolfi Engineers, Inc.), R10: Partridge, Holly (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Karnosh, Michael (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Sheldrake, Sean, A (EPA), R10: Fuentes, Rene, C (EPA), R10: Robinson, Deborah, G (EPA), R10: Ellis, Stephen, J (EPA), R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA), R10: Legare, Amy, R (EPA), R10: Charters, David, W (EPA), R10: Conley, Alanna (EPA), R10: Christopher, Anne (EPA), R10: Shephard, Burt (EPA), R10: Allen, Elizabeth (EPA), R10: Morrison, Kay (EPA), R10: Fonseca, Silvina (EPA), R10: Moses, Gabriel (Nez Perce Tribe), R10: Roick, Thomas, E (Oregon Dept. of Environmental Quality), R10: Liverman, Alex (Oregon Dept. of Environmental Quality), R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality), R10: Parrett, Kevin (Oregon Dept. of Environmental Quality), R10: McClincy, Matt	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100008612	12/9/2015	Review of Source Control Addendum for Western Star Truck Manufacturing Plant (ECSI #2366).	792	3 CORR / Correspondence	R10: Scheffler, Linda (City of Portland, Bureau of Environmental Services)	R10: Mcdonnell, Erin (Oregon Department of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100016481	12/9/2015	REDACTED EPA/DEQ Staff/Managers Meeting Agenda.	73	1 CORR / Correspondence	R10: Robinson, Deborah, G (EPA)	R10: (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100017424	12/9/2015	REDACTED Email regarding Evraz Oregon Steel Groundwater report.	165	5 EML / Email	R10: Sutter, Jennifer, L (Oregon Dept. of Environmental Quality)	R10: Demaria, Eva (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100008548	12/10/2015	DEQ comments on 9/30/15 Draft Feasibility Study, Priestly/Tarr Facility.	256	4 CORR / Correspondence	R10: Coates, Anna (Oregon Dept. of Environmental Quality)	R10: Tarr, Skip (Tarr, LLC)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100017426	12/10/2015	REDACTED Email regarding Evraz Oregon Steel Groundwater report.	170	5 EML / Email	R10: Demaria, Eva (EPA)	R10: Sheldrake, Sean, A (EPA), R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100016966	12/11/2015	Email Regarding Economic Impacts Studies on Portland Harbor. Comments on Phillips 66 Outfall Basin 22	80	1 EML / Email	R10: Parrett, Kevin (Oregon Dept. of Environmental Quality)	R10: Grandinetti, Cami (EPA), R10: Zhen, Davis (EPA), R10: Holsman, Marianne (EPA), R10: Gilles, Bruce, A (Oregon Dept. of Environmental Quality), R10: Johnson, Keith (Unknown), R10: Roick, Tom (Oregon Dept. of Environmental Quality), R10: Deconcini, Nina (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100008613	12/15/2015	Video Scope Work Plan - Phillips 66 Portland Terminal (ECSI # 177).	1,875	10 CORR / Correspondence	R10: Scheffler, Linda (City of Portland, Bureau of Environmental Services)	R10: Romero, Mike (Oregon Department of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100008556	12/17/2015	Review of DEQ Portland Harbor Upland Source Control Summary Report, 11/21/14.	313	6 CORR / Correspondence	R10: Sanders, Dawn (City of Portland, Oregon), R10: Scheffler, Linda (City of Portland, Bureau of Environmental Services)	R10: Liverman, Alex (Oregon Department of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100007719	12/21/2015	Email transmitting City of Portland comments on the Brazil Motors voluntary cleanup program (VCP) report.	56	1 EML / Email	R10: Scheffler, Linda (City of Portland, Bureau of Environmental Services)	R10: Liverman, Alex (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100007720	12/21/2015	City of Portland comments on the Brazil Motors voluntary cleanup program (VCP) report.	1,140	3 LTR / Letter	R10: Scheffler, Linda (City of Portland, Bureau of Environmental Services)	R10: Liverman, Alex (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100017433	12/21/2015	REDACTED Email regarding Christensen Oil DEQ Final Source Control Decision.	65	1 EML / Email	R10: Demaria, Eva (EPA)	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100017041	12/30/2015	Email regarding Top 10 Issues for Proposed Plan.	76	1 EML / Email	R10: Parrett, Kevin (Oregon Dept. of Environmental Quality)	R10: Grandinetti, Carmela (Cami), L (EPA), R10: Zhen, Davis (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100008076	1/1/2016	Annual Groundwater Monitoring Report: 1st Quarter through 4th Quarter 2015.	13,457	235 RPT / Report	R10: (CH2M Hill, Inc.)	R10: (Kinder Morgan Liquids Terminals, LLC)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100017043	1/7/2016	Email regarding Proposed Agenda for 1pm Managers Call.	79	1 EML / Email	R10: Parrett, Kevin (Oregon Dept. of Environmental Quality)	R10: Robinson, Deborah, G (EPA), R10: Grandinetti, Carmela (Cami), L (EPA), R10: Zhen, Davis (EPA), R10: Johnson, Keith (Oregon Dept. of Environmental Quality), R10: Ross, Bill (Ross Strategic), R10: Roick, Tom (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement

100020067	1/11/2016 REDACTED Email regarding Portland Harbor RI.	49	1 EML / Email	R10: Koch, Kristine, M (EPA)	(NOAA), R10: Neeley, Robert (NOAA), R10: Buck, Jeremy (U. S. Fish and Wildlife Service), R10: Johnson, Courtney (Unknown), R10: Cabral, Rita (Industrial Economics, Incorporated), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Ward, Elmer (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Ridolfi, Callie (Ridolfi Engineers, Inc.), R10: Downey, Tom (Confederated Tribes of the Siletz Indians), R10: Partridge, Holly (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Karnosh, Michael (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Sheldrake, Sean, A (EPA), R10: Fuentes, Rene, C (EPA), R10: Robinson, Deborah, G (EPA), R10: Blischke, Eric, L (EPA), R10: Christopher, Anne (EPA), R10: Shephard, Burt (EPA), R10: Zhen, Davis (EPA), R10: Allen, Elizabeth (EPA), R10: Demaria, Eva (EPA), R10: Morrison, Kay (EPA), R10: Moses, Gabriel (Nez Perce Tribe), R10: Roick, Thomas, E (Oregon Dept. of Environmental Quality), R10: Liverman, Alex (Oregon Dept. of Environmental Quality), R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality), R10: McClincy, Matt (Oregon Dept. of Environmental Quality), R10: Poulsen, Mike (Oregon Dept. of Environmental Quality), R10: Klasner, Laura (Washington State Dept. of Ecology), R10: Fricano, Gail (NOAA), R10: Neeley, Robert (NOAA), R10: Buck, Jeremy (U. S. Fish and Wildlife Service), R10: Johnson, Courtney (Unknown), R10: Cabral, Rita (Industrial Economics, Incorporated), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Ward, Elmer (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Ridolfi, Callie (Ridolfi Engineers, Inc.), R10: Downey, Tom (Confederated Tribes of the Siletz Indians), R10: Partridge, Holly (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Karnosh, Michael (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Sheldrake, Sean, A (EPA), R10: Fuentes, Rene, C (EPA), R10: Robinson, Deborah, G (EPA), R10: Blischke, Eric, L (EPA), R10: Conley, Alanna (EPA), R10: Christopher, Anne (EPA), R10: Shephard, Burt (EPA), R10: Zhen, Davis (EPA), R10: Allen, Elizabeth (EPA), R10: Demaria, Eva (EPA), R10: Morrison, Kay (EPA), R10: Moses, Gabriel (Nez Perce Tribe), R10: Roick, Thomas, E (Oregon Dept. of Environmental Quality), R10: Liverman, Alex (Oregon Dept. of Environmental Quality), R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality), R10: McClincy, Matt (Oregon Dept. of Environmental Quality), R10: Poulsen, Mike (Oregon Dept. of Environmental Quality), R10: Fricano, Gail (Industrial Economics, Inc.), R10:	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100020078	1/11/2016 REDACTED Email regarding Portland Harbor RI.	49	1 EML / Email	R10: Koch, Kristine, M (EPA)		ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100017875	1/13/2016 Data Eval Work Plan.	90	2 EML / Email	R10: Demaria, Eva (EPA)		ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100017038	1/14/2016 Out Session Agenda.	101	2 EML / Email	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)		ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100008772	1/15/2016 Control Measure Satisfactorily Performed.	34,888	220 MEMO / Memorandum	R10: Lacey, David (Oregon Dept. of Environmental Quality)		ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100019938	1/19/2016 Email regarding Top 10 State Issues - Process Table 1-19-16.	51	1 EML / Email	R10: Parrett, Kevin (Oregon Dept. of Environmental Quality)		ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100019939	1/19/2016 Top 10 State Issues for Proposed Plan Table.	117	3 CORR / Correspondence	R10: Parrett, Kevin (Oregon Dept. of Environmental Quality)		ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100017853	1/22/2016 REDACTED Email regarding Next Portland Harbor TCT Meeting, Wednesday, January 27, 9:30-11 am.	57	2 EML / Email	R10: Demaria, Eva (EPA)		ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100017883	1/25/2016 REDACTED Meeting Agenda Northwest Pipe Company Groundwater Work Plan Comment Resolution.	98	1 CORR / Correspondence	R10: Gee, Gretchen (CH2MHILL)		ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100019944	1/25/2016 Email regarding Cost discussion telecon scheduling.	17	2 EML / Email	R10: Parrett, Kevin (Oregon Dept. of Environmental Quality)		ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100019936	1/26/2016 Email regarding Top 10 Issues - Proposed Staffing Assignments.	32	1 EML / Email	R10: Parrett, Kevin (Oregon Dept. of Environmental Quality)		ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100019937	1/26/2016 Top 10 State Issues for Proposed Plan.	120	3 CORR / Correspondence	R10: Parrett, Kevin (Oregon Dept. of Environmental Quality)		ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100019950	1/26/2016 Email regarding Top 10 Issues - Proposed Staffing Assignments.	14	1 EML / Email	R10: Zhen, Davis (EPA)		ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100019951	1/26/2016 Email regarding Top 10 Issues - Proposed Staffing Assignments.	14	1 EML / Email	R10: Zhen, Davis (EPA)		ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100007897	1/28/2016 DEQ/EPA Cost Meeting Notes - DEQ Cost Discussion Comment and Action Item Notes_2015-01-28.	215	11 CORR / Correspondence	R10: Macdonald, Marianne (Unknown)		ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100008178	1/28/2016 Work Plan for Additional Source Control Evaluation Activities: Sulzer Pump Facility.	245	6 WP / Work Plan	R10: Nelson, Stephen, C (GeoDesign, Inc.), R10: Belding, Robert, E (GeoDesign, Inc.)		ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement



100016432	1/28/2016	REDACTED Email regarding Agenda for PH OU Legal Mtg.	17	1	CORR / Correspondence	R10: Ross, Bill (Ross & Associates)	R10: Robinson, Deborah, G (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100018017	1/28/2016	REDACTED Email Regarding Agenda for Portland Harbor OU Legal Meeting.	81	1	EML / Email	R10: Ross, Bill (EPA)	R10: Robinson, Deborah, G (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100007898	1/29/2016	Draft DEQ/EPA NAPL and Riverbank Meeting Notes - DRAFT Notes on NAPL and Riverbank meeting with DEQ_1-29-16.	224	4	CORR / Correspondence	R10: Coffey, Scott (CDM Smith)	R10: (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100008749	1/29/2016	Technical Memorandum: Data Gap Investigation and Stormwater Assessment - States Battery Site, ECSI #1007 and Adjacent Properties.	8,536	406	MEMO / Memorandum	R10: Kent, Richard, C (GeoPro Geologic Services, LLC)	R10: Orr, Jim (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100016965	2/2/2016	Email Regarding Call This Thursday.	106	1	EML / Email	R10: Ross, Bill (Ross Strategic)	R10: Grandinetti, Cami (EPA), R10: Parrett, Kevin (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100007796	2/3/2016	Email regarding DEQ NFAs.	40	1	EML / Email	R10: Mcclincy, Matt (Oregon Dept. of Environmental Quality)	R10: Demaria, Eva (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100007791	2/4/2016	Email regarding DEQ NFAs.	633	3	EML / Email	R10: Mcclincy, Matt (Oregon Dept. of Environmental Quality)	R10: Demaria, Eva (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100007797	2/4/2016	Email regarding DEQ NFAs.	71	2	EML / Email	R10: Mcclincy, Matt (Oregon Dept. of Environmental Quality)	R10: Demaria, Eva (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100008549	2/5/2016	Email transmitting a letter regarding the Tanner Creek sewer.	41	1	CORR / Correspondence	R10: Hafley, Dan (Oregon Dept. of Environmental Quality)	R10: Polk, Colin (Portland Development Commission)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100008550	2/5/2016	Request for Immediate Action - Tanner Creek Sewer Contamination, Centennial Mill Site, ECSI #5136.	53	2	CORR / Correspondence	R10: Hafley, Dan (Oregon Dept. of Environmental Quality)	R10: Polk, Colin (Portland Development Commission)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100007779	2/8/2016	Revised Sampling and Analysis Plan for City of Portland Outfalls Project.	1,974	28	WP / Work Plan	R10: Scheffler, Linda (City of Portland, Bureau of Environmental Services)	R10: Liverman, Alex (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100007781	2/8/2016	Selection of Outfall Basins for Source Control Measure Effectiveness Monitoring.	762	15	MEMO / Memorandum	R10: Scheffler, Linda (City of Portland, Bureau of Environmental Services)	R10: Liverman, Alex (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100019941	2/8/2016	Parrett, Kevin (Oregon Dept. of Environmental Quality)	132	5	CORR / Correspondence	R10: Parrett, Kevin (Oregon Dept. of Environmental Quality)	R10: (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100007777	2/9/2016	Email transmitting documents related to City of Portland response to DEQ comments on SCM effectiveness demonstration.	62	1	EML / Email	R10: Scheffler, Linda (City of Portland, Bureau of Environmental Services)	R10: Liverman, Alex (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100007788	2/9/2016	Response to DEQ Comments Dated 12/28/15 on Source Control Measures Effectiveness Demonstration.	591	2	WP / Work Plan	R10: Scheffler, Linda (City of Portland, Bureau of Environmental Services)	R10: Liverman, Alex (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100007792	2/9/2016	Email regarding EPA SCD template.	80	2	EML / Email	R10: Mcclincy, Matt (Oregon Dept. of Environmental Quality)	R10: Demaria, Eva (EPA), R10: Johnson, Keith (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100019940	2/9/2016	Email regarding Updated Top 10 Issues.	36	1	EML / Email	R10: Parrett, Kevin (Oregon Dept. of Environmental Quality)	R10: Grandinetti, Cami (EPA), R10: Zhen, Davis (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100019952	2/9/2016	Email regarding Updated Top 10 Issues.	13	1	EML / Email	R10: Zhen, Davis (EPA)	R10: Parrett, Kevin (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100007782	2/11/2016	Email regarding City of Portland Response to DEQ comments on SCM effectiveness demonstration.	101	2	EML / Email	R10: Scheffler, Linda (City of Portland, Bureau of Environmental Services)	R10: Liverman, Alex (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100007790	2/11/2016	Email providing Alex Liverman's follow up on DEQ NFAs.	53	1	EML / Email	R10: Mcclincy, Matt (Oregon Dept. of Environmental Quality)	R10: Demaria, Eva (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100007793	2/11/2016	Portland Harbor Source Control National Remedy Review Board.	3,079	20	MTG / Meeting Document	R10: Liverman, Alex (Oregon Dept. of Environmental Quality), R10: Mcclincy, Matt (Oregon Dept. of Environmental Quality)	R10: (National Remedy Review Board)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100007891	2/12/2016	Email regarding Pdx Harbor Performance Monitoring Plan.	101	2	EML / Email	R10: Koch, Kristine, M (EPA)	R10: Mcclincy, Matt (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100008091	2/12/2016	Review Comments: Proposed Source Control Decision/Determination that Source Control Measures Satisfactorily Performed: Schnitzer Investment Corp. Doane Lake Property, ECSI #395, 6529 NW Front Avenue.	103	3	RPT / Report	R10: (EPA)		ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100017046	2/12/2016	Email regarding Portland Harbor: Agenda for 2/17/16.	69	1	EML / Email	R10: Ross, Bill (Ross Strategic)	R10: Woolford, James, E (EPA), R10: Robinson, Deborah, G (EPA), R10: McLerran, Dennis, J (EPA), R10: Grandinetti, Carmela (Cami), L (EPA), R10: Pirzadeh, Michelle, L (EPA), R10: Stalcup, Dana (EPA), R10: Zhen, Davis (EPA), R10: Magorrian, Matthew (EPA), R10: Fonseca, Silvina (EPA), R10: Pedersen, Dick (Oregon Dept. of Environmental Quality), R10: Hammond, Joni (Oregon Dept. of Environmental Quality), R10: Johnson, Keith (Oregon Dept. of Environmental Quality), R10: Parrett, Kevin (Oregon Dept. of Environmental Quality), R10: Deconcini, Nina (Oregon Dept. of Environmental Quality), R10: Roick, Tom (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100018020	2/12/2016	REDACTED Email providing EPA comments on SIC Doane Lake proposed Source Control Determination (SCD)	107	2	EML / Email	R10: Demaria, Eva (EPA)	R10: Mcclincy, Matt (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100008163	2/16/2016	DEQ response to request for an opinion on 2800 NW Front Ave - new accessory building stormwater management, ECSI #1235.	56	2	LTR / Letter	R10: Pugh, Mark, T (Oregon Dept. of Environmental Quality)	R10: Peterson, Melissa (Sulzer Pumps, Inc.)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100016940	2/17/2016	Email Regarding 02/24/2016 Meeting on Top 10 Issues.	76	1	EML / Email	R10: Parrett, Kevin (Oregon Dept. of Environmental Quality)	R10: Robinson, Deborah, G (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100007734	2/18/2016	Review of Draft Source Control Decision and No Further Action Determination for Brazil Motors and Controls, Inc., ECSI #1026 (tribal comments).	340	1	MEMO / Memorandum	R10: Hickey, Ken (Hydro Analysis)	R10: Liverman, Alex (Oregon Dept. of Environmental Quality), R10: Mcclincy, Matt (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100008161	2/18/2016	DEQ comments on Work Plan: Additional Source Control Evaluation Activities, ECSI #1235 (Sulzer).	63	2	LTR / Letter	R10: Pugh, Mark, T (Oregon Dept. of Environmental Quality)	R10: Peterson, Melissa (Sulzer Pumps, Inc.)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100008551	2/18/2016	DEQ Response to 1/25/16 meeting to discuss comments for Supplemental Groundwater Sampling and Data Evaluation Work Plan, NW Pipe Company site, ECSI #138.	278	8	CORR / Correspondence	R10: Orr, Jim (Oregon Dept. of Environmental Quality)	R10: Heldt-sheller, Stephanie (NW Pipe Company)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100008106	2/19/2016	Review Comments Operable Unit 5 - Swan Island Upland Facility File ECSI #271- Proposed Source Control Decision for Source Control Measure Dated 1/19/15.	90	2	RPT / Report	R10: (EPA)		ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100018049	2/19/2016	REDACTED Email providing EPA comments on proposed source control action - Port of Portland Swan Island OUS Riverbank.	102	3	EML / Email	R10: Demaria, Eva (EPA)	R10: Liverman, Alex (Oregon Dept. of Environmental Quality), R10: Mcclincy, Matt (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100019921	2/20/2016	Email regarding Fish Advisories as ICs.	56	1	EML / Email	R10: Parrett, Kevin (Oregon Dept. of Environmental Quality)	R10: Sheldrake, Sean, A (EPA), R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100019933	2/20/2016	Proposed Fish Advisory Program for Portland Harbor.	93	2	CORR / Correspondence	R10: Greenfield, Sarah (Oregon Dept. of Environmental Quality)	R10: (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100007892	2/22/2016	Email regarding Pdx Harbor Performance Monitoring Plan.	111	3	EML / Email	R10: Mcclincy, Matt (Oregon Dept. of Environmental Quality)	R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100008109	2/23/2016	DEQ Review of Source Control Measure Work Plan - Swan Island Upland Facility - OUS - ECSI #271.	115	10	LTR / Letter	R10: Lacey, David (Oregon Dept. of Environmental Quality)	R10: Leisle, Dwight (Port of Portland)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100008535	2/24/2016	TCT Notes.	97	1	MTG / Meeting Document			ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100007893	2/25/2016	Email regarding T4 Slip 3 Riverbank.	153	2	EML / Email	R10: Koch, Kristine, M (EPA)	R10: Mcclincy, Matt (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100008537	2/25/2016	Response to 1/26/16 Letter, Outfall 22B IRAM Performance Monitoring Second Quarter 2015 Report, Former Rhone Poulenc, Portland Site.	183	13	CORR / Correspondence	R10: Angelos, Kent, M. (Golder Associates, Inc.)	R10: Manzano, Scott (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement

100019934	2/27/2016	Email regarding language to consider.	31	2 EML / Email	R10: Parrett, Kevin (Oregon Dept. of Environmental Quality)	R10: Grandinetti, Cami (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100019935	2/27/2016	Portland Harbor State Edits. Response to DEQ/EPA Comments: Source Control Measure Work Plan, Swan Island	113	1 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100008154	3/1/2016	Upland Facility OUS, ECSI #271.	113	8 LTR / Letter	R10: Leisle, Dwight (Port of Portland)	R10: Lacey, David (Oregon Dept. of Environmental Quality) R10: Robinson, Deborah, G (EPA), R10: Grandinetti, Cami (EPA), R10: Parrett, Kevin (Oregon Dept. of Environmental Quality), R10: Ross, Bill (Ross Strategic)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100019948	3/1/2016	Email regarding should we talk at 11 today or wait until Thursday?....	61	1 EML / Email	R10: Zhen, Davis (EPA)	R10: Robinson, Deborah, G (EPA), R10: Grandinetti, Cami (EPA), R10: Parrett, Kevin (Oregon Dept. of Environmental Quality), R10: Ross, Bill (Ross Strategic)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100019949	3/1/2016	Email regarding should we talk at 11 today or wait until Thursday?...	60	1 EML / Email	R10: Zhen, Davis (EPA)	R10: Robinson, Deborah, G (EPA), R10: Grandinetti, Cami (EPA), R10: Parrett, Kevin (Oregon Dept. of Environmental Quality), R10: Ross, Bill (Ross Strategic) Anne, R10: Ebright, Stephanie, R10: Angle, Genevieve (NOAA), R10: Neeley, Robert (NOAA), R10: Buck, Jeremy (U. S. Fish and Wildlife Service), R10: Johnson, Courtney (Unknown), R10: Blischke, Eric (Unknown), R10: Demaria, Eva (Unknown), R10: Cabral, Rita (Industrial Economics, Incorporated), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Ward, Elmer (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Ridolfi, Callie (Ridolfi Engineers, Inc.), R10: Downey, Tom (Confederated Tribes of the Siletz Indians), R10: Karnosh, Michael (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Shelldrake, Sean, A (EPA), R10: Fuentes, Rene, C (EPA), R10: Conley, Alanna (EPA), R10: Shephard, Burt (EPA), R10: Zhen, Davis (EPA), R10: Allen, Elizabeth (EPA), R10: Morrison, Kay (EPA), R10: Roick, Thomas, E (Oregon Dept. of Environmental Quality), R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality), R10: McClincy, Matt (Oregon Dept. of Environmental Quality), R10: Poulsen, Mike (Oregon Dept. of Environmental Quality), R10: Klasner, Laura (Washington State Dept. of Ecology), R10: Fricano, Gail (Industrial Economics, Inc.), R10: Delvecchio, Rachel (Industrial Economics, Inc.), R10: Liverman, Alex (Oregon Department of Environmental Quality), R10: Humphreys,	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100014530	3/2/2016	REDACTED Email Regarding Portland Harbor FS Section 1_Portland Harbor FS Section 1.	76	2 EML / Email	R10: Koch, Kristine, M (EPA)	R10: Woolford, James, E (EPA), R10: Robinson, Deborah, G (EPA), R10: McLerran, Dennis, J (EPA), R10: Grandinetti, Carmela (Cami), L (EPA), R10: Pirzadeh, Michelle, L (EPA), R10: Stalcup, Dana (EPA), R10: Zhen, Davis (EPA), R10: Hammond, Joni (Oregon Dept. of Environmental Quality), R10: Johnson, Keith (Oregon Dept. of Environmental Quality), R10: Parrett, Kevin (Oregon Dept. of Environmental Quality), R10: Deconcini, Nina (Oregon Dept. of Environmental Quality), R10: Roick, Tom (Oregon Dept. of Environmental Quality), R10: Mcleod, Julianne (Unknown), R10: Whitman, Richard (State of Oregon)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100018119	3/9/2016	REDACTED Email regarding Portland Harbor: 3/10/16 Call Agenda.	81	1 EML / Email	R10: Ross, Bill (Ross Strategic) R10: Parrett, Kevin (Oregon Dept. of Environmental Quality)	R10: Grandinetti, Cami (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100019947	3/11/2016	Email regarding language for discussion. Swan Island Upland Facility Quarterly Progress Report: December 16, 2015 through March 15,	62	1 EML / Email	R10: Parrett, Kevin (Oregon Dept. of Environmental Quality)	R10: Grandinetti, Cami (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100008112	3/14/2016	2016, ECSI #271.	83	2 LTR / Letter	R10: Leisle, Dwight (Port of Portland)	R10: Lacey, David (Oregon Dept. of Environmental Quality) R10: Robinson, Deborah, G (EPA), R10: Grandinetti, Cami (EPA), R10: Zhen, Davis (EPA), R10: Ross, Bill (Ross Strategic)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100019943	3/14/2016	Email regarding Assuring sufficient certainty of implementation...	14	1 EML / Email	R10: Parrett, Kevin (Oregon Dept. of Environmental Quality)	R10: Koch, Kristine, M (EPA), R10: Greenfield, Sarah (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100007894	3/17/2016	Email regarding Portland Harbor FS.	88	2 EML / Email	R10: Allen, Elizabeth (EPA)	R10: Koch, Kristine, M (EPA), R10: Parrett, Kevin (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100007896	3/17/2016	Email regarding Portland Harbor FS. Portland Harbor Upland Source Control	77	1 EML / Email	R10: Greenfield, Sarah (Oregon Dept. of Environmental Quality)	R10: Koch, Kristine, M (EPA), R10: Parrett, Kevin (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100019892	3/25/2016	Summary Report.	28,943	121 RPT / Report	R10: (Oregon Dept. of Environmental Quality)		ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100018052	3/29/2016	REDACTED Email regarding proposed source control action - Port of Portland Swan Island OUS riverbank.	127	5 EML / Email	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	R10: Demaria, Eva (EPA), R10: Lacey, David (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100012005	4/4/2016	Email Regarding DEQ (Dept. of Environmental Quality) SC Summary Report Update Posted on DEQ Website.	80	1 EML / Email	R10: Liverman, Alex (Oregon Dept. of Environmental Quality)	R10: Demaria, Eva (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100009178	4/12/2016	Data Summary.	175	22 RPT / Report	R10: (Unknown)		ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100009591	4/12/2016	Table 1, ARARs for Remedial Action at the Portland Harbor Superfund Site.	134	10 RPT / Report	R10: (Unknown)		ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100019942	4/27/2016	Email regarding DEQ Comments on Updated Portland Harbor FS.	71	3 EML / Email	R10: Zhen, Davis (EPA) R10: Parrett, Kevin (Oregon Dept. of Environmental Quality)	R10: Parrett, Kevin (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100019946	4/27/2016	Email regarding DEQ Comments on Updated Portland Harbor FS.	19	3 EML / Email	R10: Parrett, Kevin (Oregon Dept. of Environmental Quality)	R10: Zhen, Davis (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100018011	4/28/2016	REDACTED Email Regarding Portland Harbor: Agenda for the 05/02/2016 Senior Leadership Call.	111	1 EML / Email	R10: Ross, Bill (Ross Strategic)	R10: Woolford, James, E (EPA), R10: Robinson, Deborah, G (EPA), R10: McLerran, Dennis, J (EPA), R10: Pirzadeh, Michelle, L (EPA), R10: Grandinetti, Cami (EPA), R10: Stalcup, Dana (EPA), R10: Zhen, Davis (EPA), R10: Tyler, Kendra (EPA), R10: Hammond, Joni (Oregon Dept. of Environmental Quality), R10: Johnson, Keith (Oregon Dept. of Environmental Quality), R10: Parrett, Kevin (Oregon Dept. of Environmental Quality), R10: Deconcini, Nina (Oregon Dept. of Environmental Quality), R10: Roick, Tom (Oregon Dept. of Environmental Quality), R10: Mcleod, Julianne (Unknown), R10: Tasnady, Julie (State of Oregon), R10: Ogrodnik, Katie (Oregon Dept. of Environmental Quality), R10: Shepherd, Pete (Oregon Dept. of Environmental Quality), R10: Whitman, Richard (State of Oregon)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100019945	4/28/2016	Email regarding DEQ Comments on Updated Portland Harbor FS.	19	3 EML / Email	R10: Zhen, Davis (EPA)	R10: Parrett, Kevin (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100014638	5/2/2016	Letter regarding (DRAFT) PCB in Breast Milk at Portland Harbor.	432	7 LTR / Letter	R10: Farrer, David, G (Oregon Dept. of Human Services)	R10: Mckenna, James (Port of Portland), R10: Wyatt, Robert, J (NW Natural)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100014639	5/2/2016	Letter Regarding (DRAFT) PCB in Breast Milk at Portland Harbor: Appendix A: Calculation of Dose to Infant.	28	1 OTH / Other	R10: Farrer, David, G (Oregon Dept. of Human Services)	R10: Mckenna, James (Port of Portland), R10: Wyatt, Robert, J (NW Natural)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100020133	6/3/2016	Email regarding DEQ's review of FS and PP.	82	1 EML / Email	R10: Zhen, Davis (EPA)	R10: Parrett, Kevin (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100020142	6/3/2016	Email regarding DEQ's review of FS and PP.	84	1 EML / Email	R10: Parrett, Kevin (Oregon Dept. of Environmental Quality)	R10: Zhen, Davis (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement

100018034	10/10/2016	REDACTED Emailing Regarding Issues with Termination of Oct Ammonoite Sampling.	29	3 EML / Email	R10: Van De Wetering, Stan		R10: Neely, Robert (NOAA), R10: Thompson, Chris (Unknown), R10: Barquin, Billy (Confederated Tribes of the Siletz Indians), R10: Downey, Tom (Confederated Tribes of the Siletz Indians), R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA), R10: Baker, Jeff (Grand Ronde Tribe), R10: Gouguet, Ron (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100008036	Undated	Groundwater and Bank Soil Source Control Evaluation: Appendix B - Historical Data.	551	120 RPT / Report	R10: (CH2M Hill, Inc.)			ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100009109	Undated	Freshwater Mussels of the Pacific Northwest.	1,463	48 PUB / Publication	R10: Stone, Jen (U. S. Fish and Wildlife Service), R10: Nedeau, Ethan (Biodiversity), R10: Smith, Allan, K (Pacific Northwest Native Freshwater Mussel Workgroup)	R10: Unknown, Unknown (Unknown)		ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100009177	Undated	Dataset: 4-FPV-CHG-L1-mra.	636	148 RPT / Report	R10: (Unknown)			ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100009181	Undated	Figure: Solmar Hydro Bathymetry.	1,821	1 FIG / Figure/Map/ Drawing	R10: (Maul Foster & Alongi, Inc.)			ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100009182	Undated	3.06.Milestone Report Table 1.	23	2 RPT / Report	R10: (Oregon Department of Environmental Quality)			ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100009184	Undated	3.06.JSCS Milestone Report.	152	19 RPT / Report	R10: (Oregon Department of Environmental Quality)			ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100009185	Undated	3.06.Milestone Report Table 3.	17	1 RPT / Report	R10: (Oregon Department of Environmental Quality)			ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100009186	Undated	3.06.Milestone Report Table 4.	172	24 RPT / Report	R10: (Oregon Department of Environmental Quality)			ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100009187	Undated	Fate and Transport Approach Summary.	281	20 RPT / Report	R10: Stivers, Carl (Anchor Environmental, LLC)			ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100009188	Undated	EPA Comments on Section 11 of Round 2 Report.	124	18 RPT / Report	R10: (Unknown)			ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100009193	Undated	3.06.Milestone Report Table 2.	28	1 RPT / Report	R10: (Oregon Department of Environmental Quality)			ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100009197	Undated	Figure 7, Proposed Phase 2 Sampling Locations, NW Natural-Gasco Site.	1,003	1 FIG / Figure/Map/ Drawing	R10: (Anchor Environmental, LLC)			ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100009431	Undated	Modeling Progress.	18	1 RPT / Report	R10: (Unknown)			ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100009442	Undated	Figure 2, Project Site Location.	345	1 FIG / Figure/Map/ Drawing	R10: (AMEC Earth & Environmental, Inc.)	R10: (ConocoPhillips Company)		ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100009486	Undated	Figure 1, Site Vicinity Map.	749	1 FIG / Figure/Map/ Drawing	R10: (AMEC Earth & Environmental, Inc.)	R10: (ConocoPhillips Company)		ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100009487	Undated	Figure 3, Excavation Area.	358	1 FIG / Figure/Map/ Drawing	R10: (AMEC Earth & Environmental, Inc.)	R10: (ConocoPhillips Company)		ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100009488	Undated	Figure 4, LWG Sediment Sample Locations.	315	1 FIG / Figure/Map/ Drawing	R10: (AMEC Earth & Environmental, Inc.)	R10: (ConocoPhillips Company)		ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100009490	Undated	Table 2 Existing Sediment Chemical Data.	158	6 RPT / Report	R10: (Unknown)			ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100009491	Undated	Response to Comments on Source Table.	144	22 RPT / Report	R10: (Unknown)			ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100009493	Undated	Table 1, Existing Grainsize Data.	18	1 RPT / Report	R10: (Unknown)			ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100009494	Undated	Tables.	132	11 RPT / Report	R10: (Unknown)			ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100009505	Undated	Appendices, Draft HEA Habitat Values for ES Consultation.	204	6 RPT / Report	R10: (Oregon Department of Environmental Quality)			ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100009513	Undated	Proposed Stormwater Source Control Plan for EO.	2,366	38 RPT / Report	R10: (Oregon Department of Environmental Quality)	R10: (Evraz Oregon Steel Portland)		ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100009517	Undated	Letter regarding requested update from LWG on status of food web modeling efforts for the Portland Harbor RI/FS.	18	2 LTR / Letter	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	R10: (Unknown)		ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100009570	Undated	Proposed order of work for NW Natural.	20	3 RPT / Report	R10: (Unknown)			ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100009572	Undated	Image of typed definitions.	34	1 LST / List/Index	R10: (Unknown)			ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100009576	Undated	Proposed order of work for NW Natural.	20	3 RPT / Report	R10: (Unknown)			ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100009593	Undated	Comparison of Results.	292	41 RPT / Report	R10: (Unknown)			ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100009598	Undated	Smallmouth Bass Risk.	560	24 RPT / Report	R10: (Unknown)			ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100009603	Undated	Carp Risk.	118	8 RPT / Report	R10: (Unknown)			ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100009605	Undated	GW Source Control IRM Scoping Tech .	528	60 RPT / Report	R10: (ERM)			ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100009608	Undated	Enclosure 2, EPA December 2009 Identification of ARARs Letter.	32	3 RPT / Report	R10: (EPA)			ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100009614	Undated	Revised EPA cover letter ARARs.	32	3 LTR / Letter	R10: Humphrey, Chip (EPA)	R10: Wyatt, Robert, J (NW Natural)		ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100010250	Undated	All Chemicals V3.	30	8 ADD / Analytical Data Document	R10: Unknown, Unknown (Unknown)	R10: Unknown, Unknown (Unknown)		ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100010296	Undated	Estimating Contaminated Stormwater Impacts on Sediment and Fish in Portland Harbor (Lower Willamette River, Oregon).	622	16 RPT / Report	R10: Hope, Bruce, K (Oregon Dept. of Environmental Quality), R10: Tarnow, Karen, E (Oregon Dept. of Environmental Quality)	R10: Unknown, Unknown (Unknown)		ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100010385	Undated	PRG Methods Table.	70	4 CHT / Chart/Table	R10: Unknown, Unknown (Unknown)	R10: Unknown, Unknown (Unknown)		ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100010487	Undated	Spreadsheet showing the detection limits for PCB 126 for smallmouth bass.	47	1 ADD / Analytical Data Document	R10: Unknown, Unknown (Unknown)	R10: Unknown, Unknown (Unknown)		ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100010503	Undated	Letter requesting assistance from Bruce Hope of Oregon DEQ on the Portland Harbor food web modeling effort.	41	1 CORR / Correspondence	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality), R10: Johnson, Keith (Oregon Dept. of Environmental Quality)		ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100010535	Undated	Draft Ecological risk assessment conceptual site model for the Portland Harbor Superfund Site.	173	3 CHT / Chart/Table	R10: Unknown, Unknown (Unknown)	R10: Unknown, Unknown (Unknown)		ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100010539	Undated	SMA Data Gap Table.	158	100 CHT / Chart/Table	R10: Unknown, Unknown (Unknown)	R10: Unknown, Unknown (Unknown)		ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100010558	Undated	Data Needs for the Portland Harbor Ecological Risk Assessment.	89	4 CHT / Chart/Table	R10: Unknown, Unknown (Unknown)	R10: Unknown, Unknown (Unknown)		ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100010560	Undated	Approach for the Ecological Risk Assessment.	148	8 RPT / Report	R10: Unknown, Unknown (Unknown)	R10: Unknown, Unknown (Unknown)		ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100010565	Undated	Draft Ecological risk assessment conceptual site model for the Portland Harbor Superfund Site.	121	1 RPT / Report	R10: Unknown, Unknown (Unknown)	R10: Unknown, Unknown (Unknown)		ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100010567	Undated	Changes to the draft Assessment Endpoint Table.	83	4 CHT / Chart/Table	R10: Unknown, Unknown (Unknown)	R10: Unknown, Unknown (Unknown)		ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100010575	Undated	Riverbank Soil Data.	95	8 RPT / Report	R10: (Integral Consulting, Inc.)			ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100010585	Undated	Approach for the Ecological Risk Assessment.	110	6 EML / Email	R10: Unknown, Unknown (Unknown)	R10: Unknown, Unknown (Unknown)		ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100010587	Undated	Ecological risk assessment conceptual site model for the Portland Harbor Superfund Site.	120	1 CHT / Chart/Table	R10: Unknown, Unknown (Unknown)	R10: Unknown, Unknown (Unknown)		ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100010664	Undated	Email Regarding Transition Zone Water (TZW) Sampling Off Rhone-Poulenc Agricultural Company (RPAC) Plume.	28	1 EML / Email	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)		ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100010696	Undated	Fish Dietary and Tissue Residue Analysis (for analysis of risk to fish themselves).	62	5 RPT / Report	R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)	R10: Unknown, Unknown (Unknown)		ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100011109	Undated	DEQ-EPA Meeting on January 17.	11	1 RPT / Report	R10: (Unknown)			ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100011112	Undated	PH breastmilk risk 2.	32	1 RPT / Report	R10: (Unknown)			ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100011154	Undated	SQG H-NH distribution effects.	78	3 RPT / Report	R10: (Unknown)			ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100011156	Undated	Updated Reliability Figures.	21	2 RPT / Report	R10: (Unknown)			ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement

100011157	Undated	Response to LWG ARARs Questions.	18	1 RPT / Report	R10: (Unknown)		ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100011189	Undated	Models for Estimation of Chemical Distribution and Fate in Response to Remedial Alternatives in the Lower Willamette River, Technical Briefing, Portland Harbor Superfund Project.	1,980	24 RPT / Report	R10: Hope, Bruce, K (Oregon Dept. of Environmental Quality)		ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100011193	Undated	SQL H-NH distribution effects.	196	1 RPT / Report	R10: (Unknown)		ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100011211	Undated	Formal request for technical support from EPA for the Portland Harbor in-water Remedial Investigation and Feasibility Study.	47	1 CORR / Correspondence	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality), R10: Johnson, Keith (Oregon Dept. of Environmental Quality)	R10: Kawabata, Sylvia (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100011470	Undated	Powerpoint Presentation: Portland Harbor Overview of JSCS.	1,421	17 MTG / Meeting Document	R10: Unknown, Unknown (Unknown)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100011542	Undated	Harbor loads.	37	2 CHT / Chart/Table	R10: (Unknown)		ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100011557	Undated	LWG presentation - Dawn's comments.	100	2 RPT / Report	R10: (Unknown)		ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100011558	Undated	SW Strategy PPT presentation.	33	12 MTG / Meeting Document	R10: (Unknown)		ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100011560	Undated	Portland Harbor PBDE 2.	24	3 RPT / Report	R10: (Unknown)		ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100011562	Undated	Gasco MGP Site - Mid 1950s.	166	1 PHT / Photograph	R10: (Unknown)		ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100011567	Undated	Lamprey Tissue Analysis Proposal.	11	1 RPT / Report	R10: (Unknown)		ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100011652	Undated	Sum of Aroclor Concentrations Flagged as Detected.	86	1 FIG / Figure/Map/ Drawing	R10: Unknown, Unknown (Unknown)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100011667	Undated	EES Boilerplate.	81	7 OTH / Other	R10: Unknown, Unknown (Oregon Dept. of Environmental Quality)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100011806	Undated	Agenda Development Notes.	42	2 NOTE / Notes	R10: Unknown, Unknown (Unknown)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100012000	Undated	Downtown Reach Conceptual Site Model and Additional Data Needs - DOWNTOWN REACH TALKING POINTS- final.	79	1 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100012008	Undated	Land Zoning and Ownership - MilestoneRpt1009Fig2abc.	1,860	3 CORR / Correspondence	R10: (Lower Willamette Group), R10: (Integral Consulting, Inc.)	R10: (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100012010	Undated	Status of High Priority Sites - MilestoneRpt1009Table2.	14	1 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100012062	Undated	Map showing location of Cargill.	133	1 FIG / Figure/Map/ Drawing	R10: Unknown, Unknown (Unknown)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100012352	Undated	EPA Comments on Section 11 of Round 2 Report.	180	18 RPT / Report	R10: Unknown, Unknown (EPA)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100012368	Undated	Proposed order of work for NW Natural.	54	3 CORR / Correspondence	R10: Unknown, Unknown (Unknown)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100012374	Undated	Spreadsheet showing ARKEMA Dioxins/Furans.	67	1 CHT / Chart/Table	R10: Unknown, Unknown (Unknown)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100013198	Undated	Portland Harbor RI/FS: Draft Feasibility Study: Figure 2 - BaP Porewater Increase Over Time Analysis - River Mile 1.9 to 11.8.	577	1 FIG / Figure/Map/ Drawing	R10: (Lower Willamette Group), R10: (Anchor QEA, LLC)	R10: (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100013199	Undated	Portland Harbor RI/FS: Draft Feasibility Study: Figure 3 - DDE Porewater Increase Over Time Analysis - River Mile 1.9 to 11.8.	570	1 FIG / Figure/Map/ Drawing	R10: (Lower Willamette Group), R10: (Anchor QEA, LLC)	R10: (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100013201	Undated	Portland Harbor RI/FS: Draft Feasibility Study: Figure 1 - Total PCB Porewater Increase Over Time Analysis - River Mile 1.9 to 11.8.	569	1 FIG / Figure/Map/ Drawing	R10: (Lower Willamette Group), R10: (Anchor QEA, LLC)	R10: (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100013252	Undated	Proposed Consent Judgment for Public Review. DRAFT DEQ (Dept. of Environmental Quality) Review Comments on DRAFT Stormwater Source Control Design Report.	162	23 OTH / Other	R10: (Circuit Court of The State of Oregon)	R10: (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100013543	Undated	Reliability Figure 3 A, Example Reliability Measures of Screening Criteria.	151	8 CORR / Correspondence	R10: (Oregon Dept. of Environmental Quality)	R10: (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100013545	Undated	Scenario Comparisons By Model Segment. Summary Table of Observed and Estimated PCB 106 and 118 Concentrations in Sediment and Fish Tissue By Scenario.	41	1 FIG / Figure/Map/ Drawing	R10: (Oregon Dept. of Environmental Quality)	R10: (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100013558	Undated	City Stormwater Outfall #43.	121	4 EML / Email			ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100013559	Undated	Harbor-Wide Recontamination Evaluation Elements, Data/Info Sources, and Timeline.	114	1 RPT / Report	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100013714	Undated	Harbor-Wide Recontamination Evaluation Elements, Data/Info Sources, and Timeline.	132	1 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100013733	Undated	Comparison of High SQGs (Small Quantity Generators) from LWG (Lower Willamette Group) Floating Percentile Method.	132	1 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100014158	Undated	REDACTED Joint Permit Application_KinderMorgan Willbridge Dock JPA.	406	10 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100014497	Undated	Lower Willamette ODFW 2000-2003 Bass & Carp Sampling Info.	2,338	20 OTH / Other	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100014605	Undated	Harbor-Wide Recontamination Evaluation Elements, Data/Info Sources, and Timeline.	77	4 CORR / Correspondence	R10: (Oregon Dept. of Fish and Wildlife)	R10: (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100014939	Undated	Report of Findings Environmental Investigation	132	1 OTH / Other	R10: (Oregon Dept. of Environmental Quality)	R10: (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002243	4/20/1989	Tank Removal Site.	1,329	54 RPT / Report	R10: (Century West Engineering Corporation)	R10: (Tube Forgings of America, Inc.)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002199	7/31/1989	Zidell Phase I Environmental Assessment Preliminary Report.	991	49 RPT / Report	R10: (Sweet-Edwards/EMCON, Inc.)	R10: (Stoel Rives Boley Jones & Grey)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100005265	10/3/1995	Mt Hood Chemical (Color Magic) - DEQ No Further Action Determination (ECSI Site ID: 1328)	36	1 LTR / Letter	R10: Wistar, Gilbert, M (Oregon Dept. of Environmental Quality)	R10: Kurosaki, Yoshio (Summit Properties)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100005224	11/6/1995	Industrial Battery Building - DEQ No Further Action Determination (ECSI Site ID: 935)	44	1 LTR / Letter	R10: Marsh, Langdon (Oregon Dept. of Environmental Quality)	R10: George, F. Wayne (Multnomah County, Oregon)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100005233	7/15/1996	Master Chemical - DEQ No Further Action Determination (ECSI Site ID: 1302)	33	1 LTR / Letter	R10: Fortuna, Steven (Oregon Dept. of Environmental Quality)	R10: Wilhelm, Margerite (Unknown), R10: Wilhelm, Connie (Unknown), R10: Fortmiller, Randy (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100005279	5/16/1997	Estey (Automatic Vending) - DEQ No Further Action Determination (ECSI Site ID: 1430)	57	2 LTR / Letter	R10: Pollock, Andree (Oregon Dept. of Environmental Quality)	R10: Krueger, Al (Estey Corporation)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100005248	7/24/1998	Union Station - Track #5 - DEQ No Further Action Determination (ECSI Site ID: 1414)	222	10 LTR / Letter	R10: Mullane, Neil, J (Oregon Dept. of Environmental Quality)	R10: Mallery, Gil (Amtrak)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100005313	7/20/2000	Multnomah County - St. Johns Site - DEQ No Further Action Determination (ECSI Site ID: 2421)	134	4 LTR / Letter	R10: Struck, Rodney, G (Oregon Dept. of Environmental Quality)	R10: Jones, Patrick, L (Multnomah County, Oregon)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100005314	9/8/2000	Multnomah County - St. Johns Site - DEQ No Further Action Determination (ECSI Site ID: 2421)	117	3 LTR / Letter	R10: Rosen, Michael, E (Oregon Dept. of Environmental Quality)	R10: Jones, Patrick, L (Multnomah County, Oregon)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100005333	4/12/2002	Linnton Plywood (includes Glacier NW #2351) - DEQ Conditional No Further Action Determination (ECSI Site ID: 2373)	233	7 LTR / Letter	R10: Rosen, Michael, E (Oregon Dept. of Environmental Quality)	R10: Erdman, Al (Clackamas Community College)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100003082	7/18/2002	Guidance on Demonstrating Compliance With the Land Disposal Restrictions (LDR) Alternative Soil Treatment Standards Final Guidance.	150	57 CORR / Correspondence	R10: (EPA Office of Solid Waste)	R10: (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002723	7/22/2002	Letter of Agreement Between the U.S. Environmental Protection Agency, Region 10, the Oregon Department of Environmental Quality and the U. S. Army Corps of Engineers, Portland District Concerning the Lower Willamette River.	96	8 CORR / Correspondence	R10: (Oregon Dept. of Environmental Quality)	R10: (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100005225	8/27/2002	Port of Portland Terminal 1 South - Parcel 1, Area C - DEQ No Further Action Determination (ECSI Site ID: 2642)	222	6 LTR / Letter	R10: Struck, Rodney, G (Oregon Dept. of Environmental Quality)	R10: Mollusky, Joe (Port of Portland)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement



100007432	1/17/2003	Sample 1 - Ambient Sediment Quality Evaluation Existing Sampling Locations. Memorandum regarding Management of Remediation Waste Under RCRA.	279	1 CORR / Correspondence	R10: (Landau Associates, Inc.) R10: (EPA Office of Solid Waste), R10: (RCRA/CERCLA Senior Policy Managers)	R10: (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100003083	3/27/2003	Valvoline Inc. - DEQ No Further Action Determination (ECSI Site ID: 3215)	37	13 CORR / Correspondence	R10: Hosaka, Terry (Oregon Dept. of Environmental Quality)	R10: (RCRA/CERCLA Senior Policy Managers)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100005232	4/2/2003	Figure 3-2 Portland Harbor RI/FS Generalized Geologic History Fig3_2_GeoHist.	578	12 LTR / Letter	R10: (Lower Willamette Group), R10: (Groundwater Solutions Inc.)	R10: Metcalf, Mark (Ashland Inc.)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002144	5/29/2003	Figure 3-5 Portland Harbor RI/FS Cross Section C-C' Fig3_5_Cc.	264	1 CORR / Correspondence	R10: (Lower Willamette Group), R10: (Groundwater Solutions Inc.)	R10: (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002145	5/29/2003	Figure 3-6 Portland Harbor RI/FS Cross Section D-D' Fig3_6_Dd.	365	1 CORR / Correspondence	R10: (Lower Willamette Group), R10: (Groundwater Solutions Inc.)	R10: (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002146	5/29/2003	Figure 3-8 Portland Harbor RI/FS Cross Section F-F' Fig3_8_Ff.	209	1 CORR / Correspondence	R10: (Lower Willamette Group), R10: (Groundwater Solutions Inc.)	R10: (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002147	5/29/2003	Figure 3-9 Portland Harbor RI/FS Cross Section G-G' Fig3_9_Gg.	239	1 CORR / Correspondence	R10: (Lower Willamette Group), R10: (Groundwater Solutions Inc.)	R10: (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002148	5/29/2003	Figure 3-10 Portland Harbor RI/FS Cross Section H-H' Fig3_10_Hh.	215	1 CORR / Correspondence	R10: (Lower Willamette Group), R10: (Groundwater Solutions Inc.)	R10: (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002149	5/29/2003	Figure 3-11 Portland Harbor RI/FS Cross Section I-I' Fig3_11_Ii.	266	1 CORR / Correspondence	R10: (Lower Willamette Group), R10: (Groundwater Solutions Inc.)	R10: (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002152	5/29/2003	Figure 3-23 Portland Harbor RI/FS Hydrogeologic Cross Section e2-e2' Doane Lake Area Fig3_23_e2.	2,594	1 CORR / Correspondence	R10: (Lower Willamette Group), R10: (Groundwater Solutions Inc.)	R10: (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002153	5/29/2003	Figure 3-10 Portland Harbor RI/FS Cross Section H-H' Fig3_10_Hh.	266	1 CORR / Correspondence	R10: (Lower Willamette Group), R10: (Groundwater Solutions Inc.)	R10: (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002154	5/29/2003	Figure 3-11 Portland Harbor RI/FS Cross Section I-I' Fig3_11_Ii.	208	1 CORR / Correspondence	R10: (Lower Willamette Group), R10: (Groundwater Solutions Inc.)	R10: (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002156	5/29/2003	Port of Portland Terminal 1 South - Parcel 2 (Area B) and Parcel 3 (Area C) - DEQ No Further Action Determination (ECSI Site ID: 2642)	237	1 CORR / Correspondence	R10: (Lower Willamette Group), R10: (Groundwater Solutions Inc.)	R10: (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100005227	6/9/2003	Letter regarding GS Roofing, ECSI #117 including attachments.	487	16 LTR / Letter	R10: Rosen, Michael, E (Oregon Dept. of Environmental Quality)	R10: Mollusk, Joe (Port of Portland), R10: Ralston, Timothy, R (Ralston Investments, Inc.)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002325	6/23/2003	Linnton Plywood (includes Glacier NW #2351) - DEQ No Further Action Determination (ECSI Site ID: 2373)	2,225	78 CORR / Correspondence	R10: (Forensic Environmental Services, Inc.)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100005361	8/1/2003	Linnton Plywood (includes Glacier NW #2351) - DEQ No Further Action Determination (ECSI Site ID: 2373)	71	2 LTR / Letter	R10: Anderson, James, M (Oregon Dept. of Environmental Quality)	R10: Martich, Tara (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100005334	5/7/2004	Front Avenue MP - DEQ No Further Action Determination (ECSI Site ID: 4008)	83	2 LTR / Letter	R10: Pettit, Don, J (Oregon Dept. of Environmental Quality)	R10: Stahly, James (Linnton Plywood Association)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100005269	5/10/2004	Goldendale Aluminum - DEQ No Further Action Determination (ECSI Site ID: 2440)	90	2 LTR / Letter	R10: Anderson, James, M (Oregon Dept. of Environmental Quality)	R10: Hoffman, Peter (Front Ave LLC)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100005221	5/25/2004	Port of Portland - Auto Storage - DEQ No Further Action Determination (ECSI Site ID: 172)	67	2 LTR / Letter	R10: Gainer, Tom (Oregon Dept. of Environmental Quality)	R10: Wooster, Wayne (Golden Northwest Aluminum, Inc.)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100005317	6/11/2004	Front Avenue MP - DEQ No Further Action Determination (ECSI Site ID: 4008)	272	5 LTR / Letter	R10: Gainer, Tom (Oregon Dept. of Environmental Quality)	R10: Summers, Anne, B (Port of Portland)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100005309	6/28/2004	Tucker Building - DEQ Conditional No Further Action Determination (ECSI Site ID: 3036)	224	6 LTR / Letter	R10: Hafley, Daniel (Oregon Dept. of Environmental Quality)	R10: Treece, Marty (Front Avenue MP, LLC)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100005223	8/5/2004	UPRR St Johns Tank Farm - DEQ Conditional No Further Action Determination (ECSI Site ID: 2017)	96	3 LTR / Letter	R10: Anderson, James, M (Oregon Dept. of Environmental Quality)	R10: Betz, Jan, V (City of Portland, Oregon, Office of Attorney)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100005316	9/23/2004	Preliminary Site Characterization Report. Union Station Lot 4 Parcel B South - DEQ No Further Action Determination (ECSI Site ID: 1885)	110	4 LTR / Letter	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Honeyman, Gary, L (Union Pacific Railroad Company)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002326	2/11/2005	Union Carbide (NW Container) - DEQ No Further Action Determination (ECSI Site ID: 176)	18,456	504 RPT / Report	R10: (Forensic Environmental Services, Inc.)	R10: (GS Roofing Products Co., Inc.)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100005252	3/9/2005	Memorandum regarding Implementation of Vacature of TCLP Use for Evaluating Manufactured Gas Plant (MGP) Wastes in the Battery Recyclers Case.	81	2 LTR / Letter	R10: Pederson, Dick (Oregon Dept. of Environmental Quality)	R10: Allen, Bruce (Portland Development Commission)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100005318	6/14/2005	Draft Front Avenue LP Properties CSM Site Summary.	80	2 LTR / Letter	R10: Gilles, Bruce, A (Oregon Dept. of Environmental Quality)	R10: King, Timothy (Union Carbide Corporation), R10: King, Frank (Elkem Metals, Inc.)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100003081	7/6/2005	Memorandum regarding Technical support for Portland Harbor.	45	2 CORR / Correspondence	R10: Cotsworth, Elizabeth, A (EPA), R10: (RCRA Senior Policy Advisors)	R10: (RCRA Senior Policy Advisors)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002699	9/1/2005	Email regarding Draft tech support request memo.	4,520	40 CORR / Correspondence	R10: (Front Avenue LP)	R10: (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100007429	1/10/2006	Email regarding Ambient Sediment Quality Evaluation.	48	1 CORR / Correspondence	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality), R10: Johnson, Keith (Oregon Dept. of Environmental Quality)	R10: (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100007428	1/11/2006	Draft Table 1 Existing Ambient Sediment Quality Data Ross Island Sand & Gravel Co.	17	1 EML / Email	R10: O'mealy, Mikell (Oregon Dept. of Environmental Quality)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100007430	1/18/2006	Quality Data Ross Island Sand & Gravel Co.	22	2 EML / Email	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100007431	1/18/2006	Email regarding Food Web Model Comments. Letter regarding Food Web Modeling Report: Evaluating TrophicTrace and the Arnot and Gobas Models for Application.	71	4 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100007433	1/24/2006	State of Oregon Department of State Lands Easement No. 31530-EA.	16	1 EML / Email	R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100007434	1/24/2006	Union Station Horse Barn (Lot 1) - DEQ No Further Action Determination (ECSI Site ID: 2407)	115	12 CORR / Correspondence	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100003099	2/1/2006	Linnton Oil Fire Training Grounds - DEQ Conditional No Further Action Determination (ECSI Site ID: 1189)	534	9 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100005228	2/10/2006	Email regarding Draft agenda for April 11 ERA Framework meeting.	111	3 LTR / Letter	R10: Johnson, Keith (Oregon Dept. of Environmental Quality)	R10: Kraus, Kevin (REACH Community Development, Inc.)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100005332	2/15/2006	Meeting and ERA Framework Issue Summary. Summary of Ecological Risk Assessment Decision Framework Issues.	112	3 LTR / Letter	R10: Anderson, James, M (Oregon Dept. of Environmental Quality)	R10: O'donovan, John (City of Portland, Oregon, Bureau of Environmental Services)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100007445	4/5/2006	Ecological Risk Assessment Framework Meeting Summary.	16	1 EML / Email	R10: O'mealy, Mikell (Oregon Dept. of Environmental Quality)	R10: Applegate, Richard (City of Portland, Oregon), R10: Oster, Valerie (Anchor Environmental, LLC), R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA), R10: Wyatt, Robert, J (NW Natural), R10: Mckenna, James (Verdant Solutions, LLC)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100007447	4/7/2006	Ecological Risk Assessment Framework Meeting Summary.	17	1 EML / Email	R10: O'mealy, Mikell (Oregon Dept. of Environmental Quality)	R10: Applegate, Richard (City of Portland, Oregon), R10: Mckenna, James (Port of Portland), R10: Blischke, Eric, L (EPA), R10: Wyatt, Robert, J (NW Natural)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100007449	4/7/2006	SSD ERED-SETAC Database.	79	3 CORR / Correspondence	R10: O'mealy, Mikell (Oregon Dept. of Environmental Quality)	R10: (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100007453	4/11/2006	SSD ERED-SETAC Database.	69	3 CORR / Correspondence	R10: O'mealy, Mikell (Oregon Dept. of Environmental Quality)	R10: (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100007467	4/11/2006	SSD ERED-SETAC Database.	445	18 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement

100007452	4/12/2006	Email regarding Draft summary of ERA framework meeting.	22	1 EML / Email	R10: O'mealy, Mikell (Oregon Dept. of Environmental Quality)	R10: Applegate, Richard (City of Portland, Oregon), R10: Neeley, Robert (NOAA), R10: Buck, Jeremy (U. S. Fish and Wildlife Service), R10: Thompson, Chris (Unknown), R10: Madden, Erin (Unknown), R10: Oster, Valerie (Anchor Environmental, LLC), R10: Bridgen, Pamela, J (Environment International, Ltd.), R10: Downey, Tom (Confederated Tribes of the Siletz Indians), R10: Baker, Jeff (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Estensen, Lisa (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Toepel, Kathryn (Oregon Dept. of Human Services), R10: Gainer, Tom (Oregon Dept. of Environmental Quality), R10: Gensemer, Robert, W (Parametrix, Inc.), R10: Lee, Jean, H (Environment International, Ltd.), R10: Lee, Valerie (Environment International, Ltd.), R10: Longoria, Rose (Yakama Nation), R10: Wyatt, Robert, J (NW Natural), R10: Mckenna, James (Verdant Solutions, LLC)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100007454	4/17/2006	Email regarding Agenda for Tuesday's CSM meeting.	22	3 EML / Email	R10: O'mealy, Mikell (Oregon Dept. of Environmental Quality)	R10: Applegate, Richard (City of Portland, Oregon), R10: Oster, Valerie (Anchor Environmental, LLC), R10: Wyatt, Robert, J (Northwest Natural Gas Company), R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA), R10: Livesay, Dave (GSI Groundwater Solutions, Inc.), R10: Mckenna, James (Verdant Solutions, LLC)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100007456	4/18/2006	Email regarding Agenda for Thursday's Stormwater meeting.	17	1 EML / Email	R10: Tarnow, Karen, E (Oregon Dept. of Environmental Quality)	R10: Sanders, Dawn (City of Portland, Oregon), R10: Scheffler, Linda (City of Portland, Oregon), R10: Applegate, Richard (City of Portland, Oregon), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality), R10: Johnson, Keith (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100007457	4/20/2006	Portland Harbor Stormwater Strategy Meeting Agenda.	33	1 CORR / Correspondence	R10: Tarnow, Karen, E (Oregon Dept. of Environmental Quality)	R10: (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100007458	5/1/2006	Email regarding Carl's questions.	16	1 EML / Email	R10: Hope, Bruce, K (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality), R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100007461	5/1/2006	Portland Harbor General Questions	113	3 CORR / Correspondence	R10: Stivers, Carl (Anchor QEA, LLC)	R10: (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100007462	5/3/2006	Email regarding First cut at PH data by segment.	16	1 EML / Email	R10: Hope, Bruce, K (Oregon Dept. of Environmental Quality)	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality), R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100007463	5/3/2006	Sum of Aroclor Concentration Flagged as Detected.	61	1 CORR / Correspondence	R10: Hope, Bruce, K (Oregon Dept. of Environmental Quality)	R10: (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100007470	6/8/2006	Email regarding Administrative Framework for Stormwater in the ROD.	18	1 EML / Email	R10: Tarnow, Karen, E (Oregon Dept. of Environmental Quality)	R10: Sanders, Dawn (City of Portland, Oregon), R10: Applegate, Richard (City of Portland, Oregon), R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA), R10: Humphrey, Herbert (EPA), R10: Roick, Thomas, E (Oregon Dept. of Environmental Quality), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality), R10: Johnson, Keith (Oregon Dept. of Environmental Quality), R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100007471	6/8/2006	Draft Operating Assumptions related to Stormwater and the Rod.	67	2 CORR / Correspondence	R10: Tarnow, Karen, E (Oregon Dept. of Environmental Quality)	R10: (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100007472	6/8/2006	Pathway to Controlling Stormwater in Portland Harbor.	44	1 CORR / Correspondence	R10: Tarnow, Karen, E (Oregon Dept. of Environmental Quality)	R10: (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100003085	6/19/2006	Guidance for Hazardous Waste Remediation RR-705.	152	29 CORR / Correspondence	R10: (Wisconsin Department of Natural Resources)	R10: (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002413	8/4/2006	Source Control Plan Sulzer Pump Sites.	4,907	116 RPT / Report	R10: (GeoDesign, Inc.)	R10: (Sulzer Pumps, Inc.)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100005324	8/8/2006	Flint Ink Corp - DEQ Conditional No Further Action Determination (ECSI Site ID: 1753)	60	2 LTR / Letter	R10: Pugh, Mark, T (Oregon Dept. of Environmental Quality)	R10: Barricklow, Christopher, G (Flint Ink Corporation)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100005235	12/6/2006	PGE Substation E - DEQ No Further Action Determination (ECSI Site ID: 3976)	83	4 LTR / Letter	R10: Anderson, James, M (Oregon Dept. of Environmental Quality)	R10: Norton, Dennis (Portland General Electric Company)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100007424	12/29/2006	Milestone Report for Upland Source Control at the Portland Harbor Superfund Site.	140	20 CORR / Correspondence	R10: O'mealy, Mikell (Oregon Dept. of Environmental Quality)	R10: (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100007425	12/29/2006	Letter regarding Milestone Report for Upland Source Control at the Portland Harbor Superfund Site.	18	2 CORR / Correspondence	R10: Anderson, James, M (Oregon Dept. of Environmental Quality)	R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100007426	12/29/2006	Table 1: DEQ Milestone Report Controlling Confirmed or Suspected Upland Sources of Contamination to Portland Harbor.	182	33 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100007427	12/29/2006	Table 2 Status of High Priority Sites.	20	1 CORR / Correspondence	R10: Anderson, James, M (Oregon Dept. of Environmental Quality)	R10: (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100005237	1/16/2007	Waterfront Pearl Condo - DEQ No Further Action Determination (ECSI Site ID: 4535)	920	16 LTR / Letter	R10: Gilles, Bruce, A (Oregon Dept. of Environmental Quality)	R10: Mayer, Paul (Waterfront Pearl Limited Partnership)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100007478	1/29/2007	Email regarding PH FW model comments.	71	1 EML / Email	R10: Hope, Bruce, K (Oregon Dept. of Environmental Quality)	R10: Shephard, Burt (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100007444	3/15/2007	Letter regarding Former Arkema Portland Plant Responses to ODEQ/USEPA Comments on the Preliminary Draft Scoping Technical Memorandum.	1,744	22 CORR / Correspondence	R10: Slater, Todd (Legacy Site Services, LLC)	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100007443	3/21/2007	Email regarding Arkema Reponse to DEQ/EPA Comments on the Draft Scoping Tech Memo for Groundwater Source Control.	24	1 EML / Email	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	R10: Neeley, Robert (NOAA), R10: Buck, Jeremy (U. S. Fish and Wildlife Service), R10: Thompson, Chris (Unknown), R10: Madden, Erin (Unknown), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Donoghue, Cinde (Washington State Dept. of Ecology), R10: Arthur, Jennifer (Environment International, Ltd.), R10: Baker, Jeff (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Bluelake, Lisa (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Barquin, Billy (Haglund, Kelley, Horngren, Jones & Wilder, LLP), R10: Toepel, Kathryn (Oregon Dept. of Human Services), R10: Gainer, Tom (Oregon Dept. of Environmental Quality), R10: Borok, Aron (Environment International, Ltd.), R10: Longoria, Rose (Yakama Nation)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100003084	4/5/2007	Federal Register / Vol. 67, No. 49/ Wednesday, March 13, 2002/ Rules and Regulations.	50	4 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100007451	4/9/2007	Letter regarding Portland Harbor RI/FS Comprehensive Round 2 Site Characterization Summary and Data Gaps Analysis Report.	237	28 CORR / Correspondence	R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100007468	5/29/2007	Email regarding Arkema Portland Groundwater Source Control Evaluation.	18	1 EML / Email	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	R10: Slater, Todd (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100007469	5/29/2007	Letter regarding Former Arkema Portland Plant Draft Groundwater Source Control Evaluation.	121	3 CORR / Correspondence	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	R10: Slater, Todd (Legacy Site Services, LLC)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement

100005287	Schnitzer Kittridge - DEQ Conditional No Further Action Determination (ECSI Site ID: 2442)	6/4/2007	123	3 LTR / Letter	R10: Johnson, Keith (Oregon Dept. of Environmental Quality)	R10: Davidson, Susan (Schnitzer Investment Corporation)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002414	Supplemental Source Control Evaluation Sulzer Pumps Facility.	6/29/2007	4,469	106 RPT / Report	R10: (GeoDesign, Inc.)	R10: (Sulzer Pumps, Inc.)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100005261	Paco Pumps - DEQ No Further Action Determination (ECSI Site ID: 146)	7/19/2007	702	24 MEMO / Memorandum	R10: Roick, Thomas, E (Oregon Dept. of Environmental Quality)	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100005330	ACF Industries - DEQ Conditional No Further Action Determination (ECSI Site ID: 794)	9/17/2007	75	3 LTR / Letter	R10: Deconcini, Nina (Oregon Dept. of Environmental Quality)	R10: Hyink, Richard, A (ACF Industries, Inc.)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002163	Sediment Phthalates Work Group Summary of Findings and Recommendations Phthalate Report FINAL 092807.	10/4/2007	5,291	135 CORR / Correspondence	R10: (King County), R10: (City of Tacoma), R10: (City of Seattle), R10: (Washington State Department of Ecology), R10: (U.S. Environmental Protection Agency)	R10: (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002205	Sample Analysis for Willbridge Terminal-Conoco Phillips.	11/8/2007	3,085	336 RPT / Report	R10: (Test America, Inc.)	R10: (Delta Consultants, Inc.)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100007438	DEQ's Comprehensive Strategy for Stormwater Source Control in Portland Harbor Draft Outline.	1/14/2008	146	7 CORR / Correspondence	R10: Tarnow, Karen, E (Oregon Dept. of Environmental Quality)	R10: (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002131	Source Control Meeting w/Dan Opalski Source Control January 2008.	1/28/2008	78	7 CORR / Correspondence	R10: Koch, Kristine, M (EPA)	R10: (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100007440	Draft Stormwater Pathway Evaluation Process. Brix Maritime SCE Appendices C Laboratory Reports.	3/5/2008	87	2 CORR / Correspondence	R10: Tarnow, Karen, E (Oregon Dept. of Environmental Quality)	R10: (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002181		3/11/2008	6,617	301 RPT / Report	R10: (Analytical Resources, Incorporated)	R10: (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100007435	Email regarding Agenda for March 13th stormwater mtg 10-noon.	3/12/2008	18	1 EML / Email	R10: Tarnow, Karen, E (Oregon Dept. of Environmental Quality)	R10: Sanders, Dawn (City of Portland, Oregon), R10: Scheffler, Linda (City of Portland, Oregon), R10: Applegate, Richard (City of Portland, Oregon), R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA), R10: Yamamoto, Deb (EPA), R10: Johnson, Keith (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100007436	DEQ-EPA Meeting Agenda on March 13.	3/12/2008	29	1 CORR / Correspondence	R10: Tarnow, Karen, E (Oregon Dept. of Environmental Quality)	R10: (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100007437	DEQ/City Outfall Basin Evaluation Process.	3/12/2008	22	1 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100007439	Pipeshed Source Control Decision Criteria For Portland Harbor Discussion Draft March.	3/12/2008	68	2 CORR / Correspondence	R10: Roick, Thomas, E (Oregon Dept. of Environmental Quality)	R10: (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100003140	Email regarding Portland Harbor.	3/20/2008	22	2 EML / Email	R10: Burkholder, Kurt (Oregon Dept. of Justice)	R10: Cora, Lori, H (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100003146	Email regarding Portland Harbor.	3/20/2008	22	3 EML / Email	R10: Burkholder, Kurt (Oregon Dept. of Justice)	R10: Cora, Lori, H (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100007441	Email regarding Draft notes from 3/13 stormwater meeting.	3/20/2008	19	1 EML / Email	R10: Tarnow, Karen, E (Oregon Dept. of Environmental Quality)	R10: Sanders, Dawn (City of Portland, Oregon), R10: Scheffler, Linda (City of Portland, Oregon), R10: Applegate, Richard (City of Portland, Oregon), R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA), R10: Yamamoto, Deb (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100007442	Draft Meeting Summary.	3/20/2008	52	3 CORR / Correspondence	R10: Tarnow, Karen, E (Oregon Dept. of Environmental Quality)	R10: (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100003114	Email regarding Portland Harbor.	3/21/2008	24	3 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Burkholder, Kurt (Oregon Dept. of Justice), R10: Cora, Lori, H (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100003141	Email regarding Portland Harbor.	3/24/2008	25	4 EML / Email	R10: Burkholder, Kurt (Oregon Dept. of Justice)	R10: Cora, Lori, H (EPA), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100005229	Union Station Horse Barn (Lots 3 and 7) - DEQ No Further Action Determination (ECSI Site ID: 2407)	5/8/2008	75	3 LTR / Letter	R10: Johnson, Keith (Oregon Dept. of Environmental Quality)	R10: Obern, David (Portland Development Commission)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100007466	Email regarding DEQ SSC Calculation Methods Part 1.	5/20/2008	17	1 EML / Email	R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100007473	Email regarding Food Web Model Comments. Appendix E: Food Web Model and Biota-Sediment Accumulation Factor (BSAF)	6/9/2008	22	2 EML / Email	R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100007474	Development. EPA Comments Appendix E: Round 2 Comprehensive Site Characterization Summary and Data Gaps Report.	6/9/2008	58	3 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100007476		6/13/2008	110	8 CORR / Correspondence	R10: Macintyre, Mark, A (EPA)	R10: (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100007475	Email regarding Food Web Model Comments. Draft Comprehensive Round 2 Site Characterization Summary and Data Gaps Analysis Report Appendix H: Food Web Model - Attachment 3, Parameterization.	6/17/2008	30	4 EML / Email	R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA), R10: Shephard, Burt (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100007477		6/17/2008	84	2 CORR / Correspondence	R10: Hope, Bruce, K (Oregon Dept. of Environmental Quality)	R10: (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100007479	Email regarding Food Web / BSAF Spreadsheet. Draft Comparison of Round 2 Report Appendix E Food web Model Results.	6/19/2008	17	1 EML / Email	R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA), R10: Shephard, Burt (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100007480	Pearl Building - DEQ Conditional No Further Action Determination (ECSI Site ID: 4960)	6/19/2008	36	3 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100005249		7/16/2008	73	2 LTR / Letter	R10: Gilles, Bruce, A (Oregon Dept. of Environmental Quality)	R10: Prendergast, Pat (Pearl Block LLC)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100003121	Email regarding GASCO 401.	9/8/2008	18	1 EML / Email	R10: Burkholder, Kurt (Oregon Dept. of Justice)	R10: Cora, Lori, H (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100003145	Email regarding GASCO 401.	9/8/2008	15	1 EML / Email	R10: Cora, Lori, H (EPA)	R10: Burkholder, Kurt (Oregon Dept. of Justice)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100003183	Memorandum regarding proposed method for calculating representative LU concentrations. Email regarding draft approval letter for stormwater loading calculation methods. DEQ's comments on draft approval letter and DEQ's thoughts on SW Calc method.	9/18/2008	23	3 EML / Email	R10: Tarnow, Karen, E (Oregon Dept. of Environmental Quality), R10: Poulsen, Mike (Oregon Dept. of Environmental Quality)	R10: (Stormwater Tech Team)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100003176		10/21/2008	39	2 EML / Email	R10: Tarnow, Karen, E (Oregon Dept. of Environmental Quality)	R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100003180	Memorandum regarding EPA's draft approval letter for stormwater loading calculations. Pense Truck Leasing - DEQ No Further Action Determination (ECSI Site ID: 5055)	10/21/2008	26	2 EML / Email	R10: Tarnow, Karen, E (Oregon Dept. of Environmental Quality), R10: Poulsen, Mike (Oregon Dept. of Environmental Quality)	R10: (Stormwater Tech Team)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100005262		12/2/2008	43	1 LTR / Letter	R10: Gilles, Bruce, A (Oregon Dept. of Environmental Quality)	R10: Robinson, Chris (LFR Inc.)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100005365	Terminal 5 - Port of Portland - DEQ No Further Action Determination (ECSI Site ID: 1686)	1/29/2009	85	3 LTR / Letter	R10: Gainer, Tom (Oregon Dept. of Environmental Quality)	R10: Madalinski, Kelly (Port of Portland)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100005263	Greenway Recycling - DEQ Conditional No Further Action Determination (ECSI Site ID: 4655)	2/23/2009	314	6 LTR / Letter	R10: Johnson, Keith (Oregon Dept. of Environmental Quality)	R10: Garrett, Terrell (Greenway Recycling)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100007464	Email regarding ARKEMA Dioxins / Furans.	5/12/2009	32	1 EML / Email	R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)	R10: Smith, Carrie, A (Parametrix, Inc.), R10: Hermanson, Brad (Parametrix, Inc.), R10: Gensamer, Robert, W (GEI Consultants, Inc.), R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality), R10: Lavelle, James, R10: Shorr, Benjamin (NOAA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100007465	River Mile 7W Table.	5/12/2009	53	2 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100003080	Email regarding NW Natural, DEQ Basis for Applying the Toxicity Characteristic to Commingled MGP Waste & F002 Constituents. Draft Source Control Evaluation for the Premier Edible Oils Site.	6/3/2009	137	8 EML / Email	R10: Bayuk, Dana (Oregon Dept. of Environmental Quality)	R10: Cora, Lori, H (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002565		6/11/2009	20,050	133 RPT / Report	R10: (Gradient Corporation)	R10: (Schnitzer Investment Corporation)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100005363	Linnton Plywood (includes Glacier NW #2351) - DEQ No Further Action Determination (ECSI Site ID: 2373)	7/10/2009	1,150	5 LTR / Letter	R10: Johnson, Keith (Oregon Dept. of Environmental Quality)	R10: Stahly, James (Linnton Plywood Association)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002126	Draft Figure 6 Source Control Subsurface Profile Portland Harbor GWCrossSection.	7/17/2009	515	1 CORR / Correspondence	R10: (Anchor Environmental, LLC)	R10: (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement

100002127	7/20/2009	Determination of whether fish consumption AWQC and MCLs are relevant and appropriate to contaminated sediments and groundwater beneath the Willamette River Portland Harbor MCLs One Pager 072009.	60	1	CORR / Correspondence	R10: Blischke, Eric, L (EPA)	R10: (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002150	7/22/2009	Potential ARAR Exceedances in Porewater Collected at the Portland Harbor Site for Selected Chemicals PHTZWARAR Comparison.	68	4	CORR / Correspondence	R10: Blischke, Eric, L (EPA)	R10: (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002129	7/23/2009	Portland Harbor Aquifer Area Map and Cross-sections Portland Harbor Aquifer McC&B 2007 sections 3.	2,479	5	CORR / Correspondence	R10: Fuentes, Rene, C (EPA)	R10: (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002134	8/24/2009	Email regarding Portland UIC permit and aquifers.	77	3	EML / Email	R10: Fuentes, Rene, C (EPA)	R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002151	8/24/2009	Email regarding Portland Harbor additional figures to Eric's message of 8/6/09.	33	1	EML / Email	R10: Fuentes, Rene, C (EPA)	R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA), R10: Yamamoto, Deb (EPA Region 10)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002157	8/24/2009	GASCO TO ARKEMA Cross-sections Doane Lake Area Composite GASCO TO ARKEMA x-sections RFplus.	11,723	6	CORR / Correspondence	R10: Fuentes, Rene, C (EPA)	R10: (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002321	9/23/2009	Catch Basin Sediment Sampling Report GS Roofing Products.	2,511	90	RPT / Report	R10: (Forensic Environmental Services, Inc.)	R10: Thiessen, Kenneth (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002137	10/28/2009	Email regarding Info about drinking water wells in PH.	36	1	EML / Email	R10: Fuentes, Rene, C (EPA)	R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002138	10/28/2009	Portland Harbor Water Supply Wells Portland Harbor Water Supply Wells.	140	6	CORR / Correspondence	R10: Fuentes, Rene, C (EPA)	R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100003117	12/1/2009	Identification and Listing of Hazardous Waste. Initial Stormwater Sampling Report GS Roofing Products.	75	10	CORR / Correspondence	R10: Bingham, Lisa (EPA)	R10: (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002322	12/3/2009	Administrative Order on Consent for Remedial Investigation and Feasibility Study; EPA's Preliminary Identification of ARARS at Portland Harbor.	929	62	RPT / Report	R10: (Forensic Environmental Services, Inc.)	R10: Thiessen, Kenneth (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100003118	12/21/2009	Enclosure 2 EPA December 2009 Identification of ARARS Letter.	88	3	CORR / Correspondence	R10: Blischke, Eric, L (EPA)	R10: (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100003116	12/22/2009	Enclosure 2 EPA December 2009 Identification of ARARS Letter.	56	3	CORR / Correspondence	R10: Blischke, Eric, L (EPA)	R10: (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100003142	1/4/2010	Email regarding ARAR comments -- Table 1. Draft Recontamination Evaluation Work Plan	44	2	EML / Email	R10: Cora, Lori, H (EPA)	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002160	1/12/2010	Zidell Recontamination Evaluation WP.	3,627	60	CORR / Correspondence	R10: (Maul Foster & Alongi, Inc.)	R10: (ZRZ Realty Company)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100003086	1/21/2010	Email regarding Draft Agenda for 1/28 ARARs Meeting.	74	2	EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Cora, Lori, H (EPA), R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA), R10: Yamamoto, Deb (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100003143	2/1/2010	Email regarding Portland Harbor -- Memo regarding MCLs and AWQC.	17	1	EML / Email	R10: Cora, Lori, H (EPA)	R10: Burkholder, Kurt (Oregon Dept. of Justice)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100003144	2/1/2010	Enclosure 2 December 2009 Identification of ARARS Letter.	90	7	CORR / Correspondence	R10: Cora, Lori, H (EPA)	R10: (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100003113	2/2/2010	Email regarding Conclusions from 1/28/10 DEQ/EPA ARARs Meeting.	81	4	EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Cora, Lori, H (EPA), R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA), R10: Yamamoto, Deb (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002139	2/9/2010	Email regarding Zidell Recontamination Evaluation.	38	1	EML / Email	R10: Tarnow, Karen, E (Oregon Dept. of Environmental Quality)	R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100003068	2/12/2010	Email regarding Conclusions from 1/28/10 DEQ/EPA ARARs Meeting.	81	4	EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Cora, Lori, H (EPA), R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA), R10: Yamamoto, Deb (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100003069	3/30/2010	Email regarding Further Question on ARARs Clarification.	111	11	EML / Email	R10: Cora, Lori, H (EPA)	R10: Burkholder, Kurt (Oregon Dept. of Justice)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100003119	3/30/2010	Email regarding Further Question on ARARs Clarification.	31	8	EML / Email	R10: Burkholder, Kurt (Oregon Dept. of Justice)	R10: Cora, Lori, H (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100003122	3/30/2010	Email regarding Further Question on ARARs Clarification.	99	9	EML / Email	R10: Burkholder, Kurt (Oregon Dept. of Justice)	R10: Cora, Lori, H (EPA), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002324	4/8/2010	Second Stormwater Sampling Report GS Roofing Products.	882	63	RPT / Report	R10: (Forensic Environmental Services, Inc.)	R10: Thiessen, Kenneth (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100003120	4/21/2010	Email regarding Further Question on ARARs Clarification.	66	3	EML / Email	R10: Burkholder, Kurt (Oregon Dept. of Justice)	R10: Cora, Lori, H (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002206	4/27/2010	Report of Laboratory Analysis.	2,252	248	RPT / Report	R10: (Pace Analytical Services, Inc.)	R10: (Stantec Consulting, Ltd.)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100005280	4/27/2010	Roadway Express - DEQ No Further Action Determination (ECSI Site ID: 3807)	156	6	LTR / Letter	R10: Johnson, Keith (Oregon Dept. of Environmental Quality)	R10: Shimmers, Steven (YRC North American Transportation, Inc.)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002323	7/2/2010	Third Stormwater Sampling Report GS Roofing Products.	1,793	41	RPT / Report	R10: (Forensic Environmental Services, Inc.)	R10: Thiessen, Kenneth (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100005368	7/16/2010	Port of Portland Tract O Property - DEQ No Further Action Determination (ECSI Site ID: 5307)	2,581	14	LTR / Letter	R10: Gilles, Bruce, A (Oregon Dept. of Environmental Quality)	R10: Vincent, Richard (Port of Portland)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100003098	7/18/2010	Federal Register/ Vol. 74, No. 22/ Wednesday, February 4, 2009/ Rules and Regulations.	182	3	CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002159	9/14/2010	Email regarding 134 McCall Oil Data Gaps Work Plan.	34	1	EML / Email	R10: Koch, Kristine, M (EPA)	R10: Orr, Jim (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002170	9/14/2010	134 McCall SC Data Gaps Work Plan 8-27-2010 McCall Oil Data Gaps WP Comment Letter 9-14-2010.	166	4	CORR / Correspondence	R10: Koch, Kristine, M (EPA)	R10: Orr, Jim (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002263	11/15/2010	Appendix G Technical Memorandum Kinder Morgan Linnton Terminal River Bank Erodibility Assessment.	17,565	61	RPT / Report	R10: (CH2MHILL)	R10: (Kinder Morgan Liquids Terminals, LLC)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002797	12/9/2010	Attachment D December 9, 2010 EQC Meeting Water Quality Standards Review and Recommendations: Iron and Manganese.	626	25	CORR / Correspondence	R10: (Oregon Dept. of Environmental Quality)	R10: (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002166	12/13/2010	High Priority Sites - Source Control Schedule SProjection.	80	1	CORR / Correspondence	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	R10: (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002162	12/20/2010	Email regarding Phthalate Report.	30	1	EML / Email	R10: Koch, Kristine, M (EPA)	R10: Tarnow, Karen, E (Oregon Dept. of Environmental Quality), R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002165	1/20/2011	Email regarding SC Table.	13	1	EML / Email	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002264	3/28/2011	Appendix H Draft Technical Memorandum Subsurface Bank Soils Investigation Results.	7,791	104	RPT / Report	R10: (CH2MHILL)	R10: Romero, Mike (Oregon Department of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002229	5/16/2011	Oregon Department of Environmental Quality Comments on Storm Water Source Control Screening Evaluation Work Plan, Glacier Northwest Portland Cement Terminal.	5,195	389	CORR / Correspondence	R10: (Glacier Northwest, Inc.), R10: (ERM)	R10: Hafley, Dan (Oregon Dept. of Environmental Quality), R10: Tarnow, Karen, E (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100003448	7/21/2011	Email transmitting class of compounds tat sheet. 070111 KristineCHEMS.	39	2	EML / Email	R10: Haskell, Daniel	R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100003449	7/21/2011	Kristine CHEMS data sheet.	263	435	CHT / Chart/Table	R10: Haskell, Daniel		ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002664	8/11/2011	EPA Goals for Rhone Poulenc Source Control Discussion and DEQ's Addendum Report.	68	1	CORR / Correspondence	R10: Lavelle, Jim (EPA)	R10: (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100005311	8/25/2011	Calbag Metals - DEQ No Further Action Determination (ECSI Site ID: 5238)	1,004	28	MEMO / Memorandum	R10: Orr, Jim (Oregon Dept. of Environmental Quality)	R10: Unknown, Unknown (Calbag Metals Company)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100005322	8/25/2011	Calbag Metals - DEQ No Further Action Determination (ECSI Site ID: 5238)	45	2	LTR / Letter	R10: Harman, Charles (Oregon Dept. of Environmental Quality)	R10: Wolfstone, Jeffrey, C (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002262	1/10/2012	Appendix F Groundwater Barrier System Construction Drawings.	371	18	RPT / Report	R10: (CH2MHILL)		ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100003322	1/25/2012	EQ/EPA Riverbank Meeting Summary.	19	1	MTG / Meeting Document			ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement



100002408	2/21/2012	Stormwater Pollution Control Plan (SWPCP) Schnitzler Steel Industries.	6,911	158 RPT / Report	R10: (Envirocare Solutions, LLC)	R10: (Schnitzer Steel Industries, Inc.)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002265	3/28/2012	Appendix I Technical Memorandum Kinder Morgan Linnton Terminal Phase 2 Bank Soils Investigation Results.	6,908	42 RPT / Report	R10: (CH2MHILL)	R10: Romero, Mike (Oregon Department of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002204	5/25/2012	Draft ConocoPhillips Portland Terminal Source Control Evaluation Report.	24,622	77 RPT / Report	R10: (Stantec Consulting, Ltd.)	R10: (ConocoPhillips Company)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002261	8/29/2012	Appendix F Kinder Morgan Linnton Terminal River Bank Erodibility Assessment Sheet Pile Barrier Wall System.	3,033	13 RPT / Report	R10: (CH2MHILL)	R10: (Kinder Morgan Tank Storage Terminals, LLC)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002401	8/29/2012	Letter regarding NPDES 1200-Z Industrial-Stormwater Discharge Permit Renewal.	121	3 CORR / Correspondence	R10: Pronold, Michael (City of Portland, Oregon, Bureau of Environmental Services)	R10: Alexander, Chris (Schnitzer Steel Industries, Inc.)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100005245	9/25/2012	USPS - Process & Distribution Center - DEQ Conditional No Further Action Determination (ECSI Site ID: 2183)	206	4 LTR / Letter	R10: Johnson, Keith (Oregon Dept. of Environmental Quality)	R10: Roche, Hugh (U. S. Postal Service)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002266	10/15/2012	Appendix J Technical Memorandum Estimated Pore Water Concentrations from Bank Soil Samples - KMEP Linnton Terminal.	4,193	10 RPT / Report	R10: (CH2MHILL)	R10: Romero, Mike (Oregon Department of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100005236	10/18/2012	Union Station Horse Barn (Lot 2) - DEQ No Further Action Determination (ECSI Site ID: 2407)	87	4 LTR / Letter	R10: Johnson, Keith (Oregon Dept. of Environmental Quality)	R10: Close, Greg, V (Wyse Investment Services Company)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100003110	10/31/2012	Easement and Equitable Servitudes (E&ES or EES).	123	7 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002751	3/5/2013	Email regarding DEQ 1200Z general industrial stormwater permit staff report.	78	2 EML / Email	R10: Yamamoto, Deb (EPA)	R10: Liverman, Alex (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100005336	3/12/2013	Olympic Pipeline Portland Facility within ExxonMobil - DEQ No Further Action Determination (ECSI Site ID: 3342)	882	17 LTR / Letter	R10: Thiessen, Kenneth (Oregon Dept. of Environmental Quality)	R10: Gustaf, Kelli (BP Pipelines & Logistics)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002795	4/3/2013	No Further Action Recommendation Groundwater Source Control Evraz Oregon Steel Mills.	7,642	52 CORR / Correspondence	R10: Sutter, Jennifer, L (Oregon Dept. of Environmental Quality)	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100003655	4/7/2013	State Presentation to NRRB on Modeling - State Presentation to NRRB on Modeling 11-16-15b (2).	4,017	10 EML / Email	R10: Parrett, Kevin (Oregon Dept. of Environmental Quality)	R10: (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100004015	4/7/2013	State Presentation to NRRB on Modeling - State Presentation to NRRB on Modeling 11-16-15b (2).	4,017	10 CORR / Correspondence	R10: Parrett, Kevin (Oregon Dept. of Environmental Quality)	R10: (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002670	4/18/2013	EPA Recommendations for Data Gaps Evaluations during Development of the Feasibility Study for the Fonner Rhone Poulenc - Portland Site.	1,748	6 CORR / Correspondence	R10: (EPA Region 10)	R10: Lacey, David (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100005254	9/23/2013	Union Station Lot 5 Parcel B South - DEQ Conditional No Further Action Determination (ECSI Site ID: 1885)	121	4 LTR / Letter	R10: Johnson, Keith (Oregon Dept. of Environmental Quality)	R10: Oborn, David (Portland Development Commission)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002761	9/26/2013	Email regarding Stormwater SCE explanation language.	56	3 EML / Email	R10: Muza, Richard (EPA)	R10: Liverman, Alex (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002472	10/15/2013	Notice of Non-Compliance-Failure to meet Tier 1 Corrective Action Reporting Requirements-Schedule A.I.O.a US DOD: US Army Corps of Engineers, DEQ File# 108394.	56	2 CORR / Correspondence	R10: Johnson, Laura (City of Portland, Oregon, Bureau of Environmental Services)	R10: (US Army Corps of Engineers)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002473	10/15/2013	Notice of Non-compliance Failure to Meet Sampling Procedure Requirements - Schedule B.2.	38	1 CORR / Correspondence	R10: Johnson, Laura (City of Portland, Oregon, Bureau of Environmental Services)	R10: (US Army Corps of Engineers)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002474	10/15/2013	Pre-Enforcement Referral Failure to Meet Monitoring Requirements - Schedule B and Schedule E.	64	2 CORR / Correspondence	R10: Johnson, Laura (City of Portland, Oregon, Bureau of Environmental Services)	R10: (US Army Corps of Engineers)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002956	10/15/2013	Notice of Non-Compliance- Failure to meet Tier 1 Corrective Action Reporting Requirements-Schedule A.I.O.a US DOD: US Army Corps of Engineers.	59	2 CORR / Correspondence	R10: Johnson, Laura (City of Portland, Oregon, Bureau of Environmental Services)	R10: Leskovich, Art (US Army Corps of Engineers)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002957	10/15/2013	Notice of Non-compliance Failure to Meet Sampling Procedure Requirements - Schedule B.2 US DOD: US Army Corps of Engineers.	38	1 CORR / Correspondence	R10: Johnson, Laura (City of Portland, Oregon, Bureau of Environmental Services)	R10: Leskovich, Art (US Army Corps of Engineers)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002958	10/15/2013	Pre-Enforcement Referral Failure to Meet Monitoring Requirements - Schedule B and Schedule EUS DOD: US Army Corps of Engineers.	64	2 CORR / Correspondence	R10: Johnson, Laura (City of Portland, Oregon, Bureau of Environmental Services)	R10: Harper, Chris (US Army Corps of Engineers)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002694	11/25/2013	Guidance for Evaluating Completion of Groundwater Restoration Remedial Actions.	1,089	5 CORR / Correspondence	R10: Woolford, James, E (EPA)	R10: (Superfund National Policy Managers)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002856	11/26/2013	SCE Report Tables.	610	18 RPT / Report	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002476	12/9/2013	Final Stormwater NCL Response.	173	4 CORR / Correspondence	R10: Harper, Chris (US Army Corps of Engineers)	R10: Johnson, Laura (City of Portland, Oregon, Bureau of Environmental Services)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002959	12/9/2013	Stormwater NCL Response.	173	4 CORR / Correspondence	R10: Harper, Chris (US Army Corps of Engineers)	R10: Johnson, Laura (City of Portland, Oregon, Bureau of Environmental Services)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100005927	12/10/2013	Senior Managers' Meeting - 121013 notes clean.	79	5 EML / Email	R10: Kirkpatrick, Margaret, D (Lower Willamette Group)	R10: (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002471	12/16/2013	Email regarding US Army Corps stormwater sampling results.	79	3 EML / Email	R10: Johnson, Laura (City of Portland, Oregon, Bureau of Environmental Services)	R10: Muza, Richard (EPA), R10: Liverman, Alex (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002479	12/16/2013	USACE Data Spreadsheet.	1,143	38 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002955	12/16/2013	Email regarding US Army Corps stormwater sampling results.	446	3 EML / Email	R10: Johnson, Laura (City of Portland, Oregon, Bureau of Environmental Services)	R10: Muza, Richard (EPA), R10: Liverman, Alex (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002960	12/16/2013	USACE Details Table.	1,143	38 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002468	12/30/2013	Notice of Civil Penalty Assessment and Order Case No. WQ/SW-NWR-13-134.	1,556	10 CORR / Correspondence	R10: (Oregon Dept. of Environmental Quality)	R10: (US Army Corps of Engineers)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002954	12/30/2013	Notice of Civil Penalty Assessment and Order Case No. WQ/SW-NWR-13-134.	1,557	10 CORR / Correspondence	R10: Feldon, Leah (Oregon Dept. of Environmental Quality)	R10: Harper, Chris (US Army Corps of Engineers)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100005930	12/30/2013	Notes on Portland Shipbuilding Company - Notes on Portland Shipbuilding Company.	363	6 EML / Email	R10: Maas, Jonathan, A (EPA)	R10: (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002467	1/3/2014	Email regarding UNITED STATES ARMY CORPS OF ENGINEERS WQ/SW-NWR-13-134 Notice of Civil Penalty Assessment Issued 12/30/2013.	75	1 EML / Email	R10: Siegel, Steve (Oregon Dept. of Environmental Quality)	R10: Liverman, Alex (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002953	1/3/2014	Email regarding UNITED STATES ARMY CORPS OF ENGINEERS WQ/SW-NWR-13-134 Notice of Civil Penalty Assessment Issued 12/30/2013.	1,851	1 EML / Email	R10: Siegel, Steve (Oregon Dept. of Environmental Quality)	R10: Liverman, Alex (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002475	1/14/2014	Notice of Civil Penalty Assessment and Order Case No. WQ/SW-NWR-13-134.	455	1 CORR / Correspondence	R10: Holm, Leanne, V (US Army Corps of Engineers)	R10: Feldon, Leah (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002962	1/14/2014	Notice of Civil Penalty Assessment and Order Case No. WQ/SW-NWR-13-134.	458	1 CORR / Correspondence	R10: Holm, Leanne, V (US Army Corps of Engineers)	R10: Feldon, Leah (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002470	1/17/2014	Email regarding UNITED STATES ARMY CORPS OF ENGINEERS 13-134 Response to Notice of Civil Penalty Assessment.	75	1 EML / Email	R10: Siegel, Steve (Oregon Dept. of Environmental Quality)	R10: Liverman, Alex (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002961	1/17/2014	Email regarding UNITED STATES ARMY CORPS OF ENGINEERS 13-134 Response to Notice of Civil Penalty Assessment.	520	1 EML / Email	R10: Siegel, Steve (Oregon Dept. of Environmental Quality)	R10: Liverman, Alex (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002246	1/31/2014	Appendix A Technical Memorandum regarding Kinder Morgan Linnton Terminal - Pore Water Sampling Results.	13,645	209 RPT / Report	R10: (CH2M Hill, Inc.)	R10: (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002851	2/19/2014	Source Control Evaluation Report Christenson Oil Company.	10,416	261 RPT / Report	R10: Wiebenga, April (Pacific Crest Environmental)	R10: (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002854	2/19/2014	Source Control Evaluation Report Figures Christenson Oil Company.	5,350	15 RPT / Report	R10: (Pacific Crest Environmental, LLC)	R10: (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100003089	2/20/2014	Letter regarding Dispute of EPA Comments, Arkema Inc. Portland Facility Oregon Pesticide Rule and Waste Designation.	136	4 CORR / Correspondence	R10: O'brien, Audrey, M (Oregon Dept. of Environmental Quality)	R10: Sheldrake, Sean, A (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement

100003092	3/26/2014	Chemical-Specific ARARs for Remedial Action at the Portland Harbor Superfund Site Tables. Tables 2.1-1-2.1-3 Chemical-Specific ARARs for Remedial Action at the Portland Harbor Superfund Site - 52615 rev Copy of Tables 2 1-1 through 2 1-3 ARARs.	313	24	CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100003635	3/26/2014	Table 2.2-3b Action-Specific ARARs for Remedial Action at the Portland Harbor Superfund Site - Revised DSL ARARs Table 2 2-03_ARARs 121614.	145	16	CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100003637	3/26/2014	Tables 2.1-3 Portland Harbor Superfund Site - 52615 rev Copy of Tables 2 1-1 through 2 1-3 ARARs.	78	8	EML / Email	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100003994	3/26/2014	Table 2.2-3b Action-Specific ARARs for Remedial Action at the Portland Harbor Superfund Site - Revised DSL ARARs Table 2 2-03_ARARs 121614.	146	16	CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100003996	3/26/2014	EPA SC Focus Areas & Sites Tracking List. Email regarding Next Portland Harbor Tribal Partners Meeting - May 13.	78	8	CORR / Correspondence	R10: (Unknown) R10: Liverman, Alex (Oregon Dept. of Environmental Quality)	R10: (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002730	4/9/2014	Anderson Portland Properties - DEQ No Further Action Determination (ECSI Site ID: 5529)	94	2	EML / Email	R10: Koch, Kristine, M (EPA)	R10: Johnson, Matt (WilliamsJohnson)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100005932	5/6/2014	Union Station Horse Barn (Lot 4) - DEQ No Further Action Determination (ECSI Site ID: 2407)	380	3	LTR / Letter	R10: Johnson, Keith (Oregon Dept. of Environmental Quality)	R10: Anderson, John, W (Anderson Brothers)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100005242	6/27/2014	Figures. Email regarding Portland Harbor STORET data question.	110	3	LTR / Letter	R10: Hafley, Daniel (Oregon Dept. of Environmental Quality) R10: Unknown, Unknown (Norwest Engineering)	R10: Finicle, Gary, A (Pearl Hotel Investors, LLC)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100005754	7/1/2014	7/11/2014	2,215	24	FIG / Figure/Map/ Drawing	R10: Koch, Kristine, M (EPA)	R10: (Unknown) R10: Urbanowicz, Karla (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100005912	7/11/2014	Email regarding Portland Shipbuilding Company. Review Comments Stormwater Source Control Evaluation Report Calbag Metals Company Facilities.	81	2	EML / Email	R10: Koch, Kristine, M (EPA)	R10: Hamilton, Jessica (Port of Portland), R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100005929	7/18/2014	Stormwater Source Control Evaluation Report Calbag Metals Company Facilities. Recommended Approach for Evaluating Completion of Groundwater Restoration Remedial Actions at a Groundwater Monitoring Well.	42	1	EML / Email	R10: Koch, Kristine, M (EPA)	R10: (Unknown) R10: (Oregon Department of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002191	7/31/2014	7/31/2014	50	4	CORR / Correspondence	R10: (EPA)	R10: (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002193	7/31/2014	8/4/2014	78,339	1801	RPT / Report	R10: (GeoPro LLC)	R10: (Oregon Department of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002696	8/4/2014	EPA Review of DEQ Recommended Alternative for LNAPL and Groundwater Source Control Premier Edible Oils Site, ECSI #2013 (July 2014).	380	18	CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002566	8/7/2014	July 10, 2014 NWP/DEQ Meeting Notes Addressing NWP's Response to July 8, 2014 DEQ Comments on Remedial Investigation and Source Control Evaluation Report.	94	2	CORR / Correspondence	R10: Muza, Richard (EPA Region 10)	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002597	8/14/2014	Email Regarding FS Section 1 Comment_FS Section 1 Comment.	146	4	CORR / Correspondence	R10: Heldt-sheller, Stephanie (NW Pipe Company) R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	R10: Orr, Jim (Oregon Dept. of Environmental Quality) R10: Blischke, Eric (Unknown), R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100005518	8/21/2014	Email Regarding Revisions to FS Section 1_Revisions to FS Section 1.	51	2	EML / Email	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric (Unknown), R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100005534	8/21/2014	Email Regarding FS Section 1 Comment_FS Section 1 Comment.	43	1	EML / Email	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric (Unknown), R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100005537	8/21/2014	Letter Regarding Portland Harbor Superfund Site, Administrative Order on Consent for Remedial Investigation and Feasibility Study; Docket No. CERCLA-10-2001-0240_880817.	52	2	EML / Email	R10: Schell, Steven, R (Black Helterline), R10: Merchant, Michael (Black Helterline)	R10: Wyatt, Robert (Lower Willamette Group), R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100005541	8/22/2014	Email Regarding Portland Harbor Superfund Site Northwest Pipe Company Modifications to Feasibility Study Report_Northwest Pipe Company Modifications to FS Report.	3,025	5	CORR / Correspondence	R10: Koch, Kristine, M (EPA)	R10: Muza, Richard (EPA), R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100005538	8/25/2014	Email Regarding Portland Harbor Superfund Site Northwest Pipe Company Modifications to Feasibility Study Report_Northwest Pipe Company Modifications to FS Report.	89	2	EML / Email	R10: Koch, Kristine, M (EPA)	R10: Muza, Richard (EPA), R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100005540	8/25/2014	Email Regarding Dispute Question_Dispute Questions.	85	2	EML / Email	R10: Koch, Kristine, M (EPA)	R10: Muza, Richard (EPA), R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100005576	8/27/2014	Email regarding Model Oregon Easement and Equitable Servitude.	71	2	EML / Email	R10: Koch, Kristine, M (EPA)	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100003096	9/11/2014	Email regarding Model Oregon Easement and Equitable Servitude.	34	1	EML / Email	R10: Cora, Lori, H (EPA)	R10: Vrooman, Gary, L (State of Oregon)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100003109	9/11/2014	Characteristics of Lower Duwamish Waterway and Portland Harbor Superfund Sites for Discussions September 30, 2014_LDW PH Comparison093014.	46	1	EML / Email	R10: Vrooman, Gary, L (State of Oregon)	R10: Cora, Lori, H (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100005545	9/30/2014	Report Regarding Draft Schnitzer ASD Yard Riverbank Feasibility Study_20140924 Schnitzer ASD Yard FS-DRAFT Submitted to DEQ 2014-09-30.	114	2	MTG / Meeting Document	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100005585	9/30/2014	Email Regarding Recap and Next Steps - Lower Duwamish & Portland Harbor WA, OR & EPA Meeting -September 30, 2014.	7,011	550	RPT / Report	R10: (Apex )	R10: (Gunderson) R10: Mccrea, Rachel (Washington State Dept. of Ecology), R10: Thomas, Richard (Washington State Dept. of Ecology), R10: Sheldrake, Sean, A (EPA), R10: Hiltner, Allison, L (EPA), R10: Chu, Rebecca (EPA), R10: Muza, Richard (EPA), R10: Blocker, Shawn (EPA), R10: McClincy, Matt (Oregon Dept. of Environmental Quality), R10: Parrett, Kevin (Unknown), R10: Gainer, Tom (Unknown), R10: (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100005577	10/10/2014	Source Control Measures Construction Completion Report.	82	2	EML / Email	R10: Liverman, Alex (Oregon Dept. of Environmental Quality)	R10: Gainer, Tom (Unknown), R10: (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002351	10/15/2014	Stormwater Sediment Sampling and Cleanout Report, 4927 Northwest Front Avenue, Portland.	26,352	233	RPT / Report	R10: (MMGL Corp)	R10: (Bridgewater Group, Inc.)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002878	10/17/2014	Email Regarding Questions for Downtown Reach Meeting_Downtown Reach CSM Meeting.	2,967	71	CORR / Correspondence	R10: (Golder Associates, Inc.)	R10: Gainer, Tom (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100005546	10/17/2014	Letter Regarding the Portland Harbor Superfund Site, and Following up as well on your Related Discussion with Assistant Administrator Stanislaus_R10-14-001_5242 Pedersen, Dick FINAL.	46	1	EML / Email	R10: Yamamoto, Deb (EPA)	R10: Gainer, Tom (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100005580	10/21/2014	Letter Regarding Portland Harbor Superfund Site_Pedersen Dick FINAL 10-21-14.	774	3	LTR / Letter	R10: McLerran, Dennis, J (EPA)	R10: Pedersen, Dick (Oregon Department of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100005583	10/21/2014	Letter Regarding Acknowledgement of September 10, 2014, Letter Regarding the Portland Harbor Superfund Site_R10F11ECLF601011042014150729.	773	3	LTR / Letter	R10: McLerran, Dennis, J (EPA)	R10: Pedersen, Dick (Oregon Department of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100005872	10/21/2014	Email regarding US Army Corps. Warning Notice: Implementation of Narrative Technology Based Effluent Limits and Implementation of SWPCP Stormwater Facility Inspection- US Army Corps of Engineers-US Government Moorings.	431	4	LTR / Letter	R10: McLerran, Dennis, J (EPA Regional Administrator)	R10: Pedersen, Dick (Oregon Department of Environmental Quality) R10: Liverman, Alex (Oregon Dept. of Environmental Quality), R10: Muza, Richard (EPA Region 10)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002951	10/23/2014	10/23/2014	794	1	EML / Email	R10: Johnson, Laura (City of Portland, Oregon, Bureau of Environmental Services)	R10: Johnson, Laura (City of Portland, Oregon, Bureau of Environmental Services)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002952	10/23/2014		562	2	CORR / Correspondence	R10: Johnson, Laura (City of Portland, Oregon, Bureau of Environmental Services)	R10: Harper, Chris (US Army Corps of Engineers)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement

100005581	10/24/2014	Email Regarding FS Shallow Capping Criteria_FS Shallow Capping Criteria.	83	2 EML / Email	R10: Sheldrake, Sean, A (EPA)	R10: Koch, Kristine, M (EPA) R10: Parrett, Kevin (Unknown), R10: Gainer, Tom (Unknown), R10: Johnson, Keith (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100005582	10/27/2014	Email Regarding Letter to Dick Pedersen from Dennis McLerran.	46	1 EML / Email	R10: Yamamoto, Deb (EPA)		ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100005586	10/30/2014	Email Regarding EPA Comments on Vigor Stormwater Report_EPA Comments on Vigor Stormwater Report.	42	1 EML / Email	R10: Muza, Richard (EPA)	R10: Lacey, David (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100005587	10/30/2014	Letter Regarding Technical Review Comments Prepared by the EPA's Contractor, CDM Smith_Vigor DGI SWReport.	146	4 LTR / Letter	R10: Muza, Richard (EPA)	R10: Lacey, David (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100005588	10/31/2014	Email Regarding CD Greenway Site_CD Greenway Site.	50	1 EML / Email	R10: Johnson, Keith (Oregon Dept. of Environmental Quality)	R10: Koch, Kristine, M (EPA), R10: Yamamoto, Deb (EPA), R10: Muza, Richard (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002852	11/6/2014	Stormwater Source Control Evaluation Report Amendment Christenson Oil Company.	12,472	33 RPT / Report	R10: Wiebenga, April (Pacific Crest Environmental)	R10: Rapp, Shawn (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002853	11/6/2014	Stormwater Source Control Evaluation Report Amendment Christenson Oil Company.	5,323	33 RPT / Report	R10: Wiebenga, April (Pacific Crest Environmental)	R10: Rapp, Shawn (Oregon Dept. of Environmental Quality) R10: Deoncinini, Nina (Oregon Dept. of Environmental Quality), R10: Parrett, Kevin (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100005593	11/7/2014	Email Regarding FYI - Linnton Plywood Association_Linnton Plywood Association.	51	1 EML / Email	R10: Cohen, Lori, G (EPA)		ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100005594	11/14/2014	Email Regarding Gunderson Riverbank FS Comments_Gunderson Riverbank FS Comments.	42	1 EML / Email	R10: Muza, Richard (EPA)	R10: Rapp, Shawn (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100005596	11/14/2014	Letter Regarding Gunderson Riverbank FS Report.	239	6 LTR / Letter	R10: Muza, Richard (EPA)	R10: Rapp, Shawn (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100005595	11/20/2014	Email Regarding Willamette Cove_Willamette Cove.	43	1 EML / Email	R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)	R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100005650	11/26/2014	Email Regarding Final Source Control Decision for Portland Shipyard Operable Unit 1_Final Source Control Decision for Portland Shipyard OU1.	55	1 EML / Email	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	R10: Muza, Richard (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100005652	11/26/2014	Email Regarding Quick Question_Quick Question.	78	5 EML / Email	R10: Koch, Kristine, M (EPA)	R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100005653	12/3/2014	Email Regarding EPA Comments Letter on Willamette Cove_EPA Comments Letter on Willamette Cove.	86	1 EML / Email	R10: Hafley, Dan (Oregon Dept. of Environmental Quality)	R10: Muza, Richard (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100005655	12/3/2014	Email Regarding EPA Comments Letter on Willamette Cove_EPA Comments on Willamette Cove.	43	1 EML / Email	R10: Muza, Richard (EPA)	R10: Hafley, Dan (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100005656	12/3/2014	Letter Regarding Technical Review Comments by the EPA and its Contractor, CDM Smith_WC FSRD Comments.	394	10 LTR / Letter	R10: Muza, Richard (EPA)	R10: Hafley, Dan (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002674	12/10/2014	EPA Comments for revised Sampling and Analysis Plan for the Outfall 22B interim remedial action measure.	97	4 CORR / Correspondence	R10: Muza, Richard (EPA)	R10: Manzano, Scott (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002703	12/10/2014	Downtown Reach Conceptual Site Model and Additional Data Needs.	79	1 CORR / Correspondence	R10: Muza, Richard (EPA)	R10: (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100005657	12/10/2014	Email Regarding EPA Comments OF22B IRAM Revised SAP_EPA comments of 22B IRAM Revised SAP.	43	1 EML / Email	R10: Muza, Richard (EPA)	R10: Manzano, Scott (Oregon Dept. of Environmental Quality), R10: Lacey, David (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100005658	12/10/2014	Letter Regarding EPA Response to Comments and Revised Sampling and Analysis Plan for the Outfall 22B Interim Remedial Action Measure_RP OF22B Revised SAP.	97	4 LTR / Letter	R10: Muza, Richard (EPA)	R10: Manzano, Scott (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002534	12/15/2014	Revised Soil and Cap Management Plan Operable Unit 4 Swan Island Upland Facility.	1,748	31 RPT / Report	R10: (APEX Companies LLC)	R10: (Port of Portland)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100003636	12/16/2014	Review of DSL Proposed ARARs for Portland Harbor Superfund Site submitted by Lore Bense (Assistant Attorney General), dated August 4, 2014 - Response to DSL ARARs 121614.	62	3 EML / Email	R10: Koch, Kristine, M (EPA), R10: Yamamoto, Deb (EPA)	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100003995	12/16/2014	Letter regarding Review of DSL Proposed ARARs for Portland Harbor Superfund Site Submitted by Lore Bense - Response to DSL ARARs 121614.	62	3 CORR / Correspondence	R10: Koch, Kristine, M (EPA), R10: Yamamoto, Deb (EPA)	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100005659	12/17/2014	Email Regarding EOSM Riverbank Design Report_EOSM Riverbank Design Report.	43	1 EML / Email	R10: Muza, Richard (EPA)	R10: Sutter, Jennifer (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100005660	12/17/2014	Letter Regarding EPA's Review Comments Prepared by CDM Smith_EOSM Design Report.	245	8 LTR / Letter	R10: Muza, Richard (EPA)	R10: Sutter, Jennifer, L (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100005662	12/24/2014	Email Regarding Vigor Basis of Design Report_Vigor Basis of Design Report.	42	1 EML / Email	R10: Muza, Richard (EPA)	R10: Lacey, David (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100005663	12/24/2014	Letter Regarding Comments on Basis of Design Update Report_Vigor BoD Update Report.	165	6 LTR / Letter	R10: Muza, Richard (EPA)	R10: Lacey, David (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100005664	12/31/2014	Email Regarding C10-C12 Question_C10-C12 Question.	170	6 EML / Email	R10: Shephard, Burt (Unknown)	R10: Koch, Kristine, M (EPA), R10: Muza, Richard (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100005757	1/1/2015	Terminal 4 Source Control Decision Support Data Collection Work Plan_T4 Source Control Decision Support Data Collection Work Plan DRAFT.	1,080	33 WP / Work Plan	R10: Unknown, Unknown (GeoSyntec Consultants)	R10: Unknown, Unknown (Port of Portland T4)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100005666	1/5/2015	Memorandum Regarding Operable Unit 4 - Swan Island Upland Facility File ECSI #271 Proposed Source Control Decision_Proposed OU 4 SCD Letter(1-5-15).	3,386	76 MEMO / Memorandum	R10: Lacey, David (Oregon Dept. of Environmental Quality)	R10: Unknown, Unknown (Swan Island Upland Facility File)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100005668	1/5/2015	Memorandum Regarding Operable Unit 4 - Swan Island Facility File ECSI #271 Proposed Source Control Decision_Proposed OU-4 Letter (1-5-15).	3,386	76 MEMO / Memorandum	R10: Lacey, David (Oregon Dept. of Environmental Quality)		ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100005752	1/20/2015	Email Regarding Kinder Morgan Permit Applications_KinderMorgan Permit Applications.	122	2 EML / Email	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	R10: Sheldrake, Sean, A (EPA), R10: Koch, Kristine, M (EPA), R10: Muza, Richard (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement

						Robert (NOAA), R10: Buck, Jeremy (U. S. Fish and Wildlife Service), R10: Johnson, Courtney (Unknown), R10: Knudsen, Laura (EPA), R10: Cabral, Rita (Industrial Economics, Incorporated), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Ridolfi, Callie (Ridolfi Engineers, Inc.), R10: Partridge, Holly (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Karnosh, Michael (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Sheldrake, Sean, A (EPA), R10: Fuentes, Rene, C (EPA), R10: Robinson, Deborah, G (EPA), R10: Ellis, Stephen, J (EPA), R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA), R10: Legare, Amy, R (EPA), R10: Charters, David, W (EPA), R10: Conley, Alanna (EPA), R10: Christopher, Anne (EPA), R10: Shephard, Burt (EPA), R10: Allen, Elizabeth (EPA), R10: Woods, James (EPA), R10: Morrison, Kay (EPA), R10: Fonseca, Silvina (EPA), R10: Moses, Gabriel (Nez Perce Tribe), R10: Roick, Thomas, E (Oregon Dept. of Environmental Quality), R10: Liverman, Alex (Oregon Dept. of Environmental Quality), R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality), R10: McClincy, Matt (Oregon Dept. of Environmental Quality), R10: Poulsen, Mike (Oregon Dept. of Environmental Quality), R10: Fricano, Gail (Industrial Economics, Inc.), R10: Delvecchio, Rachel		
100002441	1/28/2015	Email regarding Portland Harbor Information Session Schedule and Questions.	89	3 EML / Email	R10: Demaria, Eva (EPA)		ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002672	1/29/2015	Final Outfall 228 IRAM Performance Monitoring Sampling and Analysis Plan RP-Portland Site.	1,027	52 CORR / Correspondence	R10: Manzano, Scott (Oregon Dept. of Environmental Quality)	R10: Dearden, Stuart (Sanofi-Aventis)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100005756	1/29/2015	Email Regarding Terminal 4 Slips 1 and 3 Upland Facility - Decision Support Data Collection Work Plan, DRAFT_ Terminal 4 Slips 1 and 3 Upland Facility.	46	1 EML / Email	R10: Leisenring, Marc (GeoSyntec Consultants)	R10: Gainer, Tom (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100005763	2/1/2015	Public Notice Regarding Proposed Cleanup at PGE Willamette River Site_Cleanup Public Notice-Request for Comments.	94	1 PUB / Publication	R10: Unknown, Unknown (State of Oregon Department of Environmental Quality)	R10: (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100005759	2/2/2015	Email Regarding Terminal 4 Slip 1 Upland Facility - Transmittal of Former Rogers Terminal Cleanup Documents_Terminal 4 Slip 1 Upland Facility.	85	2 EML / Email	R10: Gainer, Tom (Oregon Dept. of Environmental Quality)	R10: Madalinski, Kelly (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100005760	2/2/2015	Email Regarding SCD for OU4 @ Swan Island Upland Facility_SCD for OU4 at Swan Island Upland Facility.	43	1 EML / Email	R10: Muza, Richard (EPA)	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100005761	2/2/2015	Letter Regarding Source Control Decision for the Operable Unit 4 at the Swan Island Upland Facility_FSCD OU4SIUF.	25	1 LTR / Letter	R10: Muza, Richard (EPA)	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100005765	2/2/2015	Memorandum Regarding Draft Source Control Decision Oregon Beverage Recycling Cooperative (former Container Recovery) ECSI #4015_OBRC SCD wFigs & Tables Feb 2015.	4,216	20 MEMO / Memorandum	R10: Liverman, Alex (Oregon Department of Environmental Quality)	R10: Koch, Kristine, M (EPA), R10: Muza, Richard (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100005786	2/2/2015	Memorandum Regarding Draft Source Control Decision Oregon Beverage Recycling Cooperative (former Container Recovery) ECSI #4015_OBRC_SCD_wFigs&Tables_Feb_2015.	4,216	20 MEMO / Memorandum	R10: Liverman, Alex (Oregon Department of Environmental Quality)	R10: Koch, Kristine, M (EPA), R10: Muza, Richard (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100005762	2/4/2015	Email Regarding PGE RM 13.1/13.5 Remedy Proposal_PGE RM 13 Remedy Proposal.	95	1 EML / Email	R10: Gainer, Tom (Oregon Dept. of Environmental Quality)	R10: Koch, Kristine, M (EPA), R10: Soscia, Marylou (EPA), R10: Alpert, Josh (City of Portland), R10: Perry, Lynne (Unknown), R10: Levenson, Will (Unknown), R10: Lloyd, Diane (Unknown), R10: Sanders, Dawn (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100005766	2/5/2015	Email Regarding Proposed Source Control Decision Rhone-Poulenc Historical Drainage Ditch Area_Proposed Source Control Decision Rhone-Poulenc.	87	1 EML / Email	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	R10: Muza, Richard (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100005785	2/5/2015	Email Regarding Draft SCD OBRC_Draft SCD OBRC.	110	1 EML / Email	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	R10: Muza, Richard (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100005787	2/10/2015	Email Regarding Benthic Toxicity PRGs_Benthic Toxicity PRGs.	92	4 EML / Email	R10: Gainer, Tom (Oregon Dept. of Environmental Quality)	R10: Shephard, Burt (Unknown), R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100005791	2/11/2015	Letter Regarding EPA Comments on Container Management_Container Management BMP Pilot Study WP.	106	4 LTR / Letter	R10: Muza, Richard (EPA)	R10: Orr, Jim (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100005790	2/12/2015	Email Regarding EPA Comments Letter on Container Management_EPA Comments Letter on Container Management.	44	1 EML / Email	R10: Muza, Richard (EPA)	R10: (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002532	2/13/2015	Review Comments on the Source Control Evaluation and Source Control Alternatives Evaluation, Operable Unit 5, Swan Island Upland Facility.	30	2 CORR / Correspondence	R10: (EPA)	R10: (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002535	2/13/2015	Source Control Evaluation and Source Control Alternatives Evaluation Operable Unit 5 Swan Island Upland Facility.	6,375	55 RPT / Report	R10: (APEX Companies LLC)	R10: (Port of Portland)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100005792	3/2/2015	Email Regarding Proposed Source Control Decision Rhone-Poulenc Historical Drainage Ditch Area_Proposed Source Control Decision Rhone Poulenc.	133	2 EML / Email	R10: Muza, Richard (EPA)	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100005794	3/3/2015	Email Regarding Draft Agenda Outline - 3/13/15 DEQ/EPA Meeting_EPA DEQ Meeting Agenda.	50	2 EML / Email	R10: Robinson, Deborah	R10: Allen, Elizabeth, R10: Robinson, Deborah, R10: Christopher, Anne, R10: Conley, Alanna (Unknown), R10: Sheldrake, Sean, A (EPA), R10: Cohen, Lori, G (EPA), R10: Cora, Lori, H (EPA), R10: Koch, Kristine, M (EPA), R10: Grandinetti, Cami (EPA), R10: Stalcup, Dana (EPA), R10: Yamamoto, Deb (EPA), R10: Ammon, Doug (EPA), R10: Muza, Richard (EPA), R10: Gilles, Bruce, A (Oregon Dept. of Environmental Quality), R10: Liverman, Alex (Oregon Dept. of Environmental Quality), R10: Johnson, Keith (Oregon Dept. of Environmental Quality), R10: Parrett, Kevin (Oregon Dept. of Environmental Quality), R10: McClincy, Matt (Oregon Dept. of Environmental Quality), R10: Deconcini, Nina (Oregon Dept. of Environmental Quality), R10: Gainer, Tom (Oregon Dept. of Environmental Quality), R10: Ross, Bill (Ross Strategic)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100005133	3/9/2015	Portland Harbor Senior Manager/ Project Manager Meeting Agenda.	64	1 CORR / Correspondence	R10: Cohen, Lori, G (EPA)	R10: (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100005795	3/11/2015	DEQ/EPA Monthly Meeting Agenda_2015 3-11 Draft Participants Agenda Rev 3-3-15.	104	1 MTG / Meeting Document	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100005796	3/13/2015	Email Regarding Portland Harbor Early Action Work-Follow-Up to TCT Meeting, March 11_Portland Harbor Early Action Work.	64	1 EML / Email	R10: Grandinetti, Cami (EPA)	R10: Allen, Elizabeth, R10: Christopher, Anne, R10: Conley, Alanna (Unknown), R10: Sheldrake, Sean, A (EPA), R10: Cohen, Lori, G (EPA), R10: Cora, Lori, H (EPA), R10: Koch, Kristine, M (EPA), R10: Muza, Richard (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100005797	3/13/2015	Letter Regarding Proposal for DEQ-Lead, Early In-Water Cleanup Work at Willamette Cove and River Mile 11 East_MOU Partners 03 13 15.	202	2 LTR / Letter	R10: Cohen, Lori, G (EPA)	R10: , Mou Partners (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement



100005798	3/19/2015	Email Regarding EPA Review Letter_EPA Review Letter.	46	1 EML / Email	R10: Hafley, Dan (Oregon Dept. of Environmental Quality)	R10: Muza, Richard (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100005799	3/19/2015	Letter Regarding EPA Review of the Response to Comments on the Removal Action Engineering Design Report and Removal Action Drawings and Specifications for the Willamette Cove Upland Facility_WC RDRTCs Comments.	50	2 LTR / Letter	R10: Muza, Richard (EPA)	R10: Hafley, Dan (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100005859	3/26/2015	Email Regarding EPA Letter on HDD_SCD_EPA Letter on HDD SCD.	42	1 EML / Email	R10: Muza, Richard (EPA)	R10: Mcclincy, Matt (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100005860	3/26/2015	Letter Regarding Review of the Proposed Source Control Decision for the Rhone Poulenc Historical Drainage Ditch_PSCD_RP_HDD.	28	1 LTR / Letter	R10: Muza, Richard (EPA)	R10: Mcclincy, Matt (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100003100	3/31/2015	NOAA Nav. Chart 18526 - Lower Willamette River.	5,504	1 CORR / Correspondence	R10: (NOAA)	R10: (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100005869	4/4/2015	Portland Harbor RI/FS Feasibility Study Report_Portland Harbor FS Section 1.	230	24 RPT / Report	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100003111	4/7/2015	Email regarding Portland Harbor Institutional Controls.	50	2 EML / Email	R10: Vrooman, Gary, L (State of Oregon)	R10: Cora, Lori, H (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002252	4/8/2015	Independent Cleanup Pathway Report Kenton Foundry (Former) and Adjoining Railroad Spur (Former) Properties.	11,531	375 RPT / Report	R10: (AMEC Environment & Infrastructure, Inc.)	R10: (City of Portland)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100003087	4/13/2015	Email regarding Oregon Hazardous Waste -- pesticide rule -- ARAR question.	226	2 EML / Email	R10: Cora, Lori, H (EPA)	R10: Vrooman, Gary, L (State of Oregon)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100003112	4/13/2015	Email regarding Oregon Hazardous Waste -- pesticide rule -- ARAR question.	52	2 EML / Email	R10: Vrooman, Gary, L (State of Oregon)	R10: Cora, Lori, H (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100005129	4/21/2015	Agenda: Portland Harbor Executives Meeting and Attendees.	90	2 CORR / Correspondence	R10: Cohen, Lori, G (EPA)	R10: (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100005861	4/24/2015	Email Regarding Shore Terminals Piling Removal and Installation_Shore Terminals Piling Removal.	109	2 EML / Email	R10: Mcclincy, Matt (Oregon Dept. of Environmental Quality)	R10: Sheldrake, Sean, A (EPA), R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002710	4/28/2015	Minutes Staff Coordination on Portland Harbor Projects USACE Permits April 28, 2015.	110	2 CORR / Correspondence	R10: Liverman, Alex (Oregon Dept. of Environmental Quality)	R10: (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002251	4/29/2015	Transmittal Letter Independent Cleanup Pathway Report Kenton Foundry (Former) and Adjoining Railroad Spur (Former) Properties.	38	1 CORR / Correspondence	R10: Meyer, Taryn (City of Portland)	R10: Bartus, David (EPA), R10: Hafley, Dan (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100005862	4/29/2015	Email Regarding EPA Comments on NWPC RI-SCE_EPA Comments on NWPC RI-SCE.	42	1 EML / Email	R10: Muza, Richard (EPA)	R10: Orr, Jim (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100005863	4/29/2015	Letter Regarding EPA Review of the Remedial Investigation and Source Control Evaluation Report_NWPC RI-SEC.	121	4 LTR / Letter	R10: Muza, Richard (EPA)	R10: Orr, Jim (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100003097	4/30/2015	Email regarding Portland Harbor Institutional Controls.	53	2 EML / Email	R10: Vrooman, Gary, L (State of Oregon)	R10: Cora, Lori, H (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002564	5/4/2015	Memorandum regarding Groundwater Barrier Wall Conceptual Design and Setback Memorandum.	14,803	213 CORR / Correspondence	R10: Robinson, Brendan, A (ERM-West, Inc.)	R10: McDonnell, Erin (Oregon Department of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100003630	5/6/2015	Email regarding PRG Question.	73	2 EML / Email	R10: Koch, Kristine, M (EPA)	R10: Mcclincy, Matt (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100003929	5/6/2015	Email regarding PRG Question.	73	2 EML / Email	R10: Koch, Kristine, M (EPA)	R10: Mcclincy, Matt (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100003102	5/11/2015	Email regarding Oregon Hazardous Waste -- pesticide rule -- ARAR question.	58	3 EML / Email	R10: Vrooman, Gary, L (State of Oregon)	R10: Cora, Lori, H (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002662	5/20/2015	Outfall 22B IRAM Performance Monitoring First Quarter 2015 Report RP-Portland Site.	476	7 CORR / Correspondence	R10: Manzano, Scott (Oregon Dept. of Environmental Quality)	R10: Dearden, Stuart (Sanofi-Aventis)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002888	5/21/2015	DEQ Comments for May 20, 2015 Draft Comprehensive Source Control Schedule the Container Management Site.	257	6 CORR / Correspondence	R10: Orr, Jim (Oregon Dept. of Environmental Quality), R10: (Zanon Consulting), R10: (Zanone Consulting)	R10: Zanone, Dana (Zanone Consulting)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100003090	5/21/2015	Email regarding Oregon cleanup standards regulation.	37	1 EML / Email	R10: Cora, Lori, H (EPA)	R10: Vrooman, Gary, L (State of Oregon)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100003103	5/21/2015	Email regarding Oregon cleanup standards regulation.	50	1 EML / Email	R10: Vrooman, Gary, L (State of Oregon)	R10: Cora, Lori, H (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002712	5/26/2015	Minutes Staff Coordination on Portland Harbor Projects USACE Permits May 26, 2015.	106	1 CORR / Correspondence	R10: Liverman, Alex (Oregon Dept. of Environmental Quality)	R10: (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002232	5/27/2015	Gould Superfund Site - Second Quarter 2015 Post-Closure Inspection Report.	1,023	21 RPT / Report	R10: (StarLink Logistics Inc.)	R10: Demaria, Eva (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002848	6/1/2015	Strider Construction Company Inc. Preliminary Evraz Riverbank Cleanup Schedule.	416	1 CHT / Chart/Table	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002201	6/5/2015	Sub-Slab Soil Vapor Investigation Subslab investigation at the Phillips 66 Portland Terminal.	4,591	186 RPT / Report	R10: (ARCADIS)	R10: (Chevron Environmental Management Company)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002749	6/5/2015	Source Control Process Per EPA/DEQ Joint Source Control Strategy.	20	1 CORR / Correspondence	R10: Liverman, Alex (Oregon Dept. of Environmental Quality)	R10: (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002886	6/9/2015	Container Management Appendix D Analytical Reports.	309,464	8796 RPT / Report	R10: (Columbia Analytical Services, Inc.)	R10: Kemnitz, Steve (Strategic Engineering and Science)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002446	6/10/2015	Northwest Region Cleanup Portland Harbor Source Control Summary Report Guide for TCT.	13,688	16 RPT / Report	R10: Liverman, Alex (Oregon Dept. of Environmental Quality), R10: Mcclincy, Matt (Oregon Dept. of Environmental Quality)	R10: (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100003104	6/15/2015	Email regarding Oregon Solid Waste Regulations proposed as ARAR for the Portland Harbor CDF.	78	3 EML / Email	R10: Vrooman, Gary, L (State of Oregon)	R10: Cora, Lori, H (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002318	6/16/2015	Former Bird Facility Pore Water Samples Map. Joint Public Notice - RSET FW SLs PN	897	1 CORR / Correspondence	R10: (Forensic Environmental Services, Inc.)	R10: (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100003652	6/16/2015	20140623.	425	4 CORR / Correspondence	R10: Freedman, Jonathan (EPA)	R10: (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002492	6/17/2015	Appendix D - Storm Water Source Control and Treatment Measure Design Update.	17,166	79 RPT / Report	R10: (ERM-West, Inc.)	R10: (Vigor Industrial, LLC)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002675	6/17/2015	Review Comments Rhone-Poulenc Remedial Investigation Report: Addendum RI/SCE Report (November 19, 2010).	128	5 CORR / Correspondence	R10: (EPA)	R10: (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100005124	6/17/2015	EPA/LWG Senior Leaders Agenda Topics for 6/17/15 meeting.	53	1 CORR / Correspondence	R10: Robinson, Deborah, G (EPA)	R10: (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002402	6/22/2015	DEQ Industrial Stormwater Permits Tier II Revised Stormwater Pollution Control Plan Checklist.	1,299	6 CORR / Correspondence	R10: (Oregon Dept. of Environmental Quality)	R10: (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002711	6/24/2015	Minutes Staff Coordination on Portland Harbor Projects with USACE Permits June 24, 2015.	105	1 CORR / Correspondence	R10: Liverman, Alex (Oregon Dept. of Environmental Quality)	R10: (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002738	6/24/2015	SC Talking Points June 2015.	94	1 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100003631	6/24/2015	Email regarding FS and Oregon DSL Rules.	52	1 EML / Email	R10: Mcclincy, Matt (Oregon Dept. of Environmental Quality)	R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100003632	6/24/2015	Email regarding Scheduling Meeting with DEQ and LWG Regarding DEQ Source Control Report.	162	5 EML / Email	R10: Koch, Kristine, M (EPA)	R10: Sheldrake, Sean, A (EPA), R10: Parrett, Kevin (Oregon Dept. of Environmental Quality), R10: Mcclincy, Matt (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100003990	6/24/2015	Email regarding FS and Oregon DSL Rules.	52	1 EML / Email	R10: Mcclincy, Matt (Oregon Dept. of Environmental Quality)	R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100003991	6/24/2015	Email regarding Scheduling Meeting with DEQ and LWG Regarding DEQ Source Control Report.	162	5 EML / Email	R10: Koch, Kristine, M (EPA)	R10: Sheldrake, Sean, A (EPA), R10: Parrett, Kevin (Oregon Dept. of Environmental Quality), R10: Mcclincy, Matt (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002502	6/26/2015	Revised Work Plan for Source Control Measure Implementation and Stormwater Sampling Activities.	9,600	283 RPT / Report	R10: (Hahn and Associates, Inc.)	R10: (Wilhelm Trucking Company)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002754	6/26/2015	Portland Harbor Source Control Stormwater Pathway Evaluation.	3,366	16 CORR / Correspondence	R10: Liverman, Alex (Oregon Dept. of Environmental Quality)	R10: (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002497	6/30/2015	Remedial Action Closure and Source Control Evaluation Report Former Westinghouse Property.	137	2 CORR / Correspondence	R10: (Oregon Dept. of Environmental Quality)	R10: Hafley, Dan (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement

100002498	6/30/2015	Remedial Action Closure and Source Control Evaluation Report Former Westinghouse Property.	28,337	291 EML / Email	R10: (GSI Water Solutions, Inc.)	R10: (City of Portland, Oregon, Bureau of Water Works), R10: (City of Portland, Bureau of Environmental Services)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002740	7/1/2015	Email regarding SC/uplands reports.	49	1 EML / Email	R10: Demaria, Eva (EPA)	R10: Liverman, Alex (Oregon Dept. of Environmental Quality), R10: Mcclincy, Matt (Oregon Dept. of Environmental Quality), R10: Allen, Michael (CDM Smith)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100003105	7/1/2015	Email regarding DSL easement/fees for use of state aquatic lands.	82	1 EML / Email	R10: Vrooman, Gary, L (State of Oregon)	R10: Cora, Lori, H (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100003633	7/1/2015	Email regarding ARARs related to Removal-Fill Program for PDX Harbor.	83	4 EML / Email	R10: Koch, Kristine, M (EPA)	R10: Mcclincy, Matt (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100003634	7/1/2015	Email regarding ARARs related to Removal-Fill Program for PDX Harbor.	80	3 EML / Email	R10: Koch, Kristine, M (EPA)	R10: Mcclincy, Matt (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100003992	7/1/2015	Email regarding ARARs related to Removal-Fill Program for PDX Harbor.	83	4 EML / Email	R10: Koch, Kristine, M (EPA)	R10: Mcclincy, Matt (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100003993	7/1/2015	Email regarding ARARs related to Removal-Fill Program for PDX Harbor.	80	3 EML / Email	R10: Koch, Kristine, M (EPA)	R10: Mcclincy, Matt (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002350	7/2/2015	DEQ Review-revised Soil and Cap Management Plan MMGL Corp. Doane Lake Site. response to the RI/SCE Addendum (addendum) compiled by DEQ and transmitted to StarLink on April 16, 2015.	80	1 CORR / Correspondence	R10: Lacey, David (Oregon Dept. of Environmental Quality)	R10: Novack, Kenneth, M (MMGL Corp)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002654	7/2/2015	Email regarding Discussion on a couple ARARs requested.	150	2 CORR / Correspondence	R10: (Quantum Management Group, Inc.)	R10: Manzano, Scott (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100003106	7/2/2015	Joint Public Notice - RSET FW SLS PN 20140623.	85	2 EML / Email	R10: Vrooman, Gary, L (State of Oregon)	R10: Cora, Lori, H (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100004012	7/2/2015	DEQ Review-revised Soil and Cap Management Plan MMGL Corp. Doane Lake Site. response to the RI/SCE Addendum (addendum) compiled by DEQ and transmitted to StarLink on April 16, 2015.	425	4 CORR / Correspondence	R10: Freedman, Jonathan (EPA)	R10: (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002729	7/6/2015	Email regarding Thanks.	61	2 EML / Email	R10: Mcclincy, Matt (Oregon Dept. of Environmental Quality)	R10: Demaria, Eva (EPA), R10: Liverman, Alex (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100003095	7/6/2015	Email regarding Discussion on a couple ARARs requested.	93	2 EML / Email	R10: Cora, Lori, H (EPA)	R10: Vrooman, Gary, L (State of Oregon)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100003107	7/6/2015	Email regarding Discussion on a couple ARARs requested.	112	2 EML / Email	R10: Vrooman, Gary, L (State of Oregon)	R10: Cora, Lori, H (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002839	7/7/2015	Evraz Analysis Results ASF0817.	266	17 RPT / Report	R10: (Maxxam)	R10: (Apex Laboratories, Inc.)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100005667	7/7/2015	Email Proposed Source Control Decision for Swan Island Shipyard Upland Facility-Operable Unit 4. Proposed Source Control Decision for Swan Island OU4.	46	1 EML / Email	R10: Mcclincy, Matt (Oregon Dept. of Environmental Quality)	R10: Muza, Richard (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002403	7/8/2015	DEQ Comments for March 11, 2015 Dust Monitoring Results January 2015 Monitoring Event Burgard Industrial Park.	57	2 CORR / Correspondence	R10: Orr, Jim (Oregon Dept. of Environmental Quality)	R10: Cusma, Mathew, J (Schnitzer Steel Industries, Inc.)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002880	7/8/2015	3000 NW St Helens Road - Stormwater Source Control Preliminary Permit Review.	494	3 CORR / Correspondence	R10: (IMACC Corporation)	R10: Deal, Sabrina (City of Portland, Oregon)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100005125	7/8/2015	EPA/LWG Senior Leaders Meeting Agenda.	81	1 CORR / Correspondence	R10: Robinson, Deborah, G (EPA)	R10: (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100005084	7/9/2015	Extended Briefing for Dick, Dennis and Jim. Quarterly Progress Report for RI/FS Second Quarter 2015 Progress Report Rhône-Poulenc -	79	1 CORR / Correspondence	R10: Robinson, Deborah, G (EPA)	R10: (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002677	7/10/2015	Portland Site.	4,444	112 RPT / Report	R10: (Amec Foster Wheeler Environment & Infrastructure)	R10: Manzano, Scott (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002741	7/13/2015	Email regarding Uplands sites suggested for briefings.	42	1 EML / Email	R10: Demaria, Eva (EPA)	R10: Liverman, Alex (Oregon Dept. of Environmental Quality), R10: Mcclincy, Matt (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002752	7/13/2015	Email regarding Uplands sites suggested for briefings.	72	2 EML / Email	R10: Mcclincy, Matt (Oregon Dept. of Environmental Quality)	R10: Demaria, Eva (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100003091	7/13/2015	Email regarding Portland Harbor Revised ARARs tables.	39	1 EML / Email	R10: Cora, Lori, H (EPA)	R10: Vrooman, Gary, L (State of Oregon)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002563	7/14/2015	Revised Basis of Design Report - Groundwater Source Control Measure.	7,486	283 RPT / Report	R10: (ERM-West, Inc.)	R10: (MMGL Corp)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002807	7/14/2015	Import Analytical Results Table.	734	119 CORR / Correspondence	R10: Esler, Glenn (Integral Consulting, Inc.)	R10: (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002817	7/14/2015	Import Analytical Results Table.	716	118 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002841	7/15/2015	Storedahl-Evraz / 1033Q results of analyses for work order ASG0329.	236	10 RPT / Report	R10: (Apex Laboratories, Inc.)	R10: (Columbia West Engineering, Inc.)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002843	7/15/2015	Second Quarter 2015 Progress Report for EVRAZ Oregon Steel Facility.	151	3 RPT / Report	R10: (Integral Consulting, Inc.)	R10: Sutter, Jennifer, L (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002872	7/15/2015	Outfall Basin 22 Sheen Source Investigation.	147	2 CORR / Correspondence	R10: Scheffler, Linda (City of Portland, Oregon)	R10: Romero, Mike (Oregon Department of Environmental Quality), R10: Thompson, Chad	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002877	7/15/2015	Outfall Basin 22 Dry-Weather Flow, In-line Solids, and Sediment Investigation.	24,501	184 RPT / Report	R10: (City of Portland Environmental Services)	R10: (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002885	7/15/2015	Stormwater Assessment and Additional Site Activity Report.	4,887	122 RPT / Report	R10: (SLR International Corporation)	R10: Orr, Jim (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002838	7/16/2015	Amended Report results of analyses for work order ASF0817.	313	43 RPT / Report	R10: (Apex Laboratories, Inc.)	R10: (Columbia West Engineering, Inc.)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002192	7/17/2015	City Review of the Stormwater Source Control Evaluation Report prepared for Calbag Metals Company Facilities.	370	5 CORR / Correspondence	R10: Scheffler, Linda (City of Portland, Oregon)	R10: Orr, Jim (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002495	7/17/2015	DEQ Review "Appendix D-Storm Water Source Control and Treatment Measure Design Update" Vigor Industrial - Swan Island Upland Facility.	372	6 CORR / Correspondence	R10: Lacey, David (Oregon Dept. of Environmental Quality)	R10: Le, Nhhien (Vigor Industrial, LLC)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002760	7/17/2015	Email regarding Uplands sites suggested for briefings.	99	3 EML / Email	R10: Demaria, Eva (EPA)	R10: Mcclincy, Matt (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002840	7/17/2015	Email regarding Uplands sites suggested for briefings.	328	42 RPT / Report	R10: Esler, Glenn (Integral Consulting, Inc.)	R10: (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002750	7/21/2015	Review Comments Independent Cleanup Pathway Report Kenton Foundry and Adjacent Railroad Spur Properties.	99	3 EML / Email	R10: Mcclincy, Matt (Oregon Dept. of Environmental Quality)	R10: Demaria, Eva (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002253	7/22/2015	Draft Storedahl-Evraz / 1033Q results of analyses for work order ASG0531.	134	4 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002802	7/22/2015	Email regarding Evraz Riverbank Import - Chemical testing results.	223	9 CORR / Correspondence	R10: (Apex Laboratories, Inc.)	R10: (Columbia West Engineering, Inc.)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002818	7/22/2015	Draft Evraz Riverbank Import Review Comments.	88	3 EML / Email	R10: Demaria, Eva (EPA)	R10: Sutter, Jennifer, L (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002819	7/22/2015	Email regarding Portland Harbor Revised ARARs tables.	101	2 CORR / Correspondence	R10: (EPA)	R10: (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100003108	7/22/2015	Review Comments Revised Work Plan for Source Control Measure Implementation and Stormwater Sampling Activities Wilhelm Trucking Company.	87	2 EML / Email	R10: Vrooman, Gary, L (State of Oregon)	R10: Cora, Lori, H (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002500	7/23/2015	Email regarding Evraz Riverbank Import - Chemical testing results.	94	3 CORR / Correspondence	R10: (EPA)	R10: (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002801	7/23/2015	Email regarding Portland Harbor Revised ARARs tables.	121	5 EML / Email	R10: Sutter, Jennifer, L (Oregon Dept. of Environmental Quality)	R10: Demaria, Eva (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100003093	7/23/2015	Email regarding Former Kenton Foundry Transmittal Letter and Review.	91	2 EML / Email	R10: Cora, Lori, H (EPA)	R10: Vrooman, Gary, L (State of Oregon)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002250	7/24/2015	DEQ Review "Source Control Evaluation and Source Control Alternatives Evaluation Operable Unit 5 Swan Island Upland Facility".	57	2 EML / Email	R10: Sheldrake, Sean, A (EPA)	R10: Hafley, Dan (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002499	7/27/2015	Email regarding 69 Wilhelm Trucking Work Plan.	70	1 EML / Email	R10: Demaria, Eva (EPA)	R10: Orr, Jim (Oregon Dept. of Environmental Quality), R10: Mcclincy, Matt (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002673	7/27/2015	RI/SCE Report Figures Rhone Poulenc.	23,733	42 FIG / Figure/Map/ Drawing	R10: (AMEC Earth & Environmental, Inc.)	R10: (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100005126	7/27/2015	EPA/LWG Senior Managers Meeting Agenda.	84	1 CORR / Correspondence	R10: Robinson, Deborah, G (EPA)	R10: (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002538	7/28/2015	DEQ Review "Source Control Evaluation and Source Control Alternatives Evaluation Operable Unit 5 Swan Island Upland Facility".	188	3 CORR / Correspondence	R10: Lacey, David (Oregon Dept. of Environmental Quality)	R10: Leisle, Dwight (Port of Portland)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement

100002846	7/28/2015	Oregon Steel Site Plan Map.	497	1	FIG / Figure/Map/ Drawing	R10: (Integral Consulting, Inc.), R10: (Crete Consulting Inc. PC)	R10: (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002847	7/28/2015	Route to Hospital Oregon Steel Mills.	141	1	CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002477	7/30/2015	Email regarding Info on US Moorings and Navy Reserve Swan Island.	65	2	EML / Email	R10: Mcclincy, Matt (Oregon Dept. of Environmental Quality)	R10: Demaria, Eva (EPA), R10: Liverman, Alex (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002501	7/30/2015	Email regarding Stormwater info you requested.	98	3	EML / Email	R10: Liverman, Alex (Oregon Dept. of Environmental Quality)	R10: Demaria, Eva (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100003094	7/30/2015	Email regarding Portland Harbor.	37	1	EML / Email	R10: Cora, Lori, H (EPA)	R10: Vrooman, Gary, L (State of Oregon)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002458	7/31/2015	Email regarding Univar and US Moorings RCRA contact.	84	2	EML / Email	R10: Liverman, Alex (Oregon Dept. of Environmental Quality)	R10: Demaria, Eva (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002478	7/31/2015	Email regarding Univar and US Moorings RCRA contact.	58	1	EML / Email	R10: Mcclincy, Matt (Oregon Dept. of Environmental Quality)	R10: Demaria, Eva (EPA), R10: Liverman, Alex (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002569	7/31/2015	Basis of Design Report -Groundwater Source Control Measure.	8,321	217	RPT / Report	R10: (ERM-West, Inc.)	R10: (MMGL Corp)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002693	7/31/2015	Email regarding references on protocols for determining completion for groundwater treatment systems.	96	2	EML / Email	R10: Zavala, Bernie (EPA)	R10: Sheldrake, Sean, A (EPA), R10: Liverman, Alex (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002804	7/31/2015	Storedahl-Evraz / 1033Q results of analyses for work order A5G0329.	290	34	CORR / Correspondence	R10: (Apex Laboratories, Inc.)	R10: (Columbia West Engineering, Inc.)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100003638	7/31/2015	Email regarding Portland Harbor: 8/7 Draft Agenda.	93	2	EML / Email	R10: Ross, Bill (Ross & Associates)	R10: Robinson, Deborah, G (EPA), R10: Koch, Kristine, M (EPA), R10: Grandinetti, Cami (EPA), R10: Zhen, Davis (EPA), R10: Allen, Elizabeth (EPA), R10: Roick, Thomas, E (Oregon Dept. of Environmental Quality), R10: Parrett, Kevin (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100003997	7/31/2015	Email regarding Portland Harbor: 8/7 Draft Agenda.	93	2	EML / Email	R10: Ross, Bill (Unknown)	R10: Robinson, Deborah, G (EPA), R10: Grandinetti, Cami (EPA), R10: Zhen, Davis (EPA), R10: Parrett, Kevin (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002676	8/3/2015	Draft June 2015 Outfall 22B Laboratory Data Summary and Reports.	9,552	353	RPT / Report	R10: Angelos, Kent, M (Golder Associates, Inc.)	R10: Manzano, Scott (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100005119	8/3/2015	Agenda for the August 7 Workshop on the Portland Harbor Cleanup.	98	2	CORR / Correspondence	R10: Walker, Suzanne (Unknown)		ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002288	8/4/2015	Response to DEQ and EPA Comments on the Lakeside Site Source Control Evaluation (SCE), December 2013, Lakeside Industries.	123	14	CORR / Correspondence	R10: Knox, Janet, N (Pacific Groundwater Group)	R10: Orr, Jim (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002200	8/5/2015	Email regarding Chevron Site #354972 Sub-Slab Soil Vapor Investigation report.	75	2	EML / Email	R10: Demaria, Eva (EPA)	R10: Demaria, Eva (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002805	8/6/2015	Certificate of Analysis A5G0329.	121	10	CORR / Correspondence	R10: (Maaxam)	R10: (Apex Laboratories, Inc.)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002806	8/6/2015	Certification of Analysis A5G0664.	116	10	CORR / Correspondence	R10: (Maaxam)	R10: (Apex Laboratories, Inc.)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002816	8/6/2015	Email regarding EVRAZ riverbank import material analytical data table.	58	1	EML / Email	R10: Heimbucher, Craig (Integral Consulting, Inc.)	R10: Sheldrake, Sean, A (EPA), R10: Demaria, Eva (EPA), R10: Sutter, Jennifer, L (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002837	8/6/2015	EVRAZ Oregon Steel 2015 Beach and Bank Groundwater Monitoring Report.	7,930	161	RPT / Report	R10: (Integral Consulting, Inc.)	R10: Sutter, Jennifer, L (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100005140	8/6/2015	Draft Agenda: Portland Harbor Executives Meeting and Attendees.	64	2	CORR / Correspondence	R10: Cohen, Lori, G (EPA)	R10: (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002724	8/7/2015	Minutes Staff Coordination on Portland Harbor Projects with USACE Permits August 7, 2015.	113	2	CORR / Correspondence	R10: Liverman, Alex (Oregon Dept. of Environmental Quality)	R10: (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002786	8/7/2015	Email regarding EVRAZ riverbank import material analytical data table.	108	3	EML / Email	R10: Allen, Michael (CDM Smith)	R10: Demaria, Eva (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002803	8/7/2015	Email regarding EVRAZ riverbank import material analytical data table.	111	4	EML / Email	R10: Heimbucher, Craig (Integral Consulting, Inc.)	R10: Sutter, Jennifer, L (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002787	8/9/2015	Email regarding EVRAZ riverbank import material analytical data table.	62	4	EML / Email	R10: Sutter, Jennifer, L (Oregon Dept. of Environmental Quality)	R10: Heimbucher, Craig (Integral Consulting, Inc.)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002789	8/10/2015	Email regarding EVRAZ riverbank import material analytical data table.	62	4	EML / Email	R10: Demaria, Eva (EPA)	R10: Sutter, Jennifer, L (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002862	8/10/2015	Draft Memorandum regarding Source Control Decision Christenson Oil Company.	8,952	54	CORR / Correspondence	R10: (EPA)	R10: Sheldrake, Sean, A (EPA), R10: Demaria, Eva (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002489	8/13/2015	Response to Oregon Department of Environmental Quality Comments Vigor Industrial – Swan Island Upland Facility Appendix D – Storm Water Source Control and Treatment Measure Design Update.	186	3	EML / Email	R10: (EPA)	R10: (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002490	8/13/2015	Email regarding Vigor-Stormwater Source Control and Treatment Measure Design Update.	49	1	EML / Email	R10: Demaria, Eva (EPA)	R10: Lacey, David (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002491	8/13/2015	Response to Oregon Department of Environmental Quality Comments Vigor Industrial – Swan Island Upland Facility Appendix D – Storm Water Source Control and Treatment Measure Design Update.	166	3	CORR / Correspondence	R10: (EPA)	R10: (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002855	8/13/2015	Source Control Evaluation Report Christenson Oil Company.	391	53	RPT / Report	R10: Wiebenga, April (Pacific Crest Environmental)	R10: (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100003639	8/13/2015	Email regarding Portland Harbor.	50	1	EML / Email	R10: Parrett, Kevin (Oregon Dept. of Environmental Quality)	R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100003998	8/13/2015	Email regarding Portland Harbor.	50	1	EML / Email	R10: Parrett, Kevin (Oregon Dept. of Environmental Quality)	R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002493	8/14/2015	Response to DEQ Review "Appendix D-Storm Water Source Control and Treatment Measure Design Update" Vigor Industrial – Swan Island Upland Facility.	167	13	CORR / Correspondence	R10: (ERM-West, Inc.)	R10: (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002494	8/14/2015	Storm Water Source Control Measure Design Update.	24,165	73	CORR / Correspondence	R10: (ERM-West, Inc.)	R10: (Vigor Industrial, LLC)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002504	8/14/2015	Addendum 4 to the Expanded Preliminary Assessment and Source Control Evaluation 2015 Stormwater Storm Drain Sampling Results BNSF Willbridge Switching Yard.	18,645	126	CORR / Correspondence	R10: (Integral Consulting, Inc.)	R10: (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100003640	8/18/2015	Email regarding Portland Harbor FS - Appendices.	36	1	EML / Email	R10: Koch, Kristine, M (EPA)	R10: Mcclincy, Matt (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100003999	8/18/2015	Email regarding Portland Harbor FS - Appendices.	36	1	EML / Email	R10: Koch, Kristine, M (EPA)	R10: Mcclincy, Matt (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002887	8/19/2015	Review of July 2015 Draft Conceptual Site Model and Feasibility Study for the Container Management Site.	289	6	CORR / Correspondence	R10: Scheffler, Linda (City of Portland, Oregon)	R10: Orr, Jim (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002821	8/20/2015	Laboratory Reports- Evraz Topsoil.	407	43	RPT / Report	R10: (Maaxam)	R10: (Apex Laboratories, Inc.)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100005088	8/20/2015	Email regarding Portland Harbor: Agenda for 8/25 Dennis/Dick/Jim briefing.	44	2	CORR / Correspondence	R10: Ross, Bill (Unknown)	R10: Woolford, James, E (EPA), R10: Robinson, Deborah, G (EPA), R10: McIerran, Dennis, J (EPA), R10: Pirzadeh, Michelle, L (EPA), R10: Koch, Kristine, M (EPA), R10: Grandinetti, Cami (EPA), R10: Stalcup, Dana (EPA), R10: Zhen, Davis (EPA), R10: Roick, Thomas, E (Oregon Dept. of Environmental Quality), R10: Pedersen, Dick (Oregon Dept. of Environmental Quality), R10: Hammond, Joni (Oregon Dept. of Environmental Quality), R10: Johnson, Keith (Oregon Dept. of Environmental Quality), R10: Parrett, Kevin (Oregon Dept. of Environmental Quality), R10: Deconcini, Nina (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002190	8/21/2015	Email regarding SCE for Calbag ECSI # 5059, EPA final comments.	89	3	EML / Email	R10: Demaria, Eva (EPA)	R10: Liverman, Alex (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002360	8/21/2015	Email regarding EPA Shore Terminals SCE final comments.	84	3	EML / Email	R10: Demaria, Eva (EPA)	R10: Orr, Jim (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002361	8/21/2015	Review Comments Shore Terminals Source Control Evaluation.	52	5	CORR / Correspondence	R10: (EPA)	R10: (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement



100002884	8/24/2015	Review Comments Stormwater Assessment and Additional Site Activities Report Container Management Services Site.	99	5	CORR / Correspondence	R10: (EPA)	R10: (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002218	8/25/2015	Review Comments Source Control Evaluation/Voluntary Cleanup Report Former Crown Cork and Seal Facility.	95	3	CORR / Correspondence	R10: (EPA)	R10: (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002219	8/25/2015	Review Comments Source Control Evaluation/Voluntary Cleanup Report Former Crown Cork and Seal Facility.	88	3	CORR / Correspondence	R10: (EPA)	R10: (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002221	8/25/2015	Source Control Evaluation/Voluntary Cleanup Program Report for the Former Crown Cork and Seal Facility.	46,405	589	RPT / Report	R10: (URS Corporation)	R10: (Mecox Partners II, LLC)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002596	8/25/2015	Email regarding Meeting Comments and EPA Letter Review Schedule.	154	6	EML / Email	R10: Heldt-sheller, Stephanie (NW Pipe Company)	R10: Orr, Jim (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002650	8/25/2015	Email regarding Off-property HHR Screening Comments.	41	1	EML / Email	R10: Manzano, Scott (Oregon Dept. of Environmental Quality)	R10: Underwood, Joan, E (Quantum Management Group, Inc.)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002651	8/25/2015	DEQ Review "Off-Property Screening Level Human Health Risk Evaluation Former Rhone-Poulenc Portland Site".	409	21	CORR / Correspondence	R10: Manzano, Scott (Oregon Dept. of Environmental Quality)	R10: Dearden, Stuart (Sanofi-Aventis)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002615	8/26/2015	Email regarding Meeting Comments and EPA Letter Review Schedule.	158	7	EML / Email	R10: Wray, Mike (NW Pipe Company)	R10: Orr, Jim (Oregon Dept. of Environmental Quality), R10: Heldt-sheller, Stephanie (NW Pipe Company)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002820	8/26/2015	Dioxin/Furan Congener Data and Calculated TEQ Values.	86	1	CHT / Chart/Table	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002822	8/26/2015	Summary Table Evraz Topsoil.	88	3	CHT / Chart/Table	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002883	8/26/2015	Email regarding 4784 Container Management Document Forwarding to EPA.	97	3	EML / Email	R10: Demaria, Eva (EPA)	R10: Orr, Jim (Oregon Dept. of Transportation)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002388	8/27/2015	Email regarding DEQ Response to EPA comments-Sulzer Pump Source Control Evaluation Report dated May 7, 2015.	79	2	EML / Email	R10: Demaria, Eva (EPA)	R10: Pugh, Mark, T (Oregon Dept. of Environmental Quality), R10: Mcclincy, Matt (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002389	8/27/2015	Review Comments Draft Source Control Evaluation Report Sulzer Pumps Facility.	89	4	CORR / Correspondence	R10: (EPA)	R10: (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002734	8/27/2015	PH Project Updates.	59	2	CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002551	8/28/2015	Review Comments Basis of Design Report - Groundwater Source Control Measure Premier Edible Oils Site.	103	5	CORR / Correspondence	R10: (EPA)	R10: (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002553	8/28/2015	Basis of Design Report - Groundwater Source Control Measure Premier Edible Oils Site.	153	4	CORR / Correspondence	R10: Mcdonnell, Erin (Oregon Department of Environmental Quality)	R10: Novak, Ken (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002669	8/28/2015	Email regarding Third Quarter 2015 Gould Superfund Site Inspection.	53	1	EML / Email	R10: Stringfellow, Ryan (Golder Associates, Inc.)	R10: Demaria, Eva (EPA), R10: Lacey, David (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002391	8/31/2015	Attachment A Hydrographs for Sampled Storm Events.	3,143	194	CORR / Correspondence	R10: Brennan, Matt (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002552	8/31/2015	Email regarding DEQ-EPA Comments on pre-final Basis Design Report, PEO Site (ECS# 2013).	65	2	EML / Email	R10: Mcdonnell, Erin (Oregon Department of Environmental Quality)	R10: Robinson, Brendan (Unknown), R10: Ipsen, Erik (ERM-West, Inc.), R10: Graf, Tom (GrafCon)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002617	8/31/2015	DEQ Comments Remedial Investigation and Source Control Evaluation (SCE), March 2015, NW Pipe Company Site.	264	8	CORR / Correspondence	R10: Orr, Jim (Oregon Dept. of Environmental Quality)	R10: Wray, Mike (NW Pipe Company)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100003643	8/31/2015	Email regarding Riverbank updates.	67	1	EML / Email	R10: Sheldrake, Sean, A (EPA)	R10: Johnson, Keith (Oregon Dept. of Environmental Quality), R10: Parrett, Kevin (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100003660	8/31/2015	Email regarding Portland Harbor River Banks.	93	2	EML / Email	R10: Koch, Kristine, M (EPA)	R10: Mcclincy, Matt (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100004002	8/31/2015	Email regarding Riverbank updates.	67	1	EML / Email	R10: Sheldrake, Sean, A (EPA)	R10: Johnson, Keith (Oregon Dept. of Environmental Quality), R10: Parrett, Kevin (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100004003	8/31/2015	Email regarding Portland Harbor River Banks.	93	2	EML / Email	R10: Koch, Kristine, M (EPA)	R10: Mcclincy, Matt (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002242	9/1/2015	Review Comments Stormwater Assessment Work Plan Hampton Reload Yard.	41	4	CORR / Correspondence	R10: (EPA)	R10: (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002244	9/1/2015	Stormwater Assessment Work Plan Hampton Reload Yard.	2,583	30	RPT / Report	R10: (Bridgewater Group, Inc.), R10: (Hampton Affiliates)	R10: (Hampton Affiliates)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002317	9/1/2015	Supplemental Source Control Evaluation (SSCE) Workplan.	5,319	36	RPT / Report	R10: (Forensic Environmental Services, Inc.)	R10: (Former Bird Facility)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002406	9/1/2015	Figure 1 Storm Water Management Infrastructure Burgard Industrial Park.	493	1	FIG / Figure/Map/ Drawing	R10: (Bridgewater Group, Inc.)	R10: (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100003646	9/1/2015	Effectiveness in Achieving Remedial Action Objectives - Effectiveness in Achieving RAOs.	144	1	CORR / Correspondence	R10: Parrett, Kevin (Oregon Dept. of Environmental Quality)	R10: (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100004006	9/1/2015	Effectiveness in Achieving Remedial Action Objectives - Effectiveness in Achieving RAOs.	144	1	CORR / Correspondence	R10: Parrett, Kevin (Oregon Dept. of Environmental Quality)	R10: (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002316	9/2/2015	Supplemental Source Control Evaluation (SSCE) Workplan Cover Letter Former Bird Roofing Facility.	1,037	2	CORR / Correspondence	R10: (Forensic Environmental Services, Inc.)	R10: Thiessen, Kenneth (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100003644	9/2/2015	Email regarding Portland Harbor River Banks.	61	3	EML / Email	R10: Zhen, Davis (EPA)	R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100004004	9/2/2015	Email regarding Portland Harbor River Banks.	61	3	EML / Email	R10: Zhen, Davis (EPA)	R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002407	9/3/2015	Figure 1 Storm Water Data Summary Burgard Industrial Park.	498	1	FIG / Figure/Map/ Drawing	R10: (Bridgewater Group, Inc.)	R10: (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002381	9/4/2015	Email regarding DEQ comments on ODOT revised draft stormwater assessment (Mar 17, 2015).	58	1	EML / Email	R10: Liverman, Alex (Oregon Dept. of Environmental Quality)	R10: Wirfs, Paul (Oregon Dept. of Transportation)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002382	9/4/2015	DEQ review comments on Revised (Mar 17, 2015) draft Stormwater Assessment for Source Control Evaluation - ODOT Facilities in Portland Harbor.	146	4	CORR / Correspondence	R10: Liverman, Alex (Oregon Dept. of Environmental Quality)	R10: Wirfs, Paul (Oregon Dept. of Transportation)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002289	9/8/2015	Response to DEQ and EPA Comments on the Lakeside Site Source Control Evaluation (SCE).	113	15	CORR / Correspondence	R10: (Hahn and Associates, Inc.), R10: (Pacific Groundwater Group)	R10: Orr, Jim (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002345	9/8/2015	Review Comments Stormwater Source Control Evaluation Work Plan Former Mount Hood Solutions Warehouse Site.	102	5	CORR / Correspondence	R10: (EPA)	R10: (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002347	9/8/2015	Draft Stormwater Source Control Evaluation Work Plan.	2,335	69	RPT / Report	R10: (GeoDesign, Inc.)	R10: Orr, Jim (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002359	9/8/2015	Draft Stormwater Source Control Evaluation Report Lampros Properties.	7,262	383	RPT / Report	R10: (SLR International Corporation)	R10: (Lampros Properties, LLC)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100005082	9/8/2015	Email regarding agenda for the call today at 4 pm.	63	2	EML / Email	R10: Ross, Bill (Unknown)	R10: Robinson, Deborah, G (EPA), R10: Grandinetti, Cami (EPA), R10: Zhen, Davis (EPA), R10: Roick, Thomas, E (Oregon Dept. of Environmental Quality), R10: Parrett, Kevin (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100003645	9/9/2015	Email regarding Effectiveness in Achieving RAOs.	43	1	EML / Email	R10: Parrett, Kevin (Oregon Dept. of Environmental Quality)	R10: Robinson, Deborah, G (EPA), R10: Koch, Kristine, M (EPA), R10: Christopher, Anne (EPA), R10: Grandinetti, Cami (EPA), R10: Zhen, Davis (EPA), R10: Allen, Elizabeth (EPA), R10: Gilles, Bruce, A (Oregon Dept. of Environmental Quality), R10: Roick, Thomas, E (Oregon Dept. of Environmental Quality), R10: Johnson, Keith (Oregon Dept. of Environmental Quality), R10: Mcclincy, Matt (Oregon Dept. of Environmental Quality), R10: Deconcini, Nina (Oregon Dept. of Environmental Quality), R10: Ross, Bill (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement



100004005	Email regarding Effectiveness in Achieving 9/9/2015 RAOs.	43	1 EML / Email	R10: Parrett, Kevin (Oregon Dept. of Environmental Quality)	R10: Robinson, Deborah, G (EPA), R10: Koch, Kristine, M (EPA), R10: Christopher, Anne (EPA), R10: Grandinetti, Cami (EPA), R10: Zhen, Davis (EPA), R10: Allen, Elizabeth (EPA), R10: Gilles, Bruce, A (Oregon Dept. of Environmental Quality), R10: Roick, Thomas, E (Oregon Dept. of Environmental Quality), R10: Johnson, Keith (Oregon Dept. of Environmental Quality), R10: McClincy, Matt (Oregon Dept. of Environmental Quality), R10: Deconcini, Nina (Oregon Dept. of Environmental Quality), R10: Ross, Bill (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100003647	Email regarding Effectiveness in Achieving 9/10/2015 RAOs.	52	1 EML / Email	R10: Koch, Kristine, M (EPA)	R10: Robinson, Deborah, G (EPA), R10: Christopher, Anne (EPA), R10: Grandinetti, Cami (EPA), R10: Zhen, Davis (EPA), R10: Allen, Elizabeth (EPA), R10: Gilles, Bruce, A (Oregon Dept. of Environmental Quality), R10: Roick, Thomas, E (Oregon Dept. of Environmental Quality), R10: Johnson, Keith (Oregon Dept. of Environmental Quality), R10: Parrett, Kevin (Oregon Dept. of Environmental Quality), R10: McClincy, Matt (Oregon Dept. of Environmental Quality), R10: Deconcini, Nina (Oregon Dept. of Environmental Quality), R10: Ross, Bill (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100004007	Email regarding Effectiveness in Achieving 9/10/2015 RAOs.	52	1 EML / Email	R10: Koch, Kristine, M (EPA)	R10: Robinson, Deborah, G (EPA), R10: Christopher, Anne (EPA), R10: Grandinetti, Cami (EPA), R10: Zhen, Davis (EPA), R10: Allen, Elizabeth (EPA), R10: Gilles, Bruce, A (Oregon Dept. of Environmental Quality), R10: Roick, Thomas, E (Oregon Dept. of Environmental Quality), R10: Johnson, Keith (Oregon Dept. of Environmental Quality), R10: Parrett, Kevin (Oregon Dept. of Environmental Quality), R10: McClincy, Matt (Oregon Dept. of Environmental Quality), R10: Deconcini, Nina (Oregon Dept. of Environmental Quality), R10: Ross, Bill (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002273	Email regarding Lakeside SCE Response to 9/14/2015 Comments.	70	1 EML / Email	R10: Demaria, Eva (EPA)	R10: Orr, Jim (Oregon Dept. of Environmental Quality), R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002274	EPA Follow-on Comments based on the September 8, 2015 Response to DEQ and EPA Comments on the Lakeside Site Source Control Evaluation.	160	1 CORR / Correspondence	R10: (Pacific Groundwater Group)	R10: (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002275	EPA Follow-on Comments based on the September 8, 2015 Response to DEQ and EPA Comments on the Lakeside Site Source Control Evaluation.	142	1 CORR / Correspondence	R10: (Pacific Groundwater Group)	R10: (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002488	Email regarding Vigor-Stormwater Source Control and Treatment Measure Design Update.	53	2 EML / Email	R10: Demaria, Eva (EPA)	R10: Lacey, David (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002554	Email regarding EPA followon comments to PEO discussion on 9/15/15.	73	1 EML / Email	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	R10: Graf, Tom (GrafCon) R10: McClincy, Matt (Oregon Dept. of Environmental Quality), R10: McDonnell, Erin (Oregon Department of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002556	Email regarding EPA followon comments to PEO discussion on 9/15/15.	37	1 EML / Email	R10: Demaria, Eva (EPA)	R10: (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002557	EPA Follow-On Comments based upon the September 9, 2015 teleconference discussion of DEQ and EPA review comments to the July 2015 documented entitled, Basis of Design Report - Groundwater Source Control Measure.	164	2 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002558	EPA Follow-On Comments based upon the September 9, 2015 teleconference discussion of DEQ and EPA review comments to the July 2015 document entitled, Basis of Design Report - Groundwater Source Control Measure.	319	2 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002881	Email regarding 4784 Container Management Document Forwarding to EPA.	99	3 EML / Email	R10: Demaria, Eva (EPA)	R10: Orr, Jim (Oregon Dept. of Transportation)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002882	Review Comments Stormwater Assessment and Additional Site Activities Report Container Management Services Site.	163	5 CORR / Correspondence	R10: (EPA)	R10: (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002533	Transmittal Memorandum regarding SIUF OU4 Revised Soil and Cap Management Plan.	32	1 CORR / Correspondence	R10: (APEX Companies LLC)	R10: Lacey, David (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002404	Memorandum regarding Phase 2 Basin 2 Storm Water Monitoring Plan Burgard Industrial Park.	1,821	13 CORR / Correspondence	R10: Rieke, Ross, D (Bridgewater Group, Inc.)	R10: Orr, Jim (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002405	Burgard Scd Task Schedule.	179	3 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002540	Letter regarding Swan Island Upland Facility Quarterly Progress Report June 16 through September 15, 2015.	84	2 CORR / Correspondence	R10: Leisle, Dwight (Port of Portland)	R10: Lacey, David (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100005141	Agenda: Portland Harbor Executives Meeting and Attendees.	96	2 CORR / Correspondence	R10: Cohen, Lori, G (EPA)	R10: (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100005142	Agenda: Community Partners Meeting with EPA Executives.	61	1 CORR / Correspondence	R10: Robinson, Deborah, G (EPA)	R10: (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100005143	Agenda: MOU Partners Meeting with EPA Executives.	61	1 CORR / Correspondence	R10: Robinson, Deborah, G (EPA)	R10: (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002341	Area 2 Source Riverbank Control Measures Focused Feasibility Study Gunderson Facility.	20,009	177 RPT / Report	R10: (Apex Environmental)	R10: (Gunderson)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002539	Source Control Measure Work Plan Swan Island Upland Facility Operable Unit 5.	7,559	101 RPT / Report	R10: (APEX Companies LLC)	R10: (Port of Portland)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002314	Email regarding GS Roofing Workplan Review. Review Comments Supplemental Source Control Evaluation Work Plan Former Bird Facility.	50	1 EML / Email	R10: Demaria, Eva (EPA)	R10: Thiessen, Kenneth (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002315	Email regarding EPA comments on SIUF SCE and SCAE OUS.	100	4 CORR / Correspondence	R10: (EPA)	R10: (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002530	Review Comments on the Source Control Evaluation and Source Control Alternatives Evaluation, Operable Unit 5, Swan Island Upland Facility.	37	1 EML / Email	R10: Demaria, Eva (EPA)	R10: Lacey, David (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002531	Summary of Groundwater Model Construction for Barrier Wall Premier Edible Oils.	19	2 CORR / Correspondence	R10: (EPA)	R10: (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002570	Agency Source Control coordination Meeting September 23, 2015.	621	8 CORR / Correspondence	R10: Stanley, Terrance (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002829	Stormwater Assessment for Source Control Evaluation ODOT Facility in Portland Harbor. Outfall 22B IRAM Performance Monitoring Second Quarter 2015 Report.	72	1 CORR / Correspondence	R10: Liverman, Alex (Oregon Dept. of Environmental Quality)	R10: (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002393	Minutes Staff Coordination on Portland Harbor Projects with USACE Permits September 22, 2015.	22,112	300 CORR / Correspondence	R10: (Herrera Environmental Consultants, Inc.)	R10: (State of Oregon Department of Transportation)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002636	Minutes Staff Coordination on Portland Harbor Projects with USACE Permits September 22, 2015.	14,976	615 RPT / Report	R10: (Golder Associates, Inc.)	R10: (StarLink Logistics Inc.)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002707	Minutes Staff Coordination on Portland Harbor Projects with USACE Permits September 22, 2015.	115	3 CORR / Correspondence	R10: Liverman, Alex (Oregon Dept. of Environmental Quality)	R10: (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement

100002708	9/22/2015	Minutes Staff Coordination on Portland Harbor Projects with USACE Permits September 22, 2015.	114	3 CORR / Correspondence	R10: Liverman, Alex (Oregon Dept. of Environmental Quality)	R10: (Unknown) R10: Sanders, Dawn (City of Portland, Oregon), R10: Shelley, Loren (City of Portland, Oregon, Environmental Services), R10: Sheldrake, Sean, A (EPA), R10: Demaria, Eva (EPA), R10: Liverman, Alex (Oregon Dept. of Environmental Quality), R10: Allen, Michael (CDM Smith)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002865	9/22/2015	Email regarding Meeting Agenda.	47	1 EML / Email	R10: Scheffler, Linda (City of Portland, Oregon)		ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002290	9/23/2015	Lakeside Industries Portland Plant Sampling and Analysis Plan.	14,570	106 RPT / Report	R10: (Pacific Groundwater Group)	R10: (Lakeside Industries) R10: Sanders, Dawn (City of Portland, Oregon), R10: Shelley, Loren (City of Portland, Oregon, Environmental Services), R10: Sheldrake, Sean, A (EPA), R10: Demaria, Eva (EPA), R10: Liverman, Alex (Oregon Dept. of Environmental Quality), R10: Allen, Michael (CDM Smith)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002875	9/23/2015	Email regarding Meeting Agenda.	66	2 EML / Email	R10: Scheffler, Linda (City of Portland, Oregon)		ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002320	9/24/2015	Email regarding Accepted: GS Roofing Workplan Review comments.	29	1 EML / Email	R10: Thiessen, Kenneth (Oregon Dept. of Environmental Quality)	R10: Demaria, Eva (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002327	9/24/2015	Technical Memorandum regarding 2015 MMGL Corp. Doane Lake Annual Inspection Report.	8,909	53 RPT / Report	R10: Leritz, Aaron (Bridgewater Group, Inc.)	R10: Anderson, Brenda (MMGL Corp)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002562	9/24/2015	Premier Edible Oils Site Responses to DEQ/USEPA Comments on Basis of Design Report - Groundwater Source Control Measure.	20,895	431 CORR / Correspondence	R10: (Environmental Resources Management)	R10: Mcdonnell, Erin (Oregon Department of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002698	9/24/2015	Email regarding Hampton and Glacier documentation of slag fill.	37	1 EML / Email	R10: Mcclincy, Matt (Oregon Dept. of Environmental Quality)	R10: Demaria, Eva (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002844	9/24/2015	EVRAZ Oregon Steel Rivergate Facility Riverbank Source Control Measure Implementation.	4,087	26 RPT / Report	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002392	9/25/2015	Source Control Measure Implementation Plan.	106	10 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002876	9/28/2015	Source Control Measures Effectiveness Demonstration City of Portland Outfalls Project.	3,449	90 RPT / Report	R10: (City of Portland Environmental Services)	R10: (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002180	9/29/2015	Draft Source Control Evaluation Report.	19,112	490 RPT / Report	R10: (Hart Crowser)	R10: (Brix Maritime Company)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002859	9/29/2015	Email regarding EPA comments on Christensen Oil draft SCD?.	67	1 EML / Email	R10: Demaria, Eva (EPA)	R10: Liverman, Alex (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002860	9/29/2015	Review Comments State of Oregon Department of Environmental Quality Source Control Decision Christenson Oil Company.	88	3 CORR / Correspondence	R10: (EPA)	R10: (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002861	9/29/2015	Review Comments State of Oregon Department of Environmental Quality Source Control Decision Christenson Oil Company.	40	3 CORR / Correspondence	R10: (EPA)	R10: (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002220	9/30/2015	Source Control Evaluation/Voluntary Cleanup Program Report for the Former Crown Cork and Seal Facility.	479	2 CORR / Correspondence	R10: Scheffler, Linda (City of Portland, Oregon)	R10: Orr, Jim (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002873	9/30/2015	Source Control Measures Effectiveness Demonstration.	184	2 CORR / Correspondence	R10: Scheffler, Linda (City of Portland, Oregon)	R10: Liverman, Alex (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100004008	9/30/2015	Email regarding Ensuring PQLs are less than SLVs/PRGs.	70	1 EML / Email	R10: Koch, Kristine, M (EPA)	R10: Demaria, Eva (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002346	10/1/2015	Stormwater Source Control Evaluation Work Plan for the Former Mt Hood Solutions Warehouse Site.	870	3 CORR / Correspondence	R10: Scheffler, Linda (City of Portland, Oregon)	R10: Orr, Jim (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002511	10/1/2015	Source Control Evaluation Addendum Phillips 66 Willbridge Terminal.	7,176	67 CORR / Correspondence	R10: (AECOM)	R10: Romero, Mike (Oregon Department of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002614	10/1/2015	Revision of 8/31/2015 DEQ Comments for Remedial Investigation and Source Control Evaluation (SCE), March 2015, NW Pipe Company Site.	2,798	12 CORR / Correspondence	R10: Orr, Jim (Oregon Dept. of Environmental Quality)	R10: Wray, Mike (NW Pipe Company)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002555	10/2/2015	Email regarding PEO revised BOD and RTC.	89	2 EML / Email	R10: Demaria, Eva (EPA)	R10: Mcdonnell, Erin (Oregon Department of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002601	10/2/2015	Development of Oregon Background Metals Concentrations in Soil Table 3 Regional Background Calculations for Metals.	25	1 CORR / Correspondence	R10: (Oregon Dept. of Environmental Quality)	R10: (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002891	10/2/2015	Email regarding Info on US Moorings and Navy Reserve Swan Island.	3,558	2 EML / Email	R10: Demaria, Eva (EPA)	R10: Johnson, Laura (City of Portland, Oregon, Bureau of Environmental Services)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100005127	10/2/2015	Portland Harbor Senior Managers Meeting Agenda.	54	1 CORR / Correspondence	R10: Grandinetti, Cami (EPA)	R10: (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002600	10/5/2015	Email regarding 138 NWP Revision of 8/31/2015 DEQ Comments for Source Control Evaluation.	107	2 EML / Email	R10: Heldt-sheller, Stephanie (NW Pipe Company)	R10: Orr, Jim (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002612	10/5/2015	Email regarding 138 NWP Revision of 8/31/2015 DEQ Comments for Source Control Evaluation.	134	3 EML / Email	R10: Heldt-sheller, Stephanie (NW Pipe Company)	R10: Orr, Jim (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002687	10/5/2015	Priority Projects Permit List.	107	2 CORR / Correspondence	R10: Liverman, Alex (Oregon Dept. of Environmental Quality)	R10: (Unknown) R10: Angle, Genevieve (NOAA), R10: Heer, Marcia, L (U. S. Army Corps of Engineers), R10: Butterfield, Melinda (Unknown), R10: Kepler, Rick (Unknown), R10: Murtagh, Tom (Unknown), R10: Sheldrake, Sean, A (EPA), R10: Demaria, Eva (EPA), R10: Ladoucer, Michael, A (U.S. Army Corps of Engineers), R10: Hafley, Dan (Oregon Dept. of Environmental Quality), R10: Lacey, David (Oregon Dept. of Environmental Quality), R10: Christensen, Sarah (Oregon Dept. of Environmental Quality), R10: Castro, Janine (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002706	10/5/2015	Email regarding minutes from Sep 22 interagency PH permits coord meeting.	53	1 EML / Email	R10: Liverman, Alex (Oregon Dept. of Environmental Quality)		ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002560	10/6/2015	Basis of Design Report- Groundwater Source Control measure Premier Edible Oils Site.	578	2 CORR / Correspondence	R10: Mcdonnell, Erin (Oregon Department of Environmental Quality)	R10: Novak, Ken (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002668	10/6/2015	Email regarding Rhone Poulenc modeling.	54	2 EML / Email	R10: Demaria, Eva (EPA)	R10: (Oregon Dept. of Environmental Quality), R10: Manzano, Scott (Oregon Dept. of Environmental Quality), R10: Henning, Larsen (Unknown) R10: Liverman, Marc (NOAA), R10: Sheldrake, Sean, A (EPA), R10: Demaria, Eva (EPA), R10: Davis, Jaimee, W (U.S. Army Corps of Engineers), R10: Johnson, Keith (Oregon Dept. of Environmental Quality), R10: Parrett, Kevin (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002722	10/6/2015	Email regarding Agenda and information for today's PH permits coord - manager-level quarterly meeting.	59	1 EML / Email	R10: Liverman, Alex (Oregon Dept. of Environmental Quality)		ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002726	10/6/2015	Minutes Manager-Level Quarterly Meeting Portland Harbor Projects Coordination DEQ, NMFS, USACE, EPA October 6, 2015.	136	2 CORR / Correspondence	R10: Liverman, Alex (Oregon Dept. of Environmental Quality)	R10: (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002736	10/6/2015	Minutes Manager-Level Quarterly Meeting Portland Harbor Projects Coordination DEQ, NMFS, USACE, EPA October 6, 2015.	139	2 CORR / Correspondence	R10: Liverman, Alex (Oregon Dept. of Environmental Quality)	R10: (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002281	10/7/2015	Email regarding Lakeside Industries QAPP.	105	2 EML / Email	R10: Demaria, Eva (EPA)	R10: Orr, Jim (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002282	10/7/2015	Review Comments Lakeside Industries Portland Plant Sampling and Analysis Plan.	34	3 CORR / Correspondence	R10: (EPA)	R10: (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002283	10/7/2015	Review Comments Lakeside Industries Portland Plant Sampling and Analysis Plan.	90	3 CORR / Correspondence	R10: (EPA)	R10: (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002559	10/7/2015	Email regarding PEO (ECSI #2013) Groundwater Source Control Measure - GWBW Revised Basis of Design and RTCs.	47	2 EML / Email	R10: Mcdonnell, Erin (Oregon Department of Environmental Quality)	R10: Graf, Tom (GrafCon)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement

100002567	10/7/2015	Email regarding PEO revised BOD and RTC.	97	3 EML / Email	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	R10: Demaria, Eva (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002725	10/7/2015	Email regarding minutes from PH permits coord manager-level quarterly meeting Oct 6, 2015.	58	1 EML / Email	R10: Liverman, Alex (Oregon Dept. of Environmental Quality)	R10: Liverman, Marc (NOAA), R10: Sheldrake, Sean, A (EPA), R10: Demaria, Eva (EPA), R10: Davis, Jaimee, W (U.S. Army Corps of Engineers), R10: Johnson, Keith (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002735	10/7/2015	Email regarding minutes from PH permits coord manager-level quarterly meeting Oct 6, 2015.	45	2 EML / Email	R10: Davis, Jaimee, W (U.S. Army Corps of Engineers)	R10: Liverman, Marc (NOAA), R10: Sheldrake, Sean, A (EPA), R10: Demaria, Eva (EPA), R10: Liverman, Alex (Oregon Dept. of Environmental Quality), R10: Johnson, Keith (Oregon Dept. of Environmental Quality), R10: Parrett, Kevin (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002756	10/7/2015	Email regarding Hard copy letters/reports.	49	1 EML / Email	R10: Demaria, Eva (EPA)	R10: Scheffler, Linda (City of Portland, Oregon)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002758	10/7/2015	Email regarding minutes from Sep 22 interagency PH permits coord meeting.	70	2 EML / Email	R10: Demaria, Eva (EPA)	R10: Liverman, Alex (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002759	10/7/2015	Email regarding Portland Harbor List of PRPs.	89	3 EML / Email	R10: Demaria, Eva (EPA)	R10: Orr, Jim (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002661	10/8/2015	Outfall 22B IRAM Performance Monitoring Second Quarter 2015 Report RP-Portland Site.	305	2 CORR / Correspondence	R10: Manzano, Scott (Oregon Dept. of Environmental Quality)	R10: Dearden, Stuart (Sanofi-Aventis)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002228	10/9/2015	Third Quarter 2015 Progress Report Corp 10 (formerly Freightliner Truck Manufacturing Plant II) Daimler Trucks North America LLC.	137	4 CORR / Correspondence	R10: St. John, Anna (Bridgewater Group, Inc.)	R10: Romero, Michael (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002311	10/9/2015	GS Roofing Supplemental Source Control Evaluation (SSCE) Workplan.	1,079	10 CORR / Correspondence	R10: (Forensic Environmental Services, Inc.)	R10: Thiessen, Kenneth (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002678	10/9/2015	Quarterly Progress Report for RI/FS Third Quarter 2015 Progress Report Rhône-Poulenc - Portland Site.	3,297	974 RPT / Report	R10: (Amec Foster Wheeler Environment & Infrastructure)	R10: Manzano, Scott (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002813	10/9/2015	Results of soil sample.	2,038	14 CORR / Correspondence	R10: (Ceres Analytical Laboratory, Inc.)	R10: (Apex Laboratories, Inc.)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100003649	10/12/2015	Email regarding draft agendas for technical teams and management teams meeting on 10/14/15 re Portland Harbor cleanup.	58	2 EML / Email	R10: Parrett, Kevin (Oregon Dept. of Environmental Quality)	R10: Robinson, Deborah, G (EPA), R10: Koch, Kristine, M (EPA), R10: Grandinetti, Cami (EPA), R10: Fleming, Sheila (EPA), R10: Ross, Bill (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100004009	10/12/2015	Email regarding draft agendas for technical teams and management teams meeting on 10/14/15 re Portland Harbor cleanup.	58	2 EML / Email	R10: Parrett, Kevin (Oregon Dept. of Environmental Quality)	R10: Koch, Kristine, M (EPA), R10: Grandinetti, Cami (EPA), R10: Fleming, Sheila (EPA), R10: Ross, Bill (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002798	10/13/2015	Email regarding Topsoil import material data. Proposed imported soil as berm backfill at Evraz Oregon Steel riverbank source control measure.	128	4 EML / Email	R10: Demaria, Eva (EPA)	R10: Sutter, Jennifer, L (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002799	10/13/2015	Proposed imported soil as berm backfill at Evraz Oregon Steel riverbank source control measure.	127	1 CORR / Correspondence	R10: (EPA)	R10: (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002800	10/13/2015	Proposed imported soil as berm backfill at Evraz Oregon Steel riverbank source control measure.	127	1 CORR / Correspondence	R10: (EPA)	R10: (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002811	10/13/2015	Email regarding Topsoil import material data. Draft Evraz OR Steel / Evraz OR Steel results of analyses for work order A510362.	108	3 EML / Email	R10: Sutter, Jennifer, L (Oregon Dept. of Environmental Quality)	R10: Demaria, Eva (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002812	10/13/2015	Analyses for work order A510362.	200	29 CORR / Correspondence	R10: (Apex Laboratories, Inc.)	R10: (Strider Construction)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002814	10/13/2015	Topsoil Analytical Results Table.	111	4 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002815	10/13/2015	Topsoil TEQ Table.	57	1 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002831	10/13/2015	Email regarding Topsoil import material data.	124	4 EML / Email	R10: Sutter, Jennifer, L (Oregon Dept. of Environmental Quality)	R10: Demaria, Eva (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002833	10/13/2015	Email regarding Topsoil import material data.	111	3 EML / Email	R10: Poulsen, Mike (Oregon Dept. of Environmental Quality)	R10: Sutter, Jennifer, L (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100003650	10/13/2015	Email regarding Monthly EPA/DEQ Staff/Manager Meetings - Updated logistical info.	84	2 EML / Email	R10: Ross, Bill (Unknown)	R10: Macintyre, Mark, A (EPA), R10: Sheldrake, Sean, A (EPA), R10: Robinson, Deborah, G (EPA), R10: Ellis, Stephen, J (EPA), R10: Koch, Kristine, M (EPA), R10: Legare, Amy, R (EPA), R10: Charters, David, W (EPA), R10: Conley, Alanna (EPA), R10: Christopher, Anne (EPA), R10: Grandinetti, Cami (EPA), R10: Stalcup, Dana (EPA), R10: Ammon, Doug (EPA), R10: Allen, Elizabeth (EPA), R10: Fleming, Sheila (EPA), R10: Fonseca, Silvina (EPA), R10: Gilles, Bruce, A (Oregon Dept. of Environmental Quality), R10: Roick, Thomas, E (Oregon Dept. of Environmental Quality), R10: Johnson, Keith (Oregon Dept. of Environmental Quality), R10: Parrett, Kevin (Oregon Dept. of Environmental Quality), R10: McClincy, Matt (Oregon Dept. of Environmental Quality), R10: Deconcini, Nina (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002348	10/14/2015	Email regarding NuStar Portland Terminal (ECSI #5130) Quarterly Progress Report. Voluntary Agreements Progress Report - Third Quarter 2015 Shore Terminals LLC Portland Facility.	110	4 EML / Email	R10: Maguire, Ian (Ash Creek Associates, Inc.)	R10: Orr, Jim (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002349	10/14/2015	Facility.	183	2 RPT / Report	R10: (APEX Companies LLC)	R10: Orr, Jim (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002832	10/14/2015	Email regarding Topsoil import material data. Email regarding 5864 Crown Cork and Seal Review Schedule.	42	1 EML / Email	R10: Sutter, Jennifer, L (Oregon Dept. of Environmental Quality)	R10: Demaria, Eva (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002217	10/15/2015	Review Schedule.	63	1 EML / Email	R10: Demaria, Eva (EPA)	R10: Orr, Jim (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002313	10/15/2015	Follow Up Comments on Forensic Environmental Services, Inc. Letter Response to EPA Review Comments on the Supplemental Source Control Evaluation Workplan for the Former Bird Facility.	38	2 CORR / Correspondence	R10: (EPA)	R10: (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002808	10/15/2015	Email regarding Evraz Oregon Steel Groundwater report.	51	1 EML / Email	R10: Demaria, Eva (EPA)	R10: Sutter, Jennifer, L (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002809	10/15/2015	Review Comments on the Evraz Oregon Steel 2015 Beach and Riverbank Groundwater Monitoring Report.	72	2 CORR / Correspondence	R10: (EPA)	R10: (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002810	10/15/2015	Review Comments on the Evraz Oregon Steel 2015 Beach and Riverbank Groundwater Monitoring Report Document Dated August 6, 2015.	35	2 CORR / Correspondence	R10: (EPA)	R10: (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002835	10/15/2015	Third Quarter 2015 Progress Report for EVRAZ Oregon Steel Facility.	5,224	68 RPT / Report	R10: (Integral Consulting, Inc.)	R10: Sutter, Jennifer, L (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002319	10/16/2015	Email regarding Former Bird Roofing SSCE. Basin 18 Supplemental Sampling and Analysis Plan Source Control Evaluation Burgard Industrial Park.	70	2 EML / Email	R10: Demaria, Eva (EPA)	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002398	10/16/2015	Industrial Park.	1,458	19 RPT / Report	R10: Rieke, Ross, D (Bridgewater Group, Inc.)	R10: Orr, Jim (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002605	10/19/2015	Email regarding 138 NWP Revision of 8/31/2015 DEQ Comments for Source Control Evaluation DEQ Response to October 5 2015 Email (Below).	148	5 EML / Email	R10: Heldt-sheller, Stephanie (NW Pipe Company)	R10: Orr, Jim (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002606	10/19/2015	Letter regarding ECSI 138, Northwest Pipe Company Portland plant; response to comments.	312	13 CORR / Correspondence	R10: Heldt-sheller, Stephanie (NW Pipe Company)	R10: Orr, Jim (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100005085	10/19/2015	Dick/Dennis/Jim Monthly Meeting.	66	1 CORR / Correspondence	R10: Robinson, Deborah, G (EPA)	R10: (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002571	10/20/2015	Groundwater Source Control Measure Groundwater Barrier Wall Work Area Plan.	567	1 FIG / Figure/Map/ Drawing	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002667	10/20/2015	Email regarding Rhone Poulenc modeling.	86	3 EML / Email	R10: Sutter, Jennifer, L (Oregon Dept. of Environmental Quality)	R10: Demaria, Eva (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002830	10/20/2015	Email regarding Topsoil import material data.	137	5 EML / Email	R10: Sutter, Jennifer, L (Oregon Dept. of Environmental Quality)	R10: Demaria, Eva (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement

100002376	10/21/2015	Lampros end draining to Burgard Road photo. Basin 18 Supplemental Source Control Evaluation Sampling and Analysis Plan (Attachment A - Sampling and Analysis Program Dunkin & Bush Property.	5,691	1 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002399	10/21/2015	List of "Properties with Known Riverbank Contamination for evaluation."	989	6 RPT / Report	R10: (Bridgewater Group, Inc.)	R10: (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002701	10/21/2015	Email regarding EPA Source Control Focus and Coordination.	169	3 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002742	10/21/2015	Email regarding EPA Source Control Focus and Coordination.	84	4 EML / Email	R10: Demaria, Eva (EPA)	R10: Mcclincy, Matt (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002755	10/21/2015	Email regarding DEQ letter on Gunderson's status of interim measure completion.	68	4 EML / Email	R10: Mcclincy, Matt (Oregon Dept. of Environmental Quality)	R10: Demaria, Eva (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002333	10/22/2015	Email regarding DEQ letter on Gunderson's status of interim measure completion.	56	1 EML / Email	R10: Liverman, Alex (Oregon Dept. of Environmental Quality)	R10: Harvey, David (Greenbrier Companies)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002334	10/22/2015	Status of Area 2 and Area 3 Riverbank Interim Source Control Measure Implementation Gunderson.	64	2 EML / Email	R10: Harvey, David (Greenbrier Companies)	R10: Liverman, Alex (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002336	10/22/2015	Email regarding PEO trench construction.	247	2 CORR / Correspondence	R10: Liverman, Alex (Oregon Dept. of Environmental Quality)	R10: Harvey, David (Greenbrier Companies)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002568	10/22/2015	Email regarding PEO trench construction.	82	2 EML / Email	R10: Mcdonnell, Erin (Oregon Department of Environmental Quality)	R10: Demaria, Eva (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002700	10/22/2015	Email regarding Riverbank documentation. Minutes Staff Coordination on Portland Harbor Projects with USACE Permits October 22, 2015.	33	1 EML / Email	R10: Demaria, Eva (EPA)	R10: Mcclincy, Matt (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002762	10/22/2015	Review of revised Stormwater Assessment for Source Control Evaluation (dated September 22, 2015) and revised draft Source Control Measure Implementation Plan (undated) for the ODOT Facility in Portland Harbor.	97	1 CORR / Correspondence	R10: Liverman, Alex (Oregon Dept. of Environmental Quality)	R10: (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002395	10/23/2015	Email regarding US Army Corps. Warning Notice: Implementation of Narrative Technology Based Effluent Limits and Implementation of SWPCP Stormwater Facility Inspection- US Army Corps of Engineers-US Government Moorings.	1,437	4 CORR / Correspondence	R10: Johnson, Laura (City of Portland, Oregon, Bureau of Environmental Services)	R10: Liverman, Alex (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002465	10/23/2015	DEQ Comments Sulzer Pump Source Control Evaluation Report dated May 7, 2015. Attachment to 10-27015 DEQ Comment Letter Example Chronology of SW Sampling & SCM Implementation.	36	1 EML / Email	R10: Johnson, Laura (City of Portland, Oregon, Bureau of Environmental Services)	R10: Muza, Richard (EPA), R10: Liverman, Alex (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002466	10/23/2015	DEQ Review "2015 Groundwater Monitoring Work Plan Former Rhone-Poulenc Portland Harbor Heavy Industrial Sites. Table 2.2-1 Summary of Portland Harbor PRGs by RAO and Media.	562	2 CORR / Correspondence	R10: Johnson, Laura (City of Portland, Oregon, Bureau of Environmental Services)	R10: Harper, Chris (US Army Corps of Engineers)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002410	10/27/2015	DEQ Review "2015 Groundwater Monitoring Work Plan Former Rhone-Poulenc Portland Harbor Heavy Industrial Sites. Table 2.2-1 Summary of Portland Harbor PRGs by RAO and Media.	60	4 CORR / Correspondence	R10: Pugh, Mark, T (Oregon Dept. of Environmental Quality)	R10: Peterson, Melissa (Sulzer Pumps, Inc.)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002411	10/27/2015	Attachment to DEQ Comment Letter dated 10-27-15 Chromium in Stormwater at Portland Harbor Heavy Industrial Sites.	304	2 FIG / Figure/Map/ Drawing	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002412	10/27/2015	Table 2.2-1 Summary of Portland Harbor PRGs by RAO and Media.	114	1 FIG / Figure/Map/ Drawing	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002418	10/27/2015	Email regarding Info on US Moorings and Navy Reserve Swan Island.	92	1 FIG / Figure/Map/ Drawing	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002757	10/27/2015	Email regarding RSET REVIEW: FW SLs Public Notice.	86	3 EML / Email	R10: Demaria, Eva (EPA)	R10: Scheffler, Linda (City of Portland, Oregon), R10: Pronold, Michael (Unknown), R10: Johnson, Laura (City of Portland, Oregon, Bureau of Environmental Services)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100003651	10/28/2015	Email regarding RSET REVIEW: FW SLs Public Notice.	52	1 EML / Email	R10: Parrett, Kevin (Oregon Dept. of Environmental Quality)	R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100004011	10/28/2015	Memorandum regarding Data Gap Analysis and Sampling and Analysis Plan Source Control Evaluation Crawford Street.	52	1 EML / Email	R10: Parrett, Kevin (Oregon Dept. of Environmental Quality)	R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002212	10/29/2015	Email regarding EPA comments - SIUF OUS SCM workplan.	614	33 CORR / Correspondence	R10: Rieke, Ross, D (Bridgewater Group, Inc.)	R10: Orr, Jim (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002527	10/29/2015	Review Comments Source Control Measure Work Plan Swan Island Upland Facility Operable Unit 5.	38	1 EML / Email	R10: Demaria, Eva (EPA)	R10: Lacey, David (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002528	10/29/2015	Review Comments Source Control Measure Work Plan Swan Island Upland Facility Operable Unit 5.	102	4 CORR / Correspondence	R10: (EPA)	R10: (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002529	10/29/2015	Email regarding PEO (ECSI #2013) Groundwater Source Control Measure - DEQ Review "2015 Groundwater Monitoring Work Plan Former Rhone-Poulenc Portland Harbor Heavy Industrial Sites. Table 2.2-1 Summary of Portland Harbor PRGs by RAO and Media.	45	4 CORR / Correspondence	R10: (EPA)	R10: (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002561	10/29/2015	DEQ Review "2015 Groundwater Monitoring Work Plan Former Rhone-Poulenc Portland Harbor Heavy Industrial Sites. Table 2.2-1 Summary of Portland Harbor PRGs by RAO and Media.	89	3 EML / Email	R10: Demaria, Eva (EPA)	R10: Mcdonnell, Erin (Oregon Department of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002647	10/29/2015	DEQ Review "Feasibility Study Work Plan Former Rhone Poulenc Site".	150	3 CORR / Correspondence	R10: Manzano, Scott (Oregon Dept. of Environmental Quality)	R10: Dearden, Stuart (Sanofi-Aventis)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002648	10/29/2015	DEQ Review "2015 Groundwater Monitoring Work Plan Former Rhone-Poulenc Portland Harbor Heavy Industrial Sites. Table 2.2-1 Summary of Portland Harbor PRGs by RAO and Media.	1,228	39 CORR / Correspondence	R10: Manzano, Scott (Oregon Dept. of Environmental Quality)	R10: Dearden, Stuart (Sanofi-Aventis)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002649	10/29/2015	DEQ Review "Feasibility Study Work Plan Former Rhone Poulenc Site".	150	3 CORR / Correspondence	R10: Manzano, Scott (Oregon Dept. of Environmental Quality)	R10: Dearden, Stuart (Sanofi-Aventis)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002671	10/29/2015	DEQ Review "2015 Groundwater Monitoring Work Plan Former Rhone-Poulenc Portland Harbor Heavy Industrial Sites. Table 2.2-1 Summary of Portland Harbor PRGs by RAO and Media.	1,228	39 CORR / Correspondence	R10: Manzano, Scott (Oregon Dept. of Environmental Quality)	R10: Dearden, Stuart (Sanofi-Aventis)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002748	10/29/2015	Email regarding DEQ in the News 10/29/15.	55	2 EML / Email	R10: Johnson, Keith (Oregon Dept. of Environmental Quality)	R10: Sheldrake, Sean, A (EPA), R10: Demaria, Eva (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002335	10/30/2015	Email regarding Update, Friday Morning, 10/30/2015 --- RE: DEQ letter on Gunderson's status of interim measure completion.	80	2 EML / Email	R10: Harvey, David (Greenbrier Companies)	R10: Jansky, Andrew (Gunderson, Inc.), R10: Liverman, Alex (Oregon Dept. of Environmental Quality), R10: Breemer, Chris (APEX Companies LLC)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002626	10/30/2015	Groundwater Contamination Containment Evaluation Proposed Modeling Path Forward.	798	21 CORR / Correspondence	R10: CDM Smith	R10: (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002627	10/30/2015	Groundwater Contamination Containment Evaluation Proposed Modeling Path Forward. Brix Maritime SCE Appendices D Tables on Catch Basin Sediment Data Reporting and Screening.	3,404	21 CORR / Correspondence	R10: CDM Smith	R10: (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002182	11/2/2015	Email regarding Lampros Draft Source Control Evaluation Report 9-8-2015.	340	16 RPT / Report	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002378	11/2/2015	Review Comments Draft Stormwater Source Control Evaluation Report Lampros Properties.	101	3 EML / Email	R10: Demaria, Eva (EPA)	R10: Orr, Jim (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002379	11/2/2015	Email regarding Rhone Poulenc cap containment evaluation modeling.	53	5 CORR / Correspondence	R10: (EPA)	R10: (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002625	11/2/2015	Email regarding Rhone Poulenc cap containment evaluation modeling.	31	1 EML / Email	R10: Demaria, Eva (EPA)	R10: Lacey, David (Oregon Dept. of Environmental Quality), R10: Mcclincy, Matt (Oregon Dept. of Environmental Quality), R10: Manzano, Scott (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002629	11/4/2015	Review of draft Stormwater Source Control Evaluation Work Plan.	67	2 EML / Email	R10: Lacey, David (Oregon Dept. of Environmental Quality)	R10: Demaria, Eva (EPA), R10: Mcclincy, Matt (Oregon Dept. of Environmental Quality), R10: Manzano, Scott (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002456	11/5/2015	Email regarding 138 NWP Meeting on November 10th.	1,746	5 CORR / Correspondence	R10: Scheffler, Linda (City of Portland, Oregon)	R10: Liverman, Alex (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002611	11/5/2015	Groundwater Contamination Containment Evaluation Proposed Modeling Path Forward.	109	4 EML / Email	R10: Demaria, Eva (EPA)	R10: Orr, Jim (Oregon Dept. of Environmental Quality), R10: Heldt-sheller, Stephanie (NW Pipe Company)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002640	11/5/2015	Groundwater Contamination Containment Evaluation Proposed Modeling Path Forward.	798	21 CORR / Correspondence	R10: CDM Smith	R10: (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002641	11/5/2015	Groundwater Contamination Containment Evaluation Proposed Modeling Path Forward.	3,404	21 CORR / Correspondence	R10: CDM Smith	R10: (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement



100002642	11/5/2015	Email regarding Starlink Long Term Groundwater Monitoring Work Plan.	83	2 EML / Email	R10: Demaria, Eva (EPA)	R10: Lacey, David (Oregon Dept. of Environmental Quality), R10: Manzano, Scott (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002644	11/5/2015	Review Comments 2015 Groundwater Monitoring Work Plan Former Rhone-Poulenc.	119	8 CORR / Correspondence	R10: (EPA)	R10: (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002645	11/5/2015	Review Comments 2015 Groundwater Monitoring Work Plan Former Rhone-Poulenc.	50	8 CORR / Correspondence	R10: (EPA)	R10: (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002384	11/6/2015	Review Comments Stormwater Assessment for Source Control Evaluation ODOT Facility in Portland Harbor.	48	4 CORR / Correspondence	R10: (EPA)	R10: (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002628	11/6/2015	Email regarding Rhone Poulenc cap containment evaluation modeling.	80	3 EML / Email	R10: Demaria, Eva (EPA)	R10: Lacey, David (Oregon Dept. of Environmental Quality), R10: McClincy, Matt (Oregon Dept. of Environmental Quality), R10: Manzano, Scott (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002637	11/6/2015	Response to October 8, 2015 Letter, Outfall @B IRAM Performance Monitoring, Second Quarter Report Former Rhone-Poulenc.	102	2 CORR / Correspondence	R10: Angelos, Kent, M (Golder Associates, Inc.)	R10: Manzano, Scott (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002332	11/9/2015	Review Comments Area 2 Riverbank Source Control Measures Focused Feasibility Study Gunderson Facility.	45	2 CORR / Correspondence	R10: (EPA)	R10: (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002337	11/9/2015	Review Comments Area 2 Riverbank Source Control Measures Focused Feasibility Study Gunderson Facility.	45	2 CORR / Correspondence	R10: (EPA)	R10: (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002338	11/9/2015	Email regarding Gunderson Area 2 Riverbank SCM FFS.	30	1 EML / Email	R10: Demaria, Eva (EPA)	R10: Liverman, Alex (Oregon Dept. of Environmental Quality), R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002339	11/9/2015	Review Comments Area 2 Riverbank Source Control Measures Focused Feasibility Study Gunderson Facility.	157	2 CORR / Correspondence	R10: (EPA)	R10: (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002455	11/10/2015	Email regarding City Comments on Univar Draft Stormwater Source Control Evaluation Work Plan.	68	1 EML / Email	R10: Liverman, Alex (Oregon Dept. of Environmental Quality)	R10: Demaria, Eva (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002457	11/10/2015	DEQ comments on Draft Stormwater Source Control Evaluation Work Plan - Univar USA, Inc.	139	4 CORR / Correspondence	R10: Liverman, Alex (Oregon Dept. of Environmental Quality)	R10: Spicuzza, Jack (Univar USA, Incorporated)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002602	11/10/2015	Email regarding 138 NWP Meeting on November 10th.	88	2 EML / Email	R10: Heldt-sheller, Stephanie (NW Pipe Company)	R10: Orr, Jim (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002603	11/10/2015	Meeting Agenda Northwest Pipe Company Comment Response and Finalization of the RI/SCE.	78	2 CORR / Correspondence	R10: Gee, Gretchen (CH2MHILL)	R10: (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002604	11/10/2015	Conceptual Site Model Discussion to Facilitate Completion of the RI/SCE Northwest Pipe Company.	765	26 CORR / Correspondence	R10: (CH2MHILL)	R10: Sheldrake, Sean, A (EPA), R10: Zhen, Davis (EPA), R10: Demaria, Eva (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002737	11/10/2015	Email regarding PH Talking Points June 2015.	83	2 EML / Email	R10: Grandinetti, Cami (EPA)	R10: (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100005086	11/10/2015	Portland Harbor Director's Meeting Agenda. Review of Proposed DEQ Source Control Decision for Christenson Oil Company (ECSI #2426).	89	1 CORR / Correspondence	R10: Robinson, Deborah, G (EPA)	R10: (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002864	11/12/2015	Review of Proposed DEQ Source Control Decision for Christenson Oil Company (ECSI #2426).	2,870	3 CORR / Correspondence	R10: Scheffler, Linda (City of Portland, Oregon)	R10: Liverman, Alex (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002646	11/13/2015	Email regarding DEQ Rhone Poulenc Review Letters- FS Work Plan and GW Monitoring Plan.	89	2 EML / Email	R10: Manzano, Scott (Oregon Dept. of Environmental Quality)	R10: Demaria, Eva (EPA), R10: Lacey, David (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100005144	11/13/2015	Agenda: Portland Harbor Executives Meeting and Attendees.	83	2 CORR / Correspondence	R10: Cohen, Lori, G (EPA)	R10: (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100005145	11/13/2015	Agenda: Community Partners Meeting.	84	1 CORR / Correspondence	R10: Cohen, Lori, G (EPA)	R10: (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100005146	11/13/2015	Agenda: MOU Partners Meeting.	84	1 CORR / Correspondence	R10: Cohen, Lori, G (EPA)	R10: (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002536	11/17/2015	DEQ Review "Evaluation of Data from Incremental Sampling Methodology Soil Data".	317	4 CORR / Correspondence	R10: Lacey, David (Oregon Dept. of Environmental Quality)	R10: Leisle, Dwight (Port of Portland)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002727	11/17/2015	Email regarding DEQ NRRB Source Control Presentation.	88	2 EML / Email	R10: Liverman, Alex (Oregon Dept. of Environmental Quality)	R10: Sheldrake, Sean, A (EPA), R10: Demaria, Eva (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002728	11/17/2015	Portland Harbor Source Control - National Remedy Review Board - DEQ Presentation Notes.	134	6 CORR / Correspondence	R10: Liverman, Alex (Oregon Dept. of Environmental Quality)	R10: (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100003654	11/17/2015	Email regarding Presentation on Modeling - 11-16-15b.	11	1 EML / Email	R10: Robinson, Deborah, G (EPA)	R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100004014	11/17/2015	Email regarding Presentation on Modeling - 11-16-15b.	11	1 EML / Email	R10: Robinson, Deborah, G (EPA)	R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002329	11/19/2015	DEQ Review-MMGL Doane Lake SCM Construction Completion Report.	85	2 CORR / Correspondence	R10: Lacey, David (Oregon Dept. of Environmental Quality)	R10: Novack, Kenneth, M (MMGL Corp)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002638	11/19/2015	Revised Off-Property Screening Level Human Health Risk Evaluation former Rhone-Poulenc Portland Site.	3,087	147 RPT / Report	R10: (Golder Associates, Inc.)	R10: (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002328	11/20/2015	DEQ Review-2015 MMGL Corp. Doane Lake Annual Inspection Report.	93	2 CORR / Correspondence	R10: Lacey, David (Oregon Dept. of Environmental Quality)	R10: Novack, Kenneth, M (MMGL Corp)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002400	11/20/2015	Basin 18 Supplemental Source Control Evaluation Sampling and Analysis Plan (Attachment B - Sampling and Analysis Program Felton Property).	989	6 RPT / Report	R10: (Bridgewater Group, Inc.)	R10: (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002230	11/23/2015	Email regarding Fourth Quarter 2015 Gould Superfund Site Inspection.	53	1 EML / Email	R10: Stringfellow, Ryan (Golder Associates, Inc.)	R10: Demaria, Eva (EPA), R10: Lacey, David (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002743	11/23/2015	Email regarding Riverbank documentation. EVRAZ Oregon Steel 2015 Beach and Bank Groundwater Monitoring Report Mn Sampling Figure.	54	1 EML / Email	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	R10: Demaria, Eva (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002842	11/23/2015	Memorandum regarding Source Control Decision Christenson Oil Company.	630	1 FIG / Figure/Map/ Drawing	R10: Demaria, Eva (EPA)	R10: (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002863	11/23/2015	Decision Christenson Oil Company.	9,809	56 CORR / Correspondence	R10: Liverman, Alex (Oregon Dept. of Environmental Quality)	R10: Sheldrake, Sean, A (EPA), R10: Demaria, Eva (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100003656	11/23/2015	Email regarding Draft Sediment Recontamination Definition.	38	1 EML / Email	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	R10: Sheldrake, Sean, A (EPA), R10: Robinson, Deborah, G (EPA), R10: Zhen, Davis (EPA), R10: Demaria, Eva (EPA), R10: Roick, Thomas, E (Oregon Dept. of Environmental Quality), R10: Liverman, Alex (Oregon Dept. of Environmental Quality), R10: Johnson, Keith (Oregon Dept. of Environmental Quality), R10: Parrett, Kevin (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100003657	11/23/2015	Draft Sediment Remedy Recontamination Definition Development for Portland Harbor - Sediment Recontamination Definition Nov20.	130	2 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100004016	11/23/2015	Email regarding Draft Sediment Recontamination Definition.	38	1 EML / Email	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100004017	11/23/2015	Draft Sediment Remedy Recontamination Definition Development for Portland Harbor - Sediment Recontamination Definition Nov20.	130	2 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002233	11/25/2015	Gould Superfund Site - Third Quarter Post-Closure Inspection Report.	463	11 RPT / Report	R10: (StarLink Logistics Inc.)	R10: Demaria, Eva (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002610	11/25/2015	Figure 1 Groundwater Sample Locations Northwest Pipe Company.	1,837	1 FIG / Figure/Map/ Drawing	R10: (CH2MHILL)	R10: (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002365	12/1/2015	Email regarding Front LPTube Forgings Storm Water Source Control, ECSI #1239, Portland, OR.	50	1 EML / Email	R10: Demaria, Eva (EPA)	R10: Hood, Robert (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002366	12/1/2015	Review Comments Stormwater Pollution Control Plan Tube Forgings of America, Inc.	44	3 CORR / Correspondence	R10: (EPA)	R10: (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement

100002503	12/1/2015	Email regarding Submittal: Addendum 4 to the XPA/SCE for BNSF's Willbridge Yard, Portland, OR.	86	2 EML / Email	R10: Hood, Robert (Oregon Dept. of Environmental Quality)	R10: Demaria, Eva (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002211	12/2/2015	Review Comments Source Control Evaluation Documents for the Crawford Street Corporation Site.	42	3 CORR / Correspondence	R10: (EPA)	R10: (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002213	12/2/2015	Memorandum regarding Interim Source Control Measure Work Plan Crawford Street.	495	8 CORR / Correspondence	R10: Rieke, Ross, D (Bridgewater Group, Inc.)	R10: Orr, Jim (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002241	12/2/2015	Email regarding Front LP, Hampton Storm Work Plan, ECSI 5761, Portland, OR.	48	1 EML / Email	R10: Demaria, Eva (EPA)	R10: Hood, Robert (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002340	12/2/2015	Response to Comments, Schnitzer ASD Yard Riverbank Feasibility Study Gunderson LLC Portland Facility.	584	16 CORR / Correspondence	R10: Harvey, David, J (Gunderson, Inc.)	R10: Liverman, Alex (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002870	12/2/2015	Email regarding EPA comments - City of Portland SCM Effectiveness Report.	38	1 EML / Email	R10: Demaria, Eva (EPA)	R10: Liverman, Alex (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002871	12/2/2015	Review Comments Source Control Measures Effectiveness Demonstration City of Portland Outfalls Project.	59	6 CORR / Correspondence	R10: (EPA)	R10: (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002386	12/3/2015	Email regarding EPA comments - Schnitzer Burgard Basin 2 SAP.	37	1 EML / Email	R10: Demaria, Eva (EPA)	R10: Orr, Jim (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002387	12/3/2015	Review Comments Phase 2 Basin 2 Storm Water Monitoring Plan Burgard Industrial Park.	29	2 CORR / Correspondence	R10: (EPA)	R10: (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002744	12/3/2015	Email regarding TPH Fraction PRGs.	70	2 EML / Email	R10: Demaria, Eva (EPA)	R10: Mcclincy, Matt (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002510	12/4/2015	Phillips 66 Outfall Basin 22 Video Scope Work Plan.	826	5 CORR / Correspondence	R10: (AECOM)	R10: Romero, Mike (Oregon Department of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002660	12/4/2015	Outfall Basin 22 Investigation Work Plan Chevron Willbridge Distribution Center No. 100-1868 ECSI No. 25.	1,222	10 CORR / Correspondence	R10: Dotson, Christopher (ARCADIS)	R10: Romero, Mike (Oregon Department of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002796	12/7/2015	Email regarding EVRAZ Issues.	44	2 EML / Email	R10: Mcclincy, Matt (Oregon Dept. of Environmental Quality)	R10: Sheldrake, Sean, A (EPA), R10: Demaria, Eva (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002168	12/8/2015	Email regarding EPA comments - Brix Maritime draft SCE.	37	1 EML / Email	R10: Demaria, Eva (EPA)	R10: Orr, Jim (Oregon Dept. of Environmental Quality), R10: Mcclincy, Matt (Oregon Dept. of Environmental Quality), R10: Liverman, Alex (Oregon Department of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002169	12/8/2015	Review Comments on the Draft Source Control Evaluation Report Brix Maritime Co. Portland Oregon Dated September 29, 2015.	56	4 CORR / Correspondence	R10: (EPA)	R10: (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100005128	12/8/2015	Agenda: Portland Harbor Executives Meeting and Attendees.	91	3 CORR / Correspondence	R10: Cohen, Lori, G (EPA)	R10: (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002135	12/10/2015	Figure 4 Schematic Representation of Hydrologic Aquifer Units in the Portland Basin Figure 4.	56	1 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002416	12/10/2015	Email regarding Sulzer.	129	2 EML / Email	R10: Demaria, Eva (EPA)	R10: Mcclincy, Matt (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002452	12/10/2015	Email regarding Response to Agency Comments and Final Univar Stormwater Source Control Work Plan.	77	2 EML / Email	R10: Robinson, Brendan, A (ERM-West, Inc.)	R10: Spicuzza, Jack (Koppers Industries, Inc.), R10: Liverman, Alex (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002453	12/10/2015	Letter regarding Responses to ODEQ Comments/Draft Stormwater Source Control Evaluation Work Plan Dated October 2015 Univar USA Inc.	138	10 CORR / Correspondence	R10: (Environmental Resources Management)	R10: Liverman, Alex (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002202	12/15/2015	Outfall Basin 22 Investigation Work Plan- Chevron Willbridge Distribution Center.	1,122	6 CORR / Correspondence	R10: Scheffler, Linda (City of Portland, Oregon)	R10: Romero, Mike (Oregon Department of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002396	12/15/2015	Email regarding EPA Comments - Schnitzer Industrial Park Basin 18 SSAP (Dunkin & Bush, Felton).	63	1 EML / Email	R10: Demaria, Eva (EPA)	R10: Orr, Jim (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002397	12/15/2015	Review Comments Basin 18 Supplemental Sampling and Analysis Plan Source Control Evaluation Burgard Industrial Park.	47	5 CORR / Correspondence	R10: (EPA)	R10: (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002541	12/15/2015	Letter regarding Swan Island Upland Facility Quarterly Progress Report September 16 through December 15, 2015.	77	2 CORR / Correspondence	R10: Leisle, Dwight (Port of Portland)	R10: Lacey, David (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002639	12/16/2015	Outfall 22B IRAM Performance Monitoring Third Quarter 2015 Report.	10,938	580 RPT / Report	R10: (Golder Associates, Inc.)	R10: (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002248	12/17/2015	Appendix C Technical Memorandum regarding Kinder Morgan Linnton Terminal – Extraction Well Step Drawdown Testing Results.	23,969	47 RPT / Report	R10: (CH2MHILL)	R10: (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002373	12/17/2015	Sampling Results from the Source Control Evaluation Report Program Lampros Properties.	2,025	73 CORR / Correspondence	R10: (SLR International Corporation)	R10: Orr, Jim (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002367	12/18/2015	Stormwater Pollution Control Plan Tube Forgings of America, Inc.	2,718	98 RPT / Report	R10: St. John, Anna (Bridgewater Group, Inc.), R10: Scarpine, Daniel (Aquarius Environmental)	R10: (Tube Forgings of America, Inc.)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002609	12/18/2015	ECSI 138, Northwest Pipe Company Portland plant; Groundwater Sampling Work Plan.	344	10 CORR / Correspondence	R10: Heldt-sheller, Stephanie (NW Pipe Company)	R10: Orr, Jim (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002210	12/21/2015	Email regarding EPA Comments - 2363 Crawford Street ISCM Work Plan for SCM.	87	2 EML / Email	R10: Demaria, Eva (EPA)	R10: Scheffler, Linda (City of Portland, Oregon), R10: Sheldrake, Sean, A (EPA), R10: Liverman, Alex (Oregon Dept. of Environmental Quality), R10: Orr, Jim (Oregon Dept. of Environmental Quality), R10: Mcclincy, Matt (Oregon Dept. of Environmental Quality), R10: Allen, Michael (CDM Smith)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002357	12/21/2015	Email regarding Lampros Properties - November 2015 sampling results from the Source Control Evaluation program.	96	3 EML / Email	R10: Orr, Jim (Oregon Dept. of Environmental Quality)	R10: Demaria, Eva (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002358	12/21/2015	Email regarding Lampros Properties - November 2015 sampling results from the Source Control Evaluation program.	94	3 EML / Email	R10: Lampros, Marcus (Lampros Properties, LLC)	R10: Orr, Jim (Oregon Dept. of Environmental Quality), R10: Gilpin, Drew (Unknown), R10: Miller, R. Scott (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002372	12/21/2015	Email regarding Lampros Properties - November 2015 sampling results from the Source Control Evaluation program.	100	2 EML / Email	R10: Orr, Jim (Oregon Dept. of Environmental Quality)	R10: Demaria, Eva (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002374	12/21/2015	Email regarding Lampros Properties - November 2015 sampling results from the Source Control Evaluation program.	83	2 EML / Email	R10: Orr, Jim (Oregon Dept. of Environmental Quality)	R10: Miller, Scott (SLR International Corporation), R10: Lampros, Marcus (Lampros Properties, LLC), R10: Gilpin, Drew (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002509	12/21/2015	Email regarding Chevron and Phillips Basin 22 Work Plans.	89	2 EML / Email	R10: Romero, Mike (Oregon Department of Environmental Quality)	R10: Scheffler, Linda (City of Portland, Oregon)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002653	12/21/2015	Response to DEQ Comments on Outfall 22B IRAM Performance Monitoring Second Quarter 2015 Report.	780	21 CORR / Correspondence	R10: Manzano, Scott (Oregon Dept. of Environmental Quality)	R10: Dearden, Stuart (Sanofi-Aventis)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002702	12/21/2015	Email regarding Portland Downtown Reach.	67	2 EML / Email	R10: Mcclincy, Matt (Oregon Dept. of Environmental Quality)	R10: Demaria, Eva (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002247	12/22/2015	Appendix B Historical Groundwater Tables Kinder Morgan Liquid Terminals, Linnton Terminal.	547	120 RPT / Report	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002249	12/22/2015	Appendix D Technical Memorandum Kinder Morgan Linnton Terminal – Barrier Wall Extraction System Capture Analysis.	12,153	22 RPT / Report	R10: (CH2M Hill, Inc.)	R10: (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002260	12/22/2015	Appendix E Technical Memorandum Kinder Morgan Linnton Terminal – LNAPL Mobility Analysis.	3,930	29 RPT / Report	R10: (CH2MHILL)	R10: (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002512	12/22/2015	Semi-Annual Groundwater Monitoring Report Second Quarter 2015 and Third Quarter 2015 Willbridge Bulk Fuel Facilities.	49,291	846 RPT / Report	R10: (ARCADIS)	R10: Romero, Mike (Oregon Department of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002214	12/23/2015	Data Gap Analysis and Sampling and Analysis Plan; Interim Source Control Measure Work Plan Crawford Street Corporation.	889	3 CORR / Correspondence	R10: Scheffler, Linda (City of Portland, Oregon)	R10: Orr, Jim (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement

100002245	12/23/2015	Groundwater and Bank Soil Source Control Evaluation Kinder Morgan Linnton Terminal.	118,440	842 RPT / Report	R10: (CH2MHILL)	R10: (Kinder Morgan Liquids Terminals, LLC)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002874	12/28/2015	DEQ Comments on Source Control Measures Effectiveness Demonstration – City of Portland Outfalls Project – Intergovernmental Agreement for Remedial Investigation and Source Control Measures.	163	5 CORR / Correspondence	R10: Liverman, Alex (Oregon Dept. of Environmental Quality)	R10: Scheffler, Linda (City of Portland, Oregon)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100005067	12/30/2015	Top 10 State Issues for Proposed Plan.	107	2 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002663	1/7/2016	DEQ Review "Revised Off-Property Screening Level Human Health Risk Evaluation Former Rhone-Poulenc Portland Site".	237	8 CORR / Correspondence	R10: Manzano, Scott (Oregon Dept. of Environmental Quality)	R10: Dearden, Stuart (Sanofi-Aventis)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100003659	1/8/2016	EPA Response to MOU Partner comments on 2015 Draft Final RI Report - Response to MOU Partner comments on 2015 Draft Final RI Report.	20	5 CORR / Correspondence	R10: Koch, Kristine, M (EPA)	R10: (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100004019	1/8/2016	EPA Response to MOU Partner comments on 2015 Draft Final RI Report - Response to MOU Partner comments on 2015 Draft Final RI Report.	20	5 CORR / Correspondence	R10: Koch, Kristine, M (EPA)	R10: (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002375	1/11/2016	Lampros Center Draining to Burgard Road Photo.	6,765	1 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002507	1/13/2016	Email regarding EPA Comments - Addendum 4 to the XPA/SCE for BNSF's Willbridge Yard, Portland, OR.	97	2 EML / Email	R10: Demaria, Eva (EPA)	R10: Hood, Robert (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002508	1/13/2016	Review Comments Addendum 4 to the Expanded Preliminary Assessment and Source Control Evaluation 2015 Stormwater Storm Drain Sampling Results BNSF Willbridge Switching Yard.	50	4 CORR / Correspondence	R10: (EPA)	R10: (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002590	1/13/2016	Review Comments Supplemental Groundwater Sampling Work Plan Northwest Pipe Company.	44	3 CORR / Correspondence	R10: (EPA)	R10: (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002745	1/13/2016	Email regarding Draft DEQ/EPAG Meeting Agenda Friday 1/15.	62	2 EML / Email	R10: Demaria, Eva (EPA)	R10: Mcclincy, Matt (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002652	1/14/2016	Response to December 21, 2015 Letter, Response to DEQ Comments on Outfall 22B IRAM Performance Monitoring, Second Quarter 2015 Report RP-Portland Site ECSI #155.	142	17 CORR / Correspondence	R10: Angelos, Kent, M (Golder Associates, Inc.)	R10: Manzano, Scott (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002836	1/14/2016	Fourth Quarter 2015 Progress Report for EVRAZ Oregon Steel Facility.	155	4 RPT / Report	R10: (Integral Consulting, Inc.)	R10: Sutter, Jennifer, L (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002362	1/15/2016	Voluntary Agreements Progress Report - Fourth Quarter 2015 Shore Terminals LLC Portland Facility.	415	2 RPT / Report	R10: Maguire, Ian (Ash Creek Associates, Inc.)	R10: Thiessen, Kenneth (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002595	1/19/2016	DEQ Comments for Supplemental Groundwater Sampling and Data Evaluation Work Plan, NW Pipe Company Site.	206	8 CORR / Correspondence	R10: Orr, Jim (Oregon Dept. of Environmental Quality)	R10: Heldt-sheller, Stephanie (NW Pipe Company)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002608	1/19/2016	DEQ Comments for Supplemental Groundwater Sampling and Data Evaluation Work Plan, NW Pipe Company Site.	210	8 CORR / Correspondence	R10: Orr, Jim (Oregon Dept. of Environmental Quality)	R10: Heldt-sheller, Stephanie (NW Pipe Company)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002705	1/19/2016	Draft EPA Review of Final Source Control Decision (SCD).	129	2 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002746	1/20/2016	Email regarding Meeting Notes.	47	2 EML / Email	R10: Johnson, Keith (Oregon Dept. of Environmental Quality)	R10: Demaria, Eva (EPA), R10: Liverman, Alex (Oregon Dept. of Environmental Quality), R10: Mcclincy, Matt (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002505	1/21/2016	Email regarding EPA Comments - Phillips 66 Willbridge Terminal Source Control Evaluation Addendum Report prepared by AECOM.	48	1 EML / Email	R10: Demaria, Eva (EPA)	R10: Romero, Mike (Oregon Department of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002506	1/21/2016	Review Comments Source Control Evaluation Addendum Phillips 66 Willbridge Terminal.	40	4 CORR / Correspondence	R10: (EPA)	R10: (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002613	1/21/2016	DEQ and EPA Comments for NWP December 18th Work Plan.	48	2 EML / Email	R10: Orr, Jim (Oregon Dept. of Environmental Quality)	R10: Demaria, Eva (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100005132	1/21/2016	EPA/DEQ Monthly Meeting Agenda.	153	2 CORR / Correspondence	R10: Robinson, Deborah, G (EPA)	R10: (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002593	1/22/2016	Email regarding DEQ and EPA Comments for NWP December 18th Work Plan.	91	1 EML / Email	R10: Heldtsheller, Stephanie (NW Pipe Company)	R10: Orr, Jim (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002704	1/22/2016	Email regarding EPA SCD template.	53	1 EML / Email	R10: Demaria, Eva (EPA)	R10: Liverman, Alex (Oregon Dept. of Environmental Quality), R10: Johnson, Keith (Oregon Dept. of Environmental Quality), R10: Mcclincy, Matt (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002607	1/25/2016	Email regarding DEQ and EPA Comments for NWP December 18th Work Plan.	98	2 EML / Email	R10: Demaria, Eva (EPA)	R10: Orr, Jim (Oregon Dept. of Environmental Quality), R10: Heldt-sheller, Stephanie (NW Pipe Company)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002616	1/25/2016	Meeting Summary and Follow-On Meeting on January 25, 2016 to Discuss DEQ and EPA's January 19 2016 Comments on the Northwest Pipe Work Plan - Supplemental Groundwater Sampling and Data Evaluation.	54	4 CORR / Correspondence	R10: (CDM Smith)	R10: (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002747	1/25/2016	Email regarding Updated PRG table?.	46	1 EML / Email	R10: Demaria, Eva (EPA)	R10: Orr, Jim (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002598	1/26/2016	Email regarding Notes from 1/25/16 call with NWP.	36	1 EML / Email	R10: Demaria, Eva (EPA)	R10: Orr, Jim (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002599	1/26/2016	Meeting Summary and Follow-On Meeting on January 25, 2016 to Discuss DEQ and EPA's January 19 2016 Comments on the Northwest Pipe Work Plan - Supplemental Groundwater Sampling and Data Evaluation.	54	4 CORR / Correspondence	R10: (CDM Smith)	R10: (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002624	1/26/2016	EMPC Reporting for the Rhone-Poulenc Site RP-Portland Site.	367	5 CORR / Correspondence	R10: Manzano, Scott (Oregon Dept. of Environmental Quality)	R10: Dearden, Stuart (Sanofi-Aventis)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002889	1/26/2016	DEQ Comments for July 2015 Draft Stormwater Assessment and Additional Site Activity Report, Drum Furnace Line Soil Sampling Work Plan (Drum WP), and Hot Spot Removal and Groundwater Investigation Work Plan (Hot Spot WP).	216	8 CORR / Correspondence	R10: Orr, Jim (Oregon Dept. of Environmental Quality)	R10: Zanone, Dana (Zanone Consulting)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002623	1/27/2016	Email regarding 22B.	65	1 EML / Email	R10: Lacey, David (Oregon Dept. of Environmental Quality)	R10: Demaria, Eva (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002231	1/29/2016	Gould Superfund Site - Fourth Quarter 2015 Post-Closure Inspection Report.	863	11 RPT / Report	R10: (StarLink Logistics Inc.)	R10: Demaria, Eva (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002330	1/29/2016	Email regarding DEQ comments on Gunderson FFS for Area 2 bank.	51	1 EML / Email	R10: Liverman, Alex (Oregon Dept. of Environmental Quality)	R10: Harvey, David (Greenbrier Companies)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002331	1/29/2016	DEQ Comments on Area 2 Riverbank Source Control Measures Focused Feasibility Study Gunderson.	182	6 CORR / Correspondence	R10: Harvey, David (Greenbrier Companies)	R10: (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100005865	2/8/2016	Top 10 State Issues for Proposed Plan_Top 10 State Issues 2-8-16.	116	5 RPT / Report	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100005864	2/10/2016	Email Regarding Updated Top 10 Issues_Top 10 State Issues.	50	1 EML / Email	R10: Zhen, Davis (EPA)	R10: Allen, Elizabeth, R10: Robinson, Deborah, R10: Christopher, Anne, R10: Demaria, Eva (Unknown), R10: Koch, Kristine, M (EPA), R10: Fonseca, Silvina (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100005069	2/12/2016	Email regarding Agenda for 2/17/16 to mail to participants.	50	1 EML / Email	R10: Robinson, Deborah, G (EPA)	R10: Walker, Suzanne (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100005081	2/17/2016	Monthly EPA/DEQ Director's Phone Call Agenda.	64	1 CORR / Correspondence	R10: Robinson, Deborah, G (EPA)	R10: (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement

100005147	2/18/2016	Email regarding Agendas for Meeting with PH Executives and Follow Up meetings with MOU Partners and Community Partners.	97	1	EML / Email	R10: Robinson, Deborah, G (EPA)	R10: Knudsen, Laura (EPA), R10: Conley, Alanna (EPA), R10: Christopher, Anne (EPA), R10: Grandinetti, Cami (EPA), R10: Tyler, Kendra (EPA), R10: Magorrian, Matthew (EPA), R10: Townsend, Thomas (EPA), R10: Poland, Melody (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100005148	2/19/2016	Portland Harbor Executives Meeting Agenda and Attendees.	89	2	CORR / Correspondence	R10: Robinson, Deborah, G (EPA)	R10: (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100005149	2/19/2016	Portland Harbor Community Partners Meeting Agenda.	78	1	CORR / Correspondence	R10: Robinson, Deborah, G (EPA)	R10: (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100005150	2/19/2016	Portland Harbor Community Partners Meeting Sign in Sheet.	28	1	CORR / Correspondence	R10: Robinson, Deborah, G (EPA)	R10: (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100005151	2/19/2016	Portland Harbor MOU Partners Meeting Agenda.	78	1	CORR / Correspondence	R10: Robinson, Deborah, G (EPA)	R10: (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100005152	2/19/2016	Portland Harbor MOU Partners Meeting Sign In Sheet.	28	1	CORR / Correspondence	R10: Robinson, Deborah, G (EPA)	R10: (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100005080	2/23/2016	Portland Harbor Initial Review of Alternatives Presentation Dick/Dennis/Jim Briefing.	6,238	29	CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100005870	4/4/2016	Portland Harbor RI/FS Appendix A Sediment Database Description Feasibility Study_Portland Harbor FS Appendix A.	132	18	RPT / Report	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002858	12/21/2016	EPA Review of Final Source Control Decision (SCD) for Christenson Oil Company.	68	1	CORR / Correspondence	R10: (EPA Region 10)	R10: Mcclincy, Matt (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002240	Undated	Zidell Environmental Survey - Site Aerial Photography (Figure 2).	1,930	1	CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100005068	Undated	Email regarding PH Work on DEQ Top Ten Issues - Agenda to be developed.	14	1	EML / Email	R10: Robinson, Deborah, G (EPA)	R10: Sheldrake, Sean, A (EPA), R10: Koch, Kristine, M (EPA), R10: Christopher, Anne (EPA), R10: Zhen, Davis (EPA), R10: Allen, Elizabeth (EPA), R10: Fonseca, Silvina (EPA), R10: Parrett, Kevin (Oregon Dept. of Environmental Quality), R10: Greenfield, Sarah (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100005535	Undated	FS Section 1_Language for ODEQ Review (2).	56	4	CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100005548	Undated	Downtown Reach CSM Meeting Attachment.	98	1	MTG / Meeting Document	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100005589	Undated	Datum Rock Picture.	1,243	1	PHT / Photograph	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100005590	Undated	P1010022 Image.	723	1	PHT / Photograph	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100005591	Undated	P1010034 Image.	842	1	PHT / Photograph	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100005654	Undated	DEQ - Draft General Comments on the October 2014 Feasibility Study_FS General Comments for Port November 24 Meeting.	106	3	ROC / Record of Communication	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100005789	Undated	Doc 6093636_LWG Comments on DEQ Source Control Summary Report.	228	23	NOTE / Notes	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100005868	Undated	Table 1.2-1 Summary Statistics for Contaminants Potentially Posing Unacceptable Risks in Surface and Subsurface Sediments, Study Area (RM 1.9-11.8)_Section 1 Tables Combined.	413	20	CHT / Chart/Table	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100005871	Undated	FS Report Section 1 Figures.	46,293	81	FIG / Figure/Map/ Drawing	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002728	11/17/2015	Portland Harbor Source Control - National Remedy Review Board - DEQ Presentation Notes.	134	6	CORR / Correspondence	R10: Liverman, Alex (Oregon Dept. of Environmental Quality)	R10: (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100005518	8/21/2014	Email Regarding FS Section 1 Comment_FS Section 1 Comment.	51	2	EML / Email	R10: Mcclincy, Matt (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric (Unknown), R10: Koch, Kristine, M. (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100005534	8/21/2014	Email Regarding Revisions to FS Section 1_Revisions to FS Section 1.	43	1	EML / Email	R10: Mcclincy, Matt (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric (Unknown), R10: Koch, Kristine, M. (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100005537	8/21/2014	Email Regarding FS Section 1 Comment_FS Section 1 Comment.	52	2	EML / Email	R10: Mcclincy, Matt (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric (Unknown), R10: Koch, Kristine, M. (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100005865	2/8/2016	Top 10 State Issues for Proposed Plan_Top 10 State Issues 2-8-16.	116	5	RPT / Report	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100007897	1/28/2016	DEQ/EPA Cost Meeting Notes - DEQ Cost Discussion Comment and Action Item Notes_2015-01-28.	215	11	CORR / Correspondence	R10: Macdonald, Marianne (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100013966	2/14/2012	Email Regarding DEQ/EPA Riverbank Meeting Summary.	17	1	EML / Email	R10: Mcclincy, Matt (Oregon Dept. of Environmental Quality)	R10: Muza, Richard (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100013967	2/14/2012	Summary of DEQ/EPA 01/25/2012 Riverbank Meeting.	68	2	CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100019892	3/25/2016	Portland Harbor Upland Source Control Summary Report.	28,943	121	RPT / Report	R10: (Oregon Dept. of Environmental Quality)	R10: (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100019939	1/19/2016	Top 10 State Issues for Proposed Plan Table. Memo Regarding Riverbank Source Control Measure Completion Report, EVRAZ Oregon	117	3	CORR / Correspondence	R10: Parrett, Kevin, G. (Oregon Dept. of Environmental Quality)	R10: (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100035054	8/27/2016	Steel, ECSI #141, May 27, 2016.	49	2	MEMO / Memorandum	R10: Demaria, Eva (EPA)	R10: Sutter, Jennifer, L. (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100035055	8/28/2016	Letter Regarding Evraz Oregon Steel Shoreline Source Control Completion Report.	234	3	LTR / Letter	R10: Sutter, Jennifer, L. (Oregon Dept. of Environmental Quality)	R10: Gilpin, Andrew, J. (EVRAZ Oregon Steel Mills, Inc.)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100035056	9/15/2016	Email Regarding EPA Comments, NWP GW Sampling Work Plan EPA Comments (Less Attachment).	83	2	EML / Email	R10: Demaria, Eva (EPA)	R10: Orr, Jim (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100035063	9/28/2016	Email Regarding EOS Shoreline Completion Report (Less Attachments).	41	1	EML / Email	R10: Sutter, Jennifer, L. (Oregon Dept. of Environmental Quality)	R10: Gilpin, Andrew (Evraz Inc.)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100035064	9/19/2016	Memo Regarding Draft Source Control Decision, Fred Devine Diving and Salvage Co., ECSI #2365, August 24, 2016.	69	4	MEMO / Memorandum	R10: Demaria, Eva (EPA)	R10: Liverman, Alex (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100035065	9/29/2016	Email Regarding EPA Comments, Rhone-Poulenc GW Monitoring Modifications (Less Attachment).	60	1	EML / Email	R10: Demaria, Eva (EPA)	R10: Lacey, David (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100035066	9/29/2016	Memo Regarding Revised Draft, Feasibility Study Work Plan, Operable Unit 1, Former Rhone-Poulenc Site, ECSI #155, March 11, 2016.	114	10	MEMO / Memorandum	R10: Demaria, Eva (EPA)	R10: Lacey, David (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100035067	9/15/2016	Memo Regarding Final Supplemental Groundwater Sampling and Data Evaluation, Response to Comments, Northwest Pipe Co., ECSI #138, August 23, 2016.	44	2	MEMO / Memorandum	R10: Demaria, Eva (EPA)	R10: Orr, Jim (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100035069	9/9/2016	Email Regarding EPA Comments on the Capture Boundary Assessment and Groundwater Extraction Evaluation-Univar USA Inc. (Less Attachment).	50	1	EML / Email	R10: Blankenship, Melissa (EPA)	R10: Spicuzza, Jack (Univar USA, Incorporated)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100035070	9/9/2016	Letter Regarding EPA Comments on Capture Boundary Assessment and Groundwater Extraction Evaluation, Univar USA Inc., AOC under RCRA, US EPA Docket No. 1087-10-18-3008(h) / Facility ID No. OR 00922 7398 (RCRA Order).	237	7	LTR / Letter	R10: Blankenship, Melissa (EPA)	R10: Spicuzza, Jack (Univar USA, Incorporated)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100035071	9/27/2016	Memo Regarding Final Source Control Decision, Owens Corning, Linnton Roofing and Asphalt Facility, Portland, Oregon, ECSI #1036, August 30, 2016.	39	1	MEMO / Memorandum	R10: Demaria, Eva (EPA)	R10: Mcclincy, Matt (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100035072	9/27/2016	Email Regarding Evraz Oregon Steel Shoreline Completion Comments (Less Attachment).	68	3	EML / Email	R10: Demaria, Eva (EPA)	R10: Sutter, Jennifer, L. (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100035073	9/27/2016	Memo Regarding Riverbank Source Control Measure Completion Report, EVRAZ Oregon Steel, ECSI #141, May 27, 2016.	49	2	MEMO / Memorandum	R10: Demaria, Eva (EPA)	R10: Sutter, Jennifer, L. (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement



100035074	Email Regarding Response to EPA Comments on Fred Devine Draft SCD (Less Attachments).	52	1 EML / Email	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	R10: Demaria, Eva (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100035077	Email Regarding EPA Letter, OC Linnton Final SCD (Less Attachment).	124	2 EML / Email	R10: Demaria, Eva (EPA) R10: Sturdevant, Debi (Oregon Dept. of Environmental Quality), R10: Wigal, Jennifer (Oregon Dept. of Environmental Quality), R10: Krepps, Sarah (Oregon Dept. of Environmental Quality)	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100035166	Memo Regarding Implementation Instructions for Polychlorinated Biphenyls (PCBs) Water Quality Criteria (CAS #: 1336363).	190	4 MEMO / Memorandum	R10: Liverman, Alex (Oregon Dept. of Environmental Quality), R10: Johnson, Keith (Oregon Dept. of Environmental Quality), R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	R10: (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100035172	Memo Regarding EPA September 19, 2016 Memo on Comments on Fred Devine Draft Source Control Decision.	102	4 MEMO / Memorandum	R10: Zhen, Davis (EPA), R10: Demaria, Eva (EPA)		ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100035177	Memo Regarding Guidance on Water Quality Based Effluent Limits Set Below Analytical Detection/Quantitation Limits.	179	3 MEMO / Memorandum	R10: Godsey, Cindi (EPA), R10: Ogle, Kimberly (EPA), R10: Lidgard, Michael (EPA)	R10: (National Pollution Discharge Elimination System (NPDES))	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100035183	Letter Regarding State of Oregon Comments on EPA's Proposed Plan for the Portland Harbor Superfund Site.	449	14 LTR / Letter	R10: Shepherd, Pete (Oregon Dept. of Environmental Quality), R10: Whitman, Richard, M. (Oregon State Governor's Office)	R10: Koch, Kristine, M. (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100035185	Letter Regarding Completion of Source Control Decision, The Marine Salvage Consortium, Inc., DBA Fred Devine Diving & Salvage, 6211 N Ensign Street, Portland, Oregon, ECSI#2365.	242	4 LTR / Letter	R10: Liverman, Alex (Oregon Dept. of Environmental Quality)	R10: Leitz, J. Mick (Fred Devine Diving and Salvage, Inc.)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100035187	Email Regarding EPA Clarification, Rhone-Poulenc GW Monitoring Modifications.	67	2 EML / Email	R10: Demaria, Eva (EPA)	R10: Lacey, David (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100035189	Email Regarding Analytical Method for C10-C12 Aliphatic.	85	3 EML / Email	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	R10: Demaria, Eva (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100035191	Email Regarding Analyses of Water Samples for C10-C12 Aliphatics.	124	3 EML / Email	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	R10: Demaria, Eva (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100035192	Email Regarding Follow-Up on C10-C12 Analysis.	91	6 EML / Email	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	R10: Demaria, Eva (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100035194	Email Regarding Kinder Morgan Linnton, TPH Fraction Program.	55	1 EML / Email	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	R10: Demaria, Eva (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100035195	Email Regarding Northwest Pipe Well Redevelopment.	90	2 EML / Email	R10: Demaria, Eva (EPA)	R10: Orr, Jim (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100035196	Email Regarding TPH Fraction Lab Method.	63	1 EML / Email	R10: Demaria, Eva (EPA)	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100035197	Email Regarding TPH C10-C12 Aliphatic Analysis.	75	2 EML / Email	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	R10: Demaria, Eva (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100035199	Memo Regarding Kinder Morgan Linnton Terminal, Pore Water Sampling and Analysis Plan, Fall 2016, ECSI #1036, October 11, 2016.	63	3 MEMO / Memorandum	R10: Demaria, Eva (EPA)	R10: Romero, Michael (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100035201	Email Regarding TPH Fractions (Less Attachment).	63	1 EML / Email	R10: Demaria, Eva (EPA)	R10: Shephard, Burt (EPA), R10: Poulsen, Michael (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100035203	Email Regarding TPH Diesel: Source Control PRG Clarification.	100	2 EML / Email	R10: Demaria, Eva (EPA)	R10: Poulsen, Michael (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100035206	Email Regarding TPH Fractions (Less Attachment).	18	1 EML / Email	R10: Poulsen, Michael (Oregon Dept. of Environmental Quality)	R10: Shephard, Burt (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100035209	Email Regarding C10-C12 Question.	128	8 EML / Email	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	R10: Demaria, Eva (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100035300	Letter Regarding Consultation On EPA Region 10 Proposed Plan: Portland Harbor NPL Site. Yakama Tribal Council Resolution #T-049-16 Whereas the Yakama Nation Is a Federally Recognized Nation Pursuant to the Treaty of 1855 (12 Stat. 951).	752	3 LTR / Letter	R10: Goudy, Jode, L. (Yakama Nation)	R10: Mccarthy, Gina, A. (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100035301	Meeting Notes: Portland Harbor Superfund Site Government to Government Consultation Between the Confederated Tribes of the Umatilla Indian Reservation and the EPA. Yakama Nation Map for Consultation: Priority Hazardous Waste Sites In the Columbia River Basin.	1,073	16 MTG / Meeting Document	R10: Grandinetti, Carmela (Cami), L. (EPA)		ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100035305	Notes for the Portland Harbor Superfund Site Consultation: The Confederated Tribes of Warm Springs Reservation and the EPA.	12,074	1 FIG / Figure/Map/ Drawing	R10: (Ridolfi Environmental)		ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100035306	Letter Stating That the Confederated Tribes and Bands of the Yakama Nation Is Requesting a Government-to-Government Consultation Regarding the Proposed Plan for the Portland Harbor NPL Currently Being Drafted by EPA Pursuant to National Contingency Plan.	1,093	15 MTG / Meeting Document	R10: Grandinetti, Carmela (Cami), L. (EPA)		ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100035308	Presentation Concerning Tribal Consultation: Portland Harbor Superfund Site.	338	2 LTR / Letter	R10: Goudy, Jode, L. (Yakama Nation)	R10: Mccarthy, Gina, A. (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100035309	Brochure Regarding Confederated Tribes and Bands of the Yakama Nation: Portland Harbor Superfund Site Proposed plan Meeting With EPA Administrator Gina McCarthy.	1,103	16 MTG / Meeting Document	R10: Grandinetti, Carmela (Cami), L. (EPA)		ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100035310	Government-to-Government Consultation With Yakama Nation: Portland Harbor Superfund Site Proposed Plan.	118	2 MTG / Meeting Document	R10: Longoria, Rose (Yakama Nation), R10: Shira, Laura (Yakama Indian Nation), R10: Lewis, Gerald (Yakama Nation)		ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100035317	Draft Agenda and List of Attendees for the Portland Harbor Superfund Site Government to Government Consultation: Confederated Tribes of Warm Springs Reservation and EPA at 805 SW Broadway, Suite 500, Portland, Oregon 97205.	6,274	5 MTG / Meeting Document	R10: Grandinetti, Carmela (Cami), L. (EPA)		ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100035371	Request for Government-to-Government Consultation Regarding the Proposed Plan for the Portland Harbor NPL Site, Pursuant to the National Contingency Plan (NCP).	208	1 MTG / Meeting Document	R10: (Unknown)		ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100035372	Response to Request for a Government-to-Government Consultation with the EPA Administrator Regarding the Proposed Plan for the Portland Harbor Superfund Site.	338	2 LTR / Letter	R10: Goudy, Jode, L. (Yakama Nation)	R10: Mccarthy, Gina, A. (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100035373	Public Presentation to the PCI Group Concerning Portland Harbor Superfund Site.	145	2 LTR / Letter	R10: McLerran, Dennis, J. (EPA)	R10: Goudy, Jode, L. (Yakama Nation)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100035375	PCI Meeting Notes (at the Benson Hotel, Portland) for the Feasibility Study/Proposed Plan for Portland Harbor Superfund Site. Tribal Consultation on the Proposed Plan for Remediation of the Portland Harbor Superfund Site.	3,463	24 OTH / Other	R10: Koch, Kristine, M. (EPA)		ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100035376	Draft Agenda and List of Attendees for the Portland Harbor Superfund Site Government to Government Consultation: Confederated Tribes of the Umatilla Indian Reservation and the EPA at 805 Nixyaawii Governance Center, 46411 Timine Way, Pendleton, OR.	3,695	1 MTG / Meeting Document	R10: (Unknown)		ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100035377		2,536	5 LTR / Letter	R10: Leno, Reynold, L. (Confederated Tribes of the Grand Ronde Community of Oregon)	R10: McLerran, Dennis, J. (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100035380		141	1 MTG / Meeting Document	R10: (Unknown)		ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement

100035384	7/26/2016	Draft Agenda and List of Attendees for the Portland Harbor Superfund Site Government to Government Consultation: the Nez Perce Tribe and the EPA at Lapwai, Idaho.	52	1 MTG / Meeting Document	R10: (Unknown)		ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100035388	7/19/2016	Draft Agenda and List of Attendees for the Portland Harbor Superfund Site Government to Government Consultation: Confederated Tribes of Grand Ronde and the EPA at 9615 Grand Ronde Road, Grand Ronde, Oregon 97347.	53	1 MTG / Meeting Document	R10: (Unknown)		ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100035397	6/30/2016	Sign-In Sheet for the EPA Presentation On June 30, 2016 Regarding the Feasibility Study/Proposed Plan for Portland Harbor Superfund Site.	172	4 OTH / Other	R10: (Unknown)		ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100035674	9/19/2016	REDACTED Email Regarding EPA Comments, Fred Devine, Draft Source Control Decision (Less Attachment).	101	1 EML / Email	R10: Demaria, Eva (EPA)	R10: Mcclincy, Matt (Oregon Dept. of Environmental Quality) (NOAA), R10: Neely, Robert (NOAA), R10: Ridolfi, Callie, A (Ridolfi Engineers and Associates, Inc.), R10: Cabral, Rita (Industrial Economics, Incorporated), R10: Huber, Audie, B. (Confederated Tribes of the Umatilla Indian Reservation), R10: Ward, Elmer (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Downey, Thomas, C. (Confederated Tribes of the Siletz Indians), R10: Partridge, Holly (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Karnosh, Michael (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Sheldrake, Sean, A. (EPA), R10: Fuentes, Rene, C. (EPA), R10: Robinson, Deborah, G. (EPA), R10: Koch, Kristine, M. (EPA), R10: Conley, Alanna (EPA), R10: Christopher, Anne (EPA), R10: Shephard, Burt (EPA), R10: Zhen, Davis (EPA), R10: Allen, Elizabeth (EPA), R10: Demaria, Eva (EPA), R10: Woods, James (EPA), R10: Morrison, Kay (EPA), R10: Liverman, Alex (Oregon Dept. of Environmental Quality), R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality), R10: Poulsen, Michael (Oregon Dept. of Environmental Quality), R10: Fricano, Gail (Industrial Economics, Inc.), R10: Delvecchio, Rachel (Industrial Economics, Inc.), R10: Bianco, Paul (Ridolfi, Inc.), R10: Humphreys, Brandy (Grand Ronde Tribe), R10: Longoria, Rose (Yakama Nation), R10: Williams, J., D (Law Offices of J. D. Williams),	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100035698	9/7/2016	REDACTED Email Regarding State of Oregon Comments on the Portland Harbor Proposed Plan (Less Attachment).	64	1 EML / Email	R10: Mcclincy, Matt (Oregon Dept. of Environmental Quality)		ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100035699	10/20/2016	REDACTED Email Regarding EPA Comments: Kinder Morgan Linnton Terminal Pore Water Sampling Plan (Less Attachment).	79	2 EML / Email	R10: Demaria, Eva (EPA)	R10: Romero, Michael (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100036041	12/7/2016	Current Abbreviated Schedule for Record of Decision (ROD) Outreach, Highlighting Meetings and Activities Involving the State. EPA/Dept. of Environmental Quality (DEQ)	349	2 MTG / Meeting Document	R10: (EPA)		ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100036042	12/14/2016	Monthly Management Teleconference.	138	1 MTG / Meeting Document	R10: (EPA)		ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100036043	12/7/2016	Letter Stating That the EPA Plans to Issue Its Record of Decision (ROD) Within the Next Few Weeks On the Portland Harbor Superfund Site. REDACTED Agenda and Attendees for the Portland Harbor Management Level Meeting -	862	3 LTR / Letter	R10: McLerran, Dennis, J. (EPA)	R10: Whitman, Richard (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100036189	9/1/2016	EPA and Yakama Nation.	100	1 MTG / Meeting Document	R10: (EPA), R10: (Oregon Dept. of Environmental Quality)	(NOAA), R10: Baker, Mary (NOAA), R10: Munn, Nancy (NOAA), R10: Neely, Robert (NOAA), R10: French, Richard, E (Radian Corporation), R10: Zylstra, Stephen, J (U. S. Fish and Wildlife Service), R10: Buck, Jeremy (U. S. Fish and Wildlife Service), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Cunninghame, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Hermanson, Brad (Parametrix, Inc.), R10: Malek, John (Parametrix, Inc.), R10: Peers, Jennifer (Stratus Consulting, Inc.), R10: Allen II, P. David (Stratus Consulting, Inc.), R10: Downey, Tom (Confederated Tribes of the Siletz Indians), R10: Bluelake, Lisa (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Karnosh, Michael (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Sheldrake, Sean, A (EPA), R10: Fuentes, Rene, C (EPA), R10: Cora, Lori, H (EPA), R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA), R10: Smith, Judy, R (EPA), R10: Shephard, Burt (EPA), R10: Humphrey, Chip (EPA), R10: Davoli, Dana (EPA), R10: Grepogrove, Gina (EPA), R10: Goulet, Joe (EPA), R10: Ader, Mark (EPA), R10: Fleming, Sheila (EPA), R10: Madden, Erin (Nez Perce Tribe), R10: Farrer, David, G (Oregon Dept. of Human Services), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality), R10: Tarnow, Karen, E (NOAA), R10: Winter, Jessica (NOAA), R10: Baker, Mary (NOAA), R10: Munn, Nancy (NOAA), R10: Neely, Robert (NOAA), R10: Fleming, Sheila (Ridolfi Engineers and Associates, Inc.), R10: Zylstra, Stephen, J (U. S. Fish and Wildlife Service), R10: Buck, Jeremy (U. S. Fish and Wildlife Service), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Cunninghame, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Hermanson, Brad (Parametrix, Inc.), R10: Malek, John (Parametrix, Inc.), R10: Peers, Jennifer (Stratus Consulting, Inc.), R10: Allen II, P. David (Stratus Consulting, Inc.), R10: Downey, Tom (Confederated Tribes of the Siletz Indians), R10: Bluelake, Lisa (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Karnosh, Michael (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Sheldrake, Sean, A (EPA), R10: Fuentes, Rene, C (EPA), R10: Cora, Lori, H (EPA), R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA), R10: Shephard, Burt (EPA), R10: Humphrey, Chip (EPA), R10: Davoli, Dana (EPA), R10: Grepogrove, Gina (EPA), R10: Goulet, Joe (EPA), R10: Ader, Mark (EPA), R10: Madden, Erin (Nez Perce Tribe), R10: Farrer, David, G (Oregon Dept. of Human Services), R10: Tarnow, Karen, E (Oregon Dept. of Environmental Quality), R10: Mcclincy, Matt (Oregon Dept. of Environmental Quality), R10: Cora, Lori, H (EPA), R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA), R10: Yamamoto, Deb (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100014563	1/6/2010	Email regarding the DEQ December 2009 Source Control Milestone Report.	32	1 EML / Email	R10: Winter, Jessica (NOAA), R10: Mcclincy, Matt (Oregon Dept. of Environmental Quality)	Anderson, Jim, M (Oregon Dept. of Environmental Quality), R10: Tarnow, Karen, E (NOAA), R10: Winter, Jessica (NOAA), R10: Baker, Mary (NOAA), R10: Munn, Nancy (NOAA), R10: Neely, Robert (NOAA), R10: Fleming, Sheila (Ridolfi Engineers and Associates, Inc.), R10: Zylstra, Stephen, J (U. S. Fish and Wildlife Service), R10: Buck, Jeremy (U. S. Fish and Wildlife Service), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Cunninghame, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Hermanson, Brad (Parametrix, Inc.), R10: Malek, John (Parametrix, Inc.), R10: Peers, Jennifer (Stratus Consulting, Inc.), R10: Allen II, P. David (Stratus Consulting, Inc.), R10: Downey, Tom (Confederated Tribes of the Siletz Indians), R10: Bluelake, Lisa (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Karnosh, Michael (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Sheldrake, Sean, A (EPA), R10: Fuentes, Rene, C (EPA), R10: Cora, Lori, H (EPA), R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA), R10: Shephard, Burt (EPA), R10: Humphrey, Chip (EPA), R10: Davoli, Dana (EPA), R10: Grepogrove, Gina (EPA), R10: Goulet, Joe (EPA), R10: Ader, Mark (EPA), R10: Madden, Erin (Nez Perce Tribe), R10: Farrer, David, G (Oregon Dept. of Human Services), R10: Tarnow, Karen, E (Oregon Dept. of Environmental Quality), R10: Mcclincy, Matt (Oregon Dept. of Environmental Quality), R10: Cora, Lori, H (EPA), R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA), R10: Yamamoto, Deb (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement/133-Superfund State Contract
100014565	1/6/2010	Email regarding the DEQ December 2009 Source Control Milestone Report.	58	1 EML / Email	R10: Anderson, James, M (Oregon Dept. of Environmental Quality)	R10: Anderson, James, M (Oregon Dept. of Environmental Quality), R10: Mcclincy, Matt (Oregon Dept. of Environmental Quality), R10: Cora, Lori, H (EPA), R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA), R10: Yamamoto, Deb (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement/133-Superfund State Contract
100014045	1/21/2010	Email regarding the Draft Agenda for 1/28 ARARs Meeting.	80	2 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement/133-Superfund State Contract

100013358	Email regarding unvalidated Arkema EE/CA sediment data.	26	1 EML / Email	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	R10: Sheldrake, Sean, A (EPA), R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement/133-Superfund State Contract
100015600	Email regarding the Source Control meeting 4/6/2010 April 8.	99	1 EML / Email	R10: Tarnow, Karen, E (Oregon Dept. of Environmental Quality)	R10: Sanders, Dawn (City of Portland, Oregon), R10: Scheffler, Linda (City of Portland, Oregon), R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality), R10: Johnson, Keith (Oregon Dept. of Environmental Quality), R10: McClincy, Matt (Oregon Dept. of Environmental Quality), R10: Livesay, Dave (GSI Groundwater Solutions, Inc.), R10: Applegate, Rick (City of Portland), R10: Struck, Rod (City of Portland, Bureau of Environmental Services)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement/133-Superfund State Contract
100016788	REDACTED Email regarding the FS meetings attendance.	55	1 EML / Email	R10: Gainer, Tom (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA), R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement/133-Superfund State Contract
100015560	Email regarding the Recontamination Evaluation discussion.	24	1 EML / Email	R10: Tarnow, Karen, E (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA), R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement/133-Superfund State Contract
100015558	Email regarding the Recon Evaluation Conference call - discussion topics.	28	2 EML / Email	R10: Tarnow, Karen, E (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA), R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement/133-Superfund State Contract
100015561	Email regarding the recontamination model for lagoon.	25	1 EML / Email	R10: Tarnow, Karen, E (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement/133-Superfund State Contract
100015559	Email regarding the Recon Evaluation discussion at TCT.	25	1 EML / Email	R10: Tarnow, Karen, E (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement/133-Superfund State Contract
100014320	Email regarding the edited PO Bar dredging draft Findings 401 cert language & conditions	88	3 EML / Email	R10: Liverman, Alex (Oregon Dept. of Environmental Quality)	R10: Humphrey, Chip (EPA), R10: Freedman, Jonathan (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement/133-Superfund State Contract
100013079	Email regarding the short EPA/LWG Manager meeting on 9/16 to discuss the directed comments.	54	1 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Woronets, Jennifer (Anchor QEA, LLC)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement/133-Superfund State Contract
100014412	Email regarding the proposed changes you have for the stormwater and groundwater pathways for the Gould site.	24	1 EML / Email	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	R10: Lacey, David (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement/133-Superfund State Contract
100014316	Email regarding the Draft LWG FS Source Control Status Table.	29	3 EML / Email	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement/133-Superfund State Contract
100016823	REDACTED Email regarding the Review of Terminal 4 Early Action Interim Draft EE/CA (May 6, 2005)	67	2 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Humphrey, Chip (EPA) Genevieve (NOAA), R10: Field, Jay (NOAA), R10: Winter, Jessica (NOAA), R10: Baker, Mary (NOAA), R10: Munn, Nancy (NOAA), R10: Neely, Robert (NOAA), R10: Anderson, Jim, M (State of Oregon), R10: Madden, Erin (Unknown), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Hermanson, Brad (Parametrix, Inc.), R10: Malek, John (Parametrix, Inc.), R10: Spence, Margaret (Parametrix, Inc.), R10: Ebbets, Allison (Stratus Consulting, Inc.), R10: Peers, Jennifer (Stratus Consulting, Inc.), R10: Allen li, P. David (Stratus Consulting, Inc.), R10: Bluelake, Lisa (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Karnosh, Michael (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Sheldrake, Sean, A (EPA), R10: Fuentes, Rene, C (EPA), R10: Cora, Lori, H (EPA), R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA), R10: Smith, Judy, R (EPA), R10: Shephard, Burt (EPA), R10: Humphrey, Chip (EPA), R10: Allen, Elizabeth (EPA), R10: Grepo-grove, Gina (EPA), R10: Goulet, Joe (EPA), R10: Ader, Mark (EPA), R10: Fleming, Sheila (EPA), R10: Farrer, David, G (Oregon Dept. of Human Services), R10: Tarnow, Karen, E (Oregon Dept. of Environmental Quality), R10: Poulsen, Mike (Oregon Dept. of Environmental Quality), R10: Gainer, Tom (Oregon Dept. of Environmental Quality), R10: Shorr, Benjamin (NOAA), R10:	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement/133-Superfund State Contract
100013165	Email regarding the Arkema Draft Stormwater Source Control Design	23	1 EML / Email	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement/133-Superfund State Contract
100014043	Email regarding the EPA's directed comments on the RI/BRA.	47	1 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement/133-Superfund State Contract
100013101	Email regarding the Arkema - Draft Removal Action Area Characterization Report.	88	4 EML / Email	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	R10: Sheldrake, Sean, A (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement/133-Superfund State Contract
100015517	Email regarding the Willbridge terminal dredging 401 conditions.	97	2 EML / Email	R10: Liverman, Alex (Oregon Dept. of Environmental Quality)	R10: Humphrey, Chip (EPA), R10: Freedman, Jonathan (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement/133-Superfund State Contract
100015514	Email regarding the Willbridge terminal dredging 401 conditions.	26	2 EML / Email	R10: Liverman, Alex (Oregon Dept. of Environmental Quality)	R10: Freedman, Jonathan (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement/133-Superfund State Contract
100014321	Email regarding page 4 in your 2/25/11 letter.	44	1 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement/133-Superfund State Contract
100013696	Email regarding the Portland Harbor Clean Fill Guidance.	24	1 EML / Email	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA) (NOAA), R10: Baker, Mary (NOAA), R10: Munn, Nancy (NOAA), R10: Neely, Robert (NOAA), R10: Wagoner, Colin (Ridolfi Engineers and Associates, Inc.), R10: Buck, Jeremy (U. S. Fish and Wildlife Service), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Cunninghame, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Hermanson, Brad (Parametrix, Inc.), R10: Malek, John (Parametrix, Inc.), R10: Spence, Margaret (Parametrix, Inc.), R10: Ebbets, Allison (Stratus Consulting, Inc.), R10: Beltman, Douglas (Stratus Consulting, Inc.), R10: Peers, Jennifer (Stratus Consulting, Inc.), R10: Allen li, P. David (Stratus Consulting, Inc.), R10: Downey, Tom (Confederated Tribes of the Siletz Indians), R10: Bluelake, Lisa (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Karnosh, Michael (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Sheldrake, Sean, A (EPA), R10: Fuentes, Rene, C (EPA), R10: Cora, Lori, H (EPA), R10: Koch, Kristine, M (EPA), R10: Smith, Judy, R (EPA), R10: Shephard, Burt (EPA), R10: Humphrey, Chip (EPA), R10: Davoli, Dana (EPA), R10: Allen, Elizabeth (EPA), R10: Grepo-grove, Gina (EPA), R10: Goulet, Joe (EPA), R10: Ader, Mark (EPA), R10: Fleming, Sheila (EPA), R10: Madden, Erin (Nez Perce Tribe), R10: Farrer, David, G (Oregon Dept. of Human Services), R10:	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement/133-Superfund State Contract
100014566	Email regarding the draft source control decision (SCD) for the Mar Com South site.	54	1 EML / Email	R10: Anderson, James, M (Oregon Dept. of Environmental Quality)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement/133-Superfund State Contract
100014322	Email regarding EPA's draft Clean Fill Requirements review.	106	4 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement/133-Superfund State Contract
100013950	Email regarding the DEQ's comments on the LWG's 5 FS Tools Tech Memos (TMs).	87	4 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement/133-Superfund State Contract
100015598	Email regarding the definition of SMA's.	71	1 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement/133-Superfund State Contract

100015557	4/25/2011	Email regarding the Zidell Cap Moving Forward.	24	2 EML / Email	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement/133-Superfund State Contract
100015513	4/26/2011	Email regarding the Willamette Cove data.	24	1 EML / Email	R10: Thiessen, Kenneth (Oregon Dept. of Environmental Quality)	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality), R10: Harman, Charles (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement/133-Superfund State Contract
100012969	5/31/2011	Email regarding the DEQ's 5/11 Milestone Report	48	1 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement/133-Superfund State Contract
100015602	6/1/2011	Email regarding the stormwater loading model runs.	48	1 EML / Email	R10: Tarnow, Karen, E (Oregon Dept. of Environmental Quality)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement/133-Superfund State Contract
100015518	6/25/2011	Email regarding the Workshop on Monday REDACTED Email regarding the time, location, and call-in number for tomorrow's FS Team meeting.	92	3 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Humphrey, Chip (EPA), R10: Applegate, Rick (City of Portland), R10: Duncan, Holly (Environmental Law Education Center)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement/133-Superfund State Contract
100016815	6/27/2011	Email regarding the FS Check In comments.	26	2 EML / Email	R10: Gainer, Tom (Oregon Dept. of Environmental Quality)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement/133-Superfund State Contract
100014418	6/29/2011	Email regarding the RI Groundwater Plume Figures.	77	2 EML / Email	R10: Gainer, Tom (Oregon Dept. of Environmental Quality)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement/133-Superfund State Contract
100015574	8/5/2011	Email regarding the permit to harvest fish for research purposes.	25	1 EML / Email	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	R10: Mckenna, James (Verdant Solutions, LLC)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement/133-Superfund State Contract
100014386	8/24/2011	Email regarding the Revised Draft RI Tables.	17	1 EML / Email	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement/133-Superfund State Contract
100015568	9/26/2011	Email regarding the BERA Eco Meeting.	75	1 EML / Email	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	R10: Koch, Kristine, M (EPA), R10: Shephard, Burt (EPA), R10: Humphrey, Chip (EPA), R10: Goulet, Joe (EPA), R10: Poulsen, Mike (Oregon Dept. of Environmental Quality), R10: Dexter, Bob (Ridolfi, Inc.)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement/133-Superfund State Contract
100013629	11/3/2011	Email regarding the BERA comments.	45	1 EML / Email	R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement/133-Superfund State Contract
100013627	11/29/2011	Email regarding the BERA call.	23	1 EML / Email	R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)	R10: Koch, Kristine, M (EPA), R10: Shephard, Burt (EPA), R10: Humphrey, Chip (EPA), R10: Goulet, Joe (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement/133-Superfund State Contract
100013622	12/1/2011	Email regarding the draft source control decision (SCD) for the Port of Portland Terminal 1 North (T1N) site	43	1 EML / Email	R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality)	(NOAA), R10: Winter, Jessica (NOAA), R10: Baker, Mary (NOAA), R10: Neely, Robert (NOAA), R10: Wagoner, Colin (Ridolfi Engineers and Associates, Inc.), R10: Buck, Jeremy (U. S. Fish and Wildlife Service), R10: Cunninghame, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Malek, John (Parametrix, Inc.), R10: Spence, Margaret (Parametrix, Inc.), R10: Ebbets, Allison (Stratus Consulting, Inc.), R10: Beltman, Douglas (Stratus Consulting, Inc.), R10: Peers, Jennifer (Stratus Consulting, Inc.), R10: Allen II, P. David (Stratus Consulting, Inc.), R10: Downey, Tom (Confederated Tribes of the Siletz Indians), R10: Karnosh, Michael (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Sheldrake, Sean, A (EPA), R10: Fuentes, Rene, C (EPA), R10: Cora, Lori, H (EPA), R10: Koch, Kristine, M (EPA), R10: Smith, Judy, R (EPA), R10: Shephard, Burt (EPA), R10: Humphrey, Chip (EPA), R10: Allen, Elizabeth (EPA), R10: Grepogrove, Gina (EPA), R10: Goulet, Joe (EPA), R10: Ader, Mark (EPA), R10: Muza, Richard (EPA), R10: Fleming, Sheila (EPA), R10: Madden, Erin (Nez Perce Tribe), R10: Farrer, David, G (Oregon Dept. of Human Services), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality), R10: McClincy, Matt (Oregon Dept. of Environmental Quality), R10: Poulsen, Mike (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement/133-Superfund State Contract
100014640	12/6/2011	Email regarding the Dave Stone White Paper.	45	1 EML / Email	R10: Anderson, James, M (Oregon Dept. of Environmental Quality)	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement/133-Superfund State Contract
100013708	12/7/2011	Email regarding the DEQ EPA Riverbank Meeting.	25	1 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Koehl, Krista (Port of Portland)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement/133-Superfund State Contract
100014035	1/23/2012	Email regarding the issues and implications for the broader DEQ/EPA harbor riverbank strategy.	30	3 EML / Email	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA), R10: Muza, Richard (EPA), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement/133-Superfund State Contract
100015594	2/21/2012	Email regarding the Portland Harbor Recontamination Evaluation strategy discussion.	26	2 EML / Email	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA), R10: Muza, Richard (EPA Region 10)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement/133-Superfund State Contract
100013690	2/22/2012	Email regarding the DEQ Comments on Arkema EE\CA Briefing.	71	2 EML / Email	R10: Liverman, Alex (Oregon Department of Environmental Quality)	R10: Sheldrake, Sean, A (EPA), R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality), R10: McClincy, Matt (Oregon Dept. of Environmental Quality), R10: Muza, Richard (EPA Region 10), R10: Peterson, Lance, E (CDM Smith)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement/133-Superfund State Contract
100013771	2/29/2012	Email regarding the Gunderson Riverbank discussion- updated with the correct duration.	49	3 EML / Email	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	R10: Sheldrake, Sean, A (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement/133-Superfund State Contract
100015527	3/19/2012	Email regarding the request for assistance for continued water quality monitoring in the Willamette River.	25	1 EML / Email	R10: Johnson, Keith (Oregon Dept. of Environmental Quality)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA), R10: Hafley, Dan (Oregon Dept. of Environmental Quality), R10: McClincy, Matt (Oregon Dept. of Environmental Quality), R10: Rapp, Shawn (Oregon Dept. of Environmental Quality), R10: Muza, Richard (EPA Region 10)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement/133-Superfund State Contract
100015563	3/27/2012	Email regarding the revised & final source control decision (SCD) on Terminal 1 North	80	4 EML / Email	R10: Liverman, Alex (Oregon Dept. of Environmental Quality)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA), R10: Muza, Richard (EPA Region 10)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement/133-Superfund State Contract
100014670	3/28/2012	Email regarding the attendance for the next Hot Spots meeting.	71	2 EML / Email	R10: Liverman, Alex (Oregon Dept. of Environmental Quality)	(NOAA), R10: Winter, Jessica (NOAA), R10: Baker, Mary (NOAA), R10: Neely, Robert (NOAA), R10: Wagoner, Colin (Ridolfi Engineers and Associates, Inc.), R10: Buck, Jeremy (U. S. Fish and Wildlife Service), R10: Cunninghame, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Malek, John (Parametrix, Inc.), R10: Ebbets, Allison (Stratus Consulting, Inc.), R10: Beltman, Douglas (Stratus Consulting, Inc.), R10: Peers, Jennifer (Stratus Consulting, Inc.), R10: Allen II, P. David (Stratus Consulting, Inc.), R10: Downey, Tom (Confederated Tribes of the Siletz Indians), R10: Karnosh, Michael (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Sheldrake, Sean, A (EPA), R10: Fuentes, Rene, C (EPA), R10: Cora, Lori, H (EPA), R10: Koch, Kristine, M (EPA), R10: Smith, Judy, R (EPA), R10: Shephard, Burt (EPA), R10: Humphrey, Chip (EPA), R10: Allen, Elizabeth (EPA), R10: Grepogrove, Gina (EPA), R10: Goulet, Joe (EPA), R10: Ader, Mark (EPA), R10: Muza, Richard (EPA), R10: Fleming, Sheila (EPA), R10: Madden, Erin (Nez Perce Tribe), R10: Farrer, David, G (Oregon Dept. of Human Services), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality), R10: McClincy, Matt (Oregon Dept. of Environmental Quality), R10: Poulsen, Mike (Oregon Dept. of Environmental Quality), R10: Gainer, Tom (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement/133-Superfund State Contract
100012955	4/16/2012	Email regarding the revised & final source control decision (SCD) on Terminal 1 North	83	2 EML / Email	R10: Anderson, James, M (Oregon Dept. of Environmental Quality)	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement/133-Superfund State Contract
100012955	4/16/2012	Hot Spots meeting.	99	1 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement/133-Superfund State Contract



100012964	Email regarding the concerns DEQ had with 5/21/2012 how the LWG will address Hot Spots in the FS.	97	2 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Burkholder, Kurt (U. S. Dept. of Justice), R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA), R10: McClincy, Matt (Oregon Dept. of Environmental Quality), R10: Woronets, Jennifer (Anchor QEA, LLC) (NOAA), R10: Winter, Jessica (NOAA), R10: Baker, Mary (NOAA), R10: Neely, Robert (NOAA), R10: Wagoner, Colin (Ridolfi Engineers and Associates, Inc.), R10: Buck, Jeremy (U. S. Fish and Wildlife Service), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Cunninghame, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Hermanson, Brad (Parametrix, Inc.), R10: Malek, John (Parametrix, Inc.), R10: Spence, Margaret (Parametrix, Inc.), R10: Ebbets, Allison (Stratus Consulting, Inc.), R10: Beltman, Douglas (Stratus Consulting, Inc.), R10: Peers, Jennifer (Stratus Consulting, Inc.), R10: Allen II, P. David (Stratus Consulting, Inc.), R10: Downey, Tom (Confederated Tribes of the Siletz Indians), R10: Karnosh, Michael (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Sheldrake, Sean, A (EPA), R10: Fuentes, Rene, C (EPA), R10: Cora, Lori, H (EPA), R10: Koch, Kristine, M (EPA), R10: Smith, Judy, R (EPA), R10: Shephard, Burt (EPA), R10: Humphrey, Chip (EPA), R10: Davoli, Dana (EPA), R10: Allen, Elizabeth (EPA), R10: Grepo-grove, Gina (EPA), R10: Goulet, Joe (EPA), R10: Ader, Mark (EPA), R10: Muza, Richard (EPA), R10: Fleming, Sheila (EPA), R10: Madden, Erin (Nez Perce Tribe), R10: Farrer, David, G (Oregon Dept. of Human Services), R10: Anderson, Jim, M (Oregon	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement/133-Superfund State Contract
100014615	Email regarding the draft source control decision (SCD) for the Portland Shipyard Operable Unit 3 (OU3).	36	1 EML / Email	R10: Anderson, James, M (Oregon Dept. of Environmental Quality)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA), R10: Muza, Richard (EPA), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality), R10: McClincy, Matt (Oregon Dept. of Environmental Quality), R10: Gustavson, Karl (EPA), R10: King, Tw (CDM)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement/133-Superfund State Contract
100014318	Email regarding the LWG dismissing containment measures for all dredging activities.	68	1 EML / Email	R10: Gainer, Tom (Oregon Dept. of Environmental Quality)	R10: Shephard, Burt (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement/133-Superfund State Contract
100018033	REDACTED Email regarding the wording on dioxin TEQ in fish tissue comment for Portland Harbor BERA comments.	40	2 EML / Email	R10: Peterson, Jenn, L (Oregon Dept. of Environmental Quality)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement/133-Superfund State Contract
100014047	Email regarding the EPA-partner comments on the draft FS.	47	1 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA), R10: Muza, Richard (EPA), R10: Penoyar, Susan, J (CDM)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement/133-Superfund State Contract
100013957	Email regarding the DEQ's preliminary comments on the LWG's 3/12 draft FS.	188	13 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Sheldrake, Sean, A (EPA), R10: Cora, Lori, H (EPA), R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA), R10: Muza, Richard (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement/133-Superfund State Contract
100018080	REDACTED Email regarding the DEQ LCT New 8/8/2012 Contact.	47	2 EML / Email	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	R10: Sheldrake, Sean, A (EPA), R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA), R10: Muza, Richard (EPA Region 10)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement/133-Superfund State Contract
100013329	9/5/2012 Email regarding Arkema Pictures	174	2 EML / Email	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	(NOAA), R10: Winter, Jessica (NOAA), R10: Neely, Robert (NOAA), R10: Buck, Jeremy (U. S. Fish and Wildlife Service), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Cunninghame, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Ebbets, Allison (Stratus Consulting, Inc.), R10: Beltman, Douglas (Stratus Consulting, Inc.), R10: Peers, Jennifer (Stratus Consulting, Inc.), R10: Downey, Tom (Confederated Tribes of the Siletz Indians), R10: Sheldrake, Sean, A (EPA), R10: Fuentes, Rene, C (EPA), R10: Cora, Lori, H (EPA), R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA), R10: Conley, Alanna (EPA), R10: Shephard, Burt (EPA), R10: Humphrey, Chip (EPA), R10: Allen, Elizabeth (EPA), R10: Goulet, Joe (EPA), R10: Ader, Mark (EPA), R10: Fleming, Sheila (EPA), R10: Madden, Erin (Nez Perce Tribe), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality), R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality), R10: Poulsen, Mike (Oregon Dept. of Environmental Quality), R10: Gainer, Tom (Oregon Dept. of Environmental Quality), R10: Muza, Richard (EPA Region 10), R10: Wagoner, Colin, H (Ridolfi, Inc.), R10: Humphreys, Brandy (Grand Ronde Tribe), R10: Penoyar, Susan, J (CDM), R10: Longoria, Rose (Yakama Nation), R10: Gustavson, Karl (EPA), R10: French, R, D (CDM), R10: Lavelle, James,	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement/133-Superfund State Contract
100013366	9/19/2012 Email regarding the Arkema Video.	54	1 EML / Email	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement/133-Superfund State Contract
100015526	Email regarding the request for time on January TCT agenda for City Outfalls SCD approach.	69	1 EML / Email	R10: Liverman, Alex (Oregon Dept. of Environmental Quality)	R10: Conley, Alanna (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement/133-Superfund State Contract
100013674	Email regarding an observation from the CAG 12/13/2012 presentation	25	1 EML / Email	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	R10: Svetkovich, Christine (Oregon Dept. of Environmental Quality), R10: Longoria, Rose (Yakama Nation), R10: Caldera, Stephanie (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement/133-Superfund State Contract
100018043	REDACTED Email regarding the Yakima Nation/EPA Government-to-Government Meeting.	104	1 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Svetkovich, Christine (Oregon Dept. of Environmental Quality), R10: Longoria, Rose (Yakama Nation), R10: Caldera, Stephanie (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement/133-Superfund State Contract
100015519	Email regarding the Yakima Nation/EPA 1/2/2013 Government-to-Government Meeting.	120	2 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Svetkovich, Christine (Oregon Dept. of Environmental Quality), R10: Longoria, Rose (Yakama Nation), R10: Caldera, Stephanie (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement/133-Superfund State Contract

100014570	Email regarding the draft source control decision (SCD) for the Pacific Iron Works site.	60	1 EML / Email	R10: Anderson, James, M (Oregon Dept. of Environmental Quality)	(NOAA), R10: Winter, Jessica (NOAA), R10: Baker, Mary (NOAA), R10: Munn, Nancy (NOAA), R10: Neely, Robert (NOAA), R10: Wagoner, Colin (Ridolfi Engineers and Associates, Inc.), R10: Buck, Jeremy (U. S. Fish and Wildlife Service), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Cunninghame, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Hermanson, Brad (Parametrix, Inc.), R10: Malek, John (Parametrix, Inc.), R10: Ebbets, Allison (Stratus Consulting, Inc.), R10: Beltman, Douglas (Stratus Consulting, Inc.), R10: Peers, Jennifer (Stratus Consulting, Inc.), R10: Allen li, P. David (Stratus Consulting, Inc.), R10: Downey, Tom (Confederated Tribes of the Siletz Indians), R10: Karnosh, Michael (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Sheldrake, Sean, A (EPA), R10: Fuentes, Rene, C (EPA), R10: Cora, Lori, H (EPA), R10: Koch, Kristine, M (EPA), R10: Shephard, Burt (EPA), R10: Humphrey, Chip (EPA), R10: Davoli, Dana (EPA), R10: Allen, Elizabeth (EPA), R10: Grepo-grove, Gina (EPA), R10: Goulet, Joe (EPA), R10: Ader, Mark (EPA), R10: Muza, Richard (EPA), R10: Fleming, Sheila (EPA), R10: Madden, Erin (Nez Perce Tribe), R10: Farrer, David, G (Oregon Dept. of Human Services), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality), R10: Tarnow, Karen, E (NOAA), R10: Winter, Jessica (NOAA), R10: Baker, Mary (NOAA), R10: Munn, Nancy (NOAA), R10: Neely, Robert (NOAA), R10: Wagoner, Colin (Ridolfi Engineers and Associates, Inc.), R10: Buck, Jeremy (U. S. Fish and Wildlife Service), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Cunninghame, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Hermanson, Brad (Parametrix, Inc.), R10: Malek, John (Parametrix, Inc.), R10: Spence, Margaret (Parametrix, Inc.), R10: Ebbets, Allison (Stratus Consulting, Inc.), R10: Beltman, Douglas (Stratus Consulting, Inc.), R10: Peers, Jennifer (Stratus Consulting, Inc.), R10: Allen li, P. David (Stratus Consulting, Inc.), R10: Downey, Tom (Confederated Tribes of the Siletz Indians), R10: Karnosh, Michael (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Sheldrake, Sean, A (EPA), R10: Fuentes, Rene, C (EPA), R10: Cora, Lori, H (EPA), R10: Koch, Kristine, M (EPA), R10: Smith, Judy, R (EPA), R10: Shephard, Burt (EPA), R10: Humphrey, Chip (EPA), R10: Davoli, Dana (EPA), R10: Allen, Elizabeth (EPA), R10: Grepo-grove, Gina (EPA), R10: Goulet, Joe (EPA), R10: Ader, Mark (EPA), R10: Muza, Richard (EPA), R10: Fleming, Sheila (EPA), R10: Madden, Erin (Nez Perce Tribe), R10: Farrer, David, G (Oregon Dept. of Human Services), R10: Anderson, Jim, M (Oregon	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement/133-Superfund State Contract
100014607	Email regarding the draft source control decision (SCD) for the PacifiCorp's Knott Street substation in the River Mile 11 East area.	72	1 EML / Email	R10: Anderson, James, M (Oregon Dept. of Environmental Quality)	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement/133-Superfund State Contract
100015556	Email regarding the Yakima Nation/EPA Government-to-Government Meeting.	121	3 EML / Email	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement/133-Superfund State Contract
100014411	Email regarding the questions/comments on the FS revision tasks.	27	1 EML / Email	R10: McClincy, Matt (Oregon Dept. of Environmental Quality)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement/133-Superfund State Contract
100017983	REDACTED Email regarding the City Basin Completion Summary example for TCT.	69	1 EML / Email	R10: Liverman, Alex (Oregon Department of Environmental Quality)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement/133-Superfund State Contract
100014726	1/11/2006 Map Regarding CRITFC Parking Options.	588	1 FIG / Figure/Map/ Drawing	R10: (CRITFC)		ELECTRONIC RECORD	056-SITE SUPPORT/0564-Tribal Involvement
4940681369	Email regarding reply to Draft Round 3 lamprey and sturgeon data needs doc.	28	2 EML / Email	R10: Feehan, Kathleen (Confederated Tribes of the Grand Ronde Community of Oregon)	R10: Neely, Robert (NOAA), R10: Goulet, Joe (EPA), R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality), R10: Gensemer, Robert, W (Parametrix, Inc.), R10: Thompson, Chris (Environment International, Ltd.), R10: Van De Wetering, Stan (Confederated Tribes of Siletz Indians), R10: Buck, Jeremy (U. S. Fish & Wildlife Service)	ELECTRONIC RECORD	056-SITE SUPPORT/0564-Tribal Involvement
100014750	2/23/2006 Restoration Purpose (Appendix 1).	95	7 OTH / Other	R10: (Natural Resource Damage Assessment Trustees)	R10: (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0564-Tribal Involvement
100014485	2/27/2006 Email Regarding Letter from NRD Trustees.	21	1 EML / Email	R10: Madden, Erin (Portland Harbor Trustee Council)	R10: Applegate, Rick (City of Portland)	ELECTRONIC RECORD	056-SITE SUPPORT/0564-Tribal Involvement
100014486	2/27/2006 Letter Regarding Trustee Information Needs Related to Integrated Remedial Investigation and Natural Resource Damage Assessment Efforts.	18	2 LTR / Letter	R10: Madden, Erin (Portland Harbor Trustee Council)	R10: Applegate, Rick (City of Portland)	ELECTRONIC RECORD	056-SITE SUPPORT/0564-Tribal Involvement
100014487	2/27/2006 Report Regarding Sturgeon and Lamprey Information Issues.	95	7 RPT / Report	R10: (Portland Harbor Trustee Council)		ELECTRONIC RECORD	056-SITE SUPPORT/0564-Tribal Involvement
100014742	2/27/2006 Email regarding Letter from NRD Trustees.	21	1 EML / Email	R10: Madden, Erin (Nez Perce Tribe)	R10: Applegate, Rick (City of Portland)	ELECTRONIC RECORD	056-SITE SUPPORT/0564-Tribal Involvement
100014752	2/27/2006 Letter regarding Trustee Information Needs Related to Integrated Remedial Investigation and Natural Resource Damage Assessment Efforts.	18	2 LTR / Letter	R10: Madden, Erin (Natural Resource Damage Assessment Trustees)	R10: Applegate, Rick (City of Portland)	ELECTRONIC RECORD	056-SITE SUPPORT/0564-Tribal Involvement
100015178	2/27/2006 Email Regarding Letter from NRD Trustees.	21	1 EML / Email	R10: Madden, Erin (Nez Perce Tribe)	R10: Applegate, Rick (City of Portland)	ELECTRONIC RECORD	056-SITE SUPPORT/0564-Tribal Involvement
100015179	2/27/2006 Trustee Information Needs Related to Integrated Remedial Investigation and Natural Resource Damage Assessment Efforts.	18	2 LTR / Letter	R10: Madden, Erin (Nez Perce Tribe)	R10: Applegate, Rick (City of Portland)	ELECTRONIC RECORD	056-SITE SUPPORT/0564-Tribal Involvement
100015180	2/27/2006 Sturgeon and Lamprey Information Issues Lower Willamette River NPL Site Response & Restoration.	95	7 LTR / Letter	R10: Gouguet, Ron (NOAA)		ELECTRONIC RECORD	056-SITE SUPPORT/0564-Tribal Involvement
4940680602	Email regarding Mark your calendars for April 4/11/2006 26th lamprey and sturgeon meeting.	31	1 EML / Email	R10: Madden, Erin (Nez Perce Tribe)	R10: Buerger, Ted (U. S. Fish and Wildlife Service), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Cunninghame, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Oster, Valerie (Anchor Environmental, LLC), R10: Howard, Patti (Columbia River Inter-Tribal Fish Commission), R10: Downey, Tom (Confederated Tribes of the Siletz Indians), R10: Bluelake, Lisa (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Humphrey, Chip (EPA), R10: O'mealy, Mikell (Oregon Dept. of Environmental Quality), R10: Lee, Valerie (Environment International, Ltd.), R10: Longoria, Rose (Yakama Nation), R10: Gouguet, Ron (NOAA), R10: Givens, Raymond, C (Givens Law), R10: Thompson, Chris (Environment International, Ltd.), R10: Applegate, Rick (City of Portland), R10: Barquin, Billy (Haglund Kelley, LLP), R10: Kepler, Rick, J (State of Oregon), R10: Buck, Jeremy (U. S. Fish & Wildlife Service)	ELECTRONIC RECORD	056-SITE SUPPORT/0564-Tribal Involvement

4940681363	Email regarding meeting with Stan van and 5/3/2006 Tom Downey.	22	1 EML / Email	R10: Van De Wetering, Stan (Confederated Tribes of Siletz Indians)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0564-Tribal Involvement
4940680609	Email regarding reply to Project Managers Meeting. 5/22/2006	22	1 EML / Email		R10: Cunninghame, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Humphrey, Chip (EPA), R10: Wyatt, Robert, J (NW Natural), R10: Applegate, Rick (City of Portland)	ELECTRONIC RECORD	056-SITE SUPPORT/0564-Tribal Involvement
100014702	Letter Regarding Grand Ronde Concerns over the future scope of work at the McCormick and Baxter Superfund Site. 6/20/2006	34	2 LTR / Letter	R10: Baker, Jeff (Confederated Tribes of the Grand Ronde Community of Oregon)	R10: Harney, Nancy (EPA), R10: Parrett, Kevin (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0564-Tribal Involvement
4940680614	6/27/2006 Email regarding Tomorrow's meeting.	29	1 EML / Email	R10: Madden, Erin (Nez Perce Tribe)	R10: Pease, Katherine (NOAA), R10: Buerger, Ted (U. S. Fish and Wildlife Service), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Cunninghame, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Oster, Valerie (Anchor Environmental, LLC), R10: Howard, Patti (Columbia River Inter-Tribal Fish Commission), R10: Downey, Tom (Confederated Tribes of the Siletz Indians), R10: Baker, Jeff (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Blischke, Eric, L (EPA), R10: O'mealy, Mikell (Oregon Dept. of Environmental Quality), R10: Borok, Aron (Environment International, Ltd.), R10: Longoria, Rose (Yakama Nation), R10: Givens, Raymond, C (Givens Law), R10: Thompson, Chris (Environment International, Ltd.), R10: Barquin, Billy (Haglund Kelley, LLP), R10: Kepler, Rick, J (State of Oregon), R10: Buck, Jeremy (U. S. Fish & Wildlife Service)	ELECTRONIC RECORD	056-SITE SUPPORT/0564-Tribal Involvement
100016986	REDACTED Email Regarding McCormick and Baxter Comment Letter. 7/7/2006	22	1 EML / Email	R10: Baker, Jeff (Confederated Tribes of the Grand Ronde Community of Oregon)	R10: Harney, Nancy (EPA), R10: Parrett, Kevin (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0564-Tribal Involvement
4940680599	Email regarding Lamprey and Sturgeon direction for RI/FS. 7/10/2006	22	1 EML / Email	R10: Madden, Erin (Nez Perce Tribe)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0564-Tribal Involvement
4940681377	Email regarding reply to Project Update - August 17, 2006. 8/18/2006	36	2 EML / Email	R10: Baker, Jeff (Grand Ronde Tribe)	R10: Gouget, Ron (NOAA), R10: Madden, Erin (Unknown), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Cunninghame, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Bridgen, Pamela, J (Environment International, Ltd.), R10: Blischke, Eric, L (EPA), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality), R10: Bernardini, L (Parametrix), R10: Longoria, Rose (Yakama Nation), R10: How, P (CRITFC), R10: Battuello, Peter (Parametrix, Inc.), R10: D, Tom (CTSI), R10: Barquin, Billy (Haglund Kelley, LLP), R10: Buck, Jeremy (U. S. Fish & Wildlife Service)	ELECTRONIC RECORD	056-SITE SUPPORT/0564-Tribal Involvement
4940681129	Email regarding reply to Lamprey and Sturgeon DQOs. 8/24/2006	26	2 EML / Email	R10: Madden, Erin (Nez Perce Tribe)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0564-Tribal Involvement
4940681125	Email regarding Lamprey Ammocoete Sampling Upstream. 9/29/2006	23	1 EML / Email	R10: Madden, Erin (Nez Perce Tribe)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0564-Tribal Involvement
4940681371	Email regarding reply to IMPORTANT - Scientific Management Decision Point: Ammocoete sampling adaptation?. 10/3/2006	36	1 EML / Email	R10: Baker, Jeff (Grand Ronde Tribe)	R10: Buerger, Ted (U. S. Fish and Wildlife Service), R10: Madden, Erin (Unknown), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Cunninghame, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Howard, Patti (Columbia River Inter-Tribal Fish Commission), R10: Downey, Tom (Confederated Tribes of the Siletz Indians), R10: Bluelake, Lisa (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Goulet, Joe (EPA), R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality), R10: Lee, Valerie (Environment International, Ltd.), R10: Longoria, Rose (Yakama Nation), R10: Gouget, Ron (NOAA), R10: Givens, Raymond, C (Givens Law), R10: Thompson, Chris (Environment International, Ltd.), R10: Barquin, Billy (Haglund Kelley, LLP), R10: Kepler, Rick, J (State of Oregon), R10: Van De Wetering, Stan (Confederated Tribes of Siletz Indians), R10: Buck, Jeremy (U. S. Fish & Wildlife Service), R10: Mesa, Matthew, G (USGS)	ELECTRONIC RECORD	056-SITE SUPPORT/0564-Tribal Involvement
4940681380	Email regarding reply to Status of Lamprey Sampling. 10/3/2006	35	1 EML / Email	R10: Bluelake, Lisa (Confederated Tribes of the Grand Ronde Community of Oregon)	R10: Neely, Robert (NOAA), R10: Madden, Erin (Unknown), R10: Smith, Carrie, A (Parametrix, Inc.), R10: Blischke, Eric, L (EPA), R10: Toepel, Kathryn (Oregon Dept. of Human Services), R10: Gainer, Tom (Oregon Dept. of Environmental Quality), R10: Borok, Aron (Environment International, Ltd.), R10: Baker, Jeff (Grand Ronde Tribe), R10: Longoria, Rose (Yakama Nation), R10: How, P (CRITFC), R10: Wittman, Parker (Environment International, Ltd.), R10: D, Tom (CTSI), R10: Buck, Jeremy (U. S. Fish & Wildlife Service)	ELECTRONIC RECORD	056-SITE SUPPORT/0564-Tribal Involvement
100017349	REDACTED Email regarding reply to TCT Meeting - October 11, 2006. 10/10/2006	24	2 EML / Email	R10: Madden, Erin (Nez Perce Tribe)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0564-Tribal Involvement
4940681127	Email regarding new lamprey shocking technique. 10/10/2006	25	1 EML / Email	R10: Madden, Erin (Nez Perce Tribe)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0564-Tribal Involvement
4940681362	Email regarding Issues with termination of Oct ammocoete sampling. 10/10/2006	32	3 EML / Email	R10: Van De Wetering, Stan (Confederated Tribes of Siletz Indians)	R10: Neely, Robert (NOAA), R10: Downey, Tom (Confederated Tribes of the Siletz Indians), R10: Blischke, Eric, L (EPA), R10: Baker, Jeff (Grand Ronde Tribe), R10: Thompson, Chris (Environment International, Ltd.), R10: Barquin, Billy (Haglund Kelley, LLP)	ELECTRONIC RECORD	056-SITE SUPPORT/0564-Tribal Involvement
100017993	REDACTED Email regarding reply to Issues with termination of Oct ammocoete sampling. 10/12/2006	33	5 EML / Email	R10: Van De Wetering, Stan (Confederated Tribes of Siletz Indians)	R10: Gouget, Ron (NOAA), R10: Kentta, Robert (Confederated Tribes of the Siletz Indians), R10: Humphrey, Chip (EPA), R10: Baker, Jeff (Grand Ronde Tribe), R10: Thompson, Chris (Environment International, Ltd.), R10: Barquin, Billy (Haglund Kelley, LLP)	ELECTRONIC RECORD	056-SITE SUPPORT/0564-Tribal Involvement
4940680597	Email regarding Siletz ammocoete tissue sampling. 10/23/2006	22	1 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0564-Tribal Involvement
4940681124	Email regarding Siletz ammocoete tissue sampling. 10/23/2006	22	1 EML / Email	R10: Oster, Valerie (Anchor Environmental, LLC)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0564-Tribal Involvement
100014704	Letter Regarding Grand Ronde's Response to EPA postponing the protectiveness decision. 11/3/2006	31	1 LTR / Letter	R10: Baker, Jeff (Confederated Tribes of the Grand Ronde Community of Oregon)	R10: Parrett, Kevin (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0564-Tribal Involvement
100016987	REDACTED Email Regarding McCormick and Baxter. 11/3/2006	25	1 EML / Email	R10: Baker, Jeff (Confederated Tribes of the Grand Ronde Community of Oregon)	R10: Parrett, Kevin (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0564-Tribal Involvement
4940681370	Email regarding reply to Agenda Development for Milestone Meeting. 11/6/2006	39	3 EML / Email	R10: Longoria, Rose (Yakama Nation)	R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0564-Tribal Involvement

4940681372	11/8/2006	Email regarding reply to Information for the Lamprey Tox Testing Agenda Item.	49	12 EML / Email	R10: Baker, Jeff (Grand Ronde Tribe)	R10: Neely, Robert (NOAA), R10: Blischke, Eric, L (EPA), R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality), R10: Gensemer, Robert, W (Parametrix, Inc.), R10: Thompson, Chris (Environment International, Ltd.), R10: Buck, Jeremy (U. S. Fish & Wildlife Service)	ELECTRONIC RECORD	056-SITE SUPPORT/0564-Tribal Involvement
4940680616	11/10/2006	Email regarding reply to Information for the Lamprey Tox Testing Agenda Item.	45	12 EML / Email	R10: Madden, Erin (Nez Perce Tribe)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0564-Tribal Involvement
4940681128	11/10/2006	Email regarding reply to Information for the Lamprey Tox Testing Agenda Item.	45	12 EML / Email	R10: Madden, Erin (Nez Perce Tribe)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0564-Tribal Involvement
4940681373	11/10/2006	Email regarding reply to Information for the Lamprey Tox Testing Agenda Item.	82	11 EML / Email	R10: Baker, Jeff (Grand Ronde Tribe)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0564-Tribal Involvement
4940680600	12/12/2006	Email regarding Lamprey sampling summary.	26	1 EML / Email	R10: Madden, Erin (Nez Perce Tribe)	R10: Blischke, Eric, L (EPA), R10: Anderson, James, M (Oregon Dept. of Environmental Quality), R10: Wyatt, Robert, J (NW Natural), R10: Applegate, Rick (City of Portland)	ELECTRONIC RECORD	056-SITE SUPPORT/0564-Tribal Involvement
4940681126	12/12/2006	Email regarding Lamprey sampling summary	26	1 EML / Email	R10: Madden, Erin (Nez Perce Tribe)	R10: Mckenna, Jim (Port of Portland), R10: Blischke, Eric, L (EPA), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality), R10: Wyatt, Robert, J (NW Natural), R10: Applegate, Rick (City of Portland)	ELECTRONIC RECORD	056-SITE SUPPORT/0564-Tribal Involvement
4940681364	1/3/2007	Email regarding Meeting with Yakama, NOAA and Ridolfi.	28	2 EML / Email	R10: Longoria, Rose (Yakama Nation)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0564-Tribal Involvement
100018179	2/23/2007	REDACTED Email regarding reply to Traditional Washat Service - Celery Feast.	27	3 EML / Email		R10: Fleming, Sheila (Ridolfi Engineers and Associates, Inc.), R10: Koehl, Krista (Port of Portland), R10: Powers, Claudia, K (Ater Wynne, LLP.), R10: Blischke, Eric, L (EPA), R10: Loutzenhiser, Doug (Legacy Site Services, LLC), R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality), R10: O'mealy, Mikell (Oregon Dept. of Environmental Quality), R10: Longoria, Rose (Yakama Nation), R10: Feige, Hans, P (Feige & Associates, Inc.), R10: Wyatt, Robert, J (NW Natural), R10: Gouquet, Ron (NOAA), R10: Applegate, Rick (City of Portland), R10: Buck, Jeremy (U. S. Fish & Wildlife Service)	ELECTRONIC RECORD	056-SITE SUPPORT/0564-Tribal Involvement
100018181	2/23/2007	REDACTED Email regarding reply to Traditional Washat Service - Celery Feast.	26	2 EML / Email	R10: Wyatt, Robert, J (NW Natural)	R10: Pease, Katherine (NOAA), R10: Koehl, Krista (Port of Portland), R10: Powers, Claudia, K (Ater Wynne, LLP.), R10: Blischke, Eric, L (EPA), R10: Loutzenhiser, Doug (Legacy Site Services, LLC), R10: O'mealy, Mikell (Oregon Dept. of Environmental Quality), R10: Longoria, Rose (Yakama Nation), R10: Feige, Hans, P (Feige & Associates, Inc.), R10: Gouquet, Ron (NOAA), R10: Applegate, Rick (City of Portland), R10: Buck, Jeremy (U. S. Fish & Wildlife Service)	ELECTRONIC RECORD	056-SITE SUPPORT/0564-Tribal Involvement
4940681359	3/15/2007	Email regarding Preliminary R2 data gaps.	45	2 EML / Email	R10: Longoria, Rose (Yakama Nation)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0564-Tribal Involvement
100014705	4/9/2007	Email Regarding data gaps memo.	23	1 EML / Email	R10: Longoria, Rose (Yakama Nation)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA), R10: Davoli, Dana (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0564-Tribal Involvement
100014706	4/9/2007	Letter Regarding Yakama Nation's Submittal of Comments for Portland Harbor RI/FS Comprehensive Round 2 Site Characterization Summary & Data Gaps Analysis Report (R2 Data Report).	136	3 LTR / Letter	R10: Longoria, Rose (Yakama Nation)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0564-Tribal Involvement
100014707	4/17/2007	Email Regarding Additional YN comments....	22	1 EML / Email	R10: Longoria, Rose (Yakama Nation)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA), R10: Davoli, Dana (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0564-Tribal Involvement
100014708	4/17/2007	Letter Regarding Yakama Nation's Submittal of Comments for the Portland Harbor RI/FS Comprehensive Round 2 Site Characterization Summary & Data Gaps Analysis Report (R2 Data Report).	241	5 LTR / Letter	R10: Longoria, Rose (Yakama Nation)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0564-Tribal Involvement
100014709	4/20/2007	Email Regarding Yakama Nation's Submittal of Comments for Phase 1 Tox Testing.	24	1 EML / Email	R10: Longoria, Rose (Yakama Nation)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0564-Tribal Involvement
100014710	4/20/2007	Letter Regarding Yakama Nation's Submittal of Comments for the RI/FS, Round 3 Lamprey, Phase 1 Toxicity Testing Report.	176	4 LTR / Letter	R10: Longoria, Rose (Yakama Nation)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0564-Tribal Involvement
4940681376	5/2/2007	Email regarding reply to Next Milestones Meeting - May 16.	42	2 EML / Email	R10: Bluelake, Lisa (Confederated Tribes of the Grand Ronde Community of Oregon)	R10: Pease, Katherine (NOAA), R10: Buerger, Ted (U. S. Fish and Wildlife Service), R10: Madden, Erin (Unknown), R10: Koshuta, Cheryl, R (Port of Portland), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Cunningham, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Arthur, Jennifer (Environment International, Ltd.), R10: Kelly, Stephen (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Young, Cyril (Oregon Dept. of State Lands), R10: Smith, Judy, R (EPA), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality), R10: Lee, Valerie (Environment International, Ltd.), R10: Baker, Jeff (Grand Ronde Tribe), R10: Pedersen, Dick (Oregon Department of Environmental Quality), R10: How, P (CRITFC), R10: Givens, Raymond, C (Givens Law), R10: Applegate, Rick (City of Portland), R10: Ward, Paul (Yakama Nation), R10: D, Tom (CTSI), R10: Barquin, Billy (Haglund Kelley, LLP), R10: Kepler, Rick, J (State of Oregon), R10: Burford, Christopher (Confederated Tribes of Umatilla Indian Reservation), R10: Buck, Jeremy (U. S. Fish & Wildlife Service)	ELECTRONIC RECORD	056-SITE SUPPORT/0564-Tribal Involvement



						R10: Gouget, Ron (NOAA), R10: Burkholder, Kurt (Oregon Dept. of Justice), R10: Buerger, Ted (U. S. Fish and Wildlife Service), R10: Madden, Erin (Unknown), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Cunninghame, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Unknown, Unknown (CRITFC), R10: Karnosh, Michael (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Yamamoto, Deb (EPA), R10: Johnson, Keith (Oregon Dept. of Environmental Quality), R10: Lee, Valerie (Environment International, Ltd.), R10: Baker, Jeff (Grand Ronde Tribe), R10: Pedersen, Dick (Oregon Department of Environmental Quality), R10: Givens, Raymond, C (Givens Law), R10: Thompson, Chris (Environment International, Ltd.), R10: Ward, Paul (Yakama Nation), R10: D, Tom (CTS), R10: Barquin, Billy (Haglund Kelley, LLP), R10: Kepler, Rick, J (State of Oregon), R10: Burford, Christopher (Confederated Tribes of Umatilla Indian Reservation), R10: Buck, Jeremy (U. S. Fish & Wildlife Service)		
4940681375	5/8/2007	Email regarding reply to MOU Partners - Is there a need for a conference call before the Milestone Meeting?	38	2 EML / Email	R10: BlueLake, Lisa (Confederated Tribes of the Grand Ronde Community of Oregon)		ELECTRONIC RECORD	056-SITE SUPPORT/0564-Tribal Involvement
100014712	9/21/2007	Memorandum Regarding Brief Review of "Memorandum: Summary of Lamprey Ammocoete Tissue Analysis", Windward Environmental, September 12, 2007.	285	2 MEMO / Memorandum	R10: Dexter, Bob (Ridolfi, Inc.)	R10: Longoria, Rose (Yakama Nation)	ELECTRONIC RECORD	056-SITE SUPPORT/0564-Tribal Involvement
100014711	10/9/2007	Email Regarding Comments on LWG's Lamprey Toxicity Interpretive Memo.	22	1 EML / Email	R10: Longoria, Rose (Yakama Nation)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0564-Tribal Involvement
100014714	11/15/2007	Figure Regarding Lamprey Sediment Station Location Alternatives.	770	6 FIG / Figure/Map/ Drawing	R10: Longoria, Rose (Yakama Nation)		ELECTRONIC RECORD	056-SITE SUPPORT/0564-Tribal Involvement
100014715	11/15/2007	List Regarding Lamprey Pilot Sediment Bioassay Test - Sediment Collection Locations Contaminant and Toxicity Summary.	18	1 LST / List/Index	R10: Longoria, Rose (Yakama Nation)		ELECTRONIC RECORD	056-SITE SUPPORT/0564-Tribal Involvement
100014717	11/15/2007	Figure Regarding Lamprey Sediment Station Location Alternatives.	770	6 FIG / Figure/Map/ Drawing	R10: Longoria, Rose (Yakama Nation)		ELECTRONIC RECORD	056-SITE SUPPORT/0564-Tribal Involvement
100014718	11/15/2007	List Regarding Lamprey Pilot Sediment Bioassay Test - Sediment Collection Locations Contaminant and Toxicity Summary.	18	1 LST / List/Index	R10: Longoria, Rose (Yakama Nation)		ELECTRONIC RECORD	056-SITE SUPPORT/0564-Tribal Involvement
100016989	11/16/2007	REDACTED Email Regarding lamprey sediment station location alternatives.	28	3 EML / Email	R10: Longoria, Rose (Yakama Nation)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0564-Tribal Involvement
100016991	11/16/2007	REDACTED Email Regarding lamprey sediment station location alternatives.	771	2 EML / Email	R10: Longoria, Rose (Yakama Nation)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0564-Tribal Involvement
100017985	11/16/2007	REDACTED Email regarding reply to lamprey sediment station location alternatives.	34	5 EML / Email	R10: Longoria, Rose (Yakama Nation)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0564-Tribal Involvement
100014720	12/20/2007	Letter Regarding Lamprey Ammocoete Toxicology Study.	214	2 LTR / Letter	R10: Mckenna, Jim (Lower Willamette Group), R10: Deetz Silva, Debbie (Evraz Oregon Steel Portland)	R10: Barquin, Billy (Confederated Tribes of the Siletz Indians), R10: (Portland Harbor Natural Resource Trustees)	ELECTRONIC RECORD	056-SITE SUPPORT/0564-Tribal Involvement
4940680610	12/27/2007	Email regarding reply to Siletz Tribal Council Portland Harbor Day.	31	2 EML / Email		R10: Baker, Mary (NOAA), R10: Buerger, Ted (U. S. Fish and Wildlife Service), R10: Gardner, Sara (City of Portland, Oregon, Environmental Services), R10: Sheldrake, Sean, A (EPA), R10: O'mealy, Mikell (Oregon Dept. of Environmental Quality), R10: Applegate, Rick (City of Portland), R10: Barquin, Billy (Haglund Kelley, LLP), R10: Buck, Jeremy (U. S. Fish & Wildlife Service)	ELECTRONIC RECORD	056-SITE SUPPORT/0564-Tribal Involvement
100016992	1/2/2008	REDACTED Email Regarding Lamprey Ammocoete Toxicology Study.	48	2 EML / Email	R10: Longoria, Rose (Yakama Nation)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0564-Tribal Involvement
4940681358	1/2/2008	Email regarding HHRA comments - 1/2/08 followup.	85	2 EML / Email	R10: Longoria, Rose (Yakama Nation)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0564-Tribal Involvement
100014724	1/3/2008	Letter Regarding notice of intent to perform an Injury Assessment for the Portland Harbor Superfund site.	246	15 LTR / Letter	R10: Barquin, Billy (Confederated Tribes of the Siletz Indians)		ELECTRONIC RECORD	056-SITE SUPPORT/0564-Tribal Involvement
100014721	1/7/2008	Email Regarding EPA SL BERA comments 080107.	24	1 EML / Email	R10: Longoria, Rose (Yakama Nation)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0564-Tribal Involvement
100014722	1/7/2008	Memorandum Regarding Comments on the Ecological Risk Assessment Approach.	273	1 MEMO / Memorandum	R10: Fleming, Sheila (Ridolfi Engineers and Associates, Inc.), R10: Dexter, Bob (Ridolfi, Inc.)	R10: Longoria, Rose (Yakama Nation)	ELECTRONIC RECORD	056-SITE SUPPORT/0564-Tribal Involvement
100014723	1/25/2008	Email Regarding IAP Scoping Meeting.	24	2 EML / Email	R10: Longoria, Rose (Yakama Nation)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0564-Tribal Involvement
100017023	3/7/2008	REDACTED Email Regarding Invite to the March 11th Meeting.	28	2 EML / Email	R10: Longoria, Rose (Yakama Nation)	R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0564-Tribal Involvement
100017994	3/26/2008	REDACTED Email regarding reply to Round 3B Status Letter.	24	2 EML / Email	R10: Karnosh, Michael (Confederated Tribes of the Grand Ronde Community of Oregon)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0564-Tribal Involvement
4940681366	3/29/2008	Email regarding reply to April 3.	28	2 EML / Email	R10: Longoria, Rose (Yakama Nation)	R10: Blischke, Eric, L (EPA), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0564-Tribal Involvement
100018004	3/31/2008	REDACTED Email regarding reply to Round 3B Status Letter.	31	4 EML / Email	R10: Karnosh, Michael (Confederated Tribes of the Grand Ronde Community of Oregon)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0564-Tribal Involvement
4940681130	3/31/2008	Email regarding reply to Portland Harbor.	36	3 EML / Email	R10: Madden, Erin (Nez Perce Tribe)	R10: Cora, Lori, H (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0564-Tribal Involvement
100014730	4/4/2008	3 TREATY TRIBES-ACTION AGENCY AGREEMENT: MEMORANDUM OF AGREEMENT AMONG THE UMATILLA, WARM SPRINGS AND YAKAMA TRIBES, BONNEVILLE POWER ADMINISTRATION, U.S. ARMY CORPS OF ENGINEERS, AND U.S. BUREAU OF RECLAMATION.	464	44 MEMO / Memorandum	R10: Longoria, Rose (Yakama Nation)		ELECTRONIC RECORD	056-SITE SUPPORT/0564-Tribal Involvement
100014728	4/28/2008	Draft LWG Background Data Methods Proposal.	251	6 LST / List/Index	R10: Fleming, Sheila (Ridolfi Engineers and Associates, Inc.)		ELECTRONIC RECORD	056-SITE SUPPORT/0564-Tribal Involvement
100017018	4/29/2008	REDACTED Email Regarding LWG Background Proposal.	79	4 EML / Email	R10: Longoria, Rose (Yakama Nation)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0564-Tribal Involvement
100014729	5/12/2008	Email Regarding MOA.	23	1 EML / Email	R10: Longoria, Rose (Yakama Nation)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0564-Tribal Involvement
100014731	5/14/2008	Email Regarding Lamprey status.	24	1 EML / Email	R10: Longoria, Rose (Yakama Nation)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0564-Tribal Involvement
100014732	5/14/2008	Letter Regarding Lamprey protection level.	132	4 LTR / Letter	R10: Givens, Raymond, C (Givens Law)	R10: Cora, Lori, H (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0564-Tribal Involvement
100014734	6/23/2008	Memorandum Regarding Comments on LWG's response to EPA's directive RE: Evaluating Lamprey at the Organism Level.	304	3 LTR / Letter	R10: Peers, Jennifer (Stratus Consulting, Inc.), R10: Dexter, Bob (Ridolfi, Inc.)	R10: (Portland Harbor Natural Resource Trustee Council)	ELECTRONIC RECORD	056-SITE SUPPORT/0564-Tribal Involvement
100017024	6/23/2008	REDACTED Email Regarding Trustee Comments.	26	1 EML / Email	R10: Longoria, Rose (Yakama Nation)	R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0564-Tribal Involvement
4940681360	7/15/2008	Email regarding Background and PRG comments for TCT call.	76	2 EML / Email	R10: Longoria, Rose (Yakama Nation)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0564-Tribal Involvement

100017989	7/18/2008	REDACTED Email regarding reply to Background Evaluation.	27	1 EML / Email	R10: Longoria, Rose (Yakama Nation)	R10: Neely, Robert (NOAA), R10: Fleming, Sheila (Ridolfi Engineers and Associates, Inc.), R10: Madden, Erin (Unknown), R10: Lavelle, Jim (CDM Federal Programs Corporation), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Cunninghame, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Smith, Carrie, A (Parametrix, Inc.), R10: Downey, Tom (Confederated Tribes of the Siletz Indians), R10: Bluelake, Lisa (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Blischke, Eric, L (EPA), R10: Farrer, David, G (Oregon Dept. of Human Services), R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality), R10: Gainer, Tom (DEQ Northwest Region), R10: Williams, J., D (Law Offices of J. D. Williams), R10: Allen, David (Stratus Consulting, Inc.), R10: Dexter, Bob (Ridolfi, Inc.), R10: Buck, Jeremy (U. S. Fish & Wildlife Service)	ELECTRONIC RECORD	056-SITE SUPPORT/0564-Tribal Involvement
100014736	7/28/2008	Memorandum Regarding Comments on EPA Comments Appendix E: Round 2 Comprehensive Site Characterization Summary and Data dated July 16, 2008.	309	2 MEMO / Memorandum	R10: Fleming, Sheila (Ridolfi Engineers and Associates, Inc.), R10: Dexter, Robert (Ridolfi, Inc.)	R10: Longoria, Rose (Yakama Nation)	ELECTRONIC RECORD	056-SITE SUPPORT/0564-Tribal Involvement
100017025	7/28/2008	REDACTED Email Regarding Comments on the FWM.	26	1 EML / Email	R10: Longoria, Rose (Yakama Nation)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0564-Tribal Involvement
100014488	11/24/2008	Email Regarding Archived Samples Request from Trustee Council.	19	1 EML / Email	R10: Madden, Erin (Cascadia Law Group)	R10: Wyatt, Bob (Northwest Natural Gas Company)	ELECTRONIC RECORD	056-SITE SUPPORT/0564-Tribal Involvement
100014489	11/24/2008	Letter Regarding LWG archived samples from the data collection for the RI/FS.	87	1 LTR / Letter	R10: Madden, Erin (Portland Harbor Trustee Council)	R10: Wyatt, Bob (Northwest Natural Gas Company)	ELECTRONIC RECORD	056-SITE SUPPORT/0564-Tribal Involvement
100014769	11/24/2008	Email regarding Archived Samples Request from Trustee Council.	19	1 EML / Email	R10: Madden, Erin (Cascadia Law Group)	R10: Wyatt, Robert, J (NW Natural)	ELECTRONIC RECORD	056-SITE SUPPORT/0564-Tribal Involvement
100014771	11/24/2008	Letter regarding Archived Samples Request from Trustee Council for the RI/FS.	87	1 LTR / Letter	R10: Madden, Erin (Cascadia Law Group)	R10: Wyatt, Robert, J (NW Natural)	ELECTRONIC RECORD	056-SITE SUPPORT/0564-Tribal Involvement
100015181	11/24/2008	Email Regarding Archived Samples Request from Trustee Council.	18	1 EML / Email	R10: Madden, Erin (Nez Perce Tribe)	R10: Wyatt, Robert, J (NW Natural)	ELECTRONIC RECORD	056-SITE SUPPORT/0564-Tribal Involvement
100015182	11/24/2008	Letter Regarding Lower Willamette Group's (LWG) archived samples from the data collection for the Remedial Investigation and Feasibility Study (RI/FS).	87	1 LTR / Letter	R10: Madden, Erin (Cascadia Law Group)	R10: Wyatt, Robert, J (NW Natural)	ELECTRONIC RECORD	056-SITE SUPPORT/0564-Tribal Involvement
4940680593	11/24/2008	Email regarding archived samples.	22	1 EML / Email	R10: Madden, Erin (Nez Perce Tribe)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0564-Tribal Involvement
4940681122	11/24/2008	Email regarding archived samples.	22	1 EML / Email	R10: Madden, Erin (Nez Perce Tribe)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0564-Tribal Involvement
100014490	4/1/2009	Email Regarding Trustee comments regarding RAOs.	24	1 EML / Email	R10: Madden, Erin (Cascadia Law Group)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0564-Tribal Involvement
100014491	4/1/2009	Letter Regarding Trustee Comments on 2009 LWG & EPA Memorandums.	99	2 LTR / Letter	R10: Madden, Erin (Portland Harbor Trustee Council)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0564-Tribal Involvement
100014777	4/1/2009	Email regarding Trustee Comments Regarding RAOs.	24	1 EML / Email	R10: Madden, Erin (Cascadia Law Group)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0564-Tribal Involvement
100014781	4/1/2009	Letter regarding Trustee Comments Regarding RAOs.	99	2 LTR / Letter	R10: Madden, Erin (Cascadia Law Group)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0564-Tribal Involvement
100015213	4/1/2009	Email Regarding Trustee comments regarding RAOs.	24	1 EML / Email	R10: Madden, Erin (Nez Perce Tribe)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0564-Tribal Involvement
100015214	4/1/2009	Portland Harbor Trustees review comments pertaining to the LWGs February 27, 2009 Memorandum regarding Work Plan RAOs Revision and Potential New "Management Goals" and EPA's March 6, 2009 Draft RAOs for the Portland Harbor Site.	99	2 LTR / Letter	R10: Madden, Erin (Cascadia Law Group)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0564-Tribal Involvement
4940681133	4/16/2009	Email regarding Trustee meeting next week.	22	1 EML / Email	R10: Madden, Erin (Nez Perce Tribe)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0564-Tribal Involvement
100014738	6/5/2009	Letter Regarding Portland Harbor Natural Resource Trustee Council - Yakama Nation's Withdrawal.	168	4 LTR / Letter	R10: Sampson, Jr, Ralph (Yakama Tribal Council)	R10: Zylstra, Stephen, J (U. S. Fish and Wildlife Service), R10: (Portland Harbor Natural Resource Trustee Council)	ELECTRONIC RECORD	056-SITE SUPPORT/0564-Tribal Involvement
100014737	6/8/2009	Email Regarding Yakama Nation Letter of Withdraw from the PH Trustee Council.	45	1 EML / Email	R10: Longoria, Rose (Yakama Nation)	R10: Sheldrake, Sean, A (EPA), R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0564-Tribal Involvement
4940680606	6/29/2009	Email regarding Draft FS Evaluation Areas Map Talking Points.	73	2 EML / Email	R10: Madden, Erin (Nez Perce Tribe)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0564-Tribal Involvement
100014503	8/4/2009	Portland Harbor Site Remedial Action Objectives Edits.	60	5 OTH / Other	R10: (Portland Harbor Trustee Council)		ELECTRONIC RECORD	056-SITE SUPPORT/0564-Tribal Involvement
100014784	8/4/2009	Portland Harbor Site Remedial Action Objectives.	72	5 OTH / Other	R10: Madden, Erin (Cascadia Law Group)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0564-Tribal Involvement
100014492	8/5/2009	Email Regarding RAO edits.	19	1 EML / Email	R10: Madden, Erin (Cascadia Law Group)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0564-Tribal Involvement
100014783	8/5/2009	Email regarding RAO Edits.	19	1 EML / Email	R10: Madden, Erin (Cascadia Law Group)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0564-Tribal Involvement
4940680595	10/15/2009	Email regarding BHHRA.	22	1 EML / Email	R10: Madden, Erin (Nez Perce Tribe)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0564-Tribal Involvement
4940681123	10/15/2009	Email regarding BHHRA.	22	1 EML / Email	R10: Madden, Erin (Nez Perce Tribe)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0564-Tribal Involvement
4940680608	1/11/2010	Email regarding reply to Preliminary Identification of ARARs for the Portland Harbor Site.	25	3 EML / Email	R10: Madden, Erin (Nez Perce Tribe)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0564-Tribal Involvement
4940681131	3/23/2010	Email regarding reply to Response to February 18, 2010 Letter on Portland Harbor Preliminary Risk Assessment Comments.	63	7 EML / Email	R10: Madden, Erin (Nez Perce Tribe)	R10: Shepard, Burt (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0564-Tribal Involvement
100015215	5/10/2010	Email Regarding Portland Harbor Trustee Council Letter re: Diver Assistance for Lamprey Bioassays.	19	1 EML / Email	R10: Madden, Erin (Nez Perce Tribe)	R10: McClarren, Dennis (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0564-Tribal Involvement
100015216	5/10/2010	Letter Regarding Portland Harbor Trustee Council planning of an initial sediment bioassay study on Pacific Lamprey as part of the natural resource damage assessment at the Portland Harbor Superfund Site.	100	1 LTR / Letter	R10: Madden, Erin (Cascadia Law Group)	R10: McClarren, Dennis, J (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0564-Tribal Involvement
100015217	5/11/2010	Email Regarding Revised Lamprey Study Letter.	19	1 EML / Email	R10: Madden, Erin (Nez Perce Tribe)	R10: McClarren, Dennis, J (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0564-Tribal Involvement
100015218	5/11/2010	Letter Regarding Portland Harbor Trustee Council planning of an initial sediment bioassay study on Pacific Lamprey as part of the natural resource damage assessment at the Portland Harbor Superfund Site.	100	1 LTR / Letter	R10: Madden, Erin (Cascadia Law Group)	R10: McClarren, Dennis, J (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0564-Tribal Involvement
4940681390	6/2/2010	Email regarding Yakama Nation Comments on Post Office Bar.	49	1 EML / Email	R10: Longoria, Rose (Yakama Nation)	R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0564-Tribal Involvement
4940681384	7/8/2010	Email regarding EPA and YN Meeting.	50	1 EML / Email	R10: Longoria, Rose (Yakama Nation)	R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0564-Tribal Involvement
4940681387	7/23/2010	Email regarding reply to EPA Draft Agenda for 7/27 PRP meeting.	49	1 EML / Email	R10: Longoria, Rose (Yakama Nation)	R10: Madden, Erin (Unknown), R10: Cora, Lori, H (EPA), R10: Zeilman, Tom (Law Offices of Thomas Zeilman)	ELECTRONIC RECORD	056-SITE SUPPORT/0564-Tribal Involvement
4940681382	7/26/2010	Email regarding July 27th Meeting.	45	1 EML / Email	R10: Longoria, Rose (Yakama Nation)	R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0564-Tribal Involvement
4940680598	8/23/2010	Email regarding habitat values letter.	21	1 EML / Email	R10: Madden, Erin (Nez Perce Tribe)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0564-Tribal Involvement
4940681361	8/31/2010	Email regarding Post Office Bar Dredging Project.	82	2 EML / Email	R10: Longoria, Rose (Yakama Nation)	R10: Humphrey, Chip (EPA), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality)	ELECTRONIC RECORD	056-SITE SUPPORT/0564-Tribal Involvement
4940681381	8/31/2010	Email regarding Post Office Bar Dredging Project.	82	2 EML / Email	R10: Longoria, Rose (Yakama Nation)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0564-Tribal Involvement
100014505	9/8/2010	Letter Regarding Monthly Progress Report for August 2010.	278	11 LTR / Letter	R10: Woronets, Jennifer (Lower Willamette Group)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0564-Tribal Involvement

100014788	9/8/2010	Lower Willamette River, Portland Harbor Superfund Site - USEPA Docket No: CERCLA-10-2001-0240 - Monthly Progress Report for August 2010.	278	11 RPT / Report	R10: Woronets, Jennifer (Lower Willamette Group)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0564-Tribal Involvement
100015220	9/8/2010	Lower Willamette River, Portland Harbor Superfund Site USEPA Docket No: CERCLA-10-2001-0240 Monthly Progress Report for August 2010.	278	11 LTR / Letter	R10: Woronets, Jennifer (Lower Willamette Group)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0564-Tribal Involvement
100016825	9/20/2010	REDACTED Email Regarding August 2010 Portland Harbor Monthly Progress Report.	92	2 EML / Email	R10: Madden, Erin (Cascadia Law Group)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0564-Tribal Involvement
100017026	9/20/2010	REDACTED Email regarding August 2010 Portland Harbor Monthly Progress Report.	91	2 EML / Email	R10: Madden, Erin (Cascadia Law Group)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0564-Tribal Involvement
100017291	9/20/2010	REDACTED Email Regarding August 2010 Portland Harbor Monthly Progress Report.	91	2 EML / Email	R10: Madden, Erin (Nez Perce Tribe)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0564-Tribal Involvement
100017992	12/3/2010	REDACTED Email regarding reply to December 14th FS Check In Meeting - 9 am to 5 pm (pacific).	88	2 EML / Email	R10: Karnosh, Michael (Confederated Tribes of the Grand Ronde Community of Oregon)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0564-Tribal Involvement
100014509	12/8/2010	Letter Regarding Monthly Progress Report for November 2010.	277	11 LTR / Letter	R10: Woronets, Jennifer (Lower Willamette Group)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0564-Tribal Involvement
100014797	12/8/2010	Lower Willamette River, Portland Harbor Superfund Site - USEPA Docket No: CERCLA-10-2001-0240 - Monthly Progress Report for November 2010.	277	11 RPT / Report	R10: Woronets, Jennifer (Lower Willamette Group)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0564-Tribal Involvement
100014506	12/9/2010	Email Regarding FS Habitat Values.	22	1 EML / Email	R10: Madden, Erin (Cascadia Law Group)	R10: Wyatt, Bob (Northwest Natural Gas Company)	ELECTRONIC RECORD	056-SITE SUPPORT/0564-Tribal Involvement
100014507	12/9/2010	Letter Regarding Trustee Council Request for Habitat Equivalency Analysis Values.	99	1 LTR / Letter	R10: Madden, Erin (Cascadia Law Group)	R10: Wyatt, Bob (Northwest Natural Gas Company)	ELECTRONIC RECORD	056-SITE SUPPORT/0564-Tribal Involvement
100014790	12/9/2010	Email regarding FS Habitat Values.	22	1 EML / Email	R10: Madden, Erin (Cascadia Law Group)	R10: Wyatt, Robert, J (NW Natural)	ELECTRONIC RECORD	056-SITE SUPPORT/0564-Tribal Involvement
100014793	12/9/2010	Letter regarding FS Habitat Values and Habitat Equivalency Analysis (HEA).	99	1 LTR / Letter	R10: Madden, Erin (Cascadia Law Group)	R10: Wyatt, Robert, J (NW Natural)	ELECTRONIC RECORD	056-SITE SUPPORT/0564-Tribal Involvement
100015221	12/9/2010	Email Regarding FS Habitat Values.	22	1 EML / Email	R10: Madden, Erin (Nez Perce Tribe)	R10: Wyatt, Robert, J (NW Natural)	ELECTRONIC RECORD	056-SITE SUPPORT/0564-Tribal Involvement
100015222	12/9/2010	LWG follow up letter FS habitat values.	99	1 LTR / Letter	R10: Madden, Erin (Cascadia Law Group)	R10: Wyatt, Robert, J (NW Natural)	ELECTRONIC RECORD	056-SITE SUPPORT/0564-Tribal Involvement
100016828	12/13/2010	REDACTED Email Regarding November 2010 Portland Harbor Monthly Progress Report.	92	2 EML / Email	R10: Madden, Erin (Cascadia Law Group)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0564-Tribal Involvement
100017029	12/13/2010	REDACTED Email regarding November 2010 Portland Harbor Monthly Progress Report.	91	2 EML / Email	R10: Madden, Erin (Cascadia Law Group)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0564-Tribal Involvement
4940681386	12/22/2010	Email regarding reply to EPA direction on draft FS for Portland Harbor.	23	1 EML / Email	R10: Longoria, Rose (Yakama Nation)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0564-Tribal Involvement
100014659	1/3/2011	Memorandum Regarding Comments on LWG Portland Harbor Feasibility Study presentations made on December 14, 2010.	231	3 MEMO / Memorandum	R10: Wagoner, Colin, H (Ridolfi, Inc.)	R10: Longoria, Rose (Yakama Nation)	ELECTRONIC RECORD	056-SITE SUPPORT/0564-Tribal Involvement
100014658	1/6/2011	Email Regarding Comments on LWG's Dec. 14th Presentations.	45	1 EML / Email	R10: Longoria, Rose (Yakama Nation)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0564-Tribal Involvement
100018006	3/2/2011	REDACTED Email regarding Legal Representation for the Yakama Nation.	52	1 EML / Email	R10: Longoria, Rose (Yakama Nation)	R10: Parkinson, Steve (Groff & Murphy), R10: Neely, Robert (NOAA), R10: Duncan, Sherrie (Ridolfi Engineers and Associates, Inc.), R10: Madden, Erin (Unknown), R10: Ashton, David (Port of Portland), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Cunningham, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Peers, Jennifer (Stratus Consulting, Inc.), R10: Wyatt, Bob (Northwest Natural Gas Company), R10: Bluelake, Lisa (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Wolf, Frederick, G (EPA), R10: Anderson, Jim, M (Oregon Dept. of Environmental Quality), R10: Wagoner, Colin, H (Ridolfi, Inc.), R10: Williams, J., D (Law Offices of J. D. Williams), R10: Dost, Patty (Pearl Legal Group PC), R10: Mckenna, Jim (Verdant Solutions, LLC), R10: Woronets, Jennifer (Anchor Environmental, LLC), R10: Betz, Jan (City of Portland, Oregon), R10: Pine, Keith (Anchor QEA, LLC), R10: Applegate, Rick (City of Portland), R10: Weis, Julie (Haglund Kelley, LLP), R10: Traeger, Karen (Total)	ELECTRONIC RECORD	056-SITE SUPPORT/0564-Tribal Involvement
100018008	3/2/2011	REDACTED Email regarding Yakama Nation's Legal Representation.	26	1 EML / Email	R10: Longoria, Rose (Yakama Nation)	R10: Stivers, Carl (Anchor Environmental, LLC), R10: Wyatt, Bob (Northwest Natural Gas Company), R10: Sheldrake, Sean, A (EPA), R10: Dost, Patty (Pearl Legal Group PC)	ELECTRONIC RECORD	056-SITE SUPPORT/0564-Tribal Involvement
4940681388	3/11/2011	Email regarding reply to presentation at the site assessment conference on the portland harbor superfund site.	28	1 EML / Email	R10: Longoria, Rose (Yakama Nation)	R10: Karnosh, Michael (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Myers, Robert, E (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0564-Tribal Involvement
4940681389	3/11/2011	Email regarding reply to presentation at the site assessment conference on the portland harbor superfund site.	28	2 EML / Email	R10: Karnosh, Michael (Confederated Tribes of the Grand Ronde Community of Oregon)	R10: Myers, Robert, E (EPA), R10: Longoria, Rose (Yakama Nation)	ELECTRONIC RECORD	056-SITE SUPPORT/0564-Tribal Involvement
4940681385	3/29/2011	Email regarding reply to comment on abstract for the Portland Harbor discussion at the National site assessment symposium.	22	1 EML / Email	R10: Karnosh, Michael (Confederated Tribes of the Grand Ronde Community of Oregon)	R10: Myers, Robert, E (EPA), R10: Longoria, Rose (Yakama Nation)	ELECTRONIC RECORD	056-SITE SUPPORT/0564-Tribal Involvement
4940680613	7/25/2011	Email regarding Resolution of FS Elements Check-in comments.	22	1 EML / Email	R10: Madden, Erin (Nez Perce Tribe)	R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0564-Tribal Involvement
4940680603	8/1/2011	Email regarding post-FS path forward and schedule.	25	1 EML / Email	R10: Madden, Erin (Nez Perce Tribe)	R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0564-Tribal Involvement
100015223	9/27/2011	Email Regarding Letter regarding LWG request for FS extension.	24	1 EML / Email	R10: Madden, Erin (Nez Perce Tribe)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0564-Tribal Involvement
100015224	9/28/2011	Letter Regarding Portland Harbor Natural Resources Trustee Council response to a request by the Lower Willamette Group (LWG) to delay the date for delivery of the Portland Harbor Draft Feasibility Study.	193	2 LTR / Letter	R10: Madden, Erin (Portland Harbor Trustee Council)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0564-Tribal Involvement
4940680596	10/3/2011	Email regarding detailed FS to ROD schedule.	24	1 EML / Email	R10: Madden, Erin (Nez Perce Tribe)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0564-Tribal Involvement
4940680605	10/17/2011	Email regarding detailed FS to ROD schedule.	36	3 EML / Email	R10: Madden, Erin (Nez Perce Tribe)	R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0564-Tribal Involvement
4940680607	12/20/2011	Email regarding EPA Response to Oregon Delegation.	23	1 EML / Email	R10: Madden, Erin (Nez Perce Tribe)	R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0564-Tribal Involvement
4940680594	7/30/2012	Email regarding August Trustee Meeting.	22	1 EML / Email	R10: Madden, Erin (Nez Perce Tribe)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0564-Tribal Involvement
100016724	9/17/2012	Correspondence concerning a Government-to-Government Meeting Regarding Portland Harbor Superfund Site with the Yakima Tribe.	554	3 LTR / Letter	R10: Smiskin, Harry (Confederated Tribes and Bands of the Yakima Indian Nation)	R10: McLerran, Dennis, J (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0564-Tribal Involvement
100015226	10/23/2012	FISH CONSUMPTION IN PORTLAND HARBOR.	1,020	19 RPT / Report	R10: Sunding, David (The Brattle Group), R10: Buck, Steven (The Brattle Group)		ELECTRONIC RECORD	056-SITE SUPPORT/0564-Tribal Involvement
100015225	10/26/2012	Email Regarding final study.	18	1 EML / Email	R10: Madden, Erin (Cascadia Law Group)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0564-Tribal Involvement
4940680615	10/26/2012	Email regarding WRDA.	22	1 EML / Email	R10: Madden, Erin (Nez Perce Tribe)	R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0564-Tribal Involvement
100016758	11/16/2012	Letter accepting invitation for a government to government consultation.	2,498	2 LTR / Letter	R10: McLerran, Dennis, J (EPA)	R10: Smiskin, Harry (Confederated Tribes and Bands of the Yakima Indian Nation)	ELECTRONIC RECORD	056-SITE SUPPORT/0564-Tribal Involvement
100015228	11/28/2012	Letter From the Five Tribes Regarding the Relative Importance of Various Species of Fish, Wildlife, and Invertebrates within Portland Harbor and the BERA.	113	2 LTR / Letter	R10: Madden, Erin (Nez Perce Tribe)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0564-Tribal Involvement
100017292	11/28/2012	REDACTED Email Regarding Letter from Five Tribes regarding the BERA.	20	1 EML / Email	R10: Madden, Erin (Cascadia Law Group)	R10: Koch, Kristine, M (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0564-Tribal Involvement
4940680604	2/11/2013	Email regarding 2-11-2012 PHCAG EDUCATIONAL MEETING -SLIDE SHOW.	23	1 EML / Email	R10: Madden, Erin (Nez Perce Tribe)	R10: Conley, Alanna (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0564-Tribal Involvement

4940680601	2/15/2013	Email regarding LWG revised BERA. Correspondence from the Yakama Tribe concerning attendance at the January 7, 2014 meeting.	20	1 EML / Email	R10: Madden, Erin (Nez Perce Tribe)	R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0564-Tribal Involvement
100016884	1/6/2014	REDACTED Email regarding Portland Harbor -	277	2 LTR / Letter	R10: Smiskin, Harry (Confederated Tribes and Bands of the Yakima Indian Nation)	R10: Woolford, James, E (EPA), R10: McLerran, Dennis, J (EPA Regional Administrator)	ELECTRONIC RECORD	056-SITE SUPPORT/0564-Tribal Involvement
100014511	11/12/2014	Food Web Model Meeting Notes.	51	1 EML / Email	R10: Fricano, Gail (Industrial Economics, Inc.)	R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0564-Tribal Involvement
100014622	11/19/2014	REDACTED Email regarding Portland Harbor Tribal Partners/EPA Meeting, Dec 8, 4:30pm.	62	1 EML / Email	R10: Conley, Alanna (EPA)	R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Cunninghame, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Downey, Tom (Confederated Tribes of the Siletz Indians), R10: Karnosh, Michael (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Madden, Erin (Nez Perce Tribe), R10: Partridge, Holly (Grand Ronde Tribe), R10: Sudbury, Ryan (Grand Ronde Tribe), R10: Longoria, Rose (Yakama Nation), R10: Williams, J., D (Law Offices of J. D. Williams), R10: Johnson, Matt (WilliamsJohnson), R10: Weis, Julie (Haglund Kelley Jones & Wilder LLP)	ELECTRONIC RECORD	056-SITE SUPPORT/0564-Tribal Involvement
100014512	12/4/2014	TCT 11/26/Meeting Notes.	104	2 EML / Email	R10: Koch, Kristine, M (EPA)	R10: Callahan, Kristin (Ridolfi, Inc.)	ELECTRONIC RECORD	056-SITE SUPPORT/0564-Tribal Involvement
100014514	12/22/2014	REDACTED Email regarding Feedback from 5 Tribes.	61	2 EML / Email	R10: Fricano, Gail (Industrial Economics, Inc.)	R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0564-Tribal Involvement
100014518	1/23/2015	REDACTED Email regarding Dioxin/Furan Deliverables.	100	2 EML / Email	R10: Koch, Kristine, M (EPA)	R10: Callahan, Kristin (Ridolfi, Inc.), Robert (NOAA), R10: Buck, Jeremy (U. S. Fish and Wildlife Service), R10: Johnson, Courtney (Unknown), R10: Madden, Erin (Unknown), R10: Cabral, Rita (Industrial Economics, Incorporated), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Cunninghame, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Ridolfi, Callie (Ridolfi Engineers, Inc.), R10: Downey, Tom (Confederated Tribes of the Siletz Indians), R10: Karnosh, Michael (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Sheldrake, Sean, A (EPA), R10: Fuentes, Rene, C (EPA), R10: Robinson, Deborah, G (EPA), R10: Cora, Lori, H (EPA), R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA), R10: Christopher, Anne (EPA), R10: Shephard, Burt (EPA), R10: Yamamoto, Deb (EPA), R10: Allen, Elizabeth (EPA), R10: Morrison, Kay (EPA), R10: Muza, Richard (EPA), R10: Moses, Gabriel (Nez Perce Tribe), R10: Liverman, Alex (Oregon Dept. of Environmental Quality), R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality), R10: McClincy, Matt (Oregon Dept. of Environmental Quality), R10: Poulsen, Mike (Oregon Dept. of Environmental Quality), R10: Gainer, Tom (Oregon Dept. of Environmental Quality), R10: Fricano, Gail (Industrial Economics, Inc.), R10: Delvecchio, Rachel (Industrial Economics, Inc.), R10: Callahan, Robert (NOAA), R10: Ridolfi, Callie, A (Ridolfi Engineers and Associates, Inc.), R10: Buck, Jeremy (U. S. Fish and Wildlife Service), R10: Cabral, Rita (Industrial Economics, Incorporated), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Partridge, Holly (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Karnosh, Michael (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Sheldrake, Sean, A (EPA), R10: Fuentes, Rene, C (EPA), R10: Robinson, Deborah, G (EPA), R10: Blischke, Eric, L (EPA), R10: Conley, Alanna (EPA), R10: Christopher, Anne (EPA), R10: Shephard, Burt (EPA), R10: Allen, Elizabeth (EPA), R10: Demaria, Eva (EPA), R10: Morrison, Kay (EPA), R10: Muza, Richard (EPA), R10: Liverman, Alex (Oregon Dept. of Environmental Quality), R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality), R10: McClincy, Matt (Oregon Dept. of Environmental Quality), R10: Poulsen, Mike (Oregon Dept. of Environmental Quality), R10: Fricano, Gail (Industrial Economics, Inc.), R10: Delvecchio, Rachel (Industrial Economics, Inc.), R10: Longoria, Rose (Yakama Nation), R10: Williams, J., D (Law Offices of J. D. Williams), R10: King, Todd (CDM Smith), R10: Bianco, Paul (Unknown), R10: Hagerman, Paul (Unknown), R10: Coffey, Scott (Unknown), R10: Moses, Gabriel	ELECTRONIC RECORD	056-SITE SUPPORT/0564-Tribal Involvement
100014521	3/25/2015	REDACTED Email regarding EPA/Partners meeting (April 21, 3:30pm).	48	1 EML / Email	R10: Conley, Alanna (EPA)	R10: Callahan, Robert (NOAA), R10: Ridolfi, Callie, A (Ridolfi Engineers and Associates, Inc.), R10: Buck, Jeremy (U. S. Fish and Wildlife Service), R10: Cabral, Rita (Industrial Economics, Incorporated), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Partridge, Holly (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Karnosh, Michael (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Sheldrake, Sean, A (EPA), R10: Fuentes, Rene, C (EPA), R10: Robinson, Deborah, G (EPA), R10: Blischke, Eric, L (EPA), R10: Conley, Alanna (EPA), R10: Christopher, Anne (EPA), R10: Shephard, Burt (EPA), R10: Allen, Elizabeth (EPA), R10: Demaria, Eva (EPA), R10: Morrison, Kay (EPA), R10: Muza, Richard (EPA), R10: Liverman, Alex (Oregon Dept. of Environmental Quality), R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality), R10: McClincy, Matt (Oregon Dept. of Environmental Quality), R10: Poulsen, Mike (Oregon Dept. of Environmental Quality), R10: Fricano, Gail (Industrial Economics, Inc.), R10: Delvecchio, Rachel (Industrial Economics, Inc.), R10: Longoria, Rose (Yakama Nation), R10: Williams, J., D (Law Offices of J. D. Williams), R10: King, Todd (CDM Smith), R10: Bianco, Paul (Unknown), R10: Hagerman, Paul (Unknown), R10: Coffey, Scott (Unknown), R10: Moses, Gabriel	ELECTRONIC RECORD	056-SITE SUPPORT/0564-Tribal Involvement
100018007	6/6/2015	REDACTED Email Regarding TCT Meeting Agenda 06/10/2015.	79	1 EML / Email	R10: Robinson, Deborah, G (EPA)	R10: Leno, Reynold, L (Confederated Tribes of the Grand Ronde Community of Oregon)	ELECTRONIC RECORD	056-SITE SUPPORT/0564-Tribal Involvement
100016728	6/10/2015	Correspondence concerning consultation and coordination regarding Portland Harbor Superfund Site with the Grand Ronde Tribal Council.	1,727	2 LTR / Letter	R10: McLerran, Dennis, J (EPA)	R10: Pigsley, Delores (Confederated Tribes of the Siletz Indians)	ELECTRONIC RECORD	056-SITE SUPPORT/0564-Tribal Involvement
100016730	6/10/2015	Signed correspondence concerning consultation and coordination regarding Portland Harbor Superfund Site with the Siletz Tribal Council.	1,725	2 LTR / Letter	R10: McLerran, Dennis, J (EPA)	R10: Johnson, Anthony, D (Nez Perce Tribe)	ELECTRONIC RECORD	056-SITE SUPPORT/0564-Tribal Involvement
100016753	6/10/2015	Signed correspondence concerning consultation and coordination regarding Portland Harbor Superfund Site with the Nez Perce Tribal Council.	1,685	2 LTR / Letter	R10: McLerran, Dennis, J (EPA)	R10: Green, Eugene (Confederated Tribes of Warm Springs)	ELECTRONIC RECORD	056-SITE SUPPORT/0564-Tribal Involvement
100016754	6/10/2015	Signed correspondence concerning consultation and coordination regarding Portland Harbor Superfund Site with the Warm Springs Tribal Council.	1,777	2 LTR / Letter	R10: McLerran, Dennis, J (EPA)	R10: Goudy, Jode, L (Yakama Nation)	ELECTRONIC RECORD	056-SITE SUPPORT/0564-Tribal Involvement
100016755	6/10/2015	Signed correspondence concerning consultation and coordination regarding Portland Harbor Superfund Site with the Yakama Nation.	1,731	2 LTR / Letter	R10: McLerran, Dennis, J (EPA)	R10: Burke, Gary (Confederated Tribes of the Umatilla Indian Reservation)	ELECTRONIC RECORD	056-SITE SUPPORT/0564-Tribal Involvement
100016769	6/10/2015	Signed correspondence concerning consultation and coordination regarding Portland Harbor Superfund Site with the Umatilla Tribal Council.	1,747	2 LTR / Letter	R10: McLerran, Dennis, J (EPA)	R10: (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0564-Tribal Involvement
100017998	6/10/2015	REDACTED 06/10/2015 TCT Meeting Agenda.	92	1 MTG / Meeting Document	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0564-Tribal Involvement
100016431	6/11/2015	REDACTED Email regarding Invitation for Government-to-Government Consultation with EPA on the Portland Harbor Superfund Site Conceptual Cleanup Plan.	2,926	1 EML / Email	R10: Magorrian, Matthew (EPA)	R10: Johnson, Courtney (Unknown), R10: Moses, Gabriel (Nez Perce Tribe)	ELECTRONIC RECORD	056-SITE SUPPORT/0564-Tribal Involvement

					Robert (NOAA), R10: Ridolfi, Callie, A (Ridolfi Engineers and Associates, Inc.), R10: Buck, Jeremy (U. S. Fish and Wildlife Service), R10: Cabral, Rita (Industrial Economics, Incorporated), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Partridge, Holly (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Karnosh, Michael (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Sheldrake, Sean, A (EPA), R10: Fuentes, Rene, C (EPA), R10: Robinson, Deborah, G (EPA), R10: Ellis, Stephen, J (EPA), R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA), R10: Legare, Amy, R (EPA), R10: Charters, David, W (EPA), R10: Conley, Alanna (EPA), R10: Christopher, Anne (EPA), R10: Shephard, Burt (EPA), R10: Allen, Elizabeth (EPA), R10: Demaria, Eva (EPA), R10: Morrison, Kay (EPA), R10: Muza, Richard (EPA), R10: Fonseca, Silvina (EPA), R10: Liverman, Alex (Oregon Dept. of Environmental Quality), R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality), R10: Johnson, Keith (Oregon Dept. of Environmental Quality), R10: Parrett, Kevin (Oregon Dept. of Environmental Quality), R10: McClincy, Matt (Oregon Dept. of Environmental Quality), R10: Poulsen, Mike (Oregon Dept. of Environmental Quality), R10: Fricano, Gail (Industrial Economics, Inc.), R10: Delvecchio, Rachel (Industrial Economics, Inc.)		
100017997	REDACTED Email Regarding 06/24/2015 TCT Meeting Agenda.	82	1 EML / Email	R10: Robinson, Deborah, G (EPA)		ELECTRONIC RECORD	056-SITE SUPPORT/0564-Tribal Involvement
100013397	7/20/2015 Email regarding FS Sections 1 and 2 comments.	69	1 EML / Email	R10: Koch, Kristine, M (EPA)	R10: Fricano, Gail (Industrial Economics, Inc.)	ELECTRONIC RECORD	056-SITE SUPPORT/0564-Tribal Involvement
100018005	REDACTED Email Regarding Portland Harbor TCT Teleconference Agenda.	45	2 EML / Email	R10: Weis, Julie (Haglund Kelley, LLP)	R10: Robinson, Deborah, G (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0564-Tribal Involvement
					Robert (NOAA), R10: Buck, Jeremy (U. S. Fish and Wildlife Service), R10: Johnson, Courtney (Unknown), R10: Cabral, Rita (Industrial Economics, Incorporated), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Cunningham, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Ward, Elmer (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Ridolfi, Callie (Ridolfi Engineers, Inc.), R10: Downey, Tom (Confederated Tribes of the Siletz Indians), R10: Partridge, Holly (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Karnosh, Michael (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Sheldrake, Sean, A (EPA), R10: Fuentes, Rene, C (EPA), R10: Robinson, Deborah, G (EPA), R10: Blischke, Eric, L (EPA), R10: Conley, Alanna (EPA), R10: Christopher, Anne (EPA), R10: Shephard, Burt (EPA), R10: Zhen, Davis (EPA), R10: Allen, Elizabeth (EPA), R10: Morrison, Kay (EPA), R10: Moses, Gabriel (Nez Perce Tribe), R10: Roick, Thomas, E (Oregon Dept. of Environmental Quality), R10: Liverman, Alex (Oregon Dept. of Environmental Quality), R10: Peterson, Jennifer, L (Oregon Dept. of Environmental Quality), R10: McClincy, Matt (Oregon Dept. of Environmental Quality), R10: Poulsen, Mike (Oregon Dept. of Environmental Quality), R10: Fricano, Gail (Industrial		
100020079	REDACTED Email regarding Portland Harbor FS Section 4.	105	3 EML / Email	R10: Koch, Kristine, M (EPA)	R10: Fricano, Gail (Industrial Economics, Inc.)	ELECTRONIC RECORD	056-SITE SUPPORT/0564-Tribal Involvement
100013398	8/24/2015 Email regarding questions on FS Section 2 tables.	73	2 EML / Email	R10: Koch, Kristine, M (EPA)	R10: Fricano, Gail (Industrial Economics, Inc.)	ELECTRONIC RECORD	056-SITE SUPPORT/0564-Tribal Involvement
100020080	REDACTED Email regarding FS Section 3 comments.	71	1 EML / Email	R10: Koch, Kristine, M (EPA)	R10: Fricano, Gail (Industrial Economics, Inc.)	ELECTRONIC RECORD	056-SITE SUPPORT/0564-Tribal Involvement
100020081	REDACTED Email regarding FS Section 4 comments.	71	2 EML / Email	R10: Koch, Kristine, M (EPA)	R10: Fricano, Gail (Industrial Economics, Inc.)	ELECTRONIC RECORD	056-SITE SUPPORT/0564-Tribal Involvement
100013400	Memorandum regarding Five Tribes' Comments on Portland Harbor Superfund Site - 5 Tribes comments Portland Harbor NRRB 2015-10-19.	258	22 CORR / Correspondence	R10: Cabral, Rita (Industrial Economics, Incorporated), R10: Fricano, Gail (Industrial Economics, Inc.), R10: Delvecchio, Rachel (Industrial Economics, Inc.), R10: Fredette, Tom (Industrial Economics, Inc.)	R10: (EPA), R10: (National Remedy Review Board), R10: (Contaminated Sediments Technical Advisory Group)	ELECTRONIC RECORD	056-SITE SUPPORT/0564-Tribal Involvement
100016698	REDACTED Email regarding Comments to NRRB from 5 Tribes.	77	2 EML / Email	R10: Koch, Kristine, M (EPA)	R10: Karnosh, Michael (Confederated Tribes of the Grand Ronde Community of Oregon)	ELECTRONIC RECORD	056-SITE SUPPORT/0564-Tribal Involvement
100017101	REDACTED Email Regarding Portland Harbor Consultation New Proposed Date 02/03/2016.	27	3 EML / Email	R10: Woods, Jim (Unknown)	R10: Robinson, Deborah, G (EPA), R10: Grandinetti, Cami (EPA), R10: Tyler, Kendra (EPA), R10: Magorrian, Matthew (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0564-Tribal Involvement
100017990	REDACTED Email Regarding Portland Harbor Consultation New Proposed Date 02/03/2016.	120	2 EML / Email	R10: Woods, Jim (Unknown)	R10: Robinson, Deborah, G (EPA), R10: Grandinetti, Cami (EPA), R10: Tyler, Kendra (EPA), R10: Magorrian, Matthew (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0564-Tribal Involvement
100013401	12/15/2015 Email regarding questions on remedy concept.	69	1 EML / Email	R10: Koch, Kristine, M (EPA)	R10: Fricano, Gail (Industrial Economics, Inc.)	ELECTRONIC RECORD	056-SITE SUPPORT/0564-Tribal Involvement
100013402	12/16/2015 Email regarding a few questions.	70	1 EML / Email	R10: Koch, Kristine, M (EPA)	R10: Fricano, Gail (Industrial Economics, Inc.)	ELECTRONIC RECORD	056-SITE SUPPORT/0564-Tribal Involvement
100016761	Signed correspondence confirming government-to-government consultation regarding Portland Harbor Superfund Site with 6 Tribes. (Grand Ronde, Siletz, Yakama, Warm Springs, Umatilla, Nez Perce).	278	12 LTR / Letter	R10: McLerran, Dennis, J (EPA)	R10: Burke, Gary (Confederated Tribes of the Umatilla Indian Reservation), R10: Pigsley, Delores (Confederated Tribes of the Siletz Indians), R10: Leno, Reynold, L (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Green, Eugene (Confederated Tribes of Warm Springs), R10: Johnson, Anthony, D (Nez Perce Tribe), R10: Goudy, Jode, L (Yakama Nation)	ELECTRONIC RECORD	056-SITE SUPPORT/0564-Tribal Involvement
100016888	Letter Regarding EPA Decision to Complete the Portland Harbor Superfund Site Feasibility Study.	311	2 LTR / Letter	R10: Grandinetti, Cami (EPA)	R10: Wyatt, Bob (Lower Willamette Group)	ELECTRONIC RECORD	056-SITE SUPPORT/0564-Tribal Involvement



						Associates, Inc.), R10: Cabral, Rita (Industrial Economics, Incorporated), R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation), R10: Ward, Elmer (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Partridge, Holly (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Karnosh, Michael (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Sheldrake, Sean, A (EPA), R10: Fuentes, Rene, C (EPA), R10: Robinson, Deborah, G (EPA), R10: Eils, Stephen, J (EPA), R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M (EPA), R10: Legare, Amy, R (EPA), R10: Charters, David, W (EPA), R10: Conley, Alanna (EPA), R10: Christopher, Anne (EPA), R10: Allen, Elizabeth (EPA), R10: Demaria, Eva (EPA), R10: Morrison, Kay (EPA), R10: Fonseca, Silvana (EPA), R10: Fricano, Gail (Industrial Economics, Inc.), R10: Delvecchio, Rachel (Industrial Economics, Inc.), R10: Gustavson, Karl (Unknown), R10: Humphreys, Brandy (Grand Ronde Tribe), R10: Partridge, Holly (Grand Ronde Tribe), R10: Williams, J., D (Law Offices of J. D. Williams), R10: Bianco, Paul (Unknown), R10: Moses, Gabriel (Unknown), R10: Klasner Shira, Laura (Confederated Tribes and Bands of the Yakima Indian Nation), R10: D, Tom (CTSII), R10: Weis, Julie (Haglund Kelley, LLP), R10: Johnson, Courtney (Crag Law Center), R10: (Crag Law Center)	
100017982	REDACTED Email Regarding Invitation to Speak with EPA About the Portland Harbor Feasibility Study Completion Decision.	83	1 EML / Email	R10: Robinson, Deborah, G (EPA)		ELECTRONIC RECORD 056-SITE SUPPORT/0564-Tribal Involvement	
100007901	Email regarding Portland Harbor, RI finalization schedule.	86	2 EML / Email	R10: Koch, Kristine, M (EPA)		ELECTRONIC RECORD 056-SITE SUPPORT/0564-Tribal Involvement	
100016518	Email regarding slide presentation of scheduled government to government consultation.	63	2 EML / Email	R10: Robinson, Deborah, G (EPA)		ELECTRONIC RECORD 056-SITE SUPPORT/0564-Tribal Involvement	
100016824	Correspondence containing the Resolution of the Yakima Nation concerning the Portland Harbor cleanup.	460	2 LTR / Letter	R10: Goudy, Jode, L (Yakama Nation), R10: Sanchez, Athena (The Yakima Nation)	R10: (Unknown)	ELECTRONIC RECORD 056-SITE SUPPORT/0564-Tribal Involvement	
100016760	Email regarding Lamprey measures for protection on early action areas.	97	3 EML / Email	R10: Sheldrake, Sean, A (EPA)	R10: Jones, Jennifer, M. (CDM Smith)	ELECTRONIC RECORD 056-SITE SUPPORT/0564-Tribal Involvement	
100016484	Follow up to the government to government consultation with the Confederated Tribes of the Grand Ronde.	344	2 LTR / Letter	R10: McLerran, Dennis, J (EPA)	R10: Leno, Reynold, L (Confederated Tribes of the Grand Ronde Community of Oregon)	ELECTRONIC RECORD 056-SITE SUPPORT/0564-Tribal Involvement	
100016502	Follow up to the government to government consultation with the Confederated Tribes of Siletz Indians.	353	2 LTR / Letter	R10: McLerran, Dennis, J (EPA)	R10: Pigsley, Delores (Confederated Tribes of the Siletz Indians)	ELECTRONIC RECORD 056-SITE SUPPORT/0564-Tribal Involvement	
100016512	Follow up to the government to government consultation with the Nez Perce Tribe.	348	2 LTR / Letter	R10: McLerran, Dennis, J (EPA)	R10: Johnson, Anthony, D (Nez Perce Tribe)	ELECTRONIC RECORD 056-SITE SUPPORT/0564-Tribal Involvement	
100016515	Follow up to the government to government consultation with the Confederated Tribes of the Umatilla Indian Reservation.	367	2 LTR / Letter	R10: McLerran, Dennis, J (EPA)	R10: Burke, Gary (Confederated Tribes of the Umatilla Indian Reservation)	ELECTRONIC RECORD 056-SITE SUPPORT/0564-Tribal Involvement	
100016517	Follow up to the government to government consultation with the Yakama Nation Tribal Council.	326	2 LTR / Letter	R10: McLerran, Dennis, J (EPA)	R10: Goudy, Jode, L (Yakama Nation)	ELECTRONIC RECORD 056-SITE SUPPORT/0564-Tribal Involvement	
100016847	Thank you to The Confederated Tribes of Grand Ronde for meeting with the EPA team during our government to government consultation for the Portland Harbor Superfund Site.	351	2 LTR / Letter	R10: McLerran, Dennis, J (EPA)	R10: Leno, Reynold, L (Confederated Tribes of the Grand Ronde Community of Oregon)	ELECTRONIC RECORD 056-SITE SUPPORT/0564-Tribal Involvement	
100016850	Thank you to The Nez Perce Tribal Executive Committee for meeting with the EPA team during our government to government consultation for the Portland Harbor Superfund Site.	355	2 LTR / Letter	R10: McLerran, Dennis, J (EPA)	R10: Johnson, Anthony, D (Nez Perce Tribe)	ELECTRONIC RECORD 056-SITE SUPPORT/0564-Tribal Involvement	
100016853	Thank you to The Confederated Tribes of Siletz Indians for meeting with the EPA team during our government to government consultation for the Portland Harbor Superfund Site.	358	2 LTR / Letter	R10: McLerran, Dennis, J (EPA)	R10: Pigsley, Delores (Confederated Tribes of the Siletz Indians)	ELECTRONIC RECORD 056-SITE SUPPORT/0564-Tribal Involvement	
100016855	Thank you to The Confederated Tribes of the Umatilla Indian Reservation for meeting with the EPA team during our government to government consultation for the Portland Harbor Superfund Site.	372	2 LTR / Letter	R10: McLerran, Dennis, J (EPA)	R10: Burke, Gary (Confederated Tribes of the Umatilla Indian Reservation)	ELECTRONIC RECORD 056-SITE SUPPORT/0564-Tribal Involvement	
100016857	Thank you to The Yakama Nation Tribal Council for meeting with the EPA team during our government to government consultation for the Portland Harbor Superfund Site.	331	2 LTR / Letter	R10: McLerran, Dennis, J (EPA)	R10: Goudy, Jode, L (Yakama Nation)	ELECTRONIC RECORD 056-SITE SUPPORT/0564-Tribal Involvement	
100016862	Signed correspondence to the Confederated Tribes of Warm Springs Reservation confirming government-to-government consultation regarding Portland Harbor Superfund Site.	50	2 LTR / Letter	R10: McLerran, Dennis, J (EPA)	R10: Green, Eugene (Confederated Tribes of Warm Springs)	ELECTRONIC RECORD 056-SITE SUPPORT/0564-Tribal Involvement	
100019890	Letter regarding Portland Harbor NPL Site - Consultation on EPA Region 10 Proposed Plan.	340	2 CORR / Correspondence	R10: Goudy, Jode, L (Yakama Nation)	R10: Mccarthy, Gina (EPA)	ELECTRONIC RECORD 056-SITE SUPPORT/0564-Tribal Involvement	
100019891	Email regarding PORTLAND HARBOR NPL SITE Letter to EPA Administrator Gina McCarthy.	111	1 EML / Email	R10: Longoria, Rose (Yakama Nation)	R10: Rigdon, Philip (Confederated Tribes and Bands of the Yakima Indian Nation), R10: Zeilman, Tom (Confederated Tribes and Bands of the Yakima Indian Nation), R10: Sheldrake, Sean, A (EPA), R10: Woolford, James, E (EPA), R10: McLerran, Dennis, J (EPA), R10: Grandinetti, Cami (EPA), R10: Zhen, Davis (EPA), R10: Woods, James (EPA), R10: Tosch, McClure (Yakama Nation), R10: Klasner Shira, Laura (Confederated Tribes and Bands of the Yakima Indian Nation), R10: Ward, Paul (Yakama Nation)	ELECTRONIC RECORD 056-SITE SUPPORT/0564-Tribal Involvement	
100016865	Correspondence offering consultation and coordination with the Grand Ronde Tribal Council on impending U.S. Environmental Protection Agency actions at the Portland Harbor Superfund Site.	64	2 LTR / Letter	R10: McLerran, Dennis, J (EPA)	R10: Leno, Reynold, L (Confederated Tribes of the Grand Ronde Community of Oregon)	ELECTRONIC RECORD 056-SITE SUPPORT/0564-Tribal Involvement	
100016870	Correspondence offering consultation and coordination with the Nez Perce Tribal Executive Committee on impending U.S. Environmental Protection Agency actions at the Portland Harbor Superfund Site.	61	2 LTR / Letter	R10: McLerran, Dennis, J (EPA)	R10: Johnson, Anthony, D (Nez Perce Tribe)	ELECTRONIC RECORD 056-SITE SUPPORT/0564-Tribal Involvement	
100016874	Correspondence offering consultation and coordination with the Confederated Tribes of Siletz Indians on impending U.S. Environmental Protection Agency actions at the Portland Harbor Superfund Site.	67	2 LTR / Letter	R10: McLerran, Dennis, J (EPA)	R10: Pigsley, Delores (Confederated Tribes of the Siletz Indians)	ELECTRONIC RECORD 056-SITE SUPPORT/0564-Tribal Involvement	

100016875	5/9/2016	Correspondence offering consultation and coordination with the Umatilla Tribe Board of Trustees on impending U.S. Environmental Protection Agency actions at the Portland Harbor Superfund Site.	68	2 LTR / Letter	R10: Mclerran, Dennis, J (EPA)	R10: Burke, Gary (Confederated Tribes of the Umatilla Indian Reservation)	ELECTRONIC RECORD	056-SITE SUPPORT/0564-Tribal Involvement
100016880	5/9/2016	Correspondence offering consultation and coordination with the Warm Springs Tribal Council on impending U.S. Environmental Protection Agency actions at the Portland Harbor Superfund Site.	58	2 LTR / Letter	R10: Mclerran, Dennis, J (EPA)	R10: Green, Eugene (Confederated Tribes of Warm Springs)	ELECTRONIC RECORD	056-SITE SUPPORT/0564-Tribal Involvement
100017144	5/12/2016	Letter Regarding Response From the Yakama Tribal Council to the Consultation with the EPA Administrator.	224	2 LTR / Letter	R10: Mclerran, Dennis, J (EPA)	R10: Goudy, Jode, L (Yakama Nation)	ELECTRONIC RECORD	056-SITE SUPPORT/0564-Tribal Involvement
100003710	10/22/2012	Table B-1 Risk-Based Human Health PRGs - 2015-08-03 Draft Final Appendix B1_Table B1_HH PRGs.	115	1 CORR / Correspondence	R10: Allen, Elizabeth (EPA) R10: Macdonald, Alistair, P (Golder Associates, Inc.), R10: Gormley, Sean (AMEC Environment & Infrastructure, Inc.)	R10: (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0564-Tribal Involvement
100005920	8/29/2014	Final Letter to Kristine Koch 08-29-14. Email regarding Draft FS Revision Process, Updated Matrix Table and Action Items List for 29-August-14.	253	3 CORR / Correspondence		R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0564-Tribal Involvement
100005882	9/2/2014	Email regarding Portland Harbor - Food Web Model Meeting.	118	2 EML / Email	R10: Madden, Erin (Cascadia Law Group)	R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0564-Tribal Involvement
100005883	10/24/2014	Email regarding Earth Care Summit - January (discussed during Dec 8th meeting).	71	2 EML / Email	R10: Koch, Kristine, M (EPA)	R10: Fricano, Gail (Industrial Economics, Inc.)	ELECTRONIC RECORD	056-SITE SUPPORT/0564-Tribal Involvement
100005888	12/9/2014	Email regarding Earth Care Summit - January (discussed during Dec 8th meeting).	62	1 EML / Email	R10: Conley, Alanna (EPA)	R10: Longoria, Rose (Yakama Nation)	ELECTRONIC RECORD	056-SITE SUPPORT/0564-Tribal Involvement
100005891	1/1/2015	Email regarding Earth Care Summit - January (discussed during Dec 8th meeting).	134	2 EML / Email	R10: Longoria, Rose (Yakama Nation)	R10: Conley, Alanna (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0564-Tribal Involvement
100005892	1/15/2015	Email regarding information for NRRB. Email regarding Portland Harbor FS Section 1 - BCS Comments.	48	1 EML / Email	R10: Fricano, Gail (Industrial Economics, Inc.)	R10: Sheldrake, Sean, A (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0564-Tribal Involvement
100005893	1/20/2015	DRAFT_SMAs_4COCS.	97	1 EML / Email	R10: Koch, Kristine, M (EPA)	R10: Madden, Erin (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0564-Tribal Involvement
100005923	1/23/2015	DRAFT_SMAs_4COCS.	543	1 FIG / Figure/Map/ Drawing	R10: Unknown, Unknown (Unknown)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0564-Tribal Involvement
100005924	1/23/2015	DRAFT_SMAs_5Congeners.	688	1 FIG / Figure/Map/ Drawing	R10: Unknown, Unknown (Unknown)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0564-Tribal Involvement
100005925	3/18/2015	Email regarding FS Section 2 comments. Letter regarding EPA coordination with the Umatilla Tribal Council.	68	1 EML / Email	R10: Koch, Kristine, M (EPA)	R10: Fricano, Gail (Industrial Economics, Inc.) R10: Burke, Gary (Confederated Tribes of the Umatilla Indian Reservation)	ELECTRONIC RECORD	056-SITE SUPPORT/0564-Tribal Involvement
100004953	6/10/2015	Letter regarding EPA Portland Harbor Superfund Site Coordination with Yakima Nation.	1,752	2 CORR / Correspondence	R10: Mclerran, Dennis, J (EPA)	R10: Goudy, Jode, L (Yakama Nation)	ELECTRONIC RECORD	056-SITE SUPPORT/0564-Tribal Involvement
100004955	6/10/2015	Letter regarding EPA Portland Harbor Superfund Site Coordination with the Warm Springs Tribal Council.	1,728	2 CORR / Correspondence	R10: Mclerran, Dennis, J (EPA)	R10: Green, Eugene (Confederated Tribes of Warm Springs)	ELECTRONIC RECORD	056-SITE SUPPORT/0564-Tribal Involvement
100004957	6/10/2015	Letter regarding EPA Portland Harbor Superfund Site Coordination with the Nez Perce Tribal Council.	1,774	2 CORR / Correspondence	R10: Mclerran, Dennis, J (EPA)	R10: Johnson, Anthony, D (Nez Perce Tribe)	ELECTRONIC RECORD	056-SITE SUPPORT/0564-Tribal Involvement
100004959	6/10/2015	Letter regarding EPA Portland Harbor Superfund Site Coordination with Grand Ronde Tribal Council.	1,682	2 CORR / Correspondence	R10: Mclerran, Dennis, J (EPA)	R10: Leno, Reynold, L (Confederated Tribes of the Grand Ronde Community of Oregon)	ELECTRONIC RECORD	056-SITE SUPPORT/0564-Tribal Involvement
100004975	6/10/2015	Letter regarding EPA Portland Harbor Superfund Site Coordination with Confederated Tribes of Siletz.	1,739	2 CORR / Correspondence	R10: Mclerran, Dennis, J (EPA)	R10: Pigsley, Delores (Confederated Tribes of the Siletz Indians)	ELECTRONIC RECORD	056-SITE SUPPORT/0564-Tribal Involvement
100004977	6/10/2015	Letter regarding EPA Portland Harbor Superfund Site Coordination with the Nez Perce Tribal Council.	1,722	2 CORR / Correspondence	R10: Mclerran, Dennis, J (EPA)	R10: Johnson, Anthony, D (Nez Perce Tribe)	ELECTRONIC RECORD	056-SITE SUPPORT/0564-Tribal Involvement
100004984	6/10/2015	Letter regarding EPA Portland Harbor Superfund Site Coordination with the Grand Ronde Tribal Council.	1,705	2 CORR / Correspondence	R10: Mclerran, Dennis, J (EPA)	R10: Leno, Reynold, L (Confederated Tribes of the Grand Ronde Community of Oregon)	ELECTRONIC RECORD	056-SITE SUPPORT/0564-Tribal Involvement
100004985	6/10/2015	Letter regarding EPA Portland Harbor Superfund Site Coordination with the Siletz Tribal Council.	1,743	2 CORR / Correspondence	R10: Mclerran, Dennis, J (EPA)	R10: Pigsley, Delores (Confederated Tribes of the Siletz Indians)	ELECTRONIC RECORD	056-SITE SUPPORT/0564-Tribal Involvement
100004986	6/10/2015	Letter regarding EPA Portland Harbor Superfund Site Coordination with the Warm Springs Tribal Council.	1,738	2 CORR / Correspondence	R10: Mclerran, Dennis, J (EPA)	R10: Green, Eugene (Confederated Tribes of Warm Springs)	ELECTRONIC RECORD	056-SITE SUPPORT/0564-Tribal Involvement
100004987	6/10/2015	Letter regarding EPA Portland Harbor Superfund Site Coordination with the Yakima Nation.	1,779	2 CORR / Correspondence	R10: Mclerran, Dennis, J (EPA)	R10: Goudy, Jode, L (Yakama Nation)	ELECTRONIC RECORD	056-SITE SUPPORT/0564-Tribal Involvement
100004988	6/10/2015	Letter regarding EPA Portland Harbor Superfund Site Coordination with the Umatilla Tribal Council.	1,745	2 CORR / Correspondence	R10: Mclerran, Dennis, J (EPA)	R10: Burke, Gary (Confederated Tribes of the Umatilla Indian Reservation)	ELECTRONIC RECORD	056-SITE SUPPORT/0564-Tribal Involvement
100004989	6/10/2015	Letter regarding EPA Portland Harbor Superfund Site Coordination with the Nez Perce Tribal Council.	1,752	2 CORR / Correspondence	R10: Mclerran, Dennis, J (EPA)	R10: Johnson, Anthony, D (Nez Perce Tribe)	ELECTRONIC RECORD	056-SITE SUPPORT/0564-Tribal Involvement
100004991	6/10/2015	Letter regarding EPA Portland Harbor Superfund Site Coordination with the Grand Ronde Tribal Council.	3,875	2 CORR / Correspondence	R10: Mclerran, Dennis, J (EPA)	R10: Leno, Reynold, L (Confederated Tribes of the Grand Ronde Community of Oregon)	ELECTRONIC RECORD	056-SITE SUPPORT/0564-Tribal Involvement
100005010	6/10/2015	Letter regarding EPA Portland Harbor Superfund Site Coordination with the Siletz Tribal Council.	1,720	2 CORR / Correspondence	R10: Mclerran, Dennis, J (EPA)	R10: Pigsley, Delores (Confederated Tribes of the Siletz Indians)	ELECTRONIC RECORD	056-SITE SUPPORT/0564-Tribal Involvement
100005011	6/10/2015	Letter regarding EPA Portland Harbor Superfund Site Coordination with the Warm Springs Tribal Council.	1,722	2 CORR / Correspondence	R10: Mclerran, Dennis, J (EPA)	R10: Green, Eugene (Confederated Tribes of Warm Springs)	ELECTRONIC RECORD	056-SITE SUPPORT/0564-Tribal Involvement
100005012	6/10/2015	Letter regarding EPA Portland Harbor Superfund Site Coordination with the Yakima Nation.	1,774	2 CORR / Correspondence	R10: Mclerran, Dennis, J (EPA)	R10: Goudy, Jode, L (Yakama Nation)	ELECTRONIC RECORD	056-SITE SUPPORT/0564-Tribal Involvement
100005013	6/10/2015	Letter regarding EPA Portland Harbor Superfund Site Coordination with the Umatilla Tribal Council.	1,728	2 CORR / Correspondence	R10: Mclerran, Dennis, J (EPA)	R10: Burke, Gary (Confederated Tribes of the Umatilla Indian Reservation)	ELECTRONIC RECORD	056-SITE SUPPORT/0564-Tribal Involvement
100005014	6/10/2015	Letter regarding EPA Portland Harbor Superfund Site Coordination with the Grand Ronde Tribal Council.	1,744	2 CORR / Correspondence	R10: Mclerran, Dennis, J (EPA)	R10: Leno, Reynold, L (Confederated Tribes of the Grand Ronde Community of Oregon)	ELECTRONIC RECORD	056-SITE SUPPORT/0564-Tribal Involvement
100005015	6/10/2015	Letter regarding EPA Portland Harbor Superfund Site Coordination with the Siletz Tribal Council.	1,720	2 CORR / Correspondence	R10: Mclerran, Dennis, J (EPA)	R10: Pigsley, Delores (Confederated Tribes of the Siletz Indians)	ELECTRONIC RECORD	056-SITE SUPPORT/0564-Tribal Involvement
100005016	6/10/2015	Letter regarding EPA Portland Harbor Superfund Site Coordination with the Nez Perce Tribal Council.	1,722	2 CORR / Correspondence	R10: Mclerran, Dennis, J (EPA)	R10: Johnson, Anthony, D (Nez Perce Tribe)	ELECTRONIC RECORD	056-SITE SUPPORT/0564-Tribal Involvement
100005017	6/10/2015	Letter regarding EPA Portland Harbor Superfund Site Coordination with the Warm Springs Tribal Council.	1,682	2 CORR / Correspondence	R10: Mclerran, Dennis, J (EPA)	R10: Green, Eugene (Confederated Tribes of Warm Springs)	ELECTRONIC RECORD	056-SITE SUPPORT/0564-Tribal Involvement
100005018	6/10/2015	Letter regarding EPA Portland Harbor Superfund Site Coordination with the Yakima Nation.	1,779	2 CORR / Correspondence	R10: Mclerran, Dennis, J (EPA)	R10: Goudy, Jode, L (Yakama Nation)	ELECTRONIC RECORD	056-SITE SUPPORT/0564-Tribal Involvement
100005019	6/10/2015	Letter regarding EPA Portland Harbor Superfund Site Coordination with the Umatilla Tribal Council - Confederated Tribes of the Umatilla Indian Reservation.	1,728	2 CORR / Correspondence	R10: Mclerran, Dennis, J (EPA)	R10: Burke, Gary (Confederated Tribes of the Umatilla Indian Reservation)	ELECTRONIC RECORD	056-SITE SUPPORT/0564-Tribal Involvement
100005020	6/10/2015	Email regarding Invitation for Government-to-Government Consultation with EPA on the Portland Harbor Superfund Site Conceptual Cleanup Plan.	1,744	2 CORR / Correspondence	R10: Mclerran, Dennis, J (EPA)	R10: Huber, Audie (Confederated Tribes of the Umatilla Indian Reservation)	ELECTRONIC RECORD	056-SITE SUPPORT/0564-Tribal Involvement
100004952	6/11/2015	Email regarding Invitation for Government-to-Government Consultation with EPA on the Portland Harbor Superfund Site Conceptual Cleanup Plan.	2,973	1 EML / Email	R10: Magorrian, Matthew (EPA)	R10: Longoria, Rose (Yakama Nation)	ELECTRONIC RECORD	056-SITE SUPPORT/0564-Tribal Involvement
100004954	6/11/2015	Email regarding Invitation for Government-to-Government Consultation with EPA on the Portland Harbor Superfund Site Conceptual Cleanup Plan.	2,990	1 EML / Email	R10: Magorrian, Matthew (EPA)	R10: Longoria, Rose (Yakama Nation)	ELECTRONIC RECORD	056-SITE SUPPORT/0564-Tribal Involvement
100004956	6/11/2015	Email regarding Invitation for Government-to-Government Consultation with EPA on the Portland Harbor Superfund Site Conceptual Cleanup Plan.	2,977	1 EML / Email	R10: Magorrian, Matthew (EPA)	R10: Cunninghame, Brian (Confederated Tribes of the Warm Springs Reservation of Oregon), R10: Ward, Elmer (Confederated Tribes of the Warm Springs Reservation of Oregon)	ELECTRONIC RECORD	056-SITE SUPPORT/0564-Tribal Involvement

100004974	6/11/2015	Email regarding Invitation for Government-to-Government Consultation with EPA on the Portland Harbor Superfund Site Conceptual Cleanup Plan.	2,991	1 EML / Email	R10: Magorrian, Matthew (EPA)	R10: Partridge, Holly (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Daquila, Kim (Confederated Tribes of the Grand Ronde Community of Oregon), R10: Karnosh, Michael (Confederated Tribes of the Grand Ronde Community of Oregon)	ELECTRONIC RECORD	056-SITE SUPPORT/0564-Tribal Involvement
100004976	6/11/2015	Email regarding Invitation for Government-to-Government Consultation with EPA on the Portland Harbor Superfund Site Conceptual Cleanup Plan.	2,996	1 EML / Email	R10: Magorrian, Matthew (EPA)	R10: Weis, Juile (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0564-Tribal Involvement
100004990	6/11/2015	Email regarding Signed PDF Tribal Letters (Scanned).	17,556	1 EML / Email	R10: Magorrian, Matthew (EPA)	R10: Sheldrake, Sean, A (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0564-Tribal Involvement
100004983	6/12/2015	Email regarding Signed copies of Ptl'd Harbor consultation letters.	8,415	1 EML / Email	R10: Sheldrake, Sean, A (EPA)	R10: Herbst, John, R (EPA), R10: Woods, James (EPA), R10: Carre, Kristine (EPA Tribal Coordination)	ELECTRONIC RECORD	056-SITE SUPPORT/0564-Tribal Involvement
100004982	6/23/2015	Letter regarding Nez Perce Tribal Consultation on Conceptual Remedy for Portland Harbor Superfund Site.	624	2 CORR / Correspondence	R10: Johnson, Anthony, D (Nez Perce Tribe)	R10: Mclerran, Dennis, J (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0564-Tribal Involvement
100003694	7/22/2015	Email regarding FS question.	68	1 EML / Email	R10: Koch, Kristine, M (EPA)	R10: Fricano, Gail (Industrial Economics, Inc.)	ELECTRONIC RECORD	056-SITE SUPPORT/0564-Tribal Involvement
100003695	8/4/2015	Email regarding questions on FS Section 2 tables.	73	2 EML / Email	R10: Koch, Kristine, M (EPA)	R10: Fricano, Gail (Industrial Economics, Inc.)	ELECTRONIC RECORD	056-SITE SUPPORT/0564-Tribal Involvement
100003698	9/1/2015	Memorandum regarding Portland Harbor Feasibility Study (FS) Significant Issues - 2015-09-01 Review_draft_FS[4].	191	5 CORR / Correspondence	R10: Ridolfi, Callie (Ridolfi Engineers, Inc.)	R10: Longoria, Rose (Yakama Nation)	ELECTRONIC RECORD	056-SITE SUPPORT/0564-Tribal Involvement
100003697	9/2/2015	Email regarding Significant Issues with the draft PH FS.	107	1 EML / Email	R10: Longoria, Rose (Yakama Nation)	R10: Koch, Kristine, M (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0564-Tribal Involvement
100003699	9/11/2015	Email regarding Section 2 Tables.	66	1 EML / Email	R10: Koch, Kristine, M (EPA)	R10: Cora, Lori, H (EPA), R10: Koch, Kristine, M (EPA), R10: Herbst, John, R (EPA), R10: Zhen, Davis (EPA), R10: Moore, Joanne (EPA), R10: Fonseca, Silvina (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0564-Tribal Involvement
100003713	9/29/2015	Email regarding Tribal Consultation Tracking Updates.	48	1 EML / Email	R10: Robinson, Deborah, G (EPA)	R10: Fredette, Thomas, J (U. S. Army Corps of Engineers), R10: Cabral, Rita (Industrial Economics, Incorporated), R10: Fricano, Gail (Industrial Economics, Inc.), R10: Delvecchio, Rachel (Industrial Economics, Inc.)	ELECTRONIC RECORD	056-SITE SUPPORT/0564-Tribal Involvement
100005063	10/19/2015	Memorandum regarding Five Tribes' Comments on Portland Harbor Superfund Site.	278	22 CORR / Correspondence	R10: Fricano, Gail (Industrial Economics, Inc.), R10: Delvecchio, Rachel (Industrial Economics, Inc.)	R10: (EPA), R10: (National Remedy Review Board), R10: (Contaminated Sediments Technical Advisory Group)	ELECTRONIC RECORD	056-SITE SUPPORT/0564-Tribal Involvement
100004936	12/23/2015	Letter regarding Portland Harbor Superfund Site Consultation with Confederated Tribes of Grande Ronde.	51	2 CORR / Correspondence	R10: Mclerran, Dennis, J (EPA)	R10: Leno, Reynold, L (Confederated Tribes of the Grand Ronde Community of Oregon)	ELECTRONIC RECORD	056-SITE SUPPORT/0564-Tribal Involvement
100004937	12/23/2015	Letter regarding Portland Harbor Superfund Site Consultation with Siletz Tribal Council.	50	2 CORR / Correspondence	R10: Mclerran, Dennis, J (EPA)	R10: Pigsley, Delores (Confederated Tribes of the Siletz Indians)	ELECTRONIC RECORD	056-SITE SUPPORT/0564-Tribal Involvement
100004938	12/23/2015	Letter regarding Portland Harbor Superfund Site Consultation with Yakima Nation.	50	2 CORR / Correspondence	R10: Mclerran, Dennis, J (EPA)	R10: Goudy, Jode, L (Yakama Nation)	ELECTRONIC RECORD	056-SITE SUPPORT/0564-Tribal Involvement
100004939	12/23/2015	Letter regarding Portland Harbor Superfund Site Consultation with Confederated Tribes of Warm Springs Reservation.	50	2 CORR / Correspondence	R10: Mclerran, Dennis, J (EPA)	R10: Green, Eugene (Confederated Tribes of Warm Springs)	ELECTRONIC RECORD	056-SITE SUPPORT/0564-Tribal Involvement
100004950	12/23/2015	Letter regarding Portland Harbor Superfund Site Consultation with Confederated Tribes of the Umatilla Indian Reservation.	50	2 CORR / Correspondence	R10: Mclerran, Dennis, J (EPA)	R10: Burke, Gary (Confederated Tribes of the Umatilla Indian Reservation)	ELECTRONIC RECORD	056-SITE SUPPORT/0564-Tribal Involvement
100004951	12/23/2015	Letter regarding Portland Harbor Superfund Site Consultation with Nez Perce Tribe.	48	2 CORR / Correspondence	R10: Mclerran, Dennis, J (EPA)	R10: Johnson, Anthony, D (Nez Perce Tribe)	ELECTRONIC RECORD	056-SITE SUPPORT/0564-Tribal Involvement
100004979	12/23/2015	Letter regarding EPA Portland Harbor Superfund Site Confirmation of government-to-government consultation - Confederated Tribes of Warm Springs Reservation.	52	2 CORR / Correspondence	R10: Mclerran, Dennis, J (EPA)	R10: Green, Eugene (Confederated Tribes of Warm Springs)	ELECTRONIC RECORD	056-SITE SUPPORT/0564-Tribal Involvement
100005021	12/23/2015	Letter regarding EPA Portland Harbor Superfund Site Confirmation of Government-to-Government Consultation - Confederated Tribes of Grande Ronde.	50	2 CORR / Correspondence	R10: Mclerran, Dennis, J (EPA)	R10: Leno, Reynold, L (Confederated Tribes of the Grand Ronde Community of Oregon)	ELECTRONIC RECORD	056-SITE SUPPORT/0564-Tribal Involvement
100005022	12/23/2015	Letter regarding EPA Portland Harbor Superfund Site Confirmation of Government-to-Government Consultation - Nez Perce Tribe.	48	2 CORR / Correspondence	R10: Mclerran, Dennis, J (EPA)	R10: Johnson, Anthony, D (Nez Perce Tribe)	ELECTRONIC RECORD	056-SITE SUPPORT/0564-Tribal Involvement
100005023	12/23/2015	Letter regarding EPA Portland Harbor Superfund Site Confirmation of Government-to-Government Consultation - Siletz Tribal Council.	50	2 CORR / Correspondence	R10: Mclerran, Dennis, J (EPA)	R10: Pigsley, Delores (Confederated Tribes of the Siletz Indians)	ELECTRONIC RECORD	056-SITE SUPPORT/0564-Tribal Involvement
100005024	12/23/2015	Letter regarding EPA Portland Harbor Superfund Site Confirmation of Government-to-Government Consultation - Confederated Tribes of the Umatilla Reservation.	50	2 CORR / Correspondence	R10: Mclerran, Dennis, J (EPA)	R10: Burke, Gary (Confederated Tribes of the Umatilla Indian Reservation)	ELECTRONIC RECORD	056-SITE SUPPORT/0564-Tribal Involvement
100005025	12/23/2015	Letter regarding EPA Portland Harbor Superfund Site Confirmation of Government-to-Government Consultation - Confederated Tribes of Warm Springs Reservation.	50	2 CORR / Correspondence	R10: Mclerran, Dennis, J (EPA)	R10: Green, Eugene (Confederated Tribes of Warm Springs)	ELECTRONIC RECORD	056-SITE SUPPORT/0564-Tribal Involvement
100005026	12/23/2015	Letter regarding EPA Portland Harbor Superfund Site Confirmation of Government-to-Government Consultation - Yakima Nation.	50	2 CORR / Correspondence	R10: Mclerran, Dennis, J (EPA)	R10: Goudy, Jode, L (Yakama Nation)	ELECTRONIC RECORD	056-SITE SUPPORT/0564-Tribal Involvement
100004935	12/29/2015	Email regarding Confirmation Letters.	374	1 EML / Email	R10: Magorrian, Matthew (EPA)	R10: Robinson, Deborah, G (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0564-Tribal Involvement
100004978	1/5/2016	Email regarding proposed agenda.	97	1 EML / Email	R10: Ward, Elmer (Confederated Tribes of the Warm Springs Reservation of Oregon)	R10: Robinson, Deborah, G (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0564-Tribal Involvement
100004980	1/5/2016	Correspondence regarding physical address Confederated Tribe of Warm Springs.	49	1 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0564-Tribal Involvement
100005028	1/6/2016	Government to Government Consultation Agenda.	54	1 CORR / Correspondence	R10: Robinson, Deborah, G (EPA)	R10: (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0564-Tribal Involvement
100005062	1/7/2016	Tribal Consultation Portland Harbor Superfund Site Presentation.	2,607	17 CORR / Correspondence	R10: Sheldrake, Sean, A (EPA)	R10: (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0564-Tribal Involvement
1412909	1/8/2016	Resolution demanding that EPA shall mandate a cleanup within the Portland Harbor ROD that is protective of all Yakama Nations members.	2,698	2 OTH / Other	R10: (Confederated Tribes and Bands of the Yakama Indian Nation)	R10: (Confederated Tribes and Bands of the Yakama Indian Nation)	PAPER DOCUMENT	056-SITE SUPPORT/0564-Tribal Involvement
100005027	2/4/2016	Confederated Tribes and Bands Of the Yakima Nation - Resolution T-049-16.	453	2 CORR / Correspondence	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0564-Tribal Involvement
100035151	7/26/2016	Notes From Government to Government Consultation With the Nez Perce Tribe.	81	1 MTG / Meeting Document	R10: (Unknown)	R10: (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0564-Tribal Involvement
100035686	9/2/2016	REDACTED Email Regarding Request for Extension of Comment Period on Portland Harbor Proposed Plan.	122	2 EML / Email	R10: Zhen, Davis (EPA)	R10: Tsongas, Theodora, A (Unknown), R10: Campbell, Kelly (Oregon Physicians for Social Responsibility)	ELECTRONIC RECORD	056-SITE SUPPORT/0564-Tribal Involvement
100036125	12/8/2016	REDACTED Agenda for Portland Harbor State/EPA Senior Leadership Meeting With the Purpose of Updates, Strategic Decisions, and Identification of Remaining Issues.	156	1 MTG / Meeting Document	R10: (Unknown)		ELECTRONIC RECORD	056-SITE SUPPORT/0567-Forward Planning/Redevelopment/Reuse



100016378	5/13/2015	REDACTED Email transmitting ATSDR/EPA meeting agenda. Health agencies EPA 5.14.15 meeting overview. Health ASTSDR EPA meeting agenda final.	114	1	EML / Email	R10: Bishop, Karen (State of Oregon)	R10: Hardy, Joan (Washington State Dept. of Health), R10: Kaetzel, Rhonda (Washington State Dept. of Health), R10: Sheldrake, Sean, A (EPA), R10: Koch, Kristine, M (EPA), R10: Grandinetti, Cami (EPA), R10: Allen, Elizabeth (EPA), R10: Larson, Karen (EPA), R10: Kissinger, Lon (EPA), R10: Chu, Rebecca (EPA), R10: Jeng, Richard (EPA), R10: Grass, Running (EPA), R10: Blocker, Shawn (EPA), R10: Fonseca, Silvina (EPA), R10: Dreyfus, Melissa, G, R10: Ridenour, Steve, R10: Brodberg, Robert, R10: Serda, Sophie, R10: Knowles, Robert, R10: Kwon, Danny, R10: Bartlett, Russ, R10: Sinanang, Lee (King County), R10: Jurst, Karen, R10: O'garrol, Lenford (Washington State Dept. of Health), R10: Lapachin, Steve	ELECTRONIC RECORD	056-SITE SUPPORT/0568-Health Assessment
100016379	5/13/2015	REDACTED Health Agencies/EPA Fish Advisories Meeting Agenda.	171	1	MTG / Meeting Document			ELECTRONIC RECORD	056-SITE SUPPORT/0568-Health Assessment
100004751	5/13/2015	Health Agencies/EPA Fish Advisories Meeting Attendee List and Overview.	145	5	MTG / Meeting Document			ELECTRONIC RECORD	056-SITE SUPPORT/0568-Health Assessment
1469786	3/22/2013	Correspondence regarding Evraz Oregon Steel Groundwater Evaluation.	4,398	2	CORR / Correspondence	R10: Sutter, Jennifer, L. (Oregon Dept. of Environmental Quality)	R10: Gilpin, Drew (Oregon Steel Mills, Inc.)	PAPER DOCUMENT	058-PROGRAM SUPPORT
1469793	11/10/2013	Memorandum and Agenda for Evraz Oregon Steel Mills Source Control Meeting.	110	2	CORR / Correspondence	R10: Allen, Mike (CDM Smith)	R10: Muza, Richard (EPA)	PAPER DOCUMENT	058-PROGRAM SUPPORT
100003230	5/31/2007	Sediment Phthalates Work Group Technical Committee Meeting Recommendations: Notes from Policy Group Meeting.	92	10	MTG / Meeting Document	R10: (Floyd Snider, Inc.)		ELECTRONIC RECORD	058-PROGRAM SUPPORT/0583-Regulatory Development
1254656	1/31/2008	Letter regarding response to Milestone Report for Upland Source Control at the Portland Harbor Site.	28,657	61	CORR / Correspondence	R10: Anderson, James, M (Oregon Dept. of Environmental Quality)	R10: Koch, Kristine, M (EPA)	PAPER DOCUMENT	058-PROGRAM SUPPORT/0583-Regulatory Development
1309139	9/26/2008	DEQ Letter Regarding Re: Milestone Report for Upland Source at the Portland Harbor Superfund Site with the Attached Report.	31,994	61	RPT / Report	R10: Anderson, James, M (Oregon Dept. of Environmental Quality)	R10: Koch, Kristine, M (EPA)	PAPER DOCUMENT	058-PROGRAM SUPPORT/0583-Regulatory Development
1356001	4/30/2009	DEQ Letter regarding an attached, Re: Mileston Report for Upland Source Control at the Portland Harbor Superfund Site.	44,235	62	RPT / Report	R10: Unknown, Unknown (DEQ)	R10: Koch, Kristine, M (EPA)	PAPER DOCUMENT	058-PROGRAM SUPPORT/0583-Regulatory Development
1356506	12/23/2009	Letter Referring to Report Titled "Milestone Report for Upland Source Control at the Portland Harbor Superfund Site."	4,145	5	CORR / Correspondence	R10: Anderson, James, M (Oregon Dept. of Environmental Quality)	R10: Koch, Kristine, M (EPA)	PAPER DOCUMENT	058-PROGRAM SUPPORT/0583-Regulatory Development
1356507	9/30/2010	Letter Concerning the Milestone Report for Upland Source Control at the Portland Harbor Superfund Site, with Attached Report.	464,326	162		R10: Anderson, James, M (Oregon Dept. of Environmental Quality)	R10: Koch, Kristine, M (EPA)	PAPER DOCUMENT	058-PROGRAM SUPPORT/0583-Regulatory Development
1396196	5/31/2011	Milestone Report for Upland Source Control at the Portland Harbor Superfund Site.	95,127	136	CORR / Correspondence	R10: Anderson, James, M (Oregon Dept. of Environmental Quality)	R10: Koch, Kristine, M (EPA)	PAPER DOCUMENT	058-PROGRAM SUPPORT/0583-Regulatory Development
1396229	8/14/2011	Fact Sheet regarding Cleaning Up the Portland Harbor Superfund Site - Portland Harbor Partnership.	167	2	PUB / Publication	R10: Unknown, Unknown (Portland Harbor Partnership)	R10: Koch, Kristine, M (EPA)	PAPER DOCUMENT	058-PROGRAM SUPPORT/0583-Regulatory Development
1396836	2/3/2012	Milestone Report for Upland Source Control at the Portland Harbor Superfund Site.	76,836	69	CORR / Correspondence	R10: Anderson, James, M (Oregon Dept. of Environmental Quality)	R10: Muza, Richard (EPA Region 10)	PAPER DOCUMENT	058-PROGRAM SUPPORT/0583-Regulatory Development
1420868	1/31/2013	Milestone Report for Upland Source Control at the Portland Harbor Superfund Site, with transmittal letter.	222,243	72		R10: Anderson, James, M (Oregon Dept. of Environmental Quality)	R10: Muza, Richard (EPA Region 10)	PAPER DOCUMENT	058-PROGRAM SUPPORT/0583-Regulatory Development
1259054	3/1/2006	Milestone Report for Upland Source Control at the Portland Harbor Superfund Site, March 2006.	4,461	70	RPT / Report	R10: Unknown, Unknown (Oregon Dept. of Environmental Quality)	R10: Unknown, Unknown (Unknown)	PAPER DOCUMENT	058-PROGRAM SUPPORT/0583-Regulatory Development
1235930	7/3/2006	Letter regarding and transmitting the Milestone Report for Upland Source Control at the Portland Harbor Superfund Site dated 06/01/06.	4,287	48	RPT / Report	R10: O'mealy, Mikell (Oregon Dept. of Environmental Quality)	R10: Koch, Kristine, M (EPA)	PAPER DOCUMENT	058-PROGRAM SUPPORT/0583-Regulatory Development
1259057	12/29/2006	Letter transmitting the December 2006 Milestone Report for Upland Source Control at the Portland Harbor Superfund Site.	37,790	57	RPT / Report	R10: Anderson, James, M (Oregon Dept. of Environmental Quality)	R10: Koch, Kristine, M (EPA)	PAPER DOCUMENT	058-PROGRAM SUPPORT/0583-Regulatory Development
1258798	7/30/2007	Letter regarding Milestone Report for Upland Source Control at the Portland Harbor Superfund Site (attached report).	38,382	60	CORR / Correspondence	R10: Anderson, James, M (Oregon Dept. of Environmental Quality)	R10: Koch, Kristine, M (EPA)	PAPER DOCUMENT	058-PROGRAM SUPPORT/0583-Regulatory Development
621017	8/1/1988	CERCLA Compliance with Other Laws Manual: Interim Final.	1,230	175	RPT / Report	R10: Unknown, Unknown (EPA)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	
621022	11/1/1991	A Guide to Principal Threat and Low Level Threat Wastes.	396	4	RPT / Report	R10: Unknown, Unknown (EPA)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	
680002	2/28/2013	Proposed Plan for the Lower Duwamish Waterway Superfund Site.	6,868	121	PUB / Publication	R10: Unknown, Unknown (EPA Region 10)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	
1079294	5/1/1998	Portland Harbor Sediment Investigation Report.	48,603	684	RPT / Report	R10: Unknown, Unknown (Roy F. Weston, Inc.)	R10: Unknown, Unknown (EPA)	PAPER DOCUMENT	
1112683	4/22/1991	Memorandum regarding the role of the Baseline Risk Assessment in Superfund Remedy Selection Decisions, OSWER Directive 9355.0-30.	665	10	CORR / Correspondence	R10: Clay, Donald, R (EPA)	R10: Unknown, Unknown (EPA)	PAPER DOCUMENT	
1146362	4/24/2001	Draft Report - Combined Sampling and Analysis Plan / Quality Assurance Project Plan for the Lower Willamette River Sediment Profile Image Survey (transmittal letter attached).	5,764	125	RPT / Report	R10: Unknown, Unknown (Striplin Environmental Associates)	R10: Unknown, Unknown (Lower Willamette Group)	PAPER DOCUMENT	
1146368	2/4/2002	Draft Report - Preliminary Planning, Scoping, and Problem Formulation Document.	5,918	103	RPT / Report	R10: Unknown, Unknown (Striplin Environmental Associates), R10: Unknown, Unknown (Kennedy/Jenks Consultants), R10: Unknown, Unknown (Windward Environmental, LLC.)	R10: Unknown, Unknown (Lower Willamette Group)	PAPER DOCUMENT	
1146399	3/8/2002	Letter transmitting the Draft Capping Material Evaluation for Portland Harbor (less attachment).	63	1	CORR / Correspondence	R10: Striplin, Betsy, D (Striplin Environmental Associates)	R10: Reid, Wallace, A. (EPA)	PAPER DOCUMENT	
1146400	3/21/2002	Letter transmitting the Draft Facility Siting Evaluation for Portland Harbor (less attachment).	62	1	CORR / Correspondence	R10: Striplin, Betsy, D (Striplin Environmental Associates)	R10: Reid, Wallace, A. (EPA)	PAPER DOCUMENT	
1151053	8/28/2002	Fish Tissue Sampling SOP, Round 1A Portland Harbor RI/FS (transmittal letter attached).	1,601	32	RPT / Report	R10: Unknown, Unknown (Striplin Environmental Associates), R10: Unknown, Unknown (Kennedy/Jenks Consultants), R10: Unknown, Unknown (Windward Environmental, LLC.)	R10: Unknown, Unknown (EPA)	PAPER DOCUMENT	
1151054	8/28/2002	Fish Tissue Homogenization and Shipping SOP, Round 1A Portland Harbor RI/FS.	528	13	RPT / Report	R10: Unknown, Unknown (Striplin Environmental Associates)	R10: Unknown, Unknown (EPA)	PAPER DOCUMENT	
1151055	8/28/2002	Fish Tissue Compositing and Shipping SOP, Round 1A Portland Harbor RI/FS.	650	14	RPT / Report	R10: Unknown, Unknown (Striplin Environmental Associates), R10: Unknown, Unknown (Kennedy/Jenks Consultants), R10: Unknown, Unknown (Windward Environmental, LLC.)	R10: Unknown, Unknown (EPA)	PAPER DOCUMENT	
1151056	8/28/2002	Letter transmitting revised drafts of the Lower Willamette Group's Homogenization and Compositing Sampling Standard Operating Procedures, SOPs (less attachments).	57	1	CORR / Correspondence	R10: Harbert, H. (Trey), P (Port of Portland), R10: Wyatt, Robert, J (Northwest Natural Gas Company)	R10: Reid, Wallace, A. (EPA)	PAPER DOCUMENT	
1162293	12/13/1981	Human Health Evaluation Manual, Part B: "Development of Risk-based Preliminary Remediation Goals".	3,743	69	RPT / Report	R10: Longest li, Henry, L (EPA), R10: Diamond, Bruce, M (EPA)	R10: Unknown, Unknown (Unknown)	PAPER DOCUMENT	
1175795	10/23/2003	Letter transmitting the data validation report and laboratory data sheets for Semi-volatile Organic Compounds (less attachments).	56	1	CORR / Correspondence	R10: Humphrey, Chip (EPA), R10: Martich, Tara (EPA)	R10: Striplin, Betsy, D (Striplin Environmental Associates)	PAPER DOCUMENT	
1185596	3/1/2004	Draft Natural Attenuation Technical Memorandum - Step 1 Evaluation and Step 2 Field Sampling Plan and Data Evaluation Methods.	2,649	47	RPT / Report	R10: Stivers, Carl (Anchor Environmental, LLC)	R10: Unknown, Unknown (Lower Willamette Group)	PAPER DOCUMENT	

1185688	5/16/2003	LWG Responses to EPA Comments on the 2002 Draft Round 1 Work Plan - Portland Harbor Superfund Site.	7,238	165 RPT / Report	R10: Unknown, Unknown (Striplin Environmental Associates), R10: Unknown, Unknown (Anchor Environmental, LLC), R10: Unknown, Unknown (Kennedy/Jenks Consultants), R10: Unknown, Unknown (Windward Environmental, LLC.), R10: Unknown, Unknown (Groundwater Solutions Inc.)	R10: Unknown, Unknown (Lower Willamette Group)	PAPER DOCUMENT
1185809	6/14/2002	Draft Round 1 Field Sampling Plan, Portland Harbor Remedial Investigation/Feasibility Study (RI/FS).	9,079	156 RPT / Report	R10: Unknown, Unknown (Striplin Environmental Associates)	R10: Unknown, Unknown (Lower Willamette Group)	PAPER DOCUMENT
1185812	6/2/2003	Draft Upland Groundwater Data Review Report - River Mile 2 - 11 Lower Willamette River, Volume 1 of 2, Portland Harbor Remedial Investigation/Feasibility Study (RI/FS), with Upland Groundwater Data Review Report on CD-ROM.	41,762	128 RPT / Report	R10: Unknown, Unknown (Groundwater Solutions Inc.)	R10: Unknown, Unknown (Lower Willamette Group)	PAPER DOCUMENT
1185912	7/1/2004	Draft Interim Deliverable for Human Health Risk Assessment: Human Health Toxicity Values.	756	14 RPT / Report	R10: Unknown, Unknown (Kennedy/Jenks Consultants)	R10: Unknown, Unknown (Lower Willamette Group)	PAPER DOCUMENT
1185945	4/15/2002	Letter transmitting the draft 2001 Multibeam Bathymetric Survey Report, without attachment.	50	1 CORR / Correspondence	R10: Striplin, Betsy, D (Striplin Environmental Associates)	R10: Reid, Wallace, A. (EPA)	PAPER DOCUMENT
1185946	4/26/2002	Letter transmitting the Portland Harbor Remedial Investigation/Feasibility Study Phase 1 - Precision Bathymetric Survey, without attachment.	52	1 CORR / Correspondence	R10: Striplin, Betsy, D (Striplin Environmental Associates)	R10: Reid, Wallace, A. (EPA)	PAPER DOCUMENT
1258567	8/3/2004	Letter regarding comments on the Source Control Decision for Calbag Metals.	1,103	11 CORR / Correspondence	R10: Sanders, Dawn (City of Portland, Bureau of Environmental Services)	R10: Anderson, James, M (Oregon Dept. of Environmental Quality)	PAPER DOCUMENT
1290671	10/20/2007	Portland Harbor RI/FS Draft Treatability Study Literature Survey Technical Memorandum.	4,492	56 RPT / Report	R10: Unknown, Unknown (Anchor Environmental, LLC)	R10: Unknown, Unknown (Lower Willamette Group)	PAPER DOCUMENT
1309350	3/17/2006	Portland Harbor Superfund Site Ecological Risk Assessment: Interpretive Report: Estimating Risks to Benthic Organisms Using Predictive Models Based On Sediment Toxicity Tests. Federal Register, Vol. 55, No. 46, Rules and Regulations.	25,951	223 CORR / Correspondence	R10: Unknown, Unknown (Avocet Consulting), R10: Unknown, Unknown (Windward Environmental, LLC.)	R10: Unknown, Unknown (Lower Willamette Group)	PAPER DOCUMENT
1426811	3/8/1990	Portland Harbor RI/FS Final Natural Attenuation Technical Memorandum - Dedimentation Field Sampling Plan, September 2004.	298	2 LAWS / Laws/Regulations/Guidance	R10: Unknown, Unknown (Federal Register)	R10: Unknown, Unknown (Unknown)	PAPER DOCUMENT
1457865	9/1/2004	Portland Harbor RI/FS Technical Memorandum, Finalization of Round 1 Chlorinated Pesticide Data, May 7, 2004.	4,158	29 RPT / Report	R10: Unknown, Unknown (Anchor Environmental, LLC)	R10: Unknown, Unknown (Lower Willamette Group)	PAPER DOCUMENT
1457882	5/7/2004	Transmittal Memorandum for the Final Round 1 Quality Assurance Project Plan for Portland Harbor Remedial Investigation/Feasibility Study (RI/FS).	6,954	57 RPT / Report	R10: Unknown, Unknown (Integral Consulting, Inc.)	R10: Unknown, Unknown (Lower Willamette Group)	PAPER DOCUMENT
1471388	12/17/2002	REDACTED Human Health and Ecological Risk Assessments, Lower Willamette Group Risk Assessment Team.	49	1 LTR / Letter	R10: Striplin, Betsy, D (Striplin Environmental Associates)	R10: Unknown, Unknown (Distribution)	PAPER DOCUMENT
100036177	8/1/2001	REDACTED Human Health and Ecological Risk Assessments, Lower Willamette Group Risk Assessment Team.	2,389	86 RPT / Report	R10: Unknown, Unknown (Kennedy/Jenks Consultants), R10: Unknown, Unknown (Lower Willamette Group)	R10: Unknown, Unknown (Unknown)	PAPER DOCUMENT
500001130	9/10/2013	09_10_13 email; Corps ERDC memos.	46	1 EML / Email	R10: Humphrey, Chip (EPA)	R10: Wyatt, Robert, J (NW Natural), R10: Mckenna, James (Verdant Solutions, LLC)	ELECTRONIC RECORD

Document ID	Document Date	Title	File Size (KB)	Page Count	Resource Type	Author	Addressee	Media Type	Program Information
500004234	2/10/1999	Memorandum regarding Treaty Indian Fishing Rights.	77	1	CORR / Correspondence	R10: Mitchell, Beth (NOAA)	R10: Ordine, Charles, J. (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
500004237	5/7/1999	Memorandum regarding Portland Harbor tribal interests.	247	3	CORR / Correspondence	R10: Peterson, Vernon (U. S. Dept. of the Interior)	R10: Peterson, Lynn (U. S. Dept. of the Interior)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
500004248	6/7/2005	Draft letter regarding discussions among EPA, DEQ and LWG about the use of Safe Drinking Water Act MCLs in the Portland Harbor RI/FS.	161	3	CORR / Correspondence	R10: Humphrey, Chip (EPA)	R10: Mckenna, Jim (Port of Portland), R10: Unknown, Unknown (Lower Willamette Group), R10: Wyatt, Robert, J (NW Natural)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
500004245	8/15/2005	Email Regarding WQC for Ingesting Water alone.	62	1	CORR / Correspondence	R10: Davoli, Dana (EPA)	R10: Ivy, Kathy (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
500004480	6/11/2007	Email and attachment regarding comments on TZW framework document.	377	5	CORR / Correspondence	R10: Cora, Lori, H. (EPA)	R10: Blischke, Eric, L (EPA), R10: Humphrey, Chip (EPA), R10: Davoli, Dana (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
623894	12/15/2008	Email regarding Reply to ATC Leasing/JH Holdings bankruptcy.	252	2	EML / Email	R10: Mckenna, Elizabeth, A (EPA)	R10: Blischke, Eric, L (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
500004252	9/3/2009	Email regarding a sidebar to keep in mind related to our call tomorrow on Portland Harbor and groundwater.	186	3	CORR / Correspondence	R10: Anderson, Robin, M (EPA)	R10: Yamamoto, Deb (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
500004490	11/6/2014	Email regarding ARARs related to Removal-Fill Program for PDX Harbor (marginalia).	606	12	CORR / Correspondence	R10: Koch, Kristine, M. (EPA)	R10: Cora, Lori, H. (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100035963	10/6/2016	Email Regarding Final Memo for Administrator and Slide with Alternatives (Less Attachments).	39	1	EML / Email	R10: Grandinetti, Carmela (Cami), L. (EPA)	R10: Woolford, James, E. (EPA), R10: Pirzadeh, Michelle, L. (EPA), R10: McLerran, Dennis, J. (EPA Regional Administrator), R10: Bilbrey, Sheryl (Office of Environmental Cleanup EPA Region 10), R10: Erikson, Linda (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100035965	10/6/2016	Memo Regarding Points to Consider for Portland Harbor Remedy Selection.	145	4	MEMO / Memorandum	R10: McLerran, Dennis, J. (EPA Regional Administrator)	R10: Mccarthy, Gina, A. (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100035961	10/7/2016	Email Regarding 2016-10-03 Alternative F Justification Final for JW 10-06-16.pptx.	92	4	EML / Email	R10: McLerran, Dennis, J. (EPA Regional Administrator)	R10: Grandinetti, Carmela (Cami), L. (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100035954	12/9/2016	Email Regarding Revised Text of ROD, OGC.	134	3	EML / Email	R10: Woolford, James, E. (EPA)	R10: Cora, Lori, H. (EPA), R10: Stern, Allyn, L (EPA), R10: Grandinetti, Carmela (Cami), L. (EPA), R10: Mackey, Cyndy (EPA), R10: Fleming, Sheila, M. (EPA), R10: Bilbrey, Sheryl (Office of Environmental Cleanup EPA Region 10)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100035962	12/16/2016	Email Regarding Concurrence Process for the Portland Harbor ROD.	109	2	EML / Email	R10: Mackey, Cyndy (EPA)	R10: Woolford, James, E. (EPA), R10: Grandinetti, Carmela (Cami), L. (EPA), R10: Ammon, Doug (EPA), R10: McLerran, Dennis, J. (EPA Regional Administrator), R10: Fritz, Matthew (EPA), R10: Hilosky, Nick (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100035966	Undated	Summary of Alternatives for Portland Harbor ROD.	265	1	CHT / Chart/Table	R10: (EPA)	R10: (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
500004260	Undated	Draft memorandum regarding Safe Drinking Water Act criteria as ARARs for Portland Harbor.	264	4	CORR / Correspondence	R10: Cora, Lori, H. (EPA)	R10: Unknown, Unknown (Portland Harbor Project Management Team)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
500004261	Undated	Discussion Paper on Portland's Balance Cut and Fill Ordinance. Is it applicable or relevant and appropriate to CERCLA cleanups in the Willamette River floodplain? With attachments (marginalia).	754	11	CORR / Correspondence	R10: Cora, Lori, H. (EPA)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
500004489	Undated	EPA Draft Legal Memorandum Regarding LWG Memorandum "Draft Background Document: Application of Oregon Water Quality Standards - For Discussion".	255	4	CORR / Correspondence	R10: Cora, Lori, H. (EPA)	R10: Unknown, Unknown (Unknown)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization
100003373	8/8/2007	Email concerning the Revised Portland Harbor Paper.	166	2	CORR / Correspondence	R10: Humphrey, Chip (EPA)	R10: Opalski, Daniel, D. (EPA), R10: Cora, Lori, H. (EPA), R10: Yamamoto, Deb (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100003509	8/8/2007	Email concerning the Revised Portland Harbor Paper.	166	2	CORR / Correspondence	R10: Humphrey, Chip (EPA)	R10: Opalski, Daniel, D. (EPA), R10: Cora, Lori, H. (EPA), R10: Yamamoto, Deb (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100018609	8/8/2007	Portland Harbor Superfund Site August 2007 Issues.	66	3	CORR / Correspondence	R10: (Unknown)		ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100018614	8/8/2007	Portland Harbor Superfund Site August 2007.	64	3	CORR / Correspondence	R10: (Unknown)		ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100018615	8/8/2007	Portland Harbor Site.	290	1	CORR / Correspondence	R10: Humphrey, Chip (EPA)		ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100018624	8/8/2007	Portland Harbor Superfund Site August 2007.	64	3	CORR / Correspondence	R10: (Unknown)		ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100018625	8/8/2007	Portland Harbor Superfund Site August 2007 Issues.	66	3	CORR / Correspondence	R10: (Unknown)		ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100018626	8/8/2007	Portland Harbor Site.	290	1	CORR / Correspondence	R10: Humphrey, Chip (EPA)		ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100003372	2/5/2008	Email concerning the comments on Army Corps' draft of coordination process for maintenance dredging.	68	2	CORR / Correspondence	R10: Humphrey, Chip (EPA)	R10: Cora, Lori, H. (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100018604	2/5/2008	Draft Process for Navigation Dredging in Portland Harbor NPL Site.	87	4	CORR / Correspondence	R10: Gross, Michael, J. (U. S. Army Corps of Engineers)		ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100018606	2/5/2008	SOP 02-01 CERCLA Fax Notification.	53	1	CORR / Correspondence	R10: (Unknown)		ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100018607	2/5/2008	SOP 02-01 Superfund Sites.	56	3	CORR / Correspondence	R10: (Unknown)		ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100003370	11/4/2008	Email concerning the legal implications of DEQ's source control approach related to groundwater contamination	24	2	CORR / Correspondence	R10: Cora, Lori, H. (EPA)	R10: Opalski, Daniel, D. (EPA), R10: Mackey, Cyndy (EPA), R10: Yamamoto, Deb (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100018617	5/18/2009	Memorandum regarding Safe Drinking Water Act drinking water criteria as ARARs for the Portland Harbor Superfund Site.	67	5	CORR / Correspondence	R10: Cora, Lori, H. (EPA)	R10: Mackey, Cyndy (EPA), R10: Yamamoto, Deb (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100003371	7/10/2012	Email concerning the legal basis for applying MCLs and AWQC at Portland Harbor.	37	2	CORR / Correspondence	R10: Cora, Lori, H. (EPA)	R10: Opalski, Daniel, D. (EPA), R10: Koch, Kristine, M. (EPA), R10: Yamamoto, Deb (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100003374	7/10/2012	Email concerning the legal implications of DEQ's source control approach related to groundwater contamination	25	2	CORR / Correspondence	R10: Cora, Lori, H. (EPA)	R10: Yamamoto, Deborah, J. (EPA), R10: Koch, Kristine, M. (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100003508	7/10/2012	Email concerning the Memo regarding MCLs and AWQC.	42	2	CORR / Correspondence	R10: Cora, Lori, H. (EPA)	R10: Koch, Kristine, M. (EPA), R10: Yamamoto, Deb (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100018613	7/10/2012	December 2009 Identification of ARARs Letter	90	7	CORR / Correspondence	R10: Cora, Lori, H. (EPA)		ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100018618	7/10/2012	December 2009 Identification of ARARs Letter.	90	7	CORR / Correspondence	R10: Cora, Lori, H. (EPA)		ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100003412	12/28/2012	Email regarding Institutional controls analysis for FS.	51	1	EML / Email	R10: Cora, Lori, H. (EPA)	R10: Koch, Kristine, M. (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIAL/0531-Remedy Characterization/044-Feasibility Study (FS) (General)

100010498	12/23/2014	Letter regarding Evaluation of Dioxin/Furan Congeners against Total Dioxin/Furans Portland Harbor Superfund Site - Draft PH FS Dioxin-Furan Congener Evaluation Memo_2014-12-23.	2,760	30 CORR / Correspondence	R10: Coffey, Scott (CDM Smith), R10: Foster, Malena (CDM Smith)	R10: Sheldrake, Sean, A. (EPA), R10: Koch, Kristine, M. (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100002979	7/1/2015	Email regarding FS and Oregon DSL Rules.	96	2 EML / Email	R10: Cora, Lori, H. (EPA)	R10: Koch, Kristine, M. (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100003507	2/3/2016	Email concerning the Final Memoranda on MCLs and AWQC as ARARs at Portland Harbor.	5,878	2 CORR / Correspondence	R10: Cora, Lori, H. (EPA)	R10: Cora, Lori, H. (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100018610	2/3/2016	8-21-08 MCL Discussion Packet. Memorandum regarding LWG Memorandum: "Draft Background Document: Application of Oregon Water Quality Standards - For Discussion".	1,846	37 CORR / Correspondence	R10: Cora, Lori, H. (EPA)	R10: Cora, Lori, H. (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100018611	2/3/2016	Draft Background Document AWQS Discussion.	3,174	5 CORR / Correspondence	R10: Cora, Lori, H. (EPA)	R10: Mackey, Cyndy (EPA), R10: Yamamoto, Deb (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100018612	2/3/2016	Draft Background Document AWQS Discussion.	3,174	54 CORR / Correspondence	R10: (Lower Willamette Group)		ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/044-Feasibility Study (FS) (General)
100036178	12/23/2016	Comment Master Spreadsheet	50,539	437 CHT / Chart/Table	R10: (CDM)		ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/048-Public Comments (Remedial)
500001503	11/27/2006	11_27_06 email; Stormwater legal opinion.	43	2 EML / Email	R10: Koch, Kristine, M. (EPA)	R10: Blischke, Eric (CDM Smith)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100003499	11/29/2012	Email regarding Portland Harbor RI.	146	4 EML / Email	R10: Cora, Lori, H. (EPA)	R10: Koch, Kristine, M. (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	053-REMEDIATION/0531-Remedy Characterization/055-Remedial Investigation (RI) (General)
100002125	7/23/2009	Email regarding Application of MCLs to Contaminated Sediments.	48	4 EML / Email	R10: Blischke, Eric, L (EPA)	R10: Cora, Lori, H. (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002128	7/23/2009	Email regarding Portland Harbor aquifer opinion.	83	5 EML / Email	R10: Fuentes, Rene, C. (EPA)	R10: Cora, Lori, H. (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002142	7/28/2009	Portland Harbor Aquifer Area Map and Cross-sections.	2,478	5 CORR / Correspondence	R10: Fuentes, Rene, C. (EPA)	R10: (Unknown)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002141	8/4/2009	Email regarding Portland Harbor.	39	2 EML / Email	R10: Cora, Lori, H. (EPA)	R10: Anderson, Robin, M (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002143	8/6/2009	Email regarding Portland Harbor.	45	3 EML / Email	R10: Blischke, Eric, L (EPA)	R10: Cora, Lori, H. (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100002158	4/22/2010	Email regarding Jan 2010 meeting notes.	76	2 EML / Email	R10: Cora, Lori, H. (EPA)	R10: Blischke, Eric, L (EPA), R10: Koch, Kristine, M. (EPA), R10: Humphrey, Chip (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100003088	4/13/2015	Email regarding OPR ODEQ letter.	102	3 EML / Email	R10: Peterson, Lance, E (CDM Smith)	R10: Cora, Lori, H. (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
100003115	2/3/2016	Email regarding PH ARARs package.	76	8 EML / Email	R10: Cora, Lori, H. (EPA)	R10: Cora, Lori, H. (EPA)	ELECTRONIC RECORD	056-SITE SUPPORT/0563-State/Tribal Involvement
1432508	12/15/2005	Final Draft Cultural Resource Analysis Report for the Portland Harbor Superfund Site.	192,006	199 RPT / Report	R10: Ellis, David, V (Archaeological Investigations Northwest, Inc.)	R10: Burkholder, Kurt (Oregon Dept. of Justice), R10: Unknown, Unknown (Lower Willamette Group), R10: Cora, Lori, H. (EPA)	PAPER DOCUMENT	

# **PART 3 – RESPONSIVENESS SUMMARY**

## **Record of Decision**

### **Portland Harbor Superfund Site**

United States Environmental Protection Agency  
Region 10

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Union Pacific Railroad

## Acronyms and Abbreviations

AOC	Administrative Order on Consent
ARAR	applicable or relevant and appropriate requirements
BaPEq	benzo(a)pyrene equivalents
BEHP	bis(2-ethylhexyl) phthalate
BERA	baseline ecological risk assessment
BHHRA	baseline human health risk assessment
BMPs	best management practices
CAG	Portland Harbor Community Advisory Group
CDF	confined disposal facility
CERCLA	Comprehensive Environmental Response, Compensation & Liability Act of 1980
C-FERST	Community-Focused Exposure and Risk Screening Tool
CFR	Code of Federal Regulations
cPAH	carcinogenic polycyclic aromatic hydrocarbon
COC	contaminant of concern
CSM	conceptual site model
DDE	dichlorodiphenyldichloroethylene
DDT	dichlorodiphenyltrichloroethane
DEQ	Oregon Department of Environmental Quality
DDx	sum of 2,4'- and 4,4'- DDD; 2,4'- and 4,4'- DDE; and 2,4'- and 4,4'- DDT
EJSCREEN	EPA's environmental justice screening tool
ENR	enhanced natural recovery
EPA	U.S. Environmental Protection Agency
FMD	future maintenance dredge
HxCDF	1,2,3,4,7,8-hexachlorodibenzofuran
ICs	institutional controls
LSS	Legacy Site Services
LWG	Lower Willamette Group
MCL	maximum contaminant level
MCLG	maximum contaminant level goal
MNR	monitored natural recovery
M/W/ESB	Minority, Women and Emerging Small Business enterprises
MOU	February 2001 Memorandum of Understanding
NAPL	non-aqueous phase liquid
NAVD88	North American Vertical Datum 1988



NCP	National Contingency Plan
NMFS	National Marine Fisheries Service
NPDES	National Pollutant Discharge Elimination System
NPL	National Priorities List
NRRB	National Remedy Review Board
OU	operable unit
PAH	polycyclic aromatic hydrocarbon
PCB	polychlorinated biphenyl
PeCDD	1,2,3,7,8-pentachlorodibenzo-p-dioxin
PeCDF	2,3,4,7,8-pentachlorodibenzofuran
ppb	parts per billion
PRG	preliminary remediation goal
PRP	potentially responsible party
PTW	principal threat waste
RAL	remedial action level
RAO	remedial action objective
RM	river mile
RNA	regulated navigation area
ROD	record of decision
SDU	sediment decision unit
SEF	Sediment Evaluation Framework
Site	Portland Harbor Superfund Site
SMA	sediment management area
SuperJTI	Superfund Jobs Training Initiative
SWAC	surface-weighted average concentrations
TCDD	tetrachlorodibenzo-p-dioxin
TCDF	2,3,7,8-tetrachlorodibenzofuran
TPH	total petroleum hydrocarbon
UCLs	upper confidence limits
µg/kg	micrograms per kilogram
µg/L	micrograms per liter
USACE	U.S. Army Corps of Engineers

# Section 1

## Introduction

### 1.1 Overview and Background

This responsiveness summary provides a summary of the public's comments submitted to the U.S. Environmental Protection Agency (EPA) regarding the proposed plan (USEPA 2016c) for the in-river portion of the Portland Harbor Superfund Site (Site) and EPA's responses to those comments. A responsiveness summary is required by the National Oil and Hazardous Substances Pollution Contingency Plan (NCP) at 40 Code of Federal Regulation (CFR) § 300.430(f)(3)(F). All comments summarized in this document have been considered in EPA's final decision for the selection of the remedy for the Site.

During the public comment period, 7 out of the 10 signatories to the *Administrative Settlement and Order on Consent for the Remedial Investigation/Feasibility Study* (AOC), U.S. EPA Docket No. CERCLA-10-2001-0240, submitted three separate formal dispute statements<sup>1</sup> regarding EPA's feasibility study report (USEPA 2016b).

EPA's responses to all of the dispute issues are included as a part of this responsiveness summary. The dispute statements and supporting information provided by the Lower Willamette Group (LWG) have been considered in EPA's final decision for the selection of the remedy for the Site. These documents, EPA's responses, and the final dispute decision by the Director of Region 10's Office of Environmental Cleanup are included in the Administrative Record, which contains this record of decision (ROD) and other documents that form the basis for EPA's selected remedy.

EPA has worked closely with tribes, community members, and other stakeholders throughout the development of the remedial investigation, feasibility study, and proposed plan for the Site. Community participation played an essential role in the development of the proposed plan and ROD for the Site and is described in more detail below.

The responsiveness summary is organized as follows:

- Section 1 – Introduction
- Section 2 – Public Comments and Responses
- Section 3 – Tribal Comments and Responses
- Section 4 – State Comments and Responses
- Section 5 – National Marine Fisheries Service (NMFS) Comments and Responses

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<sup>1</sup> The seven LWG members are: Arkema, Inc., Chevron, U.S.A. Inc., Evraz, Inc. N.A., Gunderson LLC, NW Natural, TOC Holdings Co., and Union Pacific Railroad Company.

- Section 6 – References Cited
- Appendix A – PRP Dispute Resolutions for June 2016 – Legacy Site Services, Lower Willamette Group, Union Pacific Railroad

## 1.2 Community Involvement Activities before Issuing the Proposed Plan

EPA's outreach goal is to educate the community about the work being done at the Site and collaborate with stakeholders on how to successfully engage the public. In 2002, EPA developed a Community Involvement Plan after interviewing community members and other stakeholders. The plan has been updated throughout the process. Since the Site was listed, EPA has used public information sessions, fact sheets, websites, one-on-one discussions, and participation in community events as ways to share information about the Site with the broader community. Furthermore, EPA has provided financial support to the Willamette Riverkeeper since 2001 via a technical assistance grant, which allows a community group to contract their own technical advisor to interpret and explain technical reports, site conditions and EPA's proposed cleanup proposals and decisions. The Willamette Riverkeeper has used this grant to give support to the Portland Harbor Community Advisory Group (CAG), which provides a public forum for community members to learn about the Site and share community needs and concerns. Additionally, EPA established a listserv for the Site that now has over 3,000 subscribers as a method for sharing information and relevant events quickly and efficiently.

EPA made significant community outreach efforts leading up to the release of the proposed plan (USEPA 2016c) to get community input and to prepare people to participate in the public comment period. These efforts included producing and disseminating quality information such as community information cards, fact sheets, and videos; establishing information repositories at the Multnomah County Central Library, the St. Johns Library and the Kenton Library where the public can review documents associated with the Site; maintaining current information on EPA's Portland Harbor website; providing valuable information via the EPA Portland Harbor listserv; sustaining strong partnerships with the Oregon Department of Environmental Quality, the Oregon Health Authority, and the City of Portland to maximize community outreach efforts; attending and presenting at public forums and meetings; and organizing multiple community information sessions during January, February, and March of 2016. A detailed list of specific community involvement activities is available in EPA's current Portland Harbor Community Involvement Plan (accessible on EPA's website).

Additionally, EPA has engaged with many different groups over the years, including groups that represent or are concerned about communities with environmental justice concerns. EPA takes environmental justice seriously and has worked to understand environmental justice concerns in the Portland Harbor study area by using existing tools (such as EPA's Environmental Justice Screen tool and Community-Focused Exposure and Risk Screening Tool), applying the six principles of environmental justice that are outlined in Executive Order 12898 (Environmental Justice: Guidance Under the National Environmental Policy Act) and working with community groups. Some of the main groups that EPA has engaged with at the Portland Harbor Superfund Site include Communities of Color, Native American Youth Association, Latino Network, Right 2 Dream Too, Right 2 Survive, Willamette Riverkeeper, the Slavic Immigrant Association, Ecumenical Ministries Oregon, the Coalition of Black Men, the Oregon Environmental Justice Task Force, Oregon Tradeswomen, League of Women Voters, Verde, Portland Harbor Community Coalition, Sierra Club Portland, Occupy St.

Johns, Audubon Society, Asian Pacific American Network of Oregon, Vietnamese Community of Oregon, Portland neighborhood associations, and schools. EPA will continue to work with these groups and other interested parties to make sure that future outreach efforts reach historically underrepresented communities.

Lastly, throughout the process, EPA has meaningfully engaged with the affected tribes (the Confederated Tribes and Bands of the Yakama Nation, the Confederated Tribes of the Grand Ronde Community of Oregon, the Confederated Tribes of Siletz Indians, the Confederated Tribes of the Umatilla Indian Reservation, the Confederated Tribes of the Warm Springs Reservation of Oregon, and the Nez Perce Tribe) and has encouraged and facilitated tribal involvement, including conducting formal tribal consultations. The tribes were active members of the Technical and Legal Coordinating Teams for the Site established under a Memorandum of Understanding signed in 2001. The most recent government-to-government consultations occurred in July 2016. EPA considered numerous factors, such as tribal fish consumption rates and the effects of contamination at the Site on treaty-protected resources, to develop remedial alternatives for the Site. EPA recognizes that these tribes have treaty-reserved or other fishing rights in areas impacted by the Site and that, once implemented, the cleanup will improve fish habitat and help further the tribes' rights to fish.

Public outreach activities are further described in response to specific comments in Sections 2.35.2 and 2.36.1 of this document.

## 1.3 Community Involvement Activities after Issuing the Proposed Plan

Specific public engagement activities and other activities were conducted just prior to and after the June 8, 2016 release of EPA's Superfund proposed plan (USEPA 2016c) for the cleanup of the in-river portion of the Site. EPA extended the public comment to 90 days from the 30 days required by the NCP due to high community interest and requests for extensions. The public comment period ran from June 9 to September 6, 2016. The remedial investigation, feasibility study, proposed plan, and maps and other supporting documents were posted on EPA's Portland Harbor webpage. Hard copies and compact discs of the proposed plan and administrative record were made available at the information repositories.

The public comment period was announced in a number of locations to reach the widest audience possible. A public notice appeared in *The Oregonian* (both print and online) on June 8, 2016. Additionally, EPA sent announcements to the EPA Portland Harbor e-mail listserv, the Portland Office of Neighborhood Involvement e-mail list and the Portland Harbor CAG; posted to the EPA Region 10 Facebook page and Twitter page; delivered information to media outlets; and also updated the EPA Portland Harbor website.

EPA held a series of four public meetings during the public comment period. These public meetings were well advertised via e-mail, posting on the Portland Harbor website and on EPA social media accounts, dissemination of media advisories, and directly posting EPA notices in *The Oregonian*, *The Skanner*, *The Asian Reporter*, *El Hispanic News* (translated into Spanish), *KAHOH* (translated into Russian), and the *Phường Đông Times* (translated into Vietnamese). The meeting venues were widely spaced throughout the metro area (City of Portland Building, EXPO Center, University Place Conference Center, and the Ambridge Center). Two formal presentations of the plan were given at each meeting, followed by a question and answer period and an informal open house where the public could discuss the plan directly with EPA staff and ask questions one-on-one. At all public meetings,

there were opportunities to provide both written and oral comments on the proposed plan for the record. Language interpreters were available in person at the June 24 meeting (Spanish, Russian, Vietnamese, and Chinese) and at the July 20 meeting in the evening (Spanish, Russian and Arabic) and by telephone if needed for the June 29 and July 11 meetings. A community fact sheet as well as an acronym, glossary, contaminant summary and a handout detailing how to give written or oral comments were available in English, Spanish, Vietnamese, Chinese, and Russian at each public meeting. Transcripts from all of the public meetings are in the Administrative Record.

In addition to EPA-sponsored public meetings during the proposed plan public comment period, EPA discussed the proposed plan with the Confederated Tribes of Warm Springs, the Confederated Tribes of Grand Ronde, the Yakama Nation, Confederated Tribes of the Umatilla Indian Reservation and the Nez Perce Tribe, the potentially responsible parties (PRPs) allocation group, the Portland City Council and the Federal Congressional Delegation

Public outreach activities are further described in response to specific comments in Sections 2.35.2 and 2.36.1 of this document.

EPA's efforts to provide opportunities for public participation have gone well beyond the requirements of the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) and the NCP. The input EPA received from the public and other stakeholders throughout the remedial investigation/feasibility study was instrumental in developing the proposed plan and the ROD. Changes to the selected remedy as a result of public comment are documented in the ROD and in responses to comments in this responsiveness summary. The ongoing involvement of the community, tribes, and other stakeholders will remain an important part of the cleanup as it moves forward.

## 1.4 Overview of Comments Received

A total of 5,348 individual comment submissions were received. Comments were received by mail (paper post cards and letters), email, submission of written comments at public meetings, and submission of oral comment at public meetings (stenographer's transcript). Many comments were clearly personal thoughts (typed or hand written) and others were "form" submissions that were part of mailing or email campaigns, often with personal comments added. Any comments that were received in another language (oral or written) were translated.

Each submission was given a sequential individual comment ID number. Some commenters submitted more than once in the comment period using one or more of several different methods. For each ID number assigned, basic identification information (date received, commenter name, comment method [e.g., email, letter, and transcript], title or opening sentence) were tracked. A master spreadsheet was developed to track assigned identification numbers (such as 101.1, 101.2, 101.3, etc.) and the comments made in each submission. For larger comment submissions (generally from PRPs, government entities, or organizations), a summary of the comment was entered in the master spreadsheet. Names of individuals who submitted comments were recorded and tracked but are not available to the public due to EPA's Privacy Policy and commitment to protect personally identifiable information. Names of businesses, organizations, and government entities submitting comments are listed in Exhibit 1 below.

**Exhibit 1. Businesses, Groups, Organizations, and Government Entities Who Submitted Comments**

<p><b>Businesses and PRPs</b></p> <ul style="list-style-type: none"> <li>▪ ARCo and BP West Coast Products</li> <li>▪ Brix Maritime</li> <li>▪ Calbag Metals Co. Cascade General, Inc.</li> <li>▪ Cascade General Portland Shipyard</li> <li>▪ Chevron</li> <li>▪ ESCO</li> <li>▪ Evraz</li> <li>▪ Exxon Mobil</li> <li>▪ FMC Corp</li> <li>▪ Geosyntec</li> <li>▪ Greenbriar Gunderson</li> <li>▪ Kinder Morgan's</li> <li>▪ Knife River</li> <li>▪ Legacy Site Services</li> <li>▪ Lower Willamette Group</li> <li>▪ MMGL Corporation</li> <li>▪ MUR</li> <li>▪ Northwest Natural</li> <li>▪ Northwest Pipe</li> <li>▪ Olympic Tug and Barge</li> <li>▪ Participation and Common Interest Group</li> <li>▪ PGE Portland Harbor PRAP</li> <li>▪ Port of Portland</li> <li>▪ RM 11E Group</li> <li>▪ Schnitzer Steel Industries, Inc.</li> <li>▪ Shell Oil Products Comments</li> <li>▪ Shore Terminals</li> <li>▪ Siltronic</li> <li>▪ Swan Island Group</li> <li>▪ SLR International</li> <li>▪ The Marine Group BAE</li> </ul>	<ul style="list-style-type: none"> <li>▪ Tidewater Barge Lines, Inc.</li> <li>▪ TOC holdings Co</li> <li>▪ Toyota</li> <li>▪ Union Carbide</li> <li>▪ Union Pacific Railroad</li> <li>▪ Volcano Partners</li> </ul> <p><b>Groups and Organizations</b></p> <ul style="list-style-type: none"> <li>▪ Associated Oregon Industries</li> <li>▪ Cathedral Park Neighborhood Association</li> <li>▪ Columbia Corridor Association</li> <li>▪ Columbia Riverkeeper</li> <li>▪ Friends of Baltimore Woods</li> <li>▪ Friends of Pier Park</li> <li>▪ Impact Northwest</li> <li>▪ League of Women Voters</li> <li>▪ Linton Neighborhood Association</li> <li>▪ MAWE</li> <li>▪ North Clackamas Urban Watersheds Council</li> <li>▪ Northwest Industrial Neighborhood Association</li> <li>▪ Northwest Toxic Communities Coalition</li> <li>▪ Oregon Association of Minority Entrepreneurs</li> <li>▪ Portland Audubon Society</li> <li>▪ Portland Business Alliance</li> <li>▪ Portland Freight Committee</li> <li>▪ Portland Harbor Community Advisory Group</li> <li>▪ Portland Harbor Community Coalition</li> <li>▪ Portland Youth and Elders Council</li> <li>▪ Sierra Club</li> <li>▪ Sierra Club - Oregon</li> <li>▪ St. Johns Neighborhood Association</li> </ul>	<ul style="list-style-type: none"> <li>▪ Sediment Management Working Group Southwest Neighborhoods Inc.</li> <li>▪ University Park Neighborhood Association</li> <li>▪ Western States Petroleum Association</li> <li>▪ Willamette Partnership</li> <li>▪ Willamette Riverkeeper</li> <li>▪ Working Waterfront Coalition</li> </ul> <p><b>Tribes</b></p> <ul style="list-style-type: none"> <li>▪ Confederated Tribes and Bands of the Yakama Nation</li> <li>▪ Confederated Tribes of the Grand Ronde</li> <li>▪ Confederated Tribes of Siletz Indians</li> <li>▪ Confederated Tribes of the Warm Springs Reservation</li> <li>▪ Umatilla Indian Reservation</li> <li>▪ Nez Perce Tribe</li> </ul> <p><b>Other Government Entities</b></p> <ul style="list-style-type: none"> <li>▪ City of Portland</li> <li>▪ City of St Helens</li> <li>▪ Department of State Lands</li> <li>▪ National Marine Fisheries Service</li> <li>▪ Oregon Department of Environmental Quality</li> <li>▪ State of Oregon</li> <li>▪ US Army Corps of Engineers</li> <li>▪ West Multnomah Soil &amp; Water Conservation District</li> </ul> <p><b>Other</b></p> <ul style="list-style-type: none"> <li>▪ Region 10 Regional Tribal Operations Committee</li> </ul>
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A majority of comments received by EPA showed support for a cleanup of the river. Opinions on how that cleanup should take place were more diverse. A large number of commenters want more cleanup to occur than what was proposed while some commenters believe less active cleanup is needed. The most commonly seen comments were those that were included in form mailings (email or standard mail). The top 10 comments are shown below along with the section number in this responsiveness summary in which they are addressed in this document (from most to least common):

1. Clean up should make unlimited fish consumption safe for all groups of people (Section 2.3.2)
2. Support for more cleanup than Alternative I (Section 2.1.1)
3. Do not use a confined disposal facility (Section 2.14.1)
4. Consider community support for another cleanup alternative (B, G, G+, and/or H) (Section 2.31.1)
5. Ensure that the PRPs pay for cleanup (Section 2.23.1)
6. Ensure source areas are controlled (Section 2.27.1)
7. Improve insufficient environmental justice response (Section 2.35.2)
8. Provide timelines and metrics for success (Section 17.1)
9. Ensure instream monitoring before, during, and after remediation (Section 2.17.3)
10. Move quickly and don't delay cleanup (Section 2.2.3)

From a very big picture perspective, the CAG supported more cleanup than the preferred alternative and opposed use of a confined disposal facility (CDF). Environmental and/or community organizations generally echoed the CAG's concerns and wanted quality of life monitoring during cleanup and better baseline monitoring. They also wanted to make sure that the PRPs would be held responsible for the cost of cleanup. The tribes wanted more cleanup and were generally concerned with human health risk from ingestion of fish, environmental risk, the role of the tribes in remedial design and cleanup, and the protection of treaty rights. Groups representing businesses and those PRPs that submitted comments generally opposed all or large components of the preferred alternative, based on cost, cost-effectiveness, and technical concerns. They wanted flexibility in implementing the remedy (where and how) and also wanted remedial action levels to be more consistent throughout the Site. Local government comments cited jobs, infrastructure, cost, short-term impacts, sustainability, seismic and climate change issues, and coordination with EPA and the state. The state was supportive of the preferred alternative and provided comments that, among other things, asked for more flexibility during remedy implementation, requested more detail about river bank cleanup, and identified the need for the remedy to be coordinated with Department of State Lands, where necessary. Most people who expressed a preference in the remedy cited Alternatives G or H. Some local residents expressed concern over the cost of the preferred alternative, impacts on jobs and the local economy from the cleanup, and construction impacts of any remediation.

EPA received a number of submissions days and months after the close of the comment period. The comments have been labeled as "late comments" and added to the administrative record file. EPA has reviewed the late comments, including the documents enclosed with them. Consistent with 40 CFR § 300.825(c), the comments are included in the administrative record file as late comments, as opposed to being incorporated into the responsiveness summary, because none of the comments, or other information submitted with the comments, substantially support the need to significantly alter EPA's selected remedy. Moreover, much of the information is somewhat or entirely duplicative of information already contained in the administrative record file.



## Section 2

# Public Comments and Responses

## 2.1 Extent of Cleanup

### 2.1.1 Support for More Cleanup (No Specific Alternative Given)

#### Comment Summary

A total of 2,437 comments expressed support for a more robust cleanup than what was described in the proposed plan (USEPA 2016c). About half of these were from form emails or postcards. These comments often specified that at least 1,000 additional acres should be removed. The sediment removal percentage of 8 percent in the proposed plan was also cited frequently and was said to be unacceptable.

The form comments seen most frequently are:

- “The proposed cleanup of the Portland Harbor is a big win for industry and a bad deal for the public. EPA’s cleanup proposal tackles just 8 percent of a site area that is 100 percent toxic. A more aggressive plan is needed to prevent even more harm to human health and the environment. On behalf of all people who rely on the river for food, recreation, employment and culture, I urge EPA to implement a plan that: Moves quickly and sustainably reduces contaminants causing harm to Willamette and Columbia River resources. Includes ongoing monitoring and cleanup upriver and downriver from the site. Contributes to healthy fish that are safe to eat for all people. Holds polluters accountable for creating a safer Portland Harbor.”
- “At least 1000 acres of the most highly contaminated sediment should be dredged and removed to achieve the Fish Consumption Advisory goal” (or a slight variation of this).

The remainder of the comments were personal comments urging EPA to do more. Many of them were similar to the form comments in content but included personal thoughts on why doing more was important to the commenter.

Representative comments from this group include:

- “I am disappointed with EPA's proposed cleanup plan for the Willamette River. I live in SW Portland close to the river, and am aware of the contamination that spreads through the ecosystem as a result of the toxic levels of the river. This is a unique and rare opportunity to have meaningful and lasting cleanup and environmental restoration. I do not believe the current proposed cleanup plan goes far enough to properly clean up the river. This opportunity should not be wasted. The Willamette River is unsafe for fishing and swimming. I believe the proposed plan should be modified to include additional dredging and other measures in order to ensure a proper cleanup is undertaken.”
- “I am very disappointed in the thoroughness of EPA's cleanup plan. It does not go far enough to properly cleanup the river, due to a "balancing formula" which weights minimizing costs more than extent of cleanup.”



- “I am writing in regard to the proposed superfund cleanup. We need to clean up ALL of the polluted areas, not just some. It’s difficult to fathom why this is even up for debate: The draft cleanup plan leaves far too much of the river contaminated for generations to come.”
- “I believe the Draft Cleanup Plan isn't adequate in its current state to sufficiently recover the Willamette River Superfund Site. More than 65 known toxic chemicals are present throughout this stretch of river which pose serious chronic and acute health effects to humans, fish and wildlife. I would like to see EPA adopt a more aggressive approach to remediation. Specifically, I recommend even more dredging to remove contaminated sediment from the Willamette River. The current plan proposes to remove sediment from less than 10 percent of the area -- that doesn't go far enough.”
- “I do not feel that the proposed plan goes far enough to remove toxic sediment. I am deeply concerned that we are bringing our waterways to the brink of total devastation. I live in Portland and the Willamette is a key part of my life. I go to the Selwood Dog Park and swim from my friend's houseboat. I am concerned that the toxic sediment is too dangerous for the species on the river.”
- “I feel that people might say, well, where is your evidence that this is not enough. I think that the onus is on the people saying this plan is enough to show indisputably that it is enough, and it's not. I feel like the numbers, the amount of sediment that is taken out, the amount of years it's going to take is pulled out of a hat, and it's not adequately grounded. I'm very concerned.”
- “I have raised 4 children in Portland in the last 28 years and wish we could have felt safe swimming and fishing in the Willamette. For the sake of future generations, please work to remove the contamination completely form the river, not just 8 percent.”
- “Why not take this opportunity, for ourselves, for our wildlife, and for our ecosystem, to do a proper job of it? I can think of many reasons to not do otherwise, otherwise being what this plan proposes. The current plan is insufficient. I encourage EPA to consider a stronger plan, with more dredging and proper disposal of contaminants and with less reliance on covering them up or, more importantly, simply leaving them be in order for them to be disposed of (only perhaps, and oh so slowly, and not ever removed properly from the sediment and water of the rivers and ocean) by the river. People and wildlife are suffering from this contamination every day.”

### **EPA Response**

EPA sought in its proposed plan (USEPA 2016c) and in the selected remedy to develop a cost-effective alternative that balances several important factors, including maximizing risk reduction in the quickest timeframe while minimizing to the extent possible the impacts to the environment during construction; disturbance to the habitat for benthic invertebrates, fish, and wildlife; and long-term restrictions on human uses that can be allowed at capped areas. Due to the concern of the vast majority of commenters that the proposed plan left too much contamination for monitored natural recovery (MNR) as well as other issues raised with the proposed plan alternative, EPA has selected Alternative F Modified, which will actively address an additional 103 acres of contaminated sediment. Thus, the selected remedy will remove up to approximately 3 million cubic yards compared to the roughly 1.7 million cubic yards of sediment removed under Alternative I.

Contamination at the Site is not evenly distributed. There are high levels of contamination in certain areas that represent an ongoing source of contamination to the Willamette River and downstream.

EPA's selected remedy will actively remediate these higher concentration areas through a combination of dredging and capping. The selected remedy reduces risks due to people eating contaminated fish by 76 percent by dredging and capping 18 percent of the Site (394 acres of 2,167 total acres). Details about the number of acres addressed through cleanup, volume of contaminated material dredged, and other information for Alternative F Modified is included in Appendix IV of the ROD.

Dredging plays a significant role in the selected remedy as do capping, MNR, and enhanced natural recovery (ENR), based upon engineering considerations of site conditions (such as potential for erosion, sedimentation from upstream, and observed trends in natural recovery). The selected remedy calls for the highest levels of contamination to be removed through dredging (up to approximately 3 million cubic yards of material) or to be isolated through capping (176 acres). ENR and MNR are employed only in areas with lower levels of contamination. EPA's analysis of alternatives shows that any larger, removal-based remedy beyond Alternative F Modified would not substantially improve public health and environmental protection but would take a good deal longer; cost substantially more; have greater short-term impacts to aquatic organisms in the waterway and to the community surrounding the waterway because of dredging activity; and require the processing, transporting, and landfilling of millions of additional cubic yards of sediment with low levels of contamination.

Reductions in the sediment contaminant levels remaining after active remediation are expected to occur as cleaner upriver sediments deposit on surface sediment in the Site during low-flow periods and bury and dilute contaminated sediment. These sediments may be diluted to levels below risk thresholds, become buried below the depth where exposures to organisms can occur, or potentially be dispersed downstream during higher flow periods. Monitoring will be performed to measure progress toward achieving cleanup levels. The results of the monitoring program will be used to determine whether any additional actions are required to achieve the cleanup levels.

### 2.1.2 Support for Less Cleanup

#### Comment Summary

A total of 104 comments expressed a desire for less aggressive cleanup. They were almost always part of individual letters containing multiple comments, and the support for less was often paired with other topics found in this responsiveness summary, like danger to workers and economic harm to adjacent businesses. Commenters generally believed that Alternative I would be very disruptive and could potentially spread contamination downstream and uncover sediments that were already covered by natural deposition. Many comments referred to a study stating that natural recovery of the river is occurring and that the contaminant concentrations had already been reduced by 40 percent.

Representative comments include:

- “The Portland Harbor PRAP goes too far in recommending Alternative I. This Alternative does not appropriately balance risk reduction with cost effectiveness. Over a billion dollars will be spent to protect a population that is difficult to quantify in terms of who is eating fish and how much fish is being eaten. EPA's approach should focus on hot spot remediation more in line with Alternative B or D. Expanding remediation will not provide a significant risk reduction relative to cost. EPA needs to update their data used for decision making as recent data shows significant improvement in the river. In addition, EPA has to incorporate and evaluation of sustainability in the remedy to demonstrate the real cost to the environment and economic cost. EPA needs to look

hard at what it has proposed and reevaluate the approach to produce a better remedy that doesn't burden Portland.”

- “In addition to being a small business owner, I am a geologist and I am very concerned about the plan that EPA has proposed. They plan to dredge 167 acres and remove 1.9 million cubic yards from the Willamette and transport it to a landfill. As a study found in 2014, natural processes at work in the Willamette have already reduced contaminant levels by at least 40 percent. The contaminated sediments, once they're compacted by these natural processes, usually won't leach out.”
- “Less invasive cleanup methods sound like the better option, as has been done in the past in other areas. It seems like these methods would also work in this situation, especially considering the river has begun to restore itself naturally. Recent reports show there has been a 40 percent reduction in contamination levels. EPA is putting too high a priority on trying to make the river completely clean at an unreasonable cost, instead of allowing the natural process to continue.”
- “A lot of things have changed in the last 12 years and if there is any evidence natural restoration is working, the river should have a chance to heal itself. I agree with the course of action the Army Corps of Engineers recommends: waiting to see how natural processes work and then using more aggressive measures like dredging in a limited manner as necessary.”
- “Please do NOT dredge. Instead, let’s restrict businesses from discharging waste into the river. Dredging kills wildlife for miles - it’s happened before. We are 5 generations strong in North Portland - it has to stop!”
- “Dredging should be minimized, since “[l]imited data exists on the depth of contamination at the Site.” (Plan, p. 29.) Dredging sediments that do minimal harm in place is problematic—the dredging activity disturbs undredged sediments, potentially redistributing them to locations where they will be more harmful. It also requires a location to deposit them, which creates its own set of problems, including construction of a confined disposal facility. (See “Disposed Material Management” discussion, proposed plan p. 31.) If the extent of dredging cannot reliably be predicted, dredging in any areas other than those already dredged to maintain the navigation channel should be avoided.”
- “I live in the same neighborhood in Southwest Portland that I grew up in. I believe the Willamette River cleanup proposal is a serious mistake. It does not approach making sense to resurface buried pollutants and risk contaminating the river all over again. That would endanger the people and wildlife of Portland for no discernable reason. EPA should devise a plan that builds upon natural decontamination rather than reversing it.”
- “I am opposed to the costly EPA plan to dredge out a big chunk of the Willamette River. If they dig down into the riverbed, they would bring up more sediment and pollutants that would contaminate other parts of the river.”
- “If the river is correcting itself, it should be allowed to do so with as little input from humans as necessary. We should not be invading Mother Nature’s process to the point that we’re simply pushing all of that pollution and contamination back to the surface and out into the air.”

Two personal comments were received that spoke to the concern that proposed cleanup levels were not attainable. Specifically:

- “Proposing remediation levels that are below current background levels of presence for some contaminants, along with high fish consumption estimates for a very small segment of the population create basically unattainable level of remediation to be borne by the currently identified operators along the river.”

### **EPA Response**

EPA has determined that contamination found in sediment, groundwater, surface water, and biota in the Site presents an unacceptable risk to human health and the environment. There is no more recent data that would indicate there is no risk at the Site.

Active dredging, capping, and ENR will be performed under the selected remedy to address principal threat waste (PTW) and the worst of the contamination identified in the river; however, the larger area of contaminated sediment, covering 1,774 acres, will be remediated through MNR. It is important to recognize that the selected remedy relies on active cleanup to achieve the sediment remedial action levels (RALs) developed in the feasibility study, and MNR is being relied upon to further reduce contaminant concentrations to the more stringent cleanup levels and fish tissue targets. However, MNR has not been shown to be effective on its own to address some of the most highly contaminated areas in the harbor. As described in Appendix D8 of the feasibility study, six lines of evidence considering a range of physical and anthropogenic factors were evaluated to assess the viability of MNR for each sediment decision unit (SDU). Scores of -1, 0, or +1 were assigned based on each line of evidence representing whether deposition was unlikely (erosional), neutral (transitional), or likely (depositional), respectively. The scoring framework using these lines of evidence and the scores for each SDU are presented in Table D8-2 and Table D8-3 of the feasibility study report (USEPA 2016b) Appendix D, respectively.

While active remediation within the river and along the river bank, such as dredging, has higher short-term impacts than MNR, best management practices will be implemented to minimize contaminant releases from the remediation area. Engineered control measures (such as silt curtains and rigid containment) will also be implemented, where necessary, to limit contaminant releases.

## **2.2 Community and Local Business Concerns**

### **2.2.1 Retain Local Jobs and Industry**

#### **Comment Summary**

A total of 399 comments were received on the topic of retaining local jobs and industry. About 85 percent were received as form emails or postcards from the Portland Business Alliance, Greenbriar, or another group.

Representative form comments include:

- “A big, expensive river cleanup may sound like a good idea. But it isn’t. I want to see EPA support a clean river. But I also want to see EPA support a strong Portland economy. A strong economy relies heavily on the blue-collar jobs that exist on the Willamette River. Please do whatever you can to support the river and our health but also to make sure our jobs don’t go away.”

- “Hi, I seldom write public officials but I am today because I believe in clean rivers. We need to clear up the river, but I hope EPA regulators understand that we can’t have a pristine river that gets that way at the expense of small businesses and jobs. Thank you for what you do for our environment. Please consider my thoughts and approve a plan that’s good for our economy as well.”
- “Our Gunderson operations in Portland feature the only sideways launch for marine vessels west of the Mississippi and provide nearly 12,000 family-wage jobs. I urge EPA to support a more cost-effective plan that relies on the most current data, preserves local jobs and protects from unnecessary cost increases.”
- “I SUPPORT A CLEANUP OF THE LOWER WILLAMETTE RIVER THAT PROTECTS THE HEALTH OF PORTLANDERS AND THE ENVIRONMENT AND IS DONE COST-EFFECTIVELY. The Willamette River is many things to Portlanders - a place for recreation, a home for wildlife and also an industrial harbor, Oregon's largest seaport. Portland's working harbor is important to me. Nearly 30,000 people are employed in Portland's working harbor, jobs that must be preserved during the cleanup.”

The remaining 58 comments were personal comments from trade groups, businesses, and residents. Representative comments include:

- “The cleanup will be funded largely by local businesses, local utilities and local and state government. The impacts to the region of diverting capital dollars to a cleanup effort will mean employees will not be hired or lose their existing job, capital investments are not made and operational and infrastructure efforts will be scaled back or not happen at all.”
- “The Oregon Building and Construction Trades Council is an umbrella organization for approximately 25,000 union construction workers in Oregon. We recognize the proposed plan marks a significant milestone in a very long process for the Site. We support a river cleanup that protects the health of Portlanders and the environment and is done cost-effectively.... Nearly 30,000 people are employed in Portland's working harbor, jobs that must be preserved during the cleanup.”
- “The Portland Business Alliance (Alliance) represents close to 1,900 small and large businesses that employ 350,000 workers in the Portland region. The Alliance supports cleaning up the Site to protect public health and the environment. The Alliance also supports doing so in a way that is mindful of the impacts on the economy, jobs and other important local priorities. The cost of the cleanup will be borne throughout the community. In 2013, the Alliance commissioned a study that looked at the economic linkages from marine industrial businesses. The study analyzed vendors and suppliers to five large marine industrial businesses. At the time, 42 percent of the goods and services purchased by these five businesses were derived from local businesses, often small businesses. In all, about 300 local businesses are part of the supply chain for just five large marine industrial businesses.”
- “I've lived in Portland a very long time and I don't want to see our economy hurt by EPA's river cleanup plan.”
- “In recognition that there are many comments pushing hard on all sides, I want to encourage a broader view by the agency. I strongly support balanced, collaborative efforts to clean up Portland's Willamette River. With a fragile local economy so strongly connected to global trade

combined with a community ethos that emphasizes environmental protection and sustainability, we need to make sure the cleanup of hotspots is effective, Portland’s blue-collar harbor jobs do not suffer, and the overall cleanup plan is not too expensive.”

### **EPA Response**

CERCLA, or EPA’s two threshold criteria for selecting a Superfund statute, establishes five principal requirements for the selection of remedies. Remedies must:

- Protect human health and the environment
- Comply with applicable or relevant and appropriate requirements (ARARs) unless a waiver is justified
- Be cost-effective
- Utilize permanent solutions and alternative treatment technologies or resource recovery technologies to the maximum extent practicable
- Satisfy a preference for treatment as a principal element, or provide an explanation in the ROD why the preference was not met.

Within this context, EPA has nine remedy selection criteria described in the Superfund statute and its implementing regulations, commonly known as the National Contingency Plan or NCP. The individual criteria are either threshold, balancing or modifying criteria. EPA’s threshold criteria for selection of a Superfund remedy are:

- Overall protection of human health and the environment
- Compliance with applicable or relevant and appropriate requirements of federal and state environmental laws

Once these two criteria are satisfied, EPA determines the best balance of tradeoffs among the alternatives with respect to five balancing criteria, which are long-term effectiveness; short-term effectiveness; costs; reduction of toxicity, mobility and volume; and implementability and two modifying criteria, which are state and community (including tribal) acceptance, which includes a wide spectrum of often competing concerns.

EPA appreciates the concerns of the local workforce and businesses as important segments of the community as well as the desire expressed in many comments to retain the industrial/manufacturing base in this area. While there is no specific remedy selection criterion with respect to impact on local economies and business, EPA does consider these concerns in the broader context of its remedy selection criteria. For example, EPA considered current and reasonably anticipated future land use when developing the selected remedy to ensure that the remedy will be protective in the long term and will work with landowners and businesses through the design and implementation of the selected remedy. EPA will encourage the companies performing the cleanup to keep cleanup jobs with locally trained workers as much as possible and will offer resources where possible to teach special hazardous materials skills necessary to perform the cleanup. As EPA progresses through the design and construction of the remedy, it intends to work with local businesses to minimize potential adverse



impacts on them and to the local economy. The agency will draw on the many lessons learned from other communities and cleanups implemented under CERCLA to minimize the effects.

EPA is aware that other entities have been studying the economic impacts of the cleanup. For example, the City of Portland commissioned a 2012 economic study specific to the Superfund cleanup entitled *Economic Impacts of the Portland Harbor Superfund Site Cleanup* (Econorthwest 2012). A City of Portland press release described some of the study's findings as: "clean-up will inject new spending into Portland's regional economy and support jobs;" and "for every dollar spent on cleanup, more than a dollar in additional spending will be generated in the Portland economy as those employed in the cleanup purchase other goods and services in the region." It is EPA's belief that moving forward with the cleanup may enable properties to be more readily developed, which in some cases may have sat idle for years due to contamination issues.

## 2.2.2 Hire Locally

### Comment Summary

Twenty-nine comments were categorized as supporting local hiring during cleanup. Many requested that local people and firms be used where possible in conducting the cleanup work at the Site. Several people suggested apprenticeship programs. These comments came from residents, local associations (Oregon Association of Minority Entrepreneurs), and local government (City of Portland).

Representative comments include:

- "Cleaning the river can provide near-term job opportunities for the local job sector, and a clean river will provide increased economic opportunities by reducing economic uncertainties and promoting development along the river. EPA's Workforce Development and Training Program provides a means to enable and enhance these opportunities, such as through grants for programs that "recruit, train, and place local, unemployed and under-employed residents with the skills needed to secure full-time employment in the environmental field". The City values and supports diversity and is dedicated to advancing equity in public contracting by increasing opportunities for State of Oregon certified Minority, Women and Emerging Small Business enterprises (M/W/ESB). We encourage and support the use of strategies that promote the use of M/W/ESB contractors and mentoring opportunities between large and small M/W/ESB firms. The City has set a goal of 20 percent of PTE awards for prime consultant and sub-consultant contracts to State of Oregon certified M/W/ESB firms. We would like to see performing parties set similar targets for the work that lies ahead. The City appreciates EPA's ongoing efforts for workforce development. However, given the magnitude and complexity of the Site, the City requests that EPA use the opportunity to expand the job development program, and provide additional resources specific to Portland Harbor for local work force training. The City would also like to see every action possible in the ROD to ensure that local companies have preferential treatment in the contracting process in all stages of the cleanup."
- "We ask that MWESB firms are given the same info, chances, incentives, and encouragement to work on the project(s) in partnership with the Contractors hired by you."
- "The ROD should include a mechanism for local workforce training and hiring to ensure resources spent on mitigation efforts can have a positive employment impact on the communities most affected by the contaminated site."

- “EPA and DEQ should aim to offer economic benefits from remediation, such as employment and training opportunities, to the local community.”
- “I would like EPA to encourage the large companies that will be making millions of dollars coming into Portland, as well as the large industries here that will be working on the project, require them to provide apprenticeships and job training for local community members.”

### **EPA Response**

EPA expects that the cleanup work will be conducted by the PRPs under oversight from EPA and the Oregon Department of Environmental Quality (DEQ). EPA will encourage the PRPs and their contractors to hire locally but cannot require parties to do so. EPA will be using contractors to support the agency and aid in the oversight of the design and construction activities. These contractors have federal contracting goals related to the use of small businesses as well as businesses owned by minorities, women, and veterans and EPA strives to use these firms whenever possible.

Additionally, EPA is often able to provide job training and employment opportunities for people living in communities affected by Superfund sites through the Superfund Jobs Training Initiative (SuperJTI) program. EPA’s goal through the SuperJTI program is to work with all communities affected by the Site (including communities with environmental justice concerns) to develop job opportunities that remain long after construction is complete at the Site. EPA is already exploring how SuperJTI could be applied at the Site.

### **2.2.3 Move Quickly and Don’t Delay Cleanup**

#### **Comment Summary**

A total of 740 comments were received that urged EPA to move quickly and not delay the start of the project. Almost all (about 97 percent) were received as post cards (or a few emails) that stated “*I urge the EPA to implement a plan that moves quickly and sustainably reduces contaminants causing harm to Willamette and Columbia River resources.*” Several comments expressed the sentiment that delaying cleanup would just end up costing more, and it was also stated that the pursuit of perfection should not be responsible for delaying cleanup.

Representative comments include:

- “The cleanup of the rivers effects so many life forms that it should be a high priority to complete quickly! Not 5 years down the road, Not 10 years down the road. This known problem needs immediate attention and the funds we pay should be directly applied for an urgent solution. The longer we delay the slow process to resolve, the more work there will be to correct.”
- “The longer it sits undone, the dirtier and HARDER to clean it becomes!”
- “It is important that we act as soon as possible so we can minimize the cost and prevent permanent damage.”
- “If the cost is too much now, how much will it cost later?”
- “Recognizing the complexity of the cleanup, and the instability of the geological structure, the immediate target should be taking action - Not Perfection.”



- “We do need something to happen and I would hate for this to drag out any longer, I'd like to see something done as soon as possible but I would like a more thorough job of cleaning up the mess. That's what's most important I think, not running blame but getting this cleaned up.”
- “The process for developing a plan for cleanup of the Site has dragged on for many years. On one side we have those demanding perfection and only perfection and on the other side those anxious to complete the process as quickly as possible at lowest cost. HOWEVER MOST IMPORTANT IS THE NEED TO MOVE BEYOND THE YEARS OF PLANNING AND DISCUSSION AND BEGIN THE CLEAN UP PROCESS AS SOON AS POSSIBLE WHILE CONTINUE MONITORING TO TRACK IMPROVEMENTS AND THE NEED FOR FUTURE ACTION.”
- “We should have already started, if not completed, this project. We're slowing our own city's growth and stopping it from flourishing like it could by not getting this resolved.”

### **EPA Response**

EPA understands the public's frustration regarding the duration of remedial investigation, feasibility study, and remedy selection. At very large and complex sites, with multiple PRPs, governmental agencies, and tribes such as Portland Harbor, the process does take a number of years. It has taken many years to characterize the nature and extent of contamination over the length of the 11-mile Site and to screen and thoroughly evaluate the potential options for cleanup in order to develop a proposed plan for cleanup. However, the public should be assured that, once a ROD is signed for the Site, EPA will move quickly to initiate next steps with the PRPs toward remedial design and cleanup. We trust the PRPs will want to proceed with the cleanup process. Working with the PRPs, state, tribes, other federal agencies, and the public, we can forge a game plan to move the design and construction process forward expeditiously. However, if an agreement cannot be reached, EPA has enforcement tools to allow the cleanup process to proceed unilaterally if necessary.

## **2.2.4 Cleanup Will Take Too Long**

### **Comment Summary**

Twenty-two personal comments were received that focused on the length of time to complete cleanup – essentially that the estimate of 20 to 30 years was too long. One commenter stated there were ways to reduce cleanup time and spoke of efforts by the Cathedral Park Neighborhood to assess community sentiment on length of time for cleanup.

Representative comments included:

- “Waiting a generation to see if fish are safe for eating is unacceptable.”
- “A 30-year cleanup plan duration exposes the public and the environment to health hazards for too long.”
- “What we need is a plan that isn't going to take 20 or 30 years.”
- “I am concerned that the draft for the Portland Harbor cleanup is proposing a partial rather than full clean up, and is proposing an overly long time frame for doing the work. Even though we warn people currently not to eat fish in the lower Willamette, people still do. We should work quickly to make the river cleaner so the fish can be eaten without harm.”
- “The timeframe suggested by EPA is that the cleanup under Alternative I will take up to 30 years. How is such a timeframe appropriate when the river has been imbued in places with toxic

contaminants for many decades? This is not well explained in the rationale for Alternative I. The US EPA should select or develop an Alternative that gets the job done in a more timely manner. Should the residents of Portland or river users be subject to increased toxic exposure just so one of the PRPs can save a few dollars over time? EPA should develop an approach that gets the job done more quickly, and reduces risk more rapidly. This is a very basic exception that benefits a wide range of people and wildlife.”

- “Thirty years is far too long to achieve full usability of the river, as well as to remove the fish advisory.”
- “Time to completion is a function of a number of variables. For example, The Cathedral Park Neighborhood, in conjunction with the graduating class of Urban Planners at PSU in the year 2015, conducted extensive polling, canvassing, and charrettes among the neighborhood to determine that residents favored accelerated cleanup and its negatives over a longer period of moderate activity. This choice was influenced by a minimal awareness of ongoing channel dredging by the Port of Portland. Additionally, multiple sites can be worked simultaneously. This has the potential to shorten the duration of the project. In the short term, workers, community, and the environment all benefit from a real time, interactive web site. Air quality needs 24 hour monitoring to protect all parties. Cofferdams, de-watering barges, hydraulic dredging, and environmental bucket dredging all serve to minimize impacts on the water column. Special consideration needs to be paid to volatilizing PCB’s.”

### **EPA Response**

EPA understands the frustration with the timeframes for cleanup to achieve its objectives. It will take time. However, because there are sensitive species, such as migrating salmon, that use the Willamette River, there are constraints on the time that physical activities for cleanup can take place in the river. Currently, the “in-river work window” approved by the state and federal resource agencies is approximately between July 1 and October 31, based on actual fish migration observations. Additionally, there are also constraints on the number of dredges, barges, and other equipment that can be used so there is not unacceptable interference with commercial, industrial, and recreational uses of the river. With these constraints in mind, physical cleanup activities, such as dredging/disposal and capping, are expected to take 13 years to complete after remedial design, assuming it is conducted continuously under those constraints.

Once the physical activities of the cleanup are complete and the highly contaminated areas are removed or capped, contaminant concentrations in sediment will be greatly reduced. There are multiple areas that will be cleaned up over the course of the 13 years of construction. Progress will happen incrementally, and at the conclusion of all the construction, EPA expects that 85 percent of the fish consumption risk is projected to be addressed—At that time, restrictions on resident fish consumption from the river (which is currently not advised) will be reevaluated and relaxed if protective. Therefore, there would be measurable improvement directly after construction. Accelerating this timeline significantly probably will not be feasible due to the constraints described above. Immediately after construction of the selected remedy, it is estimated that wildlife will be able to safely consume prey from within the Site since all non-cancer risks on a site-wide scale will be addressed. It is estimated that bis(2-ethylhexyl) phthalate (BEHP) will be at a hazard quotient (HQ) of 5 at a river mile scale and 3 at an SDU scale, very close to the target of 1 and well within potential calculation variances.

The remaining risk to people eating fish is expected to decrease over the following years as natural recovery takes place. If EPA determines that the cleanup, including the natural recovery component, is not occurring as expected, additional cleanup actions may be taken to reach the cleanup levels.

However, in consideration of public comments that sought more cleanup and more certainty of achieving cleanup goals, EPA has selected a cleanup that addresses more contaminated sediment by dredging and capping, which upon the end of construction, gets the sediment much closer to the cleanup levels. Thus, it is expected to take less time for MNR to work. Because the selected remedy involves more dredging and capping, the construction timeframe has increased from 7 to 13 years.

## 2.2.5 The Community Needs Accurate Cleanup Costs

### Comment Summary

Nineteen comments were received that addressed the accuracy of costs derived for the feasibility study. Half were included in form emails and stated:

- “I urge EPA to get their cost numbers right so Portlanders are educated about the costs of cleanup and its benefits. The cleanup of the Portland Harbor arrives at a time that our city is growing and we face many critical affordability issues. We need a final cleanup plan that relies on accurate cost estimates and remains cost-effective.”

The remainder were personal comments and included a belief that costs were underestimated, unreliable, and overly optimistic. It was also clear that the commenters believed that the costs presented in the feasibility study and proposed plan were intended to be actual cleanup costs.

Representative comments include:

- “We are concerned about the ultimate cost of cleanup and ensuring that the true costs and benefits are transparent to Portlanders. We believe some of EPA’s cost assumptions are overly-optimistic and resulted in a final price tag that is not accurate.”
- “We believe some of EPA’s cost assumptions are overly-optimistic and resulted in a final price tag that is not accurate. Our livelihoods depend on providing accurate cost estimates.”
- “We believe that the cost estimate of the preferred alternative (\$746 M) issued by EPA dramatically understates the true cost of performing the proposed remediation, which will likely be more than \$1.5 billion. It includes a number of unrealistic assumptions: (1) 24/6 dredging; (2) seamless dredging with no breaks to reposition barges between cleanup areas, install sheet pile walls or account for unforeseen circumstances; and (3) availability of necessary dredge and barge equipment during limited fish windows. Furthermore, it is unclear how the agency was able to cut its prior cost projections in half in a matter of months while changing little in the way of cleanup action. EPA’s preferred cleanup alternative needs to be cost-effective and proportional to realistic assessment of the benefits that will justify the significant diversion of resources to cleanup actions. It is imperative that EPA recognize and considers these important economic impacts.”

### EPA Response

EPA recognizes that the intended purpose and use of cost estimates during a feasibility study for remedial alternatives may be misunderstood by those not familiar with the Superfund process, leading to the incorrect perception that feasibility study cost estimates are “inaccurate” or not the “true” costs. The stated purpose for feasibility study cost estimates in EPA’s *“A Guide to Developing and Documenting*

*Cost Estimates During the FS*" (USEPA 2000) is to compare remedial alternatives during the remedy selection process.

The information provided in the cost estimate is based on the best available information regarding the anticipated scope of the remedial alternatives, and thus the issue may be the technical assumptions and not the costs that they reflect. The stated accuracy in the 2000 guidance for feasibility study cost estimates at the detailed analysis phase is +50 to -30 percent of actual cost. The estimates were accurate for the level of detail and scope of the alternatives development in a feasibility study. The cost estimates are developed to reflect the understanding of the alternatives as described in the feasibility study given the understandable uncertainties that exist and will continue to exist even after a decision on a remedy approach is made, prior to design and construction.

The cost estimates were reviewed by EPA's National Remedy Review Board (NRRB). The NRRB reviewed the feasibility study cost estimates in November 2015 and indicated that the costs presented were generally in the range of costs at other contaminated sediment Superfund Sites (AR Doc#100001536). The NRRB, while determining that the costs used were reasonable when compared to other contaminated sediment Superfund sites, did recommend further evaluation of specific assumptions and related costs. EPA reviewed comments pertaining to cost estimates and made changes to assumptions for all alternatives and updated the cost estimates, as appropriate, to better reflect the anticipated scope of a future remedy for the Portland Harbor Site as it became further defined between November 2015 and the 2016 drafts of the feasibility study reports. For instance, EPA reviewed assumptions pertaining to treatment of contaminated sediment for consistency with early actions and also reviewed unit costs for remedy components such as capping and dredging to reflect consistency with the productivity rates anticipated in EPA's evaluations.

Although there is a perception that the remedial alternatives did not really change between November 2015 and June 2016 because the components used were similar, there were significant changes in assumptions related to quantities of the components (such as, reduced depths of dredging, reduced quantities of sediment treated prior to disposal, reduced extent of river requiring mitigation). Reevaluations of these assumptions, specifically due to more refined development of the alternative's scopes, resulted in lower overall costs in the feasibility study presented in July 2016 than as presented to the NRRB in November 2015. EPA's position is that the cost methodology and sources used in the feasibility study report (USEPA 2016b) meet the stated accuracy range. This reevaluation of cost was reasonable given the significant changes in assumptions made for remedy components within the alternatives. In addition, per the feasibility study cost guidance, EPA uses cost factors for professional and technical services as well as contingency factors to account for unknown or unforeseen conditions that can affect the total cost. Detailed cost backup and individual cost summaries for each alternative presented in Appendix G of the feasibility study report meet the documentation guidelines presented in Chapter 6 of the 2000 guidance.

## 2.2.6 Cleanup Will Create Economic Impacts for Local Businesses

### Comment Summary

Eighty comments were received that focused on short-term impacts to local businesses and the economy during cleanup. They were all personal comments that were part of letters received from the Portland residents and the business community. Commenters feared that the impacts of the cleanup on local businesses (loss of customers and revenues) and resource users (loss of access) during

construction were unacceptable. Many of the commenters appeared to believe that large portions of the river would be shut down or impeded by dredging or other intrusive activities for a long period of time.

Representative comments include:

- “To see (the Willamette) torn up for decades because of a restoration project that is not really necessary would only serve to hurt the city's economy. I would not continue to visit the area while it was an active construction zone. Not only will EPA's plan hurt out economy in terms of businesses losing money, but it will also trickle down and have negative impacts on our residents.”
- “The Willamette and the waterfront are essential parts of what makes Portland a great place to live and also a great place to visit. A project like the dredging proposed by EPA could not help but have a negative impact. Years of dredging and construction activity would destroy what makes the waterfront attractive. I'd have to seriously reconsider if I wanted to keep going there, especially if it were noisy. I'm sure other residents and tourists would feel the same.”
- “If I owned a business on the riverfront, I wouldn't enjoy having loud, heavy machinery outside my building twenty-four hours a day, and I'm sure it will affect business for the worse. This dredging project could be going on for decades, which is overboard and unnecessary. Businesses that had nothing to do with contaminating the river in the first place should not have to pay such a steep price. EPA should consider an alternate plan, based on advice from people and businesses in Portland.”
- Keeping dredging machinery in virtually constant operation for years means the river will be closed most of the time. A good friend of mine runs the Portland Kayak Company, and his business would be completely finished if that happened. Indeed, it would mean disaster for Portland's entire shipping industry.”
- “It would affect businesses tremendously and many would likely shut down. People would probably not make the extra effort required to travel to the affected businesses if the easiest routes were blocked. If areas of the river are closed, businesses that rely on it would suffer, and when one area of the economy is affected, all areas are affected. This dredging plan is significantly more strict and expensive than what has been performed in other areas with similar contamination.”
- “The ROD should affirm that seasonal timing would be considered to account for busier and slower period of business, facility operations, and prevent adverse economic impacts.”

### **EPA Response**

EPA appreciates the concerns of river users about the impacts of the dredging and other construction components of the cleanup. EPA's decision-making process considered such impacts in its evaluation. The need to balance disruption of recreational and commercial use of the river while addressing risks to fish consumers and the wildlife and fish that live in the river has been considered in EPA's evaluation of the alternatives and will be an ongoing consideration as the selected remedy is being designed and constructed.

The selected remedy addresses approximately a 10-mile stretch of the lower Willamette River, consisting of approximately 2,167 acres. However, active cleanup would take place in smaller areas that make up approximately 394 acres, or about 18 percent of the Site. The amount of time cleanup activities

may occur in the river is likely to be constrained to within the in-river work window that will be coordinated with state and federal resource agencies but may be as short as, July 1 to October 31. Cleanup activities will take place within these localized areas at different times throughout the construction period, as determined during remedial design. As such, portions of the river will be inaccessible for some portion of the construction period, but other portions would remain open.

Cleanup activities, including the use of dredges and barges generally should be consistent with existing uses of the river in terms of the level of noise, lighting, and human activity. During the construction period, there would be increased barge traffic as barges transport dredged material from the active cleanup area downstream. Cleanup activities with the potential to restrict navigation in the harbor channel will be coordinated with the U. S. Army Corps of Engineers (USACE), U.S. Coast Guard, and other stakeholders during remedial design.

EPA recognizes the need to attempt to minimize interference where possible with commercial, industrial, and other uses of the river and will take into consideration those operations and constraints during remedial design and construction. EPA and the performing parties will work with landowners and businesses to minimize impacts, such as berthing disruption, through the design and implementation of the remedial actions. Seasonal timing will be considered to account for busier and slower periods of business if possible, but would not supersede other timing required by ARARs, like in-river work windows for protection of listed species.

During construction, areas with active cleanup activities will be inaccessible for the duration of cleanup in that portion of the river. Placement of caps in some nearshore areas may result in permanent restrictions on the use of anchors, spuds, and other equipment in order to protect the caps. However, existing industrial uses and commercial shipping within the Portland Harbor Site already limits accessibility for recreational users in many of these areas. Section 2.2.1 of this responsiveness summary contains more information on economic benefits of the cleanup on the regional economy, jobs, and development of idle properties along the river.

### 2.2.7 Cleanup Will Cause Local Taxes and Utility Rates to Rise

#### Comment Summary

A total of 188 comments were received that suggested that utility rates and/or taxes would rise as a result of the cleanup. About 65 percent of these were in the form of a pre-printed postcard that stated:

- “Please accept my comments to the PH Superfund proposal released by EPA in June. As an employee of the Greenbriar Companies, I am concerned that the plan is too extreme. It negatively impacts our company's operations and will increase my own utility bills and water/sewer fees.”

The remaining comments were personal comments from local businesses or residents, expressing hardships they would feel if taxes and/or utilities increased. Representative comments from businesses include:

- “If EPA approves a big, expensive cleanup, I am worried that it will lead to higher costs for small companies and Oregonians. We also have utilities who will pay part of the cost and I’m worried a big cleanup bill would lead to higher utility bills. Thank you for recognizing that there is a real cost to employers for this cleanup. And thank you for everything you’re doing to protect our river. It’s a terrible idea to approve a cleanup plan that may hurt jobs and is so expensive.”



- “I am the President of Gann Brothers Printing, a third-generation printing company that has been in Portland for 115 years. Raising taxes and utilities to pay for a billion-dollar cleanup would kill us. Most of our machines are run by electricity. During the summer, our electricity bills run close to \$500 a month; during the winter, they run close to \$800 a month. We can't afford them to go up. Higher operating costs make it even more difficult to compete with national companies like Vista print.”
- “As a small business owner, I can tell you that this plan will harm individuals and the economy as a whole. I'm a partner at Barbo Machinery & Supply. Today, there are six of us working here. If business taxes rise to fund this project, salaries will have to be cut. We do our best to project our budget out for two to three years, but that kind of hidden tax isn't good.”

Representative comments from residents include:

- “As a retired person on a fixed income, I am already paying enough money to the city of Portland as it is. I don't want to be forced to pay any more in taxes because of the cost of this project. I'm in favor of a lower-cost alternative, but Portland residents need to have their voices heard.”
- “Increasing taxes to complete a project that doesn't guarantee resolution is not a project many will support. When you live on a fixed income like my wife and I, every single dollar counts. I can't wait to get my big 2.5 percent social security raise next year. That should tell you just how much every penny counts for taxpayers. It costs me \$4,200 a year just to live in my own house, and that doesn't include insurance, the water bill, sewer, or anything else. We just plain don't have the extra money to pay for something that will not fix anything.”
- “The huge cost of EPA's plan would take too much money out of the economy that we just don't have. This plan would result in higher taxes for Oregon residents. I am retired, but my husband still works. We can't afford any more taxes, period. If taxes were to increase, my husband and I would have to sell our home.”

### **EPA Response**

EPA's two threshold criteria for selection of a Superfund remedy are: (1) overall protection of human health and the environment and (2) compliance with the substantive applicable or relevant and appropriate requirements of federal and state environmental laws. Once these two criteria are satisfied, EPA determines the best balance of tradeoffs among the alternatives with respect to balancing criteria, one of which is cost, and modifying criteria (which includes a wide spectrum of often competing concerns). Cost estimates developed for the cleanup will be refined during the remedial design phase. Within the context of the Superfund statute and regulations, the sources of funding for remedy design, construction and maintenance are not within the scope of criteria that EPA can consider in making remedy decisions, and EPA cannot address questions of funding or liability in any detail at this time.

Over 150 parties have been identified as potentially responsible for the costs of investigation and cleanup of the Site. Some public utilities and the city and state are included in that group. PRPs may seek to pass some of the cost on to their customers, resulting in higher utility bills. It is unclear at this time to what extent this will occur. EPA intends to request all PRPs to participate in funding and performing the cleanup, which will spread the cost amongst many parties.

## 2.2.8 Implement the Cleanup Safely

### Comment Summary

Twenty personal comments were received on this topic. Commenters were interested in ensuring that the remedial action be completed as safely as possible. Their primary concerns centered on endangering the health of local residents and workers through the release of contaminants to the air and endangering environmental health via release of contaminated sediments while dredging. Suggestions included air and water monitoring, best management practices, meetings with the community, consultation with the University, and others. It was stated that EPA should require use of best practices to avoid off-gassing and volatilization of toxic substances, and ensure that workers are trained in these practices. Thoughts for the remedial design included that EPA should require dredging by environmental/closed buckets and specification of which near-shore areas should be dredged within sheet pile (or other effective) enclosures.

Representative comments include:

- “As specified in “Common Elements of All Alternatives” it will be important for the remedial design plan to require dredging by environmental/closed buckets to minimize release of contaminants to the water column (Plan, p. 28). Likewise, depending on contaminant concentrations and mobility, EPA’s final plan should specify which near-shore areas should be dredged within sheet pile (or other effective) enclosures so that resuspended contaminants are not dispersed to surrounding river areas. “
- “This needs to be organized by existing coalitions who must insist on coordination between local, state and federal authorities. These entities must insist on air and water quality monitoring while this dredging takes place until the contaminants are safely transferred to a toxic dump location well moved from our fish and water resources. The safety of these workers and impacted neighborhoods need to be attended to until the contamination is removed. “
- “During the entire length of cleanup process, require the most effective fuel/emissions filters available and ongoing monitoring to minimize exposure for all cleanup-related activities, including but not limited to freight, dredging, barges, and other equipment. If air toxins are found to exceed acceptable levels, immediately take measures to intervene. Ensure the health and safety of people and the environment in the transport and disposal of toxic substances Do NOT dispose of contaminated sediment in a way that will negatively impact the health of people living or working near the disposal site. Use known best practices to avoid off-gassing and volatilization of toxic substances, and ensure that all workers are trained in these practices.”
- “Atmospheric release of polychlorinated biphenyls (PCBs) is not included in the EPA analysis or proposed plan. Inhalation of PCBs during the remediation process can cause harmful health effects in people. The proposed plan should address and include air monitoring during and after the removal and remedial actions.”
- “The contaminants need to be removed using the utmost caution so as not to contaminate North Portland's already unhealthy air even more. Air monitoring is imperative while dredging is going on.”



### EPA Response

EPA is focused on protecting the health and safety of local residents and workers and minimizing potential impacts to the environment throughout remedy implementation. During implementation of the cleanup, worker safety requirements must be complied with, and water quality standards will be met. Air emissions, if any, will be monitored as necessary.

During the remedial design, site-specific plans will be developed to address potential issues and document best management practices and other procedures for protection of human health and the environment. Health and safety plans by parties performing the work are required to be put in place. Plans will be developed for conducting air and water quality monitoring during dredging and other activities with the potential to release contaminants. Air monitoring will be conducted at the work area and along its perimeter likely at the outset of work and where necessary as work continues. Water quality monitoring will also be performed during dredging and other in-river activities, which might include turbidity, chemical, and other monitoring. In the unlikely event that unacceptable levels of contaminants are detected, operations will be stopped and measures will be taken to promptly address such releases.

Contingency plans outlining corrective actions that will be taken to correct damage to the environment due to accident, natural causes, or failure to follow procedures will also be prepared. Methods for implementing green and sustainable remediation practices (such as, reduce vehicle emissions and fuel consumption, maximize efficiency of material transport/disposal, promote recycling, and analyze haul route proximity to schools) will also be developed during remedial design which will help to minimize impacts to the community.

## 2.2.9 Improve Opportunities for Public River Use

### Comment Summary

Thirteen comments were received regarding public access to the river, and all requested that access be improved to make recreation easier as part of the cleanup. About half were received as part of a post card mailing and stated:

- “More access points should be created to make recreation on our river easier.”

The remainder were personal comments. One person referenced the increased access created by the installation of the Big Pipe upriver and other people believed that the PRPs currently limited access and that EPA could improve that situation.

Representative comments include:

- “There are opportunities to enable people to get to the Willamette River, and utilize what it has to offer at multiple properties along the Portland Harbor stretch. One of the main constraints to access has been the unwillingness of some landowners to enable to public to gain access to the river. We feel that there are opportunities that are inherent in the development of the cleanup process, and that can be prescribed in the ROD, that can enhance and improve access at multiple sites along the river.”
- “Improved River Access. As part of the remedy EPA should include provisions for improved access along the river. There are opportunities to enable people to get to the Willamette River, and utilize what it has to offer at multiple properties along the Portland Harbor stretch. One of the main constraints to access has been the unwillingness of some landowners to enable to public to

gain access to the river. We feel that there are opportunities that are inherent in the development of the cleanup process, and that can be prescribed in the ROD, that can enhance and improve access at multiple sites along the river.”

- “Public Access: Increase access to public lands along the river. Prioritize impacted communities – including youth – in the design, cleanup, restoration, and development of new sites.”
- “The installation of the Big Pipe upriver has allowed a group of us to safely swim in the Willamette River for the past three years. As part of the Human Access Project we support conservation, education and stewardship of the Willamette River and its entire watershed. We are thrilled to be able to access at least parts of the river already.”
- “Cleanup actions should support improved human access to the river where it is consistent with ecological and economic needs.”

### **EPA Response**

CERCLA authorizes EPA to take response actions to address risks to human health and the environment from releases or potential threats of releases of hazardous substances. In general, EPA does not have authority to require permanent public access through privately owned land or to specifically develop additional public access points because such requirements generally are not related to reducing risks to people or ecological receptors. However, EPA’s experience at other Superfund sites is that either during or after remedy implementation, there may be opportunities to enhance access of future use beyond what would be required by the selected remedy, which can be discussed. EPA will ensure that the design of the remedy accommodates reasonably anticipated future uses to the extent possible while still achieving all cleanup objectives, including public access areas where owners and municipalities plan for such access.

## **2.2.10 Address Concerns of Sauvie Island Residents**

### **Comment Summary**

Comments were received from members of the Sauvie Island Grange. The comments asked that EPA address the concerns of the local inhabitants of Sauvie Island about the effects of Site contaminants from upstream on their drinking water wells and on the parts of the Willamette River along Sauvie Island that are used for docking houseboats and for recreation. The letter also expressed concerns about effects that are short and long-term downriver of the Site and states that there is existing contamination.

### **EPA Response**

EPA shares commenters’ concerns about providing for a remedy that addresses risks to the health and well-being of everyone who lives near or uses the Willamette River. The selected remedy extends downstream to river mile (RM) 1.9 and fronts a portion of Sauvie Island. The remedial investigation report (USEPA 2016a) summarizes the nature and extent of contamination within the in-river portion of the Site. The report includes the baseline human health and ecological risk assessments and identifies the higher risk areas along the Willamette River.

During the remedial investigation, sediment samples were collected from river miles 0 to 3 along Sauvie Island as well 1 mile downstream within the Multnomah channel. These investigations can be found summarized in Table 5.6-2 and Section 2.1.4.1.8 of the remedial investigation report. Further, sample locations and results are summarized on Figures 1.2-6a-b to 1.2-18a-b of the feasibility study report (USEPA 2016b). While the samples taken along Sauvie Island do not cover the entire extent of the Island,

the samples represent portions of the island closest to the upstream contamination and therefore more likely to have higher contamination levels. Based on the sample results, the areas bordering Sauvie Island were determined to have a much lower risk than the upstream areas identified for further cleanup and feasibility study analysis.

Specifically:

- EPA collected fish samples from downstream of the study area (river mile 0 to 1.9) and in the Multnomah Channel and did not find contaminants at levels of concern.
- EPA sampled sediments immediately downstream of the study area in the Willamette River and Multnomah Channel and found some low-level contamination. There was some evidence of contaminant migration from the study area for certain contaminants.
- EPA tested surface water and found these results, reported in the remedial investigation report (USEPA 2016a):
  - *“Concentrations of contaminants in surface water within the study area are generally higher than those measured in upstream samples under all flow conditions. Elevated concentrations were observed in both transect (cross-river composite samples) and single-point surface water samples at various locations throughout the study area. The highest contaminant concentrations in surface water within the Site were found near known sources. At the downstream end of the study area and Multnomah Channel, concentrations of total PCBs, dioxin/furans, DDX, bis(2-ethylhexyl) phthalate (BEHP), chlordanes, and aldrin in surface water are greater than concentrations entering the study area and indicate that contamination from Portland Harbor is being transported downstream to the Columbia River.”*

Based on this information, approximately 1 mile of the Willamette River along Sauvie Island has been identified as part of the Site due to unacceptable risks and is included in the selected remedy for MNR.

EPA’s selected remedy will remove contamination as effectively and efficiently as possible by targeting areas with the highest concentrations and risk with active remedial technologies in order to safeguard the communities along the Willamette, including those downstream of higher risk areas.

Regarding concerns about the quality of well water supplying drinking water to the Sauvie Island community, it may be likely that some of the Island’s private domestic wells are accessing the same groundwater aquifer. In such cases, test results from a nearby public water system may approximate what the water quality is in a private well. In addition, if a private well has been tested recently by its owner, the results could also approximate neighboring wells.

EPA suggests the community contact the Oregon Health Authority, which is the agency in charge of monitoring community well water supply compliance with drinking water quality regulations. The community can also access information about the water supplies regulated by Oregon Health Authority online at <https://yourwater.oregon.gov/>.

### 2.2.11 Address Enforcement Concerns

#### Comment Summary

Four comments were received that referenced enforcement issues. These included prevention of activities that might compromise the remedy, compliance with fish advisories, completion of existing

actions at upstream sites, PRP issues, and obligations of cleanup for newer small landowners next to or within the Site.

These comments include:

- “Cleaning up is only the start. I want to see ground breaking regulation on our river that prohibits emissions. This means strict regulation - a gatekeeper law - that requires all motorized vehicles traveling the river to be licensed and approved before travel or regulation. This will create jobs and will greatly improve the quality of our river water, thus improving the quality of life.”
- “Monitored recovery requires more than signage and fencing along the riverbed, but regular enforcement.”
- “Include ongoing pollution controls in the final cleanup plan, including from upriver sources. Do not allow re-contamination from upland sources. Use EPA enforcement authority to clean up major hot spots like Arkema, shut off upland pollution sources, and define an appropriate, diminished role for Oregon DEQ during the cleanup process.”
- “How are you going to get someone like that to maybe agree to pay any money toward the cleanup, and what happens when they say ‘I’m not going to, I want the state to take care of it, it’s their land technically and I want them to pay the bill?’”

### **EPA Response**

EPA will work with state and local regulatory agencies to promote public safety including, enforcement of permits and other regulatory pollution requirements and attempt to prevent activities that might compromise the remedy. EPA’s regulatory enforcement programs will continue to work with DEQ on coordinating inspections and enforcement activities as appropriate. Fish advisories themselves are not enforceable; however, EPA will continue to do outreach and education in the community regarding health risks from eating resident fish from the river. To minimize the potential for recontamination of capped/dredged areas, EPA will work with DEQ and use enforcement authorities, if needed, to address known and discovered upstream sources. EPA, state and local agencies will continue to identify and promote cleanup of sources as they are found, whenever feasible.

## **2.3 ARARs, PRGs, and COCs**

### **2.3.1 Applicable or Relevant and Appropriate Requirements Issues**

#### **Comment Summary**

Comments specific to ARARs were received from businesses, the Portland Audubon Society, and the City of Portland.

Summaries of those comments are:

- EPA is required to consider ARARs in selecting its preliminary remediation goals (PRGs). Generally, these will be validly promulgated laws or regulations of the state. EPA guidance provides that, when a state has considered federal criteria and adopted different, state-specific standards, the CERCLA process should follow the state standards. However, in this case, instead of giving due consideration to Oregon regulations, EPA appears to have made arbitrary choices to choose more stringent federal standards, without giving any weight at all to the state-specific factors that led Oregon to regulate in a different way (including with respect to Oregon standards

that EPA formally approved!). EPA should correct this in its ROD; in any case where EPA sets a Remediation Goal on the basis of an ARAR, that ARAR should be the applicable Oregon standard.

- If a state has promulgated a numerical [water quality standard, or “WQS”] that applies to the contaminant and the designated use of the surface water at a site, *“the WQS will generally be applicable or relevant and appropriate for determining cleanup levels, rather than [the NRWQC]. A WQS represents a determination by the state, based on the [NRWQC], of the level of contaminant which is protective in that surface water body, a determination subject to EPA approval.”* (Emphasis added.) 53 F.R. 51394, 51442 (Dec. 21, 1988, explanation of revisions to the National Contingency Plan).
- EPA’s proposed plan has chosen to ignore this aspect of Oregon’s beneficial use designation and has apparently decided instead that any groundwater discharging to the river needs to meet this standard at any sampling point within that groundwater, not taking into account either what the concentration would be in-stream or after conventional treatment, assuming the Lower Willamette River at Portland Harbor is ever used for drinking water (and there are no plans to do that).
- EPA should eliminate all groundwater PRGs because they are not needed to support the RAOs. EPA’s proposed plan designates a number of groundwater PRGs on the basis that they are “ARARs.” In many cases, these are based on Oregon’s surface water quality standards. However, Oregon’s water quality standards are clearly applicable to the waterbody itself, not to groundwater. Oregon would certainly take its water quality standards into account in determining whether a discharge of groundwater would impair the surface water body itself, by causing an exceedance of the water quality standard in the surface water, and any cleanup decisions made in Portland Harbor should follow that approach. However, the water quality standards are in no sense “ARARs” as applied to groundwater and should not be made “groundwater” remediation goals.
- To the extent EPA is adopting what it considers to be an Oregon-based ARAR, it can only do so after adjusting the ARAR value to account for what Oregon would determine to be natural background. OAR 340-122-0040 (1)(c).
- At complex sediment sites, it is not feasible to predict the course of cleanup efforts with great certainty or to foresee every possible change in circumstance. At many sites, EPA has therefore incorporated provisions into the ROD for technical impracticability waivers to allow EPA to adapt to circumstances or additional information. Such waivers are site-specific waivers for specific contaminants. EPA has expressly acknowledged that: “Technical impracticability waivers are one of the means of waiving ARARs consistent with CERCLA Section 121(b) and the NCP [Section 300.430(f)(1)(ii)(C)(3)]. Through analysis of site data and demonstration of the impracticability of achieving ARARs...a waiver may be appropriate.” *Summary of Technical Impracticability Waivers at National Priorities List Sites*, OSWER Directive 9230.24, August 2012, Washington, D.C.
- Per EPA sediment remediation guidance “RAOs should reflect objectives that are achievable from the site cleanup.” This leads to one of two possible EPA management decisions: (1) EPA should remove surface water RAOs from the 2016 draft final feasibility study report, given that site sediments are not the primary cause of surface water ARAR exceedances and therefore sediment remedies alone cannot achieve all of the most important chemical-specific ARARs in surface water; or (2) EPA should waive water quality ARARs for these same chemicals in the ROD. EPA

continues to maintain that, "Currently, EPA does not have a basis for waiving any ARARs. Any ARAR waivers would have to be conducted through the remedy selection process and documented in a ROD amendment." If EPA had correctly estimated alternative surface water concentrations (even using the simplistic approach attempted in Appendix K), or simply compared the upstream concentrations to EPA's proposed surface water PRGs, then it would have an obvious available basis for waiving many of the water quality-related ARARs. Instead EPA maintains that site sediment remedies might somehow achieve site surface water reductions below ARARs despite multiple other sources also contributing to those same ARAR exceedances. EPA supports this ongoing bias by conducting obviously flawed analyses, such as Appendix K, and ignoring upstream data and then contending there is no basis for waiving the surface water ARARs.

- The City of Portland requests that EPA provide an explanation of its "ARARs" and "TBC" selection process specifically regarding the following location-specific or action-specific state and local laws. The following laws have been considered ARARs at other cleanup sites in Oregon (for example the Zidell cleanup and the Teledyne Wah Chang Superfund Site). The City requests that EPA explain to the community how compliance with federal standards will protect our community to the same extent as these specific state and local laws:
  - State Historic Preservation Office laws ORS chapters 358 and 390
  - Fish Passage Laws ORS 509.580 through 509.910 which protect fish during and after remedy construction
  - Balanced cut and fill requirements of Portland City Code 24.50 which ensure flood resiliency
  - The Willamette River Greenway laws and Statewide Planning Goal 15, ORS 390.310 and the Greenway requirements promulgated by the City in Portland City Code 33.440 to comply with State law
  - Local noise ordinances that set maximum permissible sound levels and prohibit specific noise disturbances in Portland City Code 18.10 and 18.12
- The Audubon Society suggests that Alternative I fails to meet all ARARs. Specifically, it fails to meet or address the following:
  - State of Oregon Land Use Planning Goal 5 (natural resources), Goal 6 (Air, Water and Land Natural Resources Quality), Goal 7 (Natural Hazards) and Goal 15 (Willamette River Greenway)

### **EPA Response**

EPA disagrees with the comments that request that surface water and groundwater cleanup levels should be removed from the ROD. The human health and ecological risk assessments found that releases of hazardous substances found in surface water and groundwater within the Site pose unacceptable risks to humans from ingestion and bioaccumulation through the consumption of fish and to ecological receptors for direct contact, ingestion, and bioaccumulation through the consumption of prey. Therefore, having been triggered into action, development of RAOs and cleanup levels to achieve those RAOs for both media is appropriate at the Site.



CERCLA Sections 121(d)(1) and (2) require: “(1) that any remedial action selected shall attain a degree of cleanup of hazardous substances, pollutants, and contaminants released into the environment and control of further releases at a minimum which assures the protection of human health and the environment; and (2) any hazardous substance that will remain onsite, such remedial action shall require a level or standard of control which at least attains Maximum Contaminant Level Goals established under the SDWA, and water quality criteria established under Section 304 or 303 of the Clean Water Act, and any promulgated standard, requirement, criteria, or limitation under a State environmental or facility siting law that is more stringent than any Federal standard, requirement, criteria, or limitation that has been identified to the President by the State in a timely manner and is legally applicable to the hazardous substance or pollutant or contaminant concerned or is relevant and appropriate under the circumstances of the release or threatened release of such hazardous substance or pollutant or contaminant.” 42 U.S.C. § 9621(d)(1) and (2)(A)(i) and (ii).

The NCP provides that “[r]emediation goals shall establish acceptable exposure levels that are protective of human health and the environment and shall be developed by considering the following: [A] [ARARs] . . . [B] . . . [MCLGs] . . . [E] Water quality criteria established under sections 303 and 304 of the Clean Water Act . . .” 40 CFR § 300.430(e)(2)((i)(A), (B), and (E). As noted in the preamble to the NCP: “As new information and data are collected during the remedial investigation, including the baseline risk assessment, and as additional ARARs are identified during the RI, these preliminary remediation goals may be modified as appropriate to ensure that remedies comply with CERCLA’s mandate to be protective of human health and the environment and comply with ARARs.” See 55 Fed. Reg. 8712, May 8, 1990.

Likewise, to be protective of human health and the environment, remediation levels for some substances may have to be based on non-promulgated criteria and advisories rather than on ARARs, because ARARs do not exist for those substances or because an ARAR alone would not be sufficiently protective in the site-specific circumstances, e.g., where additive effects from several chemicals are involved. Similarly, state criteria, advisories, and guidance should also be considered for the state in which a site is located.

EPA followed the requirements of CERCLA and the NCP and developed preliminary remediation goals, which are now the final cleanup levels in the ROD for surface water and groundwater by looking to federal and state ARARs, including Section 304(a) criteria, state promulgated water quality criteria, (MCLs) and MCL goals (MCLGs). If there was no ARAR, such as for manganese (a groundwater COC), the Regional Screening Level was selected. The cleanup levels based on chemical-specific ARARs for surface water and groundwater are considered protective of human and ecological receptors exposed to the COCs and consistent with the site-specific risk assessments. EPA is required under the NCP at 40 CFR 300.430(e)(2)(i) as previously indicated to consider ARARs to define the PRGs when they set an acceptable level with respect to site-specific factors.

Consistent with CERCLA, the cleanup levels for RAO 3 (surface water/human health) and RAO 4 (groundwater/human health) are based on the lower of the federal National Recommended Water Quality Criteria established under Section 304(a) of the Clean Water Act, Oregon water quality standards, MCLs, and non-zero MCLGs, as presented in Table 2.1-4 of the feasibility study report. On stringency, the NCP preamble notes: *CERCLA requires that remedial actions comply with all requirements that are applicable or relevant and appropriate. Therefore, a remedial action has to comply with the most stringent [emphasis added] requirement that is ARAR to ensure that all ARARs are attained. In addition, CERCLA requires that the remedies selected be protective of human health and the environment and attain ARARs. A requirement does not have to be determined to be necessary to be protective in order to be an*

*ARAR. Conversely, the degree of stringency of a requirement is not relevant to the determination of whether it is an ARAR at a site and must be attained (except for state ARARs). (See 55 FR 87841, May 8, 1990.)*

As previously indicated, CERCLA 121(d)(1) requires that the remedial action attain a degree of cleanup and control of further releases at a minimum which assures the protection of human health and the environment, contrary to comments that only state standards should be applied, EPA was justified in using the more stringent criteria identified above in lieu of the State of Oregon WQS for COCs in media that relate to unacceptable risks identified in the risk assessments to actual or potential receptors as represented in the RAOs. In some cases, cleanup levels established for COCs in groundwater for ecological receptors in pore water appear to be the federal National Recommended Water Quality Criteria established under Section 304(a) of the Clean Water Act; however, the baseline risk assessment established these groundwater cleanup levels as protective levels for acceptable risk. Thus, EPA has not applied a surface water criterion to groundwater but rather used a risk-based level protective of receptors as defined by the risk assessment to achieve an RAO.

EPA's use of Safe Drinking Water Act MCLs as cleanup levels for COCs in surface water or groundwater is appropriate at the Site and EPA did not ignore Oregon's beneficial use designation, but in fact is protecting the beneficial uses of both groundwater and surface water by applying the SDWA standards. CERCLA and the NCP are clear that MCLs are to be achieved in contaminated groundwater and surface water at a site when relevant and appropriate under the circumstances of the release. MCLs are relevant and appropriate under the circumstances of the release at Portland Harbor because the designated uses of the lower Willamette River include drinking water supply. (Designated Uses for the Willamette Basin specified for the Willamette Basin at OAR 340-041-340 and 340-041-0345.) Likewise, all ground water of the state, including the ground water adjacent to and under the lower Willamette River, are to be protected for the beneficial use of domestic drinking water supply. OAR 340-040-0020(3), which is as stringent or more stringent than the *EPA Guidelines for Ground-Water Classification* (USEPA 1986) (See 55 FR 8732, March 9, 1990). Releases of hazardous substances have occurred to groundwater that is discharging to or under the river within the Site or has the potential to discharge to the river, which exceed relevant and appropriate Safe Drinking Water Act standards for groundwater and surface water cleanup. As noted in the 1991 Role of the Baseline Risk Assessment guidance, exceedances of MCLs and water quality criteria may warrant action under CERCLA. Therefore, it is appropriate for the final selected remedy to set cleanup levels based on MCLs for groundwater and surface water at the Site. Furthermore, CERCLA guidance is clear that where either surface water or groundwater is or may be used for drinking water, MCLs are relevant and appropriate as cleanup standards. Thus, the notation in State of Oregon regulations by the commenters concerning pretreatment requirements is not a limitation on the use of MCLs at the Site. Likewise, under the circumstances at this Site, both groundwater and surface water are potential drinking water resources, and discharges of contaminants to the river represent one continuous pathway. Therefore, there is no basis to distinguish pore water from groundwater or surface water in regard to where compliance with the ARAR should be met. See Response 2.4.3 and EPA's response to LWG Dispute Issue 1m for further response to the legal bases and site-specific reasons why MCLs are relevant and appropriate to releases at the Site and Oregon's designated use regulation is not inconsistent with their use at the Site.

Regarding comments that EPA's cleanup levels should be adjusted for natural background levels in accordance with Oregon Administrative Rules 340-122-0040(1)(c), first that regulation doesn't exist as cited therefore, EPA assumes that the commenter meant Oregon Administrative Rules 340-122-



0040(2)(c). That regulation states: “(2) In the event of a release of a hazardous substance, remedial actions shall be implemented to achieve: . . .

*(c) For areas where hazardous substances occur naturally, the background level of the hazardous substances, if higher than those levels specified in subsections (2)(a) through (2)(b) of this rule.”*

EPA’s final cleanup levels for the Site, do not conflict with this provision. No cleanup level has been identified by DEQ that is below natural background levels as calculated by DEQ. Also, it is EPA policy to not cleanup beyond natural and anthropogenic background levels. No such background levels have been established for COCs in groundwater and surface water at the Site.

Likewise, EPA does not agree that surface water and groundwater cleanup levels based on ARARs are unachievable, and they should be waived. There has been no information or analysis provided to EPA to date that supports a waiver of any water standard or MCL at this Site. It is EPA’s expectation that DEQ’s upland source control actions will adequately address groundwater contamination discharging to the river (the plumes) and will protect surface water quality. RAOs for groundwater are focused on containing and reducing migration of COCs from groundwater to surface water and biologically active areas of sediment. Should groundwater not be addressed adequately under DEQ’s actions, RAOs for surface water are addressing the risks that COCs in surface water are presenting to human health and the environment. EPA may, at a future time, determine if action is warranted under CERCLA to further address groundwater or surface water contamination. Likewise, if during remedy implementation it is discovered and demonstrated that achieving water quality standards or MCLs in a reasonable timeframe is not technically practicable a waiver for specific COCs that are not achievable for a particular area or areas could be considered. It should be noted that under EPA policy and guidance, a waiver requires significant efforts pre- or post-remedy implementation to document that it is not technical practicable to achieve an ARAR.

EPA has considered the City of Portland codes indicated by commenters as being omissions from the identified ARARs. Neither CERCLA 121(d) nor the NCP requires CERCLA actions to comply with local laws; i.e. local laws in themselves are not ARARs. EPA has determined the suggested requirements are not ARARs for the selected remedy because they are local laws and not otherwise applicable or enforceable state-wide.

EPA has also considered the Oregon Revised Statutes indicated by commenters as being omissions from the identified ARARs. It should be noted that State Historic Preservation Office laws (Oregon Revised Statutes chapters 358 and 390) that were incorrectly indicated by commenters as being omitted as ARARs were in fact identified by DEQ as potential ARARs to EPA and thus are included as ARARs in the ROD.

With respect to state land use goals and Oregon Revised Statutes 390.310 and 509.580 through 509.910 is that for State requirements to be considered as ARARs under CERCLA, the NCP (specifically at 40 CFR 300.430(d)(3)) requires that the support agency (State of Oregon) identify potential ARARs in a timely manner for consideration. EPA worked closely with DEQ during the ARARs identification process and the requirements cited by commenters were not identified by DEQ as potential ARARs. However, numerous federal and state laws for fish and wildlife coordination and endangered species identified as ARARs can address the concerns about fish passage.

For additional information, please also see LWG Dispute Issue 1g, 1m, 1n, 1o, and 1s (Appendix A of this document) and Sections 2.4.3 and 2.4.4 of this responsiveness summary.

### 2.3.2 Make Unlimited Fish Consumption for All Groups a Cleanup Level and RAO

#### Comment Summary

This was the most commonly seen comment and almost 3,000 comments were received that stated that the cleanup should result in fish being safe to eat, without restrictions, for any population. About 90 percent of comments received were received as form emails or preprinted postcards that listed a variety of other comments.

Representative comments of this type included:

- “I urge EPA to implement a plan that: Contributes to healthy fish that are safe to eat for all people.”
- “The goal of the cleanup must be to end the Fish Consumption Advisory related to pollutants found in the Portland Harbor stretch of the Willamette River for all people. EPA should provide a date by which the advisory will be lifted.”
- “The Cleanup Plan must result in removal of Fish Consumption Advisory so that eating fish from the Lower Willamette is just as safe as eating fish from anywhere else in the Willamette River System and this must occur within a 10 to 20-year time frame.”
- “EPA should select an alternative that allows all members of our community to eat fish safely from our river, including woman of childbearing age and children.”
- “The overall goal of the Superfund cleanup should be to lift the fish consumption advisory for ALL people (including breast feeding women) related to the toxic pollutants found in the Portland Harbor area of the Willamette River.”
- “I ask EPA to create a plan that leads to healthy fish that are safe to eat.”
- “The overall goal of the Superfund cleanup should be to lift the fish advisory related to toxic pollutants found in the Portland Harbor area of the Willamette River.”
- “The final result of the cleanup should be the lifting of the Fish Consumption Advisory related to PCBs for the Portland Harbor area by a specific date.”

The remaining 248 comments were received as personal emails, letters, or postcards. Representative comments of this type included:

- “The plan does not go far enough to protect public health concerning the consumption of fish. It is in the public’s interest that the river is cleaned up to an extent where advisory warnings can be lifted, and that everyone, including infants and women of child bearing age, can eat local fish. I’m afraid that the CERCLA-based fish advisory program will not sufficiently protect the public, and I advise that the health of the fish that is to be consumed be verified according to the Oregon Health Authority.”
- “Many of us in Portland grow some of our own food and are committed to buying local as much as possible. Having access to free, fresh and NON-TOXIC fish is part of that commitment. The plan for sustainable cleanup of the river must include a TIMELINE for WHEN NON-TOXIC FISH caught in our own rivers could be consumed, especially by pregnant women and young children.”

- At the very least the fish consumption advisory needs to be lifted at the end of the cleanup. Help ensure that this Osprey can fish for clean fish, and people can consume fish without increased cancer risk!! I'd sure like to know what fish I do eat from the Willamette isn't a threat to my health or that of my family and friends. I know there are lots of people who use this river and its tributaries for fish to supplement their diets and they are living hand to mouth in this economy. Let's do the right thing and clean up this river. It's a black mark on the city of Portland and the PNW which prides itself on being eco and clean!"
- "Communities who fish the river for sport, support, or tradition can safely eat only a limited amount of their catch (8 oz. per person per month), while children, the elderly, nursing & pregnant mothers and others at risk are prohibited from eating any fish caught in the area. People who depend on Willamette River fish for dietary protein have increased cancer risk."
- "Navigable rivers belong to all of us. If I dumped poison in the river, I would be held responsible. We'll know the river is clean enough when the Fish Consumption Advisory can be lifted, and we need to know when that can be reasonably expected to happen."
- "Some people rely on the river for their subsistence. Now, they regularly exceed the Oregon Health Authority's recommendation of eating more than 8 oz PER MONTH even though it could be deleterious to their health because they can't afford healthier choices. EPA MUST set a certain date and measurements so fish from the Willamette are safe to eat again!"
- "As the most vulnerable members of our community eat fish from the Willamette, it is also important for the plan to provide a firm date when the Fish Consumption Advisory will be lifted and hold those liable responsible for hitting that date, with risk of meaningful fines. Fish should be regularly tested for contaminants to ensure that the Advisory will be lifted on time."

### **EPA Response**

Within the Site, persistent contaminants (particularly PCBs, chlorinated pesticides such as dichlorodiphenyltrichloroethane [DDT], and polychlorinated dioxin and furans) from sediments and surface water bioaccumulate in the food chain, resulting in higher concentrations of the contaminants in fish tissue than in sediments. Existing Oregon Health Authority fish consumption advisories apply to all resident fish at the Site, including carp, bass, and catfish, advising none of these fish be consumed by children under age 6, women of childbearing age, and people with thyroid or immune system problems and no more than 1 fish meal per month for everyone else. There is no advisory for consumption of migratory salmon because these fish do not reside at the Site long enough to bioaccumulate the contaminants in their tissue to levels of concern as determined by Oregon Health Authority. Fish advisories once cleanup has achieved its goals, though less restrictive in the future, may need to remain due to broader watershed issues.

EPA's risk assessment process evaluates cancer and non-cancer risks based on a reasonable maximum exposure that could occur at the Site, and it is reasonable to look at a subsistence level of fish consumption at this Site given the reserved tribal treaty rights and known amount of fishing that immigrant communities in Portland do.

During implementation of EPA's selected remedy, fish could be exposed to increased levels of contaminants from sediments being disturbed by dredging and capping activities. During construction, people would be advised to eat no more than 0.6 fish meals per year or 4.8 ounces per year (considering

an 8-ounce fish meal) for most populations and 0.1 fish meals (8 ounces per year) for women who may breastfeed. This advisory would be in place for the 13 years of construction of the selected remedy.

After all active remediation being proposed for the selected remedy is completed, EPA estimates that the temporary construction fish advisory would be relaxed to allow for 16 fish meals every year to be safely consumed from the Site for most populations at completion of construction and 1 fish meal per year for women who may breastfeed.

The selected remedy addresses all risk to ecological receptors from eating fish and will result in substantial risk reduction for human fish consumers, but it likely will not be possible to reduce the concentrations of PCBs and other contaminants to levels low enough to allow for consumption at the higher consumption rates associated with subsistence fishing. Upstream of the Site, background levels of PCBs from “clean” areas exceed the acceptable range based on conservative risk estimates. Therefore, fish advisories would remain in effect following the cleanup but would be less restrictive because the highest concentrations of bioaccumulative contaminants in sediment would be removed or capped such that they no longer enter the food chain within the Site. Watershed-wide implementation of source reductions through water quality programs by the DEQ in conjunction with source control activities at the Site are expected to contribute to the elimination of fish consumption advisories over time. Fish advisories due to contamination at the Site would be modified based on the results of long-term monitoring of contaminants in fish tissue and fish tissue surrogates (like passive monitoring where necessary). Although CERCLA-related fish advisories would remain in place until final cleanup levels are achieved, Oregon Health Authority may still impose an advisory based on broader watershed risks. Because these contaminants can pose risks even when the concentrations in the environment appear quite low, it is critically important to remove these persistent pollutants from the environment.

### 2.3.3 Acknowledge that Safe Fish Consumption at All Levels Is Not Supportable

#### Comment Summary

One commenter wrote that the goal of unlimited fish consumption was at odds with federal guidance from other agencies. Specifically:

- “EPA’s water quality goal for the Willamette is that a person could eat fish from the river as their main source of food for twenty years without any ill effects. This might be a good goal, but it is an extremely unrealistic one for an urban river. Not only that, but such a diet would far exceed what another branch of the government, the FDA, safely recommends. The standard that EPA has set is impossible to reach.”

Two other commenters spoke to concentrations of mercury in fish that are not related to the Superfund issues at the Site:

- “The WWC struggles with the expectation that the targeted cleanup levels can actually be achieved in an urban waterway. EPA uses remediation levels that do not adequately consider sources of contaminants coming into the system, from upstream of Portland Harbor. After cleanup, fish advisories will remain in the Lower Willamette, given the ongoing need for mercury advisories that are established by the Oregon Health Authority and unrelated to sources within the Harbor.”
- “None of the cleanup alternatives evaluated by EPA will allow all fish advisories to be lifted since none will lower the risk posed by the background mercury content of resident fish at the Site.

Mercury impacts are watershed-wide and cannot be addressed by any remedy performed at the Site. To date, EPA has done little to challenge the public misperception that remediation of the Site will allow all fish advisories to be lifted.”

### **EPA Response**

EPA’s mandate under CERCLA is to select remedies that are protective of human health and the environment. EPA generally will not require cleanup beyond background levels of contamination and is not doing so in the selected remedy. One of the designated uses for the Willamette River is fishing, and EPA does not consider other health issues that might exist around such use in making its remedy decisions. Fish consumption advisories will be less restrictive once the cleanup has been completed. However, fish consumption advisories likely will not be lifted completely due to larger watershed issues (such as mercury) and because concentrations of PCBs upstream of Portland Harbor are higher than the acceptable range based on conservative risk estimates, and sediments naturally move downstream. Over time, it is expected that source control actions on the part of DEQ in Portland Harbor and watershed-wide (including upstream areas) will reduce the need for stringent fish consumption advisories. We are uncertain how other actions in the river may over time contribute to reducing fish advisories further in the future.

Contrary to some of the commenters’ view, EPA has been very transparent about the fish advisories and what benefit the cleanup would have and what was beyond the control of the CERCLA cleanup. The feasibility study report (USEPA 2016b) and proposed plan (USEPA 2016c) communicated what background levels existed and that watershed issues likely would lead to some fish advisory staying in place even after the remedy’s cleanup goals were achieved.

### **2.3.4 Don’t Select PRGs that Are Unattainable**

#### **Comment Summary**

Many commenters stated that the PRGs presented in the feasibility study and proposed plan for the Portland Harbor Site were unattainable due to background concentrations. It was stated that many of the COCs identified for the Portland Harbor Site are ubiquitous in the environment and associated with a broad range of urban and agricultural sources and the PRGs are set below background. In particular, many commenters stated that the proposed PRG for PCBs in sediments of 9 micrograms per kilogram ( $\mu\text{g}/\text{kg}$ ) was below the “equilibrium” concentration of 20  $\mu\text{g}/\text{kg}$  as determined by the Lower Willamette Group. In addition, sediment PRG for DDx should be no lower than 5  $\mu\text{g}/\text{kg}$ , and an equilibrium-based PRG for dioxin/furan should be developed during remedial design. It was also noted that the proposed PCB fish tissue goal of 0.25  $\mu\text{g}/\text{kg}$  PCBs is lower than the 23  $\mu\text{g}/\text{kg}$  PCB concentration EPA predicts based on its background concentration of 9  $\mu\text{g}/\text{kg}$ .

One commenter stated that consideration of background is important because PRGs need to be attainable, and some of the risk-based PRG concentrations are less than the naturally occurring or anthropogenic background concentrations, meaning that PRGs may not be attained. If remediation goals are not reached, the cleanup and associated monitoring could continue in perpetuity. The commenter noted that it is common at cleanup Sites to require parties to achieve background concentrations as the remedial goal when there are known upstream sources. However, in the case of Portland Harbor, EPA has not used upstream background concentrations to set achievable remediation goals for surface water or tissue and has not used background concentrations that appropriately characterize chemicals coming into the Site for sediment PRGs. Comments say that EPA’s remedy must use a realistic and appropriate set of cleanup levels that consider background, site equilibrium, and risk management. In establishing

unattainable PRGs, the proposed plan is setting unrealistic expectations for the public and discouraging the willing performance of cleanup activities.

One commenter advised EPA to not select risk-based PRGs below equilibrium values. In the dispute decision by Rick Albright, he stated that “there are sources of contamination outside of the Site – both upriver and within the downtown reach – that may affect the ability of the cleanup efforts within the Site to equilibrate to the selected cleanup level regardless of whether the cleanup level is based on risk, regulatory standard or background.” The commenter advised EPA to not select risk-based PRGs below equilibrium values and stated that “EPA’s failure to base its cleanup number on equilibrium are inconsistent with the reasoning of its own former director and an array of real world data and undermine the presumption that EPA’s proposed cleanup goal for PCBs is realistically achievable.”

One commenter (USACE) stated that chemical sediment data from 17 dredging projects within the Lower Willamette River indicates that EPA’s PRGs are unattainable for most, if not all, projects within the Lower Willamette River outside sediment management areas (SMAs). Specific PRGs that are excessively low include arsenic, mercury, Dieldrin, hexachlorobenzene, carcinogenic PAHs (cPAHs), DDX, PCBs, and all dioxin/furan congeners. Figures 1.2-6a/b to 1.2-18a/b in the feasibility study report show that chemical concentrations exceed the proposed PRGs throughout the non-cleanup portions of the Harbor and thus demonstrate that EPA’s PRGs are unattainable.

### **EPA Response**

Consistent with EPA guidance and policy, background concentrations may be used to develop cleanup levels when risk-based PRG concentrations are less than naturally occurring or anthropogenic background. The derivation of background concentrations in sediment for the Site is described in Section 7 of the remedial investigation report (USEPA 2016a). Background concentrations for dioxin/furan congeners were not calculated in the remedial investigation report but were for the feasibility study report (USEPA 2016b) and are provided in Section 2 of Appendix B of that document.

Background sediment concentrations were based on sediment data collected upstream of the Site between RM 15.3 to 28.4. This area, which extends from the upstream end of Ross Island (just upstream of the downtown Portland area) to approximately 2.5 miles above Willamette Falls, was chosen because it is considered broadly representative of the upstream sediment loading to Portland Harbor and not generally impacted by sources within the Site. Background concentrations as represented by the deposited sediment concentrations within this reach remain the best predictor of achievable cleanup goals for the Site. Sediment data collected from the downtown reach were not utilized for the development of background levels due to sources in this reach being actively addressed by DEQ. Background sediment concentrations were used as PRGs for all COCs for which the risk-based PRG was less than background. Background concentrations were not established for surface water, groundwater or biota tissue due to the insufficient sample size associated with these media. Development of background levels for other media may be considered during pre-remedial design characterization.

The Lower Willamette Group (LWG) developed equilibrium estimates based on upper confidence limits (UCLs) on a central tendency (median) of the empirical sediment lines of evidence (deposited surface sediment data, sediment traps, and suspended sediments). EPA selected a background-based PRG for PCBs based on a statistical evaluation of bedded sediments upriver of Portland Harbor. It should be noted that the sediment data for Portland Harbor are replete with a large signature of PCB concentrations at or less than the PRG of 9 µg/kg, which would not be possible if LWG’s “equilibrium” theory were credible. It should be noted that EPA’s determination of background was the subject of a



formal dispute by LWG and resulted in a March 24, 2015 dispute decision by EPA's Director of the Office of Environmental Cleanup. The dispute official concluded that EPA's methodology for establishing background concentrations for COCs at the Site was consistent with EPA guidance and followed the correct statistical procedures and thus, is appropriate for establishing background-based PRGs for the Site. EPA acknowledges that there are sources of contamination outside of the Site – both upriver and within the downtown reach – that may affect the ability of the cleanup efforts within the Site to equilibrate to the selected cleanup level regardless of whether the cleanup level is based on risk, regulatory standard or background. However, no new information has been provided in the public comments that would lead EPA to reach a different conclusion on the background methodology and the data that were taken.

EPA disagrees that achievement of background based PRGs and now final cleanup levels, is unattainable. As is noted above, many areas of the Site have PCB concentrations at or less than the PRG of 9 µg/kg. For more discussion on background PRGs and issues surrounding them, see Dispute Responses (Appendix A of this document) [AR Doc #500011627]. This demonstrates that active remediation through capping and dredging in conjunction with monitored natural recovery has the potential to achieve the background based PCB PRG of 9 µg/kg.

### 2.3.5 Address PRG Issues with Risk Management or Risk Assessment

#### Comment Summary

Commenters stated that EPA failed to incorporate risk management into the development of PRGs as evidenced by the large number of PRGs developed for the Site. It was noted that EPA has proposed that the remedial action be designed to achieve 107 different PRGs for 64 different chemicals. The commenters stated this number of PRGs is high in comparison to other major sediment sites such as the Lower Duwamish Waterway, Fox River, Lower Passaic River, and Grasse River sites. The commenters stated that EPA should exercise risk management to shorten the list.

Many commenters also stated that the PRG list is inconsistent with the conclusions of the human health and ecological assessments. It was specifically noted that PRGs should be developed only for COCs identified in the risk assessment. It was further stated that PRGs should only address potential risk for contaminants, media and pathways that were clearly found to pose unacceptable risks in the baseline risk assessments and should focus on the subset of unacceptable risks that are required for selecting an effective and protective remedy using all of the feasibility study criteria. Specifically, EPA should include in the feasibility study only those COCs and PRGs that meet the following requirements:

- For contaminant/exposure scenarios pairs that show unacceptable risk from in-river media
- Calculated with EPA approved baseline risk assessments methods
- Where there is scientifically valid information to calculate those PRGs
- That are technically practicable to achieve
- That reflect a reasonable risk management framework
- Can be attained through sediment remediation which would exclude surface water PRGs
- Can be applied to matrices that can be directly addressed through sediment remediation which would exclude fish tissue PRGs

One commenter stated that PRGs should be adjusted to reflect EPA's risk range based on its own risk management guidance. The commenter stated that EPA should set the target risk between  $1 \times 10^{-5}$  and  $1 \times 10^{-4}$ . Another commenter questioned how the PRGs were applied, stating that neither the recreational beach user nor the tribal fisher exposure scenario should be applied to establish a site-wide cPAH PRG because much of the Portland Harbor is designated for industrial use and public access is limited. The commenter also stated that EPA's site-wide application of a single PRG for both river bank soils and river sediments is inconsistent with its own guidance, which requires characterization of the exposure setting "with respect to the generally physical characteristics of the populations on and near the Site" and the baseline human health risk assessments, which evaluated recreational beach exposures only for specific areas and that a recreational beach exposure scenario is not likely for the majority of the Site given the industrial nature of the Site, which limits access. Finally, the commenter stated that EPA should use the approach utilized for the Lower Duwamish Waterway, which established different cPAH cleanup levels for different areas of the Site based on land use and exposure scenarios.

One commenter noted that EPA has established focused COCs that pose the greatest risk to human health and the environment and questioned why there are PRGs for the other 64 COCs that already have regional thresholds that are used in the PNW and have no RALs in the feasibility study and proposed plan.

### **EPA Response**

As described in Section 2.2.2 of the feasibility study report (USEPA 2016b), PRGs were developed to address unacceptable human health and ecological risks identified in the baseline human health risk assessment (BHHRA) (Kennedy/Jenks Consultants [Kennedy/Jenks] 2013) and baseline environmental risk assessment (BERA) (Windward 2013) consistent with the NCP which states that "remediation goals shall establish acceptable exposure levels that are protective of human health and the environment" 40 CFR §300.430(4)(e)(2)(i). The baseline risk assessments determined that contaminated sediments and surface water presented unacceptable risk to human health and the environment. Transition zone water was found to exceed MCLs for drinking water exposures and posed unacceptable risk to ecological receptors.

Regarding the number of COCs and PRGs, it should be noted that the Portland Harbor Site has numerous sources of contamination from a wide range of industries. Thus, while the use of focused COCs for the purpose of conducting evaluations in the feasibility study is considered appropriate because the remedial footprint of the focused COCs encompasses the majority of the COCs at the Site, the large number and diverse nature of sources and contamination presenting unacceptable risk at the Site necessitate the identification of a relatively large number of COCs in multiple media to be addressed by the response action. This comprehensive set of COCs and PRGs will ensure that EPA's remedy addresses all of the risk to human health and the environment at the Site, and are monitored for subsequent five year reviews, and addressed through source control actions.

For human health, risk-based sediment PRGs were calculated using reasonable maximum exposures for the most susceptible population evaluated in the BHHRA consistent with the NCP. For human health, PRGs were calculated based on direct contact with beach and in-river sediment (remedial action objective [RAO] 1) and consumption of fish and shellfish (RAO 2). MCLs, EPA tapwater screening levels, state water quality standards and national recommended water quality criteria were used to set PRGs for RAOs 3 and 4. For ecological risk, risk-based PRGs were developed from medium- and contaminant-



specific toxicity reference values protective of ecological receptors and used in the BERA. The specific methods used to develop PRGs are described in Appendix B of the feasibility study report.

EPA disagrees that the PRGs and now the final cleanup levels are inconsistent with the baseline human health and ecological risk assessments. Action is warranted based on unacceptable risk to human health and ecological receptors due to the presence of a variety of contaminants at the Site. Risk-based human health COCs were identified in beach and in-water sediment, fish tissue and surface water. Risk-based ecological COCs were identified in sediment, surface water, pore water, and river bank soil. As described in Appendix B of the feasibility study report, PRGs were then calculated for all contaminants that posed an excess lifetime cancer risk greater than  $1 \times 10^{-6}$  or a hazard quotient greater than 1 in the final Portland Harbor BHHRA assuming reasonable maximum exposure. For cancer effects, risk-based sediment PRGs were calculated as the concentration consistent with a specified target excess cancer risk of  $1 \times 10^{-6}$ . For non-cancer effects, the risk-based PRGs were the calculated concentration that would result in a specified target hazard quotient of 1. For both cancer and non-cancer effects, the sediment PRGs are calculated based on specified exposure pathways and receptors. Detailed equations that describe the PRG calculation methods are also presented in Appendix B.

Although EPA considered a range of PRGs that reflect EPA's risk range of  $1 \times 10^{-4}$  to  $1 \times 10^{-6}$  (see tables B3-4 and B3-5 of the feasibility study report), it should be noted that the State of Oregon regulations (OAR 340-122-0115[2] – Individual carcinogens – and OAR 340-122-0115[3] – cumulative risk from multiple carcinogens) require cleanups to achieve a  $1 \times 10^{-6}$  risk level for individual chemicals and a cumulative risk level of  $1 \times 10^{-5}$ . As a result, it is appropriate to select PRGs based on a  $1 \times 10^{-6}$  risk level and a hazard index of 1.

Regarding application of the site-use factor, see response to LWG Dispute Issue 1d (Appendix A of this document) which states in part "When potential exposure at more than a single area is considered likely, use of a site-use factor is no longer protective." Also, see response to LWG Dispute Issue 1j (Appendix A of this document).

EPA disagrees with the commenter that it is inappropriate to set a site-wide cleanup for the recreational beach user or the tribal fisher exposure scenario because much of the Site is designated for industrial use and public access is limited. Tribal fishers currently use the river, there are several beach areas accessible by people beyond designated public beaches, and land and waterway use is dynamic and may change in the future. Furthermore, some fish species are migratory, and in many cases, there is water access to the stream for recreational uses. As result it is appropriate to establish PRGs based on recreational and tribal fishing exposures throughout the Site.

### 2.3.6 Develop Technically Sound PRGs for cPAHs in Sediment

#### Comment Summary

It was noted that EPA has been unable to develop a technically sound cPAH sediment PRG for fish consumption due to the lack of a relationship between tissue and sediment. As a result, EPA assigned a shellfish consumption PRG to the navigation channel as a surrogate for fish consumption even though no shellfish harvesting can occur in the navigation channel. In addition, EPA inappropriately converted cPAH PRG to total PAH PRG based on irrelevant correlation calculation.

#### EPA Response

EPA agrees that it was not possible to develop a reliable cPAH sediment PRG for the fish consumption pathway due to the lack of a relationship between tissue and sediment. However, it was possible to

develop a sediment PRG for cPAHs based on the relationship between sediment and clam tissue. Contrary to the comment, the PRG was developed for cPAHs as benzo(a)pyrene equivalents (BaPEq). The relationship between cPAHs and total PAHs was used for the development of RALs. EPA also disagrees that the shellfish consumption pathway is not complete for the navigation channel. The commenter has not provided any information to support this statement, and there is no prohibition on collecting shellfish from within the navigation channel.

Regarding the development of different cPAH cleanup levels for different areas of the Site based on land use and exposure scenarios, EPA notes that the direct contact cPAH PRG is only applicable to nearshore areas. For other exposure pathways, such as shellfish consumption and exposure to the benthic community, exposure may occur throughout the Site, including nearshore areas and the navigation channel. Regarding consideration of bioavailability of PAHs in developing cleanup levels, EPA notes that studies of bioavailability were not conducted at the Portland Harbor Site and that, as stated in the response to comments on the benthic risk approach, site-specific toxicity testing may be where benthic risk cleanup levels are the only cleanup levels yet to be achieved.

### 2.3.7 Establish Fish Tissue Targets

#### Comment Summary

Some commenters stated that rather than establishing PRGs for other media in addition to sediment, EPA should follow the lead of the Lower Duwamish Waterway which established target levels for fish tissue and surface water to measure progress toward achieving RAOs and assessing the success of the selected remedy in conjunction with source control. In this EPA made it clear that the target levels were not cleanup levels and were to be used for informational purposes only. Other commenters stated that there should not be a fish tissue PRG or monitoring level for any chemical where there is no relationship between sediment and tissue.

#### EPA Response

PRGs were developed for fish and shellfish tissue because tissue concentrations represent a direct exposure point for human receptors and because tissue concentrations are needed to derive sediment PRGs for protection of human health due to fish consumption. However, based on public comments and upon reconsideration, EPA has determined that remedial levels for fish and shellfish tissue will not be enforceable cleanup levels. The selected remedy provides fish and shellfish tissue target concentrations to measure progress towards achieving RAOs 2 and 6, inform fish advisories, evaluate construction impacts, and update best management practices (BMPs) and institutional controls (ICs) as needed. Fish tissue levels are needed to evaluate the protectiveness of the remedial actions. Target tissue levels are not cleanup levels; rather they will be used for informational purposes to assess ongoing risks to people who may consume resident fish and shellfish. For protectiveness purposes, the fish tissue levels need to be achieved. If the fish tissue targets are not achieved, EPA expects to re-evaluate the remedy and determine what else may be needed. Tissue monitoring data will also inform the content and degree of any potential future fish advisories, and other ICs intended to minimize risk to recreational and subsistence fishers that may be identified in a ROD Amendment or explanation of significant differences.

### 2.3.8 Address Issues with the PRG for TPH Diesel for RAO 8

#### Comment Summary

Comments were received from three entities regarding the PRG for total petroleum hydrocarbon (TPH) diesel for RAO 8. That PRG is presented in Table 2.2-11 of the feasibility study report (USEPA 2016b) and is based on toxicity threshold concentration for the C10-C12 aliphatic hydrocarbon fraction and

because the C10–C12 fraction is a small subset of hydrocarbons present in the broader TPH-d fraction, a remedial cleanup level for TPH-d based solely on the toxicity of C10–C 12 aliphatic fraction it is not appropriate for groundwater or pore water.

One comment noted that the PRG for TPH-diesel in groundwater and pore water is neither supported in the administrative record nor technically defensible and should be eliminated. Another noted the analytical methods used to quantify aliphatic and aromatic hydrocarbons within the range of C5–C12 for VPH and C8–C34 for EPH have method detection limits above the C10 - C12 aliphatic hydrocarbon PRG of 2.6 micrograms per liter.

### EPA Response

As described in Section 2.2.2.2 of the feasibility study report (USEPA 2016b), water toxicity reference values from Attachment 10, Table 2 in the BERA (Windward 2013) that are protective of ecological receptors were selected as risk-based PRGs for RAOs 7 and 8. This includes the PRGs for petroleum hydrocarbons.

In the BERA, EPA provided toxicity reference values for five of the chemical groups that are blended to form gasoline. Because these fractions were not quantified in Study Area samples, the average fraction of these components in gasoline was used to convert the total gasoline-range hydrocarbon concentration into gasoline fraction concentrations for comparison with the toxicity reference values. The BERA further notes that gasoline components were used as a surrogate for gasoline-range hydrocarbons. Each component is counted as an individual COPC in the COPC count determination. A summary of the PRGs for each fraction is summarized in the table below.

TPH Fraction	Toxicity reference values (micrograms per liter)
Gasoline-range hydrocarbons	No Value
Aliphatic hydrocarbons C4-C6	128
Aliphatic hydrocarbons C6-C8	54
Aliphatic hydrocarbons C8-C10	9.5
Aliphatic hydrocarbons C10-C12	2.6
Aromatic hydrocarbons C8-C10	212

Due to the detections of TPH diesel in groundwater and pore water at the Site and because the toxicity reference value for C10–C12 aliphatic hydrocarbons represents both the upper end of gasoline range hydrocarbons and the lower end of diesel range hydrocarbons, the toxicity reference value for C10–C12 aliphatic hydrocarbons was selected as the PRG.

The RAO 8 PRG is focused on reducing the migration of COCs in groundwater to sediment and surface water. As a result, the groundwater source control measures should be designed to prevent C10–C12 aliphatic hydrocarbons from discharging to the Willamette River at concentrations exceeding 2.6 micrograms per liter. Pre-design characterization activities should therefore include characterization of C10–C12 aliphatic hydrocarbons using the best available detection limits possible.

### 2.3.9 Explain the Bis(2-Ethylhexyl) Phthalate PRG

#### Comment Summary

One comment was received that questioned the RAO 6 BEHP PRG of 135 µg/kg. RAO 6 is focused on bioaccumulative chemicals and wildlife exposures. However, because there was not a good relationship between tissue and sediment for BEHP, the basis for the 135 µg/kg BEHP PRG is unclear.

#### EPA Response

The BERA (Windward 2013) concluded that BEHP was an ecologically significant contaminant of concern. All documentation supporting that is found in the BERA. No relationship was found between sediment and tissue concentrations for this COC. Therefore, as stated in Appendix B4.2.1, “For those contaminants where site-specific biota-sediment accumulation factors could not identify relationships between sediment and tissue concentrations, a nationwide theoretical biota sediment accumulation factor of 4.0 was used for hydrophobic organic chemicals (USACE 2003, Appendix G).”

### 2.3.10 Address Miscellaneous PRG Issues

#### Comment Summary

Multiple comments were received on a variety of PRG issues that are summarized and addressed in this category. Those issues are:

- **Development of PRGs only for sediment.** Other commenters stated that PRGs should be established only for sediments and not for tissue, soil, surface water, or groundwater because these media are being addressed by Oregon DEQ. There should be no surface water PRG because it is not possible to achieve them through sediment remediation, ARARs related to these PRGs should be waived by EPA in the ROD.
- **Manganese PRGs.** One commenter noted that the groundwater PRG for manganese should not be based on tap water standards (i.e., protection of surface water for direct human consumption) because 1) the surface water in the Willamette River already meets this identified PRG; 2) groundwater concentrations of manganese are not predictive of surface water concentrations because manganese becomes oxidized as it moves into the surface water and precipitates out of solution; and 3) human use of surface water from the Willamette River requires pre-treatment. The commenter requested that EPA eliminate any groundwater PRG for manganese because groundwater concentrations do not correspond to surface water concentrations or to concentrations in treated potable water. To the extent EPA employs any groundwater criteria for manganese, the approach should be based on ecological hardness-dependent criteria.
- **Benthic risk.** One commenter provided a table of proposed PRGs for the Portland Harbor Site based on equilibrium concentrations, risk-based concentrations or the comprehensive benthic risk areas.

#### EPA Response

EPA disagrees that only sediment PRGs are appropriate for this Site. The baseline risk assessments determined that contaminated sediments and surface water presented unacceptable risk to human health and the environment. Transition zone water was found to exceed maximum contaminant level (MCLs) for drinking water exposures and posed unacceptable risk to ecological receptors.

Regarding the number of COCs, it should be noted that the Portland Harbor Site has numerous sources of contamination from a wide range of industries. Thus, while the use of focused COCs for the purpose of conducting evaluations in the feasibility study is considered appropriate because the remedial footprint of the focused COCs encompasses the majority of the contaminants at the Site, the large number and diverse nature of sources and contamination presenting unacceptable risk at the Site necessitate the identification of a relatively large number of COCs in multiple media to be addressed by the response action. This comprehensive set of COCs and PRGs will ensure that EPA's remedy addresses all of the risk to human health and the environment at the Site, and is monitored for subsequent five-year reviews, and addressed through source control actions.

Consistent with Section 121(d) of CERCLA and the NCP, remedial cleanup levels are to be developed based on ARARs including MCLs promulgated under the Safe Drinking Water Act and water quality criteria established under Sections 303 or 304 of the Clean Water Act or state-promulgated water quality criteria unless site-specific circumstances require risk-based goals be developed. 42 U.S.C. § 9621(2). Also, see the response in Section 2.3.1 for more detail about the statutory and regulatory basis for application of ARARs as cleanup levels.

EPA disagrees that PRGs should not be developed to address inputs to the Site. As noted in the response to LWG Dispute Issue 1d, the upland sources are not separate and distinct from the contamination in the river. The feasibility study report (USEPA 2016b) covers the in-river portion of the Site and thus the RAOs and PRGs must be developed to protect the media and pathways for which contamination is present. Since the RAOs and PRGs developed for this Site are based on the baseline risk assessments and ARARs, those areas of the Site that already achieve PRGs would not require action since the PRGs are already attained. EPA provides the basis for the establishment of PRGs for each RAO in Section 2 and Appendix B of the 2016 feasibility study report. As a result, it is appropriate to develop sediment PRGs for groundwater and river banks.

Regarding manganese specifically, the groundwater PRG was calculated using the oral reference dose developed by EPA's Office of Research and Development and posted in its Integrated Risk Information System database. See response to LWG Dispute 1n (Appendix A of this document).

The human health and ecological risk assessments both determined that exposure to COCs in surface water poses unacceptable risk to human health and the environment. As a result, EPA developed PRGs for surface water. Surface water PRGs include both risk-based PRGs ecological risk assessment and ARAR based PRGs based on State of Oregon water quality standards and National Recommended Ambient Water Quality Criteria. Consistent with CERCLA and the NCP and State of Oregon water quality regulations, Lower Willamette River will have to meet risk-based criteria or the more stringent of the federal and state human health and aquatic life water quality criteria at or before the completion of the selected remedy or else have this requirement waived. As described in Appendix K of the feasibility study report, EPA expects that remediation of contaminated sediments at the Site will reduce surface water concentrations. If EPA determines in the future that it is technically impracticable to achieve these criteria, it may waive them in a future decision document.

EPA disagrees that the PRGs were applied at locations and spatial scales that are inconsistent with the exposure scenarios for which they were developed, and regardless of whether there was unacceptable risk for a given location. For example, PRGs for RAOs 1 and 2 are being applied on a SDU basis. As described in the feasibility study report, site-wide and smaller spatial scales were used to evaluate each alternative including attainment of the RAOs. To conduct the smaller spatial scale evaluation, the Site was subdivided based on sediment dynamics and hydrodynamics of the shorelines and Swan Island

Lagoon, current and future uses (such as the navigation channel), and the preference of many receptors for shoreline habitat. Subdivisions will allow for a more precise analysis of risk reduction for each alternative. Several spatial scales were evaluated: 1) benthic risk was evaluated on a population level as the area exceeding RAO 5 PRGs, 0.5 RM was used for RAO 1 consistent with the BHHRA (Kennedy/Jenks 2013), 1 RM was used for RAOs 2 and 6 for the dietary exposure of humans and ecological receptors that consume fish and shellfish, and Site-wide was used for RAO 2. The Site was also divided into 14 individual regions of the river that were designated as SDUs. The SDUs correspond approximately to the estimated 1-mile exposure area for which recreational fishing was evaluated in the BHHRA and to the home range of species such as smallmouth bass, hooded merganser, osprey, bald eagle and mink that were evaluated in the BERA (Windward 2013).

LWG provided a revised set of sediment PRGs based on comments on an earlier version of the feasibility study. The basis for many of the revised PRGs is based on revised background estimates, application of the comprehensive benthic risk approach and application of a site-use factor. EPA has considered these comments in the development of the PRGs presented in the feasibility study report and proposed plan (USEPA 2016c). In addition, EPA has explained previously the approach for developing PRGs protective of the benthic community, its approach to developing background estimates and the basis for not applying the site-use factors. Finally, the basis for EPA's PRGs is well documented in Appendix B of the feasibility study report. Additional responses to comments on PRGs may be found in the responses to LWG Dispute Issues 1d, 1i, 1j, 1m, 1n, and 1q and Union Pacific Railroad Dispute Issue 2 (Appendix A of this document).

### 2.3.11 BEHP Should Not Be a COC

#### Comment Summary

Three commenters suggest that BEHP should not be considered a COC. Two of the commenters note that risk associated with BEHP is not widespread, and ecological hazard quotients only slightly exceed the interim target. One commenter states there are numerous problems with concluding alternatives are not protective due to BEHP risks. They also state that BEHP exceedances only occur in a small area within Swan Island Lagoon and that EPA is inconsistent in assessing protectiveness because EPA did not consider risk reduction of ENR within Swan Island Lagoon. Another commenter states that BEHP is a ubiquitous chemical in urban runoff, a commonly identified cross-contaminant in sampling and analysis equipment, and not the focus of proposed cleanups in the harbor.

#### EPA Response

The BERA (Windward 2013) determined that BEHP posed a risk to wildlife through the consumption of prey. As noted in the comments, the PRG for BEHP was exceeded in many locations at the Site and by more than 10 in Swan Island Lagoon for Alternatives B and D. Thus, EPA concluded that Alternatives B and D are not protective of wildlife. EPA's feasibility study did not consider risk reduction from ENR within Swan Island Lagoon as a conservative approach given ENR's long-term effectiveness in achieving cleanup levels relies on MNR. However, EPA has calculated risk reduction with ENR within Swan Island Lagoon and has provided updated risk calculations in the ROD that take into account the uppermost effectiveness of ENR to bound possible benefits of its application. However, even taking ENR into account, Alternatives B and D are still not protective of wildlife. Finally, EPA disagrees that the evaluation of protectiveness is inconsistent. The tables presented in Appendix J identify areas of the Site where an HQ greater than 1 exists following construction. This information has been used to evaluate protectiveness on a river mile and sediment decision unit basis. Based on the results of the BERA, BEHP was identified as a COC for the Site. EPA acknowledges that BEHP is not a primary concern for ecological



receptors at the Site. BEHP is not a focused COC, and RALs were not developed for BEHP. However, the remedy is anticipated to address risk posed by BEHP by addressing the focused COCs will be confirmed by future monitoring.

EPA used validated data that were not qualified in any manner to indicate cross-contamination occurred. Further, the ubiquity of a COC is not reason to dismiss its risk. BEHP sources are known to exist in Portland Harbor including stormwater and certain upland facilities. Ongoing source control measures are expected to further reduce BEHP releases to the river via stormwater inputs.

## 2.4 Surface Water

### 2.4.1 Address Feasibility Study Errors Related to Surface Water

#### Comment Summary

Three comments were received regarding how surface water was addressed in the feasibility study report (USEPA 2016b). Most of these comments were presented as analysis errors in Appendix K of the report:

- “EPA used flow weights for averaging surface water data that are the opposite of the actual average annual river flow conditions. EPA assumed 240 days of the year were in a high flow condition, when the U.S. Geological Survey Portland river gauge data show that low flows (less than the long-term average of 33,000 cubic feet per second) occur about 250 days out of the year.”
- “EPA used river mile 11 West and Navigation Channel data to calculate weighted average surface water concentrations (SWACs) for the Site and for concentrations entering the Site. Using these same data to represent both locations on the river results in inaccurate determinations for both locations.”
- “Although perhaps a typographical error, EPA indicates it subtracted the concentration entering the Site from the average site concentration to obtain concentrations for the “Downtown Reach.” As written, such a calculation would produce the contribution from the Site instead.”
- “EPA assumes that post-construction surface water concentrations will decrease proportional to the percent reduction in sediment SWACs. This simplistic assumption ignores other contributions to surface water, most notably the upstream concentrations entering the Site. As a result, EPA estimates much greater percent reductions for the alternatives than is possible. For example, EPA calculates 92 percent reduction in Site surface water concentrations for Alternative G, but correctly accounting for upstream inputs would place this estimate at only about a 50 percent reduction.”
- “EPA also ignores within-site upland sources such as National Pollutant Discharge Elimination System (NPDES)-permitted stormwater and NPDES-permitted process and cooling water discharges that are beyond the control of sediment remedies. For example, the annual loading summary provided in Table 6.1-11 of the EPA-approved remedial investigation shows that nearly 30 percent of the PCB load to the Site comes from stormwater.”

One commenter expressed concerns that EPA has not sufficiently recognized contaminant loading from surface water sources (i.e., stormwater and upstream) or accounted for the reduction in surface water source concentrations.

## EPA Response

The following address the specific concerns expressed by the commenters with the water quality analysis:

- The calculations assumed high flow conditions for 8 months out of the year, low flow conditions 3 months out of the year and stormwater induced flow conditions 1 month out of the year. EPA acknowledges that high flow conditions (approximately 60,000 cubic feet per second) do not occur 8 months out of the year. EPA assumed the low flow conditions sampled in September 2006 occur approximately 3 months out of the year (August – October), whereas the stormwater induced flow conditions occur approximately 1 month out of the year (November). As noted in Section 3.1.4.2 of the remedial investigation report (USEPA 2016a), the Willamette River average daily mean discharge, as measured over the past 35 years is 33,000 cubic feet per second. Because the surface water data used to calculate reductions in surface concentrations did not include samples that represent this average flow conditions, the high flow data were considered more representative of the average flow condition than either the low flow condition or the stormwater induced flow condition and thus was assumed to occur 8 months of the year (December – July). This assumption is considered appropriate for a feasibility study level evaluation of reductions in surface water concentrations.
- As described in Section K3.3 of the feasibility study report (USEPA 2016b), the upstream contribution was estimated using the results from RM 11M and RM 11W. RM 11E was used in the estimate of site concentrations since it is affiliated with the RM 11E project area and is a known source of contamination.
- The feasibility study report is correct as written. As noted in Section K3.3 of the feasibility study report, the Site contribution was estimated by subtracting the averaged “downtown” surface water results from the average site surface water results. Downtown results were estimated based on an average of the RM 11W and RM 11M stations. Site results were estimated based on an average of the RM 11E, RM 6.3 NS, RM 6.3 NB, RM 3.9 NS, RM 3.9 NB, MC NS, MC NB, RM 2E, RM 2M, and RM 2W results.
- EPA did not include the upstream contaminant contribution in the evaluation of remedy performance because it is expected that source control actions, as well as actions taken within the broader Willamette River watershed to reduce contaminant loading, will further improve upstream water quality. Since the reductions are uncertain, monitoring will need to confirm actual water quality in the river.
- The evaluation conducted by EPA does not consider the contribution from stormwater because the expected decrease in stormwater contaminants is unknown. As a result, it is assumed that the reduction associated with stormwater is proportional to the reduction associated with each of the alternatives.

In the surface water analysis approach included in Appendix K of the feasibility study report (USEPA 2016b), EPA subtracted out the contribution from upriver sources, acknowledging other inputs to the Site. Since EPA further assumed in the feasibility study report that all upland sources to the river would be controlled, the only remaining input to the surface water is contaminated sediment and water from upstream of RM 15.9. EPA disagrees with assertions that stormwater, groundwater, and upstream inputs will not change since DEQ has been working with entities to control upland and upriver sources



(RM 11.8 to RM 16.6) to the Site throughout the remedial investigation/feasibility study process and will continue these efforts post-ROD. Because background is based on conditions upstream of RM 15.9, recontamination would only reach background levels. Other sources are expected to be adequately address as discussed in the Section 2.27.1 of this responsiveness summary.

EPA recognizes that the site conditions (including surface water runoff) have changed since the start of the project and anticipates they will continue to change as previously stated. EPA will consider new technically sound data during remedial design.

## 2.4.2 Compliance with State and Federal Standards

### Comment Summary

A total of 37 comments were received that expressed concern about meeting water quality standards. Most (24) were form comments received by email that read:

- “The community expects the final remedy to comply with state environmental quality, especially the water quality criteria for the PTW contaminants. PCBs, dioxins and DDTs in water and fish must meet state water quality standards.”

Ten other comments agreed with this statement, and many also cited the Clean Water Act. Those comments include:

- “In terms of the final remedy, I ask that it comply with state environmental quality, especially the water quality criteria for the principle threat waste contaminants. PCBs, dioxins and DDTs in water and fish must meet state water quality standards. As well, I ask that the final cleanup names a specific goal date for the lifting of the Fish Consumption Advisory in regards to PCBs within the Portland Harbor area.”
- “ALL standards, including the drinking water and surface water standards should be met after the cleanup is complete.”
- “We would hope that before the superfund cleanup commences that there will be much more stringent requirements in place. Goals should have zero tolerance for pollutants where ever possible. Monitoring the entire site should be in perpetuity and should contain no contingencies based on a best guess but concrete facts.”
- “I think the clean water compliance act should be enforced.”
- “I expect the final remedy to comply with state environmental quality, especially the water quality criteria for the PTW contaminants. PCBs, dioxins and DDTs in water and that fish must meet state water quality standards.”
- “Meet threshold requirements for protectiveness including Clean Water Act standards.”
- “Comply with State water quality and hazardous substance remedial action rules for risk.”

### EPA Response

EPA acknowledges the commenters’ concerns about water quality and that the cleanup should achieve Clean Water Act criteria. Contaminants in surface water at the Site come from resuspension and/or dissolved phase flux from the sediment bed, river banks, groundwater, and stormwater and, to a lesser extent, from upstream. As described in Section 6.1 of the remedial investigation and stated in Section

1.2.3.3 of the feasibility study report (USEPA 2016b), concentrations of contaminants in surface water at the Site are generally higher than those entering the upstream limit of the Site (based on sampling at RM 16) under all flow conditions. The highest contaminant concentrations in surface water at the Site were found near known sources. EPA's proposed plan (USEPA 2016c) focuses on the cleanup of sediments and river banks to reach cleanup goals in several in-river media, including surface water and pore water, whereas separate source control actions under the authority of DEQ focus on reducing contaminants from groundwater and stormwater.

EPA's cleanup will comply with substantive requirements of the Clean Water Act. First, the final remedy has established surface water and groundwater cleanup levels for many contaminants based on risk-based remediation goals that are more stringent than Clean Water Act criteria, and for other contaminants based on Clean Water Act criteria and/or state promulgated, numeric water quality criteria, and the Safe Drinking Water Act. The cleanup levels for RAO 3 (surface water/human health) and RAO 4 (groundwater/human health) are based on the lower of the federal National Recommended Water Quality Criteria established under Section 304(a) of the Clean Water Act, Oregon water quality criteria, MCLs, and non-zero MCL goals, as presented in Table 2.1-4 of the feasibility study report and in Table 17 of the ROD.

The ecological risk-based cleanup levels were developed from toxicity reference values protective of ecological receptors and used in the BERA (Windward 2013). Toxicity reference values for water were selected as risk-based cleanup-levels for RAO 7 (surface water/ecological) and RAO 8 (groundwater/ecological). The cleanup levels for RAO 7 are based on the lower of the National Recommended Water Quality Criteria and Oregon water quality criteria only when risk-based values are not available or are greater than these criteria, as presented in Table 2.1-4 of the feasibility study report. EPA expects that remediation of contaminated sediments in conjunction with source control measures will reduce surface water contaminant concentrations to levels that meet state water quality standards. Additional source control efforts will be required within the Willamette River watershed to further reduce the levels of these contaminants. Monitoring of surface water will be conducted to confirm reductions in surface water contaminant concentrations and monitor compliance with state water quality standards.

Additionally, the remedy requires that implementation of cleanup actions must comply with the substantive requirements of the Clean Water Act. Section 401 of the Clean Water Act and Oregon water quality regulations as ARARs require cleanup actions that may result in the discharge of pollutants to surface water be implemented in a manner that reasonably assures that the activity will not violate applicable state water quality standards by the imposition of effluent limitations, other limitations, and monitoring requirements. During cleanup, short-term exceedances of some state water quality standards are possible, particularly when sediments are dredged. Under Oregon state law, Oregon Administrative Rules 340-041-004, short-term degradation of surface water is allowable if the benefits of the lowered water quality outweigh the short-term environmental impacts. This evaluation will be conducted during remedial design. Conditions on the dredging and capping will be required based on a water quality monitoring plan that outlines how the cleanup activities will take place to minimize sediment resuspension that would affect water quality, and if necessary, ramp up best management practices like dredging controls where sampling indicates unacceptable levels of migration of dissolved or particulate bound contaminants. Section 2.17 of this responsiveness summary provides more detail on monitoring to be conducted during and after cleanup.

### 2.4.3 Address Issues with Assignment of MCLs

#### Comment Summary

Comments were received asserting that EPA incorrectly establishes Safe Drinking Water MCLs as ARARs for the Site and stating that Oregon water quality standard regulations designate the Lower Willamette River as a potential public and private water supply only following adequate pretreatment citing Oregon's designated use regulation for the Willamette Basin, Oregon Administrative Rules 340-041-0340, specifically Table 340A. Commenters also extended their argument that MCLs should not be ARARs for groundwater cleanup levels (1,1-DCE, 2,4-D, perchlorate, and 2,4,5-TP) and regional screening levels (manganese).

LWG expressed that it is not appropriate to assign MCLs to surface water and/or groundwater because they are "likely not achievable," not required for protectiveness, and not relevant to "reasonable and likely uses of groundwater." LWG suggested that if MCLs are retained as surface water or groundwater PRGs, they should be "applied at the theoretical point of distribution after treatment, consistent with Oregon and federal law," citing Oregon's designated uses for the Willamette Basin, Oregon Administrative Rules 340-041-0340, Table 340A; and Safe Drinking Water Act regulations, 40 Code of Federal Regulations Part 141, Section 141.23(a).

#### EPA Response

MCLs are appropriately identified as ARARs for the Portland Harbor Site as cleanup levels for surface water and groundwater. CERCLA Section 121(d) requires: (1) that any remedial action selected shall attain a degree of cleanup of hazardous substances, pollutants, and contaminants released into the environment and control of further releases at a minimum which assures the protection of human health and the environment; and (2) for any hazardous substance that will remain on site, such remedial action shall require a level or standard of control which at least attains Maximum Contaminant Level Goals established under the Safe Drinking Water Act, and water quality criteria established under Section 304 or 303 of the Clean Water Act. 42 U.S.C. § 9621(d)(1) and (2)(A). MCLs are relevant and appropriate under the circumstances of the release at Portland Harbor because the designated beneficial uses of the lower Willamette River include public and private drinking water supply (Oregon Administrative Rules 340-041-0340, Table 340A). Likewise, all ground water of the state, including the ground water adjacent to and under the lower Willamette River, are to be protected for the beneficial use of domestic drinking water supply. (Oregon Administrative Rules 340-040-0020(3)), which is as stringent or more stringent than the "EPA Guidelines for Ground-Water Classification" (December, 1986) (See 55 Federal Register 8732, March 9, 1990). Releases of hazardous substances which exceed applicable promulgated water quality standards and relevant and appropriate Safe Drinking Water Act standards for groundwater and surface water cleanup have occurred to groundwater that is discharging to or under the river within the Site or has the potential to discharge to the river. For further detail about the statutory and regulatory requirements for applying MCLs under CERCLA and at the Portland Harbor Site, see the response in Section 2.3.1. and LWG Dispute comment 1m response (Appendix A of this document).

EPA disagrees with the comment that "MCLs should not be considered ARARs at the Portland Harbor Site because the Oregon statute designates the Lower Willamette River as a potential public and private water supply only following adequate pretreatment" citing to a note in Table 340A.

However, there is other regulatory language the commenters ignored that does not support their position. Oregon Administrative Rules 340-041-0340(1) states: "Water quality in the Willamette Basin . . . must be managed to protect the designated beneficial uses shown in Table 340A (August 2005)." Table

340A lists both public and private domestic water supply as beneficial uses with a notation that states in full: "With adequate pretreatment and natural quality that meets drinking water standards." On its face, the notation does not void the state's regulatory mandate to manage water quality to protect the drinking supply use, but rather seems to be indicating what conditions should exist or occur for a consumer to take advantage of the designated use. Oregon Administrative Rules 340-041-340(1) supports why it is appropriate for the Portland Harbor remedy to protect the beneficial use of drinking water supply by requiring both surface water and groundwater discharging to the river to meet MCLs. Additionally, most PRGs for surface water and groundwater are based on more stringent water quality standards, not MCLs.

EPA also disagrees with the commenters that MCLs are not achievable through the planned remedial actions. No data or studies have been conducted that support that assertion. Although in-river sediment remedies and upland source control measures may not achieve MCLs immediately, compliance with MCLs will be monitored during implementation of the remedy. If monitoring indicates MCLs may not be achieved, further evaluation will be required to determine what additional source control measures or other actions may be necessary or whether meeting MCLs is not technically practicable. If it is demonstrated that achieving MCLs is not technically practicable, a waiver of that ARAR may be necessary.

Lastly, commenters argue that if MCLs are applied, they should only be applied at the theoretical point of distribution consistent with the Safe Drinking Water Act regulations and are not required for protectiveness. The Safe Drinking Water Act regulates public water supplies and sets primary drinking water standards for such systems. CERCLA, however, is a remedial statute and explicitly requires that any remedial action shall require a level or standard of control which at least attains Maximum Contaminant Level Goals established under the Safe Drinking Water Act, and water quality criteria established under Section 304 or 303 of the Clean Water Act. 42 U.S.C. Section 9621(d)(A) when relevant and appropriate to the releases at the Site. The Safe Drinking Water Act MCLs are not applicable to the circumstances of the releases and risks being addressed in this remedy decision, but they are relevant and appropriate given the beneficial uses of both groundwater and the river and releases of hazardous substances to both of those media within the Site.

## 2.5 Principal Threat Waste

### 2.5.1 EPA's Identification of PTW that Cannot be Reliably Contained is Flawed

#### Comment Summary

One comment was received that stated that the presence of highly toxic or mobile material does not by itself constitute PTW and that EPA errs by designating "highly toxic PTW" in a vacuum, solely in comparison to the risk level of detected concentrations of contaminant in sediments. To comply with guidance, EPA is required to also determine that such concentration is present in material that "cannot be reliably contained," or that the "toxicity and mobility ... combine" to pose a high risk, or that the toxicity is high when taking into account "the potential mobility of the wastes." EPA states, "'reliably contained' was not used in identifying PTW in the first instance, but rather it was used to determine what concentrations of already-identified PTW could be reliably contained." This contradicts EPA's guidance, which discusses the "reliably contained" criterion as part of PTW identification and not as a modifier once PTW has been identified. Further, EPA admits that all COCs at concentrations present at the Site, with just two exceptions-chlorobenzene and naphthalene-can be reliably contained. Therefore, none of the areas where these two contaminants are absent should be designated as PTW. Only the

areas that EPA designates as "not reliably contained" have the potential to actually be defined as PTW, yet such an evaluation has not been performed. Without this step, no area can be designated as PTW.

### **EPA Response**

Please see EPA's responses to Legacy Site Services (LSS) Dispute Issue 17 and LWG Dispute Issue 2c (Appendix A of this document).

## **2.5.2 Provide Justification for PTW for Total PAHs**

### **Comment Summary**

One commenter stated that there appears to be an error on Table 13 of the proposed plan where it lists a PTW RAL for Total PAHs of 870,000 µg/kg. PTW applies to cPAHs not total PAHs. The "Highly Toxic PTW Threshold" for cPAHs is identified as 106,000 µg/kg BaP eq on Table 6 of the proposed plan, consistent with Table 3.2-1 and Figure 3.2-3 of the 2016 feasibility study report. The cPAH PTW criteria should be listed. If this is not an error, please provide justification for the assignment of a PTW value of 870,000 µg/kg for Total PAHs.

### **EPA Response**

The value of 870,000 µg/kg in Table 13 of the proposed plan (USEPA 2016c) is a cPAH concentration converted to total PAHs using an empirically derived relationship between the two. Thus, the  $10^{-3}$  risk level was calculated for cPAHs and then transformed to total PAHs.

## **2.5.3 Reliance on Remedial Investigation Mechanistic Food Web Model Is Inappropriate**

### **Comment Summary**

One comment was received about the mechanistic food web model:

- "As a starting point, EPA has inappropriately relied on the remedial investigation Mechanistic Model (Windward, 2015) to define a PTW sediment concentration threshold for PCBs (and several other contaminants). EPA guidance defines PTW as a "source material" that "acts as a source for direct exposure." (EPA 1991). The remedial investigation Mechanistic Model, in contrast, is used in the evaluation of indirect human exposure through the fish consumption exposure pathway. It is erroneous to use the remedial investigation Mechanistic Model to designate PTW levels.

Even if it were appropriate to use the remedial investigation Mechanistic Model for purposes of establishing PTW levels, EPA has misapplied it here. EPA has chosen to apply the PTW concentration thresholds it has developed for the fish consumption exposure pathway on a point-by-point basis to identify PTW "source materials." This application is contrary to the assumed exposure area in the remedial investigation mechanistic report and is therefore inappropriate and incorrect. Most fish have wide home ranges and, consequently, their exposure will not be restricted to locations within the study area where sediment concentrations exceed the PTW threshold. Finally, the PTW threshold concentration is calculated under the inappropriate assumption that a subsistence fisher will, throughout his/her lifetime, exclusively consume fish from Portland Harbor that have only been exposed to sediments containing the PTW threshold concentration. Clearly, this last assumption adds yet another layer of implausible conservatism to EPA's misguided approach to defining a PTW threshold in sediments."

## EPA Response

The mechanistic food web model was appropriately developed, parametrized, calibrated and applied to develop risk-based PRGs associated with RAOs 2 and 6 and, by extrapolation, PTW thresholds. EPA responses to comments on the Mechanistic Food Web Model are provided in Section 2.11 of this responsiveness summary. The definition of source material in EPA guidance states that source material is defined as “material that includes or contains hazardous substances, pollutants or contaminants that act as a reservoir for migration of contamination to groundwater, to surface water, to air or acts as a source for direct exposure.” Thus, the definition of source material is not limited to material that acts as a source for direct exposure. Although biota tissue is not specifically mentioned, the concept of contaminated sediments acting as a source of contamination to biota tissue is consistent with the guidance.

Regarding the scale over which PTW is applied, the highly toxic PTW threshold is based on the sediment concentration that equates to a  $1 \times 10^{-3}$  risk level without consideration of exposure scale. There is nothing in EPA guidance that requires consideration of exposure scale in the development of PTW thresholds. It should be noted that the risk assessment determined that many areas of the Site exceed the  $1 \times 10^{-3}$  risk threshold for PCBs. For example, Table 5-74 of the BHHRA (Kennedy/Jenks 2013) shows that the site-wide risk associated with PCBs and the subsistence fish consumption exposure pathway is  $9 \times 10^{-3}$  which is well above the PTW risk threshold. As a result, it is appropriate to establish a highly toxic PTW threshold for PCBs based on  $1 \times 10^{-3}$  risk and apply that threshold across the Site. The risk assessment assumptions developed for the subsistence fisher are appropriate under a reasonable maximum exposure scenario.

See also response to LSS Dispute Issue 2 and LWG Dispute Issue 2c (Appendix A of this document) for more discussion of PTW identification at the Site and Section 2.11.1 of this document for more information on the mechanistic food web model.

## 2.5.4 Address Miscellaneous PTW comments

### Comment Summary

Several PTW miscellaneous comments were received. They are:

- PTW determination is unnecessary and inconsistent with guidance, the NCP, and practice which results in EPA incorrectly labeling as PTW large areas of sediment with relatively low concentrations and/or low toxicity of COC, or sediments that do not act as a source of direct exposure, and can be reliably contained.
- The assessment or identification of PTW and non-aqueous phase liquid (NAPL) (adjacent to Arkema) is inaccurate.
- A biased approach was used for assignment of remedial technologies to sediment containing PTW and NAPL.

## EPA Response

Please see LSS Dispute Issues 2 and 17, and LWG Dispute Issue 2c (Appendix A of this document).



## 2.6 Remedial Action Levels

### 2.6.1 Address Concerns with Establishment and Application of RALs

#### Comment Summary

Many commenters believe that EPA's proposed plan arbitrarily establishes different RALs to different SDUs. It was noted that assigning different RALs could result in recontamination of downstream areas if higher RALs were utilized upstream. In addition, it was noted that the feasibility study report and proposed plan did not provide sufficient explanation of the basis for this decision. It was also noted that during remedial design, additional sampling will be conducted that may identify additional risk associated with dioxin/furan, yet the cleanup levels will remain the same.

Other commenters stated that EPA's selection of Alternative F for SDU 7W is arbitrary and capricious because it is based on a scientifically inappropriate conceptual site model (CSM), inaccurate baseline sediment concentrations and assumed risk, incorrect risk drivers, inconsistent post-construction risks among SDUs, and a faulty estimation of risk reduction to justify large dredge volumes.

Some commenters questioned the application of RALs in certain parts of the Site. For example, PAH RALs should not be applied in the navigation channel (RAL comment). The RALs must be applied only in exposure areas where the baseline risk assessments found unacceptable risks from the RAL chemicals. As discussed in LWG comments, EPA's preferred alternative requires significant amounts of dredging at locations where exposure to the RAL chemicals driving the cleanup either does not occur, where PRGs for those chemicals are already met, or where the baseline risk assessments did not find unacceptable risk for a given contaminant/exposure pathway. The most dramatic example of this is the approximately 25 acres of dredging EPA plans in the navigation channel based upon preliminary remediation goals for polycyclic aromatic hydrocarbons (PAHs) developed for shellfish consumption, an exposure scenario that cannot occur in the navigation channel. No one goes clamming in 50 feet of water in the middle of the river.

Another commenter questioned the use of a 75 µg/kg RAL for SDU RM 7W because the focused COCs for SDU RM 7W were DDx/PeCDF/TCDD, not PCBs (proposed plan Table 16 (USEPA 2016c)). They noted that of the 8 SDUs with PCB listed as a Focused COC, 7 SDUs have a PCB RAL of 200 µg/kg and that remediating the sediment in this area to the 75 µg/kg PCB RAL would have a minimal effect on the concentration of DDx, PeCDF or TCDD in SDU RM 7W and would not be cost effective in reducing the site-wide PCB SWAC.

It was also noted that EPA's remedy selection improperly relies on SWAC values that were calculated using data that are more than a decade old. Consequently, the RALs established by EPA based on those SWACs reflect an outdated "snapshot" of Site conditions as they were 10 to 15 years ago, rather than current conditions.

One commenter stated that EPA should apply Alternative D or E RALs for non-focus COCs in SDU 7W or extend SDU 6W to include the entire Siltronic shoreline. The use of Alternative D or E RALS more appropriate for non-focus COCs would reduce the projected active remedy area that is unrelated to the focus COCs. Alternatively, applying Alternative F RALs for the focus COCs would result in post-construction concentration estimates that are consistent with other SDUs. Either of these approaches would avoid the unwarranted designation of much of the Siltronic shoreline for river bank remedy.

It was further noted that DDx risks at RM 7W are similar for Alternatives B through E and equate to 10<sup>-7</sup> risk for Alternative F. The use of this overly aggressive RAL for DDx results in a more stringent risk

standard for SDU RM 7W than the rest of the Site, is not necessary, nor more protective when compared to chemicals such as PCBs and is thereby arbitrary and capricious.

One commenter stated that EPA's determination that sediments near RM 10.7 exceed RALs and must be remediated as PTW is not based on available data and is therefore arbitrary and capricious. Another commenter requested an explanation for why there are PRGs for the other 64 COCs that already have regional thresholds but have no RALs in the alternatives. Finally, one commenter requested a Site remedy that focuses on active remediation of the highest contaminant concentrations and relies on the following RALs:

- PCB RAL of 1,000 ppb
- DDE RAL of 1,000 ppb
- cPAH (as BaPEq) RAL of 20,000 ppb

### **EPA Response**

EPA's proposed plan (USEPA 2016c) explained the basis for the different RALs in Alternative I; however, after reviewing public comments, EPA has selected Alternative F with modifications as the final remedy. EPA agreed that applying different RALs, particularly, higher RALs upstream of lower RALs could be problematic for achieving the ultimate cleanup goals. The selected remedy applies the same remedial action levels (F RALs) throughout the Site, with the exception of the navigation channel where the remedy will target PTW and sediment contamination exceeding the Alternative B RALs because of the differences in water depth, sediment transport potential and exposure potential. EPA's final selected remedy addresses the majority of the comments concerned about the application of different RALs for the same COC, including claims that the selection of different RALs in different nearshore areas is arbitrary and capricious.

Regarding application of PAH RALs in the Navigation Channel, the remediation of PAH contamination within the navigation channel is based on risks to the benthic community and the human health shellfish exposure scenario. Although the commenter states that human consumption of shellfish is an exposure scenario that cannot occur in the navigation channel because no one goes clamming in 50 feet of water in the middle of the river, there is no information to support this claim. It should be noted that RALs are not the final cleanup levels. The ROD established final cleanup levels that will be attained through a combination of active remediation (such as, capping and dredging) and monitored natural recovery. Cleanup levels must be met throughout the Site, including the navigation channel.

Additional information regarding the application of PAH RALs in the Navigation Channel may be found in EPA's response to LWG Dispute Issue 1d (Appendix A of this document) of this responsiveness summary.

It was noted that EPA established PRGs for 64 COCs but developed RALs for only 6 focused COCs. As described in Section 3.4.1.1 of the feasibility study report (USEPA 2016b), focused COCs are those that the distribution encompasses the majority of the spatial extent of contaminants posing the majority of the risks as identified in the baseline risk assessments. RALs were developed for each of the focused COCs and were used in the feasibility study only for the development of SMAs. SMAs establish the remedial footprint to be addressed through capping and dredging during implementation of the remedy.



Regarding the proposal to establish RALs for PCBs at 1000 µg/kg, DDE at 1000 µg/kg and cPAHs (as BaPEq) at 20,000 µg/kg, EPA finds that these RALs would result in Site-wide SWACs well above the PRGs established for the Site. For example, a PCB RAL of 1000 µg/kg would result in a site-wide SWAC of approximately 55 µg/kg. Based on existing information and the lines of evidence used for identifying MNR potential (see feasibility study report Appendix D8, EPA concludes that use of the RALs recommended by the commenter likely would not achieve final cleanup levels within a reasonable timeframe and potentially would not support MNR recovery. Regarding the remediation of contaminated sediments in the vicinity of RM 10.7, see the response to UPPR Dispute 6 (Appendix A of this document).

## 2.7 Remedial Action Objectives

### 2.7.1 Implement Changes to Remedial Action Objectives

#### Comment Summary

Comments pertaining to RAOs were submitted by several parties, including the PCI Group, EVRAZ Inc., Cascade General, and Portland General Electric. One commenter stated that RAOs should not be required for exposure media, pathways, and receptors for which the risk assessments conclude there is no unacceptable risk. EVRAZ Inc. comments also stated that the overall RAO language be changed to focus on reducing risk instead of reducing COC concentrations. Portland General stated that RAO 3 should be eliminated because current water sampling conducted by DEQ shows the risk to direct human health surface water exposure to be minimal. Another commenter (EVRAZ Inc.) stated that RAOs 3 and 7 should be removed because the remedial action cannot control the quality of surface water flowing into the Site, and RAOs should reflect objectives that are achievable. EVRAZ Inc. also proposed that RAOs 4 and 8 be removed because these RAOs pertain to reducing groundwater COC concentrations to minimize recontamination of sediment and surface water, and are not about exposure to the groundwater itself. Cascade General commented that EPA's proposed plan should be revised to provide a thorough analysis of the anticipated long-term effects of controlling the city's CSO discharges (e.g., Big Pipe Project) on meeting the site-wide RAOs, and, if supported by this analysis, implement less aggressive remedial measures such as applying monitored natural recovery to a wider area. Comments pertaining to RAO 9 are included in Section 2.26 of this responsiveness summary.

#### EPA Response

The cleanup strategy for the Site was developed to address all contaminated media and complete exposure pathways that pose unacceptable risk within the river, including sediment, biota, surface water, groundwater, and river banks. The nine RAOs were developed to address the human health and ecological risks posed by COCs at the Site, and reduce the potential for recontamination. The remedial approach is to address the contaminated sediment within the Site, reducing concentrations, exposure to and the bioavailability of COCs in all affected media (sediment, biota, surface water, groundwater, and river banks). To achieve the risk reduction in all media, it is imperative that all nine RAOs are addressed to reduce the overall risk to people and ecological receptors.

Reducing risks from direct contact with COCs in surface water, as described in RAOs 3 and 7, is an important component of the overall remedy. EPA recognizes that upstream surface water quality is a factor in meeting surface water cleanup levels, but due to sediment contamination, surface water concentrations within the Site are generally higher under all flow conditions than those entering the upstream limit of the Site. Additional surface water data will be obtained following remedy implementation to compare the COC surface water concentrations within the Site boundaries to upstream and downstream values. If the data indicate that the inflow of upgradient surface water is

prohibiting attainment of surface water quality criteria, EPA will make the determination as to whether further action (like additional upland or upriver source control) is warranted. Controlling the migration of COCs in groundwater that may impact sediment and surface water quality, as described in RAOs 4 and 8, is also an important component of the overall remedy. Elevated COCs in groundwater can negatively impact transition zone water quality in sediment and increase risks to benthic organisms, fish, and aquatic plants. Direct contact with groundwater discharging via seeps is also a potential exposure pathway. RAOs 4 and 8 are focused on containing and reducing migration of COCs from groundwater to surface water and biologically active areas of sediment. Should groundwater not be addressed adequately under DEQ's actions, EPA may, at a future time, determine if action is warranted under CERCLA to further address groundwater contamination. Removal of RAOs 4 and 8 is not warranted.

The RAOs and the proposed remedy take into account ongoing source control efforts, including the control of CSO discharges, stormwater discharges, groundwater discharges, and erosion of river bank soils. The effectiveness of monitored natural recovery assumes that source control will be implemented and discharges from CSOs will not continue to impact the waterway. The elimination of these discharges in conjunction with active sediment remediation through dredging and capping will facilitate natural recovery processes and allow the remedy to meet the RAOs in a reasonable timeframe. Comments pertaining to RAO 9 are addressed in Section 2.26 of this responsiveness summary.

### 2.7.2 Incorporate Newer Data in Surface Weighted Average Calculations

#### Comment Summary

Six comments were received regarding the data used for calculating surface-area weighted concentration (SWAC) values. Commenters recommended that new SWACs be developed based on more recent data.

Commenters said that the SWAC calculations did not take into account the most recent data available and thus misrepresent the current conditions. It was stated that more recent PCB samples have been taken, and including the data would reduce the initial SWAC for PCBs. They also referred to a 2013 LWG evaluation of small mouth bass PCB tissue measurements made in 2002, 2007, and 2012 which indicate declines in tissue concentrations across almost all areas of the Site. Further, it was stated that 2014 sedimentation bathymetry data and 2014 site-wide sediment PCB data support a downward trend in contaminant concentration in surface sediments due to the effects of natural recovery at the Site. LWG also commented that because only a limited number of dioxin/furan samples are available and detected, the SWAC calculation across the Site for each congener is flawed.

#### EPA Response

EPA is anticipating that new data will be taken into account during remedial design and implementation. Please see Section 2.10.2 of this responsiveness summary and EPA's response to LWG Dispute Issue 1d for additional details regarding the data used, and the rationale for SWAC calculations (Appendix A of this document).

### 2.7.3 Address SWAC Reductions and Natural Recovery

#### Comment Summary

Three comments pertaining to SWAC reductions and natural recovery were received, as summarized below:

- The preferred alternative would take nearly twice as long to complete, but would only reduce the site-wide PCB SWAC by an additional 17 percent, to 40 µg/kg. This concentration is actually in the range of site-wide sediment concentrations measured in 2014 (Kleinfelder 2015), suggesting that the estimated benefit from the preferred alternative has already been at least partly achieved through natural recovery.
- The post-remediation SWAC reductions for DDx in the RM 7W was more than 60 percent. The SWAC reductions for PeCDF and TCDD were nearly an order of magnitude. LSS believes that this is too conservative since it does not take into account natural recovery. Remediation with natural recovery is protective of human health and the environment.
- EPA's overall PCB SWAC estimate in the Swan Island sediment decision unit for Alternative I is 48 µg/kg. However, this SWAC value reflects only the effect of remediation at dredged and dredge/cap areas of Alternative I and does not account for the effect of ENR. It is unclear why EPA has excluded the effect of ENR because EPA accounted for the effect of ENR on SWACs in the 2015 draft feasibility study report (USEPA 2015).

### **EPA Response**

EPA agrees with the importance of considering new data during decision making and that decisions should have built in flexibility to accommodate an updated understanding of site conditions. However, it is important to have a representative data set that establishes “baseline conditions” prior to initiating a response action. A decision-making process cannot undergo constant modification when data are collected at various times and locations throughout the Site. Therefore, at this time, EPA does not plan on using the 2015 Kleinfelder Report to revise the RALs used to develop remedial alternatives in the feasibility study report. Further, data presented in the 2015 report do not on their face appear comparable to previously collected remedial investigation data (10cm surface samples vs the 30cm samples collected in the remedial investigation), making the conclusions therein regarding trends questionable. However, some conclusions provided in the August 7, 2015 memo to Jim Woolford and Cami Grandinetti are reasonable and consistent with the Agency’s position, specifically that natural recovery is occurring in the Willamette and is anticipated to continue and that the food web model is a useful line of evidence for representing sediment and food web contaminant relationships. EPA expects remedial footprints to be refined based on data collected during remedial design. For example, if sediment concentrations have declined through natural recovery, pre-design sampling should result in a smaller remedial footprint (ROD Section 10.1.1.9).

EPA concurs that natural recovery is occurring within Portland Harbor and that it should be utilized in the sediment remedies, as evidenced by the fact that MNR represents the response action assigned to between 64 and 90 percent of the total area of the Site for all alternatives carried through the detailed analysis in the June 2016 feasibility study. However, the rate of natural recovery is expected to vary by location. Pre-design sampling will be used to ensure that the natural recovery is factored into the design and implementation of the sediment remedy and post construction monitoring will be used to evaluate natural recovery following remedy implementation.

For EPA’s additional responses to the comments summarized above, please see EPA responses LWG Dispute Issue 2b, LSS Dispute Issue 5, and LSS Dispute Issue 8 (Appendix A of this document).

## 2.7.4 Revisit Post-Construction SWAC Calculations

### Comment Summary

Comments pertaining to effect of sediment background and dredge residual concentrations on post-construction SWAC calculations were submitted by four commenters, as summarized below:

- The post-construction sediment concentrations are unrealistic, and SWACs do not account for dredge residuals or actual background concentrations of COCs. For example, some of the dioxin/furan, PCB, and DDx post-construction concentrations are below EPA's derived background concentrations. Post-construction SWACs less than EPA's arbitrary background concentrations are not feasible and are an artifact of the use of "zeroes," instead of a background or equilibrium-based value, for replacement values in SWAC calculations.
- The use of sediment equilibrium concentrations, such as the equilibrium calculation for PCBs calculated by LWG, are the most appropriate because it is not possible to clean up a sediment site below equilibrium concentrations; however, because equilibrium concentrations have not been calculated for most COCs in Portland Harbor, upstream background concentrations are the next best value to use in these post-remediation SWAC calculations.
- EPA's calculations of post-construction risk do not provide for meaningful comparisons. A larger remedial footprint may briefly result in decreased residual risk in the short period immediately after construction. However, within a relatively short period of time, reflecting a reasonable attenuation time-frame, the post-remedial action risk will be similar across alternatives due to the surface sediments reverting to actual river-wide equilibrium conditions. EPA's analysis fails to properly account for the post-remedy contaminant levels rising to meet background.
- SWACs calculated for SDU RM 3.5E for PeCDD are already near background values of 0.0002 µg/kg. Application of Alternative B RALs, which would not result in designation of an SMA adjacent to the Time Oil facility, would achieve a post construction SWAC of 0.000198 µg/kg, below the PRG. If rolling-river mile, the range is from 0.000116 to 0.000262 µg/kg in this area. If Alternative B RALs were applied, the highest post construction SWAC in this area would be 0.000214 µg/kg at RM 3.9E, essentially indistinguishable from background.

### EPA Response

Post-construction COC concentrations in areas assigned to dredging or capping were assumed to be zero, as the 2016 feasibility study report (USEPA 2016b) assumed clean material would be used for caps, and that the residual layer applied to dredged areas would consist of clean sand. This assumption allowed EPA to perform an equal comparative evaluation among the alternatives presented in the feasibility study report. While post-construction sediment concentrations of zero may not actually be realized, there is too much uncertainty during the feasibility study phase to accurately predict what the concentrations will be at each area addressed via active remediation. The absence of sufficient data needed to develop a defensible fate and transport model precluded estimating equilibrium COC concentrations with any degree of certainty in these actively remediated areas for any time-frame beyond the immediate post-construction period. Only empirical data collected post-construction will provide the actual results.

For the purpose of the feasibility study report, assumptions were made in order to evaluate and compare the performance of alternatives. As long as these assumptions are made consistently across

each of the alternatives, the comparative results are not biased based on a largely uncertain and speculative factor such as post remediated sediment concentrations.

EPA's position regarding the use of equilibrium values and the use of zeros as replacement values is further discussed in EPA's response to LWG Dispute Issue 1r and EPA's response to LSS Dispute Issue 8 (Appendix A of this document).

While the commenter is correct that SWACs for 1,2,3,7,8-PeCDD are driving the creation of the SMAs in this area, the SWAC and related RALs for each contaminant were evaluated and established at a site-wide level. The area is not evaluated based on PRGs, and individual areas above the designated RALs are taken into account, not the calculated SWAC at any one area. Figure 3.4-10 in the feasibility study report suggests that at least one sample in the area is above 0.0008 µg/kg and above the background values. This Site will be further evaluated during the remediation and design phase to determine if there is significant contamination and if remedial action is necessary.

## 2.7.5 Address Inconsistencies between SWACs and Baseline Risk Assessments

### Comment Summary

Two comments pertaining to the SWACs being inconsistent with the baseline risk assessments were received and are summarized below:

- The consequences of substantially diverging from the BLRA SWACs at this late date are not considered or discussed anywhere in the 2016 draft feasibility study report or proposed plan. The consequences, combined with other issues, like the zero replacement value, are widespread, impacting every post-construction risk estimate presented by EPA and skewing the overall evaluation of the alternatives' effectiveness.
- It is inappropriate to use any of these new subsampling methods because they will all create Site SWACs that are inaccurate and inconsistent with those used in EPA-approved BLRAs, which in turn causes the remedy selection process to diverge from an appropriate focus on reducing risks actually identified in the baseline risk assessments.

### EPA Response

The SWACs are a tool developed for the 2016 feasibility study report (USEPA 2016b) to compare alternatives to the No Action alternative and are not used nor discussed anywhere in the BERA (Windward 2013) or BHHRA (Kennedy/Jenks 2013). EPA's position regarding the two comments above is further discussed in responses to LWG Dispute Issue 1c and 1d (Appendix A of this document).

## 2.7.6 Effect of Initial Condition SWAC on Chosen Alternative

### Comment Summary

Comments pertaining to the impacts of the initial condition SAWC on the preferred alternative were submitted by four commenters, as summarized below:

- Initial Conditions determines the shape of the SWAC curve. When a higher value is used for the initial conditions, the resulting shape of the curve changes and the most intrusive and resource-consuming alternatives erroneously appear to provide more benefit in reducing the SWAC. This is a significant analytical and decision-making error because such alternatives actually provide much less benefit at a significantly greater cost than when the initial condition is more

appropriately represented by the lower actual values that reflect the documented conditions at the Site.

- In the 2016 feasibility study report, EPA used a new, inflated baseline SWAC (almost 2.5 times higher than used in the BHHRA) that resulted in correspondingly higher, but unsupported and unexplained, estimated risks. Such inflation of estimated current risks has the effect of improperly overstating projected risk reductions to be achieved by the more intensive alternatives, including Alternative I.
- A high initial SWAC of 208 ppb for PCBs was used to calculate percent reductions without an explanation or apparent scientific support. This significantly exceeds the initial condition SWAC of 85 ppb derived from the 2001-10 remedial investigation data used in EPA's draft 2015 feasibility study report and the BHHRA. EPA chose not to disregard the data, and EPA's use of the higher current SWAC impacts EPA's detailed analysis of alternatives since using a higher initial SWAC creates the appearance that the more aggressive alternatives achieve greater risk reduction.
- EPA calculated, using the Food Web Model and the new sediment SWAC of 208 ppb, an average PCB site-wide fish tissue concentration of 521 ppb. The comparable average site-wide fish tissue concentration in the BHHRA, based on actual tissue data collected in 2007 and earlier, is 227 ppb, which equates to a site-wide modeled sediment SWAC of 85 ppb. Using EPA's modeled tissue concentration of 521 ppb, the acceptable consumption rate based on the non-cancer endpoint would be 1.9 fish meals/year for the child scenario; whereas the actual BHHRA tissue concentration of 227 ppb results in an acceptable consumption rate of 4.2 meals/year. The above calculation of 1.9 meals/year for Alternative A (baseline) using EPA's fish tissue concentration is higher than the meals per year shown for Alternative A in Figure 4.2-2 of the 2016 feasibility study report, which presents 0.6 fish meal/year for the presumably same scenario. It appears that EPA is using the child scenario but altering the fish meal size from 3.5 ounces to the adult meal size of 8 ounces, which is clearly inconsistent with the BHHRA methods. Putting aside the reasonableness of a child consuming adult meal portions for long periods while still remaining a child, the result of EPA's poorly explained additional change to the exposure assumptions is to drive allowable fish meals even further down for the baseline condition. Combined with the artificially inflated new SWAC, this meal size change compounds the portrayal that the baseline condition is much worse than the actual BHHRA findings. Again, this further increases the perceived benefit of any SWAC and tissue concentration reductions assumed for the more aggressive alternatives.

### EPA Response

EPA's response to each of the four comments is as follows:

- While a concern of how the initial conditions affect the SWACs and chosen remedy are valid, the initial condition SWACs presented in the feasibility study report (USEPA 2016b) (Figure 3.4-1) of 92  $\mu\text{g}/\text{kg}$  for PCBs is very close to the value of 85  $\mu\text{g}/\text{kg}$  used by LWG in 2012. This evaluation is conceptual in nature, and the variations in SWACs across the SDUs are meant to show the effects of the chosen RAL at that level. While these can have an impact on footprints in this evaluation, further evaluation will be done to determine actual extent of contamination and costs during remedial design. A similar question is addressed by EPA in its response to LWG Dispute Issue 1d (Appendix A of this document).



- As stated in the above response, the baseline SWAC of 92 µg/kg was used in calculation of the PCB RAL curves. Please see EPA’s response to a similar question in LWG Dispute Issue 1d (Appendix A of this document).
- The initial PCB SWAC of 208 ppb was only used in the risk and surface water evaluations shown in Appendices J and K. For the percent reductions calculated in Section 3 of the 2016 feasibility study report (USEPA 2016b), a value of 92.6 ppb was used as the initial PCB SWAC, and all alternatives were based on this SWAC. This value is close to the 85 µg/kg used in the 2015 draft feasibility study report (USEPA 2015) and only differs based on changes in site area.
- EPA acknowledges there is uncertainty in the analysis of acceptable fish consumption rates. Human health and ecological risk assessment calculations are discussed in Sections 2.33 and 2.34 of this responsiveness summary.

### 2.7.7 Address Concerns Regarding SWAC Calculations

Specific comments or questions were received from five commenters pertaining to SWAC calculations. Some commenters stated that EPA cites various SWACs without clarifying which SWAC was used in the analyses, or it was unclear how the SWACs were calculated. Others said that methods used for estimating post-construction risks are inconsistent with the baseline risk assessments. For each comment or question, a comment summary and response is provided below.

#### a. Comment Summary

The BHHRA (Kennedy/Jenks 2013) estimated risk-based on upper bound sediment and fish tissue concentrations for fish consumption. The same approach was not used in the proposed plan assessment. Different data averaging methods and assumptions were utilized for the different SWAC estimates (site-wide vs. rolling river mile, and SDU-wide).

#### EPA Response

Different methods of calculating SWACs were used as appropriate to the analysis. Site-wide SWACs were utilized to conceptually understand the contamination across the Site as seen in feasibility study report Sections 3 and 4 (USEPA 2016b). SDU comparisons were used to understand how more localized area concentrations were being addressed by the site-wide SWACs. Rolling river mile calculations were deemed to be a more appropriate scale to address the exposure of fish species to contamination as demonstrated in response LSS Dispute Issue 1 (Appendix A of this document).

#### b. Comment Summary

A commenter stated that EPA cites various SWACs, without clear explanation of what is used in which analyses. The different appendices describing SWACs and 95 percent UCLs on those averages include:

- Appendix B: In Table B1-4, the starting PCB site-wide SWAC is listed as 92.6 µg/kg, presumably related to averaging of the values used in the smallmouth bass exposure areas.
- Appendix I: An uncertainty analysis presents five methods to interpolate surface sediment data. The starting PCB site-wide SWACs are presented as a range from 79 to 205 µg/kg. Appendix I also describes methods to find lower and upper 95 percent confidence limits on the SWACs. A confidence limit of 67 to 95 µg/kg on the natural-neighbor method is presented in text and figures.

- Appendix J: In Table J2.3-1a, the starting PCB site-wide SWAC is listed as 208 µg/kg. According to text on Page J-3, this value is a 95 percent UCL of a SWAC. Region 10 does not explain why it changed the Site-wide PCB SW AC from 85 ppb in the 2015 feasibility study report to 208 ppb in the 2016 feasibility study report. This SWAC is inconsistent with recent evidence that supports an even lower SW AC than 85 ppb. No evidence as to how EPA arrived at number is provided.

The commenter stated that the feasibility study report (USEPA 2016b) and proposed plan (USEPA 2016c) do not fully document which methods were used for which analyses; therefore, the findings from these analyses are difficult to understand. It is not always clear whether an average or a 95 percent UCL is being used, and, depending upon what is presented, the apparent benefits of an action can change. The values used in decision making and remedy selection must be clearly articulated.

### **EPA Response**

In response to the specific comments above, EPA provides the following clarification:

- This value is consistent with the site-wide SWACs presented in feasibility study report (USEPA 2016b) Section 3, Figure 3.4-1, which shows a current SWAC of 92 µg/kg.
- Appendix I presents the uncertainty analysis for comparison to the method used in the feasibility study report and does not present actual PCB values in the feasibility study report. This approach is further described in LWG Dispute Issue 1c included in Appendix A of this document.
- The value of 208 ppb was only used in Appendix J and K and was not used in calculations within the main text of the 2016 feasibility study report (Sections 3 and 4 calculations). This value is explained in response to LWG Dispute Issue 1c. How different SWAC values were used is explained in LWG Dispute Issue 1d. Please see Appendix A f of this responsiveness summary or additional information.

Please see ROD Appendix IV Introduction for an explanation of EPA's updated approach for the site-wide SWAC calculation and evaluations used in updated Appendices J and K in the ROD.

### **c. Comment Summary**

One commenter stated that the descriptions of interpolation and averaging methods in Appendix I of the feasibility study report (USEPA 2016b) lack clarity. In EPA's explanation, it presents four very different maps (Figure I-4) of interpolated PCB concentrations in surface sediment. None of the maps are labeled, and minimal legend elements are provided, so the reader is left to wonder about the various methods being displayed. But the title of the figure, "Four Equally Likely Simulated Maps of PCBs," suggests there is a lot that is not known about the sediment condition.

### **EPA Response**

The method known as conditional simulation is described in Section 2.2.2 of the 2016 feasibility study report (USEPA 2016b) with over a page of text, including a flow diagram describing the intermediate steps supported by three technical references available in the scientific literature. Conditional simulation represents the most advanced state of the science in statistical analysis of spatially correlated data for environmental and geological sciences and mining. The algorithms which form the building blocks of the simulation, P-field simulation and natural neighbor interpolation are well documented in the referenced literature.



The comment asks for more detail with regard to the four equally likely contaminant surfaces shown in Figure 4, lamenting the lack of legend information. The figures are designed to avoid clutter that could cloud the purpose of the figures. These figures illustrate that there is a great deal that is not known about the sediment condition by showing that no individual simulated map is of any greater significance than any other of the 100 equally likely surfaces that were simulated. This is the understanding that was intended to be conveyed by the four maps. Contaminant distributions that are consistent with the sample data are varied, yet despite this level of uncertainty, remedial design and SWAC forecasting involves a great deal of averaging, which ameliorates much of the spatial uncertainty, but not all, as can be seen in the subsequent figures documenting the SWAC vs RAL relationships.

#### **d. Comment Summary**

One commenter said that the use of a broad range of percentiles of the contaminant distribution is not an appropriate way to estimate uncertainty in the SWAC. Although there are no statements in Appendix I to indicate that EPA used these estimated uncertainties to estimate post-construction risks or to select the preferred alternative, page 4-9 of the 2016 feasibility study report (USEPA 2016b) main text reads:

*“The analysis showed that for some alternatives, the uncertainty bounds of the post-remedial SWAC overlap the uncertainty bounds of the pre-remedial SWAC. This indicates that there is potentially no remedial benefit for those alternatives because the pre- and post-remedial SWACs are statistically indistinguishable when uncertainty in the SWAC estimates are taken into account.”*

The statement that “those alternatives ... are statistically indistinguishable” is not correct, and suggests that Alternatives B and D were found to not meet the threshold criteria for protectiveness because of the perception that they are “statistically indistinguishable” from Alternative A. The assertion that datasets with wide ranges of concentrations with potentially overlapping confidence limits on the mean are statistically indistinguishable is flawed, and EPA should not use this faulty premise to favor more aggressive remedies. Further, there is a lack of clarity on the reason that Alternatives B and D were considered protective in the draft feasibility study report (USEPA 2015), but not in the 2016 feasibility study report.

#### **EPA Response**

Remedial actions are compared based on predictions of post remedial SWAC which are subject to statistical uncertainty because they are estimated from samples. The sample data are based on a combination of biased and unbiased sampling programs which preclude use of simple statistical methods that require unbiased probability based sampling designs. Under the assumption of positive spatial correlation, biases can be approximately corrected through spatial weighting, and uncertainty bounds can be developed through application of geostatistical models. In the feasibility study report (USEPA 2016b), the standard geostatistical approach based on conditional simulation was applied to data from the Site and resulted in point estimates of the mean (SWAC) as well as the best available 95 percent confidence limits, conditional on the non-probability based sampling design.

Using standard statistical procedures, such as a Student’s T interval or a bootstrap confidence interval when confidence intervals do not overlap, one can draw the conclusion that the means differ with more than 95 percent level of confidence. Equivalently, one would reject the null hypothesis of equal means with a statistical significance of less than 5 percent. When intervals overlap slightly, it is possible that the means differ at the 5 percent level of significance. However, when intervals overlap substantially, such as when an interval captures the mean, one can conclude that the difference in means is not statistically discernable—they are indistinguishable at the 95 percent level of confidence. When

intervals overlap slightly, they may differ at the 5 percent level, but as the overlap increases the level of statistical significance of the difference increases (they become statistically indistinguishable).

EPA could develop specific estimates of the statistical significance of the difference in estimated SWACs for each alternative; however, visual inspection (identifying differences that are clearly discernable practically and statistically) provides a more pragmatic evaluation and identifies differences in SWAC that are well outside the margins of statistical error. It would be irresponsible for EPA to select a remedy that could not be reliably predicted to provide the level of SWAC reduction necessary for risk management. Estimation of the SWAC and its uncertainty bounds is approximate because of the lack of rigorous probability based sampling design, so it would be foolhardy to search for exact levels of statistical significance that themselves are only approximate.

Rather, a more appropriate approach would be to follow up the feasibility study report process with remedial design sampling to verify the geostatistical model and improve spatial resolution of deposit boundaries, to reduce uncertainty in SWAC projections associated with the final design.

#### **e. Comment Summary**

Several comments were submitted that are related to the SWAC evaluation in Appendix J, of the 2016 feasibility study report, as summarized below:

- EPA has a flawed baseline calculation for PCB SWACs of 208 ppb in Appendix J which is in conflict with the 92 ppb used on Figure 3.4-1 in the 2016 feasibility study report. This is an unexplained inconsistency in EPA's methods as none of the text, figures, or tables explain this value.
- Our current understanding is that the EPA value of 208 ppb derived in Appendix J may be completely separate from the value of 205 ppb described in Appendix I, and they are only coincidentally similar. This remains unclear.
- The Appendix J method of calculating site-wide SWACs appears fundamentally flawed. EPA is indicating that the Site was cut into 31 subareas, and a SWAC was "computed" for each subarea. EPA then made the assumption that the SWAC for each subarea was somehow a potentially representative "sample" of the entire Site SWAC, which is clearly an inaccurate and scientifically unsupported assumption. Empirical data collected over 15 years irrefutably demonstrate that the Site has areas with relatively high and low PCB (and other chemical) concentrations, and the SWAC in any given subarea may have little relationship to the overall surface-weighted average across the entire Site. By selecting the concentration from one subarea to represent all post-construction risk estimates for the entire Site, EPA is deciding that all human health and ecological exposures represented by any particular RAO or scenario occur in that one subarea. In other words, while a given BHHRA scenario may assume a person is catching fish from the entire Site, EPA's feasibility study method reduces this assumption to a person catching fish from just one select subarea for the entire exposure period. Additionally, because EPA is using an upper prediction limit (UPL), this person is assumed to consume only fish from an area with comparatively high concentrations.
- EPA indicated they calculated averages within each SDU and then placed those values in its ProUCL software to generate a 95 percent UCL. The method described is technically incorrect because it gives equal weight to river segments (SDUs) with different surface areas. EPA should document the method used clearly in the feasibility study report to support its decision, and EPA

should revise its method because the method indicated is not defensible, especially when it is relied upon by EPA to promise risk reduction for its proposed highly expensive remedial alternatives.

- EPA's selection of the preferred alternative is based upon an overconfidence in its estimated SWACs, which in turn are used to estimate tissue concentrations and the corresponding fish consumption risks. For example, the calculated site-wide cancer risk for Alternative B is  $4 \times 10^{-4}$ , whereas Alternative D is associated with a  $3 \times 10^{-4}$  risk (Tables J2.3-1b and c). Within the uncertainty in the starting SWAC alone, and with regard to the other issues noted, these two numbers are not different from one another, and EPA's selection of its Preferred Alternative is not justified.

### EPA Response

In response to the specific comments above, EPA provides the following clarification:

- The value of 208 ppb was only used in Appendix J and K and was not used in calculations within the main text of the 2016 feasibility study report (Section 3 and 4 calculations) (USEPA 2016b). This value is explained in response to LWG Dispute Issue 1c.
- The value of 208 ppb is not related to the 205 ppb used in Appendix I. The 205 ppb is part of the uncertainty analysis and is only meant to represent the range of values based on different methods.
- EPA's response to this comment is discussed in LWG Dispute Issue 1c (Appendix A of this document).
- The response described is actually the method used in Appendix J to calculate initial SWACs. This method is defended in EPA's response to LWG Dispute Issue 1c (Appendix A of this document).
- EPA's selection of its preferred alternative was not based on a risk – the data found in Appendix J was not used to determine the Alternative but to evaluate the alternatives. The SWACs were evaluated separately for the risk and surface water calculations in Appendices J and K of the 2016 feasibility study report.

Please see ROD Appendix IV Introduction for an explanation of EPA's updated approach for the site-wide SWAC calculation and evaluations used in updated Appendices J and K in the ROD.

### f. Comment Summary

One comment stated that the feasibility study report and proposed plan do not fully document which methods were used for which analyses and, therefore, the findings from these analyses are difficult to understand. It is not always clear whether an average or a 95 percent UCL is being used, and, depending upon what is presented, the apparent benefits of an action can change. The values used in decision making and remedy selection must be clearly articulated. The commenter further stated that in Appendix J, post-construction rolling river mile and SDU average calculations are presented, but they appear to have no relationship to the SWAC calculations described in Appendices B or I (PRG Development and SWAC Uncertainty, respectively) because the data and methods used in all of these appendices (B, I, and J) are ambiguous. The phrase "These sediment concentrations were input into the FWM ... " (in the first paragraph of Section J2.3) apparently refers to site-wide SWAC values, but it does not specify whether the concentrations are derived from a straightforward application of the nearest-

neighbor method or whether the uncertainties were derived from conditional simulations which were used to derive a UCL for the SWAC that was used for the risk assessments.

### **EPA Response**

The method used to develop SWACs used in development of technologies and costs in feasibility study report Sections 3 and 4 are presented in Appendix D of that report (USEPA 2016b). Appendix D discusses the development of site-wide SWACs (Section D1), as well as SDU and rolling river mile SWACs developed to facilitate the evaluation of protectiveness and long-term effectiveness in the feasibility study report. The same method was used to develop the site-wide sediment SWACs presented in Appendix B of the feasibility study report. Appendix I presents an uncertainty analysis that is not used in any additional calculations. Appendices J and K use alternative methods to evaluate risks to environmental and human health. These alternative methods are useful as supporting material and do not contradict the methods presented in the feasibility study report. Please see the replies to the above comments b, c, and d in this subsection for additional clarification on Appendices I, J, and K.

### **g. Comment Summary**

One commenter said that an unstated assumption is that the 31 subareas defined by EPA are a statistically valid way of dividing the Site. EPA clarified that the subareas are based on SDUs, which EPA states were devised to specifically identify the areas of highest COC concentrations on a rolling river mile basis. Many other methods could be used to define subareas of the Site, each of which would yield different statistics than the one EPA selected. Further, EPA has created an explicitly bimodal distribution of subareas, with some subareas focused on the highest observed concentrations (the SDUs) and remaining subareas focused on the lowest observed concentrations. This method is biased and inherently inaccurate for subsampling Site SWACs, and consequently, it is likely that other less biased and more scientifically supportable subsampling methods would produce a lower overall SWAC estimate.

### **EPA Response**

EPA performed the approach as summarized by the commenter and made assumptions based on transparent and data supported rationale to perform a comparative evaluation among the alternatives presented in the feasibility study report (USEPA 2016b). The commenter does not provide any supporting information revealing how this approach is biased and only presents assertions of bias on the approach and speculates on the outcome of these assertions.

## **2.8 Habitat**

### **2.8.1 Prevent and/or Mitigate Loss of Habitat**

#### **Comment Summary**

Nineteen personal comments were received that focused primarily on a desire to prevent habitat loss and to restore lost habitat (paid for by the PRPs) where prevention of loss was not possible. Some commenters believed that preservation of habitat should have been included in the proposed plan.

Representative comments include:

- “Restoration of any lost habitat needs to be a requirement of the final remedy. The proposed plan refers to restoration, and this restoration must comprehensively include actions following removal actions.”

- “Ensure restoration of all lost habitat and of water quality, such that fish are edible without an advisory.”
- “We fully support a clean-up plan that makes habitat viable for native fish—migratory and resident. EPA should also consider how we can connect the cleanup requirements to the different limiting factors affecting listed salmon populations and other native resident fish. It seems that the ecological Remediation Action Objectives are solely focused on disrupting the accumulation of Contaminants of Concern up the food chain. This is important, especially from a human health perspective, but seems to ignore the salmon recovery needs for Willamette River populations. The Plan should consider potential impacts and benefits to juvenile and migrating salmon. The clean-up requirements should incorporate the in-depth knowledge of habitat needs throughout the North Reach of the Willamette River, especially for juvenile salmon. This includes ensuring consistency between clean-up option selection, clean-up project design and mitigation, and the Natural Resources Damages process already underway. Mitigation for the negative impacts of cleanup activities on those species should begin immediately. Ideally, the cost, community acceptance, and long-term effectiveness criteria would all consider options that help meet the multiple ecological and habitat restoration needs for this reach of river.”
- “More emphasis on upland habitat recovery and restoration.”
- “Protect shorelines, nearshore habitat, and communities residing nearshore.”
- “Restoration of habitat. Wildlife do not have the luxury of avoiding the 10-miles of the lower Willamette River. It is an important part of the watershed and serves as a migration pathway and habitat for several important endangered or declining species: Chinook salmon, steelhead, Lamprey eel and white sturgeon. Adults migrate upriver to spawn and juveniles migrate down river to the Columbia and ocean. Since all species require habitat, especially off-current or shallow water habitat for rest, feeding and to avoid predators, it is vitally important to restore habitat as soon construction occurs. MNR, capping and dredging will disturb and degrade habitat by reducing diversity of vegetation and other amenities, so restoration of vegetation and other habitat amenities needs to occur during construction, not only as part of the NRDA program. The funding for restoration of habitat should be fully paid for by Potentially Responsible Parties.”
- “There is no real plan for the restoration of lost habitat.”
- “The plan should protect and enhance existing fish and wildlife populations and habitats. Cleanup actions should reconnect existing and potentially favorable habitats. 4. Cleanup and management of contaminated materials should support restoration and protection of processes that maintain watershed health – normative hydrology, functioning physical habitat, improved water quality, and healthy native biological communities.”
- “Habitat restoration in perpetuity fully paid by PRPs. Restoration of any lost habitat needs to be a requirement of the final remedy. The proposed plan refers to restoration, and this restoration must comprehensively include actions following removal actions.”

### **EPA Response**

EPA understands the commenters’ concerns about habitat loss resulting from the cleanup. The feasibility study described the role that Section 404 of the Clean Water Act and Oregon mitigation regulations have as action-specific ARAR for the Portland Harbor remedy at page 2-5:

- “Section 404 of the Clean Water Act regulates the discharge of dredged or fill material into navigable waters, with the exception of incidental fallback associated with dredged materials. This ARAR is applicable to cleanup actions in navigable waters of the Site that will discharge dredged material or capping material into the Willamette River or adjacent wetlands, including the specification of in-river disposal sites. The alternative evaluation process includes considerations of the Clean Water Act hierarchy to avoid or minimize loss of aquatic habitat or function, but if a loss was deemed unavoidable, mitigation will be included as part of the alternative. A 404(b)(1) analysis of the remedial alternatives is provided in Appendix J [L]. The final assessment of loss and determination of mitigation will be made during remedial design. In addition to Section 404 of the Clean Water Act, ORS 196.825(5) and applicable substantive mitigation rules found at Oregon Administrative Rules 141-085-510, 141-085-680, 141-085-0685, 141-085-0690, 141-085-0710, and 141-085-715 provide requirements for mitigation for the reasonably expected adverse effects of removal or fill in a project development in waters of the state, including in designated Essential Indigenous Anadromous Salmonid Habitat.”

Similarly, the remedy must comply with the substantive requirements of the Endangered Species Act, which protects salmon and other species that may be present at the Site. This issue is further detailed in the feasibility study report at page 2-4 (USEPA 2016b). Section 7 of the Endangered Species Act requires that actions authorized by federal agencies may not jeopardize the continued existence of endangered or threatened species or destroy or adversely modify critical habitat. ROD Section 15.2.3 discusses compliance with ARARs.

Appendix L of the feasibility study report describes the impact avoidance and minimization measures that would be implemented during cleanup activities to protect aquatic habitat. All alternatives analyzed included measures to minimize habitat impacts, particularly where dredging and capping was proposed for the shallow region of the river as described in more detail below. A draft programmatic biological assessment was drafted and shared with U.S. Fish and Wildlife Service and National Marine Fisheries Service for review and comment. Their input on appropriate consideration of impacts and measures to mitigate these impacts is reflected in the proposed plan (USEPA 2016c) and the ROD. During remedial design, avoidance and minimization measures will be developed according to the specific conditions of each cleanup area, and further review and coordination with National Marine Fisheries Service and the U.S. Fish and Wildlife Service will occur.

As described in the feasibility study report Appendix L, there would be unavoidable short-term impacts on habitat for fish and other aquatic species in areas where dredging, capping, or ENR would occur. These short-term impacts are primarily associated with the disturbance to the benthic community from these activities in nearshore areas. Following the cleanup activities, a mix of rounded small gravel, also known as “beach mix”, would be placed over the surface of the remediated river bottom, where appropriate. Beach mix provides appropriate substrate to allow the benthic community to recover, which is expected to take a few months. Removing the contamination from the aquatic food chain through dredging, capping, and ENR will provide substantial benefits to aquatic species, including federally listed salmon.

To avoid or minimize potential permanent adverse impacts on aquatic habitat and river bank habitat resulting from the cleanup there are several measures proposed. These measures include any area assigned dredge/cap in the shallow region will first be dredged to the depth of the cap, and any area assigned dredge only will be backfilled to existing grade with a beach mix cover to leave the appropriate



water depth and shoreline slope to maintain shallow water habitat important for many species, including juvenile salmon. In addition, riparian vegetation, bank layback, large woody debris, and other components of shoreline habitat may be provided where possible following construction of such areas. Habitat aspects of other depth zones would also be considered, where appropriate. These measures would be developed in coordination with National Marine Fisheries Service, and U.S. Fish and Wildlife Service.

Where unavoidable temporary or permanent loss of habitat may occur from the cleanup, specific requirements for compensatory mitigation would be developed during remedial design. Compensatory mitigation projects could entail converting existing upland habitat to shallow water habitat, reducing bank slope angles and adding riparian vegetation, and/or re-connecting to off-channel habitat. Such projects likely would require the appropriate sand/gravel substrates, shallow slopes, and shoreline complexity to benefit salmon and other aquatic species. These projects would likely be constructed in the lower Willamette River and/or the Columbia River, with a preference for projects to be undertaken as close to the impacted area as possible.

Restoration of habitat impacts site-wide as a result of releases of hazardous substances and petroleum will be addressed by the Natural Resource Trustees, which will include habitat restoration work above and beyond compensatory mitigation that EPA can require under the Clean Water Act 404(b)(1) and Endangered Species Act.

## 2.8.2 Revegetate to Promote Habitat

### Comment Summary

Twenty-three comments were received that focused on revegetation. All but two were part of form emails and stated

- “Habitat restoration following remedy construction needs to be a required element in the R.O.D. Aquatic habitat that is disturbed by the remedy must be restored and the full cost paid by the PRPs. When nearshore and intertidal habitat has to be removed, it must be replaced and replanted with SAV [submerged aquatic vegetation] that thrives.”

The remaining two comments had more detailed suggestions for revegetation. They included:

- “Financially offer responsible parties to reduce dollars spent by offsetting carbon emission with carbon sequestering. The federal farm bill has money for public and private lands to use federal funds to kick start carbon forest which equals phytoremediation and a hopeful future for all living creatures that inhabit the Willamette River sites.”
- “I petition and request:
  - 1. A phytoremediation and carbon sequestering plan be put into Portland Harbor Superfund Clean Up plan and to be implemented in all toxic affected areas along the Willamette River bank. What’s important is the type of trees, shrubs and flowers, (including but now exclusive to native plant life) incorporating all aspects of companion planting and the use of new science (year-round habitats developed from Bee Baseline Portland Project) and information from the book written by Kristen Ohlson “*The Soil Will Save Us*,” regarding how to sequester/create a carbon soil/forest. I have a detailed list of trees, shrubs and flowers and how each plant will

best serve present and future hope for clean soil, water and air along the Willamette River.

- 2. Financially offer responsible parties to reduce dollars spent by offsetting carbon emission with carbon sequestering. The federal farm bill has money for public and private lands to use federal funds to kick start carbon forest which equals phytoremediation and a hopeful future for all living creatures that inhabit the Willamette River sites.
- 3. Best trees, shrubs and flowers needed are a variety and what's required a minimum of a 120 total. Here are a few plants listed here. Cotton Wood (Both male and female) Ponderosa Pine, Madrone, Pink and White Crepe Myrtle, Witch Hazel, Doug Fir, Sitka Spruce, Black Hawthorne, Vine Maple, Poplar, Elm, Forsythia, Daphne, Crocus, Aster, Germander, Geranium, Ribes, White Rock Rose, Potentilla, Rosemary, Fennel, Oregano, Thyme, Sky Pencil Holly, Oak Leaf Hydrandea, Snow Berry, Fushia Rock Rose, Crocosmia, Camilla Japonica, Winter Sweet, Black and Blue Salvia, Floribunda Yellow Rose, Salvia Farinacea, Basswood Lynden, Lavendula, Lavender, Heather, Anenome, Abelia bush, Bacopa, Curly Willow, Blue Russian Sage, Hibiscus, Ceanothus, Ivory Silk Lilac Tree, Mock Orange Tree are a good start to what can really transform the toxic past into a heroic present and future. Thank you and Good Luck. I am available if you have any questions. I am happy to help anyway I am able. Thank you, thank you, thank you for the health and happiness of all living creatures in Portland.”

### **EPA Response**

As described in Appendix L of the feasibility study report (USEPA 2016b), aquatic and river bank habitat impacted by the cleanup will be mitigated by best management practices and on-site measures. These measures include:

- Following dredging in shallow water areas (0 to 20 feet from ordinary low water), backfill would be used to restore the existing (pre-dredging) elevation to avoid loss of shallow water habitat.
- To offset permanent and/or temporal loss of habitat functions from dredging and capping in shallow water areas and as on-site mitigation, following dredging and capping in shallow water areas, slope would be laid back to as close the existing slope as practicable given site-specific conditions.
- To further offset permanent and/or temporal loss of habitat functions from dredging and capping on river banks and as on-site mitigation, after soil removal on river banks, river bank slopes would be laid back to as close as a 5H:1V slope as practicable given site-specific conditions.
- Capping in shallow areas would specify dredging of an equivalent cap thickness prior to placement to allow for a net zero bathymetry change and avoid loss of shallow water habitat.
- Engineered beach mix layer, consisting of rounded gravel typically 2.5 inches or less would be applied to the uppermost layer of all caps and dredge leave surfaces in shallow areas. This layer would provide appropriate substrate habitat for colonization by benthic organisms. Beach mix would not be applied to leave surfaces consisting of sand unless required due to changes in



hydrodynamic conditions following remedial activities. In addition, if beach mix is placed over riprap armoring, monitoring would be required to determine whether the site-specific conditions are conducive to maintaining the beach mix habitat layer over the riprap. If monitoring or site-specific modeling demonstrate that a sand/gravel surface can be maintained long term, this may be considered by EPA when determining if the compensatory mitigation proposed during remedial design is adequate.

- Vegetation would be incorporated into caps placed on river banks where possible such as in off-channel areas that are not prone to erosion and with less steep slopes.

Vegetation appropriate for the riparian habitat would likely include willows, cottonwoods, and other native plants that control erosion and provide wildlife habitat. Monitoring may include ensuring invasive species are controlled while native species take hold in these areas. Submerged aquatic vegetation is expected to colonize naturally once the sediment contamination is remediated and appropriate substrate is restored in nearshore areas. Please see the ROD for more details on river bank and nearshore design considerations.

Phytoremediation was evaluated as a remedial technology and screened out in the first step of screening. As indicated on Table 2.4-1 of the feasibility study report, phytoremediation and other in-site biological treatment technologies are not considered feasible to implement because some contaminants are either not biodegradable (particularly heavy metals) or are very persistent in the environment (such as dioxins/furans, PCB, and pesticides).

In-situ treatment with activated carbon and other materials, is sometimes referred to as “sequestration,” as identified in Tables 2.4-1 and Table 2.4-2 of the feasibility study report. This was retained as an in-situ treatment technology process option and will be further evaluated during remedial design when detailed plans for the cleanup at specific areas are developed.

EPA may also support carbon sequestering and other technologies to reduce the carbon footprint of the cleanup, in accordance with the green remediation approach. This could be implemented as part of the Green Remediation Plan for reducing environmental impacts during the cleanup, but is not a remediation technology to address the contamination itself.

### 2.8.3 Ensure Caps Do Not Reduce Habitat through Flood Rise

#### Comment Summary

Two comments were received on shallow areas, as they relate to habitat:

- “In order to minimize impacts to the aquatic environment and flood rise, EPA has determined that all cap areas in the shallow regions need first to be dredged to a depth equal to the cap thickness and any dredge areas will be backfilled to pre-dredge grade. EPA provides no explanation as to why flood-rise considerations are any greater in shallow regions than in other regions of the river. Its focus should be on aquatic environment and slope stability. The ultimate post-cleanup elevations in shallow regions should be designed to establish the best aquatic habitat and bank stability possible. There is no reason for EPA to strictly prescribe that shallow region elevations should remain unchanged.

There are many unique features of the near-shore shallow region offshore of Gunderson, largely as a result of fill and regrading that occurred decades ago, long before Gunderson's ownership.

EPA needs to provide more flexibility in terms of the possible design of dredging and capping in these near-shore areas.”

- “Does the plan allow the City to retain adequate flexibility to mitigate for future floodplain impacts in the North Reach of the Willamette unrelated to Superfund? For example, over reliance on capping or leaving excessive amounts of contamination in place, could result in a situation in which there may not be adequate opportunities available to mitigate for future industrial development activities within the floodplain in the North Reach. This could result in a situation where either development is precluded or in which mitigation costs increase because mitigation has to be done outside the North Reach rather than in close proximity to the actual impact area.”

### **EPA Response**

Aquatic habitat and flood rise/adverse floodway impacts are two significant ARAR considerations for using and designing caps in the Willamette River. Balancing of dredge and fill volumes to the maximum extent practicable is assumed to limit flood rise throughout the Site. Also, a goal of the cleanup will be to not adversely affect floodplain capacity or cause floods to encroach upon new areas by increasing base flood elevations of the Site. Therefore, the cleanup should not impact the city’s future decisions on floodplain developments and mitigation options. See Section 2.19.11 of this responsiveness summary for more response on flood rise issues.

A flood rise analysis was undertaken on the remedial alternatives in the feasibility study to generally assess the feasibility of using caps at the Site. Impacts on aquatic habitat were considered for the shallow region as identified in Section 3.4.7.5 and Appendix L of the feasibility study report (USEPA 2016b). More detailed modeling will be conducted during remedial design on both an SMA and site-wide scale to demonstrate that remedial actions do not result in unacceptable flood rise.

The Clean Water Act Section 404 requires avoiding or minimizing impacts to the aquatic environment, and EPA is coordinating with the NMFS on measures to protect habitat for listed species, including juvenile salmon, which depend on shallow water habitat at the Site. In its comments on the proposed plan (USEPA 2016c), NMFS has strongly recommended limits on conversion of shallow water habitat to “submersible lands” (areas that would not be constantly submerged). To that end, NMFS recommends “reducing the repose of shorelines and removal of streambank fill to expand the floodway and active channel” (Section 4).

EPA intends to follow the recommendations of the NMFS, to the extent feasible, to avoid or minimize impacts on shallow water habitat. During remedial design, a detailed evaluation of area-specific conditions would be conducted. The ROD allows for flexibility in selection and design of remedial technologies based on information collected during remedial design. That said, EPA reiterates the goal of avoiding or minimizing effects on aquatic habitat, particularly to listed species and their critical habitat in compliance with the Clean Water Act and the Endangered Species Act.

## **2.8.4 Consider Habitat Restoration**

### **Comment Summary**

One comment was received from the Audubon Society that addressed the topic of habitat restoration. It stated in part:

- “The Clean-up Plan and F.S. should address the recent Biological Opinion released by National Oceanic and Atmospheric Administration Fisheries regarding the National Flood Insurance

Program. We question whether compliance with the BiOp should be considered an ARAR. Does the plan comply with the specific terms of the BiOp such as avoiding construction in the floodway, fully mitigating for construction that adversely impacts salmonid habitat both in the river and on adjoining floodplains, and providing balanced cut and fill for to compensate for any filling in the floodplain?

The Plan should include a much clearer description of the natural resource mitigation that will be required to compensate for habitat loss and other loss of natural function resulting from the implementation of the remedy. The discussion of natural resource mitigation that will be required as a result of implementation of the remedy (as opposed to mitigation that will be required under NRDA to compensate for impacts of contaminants on wildlife and other natural resource values), is cursory. EPA should more clearly define the local, state and federal laws under which mitigation will be required. EPA should include in this estimate, mitigation that will be required under NMFS' NFIP Biological Opinion. It should also consider requirements under local regulations such as the city of Portland Greenway Code."

### **EPA Response**

The NFIP Biological Opinion is not an ARAR for the CERCLA cleanup. First, it does not meet the definition of an applicable or relevant and appropriate requirement as defined in the NCP. Secondly, the NFIP Biological Opinion relates to Federal Emergency Management Agency responsibilities in implementing the flood insurance program and sets forth requirements for local communities regarding how to manage floodplains and development within a floodplain.

Response to Comment 1a: The CERCLA cleanup, however, must meet the substantive requirements and goals of Federal Emergency Management Act regulations at 44 CFR § 9, which set forth the responsibilities to implement existing Executive Orders on management of floodplains and protection of wetlands. See EPA's ARARs tables (25 a through c) in the ROD Appendix II. The substantive Federal Emergency Management Agency regulations are relevant and appropriate for assessing impacts, if any, to the floodplain and to flood storage capacity from the response action.

As the commenter noted, while natural resource damage restoration is not in EPA's purview, the cleanup will need to comply with the substantive requirements of the Clean Water Act, Endangered Species Act, and state regulations related to compensatory mitigation that may be required due to unavoidable loss of habitat, if any, resulting from the cleanup EPA's feasibility study alternatives analysis as informed by the Flood Rise and Clean Water Act Section 404(b)(1) analyses in Appendices P and L, respectively, and the final selected remedy, incorporates requirements for how dredging and capping designs must result in no rise of the bottom of the river and measures that will be taken to avoid or minimize impacts to habitat from the cleanup. See the ARARs tables (ROD Appendix II) for a list of all the federal and state laws and regulations that relate to floodplain and habitat mitigation.

The ROD describes various mitigation measures that will be required for cleanup actions taken in specific areas of the river, with a preference for these to be conducted on-site whenever possible. EPA is and will continue to coordinate with NMFS on measures to protect habitat for listed species. Because the contamination is located in the floodway itself, it is not possible to avoid the floodway when conducting the remedial "construction" activities associated with the cleanup. During remedial design, the extent of unavoidable loss of habitat, if any, will be determined, and specific compensatory mitigation requirements will be developed in coordination with NMFS and state resource agencies.

EPA will prioritize mitigation measures to be taken on site, or as close to the area of impact as possible, which will be constituted primarily with shallow zone and river bank areas critical to Endangered Species Act species. Where necessary, off-site mitigation work may be needed due to lack of available areas to conduct the on-site work. EPA will also seek to work with private companies to obtain approval from the USACE and Oregon Department of State Lands for mitigation banks under Clean Water Act 404 close to or within the Site such that parties unable to fully mitigate on site have a fully approved option to remedy habitat impacts as quickly as possible to minimize temporal impacts to the Lower Willamette ecosystem.

Appendix G of the feasibility study report (USEPA 2016b) explains how such mitigation costs were calculated from the average cost of other sediment cleanup projects in the Pacific Northwest, including the Lower Duwamish and Commencement Bay (Hylebos). Mitigation costs for each project were escalated to the base (current) year of the estimate for averaging.

## 2.9 Alternative Evaluation

### 2.9.1 Explain Deficiencies in the Alternative Evaluation Process

#### Comment Summary

Comments were received from about a dozen sources, including businesses, City of Portland, CAG, Swan Island Lagoon Group, and Portland Audubon Society that related to the evaluation process for alternatives in the feasibility study.

Several of the commenters stated that the evaluation of alternatives is deficient for one or more of the following reasons:

- EPA should evaluate sustainability of the alternatives.
- Alternative I relies too heavily on ICs to prevent exposure; ICs do not protect ecological receptors and are potentially ineffective against human exposure as well.
- There are numerous problems with determining that B, D, E and I are not protective and a specific example is the evaluation of BEHP evaluation around Swan Island Lagoon.
- EPA's alternative evaluation is flawed because it is based on an inaccurate CSM, there is an error with the cleanup area, it ignores recent data, and EPA used an over simplified approach.
- The evaluation did not include site-specific factors and does not consider implementability challenges.
- The quantitative bases to compare rates and levels of risk reduction lack reason.
- Risk reduction from fish consumption is not apparent and attainment of cleanup goals is not clearly evaluated.
- EPA has underestimated the effectiveness of Alternatives B and D.
- The statistical methods used to evaluate alternative effectiveness are unclear and technically suspect or flawed.

- EPA did not evaluate PTW treatment and application of activated carbon equally under all alternatives.
- Does not included a quantitative or detailed short- or long-term effectiveness evaluation.
- Cost and cleanup benefit of alternatives not fully evaluated in the feasibility study.

Many commenters disagreed with the conclusion of a specific alternative's protectiveness and expressed confusion as to why some alternatives were determined not to be protective. Additionally, some suggested that a more robust evaluation of alternatives needs to be conducted, which may include supplemental analysis or modeling. The maps in the proposed plan do not show the remediation area extending to the back of the Swan Island Lagoon. The preferred alternative is clearly not better than the other alternatives.

The CAG and Audubon request that Alternative G or G Modified be selected as the remedy and that protecting human health (including by addressing frequently used portions of the Site) and the environment is a priority. Many commented that the protectiveness analysis for some alternatives was confusing or incorrect. PTW should be removed due to its toxicity and to prevent future releases. Alternative G should be modified to include more dredging, treating more shoreline and benthic risk areas, revisit navigational restrictions, and reduce the schedule for implementing the remedy.

The Swan Island Group commented that an optimized remedy for Swan Island Lagoon has been developed and accounts for risk reduction associated with ENR. The optimized remedy would cost less to implement than the preferred remedy and would achieve equivalent risk reduction. EPA should only require treatment when contamination contributes to known risks. It is unclear what assumptions were used when estimating residual contaminant concentrations and risks.

The City of Portland requested that, after cleanup has been completed in a small area that people frequently use, EPA should evaluate the cleanup's performance.

### **EPA Response**

The alternatives analysis in the feasibility study and as supplemented to include Alternative F Modified complies with the NCP requirements in 40 CFR § 300.430(e). The development and evaluation of alternatives sufficiently reflects the scope and complexity of the site-wide remedial action under consideration and the site problems being addressed. The CSM complies with EPA guidance and is based on data collected by LWG under EPA oversight. The alternative evaluation included models and various analysis tools that were appropriate for evaluating the alternatives under the first seven criteria.

Based on consideration of the requirements of CERCLA, the detailed analysis of remedial alternatives, and public comments, EPA has selected Alternative F Modified as the final remedy. Sections 11, 12, 13, and 14 of the ROD describe the selected alternative and justification for selecting Alternative F Modified as the remedy. The ROD contains the comparative analysis of the alternatives with Alternative F Modified, including the evaluation of the overall protectiveness of Alternative F Modified. The selected remedy is more protective than Alternative I because it is more permanent and Table 22 of the ROD shows the quantitative increase in the number of meals, which correlates with an increase in the area being dredged. Alternative F Modified addresses all ecological risk upon completion of construction. Immediately after construction of the selected remedy, it is estimated that wildlife will be able to safely consume prey from within the Site since all non-cancer risks on a site-wide scale will be addressed. It is

estimated that BEHP will be at a HQ of 5 at a river mile scale and 3 at an SDU scale, very close to the target of 1 and well within potential calculation variances.

The evaluation in the feasibility study was based on post construction sediment concentrations rather than long-term projections due to the uncertainty in any long-term projections of sediment concentrations and associated risk to human health and the environment. Implicit in this approach is the assumption that alternatives that have a larger remedial footprint will achieve the remedial action objectives established for the Site in a shorter time frame than alternatives with a smaller footprint as they rely less on MNR, this assumption is supported by the updated T=0 charts presented in Appendix IV of the ROD, which show incremental reduction in risk over river mile segments for the RAOs. A supplemental analysis, using SEDCAM to evaluate MNR trends of average PCB concentrations for each alternative post-construction, is included in Appendix IV of the ROD. This analysis helps show the protectiveness of each alternative.

After clean-up levels and RAOs are achieved, the long-term effectiveness of the remedy will be monitored. The ROD describes monitoring requirements in Section 14.2.7. Additionally, the expected cleanup outcomes/performance from Appendix J of the feasibility study report (USEPA 2016b) are updated for the selected remedy and included in Appendix IV of the ROD.

EPA disagrees with the statement that EPA determined that Alternatives B, D, E and I are not protective, with a specific example being a BEHP evaluation around Swan Island Lagoon. In fact, Alternative I was the preferred alternative in the proposed plan (USEPA 2016c). EPA also concluded that Alternatives B and D were protective of human health because ICs can be set in place to ensure protection until such time as cleanup levels are achieved. However, since ICs cannot be placed to ensure protection of the ecological receptors, EPA concluded that these two alternatives were unlikely to be protective of the environment because MNR would not occur in a reasonable time frame. The determination was not made solely based on benthic risk but rather on a more broad-based evaluation consistent with EPA guidance. Consistent with the NCP, overall protectiveness draws from assessments of the other criteria, especially long-term effectiveness and permanence, short-term effectiveness, and compliance with ARARs. An uncertainty analysis presented in Appendix I of the feasibility study report was considered as well. Additional discussion of effectiveness is included in Section 2.19 of this responsiveness summary.

Based on recommendations from the NRRB/CSTAG (see NRRB/CSTAG comment on Remedy Performance, p. 5), EPA performed an uncertainty analysis of each alternative to determine the likelihood that the alternative would be significantly different from the No Action alternative. This analysis was presented in Appendix I of the 2016 feasibility study, and the conclusion was that Alternative B post-construction SWACs were statistically indistinguishable from the No Action alternative and that the post-construction SWACs for Alternative D were still within the margin of error relative to no action. Since the No Action alternative was deemed to not be protective, EPA determined that Alternatives B and D are also not protective since Alternative B was statistically indistinguishable from the No Action alternative, and Alternative D was only slightly better for PAHs and PCBs (DDx RALs for Alternative D were also statistically indistinguishable from the No Action alternative).

For further details regarding the evaluation of Alternatives B and D, refer to LWG Dispute Response 1a (Appendix A of this document).



Alternative C was eliminated based on:

- The small incremental increase in quantities of dredge and borrow materials between Alternatives B and C.
- The relatively small incremental decrease in focused COC concentrations when compared between Alternatives B and D or C and D.
- The differences between Alternatives B and C include only a 0.1 percent increase in overall acres remediated with only a corresponding average 9 percent reduction of focused COC concentrations in surface sediment.

It was concluded that Alternative C was not distinctly different from Alternative B and therefore it was eliminated.

Some comments describe generally that the evaluation of alternatives is incomplete and fails to meet requirements of CERCLA or the NCP (such as evaluation of effectiveness). However, since the commenters did not provide specific examples, EPA cannot provide a response.

One commenter recommended a multi-objective decision analysis, which is a benefit analysis tool. Although such a tool can be informative, it was not used at the Site and is not required to be used by CERCLA or the NCP. For this Site, data gathered for the remedial investigation and by other parties was used to evaluate the distribution of COCs in sediment, surface water, and upland media in order to identify the areas where remediation is necessary. Additional monitoring will be conducted prior to designing the remedy in order to incorporate changes in site conditions and will allow flexibility in the design.

Regarding comment on an optimized remedy for Swan Island Lagoon and accounting for risk reduction associated with ENR, the back portion of Swan Island Lagoon was assigned a no SDU technology assignment under Alternative I; therefore, the remediation foot print did not extend to the back portion of the lagoon. The proposed plan did not quantify risk reduction at Swan Island Lagoon due to ENR. This underestimate of risk reduction will be balanced in the ROD discussion with the addition of a higher end risk reduction estimate from ENR, along with a low end estimate to bracket the likely risk reduction outcome of ENR. During the remedial design for Swan Island Lagoon, site-specific factors and risk reduction due to ENR will be further assessed. BEHP exceeds its cleanup level around RM 8 and 9.5. The remedial design for the property will use pre-design monitoring data and flexibility to ensure the appropriate remediation technology is used to achieve protectiveness.

With regards to EPA fully evaluating the cost and cleanup benefit of the alternatives, EPA has included a discussion and presentation of cost-benefit of the alternatives in the ROD Part II, conditional simulation was used to evaluate SWAC uncertainty. The method is further described in Section 2.2.2 of the feasibility study report. Appendix I of the report includes a discussion of the analysis.

EPA did not evaluate PTW treatment and application of activated carbon equally because EPA is not requiring all PTW be treated in-situ. For example, PTW that cannot be reliably contained will be removed through dredging or excavation.

With regards to assertions that the statistical methods used to evaluate alternative effectiveness are unclear and technically suspect or flawed, conditional simulation was the statistical analysis used to

evaluate SWAC uncertainty and is described in Section 2.2.2 of the feasibility study report. Appendix I of the feasibility study report also includes a discussion of the analysis.

In response to the comment that EPA should evaluate sustainability of the alternatives, the CERCLA statute and the NCP set out the requirements for selecting CERCLA remedies at Superfund sites and evaluating sustainability specifically is not provided for in the regulation.

## 2.10 Data Issues

### 2.10.1 Use Newer Data to Design the Remedy

#### Comment Summary

A total of 192 comments were received that stated that EPA was using data that were too old. A little more than half were received in the form of a multi-comment postcard that said:

- “(The plan) relies on data that is more than 10 years old.”

The remaining comments were personal comments and echoed that concern. Many also stated that they believed the river was recovering naturally and that additional data should be collected before cleanup decisions were made.

Representative personal comments include:

- “I'm skeptical about a plan that is based on 10 year old data. Things have changed in the last 10 years!”
- “I know making a plan can take time but in 12 years a river can change a lot and with the newer laws restricting what goes into the river the river has had a chance to clean itself naturally. If there is updated data I would urge you to look at that and consider a less extreme and costly plan.”
- “EPA's plan is based on old information. Since their original data were collected in 2004, studies show that the contaminate levels in the Willamette River have actually improved. This restoration was done naturally...”
- “I find it stunning that the plan to clean up Portland Harbor relies entirely on data from eight and twelve years ago while ignoring data from only two years ago. The more recent data shows that almost half of the contaminants that were in the water have already been eliminated by letting nature run its course.”
- “(EPA) could have been completing tests over this time frame and seen that things are changing for the better, but they haven't. Why is that? It's imperative that all options are considered before moving forward with EPA's unnecessary and expensive proposal to clean the river.”
- “This plan is based on old data that EPA collected in 2004 and 2008. In 2014, experts studying the Willamette River found that the river is recovering. Through natural restoration, there has already been a 40 percent reduction of contamination in the water. EPA has entirely ignored this data to focus on a drastic plan that would make the river inaccessible for years.”



- “I think it’s good to be skeptical of an EPA plan that utilizes data from 2004. That’s twelve years ago. The river is constantly moving and changing. Current studies have determined there to be a minimum of a forty-percent reduction in the contamination levels in the river since 2004, and we should not disregard the findings. Why dig up a river and possibly create more contamination if it’s taking care of itself? Maybe things have settled, maybe there is contamination that has cleared up through natural means, but things have certainly changed for the better and disrupting that process will create problems.”

### **EPA Response**

The Portland Harbor remedial investigation report (USEPA 2016a), feasibility study report (USEPA 2016b), and June 2016 proposed plan (USEPA 2016c) were based on an extensive site characterization that included thousands of surface and subsurface sediment samples, hundreds of pore water and surface water samples, and multiple rounds of biota sampling and physical sampling activities, including sediment profile imaging and bathymetric and side scan sonar surveys. Four rounds of sampling targeting a range of media were performed by LWG between 2001 and 2008. Additional sampling utilized to support EPA’s proposed cleanup were collected by individual parties between 1997 and 2011, including additional sediment data collected between 2008 and 2011. Finally, tissue sampling that focused on individual smallmouth bass and PCBs was performed in 2007, 2011, and 2012.

EPA utilized the 2007-2012 smallmouth bass fish tissue samples to evaluate declines in fish tissue concentrations associated with natural recovery. Based on the results of this analysis, presented in Section 3.6.1.3 of the feasibility study report, EPA concluded that the sample size, limited number of time points, and inconsistency in sampling methodology preclude a meaningful, statistically valid determination of a trend in fish tissue concentrations. The 2007 and 2012 fish tissue data may serve as a baseline for future evaluations of fish tissue PCB concentrations; however, baseline fish tissue data for other bioaccumulative contaminants will need to be established through the remedial design process.

EPA acknowledges that the majority of site-specific data were collected prior to 2008. However, EPA believes that the data are sufficient to accurately characterize the nature and extent of contamination, assess risks to human health and the environment, evaluate remedial action alternatives in the feasibility study, and serve as the basis for selecting a remedy for the Site. Also, see response in Section 2.10.2. for further response on newer data.

Any uncertainties in the data or changes in site conditions will be addressed through focused remedial design sampling activities at the Site. Remedial design sampling data will be used relative to the decision tree in the ROD to refine the footprint of areas that will be targeted for capping, enhanced natural recovery, and in-situ treatment and to refine the volume of material that will be targeted for removal through dredging and excavation. In addition, long-term monitoring will be performed to monitor the effectiveness of the remedy to achieve the remedial action objectives established for the Site. Data on contaminant levels in all media will be used for multiple purposes such as to determine if natural recovery is taking place as expected or if any additional actions are required to achieve the cleanup goals on the planned timeline, track if fish tissue concentrations are decreasing, and monitor if the caps are effectively containing the contaminated sediment and/or groundwater. Data on contaminant levels in fish tissue will also help inform when and how the fish consumption advisory or other restrictions could be relaxed.

## 2.10.2 Evaluate Potential Changes Raised by New Data

### Comment Summary

A number of commenters stated that the feasibility study report and proposed plan fail to consider recent data collected between 2012 and 2014 in the evaluation of remedial action alternatives. Specific data sets that were referenced include the 2012 fish tissue sampling conducted by the Lower Willamette Group, the 2013 benthic health study by Germano & Associates, the 2014 sediment sampling conducted by Kleinfelder (Kleinfelder 2015) on behalf of a subset of Portland Harbor PRPs, and the 2014 sediment sampling conducted by GeoSyntec within Swan Island Lagoon. The commenters stated that these data demonstrate that natural recovery is occurring at the Site.

For example, it was noted that the sediment data collected by Kleinfelder indicate that the actual site-wide PCB SWAC is approximately 20 percent of the value used by EPA in the final feasibility study report and less than 50 percent of the value in the LWG 2012 draft feasibility study report and risk assessments. It was also noted that these new data generally confirmed EPA's PCB background level of the Site of 9 µg/kg but also indicated that a statistically significant reduction in the concentrations of PCBs in the river had occurred, consistent with the Lower Willamette Group's 2012 fish tissue results.

Similarly, it was noted that the data collected by GeoSyntec within Swan Island Lagoon show that PCB concentrations in the Swan Island SDU are mostly lower than what was used in the feasibility study report and that 75 percent of new samples showed reduced PCB sediment concentrations. One commenter stated that the public is not well served if EPA ignores this recently collected data.

The 2015 and 2016 NewFields reports stated that the PAHs in the vicinity of the former ExxonMobil Terminal are pyrogenic in nature and can be attributed to operations at the former Gasco property. The commenter believes that this new information should have been acknowledged in the feasibility study report.

One commenter stated that, collectively, the recent data demonstrate that the concentrations of contaminants in surface sediments have decreased significantly, and the concentrations of PCBs in fish tissue have declined since the original data collection. The commenter stated that these findings are not irrelevant when making decisions that are supposed to be based on science and should be considered in the selection of a remedy to reduce risk. Other commenters stated that EPA based its analysis on older data that no longer represent site conditions and disregarded more recent data, resulting in an alternatives analysis that is inappropriate and flawed.

Some commenters state that these data should be used to reassess key portions of the analysis, including revision of the RALs utilized to develop the remedial alternatives. The comment stated that when surface weighted average concentrations based on the newly collected data are used, EPA's knee of the curve analysis shifts away from Alternatives F and G toward Alternatives B and D. It was further noted that as the Site recovers before construction, the same RALs will delineate ever smaller areas of active construction. Failure to recognize these ongoing processes will cause errors in the selection of the most cost-effective remedy.

Some commenters also stated that the newly collected data demonstrate that the ROD should be sufficiently flexible to allow this additional information to be incorporated into the remedy and that EPA's remedy should describe what site-specific remedy adjustments will be allowed in the remedial design phase and how those adjustments would be determined and what procedural steps would be needed (such as explanation of significant differences or ROD amendment).

One commenter believes the composite subsurface sediment data are not representative and should not be used to estimate dredge volumes.

### **EPA Response**

As described in Section 1.3 of the feasibility study report (USEPA 2016b), the feasibility study data set included data collected under EPA oversight through authority of the Portland Harbor and Gasco and Arkema AOCs.

The feasibility study report used sediment data collected as recently as 2013, and presents and discusses contaminant concentration trends in fish using the data collected by LWG as recently as 2012. Thus, the assertion that data are a minimum of 9 years old is incorrect. As noted in the 2012 draft feasibility study report (LWG 2012), the large data set is considered adequate to represent current conditions and for evaluating alternatives in the feasibility study report (USEPA 2016b). Additional sampling to more fully assess “current conditions” is a remedial design issue and beyond the scope of the 2016 feasibility study report.

EPA evaluated and incorporated the smallmouth bass tissue data collected in 2012 in the 2016 feasibility study report. The results of this analysis are presented in Section 3.6.1.3 of that report. The evaluation focused on fish tissue data collected in 2007 and again in 2011/12; PCB tissue data for smallmouth bass collected in 2002 are not directly comparable with the data because individual fish collected in 2002 were composited by river mile without regard to side of the river prior to analysis. In 2007, fish were composited by river mile but segregated by side of the river prior to analysis, whereas fish collected in 2011/2012 were analyzed individually. The results of the analysis showed that in all but two instances (RMs 4E and 7E), concentration declines were not statistically distinguishable from zero. Possible explanations are the trend itself is close to zero, or the estimated coefficient could be very different from zero with a very wide confidence interval. The former would imply that the decay rate is small and that it is simply close to zero with strong level of confidence, whereas the latter indicates that the data are too sparse to precisely estimate the decay rate. As discussed in the response to LWG Dispute Issue 2c (Appendix A of this document), the sampling events are not sufficient to establish a reliable trend.

In general, a decision-making process cannot undergo constant modification when data are collected at various times and locations throughout the Site. There has been no new information that indicates that the nature and extent of contamination at the Site is significantly different than the remedial investigation/feasibility study data set indicates. Further, data presented in the 2015 Kleinfelder report do not on their face appear comparable to previously collected remedial investigation data (10cm surface samples vs the 30cm samples collected in the remedial investigation), making the conclusions therein regarding trends questionable. However, some conclusions provided in the August 7, 2015 memo to Jim Woolford and Cami Grandinetti are reasonable and consistent with the Agency’s position, specifically that natural recovery is occurring in the Willamette and is anticipated to continue and that the food web model is a useful line of evidence for representing sediment and food web contaminant relationships. However, EPA expects remedial footprints to be refined based on data collected during remedial design. For example, if sediment concentrations have declined through natural recovery, pre-design sampling should result in a smaller remedial footprint.

EPA acknowledges benthic recovery is taking place; however, benthic risk was not one of the main lines of evidence used to assess alternatives. While it may indicate that natural recovery is occurring, benthic risk was not used specifically in the evaluation of different alternatives. EPA concurs that natural recovery is occurring within Portland Harbor and that it should be utilized in the sediment remedies, as

evidenced by the fact that MNR represents the response action assigned to between 64 and 90 percent of the total area of the Site for all alternatives carried through the detailed analysis in the 2016 feasibility study report. However, the rate of natural recovery is expected to vary by location. It is important to have a representative data set that establishes “baseline conditions” prior to initiating the cleanup. Pre-design sampling will be used to ensure that the natural recovery is factored into the design and implementation of the sediment remedy and post construction monitoring will be used to evaluate natural recovery following remedy implementation. See also Sections 2.7.2 and 2.7.3 of this responsiveness summary.

Additional data will be collected during remedial design to assist in refining the remedy beyond the feasibility study level of analysis. EPA intends to evaluate additional data during remedial design to refine the delineation of contamination, selection and design of remedial technologies, and construction methods.

### 2.10.3 Explain Use of Non-Detects

#### Comment Summary

Comments received from Legacy Site Services state the proposed plan inappropriately uses elevated detection limits to calculate RALs and PTW footprints, which unnecessarily inflate the areas and volumes required for remediation and disposal to achieve risk goals. Legacy Site Services also stated that EPA should remove sample locations with PCB non-detect values with elevated reporting limits (e.g., > 1 milligram per kilogram) from the PCB footprint analysis as these bias and exaggerate the area of PCBs in sediment adjacent to the Arkema site. They further assert that RAL footprints should only consider detected PCBs based on PCB congener concentrations adjacent to the Arkema site, due to matrix interference with DDx in PCB Aroclor analyses. The commenter also requested that additional PCB congener data be collected from areas of non-detect sample locations with elevated reporting limits to confirm if PCB concentrations are present at these locations.

#### EPA Response

EPA used the data provided by LWG, including the commenter. LWG did not indicate that there were any issues with the data nor did they remove the data from the database provided to EPA. If there were issues with the data, LWG should have flagged the data and resampled using congener analysis. EPA agrees that congener, not Aroclor, data should be collected at this Site in remedial design. Review of the footprints shown in the feasibility study report (USEPA 2016b) for PCB RAL contours (Figure 3.4-7), DDx RAL contours (Figure 3.4-12), and dioxin/furan RAL contours (Figures 3.4-8, 3.4-9, and 3.4-10) indicates that the SMA footprint offshore of the Arkema property is largely driven by DDx and dioxins/furans and overlaps with the PCB RAL footprint; thus, omitting PCB data from this area would not substantially change the evaluation in the feasibility study report. New data will be collected in remedial design that will determine the SMA boundaries based on the final RALs selected in the ROD.

## 2.11 Modeling Issues

### 2.11.1 Explain Why the Mechanistic Food Web Model Is Appropriate

#### Comment Summary

Several commenters questioned the use of the mechanistic food web model to develop PRGs and highly toxic PTW thresholds. Three comments stated that, because the food web model was calibrated using data from both the near shore areas (where contaminant levels are higher) and the navigation channel (where contaminant levels are lower), it is inappropriate to use the food web model to develop PRGs

that are applied to nearshore SDUs. It was noted that the food web model assumes that all fish are exposed to the bank-to-bank, Site-wide average sediment concentration of a contaminant (i.e., the average across the near-shore areas and the navigation channel throughout the study area) but, as determined in a radio-tagging study performed in the Lower Willamette River, fish are more likely to feed in near-shore areas that contain higher contaminant sediment concentrations. Based on this information, the commenters concluded that the approach used by EPA overestimates COC bioaccumulation and subsequently results in sediment PRGs that are biased low and thus overly conservative sediment.

One commenter stated that, because of this bias, the bioaccumulation based PRGs should be applied on a Site-wide or full river mile basis. One commenter provided additional analysis showing that the SWACs estimated for RM 2 – 3 (full river mile) are lower than the SWACs estimated for SDU 2E for all alternatives and that the Alternative B SWAC for RM 2 – 3 of 32.5 µg/kg is slightly lower than the Alternative E SWAC for SDU 2E of 37.2 µg/kg.

It was also noted that there is a high degree of uncertainty associated with the development of tissue-sediment relationships and that because the food web model is used to derive sediment PRGs as well as to model fish tissue concentrations for estimating post-construction and residual risks, those uncertainties are carried throughout the remedial alternatives assessment. It was further noted that this degree of uncertainty is greater than the difference in post construction risk between alternatives.

One commenter provided a detailed critique of the food web model and concluded that the food web models have not been shown to accurately predict post remediation tissue concentrations and thus are not appropriate for setting sediment based remedial cleanup levels. The commenter also specifically noted that for Portland Harbor, the food web model was not run in a manner that would be able to predict post remediation concentrations, the model was not fully tested, and the calibration and validation approach provides no evidence the model can predict post remediation tissue concentrations.

The commenter also stated that fish collected at the Site have fish tissue concentrations consistent with non-urban stretches of larger Northwest rivers, and sediment remediation is unlikely to reduce fish tissue concentrations over much of the Site and will not result in the targeted tissue concentrations. The commenter recommended the identification of sources of PCB other than those released within the Portland Harbor, determine the relative contribution of all sources to the aqueous phase, model areas of the Site with different sediment concentrations separately, test the assumptions that the results are predictive at low sediment concentrations, use measured, not modeled pore water partitioning coefficients and acknowledge the uncertainty in the food web model.

Similarly, LSS commented that the conceptual site model does not adequately explain the relationship between surface water quality and tissue concentration and instead relies solely on sediment concentration which only explains about one third of the variation of DDX in fish tissue. As a result, they state sediment remediation will not achieve the desired tissue-related outcomes.

One commenter stated that the food web model was inappropriately applied to develop a PTW concentration threshold for total PCBs, and flaws within the food web model have resulted in calculation of a low-biased PTW concentration threshold. The commenter noted that the food web model is not sufficiently robust enough to develop sediment PRGs based on the fish consumption exposure pathway. As a result, the commenter undertook a more comprehensive review and re-evaluation of the food web model and included the results in a report. The commenter stated that because their model was calibrated more robustly, (1 million iterations vs. 9,982 iterations), it produced a calibrated model for

both Total PCBs and Total DDx that more accurately predicts measured average fish tissue concentrations and thus compels EPA to reconsider its use of the remedial investigation Mechanistic Model to derive the PCB PTW concentration threshold. The commenter noted that application of this model to define the PTW threshold would result in a highly-toxic PTW threshold of 500 µg/kg based on average fish tissue concentrations associated with a  $1 \times 10^{-3}$  cancer risk to subsistence fishers exclusively consuming fish caught in Portland Harbor (i.e., EPA's definition of the PTW sediment concentration threshold) rather than the 200 µg/kg presented in the feasibility study report and proposed plan.

### **EPA Response**

The food web model used to develop the PRGs was created by LWG to develop a predictive relationship between chemical concentrations in sediment, water, and tissue that can be used to derive PRGs for RAOs 2 and 6. EPA notes that the food web model was appropriately developed, parametrized, calibrated and applied to develop risk-based PRGs associated with RAOs 2 and 6 and, by extrapolation, PTW thresholds. EPA approved the model approach developed by LWG and determined the model could be used for decision-making at the Site. For more detail regarding the use of the food web model to develop PRGs, see Response to LWG Dispute Issue 11 (Appendix A of this document).

Regarding surface water concentrations, Section B1.3.3.1 of Appendix B of the feasibility study report (USEPA 2016b) describes the use of surface water concentrations in the food web model. Chemical concentrations in the water column were calculated using XAD water column samples collected during the seven sampling events at five transect locations and are presented in Tables B1-12a and B1-12b of Appendix B.

EPA acknowledges the uncertainty in the food web model but notes that many of the PRGs developed for preliminary sediment cleanup goals for contaminants found in fish tissue presenting unacceptable risk are based on background concentrations. The remedy will be evaluated through a robust monitoring program that will also include fish tissue monitoring. For example, PCBs are the COC with the greatest area of sediment contamination exceeding the PRG. Because risk-based PRGs resulting from the food web model are well below background, the sediment PRG for PCBs was developed based on an analysis of PCB sediment concentrations in the background data set, not on food web model relationships. Further, the remedial approach in the ROD is to address higher concentration areas and then allow MNR to achieve cleanup levels. RAL footprints represent the areas over which active remediation will be conducted and are a risk management tool used to target the most heavily contaminated sediments. Thus, areas of the sediment exceeding the RAL (not all areas that exceed the cleanup level) are targeted for remediation. In this regard, the uncertainty associated with the food web model does not markedly influence the alternative analysis or remedy selection because footprints are designated by RALs and PRGs were developed independent of the food web model. Overall, the combined uncertainty associated with each analysis and decision point is managed through a robust post-remediation monitoring program that ensures that fish tissue contaminant concentrations (and hence human health risk) are known post remediation so that identified risk, if any, can be managed through the five-year review process.

EPA disagrees with some of the statements. For example, one commenter noted that the food web model was not robustly calibrated. However, as described in the Bioaccumulation Modeling Report (Windward 2015), model calibration was performed through probabilistic analysis against contaminant data from multiple species collected throughout the Site (the calibration data set is described in Windward [2009],



Appendix F). Total PCBs was selected for initial calibration and run 50,000 times using Monte Carlo simulation (performed using Crystal Ball® software) with different combinations of plausible values for all calibrated, non-chemical-specific model input parameters and the best performing model run identified.

EPA also disagrees with statements that the food web model cannot be applied on smaller spatial scales. As described in the bioaccumulation modeling report, the food web model was applied on a study area-wide basis for calibration. However, the modeling effort also evaluated the model's ability to predict smallmouth bass and sculpin tissue concentrations on a smaller spatial scale for total PCBs. The same top performing model run was identified using the Site-wide and smaller-spatial-scale model runs thus demonstrating the models ability to perform on both the site-wide scale and smaller spatial scale. Based on this evaluation, it was concluded that model is predicting well on a smaller spatial scale for smallmouth bass and sculpin, which have home ranges that are less than site-wide. EPA hopes to further refine species home ranges, but what has been developed is sufficient to support the need to take action, and minimize reliance on MNR.

PCBs have been detected in smallmouth bass collected at the Site at concentrations that exceed the range of background levels presented in the comment, and multiple locations of PCB sediment contamination have been identified at the Site. EPA acknowledges that fish tissue samples collected outside Portland Harbor also contain PCBs. Similar to the Site, upstream areas with elevated PCB concentrations, such as RM 16, also have fish with elevated PCB concentrations. In addition, areas within the Site that have relatively low fish tissue PCB concentrations typically exhibit low sediment bed concentrations.

EPA disagrees that the risk goals established for the Site cannot be met. The analysis presented in the feasibility study report indicates that remediation of PCB-contaminated sediment is expected to reduce the concentration of PCBs in fish tissue. Additional efforts to eliminate sources of PCBs in the downtown reach and upriver are further expected to reduce PCB fish tissue levels. As is noted above, remedy performance will be evaluated through a robust monitoring program that will include fish tissue monitoring. The results of this monitoring effort will be used, in part, to determine whether additional sources of PCBs are present within the system that may limit the effectiveness of the remedy.

Regarding the model submitted in support of comments that support development of a 500 µg/kg PTW threshold, EPA notes that the food web model was appropriately developed, parametrized, calibrated and applied to develop risk-based PRGs associated with RAOs 2 and 6 and, by extrapolation, PTW thresholds. The commenter has not provided sufficient information to demonstrate that the proposed PTW threshold for PCBs of 500 µg/kg is more accurate than the current PTW threshold of 200 µg/kg. The use of 200 µg/kg as a PTW threshold was developed using a properly calibrated food web model and represents a  $1 \times 10^{-3}$  risk level for identifying PTW that is highly toxic, consistent with EPA guidance on identifying principal threat and low level threat wastes.

## 2.12 Conceptual Site Model

### 2.12.1 Conceptual Site Model Does Not Adequately Characterize the Site

#### Comment Summary

Comments regarding the CSM were submitted by several parties, including the PCI Group, USACE, EVRAZ Inc., LSS, LWG, RM 11E Group, Exxon Mobil, and Union Pacific Railroad. Several of the commenters (the PCI Group, EVRAZ Inc., LSS, LWG, RM 11E Group, ExxonMobil, and UP Union Pacific Railroad) indicated that the CSM presented in the feasibility study report (USEPA 2016b) (Figure 1.2-

26) does not adequately characterize actual site conditions and the complexity of the Site and identified one or more elements of the CSM that should be added or improved, including:

- Effects of background conditions; the importance of non-steady state conditions
- Critical role of spatial complexity associated with sedimentary parameters such as grain size and organic carbon
- Site uses
- Biological habitats
- Potential habitat restoration sites
- Biological receptors in sediment and surface water
- Biogeochemical recovery pathways; how humans access and use the river for navigation and recreation
- Chemical distributions in subsurface sediments
- Contaminant sources including upstream chemical inputs to surface water
- Extent of highly mobile sediment
- Recent analytical data

Commenters (PCI Group, LSS, ExxonMobil, EVRAZ Inc., and Union Pacific Railroad) said that a predictive quantitative model (e.g., hydrodynamic and sediment transport model) is needed to make cleanup decisions and select alternatives. Exxon Mobil also stated that a site-specific fate and transport model is needed for evaluating remedy effectiveness and the benefits of remedial methods. Comments also stated that EPA's CSM was not developed in accordance with EPA and other applicable guidance. Because of these deficiencies, commenters stated that the CSM cannot be used to support the development and evaluation of the alternatives identified in the proposed plan. USACE also stated that the CSM should be modified regarding assumed exposure scenarios associated with aquatic disposal of dredged material. LSS commented that because the CSM fails to address background water quality and contaminant sources (e.g., mercury in fish tissue), there will still be fish advisories for contaminants not related to Site COCs.

### **EPA Response**

EPA disagrees with the assertion that the CSM is inadequate and cannot be used to support alternatives evaluations. The CSM, as documented in Section 10 of the remedial investigation report (USEPA 2016a) was developed in accordance with EPA guidance, *Guidance for Conducting Remedial Investigations and Feasibility Studies under CERCLA* (1988) and *Contaminated Sediment Remediation Guidance for Hazardous Waste Sites* (2005). The CSM presented in Figure 10.1-1 of the remedial investigation report (USEPA 2016a) and Figure 1.2-26 of the feasibility study report (USEPA 2016b), provides a visual summary of the environmental system, contaminant sources, affected media, fate and transport processes, and human and environmental receptors. The remedial investigation report further describes each of these elements in detail. The CSM and the information presented in the remedial investigation report re based on a robust data set collected by LWG under EPA oversight.



Commenters contend that the CSM incorrectly assumes that surface sediment and surface water concentrations across the Site exist at steady state. The CSM in the remedial investigation report describes the lower Willamette River as a dynamic river system (see Portland Harbor remedial investigation report (USEPA 2016a), Sections 3 and 10) (USEPA 2016a). EPA's assumption was that the Site is in dynamic equilibrium, not steady state. See LSS Dispute Issue 1 (Appendix A of this document).

Several commenters contend that the CSM needs to be represented by a predictive quantitative model that incorporates site conditions, contaminant distribution, and multiple fate and transport processes. Quantitative models have been developed for the Portland Harbor Site but they have not been found to effectively represent the CSM. As described in Section 4.1.2 of the 2016 feasibility study report, a hydrodynamic and sediment transport model was developed by LWG and presented in the draft feasibility study report (LWG 2012). EPA commissioned external expert reviews of this model, which identified several shortcomings that limit its usefulness in predicting sediment transport within the Site (see Appendix H of the 2016 feasibility study report). EPA reviewed the predictability of the 2012 draft feasibility study report QEA Fate Model and found its predictability poor. EPA also did not use the SEDCAM sediment recontamination model as it only predicts deposition, not erosion, and is thus inconsistent with the CSM. EPA concluded that existing empirical data and information about the Site and contamination was sufficient for remedy decision-making given the lack of sufficient data to adequately populate a model that could simulate conditions on such a complex system. See EPA's position response to LWG requested relief 2 and LWG Dispute Issues 2a and 2b (Appendix A of this document).

Even LWG acknowledged the lack of data necessary to develop such a model, and that any model developed would have great uncertainty in predicting the outcomes of any alternative developed for the Site. See EPA's position in response to LWG Dispute Issue 2a) (Appendix A of this document). EPA believes that the CSM along with all of the information contained in the remedial investigation report and information used in the 2016 feasibility study report (USEPA 2016b) are sufficient under CERCLA, the NCP and EPA guidance to develop and select a remedial alternative.

The activity-specific human health and ecological risk assessment CSMs suggested by USACE can be beneficial but, as suggested by USACE, EPA does see the value in developing activity-specific human health and ecological risk assessment CSMs and will consider use of this approach during remedial design. Following the collection of additional data during remedial design, exposure scenario assumptions will be reevaluated as needed. For additional information regarding EPA's position on this issue, please see EPA's response to Union Pacific Railroad's Dispute Issue 5, LSS's Dispute Issues 1, 5, and 20, and LWG's Dispute Issues 2a and 2b (Appendix A of this document).

### 2.12.2 The CSM Does Not Properly Consider MNR

#### Comment Summary

EPA received several comments regarding the evaluation of MNR at the Portland Harbor Site. Comments included statements that the Site was lacking a CSM that properly considered MNR; some of the data used in the feasibility study evaluations was outdated and more recent data including fish tissue and sediment sampling results were not properly incorporated into the MNR evaluation; the use of interim cleanup targets was inappropriate; and a quantitative evaluation of MNR was not conducted as part of a multiple lines of evidence evaluation.

One commenter stated that multiple lines of evidence, including time series bathymetry data, the fine-grained nature of the majority of Site surface sediments, surface to subsurface sediment contaminant

concentration ratios, and detailed sediment transport modeling, all indicate that the majority of the Site surface is a depositional system. The commenter stated that empirical bathymetric data indicate 63 percent of the Site is depositional and an additional 25 percent of the Site is stable (no substantial bed elevation change). Thus, approximately 88 percent of the Site is stable or depositional. This is an important element that should be explicitly operationalized because natural recovery represents one of the important core processes in the site CSM.

Another commenter disagreed with statements by EPA that “sediment trend data do not exist for this Site; insufficient biota and water trend data exist” and “the hydrodynamic and sediment transport model predictions are inconsistent with the CSM for this Site.” The commenter stated that a significant amount of information collected during the remedial investigation demonstrates that river conditions have changed over time. For example, EPA’s RJ found that, “Concentrations of total PCBs, DDX, total PAHs, hexachlorobenzene, total chlordanes, aldrin and dieldrin, gamma-HCH, lead, and TBT are higher in subsurface than in surface sediments, indicating that historical inputs were likely greater than current inputs.”

### **EPA Response**

EPA disagrees with the commenters that MNR was not considered in the CSM for the Site. The final remedial investigation report (USEPA 2016a) included a comprehensive CSM that considered sediment dynamics (Section 10.1.1), including evaluation of sediment trap data and sediment deposition rates developed based on bathymetric change data. In addition, the feasibility study included a multiple lines of evidence evaluation of MNR. Section 3.6.1 of the feasibility study report (USEPA 2016b) presents a summary of the lines of evidence considered during the evaluation of MNR. These include incoming sediment particle concentrations, sediment deposition rate, and fish tissue concentration trends. Other factors that were considered are described in Appendix C of the feasibility study report and include the ratio of subsurface to surface sediment concentrations, wind and vessel wake-generated waves, predicted bottom shear in comparison to critical shear stress and propeller wash. These multiple lines of evidence indicate that the majority of the Site surface is amendable to MNR. See Section 2.16 of this responsiveness summary for additional information related to hydrodynamic sediment transport modeling and other MNR issues.

## **2.13 Cleanup Technologies – Capping and Dredging**

### **2.13.1 Capping Is Not an Appropriate Technology**

#### **Comment Summary**

Eleven personal comments expressed concerns with capping, either as a cleanup technology altogether or related to how the caps would be designed (e.g., use of concrete on river banks). One comment noted that EPA itself believed it was inappropriate at megasites, and several people said that capping was only temporary and that contamination would eventually be released.

Representative comments include:

- “Alternative I can best be described as a system engineered to release our harbor’s non-degradable contaminants into the environment at a rate that stays within pollution-control standards. For example, it calls for “capping” more severely contaminated areas of the harbor floor with clay. We can expect harmful contaminants to continue leeching from these areas, but more slowly. Caps are, in effect, time-release mechanisms, delivering a lower dose of contaminants to our environment over a longer period of time. The long-term effect is that all the

non-degradable contaminants will ultimately diffuse into the environment, and into the food web.”

- “Capping is not restoring natural habitat. Portland needs and deserves a clean river, not a concrete ditch. The river must be clean and safe for fish, birds, and other wildlife. Restore a natural river bank, not a lot of concrete and capping.”
- “In EPA’s recommendations and advocacy for capping, they state that it is inappropriate at “industrial megasites” [iii] With ten miles of industrial waste, the Portland Harbor certainly meets the definition. Why New Technologies. Collecting, learning from, and incorporating new information into practice is the only avenue to improving the effectiveness of remedial operations. Regardless of cost or controversy, achieving the expected effect of remedial actions—improvements in the environment—is of primary importance.”
- “I am not very comfortable with the capping plans, I don’t feel like the river bottom is a secure place, that can be just kind of once you cover something there that it’s gone, I feel like that’s not really cleaning up the mess. I’m less concerned about who’s a responsible party than I am about getting the poison out of the river so that it doesn’t affect animals and people and, you know, future generations all the way down to the ocean.”
- “Capping is just leave contaminants in place to be released by disturbance later. Ships aren’t getting smaller - someone will want to dredge a deeper channel into the harbor eventually. The only way to prevent recontamination by capped sediments is to physically remove all contamination now, to a secure off site location (one where it will not recontaminate its new location).”

### **EPA Response**

EPA recognizes containment as an effective way to isolate or immobilize contaminated sediment through capping technologies under the right conditions and in specific locations. The mechanics, effectiveness and implementability of various capping technologies are discussed further in Section 2.3.5 and Table 2.4-2 of the feasibility study report (USEPA 2016b).

None of the caps being recommended at the Portland Harbor Site utilize concrete in their design. The suggested cap designs include both passive and active (reactive) caps designed to physically isolate and sequester contaminants for extremely long design periods. Reactive caps such as those containing activated carbon do not just provide a physical isolation layer between the contaminated sediments and the water column, but also actively bind the contaminants to their surfaces, lowering their availability to organisms the cleanup seeks to protect. That is why these are termed active caps and this binding to the reactive amendment is usually irreversible under normal environmental conditions. Cap designs will account for more frequent flooding likely with climate change, as well as other considerations such as vessel wakes and prop scour.

All caps require long-term maintenance, thus issues such as disturbance due to navigation would be monitored and remedied as necessary, the details of which would be included in a long-term monitoring plan. Consistent with Clean Water Act § 404(b)(1) guidelines, where the remedial action adversely impacts habitat, the cap will be designed to minimize the impacts and restore the surface for habitat function, and if loss of habitat occurs, compensatory mitigation will be undertaken. The details of any necessary mitigation to protect habitat would be developed during remedial design. For example, the feasibility study assumed equivalent cap thickness is dredged prior to placement to allow for a net zero

bathymetry change thereby limiting the need for mitigation. The ROD provides a remedial technology decision tree and design considerations for proper planning and applicable conditions under which capping technologies can be considered for the remedy.

### 2.13.2 Dredging Should Be Minimized

#### Comment Summary

Comments were received from Calbag Metals Co. and LWG that cited evidence suggesting that fish tissue PCB concentrations will temporarily increase for a period of years during and following dredging. Their concern was that this was not evaluated in the comparison of alternatives. LWG also criticized the use of zero as a replacement value for dredge areas after construction was completed.

Calbag Metals Co., the City of Portland, LWG, and Siltronic Corporation all commented on the need for evaluation of short-term impacts of dredging during and right after construction. The impacts cited included negative effects on shipping schedules within the harbor, ships leaving the harbor, potential damage to the ecological community at the bottom of the river, increased diesel emissions due to transportation of sediment to and from the Site, noise impacts to the local communities, and potential increase in contaminant concentrations in fish tissue for short periods of time. LWG also believed that no new quantitative evaluations for dredge release and residuals have been conducted, and both LWG and Siltronic commented on the use of only one study (Hudson River) on dredge releases and the limited selection of dredging BMPs.

According to The Marine Group BAE, EPA's assessment of river bank excavation was also deemed overly general and technically impractical, and the use of in-place technologies was suggested instead.

#### EPA Response

EPA's 2005 Sediment Remediation Guidance, Section 6.5.5 "*Predicting and Minimizing Sediment Resuspension and Contaminant Release and Transport During Dredging*" (USEPA 2005) states:

- "Some contaminant release and transport during dredging is inevitable and should be factored into the alternatives evaluation and planned for in the remedy design. Releases can be minimized by choice of dredging equipment, dredging less area, and/or using certain operational procedures (e.g., slowing the dredge clamshell descent just before impact with the sediment bed)."

The feasibility study report (USEPA 2016b) explicitly states that some contaminant release is inevitable in the alternative assembly and evaluation (Sections 3.4.8.5, 3.4.8.6, and 3.4.8.10). The discussion describes results from other recent and relevant dredge operations and focuses on technological and operational procedures for lessening release and resuspension as discussed further below.

Post-construction COC concentrations in areas assigned dredging or capping were assumed to be zero immediately after operations, as the 2016 feasibility study report assumed clean material would be used for caps, and that the residual layer applied to dredged areas for the purpose of addressing contaminated dredge residuals would consist of clean sand. Thus, potential increased effects on fish tissue concentrations were also assumed to diminish right after construction. The feasibility study report assumptions are supported by observations at the Grasse River Remedial Options Pilot study and the Hudson River Phase I dredging where fish tissue concentrations that spiked during operations (presumably related to contaminant releases) were generally not elevated above baseline after dredging ceased (the increased concentrations did not persist for "years" following construction). Importantly, it was also these projects that led to many of the lessons learned regarding engineering and operational

controls of sediment resuspension and contaminant release and the management of dredging residuals. EPA's response to LSS Dispute 8 (Appendix A of this document) also contains relevant information on this issue.

The feasibility study report release estimate emphasizes results from Phase 2 of the Hudson River dredging because it was a recent (2011-2015), large, multi-year dredge project, with site and operational characteristics similar to the dredging proposed in the feasibility study report (contaminated sediment removal in a large, riverine environment with multiple mechanical dredges using barge transport). Hudson River Phase 2 dredging operations incorporated lessons learned from Phase 1 dredging and recommendations from the Hudson River Peer Review Panel. Thus, the project represents state-of-the-art approaches for managing dredge releases while maintaining (or increasing) productivity. The peer review report states, "The repeated dredge passes and prolonged exposure of sediments in the certification units resulted in increased PCB resuspension and release." To minimize resuspension and release, the panel recommended to improve depth of contamination estimating procedures and to:

- "Establish BMPs to limit sediment resuspension and release.
- Perform confirmation sampling in each 1-acre sub- certification unit as soon as possible after attainment of the DoC Elevation in 95 percent or more of the area is confirmed by EPA.
- Place a 3 to 6-inch sand cover over sub- certification unit as soon as possible after confirmation samples are collected (before PCB analytical results are obtained).
- Use PCB analytical results of composited surface samples to determine whether an area will be backfilled or capped and install final layers accordingly."

Due to the Peer Review Report's recommendations, the feasibility study report also emphasizes BMPs to limit sediment resuspension and release and placement of residual sand cover of 12 inches to lessen short-term impacts and enhance the effectiveness of dredging and capping to achieve the final cleanup goals within a reasonable timeframe. EPA's final selected remedy incorporates these BMPs as requirements.

Regarding assessment of short-term impacts, EPA guidance states that short-term impacts should be identified and the trade-offs between alternatives discussed, and that is what EPA did in its feasibility study. The nature of the impacts is the same for all alternatives; the differences are magnitude and length of time with the increased construction with each alternative. Section 4.3.5 of the 2016 feasibility study report discusses the trade-offs for short-term effectiveness between alternatives. EPA states that the impacts for any alternative will be for 4 months per year and last the duration of the construction project. The Clean Water Act Section 404(B)(1) Evaluation found in Appendix L of the feasibility study report and the Programmatic Biological Assessment also discuss several other short-term impacts in detail. Additionally, the short-term impacts identified by the City of Portland have been discussed in Sections 2.17.4 and 2.20.1 of this responsiveness summary.

Furthermore, engineered rigid control measures were one of the BMPs considered to address dredge releases. Engineered rigid control measures were evaluated holistically in the 2016 feasibility study report for their use in reducing or eliminating short-term releases of contaminants during construction and not on a location-specific basis. Thus, the 2016 feasibility study report does not present figures indicating design level logistical details regarding location and depth of engineered rigid control measures. Sheet piles are a representative engineered rigid control measure identified and evaluated for

sediment dispersion control. However, that representative approach does not preclude other types of BMPs for consideration during remedial design. Details regarding sediment dispersion control and location-specific engineered rigid control measures will be determined during remedial design, which is the appropriate time for those types of evaluations.

The navigation channel and future maintenance dredge (FMD) areas were assigned dredging technology within SMAs. This approach is consistent with the LWG 2012 feasibility study report. Dredging is an essential part of achieving an effective remedy for the contaminated sediments at Portland Harbor. While the proposed plan (USEPA 2016c) indicates that exact depth of contamination is unknown at this stage, it also specifies that actual dredge depths will be established based on data collected during remedial design. If contamination in the navigation channel or FMD areas is too deep to be dredged, an isolation cap residing below the depth of navigation channel maintenance will be considered as appropriate. Detailed dredging volumes will be evaluated during the remedial design, and arbitrary depths will not be assigned as suggested by some commenters.

Currently, the contamination in the river banks is uncontrolled and either is migrating or has the potential to migrate to the river. There are tidal fluctuations twice daily, submerging portions of the river bank throughout the day, potentially exposing aquatic receptors to the river bank contamination. Furthermore, the river water levels rise and fall seasonally; thus, again submerging different portions of the river bank throughout the year. Other forces, sheet flow, gravity, or upland land uses, can lead to river bank soils eroding into the river. Therefore, river banks are appropriate to include in the cleanup plan. More details about existing conditions, contaminant concentrations, and design-level information will be obtained that will determine whether excavation of any particular river bank is required and, if so, how much and how the river bank will be restored, depending on reasonably anticipated future use, Endangered Species Act/404 requirements and long-term effectiveness considerations. See also EPA's response to LWG Dispute Issue 1q (Appendix A of this document).

EPA did evaluate all available technologies to specific areas in development of the alternatives and selected the appropriate technology to use based on site-specific environmental and anthropogenic conditions. However, the ROD decision tree demonstrates that there is flexibility in the technology assignments based on criteria to be evaluated during remedial design.

### 2.13.3 Use of Sheet Piles for Containment Was Not Properly Evaluated

#### Comment Summary

Thirteen comments were received expressing concerns with the use of sheet piles for containment during dredging of contaminated sediments. They are:

- It is inappropriate to use rigid containment for dredging sediment adjacent to Arkema. The proposed plan identifies that sheet piles are needed to address the large NAPL plume (incorrect assertion on plume size) offshore of the Arkema Site.
- There is no quantitative evidence of estimated dredge residuals or releases associated with dredging. EPA guidance recommends comprehensive evaluation of dredge impacts.
- Technical challenges exist due to site characteristics. Sheet piles will not contain the release of contaminants to surface water.



- EPA should explain when conditions may warrant changes to major alternative elements and when EPA may consider or allow the site-specific engineering evaluations.
- Site-specific evaluations determined that the use of sheet pile walls for containment during dredging would only be partially effective for containing releases. Sheet pile walls would impound contaminated water, which would be released when the walls were removed.
- Sheet pile walls are not water tight.
- Sheet pile containment would add significant cost, increase implementation risks, and increase construction duration.
- Sheet piles would mobilize NAPL to greater depths and to the sediment surface through smearing.
- Using sheet pile wall containment would pose a significant risk to worker health and safety.
- Scour around the perimeter of the sheet pile wall could cause structural failure and mobilize contaminated sediments.
- Sheet pile walls may not be sufficient, and a more expensive cofferdam-type system may be needed/evaluated.
- USACE will not allow sheet pile walls in the navigation channel.

### **EPA Response**

The use of sheet piles was adequately evaluated relative to other control technologies and best management practices in the feasibility study report (USEPA 2016b). Sheet piles are a representative engineered rigid control measure identified and evaluated for sediment dispersion control in the 2016 feasibility study report. However, that representative approach does not preclude other types of rigid control measures for consideration during remedial design. Engineered rigid control measures were evaluated holistically within the 2016 feasibility study report for their use in reducing or eliminating short-term releases of contaminants during construction and not on a location-specific basis. Thus, the feasibility study report does not present figures indicating design level logistical details regarding location and depth of engineered rigid control measures. Location-specific evaluations for feasibility of sheet pile versus other types of engineered rigid control measures, including placement within the navigation channel, were beyond the scope of evaluation of the feasibility study report and will need to be evaluated during the remedial design. Details regarding sediment dispersion control, mitigating NAPL smearing, and location-specific engineered rigid control measures will be determined during remedial design, which is the appropriate time for those types of evaluations. Additionally, the remedial design will need to account for over-water structures, buried structures or debris, and geotechnical properties of the sediment bed.

The determination of technical feasibility of engineered rigid control measures is highly dependent on site-specific conditions. As stated in Appendix O of the 2016 feasibility study report, EPA agrees that depth can limit the use of suitable engineered options for controlling releases, and deep water depths can preclude the use of sheet piles. However, blanket elimination of the technology is not warranted given its effectiveness in reducing migration and dispersion of contaminated dredged material.

Remedial activities with the potential to restrict navigation in the harbor channel will be coordinated with the USACE and the Coast Guard during remedial design, including efforts to minimize sediment

dispersion in areas where NAPL extends into the navigation channel. The Rivers and Harbors Act prohibits obstructions to navigation, but CERCLA requires remedies to be protective of human health and the environment, and other federal statutes require measures to reduce impacts to Endangered Species Act species or the aquatic environment as well. No permanent obstructions will result from the cleanup, but some disruption to navigation may be needed to implement the remedy that will protect human health and the environment.

Risks to worker safety during construction will be addressed by the site-specific safety plan (Accident Prevention Plan). Responses related to the cost of sheet pile wall construction are included in Section 2.22 of this responsiveness summary.

## 2.14 Cleanup Technologies - Disposal

### 2.14.1 Do Not Use a Confined Disposal Facility

#### Comment Summary

A total of 1746 comments were received that expressed unhappiness with a CDF at Terminal 4. The vast majority (1313) were part of a form email or postcards, and included these statements:

- “EPA should eliminate the confined disposal facility which would create a permanent toxic waste dump in our river.”
- “Toxic dredged sediments must be taken to an appropriate landfill. Creating a toxic waste disposal dump in our river is not acceptable.”
- “Creating a toxic waste disposal dump in our river is not acceptable—toxic dredged sediments must be taken to an appropriate landfill.”
- “Select disposal options that do not include a Confined Disposal Facility and that do include treatment of dredged sediment to breakdown or bind contaminants.”

There were also hundreds of personal, individual comments which were all against the CDF. Representative examples of these comments include:

- “Thank you for your service to the community. Please pursue a cleanup alternative that adequately restores the endangered health of our river. Dredging must be removed from the vicinity and not stored in terminal 4.”
- “Please listen to the task force that has watched this for a decade or more, and is in the best position to give technical advice on how many acres, what should be cleaned, where it should be dumped, and for Heaven sakes do not dump it back in the river someplace else. What a crazy idea.”
- “Thank you for leading an effort to cleaning our river. Do not place dredging in the terminal 4 locations please. Terminal 4 provides sturgeon habitat and tremendous sustainable economic activity at the port.”
- “The river should be dredged of the toxic waste to remove it from the Willamette and be taken to an appropriate landfill where it will not affect the livability of that area.”



- “Take toxic dredged sediments to an appropriate landfill. Confined disposal facilities and capping of dredged sediment are problematic. EPA should remove contaminants from the river, not simply stored in or next to the river. It takes hundreds to thousands of years for substances to degrade. During that time, toxics can build up in the ecosystem and eventually be released into the Columbia River and ocean. Conditions of climate change, tectonic activity, and flooding increase likelihood of exposure.”

Finally, the Port of Portland submitted comment withdrawing their support for the use of Terminal 4, including:

- “EPA has identified two disposal scenarios, one using only off-site landfills and another selecting a CDF at Terminal 4 for a portion of sediment disposal. The Port encourages EPA to retain optionality in the ROD to incorporate other disposal mechanisms not specifically presented for evaluation at the time of the feasibility study and proposed plan. This is critical because the Port has concluded that a Terminal 4 CDF is no longer the right decision for the Port. The Port continues to agree with EPA that the Terminal 4 CDF would be safe for people and the environment. However, given uncertainties in factors like cost, design, acceptance criteria, and performance criteria, the financial viability of the Terminal 4 CDF relative to other options appears marginal and could deteriorate if less expensive landfill or other disposal options materialize. Moreover, a CDF would be a significant, permanent commitment at Terminal 4, imposing long-term responsibilities on the Port and straining the Port’s relationship with neighboring communities who have consistently opposed the CDF. For all these reasons, the Port has concluded that the CDF is not an appropriate use of limited Port resources.”

### **EPA Response**

The feasibility study report (USEPA 2016b) analyzed and the proposed plan (USEPA 2016c) described the two disposal options for dredged sediment resulting from the cleanup. The proposed plan indicated that the preferred disposal option was using a CDF and off-site disposal facilities for dredged sediment that was not suitable for a CDF. A CDF would reduce the number of bargeloads, trainloads, and/or truckloads of sediment requiring off-site disposal, reducing impacts to surrounding communities. Reducing the transport distance for disposal would also reduce the chance that accidents and/or spillage of contaminated sediment could occur. However, the primary benefit of off-site disposal of dredged material is that it avoids the long-term maintenance requirements of a CDF and impacts on the aquatic environment by filling approximately 14 acres. It also removes the waste completely out of the system, providing assurance that no recontamination will occur as a result of an unanticipated event impacting the integrity of the CDF structure. Further, off-site disposal transfers management of the waste to professionally-permitted waste handlers whose primary focus is the safe and effective handling of hazardous waste materials.

The Port of Portland, who was originally providing the land for the facility (at Terminal 4), indicated in its official comment submission that it has withdrawn its sponsorship of the CDF which impacts the implementability of the CDF. Because of this new circumstance, the small difference in cost savings using a CDF relative to overall project cost estimates, and the overwhelming sentiment expressed by the public against the CDF, EPA has decided to select off-site disposal for all dredged sediment as part of its final remedy.

### 2.14.2 Develop a Commercially-Viable Sediment and Soil Disposal Facility

#### Comment Summary

The City of St. Helens provided information about a proposal for developing an existing waterfront property (wastewater treatment lagoon) into a Resource Conservation and Recovery Act Subtitle D facility with barge transfer infrastructure that could be used to disposal of dredged contaminated sediments from the Portland Harbor Site.

#### EPA Response

EPA recognizes that potential significant cost savings could be realized if a geographically proximate disposal facility is available for disposal of dredged contaminated sediments and excavated river bank soils. In addition, a nearby facility could reduce air emissions of greenhouse gases and air toxics from diesel emissions. Such a facility would not be part of the CERCLA response but rather would be a permitted facility under the Resource Conservation and Recovery Act/State Hazardous Waste or Toxic Substances Control Act. If such a facility was permitted and was found acceptable under the Off-Site Rule, EPA would consider disposing of waste in that facility.

### 2.14.3 Revisit the Waste Disposal Designation for Sediment Adjacent to Arkema

#### Comment Summary

A comment was received stating that EPA has arbitrarily made more conservative assumptions for disposal of PTW defined by sediments containing DDx and NAPL than it has for PCBs, dioxin/furans, and PAHs. Based on current data, none of the sediment offshore of the Arkema site should be classified or handled as a federal- or state-listed hazardous waste, or as PTW requiring treatment.

#### EPA Response

Please see LSS Dispute Issue 3 (Appendix A of this document).

### 2.14.4 Explain the Cost Assumption for Treatment of PTW Near Arkema

#### Comment Summary

A comment was received disagreeing with the cost assumption that "cement solidification/stabilization, low temperature thermal desorption, and no treatment will be used in equal proportions to treat pesticide/chlorobenzene PTW" for the disposal of dredged sediment that meets EPA's PTW criteria offshore of the Arkema site.

#### EPA Response

Please see LSS Dispute Issue 3 (Appendix A of this document) for a response to this comment.

### 2.14.5 Use the Hazardous Waste Identification Rule Appropriately

#### Comment Summary

EPA disregards the scope and intent of the Hazardous Waste Identification Rule by placing arbitrary restrictions on what EPA believes can be placed into a CDF, if constructed. All of EPA's acceptance criteria for a CDF are arbitrary and must be removed. Disposal of dredged material must follow the Hazardous Waste Identification Rule as adopted by the state or follow the Resource Conservation and Recovery Act if disposed of at an upland landfill. EPA has correctly stated that Resource Conservation Recovery Act regulatory requirements (including the designation of waste sediment as either a federal- or state-only hazardous waste) do not apply to sediment placed in a CDF, it mischaracterizes the Clean Water Act requirement that the sediment must meet CDF acceptance criteria for this rule to apply.

**EPA Response**

Since EPA's selected remedy is not using an on-site CDF, the issue of what waste could go into a CDF is moot.

**2.14.6 Be Aware of Additional Waste Management Needs****Comment Summary**

The waste disposal narrative in the feasibility study report indicates that if Gasco MGP waste is found to be commingled with spent halogenated solvents from the Siltronic site, "the material will be classified as a Resource Conservation and Recovery Act listed hazardous waste for management and disposal purposes."

**EPA Response**

EPA notes that the discussion of material disposal in the Consent Order's statement of work is in the context of an early action sediment cleanup performed under an engineering evaluation/cost analysis prior to the harbor-wide ROD. The GASCO cleanup must comply with the ROD including disposal of MGP waste. MGP waste will be disposed of in a Subtitle C disposal facility, consistent with the December 2004 dispute. This categorization is based on regulatory, material handling (off-site tracking), and health and safety considerations that will be refined during design. EPA has taken into consideration the material disposal discussion presented in the Consent Order statement of work during development of the ROD for the Site. As noted in the feasibility study report (USEPA 2016b), F002-listed wastes that originated from Siltronic will be treated as such per applicable Resource Conservation and Recovery Act regulation.

**2.14.7 The ROD Should Allow for Ex-Situ Characterization of Waste****Comment Summary**

One comment was received stating that the ROD should allow for ex-situ characterization of waste as has occurred at other sediment sites. Other sites have demonstrated that ex-situ sampling of dredged material typically results in the removed and dewatered sediments being cleaner than anticipated based on in-situ characterization and oftentimes allows for nonhazardous disposal in a Subtitle D landfill.

**EPA Response**

In-situ sampling of sediments has been conducted to characterize the nature and extent of contamination in the river, as well as to identify potential sources of contamination. The feasibility study report (USEPA 2016b) is based on the environmental data collected and compiled by LWG and other parties since the inception of the Portland Harbor remedial investigation and feasibility study in 2001. Additional and more extensive site data will be collected during the design phase.

For disposal purposes, analytical testing results of dredged sediment will be used for waste classification and subsequent determinations of disposal facility acceptance, including any required pre-treatment or treatment of wastes. Data collected during remedial design will initially be used for this purpose. The actual amount of removed material subject to ex-situ treatment would depend on the analytical tests used to classify wastes in accordance with the ROD.

It should be noted that assumptions made for categories of waste, including PTW, and subsequent quantities for treatment and disposal were suitable and reasonably supported by existing data for purposes of evaluating and comparing cost and other balancing criteria for alternatives in the feasibility study report. The actual volumes for waste treatment and disposal will be determined during the remedial action.

## 2.14.8 Clarify Uncertainties for Assumptions on Ex-Situ Treatment and Transloading

### Comment Summary

One comment was received from the City of Portland requesting clarification on EPA's assumptions about the location of a transloading facility and asks for flexibility to more fully evaluate the feasibility of a transloading and treatment facility within the Site. Ultimately, if a transloading facility is going to be located in the Harbor, the city requests that EPA work with the City to find an optimal location with the least amount of negative impact on the community.

### EPA Response

Please see the Cost (Section 2.22) and Implementability (Section 2.21) responses in this responsiveness summary.

## 2.15 Innovative and Sustainable Technologies

### 2.15.1 Evaluate Emerging Technologies throughout the Process

#### Comment Summary

A total of 41 comments were received on this topic. About half were included in form emails and stated

- “Accept the new technology options that will reduce costs and improve long-term effectiveness. These may be conducted as pilot projects.”

The remainder echoed this sentiment and some provided specific suggestions. Representative comments from that group are:

- “The feasibility study has not adequately included newer technologies, including dredging technologies that have been successful at other sites and could be much less invasive on the river and the river banks.”
- “The potential for cost savings through the application of new technologies seems to be understated in the proposed Plan I. Future sites in other locations will benefit from knowledge gained from trying them on this site. We can benefit from the learning curve. Bacteria, sediment washing, and oven cooking to breakdown PCB's all have potential to minimize transportation expenses.”
- “Look to newest techniques of dredging - Better than EPA's proposed dredging technique - Think outside the current box!”
- “I don't think what they're proposing, removal, containment, natural recovery, it's the old industrial model, and it's not very inspiring and even what they're proposing to do of these three components is simply not enough. I'm really disappointed that there's no bio remediation happening that I can discern.”
- “I would like to see the most contaminated areas dredged and the poisonous material dealt with until it's no longer poisonous, not just moved to another site, especially if that site is still in a flood land area like is proposed. You know, maybe it can be used to make concrete for an airport strip or something far away or I like the idea of burning the chemicals out of it in a safe way.”

- “Thank you for all that you are doing! Curious if conservation Districts are partnered in some way? I recently went to a wonderful workshop on mycolium /medicina mushrooms mycology and its potential for clean up even in salt water. I wonder if Ozone was pumped into rivers it would add to the healthiness of the water. Large scale sump pump filtrations and certain algae may be worth investigating also curious about dredging deep and composting the silt? P.S. I have a 7 stage reverse osmosis (kitchen version) and every 3 months I have to trade out the prefilters, and carbon filter, and Zeolite. I can see by observation how bad the NE Portland tap water is.”
- “There are many emerging technologies available for river cleanup, yet it appears that EPA has not considered their use. Dredging techniques that clean more sediment more efficiently should be used.”
- “Micro-Bac International’s M-1000H microbial solution and Tri-Phasic12 nutrient solution has been successfully used to treat organic contamination in a harbor bottom in Italy. The bottom line is that the site could be treated in place for substantially less money than what has been proposed. If you still chose to dredge, it could be treated in your containment area with no need to cap.”
- “Use new and emerging technologies, such as those developed by NASA, bio-remediation bacteria that works on PCBs and DDT's and dewatering on barges.”
- “We want to use Nasa Dev redeployable Polmer blanket technology for inset removal of PCBs in approach to remove & treat PCBs sediments in place, eliminating the need for dredging (\$) or capping. We want "NEW" technology to lower \$.
- “One of the solutions for river cleanup is SALT. To some it is a dirty word in Portland. Salt can and does many things it is a cleanser - a neutralizer, plus ALL KINDS OF OTHER USES. My suggestion would be to drop or lace the bottom of the contaminated area with 50 LB salt blocks (these are salt blocks that are used by ranchers and feedlots that cattle have to have in their diet, THEY ALSO HAVE IODIZED AND SULPHUR SALT BLOCKS). I REALLY BELIEVE that salt blocks would neutralize the contaminated area, and it would eventually disappear!! That is my suggestion and it is worth looking into.”
- “If your recovery plan for the Willamette River uses nature as a major element, then the plan needs to support nature to speed the process up. Fish are natural bio-concentrators and should be harvested in your recovery program to remove toxins from the river. At this time, catching fish is allowed in the Willamette, but the fisherman is advised not to keep the fish residing in this area year around because they have too high of levels of toxic substances in them. If you catch and release the fish, you are not removing the toxins from the environment. If you have a repository for the caught resident fish, the toxic substance can be taken out of the environment and concentrated for disposal. This can be set up like the BPA’s northern Pike minnow program that is run by the Oregon Dept. of Fish and Wildlife in the state of Oregon. As the fish are given to ODFW to be disposed, the fisherman would be rewarded by either a dollar amount or by supplying them with safe hatchery trout. Sturgeon would be one of the resident fish not allowed to harvest in this plan. This plan: 1) May shorten the time to clean up the toxins loose in the water. 2) Removes toxic substances from the environment. 3) Improves the health of the resident fish by removing the sick and old. 4) Provides food or financial support for fishermen by offsetting the cost of fishing which makes the cost of buying a fishing license more cost effective. In other words, helps

the poor to be able to afford to fish for food. 5) Helps the ODFW to be a governmental agency that helps the poor instead of only helping the rich (those who can afford to fish and release their fish).

### **EPA Response**

The NCP (March 8, 1990) which provides the blueprint for CERCLA response actions, encourages the consideration of innovative technologies. It notes: *“Today’s rule [NCP preamble and regulation] also contains an expectation on the use of innovative technologies that EPA developed in response to numerous comments calling for increased emphasis on the diversification of treatment technologies used in site remediation. EPA supports such diversification and expects that it will generally be appropriate to investigate remedial alternatives that use innovative technologies when such technology offers the potential for comparable or superior treatment performance or implementability, fewer or lesser adverse impacts than other available approaches, or lower costs for similar levels of performance than demonstrated technologies. EPA considered a range of technologies as well as innovative technologies as part of the remedy investigation/feasibility study.”*

The process for identification and screening of remedial technologies is presented in Section 2.4 of the feasibility study report (USEPA 2016b). The remedial technologies that were retained for further consideration are based on site-specific data. The identified technology types are initially screened for technical implementability and then expanded into lists of potentially applicable process options, which are then screened further for effectiveness, implementability, and relative cost. Remedial technologies and process options that were retained were assembled into remedial alternatives as presented in Section 3 of the feasibility study report.

Many of the comments recommend that in-situ bioremediation (in-situ treatment with Micro-Bac International’s M-1000H\* microbial solution or other proprietary products) be included in the remedy; however, this remedial technology was not considered to be feasible because many of the contaminants at the Site are not biodegradable (heavy metals) or are very persistent in the environment (PCDD/F, PCB, and pesticides). In addition, many in-situ technologies present implementability concerns in a large river system. Although in-situ bioremediation technologies were not retained as a feasible remedial technology, biological degradation is an important part of the enhanced natural recovery and monitored natural recovery, which are the general response actions for the largest area of contaminated sediment in the preferred alternative. EPA does not consider in-river placement of iodized or sulfur salt blocks as a feasible technology for remediation at the Site because placement of salt along the top of the sediment bed would alter the chemistry in the biologically active zone of the river sediment and within the water column, which would be harmful to the benthic and aquatic communities. In addition, EPA is not aware of any remedial actions utilizing salt to successfully remediate sediment contaminated with the PCBs, PAHs, dioxin/furans, and DDX, which are the focused contaminants of concern at the Site. Encapsulation of contaminated sediment is a technology type that was included in the selected remedy, both on-site capping of sediment and river banks and in providing containment at off-site disposal facilities and landfills.

Dredged sediment containing any Resource Conservation and Recovery Act hazardous wastes, pesticide residue, or PTW related to non-aqueous phase liquid will be evaluated to determine the need for and extent of treatment appropriate for off-site disposal. While low temperature thermal desorption and solidification/stabilization are ex-situ treatment options considered in the feasibility study, other treatment options were retained and may be considered before the material is disposed as part of the



remedial design. EPA will consider such changes and will continue to communicate with the community on this issue.

Removing fish that have bioaccumulated COCs in their tissue was not identified as an appropriate and effective removal technology for addressing sources of contamination within the Site because other removal technologies (mechanical dredging) are much more effective in achieving the RAOs. EPA is interested in mechanisms to reduce the impacts of fish consumption advisories (which apply only to resident fish) on fisher communities. After issuance of the ROD further community outreach on cleanup, particularly, advisories, EPA will further our efforts to do outreach to fisher communities, including tribal, low-income, minority, and immigrant communities to identify such mechanisms and implement them where feasible.

### 2.15.2 Consider Suggestions for Alternate Established Technologies or Products

#### Comment Summary

Four comments were received suggesting the use of particular technologies at the Site. One was from a representative of an environmental product for dealing with contaminated sediment and had concerns over the specific references to proprietary products (AquaBlock and AquaGate) in the proposed plan. Another was from a proponent of induced polarization as a fast, cost-efficient geophysical tool for contaminant delineation to aid in the cleanup efforts. Another was from a purveyor of thermal treatment technology for use in treating PCBs, PAHs, dioxins, furans, and DDT. The final comment was from Volcano Partners LLC for use of their patented vitrification process and product (Cement-Lock® and Ecomelt®) to segregate and treat dredged sediments at their on-site facility.

#### EPA Response

Descriptions of general remedial technologies evaluated and the screening of these technologies can be found in feasibility study report Sections 2.3 and 2.4 (USEPA 2016b). These sections describe the use of sorptive and sorptive-reactive material as well as thermal desorption and vitrification, which are retained site-wide remedial technologies as shown in Table 2.4-1a-c of the feasibility study report.

The proposed plan (USEPA 2016c) describes specific products used in the assumptions for the cap designs for cost estimate transparency purposes and does not imply that these proprietary products are the only ones to be considered during the design phase. Excluding reference to AquaGate™ would affect the assumptions built into cost estimates and negatively alter the transparency of any associated cost estimates.

Geophysical mapping technologies, such as induced polarization, used to survey and refine contaminant extent in Portland Harbor can be considered during the design phase based on implementability, effectiveness, and cost among other considerations. However, the ROD does not contain details of potential alternative technologies that may be used for field investigations as well as remedial actions. EPA will extend consideration to technology alternatives (including additives, thermal treatment, and geophysical mapping) during the remedial design phase and will consider input from vendors, if appropriate.

### 2.15.3 Incorporate Relevant Sustainability Studies and Guidelines

#### Comment Summary

Several commenters cite the September 2016 *Portland Harbor Sustainability Project* report (NERA 2016), prepared by AECOM, NERA Economic Consulting, and SEA Environmental Decisions for a group

of PRPs. The report evaluates the three pillars of sustainability: environmental quality, economic viability, and social equity. The evaluation is based on:

- Analysis of cleanup costs and construction times
- Net environmental benefit analysis
- Human health risks.

The project surveyed community stakeholders and developed social indicators or metrics to score each alternative in terms of “stakeholder group values” and found progressively lower scores for environmental, economic, and social impacts for the larger alternatives. The commenters believed that these results should have carried more weight in EPA’s evaluation of alternatives.

In addition, ExxonMobil suggests EPA has not followed its own guidance or White House directives. Attachment 1 to ExxonMobil’s comments provides a *Path Forward for a Sustainable Remedy at Portland Harbor Superfund Site*, which outlines specific studies that should be conducted prior to finalizing the ROD.

### **EPA Response**

The NCP provides the overall blueprint that EPA follows for response selection and implementing a CERCLA response. As noted in the August 2, 2016 memorandum titled: “Consideration of Greener Cleanup Activities in the Superfund Process” (Greener Cleanup Memo):

- *“Selecting and documenting greener cleanup activities in decision documents. Where greener cleanup activities are selected as part of the response action, they should be specifically addressed in the decision document. They should be treated in the same manner as any other integral part of alternatives being evaluated, consistent with the NCP (40 CFR 300.415 for removal actions and 300.430 for remedial actions) and CERCLA Guidance. For example, the decision document should explain how various alternatives were evaluated and provide the basis for the response action’s selection; this explanation should include how specific greener cleanup activities are incorporated as part of alternatives and how the greener cleanup activities were evaluated considering the NCP nine-criteria evaluation for remedial actions and the three-criteria NTCRA evaluation.”*

EPA’s two threshold criteria for selecting a Superfund remedy are: (1) overall protection of human health and the environment and (2) compliance with applicable or relevant and appropriate requirements of federal and state environmental laws. Once these two criteria are satisfied, EPA determines the best balance of tradeoffs among the alternatives with respect to balancing criteria, one of which is short-term effectiveness, and modifying criteria, including community acceptance, which includes a wide spectrum of often competing concerns. EPA conducted a detailed analysis of individual alternatives against the evaluation criteria, following guidance that is consistently applied among Superfund sites across the nation. The guidance cited by the commenter (*Safe and Sustainable Water Resources: Strategic Research Action Plan 2016-2019 11, 22* and *Sustainable and Healthy Communities: Strategic Research Action Plan 2016-2019 14*) are issued by EPA’s Office of Research and Development and not the EPA Office of Solid Waste and Emergency Response (now Office of Land and Emergency Management) which issues cleanup-related guidance documents. Neither CERCLA nor the NCP require a sustainability study such as what the commenter submitted as part of the remedy selection process. Sustainability related considerations may be applied to a selected remedy to enhance environmental



protections consistent with recent green remediation guidance. A cost-effectiveness evaluation is not a requirement for a feasibility study but rather is considered for selecting a remedy.

As noted in the 2016 Greener Cleanup Memo, EPA uses the CERCLA process. The portions of a sustainability study may or may not fit within the nine-criterion remedy evaluation framework. EPA is committed to consider activities that may minimize the environmental footprint of the response. EPA noted in the Greener Cleanup Memo:

- *“The decision document should present the specific activities’ basis, including a concise discussion of how the greener cleanup activities will reduce the environmental footprint. Consistent with the NCP, considerations raised by other criteria cannot supplant 40 CFR 300.430 (9)(iii)’s two threshold criteria (protect human health and the environment and comply with applicable or relevant and appropriate requirements (ARARs) unless a waiver is justified.) EPA does not have to select the alternative with the minimum environmental footprint. Rather, project managers and other decision-makers should consider greener cleanup activities in the context of a complete balancing criteria analysis for evaluating alternatives after determining that the alternative meets the threshold criteria of protectiveness and compliance with ARARs.”*

EPA acknowledges that remedial actions should incorporate greener cleanup activities wherever possible. These measures may include best management practices to reduce emissions of greenhouse gases and reduce emissions and/or exposure to pollutants such as diesel particulates, nitrous oxides, and sulfur oxides during implementation of the remedy. As described in Section 4.2.2.5 of the feasibility study report (USEPA 2016b), a green remediation plan will be required during remedial design, consistent with the EPA Region 10 *Clean and Green Policy*. An outline for the plan is provided in Appendix M of the feasibility study report. As noted above, EPA acknowledges the need to incorporate sustainability measures.

The four main goals identified by ExxonMobil in its *Path Forward for a Sustainable Remedy at Portland Harbor Superfund Site* include the following topics. For further responses to comments for each of these, see the referenced sections of this responsiveness summary:

- Reduce the uncertainty in exposure assumptions (Section 2.19.3)
- Improve stakeholder buy-in (Section 2.28 and 2.36)
- Validate the site conceptual model (Sections 2.12 and 2.21)
- Allow time for source control to be verified and equilibrium background levels to be established (Section 2.17)

## 2.16 Monitored Natural Recovery

### 2.16.1 The Proposed Plan Relies Too Heavily on MNR

#### Comment Summary

A total of 324 comments were received that spoke to this topic. Hundreds of comment postcards were received that followed a format with four or five talking points.

The most commonly seen form comments include:

- “The plan relies mostly on “Monitored Natural Recovery” which leaves polluted material in the river and simply monitors it over time”
- “The draft plan contains far too much MNR.”
- “The draft cleanup plan relies too much on “monitored natural recovery,” a “do nothing” strategy that leaves pollution in the river in the hopes that it will either be covered over or flushed downstream.”
- “Monitored natural recovery, with or without enhancement has not been shown to be effective and therefore EPA needs to reduce its use and include provisions in the Record of Decision for contingency actions if monitoring data indicate unsatisfactory performance results.”

Other representative personal comments include:

- “The 1,876 acres of “monitored natural recovery” will still contain PCBs, dioxins, and furans that “stay in the environment for a long time,” according to EPA’s proposal (page 3).”
- “I don’t understand the logic of natural remediation when most of the toxics have been in place since WWII. That is by my calculations nearly three quarters of a century, only slightly older than I am. One would think that if the PCBs and dioxin were amenable to resolving by leaving them alone, they would be of no consequence.”
- “I think the plan relies too much on “monitored natural recovery.” A wait-and-see approach has not been working since heyday of river contamination in the 20th century; and it won’t work any more quickly now. Given the ongoing disturbance of sediments by ocean-going shipping, the contaminants continue to emerge into our river. This wait-and-see, do-nothing approach is inadequate and will make all of us liable to the spread of contaminants downstream, into the Columbia River, and thence into the Pacific Ocean. This must not happen. The problems with “monitored natural recovery” are thrown into high relief when we consider the issue of who would be doing the monitoring 100 or 200 or 300 years from now. The toxins will still be toxic; will there be any responsible party present to monitor the recovery and upgrade the practices as necessary in case “monitored natural recovery” proves ineffective? Better to clean it up now, while we have the capacity to do so, and be done with it so subsequent generations are not faced with challenges they may not be able to meet.”
- “Expecting nature to fix 86 percent of the river without intervention is a joke.”
- “EPA and Lower Willamette Group found that PCB’s are by far the most hazardous and the most widespread problem of the chemicals found to be in Portland Harbor and present for forty years. For over fifty years, dioxins in the form of Agent Orange and other herbicides were discharged and remain in the river. PAH’s and other oil based chemicals have been in Portland Harbor for over eighty years. It was in the 1930’s that the gas prepared coke was poured into Portland Harbor. The investigating and testing has taken place in the last twenty years demonstrating natural recovery has done little or nothing to remove them or prevent access to them therefore sufficient removal as proposed in the Alternative G should first and foremost be considered the best cleanup plan. These chemicals, left in the river continue pose health threats to humans and

wildlife continuing into the future for generations. In every level or Alternative suggested by EPA methods such as capping allows the contamination to be left in the river.”

- “The concept of monitored recovery is much too passive and basically leaves pollution where it is hoping that there won't be problems in the future. We don't really know what problems have already been caused, yet, it is crystal clear that the pollutants are very toxic to the environment. The plan over-all, relies on letting the pollutants stay where they are while allowing the river to serve as a toxic waste dump.”
- “Clean up methods should not leave persistent contaminants in or adjacent to the Willamette River. Clean up should include source control, include river sources. For the clean up to be considered complete, fish from the Willamette River should be safe for human consumptions at a rate of for greater then 8 oz. of fish per month. Please establish an action plan to limit contaminant spelling during sediment dredging. Please ensure that financial tools are in place in the event of recontamination.”

### **EPA Response**

MNR works when sediments transported from upstream into the Site are cleaner than those that exist at the Site. Natural recovery is likely to occur the fastest in depositional environments after source control actions and active remediation of higher concentration sediment have been completed. During natural recovery, deposition and mixing of cleaner sediments with the sediment bed results in lower surface sediment concentrations at the Site. Additionally, some contaminants degrade to lower, less problematic levels over time. Since recovery is dependent on the deposition and mixing of clean sediment with contaminated sediment, nearby sources of contamination can hinder natural recovery processes. That is one reason that EPA's proposed cleanup plan addresses the high concentration sediments and contaminated groundwater source areas.

The Willamette River is transitional, meaning that sediments move around. Deposition rates at the Site have been estimated based on a series of bathymetric surveys conducted between 2002 and 2009. Other lines of evidence that indicate deposition is occurring include grain size analysis and subsurface to surface sediment concentration ratios. Deposition of sediments occurs in the majority of the river during some point of the year. In other parts of the year, such as during periods of high flow, erosional conditions occur. Erosion also occurs in areas subject to wind- and wake-generated waves such as in nearshore areas. Boat propellers can also cause the sediment to move. Site conditions are conducive for MNR when contaminant concentrations are low and cover diffuse areas (USEPA 2005). These low contaminant concentration areas addressed by MNR for the selected remedy cover approximately 82 percent of the Site. MNR is less appropriate in areas of high concentrations and will occur slower in areas where deposition is infrequent. EPA reviewed the evidence provided in the feasibility study and concluded that MNR is likely to reduce surface sediment concentrations in the low-contamination areas that will remain following active remediation.

MNR requires regular monitoring of sediment, surface water, and biota tissue to assess trajectories toward reaching cleanup goals on a planned timeline. If, based on this monitoring, MNR is not working well or fast enough to meet these trajectories, additional actions may be required to meet the cleanup levels. Any additional action taken will depend on the reason that MNR is not working. If it is determined that there is a previously unknown or new source of contamination, that source would need to be identified and addressed. If MNR is not working as expected due to river conditions, the cleanup plan may need to be amended to require additional remedial action such as dredging or capping.

## 2.16.2 Consider Impacts on the Columbia River from Use of MNR

### Comment Summary

Two comments were received that addressed the potential for impacts to the Columbia River from MNR use at the Site. The comments were from the Portland Audubon Society and stated:

1. EPA should carefully assess and describe potential impacts to the Columbia River resulting from its clean-up strategy. EPA relies on Monitored Natural Recovery across 86 percent of the Site. MNR depends upon a combination of deposition of clean sediment on top of contaminated sediment and dispersal downstream. The feasibility study report and proposed plan fail to characterize how much contaminated sediment is likely to get flushed downstream into the Columbia. While the Willamette will benefit from this strategy over time, the Columbia will pay the price. Notably, the areas directly downriver of the confluence include important Wildlife Areas such as the Sauvie Island Wildlife Area and the Ridgefield National Wildlife Refuge. They also include heavily used public beaches on Sauvie Island. Finally, they include potential NRDA mitigation sites such as the Alder Creek Site that has been developed by Wildlands at the southern tip of Sauvie Island.

EPA's Report, Columbia River Basin: State of the River Report for Toxics 2009, notes that EPA joined other state, federal tribal, local and non-profit partners to form the Columbia River Toxics Reduction Working Group in 2005 with the goal of "reducing toxics in the Columbia River Basin and prevent further contamination." (EPA Columbia River Basin Toxics Report at page 1).

It appears to us that EPA is sacrificing the health of the Columbia River in order to improve the health of the Willamette River by selecting Alternative I, which depends heavily on MNR rather than more environmental protective alternatives that rely more heavily on dredging. In order to meet important toxic reduction objectives on both rivers, EPA needs to evaluate the relative impacts of all alternatives on the Columbia River and incorporate the information into their alternative selection process. EPA should provide clear characterization of how the clean-up plan and specifically MNR is likely to impact toxic loads on the Columbia River, whether that will provide increased risk to humans or wildlife using natural areas and public areas near the confluence, increase risks to humans consuming fish on the Columbia, and how it might impact treaty rights along the Columbia River.

2. EPA should assess the risks presented by previously dredged materials that were removed from Portland Harbor and determine whether current disposal situations are sufficient to protect human and environmental health. For example, Portland Harbor Dredge spoils have been placed on West Hayden Island under the State's "Beneficial Use Policy" based on the incorrect assumption that the Site would be paved over and developed within 5 years. EPA should include in the clean-up plan, feasibility study report, and ROD a review of all contaminated materials that have been removed from Portland Harbor since it was listed under CERCLA, including their current location and whether the disposal scenario is sufficient to meet the standards established to protect public and environmental safety set out in the feasibility study report, proposed plan, and ROD. Sites that are not sufficient to meet the goals should have their own clean-up requirements incorporated into the plan. It is deeply disconcerting that EPA has allowed so much contaminated material to be redistributed outside of Portland Harbor prior to adopting a remedy and ROD, and we believe that in doing so, EPA has potentially distributed

toxic materials that pose a risk to people and wildlife over a far greater geographic area than was originally contaminated.

### **EPA Response**

Please refer to responses to comments in Sections 2.16.1, 2.16.3, and 2.2.102 of this document, as well as ROD Section 9, 11, 12.8, 14.2.7, 14.2.10, and 14.4 regarding reduction of the reliance of the selected remedy on MNR, and the overall monitoring approach to verify that contaminant loading to the Columbia River and Multnomah Channel is being reduced.

It should be noted that EPA likely will not support the placement of contaminated material dredged from the area subject to this ROD nor the downtown reach in the Columbia River, if it exceeds human health PRGs or any of the ecological PRGs for bioaccumulation or other relevant exposure scenarios that would apply to unconfined in-river disposal. EPA will now review Clean Water Act § 404 permits in detail within and in some cases upstream of the Site to ensure that such work is consistent with the ROD.

### **2.16.3 MNR Mechanisms and Performance Are Not Understood**

#### **Comment Summary**

Numerous comments were received relating to the performance of MNR as a technology at the Site. One commenter noted that the dynamics of sediment surface chemistry also have a direct effect on the calculation of RALs and evaluations of natural recovery and that these time-dependent RALs and their linkage to natural recovery estimates are one of the key characteristics of the selected remedy (i.e., they define where active remediation will take place).

Several commenters noted that a hydrodynamic sediment transport model should be used to evaluate natural recovery processes and support remedial decision making. It was noted that can tie together snap shots in time and reproduce underlying processes. It was also noted that the use of numerical fate and transport models is supported by EPA guidance. Finally, it was noted that without a model, the lines of evidence based on only limited empirical data result in a significant overdesign to compensate for uncertainties. Without a model, it is difficult to understand the causes of the changes in condition identified by future monitoring. Not using a model in a complex system like the Portland Harbor Site is directly contrary to current professional best practices.

One commenter stated that MNR presents several advantages because it is less invasive and more cost-effective and sustainable than other remedial alternatives. MNR, for example, requires less construction and infrastructure than other treatment options, and thus is usually much less disruptive of communities than active remedies such as dredging or in-situ capping, and it results in no contaminated materials being transported through communities.

Two commenters stated that heavy reliance on MNR as part of the site remedy was not supported by the science and that the historic record shows, contaminated sediments continue to remain exposed decades after the contamination originated. The commenters stated many of the contaminants found in Portland Harbor (including PCBs, heavy metals, dioxins, and furans) are extremely slow to degrade and therefore MNR is not an appropriate remedy to address these contaminants. Relying on MNR across such a large percentage of the Superfund Area will result in continued exposures of humans and wildlife to contaminants, recontamination of areas that have been decontaminated, and increased contamination of the Columbia River downstream from the Superfund Site.

One commenter noted that although there is evidence to suggest that over time clean sediment from upriver will deposit on the river bottom covering up contaminated sediments, the potential for exposure through bioturbation, earthquakes, floods and propeller wash remains. The commenter also noted the Willamette River does not offer the correct natural conditions to favor effective use of MNR, and should MNR be a component of the site remedy, monitoring should be conducted annually to ensure progress is acceptable and contingency plans should be included in the ROD for further action if progress is not satisfactory. Finally, one commenter questioned what exists showing MNR to be sufficient for remediation of the majority of the Site, and how was this natural recovery modeled?

### **EPA Response**

MNR is a fundamental component of the remedy. As one commenter noted, the proposed plan (USEPA 2016c) properly employs MNR for a significant portion of the Site and is well supported by site conditions, the NCP, and EPA guidance. EPA's final remedy includes approximately 1,774 acres of MNR at the Site. As noted in many of the comments, a detailed hydrodynamic and sediment transport model was developed as part of the remedial investigation/feasibility study activities conducted by LWG.

EPA commissioned external expert reviews of this model, which identified several shortcomings that limit its usefulness in predicting sediment transport within the Site. A more detailed discussion of the limitations associated with the Portland Harbor hydrodynamic and sediment transport model is provided in Appendix H. An evaluation of predicted versus measured changes in sediment bed evaluation concluded that the Portland Harbor hydrodynamic and sediment transport model tends to over predict deposition, particularly in areas where erosion is measured. As a result, the utility of the contaminant fate and transport model developed for the Site to evaluate MNR is limited. In the feasibility study, outcomes greater than  $t=0$  were not quantitatively evaluated using the hydrodynamic and sediment transport model because the results are not quantitatively accurate and absolute or relative comparisons among quantitatively inaccurate outcomes, is not helpful. However, quantitative evaluations of empirical data (trends in sediment deposition and fish tissue), where available, were undertaken.

A number of commenters noted that many of the evaluations presented in the feasibility study report (USEPA 2016b) were based on data that are not representative of current conditions and that the evaluation did not consider recent sediment data collected throughout the Site by Kleinfelder and in Swan Island Lagoon by Geosyntec showing MNR is occurring. Other commenters stated that the feasibility study did not properly evaluate fish tissue data collected in 2002, 2007, 2011 and 2012 that show MNR is occurring.

Regarding the fish tissue data, EPA conducted an evaluation of fish tissue data collected in 2011 and 2012 and compared that to fish tissue data collected in 2007. EPA did not include fish tissue data collected in 2002 in the evaluation because the 2002 data were comprised of composite fish tissue samples from both sides of the river. While the 2002 data may be relevant for risk assessment purposes, it obscures known site/source signatures that are on one side of the river. The 2007 fish tissue data were comprised of composite fish tissue samples from one side of the river. The 2011 and 2012 fish tissue data were comprised of individual fish tissue samples collected from each side of the river. An evaluation of temporal trends (of any media) requires consistent collection methodology over the evaluated time period. As a result, the evaluation was limited to 2007, 2011, and 2012 results collected from specific reaches and specific sides of the river. The results of the evaluation showed that in all but two instances (RMs 4E and 7E), concentration declines were not statistically distinguishable from zero.



The Kleinfelder and Geosyntec sediment data sets may be further considered in remedial design. Newly collected data sets will be evaluated to update areas of the Site where remediation is warranted and assess whether any areas have already achieved sediment cleanup levels. As noted above, EPA considered multiple lines of evidence to evaluate the effectiveness of MNR and concluded that MNR would be an effective remedy for approximately 1,900 acres of the Site. EPA agrees that MNR presents several advantages because it is less invasive and more cost-effective and sustainable than other remedial alternatives. However, MNR alone is not expected to result in a remedy that is protective of human health and the environment. As a result, MNR has been paired with the active remediation of contaminated sediments through capping and/or dredging.

Some commenters questioned whether MNR is adequate to address metals and bioaccumulative chemicals that do not degrade appreciably in the environment and whether MNR was appropriate due to the continued exposures of humans and wildlife to contaminants, recontamination of areas that have been decontaminated, and increased contamination of the Columbia River downstream from the Superfund Site. The commenters also stated that the primary natural recovery process is deposition of cleaner material over the top of contaminated sediments and, as a result anthropogenic and natural processes such as flood events and propeller wash may erode newly deposited sediments thus limiting the effectiveness of MNR. EPA recognizes the uncertainty associated with the long-term effectiveness and will rely on a robust long-term monitoring program to confirm the effectiveness of MNR.

Overall, EPA expects that some natural recovery of sediment contaminant concentrations may have occurred at the Site since the remedial investigation/feasibility study database was developed, and that it will continue to occur, especially following completion of source control efforts and remediation of the most heavily contaminated sediment bed. The process for implementing remedial action is designed to directly accommodate this recovery. Prior to any active remediation, the sediment bed will be re-sampled to update the active remediation footprint, and incorporate any natural recovery that has occurred. The updated remedial footprint, using contemporary surface and subsurface sediment data, will be used to apply the decision tree.

## 2.17 Monitoring and Contingency Actions

### 2.17.1 Provide Timelines and Metrics for Success

#### Comment Summary

A total of 1,333 comments were received on this topic. Almost all (98 percent) were received as form emails that said:

- "EPA should set much clearer timelines and metrics for success including setting an explicit date by which Portland Harbor specific fish consumption advisories will be lifted."

The remaining comments were personal and include:

- "Set metrics-based benchmarks for water quality improvement in the lower Columbia River."
- "Include a clear plan for monitoring the success of cleanup activities with a contingency cleanup plan if natural remediation proves insufficient towards meeting cleanup goals."
- "Monitoring is an invaluable evaluation tool that can be used to assess the completeness of remedy implementation, remedy effectiveness, and the need for contingency actions. The proposed cleanup plan does not clearly define how site progress will be evaluated and how

compliance with regulatory requirements and cleanup objectives will be measured. Without clearly outlining compliance criteria or metrics, a meaningful assessment of the project progress cannot occur. In addition, if the cleanup does not proceed as expected, there is no contingency plan in place to ensure protectiveness for human health and the environment. The ROD must include more adequate detail on how progress and compliance will be measured. More clear and specific information is needed on interim and long-term metrics, how and where they will be monitored or evaluated, timelines, and contingencies.”

- “The National Remedy Review Board made it pretty clear that it expects the US EPA to set multiple clear deadlines, including a deadline for lifting the Fish Consumption Advisory, in this cleanup. How are people expected to weigh the effectiveness of various alternatives if a clear date is not set for lifting the Advisory? The lack of a clear timeline to lift the Fish Consumption Advisory will also make it difficult to hold EPA or PRPs accountable for implementing the cleanup plan in an effective matter, and meeting the specific objective included in the ROD. At the most basic level, this cleanup is about the ability for people to consume resident fish without increasing their cancer risk! EPA should select an Alternative that gets us to a specific date for lifting the Fish Consumption Advisory.”
- “In a data-driven economy, EPA must set clearer timelines and metrics for clean-up success. If we can't measure it, then it didn't happen.”
- “To fully evaluate the proposed action, the plan should, at a minimum, include:
  - A schedule of environmental sampling, accounting for seasonal and environmental variation, to ensure that the expected variance in response variables is accounted for and can be incorporated into the final analysis;
  - The environmental variables to be monitored and the methodology to be used;
  - A statistical design to monitor if actual changes in the chosen metrics, outside of natural variation, are occurring within the Site. There are numerous designs applicable, however, the BACI (Before-After-Control-Impact) may be the most useful when considering both the MNR and ENR sites;
  - A definition of “recovery” or “failure” that incorporates changes over time in the monitored environmental variables. This definition should also include a proposed timeline in which these desired outcomes would be observed if the plan is working, and;
  - A defined timeline and response if MNR sites are not recovering as expected or desired, wherein they could be converted to ENR sites to meet the goals of the Superfund proposed plan within the proposed timeline.”

### **EPA Response**

Timelines and metrics for many components of the cleanup will be further developed in the remedial design, after issuance of the ROD. Prior to remedy implementation, sampling will be conducted to establish baseline conditions for sediment, surface water, pore water, biota, fish tissue, and river banks. Sampling of these will continue through construction of the remedy, after construction is complete and in the long term. Sampling locations and frequency will be determined during design and in the future in



monitoring plans. It is premature to make those determinations in this ROD since the locations and frequency will depend on the purpose of the monitoring. Different needs for monitoring will require different sampling and monitoring plans.

EPA expects that fish consumption advisories may be less restrictive once the cleanup has been completed. However, since the relationship between sediment and fish tissue is not well understood, it is premature to establish a date for when this may occur. Further, fish consumption advisories likely will not be lifted completely due to larger watershed issues (such as mercury) and also because sediment concentrations of PCBs in “clean” areas upstream of Portland Harbor Site are higher than the acceptable risk range based on conservative risk estimates. Over time, it is expected that implementation of the selected remedy, source control actions on the part of DEQ in the Portland Harbor and watershed-wide (including upstream areas) actions will reduce or eliminate the need for fish consumption advisories. However, at this time it is not possible to determine a specific date when this will occur. Please see Section 2.3 of this responsiveness summary for more information about fish consumption advisories.

### 2.17.2 Ensure Fish Tissue Monitoring Is Conducted

#### Comment Summary

Twenty-nine comments were received that requested that contamination in fish was monitored. Roughly 75 percent were form comments received by email that stated:

- “The general goals and design characteristics/requirements of the fish tissue monitoring need to be specifically listed in the R.O.D.”

The remaining comments were similar in content and include:

- “In addition to other fish, lamprey must be included in the monitoring. Lamprey are a critical component in the local ecosystem and to native diets and culture. Peoples who depend on lamprey are especially susceptible to heavy metals that are not cleaned from the CERCLA sites, as heavy metals are bioaccumulated in fatty tissues and lamprey are highly fatty. Exclusion of lamprey monitoring and reporting is a direct dismissal of the local indigenous peoples and their large presence in the Portland region.”
- “A monitoring program should begin as soon as possible to establish a baseline monitoring levels of contamination in fish tissue is a must to determine benefits of biota and effectiveness of remediation overtime. We want monitoring of small/young/large mature fish (Carp, Sturgeon/Bass to see that they exhibit less contaminates over the phase of the cleanup. We want general goals and design characteristics/requirements of fish tissue monitoring listed record of decisions. We want to ensure all sampling and analytic methods are consistent throughout the duration of monitoring.”
- “Fish contamination needs to be monitored to assess the changes with time and over space, beginning with a monitoring program to establish a clear baseline.”
- “Testing of fish tissue needs to begin and continue throughout the construction phase A baseline for fish tissue contaminant levels needs to be established as soon as possible and continue throughout the construction process so the effects of the remedies can be reflected in the testing. The method of testing should be consistent between agencies and PRPS and should be established in the ROD so results can be compared over time to measure remedy success or failure.”

## EPA Response

EPA agrees that monitoring is a crucial part of the cleanup plan. Fish tissue sampling began in the remedial investigation and will continue through implementation and monitoring of the remedy. A monitoring plan will be developed after the ROD during remedial design and will outline the sampling, including fish tissue sampling, to be conducted to establish baseline concentrations. Additionally, it will include the monitoring to be conducted during and following construction to evaluate how the cleanup is achieving the cleanup levels, targets, and remedial action objectives.

The monitoring plan will include details of the fish sampling such as species, numbers, and size of fish. Monitoring will focus on resident fish that pose the greatest risk to human health, likely to include carp, bass, and catfish. Monitoring may also include tracking resident species to get a greater understanding of where their exposure occurs within the Site.

Lamprey and other fish that migrate through the Site, such as salmon, are not good indicators of reductions in tissue concentrations from contamination at the Site or success of the cleanup because these fish spend time away from the Site. However, impacts to migrating fish from the cleanup activities will be assessed and addressed through mitigation measures to minimize adverse impacts to these species. The monitoring plan will include a detailed description of the methods to be used in accordance with EPA's guidelines for establishing and meeting data quality objectives. It will be submitted to the National Marine Fisheries Service for review of the adequacy of sampling design and procedures for safe fish handling during construction to prevent injury to listed species.

### 2.17.3 Ensure In-River Monitoring Before, During, and After Remediation

#### Comment Summary

A total of 746 comments were received on this topic, and roughly 97 percent were in the form of a multi-bullet postcard having one bullet that read:

- "Include ongoing monitoring and cleanup upriver and downriver from the Site."

The remaining comments were personal comments that generally echoed that sentiment. Commenters also requested that monitoring begin immediately and last past cleanup and that there be a plan for monitoring that includes soil, air, water, and fish contamination. The use of buoys was also suggested.

Representative comments include:

- "Monitoring of the superfund site, all 11 miles, needs to start now and continue past the completion of the cleanup. They need to implement habitat restoration and that also should be monitored for years after to make sure that the area stays viable and animals and plants continue to live there."
- "EPA's proposed plan does not include a rigorous monitoring plan, nor alternatives that would be required if the monitoring indicates that the cleanup is not proceeding as planned. EPA must require long-term financial assurance that the monitoring will occur and the public will have access to the monitoring data over at least the next 20-30 years. Further, the cleanup plan must include mid-course corrections so we don't need to waste any further time studying options."

- “Collect baseline data on soil, air, water, and fish contamination as soon as possible. Require independent monitoring throughout the remediation period until clean, healthy levels are achieved.”
- “I would also encourage EPA to use water quality monitoring data buoys as a form of providing live information regarding water quality for EPA and Oregon DEQ for contractor compliance with permitting agencies.”

### **EPA Response**

Monitoring is a crucial part of EPA’s cleanup plan. Significant remedial design sampling to determine existing baseline levels of contamination and to design the cleanup will be conducted before the construction begins. Ongoing monitoring will be conducted to track the performance of the cleanup toward achieving the remedial action objectives and cleanup levels, and 5-year reviews will be conducted of the cleanup as required by CERCLA. Baseline sampling will include areas upstream and downstream of the Site.

DEQ has lead responsibility for identifying and controlling upland and upriver sources of contamination that may impact the river. Under this program, DEQ is addressing contamination in upland areas that include upland and in-river sources along the downtown reach of the river and contaminated groundwater. As sources further upriver are identified, EPA assumes those upriver sources will be addressed as well. Similarly, DEQ would address downriver sources of contamination to make sure they are not contributing to contaminant loading to the Columbia River.

During active remediation activities (such as dredging, capping, placement of clean sediment for ENR) there will be monitoring in the construction area as appropriate. The cleanup activities performed in the river will need to comply with water quality standards near where the activity is taking place. Air samples may be collected to make sure contaminants do not exceed worker health-based concentration levels in air. If contaminant levels exceed water or air quality standards, the work will be modified, and additional controls will be taken as needed. In addition, collection of sediment, surface water, pore water, and fish tissue samples will be collected as specified in a monitoring plan developed after the ROD.

Following construction, there will be long-term monitoring until the cleanup levels are achieved and beyond. The long-term monitoring program will include sediment, river banks, surface water, pore water, and fish tissue samples from upstream, within, and downstream of the Site. Passive samplers may also be used to supplement fish tissue data as a surrogate for fish tissue. Data on contaminant levels will be used for multiple purposes, such as to determine if natural recovery is taking place as expected or if any additional actions are required to achieve the cleanup levels on the planned timeline, track if fish tissue concentrations are decreasing, and monitor if the caps are effectively containing the contaminated sediment and/or groundwater. Data on contaminant levels in fish tissue will also help inform when and how the fish consumption advisory or other restrictions could be relaxed.

Long-term monitoring will also include regular inspections of the whole remedy, including sediment caps, to make sure they are effectively containing migration of COCs, in the proper place, have the required thickness and type of capping material, are achieving RAOs such as pore water standards, and are functioning as intended. Inspections may be required after natural events, such as earthquakes or floods, and manmade events such as boat collisions or violations of land use restrictions. Monitoring and maintenance of the caps would be required in perpetuity.

## 2.17.4 Require Quality of Life Monitoring throughout Remediation

### Comment Summary

Forty-seven comments were received requesting “quality of life monitoring.” About 45 percent were received as form emails and stated:

- “EPA needs to require installation of environmental and quality of life monitoring during the construction phase, with the PRP’s covering the cost. This provision needs to be a required element and clearly stated.”

Most of the remaining comments were personal comments that often went into more detail, stating that independent air, water, light, and noise monitoring should be conducted during cleanup to protect impacted neighborhoods. Requests related to this monitoring included expedited laboratory turnaround times for results (funded by polluters), results available to the public quickly (perhaps on a website), and for the requirement to be documented in the ROD.

Representative comments include:

- “During the time of active cleanup air and water quality monitoring is necessary to ensure health of workers and adjacent neighborhoods or any neighborhoods affected by construction.”
- “Monitoring of air, water, odor and noise, daily, used while in construction phase with quick testing turnaround and adjustments, particularly when near affected communities for quality of life.”
- “Livability and Environmental monitoring. Monitoring of both air and water needs to occur at regular intervals downriver of construction work including into the Multnomah Channel, Columbia River to keep excess contamination in check. Care should be taken especially to monitor PCB release into the air. An action plan should be in place to immediately address excess contamination of air or water. The ROD should include a requirement for monitoring of the environment as well as regular EPA reports online or by other easily accessible means to the community about specific activities during construction, as well as air and water monitoring results. Laboratory turnaround times for results should be as expedient as possible and funded by polluters. Monitoring of lights, odors, noise and all other possible issues that could affect livability of surrounding residential neighbors should also be required in the ROD. Neighbors should have an easy means of contacting EPA such as an 800 number, if livability problems need to be reported.”
- “I would like independent air, water, light, and noise monitoring during cleanup - protecting impacted neighborhoods.”
- “Monitor air, water, odor and noise, daily, while in construction phase with quick testing turnaround and adjustments, particularly when near affected communities for quality of life. Twenty-four (24) hour dredging could be acceptable with those caveats.”

### EPA Response

The ROD describes the final selected remedy and the underlying information that supports the decision. Specific details of how the selected remedy will be implemented are often not included in the ROD but are developed in the remedial design which begins after the ROD is signed. EPA will develop a

monitoring program during the remedial design phase and will consider public input as the plan is being developed. A comprehensive monitoring program to establish the baseline for sediment, fish tissue, surface water, and (as needed) air will be conducted at the beginning of remedial design. Concerns about air quality, noise, odor, light, and other potential community impacts will also be considered and addressed to the extent possible. Exceedances of health-based standards may result in additional controls being put in place so that construction impacts are mitigated to the extent practicable. EPA will provide contact information for community members to raise complaints or concerns during construction.

### 2.17.5 Ensure Costs for Monitoring in Perpetuity Are Included

#### Comment Summary

Thirty-five comments were received on this topic. Twenty comments were included in form emails and stated:

- “This remedy will have features that must be maintained in perpetuity and thus analyses need to account for a longer time frame in estimating costs and benefits.”

Several other comments noted that the costs needed to be estimated over a period of at least 100 years. Other comments expanded on this theme and included:

- “Since many of the pollutants (PCB’s, dioxans/furans, DDT’s, and metals) are known to resist degradation by natural processes the ROD needs to require and include the costs of monitoring pollution levels and solving problems for a greatly extended period at the expense of the polluters.”
- “We must utilize capping technology, where clean materials are put over contaminated sediments to hold them in place only where it is technically feasible, and where it will never impede navigation. We must also realize that capping has costs for the long-term with perpetual monitoring that adds to the cost of such measures.”
- “We must realize that capping has costs for the long-term with perpetual monitoring that adds to the cost of such measures.”
- “Time frame for cleanup needs to be 100 yrs. Minimum. When EPA suggests that the timeframe, the usual practice for estimating a remedy’s long-term cost is to assume a 30-year period of analysis but this is inadequate. In the late 1970’s, Portland citizens believed that the Willamette had been finally cleaned up. Since then, the city spent 14 years to correct that inadequate assumption by building the “Big Pipe” costing \$1.5 billion dollars. Thirty years is an inadequate time allotment unless repeating the Superfund process seems satisfactory. In addition, with a minimum of 14 areas of capping to monitor and maintain, thirty years of sustenance seems very insufficient.”
- “Long term effectiveness and permanence need careful consideration. Given the proposed plan’s reliance on monitored or enhanced natural recovery, the time frame of monitoring needs to be extended out beyond 100 years or more. Many of the toxins in the river show little evidence of degrading in the many years they have already been in the river. If they are to be controlled in perpetuity by capping or similar means, provisions need to be made to maintain the integrity of these barriers as long as the toxins remain active.”

- “Time frame for estimated costs needs to be longer, at least 100 years, recognizing that the remedy includes monitoring in perpetuity.”
- “Because this cleanup will have features that must be maintained for decades to come, the analyses and monitoring plans need to account for a longer timeframe in estimating costs and benefits than is currently being contemplated.”

### **EPA Response**

EPA recognizes the implications of long-term monitoring on the overall cost of the remedial alternatives. The alternatives retained for detailed analysis all have sediment containment and capping components that will require perpetual maintenance and monitoring. However, evaluation of long durations of maintenance and monitoring is generally not necessary for comparative evaluation between alternatives, because of the effects of cost discounting in later years under present value analysis. The period of analysis for the feasibility study report (USEPA 2016b) is assumed to be 30 years because the increase of present value cost due to small periodic expenditures for maintenance and monitoring after 30 years is minimal relative to the accuracy range of the estimates.

As part of the sensitivity analysis in the feasibility study report (Appendix N), a timeframe of 100 years was also evaluated to assess the costs of long-term monitoring and maintaining the caps beyond the 30-year period used to compare costs between alternatives. As illustrated in Tables N-1 and Figures N-1a through N-1f, while the non-discounted costs for each alternative increase as the period of analysis increases from 30 years to 100 years, the present value (discounted) cost increase is very minimal after year 30.

## **2.17.6 Address Issues with Site-Specific Background**

### **Comment Summary**

Comments pertaining to the calculation and use of background concentrations were submitted by 10 local businesses, many of which are PRPs. The individual comments are too long to repeat verbatim here, but the specific issues are captured below:

- Sediment background dataset is very limited, collected over too many years, and should include data from the downtown Portland reach.
- Background data were incorrectly discarded as outliers and background concentrations were incorrectly calculated because the tests to identify outliers assumed a normal distribution.
- Background sediment concentrations should be expressed as a range and should consider a sediment equilibrium value.
- Accurate characterization of site-specific background is needed, and EPA’s evaluation has resulted in unrealistically low background values such that PRGs are less than concentrations in stormwater and other ongoing upstream and upland sources.
- Background concentrations need to be developed for surface water and fish tissue.
- Background concentrations should be developed for all COCs.
- Background concentrations need to be reevaluated prior to issuing the ROD so the selected remedy is “achievable.”



## EPA Response

Proper development and use of a site-specific background dataset is an important element in the remedial alternatives evaluated for the feasibility study. In consultation with EPA, DEQ, and the tribes, LWG selected the reference area for determining background sediment concentrations. As described in Section 7.2 of the remedial investigation report (USEPA 2016a), this area is comprised of the upriver reach of the lower Willamette River, extending from the upstream end of Ross Island (just upstream of the downtown Portland area) to approximately 2.5 miles above Willamette Falls (RM 15.3 to 28.4). A total of 48 sediment samples in the background reference area were analyzed for PCBs as Aroclors and 33 sediment samples were analyzed for PCBs as congeners. Of these PCB samples, four were identified as outliers and removed from the data set. Sample counts for the remaining COCs analyzed ranged from 48 to 71 sediment samples. The data set primarily contains data from five investigations performed from 2004 to 2007, and one investigation performed in 1999. Although the data were collected over several years, this span of time is not unusual for large Superfund sites consisting of multiple investigations.

Sediment data from the downtown Portland reach of the lower Willamette River were not included in the background dataset. One reason is that reports submitted to EPA by LWG noted that the Site is subject to tidal influence, which results in a flow reversal of the lower Willamette River through at least the downtown reach. Site-related sources have also been identified in the downtown reach such sediment sample results from this reach of the Willamette River are not representative of non-site related data. A background reference area upstream of the downtown reach was selected so that the background data are more representative of the entire Willamette River watershed, and not an adjacent area with a greater potential of in-river and upland sources.

To identify and address outliers, EPA used an approach that is consistent with the recommendations of the ProUCL Version 5.0.00 User Guide and Technical Manual. The ProUCL User Guide and Technical Manual directly discuss the issue of identifying and addressing outliers and provide EPA's most recent, comprehensive discussion of this issue. These documents recommend the use of statistical tests such as: (a) Rosner's and Dixon's tests to identify outliers; (b) the use of graphical displays, including box plots and Q-Q Plots, to compare against and along with the results of the statistical tests; (c) the consideration of historical and current site and regional information to identify suspected outliers (extreme values coming from the far tails of the data); and (d) the performance of decision-making statistical computations with and without the suspected outliers before decisions to exclude data/datum as outliers are made. Further justification for this approach is provided in EPA's dispute decision letter to LWG dated March 24, 2015 (USEPA 2016d) [AR Doc #500011627] (Appendix A of this document).

Using the recommended approach in the ProUCL guidance, EPA compared the results of statistical outlier tests performed by ProUCL Version 5.0.00 with the visual observations of outliers and found that the two approaches generally found the same outliers. For example, the statistical approach identified five outliers from the PCB Aroclor dataset and the visual approach identified four. In addition, EPA used SCOUT to conduct a more robust statistical test of the PCB Aroclor data, and this approach identified 8 potential outliers, four extreme and four intermediate, and after reviewing the results of this analysis, EPA concluded that only the four extreme values were outliers. Thus, EPA selected fewer outliers than were identified in the statistical tests it employed. EPA also considered the effects of removing successive outliers for PCBs as Aroclors, PCBs as congeners and DDx. Before a decision to exclude datum as outliers, EPA compared statistical endpoints of datasets which included and excluded the suspected outliers.

Based on these evaluations, EPA removed four outliers from the Aroclor data set, and then corrected the upper prediction limit and upper confidence limit for organic carbon content using a methodology developed by LWG and approved by EPA. With the exception of performing the SCOUT analysis, EPA performed the same analysis for all indicator contaminants. EPA excluded data for background determinations for the following indicator contaminants: arsenic, total chlordane, DDx, BEHP, total PAHs, PCBs as Aroclors, PCB as congeners, Total PCDFs/PCDDs, and zinc.

EPA did not assume a normal distribution of data but instead, consistent with its guidance, removed outliers after appropriately analyzing the data. As recommended by the ProUCL Technical Guide, EPA used raw data to run outlier tests and initiated the ProUCL analysis without transforming the data. EPA then used ProUCL Version 5.0.00 to compute statistics and identify how well the data fit various distributions, such that EPA not only evaluated representations of data that were normally distributed but also evaluated other distributions identified by ProUCL. ProUCL is programmed to automatically model and graphically display the data to determine the appropriate distribution data and statistical methods for the selected distribution(s). EPA guidance generally cautions against using a lognormal distribution unless the data are only mildly skewed. In cases where the data are more than mildly skewed, the use of lognormal distributions tend to accommodate outliers and yield inflated or distorted values for upper confidence limits, upper prediction limits, and upper tolerance limits.

EPA selected single values for background concentrations and did not use as a range of concentrations to represent background concentrations as suggested by EVRAZ Inc. EPA recognizes that background concentrations are variable but a single value is needed for comparison purposes. EPA does endorse the concept of equilibrium, however, the necessary information (sediment trend data) is not available to conduct an equilibrium evaluation in the long-term. EPA has developed background concentrations consistent with EPA policy and guidance. EPA has further looked at the sediment traps deployed in the upriver reach, which corroborate with the values developed from the upriver sediment.

In response to commenters who stated that EPA's background evaluation resulted in unrealistically low background values, such that PRGs are less than concentrations in stormwater and other ongoing upstream and upland sources, EPA followed the current guidance and procedures to select background concentrations applicable to the Site. To minimize the effect of recontamination and continue to reduce fish tissue concentrations after cleanup, EPA and DEQ are committed to controlling upstream and upland sources to reduce ongoing impacts to the Willamette River.

EPA did not develop background concentrations for surface water and fish tissue in the feasibility study report (USEPA 2016b) because there were insufficient data to statistically compute background concentrations. Further, since human health surface water PRGs are based primarily on ARARs, EPA would need to waive the ARAR, which means information would be needed to show that achieving the ARAR is technically impracticable, there is no such information at this time.

Neither the remedial investigation nor the 2016 feasibility study presented background concentrations for all COCs in sediment because the remedial investigation report concluded there were insufficient detections to determine background concentrations for 2,3,7,8-TCDD eq, aldrin, dieldrin, DDT, Lindane, and TBT. The exception is TPH-diesel in which a background concentration was calculated in the remedial investigation report, Appendix H, but was inadvertently omitted from Table 2.2-9 in the 2016 feasibility study report. The background concentration is 61 milligrams per kilogram, which would not change the selection of the PRG, which is 91 milligrams per kilogram, since the risk-based number is greater than background.



Based on careful analysis of available information, EPA believes that the sediment background concentrations selected are representative of the entire Willamette watershed, and the selected remedy is achievable. The selected remedy requires active cleanup to the RALs and then relies on ENR and MNR to further reduce contaminant concentrations to meet the cleanup levels. Post-construction monitoring will be conducted to evaluate the effectiveness of ENR and MNR and its ability to achieve remediation goals.

Additional information regarding EPA's position on the establishment of background concentrations is provided in EPA's March 24, 2015 Letter to Bob Wyatt of LWG, "Re: Dispute Decision Regarding Lower Willamette Group Dispute dated August 26, 2014" [AR Doc #500011627], EPA's position to LWG Dispute Issues 1g and 1h, and LSS Dispute Issues 8 and 11a (Appendix A of this document).

## 2.18 Overall Protection of Human Health and the Environment

### 2.18.1 The Preferred Alternative is Too Protective

#### Comment Summary

Comments on the overall protectiveness of the preferred alternative in the proposed plan were received from five commenters. Several commenters expressed concerns that the level of protectiveness is set too high without any scientifically defensible basis and that EPA is undermining the Oregon Health Authority's and Agency for Toxic Substance Disease Registry's definition of protectiveness (especially as it pertains to fish consumption advisories) with no "credible data." Several commenters stated this level of protectiveness is unobtainable due to upstream contamination and the surrounding urban environment. Some commenters sighted unreasonable fish consumption assumptions as the source of the excess protectiveness. Additionally, commenters were concerned that capping was considered less protective, the comprehensive benthic risk approach was "abandoned," and protectiveness was based on unsupported benthic risk.

Commenters suggested that Alternatives B, C, and D were unjustifiably eliminated, arguing several individual factors showed these alternatives to be similar to other alternatives. They also suggested natural recovery should be considered as part of the remedial action protectiveness for Alternatives B and D to boost the alternatives' overall protectiveness. Some suggested that since no alternatives completely addressed ecological risk, Alternative B benefits may exceed its disadvantages. The Swan Island Optimized Alternative was also referenced in several comment letters as having protectiveness equal to Alternative I for the Swan Island Lagoon. One commenter stated EPA did not provide the basis for whether the increased costs and risks (during transport) for the dredging and upland disposal associated with Alternatives E, F, G, and I are worth the environment benefit for those alternatives compared to Alternative B.

#### EPA Response

The NCP describes how alternatives should be developed in the feasibility study through the establishment of remedial action objectives and preliminary remediation goals that protect human health and the environment and defines what is generally protective risk levels (40 CFR 300.430(e)(2)). The NCP further describes how the detailed analysis of alternatives should be conducted. 40 CFR §300.430(e)(9). Regarding overall protection of human health and the environment, the NCP (40 CFR §300.430(e)(9)(iii)(A)) states "Overall protection of human health and the environment draws on the assessments conducted under other evaluation criteria, especially long-term effectiveness and permanence, short-term effectiveness, and compliance with ARARs." EPA's alternatives evaluation was consistent with the NCP and drew from these other criteria. While it is not the intention or desire to

"undermine" local agencies, the NCP defines what level of risk is protective and it is those standards that EPA must consider in making CERCLA remedy decisions.

Alternatives B and D were not "abandoned" due to factors outlined by the commenters. Assertions by commenters that alternatives were eliminated based on individual factors do not accurately represent the actual process. While those factors were considered, the final determination was based on a broad-based evaluation as discussed in LWG Dispute Issue 1a (Appendix A of this document). Due to the evaluation results discussed in the dispute response, it is not consistent with guidance to select Alternative B simply because no alternatives fully meet environmental protectiveness RAOs, at the completion of construction. We anticipate that the RAOs and cleanup levels, including the fish tissue levels will be achieved at the end of the cleanup. All alternatives exhibited different levels of certainty as to meeting the RAOs at the completion of the construction. All alternatives meet or fail to meet different RAOs to different extents with various levels of uncertainty. Alternative C was deemed to be too similar to Alternatives B and D, and so it was not retained for further evaluation.

Regarding the comment that EPA did not provide the basis for whether the increased costs and risks associated with Alternatives E, F, G, and I are worth the added protectiveness of those alternatives compared to Alternative B, the 2016 feasibility study report (USEPA 2016b) presents EPA's evaluation of each alternative. Although Alternative B would have the least impact to the community, the feasibility study states that due to the reliance on MNR and ICs, Alternative B does not meet interim targets established for risks and hazard indices in a reasonable timeframe. Alternative B, in conjunction with adequate upland and upriver source control measures, would not achieve numeric human health and aquatic life water quality criteria and drinking water MCLGs and MCLs. EPA's analysis also shows that Alternative B does not sufficiently reduce the load of contamination from sediment to surface water such that water quality ARARs could be achieved.

EPA did not quantify and evaluate natural recovery for alternates because natural recovery is a complex natural process that can be easily disrupted by uncontrollable environmental factors. As such, EPA sought to reduce the uncertainty surrounding natural recovery by relying on active remedial technologies to the extent feasible to increase the certainty that natural recovery will be effective and shorten the timeframe over which it is ostensibly being relied upon. Difficulties in estimating and relying on MNR are also discussed in the MNR Response.

EPA does not consider capping to diminish the protectiveness of any alternative. Capping was considered not to be effective in some areas based on site characteristics such as the need for maintenance dredging, anchoring or others. Capping also has associated long-term maintenance and monitoring costs, which can make it less cost effective, and depending on future use, potentially a less permanent cleanup technology in some areas. However, it is considered an effective remedial approach for many areas, which is why it is considered throughout much of the Site.

Several commenters expressed concerns that the use of benthic risk in association with protectiveness was not appropriate or technically based. EPA's response on this issue is addressed in LWG Dispute Issue 1b (Appendix A of this document). Some commenters questioned why the comprehensive benthic risk area was not used. EPA has responded to this comment in LWG Dispute Issue 1a (Appendix A of this document). The response to benthic risk (Section 2.34.1 of this responsiveness summary) can also be referenced for additional information.

As noted in the feasibility study report, interim targets for risks and hazard indices were used to evaluate the potential for achievement of PRGs in a reasonable time frame among other matrices. For RAO 5, the interim target is based on multiplying the RAO 5 PRG by an order of magnitude to account for further reductions due to MNR. In addition, the post-construction interim target for RAO 5 was set at a 50 percent reduction in the area posing unacceptable benthic risk because risks to the benthic community are based on a population level rather than individual level effect and is considered a target to which the benthic population, as a whole, can be stressed and still recover.

EPA notes that the protectiveness for the Swan Island “optimized remedial alternative” provided by the Swan Island group is similar with respect to the time to achieve protectiveness to that provided by the preferred remedy. The ROD outlines measures to provide flexibility, based on empirical data, in remedial design to evaluate which remedial technologies are appropriate in that area.

## 2.18.2 The Preferred Alternative is Not Protective Enough

### Comment Summary

Contrary to the argument that the Preferred Alternative was too protective, other commenters (Portland Audubon Society and the CAG) expressed concerns that the preferred alternative is not protective enough and failed to meet threshold criteria. Additionally, the commenters suggested that the preferred alternative would leave the rivers heavily contaminated for decades and sacrifice human and environmental health for low cost for PRPs. Commenters summarized and sighted RAOs not being met for all alternatives and ICs and MNR were called unproven approaches.

### EPA Response

After reviewing and considering public comments, EPA selected a remedy that addresses more contamination with dredging and capping (Alternative F Modified). EPA evaluated post construction reductions using SEDCAM Modeling results, which showed that the selected remedy is protective within a reasonable timeframe given the uncertainty in the model. See also Sections 2.1, 2.3, 2.7, and 2.31 of this responsiveness summary and LWG Dispute Issue 1h (Appendix A of this document).

ICs will be in place to protect human health which aligns with NCP guidance. Contrary to commenter assertions, ICs and MNR have been effectively used at numerous sites. Fish advisory ICs are discussed in detail in Section 2.28 of this responsiveness summary.

## 2.19 Long-term Effectiveness and Permanence

### 2.19.1 Long-term Effectiveness Was Not Properly Evaluated

#### Comment Summary

Multiple commenters suggested that EPA’s long-term effectiveness evaluation did not conform to CERCLA, NCP, and/or EPA guidance because it was not quantitative or detailed. They disagreed with the use of interim targets saying that they were contrary to guidance. Union Pacific asserted, “the record provides no basis for EPA to assume that one alternative will perform better than another with respect to meeting cleanup goals, ARARs, or interim targets within a ‘reasonable time frame.’” Over the long-term, LWG took issue with the evaluation indicating that Alternative B would not meet chemical-specific ARARs ‘in a reasonable timeframe,’ sighting that “... EPA has no quantitative method to assess the long-term outcomes of the alternatives.” Commenters also asked EPA to clarify what is the referenced “reasonable timeframe” to achieve cleanup levels. Additionally, LWG was concerned that Alternative D should not have been ranked low for long-term effectiveness as a result of EPA’s goal to “maximize permanence through removal of highly contaminated sediment” because guidance states that mass

removal is not an appropriate way to evaluate sediment remediation alternatives; rather the evaluation must address reduction in risk.

Commenters critiqued the evaluation for not considering river equilibrium with ongoing contaminant loading from upland and upstream, and having a statistically flawed approach for calculating background concentrations. LWG argued that the Lower Duwamish proposed plan and Grasse River ROD evaluated sediment transport and background loading (respectively), and incorporated those considerations in to final decisions; thus, EPA should do the same. EPA was asked to recognize that source control could not eliminate contaminant inputs from stormwater. The Swan Island Group pointed out, "... long-term success of sediment remedies relies on source control and reducing external sources of contamination."

In addition to the assertion the interim targets are not in-line with NCP guidance, commenters expressed several other concerns that interim targets are not relevant for assessing long-term effectiveness because:

- The evaluation focuses "... almost exclusively on SWACs immediately post-construction ... [with] no quantitative estimates of long-term alternative outcomes ...."
- There are better ways to evaluate long-term effectiveness. "EPA could have easily devised empirically based estimates of long-term outcomes of the alternatives without resorting to complex computer models [,]" but "... ignored recent data (provided by LWG) that could be used in long-term effectiveness evaluation"
- The evaluation assumes "... that EPA's PRGs are met immediately [after construction]. ... This ... does not reflect the likelihood that river conditions will rapidly regress to background levels which exceed EPA's PRGs and health-based goals."
- "... the effectiveness analysis fails to consider natural recovery during or after construction and as augmented by enhanced natural recovery that EPA relies upon to meet PRGs in the long term."
- "To analyze relative long-term effectiveness and cost-effectiveness, EPA must provide some estimate of the SWACs and risk reduction in the years following completion of construction."
- No alternative could be shown to meets all interim targets and all but Alternative G failed to meet at least half of the interim targets.

Commenters expressed concern that EPA is not adequately considering long-term effectiveness or residual risk beyond construction completion and lacks a technically defensible projection of long-term performance. They indicate the impact of ENR was not included in the long-term effectiveness evaluation, and question how EPA can claim that MNR cannot be quantitatively estimated, while assuming PRGs will be met through MNR in 30 years, and determining that Alternative B and D will achieve cleanup goals. Additionally, commenters suggest EPA should take natural attenuation into account that is likely to occur during planning and construction phases, and suggests EPA should not assume that post-construction SWACs will remain constant.

LWG commented that Post Construction SWACs/risk estimates are "useless to assess long-term effectiveness of the alternatives" due to:

- Inconsistent PRGs
- Spatial Scales inconsistent with risk assessments
- Flawed SWACS
- Flawed Risk Assessment
- Errors in EPA's surface water analysis

Multiple other parties summarized EPA's long-term effectiveness analysis and expressed concern that only Alternative G came close to meeting RAOs, and recommended that a more aggressive option than G was needed to adequately protect human and environmental health. Additionally, they argue that long-term effectiveness and permanence should be prioritized over short-term effectiveness and cost.

### **EPA Response**

EPA evaluated long-term effectiveness in accordance with the NCP. In accordance with the NCP (40 CFR §300.430), alternatives were assessed for the long-term effectiveness and permanence they afford, based primarily on:

- “Magnitude of residual risk remaining from untreated waste or treatment residuals remaining at the conclusion of the remedial activities”
- “Adequacy and reliability of controls such as containment systems and ICs that are necessary to manage treatment residuals and untreated waste.”

As described in Section 4.1.5 of the feasibility study report (USEPA 2016b), long-term effectiveness and permanence refers to the expected residual risk and the ability of an alternative to maintain reliable protection of human health and the environment over time, once PRGs are achieved. This criterion includes the consideration of residual risk that will remain on-site following remediation and the adequacy and reliability of engineering (remedial technologies) and ICs to manage those risks posed by treatment residuals and/or untreated wastes.

EPA's evaluation of long-term effectiveness was both quantitative and detailed. The evaluation of risk reduction from each alternative was conducted by estimating the post construction sediment concentration, estimating the fish tissue concentration through the food web model and estimating the residual risk based on a comparison to PRGs. The impact of ENR was not considered in the estimate of post construction sediment concentrations in the feasibility study, even though it is acknowledged that ENR would reduce risk also. Post construction sediment concentrations/ SWACs are discussed in Section 2.7.2 of this responsiveness summary.

The selected remedy, Alternative F Modified reduces more risks than Alternative I at the end of construction and minimizes reliance on ICs.

Most related comments are focused on the desire for quantitative determinations of the time that various alternatives will achieve ARARs or PRGs. However, that topic relates specifically to short-term effectiveness, not long-term, in the NCP, and is one of four items to be considered in evaluating that criteria:

“(E) Short-term effectiveness. The short-term impacts of alternatives shall be assessed considering the following:

- (1) Short-term risks that might be posed to the community during implementation of an alternative;
- (2) Potential impacts on workers during remedial action and the effectiveness and reliability of protective measures;
- (3) Potential environmental impacts of the remedial action and the effectiveness and reliability of mitigative measures during implementation; and
- (4) Time until protection is achieved.”

All alternatives would be considered protective at the end of construction with the use of ICs to reduce fish consumption to acceptable levels. The balance of trade-offs was central to selecting a remedy with a balance of active remediation and natural recovery to ensure a faster pace of risk reduction with additional certainty relative to permanence of the overall remedy. For more information about the role of fish advisories, see Section 2.28.2 of this responsiveness summary.

As described in the MNR response (Section 2.16 of this responsiveness summary), the environmental processes that support natural recovery are present in the river (incoming sediment loads promoting burial and dilution, contaminant declines through dispersion, and degradation of some compounds) and will be hastened when in-river and upland sources of contamination are eliminated. However, the complex nature of the Site and the limited data set to demonstrate the rate of improvement in water, sediment, and fish tissue contaminant concentrations restrict the ability to make quantitative determinations of contaminant declines following remediation based on empirical analyses or mechanistic modeling. Therefore, estimates of the post-remediation condition are used to gauge environmental improvement from remedial action. The active remediation components of the selected remedy do not achieve PRGs in all areas after construction, and rely on natural recovery and robust post-remedy monitoring of water, sediment, and fish tissue contaminant concentrations to establish attainment of remedial cleanup levels, source control effectiveness ongoing evaluations, or the need for additional remediation through the five-year review process.

### 2.19.2 Risk Management Was Not Properly Considered

#### Comment Summary

A number of comments were received that noted that EPA did not consider risk management in the selection of COCs, development of remediation goals and the development and evaluation of remedial action alternatives. It was stated that EPA failed to perform a necessary risk management step between the remedial investigation and feasibility study phases consistent with EPA guidance.

It was noted that EPA’s chosen remedy did not reflect risk management principles and that risk management decisions and remedial cleanup levels should reflect specific uses at different portions of the Site. For example, no narrowing of COCs, pathways, media or receptors or refining of exposure assumptions was performed. It was further stated that EPA identified an unreasonable number of PRGs without consideration of the factors driving risk at the Site or what is achievable through a sediment remediation even though EPA develop RALs for a set of focused PRGs. Finally, one commenter stated



that although PRGs for the  $1 \times 10^{-4}$  and  $1 \times 10^{-5}$  risk levels were presented in Appendix B of the feasibility study report, no discussion of these PRGs was provided in the feasibility study report.

It was also noted that there is very little difference in residual risk estimates between Alternatives B and I for most COCs. Given the very conservative assumptions used to calculate PRGs, differences in estimated risks by a factor of 2 or less are not significant.

One commenter stated that EPA failed to make valid risk reduction decisions when evaluating and selecting a preferred alternative and has failed to accurately communicate to the resident fish-eating public regarding their ability to eat resident fish from the harbor once the remedy has been completed. EPA has not clearly disclosed the actual risk reduction that would be achieved if the preferred alternative were performed but instead has made inaccurate and confusing statements about the ability to eat fish following remedy implementation.

Another commenter stated that EPA failed to compare risk reduction for its preferred alternative to background risks. For example, a comparison of background (upstream) and Site smallmouth bass PCB concentrations shows that only a 2 or 3-fold decrease in Site-wide sediment concentrations is needed to reach equilibrium conditions. One commenter stated that it is important to provide context for considering the expected benefit of the alternative when evaluated in terms of the number of advisory fish meals following the cleanup relative to advisory fish meals due to background risk so the public can understand the actual anticipated benefits of EPA's action.

Regarding the magnitude of risk reduction, it was noted that there is little risk reduction between Alternatives B and I in EPA's feasibility study report and that if EPA's alternatives assessment was not otherwise flawed, Alternative B would properly be the "knee of the curve." The substantial increase in costs for minimal or insignificant risk reduction between Alternatives B and I is not acknowledged in EPA's feasibility study report or the proposed plan.

It was also noted that EPA's fish consumption risk calculations are not meaningful for evaluating protectiveness because none of the alternatives in the proposed plan will result in a material increase in the number of meals of resident fish from Portland Harbor that are safe to eat. The risk assumed from eating resident fish in the Harbor is calculated based on 228 meals per year for the subsistence fisher model and up to 78 meals per year for the recreational fisher model. The assumed improvement in fish consumption-related risk for all alternatives ranges from 2 meals to 10 meals per year. This number of additional meals is within the error band of the analysis, and is essentially meaningless when EPA's goal for unlimited consumption, without fish consumption advisories, is 78 to 228 meals per year. It was further noted that there is no obvious reason to prefer Alternative I (7 years of 0.6 fish meals to achieve 5 fish meals per year) to Alternative B (4 years at 0.6 to achieve 3 per year) or, for that matter, to Alternative G (19 years at 0.6 to achieve 10 per year). EPA's preference seems wholly arbitrary.

Another commenter stated that EPA has given no indication that it has similarly considered the benefits from eating fish in establishing its very conservative "fish meals per 10 years" amounts.

Another commenter noted that EPA stated in the feasibility study report that "the existing advisories might not be sufficiently effective in protecting human health since the current recommended rate of one meal per month [12 meals/year] for the general population may not be sufficiently protective of consumers." They further commented that EPA should consider that the conflict between the Oregon Health Authority advisory and EPA's BHHRA (Kennedy/Jenks 2013) indicates EPA's risk estimates may be incorrect. At a minimum, EPA should coordinate with Oregon Health Authority to provide clear,

credible, and consistent public health information. EPA should also explain its advisory in light of the U.S. Food and Drug Administration's threshold for PCBs in fish sold in supermarkets of 2 parts per million, which is more than 1,000 times higher than EPA's cleanup goal of 0.3 parts per billion (ppb) in resident fish tissue.

Several commenters referred to risk management in the context of the NCP and EPA guidance. For example, it was noted that risk management in the Superfund program requires consideration of the advantages and disadvantages of cleanup alternatives and a balancing of trade-offs. As noted in the NCP preamble, the likelihood of exposure actually occurring should be considered when deciding the appropriate level of remediation to the degree that this likelihood can be determined. In addition, it was noted that EPA's 2005 Sediment guidance, states that a risk management process should be used to select a remedy designed to reduce the key human and ecological risk effectively. Finally, it was noted that it was telling that the phrase risk management is never used in the feasibility study report or the proposed plan.

Finally, it was noted that EPA's chosen remedy is not based on risk reduction/risk management principles. EPA notes that fish consumption is the major contributor to human health risk but does not consider the probability that dredging remedies will result in an increase in fish tissue concentrations for years during and after the completion of any remedy. The risk of releases during dredging is clearly present despite use of BMPs due to the large volume of dredging, duration (7) and high production rates assumed in the feasibility study report.

### **EPA Response**

EPA adequately applied risk management in its remedy selection process given site-specific circumstances and information. Risk management is not done at one point in the process and generally is not given its own section in a feasibility study report or other decision document. One of the 11 principles for managing contaminated sediment sites is to select site-specific, project-specific and sediment-specific risk management approaches that will achieve risk-based goals. EPA has complied with this principle at the Site by focusing the cleanup on those areas that have the highest levels of toxic and persistent contaminants and whose cleanup will have the most impact on reducing risks to human health and the environment. EPA believes the best cleanup approach is one that sufficiently reduces risk in the areas where contamination is highest to allow for MNR to achieve cleanup levels in a reasonable time frame. The alternatives evaluated in the feasibility study report (USEPA 2016b) relied on ICs, MNR, ENR, containment, treatment, removal and disposal to varying degrees.

Some examples of how risk management was applied at the Site are discussed below. The baseline human health and ecological risk assessments identified 110 contaminants that potentially posed unacceptable risk. As shown in Table 2.2-2a through e of the feasibility study report, EPA utilized risk management to select 64 COCs based on the results of the risk characterization. EPA further considered risk management through the selection of focused COCs for the purpose of conducting the feasibility study. As noted in Section 3.4.1.1 of the feasibility study report, focused COCs are those that the distribution encompasses the majority of the spatial extent of contaminants posing the majority of the risks as identified in the baseline risk assessments. Finally, focused COCs allowed more efficient evaluation of the contamination within the Site during the feasibility study, though of course PRGs govern the success of the final cleanup.

Remedial action levels selected for evaluation in the feasibility study were developed for each of the focused COCs by plotting surface sediment concentrations and the relationships between RAL



concentrations and resulting site-wide SWACs. “RAL curves”) were developed by plotting acres remediated against the post remediation SWAC. This evaluation facilitated identification of the “knee of the curve” for the relationship between area and post remediation SWACs. The purpose of this evaluation is to optimize the remedial footprint by developing alternatives that target areas with the highest levels of contamination and utilize MNR throughout the remainder of the Site. This significant reliance on MNR to reduce risks across the vast majority of the Site in areas where contaminant concentrations – and thus the relative risk – are lower than within the SMAs is application of risk management.

Regarding the selection of PRGs, as was noted in the comments, EPA considered a range of risk-based PRGs. For example, risk-based PRGs for PCBs presented in Table B3-5 ranged from 0 to 60 µg/kg. However, the actual PRG for PCBs as presented in Table 2.2-5 is 9 µg/kg which is background based and greater than sediment PRGs based on a hazard index of 1. Unlike EPA’s risk range of  $1 \times 10^{-4}$  to  $1 \times 10^{-6}$ , EPA does not use a risk range for non-cancer risks. As a result, EPA does not have the same flexibility to adjust the risk range as it does when evaluating cancer risk.

EPA disagrees that it failed to accurately communicate to the resident fish-eating public regarding their ability to eat resident fish from the harbor once the remedy has been completed and that EPA has not clearly disclosed the actual risk reduction that would be achieved if the preferred alternative were performed. For example, the proposed plan (USEPA 2016c) provided detailed information regarding the allowable number of fish meals per 10 years for a range of remedial alternatives and fish consumption exposure scenarios. The proposed plan notes that estimating the number of acceptable fish meals at the end of construction is not a precise calculation, but that such calculations are useful to allow for a comparison of the outcomes of the different alternatives.

Regarding a comparison of background (upstream) and Site smallmouth bass PCB concentrations, the proposed plan notes that Biota samples from within the Site exhibited greater concentrations for most contaminants than those seen in background biota samples that were collected from the upriver reaches and above Willamette Falls. However, the data are insufficient to compute defensible background concentrations for biota tissue.

Regarding consideration of the likelihood of exposure actually occurring when deciding the appropriate level of remediation, EPA notes that the exposure pathway that poses the greatest risk to human health is the fish consumption exposure pathway. Fish consumption is known to occur throughout the Site. As a result, it is appropriate to select and implement a sediment cleanup that focuses on this key exposure pathway. Regarding the risk of releases during dredging and the probability that dredging based remedies will result in an increase in fish tissue concentrations for years during and after the completion of any remedy, EPA acknowledges that some short-term effects are likely during implementation of the remedy even with the use of BMPs and other measures to reduce these impacts. The evaluation of short-term effectiveness considered explicitly in the feasibility study report. For example, the feasibility study report notes that Alternative B has the shortest construction duration and thus would have the least impact to the community, workers, and the environment during construction. Conversely, the Alternative G would have the longest construction duration and, thus, would have the most impact to the community, workers and the environment during construction.

Regarding consideration of the benefit associated with eating fish, this type of assessment is outside the scope of a risk assessment conducted under CERCLA.

Regarding fish consumption advisories issued by the Oregon Health Authority, EPA disagrees inconsistencies between the assumptions used in the HHRA and the criteria that Oregon Health Authority uses to establish fish advisories indicates that EPA's risk estimates are incorrect, rather they have different purposes and methodologies. Similarly, the U.S. Food and Drug Administration's threshold for PCBs in fish sold in supermarkets of 2 parts per million is not relevant due to differences in statutory purposes and requirements. However, EPA agrees that coordination with the Oregon Health Authority is required to provide clear, credible, and consistent public health information. Additional information regarding the use of risk management is provided in the response to LWG Dispute 1r (Appendix A of this document).

Additional information regarding the development of remedial cleanup levels is provided in the response to LSS Dispute Issue 11 (Appendix A of this document).

### 2.19.3 The Exposure Scenarios Are Too Conservative

#### Comment Summary

Several commenters stat that the exposure scenarios do not reflect realistic exposure frequencies for recreational beach users and fishers and, as a result, the PRGs are too conservative. It was stated that the Portland Harbor human health risk assessment was based on unrealistic assumptions about the habits of anglers who are the critical receptors, substantially overstates the actual risk and therefore calls into question all of EPA's risk management decisions for the Site. In addition, the unreasonable conservatism and questionable methodology extend to the development of SWACs and RALs.

It was noted that EPA's evaluation was inconsistent with the NCP because EPA did not consider the likelihood of reasonable maximum exposures actually occurring. The NCP preamble states that the likelihood of the exposure actually occurring should be considered when deciding the appropriate level of remediation to the degree that this likelihood can be determined. For example, EPA concluded that it is reasonable to assume someone's sole source of fish - up to 228 meals per year for subsistence fishers - is resident fish caught in the harbor - no anadromous fish, no fish caught elsewhere and no store-bought fish. EPA presents no evidence that any actual sub-population like this exists anywhere near Portland Harbor.

The commenter further stated that EPA's multiple conservative assumptions were then combined using a deterministic approach that does not account for variability and uncertainty in angler exposures. Consequently, EPA's risk estimates represent extremes that are not representative of the vast majority of Site anglers, and perhaps no member of the fishing population. It was noted that EPA's risk estimates fall at the extreme tails of the distributions of PCB cancer risk and non-cancer hazard (at or above the 99th percentile) and that even with these conservative assumptions, for approximately 90 percent of subsistence anglers and over 95 percent of recreational anglers, current cancer risks and non-cancer hazards are at or below EPA's interim targets of  $10^{-4}$  (cancer) and hazard index of 10 (non-cancer).

One commenter stated that the risk assessment assumptions must bear some relationship to reality for them not to be arbitrary. If they are not realistic, EPA arbitrarily and capriciously replaces sound science with unrealistic assumptions, in violation of CERCLA and the APA. Region 10's failure to consider and incorporate current data, and its multiple unrealistic exposure assumptions are well beyond "protective" and do not result in the accurate estimation of potential risks in Portland Harbor. The use of unrealistic data constitutes arbitrary and capricious agency action. As a consequence, the risk assessment information does not provide realistic information upon which to evaluate remedial

alternatives and to base remedial decisions, and EPA's risk assessment therefore does not satisfy NCP requirements.

The commenter also stated that EPA used assumptions that are unrealistic with respect to the habits of anglers who are the critical receptors, which results in the further overstatement of the actual site risk. EPA also did not follow its own 2013 BHHRA (Kennedy/Jenks 2013) in several important aspects of remedy selection, changing without explanations several key exposure assumptions that almost certainly resulted in additional overstatement of actual risk.

Despite selecting a remedy to address fish consumption risk, EPA acknowledges that its BHHRA risk scenarios contain uncertainty in the assumptions made regarding angler practices and behaviors, such as the amount of whole uncooked fish consumed and the proportion of resident vs. migratory fish consumed. In the absence of accurate information about angler behaviors, EPA relied on multiple conservative (worst case) and unsupported reasonable maximum exposure assumptions that have resulted in flawed PRGs for fish consumption (RAO 2). For example, EPA assumed: 99th percentile fish consumption rates (up to 281 meals per year) and exposure durations; resident species comprise all of the subsistence and recreational angler diets and half of the tribal angler diet; 100 percent of consumed fish come from the Study Area; and no contaminant loss due to cooking and preparation (such as filleting). These multiple conservative assumptions were then combined using a deterministic approach that does not account for variability and uncertainty in angler exposures. Consequently, EPA's risk estimates represent extremes that are not representative of the vast majority of anglers using the Site, and perhaps no member of the fishing population. If additional, realistic exposure assumptions are taken into account and applied to a scientifically valid probabilistic model, risks for the majority of the anglers are currently at or below EPA's interim targets (cancer risk of  $1 \times 10^{-4}$  and non-cancer hazard index of 1).

The hypothetical fisher is assumed to eat nothing but resident fish from the Willamette River. The fisher does not eat salmon or other anadromous fish, does not catch and consume fish from outside the Site and does not consume store bought fish. In addition, EPA does not take into consideration key uncertainties such as preparation and cooking methods.

It was specifically noted that the PRG for cPAHs is based on exposure scenarios that are unrealistic and overly conservative. The exposure scenarios do not reflect realistic exposure frequencies. For example, recreational beach exposure frequency of 94 days per year is based on best professional judgement. In contrast, the Lower Duwamish Waterway used an exposure frequency of 64 days per year based on a King County survey that was considered an overestimate because it was based on beaches with greater amenities than the Lower Duwamish Waterway. Similarly, the tribal direct contact exposure scenario is overly conservative. EPA adopted the assumption that a person would fish at the Site for 260 days per year for 70 years and during every single visit would cover his or her hands and forearms with sediment when pulling up fishing lines or anchors. The commenter stated that these assumptions are not supported by information presented in the remedial investigation report (USEPA 2016a).

In addition, it was noted that EPA's approach improperly assumes that direct contact with sediment may occur everywhere in Portland Harbor without consideration to variations in land uses, site conditions and public access. Several commenters stated that EPA should rely on current and future site uses and security protocols, which prevent direct contact risks to human health. The ROD should reflect the realistic risk of direct contact with contaminated sediments and based risk-management decisions on that reality. Risks from direct contact with sediment do not exist in places that people cannot access. In addition, it was noted that for the recreational fisher, EPA has assumed that anglers spend all of their

time fishing in a one-mile segment of the river. Many locations along the river are not accessible to the public except by boat; whether by boat or from the shoreline, it is highly improbable that someone catches 80 fish meals per year for 30 years from the same location.

Regarding ecological risk, it was noted that ecological risk is managed on a population, not individual, basis. So even if a home range is within a river mile, the contiguous population is exposed over a larger area, and, therefore, post-construction risks should be evaluated on a site-wide basis. Overall, the commenters stated that the risk assessment assumptions are not merely conservative but wholly unrealistic and contrary to the “conservative but within a realistic range of exposure scenarios” recommended by the NCP.

### **EPA Response**

The exposure scenarios evaluated in the baseline human health and ecological risk assessments are based on a reasonable maximum exposure scenario consistent with EPA guidance. As described in the BHHRA (Kennedy/Jenks 2013), fish consumption rates from published studies were used to describe the range of reasonably expected exposures relevant to the different populations known to occur in the Portland Harbor area. Three different rates were evaluated: 17.5 grams per day (approximately 2 eight ounce meals per month), 49 grams per day (approximately 6.5 eight ounce meals per month), and 142 grams per day (19 eight ounce meals per month). The fish consumption rate of 17.5 grams per day is considered representative of a central tendency value for recreational fishers, and 49 grams per day was selected as the reasonable maximum exposures value representing the higher-end consumption practices of recreational fishers. The consumption rate of 142 grams per day represents a reasonable maximum exposures value for high levels of fish consuming, or subsistence, fishers. The rates of 17.5 grams per day and 142 grams per day represent the 90<sup>th</sup> and 99<sup>th</sup> percentiles, respectively, of per capita consumption of uncooked freshwater/estuarine finfish and shellfish by individuals (consumers and non-consumers) 18 or older, as reported in the Continuing Survey of Food Intakes by Individuals (CSFII) and described in EPA’s Estimated Per Capita Fish Consumption in the United States (USEPA 2002). The consumption rate of 49 grams per day is from a creel study conducted in the Columbia Slough (Adolfson 1996), and represents the 95 percent upper confidence limit on the mean, where 50 percent of the mass of the total fish is consumed (Adolfson 1996). The above cited fish consumption rates are considered “conservative but within a realistic range of exposure scenarios” as recommended by the NCP. Further, as evidenced by public comments submitted by the six Tribes, they believe even the 142 grams per day consumption rate to be a low end exposure value for tribal consumption.

EPA disagrees with the contention that EPA’s evaluation was inconsistent with the NCP because EPA did not consider the likelihood of reasonable maximum exposures actually occurring consistent with the NCP preamble. As noted above, a consumption rate of 49 grams per day was used to evaluate risk on a river mile and SDU basis. This rate was based on a creel study conducted in the Columbia Slough and thus represents exposures that are “actually occurring” in the vicinity of the Site. Similarly, the consumption rate of 142 grams per day is lower than the fish consumption rate of 175 grams per day which was based on a study of fish consumption behaviors by tribal consumers in the Columbia River basin and was used by the State of Oregon to establish water quality standards for the protection of human health.

For the reasons cited above, EPA disagrees that the risk assessment information does not provide realistic information upon which to evaluate remedial alternatives and to base remedial decisions. Thus, EPA’s risk assessment fully satisfies NCP requirements.

EPA acknowledges that its risk assessment was based on a deterministic approach but notes that deterministic risk assessments are the prevalent approach for assessing risk to human health in accordance with EPA's risk assessment guidance and that the deterministic risk assessment approach was initiated by the PRPs.

EPA also disagrees that ecological risk was incorrectly evaluated. Risks to wildlife were evaluated on a river mile or SDU basis. This closely corresponds with key wildlife receptors at the Site such as mink and osprey. EPA believes that this is the appropriate scale over which to evaluate post construction risk to wildlife rather than on a site-wide basis.

EPA acknowledges that as described in the BHHRA, the exposure scenario includes a factor of 25 percent was used to account for the time spent fishing in a single area within the Study Area, which again may be a low-end estimate given that people living and fishing on river beaches, such as Willamette Cove. The 25 percent site-use factor was not used in the development of PRGs because the site-use factor applies to different areas within the Site as opposed to areas outside the Site.

The basis for not applying the site-use factor to the development of cleanup levels is described in the response to LWG Dispute Issue 1d (Appendix A of this document).

The commenters misstated the approach used to assess direct contact risk in the feasibility study report (USEPA 2016b). Cancer risks for RAO 1 were calculated using the rolling river mile concentrations averaged on a 0.5-mile scale and the sediment PRGs for each COC based on a  $1 \times 10^{-6}$  cancer risk. As noted in Appendix J of the feasibility study report, direct contact with sediment in the navigation channel segment was not evaluated for this RAO. In addition, the evaluation of direct contact human health risk presented in Appendix J only considered direct contact with sediment and did not consider beach exposures.

For further response on the assumptions on fish consumption see EPA response to LWG Dispute Issue 1r (Appendix A of this document).

#### **2.19.4 Risk Evaluation Is Inconsistent with Risk Assessment**

##### **Comment Summary**

Many commenters noted that the PRGs and evaluation of post construction risk presented in the feasibility study report were inconsistent with the procedures used in the baseline human health and ecological risk assessments. Post-construction risk evaluation assumes different exposure scenarios and spatial scales than the baseline risk assessments.

It was noted that EPA's post-construction risk estimates alter exposure scenarios and spatial scales and use inappropriate PRGs to inflate the perceived benefit of more aggressive actions. For example, For RAO 2, human health fish consumption risks, EPA generated post-construction SWACs for a range of spatial scales. However, in EPA-approved BHHRA (Kennedy/Jenks 2013), risks were evaluated by whole river miles with no longitudinal splitting. Similarly, for RAO 6, ecological bioaccumulation risks, feasibility study SWACs were generated on a rolling 1-river mile basis with longitudinal splitting and on an SDU scale. The PRGs for the various RAO 6 chemicals are based on different ecological receptors evaluated in the BERA (Windward 2013). Due differences in exposure parameters cannot be estimated by applying a "one size fits all" spatial scale to every PRG. Further, none of the BERA appropriate spatial scales are consistent with longitudinally split river miles or SDUs. Similarly, the DDE PRG is based on the BERA spotted sandpiper dietary assessment that was evaluated on a 2-river mile scale of beach sediment which differs from the feasibility study evaluation spatial scales



In addition, the risk reduction methodology presented in Appendix J glosses over many detail, thus it is not possible to fully comment on EPA's methodology. However, it is clear that many aspects were inconsistent with the baseline risk assessments. To accurately evaluate the alternatives, an accurate assessment of risk must be completed using the methods presented in the BHHRA and BERA.

It was also noted that the spatial techniques used to evaluate risk reduction in the feasibility study report are duplicative, confusing and overly complicated and do not accurately represent potential exposures. New methods were used to evaluate risk reduction and different data averaging methods and assumptions were used to develop SWACs. For example, site-wide post construction risk estimates were based on estimating a site-wide SWAC as 95 percent UCL of the SDU specific SWACs and then calculating risks based on an ingestion rate of 142 grams per day.

Finally, it was noted that the evaluation of risk reduction associated with bioaccumulation pathways in the feasibility study report assumed linearity in the food web model which is not accurate.

### **EPA Response**

EPA disagrees that the spatial scales evaluated in the feasibility study report (USEPA 2016b) are inconsistent with the baseline human health and ecological risk assessments. See the response to LSS Dispute Issue 9 (Appendix A of this document).

EPA has revised the applicable tables in the feasibility study report Appendix J. These are presented in the supplemental information for the ROD (Appendix IV).

## **2.19.5 Evaluation of Dioxins and Furans Is Inconsistent with Risk Assessment**

### **Comment Summary**

It was noted that the risk estimates and remedy development for dioxin furans was flawed because EPA did not assess dioxins/furans as 2,3,7,8-TCDD equivalents as was done in the BHHRA (Kennedy/Jenks 2013). This resulted in a significant disconnect between the BHHRA and post-construction risks for dioxins/furans for RAO 2. For example, for a breastfeeding infant, the highest HQ for dioxin/furan toxicity equivalence quotients calculated in the BHHRA are 10 on a site-wide basis (tribal fish consumption, whole body) and 10 on a river mile basis (recreational reasonable maximum exposure consumption). However, Table J2.3-1a indicates that the site-wide HQ for the same infant scenario is 785, almost two orders of magnitude higher. Similarly, for a child, the highest HQ for dioxin/furan toxicity equivalence quotients calculated in the BHHRA are 10 on a site-wide basis (tribal fish consumption, whole body) and 10 on a river mile basis (recreational reasonable maximum exposure consumption). However, Table J2.3-1a indicates that the site-wide HQ for the same scenario shows a site-wide HQ for HxCDF alone.

In addition, it was noted that EPA acknowledged the inadequacy of the HxCDF data in terms of quality and spatial coverage in the remedial investigation. Because EPA developed PRGs and RALS based on data characterized as inadequate, EPA abrogated its duty to produce scientifically sound and supportable risk estimates as well as cleanup criteria in the form of supportable PRGs and RALS. Finally, was noted that the approach for identifying which dioxin congeners to evaluate is unclear.

### **EPA Response**

EPA acknowledges that the evaluation of dioxins and furans in the feasibility study report (USEPA 2016b) differed from the evaluation in the BHHRA (Kennedy/Jenks 2013). However, the difference was fully explained in the feasibility study report in Appendix J. In the BHHRA, the risk associated with

exposure to dioxin and furans was evaluated as 2,3,7,8-TCDD equivalents (Dioxin toxicity equivalence quotients). However, it was not possible to develop risk-based PRG and background concentrations for dioxin toxicity equivalence quotients. Risk-based PRGs for dioxins and furan were calculated using the food web model which requires consideration of individual dioxin furan congeners with specific physiochemical properties. In addition, due to variations in the upstream composition of dioxin and furan congeners, developing background estimates for dioxin toxicity equivalence quotients was not considered technically valid.

The evaluation of risk reduction in the feasibility study report was conducted by estimating the post construction sediment concentration, estimating the fish tissue concentration through the food web model and estimating the residual risk based on a comparison to PRGs. As a result, the methodology is not directly comparable to the procedures used in the HHRA which estimated dioxin risk based on measured rather than modeled fish tissue concentrations. However, use of the food web model is required for the evaluation of post construction residual risk for Alternatives B, D, E, F, F Modified, G and I. It therefore appropriate to estimate the risk associated with the no action alternative, Alternative A, using the same methodology even though it does not provide the same results as the HHRA.

The approach for identifying the dioxin congeners that were selected for evaluation in the feasibility study is described in a December 23, 2014 memo from CDM Smith to EPA (AR Doc #10010497). The identification of the dioxin congeners for evaluation was based on identification of the dioxin congeners that pose the greatest risk to human health based on their concentration in smallmouth bass fish tissue collected during Round 3 of the Portland Harbor remedial investigation. Based on this evaluation, it was determined that 5 congeners contribute 85 percent of the risk (1,2,3,4,7,8-hexachlorodibenzofuran [HxCDF]; 1,2,3,7,8-pentachlorodibenzo-p-dioxin [PeCDD]; 2,3,4,7,8-pentachlorodibenzofuran [PeCDF]; 2,3,7,8-tetrachlorodibenzo-p-dioxin [TCDD] and 2,3,7,8-tetrachlorodibenzofuran [TCDF]. As described in Appendix D of the feasibility study report, the footprints for the 1,2,3,4,7,8-HxCDF and 2,3,7,8-TCDF RALs were determined to be covered by the footprints of the other three dioxin/furan congeners. Thus, the dioxin/furan congeners retained as focused COCs were 2,3,7,8-TCDD, 1,2,3,7,8-PeCDD, and 2,3,4,7,8-PeCDF.

### 2.19.6 Evaluation of Risk Should Consider Specific Factors

#### Comment Summary

It was further noted that risks vary according to site use and much of the Site is currently designated for industrial uses that provide limited or no access to recreational users. As a result, multiple PRGs should be established based on site-specific uses and conditions as done for the Lower Duwamish Waterway Site

The BHHRA (Kennedy/Jenks 2013) evaluated generic exposure scenarios used to evaluate risk to humans from contaminants. The only human exposure scenario driving EPA's proposed clean-up of PAHs at T4 is direct contact with sediment. Because there is no public beach access at T4, the only possible direct contact is from the water. In its most conservative fishing scenario, EPA assumed that a person would fish at Terminal 4 for 260 days per year for 70 years and during every single visit would cover his or her hands and forearms with sediment and ingest sediment when pulling up fishing lines or anchors.

EPA must adjust its Harbor-wide approach to direct contact human health risk and make risk management decisions based on site-specific considerations. Basing remedy selection on an assumption that direct contact with sediment is possible everywhere without consideration of variations in

conditions and land use leads to a T3 cleanup requirement that is unsupported by the facts and unrelated to real risk reduction.

It was noted that at the Terminal 4 site, current and future marine terminal make fishing (and beach access from fishing boats highly improbable. With extremely large ocean going vessels moving in and out every few days, navigation safety for fishing boats is an issue. In addition, the Port maintains a dedicated security operation and Facility Security Plan developed and implemented pursuant to Coast Guard regulations. As a result, fishing in the off-channel slips and bays at Terminal 4 consists of isolated *de minimis* instances and does not pose risk to human health. The Port noted that these site management and security protocols constitute governmental controls which EPA can recognize as existing ICs. The Port would be willing to discuss additional ICs with to ensure protectiveness that could be trigger upon future changes to site use.

One commenter stated that EPA continued to exclude use of a site-use factor for the evaluation of direct contact risk in the BHHRA. The commenter stated that use of a site-use factor of 25 percent would change the current RAO 1 PRG for carcinogenic PAHs measured as BaPEq from 106 to 424 µg/kg. The commenter further noted that not even alternative G meets the current BaPEq PRG for many half river miles but that if the site-use factor is accurately applied, a BaPEq PRG of 424 results and can be achieved by alternative A for all but a few half river mile areas.

### **EPA Response**

EPA disagrees that it did not consider Site specific factors when developing cleanup goals. For example, direct contact exposures were not assumed to occur within the navigation channel. Due to potential changes in future land and waterway uses, the recreational use of the river, and inappropriate reliance on ICs (security controls), EPA did not take into account shipping and security controls during the evaluation of risk or in the development of remedial action alternatives. It should be noted that while the Portland Harbor Site is designated for industrial uses, it also serves as a resource for recreational and subsistence fishing. Regarding the development of location specific remedial cleanup levels as was done for the Lower Duwamish Waterway Site, EPA notes that location specific PRGs have been developed for PAHs. For example, PRGs for RAO 2 apply throughout the Site while PRGs for RAO 1 only apply to nearshore areas.

## **2.19.7 Alternative I Fails to Meet Several Superfund Criteria**

### **Comment Summary**

One commenter stated that EPA's selected remedy did not meet certain evaluation criteria. Specifically:

- Criteria 1 (overall protection of human health and the environment. Alternative I's failure to meet Threshold Evaluation Criteria 1 (overall protection of the human environment), should have been cause for eliminating Alternative I right from the start.
- Criteria 3 and 5: Based on its failure to meet Balancing Evaluation Criteria 3 (Long-term Effectiveness) and Criteria 5 (Short-term Effectiveness) EPA should have shifted to a more aggressive alternative.
- Criteria 9: Based on the failure to meet Modifying Evaluation Criteria 9 (Public Acceptance), EPA should take a hard look at why after 16 years EPA has failed so profoundly to meet the needs of our community and take the time necessary to select a remedy that will meet our community's needs and the requirements of the law.



### EPA Response

EPA disagrees that EPA's selected remedy did not meet the NCP evaluation criteria. Through active remediation, natural recovery and ICs, EPA's selected remedy is considered protective. To increase the confidence in the remedy's ability to meet the threshold criterion of (overall protection of human health and the environment, EPA has selected Alternative F with modifications in the ROD.

EPA also disagrees that it did not fully consider the balancing criteria of Long-term Effectiveness and Short-term Effectiveness. As described in Section 4.1.5 of the feasibility study report (USEPA 2016b), the evaluation of long-term effectiveness and permanence considered the magnitude of residual risk based on each of the RAOs and the adequacy and reliability of ICs. Similarly, the evaluation of short-term effectiveness considered the time needed to implement the remedy and any adverse impacts that may be posed to the community, workers, and the environment

Finally, EPA disagrees that its remedy does not consider the public acceptance. As noted in the ROD, EPA held numerous outreach events and extended the public comment period by 30 days. As noted elsewhere, EPA believes that its proposed remedy fully complies with the requirements specified in CERCLA and the NCP.

### 2.19.8 Address Miscellaneous Risk Issues

#### Comment Summary

Several other comments relating to risk were received, and are summarized below:

- Post construction risks are only estimated for post construction conditions and not any other timeframe. Because of the reliance on MNR, the lack of a post-construction risk estimate process for time intervals post construction makes the usefulness of the post construction risk estimates limited.
- Risk reduction was not accurately presented. The combination of the use of zero as replacement values and the lack of incorporation of estimates of MNR/ENR in any of the remedies overestimates risks from remedies that include more capping and MNR/ENR and under estimates risk for removal technologies due to the generation of residuals.
- Some of the risk-based PRGs reported by EPA are much less than background estimates either as calculated by EPA or LWG and that because these PRGs are unachievable, the post construction risk estimates are meaningless.
- Due to the contribution of COCs from upstream due to background conditions, the target risk range should have been set between  $1 \times 10^{-4}$  and  $1 \times 10^{-5}$ .
- The feasibility study and proposed plan did not consider upstream fish tissue concentrations – either measured or predicted – relative to site concentrations to assist in the development of cleanup levels
- The fish meals/10 years was not used in the BHHRA (Kennedy/Jenks 2013) and no basis was provided for this new unit and some tables presented in Appendix J are include cPAHs and some do not.
- EPA assigned a shellfish consumption PRG to the navigation channel even though no shellfish harvesting can occur in the navigation channel.

- Several commenters noted that the risk associated with background levels of mercury was not considered. The risks associated with mercury in fish tissue and the background (based on up-river conditions) and equilibrium-based concentrations of PCBs (based on ongoing loads from the urban watershed) should be stated as a practical limit on the future remediation activity's ability to materially change the fish consumption risks for those who eat fish from the Site.
- A fisher survey should be conducted to gather information on the number of persons actually fishing in the Lower Willamette River and their type and frequency of fishing activities.
- A probabilistic risk framework is appropriate for this complex Site and would provide an assessment of who is or is not at risk from consumption of fish or other exposures at the Site. ExxonMobil prepared a probabilistic risk assessment to provide information on realistic risks at the Site and risk reduction that could be achieved by the remedial alternatives being considered by EPA.
- Residual risk estimates were presented in Appendix J of the feasibility study report. Several commenters noted errors in the calculations and that the calculations could not be reproduced. For example, it was noted that some of the tables in Appendix J include arsenic, aldrin, chlordanes, and dieldrin and the dioxin/furan congeners 2,3,7,8-TCOF, 2,3,4,7,8-PeCOF, and 1,2,3,4,7,8-HxCDD in addition to PCBs, ODx, and 2,3,7,8-TCDD. While others are missing cPAHs (such as Table J2.3-1a).

### **EPA Response**

Regarding the development of post construction risk estimates that consider MNR, EPA disagrees with the assertion that the feasibility study report lacked a process for considering risk reduction post-construction. The decision documents clearly state that multiple lines of evidence indicate that natural recovery of contaminant concentrations is occurring and is anticipated to occur in the future, particularly following upland source control and active remediation of the most-heavily contaminated portions of the sediment bed. That projected recovery is the fundamental premise for slating large areas of low level contamination for natural recovery instead of active remediation. However, EPA does not believe that quantitative predictions from models that cannot reasonably be expected to be quantitatively accurate should be relied upon for decision making. Indeed, reliance on such analyses is potentially misleading, especially in highly dynamic and heterogeneous environments that do not lend themselves to long-term quantitative predictions. In lieu of a reliance on model output, the post-construction timeframe includes monitoring to measure the extent of natural recovery and attainment of remedial cleanup levels and RAOs. If progress or attainment of goals is not sufficient, additional remediation will occur based on outcomes of the five-year review process. Overall, EPA determined that evaluating alternatives based on estimated post construction concentrations without incorporating quantitative, but inaccurate, natural recovery predictions was more appropriate for remedial decision making. Post construction sediment concentrations were assumed to be zero in active remediation areas because active remediation incorporates clean material in residual management layers, backfill, and caps, so the use of zero as a replacement value was considered appropriate.

The fact that risk-based PRGs are below background is irrelevant because risk-based thresholds below background were not selected as PRGs; rather the background concentration was utilized. However, when estimating residual risk, EPA compared post-construction sediment concentrations to risk-based PRGs as described in Appendix J rather than running the post-construction sediment concentrations through the food web model. While this imparts a certain amount of uncertainty for bioaccumulation

pathways (RAOs 2 and 6) due to the non-linearity of the food web model, this approach is considered appropriate for a feasibility study level evaluation.

It was noted that due to the contribution of COCs from upstream due to background conditions, the target risk range should have been set between  $1 \times 10^{-4}$  and  $1 \times 10^{-5}$ . EPA notes that in many instances, the resulting residual risk estimate presented in Appendix J falls within this range (See Table J2.3-3f).

Regarding the use of upstream fish tissue concentrations to assist in the development of cleanup levels, because the focus is remediation sediments, background based PRGs were developed only for sediment.

Regarding the use of fish meals per 10 years as a metric for evaluating risk reduction in the feasibility study, please see the response to LSS Dispute Issue 8 (Appendix A of this document).

Regarding the evaluation of the risk associated with shellfish consumption in the navigation channel, there is no information to suggest that shellfish harvesting *cannot* occur in the navigation channel.

EPA acknowledges that background levels of mercury within the Willamette watershed may exceed acceptable levels. However, that does not obviate the need to address the risks associated with releases of hazardous substances at Portland Harbor such as but not limited to: PCBs, dioxins and furans, DDx and PAHs. Comments stated that background levels of mercury may continue to pose risk due to up-river sources that should be evaluated. Consistent with EPA's background policy, the risk assessment evaluated risks associated with mercury and addressed site-specific background issues in the risk characterization. As noted in the background policy, cleanup levels are not set at concentrations below natural background levels under CERCLA.

Several comments stated that a fisher survey should be conducted to gather information on the number of persons actually fishing in the Lower Willamette River and their type and frequency of fishing activities, EPA notes that a creel survey based on Columbia Slough fishers was used to establish the reasonable maximum exposure fish consumption rate for recreational fishers.

Several commenters have noted errors in the residual risk estimates provided in Appendix J. However, without additional information, it is not possible to determine whether the errors are actual or not.

### 2.19.9 Address Seismic Issues

#### Comment Summary

Twenty-seven comments were received that cited earthquakes as a major concern related to EPA's preferred alternative. Almost all were individual, personal comments. Some comments said that the remedy did not meet the criteria for long-term effectiveness and permanence. The general focus was mainly on contaminants being released to the river in times of crisis. The sources of that contamination were varied and included capped and uncapped river bottom sediments, upland soils, the CDF, and tank farms (not associated with the remedy). Cooperation in planning was also requested as were tsunamis.

Representative comments include:

- "The Proposed Alternative I does not meet the criteria for long-term effectiveness. Burying contaminants in the river bottom has short-term benefits, but it leaves open the risk that any major event, earthquake, flood, or even a ship turning the wrong way, will disturb the cover material and release the contaminants back into the river system. "

- “As EPA well knows, the Pacific Northwest is overdue for a massive earthquake. This will provide ample opportunity for the debris on the bottom of the river to migrate, and, if EPA is short-sighted enough to cap the toxic debris within the river itself and then assume the cap will withstand the earthquake without breaking free and recontaminating the river, I believe you are sorely wrong. “
- “The Cleanup Plan makes no mention of the fact that a subduction zone earthquake will occur and effects to the Portland area will be great. We don't know the timing of this event, so any cleanup should address the issue. This region will have plenty of issues to deal with after the quake, we don't need to worry about recontamination of the river with sludge from a confined disposal facility. Any upland disposal site chosen should also be protected from remobilization of the sludge during an earthquake. “
- “My primary concern about the in-river disposal facility is the lack of seismic protection. If the Cascadia earthquake hits a non-seismically protected disposal facility full of contaminated sediment, it will be right back in the river. At that point, why did we even spend money on it in the first place? I recognize the limitations to shipping it off site - the trucks from Portland Harbor would be going right by my house. However, where ever we put the sediment, it needs to be protected from the largest possible earthquake we are expecting from the Cascadia subduction zone. Despite the large amount of other contaminants that are going to be dumped in the river during a large earthquake (namely gas fields, industrial waste held shore-side, etc. etc.), to meet EPA requirements of developing the executing the most cost-effective project, we need to make sure that contaminated sediment, wherever it is located, is seismically protected in the case of a worst-case-scenario earthquake. “
- “Please allow me to emphasize particular points:
  - I am concerned about the impact of the anticipated tsunami earthquake which will in all probability, occur during cleanup and restoration of the Superfund site at least somewhere on the river. Has this been adequately addressed?
  - The consequences of disturbed pools of pollution and toxins. What about the instability and certainty of liquefactions of soils bearing the Northwest tank farm? In my opinion this area in anticipation of the quake should be stabilized (if possible) or the tank relocated as part of superfund operations or at least in conjunction with the latter. “
- “There is no mention of the risk of seismic activity or significant flooding that would stir up the river bed. No one knows what a massive earthquake would actually do, but we know the risk of a deep subduction earthquake within the next 50 years is estimated to be about 50 percent. All that contaminated sediment could be stirred up and added to the mix of other toxins that would add significant danger to recovery efforts after a quake. “
- “The City request that EPA work with the Federal Emergency Management Agency, the City, and other local government agencies to include all appropriate measures in the ROD and RD/RA to address recontamination risks associated with a catastrophic earthquake. In addition to remedy selection, design and action, the City request that the fuel tank farms within the Site be evaluated as a potential source of recontamination in the event of an earthquake. After we have invested

hundreds of millions of dollars in this cleanup, we want to make sure that we do everything in our power to keep it clean.”

- “Many of these tanks are very old, and are in dire need of updating, and/or replacement. It has been well-documented that the soils on the west side of the river consist largely of fill material, and that these soils would liquefy with a significant earthquake event. We urge the US EPA to include language that identifies the issue, and makes a commitment to work on it outside of the Superfund process. EPA has an opportunity to assist the State of Oregon, the City of Portland and others to develop an action plan to reduce the risk to the river from these tanks from a significant earthquake event.”

### **EPA Response**

For areas to be capped, the feasibility study considered sediment bed slope as a factor in determining the favorability of this technology, which is an indirect consideration of seismic stability. The feasibility study assumes that capping on slopes less than 15 percent does not require special considerations. Slopes of 15 to 30 percent require special considerations that warrant a more engineered design and will be given further consideration of key details during design, such as geotechnical data to be collected, which may restrict capping areas or otherwise change the design in the context of an earthquake. Caps were not considered on slopes greater than 30 percent. For those areas carried forward in the ROD for capping, impacts from large earthquakes will also be considered in remedial design, including distance from active faults, maximum expected earthquake magnitude, probability of occurrence, physical properties of sediment and capping material, and slope. Slope stability on remediated river banks will also be a consideration during remedial design to ensure engineered caps are placed in a fashion that is protective of human health and the environment considers earthquake risk and extreme weather events.

In regards to the upriver tank farms, the Superfund program addresses spills which have already occurred and are uncontrolled releases into the environment. Releases from fuel farms and other petroleum storage facilities is regulated under Spill Prevention, Control, and Countermeasures and other regulations, which take into account threats such as earthquakes. EPA has previously and will continue to evaluate the potential of remedy recontamination from historical uncontrolled releases into the environment, but that does not include the potential future release of hazardous substances stored at or near Portland Harbor. EPA will work with local municipalities in ensuring that earthquake contingencies for the CERCLA remedy are part of the ICs implementation and assurance plan to be developed after the ROD.

## **2.19.10 Design for Climate Change**

### **Comment Summary**

Many comments very briefly referenced climate change as part of larger comments such as CDFs, upland sources, or the need to move quickly.

Three comments specifically addressed the need to account for climate change in designing the remedy:

- The proposed plan does not appear to consider long-term changes in climate, changes in river level, increased salinity, frequent storms, scouring, or the potential for flooding upland areas. It does not consider the potential impacts of catastrophic climate change.
- “The proposed plan does not account for the potential risks associated with climate change as required in Executive Order 13653 (November 1, 2013). Specifically, the feasibility study fails to

account for the potential for increasing frequency of floods due to climate change, including climate impacts from the Columbia River in the Portland Harbor study area, which are different and temporally offset from the impacts in the Willamette River itself. EPA's Climate Change Adaptation Technical Fact Sheet provides specific steps for addressing climate change for contaminated sediment remedies, including evaluation of vulnerabilities and identification of adaptation measures to provide additional resiliency<sup>15</sup>. Additional Site-specific scientific studies are also available. The City requests that EPA update its climate change evaluation to be more accurate and to develop a climate change adaptation plan for the cleanup."

- "EPA should account for the potential impacts of climate change on the efficacy of the remedy. It is unclear whether EPA has adequately accounted for the potential impacts of climate change on the efficacy of their proposed alternative or on the other alternatives that were considered. This is required under Executive Order 13653.<sup>15</sup> The impacts of climate change are likely to have a profound impact on the Willamette River during the life of EPA's cleanup plan, all the more so given that it is far from certain when the cleanup goals will actually be achieved. This is likely to include increased flood events in terms of both frequency and volume. This could have profound implications for the efficacy of the remedy across the uplands, river banks and inwater environments. EPA should consult its own Climate Change Adaptation Technical Fact Sheet as well as other tools that it has developed to incorporate the impacts of climate change into its Superfund Program (<https://www.epa.gov/superfund/superfund-climate-change-adaptation>)."

### **EPA Response**

As described in Section 3.4.4 of the feasibility study report (USEPA 2016b), EPA considered climate change impacts on river flows in the Willamette watershed. Climate change is anticipated to result in an increase in winter flow and a decrease in summer flow, with an earlier peak flow. More high flow events are expected but of less magnitude than the large historical flood events. An assessment of the potential effects of increased river flows will be conducted during remedial design.

## **2.19.11 Manage Flood Rise**

### **Comment Summary**

Two comments were received that related to management of flood rise as part of the cleanup. The City of Portland provided a comment regarding EPA's plan to ensure that flood rise management complies with regulatory requirements throughout the Site. The City points out that it qualifies for federally-backed flood insurance and federal disaster assistance because it follows the floodplain standards of the National Flood Insurance Program. The City comment requests that EPA ensure that remedy selection and design adequately consider flood management and not impair the City's ability to maintain its qualification for its favorable status under the National Flood Insurance Program. As part of the flood rise management evaluation, the City requests that EPA use its definition of "no rise" to mean less than 0.005 feet of rise, such that the rise would be equal to 0.00 feet when rounded and reported to the hundredth of a foot. The comment states that the U.S. Federal Emergency Management Agency has concurred with this definition. The City points out that cut and fill amounts and location may change during remedial design based on Site-specific factors. Additionally, remedies are likely to be sequenced over several years in different areas of the river, with the potential to cause temporary flood rises. Hence, the City would like the ROD to describe how the evaluation (using the HEC-RAS model computer program) will be revised during individual project phases to assure that there are no cumulative effects of flood rise. The Audubon Society also provided a comment questioning whether the plan allows the



City to retain adequate flexibility to mitigate for future floodplain impacts in the North Reach of the Willamette unrelated to Superfund.

### **EPA Response**

The Portland Harbor cleanup must comply with floodplain management executive orders and Federal Emergency Management Agency standards to not adversely affect floodplain capacity, which is a “no rise” standard. Executive Order 11988 on Floodplain Management requires federal agencies to document that actions they authorize in floodplains will not adversely affect floodplain capacity or cause floods to encroach upon new areas by increasing base flood elevations. During remedial design a floodplain impact study analyzing the effects of the selected remedy on flood characteristics, specifically base flood elevations, of the lower Willamette. This study will encompass the areas proposed for active remediation as well as adjacent upstream and downstream reaches that could potentially experience flood impacts resulting from the remedy selected in the ROD.

An assessment of impacts from the remedy will be conducted on identified Flood Hazard Areas. These analyses will provide documentation demonstrating that the cumulative effect of the remedy, when combined with all other existing and anticipated work, will not increase the water surface elevation of the base flood more than 1 foot at any point within the regulatory flood hazard area, and no rise (0.00-foot) in the base flood elevation within the defined regulatory floodway. These analyses will be certified by a professional engineer licensed in the State of Oregon.

An analysis was performed during the feasibility study and summarized in Appendix P of the feasibility study report (USEPA 2016b) comparing estimated volumes of capping and dredging for the various alternatives within each SDU as well as site-wide. Evaluated on a Site-wide scale, the volume of fill for each alternative is expected to be generally less than the total volume removed, resulting in a net cut volume. Evaluated on a SDU basis, the volume of fill for each alternative is less than the total volume removed for most the SDUs. EPA acknowledges that this analysis is not the final analysis to meet the requirements of Executive Order 11988 and a more detailed analysis will be required during remedial design based on regulatory, existing and proposed site-specific factors.

A comment was also received from the Audubon Society inquiring whether the plan allows the City to retain adequate flexibility to mitigate for future floodplain impacts in the North Reach of the Willamette unrelated to Superfund. The comment is not clear as to what kind of mitigation is being referred to (flood mitigation or ecological/habitat mitigation). Assuming the question is will the remedy affect the ability to implement habitat mitigation that could be required by industrial development in the floodplain to address possible adverse impacts to wetlands, riparian woodland and/or avian habitat then the answer is no, if the mitigation is not planned for areas identified for remediation. Any habitat mitigation planned for regulatory floodplain/floodway areas of the Willamette River fall under the same regulations as the Portland Harbor remedy ARARs (Executive Order 11988) and would require local floodplain permitting. EPA believes there is no reason why either flood or habitat mitigation would be restricted by the remedy as any restriction would be regulation-based.

## **2.20 Short-term Effectiveness**

### **2.20.1 Address Inadequate Evaluation of Short-Term Effectiveness**

#### **Comment Summary**

Comments on short-term effectiveness were received from the multiple businesses, Portland Audubon Society, the Portland Water Conservation District, West Multnomah Soil and Water Conservation District, and Associated Oregon Industries. The comments expressed concerns that the short-term

effectiveness evaluation was inadequate due to lack of quantitative analysis, detail and/or missing components such as logistics. Commenters requested additional analysis of several short-term impacts per NCP guidance. LWG called short-term impact mitigation measures biased and dismissive of short-term impacts, and commented that these measures misleadingly suggested short-term impacts are inconsequential. TMG and BAE commented, "... [the] proposed plan's brief discussion of remedy effectiveness and implementability provides no substantive explanations for its comparison between remedial alternatives, instead stating broadly that *'the potential for technical problems and schedule delays increases in direct proportion to the duration, amount of active remedy.'* [Id., p. 57]" ARCO and BP West Coast Products commented that short-term impacts increase proportionately as the remediation footprint decreases.

Commenters did not feel that the risk associated with disturbance of sediment during dredging and capping was well addressed:

- The PCI Group commented that EPA did not consider that larger footprint remedies cause greater suspension of contamination and disruption to Portland communities.
- West Multnomah Soil & Water Conservation District asked if "there is risk of increased toxicity of contaminants due to removal from the river, or risk of atmospheric exposure to contaminants[,] ... how EPA plans to mitigate this risk," and how this was considered in Alternative I selection as preferred.
- The Marine Group and BAE Systems expressed concerns that it is unclear if Portland can accommodate 200 truckloads of material and waste per day and how their estimated 1 barge/day at Swan Island SDU can be accomplished in a narrow lagoon used as part of an active industrial harbor.
- The Portland Audubon Society requested robust implementation of Implement air, water and fish tissue monitoring during construction, while Portland General Electric suggested that due to the lack of in-depth analysis, "It is conceivable that the cleanup activities have the potential to produce more adverse risks and injuries than the risks posed by the current condition of the river."

Commenters pointed to many short-term impacts that they did not feel were adequately addressed in the ROD including:

- Occupational and implementation related injuries, disease, and deaths caused by the cleanup activities
- Potential for accidents during construction
- Community impacts from construction activities and increased traffic (water, road and rail)
- Business disruption
- Negative net economic impact
- Noise, air, and light impacts
- Recreation disruption



- Greenhouse gas and air pollution discharges
- Release of contaminants during dredging
- Fish advisories during construction

To address noise, air, light and other quality of life issues, Olympic Tug and Barge recommended using the *Environmental, Economic, and Social Analysis Reports* prepared by AECOM, NERA, and SEA Environmental Decisions, Ltd. on behalf of the Portland Harbor Superfund Site Sustainability Project for submittal to U.S. EPA in September 2016 (Portland Harbor Sustainability Project 2016).

Some commenters were more concerned with short-term risks, and requested consideration of alternative B or another option that minimized short-term impacts. Others felt that long-term effectiveness should have more influence in alternative selection than short-term effectiveness, and requested EPA select a more aggressive option than alternative I because it appears to prioritize short-term effectiveness over long-term effectiveness. Union Pacific asked EPA to explain "... how the preferred alternative's combination of active remediation and monitored natural recovery achieves cleanup goals in a substantially shorter time than less aggressive alternatives using a different combination ...". LWG questioned why Alternative B received a lower score than alternatives with longer and more extensive construction, and questioned why none of the alternatives were classified as "best" for short-term effectiveness.

### **EPA Response**

EPA's two threshold criteria for selection of a Superfund remedy are protection of human health and the environment and compliance with the substantive requirements of federal and state environmental laws. Short-term effectiveness is one of five balancing criteria, which EPA used to perform the detailed analysis of alternatives.

EPA short-term effectiveness analysis was conducted in accordance with NCP. 40 CFR §300.430(e)(9)(iii)(E), which states:

*The short-term impacts of alternatives shall be assessed considering the following:*

1. *Short-term risks that might be posed to the community during implementation of an alternative;*
2. *Potential impacts on workers during remedial action and the effectiveness and reliability of protective measures;*
3. *Potential environmental impacts of the remedial action and the effectiveness and reliability of mitigative measures during implementation; and*
4. *Time until protection is achieved.*

In addition to the short-term effectiveness evaluation in Section 4.2 of the feasibility study report (USEPA 2016b), potential impacts on various human uses of the Site, including recreational, commercial and subsistence fisheries, water-related recreation, aesthetics, riverside parks, and other uses were evaluated in Appendix L of the feasibility study report, in compliance with Section 404 of the Clean Water Act. EPA disagrees that the feasibility study analysis does not allow for meaningful comparison amount alternatives, including consideration of proportional differences in short-term impacts.

Additional evaluation of short-term impacts and mitigation measures will be ongoing throughout remedial design and construction planning while specific technologies and schedules are planned for each area of the Site. See also responses to Union Pacific Railroad Dispute Issue 5, RALs, Transparency, Sustainability, Dredging, Economic Impacts, MNR, and Sheet Piles comments for additional information regarding short-term impacts. Fish advisories during construction will be established as discussed in responses to ICs.

Per the NCP as stated above, EPA must consider not only short-term impacts, but mitigation measures and effectiveness of those measures as well. A summary of the evaluation of these factors is provided in Sections 4.2.2.5 and 4.3.5 of the feasibility study report. While the implementation of the remedy is likely to present various short-term construction-related impacts to the Portland Harbor community due to potential increased road, train and river traffic, noise, and other construction related activities, these impacts will be mitigated to the extent practicable. For example, EPA is recommending the use of barges as the primary means of transport coupled with use of off-site transload facilities to minimize impacts on the community. Section 4.2.2.5 of the feasibility study report outlines the mitigation measures and best management practices that will be implemented to protect the community, workers, and the environment during construction of the remedial action.

EPA is committed to working with the community to minimize short-term impacts, including any temporary disruptions to public amenities. In addition, EPA requires site-specific and activity-specific health and safety plans be implemented by the parties performing the cleanup, so that the cleanup is conducted in a safe manner. EPA has conducted extensive community outreach during the development of the remedial investigation, feasibility study, and proposed plan (USEPA 2016c) and is committed to maintaining a transparent, proactive community interaction process during each cleanup phase and on all key elements of the design and implementation. For more information regarding monitoring and mitigation of construction-related impacts, see Sections 2.2.9, 2.17.3, and 2.17.4 of this responsiveness summary.

EPA also acknowledges that enhanced fish consumption advisories will be needed during implementation to address the potential for fish to be exposed to contaminants and subsequently increase human health risk of eating those fish. For more information on fish consumption advisories, see Sections 2.3.2 and 2.28.2 of this responsiveness summary.

EPA acknowledges that Table 4.3-3 of the feasibility study report contained an error which designated Alternative B short-term effectiveness as “Moderate” instead of “Best.” However, Alternative B does not meet the threshold criteria and was therefore not a viable alternative.

EPA did not prioritize the minimization of short-term risks over the minimization of long-term risks. Per EPA guidance, short and long-term risks were not looked at as tradeoffs, but rather as part of a holistic view of alternative evaluation. While Alternative G may have the most reduced long-term risks, the feasibility study report selected Alternative I in part due to its superior ability to minimize short-term disruption and risks. The selected alternative in the ROD, Alternative F Modified reduces long-term human health risks more quickly than Alternative I and minimizes reliance on ICs and likewise minimizes short-term disruption and risks over Alternative G. See Sections 2.1.1 and 2.31.1 of this responsiveness summary for additional information on alternative evaluation and selection.

## 2.20.2 Consider Externalities in Designing a Remedy

### Comment Summary

Two comments were received that requested a remedy that provides greater overall benefits to the community. One commenter stated that although EPA's mandate under CERCLA required a focus on reducing health risks of contaminant exposure, an interest in "broader public health benefits" should be factored into the cleanup decision, such as how the project design should address the impact of the expanded truck and barge traffic via diesel emissions and improving access to greenspaces to promote better health. They requested more clarity in interim benchmarks - how they were generated, how can they be implemented, and what flexibility might there be for strategies that hit the performance measures of improved habitat and lower cancer and overall health impact. One person believed that the alternative evaluation process should take into account potential costs to human and environmental health from the "full effects of living next to a river full of PCB's."

### EPA Response

The Superfund law, CERCLA, sets out EPA's authorities for responding to releases of hazardous substances and pollutants or contaminants into the environment and established requirements that all CERCLA remedies must meet. CERCLA's implementing regulations, the NCP, provides the framework used to investigate releases, evaluate the risks posed by the releases, evaluate cleanup alternatives, and select a final remedy - among other things. Most relevant to the commenters concerns, the NCP, established nine evaluation criteria that puts the statute's mandates in a decision-making framework for assessing individual alternatives and performing a comparative analysis that focuses upon the relative performance of each alternative against those criteria. The overarching goal of the CERCLA response is to ensure protectiveness of human health and the environment. Protectiveness is one of the two threshold criteria for remedy alternative evaluation. Consideration of public health benefits and overall improvement in the community is for the most part outside the scope of a CERCLA response. EPA may implement remedies that minimize the environmental footprint of a remedy such or take into consideration land use consideration in the implementation of the remedy.

Another remedial alternative evaluation criterion is short-term effectiveness. Key factors considered during the evaluation of short-term effectiveness include protection of the community and workers and minimizing environmental impacts during remedial actions. Consistent with national and regional Green Remediation guidance, EPA's remedy can factor in mitigating activities to limit the overall environmental footprint of the response.

EPA has taken into consideration many of the short-term impacts commenter expressed to the extent that they are within the scope of the CERCLA law. EPA will limit impacts to the community from performance of the cleanup itself by using barges rather than trucks or rail to transport contaminated sediments for disposal. The response will minimize volatile emissions and odors from excavation using activities such as pollution control devices during construction activities routing trucks in a manner that avoids schools, or upgrades to road facilities to increase safety in the context of increased truck traffic in remedial design. Best management practices to reduce short-term impacts will be further considered to reduce emissions include, but are not limited to:

- Use of reusable energy sources.
- Limit idling of trucks and equipment.
- Rely on local sources of materials.

- Ensuring that trucks, barges and railcars are full prior to transport.
- Implement on-site dust and noise control to reduce air pollutant and greenhouse gas emissions.
- Require clean fuel and emissions control retrofit incentives in construction contracts.

Measures will be developed during the design process to reduce impacts of habitat as part of the cleanup and there will be a need for compensatory mitigation where loss occurs. EPA's authority under CERCLA however is limited to remedial actions designed to address releases of hazardous substances or pollutants and contaminants. While some of the nine evaluation criteria involve considerations of overall protection of human health and the environment, long- and short-term impacts, the focus of cleanups are reducing or eliminating exposure to the hazardous substances or pollutants and contaminants.

Some considerations requested by the commenters are outside the scope of EPA's authority. For example, consideration of diesel emissions from Interstate 5, health care costs, and increasing access to greenspaces. However, by reducing contaminant levels in surface water and sediment, EPA expects to increase the opportunity healthy recreational opportunities (such as boating, swimming, and fishing) in the Lower Willamette River thus contributing to the overall health of the community.

### 2.20.3 Explain Preference for Alternative I in Terms of Increased Fish Meals

#### Comment Summary

One comment was received that stated:

- "EPA's preferred Alternative I will restrict fish meals for most populations to a rate of no more than 6 fish meals every 10 years throughout the construction period. (Plan, pp. 58 - 59.) After construction, Alternative I achieves 50 fish meals every 10 years. EPA advocates this result without explaining how 5 fish meals per year addresses the nutritional requirements or recreational concerns of either tribal or recreational fishers. There is no obvious reason to prefer Alternative I (7 years of 0.6 fish meals to achieve 5 fish meals per year) to Alternative B (4 years at 0.6 to achieve 3 per year) or, for that matter, to Alternative G (19 years at 0.6 to achieve 10 per year). EPA's preference seems wholly arbitrary."

#### EPA Response

The number of acceptable fish meals per unit of time represents nothing more than a calculation of post-construction or residual risk, based on predicted tissue concentrations using the food web models developed and used by LWG. Consistent with the assumptions used in the BHHRA (Kennedy/Jenks 2013), post-construction fish consumption risks on a river-mile scale were evaluated using PRGs calculated based on a consumption rate of 49 grams per day. Within the Site, persistent contaminants (particularly PCBs, chlorinated pesticides such as DDT, and polychlorinated dioxin and furans) from sediments and surface water bioaccumulate in the food chain, resulting in higher concentrations of the contaminants in fish tissue than in sediments. Existing Oregon Health Authority fish consumption advisories apply to all resident fish at the Site, including carp, bass, and catfish, advising none of these fish be consumed by children under age 6, women of childbearing age, and people with thyroid or immune system problems and no more than 1 fish meal per month for everyone else. These resident fish, in contrast to migratory salmon, are the main contributors to human health risk associated with consumption of fish from the Site. Fish advisories once cleanup has achieved its goals, though less restrictive in the future, may need to remain due to broader watershed issues.

## 2.21 Implementability

### 2.21.1 Consider Geotechnical Issues in Dredging Adjacent to Improved Shorelines

#### Comment Summary

One commenter said that although the proposed plan states that "where SMAs are projected onto the river bank, removal followed by capping is the assigned remedial technology," EPA has failed to consider the technical and regulatory difficulties that would be associated with dredging adjacent to such banks and associated over-water structures, or the actual costs that would be associated with implementing that portion of Alternative I. Due to the river-dependent uses of river frontage properties, banks are typically over steepened beyond the angle of repose associated with the native soils and sediments, and the angle is maintained by the presence of extensive arrays of piling, rip rap or bulkhead and overwater structures throughout the Site.

#### EPA Response

During remedial design, geotechnical issues related to area-specific features will be evaluated. The decision tree in the ROD has been revised to clearly outline this process. Also, EPA agrees that maintaining flexibility in construction methods through the remedial design phase is an important consideration, particularly for nearshore areas near structures and area with debris.

Dredging adjacent to river banks and associated over-water structures require special considerations that warrant a more engineered design and will be given further consideration of key details during design, such as geotechnical data to be collected, which may restrict dredging/capping areas or otherwise change the area-specific design.

Cost associated with these issues are captured under bid contingency, which accounts for changes that occur after the construction contract is awarded. Examples include technological, geotechnical, and other unknowns applicable to the construction phase.

### 2.21.2 Be Flexible in Technology Selection and Implementation

#### Comment Summary

Three comments were received that expressed the concern that EPA's proposal to remove sediments adjacent to critical structures and utilities could potentially jeopardize the integrity of these structures. Comments stated that the docks and other in-river structures are vital to trade and commerce and their removal would cause severe negative consequences for some commercial operations along the Site.

Commenters believed that EPA should retain sufficient flexibility to allow for evaluation of emerging technologies, including in-situ options, for areas such as RM 11E. The ROD should provide flexibility in making technology assignments beyond the limited decision tree options identified in the proposed plan where site-specific conditions so require.

#### EPA Response

EPA appreciates the concern expressed by commenters related to ensuring that critical structures and utilities are not jeopardized. EPA used several lines of evidence based on conditions described in the remedial investigation report to determine the appropriate technology to apply to various areas of the Site. Particular information developed during the remedial investigation regarding river bottom, depth, or other physical condition and river use was applied in selecting technologies to evaluate in the feasibility study. The 2016 feasibility study report (USEPA 2016b) applied information about currently

known conditions to develop remedial alternatives that can be compared to each other to inform remedy selection. Example technologies were evaluated for cost estimating purposes only. Updated information about river conditions and land or river use will be obtained during remedial design in order to determine appropriate technologies to apply. Details regarding the use of sheet piling will be determined during remedial design which is the appropriate time for those types of evaluations.

EPA agrees that maintaining flexibility in type of construction methods through the remedial design phase is an important consideration. The ROD includes a flexible decision tree along with general design requirements to guide the assignment of capping and dredging technologies, based on specific characteristics within SMAs. The decision tree will be used during remedial design to define what actions should be taken under different environmental conditions and locations based on the most recent design data. Once the data and river factors are evaluated within the context of the decision tree, a final design for construction can be completed. This design will then dictate the remedial construction. The decision tree is intended to provide clear direction on what actions should be taken under the different environmental conditions.

### 2.21.3 Explain Design Considerations Near and Adjacent to Navigation Channel

#### Comment Summary

The USACE and the City of Portland expressed concerns about the design considerations considered for the use of beach mix backfill and capping near and adjacent to the navigational channel. It was stated that, as parts of the river are erosional, measures should be required to ensure that the beach mix will stay in place. It was requested that EPA explain design considerations to account for and counter any erosional forces on beach mix backfill. If channel dredging occurs in the future, the stability of a cap could be undermined and the commenters believed that the ROD should state how EPA would implement capping in this situation to prevent future slope failure.

#### EPA Response

For the purpose of the feasibility study, a set of generic cap designs successfully implemented at other sediment dredging superfund sites (like *GM Massena Superfund Site*, *Eagle Harbor Superfund Site*) were applied based on Site-specific conditions, including the need for reactive materials to contain PTW and armoring to prevent erosion of the cap material. To facilitate consistent application of capping technologies, all caps were assumed to be 36-inch thick and comprised of various combinations of sand, beach mix, activated carbon, organoclay, and armor stone. Additional considerations are presented in *Section D4. Cap Thickness Evaluation*, Appendix D of feasibility study report (USEPA 2016b). The actual composition and thickness of sediment caps that will provide long-term permanence will be determined during remedial design.

Therefore, the specific information in the feasibility study report associated with cap material, thickness of caps and/or types of cap layers were assumptions for the purposes of evaluating alternatives according to CERCLA criteria and developing cost estimates for the remedial alternatives. These assumptions were developed based on the existing data and will be finalized during the remedial design, after design level data to refine the baseline conditions are obtained.

During the remedial design, factors such as proximity to navigational channel, erosion associated with wind, ship scour, river currents and vessel-generated waves would be considered in accordance with the decision tree as part of remedial design to provide long-term effectiveness and permanence and balanced against habitat considerations. The ROD includes a flexible decision tree along with general



capping design requirements to guide the assignment of capping technologies, based on specific characteristics within SMAs. It is understood that some levels of armoring may require on or off-site mitigation, which will be considered during design and discussed with the services. Also, no capping would occur in designated navigation channels unless below the navigation depth, with an appropriate buffer/overdredge allowance in areas which may require dredging in the future.

#### 2.21.4 Identify and Stage Realistic Sediment Transload and Treatment Facilities

##### Comment Summary

Two commenters believed that EPA fails to thoroughly describe and consider parameters associated with the implementability of the remedial alternatives in identifying and staging realistic sediment transload and water and sediment treatment facilities. They stated that EPA's analysis fails to take reasonable account of the lack of suitable transload facilities (or extended construction times to ready upland sites for transloading operations), or of the shortages in available and qualified source material for capping activities (given the expected stringent import criteria including a PCB replacement value of zero).

##### EPA Response

As part of the feasibility study, EPA talked with the representative facilities for dredging, barging (Tidewater Transportation & Terminals), transloading, and disposal (ChemWaste, Port of Morrow-Boardman) in the area. None of these facilities indicated any significant concerns about logistics in handling large quantities of sediment. Portland Harbor is a working industrial waterway that has the necessary infrastructure to support large sediment remediation activities.

From experience with other sediment cleanups, the feasibility study assumed that that all necessary pretreatment (including dewatering dredged material, managing and treatment of wastewater generated during the dewatering process) and handling of dredge materials will occur on the barge prior to arrival at a transload facility or ultimate disposal facility. Although the feasibility study acknowledged that an on-site transload and materials handling facility could be sited, the cost estimates did not assume stockpiling of material on a particular upland facility nor at the transload facility. The water collected on barges could potentially be discharged to the lower Willamette River (with or without treatment in accordance with regulations, such as multistage solids removal) or disposal at a publicly owned treatment works facility after appropriate and required treatment. EPA acknowledges that an expanded treatment system may be required for some material, particularly PTW. Also from experience, it was assumed that the dredged material will be mixed with diatomaceous earth on the barge to absorb water along with gravity decanting, thus reducing the requirement for dewatering and water treatment during transload and transportation for disposal.

Also, the feasibility study report (USEPA 2016b) looks at modes of transport and associated transload of wastes from a macro perspective, but the primary assumption in the feasibility study was to use barges for the purposes of implementability and cost evaluation. The feasibility study also indicated that multiple modes of transport could be used and could be evaluated during remedial design phase of the project. Thus, the impact on rail and highway infrastructure within the City of Portland can be minimized. Various disposal facilities did not indicate to EPA any significant concerns about logistics of handling the required volume for transportation, transload and disposal. Even though there might be a heavy barge traffic, the transload for all dredged material may not be at the same location.

## 2.21.5 Consider Parameters Associated with Treating Large Volumes of Contaminated Sediment

### Comment Summary

Three commenters believed that EPA fails to thoroughly describe and consider parameters associated with the implementability of the remedial alternatives in potentially treating large quantities of sediment.

### EPA Response

The feasibility study report (USEPA 2016b) considered that the materials removed for ex-situ low temperature thermal desorption treatment is to be treated at an off-site disposal facility. The assumption used estimated the quantity of removed material for ex-situ treatment to be roughly 15,000 cubic yards or 12,600 tons (*Table D2.d. Treatment and Disposal Quantities (based on assumptions presented in Appendix D2.4 of 2016 feasibility study report)*). Assumed ex-situ treatment included low temperature thermal desorption treatment. The actual quantity of material which might require such treatment will be determined during design based on federal or state regulations and/or the off-site disposal facility.

EPA talked with the representative facilities including ChemWaste, Port of Morrow (Boardman) and the barging company (Tidewater Transportation & Terminals) and they did not indicate any significant concerns regarding the logistics of material handling as well as the amount that can be accept each day at the facility for ex-situ low temperature thermal desorption treatment or any issues with treatment limitations.

## 2.21.6 Consider Implementability in Terms of Community Acceptance of Short-Term Impacts

### Comment Summary

One comment stated that EPA fails to thoroughly describe and consider parameters associated with the implementability of the remedial alternatives in obtaining community acceptance, particularly of short-term impacts such as noise, light, and vehicle traffic.

### EPA Response

Based on comments received during the public comment period, EPA has thoroughly considered implementation impacts from community acceptance. EPA appreciates the concerns of the public, local workforce and businesses as important segments of the community as well as the desire expressed in many comments to reduce the impact due to remedy implementation.

EPA will develop a monitoring program during the remedial design phase and will consider public input (Section 2.17 of this responsiveness summary). Concerns about noise, odor, light, and other potential community impacts will also be considered and addressed to the extent possible. Exceedances of monitoring thresholds will result in additional controls being put in place so that construction impacts are mitigated to the extent practicable. EPA will provide contact information for community members to raise complaints or concerns during the course of construction.

Cleanup activities, including the use of dredges and barges will generally be consistent with existing uses of the river in terms of the level of noise, lighting, and human activity that already exists. During the construction period, there would be increased barge traffic as barges transport dredged material from the active cleanup area downstream. Cleanup activities with the potential to restrict navigation in the



harbor channel will be coordinated with the USACE, U.S. Coast Guard, and other stakeholders during remedial design.

### 2.21.7 Ensure Free Passage of Ship Traffic during Remediation

#### Comment Summary

Two commenters stated that EPA fails to thoroughly describe and consider parameters associated with the implementability of the remedial alternatives in placing obstructions to the navigation channel and the requirements to move the dredge and its support vessels and structures to allow for the passage of ship traffic on an ongoing and continuous basis. The following link provides an illustration of the impact of passing vessels on dredging (<http://dofnw.com/animation/>).

Additionally, the RM 11E Implementability Study Report found that several hundred vessels (ocean going ships, tug boats, and barges) use or traverse the RM 11E area every year, with vessels using over-water RM 11E facilities almost every day. The ROD should acknowledge these constraints.

#### EPA Response

Remedial activities with the potential to obstruct navigation temporarily in the harbor channel will be coordinated with the USACE and U.S. Coast Guard, including necessary containment measures to minimize sediment dispersion in areas where NAPL extends into the navigation channel.

In the feasibility study report (USEPA 2016b), sheet piles are considered as a representative engineered rigid control measure identified and evaluated for sediment dispersion control. However, that representative approach does not preclude other types of rigid control measures for consideration during remedial design. As stated in Appendix O of the report, EPA agrees that depth can limit the use of suitable engineered options for controlling releases, and deep water depths can preclude the use of sheet piles. EPA assumes that engineered rigid containment will be utilized when NAPL was present in water depths less than 50 feet. The feasibility study report acknowledges that “Release and residual management measures such as silt curtains and sheet piles may be difficult to construct and reliably operate in portions of the river affected by navigation traffic, deeper water, and significant current, this may lead to schedule and implementation delays.”

Engineered rigid control measures, which has the potential of obstructing the navigation channel, were evaluated holistically within the feasibility study report for their use in reducing or eliminating short-term releases of contaminants during construction and not on a location-specific basis. Thus, the feasibility study report does not present figures indicating design level logistical details regarding location and depth of engineered rigid control measures. Details (such as type and location) regarding engineered rigid control measures will be determined during remedial design.

Regarding the RM 11 area, The ROD acknowledges that, during remedial design and remedy implementation, various implementability factors such as dredge production rates, seasonal timing, and other factors will be considered to minimize facility closures and to avoid adverse economic impact to waterfront businesses.

### 2.21.8 Ensure Remediation Time Frames Are Realistic

#### Comment Summary

Many comments were received from LWG, other businesses and industry organizations regarding the construction durations utilized in the feasibility study. The majority of the commenters stated that the construction durations presented in the feasibility study were overly optimistic and did not take into

account the potential for delays associated with the time necessary to prepare dredging areas (such as, installation and removal of sheet pile wall and placement and removal of silt curtains), move operations from one dredge area to another, manage debris, implement construction related BMPs and place capping materials. They commented that the construction duration estimates did not account for siting and development of sediment and water staging, handling, treatment and transloading facilities. Finally, the commenters stated that the potential effects of process bottlenecks at the transloading/water treatment facilities, delays due to roundtrip transport to the disposal facility and lost time due to the requirement to move and reposition dredge vessels to avoid disrupting navigation were not considerations.

The commenters stated that failure to properly consider these factors inappropriately skewed the evaluation of dredging-based alternatives in the feasibility study. They further commented that the use of overly optimistic production rate assumptions and the related underestimation of dredging duration and costs precluded meaningful comparison of the cost effectiveness of remedial alternatives as required by the NCP and CERCLA. They also stated that these incorrect assumptions result in a preferred alternative that is not an accurate representation of the actual impact Alternative I would have on the community and operations within Portland Harbor.

A specialized dredging firm provided a detailed evaluation of the various construction durations presented in the feasibility study and proposed plan. The commenter stated that based on an evaluation of production rates achieved at environmental dredging projects in the Pacific Northwest, average open water and confined dredging production rates are 1870 and 1060 cubic yards per day respectively in comparison to the rates of 2382 and 1190 cubic yards /day used in the feasibility study. The commenter further concludes that based on a 17 week dredging season (July 1 through October 31), it would take an estimated 4.1 years of dredging with two dredges to implement dredging activities associated with EPA's preferred alternative which is approximately one-third longer than the 3.1 years of dredging estimated by EPA for two dredges operating in tandem.

One commenter cited the dredging activities implemented at the Boeing Plant 2 early action project as the basis for concluding that the dredging production rates were over estimated. The commenter noted that the dredged schedule of 20 hours per day, six days a week was met only 75 percent of the time. The primary factors that resulted in lower production rates included transload facility production rates, railcar availability, and down time for water treatment system. The same commenter also noted that EPA stated in an earlier version of the feasibility study that the daily and weekly durations of removal operations may be refined if community quality of life concerns (such as night-time noise or light pollution) are identified.

Finally, a LWG member commented that the proposed plan is unacceptably vague regarding the length of time between issuance of the ROD and commencement of construction of the remedy. EPA provides vague estimates by reference to a "Year 0" but does not articulate what must occur before or after Year 0 and how long those activities will take. For example, it is unclear whether entering into consent decrees, initial conditions sampling, remedial design (and any additional investigation), construction of a material handling facility and construction mobilization occur before or after Year Zero and how long each will take.

### **EPA Response**

The assumptions and calculations regarding dredged production rates were included in Appendix D, Table D3-1 of the 2016 feasibility study report (USEPA 2016b). The assumptions about factors such as

bucket volume, cycle time, and percent bucket fill are considered reasonable based on USACE guidance (*Technical Guidelines for Environmental Dredging of Contaminated Sediments*, September 2008 [USACE Environmental Dredging Guidelines], Table 1, page 88) (Palermo 2008) and the experience at other sediment remediation projects around the country and in the Pacific Northwest.

As noted in Table D3-1, daily dredge production rates were developed assuming a 55/45 percent mix of cable arm versus articulated bucket dredges, based on the approximate areal percentages of navigation channel and maintenance dredge areas in the alternatives. Based on the size of the Site and experience at other sites, dredging and excavation operations are assumed to occur 24 hours/6 days per week using three dredges. The feasibility study notes that the daily and weekly durations of removal operations may be refined if community “quality of life” concerns (such as nighttime noise or light pollution) are identified. However, due to the industrial nature of the Site and surrounding area, the feasibility study assumed that 24 hours per day dredging activities can be achieved. Section 2.17.4 of this responsiveness summary addresses quality of life monitoring concerns.

As described in Table D3-1, the planning-level productivity estimate for a cable arm dredge was developed based on operational characteristics for environmental dredging and guidance presented in the USACE Environmental Dredging Guidelines. The production rate is the product of the bucket volume (10 cubic yards), cycle time (2 minutes), and percent bucket fill (60 percent), adjusted for effective working time (62.5 percent).

The basis for specific assumptions (using USACE Environmental Dredging Guidelines) is summarized below:

- **Bucket Size:** USACE guidelines provide a cable arm bucket size of 3 to 10 cubic yards. As described in (USACE 2013), recent environmental dredging projects completed at Buffalo River and Indiana Harbor used 15 cubic yard buckets. As a result, a 10 cubic yard bucket size was selected.
- **Cycle Time:** USACE guidelines provide a cycle time of 2 to 4 minutes. As described in Schroeder and Gustavson, 2013, a typical cycle time without restrictions would be 1.5 to 2 minutes when dredging at depths greater than 35 feet. As a result, a 2-minute cycle time was selected.
- **Percent Bucket Fill:** USACE guidelines provides a percent bucket fill of 0.5 to 0.65. As a result, a percent bucket fill of 60 percent was selected.
- **Effective Working Time Efficiency:** USACE guidelines provides an effective working time of 55 to 70 percent. The selected value of 62.5 percent represents the mid-point of this range.

Based on these assumptions, the cable arm dredge productivity rate is approximately 2,700 cubic yards/day/dredge plant. The productivity estimates of the articulated bucket dredge are derived from recent site experience at Boeing Plant 2 removal at the Duwamish River Superfund Site. There, the daily production rate during the latest season of dredging was approximately 1,150 cubic yards/day using a single 4-cubic yard excavator-mounted bucket.

Regarding the estimate use of fixed arm vs. cable arm dredging, Table D3-1 states: “Daily dredge production rates were developed assuming a 55/45 percent mix of cable arm versus articulated bucket dredges, based on the approximate areal percentages of navigation channel and maintenance dredge areas in the alternatives.” Assuming a 55/45 percent mix of cable arm and articulated bucket dredges, a total production rate of 6,000 cubic yards/day was estimated for daily production as follows: [(55

percent \* 2,700 cubic yards/day) + (45 percent \* 1,150 cubic yards/day)] \* 3 dredge plants = 6,000 cubic yards/day estimates. It's acknowledged that the text in the main body of the feasibility study that is referenced by the commenters does not clearly state this basis.

A number of commenters stated that the time necessary to prepare dredging areas, move operations from one dredge area to another, manage debris, implement construction related BMPs and place capping materials, allowances for work disruption, and other impediments to dredging operations were not considered. However, consistent with the USACE Environmental Dredging Guidelines (p. 131), these factors are considered through the use of an "Effective Work Time Factor:" "Effective working time is the time during the dredging operations when actual production is taking place, such as material moving through the pipeline or being placed into a sediment barge. This is also referred to as 'operating time.'" The Effective Work Time factor accommodates "when the dredge is operational but no production is taking place, such as time spent making changes to pipelines, cleaning debris from the suction head, changing sediment barges, moving the dredge, standing by for navigation traffic, making minor operating repairs, and refueling. This is also referred to as 'allowable downtime.'" The USACE Environmental Dredging Guidelines (p. 93) states that the effective working time is "typically 55 to 70 percent for environmental dredging projects." The estimate used in the 2016 feasibility study (62.5 percent) was the midpoint of that range. In this regard, dredge "operating time" is estimated to occur 15 of 24 hours, six days per week. The effective working time factor was explicitly used to the accommodate issues identified by the commenters as well as other unforeseen circumstances. As further stated in the 2013 memorandum (USACE 2013):

*"A work schedule of 6 days at 24 hours/day with three dredge plants on site is recommended, equating to approximately 5,600 cubic yards per day with current production assumptions. To further refine this estimate, the cycle time, fill percentage and effective work time should be reviewed based on site-specific conditions, resuspension control plan and residuals management plan. The existing estimates for these parameters are conservative and typical of shallow cuts with stringent controls on overdredging, resuspension (e.g., silt curtains), and residuals. For example, thicker cuts could significantly increase the production rate. A target production rate of 6000 cubic yards/day, 6 days per week should be achievable even with the assumed efficiency impacts of resuspension control and residuals control and management if water quality, processing and disposal requirement can be met. A target production rate of 6000 cubic yards/day, 6 days per week should be achievable even with the assumed efficiency impacts of resuspension control and residuals control and management if water quality, processing and disposal requirement can be met."*

The feasibility study assumes that dredging and excavation operations to occur 24 hours/6 days per week using three dredges. Also, the duration of the dredging season is assumed to be 122 days based on the typical in-river fish work window (the work window is adjusted annually based on the actual runs by NMFS in consultation with Oregon Department of Fish and Wildlife) established for the Willamette River of July 1 through October 31. The daily and weekly durations of removal operations may be refined if community "quality of life" concerns (such as nighttime noise or light pollution) are identified. However, for this feasibility study report, it is assumed that 24 hours per day dredging activities can be achieved given the industrial nature of the majority of the surrounding areas. Also, it is assumed that other related construction activities will be performed in-parallel to the in-river work.

Overall, this and other comments on dredge production imply that overly high production rates falsely equate to shorter construction durations. Even if these feasibility study-level production rate estimates are high, other assumptions lessen the production rates. For example, the in-river construction duration is based on the assumption that “Cap and ENR construction is assumed to occur in sequence (not in parallel) with dredging for estimating total construction” (Table D3-1). This means that all dredging would occur, then all capping would occur. This assumption is reasonable for a feasibility study level evaluation of construction duration. However, it is likely or possible that remedial construction activities would be sequenced by area, generally moving from upstream to downstream, capping/dredging contaminated sediment, before moving on to the next area whenever possible which would reduce overall construction timeframe from the assumptions used for the feasibility study. As a final point, because all alternatives have dredging to some degree, changes to the dredge productivity rates would have similar effects across all alternatives, and not significantly influence remedy selection.

Once commenter provided alternate production estimates based on assumptions regarding bucket size, fill factor, bucket cycle time and effective working time also based on the USACE 2008 Environmental Dredging Guidelines and their experience with similar projects implemented in the Pacific Northwest. From our review of their analysis, that analysis compares favorably to assumptions used in the feasibility study. That review concluded that production rate could be 3740 cubic yards/day for two dredges operating in tandem, whereas, the EPA feasibility study estimated of 6,000 cubic yard/day using three dredge plants. In addition, the estimate of 4.1 years of dredging with two dredge plants is similar to the EPA estimate of 3.1 years of dredging for three dredges operating in tandem.

While various dredging production rates can be developed based on alternate assumptions regarding bucket volume, cycle time, percent bucket fill and effective working time, the assumptions used and production estimates resulting from them presented in the feasibility study are consistent with guidance and the experience at other sediment remediation projects around the country and in the Pacific Northwest and represent an appropriate level of accuracy for a feasibility study level evaluation. In addition, any uncertainty in construction duration does not skew the evaluation of alternatives since the dredge production estimates were developed in a consistent manner across all alternatives. Similarly, although the feasibility study and proposed plan (USEPA 2016c) did not consider the length of time between the ROD and the commencement of remedial activities at the Portland Harbor Site, this length of time is expected to be consistent between alternatives and thus has no bearing on the selection of EPA’s preferred alternative because it does serve to distinguish one alternative from another.

Regarding the length of time that construction would take in comparison to MNR, it should be noted that the estimated construction duration for Alternative F Modified is 13 years while MNR is expected to take much longer. In addition, without the targeted removal and capping associated Alternative F Modified, MNR is expected to be much less effective.

### 2.21.9 Ensure Cleanup Does Not Impact Site Features

#### Comment Summary

The City of Portland, Port of Portland, Sediment Management Work Group, and the RM 11 – PacifiCorp all expressed concern that EPA needs to consider outfalls, water mains, sanitary lines and other utilities, bridges, docks and other infrastructure, maritime and bridge traffic, terminal operations, existing remedial caps and shoreline stabilization, steep slopes, buried/under water power/utility cables, and areas to manage dredged materials in the assignment and implementation of remedial technologies. The City called to attention a water main and sanitary force main that cross the river. They requested EPA consider current and future utilities, and use precautionary measures to assure protection and long

term access of public utilities. The City also commented that the cost of relocation or alteration of utilities as well as future associated maintenance costs should be factored into remedy costs.

### **EPA Response**

EPA considered overall site information to determine general feasibility of capping, dredging and application of other remedial technologies. Details of public utilities and other site features will be considered during remedial design. EPA agrees that it will be necessary to plan and take precautions to prevent damage, destabilization and other adverse impacts during construction. If impacts are unavoidable, precautions will be taken to minimize impacts as much as practicable and damage will be repaired. During remedial design, site-specific surveys will be conducted to identify public utilities and infrastructure in order to account for these features in the remedial design, which may mean working around them or in some cases relocating such features. Parties planning and/or performing the cleanup will need to coordinate with landowners on details of infrastructure protection, or alternately, details of infrastructure relocation where necessary. Any proposed changes or disturbance to utilities or access of utilities will be coordinated with the City of Portland and others.

Additionally, other site-specific details will be evaluated and considered during remedial design. Specific schedules for maritime and bridge traffic and terminal operations, materials management and other higher coordination considerations will also be factored into planning during the remedial design and the construction planning process. For additional information on dredged material handling, see Appendix F of the feasibility study report (USEPA 2016b). Debris is discussed in Sections 3.4.6.3 and 3.4.8.6 of the feasibility study report. Additional responses to concerns related to river banks and dredging can be found in the dredging and river banks response to comments.

## **2.22 Cost**

### **2.22.1 Perform a Cost Effectiveness Analysis**

#### **Comment Summary**

Eight commenters stated that EPA failed to perform a clear cost-effectiveness analysis. It was stated that a quantitative assessment of cost-effectiveness is needed and that CERCLA requires that EPA determine that the selected remedy is cost-effective. The commenters stated that EPA must compare the cost to the effectiveness of each alternative individually, fairly and carefully weighing the costs against the benefits of the alternatives both individually and relative to each other. This evaluation should also demonstrate how the alternatives' dollar costs are proportional to their effectiveness in reducing risk.

The commenters state that EPA's proposed plan and feasibility study report omit quantitative and detailed short-term and long-term effectiveness evaluations and repeatedly underestimate the costs and durations of the alternatives. It was stated that EPA's limited cost-effective analysis in the proposed plan is insufficient to meet the standards set forth in statutes, regulations and guidance and risks a determination that its ultimate remedy selection is arbitrary and capricious. Commenters further state that due to the perceived uncertainty in the cost analysis, PRPs will be discouraged from committing to the cleanup and entering into liability settlements.

#### **EPA Response**

A cost-effectiveness determination is required as part of the two-step remedy selection process indicated at 40 CFR §300.430(f). Specifically, 40 CFR §300.430(f)(ii)(D)) describes how cost-effectiveness is determined as:



*Cost-effectiveness is determined by evaluating the following three of the five balancing criteria to determine overall effectiveness: long-term effectiveness and permanence, reduction of toxicity, mobility, or volume through treatment, and short-term effectiveness. Overall effectiveness is then compared to cost to ensure that the remedy is cost-effective. A remedy shall be cost-effective if its costs are proportional to its overall effectiveness.*

Page 67 of the proposed plan (USEPA 2016c) described EPA's analysis of the relevant criteria in compliance with the NCP. Likewise, the ROD at Section 15 provides EPA's analysis and determination of cost-effectiveness as provided by the NCP. Table 29 in the ROD addresses the elements of cost-effectiveness.

Neither the statute nor the NCP requires the type of rigorous tools, such as a "multi-criteria decision analysis" for determining cost-effectiveness as suggested by multiple commenters. Per the NCP [40 Code of Federal Regulations 300.430(e)(9)], the feasibility study report (USEPA 2016b) included a qualitative and comparative analysis of the individual balancing criteria of long-term effectiveness and permanence, reduction of toxicity, mobility, or volume through treatment, short-term effectiveness, implementability, and cost. The feasibility study comparative analysis has been updated to include Alternative F Modified (See ROD Table 22). And, as discussed above, the ROD includes the agency's determination of how the selected remedy (Alternative F Modified) is cost-effective as the NCP provides, see ROD Section 15.

### 2.22.2 Provide Costs by SDU

#### Comment Summary

Comments from Knife River, ESCO and Northwest Pipe request cost estimates on a SDU/SMA basis for allocation/negotiation purposes. Northwest Pipe also asked for a break-down of costs for various technologies. Comments from Shell Oil, Shore Terminal and SLR International question/challenge EPA's delineation of SDUs (or in some cases, SMAs).

#### EPA Response

The purpose of the feasibility study cost estimates, as stated in EPA guidance, is not to create allocation estimates, although they can be used as a starting point for that purpose. The selected remedy is a site-wide remedy decision and costs estimates were not broken-down down by SMA/SDU and by remedial technology. Specific questions noted in the Shell Oil comment letter regarding Table 4.1-1 of the feasibility study report (USEPA 2016b), which summarizes the SDUs, including the focused COCs identified for each of the SDUs, will be evaluated, along with the complete list of COCs during remedial design to ensure cleanup levels are met. During remedial design, additional data and/or re-evaluation of existing data will be considered, such as the sediment data at RM 5W referred to in the comment letter from Shore Terminals. Similarly, remedial action boundaries/SDUs will be re-evaluated during remedial design.

### 2.22.3 Provide Detail and Backup For Estimated Costs of Each Alternative

#### Comment Summary

Six comments stated that EPA's estimated costs for each alternative lack detail, accuracy, and backup.

#### EPA Response

EPA documented the methodology and assumptions used in developing feasibility study cost estimates in Attachment A of Appendix G of the 2016 feasibility study report (USEPA 2016). Cost estimates were developed consistent with "A Guide to Developing and Documenting Cost Estimates during the Feasibility

*Study*” (USEPA 2000) and include the level of detail and backup suggested by the guidance to meet the accuracy requirements for feasibility study cost estimates (-30 percent to +50 percent of actual cost). EPA recognizes that the intended purpose and use of cost estimates during a feasibility study for remedial alternatives may be misunderstood by those not familiar with the Superfund process, leading to the incorrect perception that feasibility study report cost estimates are “inaccurate” or not the “true” costs. EPA cost estimating guidance (USEPA 2000) states that the purpose for feasibility study cost estimates is to compare remedial alternatives during the remedy selection process, not for establishing construction project budgets nor for negotiating Superfund settlements with potentially responsible parties to pay for cleanups.

The expected accuracy stated in this guidance for feasibility study cost estimates is +50 percent to -30 percent of actual cost, which means that a remedial alternative’s cost at the time of construction could be as much as 50 percent higher or 30 percent lower than as presented in the feasibility study report. These estimates are not intended to be highly accurate because the level of detail for the scope of the alternatives in a feasibility study is much lower than later during design and construction of a remedy when more data are available and there is a better understanding of the construction timelines and funding. This is particularly true of projects such as the Portland Harbor cleanup where a large number of individual parties potentially contributed to the contamination and the scope of the cleanup is large (over many river miles), so the sequencing of construction work is complex. The cost estimates are developed to reflect the understanding of the alternatives as described in the feasibility study given the understandable uncertainties that exist and will continue to exist even after a decision on a remedy approach is made, prior to design and construction.

The cost estimate backup as presented in Appendix G also includes Cost Source Database; EPA Derived Labor Costs; Project-Specific Vendor Quotes; Previously Developed Costs by Anchor QEA; EPA Derived MII Costs; and Costs from Other Projects/Sources.

#### 2.22.4 Improve Accuracy of Production Rates, Durations, and Schedule

##### Comment Summary

Ten commenters stated that EPA needed to improve the accuracy of production rates, project durations, and schedules. Commenters state that dredging and capping production rates used by EPA were too high, resulting in unrealistic unit costs and construction durations. Commenters state that due to the high level of commercial activity at the Site, additional time should be added to the schedule to allow for commercial ship passage. They further state that EPA’s underestimated durations result in inaccurately low estimates for other cost elements, such as the transload facility and treatment.

##### EPA Response

During the feasibility study, a cursory evaluation of construction duration was performed for the major construction components (capping and dredging) as indicated in Appendix D.3 of the feasibility study report (USEPA 2016b). A detailed construction schedule is generally not produced because the level of scope definition is too low to make those design-level determinations. It should be noted that schedules indicate a minimum duration and that longer durations only affect present value cost as estimated. The productivity rates presented in a technical memorandum (*Review and Recommendations on Dredge Duration and Production Rates from the Portland Harbor Draft Feasibility Study*) (USACE 2013) was used to calculate construction durations.

The USACE technical memorandum recommended that:



*“A work schedule of 6 days at 24 hours/day with three dredge plants on site is recommended, equating to approximately 5,600 cubic yards per day with current production assumptions. To further refine this estimate, the cycle time, fill percentage and effective work time should be reviewed based on site-specific conditions, resuspension control plan and residuals management plan. The existing estimates for these parameters are conservative and typical of shallow cuts with stringent controls on overdredging, resuspension (e.g., silt curtains), and residuals. For example, thicker cuts could significantly increase the production rate. A target production rate of 6000 cubic yards/day, 6 days per week should be achievable even with the assumed efficiency impacts of resuspension control and residuals control and management if water quality, processing and disposal requirement can be met. A target production rate of 6000 cubic yards/day, 6 days per week should be achievable even with the assumed efficiency impacts of resuspension control and residuals control and management if water quality, processing and disposal requirement can be met.”*

The assumptions and calculations transmitted in the memo were included in Appendix D, Table D3-1 of the 2016 feasibility study report to estimate construction durations for each alternative. Contrary to assertions made in the comment, stepping time, allowances for work disruption, and other impediments to dredging operations are accommodated in productivity rate estimates in the USACE technical memorandum. USACE's *Technical Guidelines for Environmental Dredging of Contaminated Sediments* (Palermo 2008) recommends the use of an Effective Working Time factor (p. 131): “Effective working time is the time during the dredging operations when actual production is taking place, such as material moving through the pipeline or being placed into a sediment barge. This is also referred to as “operating time.” The Effective Work Time factor accommodates “when the dredge is operational but no production is taking place, such as time spent making changes to pipelines, cleaning debris from the suction head, changing sediment barges, moving the dredge, standing by for navigation traffic, making minor operating repairs, and refueling. This is also referred to as “allowable downtime.” USACE 2008 (p. 93) states that the Effective Working Time is “typically 55 to 70 percent for environmental dredging projects.” The estimate used in the 2016 feasibility study report (62.5 percent) was the midpoint of that range. In this regard, dredge “operating time” is estimated to occur 15 of 24 hours, six days per week. The Effective Working Time factor was explicitly used to accommodate issues identified by the commenters as well as other unforeseen circumstances. As stated in the 2013 memo from (USACE 2013), “A target production rate of 6000 cubic yards/day, 6 days per week should be achievable even with the assumed efficiency impacts of resuspension control and residuals control and management if water quality, processing and disposal requirement can be met.”

Based on recommendations (Palermo 2008), the feasibility study assumes that dredging and excavation operations occur 24 hours/6 days per week using three dredges. The daily and weekly durations of removal operations may be refined if community “quality of life” concerns (such as nighttime noise or light pollution) are identified. However, for this feasibility study, it is assumed that 24 hours per day dredging activities can be achieved given the industrial nature of the majority of the surrounding areas.

The project/construction durations are not entirely dependent upon dredging production rates. They are dependent on other assumptions that increases the project/construction durations, for example; the in-river construction duration is based on the assumption that “Cap and ENR construction is assumed to occur in sequence (not in parallel) with dredging for estimating total project/construction duration” (Table D3-1). This means that all dredging would occur, then all capping would occur. This assumption is fine for its purpose (estimating a project/construction duration for a feasibility study -level evaluation). As a final point, because all alternatives have dredging to some degree and used the same

types of technology assignments (capping, dredging and disposal, in-situ treatment, ENR, etc.), changes to the dredge productivity rates would have similar effects across all alternatives, and not significantly influence remedy selection.

It should be noted, that construction durations for each alternative were estimated exclusively from the information provided in Appendix D; the information in Appendix G was not used in any way to calculate the construction durations that were ultimately used and presented in the 2016 feasibility study report for both cost and non-cost purposes in evaluation of balancing criteria. The information regarding productivities and dredge/capping/disposal crews in Appendix G was used solely to verify that unit costs provided for the various scope activities in the cost estimates had reasonable cost accuracy for a feasibility study level of evaluation.

The feasibility study does not provide construction schedules for alternatives, which is more appropriate during remedial design. However, cursory evaluations of project durations within Appendix D3 were included for purposes of implementability and cost evaluations in the feasibility study. The feasibility study assumes that the development of transload facility will be included in the initial year of preparatory activities. The assumption of preparatory activities occurring in the initial year is stated in Footnote K, Table D3-1 (Construction Duration Assumptions) of Appendix D of the feasibility study report. The initial year of preparatory activities would include pre-design investigations and start-up activities prior to beginning construction (in-river work) and would include development of transload facility, mobilization, setting up of staging area, etc. Also, the feasibility study assumes that all necessary pretreatment (including dewatering and water treatment) and handling of dredge materials will occur on the barge prior to arrival at a transload facility. There is no assumed stockpiling of material on-site nor at the transload facility. Expansion of the transload facility or additional transload facilities (if needed) was assumed to be developed concurrently during construction (in-river work) for feasibility study purposes.

In conclusion, the information in Appendix G is solely for cost estimating purposes and has no direct relationship to the estimated construction durations, which were estimated in Appendix D3 and used for cost and non-cost evaluations in the feasibility study report. The primary sources of information for construction duration estimates in Appendix D3 were the quantities in Appendix D2, the assumptions and footnotes from Table D3-1, and the productivities and equipment assumptions from the technical memorandum (Palermo 2008).

### 2.22.5 Modify Contingency Percentages

#### Comment Summary

Six comments were received regarding modification of contingency percentages. They state that EPA used a low contingency percentage and that this is unwarranted due to the conceptual nature of the technology assignment modeling and the high level of uncertainty in applying these conceptual technologies.

## EPA Response

As described in Section 5.4 of *“A Guide to Developing and Documenting Cost Estimates during the FS”* (USEPA 2000), engineering judgment may be used to adjust rule-of-thumb percentages presented in Exhibit 5-6 for scope contingency with a lower contingency indicating that project scope will undergo minimal change during design. Due to the detailed level of conceptual design performed as part of the technology assignment modeling in this feasibility study, the contingency percentages were modified to the low end of the recommended range presented in the guidance, to better reflect the detailed evaluation and concepts developed for these items.

Per guidance, contributing factors to scope contingency include the following:

- Limited experience with certain technologies
- Inaccuracies in defining quantities or characteristics
- Potential requirements due to regulatory or policy changes

Scope contingency would be expected to be higher for newer or emerging remedial technologies than for more well-documented systems. Each alternative was developed using similar technologies and major work activities. Conventional and proven technologies were used in the development of the alternatives.

The primary differences between the alternatives is the size of the footprint of removal and containment based on the area of the SMAs defined for each alternative. Therefore, the cost differences between alternatives is reflective of the differing quantities calculated in the technology assignment modeling. The development of the RALs for each alternative established a boundary for the horizontal limits of dredging/capping based on available boring data. There is a vertical limit for dredge volumes in the shallow and intermediate areas based on the technology assignments, and this will limit the risk for potential growth of volume estimates in those areas.

EPA ultimately selected a scope contingency (10 percent) within the parameters suggested by the guidance, after taking this information into account. For instance, Exhibit 5-6 of EPA guidance (USEPA 2000) indicates a recommended scope contingency range of 5 to 10 percent for surface grading/diking, 5 to 15 percent for bulk liquid processing, 5 to 15 percent for on-site and off-site disposal, and 10 to 20 percent for sludge stabilization. All of these are activities that are part of the scope of the Portland Harbor alternatives and are within the range of the scope contingency selected by EPA. While vertical barriers (10 to 30 percent) and soil excavation (15 to 55 percent) are at or higher than the selected value, the refined development of quantities and scope in this feasibility study minimize the likelihood that significant unknowns and uncertainties remain that would result in large underestimation of costs requiring scope contingency.

Bid contingency accounts for changes that occur after the construction contract is awarded. Examples include:

- Technological, geotechnical, and other unknowns applicable to the construction phase
- Changes due to adverse weather
- Material or supply shortages

Conventional and proven technologies were used in the development of the alternatives with only few exceptions because of limitations in alternative development. Technical and geotechnical unknowns associated with constructing technologies such as sheet pile should be addressed during pre-design investigation. The site-specific unit costs developed for Portland Harbor and presented in Appendix G were generally in the range of costs at other contaminated sites in the Pacific Northwest. Inputs and assumptions used in the development of the construction duration calculations included an in-river work window which is appropriate for the region.

A vast majority of the materials and supplies identified as necessary for remedial action are conventional and readily available (sand, rock, diatomaceous earth, quicklime). EPA assumes commercial source of capping materials, and confirmed that commercial suppliers could supply the required volumes, which ultimately reduces concerns about cost growth due to material shortages. Similarly, the representative disposal facilities were contacted to verify that they did not have capacity or waste type limitations leading to issues during construction.

EPA ultimately selected a bid contingency (10 percent) within the parameters suggested by the guidance, after taking this information into account. Pages 5-11 of the guidance (EPA 2000) indicates a recommended scope contingency range of 10 to 20 percent.

Unlike alternatives for some Superfund projects, the primary differences between the alternatives for the Portland harbor Superfund Site is the size of the footprint of removal and containment based on the area of the SMAs defined for each alternative. Therefore, the cost differences between alternatives is reflective of the differing quantities calculated in the technology assignment modeling. Because the differences in capital and periodic costs are primarily based on quantity differences, the use of lower percentages for contingency do not impact the comparative aspects of the costs estimates between alternatives.

### 2.22.6 Revisit Costs for Water Quality Control Structures

#### Comment Summary

Two comments were received on water quality control structures. Commenters state that although EPA is requiring the installation of sheet piles around PTW dredge areas in deep water, the cost estimate was based on less reinforced structures in shallow water.

#### EPA Response

Sheet piles are a representative engineered rigid control measure identified and evaluated for sediment dispersion control in the 2016 feasibility study report (USEPA 2016b). However, that representative approach does not preclude other types of rigid control measures for consideration during remedial design. As stated in Appendix O, EPA agrees that depth can limit the use of suitable engineered options for controlling releases, and deep water depths can preclude the use of sheet piles. EPA assumes that engineered rigid containment will be utilized when NAPL is present in water depths less than 50 feet.

Engineered rigid control measures were evaluated holistically in the 2016 feasibility study report for their use in reducing or eliminating short-term releases of contaminants during construction and not on a location-specific basis. Thus, the 2016 feasibility study report does not present any design level logistical details regarding location and depth of engineered rigid control measures. Location-specific evaluations for feasibility of sheet pile versus other types of engineered rigid control measures, including placement within the navigation channel, were beyond the scope of evaluation of the 2016

feasibility study report. Details regarding sediment dispersion control and location-specific engineered rigid control measures will be determined during remedial design which is the appropriate time for those types of evaluations.

Alternative-specific costs for purchasing, installing and removing sheet pile walls are presented in Appendix G. The unit costs were developed by Anchor QEA in the draft 2012 feasibility study on a horizontal linear foot basis. Quantities for sheet pile lengths used in the detailed alternative cost estimates and presented in the 2016 feasibility study report Appendix D Table D2.j (in horizontal linear feet) were holistically estimated for each alternative by encircling all PTW dredge and/or capped areas with silt curtains assumed for the remainder of dredged and/or capped areas.

Figure 3.4-33 of the 2016 feasibility study report presents areas of NAPL presence and Site bathymetry identifying water levels at the 50 feet below mean low water level. EPA acknowledges that the legend of Figure 3.4-33 should indicate that the darker shaded areas identify water depths greater than 50 feet MLLW, and the lighter shaded areas identify water depths less than 50 feet mean low water level.

Remedial activities with the potential to restrict navigation in the harbor channel will be coordinated with the USACE during remedial design, including efforts to minimize sediment dispersion in areas where NAPL extends into the navigation channel. The Rivers and Harbors Act prohibits obstructions to navigation, but CERCLA requires remedies to be protective of human health and the environment, and other federal statutes require measures to reduce impacts to Endangered Species Act species or the aquatic environment as well. It was assumed in the 2016 feasibility study report that the review for compliance with the substantive requirements of the relevant ARARs will occur during remedial design and throughout the construction of the cleanup as appropriate. However, permits and related administrative approvals, as implied by LWG, are not required for on-site CERCLA remedial actions and would not necessarily prevent implementation of these measures.

### **2.22.7 Provide Details on Dredging Equipment, Sediment Handling and Disposal, and Implementability**

#### **Comment Summary**

Comments were received from four commenters in reference to needing additional details on dredging equipment, sediment handling and disposal, and implementability. Commenters cite specific concerns about the capacity of offloading facilities to handle the estimated quantities of material and the ability to transport the material from the offloading facilities to the respective landfills in a safe and cost-effective manner.

#### **EPA Response**

In the 2016 feasibility study report (USEPA 2016b), the estimated use of fixed arm vs. cable arm dredging is presented in Table D3-1. It states that “Daily dredge production rates were developed assuming a 55/45 percent mix of cable arm versus articulated bucket dredges, based on the approximate areal percentages of navigation channel and maintenance dredge areas in the alternatives.” Also, based on this assumption of mix of dredge types, 6,000 cubic yards/day was estimated for daily production  $[(55 \text{ percent} * 2,700 \text{ cubic yards/day}) + (45 \text{ percent} * 1,150 \text{ cubic yards/day})] * 3 \text{ dredge plants} = 6,000 \text{ cubic yards/day}$ .

The 2016 feasibility study report looks at modes of transport and associated transload of wastes from a macro perspective, but the primary assumption in the report was to use barges for the purposes of

implementability and cost evaluation. The report also indicated that multiple modes of transport could be used and could be evaluated during remedial design phase of the project.

EPA talked with the representative facilities including ChemWaste, Port of Morrow (Boardman site) and the barging company (Tidewater Transportation & Terminals) and they did not indicate any significant concerns about logistics of transload of NRC/NAPL PTW waste volumes for transport and disposal at ChemWaste. It should be noted that Tidewater Transportation & Terminals was the barging company used for the Gasco Early Action. Also, through discussions with the representative facilities, the cycle time in terms of barging and trucking reflects their cycle time input for a round trip. Based on these discussions and inputs, the following cycle time for barging was assumed in the feasibility study cost estimates: 1 day of barge time to Port of Morrow (Boardman site) and 18 hours of barge time for return.

The 2016 feasibility study report cost estimate does not assume that the barged material would be stockpiled at the Port of Morrow (Boardman site) transload facility. Instead the 2016 feasibility study report cost estimate assumes direct loading in two steps; using a crane to offload from barge and a front-end loader to load the trucks, as a representative process. In addition, an off-site transload facility development cost was included to account for additional flexibility in transload. In terms of flexibility, as indicated in Appendix F of the 2016 feasibility study report, multiple modes of transport besides barging (rail or truck) could be used to transport waste to ChemWaste from transload locations as determined during remedial design. It should be noted that ChemWaste had indicated for budgetary purposes for the feasibility study that the cost of transport would not differ significantly between the various modes of transport once transload was taken into account.

The ChemWaste landfill is assumed to only be used for disposal of NRC/ NAPL PTW. As compared to the Gasco Early Action (~15,000 cubic yards), the Site remedial action will generate a large volume of waste material for disposal at ChemWaste (~359,000 cubic yards); however, this volume is assumed to be generated over a longer construction duration than the Gasco Early Action. Based on these assumptions, it is estimated that approximately 2,400 cubic yards per week (which is approximately 1 to 2 barges per week) would be handled at the transload facility for disposal at ChemWaste. As mentioned above, the barging company, the transload facility, and disposal facility did not indicate any significant concerns about logistics of handling the required volume for transportation, transload and disposal.

The assumption in the 2016 feasibility study report for contaminated sediment disposed of at a Subtitle D facility is that it is barged to Bingen and hauled by truck to Roosevelt Landfill. EPA did have a discussion with Roosevelt Landfill facility about their ability to transload material from barge and they indicated the ability to accommodate the quantity that the project may develop, specifically including their ability to handle 6,200 cubic yards/day of dredged material. They also indicated that there are sufficient options available since Roosevelt Landfill facility has agreements with a number of transload facility locations along the Columbia River. As has been demonstrated on the Gasco and Terminal 4 early actions, transload facilities can be efficiently built and optimized to suit the needs of the Portland Harbor cleanup in a vicinity to landfills that often reduces greenhouse gas emissions by extending barge or rail haul mileage, and minimizes truck haul mileage.



### 2.22.8 Provide Dredge Volume and Cap Overplacement Costs

#### Comment Summary

One commenter had concerns with the dredge volume and cap overplacement costs. The commenter believes it is prudent to assume some additional amount of contamination beneath unbounded cores, and states that EPA did not include an overplacement allowance.

#### EPA Response

Comments were received from six commenters stating that EPA's estimated costs for each alternative lack EPA developed dredge volumes using "neat" line volumes based on interpolated area and depth data. To take into account side slope stability (dredge prism), neat volumes were multiplied by a factor of 1.5 to estimate the Low Volume with Overdredge, and by a factor of 2.0 to estimate the High Volume with Overdredge. Total volumes for each alternative were calculated as the average of the estimated low and high overdredge volumes. This is consistent with information presented in the USACE's Technical Guidelines for Environmental Dredging of Contaminated Sediments (Palermo 2008) – Section 3.4.3:

*"For feasibility study level considerations, an adjustment factor of 50 percent (i.e., an estimated dredge prism volume equal to 1.5 times the neat line prism volume) is appropriate for typical site conditions."*

Guidance states that the ratio of dredge prism (including allowable overdraft/overdredge) to the neat line prism can be as high as 3 based on work at the U.S. Navy Homeporting project in Everett, Washington.

Thus, the estimated dredge volume using the dredge prism to neat line ratio of 1.5 – 2.0 is reasonable for Portland Harbor and consistent with the guidance for a feasibility study level evaluation where the primary purpose is for comparing remedial alternatives during the remedy selection process.

For the purpose of the feasibility study, a set of generic cap designs was developed to be applied based on site-specific conditions, including the need for reactive materials to contain PTW and armoring to prevent erosion of the cap material. To facilitate consistent application of capping technologies, all caps were assumed to be 36-inch thick and comprised of various combinations of sand, beach mix, activated carbon, organoclay, and armor stone. The precise composition and thickness of sediment caps will be determined during remedial design.

### 2.22.9 Explain Mobilization and Demobilization Costs

#### Comment Summary

One comment was received from LWG regarding mobilization. The commenter states that EPA used a very low percentage of direct capital costs to estimate mobilization/demobilization costs instead of estimating likely costs based on project duration and scope.

#### EPA Response

LWG is correct that construction data were not specifically used for determination of the mobilization/demobilization factor. However, EPA's "A Guide to Developing and Documenting Cost Estimates during the Feasibility Study" (USEPA 2000), actual construction data are not required to be solely used. As indicated on page 5-6 of that guidance, "experience with similar projects, **including both estimates and actual costs** (bold emphasis added) can also be used as a source of cost data."

In addition, the determination of the percentage of the capital and periodic costs for mobilization and demobilization was based not just on review of Lower Duwamish River feasibility study, but also the Passaic River feasibility study, projects of similar scope and the equipment proposed for Portland Harbor. The types of dredge and cap placement equipment proposed in the Portland Harbor 2016 feasibility study report (USEPA 2016b) (the primary pieces of equipment requiring mobilization/demobilization from beyond metro Portland) are fairly conventional in that they are barge mounted excavation and placement equipment and not unique types of dredge equipment such as suction dredges. In addition, the number of dredge plants and capping plants and attending scow barges and tugboats are relatively small given the duration of the project. EPA has thus assumed mobilization and demobilization are representative of expected regional mobilization and demobilization costs. Procurement of any specialized equipment (such as double hull spill preventative barges) would not be cost-prohibitive with proper planning before implementing the selected remedy.

The use of a percentage of capital costs for mobilization and demobilization of equipment is reasonable for the feasibility study level of scope detail and assumptions. Real construction data will be evaluated and presented during remedial design as necessary.

It should be noted that unlike alternatives for some Superfund projects, the primary differences between the alternatives for the Portland harbor Superfund Site is the size of the footprint of removal and containment based on the area of the SMAs defined for each alternative. Therefore, the cost differences between alternatives is reflective of the differing quantities calculated in the technology assignment modeling. Because the differences in capital and periodic costs are primarily based on quantity differences, the use of lower percentages for mobilization/demobilization costs does not impact the comparative aspects of the costs estimates between alternatives. Also, it should be noted that the feasibility study cost estimates are not to be used for construction budgets, allocation, or Superfund settlements.

### 2.22.10 Explain Indirect Costs

#### Comment Summary

Comments were received from four commenters regarding indirect costs. Commenters state that EPA used very low end percentages for remedial design, project management, and construction management estimates.

#### EPA Response

EPA's *"A Guide to Developing and Documenting Cost Estimates During the Feasibility Study"* does not use the term "indirect costs" for the reasons stated on page 2-5 of that guidance; thus, the response uses the more appropriate term "professional/technical services costs". As described in Section 5.5 of that guidance, engineering judgment may be used to adjust rule-of-thumb percentages presented in Exhibit 5-8 for the professional/technical services costs of project management, remedial design, and construction management as well as the recommended range presented for technical support. As described in Attachment A of Appendix G of the feasibility study report (USEPA 2016b), the percentages of professional and technical services costs will be higher for projects of smaller scope and lower for projects of larger scope. Due to the high overall costs for major work activities, the professional/technical percentages were modified to lower than the recommended range presented in the guidance, to better reflect realistic costs for professional/technical services costs for these items.



The scope of the cleanup activities within the Site (thousands of acres) is much larger than the scope of the Head of the Hylebos project (tens of acres), and therefore it is expected that the percentage for remedial design costs and categories including project management and mobilization/demobilization used as a function of capital costs will be higher for the Head of Hylebos project and lower for the Site.

The remedial design costs presented in the 2016 feasibility study report for each alternative were estimated to be comparable to remedial design costs estimated for alternatives evaluated in the Lower Duwamish feasibility study report, when reviewed on an annualized basis. The specific scope and costs for the “initial conditions assessment, subsequent pre-remedial design investigations, or additional river bank sampling and remediation” will be identified during remedial design based on factors such as funding, phasing, and scheduling of work. Unknowns or unforeseen conditions for these activities and related costs not entirely captured in the remedial design percentage can be considered to be captured in the scope contingency applied to each alternative.

### 2.22.11 Include Department of State Lands Fees

#### Comment Summary

Three commenters requested that Department of State Land’s fees be accounted for in the cost determinations. Commenters state that Department of State Lands fees need to have a separate line item and point to the discrepancy between EPA and PRP estimates of the percentage of project management costs that the fees would represent.

#### EPA Response

Department of State Lands propriety authorizations, which include lease fees, were not included in the cost estimates. EPA acknowledges that the State Land Board through the Department of State Lands - promulgated rules for granting and renewal of access authorizations, leases, and easements issued to facilitate remediation conducted pursuant to an order issued by DEQ or EPA and habitat restoration activities in, on, under or over state-owned submerged and submersible land. However, Section 104 of CERCLA, 42 U.S.C. Section 9604 provides the President with broad authority to take response actions determined necessary to protect the public welfare and the environment from releases or the potential threat of a release of hazardous substances or pollutants and contaminants to the environment presenting an imminent and substantial endangerment to public health and welfare.

Section 104(e)(3) specifically provides the President authority to access “[a]ny vessel, facility, establishment, or other place or property where entry is needed to determine the need for response or the appropriate response or to effectuate a response action under” CERCLA. 42 U.S.C. § 104(e)(3). Furthermore, Section 121(e)(1) of CERCLA provides that: “[n]o federal, state, or local permit shall be required for the portion of any removal or remedial action conducted entirely on site, where such remedial action is selected and carried out in compliance with” CERCLA. 42 U.S.C. § 121(e)(1). If EPA were to perform the remedy, the United States would not be required to pay state fees. However, EPA expects most, if not all, of the remedy (cleanup actions) will be performed by PRPs and EPA anticipates that PRPs will negotiate reasonable terms and conditions of access to private and state-owned property to implement the remedy likely will be the subject of future negotiation between the PRPs, landowners, and Department of State Lands. The selected remedy overall is expected to improve the sediment and surface water quality of the river. EPA’s selected remedy seeks to minimize land and river use restrictions, while also assuring long-term protectiveness and a cost-effective cleanup. EPA encourages performing PRPs to coordinate with Department of State Lands early during remedial design to negotiate access and find further ways to reduce land and river use restrictions and, if relevant, diminution of property values.

## 2.22.12 Explain the Selection of the Discount Rate

### Comment Summary

Eight commenters stated that they believed that the discount rate that was used in the cost calculations was too high. Commenters state that the 2.3 percent discount rate used by PRPs is consistent with EPA guidance and that EPA's 7 percent discount rate is practically (and potentially legally) unachievable.

### EPA Response

As discussed in *"A Guide to Developing and Documenting Cost Estimates during the Feasibility Study"* (USEPA 2000), the real discount (interest) rate used for present value analysis in the feasibility study depends on whether a site is classified as a federal facility site. Federal facility sites are former or current installations operated or controlled by a federal government agency and identified by EPA's Federal Facilities Restoration and Reuse Office. The Site is not a federal facility. In addition, the guidance specifically mentions that although a federal-lead site cleaned up by EPA using the Superfund trust fund (fund-lead sites) may be an analogous situation to a federal facility site being cleaned up using Superfund authority, there is always a chance that a PRP could remediate the site. Thus, per guidance a real discount rate of 7 percent should be used in calculating present value costs for all non-federal facility sites such as the Site. This expectation is documented in the last paragraph of Page 4-5 of the guidance.

The guidance in the second paragraph on page 4-5 also specifically states that any changes to EPA's policy to use a 7 percent discount will be reflected in an update to OSWER Directive 9355.3-20. EPA has not updated that directive, and thus use of a 7 percent real discount rate is still the expectation per that directive. Furthermore, while the statement that a differing discount rate can be considered based on a change to the discount rate within OMB Circular A-94 is correct, OMB has not changed from a 7 percent real discount rate (see Paragraph 8(b)(1) of OMB Circular A-94). Updates to discount rate in Appendix C of OMB Circular A-94 are not considered changes to the policy (see second paragraph on Pages 4 and 5 of EPA guidance (USEAP 2000) and related Footnote 3).

LWG also asserts that a differing discount rate should be used to be consistent with financial assurance practices used for these types of sites that use funding from PRPs. As indicated on Page 1-2 of EPA 540-R-00-002, feasibility study cost estimates are not meant for budgeting, allocation, or settlements. EPA may take a different approach for those purposes, such as indicated in Footnote 3 on Page 1-2. However, that will not be reflected in feasibility study cost estimates where the primary purpose is for comparing remedial alternatives during the remedy selection process.

It should be noted that while EPA used a 7 percent real discount rate for presentation of the alternative costs, a sensitivity analysis was performed for varying discount rates and presented in Appendix N of the feasibility study report (USEPA 2016b). This is consistent with the recommendation in the third paragraph on Page 4-5 of EPA 540-R-00-002.

## 2.22.13 Be Flexible in Technology Assignment, Current Conditions, and Site Factors Affecting Cost Estimates

### Comment Summary

Two commenters requested that EPA show flexibility in technology assignment, current conditions, and site factors affecting cost estimates. Commenters state that site conditions may result in design and remedy implementation costs that may be significantly different than the generic cost estimate contained in the feasibility study report and proposed plan.

### **EPA Response**

The sole purpose of the feasibility study is to develop remedial alternatives to be compared to each other in order to select a preferred alternative for presentation in the proposed plan (USEPA 2016c). The technology assignments in the 2016 feasibility study report (USEPA 2016b) are based on current information about the Site. The report makes specific assumptions based on current conditions to develop remedial alternatives that can be compared to each other to inform remedy selection. Costs cannot be derived in the feasibility study unless a technology is selected and evaluated. EPA used several lines of evidence based on site conditions described in the remedial investigation report to determine the appropriate technology to apply to various areas of the Site. It should be noted that all alternatives (other than the “no action” alternative) used the same types of technology assignments (capping, dredging and disposal, in-situ treatment, ENR, etc.). The difference between alternatives was the selection of a RAL for focused COCs and how that affected the extent and locations of the remedy components identified through technology assignment. The purpose of structuring alternatives in this manner was to understand how selection of a RAL affects achievement of the threshold criteria and tradeoffs in the balancing criteria to select a remedy, not to prescriptively assign a technology to a location. That will be performed during remedial design using the decision tree provided in the ROD.

It should be noted that EPA agrees that maintaining flexibility in construction methods through the remedial design phase is an important consideration, particularly for nearshore areas near structures, area with debris, and areas concerning with slope and structural stability issues. The feasibility study uses representative process options and remedial technologies in order to develop and evaluate alternatives according to CERCLA criteria. The ROD includes a flexible decision tree along with general design requirements to guide the assignment of capping and dredging technologies, based on specific characteristics within SMAs. The decision tree will be used during remedial design to define what actions should be taken under different environmental conditions and locations based on the most recent design data. Once the data and river factors are evaluated within the context of the decision tree, a final design for construction can be completed. This design will then dictate the remedial construction. The decision tree is intended to provide clear direction on what actions should be taken under the different environmental conditions.

Therefore, the specific information associated with SMA footprints, dredging depths, estimated volumes of dredged material and cap material, and thickness of caps and/or types of cap layers are assumptions for purposes of developing cost estimates for the remedial alternatives. These assumptions were developed based on the existing data and will be finalized during the remedial design, after design level data to refine the baseline conditions are obtained.

### **2.22.14 Ensure Availability of Suitable Capping Material**

#### **Comment Summary**

One commenter was concerned about the availability of suitable capping materials. The commenter states that EPA’s selected remedy will require a large volume of sand for use in capping and for covering dredge residuals during construction and that the cost and availability of capping material is not adequately assessed.

#### **EPA Response**

Materials and supplies identified as remedy components for the remedial action are conventional (such as sand, rock, diatomaceous earth, quicklime). EPA has initiated discussions with representative commercial borrow sources in the Portland metropolitan area to determine whether they have the ability to provide and transport (using barges where possible) the required volume of capping and

residual management material. EPA confirmed that commercial suppliers could supply the required volumes of materials need for remedy components. EPA assumes commercial sources of capping materials, and that more than one source may be required for volume and/or material quality needs.

### 2.22.15 Modify Transloading Costs

#### Comment Summary

One commenter was concerned about the transloading costs as presented in the cost estimates. The commenter states that important costs associated with constructing a transloading facility are omitted, unreliable, or contrary to EPA's own guidance. The commenter cites specific costs for development, permitting and remediation of the transloading facility.

#### EPA Response

EPA included a transload facility cost to cover potential needs for transload, depending on the mode of transport used. Specific information on the varying possibilities for transload are discussed in Appendix F of the feasibility study report. The feasibility study makes an assumption that the majority of dredged material for disposal is transported by barge, and that the various pre-treatment amendments as well as dewater removal and treatment would occur on water in barges. Thus, the transload requirements are primarily assumed for off-site transload from barge to other modes of transport to the representative disposal facilities. Because the location of transload is indeterminate at this time, EPA used elements of LWG's transload development costs as representative for potential future transload requirements. The Cost Estimate Backup - Cost Source Database (*WRKSHT NO.: CALC-1, Unit Costs for Transload Facility Development*) of Appendix G of 2016 feasibility study report presents how the unit costs for transloading facility was developed. It should be noted that not all costs from Backup Table 24 was used. Only selected unit costs from this backup were utilized in the cost estimate. Green highlighting indicates unit costs that were used in the cost estimate. As noted in the backup, full development unit cost of \$7.5M minus addition of new rail line (~\$3.5 million) was used for transload facility development. The 2016 feasibility study report assumes that trucking would be used to transport material transloaded from barges instead of rail. This approach was discussed with representatives from the assumed disposal facilities (ChemWaste and Roosevelt).

As noted in the comment, "*the total estimated construction cost for the transloading facility is \$28.5M*", is a false assertion. As presented in *Appendix G, Cost Estimate Backup – Previously Developed Costs by Anchor QEA, Table 24*, \$28.5 M is the total estimated cost for "Upland Subtitle D Landfill Disposal". This total estimated cost, apart from Transload Facility Development cost, includes costs for "Materials Handling and Stabilization", "Transportation and Disposal", and "Inspection and Monitoring of Transload Facility."

## 2.23 Paying for Cleanup

### 2.23.1 Ensure the PRPs Pay For Cleanup

#### Comment Summary

A total of 1425 comments were received stating that the PRPs should pay for cleanup. About 60 percent were received as form comments in emails or postcards. The most frequently received of these comments are:

- "Hold polluters accountable for creating a safer Portland Harbor."

- “Entities which have liability for the persistent pollutants in the river sediments must meet their community obligation to conduct a comprehensive and timely cleanup” (or a slight variation).
- “American rivers and streams have been the dumping grounds of polluting industries for decades. I ask that you design and implement a strong cleanup plan for the Willamette/Portland Harbor Superfund Site. Those who have liability for the PCBs, DDT and other pollutants now in river sediments must meet their community obligation to do the right thing and conduct a comprehensive and timely cleanup.”

The remainder of the comments were personal statements. Several named one or more PRPs and a common theme was that the companies that had profited from causing the contamination should be made to pay for it. Many people spoke of PRP payment as a deterrent to future contamination.

Representative comments include:

- “We need to hold the companies who made the mess responsible, and hold them accountable for the cleanup, even if the cost is significant. They have made money from the river which belongs to everyone! Now they need to step up to restore it.”
- “Polluters like Chevron, Exxon, ExxonMobil, Northwest Natural, and Schnitzer Steel made our river toxic. Now, they should have to clean it up.”
- “Responsible parties include some of the biggest industries in Oregon and the world. While some industries complain this will hurt the economy, EcoNorthwest did a study, which determined that every dollar spent on the cleanup of the river generates more than one dollar of economic activity.”
- “Make the polluters pay for their dumping. Don't let them off the hook. Do the people right and not the corporations who polluted the river.”
- “If businesses who/which deposited the pollution are not required to clean it up, businesses in the future will be incentivized to engage in the same irresponsible behavior. Why act responsibly when you can save money by dumping your mess, collecting huge profits, spending the profits, and then declaring bankruptcy before you are required to pay the true costs of your irresponsible methods? No, the Native Americans are right; the polluters need to clean it all (or mostly all) up NOW. If some of the polluters cannot be held responsible due to bankruptcies or other forms of shunting responsibility, then, as usual, it's up to the taxpayers to pick up the slack and fund that portion of the clean-up. It's the only responsible thing to do, no matter how costly.....”
- “I've been a citizen of Portland for 31 years. It appears that most of the contaminants of concern are the type of contaminants that seem to be likely produced by businesses, and yet I'm hearing that the public ratepayers would end up paying some fraction of the cleanup cost. I would guess that you're getting pressure from the business owning PRPs to have the public (in the form of Vera Environmental Services) share this cost for various reasons related to outfalls in the river. As a member of the public I would push back against that and ask that the great majority of the cost, preferably all of it, be assigned to the types of businesses that create the contaminants of concern.”
- “Money can't reverse the damage to wildlife but serves as a punishment/deterrent for irresponsible behavior. Entities with liability for the pollution must be held accountable and pay

for a comprehensive cleanup that will protect the health of our communities, our environment, and our wildlife.”

### **EPA Response**

The purpose of the proposed plan (USEPA 2016c) was to present EPA’s evaluation of remedial alternatives for the in-river portion of the Portland Harbor Site. As required by CERCLA, EPA sought public comment on that evaluation and supporting information to consider in making its final remedy decision. Public comment was not sought on issues of funding the cleanup or liability for paying for cleanup and will not be addressed in any detail in this responsiveness summary. Likewise, the ROD provides the basis for and description of the final selected remedy for the in-river portion of the Portland Harbor Site but does not address issues of liability or enforcement of how the remedy will be implemented. EPA agrees that the parties responsible under CERCLA should pay for the cleanup, consistent with EPA’s long-standing “polluter pays” policy. Limited appropriated funds for cleanups are typically used for sites where there are no viable responsible parties. Under CERCLA, EPA searches for parties legally responsible for the contamination and seeks to hold those parties accountable for the costs of investigations and cleanups, by requiring them to perform or fund the necessary investigations and remediation. EPA will follow this approach for the Portland Harbor Site.

EPA continues to support a comprehensive allocation of liability by the PRPs at the Site to facilitate settlements that implement the selected cleanup actions.

## **2.23.2 Require Performance Bonding**

### **Comment Summary**

Twelve comments were received that addressed the issue of performance bonding. Most were individual, personal comments. All of the comments stated that performance bonds were necessary and a few believed they should be required in the ROD. One person suggested a storage tax/fee. The Portland Harbor Community Advisory Group wrote that they wanted bonding assurance that met Superfund guidance.

Representative comments include:

- “Polluters must pay for the cleanup not tax payers PRP need to pay and post-performance bonds.”
- “In order to provide the certainty the public deserves, EPA should require some form of insurance or performance bonds to cover the cost of additional remedial action if the adopted plan does not lead to the anticipated or desired results.”
- “Performance bonds must be required in the ROD. MNR and capping are proposed in all options, and increase the likelihood of recontamination at some level. If they are the main remediation method relied on as suggested in EPA recommendation, there is a chance of recontamination at a higher level. Therefore, the ROD needs to include the requirement of Performance Bonds and state that any cleanup activity resulting from recontamination must be fully funded by polluters rather than the community.”
- “Compliance with the Record of Decision needs to be formally drafted into Record of Decision. The resistance to accepting responsibility for harming the community highlights a need for performance bonds. Funding needs to be guaranteed beyond a one and done perspective to ensure completion of environmental remediation and successful restoration.”



- “Assurance bonds/or insurance should be required to pay for any continued and recontamination of the river or need to redo remedies proven to not be meeting goals or through accident. A storage tax/fee should be applied to the PRPs until the toxic materials are gone from the river, adjusted to the level of toxic material in the sediment, with proceeds to go to OR school funds.”
- “Performance bonds are part of CERCLA. We want EPA to request legally binding commitment performance bonds from PRPs - since EPA has “no” funds, we want to make sure PRPs have funding designated to future “uncertainties.” Funding should not solely be on General Fund tax payees.”
- “The CAG wants EPA to certify that “bond assurance” meet the requirements of *Guidance on Financial Assurance in Superfund Agreements* as found in [www.epa.gov/sites/production/files/2015-04/documents/fa-guide-2015.pdf](http://www.epa.gov/sites/production/files/2015-04/documents/fa-guide-2015.pdf).”

### EPA Response

The purpose of the proposed plan (USEPA 2016c) was to present the remedial alternatives evaluated for the in-river portion of the Site. As required by CERCLA, EPA sought public comment on the evaluation and supporting information to consider in making its final remedy decision. Public comment was not sought on issues of funding the cleanup, including the requirement for performance bonds, or liability for paying for cleanup and will not be addressed in any detail in this responsiveness summary. Likewise, the ROD provides the basis for and description of the final selected remedy for the in-river portion of the Portland Harbor Site but does not address issues of liability or enforcement of how the remedy will be implemented. EPA agrees that the parties responsible under CERCLA should pay for the cleanup, consistent with EPA’s long-standing “polluter pays” policy. Limited appropriated funds for cleanups are typically used for sites where there are no viable responsible parties. Under CERCLA, EPA searches for parties legally responsible for the contamination and seeks to hold those parties accountable for the costs of investigations and cleanups, by requiring them to perform or fund the necessary investigations and remediation. EPA will follow this approach for the Portland Harbor Site. Typically, it is EPA policy and practice to require financial assurance from parties that perform cleanup work. EPA continues to support that a comprehensive allocation of liability by the PRPs at the Site be accomplished to resolve all claims EPA may have against the PRPs and they may have between each other.

## 2.24 Flexibility in Implementing Cleanup

### 2.24.1 Address the Most Contaminated Areas First

#### Comment Summary

Commenters had divided opinions on whether or not the Site should be addressed as a whole or whether cleanups should be initially targeted at the most contaminated areas. About 75 percent expressed a desire for EPA to be flexible in implementation of the cleanup. Flexibility was often tied to starting with the most contaminated portions of the river first, taking into account changes in the river and site-specifics, and trying lower cost solutions first. Very often, but not always, having separate operable units (OUs) was specified.

Those supporting addressing the most contaminated areas first, possibly through separate OUs, included residents, PRPs, and the City of Portland. Representative comments are:

- “The agency should consider a revision to break up the plan into multiple parallel projects, in order to permit accelerated mitigation on separate elements. If the Port of Portland can address the complex of questions relating to the Swan Island area, lagoon, riparian zone or upland- then

accept the concept of an “operable unit”. If the concept of such units is accepted and activated by EPA, there can progress on parallel units, without every element of the plan being delayed by dependence on every other problem or dispute between interested parties at risk.”

- “Allow responsible parties to pursue equally protective remedies that get cleanup moving forward soon. I believe the cleanup of the Willamette River offers opportunities for the future of our region. Let’s move forward to a responsible solution.”
- “Contamination and risks are not uniform throughout the Portland Harbor. Flexibility would allow the cleanup to take into account changes in the river and site-specific risks in a more cost-effective manner.”

Requests supporting the use of OUs were longer and generally requested that the Site be address by OUs. This would allow EPA to work with subsets of the large group of PRPs and work on areas that are already well-defined or of lower risk.

Those against the concept of separate OUs seemed to fear that the PRPs would use it to their advantage to negotiate less comprehensive cleanups and that complexities relating to paperwork and regulations would increase.

Representative comments against OUs include:

- “The idea of splitting the Superfund site into separate and independent operating units suggests the possibility that PRP’s may apply political pressure to compromise the integrity of the cleanup. Under the oversight and jurisdiction of EPA, multiple sites can be remediated concurrently with all parties observing the same rules of conduct. Cleanup requires a level playing field for all”
- “I oppose the use of separate operable units during this restoration. I believe that restoration can take place on differing timelines in different areas without the complexities and difficulties that the creation of separate operable units will bring to the process.”
- We "do not want" to have separate paperwork, analysis, studies, proposed plans or records of decision on this clean up!!”

### **EPA Response**

EPA agrees that maintaining flexibility in construction methods through the remedial design phase is an important consideration. Additionally, EPA agrees that active cleanup technology assignments will be evaluated during remedial design based on new data and area-specific conditions and land uses and other requirements specified in the ROD.

EPA recognizes the desire for the use of OUs or breaking the Site into pieces for remedy implementation at such a large and complex site. There may be advantages to using OUs or other mechanisms for addressing smaller geographical areas for remedy implementation at such a large and complex site. Given the size of the Site, work window constraints, and other considerations, remedial action will be implemented in phases given that collection and evaluation of area-specific information would be conducted during remedial design.

Formal designation of OUs is not critical or necessary to devise a plan how to address the highest risk areas first and sequence cleanup to minimize recontamination of cleaned up areas. EPA anticipates that



much information will be learned in the post-ROD remedial design that will help EPA to determine the most effective approach to sequencing and other aspects of how the remedial action will be implemented. EPA will generally be focusing on having the highest concentration areas addressed first to reduce risk sooner and minimize recontamination to areas cleaned up later.

The entire Site cannot be addressed at one time as a practical matter. However, no matter how the cleanup is phased, implementation of the remedy will not affect the overall integrity and comprehensiveness of the cleanup. We also recognize that some members of the public oppose the use of OUs or other such divisions and EPA wants to assure the public that all viewpoints are being considered; and, if such a decision is later considered, EPA will continue to have public outreach over the design and remedy implementation phases for public participation and input.

EPA has been involved in the development of focused investigations and remedial actions at the early action sites, including Terminal 4, Gasco and Siltronic, Arkema, and RM 11 East, and took these into consideration in development of the remedy. Prioritizing further remedial action at these sites will be considered during remedial design.

### 2.24.2 Consider Assorted Flexibility Requests

#### Comment Summary

Requests for flexibility came from the general public, businesses (Arco/BP, City of Portland, ESCO, Exxon Mobile, Geosyntec, NW Natural, Port of Portland, RM 11 East Group, Schnitzer, Siltronic, Swan Island Group, Calbag Metals), and the USACE.

Specific requests include:

- Be flexible in selection of remedial technology.
- Flexibility is needed at a specific location (Swan Island, Gasco, or RM 11E).
- Site-specific toxicity testing is needed to verify model outcomes and design the final remedial action.
- EPA should account for site-specific conditions to ensure early actions are not disturbed or destroyed.
- Modify the technology assignment flowcharts to make clear that flexibility is anticipated.
- EPA should be flexible to adapt to new data and the ROD should explain how the remedy will be implemented when there is a change in structure configuration (dock being removed).
- Use adaptive management principles by selecting higher RALs (Alternative B) so that site cleanup can focus on areas of highest potential risk and establish OUs at those areas. This would enable EPA to refine SMA boundaries, evaluate the effectiveness of remedial approaches and technologies, reduce uncertainties of natural recovery, adjust or refine by ongoing monitoring-adaptive management.

#### EPA Response

EPA acknowledges that technology assignments will be evaluated based on new data and observations collected during remedial design. The ROD contains a revised, simplified decision tree for selection of remedial technologies during the remedial design process. Compared to the decision trees provided in

the feasibility study report (USEPA 2016b), the ROD decision tree is less prescriptive and demonstrates flexibility for selection of remedial technologies with the assumption that a detailed evaluation of area-specific conditions would be conducted during remedial design. Remedial design investigations will consider prioritization of areas posing highest risk, sequencing, and other aspects of how the remedial action will be implemented. Avoiding disturbance or recontamination of early action areas will be an important part of the remedial design evaluations. Construction of permanent caps will be carefully scheduled to avoid recontamination from upland or in-river work.

EPA is aware that area-specific conditions must be considered during remedial design, including the presence of active docks or other structures, caps and other remedial activities already in place, river uses, and many other considerations. Additional guidelines are provided in the ROD to convey this information.

The feasibility study report states in several places that additional data will be collected during remedial design to assist in refining the remedy beyond the feasibility study-level of analysis and the ROD reflects this as well. EPA intends to evaluate additional data during remedial design to refine the following: delineation of contamination, selection and design of remedial technologies and construction methods, projections of natural recovery, treatment and disposal requirements, measures for aquatic and listed species protection, and compensatory mitigation requirements, to name a few.

EPA does not agree with the use of adaptive management as a way to postpone remedial action implementation or use less restrictive RALs that necessitate greater reliance on natural recovery. The extensive evaluations already conducted, along with the successful use of remedial technologies at other sites, have informed EPA's selected remedy as described in the ROD. Further refinements in the approach will be evaluated in five-year reviews and memorialized in appropriate decision documents.

## 2.25 Early Action Sites

### 2.25.1 Coordinate Cleanup with Work at Early Action Sites

#### Comment Summary

Five commenters expressed concerns regarding work still to be done at the Early Action sites to prevent recontamination of Portland Harbor.

Representative comments include:

- "EPA must use its enforcement authority to force early-action clean-up sites that put the Portland Harbor at risk of re-contamination once in-river clean-up begins."
- "We want a commitment for increased shoreline remedial action. Especially at the Arkema site. We want "more" than management we want control of upland source contamination! We want a legally binding source cleanup form or (DEQ) uplands; we need dates of completion!"
- "More extensive cleanup is called for in river mile 11. The Arkema site and Gasco, as these sites are heavily polluted with persistent toxins which won't be cleaned up with MNR."
- "Re-examine completeness of Early Actions or Hotspot Activities of DEQ. Some cleanup actions have already occurred or were initiated at several areas within the Portland Harbor Superfund Site:

- BP Arco Bulk Terminal. A sediment removal action of the nearshore area adjacent to the BP Arco Bulk Terminal was conducted in 2007-2008 under DEQ oversight. Approximately 12,300 cubic yards of petroleum-contaminated soil and sediment were removed and disposed off site at a permitted facility. The excavated area was backfilled with clean fill and a steel sheet-pile seawall was installed along the entire river bank of the BP Arco Bulk Terminal property. When the remedial design sampling is produced, it needs to include all shoreline; not just the previously examined 20,000 lineal yards but needs to address all 30,000 lineal yards to ensure all contamination is included.
- River Mile 11E Project Area. As the site containing one of the highest levels of PCB's this site should be thoroughly and completely excavated and the contents removed, place on barges and carried to Roosevelt Facility in Goldendale Washington. This and Swan Island has potential for habitat restoration and future human use.
- NW Natural. Please remove all of the tar body and the associated chemicals at the GASCO site and do not just cap it. While it is one of the most devastating sites I believe NW Natural is a needed and important entity to the Portland community and deserves support. EPA, other PRP's and citizens should make every effort to financially support its cleanup for the sake of the citizens, the river and the future. If it takes supporting grants, fundraisers and other activities, the GASCO site should be completely cleaned up but given support so the financial burden is not so overwhelming that it jeopardizes its valuable contribution to Portland.
- Arkema. Arkema is and always has been another devastating site that needs EPA's attention. While it has made little contribution to the citizens of Portland's welfare; the Arkema desperately needs all the effort, time and money that both DEQ and EPA can give it. If left unchecked, it will continue to overwhelm the health of the river for years. U.S. Moorings. Please just test the efficacy of the work that has been started here. Please complete the necessary actions to ensure the sources are controlled completely.
- Triangle Park. Please certify that the University of Portland completes its removal action and other procedures to properly clean up the site to protect human health and the students to be using it in the future. The four main components to the completed removal action included ICs, groundwater monitoring, excavation, and capping.
- Gasco. NW Natural, Siltronic Corporation and EPA signed an AOC for a Removal Action in September 2009. NW Natural and Siltronic are conducting site characterization and design evaluations for the area offshore of their two facilities. They have also agreed to perform further characterization, studies, analysis and preliminary design for the final remedy at the Gasco Sediment site. The studies and other work under the agreement were incorporated into the Portland Harbor remedial investigation/feasibility study. Please confirm that the site excavations and removal of contamination are complete and not just capped or covered up."

## EPA Response

During the remedial investigation and feasibility study, EPA entered into agreements with Arkema Inc., NW Natural and Siltronic, Port of Portland, and a group of companies related to RM 11E to undertake early actions in the river adjacent to their facilities. Notwithstanding those agreements (some of which are still in place and others are not) all of the Early Action areas investigated and/or cleaned up under those agreements are included in the feasibility study and are included in the remedy for the Portland Harbor Site that EPA has selected. All of those “Early Action” areas have highly concentrated contamination and need to be remediated. EPA is committed to addressing these areas as early as feasible in the cleanup of the Site. Addressing contamination at the Early Action area as soon as feasible is critical to a successful cleanup of Portland Harbor in order to reduce risks at the Site and prevent recontamination of downstream and nearby areas.

Several commenters expressed concern with the status of and plans for cleanup at Arkema, Gasco, and RM 11E. A significant amount of investigation has occurred; however, with the exception of Gasco, and Terminal 4, no cleanup has taken place as of yet at these Early Action sites. All three areas will be addressed as part of the Portland Harbor Site cleanup. Approximately 15,300 cubic yards of a tar-like material and tar-like contaminated sediment were dredged in 2005 from the river bank and nearshore area adjacent to the Gasco facility and an organoclay mat and sand cap was installed over the dredged area. Dredging and bank work took place at the Terminal 4 site as well.

Under the EPA selected remedy, the following is anticipated at these locations:

- Gasco. Future maintenance dredging adjacent to the facility dock as well as areas in the Federal Navigation Channel. Between the Federal Navigation Channel and the shoreline there is a mix of dredging (including dredging in the footprint of the 2005 tar removal), capping, dredge with cap and a small area of MNR. The remedy for the Gasco river bank will be integrated into the adjacent in-river work.
- Arkema. Future maintenance dredging in the downstream area and immediately downstream of the facility dock (unless it is removed) as well as a small area in the Federal Navigation Channel. Between the Federal Navigation Channel and the shoreline there is a mix of dredging, capping, dredge with cap. The remedy for the Arkema river bank will be integrated into the adjacent in-river work
- RM 11E. Future maintenance dredging adjacent to the project area as well as areas in the Federal Navigation Channel. Between the Federal Navigation Channel and the shoreline there are areas of cap and dredge.

Another comment mentioned a sediment removal action conducted in 2007-2008 at the BP Arco Bulk Terminal where the excavated area was backfilled with clean fill and a steel sheet-pile seawall was installed along the entire river bank of the BP Arco Bulk Terminal property. The request for remedial design sampling on additional shoreline is noted. Under the selected remedy, a combination of capping and dredging is anticipated in the area of the dock located offshore of the BP Arco Bulk Terminal property.

EPA also oversaw upland cleanup activities at the University of Portland’s property called Triangle Park as part of a Prospective Purchaser Agreement. The University performed cleanup of that property in 2013 and which is currently undergoing monitoring. EPA oversaw source control studies conducted by

the USACE at the US Moorings site. Based on those studies, the USACE addressed soils deemed erodible into the river. Based on current information, no further upland source control is needed. However, cleanup of sediment adjacent to both Triangle Park and US Moorings is a part of the Portland Harbor ROD.

## 2.26 Clean Up of Specific Areas of the Waterway

### 2.26.1 Address Outstanding Issues Sediment Management Areas

#### Comment Summary

Comments were received from five commenters relating to specific issues with the SMAs as presented in the feasibility study report and/or proposed plan. Those comments are:

- PTW was used inappropriately in development of the SMAs.
- Near-shore sediment sample data should not be separated from navigation channel sediment sample data to develop PTW threshold and RAL contours. This results in the inappropriate delineation of SMA boundaries and consequently calls into question EPA's estimates of dredge volumes, areas to be capped, and costs.
- The SMA used for Alternative I near Kinder Morgan Linnton Terminal is based on a single non-detect for PCBs that happens to be greater than the RAL for PCBs at Alternative I. EPA does not address how non-detects are used in the development of SMAs.
- Sediment data does not support the designation of an SMA offshore of the Shore Terminals facility.
  - DDx. The basis for a DDx-delineated SMA offshore of the facility is unclear since none of the 38 shallow sediment samples collected offshore for the facility contain DDx concentrations that exceed the RAO 5 PRG. DDx should not be listed as a focus COC for sediment offshore of the facility (RM 5W).
  - TPAHs. Only two tPAH samples contained concentrations that exceed the corresponding PRG for RAO 5 and one was taken 19 years ago. The proposed plan should be modified to exclude the SMA offshore of the facility within the RM 5W SDU because TPAH and DDx concentrations in shallow sediment in the SMA do not meet EPA criterion for defining an SMA (greater than 10x the RAO5 PRG) and the SMA is based on widely dispersed and outdated data.
- The basis for SMA Extent in SDU7W is incorrect. There is an unwarranted increase of the sediment remedy area off-shore of Siltronic, driven by non-focus COCs. This area can be minimized while achieving the intended risk reduction by implementing RALs that are more appropriate for non-focus COCs in SDU7W, or by extending SDU6W to include the entire Siltronic shoreline. EPA should not apply Alternative F RALs for non-focus COCs in SDU7W arbitrarily assigning active remedy thresholds that result in estimated post-construction concentrations that are inconsistent with the other areas of the site.
- EPA's proposed SMA area adjacent to the Time Oil facility is unnecessary, because EPA's remedial action objective is already met in all relevant exposure areas. Based on feasibility study report Figure 3.4-10, we understand that EPA has defined this SMA through the Alternative E RALs for 1,2,3,7,8-PeCDD.

## EPA Response

Responses to the comments listed above are:

- The values used for PTW as well as the recommendation that EPA should review FMC's food web model report are addressed in the food web model response (Section 2.11.1 of this responsiveness summary).
- The use of additional samples is addressed in the SWAC response (Section 2.7 of this responsiveness summary).
- The SMA near the Kinder Morgan Linnton Terminal is based on the RAL contours from both PCB and PAH samples. While EPA acknowledges that there are non-detects driving the PCB RAL contour footprints in this area, the PAHs footprints for Alternative F and G consist of detected samples and is the predominant contaminant in the area. The sample data presented in the on feasibility study report (USEPA 2016b) was used to best represent the possible area of remediation for estimates of volumes and costs. However, further evaluation will take place during the remedial design to determine if higher levels of contamination are present or not.
- The commenter seems to confuse how SMAs and RALs are defined in the feasibility study report and proposed plan (USEPA 2016c). For each of the focus COCs, a footprint is defining the area where sediment concentrations are above the RAL for each alternative as shown in the feasibility study report (USEPA 2016b) Figures 3.4-7 to 3.4-12. The SMA footprints for each alternative are a spatial addition of each of the COC RAL contour footprints. There is no single SMA defined by RAO 5 PRG and all focus COCs are taken into account when creating SMAs. DDX and PAHs have been shown to be predominant COCs in RM 5W but that does not mean they are the only COCs with higher concentrations outside of the property in question. The primary driver outside of the Shore Terminals facility does seem to be PAHs, of which there are many samples with higher concentrations than the associated RALs for Alternative D, E, F, and G as seen in on feasibility study report Figure 1.2-9a.
- The dispersion and sample dates have been addressed in Sections 2.7 and 2.10 of this responsiveness summary. Further, additional sampling efforts and local evaluation of contamination will take place during the remedial design phase.
- The commenter does not state what the specific "non-focus" COCs are that are driving the asserted increased SMA footprint. The commenter may be referencing feasibility study report Figure 4.1-2 which is incorrectly labeled as showing the focus COCs when in fact it shows the predominant COCs in each SDU as described in Section 4.1.1 of the feasibility study report. The focus COCs are described in Section 3.4.1.1 and all of the focus COCs in this section are used in defining the SMA extent across the entire Site, making it consistent across the Site and not arbitrarily assigned at this area only. The SDUs are defined by the rolling river mile average concentrations of the focused COCs identified in Section 3 of the feasibility study report and are not defined by property boundaries. However, further evaluation at a local level will take place during the remedial design process and actual contamination extent will be identified then.
- The commenter is correct that the small location in question is primarily driven by the 1,2,3,7,8-PeCDD sediment samples. Further evaluation will be done during the remedial design phase in order to determine the actual extent of the contamination.



## 2.26.2 Correct Contaminant Characterization of the River Banks

### Comment Summary

Multiple comments were received from commenters regarding the contaminant characterization of the river bank. They include:

- Figure 19e of the proposed plan delineates shoreline areas around the western and northern perimeters of Swan Island as having known contamination of the river banks. We are not aware of any sampling events producing data showing that the river banks are contaminated in these locations. In fact, much of the delineated shoreline consists of sheet-pile bulkheads that are obviously not available for sampling or remedial action.
- Database included in Appendix A of the feasibility study report is flawed. The data source for river bank contamination is useless for understanding EPA's rationale because the ECSI database is overly broad in content to be used for the purpose of characterizing river banks. Similarly, Appendix A does not include the river bank data compilation. The database offers little to no value for assessing river banks because it is incomplete and has not been subject to any quality assurance review. Errors in the database in Appendix A and data has not been checked for accuracy. Also, Appendix A appears to be a haphazard compilation of various data (or little care was taken to compile the data base), some of which has nothing to do with river banks. A review of the "matrix code" column finds most entries are blank, and many entries are data that are not from river bank soils. If EPA is using the data in Appendix A to make decisions, the data should be subjected to all of the usability criteria attendant to any other data on which EPA relies. Data base is also missing critical information inputs such as sample coordinates, incorrect data, incomplete data set (e.g., middle or southern shoreline.)
- EPA must characterize a site prior to selecting a remedy. At a minimum, characterization includes field investigations and a baseline risk assessment. These studies provide the information necessary to assess risks to human health and the environment and to support development, evaluation, and selection of appropriate response alternatives. The NCP requires that remedies are selected based on consideration of nine criteria, critically including: (1) reduction of toxicity, mobility, or volume through treatment, and (2) overall protection of human health and the environment. River banks were excluded from the remedial investigation; therefore, EPA could not and did not follow this process. EPA needs an approach for river banks that complies with NCP.
- The ROD should identify all contaminated river banks that are identified in DEQ's 2016 Portland Harbor Summary Report. There are concerns that the proposed plan includes remediation of over 19,000 feet of river bank, but the remedial investigation and baseline risk assessments do not provide the necessary information for understanding the nature and extent of the current contamination in the river bank soil. EPA should review Oregon DEQ's most recent Upland Source Control Summary Report where DEQ has identified the presence of uncontrolled river bank contamination and include these river banks in the maps and discussion (such as Crawford Street Corporation cleanup).
- EPA does not have a complete understanding of existing river bank data or prior source control efforts overseen by DEQ. Properties identified in the remedial investigation with river bank contamination do not match the properties presented in the feasibility study report and proposed plan. Properties identified as having insufficient data to make a determination of a river bank

erosion pathway in the remedial investigation report are now listed as properties with “known contaminated river banks” requiring cleanup in the draft feasibility study report and proposed plan, with no explanation. Specific examples are SSI’s Burgard Yard, which includes 3,500 data entries attributed to another site at RM 9W, Gunderson’s property, and former Mar Com (South) property.

- EPA has misconstrued DEQ’s findings identified in the ECSI database. DEQ’s findings were not intended to take into account the physical characteristics of the river banks, the locations where contamination was identified along the bank, or the specific contaminants or concentrations detected. EPA’s identification of contaminated river banks is incorrect and does not always agree with in-river impacts. Additionally, EPA’s characterization of river bank soil contradicts characterization in DEQ’s *Upland Source Control Summary Report* (DEQ 2016). EPA has misconstrued a substantial volume of data compiled under DEQ oversight.
- River banks are arbitrarily identified without addressing data, most recent cleanup actions, or delineating where cleanup actions actually begin and end. EPA does not clearly state what it means by including river banks, ambiguously stating that they will be included if “it is determined that it should be conducted in conjunction with the in-river actions.”
- River banks are included without clear delineation or sampling evidence. Inclusion of the river banks in the feasibility study report was last-minute and not evaluated in the remedial investigation. Remedial alternatives for river banks were not evaluated in the feasibility study report. The river bank remedy would likely require the removal and reconstruction of buildings, dock structures, underground utilities, railroad lines, and existing groundwater source control measures.
- PCBs are listed in EPA’s feasibility study report as a river bank contaminant at a large portion of SDU 7W, but have only been detected in a small number of samples below the applicable screening levels (with one exception, one sample slightly exceeded a conservative bioaccumulative screening level value [ERM 2008; Attachment 2]). Yet, this arbitrary delineation is then carried forward into the proposed plan.
- EPA has no basis for determining river bank soil risks and uses an oversimplified approach by comparing chemical concentration in soil to sediment PRGs. This is inconsistent with EPA’s guidance which requires a baseline risk assessment. The PRGs used by EPA for evaluation of river bank soil were established for sediment and potential receptor/exposure pathway relationship for river bank soil are fundamentally different. EPA only identifies two remedial action alternatives: excavate or no action. However, capping and armoring will likely be the preferred alternative for some river banks.
- The facility river bank may not be contaminated, the river bank pathway is incomplete, DEQ has designated the river bank as a low priority.

### **EPA Response**

DEQ determined that two areas of river bank in OU1 of Vigor Marine Ship Repair Yard (formerly known as Portland Shipyard) require source control measures and are a medium priority for source control. The two areas total approximately 1,100 linear feet (DEQ 2016).



The data provided in Appendix A of the feasibility study report (USEPA 2016b) was not used to make design level decisions regarding river bank contamination (see disclaimer included with Appendix A). River bank contamination was characterized by DEQ as part of upland source control and will be further evaluated with adjacent in water work in each SMA per the decision tree in the ROD. The decision tree provides a framework for designing the remedy at specific properties and will utilize new data collected during the decision phase.

Like the upland sources, the river banks are within the geographical boundaries of the Portland Harbor Site and river banks are appropriately included in the selected remedy. During the remedial design phase, each river bank area will be further evaluated to determine if remedial action is needed to comply with the ROD; if additional action is needed, a remedial design will be completed for the facilities' river bank.

The data and information regarding the extent of river bank contamination was provided by DEQ and reviewed by EPA should be representative of conditions described in the 2016 Portland Harbor Summary Report. In response to the City of Portland's comment on the Crawford Street Corporation facility, the Upland Source Control Summary Report (DEQ 2016) described the potential for recontamination as low. Therefore, the facility was not included on Figure 6. But the source control decision for the facility is anticipated to be final in 2018 and river bank soil may need to be addressed. Non-contiguous river banks and SMA will be addressed by implementing SCM on upland river banks before implementing in-river remedies. The final river bank contaminant delineation and the need for an action to address river bank soil will be evaluated during remedial design. The river bank data provided by DEQ and in the administrative record is the most recent data. Additional characterization or monitoring data will be used to make decisions on remedial decision for river banks.

Regarding the comment about data for specific sites (such as Burgard Yard), the river bank data were provided by DEQ. Property-specific river bank data will be collected during pre-design monitoring and will be used to determine the action at each property. Concerns in the final six bullets are addressed in LWG Dispute Issues 1d and 1q (Appendix A of this document).

### 2.26.3 Clearly Identify the River Bank Remedy

#### Comment Summary

Comments were received from four commenters regarding difficulties with the identification of the remedy for river banks. Those comments are:

- In the figures associated with the proposed plan, the extent of contaminated river bank does not change regardless of the SMA, which gives the impression that the river banks require cleanup for each alternative (Figures 11a-g (USEPA 2016)). However, EPA has also assumed that river bank cleanup is associated with contiguous SMAs, such that cleanup would only occur in river banks that are adjacent to an SMA (Table D2.b). To correct these discrepancies, the depiction of contaminated river banks for each alternative should be consistent with EPA's actual approach defined by that alternative.
- Request that EPA include the basic framework for river bank remedy alternatives evaluation in the ROD. EPA should assess the presence of contamination and stability of river banks; develop remedy alternatives evaluation that acknowledges site-specific constraints. The feasibility study report and proposed plan did not provide a remedy evaluation process for river bank soil.

- The proposed plan is also inconsistent in its treatment of river banks. On the one hand, the proposed plan states that “technology assignments for SMAs adjacent to identified contaminated river banks are extended to include those river banks. Where SMAs are projected onto the river bank, removal followed by capping is the assigned remedial technology.” However, EPA’s technology decision trees as applied to river banks are inconsistent with the above statement because they appear to require active remediation, regardless of the presence of adjacent sediment SMAs, when PTW is present in the river banks. Specifically, the decision tree for contaminated river banks (Figure 10d in the proposed plan) appears to indicate that if PTW is present in the river banks (even if the river bank is not adjacent to an SMA), river banks will be excavated and then covered with a significantly augmented reactive cap. EPA’s decision tree appears to associate PTW with river banks. This is inconsistent with the proposed plan and 2016 feasibility study report, which identify PTW only in sediments. EPA should therefore correct the decision tree for contaminated river banks in the ROD and remove PTW from the river bank decision tree altogether.
- Technology assignments are confusing, vague, and in some cases, contrary to the text of the proposed plan and feasibility study report. Armored portions of shoreline should not be included as contaminated river bank; unclear if river banks with contaminants not listed as RALs will require remediation; river bank technology flow chart designations are inconsistent with technology assignments with shallow sediment areas; technology assignment flow chart for river bank soil does not address highly toxic PTW; EPA’s river bank technology assignment flow chart does not distinguish between areas where groundwater may be seeping out of the river bank; EPA has not indicated the depth of contaminated soil that would need to be excavated from contaminated river banks or the slope needed; EPA’s river bank flow chart does not indicate that beach mix is required in the capped areas prone to erosive forces; technology assignments for riverbeds are inapplicable to heavily armored portions of the shoreline.
- As recently as February of this year, EPA confirmed this long-standing arrangement not to include river banks as part of the Portland Harbor Study Area in the recent remedial investigation report (USEPA 2016a). At that time, EPA noted that some river banks could be a source of contamination to the Study Area or Site, but stated that “[t]he occurrence and relative importance of river bank contamination is not well characterized for all parts of the study area, but is a focus of DEQ’s source control investigations” EPA, remedial investigation report, Section 4.3.4.
- The boundary between the shallow habitat zone and the river bank zone needs to be defined so that a baseline and supplemental design investigation for sediment and the river bank can be defined; definition of the zones would facilitate a remedy, if needed. The upper boundary of the river bank needs to be defined as well.
- The design criteria for restoring the river bank slopes is confusing and will lead to significant misunderstanding by the public and responsible parties during the remedial design. The ROD should not specify design criteria, such as slopes, based solely on potential habitat improvements recommendations from National Oceanic and Atmospheric Administration. It is unclear if EPA is accepting the recommend slope criteria for habitat. Maintaining existing infrastructure should be the priority over ideal habitat for slope. ROD should define performance criteria for river banks.

## EPA Response

Recent remedial actions with on-going performance monitoring were not described in the proposed plan (USEPA 2016c) on a site-by-site basis. DEQ's upland SCE information was used to identify river banks with known contamination. If performance monitoring concludes that the remedial action met the requirements of the ROD, EPA may not require further action to be taken to address the river bank.

EPA identified RAO 8, Migration of Contaminated Groundwater, for upland groundwater source control. Groundwater and river bank soil are being treated similarly, as described in the proposed plan; ongoing source control efforts for groundwater and river bank soil will provide additional risk and recontamination reductions.

EPA has included in the ROD an updated decision tree that indicates the flexibility to assess additional data during the design phase to select the appropriate remedial technology to address river bank contamination.

The ROD includes the flexibility for the remedial design to evaluate and select the appropriate remedial technologies. The remedial design will need to address site-specific factors such as highly toxic PTW, depth of excavation, on-site structures, site operations, and other site-specific features.

DEQ identified the extent of river bank contamination, which was presented in the feasibility study report (USEPA 2016b). The site-specific remedial design investigations will delineate the extent of contaminated river banks and physical features, which could impact the selected remedial technology.

Regarding habitat, the boundary between the shallow habitat zone and the river bank and other site-specific features will be evaluated in remedial design in consultation with the Services. The feasibility study made some assumptions regarding river bank slopes (using National Oceanic and Atmospheric Administration criteria), but the river bank slope will be evaluated during remedial design phase and reviewed by EPA, DEQ and will account for services such as overwater fueling to ensure the remedy does not prevent continuation of current services.

For additional information on EPA's approach to river banks, see Dispute Responses LWG 1d or 1q (Appendix A of this document).

### 2.26.4 Address River Bank PRG or RAO Comments

#### Comment Summary

Seven comments were received from six commenters regarding PRGs or RAOs associated with the river bank. Those comments are:

- Contaminated river banks are not always contiguous to an area of active remediation, so integrated cleanup of the in-river area and river bank will not occur (i.e., the feasibility study report states on page 4-7 "Contaminated beach areas under RAO 1 are assumed to only be addressed in areas adjacent to SMAs for each alternative"). Please discuss in the ROD how source control will be addressed at these non-contiguous river bank areas to protect the investment being made to clean up the Site.
- Need a decision node for the flow charts that ask if river bank contamination is being managed under state or other regulatory framework (in which this doesn't apply).
- PTW - NRC/NAPL is not applicable to river banks.

- RALs in adjacent sediment should not be applied to river banks. RALS are based on sediment PRGs and are only relevant to in-river pathways, not river banks.
- The PRGs used by EPA for evaluation of river bank soil were established for sediment. River bank soil is not sediment. The potential receptor/exposure pathway relationships for river bank soil are fundamentally different than those for river sediment.
- EPA should not set river bank soil PRGs since they are not based on risk assessments or available data; without risk assessment, EPA does not know the risk river banks pose. Or the recreational beach exposure scenario overestimates exposure and the PRG for river bank soil should be eliminated.
- RAO 9 is not appropriate or a valid measurement of cleanup. Alternatives have a large uncertainty (essentially factor of 2). EPA drawing of river banks on Figure 6 are arbitrary, inaccurate, and overstated and therefore, percentages within the error/uncertainty of analysis. DEQ will require all banks to be addressed under source control; many banks already addressed. Not in anyone's interest to address a remediation area or complete MNR evaluations if upland sources are not addressed.

### **EPA Response**

Regarding the contiguous nature of the river banks, the data and information regarding the extent of river bank contamination was provided by DEQ and reviewed by EPA should be representative of conditions described in the 2016 Portland Harbor Summary Report (DEQ 2016).

Regarding the decision node comment, data will be collected to evaluate river bank contamination. Design details such as the appropriate capping material will be identified during the design phase and will be reviewed by EPA and DEQ. DEQ may oversee river bank cleanup(s), subject to the ROD, that result in an earlier reduction of risk or otherwise advance overall sequencing of cleanup. PTW – NRC/NAPL are applicable to river banks because dissolved river bank contamination can be released to the river.

As described in the feasibility study report (USEPA 2016b) and the ROD, river bank soils may erode or be transported into the river and may become river sediments. Therefore, the PRGs for sediment, which are based on the RI and risk assessment, are appropriately applied to river banks. Post ROD data gathering will be used to develop designs for cleanup and will define the river bank areas that need to be addressed.

## **2.26.5 Explain Property-Specific Technology Assignments**

### **Comment Summary**

Comments were received from Northwest Pipe stating that proposed plan's SDU's inappropriately blend chemicals of concern, principal threat waste areas, and areas where no or limited contamination is found in such a manner that the scores of entities will not be able to sort out their relative potential responsibilities, making the allocation efforts impossible. The ROD needs to specify the quantities of technology assignments within each SDU (or SMA) determined to be appropriate for this complex site and the portion of the remedial action costs attributable to each.

## EPA Response

Allocation is not the intent or purpose of the feasibility study report (USEPA 2016b), proposed plan (USEPA 2016c), or the ROD and it will not be addressed in the ROD. Quantities are shown for each remedial alternative based on current information. The quantities for each alternative are based on SMAs as described in Section 3 of the feasibility study report. During remedial design, the information on sediment concentrations, groundwater plumes, reasonably anticipated land and river uses, plus other relevant information to an SMA will be updated for application of the decision tree and determination of where dredging, capping, and ENR is appropriate.

### 2.26.6 Consider Site Factors that May Impact Implementation

#### Comment Summary

Comments pertaining to how site factors can impact implementation of remedial technologies were received from four commenters, as summarized below:

- In applying their decision process to select technology assignments at various locations, it appears as though EPA did not consider location-specific factors that would limit the implementation of a selected remedy. The presence of over-steepened slopes, public utilities, piling fields, and other factors all impact the feasibility, cost, and duration of a selected remedy at a localized scale, and need to be considered in the technology assignments.
- EPA must take into account the continued operation of all public utilities in technology assignment and note that some technologies imply may not be implementable with certain existing utilities.
- EPA should identify how the presence of contaminated groundwater impacts technology assignments.
- EPA should acknowledge that areas for active remediation and technology assignments selected for feasibility study purposes will recognize existing upland source controls and will be refined during remedial design and implementation to allow site-specific and new information to optimize remedy effectiveness and reduce uncertainty.
- EPA should state in the ROD that technology assignments will be reevaluated during remedial design in a manner that includes comparative effectiveness using site-specific data and procedures consistent with the Gasco Consent Order (as was completed in the Gasco EE/CA), including current conditions associated with existing upland groundwater source controls.

#### EPA Response

In general, site-specific details will be considered and addressed during remedial design phase. EPA recognizes that there are existing and planned upland source controls as summarized in DEQ's Portland Harbor Upland Source Control Summary Report (last updated March 26, 2016). Please see DEQ's report and EPA's responses to source control comments in Section 2.27.1 of this responsiveness summary for further discussion of how Site-specific upland controls will be addressed during the remedial design phase.

The purpose of the more prescriptive technology assignment evaluation presented in the 2016 feasibility study report (USEPA 2016b) was not to ignore past evaluations but to provide a consistent and transparent Site-wide evaluation in order to estimate materials and costs to compare alternatives. The technology decision trees in the proposed plan (USEPA 2016c) were not meant to be prescriptive

but simply describe the general evaluation process used to select the remedy. The remedial design phase will entail a more detailed sampling effort to evaluate conditions. The ROD technology assignment decision tree provides a framework with flexibility and the ability to adjust remedial technologies based on more recent property specific information. This flexibility within the design is controlled by specific design requirements that accompany the ROD technology assignment decision tree.

For further discussion on how technology assignments may be impacted by public utilities and contaminated groundwater, please see EPA's responses in Sections 2.21.2 and 2.21.9 of this responsiveness summary.

### 2.26.7 Explain Technology Assignments for Shallow and Nearshore Areas

#### Comment Summary

Comments pertaining to technology assignments for shallow and nearshore area were submitted by two commenters, as summarized below:

- Shoreline dredging or capping would be infeasible at the Brix Property. Currently dredging is prescribed for the shallow areas. In addition to relatively shallow water, the structures and piles in the area make sediments in this area largely inaccessible. The removal area consists of native clays to silty clays that provide the base support for the upland slope. Removal of this compact native material at the base of this 2H:1V slope could destabilize the slope. Capping may also hinder access the fuel transfer station at a stationary work barge. The post-construction sediment concentrations are unrealistic and SWACs do not account for dredge residuals or actual background concentrations of COCs. For example, some of the dioxin/furan, PCB, and DDx post-construction concentrations are below EPA's derived background concentrations. Post-construction SWACs less than EPA's arbitrary background concentrations are not feasible and are an artifact of the use of "zeroes," instead of a background or equilibrium-based value, for replacement values in SWAC calculations.
- EPA should consider nearshore mudline/bank slopes and stability in assigning technology assignments. Geotechnical characteristics and submarine conditions limit application of some of the current proposed plan technology assignments. Assigned technologies according to the decision tree outline could result in significant shoreline and bank collapse and create upland structure instability.

#### EPA Response

The technology assignments in the feasibility study report (USEPA 2016b) are based on remedial investigation data. Footprints of dredging and capping at specific properties will be evaluated on a case-by-case basis during the remedial design phase. The presence of in-river structures, vessel draft requirements, and other location-specific conditions will be evaluated at that time to determine if the technology is feasible or appropriate.

The decision tree in the ROD provides for more detailed evaluations of geotechnical, hydrodynamic, and anthropogenic conditions during the remedial design phase. Appropriate technologies will be used in order to address any potential hazards in the area.



### 2.26.8 Consider Maintenance Dredging Effects on Technology Assignments

#### Comment Summary

Three commenters commented that areas subject to future maintenance dredging are much smaller than EPA assumed and that the FMD footprint should be revised, along with navigation depth requirements assumed within the FMD footprint.

Cascade General commented that the water depths in the small boat basin on the western side of Swan Island are currently more than adequate, and there will be no need to maintenance dredge this area for the foreseeable future. Likewise, the two dredge prisms in the dry-dock basin have been stable for at least 20 years, and there is no need for maintenance in this area for the foreseeable future.

#### EPA Response

The future maintenance dredge areas defined in the 2016 feasibility study report (USEPA 2016b) represented the locations of potential and known future dredge areas based on existing information. The FMD locations will be verified during the remedial design phase. Whether or not a potential FMD location will experience dredging in the future will need to be evaluated at the time of remedial design.

### 2.26.9 Better Define Habitat Mitigation Requirements

#### Comment Summary

The City of Portland commented that habitat mitigation requirements under the various alternatives are not described in a meaningful level of detail in the proposed plan or the feasibility study report. The City is concerned that the compensatory mitigation acreage could be underestimated, which could significantly impact cost estimates. Please clarify the calculation of compensatory mitigation acreage in the proposed plan.

#### EPA Response

Without pointing out a specific flaw in the calculations, EPA is unable to address this question. Table D2.n of Appendix D in the 2016 feasibility study report provides the acres assumed to require mitigation that were estimated for each alternative. Under the selected remedy, 60 acres of compensatory mitigation was assumed, based on armored capping acreages. This includes 2 acres of armored caps to be placed on river banks and 58 acres of armored caps to be placed on sediment in the shallow area, defined as above -15 feet CRD per the NMFS' definition of shallow water.

### 2.26.10 Provide Technology Assignment Flexibility

#### Comment Summary

A number of comments were submitted by six commenters that referred to how prescriptive the technology assignments were and requested more flexibility:

- Maintain flexibility in technology assignments so that areas appropriate for compensatory mitigation may be used accordingly.
- Flexibility should be built in for site-specific factors instead of by using generic assignments.
- Technology assignments should be flexible in the amount of dredging and in-place technologies.
- Technology assignments should take into account that the longer it takes to implement the remedy, the longer the impact to the river and fish, and the longer to recover.

- Flow charts need to be flexible to account for uncertainties in the CSM and the application of remedial technologies.
- There should be an evaluation in the suitability of alternative technologies in effectively reducing or isolating surface concentrations.
- ENR and activated carbon should be considered as active remedial technologies given the high sediment stability of the Swan Island SDU.
- ENR and activated carbon should be considered as active remedial technologies for RM 6NAV SDU
- Consider capping in the Nav-FMD areas where authorized and bathymetric conditions allow.
- EPA should correct the flawed assumptions regarding FMD requirements and propeller wash (propwash) disturbance depths in the Swan Island SDU, and should reevaluate potential remedial technologies within the Swan Island SDU based on these correction assumptions.
- EPA restricted capping site-wide due to a minority of situations. EPA has not presented any site-specific measurements of propeller-induced shear stress or sediment disturbance, instead relying on the presence of scour-pit at a few locations as evidence of substantial risk of propwash to capping.
- EPA does not have any basis to prescribe reactive caps with respect to groundwater plumes nor to specify the type of reactive cap (AquaGate + 10 percent PAC). EPA has failed to address the implementability of its prescribed reactive caps.

### **EPA Response**

To be clearer on the technology assignment criteria and process for implementing the ROD, a new decision tree with associated design requirements are included in the ROD and will provide a framework with more flexibility and other updates as a result of public comment. This decision tree flexibility (relative to ENR, capping, and dredging) is further discussed in Section 2.24 of this responsiveness summary.

### **2.26.11 Clarify the Decision Matrix**

#### **Comment Summary**

Comments were submitted by two commenters that referred multi-criteria decision matrix:

- The multi-criteria decision matrix should clarify that cap/cover technologies can be implemented in the Swan Island SDU feasibility study-defined propeller wash areas when site investigation demonstrates that the navigational depth is adequate to resist erosive forces.
- The multi-criteria decision matrix used for technology assessment and scoring provided in feasibility study Figure 3.4-16 is not understandable and not helpful in terms of assignment of technologies. In addition, the simplistic 1, 0, -1 scoring (yes-no approach) is not representative of the relative factors considered during selection of capping versus dredging for a given area. Specific changes to multi-criteria decision matrix were suggested in the first bullet below as part of the suggested changes to flow charts.



## EPA Response

The multi-criteria decision matrix was meant to describe the analysis that took place at the Site for cost estimates and volume calculations. Design requirements are specified in the ROD and PRPs may evaluate the site-specific factors to develop their design within the framework of the ROD technology assignment decision tree and design requirements.

### 2.26.12 Improve Technology Assignment Flow Charts

#### Comment Summary

There were a number of detailed comments about specific requested changes to the technology assignment flow charts. Recommendations for the flow charts were:

- The inclusion of multiple criteria that include pre-remedial design studies, geotechnical considerations, detailed sediment stability and propeller wash analyses, site-specific waterfront features, spatial differences in the river characteristics, and updated sediment and fish tissue concentration sampling data
- Having performance-based application of any reactive residual layer (e.g., flow chart requires placement of reactive residual layer regardless of post-dredge sediment conditions)
- Consideration of site-specific chemical and physical conditions in determining the need for reactive materials or armoring of caps
- Capping in navigation channel if authorized navigation depth could be accommodated
- Partial dredge and cap in NAV/FMD areas where bathymetric conditions would allow
- Use of alternative technologies, such as in-situ remediation or ENR where physical site constraints preclude placement of cap materials under structures
- Creating a single unified flow chart for Swan Island
- Specific notations on changes to wording in the flow charts

Related comments specific to Swan Island include:

- Use the intermediate decision trees when FMD area bottom depths are adequately below navigational depth
- Apply a mix of remedial technologies within the RAL footprint
- Apply ENR or MNR in the remainder of the Swan Island SDU outside other RAL footprint
- Conduct monitoring programs to assess performance and recontamination potential

## EPA Response

There were a number of detailed comments about specific changes to the technology assignment decision trees. EPA has noted the suggested changes to the decision trees and has revised the charts into one final decision tree included in the ROD. There was a misunderstanding about the decision trees intended for the propose plan as the prescriptive ones presented used were prepared for the 2016 feasibility study report (USEPA 2016b). EPA has developed a less prescriptive approach for the ROD that provides a framework, including design requirements that will be followed during the remedial design

process. This approach should address the specific comments about wording and flexibility in applying technology assignments at a site-specific level.

The Swan Island SDU recommendations are mostly incorporated already into the previously proposed technology assignments in the 2016 feasibility study report and proposed plan (USEPA 2016c). There will be a mix of remedial technologies based on location-specific features and ENR or MNR will be applied outside of the RAL footprint. The decision tree in the ROD provides a framework for design requirements and final technology design will be decided through the remedial design process and requested. Monitoring will occur at this time and after remedial technologies are placed to track short-term and long-term performance.

## 2.27 Source Control and Sediment Recontamination

### 2.27.1 Ensure Source Areas Are Controlled

#### Comment Summary

A total of 1389 comments were received on this topic. Almost all (98 percent) were received as form postcards or emails. The most common of those form comments are:

- “EPA’s cleanup plan should include the heavily contaminated uplands as well as the heavily contaminated river” or a slightly modified version.
- “Require the state of Oregon to continue upland sources control via legally enforceable means; the current text indicates that this approach “May” be taken.”

Several personal comments were received expressing concern about the status of upland source control and the split of responsibility between DEQ and EPA to address ongoing upland sources of contamination. One person believed that giving DEQ responsibility for upland and upriver sources meant that sources would not get addressed completely because DEQ has fewer resources than EPA. One person believed that DEQ’s method of identifying sources was insufficient and that DEQ (and so EPA) does not have a clear idea of where all the significant sources are. Representative personal comments include:

- “It seems reasonable that the upland contributors to river contamination should be cleaned up prior to actual river cleanup. Sadly, since DEQ is the lead agency on upland source cleanup, I don’t expect that to happen any time soon. The DEQ is chronically underfunded, understaffed, and not empowered to make industry complete cleanups in a timely matter.”
- “EPA should require the State of Oregon to continue its measures to control upland sources via legally enforceable means. Unfortunately, the approach suggested in the draft proposal indicates that such an approach may be taken and does not require it; we do not believe that language is sufficient.”
- “You can’t just clean up the river in the Portland downtown area and expect that to resolve the issue. The problem starts upstream from there in Newberg where they’re pulling out three-legged frogs and all kinds of crazy things. That’s an area that’s highly contaminated and that water flows downstream to Portland. Cleaning up the water that is coming into the river is what’s going to flush contaminants from the Willamette.”

- “It is true that there are hot spots of contamination that need to be addressed. It is also true that there are considerable volumes of fresh contamination currently entering the Portland harbor, not only from the local area, but upriver, beyond the Superfund site, from the hundreds of square miles drained by the Willamette and its tributaries.”
- “The upland sources, particularly the tank farms located in Linnton/Willbridge area, need to be controlled to prevent further contamination or recontamination of the river, with specific attention to earthquakes, flooding and climate change.”
- “Control of upland and upriver sources is necessary and not complete. The plan indicated a more pervasive influx of contaminant from the sources on land, many or all of which are uncontrolled. This problem must be remedied with source elimination in the harbor and source control upriver.”

Extensive comments were received on source control from numerous businesses, the USACE, and the Audubon Society. They are too large to quote directly and are summarized below:

- Several parties (ExxonMobil, Sediment Management Working Group, the USACE, PCI Group and the Audubon Society) believed that source control should be in place prior to remedy implementation.
- The Audubon Society asks that the previous cleanup work performed at early action/hotspot locations and the McCormick & Baxter site be re-examined for consistency with the RALs and PRGs for the Portland Harbor Site.
- The Associated Oregon Industries request source control and natural recovery processes already occurring in Portland Harbor be acknowledged as well as DEQ’s role in the Portland Harbor source control program since the Propose Plan and appears to be written to allow EPA to take over state-led work.
- The USACE included a specific request that groundwater source control be in place for the NW Natural plumes (Gasco) prior to remedy implementation in the relevant SDU that is adjacent to the NW Natural facility and U.S. Moorings facility.
- Siltronic Corporation requested that upland source control (especially as it relates to a remedy for NAPL) be in place prior to remedy implementation at the Gasco location.
- NW Natural requested that source control work completed at Gasco be acknowledged and utilized in the feasibility study and proposed plan in development of the preferred alternative. A similar comment from LWG asks that EPA not prescribe sediment remedies that ignore completed or committed upland source control measures.
- Comments from ExxonMobil, the Swan Island Group and the PCI Group ask that recontamination assessments be performed prior to remedy implementation.
- A comment from ARCO and BP West Coast Products notes that the natural movement of PAH-contaminated sediment from the Gasco location will recontaminate downstream areas.
- Comments from the Port of Portland and The Marine Group and BAE express concern that the 9 ug PCB PRG is unattainable in Swan Island Lagoon due to recontamination potential from urban background stormwater contributions.

## EPA Response

EPA is committed to ensuring that upland and upriver contaminant sources to the Willamette River are controlled because source control is critical in achieving the remedial action objectives for the Portland Harbor cleanup. In a February 2001 Memorandum of Understanding (MOU) (USEPA 2001), it was agreed that EPA would take the Lead Agency role and DEQ would take the Support Agency role for the in-river cleanup while DEQ would take the Lead Agency role using state authorities and EPA would take the Support Agency role for addressing upland and upriver contamination that may impact the Willamette River. EPA and DEQ jointly developed the December 2005 Portland Harbor Joint Source Control Strategy (DEQ 2005) to address the issue of uncontrolled upland and upriver sources of contamination to the river. The strategy provides the framework that DEQ follows in making upland and upriver source control decisions and provides the technical approach for characterizing upland and upriver sites and conducting source control evaluations for them.

Under the MOU, DEQ has coordinated their proposed source control decisions with EPA, six federal recognized Tribes, National Oceanic and Atmospheric Administration, Oregon Department Fish and Wildlife, and the U.S. Department of Interior. DEQ and EPA have coordinated even more closely on more complex upland sites, such as NW Natural and Arkema. Since the achievement of cleanup levels identified in the selected remedy relies in part on timely and successful completion of these upland and upstream source area actions, EPA retains the discretion to use its federal authorities to complete those actions. See Section 2.37 of this responsiveness summary for EPA's response on agency roles and cooperation. The Joint Source Control Strategy requires DEQ to prepare Milestone Reports. These reports provide an updated schedule and status of DEQ efforts to identify and control sources of contamination. Regular meetings are held between EPA and DEQ to discuss upland site source control decisions. EPA reviews and comments on most of DEQ's proposed source control decisions.

The status of the upland source control under the Joint Source Control Strategy framework was summarized in DEQ's Portland Harbor Upland Source Control Summary Report (DEQ 2016), dated November 21, 2014 and updated March 26, 2016. At the time of the updated report, DEQ had identified 495 commercial and industrial properties within the upland area, and of these sites, DEQ screened 171 sites for further evaluation. DEQ's goal is to control all upland sources prior to the initiation of in-river cleanup. The overarching goal of the Joint Source Control Strategy includes completing upland source control to the extent practicable prior to sediment cleanup in the Site. For example, a hydraulic control and containment system was installed at Gasco to capture and treat groundwater before it reached the Willamette River. EPA and DEQ are currently evaluating monitoring data and groundwater model flow predictions to determine if Gasco contaminated groundwater has been controlled sufficiently to begin in-river cleanup. A groundwater source control decision is expected from DEQ prior to remedy implementation near Gasco. Remedial design for the Gasco remedy will account for any NAPL (also known as Substantial Product) present in sediment. Source control work will be factored into remedial design (see also Sections 2.24 and 2.26 of this responsiveness summary).

Upland sources have been identified along the downtown reach of the river (approximately RM 12 through 16) that DEQ is working with to control and sediment contamination also exists within this reach. DEQ will be working with responsible parties at contaminated sites in the downtown reach of the Willamette River to ensure that the upland sources are controlled and the sediment contamination is addressed so that recontamination will not occur in areas subject to this ROD.

DEQ has placed regulatory controls on facilities to protect the water quality of the Willamette River from discharges of pollutants to the river. Most discharges of pollutants to the river require a NPDES permit under Oregon's authorized Clean Water Act Section 402 program. NPDES permits require dischargers to meet state water quality standards and total maximum daily loads (if applicable) in order to support all designated and potential beneficial uses. Periodic sampling is required under NPDES permits to ensure that discharges are in compliance with pollutant limits. Other regulatory controls related to bulk fueling facilities include the requirement to prepare and update spill prevention, control, and countermeasure plans to protect waters of the state from a release at facilities with petroleum storage.

In the selected remedy for the in-river cleanup, EPA has included remediation of a number of contaminated river banks immediately adjacent to sediment management areas that are documented uncontrolled sources of contamination to the Willamette River (see also Section 2.37 of this responsiveness summary).

Cleanup sequencing will be important for areas where a final sediment cap is installed as inputs from adjacent upriver cleanups will have the potential to recontaminate clean areas. As an example, cleanup of the area of the Willamette River offshore of Gasco should commence prior to areas in the downstream vicinity. A monitoring program will also be implemented to evaluate the long-term effectiveness of the remedy (Section 2.17 of this responsiveness summary). While source control efforts will be required permanently and serve to minimize the potential for recontamination, the monitoring program will be used to identify areas where recontamination may be occurring. Refer to the Section 2.3 of this responsiveness summary for a discussion of the feasibility of achieving the PCB cleanup level in an urban waterway such as Swan Island Lagoon.

Recontamination assessments are a component of pre-design or remedial design activities. The objective is to consider and evaluate upland, river bank, and in-river sources of potential recontamination and determine whether they were adequately investigated and controlled. See also the Sections 2.3 and 2.17 of this responsiveness summary regarding responses to concerns with unrealistic cleanup goals due to ongoing sources such as upstream inputs.

## 2.28 ICs

### 2.28.1 Develop a Plan for Implementing ICs

#### Comment Summary

Comments were received that stressed the need for EPA to develop a plan to implement ICs so that the public would be clear on the risks, the process involved, and the results.

Representative comments include:

- "We request that the 5-year plan describe how the results of monitoring could impact fish advisories both Site-wide and on a more localized scale, and how these results will be communicated to the public to inform the community about progress being made in the river cleanup."
- "EPA should explain how it intends to ensure that Institutional Controls are effective to prevent human exposure to contaminants. Include regular health screenings and provision of necessary medical treatment for vulnerable populations that may be affected by consumption of contaminated fish. Include strategies to conduct aggressive target outreach in the event of a spike

in toxicity levels in fish tissue, water column, sediments or air in which the public is likely to have exposure.”

A similar topic is addressed in environmental justice (Section 2.35.3 of this responsiveness summary).

### **EPA Response**

Effective ICs are key component of reducing risk at the Site and are critical to the successful implementation of the cleanup plan. EPA knows that many Tribal and community members fish for recreation, sustenance or because of long-held cultural traditions. EPA understands that issuing a fish advisory and posting warning signs may not be sufficient by themselves to adequately inform the public about risks at the Site.

During remedial design, the PRPs will develop an IC implementation and assurance plan (for review and approval by EPA) that lays out the approach for the development and implementation of all ICs required by the ROD to protect humans from exposure to site contaminants and to protect the remedy put into place. Specifically, the use of fish consumption advisories and regulated navigation areas, and the entities responsible for implementing them will be outlined. Additional IC mechanisms may be developed during remedial design, as needed.

The primary goal of the IC implementation and assurance plan is to establish and document the activities necessary to implement and ensure the long-term stewardship of ICs, and specify the persons and/or organizations that will be responsible for conducting these activities. In development of the plan, EPA will coordinate with river users, property owners, communities and other stakeholder groups to minimize the long-term impacts of ICs as part of the remedial action. The IC plan will include permitting aspects for ongoing maintenance throughout the area in this selected remedy as well as the downtown reach as well.

The approach for the fish consumption advisory IC will likely include, but not be limited to, the following:

- Survey fisher communities, including Tribal, low-income, minority, and immigrant communities, to verify the fish species being consumed, consumption rates, preparation and cooking practices.
- Develop a fish tissue sampling plan including species, numbers, and size of fish to be sampled, as well as tissue surrogates, such as passive sampling devices, where needed.
- Use fish tissue and other empirical data to support the five-year review process in evaluating the relative success of remedial measures against RAOs.
- Collect fish tissue data during remedial design (baseline) and throughout construction as part of the comprehensive monitoring plan for the Site.
- Establish fish consumption advisories that are fully protective of human health throughout construction and following construction based on on-going monitoring of fish tissue samples from upstream, within, and downstream of the Site.
- Conduct outreach and education tailored to the affected communities to ensure that fish consumption advisories are effective and appropriate, advisory signs are designed, installed, and maintained effectively and at the appropriate locations, in coordination with Oregon Health



Authority and Multnomah County Department of Health. Programs such as the education collaborative at Palos Verdes will be considered in development of the IC implementation and assurance plan.

- Identify and educate fisher communities about mechanisms to reduce the impacts of fish consumption advisories. The Agency for Toxic Substances and Disease Registry and/or Oregon Health Authority will review fish consumption information from EPA in their health assessment process, and offer health screenings if appropriate.
- Include coordination with sport or recreational fishing clubs and licensing locations
- Monitor the effectiveness of fish consumption advisories through surveys of fisher communities during construction.
- Based on long-term monitoring as determined in the five-year review process required under CERCLA, re-evaluate fish consumption advisories to ensure they are fully protective but not overly restrictive and on target to meet long-term goals of the remedial action. This may include special consideration of high use areas such as beaches and fishing areas at Cathedral Park, Willamette Cove, and Swan Island Lagoon.

## 2.28.2 Incorporate Education of the Public into Fish Consumption Advisories

### Comment Summary

About a dozen comments were received that were specific to educating people on risks from fishing so that they would be aware of and would heed the fishing advisories. It was pointed out that people currently fish at the Site even though fish advisories are in place (such as warning signs at the river). Commenters believe that a more robust public education effort would have to be used to ensure that impacted communities were aware of the health risks and the acceptable amounts of fish that could be eaten. One commenter has expertise specifically in Russian and the local Russian community and highlights the preference of this culture and community within Portland Harbor to fish and eat fish from the river.

Representative comments include:

- “The City requests that EPA address the feasibility of easing fish advisories for small home-range fish species in localized areas when the monitoring data indicate that fish caught from these exposure areas have recovered enough to do so.”
- “People still fish from the water and don't understand the adverse health effects. Warnings are posted in several locations, but they aren't everywhere. I would guess that a majority of the people I see are immigrants and need the fish they catch to feed their families.”
- “It is important that a better job is done with this clean up. Portland has a huge homeless population and many live on or near the river. These people are not reached through traditional outreach. These people and all Portlanders deserve to be able to use the resources that the Willamette offers. We need EPA to make sure that all people, not just healthy adults, can use the river and eat fish from the river.”
- “I'm an interpreter, translator, and I've worked with the East European Coalition ... and I'm here today because I know that the East European Coalition has a small grant aiming to engage and

inform the Russian speaking community, the East European community so to speak, multiple languages beyond Russian about this and I happen to know how common it is for Russians to go fish in the Willamette. I also have photographs that show multiple languages warning not to eat the fish out of the Willamette in four or five languages. So I'm eager to see that the broader community gets engaged in this project and is well informed both in terms of language, in terms of opportunity that they can participate, they can be informed to protect their own health but also how they can render development to their own community.”

- “To help the public better understand the fish advisories, please describe the reasons for the differences in advisories from the different agencies. The City also encourages EPA to partner with Oregon Health Authority in developing a means to communicate this process to the public. Please revise the communication strategy for EPA advisory so that it is more meaningful to the public. Due to the high reliance on fish advisories at the Site, the City would like EPA to perform a study to assess the effectiveness of fish advisories, to ensure they are successful in protecting the public.”

### **EPA Response**

Since the Site was listed in December 2000, EPA has conducted continuous outreach efforts and has engaged with organizations representing people who live along the river. Recent outreach activities are outlined in EPA’s most current iteration of the Portland Harbor Community Involvement Plan, which is available on EPA’s Portland Harbor Superfund website. EPA intends to continue these outreach efforts after the release of the final cleanup plan for the Site.

EPA recognizes that fish consumption advisories are challenging ICs to implement effectively without community support. EPA will work with the PRPs, tribes, community groups, appropriate state agencies (such as the Oregon Health Authority) and other parties to develop an education program for fish advisories and any other ICs that is specifically tailored to those most at risk (such as those who consume the greatest amount of fish such as tribal members and communities with environmental justice concerns). We will also draw on experience at other Superfund sites to improve on what works and avoid what does not. We will pay particular attention to understanding cultural nuances and overcoming communication issues and will rely heavily on advice from the Tribes and communities with environmental justice concerns in making this happen.

The outreach program may include informational meetings, presentations, and workshops targeting affected community groups; development and distribution of informational materials such as brochures or maps; advisory notifications communicated through a variety of culturally appropriate outlets; installation and maintenance of advisory signs at known fishing locations; and coordination with sport or recreational fishing clubs and licensing locations. This level of effort is specified in the ROD (Section 14), and it will be a priority in implementing the cleanup at the Site.

The five-year review will address the effectiveness of the ICs in evaluating protectiveness and EPA will also evaluate the feasibility of easing fish advisories as specific areas recover. EPA will also revise the communication strategy for the EPA advisory so that it is more meaningful to the public and will discuss the potential to perform a study to assess the effectiveness of fish advisories with the City of Portland.

EPA agrees that all areas that provide recreation, fishing or other public uses, including high-use areas such as beaches and fishing areas at Cathedral Park, Willamette Cove, and Swan Island Lagoon, should be given appropriate RAL assignments to limit exposure as quickly as possible through the



implementation of the appropriate remedial technology. During remedial design, EPA will further consider site-specific factors, including high public use, in prioritization of areas posing the highest risk, sequencing, and other aspects of how the remedial action will be implemented.

RAO 2 (protection of human health) will not be met until several years following construction, requiring fish consumption advisories at the Site and watershed-wide fish consumption advisories, such as the existing Oregon Health Authority advisory for mercury, would likely remain in place because there are sources of contamination that are outside of the scope of the Superfund cleanup. EPA acknowledges the need for improved risk communication regarding the acceptable fish meals (compared to the existing Oregon Health Authority fish advisory) and the timelines to meet RAO 2. However, given that this is a large and complex site, it is difficult to estimate the time to conduct the remedial design. The implementation of the selected remedy will dictate how the design will be conducted. It is unlikely that design and construction activities will be conducted in a single phase. Therefore, part of the post ROD activities will include remedy implementation planning. This work will be conducted and coordinated with stakeholders. EPA will continue to conduct community involvement activities that will keep the community and stakeholders engaged in the process and involved in the cleanup activities.

### 2.28.3 Reduce Use of ICs in General and Monitor Carefully

#### Comment Summary

Twenty-five comments were received relating to the effectiveness of ICs. People asked that the use of ICs be reduced where possible; and, where not possible, that measures be developed and implemented to ensure their effectiveness and make changes where needed. They requested that funding be set aside for evaluation and changes.

Roughly 85 percent of the comments were from email comments that stated:

- “Because Institutional Controls (ICs) are not effective, especially in the long term, EPA needs to reduce the need for ICs, and include in the ROD provisions for PRPs covering the costs of ICs, and provisions for evaluating the IC effectiveness with regular program modifications.”

The remaining comments were:

- “ICs do not work according to GAO. Therefore, cleanup goals should eventually eliminate use of ICs.”
- “ICs are not effective, especially in the long term. When ICs are utilized the potential responsible parties must cover the costs of these ICs for their duration, and provisions must be included for evaluating their effectiveness with regular program modifications.”
- “It is misleading to omit discussion of the ongoing need for fish advisories and the role, if any, that fact plays in EPA’s remedy selection.”
- “Please also reduce the need for ICs, and include in the “records of decision” provisions for “potentially responsible parties” covering the costs of any ICs that are implemented, as well as provisions for evaluating the IC effectiveness with regular program modifications.”
- “EPA states that existing fish consumption advisories might not be sufficiently effective in protecting human but does not propose an alternative fish advisory that should apply between now and the start of cleanup, which may be many years from now.”

## EPA Response

ICs are common components of CERCLA remedies to help prevent exposure to residual risks and protect remedies put into place. Over the years, EPA has improved its implementation of ICs to assure they are reliable in the long-term and EPA does not believe that ICs in general will be less effective at Portland Harbor than other cleanup sites. That said, EPA agrees that for ICs to be effective, EPA, the state and PRPs all will have a role in implementing, monitoring and enforcing ICs used at Portland Harbor.

Regulated navigation areas are a type of IC that ensures the integrity of sediment caps is maintained. Regulated navigation areas limit river activities in specific areas and could include prohibiting anchoring of vessels or the use of spuds to stabilize vessels in areas containing caps. Notifications such as signs and buoys may be used to warn vessels from the area. Other ICs may not include buoys, but may involve adding notation on navigation charts for areas that require coordination with EPA prior to dredging or other harbor maintenance work. Regulated navigation areas have been successfully used in the past to protect remedial actions at the Site and were required to protect the McCormick and Baxter cap and the Gasco interim action cap from vessel activities. Periodic inspections of regulated navigation areas notifications will be needed to ensure they are functional and effective. The IC implementation and assurance plan, to be developed during remedial design, will outline the approach for effective implementation and monitoring of regulated navigation areas (Section 2.28.1 of this responsiveness summary).

Other land use restrictions may be implemented through easements or other real property mechanisms. All ICs will be monitored and if found to not be working, additional or different controls can be applied or additional cleanup may be required.

EPA explained the need for fish consumption advisories in both the feasibility study report (USEPA 2016b) and the proposed plan (USEPA 2016c) based on the results of the BHHRA (Kennedy/Jenks 2013) in the remedial investigation report. EPA has clearly identified in the ROD the need for fish consumption advisories during and after construction of the remedy until cleanup levels are achieved. Even then, watershed-wide fish consumption advisories such as the existing Oregon Health Authority advisory may need to remain in place because there are sources of contamination that are outside of the scope of the Superfund cleanup (upstream sources of naturally-occurring mercury).

As described in Section 2.28.2 of this responsiveness summary, EPA acknowledges the challenges of fish consumption advisories and ensuring, the public is aware of the risks to eating resident fish and abides by the advisories to limit their consumption. That is one reason why EPA's remedy decision has sought to address as much risk through active cleanup as feasible and cost-effective. The objective of the remedy is to reduce contaminant concentrations in a variety of media mainly by actively targeting the sediment areas with the highest known concentrations of contamination and areas with contaminated groundwater impacting the river. This active remediation is expected to reduce fish tissue concentrations and associated human health risk and reduce the reliance on fish advisories. However, it should be noted that fish consumption advisories will remain no matter how well contaminated sediments and other media at the Site are remediated due to sources of contamination that are outside of the scope of the Superfund cleanup, as explained in Section 2.3.3 of this responsiveness summary.

Fish tissue monitoring is a part of the monitoring plan for the cleanup, as described further in Section 2.17.3 of this responsiveness summary, and parties responsible for the cleanup will also be responsible for funding the implementation of the monitoring plan. Monitoring data will be used in part to determine whether fish consumption advisories can be relaxed. During remedial design an IC

implementation and assurance plan will be developed by the PRPs for review and approval by EPA (Section 2.28.1 of this responsiveness summary), which likely will include a variety of ICs, some of which PRPs will implement and others will be governmental controls implemented local, state, and federal agencies with authorities to authorize uses of the river.

Regarding the commenter's statement that EPA claims that existing fish consumption advisories might not be sufficiently effective in protecting human health but has not proposed an alternative, fish consumption advisories are a state-led function and issuing an alternate advisory in a Record of Decision is not appropriate. However, EPA has taken and will continue to take action by conducting extensive outreach efforts, including coordinating with the Oregon Health Authority and Oregon DEQ to inform particularly vulnerable communities of risks associated with contamination in the river. One example of these outreach efforts specific to fish consumption advisories began in 2012 when EPA the Willamette Riverkeeper, the Oregon Health Authority, and the Department of Portland Parks & Recreation worked with different groups such as the Portland Harbor Community Advisory Group, five neighborhood associations and representatives from the Slavic, Latino and Vietnamese communities and the Yakama Nation to review the previous fish advisory sign in order to design a more useful sign. Multiple focus group sessions occurred with these community and tribal partners in addition to extensive meetings between Oregon Health Authority and EPA. The result of this extensive outreach was a revised fish advisory sign that incorporated community and tribal input.

## 2.29 Remedy Compatibility with Current and Future Use

### 2.29.1 Prevent Conflict with USACE Dredging

#### Comment Summary

The USACE believes the scope of the Site cleanup interferes with its critical missions and should address only SMAs defined in the proposed plan. For USACE projects outside of SMAs, an existing guidance - the SEF and implementation process - through the Portland Sediment Evaluation Team should continue to be used to evaluate contamination levels and manage sediments removed for maintenance dredging purposes within the Federal Navigation Channel as well as by other project proponents (such as the Port of Portland).

USACE believes that the existing SEF will continue to allow unconfined aquatic placement of dredged material (such as disposal upstream of the Site or in the Columbia River flow lane) while the application of the PRGs will preclude it. They commented that the geographic scope of the application of PRGs needs to be clearly defined and is concerned if the PRGs are applied up to Willamette Falls (RM 26.8) and commented that if PRGs are applied to RM 28.4 that could result in the removal of a valuable resource from the Lower Willamette and Columbia River Systems. They believe that the preference of the NMFS would be that dredged material from the Site meeting the SEF could be disposed unconfined upstream of the Site and in the Columbia River.

#### EPA Response

USACE appears to be most concerned about the PRGs associated with the human health fish tissue and sediment goals and did not provide specific information about the SEF nor any quantitative support demonstrating why under that framework sediment evaluation, particularly for bioaccumulative toxics, would result in significantly different results from the CERCLA evaluation of risk and disposal options. The SEF (in Sections 8 and 9) provides for assessing bioaccumulative contaminants and where appropriate undertaking site-specific risk assessments which in the case of the State of Oregon would be using DEQ's cleanup program's risk assessment guidance. Thus, it is not clear why decisions under the

SEF as applied would be significantly different, especially once bioaccumulation values have been developed for use in the SEF.

PRGs for Portland Harbor were developed in compliance with the NCP and EPA guidance to reduce unacceptable risk to people and ecological receptors determined through site-specific CERCLA risk assessments. The PRGs represent concentrations in environmental media which are protective of both human and ecological receptors for each RAO for the cleanup. The PRGs were developed on the basis of site-specific and default risk-related factors, chemical-specific ARARs, and consideration of upstream sediment background concentrations. The sediment background concentrations were derived from data taken as part of the remedial investigation and were developed in accordance with CERCLA guidance. In making CERCLA remedial action decisions, EPA must apply the CERCLA statutory and regulatory standards.

Under CERCLA's standards, the entire in-river portion of the Site presents unacceptable risk to people and wildlife consuming resident fish from bioaccumulation of PCBs chlorinated dioxins, DDT and metabolites in fish tissue, which includes areas outside of SMAs. Beyond site-wide fish consumption risks, risks to the benthic community as measured through comparison to site-specific and national sediment quality guidelines are present throughout the in-river portion of the Site. The final remedy selected monitored natural recovery for areas in the Navigation Channel and other areas that may need future maintenance dredging outside of the SMAs. Monitoring will occur in those areas and, if MNR is not occurring, more active remediation may be needed.

EPA and the USACE have a Letter of Agreement on coordinating USACE dredge projects with the EPA cleanup program. We anticipate continuing to work with the USACE under that Letter of Agreement post-ROD. However, with the final ROD issued, EPA anticipates that future maintenance including dredging within the area covered by the selected remedy and downtown reach, will be evaluated consistent with the final ROD and cleanup levels for purposes of evaluating both what contaminant concentrations may be exposed by the dredging and making decisions regarding where the dredged sediment can be disposed. Sediment containing COCs exceeding PRGs in areas outside of SMA's needs to be managed consistent with EPA's ROD to minimize discharges of contamination during dredging and exposure of contamination as a result of the dredging and disposal that poses unacceptable risk. EPA will continue to perform a supporting role to the USACE in review of permit applications for projects in Portland Harbor under Section 404 of the Clean Water Act to ensure adequate project controls are in place during in-river sediment disturbing activities.

With regard to dredged sediment from the Site and the potential for unconfined disposal in the Columbia River, based on current information and EPA's risk assessments, EPA could not sanction the placement of CERCLA dredged material in the Columbia River that exceed human health PRGs or any of the ecological PRGs for bioaccumulation or other relevant exposure scenarios that would apply to unconfined in-river disposal.

Regarding the geographic scope of EPA's cleanup levels, EPA's ROD provides where remedial action in the river has been selected. The final ROD requires cleanup from RM approximately 1.9 up to RM 12, based on current information but post-ROD baseline sampling may change the exact upstream or downstream area for cleanup. The cleanup levels will be applied to where remedial action will be taken. The ROD also provides that the downtown reach from approximately RM 12 to 16.6 is a source area that needs to be addressed through DEQ source control actions consistent with EPA's ROD so as not to recontaminate lower areas of the river. EPA's sediment cleanup levels for arsenic, hexachlorobenzene,

PCBs, cPAHs, 1,2,3,4,7,8-HxCDF, 1,2,3,7,8-PeCDD, 2,3,4,7,8-PeCDF, and 2,3,7,8-TCDD are based on sediment background concentrations derived consistent with EPA guidance based on sampling undertaken as part of the remedial investigation studies above RM 15.3 and thus are considered to be achievable. Other information in the administrative record supports that all other risk-based sediment cleanup levels are achievable as well.

EPA's ROD relies significantly on MNR in a majority of the Site to achieve the cleanup goals from cleaner sediment coming into the Site from upstream. Therefore, the USACE and the State of Oregon should consider potential impacts on the Portland Harbor Site in performing or authorizing dredge projects above RM 16.6 and particularly for considering unconfined aquatic disposal of dredged material exceeding EPA's cleanup levels. EPA's ROD also considers the benefits of the cleanup on further migration of contamination to the Columbia River. Furthermore, EPA is looking to the state to take a watershed approach in seeking to reduce toxics in the upper Willamette River so as to facilitate achievement of the ROD goals and benefit human health and the environment in the entire watershed. EPA is willing to coordinate with the USACE and state on upriver dredging projects.

Regarding the USACE comment that it would be NMFS' preference to allow Portland Harbor dredged sediment to either stay in the river or be disposed of in the Columbia. We note the USACE provided no supporting documentation of NMFS' views on the Portland Harbor cleanup and disposal issues. However, EPA is coordinating with NMFS and USFWS for compliance of the remedy with Endangered Species Act. EPA received comments from NMFS during the public comment period. EPA's understanding of NMFS's position is they feel that long-term improvements in sediment quality would represent a reduced risk to salmon. Further, EPA in its consultation process has met with the Yakama and other area tribes who have voiced concerns over contaminant loading to the Columbia River. The fact that the SEF does not address bioaccumulation of PCBs and other bioaccumulative toxins in fish tissue is a paramount concern of Tribes that have historically and currently fish in the Columbia and Willamette Rivers.

## 2.29.2 Prevent Conflict with City's Comprehensive Land Use Planning

### Comment Summary

The City of Portland had the following comment regarding land use:

- "EPA must ensure that the Site-wide remedy and the remedial design for specific areas be consistent with the anticipated future land uses of Portland Harbor established by the City.

Every Superfund remedy must be selected with consideration of future land use (CERCLA Land Use Directive, OSWER No. 9355.7-04, 1995 reaffirmed in the directive to Superfund National Policy Managers, OSWER 9355.7-06P in 2001). Oregon has unique land use laws that require development of enforceable land use plans and Portlanders are passionate about their involvement in planning the City's future land use.

Portland recently adopted an updated comprehensive land use plan to guide development and investment in the City for the next 20 years, as well as a Climate Action Plan, and the City has enacted detailed zoning overlays that apply to Portland Harbor. These requirements and development standards define, protect and enhance the anticipated future uses in Portland Harbor, including industrial lands that support middle-wage incomes, habitat protection, critical flood control, and public access to recreation.

Much of Portland Harbor is designated as prime industrial land and thus the selected remedy and any associated technology assignments should not create physical or economic barriers to redevelopment on this economically valuable land. It is especially important that prime industrial land that is currently vacant be allowed to build docks or dredging moorages as needed to access the federal navigation channel. Portland's land use planning also provides specific community visions for how public access, riverine habitat and flood storage potential will be maintained and improved. Portlanders have worked hard to incorporate the right mix of uses in Portland Harbor. This includes extensive plans for greenways and human access trails in some areas of the Harbor.

Portland's land use planning process has created a clear vision of the anticipated land uses in Portland Harbor. In short, Portlanders anticipate that all land in Portland Harbor will be used to fill multiple community needs. The City requests that EPA engage City land use planners and the communities in and around Portland Harbor to ensure that anticipated future land uses in each area of the river are not impaired by the remedy, and that EPA provide flexibility in the ROD's application of cleanup technologies to be consistent with the detailed planning in place for current and anticipated land use."

### EPA Response

EPA and the City of Portland, as a member of LWG, worked together on the remedial investigation and feasibility study and consideration of harbor use was incorporated into the development of PRGs (see 2.29.1). The primary goal of Superfund cleanup is to be protective of human health and the environment, and reasonably anticipated future uses plays an important role in cleanup decisions. EPA intends to be flexible in the implementation of the remedy, and those details will be developed in the remedial design and beyond. See also EPA's responses to comments in Sections 2.2.6, 2.21, 2.26, 2.35, and 2.37 of this responsiveness summary.

## 2.30 Miscellaneous Regulatory and Legal Issues

### 2.30.1 Be Consistent in Treatment of PRPs

#### Comment Summary

Two comments were received on the inconsistent treatment of PRPs.

- One commenter stated that the proposed plan does not provide the amount of information about sources of contamination as required by EPA guidance because the proposed plan does not fully describe the United States' involvement in WWII ship building and related activities that contributed to the contaminants found in the Portland Harbor. The commenter said that the ROD needs to clearly describe how these activities have significantly impacted the Site and that an important function of the proposed plan, comments on the proposed plan, and ROD is to serve as the basis for an allocation of liability among PRPs. It was stated that EPA has not identified all significant PRPs and identified the L.B. Foster Company, a former steel-pipe manufacturing facility at the WWII Assembly Building area. The commenter requested that EPA's issue a GNL and 104(e) Request to the L.B. Foster Company.
- A second commenter stated that parties with no or *de minimis* or *de micromis* contaminant contributions be removed from the PRP settlement process, and that to their knowledge EPA Region 10 has not yet implemented early settlement, *de minimis*, or *de micromis* settlement procedures.



## EPA Response

As noted in the EPA guidance titled, *Guidance for Conducting Remedial Investigations and Feasibility Studies Under CERCLA (Interim Final, October 1988)* (USEPA 1988), “[t]he remedial investigation and feasibility study process as outlined in this guidance represents the methodology that the Superfund program has established for characterizing the nature and extent of risks posed by uncontrolled hazardous waste sites and for evaluating potential remedial options.” The results of the remedial investigation and feasibility study support the proposed plan (USEPA 2016c) and eventual the selected remedy. The remedial investigation, feasibility study, proposed plan, and the remedy decision document are not the vehicle for identifying potential responsible parties or allowing contributions. That is a separate function. EPA disagrees with the commenter’s view more specific and extensive PRP information should have been in the proposed plan and should be in the ROD. Likewise, allocation of liability between PRPs is not a function of these two documents, but rather their primary function is to present the alternatives that were evaluated, communicate a proposed remedy for public participation and comment, and then to document the selection of the final remedy needed to protect human health and the environment.

The remedial investigation report (USEPA 2016a), Sections 3 and 4, contain significant information regarding the historical and current land uses in the Site and the sources from those uses that released contamination into the river. The major industries that operated along the river are summarized in Section 3.2 and includes discussion of World War I and II shipbuilding and dismantling of US Navy and U.S. Maritime Administration ships. EPA guidance does not discuss the level of detail about specific PRPs that the commenter asserts should be in the proposed plan and ROD. In fact, Section 6.3.2. of the ROD guidance provides that “specific PRP names need not be included” in the ROD. The list of PRPs identified as of the date of the proposed plan is in the administrative record [AR Doc #850002] which includes all federal agencies, departments or entities that have to date been identified as potentially liable for response costs.

The comments and information supplied by commenters regarding a company that may have operated on its property in the past and potential settlements with *de minimis* or *de micromis* parties are not related to the proposed remedy for the Site; therefore, will not be addressed in this responsiveness summary,

### 2.30.2 Explain Why Standard Procedures Appear to Be Misapplied

#### Comment Summary

Comments were received from NW Pipe Company, the Port of Portland, and Portland General Electric specific to misapplication of standard procedures. Those comments are:

- EPA has required that public access for fishing be provided at river bank areas that are on private property. The PRP should not have to provide the public access to their private slip. Or Site access or security limits risk.
- The International Terminals Slip was created through dredging upland areas and it does not share the same characteristics as the Willamette River. EPA has applied the same standards to the International Terminals Slip, an artificial creation, as it does the Willamette River, a natural feature.
- Alternative I was included in the feasibility study report after the draft version and has not been reviewed by NRRB and the Contaminated Sediments Technical Assistance Group.

**EPA Response**

Through its cleanup decision, EPA is not requiring landowners to provide fishing access or other public access to private property. The public has access to some portions of the Willamette River's banks and boats can access most portions of the river. Ecological receptors such as fish have access to all areas of the river, and may be exposed to COCs located in and near the International Terminals Slip. These fish then travel to other parts of the Willamette River where they can be caught and eaten by people and wildlife or birds. Therefore, sediments in the International Terminals Slip present can pose an unacceptable risk, regardless of whether or not people have access to the slip or not. See also Section 2.2.9 of this responsiveness summary.

Northwest Pipe Company has not provided a technical description of standards that are applied to the Willamette River that should not be applied to the International Terminals Slip. The characterization of the Willamette River in the remedial investigation report accounts for anthropogenic and natural activities. Under the proposed plan (USEPA 2016c), remedial action objectives are applied across the Site regardless of how particular areas were originally created.

**2.30.3 Explain Why LWG's Feasibility Study Was Not Sufficient****Comment Summary**

Union Pacific Railroad stated that EPA has delayed the process by revising LWG's 2012 draft feasibility study report (LWG 2012) which fulfilled the requirements of the law and EPA guidance. Union Pacific Railroad commented that the LWG feasibility study report proposed a workable, common sense cleanup that incorporated reliable science, and provided the required comparative analysis of alternatives based on realistic estimates of cost and time necessary to perform work.

**EPA Response**

See EPA's position to LWG Dispute Issue 2 (Appendix A of this document).

**2.30.4 Consider that Flaws in the Proposed Plan Will Encourage Litigation****Comment Summary**

Two commenters (Calbag Metals Co. and EVRAZ) commented on litigation concerns. They state that because the proposed plan is flawed (such as RAOs and associated PRGs are overreaching; components are technically and factually unsupported), a ROD based on the current proposed plan will likely result in litigation. This will result in long delays and increased costs to the PRPs due to litigation. EPA will then need to use its enforcement powers to compel performance of unilateral cleanup orders.

**EPA Response**

The purpose of the responsiveness summary is to respond to public comments on the remedial alternatives evaluated and supporting information and proposed plan (USEPA 2016c), not to address questions of liability or litigation in any detail. EPA anticipates that the parties responsible under CERCLA will pay for the cleanup and trusts that those parties will see the benefits of moving forward with the cleanup rather than litigation.

**2.30.5 Respond Fully to Freedom of Information Act Requests****Comment Summary**

One commenter (PCI Group) states that because EPA has not responded fully to their Freedom of Information Act request, EPA has not made the proposed plan's "supporting analysis information



available in the administrative record.” Therefore, EPA has not provided the public a reasonable opportunity to comment on the proposed plan, which is required under the NCP.

### **EPA Response**

The proposed plan (USEPA 2016c) and administrative record file contains the information that the agency considered. Any interested stakeholder has all the information needed to comment on the alternatives, including the preferred alternative, developed for remediating from approximately RM 12 to RM 2. Whether or not EPA had responded to Freedom of Information Act requests (which generally are not included in the administrative record) is not relevant to the completeness of the administrative record file. Neither the NCP, nor EPA’s guidance, suggest any intersection between EPA’s compiling of the administrative record file, and its response to Freedom of Information Act requests.

The administrative record file was delivered to the Multnomah County Central Library, the St. Johns Library and the Kenton Library with an additional copy also placed at the Historic Kenton Firehouse. Additionally, EPA’s Portland Harbor Superfund webpage provides a web link to the full administrative record (<https://semspub.epa.gov/src/collection/10/AR64506>). Consistent with EPA’s 2010 “*Revised Guidance on Compiling Administrative Records for CERCLA Response Actions*,” EPA has continued updating the administrative record file during the preparation of the responsiveness summary.

## **2.31 Support for Another Alternative**

### **2.31.1 Consider Community Support for Alternatives B, E, G, G+, or H**

#### **Comment Summary**

A total of 1,654 comments were classified as supporting another alternative. Almost all asked for Alternative G or higher, with only a few requests for Alternative B or E. Over 82 percent of the comments received were form emails that stated:

- “EPA should select Alternative G with additional dredging in areas of high human use, areas of high ecological value, and areas where there is high risk of recontamination of the river.”
- “Recommend that EPA select Alternative "G," with modifications of additional dredged acreage recommended by the Audubon Society of Portland”
- “I support Willamette Riverkeeper’s position that the Portland Harbor Superfund Site needs an aggressive clean up that protects people and wildlife for the long term.”

The remaining comments were personal comments that included:

- “Alternatives G and H seem better than I. Alternative I is simply a Band-Aid approach and will achieve very little. It is understood that alternatives H and G will take longer and be more expensive or "less cost effective", as the report states but the result will come much closer to achieving the restoration goal. As stated earlier, this section of the river took industry a long time to degrade and much profit was made in doing so. It is only fair and equitable that some of this time and profit be returned to make this area right for the people of Portland and the Pacific Northwest.”
- “Option I does not go far enough. Option G is the minimum level of clean-up necessary, with at least halfway between option G and option H being preferred. We are responsible to future generations to clean this river back to a pre-polluted state. Today’s presenter spoke of a reasonable time frame as a consideration. It took 100 years for the river to accumulate this

contamination. The longest projection for cleanup (option H) suggests it could take over half that time (62 years) to remove it. While it may seem long, in context it is no unreasonable. Option G is projected to take 19 years, which would clean the river in less than a fifth of the time we've taken to pollute it. That is reasonable (far more reasonable than allowing it to remain in our river)."

- "Alternative E includes dredging about 40 more acres in SDU 6 Nav than the proposed Alternative I. I would prefer EPA's final plan should include this additional 40 acres of dredging. Removing this material would result in the Hazard Index for the area due to PAHs being lowered to 3, rather than at 5 in the proposed plan alternative I."
- "I am a midwife. The chemicals cause prematurity, low birth weight, birth defects, and learning disabilities. Save our children - Option G - Please."
- "Really. Lame-sauce dude! Do next to nothing? Bologna. Option G+ for the Willamette Superfund."
- "Please consider a speedier and more effective plan that could impact our local environment in a huge and positive direction. We as Portlanders need to set an example and practice our sustainable, green reputation and do something extraordinary for the fish, wildlife and our next generation. Thank you for reading and considering this important alternative and support Alternative G."
- "Please select Alternative G with additional dredging as proposed by the Portland Audubon Society. This is our chance to do it right. The Willamette River has been ruthlessly used/abused by a long list of polluters including ExxonMobil, Northwest Natural and the Port of Portland. A partial clean-up is not adequate and does not serve the citizens adequately. We want our river back. It is vital to the health of our communities, our environment and our wildlife. This can only be accomplished by selecting Alternative G with additional dredging as proposed by the Portland Audubon Society."
- "In sum, the Oregon Chapter of the Sierra Club believes that Alternative G offers the best and most effective remediation of the Portland Harbor Superfund Site, short of complete removal of all contaminated sediment. We therefore recommend the adoption of Alternative G with enhancements to further protect health and the environment and ensure the long-term effectiveness of the cleanup."
- "According to the Plan, EPA found that all remedial alternatives except Alternative A would be protective of human health (Plan, p. 50.), but rejected Alternative B as too slowly protective of the environment (Plan, pp. 50 – 51). But because "none of the alternatives address all ecological risks" (Plan p. 60), the advantages of Alternative B, as the fastest and cheapest alternative with the least in-river construction, may exceed its disadvantages."

### **EPA Response**

EPA shares commenters' concerns about providing for a remedy that addresses risks to the health and well-being of everyone who lives near or uses the Willamette River as well as protection of fish, wildlife, and other organisms in the waterway in a timely manner. EPA has sought in its selected remedy (Alternative F Modified) to provide the best balance of achieving the most reduction in risk to people and aquatic organisms through a protective cleanup while reducing short-term impacts to the environment, the community, and workers during and after construction.

Many of the commenters stated a concern that the preferred alternative in the proposed plan (USEPA 2016c) did not involve enough dredging—that more dredging should be selected instead to reduce time to achieve cleanup goals and allow fish consumption advisories to be lifted sooner. Many commenters asked that EPA select at least Alternative G, Alternative G+, or Alternative H. Due to the vast majority of commenters' concern that the proposed plan left too much contamination for MNR as well as other issues raised with the proposed plan alternative, EPA has selected Alternative F Modified which will actively address an additional 103 acres of contaminated sediment. Therefore, selected remedy will remove up to 3 million cubic yards compared to approximately 1.75 million cubic yards of sediment than Alternative I. The selected remedy calls for the highest levels of contamination to be removed through dredging (roughly 3 million cubic yards) or to be isolated through capping (176 acres). ENR and MNR are employed only in areas with lower levels of contamination. EPA's analysis of alternatives shows that any larger, removal-based remedy beyond Alternative F Modified, such as Alternative G, would not substantially improve public health and environmental protection but would take a good deal longer, cost substantially more, have greater short-term impacts to aquatic organisms in the waterway and to the community surrounding the waterway because of dredging activity, and require the processing, transporting, and landfilling of millions of additional cubic yards of sediment with low levels of contamination.

In addition, Alternative G would impact the surrounding communities with substantially more traffic on the waterways, rails, and roads than the selected remedy. The potential for accidents, spills, and aquatic habitat disturbances from dredging and transporting such large volumes of contaminated sediment would be much greater for Alternative G than for the selected remedy.

It is important to note that an Alternative G+ was not identified nor evaluated in the feasibility study, so EPA cannot specifically comment on the merits of that alternative. However, EPA did evaluate a more aggressive dredging alternative than Alternative G (Alternative H), and the overall conclusions of the evaluation are similar to those for Alternative G but with even longer construction timeframes, larger negative short-term impacts including habitat losses during construction, and higher costs for the incremental additional risk reduction achieved. Alternative H would cost approximately 5 times more than Alternative G and would take 62 years to complete (compared to 19 years for Alternative G), with associated impacts to the community and potential releases to the environment for that period of time.

Dredging plays a significant role in the selected remedy but so do capping, MNR and ENR, based upon engineering considerations of site conditions (such as potential for erosion, sedimentation from upstream, and observed trends in natural recovery). The selected remedy in this ROD calls for the highest levels of contamination to be removed for upland disposal through dredging or to be isolated through robust capping that include components for in-place treatment. ENR and MNR are employed in areas with lower levels of contamination and conditions favorable for natural recovery to be effective at reducing contaminant levels and risk in a reasonable timeframe. Remaining risks to human health will be managed through ICs until cleanup levels and RAOs are achieved.

In response to the comment that said: "But because "none of the alternatives address all ecological risks" (Plan p. 60), the advantages of Alternative B, as the fastest and cheapest alternative with the least in-water construction, may exceed its disadvantages." EPA wants to point out that immediately after construction of the selected remedy, it is estimated that wildlife will be able to safely consume prey from within the Site since all non-cancer risks on a Site-wide scale will be addressed. It is estimated that BEHP will be at a HQ of 5 at a river mile scale and 3 at an SDU scale, very close to the target of 1 and well within potential calculation variances. For RAO 5, the interim target was 50 percent of the benthic risk

area. Thus, Alternatives D through G, including I and F Modified achieve the RAO 5 goal. For RAO 6, only Alternatives F, F Modified and G achieve the interim target.

### 2.31.2 Evaluate a Different Alternative for Swan Island

#### Comment Summary

Twenty-one comments were received as part of a form email stating:

- “Sediment should be removed from the Swan Island area rather than implementing a massive input of carbon.”

Two additional comments also addressed sediment removal at Swan Island:

- “Re: Swan Island Lagoon (p 60): Similar to comment #7 above, I would urge that EPA’s final plan include disrupting more benthic area and remove more than 50 percent of the risk from PCBs and Bphtalate.”
- “Recommendation for an Optimized Remedial Approach. In summary, the optimized remedy would provide for:
  - Dredging of sediments in the FMD to allow implementation of additional remedial technologies;
  - ENR with amendments as well as armoring to protect against propeller wash in the berth areas;
  - Assuming that future site investigation demonstrates no adverse propeller wash impacts and thus ENR permanence, ENR with amendments (GAC, for example) in the lagoon areas away from the berths;
  - Dredging of sediment in dry dock areas to adequate depth and placement of a residual layer where PCB concentrations in the leave surface exceed the RAL;
  - ENR with amendments in lagoon areas outside the FMD zone where PCB concentrations at the sediment surface exceed the RAL; and
  - Either MNR or ENR in areas outside the PCB RAL footprint, depending on the results of sampling and other studies performed during remedial design.”

#### EPA Response

In response to the comments seeking more dredging in Swan Island Lagoon, the selected remedy was chosen in order to provide a balance between minimizing the time required for remediation and implementing a suitably protective cleanup to minimize the risk to public health and the environment in the future, in an area where ENR is very likely to be highly effective. EPA has selected Alternative F Modified which will address an additional 37.7 acres of contaminated sediment in Swan Island Lagoon than Alternative I would have. After the remedy has been implemented, EPA will use sampling and monitoring results to guide and refine the cleanup action selected to provide additional assurance that the process is reducing contaminant concentrations and bioavailability as expected.

In response to the optimized remedial approach provided by a commenter, the selected remedy was chosen to provide a balanced approach in achieving remedial cleanup levels. The ROD includes a flexible decision tree which will dictate the design and remedial construction and is intended to provide a clear direction on what action should be taken under different conditions and locations.

## 2.32 Proposed Plan Content

### 2.32.1 Provide Capital Costs that Are Lacking in the Proposed Plan

#### Comment Summary

One commenter had specific concerns about the presentation of capital and periodic costs in the proposed plan, writing

- “Capital costs and periodic costs have not supporting documentation indicating how these costs were derived. No engineering duration or costs appear to be included in any of the alternatives. Construction durations have no supporting documentation indicating how those durations were established. Pg. 66 of the Plan states, “The technologies of dredging, capping, ENR and MNR have been demonstrated to be technically and administratively feasible at various other Superfund sites.” But the Plan provides no information about clean-up of other Superfund sites. Surely there have been other Superfund sites where at least some of the technologies EPA proposes have been used that would provide real historical data on the actual cost, duration, and effectiveness of these technologies to eliminate and/or contain contaminants in similar waterways. Without such supporting documentation, there is no substance to the data promoted in the alternatives EPA discusses. Please provide all case studies info. Without this data, the public has no way of providing intelligent feedback on this Plan.”

#### EPA Response

EPA has documented the methodology and assumptions used in developing various unit costs in Appendix G of the feasibility study report (USEPA 2016b). These unit costs were used to estimate capital costs and periodic costs in the detailed analysis cost estimates. The cost estimate backup as presented in Appendix G also includes Cost Source Database; EPA Derived Labor Costs; Project-Specific Vendor Quotes; Previously Developed Costs by Anchor QEA; EPA Derived MII Costs; and Costs from Other Projects/Sources. Also, Attachment A of Appendix G, presents further information about the development of the cost estimate.

During the feasibility study, a cursory evaluation of construction duration was performed for the major construction components (capping and dredging) as indicated in Appendix D.3 of the feasibility study report. A detailed construction schedule is generally not produced because the level of scope definition is too low to make those design-level determinations. It should be noted that schedules indicate a minimum duration and that longer durations only affect present value cost as estimated. The productivity rates presented in a memo from USACE (Palermo 2008) was used to calculate construction durations.

Where appropriate, information from other sediment cleanups or dredging sources were considered and used to prepare the feasibility study and in particular the cost estimates; however, cost estimates need to be site-specific and related to the remedial alternatives being compared for the particular circumstances at a site.

## 2.32.2 Address McCormick and Baxter Superfund Site Issues

### Comment Summary

Two commenters feel that cleanup work has not been adequately completed at the McCormick & Baxter Superfund Site and that additional cleanup work should be conducted as part of the Portland Harbor Superfund Site. The commenters wrote:

- “The McCormick & Baxter plant site has been frozen for several years. The current EPA process for that plant isolates it from the overall Portland Harbor process, but the site is listed in the plan. This separation only ensures that nothing more will be done but the plant site will continue to weep contaminants into the Willamette River. EPA should bring the site back into the Harbor process and as of 2016 reconsider the option of cleaning up the site, for potential reuse as riverside industrial property. The success of the Washington Department of Ecology and the Port of Ridgefield in “cleaning up” the Pacific Wood Treating provides a change in facts that deserves an EPA review and reconsideration, to protect the Willamette River and potentially reduce or remove the continuing expense of isolating the site.”
- “McCormick and Baxter Superfund Site. Even though this site has been somewhat completed; parts of it needs attention because it is still part of the Superfund site river bank.”

### EPA Response

The McCormick and Baxter Superfund Site is a former creosote wood treating facility that was listed on the National Priorities List (NPL) in 1994 where cleanup under a CERCLA ROD was completed in 2005 and is currently undergoing statutory five-year reviews to ensure the remedy remains protective. The Site consists of three OUs; OU1, OU2, and OU3 address the soil, sediment, and groundwater remedies, respectively. Cleanup included demolition of the McCormick & Baxter plant, excavation and treatment of contaminated soils, soil capping, sediment capping and construction of a subsurface barrier wall. While the McCormick and Baxter Site is located within the Portland Harbor Superfund Site, it is not included in the selected remedy for Portland Harbor because the sediment OU of the McCormick and Baxter Site remedy is completed, and monitoring indicates it is protective of human health and the environment.

The McCormick and Baxter Site will be monitored in perpetuity to ensure that it remains protective of human health and the environment. The most recent five-year review for McCormick & Baxter was completed in September 2016 (USEPA 2016e) which included close inspection and passive sampling of the in water sediment cap and determined that the soil remedy, sediment remedy, groundwater remedy, and engineering and ICs are functioning as intended by the 1996 ROD, as modified by the 1998 Amended ROD and the 2002 Explanation of Significant Difference. The five-year review further states there have been no changes in the physical conditions of McCormick & Baxter that would affect the protectiveness of the remedy. However, EPA determined that the groundwater cleanup levels as calculated for the McCormick and Baxter Site are not appropriate as substitutes for MCLs in groundwater. Therefore, the September 2016 five-year review determined that, in order for the remedy to be protective in the long term, the following actions need to be taken: formally replace the ACLs with revised cleanup goals and identify the associated points of compliance for the groundwater remedy in a ROD Amendment or ESD, and implement ICs required by the ROD for the groundwater remedy. EPA expects that those actions will be taken within the next five years. The next five-year review is required to be completed in September 2021.



### 2.32.3 Explain the Depiction of Groundwater Plumes in Proposed Plan

#### Comment Summary

A total of nine comments were received about issues with how groundwater was described in the proposed plan. Commenters had questions about Figure 5, specifically on how or why that figure was developed. They believed that the plumes on the figure were drawn much larger than they have previously been described at the Site, drawn to extend into the Willamette River, and/or are “cartoonish” in nature. Additionally, a three commenters noted that the COCs which compose the groundwater plumes are not described in the proposed plan.

#### EPA Response

Proposed plan Figure 5 (USEPA 2016c) is a modification of Figure 4.3 *Identified Groundwater Plumes January 2016* of the Portland Harbor Upland Source Control Summary Report (DEQ 2016). The groundwater plumes and associated COCs were identified by DEQ through their upland source control evaluations. Figure 5 presents a feasibility study level of understanding of the extent of COCs in groundwater potentially discharging to the Willamette River and was used to facilitate evaluation of remedial alternatives. The proposed plan did not describe in detail the nature and extent of contamination in each groundwater plume nor did it describe the source control measures implemented at each facility or site-specific pathways to the Willamette River. Such detail is available in facility-specific conceptual site models, which were developed under DEQ’s Upland Source Control Program. Groundwater plumes in each SMA will be further characterized during remedial design such that caps are appropriately amended as needed to meet cleanup levels.

### 2.32.4 Address the Groundwater Transport Mechanism

#### Comment Summary

Regarding groundwater transport, one commenter wrote:

- “The plan failed to mention the groundwater colloidal transport mechanism. This transport method is described as sorption of the dioxin/furans compounds onto organic carbon suspended in the groundwater. Carbon particles less than 0.7 microns in size are known to travel freely in aquifer matrices and the sorption of the dioxins/furans onto these particles may facilitate transport in groundwater. The groundwater flow characteristics need to be understood to predict when the contaminants will impact the river and those may occur over a longer time period than is normally associated with contaminant transport in groundwater. For this reason, Total Organic Carbon (TOC) analysis should be added to the groundwater monitoring program and aquifer characteristics such as gradient and transmissivity should be modelled to obtain estimates of dioxins/furans impacts to the river by this transport mechanism. Long-term monitoring programs may be needed to assess the significance of this transport mechanism in groundwater and to the river.”

#### EPA Response

Groundwater investigations are being conducted under oversight by the DEQ and vary from location to location. As a result, the exact parameters of any groundwater monitoring program are determined by DEQ based on site-specific conditions. However, groundwater investigations typically include estimates of hydraulic gradient and transmissivity. EPA will be working with DEQ to develop groundwater monitoring program requirements to ensure harbor-wide data needs and cleanup levels are being met. Additional information regarding the groundwater plumes is provided in Section 2.32.3 of this responsiveness summary.

### 2.32.5 Provide Information Lacking on Dioxin/Furan Data

#### Comment Summary

One commenter had specific concerns on dioxin and furan data provided in the proposed plan, writing:

- “Dioxins and furans are shown as contaminants of concern however the presentation of the data has not been adequately presented. The toxicity equivalence quotients data presented are high level summaries of the individual dioxins/furans compounds and adequate explanations as to how the data were compiled was not presented.”
- “The dioxins and furans analytical method information was not adequately presented (it should be added to the footnotes of the tables). Since there is a high resolution and a low resolution method associated with the dioxins/furans analysis, this can potentially cause misinterpretations of the data. For example, a non-detection "ND" using the low resolution method may be significantly elevated compared to a ND for the high resolution method. This topic does not appear to have been mentioned and it can cause significant misinterpretations of the data (e.g. for example possibly 200-fold difference). Add notes to explain the methods associated with the analytical methods. ND's by the low resolution method should be qualified and not haphazardly combined using the toxicity equivalence quotient method with results from the high resolution method.”
- “Where the study relies on the low resolution mass spectroscopy method, the data set should be supplemented with additional collection of samples and testing with the high resolution method to confirm the results (in situations where NDs occurred, they should be verified by the high resolution method).”

#### EPA Response

Dioxin and furan data are presented in the remedial investigation (*RI\_BERA20110727+RA-SummedParams.mdb*) and feasibility study (*LWGFSdbwEECA\_GASCOandArkema.accdb*) databases for the Site and is available as part of the administrative record. These databases include results for individual dioxin and furan congeners as well as dioxin homologs and dioxin as 2,3,7,8-TCDD toxicity equivalent quotients. As the commenter notes, both high and low resolution methods were used for certain analyses such as PCB Arcolor and PCB congener analysis. Early in the remedial investigation, detailed criteria for selection of values from multiple results for the same chemical in a sample were developed. Also, approximately 30 percent of the low resolution total PCB Aroclor analyses were supplemented by high resolution congener analysis. In addition to these measures, EPA developed the Round 2 Quality Assurance Project Plan in June 2004 (Integral and Windward 2004) and subsequent addendums to ensure data quality adequate for remedial investigation, feasibility study, proposed plan (USEPA 2016c) and the ROD. As a result, these data are considered adequate for remedial decision making. In addition, more detailed data will be collected for the remedial design phase.

### 2.32.6 Explain Why Mercury is Not Included in the Description of Risk Reduction

#### Comment Summary

A comment was received that stated “EPA must correct the understanding regarding fish advisories and revise the proposed plan to expressly reference the impact of mercury and other relevant watershed-wide contaminants and present a more complete and frank assessment as to the actual likelihood of advisories being lifted for each remedial alternative. Only then will the public be able to provide more meaningful comments on these issues and evaluate the actual costs and benefits of each alternative.”



**EPA Response**

The topic of mercury contamination (site-wide and beyond) has been discussed previously with the public at multiple working groups and public meetings. EPA's remedy is addressing releases of hazardous substances from facilities associated with the Portland Harbor Site and the alternatives evaluated and proposed plan (USEPA 2016c) is focused on that goal. As discussed in Section 2.3.2 of this document, fish consumption advisories will be less restrictive once the cleanup has been completed. However, EPA agrees that fish consumption advisories likely will not be lifted completely due to larger watershed issues (such as mercury) and also because concentrations of PCBs in "clean" areas upstream of Portland Harbor are higher than the acceptable range based on conservative risk estimates, and sediments naturally move downstream.

Over time, it is expected that source control actions on the part of DEQ in Portland Harbor and watershed-wide (including upstream areas) will reduce or eliminate the need for fish consumption advisories. In addition, as part of the selected remedy EPA will implement a communication outreach program to inform the public throughout the remediation regarding levels of contamination in fish/shellfish and how much fish is safe to eat.

**2.32.7 Explain Why PTW Figures Are Different****Comment Summary**

The footprints of PTW – Not Reliably Contained in the feasibility study report, Figure 3.2-5 and the proposed plan, Figure 7, are different.

**EPA Response**

EPA inadvertently used the wrong data set to map the PTW-NRC (naphthalene) footprint along the offshore of NW Natural to create Figure 7 of the proposed plan (USEPA 2016c). This figure has been updated to correct the PTW-NRC footprint (as presented in Figure 3.2-5 of the 2016 feasibility study report (USEPA 2016b)) in the ROD.

**2.32.8 Provide Studies of Technology Use at Other Superfund Sites****Comment Summary**

One person commented that "Pg. 66 of the Plan states, "The technologies of dredging, capping, ENR and MNR have been demonstrated to be technically and administratively feasible at various other Superfund sites." But the Plan provides no information about clean-up of other Superfund sites. Surely there have been other Superfund sites where at least some of the technologies EPA proposes have been used that would provide real historical data on the actual cost, duration, and effectiveness of these technologies to eliminate and/or contain contaminants in similar waterways. Without such supporting documentation, there is no substance to the data promoted in the alternatives EPA discusses. Please provide all case studies info. Without this data, the public has no way of providing intelligent feedback on this Plan."

**EPA Response**

Proposed plans are summary documents designed to be easily readable by the public. As such, the level of detail required in the proposed plan for the Site (USEPA 2016c) does not support the inclusion of case studies on specific technologies. The feasibility study alternative screening and evaluation process used those data extensively in the alternative development and evaluation process. The feasibility study report (USEPA 2016b) includes where appropriate information on similar sites was used in discussion of applicable technologies.

## 2.33 Human Health Risk

### 2.33.1 Evaluate Existing Exposure From PCBs in Air

#### Comment Summary

A total of 41 comments were received on this topic, with roughly 36 percent received as form emails that stated:

- “Include atmospheric transport in analysis of exposures. This inclusion will indicate the extent to which remaining contamination will expose humans in the community to unacceptable risks.”

The remaining comments were similar in content and most people seemed to be concerned primarily about the risk from volatilization of PCBs under existing conditions. Several people stated that PCB volatilization had not been included in any part of the EPA analysis or proposed plan and that recent studies existed showing that PCBs in sediments could volatilize and result in unacceptable releases to the atmosphere without the added disturbance of construction.

Representative comments include:

- “Air volatilization of PCBs needs to be a consideration for removal of a larger volume of sediment. Dr. David Carpenter’s studies have shown that residents living within 5 miles of a water Superfund site are adversely effected by PCB exposure.”
- “New information about volatilization of PCBs needs to be included. The latest information about volatilization of PCBs needs to be examined as a pathway of contamination to humans and the environment as part of the process to evaluate both human health and ecological risk.”
- “Dr. Peter deFur recently reviewed the proposed plan and stated that, quote, “Atmospheric release of PCBs is not included in any part of the EPA analysis or the proposed plan. Recent research confirms that PCBs can be released into the air, that air can be a source of human exposure, and that exposure by inhalation can cause harmful health effects in people.”
- “EPA fails to analyze the potential of atmospheric transport of PCBs as a potential exposure pathway in either the clean-up plan or the feasibility study. This is a significant omission in EPA’s analysis. The CAG’s comments provide an extensive discussion of the scientific literature supporting the need to analyze this risk. We urge EPA to include a robust analysis of the risk vaporization of PCBs and address it as appropriate in the final plan and ROD.”
- “PCBs are of particular concern because of air disposition, with people living within 5 miles of a PCB contaminated body of water showing elevated levels of PCBs in their bodies. (see Carpenter/New Bedford, MA)”
- “You have ignored volatilization of PCBs - Cadument had a school and a neighborhood who were made very ill due to PCB air volatilization blowing over them. We do not want this, please monitor appropriately.”
- “The City has heard concerns from the public related to the potential for air toxics from the release into the air of contaminants found in the sediment. Due to community concerns, please address the potential for volatilization of PCBs from sediment.”

- “In 1976, the Toxic Substance Control Act gives you, the EPA, authority to restrict PCBs from our environment. The current plan does not provide an adequate level of protection from the known health risks to our citizens from PCBs. Literature provides abundant documentation of the health-related problems from PCBs. Infants are exposed to PCBs through breast milk, and even before birth through transplacental transfer. As far back as 1996, The New England Journal of Medicine reported intellectual impairment of children exposed to PCBs, with lower cognitive ability, immune compromise, and motor control problems. In 2013, the International Agency for Research on Cancer reported evidence supporting cancer-causing effects from PCBs. Adults can suffer from severe hormonal disruption which affects metabolism and reduced immunity.”
- “In a study I just learned of Scientists Linking Autism to PCBs and Other Chemicals it was determined that two compounds in -- PCB 138/158 and PCB 153 -- stood out as being significantly linked with autism risk when their mothers are exposed during the second trimester of pregnancy. As we’ve learned, PCBs become air born and therefore have a huge risk potential for people living near the River. I and some other volunteers are hoping to petition the CDC for a human health study for these kinds of risks related to the superfund.”

Comments received related to implementing the cleanup safely during construction (through monitoring and use of best management practices) are addressed in Section 2.29 of this responsiveness summary.

### **EPA Response**

The baseline human health and ecological risk assessments for the Site identified exposure pathways to be evaluated quantitatively. As described in Section 3.3 of the human health risk assessment (Kennedy/Jenks Consultants. 2013), exposure pathways were characterized as potentially complete, potentially complete but insignificant, incomplete or potentially complete but evaluated for a different receptor. Consistent with EPA risk assessment guidance, inhalation of contaminants released from sediment was not identified as a complete exposure pathway to be quantitatively evaluated in the human health risk assessment. Specifically, PCBs are not expected to volatilize significantly from sediment due to their low vapor pressure. Human health risk assessments conducted on the Hudson River in New York, where PCB concentrations are much higher than they are in Portland Harbor, concluded that the calculated cancer risk from the inhalation of volatilized PCBs was insignificant (TAMS and Gradient 2000). Inhalation of volatile organic compounds released from surface water was considered a potentially complete but insignificant exposure pathway for all receptors.

The highest surface concentrations at the Site are in the 1 to 35 parts per million range, most of which are to be removed by dredging or sequestered by capping leaving no possibility of long-term emissions to air. Due to their hydrophobic tendency, the highest fraction of PCBs in the system will exist within the sediment and less so within the water and air. Fundamentally, it is this property that causes these COCs to accumulate in river sediments and also makes them unlikely to volatilize into the atmosphere. Continuous release of PCBs to the air is not expected and has not been documented at other similar sediment sites.

Due to the conclusions of the Hudson River study and the relatively low concentrations of PCBs in Portland Harbor, exposure due to inhalation of PCBs is not expected to result in substantial risk. Fish consumption remains the main exposure pathway for PCBs. In order for PCBs to evaporate in high enough levels to present a risk to human health or the environment, highly contaminated sediments would need to be exposed to the air for long durations. No such condition exists or will exist at the Site.

During the design process, EPA will review any relevant new information regarding PCB volatilization to determine if credible new data exist to indicate that there is an existing human health risk from volatilization of PCBs sufficient to revisit the remediation footprint. The CERCLA process also provides safeguards to ensure that remedies remain protective at sites where waste is left in place, in the form of five-year reviews once construction begins. Those reviews can include assessment of significant new data regarding protectiveness of the remedy.

In response to the comments on human health risks of PCBs, particularly risks to infants from breastmilk, EPA acknowledges the noted studies on such health effects and evaluated risks to infants whose mothers ate resident fish from Portland Harbor in the BHHRA. The BHHRA determined that exposure to bioaccumulative contaminants (PCBs, dioxins/furans, and organochlorine pesticides, primarily DDx compounds) via consumption of resident fish poses the greatest potential for human exposure to in-water contamination. The greatest non-cancer hazard estimates are associated with bioaccumulation of PCBs through the food chain and exposure to infants via breastfeeding. Due to those conclusions, EPA has determined that cleanup of PCBs and other bioaccumulative toxics found at the Site require cleanup.

### 2.33.2 Include Transient Species in Risk Evaluation

#### Comment Summary

Two comments were received related to fish consumption. They cite underestimated risks due to a lack of inclusion of transient fish (such as salmon) and Fish Consumption Rates recently passed in Oregon and Washington.

The comments are:

- “Risk estimates for fish consumption do not include additional risk from consumption of transient fish, such as salmon, that could be a large proportion of the subsistence diet. This makes the risk estimate an underestimate of the true risk, as opposed to the statement by EPA and/or the Lower Willamette Group that the estimates of risk are upper bound estimates.”
- “EPA must also recognize the import of the new Fish Consumption Rates that have been passed in Oregon and Washington's water quality rules -- which are the nation's highest. This is a reflection of the needs of our fishing peoples, and a recognition that a century of industrial pollution has created serious harm in their communities which we must commit to removing. EPA's Portland Harbor clean-up MUST move with all deliberate speed toward the protection of marine life and fish-dependent communities who are at risk from the accumulation of toxic substances in species like the pacific lamprey -- both from immediate absorption, and from risks to the marine food chain if lamprey continue on their current path to extinction.”

#### EPA Response

EPA's remedy focuses on reducing the risks to consumers of resident fish. This is because the remedial investigation determined that resident fish such as smallmouth bass and carp contain higher levels of contamination than transient fish such as lamprey, salmon and sturgeon. In addition, due to the large home range of transient fish, it is not possible to quantify the contribution of contamination in Portland Harbor versus other sources. However, because EPA's remedy is designed to reduce tissue concentrations of resident fish to protective levels, the potential for exposure to transient fish will also be reduced.

Regarding fish consumption rates, EPA's risk assessment used a range of exposure scenarios including a non-tribal subsistence fisher at a fish consumption rate of 142 grams per day consuming only resident fish only, and a tribal fish consumption rate of 175 grams per day consuming a mixed resident and transient fish diet. In addition, ambient water quality standards established by the State of Oregon that are based on a fish consumption rate of 175 grams per day are considered applicable or relevant and ARARs for the Site. Under CERCLA, the remedy is required to meet ARARs such as the state water quality standards.

EPA's tribal fish consumption scenario is based on a mixed diet that includes both resident and transient fish which was done at the request of the tribes and consistent with the Columbia River Inter-Tribal Fish Commission study on tribal fish consumption. Thus the risks associated with consumption of transient fish is considered in the tribal risk assessment and does not result in an under estimation of risk. Additional information on transient fish species is provided in the discussion of tribal comments in Section 3 of this responsiveness summary.

## 2.34 Ecological Risk

### 2.34.1 Address Inconsistencies in Benthic Risk

#### Comment Summary

Several comments were received from LWG and other businesses questioning the benthic risk evaluation presented in the 2016 feasibility study report and proposed plan. The commenters noted that the identification of benthic risk areas in the feasibility study report was inconsistent with the EPA approved BERA (Windward 2013) which relied on a multiple lines of evidence evaluation of benthic risk using the comprehensive benthic risk area approach.

The comments are summarized as follows:

- Several commenters stated that there is no scientific basis for EPA's abandonment of the comprehensive benthic risk area and that the new approach in the feasibility study is not more accurate, not more consistent with the BERA, and not more predictive of benthic risk or the effectiveness of the alternatives. Commenters further stated that EPA's 2016 analysis for analyzing benthic risk is a significant and technically indefensible departure from the well vetted comprehensive benthic risk area. They state that EPA abruptly and without explanation abandoned the approach and EPA's preferred alternative now identifies areas for cleanup based on a single point exceedance of a PRG.
- One commenter stated that EPA supported the comprehensive benthic risk area approach for many years before abruptly abandoning it in the final stages of preparation of the 2015 draft feasibility study report. The commenter stated that on April 4, 2014, EPA provided final direction to LWG on mapping the comprehensive benthic risk areas for the 2012 LWG draft feasibility study and on February 27, 2015, EPA requested that LWG submit revised text and maps incorporating its April 4, 2014 direction.
- Commenters noted that EPA simply mapped benthic PRG exceedances and used a 10 times exceedance factor to identify benthic risk areas, then arbitrarily determined that if active remediation addressed 50 percent of the benthic risk area, protectiveness would be achieved. Several commenters stated that the interim targets are arbitrary and that determination that a remedy is protective if it achieves 50 percent of the interim target is a second arbitrary step not tied to any quantitative assessment.

- Many commenters stated that EPA's assessment of benthic risk is arbitrary and capricious because it is not based on available toxicity testing data in sediments, and no credible scientific basis supports EPA's delineation of benthic risk areas and the extent of remediation necessary to reduce risks in these areas. If there is not risk to benthic organisms based on actual toxicity data, there is no need for remediation in those areas.
- It was noted that the large benthic risk areas mapped in the 2016 feasibility study report and proposed plan extend into areas shown to lack toxicity based on laboratory toxicity tests and other BERA lines of evidence. Thus, the benthic toxicity that EPA's proposed plan assumes exists in these area in fact does not exist and that the overall result of this haphazard approach is to require large amounts of active remediation on the basis of RAO 5 while failing to even address all of EPA/LWG comprehensive benthic risk areas previously agreed to.
- Commenters stated that the comprehensive benthic risk area approach identified approximately 61 acres for remediation based on benthic risk. It was noted that the benthic risk areas identified in the feasibility study report represented 1,289 acres or approximately 20 times the comprehensive benthic risk area. It was further noted that despite this, EPA's preferred alternative fails to capture 16 percent of the locations mapped through the EPA/LWG approach as presenting clear evidence of benthic toxicity.
- Several commenters suggested that the ROD should allow for modification of remedial footprints established based on benthic toxicity during remedial design and that EPA's ROD should state clearly that parties may use site-specific toxicity testing to verify model outcomes and design the final remedial action. It was suggested that relevant information, including data collected in pre-remedial design or remedial design work led by actual benthic toxicity testing, should be evaluated consistent with the EPA-approved BERA and refine benthic risk areas for active remediation, not by using single point exceedances.
- One commenter noted that the evaluation of PAHs at Terminal 4 should be based on direct toxicity measurements rather than EPA's 2016 benthic risk analysis because PAH contamination associated with pencil pitch present in Terminal 4 sediments is less bioavailable than other forms of PAH contamination.
- It was noted that the benthic risk evaluation utilized in the 2016 feasibility study and proposed plan is flawed and inconsistent with the BERA. As a result, RAO 5 PRGs are not risk-based and therefore are inconsistent with NCP and application of the PRGs leads to arbitrary and capricious remedial determinations.
- Another commenter stated that EPA failed to account for the fact that site benthic risk has improved since the data used in the BERA were obtained and that the Alternative B RALs as specified in the proposed plan would result in acceptable benthic risk reduction for the entire Site.
- Two commenters stated that EPA makes numerous errors, or did not properly document individual benthic PRGs for RAO 5 for a number of chemicals including PCBs, TPH, DDx, DDE, DDT and cadmium.



## EPA Response

The commenters do not provide a clear or specific basis for why the comprehensive benthic risk area approach should be used instead of the BERA (Windward 2013) and the 2016 feasibility study report (USEPA 2016b) alternatives evaluation approach. To clarify, the comprehensive benthic risk area approach was not utilized in the final BERA presented as Attachment G of the remedial investigation report (USEPA 2016a). Rather, benthic risks were evaluated using multiple lines of evidence as presented in Section 6 of the BERA report (Windward 2013). The evaluation of benthic risk in the BERA considered multiple lines of evidence including sediment toxicity testing, the floating percentile and logistic regression predictive models, generic sediment quality guidelines, tissue residue assessment and comparison of surface water and transition zone water to water based toxicity reference values.

In the BERA, impairments in survival and growth (expressed as biomass) were directly measured at nearly 300 locations, using site-specific sediment toxicity tests with two benthic invertebrate species. The co-occurring sediment contaminant concentrations where toxicity was observed were used in the development of two site-specific predictive models of sediment toxicity, the floating percentile model and the logistic regression model. Contaminant concentrations predicted to be toxic from these two models were used to evaluate benthic risk on a point-by-point basis in the final BERA. The two models are also the source of many of the RAO 5 sediment PRGs (and the resulting cleanup levels in the ROD) for ecological risk. Other PRGs are based on generic sediment quality guidelines and tissue residue line of evidence. Overall, the PRGs for RAO 5 were based on the sediment quality values derived in the BERA and incorporate the empirical toxicity results conducted at the Site. Thus, the PRGs (and the resulting cleanup levels in the ROD) are consistent with the conclusion of the BERA.

The comprehensive benthic risk area developed by EPA is shown in Figure 4.1-1 of the 2016 feasibility study and was developed using interpolation of surface sediment concentrations exceeding the RAO 5 PRGs. Mapping of benthic risk areas based on a point-by-point PRG exceedance is justified due to the limited mobility of many of the benthic species (for example, oligochaete worms and the Asiatic clam, *Corbicula fluminea*) that comprise the benthic community at the Site. This means that some benthic species may be exposed to contaminant concentrations exceeding risk-based thresholds for the majority of their lifetime. Additionally, benthic species are likely exposed to sediment contaminant concentrations for a sufficiently long exposure duration that results in contaminant bioaccumulation to concentrations (the RAO 6 PRGs) posing risks to aquatic-dependent wildlife species that prey on benthic species. Since EPA's RALs for requiring active remediation are not based on benthic risk PRGs, they will be monitored post construction until such time as they are achieved.

Under EPA's *Ecological Risk Assessment Guidance for Superfund: Process for Designing and Conducting Ecological Risk Assessments – Interim Final (June 1997)* (USEPA 1997) adverse effects on populations can be inferred from measures related to impaired survival, reproduction and/or growth. A subsequent EPA Policy memorandum (*Issuance of Final Guidance: Ecological Risk Assessment and Risk Management Principles for Superfund Sites, OSWER Directive 9285.7-28 P, October 7, 1999*) (USEPA 1999) states that ecological risk assessments are intended to protect local populations and communities of biota. This approach was extensively used to evaluate ecological risks at Portland Harbor. The conclusions of the BERA indicate which contaminants are posing unacceptable risk based on those lines-of-evidence (site-specific toxicity tests, bioaccumulation models, and species diversity studies; BERA Table 3-1). These are all based on empirical site data and these lines-of-evidence cannot be used to determine effects to the benthic population through means other than empirical testing post -construction.

As noted above, EPA adopted the site-specific sediment quality values from the BERA for the RAO 5 PRGs. EPA made the risk management decision to not address all unacceptable benthic risk through dredging and capping and allow for some unacceptable benthic risk to be addressed through MNR. However, in conducting the evaluation of alternatives, it is necessary to discuss the overall protectiveness. EPA made a risk management decision to evaluate overall protectiveness for RAO 5 in the 2016 feasibility study (Section 4.1.3, RAO 5) as:

*“The protection of benthic species to contaminated sediment is evaluated using the benthic risk area defined by an order of magnitude greater than the RAO 5 PRGs. The post-construction interim target for RAO 5 was established at 50 percent reduction in the area posing unacceptable benthic risk. This is acceptable because protection of the benthic community is based on a population rather than individual effects, and is considered a target to which the benthic population as a whole can be stressed and still recover, in conjunction with the uncertainty associated with the predictive models used to develop these PRGs.”*

Thus, the 2016 feasibility study used the same metric as all other RAOs in establishing an interim goal that was an order of magnitude greater than the PRGs. EPA made this risk management decision based on the conservativeness of the sediment quality values used in the models (see BERA Section 6.2.5). EPA made further risk management decisions that the entire area above the RAO 5 PRGs did not need to be addressed through capping and dredging and made an assumption that if 50 percent was addressed through active remediation, the other 50 percent would be addressed through MNR. Since benthic effects from contaminated sediment are due to reproduction and growth, not just survival, this approach would also ensure that the entire population was not diminished through active remediation (capping and dredging is assumed to kill benthic organisms where it occurs).

The sediment PRGs developed for RAO 5 (reduce risk to benthic organisms from ingestion of and direct contact with COCs in sediment to acceptable exposure levels) considered the tissue residue line of evidence, and the two site-specific predictive models of toxicity to benthic species. PRGs for the tissue residue line of evidence were estimated using benthic tissue residue values and site-specific biota sediment accumulation factors. Site specific predictive models included the Logistic Regression Model and the Floating Percentile. The details of these approaches are described in Section 6 of the BERA. The lowest of these values for a given contaminant was selected as the RAO 5 PRG. COCs for which a site-specific value could not be developed (lindane and zinc) relied on sediment quality guidelines (McDonald 2000) and are used as the PRG. Water based exposures are addressed through RAOs 7 and 8. As described in Section 6 of the BERA, the evaluation of benthic risks due to exposure to contaminated sediment relied on sediment toxicity testing, site-specific predictive models, generic sediment quality guidelines and tissue residue concentrations. Thus, the PRGs presented in the final feasibility study consider all lines of evidence (including toxicity through the use of the predictive models) considered in the evaluation of benthic invertebrate risk in the BERA rather than a single predictive model.

As presented in Figure 2.2-2 of the final feasibility study report, areas of unacceptable benthic risk represent 1,289 acres of the Site. However, interim targets for risks and hazard indices were established to evaluate the potential for achievement of PRGs in a reasonable time frame. For RAO 5, the interim target is based on multiplying the RAO 5 PRG by an order of magnitude to account for further reductions due to MNR. In addition, the post-construction interim target for RAO 5 was established at a 50 percent reduction in the area posing unacceptable benthic risk. As explained above, this is because risks to the benthic community are based on a population level rather than individual level effect and 50 percent



considered a target to which the benthic population as a whole can be lost and still recover. As shown in Table 4.2-7 and Figure 4.2-25a of Appendix IV of the ROD, EPA's preferred alternative, Alternative F Modified addresses the majority of the Site (72 percent) that exceeds the RAO 5 PRGs by more than an order of magnitude (10x). Thus, the 2016 feasibility study report used the same metric as all other RAOs in establishing an interim goal that was an order of magnitude greater than the PRGs.

Regarding the basis for the RAO PRGs, the process to develop the PRGs is summarized in Appendix B and Table B4-1 of the feasibility study report. Table B4-1 presents the PRGs for each line of evidence considered, the source of the PRG and the PRGs used in the feasibility study report. The direct contact PRGs presented in Table B4-1 are based on the sediment quality values presented in Section 6 of the BERA (Tables 6-10, 6-12 and 6-18). As described in Section B4.1 of Appendix B, Logistic Regression Model sediment quality values based on organic content or percent fines normalization were converted to bulk sediment concentrations assuming the site-wide average sediment organic carbon of 1.71 percent and 53.38 percent fines from the BERA database. The approach for developing PRGs based on the ingestion of prey is presented in Section B4.2 of Appendix B of the feasibility study report.

As described in the ROD, additional data will be collected during remedial design for selection and design of the remedial technology to be implemented in specific locations. This may include toxicity testing, as applicable to refine delineation of benthic risk areas in areas that are not driven by risk via another RAO. Toxicity testing conducted for the Portland Harbor BERA 10-day survival and biomass test using the midge *Chironomus dilutus* and the 28-day survival and biomass test using the amphipod *Hyalella azteca*. These tests are included in the 2016 SEF for the Pacific Northwest (RSET 2016). Site specific sediment toxicity testing will include the two aforementioned test species. Interpretation of the result will be based on the acceptance criteria (hit definitions) outlined in the SEF.

## 2.35 Environmental Justice

### 2.35.1 Eliminate the CDF

#### Comment Summary

Four commenters wrote expressing concerns regarding environmental justice issues related to having a disposal facility in North Portland at Terminal 4. They were concerned that North Portland was unfairly being singled out as a dumping ground and a location for industry because it is a poorer, disadvantaged community.

Comments include:

- "Where are you going to carry out your final disposal method? Please don't dump it in North Portland. I understand that the esteemed city council has drawn a red line around North Portland having determined that anything or anybody that nobody wants in their back yard can just be stuck there."
- "I moved to St. Johns with my daughter and aging parents to start an educational toy and book store. This beautiful neighborhood is not the place I want to see toxic muck dumped. How is this not a bigoted decision? Drop the garbage in Portland's poor part of town. They won't pay attention or put up a fuss. Well, the area is changing, and we ARE paying attention. Please relocate your toxic dump site to a place that children and dogs do not play."

- “North Portland residents have had more polluting industries than many areas of Portland. The contamination from the Superfund cleanup should not be stored or left in the river. Remove the contamination.”
- “The needs of communities most affected by the contamination in the Portland Harbor over the decades should be carefully considered. While the League cannot speak for them, we understand that cleaning up the Portland Harbor so that they and others can consume resident fish without concern of harming their health is of utmost importance. Furthermore, because these communities are neighbors to a number of environmental hazards due to industrial activity, siting a toxic waste dump (Confined Disposal Facility) in their vicinity would add insult to injury. EPA needs to pay particular attention to these communities when adopting and implementing the cleanup plan.”

### **EPA Response**

The final selected remedy will not employ a CDF at Terminal 4. The location of the CDF at Terminal 4, as described in the proposed plan (USEPA 2016c) was evaluated because the Port of Portland was a willing sponsor of the facility and the CDF location was within the Portland Harbor Site so that dredged material would not need to be transported a long distance. EPA recognizes that low-income and/or minority populations reside in areas adjacent to the proposed CDF location, as well as the Portland Harbor Site as a whole, and therefore environmental justice concerns were considered. EPA assessed the use of a CDF as a way to reduce impacts to surrounding communities that result from the transport of dredged material off site. However, given the significant community concerns received on the use of an on-site CDF, and the recent withdrawal of support by the Port of Portland for the Terminal 4 CDF, an on-site disposal in a CDF is no longer a component of the final cleanup decision (Section 2.14.1 of this responsiveness summary).

## **2.35.2 Improve Insufficient Outreach to Environmental Justice Communities**

### **Comment Summary**

A total of 1,354 comments were received regarding what was perceived to be EPA’s lack of attention to environmental justice issues. The following two quotes were received as form emails or postcards and represent over 98 percent of the comments:

- “EPA should do a much better job of addressing environmental justice issues, including reviewing and correcting significant deficiencies in its public engagement strategies for future phases of the Superfund process and delineating strategies for ensuring the jobs, economic benefits and other benefits associated with the Superfund process to the local community and particularly to underserved communities that have been impacted by contamination in Portland Harbor.”
- “This site presents characteristics of an Environmental Justice community, yet EPA has not addressed this issue. EPA needs to assess the EJ aspects of this site and take appropriate action to enhance protective and remedial measures.”

The remaining comments echoed this theme. Several comments also referred to the lack of an environmental justice analysis. Representative comments are:

- EPA is failing environmental justice issues, particularly to historically (criminally) underserved communities. People in Portland notice and are calling you out. Take a stand, we are begging you.

- As detailed more explicitly in the comments we submitted with the Portland Harbor Community Coalition, the Portland Harbor Site must be assessed through the lens of Environmental Justice. We believe EPA has not adequately considered the EJ aspects of this site, so it must now take the appropriate action to enhance protective and remedial measures for the impacted communities.
- The proposed plan is a huge disappointment to me personally, and is especially damaging to the communities most impacted by the contamination, such as Native Americans, African Americans, Latinos, East Asian, Eastern European, houseless, and other immigrant / refugee groups. These communities face the harshest costs of a polluted river, such as displacement, exposure to toxins, and violations of treaty rights. I urge EPA and Oregon legislators to restore the Willamette today for all people and generations.
- I also have concerns that the analysis, and the proposed plan, did NOT deal adequately with social justice issues -- and that, once again, people of color and lower-income residents will be the ones who continue to be impacted the most by leaving so much pollution in the river.
- I was surprised that I could not find an analysis of the environmental justice dimensions of the existing situation or the impacts of the alternatives. I thought this was a required element of an EIS. It seems reasonable to assume that more complete cleanup of contaminants would improve their lives. Greater public access should be a goal of the entire process, and the public should have enough information about the process to know when to engage in the public decision processes at the state or local level to protect environmental justice interests. Agreements between impacted communities, polluters and government must be made to insure equity provisions are implemented during and following cleanup.

### EPA Response

EPA takes environmental justice seriously and has worked to understand environmental justice concerns in the Portland Harbor study area and also spent significant time and resources on outreach to communities with environmental justice concerns. In an effort to integrate environmental justice and community engagement efforts, the proposed plan (USEPA 2016c) provided a short summary of the community groups that EPA worked with in addressing environmental justice issues related to the Portland Harbor study area. While the proposed plan listed some of the names of these organizations, EPA could have done a better job in highlighting the tremendous effort and work that occurred between community based organizations and EPA in order to address environmental justice concerns at the Portland Harbor Superfund Site. However, EPA did use existing methodologies that support environmental justice considerations and guiding principles for environmental justice analyses at the Portland Harbor Superfund Site. For example, the use of online tools is one of the methods for supporting environmental justice analyses. Web-based geographic information system mapping tools assisted the region in defining, delineating, and characterizing communities with environmental justice concerns. Region 10, in its effort to understand initial environmental justice issues for the Portland Harbor Superfund Site used EJ View, in screening the community demographics and subsequently in EJ Screen and the Community-Focused Exposure and Risk Screening Tool (C-FERST).

Detailed information is provided below about environmental justice work that was conducted at the Site.

- **Use of EPA's Environmental Justice Screen (EJSCREEN) tool at the Portland Harbor Superfund Site:** EJSCREEN is an environmental justice mapping and screening tool that provides EPA with a nationally consistent dataset and approach for combining environmental and

demographic indicators. An EJSCREEN analysis of the Portland Harbor Superfund Site was conducted which resulted in a demographic analysis of the study area and also the creation of a map that displayed this information. Specifically, the map displayed the areas of contamination at the Portland Harbor Superfund Site and marked locations where the population was under age 18, below the poverty line, spoke English less than well and had less than a high school diploma. Additionally, data reflecting the percentage of the population that was minority and the percentage of the population that was white in a 0.5-mile radius and 2.5-mile radius of the Site was displayed as well as per capita income and household income less than \$15,000. This map was presented at community information sessions and meetings.

- **Use of EPA’s C-FERST:** C-FERST links to and builds upon other community-focused guidance and tools to help identify human exposures and potential risks for a community and to help identify issues for further assessment and actions that are available to improve public health. EPA Region 10’s environmental justice coordinator had multiple sessions with members of the Portland Harbor Community Coalition members to discuss and address environmental justice concerns and train coalition members to use a pilot version of the C-FERST tool to conduct analyses over the course of a year. Also, just this year, EPA has officially launched C-FERST and looks forward to continuing to work with coalition members and other interested groups to utilize this tool for environmental justice work.
- Application of EPA’s six guiding principles for environmental justice analyses to determine any disproportionately high and adverse human health or environmental effects to low-income, minority, and tribal populations. These principles include:
  1. Consider the composition of the affected area to determine whether low-income, minority or tribal populations are present and whether there may be disproportionately high and adverse human health or environmental effects on these populations. This principle applies to Portland Harbor as follows:
    - EPA identified diverse neighborhoods, organizations, schools, businesses, religious institutions, the University of Portland, and government offices that are located within an approximate 2.5-mile radius of the Portland Harbor Superfund study area. Approximately twenty-four percent of people living within the area of the Portland Harbor Superfund Site are minorities; fifteen percent of homes are English as a second language households. Other communities, not necessarily living near the river, also recreate in the Portland Harbor area. These include Spanish-speaking, Vietnamese, Hmong, Chinese, Ethiopian, Somali, and Russian/Slavic communities.
  2. Consider relevant public health and industry data concerning the potential for multiple exposures or cumulative exposure to human health or environmental hazards in the affected population, as well as historical patterns of exposure to environmental hazards. This principle applies to Portland Harbor as follows:
    - The Baseline Human Health Risk Assessment considered and focused on vulnerable populations that included children, pregnant women, women who are breast feeding, tribal fishers, transient populations, including the houseless populations, and people who work in and around the Portland harbor study area. The full

Baseline Human Health Risk Assessment is available on EPA's Portland Harbor website at the following link: <http://semspub.epa.gov/src/document/10/687176>

3. Recognize the interrelated cultural, social, occupational, historical, or economic factors that may amplify the natural and physical environmental effects of the proposed action. This principle applies to Portland Harbor as follows:
  - Attending quarterly briefings with the Oregon Environmental Justice Task Force meeting to share information about the Site, public involvement opportunities and to hear ideas on how to better involve communities with environmental justice concerns. The Oregon Environmental Justice Task Force was created by the Oregon legislature to help protect Oregonians from disproportionate environmental impacts on minority and low-income populations.
  - Holding four public meetings in June and July 2016 during the public comment period for the proposed plan that were well advertised including posting translated notices in Spanish, Vietnamese and Russian publications. Language interpretation was available at all meetings upon request and was utilized at the June 24<sup>th</sup> meeting (Spanish, Russian, Vietnamese, and Chinese) and at the July 20<sup>th</sup> meeting in the evening (Spanish, Russian and Arabic).
4. Develop effective public participation strategies. This principle applies to Portland Harbor as follows:
  - Using novel outreach techniques to engage communities, such as workshops, ethnic festivals, children's water festivals, presentations to Native American Youth and Adults, Portland City and Earth Care summits, boat tours for stakeholders, Superfund 101 training and radio broadcasts. In addition, EPA developed and distributed multilingual materials and provided translation services upon request during information sessions.
  - Partnering with the Portland Harbor Community Coalition since 2012 to hear and address environmental justice concerns and the need for meaningful involvement at the Site. The coalition is comprised of individual community members, community of color organizations, conservation organizations, environmental justice organizations, higher educational institutions and tribes. EPA recognized that the coalition was able to conduct outreach to communities with environmental justice concerns and understands the needs of these communities. As a result, EPA wanted to connect and collaborate with coalition members. For example, in March of 2015 EPA conducted a Portland Harbor and Superfund 101 training entirely in Spanish for the Portland Harbor Community Coalition and Verde.
  - Engaging with many different groups that represent or are concerned about communities with environmental justice concerns such as Communities of Color, the Native American Youth Association, Latino Network, Right 2 Dream Too, Right 2 Survive, Willamette Riverkeeper, the Slavic Immigrant Association, Ecumenical Ministries of Oregon, the Coalition of Black Men, Oregon Tradeswomen, League of Women Voters, Verde, Portland Harbor Community Coalition, Sierra Club Portland, Occupy St. Johns, Audubon Society, Asian Pacific American Network of Oregon,

Vietnamese Community of Oregon, Portland neighborhood associations and schools. EPA has also used public information sessions, fact sheets, websites, one-on-one discussions, and participation in community events as ways to share information with the broader community. A detailed list of specific community involvement activities is available in EPA's current Portland Harbor Community Involvement Plan.

- Designing and disseminating the Portland Harbor Brain Bender Activity Book for students that has educational activities with math, geography, biology and word finds to help 6<sup>th</sup> – 8<sup>th</sup> grade students learn more about the Portland Harbor Superfund Site.
  - Producing and disseminating quality information such as community information cards that outlined key information about the Portland Harbor Superfund Site in English, Spanish, Vietnamese, Russian and Chinese.
  - Attending and presenting at public forums and meetings and also organizing multiple community information sessions in many different locations around the Portland area during January, February and March of 2016 in advance of the release of the proposed plan. At the EPA community information session at the Immigrant and Refugee Community Organization, EPA provided Spanish and Russian interpretation.
5. Assure meaningful community representation in the process, beginning at the earliest possible time. This principle applies to Portland Harbor as follows:
- Holding focus groups and one on one meetings with representatives from the Portland Urban League and Coalition of Black Men, Groundwork Portland, Verde, and many organizations not represented by the Community Advisory Group. As a result, members of these community groups added input, participated in trainings, and advised EPA on appropriate ethnic venues for advertising meetings and how their members could best become informed about the Portland Harbor concerns. This allowed for EPA to actively and intentionally utilize the Chinese, Vietnamese, Hispanic and Russian news media, papers, newsletters, and/or diverse community announcements.
  - Providing interpretation services at the proposed plan public meetings upon request and providing materials that were translated into Spanish, Russian, Vietnamese, and Chinese. Meetings were provided at different times of the day and evening and in multiple locations.
  - Providing financial support to the Willamette Riverkeeper since 2001 via a technical assistance grant. The Willamette Riverkeeper has used this grant to give support to the CAG which provides a public forum for community members to learn about the Site and share community needs and concerns, including environmental justice concerns. EPA intends to continue providing this financial support as long as there are community organizations that are able to maintain the technical assistance grant.



- Collaborating with DEQ and the Oregon Health Authority to reach out to underrepresented communities that are not involved with the CAG to hear their voices and to seek resources outside the scope of the Superfund program that may support community objectives.
  - Providing environmental justice training to the Community Advisory Group by the environmental justice community liaison along with presentations and training on job readiness to the Oregon Task Force, Oregon Tradeswomen and the Portland Harbor Community Coalition. Superfund 101 sessions were provided on a Saturday for community members where representatives from Right 2 Survive and the houseless community attended and provided input.
  - Providing and disseminating quality information during the release of the proposed plan, specifically a community fact sheet as well as an acronym, glossary, contaminant summary and a handout detailing how to give written or oral comments that were all translated into Spanish, Vietnamese, Chinese and Russian. Additionally, EPA posted translated notices about the release of the proposed plan in Spanish, Vietnamese and Russian publications.
6. Seek tribal representation in the process. This principle applies to Portland Harbor as follows:
- There is significant information regarding tribal engagement in the proposed plan and the community involvement plan listed on the Portland Harbor website. Additionally, please find more information about tribal engagement in Section 3 (Tribal Comments and Responses) of this responsiveness summary.

In summary, EPA recognizes that many commenters felt that environmental justice concerns need to be given more attention as EPA moves forward with remedial design and remedial action at the Portland Harbor Superfund Site. Transparency is a key value of EPA and as we move forward, we seek to continue to demonstrate our commitment to making a visible difference in the communities we serve. EPA looks forward to continuing to collaborate and work with the groups outlined above and also form new relationships with others who can help us conduct better outreach to communities with environmental justice concerns. Lastly, the upcoming required revision to the Portland Harbor Community Involvement Plan will provide another opportunity to discuss and explore these ideas and issues more deeply.

Please also see the following responses in this responsiveness summary to other comments that address these topics:

- EPA's post-ROD outreach plans (Section 2.36.2)
- Financial support to communities with environmental justice concerns (Section 2.36.5)
- Outreach associated with the proposed plan (Section 2.36.1)

### 2.35.3 Consider Food-Based Environmental Justice Issues

#### Comment Summary

Ten personal comments were received from the public, including the *Oregon Physicians for Social Responsibility*, that related specifically to environmental justice because of the lack of fish that were safe for the Native peoples, people of color, and low-income groups.

Representative comments include:

- Like many middle-class Oregonians, there is no way I would gamble on eating the fish from the Willamette. Nothing in the current plan would dissuade me from that. However, lots of people don't have the choice that I do. The current plan ensures that the impact would continue to fall disproportionately on the poorer communities that rely on the Willamette.
- In the time I spend on the river, I also disproportionately see people of color and low income folks fishing in the Superfund site. They are the ones whose health is most impacted, and social justice demands that we protect everyone who uses the river, especially those who depend on it to supplement their diets.
- How environmental justice issues - specifically how people of color, Native Americans, low-income households and others disproportionately affected by bio-accumulative contaminants and by continued fish consumption advisories due to their reliance on fish from the Willamette River for cultural and nutritional purposes - will be addressed.”
- Failure to clean the river to a level at which fish are safe for human consumption renders the cleanup a classist and racist action: The populations that most heavily use the river are people who are homeless and Native American communities, as well as some of the Black communities that have already are subject to the most polluted areas of the city.
- The Preferred Alternative I is chosen because it is relatively less expensive and will require only seven years of construction, rather than 60 years to conduct the cleanup. And yet still it will not permit fish from the harbor to be consumed by subsistence fishers. This is a serious violation of environmental justice values and one that EPA should take seriously
- We also call on EPA to require the most effective cleanup technologies available, regardless of cost, to fully clean up the Portland Harbor in a way that does not harm Pacific lamprey eel that are embedded in the sediment as long as 7 years. Scientific evidence suggests that Pacific lamprey, which have been in existence for over 500 million years, are one of the foundational species of the Columbia basin, and that the potential loss of Pacific lamprey in the Columbia basin threatens the basin's ecological integrity. Lamprey is also an incredibly important cultural food, and provide a very important source of nutrition, as they are exceptionally rich in fats (much more so than salmon). Due to the loss of lamprey throughout the Columbia Basin, many young tribal members have never even seen a lamprey, and are losing historically important stories and ceremonies that are associated with them.
- EPA must recognize that environmental restoration is not a discretionary function -- it a fundamental issue of justice at the heart of EPA's mission. Environmental restoration is necessary for the restoration of the traditional cultures of the Pacific Northwest, who currently suffer from severe health problems as a result of the disruption of their traditional food sources -- including salmon, lamprey, and wapato in the Portland Harbor.”
- A human health risk assessment was performed for the Site which showed that health risks from exposure to contaminants in the river are highest for populations consuming large amounts of resident fish from the Site. As a result, it makes sense that areas used more frequently by the most



impacted or underserved and underrepresented populations should have a more aggressive schedule for cleanup.

### **EPA Response**

Executive Order 12898 directs federal agencies, including EPA, to identify and address environmental justice concerns for minority populations and low income populations to the maximum extent feasible. The primary purpose of CERCLA is to remediate releases of hazardous substances to the environment that are presenting unacceptable risk to human health and the environment. As a result of public comments like the ones outlined above regarding environmental justice and fish consumption, EPA has chosen a more aggressive cleanup option on the releases of hazardous substances to the Site that will allow for additional fish consumption after construction of the remedy is complete. However, current background contaminant levels coming into the Site will still make it difficult for those most at risk (such as Native Americans, subsistence fishers and women who are breastfeeding) to consume an unlimited quantity of fish. Fish advisories due to contamination at the Site would be modified based on the results of long-term monitoring of contaminants in fish tissue and fish tissue surrogates (such as passive monitoring, where necessary). Watershed-wide planning efforts by the Oregon DEQ, EPA and other groups may eventually reduce background contaminant concentrations and further increase fish consumption, although the Oregon Health Authority may still impose a fish advisory based on broader watershed risks.

In the meantime, EPA does support some of the specific environmental justice recommendations for fish consumption that were received during the public comment process such as prioritizing areas for cleanup that have high public use and increasing riparian-area signage for fish advisories. EPA already has engaged communities with environmental justice concerns on fish advisories and will apply this to future fish advisory work. In 2012, EPA started a revision project for the Portland Harbor fish advisories and discussed changes to the signs with the CAG, five neighborhood associations and representatives from the Slavic, Tribal, Latino and Vietnamese communities. From these discussions, EPA acquired valuable feedback to improve the fish advisory signs but also learned that we should better utilize non-profit organizations representing the various communities to communicate information, attend community association festivals, go to ethnic celebrations and submit articles to community newsletters. As a result of this previous fish advisory revision effort, EPA has already formed relationships with other non-profit groups and has attended additional events such as the Slavic Celebration in June. In the future, EPA intends to continue applying these suggestions to upcoming work regarding fish advisories and to facilitate participation by communities with environmental justice concerns.

Please also see the following responses in this responsiveness summary to other comments that address these topics:

- EPA's post-ROD outreach plans (Section 2.36.2)
- ICs (Section 2.28.1)

## **2.35.4 Consider Specific Suggestions for Additional Environmental Justice Support**

### **Comment Summary**

Fifteen comments were received that requested additional environmental justice actions. Requests include:

- Work with impacted communities to set aside land on or near the river for community use which could support community-controlled habitat restoration, housing, gardens, environmental education, and other community-identified and community-controlled activities.
- Establish Community Benefit Agreements with private-sector actors, ensuring equity-supporting redevelopment outcomes in the Harbor area, including expansion of living-wage jobs, affordable housing, and targeted outreach to bridge food and housing insecurities for disproportionately impacted groups relying on the Harbor area for basic needs (from the Health Impact Assessment submitted with the Portland Harbor Community Coalition comments titled *Portland Harbor Superfund Cleanup: Socio-Environmental Determinants of Health & Vulnerable Communities*).
- Formulate policy mechanisms to incubate equity-supporting economic activity in the Harbor, including microenterprises, light industry, and other entrepreneurship opportunities, toward growing the living-wage job market, with leadership by local residents and members of affected communities (from the Health Impact Assessment submitted with the Portland Harbor Community Coalition comments titled *Portland Harbor Superfund Cleanup: Socio-Environmental Determinants of Health & Vulnerable Communities*).
- Provide information to communities with environmental justice concerns in culturally appropriate ways, such as by ensuring that materials are translated and also disseminated by working with organizations who have established trust relationships with environmental justice groups affected by the contamination.
- Improve public engagement actions moving forward to address all environmental justice issues, engage more effectively with people living around the river and correct other deficiencies in EPA's public engagement strategies.
- Ensure that communities with environmental justice concerns have enough time to provide adequate comments on the cleanup plan for the Site.
- Change zoning to ensure that ceremonial land is given back to the tribes.

### **EPA Response**

As noted in previous responses, EPA believes that everyone deserves to be protected from pollution, not just those who can afford to live in the cleanest, safest communities. Executive Order 12898 directs federal agencies, including EPA, to identify and address environmental justice concerns for minority populations and low income populations to the maximum extent feasible.

EPA values the thoughtful comments and ideas that were submitted regarding additional environmental justice actions that should be conducted at the Site and we look forward to discussing the specific recommendations as remedial design and remedial action move forward. For example, EPA is committed to providing information to communities with environmental justice concerns in culturally appropriate ways and will continue to improve public engagement actions by working with the CAG, the Portland Harbor Community Coalition, Willamette Riverkeeper, Communities of Color, Native American Youth Association, Latino Network, Right 2 Dream Too, Right 2 Survive, the Slavic Immigrant Association, Ecumenical Ministries of Oregon, the Coalition of Black Men, the Oregon Environmental Justice Task Force, Oregon Tradeswomen, League of Women Voters, Verde, Sierra Club Portland, Occupy

St. Johns, Audubon Society, Asian Pacific American Network of Oregon, Vietnamese Community of Oregon, Portland neighborhood associations and schools, and any other interested parties.

Many of the concerned expressed by residents however appear to be outside the jurisdiction of EPA under CERCLA authority and EPA is limited in what it may do under existing authorities. We encourage the state to work with the appropriate organization to ensure that land use planning, housing, reuse of surrounding properties are considered in the overall planning for the area. Please also see the following responses to other comments in this responsiveness summary that address these topics:

- EPA's post-ROD outreach plans (Section 2.36.2)
- Hiring locally (Section 2.2.2)
- EJ and job creation (Section 2.35.6)
- EJ and financial support (Section 2.35.5)
- Relocation and housing issues for communities with EJ concerns (Section 2.35.7)

### 2.35.5 Address Issues of Financial Support Related to Environmental Justice

#### Comment Summary

Several comments were received that discussed providing financial support for communities with environmental justice concerns or funding independent community organizations to provide outreach to communities affected by the Site, particularly to communities of color and economically disadvantaged community members. Some of the specific suggestions offered by commenters about actions EPA could take to provide financial support to communities with environmental justice concerns include:

- Establish a fund to assist communities impacted by historic and ongoing contamination.
- Fund a study to determine where the most vulnerable communities are conducting activities along the river.
- Provide financial support to the CAG and the Portland Harbor Community Coalition to conduct effective community outreach to low income, Native American, minority and immigrant communities who are impacted by the cleanup actions.

#### EPA Response

EPA appreciates the comments and suggestions from commenters regarding financial support to better understand the needs of communities with environmental justice concerns and also to conduct quality outreach to the most vulnerable communities affected by the Site.

EPA looks forward to exploring these ideas with community members, to the extent that these are within the scope of the CERCLA response, as we move forward with remedial design and remedial action. Specifically, the upcoming required revision of the Community Involvement Plan for the Site may be an opportunity to have discussions about these ideas with the groups that have developed trusted relationships with the most vulnerable communities and also directly with community members who have environmental justice concerns.

EPA also is already considering ways to address some of the specific suggestions that were raised in the comments, such as a study to determine where the most vulnerable communities are conducting activities along the river. As part of the ICs implementation and assurance plan that lays out the approach for the development and implementation of ICs like fish advisories, EPA may conduct a survey of fisher communities, including Tribal, low-income, minority and immigrant communities, to verify the fish species being consumed, consumption rates, preparation and cooking practices (Section 2.28 of this responsiveness summary).

Additionally, EPA has provided financial support to the Willamette Riverkeeper since 2001 via a technical assistance grant. The Willamette Riverkeeper has used this technical assistance grant to give support to the CAG which provides a public forum for community members to learn about the Site and share community needs and concerns, including environmental justice concerns. EPA intends to continue providing this financial support as long as there are community organizations that are able to maintain the technical assistance grant and that the effort is within the scope of the CERCLA response.

Lastly, EPA also intends to maintain our strong partnerships with local, state and federal partners who also may be able to provide financial support to benefit communities with environmental justice concerns during the cleanup. For example, the Oregon Health Authority implemented a mini-grant application program from 2003-2009 which provided funding to community organizations to enhance outreach efforts to different ethnic groups and specific populations that catch and consume fish from the Site.

Please also see the following responses to other comments in this responsiveness summary that address these topics:

- EPA's post-ROD outreach plans (Section 2.36.2)
- Relocation and housing issues for communities with environmental justice concerns (Section 2.35.6)
- Hiring locally (Section 2.2.2)

### 2.35.6 Support Job Creation in Impacted Communities

#### Comment Summary

Seven commenters discussed the importance of ensuring that job training, jobs and other economic benefits are made available during cleanup, particularly to underserved communities, communities of color, low income people, women and other underrepresented groups impacted by the long-standing contamination. These comments came from the general public, as well as the Portland Harbor Community Coalition and the CAG.

Comments include:

- “Public engagement strategies used for the clean-up plan have not well-addressed environmental justice, specifically delineating strategies for ensuring the jobs, economic benefits and other benefits associated with the Superfund process are accessible to the local community and particularly to underserved communities that have been impacted by contamination in Portland Harbor. EPA is strongly urged to redress these deficiencies from this point on in the Superfund process.”

- “Heavily consider the environment justice issues by assuring jobs, and benefits to the underserved and local communities that have been impacted by the Superfund sites.”
- “EPA should do a much better job of addressing environmental justice issues by ensuring that the jobs and economic benefits of the cleanup are shared by the communities most impacted by the long-standing contamination.”
- “The plan should ensure the jobs, economic benefits and other opportunities associated with the cleanup accrue to underserved communities and communities of color that have been impacted by contamination and reduced access in Portland Harbor.”
- “I’ve worked on projects in a city outside of Portland, where the City went into contract with the large companies and required them to provide apprenticeships and internships that would focus on low income people, people of color, and women, and underrepresented people. I would also like to see the industries along the river -- and I was a member of the River Renaissance Committee years ago -- to require them to put money into a fund that would support this job training. I think these are very basic environmental justice principles where the benefits and the burdens of the action are equitable. So it’s important for the community people to benefit.”
- “Attract federal investment (e.g. Superfund Joint Training Initiative) and commit local resources (e.g. via Jobs with Justice) to job training and workforce development for mid-skill, living-wage jobs in the environmental and construction industries.”
- “Hiring for the cleanup should be kept local whenever possible, so that communities that have suffered the most exposure to contamination also benefit by the positive opportunities offered by the cleanup.”

### **EPA Response**

EPA supports all of the comments that were received regarding job training, jobs, local hiring and other economic benefits that should be made available for communities with environmental justice concerns during site cleanup. EPA often has some support available to address these suggestions such as the long-standing program called the Superfund Job Training Initiative. The initiative is a job readiness program that provides training and employment opportunities for people living in communities (including communities with environmental justice concerns) affected by Superfund sites. EPA’s goal is to help these communities develop job opportunities that remain long after a Superfund site has been cleaned up. EPA is already starting to explore how the initiative may be applied to the cleanup work at the Site.

Additionally, EPA is looking forward to continuing our existing partnerships with our community, Tribal, local, state and federal partners as well as forging new collaborative relationships to ensure that communities with environmental justice concerns reap economic benefits from the Site cleanup. EPA welcomes and encourages continued feedback from commenters and our partners on this important topic throughout the cleanup process.

Please also see the following responses to other comments in this responsiveness summary that address these topics:

- EPA’s post-ROD outreach plans (Section 2.36.2)
- Hiring locally (Section 2.2.2)

### 2.35.7 Address Environmental Justice in Regards to Relocation Housing

#### Comment Summary

Many comments were received by EPA regarding the houseless community living around the Site as well as displacement and general affordable housing for low and middle income residents. Some specific suggestions were provided by commenters, such as:

- Provide adequate notice before starting the cleanup in areas where houseless people are living.
- Provide funds for permanent, affordable housing for anyone displaced by the cleanup (whether housed or houseless).
- Institute robust anti-displacement provisions (as outlined in the City of Portland’s Comprehensive Plan) to ensure that low- and middle-income residents have access to permanently affordable housing in nearby neighborhoods.
- Encourage compensatory affordable housing with tax-incentives and other levers to increase affordable housing near the Site. Activate partnerships for community-guided development decision-making-targeting for involvement the vulnerable groups discussed herein (from the Health Impact Assessment submitted with the Portland Harbor Community Coalition comments titled *Portland Harbor Superfund Cleanup: Socio-Environmental Determinants of Health & Vulnerable Communities*).
- Link affordable housing preservation and development with market outcomes following the cleanup, for example, with directives to increase affordable housing in line with capitalization of the nearby housing/land market (i.e. an increase in mandated affordable housing would accompany a rise in average rental rate over time) - (from the Health Impact Assessment submitted with the Portland Harbor Community Coalition comments titled *Portland Harbor Superfund Cleanup: Socio-Environmental Determinants of Health & Vulnerable Communities*).
- Assure that working-class homeowners, including homeowners of color, capture the benefits of owning higher-value property, by offering community counseling on managing property taxes, refinancing, as well as code and permitting procedures for property improvements and rental-conversion.

#### EPA Response

EPA appreciates the many concerns and suggestions that were provided by commenters regarding the houseless community as well as displacement and general affordable housing for low and middle income residents. EPA does not anticipate that any resident will be displaced from their home as a result of the Site cleanup. If for some unanticipated reason, this does become necessary EPA has a well-established relocation guidance that has been successfully applied at many other sites throughout the country. For any relocation activities, EPA always provides early and frequent communication with the affected residents.

Regarding any displacement that would occur for members of the houseless community, EPA will make every effort to notify houseless community members in areas where cleanup activities are anticipated to occur as soon as possible before the start of any remedial action. Additionally, EPA intends to work closely with groups representing the houseless community such as Right 2 Dream Too, Right 2 Survive and any other interested organizations or individuals to facilitate communication of future cleanup



activities in areas that could affect houseless community members, and EPA will work with local authorities (such as the Oregon Department of Human Services) to connect houseless community members with any available resources.

EPA also looks forward to discussing other suggestions regarding housing and displacement that fall under the scope of CERCLA and the NCP as we move forward with remedial design. Other suggestions, such as community counseling for homeowners, may be better executed by other local, state or federal groups and EPA will help facilitate these connections wherever possible.

## 2.36 Public Participation

### 2.36.1 Address Public Outreach Related to the Proposed Plan or Earlier

#### Comment Summary

A total of 44 comments were received relating to public participation leading up to and including the proposed plan. All of the comments are personal comments. Roughly half of the comments requested an extension of the comment period, generally ranging from an additional 120 to 180 days, and several said that the timing of the comment period (summer) was poor. The remaining commenters stressed a need to better engage the public, either leading up to or during the comment period. One person thought that the format of the public meetings was flawed and that EPA should have agreed to additional meetings with a more traditional format, two people stated that it was wrong for people from Washington to be making decisions on the Site, one person was unhappy with email glitches at the beginning of the comment period, and a few people offered suggestions on improving future meetings.

Representative comments included:

- “I would like to see them seek more input from Portland residents. We have a right to voice our opinion on these issues, and certainly when it comes to our tax dollars.”
- “Improved understanding of the plan’s details and merits among concerned community members would improve cleanup implementation and acceptance. In this regard, we request that EPA and DEQ provide financial and technical resources to local organizations that are better equipped to directly engage local stakeholders about the merits and justification of the cleanup plan.”
- “There has not been a full buy-in from the community, including the CAG, the city and the state. CAG has dedicated years and extensive time to this issue and their opinions should be taken into consideration and heard during this process. To date, this has not been the case.”
- “It’s unfair that EPA is working with people in Seattle who have no connection to us. Instead, they should be working with people in Portland or in the state of Oregon. This plan will not affect anybody in Washington, unless that’s where the debris will be dumped. It will, however, affect us. EPA needs to start working with us instead.”
- It is deeply disappointing that after months of delay, EPA still does not appear to have adequate systems in place to maximize the efficacy of the limited comment period it has provided. It compounds an already challenging and controversial situation in which EPA has provided only 60 days for public comment, has subjected the public to serial delays, and has launched the comment period right at the start of summer break when many people are leaving town.

Three commenters thought that the public engagement process was allotted inappropriate time in order to meet the “political deadline” of a ROD by the end of 2016. These comments included:

- “Rushing through this process to meet a political deadline has the potential to short-change the long-term health of the Willamette, and the people who live near it, and use the river on a regular basis. The final structure of the ROD should not be influenced by verbal agreements between EPA leadership and politicians made years ago, or a desire to complete the ROD because of sheer political expediency.”
- “All of this has been informed by an unrealistic timeline for a ROD. Peter deFur, the technical Superfund Advisor retained by the Community Advisory Group, told the public that for EPA to reach a ROD by the end of the year, they would have to work in record time once the comment period ends, and more likely than not, the ROD has already been written. Taken together, all of this creates serious doubt that what we have witnessed over the last few months was a meaningful public process.”
- “We do not believe that EPA could reasonably consider and respond to the public comments that have been submitted and make appropriate modifications to the plan in the arbitrary timeframe that EPA has set for itself. EPA’s preoccupation with the December 31 deadline suggests that the public comment period was little more than a cursory exercise. We urge EPA to take the time necessary to give full consideration to the concerns that have been raised and make modifications to the plan as warranted. EPA should take whatever time is necessary to thoroughly read and respond to public comments and make appropriate changes to the feasibility study and Clean-up Plan, rather than attempting to stay on an unrealistic and politically driven timeline of reaching a final record of decision by the end of the year. Prioritizing the finalization of the ROD by the end of 2016 would relegate the public process to little more than a cursory checkbox.”

### **EPA Response**

EPA understands that some commenters felt that they were not sufficiently engaged in the process prior to the proposed plan (USEPA 2016c) being issued. EPA is always striving for improvement in this area and made a significant community outreach effort to get input for the proposed plan and to prepare people to participate in the public comment period. These efforts included producing and disseminating quality information such as community information cards, fact sheets and videos; maintaining current information on EPA’s Portland Harbor website; providing valuable information via the EPA Portland Harbor listserv; engaging with various organizations including groups representing people who live along the river; participating in one-on-one discussions; attending and presenting at public forums and meetings; and organizing multiple community information sessions during January, February and March of 2016 (Section 2.35.2 of this responsiveness summary).

EPA held tribal consultations during the public comment period with the Confederated Tribes of Grand Ronde, the Confederated Tribes and Bands of the Yakama Nation, Confederated Tribes of the Umatilla Indian Reservation and the Nez Perce Tribe. EPA consulted with the Confederated Tribes of Siletz Indians during the first round of consultations prior to issuing the proposed plan. In response to EPA’s invitation to consult during the public comment period, the Tribe told EPA that it did not wish to schedule another consultation. EPA also held four public meetings in June and July of 2016 (June 24, June 29, July 11, and July 20). These public meetings were well advertised via e-mail, posting on the Portland Harbor website, dissemination of media advisories, and directly posting EPA notices in *The Oregonian*, *The Skanner*, *The Asian Reporter*, *El Hispanic News* (translated into Spanish), *KAHOH*



(translated into Russian) and the Phương Đông Times (translated into Vietnamese). The meeting venues were widely spaced throughout the metro area (City of Portland Building, EXPO Center, University Place Conference Center, and the Ambridge Center). Two formal presentations of the plan were given at each meeting, followed by a question and answer period and an informal open house where the public could discuss the plan directly with EPA staff and ask questions one-on-one. At all public meetings, there were opportunities to provide both written and oral comments on the proposed plan for the record. Language interpreters were available in person at the June 24 meeting (Spanish, Russian, Vietnamese and Chinese) and at the July 20 meeting in the evening (Spanish, Russian and Arabic) and by telephone if needed at the June 29 and July 11 meetings. A community fact sheet as well as acronyms, glossary, contaminant summary, and a handout detailing how to give written or oral comments were available in English, Spanish, Vietnamese, Chinese and Russian at each public meeting. Based on feedback from the public, the format of the last meeting during public comment was updated based on real-time input from commenters. EPA appreciates the feedback from commenters on the presentations and will use these suggestions to improve future public meetings. Lastly, EPA intends to continue public outreach and participation after the ROD is signed (Section 2.36.2).

EPA acknowledges that during the first few days of the public comment period, the EPA e-mail for receiving comments ([harborcomments@epa.gov](mailto:harborcomments@epa.gov)) was not operational. We sincerely regret that inconvenience but want to clarify that these problems were fixed within a few days and the same day that these issues were identified, an alternate e-mail was quickly provided for commenters to utilize. EPA also moved quickly to grant another 30-day extension to the 60-day public comment period, for a total of 90 days.

EPA assures the public that all responses were read and evaluated as EPA developed a final cleanup plan in the ROD. Additionally, well before the public comment period opened, EPA anticipated that a large volume of comments would be received for the proposed plan. As a result, EPA ensured that sufficient EPA staff and EPA contractors were in place to maximize resources, efficiently process all comments received and provide the best technical skills for this project.

### 2.36.2 Improve Public Outreach After the ROD Is Signed

#### Comment Summary

Several people wrote about the need for continuing public outreach at the Site on specific topics. Many comments expressed a need for information to be shared with the community. Nineteen comments stated, “When the data are obtained for the remedial design, these must be shared with the community,” and “The community needs regular opportunities for input during the construction phase of the cleanup.”

The remaining comments were personal comments that touched on offers to help EPA with engagement, the need for multi-cultural education (especially about risks of eating fish and recreating in the river), engaging Portland citizens and those in outlying areas, remaining transparent, having accessible meetings, and communicating with the CAG during construction.

#### Representative comments

- “I will volunteer as much time and services as I can. I also propose an educational/celebratory event to take this opportunity to educate the public (young generations) about the underlying problems which have led to this pollution. i.e. sustainable living, human overpopulation and nourishing conscious evolution.”

- “I don't think these newcomers are being apprised of what they're exposing themselves and their children to. The area is a cancer hot spot. I have family members who have been afflicted by this and so I think that this needs to be included in the plan somehow.”
- The plan should call for an increase in culturally specific education and outreach to communities disproportionately impacted by the consumption of contaminated fish.”
- “The affected community around the Portland Harbor needs regular opportunities for input during the construction phase of the cleanup. These should be conducted at times of day and night which accommodate work schedules, provide childcare, and be conducted in accessible locations and languages.”
- “Your transparency so far has been good. Thank you. Please be transparent re the ongoing measurement of success of the toxicity removal.”
- “The ROD should contain a requirement for regular communication between EPA, DEQ and the CAG during the remedial design and construction phase of the cleanup. Residents are the largest group of stakeholders and those who literally own the river. They need to be included in all decisions about the river cleanup going forward.”
- “It is necessary that the public has a reliable way to stay informed on the progress of the cleanup and be engaged. The City would like to work with EPA and other government agencies to ensure the long-term Community Involvement Plan meets the needs of our communities. The City looks forward to partnership opportunities with EPA and other local government agencies to ensure community perspectives are understood and considered in every stage of cleanup process. The City request that EPA reevaluate its current Community Involvement Plan to ensure it meets the needs of the public, and in particular our most impacted communities. We also request that EPA dedicate additional resources for engagement that is conducted in a culturally responsive manner.”

### **EPA Response**

EPA intends to continue public outreach after the ROD is signed. Effective outreach is key to the successful implementation of a remedy, and we sincerely appreciate the public's interest, information requests, and offers to help. EPA will also explore making data from the monitoring events available online to the public as EPA has during pre-ROD early actions.

We also value our established relationship with the CAG, other community groups and individuals, the tribes and other interested parties. EPA will work to continue those relationships and seek input from those groups throughout the design and construction phases of remediation. These connections will be particularly important as we work out the best ways to communicate the risks of eating resident fish from the river. The input of these groups will be instrumental to help ensure that the public receives quality information and that risks are well understood.

Furthermore, we understand the concern over health issues in the area and the need to effectively communicate the health risks associated with the Site. EPA intends to work with Tribal and community groups, as well as other federal, state and local organizations to identify the best methods to communicate these risks such as through planned work on the use of fish advisories (see Section 2.28.1

of this responsiveness summary for more information about planned outreach on fish advisories), fact sheets one-on-one discussions and workshops.

Lastly, EPA is required to reevaluate the community involvement plan for the Site before the start of the remedy design and, as a result, EPA will be conducting additional community interviews. EPA hopes to hear additional feedback and ideas during these community interviews to help inform future public participation and risk communication work at the Site. EPA will also include the Oregon DEQ, the City of Portland, as well as other interested groups in the reevaluation of the community involvement plan prior to the start of the remedial design.

Additional information is provided elsewhere in this document on public participation as it relates to environmental justice issues (Section 2.35 of this responsiveness summary) and the use of fishing advisories (Section 2.28 of this responsiveness summary).

### 2.36.3 Be Transparent in Decision Making

#### Comment Summary

Transparency was an issue seen in many comment submissions. The commenters believed that EPA needs to do a better job in communicating the reasoning behind EPA's decisions and approaches.

More specifically, the proposed plan lacks transparency with respect to:

- Cost effectiveness analysis/weighing the costs against the benefits of the alternatives both individually and relative to each other
- Short-term impacts of dredging and fish advisories
- Human health risk assessment substantially overstates the actual site risk and therefore calls into question all of EPA's risk management decisions for the Site
- Collaborative and transparent process between EPA and the community related to the economic opportunity that will result from the cleanup activities
- Transparent stakeholder engagement and uncertainty analysis related to sustainability
- Costs of the cleanup on the community

#### EPA Response

Some transparency-related comments pertain to technical issues, which are better addressed under those specific themed responses to avoid duplicative effort. For comments related to the cost-effectiveness analysis, see Section 2.22.1 of this responsiveness summary. For comments related to short-term impacts, see Section 2.20 of this responsiveness summary. For comments related to the BHHRA (Kennedy/Jenks 2013), see Section 2.34 of this responsiveness summary.

EPA agrees that seeking input and collaborating with the community is vital for a successful implementation of the remedy, and community acceptance is one of the nine criteria that EPA is required to evaluate under CERCLA. EPA has sought to be fully transparent in its decision-making approach since the Site was listed. For instance, EPA has developed a collaborative relationship with the CAG, which formed in 2002 and is comprised of individuals from neighborhood associations; environmental, health, recreation, and business groups; and concerned citizens. The CAG provides a public forum for community members to learn about the Site and share community needs and concerns.

The CAG provided input and feedback to EPA and DEQ so that community perspectives were considered in the remedy selection process. Since 2002, EPA has continuously shared information and met with the CAG and the public about the Portland Harbor investigation and cleanup activities. EPA also has formed collaborative relationships with the tribes and other community groups involved with the Site over the years which also provided feedback and information to EPA on the proposed cleanup plan. A detailed list of EPA's collaborative efforts over the last few years is available in the 2016 *Portland Harbor Community Involvement Plan*.

Additionally, EPA conducted extensive community outreach in the months leading up to the release of the proposed plan (USEPA 2016c) and went well beyond the typical rollout of a proposed plan during the public comment period. In January, February, and March of 2016, EPA organized multiple community information sessions to inform the public about the Site and the forthcoming release of the proposed plan and public comment period. During the public comment period for the proposed plan, EPA held 4 public meetings and extended the public comment period to 90 days. EPA intends to continue public outreach after the ROD is signed. See Section 2.36.1 of this responsiveness summary for additional details about public outreach related to the proposed plan.

EPA assumes that the comment regarding the need for an “uncertainty analysis” for a sustainable remedy refers to the “uncertainty in risk and hazard estimates”. EPA performed an uncertainty analysis of each alternative to determine the likelihood that the alternative would be protective. This analysis was presented in Appendix I of the 2016 feasibility study report (USEPA 2016b).

EPA appreciates the concerns of the local workforce and businesses as important segments of the community. EPA is aware that other entities have been studying the economic impacts of the cleanup. For example, the City of Portland commissioned a 2012 economic study specific to the Superfund cleanup entitled *Economic Impacts of the Portland Harbor Superfund Site Cleanup* (Econorthwest 2012). A City of Portland press release described some of the findings from this study as: “clean-up will inject new spending into Portland’s regional economy and support jobs;” and “for every dollar spent on cleanup, more than a dollar in additional spending will be generated in the Portland economy as those employed in the cleanup purchase other goods and services in the region.” EPA believes that moving forward with the cleanup will enable properties to be more readily developed which in some cases have sat idle for years due to contamination issues.

## 2.37 Agency Roles and Cooperation

### 2.37.1 Require Federal Oversight of Cleanup

#### Comment Summary

Thirty-five comments were received indicating EPA should maintain federal oversight of the cleanup. Roughly 73 percent were form comments received by email and stated:

- “The US EPA should lead the cleanup effort after the ROD, not the State of Oregon.”

The remainder of the comments were personal comments expressing the same sentiment. They included:

- “Maintain federal oversight of Willamette River cleanup - do not delegate to the State of Oregon.”

- “Please do not pass responsibility for the clean-up to the state of Oregon. It is clearly EPA’s duty to lead this project for years and years. That is what we want from the national EPA”
- “We believe EPA should lead the cleanup implementation effort after the ROD, and not the State of Oregon. While Oregon has an important role to play as this cleanup plays out, we do not think they should be leading the cleanup process.”

The most detailed request came from the Audubon Society and read in part:

- “We understand some PRPs and potentially, the State of Oregon are encouraging EPA to turn over all or a portion of the oversight of the clean-up of Portland Harbor to the Oregon DEQ. Audubon strongly opposes any increase in the oversight role of DEQ and recommends that EPA assert strong oversight over the uplands that to date have been the primary responsibility of DEQ. We recognize that DEQ has an important role to play in the cleanup of Portland Harbor. However, that role should be subservient to EPA and any DEQ role should carefully defined in the ROD with clear benchmarks including timelines for implementation, outcomes and monitoring and that EPA should retain full oversight of DEQ activities. We are concerned that DEQ is far more susceptible to pressure from PRPs and politicians than EPA. It is also notoriously underfunded and subject to pressure and punitive action via the Oregon legislature through the budget process. Finally, DEQ is currently at an all-time low in terms of public trust and public confidence in Portland as a result of recent scandals involving air quality in our community. It is notable that confidence in DEQ is so low right now that Portland’s next Mayor, Ted Wheeler, has indicated that he may support the creation of a local air quality authority. Under these circumstances, it would be an unconscionable abrogation of EPA’s oversight responsibilities to transfer any additional responsibility to DEQ. EPA should not delegate its federal trust authority to the State of Oregon. We urge EPA to retain full oversight responsibility for the Cleanup of Portland Harbor and ensure that any role that DEQ plays within that context is explicitly defined with clear timelines and benchmarks for success, monitoring, transparency and public involvement under the supervision of EPA.”

### **EPA Response**

The Site NPL listing includes releases to the Willamette River and all upland sources of those releases. Roles and responsibilities for coordinating the cleanup and natural restoration of the Site are outlined in the 2001 MOU that EPA signed along with DEQ, six federal recognized tribes, National Oceanic and Atmospheric Administration, Oregon Department Fish and Wildlife, and the U.S. Department of Interior. DEQ was designated the lead for upland source control and EPA is designated lead agency for the in-river portion of the Site. Although MOU partners have participated and provided support in upland source control activities, development of the remedial investigation report (USEPA 2016a), feasibility study report (USEPA 2016b), and proposed plan (USEPA 2016c), EPA retains overall authority for the Site under CERCLA. At this time, it is anticipated that the roles established for DEQ and EPA in the MOU will remain the same in large part.

In order to maximize resources and achieve cleanup as soon as possible, there may be an opportunity for DEQ to perform certain technical oversight functions, in coordination with EPA, at specified areas of the in-river portion of the Site. Any oversight functions performed, whether performed by EPA or DEQ, will comply with CERCLA, the NCP, the ROD, any CERCLA agreements reached between the agencies and work parties.

## 2.37.2 Require DEQ Oversight of Groundwater Cleanup and Other Issues

### Comment Summary

Comments received on this topic are all from local businesses. Six comments said that the Oregon DEQ should be the lead agency for addressing groundwater. Five commenters wanted their current and/or previous source control measures to be included in the proposed plan, as well as DEQ's acceptance of the source control measures. Some commenters stated that COCs in groundwater at their facility do not pose a threat to the Willamette River, and that this has been accepted by DEQ. Five commenters also stated that the ROD should be written to exclude groundwater.

### EPA Response

Cleanup of contaminated groundwater originating in the uplands will continue to be managed by DEQ under a MOU discussed in Section 2.37.1 of this responsiveness summary which established the framework for roles and responsibilities for addressing the Site. Because groundwater plumes are known to or have the potential to extend into the river and may recontaminate sediments that have been remediated and may continue to load to surface water, EPA proposed and selected in-river actions to address contaminated groundwater, where appropriate. It is generally expected that upland source control of contaminated groundwater will be addressed at each facility before the in-river remedy occurs. Remedial design sampling will be required to establish the actual footprints of groundwater plumes in-river and may also confirm that some of the suspected plumes are not significant sources discharging to the river that would interfere with achieving the RAOs and cleanup levels for the Site.

Early source control actions conducted under DEQ authority are not final CERCLA actions. EPA will evaluate the effectiveness of DEQ source control actions with final cleanup objectives and determine if further action is warranted. If early source control actions meet the requirements of the ROD, EPA will not require further action. EPA cannot make such a determination in the feasibility study, as it predates the ROD, but EPA did assume that all sources, other than river banks, are controlled in the 2016 feasibility study report (USEPA 2016b). However, there may be upland groundwater plumes that have migrated beyond the upland control point and may need further control in-river (via a sediment cap or amendment to a sediment cap).

Site-wide monitoring will be conducted prior to remedy design and will include an evaluation of COCs in groundwater discharging to the Willamette River. A monitoring plan will identify appropriate points of compliance relevant to the site-specific circumstances. Although some source control evaluations reports may have concluded that groundwater at the facility is not discharging COCs to the Willamette River at concentrations above PRGs, these conclusions may not have been accepted by EPA.

For example:

- Attachment A of comments submitted by Brix presents the estimated extent of petroleum-contaminated groundwater at the facility; but the extent of the plume was only estimated and groundwater or pore water monitoring between the leading edge of the plume and the Willamette River was not conducted. It is unclear why the extent of petroleum-contaminated groundwater was not identified in the Brix source control evaluations.
- A weight-of-evidence evaluation was not completed for the Gunderson facility for groundwater. TPH-diesel was detected in the most recent round of groundwater monitoring at MW-77 at a concentration of 577 micrograms per liter; MW-77 appears to be located approximately 50 to 75



feet away from the Willamette River and indicating a complete pathway for COCs to the Willamette River.

- During review of the source control evaluations for Shore Terminals, EPA requested additional groundwater monitoring to demonstrate that the groundwater plume originating at the Fuel Loading Rack Area is not migrating to the Willamette River. Shore Terminals comment that *“According to the Oregon Department of Environmental Quality, groundwater at the Shore Terminals Portland Terminal (Facility) is not impacting the River and the ROD should not include a requirement for groundwater treatment (a reactive cap) offshore of the Facility”* did not include a reference to identify the source of DEQ’s decision; therefore, this statement cannot be evaluated. The Portland Harbor Upland Source Control Summary Report (DEQ 2016) describes that a source control decision has not been made for the Shore Terminals (ECSI #5130) and former ExxonMobil (ECSI #151) sites.

In response to specific commenters:

- A groundwater plume at the Knife River-Northwest facility was not identified in the proposed plan (USEPA 2016c).
- EPA acknowledges that source control measures at the Time Holding Co. facility were implemented to mitigate the groundwater pathway to the Willamette River, but a groundwater plume is still present and performance monitoring is ongoing.
- EPA acknowledges that source control measures at the Premier Edible Oils Site were implemented to mitigate the groundwater pathway to the Willamette River, but a groundwater plume is still present and performance monitoring is ongoing.
- DEQ is currently working with Gunderson to evaluate source control measures and groundwater monitoring is on-going.

Specific examples of when additional action may be needed to address groundwater include the Gunderson and Brix Maritime Co.’s (Brix) facilities.

- Gunderson has not conducted adequate sampling to characterize the nature and extent of the groundwater plumes at their property. For example, the source control evaluations report described trichloroethene at a maximum exceedance ratio of 102 times the Joint Source Control Strategy SLV at SWM-12; but adjacent monitoring wells were not sampled to delineate the extent of the groundwater plume. Further, there have been no source control actions taken at this property to control the groundwater plumes. Contaminants of concern will be monitored prior to remedial design to ensure that the pore water is not impacted such that a reactive layer in a cap or some other upland control may be necessary to ensure preliminary remediation goals are achieved.
- At the Brix facility, groundwater monitoring results are only discussed for monitoring wells outside of the groundwater plume in the source control evaluation report. Groundwater data for monitoring wells within the estimated extent of the groundwater plume should be presented to help characterize the potential threat to the Willamette River. Additionally, the groundwater monitoring wells downgradient of the plume do not appear to monitor the vertical extent of the contamination, and the vertical extent of contamination in soil (and likely groundwater) does not appear to have been delineated.

### 2.37.3 Retain DEQ as the Lead Agency for River Bank Source Control

#### Comment Summary

Many comments were received expressing concern that control of the river bank would shift from DEQ to EPA. Those comments are:

- RAO 9 should be removed. EPA violates the scope of the administrative order on consent by including RAO 9 (this should be covered under the remedial investigation/feasibility study work for uplands facilities). There is no data collected for this feasibility study report to provide a basis for analysis of alternatives with respect to river banks. Or baseline risk assessments were not performed for exposure to river bank soil. Or no information in the administrative record to support RAO 9 for river banks.
- Request that EPA honor DEQ's decisions in the source control evaluation process. Actions have already been performed under DEQ oversight. EPA should defer to DEQ and accept their decisions.
- In contrast to its approach to river banks, EPA properly sets no RAO for upland groundwater source control, given that it has determined that upland groundwater source control actions under DEQ oversight are still ongoing. Both river bank and groundwater media are being controlled under DEQ oversight, but EPA has arbitrarily and capriciously decided to treat them differently in the feasibility study and proposed plan. EPA should delete RAO 9 and all evaluations of alternatives based on river bank contamination, and treat river banks in the same way that it is treating upland groundwater.
- EPA is ignoring site-specific work performed under DEQ oversight for river banks. This will undermine DEQ's work and force business that have already passed DEQ's standards to face new and different demands from EPA. Requests that EPA not include river banks or groundwater remediation/remedial cleanup levels within the ROD.
- DEQ is the lead agency with respect to source control actions in Portland Harbor. River bank soils at the Arkema site have already been subject to extensive evaluation, as potentially erodible soils, with respect to COC identification, risk screening, and river bank: source control area identification. In December 2008, LSS submitted to DEQ the river bank: soil source control screening evaluation, which evaluated and identified areas for source control for the Arkema river bank. Comments on this river bank: source control screening evaluation were received from both DEQ and EPA. In 2012, river bank source control alternatives were evaluated as part of the EE/CA report for a removal action and concomitant source control measures (SCMs) at the Arkema site (Integral 2012, Appendix F; Attachment 1). There has been no subsequent correspondence on river bank: SCMs; however, there has been a general agreement with DEQ that the appropriate SCMs for the Arkema site will be conducted under DEQ's supervision, at the same time as or before the in-river remedy for the Site is completed. In keeping with the agencies' 2001 MOU with respect to roles on the Site, EPA must remove the reference to the areas requiring river bank remediation from the proposed plan. Also, in keeping with the method for addressing SCMs for other media (e.g. groundwater and storm water), EPA must reference DEQ plans for addressing upland river bank soils under these source control requirements, such as has been done for the Arkema site. Finally, if there are any data gaps that could affect the assessment of river bank SCMs, these must be clearly identified and addressed by DEQ as the lead agency.



**EPA Response**

The feasibility study report (USEPA 2016b) presents an evaluation of residual risk under long-term effectiveness as required by the NCP and EPA guidance. River bank soil and sediment pose a risk of recontamination to sediments. Therefore, river bank data provided by DEQ was included in the feasibility study report to facilitate the evaluation of long-term effectiveness.

Additionally, recent remedial actions with on-going performance monitoring were not described in the proposed plan (USEPA 2016c) on a site-by-site basis. Rather, DEQ's upland SCE information was used to identify river banks with known contamination. If performance monitoring concludes that the remedial action met the requirements of the ROD, EPA may not require further action to be taken to address the river bank.

EPA identified RAO 8, Migration of Contaminated Groundwater, for upland groundwater source control. Groundwater and river bank soil are being treated similarly, as described in the ROD. Ongoing source control efforts for groundwater and river bank soil will provide additional risk and recontamination reductions.

Responses for the last two comments are provided in LWG Dispute Issues 1d and 1q (Appendix A of this document).

**2.37.4 Ensure Interagency Coordination****Comment Summary**

Ten comments were received that requested increased cooperation between agencies (EPA and DEQ) and other entities (the City of Portland, Oregon Health Authority, and Multnomah County Public Health.) to make sure this project will be executed as safely and responsibly as possible. The sense is that this is currently not happening as well as it could. It was believed to be especially important for issues like fish advisories (through close collaboration with the Oregon Health Authority and Multnomah County Public Health) and continuing contaminant sources to the river. Compliance with the City's comprehensive plan and zoning were also mentioned. Issues with DEQ's earthquake safety plans for the tank farms in Linnton/Willbridge were also mentioned.

Representative comments include:

- "It is vital that city, county, state and federal agencies participate and coordinate the cleanup. Communication between agencies is currently not good. Time to learn to work together the way the rest of us do."
- "It is essential that the clean-up plan require a coordinated effort with local and state government, especially regarding effective communication of fish advisories through close collaboration with the Oregon Health Authority and Multnomah County Public Health."
- "Ensure with oversight that the Oregon DEQ has all source controls in place to prevent current and future contamination to the river. Example: The tank farms with 95 percent of all fuel sources are located in Linnton/Willbridge on liquefiable soils at the River edge without adequate earthquake proofing. Unacceptable is DEQ's answer: "We will deal with it when it happens." An earthquake would result in a huge environmental catastrophe and recontaminate the River."

- “EPA should work together with other government agencies to make sure this project will be executed as safely and responsibly as possible to protect the river for all citizens and wildlife. Please consider the community’s input before making a final plan.”
- “All local, state and federal authorities should coordinate together on an overall river basin plan to remove pollutant sources and protect the Willamette River for all citizens and wildlife.”
- “How are you interfacing with city of PDX and comprehensive plan and how the plan is healing this stretch of our river and increase access to river? Is the zoning compatible with healing the rivers?”
- “I’m concerned that DEQ is not an active partner in cleanup on shores connected with the river.”

### **EPA Response**

As described in Section 2.27.1 of this responsiveness summary, shortly after the NPL listing, EPA entered into a 2001 MOU with DEQ, six federal recognized tribes, National Oceanic and Atmospheric Administration, Oregon Department of Fish and Wildlife, and the U.S. Department of Interior. The MOU designated roles and responsibilities for coordination on the cleanup and natural resource restoration of the Site and established a Technical Coordinating Team comprised of MOU partner representatives. The team met at least monthly, frequently twice a month, and was the principle means of coordination and communication of data and information concerning Site management by the respective Lead Agencies, tribes, and Natural Resource Trustees, and to identify and resolve implementation issues. MOU partners worked closely on upland source control activities and the development of the remedial investigation report (USEPA 2016a), feasibility study report (USEPA 2016b), and proposed plan (USEPA 2016c). DEQ and EPA, in particular, have been closely coordinating over the last several years to develop a comprehensive cleanup that covers both the in-river areas and the upland properties. This includes work on the continued evolution of the Joint Source Control Strategy, to ensure the upland and in-river cleanups are coordinated to prevent recontamination of in-river work. DEQ also works with the City of Portland through an Intergovernmental Agreement for the administration of the stormwater program in Portland Harbor.

The Oregon Health Authority, in cooperation with Multnomah County Health Department, is responsible for outreach regarding the fish consumption advisories in effect for Portland Harbor. EPA coordinates its outreach efforts with Oregon Health Authority, DEQ, and the City of Portland to inform vulnerable communities of risks associated with contamination in the river and discuss city/state services that may be available to assist their needs. EPA also includes Tribal communities in its outreach efforts.

DEQ is lead regulator of the ongoing operation of the fuel terminals or “tank farms” adjacent to the Site. According to DEQ’s website, each fuel terminal has an emergency plan and coordinates with DEQ’s Emergency Response Program, the Portland Fire Department, the U.S. Coast Guard, and the Oregon Emergency Response System. Additional information about DEQ’s regulation of fuel terminals can be found at [www.deq.state.or.us/aq/northwest/gasTerminal.htm](http://www.deq.state.or.us/aq/northwest/gasTerminal.htm). EPA does not have the authority to change zoning, much of which is designated industrial or commercial along the Portland Harbor reach. EPA is aware of the City of Portland’s River Plan. EPA’s cleanup process considers reasonably anticipated future land uses in making its decisions and the cleanup will need to comply with federal and state environmental laws regarding minimizing impacts to habitat and compensating for any lost habitat.

## 2.38 Tribal Comments Received From the Public

### 2.38.1 Ensure Consultation and A Role in the Process

#### Comment Summary

Eighteen personal comments were received on this topic. Many of the commenters stated that there was a need to ensure consultation with the tribes in the decision making process and that they believed that consultation to date had been minimal, had not been heeded, and needed to be improved. The second topic was the need for the tribes to play a role (generally oversight) in the cleanup, as they were the people who have been most harmed by the contamination.

Representative comments are:

- “The Yakima nation stands against this and I stand with them. They were not properly included in this process and there is no evidence to support the idea that the plan has been designed or modified to meet their needs.”
- “Our native tribes are our river experts so it behooves you to co-operate and listen to them to clean up this Super Fund site QUICKLY AND THOROUGHLY!!!”
- “Tribal consultation appears to have been minimal. Or perhaps EPA has ignored previous comments of First Nations, including The Yakama Nation. We find it appalling that exposure and risk levels remain extremely high for subsistence fishers, and especially for tribal members, even after the so-called “cleanup” is completed. This shows no respect for the rights of tribes to eat fish and continue their cultural practices. This is unacceptable.”
- “I urge EPA to make significant revisions to strengthen the plan to reflect public feedback and the detailed responses of Tribal Nations. Tribal consultation has been minimal and weak. The Tribal Nations should be more enthusiastically and thoroughly engaged.”
- “I do not believe local tribes have been included fully enough in that plan's formulation. Also not acceptable.”
- “Tribal consultation and coordination need to be improved as it is almost none existent now.”
- “We strongly believe that EPA should allow Tribal Nations to have an oversight role in the cleanup process.”
- “Include the Yakama Nation and all local tribal entities of interest in the proposal. Language regarding the Yakama Nation and all local tribes of interest should be included in the plan, to reflect their role. tribes should be fully engaged and active participants in the Portland Harbor cleanup.”
- “Allow Tribal Nations an oversight role in the cleanup process.”
- “EPA must partner with tribal governments, urban native organizations, and other representatives of the most impacted communities in crafting an effective ROD that effectively restores the Portland Harbor, protects human health and the environment, and wins community acceptance. EPA's current plan does not do that, and must be abandoned. EPA must recognize that environmental restoration is not a discretionary function -- it a fundamental issue of justice at the heart of EPA's mission. Environmental restoration is necessary for the restoration of the

traditional cultures of the Pacific Northwest, who currently suffer from severe health problems as a result of the disruption of their traditional food sources -- including salmon, lamprey, and Wapato in the Portland Harbor. Finally, EPA must recognize that the customary uses of the Willamette River are protected under the Public Trust doctrine which governs EPA's actions, and which form the bed-rock of all statutory environmental law. In fulfilling these Public Trust duties, EPA is not permitted to behave arbitrarily. It must listen to feedback from the community, and even more importantly, from the Treaty Tribes and urban Native Americans who have a fishing tradition in this region stretching back over 10,000 years."

- "I think the cleanup should actually take its primary direction from those who have been most harmed by the pollution of the river. And that I think first and foremost is the tribes who've relied on it, who have lived here since the time of memorial."

### **EPA Response**

These comments are addressed by responses to formal comments submitted by the tribes. Please see Section 3 of this responsiveness summary.

## **2.38.2 Respect Treaty Obligations with the Yakama and Others**

### **Comment Summary**

A total of 318 postcards were received from the Yakama that read:

- "(The plan) completely ignores EPA's trust responsibility to protect the Yakama Nation's treaty rights. I am counting on EPA to uphold its trust responsibility, to honor our treaty and to deliver a plan that sustains the cultural practices of Yakama members and improves the quality of life for my tribe, our neighbors, and future generations."

Seven other commenters also wrote of the need to honor existing treaty obligations:

- "The Willamette needs to be a safe home for fish and aquatic life that are safe for humans and other animals to consume. It is our treaty obligation, as a country, to clean the Willamette to this standard."
- "We find it disturbing that cleaning up the mess made by industry ignores the fact that fundamental Indian treaties are being ignored. How can you ruin the basic food requirements of the original land owners?"
- "We need to uphold our treaty obligations."
- "We are now standing together to call on EPA to uphold our constitutional civil rights and our fundamental human right to a clean environment. We implore EPA to honor the federal government's treaties with tribal nations. The current proposed plan violates all of the above. This plan violates treaty rights by removing very little contaminated sediment, and by effectively relying on a perpetual health advisory for Portland Harbor fish. This means that fish are unsafe for Tribal members and others to consume, especially women of childbearing age, as well as pregnant women and nursing mothers, whose babies will experience neurological and developmental damage."
- "As you know, the Yakama Nation has said that the current plan would violate their 1855 treaty with the federal government, in particular their fishing treaty rights."

- “Honor the 1855 Treaty with the Yakama Nation. Protect the tribal members’ rights to fish in all usual and accustomed places, which includes the Willamette River. Clean up the Willamette River as much as humanly possible so the tribal members, and all others who fish the Willamette River have access to healthy safe fish.”
- “And the treaties that have been signed with those tribes prioritized access to traditional foods. And they would never have signed those treaties without that access. And those treaties are in Constitutional law. So that actually supersede CERCLA. So I think EPA needs to really humble itself before the advice and the direction of those tribes. And if they say the cleanup is inadequate, which they have, then it's inadequate. And that needs to be really taken very seriously. And EPA should go back to the drawing board to actually cleaning as much as they're asking. Yakima Nation, as well as a representative from Native American Youth and Adults, Robin White, who was just here, say that this cleanup plan represents a violation of their treaty rights, civil rights, and human rights. And that is a very serious charge. I think EPA needs to actually reflect on that and then come back with a plan that meets their qualifications that actually would provide the diet and the clean food from this river that they are requiring.”

### **EPA Response**

These comments are addressed by responses to comments submitted by the tribes. Please see Section 3 of this responsiveness summary.

## Section 3

# Tribal Comments and Responses

This section presents EPA's responses to written Tribal comments received by EPA during the 90-day public comment period. The comments are presented in this section by entity. The Five Tribes comments are presented first as they are the most comprehensive and responses to comments from individual tribes reference many of the responses prepared for the Five Tribes. The individual tribes are presented in alphabetical order.

Comments and responses are presented as follows:

- Five Tribes
- Confederated Tribes and Bands of the Yakama Nation
- Confederated Tribes of the Grand Ronde
- Confederated Tribes of Siletz Indians
- Confederated Tribes of the Warm Springs Reservation
- Nez Perce Tribe

Consistent with EPA's Policy on Consultation and Coordination and Indian Tribes EPA also held consultation meetings at tribal council locations from January 12 through February 4, 2016 and from July 19 through July 26, 2016, during the public comment period on the feasibility study report (USEPA 2016b) and proposed plan (USEPA 2016c). In addition, representatives for the Confederated Tribes and Bands of the Yakama Nation met with Administrator McCarthy on July 26, 2016 in Washington, D.C. A summary of the consultation meetings, along with any written materials provided, are in the Administrative Record. Responses are contained in this section, or addressed by other comment responses elsewhere in this responsiveness summary.

The consultation process included discussions on treaty rights, in accordance with the February 2016 Guidance for Discussing Tribal Treaty Rights (Treaty Rights Guidance). The Treaty Rights Guidance was issued to provide assistance on consultation regarding EPA actions occurring in a specific geographic area where tribal treaty rights may exist in, or treaty-protected resources may rely on, that area. Responses to all comments received from tribal governments are contained in this section, or addressed by other comment responses elsewhere in this responsiveness summary.

## 3.1 Five Tribes

### 3.1.1 Require a Protective, Aggressive, and Large-Scale Remedy

#### Comment

Achieving a protective remedy within a reasonable timeframe will require an aggressive, large-scale remedy. The remedy should predominantly entail removal of contaminated sediments, rather than leaving the contamination in-place, and include the use of best management practices (BMPs) to minimize short-term impacts (e.g., those described in Sections 2.4.3.1 and 4.2.2.5 of the feasibility

study report and the special cases for NAPL and debris and structure removal noted in Sections 3.4.8.6 and 3.4.8.7, as well as those outlined in FWS and NMFS 2016). Much uncertainty remains about the timeframe for natural recovery. Thus, the remedy should not be overly dependent on natural recovery. Capping contaminated sediments in-place will be a necessary component of the remedy. However, due to the risks and limitations associated with capping, use of this technology should be limited to instances where contamination cannot feasibly be removed and the contamination can be safely contained.

**EPA Response**

Refer to Sections 2.6.1, 2.12.2, 2.13.1, 2.16.1, 2.19.1, and 2.34.1 of this responsiveness summary.

**3.1.2 Establish a Timeframe in Which to Meet RAOs****Comment**

A timeframe must be established by which to meet all RAOs and associated acceptable risk levels (i.e., PRGs). Although the Five Tribes advocate for a remedy that will achieve cleanup goals as quickly as possible, we acknowledge that natural recovery is a necessary part of the remedy. The selected remedy should have a very high likelihood of achieving cleanup goals within 10 years following construction. After decades of contamination, we should not have to wait any longer than absolutely necessary for a clean river. The uncertainty of natural recovery processes at the Site further underscores the importance of selecting a remedy that does not rely on a lengthy (i.e., more than 10-year) recovery period following construction.

**EPA Response**

See Section 2.24, 2.17.1, 2.21, and 4.1.1 of this responsiveness summary.

**3.1.3 Use MNR and ENR Judiciously****Comment**

We acknowledge that, for practical purposes, the remedy will need to rely in part MNR, ENR, and sediment capping. However, these technologies should be used judiciously. The hydrodynamics of the Willamette River are complex, and even areas that are primarily depositional also erode. The inability of EPA and LWG to develop a hydrodynamic and sediment transport model that accurately predicts deposition and erosion highlights this complexity. Because tools are not available to accurately predict deposition and erosion on a fine spatial scale, we cannot assert the degree to which natural recovery processes will occur. Thus, EPA must use the environmentally protective assumption that natural recovery will be limited. MNR and ENR must not be used in erosional areas and must only be used in areas of low contamination. MNR should be used only in depositional environments.

**EPA Response**

EPA will update the data through focused remedial design sampling activities at the Site. Remedial design sampling data will be used to apply the decision tree in the ROD and to refine the footprint of areas that will be targeted for capping, enhanced natural recovery, and in-situ treatment and to refine the volume of material that will be targeted for removal through dredging and excavation. In addition, long-term monitoring will be performed to monitor the effectiveness of the remedy to achieve the remedial action objectives established for the Site. See also Sections 2.16 and 2.19.



### 3.1.4 Recognize Issues with Capping

#### Comment

Capping contaminated sediments in-place can be a practical, even necessary solution in certain circumstances. Sediment caps, however, come with risks, costs, and limitations. The dynamic nature of the Willamette River presents challenges in designing and maintaining a permanent cap. Bathymetric surveys and other data collected over a ten-year period or less may not be indicative of river conditions in the long term. Further, the effectiveness of even comprehensive monitoring has its limitations: breaches in cap integrity may not be immediately detected and may re-contaminate the area. With climate change, large-scale climatic events, a Cascadia Subduction Zone event, and other uncertainties, there is a very real possibility that leaving contamination in place will result in re-releases over long timescales, such as 100 years or more, to the detriment of future generations.

#### EPA Response

Refer to Section 2.13.1 of this responsiveness summary.

### 3.1.5 Explain Long-Term Management of Sediment Caps

#### Comment

EPA will update the data through focused remedial design sampling activities at the Site. Remedial design sampling data will be used to apply the decision tree in the ROD and to refine the footprint of areas that will be targeted for capping, enhanced natural recovery, and in-situ treatment and to refine the volume of material that will be targeted for removal through dredging and excavation. In addition, long-term monitoring will be performed to monitor the effectiveness of the remedy to achieve the remedial action objectives established for the Site. The Five Tribes are concerned with any entity's ability to manage a cap in perpetuity. Indeed, EPA has only been in existence for 45 years. Thus, there are no examples of EPA successfully managing sediment caps for long timescales. We are concerned with whether the relevant entities (the responsible parties and EPA) will even exist 100 years from now, and whether funding and political willpower will be available for monitoring and maintenance.

#### EPA Response

Refer to Sections 2.17 and 2.19 of this responsiveness summary.

### 3.1.6 Do Not Let Convenience and Cost Savings Bias Use of Caps

#### Comment

We are also concerned about the restrictions on river use that would result from capping significant portions of the Site. Capping would permanently restrict future development in the river, including placement of structures and dredging. The upcoming remedy is EPA's chance to clean up the river – likely its only chance – for the use of future generations. EPA should therefore focus on developing a remedy not only that will protect human health and the environment but that will not significantly limit uses of the river in the future. We strongly urge EPA to adopt a remedy that does not rely on capping for mere convenience and cost savings, but rather is focused on removing the contaminated material wherever practicable.

#### EPA Response

Capping will only occur consistent with future land uses, and will not restrict the tribes' ability to fish or collect shellfish, for example. Refer to Sections 2.13 and 4.1.5 of this responsiveness summary.



### 3.1.7 Limit the Need for ICs

#### Comment

An aggressive, removal-focused remedy is desirable because it will limit the need for MNR and ICs, both until PRGs are achieved and in perpetuity. In addition to the uncertainties associated with the success of MNR and the potentially lengthy time period required to achieve PRGs, MNR requires “significant administrative effort over the long term to oversee and coordinate sampling, data evaluation, and future additional actions, if any are needed” (USEPA 2016b, p. 4-40). Thus, MNR may be an easier solution than removal in the short term but requires significant effort in the long term. EPA also acknowledges that ICs are of limited effectiveness. For instance, EPA states that fish consumption advisories “are not enforceable and are generally understood to have limited effectiveness,” should “be relied upon to the minimum extent practicable,” and do not protect the ecological receptors themselves (USEPA 2016b, p. 4-12 and 4-88). Land use restrictions are also of limited effectiveness, as they “are difficult to monitor in a river environment” (USEPA 2016b, p. 4-12).

#### EPA Response

Refer to Sections 2.28.3, 2.31, 4.1.1, and 4.1.2 of this responsiveness summary.

### 3.1.8 Do Not Leave PTW that Cannot Be Reliably Contained

#### Comment

No NAPL or PTW that cannot be reliably contained (NRC PTW) should be left in the river, as these materials can migrate and act as a source of ongoing contamination. The Five Tribes are not in favor of capping these materials, no matter how engineered the cap is. These materials may migrate horizontally, either now or in the future when environmental conditions, such as hydrology, change. Any structures impeding dredging of these materials should be seriously evaluated for the feasibility of removal. In addition, NAPL and NRC PTW at depth should be dredged using all available means. These materials should only be capped if under a structure that cannot be removed or if located too deep for best available technology to reach.

#### EPA Response

See Sections 2.5, 2.13, and 2.21 of this responsiveness summary.

### 3.1.9 Do Not Increase PRG Values in the ROD

#### Comment

We understand that EPA has the ability to change PRGs as they become final cleanup levels in the ROD. The PRGs are generally based on sound science and ARARs, and we strongly urge EPA not to increase these values in the ROD. Certain parties, such as LWG, have questioned the validity of the polycyclic aromatic hydrocarbon (PAH) PRGs, specifically. We support the existing PAH PRGs, which are based on Site-specific risk calculations.

#### EPA Response

PRGs developed for the proposed plan (USEPA 2016c) are now updated as appropriate and included in the ROD as final cleanup levels. Based on future data collection, EPA will evaluate issues of technical impracticability in achieving these levels on a case by case basis. Also refer to Section 2.3 of this responsiveness summary.

### 3.1.10 Do Not Issue ARAR Waivers

#### Comment

We acknowledge that it is possible that certain cleanup goals based on background concentrations may never be met at the Site due to inputs from outside Site boundaries (e.g., upstream, upland). The Five Tribes do not support the issuance of an ARAR waiver (e.g., based on technical impracticability) at this time, and believe that EPA is making appropriate steps to issue a ROD without such a waiver. Technical impracticability waivers do not adequately protect treaty-protected rights and resources. (Treaty-protected rights and resources, while not explicitly referenced in the remainder of this document, are relevant to any discussion of the adequacy of the cleanup.) EPA should adopt a remedy that is likely to achieve cleanup goals. After remedy construction, progress toward cleanup goals should be monitored periodically, and the success of the remedy should be evaluated during five-year reviews. If the Site is not on target to achieve cleanup goals, the need for additional remediation (through a ROD amendment) should be seriously considered, in consultation with MOU partners. A decision to issue a waiver would require: (a) a robust, long-term monitoring dataset (covering the period from construction completion through at least 10 years post-construction) that indicates that certain COC concentrations in specific media remain at steady-state concentrations above PRGs, and (b) a determination based on thorough analysis that additional active cleanup and/or additional source control cannot be undertaken. The Five Tribes expect to be full participants in any evaluations or decisions related to consideration of technical impracticability or other ARAR waivers.

#### EPA Response

EPA agrees that there is insufficient information at this time to waive any ARAR and have not done so in the ROD. Please see Section 2.3.1 of this responsiveness summary.

### 3.1.11 Address Community Concerns Through BMPs and Monitoring

#### Comment

The Five Tribes are hopeful that community concerns about construction impacts can be addressed through BMPs and monitoring. The cleanup of this important resource, a cleanup that will benefit countless future generations, should not be compromised for the sake of immediate convenience (i.e., avoiding short-term construction impacts). Anticipated construction impacts are myriad and include potential air quality impacts, increased vehicular and vessel traffic, noise, odor, and lights. EPA should work with local communities to try to address their concerns to the extent possible while still achieving stringent cleanup objectives in a timely manner. BMPs should be used to control these impacts (Section 4.2.2.5 of the feasibility study report), and monitoring for impacts to human health should be rigorously conducted, with adaptive management employed if monitoring indicates unacceptable human health risks.

#### EPA Response

Refer LSS Dispute Issue 16 (Appendix A of this document) and Sections 2.8, 2.14.3, 2.20, and 2.21 of this responsiveness summary.

### 3.1.12 Select a Version of Alternative G

#### Comment

Based on the priorities described above and a technical evaluation of the proposed plan and feasibility study, the Five Tribes support a version of Alternative G (with modifications noted herein). Primarily, we support the use of Alternative G RALs, but request specific changes to the technology assignment methodology and technology applications.

Although we support elements of Alternative I, the alternative relies too heavily on uncertain natural recovery processes and leaves too much contamination in the river, posing human health and environmental risks in both the short and long term. By EPA's own interim target analysis, Alternative I is not expected to achieve cleanup goals within a reasonable timeframe and is therefore not protective of human health or the environment. As described below and by EPA's own evaluation of the evaluated alternatives, only Alternative G meets the two threshold criteria of "Overall Protection of Human Health and the Environment" and "Compliance with ARARs." Therefore, the greater cost and construction duration (which contribute to the evaluation of balancing criteria) of Alternative G compared to other alternatives should not be the basis for rejecting Alternative G. Of the alternatives that EPA carries forward to detailed analysis, EPA must select Alternative G.

### **EPA Response**

As stated Section 4.3 and shown in Table 4.3-3 of the feasibility study report (USEPA 2016b), Alternatives E, F, G and I all meet the two threshold criteria of Overall Protection of Human Health and the Environment and Compliance with ARARs. While Alternative G may have the most reduced long-term risks, the feasibility study selected Alternative I in part due to its superior ability to minimize short-term disruption and risks. The selected alternative, Alternative F Modified reduces long-term human health risks more quickly than Alternative I and minimizes reliance on ICs. Refer to Sections 2.6 and 2.31 of this responsiveness summary.

In assessing the various Alternatives EPA also looked at the Willamette River watershed as a whole, to determine the feasibility of providing a cleanup response that would effectively improve water quality to the level that is protective of ecological receptors and human consumers of fish and shellfish. The cleanup in this action is restricted to approximately a 10-mile segment of the Willamette River and upstream contamination from past and current permitted industry is not being addressed at this point. These facts further supported EPA's decision to pursue Alternative F Modified, rather than any other proposed remedies.

### **3.1.13 Use PRGs as Cleanup Levels in ROD**

#### **Comment**

We support the PRGs and advocate for their use as cleanup levels in the ROD.

#### **EPA Response**

Comment noted. EPA did not change any of the PRGs from the proposed plan (USEPA 2016c), and they are the final cleanup levels in the ROD.

### **3.1.14 Retain EPA's Definition of PTW for the Site**

#### **Comment**

We support EPA's definition of PTW for the Site. PTW should be defined, in part, based on calculated risk. PTW defined by higher contaminant concentrations at other sites is not relevant to EPA's definition of PTW at this Site.

#### **EPA Response**

Comment noted. See Section 2.5 of this responsiveness summary.

### 3.1.15 Include River Banks in Remedy

#### Comment

We support EPA's inclusion of river banks in the remedy. Including river banks gives EPA authority to direct cleanup work (in the form of excavation and capping) to prevent recontamination of the Site. Although the DEQ has historically had jurisdiction over river bank cleanup along the Site, the addition of river banks to the remedy prevents any disconnects between EPA and DEQ's work, such as delays in river bank cleanup beyond the Site cleanup. EPA is not ignoring or undermining any of DEQ's upland efforts by doing so, and we understand that additional data (e.g., remedial design or post-construction monitoring data) may show that certain river banks and groundwater plumes originally slated for remediation under the Site-wide cleanup may no longer need active cleanup. We urge EPA and DEQ to continue to work closely to ensure that cleanup under the remedy does not unnecessarily conflict with past or ongoing river bank work or create an unnecessary burden for the responsible parties.

#### EPA Response

Comment noted. The ROD includes river banks as proposed in the proposed plan (USEPA 2016c).

### 3.1.16 Use BHHRA Fish Consumption Rates

#### Comment

We support the fish consumption rates used in the BHHRA (Kennedy/Jenks 2013) and carried forward to the feasibility study. Consumption rates in Oregon are typically higher than elsewhere in the country, including for tribal fishers (FWQC 2013; CRITFC 1994). The rates used in the BHHRA accurately reflect this reality

#### EPA Response

Comment noted.

### 3.1.17 Reject LWG's Hydrodynamic and Sediment Transport Model

#### Comment

We support EPA's rejection of LWG's hydrodynamic and sediment transport model. As outlined in Appendix H of the feasibility study report, the model over-predicted the amount of deposition occurring within the Site, which in turn overstates the potential success of MNR (USEPA 2016b). The model failed to properly link the sediment transport model with the hydrodynamic model. It also did not sufficiently address the effects of wind- and wake-generated erosion, which are likely to be significant for the Site, and did not address bedload transport.

#### EPA Response

Comment noted.

### 3.1.18 Use the Current Portland Harbor Dataset

#### Comment

We support EPA's use of the current Portland Harbor dataset for the purposes of the feasibility study and proposed plan, which includes data from 1997 through 2011. Although data are not strictly recent, collecting additional data to update the database at this time would only serve to delay progress in implementing a remedy. New baseline data must be collected for remedial design and will serve a similar purpose to data that would be collected now.

### **EPA Response**

Comment noted.

### **3.1.19 Reject Alternatives B and D as They Are Not Sufficiently Protective**

#### **Comment**

We support EPA's determination that Alternatives B and D are not sufficiently protective of human health or the environment (e.g., EPA 2016a, p. 50).

### **EPA Response**

Comment noted.

### **3.1.20 Use BMPs as Needed**

#### **Comment**

We are generally supportive of the BMPs that EPA proposes to minimize impacts to local communities and the environment.

### **EPA Response**

Comment noted.

### **3.1.21 Use A Cover Layer to Control Residuals After Dredging**

#### **Comment**

We support the placement of a thin layer cover immediately following dredging in order to control residuals.

### **EPA Response**

Comment noted.

### **3.1.22 Explain How Alternative I Meets the Protectiveness Criterion**

#### **Comment**

According to Superfund regulations (40 CFR 300.430) and guidance (e.g., EPA 1988, 1990), EPA must evaluate alternatives against two threshold criteria, as well as five balancing criteria. Typically, the two threshold criteria must be met in order for an alternative to be selected. The two threshold criteria are "Overall Protection of Human Health and the Environment" and "Compliance with ARARs." In the feasibility study, EPA evaluates the first of these threshold criteria based on whether each alternative meets "interim targets" for each RAO. Interim targets are goals set for the time period immediately following construction completion. If an alternative is expected to meet interim targets post-construction, the alternative is assumed to meet cleanup goals within a reasonable timeframe. For this Site, EPA defines a reasonable timeframe to be 30 years (measured from the start of construction). EPA's comparison of alternatives to interim targets concludes that Alternative I only meets two out of the five measurable interim targets. Based on EPA's own definition of interim targets, Alternative I is therefore not expected to meet cleanup goals within 30 years and thus does not meet the "Overall Protection of Human Health and the Environment" criterion. EPA errs when it concludes that Alternative I meets this criterion. Of the alternatives evaluated, only Alternative G meets all measurable interim targets.

### **EPA Response**

EPA has revised its preferred alternative to Alternative F Modified. Alternative F Modified relies on application of the same remedial action levels (F RALs) throughout the Site with the exception of the navigation channel where the remedy will target PTW and sediment contamination exceeding the Alternative B RALs. The modifications for the navigation channel are appropriate because the risk exposures and physical conditions in the channel are different from the rest of the Site. The levels of contamination in the navigation channel are lower than in nearshore and intermediate areas of the River. Exposure to contaminants in the channel is limited since the depth of the channel is greater than 30 feet and based on information gathered during the remedial investigation, the understanding is that most of the fish species feed in the shallower areas of the Site. Refer Sections 2.6, 2.7, and 3.2.5.

### **3.1.23 Explain Why Alternative G Was Rejected as It Is the Only Alternative to Meet ARARs**

#### **Comment**

EPA determined that all alternatives except Alternative B meet the second threshold criterion, “Compliance with ARARs.” Given that many PRGs are based on chemical-specific ARARs, if the interim target analysis determines that an alternative will not meet PRGs within a reasonable timeframe, it logically follows that the alternative also does not comply with ARARs. Therefore, based on the above comment, the only alternative that complies with ARARs is Alternative G. Thus, Alternative G is the only alternative that meets the two threshold criteria and is the only defensible alternative. The higher cost and greater construction impacts of Alternative G compared to other alternatives should not be a reason for rejecting Alternative G.

### **EPA Response**

As stated in Section 4.2.2.2 of the feasibility study report (USEPA 2016b), Alternative B would be unlikely to meet chemical-specific ARARs in a reasonable timeframe. However, all other alternatives would meet chemical-specific (and all other) ARARs because of the reduced reliance on MNR. See Sections 2.1, 2.3, 2.6, and 2.31 of this responsiveness summary.

### **3.1.24 Defer to the Most Environmentally Protective Alternative**

#### **Comment**

We acknowledge that EPA’s ability to determine whether and when alternatives will meet cleanup goals in the absence of an accurate natural recovery model is very limited. We appreciate EPA’s attempt to evaluate the ability to meet PRGs based on the interim target concept, which sets targets for cleanup post-construction, a point at which it is easier to predict sediment concentrations because an understanding of natural recovery is not required. We are concerned, however, about the selected interim targets. EPA does not justify why meeting these particular interim targets post-construction ensures that the alternative will meet cleanup goals after 30 years. The selection of the RAO-specific interim targets appears random and not rooted in science. Thus, we do not have confidence in this approach. Lacking a better approach, EPA must defer to the most environmentally protective option, Alternative G. Coincidentally, a strict application of EPA’s interim target approach also supports the conclusion that Alternative G is the only defensible alternative, as explained above.

### **EPA Response**

Interim targets were developed using a model called SEDCAM. The SEDCAM model outputs are a single line of evidence among several other lines of evidence (bathymetry, percent fines, propeller wash areas, wind/wake conditions, and subsurface to surface sediment concentration ratios) used to

forecast the achievement of interim targets, all with high degrees of uncertainty in a dynamic and complex river system. Given this uncertainty, EPA will focus greatly on the development of a robust monitoring plan following the ROD to evaluate progress towards cleanup levels with empirical data. The SEDCAM modeling results show that the selected remedy, Alternative F Modified, is protective within a reasonable timeframe given the uncertainty in the model.

### 3.1.25 Let Long-Term Protection Drive the Decision Process

#### Comment

Aside from our assertion that Alternative G is the only alternative carried forward for full evaluation that meets the two threshold criteria, the substantial reductions in risk afforded by Alternative G further justify the selection of this alternative. The figures and tables in Section 4.2 of the feasibility study report illustrate these reductions. The Alternative G risk reductions are especially apparent when the data in Section 4.2 tables are graphed (Attachment 1). Although we advocate for Alternative G, we note that there are also substantial risk reductions between Alternatives E/I and F, highlighting the superiority of Alternative F over Alternatives E and I. EPA's decision to select Alternative I over alternatives that have clear risk reduction benefits is based on a value judgment of the relative importance of short-term construction impacts and cost compared to long-term protection of human health and the environment. The Five Tribes strongly believe that long-term protection of human health and the environment should drive the remedy decision; Alternative G is therefore the best alternative of those evaluated by EPA.

#### EPA Response

Evaluation of alternatives under CERCLA includes an evaluation of both short and long-term impacts of the remedy. These impacts are further explored under the Clean Water Act 404 analysis attached to the feasibility study report (USEPA 2016b). Through this analysis it was apparent that construction of a cleanup taking decades longer than the selected Alternative F Modified would result in unacceptable benthic impacts over an extended duration of time. Rather than a "value judgement," this finding is an appreciation of the real temporal impacts from such aggressive, extended duration cleanup alternatives that outweighed the incremental longer term gains of such alternatives. Also refer to Sections 2.1, 2.3, 2.6, and 2.31 of this responsiveness summary.

### 3.1.26 Consider Alternative G Which Meets the Protection Goal in 10 Years

#### Comment

As noted in the Pathway for Achieving Vision section above, we support a remedy that is expected to achieve protection within 10 years following construction, not 30 years from the start of construction. According to EPA, Alternative G would achieve protection in 11 years following construction (i.e., the remedy would be protective 30 years following the start of construction, with a 19-year construction duration). Thus, Alternative G nearly meets our objective of achieving protection within 10 years following construction. According to EPA's analyses, the other alternatives do not.

#### EPA Response

For the SDUs where active remediation through capping and dredging takes place, sediment concentrations will approach the remedial cleanup levels immediately following construction (approximately 13 years). In the remainder of the Site, MNR is expected to reduce sediment concentrations to the remedial cleanup level within approximately 30 years to be confirmed in post-construction monitoring.



### 3.1.27 Do Not Choose a Middle Ground Remedy by Default

#### Comment

Table 15 of the proposed plan attempts to compare the performance of each alternative against the two threshold criteria and five balancing criteria. For this exercise, a qualitative approach is used to rank alternatives from “least” (worst) to “best” for the five balancing criteria. Alternatives are ranked progressively “better” or “worse” (with the exception of “Short-Term Effectiveness”; see comment below). For instance, for the “Long-Term Effectiveness and Permanence” criterion, G is ranked better than F, which is better than E, which is better than D, which is better than B. With the exception of I, which is always ranked the same as E, no two alternatives receive the same ranking. This approach leads to a bias toward selecting the remedy in the middle (E and I are in the middle of the other alternatives) because EPA is trying to “balance” the “Short-Term Effectiveness,” “Implementability,” and “Cost,” all of which get “worse” with increasingly aggressive remedies, against “Long-Term Effectiveness and Permanence” and “Reduction of Toxicity, Mobility, or Volume through Treatment,” which get “better” with increasingly aggressive remedies. EPA should not base its decision on a system that by default selects the middle remedy. The middle remedy is not by definition the best remedy.

#### EPA Response

EPA has sought to provide a balance of achieving the most reduction in risk to people and aquatic organisms through a protective cleanup while reducing short-term and overall impacts to the environment, the community, and workers during and after construction. Per EPA guidance, short and long-term risks were not looked at as tradeoffs, but rather as part of a holistic view of alternative evaluation. While Alternative G may have the most reduced long-term risks, the proposed plan (USEPA 2016c) selected Alternative I in part due to its superior ability to minimize short-term disruption and risks. The selected alternative in the ROD, Alternative F Modified reduces long-term human health risks more quickly than Alternative I and minimizes reliance on ICs.

### 3.1.28 Rescore the Short-Term Effectiveness Criterion

#### Comment

EPA notes that the “Short-Term Effectiveness” balancing criterion includes both the short-term environmental and community impacts during construction and also the environmental and human health impacts of the Site until RAOs and PRGs are attained (USEPA 2016b, p. 4-13). Both of these components of the criterion are discussed in the detailed analysis of alternatives (USEPA 2016b, Section 4.2). However, the scoring in Table 4.3-3 of the feasibility study report appears to consider primarily the short-term impacts during construction, an approach that favors the less aggressive alternatives (e.g., Alternative G was scored worst). Though we agree that the construction impacts during the four-month in-river work window of each year would be greatest under Alternative G, this alternative would achieve cleanup levels the fastest and would therefore present the least human health and environmental risks in the short term. This is an important point because, as indicated in the comment above, EPA appears to arrive at Alternative I by weighing the two balancing criteria that favor more aggressive cleanups against the three that currently favor less aggressive remedies. If the “Short-Term Effectiveness” criterion is re-scored as we propose here, the evaluation would correctly tilt toward a more aggressive cleanup.

Presumably, EPA’s “moderate” (rather than “best”) ranking of Alternative B accounts for the fact that this alternative would have the fewest construction impacts but the greatest impacts post-construction. However, the ranking of the other alternatives does not appear to penalize alternatives for impacts post-construction. We also disagree with the designation of Alternatives E and I as



“better”, while Alternative F receives a “low” rank. Even if EPA is scoring these alternatives based only on construction impacts, we do not believe that the moderate increase in construction time and footprint between Alternatives E/I and F justifies this large jump.

#### **EPA Response**

Refer to Section 2.20 of this responsiveness summary.

### **3.1.29 Give Less Weight to Benthic Impacts During Construction**

#### **Comment**

EPA appears to justify selecting Alternative I over Alternative G in part because the latter alternative “impacts [benthic] habitat for the longest period of time during construction (19 years) and would take the longest time for benthic populations to recover due to the large area of habitat impacted (776 acres)” (USEPA 2016a, p. 60). While dredging and capping do disturb benthic habitat during the duration of the disturbance, benthic organisms tend to recolonize within a period of several years following the end of disturbance (e.g., Wallace 1990; Lamberti et al. 1991). The duration of disturbance of any given area of benthic habitat would depend on how work is sequenced. If, for instance, remediation is conducted from upstream to downstream, the remediated areas would have the opportunity to recolonize as equipment moves downstream. In that case, the duration of impact of any given area would be expected to be significantly less than 19 years.

Further, EPA frequently refers to the greater impact to the environment and benthic community of Alternatives F and G compared to Alternatives E and I (e.g., EPA 2016a, p. 66; EPA 2016b, p. 4-98 and p. 4-100). While we assume that EPA intends to refer to short-term construction impacts only, the language as written is misleading. Overall, Alternatives F and G will have a more positive impact on the environment and benthic community due to greater risk reduction following construction and a shorter time to achieve cleanup goals.

#### **EPA Response**

EPA agrees that disturbance of benthic populations would depend in part on sequencing, and that benthic populations can recover relatively quickly. Mitigation measures and best management practices will be implemented to minimize impacts on benthic populations to the extent possible, and remedial implementation planning would consider sequencing, timing, and other factors. Impacts on benthic populations are just one of the short-term effects that were considered in the alternative evaluation.

EPA has selected its preferred alternative to Alternative F Modified as its final remedy, which will achieve risk reduction in a shorter time compared to Alternative I, and relies less on MNR. See also Sections 2.1, 2.6, 2.31, and 2.34 of this responsiveness summary.

### **3.1.30 Consider Alternative F or G Based on Greater Risk Reduction**

#### **Comment**

In relation to removing contaminated sediment and river bank soil and transporting it through local communities, EPA argues that “Alternatives F and G would impose significantly greater impacts to the environment and community and have much greater costs (1.5-2 times more than Alternatives E and I) that are not commensurate with the additional risk reduction relative to Alternatives E and I” (USEPA 2016a, p. 60; USEPA 2016b, p. 4-99). Although Alternatives F and G may have greater short-term impacts and costs compared to Alternatives E and I, EPA does not sufficiently justify that these

impacts are not commensurate with the additional risk reduction. We believe that the greater risk reduction does justify the additional construction impacts and costs of Alternatives F and G.

#### **EPA Response**

EPA has selected Alternative F Modified for its final remedy. See also Sections 2.1, 2.6, 2.31, and 2.34 of this responsiveness summary.

### **3.1.31 Address Issues with Presentation of NAPL and PTW Areas**

#### **Comment**

The feasibility study also does not clearly present the amount of NAPL and NRC PTW material that is expected to remain in place by alternative. This information is distinctly different from the amount of PTW addressed by each alternative (e.g., EPA 2016b, Table 4.2-9), and is not easily determined through the use of existing tables and information. We ask EPA to clearly present this information.

#### **EPA Response**

Refer to Sections 2.5, 2.10, and 2.14 of this responsiveness summary. EPA did not establish any boundaries of waste in the 2016 feasibility study report (USEPA 2016b). EPA developed estimates of various types of waste based on existing information to estimate costs in the feasibility study. The figures show the extent of the evaluation based on various assumptions identified in the feasibility study report. The extent of the RAL boundaries and cap designs will be established in remedial design. EPA agrees that additional data collection during remedial design will be required to determine the appropriate design and waste treatment and disposition requirements.

EPA used a robust data set provided by LWG, including sediment data collected as recently as 2013 and fish tissue data collected as recently as 2012, to develop the alternatives in the 2016 feasibility study report. The data set includes 2,259 surface and 975 subsurface sediment samples collected during the remedial investigation and various early action efforts to characterize the nature and extent of contamination. EPA does not believe there are any errors or omissions in the CSM and that the information used in the 2016 feasibility study report is sufficient to develop and select a remedial alternative. However, EPA acknowledges that additional data will be collected during remedial design. These data will be used to support establishing remedial action footprints, technology assignments, use restrictions or other ICs, treatment and disposal of dredged material, mitigation requirements, among others.

### **3.1.32 Expand SMAs**

#### **Comment**

The Five Tribes appreciate the addition of the GeoPDF to EPA's Portland Harbor Superfund website, which allows users to overlay various data layers presented in the feasibility study, such as sediment contaminant concentrations and technology assignments for each alternative. The GeoPDF begins to address the concern we have expressed previously regarding our inability to readily determine whether non-focused COCs are adequately addressed by the proposed remedy. Because high concentrations of focused COCs (i.e., COCs for which RALs are developed, including PCBs, DDx, total PAHs, PeCDF, PeCDD, and TCDD) and non-focused COCs are generally co-located, areas designated for active remediation (i.e., sediment management areas, or SMAs) based on focused COC concentrations also tend to address areas of high concentrations of non-focused COCs. However, there are a few areas where this is not the case. For example, high concentrations of arsenic in surface sediment exist on the east side of the McCormick & Baxter cap, but this area is not assigned any active remediation under

Alternative I. In contrast, Alternative G would require dredging with a cap in this area. Similarly, high concentrations of chromium and copper in surface sediments (and copper in subsurface sediments) are located at the north end of the RM 6.5E SDU, an area that is assigned MNR under Alternative I. Alternative G would require capping and dredging of this area. These observations support our preference for selecting Alternative G as the preferred alternative. If EPA selects a remedy less protective than Alternative G, we request that EPA expand SMAs to address areas exhibiting high concentrations of non-focused COCs, such as the examples we have described.

In addition to the examples described above, we note several areas of relatively high non-focused COC concentrations that fall outside SDUs and are therefore assigned MNR for all alternatives. For instance, high concentrations of several contaminants (e.g., bis(2-ethylhexyl) phthalate in surface sediment) exist in the east-most portion of Swan Island Lagoon. However, this area is not included in the Swan Island SDU. In addition, high concentrations of TBT in subsurface sediments between the RM 6.5E SDU and Swan Island Lagoon (between RM 7 and 8) fall outside of any SDU. We request that EPA expand SDUs to include these areas, as well as other areas with high concentrations of non-focused COCs.

Our above analysis is based on areas of relatively high non-focused COC concentrations. We recommend that the contaminant intervals be expressed as multiples of the PRG or that EPA include a risk-based threshold in the legend for each of the COCs (most likely, the corresponding PRG) to enable a more meaningful evaluation of COC concentrations.

#### **EPA Response**

EPA has selected Alternative F with modifications as the final remedy. See Sections 2.1, 2.3, 2.6, and 2.31 of this responsiveness summary.

### **3.1.33 Limit Use of MNR – Especially in RM 6NAV SDU**

#### **Comment**

EPA assumes that MNR will be applied to all areas within the Site boundary that are not otherwise actively remediated. The Five Tribes assert that MNR will only be effective in areas that are predominantly depositional, not erosional. EPA's analysis of the natural recovery potential of each SDU indicates that all but two SDUs are considered "neutral," that is, neither consistently depositional nor erosional (USEPA 2016b, Section 3.6.1.2). The other two SDUs (RM 6NAV and RM 11E) are erosional. The results of this analysis do not provide confidence that natural recovery will be effective in any of the SDUs. Further, it is clear from many of the figures in the Figure D8 series of Appendix D of the feasibility study report that most SDUs contain at least some erosional areas. The summary analysis (compilation of results across all relevant data types) is conducted on SDUs only (USEPA 2016b, Table D8-3), so the natural recovery potential for areas outside the SDUs must be visually evaluated based on Figures D8-1 through D8-7. However, the areas outside of SDUs seem to have similarly mixed results.

We are particularly concerned about the RM 6NAV SDU, which EPA acknowledges is not conducive to natural recovery but which is primarily slated for MNR under Alternative I. We understand that any area in this SDU that is not dredged under the remedy may be navigational dredged (because it is in the navigation channel), which may remove material whose concentrations are above PRGs but below RALs. However, we are not convinced that navigational dredging will occur in a timeframe relevant to our requested recovery period of 10 years post-construction. We urge EPA to assign ENR to any area within this SDU that is not otherwise actively remediated if navigational dredging is not expected to occur within a period of 10 years post-construction, and if the navigational dredging is not expected to

be implemented throughout the entire MNR area of the SDU. Further, although a significantly lower percentage of RM 11E is slated for MNR under Alternative I compared to RM 6NAV, ENR, rather than MNR, should be assigned to any areas in this SDU not assigned to dredging or capping because this SDU is also erosional, and is not primarily in the navigation channel.

Therefore, EPA's finding that the entire river is at best neutral with regard to the potential for natural recovery highlights the need to select a remedy that is focused on active remediation and minimizes reliance on natural recovery.

### **EPA Response**

EPA recognizes the uncertainty associated with MNR, and that no model can predict with certainty how MNR will work in a dynamic and complex river system. Therefore, EPA chose to reduce reliance on MNR in the interest of reducing risks with technologies that are certain to work and in a shorter timeframe, and to focus greatly on the development of a robust monitoring plan following the ROD to evaluate achievement of cleanup levels with empirical data. The SEDCAM modeling results show that the selected remedy, Alternative F Modified, is protective within a reasonable timeframe given the model uncertainty. See also Sections 2.16, 2.31, 3.1.2, and 3.1.27 of this responsiveness summary.

### **3.1.34 Select Removal Over Capping where Feasible**

#### **Comment**

As stated previously, we urge EPA to select removal over capping whenever feasible, and especially when NAPL or NRC PTW is present. We are skeptical about the effectiveness of EPA's proposed significantly augmented reactive caps in containing these materials. At which sites has this technique been used to successfully contain these materials? For instance, the feasibility study report references the use of an organoclay reactive cap at the McCormick and Baxter cap but does not discuss the success of this cap (USEPA 2016b, p. 3-5). EPA indicates that reactive caps may not be effective when multiple contaminants (e.g., metals and organics) are present (EPA 2016b, Table 2.4-2). How does EPA plan to assess and manage this issue? We also point out that reactive caps need to be periodically replaced, as their sorptive or chemically reactive treatment capabilities degrade over time (USEPA 2016b, Table 2.4-2). We are concerned about the environmental impacts of replacing a cap over NAPL or NRC PTW. These concerns underscore the importance of removing NAPL or NRC PTW by all available means. We also point out that EPA describes the use of activated carbon for in-situ treatment as "permanent and irreversible as long as there is sufficient quantity of activated carbon to address the amount of contamination present" (USEPA 2016b, p. 4-33). Based on Table 2.4-2, it appears that EPA expects that activated carbon will need to be periodically replaced. EPA should clarify its expectation regarding the permanence of activated carbon and the need to replace it over time.

### **EPA Response**

Refer to Sections 2.5, 2.6, 2.13, 2.16, and 2.19 of this responsiveness summary.

### **3.1.35 Explore Removing Wharfs and Shore-Based Facilities**

#### **Comment**

EPA assumes that structures servicing active wharfs or shore-based facilities will remain intact during remedial activities (e.g., EPA 2016a, p. 36; EPA 2016b, p. 3-10). In contrast, we contend that EPA should seriously explore removing all such structures in active remediation areas to the extent practicable, particularly if they impede the removal of NRC PTW or NAPL. Perhaps there are major active structures whose removal is not possible. However, it may be feasible to remove minor active

structures to allow for the dredging of highly contaminated material from the Willamette River and to avoid capping such material.

### **EPA Response**

EPA agrees that maintaining flexibility in construction through the remedial design phase is an important consideration, particularly for nearshore areas near structures as well as area with debris. Decision matrices in the feasibility study report (USEPA 2016b) were developed as a method to guide the assignment of capping and dredging technologies, based on specific site characteristics within SMAs to evaluate the alternatives on consistent and transparent assumptions. A more flexible decision tree is included in the ROD and will be used during remedial design to define what actions should be taken in different areas of the Site based on the most recent design data. Once the data and river factors are evaluated within the context of the decision tree, a final design for construction can be completed. This design will then dictate the remedial construction. The decision tree is intended to provide clear direction on what actions should be taken under the different environmental conditions. See also Section 2.21 of this responsiveness summary.

### **3.1.36 Address Other Relevant Cap Types for PTW Remediation**

#### **Comment**

For many reasons, including implementability, short-term impacts, and cost, EPA does not typically consider removing operating structures such as wharves and piers unless the cleanup cannot be done effectively without removal. However, the selected remedy seeks to address all PTW at the Site through either capping or dredging. It is not currently clear why Section 3.2.2 of the feasibility study (“Technologies Applied to PTW Areas”) contains a sub-section describing containment technologies, but only describes significantly augmented reactive caps. We question why other relevant cap types used for addressing PTW are not also described in this section (e.g., reactive armored caps). Similarly, removal of PTW is not described in this section despite the fact that areas of PTW are subject to dredging. These omissions become confusing later in the document when these other technology types are applied to areas with PTW (e.g., EPA 2016b, Section 3.8.1), but their application to PTW is not described when the technology is originally presented (e.g., EPA 2016b, Section 3.4.7.4). These omissions compound our confusion when reviewing the technology assignment flowcharts. We suggest including descriptions of all technologies applied to PTW areas in Section 3.2.2 with a table to summarize when these technologies are used in each area (shallow, intermediate, river bank, and navigation channel/future maintenance dredge [FMD] regions) once the different regions are described.

#### **EPA Response**

Appendix D (Supporting Information for Alternative Development Feasibility Study) of the feasibility study report (USEPA 2016b) describes a set of generic cap designs that could be applied based on site-specific conditions, including the need for reactive materials to contain PTW and armoring to prevent erosion of the cap material. Remedial design sampling data will be used to apply the decision tree in the ROD and to inform the design in specific areas. Refer also to Section 2.5 of this responsiveness summary.

### **3.1.37 Use a Biologically Active Zone of 8 Rather than 4 Inches**

#### **Comment**

EPA assumes a minimum thickness of 12 inches for the physical isolation layer of caps (EPA 2016b, p. D-15). This thickness is based on a maximum burrowing depth of 4 inches. (The 12 inches is

calculated based on the sum of the 4-inch burrowing depth [i.e., the biologically active zone], a 2-inch buffer, and an additional 6-inch layer to increase the travel time of dissolved contaminants.) The BERA (Windward 2013) defines the biologically active zone of the riverbed as the top 20 cm (about 8 inches), not 4 inches. Further, lamprey ammocoetes (a species of cultural significance to the Five Tribes) burrow up to 6 inches (Liedtke et al. 2015) and may have the ability to burrow up to 8 inches (T. Whitesel, personal communication, February 9, 2016). We thus support using a biologically active zone of 8 inches instead of 4 inches. We ask EPA to evaluate whether the physical isolation layer would need to be increased accordingly or whether the 12 inches would be sufficiently thick to protect lamprey ammocoetes and other burrowing organisms.

### **EPA Response**

For the purpose of the feasibility study, a set of generic cap designs was developed to be applied based on site-specific conditions, including the need for reactive materials to contain PTW and armoring to prevent erosion of the cap material. To facilitate consistent application of capping technologies, all caps were assumed to be 36-inch thick and comprised of various combinations of sand, beach mix, activated carbon, organoclay, and armor stone. The precise composition and thickness of sediment caps will be determined during remedial design.

### **3.1.38 Consider Sandy Material with Higher Organic Content**

#### **Comment**

Feasibility study report Section 3 refers frequently to sand caps and layers of sand placed either post-dredging or to accomplish ENR (e.g., EPA 2016b, p. 3-32). We encourage EPA to consider not just pure sand but sandy material with higher organic content. Silts and clays and associated organic matter in sandy material can greatly improve the filtering and sorptive capacity of the cap. Use of a more mixed sediment cap also has the potential to be a better match to the ambient river bottom and may therefore more quickly become ecologically compatible. We suggest using a more inclusive term like “predominantly sandy sediment” or “sandy material.”

### **EPA Response**

The precise composition and thickness of sediment caps will be determined during remedial design in accordance with the ROD decision tree and design requirements.

### **3.1.39 Address Concerns with Thin Layer Placement**

#### **Comment**

The Five Tribes have persisting concerns about thin layer placement in the navigation channel/FMD region. The feasibility study states that “SMAs within the federally authorized navigation channel or designated as FMD are assigned dredging as a technology due to minimum water depth requirements, the placement of thin sand layers, in-situ treatment amendments, and conventional or reactive caps because stand-alone technologies above the established navigation dredge depth are considered incompatible with current and future waterway uses” and goes on to say, “Even in the case of dredging, navigation and maintenance dredge depth requirements will need to be considered during the design and implementation of dredging activities and the placement of any thin layer covers for managing residuals” (EPA 2016b, p. 3-10).

The first sentence is poorly structured and confusing regarding whether EPA considers thin sand layers, in-situ treatment amendments, and conventional or reactive caps all to be incompatible with current and future waterway uses. Although caps are often considered incompatible with navigation



channel/FMD regions, the latter sentence appears to include thin layer covers in remedial action for that zone. It is our understanding that a 12-inch sand cover will be applied to all dredging areas, including the navigation channel and FMD areas (EPA 2016b, p. 3-23). We request that EPA clarify this apparent discrepancy (i.e., between p. 3-10 and p. 3-23). This is an important issue, since dredging will be applied to significant stretches of these areas. The Five Tribes believe that thin-layer sand covers would be effective in managing residuals in these areas and thus would be appropriate; this is especially true if navigational dredging is not anticipated for many years.

#### **EPA Response**

In general, ENR is not planned for the navigation channel, but primarily as a residual management approach. Specific information associated with cap material, thickness of caps and/or types of cap layers are assumptions for the purposes of evaluating alternatives according to CERCLA criteria and developing cost estimates for the remedial alternatives. These assumptions were developed based on the existing data and will be finalized during the remedial design, after design level data to refine the baseline conditions are obtained.

If caps are used, the final depth would need to conform with planned and future navigation channel depths. See also Section 2.13.1 of this responsiveness summary.

### **3.1.40 Explain USACE Role in Dredging at the Site**

#### **Comment**

It is our understanding that EPA is considering giving the U.S. Army Corps of Engineers (the Corps) the authority to conduct remedial dredging in the navigation channel. The Corps would pay for the dredging (through Congressional appropriations), and the responsible parties would pay for disposal of the material. If EPA adopts this approach, we urge EPA to ensure that the Corps is following all precautions, BMPs, and any other requirements the responsible parties would be required to implement.

It is also our understanding that the Corps will at some point conduct navigational dredging at the Site. Will this only occur after construction of the remedy, or might it occur concurrently with remedy construction (i.e., in MNR areas)? It is important that navigational dredging not interfere with the remedy, either by slowing down the remedy or by causing undue resuspension of contaminated sediment or recontamination.

#### **EPA Response**

EPA is selecting the final remedial action needed to address unacceptable risks present due to the contamination found at the Site. After the ROD is issued, EPA intends to seek performance of the remedy by identified PRPs. At this time, there has been no agreement that the Army Corps of Engineers will implement any part of the ROD as part of its navigation dredging.

EPA and the Corps have a Letter of Agreement on coordinating Corps dredge projects with EPA cleanup program. We anticipate continuing to work with the Corps under that agreement post-ROD. However, with the final ROD issued, EPA anticipates that future maintenance dredging within the Site will be evaluated consistent with the final ROD and cleanup levels for purposes of evaluating both what contaminant concentrations may be exposed by the dredging or maintenance activity, requiring BMPs during and after work is completed, and making decisions regarding where the dredged sediment can be disposed.

Various BMPs will be evaluated on location specific basis during remedial design, given the variability of conditions within the harbor. Details regarding sediment dispersion control and location-specific engineered rigid control measures will be determined during remedial design. Schedule of future maintenance dredging within the navigational channel will be coordinated during the remedy implementation.

### 3.1.41 Consider All Aspects of Using a CDF

#### Comment

We are open to the idea of constructing a confined disposal facility (CDF) to contain contaminated sediments on-site. Many of our concerns about capping, described above, also apply to CDFs. On balance, however, we feel that a CDF could be an appropriate, cost-effective solution for the disposal of large quantities of contaminated sediment. A CDF would greatly reduce risks and community disturbances related to transporting contaminated material to a landfill. In order for the Five Tribes to fully support a CDF, however, a number of criteria would need to be satisfied, as outlined in Table 3.4-7 of the feasibility study report and Table 8-1 of the CDF Design Analysis Report (Port of Portland 2011). The CDF must be designed to safely contain material in perpetuity, withstand a Cascadia Subduction Zone event, and be protective of human health and the environment. The design must include the best available technology (e.g., treating dredged sediment during placement) to enhance the performance of the CDF and prevent groundwater or effluent discharge from re-contaminating the river. Funds must be committed to monitor and maintain the CDF in perpetuity. The monitoring program must be comprehensive and detailed in the ROD, including but not limited to detailed emergency management and contingency plans. Material deposited in the CDF must meet rigorous standards: for instance, it must meet the substantive requirements of the 404(b)(1) guidelines under the Clean Water Act, must not be Resource Conservation and Recovery Act or state hazardous waste, and must be shown to be capable of being contained. ICs must be sufficient to protect the integrity of the CDF and prevent exposure to humans and the environment. There also must be measures in place to enforce the ICs.

In summary, although the Five Tribes prefer complete removal of contaminated sediments off-site, we could potentially support an upland CDF, if and only if the result on balance would be a more protective, permanent remedy (e.g., higher volume of sediment removal) and rigorous standards are fully met for its design, construction, operation, maintenance, and monitoring in perpetuity.

None of this section applies to a confined aquatic disposal (CAD) cell, which the Five Tribes would oppose in any instance. It is our understanding that the hydrology of the vast majority of the Site is too dynamic to safely contain subaqueous contaminated material. As noted in feasibility study Table 2.4-3, CAD cells have not been demonstrated to be capable of safely containing contaminated material at the Site in the long term. The design of a potential CAD cell has not been sufficiently advanced to demonstrate that implementation is feasible. Key types of modeling to support an evaluation of long-term effectiveness, such as contaminant migration, were not performed. Hydrologic and hydraulic modeling to address flood rise and flood storage also was not performed. Further, an evaluation of short-term impacts has not been conducted.

#### EPA Response

Refer to Section 2.14.1 of this responsiveness summary.



### 3.1.42 Enact Protective Advisories Quickly

#### Comment

EPA acknowledges that the current fish consumption advisories may not be sufficiently protective of all populations (EPA 2016b, p. 4-15). We agree that existing advisories are not adequately protective. We urge EPA to enact protective advisories as quickly as possible after the ROD is signed. These advisories should be based on existing data and can be revised if warranted based on data collected during remedial design.

#### EPA Response

Refer to Sections 2.3.2 and 4.14 of this responsiveness summary.

### 3.1.43 Reduce Contaminant Inputs to the Site

#### Comment

EPA asserts that the preferred alternative will achieve PRGs 23 years following construction (EPA 2016c). EPA estimates that at that time, at which point the Site will presumably be de-listed, safe fish consumption will be limited to 160 fish meals per 10 years (based on a non-cancer hazard of one). This fish consumption rate is significantly lower than the tribal consumption rate for resident fish that is used in the BHHRA (Kennedy/Jenks 2013) (1,380 resident fish meals per 10 years<sup>2</sup>). The Five Tribes find this discrepancy to be wholly unacceptable. We urge EPA to apply all available means to reduce contaminant inputs to the Site (e.g., from upstream, upland, and aerial sources) so that rates of safe fish consumption may be further increased in the future.

#### EPA Response

Refer to Sections 2.3.2, 2.3.3, 2.27.1, and 4.1.10 of this responsiveness summary. EPA recognizes that the remedy likely will not reduce the concentrations of PCBs and other contaminants to levels low enough to allow for consumption at the higher consumption rates associated with subsistence fishing. The scope of the CERCLA action is restricted to approximately 10 miles of the Willamette River, but upstream of the Site, background levels of PCBs from “clean” areas exceed the acceptable range based on conservative risk estimates, meaning that even with a more stringent remedy proposed. Fish advisories would likely remain in effect following the cleanup. However, these advisories are expected to be less restrictive under the selected remedy because the highest concentrations of bioaccumulative contaminants in sediment would be removed or capped such that they no longer enter the food chain within the Site. Watershed-wide implementation of source reductions through water quality programs by the DEQ in conjunction with source control activities at the Site are expected to contribute to the elimination of fish consumption advisories under EPA’s ROD. Although CERCLA-related fish advisories would remain in place until cleanup levels are achieved, Oregon Health Authority may still impose an advisory based on broader watershed risks.

In response to this comment, background fish tissue concentrations were estimated for total PCBs using the Food Web Model and background sediment (9 µg/kg) and surface water concentrations (0.023 nanograms per liter). Allowable fish meals per month were then estimated for a range of exposure scenarios and risk ranges. Based on this calculation, the allowable fish meals/month would range from 0.08 to 14.2, or approximately 1 to 170 (8-ounce) fish meals per year. The allowable fish meals for an adult at the  $1 \times 10^{-5}$  risk level is 17 (8-ounce) meals per year. For comparison, adult exposure scenarios evaluated in the baseline human health risk assessment ranged from 28 up to 282 (8-ounce) fish meals per year, based on the tribal fish consumption rate of 175 grams per day.

### 3.1.44 Clarify Authority for Fish Consumption Advisories

#### Comment

We are unsure which entity will have authority to issue fish consumption advisories during the remedy (i.e., EPA or Oregon Health Authority [OHA]). If OHA will be the responsible agency, then EPA should provide OHA adequate funding (e.g., through a Cooperative Agreement) to implement the advisories and collect Site-specific data on fish tissue contaminant concentrations.

#### EPA Response

See Sections 2.3.2, 2.17.2, 2.17.3, and 4.1.14 of this responsiveness summary.

### 3.1.45 Ensure Fish Consumption Advisories Are Protective of All Groups

#### Comment

We request that fish consumption advisories be developed that are protective of all segments of the fishing community, including tribal fishers, and that the BHHRA (Kennedy/Jenks 2013) assumptions be used to develop the fish consumption advisories. This will require consumption advisories to be developed for multiple segments of the population, including nursing mothers, children, and other adults, as well as for consumption of fillets and whole-body fish. We also request that consumption advisories be developed based on the cumulative risk of all Site COCs, not just focused COCs.

#### EPA Response

See Sections 2.3.2, 2.17.2, 2.17.3, and 4.1.14 of this responsiveness summary.

### 3.1.46 Set Post-Cleanup Fish Consumption Advisories Using Pre-Cleanup Methods

#### Comment

As noted above, fish consumption advisories are expected to be needed after the Site is de-listed. Would OHA have authority for issuing and enforcing these fish consumption advisories? If so, we request that the fish consumption advisories be developed using the same methodology that will be used to set fish consumption advisories before the Site is de-listed (see our recommendations above). OHA's methodology for developing the current fish consumption advisories appears to be inadequate for protecting fish consumers.

#### EPA Response

See Sections 2.3.2, 2.17.2, 2.17.3, and 4.14 of this responsiveness summary.

### 3.1.47 Consider Migratory Fish Consumption Restrictions

#### Comment

Although EPA does not indicate that restrictions for consumption of migratory fish are currently necessary nor will be needed in the future, we urge EPA to thoroughly monitor contaminant concentrations in the tissue of migratory fish to determine whether fish consumption advisories for migratory fish are needed. Of specific concern to the Five Tribes, lamprey ammocoetes spend three to seven years burrowed in Site sediment and therefore are likely exposed to more Site contamination than other migratory fish like salmon, who spend only one to three years in freshwater before going to sea and who are not known to spend extended periods directly exposed to Site sediment.

#### EPA Response

See Sections 2.3.2, 2.17.2, 2.17.3, and 4.14 of this responsiveness summary.

### 3.1.48 Provide Assumptions for Use of Fish Consumption Advisories

#### Comment

The proposed plan outlines expected fish consumption advisories during construction (EPA 2016c, p. 58), but the underlying assumptions for those calculations do not appear to be described in either the proposed plan or the feasibility study report. For example, did EPA calculate expected water column concentrations during construction due to resuspension of contaminants and then model concentrations in fish tissue based on those water column concentrations? Do the recommended fish meal limits represent fillet or whole body consumption?

#### EPA Response

EPA did not calculate or model fish tissue concentrations based on water column concentration during remedy implementation. The fish tissue concentration was addressed in a more qualitatively way in the proposed plan (USEPA 2016c).

The recommended fish meal limits represent fillet consumption. Refer to EPA's memorandum, *Formal Dispute on the EPA Notice of Non-Compliance and Directed Revisions to the Portland Harbor BHHRA (Kennedy/Jenks 2013) and Request for Dispute Resolution; Administrative Settlement Agreement and Order on Consent for Remedial Investigation/Feasibility Study, USEPA Docket No. CERCLA-10-2001-0240-Final Resolution* dated December 6, 2012.

For further response on the assumptions on fish consumption/tissue concentration see EPA response to LWG Dispute Response 1r (Appendix A of this document) and Sections 2.33 and 2.34 of this responsiveness summary.

### 3.1.49 Revisit Strategies for Fish Consumption Advisory Signage

#### Comment

The current fish consumption advisory signage at the Site has been inadequate to date. We request that the Site be well-signed and that regular inspection and maintenance of those signs occur. Furthermore, surveys of fishers should be conducted with each five-year review to determine the effectiveness of the fish consumption advisories. We urge EPA to consider culturally appropriate outreach strategies in addition to signage.

#### EPA Response

See Sections 2.3.2, 2.17.2, 2.17.3, 2.28, and 4.1.14 of this responsiveness summary.

### 3.1.50 Get Input on Whether ICs in Regulated Navigation Areas Will Be Burdensome

#### Comment

feasibility study Section 3.4.7.7 (EPA 2016b, p. 3-21) describes some of the ICs that will be needed on both a short-term and long-term basis after the remedy has been constructed. One such IC is waterway use restrictions, or regulated navigation areas (RNAs), which aim to ensure that the integrity of caps is maintained by prohibiting activities such as the anchoring of vessels. The area requiring RNAs for the Site will likely be orders of magnitude greater than the existing RNAs in the vicinity. The Five Tribes are unsure about the extent to which the RNAs would affect vessel operation. It is our goal to see an environmentally protective remedy chosen for the Site that will not significantly affect (i.e., restrict) human use of the river in perpetuity. We request that the Corps and other relevant parties be consulted to determine whether RNAs in the identified capping locations will be

burdensome. We would prefer their input as early in the process as possible. If RNAs would be burdensome, we urge EPA to remove contaminated material in order to avoid the need for RNAs associated with capping.

**EPA Response**

Refer to Sections 2.28 and 4.1.5 of this responsiveness summary.

**3.1.51 Develop an ICs Implementation and Assurance Plan****Comment**

The Five Tribes request that an Institutional Control Implementation and Assurance Plan be developed during remedial design. The development of this plan should be referenced in the ROD

**EPA Response**

See Sections 2.28 and 3.2.21 of this responsiveness summary.

**3.1.52 Specify Frequency of Monitoring to Ensure ICs Are Effective****Comment**

Monitoring of the effectiveness of ICs is critical to the success of the remedy. Certain ICs will need to be monitored, at a sufficient frequency and in perpetuity, including RNAs and land use/access restrictions. The ROD should specify the frequency of these types of monitoring, as well as actions that EPA will consider if the ICs are shown to be ineffective.

**EPA Response**

See Sections 2.28 and 3.2.21 of this responsiveness summary.

**3.1.53 Ensure Flexibility in Implementation of Remedy****Comment**

LWG has expressed concern that EPA's technology assignment approach is not nuanced enough. For instance, LWG seems concerned that remedial design data will indicate that dredging in a designated dredge area is not technically feasible, and another active remediation technology must be employed (e.g., a small area is too close to a major structure to be dredged to the required depth, or slope failure is predicted due to deep dredging depths in a confined area). It is our understanding, based on conversations with EPA, that if the ROD requires an area be dredged, the responsible parties do not have the flexibility to cap that area (i.e., if it entails a deviation from the technology assignment approach). A decision to cap in an area previously designated as dredge would require a ROD amendment. More broadly, if a point of flexibility is not specified in the ROD, it is not a flexibility that the responsible parties can exercise during remedial design in the absence of a ROD amendment. We generally support this approach and believe it is important for all interested parties to understand what the ROD does and does not allow. Transparency is essential.

**EPA Response**

See Section 2.24. EPA acknowledges that technology assignments will be evaluated based on new data and observations collected during remedial design. The ROD contains a revised, simplified flow chart for selection of remedial technologies during the remedial design process. The ROD decision tree indicates more clearly the flexibility for selection of remedial technologies with the assumption that a detailed evaluation of area-specific conditions would be conducted during remedial design. Remedial design investigations will consider prioritization of areas posing highest risk, sequencing, and other

aspects of how the remedial action will be implemented. Avoiding disturbance or recontamination of early action areas will be an important part of the remedial design evaluations. Construction of permanent caps will be carefully scheduled to avoid recontamination from upland or in-river work.

EPA is aware that area-specific conditions must be considered during remedial design, including the presence of active docks or other structures, caps and other remedial activities already in place, river uses, and many other considerations. Additional guidelines are provided in the ROD to convey this information.

The feasibility study states in several places that additional data will be collected during remedial design to assist in refining the remedy beyond the feasibility study-level of analysis and the ROD reflects this as well. EPA intends to evaluate additional data during remedial design to refine the following: delineation of contamination, selection and design of remedial technologies and construction methods, projections of natural recovery, treatment and disposal requirements, measures for aquatic and listed species protection, and compensatory mitigation requirements, to name a few.

### 3.1.54 Be Flexible in Remedy Implementation

#### Comment

We do consider it a possibility that remedial design data may indicate that an assigned technology is not feasible to employ at a particular location. Lacking in the proposed plan and feasibility study report is a description of how flexibility during remedial design would be granted, if at all, or how MOU partners would be involved. We request clarification in the ROD that MOU partners will be consulted when EPA is considering granting deviations from the selected remedy. The Five Tribes are generally in favor of responsible parties dredging in areas designated for capping (e.g., if they would like to avoid monitoring/maintenance costs for a cap), such as if material is under a structure that the responsible parties can remove. Conversely, the rationale for capping instead of dredging would need to be compelling to gain our support.

An example of where a small degree of flexibility may be needed is at the border of the shallow and intermediate regions in some cases. We understand that intermediate regions may be dredged to depths of up to 15 feet below the current mudline. The bathymetry of the adjacent shallow areas will be maintained. Therefore, there may be a significant difference in depth between these two adjacent areas. We are concerned about cap stability in shallow areas that are adjacent to areas up to 15 feet deeper. Even with an adequately shallow side slope, sloughing may occur, compromising the stability of the cap. EPA's assumptions are sufficient for feasibility study purposes; EPA likely intends to address this concern in remedial design. However, this example does raise the question of the degree to which EPA will grant the responsible parties flexibility during remedial design (e.g., deviations from the exact technology footprints resulting from a combination of sediment contamination data, RALs, and the technology assignment flowcharts). The Five Tribes expect to be involved in any considerations of deviations from the selected remedy.

#### EPA Response

During remedial design, debris and other area-specific features will be evaluated. The decision tree in the ROD has been revised to clearly outline this process. Also, EPA agrees that maintaining flexibility in construction methods through the remedial design phase is an important consideration, particularly for nearshore areas near structures and area with debris. Also see Section 3.1.53 of this responsiveness summary.

### 3.1.55 Engage MOU Partners in Evaluating Sampling Plans

#### Comment

We understand that new data will be collected during remedial design, and the result of these new data may be that the SMAs change in area. We do not consider this to be a deviation from the ROD or a flexibility. We do, however, request that EPA engage MOU partners in the evaluation of proposed sampling plans to collect new data, data quality assessments, and the use of new data, such as whether the new data should replace the old data (e.g., as evidence of recovery) or merely be added to it (e.g., due to the heterogeneous nature of the system).

#### EPA Response

Throughout the remedial investigation/feasibility study process, EPA fostered meaningful engagement with the MOU partner tribes and encouraged and facilitated Tribal involvement, including conducting formal Tribal consultations. EPA will continue this working relationship with the MOU partner tribes to ensure that tribal concerns and interests are considered.

### 3.1.56 Reevaluate Deposition Scoring

#### Comment

The deposition section of feasibility study Section 3.4.6.1 states that areas were evaluated using two lines of evidence: the difference in elevations between bathymetric surveys and the ratio of surface to subsurface sediment concentrations (EPA 2016b, p. 3-14). Figure 3.4-16 implies that only one of these criteria must be satisfied to consider an area depositional, as opposed to both needing to be satisfied. It also implies that a cell would only receive one score for the depositional category, not one score for each of the deposition lines of evidence. We instead request that either: (1) the two lines of evidence each receive their own score or (2) in order to receive a depositional designation, both lines of evidence must be satisfied. EPA's methods regarding the above points need to be clearly stated in the text.

#### EPA Response

See Section 2.26 of this responsiveness summary and LSS Dispute Issue 14 (Appendix A of this document).

### 3.1.57 Modify Deposition Area Scoring

#### Comment

In depositional areas, we think it would be most appropriate to assign a 0 rather than 1 to dredging since deposition is not an impediment to dredging. A depositional area may necessitate more dredging than a non-depositional area, but this possibility does not limit the application of this technology.

#### EPA Response

See Section 2.26 of this responsiveness summary and LSS Dispute Issue 14 (Appendix A of this document).

### 3.1.58 Change Preference for Capping When Scores Are Equal to Dredging

#### Comment

The feasibility study report states that "When dredging and capping score equally, capping is selected due to the lower initial capital cost." (EPA 2016b, p. 3-17). The Five Tribes disagree with this decision rule. As stated above, we have a strong preference for the removal of contaminated material. Further, the above quotation implies that EPA selects capping over dredging because it is more cost-effective.



We point out that capping generates long-term costs associated with monitoring, maintenance, and oversight of the caps. Because caps must be maintained in perpetuity, these costs may be significant and eventually eclipse the larger initial capital cost of dredging, in non-discounted terms. Without an understanding of the frequency of instances when dredging and capping are scored equally and the overall effect on the technology assignments due to this decision rule, we are in favor of selecting dredging, rather than capping, in the event of a tie.

#### **EPA Response**

See Section 2.26 of this responsiveness summary and LSS Dispute Issue 14 (Appendix A of this document).

### **3.1.59 Reconsider Applicability of Capping in Troublesome Areas**

#### **Comment**

The matrix currently assigns a score of 1 to armored cap and cap categories in the presence of rock, cobble, or bedrock, and structures or pilings. The Five Tribes do not believe that these conditions favor these technologies. Rather, we believe that they neither favor nor limit the technologies. Thus, we feel these conditions merit a score of 0 for these technologies.

#### **EPA Response**

See Section 2.26 of this responsiveness summary and LSS Dispute Issue 14 (Appendix A of this document).

### **3.1.60 Address Inconsistencies in Technology Assignment Flowcharts**

#### **Comment**

In general, we find the technology assignment flowcharts to be confusing since the text of the feasibility study does not always match what is presented in the figures. We provide two examples of these inconsistencies, though additional inconsistencies exist. First, the text of the feasibility study states that for river banks, “if NAPL or PTW that is not reliably contained is present, a reactive armored cap is assumed” (EPA 2016b, p. ES-9). However, Figure 3.8-1d does not show the use of a reactive armored cap. Instead, options include excavation with a significantly augmented reactive cap and excavation with an engineered cap. A second example is dredging in the shallow region. The feasibility study states that “the shallow region is assigned dredging with backfilling or capping after dredging to remove or contain contamination while maintaining water depths” (EPA 2016b, p. 3-11). However, Figure 3.8-1c does not specify that dredging will occur for NAPL or NRC PTW that is under a structure, despite the fact that a significantly augmented reactive cap with armor stone is the assigned technology. This problem exists for other cap types in the flowchart as well (e.g., reactive armored cap and armored cap) even though many technology descriptions do specify that dredging will occur. We understand that dredging is difficult under structures, but EPA has also stated its intention to maintain existing bathymetry in shallow areas. It is unclear which source, the feasibility study text or the figure, accurately reflects EPA’s intentions. To reduce confusion, we strongly suggest ensuring that the text of the feasibility study and the technology assignment flowcharts are consistent. We support the use of significantly augmented reactive caps on river banks where NAPL or NRC PTW is present. We also support dredging before capping in the shallow and intermediate zones when NAPL or NRC PTW is present.

#### **EPA Response**

See Section 2.26 of this responsiveness summary and LSS Dispute Issue 14 (Appendix A of this document).

### 3.1.61 Use Capping Consistent Nomenclature

#### Comment

Related to the above comment, the term “reactive armored cap” is used consistently in the feasibility study, but the section where that type of cap is described is titled “armored reactive cap.” We suggest using consistent nomenclature to avoid confusion.

#### EPA Response

Comment noted.

### 3.1.62 Remove as Much PTW and NAPL as Possible

#### Comment

As noted above, we strongly urge EPA to remove NAPL and NRC PTW if at all possible. Any structures impeding dredging of these materials should be seriously evaluated for the feasibility of removal. In line with our preference for removal of these structures, we suggest an additional decision point for NAPL and NRC PTW that are under a structure in shallow and intermediate regions (EPA 2016b, Figures 3.8-1c and 3.8-1b). This decision point should be “Can structure be removed?” A “Y” answer would lead to dredging rather than (or in addition to) a significantly augmented reactive cap. The Five Tribes expect to be involved in decisions regarding whether individual structures can be removed.

#### EPA Response

See Sections 2.5, and 3.1.53 of this responsiveness summary.

### 3.1.63 Apply Higher Standard for Deciding to Leave a Structure in Place

#### Comment

Similarly, for highly toxic PTW that is under a structure (in the intermediate and shallow areas), we support adding a decision point that asks “Can structure be removed?” A “Y” answer would lead to dredging. Because we prioritize removal of NAPL and NRC PTW that are under structures compared to highly toxic PTW under structures, we would support EPA applying a higher standard for leaving a structure in place for NAPL and NRC PTW compared to highly toxic PTW (i.e., EPA should go to greater lengths to remove structures prohibiting the removal of NAPL and NRC PTW compared to highly toxic PTW).

#### EPA Response

See Sections 2.5, and 3.1.53 of this responsiveness summary.

### 3.1.64 Address Lateral Migration under Caps

#### Comment

According to the shallow zone flowchart, if NAPL or NRC PTW is not under a structure and is at a depth of greater than 15 feet, then a reactive cap, rather than a reactive residual layer, would be used at the bottom of the dredge prism (also as described in EPA 2016b, p. 3-38). Although it seems less likely that the material would migrate vertically through a reactive cap and other material totaling 15 feet in thickness, we are concerned about lateral migration. How does EPA envision evaluating the potential for lateral migration during remedial design? The potential for lateral migration underscores the importance of removing NRC PTW if at all possible.

#### EPA Response

See Sections 2.5, and 3.1.53 of this responsiveness summary.



### 3.1.65 Minimize Capping in Shallow Areas where Possible

#### Comment

The shallow water flowchart indicates that, unless NAPL or NRC PTW is present, if the RAL concentrations are not expected to be reached within 5 feet of depth, the contaminated sediment will be dredged to 3 feet and replaced with an engineered cap + beach mix (also described in EPA 2016b, p. 3-38). The depth criterion in this analysis is an important decision point. Shallow areas provide important habitat and support numerous human uses; for these reasons, as well as reasons stated elsewhere in this document, the Five Tribes would like to minimize capping in shallow areas to the extent practicable. Figure 3.4-32h indicates that using the 5-foot criterion would leave substantial contamination in the river, especially for Alternatives E through G (EPA 2016b, Figures 3.4-32d through f). In contrast, using a 10-foot criterion would remove most of the shallow water contamination. We believe that the 10-foot criterion is more appropriate. However, we would consider supporting an intermediate depth, such as 7 feet, if the evidence showed that intermediate depth would be nearly as effective at removing contamination as the 10-foot criterion.

#### EPA Response

See Sections 2.5, 2.7, 2.26, and 3.1.53 of this responsiveness summary.

### 3.1.66 Address Intermediate Area Issues with Flowchart

#### Comment

The intermediate area flow chart indicates that an area originally assigned an engineered cap could be “demoted” to broadcast granulated activated carbon (GAC), ENR, or MNR (i.e., if the area is outside of RAL boundaries and outside of NAPL and NRC PTW areas; EPA 2016b, Figure 3.8-1b). We are concerned about an area originally assigned to capping being reassigned to a less protective technology. However, it is not clear which circumstances would lead to an original assignment of an engineered cap if the area was outside of RAL boundaries and neither NAPL nor NRC PTW was present. Is the “designated engineered cap” box in this section of the flowchart erroneous?

#### EPA Response

See Sections 2.5, 2.7, 2.26, and 3.1.53.

### 3.1.67 Incorporate the Same Decision Rule for Shallow Areas as Intermediate Areas

#### Comment

As illustrated in the intermediate area flowchart (EPA 2016b, Figure 3.8-1b), broadcast GAC is a meaningful change over MNR for reliably contained PTW through treatment using GAC that is outside of RAL boundaries. We support this assignment, but only if the area is depositional or neutral, not erosive. Similarly, MNR and ENR should only be applied in depositional and neutral areas. Dredging should generally be assigned to erosive areas. Additionally, we question why the shallow water flowchart does not illustrate this same set of decision rules related to highly toxic PTW outside of RAL boundaries (EPA 2016b, Figure 3.8-1c). We suggest incorporating this same decision rule for shallow areas.

#### EPA Response

See Sections 2.5, 2.7, 2.26, and 3.1.53 of this responsiveness summary.

### 3.1.68 Clarify Procedure if NAPL or NRC PTW Is Found at Depth

#### Comment

We assume that the following note on the navigation channel/FMD areas flowchart implies that EPA intends to remove all NAPL and NRC PTW in these areas: “All Concentrations greater than RAL alternative are less than 18 feet deep in the FMD and 15 feet in the Navigation Channel. The diagram is based on the assumption that no PTW or sediment concentrations are found below these depths” (EPA 2016b, Figure 3.8-1a). EPA should clearly state in the feasibility study text their intention to remove all NAPL and NRC PTW in these areas.

Additional sampling during remedial design may identify NAPL or NRC PTW below these previously-identified depths. If this proves to be the case, would the decision still be to dredge to the greater of the RAL depth or depth of PTW and then cover with a reactive residual layer, as indicated in the flowchart (EPA 2016b, Figure 3.8- 1a)? Or would this decision be invalidated based on EPA’s note that the diagram is based on the assumption that NAPL and NRC PTW are not found below 18 feet in the FMD area and 15 feet in the navigation channel? We strongly urge EPA to remove all NAPL and NRC PTW in the navigation channel/FMD areas no matter the depth of contamination. Capping is impractical in these areas due to the use restrictions that capping requires. EPA must clarify their intention regarding the possibility of NAPL or NRC PTW being found below the specified depths. It is our understanding that the flowcharts in Figures 3.8-1a through d will form the basis for the remedy. Thus, they should be able to be applied to any findings during remedial design and should not be invalidated based on remedial design data.

#### EPA Response

See Sections 2.5, 2.7, 2.26, and 3.1.53 of this responsiveness summary.

### 3.1.69 Revisit Background Levels as Cleanup Progresses

#### Comment

EPA has consistently maintained that background levels of some COCs are high and will prevent the remedy from achieving all of the remediation goals. We encourage EPA to continue to work with DEQ, so that DEQ may continue to investigate and control upriver sources under their state authority. Since remedial design and construction will take many years, a sustained state effort upriver may improve conditions over this timeframe and allow all PRGs to be met post-construction.

#### EPA Response

See Sections 2.5, 2.17.3, 2.27, and 4.1.10 of this responsiveness summary.

### 3.1.70 Explore Additional Options for Upgradient Sites

#### Comment

The Five Tribes are concerned that cleanup standards used for areas in the Site that were previously remediated (e.g., McCormick & Baxter) may not be as stringent as the cleanup alternatives outlined in the proposed plan. If they are not as stringent, we request that a risk analysis be conducted using monitoring data for these areas in order to determine whether these areas are sufficiently protective based on the currently proposed cleanup standards. If not, we suggest exploring additional remediation options for these areas.

#### EPA Response

See Section 2.32.2 of this responsiveness summary.

### 3.1.71 Address River Bank Active Remediation Questions

#### Comment

We are concerned that only 65 percent of contaminated river banks are currently identified for active remediation. How does this 65 percent intersect with DEQ's current and future work on river banks? Will DEQ continue to evaluate the 35 percent of contaminated river banks not currently slated for remediation and then remediate them if they pose a risk for recontaminating areas of in-river work (e.g., evidence of slope failures and unconsolidated material versus armored shoreline)? Has some portion of this 35 percent already been evaluated and/or remediated by DEQ? Will EPA have the authority to remediate additional river banks if they gain supporting evidence of their recontamination potential during remedial design? Further explanation is needed to address the above questions.

Further, EPA notes that while increasing the extent of capping, dredging, in-situ treatment, or ENR for the in-river portion of the Site would be easily implemented for each of the alternatives if they failed to be sufficiently protective, "[a]dditional remediation on river banks could be more problematic due to factors such as adjacent land use, structures, steepness, use of the adjacent waterways, and community concerns" (EPA 2016b, p. 4-39). We are unclear on why additional river bank remediation would be more challenging than other types of remediation. If this is indeed the case, our concerns about DEQ's role in additional river bank remediation and the timing of that work are more salient.

#### EPA Response

Alternative F Modified addresses 78 percent of the contaminated river bank, and DEQ will continue to evaluate river banks which might pose recontamination threats to the in water remedy. See Sections 2.6 and 2.26 of this responsiveness summary.

### 3.1.72 Remediate a Higher Percentage of the Groundwater Plume

#### Comment

We are similarly concerned that only 33 percent of known groundwater plume areas would be addressed (i.e., with a reactive cap or reactive residual layer) under Alternative I. Groundwater plume areas that are not addressed may continue to serve as a source of contamination to the river and may recontaminate the river post-remedy. Even assuming that DEQ will continue to remediate groundwater sources of contamination, there are likely to be instances where "a portion of the plume... has moved beyond the control point and continues to seep into the river" (EPA 2016b, p. 3-6). If these plumes fall outside of the 33 percent of plume areas that EPA will address, it seems likely that they will continue to recontaminate the river. What justification can EPA provide to demonstrate that treatment of only 33 percent of these areas will support a protective remedy? In the absence of additional information, we support remediation of a much higher percentage of groundwater plume areas.

#### EPA Response

Alternative F Modified addresses 39 percent of the river bottom impacted by groundwater plumes (as currently delineated) through construction (Figure 4.2-24 and Table 4.2-6); the remainder of the contaminated groundwater would be left to MNR and/or be more dependent on the adequacy of the source control at this time. See Sections 2.6 and 2.26 of this responsiveness summary.

### 3.1.73 Use a More Protective Remedy – Based on Benthic Risk

#### Comment

EPA defines the benthic risk area as the area exceeding RAO 5 PRGs. Feasibility study report Figure 4.2-29 maps the benthic risk area against Alternative I SMAs, illustrating that a small percentage of the benthic risk area is encompassed by SMAs (17 percent), but larger percentages of the areas defined as 10 or 100 times (10x or 100x) the RAO 5 PRGs are encompassed by the SMAs (64 percent and 87 percent, respectively; EPA 2016b, Table 4.2-7). Considering that the BERA (Windward 2013) benthic risk exceedance points are not well correlated with the 10x and 100x benthic risk areas (EPA 2016b, Figure 4.2-29), the percent of areas that are likely to pose a benthic risk (including the BERA points) that are encompassed by SMAs is considerably smaller than the values presented in Table 4.2-7. The poor correlation between the BERA benthic risk exceedance points and the 10x and 100x benthic risk areas, as well as high number of BERA points not actively remediated under Alternative I, support the need for a remedy that is more protective than Alternative I.

#### EPA Response

Alternative F Modified addresses 72 percent (10 x Benthic Risk) of the area with unacceptable benthic risks (ROD Table 12). See LWG Dispute Issue 1b (Appendix A of this document).

### 3.1.74 Address Issues with Beaches

#### Comment

Many questions persist around the concept of “beaches.” Does EPA define beaches as above the high tide line or some other water-based or vertical datum, and is this area outside of the scope of active remediation? If so, what is the relationship between beaches and river banks (i.e., are beaches a subset of river banks, sediments, or neither)? What would be the mechanism for risk reduction on beaches (e.g., river bank capping, upland source control, deposition of cleaner material from the remediated Willamette River sediment bed during high water events)? These points should be clarified in the ROD.

#### EPA Response

For the feasibility study evaluation, EPA used geomorphic or topographical data to define river bank region with contamination. The ROD defines the river bank region to extend to the top of the bank. River banks are included as part of the selected remedy. The ROD had been clarified that beaches within a SMA will be treated similarly as the Shallow Region in the ROD decision tree.

### 3.1.75 Consider Additional Strategies in the Green Remediation Plan

#### Comment

Regarding the Green Remediation Plan outline presented in Appendix M, the Five Tribes encourage EPA to not only review BMPs for each technology and process, but also to identify ways to decrease the carbon footprint of the remedy on a Site-wide scale. For example, evaluating ways to minimize total energy use and maximize use of renewable energy will likely be a more feasible and cost-effective option when evaluated on a Site-wide scale rather than by individual technology or process. We also encourage EPA to consider employing strategies such as opting for time-of-use or market-based electricity pricing plans. For example, costs may be driven down by operating treatment systems at a heavier load during nonpeak, lower-cost hours and constructing small-scale renewable energy systems to supply power directly to certain components of a treatment system. Annual energy costs for implementing a remedy are typically high, so managing energy requirements creatively may help in driving down those costs (EPA 2011).

**EPA Response**

Comment Noted. A green remediation plan will be prepared as part of the remedial design phase of the project for each action. The plan will discuss how impacts will be mitigated to the extent possible and as part of this analysis rail and barge transport of wastes will be discussed, and used wherever possible to limit greenhouse gas emissions and lessen neighborhood impacts for air toxics such as nitrous and sulfur oxides, consistent with EPA national and regional guidance. Where trucking cannot be avoided, the plan will discuss optimum haul routes to minimize diesel exhaust exposure to sensitive subpopulations (known to cause childhood asthma), such as residential streets near schools.

**3.1.76 Evaluate the Feasibility of an On-Site Transloading Facility****Comment**

We understand that there does not currently exist an on-site transfer (transloading) facility to transfer dredged material to trucks or rail for permanent disposal at an off-site landfill. In the absence of an on-site facility, the material would likely be shipped by barge to a transloading facility on the Columbia River, where it would then be transferred to an off-site disposal facility via truck or rail. The proposed plan states that if an on-site facility is constructed, the material is expected to be transloaded to an off-site disposal facility via rail, rather than via truck (EPA 2016a, p. 31). We encourage EPA to thoroughly evaluate the feasibility of an on-site facility and to carefully weigh the environmental risks and benefits of each approach. Shipping material to an off-site facility on the Columbia River runs the risk of spilling contaminated material into the Columbia River either during transit or during offloading. EPA should also carefully weigh the environmental and community impacts of truck transport versus rail transport. Truck transport entails environmental risks and costs such as spills, fuel emissions, increased neighborhood traffic, and noise. An on-site transfer facility followed by rail transport may be the best option. When EPA has more details about the various options, we look forward to participating in the discussion to determine the best approach.

**EPA Response**

The 2016 feasibility study report (USEPA 2016) looks at modes of transport and associated transload of wastes from a macro perspective, but the primary assumption in the feasibility study was to use barges for the purposes of implementability and cost evaluation. The feasibility study also indicated that multiple modes of transport could be used and could be evaluated during remedial design phase of the project. As has been demonstrated on the Gasco and Terminal 4 early actions, transload facilities can be efficiently built and optimized to suit the needs of the Portland Harbor cleanup in a vicinity to landfills that often reduces greenhouse gas emissions by extending barge or rail haul mileage, and minimizes truck haul mileage. See also Section 2.22 of this responsiveness summary.

**3.1.77 Select a Time Period Greater than 100 Years for Evaluation****Comment**

EPA's evaluation of the ability of PTW to be reliably contained assumes a 100-year time period (EPA 2016b, p. D-20). The Five Tribes emphasize the importance of a remedy that is protective in perpetuity, not merely for 100 years. Would the results of the evaluation differ if EPA had used a longer time period? If so, we urge EPA to select a longer time period for the evaluation.

**EPA Response**

Representative Site conditions and capping options were modeled using this approach to determine the maximum concentrations of PTW material that would not result in exceedances of AWQC in the sediment cap pore water after a period of 100 years to be consistent with the long-term costing

conducted in Appendix G of the 2016 feasibility study report (USEPA 2016b). EPA does not believe that the results of the evaluation would have differed significantly if a longer time period had been used. EPA will extend this modeling time frame if future monitoring shows that the remedy may lose its protectiveness.

### 3.1.78 Ensure EPA’s Definition of Shallow Water Matches that Used by NMFS

#### Comment

The feasibility study report explains that “The determination of 4 feet NAVD88 as the boundary for [the shallow] region was based on an assumed cap thickness of 3 feet (if capping were to be applied) and a mean low water level elevation of 7 feet NAVD88” (EPA 2016b, p. 3-11). We do not know how this definition of shallow water relates to the NMFS definition of shallow water of 20 feet below mean low water level. We support the authority of the NMFS for determining habitats that are of importance to fish. It is our understanding that EPA gives separate consideration to shallow water areas due to the important habitat value that these areas provide to aquatic life. We ask that EPA ensure that their definition of shallow water is consistent with the NMFS definition.

#### EPA Response

NMFS defines shallow water as above -15 feet CRD and EPA is coordinating with NMFS to ensure consistency. EPA will continue to coordinate with NMFS during remedial design to ensure sufficient consideration of Endangered Species Act and other non-ESA aquatic species. Habitat features will also be considered in other regions, as needed, for ESA and other non-ESA aquatic species. Also see Section 5 of this responsiveness summary.

### 3.1.79 Conduct a Flood Rise Evaluation Using a DMM Scenario

#### Comment

The Five Tribes do not agree with EPA’s reasoning for not including Disposed Material Management (DMM) Scenario 1 in the Flood Rise Evaluation presented in Appendix P of the feasibility study report (EPA 2016b, p. P-3). Some uncertainties may exist regarding the siting and construction of the CDF. However, sufficient certainty exists (e.g., the existence of a 60 percent design and the assumption of the Terminal 4 location) to justify conducting a “ cursory evaluation ” of the sort presented in Appendix P. The CDF will undoubtedly convert a portion of the Willamette River into upland, which will affect flood rise. We request that EPA conduct such an analysis in order to allow for a more complete understanding of the effects of a potential CDF.

#### EPA Response

See Section 2.14.1.

### 3.1.80 Determine Dredging Practices that Are the Most Protective

#### Comment

The Five Tribes are very much in favor of the implementation of any measures that would prevent incidental and accidental discharges of contaminated materials into the water column. EPA identifies several BMPs and “precautions and controls” (EPA 2016b, p. 4-37). Unfortunately, factual support for the effectiveness of these methods is scant in the remediation literature. Implementation of these methods may not increase protectiveness and could decrease overall performance (for instance, in terms of construction duration and cost). The effectiveness of these methods should be examined. For instance, what are the impacts of installing and removing sheet piles? Do sheet piles disturb and redistribute contaminated sediment? How much of a carbon footprint is created by having to



manufacture, transport, install, remove, and recycle the sheet pile? What other wastes are produced in the process? BMPs such as sheet piles are often heavily marketed by vendors, but there is little sound science on their effectiveness. We ask that EPA review the relevant literature and consult with experts in remedial dredging to determine the measures with the greatest likelihood of reducing discharges and increasing environmental protectiveness.

#### **EPA Response**

See LSS Dispute Issue 16 (Appendix A of this document) and Sections 2.21 and 2.22 of this responsiveness summary.

### **3.1.81 Clarify Referencing of Figures 4.2-9 through 4.2-17**

#### **Comment**

Figures 4.2-9 through 4.2-17 of the feasibility study appear to depict predicted ecological risk post-construction for each alternative. (We assume that, despite the figure captions, these figures are not intended to show residual risk as defined in the feasibility study; that is, risk once PRGs are achieved.) These figures are helpful in comparing alternatives. However, it is not clear how the depicted COCs were selected: some are focused COCs and some are not. These figures do not appear to be referenced in the text. We recommend that EPA include an in-text explanation of the figures.

#### **EPA Response**

Figures are referenced in the text under “Overall Protection of Human Health and the Environment” and “Long-Term Effectiveness and Permanence” for each alternative.

### **3.1.82 Use Enforcement Measures to Obtain PRP Compliance**

#### **Comment**

We support a timely implementation of the remedy. Ideally, responsible parties will fully cooperate with EPA to construct the remedy as quickly as possible. However, if needed, we support EPA’s use of enforcement actions to compel responsible parties to cooperate.

#### **EPA Response**

Comment noted.

### **3.1.83 Describe Decision-Making for Adaptive Management and Future Monitoring**

#### **Comment**

The proposed plan and feasibility study provide insufficient detail on monitoring activities. The success of the remedy is dependent on diligent monitoring activities to identify and correct any potential technology failures before they cause widespread recontamination. Monitoring is also essential for determining whether the Site achieves protective levels within a pre-determined period of time; if it does not, a ROD amendment may be needed to require additional remediation. The importance of this monitoring cannot be overstated. As such, we strongly encourage EPA to provide additional information regarding their anticipated monitoring activities and reporting of monitoring data. In the ROD, we expect to see details regarding how often monitoring will be conducted, who will conduct it, who will oversee it, and what reporting will be required. We request that the ROD describe in detail the decision-making process regarding monitoring and adaptive management; specifically, how monitoring data will be used to inform construction activities and future monitoring.

**EPA Response**

See Sections 2.17 and 2.28.1 of this responsiveness summary.

**3.1.84 Identify Time-Dependent Decision Points****Comment**

The ROD should identify time-dependent decision points for the purpose of determining progress toward achieving remediation goals as well as the actions that would be taken should sufficient progress not be made. Specific standards or interim goals should be stated for each five-year review that would trigger the need for additional active remediation. For example, will EPA evaluate whether the cleanup actually achieves the interim targets post-construction? If interim targets are not met, what actions will EPA take? Because EPA assumes that interim targets will be met immediately post-construction, if these targets are not met by the five-year review, additional remediation may be warranted. The Site should be evaluated on a site-wide, SDU, and river mile basis. All relevant media (sediment, fish tissue, river bank soil, beach soil/sediment, surface water, pore water) should be considered.

**EPA Response**

Interim targets identified in the 2016 feasibility study report (USEPA 2016b) will be used as one of many lines of evidence that will be evaluated against empirical data collected under a robust monitoring plan for the Site to make sure the remedy is on track to achieve clean up levels.

**3.1.85 Clarify the Schedule for Five-Year Reviews****Comment**

EPA notes that “Upland source control measures will... need to be evaluated for necessary repairs and maintenance performed under five-year reviews of the CERCLA action” (EPA 2016b, p. 4-12). While we understand that a comprehensive review of upland source control measures will occur during the five-year reviews, it is our expectation that the success of individual upland source control measures, particularly more significant ones, will be evaluated more frequently than once every five years, either by DEQ or EPA. The frequency of monitoring should depend on the characteristics of the particular measure.

**EPA Response**

See Section 2.27 of this responsiveness summary.

**3.1.86 Engage the Tribes throughout the Remediation Process****Comment**

Of great importance to the Five Tribes is that we remain engaged throughout remedial design and be given opportunities to provide feedback, including instances where EPA is considering granting the responsible parties the opportunity to deviate from the ROD. We expect that our involvement during remedial design will include, but not be limited to, providing meaningful input on the development and review of work plans, sampling and analysis plans, data reports, monitoring, design plans, and granting any deviations from the preferred alternative due to unforeseen design or field challenges. In particular, we expect to be given the opportunity for input on the consideration of any additional remediation (through a ROD amendment) or a technical impracticability or other ARAR waiver.



**EPA Response**

Throughout the process, EPA has fostered meaningful engagement with the MOU partner tribes and has encouraged and facilitated tribal involvement. In accordance with EPA's Policy on Consultation and Coordination with Indian Tribes, EPA also held consultation meetings at tribal council locations from January 12 through February 4, 2016 and from July 19 through July 26, 2016, during the public comment period on the feasibility study report (USEPA 2016b) and proposed plan (USEPA 2016c). In addition, representatives for the Confederated Tribes and Bands of the Yakama Nation met with Administrator McCarthy on July 26, 2016 in Washington, D.C. A summary of the consultation meetings, along with any written materials provided, are in the Administrative Record.

The consultation process also included discussions on treaty rights, in accordance with the Treaty Rights Guidance. The Treaty Rights Guidance was issued to provide assistance on consultation regarding EPA actions occurring in a specific geographic area where tribal treaty rights may exist in, or treaty-protected resources may rely on, that area. Government-to-government consultations occurred in January and February of 2016 in anticipation of the proposed plan.<sup>2</sup> EPA will continue this working relationship for tribal input under the MOU and EPA's Policy on Consultation and Coordination with Indian Tribes, to ensure that tribal concerns and interests are considered whenever EPA actions may affect tribal communities – both related to treaty rights and other impacts. The ROD includes language regarding tribal coordination and consultation and community involvement in all activities post ROD.

The Portland Harbor Site is complex and the remedy preferred by EPA to perform an effective cleanup under these complexities will require an ongoing partnership and collective input from both the state and the tribes in communication with EPA, for critical decisions made throughout the implementation of the in-river cleanup.

**3.1.87 Collect Additional Data Regarding Erosion and Deposition During Remediation****Comment**

During remedial design, it is imperative to collect additional data regarding erosion and deposition trends in the Site. This will help in identifying areas that may be inappropriate for certain technology assignments (e.g., MNR in erosive areas). We suggest conducting field and laboratory studies to measure sediment stability (or erodibility) using tools such as Sedflume, Gust Microcosm, and consolidation tests.

**EPA Response**

The feasibility study states in several places that additional data will be collected during remedial design to assist in refining the remedy beyond the feasibility study-level of analysis and the ROD

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<sup>2</sup> EPA Policy on Consultation and Coordination with Indian Tribes, May 4, 2011. Incorporates the Executive Order 13175 "Consultation and Coordination with Indian Tribal Governments," November 2000 and Presidential Memorandum, November 5, 2009. See also EPA Policy on Consultation and Coordination with Indian Tribes: Guidance for Discussing Tribal Treaty Rights, February 22, 2016.

reflects this as well. EPA intends to collect and evaluate additional data during remedial design to refine the following: delineation of contamination, selection and design of remedial technologies and construction methods, projections of natural recovery, treatment and disposal requirements, measures for aquatic and listed species protection, and compensatory mitigation requirements, to name a few.

Specific tools required or used for pre-design investigation will be determined during remedial design phase and will be based on scope, objective and usability of the data.

### 3.1.88 Incorporate Effective BMPs in Remedial Design to Reduce Fish Mortality

#### Comment

In accordance with methods outlined in the working draft Programmatic Biological Assessment (FWS and NMFS 2016), we request that EPA incorporate effective BMPs during remedial design for reducing the mortality of fish, including lamprey, during construction (FWS 2010).

#### EPA Response

Comment noted.

## 3.2 Confederated Tribes and Bands of the Yakama Nation

### 3.2.1 Eliminate Health Advisories as a Result of Toxic Releases

#### Comment

Provide a cleanup that results in fish that are clean, healthy and safe to eat. The cleanup should be aggressive enough to eliminate health advisories as a result of toxic releases from Portland Harbor. The proposed plan uses fish consumption advisories, instead of adequate cleanup, to protect human health. The restoration timeframe of 30 years is unsupported and it is unknown if these ICs can ever be lifted.

#### EPA Response

EPA's strategy is to utilize a mix of technologies (including dredging, capping, ENR, and MNR) to address contamination in the waterway to the maximum extent practicable using engineering controls, and minimizing the use of ICs to further reduce risks. Together, these will protect human health and assure overall protectiveness of the remedy.

EPA recognizes that the remedy likely will not reduce the concentrations of PCBs and other contaminants to levels low enough to allow for consumption at the higher consumption rates associated with subsistence fishing. The scope of the CERCLA action is restricted to approximately 10 miles of the Willamette River, but upstream of the Site, background levels of PCBs from "clean" areas exceed the acceptable range based on conservative risk estimates, meaning that even with a more stringent remedy in place proposed fish advisories would likely remain in effect following the cleanup. Therefore, fish advisories would remain in effect following the cleanup but would be less restrictive because the highest concentrations of bioaccumulative contaminants in sediment would be removed or capped such that they no longer enter the food chain within the Site. Watershed-wide implementation of source reductions through water quality programs by the Oregon Department of Environmental Quality in conjunction with source control activities at the Site are expected to contribute to the elimination of fish consumption advisories under EPA's ROD. Although CERCLA-related fish advisories would remain in place until cleanup levels are achieved, Oregon Health Authority may still impose an advisory based on broader watershed risks.

ICs will be used to prevent or limit exposure to contaminants on both a short- and long-term basis. Fish consumption advisories would be required until such time as RAO 2 is achieved as demonstrated through fish tissue monitoring. EPA expects to work with the Oregon Health Authority to revise the advisories to be consistent with the ROD. Outreach would be conducted to educate the public about the fish consumption advisories. Informational materials will be evaluated to determine advisory effectiveness. Thus, the feasibility study acknowledges that fish consumption advisories will be implemented after construction until PRGs are met and that the use of fish consumption advisories and education and outreach programs will provide additional risk reduction. Also see Sections 2.28 and 3.1.43 of this responsiveness summary.

### 3.2.2 Provide More Aggressive Cleanup in Erosional Areas

#### Comment

EPA used SEDCAM modeling along with several other lines of evidence (bathymetry, percent fines, propeller wash areas, wind/wake conditions, and subsurface to surface sediment concentration ratios) to forecast the success of MNR in reaching cleanup goals following active remediation. Given the great deal of uncertainty associated with modeling, EPA will focus greatly on the development of a robust monitoring plan following the ROD to evaluate achievement of cleanup goals with empirical data. The SEDCAM modeling results show that the selected remedy, Alternative F Modified, is protective within a reasonable timeframe given the uncertainty in the model. Prevent the release of contaminated sediments into the Columbia River. EPA's overreliance on natural recovery will allow for the continued release of persistent and bioaccumulative contaminants to the Columbia River, putting our fish and people at risk. In addition to using lower Alternative G dredge decision criteria, the ROD should provide more aggressive cleanup measures in erosional areas.

#### EPA Response

The selected remedy, Alternative F Modified further reduces reliance on MNR over the proposed plan's Alternative I (USEPA 2016c). The selected remedy does not overly rely on MNR. Although the selected remedy calls for 1,774 acres to be addressed by MNR, MNR is only designated to be applied to areas of low level contamination, where active remediation's impact to the ecosystem is considerably larger (on the order of decades of additional construction time) for the gains achieved. Based on the conceptual site model, areas with levels of contamination greater than the RALs where MNR would not be effective in reducing contaminant levels and ultimately risks, were assigned dredging or capping. A detailed baseline sampling program will be conducted in the remedial design phase to redefine areas suitable for active cleanup and for MNR. Specific monitoring goals to measure MNR progress will be developed in remedial design. Should MNR not achieve cleanup levels or progress sufficiently toward achieving them, additional actions (dredging, capping, or ENR) will be analyzed and may be implemented.

### 3.2.3 Clarify the Role of the Confederated Tribes and Bands of the Yakama Nation in Overseeing Cleanup

#### Comment

Include language regarding Yakama's Nation's role in overseeing the cleanup. The Yakama Nation expects to be fully engaged and an active participant in oversight throughout the cleanup process.

#### EPA Response

Throughout the remedial investigation/feasibility study process, EPA has fostered meaningful engagement with the MOU partner tribes and has encouraged and facilitated Tribal involvement. In

accordance with EPA’s Policy on Consultation and Coordination with Indian Tribes, EPA also held consultation meetings at tribal council locations from January 12 through February 4, 2016 and from July 19 through July 26, 2016, during the public comment period on the feasibility study report (USEPA 2016b) and proposed plan (USEPA 2016c). In addition, representatives for the Confederated Tribes and Bands of the Yakama Nation met with Administrator McCarthy on July 26, 2016 in Washington, D.C. A summary of the consultation meetings, along with any written materials provided, are in the Administrative Record.

The consultation process also included discussions on treaty rights, in accordance with the Treaty Rights Guidance. The Treaty Rights Guidance was issued to provide assistance on consultation regarding EPA actions occurring in a specific geographic area where tribal treaty rights may exist in, or treaty-protected resources may rely on, that area. Government-to-government consultations occurred in January and February of 2016 in anticipation of the proposed plan.<sup>3</sup> EPA will continue this working relationship with the Yakama Nation under the MOU and EPA’s Policy on Consultation and Coordination with Indian Tribes, to ensure that the tribal government’s concerns and interests are identified and considered whenever EPA actions may affect tribal interests, including those related to treaty rights. The ROD includes language regarding tribal government consultation and coordination and community involvement in all activities post ROD.

The Portland Harbor Site is complex and the remedy preferred by EPA to perform an effective cleanup under these complexities will require an ongoing partnership and collective input from the Yakama Nation and the state in communication with EPA, for critical decisions made throughout the implementation of the in-river cleanup, including during five-year review evaluations of cleanup progress.

### 3.2.4 Uphold the Federal Trust Responsibility

#### Comment

EPA must uphold its federal trust responsibility by clarifying roles. EPA cannot delegate its federal trust responsibility to the State of Oregon. We are opposed to a state-led implementation of the in-river cleanup at the Site.

#### EPA Response

EPA is committed to maintaining its long-standing work with federally recognized Indian tribes on a government-to-government basis. Indeed, one of the key principles of the EPA Policy for the Administration of Environmental Programs on Indian Reservations (1984) is that “The Agency, in Keeping with the federal trust responsibility, [EPA] will assure that Tribal Concerns and Interests Are Considered Whenever Its Actions And/Or Decisions May Affect May Affect Reservations Environments.” In the case of the Portland Harbor Site, EPA engaged in significant consultation and coordination with tribes, including holding face-to-face meetings at tribal council locations from January 12 through February 4, 2016 and from July 19 through July 26, 2016, during the public

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<sup>4</sup> EPA Policy on Consultation and Coordination with Indian Tribes, May 4, 2011. Incorporates the Executive Order 13175 “Consultation and Coordination with Indian Tribal Governments,” November 2000 and Presidential Memorandum, November 5, 2009. See also EPA Policy on Consultation and Coordination with Indian Tribes: Guidance for Discussing Tribal Treaty Rights, February 22, 2016.

comment period on the feasibility study report (USEPA 2016b) and proposed plan (USEPA 2016c). In addition, representatives for the Confederated Tribes and Bands of the Yakama Nation met with Administrator McCarthy on July 26, 2016 in Washington, D.C. The consultation process also included discussions on treaty rights. The Administrative Record contains a summary of the consultation meetings, along with any written materials provided. These consultation and coordination efforts took consistent with the EPA Policy on Consultation and Coordination with Indian Tribes and EPA Guidance for Discussing Tribal Treaty Rights. The Treaty Rights Guidance is designed to provide assistance on consultation regarding EPA actions occurring in a specific geographic area where tribal treaty rights may exist in, or treaty-protected resources may rely on, that area.

The ROD includes language regarding tribal coordination and consultation and community involvement in all activities post ROD. The Site is complex and the remedy preferred by EPA to perform an effective cleanup under these complexities will require an ongoing partnership and collective input from both the tribes and Oregon in communication with EPA, for critical decisions made throughout the implementation of the in-river cleanup.

EPA will continue this working relationship for tribal government input under the MOU, EPA's Policy on Consultation and Coordination with Indian Tribes and the Tribal Treaty Rights Guidance, to ensure that tribal concerns and interests are considered whenever EPA actions may affect tribal interests.

### 3.2.5 Meet Threshold Requirements for Protectiveness

#### **Comment**

Meet threshold requirements for protectiveness. The proposed plan does not meet or is uncertain to meet multiple interim risk targets.

#### **EPA Response**

As a long-term model is not available to predict the time to meet the PRGs, interim targets for risks and HIs were developed for feasibility study purposes. These targets will be used to evaluate each alternative's effectiveness in achieving cleanup goals both immediately after construction and long term.

Based on recommendations from the NRRB/CSTAG (see NRRB/CSTAG comment on Remedy Performance, p. 5), EPA performed an uncertainty analysis of each alternative to determine the likelihood that the Alternative would be significantly different from the No Action alternative. This analysis was presented in Appendix I of the 2016 FS, and the conclusion was that Alternative B post-construction SWACs were statistically indistinguishable from the No Action alternative and that the post-construction SWACs for Alternative D were still within the margin of error relative to no action. Although Alternatives B and D are expected to be protective of human health through ICs and MNR, the uncertainty of the post-construction SWACs indicates that Alternatives B and D may not be protective of the environment because of the time frame needed to achieve PRGs through MNR and ICs would not provide protection of ecological receptors during this time period. Alternative G is the only alternative to meet all interim targets; however, Alternative G involves a significantly greater amount of construction area and time (19 years), and thus, would have the highest cost, most impact to the community and Lower Willamette River ecosystem, workers and the environment during construction. Alternative G was not selected as the preferred alternative because of the difficulty associated with managing short-term impacts, the high cost and increased difficulty of implementation.

Five-year reviews will be conducted the purpose of which is to determine whether the remedy is, or upon completion will be, protective of human health and the environment. Should the remedial action or MNR not achieve cleanup levels or progress sufficiently toward achieving them and the corresponding ARARs, additional actions (dredging, capping, or ENR) may be required to meet the remedial cleanup goals (see Section 2.16.1 of this responsiveness summary).

### 3.2.6 Comply with ARARs

#### Comment

Comply with ARARs. The cleanup must comply with state water quality and hazardous substance remedial action rules for risk.

#### EPA Response

As discussed in Section 3.2.5, five-year reviews will be conducted the purpose of which is to determine whether the remedy is, or upon completion will be, protective of human health and the environment. Should the remedial action or MNR not achieve cleanup levels or progress sufficiently toward achieving them and the corresponding ARARs, additional actions (dredging, capping, or ENR) may be required to meet the remedial cleanup goals (see Sections 2.3.1 and 2.16.1 of this responsiveness summary).

### 3.2.7 Remove all PTW

#### Comment

Remove all PTW to assure maximum reduction of risk for the life of the remedy. It will take 100s to 1,000s of years for contaminants to degrade. Capping PTW in place provides little to no assurance that future releases will not occur on this time scale, and in a river environment that is set in a tectonically active region as well as subject to climate change.

#### EPA Response

Refer LSS Dispute Issue 17 (Appendix A of this document) and Section 2.5 of this responsiveness summary.

### 3.2.8 Protect Shorelines and Nearshore Habitat

#### Comment

Protect shorelines and nearshore habitat. A significant portion of the affected benthic receptors, as well as river bank and groundwater source areas are unaddressed in the proposed plan and need clarification in the ROD.

1. The river bank and groundwater cleanups should not be dealt with separately by the state, and should be addressed more specifically in the ROD.
2. A greater portion of the area exceeding benthic criteria should be cleaned up.
3. Higher value habitat areas should be given additional consideration for a more protective cleanup.

#### EPA Response

The selected remedy addresses not only the sediment, pore water and surface water of the lower Willamette River from approximately RM 1.9 (at the upriver end of the Port of Portland's Terminal 5) to RM 11.8 (near the Broadway Bridge), but also addresses portions of the river banks adjacent to



SMAs which were identified by DEQ during feasibility study development. River bank remediation has already occurred at some locations in the Site.

Refer LWG Dispute Issue 1b (Appendix A of this document) for a discussion on benthic criteria.

The determination of higher value habitat areas can be further evaluated in the remedial design phase. See also Section 2.8.1 of this responsiveness summary.

### 3.2.9 Evaluate Upland Source Control and Provide Assurances

#### Comment

Include an evaluation of upland source control and provide assurances that upland sources will not affect the in-river cleanup efforts. Adequate upland source control measures must be in place prior to the cleanup to protect the river from recontamination. EPA needs to take a more active role in ensuring these source controls move forward and are adequate.

#### EPA Response

See Sections 2.26 and 2.27.

### 3.2.10 Include a Contingency Plan

#### Comment

Include a contingency plan. proposed plan projections for natural recovery of multiple contaminated media are unsupported and highly uncertain. A contingency plan with a clear decision criterion is necessary to correct the recovery trajectories if the Site is not adequately trending towards the cleanup goals.

#### EPA Response

See Sections 2.16.1 and 2.17.3 of this responsiveness summary.

### 3.2.11 Honor Confederated Tribes and Bands of the Yakama Nation Treaty Rights

#### Comment

The Yakama Nation is the legal successor in interest to the Indian signatories to the Treaty with the Yakamas of June 9, 1855 (12 Stat. 951). Under Article III of the Treaty, the Yakama Nation has reserved for itself and its members the right to take fish at all “usual and accustomed places.” The term “usual and accustomed places”, with respect to fishing, is defined as “every fishing location where members of a tribe customarily fished from time to time at and before treaty times, however distant from the then usual habitat of the tribe, and whether or not other tribes then also fished in the same waters.” U.S. v. Washington, 384 F.Supp. 312 (W.D.Wash. 1974). Since time immemorial, Yakama people have migrated, lived, and fished in the Lower Columbia River tributaries. The Willamette River is recognized by the Yakama Nation as a usual and accustomed fishing place, and has always been an important food gathering area. Every June and July enrolled Yakama members travel to Willamette Falls to collect the culturally important Asúm eel, also known as the Pacific Lamprey, for traditional ceremonies and subsistence.

The nature and scope of the Yakama Nation’s off-reservation treaty reserved fishing rights on the Columbia River and its tributaries has been extensively litigated through participation as an original plaintiff-intervener in the continuing jurisdiction case of United States v. Oregon (Civil No. 68-513-KI, D. Or.). See *Sohappy v. Smith*, 302 F. Supp. 899 (D.Or. 1969); *United States v. Oregon*, 913 F.2d 576

(9th Cir. 1990). In 1977, the Yakama Nation participated in the creation of the Columbia River Inter-Tribal Fish Commission, which provides technical and policy assistance to four treaty tribes in their management of Columbia River fisheries. In 2008 the parties to *U.S. v. Oregon* signed a ten-year Management Agreement for tribal and state co-management of Columbia River anadromous fish species, entered as an enforceable order of the U.S. District Court. The Yakama Nation is recognized as a trustee under CERCLA for any natural resources “belonging to, managed by, controlled by, or appertaining to” the tribe within the Columbia Basin, including in the Willamette River. 42 U.S.C. § 9607(f)(1).

In recent years, the Yakama Nation has participated as *amicus curiae* in numerous legal actions involving the National Marine Fisheries Service’s administration of the Endangered Species Act with respect to listed salmon and steelhead stocks, to which the tribe holds treaty-reserved fishing rights. See, e.g., *National Wildlife Federation, et. al., v. NMFS, et. al.* (Civil No. 01-640-SI, D. Or); *American Rivers, et. al. v. NMFS, et. al.* (Civil No. 96-384-MA, D. Or). The Yakama Nation also protect its interests and legal rights via the following representative sample of activities: fish habitat restoration efforts, many of which are detailed in the Columbia Basin Fish Accords; participation in the ongoing processes for the development of Endangered Species Act Recovery Plans for listed salmon and steelhead; development and implementation of fishing management plans as a party to *U.S. v. Oregon*; implementation of the Pacific Salmon Treaty through participation in the Pacific Salmon Commission processes (see 16 U.S.C. 3631, et. seq.); and participation in a variety of other policy and technical committees and organizations dealing with issues related to the protection and rebuilding of salmon, steelhead, lamprey, and other species throughout the Columbia River basin.

Significantly, the Yakama Nation continues to participate in numerous environmental response actions throughout the Columbia Basin being conducted under both CERCLA and state cleanup laws. If the Yakama Nation conducts or participates in a response action it is entitled to recover all costs of removal or remedial action incurred by the tribe [that are] not inconsistent with the NCP. 42 U.S.C. § 9607(a)(4)(A); see also *Confederated Tribes and Bands of the Yakama Nation v. U.S. Dept. of the Army, et. al.* (Civil No. 14-1963-PK, D. Or), Findings and Recommendation (ECF No. 33, Dec. 18, 2015).

Based on these legal authorities, EPA in its Record of Decision must specifically acknowledge the role that the Yakama Nation will have in the design and implementation of the remedial action for Portland Harbor. The tribe’s participation in the Remedial Design/Remedial Action (RD/RA) phase of the CERCLA cleanup is critical to the upholding of treaty reserved rights in the Lower Columbia Basin, and will also greatly assist in EPA’s statutory mandate for protection of human health and the environment. EPA must ensure that the Yakama Nation has the means to fully engage with agencies and actively participate in oversight throughout the RD/RA process.

### **EPA Response**

Throughout the process, EPA has fostered meaningful engagement with the MOU partner tribes and has encouraged and facilitated Tribal involvement, consistent with EPA’s Policy on Consultation and Coordination with Indian Tribes, EPA also held consultation meetings at tribal council locations from January 12 through February 4, 2016 and from July 19 through July 26, 2016, during the public comment period on the feasibility study report (USEPA 2016b) and proposed plan (USEPA 2016c). In addition, representatives for the Confederated Tribes and Bands of the Yakama Nation met with Administrator McCarthy on July 26, 2016 in Washington, D.C. A summary of the consultation meetings, along with any written materials provided, are in the Administrative Record.



The consultation process included discussions on treaty rights, in accordance with the February 2016 Guidance for Discussing Tribal Treaty Rights (Treaty Right Guidance). The Treaty Rights Guidance was issued to provide assistance on consultation regarding EPA actions occurring in a specific geographic area where tribal treaty rights may exist in, or treaty-protected resources may rely on, that area. Government-to-government consultations occurred in January and February of 2016 in anticipation of the proposed plan.<sup>4</sup> EPA will continue this working relationship for tribal input under the MOU and EPA's Policy on Consultation and Coordination with Indian Tribes, to ensure that tribal concerns and interests are considered whenever EPA actions may affect tribes— both related to treaty rights and other impacts. The ROD includes language regarding consultation and coordination with tribal governments and community involvement in all activities post ROD. Further, once implemented, the cleanup will improve fish habitat and help further the tribes' rights to fish.

The Site is complex and the remedy preferred by EPA to perform an effective cleanup under these complexities will require an ongoing partnership and collective input from both the tribes and Oregon in communication with EPA, for critical decisions made throughout the implementation of the in-river cleanup.

### 3.2.12 Recognize Trust Responsibility

#### Comment

EPA has for many years expressly recognized its fiduciary duty toward Indian tribes. See, e.g., EPA Policy for the Administration of Environmental Programs on Indian Reservations (November 8, 1984) at 3. Federal courts have recognized the trust responsibility toward tribes in EPA's actions conducted under federal environmental statutes, including those affecting tribal resources outside Indian reservations. *Nance v. Environmental Protection Agency*, 645 F.2d 701 (9th Cir. 1981). EPA's most recent tribal consultation policy also reaffirms this principle as a foundation of its relationship with Indian governments. EPA Policy on Consultation and Coordination with Indian Tribes (May 4, 2011) at 3.

Courts generally hold that the nature of the trust responsibility and its specifics are defined by Congress. *United States v. Mitchell*, 445 U.S. 535 (1980). This includes a duty to protect the exercise of fishing rights reserved by a treaty with the United States. *Parravano v. Babbitt*, 70 F.3d 539, 546 (9th Cir. 1995). The duty is also enforceable in CERCLA through certain statutory provisions applying to treatment of Indian tribes enacted by Congress in 1986 through the Superfund Amendments and Authorization Act (SARA). 42 U.S.C. § 9626(a). These include the requirement that EPA consult with affected tribes "before determining any appropriate remedial action to be taken." 42 U.S.C. § 9604(c)(2). CERCLA also requires lead agencies to coordinate with tribes as trustees in "assessments, investigations, and planning" of all response actions. 42 U.S.C. § 9604(b)(2); see also 40 CFR § 300.615(c)(1)(ii). CERCLA and the NCP should be construed broadly to include the remedial

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<sup>4</sup> EPA Policy on Consultation and Coordination with Indian Tribes, May 4, 2011. Incorporates the Executive Order 13175 "Consultation and Coordination with Indian Tribal Governments," November 2000 and Presidential Memorandum, November 5, 2009. See also EPA Policy on Consultation and Coordination with Indian Tribes: Guidance for Discussing Tribal Treaty Rights, February 22, 2016.

design/remedial action (RD/RA) phase of response actions in these fiduciary duties. See, e.g., *Carson Harbor Village v. Unocal Corp.*, 270 F.3d 863 (9th Cir. 2001).

However, the federal government may not delegate its trust responsibilities to state agencies. See *Assiniboine and Sioux Tribes v. Board of Oil and Gas*, 792 F.2d 782 (9th Cir. 1986). This is a critical issue for the Portland Harbor cleanup because Oregon Department of DEQ has expressed an interest in implementing either part or all of the RD/RA phase of the in-river cleanup. Whether this is done directly through CERCLA or under the Oregon Environmental Cleanup Law, ORS 465.200 et. seq., EPA will still retain a fiduciary duty to the tribe to protect its legal interests under the Treaty of 1855. For this reason, the Yakama Nation objects to any transfer of oversight to DEQ. Our concerns are especially relevant to ensuring that the remedial action meets appropriate cleanup standards for treaty protected fisheries, as well as the expected negotiation of funding and participation agreements with PRPs for the RD/RA phase.

As you know, our experience with Yakama's participation in the Astoria Marine Construction Co. (AMCCO) site in Clatsop County has been a glaring illustration of what can go horribly wrong when EPA transfers or delegates its authority to the State of Oregon. In 2012, Region 10 deferred its proposed placement of the site on the NPL by placing oversight in the hands of DEQ. One of the conditions that EPA had put on the deferral was assurance of support for tribal involvement, and both DEQ and AMCCO were clearly notified that this would involve funding of tribal participation as well. However, in the past four years AMCCO has engaged in numerous disputes with the Yakama Nation regarding a number of funding issues, including annual budgets, indirect costs, and attorney fees. These disagreements jeopardized the tribe's full participation, and created unprecedented cost overruns and administrative headaches. DEQ meanwhile took a "hands off" approach to these problems, arguing that it has no authority to enforce or otherwise get involved with the company's funding of Yakama's participation in the cleanup. This approach has also been exemplified by the lack of coordination by DEQ project managers at other sites including Bradford Island and Mosier.

Unless EPA ensures that the tribe will have an enforceable mechanism for ensuring that EPA upholds its trustee role in the context of state remedial actions, the Yakama Nation must oppose any plan to delegate in-river cleanup responsibilities to DEQ. Any transfer of oversight to the State of Oregon without any written guarantee that the Yakama Nation's cleanup role will be adequately recognized and funded, or the tribe's treaty resource interests strictly protected, will be considered a serious violation of EPA tribal consultation policies and fiduciary duties.

### **EPA Response**

In a February 2001 Memorandum of Understanding (USEPA 2001), it was agreed that EPA would take the Lead Agency role and DEQ would take the Support Agency role for the in-river cleanup while DEQ would take the Lead Agency role and EPA would take the Support Agency role for addressing upland and upriver contamination that may impact the Willamette River. EPA expects that cleanup work conducted as part of this ROD will be performed by the PRPs under CERCLA authorities and EPA oversight. In order to maximize resources and achieve cleanup as soon as possible, there may be an opportunity for DEQ to perform certain technical oversight functions, in coordination with EPA, at specified areas of the in-river portion of the Site. Any oversight functions performed, whether performed by EPA or DEQ, will comply with CERCLA, the NCP, the ROD, any CERCLA agreements reached between the agencies and work parties, and EPA policy and guidance regarding CERCLA cleanup actions. Throughout the cleanup process, EPA will maintain its commitment to consultation and coordination with tribes and act in accordance with its tribal trust responsibility.

ICs with respect to the governmental entity that will provide enforcement authority will be determined during the development of remedial design and identification of responsibility in an ICs implementation and assurance plan and an operation and maintenance plan. These plans will be developed jointly by a team made up of representatives from EPA, DEQ, tribes, Oregon Department of State Lands, Coast Guard, Oregon Marine Board, Oregon Department of Transportation, USACE, City of Portland, Port of Portland, and others.

### 3.2.13 Revisit Site Boundaries versus Study Area

#### Comment

To date, EPA has failed to take into consideration the releases from the Site to the lower Columbia River. The proposed plan does not adequately describe the loading and potential impacts to resources beyond the Site boundaries. We argue that the Site boundaries are really a “study area”, which is the terminology used in the original Remedial Investigations. By CERCLA definition, a site includes anywhere a hazardous substance has come to be located. Contamination from the Site does not stop at the downstream Site boundary. However, for the sake of expediency, EPA and the PRPs artificially and arbitrarily truncated the downstream Site boundary, leaving downstream Site contamination unaddressed. Data conclusively show that Site contamination exceeds toxicity criteria at and beyond the downstream boundary and that Site contaminant loads are transported further downstream and into the Columbia River.

#### EPA Response

See Section 2.2.10 of this responsiveness summary.

### 3.2.14 Monitor for Impacts to Species

#### Comment

Harmful and toxic pollutants from the Willamette River are carried into the Columbia River and have been found in salmon below the confluence of these two rivers. Portland Harbor is contributing highly toxic PCBs, DDT, polycyclic aromatic hydrocarbons (PAHs), dioxins/furans, and other persistent and bioaccumulative pollutants to the Columbia River. As a result, the health of juvenile salmon in the Columbia River is impaired by exposure to these contaminants. Juvenile salmon slow down and spend extra time in the Columbia River estuary to acclimate, feed and grow before heading out to sea. Pacific lamprey and sturgeon are also at risk from these toxic substances. Lamprey ammocoetes live and feed in the Site sediments for up to 7 years before migrating; however, Site monitoring to date on lampreys has been inadequate. Resident fish downgradient of the arbitrary Site boundary have not been adequately monitored for contaminants, despite the known sediment loading to the Columbia River.

#### EPA Response

See Sections 2.2.10, 2.16, 2.17, 2.23, and 2.33.2 of this responsiveness summary.

### 3.2.15 Recognize Impacts on Endangered Species Recovery Efforts

#### Comment

Federal, state, tribal, and many local partners are working to support the recovery of salmon, steelhead, and other Endangered Species Act listed fish species in the lower Columbia River and its tributaries. Since 1978, Bonneville Power Administration has invested \$2.68 billion in fish recovery in the Columbia River watershed. Considerable resources (on the order of \$200 million annually) are directed towards these efforts in order to abate the decline of these species and move toward their

recovery. The inadequacies of the proposed plan are contradictory to these investments of public dollars in fisheries recovery.

**EPA Response**

See Subsection 2.19 of this responsiveness summary.

**3.2.16 Follow NRRB Recommendation on Columbia River Impacts****Comment**

The National Remedy Review Board and Contaminated Sediments Technical Advisory Group (the boards) review of the Draft Feasibility Study resulted in the following recommendation<sup>4</sup>: “The boards note that several stakeholder comments indicate that Portland Harbor releases are contaminating the Columbia River downstream of the Site.” “The boards recommend that the decision documents contain a clear explanation as to how the Region believes effective remediation of Portland Harbor sediment should reduce contaminate loading to the Columbia River’s surface water, sediment, and biota.” It is key for the Region to elucidate where contaminants migrate to or be deposited outside the boundaries of the Site, given the Region’s interpretation that the Portland Harbor Site is not largely depositional, but erosional or transitory in nature.

Although we appreciate the Columbia River contaminant loading estimates that were added to the Site Feasibility Study, the proposed plan is grossly inadequate and relies on scouring and off-Site transport of contaminated sediments for the majority of the Site area.

**EPA Response**

See Sections 2.2.10 and 2.17.3 of this responsiveness summary.

**3.2.17 Follow Recommendations of the Confederated Tribes and Bands of the Yakama Nation****Comment**

It is important to the Yakama that the Portland Harbor contamination is cleaned up for all species, the health of the Yakama, our neighbors, and future generations. Contaminant loadings to the Columbia River must be reduced to the greatest extent possible. The ROD must develop a monitoring framework for evaluating contaminant loading to the Columbia River, assess the effects to aquatic biota, and finish delineating the extent of where Portland Harbor contamination has come to be located, as required by CERCLA. The effectiveness of the cleanup is critical to support the recovery of salmon, lamprey, and steelhead (and other species) in these waters and therefore a more comprehensive Alternative G must be implemented.

In addition, any resolution of liability agreement between EPA and the responsible parties must not prevent future actions outside the Portland Harbor Site boundaries where Portland Harbor contamination is transported through or has come to be located.

**EPA Response**

See Sections 2.2.10, 2.16, and 2.17.3 of this responsiveness summary.

### 3.2.18 Explain Why Threshold Criteria Are Not Met

#### Comment

The proposed plan does not adequately demonstrate that the Preferred Alternative (Alternative I) would comply with the two CERCLA threshold requirements: (1) overall protection of human health and the environment and (2) ARARs. 40 CFR § 300.430(f)(1)(i)(A); see also 42 U.S.C. § 9621(d)(2)(A). In addition, it will result in fish consumption advisories for perpetuity.

#### EPA Response

EPA's primary criteria for selection of a Superfund remedy are protection of human health and the environment and compliance with the substantive requirements of federal and state environmental laws. Once these criteria are satisfied, EPA determines the best balance of tradeoffs among the alternatives with respect to balancing criteria, one of which is cost, and modifying criteria, including community acceptance, which includes a wide spectrum of often competing concerns. As stated in ROD Sections 12.1 and 12.2, Alternatives E, F, G and I all meet the two threshold criteria of Overall Protection of Human Health and the Environment and Compliance with ARARs.

### 3.2.19 Address Issues in Meeting Threshold Criteria

#### Comment

Protection of human health and the environment is the statutory standard for cleanup under CERCLA. 42 U.S.C. § 9621(b)(1). Under the discussion of this criterion, interim risk targets for end of cleanup construction were developed by EPA "to specify the level of risk that is ideally achieved through active cleanup" and to determine if alternatives are likely to achieve remedial action objectives that are based on human health or ecological risk. It is then presumed that if interim risk targets are met, then compliance with ARARs would be achieved within a reasonable timeframe after construction through natural recovery processes. However, Alternative I is not anticipated to meet the interim risk-based targets for RAOs 1, 2, and 6, and therefore may not achieve the associated ARARs within a reasonable restoration timeframe. As noted in the Portland Harbor Feasibility Study, for several RAOs "there are no current means to quantitatively assess the effectiveness of the alternative in achieving [preliminary remediation goals] PRGs", for some "there is insufficient information to evaluate" whether the RAO will be achieved, and for others no clear quantitative goal is presented (RAOs 3, 4, 7, 8 and 9). See Table 1 for a summary of interim risk targets.

#### EPA Response

See Sections 2.3 and 2.7 of this responsiveness summary.

### 3.2.20 Address Issues with ARARs

#### Comment

ARARs identified, but not met by PRGs, for the Site include measures of protectiveness of human health and the environment required in the Oregon Hazardous Substance Remedial Action Rules. These include:

- A 1 in 1,000,000 ( $1 \times 10^{-6}$ ) lifetime excess cancer risk for individual carcinogens.
- A 1 in 100,000 ( $1 \times 10^{-5}$ ) cumulative lifetime excess cancer risk for multiple carcinogens.
- A hazard index (HI) of 1 for non-carcinogens.

- Toxic substances may not be introduced above natural background levels in waters of the state in amounts, concentrations, or combinations that may be harmful, may chemically change to harmful forms in the environment, or may accumulate in sediments or bioaccumulate in aquatic life or wildlife to levels that adversely affect public health, safety, or welfare or aquatic life, wildlife, or other designated beneficial uses (OAR 340-041-0033).
- The formation of appreciable bottom or sludge deposits or the formation of any organic or nonorganic deposits deleterious to fish or other aquatic life or injurious to public health, recreation, or industry may not be allowed (OAR 340- 041-0007(11)).

In addition, EPA's proposed plan does not comply with the Clean Water Act. In 2000, the EPA published guidance and recommendations on the use of fish and shellfish consumption advisories in determining attainment of water quality standards and listing impaired waterbodies under Section 303(d) of the Clean Water Act (EPA 2000) 5, which includes the following statement: "EPA generally believes that fish and shellfish consumption advisories and certain shellfish growing area classifications based on waterbody specific information demonstrate impairment of Clean Water Act section 101(a) "fishable" uses. This applies to fish and shellfish consumption advisories and certain shellfish area classifications for all pollutants that constitute potential risks to human health, regardless of the source of the pollutant."

Based on our review of the proposed plan and communications with EPA, it is apparent that fish consumption advisories will be needed at the Site, possibly in-perpetuity. Based on EPA guidance, this advisory would impair the designated use of a fishable lower Willamette and Columbia rivers, and would not comply with ARARs based on state water quality standards.

#### **EPA Response**

Refer LSS Dispute Issue 8 (Appendix A of this document), Sections 2.3.2, 2.4.2, 2.8.1, 2.28, 2.33, 2.34, and 4.1.9 of this responsiveness summary.

### **3.2.21 Avoid Over-Reliance on ICs**

#### **Comment**

The cleanup plan for Portland Harbor under the Preferred Alternative will rely upon ICs, non-engineered measures intended to affect human activities in such a way to prevent or reduce exposure to hazardous substances, to prevent or limit exposure to contaminants for humans, not only during construction activities, but permanently and forever. ICs have no ability to reduce ongoing ecological exposures. ICs will include, but are not limited to, commercial fishing bans, fish and shellfish consumption advisories, signs and fences on adjacent upland areas, enhanced community outreach programs, waterway and land use restrictions through covenants or restricted navigation areas, or other dredging and structural maintenance restrictions in capping area. The reliance on ICs will be for perpetuity.

These ICs are in place of adequate cleanup, do not fully protect human health and the environment, do not fulfill trust obligations, and place the burden of cleanup (or rather inadequate cleanup) on the health of community and environment rather than on the PRPs.

#### **EPA Response**

See Sections 2.3.2, 2.17.6, and 2.28, 2 of this responsiveness summary.



### 3.2.22 Remove All PTW

#### Comment

The proposed plan does not call for complete removal of PTW at Portland Harbor. In addition, dredge depth limits were established for the purpose of cost estimation, but not justified, within the proposed plan. Based on current data and conversation with EPA, we see the greatest potential for significantly high concentrations, mass, and volumes of pollutants to be left in place in sediments adjacent to Arkema and NW Natural Gas.

All PTW should be removed and removal should be as complete as possible. Highly toxic wastes and non-aqueous phase liquids identified in sediments as PTW should be addressed through removal and treatment, as required. We recommend that, once baseline monitoring is complete and vertical delineation of sediment contamination is known, remedy design select complete removal, over capping, wherever possible. Treatment options should ensure that river character, flooding habit, or regional events such as earthquakes and impacts from climate change, do not affect that overall efficacy of the mitigation of these toxic wastes.

#### EPA Response

See Section 2.5 of this responsiveness summary.

### 3.2.23 Address Lack of a Consistent, Conservative Approach and Additional Uncertainties

#### Comment

EPA's evaluation of risk lacks consistent, conservative approaches to evaluating Site risk. In addition, EPA's evaluation of alternatives does not address the underlying uncertainty of success. Many of the methods used for evaluating risk at the Site are not conservative, have a high-level of associated uncertainty which is not adequately addressed in the proposed plan or in the Feasibility Study, and are not in line with current regulations or based on site-specific knowledge.

1. EPA indicates that the development of alternatives is based only on a subset of the COCs present at the Site and under the assumption that addressing a small group of 6 "focused COCs" would address risk associated with all 64 COCs. The development of RALs, interim risk levels, and the estimated duration to achieve RAOs are not based on all Site COCs which under-represents the true risk that will remain after construction and the duration required to achieve RAOs. Although focusing on a subset of COCs may be acceptable for simplifying remedy design, EPA must not lose sight of the fact that there are still 64 COCs contributing to toxicity. The ROD should specify that cleanup levels, other compliance metrics, and future evaluations must estimate the cumulative effects of all Site COCs.
2. PRGs should be developed for all COCs and use maximum exposure assumptions, such as higher fish consumption rates and protective scenarios for Tribal fishers. The Yakama religion and culture teaches us that every fish caught is considered a gift from the provider and is not to be wasted. Therefore, resident fish caught during salmon fishing are also consumed.
  - a. Residual cancer risk and non-cancer HIs for RAO 2 (human consumption of fish and shellfish) were calculated using risk-based PRGs assuming a fish consumption rate based on a national consumption rates (per the BERA) which

- are lower than the regional data available for Oregon and Pacific Northwest-specific fish consumption rates and tribal heritage rates. This may underestimate residual risk and HIs for RAO 2. No tribal member should be put at risk as a result of Portland Harbor contamination. At a minimum, tribal heritage consumption rates<sup>6</sup> should be used for setting cleanup levels.
- b. Residual risk and HIs for RAO 2 were calculated differently for the Site-wide risk estimates (national rate of 142 grams per day) relative to the river-mile risk estimates (using a lower fish consumption rate of 49 grams per day). Documentation within the Feasibility Study does not indicate the appropriateness of this substitution which may result in an underestimation of the residual risk by river-mile. Consistency and conservatism should be used for remedy selection as well as future evaluations and compliance metrics.
  - c. Residual risk and HIs for RAO 2 were calculated using risk-based sediment PRGs protective of fish/shellfish consumption and likely underestimate the total residual risk for all COCs. In the feasibility study, it is stated that “risk-based sediment PRGs protective of fish/shellfish consumption were not developed for arsenic, hexachlorobenzene, mercury, BEHP, pentachlorophenol, and PBDEs because a relationship between fish and/or shellfish tissue and sediment concentrations could not be determined.” Residual risk calculations should estimate the cumulative risk for the Site and include all Site COCs.
3. EPA concedes that “estimating the number of acceptable fish meals at the end of construction is not a precise calculation, but is rather a prediction that has some degree of uncertainty.” However, no discussion of the uncertainty is presented, undermining the validity of these comparisons. A discussion of uncertainty surrounding the fish consumption issue must be included.
  4. The Preferred Alternative does not reduce risk to acceptable levels post-construction. The RALs and interim risk targets are not protective. Allowing for varying RALs across the Site that are orders of magnitude different in concentration and risk does not make sense and is not protective of receptors, especially benthic organisms, organisms utilizing shallow and higher habitat value areas, and beach users. The interim risk targets set for the 9 RAOs are not achievable by Alternative I and/or are unclear. Only one interim risk target (RAO 5, sediments, protection of benthic receptors) is predicted to be met under Alternative I, although it sets the bar low with a limited target of cleaning up only 50 percent of sediments in areas exceeding 10 times the PRGs. Alternative I leaves the majority (83 percent) of the benthic receptors exposed to long-term unacceptable risk (by exceeding one or more PRGs) and they cannot be protected by ICs. Interim risk targets for impacted river bank and groundwater-to-surface water discharges are not clearly stated and these sources are left largely unaddressed in the proposed plan with no clear direction on cleanup goals or plans on the areas not included in Alternative I. Surface water interim risk targets are not defined either. Alternative G RALs should be selected to provide a cleanup that will be more protective post-construction and more likely to achieve longer-term RAOs. The ROD should provide clearer directives and post-cleanup construction goals for all impacted media, including river banks, groundwater plumes and surface water.



5. The feasibility study and the proposed plan provide little, if any, quantifiable support that achievement of the RALs, interim risk targets, and PRGs will allow the final RAOs to be achieved in a reasonable period of time. The level of uncertainty in the ability of any of the alternatives to achieve acceptable risk levels is also never discussed. The uncertainties included in each alternative, in addition to the potential risk that each alternative may not achieve the RAOs in a reasonable period of time, should be clearly discussed.

In order to address the uncertainty in the evaluation of the alternatives and the likelihood that the alternatives achieve RAOs, a conservative and protective approach should be taken for selecting an appropriate alternative. Alternative G with modifications is the feasibility study alternative that best meets these criteria. In addition, the ROD must use a consistent and conservative approach to calculate and select protective interim cleanup goals and final cleanup levels.

### **EPA Response**

Section 3 of the 2016 feasibility study report (USEPA 2016b) discusses the development of the alternatives; evaluation of the alternatives, including how risks are addressed through the proposed RALs and SMAs, is discussed in Section 4. The RALs are concentrations of focused COCs that are meant to cover all COCs posing risk to various receptors at various spatial scales. Thus, the RALs in combination, not individually, are meant to address all COCs, not just the specific focused COC. The RALs, therefore, apply everywhere within the Site where any PRGs are exceeded. The focused COCs were chosen based on their coverage of other COCs. None of the alternatives address all the risks at the Site through construction, with the exception of Alternative H. In the evaluation of alternatives in Section 4, EPA discusses those risks that are not addressed by the construction of the alternatives so that it is clear how much risk was addressed and how much remains to be addressed through MNR. EPA does not “demerit” or characterize this evaluation as a “failure” for any of the alternatives. Further, Alternative F Modified uses a consistent set of RALs outside the navigation channel, taking more active remediation steps to further reduce reliance on MNR over the proposed plan’s Alternative I (USEPA 2016c). See Sections 2.3, 2.6, 2.7, 2.20.3, 2.26.4, 2.27, 2.31, 2.33, and 2.34 of this responsiveness summary.

### **3.2.24 Follow NRRB Recommendations on Risk Level Uncertainty**

#### **Comment**

The boards’ review of the proposed cleanup action resulted in the following important recommendation that was overlooked or not included in the proposed plan, and should be included in the ROD. The levels of risk identified and communicated in documents prepared by the Region omit important information to evaluate uncertainty in some exposure pathways and do not fully address supporting information on the conclusions presented about risk to human health and the environment “...based on the information represented to the boards, some conclusions about risk did not fully communicate the risk characterization (the severity, spatial, or degree of confidence of the risk estimate) and how the remedy components will address Site risks.” “The boards recommend that the decision documents clearly explain how the proposed remedial action would achieve each RAO.”

#### **EPA Response**

EPA has explained in the ROD how the selected remedy would achieve each RAO.

### 3.2.25 Discuss Areas that Will Not Be Cleaned Up

#### Comment

The proposed plan represents a partial cleanup that over relies on natural recovery (primarily dispersion) and will result in the continued release of persistent and bioaccumulative contaminants downstream to the Columbia River. The feasibility study states, “Since much of the Site is erosional or transitional (deposition in some parts of the year and erosional in others) and contaminant mass exists in the river sediment, there is the potential for the contamination to be transported downstream.” The feasibility study also states, “The area where contamination in sediment exceeds the human health PRGs within the Site is approximately 2,190 acres and 30,048 lineal feet of river bank”, which encompasses essentially the entire Site. In addition, the feasibility study and proposed plan confirm that river banks and groundwater plumes are an ongoing source of contamination to the Site. A significant amount of the Site will not be cleaned up and will continue to be a source of contaminated sediments to the downstream Multnomah Channel and Columbia River.

EPA’s remedy should not leave so much of the contamination unaddressed, especially given the significant uncertainties that the PRGs will ever be met. The proposed plan will NOT address:

- 87 percent of the sediment area exceeding human health risk PRGs;
- 67 percent of the contaminated groundwater plume area;
- 83 percent of the sediment area exceeding benthic risk PRGs;
- 35 percent of the length of contaminated river banks;
- and unclear amounts of risk from surface water to receptors and from prey to predators.

These are site-wide post-construction estimates. By compositing site-wide risk, significant areas of the river sediments would present much higher risks, and some lower.

The proposed plan compares alternatives in terms of percent of area or length cleaned up and interim (post-construction) or residual risk. However, the ROD should also provide estimates of the volume and mass of contamination at the Site both before and after cleanup construction. This information will be further refined through the remedial action in phase in order to report on the volume and mass of contamination removed, capped, treated, and left behind for all impacted media.

#### EPA Response

As described in Section 4.1.3 of the feasibility study, the evaluation of overall protection of human health and the environment is based on post construction sediment concentrations and does not consider the mass of contamination removed. Similarly, as described in Section 4.1.5 of the feasibility study, the evaluation of long-term effectiveness and permanence is based on the methodology and assumptions presented in the BHHRA (Kennedy/Jenks 2013) and BERA (Windward 2013). Exposure point concentrations for post-remedial exposures are based on modeled estimates of contaminant concentrations in sediment at the completion of construction.

The feasibility study identified areas for dredging or excavation based on site-specific factors that may limit the effectiveness of containment in-situ treatment, ENR or MNR. Within the navigation channel or future maintenance dredge areas, removal was required to prevent restrictions on navigation. In the intermediate depth areas, a multi-criteria decision matrix was developed as a method to guide the

assignment of capping and dredging technologies, based on specific site characteristics within SMAs. In shallow areas, a mix of shallow removal followed by capping or placement of backfill was utilized to maintain current water depth and thus limit the loss of shallow water aquatic habitat. Alternative F Modified uses a consistent set of RALs outside the navigation channel, taking more active remediation steps to further reduce reliance on MNR over the proposed plan's Alternative I (USEPA 2016c). See also Sections 2.16.1, 2.26.4, and 2.27 of this responsiveness summary.

### 3.2.26 Address Non-Compliance with Short- and Long-Term Risk Goals

#### Comment

EPA's evaluation of short-term or post-construction risk (at 7 years after the start of cleanup) clearly shows that Alternative G would come closer to achieving all interim risk targets (Table 1), would result in lower risk to receptors, and would bring a much larger area of the Site closer to compliance with long-term PRGs and RAOs (Table 2).

As demonstrated by Table 3 below, EPA's proposed plan evaluation of long-term or residual risk at the end of the recovery period or reasonable restoration timeframe (time = 30 years) is very incomplete and unclear. We would argue that the residual risk calculated for RAOs 1, 2 and 6 are also unknown and that the long-term effectiveness of Alternative I, or Alternative G for that matter, is highly uncertain.

Feasibility Study Alternative G with modifications addresses more of the contaminants and remedial action objectives than Alternative I, the proposed cleanup. Within the ROD there should be a transparent process with clearly defined criteria for each type of contaminated media at the Site that will be used to evaluate compliance with interim targets and cleanup levels upon completion of each phase of construction and at the completion of construction activities. This process should be used to evaluate the success of the active cleanup by evaluating the level of risk that remains at the Site upon completion of construction activities. If risk levels and compliance criteria do not comply with stated goals, then contingency efforts should be implemented to ensure that the cleanup moves toward achieving the RAOs by reaching remediation goals and the target residual risks within the stated recovery timeframe. Risk calculations should be conservative and include all COCs and not be limited to compounds where there is a direct correlation between sediment concentration and fish tissue.

#### EPA Response

Refer to LSS Dispute Issue 8 (Appendix A of this document) and Sections 2.6, 2.17, 2.31, 2.33, and 2.34 of this responsiveness summary.

### 3.2.27 Lessen Reliance on MNR

#### Comment

Reliance on MNR is neither appropriate for all assigned site areas, nor is it supported by Site data. The Preferred Alternative (Alternative I) relies on MNR to achieve remedial cleanup levels over 1,876 acres, or 87 percent of the Site. Greater removal of hotspots (lower RALs) as well as additional dredging of targeted higher priority areas is needed.

The selection of MNR for persistent and bioaccumulative chemicals, such as those found at Portland Harbor, is a practice that is widely discouraged in both mainstream science, as well as multiple federal and state guidances. These chemicals will take 100s to 1,000s of years to break down and will continue to affect the ecological food web for much longer than the reasonable restoration timeframe.

Based on a natural recovery evaluation presented in the feasibility study, two of the Sediment Decision Units (SDUs, RM 6NAV and RM 11E) “scored unfavorable for natural recovery”, and over the remainder of the Site “natural recovery processes are neutral.” The evaluation clarifies that this does not indicate that natural recovery is not occurring, “but rather that it is less likely to occur through depositional processes.” The feasibility study information on depositional rates also indicates that the majority of the Site is characterized as either erosional or “transitional.” However, the feasibility study and proposed plan text make conclusions contradictory to the supporting data and evaluations. The feasibility study concludes that the “primary mechanism for MNR is through deposition.” The proposed plan characterizes the Site as increasingly depositional, with the exception of river miles 5 to 7. These broad-sweeping, over-generalized conclusions stated in Feasibility Study and proposed plan about the Portland Harbor Site (or major portions thereof) being a depositional environment, and therefore ideal for MNR, are misleading and not supported by site data or evaluations. They must be corrected.

Since natural recovery for MNR areas of the Site is “less likely to occur through depositional processes” it appears that for the majority of the Site area dispersion is the primary mechanism being relied on for natural recovery. Because of this, contaminants remaining in the areas proposed for MNR (87 percent of the Site) would likely be mobilized and transported downstream and into the Columbia River where they will continue to contribute impacts to Treaty-reserved resources. This non-transparent and unstated expectation that dispersion will be the primary cleanup mechanism for up to 1,876 acres of persistent and bioaccumulative toxicity is irresponsible.

In addition, Alternative I relies on leaving contamination in place, without consideration of ecological use, habitat values or plans for restoration. This does not take into account the need for connectivity, or a linear sequence of non-toxic and restored habitats that provide habitat for resting, feeding and predator avoidance along fish migratory routes throughout the Portland Harbor corridor. For example, Alternative I selects the highest concentration (least protective) RALs at the most downstream end of the Site, an area that encompasses 4 pending restoration projects (PGE Harborton, Linnton Plywood, Miller Creek, and Alder Creek) and Sauvie Island properties that have the potential for higher habitat value. The ROD needs to select a remedy that provides greater protectiveness in areas with higher habitat value and ecological use.

Because a long-term model is not available to predict the time to meet the PRGs, interim targets for risks and hazard indices were established to evaluate the potential for achieving PRGs in a reasonable time frame, which was considered to be 30 years. However, the alternatives that rely most heavily on MNR, including the Preferred Alternative, fail to meet the interim targets for several RAOs, and for other RAOs there is insufficient information to evaluate the likelihood of meeting the remedial cleanup levels. While there is significant uncertainty in the assumption that achieving interim targets post-construction will result in achieving PRGs in a reasonable time frame, it is even more uncertain when the Preferred Alternative would not even result in meeting the interim targets.

One of the factors in determining whether a recovery time frame is reasonable is the uncertainty associated with the time frame prediction. However, the proposed plan does not discuss this uncertainty. The ROD must provide sufficient information to support the statement that 30 years is a reasonable time frame, and that the Preferred Alternative will achieve RAOs within that time frame, including a discussion of uncertainties. It should also include a clearer timeline for pre-construction activities, cleanup construction start and completion, restoration timeframe start and completion, monitoring and ICs, administrative steps, etc.

The ROD should select Alternative G with modifications to expand dredging along heavily used shoreline areas, in shallow water critical habitats, in areas with restoration or mitigation plans, in areas with higher potential for recontamination due to upland sources, and in highly erosional segments. It is more likely to meet interim risk-based targets, significantly reduce the uncertainty associated the remedy's ability to meet remedial objectives, and improve ecological function of the corridor. The proposed plan also needs to include a summary of upland source control effectiveness and how ongoing sources will affect natural recovery.

**EPA Response**

See Sections 2.6, 2.16, 2.21, and 2.31 of this responsiveness summary.

**3.2.28 Address Uncertainty with ENR****Comment**

Enhanced monitored natural recovery using a thin layer (ex. 6 inches +/- of sand with activated carbon) is not a proven remediation technology for the Portland Harbor Site suite or concentrations of COCs and in sediments of similar characteristics. EPA states in the Duwamish ROD responsiveness summary that "The only relatively new technology proposed is the use of activated carbon with ENR, which is why pilot testing will be conducted before determining where and how to implement this technology." We understand that for this reason, ENR pilot studies will be conducted in various plots at the Duwamish Site to better understand that ENR methods (similar to those described for Portland Harbor) will even be an effective technology.

EPA also clarifies that ENR is only appropriate for low scour potential areas with lower contaminant concentrations. However, the Preferred Alternative proposes significant use of ENR in areas with higher scour potential, such as Swan Island Lagoon. In addition, the proposed plan states that monitoring and ICs are typically not required for ENR.

The over reliance on ENR is highly uncertain in its long-term effectiveness and does not support treaty rights. We argue that the need for ENR should be minimized by increasing the dredge footprint, its use should be avoided in higher scour potential and non-depositional areas and in areas of boat traffic, it is only appropriate for low levels of contamination, pilot studies are needed to confirm its effectiveness, and monitoring and ICs are necessary.

**EPA Response**

See Sections 2.6, 2.16, 2.21, and 2.31 of this responsiveness summary.

**3.2.29 Mitigate Nearshore Habitat Impacts****Comment**

The lower Willamette River provides habitat for a variety of animals (invertebrates, fish, birds, mammals, amphibians, reptiles) and aquatic plants which has been designated by the National Marine Fisheries Service as a critical habitat for several threatened or endangered salmon species that migrate through the Site.

The Yakama Nation has treaty-reserved or other fishing rights in areas impacted by the Site. Protection of these rights depends upon the success and permanence of the cleanup implemented. The Preferred Alternative does not adequately address the protection and mitigation of these key habitat areas. Alternative G will provide greater long-term, more permanent, mitigation of contaminated sediments along shorelines, shallows, and higher-value habitat areas and in areas exceeding benthic

criteria to help further a safer, healthier, and more abundant fishery in the lower Willamette River. In addition, ongoing, controlled discharges from groundwater and other upland sources that continue to pollute the river should be addressed immediately, and implementation of remedies should be done in a manner that avoids, minimizes, or compensates for habitat disturbance or loss. Nearshore water quality and habitat must be adequately cleaned up and protected to support a healthy and sustainable fishery.

#### **EPA Response**

See Sections 2.6, 2.8, 2.26.3, 2.26.4, 2.27, and 2.31 of this responsiveness summary.

### **3.2.30 Address Contamination at McCormick and Baxter Superfund Site**

#### **Comment**

Yakama has concerns about the significant amounts of contamination left behind at the McCormick and Baxter Superfund Site, located within the Portland Harbor Superfund Site. We understand that a ROD amendment for McCormick and Baxter will be prepared following the release of the Portland Harbor ROD and look forward to commenting on it. Short-term and long-term performance of the McCormick and Baxter remedy must be adequately monitored and evaluated, and contingencies implemented if warranted. This remedy must be protective of, and not re-contaminate the Portland Harbor cleanup. In addition, the relationship between the McCormick and Baxter Superfund Site and the Portland Harbor Superfund Sites should be more clearly explained in the ROD.

#### **EPA Response**

See Section 2.32.2 of this responsiveness summary.

### **3.2.31 Explain Cost Estimate Inaccuracies**

#### **Comment**

The accuracy of cost estimates associated with the alternatives is of concern. The proposed plan and the Feasibility Study do not present data or provide scientific information that supports the assumption that the Site will be cleaned up within a 30-year time frame. Therefore, in order to accurately compare costs of a selected remedy, the cost for each alternative should incorporate a contingency or probability factor for each alternative that incorporates the possibility of that alternative not reaching cleanup goals within the 30-year time frame. If cleanup goals are not met, additional remedial activities are likely to be required at additional cost. For example, the probability of achieving remedial cleanup levels within a reasonable time frame (estimated at 30 years) using Alternative I is much less than if Alternative G was selected. Therefore, costs associated with implementing Alternative I to reach cleanup goals could be greatly under estimated if additional remediation is needed later. In addition to potential future dredging costs that would be needed in 30 years if RAOs aren't met, there would be other additional costs as well. These repeat costs may be avoided if a more thorough cleanup alternative, such as Alternative G, is selected now to increase the probability of meeting RAOs.

Many of the costs associated with addressing Site issues are not included in the cost evaluation for each of the proposed alternatives and the estimates proposed may not represent actual costs to implement any of the proposed alternatives. For example, contaminated sediment in the navigation channel does not appear to be included in costs estimates. These costs may be deferred to other agencies, like the U.S. Army Corps of Engineers, who will be required to address contaminated sediments during maintenance dredges of the channel and deepening the navigation channel. In



addition, costs associated with mitigating groundwater contamination or recontamination from adjacent upland sources are not included the estimated costs. Cost estimates do not consider efforts to address controlled upland sources impacts river sediments and surface water quality.

### **EPA Response**

See Section 2.22 of this responsiveness summary.

## **3.2.32 Change Heavy Bias On Cost in the Remedy Decision**

### **Comment**

The messaging and politics surrounding cost and effectiveness have been heavily biased and have resulted in a remedy selection that is primarily cost-based. If allowed, EPA's Preferred Alternative I would be a big win and a huge cost savings for the responsible parties (and their insurers), and a huge loss for the health of the community and environment.

Yakama recommends Alternative G with modifications. However, it is disappointing that EPA's feasibility study did not present a suite of alternatives that met CERCLA threshold criteria. Understanding that anything we propose outside the feasibility study would not likely be considered by EPA, we are forced to work with this Alternative G because we feel that it offers the greatest protection of Alternatives A through I. This is a frustrating situation, however, recognizing these limitations we propose that, with the additional modifications offered here-in, Alternative G would help prioritize protection of important environmental resources.

The Lower Willamette Group (LWG) has continuously drawn their lines based on cost and has disrespectfully pressured EPA to choose a more "reasonable" (i.e. cheap) remedy by lobbying intensely, investing in public outreach, and littering the Site Record with one-sided accusations towards EPA, while ignoring their own role in feet dragging and refusing to conduct adequate site investigations. To date the responsible parties have been successful in applying political pressure to EPA, who has repeatedly and inappropriately allowed cost savings to be the dominant or primary remedy selection criteria. The selection of a remedy must not be dismissive of the remaining CERCLA evaluation criteria. EPA and the responsible parties continue to publically broadcast a biased, non-transparent sales-pitch (or "public outreach campaign") highlighting reductions in contamination, but minimizing the facts regarding what contamination, risks, and restrictions will remain. In addition, the responsible parties have included exaggerated scare tactics in their outreach about how cleanup will cause a loss of jobs and that cleanup costs will be transferred to the public. A more fair discussion and evaluation of cost should include the economic benefits from cleanup, which have proven to be substantial elsewhere.

Yakama Nation's recommendation for Alternative G IS reasonable and more protective than Alternative I. For example, the Portland Harbor Site is often compared to the Lower Duwamish Waterway Superfund Site (Duwamish) in Washington. The Portland Harbor Site is 5 times larger by area than the Duwamish Site. However, EPA's Preferred Alternative I, in comparison with the Duwamish ROD, has higher (less protective) PCB RALs and PRGs, would only dredge 1.5 times more sediment, be roughly 2.5 times more expensive, and take the same length of time to implement. Yakama Nation's preferred Alternative G, in comparison with the Duwamish ROD, also has higher PCB RALs and PRGs, but would dredge roughly 5 times more sediment, be roughly 5 times more expensive, would take less than 3 times longer to implement. While this comparison is a far cry from a cost analysis, it highlights the fact that Portland Harbor is a much larger "mega Superfund" site with much greater contamination problems and therefore should be expected to cost more. To reiterate, both

Alternatives I and G would leave behind greater concentrations of contaminants (and resulting risk) than the Duwamish ROD.

Portland Harbor involves over 150 PRPs, is comprised of multiple NPL and non-NPL listed cleanup sites and a large upland source area. If dealt with individually Portland Harbor cleanup would be much more expensive to cleanup than collectively. By cooperatively working together with EPA as one large mega-Site, the responsible parties have the potential for significant cost savings.

In addition, experience has shown that sites that choose cheaper, partial cleanups risk being more expensive in the long run due to factors such as monitoring and O&M expenses over longer recovery periods, lack of natural recovery due to remaining contamination, remedy failure, unresolved contamination liability issues, decreased property value, inability to pursue loans, etc. We have witnessed multiple sites where cleanup had to be supplemented or, in some cases, even redone. One doesn't need to look very far for case studies. For example, recent news coverage on the 2009 Hudson River PCB sediment cleanup indicates post-cleanup monitoring results have spurred the New York State Department of Environmental Conservation (who provided state concurrence on the ROD) to demand additional cleanup.

The responsible parties and their insurers must be called to task. Polluters must pay to restore the health of the river. It is not conscionable (or allowable by CERCLA) to expect that the health of the people and environment must instead pay in order to preserve the profits of the responsible parties.

#### **EPA Response**

See Section 2.22 and 2.23.2 of this responsiveness summary.

### **3.2.33 Provide Detail to Substantiate Remedy Selection Conclusions**

#### **Comment**

The Preferred Alternative (Alternative I) is a very limited or partial cleanup, riddled with uncertainties, inconsistencies, contradictions and uncertainties. However, the feasibility study and proposed plan conclude that Alternative I “would comply with ARARs”, would be protective of human health and the environment, would meet the threshold criteria, and would reduce fish consumption advisories in a reasonable restoration timeframe. The reality is that these conclusions are not supported in the proposed plan or site record. In addition, a decision to choose a cheaper remedy that does not meet threshold requirements cannot be allowed by CERCLA. Among other problems, Alternative I would result in fish consumption advisories on the Lower Willamette River due to contaminants from the Site to be in place after construction of the remedy, after the recovery period of 30-years, and likely forever. The ROD should provide a more detailed evaluation to substantiate remedy selection conclusions, particularly in light of the preferred alternatives' inability to achieve interim targets. Of the action alternatives, a modified Alternative G appears the most likely to achieve interim targets for the greatest number of RAOs, and would therefore be the alternative most likely to comply with ARARs and result in fish consumption advisories more in line with the rest of the Willamette River.

#### **EPA Response**

See Sections 2.6, 2.21, 2.27, and 2.31 of this responsiveness summary.



### 3.2.34 Perform Key Studies

#### Comment

A number of key studies are needed in order to develop an accurate and comprehensive understanding of the Site. This information will be required for remedy design, evaluation of implementation progress, future evaluation of compliance with remedial cleanup levels, and to assess if Site RAOs are achieved.

- **Background and Downstream Baseline and Ongoing Monitoring:** Background concentrations in surface water, sediment, and fish tissue will need to be established upstream of Portland Harbor. Similarly, impacts downstream of the Site should also be assessed and catalogued for comparison, assessing migration of contamination, and evaluating impacts to the Columbia River before and during implementation of the remedy. Monitoring should include the Willamette River, Multnomah Channel, and Columbia River downstream areas.
- **Delineation:** Within Portland Harbor, the distribution and depth of contaminants throughout the Site should be documented for remedy design, among other concerns, in order to ensure that Principal Threat Waste has been successfully treated or removed and to record where contamination will be left behind.
- **Sediment Transport and MNR:** Given the Preferred Alternative relies heavily on MNR (with some ENR), an accurate understanding of the sediment transport regime with Portland Harbor is critical to ensure progress towards remedy goals and that contaminants from the Site are not removed (eroded) from Site sediments only to be transported and deposited in off-site areas downstream in the Columbia River or Multnomah Channel. Currently, no sediment model has been accepted by EPA and the site record, as well as comments made by EPA, indicate that the Site is largely erosional or transitional (at times erosional or depositional depending on river character). If MNR is to be relied upon as a technology for the remedy, there should be empirical data and multiple lines of evidence that support its selection as an appropriate technology to implement at this, including a better understanding of sediment transport. Given the large uncertainties in existing models and an understanding that the Site is “net erosional”, implementation of Alternative G with removal and treatment of more contaminated sediments would ensure a more protective remedy.

#### EPA Response

EPA did not establish any boundaries of waste in the 2016 feasibility study report (USEPA 2016b). EPA developed estimates of various types of waste based on existing information to estimate costs in the feasibility study. The figures show the extent of the evaluation based on various assumptions identified in the feasibility study report. RAL boundaries and cap designs will be established in remedial design. EPA agrees that additional data collection will be required to determine the appropriate design and waste treatment and disposition requirements during remedial design per the ROD decision tree.

EPA used a robust data set provided by LWG, including sediment data collected as recently as 2013 and fish tissue data collected as recently as 2012, to develop the alternatives in the 2016 feasibility study report. The data set includes 2,259 surface and 975 subsurface sediment samples collected during the remedial investigation to characterize the nature and extent of contamination. EPA does not believe there are any errors or omissions in the CSM and that the information used in the 2016 feasibility study report is sufficient to develop and select a remedial alternative. However, EPA

acknowledges that additional data will be collected during remedial design. These data will be used to support establishing remedial action footprints, technology assignments, use restrictions or other ICs, treatment and disposal of dredged material, mitigation requirements, among others. See also Sections 2.17.3 and 2.26 of this responsiveness summary.

### 3.2.35 Implement NRRB Recommendation on Performance Monitoring

#### Comment

The boards' review of the proposed cleanup action resulted in several important recommendations including: "The boards note that at many large contaminated sediment sites, monitoring plays an important role in remedy performance evaluation." "The boards recommend that the Region address and clarify the role of a monitoring plan in the site decision documents." This recommendation appears to have been overlooked or not included in the proposed plan, and should be included in the ROD.

#### EPA Response

See Sections 2.17 and 4.1.3 of this responsiveness summary.

### 3.2.36 Provide Clear Metrics and Monitoring Goals

#### Comment

Monitoring is an invaluable evaluation tool that can be used to assess the completeness of remedy implementation, remedy effectiveness, and the need for contingency actions. The proposed cleanup plan does not clearly define how Site progress will be evaluated and how compliance with regulatory requirements and cleanup objectives will be measured. Without clearly outlining compliance criteria or metrics, a meaningful assessment of the project progress cannot occur. In addition, if the cleanup does not proceed as expected, there is no contingency plan in place to ensure protectiveness for human health and the environment. The ROD must include more adequate detail on how progress and compliance will be measured. More clear and specific information is needed on interim and long-term metrics, how and where they will be monitored or evaluated, timelines, and contingencies.

- **Clear Framework and Metrics:** Although, the specific details of monitoring programs are prescribed in project or action-specific monitoring plans, the overarching goals and program implementation should be made more clear in the ROD. The proposed plan does not, but should, explain how monitoring will be integrated into the cleanup process and clearly define monitoring goals or key elements. In addition, more clear metrics on post-construction, interim, and long-term goals during the recovery period are needed. Within the ROD, each monitoring program should be clear in its goals, process, scaling, metrics, frequency, trigger events, etc. for assessing compliance and meeting project goals.
- **Points of Compliance:** The identification of areas of attainment or points of compliance are a fundamental component in the design and implementation of monitoring programs to evaluate site conditions for setting baseline values, but also for ensuring that data collected throughout the project is consistent and collected as designed for its intended purpose and in such way to be useful in evaluating progress towards the cleanup objectives. Areas of attainment or points of compliance should be clearly defined for all COCs and all impacted media that support achieving the RAOs within the defined compliance period.
- **Upland Sources:** The complexity and size of this Site requires careful management and an understanding of the impacts associated with current, on-going, and potential future releases

from upland sources (groundwater, stormwater, bank erosion, overland flow, and overwater acts); the migration of contaminants from upstream sources; and the removal of contaminants to off-site areas in the Columbia River basin. The integration and planning of effective monitoring programs will be a key element to monitoring cleanup progress and should be included in the remedial plan.

- **Contingency Actions:** Future project decision documents should identify contingencies triggered by threshold criteria, identified action, implementation timeframe.
- **Yakama's Role:** Yakama has significant concerns about monitoring and expects to participate in development of monitoring strategies for Portland Harbor.
- **Example Monitoring Needs by Media Type:** Examples of important monitoring programs and target media are summarized in the table below. For example, in-river groundwater plumes should be delineated and monitored in order to evaluate areas of potential recontamination concern and to assess that source control measures are implemented and effective. Fish tissue monitoring will be essential to evaluate progress towards removing Site-specific fish consumption advisories and other ICs that limit the beneficial use at the Site. Surface water quality, upstream loadings, and the downstream migration of contaminants will be fundamental in evaluating impacts from the Site to the Columbia River, impacts from implementation of the remedy, and compliance with ARARs.

#### **EPA Response**

See Sections 2.17 and 4.1.3 of this responsiveness summary.

### **3.2.37 Provide Acceptance Criteria for Caps and Daily Cover**

#### **Comment**

The ROD must outline acceptance criteria that meet the PRGs, applicable ARARs for all contaminants, and construction quality criteria for imported cap and daily cover materials.

#### **EPA Response**

Final cleanup levels for all COCs and all applicable ARARs (including action specific) are contained in the ROD. Construction quality assurance criteria for cap/residual layer placement will be identified during the remedial design phase of the project.

### **3.2.38 Specify PCB Analysis Methodology**

#### **Comment**

PCB criteria (RALs and PRGs) are stated in the proposed plan; however, the methodology is not specified. The ROD must specify that for all media PCB analysis should include all congeners, and not simply aroclors. The aroclor analysis does not include all congeners, has higher detection limits and therefore is under-representative of risk. The advantages of congener analysis are that data are more representative of site conditions and therefore more useful for understanding toxicity, risk, weathering, biotransformation, causation, as well as fingerprinting sources. We understand there are reasons to include aroclor analysis such as outdated Clean Water Act water quality criteria. This is an example of how science has evolved and improved, but regulations have not kept up. If aroclor data are needed for certain media, it should be in addition to congener analysis and not in place of it.

**EPA Response**

Refer to LSS Dispute Issue 6 (Appendix A of this document) of this responsiveness summary.

**3.2.39 Conduct an Environmental Justice Analysis****Comment**

An environmental justice analysis of the Portland Harbor Site has been completely overlooked (see 2014 Duwamish ROD, sections 6.1, 10.3.3, and 13.2.8) and should be conducted.

**EPA Response**

See Section 2.35 of this responsiveness summary.

**3.2.40 Use Upstream to Downstream Cleanup Sequence****Comment**

In past conversations with EPA, management indicated that cleanup would be sequenced in the order in which responsible parties were willing to cooperate. We strongly urge remedy implementation to be sequenced so that dredging is conducted starting at the upstream end and working downstream in order to prevent recontamination.

**EPA Response**

Where possible, remedial action would be sequenced by area, generally moving from upstream to downstream where possible, capping/dredging contaminated sediment, before moving on to the next area. The actual remedial action sequencing would be developed during remedial design phase of the project.

**3.2.41 Clarify Use of Waivers****Comment**

The ROD must clarify how, under what circumstances, and at what point in time a waiver of ARARs may be considered. For example, a use attainability analysis or other evaluation supporting a technical impracticability waiver.

**EPA Response**

See Section 2.3 of this responsiveness summary.

**3.2.42 Follow NRRB Recommendation to Define Recovery Timeframe****Comment**

The boards' review of the proposed cleanup action resulted in several important recommendations that were overlooked or not included in the proposed plan, and should be included in the ROD.

The board recommended that EPA Region 10 (the Region) "clearly communicate to the local community and other stakeholders the anticipated timeframe needed to carry out the cleanup's active phases, including the time needed to undertake the remedial design and the remedial action phases, and to clearly describe the anticipated recovery time needed after completion of the selected remedy's active phase, such time as the time aquatic receptor tissues will need to recover."

**EPA Response**

See ROD Section 14.2 and responsiveness summary Section 2.21.

### 3.2.43 Clarify the Five-Year Review Schedule

#### Comment

The ROD must clarify the schedule for five-year reviews. For example, we understand these reviews can vary beginning 5 years after construction starts or ends. In the case of Portland Harbor, a construction period of 7 years or longer justifies the need for a more formal evaluation(s) during construction to help understand how effective the cleanup is and, if needed, adjust the cleanup design or construction strategy. Five-year reviews should include an evaluation of the need to implement new sediment remediation technologies to assist in the further reduction of Contaminants of Concern in sediments, surface water and/or fish tissue (ex. Duwamish 2014 MOA).

#### EPA Response

Following construction, there will be long-term monitoring until the cleanup goals are achieved and beyond. Monitoring will be conducted for pre-remedial design and remedial design. In addition, the first five-year review will take place five years after the start of construction. Also, see Section 2.17.3 of this responsiveness summary.

### 3.2.44 Provide a Contingency Plan

#### Comment

Given all the uncertainties, the remedy selected should include appropriate contingency measures. EPA's Contaminated Sediment Remediation Guidance for Hazardous Waste Sites<sup>10</sup> states that contingency measures should be included as part of a MNR remedy when there is significant uncertainty that the remedial action objectives will be achieved within the predicted time frame. For example, new technologies can be incorporated into an explanation of significant difference or ROD amendment after the ROD is issued, based on five-year reviews. EPA has authority to alter the remedy even if the change or associated cost increase differs substantially from the ROD. See NCP at 40 CFR § 300.435(c)(2).

In light of the multiple layers of uncertainties associated with Alternative I, the ROD should identify the contingencies that will be implemented if an alternative is not achieving the interim risk targets and not recovering towards RAOs after implementation at an adequate rate. This should be included in what is to be provided to the public for review, along with a clear timeline and criteria for the decision to move forward with a contingency plan. Additional contingencies could include increased dredging, in-situ remediation, ENR, source control, new remediation technologies, etc. We suggest a timeline of 10 years post cleanup construction (ex. Duwamish ROD) for making decisions regarding the need for contingencies. Robust monitoring would be needed to evaluate site conditions and recovery rates.

#### EPA Response

See Section 2.17 of this responsiveness summary.

### 3.2.45 Provide Rationale for Using RM 16 as Background

#### Comment

Background sediment samples collected at river mile 16 (RM 16) are located in close proximity to a known PCB source (a waste water treatment plant per conversation with EPA). DEQ has also summarized data gaps and source control needs for inputs upgradient of the Site. EPA has stated that they will continue to pursue evaluation of anthropogenic background values at RM 16, despite influence by known and ongoing sources, yet has failed to provide information on the problems and

uncertainties associated with background values in the proposed plan. The ROD must include a transparent written and visual description of upgradient sources and rationale for their decision to continue using RM 16 to establish background based cleanup levels. Background anthropogenic sources should also be addressed in regional source control efforts.

#### **EPA Response**

See Section 2.17.6 of this responsiveness summary.

### **3.2.46 Include NRRB Recommendation for Source Control Management in ROD**

#### **Comment**

The boards' review of the proposed cleanup action resulted in several important recommendations<sup>11</sup> that were overlooked or not included in the proposed plan, and should be included in the ROD. "The boards recommend that the Region work with the state to establish a timeline for upland source control of contaminants to the Willamette River so that upland remediation can take place before or at the same time as in-river treatment and dredging/capping of river sediment. The boards further recommend that the Region work with the state to ensure that surface water/groundwater discharged into the river from all of the more than 100 contaminated upland locations meet the relevant maximum contaminant levels. In addition, the boards recommend that the Region consider including in its decision documents clear criteria for evaluating when source control is sufficient to start remedial action, and that EPA continue to work with the state to ensure that source control actions are completed in a timely fashion. The boards also recommend that the Region consider whether undertaking source control actions using CERCLA or other federal authorities might be appropriate to ensure the EPA-selected remedial action's integrity."

#### **EPA Response**

The selected remedy relies on the adequacy of DEQ's source control to achieve cleanup levels and RAOs and to prevent recontamination of the Site. It is EPA's expectation that DEQ's upland source control actions will adequately address groundwater contamination (the plumes). The cleanup of known or potentially contaminated upland sites is tracked in DEQ's Environmental Cleanup Site Information database, which is available online at <http://www.deq.state.or.us/lq/ECSI/ecsi.htm>, and source control efforts are summarized in DEQ's Portland Harbor Upland Source Control Milestone and Summary Report (<http://www.deq.state.or.us/lq/cu/nwr/PortlandHarbor/jointsource.htm>). Source control continues to be a separate requirement for this project. EPA is actively participating with DEQ on source control efforts. Also, please see Section 2.27 of this responsiveness summary.

### **3.2.47 Address Upland Source Control Needs**

#### **Comment**

Upland Source Control remains uncontrolled without a clear plan on when it will be implemented. Within the ROD, EPA must provide greater transparency and directives regarding the progress and effectiveness of upland controls, as well as a summary of data gaps, source control needs, and strategy.

Source control is jointly tackled by multiple agencies including EPA, DEQ, and City of Portland, with the 2005 Portland Harbor Joint Source Control Strategy document<sup>12</sup> guiding efforts. This plan should be updated as soon as possible, and should continue to be updated periodically. New information and changes in sources have undoubtedly occurred in the past 11 years, and the prioritization of sites, as well as the source control framework and strategy needs to be re-evaluated.



The most recent and comprehensive source control summary was prepared by DEQ in 2016. Although progress has been made, this document has identified an overwhelming number of unresolved data gaps and source control needs surrounding the Site, as well as upstream. The DEQ implementation of upland source control remedies is intended to eliminate, control or minimize all sources of contaminants from on-going and future discharges of stormwater, groundwater, soil erosion, and other direct sources to the Portland Harbor Site. With respect to upland cleanup sites, DEQ's management of Portland Harbor is currently primarily a voluntary process and many of the cleanups appear to be interim (partial cleanups), rather than final actions. DEQ does not seem to be effectively utilizing its removal authority to require immediate design and implementation of permanent source control measures prior to implementation of the remedy at the Site. Many sites have documented uncontrolled sources, investigations only partially completed, or property owners who have never responded to site assessment requests.

Currently, there are numerous upland sites with moderate or high recontamination potential for the Portland Harbor cleanup. All of the sites listed in the table below have current, on-going, uncontrolled releases to the lower Willamette River. In addition to these sites, DEQ has identified numerous facilities or areas where releases are suspected but investigations have not been completed.

If the DEQ cleanup program remains voluntary and control of these sites is not completed once the sediment remedy is implemented, the risk for recontamination of sediments through unmitigated groundwater, stormwater, and other direct discharges to the river remains high. The ROD needs to provide a clear timeline and strategy for how EPA and the state will apply their collective authorities at these state-lead upland suspected or confirmed cleanup sites that impact Portland Harbor where investigations and cleanups are not moving forward adequately (or not at all in some cases). There are also several recalcitrant federal cleanup sites where EPA needs to become more involved (ex. US Moorings and US Navy).

The proposed plan provides very little information on cleanup of upland river bank and groundwater sources to Portland Harbor sediments. It appears, but is not completely clear, that the proposed plan may be deferring this work to the state. However, in their 2016 summary report, DEQ has deferred the selection of river bank erosion source control measures, mitigation designs, permitting, and overall implementation to EPA. The ROD needs to require a more comprehensive cleanup of river bank and groundwater plume contamination, as well as provide transparency and clarity on how EPA and the state will address these media and how ROD criteria will apply to these sources. Baseline monitoring should include an investigation of areas with suspected contamination that have not been adequately investigated to inform cleanup design.

EPA needs to clarify how the ROD and other specific efforts will address the numerous other upland contaminant source control needs and data gaps that need to be addressed, including floodplain soils, stormwater discharges, groundwater seeps, combined sewer overflow (CSOs), railroads, and federal, city, DOT, port and county facilities or discharges not necessarily under DEQ purview. Also of concern is the fact that configurations of the Big Pipe construction make it difficult to trace pollutant load from a specific source area to a discharge point.

There has been no commitment from EPA to take enforcement actions or to use its authority to compel cleanups for upland sites that currently impact the quality of water and sediment in Portland Harbor. The proposed plan does not address the transmission of contaminants from sites where source control actions are not completed by DEQ prior to the implementation of the Portland Harbor

cleanup. If source controls are not implemented, continuing transport of contaminants will diminish the overall effectiveness of any remedy EPA implements.

The ROD should identify milestones for the upland source control work based on the in-river remediation schedule that triggers intervention by EPA in the upland source control remediation efforts. This timeframe should be identified so that EPA has adequate time to implement actions to address source control issues prior to adjacent or downstream in-river work.

#### **EPA Response**

Refer to Section 3.2.46 of this responsiveness summary.

### **3.2.48 Prevent Recontamination**

#### **Comment**

Based on the population density and types of activities surrounding Portland Harbor, as well as upstream, future re-contamination is a certainty. The ROD needs to address how recontamination will be handled; clarify roles of federal, state, and local programs in addressing recontamination; and begin developing the framework for a monitoring program that will inform source control efforts on where recontamination is coming from (ex. upland sources, in-river transport of sediments, etc.). EPA has a continued role in source control and prevention and cleanup of recontamination and cannot shift this responsibility entirely to the State of Oregon.

#### **EPA Response**

Please see Sections 2.17, 2.27, 2.37, and 4.1.10. Per the ROD decision tree and design elements, river banks within SMAs will be evaluated for their recontamination potential. In addition, river banks outside of the SMAs will be evaluated by DEQ for recontamination potential and potential action. Refer also to ROD Section 14.2.5 and Sections 2.26.2, 2.26.3, 2.26.4, and 4.2.10 of this responsiveness summary.

### **3.2.49 Develop a Regional Plan for Addressing Contaminants**

#### **Comment**

The Portland Harbor cleanup should be included in a more comprehensive approach to addressing the contaminants in the Willamette River watershed by implementing a coordinated multi-program effort using EPA, State of Oregon, and local authorities. The cleanup at Portland Harbor is a long-term investment in community and ecological health. In order to sustain a successful remedy that is protective of human health and the environment, EPA should implement a comprehensive and integrated cleanup approach that addresses the complexity of the contaminant challenges. This will require participation of coordinated programs to identify, plan, implement, and monitor activities necessary to ensure compliance with environmental laws and regulations. This is of particular importance to ensure that sources within and upstream of Portland Harbor do not cause recontamination of the Site or otherwise diminish the efforts to remediate Portland Harbor.

The ROD should include a means for assuring that these sources will be cleaned up. In addition to the ROD, on a region-wide scale additional use of existing Clean Water Act authorities for TMDLs, discharge permits, and enforcement actions must be considered. For example:

- Develop an integrated watershed management plan with subwatershed approaches to return the Willamette River to a status of health.



- Particularly focus is needed for contaminants such as DDT, DDE, PCBs, and PAHs that are causing 303(d) impairment of water and for which currently there is neither a TMDL underway nor a process to delist.
- Implement a Willamette River basin-wide TMDL.
- As a pre-cursor to a TMDL, consider the benefits of implementing a Willamette River basin-wide Pollution Loading Analysis to help evaluate the cumulative effects of pollution, aid in identifying sources and their relative contributions, and help prioritize upland source control efforts (ex. Green-Duwamish Watershed pollution loading analysis).
- Consider updating state NPDES permitting requirements. For example, see recent Washington Department of Ecology proposal to modify the Phase I Municipal Stormwater Permit to include requirements for Seattle to adaptively manage their municipal stormwater discharges to the Lower Duwamish Waterway, as well as their updated Industrial Stormwater General Permit (ex. more frequent cleaning and sampling of process lines).
- Revisit the 2009 EPA study<sup>14</sup> recommending the following for the Columbia River Basin, which includes the Willamette River basin: (1) expand toxics reduction activities; (2) identify, inventory, and characterize the sources of toxics in the basin; (3 & 4) develop regional, multi-agency long-term monitoring and research programs; (5) develop a data management system that will allow us to share information on toxics in the basin; and (6) increase public education about the toxics problems and resource needs.

EPA needs to make a commitment, on a multi-program level, to ensure the long-term success of the Portland Harbor cleanup, reduce contaminant inputs to the Willamette River, prevent Site re-contamination, and restore the health of the Willamette River to its beneficial uses. This commitment must involve collaboration with state and local partners, tribes, and public interests. The Yakama Nation expects to be an active participant in the development of a regional plan.

### **EPA Response**

In addition to addressing contamination at the Site, EPA recognizes that Portland Harbor is only a small part of the greater Willamette River watershed system. EPA anticipates working with DEQ to develop a comprehensive strategy for identifying and addressing additional sources of contamination to the selected remedy. This effort will include consultation and coordination with tribes, the community, local government, and other interested parties. Refer to LWG Dispute Issue 1g (Appendix A of this document).

EPA will continue the working relationship established under the 2001 MOU for tribal government input to ensure that their concerns and interests are considered whenever EPA actions may affect tribal interests.

### **3.2.50 Do Not Use Roosevelt Landfill**

#### **Comment**

Yakama Nation requests that EPA consider landfill options outside of Yakama Ceded Lands for disposal of wastes from the Site. The feasibility study indicates that other acceptable landfill options are available which include the Columbia Ridge Landfill (Subtitle D) and Chemical Waste Management (Subtitle C) in Arlington, Oregon. These landfills have adequate capacity; available rail transport, and accept wet waste (Columbia Ridge).

**EPA Response**

EPA will consider the potential use of any permitted facility (Subtitle D or C) proposed for disposal of dredged material during remedy implementation.

For cost estimating purposes only, the 2016 feasibility study report (USEPA 2016b) assumed Roosevelt Landfill as a representative Subtitle D facility used for disposal of contaminated sediments. Since it is anticipated that responsible parties will implement the remedy, those parties will propose disposal facilities for EPA's approval.

**3.2.51 Do Not Use a CDF****Comment**

Yakama Nation opposes the use of a CDF at the Portland Harbor Site because high-level contaminated sediments should be permanently removed from the river. The construction of a CDF would destroy an estimated 14-acres of critical, high-value habitat and poses an unnecessary risk for future contaminant releases. Although modeling of the proposed CDF shows concentrations of COCs released from the CDF will be below water quality criteria, the model shows releases of COCs will continue to the Willamette River in perpetuity which may result in further impacts. This seems counter-productive to the goal of cleaning up the Site and achieving the RAOs.

The CDF modeling excludes modeling of the lighter fraction COCs since as stated in the feasibility study, "heavier, more hydrophobic and recalcitrant compounds are expected to have the greatest effect on long-term water quality issues in CDFs." Lighter fractions of the COCs should be modeled since the short-term water quality issues could be greatly affected. In addition, an evaluation of existing technologies that could be implemented that would eliminate the leaching of COCs from the CDF into the Willamette River is lacking and should be discussed. The analysis of the use of the CDF should also include the possible future effects on releases from construction and operation, global warming, flooding, and potential earthquake hazards.

**EPA Response**

Refer to Section 2.14.1 of this responsiveness summary.

**3.3 Confederated Tribes of the Grand Ronde****3.3.1 Select Alternative G****Comment**

Of primary concern is that the proposed plan is not sufficiently protective of human health and the environment. Alternative G, while still insufficient in some respects from Grand Ronde's viewpoint, would be far more effective in protecting human health and the environment than the alternative EPA advances in the proposed plan (Alternative I)

**EPA Response**

Refer Five Tribes' comment responses (3.1.12, 3.1.23, 3.1,25, and 3.1.26).

**3.3.2 Continue Engagement with Tribe to Ensure Protectiveness****Comment**

Grand Ronde's first priority in terms of the Portland Harbor cleanup is the health and safety of all of its Tribal members. It is unacceptable to the Tribe that Tribal members are at increased risk of harmful effects from contaminants when they eat their traditional foods. The remedy must be sufficiently

protective of human health and the environment, including Tribal members and Tribal cultural resources. As a consulting sovereign nation and a Trustee of natural resources at Portland Harbor, Grand Ronde requests the continued engagement with the Tribe in the cleanup past the ROD and throughout all remedial design, operation, and monitoring phases. The end result of the Portland Harbor cleanup should be that the lower Willamette River supports Tribal cultural resources, and that Tribal members can use and consume those resources at traditional levels without risk of ill effects from exposure to Portland Harbor contamination.

### **EPA Response**

EPA considered numerous factors, such as tribal fish consumption rates and the effects of contamination at the Site on treaty-protected resources, to develop remedial alternatives for the Site. Once implemented, the cleanup will improve fish habitat and help further the tribes' rights to fish. The scope of the CERCLA action is restricted to approximately 10 miles of the Willamette River, but upstream of the Site, background levels of PCBs from "clean" areas exceed the acceptable range based on conservative risk estimates, meaning that even with a more stringent remedy proposed fish advisories would likely remain in effect following the cleanup. Refer to response to comment on background and fish advisories.

Throughout the remedial investigation/feasibility study process, EPA has fostered meaningful engagement with the MOU partner tribes and has encouraged and facilitated Tribal involvement. Consistent with EPA's Policy on Consultation and Coordination with Indian Tribes, EPA also held consultation meetings at tribal council locations from January 12 through February 4, 2016 and from July 19 through July 26, 2016, during the public comment period on the feasibility study report (USEPA 2016b) and proposed plan (USEPA 2016c). In addition, representatives for the Confederated Tribes and Bands of the Yakama Nation met with Administrator McCarthy on July 26, 2016 in Washington, D.C. A summary of the consultation meetings, along with any written materials provided, are in the Administrative Record.

The consultation process also included discussions on treaty rights, as directed by the February 2016 Guidance for Discussing Tribal Treaty Rights, which was issued in order to enhance consultations in situations where tribal treaty rights may be affected by a proposed EPA action. including conducting formal Tribal consultations. Government-to-government consultations occurred in January and February of 2016 in anticipation of the proposed plan.<sup>5</sup> EPA will continue this working relationship for tribal input under the MOU and EPA's Policy on Consultation and Coordination with Indian Tribes, to ensure that tribal concerns and interests are considered whenever EPA actions may affect tribal communities – both related to treaty rights and other impacts. The ROD includes language regarding tribal coordination and consultation and community involvement in all activities post ROD.

The Site is complex and the remedy preferred by EPA to perform an effective cleanup under these complexities will require an ongoing partnership and collective input from both the state and the tribes in communication with EPA, for critical decisions made throughout the implementation of the in-river cleanup.

### 3.3.3 Review Attached Documents Supporting Alternative G

#### Comment

Please review the attached technical recommendations and comments showing why Grand Ronde must advocate for, and EPA must select, Alternative G with some additional improvements including assurance that the remedy components can withstand severe flooding and a Cascadia Subduction Earthquake.

#### EPA Response

Please see Sections 2.6, 2.19, and 2.31 of this responsiveness summary.

## 3.4 Confederated Tribes of Siletz Indians

### 3.4.1 Address the Comments Submitted by the Five Tribes

#### Comment

The Confederated Tribes of Siletz Indians (Siletz Tribe) fully joins in the attached Five Tribes' Comments on EPA's proposed plan for the Site. The Siletz Tribe writes separately to emphasize the importance to its members of a robust and sufficiently protective remediation of the Site.

#### EPA Response

Comment noted.

## 3.5 Confederated Tribes of the Warm Springs Reservation

### 3.5.1 Select a More Aggressive Alternative

#### Comment

None of the alternatives in the proposed plan and feasibility study meet our vision for cleanup of the Site. Alternative I, the preferred alternative identified in the proposed plan, is concerning because it does not give us confidence environmental and human health risks will be eliminated post 10-years of construction. We do however acknowledge that dredging is not a viable option in all locations and therefore other remedies will need to be employed. This alternative is highly reliant on passive remedial technologies, primarily MNR, ENR, and capping. All of which have associated risks and leave contaminants in the sediment.

#### EPA Response

Please see Sections 3.1.3 and 3.1.33 of this responsiveness summary.

### 3.5.2 Do Not Use MNR/ENR in the Most Contaminated Areas

#### Comment

The application of MNR and ENR does not remove all contamination from the sediments; the performance and outcome is unknown; the dynamic nature of the Willamette River particularly in the face of climate change is not well understood; and long-term costs associate with monitoring these applications for perpetuity exist. The assumption that natural recovery will occur by the movement of clean sediments mixing with contaminated substrate leaves an unacceptable risk particularly since modeling efforts in the Willamette were unable to confidently predict particle movements. Both MNR and ENR should only be used in areas that are known to be depositional or considered neutral. The designation of depositional and erosive area is not always clear in the proposed plan and feasibility

study; therefore, in the remedial design, new data may need to be collected and new technologies assigned as appropriate. In the most contaminated areas, MNR and ENR should not be considered.

#### **EPA Response**

Please see Sections 2.16.1 and 2.17.3 of this responsiveness summary.

### **3.5.3 Use a Minimum Cap Thickness of 16 Inches Instead of 12 Inches**

#### **Comment**

A significant number of sites have been identified for capping. Capping assumes that partial removal of contaminated sediments can then be topped with various materials to create a protective cover. It will be important to ensure that the appropriate caps are assigned based on the contaminants present, for example, a reactive cap may not be appropriate in areas with metals present. Caps that are predominantly sand should incorporate organic materials to improve their ecological function. The Willamette River is home to the largest individual run of lamprey in the Columbia River Basin. Lamprey are reliant on finding burrowing habitats, and may select areas where capping has been implemented. The addition of organics will not only improve the function of caps but also improve burrowing locations. However, we are concerned that the depths of the caps are not adequate for lamprey. Currently, the proposed cap thickness is 12 inches. We recommend a minimum, total cap thickness of 16 inches to ensure lamprey are not burrowing into contaminated sediments.

#### **EPA Response**

Please see Section 3.1.37 of this responsiveness summary.

### **3.5.4 Clarify Plans for Addressing Groundwater**

#### **Comment**

It appears in Alternative I, only 33 percent of the groundwater plume will be addressed and remediation plans are only available for 65 percent of the upland areas. This is of concern since these are both pathways for contamination to reach the Site. The proposed plan describes the working relationship and responsibilities between DEQ and EPA within the Site. With few exceptions it is the responsibility of DEQ to address the groundwater plume and upland areas. It is unclear the role of EPA if remedial designs do not adequately address contaminants entering the waterway. Without plans to address these, continued and re-contamination is possible.

#### **EPA Response**

Please see Section 2.27 of this responsiveness summary.

### **3.5.5 Ensure ICs are Used**

#### **Comment**

Alternative I require majority of the Site to have long-term monitoring, maintenance and a guarantee of funding for perpetuity to ensure their effectiveness. It is important that post de-listing that the commitment of funding and maintenance continues. There are no assurances that MNR, ENR, and capping will perform as expected since contaminated sediments are not being removed completely and there is no long-term information available that suggests their success. Because many of the most toxic contaminants have long aquatic half-lives and will remain in the substrate, ICs will continue to be necessary including fish consumption guidelines and are likely to restrict access to waterways and land use.

**EPA Response**

Please see Section 2.28.1 of this responsiveness summary.

**3.5.6 Reconsider Alternative G****Comment**

Alternative G is the only defensible option within the proposed plan and feasibility study; however, it still poses risk. Alternative G is the only alternative that meets EPA threshold criteria of “Overall Protection of Human Health and the Environment” and “Compliance with ARARs”.

Alternative G removes the most contaminants. Dredging to remove all contaminated materials should be the largest portion of remedy. Dredging should be considered in all locations over MNR, ENR, and capping; even in nearshore areas. Where non-aqueous state liquids (NAPLs) and PTW are present, dredging should be the technology of choice to eliminate the risk of cap breaching and re-contamination. Further, we are concerned that in areas with the presence NAPLs and PTW, these contaminants, may move through sediments and cause re-contamination. In locations where nearshore structures are present, and dredging does not appear to be an applicable technique, removal of the structure(s) should be considered and completed to the extent practicable. While dredging is the most costly solution, it eliminates the long-term costs associated with MNR, ENR, and caps for perpetuity and eliminates the need for ICs. Additionally, ICs are difficult to enforce and could compromise human health and the environment post-cleanup and de-listing of the Site. Removal of contaminated substrate has the highest environmental, human health, and economic benefit.

**EPA Response**

Please see Sections 3.1.8, 3.1.12, 3.1.23, 3.1.46, and 3.1.61 of this responsiveness summary.

**3.5.7 Ensure Any CDF Is Secure in Perpetuity****Comment**

For materials removed during dredging, a confined disposal facility (CDF) could be developed on-site but would need assurances that the containment of contaminated materials would be secured for perpetuity. An off-site CDF also could present risks to both the Willamette and Columbia rivers. To determine a CDF location, EPA should conduct a risk analysis that takes into account: the permanence of containing contaminated sediments; the potential risks or benefits to each location; and characterization of the risk associated with the transport of these materials to the Willamette, Columbia and adjacent communities.

**EPA Response**

Please see Section 3.1.41 of this responsiveness summary.

**3.5.8 Update, Advertise, and Better Educate the Public on Fish Advisories****Comment**

Without full removal of all contaminants that affect human health, fish consumption guidelines will not be eliminated for all portions of the consumer population. During the remedial design, Guidelines need to be updated to protect the tribal demographic and include the entire fish not just fillets. Additionally, the fish consumption guidelines need to include migratory species, particularly lamprey and sturgeon, which are likely to spend multiple years within the Site and are known to accumulate toxins based on high lipid content and species longevity. Because fish consumption guidelines are

hard to enforce, greater outreach and education need to be completed including notices in tribal media and in-community presentations.

#### **EPA Response**

Please see Section 3.1.49 of this responsiveness summary.

### **3.5.9 Commit to Engaging the Tribe throughout Remediation**

#### **Comment**

Continued commitment to communication with the Tribe is essential through the remedial phase. These conversations should include continued engagement through the Trustee Council. This includes any request by the potentially responsible parties to deviate or request flexibility from assigned remedies. We appreciate the government-to-government engagement to date and encourage it to continue with more frequency. We would, however, like to remind EPA that trust obligation includes providing a tribal consultation and ability to comment prior to documents being released to the public for review and comment.

#### **EPA Response**

Please see Sections 3.1.55, 3.1.87, and 3.3.2 of this responsiveness summary.

### **3.5.10 Hold PRPs Accountable and Remedy Damages to Tribal Resources**

#### **Comment**

We acknowledge the large effort that has gone into the development of the proposed plan and feasibility study. Further, specific comments are attached in a combined memo from the five MOU signing tribal trustees (The Confederated Tribes of the Warm Springs Reservation of Oregon, The Confederated Tribes of the Umatilla Indian Reservation, the Nez Perce Tribe, the Confederated Tribes of Siletz Indians, and Confederated Tribes of the Grand Ronde Community of Oregon). As proposed, preferred Alternative I, leans toward reduced costs for polluters without a guarantee that cleanup will be successful in the timeframe needed. Alternative G should not have been rejected based on cost to polluters and the period of construction. It appears that the criteria used to determine the preferred alternative is bias toward choosing a mid-level cleanup option by giving deference to an option that has short-term impacts during the construction phase.

The United States has a treaty trust obligation to restore the Site and habitats to protect human health and promote a naturally functioning environment where traditional practices continue, knowledge can be passed to future generations and provide healthy, harvestable populations of culturally significant species for perpetuity.

We expect EPA to hold the responsible parties accountable and use enforcement as necessary to remedy damages to tribal resources by:

- Completing cleanup in a reasonable timeline of 10 years post-construction;
- Removal of contaminated sediments by dredging at all practicable locations with less reliance on MNR, ENR, and capping;
- Elimination of fish consumption guidelines for all fishes within the Portland Harbor;
- Development of a monitoring plan with appropriate deliverables and timelines;



- Commitment from the United States government that post de-listing of the Site, monitoring, maintenance and associate funding will continue to ensure the permanence of remedial actions; and,
- Continued communication, at all levels, with the Warm Springs Tribe.
- Threats to treaty reserved rights and human health need be taken into account during the development of the Record of Decision and remedial designs.

#### **EPA Response**

Please see Sections 3.1.2, 3.1.12, 3.1.26, 3.1.46, 3.1.55, and 3.1.86 of this responsiveness summary.

### **3.6.1 Nez Perce Tribe**

#### **3.6.1 Let Long-Term Protection of Human Health and the Environment Drive the Remedy Decision**

##### **Comment**

The Tribe has an interest in ensuring that the cleanup of the lower Willamette River is based in the best available science in order to achieve lasting protections of ecological and human health. The Tribe strongly believes that long-term protection of human health and the environment should drive the remedy decision. We have communicated this position to EPA several times over the course of our partnership and during government-to-government consultation. Unfortunately, we feel that EPA's proposed plan fails to ensure the long-term recovery of the lower Willamette River to conditions that support natural resources and the continuation of our cultural heritage and activities that rely upon the river and its habitats

##### **EPA Response**

EPA has revised its preferred alternative to Alternative F Modified. Alternative F Modified relies on application of the same remedial action levels (F RALs) throughout the Site with the exception of the navigation channel where the remedy will target PTW and sediment contamination exceeding the Alternative B RALs. Due to differences in water depth, sediment transport potential and exposure potential the use of higher RALs in the navigation channel is justified. This modification will address the majority of the comments as it does take more active steps to ensure a faster long-term recovery of the Lower Willamette River. Please also see Sections 3.1.12 and 3.1.22 of this responsiveness summary.

### **3.6.2 Select a Remedy That Meets Threshold Criteria**

##### **Comment**

The Tribe cannot support EPA's Plan because, even by EPA's own measure, the preferred alternative fails to meet the two threshold criteria of overall protection of human health and the environment, and compliance with ARARs. To address uncertainties in natural recovery, EPA applied an "interim target" approach to evaluate whether efforts will be effective to meet cleanup goals. The Tribe does not believe that EPA has adequately justified the selection of interim targets. Even if the interim targets were justified and appropriate, EPA's preferred alternative meets those interim targets for only 2 of the 9 cleanup goals. We do not understand EPA's conclusion that its preferred alternative will be protective of human health and the environment when it does not even meet most of the interim targets.



**EPA Response**

EPA has revised its preferred alternative to Alternative F Modified. Alternative F Modified further reduces the reliance on MNR, and thereby accelerates the pace at which clean up goals may be achieved. Please also see Sections 3.1.12, 3.1.22, 3.1.23, and 3.1.24 of this responsiveness summary.

**3.6.3 Do Not Focus on Short-Term Impacts****Comment**

The Tribe believes that EPA's decision to select Alternative I is based on a value judgment of the relative importance of short-term construction impacts and cost compared to long-term protection of human health and the environment. In evaluating short-term effectiveness, EPA weighed only the construction impacts of each alternative, but not also the impacts at the Site that will continue to occur and accrue until the Preliminary Remediation Goals are achieved. This approach, coupled with a comparison method that is skewed toward selecting a "middle" remedy, undercuts the purposes of CERCLA to permanently and significantly reduce the dangers associated with releases of hazardous substances.

**EPA Response**

Please see Sections 3.1.12 and 3.1.27 of this responsiveness summary.

**3.6.4 Use Conservative Estimates for Recovery and Focus on Removal****Comment**

Due to the complexity of the river's hydrology and the uncertainty about natural recovery, EPA should utilize the most conservative estimates for natural recovery processes and adopt a remedy that will focus on removal of contamination. While capping may be less expensive in the short-term, caps require long-term maintenance and monitoring. Those additional costs and risks of failure should not be discounted in identifying the most effective remedy for long-term protection of human health and the environment. Further, in order to ensure effectiveness of the remedy, EPA must include a robust and specific monitoring and reporting plan that will identify decision points for determining progress and results that will trigger additional actions.

**EPA Response**

Please see Sections 3.1.3, 3.1.4, 3.1.11, and 3.1.12 of this responsiveness summary.

**3.6.5 Eliminate the Need For Fish Consumption Advisories****Comment**

Tribal members rely on fish (both resident and migratory) for our diet at much higher rates than the general population. Tribal fish consumption is already suppressed due factors such as decreased fish populations resulting from habitat modifications and pollution, and loss of access to traditional tribal fishing sites. Therefore, fish consumption advisories are not an acceptable solution to the Tribe. After 7 years of construction, EPA estimates that fish consumption advisories would allow for approximately 50 fish meals every 10 years. This fish consumption rate is significantly lower than the tribal fish consumption rate of 1,380 resident fish meals per 10 years used in the Baseline Human Health Risk Assessment. EPA must do more to ensure that future generations of Tribal and community members can safely eat all species of fish from the lower Willamette River.

We also believe that EPA must do more to evaluate effects on migratory fish species. Pacific Lamprey is an important species to the Tribe. Currently, Willamette Falls is the only place where the traditional

lamprey harvest continues. Lamprey ammocetes spend years burrowed in sediment and therefore are likely exposed to more Site contamination than other migratory fish.

The Treaty of 1855 guaranteed to the Tribe the right to take fish "at all usual and accustomed places in common with citizens of the Territory." The Tribe would not have signed this treaty without these assurances that our right to fish would be protected into the future. The Nez Perce have held this inherent right to take fish since time immemorial. But a right to fish that is constrained by the inability to consume the harvest because fish are too contaminated to safely eat is like no right to fish at all.

**EPA Response**

Please see Sections 3.1.7, 3.1.12, 3.1.45, and 3.1.46 of this responsiveness summary.



## Section 4

# Oregon Department of Environmental Quality Comments and Responses

## 4.1 Overall Comments

### 4.1.1 Ensure Protection by Issuing a Final Decision and Initiating Cleanup Quickly

#### **Comment**

Contamination levels in some specific areas of the Harbor pose a very real threat to the health of people and families consuming resident fish and shellfish – such as carp, smallmouth bass, catfish, and crayfish – caught in those areas. High levels of contamination in these key areas also pose very significant risks to the ecosystem, including the wildlife, fish, and benthic organisms that rely on this water body. After 16 years of study, we strongly urge EPA to issue the ROD, subject to state concurrence, and begin cleaning up these areas quickly so that the river can be fully returned to its historic role as the cultural, social and economic hub of the City of Portland.

EPA must stick to the current schedule of issuing a ROD in 2016 to avoid a potential cascading series of delays. Delays could result from anticipated changes in EPA administration, growing concerns with the age of the remedial investigation data and – if new data are collected – the need to update the remedial investigation, human health and ecological risk assessments, and feasibility study. The possibility of a major delay at the expense of the health of the river, the community, and the regional economy is simply unacceptable to the state. We acknowledge that some significant project uncertainties remain; however, this is not unusual with large, complex sites. These uncertainties can and should be addressed during remedial design and factored into EPA's long-term strategy for monitoring, reporting, and incorporating adaptive management, as needed, to achieve a protective remedy.

The state encourages EPA to increase efforts in planning for timely implementation of the ROD, with a goal to complete construction within ten years following issuance of the ROD – a timeframe which is in line with the construction duration specified in the proposed plan (USEPA 2016c). Cleanup of the key areas of the Harbor which pose the greatest risks will not happen by itself. Only with a well thought out plan for how to begin work now and encourage responsible parties to participate can we succeed in making the Harbor safe for all of our communities within a reasonable time period.

A successful implementation framework will require the following key elements:

- A mechanism for the Site to be broken into smaller and more manageable work areas (i.e., sediment management areas, SMAs) so that areas posing the highest risks can be addressed sooner.
- Additional data to determine current baseline conditions, more accurately estimate future remedial design and remedial action costs, and support the allocation process. These data can be collected concurrent with remedial design, and should not delay remedy implementation.

- Incentives for responsible parties to enter into remedial design and/or remedial action agreements with EPA to expedite cleanup of SMAs.
- Partnerships with federal, tribal, state and local entities, under the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA). Partnerships help ensure that government entities have adequate resources to oversee simultaneous cleanup of multiple work areas, resulting in a cleanup that is faster and more effective than would otherwise occur. When establishing partnerships, carefully delineate EPA and DEQ's roles for overseeing the various aspects of ROD implementation.
- Options for managing the site-wide area outside of the SMAs. This may include encouraging the responsible parties to establish and contribute to a remediation trust.
- Clarity regarding EPA's intended enforcement approach. Creating a framework for increased certainty will increase the likelihood that there will be a critical mass of performing parties.

### **EPA Response**

EPA appreciates DEQ's comprehensive review of the feasibility study report (USEPA 2016b) and proposed plan (USEPA 2016c) and the state's valuable input. EPA agrees with DEQ that contamination levels in the Site pose a very real threat to the health of people and families consuming resident fish and shellfish and also pose very significant risks to the ecosystem, including the wildlife, fish, and benthic organisms that rely on this water body. EPA also shares the goal of timely construction of the final remedy to achieve the final cleanup goals within a reasonable timeframe. As DEQ indicates, significant remedial design sampling will be required to update existing information to design the cleanup. Early in that process, EPA will collaborate with the various federal, tribal, and state partners. During this planning process, EPA will coordinate remedial actions at the Site with all the stakeholders and support agencies consistent with the MOU to expedite efficient cleanup in river, upriver, and in upland areas. MOU partners will be coordinated with per the MOU framework.

As DEQ is aware and has concurred with, EPA has selected Alternative F Modified as the selected remedy. The construction timeframe for the remedy is 13 years, so it is unlikely that construction will be completed ten years from issuance of the ROD. However, EPA expects that the cleanup work will be conducted by the PRPs under CERCLA agreements with the most expeditious timeframe possible so as to better protect human health and the environment in a timely fashion. EPA will encourage the PRPs and contractors to hire locally but cannot require parties to do so. However, EPA's contractors have federal contracting goals related to the use of minority, women, veteran, and small business subcontractors and strive to use these firms whenever possible. Additionally, at large Superfund sites like Portland Harbor, EPA is often able to provide free training through the SuperJTI to train and help place local residents in cleanup-related jobs. If funding becomes available and the community expresses a desire for such training, EPA could work to make the SuperJTI training available. For additional detail or information go to <https://www.epa.gov/superfund/learn-about-superfund-job-training-initiative#tab-5>.

Specific comments regarding potential post-ROD enforcement or negotiation issues are not related to the selection of a remedy and will not be addressed in this responsiveness summary.

### 4.1.2 Address Environmental Justice through Early Action

#### Comment

Despite existing fish advisories, people – particularly low income, people with limited English proficiency, houseless, and other communities with environmental justice concerns – continue to rely on fish from Portland Harbor as a primary food source. These communities are most at risk for adverse health effects. Avoiding further delay in cleaning up the most contaminated areas of the Harbor and moving forward with implementation now is a matter of environmental justice.

The highest concentrations of the key risk drivers –PCBs, PAHs, dioxins/furans and organochlorine pesticides (DDx) – are present in up to 13 “hot spots” (i.e. SMAs) within Portland Harbor. These contaminants pose the greatest risk to people who eat resident fish and shellfish – such as carp, smallmouth bass, catfish, and crayfish – caught from these areas. At construction completion, EPA’s proposed Alternative I is estimated to reduce the human health risks from eating fish by as much as 100-times when compared to current levels<sup>1</sup>. Further risk reduction of the lesser contaminated areas will occur over the coming decade(s) as monitored natural recovery takes place, primarily through burial from upriver sediment loads and chemical breakdown.

Acknowledging that cleanup of the “hot spots” will not eliminate all health risks and that many decades are likely needed for monitored natural recovery to be fully effective over the remainder of the Site, a plan is needed to protect affected communities now.

A comprehensive update of the existing fish advisories must be implemented as soon as possible following issuance of the ROD, enhanced as new information becomes available, and must remain in place until remedial action objectives are achieved. In addition, the remedy must include active and effective community outreach and education, along with continued monitoring and reporting to the public and affected communities.

An effective early action and community outreach plan should include:

- Prioritizing the timing of remedial actions, so that high use fishing areas, publicly accessible shoreline, and high value natural resource areas are cleaned up as early as possible.
- Providing increased funding and resources for outreach programs, particularly for community-based organizations with connections and expertise needed to conduct culturally-responsive education.
- Providing increased funding and resources for monitoring and regular reporting to both the general public and to specifically targeted communities, including tribes, known to rely on the Harbor as a food source.
- Clarifying the roles of EPA and Oregon Health Authority in developing and implementing fish advisories.
- Establishing clear timeframes for implementing and monitoring fish advisories, and correcting inconsistencies within the feasibility study and proposed plan.

**EPA Response**

EPA agrees that all areas that provide recreation, fishing or other public uses, including high-use areas such as beaches and fishing areas at Cathedral Park, Willamette Cove, and Swan Island Lagoon, should be given priority in the timing of the cleanup to limit direct contact exposure quickly as possible. During the planning and execution of the remedial design, EPA will consider site-specific factors further, including high public use, in sequencing cleanup.

EPA recognizes that fish consumption advisories are more effective with community support. EPA has conducted extensive outreach efforts, including coordinating with the Oregon Health Authority, DEQ, and the City of Portland to inform particularly vulnerable communities of risks associated with contamination in the river and to discuss city/state services that may be available to assist them. Additionally, EPA has engaged with many different groups over the years, including groups that represent or are concerned about communities with environmental justice concerns. Some of the main groups that EPA has engaged with include Communities of Color, Native American Youth Association, Latino Network, Right 2 Dream Too, Right 2 Survive, Willamette Riverkeeper, the Slavic Immigrant Association, Ecumenical Ministries Oregon, the Coalition of Black Men, the Oregon Environmental Justice Task Force, Oregon Tradeswomen, League of Women Voters, Verde, Portland Harbor Community Coalition, Sierra Club Portland, Occupy St. Johns, Audubon Society, Asian Pacific American Network of Oregon, Vietnamese Community of Oregon, Portland neighborhood associations and schools. EPA will continue to work with these groups and other interested parties to make sure that future outreach efforts reach historically underrepresented communities.

During remedial design, consistent with EPA Superfund guidance on ICs, EPA will look to the PRPs to develop an ICs implementation and assurance plan that lays out the approach for the development and implementation of ICs, including fish consumption advisories and timeframes. The primary goal of the plan is to establish and document the activities necessary to implement and ensure the long-term stewardship of ICs, and specify the persons and/or organizations that will be responsible for conducting these activities such that the roles of EPA, Oregon Health Authority, and others are well understood. In development of the plan, coordination with river users, property owners, communities and other stakeholder groups will be sought with a goal to minimize the negative long-term impacts of ICs as part of the remedial action.

EPA will continue outreach and education efforts tailored to the affected communities to ensure that fish consumption advisories are effective and appropriate, advisory signs are designed, installed, and maintained effectively and at the appropriate locations, in coordination with Oregon Health Authority, Multnomah County Department of Health, and the City of Portland. In addition, based on long-term monitoring as determined in the five-year review process required under CERCLA, fish consumption advisories will be re-evaluated to ensure they are fully protective but not overly restrictive and on target to meet long-term goals of the remedial action. This may include special consideration of high use areas such as beaches and fishing areas at Cathedral Park, Willamette Cove, and Swan Island Lagoon. Additional information on ICs is provided in Section 2.28 of this responsiveness summary.

**4.1.3 Evaluate MNR Effectiveness in Detail after the ROD****Comment**

The proposed plan identifies monitored natural recovery as the primary remedy for areas of the Site that are outside of the active sediment management areas (approximately 85 percent of the Site). Monitored natural recovery is relied upon to reduce site risks and achieve project remedial action objectives over time, including a period of time after construction completion. The effectiveness of

monitored natural recovery is highly dependent on clean sediments suspended in the water column that enter the Site from upriver. Water column data collected during the remedial investigation by LWG and others indicate that monitored natural recovery is unlikely to achieve risk-based protective levels for PCBs without additional measures being taken upriver of Portland Harbor.

DEQ oversaw sediment cleanup actions in the “Downtown Reach” of the Willamette river – the four-mile reach immediately upriver of Portland Harbor – beginning with the Portland General Electric Station L site in the late 1980s. Additional cleanup actions included Ross Island Lagoon, Zidell, and Portland General Electric River Mile 11.5 East. DEQ expects that remedial actions at two other sediment sites will be completed in summer 2017 or 2018: the Former Portland Gas Manufacturing Plant at the north end of Tom McCall Waterfront Park conducted by Northwest Natural, and a PCB contaminated site on the east end of the Hawthorne Bridge conducted by Portland General Electric. Comprehensive sediment investigations by the City of Portland, DEQ, and others between 2009 and 2010 and fish tissue samples collected by LWG in 2012 have revealed potential data gaps and indicate that more investigations are necessary to confirm that the Downtown Reach will not limit the effectiveness of monitored natural recovery in Portland Harbor. DEQ will increase its efforts working with potentially responsible parties and stakeholders to expeditiously complete this important work.

DEQ is also assessing the health of the Willamette River watershed and the attainment of state ambient water quality standards, which are some of the most stringent in the country. This includes comprehensive sampling of co-located sediment, water, and fish tissue for PCBs and other contaminants throughout the Willamette River watershed and parts of the Columbia River.

The elements of a comprehensive monitoring plan should include:

- A description of how EPA will assess the effectiveness of monitored natural recovery following issuance of the ROD in consideration of improvements in Downtown Reach sediment quality, better information on watershed health, post-ROD baseline data, and long-term performance monitoring.
- Collaboration with DEQ’s cleanup and water quality programs, EPA’s CERCLA and water quality programs, tribal and local governments and other stakeholders to develop an approach for assessing performance of the in-river remedy, loading from upriver sources, and the effectiveness of source control measures.
- A process for evaluating and implementing corrective actions, as needed, for managing downstream transport of site contaminants through engineering and turbidity controls, construction monitoring, and site-wide monitoring.

### **EPA Response**

EPA will be monitoring and commenting on DEQ activities both upriver and upland to ensure that this work is compatible with the cleanup work being undertaken as part of this ROD, and to determine if further action upland or upriver is necessary. EPA agrees that a comprehensive monitoring plan will be required and will coordinate with DEQ, tribal and local governments, and other stakeholders on its development after the ROD and during the remedial design. Section 14.2.7 of the ROD describes the significant baseline sampling that will be undertaken to update existing information and to design the cleanup. Baseline sampling will include areas upstream and downstream of the areas that are the subject of this ROD.



During active remediation activities (such as dredging, capping, placement of clean sediment for ENR) there will be monitoring in the construction area as appropriate. The cleanup activities performed in the river will need to comply with water quality standards near where the activity is taking place. Air samples may be collected to make sure contaminants do not exceed worker health-based concentration levels in air as well as ensuring unacceptable levels are not leaving the work area. If contaminant levels exceed water or air quality standards, the work will be modified, and additional controls will be taken as needed. In addition, collection of sediment, surface water, pore water, and fish tissue samples will be collected during the construction period.

Following construction, there will be long-term monitoring until and after the cleanup goals are achieved (ROD Section 14.2.7). The long-term monitoring program will at least include sediment and tools to monitor sediment movement, such as sediment traps, river banks, surface water, pore water, and fish tissue samples from upstream, within, and downstream of the Site. Passive samplers may also be used to supplement fish tissue data as a surrogate for fish tissue, as well as a tool to achieve lower detection limits in monitoring the water column. Data on contaminant levels will be used for multiple purposes, such as to determine if natural recovery is taking place as expected or if any additional actions are required to achieve the cleanup goals on the planned timeline; track if fish tissue concentrations are decreasing; and monitor if the caps are effectively containing the contaminated sediment and/or groundwater. Data on contaminant levels in fish tissue will also help inform when and how the fish consumption advisory or other restrictions could be relaxed.

Long-term monitoring will include regular inspections of the sediment caps to make sure they are in the proper place, have the required thickness and type of capping material, are achieving RAOs such as pore water standards, and are functioning as intended. Cap inspections may also be required after natural events such as earthquakes or floods, and manmade events such as boat collisions or violations of land use restrictions. Monitoring and maintenance of the caps would be required in perpetuity. Refer also to Sections 2.17.3 and 2.27.1 of this responsiveness summary.

#### **4.1.4 Aggressively Clean Areas Posing Risk to the Benthic Community and Lamprey**

##### **Comment**

As referenced in the proposed plan, the EPA-approved BERA (Windward 2013) found that unacceptable risks to benthic invertebrates are located in approximately 4-8 percent of the Harbor; however, the feasibility study (Figure 4.1-1) incorrectly identifies approximately 60 percent (1,289 acres) of the Harbor as having unacceptable benthic risk. The area presented in the feasibility study was defined using the lowest of contaminant-specific toxicity reference values (TRVs) from the risk assessment as PRGs in sediment. This area is much larger than the benthic risk area predicted by site-specific models used in the BERA (the Floating Percentile Model and Logistic Regression Model) and does not include some areas which were predicted in the BERA to have moderate to high toxicity to benthic organisms. The state recommends a revised approach which would remediate all sediment areas of unacceptable benthic risk at construction completion, thereby protecting lamprey ammocetes that occupy the same benthic feeding guild, exposure route, and chemical sensitivity as sediment invertebrates.

The approach for addressing benthic risk should be updated by:

- Using the PRGs derived from the Logistic Regression Model with a Pmax of > 0.5 (indicating moderate and high toxicity) to define the benthic risk area. The state recommends using this

model because it is nationally peer reviewed, incorporates models and toxicity correlations for individual contaminants, and represents comprehensive model predictions to both test species (Hyalella and Chironomus) and endpoints (survival and biomass).

- Incorporating the benthic risk area from the Logistic Regression Model into the Alternative I active remediation area. This is estimated to add approximately 43 acres to the current Alternative I active remediation footprint and enhanced natural recovery area.
- Using a bioassay “test out” option during remedial design to confirm benthic risk and the need for active remediation in these additional areas.
- Allowing for an engineering evaluation of the effectiveness of enhanced natural recovery to address benthic risk areas outside of the current Alternative I footprint.

### **EPA Response**

The evaluation of benthic risk in the BERA (Windward 2013) for the Portland Harbor Site considered multiple lines of evidence including sediment toxicity testing, the floating percentile and logistic regression predictive models, generic sediment quality guidelines, tissue residue assessment and comparison of surface water and transition zone water to water based toxicity reference values. As a result, reliance on a single model such as the Logistic Regression Model to assess risks to the benthic community is not consistent with the procedures used to assess benthic risk in the BERA.

The 4 to 8 percent number is based on the comprehensive benthic risk assessment. The feasibility study report (USEPA 2016b) used a different approach (comparison to RAO 5 PRGs). A total of 1,290 acres of benthic risk areas were identified using this approach, which is approximately 60 percent of the Site. Refer *Benthic Risk Theme Response* for additional details.

The sediment PRGs developed for RAO 5 (reduce risk to benthic organisms from ingestion of and direct contact with COCs in sediment to acceptable exposure levels) considered the tissue residue line of evidence, and the two site-specific predictive models of toxicity to benthic species. The lowest of these values for a given contaminant was selected as the RAO 5 PRG. COCs for which a site-specific value could not be developed (Lindane and zinc) relied on sediment quality guidelines (Probable Effect Concentrations taken from McDonald et al [2000]) and are used as the PRG. Water based exposures are addressed through RAOs 7 and 8. Thus, the PRGs presented in the final feasibility study report consider all lines of evidence (including toxicity through the use of the predictive models) considered in the evaluation of benthic invertebrate risk in the BERA rather than a single predictive model.

As presented in Figure 2.2-2 of the final feasibility study report, areas of benthic risk identified in the feasibility study report represent 1,290 acres of the Site. However, as further noted in the feasibility study report, interim targets for risks and hazard indices were established to evaluate the potential for achievement of PRGs in a reasonable time frame. For RAO 5, the interim target is based on multiplying the RAO 5 PRG by an order of magnitude to account for further reductions due to MNR. In addition, the post-construction interim target for RAO 5 was established at a 50 percent reduction in the area posing unacceptable benthic risk because risks to the benthic community are based on a population level rather than individual level effect and is considered a target to which the benthic population as a whole can be stressed and still recover. As shown in Table 22 of the ROD, EPA’s selected remedy, Alternative F Modified, addresses 72 percent of the area with unacceptable benthic risks (the area that exceeds 10 times the benthic risk value).

During remedial design, additional data to be collected for selection and design of the remedial technology to be implemented in specific locations may include toxicity testing, as applicable to refine delineation of benthic risk areas, where benthic risk only is the driver for achieving cleanup levels in a particular area. Also, ENR will be assessed during site-specific design work for its ability to accelerate risk reduction (expected thru MNR albeit on a longer time scale) on a case by case basis.

#### 4.1.5 Accommodate Current and Future Uses of the Harbor

##### Comment

Portland Harbor is an important reach of the Willamette River. This waterway simultaneously serves as a center for the region's economy, a cultural resource for tribes, a social and recreational resource for the City of Portland, and an important aquatic and riparian habitat for fish and wildlife – all of this in the midst of Oregon's most densely populated area.

The current and future uses of the Harbor must be preserved by:

- Ensuring that the remedy is compatible with, and does not irrevocably limit the current and future uses of, adjacent upland sites. This congruity is particularly important at adjacent upland site with a designated marine-dependent use under the City of Portland's recently-updated Comprehensive Land Use Plan.
- Retaining the two existing boat ramps within the Harbor at Swan Island Lagoon and Cathedral Park, and ensuring that at least one of these ramps is made available for public use at all times during construction. The remedy must not limit the current or future use of these popular fishing access areas, nor include restrictions that impact ramp maintenance or replacement.
- Minimizing the use of regulated navigation areas or water use restrictions in cap areas that limit restrictions on boat traffic, anchoring, or spudding where possible.

##### EPA Response

EPA appreciates the importance of the river for industrial, commercial, and recreational uses and the economic vitality of the region. Of the 2,167-acre Site, active cleanup would take place in approximately 394 acres, or only about 18 percent of the Site. Cleanup activities will likely take place within that small portion of the Site at different times throughout the construction period, as determined during remedial design. As such, portions of the river will be inaccessible for some portion of the construction period, but much of the river and harbor would remain open. It is EPA's intention to avoid or minimize to the extent feasible, closing even on a temporary basis public access areas such as public boat ramps.

EPA has conducted extensive community outreach during all phases of the project and is committed to maintaining a transparent, proactive community interaction process during each cleanup phase, with informal comment opportunities on all key elements of the design and implementation. EPA is committed to working with the community to minimize any short-term impacts, including any temporary disruptions to public amenities.

EPA recognizes that Regulated Navigation Areas (RNAs) have impacts on the community as well by restricting public uses. In addition, RNAs may impact some property owners' ability to use and maintain their facilities and to construct or develop new features on their property in certain areas, or add expense to do so properly (as approved by EPA). However, limitations on some uses of the river may be needed to implement a cost-effective and protective remedy that addresses releases of

hazardous substances. The feasibility study report (USEPA 2016b) evaluated the reliability and implementability of Waterway Use Restrictions or RNAs. Such designated restricted areas may be necessary to ensure the integrity of caps are maintained by limiting activities that could affect the ability of the cap to contain contaminated sediment or groundwater from being released to the environment. This could include prohibiting anchoring of vessels or the use of spuds to stabilize vessels in areas containing caps. Notifications such as signs and buoys may be used to warn vessels from the area.

RNAs have been successfully used in the past to protect remedial actions at the Site. RNAs were required to protect the McCormick and Baxter cap and the Gasco interim action cap from vessel activities. Periodic inspections of RNA notifications will be needed to ensure they are functional and effective. During remedial design, decisions as to where dredging and capping will occur will be made and necessary ICs to protect the cleanup will also be determined and implemented. Where possible, caps should be designed to minimize the need for RNAs but will have to be fully effective in containing contaminated sediment or groundwater and consistent with anticipated land uses

The enforcement of RNA-related ICs with respect to the governmental entity that will provide enforcement authority will be determined during the development of remedial design and identification of responsibilities in an ICs implementation and assurance plan and operation and maintenance plan to be developed jointly between federal agencies (such as EPA, USCG, etc.) the appropriate agencies from the State of Oregon.

The ICs implementation and assurance plan approach for the RNAs IC may include, but not be limited to, the following:

- Form an inter-agency team made up of representatives from EPA, DEQ, tribes, Oregon Department of State Lands, Coast Guard, Oregon Marine Board, Oregon Department of Transportation, U.S. Army Corps of Engineers, City of Portland, Port of Portland, and others to identify key concerns about the development and implementation of RNAs at the Site, including ongoing and future maintenance dredging, and emergency access plans
- Work with land-owners along the Site to identify and map nearshore and river bank structures, facilities, and associated activities that may affect the siting and/or effectiveness of RNAs
- Map the river uses on a facility and site-wide scale for the purpose of delineating RNAs and evaluating their overall impact with reasonably anticipated land uses
- Where necessary to protect caps or other remedial features, establish RNAs limiting waterway and land use activities such as boat anchoring and keel dragging, structure and utility maintenance and repair, and future maintenance dredging
- Conduct outreach and education to recreational boating communities and other river users regarding RNAs to ensure they are effective and appropriate, RNA notice signs are designed, installed, and maintained effectively and at the appropriate locations, in coordination with the inter-agency team
- Monitor the effectiveness of RNAs and other ICs such as fish consumption advisories as part of long-term monitoring for the Five-Year Review process

During remedial design, EPA and the PRPs will consider site-specific factors, including river use restrictions related to RNAs, and will coordinate with USACE and other agencies through the IC planning process for selection of the preferred remedial technology that best meets required objectives, including protection of human health and the environment while factoring in implementability concerns.

#### 4.1.6 Consider Potential Impacts of Transportation Modes

##### Comment

Alternative I includes removal of nearly 2 million cubic yards of soil and sediment from the river. This material will need to be transported and disposed of in a manner such that it no longer poses a risk to human health and the environment. The proposed plan retains truck, rail and barge shipment of dredge materials as potential modes of transportation. The state is concerned that transporting materials and equipment to or from the site (or transloading facility) by truck would increase road congestion and air emissions, which have real economic, community livability, and environmental consequences. A remedy that relies on trucks would also have a greater impact on roadway infrastructure, requiring greater maintenance and repair.

The impacts from transporting dredge material must be considered by:

- Identifying a preference in the ROD for transporting dredge spoils by rail and barge.
- Acknowledging that the transportation needs and impacts associated with each transportation mode will be evaluated and considered during remedial design to ensure that transportation modes are thoughtfully selected, balanced, and minimize impacts to surrounding communities, transportation safety, and infrastructure.

##### EPA Response

The ROD has a preference for lower impact transportation methods for the transport of dredged sediment that will minimize the impact to surrounding communities (such as rail or barge). Dredged material would be loaded directly into barges and transported for dewatering, treatment, or further transport for disposal. River bank materials excavated from above the water line were assumed to be loaded directly into containers to be transported by rail or barges for transport.

EPA concurs with DEQ that transportation modes will need to be carefully considered during design and implementation of the selected remedy. Because all of the various external factors that could affect mode of transport (such as location of transload facilities, selection of disposal facilities, volumes of wastes and materials generated for transport over the length of construction, etc.) cannot be fully known at this time, the modes of transport in the feasibility study report (USEPA 2016b) to be used will not be prescribed. However, EPA did assume barging as the representative mode of transport because it reduces environmental impacts and enhances community and worker safety over other modes of transport. During remedial design, EPA will work with the entities implementing the remedy to carefully evaluate and select the most appropriate modes of transport to account for factors such as reducing environmental impacts and short-term impacts. A green remediation plan will be prepared for each action which will discuss how impacts will be mitigated to the extent possible and as part of this analysis rail and barge transport of wastes will be discussed, and used wherever possible to limit greenhouse gas emissions and lessen neighborhood impacts for air toxics such as sulfur oxides, consistent with EPA national and regional guidance. Where trucking cannot be avoided, the plan will discuss optimum haul routes to minimize diesel exhaust exposure to sensitive subpopulations (known to cause childhood asthma), such as residential streets near schools.

### 4.1.7 Allow Design Flexibility to Account for Uncertainty

#### Comment

Portland Harbor is considered a “Mega Site” due to its extraordinary size and level of complexity. Although extensive site-wide data have been collected over the years, there are still a number of uncertainties in the physical, chemical, and regulatory elements of the Site. For a sediment site of this magnitude, this is not unusual; however, EPA must support a design process that incorporates flexibility as a means for addressing these complexities and uncertainties while assuring compliance with the ROD.

No one-size-fits all approach can accurately predict and account for the unique characteristics of individual areas in the river. Professional judgment and experience must play a strong role to ensure that the remedy constructed is protective of the human health and the environment at individual SMAs in the river.

Flexibility in remedial design can be achieved by:

- Acknowledging that a standardized decision-making approach was applied for ease in developing site-wide remedial alternatives, but modifications to this approach will be needed to refine the selection and extent of remedial technologies on an SMA-specific scale. This may include consolidating or smoothing the pixilated areas of dredging and capping to improve constructability.
- Acknowledging that the conceptual site model will likely need to be updated during remedial design for specific SMAs. For example, surface water and tissue data at the Willamette Cove site suggests that there may be an active in-river source(s) not yet identified which may require an alternative remedial technology.
- Describing how subsurface contamination will be considered during remedial design, if at all, in defining the boundaries of active remediation areas. It is the state’s understanding that SMAs identified in the proposed plan are mapped by comparing RALs to surface sediment chemistry and not subsurface chemistry.
- Giving equal preference to dredging and capping in the intermediate river region where there is no NAPL. The ROD should not require capping of these areas if Performing Parties determine during remedial design that dredging is more cost effective or otherwise preferable in order to avoid requirements for long-term cap monitoring and maintenance and reduce compensation to the Department of State Lands. Similarly, the ROD should not require dredging if a more detailed assessment during remedial design discovers substantial amounts of buried debris, geotechnical hazards or other conditions that would increase the risk of contaminant resuspension and downstream transport, risk to construction workers or otherwise render dredging to be infeasible.
- Describing criteria for selecting thin-layer sand capping, called ENR, at Swan Island Lagoon. Allow for refinement of the ENR footprint, if appropriate, after a more in-depth assessment of sediment deposition rates. For example, it’s unclear why monitored natural recovery would not be effective in the downriver portion or the lagoon.
- Allowing flexibility to accommodate future in-river infrastructure projects. For example, a cap in the vicinity of a bridge will impact ODOT’s ability to perform maintenance and construction



work around bridge support structures in the river if a cap is not carefully located. For seismic upgrades on the St. John's Bridge and the Fremont Bridge, the bridge piers will increase in size by as much as 50 percent and the in-river work would require a setback of approximately 20 feet around the piers. If a cap is placed in the vicinity of a bridge pier before seismic upgrades occur, the cap could be damaged from construction equipment anchoring or disturbing the river floor.

### **EPA Response**

EPA acknowledges that new data will be collected during remedial design. These data will be used to support future decisions regarding remedial action footprints, technology assignments, use restrictions or other ICs, treatment and disposal of dredged material, mitigation requirements, among others. This new data will be used to update the CSM. If new information indicates that a different technology, beyond dredging and capping is necessary, what additional analysis to determine the alternative will be determined at that time.

Subsurface contamination data will be collected, refined and evaluated in defining the boundaries of active remediation areas during remedial design phase of the project. The ROD includes a flexible decision tree along with general design requirements to guide the assignment of capping and dredging technologies, based on specific characteristics within SMAs. The decision tree will be used during remedial design to define what actions should be taken under different environmental conditions and locations based on the most recent design data. Once the data and river factors are evaluated within the context of the decision tree, a final design for construction can be completed. This design will then dictate the remedial construction. The decision tree is intended to provide clear direction on what actions should be taken under the different conditions and locations.

The feasibility study report (USEPA 2016b) identified areas for dredging or excavation or capping based on site-specific factors that may limit the effectiveness of containment, in-situ treatment, enhanced natural recovery ENR or MNR. Within the navigation channel or future maintenance dredge areas, removal was required to prevent restrictions on navigation. In the intermediate areas, a multi-criteria decision matrix was developed as a method to guide the assignment of capping and dredging technologies, based on site-specific characteristics within sediment management areas. In shallow areas, a mix of shallow removal followed by capping or placement of backfill was utilized to maintain current water depth and thus limit the loss of shallow water aquatic habitat.

The selected remedy was chosen in order to provide a balance between minimizing the time required for remediation and implementing a suitably protective cleanup to minimize the risk to public health and the environment in the future, in an area where ENR is very likely to be highly effective. EPA's analysis of alternatives shows that a larger, removal-based remedy in the Swan Island area would not considerably improve public health and environmental protection, would take a longer, cost substantially more, and have greater short-term impacts to the benthic community and aquatic organisms and to the community surrounding the area because of dredging activity (see Section 2.31.2 of the responsiveness summary and 10.1.17 of the ROD. After the remedy has been implemented, EPA will use sampling and monitoring results to guide and refine the cleanup action selected to provide additional assurance that the process is reducing contaminant concentrations and bioavailability as expected.

As mentioned above, the selected remedy was chosen to provide a balanced approach in achieving remedial cleanup levels. The ROD includes a flexible decision tree which will dictate the design and

remedial construction and is intended to provide a clear direction on what action should be taken under different conditions and locations.

EPA's remedy decision primarily selects final cleanup levels for the COCs at the Site and establishes remedial action levels for focused COCs that triggers more active cleanup technologies than MNR. EPA agrees that maintaining flexibility in construction methods through the remedial design phase is an important consideration. Additionally, EPA agrees active cleanup technology assignments will be evaluated during remedial design based on new data and area-specific conditions and land uses and other requirements specified in the ROD. As pointed out by the state, status of source control efforts will be evaluated during design, to ensure that upland and in water sources are accounted for by the remedial approach.

As mentioned above, the decision tree will be used during remedial design to define what actions should be taken in different areas of the Site based on the most recent design data. Once the data and river factors are evaluated within the context of the decision tree, a final design for construction can be completed. Based on empirical data, if MNR is shown to be sufficiently effective, it may be selected over ENR in certain portions of Swan Island Lagoon. Dredging in areas where capping is prescribed will be allowed on a site-specific basis, e.g. where dredging is more conducive to future site uses. Likewise, future plans for infrastructure such as oil pipelines, electricity transmission cables, and upgrades to bridge structures will be accounted for during both the design and approach taken in the sequencing of a cleanup, e.g. accelerating a transmission line replacement that is planned before placing a protective cap in an area.

#### 4.1.8 Realize Cleanup Costs are Uncertain and Likely Underestimated

##### Comment

The state is concerned that EPA's cost estimate for Alternative I may underestimate the actual total project cost, and that the proposed plan does not adequately describe key uncertainties with the estimate. The state recognizes the difficulties in developing an accurate cost estimate for a site as complex as Portland Harbor, but requests that the ROD provide additional clarification about cost assumptions, uncertainties and sensitivities.

Project uncertainties in the estimated cleanup costs should be accounted for by:

- Acknowledging that the actual cost of Alternative I will likely fall outside the desired range of -30 percent to +50 percent the estimated cost that is specified in EPA guidance documents.
- Identifying cost assumptions with the greatest amount of uncertainty, which have potential to most significantly influence the total project cost. The state anticipates that handling, transporting, treating, and disposing Subtitle C and Subtitle D dredge material will have the greatest potential to significantly increase the cost of the remedy due to uncertainties in the disposal volumes and treatment requirements for this material. Further complicating this effort is the uncertainty of a local disposal option for Subtitle D dredge material, particularly in light of the widespread opposition to the proposed confined disposal facility (CDF) at Terminal 4. If an acceptable facility were developed that could handle most or all of the Subtitle D wastes without the need for transloading to rail or truck, significant cost savings would be realized, not to mention increased implementability, reduced implementation risk and reduced carbon footprint/ greenhouse gas emissions. An example of a potential facility not contemplated in the feasibility study is the former Boise White Paper wastewater lagoon recently proposed by the



City of St Helens as a regional, state-permitted, disposal site for dredge spoils and other non-hazardous wastes. Other key costs with significant uncertainty are open water dredging, project management, remedial design, mobilization/ demobilization and contingency (scope and bid).

- Including a table comparing the non-discounted costs against a range of discount rates as done for the Lower Duwamish Waterway Superfund Site. Discount rates are used as a tool to predict the money needed today to fund the project into the future, largely based on predicted interest rates for the project duration. The state suggests comparing non-discounted costs to a 7 percent discount rate, per EPA's guidance, and the 2016 30-year real discount rate of 1.5 percent, to better reflect current economic conditions.

### **EPA Response**

EPA does not agree that the intended costs will likely fall out of the range of expected cost accuracy as intended in EPA guidance. EPA's cost estimates were produced consistent with EPA guidance by using a proper cost methodology as described in guidance, using appropriate cost sources, and reasonable assumptions and related quantities. The expected accuracy stated in this guidance for feasibility study cost estimates is +50 percent to -30 percent of actual cost, which means that a remedial alternative's cost at the time of construction could be as much as 50 percent higher or 30 percent lower than as presented in the proposed plan (USEPA 2016c). These estimates are not intended to be highly detailed because the scope of the alternatives in a feasibility study is much lower than later during design and construction of a remedy when more data are available and there is a better understanding of the construction timelines and funding. This is particularly true of projects such as the Portland Harbor cleanup where the scope of the cleanup is large (over many river miles), so the sequencing of construction work will likely be complex. The cost estimates are developed to reflect the understanding of the alternatives as described in the feasibility study report (USEPA 2016b) given the understandable uncertainties that exist and will continue to exist even after a decision on a remedy approach is made, prior to design and construction. Cost estimates prepared later in the Superfund process, when more information is available, will be developed to address project budgeting with a corresponding higher accuracy.

EPA has documented the methodology and assumptions used in developing feasibility study cost estimates in Attachment A of Appendix G of the 2016 feasibility study report. Cost estimates were developed according to "*A Guide to Developing and Documenting Cost Estimates during the Feasibility Study*" (USEPA 2000) and include the level of detail and backup suggested by the guidance to meet the accuracy requirements for feasibility study cost estimates (-30 percent to +50 percent of actual cost). While there is some uncertainty about the cost impacts from waste treatment and disposal assumptions, EPA's assumptions on these issues were based on actual work that has previously occurred at the Site during early actions.

As part of the effort to address concerns about cost uncertainties, EPA and DEQ collectively performed a "deep dive" into cost estimate drivers and related assumptions starting in early 2016. That analysis showed that waste transport, treatment, and disposal costs were significant drivers for all alternatives with respect to overall costs. As a result of that identification, EPA reevaluated transport, treatment, and disposal assumptions including using information from early action work within Portland Harbor and contact with the representative transport and disposal facilities. This information was used to refine costs as much as can be done at a conceptual phase of the project. EPA's position is that sufficient due diligence has been done with respect to addressing concerns about significant cost drivers for the feasibility study. It should also be noted many of these same drivers were addressed in

the sensitivity analysis presented in Appendix N of the feasibility study report. This is consistent with the recommendation in the third paragraph on Pages 4 and 5 of the guidance (USEPA 2000) and with DEQ's request to understand cost sensitivity.

EPA recognizes that the intended purpose and use of cost estimates during a feasibility study for remedial alternatives may be misunderstood by those not familiar with the Superfund process, leading to the incorrect perception that feasibility study cost estimates are "inaccurate" or not the "true" costs or may fall out of the intended range of accuracy. The stated purpose for feasibility study cost estimates is to compare remedial alternatives during the remedy selection process, not for establishing construction project budgets nor for negotiating Superfund settlements with potentially responsible parties to pay for cleanups.

EPA recognizes that potential significant cost savings that could be realized if a proposed disposal facility in close proximity to the Site and adjacent to the river to minimize transload requirements is available for disposal of dredged contaminated sediments and excavated river bank soils.

EPA will consider the potential use of the proposed facility for disposal of contaminated sediments and soils (excluding those sediments characterized as containing Resource Conservation and Recovery Act /state hazardous waste or Toxic Substances Control Act waste). EPA's consideration will be contingent upon the proposed facility's ability to conclude the Subtitle D permitting process, meet EPA's requirements under the "Off-Site Rule", and be available for disposal during the implementation of remedial action at the Site. Since it is expected that responsible parties will be implementing cleanups, if a facility otherwise complies with the Off-Site Rule and is appropriate for the waste to be disposed, EPA cannot mandate or require the use of a particular disposal facility if other approved facilities are available and selected by the responsible parties.

It should be noted that while EPA used a 7 percent real discount rate for presentation of the alternative costs, a sensitivity analysis was performed for varying discount rates and presented in Appendix N of the feasibility study report. This is consistent with the recommendation in the third paragraph on Pages 4 and 5 of the guidance (USEPA 2000) and with DEQ's request to look at additional discount factors. See also Section 2.22 of this responsiveness summary.

#### 4.1.9 Focus Cleanup Levels on the Sediment Remedy

##### Comment

It is critically important that EPA provide clarity regarding when the CERCLA cleanup is complete. Portland Harbor was listed under CERCLA as a sediment site, and the remedial alternatives evaluated in the feasibility study are based on cleanup of contaminated sediment. In the proposed plan, EPA proposed PRGs for surface water, groundwater (porewater) and fish tissue. These non-sediment PRGs have potential to cause significant confusion and uncertainty. The state considers the primary goal of the remedy to reduce sediment contamination to risk-based or background levels. This will, in turn, result in reducing contaminants in fish/shellfish tissue, groundwater (porewater), and surface water. Further reductions in all media will be achieved through source control and watershed actions. Therefore, cleanup of contaminated sediments will contribute to meeting the remedial action objectives for other site media, but will not independently meet them.

The state is concerned about using PRGs for fish tissue, surface water, or groundwater as formal cleanup levels in ROD, particularly where there is not a thorough understanding of the technical practicability of achieving and measuring these criteria. For example, many of the surface water,

groundwater (porewater), and tissue PRGs (e.g. PCBs, DDx) are set below background levels. Also, the PRG for surface water and porewater PCBs, for example, is well below analytical detection limits. In addition, the contribution to porewater from contaminated sediments versus contaminated groundwater plumes is indistinguishable for some contaminants; this is not accounted for in the decision trees for the technology assignments.

The cleanup goals should be clarified by:

- Establishing formal cleanup levels based on sediment PRGs only.
- Retaining the surface water, groundwater, and fish/shellfish tissue criteria as measures of progress to evaluate the effectiveness of the sediment remedy in reducing risks associated with these media, but not as formal cleanup levels, similar to what was done on the Lower Duwamish Waterway.

### **EPA Response**

Releases of hazardous substances have occurred to surface water and groundwater, in addition to sediment, that present unacceptable risk to human health and the environment in the in-river portion of the Portland Harbor Site, therefore, it is appropriate to develop cleanup levels for these media. Likewise, fish and shellfish tissue PRGs were derived because tissue concentrations represent a direct exposure point for human and ecological receptors, and because target tissue concentrations are needed to derive sediment PRGs for protection of human health due to fish consumption.

Consistent with CERCLA and the NCP, cleanup levels are to be developed based on chemical-specific ARARs, including MCLs promulgated under the Safe Drinking Water Act and water quality criteria established under the sections 303 or 304 of the Clean Water Act if more stringent than state-promulgated standards and relevant and appropriate under the circumstances of the release. Thus, cleanup levels for surface water and groundwater are based on state water quality criteria, federal 304(a) criteria, and MCLGs/MCLs or regional screening levels when there was no SDWA standard. Upon considering public comments on fish tissue PRGs, EPA has decided to make fish tissue levels target goals instead of enforceable cleanup levels.

EPA disagrees that surface water and groundwater cleanup levels should not be established without a thorough understanding of the technical impracticability to achieve them. Rather, evidence is required first to show it is technical impracticable to attain ARARs before they can be waived. At this time, there is no such evidence to support ARAR waivers.

See Section 2.3 of this responsiveness summary for more detail regarding surface water, groundwater, and fish/shellfish tissue criteria as measures of progress to evaluate the effectiveness of the sediment remedy in reducing risks associated with these media.

### **4.1.10 Revise River-Bank Approach to Be Consistent with Joint Source Control Strategy**

#### **Comment**

In 2005, DEQ and EPA developed a Joint Source Control Strategy, which identifies a framework for conducting source control work consistent with anticipated in-river remedy objectives. This framework includes a process for screening and evaluating river banks to determine whether remedial action may be required. The state understands that the intent of RAO 9 is to reduce migration of contaminants from river bank soil to sediment and surface water, such that levels are

acceptable for human health and the environment. This objective can be adequately addressed under an updated Joint Source Control Strategy framework.

The approach to river bank cleanup should be revised by:

- Referring to the joint source control strategy for using site-specific lines and weights of evidence to determine whether a river bank source control measure is warranted. The joint source control strategy should be updated to use in-river sediment preliminary remediation goals as screening criteria for river bank source control evaluation. However, the PRGs for remedial action objective 9 should not become formal cleanup levels. This change also addresses the DEQ's concern that the RAO 9 PRGs for arsenic, cadmium and mercury are lower than upland background values determined by DEQ5. Neither EPA nor DEQ have conducted a background evaluation to determine upland background concentrations for the organic compounds. It is likely that the PRGs for some of the organic compounds are also below background.
- Making a distinction between river banks referred to EPA that have been identified by DEQ as contaminated and requiring a bank source control measure, versus those that are contaminated with a need for bank action to be evaluated during remedial design.

#### **EPA Response**

EPA is committed to ensuring that upland and upriver contaminant sources to the Willamette River are controlled because source control is critical in achieving the remedial action objectives for the Portland Harbor cleanup. Please also see LSS Dispute Issue 14 and 18 and LWG Dispute Issue 1q responses.

The Joint Source Control Strategy is a living document, and EPA is confident that EPA and DEQ will continue to update the strategy as appropriate post ROD to account for new information, such as incorporating the final cleanup levels in the ROD. EPA will be seeking new data post ROD, and will incorporate new information regarding background values such as those for arsenic, cadmium and mercury. River banks referred to EPA versus not will continue to be evaluated as new data are gathered. River banks that require cleanup where contamination is contiguous between and upland area and area in water to be dredged or capped will be cleaned up together in most cases, to minimize overall impact on the environment, expedite cleanup, and minimize recontamination potential.

#### **4.1.11 Consider the Different Types of Groundwater Plumes in Cleanup**

##### **Comment**

The proposed plan calls for in-situ treatment for residual groundwater plumes potentially discharging contaminants to the river. The state is concerned that the prescriptive technologies identified for groundwater plumes do not adequately consider the various types of plumes present within Portland Harbor.

The cleanup actions for groundwater plumes should be refined by:

- Updating the decision trees for the shallow and intermediate regions to identify two categories of groundwater plumes.
  - Groundwater plumes that are expected to naturally attenuate. If a plume will attenuate in a reasonable amount of time, no additional treatment or engineering

controls would be required such as the addition of activated carbon to the residuals layer or construction of a reactive engineered cap.

- Groundwater plumes that are not expected to naturally attenuate. For plumes that are not expected to attenuate in a reasonable amount of time (e.g., portions of the Gasco, Rhone-Poulenc and Arkema plumes) reactive engineered caps should be the assigned remedial technology within the groundwater plume discharge area.
- Considering the compatibility of the selected remedy with upland source control efforts in areas with groundwater plume discharge, and with the aim of integrating in-river and upland remedies.

### **EPA Response**

Early source control actions conducted under DEQ authority are not final CERCLA actions. EPA will be evaluating the effectiveness of any source control actions conducted under DEQ authority with final cleanup objections and making the determination as to whether further action is warranted. Where early source control actions meet the requirements of the ROD, then EPA will not require further action to be taken in those areas. There may be upland groundwater plumes that are beyond the upland control point that may need further control in the river (sediment cap or amendment to a sediment cap) which will be accounted for during site-specific designs.

The remedial design for in-river actions will evaluate site-specific information in detail. The remedial design will include an evaluation of the completeness of the site-specific groundwater pathway and effectiveness of SCMs which have been implemented at each facility. The ROD includes a simplified and flexible decision tree which will dictate the design and remedial construction and is intended to provide a clear direction on what action should be taken under different environmental conditions and locations, which may include design needs that apply upland and in water to ensure a comprehensive site remedy that will meet cleanup levels.

### **4.1.12 Clarify Oregon Marine Board’s Authority and Role in Implementation**

#### **Comment**

The proposed plan states: “Where caps will be utilized to contain contamination in navigable areas of the river, waterway use restrictions or RNAs [regulated navigation areas] will be necessary to ensure the integrity of the cap is maintained in perpetuity. These restrictions would preclude boat anchoring and keel dragging, the use of spuds to stabilize vessels, structure and utility maintenance and repair, and future maintenance dredging in areas containing caps. Notifications such as signs and buoys placed by the Oregon Marine Board may be used to warn vessels away from the area.” This language is incorrect - the Marine Board does not have the authorities described in the proposed plan.

The role of the Oregon Marine Board should be clarified by:

- Explaining that the Marine Board will not purchase or place signs and buoys, as this is the responsibility of the applicant for a waterway marker permit. The Marine Board Waterway Marker Permit is required in addition to the Private Aid To Navigation (PATON) permit required by the US Coast Guard. The Marine Board will approve the placement of waterway markers through the waterway marker permit application process, provided that the regulation listed on the waterway marker is adopted in code, statute or rule to be enforceable.

- Specifying which enforcement agency (US Coast Guard or State of Oregon) will be responsible for enforcing any new regulated navigation areas. Any lead agency will need to propose and adopt regulations accordingly, either in federal code, state law or both.
- Allocating adequate funding to pay for enforcement of regulated navigation areas “in perpetuity.”
- Acknowledging that slow-no-wake safety zones required for in-river work or near-water work must be adopted in state rule or statute to be enforced by the state. The Marine Board requires prior notice and planning as to how the zones will be marked for enforcement to occur. Any contractor doing in-river or shoreline work will need to pay for waterway markers and dedicated work-zone enforcement from marine patrol as the buoys and hours will not be paid for by Multnomah County or the Oregon Marine Board.

### **EPA Response**

EPA acknowledges the misstatement regarding the role of the Oregon Marine Board in placement of waterway markers. The ROD does not say the Board has enforcement authority. The enforcement of RNA-related ICs with respect to the governmental entity that will provide enforcement authority will be determined during the development of remedial design and identification of responsibilities in an ICs implementation and assurance plan and operation and maintenance plan to be developed in coordination with federal agencies (such as EPA, USCG, etc.) and the appropriate agencies from the State of Oregon. Funding for IC planning activities will be worked out during negotiations with performing parties.

### **4.1.13 Recognize Department of State Lands’ Authority and Role in Implementation**

#### **Comment**

Oregon Department of State Lands manages state-owned submerged and submersible land, which the state holds in trust for the public<sup>6</sup>. The use of state-owned land in conjunction with remedial activity is governed primarily by Oregon Administrative Rules Chapter 141 Division 145 (effective February 2014). These rules describe the process by which Oregon Department of State Lands will determine the compensation due the state for the required use authorizations. This determination requires calculation of the “Site Diminishment Impact” (or SDI) of the proposed remedial action based on its anticipated impacts on public trust uses, the duration of those impacts, and the extent to which the remedial action will impair the Department’s ability to manage the affected land in the future. Greater impacts or restrictions on public trust uses of state-owned submerged and submersible land will compel greater compensation.

Performing parties will need to coordinate with Department of State Lands. This process should begin prior to remedial design so that input can be considered and incorporated into that design. Early review of remedial design will facilitate a more accurate estimate of the required compensation and may help identify potential options for reducing that compensation. For example, cap design (e.g. location, thickness, material, etc.) that minimizes the impact to public trust uses (e.g. does not prevent or impair anchoring, fishing, or motor usage) will require less compensation to the state than a cap that restricts public trust uses or impedes Department’s ability to lease the property in the future (e.g. restrictions on driving pile, placing docks, etc.). Similarly, a number of small caps in close proximity may impose greater impacts on public trust uses than each cap would have when viewed in isolation. Cumulative impact will be considered in calculating the SDI of each cap, and may impact the



compensation due. (A large number of small caps will also increase the tracking, monitoring and enforcement workload for Oregon Department of State Lands and other agencies and, for that reason, is not favored.)

The proposed plan does not include the cost of Department of State Lands use authorizations, which could range as high as \$15 million harbor-wide (reflecting a site-wide average of roughly \$230,000/acre) for sediment cap easements alone, and have the potential to affect the evaluation of relative costs in selecting between capping and dredging technologies.

The role of Department of State Lands should be clarified by:

- Expressly recognizing the state’s land management role in remedy implementation, specifically their role in authorizing the use of state-owned submerged and submersible land for remedial activities.
- Identifying the potential costs associated with use authorizations, recognizing that these costs can be most effectively managed by their consideration in the early stages of remedial design, and in consultation with the Department of State Lands.
- Providing flexibility during remedial design such that performing parties can, consistent with remedial action objectives, reduce or eliminate impacts to and restrictions on public trust uses of state-owned submerged and submersible land, including by switching from capping to dredging.

### **EPA Response**

Department of State Lands propriety authorizations, which include lease fees, were not included in the cost estimates. EPA acknowledges that the State Land Board through the Department of State Lands-promulgated rules for granting and renewal of access authorizations, leases, and easements issued to facilitate remediation conducted pursuant to an order issued by DEQ or EPA and habitat restoration activities in, on, under or over state-owned submerged and submersible land. However, Section 104 of CERCLA, 42 U.S.C. § 9604 provides the President with broad authority to take response actions determined necessary to protect the public welfare and the environment from releases or the potential threat of a release of hazardous substances or pollutants and contaminants to the environment presenting an imminent and substantial endangerment to public health and welfare.

Section 104(e)(3) specifically provides the President authority to access “[a]ny vessel, facility, establishment, or other place or property where entry is needed to determine the need for response or the appropriate response or to effectuate a response action under” CERCLA. 42 U.S.C. § 9604(e)(3). Furthermore, Section 121(e)(1) of CERCLA provides that: “[n]o federal, state, or local permit shall be required for the portion of any removal or remedial action conducted entirely onsite, where such remedial action is selected and carried out in compliance with” CERCLA. 42 U.S.C. § 9621(e)(1). If EPA were to perform the remedy, the United States would not be required to pay state fees. However, EPA expects most, if not all, of the remedy (cleanup actions) will be performed by PRPs and EPA anticipates that PRPs will negotiate reasonable terms and conditions of access to private and state-owned property to implement the remedy likely with landowners and Department of State Lands. The selected remedy overall is expected to improve the sediment and surface water quality of the river. EPA’s selected remedy seeks to minimize land and river use restrictions, while also assuring long-term protectiveness and a cost-effective cleanup. EPA encourages performing PRPs to coordinate with

Department of State Lands early during remedial design to negotiate access and find further ways to reduce land and river use restrictions and, if relevant, diminution of property values.

During design, additional data will be collected that will identify where dredging and capping should occur within the Site and this sampling will occur with much more detail than previous sampling. Contaminant concentration data will be used to identify where capping or dredging should occur. Identifying whether capping or dredging is most appropriate for an area will be determined based on location-specific land uses and river conditions and whether or not the material can be effectively contained with a cap. If it is possible to cap the contamination, a cap likely will be used. If a cap is not appropriate based on land/river uses or water level depth, wind or wave action, dredging will likely be the technology applied. Depth of dredge will be based on depth of contamination and whether a cap could be incorporated into the design. In the feasibility study, it was determined that capping was not appropriate for areas that would be dredged for navigation and ship berthing and there were assumptions about where this kind of activity occurred. During design, these areas will be more accurately identified and where maintenance dredging is not a reasonably anticipated future use, the remedy will be adjusted and capping could be used instead of dredging.

#### 4.1.14 Clarify Oregon Health Authority's Role in Developing and Implementing Fish Advisories

##### Comment

All existing fish advisories in Oregon were developed and issued by the Oregon Health Authority using EPA guidance. They typically communicate these advisories via news releases and its website. In some cases, local health authorities or local water body managers post signs on behalf of Oregon Health Authority. Generally speaking, county health departments are the most appropriate entity to conduct outreach and community engagement for local public health issues; however, they often lack the staff capacity and funding to do so for environmental health issues. Portland Harbor is located within the Multnomah County's jurisdiction. With the appropriate level of resources, Multnomah County Health Department would be the entity to implement a fish advisory outreach program for Portland Harbor.

The role of Oregon Health Authority should be clarified by:

- Specifying the role of state and local health authorities in developing and implementing fish advisories.
- Identifying the resources and funding that EPA will provide to state and local health authorities for conducting effective community outreach and education.

##### EPA Response

EPA explained the need for fish consumption advisories in both the feasibility study and the proposed plan (USEPA 2016c) based on the results of the BHHRA (Kennedy/Jenks 2013) in the remedial investigation report (USEPA 2016a). EPA has clearly identified in the ROD the need for fish consumption advisories during and after construction of the remedy until cleanup levels are achieved. Even then, watershed-wide fish consumption advisories such as the existing Oregon Health Authority advisory may need to remain in place because there are sources of contamination that are outside of the scope of the Superfund cleanup (such as upstream sources of naturally-occurring mercury).

EPA recognizes that fish consumption advisories are more effective with community support. During remedial design, EPA will develop an ICs implementation and assurance plan that lays out the approach for the development and implementation of all ICs required by the ROD to protect humans



from exposure to site contaminants and to protect the remedy put into place. Specifically, the use of fish consumption advisories and RNAs, and the entities responsible for implementing them. Additional IC mechanisms may be developed during remedial design, as needed.

The primary goal of the ICs implementation and assurance plan is to establish and document the activities necessary to implement and ensure the long-term stewardship of ICs, and specify the persons and/or organizations that will be responsible for conducting these activities. In development of the ICs implementation and assurance Plan, EPA will coordinate with river users, property owners, communities and other stakeholder groups to minimize the long-term impacts of ICs as part of the remedial action.

The approach for the fish consumption advisory IC will likely include, but not be limited to, the following:

- Survey fisher communities, including Tribal, low-income, minority, and immigrant communities, to verify the fish species being consumed, consumption rates, preparation and cooking practices
- Develop a fish tissue sampling plan including species, numbers, and size of fish to be sampled, as well as tissue surrogates, such as passive sampling devices, where needed
- Use fish tissue and other empirical data to support the five-year review process in evaluating the relative success of remedial measures against RAOs
- Collect fish tissue data during remedial design (baseline) and throughout construction as part of the comprehensive monitoring plan for the Site
- Establish fish consumption advisories that are fully protective of human health throughout construction and following construction based on on-going monitoring of fish tissue samples from upstream, within, and downstream of the Site
- Conduct outreach and education tailored to the affected communities to ensure that fish consumption advisories are effective and appropriate, advisory signs are designed, installed, and maintained effectively and at the appropriate locations, in coordination with Oregon Health Authority and Multnomah County Department of Health. Programs such as the education collaborative at Palos Verdes will be considered in development of the ICs implementation and assurance plan.
- Identify and educate fisher communities about mechanisms to reduce the impacts of fish consumption. The Agency for Toxic Substances and Disease Registry and/or Oregon Health Authority will review fish consumption information from EPA in their health assessment process, and offer health screenings if appropriate.
- Include coordination with sport or recreational fishing clubs and licensing locations
- Monitor the effectiveness of fish consumption advisories through surveys of fisher communities during construction
- Based on long-term monitoring as determined in the five-year review process required under CERCLA, re-evaluate fish consumption advisories to ensure they are fully protective but not overly restrictive and on target to meet long-term goals of the remedial action. This may include

special consideration of high use areas such as beaches and fishing areas at Cathedral Park, Willamette Cove, and Swan Island Lagoon.

## 4.2 Specific Text Concerns

### 4.2.1 River Bank Region, Page 12

#### **Comment**

The ROD should clearly define the term river bank and clarify whether the term applies to either a geomorphic feature or specified elevation.

#### **EPA Response**

The ROD defines river banks as top of bank down to the river.

### 4.2.2 Assumptions for Fish Consumption Rates and Patterns, Page 17

#### **Comment**

The ROD should make a distinction between anadromous species and resident species. Spring Chinook, steelhead, coho, shad, and lamprey are anadromous species likely have lower contaminant levels and are targeted by a wider and more diverse group of anglers. Resident fish like crappie, smallmouth bass, carp, bullhead, catfish have higher levels of contamination because their range is within Portland Harbor and these type of fish are more targeted by and more likely to be eaten by local residents.

#### **EPA Response**

EPA agrees that risk communication must be clear as to the types of fish that are unsafe to eat. The ROD and subsequent ICs implementation and assurance plan documents and advisories will distinguish between anadromous species and resident species with regard to fish consumption advisories.

### 4.2.3 Baseline Ecological Risk Assessment, Page 20

#### **Comment**

The ROD should specify that TPH is both TPH-Diesel as measured by the TPH-Diesel method and as the aliphatic EC10-EC12 fraction.

#### **EPA Response**

Due to the detections of TPH Diesel in groundwater and pore water at the Site and because the target reference value for C10 – C12 aliphatic hydrocarbons represents both the upper end of gasoline range hydrocarbons and the lower end of diesel range hydrocarbons, the target reference value for C10 – C12 aliphatic hydrocarbons was selected as the PRG in the feasibility study and now the cleanup level in the ROD.

### 4.2.4 Reactive Caps, Page 27

#### **Comment**

The ROD should describe the purpose and function of organoclay versus activated carbon, particularly with respect to effectiveness with NAPL.

**EPA Response**

Organoclay has a lower permeability than carbon and used to retard seepage velocity where groundwater plumes are suspected to be present. As discussed in Appendix D4 this low permeable material is used for significantly augmented reactive caps.

**4.2.5 Productivity, Page 29****Comment**

The Plan assumes a dredging season based on one in-river work period (July 1 through October 31). The ROD should acknowledge that there is a second in-river work period in the winter (December 1 to January 31st) and identify what, if any work, may be done during this period.

**EPA Response**

EPA will continue coordination with NMFS with regard to what in-river work activities, if any, would be allowed during the second in-river work period as well as any flexibility that might occur seasonally in the summer work window.

**4.2.6 Potential Contaminant Release during Construction, Page 29****Comment**

The ROD should include a statement that acknowledges the limitations of silt curtains and sheet pile walls.

**EPA Response**

Water quality controls, including silt curtains and/or sheet pile wall enclosures will be required to minimize releases to the water column associated with the presence of contaminated sediments, NAPL, debris and other chemical or physical conditions. The ROD addresses limitations of these water quality control systems. Various water quality controls will be evaluated on location specific basis during remedial design, given the variability of subaqueous conditions within the harbor. Details regarding sediment dispersion control and location-specific engineered rigid control measures will be determined during remedial design. Refer *Final GASCO Oversight Report, November 2006*, for various limitations in effective implementation of silt curtain system.

**4.2.7 Dredge Residuals, Page 29****Comment**

The plan states that “A 12-inch sand layer is assumed to be placed daily in all dredge areas to control residuals and releases.” Daily placement of a residuals management layer is not practical and would have significant impact on the project schedule and costs with limited benefits. DEQ recommends placement of a single 12-inch dredge residuals management layer following dredging.

**EPA Response**

EPA agrees that residual management layers should be placed as soon as is practicable following dredging but likely not as often as on a daily basis.

**4.2.8 Buried Debris and Piling, Page 29****Comment**

The ROD should clarify whether debris removal will be required in capping areas and how debris may influence the technology assignment for dredging versus capping. In particular, there tends to be heavy debris in the intermediate and shallow water areas and along the river banks, which will hamper the efficacy of pre-dredging in these areas.

**EPA Response**

During remedial design, debris and other area-specific features will be evaluated. The decision tree in the ROD has been revised to clearly outline this process. Also, EPA agrees that maintaining flexibility in construction methods through the remedial design phase is an important consideration, particularly for nearshore areas near structures and area with debris.

**4.2.9 Fish Advisories and Educational Outreach, Page 32****Comment**

EPA should avoid issuing consumption advice with a time denominator greater than 1 month. For example, if the calculated meal recommendation is 6 meals in 10 years, the advisory should say no resident fish consumption. The main reason for this is clarity and usefulness of the information for the general public. Typical fishers are unlikely to keep track of their consumption of fish from a specific water body over a 10 year, or even 6 months, period. As a matter of practical risk communication, any recommendation that is more restrictive than 1 meal per month should be communicated as no fish consumption. The current fish advisory for Portland Harbor is zero meals per month for sensitive groups, especially pregnant and nursing women, and one meal per month for everyone else. Oregon Health Authority recognizes that the current recommendation is inconsistent with fish tissue data that have been collected and current fish advisory calculation methodologies. The current fish consumption advisory for Portland Harbor will be updated to recommend no consumption of resident fish. This adjustment will bring Oregon Health Authority's advisory into alignment with EPA's recommendation.

**EPA Response**

EPA agrees fish advisory information should be as clear as possible and an ICs implementation and assurance plan will lay out the approach for the development and implementation of ICs, including fish consumption advisories and timeframes with this in mind.

**4.2.10 River Banks, Page 36****Comment**

The Plan states that "The technology assignments for SMAs adjacent to identified contaminated river banks are extended to include those river banks." This is in conflict with the next sentence which states that "Where SMAs are projected onto the river bank, removal followed by capping is the assigned remedial technology." The ROD should clarify the technology assignment for river banks and should explain how river banks action will be integrated with ongoing source control efforts.

**EPA Response**

The updated technology assignment decision tree for decision making is included in the ROD. The ROD includes the flexibility for the remedial design to evaluate and select the appropriate remedial technologies. The remedial design will need to address site-specific factors such as highly toxic PTW, depth of excavation, on-site structures, site operations, habitat, and other site-specific features.

**4.2.11 Long-Term Effectiveness and Permanence, Pages 52 through 55****Comment**

The definitions of residual risk and post-construction risk are unclear. The ROD should clarify these terms and how the risks associated with each are calculated.

**EPA Response**

Residual risk is defined as the cancer risk or hazard index once the PRGs are achieved. Because not all selected PRGs are risk-based, the residual risk or HQ for individual COCs may be greater than the  $1 \times 10^{-6}$  cancer risk or HQ of 1 used to calculate risk-based PRGs. Also, the magnitude of residual risk for Portland Harbor is defined as the estimated residual risk based on the cleanup levels and is RAO specific.

Post-construction risks were calculated for RAOs 1, 2, 4, 5, 6 and 8 for each for each alternative carried through the detailed analysis. These evaluations required estimates of surface sediment concentrations averaged on the following spatial scales: rolling river mile concentrations averaged over 0.5 river miles for only the eastern and western nearshore river segments and Swan Island Lagoon, rolling river mile average concentrations for each river segment, SDU-scale SWACs, and a site-wide weighted average concentration for each COC. All post-construction risks are evaluated as only the contribution from the sediment.

Refer to Appendix J of 2016 feasibility study report (USEPA 2016b) for more details regarding how “Residual Risk and Post-Construction Risk” were estimated or calculated. Refer to Section 11 of the ROD for the summary of each alternative where they are evaluated to determine how, at the end of cleanup construction, each alternative compares to the residual risk and post-construction risk. Each alternative was evaluated to compare the estimated risks remaining at the end of cleanup construction, as well as when cleanup levels are achieved. The risk remaining once the cleanup level is achieved is called residual risk. Table 22 in Appendix II of the ROD provides the calculated risks at the end of construction for each alternative. Alternatives with smaller SMA footprints have higher risks post construction to human health and the environment, address less groundwater contamination, and include fewer contaminated river banks. Alternatives that have smaller cap/dredge footprints and rely more on MNR have more uncertainty that cleanup levels would be met.

**4.2.12 RAO 2, Page 51****Comment**

The interim target hazard index for infants is stated as 1,250 on a site-wide scale and 920 on a river mile scale. These targets are inconsistent with the feasibility study report. The infant interim target hazard index in the feasibility study report is 1320 site-wide and 450 on a river mile scale (see feasibility study report Page 4-79).

**EPA Response**

The interim targets based on the infant nursing exposure scenario were calculated based on the selected PRGs for RAO 2. Residual risk estimates were calculated as presented in Table J1-2 in Appendix J of the feasibility study report (USEPA 2016b). The interim targets were calculated by multiplying the residual risk estimates of 132 (site-wide) and 45 (RM and SDU scale) by 10. The residual risk estimates exceed 1 because many of the PRGs for RAO 2 are not risk-based but rather based on background. Cleanup levels for each RAO will be evaluated against empirical data collected under a robust monitoring plan for the Site.

**4.2.13 RAO 5, Page 51****Comment**

The interim target for RAO 5 is unclear. Although the text indicates that the interim target for RAO 5 is to address 50 percent of the benthic risk area, this is untrue. The Alternative I footprint addresses only 17 percent of the benthic risk area (225 acres, Table J2.4-1). Although not explained in the text, the

state understands that EPA's interim target is actually based on the area exceeding 10x the benthic risk PRGs. The basis for all interim targets should be clearly described in the text.

**EPA Response**

Refer LWG Dispute Issue 1b (Appendix A of this document). As shown in Table 22 of the ROD, EPA's selected remedy, Alternative F Modified, addresses 72 percent of the area with unacceptable benthic risks (the area that exceeds 10 times the benthic risk value). The Alternative F Modified achieves the interim target of 50 percent.

Alternative I addresses 64 percent of the area with unacceptable benthic risks (Figure 4.2-29 and Table 4.2-7), which achieves the interim target of 50 percent.

#### 4.2.14 Implementability, Page 56

**Comment**

The ROD should acknowledge potential impacts of construction on adjacent business and marine-based commerce and consider these impacts in the comparative alternatives evaluation. Alternatives which can be implemented in a shorter period of time will have a shorter duration of impacts.

**EPA Response**

Because the primary objective of the remedy must be to protect of human health and the environment, economic impacts to businesses are not considered in the CERCLA alternative evaluation and remedy selection process directly or specifically. However, EPA recognizes the goal to limit interference with commercial, industrial, and other uses of the river to the extent possible and will take into consideration those operations and constraints during remedial design. EPA will work with landowners and businesses to minimize economic impacts through the design and implementation of the remedial actions.

#### 4.2.15 Preferred Alternative, Page 64

**Comment**

The plan calls for placement of an impermeable cap layer (e.g., AquaBlok) beneath structures. This type of cap may be subject to failure and heaving due to tidal influences and surface water-groundwater exchange, resulting in some loss of its isolation capabilities. Other cap materials should be considered and evaluated during design for placement under structures.

**EPA Response**

As discussed in the first square bullet on Page 64 of the proposed plan (USEPA 2016c), AquaBlok™ was assumed to be a representative material for feasibility study evaluation and feasibility study cost purposes that could be used to reduce cap thickness under structures. However, EPA agrees that other comparable materials could achieve the objectives identified for AquaBlock™ as discussed on Page 64 of the proposed plan could be considered and evaluated during remedial design. The ROD includes "or similar" type language when referring to such proprietary technologies.

The ROD includes a flexible decision tree along with general capping design requirements to guide the assignment of capping technologies, based on specific characteristics within SMAs. The decision tree will be used during remedial design to define what actions should be taken under different environmental conditions and locations based on the most recent design data. Once the data and river factors are evaluated within the context of the decision tree, a final design for construction can be

completed. This design will then dictate the remedial construction. The decision tree is intended to provide clear direction on what actions should be taken under the different environmental conditions.

#### 4.2.16 Preferred Alternative, Page 65

##### Comment

Aquablok and Aquagate are proprietary products. The use of these products should not be a specific requirement and the ROD should clarify that alternative, comparable products may be used.

##### EPA Response

As discussed in the first square bullet on Page 64 of the proposed plan (USEPA 2016c), a reactive layer was discussed for use in addressing groundwater plumes where pore water exceeds PRGs. The representative materials discussed as an assumption for the feasibility study report (USEPA 2016b) for evaluation purposes was AquaGate and Aquablok™. However, EPA agrees that other comparable materials that could achieve the objectives of a reactive layer as discussed on Page 64 of the proposed plan could be considered and evaluated during remedial design. The ROD includes “or similar” type language when referring to such proprietary technologies.

### 4.3 Specific Issues with Figures and Tables

#### 4.3.1 General

##### Comment

The ROD should provide adequate depictions of the risk areas to be addressed by the remedy.

##### EPA Response

The feasibility study report (USEPA 2016b) has depictions of the RAO 5 risk areas addressed with each of the alternatives as shown in Figures 4.2-19, 4.2-21, 4.2-23, 4.2-25, 4.2-27, 4.2-29. A similar figure will be developed for the final chosen alternative and presented in the ROD. It should be pointed out that these areas will change as new data are gathered.

#### 4.3.2 Figure 6

##### Comment

The river banks identified as contaminated in this figure should be revised to be consistent with the areas identified in the Portland Harbor Upland Source Control Summary Report March 25, 2016.

##### EPA Response

See River Banks Theme 10: “The completeness of river bank contaminant delineation and the need for an action to address river bank soil will be evaluated during remedial design.”

#### 4.3.3 Figure 10a

##### Comment

This figure assumes that no PTW or RAL exceedances occur greater than 18 feet bml in FMD areas or 15 ft bml in the navigation channel. It is unclear whether these depths define the maximum dredge depths in these areas, or if dredging will extend to the full depth of PTW/RALs should new data indicate deeper exceedances.

##### EPA Response

Section 14.2.9.1 of the ROD states “If caps are required within the navigation channel and future maintenance dredge areas, work will be coordinated with USACE to ensure that the cap is compatible



with current and anticipated waterway use. Any proposed capping in the navigation channel and future maintenance dredge areas will consider the current and authorized channel depth, the potential for an increase to the currently authorized channel depth, future navigation and maintenance dredging, and an appropriate buffer depth to ensure the integrity of the cap.” Section 15.2.3 of the ROD further states “Contaminated sediments located in the navigation channel are assumed to be dredged and then a residuals management layer will be placed in the dredged area. The Willamette River currently has an authorized channel depth of -40 ft CRD. Prior to listing of the Portland Harbor Superfund Site on the NPL, the USACE proposed deepening the federally maintained navigation channel to -43 ft CRD.

Contamination at depths greater than the authorized depth of the navigation channel may be capped and those caps will be constructed below the authorized depth of dredging so as not to interfere with future dredging as well as to provide an overdredge allowance or buffer zone, as necessary, to protect the remedy from future dredge activities.”

#### 4.3.4 Figure 10b

##### **Comment**

The multi-criteria design matrix (feasibility study report Figure 2.4-16) is necessary to interpret the intermediate area technology assignments. This matrix should be included and discussed in the ROD. This discussion should include a summary of the weighting and scaling approach used for various elements and should also acknowledge the dependence of the evaluation on assumptions such as the choice of cutoff criteria and the scale, and use equal weighting of factors on the resulting matrix designation. Alternatively, and preferred by the state, is that a preference not be specified between dredging versus capping in intermediate areas.

##### **EPA Response**

The decision tree used in the feasibility study report (USEPA 2016b) is not used in the ROD. Instead a more simplified and flexible decision tree is used and should address the above question. See Section 2.24 of this responsiveness summary for a detailed response on the use of assignment criteria and how dredging and capping will be addressed.

#### 4.3.5 Figure 19c

##### **Comment**

Alternative I identifies dredging as the remedial technology for the portion of Terminal 4, Slip 3 which was capped as part of the T-4 Phase I Removal Action. The ROD should either amend the figure if the assigned technology is in error or explain why the cap should be removed.

##### **EPA Response**

There is a small cap at the head of Slip 3 as shown in the Phase 1 Removal Action (2008 Anchor QEA). The technology assignments presented in the feasibility study report (USEPA 2016b) are representational and do not determine the final applications. The state of currently capped areas will be taken into account during final remediation design.

##### **Comment**

Beach sample locations adjacent to the Mar-Com North and South Parcels<sup>7</sup> indicate that PCBs in excess of the Alternative I RAL extend into the cove area outside of the Alternative I footprint shown in the figure.



**EPA Response**

Only sediment samples were used in the site evaluation. River bank and beach samples were not included. Final technology assignments will be evaluated based on new data and sampling collected during the remedial design phase. There will be an opportunity to decide on whether or not to include additional sample data and how best to evaluate it.

**4.3.6 Table 11 – PRGs****Comment**

- The table title and headers should distinguish between PRGs (sediment) and target values which will be used as a measure of progress (surface water, groundwater, fish/shellfish tissue).
- The groundwater PRG value of 2.6 µg/L for TPH-Diesel should be clarified as applying to the aliphatic EC10-EC12 fraction of TPH.
- The fish tissue values apply to both fish and shellfish.

**EPA Response**

EPA has revised the RG table in the ROD to distinguish between cleanup levels for RGs for surface water, groundwater and river bank soil/sediment and target levels for fish tissue. Target levels for fish tissue are generally based on fish consumption because the shellfish consumption rates are much lower than the fish consumption rates. The exception to this is cPAHs which has fish tissue target level of 7.1 µg/kg, based on a shellfish consumption rate of 3.3 grams per day. EPA has also clarified that the RG for TPH diesel in sediment is 91 milligrams per kilogram (RAO 5) and the PRG for C10 – C12 aliphatic hydrocarbons is 2.6 micrograms per liter (RAO 8).

The groundwater PRG of 2.6 micrograms per liter should be for C10 – C12 Aliphatic hydrocarbons and not TPH diesel. There is a PRG of 91 milligrams per kilogram for TPH-Diesel in sediment (RAO 5).

The shellfish consumption rates are much lower than fish. Fish and shellfish were evaluated separately. In general, the RAO 2 PRGs are based on fish consumption. The exception to this is the cPAH PRG which was based on clam consumption.

## Section 5

# National Marine Fisheries Service Comments and Responses

## 5.1 General Comments on the Proposed Plan

### 5.1.1 Consider Impacts to Trust Resources

#### Comment

“NMFS is concerned with potential impacts of the proposed plan to our trust resources, specifically:

- a. Habitat modification in the Harbor, changes in prey availability, and bioavailability and bioaccumulation of COCs in the prey species of out-migrating juvenile salmon and steelhead are all important threats to these species.
- b. Marine mammal species, particularly southern resident killer whales, feed on salmon from the Columbia River system. Because of the bioaccumulative nature of many of the COCs addressed in the proposed plan, potential short-term increases in bioavailability of COCs in the Harbor represent a risk concern for these species.
- c. Southern DPS green sturgeon is particularly susceptible to short-term increases in bioavailability of COCs.
- d. Southern DPS eulachon in the Columbia River are susceptible to impacts to prey availability and increased bioavailability and bioaccumulation of COCs in their prey.
- e. An increase in the migration of COCs to the estuary represents a potential risk to Essential Fish Habitat (EFH) for coastal pelagic and groundfish species.”

#### EPA Response

EPA appreciates NMFS' comments on the proposed plan (USEPA 2016c) and draft Programmatic Biological Assessment. EPA will continue to coordinate with NMFS to evaluate impacts on listed species and designated critical habitat. The Programmatic Biological Assessment outlines the best management practices and other measures to be implemented to avoid or minimize impacts. Additional species noted above will be added to the next version of Programmatic Biological Assessment sent to NMFS for review.

### 5.1.2 Address Impacts of Disturbed Sediments on Salmon and Steelhead

#### Comment

“Direct disturbance of sediments in the Harbor, either through dredging or capping, are likely to adversely affect Endangered Species Act-listed salmon and steelhead, depending on where such activities occur in the channel profile. The river regions identified by EPA do not correspond to the ecological significance certain areas have to specific species. Specifically:

- Loss of active channel margin (ACM) and shallow water habitat (SWH) due to bank.
- Armoring, development, channelization, and fill within the historic ACM and floodplain are key factors limiting the recovery of some Endangered Species Act-listed species in the Lower Willamette River (LWR) and Harbor.
- ACM refers to the part of the river’s edge that occurs at the interface of unwetted shoreline and shallow water, and occurs from ordinary high water (OHW) to ordinary low water (OLW).
- SHW refers to areas from the water’s edge out to a maximum depth of 15 feet below OLW.
- This corresponds with part or all of the following river regions identified in the proposed plan: Intermediate Region, Shallow Region, and River Bank Region.
- The proposed plan is likely to result in significant disturbance of ACM and SWH areas because the proposed plan emphasizes dredging and capping in the Shallow Region and River Bank Region to avoid changes in river flood storage and to comply with no net rise requirements.

NMFS strongly recommends further consideration of the remedial actions proposed for ACM and SWH habitats, including limits on sediment disturbance and conversion of such habitat from submerged to submersible lands, e.g.:

- i. Reducing the repose of shorelines and removal of streambank fill to expand the floodway and active channel.
- ii. More stringent work area isolation measures when dredging in shallow water habitats.
- iii. Provision of more a substantial “beach mix” to provide a habitat layer to enhance recovery of this key habitat type, e.g., (1) a mix of screened and washed 2.5-inch minus gravels (no fines) mixed with sand; and (2) use of a carbon-amended “beach mix” for broader expanse of ENR areas.

Because of the very high value of these areas for the survival and recovery of Endangered Species Act-listed species, NMFS favors ENR treatments over MNR in these areas.”

### **EPA Response**

EPA acknowledges the ecological importance of ACM and SWH areas. To avoid or minimize impacts on ACM and SWH areas, the feasibility study report (USEPA 2016b) Appendix L describes the following measures:

- Following dredging in shallow water areas (0 to 20 feet from ordinary low water), backfill would be used to restore the existing (pre-dredging) elevation to avoid loss of shallow water habitat.
- To offset permanent and/or temporal loss of habitat functions from dredging and capping in shallow water areas and as on-site mitigation, following dredging and capping in shallow water areas, slope would be laid back or the slope otherwise lessened to as close the existing slope as practicable given site-specific conditions.
- To further offset permanent and/or temporal loss of habitat functions from dredging and capping on river banks and as on-site mitigation, after soil removal on river banks, river bank

slopes would be laid back to as close as a 5H:1V slope as practicable given site-specific conditions.

- Capping in shallow areas would specify dredging of an equivalent cap thickness prior to placement to allow for a net zero bathymetry change and avoid loss of shallow water habitat.
- Engineered beach mix layer consisting of rounded gravel typically 2.5 inches or less as well as sand would be applied to the uppermost layer of all caps and dredge leave surfaces in shallow areas. This layer would provide appropriate substrate habitat for colonization by benthic organisms. Beach mix would not be applied to leave surfaces consisting of sand unless required due to changes in hydrodynamic conditions following remedial activities to ensure the layer will be stable over time. In addition, if beach mix is placed over riprap armoring, monitoring would be required to determine whether the site-specific conditions are conducive to maintaining the beach mix habitat layer over the riprap. If monitoring, test plot pilot study, or site-specific modeling demonstrate that a sand/gravel surface can be maintained long term, this may be considered by EPA when determining if the compensatory mitigation proposed during remedial design is adequate. Coordination will be ongoing with the Services regarding treatment material compatibility with habitat.
- Vegetation would be incorporated into caps placed on river banks where possible such as in off-channel areas that are not prone to erosion and with less steep slopes.

EPA will coordinate with NMFS during remedial design to refine the selection of construction methods and the measures for protection of listed species and aquatic habitat.

### 5.1.3 Conduct Reach-Wide Sediment Sampling in Lower Willamette River

#### Comment

“Sediment sampling and characterization. Before starting remedial activities, NMFS recommends repeating the reach-wide sediment sampling for the LWR, originally conducted in 2008 and analysis of the data collected to:

- Ascertain if MNR is observable at the decadal timeframe.
- Better assess upstream contributions to the LWR.
- Improve our understanding of sediment and contaminant mobility.”

#### EPA Response

The remedial technology assignments described in the proposed plan (USEPA 2016c) were based on contaminant concentrations and physical conditions such as areas of erosion/deposition, infrastructure such as docks and piers, and land and waterway use. During remedial design, detailed area-specific studies will be conducted to determine existing baseline conditions, including levels of contamination and to design how the cleanup will be conducted before the construction begins. Baseline sampling will include areas upstream and downstream of the Site.

### 5.1.4 Address Concerns About the CDF

#### Comment

NMFS remains concerned about the inclusion of the confined disposal facility (CDF) in the proposed action, both from the standpoint of the loss of 15 acres of aquatic habitat (including 3+ acres of shallow water and off-channel habitat), and from the long-term disposition of the facility.

- How will wastes that do not meet disposal requirements for the CDF be separated from wastes that meet CDF disposal criteria, particularly for dredge units where such COCs may be adjacent, co-mingled, or layered?
- What seismic design requirements will be applied to the CDF, and to armored and engineered caps?
- If soluble contaminants will be placed in the CDF, what additional design considerations are necessary to isolate the CDF from the aquatic environment (e.g. slurry wall, impermeable lining, impermeable cover, a pump-and-treat system to remove these COCs)?
- On the other hand, if soluble contaminants will be excluded from the CDF, how will such COCs be adequately excluded from the waste stream identified for CDF placement?
- How will EPA ensure that any loss of ACM and SWH will be off-set?

#### EPA Response

A CDF is no longer being considered as part of the remedy.

### 5.1.5 Explain Treatment of ARARs

#### Comment

Please explain how EPA will determine which ARARs it will either attain or waive as part of the proposed remedy.

#### EPA Response

As stated in Section 2.1.1 of the feasibility study report (USEPA 2016b), EPA does not currently have a basis for waiving any ARARs. Any ARAR waivers would have to be supported by a technical impracticability analysis or other ARAR waiver basis and documented in a ROD amendment. Section 12.2 of the ROD identifies the ARARs that will be met.

### 5.1.6 Use Rock and Gravel Instead of AquaBlocks

#### Comment

The preferred alternative indicates a preference for AquaBlocks for use as a sediment cap because these structures achieve greater armor protection in a thinner profile depth. However, NMFS does not support use of AquaBlocks and prefers rock and gravel armor layers, even if doing so results in additional dredge depth.

#### EPA Response

AquaBlok® is a patented, composite-aggregate technology resembling small stones and typically comprised of a dense aggregate core, clay or clay-sized materials, and polymers. It is used as an impermeable material for remedial sediment caps, not for armor protection. NMFS may be referring to concrete block structures (such as those used at the McCormick and Baxter site) that could be used instead of rock or gravel armor. EPA agrees that rock and gravel armor layers would be preferable

over concrete block structures and will further coordinate substrate specifications with NMFS during design.

## 5.2 Comments on the Programmatic Biological Opinion

### 5.2.1 Define ACM and SWH

#### Comment

“The definition of ACM and SWH should be defined throughout the PBA as noted above. The definitions provided in this letter are consistent with what the Portland Harbor Trustee Council (PHTC) is considering as SWH for their restoration projects in Portland Harbor, and with the definitions that NMFS will use to analyze the effects of the proposed plan on Endangered Species Act-listed species.”

#### EPA Response

Comment noted. EPA will revise the PBA accordingly.

### 5.2.2 Ensure Material Placed for Habitat Purposes is Stable over Time

#### Comment

NMFS is concerned about the long-term stability of any “fish friendly” layers that may be placed over sediment in the Harbor as part of the proposed plan. The PBA should make clear that any sand or “beach mix” layer that is placed for habitat purposes must stable over time, including use of reduced slopes as necessary.

#### EPA Response

Comment noted. Stability of the beach mix layer will be evaluated during remedial design and subsequent monitoring.

### 5.2.3 Consider Beach Mix or Sand Covers as a Minimization Measure

#### Comment

“Beach mix” or sand covers should be considered as a minimization measure outside of shallow water habitat as well to reduce mitigation requirements in deeper water and bank areas.

#### EPA Response

Comment noted. Beach mix or sand covers will be considered as a minimization measure in deeper water and bank areas.

### 5.2.4 Define Criteria for Measuring MNR Success

#### Comment

In Section 2.3.2, please define the criteria that EPA will use to determine whether MNR is successful or not, and thus whether additional active clean-up will be required. This must include the number of years beyond the seven years of construction that will elapse before making this determination.

#### EPA Response

Following construction, there will be long-term monitoring until the cleanup levels and associated RAOs are achieved and beyond. A monitoring plan will be developed during remedial design and incorporated into the PBA. Data on contaminant levels will be used for multiple purposes, such as to determine if MNR is taking place as expected or if any additional actions are required to achieve the

cleanup goals on the planned timeline. EPA will coordinate with NMFS on the progress on achieving remedial cleanup levels and achieving RAOs over time and if any additional actions might be needed to achieve them. Impacts of any additional measures will be coordinated with NMFS and supplements provided for the Biological Assessment, if needed.

### 5.2.5 Address Concerns with Loss of Habitat and Structural Integrity

#### Comment

As noted above, NMFS remains concerned about the inclusion of the CDF in the proposed action, both from the standpoint of the loss of aquatic habitat and structural integrity in a large seismic event. If the CDF is constructed, it should meet all water quality criteria at the point of discharge.

#### EPA Response

A CDF is no longer being considered as part of the remedy. The PBA will be revised accordingly.

### 5.2.6 Provide Details of Safe Fish Handling

#### Comment

Since the collection of biota for tissue sampling for MNR will likely harm or injure some salmon and steelhead, we will need more details on this procedure in the PBA such as number of sampling design, procedures for safe fish handling.

#### EPA Response

Comment noted. A detailed fish sampling plan will be included in future monitoring plans. EPA will coordinate with NMFS as details of the monitoring plans are developed.

### 5.2.7 Fix Non-Lower Willamette River Issues in Avoidance and Minimization Measures Section

#### Comment

The impact avoidance and minimization measures section seems to include some measures that, as currently worded, do not appear to apply to the LWR.

#### EPA Response

Comment noted. The impact avoidance and minimization measures section will be revised to omit measures that do not apply to the LWR.

### 5.2.8 Work with NMFS to Develop a Refined List of Pile Removal Practices

#### Comment

Some methods of pile removal proposed in the PBA, such as clamshell extraction, may cause more adverse impacts than leaving the pile in place. Please work with us to develop a more refined list of pile removal BMPs to include in your final PBA.

#### EPA Response

Comment noted. EPA will work with NMFS to refine the list of pile removal BMPs in the PBA and remedial design documents.

### 5.2.9 Refine the Description of the Action Area

#### Comment

Please refine the description of the action area to include all areas where contaminants may disperse downstream, areas that may be used for compensatory mitigation projects, and areas that will be used as shipping facilities or affected by ship traffic or other actions necessary to transport contaminated sediment to its eventual landfill destination. Also, note that additional impact avoidance and minimization measures may be necessary for the safe upstream transportation and handling of contaminated sediments.

#### EPA Response

Comment noted. EPA will work with NMFS to refine the description of the action area per NMFS' comment and to consider impact avoidance and minimization measures necessary for the safe transportation and handling of contaminated sediments.

### 5.2.10 State That Mitigation Will Occur as Close to Impact Area as Possible

#### Comment

NMFS has not yet determined whether to approve compensatory mitigation projects outside of the Portland Harbor Site, either upstream in the Willamette River or downstream in the Columbia River. NMFS will strongly prefer mitigation to be as close to the impact area as possible, and would appreciate this being explicitly stated as a preference in the PBA as well.

#### EPA Response

Comment noted.

### 5.2.11 Describe Compensatory Mitigation Process

#### Comment

The Programmatic Biological Assessment should mention the likely option of credit purchases from approved mitigation banks as an alternative to applicants constructing their own compensatory mitigation projects. In addition, compensatory mitigation would not just involve converting upland to shallow water areas as is stated in the PBA in several places.

#### EPA Response

Comment noted. EPA will revise the Programmatic Biological Assessment to mention credit purchases from Clean Water Act 404 approved mitigation banks as an alternative to applicants constructing their own compensatory mitigation projects. EPA will coordinate with NMFS as specific compensatory mitigation projects are proposed but at this time are not prepared to eliminate any potential "enhancement" or "creation" mitigation projects that converting upland to shallow water may meet under the Clean Water Act.

### 5.2.12 Discuss Effects of All Contaminants that Would Impact Salmon and Steelhead

#### Comment

Why are the effects of only certain chemical groups on salmon and steelhead discussed in the PBA? Are these the only ones expected to be mobilized so that salmon and steelhead are exposed during the



proposed action? The Programmatic Biological Assessment should discuss effects of all contaminants that would likely impact salmon and steelhead during remedial actions.

**EPA Response**

As described in Section 5.1.1.1 of the Programmatic Biological Assessment, the BERA (Windward 2013) found that the potential acute exposure of contaminants during dredging at the Site is likely associated with the three chemical groups evaluated in the PBA: PAHs, PCBs, and DDx compounds. The revised Programmatic Biological Assessment will incorporate additional information, as needed, on the effects of these and other contaminants that could be mobilized and effect listed species.

### 5.2.13 Consider Impacts of Large Ship Wakes

**Comment**

Please consider the impact of large ship wakes as part of the determination of where caps will likely have to be armored, and where "beach mix" is likely to stay in place. Otherwise, EPA is likely to underestimate the amount of compensatory mitigation required for armored caps in the Harbor.

**EPA Response**

Comment noted. Remedial design investigation will consider the impact of large ship wakes as part of the determination of where caps will need armoring and how wakes would affect the stability of the beach mix layer.

### 5.2.14 Address Dispersion of Contaminants During Remedial Dredging

**Comment**

Please include any information available on the dispersion of contaminants during remedial dredging, e.g., studies that show the likely concentration, fate and transport of contaminants that will disperse downstream during clean-up operations.

**EPA Response**

Comment noted. The draft PBA included information on the dispersion of contaminants (see Section 5.1.1.1 of this responsiveness summary) and suspended sediment during dredging (see Section 5.1.1.2 of this responsiveness summary). The revised PBA will include additional information, if available, on the dispersion of contaminants during remedial dredging and other remedial activities.

### 5.2.15 Refine the Description of the Action Area

**Comment**

Table 5.3 and Section 5.4.2 state that the proposed action "would adversely modify" critical habitat for LCR coho salmon. Please note that the correct determination here is the same as for the other Endangered Species Act-listed species.

**EPA Response**

Comment noted. The PBA will be revised with the correct determination.

### 5.2.16 Consider Bioaccumulation Impacts in Killer Whales

**Comment**

For the killer whale effects determination, the PBA states that transport of contaminants from the Site to the LCR would be negligible so salmonid prey of killer whales would be unlikely to be exposed to resuspended contaminants. However, that does not acknowledge that some prey of killer whales

would likely be exposed to contaminants during the clean-up, and the fundamental role that bioaccumulation of contaminants in the killer whale's food web play in limiting its recovery.

**EPA Response**

Comment noted. The evaluation of killer whale effects will be revised to include consideration of prey that is exposed during the cleanup and the role of bioaccumulation of contaminants in limiting the recovery of the species.

**5.2.17 Consider Vessel Strikes on Whales****Comment**

Widespread dredging and capping will require the mobilization of equipment from outside the local area. Vessel strikes on whales by equipment moved from Seattle/San Francisco/Long Beach should be considered in the section on interrelated and interdependent actions.

**EPA Response**

Comment noted. The evaluation of killer whale effects will be revised to include consideration of vessel strikes by equipment from outside the local area.

**5.2.18 Discuss Capture of the Proposed Plan in the Biological Opinion****Comment**

Finally, we need to discuss how the proposed plan can be captured most effectively and efficiently in a biological opinion.

**EPA Response**

Comment noted. EPA looks forward to continued coordination with NMFS in development of the PBA and any supplements and biological opinions on remedial actions.



## Section 6

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## Appendix A

PRP Dispute Resolutions for June 2016 - Legacy  
Site Services, Lower Willamette Group, Union  
Pacific Railroad



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
REGION 10

1200 Sixth Avenue, Suite 900  
Seattle, WA 98101-3140

OFFICE OF  
ENVIRONMENTAL  
CLEANUP

December 27, 2016

Mr. Bob Wyatt  
Chairman, Lower Willamette Group  
c/o Northwest Natural  
220 Northwest Second Avenue  
Portland, Oregon 97209

Mr. J. Todd Slater  
Assistant Vice President  
Legacy Site Services LLC  
468 Thomas Jones Way  
Exton, Pennsylvania 19341-2528

Mr. Robert C. Bylsma  
Sr. Regional Environmental Counsel  
Union Pacific Railroad  
Law Department  
10031 Foothills Boulevard, Suite 200  
Roseville, California 95747-7101

Re: Portland Harbor Superfund Site Final Feasibility Study Dispute Decision

Dear Sirs:

This memorandum resolves three disputes related to EPA's final Feasibility Study ("Final FS") for the Portland Harbor Superfund Site. The disputes were initiated by several but not all Respondents to the administrative order on consent entitled *In the Matter of: Portland Harbor Superfund Site, Administrative Settlement Agreement and Order on Consent for Remedial Investigation/Feasibility Study*, U.S. EPA Docket Number CERCLA-10-2001-0240 (the "AOC") and dated October 23, 2001<sup>1</sup>. Arkema, Inc., Chevron U.S.A., Inc., Evraz Inc., N.A. Gunderson L.L.C., NW Natural, TOC Holdings Co., and Union Pacific Railroad Company (collectively the "Lower Willamette Group" or "LWG"); Legacy Site Services ("LSS") the agent for Arkema, Inc.; and the Union Pacific Railroad ("UPRR") initiated the LWG, LSS, and UPRR disputes by letters of June 22, 2016. Specific responses to each issue raised in the disputes are included in Appendix A.

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<sup>1</sup> The signatories to the RI/FS AOC include Atofina Chemical, Inc., Chevron USA, Inc., Gunderson, Inc., Northwest Gas, City of Portland, Port of Portland, Time Oil Co., Conoco Phillips Company (formerly Tosco Corporation), Union Pacific Company, and Oregon Steel Mills, Inc.

LWG requests the following determination:

1. EPA's June 2016 FS should not be used as the basis for a Record of Decision ("ROD") for the Portland Harbor Superfund Site.
2. The alternatives analysis in the LWG's 2012 FS provides an adequate basis for selecting a remedy at the Site.
3. LSS requests that EPA make several modifications to the Final FS as documented in its letter of dispute.
4. UPRR requests a determination that several elements of the Final FS fail to comply with the National Contingency Plan ("NCP"), 40 C.F.R. Part 300, and EPA's designation of principal threat waste ("PTW") at the Site.

By this memorandum I deny all relief requested in the June 22, 2016 letters of dispute. In so doing, I specifically determine that the EPA's FS is compliant with CERCLA and the NCP, and provides an appropriate basis for selecting a remedy in a ROD for the Portland Harbor Site.

#### Context

The FS disputes arise from EPA's decision of January 4, 2016 to finalize the FS for the Portland Harbor Superfund Site and to relieve the LWG of its obligation to complete performance of the FS. By letter of January 19, 2016, LWG disputed EPA's decisions regarding the FS and requested that EPA withdraw its letter. This dispute was resolved by an agreement of February 4, 2016 (the "February 4 Agreement") whereby LWG and EPA agreed, in relevant part, as follows:

1. The EPA will finalize the FS.
2. The LWG AOC signatories may dispute the Final FS produced by the EPA by submitting their dispute within 14 days of publication of the Proposed Plan.
3. The AOC dispute process would proceed directly to a formal determination by the Director of the Region 10 Office of Environmental Cleanup.
4. LWG's dispute statement will be placed in the administrative record and the dispute process will be conducted consistent with requirements for public participation for the proposed remedy decisions under CERCLA, the NCP, and federal law.

The EPA and LWG also anticipated that the determination resolving the dispute would be issued simultaneously with EPA's remedy decision after considering all public comments along with the disputed issues.

Prior to making this determination, I have reviewed materials I have received from the LWG, LSS, UPRR, and the EPA Portland Harbor Team that responded to the LWG, LSS and UPRR dispute



positions. These materials have also been placed in the administrative record that supports this Decision and in the Portland Harbor ROD Administrative Record.

### Scope of Dispute

The materials submitted and relied upon in the disputes are voluminous. EPA's position paper (Appendix A) which includes the LWG, LSS, and UPRR dispute positions, identifies and responds to over 50 issues. As an initial matter, I will streamline the dispute issue by addressing what issues are within the scope of the FS dispute. The February 4 Agreement allowed the LWG signatories to dispute the "Final FS." Issues related to EPA's decisions made prior to issuance of the Final FS (including those that have been resolved through the AOC's dispute resolution process or those relating to changes between EPA's draft 2015 FS and the Final FS) and the Proposed Plan are outside the scope of the February 4 Agreement and not subject to dispute.

In addition, a decision to exclude such issues from dispute is consistent with the AOC. This conclusion is supported by at least two sections of the AOC. The first is Section XII (Final RI/FS, Proposed Plan, Public Comment, Record of Decision and Administrative Record) of the AOC. In this section EPA, appropriately, retained the responsibility for preparing and releasing the Proposed Plan and Record of Decision. The second is Section XVIII (Dispute Resolution) of the AOC. Paragraph 1 of this section expressly limits disputes to activities or deliverables required under the AOC, prohibits disputes not initiated within 14 days of the disputed EPA decision, and renders a dispute resolution decision final (not subject to further review). Thus, the issues not related to the 2016 FS are dismissed without further discussion.

### Discussion

The LWG, LSS and UPRR collectively dispute nearly every aspect of the Final FS. They frame the issues within the rubrics of EPA's failure to comply with CERCLA, the NCP, and relevant EPA guidance; EPA's use of inadequate technical methodologies resulting in unsupportable determinations; or EPA's reliance on flawed data or assumptions, or conversely failure to rely on the right data or assumptions. Thus, and by way of illustration, the EPA is faulted for concluding that certain alternatives are not protective of human health and the environment or compliant with ARARs; exaggerating site contaminant risk, including those posed by eating fish; failing to recognize that upstream sediments are naturally covering up risks posed by contaminated sediment within the Site; ignoring, conversely, the potential for recontamination from upstream sources of contamination; determining incorrectly the types and amounts of PTW within the Site; underestimating the short term effects of dredging while overestimating the long-term benefits of cleanup, including erroneous assumptions about location and volume of waste subject to potential remedial action; relying on erroneous cost assumptions and underestimating the cost of remedy implementation; and ignoring the effect of source controls undertaken under the oversight of the Oregon Department of Environmental Quality ("ODEQ").

EPA's response addresses the dispute issues by clarifying misplaced suppositions that underlie Disputants' position, or by articulating a disagreement regarding the application of best professional judgment, or a combination of the two. EPA's response demonstrates that the EPA considered the relevant facts and drew logical conclusions from those relevant facts. Disputants may and do disagree with those conclusions, but EPA's conclusions are rationally related to the relevant facts and the product

of analysis based upon the EPA's experience of addressing widespread contamination at other sediment sites and sound scientific principles. Below are specific references to issues raised by the Disputants and the EPA's response which are illustrative of the information that supports my conclusion.

The LWG frames its first issue as follows: "EPA's conclusions that certain alternatives are not protective or fail to comply with ARARs are based upon evaluations that are inconsistent with the approved remedial investigation and baseline risk assessments and fail to apply appropriate risk management principles." In its response to this issue, the EPA addresses several sub-issues (LWG Dispute Issues 1a through 1s), and identifies where the LWG is mistaken, and where and why the EPA appropriately used its best professional judgment in a manner supportive of this decision. Some examples of EPA's responses to LWG Dispute Issue 1 include the following:

1. The EPA's response to LWG Dispute Issue 1a, which, among other things, describes why alternatives B and D are protective of human health<sup>2</sup> but are not protective of the environment; and unlike the Baseline Ecological Risk Assessment (BERA), LWG's proposed Comprehensive Benthic Risk Approach was disapproved by the EPA on December 18, 2012.
2. The EPA's response to LWG Dispute Issue 1b, which, among other things, describes how the EPA's approach to managing benthic risk "honors" data and information developed during the Remedial Investigation/Feasibility Study ("RI/FS"), and intends to protect local benthic populations.
3. The EPA's response to LWG Dispute Issue 1c, which, among other things, describes how EPA used surface weighted average concentrations (SWAC) in the Final FS. This approach addressed issues raised by EPA's National Remedy Review Board and EPA's Contaminated Sediment Technical Advisory Group. In addition, the approach EPA used in the Final FS provides a more realistic approach in managing risk than the approach proposed by the LWG in that the EPA's approach is consistent with the exposure of smaller range fish species that reside within the Site and takes into consideration the range within the Site these fish likely use.
4. The EPA's response to LWG Dispute Issue 1d, which, among other things, notes, in response to a complaint of the EPA's inappropriate reliance on aggregated data, that the EPA aggregated the same data as the LWG did in the draft FS it submitted to EPA in 2012, further describes the use of SWACs for evaluating alternatives during the Final FS, describes the use of interim goals as part of EPA's evaluation of long-term effectiveness by comparing post-construction risks to residual risks left if PRGs are met, and explains how site-specific considerations were sensibly used to develop remedial actions levels (RALs) to evaluate residual risk and allows the EPA to evaluate different arrays of cleanup actions and discern the relative cost-effectiveness each provided in risk reduction as part of the Final FS alternative analysis.
5. The EPA's response to the LWG Dispute 1m, which, among other things, describes how the EPA identified contaminants of concern (COCs) for surface water, informs why the identified surface water COC determinations are consistent with the CERCLA and the NCP, and explains why maximum contaminant levels (MCLs) established under the Safe Drinking Water Act are applied to pore water (both groundwater and surface water within the Site are potential sources of drinking water and pore water is representative of the pathway between the two).
6. The EPA's response to the LWG dispute 1q, which, among other things, explains why the EPA evaluated alternatives to address river bank contamination in the Final FS. In its explanation, the EPA notes the obvious, that contaminated river banks may be the source of a continuing release of

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<sup>2</sup> The Portland Harbor Superfund Site ROD notes that alternative B and D may not be protective of human health since certain ARARs they may not attain are developed to be protective of human health.

hazardous substances into the waterway which may exacerbate existing contamination and re-contaminate remediated areas if not addressed, and describes the role of the ODEQ in EPA's decision to evaluate river bank contamination. The EPA also notes that it retains the authority to evaluate source control efforts undertaken under the oversight of ODEQ and that the Memorandum of Understanding between EPA and ODEQ does not preclude the EPA from exercising its authority.

7. The EPA's response to LWG Dispute Issue 1r, which among other things, describes the EPA's evaluation of post-construction equilibrium, and explains why, based on sediment trap data indicative of upstream sediment inputs and source control efforts, the EPA does not believe that remediated sediments will be re-contaminated.

The LWG's second issue argues that "EPA's June 2016 FS continues to lack complete and transparent evaluation of the long and short-term effectiveness of the alternatives, as well as the degree to which implementation of those alternatives will reduce the toxicity, mobility, or volume of hazardous substances, including through treatment of material it has labeled [PTW]." In response to the second issue, the EPA identifies and responds to numerous sub-issues, and in its response EPA, again, demonstrates that the LWG is either mistaken or that the EPA appropriately used its best professional judgment to address technical issues. Examples of responses include:

1. The Final FS relies on the conceptual site model developed in the RI report (which is not a subject of the Final FS disputes and was developed by LWG) and the Final FS provides the appropriate level of information related to the extent of contamination for the purpose of identifying and evaluating remedial alternatives. In addition, the EPA notes that the *Contaminated Sediment Remediation Guidance for Hazardous Waste Sites* (2005), at pages 2-39 through 2-40, cautions against the use of models that cannot be calibrated and validated at the space and time scales associated with the questions the model must answer.
2. EPA also notes that the Disputants failed to develop, and have acknowledged their failure to develop, a calibrated and validated fate and transport model that could be used to evaluate post-cleanup effectiveness of different remedial alternatives.
3. EPA explains how its alternative analysis was both qualitative and quantitative.
4. EPA describes the role of cost-effectiveness in a feasibility study as the development and inclusion of information in a feasibility study that supports a cost-effectiveness determination when the remedy is selected, and how the Final FS includes the required analysis that supports a later determination of cost-effectiveness.
5. EPA describes the approach used for evaluating contaminant reductions in surface water that would result from implementation of the alternative remedial approaches, and explains why the assumption to subtract out upriver and downtown sources of contamination when evaluating alternative performance on reducing surface water contaminant concentrations is reasonable for the purpose of evaluating the effectiveness of different remedial approaches on post-cleanup surface water concentrations.
6. EPA acknowledges releases of dredged materials will occur during cleanup, estimates the released amount will equal approximately 1% of the dredged materials, and persuasively explains that this estimate is based on information developed during Phase 2 of the Hudson River project, and assumes use of best management practices that were developed for Phase 2 of the Hudson River project.

The Disputants raise and EPA responds to several issues related to cost assumptions used during the alternatives analysis. EPA's response includes, among other things, the following:

1. An explanation that the Final FS cost estimates were developed consistent with EPA guidance, *see A Guide to Developing and Documenting Cost Estimates During the Feasibility Study* (July 2000), for the purpose of comparing remedial alternatives estimates and that the estimates EPA uses in the Final FS fit within the necessary +50 to -30 per cent range of actual costs.
2. EPA identifies cost components the Disputants believed were missing (e.g., multipliers that account for pre-design, initial condition assessment, and agency oversight, and the cost of water treatment associated with dredging).
3. EPA explains why economies of scale associated with a large cleanup likely result in lower assumed rates for certain categories of costs (e.g., contingencies, project management, project design, or the mobilization/demobilization cost multiplier).
4. EPA provides examples of when it used the same cost assumptions as those used to support the LWG 2012 draft FS (e.g., alternative specific costs for purchasing, installing and removing sheet pile walls as well as the unit cost allowance for environmental monitoring during offloading at a transload facility).
5. EPA explains the basis for assumptions that are relevant to cost and differ from those that the Disputants supported, e.g., dredging production rates, the discount rate used to calculate present value of the evaluated remedial alternatives, and the volume of PTW requiring treatment.

Each of the disputes raise issues related to EPA's treatment of PTW in the Final FS. The Disputants argue that EPA's approach to PTW is inconsistent with guidance because it designates as PTW areas with "relatively low concentrations of contaminants of concern" based primarily on EPA evaluation of risks posed by the consumption of fish caught at the Site, because it includes as PTW wastes that can be reliably contained, or because it incorrectly designates listed wastes. EPA responses on this subject articulate a well-reasoned application of professional judgment in its application of Site-specific considerations and relevant EPA guidance. EPA's responses include the following:

1. EPA notes the NCP at 40 C.F.R. § 300.430(a)(1)(iii)(B) specifies a preference for treating PTW whenever practical, and that the relevant EPA guidance, *see, A Guide to Principal Threat and Low-Level Threat Wastes* (Superfund Publication 9380.06FS, November 1991 at p. 2) provides that PTW "are those source materials considered to be highly toxic or highly mobile that generally cannot be reliably contained or would present a significant risk to human health or the environment should exposure occur."
2. EPA interprets, consistent with EPA practice, the above quoted language to create two categories of PTW. The first includes highly toxic source materials. The second encompasses source materials that are highly mobile that generally cannot be reliably contained or would present significant risk to human health or the environment should exposure occur.
3. EPA explains that its site-specific determination of highly toxic PTW at the Site includes several individual contaminants -- PCBs, cPAHs, DDx, and dioxins/furans (2,3,7,8-TCDD, 2,3,7,8-TCDF, 1,2,3,7,8-PeCDD, 2,3,4,7,8-PeCDF, and 1,2,3,4,6,7,8-HxCDF) -- that above specified concentrations in sediment pose a  $1 \times 10^{-3}$  risk for cancer from eating fish caught within the Site and the toxicity values are based on information developed during the baseline human health risk assessment and its application of the food web model (FWM).

4. EPA evaluated several contaminants of concern for the purpose of determining whether they should be treated as PTW under the second prong of the PTW definition; and EPA made a site-specific determination that PTW also included non-aqueous phase liquid (NAPL) in the form of naphthalene associated with MGP waste and chlorobenzene, since naphthalene/MGP and chlorobenzene NAPL cannot be reliably contained or would present a significant risk to human health or the environment should exposure occur.

Last of all, I will address concerns related to remedy implementation. These concerns are not within the scope of the disputes at issue but appear important to the Disputants and suggest that the Disputants mistakenly concluded that the Final FS identified the areas of contamination that will be subject to remediation and how each area would be remediated.

The Final FS relies on a large body of information developed during the RI/FS which provides an appropriate basis for identifying and evaluating remedial alternatives. However, and as noted by the EPA in its dispute response, the relied upon information was not developed with the intent to direct remedy implementation actions. Instead, the EPA used the information to support remedy selection by developing remedial alternatives for evaluation pursuant to CERCLA and the NCP's remedy selection criteria. In so doing, EPA, based on the best available information, made assumptions about the location of contamination and how it would be addressed. There is nothing unusual about EPA's approach in this instance. In almost every remedial cleanup the information developed during the RI/FS is supplemented by information that is developed post-ROD through remedial design studies, pilot or treatability studies, and remedy implementation.

This decision is issued concurrent with the Portland Harbor Superfund Site ROD. The Portland Harbor ROD, particularly in Section 14, explains where and how the remedy will be implemented by identifying post-ROD data gathering and monitoring activities, and describing factors that will be relevant to remedy implementation. I anticipate that the parties who perform post-ROD cleanup work will be involved in the development of post-ROD data gathering plans, monitoring plans and remedy implementation strategy.

The ROD identifies three phases of monitoring – baseline and remedial design data collection, construction monitoring, and long-term monitoring. The baseline and remedial design data collection discussion is most relevant to remedy implementation. This data collection effort will include, for example, the collection of surface sediment, sub-surface sediment, river bank, surface water, sediment pore water, groundwater, and fish tissue samples. In addition, and during the same period, data will be collected to refine the understanding of the Site bathymetry, inform flood-rise monitoring, identify NAPL, and update EPA's understanding of reasonably anticipated future uses within and along the waterway and ensure that implemented remedies are consistent with these uses. This new information will inform the implementation of the Selected Remedy decision tree and may result in implementation of different remedial technologies in different footprints than those mapped in the Final FS. For example, dredging and capping will be implemented in areas where the new information identifies exceedances of the RALs, and these areas may differ from those that were assumed to be dredged or capped in the Final FS.

The ROD recognizes that the Selected Remedy may need to be implemented in phases and/or work sequenced and identifies factors the EPA will consider to implement the remedy. These factors include, at a minimum, source control actions, recontamination potential, scope (size) of actions across the Site, impacts to river users and the community, seasonal weather impacts, fish windows, and the implementation approach proposed by parties who agree to implement the Selected Remedy. While no such decisions have been made, the Site may be divided into work areas for purposes of design and construction activities based on factors such as prioritization of significant source areas, logistics, efficiency, or other factors; and sequencing of cleanup work may consider factors such as potential impacts of upstream work on downstream areas, including but not limited to, the potential for resuspension of contaminants during construction, nature and extent of contamination, and integration of the cleanup actions into the overall Site remedy.

The ROD makes clear that the manner in which the Selected Remedy is implemented will be refined as additional information is developed during remedial design, is likely to differ from the assumptions used in the Final FS, and suggests that the implementation strategy will be flexible and practically based on the relevant information developed post-ROD.

In conclusion, for the above reasons, I deny all relief requested in the June 22, 2016 letters of dispute. In so doing, I specifically determine that the Final FS is compliant with CERCLA and the NCP, and provides an appropriate basis for selecting a remedy in a ROD for the Portland Harbor Site.

Sincerely,



Sheryl Billbrey, Director  
Office of Environmental Cleanup

Enclosure  
Appendix A: EPA's Response to Dispute Issues

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I. INTRODUCTION

On September 28, 2001, ten parties entered into an Administrative Settlement and Order on Consent to perform the remedial investigation and feasibility study for the Portland Harbor Superfund Site (hereinafter referred to as the “RI/FS AOC”). [AR Doc # 711519] The Respondents to the RI/FS AOC call themselves the Lower Willamette Group (“LWG”). Section XVIII. of the RI/FS AOC provides a dispute resolution process for any disputes concerning “activities or deliverables required under the order.” On February 4, 2016, EPA and the LWG mutually agreed that it would be more effective and efficient if EPA finalized the Feasibility Study. [AR Doc # 100003435] EPA and the LWG also agreed that the LWG could dispute the final FS within 14 days of publication of the final FS along with the Proposed Plan. Specifically, the February 4 letter [Page 2] agreement stated:

The EPA will allow the LWG AOC signatories to dispute the final FS that the EPA produces and publishes along with the Proposed Plan. In making this agreement, if any LWG AOC signatories decide to dispute the final FS under Section XVIII of the AOC, the LWG signatories must submit their Dispute Statement within 14 days of the publication of the Proposed Plan. The Dispute Process under the AOC would be streamlined by proceeding directly to the formal determination phase wherein the Director’s decision is anticipated to be made simultaneously with the agency’s remedy decision after considering all public comments along with the disputed issues. In accepting this agreement, the LWG agrees that, because the dispute process will be conducted during the public comment period, the LWG’s Dispute Statement will be placed in the administrative record and the dispute process will be conducted consistent with requirements for public participation for the proposed remedy decisions under CERCLA the NCP, and federal law.

Section XII., Paragraph 1 of the AOC [Page 22] provides that EPA retains responsibility for preparation and release of the Proposed Plan and Record of Decision. The FS is a separate and distinct document from the Proposed Plan. Likewise, under the terms of the AOC, the Proposed Plan was not an “activity or deliverable” that the LWG was required to produce. Therefore, the scope of this dispute is limited to issues concerning the June 2016 FS [AR Doc # 840000 through 840019], not the Proposed Plan. Additionally, consistent with the agreements reached in the February 4 letter, EPA’s disapproval of the LWG’s 2012 FS also is not within the scope of this dispute.

Moreover, throughout the LWG’s dispute statement, they ask for an explanation or rationale for why EPA’s final FS was changed from an earlier draft FS, hereinafter the August 2015 FS. As stated above, the subject of the dispute process is only EPA’s final FS, so the responses below focus on the particular issues raised with the final FS and we do not explain every change made from earlier drafts unless needed to fully respond to a specific final FS issue.

EPA published the Proposed Plan and FS, along with the administrative record, on June 8, 2016. On June 22, 2016, seven out of the ten AOC signatories submitted three separate



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Dispute Statements.<sup>1</sup> [AR Doc # 100031247, 100031251, 100031255, 100031259, 100031265, 100031266, 100031275, 100031277, 100031278] The collective group of seven submitted a Dispute Statement, in which Arkema, Evraz, Gunderson, NW Natural, TOC Holdings, Inc. and Union Pacific attached additional issues in an Appendix to their dispute statement. LSS, Inc. (agent for Arkema, Inc.) and Union Pacific submitted separate Dispute Statements as well. Below are EPA's responses to all three Dispute Statements. We have organized the responses by each Dispute Statement, i.e., LWG Response, Arkema Response and Union Pacific Railroad Response. However, if an issue was already raised and discussed, EPA provides a reference to where the discussion is provided.

The LWG, including each individual Respondent to the RI/FS AOC, has had significant input and opportunities to comment on EPA's FS for the Portland Harbor Site. EPA began discussing its ideas and proposals for modifications to the LWG's 2012 draft FS since at least December 2012 when EPA notified the LWG that it could not approve the LWG's 2012 draft FS. [AR Doc # 100007299] EPA shared and discussed its draft modifications on FS Section 1 starting on July 8, 2014, and made changes based on the LWG's requested modifications and issues to that Section. [AR Doc # 100009736, 100010079, 100010083, 100010101, 100010298, 100010490, 100010848, 100010854, 100010876, 100011126, 500003669, 100015709] Likewise EPA provided and discussed modifications to Section 2 on February 23, 2015 and made changes to that chapter as a result of the LWG's requested modifications and issues to that Section. [AR Doc # 100013186, 100015799, 100015924, 100015925, 100013288, 100017731, 100015709] Sections 3 and 4 of the draft modified FS were shared on July 29 and August 18 2015, respectively, and the LWG had the opportunity and provided significant comments on those last two sections to Region 10. [AR Doc # 100017731, 100003852, 100016145, 100015709, 100003806] The LWG also had the opportunity to provide recommendations for the proposed remedy to the National Remedy Review Board and Contaminated Sediment Technical Advisory Group in which they also provided their comments on the draft modified FS. [AR Doc # 1412910] Over all of this time, EPA and LWG had meetings at both the technical staff level and senior management levels regarding the direction EPA was going in its modifications to the FS. Every step of the way, EPA considered the LWG's comments in producing the 2016 FS. EPA has been transparent and open with the direction and scope of the modifications that it determined was needed to the LWG's 2012 draft FS. The LWG has had significant opportunities to raise comments and issues. In addition to this dispute opportunity, the LWG collectively or as individual commenters had the opportunity and have taken advantage of their rights to submit public comments on the Proposed Plan and administrative record through the public participation process and comment period on the Proposed Plan.

After considering all of the Dispute Statements and responses, the fundamental conclusion is that EPA's 2016 FS contained appropriate remedial alternatives that were

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<sup>1</sup> The seven LWG members are: Arkema, Inc., Chevron, U.S.A. Inc., Evraz, Inc. N.A., Gunderson LLC, NW Natural, TOC Holdings Co. and Union Pacific Railroad Company.



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evaluated consistent with the NCP and EPA guidance. The development and evaluation of the alternatives adequately reflected the scope and complexity of the remedial action and site problems being addressed. Some minor textual or technical errors or omissions were found while responding to some of the dispute issues or other public comments many of which have been corrected in response to comments; however, none of the errors or omissions were fundamental nor undermine the basis for the final remedy decision documented in the Record of Decision. The 2016 FS as supplemented by this Responsiveness Summary and all of the corrections, clarifications, and supplemental analysis contained herein along with remainder of the administrative record support the selected remedy documented in the Record of Decision.

## **II. LWG DISPUTE STATEMENT RESPONSE**

The LWG's dispute statement objected to EPA's modifications to the LWG 2012 draft FS and stated three bases for their objections to the 2016 FS, which are summarized below:

1. EPA's conclusions that alternatives B and D are not protective or fail to comply with ARARs is based upon methods that are inconsistent with the remedial investigation and baseline risk assessments. EPA's failure in the June 2016 FS to evaluate protectiveness in a manner consistent with the approved risk assessments and with sound risk management principles results in large areas being designated for active cleanup where risks are either not present or cannot be meaningfully reduced through a sediment cleanup.
2. EPA's June 2016 FS lacks a complete and transparent evaluation of the long- and short-term effectiveness and cost-effectiveness of its alternatives, as well as the degree to which those alternatives reduce the toxicity, mobility or volume of hazardous substances, including PTW, through treatment. EPA's 2016 FS also: (1) has inadequate cost estimates; and (2) does not have an evaluation of how long it will take each alternative to achieve cleanup levels. Therefore, a proper analysis of alternatives would not result in selection of Alternative I.
3. EPA's FS fails to articulate a framework and schedule for implementation by which each alternative can be compared. EPA's 2016 FS should describe what adjustments to the selected cleanup are possible or how adjustments would be determined. EPA should identify in its alternatives development and decision trees what refinements can be made through remedial design and implementation.

The LWG raised numerous issues in support of one or more of their objections; some of which were very general and others more specific. Responses to their issues are provided below, and demonstrate that EPA's 2016 FS appropriately evaluated protectiveness in a manner consistent with the NCP, including appropriately applying the conclusions from both the Baseline Human Health Risk Assessment ("BHHRA") [AR Doc # 713364] and Baseline Ecological Risk Assessment ("BERA") [AR Doc # 1432515 and 1432516], where appropriate. Likewise, EPA's 2016 FS complies with the NCP and is transparent about the long and short-term effectiveness of each alternative as well as how all of the

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other seven NCP criteria were evaluated. Lastly, neither the NCP nor EPA guidance requires a FS to provide a framework and schedule for implementing each alternative, nor to describe what adjustments are possible in implementation. EPA's 2016 FS did, however, identify throughout the report various information, data and analysis that would be needed for remedial design.

The following provides each issue in italic text as discussed in detail in the dispute document, including footnotes and references when they added further technical support for dispute issue, and follows with EPA's position on each of the disputed issues in regular text. Since these three issues raised by LWG had many parts, EPA has provided numbering to allow reference between issues raised by the LWG and by individual LWG parties that have submitted dispute statements.

**LWG Dispute Issue 1**

*EPA's conclusions that certain alternatives are not protective or fail to comply with ARARs are based upon evaluations that are inconsistent with the approved remedial investigation and baseline risk assessments and fail to apply appropriate risk management principles.*

**LWG Dispute Issue 1a:**

*EPA has not explained why Alternatives B and D are not protective of the environment. EPA believes that all alternatives (except the "no action" alternative) are protective of human health. However, contrary to its August 2015 FS, EPA has now identified Alternatives B and D as not or possibly not protective of the environment.<sup>9</sup> As best we can tell, EPA has changed its conclusion about Alternatives B and D based largely on its revised approach to benthic risk.<sup>10</sup>*

*<sup>9</sup> In part, EPA bases its determination that Alternative B and D may not be protective of ecological risk on the fact that institutional controls do not effectively prevent exposure by ecological receptors. However, all alternatives rely to some extent on institutional controls, and this was also the case with all alternatives in the August 2015 FS.*

*<sup>10</sup> The LWG has previously commented that EPA should use the Comprehensive Benthic Risk Areas (CBRA) approach previously developed based upon the approved BERA to evaluate benthic risks consistent, and the NRRB commented that EPA should revisit the benthic approach for the final FS. National Remedy Review Board and Contaminated Sediments Technical Advisory Group Recommendations for the Portland Harbor Superfund Site (EPA, December 31, 2015), p. 4.*

**EPA Position:**

The evaluation of overall protection of human health and the environment for Alternatives B and D is discussed in Sections 4.2.2.1 and 4.2.3.1 of the 2016 FS. EPA concluded that these alternatives were protective of human health because institutional controls can be set in place to ensure protection until such time as cleanup levels are achieved. Since institutional controls cannot be placed to ensure protection of the environment, EPA concluded that these alternatives were unlikely to be protective of the

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environment. The determination was not made solely based on benthic risk as purported by the Respondents but rather on a more broad-based evaluation consistent with EPA guidance as discussed in more detail below. As stated in Sections 4.2.2.1 and 4.2.3.1 of the 2016 FS, the determination of protectiveness is drawn from the evaluation of all the RAOs and the uncertainty analysis presented in Appendix I. Protection of the environment draws from RAOs 5, 6, 7, 8 and 9: RAO 6 had post-construction HQ of 34 for BEHP.

Based on recommendations from the NRRB/CSTAG (see NRRB/CSTAG comment on Remedy Performance, p. 5), EPA performed an uncertainty analysis of each alternative to determine the likelihood that the Alternative would significantly differ from the No Action alternative. This analysis was presented in Appendix I of the 2016 FS, and the conclusion was that Alternative B post-construction SWACs were statistically indistinguishable from the No Action alternative and that the post-construction SWACs for Alternative D were still within the margin of error relative to no action. Since the No Action alternative was deemed to not be protective, EPA reasons that Alternatives B and D are also not protective since Alternative B was statistically indistinguishable from the No Action alternative, and Alternative D was only slightly better for PAHs and PCBs (the SWAC from the DDx RAL for Alternative D were also statistically indistinguishable from the No Action alternative).

As stated in EPA's RI/FS Guidance (USEPA 1988), "The overall assessment of protection draws on the assessments conducted under other evaluation criteria, especially long-term effectiveness and permanence, short-term effectiveness, and compliance with ARARs." EPA's assessment was that an insufficient amount of active remedy was conducted under these alternatives to ensure that the environment would be protected in a reasonable time frame, if at all (see discussion of long-term and short-term effectiveness in Sections 4.2.2.3, 4.2.2.5, 4.2.3.3, and 4.2.3.5 of the 2016 FS).

With regard to footnote 10, the Comprehensive Benthic Risk Approach (CBRA) developed by the LWG on their own initiative provided in the LWG's 2012 FS (Appendix P); it was not done as part of or consistent with the BERA as stated by the Respondents. EPA disapproved the LWG's 2012 FS, including the CBRA, in a letter dated December 18, 2012. [AR Doc # 100007297, 100007298, 100007299] Comment 1 attached to EPA's disapproval notice noted that the benthic risk evaluation provided in the LWG's 2012 FS would need outstanding issues to be resolved. EPA had started working with the LWG to resolve outstanding issues, but found that the approach was inconsistent with CERCLA, the NCP, and EPA policy and guidance in that it was based on bioassays and models which were not linked to hazardous substances released at the Site. The NRRB/CSTAG recommended that EPA's PRGs for benthic risk be consistent with the benthic SQVs in the BERA (See NRRB/CSTAG comments on Human Health and Ecological Risk, AR Doc # 100001536), but were silent on the approach to use to evaluate benthic risk as purported by Respondents.

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**LWG Dispute Issue 1b:**

*EPA made extensive changes to the benthic approach for this FS, but those changes are still inconsistent with the comprehensive benthic risk approach contained in the approved Baseline Ecological Risk Assessment (BERA). The FS states: “The protection of benthic species to [sic] contaminated sediment is evaluated using the benthic risk area defined by an order of magnitude greater than the RAO 5 PRGs. The post-construction interim target for RAO 5 was established at 50 percent reduction in the area posing unacceptable benthic risk.” So, instead of using the Comprehensive Benthic Risk Area (CBRA) approach previously developed collaboratively with EPA and the LWG using multiple lines of evidence, EPA now maps benthic PRG exceedance factors on a point-by-point basis and uses a 10 times exceedance factor to identify areas of concern. EPA then concludes that if 50% of this area is actively remediated, the alternative is “protective” on an interim basis. It is completely unclear how this new method is: 1) in any way more accurate or consistent with the BERA; and 2) more predictive of benthic risk or the effectiveness of the alternatives, as compared to simply using the previously developed CBRA, which are entirely consistent with the BERA.<sup>12</sup>*

*12 Further, benthic risk models do not honor the measured data. Although the LRM and FPM are model predictions using data from the toxicity tests conducted with site sediments, some of measured data is not honored. Any modeled risk for benthic invertebrates that ignores actual toxicity testing results needs to be assessed in weight-of-evidence and river-mile specific decision-making. The benthic risk footprints should not extend into areas shown to have a lack of toxicity based on actual laboratory toxicity tests. Though EPA states measured toxicity data were reviewed to evaluate correlation with model predictions (EPA June 2016 FS Appendix D, p D-31), the resulting areas are not consistent with the BERA.*

**EPA Position:**

See EPA’s position to LWG’s dispute issue 1a regarding the CBRA. The LWG’s dispute statement does not provide a clear or specific basis for why the CBRA should be used instead of the BERA and the 2016 FS alternatives evaluation approach. The rationale for the approach used in the 2016 FS is explained below.

In the BERA, impairments in survival and growth (expressed as biomass) were directly measured at nearly 300 locations in site-specific sediment toxicity tests with two benthic invertebrate species, approximately 20 percent of the total number of sediment samples collected for chemical analysis. The co-occurring sediment contaminant concentrations in sediments where toxicity was observed were used in the development of two site-specific predictive models of sediment toxicity, the floating percentile model and the logistic regression model. Contaminant concentrations predicted to be toxic from these two models, as well as the empirical data, were used to evaluate benthic risk on a point-by-point basis in the final BERA. The two models are also the source of many of the RAO 5 sediment PRGs for ecological risk. The PRGs for RAO 5 were the SQVs derived in the BERA and are thus consistent with the conclusion of the BERA.

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The comprehensive benthic risk area developed by EPA is shown in Figure 4.1-1 of the 2016 FS and is the cumulative footprint of all RAO 5 PRGs. Mapping of benthic risk areas based on a point-by-point PRG exceedance is justified due to the limited mobility of many of the benthic species. This means that some benthic species are exposed to contaminant concentrations posing unacceptable ecological risks (defined as the RAO 5 PRGs) for their entire lifetime. Additionally, benthic species are likely exposed to sediment contaminant concentrations for a sufficiently long exposure duration that results in contaminant bioaccumulation to concentrations (the RAO 6 PRGs) posing risks to aquatic-dependent wildlife species that prey on benthic species.

Under EPA's Ecological Risk Assessment Guidance for Superfund: Process for Designing and Conducting Ecological Risk Assessments – Interim Final (June 1997) adverse effects on populations can be inferred from measures related to impaired survival, reproduction and/or growth. A subsequent EPA Policy memorandum (Issuance of Final Guidance: Ecological Risk Assessment and Risk Management Principles for Superfund Sites, OSWER Directive 9285.7-28 P, October 7, 1999) states that ecological risk assessments are intended to protect local populations and communities of biota. Contaminant concentrations that are expected to protect local populations and communities can be estimated by extrapolating from effects on individuals and groups of individuals using a lines-of-evidence approach. This approach was extensively used to evaluate ecological risks at Portland Harbor. However, the conclusions of the BERA provide for which contaminants are posing unacceptable risk based on those lines-of-evidence (site-specific toxicity tests, bioaccumulation models, and species diversity studies; BERA Table 3-1). These are all based on empirical site data and these lines-of-evidence cannot be used to determine effects to the benthic population through means other than empirical testing post construction.

In the 2016 FS, PRGs are developed for those hazardous substances that are posing unacceptable risk at the Site. EPA adopted the site-specific SQVs from the BERA for RAO 5 consistent with the recommendations of the NRRB/CSTAG. The footprint of each PRG was evaluated against the L2/L3 exceedances from the bioassays and both predictive models to determine if the benthic risk coincided with the release of these contaminants. The maps presenting that information is presented in the 2016 FS, Appendix D11. EPA used best professional judgement to not address all benthic risk through dredging and capping and allow for some benthic risk to be addressed through MNR. However, in conducting the evaluation of alternatives, it is necessary to discuss the overall protectiveness. Since a model is not available to determine if these PRGs will be achieved in a reasonable time frame, EPA used best professional judgement to evaluate overall protectiveness for RAO 5 in the 2016 FS (Section 4.1-3, p.4-8) as:

The protection of benthic species to contaminated sediment is evaluated using the benthic risk area defined by an order of magnitude greater than the RAO 5 PRGs. The post-construction interim target for RAO 5 was established at 50 percent reduction in the area posing unacceptable benthic risk. This is acceptable because protection of the benthic community is based on a population rather than individual effects, and is considered a

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target to which the benthic population as a whole can be stressed and still recover, in conjunction with the uncertainty associated with the predictive models used to develop these PRGs.

Thus, the 2016 FS used the same metric as all other RAOs in establishing an interim goal that was an order of magnitude greater than the PRGs. EPA's rationale in the 2016 FS that this was reasonable since there is uncertainty based on the conservativeness of the SQVs used in the models (see BERA Section 6.2.5). Since benthic risk is made on a population basis, EPA's best professional judgement was that the entire affected community of benthos did not need to be addressed through capping and dredging and made an assumption that if 50 percent was addressed through active remediation of the highest contaminant concentrations, the other 50 percent would be addressed through MNR for the lower contaminant concentrations. Since benthic effects from contaminated sediment are due to survival, reproduction and growth (not just survival), this approach would also ensure that the entire population was not diminished through active remediation (capping and dredging will affect the survival – or kill - benthic organisms where it occurs) and some of the population affected through reproduction and growth could recover more slowly through MNR.

**LWG Dispute Issue 1c:**

*EPA's conclusion that Alternatives B and D are not protective of the environment may also relate, at least in part, to EPA's decision to evaluate the performance of its alternatives based upon recalculated surface weighted average concentrations (SWACs) rather than those used in its August 2015 FS (used by EPA to estimate post-construction risks, detailed in EPA's Appendix J). The selection of a preferred alternative at a sediment CERCLA site is very sensitive to and dependent (i.e. "sensitively dependent") on the SWAC value of site; however, nothing in the June 2016 FS explains why EPA has changed its methodology for calculating SWACs between the August 2015 FS and the June 2016 FS, why EPA believes its current methodologies are superior to its prior methodologies, or even precisely what its current methodologies are.*

*The June 2016 FS appears to use these new SWACs to estimate pre- and post-construction risks for the alternatives. EPA presents an uncertainty analysis in Appendix I that evaluates different methods for estimating SWACs for pre-construction sediment surfaces. Using PCBs as an example, EPA presents SWAC estimates using four different methodologies that range between 79 and 205 micrograms per kilogram ( $\mu\text{g}/\text{kg}$ ). (The natural neighbor method used for Remedial Action Level (RAL) curves in Section 3 estimates a site-wide SWAC of 92  $\mu\text{g}/\text{kg}$ , which does not match any of the values in Appendix I). It is not clearly explained in the main text, but based on tables presented in Appendix J (see Table J2.3-1a), it appears that EPA uses a high-end site-wide SWAC estimate (208  $\mu\text{g}/\text{kg}$ , which is close to 205  $\mu\text{g}/\text{kg}$  but not the same) to represent current site conditions for RAO 2 (i.e., pre-construction risks; identified as post-construction risks for Alternative A). This results in EPA presenting pre-construction risks that are completely inconsistent with risks identified in the approved BLRAs<sup>13</sup>. The risks estimated for Alternative A (no action) should be the same as baseline risks. EPA also assumes that*

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*postconstructed surfaces are “zero” (see ES-14). The net effect of these assumptions is that EPA poses technically unrealistic risk reduction estimates for all the alternatives. At the same time, EPA has not explained its use of the highest available estimate for pre-remediation SWACs and associated risks, which estimates are inconsistent with the BLRAs.*

*13 The site-wide fish consumption risks estimated in the BHHRA (summarized in Section 1.2.5.1) are higher than those presented for Alternative A in Table J2.3-1a. However, the risks for Alternative A appear to be based on some estimate of an arithmetic mean concentrations whereas the BHHRA risks are based on 95% UCL or maximum concentrations. The average PCB concentration in the BHHRA based on actual tissue data was 160 ug/kg in bass and 2,500 ug/kg in carp, which includes a single outlier sample of 19,000 ug/kg (the average without the outlier is 353 ug/kg). The modeled tissue concentrations used for Alternative A are 352 ug/kg for bass and 820 ug/kg for carp, which are approximately 2 times higher than the measured tissue concentrations (excluding the single carp outlier). The river mile risks for Alternative A cannot be compared directly with the BHHRA because the risks for Alternative A are calculated based on one-third transects of a rolling river mile (both sides of the river and navigation channel) whereas the BHHRA risks were for an entire (bank-to-bank river mile). However, the risks for Alternative A are generally higher than those in the BHHRA (potentially due to spatial scale issues). In the BHHRA, risks at RM 11 were  $1 \times 10^{-3}$  and all other risks were less than  $1 \times 10^{-3}$ . For Alternative A, EPA’s FS indicates there are several segments with risks of  $1 \times 10^{-3}$  or higher.*

**EPA Position:**

The 2015 draft FS and the 2016 FS both calculated SWACs on an SDU scale in the same manner. The 2015 draft FS did not calculate Site-wide SWACs; this was added to the 2016 FS in order to evaluate protectiveness to the RME based on Site-wide exposure consistent with the BHHRA. The Site-wide SWAC was developed consistent with the exposure of smaller range fish species rather than the methodology used by the LWG in their 2012 draft FS. Thus, EPA did not replace the evaluation, but supplemented it with additional analysis.

EPA evaluated the uncertainty associated with the calculated post-construction SWAC for each alternative as requested in the NRRB/CSTAG comments. The rationale for calculating Site-wide SWACs using alternative methodologies to reduce the bias introduced utilizing a non-random sample is explained in Appendix I of the 2016 FS. EPA is unclear to what Respondents’ definition of “the SWAC value of site” is referring, as a SWAC is merely a spatially weighted concentration. As presented in Section 4.1.1 of the 2016 FS, the comparative analysis of the various alternatives is evaluated on several relevant spatial scales, including Site-wide and on a river mile, or SDU scale.

The 2016 FS, Appendix I, Section I.4, recommends that “with biased sampling prevalent at Portland Harbor it is necessary to spatially weight the data in order reduce bias in the estimated mean and to properly characterize uncertainty bounds.” Therefore, as described

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in Section J2.1 of the 2016 FS, SWACs were calculated for each of the 27 geographic areas based on the recommendations in Appendix I and the 95 percent upper confidence limit on the mean was calculated for each RAO 2 COC. These UCLs were used as inputs to the FWM to calculate Site-wide average tissue concentration consistent with the final BHHRA. [Appendix I has been updated to include Figure I-9 depicting the 27 geographic areas where the SWACs were calculated for this analysis.] The pre- and post-construction concentrations were then used as the input into the food web model to estimate exposure concentrations to calculate pre-and post-construction risks, consistent with the process used in the BHHRA (the BHHRA calculated the 95 percent upper confidence limit on the mean of concentrations in fish tissue). Use of the food web model to estimate post-construction tissue concentrations is consistent with the process the LWG used in its 2012 draft FS. It is also appropriate to use for estimating risks for the no-action alternative, as the same metric is then used for the comparative analysis. Using the LWG-calculated “site-wide” SWAC of 92 µg/kg for PCBs results in an estimated average tissue concentration of 232 µg/kg, which equates to an estimated risk of  $5 \times 10^{-4}$  from PCBs alone, which is not consistent with and much lower than the  $1 \times 10^{-2}$  risk estimate for PCBs presented in Table 5-74 of the BHHRA. Since the efficacy of each alternative can only be evaluated through the use of predictive tools, and since the results of the BHHRA can’t be replicated through use of the LWG-developed tools, comparing the baseline risks presented in the BHHRA to those estimated by the models would show an unrealistic decrease between the no action alternative and Alternative B.

Due to the lack of a defensible sediment transport model for the lower Willamette River, it was not possible to predict COC concentrations in remediated areas beyond t=0 with any degree of confidence. Assuming a clean residual or cap layer is sufficient for FS purposes and allows for use of a consistent metric of potential risk reduction in the comparative analysis of alternatives.

All risk-based PRGs presented in the 2016 FS utilize the exposure assumptions presented in the EPA-approved baseline risk assessments that are a part of the final RI report. Nonetheless, EPA is perplexed by the LWG’s current concern that the 2016 FS might be “inconsistent with the approved baseline risk assessments,” given that in their 2012 draft FS they abandoned the exposure assumptions from the risk assessments when developing remedial goals, and at that time they were totally comfortable using alternate assumptions. As stated in the 2012 FS (Appendix E, Section 1.1):

“...alternate scientifically valid assumptions from those required by EPA could have been used in the BHHRA and in the development of remediation goals (RGs) for protection of human health.”

**LWG Dispute Issue 1d:**

*EPA’s June 2016 FS improperly aggregates sediment data from 1997 through 2011 for the surface sediment characterization and is therefore significantly inaccurate. If EPA assumes a higher prerediation SWAC value that is inconsistent with the risk assessments and based on outdated data, then more aggressive clean up alternatives may*



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*plot closer to the inflection (i.e. “knee”) of the utility curve. That inappropriate portrayal could lead a decision maker to select a remedy that requires more active remediation than is required to achieve cleanup goals. EPA’s use of a SWAC that is inconsistent with the risk assessments exaggerates the benefits of the larger alternatives and artificially drives remedy selection toward larger alternatives (e.g. E, F and I). If the SWAC value is set consistent with the approved risk assessments, the utility curve actually supports remedy selection toward Alternatives B, C and D.*

**EPA’s Position:**

The EPA 2016 FS uses the same “aggregated data” that the LWG used in their 2012 draft FS, except that data from the NW Natural and LSS early actions were also included. The LWG’s 2012 draft FS, Appendix Ha (pp 26-27) states: "Because somewhat limited data were collected at the beginning of the model simulation period, and because the sediment data from that time did not fully characterize sediment levels uniformly throughout the site, the entire FS sediment dataset, which includes sediment data collected between 1997 and 2010 has been deemed representative of current conditions in the site." Further, p.46 of the LWG's 2012 draft FS, Appendix Ha states that “assessment of temporal changes in these data is difficult because this was not and objective of the historical sediment sampling programs ... and as such, sediment data were generally examined qualitatively during model calibration.” Consequently, if aggregating the data was significantly inaccurate or fatally flawed, so was the LWG’s 2012 FS, which they claim incorporated “good science” and “provides an adequate basis for selecting a remedy.” Further, the data collected for the Site was the same data used in the baseline risk assessment and therefore is appropriate to use to determine the expected risk reduction from implementation of each of the alternatives developed in the 2016 FS.

The baseline risk assessments use actual fish tissue data, not sediment SWACs, to determine risk. SWACs are a tool developed for the 2016 FS to compare alternatives to the No Action alternative and are not used nor discussed anywhere in the BERA or BHHRA. In the BHHRA, direct contact exposures to sediment were evaluated by aggregating data by exposure areas and calculating the 95 percent UCL on the mean; sediment data was not used to assess the fish consumption pathway. In the BERA, sediment data was also used to calculate a UCL on the mean of data within various spatial scales of receptors, rather than SWACs. The spatial scales used in the EPA’s 2016 FS are consistent with those used in the risk assessments and the exposure assumptions are the same.

The RAL curves used to develop the remedial alternatives are not risk-based, although it is presumed that reductions in sediment concentrations will subsequently reduce risk since the exposure to contamination would be reduced by reducing the SWAC. The EPA RALs for PCBs, PAHs, and PeCDF are the same as the LWG's RALs for these contaminants in their 2012 FS and the curves are nearly identical (see Figures 3.4-1, 3.4-2, and 3.4-5, Tables 3.4-1, 3.4-2, and 3.4-3, and Appendix D5 of 2016 FS and Figures 4.3-1, Figure in Appendix Db p.89 of pdf, and Table 4.4-1 of the LWG's 2012 draft FS). The placement of the RALs on the curve are irrelevant to the selection of a remedy. How

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the alternatives perform based on the nine criteria specified in the NCP are the basis of remedy selection.

*The FS fails to explain how the alternatives it has developed contribute to meaningful risk reduction in specific areas of the site. Protectiveness is a threshold criterion under CERCLA, but “protectiveness” does not support an EPA requirement for remedial action in the absence of identified unacceptable risk or failure to comply with an ARAR.<sup>14</sup> The LWG has previously commented that EPA’s August 2015 FS failed to follow the BLRAs or provide a clear description of risk management decisions, resulting in an FS that was inconsistent with the BLRAs in many respects. Many of those comments remain relevant to the June 2016 FS and, in general, we will not repeat them here.<sup>15</sup> However, several aspects of the June 2016 FS contain new or revised evaluations from the August 2015 draft that not only diverge without explanation from the approved risk assessments but lack any demonstration of their superiority to the analyses of the same and similar issues in EPA’s August 2015 FS.<sup>16</sup>*

**EPA Position:**

The phrase “meaningful risk reduction” in the LWG’s dispute is a subjective term and is nowhere defined in CERCLA, the NCP, EPA guidance or policy, nor by the LWG themselves. A discussion of risk reduction is provided in both the overall protection to human health and the environment and the long-term effectiveness discussions of each alternative in the 2016 FS. The discussion of long-term effectiveness discusses post construction risk for each alternative and compares it to the residual risk posed by the PRGs. The interim goals established in Section 4.1.3 of the 2016 FS were based on uncertainty in the PRGs and is used as a point at which EPA believes is acceptable risk for MNR to achieve PRGs in a reasonable time frame.

The 2016 FS is based on the baseline risk assessments and is consistent with the conclusions of those risk assessments. The 2016 FS is also consistent with the NCP and EPA guidance regarding development of PRGs for the Site.

*Issue 17: 17. Risk Inconsistency – EPA’s methods and results are often inconsistent with the BLRAs throughout the FS including Sections 2, 3, 4. This culminates in Section 4 with a residual risk assessment that departs significantly from the methods and findings of the BLRAs. The LWG has commented to EPA on numerous occasions (e.g., LWG 2014d, 2015a, 2015b) that EPA should include risk management steps in the FS consistent with guidance. These comments include that EPA should address only those potential risks for contaminants, media, and pathways that were clearly found to pose unacceptable risks in the BLRAs and that EPA should further focus on the subset of unacceptable risks that are required for selecting an effective and protective remedy using all of the FS criteria. Instead, EPA has departed from the BLRAs and applied virtually none of the risk management steps noted in guidance such as the 2005 sediment remediation guidance and EPA’s 11 Risk Management Principles Memorandum for, “making scientifically sound and nationally consistent risk management decisions at contaminated sediment sites.” The relevance of this guidance to risk management steps in the FS is reviewed in*

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*detail in Sections 10.1 and 10.2 of the 2012 draft FS. In summary, EPA guidance (2005a) discusses “Risk Management Principles and Remedial Approaches” and clearly describes that the cleanup should use a “risk-based framework”; “select site-specific, project-specific, and sediment specific risk management approaches that will achieve risk-based goals”; and “ensure that sediment cleanup levels are clearly tied to risk management goals” (p. 1 – 5).*

*Specific issues related to EPA’s lack of consistency with the BLRAs, residual risk assessments, and lack of risk management include:*

- a. Per the LWG’s 2014 Section 2 comments (LWG 2014d) and consistent with law, EPA guidance, and precedents from other sediment sites as detailed in past comments:*
- i. RAOs, COCs, and PRGs should only be designated for contaminant exposure scenario pairs (ecological or human health receptors and pathways) for which the EPA-approved BLRAs identified potentially unacceptable risk from in-river media (e.g., not potential upland source media, and ARARs should not be used to develop PRGs for non-COCs).*
  - ii. PRGs should be established and applied for these COCs consistent with risk assessment methods (e.g., spatial scales) and only where sufficient technically valid information exists to do so.*
  - iii. The FS should focus on those COCs and PRGs that are technically practicable to achieve and for which acceptable risk levels can be reached through the sediment remedial action alternatives being evaluated in the FS.*
  - iv. COCs and PRGs should only be established if reasonably conservative risk management approaches indicate that a contaminant is significantly contributing to risk and that evaluation of remedial alternatives with respect to a PRG for a particular COC/exposure pathway pairing is required in order to select a protective remedy.*

**EPA Position:**

The Portland Harbor Site, as listed on the National Priorities List (NPL), includes an in-river and an upland portion. The 2016 FS focusses on the in-river portion of the Site and establishes RAOs that are protective for that portion of the Site. This includes protection of media such as surface water, pore water, and biota, in addition to sediments. It is clear that EPA may take a response action not only where there is a release, but where there is the potential threat of a release. 42 USC Section 9604(a). Further, the NCP and EPA guidance clearly state that other factors, such as ARARs, MCLGs and MCLs, and water quality criteria are to be used in developing PRGs and that risk-based levels are to be used where these PRGs are not available or risk cumulatively exceed  $10^{-4}$ . Thus, exceedance of a water quality criterion or an MCLG/MCL can be a basis for action in addition to the findings of a risk assessment.

CERCLA 104(a)(1) states "Whenever (A) any hazardous substance is released or there is a substantial threat of such a release into the environment, or (B) there is a release or substantial threat of release into the environment of any pollutant or contaminant which may present an imminent and substantial danger to the public health or welfare, the President is authorized to act, consistent with the national contingency plan, to remove or arrange for the removal of, and provide for remedial action relating to such hazardous substance, pollutant, or contaminant at any time (including its removal from any

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contaminated natural resource), or take any other response measure consistent with the national contingency plan which the President deems necessary to protect the public health or welfare or the environment."

42 USC Section 9604(a)(1). The NCP [40 CFR Section 300.430(e)(2)] states that RAOs shall be developed considering (A) ARARs using factors of acceptable risk for systemic toxicants, cancer risks when ARARs not available, detection/quantitation limits, uncertainty, or other pertinent factors, (B) non-zero MCLGs, (C) MCLs, (D) when cumulative risk from ARARs is greater than  $10^{-4}$ , use factors in (A), (E) water quality criteria, (F) ACLs, (G) levels protective of ESA T&E species.

EPA policy *Role of the Baseline Risk Assessment in Superfund Remedy Selection Decisions* (OSWER Directive 9355.0-30, USEPA 1991) states that "For sites where the cumulative site risk to an individual based on reasonable maximum exposure for both current and future land use is less than  $10^{-4}$ , action generally is not warranted, but **may be warranted if a chemical specific standard that defines acceptable risk is violated** or unless there are noncarcinogenic effects or an adverse environmental impact that warrants action."

EPA's 1991 policy also states that "Where the **cumulative carcinogenic site risk** to an individual based on **reasonable maximum exposure** for both current and future land use is less than  $10^{-4}$  and the non-carcinogenic hazard quotient is less than 1, action generally is not warranted unless there are adverse environmental impacts." (emphasis added) Both the BHHRA and BERA conclude that there is unacceptable risk at the Site that warrant EPA action (cumulative risk greater than  $10^{-4}$  and HI or HQ greater than 1); thus, action is warranted at this Site.

Neither CERCLA, the NCP, nor EPA policy or guidance states that action may only be taken where risks are identified in the risk assessments. The NCP is clear that action may also be taken based on an exceedance of an MCLG/MCL or water quality criterion. Further, the risk assessments did not evaluate specific exposures in every area of the Site due to lack of data. The upland sources are not separate and distinct from the contamination in the river. The 2016 FS covers the in-river portion of the Site and thus the RAOs and PRGs must be developed to protect the media and pathways for which contamination is present. Since the RAOs and PRGs developed for this Site are based on the baseline risk assessments and ARARs, those areas of the Site which already achieve PRGs would not require action since the PRGs are already attained. EPA provides the basis for the establishment of PRGs for each RAO in Section 2 and Appendix B of the 2016 FS.

*v. Consistent with EPA background guidance (EPA 2002), PRGs should not be set below reasonably achievable anthropogenic background levels (this includes the concept of "equilibrium" as explained in LWG 2014g). The LWG's Section 2 comments (LWG 2014d) detail how each of these concepts is consistent with remediation regulations and guidance.*

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**EPA Position:**

See EPA's position to LWG's dispute issue 1r.

*b. Similarly, RALs for each COC should be applied consistent with the exposure and potentially unacceptable risk areas defined for that COC in the BLRAs (e.g., RALs should not be applied where the exposure pathway or unacceptable risks for those COCs do not currently exist). This is consistent with the "risk-based framework" required by guidance, as cited above. The issue of RAL consistency with the BLRAs is also noted in the Comment 3.*

**EPA Position:**

As EPA has stated many times to the LWG, the RALs are not risk-based (with the exception of Alternative H, which uses the PRGs as RALs). The RALs are concentrations of focused COCs only, but are meant to cover all COCs posing risk to various receptors at various spatial scales. Thus, the RALs in combination, not individually, are meant to address all COCs, not just the specific focused COC. The RALs, therefore, apply everywhere within the Site where any PRGs are exceeded. In conducting the evaluation of the alternatives, EPA looked at how each alternative met the PRGs. This was conducted for each RAO and was specific to the COCs, PRGs, and spatial scales relevant to that RAO. Both risk assessments show that PAHs contribute to unacceptable risk at the Site, not just from direct contact, but also as a dietary component.

Further, the EPA guidance does not require, but recommends 11 principles which principle 5 is "Use an iterative approach in a risk-based framework." The 11 principles guidance describes this principle broadly to include approaches that incorporate testing of hypotheses and conclusions and foster re-evaluation as new information is gathered, any early or interim actions planned or implemented at the site that address threats from contaminated sediment, or whether the proposed sediment remedy will be part of a larger phased approach to the site as a whole. EPA discussed how this principle was addressed in the memo sent to the OSRTI Sediment Team on October 22, 2015, which is part of the OSRTI Sediment Team review concurrent with the NRRB review process. [**AR Doc # 100012830**]

As discussed in guidance, this principle is meant to provide an iterative approach as information becomes available. EPA has used this approach throughout the RI/FS process to screen out contaminants not detected in the RI, screen out contaminants not posing risk after completion of the baseline risk assessments, and further screened out some contaminants that were posing potential risk at the Site in the FS based on information presented in the 2016 FS, Table 2.2-2. [See also updated version attached to this dispute.] However, some questions remain and data needs to be collected for other contaminants.

As stated above, EPA will only require action where contaminants exceed PRGs in a particular media. If the PRGs are attained in a particular area of the Site, then action would not be required. The 11 principles are silent as to the use of RALs since these are

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not a required tool at sediment or other CERCLA Sites. The OSRTI Sediment Team did not provide any comments to the Region that there were deficiencies in the memo.

*c. EPA presents a residual risk evaluation in Section 4 and indicates that the risks were calculated using methods consistent with the BLRAs. No details are provided on how the risk calculations were performed. Appendix H is entitled "Residual Risk Evaluation," but this appendix only contains a brief description of how time-zero SWACs were estimated on a rolling river mile basis. Additional information on the exposure assumptions, exposure point concentrations (for both sediment and tissue), and toxicity values is needed to evaluate consistency with the BLRAs. EPA's statement of consistency with BLRA methods is not enough to ensure that the methods are fully understandable or reproducible. Regardless, even based on the limited information presented, it is clear that EPA's methods are not consistent with the BLRAs in at least several respects. Examples include:*

- i. For human health sediment direct contact, time-zero SWACs were generated for shoreline areas (excluding the navigation channel) on a 1- river mile spatial scale, according to Appendix H. (However, the main text indicates instead that 0.5 river mile spatial scales were used. Also, Figure 4.2-1 suggests that EPA included the navigation channel in RAO 1 assessment, which would be incorrect.) Regardless, of how EPA actually did the assessment, sediment direct contact risks were evaluated in the BHHRA for shoreline half river miles, excluding the navigation channel.*
- ii. For human health fish consumption risks, SWACs were generated on a 1-river mile basis longitudinally split into the two shoreline areas and the navigation channel. However, in the BHHRA risks were evaluated by whole river miles with no longitudinal splitting for recreational fish consumption. Further, it is unclear which fish consumption scenario is actually being presented in the residual risk figures. If the subsistence fisher scenario is being presented, this was evaluated on a Site-wide basis in the BHHRA (not by river mile). The text on page 4-6 indicates that EPA calculated tissue concentrations from the SWAC estimates, but no tissue concentrations are presented. The text also indicates that these estimated tissue concentrations were compared to the PRGs for RAO 2. The LWG indicated in the Section 2 comments (LWG 2014b, 2015a, 2015b) disagreement with several aspects of EPA's tissue PRG calculations (and that such tissue levels should be classified as PRGs at all) because EPA was not consistent with the BHHRA methods.*
- iii. The human health residual risks for Alternative A are higher than the maximum risks calculated in the BHHRA, which indicates there are inconsistencies (residual risks should not be higher than baseline). The highest non-cancer risk for a breastfeeding infant in the BHHRA was 10,000. The residual risk assessment indicates the highest non-cancer risk for a breastfeeding infant would be 210,000.*
- iv. There is a significant disconnect between the BHHRA and residual risks for RAO 2 for dioxins/furans. For a breastfeeding infant, the highest hazard quotients for dioxin/furan TEQ calculated in the BHHRA were 10 on a Site-wide basis (tribal fish consumption, whole body diet) and 10 on a river-mile basis (recreational RME consumption, RM 7). Figure 4.2- 4c(1) indicates that the HQ from HxCDF alone (not the entire TEQ) is more than 14,000 for Alternative A. For a child, the highest hazard quotients for dioxin/furan*

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*TEQ calculated in the BHHRA were also 10 on a Site-wide basis (tribal fish consumption, whole body diet) and 10 on a river-mile basis (recreational RME consumption, RM 7). Figure 4.2- 3f(1) shows a HQ greater than 30 for just HxCDF. The RfD has changed since the BHHRA was completed, but that does not account for the difference between the BHHRA and residual risks.*

**EPA Position:**

EPA's residual risk evaluation is discussed in Appendix J of the 2016 FS. The approach used is consistent with the baseline risk assessments. RAO 1 was evaluated in shoreline areas only, not in the navigation channel, and evaluated on a half-river mile scale, which is consistent with the exposures in the BHHRA. RAO 2 was evaluated on both a Site-wide scale using PRGs based on a consumption rate of 142 g/day and one-river mile (including SDU) scale using PRGs based on a consumption rate of 49 g/day. While the exposure assumptions for RAO 2 are consistent with the risk assessment, EPA agrees that in the BHHRA risk was evaluated to the recreational fisher averaging tissue data across the river and the post-construction risk evaluated in the 2016 FS was on a river mile scale in river mile zones (east, navigation channel, west, and Swan Island Lagoon).

It is not uncommon and is acceptable to aggregate the data differently than evaluated in the baseline risk assessment in order to conduct a feasibility study that is evaluating the effect of cleanup of contamination in the river. The river mile data for the risk assessment were collected based on the home range of certain fish species, not the fishing pattern of the receptor. The risk assessment used river mile data for smallmouth bass composited across the river based on Round 1 data collected in 2002-2004. In 2005, ODFW conducted a radio tracking survey of several species and found that smallmouth bass are most commonly found in nearshore areas within a 1 km range of where they were released (ODFW 2005). Future sampling was then conducted for individual fish on either side of the river, but was aggregated in the same manner as the Round 1 data so that the data would still be comparable. Further, only smallmouth bass was used to assess risk on a river mile scale since other fish species were composited over a minimum of three miles. The 2016 FS calculated residual risk for all four fish species evaluated in the BHHRA based on a one river mile scale in the nearshore zone consistent with the preferred fish habitat and the assumptions of "recreational" fishers evaluated in the BHHRA. The calculated tissue concentrations are provided in Appendix J Table J1-2.

The 2016 FS was not attempting to replicate the BHHRA. There will be differences in the risks based on the methodology and data used. The BHHRA used fish data to assess the risk for RAO 2. The 2016 FS is using sediment data to predict a fish tissue concentration using the FWM and does not account for contaminant concentrations in water since the focus of the cleanup is the contamination in the sediment. Further, not all contaminants posing risk in this pathway were used in the residual risk assessment due to the inability to correlate sediment concentrations with tissue concentrations for some contaminants. The non-cancer risk for a breastfeeding infant of 10,000 in the BHHRA is on a Site-wide scale. The 2016 FS calculates that this risk would be 3,333. The non-cancer risk for a breastfeeding infant calculated in the 2016 FS only shows risk for this pathway greater

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than 10,000 at RM 7W for HxCDF, where the maximum risk is 253,347 (see Table J2.3-5c). The BHHRA showed risks for this pathway at RM 7 was 200 based predominantly on PCBs (Table 5-108). The disparity in these values is due to the aggregation of the data. As stated above, the fish data were averaged across the river and only included one of the four species used to assess risk in the risk assessment. Further, the risk assessment only uses smallmouth bass data to calculate risk on a river mile scale and the lack of data for lower trophic level fish which have higher tissue concentrations underestimates the risk and is acknowledged in the uncertainty section of the BHHRA (Section 6.1.1.10). The 2016 FS used the FWM, which allows evaluation of risk from consumption of all four species; thus, the calculated risks would not be directly comparable to the BHHRA. The 2016 FS also uses average sediment concentrations in river zones calculated on a one-river mile scale. The assumption then is that the fish are exposed to that concentration. Therefore, the analysis in the 2016 FS is based upon the representativeness of the data.

*v. Continued exclusion of the site use factor from the BHHRA for BaPEq RAO 1 PRG (106 µg/kg) results in concluding that not even Alternative G will result in SWACs meeting the PRG at time zero in east and west river miles (per EPA's Table 4.2-1). However, if the BHHRA site use factor is accurately applied to this PRG (424 µg/kg), Alternative A appears to achieve RAO 1 in all East RMs (according to EPA's Figure 4.2-7b).*

**EPA Position:**

A factor of 25 percent (which corresponds to a site use factor of 4) was used for direct contact to sediment in the BHHRA to account for the time spent fishing in any single area within the Site. Therefore, the total risk to the fisher is based on any four areas of the Site. Thus, the maximum direct contact risk to the fisher from the BHHRA is  $1 \times 10^{-4}$  and  $HI=3$ . The PRGs developed in the 2016 FS are meant to be applied Site-wide and are established at a  $1 \times 10^{-6}$  risk level or  $HI=1$ , consistent with the NCP and ARARs. While the application of site-use factor may be appropriate assess the risk within a specific area, PRGs are intended to be applied uniformly to each area because actual activity patterns are not known. When potential exposure at more than a single area is considered likely, use of a site-use factor is no longer protective. Further, applying the use factor as suggested by the Respondent would still result in areas in the east river miles exceeding PRGs (see 2016 FS Table J2.2-1c).

*vi. Residual risk figures should show and Section 4 should discuss human health risks compared to a  $10^{-4}$  threshold in addition to the  $10^{-6}$  threshold to fully evaluate the range of effectiveness. EPA's Section 2 presents PRGs calculated on both a  $10^{-4}$  and  $10^{-6}$  thresholds. EPA should evaluate alternatives in the entire acceptable risk range ( $10^{-4}$  to  $10^{-6}$ ) against the FS evaluation, not just variations of RALs all targeted at  $10^{-6}$  or lower risk.*

**EPA Position:**



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Residual risk is defined as the risk remaining once PRGs are achieved. Therefore, residual risk is calculated as the cumulative risk based on the selected PRGs. PRGs are calculated assuming a  $1 \times 10^{-6}$  risk or HQ of 1 and ARARs consistent with the NCP. The exceptions are where background concentration (based on EPA guidance on background) or analytical quantitation limits (per NCP) are greater than the risk-based PRGs or ARARs are not sufficiently protective. As discussed above, RALs are not established at risk levels but are established at levels greater than the PRGs. The 2016 FS does discuss the ability of each of the alternatives to achieve the  $10^{-4}$  carcinogenic risk level as an interim target post construction to ensure that even if PRGs are not achieved, the residual risk is within EPA's acceptable risk range.

*vii. For ecological sediment direct contact, SWACs were generated on a 0.2-mile basis with longitudinal splitting. This spatial scale may or may not be representative of the combined lines of evidence approach used in the BERA to assess benthic risks, given areas of benthic risk were defined for various sized clusters of sampling stations. Further, the hazard quotients presented in the figures appear to be generated by simply dividing the SWAC by the individual PRGs in Section 2, which are mostly based on generic literature Probable Effects Concentrations (PECs). The LWG has already commented on Section 2 (LWG 2014b, 2015a, 2015b) that use of the individual PECs is not consistent with the BERA determinations of benthic risks using multiple lines of evidence.*

**EPA Position:**

The purpose of the FS is to evaluate cleanup options, not establish risk. The BERA used several lines of evidence to evaluate risks to benthic receptors present at the site and concluded that contamination posed unacceptable risk. Therefore, cleanup goals are developed to ensure that the identified risks at the Site are addressed. The evaluation of residual risk is based on the risks remaining once PRGs are achieved. In the 2016 FS, RAO 5 was changed from direct contact to benthic risk. The COCs are based on the BERA recommendation to base the remedy on the ecologically significant COCs (see Section 11 of the BERA). The PRGs for this RAO were based on the BERA SQVs as recommended by the NRRB/CSTAG. The PRGs are mapped in the 2016 FS against the benthic stations to ensure that the contaminant was contributing to benthic risk and then aggregated to compose the comprehensive benthic risk area (see 2016 FS, Appendix D11).

*viii. For ecological bioaccumulation risks, SWACs were generated on a 1-river mile basis with longitudinal splitting. However, the receptors that appear to be used in the residual risk calculations were evaluated over various exposure spatial scales. For example, osprey egg assessment appears to be the receptor of choice for dioxin/furans and DDE, and osprey exposure was assessed in the BERA on a much larger spatial scale than 1 river mile. Thus, it is unclear how EPA's one spatial scale assessment can be consistent with all of these various BERA assessments. Further, the LWG has already commented for Section 2 that some of the receptors EPA focuses on for RAO 6 PRG development, and EPA presumably is focusing on for this residual risk assessment, are*

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*inappropriate and inconsistent with the BERA for reasons detailed in those past comments (LWG 2014b, 2015a, 2015b).*

*ix. The statement in Section 4.1.6.1 that “ecological hazard quotients are calculated using the estimated sediment concentrations and the riskbased PRGs for RAOs 5 and 6, consistent with the process used in the BERA” is misleading in its claim that RAO 5 and 6 PRGs are risk-based. The assertion that this EPA process used to calculate ecological hazard quotients is consistent with the BERA is obviously wrong because ecological hazard quotients that EPA reports in Section 4.2.1 for alternative A (no action) are much higher than BERA HQs. The residual risk assessment is also apparently inconsistent with the BERA in its use of “ecological hazard indices,” although this is unclear because EPA has not defined the term.*

**EPA Position:**

The 2016 FS was not attempting to replicate the BERA. There will be differences in the risks based on the methodology and data used. The BERA used biota data to assess the risk for RAOs 5 and 6 and used discrete river mile boundaries within the Site based on ecological exposures to aggregate the data. The 2016 FS is using sediment data to predict a tissue concentration using the FWM or BSAFs/BSARs and used incremental boundaries based on the same relevant exposure spatial scale as the BERA. Further, not all contaminants posing risk via this pathway were evaluated in the residual risk assessment due to the inability to correlate sediment concentrations with tissue concentrations. The disparity in HQs in the BERA and those in the residual risk estimate is due to the aggregation of the data and the models used to predict tissue concentrations. Further, the Respondents have not identified which ecological hazard quotients they believe are “much higher” than the BERA HQs. No “ecological hazard indices” are used in the 2016 FS.

*x. The residual ecological risk assessment is inconsistent with the BERA in asserting that riverbank soil poses risk. No analysis is provided to back up this assertion and no analysis of riverbank soils (as defined in the RI) were assessed in the BERA.*

**EPA Position:**

EPA agrees that the BERA did not assess risk from exposure to river bank soil in the BERA. The 2016 FS does not conduct a residual ecological risk assessment. The 2016 FS conducts an evaluation of residual risk under long-term effectiveness as required by the NCP and EPA guidance. The river bank soil/sediment poses a risk of recontaminating the sediment, which is where exposure occurs. As stated on p. 2-8 of the 2016 FS:

RAO 9 – River Banks: Reduce migration of COCs in river banks to sediment and surface water such that levels are acceptable in sediment and surface water for human health and ecological exposures. Reducing concentrations, exposure to, and the bioavailability of the COCs in river banks will reduce risk and recontamination at the Site. Ongoing source control efforts will provide additional risk and recontamination reduction.

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*xi. Despite EPA providing few method details, these aspects of EPA's residual risk methods can be shown to be inconsistent with the BLRAs. This suggests it is highly likely that other details of the methods, if they were known, would also be inconsistent with the BLRA methods.*

**EPA Position:**

The methodology used to evaluate residual risk is provided in Appendix J of the 2016 FS.

*The fact that EPA finds the B and D RALs themselves (as well as a new "PTW" RAL) protective in certain areas of the site demonstrates that, as the LWG has previously commented, 17 EPA's approach does not narrowly tailor required cleanup activities to actual site risks identified through the risk assessments. EPA has selected some cleanup criteria that may be applicable to certain locations (or facies) and applied them inappropriately in others. For example, the use of TPAH RALs within the navigation channel is technically inappropriate because the BLRAs did not identify potentially unacceptable risk from this class of chemicals (beyond the extent to which benthic risk identified in the BERA may correlate with PAHs) except in nearshore areas where direct contact or shellfish harvesting might potentially occur. EPA's application of E RALs in some but not all parts of SDU 3.5E results in the identification of a Sediment Management Area for PeCDD where the current SDU 3.5 SWAC already meets the most conservative PeCDD PRG of 0.0002 ppb for RAO2 (fish consumption on a river mile basis). 18 In addition, the differential application of PAH RALs results in unjustified differential postconstruction risk. A larger remedial footprint results from the Alternative I using a 35,000 ug/kg TPAH RAL near outfall OF53A in SDU2E, whereas PAH-driven remedial actions in some other parts of the river have smaller footprints using a TPAH RAL of 69,000 ug/kg. The rationale for more extensive cleanup for PAH near OF53A and its net benefit is not explained.*

**EPA Position:**

First, the LWG's issue appears to inflate the role of the RALs versus the PRGs. The RALs are not cleanup criteria as the LWG categorizes them but rather different removal (dredging or capping) concentration levels of the focused COCs for alternatives analysis of risk reduction. Since RALs are not risk-based, it is reasonable to evaluate specific SDU characteristics, particularly the driver COCs to determine what level of active cleanup would result in the most cost-effective risk reduction.

In conducting the detailed evaluation of alternatives on smaller spatial scales in 2015, EPA realized that some areas of the river could require less aggressive active cleanup (more ENR/MNR) while other areas required more aggressive active cleanup (more capping/dredging). Different RALs were selected in various areas of the Site for Alternative I due to the attainment of PRGs based on specific RAOs in some areas upon completion of construction at the applicable spatial scale of the PRG. The basis for Alternative I using the RALs from Alternative B plus PTW concentrations were that only Alternative B was needed to achieve the cumulative risk interim goal in SDU 6NAV for RAO 2 (see Table 4.2-1); however, all PTW needs to be addressed to ensure the mobile

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source material is reliably contained. The fact that EPA seeks to identify that some RALs would achieve a more protective post-construction risk reduction in some areas of the Site while others were necessary in other parts of the Site shows that EPA's approach does narrowly tailor the required cleanup activities to actual Site risks that the LWG argues should be done.

*Issue 3. Remedial Action Levels – The LWG disagrees with EPA's dioxin/furan, TPAH, and DDX RALs for reasons discussed below. Also, the problematic absence of any evaluation of benthic risks as part of alternative development in Section 3 is discussed in Comment 3d.*

*a. Dioxin/Furan RALs – The LWG does not agree that dioxin/furan RALs are necessary to define SMAs or select an effective remedy for the Site. EPA's Table 3.7-1 shows that the percent reduction in time-zero Surface-area Weighted Average Concentrations (SWACs) calculated by EPA for three dioxin congeners. The TCDD and PeCDD SWAC reductions for Alternative G are in the 60- to 70-percent range, which is a relatively low percent reduction as compared to the other RAL chemicals in the table. In contrast, the SWAC reduction for PeCDF starts at 89 percent for Alternative B and ends at 97 percent for Alternative G, which indicates that the range of RALs provides no meaningful differentiation in SWAC reduction for this congener. EPA has indicated (orally on August 27, 2015) that this is due to the paucity of data on detected dioxin/furan at the Site. However, the low data density and high non-detect frequency for the dioxin/furan dataset should be a reason to reconsider the value of dioxin/furan RALs, rather than a reason to explain the poor performance of such RALs. The insignificance of these SWAC reductions is more clearly illustrated by comparing the dioxin/furan SWACs achieved to EPA's own dioxin/furan PRGs by calculation of a SWAC exceedance factor—a factor above the PRG. This can be illustrated by comparing SWAC exceedance factors with and without EPA's proposed dioxin/furan RALs as shown in the tables below. The tables show that a RAL set that includes dioxin/furan RALs does not get the remedy meaningfully closer to acceptable risk levels as represented by EPA's PRGs. Details of this analysis can be provided. (EPA indicated orally on August 27, 2015, that EPA does not evaluate Site-wide SWACs, only SWACs on a rolling river mile basis. This is clearly incorrect given that the evaluation of each alternative in Section 4 starts with a presentation of Site-wide time-zero SWACs. Also, ~~EPA's own dioxin/furan PRGs are based on the osprey egg endpoint, which is assessed on a Site-wide spatial scale in the BERA.~~ [Sentence stricken per LWG request – see Attachment 1, 2015-10-08 FS Section 3 and 4 LWG Significant Issue Clarifications, 3<sup>rd</sup> bullet] Thus, the Site-wide spatial scale is actually the most relevant scale for an analysis of dioxin/furan RALs.) For example, for PeCDD, Alternative F without dioxin/furan RALs achieves SWACs 310 times greater than EPA's PeCDD PRG, while adding the dioxin/furan RALs achieves SWACs for this same alternative that are still 256 times above the same PRG. (Also, conducting this evaluation on a rolling river mile basis would not change this conclusion. Specific rolling river miles would range much further above the PRG than this Site-wide assessment.) Similarly, the addition of the dioxin/furan RALs only slightly reduces the SWAC exceedance factors for PeCDF and TCDD across all alternatives, and none of the alternatives are estimated to achieve SWACs that are below those PRGs.*

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*5 Per EPA's website*

*(<http://www.epa.gov/superfund/health/contaminants/dioxin/dioxinsoil.html>): "For example, the PRG calculated using the new RfD of 0.7 pg/kg-day (picogram per kilogram-day) and EPA non-adjusted exposure factors would be 50 parts per trillion (ppt) toxicity equivalence (TEQ) for residential soil and 664 ppt TEQ for commercial/industrial soil."*

*SWAC Exceedance Factor above the PRGs – without EPA's Dioxin/Furan RALs  
Alternative PeCDD PeCDF TCDD*

<b>Alternative</b>	<b>PeCDD</b>	<b>PeCDF</b>	<b>TCDD</b>
B	409	2.3	9.4
C	407	2.3	9.4
D	401	2.3	9.3
E	360	1.8	6.7
F	310	1.7	6.0

*SWAC Exceedance Factor above the PRGs – with EPA's Dioxin/Furan RALs  
Alternative PeCDD PeCDF TCDD*

<b>Alternative</b>	<b>PeCDD</b>	<b>PeCDF</b>	<b>TCDD</b>
B	354	2.1	6.6
C	341	2.1	6.5
D	314	2.0	6.3
E	293	1.4	5.8
F	256	1.3	5.5

*Also, for all of the dioxin/furan RALs EPA uses the exact same RAL numeric value to represent more than one alternative. For example, for TCDD, EPA proposes using the same RAL value of 0.002 µg/kg for Alternatives B, C, and D and the same RAL value of 0.0006 µg/kg for Alternative E, F, and G. This approach substantially constrains the alternatives from providing any meaningful changes in SWAC reduction or the SMA shapes and areas defined. Essentially, EPA is only providing three alternatives with regards to dioxin/furans. This appears to conflict with EPA's approach where the RALs (as opposed to technology assignments discussed in Comment 1) are the only real difference among alternatives. Thus, in the case of dioxin/furans, the alternatives have no variation in technology assignments and very little meaningful variation in term of RALs as well.*

**EPA Position:**

Section 5.2.3.1 of the RI Report states that the PCDD/F data set is limited (about one-fifth the size of other contaminant data sets) and cautions in making conclusions regarding the spatial patterns of the composition of total PCDD/Fs in sediment. Thus, EPA acknowledges there are limitations in how the RALs perform based on the current data. Based on existing data and the risk assessments, dioxins/furans pose the second greatest risk within the site to both human and ecological receptors. As such, the risks from this contaminant group must be addressed at the Site. The RALs for other focused

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COCs do not sufficiently cover the dioxins/furans posing risk from exposure to sediment. However, the dioxin/furan sediment data collected by the Respondents is sparse and large areas of the Site were not sampled for dioxin/furans; thus, not characterized. The lack of data is not a basis for excluding these contaminants from the cleanup options presented in the 2016 FS. EPA explains in Section 3.4.1.2 of the 2016 FS the basis for some of the dioxin/furan RALs being the same in more than one alternative. Furthermore, the alternatives are developed as a combination of RALs, not individual RALs, and while the alternatives may not differ with respect to some of the dioxins/furans, they do differ with respect to other contaminants.

The 2016 FS only applies RALs where those concentrations are exceeded in sediment based on the RI data. As EPA has stated above, RALs are applied in combination to develop SMAs that cover all COCs in sediment greater than PRGs. EPA's applications of the E RALs in SDU 3.5E results in an estimated 1,2,3,7,8-PeCDD sediment concentration of 0.000125 µg/kg (see Table J2.3-7 in the 2016 FS). The 1,2,3,7,8-PeCDD PRG for RAO 2 is 0.0002 µg/kg (see 2016 FS Table 2.2-1). While the 1,2,3,7,8-PeCDD PRG is achieved post-construction for this alternative, other COCs are not. As shown in the 2016 FS, Table J2.3-8b, the residual risk for Alternative E in SDU 3.5E is  $1 \times 10^{-4}$ .

The 2016 FS developed dioxin/furan PRGs based on the relevant spatial scale for the RAO. Some of these are Site-wide, while others are at smaller spatial scales. However, in selecting PRGs for each of the RAOs, the most protective PRG is selected and applied at all relevant spatial scales.

*b. TPAH RALs – Per discussions at the 2014 FS technical meetings, the LWG disagrees that TPAH RALs should be used instead of cPAH RALs (expressed as BaPEq). BaPEq is consistent with the methods and results of the BHHRA, which were assessed in terms of total cancer risk from cPAHs on a BaPEq basis. Following the risk-based approach called for in the guidance,6 RALs should be consistent with the methods and findings of the BLRAs to ensure that sediment remedies are “risk-based” (i.e., result in effective risk reduction). Further, EPA’s latest Section 2 human health PAH PRGs are all expressed as BaPEq. Therefore, use of BaPEq RALs allows for a direct comparison on a consistent basis between the RALs and the PRGs, whereas TPAH RALs do not. Further, the use of BaPEq RALs for human health and Comprehensive Benthic Risk Areas (CBRAs)7 for ecological risks addresses all of the PAH-related potentially unacceptable risks found in the BLRAs. Also, the BaPEq RALs should only be applied to human health exposure areas outside the navigation channel consistent with the risk-based approach called for in the guidance. The cPAH risks related to sediment direct contact and shellfish consumption exposures occur only outside the navigation channel (along the shoreline), and as a result, BaPEq RALs associated with these potential risks should be applied in these areas only. The only remaining human health potential unacceptable risk identified in the BHHRA was for the fish consumption scenario, which was determined using cPAH concentration data in fish tissue. There is no valid relationship between cPAH fish tissue and sediment concentrations at the Site, or any other sediments site, due to the rapid metabolism of PAHs by vertebrate fish (see LWG 2014d, 2015a, 2015b for additional*

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*details and references). Carcinogenic PAHs represent less than 1% of the cumulative risks to people eating fish and are, therefore, not a good reason to expand the remedy by hundreds of millions of dollars on the basis of a technically inappropriate PRG, given that there is no reasonable expectation that such an expansion could have any meaningful impact at all on the overall fish consumption risk. Because the BaPEq RALs can only be linked to effective risk reduction along the shoreline (using the BHHRA findings and the resulting appropriate PRGs for sediment direct contact and shellfish consumption), these RALs should only be applied along the shoreline outside of the navigation channel.*

*6 EPA guidance (2005a) discusses “Risk Management Principles and Remedial Approaches” and clearly describes that the cleanup should use a “risk-based framework”; “select site-specific, project-specific, and sediment specific risk management approaches that will achieve risk-based goals”; and “ensure that sediment cleanup levels are clearly tied to risk management goals” (p. 1 – 5).*

*7 See Comment 15 for more details on the LWG’s position regarding benthic risk and EPA’s removal of the CBRAs from the revised FS.*

**EPA Position:**

Polycyclic aromatic hydrocarbons (PAHs) are a group of over 100 different individual PAH compounds (ATSDR). Total PAHs were evaluated in the BERA and include the combination of 17 individual PAH compounds. The conclusions of the BERA was that total PAHs were ecologically significant at the Site (see BERA Table 11-5). There is nothing in the BERA that states that there is no risk from PAHs in the navigation channel. There is also nothing in the BERA that states that there is no exposure or risk to aquatic organisms in the navigation channel. To the contrary, the BERA identifies PAHs as a contaminant contributing to risk in almost every species evaluated in the BERA. The BHHRA only evaluated those individual PAHs which are cancer causing (16 individual PAH compounds). The BHHRA concludes that PAHs contribute to risk from consumption of fish in addition to risks from consuming shellfish and direct contact. The RALs are not risk based and are applied to all areas of the Site where they are exceeded. The evaluation of the alternatives evaluates those contaminants that are posing risk for each RAO by comparing the appropriate post construction contaminant concentrations to the PRGs for each RAO at the appropriate spatial scale in the Site. Residual risk and post construction risk for RAO 1 was not evaluated in the navigation channel since EPA agrees that this RAO is not applicable to that area of the Site; however, all other RAOs are and were evaluated in the navigation channel. RAOs 1 and 2 evaluate post construction cPAH concentrations to cPAH PRGs while RAO 6 evaluates post construction total PAH concentrations to total PAH PRGs. Additionally, there is no difference between the cPAH RALs developed by the LWG in the 2012 FS and the total PAH RALs used by EPA in the 2016 FS. EPA simply took the cPAH RALs developed by the LWG and converted them to total PAH using the regression analysis of the cPAHs at the site to total PAHs in sample pairs (see 2016 FS, Appendix D5).

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The application of RALs in various parts of the river will result in differential post construction concentrations risks based on the remaining concentrations of different COCs in the area being evaluated. The basis for selecting E RALs for SDU 2E in Alternative I is based on the resulting residual risk from all COCs, not just PAHs. PCBs is the driving the risk in this area of the Site. As stated above, the RALs act in combination, not independently, in development of the alternatives. EPA is applying different alternatives (which are combinations of RALs) for Alternative I, not different individual RALs, in various parts of the river. The only area where D RALs was selected in Alternative I is SDU 6W. This area has a much greater SMA footprint from PAHs that SDU 2E since the PAHs are driving the risk in this area of the Site.

*c. DDx RALs – Although the LWG agrees with the use of DDx RALs as a general concept<sup>8</sup> instead of individual DDD, DDE, and DDT RALs in the 2012 draft FS, the LWG disagrees with the upper end of the RAL curve selected by EPA. There is little differentiation in the areas mapped using EPA’s B, C, and D RALs. For example, according to EPA’s Table 3.3-4, within the RM 7W area, the acreages defined by EPA’s DDx RALs for Alternatives B, C, and D are 10, 12, and 15 acres, respectively. EPA further indicates these RALs achieve Site-wide SWACs of 21, 20, and 19 ppb, respectively. Thus, this range of RALs represents virtually no substantial difference in areas remediated or risk reduction likely achieved. Instead, EPA should use DDx RALs of 8000, 1000, and 500 µg/kg for Alternatives B, C, and D, respectively. This RAL set would provide a wider differentiation between the active remediation acres and resulting SWACs achieved across these three alternatives. In addition, the LWG has the following specific concerns about EPA’s DDx RAL analysis:*

*i. Table 3.3-4 presents an inappropriate comparison of DDx RALs to a SWAC derived for a localized area of RM 6.6 to 7.8. EPA does not explain the basis for evaluating DDx across this area rather than an area that is consistent with the spatial scale evaluated in the BLRAs most related to appropriately calculated DDx PRGs. As noted above, RALs should be developed consistent with the BLRAs to be consistent with FS guidance.*

*ii. The LWG’s original position in 2011 was to use DDE RALs as a surrogate for DDD and DDT (and as a result, for total DDx). However, EPA expressed concerns in 2011 and again in 2014 FS technical discussions that the DDE RALs, by themselves, might not sufficiently bound areas of elevated DDD and DDT sediment concentrations. No supporting technical basis was provided by EPA for this concern, and none is provided in Sections 3 and 4. The determination of bounding COCs for RAL development is an evaluation that requires best professional judgment that must be clearly explained. In addition, the 2012 LWG draft FS indicates that potentially unacceptable risks associated with DDx are based only on the most conservative fish consumption pathway and are localized to RM 7, where DDx contributes only 3% of the cumulative potentially unacceptable risks. Given that EPA does not explain the reasons for the conversion from separate RALs to one combined set of DDx RALs, the LWG’s proposal above may not fully resolve the LWG’s concerns regarding EPA’s DDx RAL approach.*

*d. Comprehensive Benthic Risk Areas – EPA makes no mention of the CBRAs in the FS Section 3 text or how those risks are addressed through the proposed RALs and SMAs.*



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*See Comments 15 and 17 for more information regarding the LWG's position on benthic risk and need for consistency with the risk assessments.*

*8 However, the LWG does not necessarily agree with how EPA made the conversion from separate RALs to a combined DDx RAL or with the EPA's DDx RAL values as noted further below in this comment.*

**EPA Position:**

While the Respondents did not disagree with the use of DDx RALs, they are disputing the RALs used by EPA for Alternatives B, C, and D. EPA used the following RALs in the 2016 FS:

**Table 3.4-4**  
**DDx RALs with Resulting SWACs and Acres**  
Portland Harbor Superfund Site  
Portland, Oregon

Alternative	DDx				
	RAL (µg/kg)	RM7W		Site Wide	
		SWAC (µg/kg)	Acres	SWAC (µg/kg)	Acres
B	650	100	10	22	11
C	550	85	12	21	13
D	450	65	15	20	16
E	300	37	20	18	22
F	160	22	25	16	33
G	40	10	35	11	114
H	6.1	6	64	6	1,130

The Respondents argue that EPA should use DDx RALs of 8,000, 1,000, and 500 µg/kg for Alternatives B, C, and D, respectively, and that this RAL set would provide a wider differentiation between the active remediation acres and resulting SWACs achieved across these three alternatives. The current Site-wide SWAC for DDx is 52 µg/kg and the current RM 7W SWAC is 640 µg/kg. The suggested RALs from the Respondent would equate to the following SWACs and acres remediate:

Site-wide SWAC:

Alt	Rals	postSWAC	Acres
B	8000	38.72	1.22
C	5000	34.74	1.95
D	500	20.42	14.05

RM7W SWAC:

Alt	Rals	postSWAC	Acres
B	8000	373.9	1.22
C	5000	306.3	1.95

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D      500    74.5            13.39

As the above analysis demonstrates, this contaminant is very localized in one area of the Site – RM 7W, as shown by the acres addressed by RALs. Table 3.4-4 and Figure 4.3-12 in the 2016 FS also shows this. Further, the LWG acknowledge this in their 2012 FS [**AR Doc # 706171**, Section 4.1, p. 4-4]:

Sum-DDE, particularly due to relatively localized potentially unacceptable risks near RM 7 to human health via fish consumptions (either smallmouth bass or large home range fish).

Sum-DDD due to relatively localized potentially unacceptable risks near RM 7.

Sum-DDT due to relatively localized potentially unacceptable risks near RM 7.

The B and C RALs only address contamination at RM 7W (as shown by the acreage Site-wide being the same as those at 7W). Very little area (1-2 acres) would be addressed using these RALs and the Respondents do not provide a basis for why selecting RALs at these concentrations would be meaningful in reaching the PRG of 6.1 µg/kg. Based on the uncertainty evaluation in the 2016 FS, Appendix I, the RALs suggested by Respondents for Alternatives B and C would not be statistically discernable from the no action alternative based on the variability of the data. Therefore, there would not be any “meaningful risk reduction” through selection of these RALs. Further, RALs are developed to address contaminant concentrations in the Site and are not based on risk – only PRGs are based on risk. However, the evaluation of the application of the RALs in reducing risk is conducted on spatial scales consistent with the baseline risk assessments.

EPA has had several discussions with the LWG and have provided comments regarding the use of DDE RALs dating back to June 2011. [**AR Doc # 100015899 and 100007242**] In all the discussions and comments provided by EPA between 2001 and 2015, EPA did not merely raise concerns but also provided technical information to support EPA’s determination that DDE RALs do not sufficiently address all risk from DDD, DDE, and DDT. EPA also provided a document presenting maps of RAL options to the LWG as early as July 27, 2011. [**AR Doc # 100033475, 663228, 663260**] Further, on August 11, 2011, EPA directed the LWG to use DDx RALs in the 2012 draft FS and the LWG did not dispute this direction at that time. [**AR Doc # 663242 and 663285**] The LWG never provided any information on why using DDE RALs as a surrogate for DDD and DDT is appropriate or reasonable. Both the BHHRA and BERA address risk to receptors as DDx; only the exposure to surface water used DDE, DDD, and DDT and bird egg assessments used DDE. The basis for using DDx is that it is directly comparable to the risks in the river and the only reason EPA developed RALs individually for DDD, DDE, and DDT were so the LWG could model them in their fate and transport model. The FS is a technical document that has the sole purpose of developing and evaluating alternatives and is not a document that is used to discuss the differences between the EPA and LWG

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FS documents. EPA has had many discussion with the LWG over issues with their 2012 FS and have incorporated EPA's final determination on those in the 2016 FS.

*e. EPA indicates in Section 3 that the RALs were selected using RAL curves and considering the zone of maximum incremental SWAC reduction, the zone of marginal incremental SWAC reduction, the knee of the curve, and spatial distribution of the RAL points on the curve. The LWG generally agrees with these RAL selection criteria, which are similar to those stated in the 2012 draft FS. However, a cursory review of the RAL curves presented indicates a wide difference in the RAL points chosen along these curves across the various chemicals. Considering the EPA stated selection criteria either individually or together, there is no discernable consistency in the RAL points selected on the curve for one chemical to the points on the curve selected for another chemical. Thus, the stated selection criteria do not appear to be followed.*

**EPA Position:**

In the 2016 FS, there is no selection criteria for the RALs (refer to Appendix D1), as stated by the Respondents. EPA notes that there are points on the curves that are considered (the zone of maximum incremental SWAC reduction, the zone of marginal incremental SWAC reduction, the knee of the curve, and spatial distribution of the RAL points on the curve) but does not use these as rigorous selection criteria. The PCB and PAH RALs were selected by the LWG and carried forward into the 2016 FS. The DDX RALs are based on localized contamination and, therefore, the selection of RALs had to be carefully selected to ensure a broad range of footprints could be evaluated. The 2016 FS clearly describes the methodology for selecting the dioxin/furan RALs and why those differed from selection of the other RALs.

*Issue 15. Inappropriate Benthic Risk Analysis – EPA does not mention benthic community risks in the Section 3 RAL, SDU, or SMA development text (as noted in Comment 3). EPA must develop and evaluate alternatives that fully consider benthic risks using methods that are consistent with the BERA. Although EPA conducts an extensive SDU analysis to assess whether the selected RALs bound other risk pathways, EPA does not discuss the extent to which these RALs are expected to bound and address benthic community risks. In contrast, the 2012 draft FS included a detailed evaluation of and determination of benthic risk SMAs using the CBRA approach, as required by EPA at the time.*

*Then in Section 4, EPA evaluates the alternatives for their ability to adequately address benthic community risks. EPA concludes that all the alternatives do not address through active remediation a “substantial” portion of the benthic community risks. For example, EPA states for Alternative G, “There are a substantial number of locations where unacceptable benthic risk (identified via bioassays or predicted via the Logistic Regression Model [LRM]) are not encompassed by the areas of construction as shown on Figure 4.2-11.” EPA states that the remaining benthic risks will be addressed through MNR. While it is reasonable to address low-level risks through MNR (including benthic risks), EPA has constructed alternatives that ignore benthic risk and then demerits those*

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*same alternatives in the effectiveness evaluation for failing to adequately address benthic risks.*

*EPA's benthic risk approach is particularly inconsistent given that EPA made multiple changes to the RALs between the draft and revised FS because EPA deemed the 2012 draft FS RALs for PAHs, DDE, and dioxin/furans as "not protective." This decision resulted in extensive work to recalculate all the SMAs and alternative quantities and costs. EPA does not attempt to explain in Section 4 whether EPA could have avoided all of this rework and instead similarly decided that MNR would address relatively low-level risks for PAHs, DDX, and dioxin/furans that EPA deemed were not directly addressed by the 2012 draft FS RALs. There are some important additional technical issues with EPA's benthic risk approach as follows:*

*a. EPA's method for defining benthic risks requires additional explanation. EPA provides one figure series (Figure 4.2-11 and Figures 4.2-14 through 17) and two statements regarding the methods used: 1) "Identified via bioassays or predicted via the LRM"; and 2) "Additionally, benthic risk is evaluated by determining the percentage of measured or predicted benthic toxicity points addressed by the construction of the alternative." The term "toxicity points" is new and not defined. Consequently, these results are not reproducible and the subsequent, related conclusions appear unsupported.*

*b. From examination of the cited figures, it appears that EPA used any instance of a Level 2 or Level 3 bioassay hit and any exceedance of the LRM benthic screening levels to determine that "benthic risk" was present at any given sampling station. The BERA is clear that individual benthic toxicity lines of evidence are insufficient to fully characterize benthic risks at the Site.*

*14 EPA guidance states:*

*"As a general policy and in order to operate a unified Superfund program, EPA generally uses the results of the baseline risk assessment to establish the basis for taking a remedial action using either Section 104 or 106 authority. \*\*\* If the baseline risk assessment and the comparison of exposure concentrations to chemical-specific standards indicates that there is no unacceptable risk to human health or the environment and that no remedial action is warranted, then the CERCLA Section 121 cleanup standards for selection of a Superfund remedy, including the requirement to meet applicable or relevant and appropriate requirements (ARARs), are not triggered."*

*In other words, where the baseline risk assessment concludes that a human or ecological receptor will not be exposed to potentially unacceptable risk by a contaminant present in a given media, there is no basis for taking remedial action. Where no remedial action is warranted, development or refinement of preliminary or final remediation goals is unnecessary. Role of the Baseline Risk Assessment in Superfund Remedy Selection Decisions, p.3 (OSWER Directive 9355.0-30, April 22, 1991).*

*15 See, LWG, List of Significant Issues with EPA's Revised FS Sections 3 and 4 (September 8, 2015), Issue 17 at pp. 44-48. (included within Attachment 1). The LWG's comments on the August 2015 FS are included as Attachment 1 and incorporated by reference.*

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*16 For example, the uncertainty analysis in Appendix I concludes that Alternative B is statistically indistinguishable from the no action alternative. This disagrees with figures in Section 4.2 that shows that the biggest drop in HQ and cancer risk is from the no action alternative to Alternative B as compared to the other alternatives.*

*17 See, LWG, List of Significant Issues with EPA's Revised FS Sections 3 and 4 (September 8, 2015), Issue 3 at pp. 9-13 (included within Attachment 1).*

*18 See, e.g., Table 4.2-1 of EPA's August 2015 FS.*

**EPA Position:**

EPA developed a comprehensive benthic risk area based on the PRGs for RAO 5 in the 2016 FS. This area is presented in Figure 4.4-1 and development of it is presented in Appendix D11. Section 3 of the 2016 FS discusses the development of the alternatives; evaluation of the alternatives, including how risks are addressed through the proposed RALs and SMAs, is discussed in Section 4. EPA did not use benthic risk as a basis for development of alternatives as EPA did not develop RALs for all other COCs. The focused COCs were chosen based on their coverage of other COCs, including those for RAO 5. None of the alternatives address all the risks at the Site through construction, with the exception of Alternative H. In the evaluation of alternatives in Section 4, EPA discusses those risks that are not addressed by the construction of the alternatives so that it is clear how much risk was addressed and how much remains to be addressed through MNR. EPA does not “demerit” or characterize this evaluation as a “failure” for any of the alternatives.

**LWG Dispute Issue 1e:**

*Other EPA revisions and changes between the August 2015 and June 2016 drafts of the FS that diverge without explanation from the RI and BLRA (and from each other) include:*

*On page 1-24, EPA identifies 66 COCs posing unacceptable ecological risks and determines that 20 of these COCs “pose risks ecologically high enough to consider development of a remedial action.” EPA presents no details of how this risk management decision was made and or how it is consistent with the Baseline Ecological Risk Assessment (BERA).*

**EPA Position:**

The BERA, in Section 11.4, presents Contaminants of Ecological Significance and concludes:

“All contaminants posing potentially unacceptable risk at the end of the BERA were recommended to be carried forward to the FS. Those classified as posing ecologically significant risk in Table 11-5 are recommended for consideration in developing and evaluating remedial action alternatives in the 2016 FS based on the pathways and factors considered in the BERA. Contaminants posing potentially unacceptable risk at the end of the BERA that are not listed in Table 11-5 are recommended for comparison with projected post-remedial action conditions to confirm that alternatives developed for the

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ecologically significant contaminants would be protective for risks of low ecological significance.”

Therefore, this risk management decision was carried forward from the recommendation made in the BERA and is therefore consistent with the BERA. EPA made risk management decisions in Section 2 of the 2016 FS as to which COCs would be evaluated further in the 2016 FS (see Table 2.2-2).

**LWG Dispute Issue 1f:**

*The 2,4' and 4,4'-DDD, -DDE, -DDT (DDx) PRG for RAO 6 decreased substantially and is now based on sculpin tissue residue instead of sandpiper.*

**EPA Position:**

The DDx PRG for RAO 6 is based on the sculpin tissue residue (760 µg/kg) rather than the spotted sandpiper (2,849 µg/kg). As discussed by EPA in Section 2.2.2.2 of the 2016 FS (p. 2-11), the lowest PRGs was selected for each COC to ensure protection of all species.

**LWG Dispute Issue 1g:**

*EPA's proposed background values are still based on inappropriately derived upstream bedded sediment statistics that are unlikely to represent achievable cleanup levels for the site as they do not account for anthropogenic influences, which are known in the scientific literature to exist throughout the Willamette basin.<sup>19</sup> The FS also does not present background concentrations for surface water and does not present sediment background concentrations for all chemicals with sediment Preliminary Remediation Goals (PRGs).*

**EPA Position:**

Background calculations for sediment were developed as part of the Remedial Investigation Report, not the Feasibility Study, except for dioxins/furans. Under the RI/FS AOC, the LWG formally disputed EPA's directions on the statistical approach for calculating background. On March 24, 2015, EPA's Director of the Environmental Cleanup Office made a final decision on the methodology and statistical approach for calculating background and directed the LWG to calculate background for 23 contaminants using the methodology. [AR Doc # 500011627] We understand the LWG may continue to disagree with the methodology, but that issue is no longer subject to dispute under the RI/FS AOC. Since the RI report calculated background for dioxins/furans as total PCDD/Fs and TEQ and EPA was using dioxin/furan congeners for the analysis in the 2016 FS (see 2016 FS Appendix B2), EPA calculated the background concentrations for the congeners of concern to: (1) develop PRGs, and (2) conduct the evaluation of the alternatives in the 2016 FS (see Appendix B of the 2016 FS). EPA used the same methodology to calculate background concentrations for dioxin/furan congeners of concern as was used in the RI and consistent with the EPA Director's final dispute decision.

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Neither the RI nor the 2016 FS presented background concentrations for all COCs in sediment because the RI report concluded that there were insufficient detections to determine background concentrations for 2,3,7,8-TCDD eq, aldrin, dieldrin, DDT, Lindane, and TBT. The exception is TPH-diesel in which a background concentration was calculated in the RI Report, Appendix H, but was inadvertently omitted from Table 2.2-9 in the 2016 FS. The background concentration is 61 mg/kg, which would not change the selection of the PRG, which is 91 mg/kg, since the risk-based number is greater than background.

EPA did not present background concentrations for surface water in the 2016 FS since there was insufficient data to statistically compute a background concentration (i.e., there was only one year where 3 seasonal data points were collected). Further, since surface water PRGs are based on ARARs, EPA would need to waive the ARAR, which means that significant information would be needed to show that achieving the ARAR is technically impracticable.

**LWG Dispute Issue 1h:**

*Sediment PRGs for RAO2 and RAO6 as well as riverbank PRGs for RAO9 for the five PCDD/Fs congeners are now all based on background concentrations. Background PCDD/F concentrations for individual congeners are presented in Appendix B, Table B2-4 of EPA's FS. The background values, however, are based on limited and poor quality data (with elevated detection limits) and involve taking the 95 UCL of detection limits for congener datasets based on all non-detects. In fact, only one congener has sufficient data (1,2,3,4,7,8-HxCDF) to calculate a background value and even that is limited (13 of 31 samples were non-detects). Thus, most of the background "values" are based on a 95% UCL of the detection limits rather than actual detections of contaminants. The background values are skewed quite low compared to those calculated for other urban watersheds and are of similar uncertain statistical validity.*

**EPA Position:**

The LWG now states that its upstream dioxin data is limited and of poor quality, yet when it submitted its draft RI report it represented that the data was sufficient and submitted background values for EPA to approve. LWG presented background statistics for 1,2,3,4,7,8-HxCDF, 1,2,3,6,7,8-HxCDD, 1,2,3,7,8-PeCDD, 2,3,4,7,8-PeCDF, 2,3,7,8-TDD, and 2,3,7,8-TCF in its 2011 draft RI report, essential using the same limited and poor quality data with elevated detection limits. Of these, the frequency of detection is greater than 50 percent for only 1,2,3,6,7,8-HxCDD, and is as low as 4 percent for 2,3,7,8-TCDF. Yet the LWG calculated a 95 percent upper predictive limit and a 95 percent upper confidence limit on the mean of the data for each dioxin/furan.

EPA determined that it was not appropriate to calculate upper confidence limits (UCLs) on the mean and upper predictive limits (UPLs) on data with such low frequency of detection, thus, background presented in the 2016 FS for these analytes was established as the 95th percentile of the detection limits. Because the background data set represented

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“real life” data, EPA chose to establish background based on an upper limit of achievable detection limits.

**LWG Dispute Issue 1i:**

*And while EPA’s explanation of its development of its preferred Alternative I appropriately recognizes that Portland Harbor is a large and complex site where location-specific issues are important, EPA’s June 2016 FS continues not to resolve a number of the LWG’s prior questions about how EPA’s alternatives contribute to meaningful risk reduction at the site consistent with CERCLA and the NCP:*

*EPA’s calculation of PAH PRGs (and use of such PRGs for calculating post-construction risk) for minor or non-existent PAH fish consumption risk are not explained and not supported by the risk assessments.*

**EPA Position:**

According to information presented in the final BHHRA, fish consumption risks solely from PAHs are  $8 \times 10^{-6}$  for tribal consumers (assuming a site-wide averaged concentration and a 175 g/day consumption rate) and  $2 \times 10^{-5}$  at RM 5 assuming a consumption rate of 49 g/day. While these do not approach the  $1 \times 10^{-2}$  site-wide risk estimates, EPA, unlike the LWG, does not consider these risk estimates “minor or non-existent.”

The LWG has long maintained such risks are impossible, noting in the Bioaccumulation Modeling Report (2009 and 2015) that “fish metabolize PAHs.” LWG further claims (p.163 of Attachment 1 to the dispute statement) that “The LWG has previously pointed out to EPA that there is no relationship between concentrations of BaP in sediment and vertebrate fish at the Site or anywhere else, given that it is well documented that fish metabolize PAHs to a greater extent than invertebrates, and that “fish have been shown to rapidly metabolize 99 percent of PAH compounds within 24 hours of uptake,” thus “because fish metabolize PAH compounds so efficiently, fish tissue concentrations of PAH compounds have been deemed a poor means of assessing PAH exposure.”

EPA disagrees that fish tissue concentrations are a poor means of assessing PAH exposure. In fact, direct measures of contaminant concentrations in the actual media to which receptors are directly exposed is an excellent means of assessing exposure. The LWG has repeatedly made these same claims based on selective citations of literature for several years in direct contradiction of the data the LWG itself collected and its own evaluation presented to EPA in the BHHRA. A simple literature search returned documentation that PAHs do in fact bioaccumulate in fish. For example, Rose et. al. (2012) concluded that “PAHs were found in fish of all ages therefore this result suggests that fishes are exposed to and accumulate PAHs from the early stage of their lives through different developmental stages up to maturity and that sources of PAHs are present and available to fish in Lagos Lagoon due to regular discharges from several sources.”



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**LWG Dispute Issue 1j:**

*EPA's calculation of PAH PRGs for direct contact are not explained and are not supported by the risk assessments.*

**EPA Position:**

PRGs for direct contact exposure (including PAHs) are clearly explained in 2016 FS Appendix B, Section B3.1.1. Because PAHs were evaluated only for carcinogenic effects for RAO 1, Equations B3-2 through 7 are relevant for calculating the PRGs. As noted, exposure values are summarized in Table B3-1, and unless otherwise noted, the source for each value is provided in Tables 3-21 through 3-25 in the BHHRA. As such, identical exposure assumptions were used when calculating the PRGs. The BHHRA evaluated risk due to exposure at specific, individual areas, and as noted in Section 3.5.8.6, a factor of 25 percent was used to account for the time spent fishing in a single area within the Site, which corresponds to a "site-use factor" of 4. While the application of site-use factor may be appropriate to assess the risk within a specific area, PRGs are intended to be applied to all beach and nearshore areas of the Site. Thus, if a receptor were to only be exposed to a single area, then a site-use factor would be appropriate, but when potential exposure at more than a single area is considered likely, use of a site-use factor is no longer protective. Due to the distribution of the contamination and the multiple uses and exposure points within the Site, EPA determined that it would not be protective to use a site-use factor.

**LWG Dispute Issue 1k:**

*There continues to be an issue with EPA's modeled dioxin/furan tissue concentrations. In the BHHRA, the site-wide risk from the total TEQ based on the 95%UCL or maximum concentration for actual tissue data was  $2 \times 10^{-4}$ . For Alternative A, the site-wide risk from 1,2,3,4,7,8-HxCDF alone based on an average concentration is  $6 \times 10^{-4}$ . There is no way that the risk from an individual congener can be higher than the total TEQ, and EPA's methodology therefore drastically overestimates the risk in a way that cannot be supported scientifically. The FWM is used by EPA to back-calculate concentrations of chemicals of concern (COCs) in sediment associated with acceptable, risk-based human health and ecological concentrations in fish tissue as calculated using the baseline risk assessment. This influences sediment PRGs and hence RAOs, so uncertainty originating with the FWM cascades, having compounding effects on the evaluation of remedy alternatives, and could result in additional remediation costs with no meaningful gains in risk reduction. We identify the following shortcomings with EPA's application of the FWM at the Site:*

*A comprehensive and detailed Conceptual Site Model (CSM) for the Site in total, and for the relationship between COC sediment and fish tissue concentrations specifically, has not been presented by EPA. This means that EPA's chief assumptions for the FWM related to steady-state conditions (in a flowing water body), the completeness of the site characterization dataset, regional contributions of COCs, and the apparent relationship between sediment and fish concentrations cannot be collectively synthesized in terms of their overall coherence and veracity.*

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*Based on an examination of the empirical data for the Site, no statistical relationship is observed between sediment and fish tissue concentrations for DDX and PCDD/Fs at the concentrations relevant to risk decision making. This means that the FWM - which assumes such a relationship exists – is not reliable and that the conclusions reached on its basis are fundamentally flawed.*

*Good modeling practice was not used by EPA for the FWM, and in particular sufficient model documentation detailing the work does not exist. Adequate model documentation is one of several criteria used by EPA and other international regulators for determining the acceptability of a model for regulatory decision making (USEPA 2009, EFSA, 2014, Grimm et al., 2014).<sup>21</sup>*

**EPA Position:**

The calculated 95 percent UCL on the mean of the 27 individual 1,2,3,4,7,8-HxCDF SWACs shown in Appendix I of the 2016 FS is 0.26 µg/kg. Using the food web model the LWG calibrated for this COC, the estimated average tissue concentration is 0.046 µg/kg, which equates to a  $6 \times 10^{-4}$  risk, as shown in Table J2.3-1a of the 2016 FS. The discrepancy noted is likely due to limitations associated with extrapolating limited dioxin/furan sediment data site-wide, particularly when combined with the limited tissue data set. Respondents' assertion that the methodology is not "supported scientifically" represents a repudiation of the analytical tools they developed, and is otherwise simply a declarative statement unsupported by fact.

**LWG Dispute Issue 11:**

*The Food Web Model (FWM) used to calculate sediment PRGs from tissue PRGs was calibrated using PCB data. However, the model provided unachievable results for PCBs (zero listed in EPA FS Table 2.2-5 table). Predicting sediment PRGs using this model has even greater uncertainty for other compounds (e.g. DDX). This uncertainty effects the use of the model in the near field potentially more dramatically than at a site wide basis which is particularly evident where the sediment SWAC values are uncertain by an order of magnitude. Assessing model performance along the continuum of concentrations and scales of application (site-wide or near field) to assess the goodness of fit is necessary to evaluate whether model performance is acceptable, especially in areas of uncertainty in SWAC concentration at the low concentration range driving PRG derivations.*

**EPA Position:**

Respondent's dispute position appears to contradict their own voluminous record submitted to EPA supporting the use of a food web model for PRG development. The LWG's initial evaluation [AR Doc # 100004067] stated:

The primary goal of food web modeling for the remedial investigation/feasibility study is to develop a predictive relationship between chemical concentrations in sediment, water, and tissue that can be used to derive preliminary sediment cleanup goals for chemicals that are present in fish tissue at concentrations associated with unacceptable risk.

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LWG submitted a Draft Bioaccumulation Modeling Report to EPA in 2009, and again in 2015 with updated calibration for specific dioxin/furan congeners. [AR Doc # 500012795 and 100003827] In each submittal, the LWG stated:

With the Round 3 sampling program, which generated substantially more tissue and water chemistry data than were previously available, there are sufficient data to use the Arnot and Gobas model for other organochlorine pesticides besides DDTs. Using data from Rounds 1-3 sampling efforts, the Arnot and Gobas model was used for all organochlorine pesticide, PCB, and polychlorinated dibenzo-p-dioxin (PCDD)/polychlorinated dibenzofuran (PCDF) COCs.

In the LWG's April 23, 2015 responses to EPA's response to comments on Section 2 of the draft FS (submitted on p. 207 of respondent's Attachment to their dispute statement), they stated:

...the LWG agrees with the validity of the bioaccumulation model for use in calculating PRGs for the project (i.e., LWG is not challenging the accuracy of the model).

Further, the assumption of steady-state conditions is addressed in Appendix C of both the LWG 2009 and 2015 versions of the Bioaccumulation Modeling Report, which states:

Because of a lack of adequate time-dependent data for the Portland Harbor Study Area, the model has been simplified to assume steady-state conditions for the purposes of this application.

The LWG's Draft Bioaccumulation Modeling Report ultimately concludes:

Further, the mechanistic model can be used to estimate beyond the range of available data (e.g., to predict tissue COC concentrations lower than were found in collected fish samples). The Arnot and Gobas model explicitly accounts for the kinetics of chemical uptake and loss/dilution based on a mechanistic understanding of these processes. Because it is mechanistic, the model is appropriate for extrapolating beyond the empirically observed conditions in Portland Harbor, for example to project possible future conditions, to explore different assumptions about source terms (e.g., sediment versus lateral and upstream sources), or to calculate PRGs that fall outside the range of observed sediment concentrations. The fact that the Arnot and Gobas model is mechanistic also means that it can be calibrated to the data for a subset of chemicals and aquatic species and then "validated" with the data for other combinations of chemicals and species.

The mechanistic model was applied successfully for total PCBs, select dioxin/furan congeners, and pesticides including total DDx. For all chemicals, the model met or exceeded the stated objectives outlined in this document (i.e., SPAF < 3 for smallmouth bass and < 10 for other species). The calibrated model had SPAFs < 2 for smallmouth

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bass for all modeled chemicals and generally < 5 for other species-chemical combinations (Section 5.4.1 and Section 6.3). Additionally, the model has been shown to perform well across a variety of chemical types (pesticides, PCBs, and dioxins), species (fish and invertebrates), KOWs, and spatial scales (Study Area-wide and smaller).

In conclusion, the bioaccumulation modeling presented in this report is suitable and reliable for calculating sediment PRGs for the Lower Willamette River.

EPA notified the LWG on November 18, 2014, that the food web model supplied to EPA in 2009 was approved. [AR Doc # 100005458] Thus, it is not clear why respondents' now claim that the food web model is not valid for calculating PRGs, when their 2012 Draft FS (Appendix Da, Attachment 1) states:

For the calculation of PRGs for sediment based on contaminant concentrations in tissue, the relationships between contaminant concentrations in sediment and tissue were evaluated using either the food web model (FWM) or through development of biota-sediment accumulation factors (BSAFs) or biota-sediment accumulation regressions.

Documentation of the Arnot and Gobas bioaccumulation model and its calibration, presented in Appendix B of the 2016 FS is adapted wholly from the report(s) submitted to EPA by the LWG. As noted, these submittals repeatedly assert that the food web model performs well for COCs other than PCBs (including DDX and specific dioxin/furan congeners), is suitable for calculating PRGs in sediment that are beyond the range of observed concentrations, and performs well at varying spatial scales. Absent a claim that information previously submitted to EPA in the numerous submittals referenced here were either erroneous or deliberately misleading, respondents provide no additional information that the food web model as developed by the LWG is not suitable to derive PRGs.

**LWG Dispute Issue 1m:**

*Section 2.2.1 of the FS, under ARAR-based COCs, states “contaminants that were detected in upland media (storm water and groundwater) that may potentially migrate to the river at concentrations that would exceed the Safe Drinking Water Act MCLs and national or State of Oregon water quality criteria were also designated as ARAR-based COCs.” This results in inclusion of PRGs for constituents not identified as a risk in the BHHRA. Further, it is inconsistent with EPA and DEQ rules to apply MCLs to porewater.*<sup>22</sup>

**EPA Position:**

Regarding identification of COCs as a general matter, EPA considered comments received from the LWG and others on this issue in developing the 2016 FS and modified its approach, particularly, with identifying human health surface water COCs. After reviewing the quoted text in Section 2.2.1 and reviewing the referenced Tables, EPA understands why there is confusion about how COCs were identified. Some text in the

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2016 FS in Section 2.2.1 and the referenced Tables did not get updated to account for the changes in approach used in the June 2016 FS.

All COCs for RAO 3 are risk-based. The risk is mainly due to exceedances of contaminants in fish tissue; except for chromium and MCPP where the risk was based on the drinking water pathway. The BHHRA risk for the drinking water pathway was based on exceedances of Regional Screening Levels. [See Amended Tables 2.2-2 and 2.2-3a and 3b attached to this dispute].

For RAO 3, the PRG for MCPP was based on the RSL value, which is consistent with the BHHRA. However, EPA selected the MCL for chromium as the PRG rather than the RSL for hexavalent chromium. All other PRG values are based on national or State of Oregon water quality criteria (MCLs were all greater values and were not selected). Because the food web model assumed that surface water meets water quality standards in deriving the needed reductions in sediment concentrations to achieve protective fish tissue concentrations [2016 FS Appendix B1], surface water for the contaminants in fish tissue needs to achieve water quality standards (which is the basis for the PRGs for RAO 3).

The COCs for RAO 4 are all based on the identification of COCs in groundwater plumes (see Section 1 of the 2016 FS) and are based on MCLs and EPA RSLs for tap water. EPA RSLs were only used when an MCL was not available for a specific contaminant. The quoted text from the “ARARs-based COCs” was incorrect in stating that upland storm water data that exceeded an MCL or State water quality standard was used to identify ARAR-based COCs. The text should read:

National or State of Oregon water quality criteria, MCLs, and EPA RSLs for tap water were used to establish PRGs for RAOs 3 and 4. These values are presented in Tables 2.2-6 and 2.2-7. RSLs are only used when MCLs or other ARARs are not available for a specific contaminant.

EPA disagrees with the LWG’s long-standing position that exceedances of MCLs either in surface water or groundwater discharging to the river have no application to the Portland Harbor site. CERCLA Section 121(d) requires: (1) that any remedial action selected shall attain a degree of cleanup of hazardous substances, pollutants, and contaminants released into the environment and control of further releases at a minimum which assures the protection of human health and the environment; and (2) for any hazardous substance that will remain onsite, such remedial action shall require a level or standard of control which at least attains Maximum Contaminant Level Goals established under the SDWA, and water quality criteria established under Section 304 or 303 of the CWA. 42 U.S.C. Section 9621(d)(A)). The NCP provides that “[r]emediation goals shall establish acceptable exposure levels that are protective of human health and the environment and shall be developed by considering the following: [A] [ARARs] . . . [B] . . . [MCLGs] . . . [E] Water quality criteria established under sections 303 and 304 of the Clean Water Act . . .” 40 CFR Section 300.430(e)(2)(i)(A), (B), and (E).

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CERCLA and the NCP are clear that MCLs are to be achieved in contaminated groundwater and surface water at a site when relevant and appropriate under the circumstances of the release. MCLs are relevant and appropriate under the circumstances of the release at Portland Harbor because the designated uses of the lower Willamette River include drinking water supply. (Designated Uses for the Willamette Basin specified for the Willamette Basin at OAR 340-041-340 and 340-041-0345.) Likewise, all groundwater of the state, including the groundwater adjacent to and under the lower Willamette River, are to be protected for the beneficial use of domestic drinking water supply. (OAR 340-040-0020(3)), which is as stringent or more stringent than the “EPA Guidelines for Ground-Water Classification” (December, 1986) (See 55 FR 8732, March 9, 1990). Releases of hazardous substances have occurred to groundwater that is discharging to or under the river within the Site or has the potential to discharge to the river which exceed applicable promulgated water quality standards and relevant and appropriate Safe Drinking Water Act standards for groundwater and surface water cleanup. Therefore, it was appropriate for EPA’s 2016 FS to identify COCs and set PRGs based on MCLs for groundwater and surface water at the Portland Harbor Site. The LWG claims MCLs should not be applied to pore water. However, under the circumstances at this site, both groundwater and surface water are potential drinking water resources, and discharges of contaminants to the river represents one continuous pathway. Therefore, there is no basis to distinguish pore water from groundwater or surface water in regard to where compliance with the ARAR should be met.

**LWG Dispute Issue 1n:**

*EPA continues to identify Regional Screening Levels (RSLs) as PRGs. For example, RAO 4 incorporates the tap water RSL for Manganese. That current manganese RSL is derived from outdated toxicity evaluation without clear adverse effects. A more recent and credible source of toxicity information (ATSDR 2012) concludes that an oral threshold value for manganese cannot be derived. Use of outdated and poorly supported toxicity criteria is inconsistent with EPA guidance.*

**EPA Position:**

The RSL for manganese was calculated using the oral reference dose (RfD) developed by EPA’s Office of Research and Development and posted in its Integrated Risk Information System (IRIS) database. Consistent with EPA guidance (EPA 2003), the toxicity values developed by the IRIS program represent Tier 1 values. This guidance states that “in general, if health assessment information is available in the Integrated Risk Information System for the contaminant under evaluation, risk assessors normally need not search further for additional sources of information.” ATSDR minimal risk levels represent Tier 3 values in the recommended hierarchy. Further, respondents’ assertion that the evaluation is “without clear adverse effects” mischaracterizes the information provided in both the IRIS and ATSDR assessments of oral and inhalation toxicity of manganese. While acknowledging that manganese is essential in the function of several enzymes, IRIS notes that “several disease states in humans have been associated with both deficiencies and excess intake of manganese.” Epidemiological data evaluated “raises

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significant concerns about possible adverse neurological effects at doses not far from the range of essentially.” Thus, given its role as an essential nutrient and the ubiquitous nature of manganese intake in the general population, development of the RfD focuses on what is known to be a safe oral intake of manganese for the general population, which is consistent with the definition of the RfD. Further, while respondents note that ATSDR chose not to derive an oral MRL for manganese, they fail to note that it recommend use of an “interim guidance value” of 0.16 mg/kg-day to be used for ATSDR public health assessments of oral exposure to inorganic forms of manganese. The ATSDR recommendation is essentially the same as the 0.14 mg/kg-day RfD from IRIS.

**LWG Dispute Issue 1o:**

*EPA’s FS states, “Compliance with ARARs is determined by whether an alternative will meet all of the chemical-specific, action-specific, and location-specific ARARs and/or those that are to be considered (TBC) identified in Tables 2.1-1 through 2.1-3.” Table 2.1-1 identifies EPA Regional Screening Levels for groundwater as TBC values. “TBCs are not ARARs ... but may be considered and used as appropriate, where necessary to ensure protectiveness.”*

**EPA Position:**

The FS statement and the CERCLA Compliance with other Laws Manual are not inconsistent. A more complete quote from the CERCLA Compliance with Other Laws Manual indicates that chemical-specific TBCs can be surrogates for ARARs when needed to ensure protectiveness:

TBCs are not ARARs, but chemical-specific TBC values such as health advisories and reference doses will be used in the absence of ARARs or where ARARs are not sufficiently protective to develop cleanup goals (see discussion of risk assessment in Section 1.2.3.1 below). In addition, other TBC materials such as guidance or policy documents developed to implement regulations may be considered and used as appropriate, where necessary to ensure protectiveness.

It is not inconsistent with the NCP to evaluate whether remedial alternatives will achieve chemical-specific, numeric TBCs identified in the 2016 FS as PRGs. “Overall protection of human health and the environment draws on the assessments of other evaluation criteria, especially long-term effectiveness and permanence, short-term effectiveness, and compliance with ARARs.” [40 CFR 300.430(e)(9)(iii)(A)]. Nonetheless, only PRGs based on ARARs were the basis for EPA’s determination in the 2016 FS that Alternatives B and D would not meet the second threshold criteria. The ARARs analysis of the alternatives was based on the mass balance analysis contained in Appendix K to the 2016 FS. The Appendix K analysis only looked at COCs that were in sediment and their effect on surface water using a mass balance approach. All of the PRGs for RAO 3 analyzed in Appendix K are based on national recommended ambient water quality criteria developed under the CWA or Oregon’s water quality standards, no TBCs. MCPP (which is the only PRG for RAO 3 based on the RSL TBC) was not evaluated in Appendix K because there

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are no sediment exceedances. Therefore, the determination that Alternative B and D would not meet all ARARs did not use TBCs.

**LWG Dispute Issue 1p:**

*EPA establishes a PRG for total chromium; however, only hexavalent chromium was identified in the human health risk assessment as potentially posing unacceptable risk.*

**EPA Position:**

Hexavalent chromium was identified as posing unacceptable risk via use of surface water as a drinking water source for both the RME and CTE evaluations. The risk assessment used the EPA RSL of 0.035 µg/L. Consistent with the NCP [40 CFR 300.430(e)(2)(i)(B) and (C)], the PRG for a drinking water source was set at the MCL, which is for chromium. The MCL for chromium is 100 µg/L. As stated in the 2016 FS, RSLs were only used where MCLs were not available. The risk management decision in the 2016 FS was that use of the MCL was sufficient to protect for risks from hexavalent chromium. It is noted that if a risk-based PRG for hexavalent chromium were derived it would be four orders of magnitude lower than the MCL.

**LWG Dispute Issue 1q:**

*The RI and BLRAs do not provide information or a foundation for establishing cleanup goals or remedial actions for source control. The LWG has previously commented that EPA should not establish PRGs or RAOs for source control media that were not assessed in the BLRAs or RI.*

*The June 2016 FS uses a new rationale for including riverbanks in the FS. “Since river bank contaminations (sic) are directly linked to the sediment bed and receptors through proximity and source and migration pathways, the known areas of contamination are included here and elsewhere in the FS. Including these areas supports the evaluation of and selection of alternatives in case it is determined that river bank contamination is best suited for remediation in conjunction with in-river activities.” This new rationale does not address the LWG’s prior stated concerns.*

*The FS references an attached riverbank database, but the database was not included. Consequently, the Disputing Respondents continue to have no way to verify any of EPA’s FS decisions regarding remediation of the river banks. Regardless, prior LWG issues with EPA’s source control approach remain. These issues include that PRGs should not be established based on exposure pathways being evaluated in upland source control evaluations under DEQ oversight, and that none of these upland media were evaluated in the BLRAs or Remedial Investigation (RI). EPA’s use of sediment PRGs for riverbanks, even on areas rarely inundated and without considering attenuation, is technically inappropriate. Delineations of groundwater plumes and riverbanks, and a zero post-construction restoration time frame are arbitrary. There is a total lack of data and analysis as to what risk considerations are driving the specific remedial actions delineated (and therefore how this will be refined in the design phase when further data/analysis is available) and what specific remedial actions will be implemented in*



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*which areas driven by those risks. This arbitrary delineation is then carried forward into the evaluation of alternatives and given weight for assessing the relative effectiveness of alternatives. Further, the last-minute incorporation of riverbanks in the FS, when they have not been fully delineated, is counter to EPA policy and guidance.*

*In February 2001, a Memorandum of Understanding related to the Site was executed among EPA, Oregon DEQ and several state, federal and Tribal natural resource trustees. That MOU provided that EPA would be the lead agency for investigating and cleaning up contamination in the river sediment and DEQ, using state cleanup authority, was designated as the lead agency for identifying and controlling upland sources adjacent to or near the river. Pursuant to that MOU, the Portland Harbor Joint Source Control Strategy was finalized by EPA and DEQ in December 2005. Since that time, many owners and operators of facilities along the river, including several of the Disputing Respondents, have been actively involved with DEQ, planning and implementing source control measures. In the FS, EPA has ignored many of those fully or partially completed actions and identified groundwater and riverbank concerns that in some instances simply don't exist anymore, and in others are sites where property owners have agreed upon remedies to be implemented under DEQ oversight at or before the time of the in-water remedy. There is no reason for EPA to now both ignore and undermine those efforts by inserting RAO 9 into the FS, ignoring completely the DEQ Upland Source Control Update Summary Report most recently updated by DEQ in March 2016.*

*Several site-specific examples of errors arising from EPA's determination to select remedies for riverbanks without any foundation in the RI or risk assessments are set forth in the Appendix, attached and incorporated herein. To take a representative example, the FS does not account for upland work already performed by NW Natural at the Gasco facility pursuant to its DEQ Voluntary Agreement and in close coordination with EPA, the result of which leads to EPA to include presumptive excavation with presumptive cover material along the entire Gasco Sediments Site riverbank in all alternatives. This presumptive riverbank remedy is not supported by technical rationale, prevents meaningful comparison of the performance of technologies and limits the evaluation of multiple technologies that may perform equally effectively, is inconsistent with the range of technology assignments evaluated along different portions of the Gasco Sediments Site riverbank in the May 2012 Gasco Engineering Evaluation/Cost Analysis, and does not account for known impacts that will occur to existing upland structures and potential future upland source control structures. Similarly, The FS ignores that Gunderson has implemented permanent riverbank source control measures at some riverbank areas that are identified by EPA as needing remediation under the oversight of the Oregon DEQ and in accordance with the requirements set out in the DEQ-EPA Portland Harbor Joint Source Control Strategy. Gunderson has also completed interim source control measures under DEQ oversight at the remainder of the riverbank areas that are identified by EPA in the FS and agreed that additional permanent measures will be implemented concurrent with the adjacent in water remedy. And the FS ignores the riverbank remedial action implemented by Evraz at its Rivergate property, a remedial action based on a*

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*source control decision made by the Oregon Department of Environmental Quality and concurred with by EPA.*

**EPA Position:**

The LWG did not provide any legal or technical basis for its position that EPA should not address river banks as part of the in-river response action. The LWG argues the river banks are a different media that was not evaluated in the risk assessments, thus, EPA cannot or should not address them. Although soils may be a different “media” from sediment as a general matter, the LWG’s argument ignores the site-specific facts at this Site. The baseline risk assessments determined there was unacceptable risk to human health and the environment from multiple contaminants found in surface water, sediment, groundwater and tissue. Many of those same contaminants, plus other contaminants that have been found to exceed ARARs in groundwater, are detected the river bank soils (both surface and subsurface) exceeding the PRGs for sediment, groundwater and/or surface water. The data gathered by ODEQ on the river banks is in the administrative record (See Appendix A to the 2016 FS). Maps 3.4-14a-h in the 2016 FS illustrates that the contamination in the river banks is immediately adjacent to and at most locations likely a mere extension of the contamination in the river. Currently the contamination in the river banks is uncontrolled and either is migrating or has the potential to migrate to the river. There are tidal fluctuations twice daily, submerging portions of the river bank throughout the day potentially exposing aquatic receptors to the river bank contamination. Furthermore, the river water levels rise and fall seasonally, thus, again submerging different portions of the river bank throughout the year. Other forces, sheet flow, gravity, or upland land uses, can lead to river bank soils eroding into the river. CERCLA and the NCP provide EPA with broad authority to take response action on releases or threatened releases of hazardous substances to the environment. The river banks as well as all upland sources are within the boundaries of the Portland Harbor Superfund Site. There is sufficient information and foundation in the 2016 FS and administrative record to support EPA taking action on river banks as part of the in-river portion of the site.

The 2001 MOU between EPA, ODEQ, Tribes and Federal and State Trustee agencies established the framework for roles and responsibilities for addressing the Portland Harbor Superfund Site. [AR Doc # 1128679] The MOU is an administrative tool and framework for coordination between all of the government agencies involve with the site. Section IV. A.1. of the MOU provides that DEQ is designated Lead Agency for the upland portion of the Site. EPA will be the Support Agency. The MOU further provided that “DEQ may elect for any reason to ask EPA to assume the Lead Agency role for any discrete facility(s) or portion(s) of the upland portion of the Site at any time.” Furthermore, Section VII.D. states that: “The Parties recognize that each Party reserves all rights, powers, and remedies now or hereafter existing in law or in equity, by statute, treaty, or otherwise. Nothing in this Agreement is or shall be construed to be a waiver of the sovereignty of a signatory Party. This Agreement is intended solely for the purposes of facilitating inter-governmental cooperation between the Parties, and creates no rights in third parties or the right to judicial review.” EPA retains all of its authorities to address any portion of the Portland Harbor site.

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The inclusion of river banks was not last minute. In fact, DEQ requested we address some river banks as far back as 2012. **[AR Doc # 100013966 and 100013967]** Riverbanks were included in the 2015 version of the FS that the LWG was provided to comment on. The LWG was provided drafts of EPA's Section 1 of the FS, which identified river banks in early 2014. EPA identified contaminated river banks adjacent to in-river SMAs in coordination with ODEQ, who is the support agency for this Site and oversaw the collection of the river bank data. EPA sought ODEQ's input on the information presented in Section 1 of the 2016 FS. **[AR Doc # 100009725, 100009726, 100005299, 100005300, 100005518, 100005534 and 100005537]**

Furthermore, the SMAs are based on RALs, not PRGs, and were extended from in-river sediment to those river banks that were identified as contaminated since it is likely that those river banks are sources of the sediment contamination and are equally, and likely more, contaminated than the in-river sediment. The LWG provides no evidence contamination in river banks would significantly attenuate prior to exposure to in-river receptors or migration to the completely submerged portion of the river. To the contrary, known facts are that the contaminants being evaluated do not readily degrade and there is no deposition occurring on riverbanks or most SMAs adjacent to the riverbanks. Further, if there are concentrations in the river banks that exceed sediment PRGs, then they have the potential to erode and recontaminate the sediment. The delineation of groundwater, river banks, and sediment are all based on limited data and EPA agrees that refinement of these areas will need to be conducted in remedial design.

Source control actions are interim actions conducted under DEQ authority are not final CERCLA actions. EPA will evaluate the effectiveness of any source control actions conducted under DEQ authority with final remedy objectives and making the determination as to whether further action is warranted if significant risk of recontamination is found. Where early source control actions meet the requirements of the ROD, then EPA will not require further action to be taken in those areas. EPA cannot make such a determination in the FS, as it predates the ROD, but EPA did assume that all sources, other than river banks and groundwater plumes extending beyond an upland control measure, are controlled in the 2016 FS for purposes of determining what amount of sediment cleanup would be required to be protective of human health and the environment. Therefore, contaminated riverbanks that could recontaminate the in-river cleanup and upland groundwater plumes that are beyond the upland control point need to be addressed by the in-river remedy.

**LWG Dispute Issue 1r:**

*The Feasibility Study is the appropriate point for EPA to bring in risk management principles. EPA's sediment guidance directs that cleanup objectives "should reflect objectives that are achievable from the site cleanup." The FS should therefore focus on those chemicals and cleanup levels that are technically practicable to be reached through a sediment remedy based on site-specific considerations.*

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*Equilibrium. A sediment remedy must include evaluating what is deposited within the Study Area, both physically and chemically (i.e., potential future bedded sediment equilibrium). EPA has not conducted such an evaluation. The assumption that background sediment concentrations are the same as equilibrium is invalid. The cleanup goal for PCBs of 9 parts per billion (ppb) based on EPA's calculation of background concentrations is not achievable or sustainable by existing technology nor by nature itself. Experience gained at other sediment remediation projects conducted nationally and in Region 10 strongly argue that background should not be used to establish cleanup goals when likely ongoing contaminant inputs from upland sources within the Site and upriver of the Site exceed EPA's calculation of background. The LWG provided EPA an evaluation of equilibrium concentrations for the Site. Equilibrium is the only reliable indicator of future concentrations that can be achieved.*

*Perhaps the most important certainty at the Site is that the Lower Willamette River flows from south to north. As part of the flow, the river carries sediments which are deposited within the Site. Equilibrium is controlled in large part by concentrations of contaminants in the incoming sediments from upstream. This creates a bounding condition such that no amount of active remediation within the Site can achieve or sustain concentrations lower than that of the equilibrium level. Based on relevant empirical data collected by the LWG, no sediment remedy is likely to achieve PCBs lower than 20 ppb in the foreseeable future.*

*Realistic Exposures. As described in the Sediment Guidance: "A risk management process should be used to select a remedy designed to reduce the key human and ecological risks effectively." One of the fundamental flaws in the FS is the absence of any explicit, documented risk management. The term "risk management" is never used in the June 2016 FS or the Proposed Plan. Risk management in the Superfund program requires the consideration of the advantages and disadvantage of cleanup alternatives and balancing of trade-offs. This analysis includes an evaluation of the uncertainties at the Site, including uncertainties in the reliability of the exposure data used to identify the risks. One of the key factors in decision-making is: "[t]he likelihood of the exposure actually occurring should be considered when deciding the appropriate level of remediation, to the degree that this likelihood can be determined." At Portland Harbor, the risk assessments, particularly for human health, are built on a cascade of unrealistic and improbably conservative assumptions regarding exposure and durations. Unacceptable risks to various consumers of fish are based on questionable assumptions of how many resident fish people eat, from which areas of the river, how the fish are cooked, and for how many years any one person eats them. The assumptions are not placed in an overall estimate that is conservative but within a realistic range of exposure, as required by the NCP. EPA's description of this risk – people should eat no more than 6 fish meals every 10 years – is not well explained in terms of the exposure assumptions supporting the risk and those locations within the Site that actually pose an unacceptable risk for consumption of resident fish. Further, the assumptions are not comparable to assumptions used at other large sediment sites.*

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*And, most important, EPA's June 2016 FS fails to document how the risk assumptions have been considered when evaluating alternatives. Nowhere in EPA's FS are the exposure assumptions with respect to risks from fish consumption expressly stated. Rather, the FS simply describes astronomical risks at the Site and the extraordinary measures needed to address such largely illusory risks. The absence of such information in EPA's FS demonstrates that an important element of risk management -- the reliability of the exposure assumptions -- has not been sufficiently considered.*

*Finally, the FS does not identify which areas of the Site currently pose the highest risk and should be prioritized for remediation. At a 10-mile Site that, according to EPA's FS, encompasses nearly 300 acres requiring active remediation and likely close to 20 years to perform, it would seem necessary and prudent to establish a basis for prioritizing and sequencing the cleanup of the higher risk areas. EPA's failure to do so shows that it is not effectively managing the actual risk.*

**EPA Position:**

EPA guidance does not require an evaluation of equilibrium; however, EPA did evaluate equilibrium at post construction. EPA endorses the concept of equilibrium, however, the necessary information (sediment trend data) is not available to conduct an equilibrium evaluation in the long-term. EPA has developed background concentrations consistent with EPA policy and guidance. EPA has further looked at the sediment traps deployed in the upriver reach, which corroborate the values developed from the upriver sediment. The scatter plots of PCBs from the RI Report (Figure 5.2-1) shows that there are concentrations within the site that are already at or approaching the calculated background concentration of 9 µg/kg. EPA has been coordinating with DEQ on source control actions in the downtown reach and upland areas of the Site to ensure that sources will be sufficiently controlled that they will not recontaminate the Site. Therefore, there is no information available that indicates that background concentrations would not be achievable. Further, the lower Willamette River does not flow with certainty from south to north. There are several instances where the river flow reverses, which is an important aspect of the CSM and has been acknowledged by the Respondents (see LWG draft RI 2011, **AR Doc # 10006009**). The equilibrium evaluation conducted by LWG included sources that are being controlled under DEQ authority; thus, EPA deems that evaluation not relevant to current Site conditions.

Appropriate risk management was applied in the 2016 FS. The fact that there is no overt "risk management" section in the 2016 FS, or that EPA arrived at different conclusions than did the LWG in their 2012 draft FS, Appendix E (which was rejected by EPA), does not mean that such information was not considered in the development of the remedial alternatives in the 2016 FS, not the least of which was to assign MNR to the vast majority of the site in areas where contaminant concentrations – and thus the relative risk – are lower than within the SMAs.

EPA is well aware of the LWG's objections to the risk assessment, including assumptions regarding fish consumption, on which they previously invoked the formal dispute process

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under the AOC. Respondents are referred to the final dispute decision for resolution regarding these issues. [AR Doc # 715198 and 715199] We do note the contradiction here with other sections of the LWG's FS dispute that argue that analyses presented in the 2016 FS need to be consistent with the approved risk assessments. But here respondents request that the approved risk assessments be discarded or simply ignored in the name of "risk management," Respondents' did in their draft 2012 FS, leading to their conclusion that "there is sufficient scientifically valid evidence that baseline conditions might already meet the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) threshold criterion for overall protection of human health and the environment." And while the purpose of the FS is not to once again recreate the risk assessments, exposure assumptions for all pathways are provided in Table B3-1 of the 2016 FS, areas of the Site that pose unacceptable risk (defined as sediment concentrations exceeding risk-based PRGs) are presented in Figure 2.2-2 of the 2016 FS. Finally, Section 3.4.1 of the 2016 FS defines SMAs as "areas with the most widespread contaminants that pose the highest risks," which are targeted for remediation through constructed remedial technologies.

**LWG Dispute Issue 1s:**

*EPA does not explain its conclusion that Alternative B alone fails to comply with ARARs. Although EPA's August 2015 FS found that all alternatives met ARARs, this FS concludes that Alternative B would not meet certain water quality criteria. It is unclear how EPA reaches this conclusion only as to Alternative B, since EPA states elsewhere that it lacks information to evaluate the effectiveness of meeting these criteria for any of the alternatives under consideration.*

*Information in the RI demonstrates that surface water quality criteria for some COCs (e.g., PCBs and D/F) will never be met by any sediment cleanup at the Site because of upstream concentrations. EPA notes on page ES-17 of the FS, "It is expected that MNR in conjunction with ICs and source control, including control of upriver sources, is necessary to achieve surface water RAOs."*

*Similarly, MCLs are likely not achievable throughout the spatial extent of some groundwater plumes along the shoreline or out under the river, and achievement of such criteria are not necessary to design and implement groundwater and sediment remedies that are protective of all reasonable and likely future uses of groundwater. EPA should either determine that MCLs are not applicable, relevant or appropriate because MCLs do not apply to the groundwater in this context, or it should waive these water quality criteria ARARs now. MCLs are not applicable, relevant or appropriately applied to groundwater here because the Oregon statute designates the Lower Willamette River as a potential public and private water supply only following adequate pretreatment and because the federal Safe Drinking Water Act under which MCLs are developed designates that drinking water is appropriately sampled at the point of distribution.*

**EPA Position:**

The 2016 FS Section 4.2.2.2, pp 4-20 to 4-21 states:

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Exceedances of water quality criteria for protection of human health from contaminated sediment within the Site would continue for PCBs, cPAHs, and 2,3,7,8-TCDD eq at the completion of construction. There is insufficient surface water data to evaluate the effectiveness of this alternative in meeting the aquatic life water quality criteria for BEHP, PAHs and TBT. All other chemical specific ARARs are achieved with this alternative. Ethylbenzene from contaminated groundwater is expected to be addressed to achieve RAO 8 through implementation of source control measures. However, Alternative B only addresses 16 percent of the sediments impacted by groundwater. Alternative B, in conjunction with adequate upland and upriver source control measures, would not achieve numeric human health and aquatic life water quality criteria and drinking water MCLGs and MCLs. Long-term monitoring and maintenance of engineering controls, pore water, and surface water assist in evaluating the ability of this alternative to achieve chemical specific ARARs.

In conducting the analysis of achieving water quality ARARs from sediment remedial actions in the Site, EPA separated the upriver and downtown contributions of contaminants from the Site contribution of contaminants (see Appendix K and Figures 4.2-8a and f for PCB and dioxin/furan evaluation, respectively). EPA states in all alternatives (including Alternative B) that it lacks the information to conduct an analysis on smaller spatial scales and for RAO 7 PRGs. However, an analysis was conducted for RAO 3 PRGs on a site-wide scale. EPA's analysis shows that Alternative B does not sufficiently reduce the load of contamination from sediment to surface water such that water quality ARARs could be achieved.

See EPA position on LWG dispute issue 1g regarding background for surface water.

Please see EPA position on LWG dispute issue 1g for the legal bases and site-specific reasons why MCLs are relevant and appropriate to releases at this Site. There has been no information or analysis provided to the EPA to date that supports a waiver of MCLs at this site. It is EPA's expectation that DEQ's upland source control actions will adequately address groundwater contamination (the plumes). EPA's RAOs are focused on containing and reducing migration of COCs from groundwater to surface water and biologically active areas of sediment. Should groundwater not be addressed adequately under DEQ's actions, EPA may, at a future time, determine if action is warranted under CERCLA to further address groundwater contamination. [Section 2.2 of the 2016 FS] Likewise, if during remedy implementation it is discovered and demonstrated that achieving MCLs is not technical practicable a waiver of that ARAR may be found necessary. [Section 2.1.2 of the 2016 FS]

**LWG Dispute Issue 2**

***EPA's June 2016 FS continues to lack complete and transparent evaluation of the long and short-term effectiveness and cost of its alternatives, as well as of the degree to which those alternatives reduce the toxicity, mobility or volume of hazardous substances through treatment, including treatment of PTW.***

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**LWG Dispute Issue 2a:**

*EPA's inadequate conceptual site model does not provide a foundation for a thoughtful comparative evaluation of alternatives. The June 2016 FS does not sufficiently describe the relevant Site features, baseline risks, role of sources, fate and transport, and site uses and other important factors necessary to understand the potential cost effectiveness of various remedial technologies or EPA alternatives. Information on contaminant fate and extent is completely missing from the CSM discussion. In fact, the site has been characterized by EPA based on aggregated sediment data without regard to time dependent changes that reflect the kinetics of rate and extent operating in this system. It is not possible to accomplish a valid alternatives evaluation without an adequate operationalized theory and model of the site. The LWG previously commented that EPA's August 2015 draft FS needed a more balanced presentation of all sources in Section 1 (groundwater, riverbank, and stormwater). Again, this FS neglects to include a discussion of stormwater sources to the Site.*

*In the June 2016 FS, EPA added sites and edited the discussion of riverbanks and groundwater in Section 1. Based upon our preliminary review, the identification and presentation of these sites contains multiple errors set forth in the attached Appendix. For example, PCBs are listed as a riverbank contaminant at Arkema, but have only been detected in a small number of samples below the applicable screening levels (with one exception for a conservative bioaccumulative SLV). Further, the June 2016 FS neglects to include a discussion of upland source controls that have been implemented and the performance of those source controls in the remedial evaluations, such as the riverbank remedial action that has been completed at the Evraz Rivergate site under DEQ oversight and with EPA concurrence. The Time Oil groundwater plume identified in section 1.2.3.4 is fully controlled and meets JSCS values for all constituents other than potentially arsenic, which does not appear to be associated with site-related groundwater contamination.*

**EPA Position:**

The conceptual site model is presented in the RI Report. The 2016 FS provides the relevant information required per EPA guidance [*Guidance for Conducting Remedial Investigations and Feasibility Studies Under CERCLA* (1988), *Contaminated Sediment Remediation Guidance for Hazardous Waste Sites* (2005)]. The Respondents do not provide enough specificity as to the information absent regarding relevant Site features, baseline risks, fate and transport, and other Site uses. EPA describes contaminated media and the extent of contamination, but does not describe sources or source control in the 2016 FS Report. EPA provided a link to the DEQ source control report, which discusses in great detail the current status of source control and since that is not part of the action being taken, that level of detail did not need to be discussed in the 2016 FS. EPA's assumption in the 2016 FS was that all sources would be controlled. EPA used the information available to describe the fate and extent of the contamination in the Site.



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EPA's *Contaminated Sediment Remediation Guidance for Hazardous Waste Sites* (2005) recommends that modeling be conducted at large complex sediment sites, but does not require the use of a specific model. Further, the guidance states:

These modeling efforts typically require large quantities of site-specific data. Where numerical models are used, verification, calibration, and validation typically should be performed to yield a scientifically defensible modeling study.

and

...it is important that both calibration and validation be conducted at the space and time scales associated with the questions the model must answer.

The LWG in their 2012 draft FS states:

Appendix Ha (pp 26-27): "Because somewhat limited data were collected at the beginning of the model simulation period, and because the sediment data from that time did not fully characterize sediment levels uniformly throughout the site, the entire FS sediment dataset, which includes sediment data collected between 1997 and 2010 has been deemed representative of current conditions in the site."

Appendix Ha (p 46) that is say that "assessment of temporal changes in these data is difficult because this was not and objective of the historical sediment sampling programs ... and as such, sediment data were generally examined qualitatively during model calibration."

Thus, Respondents themselves have acknowledged that the data necessary to develop a predictive model does not exists and that any model developed would have great uncertainty in predicting the outcomes of any alternative developed for the Site.

As stated above in EPA's response to LWG's issue 1q, early source control actions conducted under DEQ authority are not final CERCLA actions. The MOU puts DEQ in the lead and EPA has not approved the interim measures taken to date. Before beginning construction of the remedy, EPA will evaluate the effectiveness of source control actions conducted under DEQ authority with final cleanup objections to assess the likelihood of recontamination before taking in-river action. With respect to riverbanks identified in the ROD that are to be addressed, EPA anticipates that during remedial design that any early source control measures that have been taken will be evaluated to determine if further action under the ROD is warranted.

**LWG Dispute Issue 2b:**

*EPA's alternatives evaluation is incomplete and almost entirely qualitative. EPA's June 2016 FS does not provide quantitative long-term effectiveness estimates, provides only very limited quantitative short-term effectiveness estimates, and attempts no cost-effectiveness evaluation.*

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**EPA Position:**

As discussed in the 2016 FS Section 4.1.5, long-term effectiveness and permanence refers to the expected residual risk and the ability of an alternative to maintain reliable protection of human health and the environment over time, once PRGs are achieved. Quantitative residual risk estimates are developed in the 2016 FS Appendix J Section J1 and presented in Table J1-1.

The evaluation of alternatives includes both quantitative and qualitative analysis of long-term and short-term effectiveness. The 2016 FS has provided quantitative estimates of residual risk for long-term effectiveness. The 2016 FS provides a quantitative evaluation of the remaining risks post-construction and qualitatively evaluates the time to achieve cleanup goals. The LWG provided no regulatory or guidance references that require a rigorous quantified analysis as they suggest EPA's FS should have done. EPA's *Guidance for Conducting Remedial Investigations and Feasibility Studies Under CERCLA* (1988) states that the following factors are to be evaluated for short-term effectiveness:

Table 6-3. Short-Term Effectiveness

Analysis Factor	Basis for Evaluation During Detailed Analysis
Protection of community during remedial actions	! What are the risks to the community during remedial actions that must be addressed?
	! How will the risks to the community be addressed and mitigated?
	! What risks remain to the community that cannot be readily controlled?
Protection of workers during remedial actions	! What are the risks to the workers that must be addressed?
	! What risks remain to the workers that cannot be readily controlled?
	! How will the risks to the workers be addressed and mitigated?
Environmental impacts	! What environmental impacts are expected with the construction and implementation of the alternative?
	! What are the available mitigation measures to be used and what is their reliability to minimize potential impacts?
	! What are the impacts that cannot be avoided should the alternative be implemented?
Time until remedial response objectives are achieved	! How long until protection against the threats being addressed by the specific action is achieved?
	! How long until any remaining site threats will be addressed?
	! How long until remedial response objectives are achieved?

The guidance does not require the analysis be quantified. The quantitative and qualitative evaluations conducted in the 2016 FS are sufficient for an FS-level analysis.

A cost-effectiveness evaluation is not a requirement for a FS per the NCP and is not suggested in the RI/FS guidance. What is required and what was done is an individual and comparative analysis of the individual balancing criteria (long-term effectiveness and permanence, short-term effectiveness, and cost (in addition to reduction of T/M/V through treatment) that are ultimately used to make a cost-effectiveness determination. The cost-effectiveness determination is made as part of remedy identification and selection through the preferred remedy in the Proposed Plan and then the final remedy documented in the ROD (this is discussed in EPA's *The Role of Cost in the Superfund*

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*Remedy Selection process, EPA 540/F-96/018, Sept 1996). Thus, EPA was not remiss in not including a cost effectiveness evaluation in the 2016 FS.*

*EPA fails to explain its technical analyses, many of which appear to contain significant errors. Many of the new analyses EPA added to this FS appear to be technically incorrect and based on broad generalities, such as the surface water analysis approach included in Appendix K. This analysis appears to assume that surface water column concentrations will decrease by the same percentage as surface sediment SWACs, which ignores other inputs that will not change when sediments are remediated such as stormwater, groundwater, and upstream inputs.*

**EPA Position:**

The surface water analysis approach included in Appendix K of the 2016 FS only evaluated contaminants in sediment that exceed ARARs in the water column. The analysis assumes that the surface water in the Site will decrease by the same percentage as the sediment SWACs. This analysis was only conducted on a Site-wide scale since there was insufficient data to conduct an analysis on a smaller scale. In order to account for the relationship between Site sediment and surface water concentrations, EPA subtracted out the contribution from upriver and downtown sources in the water column in conducting this analysis; thus, did not ignore other inputs to the Site. Since EPA further assumed in the 2016 FS that all upland sources to the river would be controlled, the only remaining input to the surface water is contaminated sediment. EPA disagrees that stormwater, groundwater and upstream inputs will not change since DEQ has been working with entities to control upland and upriver sources to the Site throughout the RI/FS process and will continue these efforts post-ROD.

*Abbreviated short-term effectiveness evaluation. The June 2016 FS continues to inadequately address short-term effectiveness, particularly for an FS with alternatives that may require decades to complete. The FS makes no attempt to quantify impacts to the community, construction workers, and the environment except based on construction duration.*

**EPA Position:**

See EPA Position to UPRR's dispute issue 5.

*EPA's June 2016 FS does contain a limited evaluation of dredge release impacts. As the LWG has previously commented, guidance strongly recommends a comprehensive and quantitative evaluation of dredge release impacts. The June 2016 FS has a somewhat enhanced discussion of dredge residuals and releases, but no new quantitative evaluations were added. The June 2016 FS does not present a comprehensive and quantitative evaluation of dredging releases, the impacts on short-term effectiveness during dredging, and the associated increases in both human health and ecological risks. EPA continues to cite the findings of one project (Hudson River Phase 2) as the basis for its assumption that contaminant releases during dredging in Portland Harbor will be only 1% of the total contaminant mass dredged (as compared to the 3% recommended by*

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*the LWG). EPA further uses this one project to support the concept that most of the releases greater than 1% can be eliminated by quickly covering dredge residuals, which is not fully supported. EPA implies elsewhere that residual covers should be applied on a daily basis, a requirement without precedent for a project of this scale. However, the impacts of such an approach on costs and duration of the alternatives are not quantified or further evaluated.*

*Issue 9. Dredge Releases Only Qualitatively Evaluated – EPA discusses dredge release issues in several paragraphs in Section 3 and evaluates them qualitatively in the Section 4, but neither Sections 3 nor 4 contain any quantitative assessment of potential dredge releases associated with the alternatives. Dredging releases are a well-recognized issue related to the short-term effectiveness of sediment removal that increases both human health and ecological risks. It is one of the main contributors to construction phase environmental impacts, particularly for alternatives that involve substantial dredging, such as those proposed by EPA. Per guidance (EPA 2005a), a comprehensive and quantitative evaluation of those impacts is required:*

- *“Generally, the project manager should assess all causes of resuspension and realistically predict likely contaminant releases during a dredging operation.”*
- *“To the extent possible, the project manager should estimate total dredging losses on a site-specific basis and consider them in the comparison of alternatives during the feasibility study.”*
- *“Dredging residuals have been underestimated at some sites, even when obvious complicating factors are not present.”*
- *“Project managers should be aware that most engineering measures implemented to reduce resuspension also reduce dredging efficiency. Estimates of production rates, cost, and project time frame should take these measures into account.”*
- *“The strategy for the project manager should be to minimize the resuspension levels generated by any specific dredge type, while also ensuring that the project can be implemented in a reasonable time frame.”*

*The LWG disagrees with several aspects of EPA’s limited analysis of dredge releases.*

*a. EPA uses limited qualitative evaluations of the range of release rates that can be expected for typical environmental dredging projects and the role of postresidual covers in reducing release rates. In a memorandum provided in 2013 (which are not cited in the revised FS) EPA relies on two recent projects (Lower Duwamish Boeing Plant 2 Early Action Area dredging and the Hudson River Phase 2 dredging) to support the contention that 1 percent overall releases are likely across Portland Harbor. The 1 percent release rate for the Boeing project is not supportable from the actual project data. EPA ignores the six case studies presented in Table 6.2-12 of the 2012 draft FS constructed from 2004 to 2009, all of which are based on detailed site specific data collection as summarized in the table. Thus, EPA is establishing a 1-percent release rate based on one project (Hudson River Phase 2) that appears to be one of the lowest release rates documented to date. Further, EPA is applying this optimistic release rate from a site that is entirely different both chemically and physically from the Portland Harbor Site, which includes 10 river miles of highly varying physical and chemical conditions. The 2012 draft FS provides summaries of six case studies from within the last 10 years with observed*

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*average total release rates in the 3% range, and the LWG still believes this is a more realistic assumption for the revised FS. More details supporting the LWG's disagreements on this subject can be provided.*

*b. EPA describes on page 3-19 relatively detailed requirements for determining dredge completion and post-dredge sampling of the residuals, which in this particular case appears far too detailed for an FS-level discussion and does not appear to help determine the characteristics of the alternatives presented in Section 3. As described under Comment 1, EPA should leave such specific determinations to a performance-based ROD approach supported by a sitespecific engineering assessment in RD.*

**EPA Position:**

EPA's *Contaminated Sediment Remediation Guidance for Hazardous Waste Sites* (2005), Section 6.5.5 "Predicting and Minimizing Sediment Resuspension and Contaminant Release and Transport During Dredging" states:

Some contaminant release and transport during dredging is inevitable and should be factored into the alternatives evaluation and planned for in the remedy design. Releases can be minimized by choice of dredging equipment, dredging less area, and/or using certain operational procedures (e.g., slowing the dredge clamshell descent just before impact with the sediment bed).

The 2016 FS explicitly states that some contaminant release is inevitable in the alternative assembly and evaluation (see Sections 3.4.8.5, 3.4.8.6, 3.4.8.10). The discussion focuses on technological and operational procedures for lessening release and resuspension.

EPA's *Contaminated Sediment Remediation Guidance for Hazardous Waste Sites* (2005), Section 6.5.5 "Predicting and Minimizing Sediment Resuspension and Contaminant Release and Transport During Dredging" further states:

To compare various remedies for a site, to the extent possible, the project manager should attempt to estimate the downstream mass transport and the degree of increase (if any) in downstream surface water and surface sediment contaminant concentrations. However, at present, no fully verified empirical or predictive tools are available to quantify the predicted releases accurately.

The 2016 FS release estimate emphasizes results from Phase 2 of the Hudson River dredging because it was a recent (2011-2015), large, multi-year dredge project, with site and operational characteristics similar to the dredging proposed in the feasibility study (contaminated sediment removal in a large, riverine environment with multiple mechanical dredges using barge transport). Hudson River Phase 2 dredging operations incorporated lessons learned from Phase 1 dredging and based recommendations from the Hudson River Peer Review Panel. Thus, the project represents state-of-the-art approaches for managing dredge releases while maintaining (or increasing) productivity. The Peer Review Report states, "The repeated dredge passes and prolonged exposure of sediments

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in the certification units (CU) resulted in increased PCB resuspension and release.” To minimize resuspension and release, the Panel recommended to improve depth of contamination estimating procedures and to:

“Establish BMPs to limit sediment resuspension and release.

Perform confirmation sampling in each 1-acre sub-CU as soon as possible after attainment of the DoC Elevation in 95 percent or more of the area is confirmed by EPA.

Place a 3-6 inch sand cover over sub-CU as soon as possible after confirmation samples are collected (before PCB analytical results are obtained).

Use PCB analytical results of composited surface samples to determine whether an area will be backfilled or capped and install final layers accordingly.”

Per these recommendations, the 2016 FS also emphasizes BMPs to limit sediment resuspension and release and placement of residual sand cover to lessen releases.

Further, on September 10, 2013, EPA provided the LWG with a memo from USACE regarding dredge residuals. [AR Doc ID # 500001131 and 500001132] EPA used this analysis and the recommendations from USACE in developing the 2016 FS.

There is nothing in the 2016 FS on page 3-19 that discusses dredge residuals; thus, EPA is unclear as to the disputed issue raised by Respondents. EPA believes that the analysis conducted in the 2016 is appropriate level of analysis necessary for this Site. EPA does not have a “performance-based ROD approach” as purported by Respondents (See EPA’s *A Guide To Preparing Superfund Proposed Plans, Records Of Decision, And Other Remedy Selection Decision Documents* (OSWER 9200.1-23P).

*EPA assumes that construction and use of sheet pile barrier walls as dredge water quality control measures based on the presence of NAPL in water depths less than 50 feet (see Appendix O) will support the short term effectiveness of all alternatives. The FS still fails to incorporate the time to install sheet pile walls in each alternative’s duration or lower production dredging within the confined space and does not evaluate the cost effectiveness of sheet piles in general. The costs EPA uses (\$2,750 per linear foot) would not be sufficient for water depths approaching 50 feet; these depths would require a much more expensive cofferdam type system. EPA also continues to show figures that depict sheet piling in greater than 50 feet of actual water depth, which is technically infeasible. (There continue to be mistakes in EPA’s mapping of the appropriate water depths.) These figures also imply that sheet piles will be installed in the navigation channel, which would infeasibly obstruct vessel traffic. Sheet pile would also impact ongoing water dependent operations and nearshore fish migration. EPA does not consider the inability to remove contaminated material within the crenulations of the*

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*containment barrier and does not evaluate whether sheet piles in the navigation channel could be permitted by USACE.*

**EPA Position:**

Sheet piles are a representative engineered rigid control measure identified and evaluated for sediment dispersion control in the 2016 FS. However, that representative approach does not preclude other types of rigid control measures for consideration during remedial design. As stated in Appendix O, EPA agrees that depth can limit the use of suitable engineered options for controlling releases, and deep water depths can preclude the use of sheet piles. EPA assumes that engineered rigid containment will be utilized when NAPL was present in water depths less than 50 feet.

Engineered rigid control measures were evaluated holistically within the 2016 FS for their use in reducing or eliminating short-term releases of contaminants during construction and not on a location-specific basis. Thus, the 2016 FS does not present figures indicating design level logistical details regarding location and depth of engineered rigid control measures. Location-specific evaluations for feasibility of sheet pile versus other types of engineered rigid control measures, including placement within the navigation channel, were beyond the scope of evaluation of this 2016 FS. Details regarding sediment dispersion control and location-specific engineered rigid control measures will be determined during remedial design which is the appropriate time for those types of evaluations.

Alternative-specific costs for purchasing, installing and removing sheet pile walls are presented in Appendix G. The unit costs were developed by Anchor QEA in the draft 2012 FS on a horizontal linear foot basis. Quantities for sheet pile lengths used in the detailed alternative cost estimates and presented in the 2016 FS Appendix D Table D2.j (in horizontal linear feet) were holistically estimated for each alternative by encircling all PTW dredge and/or capped areas with silt curtains assumed for the remainder of dredged and/or capped areas.

Figure 3.4-33 of the 2016 FS presents areas of NAPL presence and Site bathymetry identifying water levels at the 50 feet MLLW. EPA acknowledges that the legend of Figure 3.4-33 should indicate that the darker shaded areas identify water depths greater than 50 feet MLLW, and the lighter shaded areas identify water depths less than 50 feet MLLW.

Remedial activities with the potential to restrict navigation in the harbor channel will be coordinated with the USACE during remedial design, including efforts to minimize sediment dispersion in areas where NAPL extends into the navigation channel. The Rivers and Harbors Act prohibits obstructions to navigation, but does not speak specifically to temporary obstructions, and CERCLA otherwise requires remedies to be protective of human health and the environment, and other federal statutes require measures to reduce impacts to ESA species or the aquatic environment as well. It was assumed in the 2016 FS that the review for compliance with the substantive requirements

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of the relevant ARARs will occur during remedial design. However, permits and related administrative approvals, as implied by LWG, are not required for onsite CERCLA remedial actions and would not necessarily prevent implementation of these measures.

*Long-term effectiveness evaluations are qualitative and not grounded in scientific method. Rather than quantitatively evaluating long-term effectiveness (all evaluations are based on a time zero SWAC), EPA has added a new approach of evaluating alternatives using “interim targets,” which are basically ten times above the PRGs, and then EPA compares post-construction risks to these interim targets for evaluating the “overall protection of human health and the environment” for each alternative. EPA hypothesizes that if alternatives meet these interim targets, it is reasonable to assume the PRGs will be met through subsequent natural recovery in 30 years. It is confusing for EPA to claim they cannot quantitatively estimate MNR and then decide that MNR will work in 30 years. EPA also estimates “residual risk” as the estimated risk if all PRGs are met (i.e., risk at PRGs). EPA evaluated long-term effectiveness using a “magnitude of risk” defined per EPA page 4-10 as the ratio of the post construction risk to the residual risk. EPA does not explain why this analysis is technically superior to either the LWG’s effectiveness evaluations or its own prior evaluations in the August 2015 FS. Alternative I does not meet some of these interim targets, yet EPA still picks this alternative as the preferred alternative which seems logically inconsistent. Figure 4.2-6 shows that none of the alternatives even come close to the ten times PRG levels. The same is true with Figure 4.2-4 (except Alternative G) and with Figure 4.2-2 (except Alternatives F and G). These methodologies fail to evaluate remedy effectiveness on appropriate spatial scales (fish consumption and ecological exposure), they fail to assess near shore deposition, and they fail to acknowledge the time frame and feasibility of achieving PRGs given upgradient concentrations and remedial action time frames. EPA in fact states that Alternative H “achieves PRGs at the end of construction,” which is incorrect, because the very low PRGs for many COCs are not achievable through active construction.*

**EPA Position:**

Long-term effectiveness evaluation is quantitative and grounded in scientific method. Long-term effectiveness risk remaining at the site after response objectives have been met. Thus, the remaining risks are the risks from any contamination remaining on-site after PRGs are achieved. Those risks include the risks at the PRGs and the risk of exposure of any contamination that is confined in the Site. In the evaluation of long-term effectiveness, the residual risk for each RAO is provided on various spatial scales relevant to the exposure scenarios established in the BRAs. The Respondents provide no supporting documentation as to why they believe the spatial scales are inconsistent with BRAs. EPA also provided the magnitude of the post-construction risk to show how much risk was addressed through construction and how much would be addressed through MNR. EPA did not use interim targets in evaluating long-term effectiveness; interim targets were only used for the discussion of overall protectiveness. EPA established the interim targets as levels of risk that would be acceptable should RGs not be achieved in a reasonable time frame (within 30 years) and are based on uncertainty in the risk estimates. Since long-term effectiveness is conducted after the PRGs have been achieved,



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there is no need to evaluate near shore deposition or time-frames and feasibility to achieve PRGs. These are issues discussed in short-term effectiveness. EPA appreciates the opinion of the Respondents that PRGs for many COCs are not achievable through construction, but they have not provided any scientific evidence to support their opinion.

Respondents miss the point of using the interim metrics in the 2016 FS. In the absence of a predictive model for MNR, EPA had to have a way to compare the effectiveness of the alternatives. The interim measures were not meant as absolute measures, but the closer you were to achieving them, the more likely the use of MNR would achieve PRGs in a reasonable timeframe. Figure 4.2-6 of the 2016 FS presents post-construction infant HI. As stated in Section 4.1.2 of the 2016 FS, the interim metric was ten times residual HI of 132 (or 1,320), not ten times PRG levels. This interim metric is clearly achieved by all the alternatives. Respondent is correct in their assessment of Figures 4.2-4 and 4.2-2 and EPA came to the same conclusion in Section 4.3 of the 2016 FS. These three figures all represent RAO 2, which is the fish consumption pathway, and was conducted site-wide consistent with the BHHRA. These figure do not represent residual risk for other RAOs; those are found in other figures and tables presented in Section 4 of the 2016 FS.

It is not the place of the FS to discuss why a technical analysis conducted in one FS was superior or another analysis conducted was inferior. The FS provides the technical analysis selected by EPA, whether it was developed by LWG or by EPA. EPA could not use the LWG's analysis of effectiveness in their 2012 FS for the following reasons:

PRGs are not consistent with the final baseline risk assessments

PRGs were not developed for all COCs posing risk

The residual risk evaluation uses the QEAFATE model, which EPA cited many deficiencies and did not approve

The evaluation did not calculate risk, but only compared residual sediment concentrations to PRGs

Residual risk was not quantified

Background values used were inconsistent with the 2015 dispute decision.

EPA did not select a remedy in the FS; remedy selection is conducted first in the Proposed Plan and then considering public comments and finally documented in the ROD. Therefore, the basis of EPA selecting a remedy is not a subject of this dispute.

*The Monitored Natural Recovery (MNR) evaluation is insufficient to support the alternatives evaluation. The FS continues to omit key components of an MNR evaluation as required by guidance including: 1) an adequate CSM; 2) appropriate evaluation of multiple lines of empirical evidence; and 3) a quantitative evaluation of natural recovery*

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*and the associated long-term (i.e., after “time zero”) outcomes of the alternatives. New concerns with the June 2016 FS include:*

*EPA added new information on bathymetry changes and fish tissue. In Section 3.6.1.3, EPA’s updated evaluation of fish tissue concentrations over time completely ignores 2002 data without any explanation, and incorrectly evaluates data from 2007, 2011, and 2012. EPA should not combine temporally disparate data to establish baseline conditions.*

**EPA Position:**

EPA guidance *Contaminated Sediment Remediation Guidance for Hazardous Waste Sites* (USEPA 2005) Section 4.4 discusses the evaluation of MNR. The key components of an MNR evaluation that the LWG claims is required by guidance is not found in this guidance document. The information LWG claims is omitted from the 2016 FS is discussed below:

- 1) An adequate CSM. The assertion that there is an inadequate CSM is both subjective and confusing. The RI, over the course of thousands of pages develops and presents the CSM. The feasibility study conducts additional analyses of the RI and other data in the context of remedial alternative development and evaluation.
- 2) Appropriate evaluation of multiple lines of empirical evidence. A full evaluation of multiple lines of empirical evidence for natural recovery is provided in Appendix D.8 of the 2016 FS.

A quantitative evaluation of natural recovery and the associated long-term (i.e., after “time zero”) outcomes of the alternatives. Outcomes greater than t=0 are not quantitatively evaluated using, for example, large, complex linked hydrodynamic, sediment transport, contaminant transport, and foodweb bioaccumulation modeling based on additional models of the effect of remediation because the results are not quantitatively accurate and absolute or relative comparisons among quantitatively inaccurate outcomes, is not helpful. Such evaluations are not “required by Guidance.” However, quantitative evaluations of empirical data (trends in sediment deposition and fish tissue concentrations), where available, were undertaken. An evaluation of temporal trends (of any media) requires consistent collection methodology over the evaluated time period. The data also need to be able to indicate the processes that are being evaluated.

The 2002 fish tissue effort collected and composited individual fish from both sides of the river. The 2007 fish tissue effort composited samples from only one side of the river; thus, it is not appropriate to compare those data to the 2002 data. While the 2002 data may be relevant for risk assessment purposes (assuming a fisherman eats fish from both sides of the river), it obscures known site/source signatures that are on one side of the river. Evaluating trends of a group of fish collected and composited from both sides of the river is counter to the CSM and what is known about the localization and transport of contamination, so the 2002 data were not further used to evaluate changes in

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contamination. The 2011 and 2012 samples were analyzed as individuals and are not biased by the compositing issue. EPA did not “combine temporally disparate data.” EPA analyzed the data for 2007, 2011, and 2012 for changes over time to see whether a natural recovery trend in fish tissue concentrations could be discerned.

*EPA states that, “a minimum deposition rate of 2.5 cm/year was assumed as the criteria [sic] for effective MNR.” This criterion is obviously not used by EPA in the FS because the FS assumes MNR as the applicable technology for all areas outside SMAs (as opposed to applying MNR in just areas exceeding the minimum deposition rate). While deposition is a mechanism of natural recovery, there are other mechanisms occurring at this site. These mechanisms include biotic and abiotic transformations that remain unevaluated leaving the CSM incomplete. Further, the assumption of 2.5 cm/year as a criterion for natural recovery in the absence of a coherent CSM is without justification or merit. EPA has added some text that implies effectiveness is related to “mass removal” of contaminants. Page ES-15 states the advantage of Alternative H is that “it removes more contamination.” Guidance is clear that mass removal is not an appropriate way to evaluate sediment remediation alternatives; rather the evaluation must address reduction in risk.*

**EPA Position:**

EPA disagrees that the bathymetry data clearly show that net deposition occurs over large portions of the lower Willamette River during the overall multi-year period (2002 to 2009). In the LWG’s 2012 draft FS, Section 2.1.2, p.2-3 states:

Over the period from July 2003 to January 2009, the Study Area was 88 percent depositional or showed no substantial change.

EPA disagrees that areas that score neutral (no substantial change) are depositional since there is no accumulation of sediment in those areas of the Site. This line of evidence was used in the analysis of MNR in the 2016 FS (see Appendix D8), and the conclusion was that very little area of the site is depositional and the majority of the Site is neutral (transitional).

Regarding the statement “Therefore, a minimum deposition rate of 2.5 cm/year was assumed as the criteria for effective MNR.”, the referenced text is in Section 3.6.1.2 “Sediment Deposition Rate,” where the sediment deposition rate is positioned as one natural recovery line of evidence. The 2016 FS, Section 3.6.1, clearly states:

For the purposes of the FS, it is expected physical isolation through natural deposition of cleaner material and dispersion and mixing are the primary mechanisms for natural recovery at the Site.

Further, this criteria was not the only criteria used in the analysis in Appendix D8. Thus, the sentence in question should have stated:

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Therefore a deposition rate of 2.5 cm/yr was used to indicate whether areas were depositional.

The 2016 FS (p. 134) describes mechanisms of natural recovery as: “Natural recovery typically uses ongoing, naturally occurring processes to contain, destroy, or reduce the bioavailability or toxicity of contaminants in sediment. These processes may include physical (sedimentation or dispersion), biological (biodegradation), and chemical (sorption and oxidation) mechanisms that act together to reduce the risks posed by contaminants.” The CSM in the RI acknowledges that biological and chemical mechanisms occur in the Site as does the 2016 FS; thus, the CSM is complete. However, the LWG used literature values in the RI report (section 6) to discuss degradation rates. The LWG did not collect data to quantitatively evaluate these mechanisms.

The evaluation that included the 2.5 cm/year criterion was useful in further developing the CSM (which is described in the RI), concluding that:

The survey pairs range from generally erosional, to stable, to depositional between sequential survey pairs. This figure illustrates the dynamic nature of the sediment bed and the uncertainty associated with the conclusion that elevation changes between two surveys progressed evenly over time. This type of sediment bed behavior may also influence natural recovery: the process of burial would be interrupted during erosive periods, but dispersion would increase, if contaminated sediment was eroded.... This analysis indicates that most of the Site is in dynamic equilibrium where both erosion and deposition occur. In many areas of the Site, the determination of deposition and the assertion that burial is a viable long-term recovery mechanism is largely dependent on which survey pair is selected. (2016 FS p. 3-34)

The statement that “it removes more contamination” is not synonymous with the connotations regarding “mass removal.” Remedial alternatives in the FS were developed based on contaminant exposures at the sediment surface that drive risk to receptors and the alternatives were compared and evaluated on the basis of risk metrics.

The 2016 FS addressed the issues the LWG raised in their LWG List of Significant Issues with EPA’s Revised FS Sections 3 and 4 (September 8, 2015), Issue 8, pages 19-22. An analysis of MNR using multiple lines of evidence, many similar to those used by the LWG in their 2012 FS, is contained in Appendix D8 of the 2016 FS. The LWG did not provide specific concerns with Appendix D.

Further, EPA believes that the LWG’s analysis of the fish tissue data is flawed. The LWG, with assistance from CAG representative Bill Egan and other local fishermen, collected small mouth bass tissue in the lower Willamette River in the fall of 2012. The data provide a snapshot of the current levels of PCBs in tissue in the Portland Harbor area and an area upstream of the Superfund Study Area. One of the objectives of the data collection was to help EPA establish a baseline in fish tissue that can be used for comparison with future monitoring results to see if levels or trends expected from the

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cleanup of contaminated sediments can be achieved. Fish tissue data was also collected in 2002 and 2007.

EPA's observations of these data include:

PCB concentrations in bass tissue collected in Portland Harbor remain above those that would be considered protective for people eating these fish.

While some of the results indicate that PCB concentrations have decreased compared to 2007 data, fish caught in areas of Portland Harbor that showed the highest levels of contamination previously are still well above acceptable levels. The highest levels were from fish caught in the area known as RM 11E, one of the areas with the highest levels of sediment contamination. However, the inherent degree of variability in biota concentrations preclude drawing any firm conclusions based on the limited data.

Although it is premature to draw firm conclusions, decreases in some of the tissue levels compared to the 2007 data may be attributed to improving conditions from ongoing source control work, some natural recovery from cleaner material from upstream being deposited in sediments in the lower harbor, or simply variability in the data. Future monitoring will be needed to confirm whether levels will continue to trend downward.

Although it appears that some natural recovery is taking place, EPA believes that a combination of approaches, include active cleanup methods like dredging, capping, treatment, and other methods to enhance and accelerate natural recovery, will be needed to achieve significant risk reduction for people who are eating resident fish from Portland Harbor.

EPA agrees that the results of the 2012 fish sampling displayed a general trend of lower concentrations, with the notable exceptions of RM 9W and 11E. However, the 2007 data represent composites of 5 fish collected where they were most easily caught over a river mile, while the 2012 data represents individual fish caught from specific locations. The data are not directly comparable, and two somewhat similar sampling events aren't sufficient to establish a reliable trend.

Two fish collected from RM 16 contained noticeably greater PCB concentrations than other fish collected from the reference area. Sediment data collected at RM 16 during the LWG's background study revealed that PCB concentrations in sediment an order of magnitude greater than typical concentrations measured in the background data set, indicating the presence of a possible contaminant source or hot-spot. When data from the two fish with the highest PCB concentrations are excluded from the reference area data set, data from the site displays a trend of concentrations noticeably greater than background. The areas that display the highest PCB concentrations in fish tissue are consistent with the areas where the highest concentrations were observed in the 2002 and 2007 sampling efforts, and consistent with the trend that individual, discrete areas of Portland Harbor exhibit obvious PCB contamination.

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*Issue 8. Discussion and Analysis of Monitored Natural Recovery Is Biased – The MNR evaluation includes text scattered across Sections 3 and 4. The overall MNR evaluation presented across these two sections is very limited and technically inappropriate in many respects. Overall, EPA suggests that MNR is potentially appropriate for the Site with many caveats and doubts expressed in that assessment. In actual fact, the case for MNR at the Site is strong given that there are multiple lines of evidence supporting the ongoing occurrence of MNR well in excess of the lines of evidence presented by EPA. The simplistic MNR analysis in Sections 3 and 4, appears to cast doubt on the validity of MNR as a potentially feasible process for the Site, which is a misleading representation of the data.*

*In Section 3, EPA presents a very simplistic MNR analysis, which generally assumes that MNR will take place outside any active remediation areas based on: 1) surface to subsurface sediment concentration ratios; and 2) a simple deposition rate calculation using two of the time series bathymetry datasets. In Section 4, EPA slightly expands upon the evaluation of MNR, including a different analysis of the time series bathymetry, a brief discussion of maintenance dredging history as an indication of deposition, and a perfunctory discussion of the 2012 smallmouth fish tissue PCB data. Generally, it is unclear why there are two separate and somewhat conflicting MNR evaluations spread across these two sections, particularly given that neither section references the other. EPA's analysis does not include the full lines of evidence strongly supporting the presence of ongoing natural recovery at the Site. The LWG has provided this information in past submittals to EPA including the 2012 draft FS, a detailed presentation of smallmouth bass fish tissue concentrations (Anchor QEA 2013), and estimated equilibrium levels for the Site (LWG 2014d, 2014g).*

**EPA Position:**

This comment pertained to EPA's 2015 draft FS, not the 2016 FS. In the 2016 FS, Section 3.6 discusses MNR and presents three lines of evidence for MNR: incoming sediment particles (sediment traps and suspended solids), sediment deposition rates (bathymetric pairs), and fish tissue concentrations (2007, 2011, and 2012 sampling events). Section 4 of the 2016 FS discusses that a fate and transport model cannot be used for this Site in Section 4.1.2 and states that the evaluation in Appendix D8 will be used to evaluate each alternative with respect to the ability for MNR to achieve cleanup goals in a reasonable time frame after construction activities are completed. Appendix D8 of the 2016 FS uses six lines of evidence to conduct this evaluation: (1) deposition and erosion rates; (2) consistence of deposition and erosion using bathymetric pairs; (3) sediment grain size; (4) anthropogenic factors; (5) surface to subsurface sediment concentration ratios; and (6) wind and wake generated waves.

*In summary, the lines of evidence for ongoing natural recovery at the Site are:*

- *Sources are being progressively controlled. DEQ's latest source control report (DEQ 2014) indicates DEQ has completed source control evaluations and implemented (or will implement) controls on one or more potential pathways at approximately 119 of 168 sites examined in detail to date.*

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**EPA Position:**

While it is important that sources of contamination are controlled at the Site to ensure MNR will be effective, controlling sources is not a line of evidence that MNR is occurring in various areas of the Site.

- *The aggregate information from five multi-beam surveys indicates widespread deposition of sediments across many areas of the Site. Although EPA emphasizes the uncertainties of the data, for reasons detailed below, the LWG disagrees these data present substantial uncertainties about deposition.*

**EPA Position:**

See EPA's position on p. II-54.

- *Sediment trap and suspended sediment data clearly show that incoming settling sediment has substantially lower contaminant concentrations than most of the Site bedded sediment, which will drive bedded sediment concentrations lower over time.*

**EPA Position:**

EPA agrees and included this line of evidence in the 2016 FS, Section 3.6.1.1.

- *Radio-isotope coring data, although limited, indicates deposition rates consistent with other measures such as the bathymetry time series.*

**EPA Position:**

The LWG conducted radioisotope sampling on 4 cores to a depth of 90 cm and analyzed for <sup>7</sup>Be, <sup>137</sup>Cs, and <sup>210</sup>Pb. The results are presented in the *Draft Monitored Natural Recovery (MNR) Technical Memorandum – Step 2 Data Evaluation Methods* provided in Appendix A5 of the final RI Report. The report provides the following information: The <sup>7</sup>Be activities were undetectable at every station except one and detectable concentrations were only in the upper 5 cm.

The <sup>210</sup>Pb profiles at the sampled stations did not show the exponential decay profile normally exhibited in a quiescent depositional environment. Evaluation of the data indicates that although no apparent decay trends exist for stations NA-3 and NA-4, stations NA-1 and NA-2 showed a general decay trend with depth. The downward trends in <sup>210</sup>Pb concentrations in two cores and the generally low <sup>210</sup>Pb concentrations in all cores suggest a much more dynamic sedimentation environment than assumed by simple application of the CRC or CIC models. Such profiles are indicative of sediment systems that have large amounts of gross sedimentation and gross resuspension.

Stations NA-2, 3, and 4 showed peak <sup>137</sup>Cs activities (0.13 to 0.37 pCi/g) within the top 5 cm of the cores and attained an approximate baseline activity at 0.05 pCi/g at deeper depths. Station NA-1 showed a consistent activity matching the baseline activity (0.05 pCi/g). In environments where the assumptions of the CRM and CIC Models are

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accurate, these peaks are highly correlated with the peak in nuclear arms testing in 1963. Therefore, under these assumptions, the exposed surface sediment layer is indicative of the 1963 surface.

Based on this information, EPA disagrees that the radioisotope cores indicate any useful information regarding deposition rates.

- *Site surface sediment grain sizes are fine-grained across the majority of the Site, strongly indicating a long term depositional environment exists in these areas.*

**EPA Position:**

While EPA agrees that sediment grain size is a useful line of evidence and used that information in the 2016 FS, Appendix D8, EPA disagrees that only surface sediment grain size should be used and that the majority of the Site has fine grain size (see 2016 FS, Figure 2.2-1).

- *Surface to subsurface sediment concentration ratios in most areas of the Site indicate newer surface strata contain lower concentrations than older subsurface strata, which illustrates that surface sediment concentrations are decreasing over time.*

**EPA Position:**

EPA agrees and included this line of evidence in the 2016 FS, Appendix D8.

- *Surface sediment concentrations measured over time (i.e., time series) indicate surface sediments have decreasing contaminant concentrations. The 2012 draft FS data are somewhat limited, but new PCB data collected in 2014 by other parties may provide additional useful information for this line of evidence.*

**EPA Position:**

While EPA agrees that sediment time-series data would be useful in establishing MNR trends, no such data exists. The 2014 data that the Respondent refers to was not conducted in manner statistically comparable to the baseline data set and cannot be used to establish a trend. Further, many more years of information need to be collected to understand the MNR trends in sediment as they fluctuate from year-to-year. Further, the quality of the data collected in 2014 is questionable since it was not conducted under an EPA approved QAPP or work plan.

- *Smallmouth bass PCB tissue measurements made in 2002, 2007, and 2012 indicate statistically significant declines in tissue concentrations across almost all areas of the Site (Anchor QEA 2013). Differences in sampling and compositing schemes across the years can be controlled to determine statistically valid results.*

**EPA Position:**

While EPA agrees that the smallmouth bass PCB tissue concentrations from 2007, 2011 and 2012 indicate some information about MNR at the Site, there is insufficient data to



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statistically compare this data. [AR Doc # 100033469] EPA does not believe that the 2002 data set can be compared to these other data sets (see EPA positions on p. II-52 and II-54 and EPA position to LSS Issue 5).

• *Comparisons of sediment profile images collected in 2001 (by the LWG) and 2013 (by other parties) indicate that much of the Site now has well established Stage 3 benthic communities indicative of stable and recovering substrates.*

**EPA Position:**

Stage III populations are late successional stage populations, meaning that the benthos has had some time to recolonize a disturbed area (or have not been disturbed), have the greatest number of species, and have species that burrow and feed as deep in the sediment as site conditions permit. Benthic populations in river miles 7.0 to 9.7 and 3.0 to 5.1 were mostly classified as Stage III populations in the 2002 SPI survey. The 2002 SPI survey did not include areas between RM 1.9 and RM 3.0 or between RM 9.7 and RM 11.8. Therefore, it would be hard to make a case that the health of benthic populations has substantially improved between 2002 and 2013, based solely on SPI data. The Respondent does not provide the comparison of the areas they believe have established Stage III populations where they did not exist before. Further, the 2013 SPI survey collected by other parties was not conducted under an EPA approved work plan or QAPP and EPA is concerned about representativeness of information.

• *Simple modeling (such as EPA's SEDCAM modeling, which was not provided in Section 3 or 4) and complex modeling (such as the 2012 draft FS QEA FATE model and coupled dynamic Food Web Model) all generally indicate recovery of surface sediments over a reasonable timeframe toward a relatively consistent range of potential equilibrium levels.*

**EPA Position:**

There are no models available to predict MNR for the Portland Harbor Site. As stated in the 2016 FS, Section 4.1.2, EPA reviewed the predictability of the 2012 draft FS QEA Fate Model and found its predictability poor. EPA also did not use the SEDCAM model as it only predicts deposition, not erosion, and is thus inconsistent with the conceptual site model.

*Specific issues relevant to the EPA Section 3 and 4 MNR evaluations include:*

*a. In Section 3, EPA's MNR text starts by discussing that MNR is not usually selected as a "stand-alone" technology per guidance. Although this is consistent with guidance, neither the LWG nor EPA proposes to use MNR as a stand-alone remedy. The Section 3 text then goes on to list a series of cautions and conditions about MNR in bullet points, apparently intended to support the opening contention that MNR is not a good stand-alone remedy.*

*Further, some of the conditions noted in the bullet points as conducive to natural recovery are actually present or strongly indicated in Portland Harbor. Therefore, the purpose of this discussion in light of EPA's selection of MNR as a component of all*

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*alternatives is unclear and should not be relied upon to undermine the substantial evidence supporting MNR as a major component of the overall remedy.*

**EPA Position:**

This information is presented to inform the reader of the information needed to select MNR as a viable technology. EPA then goes on to discuss how Site-specific information was considered and MNR technology is viable at the Site. EPA disagrees that the information presented undermines the selection of MNR at the Site.

*b. EPA's Section 3 discussion of surface to subsurface sediment chemical concentration ratios within the Site is misleading. For example, EPA uses a surface to subsurface ratio of 0.5 (which is more conservative) to indicate likely MNR, whereas the 2012 draft FS uses a ratio of 0.67. EPA does not discuss the rationale for the selection of this more conservative ratio, or why it leads to any more valid conclusions about natural recovery at the Site.*

**EPA Position:**

The 2016 discusses surface to subsurface sediment concentration ratios in Appendix D8, not in Section 3. A subsurface-to-surface ratio of 2 and 10 were both used in the evaluation. The Respondent does not provide why they believe that using a ratio of 0.67 (or 1.5 subsurface-to-surface ratio) is more appropriate than the evaluation provided in the 2016 FS. At lower contaminant concentrations, it is very difficult to discern with any confidence the difference between a ratio of 1.5 or 2. For this reason, EPA added the evaluation using a ratio of 10. EPA did not use the LWG's ratio of 1.5. This number is based on site-wide averages of surface and subsurface data and then compared to obtain a ratio, which was 1.5. While this information provides a general depiction of the site as a whole, EPA was interested in whether MNR was viable in particular areas of the Site. A ratio of 1.5 is too small to discern whether or not MNR is working in areas with lower contaminant concentrations, which is where EPA intended to use the technology.

*c. EPA's Section 3 discussion of deposition rates within the Site is misleading. EPA appears to have ignored the LWG's comments in October 2014 where the LWG described differences in the definition of areas that are "reliably depositional." EPA continues to use the "typical bathymetric survey measurement error" of 6 inches or 15 cm (which equates to 2.5 cm per year (cm/yr) over the period of 2002 to 2009) to define areas that are reliably depositional. Measurement error in a bathymetric survey is a random error (i.e., there is no bias) with an average value of 0 cm for many measurements.*

*These data are normally distributed, so that a 15-cm measurement error is a very rare occurrence (e.g., at the 3-sigma level, which has a probability of occurrence of less than 1% for a single measurement). Thus, EPA's use of a +15-cm measurement error at a single location (10-foot grid) to specify the 2.5 cm/yr deposition threshold is extremely conservative. Further, evaluating and interpreting bed elevation changes on a 10-foot grid is not appropriate due to inherent measurement uncertainty at this small spatial scale. Averaging bathymetry data over larger spatial scales provides a more reliable*

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*method for analyzing bed elevation changes because the effects of measurement error on the results decrease as the spatial scale increases. This approach was used by LWG in the 2012 draft FS to analyze bed elevation changes over a wide range of spatial scales in the Lower Willamette River.*

*The uncertainty in EPA's analysis results can be significantly reduced simply by averaging the bathymetry data over slightly larger spatial scales. For example:*

*i. Using a 20-foot grid (i.e., averaging of four data points from the 10-foot grid) would reduce the measurement uncertainty by a factor of 2 (i.e., +7.5 cm), which would reduce the deposition threshold to 1.25 cm/yr.*

*ii. Using a 30-foot grid (i.e., averaging of nine data points from the 10-foot grid) would reduce the measurement uncertainty by approximately a factor of 3 (i.e., +5 cm), which would reduce the deposition threshold to about 1 cm/yr.*

*Thus, using the data over appropriate spatial scales, it can be reliably determined that areas experiencing more than 7.5 cm of deposition over the 6-year period between 2003 and 2009 are depositional (equating to 1.25 cm/yr).*

*This difference between EPA and LWG's approach results in a large change in the amount of Site area characterized as reliably depositional (the LWG method results in 63%; the EPA method results in 47%).*

**EPA Position:**

Appendix La of the 2012 Draft FS (p. 37) states that the typical survey measurement error range is 0.5 feet, resulting in an uncertainty range of 1 foot for bed elevation changes between two surveys. The uncertainty range in one direction (i.e., depositional) would be 6 inches, which equates to roughly 1 inch (2.5 cm) per year for the period between the 5/2003 and 1/2009 surveys. Therefore, the depositional criterion EPA is using assesses deposition that can reliably be detected using the available survey data. This information was provided to the LWG in a meeting on June 5, 2014, and again in an email on October 21, 2016. [AR Doc # 100010336]

There is an engineering "rule of thumb" that "When measurements add, their errors (uncertainty) add. When measurements multiply their relative errors add." In order to average a series of values, the values are first summed and then the sum is divided by the number of values. When there is error associated with the values, the error of the average value is derived using the same formula: the error associated with each value in the series is summed and then the sum of the error is divided by the number of values. The Respondents neglected to sum the error with each value and thus erroneously concluded that somehow averaging the area over larger footprints would lessen the error. However, averaging errors does not reduce the error in the measurement and, thus, the error is still the same for the average. Consequently, averaging over larger grids does not affect the uncertainty in the measurement.

*d. In Section 4, EPA uses a different approach that biases results when evaluating temporal changes in bathymetry data between 2002 and 2009 and is inconsistent with recent Sediment Erosion and Deposition Assessment (SEDA) guidance (Hayter et al. 2014). EPA concluded that "many areas of the site are in dynamic equilibrium" and "for*

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*many areas of the site, the determination of deposition, and the assertion that burial is a viable long-term recovery mechanism, is highly dependent on which survey pair is selected.”*

*Generally, temporal changes in the Lower Willamette River (LWR) bathymetry (and similar river systems) are dynamic, with alternating periods of gross deposition and erosion occurring in localized areas. The bathymetry data clearly show that net deposition occurs over large portions of the LWR during the overall multi-year period (e.g., 2002 to 2009) examined as discussed in Comment 8c above. The net deposition process during a multiyear period does not typically correspond to steady continuous deposition; net deposition is due to a cumulative increase in bed elevation that results from alternating periods of deposition and erosion, with gross deposition being greater than gross erosion over a long period. This is not a surprising or unusual finding for this or similar river systems. Consequently, EPA’s emphasis on comparisons between various individual pairs of bathymetry surveys ignores the overall trends represented by the bathymetry series as a whole. The FS is also misleading regarding the uncertainty of this information, given these dynamic sedimentation processes are routinely evaluated at sediment remediation sites using time series bathymetry data.*

*Such routine methods are used in the 2012 draft FS and are consistent with the most recent guidance (Hayter et al. 2014). EPA does not reference this guidance in the Section 3 or 4 bathymetry discussions.*

**EPA Position:**

In the 2016 FS, Appendix D8, EPA uses the comparison between the January 2002 and January 2009 bathymetry surveys as one line of evidence for MNR and a comparison between each of the bathymetry surveys as another line of evidence. The first gives an overall understanding of deposition and erosion in the long-term. As stated by the Respondent, temporal changes in the Lower Willamette River (LWR) bathymetry (and similar river systems) are dynamic, with alternating periods of gross deposition and erosion. Thus, comparing all the bathymetric pairs provides information regarding where there is consistent deposition or erosion and where there is alternating deposition and erosion.

*e. In Section 4, EPA devotes one paragraph to a discussion of the 2012 smallmouth bass tissue PCB data. EPA indicates that an “exact comparison” between 2002, 2007, and 2012 smallmouth bass tissue data is not possible because the “sampling and compositing schemes vary between years.” The LWG provided a detailed presentation to EPA in March of 2013 comparing the tissue data across these years, including several types of statistical tests and other trend comparisons (Anchor QEA 2013). That LWG presentation showed that, in many respects, the differences in sampling and compositing across sample years can be controlled to obtain statistically meaningful information regarding clear declines in fish tissue PCB concentrations. EPA included in Section 4 the single most simplistic graph from the start of the LWG’s presentation, which was intended to merely summarize the data that are available, not demonstrate observed declines. EPA concludes from this one misused graph that the data are only “suggestive of declines.” The text ignores all of the other detailed information and graphs available that more*

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*clearly show the tissue PCB declines, and EPA ignores all of the statistical analysis provided by the LWG. Consequently, EPA substantially understates the role of these data as a strong line of evidence for the effectiveness of MNR at the Site.*

**EPA Position:**

See EPA Position on p. II-54.

**LWG Dispute Issue 2c:**

*EPA's PTW approach is inconsistent with guidance and fails to result in reduction in toxicity, mobility or volume of hazardous substances commensurate with its extraordinary projected cost. As discussed in detail in the LWG's prior comments, EPA has designated as PTW large geographic areas with relatively low concentrations of contaminants of concern based primarily on its evaluation of the human health fish consumption criteria, which is an exposure pathway not based on highly toxic criteria and not typically used for PTW "highly toxic" designations. The conclusion that this exposure pathway should not be the basis for a PTW designation is corroborated by 2012 fish tissue data, previously shared with EPA, that show PCB concentrations in fish tissue have declined significantly resulting in human health risks that are likely to be lower than 10-3. The FS fails to satisfactorily explain how sediments in these large areas are highly mobile or highly toxic and cannot reliably be contained in place. For example, the FS does not explain or justify why sediment at the relatively low concentration of 200 ppb PCBs is "highly toxic," which is generally defined as a concentration several orders of magnitude above levels that allow for unrestricted use and unlimited exposure. At many other large sediment sites around the country, EPA's cleanup level for total PCBs is 1 part per million. The level requiring special disposal under TSCA is 50 ppm (50,000 ppb). Sediment at 200 ppb PCBs is well below what is considered an acceptable cleanup level at these other sites. And, as discussed above, EPA's recalculated site-wide PCB SWAC of 208 for Alternative A (No Action) used in Table J2.3-1a of Appendix J for the residual risk assessment exceeds this arbitrary PTW threshold, undermining the usefulness of the concept as a balancing criteria or otherwise.*

*The June 2016 FS includes new explanations that further show that EPA's PTW approach is inconsistent with guidance and flawed. For example, EPA states, "'Reliably contained' was not used in identifying PTW but rather was used to determine what concentrations of PTW could be reliably contained." This clearly contradicts the guidance, which discusses "reliably contained" as part of PTW identification.*

*EPA should not identify materials that can be reliably contained as "principal threat waste." EPA admits (in Table 3.2-2) that all COCs at the concentrations present in the site, with just two exceptions-- chlorobenzene and naphthalene, can be reliably contained. Thus, none of the areas where these contaminants are absent should be designated as PTW. Blanket identification of large areas of relatively low concentration sediments as PTW is neither required by the NCP nor necessary to protect public health or the environment.*

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*Similarly, the June 2016 FS provides no discussion or explanation of how material with sediment concentrations above the EPA-identified “highly toxic” thresholds or the presence of “globules or blebs” of Non-Aqueous Phase Liquid (NAPL) pose risk of contaminant migration. Further, EPA’s PTW-NRC footprint is mapped very differently in the FS and Proposed Plan, showing that, even at this late date, EPA has not spent adequate time evaluating this issue.*

*46 See, e.g., LWG List of Significant Issues with EPA’s Revised FS Sections 3 and 4 (September 8, 2015), Issue 2 and page 8.*

*Issue 2 Principal Threat Waste – The LWG previously commented (LWG 2014c) that a precise identification and highly quantitative evaluation of PTW at the Site is not necessary or productive for completing the revised FS and is not necessary for EPA’s selection of a remedial alternative. Per those past comments, EPA’s proposed PTW approach is inconsistent with guidance on PTW (EPA 1991) in several respects. The LWG disagrees with EPA’s logic and approach for determining PTW.*

*First, EPA uses fish consumption scenarios to determine “direct” cancer risk highly toxic thresholds in excess of 10<sup>-3</sup>. Before applying such thresholds for PTW identification, the presence of actual risks greater than 10<sup>-3</sup> needs to be determined. In fact, greater than 10<sup>-3</sup> risk was not found in the EPA-approved Baseline Human Health Risk Assessment (BHHRA) for dioxin/furan TEQ, total DDx, or BaPEq for any scenario evaluated.*

*Therefore, the definition of highly toxic as described by EPA (1991) is only potentially applicable to total PCBs. Second, as described in LWG’s past PTW comments (LWG 2014c) greater than 10<sup>-3</sup> cancer risk was found for PCBs in the BHHRA for three fish consumption scenarios: subsistence (mixed diet, fillet), recreational (mixed diet, fillet), and tribal (whole body and fillet). But EPA guidance (1991) describes PTW materials as a source for “direct exposure.” The fish consumption pathways are, by definition, indirect pathways from sediment through fish to people, and these pathways do not represent “direct” exposures from sediment contaminants as described in the guidance. See the LWG’s 2014 PTW comments for more details on this issue (LWG 2014c).*

*Third, the point-by-point application of EPA’s highly toxic thresholds is entirely inconsistent with the spatial and temporal scales associated with this indirect exposure as described in the BHHRA. This includes that people catch fish over multiple areas and fishing events and that the fish range across different areas during those timeframes.*

*Fourth, EPA uses inapplicable and inferential evidence to identify potentially highly mobile (i.e., NAPL) material in a manner that is inconsistent with the intent of the PTW guidance. The highly mobile aspect of the PTW definition should be applied for NAPL consistent with situations described in the guidance (EPA 1991), such as “pools of NAPLs submerged beneath ground water or in fractured bedrock, NAPLs floating on ground water” or where physical processes are likely to mobilize “source materials” as defined in the guidance. EPA’s identification of any potential NAPL as PTW is inappropriate and inconsistent with the guidance. For example, EPA identifies solid tar materials at Gasco as analogous to highly mobile liquids, which the guidance defines as “liquids and other highly mobile materials (e.g., solvents).” Also, at the Arkema Site,*

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*continuous cores have been visually logged and hundreds of samples have been analyzed at the laboratory and, to date, no chlorobenzene NAPL has been found in Arkema sediments. EPA also uses any visual trace observations of NAPL, such as “blebs and globules,” to identify highly mobile PTW. This approach is clearly inconsistent with the terms used in the guidance, such as “pools of NAPLs” as quoted above. See LWG 2014c for more description of how EPA’s highly mobile PTW approach is inconsistent with the PTW guidance.*

*Also, EPA’s PTW approach is inconsistent with the approach taken at other large river sediment remediation sites, including EPA’s recent Region 10 ROD for the Lower Duwamish Waterway, where the maximum sediment PCB concentration was 220 mg/kg. Nonetheless, EPA determined the Duwamish sediments are generally “low-level threat waste” (EPA 2013). In comparison, at Portland Harbor, the maximum PCB concentration is 36 mg/kg, and EPA is identifying concentrations of 0.2 mg/kg as PTW. The LWG’s PTW comments (LWG 2014c) review the PTW approach at five other large sediments sites, mostly with much higher contaminant levels than Portland Harbor. All of those sites also do not identify specific PTW areas in the FS process.*

*Additional specific issues related to the PTW text in Section 3 include:*

*a. EPA defines areas as PTW without including the reliably contained step of the evaluation described in the NCP and guidance (EPA 1991). Without the reliably contained evaluation included, these areas cannot be appropriately defined as PTW. In other words, only the areas that EPA designates as “not reliably contained PTW” have the potential to actually be defined as PTW.*

*See NCP Preamble, 55 FR 8666 at 8703 (March 8, 1990): “Principal threats are characterized as waste that cannot be reliably controlled in place, such as liquids, highly mobile materials (e.g., solvents), and high concentrations of toxic compounds (e.g., several orders of magnitude above levels that allow for unrestricted use and unlimited exposure).”*

*b. EPA’s not reliably contained analysis using the so called “super cap” approach is also technically incorrect. EPA uses generalized Site-wide groundwater seepage rates for the super cap analysis rather than more localized estimates available in the RI. Further, groundwater control systems exist at both Gasco and Arkema sites, which EPA states were not considered in the analysis. For example, at the Gasco site, the groundwater source control system has been shown to cause negative seepage (i.e., movement of river water down into the sediment bed) over broad areas of the offshore sediments, but EPA’s super cap analysis assumes that positive groundwater seepage out into the river is still occurring. Using appropriate seepage parameters where groundwater source control systems exist would result in no identification of not reliably contained material at the Gasco site. A similar analysis is appropriate for sediments offshore of the Arkema site, which has installed a slurry wall and a groundwater extraction and treatment system designed to prevent migration from the uplands to the river. EPA should consider the specifics of that groundwater control system, as well as other areas with significantly lower than average groundwater gradients (e.g., RM 2-4 East).*

*c. EPA’s PTW approach results in large relatively low concentration areas of the Site being identified as PTW. For example, large PTW areas exist outside much of the SMA footprint of the smaller alternatives (e.g., Alternatives B and C), which is a unique*

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*circumstance for a sediment FS as far as we are aware. Further, the concentrations that EPA is proposing as PTW would be considered completely safe under other common remedial and regulatory scenarios. For example, EPA's PTW level for PCBs of 200 µg/kg is below EPA's Regional Screening Levels (RSL) for residential soil, which range from 230 to 3900 µg/kg (per EPA's June 2015 RSL residential soil table carcinogenic risk values for total PCBs). DEQ's risk-based residential soil cleanup standard for PCBs is 200 µg/kg. Although EPA indicates that PTW is only a "preference" for treatment, EPA's decision trees indicate that PTW is almost always subject to treatment including reactive armored caps, reactive residual cover layers after PTW is removed, in situ treatment, or ex situ treatment after removal and before disposal. Regarding ex situ treatment, EPA determines that any PTW that is based on NAPL (including trace observations per above) and PTW related to cPAHs or DDx must be ex situ treated. Essentially, the only situation where removed PTW does not need to be ex situ treated is for high concentration materials above the PCBs and dioxin/furan PTW thresholds. EPA's PTW approach contributes substantial ex situ and in situ treatment components to both removal and in-place technologies for all alternatives both inside and outside of SMAs, as well as extensive sheetpiles (and associated costs) for removal in some areas. For example, Alternative B involves ex situ treatment of 240,840 to 321,120 cubic yards (cy) of sediment, which is about 39% of the total volume removed under this alternative.<sup>4</sup> (Although EPA orally indicated on August 27 that much of this volume is due to RCRA hazardous waste determinations, this is not verifiable based on review of the information contained in EPA's cost appendix. See Comment 18 for more comments on RCRA hazardous waste determinations.) Per above, the PTW guidance does not support the need for treatment for all the materials falling within EPA's wide definition of PTW for this Site.*

*d. EPA is using extremely low dioxin/furan PRGs for PTW determinations that the LWG has previously commented are technically incorrect and not reflective of actual baseline risks (LWG 2014d, 2015a, 2015b). Also, as noted above for PCBs, EPA's dioxin and furan PTW levels are extremely low as compared to other common regulatory programs. For example, EPA's TCDD PTW level is 10 ng/kg in Table 3.2-1, while EPA's soil remedial goal for residential areas is 50 ng/kg.<sup>5</sup>*

*e. From a purely engineering perspective, it is not necessary to conduct ex situ treatment of EPA-identified PTW before disposing of this material in a permitted landfill. The landfill acceptability criteria EPA discusses in Section 3 indicate that most of the PTW (as defined by EPA) would be reliably contained at the landfill without need for prior ex situ treatment (not just PCB and dioxin/furan PTW).*

**EPA Position:**

The comment appears to be about both identification of PTW and the statutory requirement that remedies be cost effective.

**Identification of PTW:**

The NCP states that EPA expects to use treatment to address the principal threats posed by a site, whenever practicable" and "engineering controls, such as containment, for waste that poses a relatively low long-term threat." [40 CFR Section 300.430(a)(1)(iii).]



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As noted in *A Guide to Principal Threat and Low- Level Threat Wastes* (Superfund Publication 9380.06FS, November 1991):

Principal threat wastes are those source materials considered to be highly toxic or highly mobile that generally cannot be reliably contained or would present a significant risk to human health or the environment should exposure occur. They include liquids and other highly mobile materials (e.g., solvents) or materials having high concentrations of toxic compound.

Therefore, principal threat wastes are either highly toxic **OR** they are highly mobile that generally cannot be reliably contained or would present a significant risk to human health or the environment should exposure occur.

Highly toxic principal threat waste at Portland Harbor was identified based on a  $10^{-3}$  risk for an individual contaminant which is three orders of magnitude greater than EPA's point of departure for acceptable risk [see NCP 40 CFR Section 300.430(a)(1)(iii)] and with the Oregon State residual risk ARAR of  $10^{-6}$  for individual contaminants and an order of magnitude greater than EPA's upper risk range for cumulative carcinogenic risks. Contaminants with concentration in the Site determined to be highly toxic include PCBs, cPAHs, DDx, and dioxins/furans (2,3,7,8-TCDD, 2,3,7,8-TCDF, 1,2,3,7,8-PeCDD, 2,3,4,7,8-PeCDF, and 1,2,3,4,6,7,8-HxCDF).

EPA disagrees with the Respondents that current Site risks, based on recent fish tissue samples it conducted, are likely less than  $10^{-3}$ . That statement is speculative and not supported beyond the LWG's own interpretation of the fish tissue data, which is based solely on one fish species (smallmouth bass) and one contaminant (PCBs) and the selected fish species sampled was the third least contaminated species of all fish sampled during the RI. Whereas, the BHHRA evaluated risk from fish consumption based on four fish species.

Highly mobile principal threat waste at Portland Harbor was defined as NAPL that generally cannot be reliably contained **OR** would present a significant risk to human health or the environment should exposure occur. NAPL generally releases contaminants into the groundwater or surface water and cannot be reliably contained and poses significant risk to human health or the environment. EPA evaluated two sources of NAPL, MGP waste offshore of NW Natural and chlorobenzene offshore of Arkema. These NAPL sources release benzo(a)pyrene and naphthalene (MGP waste), and DDT (Arkema) to groundwater and pore water. EPA clearly stated in the 2016 FS that the chlorobenzene dissolves the DDT and makes it bioavailable – the BERA concluded dissolved phase DDx in pore water (TZW) had an HQ of 210. Benzo(a)pyrene (a PAH) and DDT have been identified in the BERA as having contaminants of ecological significance and naphthalene and chlorobenzene have HQs of 1,100 and 190, respectively. EPA conducted an evaluation of benzo(a)pyrene, naphthalene, chlorobenzene, PCBs and DDT to determine if they were reliably contained. DDT (not comingled with

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chlorobenzene) and PCBs were determined to be reliably containable at all concentrations. Benzo(a)pyrene at concentrations greater than 140,000 µg/kg, and naphthalene and chlorobenzene at any concentration was determined to not be reliably containable. Therefore, the MGP waste and the chlorobenzene are both highly mobile principal threat waste. While modeling may potentially be an indicator of potential performance in some situations, it is not deterministic that the waste will actually be contained in the given situation.

“Reliably contained” alone was not used in identifying principal threat waste since that was not a requirement of the NCP nor EPA guidance *A Guide to Principal Threat and Low- Level Threat Wastes*. Further, there is no requirement that highly toxic source material be reliably contained. However, Highlight 3 in *A Guide to Principal Threat and Low- Level Threat Wastes* provides an example of mobile source material as:

Mobile source material - surface soil or subsurface soil containing high concentrations of contaminants of concern that are (or potentially are) mobile due to wind entrainment, volatilization (e.g., VOCs), surface runoff, or sub-surface transport.

EPA evaluated whether surface or subsurface sediment containing high concentrations of contaminants of concern are (or potentially are) mobile due to river currents, volatilization, wind/wake wave action or partitioning to pore water or surface water. In other words, any sediments with high concentrations of contaminants that are found in other media (surface water, pore water, biota) that are transported through various environmental mechanisms is a mobile source material. Consequently, the highly toxic principal threat wastes could also be deemed highly mobile source material. However, many of these contaminants (PCBs, DDT not comingled with chlorobenzene, and dioxins/furans) can be reliably contained (as discussed above) and thus were not identified as highly mobile source material.

EPA’s evaluation of principal threat waste is consistent with the exposure assumptions at this Site. Highlight 2 in *A Guide to Principal Threat and Low- Level Threat Wastes* identifies contaminated sediment as source material, so the media of which is source material is the contaminated sediment. Further, on p.2 of EPA’s *A Guide to Principal Threat and Low- Level Threat Wastes* it states:

Determinations as to whether a source material is a principal or low level threat waste should be based on the inherent toxicity as well as a consideration of the physical state of the material (e.g., liquid), the potential mobility of the wastes in the particular environmental setting, and the lability and degradation products of the material. However, this concept of principal and low level threat waste should not necessarily be equated with the risks posed by site contaminants via various exposure pathways. Although the characterization of some material as principal or low level threats takes into account toxicity (and is thus related to degree of risk posed assuming exposure occurs), characterizing a waste as a principal threat does not mean that the waste poses the primary risk at the site.

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As an example of this, EPA's *A Guide to Principal Threat and Low- Level Threat Wastes* on p.2 provides:

For example, buried drums leaking solvents into ground water would be considered a principal threat waste, yet the primary risk at the site (assuming little or no direct contact threat) could be ingestion of contaminated ground water, which as discussed above is not considered to be a source material, and thus would not be categorized as a principal threat.

A similar scenario was used at Portland Harbor where the contaminated sediment are releasing contamination into surface water and biota is a principal threat waste even though the primary risk at the site (assuming little or no direct contact threat) is consumption of contaminated fish. EPA would argue that the contamination in the fish itself is not a principal threat waste (similar to groundwater in the example above), but the contamination in the sediment is akin to the leaking drum that is the source material.

Identification of PTW is site-specific based on risk from exposure at the Site. All principal threat waste decisions are site-specific. As stated in EPA's *A Guide to Principal Threat and Low- Level Threat Wastes*:

Although remedy selection decisions are ultimately site-specific determinations based on an analysis of remedial alternatives using the nine evaluation criteria, these expectations help to streamline and focus the remedial investigation/feasibility study (RI/FS) on appropriate waste management options.

Thus, EPA only used site-specific information to identify principal threat waste and determine waste disposal options (including treatment) at this site.

Identification of principal threat waste and source material is not based on a site-wide average since EPA is not designating the entire Site as containing principal threat waste. Consistent with EPA guidance, principal threat waste is high concentration areas of contamination. Those high concentration areas are identified as samples that exceed the threshold for principal threat waste. For highly toxic contaminants, those concentrations are provided in Table 3.2-1, and comprise 145 acres of the Site (less than 7 percent of the Site). The 2016 FS evaluation complied with the NCP expectation that treatment be used to address the principal threats posed by the Site, wherever practicable (40 CFR §300.430). However, based on the technology assignment process in the 2016 FS, if sediment classified as containing PTW was located in an area designated for capping, then there was an assumption that a reactive cap will be assumed for that area to meet the preference for treatment. The exact presence, location, and treatment requirements (ex-situ or in-situ) of principal threat waste will be determined in remedial design consistent with requirements in the ROD. EPA used the information currently available to base the cost evaluation for treatment of principal threat waste in the 2016 FS.

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Furthermore, we strenuously disagree with the LWG's argument that any PCB contaminated sediment under 50 ppm should not be identified as highly toxic PTW because that is TSCA's regulatory threshold for disposal of electrical equipment or other PCB-containing materials. Such an argument inappropriately equates two different statutes, one primarily regulatory (TSCA) and one fully remedial. The LWG's view ignores the statutory mandate of CERCLA to select remedies for releases of or threats of releases of hazardous substances that present unacceptable risk to human health or the environment and the NCP's requirement to address principal threats at a site.

Cost Effectiveness:

The issue of cost effectiveness is tied directly to the CERCLA statutory requirement under Section 121(b) (1) that: "The President shall select a remedial action that is protective of human health and the environment, that is cost effective, and that utilizes permanent solutions and alternative treatment ... to the maximum extent practicable."

EPA did not select a remedy in the 2016 FS and therefore this statutory requirement is not applicable to the 2016 FS and is not subject to the dispute provisions in the AOC.

**LWG Dispute Issue 2d:**

*Remediation waste management components of EPA's alternatives are difficult to understand, appear in many cases to be inappropriate or inconsistent with existing requirements, and seem likely to add significant cost without contributing any additional risk reduction benefit. EPA's June 2016 FS no longer includes the disposal decision tree found in the August 2015 FS. Although that decision tree contained multiple errors and inconsistencies, the absence of any such tool in the June 2016 FS makes it difficult to determine EPA's disposal assumptions for FS purposes (or the Proposed Plan). New EPA text in the June 2016 FS makes a few broad statements that could have major impacts on cost. For example, on Page 3-28, EPA notes that all detectable concentrations of pesticides removed from the site would need to follow Oregon Pesticide Rule procedures as interpreted by EPA. This has implications well beyond any areas highlighted by DDx RALs.49*

**EPA Position:**

Section 3.4.9 of the 2016 FS discusses disposal management requirements and each alternative clearly discusses the disposal assumptions in the detailed evaluation of alternatives in Section 4 of the 2016 FS. Dredged material being disposed at an off-site landfill needs to be characterized and when required will be treated if a state or federal law requires it and/or the receiving facility requires it. If there is RCRA characteristic or listed hazardous waste contained in sediment, necessary treatment will be required. Additionally, dredged sediment containing MGP waste that exceeds TCLP criteria for MGP-related constituents and/or special considerations such as worker safety and equipment decontamination will need to be treated for disposal to be protective. [AR Doc ID # 1198486] Although not expected due to existing data, if there are dredged sediment that exceeds 50 ppm PCBs, disposal of such dredged sediment will need to comply with

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TSCA's disposal requirements. At this time, no other dredged material is known to require treatment for off-site disposal.

Respondents did not provide specifics regarding what exactly about the waste management components was difficult for them to understand or what is inappropriate or inconsistent with existing requirements. EPA used the same methodology in developing disposal costs between the alternatives, the estimates are reasonable enough to compare alternatives. True costs will be determined at the time of disposal based on federal or state requirements and/or the requirements of the disposal facility.

**LWG Dispute Issue 1e:**

*Confined Disposal Facility (CDF) acceptance criteria – As the LWG previously commented, EPA made some of the CDF acceptance criteria and performance standards more conservative (Table 3.4-7) since the T4 CDF 60% design, even though EPA references that design as the source of the criteria and standards. This situation has not changed for the June 2016 FS. No rationale is provided for why the changes make the remedy more protective or effective.*

**EPA Position:**

Performance standards for the CDF are presented in Section 3.4.9.2 and Table 3.4-7 of the 2016 FS. The performance standards presented in Table 3.4-7 were taken directly from the CDF performance standards transmitted by EPA to the Lower Willamette Group (LWG) by letter dated February 18, 2010 and as subsequently presented in Table 5-1 of the Terminal 4 Confined Disposal Facility Design Analysis Report (Prefinal 60% Design Deliverable) [AR Doc # 100007974].

Section 3.4.9.2 of the 2016 FS included additional requirements for material that may be disposed of in an on-site CDF. These acceptance criteria prohibit placement of sediment designated as RCRA or state hazardous waste, sediment designated as "Waste or Media containing Waste that May Warrant Additional Management", PTW that is highly mobile or cannot be reliably contained, sediment containing free oil or NAPL, or material without suitable geotechnical or geochemical properties. These acceptance criteria are consistent with EPA directed modifications to the CDF as a result of public comment as presented in the Action Memorandum for a Removal Action at the Port of Portland Terminal 4 site with the Portland Harbor Site. [AR Doc # 1225662]

1. Only sediments from the Portland Harbor Superfund Site are eligible for placement in the saturated zone of the CDF.
2. No sediments that may be designated as characteristic hazardous waste or contain free-phase oil would be eligible for placement without treatment to control potential for release and migration of these substances.
3. Sediments must be of acceptable geotechnical character (to be defined during design) such that they do not impact the long-term performance of the CDF.

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Sediments must undergo appropriate testing including bulk chemistry tests and pancake column leachate test (PCLTs) to document source characteristics acceptable for the CDF. Maximum chemical concentrations measured in representative PCLTs of the sediments must be protective (to be defined during design) of surface water quality criteria.

**LWG Dispute Issue 1f:**

*Cost estimates, volumes, production rates, and construction durations are inaccurate and lack transparency. The LWG previously commented on the August 2015 draft FS that EPA underestimated volumes and construction durations and used impossibly aggressive production rates and unattainable efficiencies given the required BMPs, complex disposal requirements, nearby residential community, and heavily used Willamette River. Due to these factors and other questionable costing approaches, the LWG commented that EPA's costs were substantially underestimated and consistently minimize the apparent costs of the larger alternatives and dredging, as compared to the smaller alternatives and capping. EPA's June 2016 FS cost estimates appear to exacerbate these problems, resulting in even lower overall costs for each alternative.*

**EPA Position:**

A significant portion of this dispute issue appears to be centered on differences of professional opinion regarding the technical viability and implementability of remedial activities. The information provided in the cost estimate is based on the best available information regarding the anticipated scope of the remedial alternatives, and thus the issue at dispute is the technical assumptions and not the costs that they reflect. The stated purpose for FS cost estimates in EPA's *A Guide to Developing and Documenting Cost Estimates During the Feasibility Study* (p.1-2) is to compare remedial alternatives during the remedy selection process. The stated accuracy in this guidance for FS cost estimates at the detailed analysis phase is +50 to -30 percent of actual cost. The cost estimates were reviewed by EPA's National Remedy Review Board (NRRB). The NRRB reviewed the FS cost estimates in November 2015 and indicated that the costs presented were generally in the range of costs at other contaminated sediment Superfund Sites. [AR Doc # 100001536] The NRRB, while determining that the costs used were reasonable when compared to other contaminated sediment Superfund sites, did recommend further evaluation of specific assumptions and related costs. EPA reviewed comments pertaining to cost estimates and made changes to assumptions for all alternatives and updated the cost estimates, as appropriate, to better reflect the anticipated scope of a future remedy for the Portland Harbor Site as it became further defined between November 2015 and the 2016 FS. For instance, EPA reviewed assumptions pertaining to treatment of contaminated sediment for consistency with early actions and also reviewed unit costs for remedy components such as capping and dredging to reflect consistency with the productivity rates anticipated in EPA's evaluations. Reevaluations of these assumptions, specifically due to more refined development of the alternative's scopes, resulted in lower overall costs in the 2016 FS than as presented to the NRRB in November 2015. EPA's position is that the cost methodology and sources used in the 2016 FS meet the stated accuracy range.

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Additionally, the detailed cost backup and individual cost summaries for each alternative presented in Appendix G meet the documentation guidelines presented in Chapter 6 of EPA's *A Guide to Developing and Documenting Cost Estimates During the Feasibility Study*.

See EPA's position to LWG's dispute issue 2f regarding dredge volumes.

A detailed construction schedule generally is not produced in an FS because the level of scope definition is too low to make those design-level determinations. However, a cursory evaluation of construction duration was performed for the major construction components (capping and dredging) as indicated in Appendix D.3. It should be noted that schedules indicate a minimum duration and that longer durations only affect present value cost as estimated. The productivity rates presented in a memo to LWG on August 14, 2015, from USACE was used to calculate construction durations (**AR Doc # 100011624 and 100033480**).

The complexity of the disposal requirements is a factor of the material characteristics and is governed by regulatory considerations, which are presented Section 3.4.9.1 of the 2016 FS. EPA's position is that the complexity of the disposal requirements is appropriate for the expected material generated during remedial activities. The fact that LWG claims that the disposal requirements are too complex does not support the LWGs opinion that the cost estimates are substantially underestimated.

The cost estimate takes into account site specific difficulties expected with implementation. EPA developed project-specific unit costs using the Micro Computer Aided Cost Engineering System (MCACES) Second Generation (MII) software version 4.2, build 3. EPA's position is that the productivity rates along with the crew development used for development of site-specific unit costs are reasonable for an FS level evaluation and meet the stated accuracy range of EPA's *A Guide to Developing and Documenting Cost Estimates During the Feasibility Study*.

*Missing cost elements:*

*EPA's cost estimate does not include the 3 to 5 year anticipated "initial conditions" assessment, subsequent pre-remedial design investigations, or additional riverbank sampling and remediation contemplated in the FS and Proposed Plan to be identified in conjunction with this post-ROD sampling. At the Head of the Hylebos project, which was primarily a PCB remediation involving roughly 44 acres, pre-remedial engineering investigation costs amounted to roughly 16% of remedy implementation costs.*

**EPA Position:**

The remedial design percentage included as a percentage of the capital costs per EPA's *A Guide to Developing and Documenting Cost Estimates During the Feasibility Study* includes activities such as pre-design investigation and initial conditions assessment. As described in Section 5.5 of that guidance, engineering judgment may be used to adjust

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rule-of-thumb percentages presented in Exhibit 5-8 for project management, remedial design, and construction management as well as the recommended range presented for technical support. As described in the 2016 FS, Appendix G, Attachment A, the percentages of professional and technical services costs are generally higher for projects of smaller scope and lower for projects of larger scope. The scope of the cleanup activities within the Portland Harbor Superfund site (thousands of acres) is much larger than the scope of the Head of the Hylebos project (tens of acres), and therefore it is expected that the percentage for remedial design costs used as a function of capital costs will be higher for the Head of Hylebos project and lower for the Portland Harbor Superfund Site.

The remedial design costs presented in the 2016 FS for each alternative were estimated to be comparable to remedial design costs estimated for alternatives evaluated in the Lower Duwamish Final FS, when reviewed on an annualized basis. The specific scope and costs for the “initial conditions assessment, subsequent pre-remedial design investigations, or additional riverbank sampling and remediation” will be identified during remedial design based on factors such as funding, phasing, and scheduling of work. Unknowns or unforeseen conditions for these activities and related costs not entirely captured in the remedial design percentage can be considered to be captured in the scope contingency applied to each alternative.

*EPA does not appear to include any Oregon Department of State Lands (DSL) costs for access, leases and easements required for investigation, dredging, capping and monitoring activities. In documents the LWG obtained through its FOIA request to EPA, EPA’s FS contractor acknowledged that these costs – which he characterized as “incredibly large” – were not included in the FS evaluations.<sup>50</sup>*

*<sup>50</sup> See, DEQ/EPA Cost Notes (January 28, 2016) (R10-100007897), p. 11 (Attachment 4).*

**EPA Position:**

Per EPA’s *A Guide to Developing and Documenting Cost Estimates During the Feasibility Study*, fees not otherwise covered by a direct line item are covered by a percentage of the capital and periodic costs in the professional/technical oversight named “project management.” The EPA’s *A Guide to Developing and Documenting Cost Estimates During the Feasibility Study* defines “direct costs” of cleanup as “the equipment, labor, and material costs necessary to construct the remedial action (including contractor markups, such as overhead and profit).”

EPA acknowledges that the Board of State Lands through the Department of State Lands promulgated rules for granting and renewal of access authorizations, leases, and easements issued to facilitate remediation conducted pursuant to an order issued by ODEQ or EPA and habitat restoration activities in, on, under or over state-owned submerged and submersible land. In general, section 104 of CERCLA, 42 U.S.C. Section 9604 provides the President with broad authority to take response actions to protect



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human health and the environment where there is a release or potential threat of a release into the environment of hazardous substances (or pollutants and contaminants presenting an imminent and substantial endangerment to public health and welfare). In addition, subsection (e)(3) of Section 104 specifically provides the President authority to access “[a]ny vessel, facility, establishment, or other place or property where entry is needed to . . . effectuate a response action under” . . . CERCLA. Furthermore, Section 121(e)(1) of CERCLA provides **that:** “[n]o State, or local permit shall be required for the portion of any removal or remedial action conducted entirely onsite, where such remedial action is selected and carried out in compliance with . . .” CERCLA. The statute provides clear authority for EPA to take or require cleanup actions be taken, and explicitly states that no permit or license is required to perform a response action on-site. We also note that as a general matter, the United States is not required to pay state or local fees, unless Congress explicitly so requires. EPA anticipates that PRPs, including DSL, will perform the Portland Harbor cleanup and reasonable terms of access to private and state-owned property to implement the remedy likely will be the subject of future negotiation between the PRPs, landowners, and DSL; however, what those terms will be and what if any compensation is agreed to is too speculative at this time.

*EPA’s cost estimate does not include agency oversight and participation costs. These costs have represented more than 27% of RI/FS costs at Portland Harbor.*

**EPA Position:**

Oversight costs are included as a percentage of the capital and periodic costs in the professional/technical oversight named "construction management" and "project management". See section 5.5 of EPA’s *A Guide to Developing and Documenting Cost Estimates During the Feasibility Study*.

*EPA’s cost estimate does not include the required 12-inch daily cover layer, which appears to be a new requirement to reduce dredging releases.*

**EPA Position:**

The cost estimate in the 2016 FS, Appendix G, includes the 12-inch dredge residual layer in the volume of sand. The 2016 FS does not prescribe this as a daily cover.

*EPA does not factor the need to acquire and develop transload facilities into the schedule.*

**EPA Position:**

The 2016 FS does not provide construction schedules for alternatives, which is more appropriate during remedial design. However, cursory evaluations of construction durations were included for purposes of implementability and cost evaluations within Appendix D.3. The feasibility study assumes that the development of transload facility will be included in the initial year of preparatory activities. The assumption of preparatory activities occurring in the initial year is stated in the 2016 FS, Appendix D, Footnote K of Table D3-1 (Construction Duration Assumptions). The initial year of

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preparatory activities would include pre-design investigations and start-up activities prior to beginning construction (in-water work). It is assumed that start-up activities would include development of transload facility, mobilization, setting up of staging area, preparation of the CDF (if applicable), etc. Expansion of the transload facility or additional transload facilities (if needed) was assumed to be developed concurrently during construction (in-water work) for FS purposes. Start-up activities will be addressed at the appropriate phase of the work, which is in the remedial design workplan.

*Underestimated cost elements:*

*EPA continues to assume unattainable production rates and efficiencies assuming construction 24 hours per day for the basis of the project schedule and cost estimates. Stepping time is completely ignored. Furthermore, the need to operate in an active navigational channel will mandate the need to move the dredging equipment during each ship movement. According to the Columbia River Pilots Association there are 2 to 5 of such movements through this site daily. Each will represent a significant disruption and will result in significant loss of dredging and remedial project efficiency. The FS assumes that numerous requirements for innovative and complex dredge Best Management Practices (BMPs), precision dredging techniques, use of sheet pile barriers in some areas, and a transload and water treatment system (which will act as a bottleneck) will be performed simultaneously without incident or equipment breakdown, and with no additional time on costs.*

*We note that the Feasibility Study states that a fixed arm articulated bucket is the preferred dredging option where feasible and that a cable bucket will be used in water depths greater than 40 feet. This would correspond to the fixed arm bucket being used for roughly 80% of the dredge volume and cable bucket for 20%. However, the FS inconsistently assumes in the cost estimate and project schedule that the fixed arm bucket is used for 5% of the dredge volume. The cable bucket has a much higher production rate and lower unit cost than the fixed arm bucket. Correcting this assumption would increase alternative durations by 5 to 15 years, depending on 24- or 12-hour work days, respectively.*

*EPA continues to use aggressive dredging production rates. Sections 2.4.3 and 4.2.2.2 present a number of BMPs and controls to minimize impacts. These BMPs will slow dredging production and increase costs. The LWG's past production rates accounted for these anticipated BMPs which are likely needed to meet 404 water quality certification requirements but EPA's current rates do not.<sup>51</sup> Some of these described BMPs and controls include:*

- Sheet piling in select areas*
- Slowing the dredge cycle time to reduce bucket impacts at the bottom*
- Rinsing the bucket to clean off excess sediment between loads*
- Briefly stopping the bucket at the waterline to allow excess water to drain before raising bucket to barge*
- Having precision cuts of only 50% bucket fills on last passes*

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- *Pumping excess water from barges during dredging*
- *Placing a residuals cover daily*
- *Modifying the work schedule*
- *Performing work during low river flows*
- *Fish capture and removal inside work isolation areas*

**EPA Position:**

A memo was submitted to LWG on August 14, 2015 clarifying the development of the production rates based on an earlier review and recommendation by the Army Corps of Engineers (27-May-2013). [AR Doc # 100011624] The assumptions and calculations transmitted in the memo were included in Appendix D, Table D3-1 of the 2016 FS. In contrast to assertions made in the comment, stepping time, allowances for work disruption, and other impediments to dredging operations are accommodated in productivity rate estimates. USACE's 2008 *Technical Guidelines on Environmental Dredging* recommends the use of an Effective working time factor (p. 131): "Effective working time is the time during the dredging operations when actual production is taking place, such as material moving through the pipeline or being placed into a sediment barge. This is also referred to as "operating time." The Effective Work Time factor accommodates "when the dredge is operational but no production is taking place, such as time spent making changes to pipelines, cleaning debris from the suction head, changing sediment barges, moving the dredge, standing by for navigation traffic, making minor operating repairs, and refueling. This is also referred to as "allowable downtime." USACE's 2008 *Technical Guidelines on Environmental Dredging* (p. 93) states that the effective working time is "typically 55 to 70 percent for environmental dredging projects." The estimate used in the 2016 FS (62.5 percent) was the midpoint of that range. In this regard, dredge "operating time" is estimated to occur 15 of 24 hours, six days per week. The effective working time factor was explicitly used to accommodate issues identified by the commenters as well as other unforeseen circumstances. As stated in the 2013 memo from Dr. Paul Schroeder, USACE ERDC [AR Doc ID # 500001131], "A target production rate of 6000 cy/day, 6 days per week should be achievable even with the assumed efficiency impacts of resuspension control and residuals control and management if water quality, processing and disposal requirement can be met."

Regarding the estimate use of fixed arm vs. cable arm dredging, the 2016 FS, Appendix D, Table D3-1 states "Daily dredge production rates were developed assuming a 55/45 percent mix of cable arm versus articulated bucket dredges, based on the approximate areal percentages of navigation channel and maintenance dredge areas in the alternatives." It's acknowledged that the text in the main body of the feasibility study that is referenced by the commenters does not clearly state this basis (p. 3-22 of the 2016 FS states: "Cable-operated dredges are assumed for those Site conditions where fixed-arm dredges are not viable [such as water depths exceeding 40 feet] and will have no water depth limitations at the Site").

Overall, this and other comments on dredge production imply that overly high production rates falsely equate to shorter construction durations. Even if these FS-level production

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rate estimates are high, other assumptions lessen the production rates. For example, the in-water construction duration is based on the assumption that “Cap and EMNR construction is assumed to occur in sequence (not in parallel) with dredging for estimating total construction” (2016 FS, Appendix D, Table D3-1). This means that all dredging would occur, then all capping would occur. This assumption is fine for its purpose (estimating a construction duration), but in practice, sequencing would not occur by technology type. Remedial action would be sequenced by area, generally moving from upstream to downstream, capping/dredging contaminated sediment, before moving on to the next area. It would not be reasonable to dredge a portion of an SDU and then return to that SDU two years later to begin capping the remainder of the contaminated sediment. As a result, estimated dredge volumes would be removed over the in-water construction duration, resulting in lesser production rates (e.g., Alternative I, has a 2.27 year estimate for dredging duration; 3.93 years of in-water construction, equating to a 42 percent lower annual production rate over the in-water duration). As a final point, because all alternatives have dredging to some degree, changes to the dredge productivity rates would have similar effects across all alternatives, and not significantly influence remedy selection.

*EPA also has aggressive dredging rates for riverbank excavations. It is assuming dredging will be completed from the water with a 6.5 cubic yard (cy) bucket loading a telebelt that will transfer material to a haul barge. It is using an aggressive cycle time of 50 seconds for this work yet still implies use of the same BMPs as described above for sediment work.*

**EPA Position:**

The 50 second cycle time quoted in the comment represents the “ideal cycle time” for riverbank excavation with barge mounted excavator. This does not take into account the 90 percent work efficiency factor and the 0.9 operator ability correction factor, which decreases the productivity. The information quotes in the comment from Appendix G of the 2016 FS was presented specifically for purposes of developing and checking the reasonableness of the presented unit costs (from the perspective of number of crews).

Having said that, the concern from the LWG about reduction of productivity due to use of BMPs is going to be location-dependent based on the type of contamination within the river adjacent to the riverbank and the sediment control BMPs used. Depending on the location-specific conditions, shoreline-based excavation of river banks may be desirable instead of water-based excavation to avoid the types of impediments suggested. Although for cost purposes riverbank excavation presented in Appendix G of the 2016 FS was developed assuming barge mounted excavator, the text of the 2016 FS presents the assumption that land-based excavators are assumed to be used for removal of contaminated river bank materials or near-shore sediment in locations above water levels. The actual approach used (land or water-based excavation) and related scope and costs for riverbank excavation are location-dependent and will be refined during remedial design. The assumption of water-based excavation for riverbanks does not impact the overall accuracy of the 2016 FS cost estimates.

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*EPA's water treatment plant consists of holding tanks and carbon treatment with no additional costs. EPA indicates that the water will be discharged back to the river. Based on past experience in Portland Harbor, this approach is unlikely to be acceptable. T4 dredging required water discharge to the City's POTW. EPA also assumed that water treatment will only be required during the days of dredging. All precipitation will need to be captured and treated, so the system will be required as long as there is dredged material on site.*

**EPA Position:**

The water treatment costs presented in Appendix G of the 2016 FS, not only includes the costs of the components of water treatment (e.g. holding tanks, bag filters, and carbon adsorption on a skid mounted type system), but also includes crew costs for collecting water from dredging operations for treatment. For purposes of estimating costs, it is assumed that all necessary pretreatment (including dewatering) and handling of dredge materials will occur on the barge prior to arrival at a transload facility. There is no assumed stockpiling of material onsite nor at the transload facility, but that any water discharged from a stockpile area would be captured and treated. The cost estimates assume treatment of collected water on barges and discharge to the Willamette River after treatment.

The text of the 2016 FS indicates that wastewater will likely either require treatment prior to discharge to the lower Willamette River or disposal at a publicly owned treatment works (POTW) facility. While the 2016 FS necessarily assumes a representative set of water treatment process options for the general screening and alternative development procedures, this does not imply that other process options cannot be considered during remedial design. Use of a multi-stage filtration and granular activated carbon adsorption approach to water treatment is assumed as a holistic approach for all dredge material in the cost estimate. However, EPA acknowledges that an expanded treatment system may be required for some material, particularly PTW, on a location-specific basis. Unknowns or unforeseen conditions for these activities and related costs not entirely captured in the costs for water treatment can be considered to be captured in the scope contingency applied to each alternative. The scope and costs for wastewater treatment will be refined during remedial design on a location-specific basis.

*Appendix F indicates that Subtitle C material will be hauled to Boardman and then hauled by truck to ChemWaste, similar to what was done for the Gasco Early Action. However, the cost estimate only has 1 day of haul time to Boardman and 18 hours return. The cost estimate assumes that the material would be stockpiled on site at the Boardman transload facility and then loaded into trucks. The Boardman site, used previously for the Gasco Early Action, has only 4 to 9 acres of available space, with the high end of the range assuming that the current operations are terminated to allow for the transloading. This will not be sufficient for the anticipated Subtitle C material EPA plans to remove. For Gasco, the material was loaded directly from the barge to the trucks. The Gasco Early Action processed only approximately 15,000 cy of material, while Portland Harbor*

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*will have an orders-of-magnitude-more volume, which will overwhelm the Boardman facility. EPA received a quote from ChemWaste to truck the material from Portland Harbor to their facility as an alternative. However, this would entail 10,555 truck trips of Subtitle C material through Portland neighborhoods.*

**EPA Position:**

The 2016 FS looks at modes of transport and associated transload of wastes from a macro perspective, but the primary assumption in the 2016 FS was to use barges for the purposes of implementability and cost evaluation. The 2016 FS also indicated that multiple modes of transport could be used and could be evaluated during remedial design phase of the project.

EPA talked with the representative facilities including ChemWaste, Port of Morrow (Boardman site) and the barging company (Tidewater Transportation & Terminals) and they did not indicate any significant concerns about logistics of transload of NRC/NAPL PTW waste volumes for transport and disposal at ChemWaste. It should be noted that Tidewater Transportation & Terminals was the barging company used for Gasco Early Action. Also, through discussions with the representative facilities, the cycle time in terms of barging and trucking reflects their cycle time input for a round trip. Based on these discussions and inputs following cycle time for barging was assumed in the FS cost estimates: 1 day of barge time to Port of Morrow (Boardman site) and 18 hours of barge time for return.

The 2016 FS cost estimate does not assume that the barged material would be stockpiled at the Port of Morrow (Boardman site) transload facility. Instead the 2016 FS cost estimate assumes direct loading in two steps; using a crane to offload from barge and a front-end loader to load the trucks. In addition, an offsite transload facility development cost was included to account for additional flexibility in transload. In terms of flexibility, as indicated in Appendix F of the 2016 FS, multiple modes of transport besides barging (rail or truck) could be used to transport waste to ChemWaste from transload locations as determined during remedial design. It should be noted that ChemWaste had indicated for budgetary purposes for the feasibility study that the cost of transport wouldn't differ significantly between the various modes of transport once transload was taken into account.

The ChemWaste landfill is assumed to only be used for disposal of NRC/ NAPL PTW. As compared to Gasco Early Action (~15,000 CY), the Portland Harbor Superfund Site remedial action will generate a large volume of waste material for disposal at ChemWaste (~285,000 CY); however this volume is assumed to be generated over a longer construction duration of 5 seasons as assumed for Alternative I. Based on these assumptions it is estimated that approximately 2,400 CY per week (which is approximately 1 to 2 barges per week) would be handled at the transload facility for disposal at ChemWaste. As mentioned above, the barging company, the transload facility, and disposal facility did not indicate any significant concerns about logistics of handling the required volume for transportation, transload and disposal.

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*The cost estimate appears to assume the Subtitle D material is barged to Bingen and then hauled by truck to the Roosevelt Landfill. There is no analysis of whether the Bingen offloading facility could accommodate 6,200 cy per day of dredged material for processing. EPA is also assuming that diatomaceous earth is added into the sediments to absorb the free water, but they do not account for the \$9M in added tonnage for disposal.*

**EPA Position:**

The assumption in the 2016 FS for contaminated sediment disposed of at a Subtitle D facility is that it is barged to Bingen and hauled by truck to Roosevelt Landfill. EPA did have a discussion with Roosevelt Landfill facility about their ability to transload material from barge and they indicated the ability to accommodate the quantity that the project may develop, specifically including their ability to handle 6,200 cy/day of dredged material. They also indicated that there are sufficient options available since Roosevelt Landfill facility has agreements with a number of transload facility locations along the Columbia River including potential plans to build a new transload facility irrespective of this project (see 2016 FS Appendix G, Cost Estimate Backup Project- Specific Vendor Quotes).

LWG is incorrect that diatomaceous earth was not accounted for in the disposal costs. As described in the 2016 FS, Appendix D [D2.4 Treatment and Disposal Quantities, D2.16 Truck, Rail, Barge Loads for Disposal Volumes (DMM Scenario 1 - Confined Disposal Facility and Off-Site Disposal), and D2.17 Truck, Rail, Barge Loads for Disposal Volumes (DMM Scenario 2 - Off-Site Disposal)], the volume or tonnage of diatomaceous earth required for pre-treatment was considered and included in overall volumes and tonnages for transportation and disposal. These quantities were presented in the tables referenced in the 2016 FS, Appendix D2.4, D2.16, and D2.17, and were subsequently used in the cost worksheets for the alternative cost estimates within Appendix G. Also, the 2016 FS, Table D2.d, shows the calculations that illustrates the inclusion of diatomaceous earth for all dredged sediment (except those destined for CDF disposal under DMM Scenario 1).

*EPA does not provide any details on project schedule related to integration of dredging, daily covers, and caps. Capping materials alone include more than 800,000 cy. Two capping plants working 12 hours per day would be needed to place roughly 200,000 cy per season per LWG estimates; EPA's estimated rates are 600,000 cy per season from two plants with one working 24 hours per day and one working 12 hours per day.*

**EPA Position:**

LWG is incorrect that EPA does not provide any details regarding schedule related to integration of dredging and capping. The feasibility study does not provide construction schedules for alternatives, which is more appropriate during remedial design. However, cursory evaluations of construction durations were included for purposes of implementability and cost evaluations within Appendix D.3 of the 2016 FS. These evaluations were primarily based on the major construction components driving overall

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durations (specifically capping, dredging, and in situ treatment) using the USACE-determined productivities as indicated in Appendix D.3 of the 2016 FS. This table explicitly documents the methodology used to arrive at the construction durations with respect to capping and dredging.

LWG is also incorrect regarding EPA's assumptions of the number of capping plants and their productivities. EPA assumed three plants, not two, operating 6 days per week with one day of maintenance per week. The estimated productivity of each of these plants is 1,500 CY per day (4,500 cy per day total) but that placement rate was reduced in the construction duration estimates to 3,900 CY per day for all three plants to account for a weekly average. These assumptions are stated in the 2016 FS, Appendix D, Assumption No. 4 in Table D3-1 (Construction Duration Assumptions).

*EPA continues to use a very simplistic approach to estimating dredge volumes, which has a large potential to substantially underestimate the dredge volumes eventually determined in remedial design.*

**EPA Position:**

EPA disagrees that a simplistic approach was used to estimate dredge volumes in the 2016 FS. EPA developed dredge volumes using "neat" line volumes based on interpolated area and depth data. To take into account side slope stability (dredge prism), neat volumes were multiplied by a factor of 1.5 to estimate the Low Volume with Overdredge, and by a factor of 2.0 to estimate the High Volume with Overdredge. Total volumes for each alternative were calculated as the average of the estimated low and high overdredge volumes. This is consistent with information presented in the Corps Technical Guidelines for Environmental Dredging of Contaminated Sediments (Palermo et. al., September 2008) – Section 3.4.3:

"For FS level considerations, an adjustment factor of 50 percent (i.e., an estimated dredge prism volume equal to 1.5 times the neat line prism volume) is appropriate for typical site conditions."

Guidance states that the ratio of dredge prism (including allowable overdraft) to the neat line prism (which is what EPA assumed in the 2016 FS) can be as high as 3 based on work at the U.S. Navy Homeporting project in Everett, Washington. However, it seems that the estimate of dredge prism to neat line ratio of 1.5 – 2.0 is reasonable for Portland Harbor and consistent with the guidance for an FS level evaluation. During remedial design, dredge prisms will be developed that minimize the amount of material that will need to be removed through dredging.

*EPA uses the same 7% discount rate as used in the EPA 2015 draft FS, which heavily discounts the larger alternatives (i.e., Alternative E is discounted a total of 41% and Alternative G is discounted by 77%). This discount rate is indicated on the first page of EPA's 2000 cost estimate guidance for FSs. However, the second complete paragraph on Page 4-5 of that guidance indicates that a different discount rate can be used as long as*



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*it is justified consistent with OMB Circular A-94. Accordingly, the LWG's 2012 draft FS used a discount rate of 2.3%, consistent with guidance as explained in that document. The equivalent treasury rate for 2016 is 1.5%, which is a much more appropriate discount rate at a site where the PRPs include the United States, the State of Oregon, municipalities, public utilities, and many parties whose principal or only source of funding for cleanup are insurance funds outside their investment control. It is also the rate that EPA would presumably use in calculating required financial assurance.*<sup>52</sup>

*52 2016 Discount Rates for OMB Circular No. A-94, M-16-05 (Office of Management and Budget, February 12, 2016)*

**EPA Position:**

As discussed in EPA's *A Guide to Developing and Documenting Cost Estimates during the Feasibility Study* (EPA 540-R-00-002), the real discount (interest) rate used for present value analysis in the FS depends on whether the site is classified as a Federal facility site. Federal facility sites are former or current installations operated or controlled by a Federal government agency and identified by EPA's Federal Facilities Restoration and Reuse Office (FFRRO). The Portland Harbor Superfund Site is not a Federal facility identified within FFRRO's site inventory. In addition, the guidance specifically mentions that although a Federal-lead site cleaned up by EPA using the Superfund trust fund (Fund-lead sites) may be an analogous situation to a Federal facility site being cleaned up using Superfund authority, there is always a chance that a potentially responsible party (PRP) could remediate the site. Thus, per guidance a real discount rate of 7 percent should be used in calculating present value costs for all non-Federal facility sites such as the Portland Harbor Superfund Site. This expectation is documented in the last paragraph of Page 4-5 of the guidance.

EPA's *A Guide to Developing and Documenting Cost Estimates during the Feasibility Study* in the second paragraph on page 4-5 also specifically states that any changes to EPA's policy to use a 7 percent discount will be reflected in an update to OSWER Directive 9355.3-20. EPA has not updated that directive, and thus use of a 7 percent real discount rate is still the expectation per that directive. Furthermore, while the statement that a differing discount rate can be considered based on a change to the discount rate within OMB Circular A-94 is correct, OMB has not changed from a 7 percent real discount rate (see Paragraph 8(b)(1) of OMB Circular A-94). Updates to discount rate in Appendix C of OMB Circular A-94 are not considered changes to the policy (see second paragraph on Page 4-5 of EPA 540-R-00-002 and related Footnote 3).

LWG also asserts that a differing discount rate should be used to be consistent with financial assurance practices used for these types of sites that use funding from PRPs. As indicated on Page 2-3 of EPA's *A Guide to Developing and Documenting Cost Estimates during the Feasibility Study*:

As a project moves from the planning stage into the design and implementation stage, the level of project definition increases, thus allowing for a more accurate cost estimate. An

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“early” estimate of the project’s life cycle costs is made during the FS to make a remedy selection decision.

At the FS stage, the design for the remedial action project is still conceptual, not detailed, and the cost estimate is considered to be “order-of-magnitude.” The cost engineer must make assumptions about the detailed design in order to prepare the cost estimate. As a project progresses, the design becomes more complete and the cost estimate becomes more “definitive,” thus increasing the accuracy of the cost estimate. This process is depicted in Exhibit 2-3 for remedial action projects in the Superfund program.

Further, EPA’s *Guidance on Financial Assurance in Superfund Settlement Agreements and Unilateral Administrative Orders* (p. 5) states:

2. Considerations for applying a discount rate for FA

A discount rate is the interest rate used in calculating the present value of expected future costs.<sup>16</sup> As noted in existing EPA guidance for documenting cost estimates during the FS, the Agency generally uses a 7% real discount rate to compare alternatives during the remedy selection process.<sup>17</sup> The goal of that guidance was to improve consistency, completeness, and accuracy of cost estimates developed specifically during the feasibility study phase of the Superfund remedy selection process, but not to offer guidance on determining an FA amount.

FA requirements are generally designed to ensure that sufficient funds are available for the government or another party to complete cleanup work if a PRP does not perform the required work. The Agency believes that FA based on a 7% discount rate could be insufficient to perform the work because funds called in from FA mechanisms are typically deposited into “special accounts”<sup>18</sup> or standby trusts, which are unlikely to grow at this annualized real rate.

<sup>16</sup> If a discount rate is applied to a cost estimate to establish an FA amount, it would take into account the time value of money—the general idea that a dollar today is worth more than a dollar tomorrow—by assuming that the initial FA amount would appreciate over time at a projected growth rate. The higher the discount rate that is applied, the less FA would initially be required, and the more it would need to appreciate to meet the anticipated funding needs at the site.

<sup>17</sup> See EPA Office of Solid Waste and Emergency Response, OSWER 9355.0-75, A Guide to Developing and Documenting Cost Estimates During the Feasibility Study (July 2000), p. 4-4, available at <http://www.epa.gov/superfund/policy/remedy/pdfs/finaldoc.pdf> (stating that the “specified rate of 7% represents a ‘real’ discount rate in that it approximates the marginal pretax rate of return on an average investment in the private sector in recent years and has been adjusted to eliminate the effect of expected inflation”).

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<sup>18</sup> Special accounts are site-specific, interest-bearing accounts within the Superfund. For documents concerning special accounts, view the Special Accounts category in the Superfund enforcement policy and guidance database, available at [http://cfpub.epa.gov/compliance/resources/policies/cleanup/superfund/index.cfm?action=3&sub\\_id=1235](http://cfpub.epa.gov/compliance/resources/policies/cleanup/superfund/index.cfm?action=3&sub_id=1235).

Thus, the development of cost estimates in the 2016 FS was consistent with EPA's cost and financial assurance guidance and used the appropriate discount rate where the primary purpose is for comparing remedial alternatives during the remedy selection process.

It should be noted that while EPA used a 7 percent real discount rate for presentation of the alternative costs, a sensitivity analysis was performed for varying discount rates and presented in Appendix N of the 2016 FS. This is consistent with the recommendation in the third paragraph on Page 4-5 of EPA's *A Guide to Developing and Documenting Cost Estimates during the Feasibility Study*.

*EPA used a low mobilization/demobilization factor of 1.6%, while the 2012 draft FS used a 15% factor based on project experience at similar sites. EPA is basing its 1.6% percentage on the cost estimate used for the Lower Duwamish River FS—not real construction data.*

**EPA Position:**

LWG is correct that construction data were not specifically used for determination of the mobilization/demobilization factor. However, EPA's *A Guide to Developing and Documenting Cost Estimates during the Feasibility Study* (EPA 540-R-00-002), actual construction data is not required to be solely used. As indicated on page 5-6 of that guidance, "experience with similar projects, including both estimates and actual costs (bold emphasis added) can also be used as a source of cost data."

In addition, the determination of the percentage of the capital and periodic costs for mobilization and demobilization was based not just on review of Lower Duwamish River FS, but also the Passaic River FS, projects of similar scope and the equipment proposed for Portland Harbor FS.

The types of dredge can cap placement equipment proposed in the Portland Harbor 2016 FS (the primary pieces of equipment requiring mobilization/demobilization from beyond metro Portland) are fairly conventional in that they are barge mounted excavation and placement equipment and not unique types of dredge equipment such as suction dredges. In addition, the number of dredge plants and capping plants and attending scow barges and tugboats are relatively small given the duration of the project. Thus they should readily available in the Pacific Northwest given the multitude of shoreline projects along the Willamette and Columbia Rivers. EPA has thus assumed mobilization and demobilization are representative of expected regional mobilization and demobilization costs.

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The use of a percentage of capital costs for mobilization and demobilization of equipment is reasonable for the FS level of scope detail and assumptions. Real construction data will be evaluated and presented during remedial design as necessary.

It should be noted that unlike alternatives for some Superfund projects, the primary differences between the alternatives for the Portland harbor Superfund Site is the size of the footprint of removal and containment based on the area of the SMAs defined for each alternative. Therefore, the cost differences between alternatives is reflective of the differing quantities calculated in the technology assignment modeling. Because the differences in capital and periodic costs are primarily based on quantity differences, the use of lower percentages for mobilization/demobilization costs do not impact the comparative aspects of the costs estimates between alternatives.

*EPA used a contingency factor of only 20%, while the LWG's 2012 draft FS used 40%. EPA guidance indicates that the overall contingency for an FS should be in the 20 to 45% range. Thus, EPA is using the lowest possible contingency factor allowed by guidance. EPA cites guidance indicating that larger projects with high costs may have lower overall contingency factors. This may be true for some types of projects, but given the complexity of this Site and the large number of issues that will be refined in design, using the lowest possible contingency factor appears very optimistic and greatly decreases the estimated costs of the alternatives, particularly the largest alternatives.*

**EPA Position:**

The stated accuracy in EPA's *A Guide to Developing and Documenting Cost Estimates During the Feasibility Study* for FS cost estimates at the detailed analysis phase is +50 to -30 percent of actual cost. EPA's position is that the cost methodology and sources used in the FS meet the stated accuracy range. The information provided in the cost estimate is based on the best available information regarding the anticipated scope of the remedial alternatives.

As described in Section 5.4 of EPA's *A Guide to Developing and Documenting Cost Estimates During the Feasibility Study*, engineering judgment may be used to adjust rule-of-thumb percentages presented in Exhibit 5-6 for scope contingency with a lower contingency indicating that project scope will undergo minimal change during design. Due to the detailed level of conceptual design performed as part of the technology assignment modeling in the 2016 FS, the contingency percentages were modified to the low end of the recommended range presented in the guidance, to better reflect the detailed evaluation and concepts developed for the following items:

Per EPA's *A Guide to Developing and Documenting Cost Estimates During the Feasibility Study*, contributing factors to scope contingency include the following:

- Limited experience with certain technologies
- Inaccuracies in defining quantities or characteristics
- Potential requirements due to regulatory or policy changes

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Scope contingency would be expected to be higher for newer or emerging remedial technologies than for more well-documented systems. Each alternative was developed using similar technologies and major work activities. Conventional and proven technologies were used in the development of the alternatives with only few exceptions (in situ treatment areas) representing a relatively small percentage of the scope.

The primary differences between the alternatives is the size of the footprint of removal and containment based on the area of the SMAs defined for each alternative. Therefore, the cost differences between alternatives is reflective of the differing quantities calculated in the technology assignment modeling. The development of the RALs for each alternative established a boundary for the horizontal limits of dredging/capping based on available boring data. There is a vertical limit for dredge volumes in the shallow and intermediate areas based on the technology assignments, and this will limit the risk for potential growth of volume estimates in those areas.

EPA assumes all NAPL PTW will be dredged in the Navigation and FMD areas. However, the Willamette River currently has an authorized channel depth of -40 feet Columbia River Datum (CRD), and contamination at depths greater than the authorized depth of the navigation channel may be capped as long as the cap integrity is not impaired by future maintenance dredging.

Federal and State regulations were carefully evaluated and taken into consideration in the assignment of technologies (mitigation and floodrise) for development of all alternatives.

EPA ultimately selected a scope contingency (10 percent) within the parameters suggested by the guidance, after taking this information into account. For instance, Exhibit 5-6 of EPA's *A Guide to Developing and Documenting Cost Estimates during the Feasibility Study* indicates a recommended scope contingency range of 5 to 10 percent for surface grading/diking, 5 to 15 percent for bulk liquid processing, 5 to 15 percent for on-site and off-site disposal, 10 to 20 percent for sludge stabilization. All of these are activities that are part of the scope of the Portland Harbor alternatives and are at within the range of the scope contingency selected by EPA. While vertical barriers (10 to 30 percent) and soil excavation (15 to 55 percent) are at or higher than the selected value, the refined development of quantities and scope in the 2016 FS minimize the likelihood that significant unknowns and uncertainties remain that would result in large underestimation of costs requiring scope contingency.

Bid contingency accounts for changes that occur after the construction contract is awarded. Examples include:

- technological, geotechnical, and other unknowns applicable to the construction phase
- changes due to adverse weather
- material or supply shortages

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Conventional and proven technologies were used in the development of the alternatives with only few exceptions. The site specific unit costs developed for the Portland Harbor Superfund Site and presented in Appendix G of the 2016 FS were generally in the range of costs at other contaminated sites in the Pacific Northwest. This reduces the risk of technical constraints during contractor bidding. Inputs and assumptions used in the development of the construction duration calculations included an in-water work window which is appropriate for the region.

A vast majority of the materials and supplies identified as necessary for remedial action are conventional and readily available (sand, DE, quick lime). EPA assumes commercial source of capping materials, and assumes that more than one source may be required. EPA confirmed that commercial suppliers could supply the required volumes.

EPA ultimately selected a bid contingency (10 percent) within the parameters suggested by the guidance, after taking this information into account. Page 5-11 of EPA's *A Guide to Developing and Documenting Cost Estimates during the Feasibility Study* indicates a recommended scope contingency range of 10 to 20 percent. This is within the range of the bid contingency selected by EPA.

Unlike alternatives for some Superfund projects, the primary differences between the alternatives for the Portland harbor Superfund Site is the size of the footprint of removal and containment based on the area of the SMAs defined for each alternative. Therefore, the cost differences between alternatives is reflective of the differing quantities calculated in the technology assignment modeling. Because the differences in capital and periodic costs are primarily based on quantity differences, the use of lower percentages for contingency do not impact the comparative aspects of the costs estimates between alternatives.

*EPA used lower percentages for project management (2%), remedial design (2%), and construction management (3%) than EPA guidance (5%, 6%, and 6%, respectively). These factors are also lower than the 2012 draft FS, which used 15% for remedial design and a monthly rate for project management and construction management. Remedial engineering design costs at the Head of the Hylebos were roughly 15% of actual project costs.*

**EPA Position:**

As described in Section 5.5 of EPA's *A Guide to Developing and Documenting Cost Estimates During the Feasibility Study*, engineering judgment may be used to adjust rule-of-thumb percentages presented in Exhibit 5-8 for project management, remedial design, and construction management as well as the recommended range presented for technical support. As described in the 2016 FS, Appendix G, Attachment A, the percentages of professional and technical services costs will be higher for projects of smaller scope and lower for projects of larger scope. Due to the high overall costs for major work activities, the professional/technical percentages were modified to lower than the recommended

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range presented in the guidance, to better reflect realistic costs for professional/technical services costs for these items.

It should be noted that unlike alternatives for some Superfund projects, the primary differences between the alternatives for the Portland harbor Superfund Site is the size of the footprint of removal and containment based on the area of the SMAs defined for each alternative. Therefore, the cost differences between alternatives is reflective of the differing quantities calculated in the technology assignment modeling. Because the differences in capital and periodic costs are primarily based on quantity differences, the use of lower percentages for these professional/technical services costs do not impact the comparative aspects of the costs estimates between alternatives.

See EPA's position above for additional information on basis for reduced remedial design percentage compared to Head of the Hylebos project.

*There are significant equipment and contracting issues associated with executing multi-year projects where tens of millions of dollars of equipment need to be mobilized to the Site. The cost estimates do not factor in the standby costs created by idle equipment for two thirds of each year while the construction window is closed.*

**EPA Position:**

The unit costs were developed assuming conventional equipment. It is assumed that market conditions in the Pacific Northwest and utilization of this conventional equipment for other projects will minimize standby time between work windows and costs incurred for standby outside the work window would be covered by contingency. See EPA's position above for additional information on mobilization and demobilization.

*In Section 4.2.2.2, EPA discusses the need for air monitoring. Air monitoring costs do not appear to be included in the cost estimate. The June 2016 FS also cites the need for fish tissue monitoring during construction which is not reflected in the costs.*

**EPA Position:**

Site-wide monitoring is included as a capital cost in year 1 and also as a periodic cost incurred every other year for the first 10 years and every 4 years through the period of analysis. Unit costs for these monitoring efforts were developed by Anchor QEA in the draft 2012 FS, and include fish tissue monitoring. Additionally, costs for environmental monitoring during offloading at transload facility is included in the estimate for transload facility development for the duration of construction. The unit cost allowance for environmental monitoring during offloading at transload facility were developed by Anchor QEA in the draft 2012 FS, and include costs for boat, monitoring equipment and chemical analysis.

As part of ARAR discussions in Section 4.2, air monitoring is identified as required "to ensure that contaminants that volatilize would not exceed acceptable health based concentrations and adversely affect local communities and workers." Air monitoring is a

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minor scope component for the alternatives given that the majority of contamination in sediment throughout the Portland Harbor (PCBs, pesticides) does not readily volatilize. Location-specific needs for air monitoring (particularly PTW at the Area 6W and 7W SDUs) will be addressed during remedial design. The scope of site-specific air monitoring requirements will be identified during remedial design, and costs for these are captured in the scope contingency of the 2016 FS alternatives cost estimates given that the requirements at this time are not fully known.

**LWG Dispute Issue 3**

*The FS fails to articulate a clear and understandable framework and schedule for implementation by which each alternative can be compared. For example, the FS states that “all the alternatives assume the remedy will be implemented as described. That is, there would be no changes identified during remedial design. However, due to the uncertainty inherent at Superfund sites, there will be adjustments made throughout the design and construction process.”<sup>3</sup> Nothing in the FS describes what adjustments are possible or how those adjustments would be determined, and, in contradiction to this assertion, EPA’s prescriptive technology assignments are carried through to the Proposed Plan. Similarly, the timeframes for all alternatives are described to include a “Year 0” “initial conditions” assessment expected to take 3 to 5 years to complete, and a subsequent set of “Year 0” start-up activities, including “pre-design investigations.”<sup>4</sup> No time is allowed in the schedule for preparation and approval of actual remedial engineering design. “Year 0” is also identified as “the first year of construction.”<sup>5</sup> Therefore, “Year 0” for all alternatives appears to mean more than 3 actual calendar years, but it is impossible to tell from the FS how many actual calendar years are rolled up into “Year 0” for any given alternative. EPA should provide a realistic vision and timeframe for implementation of its alternatives, and EPA should clearly identify in its alternatives development and decision trees that sediment management areas and technology assignments and process options will be refined and adjusted through remedial design and implementation.*

***The EPA June 2016 FS fails to articulate a clear and understandable framework and schedule for implementation by which each alternative can be compared.***

*EPA’s June 2016 FS continues to be very unclear on EPA’s vision for actual implementation of its selected remedy. On the one hand, it suggests in a few places that some elements of the remedy will need to be further defined or adjusted or modified during remedial design. On the other, it states definitively that the “remedy will be implemented as described. That is, there would be no changes identified during remedial design.” Further, the schedule outlined by EPA for remedial implementation is impossible on its face – as discussed above, “Year 0” for every alternative contains a minimum of 4 years of activities.*

*Generally speaking, EPA continues to use a prescriptive set of technology evaluation and scoring criteria to determine the technologies to be applied in each area of the site. Given the deficiencies in the FS described above, and given the lack of evaluation of*



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*SDU-specific information, Figure 3.8 presents an entirely-too-prescriptive approach to technology assignments. As the LWG previously commented, EPA's approach prevents meaningful comparison of the performance of various technologies in the FS, and because the technology assignment is based on FS-level information, the prescriptive set of evaluation criteria will not appropriately or accurately predict the most appropriate technology assignments or configurations for remedial design based on data available at the time of design, including data collected post-ROD. For example, those assignments are based on overall general assumptions regarding slopes, presumed "wave zones," and required depths of removal to reach protective levels. With respect to riverbank contamination and presumed groundwater contamination, they are based solely on those general broad designations, without consideration of which COCs are present and conditions of exposure. By contrast, the Corps of Engineers capping guidance document provides design level guidance of modeling and assessment methods to determine the concentration of contaminants of concern that can be safely isolated by capping. EPA's process and these figures should build in the flexibility needed to evaluate the likely performance of technologies against RAOs in the context of the complexities of each particular SDU.*

*EPA should clearly explain the conditions under which changes to major alternative elements (e.g., changes in technologies assignments, methods to address PTW, methods for determining treatment and disposal requirements, requirements for rigid containment) might be considered or allowed. EPA should explain how new data, including the "initial conditions" assessment will affect the RAL boundaries based on surface sediment concentrations. The FS should include language to allow for updates to risk assessments. EPA should incorporate decision frameworks, such as the capping demonstration decision tree that was discussed during development of the June 2016 FS. No defined processes are in place for proposing equally or more effective capping options or other technology refinements based on detailed design-level evaluations and new data. EPA should explain how the remedy would be implemented spatially (e.g., operable units, groups of SMAs) and provide transparent and reasonable disclosure of when the community can expect cleanup to actually begin.*

**EPA Position:**

The LWG provided no regulatory or guidance support for their contention that the 2016 FS should have contained a framework and schedule for implementation. Neither the NCP nor FS guidance speaks to the need for a schedule for implementation for each alternative. The gist of the LWG's concerns appear to be more about wanting to know what the areas of flexibility may be in applying the decision trees moving into implementation because they read the 2016 FS to say that no changes to the technologies could be made in remedial design.

The LWG's concern is unfounded. The LWG took the 2016 FS quote from page 3-39 out of context and misinterpreted it. Here is the full text of the relevant FS section:

Remedy Implementation

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For the purposes of the FS and developing remedial alternatives, the sequence of dredging is assumed to be from RM 11.8 to RM 1.9. However, during remedy design and construction, it may be more effective to deviate from this approach.

All the alternatives assume the remedy will be implemented as described. That is, there would be no changes identified during remedial design. Due to the uncertainty inherent at Superfund sites, there will be adjustments made throughout the design and construction process.” Page 3-39 of 2016 FS.

Furthermore, a word search for “remedial design” in the 2016 FS found 23 issues on which the document stated that further evaluation in remedial design would be necessary. Further, the 2016 FS acknowledges in several places that the technology assignments were **assumed** for various areas.

**LWG Requested Relief #1**

*EPA's June 2016 FS should not be used as a basis for a Record of Decision for the Portland Harbor Superfund Site.*

**EPA Position:**

The 2016 FS is based on good science – many principles are from LWG’s draft 2012 FS, data collected by LWG during the RI phase, and consistent with the findings of the baseline risk assessments, the NCP and EPA policy and guidance for developing an FS.

**LWG Requested Relief #2**

*The alternatives analysis in the LWG's 2012 FS provides an adequate basis for selecting a remedy at the Site.*

*The Disputing Respondents stand behind the LWG’s 2012 draft FS, which incorporated good science, provided the required comparative analysis of alternatives, and relied on realistic estimates of cost and time to perform work. The Disputing Respondents were prepared to fully engage with EPA and resolve EPA’s comments and concerns in order to produce a report that provided a credible basis for EPA’s selection of a remedy that conformed to CERCLA, the NCP, and EPA guidance. EPA’s unwarranted deviation from the RI/FS process agreed to by EPA in 2001 and set forth in the NCP has created a methodology that does not allow sufficient time for review, consideration and revision of the flawed FS, and is an abuse of discretion. A Record of Decision based upon the June 2016 FS will likely lead to an ineffective cleanup that cannot be implemented in a timely manner.*

**EPA Position:**

By letter dated, December 18, 2012, EPA disapproved the LWG’s 2012 draft FS and provided a list of seven significant deficiencies with the 2012 draft along with a table of 96 comments raised by the Technical Review Team. [AR Doc # 100007297 through 100007299] As described in the Introduction Section of this Response, EPA has been

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transparent and open about the modifications it viewed were needed to the LWG's 2012 draft FS and shared drafts of its modifications with the LWG over the past two to three years. The LWG has had significant opportunity to raise its concerns, which they fully took advantage of, which our administrative record demonstrates. The deficiencies EPA identified with the LWG's 2012 draft FS, not surprisingly comprise many of the issues the LWG now dispute. They even continue to dispute the background methodology that EPA's Dispute Official thoughtfully considered and documented his rationale for upholding EPA's methodology. The LWG has had significant due process to raise its issues throughout the RI/FS development, but EPA had legitimate concerns with the LWG's draft FS. The modifications that EPA made to the FS are supported by the administrative record and consistent with CERCLA, the NCP, and EPA guidance.

Contrary to their February 2016 agreement that it was appropriate for EPA to finalize the FS, the LWG complains that EPA should have worked with them to solve the problems with their 2012 draft FS and it was an abuse of discretion for EPA to have finalized the FS rather than use their draft FS. Page 22 of LWG Dispute Statement. The relief they seek is that EPA should use their 2012 alternatives analysis for selecting a remedy at the Site. Although the scope of this dispute is limited to issues about the 2016 FS, the LWG have placed at issue the quality of the alternatives analysis in their 2012 draft and whether that analysis should be used to make the remedy decision, to which we must provide a response.

As the various responses to dispute issues above have noted, EPA used a lot of the LWG's analysis from their 2012 draft FS, which at the time they submitted it, they heralded it as sufficient for decision-making. As demonstrated above, many of their problems with EPA's 2016 FS is based on their analysis they now claim is flawed or should not have been used. Apparently if the analysis is in EPA's 2016 FS its wrong, but it's fine and useable in their 2012 draft FS. The deficiencies and comments contained in EPA's December 18, 2012, letter document sufficient basis to deny the relief they now seek. Additionally, a more detailed analysis of the failings with their hydrodynamic and sediment transport ("HST") model is contained in Section 4.2.1 and Appendix H of the 2016 FS. The LWG's flawed HST model was a fundamental basis for their alternatives analysis and conclusions; therefore, any decisions based on their alternatives analysis would also be significantly flawed.

EPA has fully considered all of the issues that the LWG, collectively, as well as individually have raised on EPA's 2016 FS. Many of the LWG's issues do not even apply to the 2016 FS, but rather were issues they raised on the August 2015 draft which EPA addressed in the 2016 FS. Likewise, other concerns they raise are actually concerns about their own analysis that EPA used in developing the 2016 FS. The LWG has not provided any reason for EPA to abandon its 2016 FS. EPA complied with the CERCLA, the NCP, and EPA guidance in developing its 2016 FS and it is more than adequate for supporting a final remedy decision for the Portland Harbor Site.

## **SDU and Upland Site Specific Issues for Disputes**

### **Arkema Dispute Issue 1 - Riverbank contaminants adjacent to the Arkema Site**

*EPA added sites and edited the discussion of riverbanks and groundwater in Section 1 of the FS.*

*Based upon our preliminary review, the identification and presentation of these sites contain multiple errors. For example, PCBs are listed as a riverbank contaminant at Arkema, but have only been detected in a small number of samples below the applicable screening levels (with one exception, one sample slightly exceeded a conservative bioaccumulative SLV). Two key issues are: (1) risk-based PRGs should not be established based on exposure pathways being evaluated as part of the upland source control evaluations under DEQ, and (2) that none of these upland media were evaluated in the BLRAs or RI. EPA's use of sediment PRGs for riverbanks, which were applied to areas rarely inundated by the river and without considering fate and transport (e.g., attenuation), is technically unsupportable and inappropriate. Delineations of groundwater plumes and riverbanks, and a zero post-construction restoration timeframe are unsupportable.*

*There is a lack of data and analysis as to what risk considerations are driving the specific remedial actions (and therefore how such analyses will be refined in the design phase when further data/analysis is available) and what specific remedial actions will be implemented in which areas driven by such risks. This opaque delineation is then carried into the evaluation of alternatives and used to assess the relative effectiveness of alternatives. This appears to significantly bias the outcome of alternative selection.*

*The June 2016 FS fails to include a discussion of upland source controls that have been implemented as well as failing to include anything related to the performance of source controls in the remedial evaluations.*

*Source control measures taken at the Arkema Site have largely eliminated the stormwater pathway from this site. Groundwater controls, namely the installation of a slurry wall and a groundwater extraction and treatment system designed to prevent migration from the uplands to the river, have eliminated the groundwater pathway.*

### **EPA Position:**

See EPA's position to LWG's dispute issue 1q.

### **Arkema Dispute Issue 2 - Principal Threat Waste adjacent to the Arkema Site**

*EPA inappropriately identifies chemicals in sediment adjacent to the Arkema Site as PTW based on either a "source material," "not reliably contained," or "highly toxic" criterion. Source material has never been identified in Arkema Site sediment, EPA should not identify chemicals that can be reliably contained as PTW, and chemicals that require long-term exposure durations through indirect exposure pathways (i.e., consumption of fish tissue) should not be identified as "highly toxic." In addition, the blanket identification of large areas with low concentrations of chemicals in sediments as PTW is*

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*neither required by the National Contingency Plan (NCP) nor necessary to protect public health or the environment.*

*EPA errs when it misidentifies source material based on “globules or blebs of product in surface and subsurface sediments...” and when it states that “NAPL observed in sediment cores offshore of Arkema contains chlorobenzene and DDT (dissolved).” Arkema responded to CDM Smith’s 2013 memorandum (Attachment Ark-1) that purports to identify NAPL at the Arkema Site. To resolve the issue, Arkema prepared a work plan in response to EPA requests under the EE/CA Administrative Order on Consent (AOC) to confirm that NAPL was not present in sediment adjacent to the Arkema Site (Integral 2016). In addition, no samples offshore of the Arkema Site have identified the presence of an MCB DNAPL. There is no data that supports EPA’s statement that NAPL observed in Arkema sediment “...contains chlorobenzene....” Significantly, a document titled “Top 10 State Issues for Proposed Plan” obtained from the LWG’s Freedom of Information Act (FOIA) request identified that based on Oregon DEQ’s review of the data “The multiple phases of sediment investigation have not encountered sediment exhibiting NAPL saturated conditions that would warrant thermal treatment prior to management.” The status column for the same issue states that “EPA agreed to not assume NAPL at Arkema for the purposes of the cost estimate” (Attachment Ark-2). Based on these records, we conclude that EPA and DEQ agreed that there was no chlorobenzene NAPL in offshore sediments, and therefore the assertion that such sediments represent PTW Source Material as defined by EPA’s PTW fact sheet is without foundation, acceptance, or support.*

*EPA also erred when it identified an extensive area of groundwater containing chlorobenzene DNAPL discharging to the river as “not reliable contained” (Attachment Ark-3). In fact, there is no documented MCB DNAPL groundwater plume. EPA’s Figure 3.2-4, adjacent to the Arkema Site, is inaccurate and misleading. The nature and extent of chlorobenzene DNAPL in groundwater and/or sediment pore water as shown in this figure is not based on actual site data. Groundwater SCMs have been implemented at the site beginning in 2012, including an upland groundwater barrier wall and extraction and treatment system. The groundwater pathway to the river from upland areas where chlorobenzene DNAPL may have been present in upland groundwater has been isolated from site sediments. Containment has been in existence for nearly four years.*

*There is no scientific evidence that supports the existence of an ongoing source of MCB DNAPL to the sediment adjacent to the Arkema Site. Groundwater and pore water sampling conducted after the implementation of the SCM has not identified a MCB DNAPL source to sediment adjacent to the Arkema Site. This site characterization error which postulates an extensive area of chlorobenzene DNAPL in sediment at the Arkema Site biases the assessment and comparison of the effectiveness of alternatives as evidenced from the following text: “Alternative D has less capped area (71 acres), but does not reliably contain all PTW remaining in the river.” (USEPA 2016, p. ES-15). Without an accurate assessment of PTW and PTW areas (in this case, DNAPL), EPA’s alternatives evaluation is highly inaccurate.*

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*EPA also errs when it misidentifies areas of the Arkema Site (including certain areas upstream and downstream of Arkema; Attachment Ark-3) as containing “highly toxic” PTW based on surface sediment concentrations for DDX, 2,3,7,8-TCDD, 2,3,7,8-TCDF, 1,2,3,7,8-PeCDD, 2,3,4,7,8-PeCDF, and 1,2,3,4,6,7,8-HxCDF that exceed a 10<sup>-3</sup> excess cancer risk level for fish consumption based on the fish ingestion risks from the baseline human health risk assessment (BHHRA). This definition of highly toxic based on a long-term (30-year) exposure to a chemical substance via a fish consumption pathway is not consistent with the intent of EPA’s PTW fact sheet. These 10<sup>-3</sup> risk levels include long-term exposure parameters and indirect exposure based on a 30-year subsistence fish consumption scenario, which does not meet the definition of highly toxic (i.e., toxic under a direct contact or acute exposure scenario). Highly toxic levels should be based on direct exposure conditions only. Furthermore, the 10<sup>-3</sup> excess cancer risk is only a suggested basis and is not prescriptive.*

*The EPA’s proposed highly toxic PTW levels should also be considered in a broader context.*

*EPA’s highly toxic PTW values for some constituents are well below cleanup levels and screening level for unrestricted use established for other sites and scenarios. For example, the PCB PTW value of 200 µg/kg is below cleanup goals for many other CERCLA sites, which are at or above 200 µg/kg. The EPA regional screening level (RSL) for residential soil in fact is 249 µg/kg; in other words, soil/sediment with PTW levels specified in the FS could be used as clean fill at homes, schools, and day care facilities. In this context it does not make sound technical or risk management sense for the PTW level to be set at 200 µg/kg.*

*An approach more consistent with the intent of EPA’s PTW guidance would be to set the PTW level at a 10<sup>-3</sup> risk value based on direct contact to sediment (removal action objective 1 [RAO1]); that would be the lower of the 10<sup>-3</sup> risk level (370,000 µg/kg), the hazard quotient (HQ) of 10 (147,600 µg/kg) (as stated in the guidance), or for the PCB case, the TSCA waste threshold (50,000 µg/kg). The use of the TSCA threshold for PCBs is also consistent with decisions at other CERCLA sites. A similar approach should be taken for the other constituents for which highly toxic PTW has been identified, especially dioxins/furans for which the PTW level in the FS is less than 3 times the EPA-recommended preliminary remediation goals PRG for dioxins/furans (once toxicity equivalence factors (TEFs) are applied).*

**EPA Position:**

See EPA’s position to LWG’s dispute issue 2c and LSS dispute issue 2.

**Arkema Dispute Issue 3 - Flawed evaluation used to determine whether PTW can be reliably contained**

*There is no scientific support for the assertion that there is NAPL or PTW in the sediments adjacent to the Arkema Site. According to EPA, PTW is a concept used in the NCP to characterize contaminant source material (USEPA 1991). PTWs are those source*

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*materials considered to be highly toxic or highly mobile that generally cannot be reliably contained or would present a significant risk to human health or the environment should exposure occur. In the 1991 guidance, EPA stated their expectation that PTW would be treated, wherever practical, because of current technical limitations of long-term reliability of containment technologies. The long-term reliability of containment of certain NAPL PTWs has improved through the development and implementation of reactive capping, as demonstrated by EPA (USEPA 2013).*

*The draft final FS does consider and propose reactive capping but uses a flawed screening analysis to limit its use by designating certain SMAs as PTW NAPL/NRC, reflecting those areas where purported NAPL is deemed not reliably contained (NRC). Furthermore, the draft final FS is not consistent with the EPA guidance on principal threat and low-level threat wastes (LTW) (USEPA 1991), as it does not differentiate PTW from LTW NAPL based on toxicity, mobility, and (realistic) reliability of containment, but uses NAPL and PTW interchangeably. For instance, for shallow areas it states that NAPL or PTW that is not reliably contained within an SMA would be dredged to the lesser of the RAL concentrations or 15 feet.*

*To determine the boundary for where PTW can be reliably contained, two limited capping options were modeled in Appendix D to determine the maximum concentrations of PTW material that would not result in exceedances of AWQC in the sediment cap pore water after a period of 100 years. Contaminants modeled were chlorobenzene, dioxins/furans, DDx, naphthalene, PAHs, and PCBs. Appendix D contains the following errors of commission or omission:*

- The objectives of the analysis are not clearly defined or stated. The document states “this appendix is evaluating whether or not PTW at the Site can be reliably contained under specific assumptions.” What are the assumptions that justify a conclusion that the maximum containable sediment concentrations of chlorobenzene and naphthalene are 320 µg/kg and 140,000 µg/kg, respectively?*
- The two potential active cap designs modeled (thickness of capping layers and amount of active material in cap for a reasonably conservative approach and a more aggressive augmented capping approach) are not representative of the current state of practice for reactive capping and so cannot be used to determine the contaminant concentrations that cannot be reliably contained.*
- The long term reliability of a reactive cap is a direct function of the thickness of the reactive layer and the amendment(s). A more reliable reactive cap with a thickness greater than 12-inches and consisting of a lower layer of organo-clay and an upper layer of GAC should have been considered in Appendix D.*
- Maximum pore water concentration of chlorobenzene used as a continuous source term in the model is based on the relatively old Remedial Investigation (RI) database and is not representative of current conditions, let alone for the next 100 years. In addition, EPA has used data that were not collected pursuant to the RI. EPA has used reconnaissance data collected using a Geoprobe rig. The data are unacceptable for, and cannot be used to represent, pore water chlorobenzene concentrations. Therefore, the maximum pore water concentration EPA used is based on inappropriate data and needs*

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*to be replaced in the model. Since the RI data collection, a barrier wall and pump-and-treat system have been installed along the shoreline of the Arkema Site. Furthermore, maximum data are not appropriate for assessing engineering performance, including reliability. A more appropriate input parameter is the 90th percentile concentration.*

*• A range of seepage velocities (0.3, 3, and 30 cm/day) were evaluated, representing the minimum, average, and maximum values measured at the Site. However, actual seepage velocities in SMA 7W are likely lower than 0.3 cm/day due to presence of the barrier wall and pump-and-treat system.*

**EPA Position:**

See EPA's position to LWG's dispute issue 2c and LSS dispute issue 2.

EPA did not establish any boundaries of waste in the 2016 FS. EPA developed estimates of various types of waste to estimate costs in the 2016 FS. The figures show the extent of the evaluation based on various assumptions identified in the 2016 FS report. Boundaries and cap designs will be established in remedial design. EPA agrees that additional data collection will be required to determine the appropriate design and waste treatment and disposition requirements during remedial design.

**Arkema Issue 4 - Inappropriate waste designation for sediments adjacent to the Arkema site**

*The assumed areas for disposal of sediment as RCRA waste (Figure 3.4-35, Attachment Ark-4) are based on a single toxicity characteristic leaching procedure (TCLP) sample for lead and no TCLP samples for chromium. Based on sediment analytical results, the area shown on Figure 3.4-35 does not represent sediment that will require RCRA Subtitle C landfill disposal. The State-listed pesticide residue designation also does not necessarily apply to sediment at the Arkema Site (Figure 3.4-36, Attachment Ark-4). As recently as February 2016, DEQ was researching the issue of whether sediment near Arkema would be designated a State-listed pesticide waste. Item 3 of the "Top 10 State Issues for Proposed Plan" document obtained from the LWG's FOIA request (Attachment Ark-2) states that "Sean needs State determination of State-only pesticide question, which Matt is researching." However, even if it is determined that some portion of the sediment is a State-listed pesticide residue waste, it would not preclude the placement of this sediment in a CDF (see HWIR discussion below) or disposal in a Subtitle D landfill out of state. When a State-listed hazardous waste is transported out of state (for example, to the Roosevelt Regional landfill as presented in the FS), the Oregon State waste designation no longer applies, and the waste can be disposed as a non-hazardous waste so long as it meets other landfill disposal criteria. This was recently demonstrated by the disposal of soil from the Arkema Stormwater and Groundwater SCMs, at the RCRA Subtitle D Roosevelt landfill in Washington.*

*Arkema disagrees with the cost assumption that "cement solidification/stabilization, low temperature thermal desorption, and no treatment will be used in equal proportions to treat pesticide/chlorobenzene PTW" for the disposal of dredged sediment that meets*



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*EPA's PTW criteria from the Arkema Site. Notwithstanding the fact that there are no PTW sediments currently identified off the Arkema Site, the FS fails to clearly outline the basis for EPA's assumptions regarding treatment as a prerequisite for offsite disposal. Section 3.2.2.3 fails to clearly identify specific regulations and the conditions under which they are assumed to apply, or not apply, to sediments that are designated as PTW and the mechanism under which they derive need for treatment prior to offsite disposal. Furthermore, the "Top 10 State Issues for Proposed Plan" document obtained from the LWG's FOIA request (Attachment Ark-2) states that "DEQ wants to be clear that land disposal of these sediments does not require treatment under Oregon Administrative Rules." As presented, EPA has arbitrarily made more conservative assumptions for disposal of PTW defined by sediments purportedly containing DDx and NAPL than it has for PCBs, dioxin/furans, and PAHs.*

**EPA Position:**

See EPA position to LSS dispute issue 3.

**Arkema Dispute Issue 5 - Inappropriate application of the Hazardous Waste Identification Requirements (HWIR) Rule for disposal of sediment in a CDF**

*EPA asserts that "Dredged material subject to requirements of a permit that has been issued under Section 404 of the CWA is excluded from the definition of hazardous waste (40 CFR 261.4(g)). This provision is discussed in the Hazardous Waste Identification Rule (HWIR) (63 Federal Register [FR] 65874, 65921; November 30, 1998). Oregon State adopted the HWIR rule in 2003. This rule means that RCRA regulatory requirements do not apply to sediment dredged at the Site and disposed of on-site, such as at the Terminal 4 CDF, if the material otherwise meets the CDF acceptance criteria." (emphasis added)*

*EPA has correctly stated that RCRA regulatory requirements, including the designation of waste sediment as either a Federal or State-only hazardous waste, do not apply to sediment placed in a CDF; however, the statement mischaracterizes the CWA requirement that the sediment must meet CDF acceptance criteria for this rule to apply. This is not the case. Because DEQ has adopted the federal HWIR rule, and the CDF would meet CWA Section 404 requirements, RCRA Subtitle C requirements would not apply, and the dredged material placed in the CDF would not be a hazardous waste. The disposal of Arkema sediment in a Terminal 4 CDF should, therefore, be considered. The failure to consider CDF disposal for Arkema dredged sediment artificially inflates the disposal costs for alternatives related to the dredging at the Arkema Site. EPA disregards the scope and intent of the HWIR Rule by placing arbitrary restrictions on what EPA believes can be placed into the T4 CDF if constructed. All of the EPA's Acceptance Criteria for the T4 CDF are arbitrary and should be removed. Disposal of dredged material should follow the HWIR Rule as adopted by the State. This arbitrary action by EPA has severe negative implications for the FS and any subsequent RA.*

**EPA Position:**

See EPA's position to LSS dispute issue 4.

**Arkema Dispute Issue 6 - Inappropriate use of PCB non-detected values in RAL and PTW footprint maps**

*The RAL and PTW footprint maps incorporate data with high PCB detection limits adjacent to the Arkema Site (Attachment Ark-5). The high PCB non-detects with detection limits 5 times EPA's PTW value (e.g., >1 mg/kg) occurred in the Aroclor analysis as a result of a matrix interference with DDx. The RAL and PTW footprint maps should only consider detected PCBs based on PCB congener concentrations adjacent to the Arkema Site. The identification of PTW and remediation footprints for PCBs adjacent to the Arkema Site based on non-detect values with elevated detection limits resulting from matrix interference with DDx is inconsistent with EPA's PTW guidance and biases the assessment of PTW and remediation footprints for the SDU RM7W alternatives. This exaggerated PCB footprint will also bias the alternative selection for SDU RM7W.*

**EPA Position:**

See EPA's position to LSS dispute issue 6.

**Arkema Dispute Issue 7 - Inaccurate RAL and PTW footprint maps**

*The PCB and PCDD/F RAL and PTW maps were contoured using natural neighbors gridding and did not account for the flow direction or depositional environments in a river system. The RAL and PTW maps in EPA's FS used nearest neighbor interpolation, and data points were inappropriately interpolated through upland areas. An example of this inappropriate interpolation is between points in the Willbridge Terminal and the area between Dock 1 and the Salt Dock on the Arkema Site (Figures 3.4-7, Attachment Ark-5; 3.4-11, Attachment Ark-6). In this example, the points are not correlated and should not be interpolated through the upland portion of the Arkema site. The RAL and PTW maps must include some interpretation to reflect the physical features of the site and site uplands, as well as the hydrodynamics of a river system.*

**EPA's Position:**

See EPA's position to LSS dispute issue 6.

**Arkema Dispute Issue 8 - Background concentrations for PCDD/F compounds in sediment**

*Sediment PRGs for RAO2 and RAO6 as well as riverbank PRGs for RAO9 for the five PCDD/Fs congeners are based on background concentrations. Background PCDD/F concentrations for individual congeners are presented in Appendix B, Table B2-4 of EPA's FS.*

*EPA uses new methods for deriving these levels that appear significantly different from both EPA's methods for other chemicals as well as past LWG input on this subject. Sediment PRGs for RAO2 and RAO6 as well as riverbank PRGs for RAO9 for the five PCDD/Fs congeners are based on background concentrations.*

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*The background values are based on limited and poor quality data (with elevated detection limits). In fact, only one congener has sufficient data (1,2,3,4,7,8-HxCDF) to calculate a background value and even that is limited (13 of 31 samples were non-detects). Thus, most of the background “values” are based on a 95% UCL of the detection limits. The background values also appear skewed quite low compared to other urban watersheds.*

*The background values estimated based on this limited data and approach, furthermore, are approximately an order of magnitude lower than values from other regions and watersheds. For example, a memorandum published by EPA in 2010 provides a good summary of background levels for dioxins/furans in sediment, which range from approximately 2–5 parts per trillion (ppt) as TEQs. It also summarizes values from Puget Sound which include a TEQ value of 4 ppt for non-urban areas but allowing up to 10 ppt as TEQs for open water disposal; this value is also used in San Francisco Bay and elsewhere.*

*(<https://klamathrestoration.gov/sites/klamathrestoration.gov/files/EPA%20Klamath%20dioxin%20memo%201-13-10%20final.pdf>). The Duwamish Waterway FS establishes an upper bound background value for dioxins/furans as 11.6 ppt TEQ.*

*Background values in other regions and watersheds are expressed as TEQs, which is generally the manner in which cleanup goals for dioxins/furans are expressed. For Portland Harbor, EPA used 5 individual congeners. The individual congener background values provided in Appendix B of the FS and in the PRG tables for RAOs 2 and 6 can be converted to TEQs using TEFs, which results in a value of 0.56 ppt on a TEQ basis (since the 5 congeners equate to the majority of the risk, this value may be slightly biased low, but probably less than 10% of the total TEQ). This background value is an order of magnitude or more lower than the range of values, mainly for non-urban areas, from the literature. A study to better define background levels for dioxins/furans is necessary since the calculated risk-based PRGs are well below even these low-biased background levels resulting in the background values being adopted as the final PRGs. Otherwise, it is unlikely that the remedies for dioxins/furans will be successfully implemented and estimated risk reductions for dioxins/furans will be realized. This latter issue addresses the validity of the alternatives analysis and its biased outcome.*

*It should also be noted that no background values are listed for RAOs 1 or 3. Those PRGs are expressed as TEQs and data is lacking to identify a background level on a TEQ basis. Those PRGs may be below background. In fact, the PRG for RAO3 is four orders of magnitude below the MCL and is likely not reliably measurable at that level. Overall, providing PRGs that are below MCLs is inconsistent with other cleanup actions under CERCLA or other programs. Cleanup to below MCLs is unlikely to be achievable.*

**EPA Position:**

See EPA position to LWG dispute issue 1h and LSS dispute issue 11a.

**Arkema Dispute Issue 9 - Background Concentrations in other COCs and media**

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*The FS (Section 2.2.2.4) states that only sediment background concentrations were estimated and background concentrations for other media could not be calculated due to insufficient data. However, surface water background concentrations were calculated in the RI. Upriver surface water background concentrations of COCs are orders of magnitude higher than the ARARs based on the AWQC. Note, the background UCLs for upriver surface water (dissolved concentrations with outliers removed; Table 7-4b of RI) vs RAO3 AWQC-based PRGs. For example, the background concentrations and ARARs for DDT, PCBs, and TCDD TEQ demonstrate examples of RAOs that are less than background:*

- *background UCL for DDT = 0.000114 µg/L and the ARAR (RAO3) is 0.00002 µg/L;*
- *background UCL for PCBs = 0.000126 µg/L and the ARAR (RAO3) is 0.000006 µg/L;*
- and*
- *background UCL for TCDD TEQ = 0.000126 µg/L and the ARAR (RAO3) is 0.000000033 µg/L.*

*Because of the deficiencies in determining the background levels, a new background study for sediment, surface water and tissue needs to be conducted in the design phase. The results of this evaluation need to be used to update PRGs, RALs and SDUs.*

**EPA Position:**

See EPA's position to LWG dispute issue 1g and LSS dispute issue 11b.

**Arkema Dispute Issue 10 - Benthic risk models do not honor the measured data**

*EPA made extensive changes to the benthic approach for this FS, but those changes are still inconsistent with the comprehensive benthic risk approach contained in the approved BERA. The FS states:*

*“The protection of benthic species to contaminated sediment is evaluated using the benthic risk area defined by an order of magnitude greater than the RAO5 PRGs. The post-construction interim target for RAO5 was established at 50% reduction in the area posing unacceptable benthic risk.” So, instead of using the CBRA, EPA now maps benthic PRG exceedance factors on a point-by-point basis and uses a 10 times exceedance factor to identify areas of concern. EPA then concludes that if 50% of this area is actively remediated, the alternative is “protective” on an interim basis. It is unclear how this new method is: (1) more accurate or consistent with the BERA, or (2) more predictive of benthic risk or the effectiveness of the alternatives, as compared to simply using the CBRAs, which are entirely consistent with the BERA.*

*Furthermore, and most importantly, the benthic risk models used by EPA do not honor the measured data. Although the LRM and FPM are model predictions using data from the toxicity tests conducted with site sediments, much of the measured data is not considered or addressed in this evaluation. Any modeled risk for benthic invertebrates that ignores actually toxicity testing results needs to be assessed in weight-of-evidence and river-mile specific decision-making. The benthic risk footprints should not extend into areas shown to have a lack of toxicity based on actual laboratory toxicity tests. This error has been carried through the alternatives analysis and therefore has biased the selection of alternatives for SMAs in the FS.*

**EPA Position:**

See EPA Position to LWG dispute issue 1b and LSS dispute issue 12.

**Arkema Dispute Issue 11 - Overly prescriptive decision trees**

*The FS acknowledges uncertainties in site characterization and the conservative assumptions used to form the basis for associated technology assignments, however EPA continues to use a prescriptive set of technology evaluation and scoring criteria to determine the technologies to be applied in each area of the site and, with the exception of a vague paragraph in Section 3.8.1, the FS is silent regarding the degree of flexibility that is envisioned to be available during remedial design to refine technology assignments based on the additional information gained through future pre-design investigations. This will lead to a lack of flexibility with regard to technology assignments, depth of removal, potential improvements in technology, design efficiencies to address remedial, and CWA/ESA requirements, among other things.*

*EPA should clearly explain the conditions under which changes to major alternative elements (e.g., changes in technologies assignments, methods to address PTW, methods for determining treatment and disposal requirements, requirements for rigid containment) might be considered or allowed. EPA should explain how new data, including the “initial conditions” assessment, will affect the RAL boundaries based on surface sediment concentrations. The FS should include language to allow for updates to risk assessments. EPA should incorporate decision frameworks for proposing equally or more effective capping options or other technology refinements based on detailed design-level evaluations and new data.*

**EPA Position:**

See EPA’s position to LSS dispute issue 14.

**Arkema Dispute Issue 12 - Prescriptive dredge residuals management strategy**

*The prescribed application of 12-inches of sand across the entire dredge footprint (amended with AquaGate+PAC in areas where PTW present) is poorly supported. The FS is misleading in stating that the placement of sand (and GAC in areas where EPA has speculated that PTW is present) immediately following dredging will eliminate the need for additional dredge passes. The FS indicates that sediment cores would be taken post-placement to verify that thin-layer residual cover successfully reduces residuals concentrations. It is inappropriate to assume a 12-inch layer of residuals management cover will be applied across the entire dredge footprint, without providing a strategy that will determine the necessity for thinlayer placement and flexibility to develop an appropriate thickness.*

*As PAC can be toxic to benthic organisms, overall quantities and where and how it is applied warrants more thoughtful consideration. The FS neglects to consider the physical stability of PAC in the deployment of the thin-layer residuals cover. PAC will be ineffective if it immediately washes away. The FS neglects to consider any possible*

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*unintended consequences that may be posed by transport/erosion and aggregation of PAC (with or without adsorbed contamination) in depositional areas. The assumed performance requirements for this residuals strategy are unclear.*

**EPA Position:**

See EPA's position to LSS dispute issue 15.

**Arkema Dispute Issue 13 - Inappropriate use of rigid containment technologies**

*EPA assumes the use of sheet pile barrier walls as dredge water quality control measures based on the suspected presence of NAPL will support the short term effectiveness of all alternatives. The FS still fails to adequately evaluate the implementability, effectiveness, and cost of this particular technology relative to other technologies and BMPs. In making gross assumptions for this FS, EPA has disregarded the complexity of constructing such barrier walls (e.g., consideration of structural components such as king piles and structural bracing, or more complex cofferdam structures) and the associated impacts this will have on numerous aspects of remedy implementation ranging from construction duration (e.g., time required to install walls, and impacts to dredge production rates) to the overall net benefit and cost effectiveness relative to other means. EPA also continues to show figures that depict sheet piling in greater than 50 feet of actual water depth, which is technically infeasible. These figures also imply that sheet piles will be installed in the navigation channel, which would infeasibly obstruct vessel traffic. Sheet pile would also impact ongoing water dependent operations and nearshore fish migration does not evaluate whether sheet piles in the navigation channel could be permitted by USACE.*

**EPA Position:**

See EPA position to LSS dispute issue 16.

**Arkema Dispute Issue 14 - Risk reduction between alternatives**

*The calculated post-construction risks and HI values are higher than the interim target risks and HI. Because much of the remedy relies on MNR, the lack of a residual risk estimation process for time intervals post-construction (up to year 30) limits the usefulness of the residual risk estimates in terms of comparing the protectiveness of the remedies.*

*Furthermore, there is very little difference in net risk reduction between Alternatives B and I for almost all COCs. For most of the COCs, the differences are less than a factor of 2 and sometimes much smaller (e.g., difference in HQ of 0.25). Given the very conservative assumptions that were used to calculate PRGs, differences in estimated risks by a factor of 2 or less are not significant. A more reasonable criterion for evaluating differences in estimated risk between alternatives would be a factor of 10, which should be considered the minimum significant difference given the limited sensitivity of these criteria. A probabilistic-type risk evaluation, which incorporates the quantitative uncertainties, would be a more appropriate approach.*

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*This small difference in risk reduction between alternative remedy scenarios is likely due to the driving PRGs being based on background. The risk associated with background levels of COCs should be presented in a side-by-side comparison to the residual risk estimates in order to demonstrate the benefit of the remedial measures to the public. Based on the residual risks presented, any remediation beyond Alternative B (which does show a great degree of risk reduction from Alternative A, no action, than the difference between other alternatives) is unwarranted. The very large increase in costs for minimal and insignificant risk reduction between Alternatives B and I is not recognized in the FS.*

*In summary, the removal volumes in Alternative I cannot be justified as a cost-effective reduction of risk in comparison to other alternatives. Nor can the use of mixed criteria such as PRGs (and RALs) from different alternatives (i.e., “E” and “F” applied either site-wide or within an SMA) be justified based on differences in risk outcomes that are within an order-of-magnitude.*

**EPA Position:**

See EPA’s position to LSS dispute issue 8.

**Evraz Dispute Issue 1 - EPA’s Feasibility Study improperly imposes more stringent remedial action levels (RALs) in some areas of the site than others.**

*EPA established a range of RALs based on the distribution of surface sediment contamination. In some areas of the site its preferred alternative (Alternative I) selects “Alternative B+PTW” or Alternative D RALs. However, in other areas of the site, including adjacent to EVRAZ’s Rivergate mill, Alternative I selects “Alternative E” RALs. This leaves higher concentrations of PAHs and dioxins in some portions of the river. There is nothing in the FS that describes why, if the “Alternative B +PTW” or Alternative D RALs are protective in some portions of the river, they are not equally protective in other areas. One specific example where the use of Alternative E RALs drives remedial action to a lower concentration than other areas is the remedial footprint near outfall OF53A. It is unclear why additional risk reduction is necessary at this location. For dioxin, sufficient data is not available to support such a decision. EVRAZ believes the FS is flawed in applying different levels of protectiveness, and that its site should similarly be remediated to “Alternative B+PTW” RALs.*

**EPA Position:**

The SDU specific evaluations for each of the alternatives provides the evaluation of each alternative in various portions of the river (see Section 4 of the 2016 FS). Based on evaluation of how each alternative performed in achieving interim goals and PRGs, some areas achieved those goals in some alternatives, while they were not achieved in other areas. This is due to the variability in the contaminant releases to the Site and the distribution of contamination in sediments in various portions of the Site. However, EPA is applying the same levels of protectiveness everywhere consistently throughout the Site – the interim goals and PRGs are consistent. What is different is the concentration of contamination that needs to be capped or dredged in order to meet those protective levels.

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For Alternative I, Alternative E RALs were selected in SDU 2E to address all PTW and achieve interim targets for all RAOs in this area of the Site.

**Evraz Dispute Issue 2 - Failure of FS to account for riverbank remedial actions already implemented, with EPA's approval.**

*The FS is based on inaccurate information in that it ignores that EVRAZ already implemented a riverbank remedial action for its Rivergate property, a remedial action based on a source control decision made by the Oregon Department of Environmental Quality and concurred with by EPA. Assumed riverbank cleanup extents are used in the overall protectiveness determination and without basis.*

**EPA Position:**

See EPA's position to LWG's dispute issue 1q.

**Evraz Dispute Issue 3 - Inadequacy of "groundwater plume" conclusions.**

*In addition to the concerns raised in the main text of the document, EVRAZ disputes the following issues with respect to EPA's description of what it depicts as a "groundwater plume" adjacent to EVRAZ's Rivergate property.*

- a. For arsenic, this should not be a plume as concentrations in beach groundwater are within the range of or below site background values, do not exceed benthic toxicity criteria and groundwater discharges do not adversely affect the water column.*
- b. For manganese, this should not be a plume at all because it does not include site-specific hardness for ecological values and the basis for the human health PRG is application of tap water Regional Screening Levels (RSLs) for manganese in groundwater. As explained in the main text of the document, RSLs are not appropriate PRGs for groundwater in these circumstances.*
- c. The exposure pathway of concern is in the surface water to which the groundwater discharges. Surface water concentrations here meet the surface water PRG for manganese.*
- d. Groundwater plumes are used in the overall protectiveness evaluation and overestimation of plume extent skews the metrics.*

**EPA Position:**

The 2016 FS identified COCs for groundwater plumes based on information provided by ODEQ. See EPA position to LWG issue 1q.

There has been limited sampling to characterize the nature and extent of the groundwater plumes offshore of the Evraz facility. Further, there have been no source control actions taken at this property to control the groundwater plumes. Contaminants of concern in groundwater are arsenic and manganese based on information provided by ODEQ. [AR Doc # 1469786 and 1469793] Thus, these contaminants will be monitored in pore water during remedial design to ensure that the pore water is not impacted such that a reactive layer in a cap or some other upland control may be necessary to ensure PRGs are achieved. The ecological PRGs for manganese were developed based on site-specific hardness values. [AR Doc # 100005457]



See EPA position to LWG dispute issue 1d, 1m and 1n.

**Gunderson Dispute Issue 1 - Failure to Account for Completed Riverbank Source Control Measures**

*The FS ignores Gunderson's extensive source control work implemented under the oversight of the Oregon Department of Environmental Quality (DEQ) under Voluntary Cleanup Agreement No. WMCVC-NWR-94-01 and Consent Order No. LQVC-NWR-13-02, and in accordance with the requirements set out in the DEQ-EPA Portland Harbor Joint Source Control Strategy (JSCS; DEQ, 2005). Gunderson has implemented permanent riverbank source control measures at some riverbank areas that are identified by EPA as needing remediation. Gunderson has also completed interim source control measures under DEQ oversight at the remainder of the riverbank areas that are identified by EPA in the FS and agreed with DEQ that additional permanent measures will be implemented concurrent with the adjacent in water remedy.*

**EPA Position:**

See EPA Position to LWG dispute issue 1q.

**Gunderson Dispute Issue 2 - "Groundwater Plume" Conclusions Are Inaccurate and Contradictory to Conclusions of the RI**

*The FS depicts two groundwater plumes (referred to herein as the "Southeast Plume" and the "Northwest Plume") adjacent to Area 1 of the Gunderson facility. Gunderson disputes the following issues with respect to the EPA-depicted groundwater plumes.*

*a. EPA provides no clear rationale for depicting the locations and extents of the plumes at the*

*Gunderson facility (and elsewhere in the Portland Harbor).*

*b. During extensive investigations conducted under DEQ oversight, there has never been any evidence that the so-called Southeast Plume exists now, or ever approached anywhere near the river either before or after it was subjected to remediation by sparging.*

*c. The depiction of the Northwest Plume is contradictory to the conclusions of the EPA approved*

*RI, "The data suggest that ongoing migration of the chemicals to the TZW via groundwater discharge does not contribute to significant concentrations of COIs in nearshore TZW sediments."*

*d. The Northwest Plume was delineated because VOC concentrations in near shore TZW exceeded human health screening levels based on the ingestion of Willamette River water. TZW remediation standards based on the consumption of Willamette River water are not appropriate.*

*e. The contaminants detected in a small area of transition zone water have not been detected in surface water.*

*f. The December 2007 Round 3 Groundwater Pathway Assessment Field Sampling Report for Stratigraphic Covering – Gunderson, Prepared for the Lower Willamette Group and submitted to EPA by Integral Consulting concluded that "the stratigraphic*

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*information does not indicate a conductive pathway for any remnant TCA plum.... On November 8, 2007, EPA indicated to the LWG Management Team that the agencies concurred that the stratigraphic information did not indicate the need for follow-up TZW sampling."*

*g. The analytical data that serve as the apparent basis for EPA's delineation of the Northwest Plume were collected more than ten years ago. VOCs in upland groundwater have exhibited long-term decreasing trends, even prior to active treatment, which began in 2007. Based on these trends and the low residual concentrations of VOCs in groundwater, DEQ authorized deactivation of the groundwater treatment system for this plume in 2014. There is no evidence that it posed any current threat to sediments or porewater.*

**EPA Position:**

Groundwater plumes were identified in the RI Report, Section 4 and Appendix C2 (see Figure 4.4-10a-c, Map 4.4-3a-h, and Table 4.2-2). There has been limited sampling to characterize the nature and extent of the groundwater plumes offshore of the Gunderson property. Further, there have been limited source control actions taken at this property to control the groundwater plumes. Contaminants of concern will be monitored for in remedial design to determine whether the pore water is impacted such that a reactive layer in a cap or some other upland control may be necessary to ensure PRGs are achieved.

See EPA position to LWG dispute issue 1d, 1m and 1n.

**NW Natural Dispute Issue**

*On September 27, 2012, EPA provided a preliminary set of comments on the Gasco EE/CA stating that "any comments provided on the Gasco EE/CA are preliminary as the Gasco EE/CA is so heavily dependent on the Portland Harbor draft FS.... Therefore, comments provided on the Portland Harbor draft FS may also need to be addressed in the Gasco EE/CA." Pursuant to EPA's February 4, 2016 agreement with the Lower Willamette Group, EPA is finalizing the Portland Harbor FS rather than providing comments. Many of the modifications EPA has made in the June 2016 FS are inconsistent with the terms of the Gasco Consent Order and with the information, analyses and conclusions of the Gasco EE/CA.*

**EPA Position:**

The effect of the 2016 FS on the Gasco Consent Order is beyond the scope of this dispute.

**NW Natural Dispute Issue 1 - Risk Reduction and Risk Management**

*In the September 9, 2009 Administrative Settlement and Agreement and Order on Consent for the Gasco Sediments Site (the "Gasco Consent Order"), EPA and NW Natural specifically agreed to use risk management principles and the results of the*

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*harborwide risk assessment to define areas for and approaches to cleanup that are based on significant risk reduction.*

*“This SOW’s goal is to design a remedy consistent with the ROD that will reduce key human and ecological risks cost effectively given Site characteristics, which results in a cleanup that is protective of public health and the environment and meets all federal and state applicable and relevant and appropriate requirements (ARARs). The risk lines of evidence used in the ROD will guide risk management for the Gasco Sediments Site. The design will also use a risk management framework consistent with EPA guidance (EPA 2005 and EPA 1988) on developing sediment remedies and specifically recognizes the risk management goals for the project throughout the evaluation and design process. The risk management related approaches that are specifically important to this project and are consistent with guidance include:*

- The Gasco Sediments Site cleanup boundary will be consistent with Portland Harbor EPA approved BLRA.*
- Evaluate remedial alternatives with regard to total net risk reduction within the overall framework of the NCP remedy selection criteria.*
- Use the Portland Harbor risk assessment protocols, procedures, data, and outcomes whenever possible to set clean up boundaries and evaluate risk reduction, unless use of these would cause an unacceptable delay to the Gasco Sediments Site remediation.”<sup>57</sup>*

*As more fully described in the LWG’s comments on the EPA August 2015 draft FS and the main text of this document, EPA’s FS is not consistent with either the approved baseline risk assessments for Portland Harbor or a risk management approach focused on the reduction of key human and ecological risks at the site. In particular, NW Natural objects to EPA’s use of TPAH RALs and PRGs, the use of which are inconsistent with the findings of the approved BHHRA and BERA, are technically unsupported, and result in significant mass removal unrelated to any measurable reduction in risk.*

*cPAH PRGs and RALs (expressed as BaPEq) were developed under EPA oversight for the LWG’s March 2012 draft FS and were used in NW Natural’s March 2012 draft Engineering Evaluation and Cost Analysis for the Gasco Sediments Site (the “Gasco EE/CA”). BaPEq is consistent with the methods and results of the Portland Harbor BHHRA, which were assessed in terms of total cancer risk from cPAHs on a BaPEq basis. The risk-based approach called for in the guidance<sup>6</sup> specifies that RALs should be consistent with the methods and findings of the BLRAs to ensure that sediment remedies are “risk-based” (i.e., result in effective risk reduction).*

*The EPA June 2016 FS itself is consistent with this and expresses all human health PAH PRGs as BaPEq. Therefore, use of BaPEq RALs clearly allows for a direct comparison on a consistent basis between the RALs and the PRGs. Using TPAH RALs does not allow for a direct relationship between RALs and PRGs. In fact, using a TPAH PEC for protection of benthic exposure is not only inconsistent with the approved BERA but is particularly inappropriate for the Gasco sediments site, where NW Natural has invested considerable effort and expense (under EPA oversight) in evaluating the multiple lines of*

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*evidence approach defined in the Gasco Consent Order as the basis for identifying areas requiring active remediation consistent with the BLRAs.*<sup>58</sup>

*NW Natural further objects to the application of TPAH (or BaPEq) RALs within the navigation channel. cPAH risks related to sediment direct contact and shellfish consumption exposures occur only outside the navigation channel (along the shoreline), and as a result, BaPEq RALs associated with these potential risks should be applied in exposure pathway areas only. Although some potentially unacceptable cPAH risk from fish consumption was identified in the BHHRA, EPA was unable to develop any valid relationship between cPAH fish tissue and sediment concentrations at the Site, or any other sediments site, due to the rapid metabolism of PAHs by vertebrate fish.*<sup>59</sup> *Carcinogenic PAHs represent less than 1% of the cumulative risks to people eating fish and are, therefore, not a technically valid reason to significantly expand the remedy on the basis of a technically inappropriate PRG, given that there is no reasonable expectation that such an expansion could have any meaningful impact at all on the overall fish consumption risk. It is critical to note that if the shellfish consumption PRG EPA has proposed to use as a surrogate for fish consumption were applied at the same fish exposure scale as EPA used in the BHHRA (whole river mile rather than one-third transect river mile), all remedial alternatives (other than no action) evaluated in the Gasco EE/CA would attain the PRG without application of TPAH or BaPEq RALs in the navigation channel.*

*TPAH or BaPEq RALs can only be linked to effective risk reduction along the shoreline (using the BHHRA findings and the resulting appropriate PRGs for sediment direct contact and shellfish consumption). If inappropriately applied to the navigation channel, where the risk pathway does not exist, the remedy would cost perhaps hundreds of millions of dollars more, yet result in no additional risk reduction. These RALs should therefore only be used only along the shoreline outside of the navigation channel where the exposure pathway is complete. The multiple lines of evidence (LWG Comprehensive Benthic Risk Area) approach outlined in the Gasco Consent Order and consistent with the BERA is appropriate for protection of ecological receptors and NW Natural respectfully requests that it be used by EPA for remedial decisions in that area.*

**EPA Position:**

See EPA position to LWG dispute issue 1d.

**NW Natural Dispute Issue 2 - Future Source Material**

*EPA's identification of "globules or blebs" of NAPL as "source material" constituting "principal threat waste" (PTW) at the Gasco Sediments Site is inconsistent with the more specific definition of "potential future source of risk material" in Section 3.2 (RAO 1) of the*

*Gasco Consent Order Statement of Work through the delineation of "substantial product."*

*Section 3.6.2.1 of the Gasco SOW states:*

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*“Areas with substantial presence of product in sediments is a line of evidence related to potential mobility of chemicals in the future, and thus related to risks identified in the BLRA. Visual observations in sediment cores shall be the primary parameter used for this line of evidence. As noted above, the term “substantial” product is intended to 1) target product that is related to potential future mobility and 2) indicate a preference for removal as defined by RAO #1. The definition of substantial product does not include every incidence of product observation at the site.”*

*Section 3.6.2.1 goes on to provide more than a page of detail on the precise physical characteristics of material that EPA will consider sufficiently mobile to constitute source material. Based upon this definition, NW Natural has conducted multiple field investigations at a cost of several million dollars to delineate the location of “substantial product” at the Gasco sediment site. These investigations were used to complete detailed and site-specific remedial alternative evaluations in the Gasco EE/CA.*

*The June 2016 FS does not explain why EPA has apparently abandoned the more specific and technical definition of “substantial product” in favor of “globules and blebs” or why “globules and blebs” is a superior approach for identifying material that presents a significant source of future risk. In the absence of any technical justification, and given the substantial resources NW Natural has put into complying with EPA’s original direction on the identification of potential future source material, EPA’s change of course is arbitrary and capricious.*

*NW Natural respectfully requests that EPA abide by the more specific and technically sound definition of “substantial product” contained in the Gasco Consent Order.*

**EPA Position:**

The NCP and EPA guidance uses the terms “source material” and “principal threat waste”, not “substantial product.” Any material that is highly mobile as analyzed in the 2016 FS is principal threat waste. It is expected that substantial product as defined in the Gasco order matches up with and is consistent with the highly mobile PTW identified in the 2016 FS. The 2016 FS is being consistent with the NCP and EPA guidance.

**NW Natural Dispute Issue 3 - Remediation Waste**

*EPA’s June 2016 FS identifies a category of remediation waste called “Waste or Media Containing Waste that May Warrant Additional Management.” EPA states that “Waste with this designation may be specially managed as a non-hazardous waste at a Subtitle C facility based on the exceedance of TCLP criteria for MGP-related constituents and/or special considerations such as worker safety and equipment decontamination. However, if the material is treated and TCLP criteria are no longer exceeded after treatment, it may be disposed of in a RCRA Subtitle D facility.”*

*NW Natural agrees that MGP-related remediation waste that exceeds TCLP criteria at the time it leaves the site will be disposed of as non-hazardous waste at a Subtitle C facility. This material is identified as “Special Waste” under the Gasco Consent Order.*

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*To the extent, however, that EPA's June 2016 FS indicates that it may require MGP-related remediation wastes that do not exceed TCLP criteria to be disposed of at a Subtitle C facility based on other "special considerations," that requirement would be inconsistent with the Gasco Consent Order, which provides*

*"The method to determine that MGP-related material should be managed as a Special Waste shall be based on the absence of TCE and associated CVOC chemicals and exceedance of TCLP criteria for any MGP-related constituent. If TCLP criteria are exceeded at the time the material leaves the Site, then the material shall be designated Special Waste and transported to a Subtitle C facility. If not, the material would be disposed of as Cleanup Material at a Subtitle D facility [permitted to accept the material]."*

*This method applies to both untreated and post treatment materials, if treatment is proposed. Consequently, an untreated material may meet this definition, but, upon treatment may be determined to no longer meet this definition. In the event that treatment, including treatment in barges, changes the definition, the material would no longer be designated a Special Waste."*

*The June 2016 FS goes on to state that EPA is assuming "for FS cost purposes" that Gasco remediation wastes identified as PTW "would exceed the TCLP criteria and would need cementbased solidification treatment prior to disposal in a Subtitle C disposal facility."*

*NW Natural respectfully requests that EPA clarify that, consistent with the Gasco Consent Order (and text earlier in the same paragraph in the June 2016 FS), material that either does not exceed TCLP criteria or that is treated so that TCLP criteria are not exceeded may be disposed of in an appropriately permitted Subtitle D facility.*

**EPA Position:**

EPA's 2016 FS was clear what the assumptions were about disposal of MGP wastes and the need for treatment, and that if TCLP criteria are no longer exceeded after treatment then dredged MGP wastes could be disposed of in a RCRA Subtitle D facility. The 2016 FS page 3-29 stated:

**Waste or Media Containing Waste that May Warrant Additional Management**

MGP wastes are by definition not RCRA hazardous wastes per 40 CFR §261.24(a), which specifically excludes solid MGP waste. While MGP wastes are exempted as a RCRA hazardous waste, concerns about the toxicity and mobility of the material prompted EPA to classify these materials as a "Waste or Media containing Waste that May Warrant Additional Management" at the Site so the contaminated sediment could be appropriately handled and managed. Waste with this designation may be specially managed as a non-hazardous waste at a Subtitle C facility based on the exceedance of TCLP criteria for MGP-related constituents and/or special considerations such as worker safety and equipment decontamination (USEPA 2004, 2005). **However, if the material**

**is treated and TCLP criteria are no longer exceeded after treatment, it may be disposed of in a RCRA Subtitle D facility.** It was assumed for FS cost purposes that the MGP waste identified as PTW NAPL/NRC at the Gasco former MGP facility would exceed the TCLP criteria and would need cement-based solidification treatment prior to disposal in a Subtitle C disposal facility. (emphasis added)

**NW Natural Dispute Issue 4 - Site-Specific Technology Assignment and Evaluation**

*The Gasco Consent Order provides for evaluation of “a range of technologies including dredging, capping, and Monitored Natural Recovery (MNR). Alternatives will include combinations of technologies that are tailored to the physical, chemical and other conditions of the Site.” By contrast, the EPA June 2016 FS assigns prescriptive technologies based upon generalized decision trees. The EPA alternatives do not allow evaluation of the comparative effectiveness of various combinations of technologies applied within the same area of the site – the only difference among the EPA FS alternatives is the size of a single applied technology.*

*The combination of technologies that will attain the best balance of risk reduction and cost effectiveness at any specific location is highly site-specific. EPA’s remedy selection must allow for technology adjustment and refinement through the incorporation of the types of site-specific information considered in the Gasco EE/CA but not carried forward into EPA’s June*

*2016 FS. EPA has not provided any rationale for its decision not to import the more refined technology evaluations of the Gasco EE/CA into the FS (or into the Proposed Plan, for that matter). EPA should, at a minimum, clarify how technology assignments will be refined and adjusted during remedial design and implementation. The draft capping demonstration decision tree EPA provided to NW Natural in November 2015, for example, would be an appropriate sort of tool to illustrate how EPA intends to make refinements based on site-specific data or other remedial design information. EPA’s decision not to incorporate such tools into the June 2016 FS or the Proposed Plan is a major contributor to our inability to understand EPA’s vision for how cleanup will actually be designed and implemented, especially if additional data collection leads to a change in our understanding of site conditions.*

*NW Natural also objects to EPA’s decision to assign remedial technologies at Gasco that ignore the documented performance of the upland hydraulic control & containment system installed under Oregon DEQ oversight and in close coordination with EPA. Similarly, the June 2016 FS provide does not discuss or consider the integration of HC&C system performance data in the future during remedial design.*

*The Gasco Consent Order clearly states that “cleanup alternatives shall be evaluated in the context of upland groundwater source controls, which will be implemented by this time, including [ ] reviewing groundwater seepage rate reductions as measured or predicted for upland source control performance[; a]pply the most up to date estimates of groundwater seepage rates and chemical concentrations (as measured or extrapolated) for evaluation of attenuation (i.e, MNR), capping, and dredging*

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*alternatives and their long term effectiveness[; and e]valuating attenuation rate predictions for groundwater and TZW that will not be directly remediated by upland source controls.” EPA’s unexplained retreat from a site-specific, technically sound decision framework that directly accounts for the performance of upland source controls to a generic approach that ignores established fact is arbitrary and inconsistent with the Gasco Consent Order. NW Natural respectfully requests that EPA state that technology assignments can be reevaluated during design in a manner that includes comparative effectiveness using site specific data and procedures consistent with the Gasco Consent Order (as was done in the Gasco EE/CA), including current conditions associated with existing upland groundwater source controls.*

**EPA Position:**

As described in Section 3 of the 2016 FS, technology assignments were made based on environmental and anthropogenic conditions at the Site. The entire Portland Harbor Site (2,167 acres) exceeds PRGs and thus requires action. The four general response actions for consideration in the 2016 FS are capping, dredging, enhanced natural recovery (ENR), and monitored natural recovery (MNR) which is consistent with the technologies listed in the Gasco order. ENR and MNR (per EPA’s 2005 Contaminated Sediment guidance) are most appropriately applied to low contaminant concentrations in large diffuse areas since:

- harm to the ecological community due to sediment disturbance may outweigh the risk reduction of an active cleanup
- slow in reducing risks in comparison to active remedies
- includes some risk of reexposure of the contaminants
- the time frame for natural recovery may be slower than that predicted for dredging or in-situ capping
- relies upon institutional controls, such as fish consumption advisories, to control human exposure during the recovery period, which may have limited effectiveness

Therefore, ENR and MNR were assigned to areas not addressed through capping and dredging since the Site will naturally recover once the higher concentration areas are addressed. The 2016 FS did not assign ENR in the main channel since the CSM is that this is a transitional river system where both deposition and erosion occur seasonally. Therefore, any sand placed in this area would be transported downriver and would not enhance the natural recovery in the area where it was placed. EPA identified Swan Island Lagoon as an area where ENR would be applied; however, there may be some opportunities in offshore areas (coves, embayments, slips) where ENR may be used to ensure PRGs are achieved, which can be explored in remedial design. These technology assignments are generally consistent with the LWG 2012 draft FS, although the LWG’s 2012 draft FS assigned in-situ treatment within SMAs which EPA determined not be supported by the empirical evidence of the erosive conditions in many areas of the site (see EPA’s comments 70 through 74 on the LWG’s 2012 draft FS). **[AR Doc # 100007297 through 100007299]**



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The navigation channel and future maintenance dredge areas were assigned dredging technology within sediment management areas (SMAs) since these areas are slated to be dredged in the future and therefore placement of a cap would prevent that activity (future dredging) in that area of the Site. This technology assignment is consistent with the LWG 2012 draft FS.

Caps were assigned under structures that would not be removed during remedial action. However, dredging with specialized equipment can be conducted under some types of structures. The decisions to remove a structure, dredge under a structure, or cap design will be made in remedial design.

In the shallow zone (which includes river banks), EPA applied a dredge/cap technology assignment within SMAs based on habitat issues and 404(b)(1) requirements. The amount of dredging and capping and the cap design used in this area is to be determined in remedial design. EPA made reasonable assumptions in the 2016 FS in order to develop a cost estimate.

The assignment of technologies within SMAs in the intermediate zone (the area between the navigation channel/FMD zone and the shallow zone) are discussed in Section 3.4.6 and Appendix C of the 2016 FS. Factors evaluated included current and reasonably anticipated future land and waterway use, areas of erosion/deposition, sediment bed slope, infrastructure such as docks and piers, and physical sediment characteristics. If both capping and dredging technologies were both found to work in a particular area of the Site, EPA applied the capping technology.

In-situ treatment was included as components of ENR, capping and dredge residual management in various areas of the river to address contaminated groundwater plumes and principal threat waste remaining in the river. Ex-situ treatment was also assumed as a component of disposing of certain dredge material. Several assumptions were made to develop costs in the FS regarding in-situ and ex-situ treatment of material for cost purposes, but the application and extent of treatment will be determined in remedial design.

Therefore, EPA did evaluate all available technologies to specific areas in development of the alternatives and selected the appropriate technology to use based on site-specific environmental and anthropogenic conditions. EPA's 2005 Contaminated Sediment guidance acknowledges that alternatives are combinations of technologies since single technologies do not work in a large complex river system with varied uses. [2016 FS, Section 3.1.1]

The decision trees in the 2016 FS merely presented these decisions and the assumptions used to develop the cost estimates and are not meant to imply prescriptive actions to be carried out in remedy implementation.

**TOC Holdings Dispute Issue 1**

*The June 2016 FS neglects to include a discussion of upland source controls that have been implemented and the performance of those source controls in the remedial evaluations. The Time Oil groundwater plume identified in section 1.2.3.4 is fully controlled and meets JSCS values for all constituents other than potentially arsenic, which does not appear to be associated with site-related groundwater contamination.*

**EPA Position:**

The purpose of the FS is to develop and evaluate remedial alternatives for the in-river portion of the Portland Harbor site. EPA is not making a cleanup decision on upland sources and therefore it was appropriate that the 2016 FS did not evaluate or discuss specifics about source control measures that have been taken. Prior to implementing the cleanup, the effectiveness of relevant source control actions will be evaluated to minimize the risk of recontamination. The 2016 FS assumed that all sources were controlled in evaluating and comparing the remedial alternatives' performance to each other. However, the 2016 FS acknowledges that there are some areas where the contamination (usually groundwater and subsurface sediment) extends beyond the point of upland control in which a reactive layer may be needed to ensure that PRGs will be attained in pore water. If PRGs are already attained, then a reactive layer will not be necessary. The 2016 FS identifies where known groundwater plumes throughout the Site are located and the contaminants of concern so that in remedial design focused pore water sampling can be conducted to determine the appropriate cap design or residual management layer to employ.

**TOC Holdings Dispute Issue 2**

*EPA's application of E RALs in some but not all parts of SDU 3.5E results in the identification of a Sediment Management Area for PeCDD where the current SDU 3.5 SWAC already meets the most conservative PeCDD PRG of 0.0002 ppb for RAO2 (fish consumption on a river mile basis).<sup>71</sup> Therefore, no sediment remedy is necessary to achieve RAO2 in the relevant exposure area.*

**EPA Position:**

The RALs are applied to all parts of the Site and therefore all parts of SDU 3.5E. The RALs for an alternative are used in combination, not individually, to delineate areas to apply the remedial technologies of capping and dredging. If a contaminant concentration for one of the RALs is not exceeded in a particular part of the river, then that RAL is not applied. RALs are applied on a point-by-point basis, but evaluations of the effectiveness of the RAL achieving PRGs is conducted on broader spatial scales consistent with the baseline risk assessments. The evaluation is made on all contaminants posing risk, not individually.

Respondent is correct that the most conservative sediment PRG for 1,2,3,7,8-PeCDD is 0.0002 µg/kg for RAO 2. In review of Figure 3.4-10, which presents the 1,2,3,7,8-PeCDD RAL contours, the same RAL is used for Alternatives D, E, F and G of 0.0008 µg/kg, which is only a factor of 4 greater than the PRG. The pre-remedial SWAC in SDU

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3.5E for 1,2,3,7,8-PeCDD is 0.00025 µg/kg (Alternative A) and the post remedial SWAC for Alternative E is 0.000048 µg/kg (see Table J2.3-7). Since the pre-remedial SWAC is greater than the PRG, a sediment remedy is necessary to achieve RAO 2 in the relevant exposure area. Further, the evaluation in the 2016 FS is based on a limited number of samples (19 sample locations) and additional sampling would need to be conducted to determine the extent of the contamination. A decision in remedial design based on additional sampling will have to be made as to whether or not the area warrants action.

**UPRR Dispute Issue**

*The FS preferred alternative identifies two areas of sediments between RM 10 and 11 that EPA has identified for cleanup, purportedly due to exceedances of the PCB remedial action level (“RAL”). EPA also identified these areas on Figure 3.2-3 as containing principal threat waste. This area of the Site is near Union Pacific’s railyard at Albina Yard. Union Pacific disputes this determination, particularly the area from approximately RM 10.7 to RM 11 where there are no exceedances of the applicable RAL in surface or subsurface samples of sediments.*

*EPA’s potential cleanup area near RM 10.7 appears to be based on a PCB exceedance in soil at one location on a 900-foot stretch of the riverbank. EPA included riverbanks as part of its draft FS evaluation of alternatives, but did not identify Albina Yard as a site with “known contaminated riverbank” in section 1.2.3.5 of the FS.*

*Moreover, in its Final Remedial Investigation/Source Control Measures Evaluation Report for Albina Yard dated November 2010, which was reviewed and approved by Oregon DEQ, Union Pacific determined that the riverbank near Albina Yard had a low potential for erosion because it was highly vegetated and stabilized with rock/rip rap. Because PCB concentrations in the sediments are below the applicable RAL, and the riverbank is stable, this area of sediments should not be included as a potential cleanup area. Certainly, the FS contains no explanation for this area’s inclusion as a potential cleanup area, much less as an area containing principal threat waste.*

**EPA Position:**

See EPA’s position to UPRR’s dispute issue 6.

**III. LSS, Inc. (on behalf of Arkema, Inc.) DISPUTE STATEMENT RESPONSE**

**LSS Dispute Issue 1 - Inadequate Conceptual Site Model**

*EPA’s inadequate conceptual site model (CSM) does not provide an adequate foundation for a thoughtful comparative evaluation of alternatives. The FS does not sufficiently describe the relevant site features, baseline risks, sources, chemical fate and transport, site uses, and other important factors necessary to understand the potential cost effectiveness of EPA’s remedial alternatives. Information on contaminant fate and transport is not provided in EPA’s CSM discussion. In addition, the site has been characterized by EPA based on aggregated sediment data (i.e., sediment data collected over more than a decade) without regard to time-dependent changes operating in this*

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*system. It is not possible to effectively evaluate remedial alternatives without a robust CSM of the site.*

*Some examples of specific technical issues with the CSM presented in EPA's FS report include the following:*

*Aggregating sediment data from the late 1990s through 2007 for the purpose of performing a sediment surface characterization. This is a fatal flaw in EPA's analysis as it prevents any signal of dynamic conditions from being observed; this is also an essential component of monitored natural recovery (MNR) that EPA has included as an important element of every alternative.*

**EPA Position:**

See EPA's position to LWG's dispute issue 1d and 2a.

*Assuming without evidence, and ignoring subsequent evidence to the contrary (including 2012 fish tissue, 2013 sediment profile imaging [SPI] data and 2014 sediment data) that the sediment surface conditions at this site are at steady state. The Portland Harbor site is clearly a dynamic system. This is a fatal flaw in the CSM.*

**EPA Position:**

The CSM in the RI Report produced by the LWG and approved by EPA describes the lower Willamette River as a dynamic river system (see Portland Harbor RI, Sections 3 and 10). EPA's assumption was that the Site is in dynamic equilibrium, not steady state. EPA did consider the 2012 fish tissue data as a line of evidence for MNR (see 2016 FS Section 3.6.1.3). EPA only considered data collected under EPA approved work plans; the 2013 sediment profile imaging [SPI] data and 2014 sediment data were not collected under an EPA approved work plan.

*Ignoring subsurface conditions where geochemistry and microbiology are key parameters associated with the natural recovery of several constituents for which EPA deems remediation a requirement. We know many areas of this site are under reducing conditions based on the presence of methane in cores. Reductive dehalogenation is a known pathway for natural recovery for some chlorinated compounds. In situ processes of natural recovery should have been addressed in the CSM and the FS. This is particularly important as a consideration for active remediation areas determined by EPA to be located landward of the pier-head line at the Portland Harbor site.*

**EPA Position:**

EPA used the data collected by the LWG to draft the 2016 FS. The LWG did not evaluate groundwater plumes at the Site. As stated in the 2016 FS, the extent of groundwater plumes discharging to the river is currently unknown. Further, the effects of source control on groundwater plumes is unknown because EPA has not been provided any performance data. Information regarding the extent and degradation of groundwater

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plumes in the river will be considered in remedial design to ensure that adequate caps are placed in the river to deal with residual groundwater plumes, where necessary.

*It is unclear if the sitewide total PCB spatially weighted average concentration (SWAC) values presented in EPA's FS included the RM 11.2 information acquired during the Supplemental RI performed in Segment 1 (River miles 9 to 11.7). This creates a significant problem in the comparison of subsequent surface SWACs because it suggests site conditions at the time of the RI were actually cleaner than they were. This makes the demonstration of significant sitewide natural recovery more difficult and inaccurate.*

**EPA Position:**

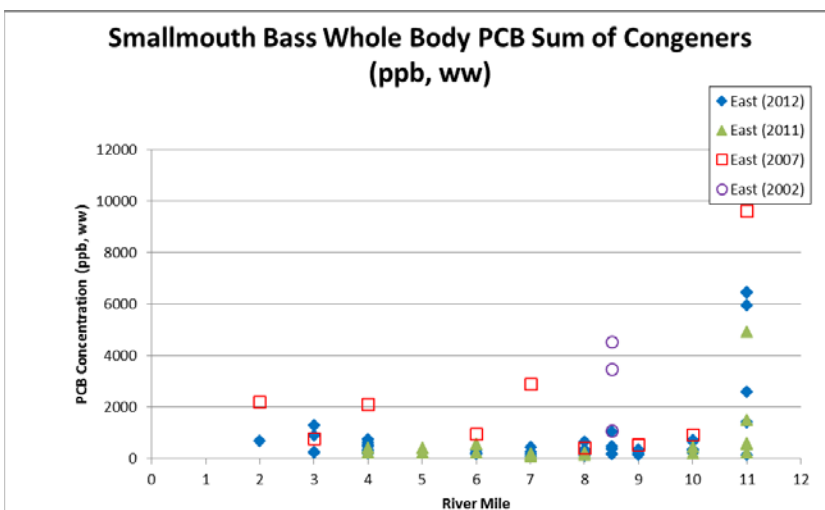
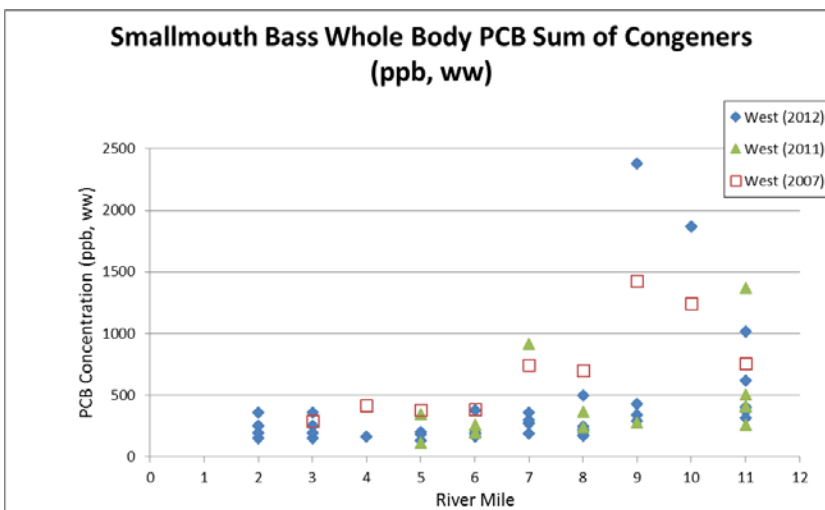
The 2016 FS clearly states in Section 1.3 that the data collected by the RM 11E Group were not included in the FS database. EPA reviewed the data prior to making the decision not to include in the database (although it is in the administrative record because EPA considered it) and determined that it would not significantly change the remedial footprints. EPA is unclear why the Respondent believes that the omission of this data would result in a significantly different SWAC since the data were collected to supplement the RI/FS data, not to recharacterize this area of the Site. EPA did not look at natural recovery Site-wide as the river dynamics are not consistent throughout the Site. EPA looked at natural recovery on a smaller spatial scale as discussed in Appendix D8 of the 2016 FS.

*The use of highly uncertain SWAC values (in some cases the SWAC values varied by an order of magnitude) in localized segments of the site to establish predicted tissue concentrations. This indicates a significant scale effect associated with the surface data used to support the CSM that indicate a lack of characterization in "extent" in the near field of EPA's CSM.*

**EPA Position:**

The variation in the SWAC values in localized segments of the Site does not mean that the SWAC values are highly uncertain. It has to do with the variability in the sediment data and translates into the variability in the fish data. The smallmouth bass data collected in 2007, 2011 and 2012 all show that fish concentrations vary throughout the Site, as can be seen by the plots of the data in the following two figures.

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Evaluating the SWACs on this spatial scale (1 RM) reflects the home range of the fish; thus, accurately predicts the exposure to the fish species from contamination in those areas of the Site, and are more representative of the effects of the cleanup in those areas.

*A flawed approach was used for calculating site background concentrations (see dispute issue 11 below).*

**EPA Position:**

See EPA’s position to LSS’s dispute issue 11, below.

*A robust surface sediment data set that is representative of current conditions is critical for setting up initial conditions for the alternatives evaluated in the FS. EPA’s FS uses aggregated sediment data from 1997 through 2007 for the surface sediment characterization. When these outdated data are used to define surface sediment concentrations at the site, it shifts the “knee of the curve” for comparing alternatives away from the alternatives with less active remediation (B, C, and D) and toward*

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*alternatives with more active remediation (E, F, G, and I). Graphs of PCB sitewide SWAC versus duration for EPA's FS SWAC (84 µg/kg) and the SWAC based on the recent 2014 sediment data (40 µg/kg) are presented in Exhibit 1. CSM errors and omissions need to be corrected to properly understand the source, distribution, fate, and transport of site COCs and to accurately assess and weigh the differences between remedial alternatives.*

**EPA Position:**

EPA used a robust data set provided by the LWG under EPA oversight to develop the alternatives in the 2016 FS. The data set includes 2,293 surface sediment samples collected during the RI to characterize the baseline of the Site. The 2014 data set was not collected under an EPA approved work plan and the validity of the data is uncertain. Further, the 2014 data set is based on merely 98 samples, which is not comparable to the FS data set and can be misleading. [See pages 6 and 7 in **AR Doc ID # 100033508.**] As can be seen from these figures, the data collected in 2014 does not represent the distribution of contamination in the Site and development of RAL curves using that data apportion low level concentrations to large areas of the Site that have greater concentrations. EPA does not believe there are any errors or omissions in the CSM and that the information used in the 2016 FS is sufficient to develop and select a remedial alternative. EPA acknowledges that additional baseline sampling will be needed during remedial design to implement the remedy and apply the decision tree.

**LSS Dispute Issue 2 - Principal Threat Waste Adjacent to the Arkema Site**

*EPA inappropriately identifies chemicals in sediment adjacent to the Arkema Site as PTW based on either a "source material," "not reliably contained," or "highly toxic criterion. As expanded upon below, source material has never been identified in Arkema Site sediment; EPA should not identify chemicals that can be reliably contained as PTW; and chemicals that require long-term exposure durations through indirect exposure pathways (i.e., consumption of fish tissue) should not be identified as "highly toxic." In addition, the blanket identification of large areas with low concentrations of chemicals in sediments as PTW is neither required by the National Contingency Plan (NCP) nor necessary to protect public health or the environment.*

*EPA errs when it misidentifies source material in the FS based on "globules or blebs of product in surface and subsurface sediments...." and when it states "NAPL observed in sediment cores offshore of Arkema contains chlorobenzene and DDT (dissolved)." Arkema/LSS disputes the presence of NAPL globules and blebs related to the site or historical site operations (i.e., sheens related to oils and other uses of the river by ships and other vessels are not related to Arkema and would not contain Arkema contaminants such as MCB). Arkema/LSS responded to CDM Smith's 2013 memorandum (Exhibit 2) that purports to identify NAPL at the Arkema site. To resolve the issue, Arkema prepared a work plan in response to EPA requests under the EE/CA Administrative Order on Consent (AOC) to yet again confirm that NAPL was not present in sediment adjacent to the Arkema site (Integral 2016, Exhibit 3). In addition, no samples of NAPL offshore of Arkema have identified an MCB NAPL. There is no data that supports EPA's statement*

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*that NAPL observed in Arkema sediment "...contains chlorobenzene....". Significantly, a document titled "Top 10 State Issues for Proposed Plan" obtained from the LWG's Freedom of Information Act (FOIA) request identified that based on Oregon DEQ's review of the data "The multiple phases of sediment investigation have not encountered sediment exhibiting NAPL saturated conditions that would warrant thermal treatment prior to management." The status column for the same issue states that "EPA agreed to not assume NAPL at Arkema for the purposes of the cost estimate" (Exhibit 4). Based on these records, we conclude that EPA and DEQ agreed that there was no MCB NAPL in offshore sediments, and therefore the assertion that such sediments represent PTW Source Material as defined by EPA's PTW fact sheet is without foundation, acceptance, or support.*

*EPA erred when it identified an extensive area of groundwater containing MCB DNAPL discharging to the river as "not reliably contained" (Exhibit 5). First, there is no documented MCB DNAPL groundwater plume to the extent shown in EPA's Figure 3.2-4, adjacent to the Arkema site. The nature and extent of MCB DNAPL in groundwater or sediment porewater as shown in this figure is not based on any current site data. Second, groundwater SCMs have been implemented at the site beginning in 2012, including an upland groundwater barrier wall and extraction and treatment system. The groundwater pathway to the river from upland areas that have MCB in groundwater has been cut off and containment has been in existence for 4 years, and therefore, there is no ongoing source of dissolved phase MCB to the sediment adjacent to the Arkema site. There is no scientific evidence that supports the existence of an ongoing source of MCB DNAPL to the sediment adjacent to the Arkema Site. Groundwater and porewater sampling conducted after the implementation of the SCM has not identified a MCB DNAPL source to sediment adjacent to the Arkema Site. The site characterization error which postulates an extensive area of chlorobenzene DNAPL in sediment at the Arkema Site biases the assessment and comparison of the effectiveness of alternatives as evidenced from the following text: "Alternative D has less capped area (71 acres), but does not reliably contain all PTW remaining in the river." (USEPA 2016, p. ES-15). Without an accurate assessment of NAPL, PTW and PTW areas, EPA's alternatives evaluation is highly inaccurate.*

*EPA errs when it misidentifies the remaining areas of the Arkema site (including areas upstream and downstream of Arkema; Exhibit 5) as containing "highly toxic" PTW based on surface sediment concentrations for DDX, 2,3,7,8-TCDD, 2,3,7,8-TCDF, 1,2,3,7,8-PeCDD, 2,3,4,7,8-PeCDF, and 1,2,3,4,6,7,8-HxCDF that exceed a 10<sup>-3</sup> excess cancer risk level for fish consumption based on the fish ingestion risks from the baseline human health risk assessment (BHHA). This definition of highly toxic based on a long-term (30 year) exposure to a chemical substance via a fish consumption pathway is not the intent of EPA's PTW fact sheet. These 10<sup>-3</sup> risk levels include long-term exposure parameters and indirect exposure based on a 30-year subsistence fish consumption scenario, which does not meet the definition of highly toxic (i.e., toxic under a direct contact or acute exposure scenario). Highly toxic levels should be based on direct*



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*exposure conditions only. Furthermore, the 10-3 excess cancer risk is only a suggested basis and is not prescriptive.*

*The EPA's proposed highly toxic PTW levels should also be considered in a broader context. EPA's highly toxic PTW values for some constituents are well below cleanup levels and screening level for unrestricted use established for other sites and scenarios. For example, the PCB PTW value of 200 µg/kg is below cleanup goals for many other CERCLA sites, which are at or above 200 µg/kg, typically in the 1,000 µg/kg range. The EPA regional screening level (RSL) for residential soil in fact is 249 µg/kg; in other words, soil with PTW levels specified in the FS could be used as clean fill at homes, schools, and day care facilities. In this context it does not make sound technical or risk management sense for the PTW level to be set at 200 µg/kg. An approach more consistent with the intent of EPA's PTW guidance would be to set the PTW level at a 10-3 risk value based on direct contact to sediment (removal action objective 1 [RAO1]); that would be the lower of the 10-3 risk level (370,000 µg/kg), the hazard quotient (HQ) of 10 (147,600 µg/kg) (as stated in the guidance), or for the PCB case, the TSCA waste threshold (50,000 µg/kg). The use of the TSCA threshold for PCBs is also consistent with decisions at other CERCLA sites. A similar approach should be taken for the other constituents for which highly toxic PTW has been identified, especially dioxins/furans for which the PTW level in the FS is less than 3 times the EPA-recommended preliminary remediation goals PRG for dioxins/furans (once toxicity equivalence factors (TEFs) are applied). LSS believes that application of the revised and readily accepted PTW standards for not reliable contained or highly toxic material will result in none of the sediment at the Arkema site being identified as PTW.*

**EPA Position:**

LSS makes two main points on this issue: (1) "EPA should not identify. . . chemicals that require long-term exposure durations through indirect exposure pathways (i.e., consumption of fish tissue) . . . as "highly toxic" and (2) that there is no NAPL in the river adjacent to its facility.

On the first point, LSS provides no statutory or regulatory support for its position of what can or cannot be principal threat waste.

The NCP [40 CFR 300.430(a)(1)(iii)] states:

(iii) Expectations. EPA generally shall consider the following expectations in developing appropriate remedial alternatives:

(A) EPA expects to use treatment to address the principal threats posed by a site, wherever practicable. Principal threats for which treatment is most likely to be appropriate include liquids, areas contaminated with high concentrations of toxic compounds, and highly mobile materials...

The NCP does not say that principal threats at a site can't relate to contaminants posing a bioaccumulative risk. Identification of principal threats is a site-specific determination.

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EPA's *A Guide to Principal Threat and Low Level Threat Wastes* (1991) indicates that the NCP principal threat expectation reflects the belief that certain source materials should be treated given the long-term unreliability to contain them or the serious consequences of exposure if a release were to occur. Source material is defined as material that includes or contains hazardous substances, pollutants, or contaminants that act as a reservoir for migration of contamination to ground water, to **surface water**, to air, or acts as a source for direct exposure. (emphasis added) Identifying principal and low-level threat wastes combines concepts of both hazard and risk. In general, principal threat wastes are those source materials considered to be highly toxic or highly mobile which generally cannot be contained in a reliable manner and/or would present a significant risk to human health or the environment should exposure occur. Conversely, low-level threat wastes are those source materials that generally can be reliably contained and that would present only a low risk in the event of exposure. The manner in which principal threats are addressed generally will determine whether the statutory preference for treatment as a principal element is satisfied. EPA agrees that the NCP does not mandate a classification of wastes at a site.

However, EPA disagrees that the entire Portland Harbor site represents large areas with low concentrations of chemicals in sediments. The presence of liquid wastes such as NAPL, mobile source materials that are not readily contained, and contaminants that are highly toxic to sensitive populations are strong indicators of wastes that would be consistent with EPA's *A Guide to Principal Threat and Low Level Threat Wastes* as being identified as PTW. Likewise, the setting of the release of hazardous substances and the exposures that are likely to occur at a particular site is relevant to identifying principal threats. LSS's claims that the PCB PTW levels could be used as fill in a residential setting is totally irrelevant to this FS, which was analyzing cleanup alternatives for addressing contaminated sediment and surface water to protect the in-river receptors. Significant risks to wildlife and people, particularly, infants and children who eat or whose mothers eat resident fish from the site has been documented. Stating where the contaminated sediment could go or be placed and not be presenting a risk is irrelevant to the issue of what is principal threat waste in the lower Willamette River.

The identification of PTW at the Portland Harbor site is consistent with the NCP and EPA guidance. EPA's *A Guide to Principal Threat and Low Level Threat Wastes* further clarifies that principal threat wastes are "those source materials considered to be highly toxic or highly mobile that generally cannot be reliably contained or would present a significant risk to human health or the environment should exposure occur." The guidance goes on to state that "no 'threshold level' of toxicity/risk has been established to equate to 'principal threat.' However, where toxicity and mobility of source material combine to pose a potential risk of  $10^{-3}$  or greater, generally treatment alternatives should be evaluated." EPA's guidance does not distinguish between risks due to indirect exposure associated with fish consumption and direct contact exposure. As a result, EPA's definition of highly toxic PTW is considered consistent with the NCP and EPA guidance.

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TSCA is not a factor for PTW identification. LSS indicates that the use of the TSCA threshold for PCBs is consistent with decisions at other CERCLA sites; however, the sites are not identified in the comment, and therefore, it is not clear whether the use of TSCA at the referenced “other CERCLA sites” was for identification of PTW or for other purposes such as a cleanup level or offsite disposal requirements.

EPA’s *A Guide to Principal Threat and Low Level Threat Wastes* states that “no ‘threshold level’ of toxicity/risk has been established to equate to ‘principal threat.’ The classification threshold value for PTW is based on site-specific circumstances. Consistent with the NCP and EPA’s PTW guidance and site-specific conditions, PTW has been identified based on a  $10^{-3}$  cancer risk (highly toxic) or NAPL within the sediment bed (source material) and on an evaluation of mobility of contaminants in the sediment.

LSS’s second point is whether NAPL exists at its facility. EPA disagrees with LSS’ assertion there is no evidence PTW as defined by EPA’s PTW fact sheet exists adjacent to its facility is without foundation, acceptance, or support. As noted in the comment, EPA has identified the presence of NAPL offshore of the Arkema site based on physical observations and other information indicating the presence of NAPL. Chlorobenzene is used in the DDT manufacturing process and the largest amount of chlorobenzene DNAPL is present under and around the manufacturing process residue (MPR) pond in the Acid Plant Area. This indicates that liquid chlorobenzene may have been discharged directly to the MPR pond along with other process residues. DDT is produced by combining chlorobenzene with trichloroacetaldehyde and an excess of chlorobenzene is essential to the reaction, which leads to considerable amounts of unreacted chlorobenzene being generated as a by-product with the DDT (Curtin, 1953). This means it is likely that large amounts of chlorobenzene were being discharged as liquid waste, a hypothesis that is supported by the information in the 2005 RI Report. The horizontal and vertical extent of chlorobenzene NAPL within the upland is also well documented in the 2005 RI report. Sediments and groundwater in the vicinity of Docks 1 and 2 have also been affected by the migration of the NAPL plume at the upland MPR pond and have high dissolved concentrations of chlorobenzene. Six sediment cores were indicative of the presence of NAPL based on field screening but none of these were conclusively identified as chlorobenzene NAPL. [AR Doc # 686965]

Qualitatively, soils with chlorobenzene concentrations greater than 10,000 mg/kg would indicate the presence of NAPL, however NAPL may also be present at lower concentrations (Feenstra et al. 1991). The highest chlorobenzene soil concentration identified in the Arkema RI is 43,000 mg/kg so the presence of chlorobenzene NAPL can be expected. Typically, dissolved concentrations greater than 1 percent of the aqueous solubility limit are suggestive of NAPL presence; however, concentrations less than 1 percent are not necessarily indicative of NAPL absence (Cohen et al. 1992; USEPA 1992a,b). The maximum in-water groundwater concentration and sediment porewater/transition zone water (TZW) concentration of chlorobenzene measured in the vicinity of Docks 1 and 2 is 64 mg/L and 30 mg/L, respectively. Both TZW and in-water groundwater concentrations are greater than 1 percent of chlorobenzene’s solubility of

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500 mg/L (i.e., greater than 5 mg/L). The results do not show extensive visual evidence of chlorobenzene NAPL present in groundwater and sediment porewater; however, the dissolved chlorobenzene concentrations are deemed indicative of the presence of residual chlorobenzene NAPL in the vicinity of Docks 1 and 2 (CDM Smith 2013).

Core logs from sediment borings installed offshore of the Arkema site were evaluated to determine whether visual observations of blebs, globules, dark brown oily material, or other terms indicating presence of product were present. Other lines of evidence evaluated included sheens and odors along with corresponding elevated organic vapor meter (OVM) readings, transition zone water (TZW) and offshore groundwater concentrations at levels exceeding 1% of solubility, and the documented presence of dense non-aqueous phase liquid (DNAPL) in upland soils. These lines of evidence clearly indicate that NAPL may be present offshore of the Arkema site.

EPA acknowledges statements by ODEQ that multiple phases of sediment investigation have not encountered sediment exhibiting NAPL saturated conditions that would warrant thermal treatment prior to management and that the most significant observations have been the occasional sheen and product bleb. However, ODEQ also notes that it is possible that RD/RA activities could encounter a pocket of heavily NAPL impacted sediment and recommends that EPA adaptively manage these potential circumstances rather than ascribe a large treatment cost associated with these sediments to the Portland Harbor remedy. [AR Doc ID # 100019939] To estimate the potential treatment costs that may be associated with mobile PTW offshore of the Arkema facility in the 2016 FS, EPA applied no treatment to one-third of this material, solidification/stabilization to one-third of this material, and thermal treatment to one-third of this material. EPA has not made any decisions or requirements for treatment of this material at this time; this decision will be made in remedial design phase of the project.

Based on existing information, the 2016 FS assumes some pesticide/chlorobenzene PTW wastes will need to be dredged and disposed of off-site at the Area 7W SDU; however, it also assumes that not all contaminated sediment generated during dredging or capped in situ at the Area 7W SDU will require treatment. Remedial design sampling will need to further refine the waste characterization along with the identification of PTW at this area of the site; final dredge and capping footprints; and what treatment for off-site disposal may be required.

The EPA disagrees with the statement that it erred in identifying an extensive area of groundwater containing MCB DNAPL discharging to the river as “not reliable (sic) contained” (Exhibit 5). First, the figure referenced in Exhibit 5 does not show, nor intends to show a groundwater plume. The figure referred to in the comment, Figure 3.2-4 in the 2016 FS, presents an FS level understanding of the extent of contaminants within the river. This extent is based on limited remedial investigation sampling that bounds contaminant concentrations meeting PTW thresholds. The EPA anticipates additional, more extensive site data will be collected during the remedial design phase to refine this FS level characterization. Second, the assertion made in this comment that SCMs have

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“cut off” and contained the groundwater pathway to the river from upland areas that have, or could potentially have MCB in groundwater, is not supported by any data, or information provided in the comment. Without this information, the comment assertions are speculative.

The EPA’s current understanding of the groundwater extraction and treatment system referenced in the comment is that there have been performance issues with the treatment system and biofouling of the extraction wells to the point that a Corrective Action Plan has been submitted at DEQ’s request (ERM West, Inc., 2016) providing a path forward to bring the system into compliance to meet its operational capture and treatment objectives so that DEQ and EPA can complete their evaluation of the operations effectiveness in cutting off and containing any potential ongoing source of dissolved phase contaminants discharging to the in-river sediment adjacent to the Arkema site. Further, the comment implies EPA’s alternatives evaluation is highly inaccurate without an accurate assessment of NAPL, PTW and PTW areas and quotes a sentence out of the 2016 FS Executive Summary to prove its point. EPA contends that appropriate FS level alternative assessment information is found within the body of the document and not exclusive to text within the Executive Summary. That said, it is unclear what specifically is inaccurate about the summary statement pulled from the executive summary. The 2016 FS presents an assessment of the extent of NAPL, PTW and PTW areas based on the RI data. Using this information and honoring the context of the Executive Summary statement, there is nothing inaccurate in the statement that “Alternative D has less capped area (71 acres), but does not reliably contain all PTW remaining in the river”.

**LSS Dispute Issue 3 - Inappropriate waste designation for sediments adjacent to the Arkema site**

*The assumed areas for disposal of sediment as RCRA waste (Figure 3.4-35, Exhibit 6) are based on a single toxicity characteristic leaching procedure (TCLP) sample for lead and no TCLP samples for chromium. Based on sediment analytical results, the area shown on Figure 3.4-35 does not represent sediment that will require RCRA Subtitle C landfill disposal. The State-listed pesticide residue designation also does not necessarily apply to sediment at the Arkema Site (Figure 3.4-36, Exhibit 6). As recently as February 2016 DEQ was researching the issue of whether sediment near Arkema would be designated a State-listed pesticide waste. Item 3 of the “Top 10 State Issues for Proposed Plan” document obtained from the LWG’s FOIA request (Exhibit 4) states that “Sean needs State determination of State-only pesticide question, which Matt is researching.” However, even if it is determined that some portion of the sediment is a State-listed pesticide residue waste, it would not preclude the placement of this sediment in a CDF (see HWIR discussion below) or disposal in a Subtitle D landfill out of state. When a State-listed hazardous waste is transported out of state (i.e., the Roosevelt Regional landfill presented in the FS), the Oregon State waste designation no longer applies, and the waste can be disposed as a non-hazardous waste so long as it meets other landfill disposal criteria. This waste disposal process was recently demonstrated by the disposal of soil from the Arkema Stormwater and Groundwater SCMs, which was disposed of at Roosevelt landfill in Washington.*

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*1 The analytical results minimally exceeded TCLP regulatory limits for lead in this sample. LSS notes that the TCLP samples were collected from specific intervals from single boreholes and were not necessarily representative of the general area around these boreholes. As perhaps a more appropriate approximation representative of bulk sediments, drummed sediments that contained the referenced sample intervals were re-sampled and analyzed for TCLP to evaluate the disposal options for these sediments, and none of those re-sampled drums exceeded the TCLP concentrations.*

**EPA Position:**

EPA made assumptions in the 2016 FS regarding waste disposal to develop a cost estimate. The State did not provide EPA with any definitive information on state listed waste designation, therefore, EPA did not assume that all waste removed offshore of the Arkema would be required to go to a Subtitle C landfill, only the portion that was identified as NAPL-NRC. As EPA clearly states in the 2016 FS, the ultimate disposal requirements will be set by the disposal facility after adequate characterization is accomplished and a disposal facility identified.

*Arkema disagrees with the cost assumption that “cement solidification/stabilization, low temperature thermal desorption, and no treatment will be used in equal proportions to treat pesticide/chlorobenzene PTW” for the disposal of dredged sediment that meets EPA’s PTW criteria from the Arkema site. Notwithstanding the fact that there are no PTW sediments currently identified off the Arkema Site, the FS fails to clearly outline the basis for EPA’s assumptions regarding treatment as a prerequisite for offsite disposal. Section 3.2.2.3 makes vague references to regulatory “standards” and “requirements;” however, it fails to clearly identify specific regulations and the conditions under which they are assumed to apply, or not apply, to sediments that are designated as PTW and the mechanism under which they derive need for treatment prior to offsite disposal. Furthermore, the “Top 10 State Issues for Proposed Plan” document obtained from the LWG’s FOIA request (Exhibit 4) states that “DEQ wants to be clear that land disposal of these sediments does not require treatment under Oregon Administrative Rules.” As presented, EPA has arbitrarily made more conservative assumptions for disposal of PTW defined by sediments containing DDx and NAPL than it has for PCBs, dioxin/furans, and PAHs. LSS believes that based on current data, none of the sediment at the Arkema site should be classified or handled as a Federal- or State-listed hazardous waste.*

**EPA Position:**

PTW has a statutory preference for treatment. EPA expects to use “treatment to address the principal threats posed by a site, whenever practicable” and “engineering controls, such as containment, for waste that poses a relatively low long-term threat.” [40 CFR Section 300.430(a)(1)(iii).] EPA identified potential PTW offshore of the Arkema Site (see Figure 3.2-4). Since it is currently unknown what, if any, treatment requirements will be necessary for disposal of removed waste offshore of the Arkema facility, EPA used a range of options to base the 2016 FS costs. The actual costs and requirements will not be

determined until remedial design or after removal and characterization of the waste and identification of the actual disposal facility.

**LSS Dispute Issue 4 - Inappropriate Application of the Hazardous Waste Identification Requirements (HWIR) Rule for Disposal of Sediment in a CDF**

*EPA's FS asserts that Dredged material subject to requirements of a permit that has been issued under Section 404 of the CWA is excluded from the definition of hazardous waste (40 CFR 261.4(g)). This provision is discussed in the Hazardous Waste Identification Rule (HWIR) (63 Federal Register [FR] 65874, 65921; November 30, 1998). Oregon State adopted the HWIR rule in 2003. This rule means that RCRA regulatory requirements do not apply to sediment dredged at the Site and disposed of on-site, such as at the Terminal 4 CDF, if the material otherwise meets the CDF acceptance criteria. (emphasis added)*

*EPA has correctly stated that RCRA regulatory requirements, including the designation of waste sediment as either a Federal or State-only hazardous waste, do not apply to sediment placed in a CDF; however, the statement mischaracterizes the CWA requirement that the sediment must meet CDF acceptance criteria for this rule to apply. This is simply not the case. Because DEQ has adopted the federal HWIR-media rule, and the CDF would meet CWA Section 404 requirements, RCRA Subtitle C requirements would not apply, and the dredged material placed in the CDF would not be a hazardous waste. The disposal of Arkema sediment in a Terminal 4 CDF should, therefore, be considered. The failure to consider CDF disposal for Arkema dredged sediment artificially inflates the disposal costs for alternatives related to the dredging at the Arkema site. In conclusion, EPA disregards the scope and intent of the HWIR Rule by placing arbitrary restrictions on what EPA believes can be placed into the T4 CDF if constructed. All of the EPA's Acceptance Criteria for the T4 are arbitrary and should be removed. Disposal of dredged material should follow the HWIR Rule as adopted by the State. This arbitrary action by EPA have severe negative implications for the FS and any subsequent RA.*

**EPA Position:**

EPA cited CDF acceptance criteria in the 2016 FS, Section 3.4.9.2. There are no statements in the 2016 FS that identify a CWA requirement that the sediment must meet CDF acceptance criteria. EPA developed the CDF acceptance criteria based on protectiveness.

**LSS Dispute Issue 5 - Feasibility study sediment and fish tissue dataset is not representative of current site conditions**

*EPA's draft final FS is based on a data collected between 1997 and 2007 and is not representative of current conditions at the site. The 2014 surface sediment PCB data collected by Kleinfelder to provide a current reference for comparison of the Portland Harbor RI dataset was not discussed or evaluated in the FS. It is unclear if the recent sediment PCB data collected by the RM11E Group was included in EPA's FS. These data are critical to the FS because the RM11E area is a source of PCBs in the upstream*

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*portion of the site and has significant implications for assessing remedial alternatives, calculating SWACs, and assessing residual risk for the Portland Harbor site. PCBs are the primary risk driver for the Portland Harbor site and some of the most critical data for evaluating PCBs was omitted by EPA in the FS report.*

*A surface sediment and fish tissue dataset representing current conditions must be generated for the FS to accurately assess remedial alternatives. A new dataset will account for natural recovery that has occurred at the site since the Portland Harbor dataset was collected between 9 and 19 years ago and will fill a critical data gap in EPA's FS.*

*In Section 3.6.1.3, EPA's updated evaluation of fish tissue concentrations over time ignores 2002 data without any explanation. EPA states in this section a downward "trend" in fish tissue concentrations. In all but two instances (RMs 4E and 7E), concentration declines were not statistically distinguishable from zero. Possible explanations are the trend itself is close to zero, or the estimated coefficient could be very different from zero with a very wide confidence interval. The former would imply that the decay rate is small and that it is simply close to zero with strong level of confidence, whereas the latter indicates that the data are too sparse to precisely estimate the decay rate.*

*This section also states that the previous fish data are sufficient for baseline conditions for PCBs. This statement is incorrect since these data will be nearly 10 years old when the remedy is implemented and will not be representative of baseline conditions.*

*The Arkema pre-remedial design investigation work plan (Integral 2016) evaluated natural recovery at the Portland Harbor site (Exhibit 3, Appendix H). In this analysis, the original RI data sets were evaluated against more recently collected smallmouth bass fish tissue (2012), SPI (2013), and surface sediment PCB (2014) data. Based on a total of eight lines of evidence, including tests of statistical significance and a likelihood analysis, the weight of evidence strongly supports that natural recovery is occurring and will continue to occur within Portland Harbor. Therefore, MNR is a strongly viable process that should be utilized in Portland Harbor sediment remedies, including the area adjacent to the Arkema site. This analysis and its conclusions are directly relevant to EPA's alternatives analysis, comparison, and effectiveness evaluation, and therefore the lack of more recent data analysis biases the conclusions of EPA's alternative analysis and selection for sediment management areas (SMAs), including SMA 7W. EPA should incorporate the complete existing fish tissue data sets, as was done in the Integral (2016) analysis, and also allow for an updated fish tissue collection study to determine the current baseline fish tissue concentrations of COCs and demine the current site risk.*

**EPA Position:**

As described in Section 1.3 of the 2016 FS, the FS data set included data collected under EPA oversight through authority of the Portland Harbor, Gasco and Arkema AOCs. The data presented in the 2014 Kleinfelder report were not collected under an EPA-approved,



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work plan. As noted in EPA's position to LWG's dispute issue 1d, Respondents' 2012 draft FS notes that temporal changes in contaminant concentrations were not an objective of the data collection efforts, and that the aggregated data collected between 1997 and 2010 has been deemed representative of current conditions in the site. As clearly stated in Section 1.3 of the 2016 FS, sediment data collected by the RM11E Group were not included in the 2016 FS because upon review, the data was not significantly different than RI data. Thus, it should not be "unclear" whether these data were included. The PCB SWAC concentration for SDU RM11E represents one of the highest concentrations within the Site, and LSS provided no information why RM 11E data would alter the FS analysis of alternatives.

The 2016 FS uses sediment data collected as recently as 2013, and presents and discusses contaminant concentration trends in fish using data collected as recently as 2012. Thus, the assertion the data are a minimum of 9 years old appears deliberately misleading. As noted in Respondents' FS, the large data set is considered adequate to represent current conditions and is adequate for evaluating alternatives in the 2016 FS. Additional sampling to more fully assess "current conditions" is a remedial design issue and beyond the scope of the 2016 FS and dispute.

Tissue data for smallmouth bass collected in 2002 are not directly comparable with the data collected in 2007 and again in 2011/12. Individual fish collected in 2002 were composited by river mile without regard to side of the river prior to analysis. In 2007, fish were composited by river mile but segregated by side of the river prior to analysis, while fish collected in 2011/12 were analyzed individually. As discussed in the ODFW 2005 study cited in the risk assessments, radio tracking of smallmouth bass indicated that their home range is typically between 0.1 and 1.2 km, and they exhibited a strong preference to remain in near-shore habitat. Given the heterogeneous nature of the contaminant distribution within the site, contaminant trends in fish were evaluated by river mile and by side of river. Because of the compositing scheme used in 2002, meaningful comparisons of these data with subsequent tissue results are not possible.

The term "baseline conditions" here defines the conditions prior to initiating a response action. As such, since the existing data represent conditions prior to initiating a remedial response, they represent "baseline" conditions. EPA does agree that additional tissue sampling prior to implementing a remedy is appropriate, as the current data set is limited to a single species (smallmouth bass) and a single contaminant (PCBs). The exact nature and design of such a sampling effort is beyond the scope of the 2016 FS and dispute. With regard to the age of the data at remedy implementation, given that the most recent tissue data was collected in 2012, EPA is disappointed to learn that LSS has no intention of performing any work prior to at least 2022.

The Arkema pre-remedial design investigation work plan was disapproved by EPA on March 30, 2016 for the reasons provided in the disapproval letter. EPA concurs that natural recovery is occurring within most areas of the Site and that it should be utilized in the sediment remedies, as evidenced by the fact that MNR represents the response action

assigned to between 64 and 90 percent of the total area of the Site for all alternatives carried through the detailed analysis in the June 2016 FS.

**LSS Dispute Issue 6 - Inappropriate use of PCB non-detected values in RAL and PTW footprint maps**

*The RAL and PTW footprint maps incorporate data with high PCB detection limits adjacent to the Arkema site (Exhibit 7). The high PCB non-detects with detection limits 5 times EPA's PTW value (e.g., >1 mg/kg) occurred in the Aroclor analysis as a result of a matrix interference with DDx. The RAL and PTW footprint maps should only consider detected PCBs based on PCB congener concentrations adjacent to the Arkema site due to the well-known matrix interference with DDx in PCB Aroclor analyses. The identification of PTW and remediation footprints for PCBs adjacent to the Arkema site based on non-detect values with elevated detection limits resulting from matrix interference with DDx is inconsistent with EPA's PTW fact sheet guidance and biases the assessment of PTW and remediation footprints for the SDU RM7W alternatives. This exaggerated PCB footprint will also bias the alternative selection for SDU RM7W. EPA should remove the PCB non-detect value from this PCB footprint analysis as it biases and exaggerates the area of PCBs in sediment at the site. If necessary, additional PCB congener data could be collected from these high non-detect sample locations to confirm the absence of high concentrations of PCBs at these locations.*

**EPA Position:**

EPA used the data provided by the LWG. The LWG did not indicate that there were any issues with this data nor did they remove this data from the database provided to EPA. If there were issues with this data, LWG should have flagged the data and resampled the Site using congener analysis. EPA agrees that congener, not Aroclor, data should be collected at this Site in remedial design. Review of the footprints for PCB RAL contours (Figure 3.4-7), DDx RAL contours (Figure 3.4-12), and dioxin/furan RAL contours (Figures 3.4-8, 3.4-9, and 3.4-10) indicates that the SMA footprint offshore of the Arkema property is largely driven by DDx and dioxins/furans and overlaps with the PCB RAL footprint; thus, omitting PCB data from this area would not substantially change the evaluation in the 2016 FS. New data will be collected in remedial design that will determine the SMA boundaries based on the final RALs selected in the ROD.

**LSS Dispute Issue 7 - Inaccurate RAL and PTW footprint maps**

*The PCB and PCDD/F RAL and PTW maps were contoured using natural neighbors gridding and did not account for the flow direction or depositional environments in a river system. The RAL and PTW maps in EPA's FS report blindly used nearest neighbor interpolation, and data points were inappropriately interpolated through upland areas. An example of this inappropriate interpolation is between points in the Willbridge Terminal and the area between Dock 1 and the Salt Dock on the Arkema Site (Figures 3.4-7, Exhibit 7 and 3.4-11, Exhibit 8). In this example, the points are not correlated and should not be interpolated through the upland portion of the Arkema site. The RAL and PTW maps must include some interpretation to reflect the physical features of the site and site uplands, as well as the hydrodynamics of a river system. This manual*

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*interpretation should be done for the PCB and PCDD/F maps covering the area adjacent to the Arkema site.*

**EPA Position:**

EPA acknowledges the limitations of natural neighbor interpolations. However, the primary limitation to natural neighbor interpolations is data density. Because the Willamette River is subject to frequent flow reversals, considering flow direction is not expected to improve the accuracy of natural neighbor interpolations. With respect to consideration of depositional environments, EPA's natural neighbor interpolation divided the Willamette River into three lateral zones – west nearshore, navigation channel and east nearshore which is considered the key geomorphic factor affecting flow dynamics within the lower Willamette River. EPA also acknowledges that some of the interpolations extended through upland areas. However, these instances are few and not expected to fundamentally alter depiction of the distribution of contamination at the site.

**LSS Dispute Issue 8 - Inconsistent risk assessment methods and risk inequality for various compounds**

*Interim targets for risks and hazard indices (HIs), which were established by EPA in the FS "...to evaluate the potential for achievement of PRGs in a reasonable time frame" (Section 4.1.3) were not consistent between chemicals of concern (COCs) and RAOs. As such, estimated residual risks were not consistent among the COCs (e.g., total PCBs has  $5 \times 10^{-5}$  residual risk and DDx has  $1 \times 10^{-6}$  residual risk for RAO2 [Appendix J, Table J1-2]). This is mainly due to a very low and unattainable sediment PRG that was calculated using average fish tissue concentrations and ambient water quality criteria (AWQC) for surface water inputs to the food web model (FWM), which resulted in very low or even "0" value PRGs (issues related to the FWM are provided below in dispute issue 13). This then resulted in defaulting to background for several COCs. Remediation to background levels is not realistically achievable.*

*This FS also adopts entirely new methods to estimate pre- and post-construction risks for the alternatives (Appendix J). The residual risk evaluation process is neither technically sound nor transparent. There is no rationale or a clear example provided for the process. The FS states that methods used to evaluate residual risks are consistent with the Baseline Risk Assessments, but this is not an accurate characterization of these methods. Some examples of differences in risk assessment methods and assumptions include:*

- Fish meals/10 years was not used in the BHHRA and no rationale was provided in the FS for using this unit.*
- Appendix J presents the RM/SDU residual risks using fish ingestion rate of 49 g/day, however, PRGs based that ingestion rate have not been selected in the FS.*

*The difference in the risk assessment methods risks is apparent if the risks estimated for Alternative A (no action) are compared to baseline risks from the BHHRA—these should be the same.*

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*The only spatial scale that allows for direct comparison of risks is at the sitewide scale. The sitewide fish consumption risks estimated in the BHHRA (summarized in Section 1.2.5.1) are higher than those presented for Alternative A in Table J2.3-1a. However, the risks for Alternative A are based on average concentrations whereas the BHHRA risks are based on 95% upper confidence limit (UCL) or maximum concentrations. The average PCB concentration in the BHHRA based on actual tissue data was 160 µg/kg in bass and 2,500 µg/kg in carp, which includes a single outlier sample of 19,000 µg/kg (the average without the outlier is 353 µg/kg). The modeled tissue concentrations used for Alternative A are 352 µg/kg for bass and 820 µg/kg for carp, which are approximately 2 times higher than the measured tissue concentrations (excluding the single carp outlier).*

*The river mile risks for Alternative A cannot be compared directly with the BHHRA because the risks for Alternative A are on a rolling river mile basis for both sides of the river and navigation channel whereas the BHHRA risks were for an entire river mile. The risks for Alternative A are generally higher than those in the BHHRA (potentially due to spatial scale issues). In the BHHRA, risks at RM 11 were  $1 \times 10^{-3}$  and all other risks were less than  $1 \times 10^{-3}$ . For Alternative A, there are several segments with risks of  $1 \times 10^{-3}$  or higher.*

*There continues to be an issue with EPA's modeled dioxin/furan tissue concentrations. In the BHHRA, the sitewide risk from the total toxicity equivalent (TEQ) based on the 95% UCL or maximum concentration for actual tissue data was  $2 \times 10^{-4}$ . For Alternative A, the sitewide risk from 1,2,3,4,7,8-HxCDF alone based on an average concentration is  $6 \times 10^{-4}$  (Table J2.3-1a of EPA's FS report). There is no way that the risk from an individual congener can be higher than the total TEQ.*

*Furthermore, the residual risk assessment appears to present relative risks and not absolute risks. The term "residual risk" is used in different ways throughout the document, but it appears that EPA first estimated risks associated with the selected PRG (in general a risk of  $1 \times 10^{-6}$  or an HQ of 1 where the PRG is risk-based, but some other value if the PRG is not risk-based). For example, for RAO2, the residual risk (which is a ratio of the selected tissue PRG to the risk-based tissue PRG) for DDx is  $10^{-6}$  because the fish tissue PRG (3 parts per billion [ppb]) is equal to the risk-based tissue PRG (3 ppb). However, for PCBs, the risk-based fish tissue PRG is 0.5 ppb and yields a "0" sediment concentration, and the PCB sediment PRG, which is the background value of 9 ppb, is apparently used in the FWM to calculate a PCB fish tissue concentration of 23 ppb (Table J1-2 of the FS). The sitewide residual risk for PCBs was estimated to be  $5 \times 10^{-5}$  (i.e., 23 divided by 0.5 and multiplied by  $10^{-6}$ ). Then the "post-construction risks" was calculated for each alternative using SWACs to estimate fish tissue concentrations, again using the FWM and ratio of this "post-construction risk" and the "residual risk" to understand the "magnitude of residual risk." Again, this is relative risk and not absolute risk. Therefore, the risks between COCs are not comparable as some are based on actual risks (where the selected PRG is risk-based) and some are relative risks (where the*

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*selected PRG is not risk-based). This approach is not at all consistent with the methods of the BHHRA and BERA and also misleading.*

*The post-construction sediment concentrations also appear unrealistic. For example, some of the PCB and DDX post-construction concentrations in Table J2.3 are below the background concentrations. Other tables in Appendix J show similar results. It is unclear how remedies will result in concentrations below background. In addition, the concentrations of COCs used in the remediated areas to calculate the post-remediation SWACs were 0, which does not account for dredge residuals or background (upstream) concentrations of COCs.*

*A significant deficiency of the residual risk evaluation is that it does not provide residual risks for any time frame other than the immediate post-construction condition (Time 0). As reported in the FS (Section 4.1.3):*

*As a long-term model is not available to predict the time to meet the PRGs, interim targets for risks and HIs were established to evaluate the potential for achievement of PRGs in a reasonable time frame, which was considered to be 30 years, commensurate with the site-specific contaminants and conditions. These interim targets are higher than residual risks once PRGs are achieved, and assume that further reductions will be achieved through MNR.*

*The calculated post-construction risks and HI values are higher than the interim target risks and HI. Because much of the remedy relies on MNR, the lack of a residual risk estimation process for time intervals post-construction (up to year 30) makes the usefulness of the residual risk estimates limited and almost worthless in terms of comparing the protectiveness of the remedies.*

*Furthermore, there is very little difference in net risk reduction between Alternatives B and I for almost all COCs. For most of the COCs, the differences are less than a factor of 2 and sometimes much smaller (e.g., difference in HQ of 0.25). Given the very conservative assumptions that were used to calculate PRGs, differences in estimated risks by a factor of 2 or less are not significant. A more reasonable criteria for evaluating differences in estimated risk between alternatives would be a factor of 10, which should be considered the minimum significant difference given the limited sensitivity of these criteria. A probabilistic-type risk evaluation, which incorporates the quantitative uncertainties, would be a more appropriate approach.*

*This small difference in risk reduction between alternative remedy scenarios is likely due to the driving PRGs being based on background. The risk associated with background levels of COCs should be presented in a side-by-side comparison to the residual risk estimates in order to demonstrate the benefit of the remedial measures to the public. Based on the residual risks presented, any remediation beyond Alternative B (which does show a great degree of risk reduction from Alternative A, no action, than the difference*

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*between other alternatives) is unwarranted. The very large increase in costs for minimal and insignificant risk reduction between Alternatives B and I is not recognized in the FS.*

*In summary, the removal volumes in Alternative I cannot be justified as a cost-effective reduction of risk in comparison to other alternatives. Nor can the use of mixed criteria such as PRGs (and RALs) from different alternatives (i.e., “E” and “F” applied either site-wide or within an SMA) be justified based on differences in risk outcomes that are with an order-of-magnitude. To adequately assess the alternatives, an accurate assessment of risk needs to be completed using the risks identified in the EPA-approved BHHRA and BERA. The improper modifications to the risk assessments and assessments of residual risk should be removed from the FS document.*

**EPA Position:**

Residual risk is clearly defined in the 2016 FS as the cumulative risk associated with the PRGs, whether risk-based or otherwise. The use of a PRG associated with a background concentration, when that value is greater than a risk-based concentration, is consistent with EPA policy. LSS’ claim that “remediation to background levels is not realistically achievable” is simply declarative and wholly unsupported by any information provided by respondents. In fact, the 2014 Kleinfelder report repeatedly cited by LSS in this dispute presents a simple mean upstream PCB concentration of 5.8 µg/kg. This value is essentially the same as the UCL on the mean of 5.6 µg/kg PCBs from the background data set and presented in Table 7.3-1 of the final RI. Thus, if the more recent data submitted by respondents are taken solely at face value, the background levels presented in the 2016 FS are not only realistically achievable, but may be high relative to more recent data.

The number of acceptable fish meals per unit of time represents nothing more than a calculation of post-construction or residual risk, based on predicted tissue concentrations using the models developed and used by the LWG. Consistent with the assumptions used in the BHHRA, post-construction fish consumption risks on a river-mile scale were evaluated using PRGs calculated based on a consumption rate of 49 g/day.

Respondents’ assertion that “risks for Alternative A are based on “average concentrations” versus the “95% upper confidence limit” is directly contradicted by the information presented in the 2016 FS, which states in Section J2.1 “A site-wide average concentration for each COC – represented by the 95 percent upper confidence limit on the mean – was then calculated for each RAO 2 COC using ProUCL.” We note that according to EPA guidance, the 95 percent upper confidence limit (UCL) of the arithmetic mean should be used when calculating the “average” concentration to represent the exposure concentration. Further, EPA is unclear of the basis for respondents’ assertion that the average PCB concentration in the BHHRA was 160 µg/kg in bass and 2,500 µg/kg in carp, as Table 3-12 in LWG’s final BHHRA presents mean PCB (measured as Aroclors) tissue concentrations for whole body smallmouth bass and carp of 1,200 µg/kg and 1,700 µg/kg, respectively. The corresponding mean tissue

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concentrations for PCBs measured as congeners are 1,100 µg/kg and 2,800 µg/kg in smallmouth bass and carp, respectively.

Risk estimates associated with consumption of fish presented in the 2016 FS were calculated using sediment data to estimate tissue concentrations, while risk estimates in the BHHRA used measured tissue concentrations. For the purpose of evaluating the effectiveness of different alternatives, sediment concentrations were averaged separately for each section by side of river to account for the fact that the majority of contamination, as well as habitat for fish is located in the nearshore areas. Respondents provide no basis in statute, EPA policy or guidance that an analysis of risks in the 2016 FS must aggregate data exactly as was done in the baseline risk assessments.

See EPA's position to LWG's dispute issue 1k regarding measured versus predicted dioxin/furan risks.

No definition of "actual risks" or "absolute risks" is provided. However, it appears LSS believes that risks associated with background concentrations qualify as "relative." Risk is directly related to concentration, and does not recognize the basis for that concentration. Thus, risk estimates for two or more different COCs are "comparable" and additive.

As noted, post-construction COC concentrations in areas assigned dredging or capping were assumed to be zero, as the 2016 FS assumed clean material would be used for caps, and that the residual layer applied to dredged areas would consist of clean sand. The absence of a defensible fate and transport model precluded estimating COC concentrations with any degree of certainty in these areas for any time-frame beyond the immediate post-construction period. Regardless, the same metric is used for each alternative, and the resulting comparative analysis is adequate for FS purposes.

The use of interim targets is consistent with EPA's sediment guidance. The degree to which estimated post-construction risks approach the risk associated with the proposed cleanup goals provides a measure of the degree to which MNR must be relied upon to achieve the cleanup. If, as LSS postures, the lack of an estimation process for time intervals post-construction renders the residual risk estimates almost worthless, the most logical conclusion would be for the ROD to acknowledge that limitation and select Alternative H, as it is the only alternative for which final COC concentrations can be estimated with any certainty.

No justification is provided by LSS for the assumption that a factor of 10 in risk estimates is needed to distinguish between alternatives. The effective use of probabilistic methods is reliant on the distribution of the estimates for the terms to be varied. The LWG's attempt at a probabilistic analysis (2012 Draft FS Appendix E) relied on assuming distributions for the population representing various inputs because the underlying data regarding the shape of the distribution was unknown. Further, EPA noted in its 2013 disapproval of the LWG 2012 draft FS that EPA guidance on probabilistic risk

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assessment clearly notes that probabilistic methods should not be used to develop PRGs when point estimates were used in the risk assessment.

“Background risks” are explicitly included in the residual risk estimates presented in Appendix J1 for those COCs for which the PRG is based on background concentrations. Post construction risk estimates, and well as estimated costs, for Alternatives B and I are presented in the 2016 FS.

The 2016 FS does not conclude that the removal volumes in Alternative I are justified as “a cost-effective reduction of risk in comparison of other alternatives,” rather, the comparative analysis evaluates the relative performance of each alternative in relation to each specific evaluation criterion. The determination of the merits of Alternative I relative to other alternatives was made in the Proposed Plan, and Respondents dispute rights do not extend to that document. Respondents provide no support from CERCLA, EPA policy, or guidance to support their assertion that an order of magnitude difference in risk outcomes is needed to distinguish between alternatives. PRGs are not applied as a “mixed criteria” in the 2016 FS, the same PRG for each COC is used in all alternatives.

**LSS Dispute Issue 9 - RALs are not tied to PRGs and site risk**

*It is not clear how the RALs equate to risks, other than value for Alternative H, and only if based on the 10-6 risk-based PRG but not based on background. The risks from the RALs and background levels of COCs should be presented side-by-side to demonstrate the risk reduction for these alternatives.*

*Risk-based PRGs should be consistent with the spatial scales of the exposure scenarios used to characterize risk in the approved baseline human health and ecological risk assessments for evaluating cleanup alternatives. The spatial scales over which the PRGs are applied are a key element of the respective exposure scenarios being represented by the PRG. The spatial scales are as fundamental to establishing PRGs as the numeric values themselves. Various spatial scales were used in developing PRGs in the FS (Section 4.1.1): (1) Benthic risk was evaluated on a population level as the area exceeding RAO5 PRGs (2) 0.5 RM was used for RAO1 (sediment only) for direct contact exposure of people engaged in fishing activities, (3) 1 RM was used for RAOs 2 and 6 for the dietary exposure of humans and ecological receptors that consume fish and shellfish, and (4) Sitewide for RAO2. In the FS, COC concentrations were estimated on a rolling average developed from the surface sediment data in the FS database. Surface sediment results were averaged over a distance of 0.5 mile (RAO1) or 1 mile (RAOs 2 and 6) in successive 0.1-mile increments in both the east and west nearshore segments, and the navigation channel. Although the spatial scales match the baseline risk assessment exposure areas, the sediment concentrations calculated for the alternatives are not the same as in the baseline risk assessments and therefore, residual risks for the various*



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*alternatives cannot be compared to baseline conditions, except for sitewide conditions (see dispute issue 8 above).*

*For RAO2, two scales were used to derive two sets of PRGs, sitewide and 1RM, using consumption rates of 142 g/day (based on the subsistence fisher) and 49 g/day (based on the recreational fisher), respectively. However, the selected PRGs for RAO2 are shown to be the ones derived based on the sitewide scale (shaded green in Table B3-5). The 1RM scale PRGs assume that recreational fishers will only be exposed to that portion of the river, which is a very conservative and unrealistic assumption. The RALs for RAO6 only used the 1 RM scale. This corresponds with the home range of species such as smallmouth bass, hooded merganser, osprey, bald eagle, and mink that were evaluated in the BERA. Ecological risk is managed on a population scale and even if a home range is within a river mile, the contiguous population may be exposed over a larger area.*

*In summary, the spatial scales, exposure scenarios, and estimation of exposure concentrations for the remedy development and residual risk evaluations vary from those used in the BHHRA and no clear rationale is provided for the approach.*

**EPA Position:**

It seems that the Respondent is confused between PRGs and RALs. PRGs are established in various media using risk-based values, ARARs, and consideration of background. PRGs are developed independent of spatial scales in Section 2 of the 2016 FS. However, PRGs are evaluated at relevant spatial scales based on exposure assumptions developed in the baseline risk assessments in Section 4 of the 2016 FS. Respondent agreed that the spatial scales used in the 2016 FS matched the baseline risk assessment exposure areas. The disparity in the risk estimates calculated in the baseline risk assessments for exposure to sediment and those in the residual risk estimate is due to the aggregation of the data. The baseline risk assessments aggregated data by dividing the site into discrete areas based on exposure (for RAO 1 direct contact to sediment, the river was divided into nearshore areas and then further divided into 0.5 river mile segments – RM 0-0.5, RM 0.5-1, RM 1-1.5, etc.) whereas the 2016 FS evaluated the same 0.5 river mile exposure assuming that the exposure could be to any 0.5 river mile (for RAO 1, the river was divided into nearshore areas and then divided into 0.5 river segments by 0.1 river mile increments – RM 0-0.5, RM 0.1-0.6, RM 0.2-0.7, etc.). Further, most of the risks in the baseline risk assessments were based on measured tissue data whereas the 2016 FS used models to predict tissue concentrations based on sediment concentrations. Again, the fish tissue data were aggregated by segmenting the river while the 2016 FS did not assume that fish reside only in a particular river segment, but could reside in any part of the river within that spatial scale. The BHHRA evaluated fish consumption on a Site-wide scale using 142 g/day consumption rate and a one river mile scale using 49 g/day. The 2016 FS used this same assumption and spatial scale; thus, is consistent with the BHHRA. Since EPA used this approach consistently to the no action alternative and to each of the

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remedial alternatives evaluated, the comparison of alternatives in the 2016 FS can be compared to the baseline conditions at any spatial scale considered.

*In Table 2.2-3, several COCs have “A” under the columns for RAOs 3, 4, or 8. It is unclear why this is necessary. There are no data to justify selection of ARAR-based COCs as provided in Table 2.2-3a. The FS text simply states “contaminants that were detected in upland media (storm water and groundwater) that may potentially migrate to the river at concentrations that would exceed the Safe Drinking Water Act MCLs and national or State of Oregon water quality criteria were also designated as ARAR-based COCs.” Data or references are required to substantiate this assertion. In addition, the rationale behind assignment of ARAR-based PRGs is not clear and transparent.*

**EPA Position:**

All of the “A” designations under RAO 3 are incorrect and should be “R.” See EPA position to LWG’s dispute issue 1d regarding application of MCLs and ARARs.

*For some COCs (PCBs and dioxin/furan congeners), the sediment PRGs (RAO2) that were developed using the FWM based on target tissue concentrations were assigned a value of zero. Therefore, the PRGs selected for these COCs are background. The mathematical rationale provided is that when using the FWM, dissolved concentrations alone are predicted to result in estimated tissue concentrations greater than the risk-based target. This indicates some flaw in the FWM. Appendix B also states that the FWM presented in detail in the Bioaccumulation Modeling Report (Windward 2015) was submitted to, but not approved, by EPA. However the sediment PRGs for RAO2 and RAO6 are based on this FWM. Note, for RAO6, sediment risk-based sediment PRGs could be estimated for PCBs and dioxins/furans (much higher than background). For the FWM, the OR AWQC were used as post-remedial water concentrations. Note that LWG has disagreed with the use of AWQC in the FWM; instead upstream water concentrations should be used.*

**EPA Position:**

EPA disagrees that surface water concentrations alone can result in tissue concentrations that could pose unacceptable risk. Such a statement indicates a fundamental lack of understanding of the Arnot and Gobas model used by the LWG. The Arnot and Gobas model is a complex, fugacity-based model that estimates tissue concentrations resulting from exposure through a variety of measures, including gill uptake and dietary exposure, as well as accounting of transformation and elimination through metabolic processes. The mechanistic nature of the model is such that certain model outputs in fact represent inputs to other portions of the model. For example, the dietary preference for certain fish may consist of a sufficient proportion of zooplankton and phytoplankton such that exposure via diet alone, or in combination with gill uptake may result in a tissue concentration exceeding risk-based concentrations, particularly in species that prey on planktonivorous fish. In fact, the LWG’s submittal of Early Preliminary Remediation Goals (March 2009) presented sediment PRGs for several contaminants as “<0,” indicating that a sediment concentration of 0 in conjunction with the input water concentration resulted in an

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estimated tissue concentration exceeding the risk-based target. The LWG did not identify this as “some flaw in the model” when it submitted the report to EPA for approval.

While the Bioaccumulation Modeling Report as submitted by LWG was never approved, EPA did notify the LWG on November 18, 2014, that the Arnot and Gobas food web model as calibrated by the LWG was approved. [AR Doc # 100005458] Since AWQC represent ARARs in surface water that must be achieved, EPA believes they appropriately represent surface water concentrations to calculate PRGs in sediment using the food web model.

*It is also not clear if risk from background was accounted in the risk reduction. In addition, some of the post-construction calculated sediment concentrations are below background.*

**EPA Position:**

Risk from background was accounted for in the residual risk if background exceeded the risk-based PRG. Post construction calculated sediment SWACs were calculated using a replacement value of zero (the assumption was that clean material would be used in caps and residual covers). If enough of the values in a SWAC area are replaced with zero, it could result in a concentration below background. This would mean that the alternative is more aggressive than necessary to achieve the PRGs. EPA acknowledges that after the remedy is constructed, surrounding sediment and upriver sediment will mix with the clean material which will result in some equilibrium concentration greater than the post construction SWAC, but could not be calculated due to too many unknown variables (area-specific deposition rates, depth of mixing, sediment transport rates in the Site, etc.) and is too difficult to compute without a functioning fate and transport model.

*The RALs developed for dioxins and furans in the FS (Section 3.4.1.2) are based on several assumptions leading to low confidence and high degree of uncertainty. PRGs for dioxins/furans are less than or within the MDLs. The FS recognizes that due to low data density, interpolations are required across large areas with no data, leading to large footprints that exceed these uncertain RALs.*

*The RALs need to be related to the PRGs for the site that were developed from the EPA-approved BHHRA and BERA. The spatial scales, exposure scenarios, and estimation of exposure concentrations for the remedial levels, should be on the same basis as for the BHHRA and BERA. Remedial levels should be no lower than background for COCs that have PRGs that based on background. Uncertainty in remedial areas identified needs to be accounted for in the cleanup area assessment especially for COCs that have small data sets and low data density, such as dioxins and furans.*

**EPA Position:**

PRGs developed for dioxins/furans are all quantifiable. All RALs developed for focused COCs, including dioxins/furans, are all greater than the PRGs. EPA agrees that there is a higher degree of uncertainty in the dioxin/furan areas delineated in the 2016 FS, but that

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the estimated costs are within the accepted cost range of +50/-30 percent. It is expected that that uncertainty will be resolved in remedial design.

**LSS Dispute Issue 10 - PRGs and RALs are inconsistent with other sediment sites**

*EPA's Portland Harbor PTW value for total PCBs (200 µg/kg) is much lower than the hot spot remediation and expanded hot spot remediation values for the Hudson River site (30,000 and 10,000 µg/kg, respectively). Cleanup goals for other sites are significantly higher than the PTW concentration for Portland Harbor and were not defined as PTW for these other sites. For example, the PCB cleanup goal protective of human health is 386 µg/kg for Yosemite Slough in San Francisco, California; 1,240 µg/kg for Hunters Point, California; and 1,000 µg/kg for Fox River, Wisconsin. The cleanup goal for Passaic River in New Jersey is based on the background of 460 µg/kg. All of these cleanup goals protective of human health are greater than the 200 µg/kg PTW value for PCBs proposed for Portland Harbor.*

*PRGs developed in the FS using parameters and assumptions used in the baseline risk assessment are considered very conservative. For the BHHRA, upper end of the exposure parameters were used for estimating risks. For example, assuming a subsistence fisher would consume fish 149 g/day from the site alone is highly unlikely. Not refining these conservative assumptions for developing PRGs is considered unrealistic. The FS should utilize assumptions and targets that are reasonably achievable given the background conditions and other factors affecting implementability.*

*EPA's use of sediment PRGs for riverbanks, even on areas rarely inundated and without considering attenuation, is technical inappropriate. Delineations of groundwater plumes and riverbanks, and a zero post-construction restoration time frame are arbitrary. There is a total lack of data and analysis as to what risk considerations are driving the specific remedial actions delineated (and therefore how this will be refined in the design phase when further data/analysis is available) and what specific remedial actions will be implemented in which areas driven by those risks. This arbitrary delineation is then carried forward into the evaluation of alternatives and given weight for assessing the relative effectiveness of alternatives.*

*EPA's Portland Harbor PTW value for total PCBs (200 µg/kg) is much lower than hotspot remediation and cleanup goals for other PCB-impacted sites. EPA should modify the PTW values in the FS to make them consistent with other sediment sites such as the Hudson River site noted above.*

**EPA Position:**

As a general matter, the NCP provides a framework for assessing and managing risks at Superfund sites. More information and many recommendations for assessing both human health and ecological risks and developing cleanup levels are provided in several guidances and fact sheets issued by the Superfund program. These guidances by design are not prescriptive and provide the regions with discretion to make decisions based on site-specific data and information. A principal tenant of the Superfund program is that all

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baseline risk assessments and cleanup levels should be based on site-specific exposure data and the reasonable maximum exposure that could occur at a site. Cleanup levels typically are based on site-specific risk, ARARs or background.

Based on site-specific information, EPA applies the reasonable exposure pathways, exposure factors, and risk level within the  $10^{-4}$  to  $10^{-6}$  risk range (with  $10^{-6}$  being the point of departure) for choosing cleanup levels appropriate for the site. Different site-specific circumstances can account for the variability in cleanup goals between sites. Sediment cleanup goals and fish tissue targets may not be set at risk-based concentrations, where site-specific conditions, background concentrations, and available remedial technologies indicate that risk-based goals are not expected to be achievable. Under these circumstances higher cleanup levels may be set, in addition to fish consumption advisories to reduce exposure and to achieve protection.

The Portland Harbor risk-based goals for individual contaminants are based on  $10^{-6}$  cancer risk or a non-cancer hazard of one and achieve a cumulative cancer risk level at  $10^{-5}$  to comply with Oregon's residual risk ARAR for this Site. That level of protection for most exposures is achievable at Portland Harbor based on current information. Where sediment background concentrations are higher than that risk level, background concentrations are used.

Risk-based PRGs in the 2016 FS are developed consistent with the exposure assumptions in the baseline risk assessments. Consistent with the BHHRA, both the subsistence fisher consumption rate of 142 g/day and the recreational fisher consumption rate of 49 g/day were used to develop risk-based PRGs in the 2016 FS (see Appendix B). The Respondent does not provide any detail as to which 2016 FS assumptions and targets are not readily achievable given background conditions nor provides which factors affecting implementability are not reasonable. EPA believes that the 2016 FS assumptions and targets are reasonably achievable, considered background conditions, and factors affecting implementability.

LSS complained that our PTW values and our PRGs for PCBs were lower than cleanup levels at other sites. As stated above, every cleanup decision is based on site-specific circumstances. Likewise, the cleanup decision itself can be structured in many different ways making simple comparisons of "cleanup" numbers misleading at best and just plain wrong at worst. A cursory review of the site decision documents for the sites and "numbers" referenced by LSS illustrates this point. The Hudson River numbers LSS references were hot spot remediation levels that required removal, not the final cleanup goals. The Yosemite Slough is a removal action and may only be addressing ecological risks. The Hunters Point site from what we could tell has not made a final cleanup decision at this time. Furthermore, 1ppm is only the remedial action level at the Fox

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River site, not the final cleanup goals which are not significantly higher than PRGs proposed for Portland Harbor.

**LSS Dispute Issue 11 - Methodology for calculating background concentrations**

*EPA's proposed background values based on inappropriately derived upstream bedded sediment statistics are unlikely to represent achievable cleanup levels for the site. The FS also does not present background concentrations for surface water and does not present sediment background concentrations for all chemicals with sediment PRGs.*

*A sediment remedy must include evaluating what is deposited within the Study Area, both physically and chemically (i.e., potential future bedded sediment equilibrium). EPA has not conducted such an evaluation. The cleanup goal for PCBs of 9 ppb based on EPA's calculation of background concentrations is not achievable. Background should not be used to establish cleanup goals when likely ongoing contaminant inputs from upland sources within the Site and upriver of the Site exceed EPA's calculation of background. The LWG provided EPA an evaluation of equilibrium concentrations for the Site that are a much more reliable indicator of future concentrations that can be achieved.*

*More specific detail is provided below for PCDD/F compounds in sediments and other COCs and media.*

**EPA Position:**

Background values were derived using data specific to the Portland Harbor site and overall watershed. Use of site-specific information is consistent with EPA background guidance, and because site-specific data are available, comparisons to other urban watersheds, which may or may not be similar to Portland Harbor, are not relevant.

See EPA's position to LWGs dispute issue 1g.

**LSS Dispute Issue 11a - Background concentrations PCDD/F compounds in sediment**

*Sediment PRGs for RAO2 and RAO6 as well as riverbank PRGs for RAO9 for the five PCDD/Fs congeners are based on background concentrations. Background PCDD/F concentrations for individual congeners are presented in Appendix B, Table B2-4 of EPA's FS.*

*EPA uses new methods for deriving these levels that appear significantly different from both EPA's methods for other chemicals as well as past LWG input on this subject. Sediment PRGs for RAO2 and RAO6 as well as riverbank PRGs for RAO9 for the five PCDD/Fs congeners are based on background concentrations.*

*The background values are based on limited and poor quality data (with elevated detection limits). In fact, only one congener has sufficient data (1,2,3,4,7,8-HxCDF) to calculate a background value and even that is limited (13 of 31 samples were non-detects). Thus, most of the background "values" are based on a 95% UCL of the*

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*detection limits. The background values also appear skewed quite low compared to other urban watersheds.*

*The background values estimated based on this limited data and approach, furthermore, are low and approximately an order of magnitude lower than values from other regions and watersheds. For example, a memorandum published by EPA in 2010 provides a good summary of background levels for dioxins/furans in sediment, which range from approximately 2–5 parts per trillion (ppt) as TEQs. It also summarizes values from Puget Sound which include a TEQ value of 4 ppt for non-urban areas but allowing up to 10 ppt as TEQs for open water disposal; this value is also used in San Francisco Bay and elsewhere.*

*(<https://klamathrestoration.gov/sites/klamathrestoration.gov/files/EPA%20Klamath%20dioxin%20memo%201-13-10%20final.pdf>). The Duwamish Waterway FS establishes an upper bound background value for dioxins/furans as 11.6 ppt TEQ.*

*Background values in other regions and watersheds are expressed as TEQs, which is generally the manner in which cleanup goals for dioxins/furans are expressed. For Portland Harbor, EPA used 5 individual congeners. The individual congener background values provided in Appendix B of the FS and in the PRG tables for RAOs 2 and 6 can be converted to TEQs using TEFs, which results in a value of 0.56 ppt on a TEQ basis (since the 5 congeners equate to the majority of the risk, this value may be slightly biased low, but probably less than 10% of the total TEQ). This background value is an order of magnitude or more lower than the range of values, mainly for non-urban areas, from the literature. A study to better define background levels for dioxins/furans is necessary since the calculated risk-based PRGs are well below even these low-biased background levels resulting in the background values being adopted as the final PRGs. Otherwise, it is unlikely that the remedies for dioxins/furans will be successfully implemented and estimated risk reductions for dioxins/furans will be realized. This latter issue addresses the validity of the alternatives analysis and its biased outcome.*

*It should also be noted that no background values are listed for RAOs 1 or 3. Those PRGs are expressed as TEQs and data is lacking to identify a background level on a TEQ basis. This needs to be rectified; those PRGs may be below background. In fact, the PRG for RAO3 is 4 orders of magnitude below the MCL and is likely not measurable at that level. Overall, providing PRGs that are below MCLs is inconsistent with other cleanup actions under CERCLA or other programs. Cleanup to below MCLs is unlikely to be achievable.*

**EPA Position:**

As noted in Section B2.4, background for 1,2,3,7,8-PeCDD, 2,3,4,7,8-PeCDF, 2,3,7,8-TCDD, 2,3,7,8-TCDF were established as the 95th percentile of the detection limits in the background data due to the very low frequency of detection of these analytes in the background data set. Thus, any detection of these congeners can be construed as representative of contamination. Respondents' calculation of a background value on a TEQ basis appears contradicted by their subsequent statement that "data is lacking to

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identify a background on a TEQ basis.” EPA continues to believe that background values in sediment expressed solely as a TEQ would be inconsistent with the risk assessments, which assess exposure via bioaccumulation through the food chain. Information submitted to EPA by the LWG in its validation of the food web model for dioxin/furans clearly demonstrates that the individual congeners bioaccumulate at different rates, and information presented in the 2016 FS Section B2.2 demonstrates that calculated TEQ values in sediment do not correlate with calculated TEQ values in biota. The PRG for dioxin/furans is based on Oregon water quality standards.

**LSS Dispute Issue 11b - Background concentrations for other COCs and media**

*The FS (Section 2.2.2.4) states that only sediment background concentrations were estimated and background concentrations for other media could not be calculated due to insufficient data. However surface water background concentrations were calculated in the RI. Upriver surface water background concentrations COCs are orders of magnitude higher than the ARARs based on the AWQC. Note, the background UCLs for upriver surface water (dissolved concentrations with outliers removed; Table 7-4b of RI) vs RAO3 AWQC-based PRGs. For example, the background UCL concentrations for DDT, PCBs and TCDD Teq are all significantly less than the respective RAOs for these substances:*

- *background UCL for DDT = 0.000114 µg/L and the ARAR (RAO3) is 0.00002 µg/L*
- *background UCL for PCBs = 0.000126 µg/L and the ARAR (RAO3) is 0.000006 µg/L*
- *background UCL for TCDD Teq = 0.000126 µg/L and the ARAR (RAO3) is 0.000000033 µg/L*

*Because of the deficiencies in determining the background levels, a new background study for sediment, surface water and tissue needs to be conducted in the design phase. The results of this evaluation need to be used to update PRGs, RALs and SDUs.*

*EPA should not use background to establish cleanup goals when likely ongoing contaminant inputs from upland sources within the Site and upriver of the Site exceed EPA’s calculation of background. A better approach was provided by the LWG using equilibrium values.*

**EPA Position:**

See EPA’s position to LWG’s dispute issue 1g.

Respondents refer to Table 7-4b of the RI; however, the Final RI does not contain a Table 7-4b.

**LSS Dispute Issue 12 - Benthic risk models do not honor the measured data**

*EPA made extensive changes to the benthic approach for this FS, but those changes are still inconsistent with the comprehensive benthic risk approach contained in the approved BERA). The FS states: “The protection of benthic species to contaminated sediment is evaluated using the benthic risk area defined by an order of magnitude greater than the RAO5 PRGs. The post-construction interim target for RAO5 was established at 50%*



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*reduction in the area posing unacceptable benthic risk.” So, instead of using the CBRA, EPA now maps benthic PRG exceedance factors on a point-by-point basis and uses a 10 times exceedance factor to identify areas of concern. EPA then concludes that if 50% of this area is actively remediated, the alternative is “protective” on an interim basis. It is completely unclear how this new method is: 1) in any way more accurate or consistent with the BERA; and 2) more predictive of benthic risk or the effectiveness of the alternatives, as compared to simply using the CBRAs, which are entirely consistent with the BERA.*

*Furthermore, and most importantly, the benthic risk models used by EPA do not honor the measured data. Although the LRM and FPM are model predictions using data from the toxicity tests conducted with site sediments, much of the measured data is not honored. Any modeled risk for benthic invertebrates that ignores actually toxicity testing results needs to be assessed in weight-of-evidence and river-mile specific decision-making. The benthic risk footprints should not extend into areas shown to have a lack of toxicity based on actual laboratory toxicity tests. This error has been carried through the alternatives analysis and therefore has biased the selection of alternatives for SMAs in the FS.*

*EPA should modify the benthic approach in the FS so it is consistent with the BERA and honors all measured data.*

**EPA Position:**

See EPA Position to LWG dispute issue 1b.

The benthic risk models were not used by EPA in the 2016 FS. The benthic risk models were used by LWG contractors (Windward Environmental) to determine risks in the BERA. EPA used the outputs of those models provided as a GIS layer in developing the maps in the 2016 FS, Appendix D10. However, the comprehensive benthic risk map (2016 FS Figure 4.1-1) was developed using interpolation of surface sediment concentrations exceeding the RAO 5 PRGs. Since EPA is not requiring action based on these PRGs, they will be monitored post construction until such time as they are achieved.

**LSS Dispute Issue 13 - Food Web Model (FWM) for DDx and PCDD/Fs**

*The FWM is used by EPA to back-calculate concentrations of chemicals of concern (COCs) in sediment associated with acceptable, risk-based human health and ecological concentrations in fish tissue as calculated using the baseline risk assessment (Kennedy/Jenks, 2013). This influences sediment PRGs and hence RAOs, so uncertainty originating with the FWM cascades, having compounding effects on the evaluation of remedy alternatives, and could result in additional remediation costs with no meaningful*

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*gains in risk reduction. We identify the following shortcomings with EPA's application of the FWM at the Site:*

*A comprehensive and detailed Conceptual Site Model (CSM) for the Site in total, and for the relationship between COC sediment and fish tissue concentrations specifically, has not been presented by EPA. This means that EPA's chief assumptions for the FWM related to steady-state conditions (in a major river), the completeness of the site characterization dataset, regional contributions of COCs, and the apparent relationship between sediment and fish concentrations.*

*Based on an examination of the empirical data for the Site, no statistically significant relationship is observed between sediment and fish tissue concentrations for DDx and PCDD/Fs at the concentrations relevant to risk decision making. This means that the FWM - which assumes such a relationship exists - is not reliable and that the conclusions reached on its basis are fundamentally inaccurate.*

*Good modelling practice was not used by EPA for the FWM, and in particular sufficient model documentation detailing the work does not exist. Adequate model documentation is one of several criteria used by EPA and other international regulators for determining the acceptability of a model for regulatory decision making (USEPA 2009, EFSA, 2014, Grimm et al., 2014).*

*EPA should not use their FWM to evaluate sediment PRGs if there is no statistical relationship between sediment and fish tissue concentrations for key COCs such as DDx and PCDD/Fs.*

**EPA Position:**

See EPA's position to LWG's dispute issue 11.

**LSS Dispute Issue 14 - Overly prescriptive and flawed approach used to assign remedial technologies**

*The FS acknowledges uncertainties in site characterization and the conservative assumptions used to form the basis for associated technology assignments, however EPA continues to use a prescriptive set of technology evaluation and scoring criteria to determine the technologies to be applied in each area of the site and, with the exception of a vague paragraph in Section 3.8.1, the FS is silent regarding the degree of flexibility that is envisioned to be available during remedial design to refine technology assignments based on the additional information gained through future pre-design investigations. This will lead to a lack of flexibility with regard to technology assignments, depth of removal, potential improvements in technology, design efficiencies to address remedial and CWA/ESA requirements, etc.*

*EPA should clearly explain the conditions under which changes to major alternative elements (e.g., changes in technologies assignments, methods to address PTW, methods for determining treatment and disposal requirements, requirements for rigid*

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*containment) might be considered or allowed. EPA should explain how new data, including the “initial conditions” assessment will affect the selection of alternatives and the RAL boundaries based on current surface sediment concentrations. The FS should include language to allow for updates to risk assessments. EPA should incorporate decision frameworks for proposing equally or more effective capping options or other technology refinements based on detailed design-level evaluations and new data.*

*Specific examples of EPA’s flawed approach for assignment of remedial technologies:*

- EPA makes unsupported assumptions regarding nature and extent of contaminated groundwater discharge which drive inappropriate, prescriptive technology assignment decisions that fail to provide flexibility to develop appropriate site-specific designs and mandate use of potentially unnecessary materials (e.g. reactive amendments and/or cap armor).*
- The FS fails to provide evidence supporting speculative assertions of groundwater impacts, and selectively ignores facts including the physical effects of upland controls on contaminant transport/mobility (i.e., significant reduction in advection) which would otherwise allow for remedial design that considers, and is compatible with, upland SCMs. Similar to EPA’s treatment of riverbank areas (Item 18 below) arbitrary assumptions regarding nature/extent of contaminated groundwater are carried forward into the evaluation of alternatives and given weight for assessing the relative effectiveness of alternatives with respect to RAOs 4 and 8, which biases the outcome of alternative selection.*
- While EPA’s decision trees prescribe specific technologies amenable for use under heavy structures, it fails to consider the need for flexibility during design to adapt to any number of other site-specific constraints including slope stability, proximity to nearshore structures, etc. and preclude use of other technologies of potentially equivalent effectiveness.*

*EPA should modify the FS to clearly explain the conditions under which changes to major alternative elements might be considered, explain how new data will affect the selection of alternatives and the RAL boundaries based on current surface sediment concentrations, include language to allow for updates to risk assessments, and incorporate decision frameworks for proposing equally or more effective capping options based on detailed design-level evaluations and new data.*

**EPA Position:**

The Respondent is confusing the requirements for an FS with the requirements for a ROD. The sole purpose of the FS is to develop remedial alternatives to be compared to each other in order to select a preferred alternative. The technology assignments in the 2016 FS are based on current information about the Site. The 2016 FS makes specific assumptions based on current conditions to develop remedial alternatives that can be compared to each other to inform remedy selection. Costs cannot be derived in the FS unless a technology is selected and evaluated. EPA used several lines of evidence based on site conditions described in the RI report to determine the appropriate technology to apply to various areas of the Site. The information and flexibility Respondents seek to be

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discussed in the 2016 FS do not inform the evaluation of the NCP criteria and are more appropriately discussed in the ROD. Thus, EPA does not consider this a dispute issue for the 2016 FS.

**LSS Dispute Issue 15 - Prescriptive dredge residuals management strategy**

*The prescribed application of 12-inches of sand across the entire dredge footprint (amended with AquaGate+PAC2 in areas where PTW present) is very poorly supported. The FS is misleading in stating that the placement of sand (and GAC in areas where EPA has speculated that PTW is present) immediately following dredging will eliminate the need for additional dredge passes. The FS indicates that sediment cores would be taken post-placement to verify thin-layer residual cover successfully reduces residuals concentrations. It is inappropriate to assume a 12-inch layer of residuals management cover will be applied across the entire dredge footprint, without providing a strategy that will determine the necessity for thin-layer placement and flexibility to develop an appropriate thickness.*

*As PAC can be toxic to benthic organisms, overall quantities, where and how it is applied warrants more thoughtful consideration. The FS neglects to consider the physical stability of PAC in the deployment of the thin-layer residuals cover. PAC will be ineffective if it immediately washes away. The FS neglects to consider any possible unintended consequences that may be posed by transport/erosion and aggregation of PAC (with, or without adsorbed contamination) in depositional areas. The assumed performance requirements for this residuals strategy are unclear.*

*The prescriptive dredge residual strategy should be removed from the FS. If left in, the strategy and rationale for the residual management approach should be clearly explained, and a flexible, objective approach to assessing the need for and approach residual management should be allowed.*

*2 The text makes numerous inappropriate references to specific commercial products (i.e., AquaGate+PAC, Aquablok) as components of the conceptual remedial design. The FS should provide flexibility to consider other commercially products for a given class of technologies.*

**EPA Position:**

EPA made an assumption in the 2016 FS regarding the type and quantity of material to be used in dredge residual management in order to develop costs. The actual type and quantity of material needed for dredge residual management will be area-specific and determined in remedial design. However, EPA acknowledges that the use of a residual management layer can reduce costs of both post dredge sampling and multiple dredge passes to achieve remediation goals.

**LSS Dispute Issue 16 - Inappropriate use of rigid containment technologies**

*EPA assumes the use of sheet pile barrier walls as dredge water quality control measures based on the suspected presence of NAPL will support the short term effectiveness of all*

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*alternatives. The FS still fails to adequately evaluate the implementability, effectiveness and cost of this particular technology relative to other technologies and BMPs.*

*In making gross assumptions for this FS, EPA has disregarded the complexity of constructing such barrier walls (e.g. consideration of structural components such as king piles and structural bracing, or more complex cofferdam structures) and the associated impacts this will have on numerous aspects of remedy implementation ranging from construction duration (e.g. time required to install walls, and impacts to dredge production rates) to the overall net benefit and cost effectiveness relative to other means. EPA also continues to show figures that depict sheet piling in greater than 50 feet of actual water depth, which is technically infeasible. These figures also imply that sheet piles will be installed in the navigation channel, which would infeasibly obstruct vessel traffic. Sheet pile would also impact ongoing water dependent operations and nearshore fish migration does not evaluate whether sheet piles in the navigation channel could be permitted by USACE.*

*Because of the technical infeasibility of the use of sheet pile barrier walls, their consideration as a feasible technology for dredge water quality control measure should be removed from the FS.*

**EPA Position:**

EPA disagrees that the use of sheet piles has not been adequately evaluated relative to other control technologies and BMPs. Sheet piles are a representative engineered rigid control measure identified and evaluated for sediment dispersion control in the 2016 FS. However, that representative approach does not preclude other types of rigid control measures for consideration during remedial design. As stated in the 2016 FS, Appendix O, EPA agrees that depth can limit the use of suitable engineered options for controlling releases, and deep water depths can preclude the use of sheet piles. EPA assumes that engineered rigid containment will be utilized when NAPL was present in water depths less than 50 feet.

Engineered rigid control measures were evaluated holistically within the 2016 FS for their use in reducing or eliminating short-term releases of contaminants during construction and not on a location-specific basis. Thus, the 2016 FS does not present figures indicating design level logistical details regarding location and depth of engineered rigid control measures. Location-specific evaluations for feasibility of sheet pile versus other types of engineered rigid control measures, including placement within the navigation channel, were beyond the scope of evaluation of the 2016 FS. Details regarding sediment dispersion control and location-specific engineered rigid control measures will be determined during remedial design which is the appropriate time for those types of evaluations.

Alternative-specific costs for purchasing, installing and removing sheet pile walls are presented in Appendix G of the 2016 FS. The unit costs were developed by the LWG in the draft 2012 FS on a horizontal linear foot basis. Quantities for sheet pile lengths used

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in the detailed alternative cost estimates and presented in the 2016 FS, Table D2.j (in horizontal linear feet), were holistically estimated for each alternative by encircling all PTW dredge and/or capped areas with silt curtains assumed for the remainder of dredged and/or capped areas.

See EPA's position to LWG's dispute issue 2b regarding rigid containment.

The determination of technical feasibility of engineered rigid control measures is highly dependent on site specific conditions. As stated in Appendix O of the 2016 FS, EPA agrees that depth can limit the use of suitable engineered options for controlling releases, and deep water depths can preclude the use of sheet piles. However, blanket elimination of the technology is not warranted. EPA assumes that engineered rigid containment will be utilized when NAPL was present in water depths less than 50 feet.

**LSS Dispute Issue 17 - Flawed evaluation used to determine whether PTW can be reliably contained**

*Notwithstanding Arkema's objection to EPA's definition of PTW, and assertion it is present offshore of the Arkema site, the approach used to determine applicable remedial technologies to address PTW in the draft final FS is flawed because it is based on a simplistic, overly conservative screening analysis and does not include standard engineering methods used to assess and ensure reliability. Additionally, EPA neglects to consider the current state of practice for reactive capping.*

*According to EPA, PTW is a concept used in the NCP to characterize contaminant source material (USEPA 1991). PTWs are those source materials considered to be highly toxic or highly mobile that generally cannot be reliably contained or would present a significant risk to human health or the environment should exposure occur. In the 1991 guidance, EPA stated their expectation that PTW would be treated, wherever practical, because of current technical limitations of long-term reliability of containment technologies. The long-term reliability of containment of certain NAPL PTWs has improved through the development and implementation of reactive capping, as demonstrated by EPA (USEPA 2013). The draft final FS does consider and propose reactive capping but uses a flawed, simplistic screening analysis to limit its use through designating certain SMAs as PTW NAPL/NRC, reflecting those areas where purported NAPL is deemed not reliably contained (NRC). Furthermore, the draft final FS is not consistent with the EPA guidance on principal threat and low-level threat wastes (LTW) (USEPA 1991), as it does not differentiate PTW from LTW NAPL based on toxicity, mobility, and (realistic) reliability of containment, but uses NAPL and PTW interchangeably. For instance, for shallow areas it states that NAPL or PTW that is not reliably contained within an SMA would be dredged to the lesser of the RAL concentrations or 15 feet.*

*To determine the boundary for where PTW can be reliably contained, two limited capping options were modeled in Appendix D to determine the maximum concentrations of PTW material that would not result in exceedances of AWQC in the sediment cap pore*

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*water after a period of 100 years. Contaminants modeled were chlorobenzene, dioxins/furans, DDx, naphthalene, PAHs, and PCBs. Appendix D contains the following errors or omissions:*

- The objectives of the analysis are not clearly identified. The document states “this appendix is evaluating whether or not PTW at the Site can be reliably contained under specific assumptions”. However, at the end maximum containable sediment concentrations of 320 µg/kg and 140,000 µg/kg for chlorobenzene and naphthalene are presented;*
  
- The two potential active cap designs modeled (thickness of capping layers and amount of active material in cap for a reasonably conservative approach and a more aggressive augmented capping approach) are not representative of the current state of practice for reactive capping and so cannot be used to determine the contaminant concentrations that cannot be reliably contained;*
  - o The reasonably conservative approach (12-inch active layer containing 5% activated carbon by weight) is not applicable for NAPL sites. The example site referenced (Berry’s Creek in New Jersey and Bailey Creek, Fort Eustis in Virginia) are likewise not NAPL sites. Additionally, Berry’s Creek represents a very small pilot-scale test of reactive cap technologies.*
  - o The more aggressive augmented capping approach (12-inch active layer containing 20% activated carbon by weight) is also not applicable for NAPL sites. Organoclay is a more applicable and effective amendment for NAPL site (McCormick Baxter and West Branch Grand Calumet River).*
  - o GAC may have a greater absorption capacity than organoclay on an equivalent weight basis with regards to some dissolved phase contaminants, but it can easily be fouled by NAPL.*
  
- The long term reliability of a reactive cap is a direct function of the thickness of the reactive layer and the amendment(s). A more reliable reactive cap with a thickness greater than 12-inches and consisting of a lower layer of organoclay and an upper layer of GAC should have been considered in Appendix D.*
  
- Maximum porewater concentration of chlorobenzene used as a continuous source term in the model is based on the relatively old Remedial Investigation (RI) database and is not representative of current conditions, let alone for the next 100 years. In addition, EPA has used data that was not collected pursuant to the RI. EPA has used reconnaissance data collected using a Geoprobe rig. The data are unacceptable for and cannot be used to represent porewater chlorobenzene concentrations. Therefore, the maximum porewater concentration EPA used is based on inappropriate data and needs to be replaced in the model. Since the RI data collection, a barrier wall and pump and treat system has been installed along the shoreline of the Arkema site. It is anticipated that any remaining dissolved-phase chlorobenzene left beneath sediments (stranded wedge along toe of riverbank) will continue to naturally attenuate. Furthermore,*

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*maximum data are no appropriate for assessing engineering performance, including reliability. A more appropriate input parameter is the 90th percentile concentration.*

*• A range of seepage velocities were evaluated (0.3, 3, and 30 cm/day), representing the minimum, average, and maximum values measured at the Site. However, actual seepage velocities in SMA 7W are likely lower than 0.3 cm/day due to presence of barrier wall and pump/treat system.*

*EPA should revise the active cap modeling calculations to be transparent and clearly explain the assumptions in the model, model the active cap layers using current state of practice assumptions, utilize realistic long-term source concentrations in the cap model, and use a range of seepage velocities.*

**EPA Position:**

Consistent with the NCP and EPA guidance, PTW was identified based on a  $10^{-3}$  risk, source material (NAPL) within the sediment bed. As noted in “A Guide to Principal Threat and Low- Level Threat Wastes” (Superfund Publication 9380.06FS, November 1991):

Principal threat wastes are those source materials considered to be highly toxic or highly mobile that generally cannot be reliably contained or would present a significant risk to human health or the environment should exposure occur. They include liquids and other highly mobile materials (e.g., solvents) or materials having high concentrations of toxic compound

EPA expects to use treatment to address the principal threats posed by the Site, wherever practicable, consistent with the NCP (40 CFR §300.430) and EPA guidance. However, based on the technology assignment process, if sediment classified as containing PTW is located in an area designated for capping, then a reactive cap will be assumed for that area to meet the preference for treatment and meet surface water applicable or relevant and appropriate requirements (ARARs). As such EPA determined what PTW may potentially be reliably contained based on modelling representative site conditions and capping options to determine the maximum concentrations of PTW material that would not result in exceedances of human health based water quality criteria. While modeling indicates that there may be an increase in the potential to control the material, it is not deterministic that that will in fact be the case for all portions of the site. As such, the modeling information is useful as part of the nine evaluation criteria, but it not relevant to the determination of PTW.

The 2016 FS relied on location specific technology assignments to develop remedial action alternatives for evaluation in the detailed and comparative evaluation of remedial alternatives. The technology assignment process considered site specific information such as water depth, current and future navigation uses, PTW, contaminated groundwater plumes, structures, wind and vessel wake generated waves, sediment deposition rate, sediment bed slope, the presence of cobbles, rocks and bedrock, propeller wash, debris,



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and the vertical extent of contamination. Consideration of these site specific factors was conducted in a technically appropriate manner.

EPA relied on observations of NAPL to identify areas where NAPL may be present and employed a site-specific capping model to determine whether COCs at the Portland Harbor site can be reliably contained. As mentioned in Section 3.2.2.2 of the 2016 FS “This is an appropriate model to make FS-level decisions and is sufficiently rigorous to be used for decision-making at the FS phase. More rigorous modeling may be conducted as needed in remedial design.” It should be noted that the identification of NAPL and not reliably containable material in sediments offshore of the Arkema site are not mutually exclusive. Rather areas identified as containing NAPL were also found to contain levels of chlorobenzene that were determined to be not reliably containable.

The 2016 FS also developed a series of generic cap designs that incorporate reactive materials. This includes the “significantly augmented reactive cap” that utilize organoclay mats and low permeability materials to contain NAPL and reactive caps that utilize particulate activated carbon (PAC) mixed with sand to a PAC concentration of 5 percent by weight to contain highly toxic PTW. These FS level cap designs are consistent with the application of reactive caps at contaminated sediment sites around the country including the McCormick and Baxter site in Portland, Oregon and the River Mile 10.9 removal action in Lyndhurst, NJ.

This comment misrepresents the cap designs utilized in the 2016 FS. The 2016 FS relies on a “significantly augmented reactive cap” for areas where NAPL will be left in place. The significantly augmented reactive cap relies on organoclay mats and low permeability materials to contain NAPL and consists of the following elements:

- Chemical Isolation Layer: 1-inch organoclay mat.
- Low Permeability Layer: 17-inch layer of fine grained sand or other low permeability material
- Physical Isolation Layer: 12 inches of sand.
- Stabilization Layer: 6 inches of armor stone.

Reactive caps are utilized for areas where highly toxic PTW will be left in place. As noted in the comment, activated carbon is not considered suitable for NAPL due to the potential for fouling.

Reactive caps rely on a 12 inch layer of sand and powdered activated carbon (PAC) at a concentration of 5 percent by weight to contain highly toxic PTW and consists of the following elements:

- Chemical Isolation Layer: 12-inch layer consisting of approximately 50 percent sand and 50 percent AquaGate+PAC.
- Physical Isolation Layer: 18 inches of sand.
- Stabilization Layer: 6 inches of beach mix or armor stone.

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For the significantly augmented cap, an organoclay mat that is effectively equivalent to four times the amount of activated carbon typically placed in a cap was conservatively assumed. The conservative assumption of a low permeability layer, COC degradation and no deposition were also used in order to contain the maximum possible contaminant concentration with this cap. The use of an organoclay mat and an upper layer of GAC (or PAC) may be considered during remedial design.

The model was used to estimate the maximum concentration of chlorobenzene that can be reliably contained using the significantly augmented reactive cap. The effects of the barrier wall and pump and treat system can be used during remedial design activities.

Any seepage velocities being influenced by the presence of the barrier wall and pump-and-treat system should be empirically collected prior to design for the construction of a cap based on site-specific criteria. The range of seepage velocities evaluated in Appendix D of the 2016 FS were selected to better understand contaminant fate and transport under a range of conditions.

The assumptions used for this analysis are outlined in the 2016 FS, Appendix D, Section D7.4 and Section D7.5, and are in line with current state of practice. A range of seepage velocities were evaluated (0.3, 3, and 30 cm/day), representing the minimum, average, and maximum values measured at the Site. As noted above, seepage velocities that consider the presence of the barrier wall and pump and treat system may be considered during remedial design. The assumptions used for this analysis are explained as follows:

- a 12-inch active layer with “active layer loading of the augmented cap of 0.48 lb/ft<sup>2</sup>/cm” was assumed which is four times the amount of activated carbon typically placed in a cap
- “a low permeability layer limiting seepage velocity to 0.3 cm/day was assumed” to represent a conservative value for seepage velocity
- degradation was assumed to incorporate effects of degradation of chemicals due to the long residence time in the cap
- “No sediment deposition on top of the cap” was conservatively assumed
- No consolidation was assumed to take place in the cap or in the underlying sediment

**LSS Dispute Issue 18 - Riverbank contaminants adjacent to the Arkema Site**

*PCBs are listed as a riverbank contaminant at Arkema, but have only been detected in small number of samples below the applicable screening levels (with one exception, one sample slightly exceeded a conservative bioaccumulative SLV). The FS references an attached riverbank database, but the database was not included. Consequently, LSS continues to have no way to verify any of EPA’s FS decisions regarding remediation of the river banks. Regardless, prior issues with EPA’s source control approach remain. Two key issues are (1) risk-based PRGs should not be established based on exposure pathways being evaluated as part of the upland source control evaluations under DEQ*

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*and (2) that none of these upland media were evaluated in the BLRAs or RI. EPA's use of sediment PRGs for riverbanks, which were even applied to areas rarely submerged by the river and without considering fate and transport (e.g., attenuation), is technically unsupportable and inappropriate. Delineations of groundwater plumes and riverbanks, and a zero post-construction restoration time frame are arbitrary. There is a total lack of data and analysis as to what risk considerations are driving the specific remedial actions delineated (and therefore how such analyses will be refined in the design phase when further data/analysis is available) and what specific remedial actions will be implemented in which areas driven by those risks. This arbitrary delineation is then carried forward into the evaluation of alternatives and used to assess the relative effectiveness of alternatives. This appears to significantly bias the outcome of alternative selection.*

*Source control measures taken at the Arkema Site have largely eliminated the stormwater pathway from this site. Groundwater controls, namely the installation of a slurry wall and a groundwater extraction and treatment system designed to prevent migration from the uplands to the river, have eliminated the groundwater pathway.*

*The June 2016 FS fails to include a discussion of upland source controls that have been implemented as well as failing to include anything related to the performance of source controls in the remedial evaluations.*

*The FS report should be modified to include appropriate risk-based PRGs developed for riverbanks rather than sediments and should acknowledge and include a discussion of upland source control measures in the remedial evaluations.*

**EPA Position:**

See EPA position to LWG dispute issue 1q.

**LSS Dispute Issue 19 - Updates to risk assessments**

*The FS should include language for allow for changes in pre-design work, to allow for updates to risk assessments. For example, if sediment and/or fish tissue samples are collected which show concentrations less than target levels, then PRGs/RALs would need to be revisited. Similarly, if additional studies on benthic toxicity are conducted for a portion of the river, those results should be used to update the remedial footprint for RAO5. Several source control actions have been undertaken and completed since the RI dataset was collected. Thus, areas of the river, COCs and media previously shown to show unacceptable risk may no longer show risk. Thus, a remedy may not be necessary to address some or all RAOs where such changes have occurred. Furthermore, as noted above, background levels are not well defined based on the RI dataset and need to be updated and re-assessed to develop more robust background values. Because many of the COCs have PRGs based on or very close to background levels, as currently defined, an improved understanding background conditions is key to a successful remedy. Otherwise, predicted risk reductions, which are already minimal, will not be realized. The potential outcome is a high cost remedy which provides no public benefit.*

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*Section 2.2 of the FS only states: “Achieving the above RAOs relies on remedial alternatives’ ability to meet final remediation goals/cleanup levels derived from PRGs. At this point, Table 2.2-1a-d provides PRGs that are based on such factors as risk, ARARs, and background. Section 2.2 of the FS also states “PRGs may be further modified through the evaluation of alternatives and the remedy selection process. Final cleanup levels will be selected in the Record of Decision.” Yet, there is no other mention of the process in the FS.*

*EPA should modify the FS to clearly describe data gaps and uncertainties that can be addressed during design, including listing anticipated pre-design and design studies, developing robust background values and using any new measured data, and the process for modifying PRGs and remedies based on these studies.*

**EPA Position:**

Within the main text of the 2016 FS there are 26 instances where collection of additional data to assist remedy design and flexibility in refining the remedy during the remedial design process is discussed. EPA is not aware of a prescriptive number of how many instances this must be mentioned before it may be considered sufficient. The data gaps and uncertainties that can be addressed during design, including anticipated pre-design studies, is appropriately discussed in the ROD, not in the FS. [See EPA’s *A Guide To Preparing Superfund Proposed Plans, Records Of Decision, And Other Remedy Selection Decision Documents* (OSWER 9200.1-23P), *Guidance for Conducting Remedial Investigations and Feasibility Studies Under CERCLA* (OSWER Directive 9355.3-01), and *Contaminated Sediment Remediation Guidance for Hazardous Waste Sites* (OSWER 9355.0-85)] Thus, modifications to the FS to incorporate this information are not appropriate.

**LSS Dispute Issue 20 - Evaluation of MNR**

*The Monitored Natural Recovery (MNR) evaluation is insufficient to support the alternatives evaluation. The FS continues to omit key components of an MNR evaluation as required by guidance (such as EPA’s 2005 sediment remediation guidance) including: 1) an adequate CSM; 2) appropriate evaluation of multiple lines of empirical evidence; and 3) a quantitative evaluation of natural recovery and the associated long-term (i.e., after “time zero”) outcomes of the alternatives. New concerns with this FS include:*

- *EPA added new information on bathymetry changes and fish tissue. In Section 3.6.1.3, EPA’s updated evaluation of fish tissue concentrations over time completely ignores 2012 data without any explanation.*
  
- *EPA states that, “Therefore, a minimum deposition rate of 2.5 cm/year was assumed as the criteria [sic] for effective MNR.” This criterion is obviously not used by EPA in the FS because the FS assumes MNR as the applicable technology for all areas outside SMAs (as opposed to applying MNR in just areas exceeding the minimum deposition rate).*

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*Although we agree with the wide application of MNR, EPA's explanation of its MNR evaluation process is full of inconsistencies and errors.*

*• Rather than assuming an effective conceptual framework that will incorporate new information and adjust the assignment of MNR to specific areas during design, the FS focuses on minor challenges affecting one, of multiple, lines of evidence used to assess natural recovery rates (i.e. EPA emphasizes the challenge in assessing deposition rates for the shallow region using bathymetric data - given an assumed inability for survey boats to maneuver and obtain quality data.) In its biased presentation of this matter, EPA ignores multiple lines of evidence that can, and should, be used to reduce uncertainties during design and be used to refine technology assignments.*

**EPA Position:**

The Respondent does not provide any information as to why the CSM described in the RI Report produced by the LWG is inadequate. EPA significantly modified and approved the RI Report that meets the requirements of the NCP and EPA guidance and policy. Also, as stated in Section 3.6.1.3 of the 2016 FS, EPA did use the 2012 fish data in evaluating MNR. As stated in the 2016 FS, MNR is both deposition and dispersion; thus, MNR is applied to all low concentration areas, not just areas exhibiting a certain deposition rate. EPA looked at areas of deposition (see Appendix D8) to determine if enough deposition would occur in various areas of the Site using the deposition rates for each 10 ft x 10 ft pixel to mix and reduce remaining sediment concentrations to acceptable concentrations. As stated above, the 2016 FS developed alternatives based on currently available information and does not discuss what should be in a ROD for future evaluation.

**IV. UPRR DISPUTE STATEMENT RESPONSE**

**UPRR Dispute Issue 1 – Overarching Concern**

*Under the Comprehensive Environmental Response Compensation and Liability Act ("CERCLA"), 42 U.S.C. § 9601 et seq., and its implementing regulation, the National Oil and Hazardous Substances Pollution Contingency Plan ("NCP"), 40 C.F.R. Part 300, EPA is required to use a specified framework and particular criteria for identifying and evaluating cleanup alternatives to address unacceptable risks posed by hazardous substances. EPA's national sediment guidance documents explain how the NCP framework should be utilized at sediment megasites.*

*While EPA has substantial discretion in how it evaluates cleanup alternatives and identifies a preferred alternative using the nine criteria for FS evaluations set forth in 40 C.F.R. § 300.430(e), the cleanup goals must be achievable through the implementation of the selected cleanup. Contaminated Sediment Remediation for Hazardous Waste Sites, December 2005 ("Sediment Guidance").*

*Such is not the outcome of the FS for the Site. In failing to comply with requirements for evaluating cleanup alternatives in a FS, as described in more detail below, EPA Region*

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*10 has generated a preferred alternative that requires attainment of a total PCB cleanup goal that is not achievable and sustainable, is far more disruptive than described by EPA, will take much longer to implement than predicted by EPA, will likely cost significantly more than estimated by EPA, and is therefore not cost-effective as required by the NCP. Further, the FS does not identify which areas currently pose the highest risk and should be prioritized for remediation.*

*This result is inconsistent with one of the fundamental principles of the Superfund program as expressed in the NCP Preamble: "... this process [the remedy selection process] considers the full range of factors pertinent to remedy selection and provides the flexibility necessary to ensure that remedial actions selected are sensible, reliable solutions for identified site problems." 55 FR 8700 (March 8, 1990).*

*The LWG's draft FS fulfilled the requirements of the law and EPA guidance, proposing a workable, common sense cleanup. EPA's unnecessary and inappropriate takeover of the FS from the LWG has diminished the quality and value of the FS. The LWG's 2012 draft FS incorporated reliable science, provided the required comparative analysis of alternatives, and relied on realistic estimates of cost and time necessary to perform work. The LWG was prepared to fully engage with EPA and resolve EPA's comments and concerns in order to produce a report that provided a credible basis for EPA's selection of a remedy that conformed to CERCLA, the NCP, and EPA guidance. EPA's unwarranted deviation from the RI/FS process agreed to by EPA in 2001 was an abuse of discretion and will not lead to an effective and timely cleanup.*

*Cleanup projects that are estimated to cost hundreds of millions, if not billions, of dollars must be evaluated and selected based on how effectively they will perform in the physical world. At this Site in particular, the impact of fast-flowing river dynamics on the schedule and cost of remediation are not sufficiently evaluated in the FS.*

*Union Pacific disputes the FS as a whole because it leads to a proposed cleanup project that has not been sufficiently evaluated as required under the NCP and has no realistic chance of being implemented as described by EPA. Union Pacific also disputes the determination that certain sediments in the vicinity of its railyard (the "Albina Yard") require remediation. Further specific bases for Union Pacific's dispute of the FS are set forth in the paragraphs below.*

**EPA Position:**

See EPA's position to LWG's requested relief #2.

**UPRR Dispute Issue 2 - EPA's PCB Cleanup Goal is Not Achievable**

*The preliminary remediation goal ("PRG") for total PCBs in the FS is nine parts per billion ("ppb"). The basis for this value is that it is the "background" value determined by*

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*EPA in the RI. The cleanup goal for PCBs is highly significant because PCBs are driving over 90 percent of the risk at the Site.*

*Union Pacific disputes both that the background number is achievable at the Site and that it should be used as a cleanup goal. Neither CERCLA nor the NCP authorizes EPA to select cleanup goals that are not achievable. EPA's guidance states the FS should confirm that cleanup goals are achievable by the sediment cleanup itself. Sediment Guidance, page 2-15.*

*In section 7.2.2 of the RI, the upriver reach of the lower Willamette River extending from RM 15.3 to 28.4 was selected as the reference area for determining PCB background sediment concentrations. Although separated from the Site by anywhere from four to 17 miles, EPA chose this area because it is considered broadly representative of the upstream sediment loading to Portland Harbor. Based on its evaluation of data from this reference area, EPA determined the background concentration for PCBs for the Site is nine ppb.*

*The Lower Willamette Group disputed how EPA evaluated the data in determining background. In his letter dated March 24, 2015, denying the dispute, Richard Albright, the then current Director of the Superfund program in Region 10, wrote at page 16:*

*I would like to emphasize that as noted by EPA's Response at p. 24, there are sources of contamination outside of the Site - both upriver of the Site and within the downtown reach - that may affect the ability of the cleanup efforts within the Site to equilibrate to the selected cleanup level regardless of whether the cleanup level is based on risk, regulatory standard or background. In this regard, the Site is similar to other urban sediment sites which CERCLA addresses like the Lower Duwamish Site in Seattle.*

*If the Site cannot "equilibrate" to nine ppb, the cleanup level will not be achieved by the sediment cleanup action. The LWG submitted comments to EPA explaining how equilibrium, not background, should be used to establish PRGs and evaluate FS alternatives. The final FS appears to disregard all of this information.*

*Perhaps the most reliable certainty at the Site is that the Lower Willamette River continuously flows in one direction, from south to north, without pause or deviation. As part of the flow, the river carries sediments, much of which are deposited within the Site. Equilibrium is the result, in part, of concentrations of contaminants in the incoming sediments from upstream. As strongly suggested by Rick Albright, active remediation within the Site cannot achieve concentrations lower than that of the equilibrium level.*

*The LWG estimated equilibrium concentrations based on existing RI empirical data, including deposited surface sediment data (from depositional areas upstream of the Site and from depositional areas within the upper reaches of the Site but apart from known source areas), sediment trap data, upstream suspended sediment data, and smallmouth bass fish tissue data from 2002, 2007, and 2012. The result of the LWG's evaluation of*

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*empirical data, which was presented to EPA in August 2014, is that the equilibrium value for total PCBs should be 20 ppb. The LWG advised that EPA should not select risk-based PRGs below equilibrium values, including for PCBs. EPA's failure to do so, and failure to explain why the FS does not incorporate any evaluation of equilibrium, is inconsistent with the reasoning of its own former Director and an array of real-world data, and undermines the presumption that its proposed cleanup goal for total PCBs is realistically achievable.*

*Further, EPA's failure to use reliable models to reasonably predict when cleanup goals will be attained is another significant omission in the FS. In effect, EPA has not included any credible information in the FS indicating that its cleanup goals, particularly for PCBs, are actually achievable and sustainable over the long-term at the Site. The importance of models (e.g., sediment transport model and bed composition model) in making cleanup decisions at sediment sites is explained in detail in the Sediment Guidance, section 2. 9. Such models are generally used at large sediment sites (e.g., Lower Duwamish and Lower Passaic sites), but were not used here.*

*Union Pacific disputes both that the cleanup goal for PCBs is achievable at the Site and that it is consistent with the NCP.*

**EPA Position:**

While UPRR alleges that EPA chose the upriver reach from RM 15.3 to 28.4 as the “reference area,” the administrative record for this site clearly indicates that the LWG chose this area, in consultation with EPA, DEQ, and the tribes. EPA does not discount the presence of possible in-water PCB sources upstream of the current Site boundary at RM 11.8, or of potential upland sources. However, the assumption in the 2016 FS is that those sources would be controlled and DEQ has represented that it will have significant upstream sources addressed. [See DEQ’s 3/25/16 updated summary report (AR Doc ID # 1000019892), Section 4.7, and their presentation to the NRRB, (AR Doc ID 100002728) at Slide 16.] It is EPA’s expectation that potential sources will be controlled through DEQ’s source control efforts under State authority, or if necessary by EPA using its CERCLA authority. Thus, background concentrations as represented by the deposited sediment concentrations exhibited in the “reference area” remain the best predictor of achievable cleanup goals for the Site, particularly given the unreliable nature of the predictions from the LWG’s sediment fate and transport model (see 2016 FS Section 4.1.2 and Appendix H). The sediment data for Portland Harbor is replete with a large signature of PCB concentrations at or less than the PRG of 9 ppb, which would not be possible if the LWG’s “equilibrium” theory were credible (Figures 5.2-1 and 5.2-2 in the final RI report). In addition, EPA notes that the assertion that “the most reliable certainty at the Site is that the Lower Willamette River continuously flows in one direction, from south to north, without pause or deviation” is not true and is directly contradicted by information presented in the LWG’s own reports submitted to EPA, which clearly note that Portland Harbor is subject to tidal influence and also documents flow reversals from the Columbia River backing up the Willamette during flooding or high water events through at least the downtown reach. Lastly, UPRR overstates that



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EPA's sediment guidance emphasizes the "importance of models"; a more correct characterization of the guidance is that the models can be useful. However, the lack of the proper time-series data, as acknowledged in the LWG's draft 2012 FS, prevented validation of a sediment transport model for Portland Harbor.

**UPRR Dispute Issue 3 - Risk Management is Absent from FS Evaluation**

*Another fundamental flaw in the FS is the absence of credible risk management. Risk management in the Superfund program requires the consideration of the advantages and disadvantages of cleanup alternatives and a balancing of trade-offs. This analysis includes an evaluation of the uncertainties at the Site, including uncertainties in the reliability of the exposure data used to identify the risks. 40 C.F.R. § 300.430(e)(2)(i)(A)(4). Further, as noted in the NCP Preamble, "[t]he likelihood of the exposure actually occurring should be considered when deciding the appropriate level of remediation, to the degree that this likelihood can be determined." 55 FR 8710 (March 1990).*

*As described in the Sediment Guidance: "A risk management process should be used to select a remedy designed to reduce the key human and ecological risks effectively." Sediment Guidance, page 7-1. It is telling that the term "risk management" is never used in the FS.*

*At Portland Harbor, the risk assessments, particularly for human health, are built on a cascade of conservative assumptions regarding exposure and durations. Unacceptable risks to various consumers of fish are based on questionable assumptions of how many fish people eat, from which areas of the river, how the fish are cooked, and for how many years. Contrary to the NCP, the assumptions were not placed in an overall estimate that is conservative but within a realistic range of exposure as required by the NCP. NCP Preamble, 55 FR 8710. Further, the assumptions used at Portland Harbor are not compared to assumptions used at other sediment megasites (i.e., nowhere is there an explanation why people are more exposed to certain kinds of risk in Portland than they are in Seattle or Newark, for example).*

*Of equal importance is that EPA's FS fails to document how the risk assumptions have been considered when evaluating alternatives. The FS describes what appear to be highly exaggerated risks at the Site. For example, the acceptable consumption rate is 6 fish meals every 10 years. EPA does not provide backup for how meals per 10 years were calculated or how it is consistent with the baseline risk assessment. Nor does EPA clarify whether resident fish caught from any location within the 10-mile river contribute to potential excess risk. In the absence of such information in the FS, it is not apparent that the reliability of the exposure assumptions has been sufficiently considered (i.e., whether an important element of risk management has even been conducted).*

*Finally, the FS does not identify which areas currently pose the highest risk and should be prioritized for remediation. At a 10-mile Site that, according to the FS, encompasses nearly 300 acres requiring active remediation and likely close to 20 years to perform the*

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*cleanup, it would seem necessary and prudent to establish a basis for prioritizing and sequencing the cleanup of the higher risk areas. EPA's failure to do so is an indication that it is not effectively managing the risk.*

*Union Pacific asserts EPA has failed to comply with regulations and guidance because the FS fails to document that EPA included a legitimate risk management step in its evaluation and decision-making process. The absence of risk management means EPA has not demonstrated the preferred alternative represents the most appropriate solution for the Site.*

*Union Pacific disputes that the FS incorporates risk management as required by the NCP.*

**EPA Position:**

UPRR's issues with the BHHRA and the exposure assumptions used were the subject of a previous formal dispute by the LWG under the AOC. EPA's position and determination of the appropriateness of the assumptions used for the Portland Harbor Site was documented in the final ECL Director decision and supporting administrative record. **[AR Doc ID # 1432316 and 715198]**

In the 2016 FS, EPA used equations B3-15 and B3-16 to calculate fish meals and solved for the consumption rate (CR). These are the same equations used to establish risk in the BHHRA.

Lastly, regarding UPRR's assertion that the FS was not clear about how risk management was applied in evaluating the alternatives, the NCP and EPA guidance state that risk management should be used in selecting a remedy. EPA did not select a remedy in the 2016 FS; thus, did not discuss risk management in selection of a remedy. The Preferred Alternative was discussed in the Proposed Plan and the final remedy will be selected in the ROD.

**UPRR Dispute Issue 4 - The FS Requires More Sediment Removal Than Necessary**

*"Principal threats are characterized as waste that cannot be reliably controlled in place, such as liquids, highly mobile materials (e.g., solvents), and high concentrations of toxic compounds (e.g., several orders of magnitude above levels that allow for unrestricted use and unlimited exposure)." NCP Preamble at 55 FR 8703.*

*In the FS, EPA has designated large areas of sediments with relatively low concentrations as principal threat waste ("PTW") (e.g., above 200 ppb total PCBs) that must be removed from the Site, including near Union Pacific's Albina Yard. However, the FS fails to explain satisfactorily how sediments in these large areas are highly mobile or highly toxic and how they cannot reliably be contained in place.*

*The FS does not contain a credible conceptual site model that identifies the extent to which certain areas of sediments are "highly mobile" and need to be removed. Most*

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*areas of the Site are depositional, meaning that sediments in these areas are stable and likely to remain in place in the future. In many cases, where contaminant concentrations in surface sediments in these areas represent an unacceptable risk, such sediments can be reliably contained in place.*

*Nor are the PCB levels in the river "highly toxic". In the risk assessment, EPA identified unacceptable risks based on fish consumption, which is an indirect exposure pathway (i.e., people are not eating contaminated sediments). Consistent with acceptable risk assessment methodology, exposure assumptions were averaged over time and space to best represent potential indirect exposure to people eating fish. The exposure units for the fish consumption pathway ranged from site-wide to individual EPA river miles, depending on the home range of the fish species.*

*In its designation of PTW, however, the FS disregards acceptable methods for assessing indirect risk and identification of PTW thresholds. In the FS, any sediment that exceeds 200 ppb PCBs is deemed PTW. The FS does not explain or justify why sediment at such a relatively low concentration is "highly toxic" (i.e., several orders of magnitude above levels that allow for unrestricted use and unlimited exposure). At many other sediment megasites around the country, EPA's cleanup level for total PCBs is 1 part per million. Sediment containing PCBs at 200 ppb is one-fifth of what is considered an acceptable cleanup level at these other sites. The FS's designation of "highly toxic" material at Portland Harbor is without basis, contrary to policy and practice elsewhere, and clearly not reasonable.*

*Further, as the LWG has explained to EPA, EPA's decision to cap, rather than remove, more highly contaminated sediments associated with the McCormick-Baxter site is inconsistent with its current position on treating principal threat waste elsewhere at the Site.*

*Union Pacific disputes EPA's designation of principal threat waste at the Site.*

**EPA Position:**

See EPA position to LWG dispute issue 2c.

EPA did not establish a requirement for removal of principal threat waste in the 2016 FS. Technology assignments were made in the 2016 FS based on area-specific environmental conditions discussed in Section 3 of the 2016 FS. Contaminated sediment identified as principal threat waste was only further evaluated for treatment as discussed in both the NCP and EPA guidance.

**UPRR Dispute Issue 5 - The FS Substantially Underestimates the Impacts of Performing, and the Time and Cost to Perform, the Preferred Alternative**

*One of the key FS evaluation criteria in the NCP is short-term effectiveness, which requires consideration of the effects of the alternative during the construction and implementation phase until remedial response objectives are met. 40 C.F.R.*

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*§300.430(e)(9)(iii)(E). At sediment sites, short-term risks associated with capping and dredging may include potential contaminant releases during such operations (which may increase fish tissue concentrations) as well as accidents to workers, disruptions to business and recreational uses, and other impacts to the community (e.g., from light, noise, and air emissions). Sediment Guidance, at page 7-9. At a site where the cleanup will take many years to perform, a realistic evaluation of the time to perform the cleanup also needs to be incorporated into the evaluation of short-term impacts.*

*The FS does not include a reasonable quantification of the above-described short-term impacts, such as realistic estimates of the extent of dredge releases (e.g., water quality impacts). For each more aggressive alternative, the FS simply says the short-term impacts will be "greater."*

**EPA Position:**

There is nothing in EPA guidance (1998 or 2005) that requires quantification of short-term impacts. The guidance states that these impacts should be identified and the trade-off between alternatives discussed. The impacts are the same for all alternatives (except the no action alternative), the only difference is that the impacts are longer due to the increased construction duration with each alternative. Section 4.3.5 of the 2016 FS discusses the trade-offs for short-term effectiveness between alternatives. EPA states that the impacts for any alternative will be for 4 months per year and last the duration of the construction project. EPA quantified the construction period of each alternative and as the construction of the project increases, so would the impacts.

*Moreover, the NCP requires not only an assessment of individual alternatives against each of the nine criteria but also "a comparative analysis that focuses upon the relative performance of each alternative against those criteria." 40 C.F.R. § 300.430(e)(9)(ii). The so-called comparative analysis in the FS is oversimplified and does not attempt to meaningfully consider the trade-offs between increasing short-term impacts and the alleged benefits of more expansive dredging and capping requirements. If, for example, the water quality impacts (and associated impacts to fish tissue concentrations) from dredging are increasingly significant as the extent of dredging and capping increases, then there should be corresponding increases in the benefits from performing such increasingly more aggressive approaches. However, the FS does not include a credible explanation of how the preferred alternative's combination of active remediation and monitored natural recovery achieves cleanup goals in a substantially shorter time than less aggressive alternatives using a different combination (i.e., more monitored natural recovery). The required balancing of trade-offs under the NCP is conspicuously absent from the FS.*

**EPA Position:**

The comparative analysis conducted in the 2016 FS is consistent with the requirements of the NCP and EPA's guidance (cite to FS and sediment guidance). Increases in fish tissue concentrations due to dredging would only occur during the four month construction period. The increases would be localized to where the dredging occurs and would be far less

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than the exposure during the high flow periods. Longer periods of dredging result in longer exposure in the site as a whole, as discussed in the 2016 FS, but tissue concentration would not increase because of the localized nature of the dredging and home range of the fish. Since all the alternatives include dredging in the same localized areas of the Site, the effects from dredge releases would be fairly indistinguishable between alternatives. At other sites, fish tissue concentrations have been shown to increase during dredging operations and then decrease substantially within a year of construction completion.

Respondents are referring to remedy selection criteria. A preferred alternative is not selected in the 2016 FS. The preferred alternative is discussed in the Proposed Plan, which is not subject to the dispute provisions under the AOC.

*In addition, the FS is wildly optimistic about the estimated time to perform each of the alternatives. In October 2016, the Port of Portland ("Port"), which has extensive experience with dredging projects, participated in a meeting with Jim Woolford, the head of EPA's national Superfund program, and explained that EPA's estimates of construction duration and cost were not reasonable and needed to be revised. On October 13, 2015, the LWG provided Mr. Woolford a memo which incorporated the Port's analysis (Enclosure 1). The FS fails to incorporate the Port/LWG's estimates and does not explain why it disagreed with them. Based on the memo, which incorporated the Port's real-life experience with dredging projects, it is very likely that the magnitude and duration of short-term impacts associated with the cleanup are substantially underestimated in the FS.*

**EPA Position:**

See EPA's position to LWG's dispute issue 1f.

*Further, as noted in section 2 above, EPA's failure to use reliable models to predict when cleanup goals will be attained is a fundamental flaw in the FS. For example, Page ES-16 of the FS states as follows: "Alternative I achieves more interim targets than Alternative D and is therefore more reliable in achieving PRGs and RAOs in a reasonable time frame because it relies less on natural processes."*

*But there is no information in the FS that supports the apparent assertion that Alternative I will achieve PRGs and RAOs more quickly than Alternative D. In the absence of a reasonable basis to compare the time frames in which the cleanup goals will be attained, the trade-offs between increased short-term impacts and the long-term benefits of the cleanup cannot be made as required under the NCP.*

**EPA Position:**

As stated in the 2016 FS, no reliable model of the lower Willamette River exists because Respondents did not collect data necessary to support development of a reliable model. If respondents wanted to use a reliable model, then they should have collected the necessary data identified in EPA guidance (2005) to support the development of a reliable model.

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Further, EPA’s guidance does not require that a model be used, acknowledges that the use of any model in this type of system is highly unreliable in estimating recovery time frames, and only states that models are helpful in relating one alternative to another. There is no model that has the ability to predict with any certainty that these processes will occur in precisely some time frame. Models can only be used to show how alternatives perform relative to each other.

EPA has enough information in the CSM to understand that MNR processes are occurring in the lower Willamette River. Cleaner sediments from upriver continue to move into the Site, mix with the contaminated sediment, and transport to the Columbia River and out to the ocean. There is very little area within the Site that is constantly depositional (see 2016 FS Appendix D8), thus MNR is going to happen through deposition, mixing and dispersion. Logically, if there is a lower residual concentration in an area of the Site, then it will take less deposition, mixing and dispersion, and thus, less time, to reduce the contaminated sediments concentrations in order to reach the desired remediation goals. Since each of the Alternatives A through H progressively increase in the area capped or dredged, the remaining sediment concentrations would be progressively lower, as shown in the following example:

	Alt A	Alt B	Alt C	Alt D	Alt E	Alt F	Alt G	Alt H
Acres cap/dredge	0	95	117	177	269	505	756	2,167
PCB SWAC (µg/kg)	208	74	NA	56	40	23	17	9

(values taken from 2016 FS Tables 3.8-3 and J2.3-1)

Since MNR is through dilution and the rate would be the same for all alternatives, the lower the post-construction SWAC, the faster the dilution to the desired goal would be. For example, if the dilution rate was 10 µg/kg per year, it would take 20.8 years for Alternative A to reach the goal, 7.4 years for Alternative B, 5.6 years for Alternative D, etc. However, the actual dilution rates vary greatly throughout the site and are currently unknown, so a quantification of the actual dilution rates and times cannot be quantitatively computed with any accuracy. Thus, this evaluation could only be made qualitatively.

*Another significant omission in the FS is the absence of information to support the statutory determination of cost-effectiveness. As explained in the dispute letter submitted by a group of AOC signatories, significant categories of costs are either underestimated (e.g., engineering design, waste processing, water treatment, sheet pile barriers) or*

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*completely absent (e.g., pre-design investigation, agency oversight, and Oregon Department of State Lands fees for access, leases, and easements).*

*Second, the FS fails to examine and compare the relative magnitude of cost to effectiveness of each alternative individually and the cost and effectiveness of alternatives in relation to one another. See NCP Preamble at 55 FR 8728.*

**EPA Position:**

See EPA's position to LWG's dispute issue 2b.

*The LWG has submitted many comments to EPA about deficiencies in the draft FS. Most of the deficiencies remain unaddressed. Issues associated with the evaluation of shortterm effectiveness, cost, and time are among significant concerns. However, just these concerns alone demonstrate a substantial weakness in the required evaluations in the FS and significantly impair any representation by EPA in the FS that the preferred alternative represents the best balance of the cleanup evaluation criteria.*

*Union Pacific disputes that EPA's evaluation of short-term impacts, cost-effectiveness, and time for construction of the cleanup are reasonable and in accordance with the NCP.*

**EPA Position:**

EPA considered all the issues previously raised by the LWG, and addressed all the issues raised by the LWG that needed to be addressed. Although the LWG may not agree with EPA's final decision on a particular issue does not mean that EPA did not address their issues.

**UPRR Dispute Issue 6 - Sediments Near Albina Yard Do Not Require Cleanup**

*The FS preferred alternative identifies two areas of sediments between RM 10 and 11 that EPA has identified for cleanup, purportedly due to exceedances of the PCB remedial action level ("RAL"). EPA also identified these areas on Figure 3.2-3 as containing principal threat waste. This area of the Site is near Union Pacific's railyard at Albina Yard. Union Pacific disputes this determination, particularly the area from approximately RM 10.7 to RM 11 where there are no exceedances of the applicable RAL in surface or subsurface samples of sediments.*

*EPA's potential cleanup area near RM 10.7 appears to be based on a PCB exceedance in soil at one location on a 900-foot stretch of the riverbank. EPA included riverbanks as part of its draft FS evaluation of alternatives, but did not identify Albina Yard as a site with "known contaminated riverbank" in section 1.2.3.5 of the FS.*

*Moreover, in its Final Remedial Investigation/Source Control Measures Evaluation Report for Albina Yard dated November 2010, which was reviewed and approved by Oregon DEQ, Union Pacific determined that the riverbank near Albina Yard had a low potential for erosion because it was highly vegetated and stabilized with rock/rip rap. Because PCB concentrations in the sediments are below the applicable RAL, and the*

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*riverbank is stable, this area of sediments should not be included as a potential cleanup area. Certainly, the FS contains no explanation for this area's inclusion as a potential cleanup area, much less as an area containing principal threat waste.*

*Union Pacific disputes the apparent determination that sediments near RM 10.7 require remediation and, for the reasons explained in detail in section 4 above, the designation of such sediments as principal threat waste.*

**EPA Position:**

The 2016 FS does not identify a preferred alternative. Further, EPA only developed SMAs based on extrapolations of existing sediment data that exceeded RALs, not river bank data. As Respondents point out, the river bank at Albina is not listed as contaminated. The SMA Respondent refers to is an artifact of the computer interpolation process, like many of the other small areas on the site. Because boundaries were not used in the computer interpolation process, this SMA is actually based on the high concentration sample data upstream from that location. EPA confirmed that there are not currently any samples in this cove that exceed RALs until more instream away from the shore at the Alternative H level, which is why there is an SMA strip outside the cove. The 2016 FS is not a design document and the footprints of the SMAs are based on extrapolations of RI/FS data, not design level data, and should not be used as absolute boundaries for SMAs. They are merely to identify at this stage of the process the cost estimates of remedial technologies to be used at the site in order to conduct a comparative analysis. Sampling conducted in remedial design will determine the boundaries for SMAs for active remediation.

**UPRR Dispute Conclusion**

*Sediment megasites like the Portland Harbor Site are extremely challenging -challenging to characterize the contamination and the dynamics of the river system, challenging to identify what are the significant risks, and challenging to evaluate alternatives to reduce such risks. Union Pacific appreciates the hard work, resources, and dedication EPA has devoted to the Site prior to and since the Site was added to the National Priorities List in 2000.*

*Nonetheless, Union Pacific is concerned that because EPA's FS does not comply in significant ways with regulatory requirements and guidance recommendations for sediment megasites, EPA's description of a preferred alternative is not realistic and will not achieve protection of human health and the environment for a reasonable cost and within a reasonable time frame. Union Pacific looks forward to further communication with EPA as its dispute of the FS is considered by EPA.*

**EPA Position:**

EPA has responded to the specific issues raised by Union Pacific. The 2016 FS was developed with EPA's experts at headquarters and reflects feedback and the support provided overall on the content and analysis contained in the 2016 FS, as well as recommendations made by EPA's expert panels for CERCLA remedies and sediment



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sites (NRRB and CSTAG). Union Pacific has not provided any specific or credible evidence to support that the FS does not comply with the NCP and EPA guidance.

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**ENCLOSURES**

**Table 2.2-2**  
**Summary of COC Selection Process**  
 Portland Harbor Superfund Site  
 Portland, Oregon

Contaminant	CAS RN	BERA	BHHRA	Identified as a COC	Rationale for Including/Eliminating
Acenaphthene	83-32-9	X		Y	Evaluate as PAH
Acenaphthylene	208-96-8	X		Y	Evaluate as PAH
Aldrin	309-00-2	X	X	Y	Human health: shellfish
Aluminum	7429-90-5	X		N	Not ecologically significant
Ammonia	7664-41-7	X		N	Ammonia only has an HQ=3 based on FPM, which does not reliably predict sediment toxicity for individual contaminants.
Anthracene	120-12-7	X		Y	Evaluate as PAH
Antimony	7440-36-0	X	X	N	Infrequent and/or anomalous detections in fish
Aroclor 1254	11097-69-1	X		N	Evaluate as PCBs
Arsenic	7440-38-2	X	X	Y	Human health: beach, sediment, water, fish/shellfish Known groundwater plumes at site.
Barium	7440-39-3	X		N	Not ecologically significant
Benzene	71-43-2	X		Y	Known groundwater plume at site.
Benzo(a)anthracene	56-55-3	X	X	Y	Human health: beach, sediment, water, fish/shellfish Evaluate as cPAH and PAH
Benzo(a)pyrene	50-32-8	X	X	Y	Human health: beach, sediment, water, fish/shellfish Evaluate as cPAH and PAH
Benzo(b)fluoranthene	205-99-2	X	X	Y	Human health: beach, sediment, water, fish/shellfish Evaluate as cPAH and PAH
Benzo(g,h,i)perylene	191-24-2	X		Y	Evaluate as PAH
Benzo(k)fluoranthene	207-08-9	X	X	Y	Human health: beach, sediment, water, fish/shellfish Evaluate as cPAH and PAH
Benzyl alcohol	100-51-6	X		N	Not ecologically significant
Beryllium	7440-41-7	X		N	Not ecologically significant
Bis(2-ethylhexyl) phthalate (BEHP)	117-81-7	X	X	Y	Human health: fish Ecologically significant contaminant
Cadmium	7440-43-9	X		Y	Ecologically significant contaminant
Carbazole	86-74-8	X		N	Not ecologically significant

**Table 2.2-2**  
**Summary of COC Selection Process**  
 Portland Harbor Superfund Site  
 Portland, Oregon

Contaminant	CAS RN	BERA	BHHRA	Identified as a COC	Rationale for Including/Eliminating
Carbon disulfide	75-15-0	X		N	Not ecologically significant
Chlordane	57-74-9	X	X	Y	Human health: fish Ecologically significant contaminant
cis-Chlordane	5103-71-9	X		N	Evaluate as chlordane
Chlorobenzene	108-90-7	X		Y	Known groundwater plume extending to river and mobilizing DDx Potential NAPL
Chloroethane	75-00-3	X		N	Not ecologically significant
Chloroform	67-66-3	X		N	Not ecologically significant
Chromium	7440-47-3	X	X	Y	Human health: surface water Known groundwater plumes at site.
Chrysene	218-01-9	X	X	Y	Human health: beach, sediment, water, fish/shellfish Evaluate as cPAH and PAH
Cobalt	7440-48-4	X		N	Not ecologically significant
Copper	7440-50-8	X		Y	Ecologically significant contaminant Known groundwater plumes at site
Cyanide	57-12-5	X		Y	Ecologically significant contaminant Known groundwater plumes at site
1,2-Dichlorobenzene	95-50-1	X		N	Not ecologically significant
1,4-Dichlorobenzene	106-46-7	X		N	Not ecologically significant
DDD (2,4'- and 4,4-DDD)	72-54-8	X	X	Y	Human health: fish/shellfish Ecologically significant contaminant Evaluate also as DDx
2,4'-DDD	53-19-0	X		Y	Evaluate as DDD and DDx
4,4'-DDD	72-54-8	X		Y	Evaluate as DDD and DDx
DDE (2,4- and 4,4-DDE)	72-55-9	X	X	Y	Human Health: fish/shellfish Ecologically significant contaminant Evaluate also as DDx
4,4'-DDE	72-55-9	X		Y	Evaluate as sum DDE and DDx
DDT (2,4'- and 4,4'-DDT)	50-29-3	X	X	Y	Human health: fish/shellfish Ecologically significant contaminant Evaluate also as DDx
4,4'-DDT	50-29-3	X		Y	Evaluate as DDT and DDx

**Table 2.2-2**  
**Summary of COC Selection Process**  
 Portland Harbor Superfund Site  
 Portland, Oregon

Contaminant	CAS RN	BERA	BHHRA	Identified as a COC	Rationale for Including/Eliminating
Dibenz(a,h)anthracene	53-70-3	X	X	Y	Human health: beach, sediment, water, fish/shellfish Evaluate as cPAH and PAH
Dibenzofuran	132-64-9	X		N	Not ecologically significant
1,1-Dichloroethene (1,1-DCE)	75-35-4	X		Y	PCE/TCE plumes identified at site. DCE is a breakdown product of PCE/TCE.
cis-1,2-Dichloroethene (cis-1,2-DCE)	107-06-2	X		Y	PCE/TCE plumes identified at site. DCE is a breakdown product of PCE/TCE.
Dieldrin	60-57-1	X	X	Y	Human health: fish/shellfish Ecologically significant contaminant
Di-n-butyl phthalate	84-74-2	X		N	Not ecologically significant
2,4-Dichlorophenoxyacetic acid (2,4-D)	94-75-7			Y	Known groundwater plume
Endosulfan	115-29-7	X		N	Not ecologically significant
Endrin	72-20-8	X		N	Not ecologically significant
Endrin ketone	53494-70-5	X		N	Not ecologically significant
Ethylbenzene	100-41-4	X		Y	Ecologically significant contaminant Known groundwater plumes at site
Fluoranthene	206-44-0	X		Y	Evaluate as PAH
Fluorene	7782-41-4	X		Y	Evaluate as PAH
Heptachlor epoxide	1024-57-3	X		N	Not ecologically significant
Hexachlorobenzene	118-74-1		X	Y	Human health: fish
beta-Hexachlorocyclohexane (β-BHC)	319-85-7	X		N	beta-Hexachlorocyclohexane only has an HQ=1.9 based on FPM, which does not reliably predict sediment toxicity for individual contaminants.
delta-Hexachlorocyclohexane (δ-BHC)	608-73-1	X		N	Not ecologically significant
gamma-Hexachlorocyclohexane (γ-BHC, or Lindane)	58-89-9	X		Y	Ecologically significant contaminant
1,2,3,4,7,8-Hexachlorodibenzofuran (1,2,3,4,7,8-HxCDF)	70648-26-9			Y	Dioxin/Furan congener contributing most to 2,3,7,8-TCDD risk
Indeno(1,2,3-c,d)pyrene	193-39-5	X	X	Y	Human health: beach, sediment, water, fish/shellfish Evaluate as PAH
Iron	7439-89-6	X		N	Not a hazardous substance
Isopropylbenzene	98-82-8	X		N	Not a hazardous substance

**Table 2.2-2**  
**Summary of COC Selection Process**  
 Portland Harbor Superfund Site  
 Portland, Oregon

Contaminant	CAS RN	BERA	BHHRA	Identified as a COC	Rationale for Including/Eliminating
Lead	7439-92-1	X	X	Y	Human health: Infrequent and/or anomalous detections in fish Ecologically significant contaminant. Eliminated for dietary pathway due to infrequent and/or anomalous detections in fish.
Magnesium	7439-95-4	X		N	Not ecologically significant
Manganese	7439-96-5	X		Y	Ecologically significant contaminant Known groundwater plumes at site
Methylchlorophenoxypropionic acid (MCP)	7085-19-0		X	Y	Human health: surface water
Mercury	7439-97-6	X	X	Y	Human health: fish tissue Ecologically significant contaminant
2-Methylnaphthalene	91-57-6	X		Y	Evaluate as PAH
4-Methylphenol (p-Cresol)	106-44-5	X		N	Not ecologically significant
Monobutyltin		X		N	Not a hazardous substance
Naphthalene	118-96-7	X		Y	Evaluate as PAH
Nickel	7440-02-0	X		N	
1,2,3,7,8-Pentachlorodibenzo-p-dioxin (1,2,3,7,8-PeCDD)	40321-76-4			Y	Dioxin/Furan congener contributing most to 2,3,7,8-TCDD risk
2,3,4,7,8-Pentachlorodibenzofuran (2,3,4,7,8-PeCDF)	57117-31-4			Y	Dioxin/Furan congener contributing most to 2,3,7,8-TCDD risk
Pentachlorophenol	87-86-5		X	Y	Human health: shellfish Known groundwater plumes
Perchlorate	14797-73-0	X		Y	Ecologically significant contaminant
Phenanthrene	85-01-8	X		Y	Evaluate as PAH
Phenol	108-95-2	X		N	Not ecologically significant
Polybrominated diphenyl ethers (PBDE)	67774-32-7		X	Y	Human health: fish
Polychlorinated Biphenyls (PCBs)	1336-36-3	X	X	Y	Human health: sediment, fish/shellfish Ecologically significant contaminant.
Polycyclic Aromatic Hydrocarbons (PAHs)	130498-29-2	X	X	Y	Human health: beach, sediment, water, fish/shellfish Ecologically significant contaminant
Potassium	7440-09-7	X		N	Not ecologically significant
Pyrene	129-00-0	X		Y	Evaluate as PAH
Silver	7440-22-4	X		N	Not ecologically significant

**Table 2.2-2**  
**Summary of COC Selection Process**

Portland Harbor Superfund Site

Portland, Oregon

Contaminant	CAS RN	BERA	BHHRA	Identified as a COC	Rationale for Including/Eliminating
Sodium	7440-23-5	X		N	Not ecologically significant
Sulfide	18496-25-8	X		N	Not ecologically significant
2,3,7,8-Tetrachlorodibenzofuran (2,3,7,8-TCDF)	51207-31-9			Y	Dioxin/Furan congener contributing most to 2,3,7,8-TCDD risk
2,3,7,8-Tetrachlorodibenzo-p-dioxin (2,3,7,8-TCDD)	1746-01-6	X	X	Y	Human health: sediment, fish/shellfish Ecologically significant contaminant
Tetrachloroethene (PCE)	127-18-4			Y	PCE plumes identified at site
Toluene	108-88-3	X		Y	Known groundwater plume at site
Total Petroleum Hydrocarbons (TPH) C10-C12 Aliphatic		X		Y	Not a hazardous substance; co-mingled with other hazardous substances Ecologically significant contaminant Known TPH plumes at site
Total Petroleum Hydrocarbons (TPH) C4 - C6 Aliphatic		X		N	Not a hazardous substance; co-mingled with other hazardous substances
Total Petroleum Hydrocarbons (TPH) C6 - C8 Aliphatic		X		N	Not a hazardous substance; co-mingled with other hazardous substances
Total Petroleum Hydrocarbons (TPH) C8 - C10 Aromatic		X		N	Not a hazardous substance; co-mingled with other hazardous substances
Total Petroleum Hydrocarbons (TPH), diesel range		X		N	Not a hazardous substance; co-mingled with other hazardous substances
Total Petroleum Hydrocarbons (TPH), gasoline-range		X		N	Not a hazardous substance; co-mingled with other hazardous substances
Total Petroleum Hydrocarbons (TPH), residual-range		X		N	Not a hazardous substance; co-mingled with other hazardous substances
Tributyltin (TBT)	688-73-3	X		Y	Ecologically significant contaminant
Trichloroethene (TCE)	79-01-6	X		Y	Known groundwater plume extending to river. Potential for others.
1,2,4-Trimethylbenzene	95-63-6	X		N	Not ecologically significant
1,3,5-Trimethylbenzene	108-67-8	X		N	Not ecologically significant
2-(2,4,5-Trichlorophenoxy)propionic acid (2,4,5-TP)	93-72-1			Y	Known groundwater plume
Vanadium	7440-62-2	X		Y	Ecologically significant contaminant
Vinyl Chloride	75-01-04			Y	PCE/TCE plumes identified at site. Vinyl chloride is a breakdown product of PCE/TCE.



**Table 2.2-2**  
**Summary of COC Selection Process**  
 Portland Harbor Superfund Site  
 Portland, Oregon

Contaminant	CAS RN	BERA	BHHRA	Identified as a COC	Rationale for Including/Eliminating
m-Xylene	108-38-3	X		N	Not ecologically significant
o-Xylene	95-47-6	X		N	Not ecologically significant
p-Xylene	106-42-3	X		N	Not ecologically significant
Xylenes	1330-20-7	X		Y	Known groundwater plume at site
Zinc	7440-66-6	X		Y	Ecologically significant contaminant Known groundwater plumes at site

**Table 2.2-3a**  
**Basis for Portland Harbor COC Selection by RAO and Media**  
 Portland Harbor Superfund Site  
 Portland, Oregon

Contaminant	HUMAN HEALTH					
	RAO 1		RAO 2		RAO 3	RAO 4
	Human Health Ingestion/Direct Contact		Human Health Fish/Shellfish Consumption		Human Health Protected Water Uses	Human Health Migration of Contaminated Groundwater
	Beach	Sediment	Tissue	Sediment	Surface Water	Groundwater
Aldrin			R	R	R	
Arsenic	R	R	R	R	R	A
Benzene						A
BEHP			R	R	R	
Cadmium						
Chlordane			R	R	R	
Chlorobenzene						A
Chromium					R	A
Copper						A
Cyanide						A
DDx			R	R		
DDD (2,4- and 4,4-DDD)					R	R
4,4'-DDD					R	A
DDE (2,4- and 4,4-DDE)						A
4,4'-DDE					R	A
DDT (2,4- and 4,4-DDT)					R	R
4,4'-DDT					R	A
1,1-DCE						A
cis-1,2-DCE						A
Dieldrin			R	R		
2,4-D acid						A
Ethylbenzene						A
Hexachlorobenzene			R	R	R	
Lindane						
Lead						
Manganese						R
MCCP					R	
Mercury			R	R		
Pentachlorophenol			R	R	R	A
Perchlorate						A
PBDE			R	R		
PCBs		R	R	R	R	

**Table 2.2-3b**  
**Basis for Portland Harbor COC Selection by RAO and Media**  
Portland Harbor Superfund Site  
Portland, Oregon

Contaminant	HUMAN HEALTH					
	RAO 1		RAO 2		RAO 3	RAO 4
	Human Health Ingestion/Direct Contact		Human Health Fish/Shellfish Consumption		Human Health Protected Water Uses	Human Health Migration of Contaminated Groundwater
	Beach	Sediment	Tissue	Sediment	Surface Water	Groundwater
PAHs	R	R	R	R	R	A
Acenaphthene						
Acenaphthylene						
Anthracene						
Benzo(a)anthracene						
Benzo(a)pyrene						
Benzo(b)fluoranthene						
Benzo(g,h,i)perylene						
Benzo(k)fluoranthene						
Chrysene						
Dibenz(a,h)anthracene						
Fluoranthene						
Fluorene						
Indeno(1,2,3-c,d)pyrene						
2-Methylnaphthalene						
Naphthalene						
Phenanthrene						
Pyrene						
2,3,7,8-TCDD Eq		R			R	
1,2,3,4,7,8-HxCDF			R	R		
1,2,3,7,8-PeCDD			R	R		
2,3,4,7,8-PeCDF			R	R		
2,3,7,8-TCDD			R	R		
2,3,7,8-TCDF			R	R		
PCE						A
Toluene						A
TPH diesel (C10-C12 Aliphatic)						
TBT						
TCE						A
2,4,5-TP acid						A
Vanadium						
Vinyl Chloride						A
Xylenes						A
Zinc						

Notes:  
R - Conclusion from Baseline Risk Assessment  
A - ARAR

PORTLAND HARBOR RI/FS

**APPENDIX I**

**SURFACE WEIGHTED AVERAGE CONCENTRATION  
UNCERTAINTY ANALYSIS  
(PCBs, TOTAL PAHs, DDX)**

**FEASIBILITY STUDY**

June 2016

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## **I1. INTRODUCTION**

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An evaluation of the uncertainties in predicted post-construction surface sediment COC concentrations was conducted, consistent with the recommendation provided the joint National Remedy Review Board/Contaminated Sediments Technical Advisory Group Comments on the proposed remedy (EPA 2015).

Because predictions of post-construction SWACs are based on a sample from the population of contaminated sediments, statistical uncertainties are unavoidable. In addition, because most remedial investigation data are based on a mixture of sampling designs, some of which are spatially biased accurate estimates of spatial averages must generally be based on weighted averages which are intended to counter the effects of spatially biased sampling designs. In geostatistics this is referred to as de-clustering the data (Isaaks and Srivastava, 2005).

The Portland Harbor FS, data were declustered by first interpolating the concentrations to a 10-foot by 10-foot regularly spaced grid, followed by averaging the values on these grid nodes. This approach based on natural neighbor interpolation has been found to perform reasonably well for reducing bias in SWAC estimates when they are based on a combination of biased and unbiased sampling designs (Kern et al. 2009). The natural neighbor interpolation was also used as a basis to forecast performance of a range of remedial alternatives based on actions taken in areas with the highest interpolated concentrations—referred to as hill-topping. This report documents an evaluation of the uncertainty in these predictions of remedial effectiveness using nonparametric geostatistical procedure known as conditional simulation using the P-field method (Srivastava, 2005).

## **12. METHODS**

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### **12.1 DECLUSTERING METHOD SENSITIVITY**

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Prior to conducting the conditional simulation analysis, four declustering techniques were tested to gain an understanding of the sensitivity of SWAC estimates to declustering methods. Methods that were tested included; 1) Thiessen polygons, 2) polygonal declustering, 3) stratified sampling based methods and 4) natural neighbor interpolation.

### **12.2 FUTURE CONDITION**

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Uncertainty in predicted future condition was evaluated using two approaches; 1) considering basic mathematical constraints relating percentage area remediated, percentage reduction in SWAC and the ratio of remediated to unremediated areas, and 2) using a spatial Monte-Carlo approach to directly estimate confidence limits on post remedial SWAC under a range of remedial action limits (RALs). The first approach is a diagnostic providing a relative understanding of the demands that may be placed on the resolution of the delineation of deposits relative to experiences at other Superfund Mega Sites. The second approach provides a more direct evaluation of the expected remedial performance, under the combination of existing circumstances, including deposit complexity and level of sampling resolution.

#### **12.2.1 Mathematical Constraints on Remedial Alternatives**

Future condition under selected alternative scenarios was evaluated by considering basic mathematical constraints on the relationships between proportion reduction in post remedial SWAC, the percentage of area remediated, and the ratio of concentrations in remediated to unremediated areas. The constraints are based on equations in **Figure I-1** and provide remedial managers with a relative understanding of the potential level of resolution necessary to achieve remedial targets. In particular, when the remedial footprint is small and the targeted reduction in concentration is large, the ratio of average concentration in remediated areas must be much greater than that in unremediated areas. This will be feasible, only when high concentration deposits are well-consolidated and easily delineated, or with high density sampling providing highly resolved delineation of otherwise unconsolidated complex depositional patterns.

#### **12.2.2 Conditional Simulation**

Conditional simulation is a computer intensive resampling method analogous to bootstrap resampling, with the added constraint that rather than randomly selecting individual sample values, whole concentration maps are randomly selected and analyzed (**Figure I-2**). These maps can be thought of as a deck of cards, each of which interpolates the sample data and is also consistent with the spatial variation observed in



the sample. The analysis proceeds by randomly selecting one of many equally likely maps to which proposed remedial strategies are applied. The results for each randomly selected map are summarized, providing a means to propagate spatial variation and uncertainty through complex calculations, linking uncertainty in maps with uncertainty in SWAC predictions.

The technique takes into account the spatial uncertainty in mapped surfaces, and is spatially scalable and also accounts for uncertainty in the delineation boundaries. Uncertainty calculations help to quantify the effects of the situation where some contaminant concentrations within the RAL footprint are less than the RAL, as well as the when some concentrations outside the footprint may be greater than the RAL. These types of errors are assumed negligible when forecasts are based purely on a single smooth surface which can lead to inaccurate evaluations, usually biased toward overstatement of remedial benefit. This analysis provides an assessment of how these uncertainties accumulate in the post remedial SWAC predictions.

#### **Detailed P-Field Simulation Procedure (Optional Reading)**

The P-field simulation method involves three primary steps; 1) defining conditional cumulative distributions for COCs at each 10 by 10 foot grid cell, 2) simulating a spatially correlated normally distributed random variable for each grid cell, and 3) transforming the normally distributed variable to the original COC scale by identifying the percentile of the COC distribution with corresponding percentile of the simulated normal random variable at each grid cell. The cumulative distributions represent narrower ranges near sample values and wider ranges far from sample values, causing the simulated surfaces to match measured values at the sampled locations, whereas they may vary relatively widely in areas that are distant from sampled locations.

The conditional cumulative distribution functions were estimated using a nonparametric approach based on natural neighbor interpolation approximating the indicator kriging method that is typically used to estimate cumulative distribution functions. Estimating conditional distributions requires interpolation of a range of binary (0 or 1) indicators defined based on COC concentrations being above or below a range of threshold values of interest. In this analysis threshold values were chosen to represent percentiles of the COC distributions, (1, 2.5, 5, 10, 20, 30, 40, 50, 60, 70, 80, 90, 95, 97.5 and 99). For each percentile, the sample data were coded as 1 for values below threshold and 0 for values above threshold, and these binary values were interpolated using natural neighbor interpolation. This process was repeated for each of the 15 threshold values, resulting in 15 interpolated surfaces representing the probability that COC concentrations were less than the threshold value. This series of 15 probability values unique to each grid cell is an estimate of the conditional cumulative distribution at that location. Traditionally this interpolation is conducted using indicator kriging. However, using natural neighbor interpolation has two distinct advantages, there is no need to

model 15 sets of directional indicator variograms necessary for kriging,, and the natural neighbor method does not require any assumptions of stationarity as is assumed for kriging. Effectively by using the natural neighbor method to interpolate the indicator data, the resulting simulation is both non-parametric as well as accommodating spatially nonstationary COC distributions.

## 13. RESULTS

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### 13.1 DECLUSTERING METHOD SENSITIVITY

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Estimated SWACs for PCBs based on four declustering methods ranged from 79  $\mu\text{g}/\text{kg}$  for the method stratified on RAL areas, to 205  $\mu\text{g}/\text{kg}$  based on unweighted averages within geographic strata. The geographic areas used in this analysis are presented on **Figure I-9**. The stratified method based on Thiessen Polygon weighting was 135  $\mu\text{g}/\text{kg}$ , and the method stratified based on RAL areas and using Thiessen Polygon weighting was similar to the natural neighbor method deployed in the FS. As shown, the effects of biased sampling are substantial, with higher unweighted estimates reflecting tendency to focus sampling on high concentration areas. This indicates that some form of declustering is appropriate to improve the accuracy of estimates which would otherwise be based on an unweighted average.

### 13.2 MATHEMATICAL CONSTRAINTS

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The planned percentage SWAC reduction was plotted against percentage area remediated for PCBs to evaluate the susceptibility of remedial alternatives identified in the FS to delineation errors, and to compare with other remedial alternatives implemented at a number other Superfund Sites (**Figure I-3**). Alternatives E and G each require that the ratio of average SWAC within remediated to unremediated areas should be approximately a 10 to 1 ratio—both alternatives falling roughly along the red 10 to 1 curve. Other sites that have deployed similar ratios, include the Fox River OU4-5 and River Section 2 of the Hudson River. The results at the Fox River Site are not yet complete; however, the deposits there were relatively broadly distributed and only mildly consolidated and ultimately substantial design sampling has been required to achieve this goal. Conversely, deposits in River Section 2 of the Hudson River Site are better consolidated, but not as well consolidated as is apparent in Portland Harbor, and the desired outcome was not fully achieved there. Based on qualitative observation of the distribution of surface COCs at Portland Harbor, it is anticipated that this 10 to 1 ratio is likely to be achievable with substantially less resolution than was required at the Fox River Site, and potentially similar sampling densities to those deployed at the Hudson River in River Section 2. The conditional simulation will help to test this observation more rigorously.

### 13.3 CONDITIONAL SIMULATION

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Conditional simulation was used to estimate uncertainty in the SWAC vs RAL relationship. The RAL was varied for each COC representing remedial action limits associated with alternatives B through G described in the FS (**Table I-2**). The lateral footprint for each RAL was defined by all grid cells with natural neighbor interpolated concentrations exceeding each specified RAL.

To simulate remediation, remediated cells were replaced with expected background concentrations and SWAC was calculated by averaging all cells (remediated and unremediated) in the map

Four equally likely simulated maps of PCB concentration are shown in **Figure I-4** to illustrate the level of variation that may occur between maps, but that is nonetheless consistent with the sample data. The RAL boundaries for Alternative E, established from the smooth natural neighbor interpolation, are overlaid so that it can be seen that for some maps, areas outside the remedial footprint exceed the 200  $\mu\text{g}/\text{kg}$  threshold and that in some areas for some maps concentrations inside the remedial footprint may be less than the RAL. Generally areas within the RAL footprints tend to be similar among all four maps; however, some areas outside the footprint tend to vary substantially, as indicated by the callouts in the left two panels. This reflects the greater sampling density within the deposits relative to somewhat lower sampling density within the navigation channel, where concentrations are lower and inaccuracies in delineation have less effect on remedial effectiveness.

Conditionally simulated SWACs for PCB concentrations varied from approximately 67 to 95 with an average of 79 prior to remediation, which was equal to the SWAC estimated from the average of the natural neighbor surface (**Figure I-5**). These values were equal because the simulation algorithm is intentionally constrained so that the synthetic mean is required to match the declustered SWAC based directly on sample data.

This range is also portrayed on **Figure I-6**, depicted as a gray band surrounding the pre-remedial SWAC estimate. The simulated SWAC distribution, depicted as red squares with error bars shows that as expected SWAC declines with lower RALs. Additionally, the uncertainty bounds on SWAC is narrower for lower RAL values reflecting that a larger remedial footprint both reduces the SWAC but also its uncertainty. Action limits of 750  $\mu\text{g}/\text{kg}$  and 1,000  $\mu\text{g}/\text{kg}$  had higher uncertainties, with remedial benefit potentially within the margin of error, as indicated by the overlapping uncertainty bounds with the pre-remedial SWAC. Post remedial SWAC for total PCB is clearly outside the margin of error of pre-remedial SWAC indicating clear expectations that the predicted remedial benefit is likely to be achieved in practice.

Pre and post remedial total PAH and DDX concentrations in relation to action limits are plotted on **Figure I-7** and **Figure I-8** respectively. These distributions are characterized by similar qualitative patterns to those observed for PCBs. Relative error is generally greater for these COCs than for PCBs which had greater skewedness in the PAH and DDX distributions, relative to the PCB distribution. Notably, the effects of this uncertainty are minimized in the post remedial forecasts where these areas are remediated under any RAL considered, and therefore their influence is eliminated from the analysis. These RAL and corresponding SWAC values are also summarized in **Table I-3**.

## 14. DISCUSSION

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Surface weighted average concentration is an estimate exposure to receptors which may range over large areas. If sampling were purely unbiased, standard estimation methods for the mean and its confidence interval would be appropriate and less computationally complex. Because the sample data are right skewed, nonparametric, as opposed to normal theory, methods are preferred irrespective of the sampling design. If the sampling design had been unbiased, one could select one of the bootstrap based methods provided in ProUCL for estimating the mean and its UCL. However, with biased sampling prevalent at Portland Harbor it is necessary to spatially weight the data in order to reduce bias in the estimated mean and to properly characterize uncertainty bounds. Conditional simulation, is a variant of bootstrapping for designed to accommodate biased sampling designs and data that are spatially correlated.

The gray band on **Figures I-6 through I-8** represents the 95 percent confidence interval for the pre-remedial SWAC, and the error bars represent 95 percent prediction intervals for the post remedial SWAC corresponding to each RAL. When these intervals do not overlap, one can be more than 95 percent confident that the pre and post remedial means would differ ( $p < 0.05$ ). When one error bar overlaps the mean there is no difference at the 5 percent level of confidence ( $p > 0.05$ ) and when error bars overlap slightly, one can conclude that there are differences but that the confidence level may be somewhat less than 95 percent. Generally, any RAL which results in an estimated SWAC with error bars that do not overlap the confidence limits of the pre-remedial SWAC can be expected to reliably result in reduced post-remedial concentrations within the range of values bounded by the confidence limits.

It should also be noted that as the RAL declines, the error bars also decline. This is because the variance the change in SWAC is proportional to the square of the proportion of area remediated.

$$var(\Delta SWAC) = (Proportion Remediated)^2 \times var(\Delta Concentration)$$

Simply, as the size of the remedial footprint grows, the chance of making delineation mistakes declines with the area remediated. If the entire site is remediated, there is no uncertainty.

## 15. REFERENCES

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- Isaaks, E. and R.M. Srivastava. 2005. *Introduction to Geostatistics*, Oxford University Press. New York.
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[https://www.researchgate.net/publication/236585034\\_Geostatistical\\_Conditional\\_Simulation\\_for\\_Incorporating\\_Uncertainty\\_into\\_SWAC\\_Based\\_Remediation\\_Selection](https://www.researchgate.net/publication/236585034_Geostatistical_Conditional_Simulation_for_Incorporating_Uncertainty_into_SWAC_Based_Remediation_Selection). Last accessed 4/14/2016.
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## Tables

**Table I-1**  
**Declustering Method Sensitivity for PCBs**  
 Portland Harbor Superfund Site  
 Portland, Oregon

Declustering Method	SWAC Estimates PCBs (µg/kg)
Stratified and Unweighted	205
Stratified on Geographic areas with Thiessen Polygons	135
Stratified on RAL Areas with Thiessen Polygons	79
Polygonal Declustering	105
Average Natural Neighbor Map	80

**Table I-2**  
**RALs for Remedial Options B through G for PCBs, Total PAH and DDx**  
 Portland Harbor Superfund Site  
 Portland, Oregon

COC Name	Units	Remedial Option					
		B	C	D	E	F	G
PCBs	µg/kg	1,000	750	500	200	75	50
Total PAHs	µg/kg	170,000	130,000	69,000	35,000	13,000	5,400
DDx	µg/kg	650	550	450	300	160	40



**Table I-3**  
**Predicted Post Remedial SWAC ( $\mu\text{g}/\text{kg}$ ) for a RALs.**  
 Portland Harbor Superfund Site  
 Portland, Oregon

<b>COC</b>	<b>RAL</b>	<b>95% Lower Confidence Limit</b>	<b>SWAC</b>	<b>95% Upper Confidence Limit</b>
PCBs	50	22	24	25
	75	27	28	30
	100	30	32	34
	200	37	42	46
	500	48	55	64
	750	53	61	72
	1,000	56	65	77
Total PAHs	5,400	2,082	2,580	3,116
	13,000	2,899	3,882	4,845
	35,000	3,979	5,618	7,251
	69,000	4,518	6,817	9,405
	130,000	5,479	8,641	13,035
	170,000	6,054	9,539	14,980
DDx	40	13	16	19
	160	19	24	33
	300	21	28	43
	450	23	33	55
	550	23	35	64
	650	24	38	71

## Figures

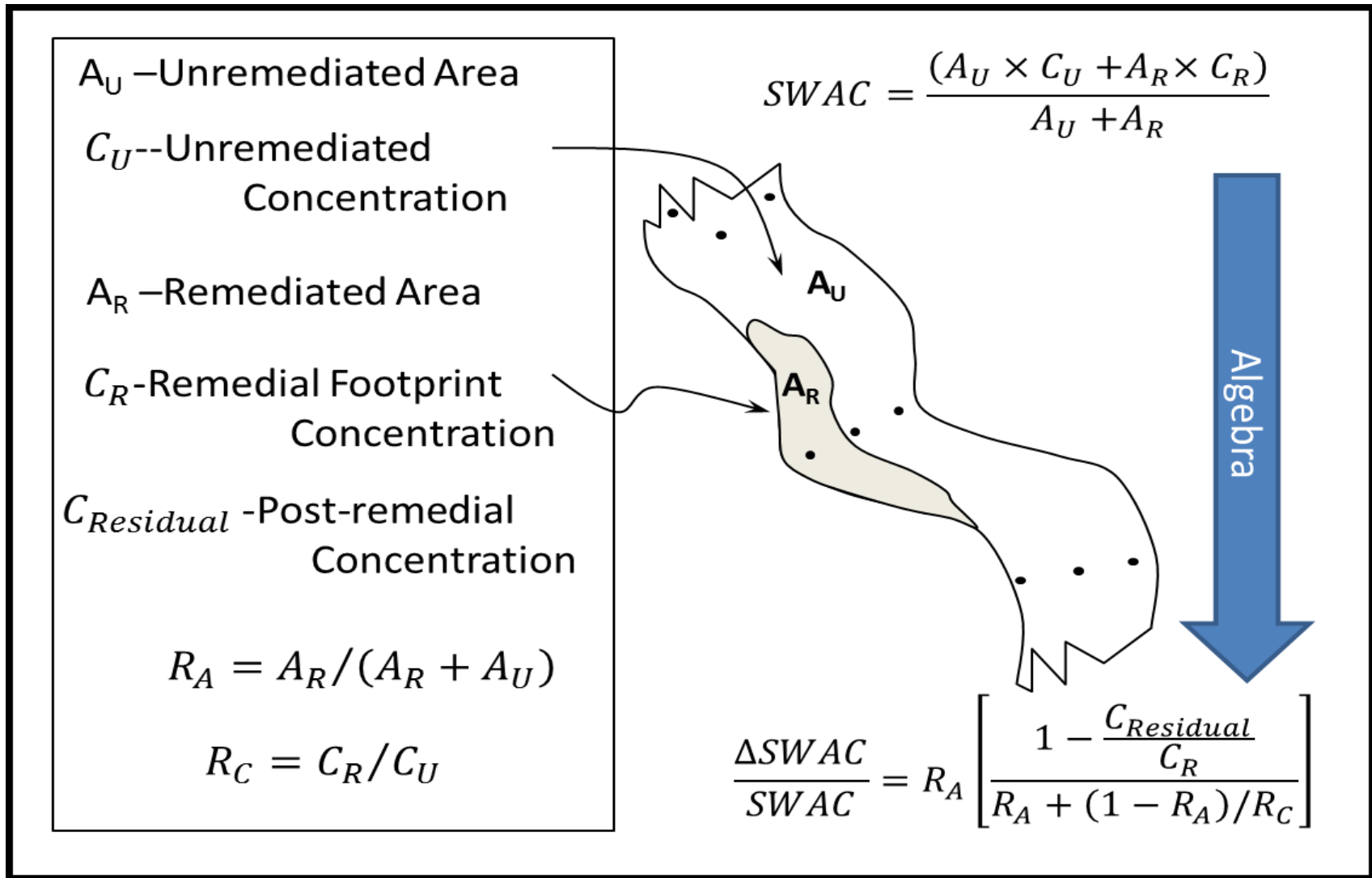


Figure I-1. Mathematical Relationships Governing Remedial Performance

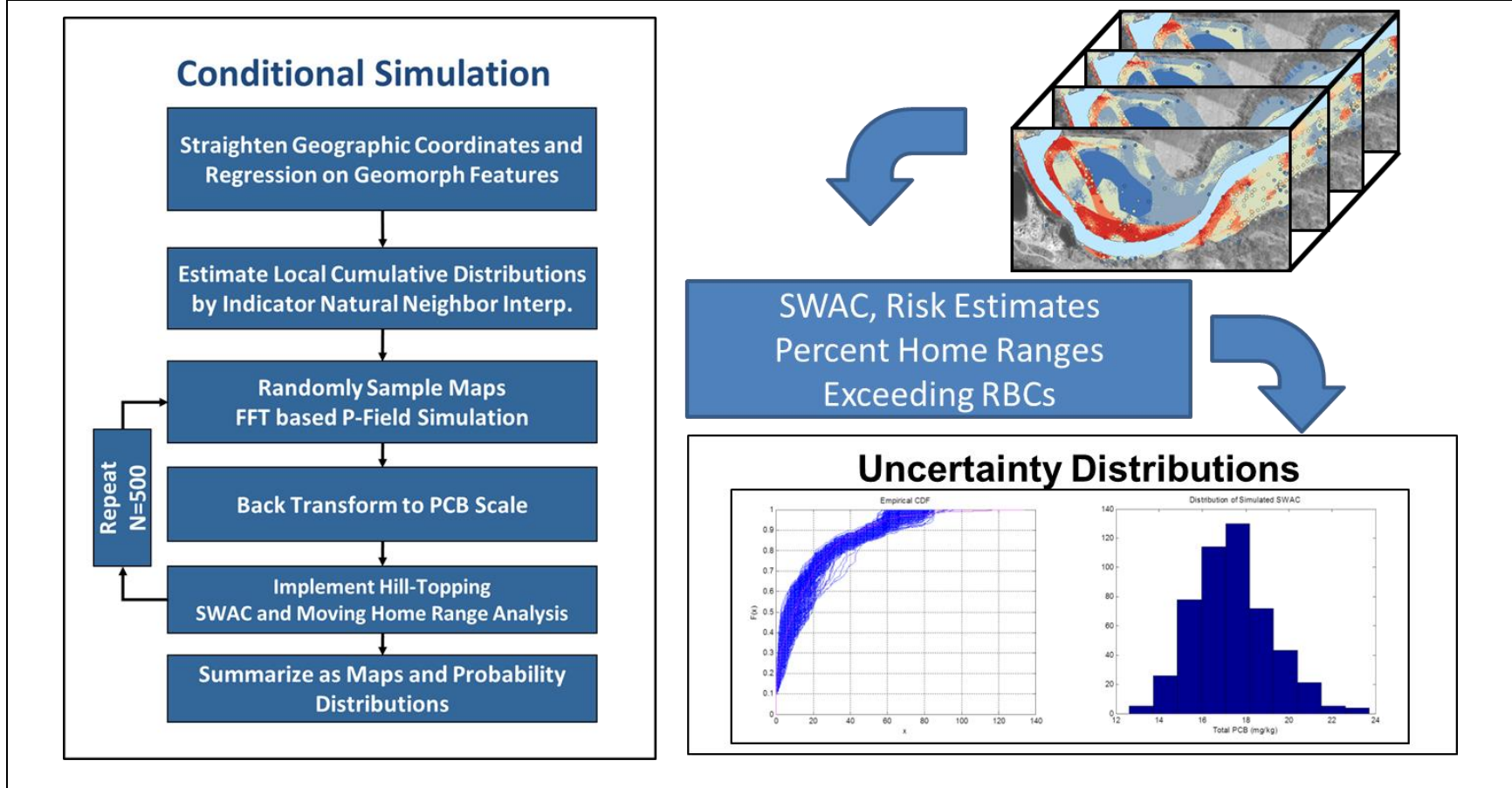


Figure I-2. Conditional Simulation Procedure

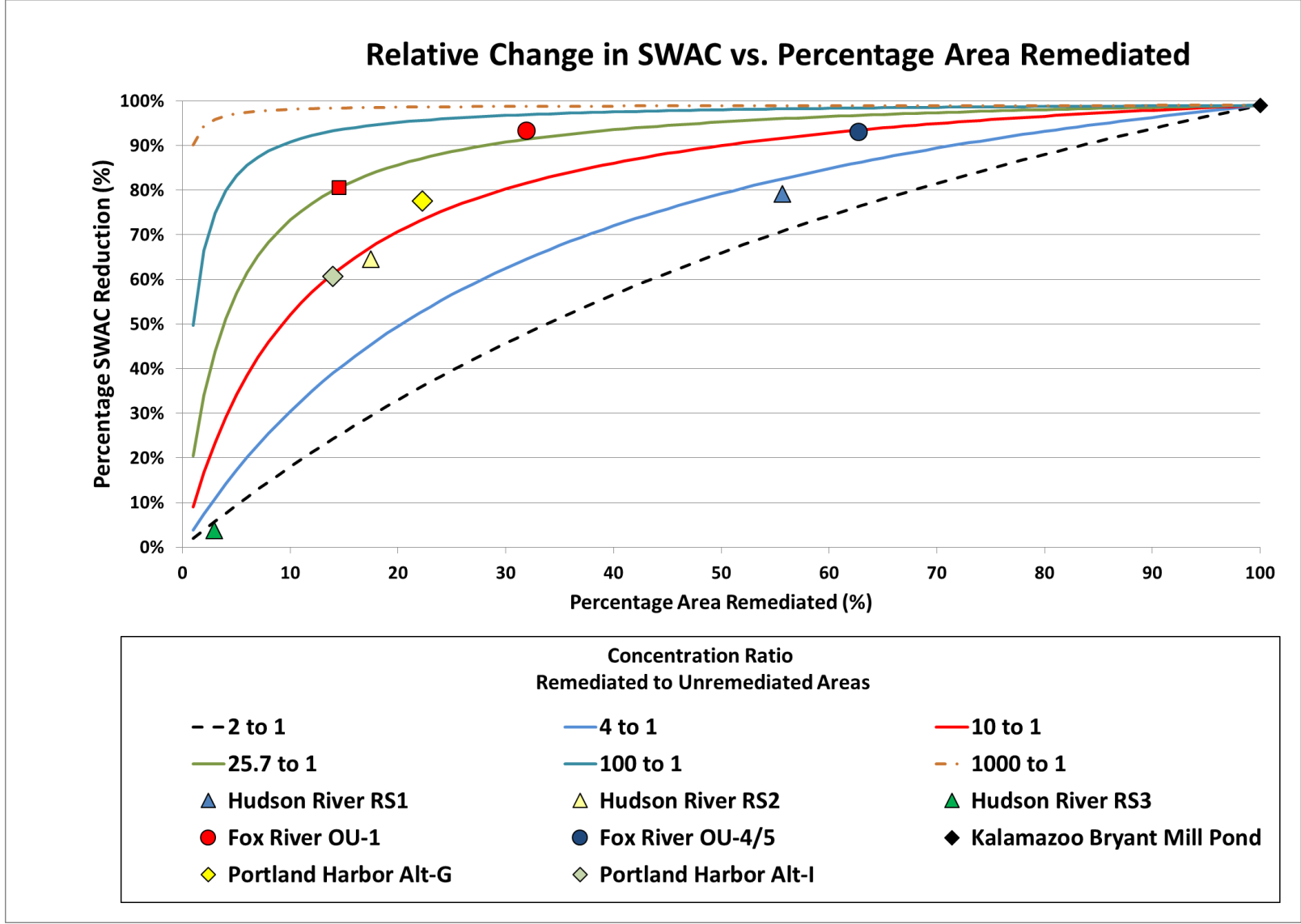


Figure I-3. Relative Change in SWAC vs Percentage Area Remediated

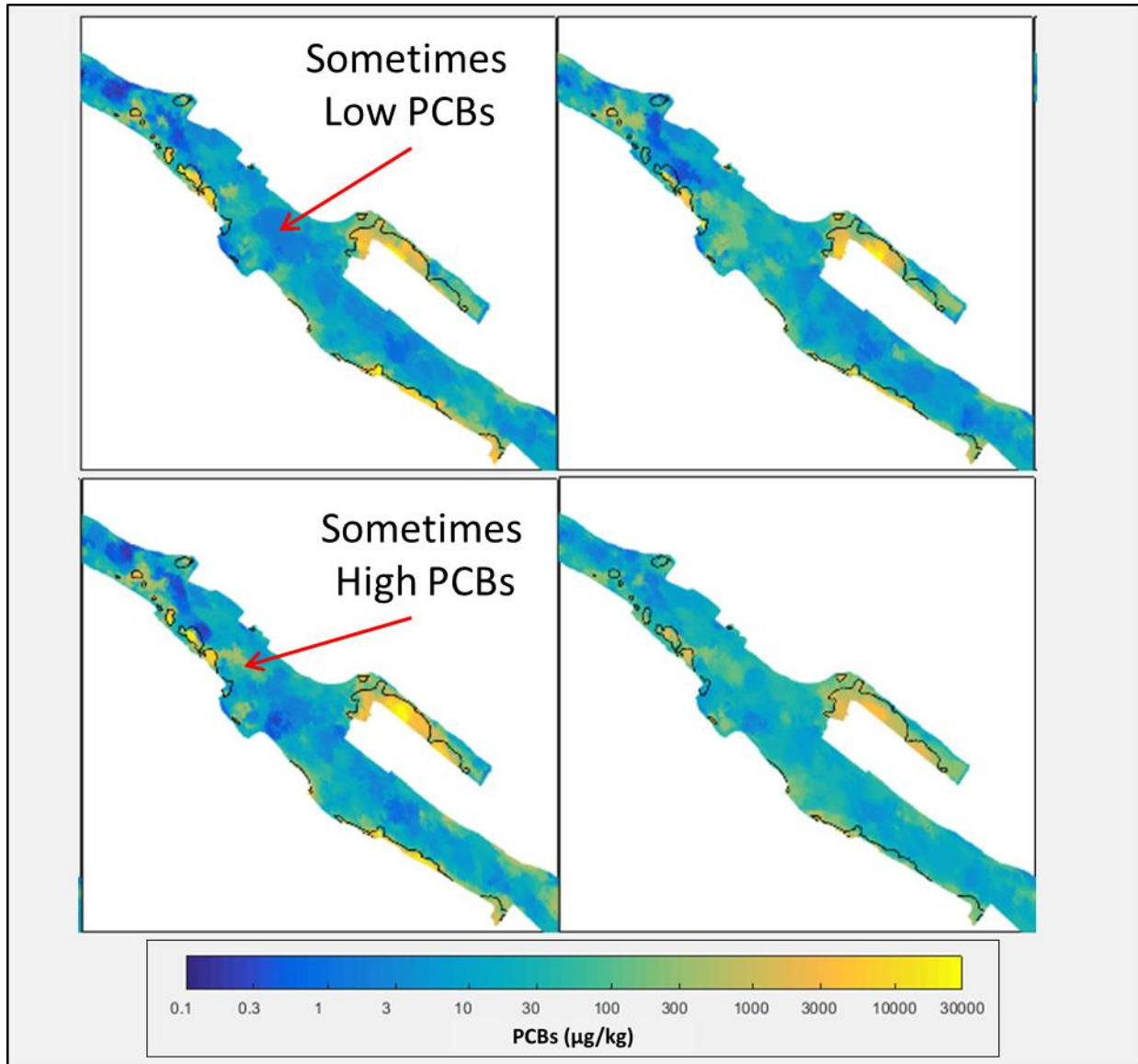


Figure I-4. Four Equally Likely Simulated Maps of PCBs

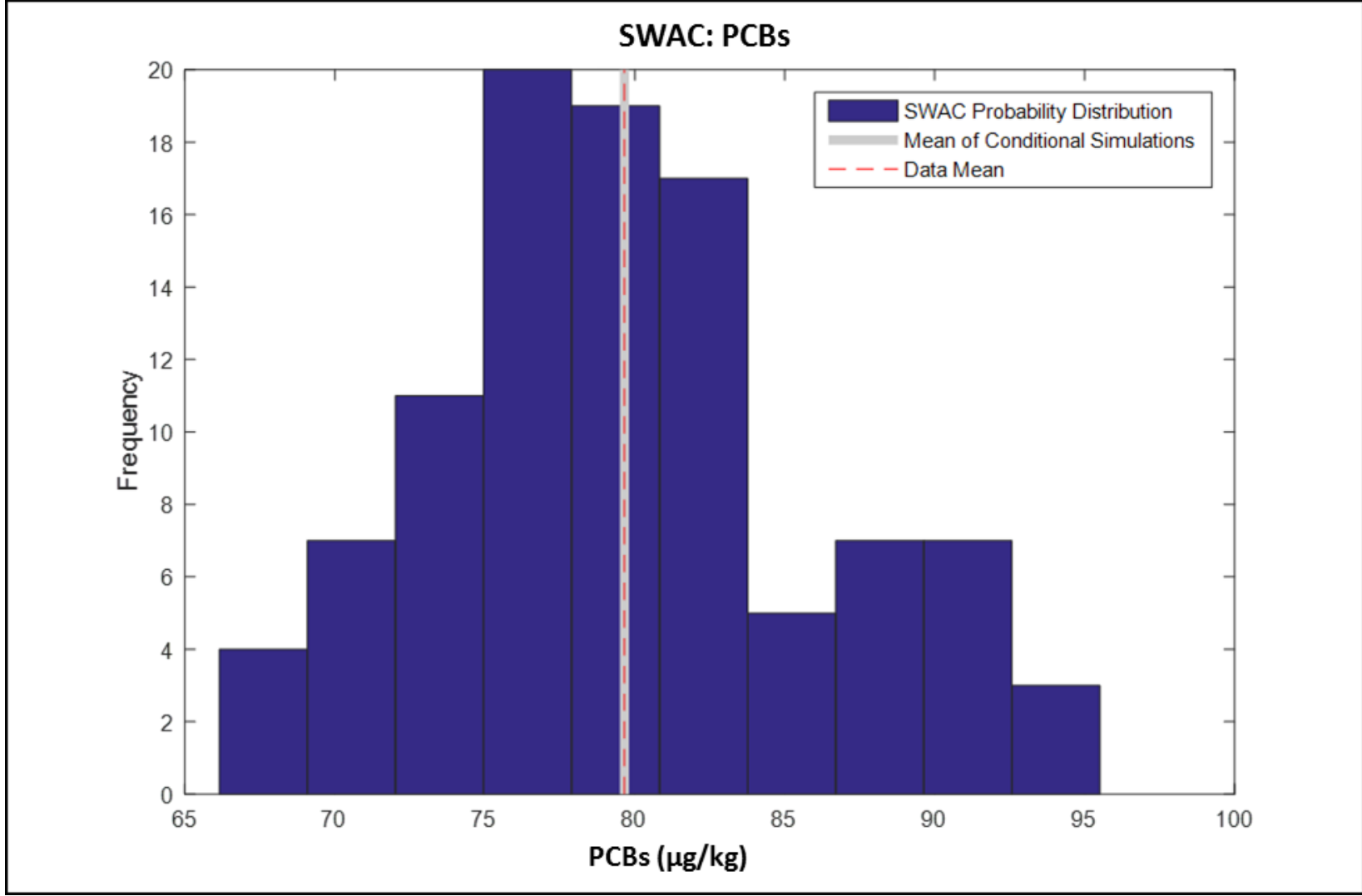


Figure I-5. Pre-Remedial SWAC - PCBs

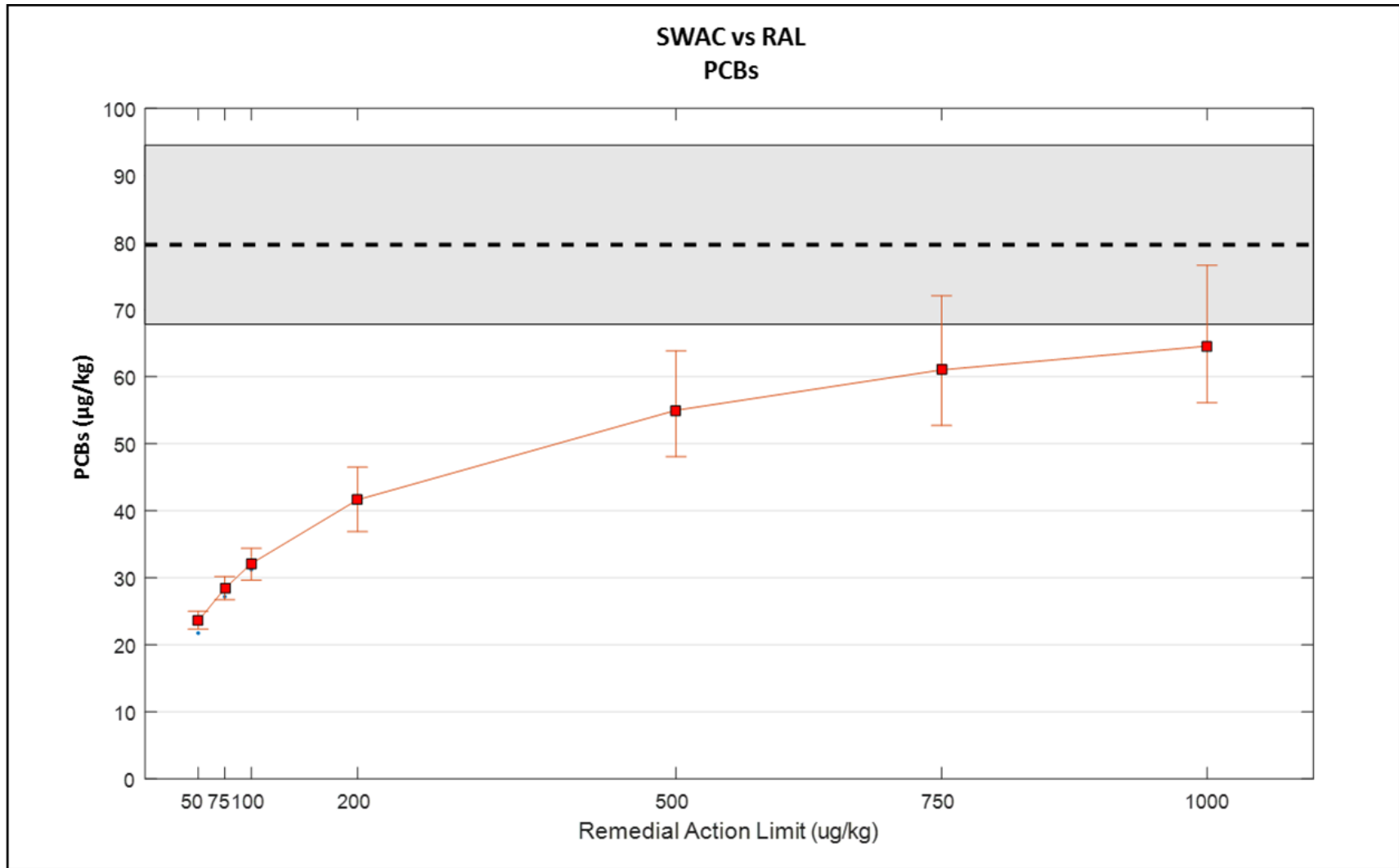


Figure I-6. Surface Weighted Average Concentration for PCBs vs. RALs



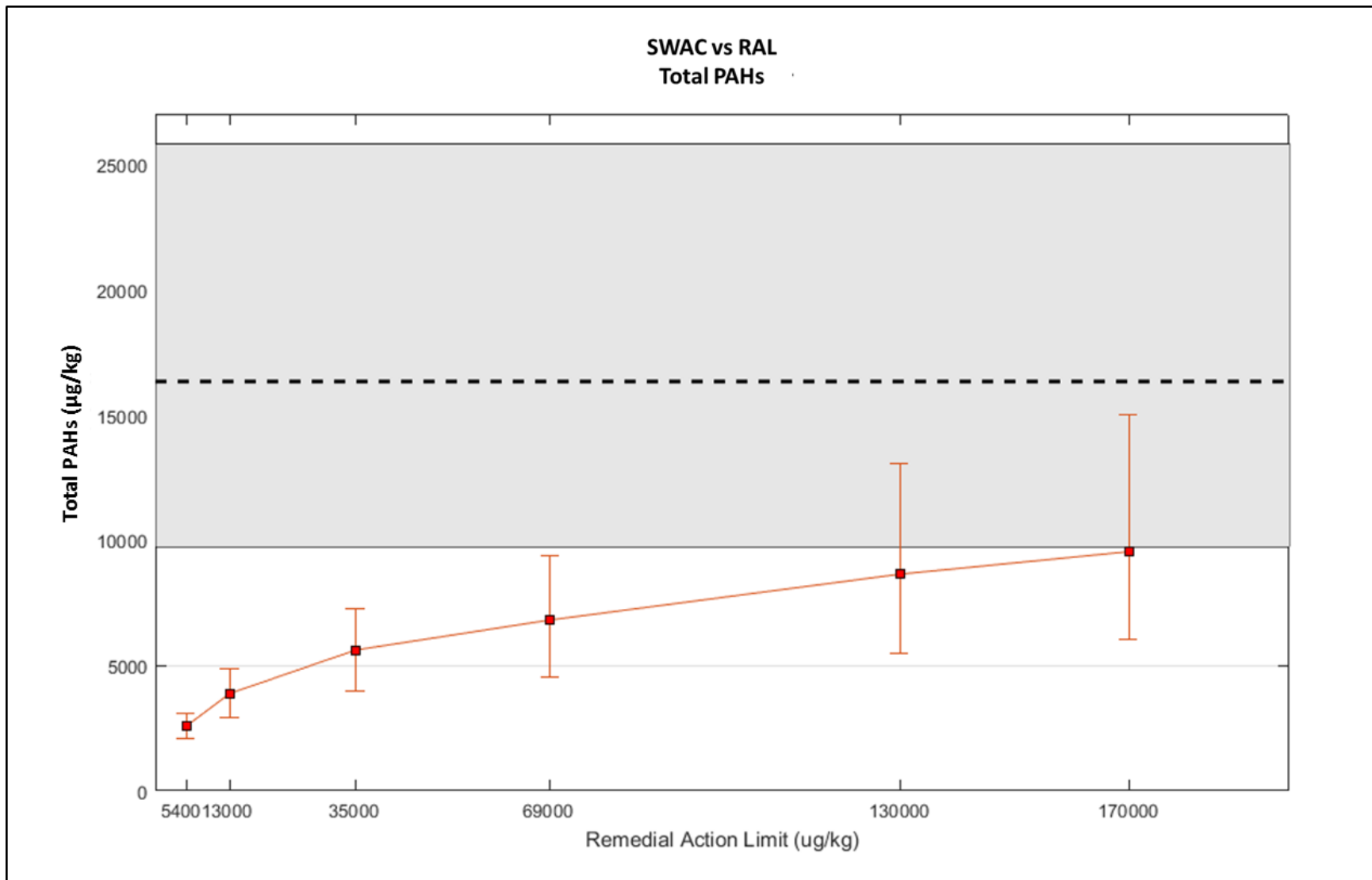


Figure I-7. Surface weighted average concentration for Total PAHs vs. RALs

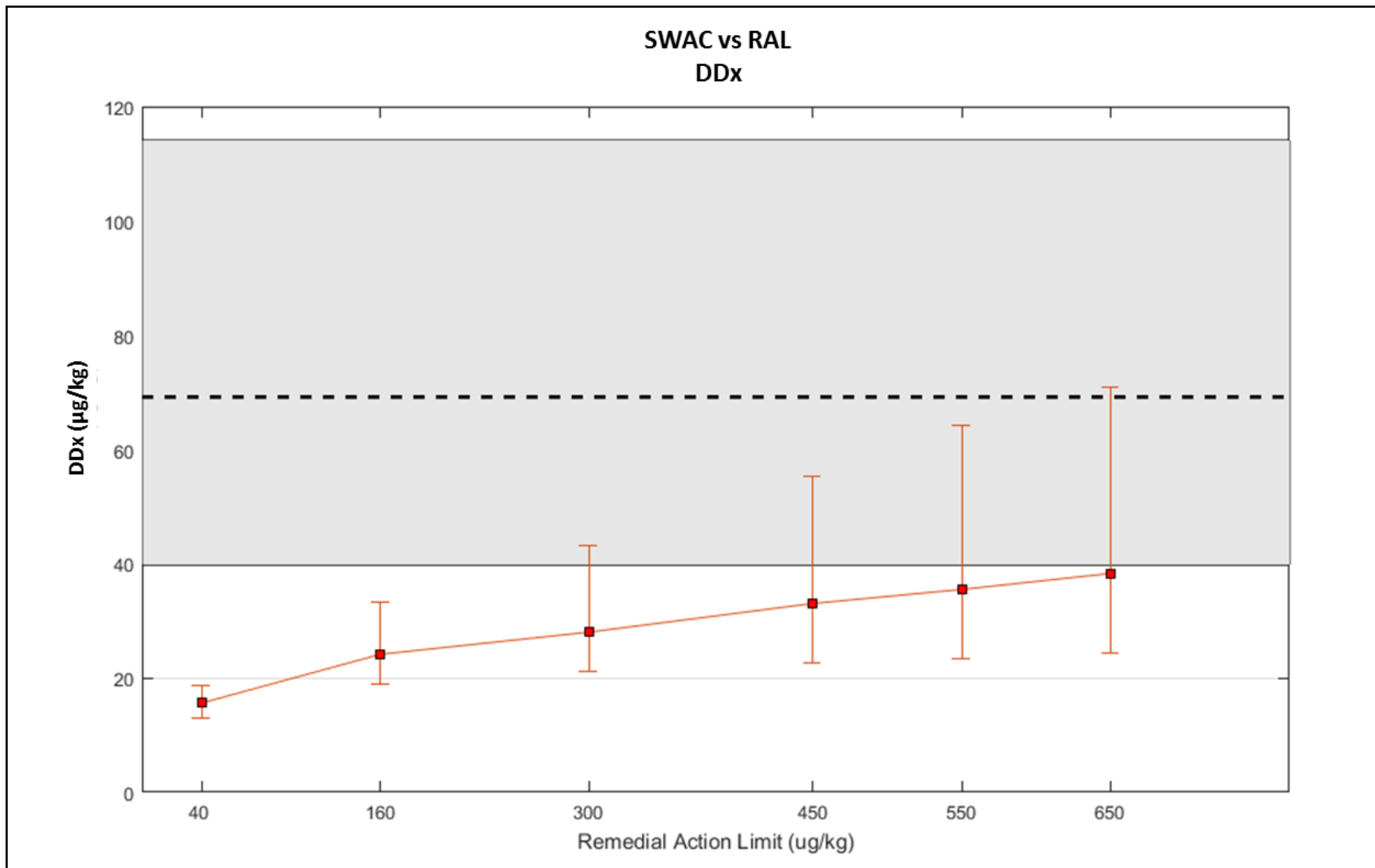


Figure I-8. Surface Weighted Average Concentration for DDX vs. RALs

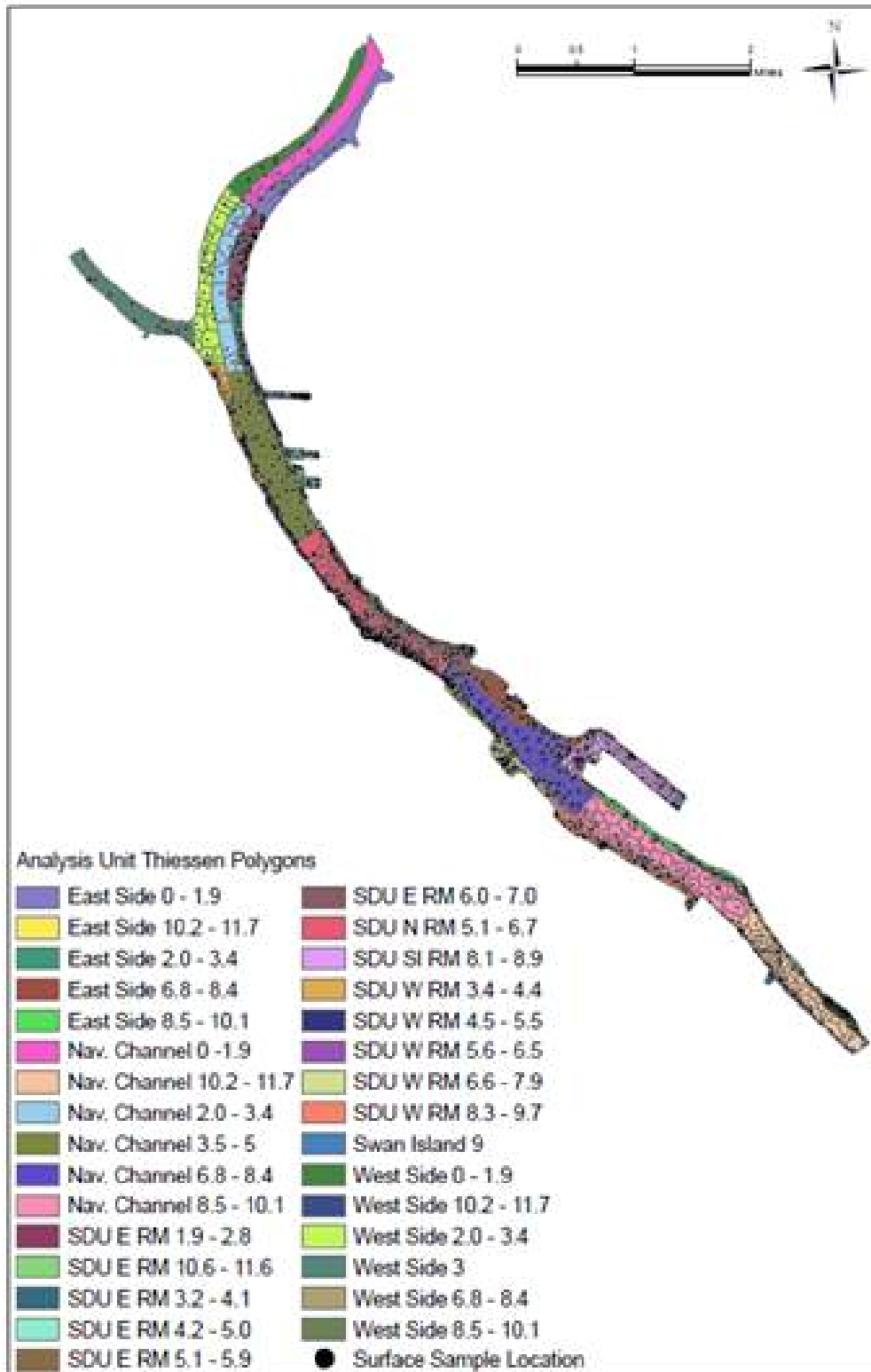


Figure I-9. SDUs and geographic areas used to develop Site-wide SWAC.